CALTRANS DISTRICT 4

I-80 ICM Project – Adaptive Ramp Metering
EA 04-3A7761

04-Ala-80-PM 2.0/8.0
04-CC-80-PM 0.0/13.5

95% PROJECT SPECIAL PROVISIONS

October 9, 2009

Kimley-Horn
and Associates, Inc.

555 12th STREET
OAKLAND, CA 94607

USE WITH 2006 STANDARDS.

Special Notice Heading. Use when there are special requirements.

****
*****

IMPORTANT SPECIAL NOTICES

****
*****

DRAFT

Used for projects that have risk advertisement pending budget
Call out number >= $25,000,000
Automatically inserted by boilerplate.

- Funding for this project is contingent upon passage of the State of California 2009/2010 Fiscal Year Budget Act. The contract will not be awarded until the Budget Act becomes law. Bidders are advised that costs incurred in preparing a bid for this project are at the bidder's sole risk, cost, and expense. The date on the "Notice to Bidders" for the opening of bids will be postponed by contract addendum as necessary to allow at least 25 days for preparation of bids after the Budget Act becomes law. The Department sends contract addenda to prospective bidders who have obtained project plans, special provisions and bid forms from the Department's Bid Document unit.

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USE WITH 2006 STANDARDS.
Used in all projects after May 1, 2009.
Automatically inserted by boilerplate.
Delete after 1 year.

- The Department has replaced Section 8, "Prosecution and Progress." This replacement affects references in a large number of other specifications. Due to the extent of affected specifications, these references will not be corrected until there is a change in technical content that merits a specification revision. Section 0, "Global Revisions," of the Amendments to the Standard Specifications covers references affected by the Section 8 replacement.

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Use in all projects. Delete after 6 months.

- See Section 5 of the special provisions for new specifications regarding retentions.

DRAFT

Used for projects that have a mandatory prebid meeting
Automatically inserted by boilerplate

- See Section 2, "Bidding," of these special provisions regarding a mandatory prebid meeting.

DRAFT

Used for informal-bid projects
Automatically inserted by boilerplate

- This is an informal-bid project. See Sections 2, 3, and 4 for special requirements.

Used for informal-bid projects with mandatory prebid site tour
Automatically inserted by boilerplate
Add information or delete if not applicable

- A mandatory prebid site tour is scheduled for ***(*****insert date and time*****)*** at ***(*****insert location*****)***. Contractors may submit written inquiries to the Department's representative during the tour.

Used for informal-bid projects when working days do not begin the day after contract award
Automatically inserted by boilerplate
Add information or delete if not applicable

- The Contractor shall begin work within ***(*****insert number of days*****)*** days after receiving notice that the contract has been approved.

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Used for projects that have a 60-day award
Used in conjunction with S3-070
Automatically inserted by boilerplate

- The contract award period has been extended for this project.

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USE WITH 2006 STANDARDS.

Use in all projects. Delete after August 21, 2009.

- The Department is implementing new contract requirements for submittal of Small Business Utilization Report forms. See section titled "Small Business Utilization Report" of these special provisions and bid item list.

DRAFT

Table of Contents

SPECIAL PROVISIONS....13
SECTION 1 (BLANK)....13
SECTION 0 GLOBAL REVISIONS....14
SECTION 8 PROSECUTION AND PROGRESS....119
8-1.05A General....122
8-1.07A General....124
8-1.09A General....125
8-1.10A General....127
Payment is made as specified in Section 9-1.07B, "Final Payment and Claims."....127
SECTION 2 BIDDING....285
2.1-01 MANDATORY PREBID MEETING....286
2-1.__ DVBE INFORMATION SUBMITTAL FOR INFORMAL-BID PROJECTS....287
SECTION 3 CONTRACT AWARD AND EXECUTION....288
3-1.01 CONTRACT AWARD....289
SECTION 4. BEGINNING OF WORK, TIME OF COMPLETION, AND LIQUIDATED DAMAGES....290
5-1.__ FORCE ACCOUNT PAYMENT....294
5-1.__ COMPENSATION ADJUSTMENTS FOR PRICE INDEX FLUCTUATIONS....296
5-1.__ PAYMENTS....307
5-1.__ RELATIONS WITH CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD....310
5-1.__ AERIALLY DEPOSITED LEAD....313
5-1.__ ENVIRONMENTALLY SENSITIVE AREA....315
5-1.__ DAMAGE REPAIR....317
SECTION 5 GENERAL....319
5-1.__ RETENTION EXCLUSION....320
5-1.14 SOUND CONTROL REQUIREMENT....322
SECTION 6. (BLANK)....325
SECTION 7. (BLANK)....325
SECTION 8. MATERIALS....325
SECTION 8-1. MISCELLANEOUS....325
8-1.__ PREQUALIFIED AND TESTED SIGNING AND DELINEATION MATERIALS....326
8-1.__ STATE-FURNISHED MATERIALS....336
SECTION 8-2. CONCRETE....339
8-2.__ PORTLAND CEMENT CONCRETE....340
SECTION 8-3. WELDING....347
8-3.__ WELDING....348
GENERAL....348
WELDING QUALITY CONTROL....352

DRAFT

WELDING FOR OVERHEAD SIGN AND POLE STRUCTURES 358
SECTION 9. DESCRIPTION OF BRIDGE WORK 362
SECTION 10. CONSTRUCTION DETAILS 362
SECTION 10-1. GENERAL 362
10-1.00 CONSTRUCTION PROJECT INFORMATION SIGNS 363
10-1.01 ORDER OF WORK 366
10-1.___ WATER POLLUTION CONTROL 385
10-1.__ CONSTRUCTION SITE MANAGEMENT 400
10-1.__ TEMPORARY EROSION CONTROL 420
MEASUREMENT AND PAYMENT 422
10-1.__ STREET SWEEPING 430
GENERAL 430
CONSTRUCTION 431
MEASUREMENT AND PAYMENT 432
10-1.__ TEMPORARY CONCRETE WASHOUT FACILITY 433
10-1.__ TEMPORARY CONCRETE WASHOUT (PORTABLE) 439
10-1.__ TEMPORARY FIBER ROLL 450
10-1.__ TEMPORARY SILT FENCE 455
10-1.__ TEMPORARY FENCE (TYPE ESA) 460
10-1.__ TEMPORARY CONSTRUCTION ENTRANCE 464
10-1.__ TEMPORARY DRAINAGE INLET PROTECTION 470
10-1.__ COOPERATION 488
10-1.__ PROGRESS SCHEDULE (CRITICAL PATH METHOD) 489
10-1.__ TIME-RELATED OVERHEAD 498
10-1.__ SMALL BUSINESS UTILIZATION REPORT 504
10-1.__ CONSTRUCTION AREA TRAFFIC CONTROL DEVICES 506
10-1.__ CONSTRUCTION AREA SIGNS 509
10-1.__ MAINTAINING TRAFFIC 512
10-1.__ CLOSURE REQUIREMENTS AND CONDITIONS 570
10-1.__ TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE 573
10-1.__ TRAFFIC CONTROL SYSTEM FOR RAMP CLOSURES 576
10-1.__ TEMPORARY PAVEMENT DELINEATION 578
10-1.__ PORTABLE CHANGEABLE MESSAGE SIGNS 584
10-1.__ TRAFFIC PLASTIC DRUMS 587
10-1.__ TEMPORARY CRASH CUSHION MODULE 589
10-1.__TREATED WOOD WASTE 592
10-1.__ EXISTING HIGHWAY FACILITIES 595
REMOVE METAL BEAM GUARD RAILING AND REMOVE TERMINAL SECTION 595
REMOVE PAVEMENT MARKER 596
REMOVE TRAFFIC STRIPE AND PAVEMENT MARKING 597
REMOVE DRAINAGE FACILITY 598
RELOCATE ROADSIDE SIGN 600
REMOVE BASE AND SURFACING 600
EXISTING HIGHWAY IRRIGATION FACILITIES 602
10-1.__ CLEARING AND GRUBBING 604

DRAFT

10-1.__ WATERING 605
10-1.__ EARTHWORK 606
10-1.__ MATERIAL CONTAINING AERIALLY DEPOSITED LEAD 612
10-1.__ EROSION CONTROL (NETTING) 622
10-1.__ MOVE-IN/MOVE-OUT (EROSION CONTROL) 624
10-1.__ EROSION CONTROL (TYPE D) 626
10-1.__ FIBER ROLLS 634
10-1.__ EXTEND IRRIGATION CROSSOVERS 637
10-1.__ AGGREGATE SUBBASE 639
10-1.__ AGGREGATE BASE 641
10-1.__ HOT MIX ASPHALT 643
10-1.__ HOT MIX ASPHALT (MISCELLANEOUS AREAS) 650
10-1.__ PILING 652
CAST-IN-DRILLED-HOLE CONCRETE PILES 655
10-1.__ ROADSIDE SIGNS 678
10-1.__ REINFORCED CONCRETE PIPE 679
10-1.__ MISCELLANEOUS IRON AND STEEL 687
10-1.__ MARKERS AND DELINEATORS 688
10-1.__ METAL BEAM GUARD RAILING 689
ALTERNATIVE FLARED TERMINAL SYSTEM 691
10-1.__ TRANSITION RAILING (TYPE WB) 693
10-1.__ CRASH CUSHION, SAND FILLED 694
10-1.__ VEGETATION CONTROL (SEAMLESS ASPHALT COMPOSITE) 696
10-1.__ THERMOPLASTIC TRAFFIC STRIPE AND PAVEMENT MARKING 704
10-1.__ PAVEMENT MARKERS 707
SECTION 10-2 HIGHWAY PLANTING AND IRRIGATION SYSTEMS 709
10-2.01 GENERAL 709
PROGRESS INSPECTIONS 710
COST BREAK-DOWN 711
10-2.02 EXISTING HIGHWAY PLANTING 715
10-2.03 EXISTING HIGHWAY IRRIGATION FACILITIES 718
LOCATE EXISTING CROSSOVERS AND CONDUITS 718
CHECK AND TEST EXISTING IRRIGATION FACILITIES 719
MAINTAIN EXISTING IRRIGATION FACILITIES 720
10-2.04 HIGHWAY PLANTING 722
HIGHWAY PLANTING MATERIALS 722
PREPARING PLANTING AREAS 722
PLANTING 722
PREPARE TRENCH 723
CULTIVATE 724
PLANT ESTABLISHMENT WORK 725
10-2.05 IRRIGATION SYSTEMS 729
ELECTRIC AUTOMATIC IRRIGATION COMPONENTS 730
PIPE 731
GATE VALVES 732

DRAFT

VALVE BOXES....733
THRUST BLOCK....734
SPRINKLERS....734
FINAL IRRIGATION SYSTEM CHECK....734
COST BREAK-DOWN....735
WILD FLOWER SEEDING....739
SECTION 10-3. SIGNALS, LIGHTING AND ELECTRICAL SYSTEMS....744
10-3.01 DESCRIPTION....744
10-3.__ COST BREAK-DOWN....746
10-3.__ EQUIPMENT LIST AND DRAWINGS....747
10-3.__ MAINTAINING EXISTING TRAFFIC MANAGEMENT SYSTEM ELEMENTS DURING CONSTRUCTION....748
10-3.__ CAST-IN-DRILLED-HOLE CONCRETE PILE FOUNDATIONS....751
10-3.__ STANDARDS, STEEL PEDESTALS, AND POSTS....752
10-3.__ CONDUIT....753
10-3.__ PULL BOXES....754
10-3.__ CONDUCTORS AND WIRING....755
10-3.__ SERVICE....755
10-3.__ NUMBERING ELECTRICAL EQUIPMENT....756
10-3.__ STATE-FURNISHED CONTROLLER ASSEMBLIES....757
10-3.__ LIGHT EMITTING DIODE SIGNAL MODULE....758
10-3.__ DETECTORS....766
10-3.__ MODEL 334 CONTROLLER CABINETS....767
10-3.__ Long Lead-in cable Loop Detector (LLLD) Sensor Unit....768
10-3.__ GENERAL PACKET RADIO SYSTEM WIRELESS MODEM ASSEMBLY....769
POWER SUPPLY....774
MODEM MOUNTING BRACKET AND HARDWARE....775
D SERIAL COMMUNICATION CABLE....775
ANTENNA....776
10-3.__ VARIABLE MESSAGE SIGN (VMS) ASSEMBLY....776
10-3.__ VARIABLE MESSAGE SIGN (VMS) CONTROL CABLE....781
10-3.__ REMOVING, REINSTALLING OR SALVAGING ELECTRICAL EQUIPMENT....782
10-3.__ PAYMENT....783

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This SSP is hard-coded in the boilerplate

SPECIAL PROVISIONS

SECTION 1 (BLANK)

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USE WITH 2006 STANDARDS.
Use in all projects. (Inserted by boilerplate by DES-OE.)

AMENDMENTS ISSUE DATE: 05-01-09

SECTION 0 GLOBAL REVISIONS
(Issued 05-01-09)

Global revisions are changes to contract documents not specific to a section of the Standard Specifications.

In each contract document at each occurrence, interpret the following terms as shown:

Term	Interpretation	Conditions
AC	HMA	1. Where AC means asphalt concrete 2. Except where existing AC is described
Asphalt concrete	Hot mix asphalt	Except where existing asphalt concrete is described
Controlling operation	Controlling activity	--
Engineer's Estimate	Verified Bid Item List	--
Engineering fabrics	Geosynthetics	--
Notice to Contractors	Notice to Bidders	--
Project information	Supplemental project information	Except in "Contract Project Information Signs"
Clause referring to a delay as a right-of-way delay	Delay under Section 8-1.09, "Delays"	--
Reference to a working day or non–working day under Section 8-1.06, "Time of Completion"	Working day as defined in Section 1-4.02, "Glossary"	--
Time extension due to an unanticipated event not caused by either party or an issue involving a third party under Section 8-1.07, "Liquidated Damages"	Non–working day	--
Time extension due to an act of the Engineer or of the Department not contemplated by the contract	Time adjustment under Section 8-1.09B, "Time Adjustments"	--

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SECTION 1 DEFINITIONS AND TERMS
(Issued 05-01-09)

Replace Section 1 with:

SECTION 1 GENERAL

1-1 GENERAL

1-1.01 GENERAL

Section 1 includes general rules of interpretation.

The Department is gradually standardizing the style and language of the specifications. The new style and language includes:

1. Use of:

    1.1. Imperative mood
    1.2. Introductory modifiers
    1.3. Conditional clauses

2. Elimination of:

    2.1. Language variations
    2.2. Definitions for industry-standard terms
    2.3. Redundant specifications
    2.4. Needless cross-references

The use of this new style does not change the meaning of a specification not yet using this style.

Sections 1 through 9 include general specifications applicable to every contract unless specified as applicable under certain conditions.

The specifications are written to the Bidder before award and the Contractor after. Before award, interpret sentences written in the imperative mood as starting with "The Bidder must" and interpret "you" as "the Bidder" and "your" as "the Bidder's." After award, interpret sentences written in the imperative mood as starting with "The Contractor must" and interpret "you" as "the Contractor" and "your" as "the Contractor's."

Omission of "a," "an," and "the" is intentional. These articles have been omitted in some specifications for streamlining purposes.

Unless an object or activity is specified to be less than the total, the quantity or amount is all of the object or activity.

A plural term includes the singular.

All items in a list apply unless the items are specified as choices.

Headings are included for the purposes of organization and referencing. Inclusion of a heading with no related content, "Reserved," or "Not Used" does not indicate that no specification exists for that subject; applicable specifications may be covered in a general or referenced specification.

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1-2 REFERENCES

1-2.01 REFERENCES

Where Standard Specifications refer to the special provisions to describe the work, interpret the reference as a reference to the Bid Item List, the special provisions, or both.

Interpret a reference to a section of the Standard Specifications as a reference to the Standard Specifications as revised by any amendment, special provision, or both.

A reference within parentheses to a law or regulation is included in the contract for convenience only and is not a comprehensive listing of related laws and regulations. Lack of a reference does not indicate no related laws or regulations exist.

Where the version of a referenced document is not specified, use the current version in effect on the date of Notice to Bidders.

A reference to a subsection includes the section's general specifications of which the subsection is a part.

A code not specified as a Federal code is a California code.

1-3 ABBREVIATIONS AND MEASUREMENT UNITS

1-3.01 ABBREVIATIONS

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Abbreviations

Abbreviation	Meaning
AAN	American Association of Nurserymen
AASHTO	American Association of State Highway and Transportation Officials
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AMA	archaeological monitoring area
ANSI	American National Standards Institute
APHA	American Public Health Association
API	American Petroleum Institute
AREMA	American Railway Engineering and Maintenance-of-Way Association
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWG	American Wire Gage
AWPA	American Wood-Preservers' Association
AWS	American Welding Society
AWWA	American Water Works Association
CIH	Certified Industrial Hygienist
DBE	Disadvantaged Business Enterprise
DVBE	Disabled Veteran Business Enterprise
EIA	Electronic Industries Alliance
ESA	environmentally sensitive area
ETL	Electrical Testing Laboratories
FHWA	Federal Highway Administration
IEEE	Institute of Electrical and Electronics Engineers
NETA	National Electrical Testing Association, Inc.
NEMA	National Electrical Manufacturers Association
PLAC	permit, license, agreement, certification, or any combination of these
SSPC	The Society for Protective Coatings
UL	Underwriters' Laboratories Inc.

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1-3.02 MEASUREMENT UNITS

Measurement Units

Symbols as used in the specifications	Symbols as used in the Bid Item List	Meaning
A	—	amperes
	ACRE	acre
	CF	cubic foot
	CY	cubic yard
--	EA	each
g	--	gram
ksi	--	kips per square inch
	GAL	gallon
h	H	hour
	LB	pound
--	LS	lump sum
	LF	linear foot
	LNMI	lane mile
	MFBM	thousand foot board measure
	MI	mile
	MSYD	thousand station yard
Ω	--	ohm
pcf	--	pounds per cubic foot
s	--	second
	STA	100 feet
	SQFT	square foot
	SQYD	square yard
	TAB	tablet
ton	TON	2,000 pounds
V	--	volt
W	--	watt
--	WDAY	working day

1-4 DEFINITIONS

1-4.01 GENERAL

Interpret terms as defined in the contract documents. A construction-industry term not defined in the contract documents has the meaning defined in Means Illustrated Construction Dictionary, Condensed Version, Second Edition.

1-4.02 GLOSSARY

aerially deposited lead: Lead primarily from vehicle emissions deposited within unpaved areas or formerly unpaved areas.

archaeological monitoring area: Area within, near, or straddling the project limits where access is allowed, but work is subject to archaeological monitoring.

archaeological resources: Remains of past human activity, including historic and prehistoric material (e.g., tools and tool fragments, hearth and food remains, structural remains, and human remains).

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acceptance: Formal written acceptance by the Director of an entire contract that has been completed in all respects in accordance with the plans and specifications and any modifications to them previously approved.

base: Layer of specified material of planned thickness placed immediately below the pavement or surfacing.

basement material: Material in excavation or embankments underlying the lowest layer of subbase, base, pavement, surfacing, or other specified layer to be placed.

bid item: Specific work unit for which the bidder provides a price.

Bid Item List: List of bid items and the associated quantities.

Bid Item List, verified: Bid Item List with verified prices. The Contract Proposal of Low Bidder at the Department's Web site is the verified Bid Item List.

bridge: Structure, with a bridge number, that carries a utility facility, or railroad, highway, pedestrian or other traffic, over a water course or over or under or around any obstruction.

building-construction contract: Contract that has "building construction" on the cover of the Notice to Bidders and Special Provisions.

business day: Day on the calendar except Saturday or holiday.

California Manual on Uniform Traffic Control Devices: The California Manual on Uniform Traffic Control Devices for Streets and Highways (California MUTCD) is issued by the Department of Transportation and is the Federal Highway Administration's MUTCD 2003 Edition, as amended for use in California.

Certified Industrial Hygienist: Industrial hygienist certified in comprehensive practice by the American Board of Industrial Hygiene.

conduit: Pipe or tube in which smaller pipes, tubes, or electrical conductors are inserted or are to be inserted.

contract: Written and executed contract between the Department and the Contractor.

contract bonds: Security for the payment of workers and suppliers furnishing materials, labor, and services and for guaranteeing the Contractor's work performance.

contract item: Bid item.

Contractor: Person or business or its legal representative entering into a contract with the Department for performance of the work.

culvert: Structure, other than a bridge, that provides an opening under a roadway for drainage or other purposes.

day: 24 consecutive hours running from midnight to midnight; calendar day.

deduction: Amount of money permanently taken from progress payment and final payment. Deductions are not retentions under Pub Cont Code § 7107.

Department: Department of Transportation as defined in St & Hwy Code § 20 and authorized in St & Hwy Code § 90; its authorized representatives.

detour: Temporary route for traffic around a closed road part. A passageway through a job site is not a detour.

Director: Department's Director.

Disabled Veteran Business Enterprise: Business certified as a DVBE by the Office of Small Business and DVBE Services, Department of General Services.

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divided highway: Highway with separated traveled ways for traffic, generally in opposite directions.

Engineer: Department's Chief Engineer acting either directly or through properly authorized agents; the agents acting within the scope of the particular duties delegated to them.

environmentally sensitive area: Area within, near, or straddling the project limits where access is prohibited or limited to protect environmental resources.

Federal-aid contract: Contract that has a Federal-aid project number on the cover of the Notice to Bidders and Special Provisions.

fixed costs: Labor, material, or equipment cost directly incurred by the Contractor as a result of performing or supplying a particular bid item that remains constant regardless of the item's quantity.

frontage road: Local street or road auxiliary to and located generally on the side of an arterial highway for service to abutting property and adjacent areas and for control of access.

grading plane: Basement material surface on which the lowest layer of subbase, base, pavement, surfacing, or other specified layer is placed.

highway: Whole right of way or area that is reserved for and secured for use in constructing the roadway and its appurtenances.

holiday:

KC 9-25-2009**

1. Every Sunday
2. January 1st, New Year's Day
~~3. 3rd Monday in January, Birthday of Martin Luther King, Jr.~~
~~4. February 12th, Lincoln's Birthday~~

2~~3~~. 3rd Monday in February, Washington's Birthday
3~~4~~. March 31st, Cesar Chavez Day
4~~5~~. Last Monday in May, Memorial Day
56. July 4th, Independence Day
6~~7~~. 1st Monday in September, Labor Day
~~10. 2nd Monday in October, Columbus Day~~
7~~8~~. November 11th, Veterans Day
8~~9~~. 4th Thursday in November, Thanksgiving Day
9~~10~~. Day after Thanksgiving Day
10~~11~~. December 25th, Christmas Day

special days:

1. Birthday of Martin Luther King, Jr. (3rd Monday in January)
2. Cesar Chavez Day (March 31st)

If January 1st, February 12th, March 31st, July 4th, November 11th, or December 25th falls on a Sunday, the Monday following is a holiday. If November 11th falls on a Saturday, the preceding Friday is a holiday. Interpret "legal holiday" as "holiday."

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informal-bid contract: Contract that has "Informal Bid Authorized by Pub Cont Code §10122" on the cover of the Notice to Bidders and Special Provisions.

Information Handout: Supplemental project information furnished to bidders as a handout.

laboratory: Laboratory authorized by the Department to test materials.

liquidated damages: Amount prescribed in the specifications, pursuant to the authority of Pub Cont Code § 10226, to be paid to the State or to be deducted for each day's delay in completing the whole or any specified portion of the work beyond the time allowed in the specifications.

material shortage: Shortage of raw or produced material that is area-wide and caused by an unusual market condition, except if any of the following occurs:

1. Shortage relates to a produced, nonstandard material
2. Supplier's and the Contractor's priority for filling an order differs
3. Event outside the U.S. for a material produced outside the U.S.

median: Portion of a divided highway separating the traveled ways for traffic in opposite directions including inside shoulders.

Notice to Bidders: Document that provides a general work description, bidder and bid specifications, and the time and location the Department receives bids.

paleontological resources: Fossils and the deposits they are found in. Fossils are evidence of ancient life preserved in sediments and rock. Examples of paleontological resources are remains of (1) animals, (2) animal tracks, (3) plants, and (4) other organisms. Archaeological resources are not paleontological and fossils found within an archaeological resource are generally considered archaeological resources, not paleontological resources.

pavement: Uppermost layer of material placed on the traveled way or shoulders. This term is used interchangeably with surfacing.

plans: Official project plans and Standard Plans, profiles, typical cross sections, working drawings and supplemental drawings, or reproductions thereof, approved by the Engineer, which show the location, character, dimensions and details of the work to be performed. These documents are to be considered as a part of the plans.

In the above definition, the following terms are defined as follows:

Standard Plans: Standard Plans issued by the Department.

project plans: Specific details and dimensions peculiar to the work supplemented by the Standard Plans insofar as the same may apply.

roadbed: Area between the intersection of the upper surface of the roadway and the side slopes or curb lines. The roadbed rises in elevation as each increment or layer of subbase, base, surfacing or pavement is placed. Where the medians are so wide as to include areas of undisturbed land, a divided highway is considered as including 2 separate roadbeds.

roadway: Highway portion included between the outside lines of sidewalks, or curbs, slopes, ditches, channels, waterways, and including all the appertaining structures, and other features necessary to proper drainage and protection.

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shoulder: Roadway portion contiguous with the traveled way for accommodation of stopped vehicles, for emergency use, and for lateral support of base and surface courses.

special provisions: Specific clauses setting forth conditions or requirements peculiar to the work and supplementary to these Standard Specifications. The Department's publication titled "Labor Surcharge And Equipment Rental Rates" is part of the special provisions.

specifications: Directions, provisions, and requirements contained in these Standard Specifications, Amendments to the Standard Specifications, and the special provisions. Where the term "these specifications" or "these Standard Specifications" is used in this book, it means the provisions set forth in this book.

State: State of California, including its agencies, departments, or divisions, whose conduct or action is related to the work.

Structure Design: Offices of Structure Design of the Department.

subbase: Layer of specified material of planned thickness between a base and the basement material.

subgrade: Roadbed portion on which pavement, surfacing, base, subbase, or a layer of any other material is placed.

substructure: Bridge portions below the bridge seats, tops of piers, haunches of rigid frames, or below the spring lines of arches. Backwalls and parapets of abutments and wingwalls of bridges are portions of the substructure.

superstructure: Bridge portion except the bridge substructure.

supplemental project information: Information relevant to the project, specified as supplemental project information, and made available to bidders.

surfacing: Uppermost layer of material placed on the traveled way, or shoulders. This term is used interchangeably with pavement.

traffic lane: Portion of a traveled way for the movement of a single line of vehicles.

traveled way: Portion of the roadway for the movement of vehicles, exclusive of shoulders.

total bid: Sum of the item totals as verified by the Department; original contract price.

withhold: Money temporarily or permanently taken from progress payment. Withholds are not retentions under Pub Cont Code § 7107.

work: All the work specified, indicated, shown or contemplated in the contract to construct the improvement, including all alterations, amendments, or extensions to it made by contract change order or other written orders of the Engineer.

working day: Time measure unit for work progress. A working day is any day except:

1. Saturdays and holidays
2. A day when you cannot perform work on the controlling activity for at least 50 percent of the day with at least 50 percent of the normal labor and equipment due to any of the following:

    2.1. Adverse weather-related conditions that cause you to dismiss the crew
    2.2. Maintaining traffic under the contract

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2.3. The Engineer's direction to suspend the controlling activities for reasons unrelated to your performance

2.4. An unanticipated event not caused by either party such as:

2.4.1. Act of God (Pub Cont Code § 7105)
2.4.2. Act of a public enemy
2.4.3. Epidemic
2.4.4. Fire
2.4.5. Flood
2.4.6. Governor-declared state of emergency
2.4.7. Landslide
2.4.8. Quarantine restriction

2.5. An issue involving a third-party, including:

2.5.1. Industry or area-wide labor strike
2.5.2. Material shortage
2.5.3. Freight embargo
2.5.4. Jurisdictional requirement of a law enforcement agency
2.5.5. Workforce labor dispute of a utility or non-highway facility owner resulting in a utility or non-highway facility reconstruction not described and not solely for the Contractor's convenience

1-5 DISTRICTS

DRAFT

District Composition and Office Addresses

District	Counties	Location Address	Mailing Address
1	Del Norte (DN), Humboldt (Hum), Lake (Lak), Mendocino (Men)	1656 UNION ST EUREKA, CA	PO BOX 3700 EUREKA CA 95502
2	Lassen (Las), Modoc (Mod), Plumas (Plu), Shasta (Sha), Siskiyou (Sis), Tehama (Teh), Trinity (Tri)	1657 RIVERSIDE DR REDDING, CA	PO BOX 496073 REDDING CA 96049-6073
3	Butte (But), Colusa (Col), El Dorado (ED), Glenn (Gle), Nevada (Nev), Placer (Pla), Sacramento (Sac), Sierra (Sie), Sutter (Sut), Yolo (Yol), Yuba (Yub)	703 B ST MARYSVILLE, CA	PO BOX 911 MARYSVILLE CA 95901
4	Alameda (Ala), Contra Costa (CC), Marin (Mrn), Napa (Nap), San Francisco (SF), San Mateo (SM), Santa Clara (SCl), Solano (Sol), Sonoma (Son)	111 GRAND AVE OAKLAND, CA	PO BOX 23660 OAKLAND CA 94623-0660
5	Monterey (Mon), San Benito (SBt), San Luis Obispo (SLO), Santa Barbara (SB), Santa Cruz (SCr)	50 HIGUERA ST SAN LUIS OBISPO, CA	50 HIGUERA ST SAN LUIS OBISPO CA 93401-5415
6	Fresno (Fre), Kern (Ker), Kings (Kin), Madera (Mad), Tulare (Tul)	1352 W. OLIVE AVE FRESNO, CA	PO BOX 12616 FRESNO CA 93728-2616
7	Los Angeles (LA), Ventura (Ven)	100 S. MAIN ST LOS ANGELES	100 S MAIN ST LOS ANGELES CA 90012
8	Riverside (Riv), San Bernardino (SBd)	464 W 4TH ST SAN BERNARDINO, CA	464 W 4TH ST SAN BERNARDINO CA 92401-1400
9	Inyo (Iny), Mono (Mno)	500 S MAIN ST BISHOP, CA	500 S MAIN ST BISHOP CA 93514-3423
10	Alpine (Alp), Amador (Ama), Calaveras (Cal), Mariposa (Mpa), Merced (Mer), San Joaquin (SJ), Stanislaus (Sta), Tuolumne (Tuo)	1976 E CHARTER WAY STOCKTON, CA	PO BOX 2048 STOCKTON CA 95201
11	Imperial (Imp), San Diego (SD)	4050 TAYLOR ST SAN DIEGO, CA	4050 TAYLOR ST SAN DIEGO CA 92110-2737
12	Orange (Ora)	3347 MICHELSON DR STE 100 IRVINE, CA	3347 MICHELSON DR STE 100 IRVINE CA 92612-0661

A project with work in District 1, 2, or 3 is a North Region project. For Districts 1, 2, and 3, interpret each reference to the district office as the North Region office. The North Region office address is the District 3 address.

1-6 WEB SITES, ADDRESSES, AND TELEPHONE NUMBERS

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Web Sites, Addresses, and Telephone Numbers

Agency, Department Unit, or Reference	Web Site	Address	Telephone No.
Bid Document Unit		MSC 26 BID DOCUMENT UNIT DEPARTMENT OF TRANSPORTATION 1120 N ST RM 200 SACRAMENTO CA 95814-5605	
Department	www.dot.ca.gov		
Department of General Services, Office of Small Business and DVBE Services	www.pd.dgs.ca.gov/smbus/default.htm	OFFICE OF SMALL BUSINESS AND DVBE SERVICES DEPARTMENT OF GENERAL SERVICES 707 3RD ST WEST SACRAMENTO CA 95605-2811	(800) 559-5529 (916) 375-4940
Department of Industrial Relations	www.dir.ca.gov		
Department of Industrial Relations, Division of Apprenticeship Standards		455 GOLDEN GATE AVENUE SAN FRANCISCO, CA 94102	
Office Engineer		MSC 43 OFFICE ENGINEER DEPARTMENT OF TRANSPORTATION 1727 30TH ST SACRAMENTO CA 95816-7005	
Office Engineer–Verified Bid Results	http://www.dot.ca.gov/hq/esc/oe/awards/bidsum_html/6week_list.html.		
Offices of Structure Design, Documents Unit		MSC 9-4/4I DOCUMENTS UNIT OFFICES OF STRUCTURE DESIGN DEPARTMENT OF TRANSPORTATION 1801 30TH ST SACRAMENTO CA 95816-7006	(916) 227-0716
Publication Distribution Unit		PUBLICATION UNIT DEPARTMENT OF TRANSPORTATION 1900 ROYAL OAKS DRIVE SACRAMENTO CA 95815-3800	
Transportation Laboratory		MATERIALS AND ENGINEERING TESTING SERVICES AND GEOTECHNICAL SERVICES DEPARTMENT OF TRANSPORTATION 5900 FOLSOM BLVD SACRAMENTO CA 95819-4612	(916) 227-7000

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Department's Pre-Qualified Products List	http://www.dot.ca.gov/hq/esc/approved_products_list		

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SECTION 2 PROPOSAL REQUIREMENTS AND CONDITIONS
(Issued 03-13-09)

Replace Section 2 with:
SECTION 2 BIDDING

2-1.01 GENERAL

Section 2, "Bidding," includes specifications related to bid eligibility and the bidding process.

2-1.02 BID INELIGIBILITY

A firm that has provided architectural or engineering services to the Department for this contract before bid submittal for this contract is prohibited from any of the following:

1. Submit a bid
2. Subcontract for a part of the work
3. Supply materials

2-1.03 BID DOCUMENTS

2-1.03A General

Standard Specifications and Standard Plans may be viewed at the Department's Web site and may be purchased at the Publication Distribution Unit.

Special provisions, Amendments to the Standard Specifications, and project plans may be viewed at:

1. Department's Web site
2. District office of the district in which the work is located
3. Districts 4 and 12 offices
4. Bid Document Unit

For an informal-bid contract, special provisions, Amendments to the Standard Specifications, and project plans may be viewed at:

1. Department's Web site
2. Bid Document Unit

Bid books, special provisions, Amendments to the Standard Specifications, and project plans may be obtained at the Bid Document Unit. To expedite orders, you may

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obtain these documents by faxing an order to (916) 654-7028. Fax orders must include credit card charge number, card expiration date, and authorizing signature.

2-1.03B Supplemental Project Information

Logs of test borings attached to the project plans are supplemental project information. The Department makes other supplemental information available as specified in the special provisions.

The Information Handout may be viewed and obtained at the Bid Document Unit.

If rock cores are available, you may view them by sending a request to Coreroom@dot.ca.gov.

Make your request at least 7 days before viewing. Include in your request:

1. District-County-Route
2. Bridge number
3. Contract number
4. Viewing date
5. Contact information, including telephone number.

If bridge as-built drawings are available:

1. For a project in District 1 through 6 or 10, you may request them from the Office of Structure Maintenance and Investigations, fax (916) 227-8357
2. For a project in District 7, 8, 9, 11, or 12, you may request them from the Office of Structure Maintenance and Investigations, fax (916) 227-8357, and are available at the Office of Structure Maintenance and Investigations, Los Angeles, CA, telephone (213) 897-0877

As-built drawings may not show existing dimensions and conditions. Where new construction dimensions are dependent on existing bridge dimensions, verify the field dimensions and adjust dimensions of the work to fit existing conditions.

2-1.04 SMALL BUSINESS ENTERPRISE GOAL

The Department has established an overall 25 percent small business participation goal. To determine if the goal is achieved, the Department is tracking small business participation on all contracts.

Contractors, subcontractors, suppliers, and service providers who qualify as small business are encouraged to apply for certification as a small business by submitting their application to the Department of General Services, Office of Small Business and DVBE Services.

2-1.05 DISADVANTAGED BUSINESS ENTERPRISES

Section 2-1.05, "Disadvantaged Business Enterprises," applies to a Federal-aid contract.

Under 49 CFR 26.13(b):

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> 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 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.

In order to ensure the Department achieves its federally mandated statewide overall DBE goal, the Department encourages the participation of DBEs as defined in 49 CFR 26.

2-1.06 DISABLED VETERAN BUSINESS ENTERPRISES

2-1.06A General

Section 2-1.06, "Disabled Veteran Business Enterprises," applies to a non-Federal-aid contract.

Take necessary and reasonable steps to ensure that DVBEs have opportunity to participate in the contract.

Comply with Mil & Vet Code § 999 et seq.

2-1.06B No Goal

Section 2-1.06B, "No Goal," applies if no DVBE goal is shown in the Notice to Bidders.

The Department encourages bidders to obtain DVBE participation in order to ensure the Department achieves its State-mandated overall DVBE goal.

2-1.06C Goal

Section 2-1.06C, "Goal," applies if a DVBE goal is shown in the Notice to Bidders.

Make work available to DVBEs and select work parts consistent with available DVBE subcontractors and suppliers.

Meet the goal shown or demonstrate that you made good faith efforts to meet this goal.

2-1.07 SMALL BUSINESS AND NON–SMALL BUSINESS SUBCONTRACTOR PREFERENCES

2-1.07A General

Section 2-1.07, "Small Business and Non–Small Business Subcontractor Preferences (Govt Code § 14835 et seq. and 2 CA Code of Regs § 1896 et seq.)," applies to a non-Federal-aid contract.

2-1.07B Small Business Preference

The Department allows a bidder certified as a small business by the Office of Small Business and DVBE Services, Department of General Services, a preference if:

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1. You completed a Request for Small Business Preference or Non–Small Business Preference form
2. You attached a copy of your Office of Small Business and DVBE Services small business certification to the form
3. The low bidder is not certified as a small business

The bidder's signature on the Request for Small Business Preference or Non–Small Business Preference form certifies that the bidder is certified as a small business at the time and day of bid or has submitted a complete application to the Department of General Services. The complete application and any required substantiating documentation must be received by the Department of General Services by 5:00 p.m. on bid opening date.

The Department of General Services determines if a bidder was certified on bid opening date. The Department confirms the bidder's status as a small business before applying the small business preference.

The small business preference is a reduction for bid comparison in the total bid submitted by the small business subcontractor by the lesser of:

1. 5 percent of the verified total bid of the low bidder
2. $50,000

If this reduction results in the small business contractor becoming the low bidder, the contract award is based on the total bid, not the reduced bid.

2-1.07C Non–Small Business Subcontractor Preference

The Department allows a bidder not certified as a small business by the Office of Small Business and DVBE Services, Department of General Services, a preference if:

1. You completed a Request for Small Business Preference or Non–Small Business Preference form
2. The low bidder is not certified as a small business and has not requested preference
3. The Certified Small Business Listing for the Non–Small Business Preference form shows that you are subcontracting at least 25 percent to certified small businesses.

The non–small business subcontractor preference is a reduction for bid comparison in the total bid submitted by the non–small business contractor requesting the preference by the lesser of:

1. 5 percent of the verified total bid of the low bidder
2. $50,000

If this reduction results in the non–small business contractor becoming the low bidder or a tie with a non-small business low bidder not requesting the preference, the contract award is based on the total bid, not the reduced bid.

A non-small business bidder cannot displace a small business bidder.

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2-1.08 DVBE INCENTIVE EVALUATION

Section 2-1.08, "DVBE Incentive Evaluation," applies to a non-Federal-aid contract.

The Department applies the Small Business and Non–Small Business preference during bid verification and proceeds with the following evaluation for DVBE incentive.

The Department grants a DVBE incentive to bidders who achieve a DVBE participation of 1 percent or greater of the value of their bid (Mil & Vet Code and Code of Regs § 1896.98 et seq).

The DVBE incentive is a reduction, for bid comparison only, in the total bid submitted by the lesser of:

1. Percentage of DVBE achievement, rounded to 2 decimal places, of the verified total bid of the low bidder
2. 5 percent of the verified total bid of the low bidder
3. $100,000

The Department applies DVBE incentive and determines if bid ranking changes.

A non-small business bidder cannot displace a small business bidder. However, a small business bidder with higher DVBE achievement can displace another small business bidder.

The Department proceeds with awarding the contract to the new low bidder and posts the new verified bid results at its Office Engineer Web site.

2-1.09 PREFERENCE HIERARCHY

Section 2-1.09, "Preference Hierarchy," applies to a non-Federal-aid contract.

If a small business bidder and a non–small business bidder request preferences and the reductions result in a tied bid, the Department awards the contract to the small business bidder.

If a DVBE bidder and a non-DVBE bidder request preferences and the reduction results in a tied bid, the Department awards the contract to the DVBE bidder.

2-1.10 CALIFORNIA COMPANIES

Section 2-1.10, "California Companies," applies to a non-Federal-aid contract.

Under Pub Cont Code § 6107, the Department gives preference to a "California company," as defined, for bid comparison purposes over a nonresident contractor from any state that gives or requires a preference to be given contractors from that state on its public entity construction contracts.

Complete a California Company Preference form.

The California company reciprocal preference amount is equal to the preference amount applied by the state of the nonresident contractor with the lowest responsive bid unless the California company is eligible for a small business preference or a non–small business subcontractor preference; in which case the preference amount is the greater of the two, but not both.

If the low bidder is not a California company and a California company's bid with reciprocal preference is equal to or less than the lowest bid, the Department awards the

contract to the California company on the basis of its total bid, not the reduced bid used for comparison except as specified in Section 2-1.09, "Preference Hierarchy."

2-1.11 JOB SITE AND DOCUMENT EXAMINATION

Examine the job site and bid documents.

Bid submission is your acknowledgment that you have examined the job site and bid documents and are satisfied with:

1. General and local conditions to be encountered
2. Character, quality, and scope of work to be performed
3. Quantities of materials to be furnished
4. Character, quality, and quantity of surface and subsurface materials or obstacles
5. Requirements of the contract

2-1.12 BID DOCUMENT COMPLETION

2-1.12A General

Complete forms in the Bid book. Submit the forms with your bid except:

1. For the following 2 forms for non-federal-aid non-informal-bid contracts:

    1.1. Certified DVBE Summary and DVBE - Good Faith Efforts forms. You may submit these forms with your bid. If you do not and you are the low bidder or the 2nd or 3rd low bidder, submit them so that they are received at the Office Engineer no later than 4:00 p.m. on the 4th business day after bid opening. If a DVBE joint venture is used, submit the joint venture agreement with the Certified DVBE Summary form. Other bidders may be required to submit these forms if bid ranking changes.

    1.2. Certified Small Business Listing for the Non–Small Business Preference form. If you are applying for the non–small business subcontractor preference, you may submit this information with your bid. If you do not, submit it so that it is received at the Office Engineer no later than 4:00 p.m. on the 2nd business day after bid opening. The listed subcontractors and suppliers must be certified as a small business at the time and day of bid or must have submitted a complete application to the Department of General Services. The complete application and any required substantiating documentation must be received by the Department of General Services by 5:00 p.m. on bid opening date.

2. On the Subcontractor List you may either submit the percentage of each bid item subcontracted with your bid or fax the percentage to (916) 227-6282 within 24 hours after bid opening.

Except for the percentage of each bid item subcontracted, do not fax submittals.

The Department determines a bidder has made good faith efforts if it submits evidence that it:

1. Contacted the Office of Small Business and DVBE Services, Department of General Services
2. Advertised in trade media and media focusing on DVBEs unless time limits the Department imposes do not allow the advertising
3. Submitted invitations to bid to potential DVBE contractors
4. Considered available DVBEs

2-1.12B Bid Item List and Bid Comparison

Submit a bid based on the work item quantities the Department shows in the Bid Item List.

For a lump sum based bid, the Department compares bids based on the total price.

For a unit price based bid, the Department compares bids based on the sum of the item totals.

For a cost plus time based bid, the Department compares bids based on the sum of the item totals and the total bid for time.

2-1.12C Subcontractor List

In the Subcontractor List, list each subcontractor to perform work:

1. In an amount in excess of 1/2 of 1 percent of the total bid or $10,000, whichever is greater (Pub Cont Code § 4100 et seq.)
2. That is a 1st tier DVBE subcontractor regardless of percentage of the total bid

The Subcontractor List must show the name, address, and work portions to be performed by each subcontractor listed. Show work portion by bid item number, description, and percentage of each bid item subcontracted.

2-1.13 BIDDER'S SECURITY

Submit your bid with one of the following forms of bidder's security equal to at least 10 percent of the bid:

1. Cash
2. Cashier's check
3. Certified check
4. Bidder's bond signed by a surety insurer who is licensed in California

Make checks and bonds payable to the Department of Transportation.

If using a bidder's bond, you may use the form in the Bid book. If you do not use the form in the Bid book, use a form containing the same information.

2-1.14 BID SUBMITTAL

Submit your bid:

1. Under sealed cover
2. Marked as a bid
3. Identifying the contract number and the bid opening date

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If an agent other than the authorized corporation officer or a partnership member signs the bid, file a Power of Attorney with the Department either before opening bids or with the bid. Otherwise, the bid may be nonresponsive.

2-1.15 BID WITHDRAWAL

An authorized agent may withdraw a bid before the bid opening date and time by submitting a written bid withdrawal request at the location where the bid was submitted. Withdrawing a bid does not prevent you from submitting a new bid.

After the bid opening time, you cannot withdraw a bid.

2-1.16 BID OPENING

The Department publicly opens and reads bids at the time and place described in the Notice to Bidders.

2-1.17 BID REJECTION

The Department may reject:

1. All bids
2. A nonresponsive bid

2-1.18 BID RELIEF

The Department may grant bid relief under Pub Cont Code § 5100 et seq. Submit any request for bid relief to the Office Engineer. For Relief of Bid Request form, go to:

http://www.dot.ca.gov/hq/esc/oe/contractor_info/relief.pdf

2-1.19 SUBMITTAL FAILURE HISTORY

The Department considers a bidder's past failure to submit documents required after bid opening in determining a bidder's responsibility.

2-1.20 BID RIGGING

Section 2-1.20, "Bid Rigging," applies to a Federal-aid contract.

The U.S. Department of Transportation (DOT) provides a toll-free hotline to report bid rigging activities. Use the hotline to report bid rigging, bidder collusion, and other fraudulent activities. The hotline number is (800) 424-9071. The service is available Monday through Friday between 11:00 a.m. and 8:00 p.m. and is confidential and anonymous. The hotline is part of the DOT's effort to identify and investigate highway construction contract fraud and abuse and is operated under the direction of the DOT Inspector General.

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SECTION 3 AWARD AND EXECUTION OF CONTRACT
(Issued 11-07-08)

Replace Section 3 with:

SECTION 3 CONTRACT AWARD AND EXECUTION

3-1.01 SCOPE

Section 3, "Contract Award and Execution," includes specifications related to contract award and execution.

3-1.02 CONTRACT AWARD

Submit any bid protest to the Office Engineer.

If the Department awards the contract, the award is made to the lowest responsible bidder within the number of days shown in the following table:

Contract Award Period

Days (after bid opening)	Project Estimated Cost shown in the Notice to Bidders
30	< $200 million
60	≥ $200 million

The Department may extend the specified award period if the bidder agrees.

3-1.03 CONTRACT BONDS (PUB CONT CODE §§ 10221 AND 10222)

The successful bidder must furnish 2 bonds:

1. Payment bond to secure the claim payments of laborers, workers, mechanics, or materialmen providing goods, labor, or services under the contract. This bond must be equal to at least 100 percent of the total bid.
2. Performance bond to guarantee the faithful performance of the contract. This bond must be equal to at least 50 percent of the total bid.

The Department furnishes the successful bidder with bond forms.

3-1.04 CONTRACTOR LICENSE

For a Federal-aid contract, the Contractor must be properly licensed as a contractor (Pub Cont Code § 10164) from contract award through contract acceptance.

For a non-Federal-aid contract:

1. The Contractor must be properly licensed as a contractor from bid opening through contract acceptance (Bus & Prof Code § 7028.15)
2. Joint venture bidders must obtain a joint venture license before contract award (Bus & Prof Code § 7029.1)

3-1.05 INSURANCE POLICIES

The successful bidder must submit:

1. Copy of its commercial general liability policy and its excess policy or binder until such time as a policy is available, including the declarations page, applicable endorsements, riders, and other modifications in effect at the time of contract execution. Standard ISO form No. CG 0001 or similar exclusions are allowed if not inconsistent with Section 7-1.12, "Indemnification and Insurance." Allowance of additional exclusions is at the discretion of the Department.
2. Certificate of insurance showing all other required coverages. Certificates of insurance, as evidence of required insurance for the auto liability and any other required policy, shall set forth deductible amounts applicable to each policy and all exclusions that are added by endorsement to each policy. The evidence of insurance shall provide that no cancellation, lapse, or reduction of coverage will occur without 10 days prior written notice to the Department.
3. A declaration under the penalty of perjury by a CPA certifying the accountant has applied GAAP guidelines confirming the successful bidder has sufficient funds and resources to cover any self-insured retentions if the self-insured retention is $50,000 or higher.

If the successful bidder uses any form of self-insurance for workers compensation in lieu of an insurance policy, it shall submit a certificate of consent to self-insure under Labor Code § 3700.

3-1.06 SMALL BUSINESS PARTICIPATION REPORT

Complete and sign the Small Business (SB) Participation Report form included in the contract documents even if no small business participation is reported.

3-1.07 PAYEE DATA RECORD

Complete and sign the Payee Data Record form included in the contract documents.

3-1.08 CALTRANS BIDDER - DBE INFORMATION FORM

Section 3-1.08, "Caltrans Bidder - DBE Information Form," applies to a Federal-aid contract.

Complete and sign the Caltrans Bidder - DBE Information form included in the contract documents even if no DBE participation is reported.

Provide written confirmation from each DBE that the DBE is participating in the contract. A copy of a DBE's quote serves as written confirmation. If a DBE is participating as a joint venture partner, the Department encourages you to submit a copy of the joint venture agreement.

3-1.09 CONTRACT EXECUTION

The successful bidder must sign the contract.

Deliver to the Office Engineer:

1. Signed Contract form
2. Contract bonds
3. Documents identified in Section 3-1.05, "Insurance Policies"

4. Small Business Participation Report
5. Payee data record
6. For a Federal-aid contract, Caltrans Bidder - DBE Information form

For an informal-bid contract, the Office Engineer must receive these documents before the 5th business day after the bidder receives the contract. For all other contracts, the Office Engineer must receive these documents before the 10th business day after the bidder receives the contract.

The bidder's security may be forfeited for failure to execute the contract within the time specified (Pub Cont Code §§ 10181, 10182, and 10183).

The following is a copy of the Contract form:

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STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

CONTRACT

DES-OE-0103A (NEW 3/2008)

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
CONTRACT NO. _____

This contract is entered into between the State of California's Department of Transportation and the Contractor named below:

_____

CONTRACTOR'S NAME

The parties agree to comply with the terms of the following exhibits that are by this reference made a part of this contract.

Exhibit A - Bid book dated _____

Exhibit B - Notice to Bidders and Special Provisions dated _____

Exhibit C - Project Plans approved _____

Exhibit D - Standard Specifications dated _____

Exhibit E - Standard Plans dated _____

Exhibit F - Addenda

Exhibits A, B, C, and F are those exhibits identified with the same contract number as this contract.

This contract has been executed by the following parties:

CONTRACTOR

CONTRACTOR'S NAME *(if other than an individual, state whether a corporation, partnership, etc.)*

BY *(Authorized Signature)*	DATE SIGNED *(Do not type)*

PRINTED NAME AND TITLE OF PERSON SIGNING

FEDERAL EMPLOYER IDENTIFICATION NUMBER

DEPARTMENT OF TRANSPORTATION

BY *(Authorized Signature)*	DATE SIGNED *(Do not type)*

PRINTED NAME AND TITLE OF PERSON SIGNING

ADA Notice For individuals with sensory disabilities, this document is available in alternate formats. For information call (916) 654-6410 or TDD (916) 654-3880 or write Records and Forms Management, 1120 N Street, MS-89, Sacramento, CA 95814.

3-1.10 BIDDERS' SECURITIES

The Department keeps the securities of the 1st, 2nd, and 3rd low bidders until the contract has been executed. The other bidders' securities, other than bidders' bonds, are returned upon determination of the 1st, 2nd, and 3rd low bidders, and their bidders' bonds are of no further effect (Pub Cont Code § 10184).

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SECTION 4 SCOPE OF WORK
(Issued 05-01-09)

Add to Section 4-1.01:

Nothing in the specifications voids the Contractor's public safety responsibilities.

Add:

4-1.015 PROJECT DESCRIPTION

Construct the work described in the special provisions and on project plans and by the bid items. The special provisions, project plans, and bid item descriptions set forth the specifications that apply.

In Section 4-1.03A replace the 3rd paragraph with:

Where the protest concerning an approved contract change order relates to the adjustment of contract time for the completion of the work, the time to be allowed is determined as specified in Section 8-1.09, "Delays."

Add:

4-1.035 VALUE ENGINEERING

4-1.035A General

Reserved

4-1.035B Value Engineering Change Proposal

You may submit a VECP to reduce any of the following:

1. Total cost of construction
2. Construction activity duration
3. Traffic congestion

Before preparing a VECP, meet with the Engineer to discuss:

1. Proposal concept
2. Permit issues
3. Impact on other projects
4. Project impacts, including traffic, schedule, and later stages
5. Peer reviews
6. Overall proposal merits
7. Review times required by the Department and other agencies

The VECP must not impair the project's essential functions or characteristics, such as:

1. Service life
2. Operation economy
3. Maintenance ease
4. Desired appearance
5. Design and safety

The VECP must include:

1. Description of the contract specifications and drawing details for performing the work and the proposed changes.
2. Itemization of contract specifications and drawing details that would be changed.
3. Detailed cost estimate for performing the work under the existing contract and under the proposed change. Determine the estimates under Section 9-1.03, "Force Account Payment."
4. Deadline for the Engineer to decide on the changes.
5. Bid items affected and resulting quantity changes.

The Department is not required to consider a VECP. If a VECP is similar to a change in the plans or specifications being considered by the Department at the time the proposal is submitted or if the proposal is based on or similar to drawings or specifications adopted by the Department before Contract award, the Department does not accept the VECP and may make these changes without VECP payments.

Until the Department approves a change order incorporating the VECP or parts of it, continue to perform the work under the contract. If the Department does not approve a change order before the deadline stated in the VECP or other date you subsequently stated in writing, the VECP is rejected. The Department does not adjust time or payment for a rejected VECP.

The Department decides whether to accept a VECP and the estimated net construction-cost savings from adopting the VECP or parts of it.

The Department may require you to accept a share of the investigation cost as a condition of reviewing a VECP. After written acceptance, the Department considers the VECP and deducts the agreed cost.

If the Department accepts the VECP or parts of it, the Department issues a change order that:

1. Incorporates changes in the contract necessary to implement the VECP or the

parts adopted
2. Includes the Department's acceptance conditions
3. States the estimated net construction-cost savings resulting from the VECP
4. Obligates the Department to pay you 50 percent of the estimated net savings

In determining the estimated net construction-cost savings, the Department excludes your VECP preparation cost and the Department's VECP investigation cost, including parts paid by you.

If a VECP providing for a reduction in working days is accepted by the Department, 50 percent of the reduction is deducted from contract time.

If a VECP providing for a reduction in traffic congestion or avoiding traffic congestion is accepted by the Department, the Department pays 60 percent of the estimated net savings in construction costs attributable to the VECP. Submit detailed traffic handling comparisons between the existing contract and the proposed change, including estimates of the traffic volumes and congestion.

The Department may apply an accepted VECP for general use on other contracts.

If an accepted VECP is adopted for general use, the Department pays only the contractor who first submitted the VECP and only to the contracts awarded to that contractor before the submission of the accepted VECP.

If the Department does not adopt a general-use VECP, an identical or similar submitted proposal is eligible for acceptance.

4-1.035C Value Analysis Workshop

Section 4-1.035C, "Value Analysis Workshop," applies to a non-building-work contract with a total bid of over $5 million.

You may request a value analysis workshop by submitting a request after contract approval.

The Department offers a value analysis workshop to:

1. Identify value enhancing opportunities
2. Consider changes to the contract that will reduce the total cost of construction, construction activity duration, or traffic congestion without impairing the essential functions specified for a VECP in Section 4-1.035B, "Value Engineering Change Proposal."

If the request is authorized, you and the Engineer:

1. Schedule a value analysis workshop
2. Select a facilitator and workshop site
3. Agree to other workshop administrative details

The workshop must be conducted under the methods described in the Department's Value Analysis Team Guide available at:

http://www.dot.ca.gov/hq/oppd/value/

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The facilitator must be a certified value specialist as recognized by the Society of American Value Engineers.

The Department reimburses you for 1/2 of the workshop cost. The workshop cost is the sum of the workshop-facilitator cost and the workshop-site cost. The Department determines the workshop cost based on the facilitator and workshop-site invoice prices minus any available or offered discounts. The Department does not pay you for any other associated costs.

^^

SECTION 5 CONTROL OF WORK
(Issued 12-19-08)

Add:

5-1.005 GENERAL

Failure to comply with any specification part is a waiver of your right to an adjustment of time and payment related to that part.

After contract approval, submit documents and direct questions to the Engineer. Orders, approvals, authorizations, and requests to the Contractor are by the Engineer.

The Engineer furnishes the following in writing:

1. Approvals
2. Authorizations
3. Notifications
4. Orders

The Contractor must furnish the following in writing:

1. Assignments
2. Notifications
3. Proposals
4. Requests, sequentially numbered
5. Subcontracts
6. Test results

The Department rejects a form if it has any error or any omission.

Convert foreign language documents to English.

Use contract administration forms available at the Department's Web site.

If the last day for submitting a document falls on a Saturday or holiday, it may be submitted on the next business day with the same effect as if it had been submitted on the day specified.

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Add to 5-1.01:

Failure to enforce a contract provision does not waive enforcement of any contract provision.

Add:

5-1.012 PARTNERING

5-1.012A General

The Department strives to work cooperatively with all contractors; partnering is our way of doing business. The Department encourages project partnering among the project team, made up of significant contributors from the Department and the Contractor, and their invited stakeholders.

For a project with a total bid greater than $1 million, professionally facilitated project partnering is encouraged.

For a project with a total bid greater than $10 million, professionally facilitated project partnering is required.

In implementing project partnering, you and the Engineer manage the contract by:

1. Using early and regular communication with involved parties
2. Establishing and maintaining a relationship of shared trust, equity, and commitment
3. Identifying, quantifying, and supporting attainment of mutual goals
4. Developing strategies for using risk management concepts
5. Implementing timely communication and decision making
6. Resolving potential problems at the lowest possible level to avoid negative impacts
7. Holding periodic partnering meetings and workshops as appropriate to maintain partnering relationships and benefits throughout the life of the project
8. Establishing periodic joint evaluations of the partnering process and attainment of mutual goals

Partnering does not void any contract part.

The Department's "Field Guide to Partnering on Caltrans Construction Projects" current at the time of bid is available to the project team as reference. This guide provides structure, context, and clarity to the partnering process requirements. This guide is available at the Department's Partnering Program website:

http://www.dot.ca.gov/hq/construc/partnering.html

In implementing project partnering, the project team must:

1. Create a partnering charter that includes:

    1.1. Mutual goals, including core project goals and may also include project-specific goals and mutually supported individual goals.

1.2. Partnering maintenance and close-out plan.
1.3. Dispute resolution plan that includes a dispute resolution ladder and may also include use of facilitated dispute resolution sessions.
1.4. Team commitment statement and signatures.

2. Participate in monthly partnering evaluation surveys to measure progress on mutual goals and may also measure short-term key issues as they arise.
3. Evaluate the partnering facilitator on Forms CEM-5501 and CEM-5502. The Engineer provides the evaluation forms to the project team and collects the results. The Department makes evaluation results available upon request. Facilitator evaluations must be completed:

   3.1. At the end of the initial partnering workshop on Form CEM-5501.
   3.2. At the end of the project close-out partnering workshop on Form CEM-5502.

4. Conduct a project close-out partnering workshop.
5. Document lessons learned before contract acceptance.

5-1.012B Partnering Facilitator, Workshops, and Monthly Evaluation Surveys

The Engineer sends you a written invitation to enter into a partnering relationship after contract approval. Respond within 15 days to accept the invitation and request the initial and additional partnering workshops. After the Engineer receives the request, you and the Engineer cooperatively:

1. Select a partnering facilitator that offers the service of a monthly partnering evaluation survey with a 5-point rating and agrees to follow the Department's "Partnering Facilitator Standards and Expectations" available at the Department's Partnering Program website
2. Schedule initial partnering workshop
3. Determine initial workshop site and duration
4. Agree to other workshop administrative details

Additional partnering workshops and sessions are encouraged throughout the life of the project as determined necessary by you and the Engineer, recommended quarterly.

5-1.012C Training in Partnering Skills Development

For a project with a total bid of $25 million or greater, training in partnering skills development is required.

For a project with a total bid between $10 million and $25 million, training in partnering skills is optional.

You and the Engineer cooperatively schedule the training session and select a professional trainer, training site, and 1 to 4 topics from the following list to be covered in the training:

1. Active Listening

2. Building Teams
3. Change Management
4. Communication
5. Conflict Resolution
6. Cultural Diversity
7. Dealing with Difficult People
8. Decision Making
9. Effective Escalation Ladders
10. Emotional Intelligence
11. Empathy
12. Ethics
13. Facilitation Skills
14. Leadership
15. Partnering Process and Concepts
16. Project Management
17. Project Organization
18. Problem Solving
19. Running Effective Meetings
20. Time Management
21. Win-Win Negotiation

Before the initial partnering workshop, the trainer conducts a 1-day training session in partnering skills development for the Contractor's and the Engineer's representatives. This training session must be a separate session from the initial partnering workshop and must be conducted locally. The training session must be consistent with the partnering principles under the Department's "Field Guide to Partnering on Caltrans Construction Projects."

Send at least 2 representatives to the training session. One of these must be your assigned representative as specified in Section 5-1.06, "Superintendence," of the Standard Specifications.

5-1.012D Payment

The Department pays you for:

1. 1/2 of partnering workshops and sessions based on facilitator and workshop site cost
2. 1/2 of monthly partnering evaluation survey service cost
3. Partnering skills development trainer and training site cost

The Department determines the costs based on invoice prices minus any available or offered discounts. The Department does not pay markups on these costs.

The Department does not pay for wages, travel expenses, or other costs associated with the partnering workshops and sessions, monthly partnering evaluation surveys, and training in partnering skills development.

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Add:

5-1.015 RECORDS

5-1.015A General

Reserved

5-1.015B Record Retention

Retain project records from bid preparation through:

1. Final payment
2. Resolution of claims, if any

For at least 3 years after the later of these, retain cost records, including records of:

1. Bid preparation
2. Overhead
3. Payrolls
4. Payments to suppliers and subcontractors
5. Cost accounting

Maintain the records in an organized way in the original format, electronic and hard copy, conducive to professional review and audit.

5-1.015C Record Inspection, Copying, and Auditing

Make your records available for inspection, copying, and auditing by State representatives for the same time frame specified under Section 5-1.015B, "Record Retention." The records of subcontractors and suppliers must be made available for inspection, copying, and auditing by State representatives for the same period. Before contract acceptance, the State representative notifies the Contractor, subcontractor, or supplier 5 business days before inspection, copying, or auditing.

If an audit is to start more than 30 days after contract acceptance, the State representative notifies the Contractor, subcontractor, or supplier when the audit is to start.

5-1.015D Cost Accounting Records

Maintain cost accounting records for the project distinguishing between the following work cost categories:

1. Contract item work
2. Work character changes
3. Force account work
4. Extra work
5. Work performed under protests and claim notifications
6. Overhead
7. Subcontractors, suppliers, owner-operators, and professional services

Cost accounting records must include:

1. Final cost code lists and definitions
2. Itemization of the materials used and corresponding vendor's invoice copies
3. Direct cost of labor
4. Equipment rental charges
5. Workers' certified payrolls
6. Equipment:

    6.1. Size
    6.2. Type
    6.3. Identification number
    6.4. Hours operated

5-1.015E Extra Work Bills

Maintain separate records for force account costs.

Submit extra work bills using the Department's Internet extra work billing system.

The Contractor submitting and the Engineer approving an extra work bill using the Internet force account work billing system is the same as each party signing the report.

The Department provides billing system:

1. Training within 30 days of your written request
2. Accounts and user identification to your assigned representatives after a representative has received training

Each representative must maintain a unique password.

Replace Section 5-1.04 with:

5-1.04 CONTRACT COMPONENTS

A component in one contract part applies as if appearing in each. The parts are complementary and describe and provide for a complete work.

If a discrepancy exists:

1. The governing ranking of contract parts in descending order is:

    1.1. Special provisions
    1.2. Project plans
    1.3. Revised Standard Plans
    1.4. Standard Plans
    1.5. Amendments to the Standard Specifications
    1.6. Standard Specifications
    1.7. Supplemental project information

2. Written numbers and notes on a drawing govern over graphics
3. A detail drawing governs over a general drawing
4. A detail specification governs over a general specification

5. A specification in a section governs over a specification referenced by that section

If a discrepancy is found or confusion arises, request correction or clarification.

Add:

5-1.055 SUBCONTRACTING

5-1.055A General

No subcontract releases you from the contract or relieves you of your responsibility for a subcontractor's work.

If you violate Pub Cont Code § 4100 et seq., the Department may exercise the remedies provided under Pub Cont Code § 4110. The Department may refer the violation to the Contractors State License Board as provided under Pub Cont Code § 4111.

Except for a building-construction non-federal-aid contract, perform work equaling at least 30 percent of the value of the original total bid with your employees and with equipment owned or rented by you, with or without operators.

Each subcontract must comply with the contract.

Each subcontractor must have an active and valid State contractor's license with a classification appropriate for the work to be performed (Bus & Prof Code, § 7000 et seq.).

Submit copies of subcontracts upon request.

Before subcontracted work starts, submit a Subcontracting Request form.

Do not use a debarred contractor; a current list of debarred contractors is available at the Department of Industrial Relations' Web site.

Upon request, immediately remove and not again use a subcontractor who fails to prosecute the work satisfactorily.

5-1.055B Disadvantaged Business Enterprises

Section 5-1.055B, "Disadvantaged Business Enterprises," applies to a Federal-aid contract.

Use each subcontractor as listed on the Subcontractor List form unless you receive authorization for a substitution.

The Department requests the Contractor to:

1. Notify the Engineer of any changes to its anticipated DBE participation
2. Provide this notification before starting the affected work

Maintain records including:

1. Name and business address of each 1st-tier subcontractor
2. Name and business address of each DBE subcontractor, DBE vendor, and DBE trucking company, regardless of tier
3. Date of payment and total amount paid to each business

If you are a DBE contractor, include the date of work performed by your own forces and the corresponding value of the work.

Before the 15th of each month, submit a Monthly DBE Trucking Verification form.

For a DBE that leases trucks from a non-DBE, count only the fee or commission the DBE receives as a result of the lease arrangement.

If a DBE subcontractor is decertified before completing subcontracted work, the subcontractor must notify you in writing of the decertification date. If a subcontractor becomes a certified DBE before completing subcontracted work, the subcontractor must notify you in writing of the certification date. Submit the notifications. On contract work completion, complete a Disadvantaged Business Enterprises (DBE) Certification Status Change form. Submit the form within 90 days of contract acceptance.

Upon contract work completion, complete a Final Report – Utilization of Disadvantaged Business Enterprises (DBE), First-Tier Subcontractors form. Submit it within 90 days of contract acceptance. The Department withholds $10,000 until the form is submitted. The Department releases the withhold upon submission of the completed form.

5-1.055C Disabled Veteran Business Enterprises

Section 5-1.055C, "Disabled Veteran Business Enterprises," applies to a non-Federal-aid contract.

If a DVBE goal is shown in the Notice to Bidders:

1. Use each DVBE as shown on the Certified DVBE Summary form unless you receive authorization for a substitution
2. The requirement that DVBEs be certified by the bid opening date does not apply to DVBE substitutions after contract award
3. Maintain records of subcontracts made with certified DVBEs. Include in the records:

    3.1. Name and business address of each business
    3.2. Total amount paid to each business

4. For the purpose of determining compliance with Pub Cont Code § 10115 et seq.:

    4.1. Provide the Department relevant information requested
    4.2. Upon reasonable notice and during normal business hours, permit access to its premises for the purpose of:

        4.2.1. Interviewing employees
        4.2.2. Inspecting and copying books, records, accounts and other material that may be relevant to a matter under investigation

If no DVBE goal is shown in the Notice to Bidders and if you obtain DVBE participation, submit the participating DVBE names and value of work or supplies supplied by each DVBE transaction upon contract completion.

5-1.055D Non–Small Businesses

Section 5-1.055D, "Non–Small Businesses," applies to a non-Federal-aid contract.

Use each subcontractor as shown on the Certified Small Business Listing for the Non–Small Business Preference form unless you receive authorization for a substitution.

The requirement that small businesses be certified by the bid opening date does not apply to small business substitutions after contract award.

Maintain records of subcontracts made with certified small business subcontractors and records of materials purchased from certified small business suppliers. Include in the records:

1. Name and business address of each business
2. Total amount paid to each business

For the purpose of determining compliance with 2 CA Code of Regs § 1896 et seq.:

1. Provide the Department relevant information requested.
2. Upon reasonable notice and during normal business hours, permit access to its premises for the purpose of:

    2.1. Interviewing employees
    2.2. Inspecting and copying books, records, accounts and other material that may be relevant to a matter under investigation

Replace Section 5-1.07 with:

5-1.07 LINES AND GRADES

The Engineer places stakes and marks under Chapter 12, "Construction Surveys," of the Department's Surveys Manual.

Submit your request for Department-furnished stakes:

1. On a Request for Construction Stakes form. Ensure:

    1.1. Requested staking area is ready for stakes
    1.2. You use the stakes in a reasonable time

2. A reasonable time before starting an activity using the stakes

Establish priorities for stakes and note priorities on the request.

Preserve stakes and marks placed by the Engineer. If the stakes or marks are destroyed, the Engineer replaces them at the Engineer's earliest convenience and deducts the cost.

Replace Section 5-1.116 with:

5-1.116 DIFFERING SITE CONDITIONS (23 CFR 635.109)

5-1.116A Contractor's Notification

Promptly notify the Engineer if you find either of the following:

1. Physical conditions differing materially from either of the following:

    1.1. Contract documents
    1.2. Job site examination

2. Physical conditions of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in the work provided for in the contract

Include details explaining the information you relied on and the material differences you discovered.

If you fail to notify the Engineer promptly, you waive the differing site condition claim for the period between your discovery of the differing site condition and your notification to the Engineer.

If you disturb the site after discovery and before the Engineer's investigation, you waive the differing site condition claim.

5-1.116B Engineer's Investigation and Decision

Upon your notification, the Engineer investigates job site conditions and:

1. Notifies you whether to resume affected work
2. Decides whether the condition differs materially and is cause for an adjustment of time, payment, or both

5-1.116C Protests

You may protest the Engineer's decision by:

1. Submitting an Initial Notice of Potential Claim within 5 business days after receipt of the Engineer's notification
2. Complying with claim procedures

The Initial Notice of Potential Claim must detail the differences in your position from the Engineer's determination and support your position with additional information, including additional geotechnical data. Attach to the Initial Notice of Potential Claim a certification stating that you complied with Section 2-1.11, "Job Site and Document Examination."

Promptly submit supplementary information when obtained.

Replace Section 5-1.14 with:

5-1.14 COST REDUCTION INCENTIVE

Comply with Section 4-1.035B, "Value Engineering Change Proposal."

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Add:

5-1.15 DISPUTE RESOLUTION

5-1.15A General

Section 5-1.15, "Dispute Resolution," applies to a contract with 100 or more working days.

In the Dispute Resolution Advisor Agreement and in the Dispute Review Board Agreement, interpret a reference to the special provisions as a reference to the Amendments to the Standard Specifications. In the Dispute Review Board Agreement, replace "Proposal and Contract" with "Bid book." Where the section title does not match the section number for a reference, refer to the referenced title.

5-1.15B Dispute Resolution Advisor

Section 5-1.15B, "Dispute Resolution Advisor," applies to a contract from $3 million to $10 million.

A dispute resolution advisor, hereinafter referred to as "DRA", is chosen by the Department and the Contractor to assist in the resolution of disputes. The DRA is a part of the contract administrative claims process as specified in the provisions in Section 9-1.04, "Notice of Potential Claim," and Section 9-1.07B, "Final Payment and Claims," of the Standard Specifications. The DRA shall not serve as a substitute for filing a protest or a notice of potential claim.

The DRA shall be established by the Department and the Contractor within 30 days of contract approval.

The Department and the Contractor shall each propose 3 potential DRA candidates. Each potential candidate shall provide the Department and the Contractor with their disclosure statement. The disclosure statement shall include a resume of the potential candidate's experience and a declaration statement describing past, present, anticipated, and planned relationships with all parties involved in this contract.

The Department and the Contractor shall select one of the 6 nominees to be the DRA. If the Department and the Contractor cannot agree on one candidate, the Department and the Contractor shall each choose one of the 3 nominated by the other. The final selection of the DRA will be decided by a coin toss between the two candidates.

The Department and the Contractor shall complete and adhere to the Dispute Resolution Advisor Agreement. No DRA meeting shall take place until the Dispute Resolution Advisor Agreement has been signed by all parties, unless all parties agree to sign it at the first meeting.

If DRA needs outside technical services, technical services shall be preapproved by both the Department and the Contractor.

DRA recommendations are nonbinding.

The Contractor shall not use the DRA for disputes between subcontractors or suppliers that have no grounds for a lawsuit against the Department.

DRA replacement is selected in the same manner as the original selection. The appointment of a replacement DRA will begin promptly upon determination of the need for replacement. The Dispute Resolution Advisor Agreement shall be amended to reflect the change of the DRA.

Failure of the Contractor to participate in selecting DRA will result in the withhold of 25 percent of the estimated value of all work performed during each estimate period that the Contractor fails to comply. DRA withholds will be released for payment on the next

monthly progress payment following the date that the Contractor has provided assistance in choosing the DRA and no interest will be due the Contractor.

The State and the Contractor shall bear the costs and expenses of the DRA equally.

The DRA shall be compensated at an agreed rate of $1,500 per day for time spent per meeting either at the start of the project or for a dispute. A member serving on more than one State DRA or Dispute Review Board, regardless the number of meetings per day shall not be paid more than the agreed rate per day. The agreed rate shall be considered full compensation for on-site time, travel expenses, transportation, lodging, time for travel, and incidentals for each day or portion thereof that the DRA is at an authorized DRA meeting.

No additional compensation will be made for time spent by the DRA to review and research activities outside the official DRA meetings unless that time, such as time spent evaluating and preparing recommendations on specific issues presented to the DRA, has been specifically agreed to in advance by the State and Contractor. Time away from the project that has been specifically agreed to in advance by the Department and the Contractor will be compensated at an agreed rate of $150 per hour. The agreed amount of $150 per hour shall include all incidentals including expenses for telephone, fax, and computer services.

The State will provide conference facilities for DRA meetings at no cost to the Contractor.

The Contractor shall make direct payments to the DRA for participation in authorized meetings and approved hourly rate charges from invoices submitted.

The State will reimburse the Contractor for the State's share of the costs.

There will be no markups applied to expenses associated with the DRA, either by the DRA or by the Contractor when requesting payment of the State's share of DRA expenses. Regardless of the DRA recommendation, neither party will be entitled to reimbursement of DRA costs from the other party.

The Contractor shall submit extra work bills and include invoices with original supporting documents for reimbursement of the State's share.

The cost of technical services will be borne equally by the State and Contractor. There will be no markups for these costs.

A copy of the "Dispute Resolution Advisor Agreement" to be executed by the Contractor, State and the DRA is as follows:

Form CEM 6206 Rev (04-06-07)

DISPUTE RESOLUTION ADVISOR AGREEMENT

_____
(Contract Identification)

Contract No. _____

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THIS DISPUTE RESOLUTION ADVISOR AGREEMENT, hereinafter called "AGREEMENT", made and entered into this _____ day of _____, _____, between the State of California, acting through the California Department of Transportation and the Director of Transportation, hereinafter called the "STATE," _____ hereinafter called the "CONTRACTOR," and _____, the Dispute Resolution Advisor, hereinafter called the "DRA." .

WITNESSETH, that

WHEREAS, the STATE and the CONTRACTOR, hereinafter called the "parties," are now engaged in the construction on the State Highway project referenced above; and

WHEREAS, the special provisions for the above referenced contract provides for the establishment and operation of the DRA to assist in resolving disputes; and

WHEREAS, the DRA is composed of one person, chosen by the CONTRACTOR and the STATE;

NOW THEREFORE, in consideration of the terms, conditions, covenants, and performance contained herein, or attached and incorporated and made a part hereof, the STATE, the CONTRACTOR, and the DRA hereto agree as follows:

SECTION I DESCRIPTION OF WORK

To assist in the timely resolution of disputes between the parties, the contract provides for the establishment and the operation of the DRA. The DRA is to fairly and impartially consider disputes placed before it and provide recommendations for resolution of these disputes to the parties. The DRA shall provide recommendations based on the facts related to the dispute, the contract and applicable laws and regulations. The DRA shall perform the services necessary to participate in the DRA's actions as designated in Section III, Scope of Work.

SECTION II DRA QUALIFICATIONS

DRA shall be knowledgeable in the type of construction and contract documents anticipated by the contract and shall have completed training through the Dispute Review Board Foundation. In addition, it is desirable for the DRA to have served on several State Dispute Review Boards (DRB).

No DRA shall have prior direct involvement in this contract. No DRA shall have a financial interest in this contract or parties thereto, including but not limited to the CONTRACTOR, subcontractors, suppliers, consultants, and legal and business services, within a period 6 months prior to award and during this contract. Exceptions to above are compensation for services on this or other DRAs and DRBs or retirement payments or pensions received from a party that are not tied to, dependent on or affected by the net worth of the party.

DRA shall fully disclose all direct or indirect professional or personal relationships with all key members of the contract.

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SECTION III SCOPE OF WORK

The Scope of Work of the DRA includes, but is not limited to, the following:

A. PROCEDURES

The DRA shall meet with the parties at the start of the project to establish procedures that will govern the conduct of its business and reporting procedures in conformance with the requirements of the contract and the terms of this AGREEMENT. The DRA established procedures shall only be implemented upon approval by the parties. Subsequent meetings shall be held only to hear disputes between the parties.

The DRA shall not meet with, or discuss contract issues with individual parties.

State shall provide the DRA with the contract and all written correspondence regarding the dispute between the parties and, if available, the Contractor's supplemental notice of potential claim, and the Engineer's response to the supplemental notice of potential claim.

The parties shall not call the DRA who served on this contract as a witness in arbitration proceedings, which may arise from this contract.

The DRA shall have no claim against the STATE or the CONTRACTOR, or both, from claimed harm arising out of the parties' evaluations of the DRA's opinions.

B. DISPUTE MEETING

The term "dispute meeting" as used in this subsection shall refer to both the informal and traditional dispute meeting processes, unless otherwise noted.

If the CONTRACTOR requests a dispute meeting with the DRA, the Contractor must simultaneously notify the STATE. Upon being notified of the need for a dispute meeting, the DRA shall review and consider the dispute. The DRA shall determine the time and location of the dispute meeting with due consideration for the needs and preferences of the parties, while recognizing the importance of a speedy resolution to the dispute.

Dispute meetings shall be conducted at any location that would be convenient and provide required facilities and access to necessary documentation.

Only the STATE's Resident Engineer or Area Construction Engineer and the CONTRACTOR's or subcontractor's, if the dispute involves a subcontractor, Superintendent or Project Manager may present information at a dispute meeting. There shall be no participation of persons who are not directly involved in the contract or who do not have direct knowledge of the dispute. The exception to this is technical services, as described below:

> The DRA, with approval of the parties, may obtain technical services necessary to adequately review the disputes presented, including audit, geotechnical, schedule analysis and other services. The parties' technical staff may supply those services as appropriate. The cost of technical services, as agreed to by the parties, shall be borne equally by the two parties as specified in an approved contract change order. The CONTRACTOR shall not be entitled to markups for the payments made for these services.

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At the dispute meeting the DRA may ask questions, seek clarification, and request further clarification of data presented by either of the parties as may be necessary to assist in making a fully informed recommendation. However, the DRA shall refrain from expressing opinions on the merits of statements on matters under dispute during the parties' presentations. Each party will be given ample time to fully present its position, make rebuttals, provide relevant documents, and respond to DRA questions and requests.

There shall be no testimony under oath or cross-examination, during DRA dispute meetings. There shall be no reporting of the procedures by a shorthand reporter or by electronic means. Documents and verbal statements shall be received by the DRA in conformance with the rules and regulations established at the first meeting between the DRA and parties. These established rules and regulations need not comply with prescribed legal laws of evidence.

Failure to attend a dispute meeting by either of the parties shall be conclusively considered by the DRA as indication that the non-attending party considers all written documents and correspondence submitted as their entire and complete argument. The claimant shall discuss the dispute, followed by the other party. Each party shall then be allowed one or more rebuttals at the meeting until all aspects of the dispute are thoroughly covered.

1. **TRADITIONAL DISPUTE MEETING:**

   The following procedure shall be used for the traditional dispute meeting:

   a. Within 5 days, after receiving the STATE's written response to the CONTRACTOR's supplemental notice of potential claim, the CONTRACTOR shall refer the dispute to the DRA, if the CONTRACTOR wishes to further pursue the dispute. The CONTRACTOR shall make the referral in writing to the DRA, simultaneously copied to the STATE. The written dispute referral shall describe the disputed matter in individual discrete segments, so that it will be clear to both parties and the DRA what discrete elements of the dispute have been resolved, and which remain unresolved, and shall include an estimate of the cost of the affected work and impacts, if any, on project completion.
   b. The parties shall each be afforded an opportunity to be present and to be heard by the DRA, and to offer evidence. Either party furnishing written evidence or documentation to the DRA must furnish copies of such information to the other party a minimum of 10 days prior to the date the DRA is scheduled to convene the meeting for the dispute. Either party shall produce such additional evidence as the DRA may deem necessary to reach an understanding and a determination of the dispute. The party furnishing additional evidence shall furnish copies of such additional evidence to the other party at the same time the evidence is provided to the DRA. The DRA shall not consider evidence not furnished in conformance with the terms specified herein.
   c. Upon receipt by the DRA of a written referral of a dispute, the DRA shall convene to review and consider the dispute. The dispute meeting shall be held

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no later than 25 days after receipt of the written referral unless otherwise agreed to by all parties.

d. The DRA shall furnish a written report to both parties. The DRA may request clarifying information of either party within 5 days after the DRA dispute meeting. Requested information shall be submitted to the DRA within 5 days of the DRA request. The DRA shall complete its report and submit it to the parties within 10 days of the DRA dispute meeting, except that time extensions may be granted at the request of the DRA with the written concurrence of both parties. The report shall summarize the facts considered, the contract language, law or regulation viewed by the DRA as pertinent to the dispute, and the DRA's interpretation and philosophy in arriving at its conclusions and recommendations and, if appropriate, recommends guidelines for determining compensation. The DRA's written opinion shall stand on its own, without attachments or appendices.

e. Within 10 days after receiving the DRA's report, both parties shall respond to the DRA in writing signifying that the dispute is either resolved or remains unresolved. Failure to provide the written response within the time specified, or a written rejection of the DRA's recommendation or response to a request for reconsideration presented in the report by either party, shall conclusively indicate that the party(s) failing to respond accepts the DRA recommendation. Immediately after responses have been received from both parties, the DRA shall provide copies of both responses to the parties simultaneously. Either party may request clarification of elements of the DRA's report from the DRA prior to responding to the report. The DRA shall consider any clarification request only if submitted within 5 days of receipt of the DRA's report, and if submitted simultaneously in writing to both the DRA and the other party. Each party may submit only one request for clarification for any individual DRA report. The DRA shall respond, in writing, to requests for clarification within 5 days of receipt of such requests.

f. Either party may seek a reconsideration of the DRA's recommendation. The DRA shall only grant reconsideration based upon submission of new evidence and if the request is submitted within the 10 day time limit specified for response to the DRA's written report. Each party may submit only one request for reconsideration regarding an individual DRA recommendation.

g. If the parties are able to settle their dispute with the aid of the DRA's report, the STATE and CONTRACTOR shall promptly accept and implement the settlement of the parties. If the parties cannot agree on compensation within 30 days of the acceptance by both parties of the settlement, either party may request the DRA to make a recommendation regarding compensation.

2. INFORMAL DISPUTE MEETING

An informal dispute meeting shall be convened, only if, the parties and the DRA agree that this dispute resolution process is appropriate to settle the dispute.
The following procedure shall be used for the informal dispute meeting:

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a. The parties shall furnish the DRA with one copy of pertinent documents requested by the DRA that are or may become necessary for the DRA to perform its function. The party furnishing documents shall furnish such documents to the other party at the same time the document is provided to the DRA.
b. After the dispute meeting has concluded; the DRA shall deliberate in private the same day, until a response to the parties is reached or as otherwise agreed to by the parties.
c. The DRA then verbally delivers its recommendation with findings to the parties.
d. After the recommendation is presented, the parties may ask for clarifications.
e. Occasionally the DRA on complex issues may be unable to formulate a recommendation based on the information given at a dispute meeting. However, the DRA may provide the parties with advice on strengths and weaknesses of their prospective positions, in the hope of the parties reaching settlement.
f. If the parties are able to settle their dispute with the aid of the DRA's opinion, the STATE and CONTRACTOR shall promptly accept and implement the settlement of the parties.
g. The DRA will not be bound by its oral recommendation in the event that a dispute is later heard by the DRA in a traditional dispute meeting.

Unless the dispute is settled, use of the informal dispute meeting does not relive the parties of their responsibilities under Section 5-1.12, "Dispute Resolution Advisor," of the Special Provisions or Subsection, "Traditional Dispute Meeting," of this AGREEMENT. There will be no extension of time allowed for the process to permit the use of the informal dispute meeting, unless otherwise agreed to by the parties.

SECTION IV TIME FOR BEGINNING AND COMPLETION

Once established, the DRA shall be in operation until the day the Director accepts the contract. The DRA shall not begin work under the terms of this AGREEMENT until authorized in writing by the STATE or as agreed to by the parties.

SECTION V PAYMENT

DRA shall be compensated at an agreed rate of $1,500 per day for time spent per meeting, either at the start of the project or for a dispute. A member serving on more than one State DRA or DRB, regardless the number of meetings per day, shall not be paid more than the agreed rate per day. The agreed rate shall be considered full compensation for onsite time, travel expenses, transportation, lodging, time for travel and incidentals for each day, or portion thereof that the DRA is at an authorized DRA meeting. No additional compensation will be made for time spent by DRA to review and research activities outside the official DRA meetings unless that time, (such as time spent evaluating and preparing recommendations on specific issues presented to the DRA), has been specifically agreed to in advance by the parties. Time away from the project, which has been specifically agreed to in advance by the parties, will be compensated at an

agreed rate of $150 per hour. The agreed amount of $150 per hour shall include all incidentals including expenses for telephone, fax, and computer services. The State will provide administrative services such as conference facilities to the DRA.

A. PAYMENT PROCESSING

CONTRACTOR shall make direct payments to DRA for their participation in authorized meetings and approved hourly rate charges, from invoices submitted by the DRA, and technical services.

DRA may submit invoices to the CONTRACTOR for partial payment for work performed and services rendered for their participation in authorized meetings not more often than once per month during the progress of the work. The invoices shall be in a format approved by the parties and accompanied by a general description of activities performed during that billing period. Payment for hourly fees, at the agreed rate, shall not be paid to a DRA until the amount and extent of those fees are approved by the STATE and CONTRACTOR.

B. INSPECTION OF COSTS RECORDS

DRA and the CONTRACTOR shall keep available for inspection by representatives of the STATE and the United States, for a period of 3 years after final payment, the cost records and accounts pertaining to this AGREEMENT. If any litigation, claim, or audit arising out of, in connection with, or related to this contract is initiated before the expiration of the 3-year period, the cost records and accounts shall be retained until such litigation, claim, or audit involving the records is completed.

SECTION VI ASSIGNMENT OF TASKS OF WORK

DRA shall not assign the work of this AGREEMENT.

SECTION VII TERMINATION OF A DRA MEMBER

DRA may resign after providing not less than 15 days written notice of the resignation to the STATE and CONTRACTOR. The DRA may be terminated, by either party, for failing to fully comply at all times with all required employment or financial disclosure conditions of DRA membership in conformance with the terms of the contract and this AGREEMENT. Each party shall document the need for replacement and substantiate the replacement request in writing to the other party and the DRA.

SECTION VIII LEGAL RELATIONS

The parties hereto mutually understand and agree that the DRA in the performance of duties is acting in the capacity of an independent agent and not as an employee of either party.

No party to this AGREEMENT shall bear a greater responsibility for damages or personal injury than is normally provided by Federal or State of California Law.

Notwithstanding the provisions of this contract that require the CONTRACTOR to indemnify and hold harmless the STATE, the parties shall jointly indemnify and hold harmless the DRA from and against all claims, damages, losses, and expenses, including

but not limited to attorney's fees, arising out of and resulting from the findings and recommendations of the DRA.

SECTION IX CONFIDENTIALITY

The parties hereto mutually understand and agree that all documents and records provided by the parties in reference to issues brought before the DRA, which documents and records are marked "Confidential - for use by the DRA only," shall be kept in confidence and used only for the purpose of resolution of subject disputes, and for assisting in development of DRA findings and recommendations; that such documents and records will not be utilized or revealed to others, except to officials of the parties who are authorized to act on the subject disputes, for any purposes, during the life of this AGREEMENT. Upon termination of this AGREEMENT, said confidential documents and records, and all copies thereof, shall be returned to the parties who furnished them to the DRA. However, the parties understand that such documents may be subsequently discoverable and admissible in court or arbitration proceedings unless a protective order has been obtained by the party seeking further confidentiality.

SECTION X DISPUTES

Disputes between the parties arising out of the work or other terms of this AGREEMENT that cannot be resolved by negotiation and mutual concurrence between the parties or through the administrative process provided in the contract shall be resolved by arbitration as provided in Section 9-1.10, "Arbitration," of the Standard Specifications. Disputes between the DRA and the parties that cannot be resolved by negotiation and mutual concurrence shall be resolved in the appropriate forum.

SECTION XI VENUE, APPLICABLE LAW, AND PERSONAL JURISDICTION

In the event that any party, including the DRA, deems it necessary to institute arbitration proceedings to enforce any right or obligation under this AGREEMENT, the parties hereto agree that such action shall be initiated in the Office of Administrative Hearings of the State of California. The parties hereto agree that all questions shall be resolved by arbitration by application of California law and that the parties to such arbitration shall have the right of appeal from such decisions to the Superior Court in conformance with the laws of the State of California. Venue for the arbitration shall be Sacramento or any other location as agreed to by the parties.

SECTION XII FEDERAL REVIEW AND REQUIREMENTS

On Federal-Aid contracts, the Federal Highway Administration shall have the right to review the work of the DRA in progress, except for private meetings or deliberations of the DRA.

Other Federal requirements in this agreement shall only apply to Federal-Aid contracts.

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SECTION XIII CERTIFICATION OF CONTRACTOR, DRA, AND STATE

IN WITNESS WHEREOF, the parties hereto have executed this AGREEMENT as of the day and year first above written.

DRA

By: _____

Title: _____

CONTRACTOR

By: _____

Title: _____

CALIFORNIA STATE DEPARTMENT OF TRANSPORTATION

By: _____

Title: _____

5-1.15C Dispute Review Board

Section 5-1.15C, "Dispute Review Board," applies to a contract over $10 million.

5-1.15C(1) General

To assist in the resolution of disputes or potential claims arising out of the work of this project, a Dispute Review Board, hereinafter referred to as the "DRB," shall be established by the Engineer and Contractor cooperatively upon approval of the contract. The DRB is intended to assist the contract administrative claims resolution process as specified in the provisions in Section 9-1.04, "Notice of Potential Claim," and Section 9-1.07B, "Final Payment and Claims," of the Standard Specifications and these special provisions. The DRB shall not serve as a substitute for provisions in the specifications in regard to filing potential claims. The requirements and procedures established in this section shall be a prerequisite to filing a claim, filing for arbitration, or filing for litigation prior or subsequent to project completion.

The DRB shall be utilized when dispute or potential claim resolution at the project level is unsuccessful. The DRB shall function as specified herein until the day of acceptance of the contract, at which time the work of the DRB will cease except for completion of unfinished reports. No DRB dispute meetings shall take place later than 30 days prior to acceptance of contract. After acceptance of contract, disputes or potential claims which have followed the dispute resolution processes of the Standard Specifications and these special provisions, but have not been resolved, shall be stated or restated by the Contractor, in response to the Proposed Final Estimate within the time limits provided in Section 9-1.07B, "Final Payment and Claims," of the Standard Specifications. The State will review those claims in conformance with the provisions in Section 9-1.07B of the Standard Specifications. Following the adherence to and completion of the contractual administrative claims procedure, the Contractor may file

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for arbitration in conformance with the provisions in Section 9-1.10, "Arbitration," of the Standard Specifications and these special provisions.

Disputes, as used in this section, shall include differences of opinion, properly noticed as provided hereinafter, between the State and Contractor on matters related to the work and other subjects considered by the State or Contractor, or by both, to be of concern to the DRB on this project, except matters relating to Contractor, subcontractor or supplier potential claims not actionable against the Department as specified in these special provisions or quantification of disputes for overhead type expenses or costs. Disputes for overhead type expenses or costs shall conform to the requirements of Section 9-1.07B, "Final Payment and Claims," of the Standard Specifications. Whenever the term "dispute" or "disputes" is used herein, it shall be deemed to include potential claims as well as disputes.

The DRB shall serve as an advisory body to assist in the resolution of disputes between the State and the Contractor, hereinafter referred to as the "parties." The DRB shall consider disputes referred to it, and furnish written reports containing findings and recommendations pertaining to those disputes, to the parties to aid in resolution of the differences between them. DRB findings and recommendations are not binding on the parties.

5-1.15C(2) Selection Process, Disclosure and Appointments

The DRB shall consist of one member selected by the State and approved by the Contractor, one member selected by the Contractor and approved by the State, and a third member selected by the first 2 members and approved by both the State and the Contractor. The third member shall act as the DRB Chairperson.

DRB members shall be especially knowledgeable in the type of construction and contract documents potentially anticipated by the contract. DRB members shall discharge their responsibilities impartially as an independent body, considering the facts and circumstances related to the matters under consideration, pertinent provisions of the contract and applicable laws and regulations.

The State and the Contractor shall nominate and approve DRB members in conformance with the terms and conditions of the Dispute Review Board Agreement and these special provisions, within 45 days of the approval of the contract. Each party shall provide written notification to the other of the name of their selected DRB nominee along with the prospective member's complete written disclosure statement.

Disclosure statements shall include a resume of the prospective member's experience and a declaration statement describing past, present, anticipated, and planned relationships, including indirect relationships through the prospective member's primary or full-time employer, to this project and with the parties involved in this construction contract, including but not limited to, relevant subcontractors or suppliers to the parties, parties' principals, or parties' counsel. DRB members shall also include a full disclosure of close professional or personal relationships with all key members of the contract. Objections to nominees must be based on a specific breach or violation of nominee responsibilities or on nominee qualifications under these provisions unless otherwise specified. The Contractor or the State may, on a one-time basis, object to the other's nominee without specifying a reason and this person will not be selected for the DRB. Another person shall then be nominated within 15 days.

The first duty of the State and Contractor selected members of the DRB shall be to select and recommend a prospective third DRB member to the parties for final selection and approval. The first 2 DRB members shall proceed with the selection of the third DRB member immediately upon receiving written notification from the State of their selection, and shall provide their recommendation simultaneously to the parties within 15 days of the notification.

The first 2 DRB members shall select a third DRB member subject to mutual approval of the parties or may mutually concur on a list of potentially acceptable third DRB members and submit the list to the parties for final selection and approval of the third member. The goal in the selection of the third member is to complement the professional experience of the first 2 members and to provide leadership for the DRB's activities.

The third prospective DRB member shall supply a full disclosure statement to the first 2 DRB members and to the parties prior to appointment.

An impasse shall be considered to have been reached if the parties are unable to approve a third member within 15 days of receipt of the recommendation of the first 2 DRB members, or if the first 2 DRB members are unable to agree upon a recommendation within their 15 day time limit. In the event of an impasse in selection of third DRB member the State and the Contractor shall each propose 3 candidates for the third DRB member position. The parties shall select the candidates proposed under this paragraph from the current list of arbitrators certified by the Public Works Contract Arbitration Committee created by Article 7.2 (commencing with Section 10245) of the State Contract Act. The first 2 DRB members shall then select one of the 6 proposed candidates in a blind draw.

No DRB member shall have prior direct involvement in this contract. No member shall have a financial interest in this contract or the parties thereto, within a period of 6 months prior to award of this contract or during the contract, except as follows:

A. Compensation for services on this DRB.
B. Ownership interest in a party or parties, documented by the prospective DRB member, that has been reviewed and determined in writing by the State to be sufficiently insignificant to render the prospective member acceptable to the State.
C. Service as a member of other Dispute Review Boards on other contracts.
D. Retirement payments or pensions received from a party that are not tied to, dependent on or affected by the net worth of the party.
E. The above provisions apply to parties having a financial interest in this contract, including but not limited to contractors, subcontractors, suppliers, consultants, and legal and business services.

The Contractor or the State may reject any of the 3 DRB members who fail to fully comply at all times with all required employment and financial disclosure conditions of DRB membership as described in the Dispute Review Board Agreement and as specified herein. A copy of the Dispute Review Board Agreement is included in this section.

The Contractor, the State, and the 3 members of the DRB shall complete and adhere to the Dispute Review Board Agreement in administration of this DRB within 15 days of the parties' concurrence in the selection of the third member. No DRB meeting shall take

place until the Dispute Review Board Agreement has been signed by all parties. The State authorizes the Engineer to execute and administer the terms of the Agreement. The person(s) designated by the Contractor as authorized to execute contract change orders shall be authorized to execute and administer the terms of this agreement, or to delegate the authority in writing. The operation of the DRB shall be in conformance with the terms of the Dispute Review Board Agreement.

5-1.15C(3) Compensation

The State and the Contractor shall bear the costs and expenses of the DRB equally. Each DRB member shall be compensated at an agreed rate of $1,200 per day if time spent per meeting, including on-site time plus one hour of travel time, is greater than 4 hours. Each DRB member shall be compensated at an agreed rate of $700 per day if time spent per meeting, including on-site time plus one hour of travel time, is less than or equal to 4 hours. The agreed rates shall be considered full compensation for on-site time, travel expenses, transportation, lodging, time for travel and incidentals for each day, or portion thereof, that the DRB member is at an authorized DRB meeting. No additional compensation will be made for time spent by DRB members in review and research activities outside the official DRB meetings unless that time, (such as time spent evaluating and preparing recommendations on specific issues presented to the DRB), has been specifically agreed to in advance by the State and Contractor. Time away from the project, which has been specifically agreed to in advance by the parties, will be compensated at an agreed rate of $125 per hour. The agreed amount of $125 per hour shall include all incidentals including expenses for telephone, fax, and computer services. Members serving on more than one DRB involving the Department, regardless of the number of meetings per day, shall not be paid more than the all inclusive rate per day or rate per hour for an individual project. The State will provide, at no cost to the Contractor, administrative services such as conference facilities and secretarial services to the DRB. These special provisions and the Dispute Review Board Agreement state the provisions for compensation and expenses of the DRB. DRB members shall be compensated at the same daily and hourly rate. The Contractor shall make direct payments to each DRB member for their participation in authorized meetings and approved hourly rate charges from invoices submitted by each DRB member. The State will reimburse the Contractor for the State's share of the costs. There will be no markups applied to expenses connected with the DRB, either by the DRB members or by the Contractor when requesting payment of the State's share of DRB expenses. Regardless of the DRB recommendation, neither party shall be entitled to reimbursement of DRB costs from the other party.

5-1.15C(4) Replacement of DRB Members

Service of a DRB member may be terminated at any time with not less than 15 days notice as follows:

A. The State may terminate service of the State appointed member.
B. The Contractor may terminate service of the Contractor appointed member.
C. Upon the written recommendation of the State and Contractor appointed members for the removal of the third member.

D. Upon resignation of a member.
E. The State or Contractor may terminate the service of any member who fails to fully comply with all required employment and financial disclosure conditions of DRB membership.

When a member of the DRB is replaced, the replacement member shall be appointed in the same manner as the replaced member was appointed. The appointment of a replacement DRB member will begin promptly upon determination of the need for replacement and shall be completed within 15 days. Changes in either of the DRB members chosen by the 2 parties will not require re-selection of the third member, unless both parties agree to such re-selection in writing. The Dispute Review Board Agreement shall be amended to reflect the change of a DRB member.

5-1.15C(5) Operation

The following procedure shall be used for dispute resolution:

A. If the Contractor objects to any decision, act or order of the Engineer, the Contractor shall give written notice of potential claim in conformance with the provisions in Section 9-1.04, "Notice of Potential Claim," of the Standard Specifications and these special provisions, including the provision of applicable cost documentation; or file written protests or notices in conformance with the provisions in the Standard Specifications and these special provisions.
B. The Engineer will respond, in writing, to the Contractor's written supplemental notice of potential claim within 20 days of receipt of the notice.
C. Within 15 days after receipt of the Engineer's written response, the Contractor shall, if the Contractor still objects, file a written reply with the Engineer, stating clearly and in detail the basis of the objection.
D. Following an objection to the Engineer's written response, the Contractor shall refer the dispute to the DRB if the Contractor wishes to further pursue the objection to the Engineer's decision. The Contractor shall make the referral in writing to the DRB, simultaneously copied to the State, within 21 days after receipt of the written response from the Engineer. The written dispute referral shall describe the disputed matter in individual discrete segments so that it will be clear to both parties and the DRB what discrete elements of the dispute have been resolved, and which remain unresolved, and shall include an estimate of the cost of the affected work and impacts, if any, on project completion.
E. By failing to submit the written notice of referral to the DRB, within 21 days after receipt of the Engineer's written response to the supplemental notice of potential claim, the Contractor waives future claims and arbitration on the matter in contention.
F. The Contractor and the State shall each be afforded an opportunity to be present and to be heard by the DRB, and to offer evidence. Either party furnishing written evidence or documentation to the DRB must furnish copies of such information to the other party a minimum of 15 days prior to the date the DRB is scheduled to convene the meeting for the dispute. Either party shall produce such additional evidence as the DRB may deem necessary to reach an understanding

and a determination of the dispute. The party furnishing additional evidence shall furnish copies of such additional evidence to the other party at the same time the evidence is provided to the DRB. The DRB shall not consider evidence not furnished in conformance with the terms specified herein.

G. Upon receipt by the DRB of a written referral of a dispute, the DRB shall convene to review and consider the dispute. The dispute meeting shall be held no earlier than 30 days and no later than 60 days after receipt of the written referral unless otherwise agreed to by all parties. The DRB shall determine the time and location of the DRB dispute meeting, with due consideration for the needs and preferences of the parties while recognizing the paramount importance of a timely hearing of the dispute.

H. There shall be no participation of either party's attorneys at DRB dispute meetings.

I. There shall be no participation of persons who are not directly involved in the contract or who do not have direct knowledge of the dispute, including but not limited to consultants, except for expert testimony allowed at the discretion of the DRB and with approval prior to the dispute meeting by both parties.

J. The DRB shall furnish a report, containing findings and recommendations as described in the Dispute Review Board Agreement, in writing to both the State and the Contractor. The DRB may request clarifying information of either party within 10 days after the DRB dispute meeting. Requested information shall be submitted to the DRB within 10 days of the DRB request. The DRB shall complete its report, including minority opinion, if any, and submit it to the parties within 30 days of the DRB dispute meeting, except that time extensions may be granted at the request of the DRB with the written concurrence of both parties. The report shall include the facts and circumstances related to the matters under consideration, pertinent provisions of the contract, applicable laws and regulations, and actual costs and time incurred as shown on the Contractor's cost accounting records. The DRB shall make recommendations on the merit of the dispute and, if appropriate, recommend guidelines for determining compensation.

K. Within 30 days after receiving the DRB's report, both the State and the Contractor shall respond to the DRB in writing signifying that the dispute is either resolved or remains unresolved. Failure to provide the written response within the time specified, or a written rejection of the DRB's recommendation or response to a request for reconsideration presented in the report by either party, shall conclusively indicate that the party(s) failing to respond accepts the DRB recommendation. Immediately after responses have been received from both parties, the DRB shall provide copies of both responses to the parties simultaneously. Either party may request clarification of elements of the DRB's report from the DRB prior to responding to the report. The DRB shall consider any clarification request only if submitted within 10 days of receipt of the DRB's report, and if submitted simultaneously in writing to both the DRB and the other party. Each party may submit only one request for clarification for any individual DRB report. The DRB shall respond, in writing, to requests for clarification within 10 days of receipt of such requests.

DRAFT

L. The DRB's recommendations, stated in the DRB's reports, are not binding on either party. Either party may seek a reconsideration of a recommendation of the DRB. The DRB shall only grant a reconsideration based upon submission of new evidence and if the request is submitted within the 30-day time limit specified for response to the DRB's written report. Each party may submit only one request for reconsideration regarding an individual DRB recommendation.
M. If the State and the Contractor are able to resolve their dispute with the aid of the DRB's report, the State and Contractor shall promptly accept and implement the recommendations of the DRB. If the parties cannot agree on compensation within 60 days of the acceptance by both parties of the DRB's recommendation, either party may request the DRB to make a recommendation regarding compensation.
N. The State or the Contractor shall not call DRB members who served on the DRB for this contract as witnesses in arbitration proceedings which may arise from this contract, and all documents created by the DRB shall be inadmissible as evidence in subsequent arbitration proceedings, except the DRB's final written reports on each issue brought before it.
O. The State and Contractor shall jointly indemnify and hold harmless the DRB members from and against all claims, damages, losses, and expenses, including but not limited to attorney's fees, arising out of and resulting from the findings and recommendations of the DRB.
P. The DRB members shall have no claim against the State or the Contractor, or both, from claimed harm arising out of the parties' evaluations of the DRB's report.

5-1.15C(6) Disputes Involving Subcontractor Potential Claims

For purposes of this section, a "subcontractor potential claim" shall include any potential claim by a subcontractor (including also any pass through potential claims by a lower tier subcontractor or supplier) against the Contractor that is actionable by the Contractor against the Department which arises from the work, services, or materials provided or to be provided in connection with the contract. If the Contractor determines to pursue a dispute against the Department that includes a subcontractor potential claim, the dispute shall be processed and resolved in conformance with these special provisions and in conformance with the following:

A. The Contractor shall identify clearly in submissions pursuant to this section, that portion of the dispute that involves a subcontractor potential claim or potential claims.
B. The Contractor shall include, as part of its submission pursuant to Step D above, a certification (False Claims Act Certification) by the subcontractor's or supplier's officer, partner, or authorized representative with authority to bind the subcontractor and with direct knowledge of the facts underlying the subcontractor potential claim. The Contractor shall submit a certification that the subcontractor potential claim is acknowledged and forwarded by the Contractor. The form for these certifications is available from the Engineer.
C. At DRB dispute meetings involving one or more subcontractor potential claims, the Contractor shall require that each subcontractor involved in the dispute have

present an authorized representative with actual knowledge of the facts underlying the subcontractor potential claim to assist in presenting the subcontractor potential claim and to answer questions raised by the DRB members or the Department's representatives.

D. Failure by the Contractor to declare a subcontractor potential claim on behalf of its subcontractor (including lower tier subcontractors' and suppliers' pass through potential claims) at the time of submission of the Contractor's potential claims, as provided hereunder, shall constitute a release of the State by the Contractor of such subcontractor potential claim.

E. The Contractor shall include in all subcontracts under this contract that subcontractors and suppliers of any tier (a) agree to submit subcontractor potential claims to the Contractor in a proper form and in sufficient time to allow processing by the Contractor in conformance with the Dispute Review Board resolution specifications; (b) agree to be bound by the terms of the Dispute Review Board provisions to the extent applicable to subcontractor potential claims; (c) agree that, to the extent a subcontractor potential claim is involved, completion of all steps required under these Dispute Review Board special provisions shall be a condition precedent to pursuit by the subcontractor of other remedies permitted by law, including without limitation of a lawsuit against the Contractor; and (d) agree that the existence of a dispute resolution process for disputes involving subcontractor potential claims shall not be deemed to create any claim, right, or cause of action by any subcontractor or supplier against the Department.

Notwithstanding the foregoing, this Dispute Review Board special provision shall not apply to, and the DRB shall not have the authority to consider, subcontractor potential claims between the subcontractor(s) or supplier(s) and the Contractor that are not actionable by the Contractor against the Department.

5-1.15C(7) Dispute Review Board Agreement

A copy of the "Dispute Review Board Agreement" to be executed by the Contractor, State and the 3 DRB members after approval of the contract follows:

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Form 6202 Rev (09/01/02)

DISPUTE REVIEW BOARD AGREEMENT

_____
(Contract Identification)

Contract No. _____

THIS DISPUTE REVIEW BOARD AGREEMENT, hereinafter called "AGREEMENT", made and entered into this _____ day of _____, _____, between the State of California, acting through the California Department of Transportation and the Director of Transportation, hereinafter called the "STATE," _____ _____ hereinafter called the "CONTRACTOR," and the Dispute Review Board, hereinafter called the "DRB" consisting of the following members:

_____ ,
(Contractor Appointee)

_____ ,
(State Appointee)

and _____
(Third Person)

WITNESSETH, that

WHEREAS, the STATE and the CONTRACTOR, hereinafter called the "parties," are now engaged in the construction on the State Highway project referenced above; and

WHEREAS, the special provisions for the above referenced contract provides for the establishment and operation of the DRB to assist in resolving disputes; and

WHEREAS, the DRB is composed of three members, one selected by the STATE, one selected by the CONTRACTOR, and the third member selected by the other two members and approved by the parties;

NOW THEREFORE, in consideration of the terms, conditions, covenants, and performance contained herein, or attached and incorporated and made a part hereof, the STATE, the CONTRACTOR, and the DRB members hereto agree as follows:

SECTION I DESCRIPTION OF WORK

To assist in the resolution of disputes between the parties, the contract provides for the establishment and the operation of the DRB. The intent of the DRB is to fairly and impartially consider disputes placed before it and provide written recommendations for resolution of these disputes to both parties. The members of this DRB shall perform the

services necessary to participate in the DRB's actions as designated in Section II, Scope of Work.

SECTION II SCOPE OF WORK

The scope of work of the DRB includes, but is not limited to, the following:

A. OBJECTIVE

The principal objective of the DRB is to assist in the timely resolution of disputes between the parties arising from performance of this contract. It is not intended for either party to default on their normal responsibility to amicably and fairly settle their differences by indiscriminately assigning them to the DRB. It is intended that the mere existence of the DRB will encourage the parties to resolve disputes without resorting to this review procedure. But when a dispute that is serious enough to warrant the DRB's review does develop, the process for prompt and efficient action will be in place.

B. PROCEDURES

The DRB shall render written reports on disputes between the parties arising from the construction contract. Prior to consideration of a dispute, the DRB shall establish rules and regulations that will govern the conduct of its business and reporting procedures in conformance with the requirements of the contract and the terms of this AGREEMENT. DRB recommendations, resulting from its consideration of a dispute, shall be furnished in writing to both parties. The recommendations shall be based on facts and circumstances involved in the dispute, pertinent contract provisions, applicable laws and regulations. The recommendations shall find one responsible party in a dispute; shared or "jury" determinations shall not be rendered. The DRB shall make recommendations on the merit of the dispute, and if appropriate, recommend guidelines for determining compensation. If the parties cannot agree on compensation within 60 days of the acceptance by both parties of the DRB's recommendation, either party may request the DRB to make a recommendation regarding compensation.

The DRB shall refrain from officially giving advice or consulting services to anyone involved in the contract. The individual members shall act in a completely independent manner and while serving as members of the DRB shall have no consulting business connections with either party or its principals or attorneys or other affiliates (subcontractors, suppliers, etc.) who have a beneficial interest in the contract.

During scheduled meetings of the DRB as well as during dispute meetings, DRB members shall refrain from expressing opinions on the merits of statements on matters under dispute or potential dispute. Opinions of DRB members expressed in private sessions shall be kept strictly confidential. Individual DRB members shall not meet with, or discuss contract issues with individual parties, except as directed by the DRB Chairperson. Such discussions or meetings shall be disclosed to both parties. Other discussions regarding the project between the DRB members and the parties shall be in the presence of all three members and both parties. Individual DRB members shall not undertake independent investigations of any kind pertaining to disputes or potential disputes, except with the knowledge of both parties and as expressly directed by the DRB Chairperson.

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C. CONSTRUCTION SITE VISITS, PROGRESS MEETINGS AND FIELD INSPECTIONS

The DRB members shall visit the project site and meet with representatives of the parties to keep abreast of construction activities and to develop familiarity with the work in progress. Scheduled progress meetings shall be held at or near the project site. The DRB shall meet at least once at the start of the project, and at least once every 4 months thereafter. The frequency, exact time, and duration of additional site visits and progress meetings shall be as recommended by the DRB and approved by the parties consistent with the construction activities or matters under consideration and dispute. Each meeting shall consist of a round table discussion and a field inspection of the work being performed on the contract, if necessary. Each meeting shall be attended by representatives of both parties. The agenda shall generally be as follows:

1. Meeting opened by the DRB Chairperson.
2. Remarks by the STATE's representative.
3. A description by the CONTRACTOR's representative of work accomplished since the last meeting; the current schedule status of the work; and a forecast for the coming period.
4. An outline by the CONTRACTOR's representative of potential problems and a description of proposed solutions.
5. An outline by the STATE's representative of the status of the work as the STATE views it.
6. A brief description by the CONTRACTOR's or STATE's representative of potential claims or disputes which have surfaced since the last meeting.
7. A summary by the STATE's representative, the CONTRACTOR's representative, or the DRB of the status of past disputes and potential claims.

The STATE's representative will prepare minutes of all progress meetings and circulate them for revision and approval by all concerned within 10 days of the meeting.

The field inspection shall cover all active segments of the work, the DRB being accompanied by both parties' representatives. The field inspection may be waived upon mutual agreement of the parties.

D. DRB CONSIDERATION AND HANDLING OF DISPUTES

Upon receipt by the DRB of a written referral of a dispute, the DRB shall convene to review and consider the dispute. The dispute meeting shall be held no earlier than 30 days and no later than 60 days after receipt of the written referral, unless otherwise agreed to by all parties. The DRB shall determine the time and location of DRB dispute meetings, with due consideration for the needs and preferences of the parties while recognizing the paramount importance of speedy resolution of issues. No dispute meetings shall take place later than 30 days prior to acceptance of contract.

Normally, dispute meetings shall be conducted at or near the project site. However, any location that would be more convenient and still provide required facilities and access to necessary documentation shall be satisfactory.

Both parties shall be given the opportunity to present their evidence at these dispute meetings. It is expressly understood that the DRB members are to act impartially and

independently in the consideration of the contract provisions, applicable laws and regulations, and the facts and conditions surrounding any dispute presented by either party, and that the recommendations concerning any such dispute are advisory and nonbinding on the parties.

The DRB may request that written documentation and arguments from both parties be sent to each DRB member, through the DRB Chairperson, for review before the dispute meeting begins. A party furnishing written documentation to the DRB shall furnish copies of such information to the other party at the same time that such information is supplied to the DRB.

DRB dispute meetings shall be informal. There shall be no testimony under oath or cross-examination. There shall be no reporting of the procedures by a shorthand reporter or by electronic means. Documents and verbal statements shall be received by the DRB in conformance with acceptance standards established by the DRB. These standards need not comply with prescribed legal laws of evidence.

The third DRB member shall act as Chairperson for dispute meetings and all other DRB activities. The parties shall have a representative at all dispute meetings. Failure to attend a duly noticed dispute meeting by either of the parties shall be conclusively considered by the DRB as indication that the non-attending party considers written submittals as their entire and complete argument. The claimant shall discuss the dispute, followed by the other party. Each party shall then be allowed one or more rebuttals until all aspects of the dispute are thoroughly covered. DRB members shall ask questions, seek clarification, and request further data from either of the parties as may be necessary to assist in making a fully informed recommendation. The DRB may request from either party documents or information that would assist the DRB in making its findings and recommendations including, but not limited to, documents used by the CONTRACTOR in preparing the bid for the project. A refusal by a party to provide information requested by the DRB may be considered by the DRB as an indication that the requested material would tend to disprove that party's position. In large or complex cases, additional dispute meetings may be necessary in order to consider all the evidence presented by both parties. All involved parties shall maintain the confidentiality of all documents and information, as provided in this AGREEMENT.

During dispute meetings, no DRB member shall express an opinion concerning the merit of any facet of the case. DRB deliberations shall be conducted in private, with interim individual views kept strictly confidential.

After dispute meetings are concluded, the DRB shall meet in private and reach a conclusion supported by 2 or more members. Private sessions of the DRB may be held at a location other than the job site or by electronic conferencing as deemed appropriate, in order to expedite the process.

The DRB's findings and recommendations, along with discussion of reasons therefor, shall then be submitted as a written report to both parties. Recommendations shall be based on the pertinent contract provisions, applicable laws and regulations, and facts and circumstances related to the dispute. The report shall be thorough in discussing the facts considered, the contract language, law or regulation viewed by the DRB as pertinent to the issues, and the DRB's interpretation and philosophy in arriving at its conclusions and recommendations. The DRB's report shall stand on its own, without attachments or appendices. The DRB Chairperson shall furnish a copy of the written recommendation

report to the DRB Coordinator, Division of Construction, MS 44, P.O. Box 942874, Sacramento, CA 94274.

With prior written approval of both parties, the DRB may obtain technical services necessary to adequately review the disputes presented, including audit, geotechnical, schedule analysis and other services. The parties' technical staff may supply those services as appropriate. The cost of technical services, as agreed to by the parties, shall be borne equally by the 2 parties as specified in an approved contract change order. The CONTRACTOR will not be entitled to markups for the payments made for these services.

The DRB shall resist submittal of incremental portions of information by either party, in the interest of making a fully informed decision and recommendation.

The DRB shall make every effort to reach a unanimous decision. If this proves impossible, the dissenting member shall prepare a minority opinion, which shall be included in the DRB's report.

Although both parties should place weight upon the DRB's recommendations, they are not binding. Either party may appeal a recommendation to the DRB for reconsideration. However, reconsideration shall only be allowed when there is new evidence to present, and the DRB shall accept only one appeal from each party pertaining to an individual DRB recommendation. The DRB shall hear appeals in conformance with the terms described in the Section entitled "Dispute Review Board" in the special provisions.

E. DRB MEMBER REPLACEMENT

Should the need arise to appoint a replacement DRB member, the replacement DRB member shall be appointed in the same manner as the original DRB members were appointed. The selection of a replacement DRB member shall begin promptly upon notification of the necessity for a replacement and shall be completed within 15 days. This AGREEMENT shall be amended to indicate change in DRB membership.

SECTION III CONTRACTOR RESPONSIBILITIES

The CONTRACTOR shall furnish to each DRB member one copy of pertinent documents that are or may become necessary for the DRB to perform their function. Pertinent documents are written notices of potential claim, responses to those notices, drawings or sketches, calculations, procedures, schedules, estimates, or other documents which are used in the performance of the work or in justifying or substantiating the CONTRACTOR's position. The CONTRACTOR shall also furnish a copy of such pertinent documents to the STATE, in conformance with the terms outlined in the special provisions.

SECTION IV STATE RESPONSIBILITIES

The STATE will furnish the following services and items:

A. CONTRACT RELATED DOCUMENTS

The STATE will furnish to each DRB member one copy of Notice to Contractors and Special Provisions, Proposal and Contract, Plans, Standard Specifications, and Standard Plans, change orders, written instructions issued by the STATE to the CONTRACTOR,

or other documents pertinent to any dispute that has been referred to the DRB and necessary for the DRB to perform its function.

B. COORDINATION AND SERVICES

The STATE, through the Engineer, will, in cooperation with the CONTRACTOR, coordinate the operations of the DRB. The Engineer will arrange or provide conference facilities at or near the project site and provide secretarial and copying services to the DRB without charge to the CONTRACTOR.

SECTION V TIME FOR BEGINNING AND COMPLETION

Once established, the DRB shall be in operation until the day of acceptance of the contract. The DRB members shall not begin work under the terms of this AGREEMENT until authorized in writing by the STATE.

SECTION VI PAYMENT

A. ALL INCLUSIVE RATE PAYMENT

The STATE and the CONTRACTOR shall bear the costs and expenses of the DRB equally. Each DRB member shall be compensated at an agreed rate of $1,200 per day if time spent per meeting, including on-site time plus one hour of travel time, is greater than 4 hours. Each DRB member shall be compensated at an agreed rate of $700 per day if time spent per meeting, including on-site time plus one hour of travel time, is less than or equal to 4 hours. The agreed rates shall be considered full compensation for on-site time, travel expenses, transportation, lodging, time for travel and incidentals for each day, or portion thereof, that the DRB member is at an authorized DRB meeting. No additional compensation will be made for time spent by DRB members in review and research activities outside the official DRB meetings unless that time has been specifically agreed to in advance by the STATE and CONTRACTOR. Time away from the project that has been specifically agreed to in advance by the parties will be compensated at an agreed rate of $125 per hour. The agreed amount of $125 per hour shall include all incidentals including expenses for telephone, fax, and computer services. Members serving on more than one DRB involving the State, regardless of the number of meetings per day, shall not be paid more than the all inclusive rate per day or rate per hour for an individual project. The STATE will provide, at no cost to the CONTRACTOR, administrative services such as conference facilities and secretarial services to the DRB.

B. PAYMENTS

DRB members shall be compensated at the same rate. The CONTRACTOR shall make direct payments to each DRB member for their participation in authorized meetings and approved hourly rate charges from invoices submitted by each DRB member. The STATE will reimburse the CONTRACTOR for its share of the costs of the DRB.

The DRB members may submit invoices to the CONTRACTOR for partial payment for work performed and services rendered for their participation in authorized meetings not more often than once per month during the progress of the work. The invoices shall be in a format approved by the parties and accompanied by a general description of

activities performed during that billing period. Payment for hourly fees, at the agreed rate, shall not be paid to a DRB member until the amount and extent of those fees are approved by the STATE and CONTRACTOR.

Invoices shall be accompanied by original supporting documents, which the CONTRACTOR shall include with the extra work billing when submitting for reimbursement of the STATE's share of cost from the STATE. The CONTRACTOR will be reimbursed for one-half of approved costs of the DRB. No markups will be added to the CONTRACTOR's payment.

C. INSPECTION OF COSTS RECORDS

The DRB members and the CONTRACTOR shall keep available for inspection by representatives of the STATE and the United States, for a period of 3 years after final payment, the cost records and accounts pertaining to this AGREEMENT. If any litigation, claim, or audit arising out of, in connection with, or related to this contract is initiated before the expiration of the 3-year period, the cost records and accounts shall be retained until such litigation, claim, or audit involving the records is completed.

SECTION VII ASSIGNMENT OF TASKS OF WORK

The DRB members shall not assign the work of this AGREEMENT.

SECTION VIII TERMINATION OF DRB MEMBERS

DRB members may resign from the DRB by providing not less than 15 days written notice of the resignation to the STATE and CONTRACTOR. DRB members may be terminated by their original appointing power or by either party, for failing to fully comply at all times with all required employment and financial disclosure conditions of DRB membership in conformance with the terms of the contract.

SECTION IX LEGAL RELATIONS

The parties hereto mutually understand and agree that the DRB member in the performance of duties on the DRB, is acting in the capacity of an independent agent and not as an employee of either party.

No party to this AGREEMENT shall bear a greater responsibility for damages or personal injury than is normally provided by Federal or State of California Law.

Notwithstanding the provisions of this contract that require the CONTRACTOR to indemnify and hold harmless the STATE, the parties shall jointly indemnify and hold harmless the DRB members from and against all claims, damages, losses, and expenses, including but not limited to attorney's fees, arising out of and resulting from the findings and recommendations of the DRB.

SECTION X CONFIDENTIALITY

The parties hereto mutually understand and agree that all documents and records provided by the parties in reference to issues brought before the DRB, which documents and records are marked "Confidential - for use by the DRB only," shall be kept in confidence and used only for the purpose of resolution of subject disputes, and for assisting in development of DRB findings and recommendations; that such documents

DRAFT

and records will not be utilized or revealed to others, except to officials of the parties who are authorized to act on the subject disputes, for any purposes, during the life of the DRB. Upon termination of this AGREEMENT, said confidential documents and records, and all copies thereof, shall be returned to the parties who furnished them to the DRB. However, the parties understand that such documents shall be subsequently discoverable and admissible in court or arbitration proceedings unless a protective order has been obtained by the party seeking further confidentiality.

SECTION XI DISPUTES

Disputes between the parties hereto, including disputes between the DRB members and either party or both parties, arising out of the work or other terms of this AGREEMENT, which cannot be resolved by negotiation and mutual concurrence between the parties, or through the administrative process provided in the contract, shall be resolved by arbitration as provided in Section 9-1.10, "Arbitration," of the Standard Specifications.

SECTION XII VENUE, APPLICABLE LAW, AND PERSONAL JURISDICTION

In the event that any party, including an individual member of the DRB, deems it necessary to institute arbitration proceedings to enforce any right or obligation under this AGREEMENT, the parties hereto agree that such action shall be initiated in the Office of Administrative Hearings of the State of California. The parties hereto agree that all questions shall be resolved by arbitration by application of California law and that the parties to such arbitration shall have the right of appeal from such decisions to the Superior Court in conformance with the laws of the State of California. Venue for the arbitration shall be Sacramento or any other location as agreed to by the parties.

SECTION XIII FEDERAL REVIEW AND REQUIREMENTS

On Federal-Aid contracts, the Federal Highway Administration shall have the right to review the work of the DRB in progress, except for private meetings or deliberations of the DRB.

Other Federal requirements in this agreement shall only apply to Federal-Aid contracts.

DRAFT

SECTION XIV CERTIFICATION OF THE CONTRACTOR, THE DRB MEMBERS, AND THE STATE

IN WITNESS WHEREOF, the parties hereto have executed this AGREEMENT as of the day and year first above written.

DRB MEMBER

By: _____

Title: _____

DRB MEMBER

By: _____

Title: _____

DRB MEMBER

By: _____

Title: _____

CONTRACTOR

By: _____

Title: _____

CALIFORNIA STATE DEPARTMENT OF TRANSPORTATION

By: _____

Title: _____

Add:

5-1.16–5-17 (BLANK)

Add:

5-1.18 PROPERTY AND FACILITY PRESERVATION

5-1.18A General

Preserve property and facilities, including:

1. Adjacent property
2. Department's instrumentation
3. ESAs
4. Lands administered by other agencies
5. Railroads and railroad equipment

DRAFT

6. Roadside vegetation not to be removed
7. Utilities
8. Waterways

Immediately report damage to the Engineer.

If you cause damage, you are responsible.

Install sheet piling, cribbing, bulkheads, shores, or other supports necessary to support existing facilities or support material carrying the facilities.

Dispose of temporary facilities when they are no longer needed.

If you damage plants not to be removed:

1. Dispose of them outside the right of way unless the Engineer allows you to reduce them to chips and spread the chips within the highway at locations designated by the Engineer
2. Replace them

Replace plants with plants of the same species.

Replace trees with 24-inch-box trees.

Replace shrubs with No. 15 container shrubs.

Replace ground cover plants with plants from flats. Replace Carpobrutus ground cover plants with plants from cuttings. Plant ground cover plants 1 foot on center.

If a plant establishment period is specified, replace plants before the start of the plant establishment period; otherwise, replace plants at least 30 days before Contract acceptance.

Water each plant immediately after planting and saturate the backfill soil around and below the roots or ball of earth around the roots of each plant. Water as necessary to maintain plants in a healthy condition until Contract acceptance.

The Department may make a temporary repair to restore service to a damaged facility.

If working on or adjacent to railroad property, do not interfere with railroad operations.

For an excavation on or affecting railroad property, submit work plans showing the system to be used to protect railroad facilities. Allow 65 days for the Engineer's review of the plans. Do not perform work based on the plans until the Engineer notifies you they are accepted.

5-1.18B Nonhighway Facilities (Including Utilities)

The Department may rearrange a nonhighway facility during the Contract. Rearrangement of a nonhighway facility includes installation, relocation, alteration, or removal of the facility.

The Department may authorize facility owners and their agents to enter the highway to perform rearrangement work for their facilities or to make connections or repairs to their property. Coordinate activities to avoid delays.

Notify the Engineer at least 3 business days before you contact the regional notification center under Govt Code § 4216 et seq. Failure to contact the notification center prohibits excavation.

Before starting work that could damage or interfere with underground infrastructure, locate the infrastructure described in the Contract, including laterals and other appurtenances, and determine the presence of other underground infrastructure inferred from visible facilities such as buildings, meters, or junction boxes.

Notify the Engineer if the infrastructure described in the Contract cannot be found. If after giving the notice, you find the infrastructure in a substantially different location than described, finding the infrastructure is paid for as extra work as specified in Section 4-1.03D, "Extra Work."

Underground infrastructure described in the Contract may be in different locations than described, and additional infrastructure may exist.

Upon discovering an underground main or trunk line not described in the Contract, immediately notify the Engineer and the infrastructure owner. The Engineer orders the locating and protecting of the infrastructure. The locating and protecting is paid for as extra work as specified in Section 4-1.03D, "Extra Work." If ordered, repair infrastructure damage. If the damage is not due to your negligence, the repair is paid for as extra work as specified in Section 4-1.03D, "Extra Work."

If necessary underground infrastructure rearrangement is not described in the Contract, the Engineer may order you to perform the work. The rearrangement is paid for as extra work as specified in Section 4-1.03D, "Extra Work."

If you want infrastructure rearrangement different from that described in the Contract:

1. Notify the Engineer
2. Make an arrangement with the infrastructure owner
3. Obtain authorization for the rearrangement
4. The Department does not adjust time or payment for rearrangement different from the Contract
5. Pay the infrastructure owner any additional cost

Immediately notify the Engineer of a delay due to the presence of main line underground infrastructure not described in the Contract or in a substantially different location or due to rearrangement different from the Contract. The Department pays for one of these delays in the same manner as specified for a right of way delay in Section 8-1.09, "Right of Way Delays."

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SECTION 6 CONTROL OF MATERIALS
(Issued 05-01-09)

DRAFT

Replace Section 6-1.05 with:

6-1.05 SPECIFIC BRAND OR TRADE NAME AND SUBSTITUTION

A reference to a specific brand or trade name establishes a quality standard and is not intended to limit competition. You may use a product that is equal to or better than the specified brand or trade name if approved.

Submit a substitution request within a time period that:

1. Follows Contract award
2. Allows 30 days for review
3. Causes no delay

Include substantiating data with the substitution request that proves the substitution:

1. Is of equal or better quality and suitability
2. Causes no delay in product delivery and installation

Add:

6-1.075 GUARANTEE

Guarantee the work remains free from substantial defects for 1 year after contract acceptance except for work parts for which you were relieved of maintenance and protection. Guarantee each of these relieved work parts for 1 year after the relief date.

The guarantee excludes damage or displacement caused by an event outside your control including:

1. Normal wear and tear
2. Improper operation
3. Insufficient maintenance
4. Abuse
5. Unauthorized change
6. Act of God

During the guarantee period, repair or replace each work portion having a substantial defect.

The Department does not pay for corrective work.

During corrective work activities, provide insurance coverage specified for coverage before contract acceptance.

The contract bonds must be in full force and effect until the later of:

1. Expiration of guarantee period
2. Completion of corrective work

If a warranty specification conflicts with Section 6-1.075, "Guarantee," comply with the warranty specification.

DRAFT

During the guarantee period, the Engineer monitors the completed work. If the Engineer finds work having a substantial defect, the Engineer lists work parts and furnishes you the list.

Within 10 days of receipt of the list, submit for authorization a detailed plan for correcting the work. Include a schedule that includes:

1. Start and completion dates
2. List of labor, equipment, materials, and any special services you plan to use
3. Work related to the corrective work, including traffic control and temporary and permanent pavement markings

The Engineer notifies you when the plan is authorized. Start corrective work and related work within 15 days of notice.

If the Engineer determines corrective work is urgently required to prevent injury or property damage:

1. The Engineer furnishes you a request to start emergency repair work and a list of parts requiring corrective work
2. Mobilize within 24 hours and start work
3. Submit a corrective work plan within 5 days of starting emergency repair work

If you fail to perform work as specified, the Department may perform the work and bill you.

In Section 6-1.08 delete the 2nd paragraph.

Add:

6-1.085 BUY AMERICA (23 CFR 635.410)

For a Federal-aid contract, furnish steel and iron materials to be incorporated into the work that are produced in the United States except:

1. Foreign pig iron and processed, pelletized, and reduced iron ore may be used in the domestic production of the steel and iron materials [60 Fed Reg 15478 (03/24/1995)]
2. If the total combined cost of the materials does not exceed the greater of 0.1 percent of the total bid or $2,500, material produced outside the United States may be used

Production includes:

1. Processing steel and iron materials, including smelting or other processes that alter the physical form or shape (such as rolling, extruding, machining, bending, grinding, and drilling) or chemical composition

2. Coating application, including epoxy coating, galvanizing, and painting, that protects or enhances the value of steel and iron materials

For steel and iron materials to be incorporated into the work, submit a Certificate of Compliance under Section 6-1.07, "Certificates of Compliance," of the Standard Specifications that certifies all production processes occurred in the United States except for the above exceptions.

Add:

6-1.087 BUY AMERICA (PUB RES CODE § 42703(d))

Furnish crumb rubber to be incorporated into the work that is produced in the United States and is derived from waste tires taken from vehicles owned and operated in the United States.

For crumb rubber to be incorporated into the work, submit a Certificate of Compliance under Section 6-1.07, "Certificates of Compliance," of the Standard Specifications that certifies only crumb rubber manufactured in the United States and derived from waste tires taken from vehicles owned and operated in the United States is used.

In Section 6-2.01 delete the 4th paragraph.

In Section 6-2.01 replace the 7th paragraph with:

Upon the Contractor's written request, the Department tests materials from an untested local source. If satisfactory material from that source is used in the work, the Department does not charge the Contractor for the tests; otherwise, the Department deducts the test cost.

In Section 6-2.01 delete the 8th paragraph.

In Section 6-2.02 delete the 3rd paragraph.

In Section 6-2.02 in the 7th paragraph, replace the 2nd sentence with:

The Department deducts the charges for the removed material.

In Section 6-2.03 in the 3rd paragraph, replace the 5th sentence with:

No allowance or additional compensation will be made for lost time or for delay in completing the work due to moving the Contractor's plant from the designated mandatory

DRAFT

source to the alternative mandatory source, other than a time adjustment as specified in Section 8-1.09, "Delays."

In Section 6-3.01 delete the 4th paragraph.

In Section 6-3.01 in the 6th paragraph, delete the 1st sentence.

In Section 6-3.01 add:

As used in Section 6-3.01, "Testing," tests are tests to assure the quality and to determine the acceptability of the work.

The Department deducts costs of testing work found to be noncompliant.

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SECTION 7 LEGAL RELATIONS AND RESPONSIBILITY
(Issued 05-01-09)

Replace Section 7-1.01 with:

7-1.01 LAWS TO BE OBSERVED

Comply with laws, regulations, orders, decrees, and PLACs applicable to the project. Indemnify and defend the State against any claim or liability arising from the violation of a law, regulation, order, decree, or PLAC by you or your employees. Immediately report to the Engineer in writing a discrepancy or inconsistency between the contract and a law, regulation, order, decree, or PLAC.

In Section 7-1.01A replace the 1st clause with:

Work on the job site must comply with Labor Code §§ 1727 and 1770-1815 and 8 CA Code of Regs § 16000 et seq. Work includes roadside production and processing of materials.

In Section 7-1.01A(2) in the 1st paragraph, replace item 3 with:

3. Upon becoming aware of the subcontractor's failure to pay the specified prevailing rate of wages to the subcontractor's workers, the Contractor must diligently take corrective action to stop or rectify the failure, including withholding sufficient funds due the subcontractor for work performed on the public works project.

In Section 7-1.01A(2), replace the 2nd paragraph with:

Pursuant to Section 1775 of the Labor Code, the Division of Labor Standards Enforcement must 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 withhold 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 must 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 must pay any money withheld 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 must pay all moneys withheld from the subcontractor to the Department. The Department withholds these moneys pending the final decision of an enforcement action.

In Section 7-1.01A(2) replace 7th paragraph with:

Changes in general prevailing wage determinations apply to the contract when the Director of Industrial Relations has issued them at least 10 days before advertisement (Labor Code § 1773.6 and 8 CA Code of Regs 16204).

In Section 7-1.01A(3) replace the 2nd paragraph with:

The Department withholds the penalties specified in subdivision (g) of Labor Code § 1776 for noncompliance with the requirements in Section 1776.

In Section 7-1.01A(3) replace the 4th paragraph with:

The Department withholds for delinquent or inadequate payroll records (Labor Code § 1771.5). If the Contractor has not submitted an adequate payroll record by the month's 15th day for the period ending on or before the 1st of that month, the Department withholds 10 percent of the monthly progress estimate, exclusive of mobilization. The Department does not withhold more than $10,000 or less than $1,000.

In Section 7-1.01A(3) delete the 5th paragraph.

DRAFT

Replace Section 7-1.01A(6) with:

7-1.01A(6) (Blank)

Replace Section 7-1.01F with:

7-1.01F Environmental Stewardship

Comply with Section 14.

Replace Section 7-1.01I with:

7-1.01I (Blank)

In Section 7-1.02 in the 2nd paragraph, replace the 4th sentence with:

Trucks used to haul treated base, portland cement concrete, or hot mix asphalt shall enter onto the base to dump at the nearest practical entry point ahead of spreading equipment.

In Section 7-1.02 between the 4th and 5th paragraphs, add:

Loads imposed on existing, new, or partially completed structures shall not exceed the load carrying capacity of the structure or any portion of the structure as determined by AASHTO LRFD with interims and California Amendments, Design Strength Limit State II. The compressive strength of concrete (f'_c) to be used in computing the load carrying capacity shall be the smaller of the following:

1. Actual compressive strength at the time of loading
2. Value of f'_c shown on the plans for that portion of the structure or 2.5 times the value of f_c (extreme fiber compressive stress in concrete at service loads) shown on the plans for portions of the structure where no f'_c is shown

In Section 7-1.06 in the 1st paragraph, add:

The Contractor's Injury and Illness Prevention Program shall be submitted to the Engineer. The program shall address the use of personal and company issued electronic devices during work. The use of entertainment and personal communication devices in the work zone shall not be allowed. Workers may use a communication device for business purposes in the work area, at a location where their safety and the safety of other workers and the traveling public is not compromised.

DRAFT

Replace Section 7-1.07 with:

7-1.07 Lead Compliance Plan

Section 7-1.07 applies if a bid item for a lead compliance plan is included in the Contract.

Prepare a work plan to prevent or minimize worker exposure to lead while managing and handling earth materials, paint system debris, traffic stripe residue, and pavement marking residue containing lead. Regulations containing specific Cal/OSHA requirements when working with lead include 8 CA Code of Regs § 1532.1.

The plan must contain the items listed in 8 CA Code of Regs § 1532.1(e)(2)(B). Before submittal, a CIH must sign and seal the plan. Submit the plan at least 7 days before starting any activity that presents the potential for lead exposure. The Engineer notifies you of the acceptability of the plan within 4 business days of receipt.

Before starting any activity that presents the potential for lead exposure to employees who have no prior training, including State employees, provide a safety training program to these employees that complies with 8 CA Code of Regs § 1532.1 and your lead compliance program.

Submit copies of air monitoring or job site inspection reports made by or under the direction of the CIH under 8 CA Code of Regs § 1532.1 within 10 days after the date of monitoring or inspection.

Supply personal protective equipment, training, and washing facilities required by your lead compliance plan for 5 State employees.

The contract lump sum price paid for lead compliance plan includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in preparing and implementing the plan as specified in this section.

Replace Section 7-1.08 with:

7-1.08 PUBLIC CONVENIENCE

Compliance with the provisions of this section does not relieve you of your responsibility for public safety.

Construction activities must not inconvenience the public or abutting property owners. Schedule and conduct work to avoid unnecessary inconvenience to the public and abutting property owners. Avoid undue delay in construction activities to reduce the public's exposure to construction.

Where possible, route traffic on new or existing paved surfaces.

Maintain convenient access to driveways, houses, and buildings. When the abutting property owner's access across the right of way line is to be eliminated or replaced under the contract, the existing access must not be closed until the replacement access facilities are usable. Construct temporary approaches to crossings and intersecting highways.

Provide a reasonably smooth and even surface for use by traffic at all time during excavation of roadways and construction of embankments. Before other grading activities, place fill at culverts and bridges to allow traffic to cross. If ordered, excavate roadway cuts in layers and construct embankments in partial widths at a time alternating construction from one side to the other and routing traffic over the side opposite the one under construction. Install or construct culverts on only 1/2 the width of the traveled way

at a time; keep the traveled way portion being used by traffic open and unobstructed until the opposite side of the traveled way is ready for use by traffic.

Upon completion of rough grading or placing any subsequent layer, bring the surface of the roadbed to a smooth and even condition, free of humps and depressions and satisfactory for the use of the public.

After subgrade preparation for a specified layer of material has been completed, repair any damage to the roadbed or completed subgrade, including damage due to use by the public.

While subgrade and paving activities are underway, allow the public to use the shoulders. If half-width paving methods are used, allow the public to use the side of the roadbed opposite the one under construction. If enough width is available, keep open a passageway wide enough to accommodate at least 2 lanes of traffic at locations where subgrade and paving activities are underway. Shape shoulders or reshape subgrade as necessary to accommodate traffic during subgrade preparation and paving activities.

Apply water or dust palliative for the prevention or alleviation of dust nuisance.

Install signs, lights, flares, temporary railing (Type K), barricades and other facilities to direct traffic. Furnish flaggers whenever necessary to direct the movement of the public through or around the work.

You 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 the public which are lost while in your custody, or are damaged by your operations to such an extent as to require replacement or repair.

The Engineer may order or consent to your request to open a completed section of surfacing, pavement, or structure roadway surface for public use. You will not be compensated for any delay to your construction activities caused by the public. This does not relieve you from any other contractual responsibility.

Replace Section 7-1.09 with:

7-1.09 PUBLIC SAFETY

You are responsible to provide for public safety.

Do not construct a temporary facility that interferes with the safe passage of traffic.

Control dust resulting from the work, inside and outside the right-of-way.

Move workers, equipment, and materials without endangering traffic.

Whenever your operations create a condition hazardous to the public, furnish, erect and maintain those fences, temporary railing, barricades, lights, signs, and other devices and take any other necessary protective measures to prevent damage or injury to the public.

Any fences, temporary railing, barricades, lights, signs, or other devices furnished, erected and maintained by you are in addition to those for which payment is provided elsewhere in the specifications.

Provide flaggers whenever necessary to ensure that the public is given safe guidance through the work zone. Except as ordered, at locations where traffic is being routed through construction under one-way controls, move your equipment in compliance with the one-way controls.

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Use of signs, lights, flags, or other protective devices must conform with the California MUTCD and as ordered. Signs, lights, flags or other protective devices must 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 or traffic control devices.

Keep existing traffic signals and highway lighting in operation. Other entities perform routine maintenance of these facilities during the work.

Cover signs that direct traffic to a closed area. Providing, maintaining, and removing the covers on construction area signs is paid as extra work under Section 4-1.03, "Extra Work."

Install temporary illumination in a manner which the illumination and the illumination equipment does not interfere with public safety. The installation of general roadway illumination does not relieve you from furnishing and maintaining any protective devices.

Equipment must enter and leave the highway via existing ramps and crossovers and must move in the direction of public traffic. All movements of workmen and construction equipment on or across lanes open to public traffic must be performed in a manner that will not endanger the public. Your vehicles or other mobile equipment leaving an open traffic lane to enter the construction area, must slow down gradually in advance of the location of the turnoff to give traffic following an opportunity to slow down. When leaving a work area and entering a roadway carrying public traffic, your vehicles and equipment must yield to public traffic.

Immediately remove hauling spillage from roadway lanes or shoulders open to traffic. When hauling on roadways, trim loads and remove material from shelf areas to minimize spillage.

Notify the Engineer not less than 20 days and not more than 90 days before the anticipated start of an activity that will change the vertical or horizontal clearance available to public traffic, including shoulders.

If vertical clearance is temporarily reduced to 15.5 feet or less, place low clearance warning signs in accordance with the California MUTCD and as ordered. Signs must comply with the dimensions, color, and legend requirements of the California MUTCD and these specifications except that the signs must have black letters and numbers on an orange retroreflective background. W12-2P signs must be illuminated so that the signs are clearly visible.

Pave or provide full width continuous and cleared wood walks for pedestrian openings through falsework. Protect pedestrians from falling objects and curing water for concrete. Extend overhead protection for pedestrians not less than 4 feet beyond the edge of the bridge deck. Illuminate all pedestrian openings through falsework. Temporary pedestrian facilities must comply with the American with Disabilities Act of 1990 (ADA).

Do not store vehicles, material, or equipment in a way that:

1. Creates a hazard to the public
2. Obstructs traffic control devices

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Do not install or place temporary facilities used to perform the work which interfere with the free and safe passage of public traffic.

If you appear to be neglectful or negligent in furnishing warning devices and taking protective measures, the Engineer may direct your attention to the existence of a hazard and the necessary warning devices must be furnished and installed and protective measures taken by you. If the Engineer points out the inadequacy of warning devices and protective measures, that action on the part of the Engineer does not relieve you from your responsibility for public safety or abrogate the obligation to furnish and pay for these devices and measures.

Install temporary railing (Type K) or other approved protection system under the following conditions:

1. Excavations: Where the near edge of the excavation is within 15 feet from the edge of an open traffic lane
2. Temporarily Unprotected Permanent Obstacles: When the work includes the installation of a fixed obstacle together with a protective system, such as a sign structure together with protective railing, and you elect to install the obstacle before installing the protective system; or you, for your convenience and as authorized, remove a portion of an existing protective railing at an obstacle and do not replace such railing completely the same day
3. Storage Areas: When material or equipment is stored within 15 feet of the edge of an open traffic lane and the storage is not otherwise prohibited by the provisions of these Standard Specifications and the special provisions
4. Height Differentials: When construction operations create a height differential greater than 0.15 feet within 15 feet of the edge of traffic lane

Temporary railing (Type K) does not need to be installed where excavations within 15 feet from edge of an open traffic lane are:

1. Covered with steel plates or concrete covers of adequate thickness to prevent accidental entry by traffic or the public
2. In side slopes, where the downhill slope is 4:1 (horizontal:vertical) or less unless a naturally occurring condition
3. Protected by existing barrier or railing

Offset the approach end of temporary railing (Type K) a minimum of 15 feet from the edge of an open traffic lane. Install the temporary railing on a skew toward the edge of the traffic lane of not more than one foot transversely to 10 feet longitudinally with respect to the edge of the traffic lane. If the 15-foot minimum offset cannot be achieved, the temporary railing must be installed on the 10 to 1 skew to obtain the maximum available offset between the approach end of the railing and the edge of the traffic lane, and an array of temporary crash cushion modules must be installed at the approach end of the temporary railing.

Secure in place temporary railing (Type K) before starting work for which the temporary railing is required.

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Where 2 or more lanes in the same direction are adjacent to the area where the work is being performed, including shoulders, and unless a barrier is present, the adjacent lane must be closed under any of the following conditions:

1. Work is within 6 feet of the edge of traveled way and approach speed is greater than 45 miles per hour
2. Work is within 3 feet of the edge of traveled way and approach speed is less than 45 mile per hour

Do not reduce an open traffic lane width to less than 10 feet. When traffic cones or delineators are used for temporary edge delineation, the line of cones or delineators is considered the edge of the traveled way.

If a traffic lane is closed with channelizers for excavation work, move the devices to the adjacent edge of the traveled way when not excavating. Space the devices the same as specified for the lane closure.

Do not move or temporarily suspend anything over a traffic lane open to the public unless the public is protected.

Replace Section 7-1.11 with:

7-1.11 PRESERVATION OF PROPERTY

Comply with Section 5-1.18, "Property and Facility Preservation."

Replace Section 7-1.12 with:

7-1.12 INDEMNIFICATION AND INSURANCE

The Contractor's obligations regarding indemnification of the State of California and the requirements for insurance shall conform to the provisions in Section 3-1.05, "Insurance Policies," and Sections 7-1.12A, "Indemnification," and 7-1.12B, "Insurance," of this Section 7-1.12.

7-1.12A Indemnification

The Contractor shall defend, indemnify, and save harmless the State, including its officers, employees, and agents (excluding agents who are design professionals) from any and all claims, demands, causes of action, damages, costs, expenses, actual attorneys' fees, losses or liabilities, in law or in equity (Section 7-1.12A Claims) arising out of or in connection with the Contractor's performance of this contract for:

1. Bodily injury including, but not limited to, bodily injury, sickness or disease, emotional injury or death to persons, including, but not limited to, the public, any employees or agents of the Contractor, the State, or any other contractor; and
2. Damage to property of anyone including loss of use thereof; caused or alleged to be caused in whole or in part by any negligent or otherwise legally actionable act or omission of the Contractor or anyone directly or indirectly employed by the Contractor or anyone for whose acts the Contractor may be liable.

Except as otherwise provided by law, these requirements apply regardless of the existence or degree of fault of the State. The Contractor is not obligated to indemnify the State for Claims arising from conduct delineated in Civil Code Section 2782 and to Claims arising from any defective or substandard condition of the highway that existed at or before the start of work, unless this condition has been changed by the work or the scope of the work requires the Contractor to maintain existing highway facilities and the Claim arises from the Contractor's failure to maintain. The Contractor's defense and indemnity obligation shall extend to Claims arising after the work is completed and accepted if the Claims are directly related to alleged acts or omissions by the Contractor that occurred during the course of the work. State inspection is not a waiver of full compliance with these requirements.

The Contractor's obligation to defend and indemnify shall not be excused because of the Contractor's inability to evaluate liability or because the Contractor evaluates liability and determine that the Contractor is not liable. The Contractor shall respond within 30 days to the tender of any Claim for defense and indemnity by the State, unless this time has been extended by the State. If the Contractor fails to accept or reject a tender of defense and indemnity within 30 days, in addition to any other remedy authorized by law, the Department may withhold such funds the State reasonably considers necessary for its defense and indemnity until disposition has been made of the Claim or until the Contractor accepts or rejects the tender of defense, whichever occurs first.

With respect to third-party claims against the Contractor, the Contractor waives all rights of any type to express or implied indemnity against the State, its officers, employees, or agents (excluding agents who are design professionals).

Nothing in the Contract is intended to establish a standard of care owed to any member of the public or to extend to the public the status of a third-party beneficiary for any of these indemnification specifications.

7-1.12B Insurance

7-1.12B(1) General

Nothing in the contract is intended to establish a standard of care owed to any member of the public or to extend to the public the status of a third-party beneficiary for any of these insurance specifications.

7-1.12B(2) Casualty Insurance

The Contractor shall procure and maintain insurance on all of its operations with companies acceptable to the State as follows:

1. The Contractor shall keep all insurance in full force and effect from the beginning of the work through contract acceptance.
2. All insurance shall be with an insurance company with a rating from A.M. Best Financial Strength Rating of A- or better and a Financial Size Category of VII or better.
3. The Contractor shall maintain completed operations coverage with a carrier acceptable to the State through the expiration of the patent deficiency in construction statute of repose set forth in Code of Civil Procedure Section 337.1.

7-1.12B(3) Workers' Compensation and Employer's Liability Insurance

In accordance with Labor Code Section 1860, the Contractor shall secure the payment of worker's compensation in accordance with Labor Code Section 3700.

In accordance with Labor Code Section 1861, the Contractor shall submit to the Department the following certification before performing the work:

> 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.

Contract execution constitutes certification submittal.

The Contractor shall provide Employer's Liability Insurance in amounts not less than:

1. $1,000,000 for each accident for bodily injury by accident
2. $1,000,000 policy limit for bodily injury by disease
3. $1,000,000 for each employee for bodily injury by disease

If there is an exposure of injury to the Contractor's employees under the U.S. Longshoremen's and Harbor Workers' Compensation Act, the Jones Act, or under laws, regulations, or statutes applicable to maritime employees, coverage shall be included for such injuries or claims.

7-1.12B(4) Liability Insurance

7-1.12B(4)(a) General

The Contractor shall carry General Liability and Umbrella or Excess Liability Insurance covering all operations by or on behalf of the Contractor providing insurance for bodily injury liability and property damage liability for the following limits and including coverage for:

1. Premises, operations, and mobile equipment
2. Products and completed operations
3. Broad form property damage (including completed operations)
4. Explosion, collapse, and underground hazards
5. Personal injury
6. Contractual liability

7-1.12B(4)(b) Liability Limits/Additional Insureds

The limits of liability shall be at least the amounts shown in the following table:

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Total Bid	For Each Occurrence[1]	Aggregate for Products/Completed Operation	General Aggregate[2]	Umbrella or Excess Liability[3]
≤$1,000,000	$1,000,000	$2,000,000	$2,000,000	$5,000,000
>$1,000,000 ≤$5,000,000	$1,000,000	$2,000,000	$2,000,000	$10,000,000
>$5,000,000 ≤$25,000,000	$2,000,000	$2,000,000	$4,000,000	$15,000,000
>$25,000,000	$2,000,000	$2,000,000	$4,000,000	$25,000,000

1. Combined single limit for bodily injury and property damage.
2. This limit shall apply separately to the Contractor's work under this contract.
3. The umbrella or excess policy shall contain a clause stating that it takes effect (drops down) in the event the primary limits are impaired or exhausted.

The Contractor shall not require certified Small Business subcontractors to carry Liability Insurance that exceeds the limits in the table above. Notwithstanding the limits specified herein, at the option of the Contractor, the liability insurance limits for certified Small Business subcontractors of any tier may be less than those limits specified in the table. For Small Business subcontracts, "Total Bid" shall be interpreted as the amount of subcontracted work to a certified Small Business.

The State, including its officers, directors, agents (excluding agents who are design professionals), and employees, shall be named as additional insureds under the General Liability and Umbrella Liability Policies with respect to liability arising out of or connected with work or operations performed by or on behalf of the Contractor under this contract. Coverage for such additional insureds does not extend to liability:

1. Arising from any defective or substandard condition of the roadway which existed at or before the time the Contractor started work, unless such condition has been changed by the work or the scope of the work requires the Contractor to maintain existing roadway facilities and the claim arises from the Contractor's failure to maintain;
2. For claims occurring after the work is completed and accepted unless these claims are directly related to alleged acts or omissions of the Contractor that occurred during the course of the work; or
3. To the extent prohibited by Insurance Code Section 11580.04

Additional insured coverage shall be provided by a policy provision or by an endorsement providing coverage at least as broad as Additional Insured (Form B) endorsement form CG 2010, as published by the Insurance Services Office (ISO), or other form designated by the Department.

7-1.12B(4)(c) Contractor's Insurance Policy is Primary

The policy shall stipulate that the insurance afforded the additional insureds applies as primary insurance. Any other insurance or self-insurance maintained by the State is excess only and shall not be called upon to contribute with this insurance.

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7-1.12B(5) Automobile Liability Insurance

The Contractor shall carry automobile liability insurance, including coverage for all owned, hired, and nonowned automobiles. The primary limits of liability shall be not less than $1,000,000 combined single limit each accident for bodily injury and property damage. The umbrella or excess liability coverage required under Section 7-1.12B(4)(b) also applies to automobile liability.

7-1.12B(6) Policy Forms, Endorsements, and Certificates

The Contractor shall provide its General Liability Insurance under Commercial General Liability policy form No. CG0001 as published by the Insurance Services Office (ISO) or under a policy form at least as broad as policy form No. CG0001.

7-1.12B(7) Deductibles

The State may expressly allow deductible clauses, which it does not consider excessive, overly broad, or harmful to the interests of the State. Regardless of the allowance of exclusions or deductions by the State, the Contractor is responsible for any deductible amount and shall warrant that the coverage provided to the State is in accordance with Section 7-1.12B, "Insurance."

7-1.12B(8) Enforcement

The Department may assure the Contractor's compliance with its insurance obligations. Ten days before an insurance policy lapses or is canceled during the contract period, the Contractor shall submit to the Department evidence of renewal or replacement of the policy.

If the Contractor fails to maintain any required insurance coverage, the Department may maintain this coverage and withhold or charge the expense to the Contractor or terminate the Contractor's control of the work in accordance with Section 8-1.08, "Termination of Control."

The Contractor is not relieved of its duties and responsibilities to indemnify, defend, and hold harmless the State, its officers, agents, and employees by the Department's acceptance of insurance policies and certificates.

Minimum insurance coverage amounts do not relieve the Contractor for liability in excess of such coverage, nor do they preclude the State from taking other actions available to it, including the withholding of funds under this contract.

7-1.12B(9) Self-Insurance

Self-insurance programs and self-insured retentions in insurance policies are subject to separate annual review and approval by the State.

If the Contractor uses a self-insurance program or self-insured retention, the Contractor shall provide the State with the same protection from liability and defense of suits as would be afforded by first-dollar insurance. Execution of the contract is the Contractor's acknowledgement that the Contractor will be bound by all laws as if the Contractor were an insurer as defined under Insurance Code Section 23 and that the self-insurance program or self-insured retention shall operate as insurance as defined under Insurance Code Section 22.

DRAFT

Replace Section 7-1.125 with:

7-1.125 Legal Actions Against the Department

If legal action is brought against the Department over compliance with a State or Federal law, rule, or regulation applicable to highway work, then:

1. If the Department, in complying with a court order, prohibits you from performing work, the resulting delay is a suspension related to your performance, unless the Department terminates the contract.
2. If a court order other than an order to show cause or the final judgment in the action prohibits the Department from requiring you to perform work, the Department may delete the prohibited work or terminate the contract.

In Section 7-1.13 delete the 5th and 6th paragraphs.

Add:

7-1.50 FEDERAL LAWS FOR FEDERAL-AID CONTRACTS

7-1.50A General

Section 7-1.50, "Federal Laws for Federal-Aid Contracts," includes specifications required in a Federal-aid construction contract and applies to a Federal-aid contract.

Form FHWA-1273 is included in the contract in Section 7-1.50B, "FHWA-1273." Some contract terms on the form are different than those used in other contract parts as shown in the following table:

FHWA-1273 Terms and Department Equivalencies

FHWA-1273 Term	Equivalent Term Used in Other Contract Parts
SHA	Department
SHA contracting officer	Engineer
SHA resident engineer	Engineer

7-1.50B FHWA-1273

FHWA-1273 Electronic version -- March 10, 1994
with revised Section VI

REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS

I. General
II. Nondiscrimination
III. Nonsegregated Facilities
IV. Payment of Predetermined Minimum Wage
V. Statements and Payrolls
VI. Record of Materials, Supplies, and Labor
VII. Subletting or Assigning the Contract

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VIII. Safety: Accident Prevention
IX. False Statements Concerning Highway Projects
X. Implementation of Clean Air Act and Federal Water Pollution Control Act
XI. Certification Regarding Debarment, Suspension, Ineligibility, and Voluntary Exclusion
XII. Certification Regarding Use of Contract Funds for Lobbying

ATTACHMENTS

A. Employment Preference for Appalachian Contracts (included in Appalachian contracts only)

I. GENERAL

1. These contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.
2. Except as otherwise provided for in each section, the contractor shall insert in each subcontract all of the stipulations contained in these Required Contract Provisions, and further require their inclusion in any lower tier subcontract or purchase order that may in turn be made. The Required Contract Provisions shall not be incorporated by reference in any case. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with these Required Contract Provisions.
3. A breach of any of the stipulations contained in these Required Contract Provisions shall be sufficient grounds for termination of the contract.
4. A breach of the following clauses of the Required Contract Provisions may also be grounds for debarment as provided in 29 CFR 5.12:

   Section I, paragraph 2;
   Section IV, paragraphs 1, 2, 3, 4, and 7;
   Section V, paragraphs 1 and 2a through 2g.

5. Disputes arising out of the labor standards provisions of Section IV (except paragraph 5) and Section V of these Required Contract Provisions shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the U.S. Department of Labor (DOL) as set forth in 29 CFR 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 DOL, or the contractor's employees or their representatives.
6. **Selection of Labor:** During the performance of this contract, the contractor shall not:

   a. discriminate against labor from any other State, possession, or territory of the United States (except for employment preference for Appalachian contracts, when applicable, as specified in Attachment A), or

b. employ convict labor for any purpose within the limits of the project unless it is labor performed by convicts who are on parole, supervised release, or probation.

II. NONDISCRIMINATION

(Applicable to all Federal-aid construction contracts and to all related subcontracts of $10,000 or more.)

1. **Equal Employment Opportunity:** Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630 and 41 CFR 60) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The Equal Opportunity Construction Contract Specifications set forth under 41 CFR 60-4.3 and the provisions of the American Disabilities Act of 1990 (42 U.S.C. 12101 *et seq*.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

   a. The contractor will work with the State highway agency (SHA) and the Federal Government in carrying out EEO obligations and in their review of his/her activities under the contract.
   b. The contractor will accept as his operating policy the following statement:

      "It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: 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, preapprenticeship, and/or on-the-job training."

2. **EEO Officer:** The contractor will designate and make known to the SHA contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active contractor program of EEO and who must be assigned adequate authority and responsibility to do so.
3. **Dissemination of Policy:** All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.
b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.
c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minority group employees.
d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.
e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. **Recruitment:** When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minority groups in the area from which the project work force would normally be derived.

   a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minority group applicants. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority group applicants may be referred to the contractor for employment consideration.
   b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, he is expected to observe the provisions of that agreement to the extent that the system permits the contractor's compliance with EEO contract provisions. (The DOL has held that where implementation of such agreements have the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Executive Order 11246, as amended.)
   c. The contractor will encourage his present employees to refer minority group applicants for employment. Information and procedures with regard to referring minority group applicants will be discussed with employees.

5. **Personnel Actions:** Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be

taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.
b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.
c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.
d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with his obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of his avenues of appeal.

6. **Training and Promotion:**

a. The contractor will assist in locating, qualifying, and increasing the skills of minority group and women employees, and applicants for employment.
b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision.
c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.
d. The contractor will periodically review the training and promotion potential of minority group and women employees and will encourage eligible employees to apply for such training and promotion.

7. **Unions**: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use his/her best efforts to obtain the cooperation of such unions to increase opportunities for minority groups and women within the unions, and to effect referrals by such unions of minority and female employees. Actions by the contractor either directly or through a contractor's association acting as agent will include the procedures set forth below:

a. The contractor will use best efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minority group members and women for membership in the unions and increasing the skills of minority group employees and women so that they may qualify for higher paying employment.
b. The contractor will use best efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.
c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the SHA and shall set forth what efforts have been made to obtain such information.
d. In the event the union is unable to provide the contractor with a reasonable flow of minority and women referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minority group persons and women. (The DOL has held that it shall be no excuse that the union with which the contractor has a collective bargaining agreement providing for exclusive referral failed to refer minority employees.) In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these specifications, such contractor shall immediately notify the SHA.

8. **Selection of Subcontractors, Procurement of Materials and Leasing of Equipment:** The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment.

a. The contractor shall notify all potential subcontractors and suppliers of his/her EEO obligations under this contract.
b. Disadvantaged business enterprises (DBE), as defined in 49 CFR 23, shall have equal opportunity to compete for and perform subcontracts which the contractor enters into pursuant to this contract. The contractor will use his best efforts to solicit bids from and to utilize DBE subcontractors or subcontractors with meaningful minority group and female representation among their employees. Contractors shall obtain lists of DBE construction firms from SHA personnel.
c. The contractor will use his best efforts to ensure subcontractor compliance with their EEO obligations.

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9. **Records and Reports:** The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of the SHA and the FHWA.

   a. The records kept by the contractor shall document the following:

      1. The number of minority and non-minority group members and women employed in each work classification on the project;
      2. The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women;
      3. The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minority and female employees; and
      4. The progress and efforts being made in securing the services of DBE subcontractors or subcontractors with meaningful minority and female representation among their employees.

   b. The contractors will submit an annual report to the SHA each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data.

III. NONSEGREGATED FACILITIES

(Applicable to all Federal-aid construction contracts and to all related subcontracts of $10,000 or more.)

a. By submission of this bid, the execution of this contract or subcontract, or the consummation of this material supply agreement or purchase order, as appropriate, the bidder, Federal-aid construction contractor, subcontractor, material supplier, or vendor, as appropriate, certifies that the firm does not maintain or provide for its employees any segregated facilities at any of its establishments, and that the firm does not permit its employees to perform their services at any location, under its control, where segregated facilities are maintained. The firm agrees that a breach of this certification is a violation of the EEO provisions of this contract. The firm further certifies that no employee will be denied access to adequate facilities on the basis of sex or disability.

b. 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 directive, or are, in fact, segregated on the basis of race, color, religion, national origin, age or disability, because of habit, local custom, or otherwise. The only exception will be

DRAFT

for the disabled when the demands for accessibility override (e.g. disabled parking).

c. The contractor agrees that it has obtained or will obtain identical certification from proposed subcontractors or material suppliers prior to award of subcontracts or consummation of material supply agreements of $10,000 or more and that it will retain such certifications in its files.

IV. PAYMENT OF PREDETERMINED MINIMUM WAGE

(Applicable to all Federal-aid construction contracts exceeding $2,000 and to all related subcontracts, except for projects located on roadways classified as local roads or rural minor collectors, which are exempt.)

1. **General:**

   a. All mechanics and laborers 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 regulations (29 CFR 3) issued by the Secretary of Labor under the Copeland Act (40 U.S.C. 276c)] the full amounts of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment. The payment shall be computed at wage rates not less than those contained in the wage determination of the Secretary of Labor (hereinafter "the wage determination") which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor or its subcontractors and such laborers and mechanics. The wage determination (including any additional classifications and wage rates conformed under paragraph 2 of this Section IV and the DOL poster (WH-1321) or Form FHWA-1495) 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 be easily seen by the workers. For the purpose of this Section, contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b) (2) of the Davis- Bacon Act (40 U.S.C. 276a) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of Section IV, paragraph 3b, hereof. Also, for the purpose of this Section, 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 paragraphs 4 and 5 of this Section IV.

   b. 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.

DRAFT

c. All rulings and interpretations of the Davis-Bacon Act and related acts contained in 29 CFR 1, 3, and 5 are herein incorporated by reference in this contract.

2. **Classification:**

a. The SHA contracting officer shall require that any class of laborers or mechanics employed under the contract, which is not listed in the wage determination, shall be classified in conformance with the wage determination.
b. The contracting officer shall approve an additional classification, wage rate and fringe benefits only when the following criteria have been met:

1. the work to be performed by the additional classification requested is not performed by a classification in the wage determination;
2. the additional classification is utilized in the area by the construction industry;
3. the proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination; and
4. with respect to helpers, when such a classification prevails in the area in which the work is performed.

c. If the contractor or subcontractors, as appropriate, the laborers and mechanics (if known) to be employed in the additional classification 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 DOL, Administrator of the Wage and Hour Division, Employment Standards Administration, Washington, D.C. 20210. The Wage and Hour 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.
d. In the event the contractor or subcontractors, as appropriate, the laborers or mechanics to be employed in the additional 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 Wage and Hour Administrator for determination. Said 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.

DRAFT

e. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 2c or 2d of this Section IV shall be paid to all workers performing work in the additional classification from the first day on which work is performed in the classification.

3. **Payment of Fringe Benefits:**

a. 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 or subcontractors, as appropriate, shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly case equivalent thereof.
b. If the contractor or subcontractor, as appropriate, does not make payments to a trustee or other third person, he/she may consider as a 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.

4. **Apprentices and Trainees (Programs of the U.S. DOL) and Helpers:**

a. Apprentices:

1. 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 DOL, 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/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.
2. The allowable ratio of apprentices to journeyman-level employees 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 employee 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 listed in 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 or subcontractor 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-level hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

3. 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 journeyman-level 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 for the Wage and Hour Division determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.
4. 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 or subcontractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the comparable work performed by regular employees until an acceptable program is approved.

b. Trainees:

1. 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 DOL, Employment and Training Administration.
2. The ratio of trainees to journeyman-level employees on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. 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.
3. Every trainee must be paid at not less than the rate specified in the approved program for his/her level of progress, expressed as a percentage of the journeyman-level 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-level wage rate on the wage determination which

provides for less than full fringe benefits for apprentices, in which case such trainees shall receive the same fringe benefits as apprentices.

4. In the event the Employment and Training Administration withdraws approval of a training program, the contractor or subcontractor 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.

c. Helpers:

Helpers will be permitted to work on a project if the helper classification is specified and defined on the applicable wage determination or is approved pursuant to the conformance procedure set forth in Section IV.2. Any worker listed on a payroll at a helper wage rate, who is not a helper under an approved definition, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed.

5. **Apprentices and Trainees (Programs of the U.S. DOT):**

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

6. **Withholding:**

The SHA shall upon its own action or upon written request of an authorized representative of the DOL withhold, or cause to be withheld, from the contractor or subcontractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements which is held by the same prime contractor, as 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 the work, all or part of the wages required by the contract, the SHA contracting officer may, after written notice to the contractor, 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.

7. **Overtime Requirements:**

No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers, mechanics, watchmen, or guards (including apprentices, trainees, and helpers described in paragraphs 4 and

DRAFT

5 above) shall require or permit any laborer, mechanic, watchman, or guard in any workweek in which he/she is employed on such work, to work in excess of 40 hours in such workweek unless such laborer, mechanic, watchman, or guard receives compensation at a rate not less than one-and-one-half times his/her basic rate of pay for all hours worked in excess of 40 hours in such workweek.

8. **Violation:**

Liability for Unpaid Wages; Liquidated Damages: In the event of any violation of the clause set forth in paragraph 7 above, the contractor and any subcontractor responsible thereof shall be liable to the affected employee for his/her 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, mechanic, watchman, or guard employed in violation of the clause set forth in paragraph 7, in the sum of $10 for each calendar day on which such employee was required or permitted to work in excess of the standard work week of 40 hours without payment of the overtime wages required by the clause set forth in paragraph 7.

9. **Withholding for Unpaid Wages and Liquidated Damages:**

The SHA shall upon its own action or upon written request of any authorized representative of the DOL 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 8 above.

V. STATEMENTS AND PAYROLLS

(Applicable to all Federal-aid construction contracts exceeding $2,000 and to all related subcontracts, except for projects located on roadways classified as local roads or rural collectors, which are exempt.)

1. **Compliance with Copeland Regulations (29 CFR 3):**

The contractor shall comply with the Copeland Regulations of the Secretary of Labor which are herein incorporated by reference.

2. **Payrolls and Payroll Records:**

a. Payrolls and basic records relating thereto shall be maintained by the contractor and each subcontractor during the course of the work and preserved for a period of 3 years from the date of completion of the contract for all laborers, mechanics, apprentices, trainees, watchmen, helpers, and guards working at the site of the work.
b. The payroll records shall contain the name, social security number, and address of each such employee; his or her correct classification; hourly rates

of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalent thereof the types described in Section 1(b)(2)(B) of the Davis Bacon Act); daily and weekly number of hours worked; deductions made; and actual wages paid. In addition, for Appalachian contracts, the payroll records shall contain a notation indicating whether the employee does, or does not, normally reside in the labor area as defined in Attachment A, paragraph 1. Whenever the Secretary of Labor, pursuant to Section IV, paragraph 3b, has found 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 and each subcontractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, that the plan or program has been communicated in writing to the laborers or mechanics affected, and show the cost anticipated or the actual cost incurred in providing benefits. Contractors or subcontractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprentices and trainees, and ratios and wage rates prescribed in the applicable programs.

c. Each contractor and subcontractor shall furnish, each week in which any contract work is performed, to the SHA resident engineer a payroll of wages paid each of its employees (including apprentices, trainees, and helpers, described in Section IV, paragraphs 4 and 5, and watchmen and guards engaged on work during the preceding weekly payroll period). The payroll submitted shall set out accurately and completely all of the information required to be maintained under paragraph 2b of this Section V. 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- 005-0014-1), U.S. Government Printing Office, Washington, D.C. 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors.

d. Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his/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 2b of this Section V and that such information is correct and complete;
    2. that such laborer or 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 the Regulations, 29 CFR 3;
    3. that each laborer or mechanic has been paid not less that the applicable wage rate and fringe benefits or cash equivalent for the

classification of worked performed, as specified in the applicable wage determination incorporated into the contract.

e. 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 2d of this Section V.
f. The falsification of any of the above certifications may subject the contractor to civil or criminal prosecution under 18 U.S.C. 1001 and 31 U.S.C. 231.
g. The contractor or subcontractor shall make the records required under paragraph 2b of this Section V available for inspection, copying, or transcription by authorized representatives of the SHA, the FHWA, or the DOL, 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 SHA, the FHWA, the DOL, or all may, after written notice to the contractor, sponsor, applicant, or owner, take such actions 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.

VI. RECORD OF MATERIALS, SUPPLIES, AND LABOR

(As of May 22, 2007, Form FHWA-47 is no longer required.)

VII. SUBLETTING OR ASSIGNING THE CONTRACT

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the State. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635).

   a. "Its own organization" shall be construed to include only workers employed and paid directly by the prime contractor and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor, assignee, or agent of the prime contractor.
   b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph 1 of Section VII is computed includes the cost of material and manufactured products

which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the SHA contracting officer determines is necessary to assure the performance of the contract.
4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the SHA contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the SHA has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

VIII. SAFETY: ACCIDENT PREVENTION

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the SHA contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.
2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 333).
3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 333).

IX. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by Engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible.

Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, the following notice shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

NOTICE TO ALL PERSONNEL ENGAGED ON FEDERAL-AID HIGHWAY PROJECTS

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined not more that $10,000 or imprisoned not more than 5 years or both."

X. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

(Applicable to all Federal-aid construction contracts and to all related subcontracts of $100,000 or more.)

By submission of this bid or the execution of this contract, or subcontract, as appropriate, the bidder, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any facility that is or will be utilized in the performance of this contract, unless such contract is exempt under the Clean Air Act, as amended (42 U.S.C. 1857 *et seq*., as amended by Pub.L. 91-604), and under the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 *et seq*., as amended by Pub.L. 92-500), Executive Order 11738, and regulations in implementation thereof (40 CFR 15) is not listed, on the date of contract award, on the U.S. Environmental Protection Agency (EPA) List of Violating Facilities pursuant to 40 CFR 15.20.
2. That the firm agrees to comply and remain in compliance with all the requirements of Section 114 of the Clean Air Act and Section 308 of the

Federal Water Pollution Control Act and all regulations and guidelines listed thereunder.

3. That the firm shall promptly notify the SHA of the receipt of any communication from the Director, Office of Federal Activities, EPA, indicating that a facility that is or will be utilized for the contract is under consideration to be listed on the EPA List of Violating Facilities.
4. That the firm agrees to include or cause to be included the requirements of paragraph 1 through 4 of this Section X in every nonexempt subcontract, and further agrees to take such action as the government may direct as a means of enforcing such requirements.

XI. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

1. **Instructions for Certification - Primary Covered Transactions:**

(Applicable to all Federal-aid contracts - 49 CFR 29)

a. By signing and submitting this proposal, the prospective primary participant is providing the certification set out below.
b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective primary participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.
c. The certification in this clause is a material representation of fact upon which reliance was placed when the department or agency determined to enter into this transaction. If it is later determined that the prospective primary participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause of default.
d. The prospective primary participant shall provide immediate written notice to the department or agency to whom this proposal is submitted if any time the prospective primary participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
e. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the department or agency to which this proposal is submitted for assistance in obtaining a copy of those regulations.
f. The prospective primary participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not

DRAFT

knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective primary participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," provided by the department or agency entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the nonprocurement portion of the "Lists of Parties Excluded From Federal Procurement or Nonprocurement Programs" (Nonprocurement List) which is compiled by the General Services Administration.

i. 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 clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph f of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Primary Covered Transactions

1. The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:

   a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

   b. Have not within a 3-year period preceding this proposal been convicted of or had a civil judgement rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a

public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph 1b of this certification; and
d. Have not within a 3-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

2. Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

2. **Instructions for Certification - Lower Tier Covered Transactions:**

(Applicable to all subcontracts, purchase orders and other lower tier transactions of $25,000 or more - 49 CFR 29)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.
b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.
c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.
d. The terms "covered transaction," "debarred," "suspended," "ineligible," "primary covered transaction," "participant," "person," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations.
e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.
f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding

Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List.

h. 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 clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Covered Transactions:

1. The prospective lower tier participant certifies, by submission of this proposal, 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.
2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

XII. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

(Applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000 - 49 CFR 20)

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
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 Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.
3. The prospective participant also agrees by submitting his or her bid or proposal that he or she shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

7-1.50C Female and Minority Goals

To comply with Section II, "Nondiscrimination," of "Required Contract Provisions Federal-Aid Construction Contracts," the Department is including in Section 7-1.50C, "Female and Minority Goals," female and minority utilization goals for Federal-aid construction contracts and subcontracts that exceed $10,000.

The nationwide goal for female utilization is 6.9 percent.

The goals for minority utilization [45 Fed Reg 65984 (10/3/1980)] are as follows:

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Minority Utilization Goals

	Economic Area	Goal (Percent)
174	Redding CA: Non-SMSA Counties: CA Lassen; CA Modoc; CA Plumas; CA Shasta; CA Siskiyou; CA Tehema	6.8
175	Eureka, CA Non-SMSA Counties: CA Del Norte; CA Humboldt; CA Trinity	6.6
176	San Francisco-Oakland-San Jose, CA: SMSA Counties: 7120 Salinas-Seaside-Monterey, CA CA Monterey 7360 San Francisco-Oakland CA Alameda; CA Contra Costa; CA Marin; CA San Francisco; CA San Mateo 7400 San Jose, CA CA Santa Clara, CA 7485 Santa Cruz, CA CA Santa Cruz 7500 Santa Rosa CA Sonoma 8720 Vallejo-Fairfield-Napa, CA CA Napa; CA Solano Non-SMSA Counties: CA Lake; CA Mendocino; CA San Benito	 28.9 25.6 19.6 14.9 9.1 17.1 23.2
177	Sacramento, CA: SMSA Counties: 6920 Sacramento, CA CA Placer; CA Sacramento; CA Yolo Non-SMSA Counties CA Butte; CA Colusa; CA El Dorado; CA Glenn; CA Nevada; CA Sierra; CA Sutter; CA Yuba	 16.1 14.3
178	Stockton-Modesto, CA: SMSA Counties: 5170 Modesto, CA CA Stanislaus 8120 Stockton, CA CA San Joaquin Non-SMSA Counties CA Alpine; CA Amador; CA Calaveras; CA Mariposa; CA Merced; CA Toulumne	 12.3 24.3 19.8
179	Fresno-Bakersfield, CA SMSA Counties: 0680 Bakersfield, CA CA Kern 2840 Fresno, CA CA Fresno Non-SMSA Counties: CA Kings; CA Madera; CA Tulare	 19.1 26.1 23.6
180	Los Angeles, CA: SMSA Counties: 0360 Anaheim-Santa Ana-Garden Grove, CA CA Orange 4480 Los Angeles-Long Beach, CA CA Los Angeles	 11.9 28.3

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	6000 Oxnard-Simi Valley-Ventura, CA CA Ventura 6780 Riverside-San Bernardino-Ontario, CA CA Riverside; CA San Bernardino 7480 Santa Barbara-Santa Maria-Lompoc, CA CA Santa Barbara Non-SMSA Counties CA Inyo; CA Mono; CA San Luis Obispo	21.5 19.0 19.7 24.6
181	San Diego, CA: SMSA Counties 7320 San Diego, CA CA San Diego Non-SMSA Counties CA Imperial	 16.9 18.2

For each July during which work is performed under the contract, you and each non-material-supplier subcontractor with a subcontract of $10,000 or more must complete Form FHWA PR-1391 (Appendix C to 23 CFR 230). Submit the forms by August 15.

7-1.50D Training

Section 7-1.50D, "Training," applies if a number of trainees or apprentices is specified in the special provisions.

As part of your equal opportunity affirmative action program, provide on-the-job training to develop full journeymen in the types of trades or job classifications involved.

You have primary responsibility for meeting this training requirement.

If you subcontract a contract part, determine how many trainees or apprentices are to be trained by the subcontractor.

Include these training requirements in your subcontract.

Where feasible, 25 percent of apprentices or trainees in each occupation must be in their 1st year of apprenticeship or training.

Distribute the number of apprentices or trainees among the work classifications on the basis of your needs and the availability of journeymen in the various classifications within a reasonable recruitment area.

Before starting work, submit to the Department:

1. Number of apprentices or trainees to be trained for each classification
2. Training program to be used
3. Training starting date for each classification

Obtain the Department's approval for this submitted information before you start work. The Department credits you for each apprentice or trainee you employ on the work who is currently enrolled or becomes enrolled in an approved program.

The primary objective of Section 7-1.50D, "Training," is to train and upgrade minorities and women toward journeymen status. Make every effort to enroll minority and women apprentices or trainees, such as conducting systematic and direct recruitment through public and private sources likely to yield minority and women apprentices or trainees, to the extent they are available within a reasonable recruitment area. Show that

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you have made the efforts. In making these efforts, do not discriminate against any applicant for training.

Do not employ as an apprentice or trainee an employee:

1. In any classification in which the employee has successfully completed a training course leading to journeyman status or in which the employee has been employed as a journeyman
2. Who is not registered in a program approved by the US Department of Labor, Bureau of Apprenticeship and Training

Ask the employee if the employee has successfully completed a training course leading to journeyman status or has been employed as a journeyman. Your records must show the employee's answers to the questions.

In your training program, establish the minimum length and training type for each classification. The Department and FHWA approves a program if one of the following is met:

1. It is calculated to:

    1.1. Meet the your equal employment opportunity responsibilities
    1.2. Qualify the average apprentice or trainee for journeyman status in the classification involved by the end of the training period

2. It is registered with the U.S. Department of Labor, Bureau of Apprenticeship and Training and it is administered in a way consistent with the equal employment responsibilities of federal-aid highway construction contracts

Obtain the State's approval for your training program before you start work involving the classification covered by the program.

Provide training in the construction crafts, not in clerk-typist or secretarial-type positions. Training is allowed in lower level management positions such as office engineers, estimators, and timekeepers if the training is oriented toward construction applications. Training is allowed in the laborer classification if significant and meaningful training is provided and approved by the division office. Off-site training is allowed if the training is an integral part of an approved training program and does not make up a significant part of the overall training.

The Department reimburses you 80 cents per hour of training given an employee on this contract under an approved training program:

1. For on-site training
2. For off-site training if the apprentice or trainee is currently employed on a federal-aid project and you do at least one of the following:

    2.1. Contribute to the cost of the training
    2.2. Provide the instruction to the apprentice or trainee
    2.3. Pay the apprentice's or trainee's wages during the off-site training period

3. If you comply with Section 7-1.50D, "Training"

Each apprentice or trainee must:

1. Begin training on the project as soon as feasible after the start of work involving the apprentice's or trainee's skill
2. Remain on the project as long as training opportunities exist in the apprentice's or trainee's work classification or until the apprentice or trainee has completed the training program

Furnish the apprentice or trainee:

1. Copy of the program you will comply with in providing the training
2. Certification showing the type and length of training satisfactorily completed

Maintain records and submit reports documenting your performance under Section 7-1.50D, "Training."

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SECTION 8 PROSECUTION AND PROGRESS
(Issued 05-01-09)

Replace Section 8 with:
SECTION 8 PROSECUTION AND PROGRESS

8-1.01 (BLANK)

8-1.02 ASSIGNMENT

No third-party agreement relieves you or your surety of your responsibility to complete the work. Do not sell, transfer, or otherwise dispose of any contract part without prior written consent from the Department.

If you assign the right to receive contract payments, the Department accepts the assignment upon the Engineer's receipt of a notice. Assigned payments remain subject to deductions and withholds described in the contract. The Department may use withheld payments for work completion whether payments are assigned or not.

8-1.025 PRECONSTRUCTION CONFERENCE

Attend a preconstruction conference with key personnel, including your assigned representative, at a time and location determined by the Engineer. Submit documents as required before the preconstruction conference. You may begin work before the preconstruction conference.

Be prepared to discuss the following topics and documents:

Topics	Document
Claim resolution	Notice of Potential Claims
Contractor's representation	Assignment of Contractor's representative
DBE and DVBE	Final utilization reports
Equipment	Equipment list
Labor compliance and equal employment opportunity	Job site posters and benefit and payroll reports
Material inspection	Notice of Materials to be Used
Materials on hand	Request for Payment for Materials on Hand
Measurements	--
Partnering	Field Guide to Partnering on Caltrans Construction Projects
Quality control	QC plans
Safety	Injury and Illness Prevention Program and job site posters
Schedule	Baseline schedule and Weekly Statement of Working Days
Subcontracting	Subcontracting Request
Surveying	Survey Request
Traffic control	Traffic contingency plan and traffic control plans
Utility work	--
Weight limitations	--
Water Pollution Control	SWPPP or WPCP
Work restrictions	PLACs
Working drawings	--

8-1.03 BEGINNING OF WORK

Begin work within 15 days after receiving notice that the contract has been approved by the Attorney General or the attorney appointed and authorized to represent the Department. Submit a written notice 72 hours before beginning work. If the project has more than one location of work, submit a separate notice for each location.

You may begin work before receiving the notice of contract approval if you:

1. Deliver the signed contract, bonds, and evidence of insurance to the Department
2. Submit 72-hour notice
3. Obtain an encroachment permit from the Department
4. Are authorized by the Department to begin
5. Perform work at your own risk
6. Perform work under the contract

The Engineer does not count working days for days worked before contract approval.

If the contract is approved, work already performed that complies with the contract is authorized.

If the contract does not get approved, leave the job site in a neat condition. If a facility has been changed, restore it to its former or equivalent condition at your expense.

The Department does not adjust time for beginning before the approval date.

8-1.04 PROGRESS SCHEDULE

8-1.04A General

Reserved

8-1.04B Critical Path Method Schedule

The following definitions apply to critical path method schedules:

activity: Task, event, or other project element on a schedule that contributes to completing the project. Activities have a description, start date, finish date, duration, and one or more logic ties.

baseline schedule: The initial schedule showing the original work plan beginning on the date of contract approval. This schedule shows no completed work to date and no negative float or negative lag to any activity.

controlling activity: Construction activity that extends the scheduled completion date if delayed.

critical path: Longest continuous chain of activities for the project that has the least amount of total float of all chains. In general, a delay on the critical path extends the scheduled completion date.

critical path method (CPM): Network based planning technique using activity durations and relationships between activities to calculate a schedule for the entire project.

revised schedule: Schedule that incorporates a proposed or past change to logic or activity durations.

scheduled completion date: Planned project completion date shown on the current schedule.

updated schedule: Current schedule developed from the accepted baseline and any subsequent accepted updated or revised schedules through regular monthly review to incorporate actual past progress.

Before or at the preconstruction conference, submit a CPM baseline schedule.

Submit a monthly updated schedule that includes the status of work completed to date and the work yet to be performed as planned.

On each schedule, show:

1. Planned and actual start and completion date of each work activity, including applicable:

    1.1. Submittal development
    1.2. Submittal review and approval
    1.3. Material procurement
    1.4. Contract milestones and constraints
    1.5. Equipment and plant setup
    1.6. Interfaces with outside entities
    1.7. Erection and removal of falsework and shoring

1.8. Test periods
1.9. Major traffic stage change
1.10. Final cleanup

2. Order that you propose to prosecute the work
3. Logical links between the time-scaled work activities
4. All controlling activities
5. Legible description of each activity
6. At least one predecessor and one successor to each activity, except for project start and project end milestones
7. Duration of not less than one working day for each activity
8. Start milestone date as the contract approval date

You may include changes on updated schedules that do not alter the critical path or extend the schedule completion date compared to the current schedule. Changes may include:

1. Adding or deleting activities
2. Changing activity constraints
3. Changing durations
4. Changing logic

If any proposed change in planned work results in altering the critical path or extending the scheduled completion date, submit a revised schedule within 15 days of the proposed change.

For each schedule submittal:

1. Submit a plotted original, time-scaled network diagram on a sheet of at least 8.5" x 11" with a title block and timeline
2. If a computer program is used to make the schedule, submit a read-only compact disc or diskette containing the schedule data. Label the compact disc or diskette with:

2.1. Contract number
2.2. CPM schedule number and date produced
2.3. File name

If there is no contract item for progress schedule (critical path method), full compensation for this work is included in the contract prices paid for the items of work involved, and no additional compensation will be allowed therefor.

8-1.05 TEMPORARY SUSPENSION OF WORK

8-1.05A General

The Engineer may suspend work wholly or in part due to any of the following:

1. Conditions are unsuitable for work progress.

2. You fail to do any of the following:

    2.1. Fulfill the Engineer's orders.
    2.2. Fulfill a contract part.
    2.3. Perform weather-dependent work when conditions are favorable so that weather-related unsuitable conditions are avoided or do not occur.

Upon the Engineer's written order of suspension, suspend work immediately. Provide for public safety and a smooth and unobstructed passageway through the work zone during the suspension as specified in Sections 7-1.08, "Public Convenience," and 7-1.09, "Public Safety." Resume work when ordered.

8-1.05B Suspensions Unrelated to Contractor Performance

For a suspension unrelated to your performance, providing for a smooth and unobstructed passageway through the work during the suspension will be paid for as extra work as specified in Section 4-1.03D, "Extra Work."

The days during a suspension unrelated to your performance are non-working days.

8-1.05C Suspensions Related to Contractor Performance

For a suspension related to your performance, the Department may provide for a smooth and unobstructed passageway through the work during the suspension and deduct the cost from payments.

The days during a suspension related to your performance are working days.

8-1.06 TIME OF COMPLETION

The time to complete the work is specified in the special provisions.

The Engineer issues a Weekly Statement of Working Days by the end of the following week unless the contract is suspended for reasons unrelated to your performance.

The Weekly Statement of Working Days shows:

1. Working days and non-working days during the reporting week
2. Time adjustments
3. Work completion date computations, including working days remaining
4. Controlling activities

You may protest a Weekly Statement of Working Days by:

1. Submitting a Notice of Potential Claim within 5 days of receipt of the Weekly Statement of Working Days
2. Following the dispute and claim procedures specified in Sections 9-1.04, "Notice of Potential Claim," and 9-1.07B, "Final Payment and Claims."

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8-1.07 LIQUIDATED DAMAGES

8-1.07A General

The Department specifies liquidated damages (Pub Cont Code § 10226). Liquidated damages, if any, accrue starting on the 1st day after the expiration of the working days through the day of contract acceptance except as specified in Sections 8-1.07B, "Failure to Complete Work Parts within Specified Times," and 8-1.07C, "Failure to Complete Work Parts by Specified Dates."

The Department withholds liquidated damages before the accrual date if the anticipated liquidated damages may exceed the value of the remaining work.

Liquidated damages for all work, except plant establishment, are:

Liquidated Damages		
Total Bid		Liquidated Damages per Day
From over	To	
$0	$50,000	$1,200
$50,000	$120,000	$1,500
$120,000	$1,000,000	$1,900
$1,000,000	$5,000,000	$3,000
$5,000,000	$10,000,000	$5,400
$10,000,000	$30,000,000	$8,300
$30,000,000	$100,000,000	$10,500
$100,000,000	$250,000,000	$28,500

If all work, except plant establishment, is complete and the total number of working days has expired, liquidated damages are $950 per day.

8-1.07B Failure to Complete Work Parts within Specified Times

The Department may deduct specified damages from payments for each day in completing a work part beyond the time specified for completing the work part.

Damages for untimely completion of work parts may not be equal to the daily amount specified as liquidated damages for the project as a whole, but the Department does not simultaneously assess damages for untimely completion of work parts and for the whole work.

Damages accrue starting the 1st day after a work part exceeds the specified time through the day the specified work part is complete.

8-1.07C Failure to Complete Work Parts by Specified Dates

The Department may deduct specified damages from payments for each day in completing a work part beyond the specified completion date for the work part.

Damages for untimely work part completion may not be equal to the daily amount specified as liquidated damages for the project as a whole, but the Department does not simultaneously assess damages for untimely work part completion and the whole work.

Damages accrue starting the 1st day after an unmet completion date through the day the work part is complete.

DRAFT

8-1.07D Director Days

If the work is not completed within the working days, the Director may grant director days if it serves the State's best interest.

By granting director days, the Director adds working days to the contract. The Director may either grant enough days to eliminate the liquidated damages or fewer. In the latter case, the Department deducts liquidated damages for the remaining overrun in contract time. The Director may deduct the Department's engineering, inspection, and overhead costs incurred during the period of extension granted as director days.

8-1.08 TERMINATION OF CONTROL

The Department may terminate your control of the work for failure to do any of the following (Pub Cont Code § 10253):

1. Supply an adequate workforce
2. Supply material as described
3. Pay subcontractors (Pub Cont Code §10262)
4. Prosecute the work as described in the contract

The Department may also terminate your control for failure to maintain insurance coverage.

For a Federal-aid contract, the Department may terminate your control of the work for failure to include "Required Contract Provisions, Federal-Aid Construction Contracts" in subcontracts.

The Department gives you and your surety notice at least 5 days before terminating control. The notice describes the failures and the time allowed to remedy the failures. If failures are not remedied within the time provided, the Department takes control of the work.

The Department may complete the work if the Department terminates your control or you abandon the project (Pub Cont Code § 10255). The Department determines the unpaid balance under Pub Cont Code § 10258 and the contract.

At any time before final payment of all claims, the Department may convert a termination of control to a termination of contract.

8-1.09 DELAYS

8-1.09A General

An excusable delay is a delay of a controlling activity beyond your control, not foreseeable when the work began such as:

1. Change in the work
2. Department action that is not part of the contract
3. Presence of an underground utility main not described in the contract or in a location different from that specified
4. Described facility reconstruction not reconstructed as described, by the utility owner by the date specified, unless the reconstruction is solely for your convenience
5. Department's failure to obtain timely access to the right-of-way

6. Department's failure to perform an action in the time specified

A critical delay is a delay that extends the schedule completion date.

If requesting a delay-related time or payment adjustment, follow the dispute and claim procedures specified in Sections 9-1.04, "Notice of Potential Claim," and 9-1.07B, "Final Payment and Claims."

Minimize and mitigate impacts of delays.

8-1.09B Time Adjustments

For an excusable critical delay, the Department may make a time adjustment. The Engineer uses information from the schedule to evaluate requests for time adjustments.

If requesting an adjustment, submit a revised schedule showing the delay's effect on the controlling activity. If the delay has:

1. Occurred, submit records of dates and what work was performed during the delayed activity
2. Not occurred, submit the expected dates or duration of the delayed activity

If the Engineer requests, update the schedule to the last working day before the start of the delay.

8-1.09C Payment Adjustments

The Department may make a payment adjustment for an excusable delay that affects your costs.

Only losses for idle equipment, idle workers, and equipment moving or transporting are eligible for delay-related payment adjustments.

The Engineer determines payment for idle time of equipment in the same manner as determinations are made for equipment used in the performance of extra work paid for on a force account basis as specified in Section 9-1.03A(3), "Equipment Rental," with the following exceptions:

1. Delay factor in the Labor Surcharge and Equipment Rental Rates applies to each equipment rental rate
2. Daily number of payable hours equals the normal working hours during the delay, not to exceed 8 hours per day
3. Delay days exclude non-working days
4. Markups are not added

The Engineer determines payment adjustment for idle workers under Section 9-1.03A(1), "Labor," but does not add markups.

The Engineer includes costs due to necessary extra equipment moving or transporting.

8-1.10 (BLANK)

DRAFT

8-1.11 TERMINATION OF CONTRACT

8-1.10A General

The Director may terminate the contract if it serves the State's best interest. The Department issues you a written notice, implements the termination, and pays you.

8-1.10B Relief from Responsibility for Work

On receiving a termination notice:

1. Stop work
2. Notify subcontractors and suppliers of the contract termination and stop contract-related work
3. Perform the Engineer-ordered work to secure the job site for termination
4. Remove equipment
5. If authorized, settle termination-related claims and liabilities involving subcontractors and suppliers; assign to the Department the rights, titles, or interests held by you with respect to these parties

8-1.10C Responsibility for Materials

On receiving a termination notice, protect unused material until:

1. You submit an inventory of materials already produced, purchased, or ordered but not yet used; include the location of the material.
2. The Engineer identifies materials that will be retained by the Department. Submit bills of sales or other records of material title.
3. The Engineer confirms that unused materials paid by progress payment and materials furnished by the State have been delivered and stored as ordered.
4. Titles are transferred for materials purchased by the Department.

Dispose of materials that will not be retained by the Department.

8-1.10D Contract Acceptance after Termination

The Engineer recommends contract acceptance after determining completion of:

1. Contract work ordered to be completed before termination
2. Other work ordered to secure the project before termination
3. Material delivery and title transfer

Payment is made as specified in Section 9-1.07B, "Final Payment and Claims."

8-1.10E Payment Adjustment for Termination

If the Department issues a termination notice, the Engineer determines payment for termination based on the following:

1. Direct cost for the work:

DRAFT

1.1. Including mobilization, demobilization, securing the job site for termination, and losses from the sale of materials
1.2. Not including the cost of materials you keep, profit realized from the sale of materials, the cost of material damaged by an occurrence as defined in Section 7-1.165, "Damage by Storm, Flood, Tsunami or Earthquake," and other credits.

2. Cost of remedial work, as estimated by the Engineer, is not reimbursed.
3. Allowance for profit not to exceed 4 percent of the cost of the work. Prove a likelihood of having made a profit had the contract not been terminated.
4. Material handling costs for material returned to the vendor or disposed of as ordered.
5. Costs in determining the payment adjustment due to the termination, excluding attorney fees and litigation costs.

Termination of the contract does not relieve the surety of its obligation for any just claims arising out of the work performed.

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SECTION 9 MEASUREMENT AND PAYMENT
(Issued 05-01-09)

In Section 9-1.02 in the 1st paragraph, replace last sentence with:

Neither the payment of any estimate nor of any retained percentage or withhold relieves the Contractor of any obligation to make good any defective work or material.

Add to Section 9-1.02:

The Department pays 10 percent per year interest for unpaid and undisputed:

1. Progress payments
2. After-acceptance payment except for claims

For these payments, interest starts to accrue 30 days after the 1st working day following the 20th day of the month payment is due.

The Department pays 6 percent per year interest for accepted claims. Interest starts to accrue 61 days after the Department accepts a Final Claim Statement.

The Department pays 6 percent per year interest for awards in arbitration (Civ Code § 3289).

If the amount of a deduction or withhold exceeds final payment, the Department invoices you for the difference, to be paid upon receipt.

DRAFT

In Section 9-1.03A replace the 2nd paragraph with:

To the total of the direct costs computed as provided in Sections 9-1.03A(1), "Labor," 9-1.03A(2), "Materials," and 9-1.03A(3), "Equipment Rental," there will be added a markup of 35 percent to the cost of labor, 15 percent to the cost of materials, and 15 percent to the cost of equipment rental.

In Section 9-1.03A replace the 4th paragraph with:

If a subcontractor performs work at force account, accept an additional 10 percent markup to the total cost of that work paid at force account, including markups specified in Section 9-1.03, "Force Account Payment," as reimbursement for additional administrative costs.

Replace Section 9-1.03B with:

The Contractor, and all subcontractors obtained before or after contract execution, shall itemize the labor, material, and equipment rental costs, and shall not be deemed specialists unless the selected Contractor or available subcontractors on site are not capable of performing the specialty work and it is not the special service industry's established practice to provide cost itemization. In addition, the Engineer may approve work required to be performed at an off-site manufacturing plant or machine shop to be paid as a non-itemized specialist billing. To obtain approval as a specialist, the Contractor shall submit on behalf of the subcontractor a request to the Engineer prior to the start of the proposed specialist work.

If approval is granted, the Engineer will accept the non-itemized invoices for specialty work performed, provided the invoices are at current market rates. Markup percentages of Section 9-1.03A, "Work Performed by Contractor," will not apply. A markup of 10 percent will be added to the total cost of the extra work. The 10 percent markup shall reimburse the Contractor for additional administrative costs, and no other payment will be made by reason of performance of the extra work by a specialist.

If approval is not granted prior to the start of the proposed specialty work, the Contractor or subcontractor shall itemize labor, material, and equipment rental costs and apply percentage markups as required by Section 9-1.03A, "Work Performed by Contractor."

In Section 9-1.03C delete the 6th paragraph.

In Section 9-1.04 replace the 2nd paragraph with:

Disputes will not be considered unless you have first complied with specified notice or protest requirements, including Section 4-1.03, "Changes," Section 5-1.116, "Differing Site Conditions (23 CFR 635.109)," Section 5-1.18B "Nonhighway Facilities (Including Utilities)," and Section 8-1.06, "Time of Completion."

DRAFT

In Section 9-1.04 in the 10th paragraph, replace item C with:

C. When additional monetary compensation is requested, the exact amount requested calculated in conformance with Section 9-1.03, "Force Account Payment," or Section 8-1.09B, "Time Adjustments," including an itemized breakdown of individual costs. These costs shall be segregated into the following cost categories:

In Section 9-1.04 in the 14th paragraph, replace the 2nd sentence with:

Administrative disputes are disputes of administrative deductions or withholds, contract item quantities, contract item adjustments, interest payments, protests of contract change orders as provided in Section 4-1.03A, "Procedure and Protest," and protests of the Weekly Statement of Working Days as provided in Section 8-1.06, "Time of Completion."

Replace Section 9-1.05 with:

9-1.05 STOP NOTICE WITHHOLDS

The Department may withhold payments to cover claims filed under Civ Code § 3179 et seq.

Add:

9-1.053 PERFORMANCE FAILURE WITHHOLDS

During each estimate period you fail to comply with a contract part, including submittal of a document as specified, the Department withholds a part of the progress payment. The documents include quality control plans, schedules, traffic control plans, and water pollution control submittals.

For 1 performance failure, the Department withholds 25 percent of the progress payment but does not withhold more than 10 percent of the total bid.

For multiple performance failures, the Department withholds 100 percent of the progress payment but does not withhold more than 10 percent of the total bid.

The Department returns performance-failure withholds in the progress payment following the correction of noncompliance.

Add:

9-1.055 PENALTY WITHHOLDS

Penalties include fines and damages that are proposed, assessed, or levied against you or the Department by a governmental agency or citizen lawsuit. Penalties are also payments made or costs incurred in settling alleged permit violations of Federal, State, or local laws, regulations, or requirements. The cost incurred may include the amount spent for mitigation or correcting a violation.

If you or the Department is assessed a penalty, the Department may withhold the penalty amount until the penalty disposition has been resolved. The Department may

withhold penalty funds and notify you within 15 days of the withhold. If the penalty amount is less than the amount being withheld from progress payments for retentions, the Department will not withhold the penalty amount.

If the penalty is resolved for less than the amount withheld, the Department pays interest at a rate of 6 percent per year on the excess withhold. If the penalty is not resolved, the withhold becomes a deduction.

Instead of the withhold, you may provide a bond payable to the Department of Transportation equal to the highest estimated liability for any disputed penalties proposed.

Add:

9-1.057 PROGRESS WITHHOLDS

The Department withholds 10 percent of a partial payment for noncompliant progress. Noncompliant progress occurs when:

1. Total days to date exceed 75 percent of the revised contract working days
2. Percent of working days elapsed exceeds the percent of value of work completed by more than 15 percent

The Engineer determines the percent of working days elapsed by dividing the total days to date by the revised contract working days and converting the quotient to a percentage.

The Engineer determines the percent of value of work completed by summing payments made to date and the amount due on the current progress estimate, dividing this sum by the current total estimated value of the work, and converting the quotient to a percentage. These amounts are shown on the Progress Payment Voucher.

When the percent of working days elapsed minus the percent of value of work completed is less than or equal to 15 percent, the Department returns the withhold in the next progress payment.

In Section 9-1.06 in the 4th paragraph, replace the 1st sentence with:

The Department shall pay monthly to the Contractor, while carrying on the work, the balance not retained, as aforesaid, after deducting therefrom all previous payments and all sums to be deducted or withheld under the provisions of the contract.

In Section 9-1.065 replace the title and the 1st and 2nd paragraphs with:

9-1.065 RELEASE OF RETAINED FUNDS

The Department releases retained funds if you:

1. Request release of the retention (Pub Cont Code § 10263) in writing
2. Deposit securities equivalent to the funds you want released into escrow with the State Treasurer or with a bank acceptable to the Department

3. Are the beneficial owner of and receive interest on the deposited securities substituted for the retained funds

In Section 9-1.07A, replace the 2nd sentence with:

The Department pays the balance due less previous payments, deductions, withholds, and retentions under the provisions of the contract and those further amounts that the Engineer determines to be necessary pending issuance of the proposed final estimate and payment thereon.

In Section 9-1.07B, replace the 1st paragraph with:

After acceptance by the Director, the Engineer makes a proposed final estimate of the total amount payable to the Contractor, including an itemization of the total amount, segregated by contract item quantities, extra work, and other basis for payment, and shows each deduction made or to be made for prior payments and amounts to be deducted, withheld, or retained under the provisions of the contract. Prior estimates and payments are subject to correction in the proposed final estimate. The Contractor must submit written approval of the proposed final estimate or a written statement of claims arising under or by virtue of the contract so that the Engineer receives the written approval or statement of claims no later than close of business of the 30th day after receiving the proposed final estimate. The Contractor's receipt of the proposed final estimate must be evidenced by postal receipt. The Engineer's receipt of the Contractor's written approval or statement of claims must be evidenced by postal receipt or the Engineer's written receipt if delivered by hand.

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SECTION 10 DUST CONTROL
(Issued 02-06-09)

Replace Section 10 with:
SECTION 10 (BLANK)

^^

SECTION 12 CONSTRUCTION AREA TRAFFIC CONTROL DEVICES
(Issued 11-07-08)

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In Section 12-1.01 in the 2nd paragraph, replace the 1st sentence with:

Attention is directed to Part 6 of the California MUTCD.

Replace Section 12-2.01 with:

12-2.01 FLAGGERS

Flaggers while on duty and assigned to traffic control or to give warning to the public that the highway is under construction and of any dangerous conditions to be encountered as a result thereof, shall perform their duties and shall be provided with the necessary equipment in conformance with Part 6 of the California MUTCD. The equipment shall be furnished and kept clean and in good repair by the Contractor at the Contractor's expense.

All flaggers shall wear safety apparel meeting the requirements of ANSI/ISEA 107-2004 for Class 2 or 3 garment and complying with 71 Fed Reg 67792.

In Section 12-3.01 replace the 1st paragraph with:

In addition to the requirements in Part 6 of the California MUTCD, all devices used by the Contractor in the performance of the work shall conform to the provisions in this Section 12-3.

In Section 12-3.06 in the 1st paragraph, replace the 2nd sentence with:

Construction area signs are shown in or referred to in Part 6 of the California MUTCD.

In Section 12-3.06 in the 4th paragraph, replace the 1st sentence with:

All construction area signs shall conform to the dimensions, color and legend requirements of the plans, Part 6 of the California MUTCD and these specifications.

In Section 12-3.06 in the 8th paragraph, replace the 1st sentence with:

Used signs with the specified sheeting material will be considered satisfactory if they conform to the requirements for visibility and legibility and the colors conform to the requirements in Part 6 of the California MUTCD.

^^

SECTION 14 (BLANK)
(Issued 03-13-09)

DRAFT

Replace Section 14 with:

SECTION 14 ENVIRONMENTAL STEWARDSHIP

14-1 GENERAL

14-1.01 GENERAL

Environmental stewardship includes both environmental compliance and environmental resource management.

If an ESA is shown on the plans:

1. The boundaries shown are approximate; the Department marks the exact boundaries on the ground
2. Do not enter the ESA unless authorized
3. If the ESA is breached, immediately:
   3.1. Secure the area and stop all operations within 60 feet of the ESA boundary
   3.2. Notify the Engineer
4. If the ESA is damaged, the Department determines what efforts are necessary to remedy the damage and who performs the remedy; you are responsible for remedies and charges.

14-2 CULTURAL RESOURCES

14-2.01 GENERAL

Reserved

14-2.02 ARCHAEOLOGICAL RESOURCES

If archaeological resources are discovered at the job site, do not disturb the resources and immediately:

1. Stop all work within a 60-foot radius of the discovery
2. Protect the discovery area
3. Notify the Engineer

The Department investigates. Do not take archaeological resources from the job site. Do not resume work within the discovery area until authorized.

If, in the opinion of the Engineer, completion of the work is delayed or interfered with by reason of an archaeological find, or investigation or recovery of archeological materials, you will be compensated for resulting losses, and an extension of time will be granted, in the same manner as provided for in Section 8-1.09, "Right of Way Delays."

If ordered, furnish resources to assist in the investigation or recovery of archaeological resources. This work will be paid for as extra work as specified in Section 4-1.03D, "Extra Work."

14-2.03 ARCHAEOLOGICAL MONITORING AREA

Section 14-2.03 applies if an AMA is described in the Contract.

The Department assigns an archaeological monitor to monitor job site activities within the AMA. Do not work within the AMA unless the archeological monitor is present.

DRAFT

The Engineer and the Department archaeological monitor conduct an AMA location field review with you at least 5 business days before start of work. The Department marks the exact boundaries of the AMA on the ground.

If temporary fence (Type ESA) for an AMA is described in the Contract, install temporary fence (Type ESA) to define the boundaries of the AMA during the AMA location field review.

At least 5 business days before starting work within an AMA, submit a schedule of days and hours to be worked for the Engineer's approval. If you require changes in the schedule, submit an update for the Engineer's approval at least 5 business days before any changed work day.

If archaeological resources are discovered within an AMA, comply with Section 14-2.02, "Archaeological Resources."

14-2.04 HISTORIC STRUCTURES

Reserved

14-3 COMMUNITY IMPACTS AND ENVIRONMENTAL JUSTICE

Reserved

14-4 NATIVE AMERICAN CONCERNS

Reserved

14-5 AESTHETICS

Reserved

14-6 BIOLOGICAL RESOURCES

14-6.01 GENERAL

Reserved

14-6.02 BIRD PROTECTION

Protect migratory and nongame birds, their occupied nests, and their eggs.

The Department anticipates nesting or attempted nesting from February 15 to September 1.

The federal Migratory Bird Treaty Act, 16 USC § 703–711, and 50 CFR Pt 10 and Fish & Game Code §§ 3503, 3513, and 3800 protect migratory and nongame birds, their occupied nests, and their eggs.

The federal Endangered Species Act of 1973, 16 USC §§ 1531 and 1543, and the California Endangered Species Act, Fish & Game Code §§ 2050–2115.5, prohibit the take of listed species and protect occupied and unoccupied nests of threatened and endangered bird species.

The Bald and Golden Eagle Protection Act, 16 USC § 668, prohibits the destruction of bald and golden eagles and their occupied and unoccupied nests.

If migratory or nongame bird nests are discovered that may be adversely affected by construction activities or an injured or killed bird is found, immediately:

1. Stop all work within a 100-foot radius of the discovery.
2. Notify the Engineer.

The Department investigates. Do not resume work within the specified radius of the discovery until authorized.

When ordered, use exclusion devices, take nesting prevention measures, remove and dispose of partially constructed and unoccupied nests of migratory or nongame birds on a regular basis to prevent their occupation, or perform any combination of these. This work will be paid for as extra work as specified in Section 4-1.03D, "Extra Work."

Prevent nest materials from falling into waterways.

Bird protection that causes a delay to the controlling activity is a condition unfavorable to the suitable prosecution of work as specified in Section 8-1.05, "Temporary Suspension of Work."

14-7 PALEONTOLOGICAL RESOURCES

If paleontological resources are discovered at the job site, do not disturb the material and immediately:

1. Stop all work within a 60-foot radius of the discovery
2. Protect the area
3. Notify the Engineer

The Department investigates and modifies the dimensions of the protected area if necessary. Do not take paleontological resources from the job site. Do not resume work within the specified radius of the discovery until authorized.

14-8 NOISE AND VIBRATION

14-8.01 GENERAL

Reserved

14-8.02 NOISE CONTROL

Do not exceed 86 dBa at 50 feet from the job site activities from 9 p.m. to 6 a.m. Use an alternative warning method instead of a sound signal unless required by safety laws.

Equip an internal combustion engine with the manufacturer-recommended muffler. Do not operate an internal combustion engine on the job site without the appropriate muffler.

14-9 AIR QUALITY

14-9.01 AIR POLLUTION CONTROL

Comply with air pollution control rules, regulations, ordinances, and statutes that apply to work performed under the Contract, including air pollution control rules, regulations, ordinances, and statutes provided in Govt Code § 11017 (Pub Cont Code § 10231).

Do not burn material to be disposed of.

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14-9.02 DUST CONTROL

Prevent and alleviate dust by applying water, dust palliative, or both under Section 14-9.01.

Apply water under Section 17, "Watering."

Apply dust palliative under Section 18,"Dust Palliative."

If ordered, apply water, dust palliative, or both to control dust caused by public traffic. This work will be paid for as extra work as specified in Section 4-1.03D, "Extra Work."

14-10 SOLID WASTE DISPOSAL AND RECYCLING

14-10.01 SOLID WASTE DISPOSAL AND RECYCLING

Submit an annual Solid Waste Disposal and Recycling Report between January 1 and 15 for each year work is performed under the Contract at any time during the previous calendar year. Show the types and amounts of project-generated solid waste taken to or diverted from landfills or reused on the project from January 1 through December 31 of the previous calendar year.

Submit a final annual Solid Waste Disposal and Recycling Report within 5 business days after Contract acceptance. Show the types and amounts of project-generated solid waste taken to or diverted from landfills or reused on the project from January 1 to Contract acceptance.

For each failure to submit a completed form, the Department withholds $10,000.

14-11 HAZARDOUS WASTE AND CONTAMINATION

14-11.01 GENERAL

Reserved

14-11.02 ASBESTOS AND HAZARDOUS SUBSTANCES

Upon discovery, immediately stop working in and notify the Engineer of areas where asbestos or a hazardous substance is present if the:

1. Contractor reasonably believes the substance is asbestos as defined in Labor Code § 6501.7 or a hazardous substance as defined in Health & Safety Code §§ 25316 and 25317
2. Presence is not described in the Contract
3. Substance has not been made harmless

14-12 OTHER INTERAGENCY RELATIONS

Reserved

14-13 PAYMENT

Payment for work specified in Section 14 is included in the payment for the bid items involved unless:

1. Bid item for the work is shown in the verified Bid Item List
2. Work is specified as paid for as extra work

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SECTION 15 EXISTING HIGHWAY FACILITIES
(Issued 05-01-09)

In Section 15-1.02 replace the 1st paragraph with:

Existing facilities which are to remain in place shall be protected in conformance with the provisions in Sections 5-1.18, "Property and Facility Preservation," and 7-1.12, "Indemnification and Insurance."

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SECTION 19 EARTHWORK
(Issued 11-21-08)

Replace Section 19-1.02 with:

19-1.02 (BLANK)

Replace Section 19-1.03 with:

19-1.03 GRADE TOLERANCE

Immediately prior to placing subsequent layers of material thereon, the grading plane shall conform to one of the following:

A. When hot mix asphalt is to be placed on the grading plane, the grading plane at any point shall not vary more than 0.05 foot above or below the grade established by the Engineer.
B. When subbase or base material to be placed on the grading plane is to be paid for by the ton, the grading plane at any point shall not vary more than 0.10 foot above or below the grade established by the Engineer.
C. When the material to be placed on the grading plane is to be paid for by the cubic yard, the grading plane at any point shall be not more than 0.05 foot above the grade established by the Engineer.

In Section 19-3.025C replace the 1st paragraph with:

Cementitious material used in soil cement bedding shall conform to the provisions in Section 90-2.01, "Cementitious Materials." Supplementary cementitious material will not be required.

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In Section 19-3.025C replace the 4th paragraph with:

The aggregate, cementitious material, and water shall be proportioned either by weight or by volume. Soil cement bedding shall contain not less than 282 pounds of cementitious material per cubic yard. The water content shall be sufficient to produce a fluid, workable mix that will flow and can be pumped without segregation of the aggregate while being placed.

In Section 19-3.062 replace the 1st paragraph with:

Slurry cement backfill shall consist of a fluid, workable mixture of aggregate, cementitious material, and water.

In Section 19-3.062 replace the 5th paragraph with:

Cementitious material shall conform to the provisions in Section 90-2.01, "Cementitious Materials." Supplementary cementitious material will not be required.

In Section 19-3.062 replace the 8th paragraph with:

The aggregate, cementitious material, and water shall be proportioned either by weight or by volume. Slurry cement backfill shall contain not less than 188 pounds of cementitious material per cubic yard. The water content shall be sufficient to produce a fluid, workable mix that will flow and can be pumped without segregation of the aggregate while being placed.

^^

SECTION 20 EROSION CONTROL AND HIGHWAY PLANTING
(Issued 08-17-07)

Replace Section 20-2.03 with:

20-2.03 SOIL AMENDMENT

Soil amendment shall comply with the requirements in the California Food and Agricultural Code.

Soil amendment producers shall comply with the following:

1. Be fully permitted to produce compost as specified under the California Integrated Waste Management Board, Local Enforcement Agencies and any other State and Local Agencies that regulate Solid Waste Facilities. If exempt from State permitting requirements, the composting facility must certify that it follows guidelines and procedures for production of compost meeting the environmental health standards of Title 14, California Code of Regulations, Division 7, Chapter 3.1, Article 7.
2. Be a participant in United States Composting Council's Seal of Testing Assurance program.

Soil amendment shall be composted and may be derived from any single, or mixture of any of the following feedstock materials:

1. Green material consisting of chipped, shredded, or ground vegetation; or clean processed recycled wood products
2. Biosolids
3. Manure
4. Mixed food waste

Soil amendment feedstock materials shall be composted to reduce weed seeds, pathogens and deleterious materials as specified under Title 14, California Code of Regulations, Division 7, Chapter 3.1, Article 7, Section 17868.3.

Soil amendment shall not be derived from mixed municipal solid waste and must be reasonably free of visible contaminates. Soil amendment must not contain paint, petroleum products, pesticides or any other chemical residues harmful to animal life or plant growth. Soil amendment must not possess objectionable odors.

Metal concentrations in soil amendment must not exceed the maximum metal concentrations listed in Title 14, California Code of Regulations, Division 7, Chapter 3.1, Section 17868.2.

Soil amendment must comply with the following:

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Physical/Chemical Requirements

Property	Test Method	Requirement
pH	*TMECC 04.11-A, Elastometric pH 1:5 Slurry Method, pH Units	6.0–8.0
Soluble Salts	TMECC 04.10-A, Electrical Conductivity 1:5 Slurry Method dS/m (mmhos/cm)	0-10.0
Moisture Content	TMECC 03.09-A, Total Solids & Moisture at 70+/- 5 deg C, % Wet Weight Basis	30–60
Organic Matter Content	TMECC 05.07-A, Loss-On-Ignition Organic Matter Method (LOI), % Dry Weight Basis	30–65
Maturity	TMECC 05.05-A, Germination and Vigor Seed Emergence Seedling Vigor % Relative to Positive Control	 80 or Above 80 or Above
Stability	TMECC 05.08-B, Carbon Dioxide Evolution Rate mg CO_2-C/g OM per day	8 or below
Particle Size	TMECC 02.02-B Sample Sieving for Aggregate Size Classification % Dry Weight Basis	95% Passing 5/8 inch 70% Passing 3/8 inch
Pathogen	TMECC 07.01-B, Fecal Coliform Bacteria < 1000 MPN/gram dry wt.	Pass
Pathogen	TMECC 07.01-B, Salmonella < 3 MPN/4 grams dry wt.	Pass
Physical Contaminants	TMECC 02.02-C, Man Made Inert Removal and Classification: Plastic, Glass and Metal, % > 4mm fraction	Combined Total: < 1.0
Physical Contaminants	TMECC 02.02-C, Man Made Inert Removal and Classification: Sharps (Sewing needles, straight pins and hypodermic needles), % > 4mm fraction	None Detected

*TMECC refers to "Test Methods for the Examination of Composting and Compost," published by the United States Department of Agriculture and the United States Compost Council (USCC).

Prior to application, the Contractor shall provide the Engineer with a copy of the soil amendment producer's Compost Technical Data Sheet and a copy of the compost producers STA certification. The Compost Technical Data Sheet shall include laboratory analytical test results, directions for product use, and a list of product ingredients.

Prior to application, the Contractor shall provide the Engineer with a Certificate of Compliance in conformance with the provisions in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications.

In Section 20-2.10 delete the 8th, 9th, and 10th paragraphs.

In Section 20-3.04A delete the last paragraph.

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Replace Section 20-4.055 with:

20-4.055 PRUNING

Pruning of plants shall be consistent with American National Standards Institute (ANSI), "Tree, Shrub and Other Woody Plant Maintenance Standard Practices," ANSI 300 (Part 1)-2001 and "Best Management Practices Tree Pruning," 2002 (ISBN 1-881956318), published by the International Society of Arboriculture, P.O. Boc 3129, Champaign, IL 61826.

^^

SECTION 25 AGGREGATE SUBBASES
(Issued 02-16-07)

In Section 25-1.02A replace the 1st paragraph with:

Aggregate must be clean and free from organic matter and other deleterious substances. Aggregate must consist of any combination of:

1. Broken stone
2. Crushed gravel
3. Natural rough surfaced gravel
4. Sand
5. Up to 100 percent of any combination of processed:

    5.1. Asphalt concrete
    5.2. Portland cement concrete
    5.3. Lean concrete base
    5.4. Cement treated base

Replace Section 25-1.02B with:

25-1.02B Class 4 Aggregate Subbase

Aggregate must be clean and free from organic matter and other deleterious substances. Aggregate must consist of any combination of:

1. Broken stone
2. Crushed gravel
3. Natural rough surfaced gravel
4. Sand
5. Up to 100 percent of any combination of processed:

    5.1. Asphalt concrete
    5.2. Portland cement concrete
    5.3. Lean concrete base

5.4. Cement treated base

^^

SECTION 26 AGGREGATE BASES
(Issued 02-16-07)

In Section 26-1.02A replace the 1st paragraph with:

Aggregate must be clean and free from organic matter and other deleterious substances. Aggregate must consist of any combination of:

1. Broken stone
2. Crushed gravel
3. Natural rough surfaced gravel
4. Sand
5. Up to 100 percent of any combination of processed:

    5.1. Asphalt concrete
    5.2. Portland cement concrete
    5.3. Lean concrete base
    5.4. Cement treated base

In Section 26-1.02B replace the 1st paragraph with:

Aggregate must be clean and free from organic matter and other deleterious substances. Aggregate must consist of any combination of:

1. Broken stone
2. Crushed gravel
3. Natural rough surfaced gravel
4. Sand
5. Up to 100 percent of any combination of processed:

    5.1. Asphalt concrete
    5.2. Portland cement concrete
    5.3. Lean concrete base
    5.4. Cement treated base

^^

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SECTION 27 CEMENT TREATED BASES
(Issued 07-31-07)

In Section 27-1.02 replace the 1st paragraph with:

Cement shall be Type II portland cement conforming to the provisions in Section 90-2.01A, "Cement."

In Section 27-1.02 replace the 3rd paragraph with:

Aggregate for use in Class A cement treated base shall be of such quality that when mixed with cement in an amount not to exceed 5 percent by weight of the dry aggregate and compacted at optimum moisture content, the compressive strength of a sample of the compacted mixture shall not be less than 750 pounds per square inch at 7 days, when tested by California Test 312.

In Section 27-1.02 replace the 4th paragraph with:

Aggregate for use in Class B cement treated base shall have a Resistance (R-value) of not less than 60 before mixing with cement and a Resistance (R-value) of not less than 80 after mixing with cement in an amount not to exceed 2.5 percent by weight of the dry aggregate.

In Section 27-1.07 replace the 9th paragraph with:

When surfacing material is hot mix asphalt, the low areas shall be filled with hot mix asphalt conforming to the requirements for the lowest layer of hot mix asphalt to be placed as surfacing. This filling shall be done as a separate operation prior to placing the lowest layer of surfacing, and full compensation for this filling will be considered as included in the contract price paid for cement treated base and no additional compensation will be allowed therefor.

^^

SECTION 28 LEAN CONCRETE BASE
(Issued 07-31-07)

In Section 28-1.02 replace the 1st paragraph with:

Cement shall be Type II portland cement conforming to the provisions in Section 90-2.01A, "Cement."

In Section 28-1.02 replace the 6th paragraph with:

Aggregate shall be of such quality that, when mixed with cement in an amount not to exceed 300 pounds per cubic yard, and tested in conformance with the requirements in

California Test 548, the compressive strength of a sample will be not less than 700 pounds per square inch at 7 days.

In Section 28-1.06 replace the 2nd paragraph with:

In advance of curing operations, lean concrete base to be surfaced with hot mix asphalt shall be textured with a drag strip of burlap, a broom or a spring steel tine device which will produce scoring in the finished surface. The scoring shall be parallel with the centerline or transverse thereto. The operation shall be performed at a time and in a manner to produce the coarsest texture practical for the method used.

In Section 28-1.08 replace the 2nd paragraph with:

Hardened lean concrete base with a surface lower than 0.05 foot below the grade established by the Engineer shall be removed and replaced with lean concrete base which complies with these specifications, or if permitted by the Engineer, the low areas shall be filled with pavement material as follows:

1. When pavement material is hot mix asphalt, the low areas shall be filled with hot mix asphalt conforming to the requirements for the lowest layer of hot mix asphalt to be placed as pavement. This shall be done as a separate operation prior to placing the lowest layer of pavement, and full compensation for this filling will be considered as included in the contract price paid per cubic yard for lean concrete base and no additional compensation will be allowed therefor.
2. When pavement material is portland cement concrete, the low areas shall be filled with pavement concrete at the time and in the same operation that the pavement is placed. Full compensation for this filling will be considered as included in the contract price paid per cubic yard for lean concrete base and no additional compensation will be allowed therefor.

^^

SECTION 29 TREATED PERMEABLE BASES
(Issued 03-13-09)

In Section 29-1.02B replace the 2nd paragraph with:

Cement shall be Type II portland cement conforming to the provisions in Section 90-2.01A, "Cement."

In Section 29-1.04A replace the 1st paragraph with:

Aggregates and asphalt for asphalt treated permeable base shall be stored, proportioned and mixed in the same manner provided for storing, proportioning and

mixing aggregates and asphalt for hot mix asphalt in Section 39-1.08, "Production," except as follows:

1. The aggregate need not be separated into sizes.
2. The temperature of the aggregate before adding the asphalt binder shall be not less than 275° F nor more than 325° F.
3. Asphalt treated permeable base stored in excess of 2 hours shall not be used in the work.
4. The aggregate shall be combined with 2.5 percent paving asphalt by weight of the dry aggregate. After testing samples of the Contractor's proposed aggregate supply, the Engineer may order an increase or decrease in the asphalt content. If an increase or decrease is ordered, and the increase or decrease exceeds the specified amount by more than 0.1 percent by weight of the dry aggregate, the compensation payable to the Contractor for the asphalt treated permeable base will be increased or decreased on the basis of the total increase or decrease in asphalt.
5. The asphalt content of the asphalt mixture will be determined, at the option of the Engineer, 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 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 will be determined either by taking samples from trucks at the plant or from the mat behind the paver before rolling. If the sample 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.

In Section 29-1.04B replace the 2nd paragraph with:

Cement treated permeable base shall contain not less than 287 pounds of cement per cubic yard.

In Section 29-1.05 replace the 1st paragraph with:

Asphalt treated permeable base shall be spread and compacted as specified for hot mix asphalt under the "Method" construction process in Section 39, "Hot Mix Asphalt," and these specifications.

In Section 29-1.05 in the 8th paragraph, replace the 2nd sentence with:

The filter fabric shall conform to the provisions in Section 88-1.02, "Filtration," and shall be placed in conformance with the provisions for placing filter fabric for edge drains in Section 68-3.03, "Installation."

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In Section 29-1.06 in the 9th paragraph, replace the 2nd sentence with:

The filter fabric shall conform to the provisions in Section 88-1.02, "Filtration," and shall be placed in conformance with the provisions for placing filter fabric for edge drains in Section 68-3.03, "Installation."

In Section 29-1.07 replace the 2nd paragraph with:

Hardened treated permeable base with a surface lower than 0.05 foot below the grade established by the Engineer shall be removed and replaced with treated permeable base which complies with these specifications, or if permitted by the Engineer, the low areas shall be filled with pavement material as follows:

1. When pavement material is hot mix asphalt, the low areas shall be filled with hot mix asphalt conforming to the requirements for the lowest layer of hot mix asphalt to be placed as pavement. This shall be done as a separate operation prior to placing the lowest layer of pavement.
2. When pavement material is portland cement concrete, the low areas shall be filled with pavement concrete at the time and in the same operation in which the pavement is placed.
3. Full compensation for filling low areas will be considered as included in the contract price paid per cubic yard for treated permeable base and no additional compensation will be allowed therefor.

^^

SECTION 37 BITUMINOUS SEALS
(Issued 08-17-07)

In Section 37-1.03 replace the 4th through 6th paragraphs with:

On 2-lane two-way roadways, W8-7 "LOOSE GRAVEL" signs and W13-1 (35) speed advisory signs shall be furnished and placed adjacent to both sides of the traveled way where screenings are being spread on a traffic lane. The first W8-7 sign in each direction shall be placed where traffic first encounters loose screenings, regardless of which lane the screenings are being spread on. The W13-1 (35) signs need not be placed in those areas with posted speed limits of less than 40 MPH. The signs shall be placed at maximum 2,000-foot intervals along each side of the traveled way and at public roads or streets entering the seal coat area as directed by the Engineer.

On multilane roadways (freeways, expressways and multilane conventional highways) where screenings are being spread on a traffic lane, W8-7 "LOOSE GRAVEL" signs and W13-1 (35) speed advisory signs shall be furnished and placed adjacent to the outside edge of the traveled way nearest to the lane being worked on. The first W8-7 sign shall be placed where the screenings begin with respect to the direction of travel on that lane. The W13-1 (35) signs need not be placed in those areas with posted

speed limits of less than 40 MPH. The signs shall be placed at maximum 2,000-foot intervals along the edge of traveled way and at on-ramps, public roads or streets entering the seal coat area as directed by the Engineer.

The W8-7 and W13-1 signs shall be maintained in place at each location until final brooming of the seal coat surface at that location is completed. The W8-7 and W13-1 signs shall conform to the provisions for construction area signs in Section 12, "Construction Area Traffic Control Devices." The signs may be set on temporary portable supports with the W13-1 below the W8-7 or on barricades with the W13-1 sign alternating with the W8-7 sign.

In Section 37-1.07 replace the 2nd paragraph with:

Rollers shall be oscillating type pneumatic-tired rollers. A minimum of 2 pneumatic-tired rollers conforming to the provisions in Section 39-3.03 "Spreading and Compacting Equipment," shall be furnished.

In Section 37-1.09 replace the 2nd paragraph with:

The above prices and payments shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in applying seal coat, complete in place, including furnishing, placing, maintaining, and removing W8-7 and W13-1 signs, when required, and temporary supports or barricades for the signs, as shown on the plans, and as specified in these specifications and the special provisions, and as directed by the Engineer.

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SECTION 39 ASPHALT CONCRETE
(Issued 03-13-09)

Replace Section 39 with:

SECTION 39 HOT MIX ASPHALT

39-1 GENERAL

39-1.01 DESCRIPTION

Section 39 includes specifications for producing and placing hot mix asphalt (HMA) by mixing aggregate and asphalt binder at a mixing plant and spreading and compacting the HMA mixture.

The special provisions specify one or more type of HMA, including:

1. Type A

2. Type B
3. Open graded friction course (OGFC). OGFC includes hot mix asphalt (open graded), rubberized hot mix asphalt (open graded) (RHMA-O) and rubberized hot mix asphalt (open graded high binder) (RHMA-O-HB)
4. Rubberized hot mix asphalt (gap graded) (RHMA-G)

The special provisions specify the HMA construction process, including:

1. Standard
2. Method
3. Quality Control / Quality Assurance (QC / QA)

39-1.02 MATERIALS

39-1.02A Geosynthetic Pavement Interlayer

Geosynthetic pavement interlayer must comply with the specifications for pavement fabric or paving mat in Section 88-1.07, "Pavement Interlayer."

39-1.02B Tack Coat

Tack coat must comply with the specifications for asphaltic emulsion in Section 94, "Asphaltic Emulsion," or asphalt binder in Section 92, "Asphalts." Choose the type and grade.

Notify the Engineer if you dilute asphaltic emulsion with water. The weight ratio of added water to asphaltic emulsion must not exceed 1 to 1.

Measure added water either by weight or volume in compliance with the specifications for weighing, measuring, and metering devices under Section 9-1.01, "Measurement of Quantities," or you may use water meters from water districts, cities, or counties. If you measure water by volume, apply a conversion factor to determine the correct weight.

With each dilution, submit in writing:

1. The weight ratio of water to bituminous material in the original asphaltic emulsion
2. The weight of asphaltic emulsion before diluting
3. The weight of added water
4. The final dilution weight ratio of water to asphaltic emulsion

39-1.02C Asphalt Binder

Asphalt binder in HMA must comply with Section 92, "Asphalts," or Section 39-1.02D, "Asphalt Rubber Binder." The special provisions specify the grade.

Asphalt binder for geosynthetic pavement interlayer must comply with Section 92, "Asphalts." Choose from Grades PG 64-10, PG 64-16, or PG 70-10.

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39-1.02D Asphalt Rubber Binder

General

Use asphalt rubber binder in RHMA-G, RHMA-O, and RHMA-O-HB. Asphalt rubber binder must be a combination of:

1. Asphalt binder
2. Asphalt modifier
3. Crumb rubber modifier (CRM)

The combined asphalt binder and asphalt modifier must be 80.0 ± 2.0 percent by weight of the asphalt rubber binder.

Asphalt Modifier

Asphalt modifier must be a resinous, high flash point, and aromatic hydrocarbon, and comply with:

Asphalt Modifier for Asphalt Rubber Binder

Quality Characteristic	ASTM	Specification
Viscosity, m^2/s (x 10^{-6}) at 100 °C	D 445	X ± 3 [a]
Flash Point, CL.O.C., °C	D 92	207 minimum
Molecular Analysis		
Asphaltenes, percent by mass	D 2007	0.1 maximum
Aromatics, percent by mass	D 2007	55 minimum

Note:
[a] The symbol "X" is the proposed asphalt modifier viscosity. "X" must be between 19 and 36. A change in "X" requires a new asphalt rubber binder design.

Asphalt modifier must be from 2.0 percent to 6.0 percent by weight of the asphalt binder in the asphalt rubber binder.

Crumb Rubber Modifier

CRM consists of a ground or granulated combination of scrap tire CRM and high natural CRM. CRM must be 75.0 ± 2.0 percent scrap tire CRM and 25.0 ± 2.0 percent high natural CRM by total weight of CRM. Scrap tire CRM must be from any combination of automobile tires, truck tires, or tire buffings.

Sample and test scrap tire CRM and high natural CRM separately. CRM must comply with:

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Crumb Rubber Modifier for Asphalt Rubber Binder

Quality Characteristic	Test Method	Specification
Scrap tire CRM gradation (% passing No. 8 sieve)	LP-10	100
High natural CRM gradation (% passing No. 10 sieve)	LP-10	100
Wire in CRM (% max.)	LP-10	0.01
Fabric in CRM (% max.)	LP-10	0.05
CRM particle length (inch max.) [a]	--	3/16
CRM specific gravity [a]	CT 208	1.1 – 1.2
Natural rubber content in high natural CRM (%) [a]	ASTM D 297	40.0 – 48.0

Note:
[a] Test at mix design and for Certificate of Compliance.

Only use CRM ground and granulated at ambient temperature. If steel and fiber are cryogenically separated, it must occur before grinding and granulating. Only use cryogenically produced CRM particles that can be ground or granulated and not pass through the grinder or granulator.

CRM must be dry, free-flowing particles that do not stick together. CRM must not cause foaming when combined with the asphalt binder and asphalt modifier. You may add calcium carbonate or talc up to 3 percent by weight of CRM.

Asphalt Rubber Binder Design and Profile

Submit in writing an asphalt rubber binder design and profile. In the design, designate the asphalt, asphalt modifier, and CRM and their proportions. The profile is not a specification and only serves to indicate expected trends in asphalt rubber binder properties during binder production. The profile must include the same component sources for the asphalt rubber binder used.

Design the asphalt rubber binder from testing you perform for each quality characteristic and for the reaction temperatures expected during production. The 24-hour (1,440-minute) interaction period determines the design profile. At a minimum, mix asphalt rubber binder components, take samples, and perform and record the following tests:

Asphalt Rubber Binder Reaction Design Profile

Test	Minutes of Reaction [a]							Limits
	45	60	90	120	240	360	1440	
Cone penetration @ 77 °F, 0.10-mm (ASTM D 217)	X [b]				X		X	25 - 70
Resilience @ 77 °F, percent rebound (ASTM D 5329)	X				X		X	18 min.
Field softening point, °F (ASTM D 36)	X				X		X	125 - 165
Viscosity, centipoises (LP-11)	X	X	X	X	X	X	X	1,500 - 4,000

Notes:
[a] Six hours (360 minutes) after CRM addition, reduce the oven temperature to 275 °F for a period of 16 hours. After the 16-hour (1320 minutes) cool-down after CRM addition, reheat the binder to the reaction temperature expected during production for sampling and testing at 24 hours (1440 minutes).
[b] "X" denotes required testing

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Asphalt Rubber Binder

After interacting for a minimum of 45 minutes, asphalt rubber binder must comply with:

Asphalt Rubber Binder

Quality Characteristic	Test for Quality Control or Acceptance	Test Method	Specification	
			Minimum	Maximum
Cone penetration @ 77 °F, 0.10-mm	Acceptance	ASTM D 217	25	70
Resilience @ 77 °F, percent rebound	Acceptance	ASTM D 5329	18	--
Field softening point, °F	Acceptance	ASTM D 36	125	165
Viscosity @ 375 °F, centipoises	Quality Control	LP-11	1,500	4,000

39-1.02E Aggregate

Aggregate must be clean and free from deleterious substances. Aggregate:

1. Retained on the No. 4 sieve is coarse
2. Passing the No. 4 sieve is fine
3. Added and passing the No. 30 sieve is supplemental fine, including:

    3.1. Hydrated lime
    3.2. Portland cement
    3.3. Fines from dust collectors

The special provisions specify the aggregate gradation for each HMA type.

The specified aggregate gradation is before the addition of asphalt binder and includes supplemental fines. The Engineer tests for aggregate grading under California Test 202, modified by California Test 105 if there is a difference in specific gravity of 0.2 or more between the coarse and fine parts of different aggregate blends.

Choose a sieve size target value (TV) within each target value limit presented in the aggregate gradation tables.

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Aggregate Gradation
(Percentage Passing)
HMA Types A and B

3/4–inch HMA Types A and B

Sieve Sizes	Target Value Limits	Allowable Tolerance
1"	100	—
3/4"	90 - 100	TV ±5
1/2"	70 - 90	TV ±6
No. 4	45 - 55	TV ±7
No. 8	32 - 40	TV ±5
No. 30	12 - 21	TV ±4
No. 200	2 - 7	TV ±2

1/2–inch HMA Types A and B

Sieve Sizes	Target Value Limits	Allowable Tolerance
3/4"	100	—
1/2"	95 - 99	TV ±6
3/8"	75 - 95	TV ±6
No. 4	55 - 66	TV ±7
No. 8	38 - 49	TV ±5
No. 30	15 - 27	TV ±4
No. 200	2 - 8	TV ±2

3/8–inch HMA Types A and B

Sieve Sizes	Target Value Limits	Allowable Tolerance
1/2"	100	—
3/8"	95 - 100	TV ±6
No. 4	58 - 72	TV ±7
No. 8	34 - 48	TV ±6
No. 30	18 - 32	TV ±5
No. 200	2 - 9	TV ±2

No. 4 HMA Types A and B

Sieve Sizes	Target Value Limits	Allowable Tolerance
3/8"	100	—
No. 4	95 - 100	TV ±7
No. 8	72 - 77	TV ±7
No. 30	37 - 43	TV ±7
No. 200	2 - 12	TV ±4

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Rubberized Hot Mix Asphalt - Gap Graded (RHMA-G)

3/4–inch RHMA-G

Sieve Sizes	Target Value Limits	Allowable Tolerance
1"	100	—
3/4"	95 - 100	TV ±5
1/2"	83 - 87	TV ±6
3/8"	65 - 70	TV ±6
No. 4	28 - 42	TV ±7
No. 8	14 - 22	TV ±5
No. 200	0 - 6	TV ±2

1/2–inch RHMA-G

Sieve Sizes	Target Value Limits	Allowable Tolerance
3/4"	100	—
1/2"	90 - 100	TV ±6
3/8"	83 - 87	TV ±6
No. 4	28 - 42	TV ±7
No. 8	14 - 22	TV ±5
No. 200	0 - 6	TV ±2

Open Graded Friction Course (OGFC)

1–inch OGFC

Sieve Sizes	Target Value Limits	Allowable Tolerance
1 1/2"	100	—
1"	99 - 100	TV ±5
3/4"	85 - 96	TV ±5
1/2"	55 - 71	TV ±6
No. 4	10 - 25	TV ±7
No. 8	6 - 16	TV ±5
No. 200	1 - 6	TV ±2

1/2–inch OGFC

Sieve Sizes	Target Value Limits	Allowable Tolerance
3/4"	100	—
1/2"	95 - 100	TV ±6
3/8"	78 - 89	TV ±6
No. 4	28 - 37	TV ±7
No. 8	7 - 18	TV ±5
No. 30	0 - 10	TV ±4
No. 200	0 - 3	TV ±2

3/8–inch OGFC

Sieve Sizes	Target Value Limits	Allowable Tolerance
1/2"	100	—
3/8"	90 - 100	TV ±6
No. 4	29 - 36	TV ±7
No. 8	7 - 18	TV ±6
No. 30	0 - 10	TV ±5
No. 200	0 - 3	TV ±2

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Before the addition of asphalt binder and lime treatment, aggregate must comply with:

Aggregate Quality

Quality Characteristic	Test Method	HMA Type			
		A	B	RHMA-G	OGFC
Percent of crushed particles	CT 205				
Coarse aggregate (% min.)					
One fractured face		90	25	--	90
Two fractured faces		75	--	90	75
Fine aggregate (% min) (Passing No. 4 sieve and retained on No. 8 sieve.) One fractured face		70	20	70	90
Los Angeles Rattler (% max.)	CT 211				
Loss at 100 Rev.		12	--	12	12
Loss at 500 Rev.		45	50	40	40
Sand equivalent (min.) [a]	CT 217	47	42	47	--
Fine aggregate angularity (% min.) [b]	AASHTO T 304 Method A	45	45	45	--
Flat and elongated particles (% max. by weight @ 5:1)	ASTM D 4791	10	10	10	10

Notes:
[a] Reported value must be the average of 3 tests from a single sample.
[b] The Engineer waives this specification if HMA contains less than 10 percent of nonmanufactured sand by weight of total aggregate. Manufactured sand is fine aggregate produced by crushing rock or gravel.

39-1.02F Reclaimed Asphalt Pavement

You may produce HMA using reclaimed asphalt pavement (RAP). HMA produced using RAP must comply with the specifications for HMA except aggregate quality specifications do not apply to RAP. You may substitute RAP aggregate for a part of the virgin aggregate in HMA in a quantity not exceeding 15.0 percent of the aggregate blend. Do not use RAP in OGFC and RHMA-G.

Assign the substitution rate of RAP aggregate for virgin aggregate with the job mix formula (JMF) submittal. The JMF must include the percent of RAP used. If you change your assigned RAP aggregate substitution rate by more than 5 percent (within the 15.0 percent limit), submit a new JMF.

Process RAP from asphalt concrete. You may process and stockpile RAP throughout the project's life. Prevent material contamination and segregation. Store RAP in stockpiles on smooth surfaces free of debris and organic material. Processed RAP stockpiles must consist only of homogeneous RAP.

39-1.03 HOT MIX ASPHALT MIX DESIGN REQUIREMENTS

39-1.03A General

A mix design consists of performing California Test 367 and laboratory procedures on combinations of aggregate gradations and asphalt binder contents to determine the optimum binder content (OBC) and HMA mixture qualities. If RAP is used, use Laboratory Procedure LP-9. The result of the mix design becomes the proposed JMF.

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Use Form CEM-3512 to document aggregate quality and mix design data. Use Form CEM-3511 to present the JMF.

Laboratories testing aggregate qualities and preparing the mix design and JMF must be qualified under the Department's Independent Assurance Program. Take samples under California Test 125.

The Engineer reviews the aggregate qualities, mix design, and JMF and verifies and accepts the JMF.

You may change the JMF during production. Do not use the changed JMF until the Engineer accepts it. Except when adjusting the JMF in compliance with Section 39-1.03E, "Job Mix Formula Verification," perform a new mix design and submit in writing a new JMF submittal for changing any of the following:

1. Target asphalt binder percentage
2. Asphalt binder supplier
3. Asphalt rubber binder supplier
4. Component materials used in asphalt rubber binder or percentage of any component materials
5. Combined aggregate gradation
6. Aggregate sources
7. Substitution rate for RAP aggregate of more than 5 percent
8. Any material in the JMF

For OGFC, submit in writing a complete JMF submittal except asphalt binder content. The Engineer determines the asphalt binder content under California Test 368 within 20 days of your complete JMF submittal and provides you a Form CEM-3513.

39-1.03B Hot Mix Asphalt Mix Design

Perform a mix design that produces HMA in compliance with:

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Hot Mix Asphalt Mix Design Requirements

Quality Characteristic	Test Method	HMA Type		
		A	B	RHMA-G
Air voids content (%)	CT 367[a]	4.0	4.0	Special Provisions
Voids in mineral aggregate (% min.)	LP-2			
No. 4 grading		17.0	17.0	--
3/8" grading		15.0	15.0	--
1/2" grading		14.0	14.0	18.0 – 23.0[b]
3/4" grading		13.0	13.0	18.0 – 23.0[b]
Voids filled with asphalt (%)	LP-3			
No. 4 grading		76.0 – 80.0	76.0 – 80.0	Note d
3/8" grading		73.0 – 76.0	73.0 – 76.0	
1/2" grading		65.0 – 75.0	65.0 – 75.0	
3/4" grading		65.0 – 75.0	65.0 – 75.0	
Dust proportion	LP-4			
No. 4 and 3/8" gradings		0.9 – 2.0	0.9 – 2.0	Note d
1/2" and 3/4" gradings		0.6 – 1.3	0.6 – 1.3	
Stabilometer value (min.) [c]	CT 366			
No. 4 and 3/8" gradings		30	30	--
1/2" and 3/4" gradings		37	35	23

Notes:

[a] Calculate the air voids content of each specimen using California Test 309 and Lab Procedure LP-1. Modify California Test 367, Paragraph C5, to use the exact air voids content specified in the selection of OBC.

[b] Voids in mineral aggregate for RHMA-G must be within this range.

[c] Modify California Test 304, Part 2.B.2.c: "After compaction in the compactor, cool to 140 °± 5 °F by allowing the briquettes to cool at room temperature for 0.5-hour, then place the briquettes in the oven at 140 °F for a minimum of 2 hours and not more than 3 hours."

[d] Report this value in the JMF submittal.

For stability and air voids content, prepare 3 briquettes at the OBC and test for compliance. Report the average of 3 tests. Prepare new briquettes and test if the range of stability for the 3 briquettes is more than 8 points. The average air void content may vary from the specified air void content by ±0.5 percent.

You may use the briquettes used for stability testing to determine bulk specific gravity under CT 308. If you use the same briquettes and tests using bulk specific gravity fail, you may prepare 3 new briquettes and determine a new bulk specific gravity.

39-1.03C Job Mix Formula Submittal

Each JMF submittal must consist of:

1. Proposed JMF on Form CEM-3511
2. Mix design documentation on Form CEM-3512 dated within 12 months of submittal
3. JMF verification on Form CEM-3513, if applicable
4. Materials Safety Data Sheets (MSDS) for:

    4.1. Asphalt binder
    4.2. Base asphalt binder used in asphalt rubber binder
    4.3. CRM and asphalt modifier used in asphalt rubber binder

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4.4. Blended asphalt rubber binder mixture
4.5. Supplemental fine aggregate except fines from dust collectors
4.6. Antistrip additives

If the JMF must be verified or if the Engineer requests, submit samples of the following materials in labeled containers weighing no more than 50 pounds each (notify the Engineer at least 2 business days before sampling materials):

1. Coarse, fine, and supplemental fine aggregate from stockpiles, cold feed belts, or hot bins. Samples must include at least 120 pounds for each coarse aggregate, 80 pounds for each fine aggregate, and 10 pounds for each type of supplemental fines. The Department combines these aggregate samples to comply with the JMF target values submitted on Form CEM-3511.
2. RAP from stockpiles or RAP system. Samples must be at least 60 pounds.
3. Asphalt binder from the binder supplier. Samples must be in two 1-quart cylindrical shaped cans with open top and friction lids.
4. Asphalt rubber binder with the components blended in the proportions to be used. Samples must be in four 1-quart cylindrical shaped cans with open top and friction lids.

39-1.03D Job Mix Formula Review

The Engineer reviews each mix design and proposed JMF within 5 business days from the complete JMF submittal. The review consists of reviewing the mix design procedures and comparing the proposed JMF with the specifications.

The Engineer may verify aggregate qualities during this review period.

39-1.03E Job Mix Formula Verification

If you cannot submit a Department-verified JMF on Form CEM-3513 dated within 12 months before HMA production, the Engineer verifies the JMF.

Based on your testing and production experience, you may submit on Form CEM-3511 an adjusted JMF before the Engineer's verification testing. JMF adjustments may include a change in the:

1. Asphalt binder content target value up to ±0.6 percent from the optimum binder content value submitted on Form CEM-3512 except do not adjust the target value for asphalt rubber binder for RHMA-G below 7.0 percent
2. Aggregate gradation target values within the target value limits specified in the aggregate gradation tables

Test samples from the HMA plant to be used to determine possible JMF adjustments.

For HMA Type A, Type B, and RHMA-G, the Engineer verifies the JMF from samples taken from HMA produced by the plant to be used. The Engineer verifies each proposed JMF within 20 days of receiving verification samples. Verification is testing for compliance with the specifications for:

1. Aggregate quality

2. Aggregate gradation (JMF TV ± tolerance)
3. Asphalt binder content (JMF TV ± tolerance)
4. HMA quality specified in the table Hot Mix Asphalt Mix Design Requirements except:

    4.1. Air voids content (design value ± 2.0 percent)
    4.2. Voids filled with asphalt (report only if an adjustment for asphalt binder content target value is less than or equal to ± 0.3 percent from OBC)
    4.3. Dust proportion (report only if an adjustment for asphalt binder content target value is less than or equal to ± 0.3 percent from OBC)

If you request in writing, the Engineer verifies RHMA-G quality requirements within 3 business days of sampling.

In the Engineer's presence and from the same production run, take samples of:

1. Aggregate
2. Asphalt binder
3. RAP
4. HMA

Sample aggregate from cold feed belts or hot bins. Sample RAP from the RAP system. Sample HMA under California Test 125 except if you request in writing and the Engineer approves, you may sample from any of the following locations:

1. The plant
2. A truck
3. A windrow
4. The paver hopper
5. The mat behind the paver

You may sample from a different project including a non-Department project if you make arrangements for the Engineer to be present during sampling.

For aggregate, RAP, and HMA, split the samples into at least 4 parts and label their containers. Submit 3 split parts to the Engineer and use 1 part for your testing.

The Engineer prepares 3 briquettes from a single split sample. To verify the JMF for stability, the Engineer tests the 3 briquettes and reports the average of 3 tests. The Engineer prepares new briquettes if the range of stability for the 3 briquettes is more than 8 points.

The Engineer may use the briquettes used for stability testing to determine bulk specific gravity under CT 308. If the Engineer uses the same briquettes and the tests using bulk specific gravity fail, the Engineer prepares 3 new briquettes and determines a new bulk specific gravity.

If the Engineer verifies the JMF, the Engineer provides you a Form CEM-3513.

If the Engineer's tests on plant-produced samples do not verify the JMF, the Engineer notifies you in writing and you must submit a new JMF submittal or submit an adjusted JMF based on your testing. JMF adjustments may include a change in the:

1. Asphalt binder content target value up to ±0.6 percent from the optimum binder content value submitted on Form CEM-3512 except do not adjust the target value for asphalt rubber binder for RHMA-G below 7.0 percent
2. Aggregate gradation target values within the target value limits specified in the aggregate gradation tables

You may adjust the JMF only once due to a failed verification test. An adjusted JMF requires a new Form CEM-3511 and verification of a plant-produced sample.

The Engineer reverifies the JMF if HMA production has stopped for longer than 30 days and the verified JMF is older than 12 months.

For each HMA type and aggregate size specified, the Engineer verifies at the State's expense up to 2 proposed JMF including a JMF adjusted after verification failure. The Engineer deducts $3,000 from payments for each verification exceeding this limit. This deduction does not apply to verifications initiated by the Engineer or if a JMF expires while HMA production is stopped longer than 30 days.

39-1.03F Job Mix Formula Renewal

You may request a JMF renewal by submitting the following:

1. Proposed JMF on Form CEM-3511
2. A previously verified JMF documented on Form CEM-3513 dated within 12 months
3. Mix design documentation on Form CEM-3512 used for the previously verified JMF
4. Samples of aggregates, asphalt binder, and additives
5. Samples of the following materials obtained in the presence of the Engineer and placed in labeled containers weighing no more than 50 pounds each:

    5.1. Coarse, fine, and supplemental fine aggregate from stockpiles, cold feed belts, or hot bins. Samples must include at least 120 pounds for each coarse aggregate, 80 pounds for each fine aggregate, and 10 pounds for each type of supplemental fines. The Department combines these aggregate samples to comply with the JMF target values submitted on Form CEM-3511.
    5.2. RAP from stockpiles or RAP system. Samples must be at least 60 pounds.
    5.3. Asphalt binder from the binder supplier. Samples must be in two 1-quart cylindrical shaped cans with open top and friction lids.
    5.4. Asphalt rubber binder with the components blended in the proportions to be used. Samples must be in four 1-quart cylindrical shaped cans with open top and friction lids.

Notify the Engineer in writing at least 2 business days before sampling materials. Split samples into at least 2 parts. You must test 1 part and provide the Engineer a part. The Engineer retains samples until you provide test results for your part on Form CEM-3514.

The Engineer reviews each proposed JMF within 5 business days from the complete JMF submittal and test results. The review consists of reviewing the mix design procedures, test results from the split samples and comparing the proposed JMF with the specifications.

The Engineer may verify aggregate qualities during this review period.

The Engineer verifies the JMF under Section 39-1.03E, "Job Mix Formula Verification," except:

1. The Engineer verifies each proposed JMF within 30 days of receiving verification samples.
2. You may not adjust the JMF due to a failed verification.
3. For each HMA type and aggregate gradation specified, the Engineer verifies at the State's expense 1 proposed JMF.
4. If the Engineer verifies the JMF renewal, the Engineer provides you a Form CEM-3513.

39-1.03G Job Mix Formula Acceptance

You may start HMA production if:

1. The Engineer's review of the JMF shows compliance with the specifications.
2. The Department has verified the JMF within 12 months before HMA production.
3. The Engineer accepts the verified JMF.

39-1.04 CONTRACTOR QUALITY CONTROL

39-1.04A General

Establish, maintain, and change a quality control system to ensure materials and work comply with the specifications. Submit quality control test results to the Engineer within 3 days of a request except when QC / QA is specified.

You must identify the HMA sampling location in your Quality Control Plan. During production, take samples under California Test 125 except if you request in writing and the Engineer approves, you may sample HMA from:

1. The plant
2. The truck
3. A windrow
4. The paver hopper
5. The mat behind the paver

39-1.04B Prepaving Conference

Meet with the Engineer at a prepaving conference at a mutually agreed time and place. Discuss methods of performing the production and paving work.

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39-1.04C Asphalt Rubber Binder

Take asphalt rubber binder samples from the feed line connecting the asphalt rubber binder tank to the HMA plant. Sample and test asphalt rubber binder under Laboratory Procedure LP-11.

Test asphalt rubber binder for compliance with the viscosity specifications in Section 39-1.02, "Materials." During asphalt rubber binder production and HMA production using asphalt rubber binder, measure viscosity every hour with not less than 1 reading for each asphalt rubber binder batch. Log measurements with corresponding time and asphalt rubber binder temperature. Submit the log daily in writing.

Submit a Certificate of Compliance under Section 6-1.07, "Certificates of Compliance." With the Certificate of Compliance, submit test results in writing for CRM and asphalt modifier with each truckload delivered to the HMA plant. A Certificate of Compliance for asphalt modifier must not represent more than 5,000 pounds. Use an AASHTO-certified laboratory for testing.

Sample and test gradation and wire and fabric content of CRM once per 10,000 pounds of scrap tire CRM and once per 3,400 pounds of high natural CRM. Sample and test scrap tire CRM and high natural CRM separately.

Submit certified weight slips in writing for the CRM and asphalt modifier furnished.

39-1.04D Aggregate

Determine the aggregate moisture content and RAP moisture content in continuous mixing plants at least twice a day during production and adjust the plant controller. Determine the RAP moisture content in batch mixing plants at least twice a day during production and adjust the plant controller.

39-1.04E Reclaimed Asphalt Pavement

Perform RAP quality control testing each day.

Sample RAP once daily and determine the RAP aggregate gradation under Laboratory Procedure LP-9 and submit the results to the Engineer in writing with the combined aggregate gradation.

39-1.04F Density Cores

To determine density for Standard and QC / QA projects, take 4-inch or 6-inch diameter density cores at least once every 5 business days. Take 1 density core for every 250 tons of HMA from random locations the Engineer designates. Take density cores in the Engineer's presence and backfill and compact holes with material authorized by the Engineer. Before submitting a density core to the Engineer, mark it with the density core's location and place it in a protective container.

If a density core is damaged, replace it with a density core taken within 1 foot longitudinally from the original density core. Relocate any density core located within 1 foot of a rumble strip to 1 foot transversely away from the rumble strip.

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39-1.04G Briquettes

Prepare 3 briquettes for each stability and air voids content determination. Report the average of 3 tests. Prepare new briquettes and test if the range of stability for the 3 briquettes is more than 12 points.

You may use the briquettes used for stability testing to determine bulk specific gravity under CT 308. If you use these briquettes and tests using bulk specific gravity fail, you may prepare 3 new briquettes and determine a new bulk specific gravity.

39-1.05 ENGINEER'S ACCEPTANCE

The Engineer's acceptance of HMA is specified in the sections for each HMA construction process.

The Engineer samples materials for testing under California Test 125 and the applicable test method except samples may be taken from:

1. The plant from:

    1.1. A truck
    1.2. An automatic sampling device

2. The mat behind the paver

Sampling must be independent of Contractor quality control, statistically-based, and random.

If you request, the Engineer splits samples and provides you with a part.

The Engineer accepts HMA based on:

1. Accepted JMF
2. Accepted QCP for Standard and QC / QA
3. Compliance with the HMA Acceptance tables
4. Acceptance of a lot for QC / QA
5. Visual inspection

The Engineer prepares 3 briquettes for each stability and air voids content determination. The Engineer reports the average of 3 tests. The Engineer prepares new briquettes and test if the range of stability for the 3 briquettes is more than 8 points.

The Engineer may use the briquettes used for stability testing to determine bulk specific gravity under CT 308. If the Engineer uses the same briquettes and the tests using bulk specific gravity fail, the Engineer prepares 3 new briquettes and determines a new bulk specific gravity.

39-1.06 DISPUTE RESOLUTION

You and the Engineer must work together to avoid potential conflicts and to resolve disputes regarding test result discrepancies. Notify the Engineer in writing within 5 days of receiving a test result if you dispute the test result.

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If you or the Engineer dispute each other's test results, submit written quality control test results and copies of paperwork including worksheets used to determine the disputed test results to the Engineer. An Independent Third Party (ITP) performs referee testing. Before the ITP participates in a dispute resolution, the ITP must be accredited under the Department's Independent Assurance Program. The ITP must be independent of the project. By mutual agreement, the ITP is chosen from:

1. A Department laboratory
2. A Department laboratory in a district or region not in the district or region the project is located
3. The Transportation Laboratory
4. A laboratory not currently employed by you or your HMA producer

If split quality control or acceptance samples are not available, the ITP uses any available material representing the disputed HMA for evaluation.

39-1.07 PRODUCTION START-UP EVALUATION

The Engineer evaluates HMA production and placement at production start-up.

Within the first 750 tons produced on the first day of HMA production, in the Engineer's presence and from the same production run, take samples of:

1. Aggregate
2. Asphalt binder
3. RAP
4. HMA

Sample aggregate from cold feed belts or hot bins. Take RAP samples from the RAP system. Sample HMA under California Test 125 except if you request in writing and the Engineer approves, you may sample HMA from:

1. The plant
2. The truck
3. A windrow
4. The paver hopper
5. The mat behind the paver

For aggregate, RAP, and HMA, split the samples into at least 4 parts and label their containers. Submit 3 split parts to the Engineer and keep 1 part.

For Standard and QC / QA projects, you and the Engineer must test the split samples and report test results in writing within 3 business days of sampling. If you proceed before receipt of the test results, the Engineer may consider the HMA placed to be represented by these test results.

For Standard and QC / QA projects, take 4-inch or 6-inch diameter density cores within the first 750 tons on the first day of HMA production. For each density core, the Engineer reports the bulk specific gravity determined under California Test 308, Method A in addition to the percent of maximum theoretical density. You may test for in-place

density at the density core locations and include them in your production tests for percent of maximum theoretical density.

39-1.08 PRODUCTION

39-1.08A General

Produce HMA in a batch mixing plant or a continuous mixing plant. Proportion aggregate by hot or cold feed control.

HMA plants must be Department-qualified. Before production, the HMA plant must have a current qualification under the Department's Materials Plant Quality Program.

During production, you may adjust:

1. Hot or cold feed proportion controls for virgin aggregate and RAP
2. The set point for asphalt binder content

39-1.08B Mixing

Mix HMA ingredients into a homogeneous mixture of coated aggregates.

Asphalt binder must be between 275 °F and 375 °F when mixed with aggregate.

Asphalt rubber binder must be between 375 °F and 425 °F when mixed with aggregate.

When mixed with asphalt binder, aggregate must not be more than 325 °F except aggregate for OGFC with unmodified asphalt binder must be not more than 275 °F. Aggregate temperature specifications do not apply when you use RAP.

HMA with or without RAP must not be more than 325 °F.

39-1.08C Asphalt Rubber Binder

Deliver scrap tire CRM and high natural CRM in separate bags.

Either proportion and mix asphalt binder, asphalt modifier, and CRM simultaneously or premix the asphalt binder and asphalt modifier before adding CRM. If you premix asphalt binder and asphalt modifier, mix them for at least 20 minutes. When you add CRM, the asphalt binder and asphalt modifier must be between 375 °F and 440 °F.

Do not use asphalt rubber binder during the first 45 minutes of the reaction period. During this period, the asphalt rubber binder mixture must be between 350 °F and the lower of 425 °F or 25 °F below the asphalt binder's flash point indicated in the MSDS.

If any asphalt rubber binder is not used within 4 hours after the reaction period, discontinue heating. If the asphalt rubber binder drops below 375 °F, reheat before use. If you add more scrap tire CRM to the reheated asphalt rubber binder, the binder must undergo a 45-minute reaction period. The added scrap tire CRM must not exceed 10 percent of the total asphalt rubber binder weight. Reheated and reacted asphalt rubber binder must comply with the viscosity specifications for asphalt rubber binder in Section 39-1.02, "Materials." Do not reheat asphalt rubber binder more than twice.

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39-1.09 SUBGRADE, TACK COAT, AND GEOSYNTHETIC PAVEMENT INTERLAYER

39-1.09A General

Prepare subgrade or apply tack coat to surfaces receiving HMA. If specified, place geosynthetic pavement interlayer over a coat of asphalt binder.

39-1.09B Subgrade

Subgrade to receive HMA must comply with the compaction and elevation tolerance specifications in the sections for the material involved. Subgrade must be free of loose and extraneous material. If HMA is paved on existing base or pavement, remove loose paving particles, dirt, and other extraneous material by any means including flushing and sweeping.

39-1.09C Tack Coat

Apply tack coat:

1. To existing pavement including planed surfaces
2. Between HMA layers
3. To vertical surfaces of:

    3.1. Curbs
    3.2. Gutters
    3.3. Construction joints

Before placing HMA, apply tack coat in 1 application at the minimum residual rate specified for the condition of the underlying surface:

Tack Coat Application Rates for HMA Type A, Type B, and RHMA-G

HMA over:	Minimum Residual Rates (gallons per square yard)		
	CSS1/CSS1h, SS1/SS1h and QS1h/CQS1h Asphaltic Emulsion	CRS1/CRS2, RS1/RS2 and QS1/CQS1 Asphaltic Emulsion	Asphalt Binder and PMRS2/PMCRS2 and PMRS2h/PMCRS2h Asphaltic Emulsion
New HMA (between layers)	0.02	0.03	0.02
Existing AC and PCC pavement	0.03	0.04	0.03
Planed pavement	0.05	0.06	0.04

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Tack Coat Application Rates for OGFC

OGFC over:	Minimum Residual Rates (gallons per square yard)		
	CSS1/CSS1h, SS1/SS1h and QS1h/CQS1h Asphaltic Emulsion	CRS1/CRS2, RS1/RS2 and QS1/CQS1 Asphaltic Emulsion	Asphalt Binder and PMRS2/PMCRS2 and PMRS2h/PMCRS2h Asphaltic Emulsion
New HMA	0.03	0.04	0.03
Existing AC and PCC pavement	0.05	0.06	0.04
Planed pavement	0.06	0.07	0.05

If you dilute asphaltic emulsion, mix until homogeneous before application.

Apply to vertical surfaces with a residual tack coat rate that will thoroughly coat the vertical face without running off.

If you request in writing and the Engineer authorizes, you may:

1. Change tack coat rates
2. Omit tack coat between layers of new HMA during the same work shift if:

    2.1. No dust, dirt, or extraneous material is present
    2.2. The surface is at least 140 °F

Immediately in advance of placing HMA, apply additional tack coat to damaged areas or where loose or extraneous material is removed.

Close areas receiving tack coat to traffic. Do not track tack coat onto pavement surfaces beyond the job site.

Asphalt binder tack coat must be between 285 °F and 350 °F when applied.

39-1.09D Geosynthetic Pavement Interlayer

Place geosynthetic pavement interlayer in compliance with the manufacturer's recommendations.

Before placing the geosynthetic pavement interlayer and asphalt binder:

1. Repair cracks 1/4 inch and wider, spalls, and holes in the pavement. The State pays for this repair work under Section 4-1.03D, "Extra Work."
2. Clean the pavement of loose and extraneous material.

Immediately before placing the interlayer, apply 0.25 gallon ± 0.03 gallon of asphalt binder per square yard of interlayer or until the fabric is saturated. Apply asphalt binder the width of the geosynthetic pavement interlayer plus 3 inches on each side. At interlayer overlaps, apply asphalt binder on the lower interlayer the same overlap distance as the upper interlayer.

Align and place the interlayer with no overlapping wrinkles, except a wrinkle that overlaps may remain if it is less than 1/2 inch thick. If the overlapping wrinkle is more than 1/2 inch thick, cut the wrinkle out and overlap the interlayer no more than 2 inches.

The minimum HMA thickness over the interlayer must be 0.12 foot thick including conform tapers. Do not place the interlayer on a wet or frozen surface.

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Overlap the interlayer borders between 2 inches and 4 inches. In the direction of paving, overlap the following roll with the preceding roll at any break.

You may use rolling equipment to correct distortions or wrinkles in the interlayer.

If asphalt binder tracked onto the interlayer or brought to the surface by construction equipment causes interlayer displacement, cover it with a small quantity of HMA.

Before placing HMA on the interlayer, do not expose the interlayer to:

1. Traffic except for crossings under traffic control and only after you place a small HMA quantity
2. Sharp turns from construction equipment
3. Damaging elements

Pave HMA on the interlayer during the same work shift.

39-1.10 Spreading And Compacting Equipment

Paving equipment for spreading must be:

1. Self-propelled
2. Mechanical
3. Equipped with a screed or strike-off assembly that can distribute HMA the full width of a traffic lane
4. Equipped with a full-width compacting device
5. Equipped with automatic screed controls and sensing devices that control the thickness, longitudinal grade, and transverse screed slope

Install and maintain grade and slope references.

The screed must produce a uniform HMA surface texture without tearing, shoving, or gouging.

The paver must not leave marks such as ridges and indentations unless you can eliminate them by rolling.

Rollers must be equipped with a system that prevents HMA from sticking to the wheels. You may use a parting agent that does not damage the HMA or impede the bonding of layers.

In areas inaccessible to spreading and compacting equipment:

1. Spread the HMA by any means to obtain the specified lines, grades and cross sections.
2. Use a pneumatic tamper, plate compactor, or equivalent to achieve thorough compaction.

39-1.11 Transporting, Spreading, And Compacting

Do not pave HMA on a wet pavement or frozen surface.

You may deposit HMA in a windrow and load it in the paver if:

1. Paver is equipped with a hopper that automatically feeds the screed

2. Loading equipment can pick up the windrowed material and deposit it in the paver hopper without damaging base material
3. Activities for deposit, pick-up, loading, and paving are continuous
4. HMA temperature in the windrow does not fall below 260 °F

You may pave HMA in 1 or more layers on areas less than 5 feet wide and outside the traveled way including shoulders. You may use mechanical equipment other than a paver for these areas. The equipment must produce a uniform smoothness and texture.

HMA handled, spread, or windrowed must not stain the finished surface of any improvement including pavement.

Do not use petroleum products such as kerosene or diesel fuel to release HMA from trucks, spreaders, or compactors.

HMA must be free of:

1. Segregation
2. Coarse or fine aggregate pockets
3. Hardened lumps

Longitudinal joints in the top layer must match specified lane edges. Alternate longitudinal joint offsets in lower layers at least 0.5 foot from each side of the specified lane edges. You may request in writing other longitudinal joint placement patterns.

Until the adjoining through lane's top layer has been paved, do not pave the top layer of:

1. Shoulders
2. Tapers
3. Transitions
4. Road connections
5. Driveways
6. Curve widenings
7. Chain control lanes
8. Turnouts
9. Turn pockets

If the number of lanes change, pave each through lane's top layer before paving a tapering lane's top layer. Simultaneous to paving a through lane's top layer, you may pave an adjoining area's top layer including shoulders. Do not operate spreading equipment on any area's top layer until completing final compaction.

If HMA (leveling) is specified, fill and level irregularities and ruts with HMA before spreading HMA over base, existing surfaces, or bridge decks. You may use mechanical equipment other than a paver for these areas. The equipment must produce a uniform smoothness and texture. HMA used to change an existing surface's cross slope or profile is not HMA (leveling).

If placing HMA against the edge of existing pavement, sawcut or grind the pavement straight and vertical along the joint and remove extraneous material without damaging the surface remaining in place. If placing HMA against the edge of a longitudinal or

transverse construction joint and the joint is damaged or not placed to a neat line, sawcut or grind the pavement straight and vertical along the joint and remove extraneous material without damaging the surface remaining in place. Repair or remove and replace damaged pavement at your expense.

Rolling must leave the completed surface compacted and smooth without tearing, cracking, or shoving. Complete finish rolling activities before the pavement surface temperature is:

1. Below 150 °F for HMA with unmodified binder
2. Below 140 °F for HMA with modified binder
3. Below 200 °F for RHMA-G

If a vibratory roller is used as a finish roller, turn the vibrator off.

Do not use a pneumatic tired roller to compact RHMA-G.

For Standard and QC/QA, if a 3/4-inch aggregate grading is specified, you may use a 1/2-inch aggregate grading if the specified paved thickness is from 0.15 foot to 0.20 foot thick.

Spread and compact HMA under Section 39-3.03, "Spreading and Compacting Equipment," and Section 39-3.04, "Transporting, Spreading, and Compacting," for any of the following:

1. Specified paved thickness is less than 0.15 foot.
2. Specified paved thickness is less than 0.20 foot and a 3/4-inch aggregate grading is specified and used.
3. You spread and compact at:

    3.1. Asphalt concrete surfacing replacement areas
    3.2. Leveling courses
    3.3. Areas the Engineer determines conventional compaction and compaction measurement methods are impeded

Do not allow traffic on new HMA pavement until its mid-depth temperature is below 160 °F.

If you request in writing and the Engineer authorizes, you may cool HMA Type A and Type B with water when rolling activities are complete. Apply water under Section 17, "Watering."

Spread sand at a rate between 1 pound and 2 pounds per square yard on new RHMA-G, RHMA-O, and RHMA-O-HB pavement when finish rolling is complete. Sand must be free of clay or organic matter. Sand must comply with Section 90-3.03, "Fine Aggregate Grading." Keep traffic off the pavement until spreading sand is complete.

39-1.12 SMOOTHNESS

39-1.12A General

Determine HMA smoothness with a profilograph and a straightedge.

Smoothness specifications do not apply to OGFC placed on existing pavement not constructed under the same project.

If portland cement concrete is placed on HMA:

1. Cold plane the HMA finished surface to within specified tolerances if it is higher than the grade specified by the Engineer.
2. Remove and replace HMA if the finished surface is lower than 0.05 foot below the grade specified by the Engineer.

39-1.12B Straightedge

The HMA pavement top layer must not vary from the lower edge of a 12-foot long straightedge:

1. More than 0.01 foot when the straight edge is laid parallel with the centerline
2. More than 0.02 foot when the straightedge is laid perpendicular to the centerline and extends from edge to edge of a traffic lane
3. More than 0.02 foot when the straightedge is laid within 24 feet of a pavement conform

39-1.12C Profilograph

Under California Test 526, determine the zero (null) blanking band Profile Index (PI_0) and must-grinds on the top layer of HMA Type A, Type B, and RHMA-G pavement. Take 2 profiles within each traffic lane, 3 feet from and parallel with the edge of each lane.

A must-grind is a deviation of 0.3 inch or more in a length of 25 feet. You must correct must-grinds.

For OGFC, only determine must-grinds when placed over HMA constructed under the same project. The top layer of the underlying HMA must comply with the smoothness specifications before placing OGFC.

Profile pavement in the Engineer's presence. Choose the time of profiling.

On tangents and horizontal curves with a centerline radius of curvature 2,000 feet or more, the PI_0 must be at most 3 inches per 0.1-mile section.

On horizontal curves with a centerline radius of curvature between 1,000 feet and 2,000 feet including pavement within the superelevation transitions, the PI_0 must be at most 6 inches per 0.1-mile section.

Before the Engineer accepts HMA pavement for smoothness, submit written final profilograms.

Submit 1 electronic copy of profile information in Microsoft Excel and 1 electronic copy of longitudinal pavement profiles in ".erd" format or other ProVAL compatible format to the Engineer and to:

Smoothness@dot.ca.gov

The following HMA pavement areas do not require a PI_0. You must measure these areas with a 12-foot straightedge and determine must-grinds with a profilograph:

1. New HMA with a total thickness less than or equal to 0.25 foot

2. HMA sections of city or county streets and roads, turn lanes and collector lanes that are less than 1,500 feet in length

The following HMA pavement areas do not require a PI_0. You must measure these areas with a 12-foot straightedge:

1. Horizontal curves with a centerline radius of curvature less than 1,000 feet including pavement within the superelevation transitions of those curves
2. Within 12 feet of a transverse joint separating the pavement from:

    2.1. Existing pavement not constructed under the same project
    2.2. A bridge deck or approach slab

3. Exit ramp termini, truck weigh stations, and weigh-in-motion areas
4. If steep grades and superelevation rates greater than 6 percent are present on:

    4.1. Ramps
    4.2. Connectors

5. Turn lanes
6. Areas within 15 feet of manholes or drainage transitions
7. Acceleration and deceleration lanes for at-grade intersections
8. Shoulders and miscellaneous areas
9. HMA pavement within 3 feet from and parallel to the construction joints formed between curbs, gutters, or existing pavement

39-1.12D Smoothness Correction

If the top layer of HMA Type A, Type B, or RHMA-G pavement does not comply with the smoothness specifications, grind the pavement to within tolerances, remove and replace it, or place a layer of HMA. The Engineer must authorize your choice of correction before the work begins.

Remove and replace the areas of OGFC not in compliance with the must-grind and straightedge specifications, except you may grind OGFC for correcting smoothness:

1. At a transverse joint separating the pavement from pavement not constructed under the same project
2. Within 12 feet of a transverse joint separating the pavement from a bridge deck or approach slab

Corrected HMA pavement areas must be uniform rectangles with edges:

1. Parallel to the nearest HMA pavement edge or lane line
2. Perpendicular to the pavement centerline

Measure the corrected HMA pavement surface with a profilograph and a 12-foot straightedge and correct the pavement to within specified tolerances. If a must-grind area

or straightedged pavement cannot be corrected to within specified tolerances, remove and replace the pavement.

On ground areas not overlaid with OGFC, apply fog seal coat under Section 37-1, "Seal Coats."

39-1.13 MISCELLANEOUS AREAS AND DIKES

Miscellaneous areas are outside the traveled way and include:

1. Median areas not including inside shoulders
2. Island areas
3. Sidewalks
4. Gutters
5. Gutter flares
6. Ditches
7. Overside drains
8. Aprons at the ends of drainage structures

Spread miscellaneous areas in 1 layer and compact to the specified lines and grades.

For miscellaneous areas and dikes:

1. Do not submit a JMF.
2. Choose the 3/8-inch or 1/2-inch HMA Type A and Type B aggregate gradations.
3. Minimum asphalt binder content must be 6.8 percent for 3/8-inch aggregate and 6.0 percent for 1/2-inch aggregate. If you request in writing and the Engineer authorizes, you may reduce the minimum asphalt binder content.
4. Choose asphalt binder Grade PG 70-10 or the same grade specified for HMA.

39-1.14 RUMBLE STRIP

Construct rumble strips by rolling or grinding indentations in the top layer of new HMA surfacing.

Select the method and equipment for constructing ground-in indentations.

Do not construct rumble strips on structures or approach slabs.

Construct rumble strips within 2 inches of the specified alignment. Roller or grinding equipment must be equipped with a sighting device enabling the operator to maintain the rumble strip alignment.

Rolled-in indentations must not vary from the specified dimensions by more than 10 percent.

Ground-in indentations must comply with the specified dimensions within 0.06 inch in depth or 10 percent in length and width.

The Engineer orders grinding or removal and replacement of noncompliant rumble strips to bring them within specified tolerances. Ground surface areas must be neat and uniform in appearance.

The grinding equipment must be equipped with a vacuum attachment to remove residue.

Dispose of removed material under Section 7-1.13, "Disposal of Material Outside the Highway Right of Way."

On ground areas, apply fog seal coat under Section 37-1, "Seal Coats."

39-2 STANDARD

39-2.01 DESCRIPTION

If HMA is specified as Standard, construct it under Section 39-1, "General," this Section 39-2, "Standard," and Section 39-5, "Measurement and Payment."

39-2.02 CONTRACTOR QUALITY CONTROL

39-2.02A Quality Control Plan

Establish, implement, and maintain a Quality Control Plan (QCP) for HMA. The QCP must describe the organization and procedures you will use to:

1. Control the quality characteristics
2. Determine when corrective actions are needed (action limits)
3. Implement corrective actions

When you submit the proposed JMF, submit the written QCP. You and the Engineer must discuss the QCP during the prepaving conference.

The QCP must address the elements affecting HMA quality including:

1. Aggregate
2. Asphalt binder
3. Additives
4. Production
5. Paving

The Engineer reviews each QCP within 5 business days from the submittal. Hold HMA production until the Engineer accepts the QCP in writing. The Engineer's QCP acceptance does not mean your compliance with the QCP will result in acceptable HMA. Section 39-1.05, "Engineer's Acceptance," specifies HMA acceptance.

39-2.02B Quality Control Testing

Perform sampling and testing at the specified frequency for the following quality characteristics:

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Minimum Quality Control – Standard

Quality Characteristic	Test Method	Minimum Sampling and Testing Frequency	HMA Type			
			A	B	RHMA-G	OGFC
Aggregate gradation[a]	CT 202	1 per 750 tons and any remaining part	JMF ± Tolerance[b]	JMF ± Tolerance[b]	JMF ± Tolerance[b]	JMF ± Tolerance[b]
Sand equivalent (min.)[c]	CT 217		47	42	47	--
Asphalt binder content (%)	CT 379 or 382		JMF ± 0.45	JMF ± 0.45	JMF ± 0.50	JMF ± 0.50
HMA moisture content (%, max.)	CT 226 or CT 370	1 per 2,500 tons but not less than 1 per paving day	1.0	1.0	1.0	1.0
Percent of maximum theoretical density (%)[d, e]	Quality control plan	2 per business day (min.)	91 - 97	91 - 97	91 - 97	--
Stabilometer value (min.)[c, f]	CT 366	One per 4,000 tons or 2 per 5 business days, which-ever is more				
No. 4 and 3/8" gradings			30	30	--	--
1/2" and 3/4" gradings			37	35	23	--
Air voids content (%)[c, g]	CT 367		4 ± 2	4 ± 2	Specification ± 2	--
Aggregate moisture content at continuous mixing plants and RAP moisture content at continuous mixing plants and batch mixing plants[h]	CT 226 or CT 370	2 per day during production	--	--	--	--
Percent of crushed particles coarse aggregate (%, min.)	CT 205	As necessary and designat-ed in the QCP. At least once per project				
One fractured face			90	25	--	90
Two fractured faces			75	--	90	75
Fine aggregate (%, min) (Passing No. 4 sieve and retained on No. 8 sieve.)						
One fractured face			70	20	70	90

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Los Angeles Rattler (%, max.) Loss at 100 rev. Loss at 500 rev.	CT 211		 12 45	 -- 50	 12 40	 12 40
Flat and elongated particles (%, max. by weight @ 5:1)	ASTM D 4791		Report only	Report only	Report only	Report only
Fine aggregate angularity (%, min.)	AASHTO T 304, Method A		45	45	45	--
Voids filled with asphalt (%) [i] No. 4 grading 3/8" grading 1/2" grading 3/4" grading	LP-3		 76.0 – 80.0 73.0 – 76.0 65.0 – 75.0 65.0 – 75.0	 76.0 – 80.0 73.0 – 76.0 65.0 – 75.0 65.0 – 75.0	Report only	--
Voids in mineral aggregate (% min.) [i] No. 4 grading 3/8" grading 1/2" grading 3/4" grading	LP-2		 17.0 15.0 14.0 13.0	 17.0 15.0 14.0 13.0	 -- -- 18.0 – 23.0 [j] 18.0 – 23.0 [j]	--
Dust proportion [i] No. 4 and 3/8" gradings 1/2" and 3/4" gradings	LP-4		 0.9 – 2.0 0.6 – 1.3	 0.9 – 2.0 0.6 – 1.3	Report only	--
Smoothness	Section 39-1.12	--	12-foot straightedge, must-grind, and PI_0	12-foot straightedge, must-grind, and PI_0	12-foot straightedge, must-grind, and PI_0	12-foot straightedge and must-grind
Asphalt rubber binder viscosity @ 350 °F, centipoises	Section 39-1.02D	Section 39-1.04C	--	--	1,500 – 4,000	1,500 – 4,000
Asphalt modifier	Section 39-1.02D	Section 39-1.04C	--	--	Section 39-1.02D	Section 39-1.02D
Crumb rubber modifier	Section 39-1.02D	Section 39-1.04C	--	--	Section 39-1.02D	Section 39-1.02D

Notes:
[a] Determine combined aggregate gradation containing RAP under Laboratory Procedure LP-9.
[b] The tolerances must comply with the allowable tolerances in Section 39-1.02E, "Aggregate."
[c] Report the average of 3 tests from a single split sample.
[d] Required for HMA Type A, Type B, and RHMA-G if the specified paved thickness is at least 0.15 foot.
[e] Determine maximum theoretical density (California Test 309) at the frequency specified for Test Maximum Density under California Test 375, Part 5.D.
[f] Modify California Test 304, Part 2.B.2.c: "After compaction in the mechanical compactor, cool to 140 °F ± 5 °F by allowing the briquettes to cool at room temperature for 0.5 hour, then place the briquettes in the oven at 140 °F for a minimum of 2 hours and not more than 3 hours."
[g] Determine the bulk specific gravity of each lab-compacted briquette under California Test 308, Method A, and theoretical maximum specific gravity under California Test 309.
[h] For adjusting the plant controller at the HMA plant.
[i] Report only if the adjustment for asphalt binder content target value is less than or equal to ± 0.3 percent from OBC.
[j] Voids in mineral aggregate for RHMA-G must be within this range.

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For any single quality characteristic except smoothness, if 2 consecutive quality control test results do not comply with the action limits or specifications:

1. Stop production.
2. Notify the Engineer in writing.
3. Take corrective action.
4. Demonstrate compliance with the specifications before resuming production and placement on the State highway.

39-2.03 ENGINEER'S ACCEPTANCE

39-2.03A Testing

The Engineer samples for acceptance testing and tests for:

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HMA Acceptance - Standard

Quality Characteristic	Test Method	HMA Type			
		A	B	RHMA-G	OGFC
Aggregate gradation [a]	CT 202	JMF ± Tolerance [c]	JMF ± Tolerance [c]	JMF ± Tolerance [c]	JMF ± Tolerance [c]
Sieve / 3/4" / 1/2" / 3/8"					
1/2" / X [b] /					
3/8" /	X				
No. 4 /		X			
No. 8 / X / X / X					
No. 200 / X / X / X					
Sand equivalent (min.) [d]	CT 217	47	42	47	--
Asphalt binder content (%)	CT 379 or 382	JMF ± 0.45	JMF ± 0.45	JMF ± 0.50	JMF ± 0.50
HMA moisture content (%, max.)	CT 226 or CT 370	1.0	1.0	1.0	1.0
Percent of maximum theoretical density (%) [e, f]	CT 375	91 – 97	91 – 97	91 – 97	--
Stabilometer value (min.) [d, g]	CT 366				
No. 4 and 3/8" gradings		30	30	--	--
1/2" and 3/4" gradings		37	35	23	--
Air voids content (%) [d, h]	CT 367	4 ± 2	4 ± 2	Specification ± 2	--
Percent of crushed particles	CT 205				
Coarse aggregate (%, min.)					
One fractured face		90	25	--	90
Two fractured faces		75	--	90	75
Fine aggregate (%, min) (Passing No. 4 sieve and retained on No. 8 sieve.)					
One fractured face		70	20	70	90
Percent of crushed particles	CT 205				
Coarse aggregate (%, min.)					
One fractured face		90	25	--	90
Two fractured faces		75	--	90	75
Los Angeles Rattler (%, max.)	CT 211				
Loss at 100 rev.		12	--	12	12
Loss at 500 rev.		45	50	40	40
Fine aggregate angularity (%, min.)	AASHTO T 304, Method A	45	45	45	--
Flat and elongated particles (%, max. by weight @ 5:1)	ASTM D 4791	Report only	Report only	Report only	Report only
Voids filled with asphalt (%) [i]	LP-3				
No. 4 grading		76.0 – 80.0	76.0 – 80.0	Report only	--
3/8" grading		73.0 – 76.0	73.0 – 76.0		
1/2" grading		65.0 – 75.0	65.0 – 75.0		
3/4" grading		65.0 – 75.0	65.0 – 75.0		
Voids in mineral aggregate (% min.) [i]	LP-2				
No. 4 grading		17.0	17.0	--	--
3/8" grading		15.0	15.0	--	
1/2" grading		14.0	14.0	18.0 – 23.0 [j]	
3/4" grading		13.0	13.0	18.0 – 23.0 [j]	

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Dust proportion [i] No. 4 and 3/8" gradings 1/2" and 3/4" gradings	LP-4	 0.9 – 2.0 0.6 – 1.3	 0.9 – 2.0 0.6 – 1.3	Report only	--
Smoothness	Section 39-1.12	12-foot straightedge, must-grind, and PI_0	12-foot straightedge, must-grind, and PI_0	12-foot straightedge, must-grind, and PI_0	12-foot straightedge and must-grind
Asphalt binder	Various	Section 92	Section 92	Section 92	Section 92
Asphalt rubber binder	Various	--	--	Section 92-1.02(C) and Section 39-1.02D	Section 92-1.02(C) and Section 39-1.02D
Asphalt modifier	Various	--	--	Section 39-1.02D	Section 39-1.02D
Crumb rubber modifier	Various	--	--	Section 39-1.02D	Section 39-1.02D

[a] The Engineer determines combined aggregate gradations containing RAP under Laboratory Procedure LP-9.
[b] "X" denotes the sieves the Engineer considers for the specified aggregate gradation.
[c] The tolerances must comply with the allowable tolerances in Section 39-1.02E, "Aggregate."
[d] The Engineer reports the average of 3 tests from a single split sample.
[e] The Engineer determines percent of maximum theoretical density if the specified paved thickness is at least 0.15 foot under California Test 375 except the Engineer uses:

1. California Test 308, Method A, to determine in-place density of each density core instead of using the nuclear gauge in Part 4, "Determining In-Place Density By The Nuclear Density Device."
2. California Test 309 to determine maximum theoretical density instead of calculating test maximum density in Part 5, "Determining Test Maximum Density."

[f] The Engineer determines maximum theoretical density (California Test 309) at the frequency specified for Test Maximum Density under California Test 375, Part 5.D.
[g] Modify California Test 304, Part 2.B.2.c: "After compaction in the mechanical compactor, cool to 140 °F ±5 °F by allowing the briquettes to cool at room temperature for 0.5 hour, then place the briquettes in the oven at 140 °F for a minimum of 2 hours and not more than 3 hours."
[h] The Engineer determines the bulk specific gravity of each lab-compacted briquette under California Test 308, Method A, and theoretical maximum specific gravity under California Test 309.
[i] Report only if the adjustment for asphalt binder content target value is less than or equal to ± 0.3 percent from OBC.
[j] Voids in mineral aggregate for RHMA-G must be within this range.

No single test result may represent more than the smaller of 750 tons or 1 day's production.

For any single quality characteristic except smoothness, if 2 consecutive acceptance test results do not comply with the specifications:

1. Stop production.
2. Take corrective action.
3. In the Engineer's presence, take samples and split each sample into 4 parts. Test 1 part for compliance with the specifications and submit 3 parts to the Engineer. The Engineer tests 1 part for compliance with the specifications and reserves and stores 2 parts.
4. Demonstrate compliance with the specifications before resuming production and placement on the State highway.

DRAFT

The Engineer tests the density core you take from each 250 tons of HMA production. The Engineer determines the percent of maximum theoretical density for each density core by determining the density core's density and dividing by the maximum theoretical density.

If the specified total paved thickness is at least 0.15 foot and any layer is less than 0.15 foot, the Engineer determines the percent of maximum theoretical density from density cores taken from the final layer measured the full depth of the total paved HMA thickness.

For percent of maximum theoretical density, the Engineer determines a deduction for each test result outside the specifications in compliance with:

Reduced Payment Factors for Percent of Maximum Theoretical Density

HMA Type A and B and RHMA-G Percent of Maximum Theoretical Density	Reduced Payment Factor	HMA Type A and B and RHMA-G Percent of Maximum Theoretical Density	Reduced Payment Factor
91.0	0.0000	97.0	0.0000
90.9	0.0125	97.1	0.0125
90.8	0.0250	97.2	0.0250
90.7	0.0375	97.3	0.0375
90.6	0.0500	97.4	0.0500
90.5	0.0625	97.5	0.0625
90.4	0.0750	97.6	0.0750
90.3	0.0875	97.7	0.0875
90.2	0.1000	97.8	0.1000
90.1	0.1125	97.9	0.1125
90.0	0.1250	98.0	0.1250
89.9	0.1375	98.1	0.1375
89.8	0.1500	98.2	0.1500
89.7	0.1625	98.3	0.1625
89.6	0.1750	98.4	0.1750
89.5	0.1875	98.5	0.1875
89.4	0.2000	98.6	0.2000
89.3	0.2125	98.7	0.2125
89.2	0.2250	98.8	0.2250
89.1	0.2375	98.9	0.2375
89.0	0.2500	99.0	0.2500
< 89.0	Remove and Replace	> 99.0	Remove and Replace

39-2.04 TRANSPORTING, SPREADING, AND COMPACTING

Determine the number of rollers needed to obtain the specified density and surface finish.

39-3 METHOD

39-3.01 DESCRIPTION

If HMA is specified as Method, construct it under Section 39-1, "General," this Section 39-3, "Method," and Section 39-5, "Measurement and Payment."

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39-3.02 ENGINEER'S ACCEPTANCE

39-3.02A Testing

The Engineer samples for acceptance testing and tests for:

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HMA Acceptance - Method

Quality Characteristic	Test Method	HMA Type			
		A	B	RHMA-G	OGFC
Aggregate gradation [a]	CT 202	JMF ± Tolerance [b]	JMF ± Tolerance [b]	JMF ± Tolerance [b]	JMF ± Tolerance [b]
Sand equivalent (min.) [c]	CT 217	47	42	47	--
Asphalt binder content (%)	CT 379 or 382	JMF ± 0.45	JMF ± 0.45	JMF ± 0.50	JMF ± 0.50
HMA moisture content (%, max.)	CT 226 or CT 370	1.0	1.0	1.0	1.0
Stabilometer value (min.) [c, d]	CT 366				
No. 4 and 3/8" gradings		30	30	--	--
1/2" and 3/4" gradings		37	35	23	--
Percent of crushed particles	CT 205				
Coarse aggregate (% min.)					
One fractured face		90	25	--	90
Two fractured faces		75	--	90	75
Fine aggregate (% min) (Passing No. 4 sieve and retained on No. 8 sieve.)					
One fractured face		70	20	70	90
Los Angeles Rattler (% max.)	CT 211				
Loss at 100 rev.		12	--	12	12
Loss at 500 rev.		45	50	40	40
Air voids content (%) [c, e]	CT 367	4 ± 2	4 ± 2	Specification ± 2	--
Fine aggregate angularity (% min.)	AASHTO T 304, Method A	45	45	45	--
Flat and elongated particles (% max. by weight @ 5:1)	ASTM D 4791	Report only	Report only	Report only	Report only
Voids filled with asphalt (%) [f]	LP-3			Report only	--
No. 4 grading		76.0 – 80.0	76.0 – 80.0		
3/8" grading		73.0 – 76.0	73.0 – 76.0		
1/2" grading		65.0 – 75.0	65.0 – 75.0		
3/4" grading		65.0 – 75.0	65.0 – 75.0		
Voids in mineral aggregate (% min.) [f]	LP-2				--
No. 4 grading		17.0	17.0	--	
3/8" grading		15.0	15.0	--	
1/2" grading		14.0	14.0	18.0 – 23.0 [g]	
3/4" grading		13.0	13.0	18.0 – 23.0 [g]	
Dust proportion [f]	LP-4			Report only	--
No. 4 and 3/8" gradings		0.9 – 2.0	0.9 – 2.0		
1/2" and 3/4" gradings		0.6 – 1.3	0.6 – 1.3		
Smoothness	Section 39-1.12	12-foot straightedge and must-grind	12-foot straightedge and must-grind	12-foot straightedge and must-grind	12-foot straightedge and must-grind

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Asphalt binder	Various	Section 92	Section 92	Section 92	Section 92
Asphalt rubber binder	Various	--	--	Section 92-1.02(C) and Section 39-1.02D	Section 92-1.02(C) and Section 39-1.02D
Asphalt modifier	Various	--	--	Section 39-1.02D	Section 39-1.02D
Crumb rubber modifier	Various	--	--	Section 39-1.02D	Section 39-1.02D

[a] The Engineer determines combined aggregate gradations containing RAP under Laboratory Procedure LP-9.
[b] The tolerances must comply with the allowable tolerances in Section 39-1.02E, "Aggregate."
[c] The Engineer reports the average of 3 tests from a single split sample.
[d] Modify California Test 304, Part 2.B.2.c: "After compaction in the mechanical compactor, cool to 140 °F ±5 °F by allowing the briquettes to cool at room temperature for 0.5 hour, then place the briquettes in the oven at 140 °F for a minimum of 2 hours and not more than 3 hours."
[e] The Engineer determines the bulk specific gravity of each lab-compacted briquette under California Test 308, Method A, and theoretical maximum specific gravity under California Test 309.
[f] Report only if the adjustment for asphalt binder content target value is less than or equal to ± 0.3 percent from OBC.
[g] Voids in mineral aggregate for RHMA-G must be within this range.

No single test result may represent more than the smaller of 750 tons or 1 day's production.

For any single quality characteristic except smoothness, if 2 consecutive acceptance test results do not comply with the specifications:

1. Stop production.
2. Take corrective action.
3. In the Engineer's presence, take samples and split each sample into 4 parts. Test 1 part for compliance with the specifications and submit 3 parts to the Engineer. The Engineer tests 1 part for compliance with the specifications and reserves and stores 2 parts.
4. Demonstrate compliance with the specifications before resuming production and placement on the State highway.

39-3.03 SPREADING AND COMPACTING EQUIPMENT

Each paver spreading HMA Type A and Type B must be followed by 3 rollers:

1. One vibratory roller specifically designed to compact HMA. The roller must be capable of at least 2,500 vibrations per minute and must be equipped with amplitude and frequency controls. The roller's gross static weight must be at least 7.5 tons.
2. One oscillating type pneumatic-tired roller at least 4 feet wide. Pneumatic tires must be of equal size, diameter, type, and ply. The tires must be inflated to 60 psi minimum and maintained so that the air pressure does not vary more than 5 psi.
3. One steel-tired, 2-axle tandem roller. The roller's gross static weight must be at least 7.5 tons.

DRAFT

Each roller must have a separate operator. Rollers must be self-propelled and reversible.

Compact RHMA-G under the specifications for compacting HMA Type A and Type B except do not use pneumatic-tired rollers.

Compact OGFC with steel-tired, 2-axle tandem rollers. If placing over 300 tons of OGFC per hour, use at least 3 rollers for each paver. If placing less than 300 tons of OGFC per hour, use at least 2 rollers for each paver. Each roller must weigh between 126 pounds to 172 pounds per linear inch of drum width. Turn the vibrator off.

39-3.04 TRANSPORTING, SPREADING, AND COMPACTING

Pave HMA in maximum 0.25-foot thick compacted layers.

If the surface to be paved is both in sunlight and shade, pavement surface temperatures are taken in the shade.

Spread HMA Type A and Type B only if atmospheric and surface temperatures are:

Minimum Atmospheric and Surface Temperatures

Compacted Layer Thickness, feet	Atmospheric,° F		Surface,° F	
	Unmodified Asphalt Binder	Modified Asphalt Binder[a]	Unmodified Asphalt Binder	Modified Asphalt Binder [a]
< 0.15	55	50	60	55
0.15 – 0.25	45	45	50	50

Note:
[a] Except asphalt rubber binder.

If the asphalt binder for HMA Type A and Type B is:

1. Unmodified asphalt binder, complete:

   1.1. First coverage of breakdown compaction before the surface temperature drops below 250 °F
   1.2. Breakdown and intermediate compaction before the surface temperature drops below 200 °F
   1.3. Finish compaction before the surface temperature drops below 150 °F

2. Modified asphalt binder, complete:

   2.1. First coverage of breakdown compaction before the surface temperature drops below 240 °F
   2.2. Breakdown and intermediate compaction before the surface temperature drops below 180 °F
   2.3. Finish compaction before the surface temperature drops below 140 °F

For RHMA-G:

1. Only spread and compact if the atmospheric temperature is at least 55 °F and the surface temperature is at least 60 °F.

DRAFT

2. Complete the first coverage of breakdown compaction before the surface temperature drops below 280 °F.
3. Complete breakdown and intermediate compaction before the surface temperature drops below 250 °F.
4. Complete finish compaction before the surface temperature drops below 200 °F.
5. If the atmospheric temperature is below 70 °F, cover loads in trucks with tarpaulins. The tarpaulins must completely cover the exposed load until you transfer the mixture to the paver's hopper or to the pavement surface.

For OGFC with unmodified asphalt binder:

1. Only spread and compact if the atmospheric temperature is at least 55 °F and the surface temperature is at least 60 °F.
2. Complete first coverage using 2 rollers before the surface temperature drops below 240 °F.
3. Complete all compaction before the surface temperature drops below 200 °F.
4. If the atmospheric temperature is below 70 °F, cover loads in trucks with tarpaulins. The tarpaulins must completely cover the exposed load until you transfer the mixture to the paver's hopper or to the pavement surface.

For OGFC with modified asphalt binder except asphalt rubber binder:

1. Only spread and compact if the atmospheric temperature is at least 50 °F and the surface temperature is at least 50 °F.
2. Complete first coverage using 2 rollers before the surface temperature drops below 240 °F.
3. Complete all compaction before the surface temperature drops below 180 °F.
4. If the atmospheric temperature is below 70 °F, cover loads in trucks with tarpaulins. The tarpaulins must completely cover the exposed load until you transfer the mixture to the paver's hopper or to the pavement surface.

For RHMA-O and RHMA-O-HB:

1. Only spread and compact if the atmospheric temperature is at least 55 °F and surface temperature is at least 60 °F.
2 Complete the 1st coverage using 2 rollers before the surface temperature drops below 280 °F.
3. Complete compaction before the surface temperature drops below 250 °F.
4. If the atmospheric temperature is below 70 °F, cover loads in trucks with tarpaulins. The tarpaulins must completely cover the exposed load until the mixture is transferred to the paver's hopper or to the pavement surface.

For RHMA-G and OGFC, tarpaulins are not required if the time from discharge to truck until transfer to the paver's hopper or the pavement surface is less than 30 minutes.

HMA compaction coverage is the number of passes needed to cover the paving width. A pass is 1 roller's movement parallel to the paving in either direction. Overlapping

passes are part of the coverage being made and are not a subsequent coverage. Do not start a coverage until completing the prior coverage.

Start rolling at the lower edge and progress toward the highest part.

Perform breakdown compaction of each layer of HMA Type A, Type B, and RHMA-G with 3 coverages using a vibratory roller. The speed of the vibratory roller in miles per hour must not exceed the vibrations per minute divided by 1,000. If the HMA layer thickness is less than 0.08 foot, turn the vibrator off. The Engineer may order fewer coverages if the HMA layer thickness is less than 0.15 foot.

Perform intermediate compaction of each layer of HMA Type A and Type B with 3 coverages using a pneumatic-tired roller at a speed not to exceed 5 mph.

Perform finish compaction of HMA Type A, Type B, and RHMA-G with 1 coverage using a steel-tired roller.

Compact OGFC with 2 coverages using steel-tired rollers.

39-4 QUALITY CONTROL / QUALITY ASSURANCE

39-4.01 DESCRIPTION

If HMA is specified as Quality Control / Quality Assurance, construct it under Section 39-1, "General," this Section 39-4, "Quality Control / Quality Assurance," and Section 39-5, "Measurement and Payment."

39-4.02 GENERAL

The QC / QA construction process consists of:

1. Establishing, maintaining, and changing if needed a quality control system providing assurance the HMA complies with the specifications
2. Sampling and testing at specified intervals, or sublots, to demonstrate compliance and to control process
3. The Engineer sampling and testing at specified intervals to verify testing process and HMA quality
4. The Engineer using test results, statistical evaluation of verified quality control tests, and inspection to accept HMA for payment

A lot is a quantity of HMA. The Engineer designates a new lot when:

1. 20 sublots are complete
2. The JMF changes
3. Production stops for more than 30 days

Each lot consists of no more than 20 sublots. A sublot is 750 tons except HMA paved at day's end greater than 250 tons is a sublot. If HMA paved at day's end is less than 250 tons, you may either make this quantity a sublot or include it in the previous sublot's test results for statistical evaluation.

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39-4.03 CONTRACTOR QUALITY CONTROL

39-4.03A General

Use a composite quality factor, QF_C, and individual quality factors, QF_{QCi}, to control your process and evaluate your quality control program. For quality characteristics without quality factors, use your quality control plan's action limits to control process.

Control HMA quality including:

1. Materials
2. Proportioning
3. Spreading and compacting
4. Finished roadway surface

Develop, implement, and maintain a quality control program that includes:

1. Inspection
2. Sampling
3. Testing

39-4.03B Quality Control Plan

With the JMF submittal, submit a written Quality Control Plan (QCP). The QCP must comply with the Department's Quality Control Manual for Hot Mix Asphalt Production and Placement. Discuss the QCP with the Engineer during the prepaving conference.

The Engineer reviews each QCP within 5 business days from the submittal. Hold HMA production until the Engineer accepts the QCP in writing. The Engineer's QCP acceptance does not mean your compliance with the QCP will result in acceptable HMA. Section 39-1.05, "Engineer's Acceptance," specifies HMA acceptance.

The QCP must include the name and qualifications of a Quality Control Manager. The Quality Control Manager administers the QCP and during paving must be at the job site within 3 hours of receiving notice. The Quality Control Manager must not be any of the following on the project:

1. Foreman
2. Production or paving crewmember
3. Inspector
4. Tester

The QCP must include action limits and details of corrective action you will take if a test result for any quality characteristic falls outside an action limit.

As work progresses, you must submit a written QCP supplement to change quality control procedures, personnel, tester qualification status, or laboratory accreditation status.

39-4.03C Quality Control Inspection, Sampling, And Testing

Sample, test, inspect, and manage HMA quality control.

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Provide a roadway inspector while HMA paving activities are in progress. Provide a plant inspector during HMA production.

Inspectors must comply with the Department's Quality Control Manual for Hot Mix Asphalt Production and Placement.

Provide a testing laboratory and personnel for quality control testing. Provide the Engineer unrestricted access to the quality control activities. Before providing services for the project, the Engineer reviews, accredits, and qualifies the testing laboratory and personnel under the Department's Independent Assurance Program.

The minimum random sampling and testing for quality control is:

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Minimum Quality Control – QC / QA

Quality Characteristic	Test Method	Minimum Sampling and Testing Frequency	HMA Type			Location of Sampling	Max. Reporting Time Allowance
			A	B	RHMA-G		
Aggregate gradation [a]	CT 202	1 per 750 tons	JMF ± Tolerance [b]	JMF ± Tolerance [b]	JMF ± Tolerance [b]	CT 125	24 hours
Asphalt binder content (%)	CT 379 or 382		JMF ±0.45	JMF ±0.45	JMF ±0.5	Loose Mix Behind Paver See CT 125	
Percent of maximum theoretical density (%) [c, d]	QC Plan		92 - 96	92 - 96	91 - 96	QC Plan	
Aggregate moisture content at continuous mixing plants and RAP moisture content at continuous mixing plants and batch mixing plants [e]	CT 226 or CT 370	2 per day during production	--	--	--	Stockpiles or cold feed belts	--
Sand equivalent (min.) [f]	CT 217	1 per 750 tons	47	42	47	CT 125	24 hours
HMA moisture content (%,max.)	CT 226 or CT 370	1 per 2,500 tons but not less than 1 per paving day	1.0	1.0	1.0	Loose Mix Behind Paver See CT 125	24 hours
Stabilometer Value (min.) [f, g] No. 4 and 3/8" gradings 1/2" and 3/4" gradings	CT 366	1 per 4,000 tons or 2 per 5 business days, whichever is more	30 37	30 35	-- 23		48 hours
Air voids content (%) [f, h]	CT 367		4 ± 2	4 ± 2	Specification ± 2		

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Percent of crushed particles coarse aggregate (% min.) One fractured face Two fractured faces Fine aggregate (% min) (Passing No. 4 sieve and retained on No. 8 sieve.) One fractured face	CT 205	As neces-sary and designat-ed in QCP. At least once per project.	90 75 70	25 -- 20	-- 90 70	CT 125	48 hours
Los Angeles Rattler (% max.) Loss at 100 rev. Loss at 500 rev.	CT 211		12 45	-- 50	12 40	CT 125	
Fine aggregate angularity (% min.)	AASHTO T 304, Method A		45	45	45	CT 125	
Flat and elongated particle (% max. by weight @ 5:1)	ASTM D 4791		Report only	Report only	Report only	CT 125	
Voids filled with asphalt (%) [i] No. 4 grading 3/8" grading 1/2" grading 3/4" grading	LP-3		76.0 – 80.0 73.0 – 76.0 65.0 – 75.0 65.0 – 75.0	76.0 – 80.0 73.0 – 76.0 65.0 – 75.0 65.0 – 75.0	Report only	LP-3	
Voids in mineral aggregate (% min.) [i] No. 4 grading 3/8" grading 1/2" grading 3/4" grading	LP-2		17.0 15.0 14.0 13.0	17.0 15.0 14.0 13.0	-- -- 18.0 – 23.0 [j] 18.0 – 23.0 [j]	LP-2	
Dust proportion [i] No. 4 and 3/8" gradings 1/2" and 3/4" gradings	LP-4		0.9 – 2.0 0.6 – 1.3	0.9 – 2.0 0.6 – 1.3	Report only	LP-4	
Smoothness	Section 39-1.12	--	12-foot straight-edge, must-grind, and PI_0	12-foot straight-edge, must-grind, and PI_0	12-foot straight-edge, must-grind, and PI_0	--	
Asphalt rubber binder viscosity @ 350 °F, centipoises	Section 39-1.02D	--	--	--	1,500 – 4,000	Section 39-1.02D	24 hours
Crumb rubber modifier	Section 39-1.02D	--	--	--	Section 39-1.02D	Section 39-1.02D	48 hours

Notes:
[a] Determine combined aggregate gradation containing RAP under Laboratory Procedure LP-9.

DRAFT

[b] The tolerances must comply with the allowable tolerances in Section 39-1.02E, "Aggregate."
[c] Required for HMA Type A, Type B, and RHMA-G if the specified paved thickness is at least 0.15 foot.
[d] Determine maximum theoretical density (California Test 309) at the frequency specified for test maximum density under California Test 375, Part 5 D.
[e] For adjusting the plant controller at the HMA plant.
[f] Report the average of 3 tests from a single split sample.
[g] Modify California Test 304, Part 2.B.2.c: "After compaction in the mechanical compactor, cool to 140 °F ± 5 °F by allowing the briquettes to cool at room temperature for 0.5 hour, then place the briquettes in the oven at 140 °F for a minimum of 2 hours and not more than 3 hours."
[h] Determine the bulk specific gravity of each lab-compacted briquette under California Test 308, Method A, and theoretical maximum specific gravity under California Test 309.
[i] Report only if the adjustment for asphalt binder content target value is less than or equal to ± 0.3 percent from OBC.
[j] Voids in mineral aggregate for RHMA-G must be within this range.

Within the specified reporting time, submit written test results including:

1. Sampling location, quantity, and time
2. Testing results
3. Supporting data and calculations

If test results for any quality characteristic are beyond the action limits in the QCP, take corrective actions. Document the corrective actions taken in the inspection records under Section 39-4.03E, "Records of Inspection and Testing."

Stop production, notify the Engineer in writing, take corrective action, and demonstrate compliance with the specifications before resuming production and placement on the State highway if:

1. A lot's composite quality factor, Q_{FC}, or an individual quality factor, QF_{QCi} for i = 3, 4, or 5, is below 0.90 determined under Section 39-4.03F, "Statistical Evaluation"
2. An individual quality factor, QF_{QCi} for i = 1 or 2, is below 0.75
3. Quality characteristics for which a quality factor, QF_{QCi}, is not determined has 2 consecutive acceptance or quality control tests not in compliance with the specifications

39-4.03D Charts And Records

Record sampling and testing results for quality control on forms provided in the "Quality Control Manual for Hot Mix Asphalt," or on forms you submit with the QCP. The QCP must also include form posting locations and submittal times.

Submit quality control test results using the Department's statistical evaluation program, HMAPay, available at

www.dot.ca.gov/hq/construc/hma/index.htm

39-4.03E Records Of Inspection And Testing

During HMA production, submit in writing a daily:

1. HMA Construction Daily Record of Inspection. Also make this record available at the HMA plant and job site each day.
2. HMA Inspection and Testing Summary. Include in the summary:

    2.1. Test forms with the testers' signatures and Quality Control Manager's initials.
    2.2. Inspection forms with the inspectors' signatures and Quality Control Manager's initials.
    2.3. A list and explanation of deviations from the specifications or regular practices.
    2.4. A signed statement by the Quality Control Manager that says:

    "It is hereby certified that the information contained in this record is accurate, and that information, tests, or calculations documented herein comply with the specifications of the contract and the standards set forth in the testing procedures. Exceptions to this certification are documented as part of this record."

Retain for inspection the records generated as part of quality control including inspection, sampling, and testing for at least 3 years after final acceptance.

39-4.03F Statistical Evaluation

General

Determine a lot's composite quality factor, QF_C, and the individual quality factors, QF_{QCi}. Perform statistical evaluation calculations to determine these quality factors based on quality control test results for:

1. Aggregate gradation
2. Asphalt binder content
3. Percent of maximum theoretical density

The Engineer grants a waiver and you must use 1.0 as the individual quality factor for percent of maximum theoretical density, QF_{QC5}, for HMA paved in:

1. Areas where the specified paved thickness is less than 0.15 foot
2. Areas where the specified paved thickness is less than 0.20 foot and a 3/4-inch grading is specified and used
3. Dig outs
4. Leveling courses
5. Areas where, in the opinion of the Engineer, compaction or compaction measurement by conventional methods is impeded

Statistical Evaluation Calculations

Use the Variability-Unknown / Standard Deviation Method to determine the percentage of a lot not in compliance with the specifications. The number of significant figures used in the calculations must comply with AASHTO R-11, Absolute Method.

Determine the percentage of work not in compliance with the specification limits for each quality characteristic as follows:

1. Calculate the arithmetic mean ($\bar{X}$) of the test values

$$\bar{X} = \frac{\Sigma x}{n}$$

where:

x = individual test values
n = number of test values

2. Calculate the standard deviation

$$s = \sqrt{\frac{n\,(\Sigma x^2)-(\Sigma x)^2}{n(n-1)}}$$

where:

$\sum(x^2)$ = sum of the squares of individual test values
$(\sum x)^2$ = sum of the individual test values squared
n = number of test values

3. Calculate the upper quality index (Qu)

$$Q_u = \frac{USL - \bar{X}}{s}$$

where:

USL = target value plus the production tolerance or upper specification limit
s = standard deviation
$\bar{X}$ = arithmetic mean

4. Calculate the lower quality index (QL);

$$Q_L = \frac{\bar{X} - LSL}{s}$$

where:

LSL = target value minus production tolerance or lower specification limit
s = standard deviation
$\bar{X}$ = arithmetic mean

5. From the table, Upper Quality Index Q_U or Lower Quality Index Q_L, of this Section 39-4.03F, "Statistical Evaluation", determine P_U ;

where:

P_U = the estimated percentage of work outside the USL.

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$P_U = 0$, when USL is not specified.

6. From the table, Upper Quality Index Q_U or Lower Quality Index Q_L, of this Section 39-4.03F, "Statistical Evaluation," determine P_L;

where:

$P_L =$ the estimated percentage of work outside the LSL.
$P_L = 0$, when LSL is not specified.

7. Calculate the total estimated percentage of work outside the USL and LSL, percent defective

Percent defective $= P_U + P_L$

P_U and P_L are determined from:

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P_U or P_L	**Upper Quality Index Q_U or Lower Quality Index Q_L**												
	Sample Size (n)												
	5	6	7	8	9	10-11	12-14	15-17	18-22	23-29	30-42	43-66	>66
0	1.72	1.88	1.99	2.07	2.13	2.20	2.28	2.34	2.39	2.44	2.48	2.51	2.56
1	1.64	1.75	1.82	1.88	1.91	1.96	2.01	2.04	2.07	2.09	2.12	2.14	2.16
2	1.58	1.66	1.72	1.75	1.78	1.81	1.84	1.87	1.89	1.91	1.93	1.94	1.95
3	1.52	1.59	1.63	1.66	1.68	1.71	1.73	1.75	1.76	1.78	1.79	1.80	1.81
4	1.47	1.52	1.56	1.58	1.60	1.62	1.64	1.65	1.66	1.67	1.68	1.69	1.70
5	1.42	1.47	1.49	1.51	1.52	1.54	1.55	1.56	1.57	1.58	1.59	1.59	1.60
6	1.38	1.41	1.43	1.45	1.46	1.47	1.48	1.49	1.50	1.50	1.51	1.51	1.52
7	1.33	1.36	1.38	1.39	1.40	1.41	1.41	1.42	1.43	1.43	1.44	1.44	1.44
8	1.29	1.31	1.33	1.33	1.34	1.35	1.35	1.36	1.36	1.37	1.37	1.37	1.38
9	1.25	1.27	1.28	1.28	1.29	1.29	1.30	1.30	1.30	1.31	1.31	1.31	1.31
10	1.21	1.23	1.23	1.24	1.24	1.24	1.25	1.25	1.25	1.25	1.25	1.26	1.26
11	1.18	1.18	1.19	1.19	1.19	1.19	1.20	1.20	1.20	1.20	1.20	1.20	1.20
12	1.14	1.14	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
13	1.10	1.10	1.10	1.10	1.10	1.10	1.11	1.11	1.11	1.11	1.11	1.11	1.11
14	1.07	1.07	1.07	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
15	1.03	1.03	1.03	1.03	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
16	1.00	0.99	0.99	0.99	0.99	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
17	0.97	0.96	0.95	0.95	0.95	0.95	0.94	0.94	0.94	0.94	0.94	0.94	0.94
18	0.93	0.92	0.92	0.92	0.91	0.91	0.91	0.91	0.90	0.90	0.90	0.90	0.90
19	0.90	0.89	0.88	0.88	0.88	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
20	0.87	0.86	0.85	0.85	0.84	0.84	0.84	0.83	0.83	0.83	0.83	0.83	0.83
21	0.84	0.82	0.82	0.81	0.81	0.81	0.80	0.80	0.80	0.80	0.80	0.80	0.79
22	0.81	0.79	0.79	0.78	0.78	0.77	0.77	0.77	0.76	0.76	0.76	0.76	0.76
23	0.77	0.76	0.75	0.75	0.74	0.74	0.74	0.73	0.73	0.73	0.73	0.73	0.73
24	0.74	0.73	0.72	0.72	0.71	0.71	0.70	0.70	0.70	0.70	0.70	0.70	0.70
25	0.71	0.70	0.69	0.69	0.68	0.68	0.67	0.67	0.67	0.67	0.67	0.67	0.66
26	0.68	0.67	0.67	0.65	0.65	0.65	0.64	0.64	0.64	0.64	0.64	0.64	0.63
27	0.65	0.64	0.63	0.62	0.62	0.62	0.61	0.61	0.61	0.61	0.61	0.61	0.60
28	0.62	0.61	0.60	0.59	0.59	0.59	0.58	0.58	0.58	0.58	0.58	0.58	0.57
29	0.59	0.58	0.57	0.57	0.56	0.56	0.55	0.55	0.55	0.55	0.55	0.55	0.54
30	0.56	0.55	0.54	0.54	0.53	0.53	0.52	0.52	0.52	0.52	0.52	0.52	0.52
31	0.53	0.52	0.51	0.51	0.50	0.50	0.50	0.49	0.49	0.49	0.49	0.49	0.49
32	0.50	0.49	0.48	0.48	0.48	0.47	0.47	0.47	0.46	0.46	0.46	0.46	0.46
33	0.47	0.48	0.45	0.45	0.45	0.44	0.44	0.44	0.44	0.43	0.43	0.43	0.43
34	0.45	0.43	0.43	0.42	0.42	0.42	0.41	0.41	0.41	0.41	0.41	0.41	0.40
35	0.42	0.40	0.40	0.39	0.39	0.39	0.38	0.38	0.38	0.38	0.38	0.38	0.38
36	0.39	0.38	0.37	0.37	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36
37	0.36	0.35	0.34	0.34	0.34	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.32
38	0.33	0.32	0.32	0.31	0.31	0.31	0.30	0.30	0.30	0.30	0.30	0.30	0.30
39	0.30	0.30	0.29	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
40	0.28	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
41	0.25	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
42	0.23	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
43	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
44	0.16	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
45	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
46	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
47	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
48	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
49	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

1. If the value of Q_U or Q_L does not correspond to a value in the table, use the next lower value.

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2. If Q_U or Q_L are negative values, P_U or P_L is equal to 100 minus the table value for P_U or P_L.

Quality Factor Determination

Determine individual quality factors, QF_{QCi}, using percent defective = $P_U + P_L$ and:

Quality Factors

Quality Factor	Maximum Allowable Percent Defective ($P_U + P_L$)												
	Sample Size (n)												
	5	6	7	8	9	10-11	12-14	15-17	18-22	23-29	30-42	43-66	>66
1.05				0	0	0	0	0	0	0	0	0	0
1.04			0	1	3	5	4	4	4	3	3	3	3
1.03		0	2	4	6	8	7	7	6	5	5	4	4
1.02		1	3	6	9	11	10	9	8	7	7	6	6
1.01	0	2	5	8	11	13	12	11	10	9	8	8	7
1.00	22	20	18	17	16	15	14	13	12	11	10	9	8
0.99	24	22	20	19	18	17	16	15	14	13	11	10	9
0.98	26	24	22	21	20	19	18	16	15	14	13	12	10
0.97	28	26	24	23	22	21	19	18	17	16	14	13	12
0.96	30	28	26	25	24	22	21	19	18	17	16	14	13
0.95	32	29	28	26	25	24	22	21	20	18	17	16	14
0.94	33	31	29	28	27	25	24	22	21	20	18	17	15
0.93	35	33	31	29	28	27	25	24	22	21	20	18	16
0.92	37	34	32	31	30	28	27	25	24	22	21	19	18
0.91	38	36	34	32	31	30	28	26	25	24	22	21	19
0.90	39	37	35	34	33	31	29	28	26	25	23	22	20
0.89	41	38	37	35	34	32	31	29	28	26	25	23	21
0.88	42	40	38	36	35	34	32	30	29	27	26	24	22
0.87	43	41	39	38	37	35	33	32	30	29	27	25	23
0.86	45	42	41	39	38	36	34	33	31	30	28	26	24
0.85	46	44	42	40	39	38	36	34	33	31	29	28	25
0.84	47	45	43	42	40	39	37	35	34	32	30	29	27
0.83	49	46	44	43	42	40	38	36	35	33	31	30	28
0.82	50	47	46	44	43	41	39	38	36	34	33	31	29
0.81	51	49	47	45	44	42	41	39	37	36	34	32	30
0.80	52	50	48	46	45	44	42	40	38	37	35	33	31
0.79	54	51	49	48	46	45	43	41	39	38	36	34	32
0.78	55	52	50	49	48	46	44	42	41	39	37	35	33
0.77	56	54	52	50	49	47	45	43	42	40	38	36	34
0.76	57	55	53	51	50	48	46	44	43	41	39	37	35
0.75	58	56	54	52	51	49	47	46	44	42	40	38	36
	60	57	55	53	52	51	48	47	45	43	41	40	37
	61	58	56	55	53	52	50	48	46	44	43	41	38
Reject	62	59	57	56	54	53	51	49	47	45	44	42	39
	63	61	58	57	55	54	52	50	48	47	45	43	40
	64	62	60	58	57	55	53	51	49	48	46	44	41
Reject Values Greater Than Those Shown Above													

Notes:

1. To obtain a quality factor when the estimated percent outside specification limits from table, "Upper Quality Index Q_U or Lower Quality Index Q_L," does not correspond to a value in the table, use the next larger value.

Compute the composite of single quality factors, QF_C, for a lot using:

$$QF_C = \sum_{i=1}^{5} w_i \, QF_{QC_i}$$

where:

QF_C = the composite quality factor for the lot rounded to 2 decimal places.

QF_{QCi} = the quality factor for the individual quality characteristic.

w = the weighting factor listed in the table HMA Acceptance – QC / QA.

i = the quality characteristic index number in the table HMA Acceptance – QC / QA.

39-4.04 ENGINEER'S QUALITY ASSURANCE

39-4.04A General

The Engineer assures quality by:

1. Reviewing mix designs and proposed JMF
2. Inspecting procedures
3. Conducting oversight of quality control inspection and records
4. Verification sampling and testing during production and paving

39-4.04B Verification Sampling And Testing

General

The Engineer samples:

1. Aggregate to verify gradation
2. HMA to verify asphalt binder content

Verification

For aggregate gradation and asphalt binder content, the ratio of verification testing frequency to the minimum quality control testing frequency is 1:5. The Engineer performs at least 3 verification tests per lot.

Using the t-test, the Engineer compares quality control tests results for aggregate gradation and asphalt binder content with corresponding verification test results. The Engineer uses the average and standard deviation of up to 20 sequential sublots for the comparison. The Engineer uses production start-up evaluation tests to represent the first sublot. When there are less than 20 sequential sublots, the Engineer uses the maximum number of sequential sublots available. The 21st sublot becomes the 1st sublot (n = 1) in the next lot.

The t-value for a group of test data is computed as follows:

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$$t = \frac{\left|\overline{X}_c - \overline{X}_v\right|}{S_p\sqrt{\frac{1}{n_c} + \frac{1}{n_v}}} \qquad \text{and} \qquad S_p^2 = \frac{S_c^2(n_c - 1) + S_v^2(n_v - 1)}{n_c + n_v - 2}$$

where:

n_c = Number of quality control tests (2 minimum, 20 maximum).
n_v = Number of verification tests (minimum of 1 required).
$\overline{X}_c$ = Mean of quality control tests.
$\overline{X}_v$ = Mean of verification tests.
S_p = Pooled standard deviation (When $n_v = 1$, $S_p = S_c$).
S_c = Standard deviation of quality control tests.
S_v = Standard deviation of verification tests (when $n_v > 1$).

The comparison of quality control test results and the verification test results is at a level of significance of $\alpha = 0.025$. The Engineer computes t and compares it to the critical t-value, t_{crit}, from:

Critical T-Value

Degrees of freedom (n_c+n_v-2)	t_{crit} (for $\alpha = 0.025$)	Degrees of freedom (n_c+n_v-2)	t_{crit} (for $\alpha = 0.025$)
1	24.452	18	2.445
2	6.205	19	2.433
3	4.177	20	2.423
4	3.495	21	2.414
5	3.163	22	2.405
6	2.969	23	2.398
7	2.841	24	2.391
8	2.752	25	2.385
9	2.685	26	2.379
10	2.634	27	2.373
11	2.593	28	2.368
12	2.560	29	2.364
13	2.533	30	2.360
14	2.510	40	2.329
15	2.490	60	2.299
16	2.473	120	2.270
17	2.458	∞	2.241

If the t-value computed is less than or equal to t_{crit}, quality control test results are verified.

If the t-value computed is greater than t_{crit} and both $\overline{X}_v$ and $\overline{X}_c$ comply with acceptance specifications, the quality control tests are verified. You may continue to produce and place HMA with the following allowable differences:

1. $\left|\overline{X}_v - \overline{X}_c\right| \leq 1.0$ percent for any grading

2. $\left|\overline{X}_v - \overline{X}_c\right| \leq 0.1$ percent for asphalt binder content

If the t-value computed is greater than t_{crit} and the $\left|\overline{X}_v - \overline{X}_c\right|$ for grading and asphalt binder content are greater than the allowable differences, quality control test results are not verified and:

1. The Engineer notifies you in writing.
2. You and the Engineer must investigate why the difference exist.
3. If the reason for the difference cannot be found and corrected, the Engineer's test results are used for acceptance and pay.

39-4.05 ENGINEER'S ACCEPTANCE

39-4.05A Testing

The Engineer samples for acceptance testing and tests for:

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HMA Acceptance – QC / QA

Index (i)	Quality Characteristic				Weight-ing Factor (w)	Test Method	HMA Type		
							A	B	RHMA-G
		Aggregate gradation [a]				CT 202	JMF ± Tolerance [c]		
	Sieve	3/4"	1/2"	3/8"					
1	1/2"	X [b]	--	--	0.05				
1	3/8"	--	X	--	0.05				
1	No. 4	--	--	X	0.05				
2	No. 8	X	X	X	0.10				
3	No. 200	X	X	X	0.15				
4	Asphalt binder content (%)				0.30	CT 379 or 382	JMF ± 0.45	JMF ± 0.45	JMF ± 0.5
5	Percent of maximum theoretical density (%) [d, e]				0.40	CT 375	92 – 96	92 – 96	91 – 96
	Sand equivalent (min.) [f]					CT 217	47	42	47
	Stabilometer value (min.) [f,, g] No. 4 and 3/8" gradings 1/2" and 3/4" gradings					CT 366	 30 37	 30 35	 -- 23
	Air voids content (%) [f, h]					CT 367	4 ± 2	4 ± 2	Specifica-tion ± 2
	Percent of crushed particles coarse aggregate (% min.) One fractured face Two fractured faces Fine aggregate (% min) (Passing No. 4 sieve and retained on No. 8 sieve.) One fractured face					CT 205	 90 70 70	 25 -- 20	 -- 90 70
	HMA moisture content (%, max.)					CT 226 or CT 370	1.0	1.0	1.0
	Los Angeles Rattler (% max.) Loss at 100 rev. Loss at 500 rev.					CT 211	 12 45	 -- 50	 12 45
	Fine aggregate angularity (% min.)					AASHTO T 304, Method A	45	45	45
	Flat and elongated particle (% max. by weight @ 5:1)					ASTM D 4791	Report only	Report only	Report only
	Voids in mineral aggregate (% min.) [1] No. 4 grading 3/8" grading 1/2" grading 3/4" grading					LP-2	 17.0 15.0 14.0 13.0	 17.0 15.0 14.0 13.0	(Note j) -- -- 18.0 - 23.0 18.0 - 23.0
	Voids filled with asphalt (%) [1] No. 4 grading 3/8" grading 1/2" grading 3/4" grading					LP-3	 76.0 - 80.0 73.0 - 76.0 65.0 - 75.0 65.0 - 75.0	 76.0 - 80.0 73.0 - 76.0 65.0 - 75.0 65.0 - 75.0	Report only
	Dust proportion [1] No. 4 and 3/8" gradings 1/2" and 3/4" gradings					LP-4	 0.9 - 2.0 0.6 - 1.3	 0.9 – 2.0 0.6 – 1.3	Report only

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	Smoothness		Section 39-1.12	12-foot straight-edge, must-grind, and PI_0	12-foot straight-edge, must-grind, and PI_0	12-foot straight-edge, must-grind, and PI_0
	Asphalt binder		Various	Section 92	Section 92	Section 92
	Asphalt rubber binder		Various	--	--	Section 92-1.02(C) and Section 39-1.02D
	Asphalt modifier		Various	--	--	Section 39-1.02D
	Crumb rubber modifier		Various	--	--	Section 39-1.02D

Notes:
[a] The Engineer determines combined aggregate gradations containing RAP under Laboratory Procedure LP-9.
[b] "X" denotes the sieves the Engineer considers for the specified aggregate gradation.
[c] The tolerances must comply with the allowable tolerances in Section 39-1.02E, "Aggregate."
[d] The Engineer determines percent of maximum theoretical density if the specified paved thickness is at least 0.15 foot under California Test 375 except the Engineer uses:

1. California Test 308, Method A, to determine in-place density of each density core instead of using the nuclear gauge in Part 4, "Determining In-Place Density By The Nuclear Density Device."
2. California Test 309 to determine maximum theoretical density instead of calculating test maximum density in Part 5, "Determining Test Maximum Density."

[e] The Engineer determines maximum theoretical density (California Test 309) at the frequency specified for Test Maximum Density under California Test 375, Part 5.D.
[f] The Engineer reports the average of 3 tests from a single split sample.
[g] Modify California Test 304, Part 2.B.2.c: "After compaction in the mechanical compactor, cool to 140 °F ± 5 °F by allowing the briquettes to cool at room temperature for 0.5 hour, then place the briquettes in the oven at 140 °F for a minimum of 2 hours and not more than 3 hours."
[h] The Engineer determines the bulk specific gravity of each lab-compacted briquette under California Test 308, Method A, and theoretical maximum specific gravity under California Test 309.
[i] Report only if the adjustment for asphalt binder content target value is less than or equal to ± 0.3 percent from OBC.
[j] Voids in mineral aggregate for RHMA-G must be within this range.

The Engineer determines the percent of maximum theoretical density from the average density of 3 density cores you take from every 750 tons of production or part thereof divided by the maximum theoretical density.

If the specified total paved thickness is at least 0.15 foot and any layer is less than 0.15 foot, the Engineer determines the percent of maximum theoretical density from density cores taken from the final layer measured the full depth of the total paved HMA thickness.

The Engineer stops production and terminates a lot if:

1. The lot's composite quality factor, Q_{FC}, or an individual quality factor, QF_{QCi} for i = 3, 4, or 5, is below 0.90 determined under Section 39-4.03F, "Statistical Evaluation"
2. An individual quality factor, QF_{QCi} for i = 1 or 2, is below 0.75

3. Quality characteristics for which a quality factor, QF_{QCi}, is not determined has 2 consecutive acceptance or quality control tests not in compliance with the specifications

For any single quality characteristic for which a quality factor, QF_{QCi}, is not determined, except smoothness, if 2 consecutive acceptance test results do not comply with specifications:

1. Stop production.
2. Take corrective action.
3. In the Engineer's presence, take samples and split each sample into 4 parts. Test 1 part for compliance with the specifications and submit 3 parts to the Engineer. The Engineer tests 1 part for compliance with the specifications and reserves and stores 2 parts.
4. Demonstrate compliance with the specifications before resuming production and placement on the State highway.

39-4.05B Statistical Evaluation, Determination Of Quality Factors And Acceptance

Statistical Evaluation and Determination of Quality Factors

To determine the individual quality factor, $QF_{QCi,}$ for any quality factor i = 1 through 5 or a lot's composite quality factor, QF_C, for acceptance and payment adjustment, the Engineer uses the evaluation specifications under Section 39-4.03F, "Statistical Evaluation," and:

1. Verified quality control test results for aggregate gradation
2. Verified quality control test results for asphalt binder content
3. The Engineer's test results for percent of maximum theoretical density

Lot Acceptance Based on Quality Factors

The Engineer accepts a lot based on the quality factors determined for aggregate gradation and asphalt binder content, QF_{QCi} for i = 1 through 4, using the total number of verified quality control test result values and the total percent defective ($P_U + P_L$).

The Engineer accepts a lot based on the quality factor determined for maximum theoretical density, QF_{QC5}, using the total number of test result values from density cores and the total percent defective ($P_U + P_L$).

The Engineer calculates the quality factor for the lot, QF_C, which is a composite of weighted individual quality factors, QF_{QCi}, determined for each quality characteristic in the HMA Acceptance – QC / QA table in Section 39-4.05A, "Testing."

The Engineer accepts a lot based on quality factors if:

1. The current composite quality factor, QF_C, is 0.90 or greater
2. Each individual quality factor, QF_{QCi} for i = 3, 4, and 5, is 0.90 or greater
3. Each individual quality factor, QF_{QCi} for i = 1 and 2, is 0.75 or greater

No single quality characteristic test may represent more than the smaller of 750 tons or 1 day's production.

Payment Adjustment

If a lot is accepted, the Engineer adjusts payment with the following formula:

$$PA = \sum_{i=1}^{n} HMACP * w_i * \left[QF_{QCi} * (HMATT - WHMATT_i) + WHMATT_i\right] - (HMACP * HMATT)$$

where:

PA =	Payment adjustment rounded to 2 decimal places.
HMACP =	HMA contract price.
HMATT =	HMA total tons represented in the lot.
$WHMATT_i$ =	Total tons of waived quality characteristic HMA.
QF_{QCi} =	Running quality factor for the individual quality characteristic. QF_{QCi} for i = 1 through 4 must be from verified Contractor's QC results. QF_{QC5} must be determined from the Engineer's results on density cores taken for percent of maximum theoretical density determination.
w =	Weighting factor listed in the HMA acceptance table.
i =	Quality characteristic index number in the HMA acceptance table.

If the payment adjustment is a negative value, the Engineer deducts this amount from payment. If the payment adjustment is a positive value, the Engineer adds this amount to payment.

The 21st sublot becomes the 1st sublot (n = 1) in the next lot. When the 21st sequential sublot becomes the 1st sublot, the previous 20 sequential sublots become a lot for which the Engineer determines a quality factor. The Engineer uses this quality factor to pay for the HMA in the lot. If the next lot consists of less than 8 sublots, these sublots must be added to the previous lot for quality factor determination using 21 to 27 sublots.

39-4.05C Dispute Resolution

For a lot, if you or the Engineer dispute any quality factor, QF_{QCi}, or verification test result, every sublot in that lot must be retested.

Referee tests must be performed under the specifications for acceptance testing.

Any quality factor, QF_{QCi}, must be determined using the referee tests.

For any quality factor, QF_{QCi}, for i = 1 through 5, dispute resolution:

1. If the difference between the quality factors for QF_{QCi} using the referee test result and the disputed test result is less than or equal to 0.01, the original test result is correct.
2. If the difference between the quality factor for QF_{QCi} using the referee test result and the disputed test result is more than 0.01, the quality factor determined from the referee tests supersedes the previously determined quality factor.

DRAFT

39-5 MEASUREMENT AND PAYMENT

39-5.01 MEASUREMENT

The contract item for HMA is measured by weight. The weight of each HMA mixture designated in the Engineer's Estimate must be the combined mixture weight.

If tack coat, asphalt binder, and asphaltic emulsion are paid with separate contract items, their contract items are measured under Section 92, "Asphalts," or Section 94, "Asphaltic Emulsions," as the case may be.

If recorded batch weights are printed automatically, the contract item for HMA is measured by using the printed batch weights, provided:

1. Total aggregate and supplemental fine aggregate weight per batch is printed. If supplemental fine aggregate is weighed cumulatively with the aggregate, the total aggregate batch weight must include the supplemental fine aggregate weight.
2. Total asphalt binder weight per batch is printed.
3. Each truckload's zero tolerance weight is printed before weighing the first batch and after weighing the last batch.
4. Time, date, mix number, load number and truck identification is correlated with a load slip.
5. A copy of the recorded batch weights is certified by a licensed weighmaster and submitted to the Engineer.

The contract item for placing HMA dike is measured by the linear foot along the completed length. The contract item for placing HMA in miscellaneous areas is measured as the in-place compacted area in square yards. In addition to the quantities measured on a linear foot or square yard basis, the HMA for dike and miscellaneous areas are measured by weight.

The contract item for geosynthetic pavement interlayer is measured by the square yard for the actual pavement area covered.

39-5.02 PAYMENT

The contract prices paid per ton for hot mix asphalt as designated in the Engineer's Estimate include full compensation for furnishing all labor, materials, tools, equipment, and incidentals for doing all the work involved in constructing hot mix asphalt, complete in place, as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.

If HMA is specified to comply with Section 39-4, "Quality Control / Quality Assurance," the Engineer adjusts payment under that section.

Full compensation for the Quality Control Plan and prepaving conference is included in the contract prices paid per ton for hot mix asphalt as designated in the Engineer's Estimate and no additional compensation will be allowed therefor.

Full compensation for performing and submitting mix designs and for Contractor sampling, testing, inspection, testing facilities, and preparation and submittal of results is included in the contract prices paid per ton for HMA as designated in the Engineer's Estimate and no additional compensation will be allowed therefor.

DRAFT

Full compensation for reclaimed asphalt pavement is included in the contract prices paid per ton for HMA as designated in the Engineer's Estimate and no additional compensation will be allowed therefor.

The contract price paid per ton for hot mix asphalt (leveling) includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals for doing all the work involved in hot mix asphalt (leveling), complete in place, as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.

The State pays for HMA dike at the contract price per linear foot for place HMA dike and by the ton for HMA. The contract prices paid per linear foot for place hot mix asphalt dike as designated in the Engineer's Estimate include full compensation for furnishing all labor, tools, equipment, and incidentals, and for doing all the work involved in placing HMA dike, complete in place, including excavation, backfill, and preparation of the area to receive the dike, as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.

The State pays for HMA specified to be a miscellaneous area at the contract price per square yard for place hot mix asphalt (miscellaneous area) and per ton for hot mix asphalt. The contract price paid per square yard for place hot mix asphalt (miscellaneous area) includes full compensation for furnishing all labor, tools, equipment, and incidentals, and for doing all the work involved in placing HMA (miscellaneous area) complete in place, including excavation, backfill, and preparation of the area to receive HMA (miscellaneous area), as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.

If the Quality Control / Quality Assurance construction process is specified, HMA placed in dikes and miscellaneous areas is paid for at the contract price per ton for hot mix asphalt under Section 39-4, "Quality Control / Quality Assurance." Section 39-4.05B, "Statistical Evaluation, Determination of Quality Factors and Acceptance," does not apply to HMA placed in dikes and miscellaneous areas.

If there are no contract items for place hot mix asphalt dike and place hot mix asphalt (miscellaneous area) and the work is specified, full compensation for constructing HMA dikes and HMA (miscellaneous areas) including excavation, backfill, and preparation of the area to receive HMA dike or HMA (miscellaneous area) is included in the contract price paid per ton for the hot mix asphalt designated in the Engineer's Estimate and no separate payment will be made therefor.

The contract price paid per square yard for geosynthetic pavement interlayer includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in placing geosynthetic pavement interlayer, complete in place, as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.

The contract price paid per ton for paving asphalt (binder, geosynthetic pavement interlayer) includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in applying paving asphalt (binder, geosynthetic pavement interlayer), complete in place, including spreading sand to cover exposed binder material, as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.

DRAFT

Full compensation for small quantities of HMA placed on geosynthetic pavement interlayer to prevent displacement during construction is included in the contract price paid per ton for the HMA being paved over the interlayer and no separate payment will be made therefor.

The contract price paid per ton for tack coat includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in applying tack coat, complete in place, as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.

The Engineer does not adjust payment for increases or decreases in the quantities for tack coat, regardless of the reason for the increase or decrease. Section 4-1.03B, "Increased or Decreased Quantities," does not apply to the items for tack coat.

Full compensation for performing smoothness testing, submitting written and electronic copies of tests, and performing corrective work including applying fog seal coat is included in the contract price paid per ton for the HMA designated in the Engineer's Estimate and no separate payment will be made therefor.

Full compensation for spreading sand on RHMA-G, RHMA-O, and RHMA-O-HB surfaces and for sweeping and removing excess sand is included in the contract price paid per ton for rubberized hot mix asphalt as designated in the Engineer's Estimate and no separate payment will be made therefor.

If the Engineer fails to comply with a specification within a specified time, and if, in the opinion of the Engineer, work completion is delayed because of the failure, the Engineer adjusts payment and contract time under Section 8-1.09, "Right of Way Delays."

If the dispute resolution ITP determines the Engineer's test results are correct, the Engineer deducts the ITP's testing costs from payments. If the ITP determines your test results are correct, the State pays the ITP's testing costs. If, in the Engineer's opinion, work completion is delayed because of incorrect Engineer test results, the Engineer adjusts payment and contract time under Section 8-1.09, "Right of Way Delays."

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SECTION 40 PORTLAND CEMENT CONCRETE PAVEMENT
(Issued 01-05-07)

Replace Section 40-1.015 with:

40-1.015 (Blank)

Replace Section 40-1.05 with:

40-1.05 PROPORTIONING

Aggregate and cementitious material proportioning shall conform to the provisions in Section 90-5, "Proportioning."

Replace Section 40-1.105 with:

40-1.105 EXIT RAMP TERMINI

Concrete pavement shall be constructed at the ends of exit ramps when required by the plans or the special provisions. Texturing for exit ramp termini shall be by means of heavy brooming in a direction normal to ramp centerline. The hardened surface shall have a coefficient of friction not less than 0.35 as determined by California Test 342. Minimum cementitious material content of concrete in pavement for exit ramp termini shall be 590 pounds per cubic yard.

In Section 40-1.14 replace the 1st paragraph with:

The contract price paid per cubic yard for concrete pavement shall include full compensation for furnishing all labor, materials (including cementitious material in the amount specified), tools, equipment, and incidentals, and for doing all the work involved in constructing the portland cement concrete pavement, complete in place, as shown on the plans, and as specified in these specifications and the special provisions, and as directed by the Engineer.

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SECTION 41 PAVEMENT SUBSEALING AND JACKING
(Issued 01-05-07)

In Section 41-1.02 replace the 2nd and 3rd paragraphs with:

Cement for grout shall be Type II portland cement conforming to the provisions in Section 90-2.01A, "Cement."

Fly ash shall conform to the requirements in AASHTO Designation: M 295 for either Class C or for Class F. The brand of fly ash used in the work shall conform to the provisions for approval of admixture brands in Section 90-4.03, "Admixture Approval."

In Section 41-1.02 replace the 5th paragraph with:

Chemical admixtures and calcium chloride may be used. Chemical admixtures in the grout mix shall conform to the provisions in Section 90-4, "Admixtures." Calcium chloride shall conform to ASTM Designation: D 98.

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DRAFT

SECTION 49 PILING
(Issued 12-19-08)

In Section 49-1.03 replace the 4th paragraph with:

Modification to the specified installation methods and specified pile tip elevation will not be considered at locations where settlement, tension demands, or lateral load demands control design pile tip elevations or when the plans state that specified pile tip elevation shall not be revised.

In Section 49-1.03 in the 6th paragraph, replace the 1st sentence with:

Indicator compression pile load testing shall conform to the requirements in ASTM Designation: D 1143-81.

In Section 49-1.03 in the 7th paragraph, replace the 1st sentence with:

Indicator tension pile load testing shall conform to the requirements in ASTM Designation: D 3689-90.

In Section 49-1.03 replace the 9th paragraph with:

The Contractor shall furnish piling of sufficient length to obtain the specified tip elevation shown on the plans or specified in the special provisions.

In Section 49-1.04 replace the 6th paragraph with:

The Contractor may use additional cementitious material in the concrete for the load test and anchor piles.

In Section 49-6.01 replace the 1st paragraph with:

The length of timber, steel, and precast prestressed concrete piles, and of cast-in-place concrete piles consisting of driven shells filled with concrete, shall be measured along the longest side, from the tip elevation shown on the plans to the plane of pile cut-off.

In Section 49-6.02 add:

When pile tips are revised by the Engineer for timber, steel, and precast prestressed concrete piles, and for cast-in-place concrete piles consisting of driven shells filled with concrete, the additional length required, including all materials, equipment, and labor for furnishing, splicing, and installing the piling, will be paid for as extra work as provided in Section 4-1.03D, "Extra Work."

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DRAFT

SECTION 50 PRESTRESSING CONCRETE
(Issued 04-04-08)

In Section 50-1.05 in the 3rd paragraph, delete item A.

In Section 50-1.07 replace the 2nd paragraph with:

Ducts shall be fabricated with either welded or interlocked seams. Galvanizing of the welded seam will not be required. Ducts shall have sufficient strength to maintain their correct alignment during placing of concrete. Joints between sections of duct shall be positive metallic connections which do not result in angle changes at the joints. Waterproof tape shall be used at the connections. Ducts shall be bent without crimping or flattening. Transition couplings connecting the ducts to anchoring devices shall be either ferrous metal or polyolefin. Ferrous metal transition couplings need not be galvanized.

In Section 50-1.07 replace the 7th paragraph with:

All ducts with a total length of 400 feet or more shall be vented. Vents shall be placed at intervals of not more than 400 feet and shall be located within 6 feet of every high point in the duct profile. Vents shall be 1/2 inch minimum diameter standard pipe or suitable plastic pipe. Connections to ducts shall be made with metallic or plastic structural fasteners. Plastic components, if selected, shall not react with the concrete or enhance corrosion of the prestressing steel and shall be free of water soluble chlorides. The vents shall be mortar tight, taped as necessary, and shall provide means for injection of grout through the vents and for sealing the vents. Ends of vents shall be removed one inch below the roadway surface after grouting has been completed.

In Section 50-1.08 in the 11th paragraph, replace item B with:

B. When the concrete is designated by class or cementitious material content, either the concrete compressive strength shall have reached the strength shown on the plans at the time of stressing or at least 28 days shall have elapsed since the last concrete to be prestressed has been placed, whichever occurs first.

In Section 50-1.09 replace the 2nd and 3rd paragraphs with:

Grout shall consist of cement and water and may contain an admixture if approved by the Engineer.

Cement shall conform to the provisions in Section 90-2.01A, "Cement."

In Section 50-1.11 replace the 1st paragraph with:

No separate payment will be made for pretensioning precast concrete members. Payment for pretensioning precast concrete members shall be considered as included in

DRAFT

the contract price paid for furnish precast members as provided for in Section 51, "Concrete Structures."

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SECTION 51 CONCRETE STRUCTURES
(Issued 05-02-08)

In Section 51-1.05 in the 11th paragraph, replace the 1st sentence with:

Form panels for exposed surfaces shall be furnished and placed in uniform widths of not less than 3 feet and in uniform lengths of not less than 6 feet, except at the end of continuously formed surfaces where the final panel length required is less than 6 feet.

In Section 51-1.06C in the 11th paragraph, replace the 1st sentence with:

Falsework for box culverts and other structures with decks lower than the roadway pavement and with span lengths of 14 feet or less shall not be released until the last placed concrete has attained a compressive strength of 1,600 psi, provided that curing of the concrete is not interrupted.

In Section 51-1.11 replace the 6th paragraph with:

Construction methods and equipment employed by the Contractor shall conform to the provisions in Section 7-1.02, "Load Limitations."

In Section 51-1.12D replace the 4th paragraph with:

Expanded polystyrene shall be a commercially available polystyrene board. Expanded polystyrene shall have a minimum flexural strength of 35 psi determined in conformance with the requirements in ASTM Designation: C 203 and a compressive yield strength of between 16 and 40 psi at 5 percent compression. Surfaces of expanded polystyrene against which concrete is placed shall be faced with hardboard. Hardboard shall be 1/8 inch minimum thickness, conforming to ANSI A135.4, any class. Other facing materials may be used provided they furnish equivalent protection. Boards shall be held in place by nails, waterproof adhesive, or other means approved by the Engineer.

In Section 51-1.12F replace the 3rd paragraph with:

Type A and AL joint seals shall consist of a groove in the concrete that is filled with field-mixed silicone sealant.

DRAFT

In Section 51-1.12F in the 6th paragraph, replace the table with:

Movement Rating (MR)	Seal Type
MR ≤ 1 inch	Type A or Type B
1 inch < MR ≤ 2 inches	Type B
2 inches < MR ≤ 4 inches	Joint Seal Assembly (Strip Seal)
MR > 4 inches	Joint Seal Assembly (Modular Unit) or Seismic Joint

In Section 51-1.12F(3)(a) replace the 1st and 2nd paragraphs with:

The sealant must consist of a 2-component silicone sealant that will withstand up to ±50 percent movement.

Silicone sealants must be tested under California Test 435 and must comply with the following:

Specification	Requirement
Modulus at 150 percent elongation	8-75 psi
Recovery	21/32 inch max.
Notch Test	Notched or loss of bond 1/4 inch, max.
Water Resistance	Notched or loss of bond 1/4 inch, max.
Ultraviolet Exposure ASTM Designation: G 154, Table X2.1,Cycle 2.	No more than slight checking or cracking.
Cone Penetration	4.5-12.0 mm

In Section 51-1.12F(3)(a) delete the 3rd and 8th paragraphs.

In Section 51-1.12F(3)(a) replace the 10th paragraph with:

A Certificate of Compliance accompanied by a certified test report must be furnished for each batch of silicone sealant in conformance with the provisions in Section 6-1.07, "Certificates of Compliance."

In Section 51-1.12F(3)(b) replace the 2nd paragraph with:

The preformed elastomeric joint seal must conform to the requirements in ASTM D 2628 and the following:

1. The seal must consist of a multichannel, nonporous, homogeneous material furnished in a finished extruded form.
2. The minimum depth of the seal measured at the contact surface must be at least 95 percent of the minimum uncompressed width of the seal as designated by the manufacturer.
3. When tested in conformance with the requirements in California Test 673 for Type B seals, joint seals must provide a movement rating (MR) of not less than that shown on the plans.

DRAFT

4. The top and bottom edges of the joint seal must maintain continuous contact with the sides of the groove over the entire range of joint movement.
5. The seal must be furnished full length for each joint with no more than 1 shop splice in any 60-foot length of seal.
6. The Contractor must demonstrate the adequacy of the procedures to be used in the work before installing seals in the joints.
7. One field splice per joint may be made at locations and by methods approved by the Engineer. The seals are to be manufactured full length for the intended joint, then cut at the approved splice section and rematched before splicing. The Contractor must submit splicing details prepared by the joint seal manufacturer for approval before beginning splicing work.
8. Shop splices and field splices must have no visible offset of exterior surfaces and must show no evidence of bond failure.
9. At all open ends of the seal that would admit water or debris, each cell must be filled to a depth of 3 inches with commercial quality open cell polyurethane foam or closed by other means subject to approval by the Engineer.

In Section 51-1.12F(3)(b) replace the 7th paragraph with:

The joint seal must be installed full length for each joint with equipment that does not twist or distort the seal, elongate the seal longitudinally, or otherwise cause damage to the seal or to the concrete forming the groove.

In Section 51-1.12F(3)(b) in the 11th paragraph, replace the 1st sentence with:

Samples of the prefabricated joint seals, not less than 3 feet in length, will be taken by the Engineer from each lot of material.

In Section 51-1.12H(1) in the 6th paragraph, replace the 4th and 5th sentences with:

Each ply of fabric shall have a breaking strength of not less than 800 pounds per inch of width in each thread direction when 3" x 36" samples are tested on split drum grips. The bond between double plies shall have a minimum peel strength of 20 pounds per inch.

In Section 51-1.12H(1) in the 8th paragraph in the table, replace the hardness (Type A) requirements with:

Hardness (Type A)	D 2240 with 2kg mass.	55 ±5

In Section 51-1.12H(2) in the 1st paragraph in item A, replace the 1st and 2nd sentences with:

The bearings shall consist of alternating steel laminates and internal elastomer laminates with top and bottom elastomer covers. Steel laminates shall have a nominal thickness of 0.075 inch (14 gage).

DRAFT

In Section 51-1.135 replace the 1st paragraph with:

Mortar shall be composed of cementitious material, sand, and water proportioned and mixed as specified in this Section 51-1.135.

In Section 51-1.135 replace the 3rd paragraph with:

The proportion of cementitious material to sand, measured by volume, shall be 1 to 2 unless otherwise specified.

In Section 51-1.17 in 4th paragraph, replace the 3rd sentence with:

The surfaces shall have a profile trace showing no high points in excess of 0.25 inch, and the portions of the surfaces within the traveled way shall have a profile count of 5 or less in any 100 foot section.

Add:

51-1.17A Deck Crack Treatment

The Contractor shall use all means necessary to minimize the development of shrinkage cracks.

The Contractor shall remove all equipment and materials from the deck and clean the surface as necessary for the Engineer to measure the surface crack intensity. Surface crack intensity will be determined by the Engineer after completion of concrete cure, before prestressing, and before the release of falsework. In any 500 square foot portion of deck within the limits of the new concrete deck, should the intensity of cracking be such that there are more than 16 feet of cracks whose width at any location exceeds 0.02 inch, the deck shall be treated with methacrylate resin. The area of deck to be treated shall have a width that extends for the entire width of new deck inside the concrete barriers and a length that extends at least 5 feet beyond the furthest single continuous crack outside the 500 square foot portion, measured from where that crack exceeds 0.02 inch in width, as determined by the Engineer.

Deck crack treatment shall include furnishing, testing, and application of methacrylate resin and sand. If grinding is required, deck treatment shall take place before grinding.

51-1.17A(1) Submittals

Before starting deck treatment, the Contractor shall submit plans in conformance with Section 5-1.02, "Plans and Working Drawings," for the following:

1. Public safety plan for the use of methacrylate resin
2. Placement plan for the construction operation

The plans shall identify materials, equipment, and methods to be used.

The public safety plan for the use of methacrylate resin shall include details for the following:

DRAFT

1. Shipping
2. Storage
3. Handling
4. Disposal of residual methacrylate resin and the containers

The placement plan for construction shall include the following:

1. Schedule of deck treatment for each bridge. The schedule shall be consistent with "Maintaining Traffic" of the special provisions and shall include time for the Engineer to perform California Test 342.
2. Methods and materials to be used, including the following:

    2.1. Description of equipment for applying the resin
    2.2. Description of equipment for applying the sand
    2.3. Gel time range and final cure time for the resin

If the measures proposed in the safety plan are inadequate to provide for public safety associated with the use of methacrylate resin, the Engineer will reject the plan and direct the Contractor to revise the plan. Directions for revisions will be in writing and include detailed comments. The Engineer will notify the Contractor of the approval or rejection of a submitted or revised plan within 15 days of receipt of that plan.

In the event the Engineer fails to complete the review within the time allowed, and if, in the opinion of the Engineer, completion of the work is delayed or interfered with by reason of the Engineer's delay in completing the review, the Contractor will be compensated for any resulting loss, and an extension of time will be granted, in the same manner as provided for in Section 8-1.09, "Right of Way Delays."

51-1.17A(2) Materials

Before using methacrylate resin, a Material Safety Data Sheet shall be submitted for each shipment of resin.

Methacrylate resin shall be low odor and have a high molecular weight. Before adding initiator, the resin shall have a maximum volatile content of 30 percent when tested in conformance with the requirements in ASTM Designation: D 2369, and shall conform to the following:

DRAFT

PROPERTY	REQUIREMENT	TEST METHOD
* Viscosity	25 cP, maximum, (Brookfield RVT with UL adaptor, 50 RPM at 77°F	ASTM D 2196
* Specific Gravity	0.90 minimum, at 77°F	ASTM D 1475
* Flash Point	180°F, minimum	ASTM D 3278
* Vapor Pressure	1.0 mm Hg, maximum, at 77°F	ASTM D 323
Tack-free Time	400 minutes, maximum at 25°C	Specimen prepared per California Test 551
PCC Saturated Surface-Dry Bond Strength	3.5 MPa, minimum at 24 hours and 21±1°C	California Test 551
* Test shall be performed before adding initiator.		

51-1.17A(3) Testing

The Contractor shall allow 20 days for sampling and testing by the Engineer of the methacrylate resin before proposed use. If bulk resin is to be used, the Contractor shall notify the Engineer in writing at least 15 days before the delivery of the bulk resin to the job site. Bulk resin is any resin stored in containers in excess of 55 gallons.

Before starting production treatment, the Contractor shall treat a test area of approximately 500 square feet that is within the project limits and at a location approved by the Engineer. When available the test area shall be outside of the traveled way. Weather and pavement conditions during the test treatment shall be similar to those expected on the deck. Equipment used for testing shall be similar to those used for deck treating operations.

During test and production deck treatment, test tiles shall be used to evaluate the resin cure time. The Contractor shall coat at least one 4" x 4" commercial quality smooth glazed tile for each batch of methacrylate resin. The coated tile shall be placed adjacent to the corresponding treated area. Sand shall not be applied to the test tiles.

The acceptance criteria for a treated area is as follows:

1. The test tiles are dry to the touch.
2. The treated deck surface is tack free (non-oily).
3. The sand cover adheres and resists brushing by hand.
4. Excess sand has been removed by vacuuming or sweeping.
5. The coefficient of friction is at least 0.35 when tested in conformance with California Test 342.

Deck treatment on the test area shall demonstrate that the methods and materials meet the acceptance criteria and that the production work will be completed within the specified time for maintaining traffic.

If a test or production area fails to meet the acceptance criteria, as determined by the Engineer, the treatment will be rejected, and the treatment shall be removed and replaced until the area complies with the acceptance criteria.

51-1.17A(4) Construction

Equipment shall be fitted with suitable traps, filters, drip pans, or other devices as necessary to prevent oil or other deleterious material from being deposited on the deck.

Before deck treatment with methacrylate resin, the bridge deck surface shall be cleaned by abrasive blasting, and all loose material shall be blown from visible cracks using high-pressure air. Concrete curing seals shall be cleaned from the deck surface to be treated, and the deck shall be dry when blast cleaning is performed. If the deck surface becomes contaminated at any time before placing the resin, the deck surface shall be cleaned by abrasive blasting.

Where abrasive blasting is being performed within 10 feet of a lane occupied by public traffic, the residue including dust shall be removed immediately after contact between the abrasive and the surface being treated. The removal shall be by a vacuum attachment operating concurrently with the abrasive blasting operation.

A compatible promoter/initiator system shall be capable of providing the resin gel time range shown on the placement plan. Gel time shall be adjusted to compensate for the changes in temperature throughout treatment application.

Resin shall be applied by machine and by using a two-part resin system with a promoted resin for one part and an initiated resin for the other part. This two-part resin system shall be combined at equal volumes to the spray bars through separate positive displacement pumps. Combining of the 2 components shall be by either static in-line mixers or by external intersecting spray fans. The pump pressure at the spray bars shall not be great enough to cause appreciable atomization of the resin. Compressed air shall not be used to produce the spray. A shroud shall be used to enclose the spray bar apparatus.

At the Contractor's option, manual application may be used. For manual application, (1) the quantity of resin mixed with promoter and initiator shall be limited to 5 gallons at a time, and (2) the resin shall be distributed by squeegees and brooms within 10 minutes after application.

The Contractor shall apply methacrylate resin only to the specified area. Barriers, railing, joints, and drainage facilities shall be adequately protected to prevent contamination by the treatment material. Contaminated items shall be repaired at the Contractor's expense.

The relative humidity shall be less than 90 percent at the time of treatment. The prepared area shall be dry and the surface temperature shall be at least 50 °F and not more than 100 °F when the resin is applied. The rate of application of promoted/initiated resin shall be approximately 90 square feet per gallon; the exact rate shall be determined by the Engineer.

The deck surfaces to be treated shall be completely covered with resin so the resin penetrates and fills all cracks. The resin shall be applied within 5 minutes after complete mixing. A significant increase in viscosity shall be cause for rejection. Excess material shall be redistributed by squeegees or brooms within 10 minutes after application. For textured deck surfaces, including grooved surfaces, excess material shall be removed from the texture indentations.

After the resin has been applied, at least 20 minutes shall elapse before applying sand. The sand shall be commercial quality dry blast sand. At least 95 percent of the sand shall

pass the No. 8 sieve and at least 95 percent shall be retained on the No. 20 sieve. The sand shall be applied at a rate of approximately 2 pounds per square yard or until refusal as determined by the Engineer.

Traffic will not be allowed on treated areas until the acceptance criteria has been met as determined by the Engineer.

In Section 51-1.18C replace the 2nd paragraph with:

When Class 2 surface finish (gun finish) is specified, ordinary surface finish shall first be completed. The concrete surfaces shall then be abrasive blasted to a rough texture and thoroughly washed down with water. While the washed surfaces are damp, but not wet, a finish coating of machine applied mortar, approximately 1/4 inch thick, shall be applied in not less than 2 passes. The coating shall be pneumatically applied and shall consist of either (1) sand, cementitious material, and water mechanically mixed prior to its introduction to the nozzle, or (2) premixed sand and cementitious material to which water is added prior to its expulsion from the nozzle. The use of admixtures shall be subject to the approval of the Engineer as provided in Section 90, "Portland Cement Concrete." Unless otherwise specified, supplementary cementitious materials will not be required. The proportion of cementitious material to sand shall be not less than one to 4, unless otherwise directed by the Engineer. Sand shall be of a grading suitable for the purpose intended. The machines shall be operated and the coating shall be applied in conformance with standard practice. The coating shall be firmly bonded to the concrete surfaces on which it is applied.

In Section 51-1.18C replace the 5th paragraph with:

When surfaces to be finished are in pedestrian undercrossings, the sand shall be silica sand and the cementitious material shall be standard white portland cement.

In Section 51-1.23, add:

Full compensation for deck crack treatment, including execution of the public safety plan, shall be considered as included in the contract price paid per cubic yard for structural concrete, bridge, and no additional compensation will be allowed therefor.

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SECTION 52 REINFORCEMENT
(Issued 12-07-07)

DRAFT

In Section 52-1.07 in the 11th paragraph, replace the table with:

Height Zone (H) (Feet above ground)	Wind Pressure Value (psf)
H ≤ 30	20
30 < H ≤ 50	25
50 < H ≤ 100	30
H > 100	35

In Section 52-1.08B(1) in the 2nd paragraph, replace the table with:

Reinforcing Bar Number	Total Slip
4	0.010-inch
5	0.010-inch
6	0.010-inch
7	0.014-inch
8	0.014-inch
9	0.014-inch
10	0.018-inch
11	0.018-inch
14	0.024-inch
18	0.030-inch

In Section 52-1.08B(2) in the 6th paragraph, replace the subparagraph with:

The minimum preheat and interpass temperatures shall be 400º F for Grade 40 bars and 600º F for Grade 60 bars. Immediately after completing the welding, at least 6 inches of the bar on each side of the splice shall be covered by an insulated wrapping to control the rate of cooling. The insulated wrapping shall remain in place until the bar has cooled below 200º F.

In Section 52-1.08C in the 3rd paragraph, replace item A with:

A. Proper facilities, including a calibrated tensile testing machine capable of breaking the largest size of reinforcing bar to be tested.

In Section 52-1.08C replace the 5th paragraph with:

Prequalification and production sample splices and testing shall conform to California Test 670 and these specifications.

In Section 52-1.08C delete the 6th paragraph.

In Section 52-1.08C(2)(a) replace the 5th paragraph with:

If 3 or more sample splices from a production test conform to the provisions in this Section 52-1.08C(2), "Service Splice Test Criteria," all splices in the lot represented by this production test will be considered acceptable.

In Section 52-1.08C(3) replace the 2nd paragraph with:

A minimum of 1 control bar shall be removed from the same bar as, and adjacent to, all ultimate prequalification, production, and quality assurance sample splices. The lengths of control bars shall conform to the lengths specified for sample splices in California Test 670. The portion of adjacent bar remaining in the work shall also be identified with weatherproof markings that correspond to its adjacent control bar.

In Section 52-1.08C(3) in the 6th paragraph, replace the 2nd sentence with:

In addition, necking of the bar, as defined in California Test 670, shall occur at rupture regardless of whether the bar breaks inside or outside the affected zone.

^^

SECTION 53 SHOTCRETE
(Issued 11-02-07)

In Section 53-1.01 replace the 3rd paragraph with:

The dry-mix process shall consist of delivering dry mixed aggregate and cementitious material pneumatically or mechanically to the nozzle body and adding water and mixing the materials in the nozzle body. The wet-mix process shall consist of delivering mixed aggregate, cement, and water pneumatically to the nozzle and adding any admixture at the nozzle.

In Section 53-1.02 replace the 1st through 4th paragraphs with:

Cementitious material, fine aggregate, and mixing water shall conform to the provisions in Section 90, "Portland Cement Concrete."

Shotcrete to be mixed and applied by the dry-mix process shall consist of one part cementitious material to not more than 4.5 parts fine aggregate, thoroughly mixed in a dry state before being charged into the machine. Measurement may be either by volume or by weight. The fine aggregate shall contain not more than 6 percent moisture by weight.

Shotcrete to be mixed and applied by the wet-mix process shall consist of cementitious material, fine aggregate, and water and shall contain not less than 632 pounds of cementitious material per cubic yard. A maximum of 30 percent pea gravel may be substituted for fine aggregate. The maximum size of pea gravel shall be such that 100 percent passes the 1/2 inch screen and at least 90 percent passes the 3/8 inch screen.

Admixtures may be added to shotcrete and shall conform to the provisions in Section 90-4, "Admixtures."

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In Section 53-1.04 in the 3rd paragraph, replace item C with:

C. Aggregate and cementitious material that have been mixed for more than 45 minutes shall not be used unless otherwise permitted by the Engineer.

Replace Section 53-1.07 with:

53-1.07 MEASUREMENT

Quantities of shotcrete will be measured by the cubic yard computed from measurements, along the slope, of actual areas placed and the theoretical thickness shown on the plans. The Department does not pay for shotcrete placed outside the dimensions shown on the plans or to fill low foundation.

Replace Section 53-1.08 with:

53-1.08 PAYMENT

The contract price paid per cubic yard for shotcrete shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in placing shotcrete, including preparing the foundation, wire reinforcement, structure backfill, joint filling material, and if required by the plans, drains with sacked pervious backfill material, as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.

^^

SECTION 55 STEEL STRUCTURES
(Issued 05-02-08

In Section 55-1.05 replace the 3rd paragraph with:

Construction methods and equipment employed by the Contractor shall conform to the provisions in Section 7-1.02, "Load Limitations."

In Section 55-2.01 in the 5th paragraph in the table, replace the CVN impact value for Grade HPS 50W with:

Grade HPS 50W* (4 inches and under in thickness)	20 at 10 ºF

In Section 55-3.05 replace the 1st paragraph with:

Surfaces of bearing and base plates and other metal surfaces that are to come in contact with each other or with ground concrete surfaces or with asbestos sheet packing shall be flat to within 1/32-inch tolerance in 12 inches and to within 1/16-inch tolerance

overall. Surfaces of bearing and base plates and other metal bearing surfaces that are to come in contact with preformed fabric pads, elastomeric bearing pads, or mortar shall be flat to within 1/8-inch tolerance in 12 inches and to within 3/16-inch tolerance overall.

In Section 55-3.10 in the 1st paragraph, replace item B with:

B. Internal threads shall conform to the requirements in ASTM Designation: A 563.

In Section 55-3.19 replace the 3rd paragraph with:

Immediately before setting bearing assemblies or masonry plates directly on ground concrete surfaces, the Contractor shall thoroughly clean the surfaces of the concrete and the metal to be in contact and shall apply a coating of nonsag polysulfide or polyurethane caulking conforming to the requirements in ASTM Designation: C 920 to contact areas to provide full bedding.

In Section 55-3.19 replace the 5th paragraph with:

Mortar to be placed below masonry plates or bearing plates of the bearing assemblies and in anchor bolt sleeves or canisters shall conform to the provisions in Section 51-1.135, "Mortar," except that the proportion of cementitious material to sand shall be 1:3.

In Section 55-4.01 in the 1st paragraph, replace item D with:

D. To determine the pay quantities of galvanized metal, the weight to be added to the calculated weight of the base metal for the galvanizing will be determined from the table of weights of zinc coatings specified in ASTM Designation: A 153/A 153M.

^^

SECTION 56 SIGNS
(Issued 03-16-07)

In Section 56-1.03 replace the 5th paragraph with:

Clips, eyes, or removable brackets shall be affixed to all signs and all posts and shall be used to secure the sign during shipping and for lifting and moving during erection as necessary to prevent damage to the finished galvanized or painted surfaces. Brackets on tubular sign structures shall be removed after erection. Details of the devices shall be shown on the working drawings.

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In Section 56-1.10 replace the 4th paragraph with:

The contract price paid per pound for install sign structure of the type or types 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 installing sign structures, complete in place, including installing anchor bolt assemblies, removable sign panel frames, and sign panels and performing any welding, painting or galvanizing required during installation, as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.

In Section 56-2.03 replace the 4th paragraph with:

Backfill material for metal posts shall consist of minor concrete conforming to the provisions in Section 90-10, "Minor Concrete," and shall contain not less than 463 pounds of cementitious material per cubic yard.

^^

SECTION 59 PAINTING
(Issued 05-01-06)

In Section 59-2.12 replace the 3rd and 4th paragraphs with:

Contact surfaces of stiffeners, railings, built up members or open seam exceeding 6 mils in width that would retain moisture, shall be caulked with polysulfide or polyurethane sealing compound conforming to the requirements in ASTM Designation: C 920, Type S, Grade NS, Class 25, Use O, or other approved material.

The dry film thickness of the paint will be measured in place with a calibrated Type 2 magnetic film thickness gage in conformance with the requirements in SSPC-PA 2, "Measurement of Dry Coating Thickness with Magnetic Gages," of the "SSPC: The Society for Protective Coatings," except that there shall be no limit to the number or location of spot measurements to verify compliance with specified thickness requirements.

^^

SECTION 64 PLASTIC PIPE
(Issued 07-31-07)

In Section 64-1.06 replace the 1st paragraph with:

At locations where pipe is to be backfilled with concrete as shown on the plans, the concrete backfill shall be constructed of minor concrete or Class 4 concrete conforming

to the provisions in Section 90, "Portland Cement Concrete." Minor concrete shall contain not less than 380 pounds of cementitious material per cubic yard. The concrete to be used will be designated in the contract item or shown on the plans.

In Section 64-1.06 replace the 3rd paragraph with:

The surface of the concrete backfill shall be broomed with a heavy broom to produce a uniform rough surface if hot mix asphalt is to be placed directly thereon.

^^

SECTION 65 REINFORCED CONCRETE PIPE
(Issued 07-31-07)

In Section 65-1.02 replace the 1st paragraph with:

Cementitious material and aggregate shall conform to the provisions in Section 90-2, "Materials" except that mortar strengths relative to Ottawa sand and grading requirements shall not apply to the aggregate. Use of supplemental cementitious material shall conform to AASHTO Designation: M 170.

In Section 65-1.02A(1) in the 11th paragraph, replace item c with:

c. Cementitious material and aggregate for non-reinforced concrete pipe shall conform to the provisions in Section 65-1.02, "Materials."

In Section 65-1.035 replace the 1st paragraph with:

At locations where pipe is to be backfilled with concrete as shown on the plans, the concrete backfill shall be constructed of minor concrete or Class 4 concrete in conformance with the provisions in Section 90, "Portland Cement Concrete." Minor concrete shall contain not less than 380 pounds of cementitious material per cubic yard. The concrete to be used will be designated in the contract item.

In Section 65-1.035 replace the 3rd paragraph with:

The surface of the concrete backfill shall be broomed with a heavy broom to produce a uniform rough surface if hot mix asphalt is to be placed directly thereon.

In Section 65-1.06 in the 2nd paragraph, replace the 1st subparagraph with:

Cement Mortar. - Mortar shall be composed of one part cementitious material and 2 parts sand by volume. Supplementary cementitious material will not be required.

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SECTION 66 CORRUGATED METAL PIPE
(Issued 07-31-07)

In Section 66-1.045 replace the 1st paragraph with:

At locations where pipe is to be backfilled with concrete as shown on the plans, the concrete backfill shall be constructed of minor concrete or Class 4 concrete conforming to the provisions in Section 90, "Portland Cement Concrete." Minor concrete shall contain not less than 380 pounds of cementitious material per cubic yard. The concrete to be used will be designated in the contract item or shown on the plans.

In Section 66-1.045 replace the 3rd paragraph with:

The surface of the concrete backfill shall be broomed with a heavy broom to produce a uniform rough surface if hot mix asphalt is to be placed directly thereon.

^^

SECTION 68 SUBSURFACE DRAINS
(Issued 07-31-07)

In Section 68-3.02D replace the 1st and 2nd paragraphs with:

Concrete for splash pads shall be produced from minor concrete conforming to the provisions in Section 90-10, "Minor Concrete." Minor concrete shall contain not less than 470 pounds of cementitious material per cubic yard.

Mortar placed where edge drain outlets and vents connect to drainage pipe and existing drainage inlets shall conform to the provisions in Section 51-1.135, "Mortar."

In Section 68-3.03 replace the 13th paragraph with:

Cement treated permeable material, which is not covered with hot mix asphalt within 12 hours after compaction of the permeable material, shall be cured by either sprinkling the material with a fine spray of water every 4 hours during daylight hours or covering the material with a white polyethylene sheet, not less than 6 mils thick. The above curing requirements shall begin at 7:00 a.m. on the morning following compaction of the cement treated permeable material and continue for the next 72 hours or until the material is covered with hot mix asphalt, whichever is less. The cement treated permeable material shall not be sprayed with water during the first 12 hours after compacting, but may be covered with the polyethylene sheet during the first 12 hours or prior to the beginning of the cure period.

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In Section 68-3.03 replace the 17th and 18th paragraphs with:

Hot mix asphalt for backfilling trenches in existing paved areas shall be produced from commercial quality aggregates and asphalt and mixed at a central mixing plant. The aggregate shall conform to the 3/4 inch grading, or the 1/2 inch grading for Type A and Type B hot mix asphalt specified in Section 39-1.02E, "Aggregate." The amount of asphalt binder to be mixed with the aggregate shall be between 4 percent and 7 percent by weight of the dry aggregate, as determined by the Engineer.

Hot mix asphalt backfill shall be spread and compacted in approximately 2 equal layers by methods that will produce a hot mix asphalt surfacing of uniform smoothness, texture and density. Each layer shall be compacted before the temperature of the mixture drops below 250 ºF. Prior to placing the hot mix asphalt backfill, a tack coat of asphaltic emulsion conforming to the provisions in Section 94, "Asphaltic Emulsions," shall be applied to the vertical edges of existing pavement at an approximate rate of 0.05 gallon per square yard.

In Section 68-3.03 replace the 20th paragraph with:

Type A pavement markers conforming to the details shown on the plans and the provisions in Section 85, "Pavement Markers," shall be placed on paved shoulders or dikes at outlet, vent and cleanout locations as directed by the Engineer. The waiting period for placing pavement markers on new hot mix asphalt surfacing will not apply.

Replace Section 68-3.05 with:

68-3.05 PAYMENT

The contract price paid per linear foot for plastic pipe (edge drain) of the size or sizes shown 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 installing edge drains complete in place, including excavation (and removal of any concrete deposits that may occur along the lower edge of the concrete pavement in Type 1 installations) and hot mix asphalt backfill for Type 1 edge drain installation, tack coat, filter fabric, and treated permeable material, as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.

The contract price paid per linear foot for plastic pipe (edge drain outlet) of the size or sizes shown 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 installing edge drain outlets, vents and cleanouts complete in place, including outlet and vent covers, expansion plugs, pavement markers, concrete splash pads, connecting outlets and vents to drainage facilities, and excavation and backfill [aggregate base, hot mix asphalt, tack coat, and native material] for outlets, vents, and cleanouts to be installed in embankments and existing shoulders, as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.

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SECTION 69 OVERSIDE DRAINS
(Issued 07-31-07)

In Section 69-1.01 replace the 1st paragraph with:

This work shall consist of furnishing and installing entrance tapers, pipe downdrains, tapered inlets, flume downdrains, anchor assemblies, reducers, slip joints and hot mix asphalt overside drains to collect and carry surface drainage down the roadway slopes as shown on the plans or as directed by the Engineer and as specified in these specifications and the special provisions.

Replace Section 69-1.02D with:

69-1.02D Hot Mix Asphalt

Hot mix asphalt for overside drains shall conform to the provisions in Section 39-1.13, "Miscellaneous Areas."

Replace Section 69-1.04 with:

69-1.04 HOT MIX ASPHALT OVERSIDE DRAINS

Hot mix asphalt overside drains shall be constructed as shown on the plans or as directed by the Engineer. The hot mix asphalt shall be placed in conformance with the provisions in Section 39-1.13, "Miscellaneous Areas."

In Section 69-1.06 replace the 2nd paragraph with:

Quantities of hot mix asphalt placed for overside drains will be paid for as provided in Section 39-5, "Measurement and Payment," for hot mix asphalt placed in miscellaneous areas.

^^

SECTION 70 MISCELLANEOUS FACILITIES
(Issued 07-18-08)

In Section 70-1.02C replace the 2nd paragraph with:

Precast concrete flared end sections shall conform to the requirements for Class III Reinforced Concrete Pipe in AASHTO Designation: M 170M. Cementitious materials and aggregate shall conform to the provisions in Section 90-2, "Materials," except that mortar strengths relative to Ottawa sand and grading requirements shall not apply to the aggregate. Use of supplementary cementitious material shall conform to the requirements in AASHTO Designation: M 170. The area of steel reinforcement per

linear foot of flared end section shall be at least equal to the minimum steel requirements for circular reinforcement in circular pipe for the internal diameter of the circular portion of the flared end section. The basis of acceptance of the precast concrete flared end section shall conform to the requirements of Section 5.1.2 of AASHTO Designation: M 170.

In Section 70-1.02H replace the 1st paragraph with:

Precast concrete pipe risers and pipe reducers, and precast concrete pipe sections, adjustment rings and tapered sections for pipe energy dissipators, pipe inlets and pipe manholes shall conform to the requirements in AASHTO Designation: M 199M/M 199, except that the cementitious material and aggregate shall conform to the provisions in Section 90-2, "Materials," except that mortar strengths relative to Ottawa sand and grading requirements shall not apply to the aggregate. Use of supplementary cementitious material shall conform to the requirements in AASHTO Designation: M 170.

In Section 70-1.03 replace the 2nd paragraph with:

Cutoff walls for precast concrete flared end sections shall be constructed of minor concrete conforming to the provisions in Section 90-10, "Minor Concrete." Minor concrete shall contain not less than 470 pounds of cementitious material per cubic yard.

^^

SECTION 72 SLOPE PROTECTION
(Issued 03-13-09)

In Section 72-4.04 replace the 6th paragraph with:

Pervious backfill material, if required by the plans, shall be placed as shown. A securely tied sack containing one cubic foot of pervious backfill material shall be placed at each weep hole and drain hole. The sack material shall conform to the requirements for filter fabric in Section 88-1.02, "Filtration."

^^

SECTION 73 CONCRETE CURBS AND SIDEWALKS
(Issued 07-31-07)

In Section 73-1.01 in the 2nd paragraph, replace item 2 with:

2. Minor concrete shall contain not less than 463 pounds of cementitious material per cubic yard except that when extruded or slip-formed curbs are constructed using 3/8-inch maximum size aggregate, minor concrete shall contain not less than 548 pounds of cementitious material per cubic yard.

In Section 73-1.06 replace the 15th paragraph with:

Where hot mix asphalt or portland cement concrete pavements are to be placed around or adjacent to manholes, pipe inlets or other miscellaneous structures in sidewalk, gutter depression, island paving, curb ramps or driveway areas, the structures shall not be constructed to final grade until after the pavements have been constructed for a reasonable distance on each side of the structures.

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SECTION 74 PUMPING PLANT EQUIPMENT
(Issued 07-01-08)

In Section 74-1.02 delete the 2nd paragraph.

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SECTION 75 MISCELLANEOUS METAL
(Issued 01-18-08)

In Section 75-1.03 replace the 13th paragraph with:

Concrete anchorage devices shall be mechanical expansion or resin capsule types installed in drilled holes or cast-in-place insert types. The anchorage devices shall be selected from the Department's Pre-Qualified Products List at:

http://www.dot.ca.gov/hq/esc/approved_products_list

The anchorage devices shall be a complete system, including threaded studs, hex nuts, and cut washers. Thread dimensions for externally threaded concrete anchorage devices prior to zinc coating, shall conform to the requirements in ANSI Standard: B1.1 having Class 2A tolerances or ANSI Standard: B1.13M having Grade 6g tolerances. Thread dimensions for internally threaded concrete anchorage devices shall conform to the requirements in ASTM A 563.

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In Section 75-1.03 replace the 18th paragraph with:

Mechanical expansion anchors shall, when installed in accordance with the manufacturer's instructions and these specifications and tested in conformance with the requirements in California Test 681, withstand the application of a sustained tension test load of at least the following values for at least 48 hours with a movement not greater than 0.035 inch:

Stud Diameter (inches)	Sustained Tension Test Load (pounds)
*3/4	5,000
5/8	4,100
1/2	3,200
3/8	2,100
1/4	1,000

* Maximum stud diameter permitted for mechanical expansion anchors.

Resin capsule anchors shall, when installed in accordance with the manufacturer's instructions and these specifications and tested in conformance with the requirements in California Test 681, withstand the application of a sustained tension test load of at least the following values for at least 48 hours with a movement not greater than 0.010 inch:

Stud Diameter (inches)	Sustained Tension Test Load (pounds)
1-1/4	31,000
1	17,900
7/8	14,400
3/4	5,000
5/8	4,100
1/2	3,200
3/8	2,100
1/4	1,000

At least 25 days before use, the Contractor shall submit one sample of each resin capsule anchor per lot to the Transportation Laboratory for testing. A lot of resin capsule anchors is 100 units, or fraction thereof, of the same brand and product name.

In Section 75-1.03 replace the 20th paragraph with:

The Pre-Qualified Products List for concrete anchorage devices has been developed from data previously furnished by suppliers or manufacturers for each type and size. Approval of additional anchorage device types and sizes is contingent upon the Contractor submitting to the Engineer one sample of each type of concrete anchorage device, manufacturer's installation instructions, and certified results of tests, either by a private testing laboratory or the manufacturer, indicating compliance with the above requirements.

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In Section 75-1.03 replace the 24th paragraph with:

Sealing compound, for caulking and adhesive sealing, shall be a polysulfide or polyurethane material conforming to the requirements in ASTM Designation: C 920, Type S, Grade NS, Class 25, Use O.

In Section 75-1.035 in the 3rd paragraph, replace the 1st sentence with:

Cables shall be 3/4 inch preformed, 6 x 19, wire strand core or independent wire rope core (IWRC), galvanized in conformance with the requirements in Federal Specification RR-W-410, right regular lay, manufactured of improved plow steel with a minimum breaking strength of 23 tons.

In Section 75-1.035 in the 4th paragraph, replace item C with:

C. Nuts shall conform to the requirements in ASTM Designation: A 563 including Appendix X1, except lubrication is not required.

In Section 75-1.035 replace the 12th paragraph with:

Concrete for filling cable drum units shall conform to the provisions in Section 90-10, "Minor Concrete," or at the option of the Contractor, may be a mix with 3/8-inch maximum size aggregate and not less than 675 pounds of cementitious material per cubic yard.

In Section 75-1.05 replace the 6th paragraph with:

Galvanizing of iron and steel hardware and nuts and bolts, when specified or shown on the plans, shall conform to the requirements in ASTM Designation: A 153/A 153M, except whenever threaded studs, bolts, nuts, and washers are specified to conform to the requirements in ASTM Designation: A 307, A 325, A 449, A 563, or F 436 and zinc coating is required, they shall be hot-dip zinc coated or mechanically zinc coated in conformance with the requirements in the ASTM Designations. Unless otherwise specified, galvanizing shall be performed after fabrication.

In Section 75-1.05 replace the 8th paragraph with:

Tapping of nuts or other internally threaded parts to be used with zinc coated bolts, anchor bars or studs shall be done after galvanizing and shall conform to the requirements for thread dimensions and overtapping allowances in ASTM Designation: A 563.

^^

SECTION 80 FENCES
(Issued 01-05-07)

In Section 80-3.01F replace the 4th paragraph with:

Portland cement concrete for metal post and brace footings and for deadmen shall be minor concrete conforming to the provisions in Section 90-10, "Minor Concrete." Minor concrete shall contain not less than 470 pounds of cementitious material per cubic yard.

In Section 80-4.01C replace the 4th paragraph with:

Portland cement concrete for metal post and for deadmen shall be produced from minor concrete conforming to the provisions in Section 90-10, "Minor Concrete." Minor concrete shall contain not less than 470 pounds of cementitious material per cubic yard.

^^

SECTION 83 RAILINGS AND BARRIERS
(Issued 04-03-09)

In Section 83-1.02 replace the 7th paragraph with:

Mortar shall conform to the provisions in Section 51-1.135, "Mortar," and shall consist of one part by volume of cementitious material and 3 parts of clean sand.

In Section 83-1.02B in the 24th paragraph in the 8th subparagraph, replace the 1st sentence with:

Anchor cable shall be 3/4 inch preformed, 6 x 19, wire strand core or independent wire rope core (IWRC), galvanized in conformance with the requirements in Federal Specification RR-W-410, right regular lay, manufactured of improved plow steel with a minimum breaking strength of 23 tons.

In Section 83-1.02E in the 6th paragraph, replace the 2nd sentence with:

Cable shall be galvanized in conformance with the requirements in Federal Specification RR-W-410.

In Section 83-1.02I replace the 5th paragraph with:

Where shown on the plans, cables used in the frame shall be 5/16 inch in diameter, wire rope, with a minimum breaking strength of 5,000 pounds and shall be galvanized in conformance with the requirements in Federal Specification RR-W-410.

In Section 83-1.02I replace the 14th paragraph with:

Chain link fabric shall be 11-gage conforming to one of the following:

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1. AASHTO Designation: M181, Type I, Class C
2. AASHTO Designation: M181, Type IV, Class A
3. ASTM F 1345, Class 2

In Section 83-2.02D(1) replace the 5th paragraph with:

When concrete barriers are to be constructed on existing structures, the dowels shall be bonded in holes drilled in the existing concrete. Drilling of holes and bonding of dowels shall conform to the following:

1. The bonding materials shall be either magnesium phosphate concrete, modified high alumina based concrete or portland cement based concrete. Magnesium phosphate concrete shall be either single component (water activated) or dual component (with a prepackaged liquid activator). Modified high alumina based concrete and portland cement based concrete shall be water activated. Bonding materials shall conform to the following requirements:

Property	Test Method	Requirements
Compressive Strength		
at 3 hours, MPa	California Test 551	21 min.
at 24 hours, MPa	California Test 551	35 min.
Flexure Strength		
at 24 hours, MPa	California Test 551	3.5 min.
Bond Strength: at 24 hours		
SSD Concrete, MPa	California Test 551	2.1 min.
Dry Concrete, MPa	California Test 551	2.8 min.
Water Absorption, %	California Test 551	10 max.
Abrasion Resistance		
at 24 hours, grams	California Test 550	25 max.
Drying Shrinkage at 4 days, %	ASTM Designation: C 596	0.13 max.
Soluble Chlorides by weight, %	California Test 422	0.05 max.
Water Soluble Sulfates by weight, %	California Test 417	0.25 max.

2. Magnesium phosphate concrete shall be formulated for minimum initial set time of 15 minutes and minimum final set time of 25 minutes at 70° F. The materials, prior to use, shall be stored in a cool, dry environment.
3. Mix water used with water activated material shall conform to the provisions in Section 90-2.03, "Water."
4. The quantity of water for single component type or liquid activator (for dual component type) to be blended with the dry component, shall be within the limits recommended by the manufacturer and shall be the least amount required to produce a pourable batter.
5. Addition of retarders, when required and approved by the Engineer, shall be in conformance with the manufacturer's recommendations.
6. Before using concrete material that has not been previously approved, a minimum of 45 pounds shall be submitted to the Engineer for testing. The Contractor shall allow 45 days for the testing. Each shipment of concrete material that has been

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previously approved shall be accompanied by a Certificate of Compliance as provided in Section 6-1.07, "Certificates of Compliance."

7. Magnesium phosphate concrete shall not be mixed in containers or worked with tools containing zinc, cadmium, aluminum or copper metals. Modified high alumina based concrete shall not be mixed in containers or worked with tools containing aluminum.
8. The surface of any dowel coated with zinc or cadmium shall be coated with a colored lacquer before installation of the dowel. The lacquer shall be allowed to dry thoroughly before embedment of the dowels.
9. The holes shall be drilled by methods that will not shatter or damage the concrete adjacent to the hole. The diameter of the drilled hole shall be 1/2 inch larger than the nominal diameter of the dowels.
10. The drilled holes shall be clean and dry at the time of placing the bonding material and the steel dowels. Bonding material and dowel shall completely fill the drilled hole. The surface temperature shall be 40° F or above when the bonding material is placed.
11. After bonding, dowels shall remain undisturbed for a minimum of 3 hours or until the bonding material has reached a strength sufficient to support the dowels. Dowels that are improperly bonded, as determined by the Engineer, shall be removed. The holes shall be cleaned or new holes shall be drilled and the dowels replaced and securely bonded to the concrete. Removing, redrilling and replacing improperly bonded dowels shall be performed at the Contractor's expense. Modified high alumina based concrete and portland cement based concrete shall be cured in conformance with the provisions in Section 90-7.01B, "Curing Compound Method," of the Standard Specifications. Magnesium phosphate concrete shall not be cured.

In Section 83-2.02D(2) in the 1st paragraph, replace item b with:

b. If the 3/8-inch maximum size aggregate grading is used to construct extruded or slip-formed concrete barriers, the cementitious material content of the minor concrete shall be not less than 675 pounds per cubic yard.

In Section 83-2.02D(2) replace the 3rd paragraph with:

The concrete paving between the tops of the 2 walls of concrete barrier (Types 50E, 60E, 60GE, and 60SE) and the optional concrete slab at the base between the 2 walls of concrete barrier (Types 50E, 60E, 60GE, and 60SE) shall be constructed of minor concrete conforming to the provisions of Section 90-10, "Minor Concrete," except that the minor concrete shall contain not less than 505 pounds of cementitious material per cubic yard.

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SECTION 85: PAVEMENT MARKERS
(Issued 07-31-07)

In Section 85-1.06 replace the 6th paragraph with:

Pavement markers shall not be placed on new hot mix asphalt surfacing or seal coat until the surfacing or seal coat has been opened to public traffic for a period of not less than 7 days when hot melt bituminous adhesive is used, and not less than 14 days when epoxy adhesive is used.

In Section 85-1.06 in the 14th paragraph, replace the 2nd sentence with:

Cleaning shall be done by blast cleaning on all surfaces regardless of age or type, except that blast cleaning of clean, new hot mix asphalt and clean, new seal coat surfaces will not be required when hot melt bituminous adhesive is used.

^^

SECTION 86 SIGNALS, LIGHTING AND ELECTRICAL SYSTEMS
(Issued 08-15-08)

In Section 86-1.02 delete the 2nd paragraph.

In Section 86-2.02 in the 1st paragraph, replace the 1st sentence with:

Improvements such as sidewalks, curbs, gutters, portland cement concrete and hot mix asphalt pavement, underlying material, lawns and plants and any other improvements removed, broken or damaged by the Contractor's operations, shall be replaced or reconstructed with the same kind of material as found on the work or with materials of equal quality.

In Section 86-2.03 replace the 3rd, 4th, and 5th paragraph with:

Except when located on structures, foundations for posts, standards, and pedestals shall be placed "in the solid" and monolithic.

After each post, standard, and pedestal is in proper position, mortar shall be placed under the base plate as shown on the plans. The exposed portions shall be finished to present a neat appearance. Mortar shall conform to Section 51-1.135, "Mortar," except the mortar shall consist of one part by volume of cementitious material and 3 parts of clean sand.

Reinforced cast-in-drilled-hole concrete pile foundations shall conform to the provisions in Section 49, "Piling," with the following exceptions:

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A. Material resulting from drilling holes shall be disposed of in conformance with the provisions in Section 86-2.01, "Excavating and Backfilling,"
B. Concrete for cast-in-drilled-hole concrete piles will not be considered as designated by compressive strength.

In Section 86-2.05C in the 18th paragraph, replace item D with:

D. The conduit shall be placed in the bottom of the trench, and the trench shall be backfilled with minor concrete conforming to the provisions in Section 90-10, "Minor Concrete." Minor concrete shall contain not less than 590 pounds of cementitious material per cubic yard. Concrete backfill shall be placed to the pavement surface except, when the trench is in hot mix asphalt pavement and additional pavement is not being placed, the top 0.10 foot of the trench shall be backfilled with hot mix asphalt produced from commercial quality paving asphalt and aggregates.

In Section 86-2.05C in the 18th paragraph, replace item E with:

E. Prior to spreading hot mix asphalt, tack coat shall be applied in conformance with the provisions in Section 39, "Hot Mix Asphalt." Spreading and compacting of hot mix asphalt shall be performed by any method which will produce a hot mix asphalt surfacing of uniform smoothness, texture and density.

In Section 86-2.05C in the 23rd paragraph, replace item C with:

C. Precast concrete conduit cradles shall conform to the dimensions shown on the plans and shall be constructed of minor concrete and commercial quality welded wire fabric. Minor concrete shall conform to the provisions in Section 90-10, "Minor Concrete," and shall contain not less than 590 pounds of cementitious material per cubic yard. The cradles shall be moist cured for not less than 3 days.

In Section 86-2.05C in the 23rd paragraph, replace item G with:

G. The space around conduits through bridge abutment walls shall be filled with mortar conforming to the provisions in Section 51-1.135, "Mortar," except that the proportion of cementitious material to sand shall be 1 to 3.

In Section 86-2.07 replace the 5th paragraph with:

Concrete placed around and under traffic pull boxes as shown on the plans shall be minor concrete conforming to the provisions in Section 90-10, "Minor Concrete."

In Section 86-2.08A in the table, replace the traffic signal controller cabinet requirements with:

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Traffic Signal Controller Cabinet	Ungrounded Circuit Conductor	Blk	None	CON-1	6
	Grounded Circuit Conductor	Wht	None	CON-2	6

In Section 86-4.06 in the 1st paragraph, replace the 1st sentence with:

Message symbols for pedestrian signal faces shall be white WALKING PERSON and Portland orange UPRAISED HAND conforming to the requirements in the Institute of Transportation Engineers Standards: "Pedestrian Traffic Control Signal Indications" and the "California MUTCD."

In Section 86-4.07 in the 10th paragraph, replace the 2nd sentence with:

The color of "UPRAISED HAND" shall be Portland orange conforming to the requirements of the Institute of Transportation Engineers Standards: "Pedestrian Traffic Control Signal Indications" and the "California MUTCD."

In Section 86-5.01A(5) in section "Elastomeric Sealant" in the 1st paragraph, replace the 2nd sentence with:

Sealant shall be suitable for use in both hot mix asphalt and portland cement concrete.

In Section 86-5.01A(5) in section "Asphatic Emulsion Sealant" in the 1st paragraph, replace the 1st sentence with:

Asphaltic emulsion sealant shall conform to the requirements in State Specification 8040-41A-15 and shall be used only for filling slots in hot mix asphalt pavement.

In Section 86-5.01A(5) in section "Hot-Melt Rubberized Asphalt Sealant" in the 1st paragraph, replace the 3rd sentence with:

Sealant shall be suitable for use in both hot mix asphalt and portland cement concrete.

In Section 86-5.01A(5) in section "Hot-Melt Rubberized Asphalt Sealant," replace the 10th paragraph with:

If hot mix asphalt surfacing is to be placed, the loop conductors shall be installed prior to placing the uppermost layer of hot mix asphalt. The conductors shall be installed, as shown on the plans, in the compacted layer of hot mix asphalt immediately below the uppermost layer. Installation details shall be as shown on the plans, except the sealant shall fill the slot flush to the surface.

In Section 86-5.01D replace the 1st paragraph with:

When a foundation for a pressure-sensitive vehicle detector is to be removed, the hole left by removing the detector frame and foundation shall be filled with minor concrete, except the roadway surface shall be reconstructed with material to match existing surfacing. Minor concrete shall conform to the provisions in Section 90-10, "Minor Concrete," except that the concrete shall contain not less than 420 pounds of cementitious

DRAFT

material per cubic yard for hot mix asphalt surfaced roadways and not less than 590 pounds of cementitious material per cubic yard for portland cement concrete surfaced roadways.

In Section 86-8.01 replace the 1st paragraph with:

The contract lump sum price or prices paid for signal, ramp metering, flashing beacon, lighting, sign illumination, traffic monitoring station, highway advisory radio systems, closed circuit television systems, or combinations thereof; for modifying or removing those systems; for temporary systems; or the lump sum or unit prices paid for various units of those systems; or the lump sum or per foot price paid for conduit of the various sizes, types and installation methods listed 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 furnishing and installing, modifying, or removing the systems, combinations or units thereof, as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer, including any necessary pull boxes (except when the type required is shown as a separate contract item); excavation and backfill; concrete foundations (except when shown as a separate contract item); pedestrian barricades; furnishing and installing illuminated street name signs; installing sign panels on pedestrian barricades, on flashing beacon standards, and on traffic signal mast arms; restoring sidewalk, pavement and appurtenances damaged or destroyed during construction; salvaging existing materials; and making all required tests.

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SECTION 88: ENGINEERING FABRICS
(Issued 03-13-09)

Replace Section 88 with:
SECTION 88: GEOSYNTHETICS

88-1.01 GENERAL

88-1.01A Summary

Section 88 includes specifications for geosynthetics. Geosynthetics are used for:

1. Filtration
2. Drainage
3. Reinforcement
4. Water pollution control
5. Channel and shore protection
6. Pavement interlayer

88-1.01B Submittals

Submit:

1. Certificate of Compliance under Section 6-1.07, "Certificates of Compliance"
2. Samples representing each lot
3. Minimum average roll values (MARV)

Label submittals with the manufacturer's name and product information.

88-1.01C Quality Control and Assurance

Treat geosynthetics to resist degradation from exposure to sunlight. Using covers, protect geosynthetics from moisture, sunlight, and shipping and storage damage.

88-1.02 FILTRATION

Geosynthetics used for filter fabric must be permeable and nonwoven. Filter fabric must consist of 1 of the following:

1. Polyester
2. Polypropylene
3. Combined polyester and polypropylene

Filter fabric must comply with:

Filter Fabric

Property	ASTM	Specification		
		Class A	Class B	Class C
Grab breaking load, 1-inch grip, lb minimum in each direction	D 4632	157		
Apparent elongation, percent minimum in each direction	D 4632	50		
Hydraulic bursting strength, psi minimum	D 3786	210		
Ultraviolet resistance, percent minimum retained grab breaking load, 500 hr	D 4355	70		
Permittivity, sec^{-1} minimum	D 4491	0.5	0.2	0.1
Apparent opening size, average roll value, U.S. Standard sieve size maximum	D 4751	40	60	70

88-1.03 DRAINAGE

Geocomposite wall drain must consist of a polymeric core with filter fabric integrally bonded to 1 or both sides of the core creating a stable drainage void.

Filter fabric must comply with Section 88-1.02, "Filtration."

Geocomposite wall drain must comply with:

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Geocomposite Wall Drain

Property	ASTM	Specification
Thickness with fabric, inches maximum	--	2
Transmissivity, gradient = 1.0, normal stress = 5,000 psf, gal/min/ft	D 4716	4

88-1.04 REINFORCEMENT

88-1.04A General

Geosynthetic used for geotechnical subsurface reinforcement must be either of the following:

1. Geotextile
2. Geogrid

Geotextile permittivity must be at least 0.05 sec^{-1} determined under ASTM D 4491.

Geogrid must have a regular and defined open area. The open area must be from 50 to 90 percent of the total grid area.

88-1.04B Long Term Design Strength

Long Term Design Strength (LTDS) of geosynthetic reinforcement is the ultimate tensile strength in the primary strength direction divided by reduction factors. Calculate the LTDS from the guidelines in Geosynthetic Research Institute (GRI) Standard Practice GG4a, GRI GG4b, or GRI GT7.

The product of the appropriate reduction factors must be at least 1.30. Determine the reduction factor for creep using a 75-year design life for permanent applications and a 5-year design life for temporary applications. Determine the installation damage reduction factor based on the characteristics of the backfill materials used.

If test data is not available, use default values of reduction factors in the GRI Standard Practice to calculate LTDS.

Submit the LTDS and its supporting calculations at least 15 days before placing geosynthetic reinforcement. Do not install before the Engineer's approval. The LTDS must be signed by an engineer who is registered as a civil engineer in the State.

88-1.05 WATER POLLUTION CONTROL

Geosynthetics used for water pollution control must comply with:

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Water Pollution Control Geosynthetics

Property	ASTM	Application				
		Silt Fence		Sediment Filter Bag	Gravel-Filled Bags	Temporary Cover
		Woven	Non-woven			
Grab breaking load, 1-inch grip, lb minimum in each direction	D 4632	120	120	255	205	200
Apparent elongation, percent minimum, in each direction	D 4632	15	50	50	50	50
Water flow rate, gallons per minute/square foot maximum average roll value	D 4491	10 - 50	100 - 150	80 - 200	80 - 150	75 - 120
Permittivity, sec^{-1} minimum	D 4491	0.05	0.05	1.5	1.2	0.08
Apparent opening size, U.S. Standard sieve size maximum average roll value	D 4751	30	30	20 - 40	40 - 80	100
Ultraviolet resistance, percent minimum retained grab breaking load, 500 hr.	D 4355	70	70	70	70	70

88-1.06 CHANNEL AND SHORE PROTECTION

Rock slope protection (RSP) fabric must be a permeable, nonwoven, needle-punched geotextile. RSP fabric consists of 1 of the following:

1. Polyester
2. Polypropylene
3. Combined polyester and polypropylene

Polymers must be either virgin compounds or clean reworked material. Do not subject virgin compounds to use or processing other than required for initial manufacture. Clean reworked material must be previously processed material from the processor's own production that has been reground, pelletized, or solvated. RSP fabric must not consist of more than 20 percent by weight of clean reworked material. Do not use recycled materials from either post-consumer or post-industrial sources.

Class 8 or Class 10 RSP fabric must comply with:

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Rock Slope Protection Fabric

Property	ASTM	Specification	
		Class 8	Class 10
Weight, oz/yd^2 minimum	D 5261	7.5	9.5
Grab breaking load, lb 1-inch grip, min. in each direction	D 4632	200	250
Apparent elongation, percent min., in each direction	D 4632	50	50
Permittivity, sec^{-1}, minimum	D 4491	1.0	0.70
Apparent opening size, U.S. Standard sieve size minimum and maximum	D 4751	70 - 100	70 - 100
Ultraviolet resistance, percent minimum retained grab breaking load, 500 hr.	D4355	70	70

88-1.07 PAVEMENT INTERLAYER

88-1.07A Paving Fabric

Geosynthetics used for paving fabric must be nonwoven. Paving fabric must comply with:

Geosynthetic Paving Fabric

Property	ASTM	Specification
Mass per unit area, oz/yd^2 minimum	D 5261	4.1
Grab breaking load, lb 1-inch grip, minimum, in each direction	D 4632	100
Apparent elongation, percent minimum in each direction	D 4632	50
Hydraulic bursting strength, psi minimum	D 3786	200
Melting point, °F minimum	D 276	325
Asphalt retention, gal/yd^2 minimum	D 6140	0.2

88-1.07B Paving Mat

Geosynthetics used for paving mat must be a nonwoven fiberglass and polyester hybrid material. Paving mat must comply with:

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Geosynthetic Paving Mat

Property	ASTM	Specification
Breaking force, lb/2 inches minimum	D 5035	45
Ultimate elongation, percent maximum	D 5035	5
Mass per unit area, oz/ sq yd minimum	D 5261	3.7
Melting point, °F minimum	D 276	400
Asphalt retention, gal/yd^2 minimum	D 6140	0.10

88-1.07C Paving Grid

Geosynthetics used for paving grid must be a geopolymer material formed into a grid of integrally connected elements with openings. Paving grid must comply with:

Geosynthetic Paving Grid

Property	Test	Specification		
		Class I	Class II	Class III
Tensile strength at ultimate, lb/in [a] minimum	ASTM D 6637	560 x 1,120	560	280
Aperture size, inch minimum	Calipered	0.5	0.5	0.5
Elongation, % maximum	ASTM D 6637	12	12	12
Mass per area, oz / sqyd minimum	ASTM D 5261	16	10	5.5
Melting point, °F minimum	ASTM D 276	325	325	325

Note:
[a] For Class I, machine direction x cross direction. For Class II and Class III, both directions.

88-1.07D Paving Geocomposite Grid

Paving geocomposite grid consists of paving grid specified under Section 88-1.07C, "Paving Grid," bonded or integrated with filter fabric specified under Section 88-1.02, "Filtration."

Paving geocomposite grid must have a peel strength of at least 10 pounds per foot determined under ASTM D 413.

88-1.07E Geocomposite Strip Membrane

Geocomposite strip membrane must consist of various widths of strips manufactured from of asphaltic rubber and geosynthetics. Geocomposite strip membrane must comply with:

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Geocomposite Strip Membrane

Property	ASTM	Specification
Strip tensile strength, lbs/inch minimum	D 882	50
Elongation at break, % minimum	D 882	50
Resistance to puncture, lbs. minimum	E 154	200
Permeance, perms maximum	E 96/E 96M	0.10
Pliability, 1/4 inch mandrel with sample conditioned at 25 °F	D 146	No cracks in fabric or bitumen
Melting point, °F	D 276	325

88-1.08 PAYMENT

The Department measures and pays for geosynthetics under the specifications requiring their use.

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SECTION 90 PORTLAND CEMENT CONCRETE
(Issued 12-05-08)

Replace Section 90 with:

SECTION 90 PORTLAND CEMENT CONCRETE

90-1 GENERAL

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.

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.

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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:

Use	Cementitious Material Content (Pounds/CY)
Concrete designated by compressive strength:	
Deck slabs and slab spans of bridges	675 min., 800 max.
Roof sections of exposed top box culverts	675 min., 800 max.
Other portions of structures	590 min., 800 max.
Concrete not designated by compressive strength:	
Deck slabs and slab spans of bridges	675 min.
Roof sections of exposed top box culverts	675 min.
Prestressed members	675 min.
Seal courses	675 min.
Other portions of structures	590 min.
Concrete for precast members	590 min., 925 max.

Whenever the 28-day compressive strength shown on the plans is greater than 3,600 pounds per square inch, the concrete shall be designated by compressive strength. If the plans show a 28-day compressive strength that is 4,000 pounds per square inch 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 pounds per square inch 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.

Concrete shall be proportioned to conform to the following shrinkage limitations when tested in conformance with the requirements of AASHTO Designation: T 160, modified as follows:

Condition	Maximum Shrinkage of Laboratory Cast Specimens at 28 days Drying (average of 3, %)
Paving concrete	0.050
Bridge deck concrete	0.045

Note: Shrinkage requirement is waived for concrete that is used for precast elements.

Shrinkage tests shall be either:

A. Performed by a laboratory accredited to perform AASHTO Designation: T 160, or
B. Performed by a laboratory that maintains a current rating of 3 or better for the Cement and Concrete Reference Laboratory (CCRL) concrete proficiency sample program.

Laboratory cast specimens shall have a 4" x 4" cross section. Specimens shall be removed from the molds 23 ± 1 hours after mixing the concrete and placed in lime water at 73 ± 3 °F to 7 days age. A comparator reading shall be taken at 7 days age and recorded as the initial reading. Specimens then shall be stored in a humidity controlled

room maintained at 73 ± 3 °F and 50 ± 4 percent relative humidity for the remainder of the test. Subsequent readings shall be taken at 7, 14, 21, and 28 days drying.

Test data verifying conformance to the shrinkage limitations shall be submitted with the mix design. Shrinkage testing data accepted by the Engineer no more than 3 years prior to the first working day of this contract will be acceptable for this entire contract, provided the data was for concrete with similar proportions and the same materials and material sources to be used on this contract. Concrete shall be considered to have similar proportions if, when compared to concrete to be used on this project, no more than 2 mix design elements are varied. Varied mix design elements shall fall within the tolerances in the following table:

Mix Design Element	Tolerance (±)
Water to cementitious material ratio	0.03
Total water content	5 %
Coarse aggregate (weight per cubic yard)	10 %
Fine aggregate (weight per cubic yard)	10 %
Supplementary cementitious material content	5 %
Admixture (as originally dosed)	25 %

Note: Admixtures must be of the same brand.

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, supplementary cementitious material 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 supplementary cementitious material 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 supplementary cementitious material 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 CEMENTITIOUS MATERIALS

Unless otherwise specified, cementitious material shall be either a combination of Type II or Type V portland cement and a supplementary cementitious material, or a blended cement.

Cementitious materials used in cast-in-place concrete for exposed surfaces of like elements of a structure shall be from the same sources and of the same proportions.

Cementitious materials shall be protected from moisture until used. Sacked cementitious materials shall be piled to permit access for tallying, inspecting, and identifying each shipment.

Facilities shall be provided to ensure that cementitious materials meeting this Section 90-2.01 are kept separate from other cementitious materials. Sampling cementitious materials shall be in conformance with California Test 125.

The Contractor shall furnish a Certificate of Compliance for cementious materials in conformance with the provisions in Section 6-1.07, "Certificates of Compliance." The Certificate of Compliance shall indicate the source by name and location (including country, state, and city). If cementitious material is delivered directly to the job site, the Certificate of Compliance shall be signed by the cementitious material supplier. If the cementitious material 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.

90-2.01A Cement

Portland cement shall conform to the requirements in ASTM Designation: C 150 except the C_3S content of Type II cement shall not exceed 65 percent.

Blended cement shall conform to the requirements for Portland Blast-Furnace Slag Cement, Type IS (MS) or Portland-Pozzolan Cement, Type IP (MS) in AASHTO Designation: M 240 and shall be comprised of an intimate and uniform blend of Type II or Type V cement and supplementary cementitious material in an amount conforming to the requirements in Section 90-2.01C, "Required Use of Supplementary Cementitious Materials."

In addition, blended cement, Type II portland cement, and Type V portland cement shall conform to the following requirements:

A. The cement shall not contain more than 0.60-percent by mass of alkalies, calculated as the percentage of Na_2O plus 0.658 times the percentage of K_2O, when determined by methods as required in AASHTO Designation: T 105; and
B. The autoclave expansion shall not exceed 0.50-percent

Type III portland cement shall be used only as specified in the special provisions or with the approval of the Engineer. Type III portland cement shall conform to the additional requirements listed above for Type II portland cement.

90-2.01B Supplementary Cementitious Materials (SCM)

Fly ash shall conform to the requirements in AASHTO Designation: M 295, Class F, and the following:

A. Calcium oxide content shall not exceed 10 percent.
B. The available alkali, 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, as sodium oxide equivalent, shall not exceed 5.0 percent

when determined in conformance with the requirements in AASHTO Designation: T 105.

C. Commingling of fly ash from different sources at uncontrolled ratios is permissible only if the following criteria are satisfied:

1. Sources of fly ash to be commingled shall be on the approved list of materials for use in concrete.
2. Testing of the commingled product is the responsibility of the fly ash supplier.
3. Each fly ash's running average of density shall not differ from any other by more than 0.01-pound per cubic inch at the time of commingling.
4. Each fly ash's running average of loss on ignition shall not differ from any other by more than one percent at the time of commingling.
5. The final product of commingled fly ash shall conform to the requirement in AASHTO Designation: M 295.

Raw or calcined natural pozzolans shall conform to the requirements in AASHTO Designation: M 295, Class N and the following requirements:

A. Calcium oxide content shall not exceed 10 percent.
B. The available alkali, 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, as sodium oxide equivalent, shall not exceed 5.0 percent when determined in conformance with the requirements in AASHTO Designation: T 105.

Ground Granulated Blast Furnace Slag (GGBFS) shall conform to the requirements in AASHTO Designation: M 302, Grade 100 or Grade 120.

Silica Fume shall conform to the requirements of AASHTO Designation: M 307, with reduction in mortar expansion of 80 percent, minimum, using the cement from the proposed mix design.

90-2.01C Required Use Of Supplementary Cementitious Materials

The amount of portland cement and SCM used in portland cement concrete shall conform to the minimum cementitious material content provisions in Section 90-1.01, "Description," or Section 90-4.05, "Optional Use of Chemical Admixtures," and the following:

A. If a blended cement conforming to the provisions in Section 90-2.01A, "Cement," is used, the minimum amount of SCM incorporated into the cement shall conform to the provisions in this Section 90-2.01C.
B. Fly ash or natural pozzolan, silica fume, or GGBFS shall not be used with Type IP or Type IS cements.

Use of SCMs shall conform to the following:

A. If fly ash or natural pozzolan is used:

1. The minimum amount of portland cement shall not be less than 75 percent by weight of the specified minimum cementitious material content.
2. The minimum amount of fly ash or natural pozzolan shall be 25 percent by weight of the total amount of cementitious material.
3. The total amount of fly ash or natural pozzolan shall not exceed 35 percent by weight of the total amount of cementitious material to be used in the mix. If Section 90-1.01, "Description," specifies a maximum cementitious material content in pounds per cubic yard, the total weight of portland cement and fly ash or natural pozzolan per cubic yard shall not exceed the specified maximum cementitious material content.

B. If silica fume is used:

1. The amount of silica fume shall not be less than 10 percent by weight of the total amount of cementitious material.
2. The amount of portland cement shall not be less than 75 percent by weight of the specified minimum cementitious material content.
3. If Section 90-1.01, "Description," specifies a maximum cementitious material content in pounds per cubic yard, the total weight of portland cement and silica fume per cubic yard shall not exceed the specified maximum cementitious material content.

C. If GGBFS is used:

1. The minimum amount of GGBFS shall be either:
   a. Forty percent of the total cementitious material to be used, if the aggregates used in the concrete are on the Department's list of "Approved Aggregates For Use in Concrete with Reduced Fly Ash."
   b. No less than 50 percent.

2. The amount of GGBFS shall not exceed 60 percent by weight of the total amount of cementitious materials to be used.

90-2.02 AGGREGATES

Aggregates shall be free from deleterious coatings, clay balls, roots, bark, sticks, rags, and other extraneous material.

The Contractor 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, D_f, 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 all other concrete 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 all other concrete 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 are 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, reclaimed aggregate, 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.

Reclaimed aggregate is aggregate that has been recovered from plastic concrete by washing away the cementitious material. Reclaimed aggregate shall conform to all aggregate requirements.

Coarse aggregate shall conform to the following quality requirements:

Tests	California Test	Requirements
Loss in Los Angeles Rattler (after 500 revolutions)	211	45% max.
Cleanness Value		
Operating Range	227	75 min.
Contract Compliance	227	71 min.

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 in conformance with the requirements in 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:

Test	California Test	Requirements
Organic Impurities	213	Satisfactory[a]
Mortar Strengths Relative to Ottawa Sand	515	95%, min.
Sand Equivalent:		
Operating Range	217	75, min.
Contract Compliance	217	71, min.

a 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, when tested in conformance with California Test 422, nor more than 1,300 parts per million of sulfates as SO_4, 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, when tested in conformance with California Test 422, nor more than 1,300 parts per million of sulfates as SO_4, 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, when compared to the results obtained with distilled water or deionized water, tested in conformance with the requirements in ASTM Designation: C 109.

In nonreinforced 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, when tested in conformance with California Test 422, or more than 1,500 parts per million of sulfates as SO_4, 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_2O + 0.658 K_2O) 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.
B. Air-entraining Admixtures—ASTM Designation: C 260.

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:

Primary Aggregate Nominal Size	Sieve Size	Limits of Proposed Gradation
1 1/2" x 3/4"	1"	19 - 41
1" x No. 4	3/4"	52 - 85
1" x No. 4	3/8"	15 - 38
1/2" x No. 4	3/8"	40 - 78
3/8" x No. 8	3/8"	50 - 85
Fine Aggregate	No. 16	55 - 75
Fine Aggregate	No. 30	34 - 46
Fine Aggregate	No. 50	16 - 29

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 table for each size of coarse aggregate:

	Percentage Passing Primary Aggregate Nominal Sizes							
	1 1/2" x 3/4"		1" x No. 4		1/2" x No. 4		3/8" x No. 8	
Sieve Sizes	Operating Range	Contract Compliance	Operating Range	Contract Compliance	Operating Range	Contract Compliance	Operating Range	Contract Compliance
2"	100	100	—	—	—	—	—	—
1 1/2"	88 - 100	85 - 100	100	100	—	—	—	—
1"	X ±18	X ±25	88 - 100	86 - 100	—	—	—	—
3/4"	0 - 17	0 - 20	X ±15	X ±22	100	100	—	—
1/2"	—	—	—	—	82 - 100	80 - 100	100	100
3/8"	0 - 7	0 - 9	X ±15	X ±22	X ±15	X ±22	X ±15	X ±20
No. 4	—	—	0 - 16	0 - 18	0 - 15	0 - 18	0 - 25	0 - 28
No. 8	—	—	0 - 6	0 - 7	0 - 6	0 - 7	0 - 6	0 - 7

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."

Coarse aggregate for the 1 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:

Sieve Sizes	Percentage Passing	
	Operating Range	Contract Compliance
3/8"	100	100
No. 4	95 - 100	93 - 100
No. 8	65 - 95	61 - 99
No. 16	X ±10	X ±13
No. 30	X ±9	X ±12
No. 50	X ±6	X ±9
No. 100	2 - 12	1 - 15
No. 200	0 - 8	0 - 10

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 1 1/2 inch, maximum grading, or the 1 inch, maximum grading, at the option of the Contractor.

DRAFT

Grading Limits of Combined Aggregates

	Percentage Passing			
Sieve Sizes	1 1/2" Max.	1" Max.	1/2" Max.	3/8" Max.
2"	100	—	—	—
1 1/2"	90 - 100	100	—	—
1"	50 - 86	90 - 100	—	—
3/4"	45 - 75	55 - 100	100	—
1/2"	—	—	90 - 100	100
3/8"	38 - 55	45 - 75	55 - 86	50 - 100
No. 4	30 - 45	35 - 60	45 - 63	45 - 63
No. 8	23 - 38	27 - 45	35 - 49	35 - 49
No. 16	17 - 33	20 - 35	25 - 37	25 - 37
No. 30	10 - 22	12 - 25	15 - 25	15 - 25
No. 50	4 - 10	5 - 15	5 - 15	5 - 15
No. 100	1 - 6	1 - 8	1 - 8	1 - 8
No. 200	0 - 3	0 - 4	0 - 4	0 - 4

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.

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.

Chemical admixtures shall be used in conformance with the manufacturer's written recommendations.

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.

If 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.

90-4.04 REQUIRED USE OF CHEMICAL ADMIXTURES

If the use of a chemical admixture 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.

90-4.05 OPTIONAL USE OF CHEMICAL ADMIXTURES

The Contractor may 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. If 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.

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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.

90-4.08 BLANK

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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, unless it is demonstrated that a different sequence improves performance.

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, except that 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.

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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."

90-4.11 BLANK

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 the various sizes shall not become intermixed before proportioning.

Aggregates shall be stored or stockpiled and handled in a manner that 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." Automatic devices shall be automatic to the extent that the only manual operation required for proportioning the aggregates, cement, and supplementary cementitious material for one batch of concrete is a single operation of a switch or starter.

Proportioning devices shall be tested 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 supplementary cementitious material shall have a zero tolerance of ±0.5 percent of the designated total batch weight of the cement and supplementary cementitious material. Equipment for weighing cement or supplementary cementitious material 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; and
B. Cement shall be 99 to 102 percent of its designated batch weight. When weighed individually, supplementary cementitious material shall be 99 to 102 percent of its designated batch weight. When supplementary cementitious material and cement are permitted to be weighed cumulatively, cement shall be weighed first to 99 to 102 percent of its designated batch weight, and the total for cement and supplementary cementitious material shall be 99 to 102 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, supplementary cementitious material, or cement plus supplementary cementitious material 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 cementitious material 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) 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 supplementary cementitious material 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 supplementary cementitious material are weighed cumulatively, the cement shall be weighed first.

If cement and supplementary cementitious material are weighed in separate weigh hoppers, the weigh systems for the proportioning of the aggregate, the cement, and the supplementary cementitious material 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 supplementary cementitious material shall be discharged into the mixer simultaneously with the aggregate.

The scales and weigh hoppers for bulk weighing cement, supplementary cementitious material, or cement plus supplementary cementitious material shall be separate and distinct from the aggregate weighing equipment.

For batches 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 on scales designated by the Engineer.

90-5.03A Proportioning For Pavement

Aggregates and bulk supplementary cementitious material 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, supplementary cementitious material, or cement plus supplementary cementitious material 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 supplementary cementitious material hoppers or the cement plus supplementary cementitious material hopper are charged with weights that are within the tolerances specified in Section 90-5.02, "Proportioning Devices."

If interlocks are required for cement and supplementary cementitious material charging mechanisms and cement and supplementary cementitious material 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."

If concrete is completely mixed in stationary paving mixers, the supplementary cementitious materials shall be weighed in a separate weigh hopper and the supplementary cementitious material and cement shall be introduced simultaneously into the mixer proportionately with the aggregate. If the Contractor provides certification that the stationary mixer is capable of mixing the cement, supplementary cementitious material, aggregates, and water uniformly before discharge, weighing the supplementary cementitious material cumulatively with the cement is permitted. Certification shall contain the following:

A. Test results for 2 compressive strength test cylinders of concrete taken within the first one-third and 2 compressive strength test cylinders of concrete taken within the last one-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 one-third is no greater than 7.5 percent different than the averages of 2 compressive strengths taken in the last one-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;" and
C. The mixer rotation speed and time of mixing before discharge that are required to produce a mix that meets the requirements above.

The discharge gate on the cement and supplementary cementitious material hoppers or the cement plus supplementary cementitious material hopper shall be designed to permit regulating the flow of cement, supplementary cementitious material, or cement plus supplementary cementitious material into the aggregate as directed by the Engineer.

If 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.

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If the discharge from the several bins is controlled by gates, each gate shall be actuated automatically so that the required mass 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 1/3 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 cementitious material.

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 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.

Average Slump	Maximum Permissible Difference
Less than 4"	1"
4" to 6"	1 1/2"
Greater than 6" to 9"	2"

The Contractor 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 one-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 job site 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 job site 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 nonagitating 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 in 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 will be allowed for partial mixing in a central plant.

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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 mass during hauling.

Bodies of nonagitating 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.

If 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 if the temperature of the concrete is 85° F or above, the time allowed may be less than 1.5 hours. If an admixture is used to retard the set time, the temperature of the concrete shall not exceed 85° F, the time limit shall be 2 hours, and the revolution limitation shall be 300.

If nonagitating 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 job site shall be accompanied by a weighmaster certificate showing the mix identification number, nonrepeating 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

DRAFT

"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 nonrepeating 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."

When a high range water-reducing admixture is added to the concrete at the job site, the total number of revolutions shall not exceed 300.

90-6.05 HAND-MIXING

Hand-mixed concrete shall be made in batches of not more than 1/3 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 cementitious materials and the whole mass turned no fewer than 2 times dry; then sufficient clean water shall be added, evenly distributed, and the whole mass 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. If 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.

Type of Work	Nominal		Maximum	
	Penetration (inches)	Slump (inches)	Penetration (inches)	Slump (inches)
Concrete Pavement	0 - 1	—	1 1/2	—
Non-reinforced concrete facilities	0 - 1 1/2	—	2	—
Reinforced concrete structures				
Sections over 12 inches thick	0 - 1 1/2	—	2 1/2	—
Sections 12 inches thick or less	0 - 2	—	3	—
Concrete placed under water	—	6 - 8	—	9
Cast-in-place concrete piles	2 1/2 - 3 1/2	5 - 7	4	8

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.

If 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. Full compensation for additional cementitious material and water added under these conditions shall be considered as included in the contract price paid for the concrete work involved 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.

Cotton mats, rugs, carpets, or earth or sand blankets may be used as a curing medium to retain the moisture during the curing period.

If a curing medium consisting of cotton mats, rugs, carpets, polyethylene sheeting, polyethylene sheeting on burlap, 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 media.

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, these media 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 media are used, the temperature of the concrete shall be monitored during curing. If the temperature of the concrete cannot be maintained below 140° F, use of these curing media shall be disallowed.

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 above, 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:

1. 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.
2. Pigmented curing compound conforming to the requirements in ASTM Designation: C 309, Type 2, Class B.
3. Pigmented curing compound conforming to the requirements in ASTM Designation: C 309, Type 2, Class A.
4. Nonpigmented curing compound conforming to the requirements in ASTM Designation: C 309, Type 1, Class B.
5. Nonpigmented curing compound conforming to the requirements in ASTM Designation: C 309, Type 1, Class A.
6. Nonpigmented 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 (1) 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 0.28-pounds per square yard in 24 hours.

The curing compound to be used will be specified elsewhere in these specifications or in the special provisions.

If 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. Settlement of 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

DRAFT

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 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 will 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 redisperse 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.

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.

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, at the job site, 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 (1) or (2) 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 (1).

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 (1).

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," 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."

DRAFT

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."

90-8 PROTECTING CONCRETE

90-8.01 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. If required by the Engineer, the Contractor shall submit a written outline of the proposed methods for protecting the concrete.

The Contractor shall protect concrete from damage from any cause, which shall include, but not be limited to: rain, heat, cold, wind, Contractor's actions, and actions of others.

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.

90-8.02 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.

90-8.03 PROTECTING CONCRETE PAVEMENT

Pavement concrete shall be maintained at a temperature of not less than 40° F for 72 hours.

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.

If 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 pounds per square inch. 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 pounds per square inch. Concrete that fails to attain a modulus of rupture of 550 pounds per square inch 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 pounds per square inch has been attained, provided that:

A. Unit pressure exerted on the pavement by the paver shall not exceed 20 pounds per square inch;
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.

In case of visible cracking of, or other damage to the pavement, operation of the paving equipment on the pavement shall be immediately discontinued.

Damage to the pavement resulting from early use of pavement by the Contractor's equipment as provided above shall be repaired by the Contractor.

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 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.

If 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. If 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 pounds per square inch 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 or slump (if the concrete will be placed under water or placed in cast-in-place concrete piles) 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.

DRAFT

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.

Use of crushed concrete or reclaimed aggregate is acceptable only if the aggregate satisfies all aggregate requirements.

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.

DRAFT

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 are 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.

When a high range water-reducing admixture is added to the concrete at the job site, the total number of revolutions shall not exceed 300.

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.

DRAFT

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.

For concrete 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."

DRAFT

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.

^^

SECTION 91 PAINT
(Issued 05-1-06)

Replace Section 91-3 with:

91-3 PAINTS FOR TIMBER

91-3.01 WOOD PRIMER, LATEX-BASE

Classification:

This specification covers a ready-mixed priming paint for use on unpainted wood or exterior woodwork. It shall conform with the requirements in the Detailed Performance Standards of the Master Painters Institute (MPI) for exterior wood primers, and be listed on the Exterior Latex Wood Primer MPI List Number 6.

91-3.02 PAINT; LATEX-BASE FOR EXTERIOR WOOD, WHITE AND TINTS

Classification:

This specification covers a ready-mixed paint for use on wood surfaces subject to outside exposures. This paint shall conform to the requirements in the Detailed Performance Standards of the Master Painters Institute (MPI) for Paint, Latex, Exterior, and shall be listed on the following MPI Approved Products List:

A. Exterior Latex, Flat MPI Gloss Level 1, MPI List Number 10.
B. Exterior Latex, Semi-Gloss, MPI Gloss Level 5, MPI List Number 11.
C. Exterior Latex, Gloss, MPI Gloss Level 6, MPI List Number 119.

Unpainted wood shall first be primed with wood primer conforming to the provisions in Section 91-3.01, "Wood Primer, Latex-Base."

Replace Section 91-4 with:

DRAFT

91-4 MISCELLANEOUS PAINTS

91-4.01 THROUGH 91-4.04 (BLANK)

91-4.05 PAINT; ACRYLIC EMULSION, EXTERIOR WHITE AND LIGHT AND MEDIUM TINTS

Classification:

This specification covers an acrylic emulsion paint designed for use on exterior masonry. This paint shall conform to the requirements in the Detailed Performance Standards of the Master Painters Institute (MPI) for Paint, Latex, Exterior, and shall be listed on the following MPI Approved Products Lists:

A. Exterior Latex, Flat MPI Gloss Level 1, MPI List Number 10.
B. Exterior Latex, Semi-Gloss, MPI Gloss Level 5, MPI List Number 11.
C. Exterior Latex, Gloss, MPI Gloss Level 6, MPI List Number 119.

This paint may be tinted by using "universal" or "all purpose" concentrates.

^^

SECTION 92 ASPHALTS
(Issued 03-21-08)

Replace Section 92 with:

SECTION 92 ASPHALTS

92-1.01 DESCRIPTION

Asphalt is refined petroleum or a mixture of refined liquid asphalt and refined solid asphalt that are prepared from crude petroleum. Asphalt is:

1. Free from residues caused by the artificial distillation of coal, coal tar, or paraffin
2. Free from water
3. Homogeneous

92-1.02 MATERIALS

GENERAL

Furnish asphalt under the Department's "Certification Program for Suppliers of Asphalt." The Department maintains the program requirements, procedures, and a list of approved suppliers at:

http://www.dot.ca.gov/hq/esc/Translab/fpm/fpmcoc.htm

Transport, store, use, and dispose of asphalt safely.

Prevent the formation of carbonized particles caused by overheating asphalt during manufacturing or construction.

GRADES

Performance graded (PG) asphalt binder is:

Performance Graded Asphalt Binder

Property	AASHTO Test Method	Specification Grade				
		PG 58-22 [a]	PG 64-10	PG 64-16	PG 64-28	PG 70-10
Original Binder						
Flash Point, Minimum °C	T 48	230	230	230	230	230
Solubility, Minimum % [b]	T 44	99	99	99	99	99
Viscosity at 135°C, [c] Maximum, Pa·s	T 316	3.0	3.0	3.0	3.0	3.0
Dynamic Shear, Test Temp. at 10 rad/s, °C Minimum G*/sin(delta), kPa	T 315	58 1.00	64 1.00	64 1.00	64 1.00	70 1.00
RTFO Test, [e] Mass Loss, Maximum, %	T 240	1.00	1.00	1.00	1.00	1.00
RTFO Test Aged Binder						
Dynamic Shear, Test Temp. at 10 rad/s, °C Minimum G*/sin(delta), kPa	T 315	58 2.20	64 2.20	64 2.20	64 2.20	70 2.20
Ductility at 25°C Minimum, cm	T 51	75	75	75	75	75
PAV [f] Aging, Temperature, °C	R 28	100	100	100	100	110
RTFO Test and PAV Aged Binder						
Dynamic Shear, Test Temp. at 10 rad/s, °C Maximum G*sin(delta), kPa	T 315	22 [d] 5000	31 [d] 5000	28 [d] 5000	22 [d] 5000	34 [d] 5000
Creep Stiffness, Test Temperature, °C Maximum S-value, Mpa Minimum M-value	T 313	-12 300 0.300	0 300 0.300	-6 300 0.300	-18 300 0.300	0 300 0.300

Notes:

a. Use as asphalt rubber base stock for high mountain and high desert area.

b. The Engineer waives this specification if the supplier is a Quality Supplier as defined by the Department's "Certification Program for Suppliers of Asphalt."

c. The Engineer waives this specification if the supplier certifies the asphalt binder can be adequately pumped and mixed at temperatures meeting applicable safety standards.

d. Test the sample at 3°C higher if it fails at the specified test temperature. G*sin(delta) remains 5000 kPa maximum.

e. "RTFO Test" means the asphaltic residue obtained using the Rolling Thin Film Oven Test, AASHTO Test Method T 240 or ASTM Designation: D 2872. The residue from mass change determination may be used for other tests.

f. "PAV" means Pressurized Aging Vessel.

Performance graded polymer modified asphalt binder (PG Polymer Modified) is:

Performance Graded Polymer Modified Asphalt Binder [a]

Property	AASHTO Test Method	Specification Grade		
		PG 58-34 PM	PG 64-28 PM	PG 76-22 PM
Original Binder				
Flash Point, Minimum °C	T 48	230	230	230
Solubility, Minimum % [b]	T 44[c]	98.5	98.5	98.5
Viscosity at 135°C, [d] Maximum, Pa·s	T 316	3.0	3.0	3.0
Dynamic Shear, Test Temp. at 10 rad/s, °C Minimum G*/sin(delta), kPa	T 315	58 1.00	64 1.00	76 1.00
RTFO Test , Mass Loss, Maximum, %	T 240	1.00	1.00	1.00
RTFO Test Aged Binder				
Dynamic Shear, Test Temp. at 10 rad/s, °C Minimum G*/sin(delta), kPa	T 315	58 2.20	64 2.20	76 2.20
Dynamic Shear, Test Temp. at 10 rad/s, °C Maximum (delta), %	T 315	Note e 80	Note e 80	Note e 80
Elastic Recovery[f], Test Temp., °C Minimum recovery, %	T 301	25 75	25 75	25 65
PAV[g] Aging, Temperature, °C	R 28	100	100	110
RTFO Test and PAV Aged Binder				
Dynamic Shear, Test Temp. at 10 rad/s, °C Maximum G*sin(delta), kPa	T 315	16 5000	22 5000	31 5000
Creep Stiffness, Test Temperature, °C Maximum S-value, MPa Minimum M-value	T 313	-24 300 0.300	-18 300 0.300	-12 300 0.300

Notes:

a. Do not modify PG Polymer Modified using acid modification.

b. The Engineer waives this specification if the supplier is a Quality Supplier as defined by the Department's "Certification Program for Suppliers of Asphalt."

c. The Department allows ASTM D 5546 instead of AASHTO T 44

d. The Engineer waives this specification if the supplier certifies the asphalt binder can be adequately pumped and mixed at temperatures meeting applicable safety standards.

e. Test temperature is the temperature at which G*/sin(delta) is 2.2 kPa. A graph of log G*/sin(delta) plotted against temperature may be used to determine the test temperature when G*/sin(delta) is 2.2 kPa. A graph of (delta) versus temperature may be used to determine delta at the temperature when G*/sin(delta) is 2.2 kPa. The Engineer also accepts direct measurement of (delta) at the temperature when G*/sin(delta) is 2.2 kPa.

f. Tests without a force ductility clamp may be performed.

g. "PAV" means Pressurized Aging Vessel.

DRAFT

SAMPLING

Provide a sampling device in the asphalt feed line connecting the plant storage tanks to the asphalt weighing system or spray bar. Make the sampling device accessible between 24 and 30 inches above the platform. Provide a receptacle for flushing the sampling device.

Include with the sampling device a valve:

1. Between 1/2 and 3/4 inch in diameter
2. Manufactured in a manner that a one-quart sample may be taken slowly at any time during plant operations
3. Maintained in good condition

Replace failed valves.

In the Engineer's presence, take 2 one-quart samples per operating day. Provide round, friction top, one-quart containers for storing samples.

92-1.03 EXECUTION

If asphalt is applied, you must comply with the heating and application specifications for liquid asphalt in Section 93, "Liquid Asphalts."

92-1.04 MEASUREMENT

If the contract work item for asphalt is paid by weight, the Department measures asphalt tons by complying with the specifications for weight determination of liquid asphalt in Section 93, "Liquid Asphalts."

The Engineer determines the asphalt weight from volumetric measurements if you:

1. Use a partial asphalt load
2. Use asphalt at a location other than a mixing plant and no scales within 20 miles are available and suitable
3. Deliver asphalt in either of the following:

    3.1. A calibrated truck with each tank accompanied by its measuring stick and calibration card

    3.2. A truck equipped with a calibrated thermometer that determines the asphalt temperature at the delivery time and with a vehicle tank meter complying with the specifications for weighing, measuring, and metering devices in Section 9-1.01, "Measurement of Quantities"

If you furnish hot mix asphalt from a mixing plant producing material for only one project, the Engineer determines the asphalt quantity by measuring the volume in the tank at the project's start and end provided the tank is calibrated and equipped with its measuring stick and calibration card.

The Engineer determines pay quantities from volumetric measurements as follows:

1. Before converting the volume to weight, the Engineer reduces the measured volume to that which the asphalt would occupy at 60 °F.

2. The Engineer uses 235 gallons per ton and 8.51 pounds per gallon for the average weight and volume for PG and PG Polymer Modified asphalt grades at 60 °F.
3. The Engineer uses the Conversion Table in Section 93, "Liquid Asphalts."

^^

SECTION 93 LIQUID ASPHALTS
(Issued 11-03-06)

In Section 93-1.04 replace the 9th paragraph with:

The following Legend and Conversion Table is to be used for converting volumes of liquid asphalt products, Grades 70 to 3000, inclusive, and paving asphalt Grades PG 58-22, PG 64-10, PG 64-16, PG 64-28, and PG 70-10, and Grades PG 58-34 PM, PG 64-28 PM, and PG 76-22 PM.

DRAFT

This SSP is hard-coded in the boilerplate

SECTION 2 BIDDING

DRAFT

USE WITH 2006 STANDARDS.

Used as requested by the District. Automatically inserted by boilerplate.

2.1-01 MANDATORY PREBID MEETING

1

The Department will conduct a mandatory prebid meeting for this contract. The purpose of the meeting is to provide small businesses the opportunity to meet and interact with prospective bidders and increase participation in the performance of contracts.

2

Prospective bidders must attend the mandatory prebid meeting. The bidder's representative must be a company officer, project superintendent, or project estimator. For a joint venture, one of the parties must attend the mandatory prebid meeting. The Department will not accept bids from bidders who do not attend the mandatory prebid meeting.

3

A sign-up sheet will be used to identify all prospective bidders including name and title of the company representative attending the mandatory prebid meeting. The Department may hold a single prebid meeting for more than one contract. Make sure you sign the sign-up sheet for the contract you intend to bid on. If bidding multiple contracts, sign each sign-up sheet for each contract you intend to bid on.

4

The successful bidder will be required to report small businesses hired to work on this contract as a result of the mandatory prebid meeting.

DRAFT

Used for informal-bid projects with State funds and a DVBE goal.
Automatically inserted by boilerplate.

2-1.__ DVBE INFORMATION SUBMITTAL FOR INFORMAL-BID PROJECTS

Submit "Certified DVBE Summary" and "DVBE Information - Good Faith Efforts" forms with your bid. The evaluation of the effort to meet the DVBE goal is based on the information provided. If the goal is not met, the Department's determination of good faith effort is based on the information provided with the bid, and the decision is final.

DRAFT

This SSP is hard-coded in the boilerplate

SECTION 3 CONTRACT AWARD AND EXECUTION

DRAFT

Used for projects that have a 60-day award

Used in conjunction with SN-310

Automatically inserted by boilerplate

3-1.01 CONTRACT AWARD

If the Department awards the Contract, the award is made to the lowest responsible bidder within 60 days.

DRAFT

USE WITH 2006 STANDARDS.

The use of this SSP is under a 2 year FHWA pilot program to be monitored by the Division of Construction.

Use in projects $5 million or more and with 200 or more working days and in all highway planting projects. Do not use cost plus time bidding on Highway Planting Projects.

Do not use this SSP in maintenance or building projects.

Obtain concurrence from District/Region Construction Deputy Director/Chief if:

1. Omitting the SSP in projects meeting use criteria.

2. Using the SSP in projects not meeting use criteria.

3. Changing the 55-day period.

4. Adding or deleting submittals to Paras 2 and 3, except as per the instructions.

For highway planting projects, delete submittals in Paras 2 and 3 not applicable to the project. Concurrence from the District/Region Construction Deputy Director/Chief is not required.

If the project does not meet the above criteria but needs a delayed start to procure materials for an item as a first order of work, use this SSP. Concurrence from the District/Region Construction Deputy Director/Chief is not required.

SECTION 4. BEGINNING OF WORK, TIME OF COMPLETION, AND LIQUIDATED DAMAGES

1. If a delayed start different from 55 days is needed, edit "55th" to the number you need.

The 1st working day is the 55th day after contract approval.

2*. Renumber list as appropriate. Delete ", except for measuring controlling field dimensions and locating utilities," if SSP 07-325 or 07-327 is used.

Do not start work at the job site, except for measuring controlling field dimensions and locating utilities, until the Engineer approves your submittal for:

1. Baseline Progress Schedule (Critical Path Method)

Use if SSP 07-340 is in the project.

KC 9-25-2009**

~~2. Water Pollution Control Program (WPCP)~~

Use if SSP 07-345 is in the project.

2. Storm Water Pollution Prevention Plan (SWPPP)
3. Notification of Dispute Resolution Advisor (DRA) or Dispute Review Board (DRB) nominee and disclosure statement as specified in Section 5-1.15, "Dispute Resolution," of the Standard Specifications

Use if SSP 07-325 or 07-327 is in the project.

KC 9-25-2009**

~~4. Designated Biologist~~

3. Renumber list as appropriate. Delete ", except for measuring controlling field dimensions and locating utilities," if SSP 07-325 or SSP 07-327 is used.

In addition to the above submittals, do not start work at the job site, except for measuring controlling field dimensions and locating utilities, until you submit:

1. Notice of Materials To Be Used.

Use if SSP 12-220 is in the project.

2. Contingency plan for reopening closures to public traffic.

Use if the first order of work requires Contractor-furnished signs.

KC 9-25-2009**

~~3. Written statement from the vendor that the order for the sign panels has been received and accepted by the vendor. The statement must show the dates that the materials will be shipped.~~

Use if the first order of work requires electrical material.

34. Written statement from the vendor that the order for electrical material has been received and accepted by the vendor. The statement must show the dates that the materials will be shipped.

Use if the first order of work requires structural steel or other material with long lead time. Edit for the type of material needed. If needed, add "working drawings" for the material as a submittal to Para 2.

KC 9-25-2009**

~~5. Written statement from the vendor that the order for structural steel has been received and accepted by the vendor. The statement must show the dates that the materials will be shipped.~~

DRAFT

4. Use if SSP 07-325 or 07-327 is in the project.

KC 9-25-2009**

~~Measuring controlling field dimensions and locating utilities may start after approval of the Designated Biologist.~~

5. Edit to be consistent with Para 1.

You may start work at the job site before the 55th day after contract approval if:

1. You obtain required approval for each submittal before the 55th day
2. The Engineer authorizes it in writing

6

The Department grants a time extension if a delay is beyond your control and prevents you from starting work at the job site on the 1st working day.

7*. Use if project is not a cost plus time bidding type and has no PEW. Enter the number of highway construction working days. Delete Paras 8 through 14.

KC 9-25-2009**

~~Complete the work within _____ working days.~~

Paras 8 and 9. Use if project has PEW and is not a cost plus time bidding type. Delete Paras 7 and 10 through 14.

8*. Enter the number of highway construction working days.

KC 9-25-2009**

~~Complete the work, except plant establishment work, within _____ working days.~~

9*. Enter the total number of working days. Add highway construction working days and working days for PEW.

KC 9-25-2009**

~~Complete the work, including plant establishment work, within _____ working days.~~

Paras 10 and 11. Use if project is a cost plus time bidding type and has no PEW. Delete Paras 7 through 9 and 12 through 14.

10

KC 9-25-2009**

~~Complete the work within the number of working days bid.~~

11*. Enter the RUC and highway route number the RUC was based on.

KC 9-25-2009**

~~Additional damages to those specified in Section 8-1.07, "Liquidated damages," of the Standard Specifications are $_____ per day starting on the 1st day after exceeding the number of working days bid until work requiring lane or shoulder closures on State Highway Route _____ is complete.~~

DRAFT

Paras 12 through 14. Use if project is a cost plus time bidding type and has PEW. Delete Para 7 through 11.

12

Complete the work, except plant establishment work, within of the number of working days bid.

13*. Enter the RUC and highway route number the RUC was based on.

Additional damages to those specified in Section 8-1.07, "Liquidated damages," of the Standard Specifications are $_____ per day starting on the 1st day after exceeding the number of working days bid until work requiring lane or shoulder closures on State Highway Route _____ is complete.

14*. Enter the number of working days for PEW.

Complete the plant establishment work within _____ working days starting on the 1st working day after exceeding the number of working days bid.

DRAFT

USE WITH 2006 STANDARDS.

Use in projects with Time Related Overhead (SSP 08-017 or 08-018).

Do not use when the item for building work is over 50% of the total bid items.

Do not edit, except as directed by instructions. Any other editing must be approved in writing by the Chief, Division of Construction.

5-1.__ FORCE ACCOUNT PAYMENT

Payment for extra work at force account will be determined by either non-subcontracted or subcontracted force account payment unless otherwise specified.

2

Non-Subcontracted Force Account Payment

When extra work to be paid for on a force account basis is performed by the Contractor, compensation will be determined in accordance with Section 9-1.03, "Force Account Payment," of the Standard Specifications and these special provisions.

3

The second, third and fourth paragraphs of Section 9-1.03A, "Work Performed by Contractor," of the Standard Specifications shall not apply.

4

Attention is directed to "Time-Related Overhead" of these special provisions.

5

To the total of the direct costs for work performed on a force account basis, computed as provided in Section 9-1.03A(1), "Labor," Section 9-1.03A(2), "Materials," and Section 9-1.03A(3), "Equipment Rental," of the Standard Specifications, there will be added the following markups:

Cost	Percent Markup
Labor	30
Materials	10
Equipment Rental	10

The above markups shall be applied to work performed on a force account basis, regardless of whether the work revises the current contract completion date.

6

The above markups, together with payments made for time-related overhead pursuant to "Time-Related Overhead" of these special provisions, shall constitute full compensation for all overhead costs for work performed on a force account basis. These

overhead costs shall be deemed to include all items of expense not specifically designated as cost or equipment rental in conformance with the provisions in Section 9-1.03A(1), "Labor," Section 9-1.03A(2), "Materials," and Section 9-1.03A(3), "Equipment Rental," of the Standard Specifications. The total payment made as provided above and in the first paragraph of Section 9-1.03A, "Work Performed by Contractor," of the Standard Specifications shall be deemed to be the actual cost of the work performed on a force account basis, and shall constitute full compensation therefor.

~~7~~. Use when SSP 08-017 (non-A+B) is used and delete Para 8.

KC 9-13-2009**

~~Full compensation for overhead costs for work performed on a force account basis, and for which no adjustment is made to the quantity for time-related overhead conforming to the provisions in "Time-Related Overhead" of these special provisions, shall be considered as included in the markups specified above, and no additional compensation will be allowed therefor.~~

8. Use when SSP 08-018 (A+B) is used and delete Para 7.

Full compensation for overhead costs for work performed on a force account basis, and for which no adjustment is made to the lump sum price bid for time-related overhead conforming to the provisions in "Time-Related Overhead" of these special provisions, shall be considered as included in the markups specified above, and no additional compensation will be allowed therefor.

9

Subcontracted Force Account Payment

When extra work to be paid for on a force account basis is performed by a subcontractor approved in conformance with the provisions in Section 5-1.055, "Subcontracting," of the Standard Specifications, compensation will be determined in accordance with the provisions in Section 9-1.03, "Force Account Payment," of the Standard Specifications.

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USE WITH 2006 STANDARDS.

Use for hot mix asphalt and/or rubberized hot mix asphalt and tack coat.

Include Special Notice SN-450 if this SSP is used.

Use SSP S5-231 when an item is included for asphalt treated permeable base.

Use SSP S5-232 when an item is included for paving asphalt (binder, geosynthetic pavement interlayer).

Use SSP S5-236 when an item is included for replace asphalt concrete surfacing.

In the Engineer's Estimate under Supplemental Work, provide funds in the amount of 0.15 x Qa x Ib. Qa is the estimated quantity of asphalt binder (equal to the asphalt percentage times the estimated tons of hot mix asphalt plus asphaltic emulsion residue (equal to the asphaltic emulsion estimated tons x 0.57). Ib is the anticipated California Statewide Paving Asphalt Price Index for the month in which the bids for the project will be opened. (Note: The amount provided by this calculation may vary substantially from the amount actually needed since the change in asphalt prices cannot be predicted with accuracy.)

Use item code 066666, Compensation Adjustments for Price Index Fluctuations of Paving Asphalt.

List: Estimated asphalt percentage used in HMA in calculation: _6%__

Estimated paving asphalt (Qa) used for Supplemental Work:____55.8_____

Calif. Statewide Paving Asphalt price index month: __Jun 2010____

Calif. Statewide Paving Asphalt price index: ____345.4_____

1*. Insert item code numbers and complete item descriptions for items containing paving asphalt. Delete 397005 "TACK COAT" if no contract item tack coat.

KC 9-25-2009**

5-1.__ COMPENSATION ADJUSTMENTS FOR PRICE INDEX FLUCTUATIONS

The provisions of this section shall apply only to the following contract items:

ITEM CODE	ITEM
	HOT MIX ASPHALT (TYPE _)
~~397005~~	~~TACK COAT~~

2. Delete "and tack coat" if no contract item for tack coat.

The compensation payable for asphalt binder used in hot mix asphalt ~~and tack coat~~ will be increased or decreased in conformance with the provisions of this section for paving asphalt price fluctuations exceeding 5 percent (Iu/Ib is greater than 1.05 or less than 0.95) which occur during performance of the work.

Delete Paras 3 and 4 if no contract item for tack coat.

KC 9-25-2009**

3

~~The quantity of asphalt binder used in tack coat will be determined by multiplying the item quantity for tack coat included in a monthly estimate by the minimum percent residue specified in Section 94, "Asphaltic Emulsions," of the Standard Specifications. The asphaltic emulsion minimum percent residue will be based on the type of emulsion used by the Contractor.~~

4

~~At the Contractor's option, the Contractor may provide actual daily test results for asphalt binder residue for the tack coat used. Test results provided by the Contractor shall be from an independent testing laboratory that participates in the AASHTO Proficiency Sample Program. The Contractor shall take samples of asphaltic emulsion from the distributor truck at mid-load from a sampling tap or thief. Two separate 1/2 gallon samples shall be taken in the presence of the Engineer. The Contractor shall provide one sample to the Contractor's independent testing laboratory within 24 hours of sampling. The second sample shall be given to the Engineer. The test results from the Contractor's independent testing laboratory shall be delivered to the Engineer within 10 days from sample date.~~

5. Delete "or tack coat or both" if no contract item for tack coat.

The adjustment in compensation will be determined in conformance with the following formulae when the item of hot mix asphalt or ~~tack coat or both are~~ <u>is</u> included in a monthly estimate:

A. Total monthly adjustment = AQ
B. For an increase in paving asphalt price index exceeding 5 percent:

$$A = 0.90\ (Iu/Ib - 1.05)\ Ib$$

C. For a decrease in paving asphalt price index exceeding 5 percent:

$$A = 0.90\ (Iu/Ib - 0.95)\ Ib$$

D. Where:

Delete "and asphaltic emulsion residue used as tack coat" if no contract item for tack coat.

A = Adjustment in dollars per ton of paving asphalt used to produce hot mix asphalt ~~and asphaltic emulsion residue used as tack coat~~ rounded to the nearest $0.01.

Iu = The California Statewide Paving Asphalt Price Index which is in effect on the first business day of the month within the pay period in which the quantity subject to adjustment was included in the estimate.

Ib = The California Statewide Paving Asphalt Price Index for the month in which the bid opening for the project occurred.

Delete "plus the quantity in tons of asphalt binder that would have been used as residue in the tack coat shown under 'This Estimate' on the monthly estimate" if no contract item for tack coat.

Q = Quantity in tons of asphalt binder that was used in producing the quantity of hot mix asphalt shown under "This Estimate" on the monthly estimate using the amount of asphalt binder determined by the Engineer ~~plus the quantity in tons of asphalt binder that would have been used as residue in the tack coat shown under "This Estimate"~~ on the monthly estimate.

6

The adjustment in compensation will also be subject to the following:

A. The compensation adjustments provided herein will be shown separately on payment estimates. The Contractor shall be liable to the State for decreased compensation adjustments and the Department may deduct the amount thereof from moneys due or that may become due the Contractor.
B. Compensation adjustments made under this section will be taken into account in making adjustments in conformance with the provisions in Section 4-1.03B, "Increased or Decreased Quantities," of the Standard Specifications.
C. In the event of an overrun of contract time, adjustment in compensation for asphalt binder included in estimates during the overrun period will be determined using the California Statewide Paving Asphalt Price Index in effect on the first business day of the month within the pay period in which the overrun began.

7

The California Statewide Paving Asphalt Price Index is determined each month on the first business day of the month by the Department using the median of posted prices in effect as posted by Chevron, ExxonMobil, and Union 76 for the Buena Vista, Huntington Beach, and Midway Sunset fields.

8

In the event that the companies discontinue posting their prices for a field, the Department will determine an index from the remaining posted prices. The Department

DRAFT

reserves the right to include in the index determination the posted prices of additional fields.

9

The California Statewide Paving Asphalt Price Index is available on the Division of Engineering Services website at:

http://www.dot.ca.gov/hq/esc/oe/asphalt_index/astable.html

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~~USE WITH 2006 STANDARDS~~

~~Use if the project includes hot mix asphalt and paving asphalt (binder, geosynthetic pavement interlayer).~~

~~Include Special Notice SN-450 if this SSP is used.~~

~~In the Engineer's Estimate under Supplemental Work, provide funds in the amount of 0.15 x Qa x Ib. Qa is the estimated quantity of asphalt binder (equal to the asphalt percentage times the estimated tons of hot mix asphalt) plus estimated quantity in tons of paving asphalt (binder, geosynthetic pavement interlayer) plus asphaltic emulsion residue (equal to the tack coat estimated tons x 0.57). Ib is the anticipated California Statewide Paving Asphalt Price Index for the month in which the bids for the project will be opened. (Note: The amount provided by this calculation may vary substantially from the amount actually needed since the change in asphalt prices cannot be predicted with accuracy)~~

~~Use item code 066666, Compensation Adjustments for Price Index Fluctuations of Paving Asphalt.~~

~~List: Estimated asphalt percentage used in HMA in calculation: _____~~

~~Estimated paving asphalt (Qa) used for Supplemental Work: _____~~

~~Calif. Statewide Paving Asphalt price index month: _____~~

~~Calif. Statewide Paving Asphalt price index: _____~~

~~1*. Insert item code numbers and complete item descriptions for items containing paving asphalt. Delete 397005 "TACK COAT" if no contract item for tack coat.~~

~~5-1.__ COMPENSATION ADJUSTMENTS FOR PRICE INDEX FLUCTUATIONS~~

~~The provisions of this section shall apply only to the following contract items:~~

~~ITEM CODE~~	~~ITEM~~
~~390132~~	~~HOT MIX ASPHALT (TYPE A)~~
	~~PAVING ASPHALT (BINDER, GEOSYNTHETIC PAVEMENT INTERLAYER)~~
~~397005~~	~~TACK COAT~~

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~~**2. Delete "tack coat," if no contract item for tack coat.**~~

~~The compensation payable for hot mix asphalt, tack coat, and paving asphalt (binder, geosynthetic pavement interlayer) will be increased or decreased in conformance with the provisions of this section for paving asphalt price fluctuations exceeding 5 percent (Iu/Ib is greater than 1.05 or less than 0.95) which occur during performance of the work.~~

~~**Delete Paras 3 and 4 if no contract item for tack coat.**~~

~~**3**~~

~~The quantity of asphalt binder used in tack coat will be determined by multiplying the item quantity for tack coat included in a monthly estimate by the minimum percent residue specified in Section 94, "Asphaltic Emulsions," of the Standard Specifications. The asphaltic emulsion minimum percent residue will be based on the type of emulsion used by the Contractor.~~

~~**4**~~

~~At the Contractor's option, the Contractor may provide actual daily test results for asphalt binder residue for the tack coat used. Test results provided by the Contractor shall be from an independent testing laboratory that participates in the AASHTO Proficiency Sample Program. The Contractor shall take samples of asphaltic emulsion from the distributor truck at mid-load from a sampling tap or thief. Two separate 1/2 gallon samples shall be taken in the presence of the Engineer. The Contractor shall provide one sample to the Contractor's independent testing laboratory within 24 hours of sampling. The second sample shall be given to the Engineer. The test results from the Contractor's independent testing laboratory shall be delivered to the Engineer within 10 days from sample date.~~

~~**5. Delete ", tack coat, " if no contract item for tack coat.**~~

~~The adjustment in compensation will be determined in conformance with the following formulae when the item of hot mix asphalt, tack coat, or paving asphalt (binder, geosynthetic pavement interlayer) is included in a monthly estimate:~~

~~A. Total monthly adjustment = AQ~~
~~B. For an increase in paving asphalt price index exceeding 5 percent:~~

~~A = 0.90 (Iu/Ib - 1.05) Ib~~

~~C. For a decrease in paving asphalt price index exceeding 5 percent:~~

~~A = 0.90 (Iu/Ib - 0.95) Ib~~

~~Where:~~

DRAFT

~~**Delete ", asphalt emulsion residue used as tack coat" if no contract item for tack coat.**~~

~~A = Adjustment in dollars per ton of asphalt binder used to produce hot mix asphalt, asphaltic emulsion residue used as tack coat and paving asphalt (binder, geosynthetic pavement interlayer) rounded to the nearest $0.01.~~

~~Iu = The California Statewide Paving Asphalt Price Index which is in effect on the first business day of the month within the pay period in which the quantity subject to adjustment was included in the estimate.~~

~~Ib = The California Statewide Paving Asphalt Price Index for the month in which the bid opening for the project occurred.~~

~~**Delete "plus the quantity in tons of asphalt binder that would have been used as residue in the tack coat shown under 'This Estimate' on the monthly estimate" if no contract item for tack coat.**~~

~~Q = Quantity in tons of asphalt binder used in producing hot mix asphalt, paving asphalt (binder, geosynthetic pavement interlayer) plus the quantity in tons of asphalt binder that would have been used as residue in the tack coat shown under "This Estimate" on the monthly estimate.~~

~~**6**~~

~~The adjustment in compensation will also be subject to the following:~~

~~A. The compensation adjustments provided herein will be shown separately on payment estimates. The Contractor shall be liable to the State for decreased compensation adjustments and the Department may deduct the amount thereof from any moneys due or that may become due the Contractor.~~

~~B. Compensation adjustments made under this section will be taken into account in making adjustments in conformance with the provisions in Section 4-1.03B, "Increased or Decreased Quantities," of the Standard Specifications.~~

~~C. In the event of an overrun of contract time, adjustment in compensation for asphalt binder included in estimates during the overrun period will be determined using the California Statewide Paving Asphalt Price Index in effect on the first business day of the month within the pay period in which the overrun began.~~

~~**7**~~

~~The California Statewide Paving Asphalt Price Index is determined each month on the first business day of the month by the Department using the median of posted prices in effect as posted by Chevron, ExxonMobil, and Union 76 for the Buena Vista, Huntington Beach, and Midway Sunset fields.~~

~~**8**~~

~~In the event that the companies discontinue posting their prices for a field, the Department will determine an index from the remaining posted prices. The Department reserves the right to include in the index determination the posted prices of additional fields.~~

DRAFT

~~9~~

~~The California Statewide Paving Asphalt Price Index is available on the Division of Engineering Services website at:~~

~~http://www.dot.ca.gov/hq/esc/oe/asphalt_index/astable.html~~

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USE WITH 2006 STANDARDS.

Use in seal coat projects that include contract items for asphaltic emulsion or asphaltic emulsion (polymer modified) and asphaltic emulsion (fog seal coat).

Include Special Notice SN-450 if this SSP is used.

Use SSP S5-233 for slurry seals.

Use SSP S5-235 for asphalt binder seal coats.

In the Engineer's Estimate under Supplemental Work, provide funds in the amount of 0.15 x Qa x Ib. Qa is the estimated quantity of asphalt emulsion residue (equal to the estimated tons of asphaltic emulsion x 0.65) plus quantity of asphaltic emulsion (fog seal coat) residual (equal to the asphalt emulsion (fog seal coat) estimated tons x 0.57). Ib is the anticipated California Statewide Paving Asphalt Price Index for the month in which the bids for the project will be opened. (Note: The amount provided by this calculation may vary substantially from the amount actually needed since the change in asphalt prices cannot be predicted with accuracy.)

Use item code 066666, Compensation Adjustments for Price Index Fluctuations of Paving Asphalt.

List: Estimated paving asphalt (Qa) used in calculation: _____

Calif. Statewide Paving Asphalt price index month: _____

Calif. Statewide Paving Asphalt price index: _____

1. Delete item code numbers and item descriptions from table when not included in contract.

KC9-13-2009**

~~5-1.__ COMPENSATION ADJUSTMENTS FOR PRICE INDEX FLUCTUATIONS~~

~~The provisions of this section shall apply only to the following contract items:~~

~~ITEM CODE~~	~~ITEM~~
~~373900~~	~~ASPHALTIC EMULSION~~
~~374492~~	~~ASPHALTIC EMULSION (POLYMER MODIFIED)~~
~~374002~~	~~ASPHALTIC EMULSION (FOG SEAL COAT)~~

DRAFT

Paras 2 and 3, delete "and asphaltic emulsion (fog seal coat)" if no contract item for asphaltic emulsion (fog seal coat).

2

KC9-13-2009**

~~The compensation payable for paving asphalt used in asphaltic emulsion and asphaltic emulsion (fog seal coat) will be increased or decreased in conformance with the provisions of this section for paving asphalt price fluctuations exceeding 5 percent (Iu/Ib is greater than 1.05 or less than 0.95) which occur during performance of the work.~~

3

KC9-13-2009**

~~The quantity of paving asphalt used in asphaltic emulsion and asphaltic emulsion (fog seal coat) will be determined by multiplying the item quantity for asphaltic emulsion included in a monthly estimate times the minimum percent residue specified in Section 94, "Asphaltic Emulsions," of the Standard Specifications. The emulsion minimum percent residue obtained from Section 94, "Asphaltic Emulsions," of the Standard Specifications will be based on the type of emulsion used by the contractor.~~

4

KC9-13-2009**

~~At the Contractor's option, the Contractor may provide actual daily test results for paving asphalt residue for the asphaltic emulsion used. Test results provided by the Contractor shall be from an independent testing laboratory that participates in the AASHTO Proficiency Sample Program. The Contractor shall take samples of asphaltic emulsion from the distributor truck at mid-load from a sampling tap or thief. Before samples are taken, one gallon shall be drawn from the sampling devise and discarded. Two separate 1/2 gallon samples shall be taken in the presence of the Engineer. The Contractor shall provide one sample to the Contractor's independent testing laboratory within 24 hours of sampling. The second sample shall be given to the Engineer. The test results from the Contractor's independent testing laboratory shall be delivered to the Engineer within 10 days from sample date.~~

5. Delete "or asphaltic emulsion (fog seal coat)" if not required. Delete A= "and asphaltic emulsion residue used as flush coat" if not required. Delete Q= "and the quantity of paving asphalt residue that was used in asphaltic emulsion (fog seal coat)" if not required.

KC9-13-2009**

~~The adjustment in compensation will be determined in conformance with the following formulae when the item of asphaltic emulsion or asphaltic emulsion (fog seal coat) (or both) is included in a monthly estimate:~~

~~A. Total monthly adjustment = AQ~~
~~B. For an increase in paving asphalt price index exceeding 5 percent:~~

~~A = 0.90 (Iu/Ib - 1.05) Ib~~

~~C. For a decrease in paving asphalt price index exceeding 5 percent:~~

~~A = 0.90 (Iu/Ib - 0.95) Ib~~

~~D. Where:~~

Delete "and asphaltic emulsion residue used as flush coat" if no contract item for asphaltic emulsion (fog seal coat).

~~A = Adjustment in dollars per ton of paving asphalt used in asphaltic emulsion residual and asphaltic emulsion residue used as flush coat rounded to the nearest $0.01.~~

~~Iu = The California Statewide Paving Asphalt Price Index which is in effect on the first business day of the month within the pay period in which the quantity subject to adjustment was included in the estimate.~~

~~Ib = The California Statewide Paving Asphalt Price Index for the month in which the bid opening for the project occurred.~~

Delete "and the quantity in tons of paving asphalt that was used in producing the asphaltic emulsion residue (fog seal coat) shown under 'This Estimate' on the monthly estimate" if no contract item for asphaltic emulsion (fog seal coat).

~~Q = Quantity in tons of paving asphalt that was used in producing the asphaltic emulsion residue shown under "This Estimate" on the monthly estimate and the quantity in tons of paving asphalt that was used in producing the asphaltic emulsion residue (Fog Seal Coat) shown under "This Estimate" on the monthly estimate.~~

~~The adjustment in compensation will also be subject to the following:~~

~~A. The compensation adjustments provided herein will be shown separately on payment estimates. The Contractor shall be liable to the State for decreased compensation adjustments and the Department may deduct the amount thereof from any moneys due or that may become due the Contractor.~~

~~B. Compensation adjustments made under this section will be taken into account in making adjustments in conformance with the provisions in Section 4-1.03B, "Increased or Decreased Quantities," of the Standard Specifications.~~

~~C. In the event of an overrun of contract time, adjustment in compensation for paving asphalt included in estimates during the overrun period will be determined using the California Statewide Paving Asphalt Price Index in effect on the first business day of the month within the pay period in which the overrun began.~~

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7

KC9-13-2009**

~~The California Statewide Paving Asphalt Price Index is determined each month on the first business day of the month by the Department using the median of posted prices in effect as posted by Chevron, ExxonMobil, and Union 76 for the Buena Vista, Huntington Beach, and Midway Sunset fields.~~

8

KC9-13-2009**

~~In the event that the companies discontinue posting their prices for a field, the Department will determine an index from the remaining posted prices. The Department reserves the right to include in the index determination the posted prices of additional fields.~~

9

KC9-13-2009**

~~The California Statewide Paving Asphalt Price Index is available on the Division of Engineering Services website at:~~

~~http://www.dot.ca.gov/hq/esc/oe/asphalt_index/astable.html~~

{ XE "S5-250_E_A02-06-09" }

Page 1 of 2

USE WITH 2006 STANDARDS.

Use in ALL projects.

5-1.__ PAYMENTS

1. Use when Para 2 is not used.

KC9-13-2009**

~~No partial payment will be made for any materials on hand which are furnished but not incorporated in the work.~~

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2.* Use if:

1. Project has 90 or more working days excluding plant establishment.

2. Engineer's estimate exceeds minor B threshold and there are materials that qualify for partial pay.

If the above project criteria are met, allow partial payments for materials following these general rules:

If the engineer's estimate is less than $1,000,000, each item or group you list must have a material value of $1000 or more.

If the engineer's estimate is greater than $1,000,000, each item or group you list must have a material value of $5000 or more.

KC9-13-2009**

In determining the partial payments to be made to the Contractor, only the following listed materials will be considered for inclusion in the payment as materials furnished but not incorporated in the work:

A. Miscellaneous Iron and Steel
B. Metal Beam Guard Railing
C. Terminal Systems
D. Transition Railing (Type WB)
E. Temporary Crash Cushion
F. Crash Cushion, San Filled
F. Signal and Lighting Standards

DRAFT

USE WITH 2006 STANDARDS.

Use if supplemental project information (SPI) is available.

List available SPI. Insert location in 4th row:

For District 05 project use this location: 1150 Laurel Lane, Suite 175, San Luis Obispo, CA 93401.

For District 06 project use this location: 855 M Street, Suite 200, Fresno, CA 93721.

For District 10 project use this location: 611 San Juan Avenue, Stockton, CA 95203.

Delete nonapplicable rows.

For guidance on SPI in the Information Handout, go to the RTL Guide. Examples: agreements, biological opinions, permits

Example SPI at the District Office: cross sections

Example SPI at the Transportation Laboratory: rock cores

KC9-13-2009**

~~5-1.__ SUPPLEMENTAL PROJECT INFORMATION~~

~~The Department makes the following supplemental project information available:~~

~~Supplemental Project Information~~

~~Means~~	~~Description~~
~~Included in the Information Handout~~	
~~Available for inspection at the District Office~~	
~~Available for inspection at the Transportation Laboratory~~	
~~Available for inspection at _____~~	
~~Available as specified in the Standard Specifications~~	~~Bridge as-built drawings~~

DRAFT

USE WITH 2006 STANDARDS.

Use with SSP 07-340 or 07-345, "Water Pollution Control."

Edit to include reference to any additional RWQCB permits.

1*. Insert name of RWQCB in whose jurisdiction the project lies.

5-1.__ RELATIONS WITH CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

KC 9-14-2009**

This project lies within the boundaries of the San Francisco Bay Regional Water Quality Control Board (RWQCB).

Use Paras 2 thru 6 only when SSP 07-345 is used.

2

The State Water Resources Control Board (SWRCB) has issued to the Department a permit that governs storm water and non-storm water discharges from the Department's properties, facilities, and activities. The Department's permit is entitled "Order No. 99 - 06 - DWQ, NPDES No. CAS000003, National Pollutant Discharge Elimination System (NPDES) Permit, Statewide Storm Water Permit and Waste Discharge Requirements (WDRs) for the State of California, Department of Transportation (Caltrans)." Copies of the Department's permit are available for review from the SWRCB, Storm Water Permit Unit, 1001 "I" Street, P.O. Box 1977, Sacramento, California 95812-1977, Telephone: (916) 341-5254, and may also be obtained at:

http://www.waterboards.ca.gov/water_issues/programs/stormwater/

3. Use for projects outside the Lake Tahoe Hydrologic Unit to specify that both the Caltrans permit and the general permit apply, including the modifications to the general that require sampling and analysis plans.

KC9-13-2009**

~~The Department's permit references and incorporates by reference the current statewide general permit issued by the SWRCB entitled "Order No. 99-08-DWQ, National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000002, Waste Discharge Requirements (WDRs) for Discharges of Storm Water Runoff Associated with Construction Activity" that regulates discharges of storm water and non-storm water from construction activities disturbing one acre or more of soil in a common plan of development. Sampling and analysis requirements as specified in SWRCB Resolution No. 2001-46 are added to the statewide general permit. Copies of the statewide permit and modifications thereto are available for review from the SWRCB,~~

~~Storm Water Permit Unit, 1001 "I" Street, P.O. Box 1977, Sacramento, California 95812-1977, Telephone: (916) 341-5254 and may also be obtained at:~~

~~http://www.waterboards.ca.gov/water_issues/programs/stormwater/~~

4. Use ONLY for projects within the Lake Tahoe Hydrologic Unit.

KC9-13-2009**

~~This project includes construction activities that will result in land disturbance within the Lake Tahoe Hydrologic Unit. The Lahontan Regional Water Quality Control Board has issued a regional general permit that governs storm water and non-storm water discharges resulting from construction activities in the Lake Tahoe Hydrologic Unit. The Lake Tahoe regional general permit is entitled "Board Order No. 6-00-03, National Pollutant Discharge Elimination System General Permit No. CAG616002 for Discharges of Storm Water Runoff Associated with Construction Activity Involving Land Disturbance in the Lake Tahoe Hydrologic Unit – El Dorado, Placer, and Alpine Counties." A copy of the regional permit is available for review from the Lahontan Region South Lake Tahoe Office, 2501 Lake Tahoe Blvd., South Lake Tahoe, California 96150, Telephone: (530) 542-5400 and may also be obtained at:~~

~~http://www.waterboards.ca.gov/lahontan/water_issues/programs/storm_water/index.shtml~~

5*. Use ONLY for projects where storm water is regulated under a project-specific or RWQCB general permit (other than the Lake Tahoe General Permit). Insert the RWQCB name that issued the permit, permit title, permit number, and address where a copy of the permit is available. Also, include Para 2 and 3.

To determine if a project-specific or RWQCB general permit applies to the project, contact the applicable RWQCB. Contact information for the RWQCBs is available on the SWRCB Internet web site at http://www.waterboards.ca.gov/water_boards.shtml.

KC9-13-2009**

~~The _____ RWQCB has issued a permit which governs storm water and non-storm water discharges resulting from construction activities in the project area. The RWQCB permit is entitled "National Pollutant Discharge Elimination System (NPDES) Permit _____, Permit No. _____." Copies of the RWQCB permit are available for review from _____.~~

6

KC9-13-2009**

The NPDES permits that regulate this project, as referenced above, are collectively referred to in this section as the "permits."

7. Use ONLY for projects within the Lake Tahoe Hydrologic Unit when SSP 07-340 is used.

KC9-13-2009**

~~This project includes construction activities that will result in land disturbance within the Lake Tahoe Hydrologic Unit. The Lahontan RWQCB has issued a regional general permit that governs storm water and non-storm water discharges resulting from construction activities in the Lake Tahoe Hydrologic Unit. The Lake Tahoe regional general permit is entitled "Board Order No. 6-91-31, WDID No. 6A0999999999 General Waste Discharge Requirements for Construction of Small Commercial, Multi-Family Residential, Utility and Public Works Projects Lake Tahoe Basin." A copy of the regional permit is available for review from the Lahontan Region South Lake Tahoe Office, 2501 Lake Tahoe Blvd., South Lake Tahoe, California 96150, Telephone: (530) 542-5400 and may also be obtained at:~~

~~http://www.swrcb.ca.gov~~

8. Use only when SSP 07-345 is used.

This project shall conform to the permits and modifications thereto. The Contractor shall maintain copies of the permits at the project site and shall make them available during construction.

9

The Contractor shall know and comply with provisions of Federal, State, and local regulations and requirements that govern the Contractor's operations and storm water and non-storm water discharges from the project site and areas of disturbance outside the project limits during construction. Attention is directed to Sections 7-1.01, "Laws to be Observed," 7-1.11, "Preservation of Property," 7-1.12, "Indemnification and Insurance," and 9-1.055, "Penalty Withholds," of the Standard Specifications.

10

The Contractor shall notify the Engineer immediately upon request from the regulatory agencies to enter, inspect, sample, monitor, or otherwise access the project site or the Contractor's records pertaining to water pollution control work. The Contractor and the Department shall provide copies of correspondence, notices of violation, enforcement actions, or proposed fines by regulatory agencies to the requesting regulatory agency.

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Use in Districts 4, 6, 7, 8, 10, 11, and 12.

Use with SSP 19-900, "Material Containing Aerially Deposited Lead."

Use in projects with materials containing aerially deposited lead from vehicle emissions and subject to the conditions of the Variance between the Department and the Department of Toxic Substances Control regarding the use of materials containing aerially deposited lead.

Environmental testing of the project MUST have been completed and areas of contamination defined.

**** Waiting for results from ADL testing by Caltrans. Will update this section accordingly once the results are received.**

KC 9-25-2009**

5-1.__ AERIALLY DEPOSITED LEAD

Aerially deposited lead is present within the project limits. Aerially deposited lead is lead deposited within unpaved areas or formerly unpaved areas, primarily due to vehicle emissions.

2

Attention is directed to "Material Containing Aerially Deposited Lead" and "Project Information" of these special provisions.

3.* Edit for tested sites. Include the title of the appropriate hazardous waste investigation. Include the location for review of the investigation.

Portions of the site investigation report are included in the "Material Information" handout. The complete report, entitled " _____," is available for inspection at the Department of Transportation, 111 West Grand Avenue, Oakland, CA 94612.

4.* Edit to include the location for review of the Variance or include the Variance as part of the Material Information handout.

The Department has received from the California Department of Toxic Substances Control (DTSC) a Variance regarding the use of material containing aerially deposited lead. This project is subject to the conditions of the Variance, as amended. The Variance is available for inspection at the Department of Transportation, District ___, _____.

5

Once the Contractor has completed the placement of material containing aerially deposited lead in conformance with these special provisions and as directed by the

Engineer, the Contractor shall have no responsibility for such materials. The Department will not consider the Contractor a generator of such contaminated materials.

6. Add or delete agencies as applicable.

Insert the RWQCB Region No. and Name

Insert the AQMD Name.

Excavation, reuse, and disposal of material with aerially deposited lead shall be in conformance with all rules and regulations including, but not limited to, those of the following agencies:

A. United States Department of Transportation,
B. United States Environmental Protection Agency,
C. California Environmental Protection Agency,
D. California Department of Health Services,
E. Department of Toxic Substances Control,
F. California Division of Occupational Safety and Health Administration,
G. Integrated Waste Management Board,
H. Regional Water Quality Control Board, Region __, _____,
I. State Air Resources Control Board, and
J. Bay Area Air Quality Management District.

7

Materials containing hazardous levels of lead shall be transported and disposed of in conformance with Federal and State laws and regulations, as amended, and county and municipal ordinances and regulations, as amended. Laws and regulations that govern this work include, but are not limited to:

A. Health and Safety Code, Division 20, Chapter 6.5 (California Hazardous Waste Control Act),
B. Title 22, California Code of Regulations, Division 4.5 (Environmental Health Standards for the Management of Hazardous Waste), and
C. Title 8, California Code of Regulations.

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Use if an ESA is shown on the plans for the management of environmental resources such as archaeological sites, existing vegetation, or biological habitats.

Use paragraphs 2, 3, and 4 as appropriate for any of the following purposes:

1. ESA boundaries will be defined by Temporary Fencing (Type ESA).

2. ESA boundaries will be defined by fencing or other exclosure apparatus other than Temporary Fencing (Type ESA).

3. Access to the ESA will be allowed under certain conditions.

Use with SSP 07-446 Temporary Fence (Type ESA) if Type ESA fencing is to be installed by the Contractor.

Exact locations of ESA boundaries will be marked on the ground by district environmental staff or the environmental-construction liaison. Place a note in the RE file directing the Engineer to consult with district environmental staff or environmental-construction liaison to confirm ESA boundaries and to obtain guidance for assistance with staking operation or to grant access within the ESA.

Include the ESA action plan in the RE file. This plan should include protection and access requirements, active and inactive times, and other information that may be helpful to construction staff in protecting the ESA during job construction.

Show ESAs on plan sheets. Because some types of ESAs have different regulatory requirements, such as cultural and archaeological sites, the exact nature of the ESA should not be described on the plans.

ESA boundaries should be readily apparent to construction staff possibly by using orange plastic fencing. However, the public awareness caused by increased visibility must be considered.

Do not edit this SSP to include district biologist approvals or mitigation measures such as revegetation methods or wildlife relocation.

5-1.__ ENVIRONMENTALLY SENSITIVE AREA

1

An ESA exists on this project.

2*. Use if the ESA is to be fenced by the Contractor. Insert temporary fence (Type ESA), wildlife exclusion fence, or other type of exclosure. Delete paragraph 2 if paragraph 4 is used.

Before start of work, protect the ESA by installing _____.

3*. Use if the Contractor is allowed limited access to the ESA for activities such as biological monitoring, water sampling, or release of encroaching wildlife. Insert activity and number of days (5 or fewer). Delete paragraph 3 if paragraph 4 is used.

Limited access to the ESA is allowed for _____. Notify the Engineer ____ business days before planned entry date. Any other access to an ESA is prohibited.

4*. Use if different ESAs on the project have different fence or limited access conditions (e.g., project includes both riparian and archaeological ESAs which have different requirements for monitoring or access). Complete table to identify each ESA, location, and the corresponding management measures for fencing and limited access. If allowing limited access, include advance Engineer notification of 5 business days or fewer. Add rows as needed. Some example management measures are:

1. Before start of work, protect the ESA by installing temporary fence (Type ESA).

2. Limited access to the ESA allowed for water quality monitoring. Notify the Engineer ____ business days before planned entry date.

3. Limited access to the ESA is allowed from February 1 to September 10 for water quality monitoring. Notify the Engineer ____ business days before planned entry date.

Take the management measures shown in the following table for the corresponding ESA shown. Any access to an ESA other than that shown is prohibited.

ESA Management

Identification	Location	Management measures

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USE WITH 2006 STANDARDS.

Use on Highway Planting Projects and on Highway Construction Projects with Highway Planting

5-1.__ DAMAGE REPAIR

Attention is directed to Section 7-1.16, "Contractor's Responsibility for the Work and Materials," and Section 7-1.165, "Damage by Storm, Flood, Tsunami or Earthquake," of the Standard Specifications and these special provisions.

2. Use Para 2 thru 5 on all highway planting projects that are not part of a road construction project.

KC9-13-2009**

~~Damage to slopes or other existing facilities occurring prior to the performance of the work provided for in this contract shall be repaired or reconstructed by the Contractor, as directed by the Engineer. Damage repair will be paid for as extra work as provided in Section 4-1.03D,"Extra Work," of the Standard Specifications.~~

3.

KC9-13-2009**

~~Storm damage caused by a change in the runoff pattern from that which existed on the day the Notice to Contractors for this project is dated and was the result of work by others within the right of way shall be repaired as directed by the Engineer. The total cost of ordered repair work will be paid for as extra work as provided in Section 4-1.03D,"Extra Work," of the Standard Specifications.~~

4.

KC9-13-2009**

~~Damage to slopes or other facilities occurring after start of work and before start of plant establishment period shall be repaired or reconstructed by the Contractor in conformance with the provisions in Section 7-1.16, "Contractor's Responsibility for the Work and Materials," of the Standard Specifications.~~

5*. Insert base figure, normally 5 percent of Plant Establishment Work estimated cost or $2,000 whichever is greater.

KC9-13-2009**

~~Damage to slopes, plants, irrigation systems and other highway facilities occurring as a result of rain during the plant establishment period shall be repaired by the Contractor, when directed by the Engineer. The cost of the repairs which exceed the accumulated sum of $_____ will be borne equally by the State and the Contractor. The division of cost will be made by determining the cost of repairs in conformance with the provisions~~

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~~in Section 9-1.03, "Force Account Payment," of the Standard Specifications, and paying to the Contractor one-half of the cost which exceeds the sum of $_____.~~

6.

When as a result of freezing conditions (as defined herein) during the plant establishment period, plants have died or, in the opinion of the Engineer, have deteriorated to a point beyond which the plants will not mature as typical examples of their species, the Engineer may direct replacement of the affected plants. The total cost of ordered plant replacement work will be paid for as extra work as provided in Section 4-1.03D,"Extra Work," of the Standard Specifications. A freezing condition, for the purpose of this specification, occurs when the temperature at or near the affected area has been officially recorded below 32° F and plants have been killed or damaged to the degree described above.

7.

When, as a result of drought conditions (as defined herein) during the plant establishment period, plants have died or, in the opinion of the Engineer, have deteriorated to a point beyond which the plants will not mature as typical examples of their species, the Engineer may direct replacement of the affected plants. The total cost of ordered plant replacements, after water has been restricted or stopped, will be paid for as extra work as provided in Section 4-1.03D,"Extra Work," of the Standard Specifications. Restriction or shutoff of available water shall not relieve the Contractor from performing other contract work. A drought condition occurs when the Department, or its supplier, restricts or stops delivery of water to the Contractor to the degree that plants have died or deteriorated as described above.

8.

When the provisions in Section 7-1.165, "Damage by Storm, Flood, Tsunami or Earthquake," of the Standard Specifications are applicable, the provisions above for payment of costs for repair of damage due to rain, freezing conditions and drought shall not apply.

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This SSP is hard-coded in the boilerplate

SECTION 5 GENERAL

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Use in all projects until January 1, 2014.

Inserted by DES-OE.

5-1.__ RETENTION EXCLUSION

The Department does not retain moneys from progress payments due to the Contractor for work performed (Pub Cont Code § 7202). The 3rd paragraph in Section 9-1.06, "Partial Payments," of the Standard Specifications does not apply.

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USE WITH 2006 STANDARDS.
Used in projects over $10,000,000 and with 100 or more working days.
Automatically inserted by boilerplate.

KC9-13-2009**

~~5-1.__ PARTNERING DISPUTE RESOLUTION~~

~~**1**~~

~~The Department encourages the project team to exhaust the use of partnering in dispute resolution before engagement of an objective third party. Comply with Section 5-1.102, "Partnering," of the Standard Specifications.~~

~~**2**~~

~~For certain disputes, facilitated partnering session or facilitated dispute resolution session may be appropriate and effective in clarifying issues and resolving all or part of a dispute.~~

~~**3**~~

~~To afford the project team enough time to plan and hold the session, a maximum of 20 days may be added to the dispute review board (DRB) referral time following the Engineer's written response to a supplemental notice of potential claim as specified in Section 5-1.15, "Dispute Resolution," of the Standard Specifications.~~

4

~~To allow this additional referral time, the project team must document its agreement and intention in the dispute resolution plan of the partnering charter. The team may further document agreement of any associated criteria to be met for use of the additional referral time.~~

4

~~If the session is not held, the DRB referral time remains in effect as specified in Section 5-1.15, "Dispute Resolution," of the Standard Specifications.~~

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FINAL D4 SOUND CONTROL SSP. Instructions Last Revised 11-14-06.

CONCURRED WITH by Kathy Iwasaki, DES-OE Sponsor, on 01-06-06.

Reviewed & Concurred by Glenn Kinoshita, D4 Environmental, on 01-06-06.

For Use in ALL D4 PROJECTS Requiring Noise SSP.

Use when work is in residential or urban areas.

5-1.14 SOUND CONTROL REQUIREMENT

Sound control shall conform to these special provisions.

2*. Paragraph #2 is intended to separate work exceeding 86 dBa (loud work) from other work, AND is intended to contractually restrict this work to specified reasonable windows as far from legal resting hours (10PM to 6AM) as POSSIBLE. These restrictions are necessary as the only other work restrictions on a project are Lane Closure Charts, and LCC's do not restrict loud work effectively.

Each project will be different, & it is up to the project manager & project engineer to balance the amount of loud work, necessity for the loud work to be done under lane closures, and the public's desire to be able to sleep in the surrounding areas at night (10 PM to 6AM). If the loud work has to be done under lane closures, and the only closures are at night, consider restricting the loud work to a period before midnight (traffic control setup & work productivity permitting), & using public outreach to explain the necessity for working until that hour. If weekend daytime lane closures are allowed, consider the possibility of restricting the loud work to weekend daytime closures (productivity permitting). If loud work cannot be done other than at night, document the reasons in hidden text in this SSP for documentation purposes. Remember, PM & PE will have to balance loud work, lane closure requirements, & the public's desire to sleep at night.

Edit to include (1) specific local noise ordinances which Project Manager has agreed to adhere to, or (2) work needing more lenient noise level requirements. For example:

A. Pile driving from 8 p.m. to midnight, Monday through Saturday.

Strike and hide "except for the following work…" when exceptions are not needed.

The following work shall be considered to exceed 86 dBa at 15 m.

(1) Remove Concrete …

(2) Bridge Removal

(3) Cold Plane AC Pavement

(4) Groove Existing Concrete Pavement

(5) Grind Existing Concrete Pavement

(6) Sawcutting PCC

(7) Drive … Pile/Piling

Some of the main work items in this job are Replace Unsound Concrete and Joint Seals. Lane closure window is night time and barely enough to do this work. Any further restriction of work hours is not practical and will result in extreme losses of productivity. Therefore, it is necessary to provide this exemption to allow Contractor's operations between the hours shown in the LCC Charts. Affected local agecies have been informed – NT**

The noise level from the Contractor's operations, between the hours of 9:00 p.m. and 6:00 a.m., shall not exceed 86 dBa (Lmax) at a distance of ~~15~~50 ft~~m~~, except for the following work:

A. Remove unsound concrete, sawcut existing joint

~~B.~~

~~C.~~

~~D. B. _____ from _____ to _____, _____ through _____.~~

~~C. _____ from _____ to _____, _____ through _____.~~

3*. This new paragraph requires use of a sound meter to document actual sound levels, which can trigger corrective measures if 86 dBa is exceeded.

The Contractor shall provide one "Type 1" sound level meter and one acoustic calibrator which will be used by the Department during the life of the contract. The Contractor shall provide training by a person trained in noise monitoring to one Department employee designated by the Engineer. The sound level meter shall be calibrated and certified by the manufacturer or other independent acoustical laboratory prior to delivery to the Department. The Contractor shall provide annual recalibration by the manufacturer or other independent acoustical laboratory. All equipment shall be capable of taking measurements using the A-weighting network and the "slow" response of the sound level meter. The measurement microphone shall be fitted with an appropriate windscreen. All equipment shall be returned to the Contractor at the acceptance of the contract. Equipment damaged by actions of the Department or the public shall be paid for as extra work as provided in Section 4-1.03D for the Standard Specifications.

4

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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.

5

The noise level requirement shall apply to the equipment on the job or related to the job, including but not limited to trucks, transit mixers or transient equipment that may or may not be owned by the Contractor. The use of loud sound signals shall be avoided in favor of light warnings except those required by safety laws for the protection of personnel.

6

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

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USE WITH 2006 STANDARDS.
Use in ALL projects.

SECTION 6. (BLANK)

SECTION 7. (BLANK)

SECTION 8. MATERIALS

SECTION 8-1. MISCELLANEOUS

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USE WITH 2006 STANDARDS.

Use in ALL projects.

Use with amended Section 39, "Hot Mix Asphalt."

DO NOT EDIT.

8-1.__ PREQUALIFIED AND TESTED SIGNING AND DELINEATION MATERIALS

The Department maintains the following list of Prequalified and Tested Signing and Delineation Materials. The Engineer shall not be precluded from sampling and testing products on the list of Prequalified and Tested Signing and Delineation Materials.

2

The manufacturer of products on the list of Prequalified and Tested Signing and Delineation Materials shall furnish the Engineer a Certificate of Compliance in conformance with the provisions in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications for each type of traffic product supplied.

3

For those categories of materials included on the list of Prequalified and Tested Signing and Delineation Materials, only those products shown within the listing may be used in the work. Other categories of products, not included on the list of Prequalified and Tested Signing and Delineation Materials, may be used in the work provided they conform to the requirements of the Standard Specifications.

4

Materials and products may be added to the list of Prequalified and Tested Signing and Delineation Materials if the manufacturer submits a New Product Information Form to the New Product Coordinator at the Transportation Laboratory. Upon a Departmental request for samples, sufficient samples shall be submitted to permit performance of required tests. Approval of materials or products will depend upon compliance with the specifications and tests the Department may elect to perform.

5

PAVEMENT MARKERS, PERMANENT TYPE

6

Retroreflective With Abrasion Resistant Surface (ARS)

1. Apex, Model 921AR (4" x 4")
2. Ennis Paint, Models C88 (4" x 4"), 911 (4" x 4") and C80FH
3. Ray-O-Lite, Models "AA" ARC II (4" x 4") and ARC Round Shoulder (4" x 4")
4. 3M Series 290 (3.5" x 4")

5. 3M Series 290 PSA
6. Glowlite, Inc Model 988AR (4" x 4")

7

Retroreflective With Abrasion Resistant Surface (ARS)

(for recessed applications only)

1. Ennis Paint, Model 948 (2.3" x 4.7")
2. Ennis Paint, Model 944SB (2" x 4")*
3. Ray-O-Lite, Model 2002 (2" x 4.6")
4. Ray-O-Lite, Model 2004 (2" x 4")*

*For use only in 4.5 inch wide (older) recessed slots

8

Non-Reflective, 4-inch Round

1. Apex Universal (Ceramic)
2. Apex Universal, Models 929 (ABS) and 929PP (Polypropylene)
3. Glowlite, Inc. (Ceramic) and PP (Polypropylene)
4. Hi-Way Safety, Inc., Models P20-2000W and 2001Y (ABS)
5. Interstate Sales, "Diamond Back" (Polypropylene)
6. Novabrite Models Cdot (White) Cdot-y (Yellow), Ceramic
7. Novabrite Models Pdot-w (White) Pdot-y (Yellow), Polypropylene
8. Three D Traffic Works TD10000 (ABS), TD10500 (Polypropylene)

9

PAVEMENT MARKERS, TEMPORARY TYPE

10

Temporary Markers For Long Term Day/Night Use (180 days or less)

1. Vega Molded Products "Temporary Road Marker" (3" x 4")
2. Filtrona Extrusion, Halftrack model 25, 26 and RPM 35

11

Temporary Markers For Short Term Day/Night Use (14 days or less)

(For seal coat or chip seal applications, clear protective covers are required)

1. Apex Universal, Model 932
2. Filtrona Extrusion, Models T.O.M., T.R.P.M., and "HH" (High Heat)
3. Hi-Way Safety, Inc., Model 1280/1281
4. Glowlite, Inc., Model 932

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12

STRIPING AND PAVEMENT MARKING MATERIAL

13

Permanent Traffic Striping and Pavement Marking Tape

1. Advanced Traffic Marking, Series 300 and 400
2. Brite-Line, Series 1000
3. Brite-Line, "DeltaLine XRP"
4. Swarco Industries, "Director 35" (For transverse application only)
5. Swarco Industries, "Director 60"
6. 3M, "Stamark" Series 380 and 5730
7. 3M, "Stamark" Series 420 (For transverse application only)

14

Temporary (Removable) Striping and Pavement Marking Tape (180 days or less)

1. Advanced Traffic Marking, Series 200
2. Brite-Line, Series 100
3. Garlock Rubber Technologies, Series 2000
4. P.B. Laminations, Aztec, Grade 102
5. Swarco Industries, "Director-2"
6. Trelleborg Industries, R140 Series
7. 3M Series 620 "CR", and Series A750
8. 3M Series A145, Removable Black Line Mask
   (Black Tape: for use only on Hot mix asphalt surfaces)
9. Advanced Traffic Marking Black "Hide-A-Line"
   (Black Tape: for use only on Hot mix asphalt surfaces)
10. Brite-Line "BTR" Black Removable Tape
    (Black Tape: for use only on Hot mix asphalt surfaces)
11. Trelleborg Industries, RB-140
    (Black Tape: for use only on Hot mix asphalt surfaces)

15

Preformed Thermoplastic (Heated in place)

1. Flint Trading Inc., "Hot Tape"
2. Flint Trading Inc., "Premark Plus"
3. Ennis Paint Inc., "Flametape"

16

Ceramic Surfacing Laminate, 6" x 6"

1. Highway Ceramics, Inc.

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17

CLASS 1 DELINEATORS

18

One Piece Driveable Flexible Type, 66-inch

1. Filtrona Extrusion, "Flexi-Guide Models 400 and 566"
2. Carsonite, Curve-Flex CFRM-400
3. Carsonite, Roadmarker CRM-375
4. FlexStake, Model 654 TM
5. GreenLine Model CGD1-66

19

Special Use Type, 66-inch

1. Filtrona Extrusion, Model FG 560 (with 18-inch U-Channel base)
2. Carsonite, "Survivor" (with 18-inch U-Channel base)
3. Carsonite, Roadmarker CRM-375 (with 18-inch U-Channel base)
4. FlexStake, Model 604
5. GreenLine Model CGD (with 18-inch U-Channel base)
6. Impact Recovery Model D36, with #105 Driveable Base
7. Safe-Hit with 8-inch pavement anchor (SH248-GP1)
8. Safe-Hit with 15-inch soil anchor (SH248-GP2) and with 18-inch soil anchor (SH248-GP3)

20

Surface Mount Type, 48-inch

1. Bent Manufacturing Company, Masterflex Model MFEX 180-48
2. Carsonite, "Channelizer"
3. FlexStake, Models 704, 754 TM, and EB4
4. Impact Recovery Model D48, with #101 Fixed (Surface-Mount) Base
5. Three D Traffic Works "Channelflex" ID No. 522248W

21

CHANNELIZERS

22

Surface Mount Type, 36-inch

1. Bent Manufacturing Company, Masterflex Models MF-360-36 (Round) MF-180-36 (Flat) and MFEX 180—36
2. Filtrona Extrusion, Flexi-Guide Models FG300PE, FG300UR, and FG300EFX
3. Carsonite, "Super Duck" (Round SDR-336)
4. Carsonite, Model SDCF03601MB "Channelizer"
5. FlexStake, Models 703, 753 TM, and EB3
6. GreenLine, Model SMD-36
7. Hi-way Safety, Inc. "Channel Guide Channelizer" Model CGC36
8. Impact Recovery Model D36, with #101 Fixed (Surface-Mount) Base

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9. Safe-Hit, Guide Post, Model SH236SMA and Dura-Post, Model SHL36SMA
10. Three D Traffic Works "Boomerang" 5200 Series

23

Lane Separation System

1. Filtrona Extrusion, "Flexi-Guide (FG) 300 Curb System"
2. Qwick Kurb, "Klemmfix Guide System"
3. Dura-Curb System
4. Tuff Curb

24

CONICAL DELINEATORS, 42-inch

(For 28-inch Traffic Cones, see Standard Specifications)

1. Bent Manufacturing Company "T-Top"
2. Plastic Safety Systems "Navigator-42"
3. TrafFix Devices "Grabber"
4. Three D Traffic Works "Ringtop" TD7000, ID No. 742143
5. Three D Traffic Works, TD7500
6. Work Area Protection Corp. C-42

25

OBJECT MARKERS

26

Type "K", 18-inch

1. Filtrona Extrusion, Model FG318PE
2. Carsonite, Model SMD 615
3. FlexStake, Model 701 KM
4. Safe-Hit, Model SH718SMA

27

Type "Q" Object Markers, 24-inch

1. Bent Manufacturing "Masterflex" Model MF-360-24
2. Filtrona Extrusion, Model FG324PE
3. Carsonite, "Channelizer"
4. FlexStake, Model 701KM
5. Safe-Hit, Models SH824SMA_WA and SH824GP3_WA
6. Three D Traffic Works ID No. 531702W and TD 5200
7. Three D Traffic Works ID No. 520896W

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28

CONCRETE BARRIER MARKERS AND TEMPORARY RAILING (TYPE K) REFLECTORS

29

Impactable Type

1. ARTUK, "FB"
2. Filtrona Extrusion, Models PCBM-12 and PCBM-T12
3. Duraflex Corp., "Flexx 2020" and "Electriflexx"
4. Hi-Way Safety, Inc., Model GMKRM100
5. Plastic Safety Systems "BAM" Models OM-BARR and OM-BWAR
6. Three D Traffic Works "Roadguide" Model TD 9300

30

Non-Impactable Type

1. ARTUK, JD Series
2. Plastic Safety Systems "BAM" Models OM-BITARW and OM-BITARA
3. Vega Molded Products, Models GBM and JD
4. Plastic Vacuum Forming, "Cap-It C400"

31

METAL BEAM GUARD RAIL POST MARKERS

(For use to the left of traffic)

1. Filtrona Extrusion, "Mini" (3" x 10")
2. Creative Building Products, "Dura-Bull, Model 11201"
3. Duraflex Corp., "Railrider"
4. Plastic Vacuum Forming, "Cap-It C300"

32

CONCRETE BARRIER DELINEATORS, 16-inch

(For use to the right of traffic)

1. Filtrona Extrusion, Model PCBM T-16
2. Safe-Hit, Model SH216RBM
3. Three D Traffic Works "Roadguide" Model 9400

33

CONCRETE BARRIER-MOUNTED MINI-DRUM (10" x 14" x 22")

1. Stinson Equipment Company "SaddleMarker"

34

GUARD RAILING DELINEATOR

(Place top of reflective element at 48 inches above plane of roadway)

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35

Wood Post Type, 27-inch

1. Filtrona Extrusion, FG 427 and FG 527
2. Carsonite, Model 427
3. FlexStake, Model 102 GR
4. GreenLine GRD 27
5. Safe-Hit, Model SH227GRD
6. Three D Traffic Works "Guardflex" TD9100
7. New Directions Mfg, NDM27

36

Steel Post Type

1. Carsonite, Model CFGR-327

37

RETROREFLECTIVE SHEETING

38

Channelizers, Barrier Markers, and Delineators

1. Avery Dennison T-6500 Series (For rigid substrate devices only)
2. Avery Dennison WR-7100 Series
3. Nippon Carbide Industries, Flexible Ultralite Grade (ULG) II
4. Reflexite, PC-1000 Metalized Polycarbonate
5. Reflexite, AC-1000 Acrylic
6. Reflexite, AP-1000 Metalized Polyester
7. Reflexite, Conformalight, AR-1000 Abrasion Resistant Coating
8. 3M, High Intensity

39

Traffic Cones, 4-inch and 6-inch Sleeves

1. Nippon Carbide Industries, Flexible Ultralite Grade (ULG) II
2. Reflexite, Vinyl, "TR" (Semi-transparent) or "Conformalight"
3. 3M Series 3840
4. Avery Dennison S-9000C

40

Drums

1. Avery Dennison WR-6100
2. Nippon Carbide Industries, Flexible Ultralite Grade (ULG) II
3. Reflexite, "Conformalight", "Super High Intensity" or "High Impact Drum Sheeting"
4. 3M Series 3810

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41

Barricades: Type I, Medium-Intensity (Typically Enclosed Lens, Glass-Bead Element)

1. Nippon Carbide Industries, CN8117
2. Avery Dennison, W 1100 series
3. 3M Series CW 44

42

Barricades: Type II, Medium-High-Intensity (Typically Enclosed Lens, Glass-Bead Element)

1. Avery Dennison, W-2100 Series

43

Vertical Clearance Signs: Structure Mounted

1. 3M Model 4061, Diamond Grade DG3, Fluorescent Yellow

44

Signs: Type II, Medium-High-Intensity (Typically Enclosed Lens, Glass-Bead Element)

1. Avery Dennison, T-2500 Series
2. Nippon Carbide Industries, Nikkalite 18000

45

Signs: Type III, High-Intensity (Typically Encapsulated Glass-Bead Element)

1. Avery Dennison, T-5500A and T-6500 Series
2. Nippon Carbide Industries, Nikkalite Brand Ultralite Grade II
3. 3M 3870 and 3930 Series

46

Signs: Type IV, High-Intensity (Typically Unmetallized Microprismatic Element)

1. Avery Dennison, T-6500 Series
2. Nippon Carbide Industries, Crystal Grade, 94000 Series
3. Nippon Carbide Industries, Model No. 94847 Fluorescent Orange
4. 3M Series 3930 and Series 3924S

47

Signs: Type VI, Elastomeric (Roll-Up) High-Intensity, without Adhesive

1. Avery Dennison, WU-6014
2. Novabrite LLC, "Econobrite"
3. Reflexite "Vinyl"

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4. Reflexite "SuperBright"
5. Reflexite "Marathon"
6. 3M Series RS20

48

Signs: Type VII, Super-High-Intensity (Typically Unmetallized Microprismatic Element)

1. 3M Series 3924S, Fluorescent Orange
2. 3M LDP Series 3970

49

Signs: Type VIII, Super-High-Intensity (Typically Unmetallized Microprismatic Element)

1. Avery Dennison, T-7500 Series
2. Avery Dennison, T-7511 Fluorescent Yellow
3. Avery Dennison, T-7513 Fluorescent Yellow Green
4. Avery Dennison, W-7514 Fluorescent Orange
5. Nippon Carbide Industries, Nikkalite Crystal Grade Series 92800
6. Nippon Carbide Industries, Nikkalite Crystal Grade Model 92847 Fluorescent Orange

50

Signs: Type IX, Very-High-Intensity (Typically Unmetallized Microprismatic Element)

1. 3M VIP Series 3981 Diamond Grade Fluorescent Yellow
2. 3M VIP Series 3983 Diamond Grade Fluorescent Yellow/Green
3. 3M VIP Series 3990 Diamond Grade
4. Avery Dennison T-9500 Series
5. Avery Dennison, T9513, Fluorescent Yellow Green
6. Avery Dennison, W9514, Fluorescent Orange
7. Avery Dennison, T-9511 Fluorescent Yellow

51

SPECIALTY SIGNS

52

1. Reflexite "Endurance" Work Zone Sign (with Semi-Rigid Plastic Substrate)

53

ALTERNATIVE SIGN SUBSTRATES

54

Fiberglass Reinforced Plastic (FRP) and Expanded Foam PVC

1. Fiber-Brite (FRP)
2. Sequentia, "Polyplate" (FRP)

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3. Inteplast Group "InteCel" (0.5 inch for Post-Mounted CZ Signs, 48-inch or less)(PVC)

55

Aluminum Composite, Temporary Construction Signs and Permanent Signs up to 4 foot, 7 Inches

1. Alcan Composites "Dibond Material, 80 mils"
2. Mitsubishi Chemical America, Alpolic 350
3. Bone Safety Signs, Bone Light ACM

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USE WITH 2006 STANDARDS.

Use in a project with State-furnished materials.

8-1.__ STATE-FURNISHED MATERIALS

1. Add items as necessary.

Delete any item not furnished by the State.

Change Model 170 controller assembly as applicable.

Insert the plant numbers as shown on the plans and address where the Contractor is to pick them up.

KC ** 9-13-2009

The State furnishes you with:

- Sign panels for roadside signs ~~and overhead sign structures~~
- Sign overlay panels for roadside signs ~~and overhead sign structures~~
- Mast arm sign hanger assemblies
- Laminated wood box posts with metal caps for roadside signs
- Hardware for mounting sign panels as follows:
  - Aluminum closure inserts for multiple panel laminated signs
  - A-1 and A-2 mounting hardware for mounting laminated sign panels on overhead sign structures
  - A-3 mounting hardware for mounting overhead formed panels
- Disks for survey monuments
- Marker panels, including reflectors, for Type N, Type P, and Type R object markers
- Magnetic detector amplifiers and magnetic sensing elements
- Loop detector sensor units
- Model 170 controller assembly, including controller unit, completely wired controller cabinet, and inductive loop detector sensor units.
- Modems
- Asphaltic concrete sealant for inductive detector loop installations
- Individual or axle type scales for materials hauling equipment on bridges
- Components of battery backup system as follows:
  - Inverter/charger unit
  - Power transfer relay
  - Manually-operated bypass switch
  - Battery harness
  - Utility interconnect wires
  - Battery temperature probe

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Relay contact wires

- Plants numbered _____ on the plans. Pick these plants up at _____.
- Padlocks for backflow preventer assembly enclosures, backflow preventer assembly blankets, booster pump enclosures, walk gates, irrigation controller enclosure cabinets, and external cabinet for battery backup system
- Recycled water signs, labels, decals, and tags

2. Use if the State furnishes controller assemblies. Insert address.

KC 9-13-2009**

The State furnishes you with completely wired controller cabinets with auxiliary equipment but without controller unit at Caltrans Maintenance Station, 30 Rickard Street, San Francisco, CA 94134. At least 48 hours before you pick up the materials, inform the Engineer what you will pick up and when you will pick it up.

3. Use if the State furnishes a changeable message sign. Insert address.

KC 9-13-2009**

~~The State furnishes you with a Model 500 changeable message sign, wiring harness, and controller assembly, including the controller unit and completely wired cabinet, at _____. At least 48 hours before you pick up the materials, inform the Engineer what you will pick up and when you will pick it up.~~

4. Use if the Contractor is to pick up State-furnished sign panels and overlay panels from the District Warehouse. Insert address and telephone number.

KC 9-13-2009**

The State furnishes you with sign panels and overlay panels at the District warehouse at 3401 Regatta Blvd, Richmond, CA 94806. At least 48 hours before you pick up the materials, inform the Engineer and the District warehouse manager what you will pick up and when you will pick it. Also, inform the manager the number, type, and size of the sign panels and Contract number. The manager's telephone number is (510) 231-7101.

5. Use if the State furnishes recycled materials. Insert material, address, and telephone number.

KC 9-13-2009**

~~The State furnishes you with _____ at the District Recycle Center at _____. At least 48 hours before you pick up the materials, inform the Engineer and the District recycle coordinator the Contract number, what you will pick up, and when you will pick it up. The coordinator's telephone number is (___) ___-____.~~

6. Use if the State does not furnish replacement plants.

You must furnish replacement plants. The State does not pay you for the replacement plants.

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7. Use if the State furnishes replacement plants. Insert each plant name and its deduction.

The State furnishes you with replacement plants at the same location as the original plants. For each replacement plant, the Department deducts the amount shown in the following table. If you do not plant all of the replacement plants before work completion, return unplanted plants to the location designated by the Engineer. If the plants are fit for future use, the Department credits you for them.

Replacement-Plant Deductions

Botanical name (common name)	Deduction per plant ($)

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USE WITH 2006 STANDARDS.
Use in ALL projects.

SECTION 8-2. CONCRETE

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USE WITH 2006 STANDARDS.

Use in ALL projects.

8-2.__ PORTLAND CEMENT CONCRETE

Portland cement concrete shall conform to the provisions in Section 90, "Portland Cement Concrete," of the Standard Specifications and these special provisions.

2

The Department maintains a list of sources of fine and coarse aggregate that have been approved for use with a reduced amount of supplementary cementitious material in the total amount of cementitious material to be used. A source of aggregate will be considered for addition to the approved list if the producer of the aggregate submits to the Transportation Laboratory certified test results from a qualified testing laboratory that verify the aggregate complies with the requirements. Before the testing starts, the aggregate test shall be registered with the Department. A registration number can be obtained by calling (916) 227-7228. The registration number shall be used as the identification for the aggregate sample in correspondence with the Department. Upon request, a split of the tested sample shall be provided to the Department. Approval of aggregate will depend upon compliance with the specifications, based on the certified test results submitted, together with any replicate testing the Department may elect to perform. Approval will expire 3 years from the date the most recent registered and evaluated sample was collected from the aggregate source.

3

Qualified testing laboratories shall conform to the following requirements:

1. Laboratories performing ASTM Designation: C 1293 shall participate in the Cement and Concrete Reference Laboratory (CCRL) Concrete Proficiency Sample Program and shall have received a score of 3 or better on each test of the previous 2 sets of concrete samples.
2. Laboratories performing ASTM Designation: C 1260 shall participate in the Cement and Concrete Reference Laboratory (CCRL) Pozzolan Proficiency Sample Program and shall have received a score of 3 or better on the shrinkage and soundness tests of the previous 2 sets of pozzolan samples.

4

Aggregates on the list shall conform to one of the following requirements:

1. When the aggregate is tested in conformance with the requirements in California Test 554 and ASTM Designation: C 1293, the average expansion at one year shall be less than or equal to 0.040 percent; or

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2. When the aggregate is tested in conformance with the requirements in California Test 554 and ASTM Designation: C 1260, the average of the expansion at 16 days shall be less than or equal to 0.15 percent.

5

If the aggregates used in the concrete are on the Department's list, the minimum amount of supplementary cementitious material shall conform to the following:

1. If fly ash or natural pozzolan conforming to the provisions in Section 90-2.01C, "Required Use of Supplementary Cementitious Materials," of the Standard Specifications is used, the minimum amount of supplementary cementitious material shall be 15 percent by weight of the total cementitious material; or
2. If silica fume conforming to the provisions in Section 90-2.01C, "Required Use of Supplementary Cementitious Materials," of the Standard Specifications is used, the minimum amount of supplementary cementitious material shall be 7 percent by weight of the total cementitious material.

6

The limitation on tricalcium silicate (C_3S) content in Type II cement specified in Section 90-2.01A, "Cement," of the Standard Specifications shall not apply.

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USE WITH 2006 STANDARDS.

Use this specification when the project includes precast piles, girders, deck units, or MSE panels (Para 2). Use also for other work that requires precast concrete quality control, e.g., when miscellaneous precast members are structural in nature, and have been designed specifically for a project (Para 3).

KC9-13-2009**

~~**8-2.__ PRECAST CONCRETE QUALITY CONTROL**~~

~~**GENERAL**~~

~~Precast concrete quality control shall conform to these special provisions.~~

2

~~Unless otherwise specified, precast concrete quality control shall apply when any precast concrete members are fabricated in conformance with the provisions in Section 49, "Piling," or Section 51, "Concrete Structures," of the Standard Specifications.~~

3*. Give a SPECIFIC description of the work, not already covered in Sections 49 or 51 of the Standard Specifications, for which Precast Concrete Quality Control is to apply. Check with the Prestressed Concrete Committee and Structure Construction before using this para.

~~In addition, precast concrete quality control shall apply when precast members are fabricated for the following work:~~

~~A. _____~~
~~B. _____~~
~~C. _____~~

4

~~Quality Control (QC) shall be the responsibility of the Contractor. The Contractor's QC inspectors shall perform inspection and testing prior to precasting, during precasting, and after precasting, and as specified in this section and additionally as necessary to ensure that materials and workmanship conform to the details shown on the plans, and to the specifications.~~

5

~~Quality Assurance (QA) is the prerogative of the Engineer. Regardless of the acceptance for a given precast element by the Contractor, the Engineer will evaluate the precast element. The Engineer will reject any precast element that does not conform to~~

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~~the approved Precast Concrete Quality Control Plan (PCQCP), the details shown on the plans, or to these special provisions.~~

6

~~The Contractor shall designate in writing a precast Quality Control Manager (QCM) for each precasting facility. The QCM shall be responsible directly to the Contractor for the quality of precasting, including materials and workmanship, performed by the Contractor and all subcontractors. The QCM shall be the sole individual responsible to the Contractor for submitting, receiving, and approving all correspondence, required submittals, and reports to and from the Engineer. The QCM shall not be employed or compensated by any subcontractor, or other persons or entities hired by subcontractors, or suppliers, who will provide other services or materials for the project. The QCM may be an employee of the Contractor.~~

7

~~Prior to submitting the PCQCP required herein, a meeting between the Engineer, the Contractor's QCM, and a representative from each entity performing precast concrete operations for this project, shall be held to discuss the requirements for precast quality control.~~

8

~~QC Inspectors shall either be 1) licensed as Civil Engineers in the State of California, or 2) have a current Plant Quality Personnel Certification, Level II, from the Precast/Prestressed Concrete Institute. A QC Inspector shall witness all precast concrete operations.~~

9

~~PRECAST CONCRETE QUALIFICATION AUDIT~~

~~Unless otherwise specified, no Contractors or subcontractors performing precast concrete operations for the project shall commence work without having successfully completed the Department's Precast Fabrication Qualification Audit, hereinafter referred to as the audit. The Engineer will perform the audit, and copies of the audit form, along with procedures for requesting and completing the audit, are available at the Transportation Laboratory or at:~~

~~http://www.dot.ca.gov/hq/esc/Translab/smbpubs.htm~~

10

~~An audit that was previously approved by the Engineer no more than 3 years prior to the beginning of work on this contract will be acceptable for the entire period of this contract, provided the Engineer determines the audit is for the same type of work that is to be performed on this contract.~~

11

~~Successful completion of an audit shall not relieve the Contractor of the responsibility for furnishing materials or producing finished work of the quality specified in these special provisions and as shown on the plans.~~

DRAFT

12

~~PRECAST CONCRETE QUALITY CONTROL PLAN~~

~~Prior to performing any precasting operations, the Contractor shall submit to the Engineer, in conformance with the provisions in Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications, 3 copies of a separate PCQCP for each item of work to be precast. A separate PCQCP shall be submitted for each facility. As a minimum, each PCQCP shall include the following:~~

~~A. The name of the precasting firm, the concrete plants to be used, and any concrete testing firm to be used;~~
~~B. A manual prepared by the precasting firm that includes equipment, testing procedures, safety plan, and the names, qualifications, and documentation of certifications for all personnel to be used;~~
~~C. The name of the QCM and the names, qualifications, and documentation of certifications for all QC inspection personnel to be used;~~
~~D. An organizational chart showing all QC personnel and their assigned QC responsibilities;~~
~~E. The methods and frequencies for performing all required quality control procedures, including all inspections, material testing, and any required survey procedures for all components of the precast elements including prestressing systems, concrete, grout, reinforcement, steel components embedded or attached to the precast member, miscellaneous metal, and formwork;~~
~~F. A system for identification and tracking of required precast element repairs, and a procedure for the reinspection of any repaired precast element. The system shall have provisions for a method of reporting nonconforming precast elements to the Engineer; and~~
~~G. Forms to be used for Certificates of Compliance, daily production logs, and daily reports.~~

13. Edit review time for short time limit jobs. Check with METS.

~~The Engineer shall have 4 weeks to review the PCQCP submittal after a complete plan has been received. No precasting shall be performed until the PCQCP is approved in writing by the Engineer.~~

14

~~A PCQCP that was previously approved by the Engineer no more than one year prior to the beginning of work on this contract will be acceptable for the entire period of this contract, provided the Engineer determines the PCQCP is for the same type of work that is to be performed on this contract.~~

15. Edit review time for short time limit jobs. Check with METS.

~~An amended PCQCP or addendum shall be submitted to, and approved in writing by the Engineer, for any proposed revisions to the approved PCQCP. An amended PCQCP or addendum will be required for any revisions to the PCQCP, including but not limited to changes in concrete plants or source materials, changes in material testing procedures and testing labs, changes in procedures and equipment, changes in QC personnel, or updated systems for tracking and identifying precast elements. The Engineer shall have~~

DRAFT

~~2 weeks to complete the review of the amended PCQCP or addendum, once a complete submittal has been received. Work that is affected by any of the proposed revisions shall not be performed until the amended PCQCP or addendum has been approved.~~

16

~~After final approval of the PCQCP, amended PCQCP, or addendum, the Contractor shall submit 7 copies to the Engineer of each of these approved documents.~~

17

~~It is expressly understood that the Engineer's approval of the Contractor's PCQCP shall not relieve the Contractor of any responsibility under the contract for the successful completion of the work in conformance with the requirements of the plans and specifications. The Engineer's approval shall neither constitute a waiver of any of the requirements of the plans and specifications nor relieve the Contractor of any obligation thereunder; and defective work, materials, and equipment may be rejected notwithstanding approval of the PCQCP.~~

18

~~**REPORTING**~~

~~The QC Inspector shall provide reports to the QCM on a daily basis for each day that precasting operations are performed.~~

19

~~A daily production log for precasting shall be kept by the QCM for each day that precasting operations, including setting forms, placing reinforcement, setting prestressing steel, casting, curing, post tensioning, and form release, are performed. The log shall include the facility location, and shall include a specific description of casting or related operations, any problems or deficiencies discovered, any testing or repair work performed, and the names of all QC personnel and the specific QC inspections they performed that day. The daily report from each QC Inspector shall also be included in the log. This daily log shall be available for viewing by the Engineer, at the precasting facility.~~

20

~~All reports regarding material tests and any required survey checks shall be signed by the person who performed the test or check, and then submitted directly to the QCM for review and signature prior to submittal to the Engineer. Corresponding names shall be clearly printed or type-written next to all signatures.~~

21

~~The Engineer shall be notified immediately in writing when any precasting problems or deficiencies are discovered and of the proposed repair or process changes required to correct them. The Engineer shall have 4 weeks to review these procedures. No remedial work shall begin until the Engineer approves these procedures in writing.~~

22

~~The following items shall be included in a precast report that is to be submitted to the Engineer following the completion of any precast element:~~

DRAFT

~~A. Reports of all material tests and any required survey checks;~~

~~B. Documentation that the Contractor has evaluated all tests and corrected all rejected deficiencies, and all repairs have been re-examined with the required tests and found acceptable; and~~

~~C. A daily production log.~~

23

~~At the completion of any precast element, and if the QCM determines that element is in conformance with these special provisions, the QCM shall sign and furnish to the Engineer, a Certificate of Compliance in conformance with the provisions in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications. This Certificate of Compliance shall be submitted with the precast report. The certificate shall state that all of the materials and workmanship incorporated in the work, and all required tests and inspections of this work, have been performed in conformance with the details shown on the plans and the provisions of the Standard Specifications and these special provisions.~~

24

~~PAYMENT~~

~~In the event the Engineer fails to complete the review of 1) a PCQCP, 2) an amended PCQCP or addendum, or 3) a proposed repair or process change, within the time allowed, and if, in the opinion of the Engineer, completion of the work is delayed or interfered with by reason of the Engineer's delay in completing the review, the Contractor will be compensated for any resulting loss, and an extension of time will be granted, in the same manner as provided for in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.~~

25

~~All required repair work or process changes required to correct precasting operation deficiencies, whether discovered by the QCM, QC Inspector, or by the Engineer, and any associated delays or expenses to the Contractor caused by performing these repairs, shall be at the Contractor's expense.~~

26

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

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USE WITH 2006 STANDARDS.
Use in all projects. Delete Section 8-3 title that is not applicable.

SECTION 8-3. WELDING

KC9-13-2009**

~~SECTION 8-3. (BLANK)~~

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USE WITH 2006 STANDARDS.

Paras 1 thru 17, use when ANY welding may be performed on the project.

8-3.__ WELDING

GENERAL

Flux cored welding electrodes conforming to the requirements of AWS A5.20 E6XT-4 or E7XT-4 shall not be used to perform welding for this project.

2

Wherever reference is made to the following AWS welding codes in the Standard Specifications, on the plans, or in these special provisions, the year of adoption for these codes shall be as listed:

AWS Code	Year of Adoption
D1.1	2006
D1.4	2005
D1.5	2002
D1.6	1999

3

Requirements of the AWS welding codes shall apply unless otherwise specified in the Standard Specifications, on the plans, or in these special provisions. Wherever the abbreviation AWS is used, it shall be equivalent to the abbreviations ANSI/AWS or AASHTO/AWS.

4

Section 6.1.1.1 of AWS D1.5 is replaced with the following:

Quality Control (QC) shall be the responsibility of the Contractor. As a minimum, the Contractor shall perform inspection and testing of each weld joint prior to welding, during welding, and after welding as specified in this section and as necessary to ensure that materials and workmanship conform to the requirements of the contract documents.

5

Unless otherwise specified, Sections 6.1.3 through 6.1.4.3 of AWS D1.1, Section 7.1.2 of AWS D1.4, and Sections 6.1.1.2 through 6.1.3.3 of AWS D1.5 are replaced with the following:

The QC Inspector shall be the duly designated person who acts for and on behalf of the Contractor for inspection, testing, and quality related matters for all welding.

Quality Assurance (QA) is the prerogative of the Engineer. The QA Inspector is the duly designated person who acts for and on behalf of the Engineer.

The QC Inspector shall be responsible for quality control acceptance or rejection of materials and workmanship, and shall be currently certified as an AWS Certified Welding Inspector (CWI) in conformance with the requirements in AWS QC1, "Standard for AWS Certification of Welding Inspectors."

The QC Inspector may be assisted by an Assistant QC Inspector provided that this individual is currently certified as an AWS Certified Associate Welding Inspector (CAWI) in conformance with the requirements in AWS QC1, "Standard for AWS Certification of Welding Inspectors." The Assistant QC Inspector may perform inspection under the direct supervision of the QC Inspector provided the assistant is always within visible and audible range of the QC Inspector. The QC Inspector shall be responsible for signing all reports and for determining if welded materials conform to workmanship and acceptance criteria. The ratio of QC Assistants to QC Inspectors shall not exceed 5 to 1.

When the term "Inspector" is used without further qualification, it shall refer to the QC Inspector.

6

When any work is welded in conformance with the provisions in Section 75, "Miscellaneous Metal," of the Standard Specifications, not including Section 75-1.035, "Bridge Joint Restrainer Units," of the Standard Specifications, Section 6.1.4 of AWS D1.1 is replaced with the following:

The QC Inspector shall be responsible for quality control acceptance or rejection of materials and workmanship and shall be currently certified as an AWS CWI in conformance with the requirements in AWS QC1, "Standard for AWS Certification of Welding Inspectors," or as a Welding Inspector Specialist (WIS) in conformance with the requirements in AWS B5.2, "Specification for the Qualification of Welding Inspector Specialists and Welding Inspector Assistants."

7

Section 6.14.6, "Personnel Qualification," of AWS D1.1, Section 7.8, "Personnel Qualification," of AWS D1.4, and Section 6.1.3.4, "Personnel Qualification," of AWS D1.5 are replaced with the following:

Personnel performing nondestructive testing (NDT) shall be qualified and certified in conformance with the requirements of the American Society for Nondestructive Testing (ASNT) Recommended Practice No. SNT-TC-1A and the Written Practice of the NDT firm. The Written Practice of the NDT firm shall meet or exceed the guidelines of the ASNT Recommended Practice No. SNT-TC-1A. Individuals who perform NDT, review the results, and prepare the written reports shall be either:

A. Certified NDT Level II technicians, or;

B. Level III technicians who hold a current ASNT Level III certificate in that discipline and are authorized and certified to perform the work of Level II technicians.

8

Section 6.5.4 of AWS D1.5 is replaced with the following:

The QC Inspector shall inspect and approve each joint preparation, assembly practice, welding technique, joint fit-up, and the performance of each welder, welding operator, and tack welder to make certain that the applicable requirements of this code and the approved Welding Procedure Specification (WPS) are met. The QC Inspector shall examine the work to make certain that it meets the requirements of Sections 3 and 6.26. The size and contour of all welds shall be measured using suitable gages. Visual inspection for cracks in welds and base metal, and for other discontinuities shall be aided by strong light, magnifiers, or such other devices as may be helpful. Acceptance criteria different from those specified in this code may be used when approved by the Engineer.

9

Section 6.6.5, "Nonspecified NDT Other than Visual," of AWS D1.1, Section 7.6.5 of AWS D1.4 and Section 6.6.5 of AWS D1.5 shall not apply.

10

For any welding, the Engineer may direct the Contractor to perform NDT that is in addition to the visual inspection or NDT specified in the AWS or other specified welding codes, in the Standard Specifications, or in these special provisions. Except as provided for in these special provisions, additional NDT required by the Engineer, and associated repair work, will be paid for as extra work as provided in Section 4-1.03D, "Extra Work," of the Standard Specifications. Prior to release of welded material by the Engineer, if testing by NDT methods other than those originally specified discloses an attempt to defraud or reveals a gross nonconformance, all costs associated with the repair of the deficient area, including NDT of the weld and of the repair, and any delays caused by the repair, shall be at the Contractor’s expense. A gross nonconformance is defined as the sum of planar type rejectable indications in more than 20 percent of the tested length.

11

When less than 100 percent of NDT is specified for any weld, it is expected that the entire length of weld meet the specified acceptance-rejection criteria. Should any welding deficiencies be discovered by additional NDT directed or performed by the Engineer that utilizes the same NDT method as that originally specified, all costs associated with the repair of the deficient area, including NDT of the weld and of the weld repair, and any delays caused by the repair, shall be at the Contractor's expense.

12

Repair work to correct welding deficiencies discovered by visual inspection directed or performed by the Engineer, and any associated delays or expenses caused to the Contractor by performing these repairs, shall be at the Contractor's expense.

DRAFT

13

The Engineer shall have the authority to verify the qualifications or certifications of any welder, QC Inspector, or NDT personnel to specified levels by retests or other means approved by the Engineer.

14

Inspection and approval of all joint preparations, assembly practices, joint fit-ups, welding techniques, and the performance of each welder, welding operator, and tack welder shall be documented by the QC Inspector on a daily basis for each day welding is performed. For each inspection, including fit-up, Welding Procedure Specification (WPS) verification, and final weld inspection, the QC Inspector shall confirm and document compliance with the requirements of the AWS or other specified code criteria and the requirements of these special provisions on all welded joints before welding, during welding, and after the completion of each weld.

15

In addition to the requirements specified in the applicable code, the period of effectiveness for a welder's or welding operator's qualification shall be a maximum of 3 years for the same weld process, welding position, and weld type. If welding will be performed without gas shielding, then qualification shall also be without gas shielding. Excluding welding of fracture critical members, a valid qualification at the beginning of work on a contract will be acceptable for the entire period of the contract, as long as the welder's or welding operator's work remains satisfactory.

16

In addition to the requirements of AWS D1.1, welding procedures qualification for work welded in conformance with that code shall conform to the following:

When a nonstandard weld joint is to be made using a combination of WPSs, a single test may be conducted combining the WPSs to be used in production, provided the essential variables, including weld bead placement, of each process are limited to those established in Table 4.5.

17

In addition to the requirements of AWS D1.5, Section 5.12 or 5.13, welding procedures qualification for work welded in conformance with that code shall conform to the following requirements:

A. Unless considered prequalified, fillet welds shall be qualified in each position. The fillet weld soundness test shall be conducted using the essential variables of the WPS as established by the Procedure Qualification Record (PQR).
B. For qualification of joints that do not conform to Figures 2.4 and 2.5 of AWS D1.5, a minimum of two WPS qualification tests are required. The tests shall be conducted using both Figure 5.1 and Figure 5.3. The test conforming to Figure 5.1 shall be conducted in conformance with AWS D1.5, Section 5.12 or 5.13. The test conforming to Figure 5.3 shall be conducted using the welding electrical parameters that were established for the test conducted conforming to Figure 5.1. The ranges of welding electrical parameters established during welding per Figure

5.1 in conformance with AWS D1.5, Section 5.12, shall be further restricted according to the limits in Table 5.3 during welding per Figure 5.3.

C. Multiple zones within a weld joint may be qualified. The travel speed, amperage, and voltage values that are used for tests conducted per AWS D1.5 Section 5.13 shall be consistent for each pass in a weld joint, and shall in no case vary by more than ±10 percent for travel speed, ±10 percent for amperage, and ±7 percent for voltage as measured from a predetermined target value or average within each weld pass or zone. The travel speed shall in no case vary by more than ±15 percent when using submerged arc welding.

D. For a WPS qualified in conformance with AWS D1.5 Section 5.13, the values to be used for calculating ranges for current and voltage shall be based on the average of all weld passes made in the test. Heat input shall be calculated using the average of current and voltage of all weld passes made in the test for a WPS qualified in conformance with Section 5.12 or 5.13.

E. Macroetch tests are required for WPS qualification tests, and acceptance shall be per AWS D1.5 Section 5.19.3.

F. When a nonstandard weld joint is to be made using a combination of WPSs, a test conforming to Figure 5.3 may be conducted combining the WPSs to be used in production, provided the essential variables, including weld bead placement, of each process are limited to those established in Table 5.3.

G. Prior to preparing mechanical test specimens, the PQR welds shall be inspected by visual and radiographic tests. Backing bar shall be 3 inches in width and shall remain in place during NDT testing. Results of the visual and radiographic tests shall comply with AWS D1.5 Section 6.26.2, excluding Section 6.26.2.2. Test plates that do not comply with both tests shall not be used.

Paras 18 thru 44, use when welding is performed for work associated with the Standard Specification Sections described in Para 19.

18

WELDING QUALITY CONTROL

Welding quality control shall conform to the requirements in the AWS or other specified welding codes, the Standard Specifications, and these special provisions.

19. Add a SPECIFIC description of other work that requires welding quality control ONLY when that work 1) is structural in nature, 2) has been designed specifically for a project, and 3) IS REQUESTED BY OSD OR METS.

Unless otherwise specified, welding quality control shall apply when any work is welded in conformance with the provisions in Section 49, "Piling," Section 52, "Reinforcement," Section 55, "Steel Structures," or Section 75-1.035, "Bridge Joint Restrainer Units," of the Standard Specifications.

20

All welding will require inspection by the Engineer. The Contractor shall request inspection at least 3 business days prior to the beginning of welding for locations within California and 5 business days for locations outside of California. The Contractor shall request inspection at:

http://www.dot.ca.gov/hq/esc/Translab/OSM/smbforms.htm

21

Continuous inspection shall be provided when any welding is being performed. Continuous inspection, as a minimum, shall include having a QC Inspector within such close proximity of all welders or welding operators so that inspections by the QC Inspector of each welding operation at each welding location does not lapse for a period exceeding 30 minutes.

22

When joint weld details that are not prequalified to the details of Section 3 of AWS D1.1 or to the details of Figure 2.4 or 2.5 of AWS D1.5 are proposed for use in the work, the joint details, their intended locations, and the proposed welding parameters and essential variables, shall be approved by the Engineer. The Contractor shall allow the Engineer 15 days to complete the review of the proposed joint detail locations. In the event the Engineer fails to complete the review within the time allowed, and if, in the opinion of the Engineer, completion of the work is delayed or interfered with by reason of the Engineer's delay in completing the review, the Contractor will be compensated for any resulting loss, and an extension of time will be granted, in the same manner as provided for in Section 8-1.09, "Right of Way Delays," of the Standard Specifications. Upon approval of the proposed joint detail locations and qualification of the proposed joint details, welders and welding operators using these details shall perform a qualification test plate using the WPS variables and the joint detail to be used in production. The test plate shall have the maximum thickness to be used in production and a minimum length of 18 inches. The test plate shall be mechanically and radiographically tested. Mechanical and radiographic testing and acceptance criteria shall be as specified in the applicable AWS codes.

23

The Engineer will witness all qualification tests for WPSs that were not previously approved by the Department. Unless otherwise specified, an approved independent third party will witness the qualification tests for welders or welding operators. The independent third party shall be a current CWI and shall not be an employee of the contractor performing the welding. The Contractor shall allow the Engineer 15 days to review the qualifications and copy of the current certification of the independent third party. In the event the Engineer fails to complete the review within the time allowed, and if, in the opinion of the Engineer, completion of the work is delayed or interfered with by reason of the Engineer's delay in completing the review, the Contractor will be compensated for any resulting loss, and an extension of time will be granted, in the same manner as provided for in Section 8-1.09, "Right of Way Delays," of the Standard Specifications. The Contractor shall notify the Engineer 7 days prior to performing any qualification tests. Witnessing of qualification tests by the Engineer shall not constitute approval of the intended joint locations, welding parameters, or essential variables.

DRAFT

24

The Contractor shall designate in writing a welding Quality Control Manager (QCM). The QCM shall be responsible directly to the Contractor for the quality of welding, including materials and workmanship, performed by the Contractor and subcontractors.

25

The QCM shall be the sole individual responsible to the Contractor for submitting, receiving, reviewing, and approving all correspondence, required submittals, and reports to and from the Engineer. The QCM shall be a registered professional engineer or shall be currently certified as a CWI.

26

Unless the QCM is hired by a subcontractor providing only QC services, the QCM shall not be employed or compensated by any subcontractor, or by other persons or entities hired by subcontractors, who will provide other services or materials for the project. The QCM may be an employee of the Contractor.

27

Welding inspection personnel or NDT firms to be used in the work shall not be employed or compensated by any subcontractor, or by other persons or entities hired by subcontractors, who will provide other services or materials for the project, except for the following conditions:

A. The work is welded in conformance with AWS D1.5 and is performed at a permanent fabrication or manufacturing facility that is certified under the AISC Quality Certification Program, Category Cbr, Major Steel Bridges and Fracture Critical endorsement F, when applicable.
B. The work is welded in conformance with AWS D1.1 at a permanent pipe manufacturing or fabrication facility that maintains a QC program that is independent from production.

28

For welding performed at such facilities, the inspection personnel or NDT firms may be employed or compensated by the facility performing the welding provided the facility maintains a QC program that is independent from production.

29

Prior to submitting the Welding Quality Control Plan (WQCP) required herein, a prewelding meeting between the Engineer, the Contractor's QCM, and a representative from each entity performing welding or inspection for this project, shall be held to discuss the requirements for the WQCP.

30

The Contractor shall submit to the Engineer, in conformance with the provisions in Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications, 2 copies of a separate WQCP for each subcontractor or supplier for each item of work for which welding is to be performed.

DRAFT

31

The Contractor shall allow the Engineer 15 days to review the WQCP submittal after a complete plan has been received. No welding shall be performed until the WQCP is approved in writing by the Engineer. In the event the Engineer fails to complete the review within the time allowed, and if, in the opinion of the Engineer, completion of the work is delayed or interfered with by reason of the Engineer's delay in completing the review, the Contractor will be compensated for any resulting loss, and an extension of time will be granted, in the same manner as provided for in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

32

An amended WQCP or any addendum to the approved WQCP shall be submitted to, and approved in writing by the Engineer, for proposed revisions to the approved WQCP. An amended WQCP or addendum will be required for revisions to the WQCP, including but not limited to a revised WPS; additional welders; changes in NDT firms, QC, or NDT personnel or procedures; or updated systems for tracking and identifying welds. The Engineer shall have 7 days to complete the review of the amended WQCP or addendum. Work affected by the proposed revisions shall not be performed until the amended WQCP or addendum has been approved. In the event the Engineer fails to complete the review within the time allowed, and if, in the opinion of the Engineer, completion of the work is delayed or interfered with by reason of the Engineer's delay in completing the review, the Contractor will be compensated for any resulting loss, and an extension of time will be granted, in the same manner as provided for in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

33

Information regarding the contents, format, and organization of a WQCP, is available at the Transportation Laboratory and at:

http://www.dot.ca.gov/hq/esc/Translab/OSM/smbresources.htm

34

After final approval of the WQCP, amended WQCP, or addendum, the Contractor shall submit 7 copies to the Engineer of the approved documents. A copy of the Engineer approved document shall be available at each location where welding is to be performed.

35

A daily production log for welding shall be kept for each day that welding is performed. The log shall clearly indicate the locations of all welding. The log shall include the welders' names, amount of welding performed, any problems or deficiencies discovered, and any testing or repair work performed, at each location. The daily report from each QC Inspector shall also be included in the log.

36

The following items shall be included in a Welding Report that is to be submitted to the Engineer within 15 days following the performance of any welding:

A. A daily production log.
B. Reports of all visual weld inspections and NDT.

C. Radiographs and radiographic reports, and other required NDT reports.
D. A summary of welding and NDT activities that occurred during the reporting period.
E. Reports of each application of heat straightening.
F. A summarized log listing the rejected lengths of weld by welder, position, process, joint configuration, and piece number.
G. Documentation that the Contractor has evaluated all radiographs and other nondestructive tests and corrected all rejectable deficiencies, and that all repaired welds have been reexamined using the required NDT and found acceptable.

37

The following information shall be clearly written on the outside of radiographic envelopes: name of the QCM, name of the nondestructive testing firm, name of the radiographer, date, contract number, complete part description, and all included weld numbers, report numbers, and station markers or views, as detailed in the WQCP. In addition, all interleaves shall have clearly written on them the part description and all included weld numbers and station markers or views, as detailed in the WQCP. A maximum of 2 pieces of film shall be used for each interleave.

38

Reports of all visual inspections and NDT shall be signed by the inspector or technician and submitted daily to the QCM for review and signature prior to submittal to the Engineer. Corresponding names shall be clearly printed or typewritten next to all signatures. Reports of all NDT, whether specified, additional, or informational, performed by the Contractor shall be submitted to the Engineer.

39

The Engineer will review the Welding Report to determine if the Contractor is in conformance with the WQCP. Except for steel pipe piling, the Engineer shall be allowed 15 days to review the report and respond in writing after the complete Welding Report has been received. Prior to receiving notification from the Engineer of the Contractor's conformance with the WQCP, the Contractor may encase in concrete or cover welds for which the Welding Report has been submitted. However, should the Contractor elect to encase or cover those welds prior to receiving notification from the Engineer, it is expressly understood that the Contractor shall not be relieved of the responsibility for incorporating material in the work that conforms to the requirements of the plans and specifications. Material not conforming to these requirements will be subject to rejection. Should the Contractor elect to wait to encase or cover welds pending notification by the Engineer, and in the event the Engineer fails to complete the review within the time allowed, and if, in the opinion of the Engineer, completion of the work is delayed or interfered with by reason of the Engineer's delay in completing the review, the Contractor will be compensated for any resulting loss, and an extension of time will be granted, in the same manner as provided for in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

40

For steel pipe piling, including bar reinforcement in the piling, the Contractor shall allow the Engineer 2 business days to review the Welding Report and respond in writing

DRAFT

after the required items have been received. No field welded steel pipe piling shall be installed, and no reinforcement in the piling shall be encased in concrete until the Engineer has approved the above requirements in writing.

41

In addition to the requirements in AWS D1.1 and AWS D1.5, second-time excavations of welds or base metal to repair unacceptable discontinuities, regardless of NDT method, and all repairs of cracks require prior approval of the Engineer.

42

The Engineer shall be notified immediately in writing when welding problems, deficiencies, base metal repairs, or any other type of repairs not submitted in the WQCP are discovered, and also of the proposed repair procedures to correct them. For requests to perform second-time repairs or repairs of cracks, the Contractor shall include an engineering evaluation of the proposed repair. The engineering evaluation, at a minimum, shall address the following:

A. What is causing each defect?
B. Why the repair will not degrade the material properties?
C. What steps are being taken to prevent similar defects from happening again?

43

The Contractor shall allow the Engineer 7 days to review these procedures. No remedial work shall begin until the repair procedures are approved in writing by the Engineer. In the event the Engineer fails to complete the review within the time allowed, and if, in the opinion of the Engineer, completion of the work is delayed or interfered with by reason of the Engineer's delay in completing the review, the Contractor will be compensated for any resulting loss, and an extension of time will be granted, in the same manner as provided for in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

44

The QCM shall sign and furnish to the Engineer, a Certificate of Compliance in conformance with the provisions in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications for each item of work for which welding was performed. The certificate shall state that all of the materials and workmanship incorporated in the work, and all required tests and inspections of this work, have been performed in conformance with the details shown on the plans, the Standard Specifications, and these special provisions.

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USE WITH 2006 STANDARDS.

Use when the project includes work conforming to Section 56-1, "Overhead Sign Structures," or Section 86-2.04, "Standards, Steel Pedestals and Posts," of the Standard Specifications.

WELDING FOR OVERHEAD SIGN AND POLE STRUCTURES

The Contractor shall meet the following requirements for any work welded in conformance with the provisions in Section 56-1, "Overhead Sign Structures," or Section 86-2.04, "Standards, Steel Pedestals and Posts," of the Standard Specifications.

2

Welding inspection personnel or NDT firms to be used in the work shall not be employed or compensated by any subcontractor, or by other persons or entities hired by subcontractors, who will provide other services or materials for the project, except for when the welding is performed at a permanent fabrication or manufacturing facility which is certified under the AISC Quality Certification Program, Category Sbd, Conventional Steel Building Structures.

3

Welding Qualification Audit

Contractors or subcontractors performing welding operations for overhead sign and pole structures shall not deliver materials to the project without having successfully completed the Department's "Manufacturing Qualification Audit for Overhead Sign and Pole Structures," hereinafter referred to as the audit, not more than one year prior to the delivery of the materials. The Engineer will perform the audit. Copies of the audit form, and procedures for requesting and completing the audit, are available at the Transportation Laboratory or at:

http://www.dot.ca.gov/hq/esc/Translab/OSM/smbresources.htm

4

An audit that was approved by the Engineer no more than one year prior to the beginning of work on this contract will be acceptable for the entire period of this contract, provided the Engineer determines the audit was for the same type of work that is to be performed on this contract.

5

Successful completion of an audit shall not relieve the Contractor of the responsibility for furnishing materials or producing finished work of the quality specified in these special provisions and as shown on the plans.

DRAFT

Paras 6 and 7, use when "Welding Quality Control" of S8-W04 IS NOT in the project and delete Para 8.

6

Welding Report

A daily production log for welding shall be kept for each day that welding is performed. The log shall clearly indicate the locations of all welding. The log shall include the welders' names, amount of welding performed, any problems or deficiencies discovered, and any testing or repair work performed, at each location. The daily report from each QC Inspector shall also be included in the log.

7

A Welding Report shall be submitted to the Engineer 48 hours prior to furnishing a Certificate of Compliance for the material in conformance with the provisions in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications. The Welding Report shall include the following items:

A. A daily production log.
B. Reports of all visual weld inspections and NDT.
C. Radiographs and radiographic reports, and other required NDT reports.
D. summary of welding and NDT activities that occurred during the reporting period.
E. Documentation that the Contractor has evaluated all radiographs and other nondestructive tests and corrected all rejectable deficiencies, and all repaired welds have been reexamined by the required NDT and found acceptable.

8. Use when "Welding Quality Control" S8-W04 IS in the project and delete Paras 6 and 7.

Welding Report

For work welded in conformance with the provisions in Section 56-1, "Overhead Sign Structures," or Section 86-2.04, "Standards, Steel Pedestals and Posts," of the Standard Specifications, a Welding Report shall be submitted in conformance with the provisions in "Welding Quality Control" of these special provisions.

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USE WITH 2006 STANDARDS.

Use this specification when the project includes steel pipe for CISS piles, unfilled pipe piles (including when the option to use steel pipe piling is allowed per the plans or standard plans),or permanent steel casings for CIDH piles. Use with S8-W04 and S8-W09. Include SSP 49-350 in the special provisions.

KC9-13-2009**

~~STEEL PIPE PILING QUALIFICATION AUDIT~~

1

~~The Contractor shall submit documentation that one of the following steel pipe piling qualification audits has been successfully completed before welding operations are performed, other than field welding, for steel pipe piling:~~

~~A. "Class R Steel Pipe Piling Qualification Audit"~~
~~B. "Class N Steel Pipe Piling Qualification Audit"~~

2

~~An audit shall have been completed for each pipe pile diameter, thickness, grade of steel, and class of piling, to be supplied for this project. The procedures for requesting and completing the audit are available at:~~

~~http://www.dot.ca.gov/hq/esc/Translab/OSM/smbresources.htm~~

3

~~An audit that was approved by the Department no more than 3 years before the beginning of work on this contract will be acceptable for the entire period of this contract, provided the Engineer determines the audit was for the same type of work that is to be performed on this contract.~~

4

~~A list of facilities who have successfully completed the audit and are authorized to provide material for this contract is available at:~~

~~http://www.dot.ca.gov/hq/esc/Translab/OSM/smdocuments/Internet_auditlisting.pdf~~

DRAFT

5

~~Successful completion of an audit shall not relieve the Contractor of the responsibility for furnishing materials or producing finished work of the quality specified in these special provisions and as shown on the plans.~~

{ XE "S8-W09_E_B11-21-08" }

USE WITH 2006 STANDARDS.

Use when ANY welding may be performed on the project. Use with S8-W04, S8-W05, or S8-W06.

PAYMENT

Full compensation for conforming to the requirements of "Welding" shall be considered as included in the contract prices paid for the various items of work involved and no additional compensation will be allowed therefor.

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USE WITH 2006 STANDARDS.
Use in ALL projects.
Delete Section 9 title that is not applicable.

SECTION 9. (BLANK)

SECTION 9. DESCRIPTION OF BRIDGE WORK

SECTION 10. CONSTRUCTION DETAILS

SECTION 10-1. GENERAL

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USE WITH 2006 STANDARDS.

Excluding seal coat, surfacing, and seismic projects, use on all projects with an estimated contract cost of $750,000 or more and 50 working days (WD) or more. Use 70 WD minimum when Sat, Sun & Holidays are counted as working days. Do not count plant establishment days.

INCLUDE Std Plan T7 in project plans.

NOTE: When projects are located within city or urban areas, District must ensure space is available for signs.

1*. Specify quantity and type of signs. Specify Type 1 for conventional highway; Type 2 for freeway & expressway.

10-1.00 CONSTRUCTION PROJECT INFORMATION SIGNS

Before any major physical construction work readily visible to highway users is started on this contract, the Contractor shall furnish and erect two Type 2 Construction Project Information signs at the locations designated by the Engineer.

2

The signs and overlays shall be of a type and material consistent with the estimated time of completion of the project and shall conform to the details shown on the plans.

3

The sign letters, the border and the Department's construction logos shall conform to the colors (non-reflective) and details shown on the plans, and shall be on a white background (non-reflective). The colors blue and orange shall conform to PR Color Number 3 and Number 6, respectively, as specified in the Federal Highway Administration's Color Tolerance Chart.

4*. Specify type of funding. If County funds are involved (i.e. cooperative agreement provided), specify type of county funding. Otherwise, delete "_____ County Transportation Funds." If project has no Federal funding, delete "Federal Highway Trust Funds."

KC9-14-2009**

The sign message to be used for fund types shall consist of the following, in the order shown:

FEDERAL HIGHWAY TRUST FUNDS
STATE HIGHWAY FUNDS
ALAMEDA COUNTY TRANSPORTATION FUNDS
CONTRA COSTA COUNTY TRANSPORTATION FUNDS

5*. Specify applicable type of project. Select only one type of project heading. Determine type of project to use from applicable work descriptions in following table:

KC9-14-2009**

Type of Project:	Work Descriptions:
Highway Construction	**Construct Expressway, Freeway, Shoulders, Structure, HOV Lane, Ramp, Interchange, Left Turn Lane, Truck Escape Ramp, or Weigh Station; Widen Freeway, Roadway or Shoulders; Realign Roadways.**
Highway Repair	**Clean & Paint Overhead Sign Structure; Crack, Seal & Grind Pavement; Pavement Markings; Pavement Rehabilitation; Ramp Repaving; Replace Culverts, Drainage Systems, Railroad Crossings, or Sign Structures; Retrofit Curb Ramps.**
Highway Improvement	**Channelization; Changeable Message Signs; Highway Advisory Radio System; Median Barrier; Motorist Aid Communication System; Ramp Metering; Retaining & Sound Walls; Signal Modification; Signals & Lighting; Traffic Signals; Traffic Count Stations; Traffic Operations System; Slope Protection; Thrie Beam Barrier; Realign Curve; Modify Interchange, or Gore; Reconstruct Interchange.**
Bridge Construction	**Replace, Remove or Widen Bridge; Construct Overcrossing, Pedestrian Overcrossing, Overhead, Undercrossing, Sidehill Viaduct, or Interchange Connectors.**
Bridge Repair	**Clean and Paint Bridge; Clean and Replace Joint Seals; Upgrade Joints Seals; Modify Bridge Railing; Raise Bridge; Replace Bridge Bearings; Rehabilitate Bridge Decks; Tunnel Rehabilitation.**
Roadside Work	**Erosion Control; Highway Planting & Irrigation; Replacement Planting; Revegetation; Irrigation Upgrade; Planting; Restoration and Irrigation; Maintenance Station; Landscape Maintenance Station; Maintenance Yard & Building; Pumping Plant; Roadside Rest Area; Vista Point; Park & Ride Lot; Transit Station; Truck Inspection Facility; Truck Scale; Right of Way Fence Upgrade; Biological or Habitat Enhancement; Treat Contaminated Water Supply.**

The sign message to be used for type of work shall consist of the following:

~~HIGHWAY CONSTRUCTION~~
~~HIGHWAY REPAIR~~
HIGHWAY IMPROVEMENT
~~BRIDGE CONSTRUCTION~~
~~BRIDGE REPAIR~~
~~ROADSIDE WORK~~

DRAFT

6

The sign message to be used for the Year of Completion of Project Construction will be furnished by the Engineer. The Contractor shall furnish and install the "Year" sign overlay within 10 working days of notification of the year date to be used.

7

The letter sizes to be used shall be as shown on the plans. The information shown on the signs shall be limited to that shown on the plans.

8

The signs shall be kept clean and in good repair by the Contractor.

9

Upon completion of the work, the signs shall be removed and disposed of outside the highway right of way in conformance with the provisions in Section 7-1.13 of the Standard Specifications.

10. When there is no item for CAS, replace "contract lump sum price paid for construction area signs" with "prices paid for the various contract items of work involved".

Full compensation for furnishing, erecting, maintaining, and removing and disposing of the construction project information signs shall be considered as included in the contract lump sum price paid for construction area signs and no additional compensation will be allowed therefor.

DRAFT

USE WITH 2006 STANDARDS.

LEAD SSP.

Include special features which apply to the project.

10-1.01 ORDER OF WORK

Order of work shall conform to the provisions in Section 5-1.05, "Order of Work," of the Standard Specifications and these special provisions.

8. Use when SSPs S5-760 and 07-446 are used.

Attention is directed to "Environmentally Sensitive Area" and "Temporary Fence (Type ESA)" of these special provisions. Prior to beginning work, the boundaries of the Environmentally Sensitive Areas (ESA) shall be clearly delineated in the field. The boundaries shall be delineated by the installation of temporary fence (Type ESA).

USE WITH 2006 STANDARDS.

Add to SSP 05-010.

Miscellaneous clauses for signal and lighting work.

Include special features which apply to the particular project.

1. Use in projects when delivery of equipment may be a controlling item of work. Use the second sentence when required and only when such a statement is NOT made in Section 4. Add sign panels if Contractor furnished sign panels are mounted on electrical standards or poles.

The first order of work shall be to place the order for the electrical equipment. The Engineer shall be furnished a statement from the vendor that the order for the electrical equipment has been received and accepted by the vendor.

2. Use when new pavement is to be constructed at locations where conduits and detector loops are to be installed. Delete if district policy is to cut loops into top layer.

The uppermost layer of new pavement shall not be placed until all underlying conduits and loop detectors have been installed.

DRAFT

3. Use when traffic signal work is involved.

Prior to commencement of the traffic signal functional test at any location, all items of work related to signal control shall be completed and all roadside signs, pavement delineation, and pavement markings shall be in place at that location.

{ XE "05-020_E_A06-06-08" }
Page 1 of 2
Added

USE WITH 2006 STANDARDS.

Add to SSP 05-010

1. Use if there is slope paving to be constructed on the project.

KC 10-8-2009**

~~Attention is directed to "Slope Paving" of these special provisions regarding constructing a 4' x 6' test panel prior to placing the permanent slope paving.~~

2. Use if there are curb ramp detectable warning surfaces to be installed on the project.

KC 10-8-2009**

~~Attention is directed to "Miscellaneous Concrete Construction" of these special provisions regarding constructing a 2' x 2' test panel prior to constructing curb ramps with detectable warning surfaces.~~

3. Use if there are sound walls with precast reinforced concrete panels to be constructed on the project.

KC 10-8-2009**

~~Attention is directed to "Sound Wall (Precast Concrete Panel)" of these special provisions regarding constructing a 3' x 3' test panel prior to constructing the precast reinforced concrete panels for the sound wall.~~

4. Use if there are sound walls with timber panels to be constructed on the project.

KC 10-8-2009**

~~Attention is directed to "Sound Wall (Timber)" of these special provisions regarding furnishing a 2' x 2' test panel prior to constructing the sound wall of wood panels, plywood sheets or framed plywood panels.~~

5. Use if there are diaphragm bolsters to be constructed on the project.

KC 10-8-2009**

~~Attention is directed to "Diaphragm Bolster" of these special provisions regarding constructing 2 preconstruction shotcrete test panels prior to performing shotcrete work if shotcrete is substituted for cast-in-place concrete for the diaphragm bolsters.~~

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6. Use if there is a fire plan for the project.

KC 10-8-2009**

~~Attention is directed to "Fire Plan" of these special provisions regarding cooperating with local fire prevention authorities and implementing the fire plan established for this project.~~

7. Use when SSP 40-020 is included in the project.

KC 10-8-2009**

~~Attention is directed to "Replace Concrete Pavement (Rapid Strength Concrete)" of these special provisions in regards to providing Pre-Operation Conference and the Just-In-Time Training prior to commencing pavement replacement operations.~~

8. Use when SSPs S5-760 and 07-446 are used.

Attention is directed to "Environmentally Sensitive Area" and "Temporary Fence (Type ESA)" of these special provisions. Prior to beginning work, the boundaries of the Environmentally Sensitive Areas (ESA) shall be clearly delineated in the field. The boundaries shall be delineated by the installation of temporary fence (Type ESA).

{ XE "05-050_E_A11-16-07" }
Page 1 of 2

USE WITH 2006 STANDARDS.

Use for projects with planned staging or when staging is inherent to the type of work, that is, hot mix asphalt overlays, channelizations and widenings, and include the appropriate "Temporary Pavement Delineation" SSP.

Edit to fit the project.

Include other "Order of Work" requirements.

Add to SSP 05-010.

1. Edit for proper references.

Attention is directed to "Maintaining Traffic" and "Temporary Pavement Delineation" of these special provisions and to the stage construction sheets of the plans.

2. Include when SSP 08-015 is included in the project.

Attention is directed to "Progress Schedule (Critical Path Method)" of these special provisions regarding the submittal of a general time-scaled logic diagram within 10 days after approval of the contract. The diagram shall be submitted prior to performing any work that may be affected by any proposed deviations to the construction staging of the project.

3

The work shall be performed in conformance with the stages of construction shown on the plans. Nonconflicting work in subsequent stages may proceed concurrently with work in preceding stages, provided satisfactory progress is maintained in the preceding stages of construction.

DRAFT

4

In each stage, after completion of the preceding stage, the first order of work shall be the removal of existing pavement delineation as directed by the Engineer. Pavement delineation removal shall be coordinated with new delineation so that lane lines are provided at all times on traveled ways open to public traffic.

5

Before obliterating any pavement delineation (traffic stripes, pavement markings, and pavement markers) that is to be replaced on the same alignment and location, as determined by the Engineer, the pavement delineation shall be referenced by the Contractor, with a sufficient number of control points to reestablish the alignment and location of the new pavement delineation. The references shall include the limits or changes in striping pattern, including one- and 2-way barrier lines, limit lines, crosswalks and other pavement markings. Full compensation for referencing existing pavement delineation shall be considered as included in the contract prices paid for new pavement delineation and no additional compensation will be allowed therefor.

6*. Edit to include type of paving and unit of measurement.

KC 9-14-2009**

Prior to applying Hot Mix Asphalt (Type A), the Contractor shall cover all manholes, valve and monument covers, grates, or other exposed facilities located within the area of application, using a plastic or oil resistant construction paper secured to the facility being covered by tape or adhesive. The covered facilities shall be referenced by the Contractor, with a sufficient number of control points to relocate the facilities after the Hot Mix Asphalt (Type A) has been placed. After completion of the Hot Mix Asphalt (Type A) operation, all covers shall be removed and disposed of in a manner satisfactory to the Engineer. Full compensation for covering manholes, valve and monument covers, grates, or other exposed facilities, referencing, and removing temporary cover shall be considered as included in the contract price paid per ton for Hot Mix Asphalt (Type A), and no additional compensation will be allowed therefor.

{ XE "05-150_E_A05-01-06" }
Page 1 of 1

USE WITH 2006 STANDARDS.

Use when work on guard railing, thrie beam barrier or metal beam barrier is to be done adjacent to traffic. Edit as required.

Add to SSP 05-010.

KC 9-14-2009**

At those locations exposed to public traffic where guard railings ~~or barriers~~ are to be constructed~~, reconstructed,~~ or removed ~~and replaced~~, the Contractor shall schedule operations so that at the end of each working day there shall be no post holes open nor shall there be any railing ~~or barrier~~ posts installed without the blocks and rail elements assembled and mounted thereon.

DRAFT

USE WITH 2006 STANDARDS

Miscellaneous "Order of Work" Paras for planting and seeding work, and for irrigation work.

Add to SSP 05-010 or to other "Order of Work" SSPs as required.

1. Use when plants are to be grown for this project.

Some plants required for this project may not be readily available and may have to be grown specifically for this project. Within 30 days after the contract has been approved, furnish to the Engineer a statement from the vendor that the order for the plants to be grown for this contract, including inspection plants and replacement plants, has been received and accepted by the vendor. The statement from the vendor must include the names, sizes, and quantities of plants ordered and the anticipated dates of delivery. Notify the Engineer in writing when the vendor has started to grow the plants.

2. Use on Highway Planting projects if plants are required.

~~Within 30 days after the contract has been approved, furnish the Engineer a statement from the vendor that the order for the plants required for this contract, including inspection plants, has been received and accepted by the vendor. The statement from the vendor must include the names, sizes, and quantities of plants ordered and the anticipated date of delivery.~~

3. Use on Highway Construction projects if plants are required. Edit as required for short duration contracts.

At least 60 days before applying seeds, furnish the Engineer a statement from the vendor that the order for the seed required for this contract has been received and accepted by the vendor. The statement from the vendor must include the names and quantity of seed ordered and the anticipated date of delivery.

4. Use when plants are required.

Place orders for replacement plants with the vendor at the appropriate time so that the roots of the replacement plants are not in a root-bound condition.

5. Use only on Highway Planting projects.

KC 9-14-2009**

~~For progress payment purposes, the Department will withhold 50 percent of the estimated value of highway planting work done until a statement from the vendor that the order for the plants required for this contract is submitted to the Engineer.~~

6. Use when SSP 20-030, SSP 20-040, SSP 20-041, SSP 20-047, SSP 20-049, SSP 20-050, SSP 20-055 or SSP 20–530 is used and seed is required, but do not use when only barley or ryegrass seed is specified. Edit days as required for short duration contracts.

At least 60 days before applying seeds, furnish the Engineer a statement from the vendor that the order for the seed required for this contract has been received and

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accepted by the vendor. The statement from the vendor must include the names and quantity of seed ordered and the anticipated date of delivery.

7. Use when SSP 20-030, SSP 20-040, SSP 20-041, SSP 20-047, SSP 20-050, SSP 20-056, SSP 20-055 or SSP 20-530 is used; otherwise delete. Edit as required.

KC 9-14-09**

The Engineer designates ground locations of erosion control by directing the placing of stakes or other suitable markers before application of erosion control materials as specified under ~~"Erosion Control (Type C),"~~ "Erosion Control (Type D),"~~ "Erosion Control (Type BFM)," "Erosion Control (Drill Seed)," "Erosion Control (Compost Blanket)," "Erosion Control (Hydraulic Matrix)", "Compost, Incorporate" or "Wild Flower Seeding,"~~ of these special provisions.

7a new

KC 9-14-09**

Application of erosion control may require several move-in/move-outs of erosion control equipment and attention is directed to this SSP.

8. Use when SSP 20-252 is used; otherwise delete. Do not use with SSP 20-251 when "Maintain Existing Planted Areas" is paid for as Extra Work.

Before the start of irrigation work, check for deficiencies of existing plants that are to remain in place as specified under "Maintain Existing Planted Areas" of these special provisions.

9. Use when SSP 20-301 is used; otherwise delete.

Locate existing irrigation water line crossovers and conduits before performing work on the irrigation system as specified under "Locate Existing Crossover and Conduits" of these special provisions.

10

Unless otherwise shown on the plans or specified in these special provisions, conduits to be jacked or drilled or installed by the open trench method for water line crossovers and sprinkler control crossovers must be installed before the installation of other pipe supply lines.

11. Use only on Highway Planting projects when SSP 20-300 is used and when checking of existing irrigation facilities is required; otherwise delete Para.

Before the start of irrigation work, check existing irrigation facilities that are to remain in place, as specified under "Existing Highway Irrigation Facilities" of these special provisions.

12. Use only on Highway Construction projects when checking of existing irrigation facilities is required and add SSP 20-304; otherwise delete Para.

Do not perform clearing, grubbing, and earthwork operations in areas where existing irrigation facilities are to remain in place until existing irrigation facilities have been

checked for proper operation as specified under "Existing Highway Irrigation Facilities" of these special provisions.

13. Use only on Highway Construction projects when SSP 20-110 is used; otherwise delete.

Locate existing conduits to be extended as specified under "Extend Irrigation Crossovers" of these special provisions before the start of other work in these areas.

14. Use when irrigation systems contain electrical components (other than electrical service only); otherwise delete.

Submittal of working drawings for electrical components must comply with Section 20-5.027B, "Wiring Plans and Diagrams," of the Standard Specifications.

15. Use when SSP 20-625 requires irrigation components to be installed in the enclosure cabinet prior to field installation; otherwise delete.

Preinstall irrigation components in the irrigation controller enclosure cabinet before field installation as specified under "Irrigation Controller Enclosure Cabinet" of these special provisions.

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USE WITH 2006 STANDARDS.

Use in Districts 4, 6, 7, 8, 10, 11, and 12.

Use SSP 10-010 with SSP 07-330.

Do not use SSP S5-740 with SSP 07-330.

Use on projects with known contamination from aerially deposited lead and with minor soil disturbance, that is, no soil will be surplus or wasted on job.

Such projects include installing guardrail, fencing, and sign posts, and installing traffic operation systems, performing highway planting and irrigation and minor clearing and grubbing, constructing shoulder backing, pavement and trenches for electrical, planting, or irrigation systems.

All soil disturbed should remain in the area of disturbance and not be transported elsewhere.

Do not use in highway planting and irrigation projects that require excavation for constructing a maintenance vehicle pullout, gore paving, or rock blanket.

Use SSP S5-740 and SSP 19-900 on projects with major soil disturbance, such as roadway excavation, including stockpiling, transporting, or disposing of material contaminated with aerially deposited lead at California hazardous waste levels.

The Design Engineer shall consult with the District Environmental Office to determine if this SSP is appropriate and to fill in lead levels.

DO NOT EDIT, EXCEPT WHERE INDICATED.

KC 9-14-2009**

~~10-1.__ MATERIAL CONTAINING AERIALLY DEPOSITED LEAD~~

~~This work shall consist of handling material contaminated by aerially deposited lead in conformance with the Standard Specifications and these special provisions.~~

~~2*. Fill in the levels of lead.~~

~~Aerially deposited lead is typically found within the top 2 feet of material in unpaved areas within the highway right of way. Levels of lead found near the project limits range from less than _____ mg/kg to _____ mg/kg total lead with an average concentration of _____ mg/kg total lead, as analyzed by EPA Test Method 6010 or EPA Test Method 7000 series.~~

~~**3**~~

~~After the Contractor has completed handling materials containing aerially deposited lead, in conformance with the plans, Standard Specifications, and these special provisions, the Contractor shall have no responsibility for such materials in place and shall not be obligated for further cleanup, removal, or remedial actions for such materials.~~

~~**4*. Fill in the appropriate region for the Water Quality Control Board.**~~

~~Handling material containing aerially deposited lead shall be in conformance with rules and regulations including, but not limited to, those of the following agencies:~~

~~California Division of Occupational Safety and Health Administration (Cal-OSHA)~~
~~California Regional Water Quality Control Board, Region _____.~~

~~**5**~~

~~Full compensation for conforming to the requirements of this section, except for the Lead Compliance Plan, shall be considered as included in the prices paid for the various contract items of work involved and no additional compensation will be allowed therefor.~~

~~**6**~~

~~**LEAD COMPLIANCE PLAN**~~

~~The Contractor shall prepare a project specific Lead Compliance Plan to prevent or minimize worker exposure to lead while handling material containing aerially deposited lead. Attention is directed to Title 8, California Code of Regulations, Section 1532.1, "Lead," for specific Cal-OSHA requirements when working with lead.~~

~~**7**~~

~~The Lead Compliance Plan shall contain the elements listed in Title 8, California Code of Regulations, Section 1532.1(e)(2)(B). Before submission to the Engineer, the Lead Compliance Plan shall be approved by an Industrial Hygienist certified in Comprehensive Practice by the American Board of Industrial Hygiene. The plan shall be submitted to the Engineer at least 7 days prior to beginning work in areas containing aerially deposited lead.~~

~~**8**~~

~~Prior to performing work in areas containing lead, personnel who have no prior training, including State personnel, shall complete a safety training program provided by the Contractor, that meets the requirements of Title 8, California Code of Regulations, Section 1532.1, "Lead," and the Contractor's Lead Compliance Program.~~

~~**9*. Edit Para 9 to include number of State employees.**~~

~~Personal protective equipment, training, and washing facilities, required by the Contractor's Lead Compliance Plan shall be supplied to State personnel by the Contractor. The number of State personnel will be _____.~~

~~**10**~~

~~The contract lump sum price paid for Lead Compliance Plan shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for~~

DRAFT

~~doing all the work involved in preparing the Lead Compliance Plan, including paying the Certified Industrial Hygienist, and for providing personal protective equipment, training and medical surveillance, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.~~

~~**11**~~

~~**SOIL HANDLING**~~

~~Handling of materials containing aerially deposited lead shall result in no visible dust migration. The Contractor shall have a means of dust control available at all times while handling material in work areas containing aerially deposited lead.~~

~~**12**~~

~~The Contractor shall separate material from vegetation and the soils shall remain on site. This will not be required for vegetation removal performed during plant establishment.~~

~~**13**~~

~~Surplus material excavated from areas containing aerially deposited lead shall remain in the area of soil disturbance. The surplus soil shall not be disposed of outside the highway right of way.~~

~~**14**~~

~~Full compensation for handling material contaminated with aerially deposited lead, except as otherwise provided, shall be considered as included in the prices paid for the various contract items of work involved and no additional compensation will be allowed therefor.~~

{ XE "07-340_E_A03-21-08" }
Page 1 of 8

USE WITH 2006 STANDARDS.

WATER POLLUTION CONTROL PROGRAM (WPCP) for use with ALL projects where construction activities, such as clearing, grading, and excavation result in less than one acre of soil disturbance. Use SSP 07-345 for projects where soil disturbance area is one acre or more, or for projects where significant water quality impairment will result, as determined by the Regional Water Quality Control Board (RWQCB).

KC 9-15-2009**
Deleted

~~**10-1.___ WATER POLLUTION CONTROL**~~

~~**GENERAL**~~

~~Water pollution control work shall conform to the provisions in Section 7-1.01G, "Water Pollution," of the Standard Specifications, section of these special provisions~~

~~entitled "Relations With California Regional Water Quality Control Board," and these special provisions.~~

~~2. Use when designers prepare a Storm Water Information Handout.~~

~~A Storm Water Information Handout has been prepared for this contract and is available as described in "Project Information" of these special provisions.~~

~~Paras 3 and 4. Edit if your District has a local office for obtaining guides and manuals.~~

~~3~~

~~The Contractor shall perform water pollution control work in conformance with the requirements in the "Storm Water Pollution Prevention Plan (SWPPP) and Water Pollution Control Program (WPCP) Preparation Manual" and its addenda in effect on the day the Notice to Contractors is dated. This manual is referred to as the "Preparation Manual." Copies of the Preparation Manual may be obtained from:~~

~~State of California~~
~~Department of Transportation~~
~~Publication Distribution Unit~~
~~1900 Royal Oaks Drive~~
~~Sacramento, California 95815~~
~~Telephone: (916) 445-3520~~

~~4~~

~~The Preparation Manual and other references for performing water pollution control work are available from the Department's Construction Storm Water and Water Pollution Control web site at:~~

~~http://www.dot.ca.gov/hq/construc/stormwater/stormwater1.htm~~

~~5~~

~~Before the start of job site activities, the Contractor shall provide training for project managers, supervisory personnel, and employees involved with water pollution control work. The training shall include:~~

~~A. Rules and regulations~~
~~B. Implementation and maintenance for:~~

~~1. Temporary Soil Stabilization~~
~~2. Temporary Sediment Control~~
~~3. Tracking Control~~
~~4. Wind Erosion Control~~

~~6~~

~~The Contractor shall designate in writing a Water Pollution Control Manager (WPCM). The Contractor shall submit a statement of qualifications describing the~~

~~training, work history, and expertise of the proposed WPCM. The qualifications shall include either:~~

~~A. A minimum of 24 hours of Department approved storm water management training described at Department's Construction Storm Water and Water Pollution Control web site.~~

~~B. Certification as a Certified Professional in Erosion and Sediment Control (CPESC).~~

~~**7**~~

~~The WPCM shall be:~~

~~A. Responsible for water pollution control work.~~

~~B. The primary contact for water pollution control work.~~

~~C. Have authority to mobilize crews to make immediate repairs to water pollution control practices.~~

~~**8**~~

~~The Contractor may designate one manager to prepare the WPCP and a different manager to implement the plan. The WPCP preparer shall meet the training requirements for the WPCM.~~

~~**9**~~

~~**WATER POLLUTION CONTROL PROGRAM**~~

~~The Contractor shall submit a Water Pollution Control Program (WPCP) to the Engineer for approval. The WPCP shall conform to the requirements in the Preparation Manual and these special provisions.~~

~~**10**~~

~~The WPCP shall include water pollution control practices:~~

~~A. For storm water and non-storm water from areas outside of the job site related to construction activities for this contract such as:~~

~~1. Staging areas.~~

~~2. Storage yards.~~

~~3. Access roads.~~

~~B. Appropriate for each season as described in "Implementation Requirements" of these special provisions.~~

~~**11**~~

~~The WPCP shall include a schedule that:~~

DRAFT

~~A. Describes when work activities that could cause water pollution will be performed.~~
~~B. Identifies soil stabilization and sediment control practices for disturbed soil area.~~
~~C. Includes dates when these practices will be 25, 50, and 100 percent complete.~~
~~D. Shows 100 percent completion of these practices before the rainy season.~~

~~12*. Add items included in the contract under appropriate practices.~~

~~The WPCP shall include the following temporary water pollution control practices and their associated contract items of work as shown on the plans or specified in these special provisions:~~

~~A. Temporary Soil Stabilization~~

~~1. _____~~

~~B. Temporary Sediment Control~~

~~1. _____~~

~~C. Tracking Control~~

~~1. _____~~

~~D. Wind Erosion Control~~

~~1. _____~~

~~E. Non-Storm Water Management~~

~~1. _____~~

~~F. Waste Management and Materials Pollution Control~~

~~1. _____~~

~~13*. Use when construction of one or more permanent controls is necessary.~~

~~The WPCP shall include the following contract items of work for permanent water pollution control as shown on the plans or as specified in these special provisions:~~

~~A. _____~~
~~B. _____~~
~~C. _____~~

DRAFT

~~**14. Use for most projects outside the Lake Tahoe Hydrologic Unit. For less complex projects, fast-track schedules, or short construction periods, the time needed for submittal, review, and revision of the WPCP may be reduced. Deviation from the time frames indicated are allowed only with the approval of the District Construction Storm Water Coordinator.**~~

~~Within 7 days after contract approval, the Contractor shall submit 2 copies of the WPCP to the Engineer. The Contractor shall allow 15 days for the Engineer's review. If revisions are required, the Engineer will provide comments and specify the date that the review stopped. The Contractor shall revise and resubmit the WPCP within 7 days of receipt of the Engineer's comments. The Engineer's review will resume when the complete WPCP is resubmitted. When the Engineer approves the WPCP, the Contractor shall submit 3 copies of the approved WPCP to the Engineer. The Contractor may proceed with construction activities if the Engineer conditionally approves the WPCP while minor revisions are being completed. If the Engineer fails to complete the review within the time allowed and if, in the opinion of the Engineer, completion of the work is delayed or interfered with by reason of the Engineer's delay, the Contractor will be compensated for resulting losses, and an extension of time will be granted, as provided for in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.~~

~~**15. Use for projects within the Lake Tahoe Hydrologic Unit requiring 30-day review by the Lahontan RWQCB before beginning construction. Deviation from the timeframes indicated are allowed only with the approval of the District Construction Storm Water Coordinator.**~~

~~Within 7 days after contract approval, the Contractor shall submit 2 copies of the WPCP to the Engineer. The Contractor shall allow 15 days for the Engineer's review. If revisions are required, the Engineer will provide comments and specify the date that the review stopped. The Contractor shall revise and resubmit the WPCP within 7 days of receipt of the Engineer's comments. The Engineer's review will resume when the complete WPCP is resubmitted. When the Engineer approves the WPCP, the Contractor shall submit 3 copies of the approved WPCP to the Engineer. After approval, the Engineer will submit one copy of the approved WPCP to the Lahontan RWQCB for their review and comment. If the Lahontan RWQCB provides comments to the WPCP, the Contractor shall amend the WPCP. Construction activities shall begin no sooner than 30 days after the Engineer approves the WPCP. If the Engineer fails to complete the review within the time allowed and if, in the opinion of the Engineer, completion of the work is delayed or interfered with because of the Engineer's or the RWQCB's review, the Contractor will be compensated for resulting losses, and an extension of time will be granted, as provided for in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.~~

~~**16*. Insert related permits obtained by the Department for the project such as Fish & Game permits, US Army Corps of Engineers permits, RWQCB 401 Certifications, and RWQCB Waste Discharge Requirements for Aerially Deposited Lead Reuse. Otherwise, delete.**~~

~~The WPCP shall include a copy of the _____.~~

~~17~~

~~The Contractor shall not perform work that may cause water pollution until the WPCP has been approved by the Engineer. The Engineer's review and approval shall not waive any contract requirements and shall not relieve the Contractor from complying with Federal, State and local laws, regulations, and requirements.~~

~~18~~

~~If there is a change in construction schedule or activities, the Contractor shall prepare an amendment to the WPCP to identify additional or revised water pollution control practices. The Contractor shall submit the amendment to the Engineer for review within a time agreed to by the Engineer not to exceed the number of days specified for the initial submittal of the WPCP. The Engineer will review the amendment within the same time allotted for the review of the initial submittal of the WPCP.~~

~~**19. Include supplemental funds to cover extra work for item 066596, "Additional Water Pollution Control."**~~

~~If directed by the Engineer or requested in writing by the Contractor and approved by the Engineer, changes to the water pollution control work specified in these special provisions will be allowed. Changes may include addition of new water pollution control practices. The Contractor shall incorporate these changes in the WPCP. Additional water pollution control work will be paid for as extra work in accordance with Section 4-1.03D, "Extra Work," of the Standard Specifications.~~

~~20~~

~~The Contractor shall keep a copy of the approved WPCP at the job site. The WPCP shall be made available when requested by a representative of the Regional Water Quality Control Board, State Water Resources Control Board, United States Environmental Protection Agency, or the local storm water management agency. Requests from the public shall be directed to the Engineer.~~

~~21~~

~~**IMPLEMENTATION REQUIREMENTS**~~

~~The Contractor's responsibility for WPCP implementation shall continue throughout any temporary suspension of work ordered in conformance with the provisions in Section 8-1.05, "Temporary Suspension of Work," of the Standard Specifications.~~

~~22~~

~~If the Contractor or the Engineer identifies a deficiency in the implementation of the approved WPCP, the deficiency shall be corrected immediately, unless an agreed date for correction is approved in writing by the Engineer. The deficiency shall be corrected before the onset of precipitation. If the Contractor fails to correct the deficiency by the agreed date or before the onset of precipitation, the Department may correct the deficiency and deduct the cost of correcting deficiencies from payments.~~

DRAFT

~~**23. Use if early construction is required for permanent water pollution control items such as slope paving, rock slope protection, ditch lining, and infiltration or detention basins, etc. Identify the schedule in "Order of Work."**~~

~~The Contractor shall construct permanent water pollution control items identified in the WPCP as specified in "Order of Work" of these special provisions. The Contractor shall maintain the permanent water pollution control items in the locations and condition shown on the plans throughout the duration of the project.~~

~~**24**~~

~~**Year-Round**~~

~~The Contractor shall monitor the National Weather Service weather forecast on a daily basis during the contract. The Contractor may use an alternative weather forecasting service if approved by the Engineer. Appropriate water pollution control practices shall be in place before precipitation.~~

~~**25**~~

~~The Contractor may discontinue earthwork operations for a disturbed area for up to 21 days and the disturbed soil area will still be considered active. When earthwork operations in the disturbed area have been completed, the Contractor shall implement appropriate water pollution control practices within 15 days or before predicted precipitation, whichever occurs first.~~

~~**For projects at or below 4,000 feet in elevation in the Lahontan RWQCB areas of Dist. 2, 3, 6, 7, 8, 9, or 10 or Colorado River Basin RWQCB areas of Dist. 8 or 11 consult District NPDES or Construction Storm Water Coordinator for possible rainy season dates for the project.**~~

~~**26. Use if there is no designated rainy season for the project and delete Paras 27 and 28.**~~

~~**Rainy Season**~~

~~The project has no defined rainy season.~~

~~**27*. Use for projects with designated rainy seasons as defined in Appendix E of the June 2007 Stormwater Management Plan (SWMP) (available at: http://www.dot.ca.gov/hq/env/stormwater/index.htm). For projects with 2 rainy seasons, add the following text to the end of the paragraph: ", and between _____ and _____." and insert dates of second rainy season.**~~

~~Soil stabilization and sediment control practices conforming to these special provisions shall be in place during the rainy season between _____ and _____.~~

~~**28. Use when early assurance of rainy season control practice implementation is deemed critical by the District Construction Storm Water Coordinator.**~~

~~The Contractor shall implement soil stabilization and sediment control practices a minimum of 10 days before the start of the rainy season.~~

DRAFT

~~29. Use for all projects located in the Lake Tahoe, Truckee River, East Fork Carson River, or West Fork Carson River Hydrologic Units, or for projects above 5,000 feet in elevation in the portions of Mono County or Inyo County within the Lahontan RWQCB, unless granted a variance by the RWQCB Executive Officer.~~

~~Winter Shutdown~~

~~The Contractor shall not remove vegetation or disturb existing ground surface conditions between October 15 and May 1.~~

~~30*. For items "D" & "E" below, edit the inspection period. For Lake Tahoe Hydrologic Unit "D" shall be every day and "E" shall be daily. Otherwise, insert time appropriate for project conditions.~~

~~INSPECTION AND MAINTENANCE~~

~~The WPCM shall inspect the water pollution control practices identified in the WPCP as follows:~~

~~A. Before a forecasted storm,~~
~~B. After precipitation that causes site runoff,~~
~~C. At 24-hour intervals during extended precipitation,~~
~~D. On a predetermined schedule, a minimum of once every 2 weeks outside of the defined rainy season, and~~
~~E. On a predetermined schedule, a minimum of once a week during the defined rainy season.~~

~~31~~

~~The WPCM shall oversee the maintenance of the water pollution control practices.~~

~~32~~

~~The WPCM shall use the Storm Water Quality Construction Site Inspection Checklist provided in the Preparation Manual or an alternative inspection checklist provided by the Engineer. A copy of the completed site inspection checklist shall be submitted to the Engineer within 24 hours of finishing the inspection.~~

~~33. Use in projects with plant establishment work.~~

~~The Contractor may suspend inspections of water pollution control practices during plant establishment work upon written approval from the Engineer.~~

~~34. Edit the number of days in the second sentence if a local RWQCB requires a shorter notification period.~~

~~REPORTING REQUIREMENTS~~

~~If the Contractor identifies discharges into surface waters or drainage systems causing or potentially causing pollution or if the project receives a written notice or order from a regulatory agency, the Contractor shall immediately inform the Engineer. The Contractor~~

DRAFT

~~shall submit a written report to the Engineer within 7 days of the discharge, notice, or order. The report shall include the following information:~~

~~A. The date, time, location, and nature of the operation, type of discharge and quantity, and the cause of the notice or order.~~
~~B. The water pollution control practices used before the discharge, or before receiving the notice or order.~~
~~C. The date of placement and type of additional or altered water pollution control practices placed after the discharge or after receiving the notice or order.~~
~~D. A maintenance schedule for affected water pollution control practices.~~

~~35~~

~~PAYMENT~~

~~During each estimate period the Contractor fails to conform to the provisions in this section, "Water Pollution Control," or fails to implement the water pollution control practices shown on the plans or specified elsewhere in these special provisions as items of work, the Department will withhold 25 percent of the progress payment.~~

~~36~~

~~Withholds for failure to perform water pollution control work will be in addition to all other withholds provided for in the contract. The Department will return performance-failure withholds in the progress payment following the correction for noncompliance.~~

~~37. Include Item 074017 "Prepare Water Pollution Control Program."~~

~~The contract lump sum price paid for prepare water pollution control program shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in preparing, obtaining approval of, and amending the WPCP and inspecting water pollution control practices as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.~~

~~38~~

~~Payments for prepare water pollution control program will be made as follows:~~

~~A. After the WPCP has been approved by the Engineer, up to 75 percent of the contract item price for prepare water pollution control program will be included in the monthly progress estimate.~~
~~B. After acceptance of the contract in conformance with the provisions in Section 7-1.17, "Acceptance of Contract," of the Standard Specifications, payment for the remaining percentage of the contract item price for prepare water pollution control program will be made in conformance with the provisions in Section 9-1.07A, "Payment Prior to Proposed Final Estimate."~~

~~39~~

~~Implementation of water pollution control practices in areas outside the highway right of way not specifically provided for in the WPCP or in these special provisions will not be paid for.~~

DRAFT

40

~~Water pollution control practices for which there are separate contract items of work will be measured and paid for as those contract items of work.~~

DRAFT

USE WITH 2006 STANDARDS.

STORM WATER POLLUTION PREVENTION PLAN (SWPPP) for use with ALL projects where construction activities, such as clearing, grading, and excavation result in one acre or more of soil disturbance; or for projects where significant water quality impairment will result, as determined by the Regional Water Quality Control Board (RWQCB).

KC* 9-14/2009**

10-1.___ WATER POLLUTION CONTROL

GENERAL

Water pollution control work shall conform to the provisions in Section 7-1.01G, "Water Pollution," of the Standard Specifications, section of these special provisions entitled "Relations With California Regional Water Quality Control Board," and these special provisions.

2. Use when designers prepare a Storm Water Information Handout.

KC 9-14-2009**

~~A Storm Water Information Handout has been prepared for this contract and is available as described in "Project Information" of these special provisions.~~

3

The Contractor may obtain other National Pollutant Discharge Elimination System (NPDES) permits that apply to activities and mobile operations within or outside of the project limits including hot mix asphalt batch plants, material borrow areas, concrete plants, staging areas, storage yards, or access roads.

Paras 4 and 5. Edit if your District has a local office for obtaining guides and manuals.

4

The Contractor shall perform water pollution control work in conformance with the requirements in the "Storm Water Pollution Prevention Plan (SWPPP) and Water Pollution Control Program (WPCP) Preparation Manual" and its addenda in effect on the day the Notice to Contractors is dated. This manual is referred to as the "Preparation Manual." Copies of the Preparation Manual may be obtained from:

State of California
Department of Transportation
Publication Distribution Unit
1900 Royal Oaks Drive
Sacramento, California 95815
Telephone: (916) 445-3520

DRAFT

5

The Preparation Manual and other references for performing water pollution control work are available from the Department's Construction Storm Water and Water Pollution Control web site at:

http://www.dot.ca.gov/hq/construc/stormwater/stormwater1.htm

6

Before the start of job site activities, the Contractor shall provide training for project managers, supervisory personnel, and employees involved with water pollution control work. The training shall include:

A. Rules and regulations
B. Implementation and maintenance for:

    1. Temporary Soil Stabilization
    2. Temporary Sediment Control
    3. Tracking Control
    4. Wind Erosion Control

7

The Contractor shall designate in writing a Water Pollution Control Manager (WPCM). The Contractor shall submit a statement of qualifications describing the training, work history, and expertise of the proposed WPCM. The qualifications shall include either:

A. A minimum of 24 hours of Department approved storm water management training described at Department's Construction Storm Water and Water Pollution Control web site.
B. Certification as a Certified Professional in Erosion and Sediment Control (CPESC).

8

The WPCM shall be:

A. Responsible for water pollution control work.
B. The primary contact for water pollution control work.
C. Have authority to mobilize crews to make immediate repairs to water pollution control practices.

9

The Contractor may designate one manager to prepare the SWPPP and a different manager to implement the plan. The WPCP preparer shall meet the training requirements for the WPCM.

DRAFT

10

STORM WATER POLLUTION PREVENTION PLAN

The Contractor shall submit a Storm Water Pollution Prevention Plan (SWPPP) to the Engineer for approval. The SWPPP shall conform to the requirements in the Preparation Manual, the NPDES permit, and these special provisions. The SWPPP shall be submitted in place of the water pollution control program required by the provisions in Section 7-1.01G, "Water Pollution," of the Standard Specifications.

11

The SWPPP shall include water pollution control practices:

A. For storm water and non-storm water from areas outside of the job site related to construction activities for this contract such as:

   1. Staging areas.
   2. Storage yards.
   3. Access roads.

B. Appropriate for each season as described in "Implementation Requirements" of these special provisions.
C. For activities or mobile operations related to all NPDES permits.

12

The SWPPP shall include a schedule that:

A. Describes when work activities that could cause water pollution will be performed.
B. Identifies soil stabilization and sediment control practices for disturbed soil area.
C. Includes dates when these practices will be 25, 50, and 100 percent complete.
D. Shows 100 percent completion of these practices before the rainy season.

13*. Add items included in the contract under the appropriate practices.

KC* 9-14-2009**

The SWPPP shall include the following temporary water pollution control practices and their associated contract items of work as shown on the plans or specified in these special provisions:

A. Temporary Soil Stabilization

   1. SS-1
   2. SS-2
   3. SS-7

B. Temporary Sediment Control

DRAFT

1. SC-1
2. SC-7
3. SC-10

C. Tracking Control

1. TC-3

D. Wind Erosion Control

1. No temporary water pollution control practices will be included

E. Non-Storm Water Management

1. All relevant Construction Site Management BMPs

F. Waste Management and Materials Pollution Control

1. All relevant Construction Site Management BMPs

14*. Use when construction of one or more permanent controls is necessary.

KC 9-15-2009**

The SWPPP shall include the following contract items of work for permanent water pollution control as shown on the plans or as specified in these special provisions:

A. _Erosion Control (Type D)
B. _Erosion Control (Netting)
C. _____

15. Use for most projects outside the Lake Tahoe Hydrologic Unit. For less complex projects, fast-track schedules, or short construction periods, the time needed for submittal, review, and revision of the SWPPP may be reduced. Deviation from the time frames indicated are allowed only with the approval of the District Construction Storm Water Coordinator.

Within 20 days after contract approval, the Contractor shall submit 3 copies of the SWPPP to the Engineer. The Contractor shall allow 20 days for the Engineer's review. If revisions are required, the Engineer will provide comments and specify the date that the review stopped. The Contractor shall revise and resubmit the SWPPP within 15 days of receipt of the Engineer's comments. The Engineer's review will resume when the complete SWPPP is resubmitted. When the Engineer approves the SWPPP, the Contractor shall submit 4 copies of the approved SWPPP to the Engineer. The Contractor may proceed with construction activities if the Engineer conditionally

approves the SWPPP while minor revisions are being completed. If the Engineer fails to complete the review within the time allowed and if, in the opinion of the Engineer, completion of the work is delayed or interfered with by reason of the Engineer's delay, the Contractor will be compensated for resulting losses, and an extension of time will be granted, as provided for in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

16. Use for projects within the Lake Tahoe Hydrologic Unit requiring 30-day review by the Lahontan RWQCB before beginning construction. Deviation from the timeframes indicated are allowed only with the approval of the District Construction Storm Water Coordinator.

KC 9-15-2009**

~~Within 20 days after contract approval, the Contractor shall submit 3 copies of the SWPPP to the Engineer. The Contractor shall allow 20 days for the Engineer's review. If revisions are required, the Engineer will provide comments and specify the date that the review stopped. The Contractor shall revise and resubmit the SWPPP within 15 days of receipt of the Engineer's comments. The Engineer's review will resume when the complete SWPPP is resubmitted. When the Engineer approves the SWPPP, the Contractor shall submit 4 copies of the approved SWPPP to the Engineer. After approval, the Engineer will submit one copy of the approved SWPPP to the Lahontan RWQCB for their review and comment. If the Lahontan RWQCB provides comments to the SWPPP, the Contractor shall amend the SWPPP. Construction activities shall begin no sooner than 30 days after the Engineer approves the SWPPP. If the Engineer fails to complete the review within the time allowed and if, in the opinion of the Engineer, completion of the work is delayed or interfered with because of the Engineer's or the RWQCB's review, the Contractor will be compensated for resulting losses, and an extension of time will be granted, as provided for in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.~~

17*. Insert related permits obtained by the Department for the project such as Fish & Game permits, US Army Corps of Engineers permits, RWQCB 401 Certifications, and RWQCB Waste Discharge Requirements for Aerially Deposited Lead Reuse. Otherwise, delete.

KC 9-15-2009**

~~The SWPPP shall include a copy of the _____.~~

18

The Contractor shall not perform work that may cause water pollution until the SWPPP has been approved by the Engineer. The Engineer's review and approval shall not waive any contract requirements and shall not relieve the Contractor from complying with Federal, State and local laws, regulations, and requirements.

19. Include for complex multi-year projects, or where multiple construction phases will occur. Otherwise, delete.

The Contractor shall amend the SWPPP annually and shall resubmit it to the Engineer 25 days before the defined rainy season.

DRAFT

20

If there is a change in construction schedule or activities, the Contractor shall prepare an amendment to the SWPPP to identify additional or revised water pollution control practices. The Contractor shall submit the amendment to the Engineer for review within a time agreed to by the Engineer not to exceed the number of days specified for the initial submittal of the SWPPP. The Engineer will review the amendment within the same time allotted for the review of the initial submittal of the SWPPP.

21. Include supplemental funds to cover extra work for item 066596, "Additional Water Pollution Control."

If directed by the Engineer or requested in writing by the Contractor and approved by the Engineer, changes to the water pollution control work specified in these special provisions will be allowed. Changes may include addition of new water pollution control practices. The Contractor shall incorporate these changes in the SWPPP. Additional water pollution control work will be paid for as extra work in accordance with Section 4-1.03D, "Extra Work," of the Standard Specifications.

22

The Contractor shall keep a copy of the approved SWPPP at the job site. The SWPPP shall be made available when requested by a representative of the Regional Water Quality Control Board, State Water Resources Control Board, United States Environmental Protection Agency, or the local storm water management agency. Requests from the public shall be directed to the Engineer.

Delete Paras 23 thru 43 & Para 66 for projects within the Lake Tahoe Hydrologic Unit or for projects that DO NOT discharge to waters of the United States (e.g. USGS blue line).

23

SAMPLING AND ANALYSIS

The Contractor shall include a Sampling and Analysis Plan (SAP) in the SWPPP to monitor the effectiveness of the water pollution control practices. The Contractor shall prepare the SAP in conformance with the Preparation Manual.

24

The Contractor shall designate trained personnel to collect water quality samples. The personnel and training shall be documented in the SAP. Training shall consist of the following elements:

A. SAP review,
B. Health and safety review, and
C. Sampling simulations.

25

In the SAP the Contractor shall describe the following water quality sampling procedures:

A. Sampling preparation,

B. Collection,
C. Quality assurance and quality control,
D. Sample labeling,
E. Collection documentation,
F. Sample shipping,
G. Chain of custody,
H. Sample numbering, and
I. Precautions from the construction site health and safety plan.

26

The Contractor shall document sample collection during precipitation.

27

Samples to be analyzed in the field shall be taken by the Contractor's designated sampling personnel using collection and analysis methods, and equipment calibration specified by the manufacturer of the sampling equipment. Samples to be analyzed by a laboratory, shall be sampled, preserved, and analyzed by a State-certified laboratory in conformance with the requirements in 40 CFR Part 136, "Guidelines Establishing Test Procedures for the Analysis of Pollutants." The Contractor shall identify the State-certified laboratory, sample containers, preservation requirements, holding times, and analysis method in the SAP. A list of State-certified laboratories that are approved by the Department is available at:

http://www.dhs.ca.gov/ps/ls/ELAP/html/lablist.htm

Use Paras 28 thru 33 only when there is storm water discharge from the construction site directly into a body of water listed as already being impaired by sedimentation/siltation or turbidity. The Clean Water Act, Section 303(d) list is available in an appendix to the general permit at http://www.waterboards.ca.gov/stormwtr/gen_const.html#const_permit. These paragraphs do not apply to discharges that flow directly into tributaries of listed bodies of water, which are not themselves listed; or to discharges into Municipal Separate Storm Sewer Systems (MS4), including Caltrans drainage systems.

KC 9-15-2009**

~~**28*. Insert name of listed body of water into which the project will discharge. Insert current impairment and what to monitor (e.g., sedimentation/siltation or turbidity).**~~

~~**Sediment and Turbidity**~~

~~This project discharges directly into _____, a body of water required by the Clean Water Act, Section 303(d) to be listed as impaired due to _____. The Contractor shall describe in the SAP the schedule and strategy for monitoring _____ in the listed body of water in accordance with the provisions in this section.~~

~~29~~

~~The Contractor shall develop the SAP schedule so that water quality samples are taken within 2 hours of discharge from precipitation during daylight hours (sunrise to sunset), regardless of the time of year, day of the week, or condition of the construction site. If precipitation occurs again after at least 72 hours of dry weather the Contractor shall take new samples, however, sampling will not be required more than 4 times in 30 days.~~

~~30~~

~~In the SAP the Contractor shall identify the locations where runoff sources on the construction site discharge directly into the listed body of water, and the locations where water flows onto the project with the potential to combine with runoff that discharges directly into the listed body of water. These locations shall also be shown on the SWPPP Water Pollution Control Drawings.~~

~~31~~

~~The Contractor shall identify locations for collecting water quality samples and the reason for their selection. Sampling locations shall also be shown on the SWPPP Water Pollution Control Drawings. The sampling locations shall include:~~

~~A. Upstream from direct discharges from the construction site,~~
~~B. Immediately downstream from the last point of direct discharge from the construction site, and~~
~~C. Immediately downhill from the locations where water flows onto the right of way.~~

~~32~~

~~The Contractor shall specify in the SAP that for discharges into bodies of water listed as impaired due to sedimentation/siltation, samples will be analyzed for both settleable solids in accordance with the requirements of EPA Test Method 160.5, and total suspended solids in accordance with EPA Test Method 160.2; or for suspended sediment concentration in accordance with the requirements in ASTM Designation: D 3977.~~

~~33~~

~~For discharges to 303(d) bodies of water listed as impaired due to turbidity the Contractor shall specify in the SAP that samples will be analyzed for turbidity in accordance with the requirements in EPA Test Method 180.1.~~

34. Use Paras 34 thru 40 only if storm water discharges directly to a water of the United States (e.g., USGS blue line) or discharges to a drainage system that discharges into a water of the United States.

Non-Visible Pollutants

This project has the potential to discharge non-visible pollutants in storm water from the construction site. The Contractor shall include in the SAP a description of the sampling and analysis strategy to be implemented on the project for monitoring non-visible pollutants.

DRAFT

35

In the SAP the Contractor shall identify potential non-visible pollutants that will be present on the construction site associated with the following:

A. Construction materials and wastes;
B. Existing contamination due to historical site usage; or
C. Application of soil amendments, including soil stabilization products, with the potential to alter pH or contribute toxic pollutants to storm water.

36

The Contractor shall show the locations planned for storage and use of the potential non-visible pollutants on the SWPPP Water Pollution Control Drawings.

37

The Contractor shall include in the SAP the following list of conditions that require sampling when observed during a storm water inspection:

A. Materials or wastes containing potential non-visible pollutants are not stored under watertight conditions.
B. Materials or wastes containing potential non-visible pollutants are stored under watertight conditions, but:

    1. A breach, leakage, malfunction, or spill is observed;
    2. The leak or spill has not been cleaned up before precipitation; and
    3. There is the potential for discharge of non-visible pollutants to surface waters or drainage system.

C. Construction activities; such as application of fertilizer, pesticide, herbicide, methyl methacrylate concrete sealant, or non-pigmented curing compound; have occurred during precipitation or within 24 hours preceding precipitation, and have the potential to discharge pollutants to surface waters or drainage system.
D. Soil amendments, including soil stabilization products, with the potential to alter pH levels or contribute toxic pollutants to storm water runoff have been applied, and have the potential to discharge pollutants to surface waters or drainage system (unless independent test data are available that demonstrate acceptable concentrations of non-visible pollutants in the soil amendment).
E. Storm water runoff from an area contaminated by historical usage of the site has the potential to discharge pollutants to surface waters or drainage system.

38

The Contractor shall describe in the SAP the schedule for collecting a sample downhill from each non-visible pollutant source and an uncontaminated control sample, during the first 2 hours of discharge from precipitation during daylight hours that result in enough discharge for sample collection. If discharge flows to the non-visible pollutant source, a sample shall be collected immediately downhill from where the discharge enters

DRAFT

the Department's right of way. If precipitation occurs again after at least 72 hours of dry weather the Contractor shall take new samples.

39

In the SAP the Contractor shall identify sampling locations for collecting downstream and control samples, and the reason for their selection. The control sampling location shall be selected so the sample does not come into contact with materials, wastes or areas associated with potential non-visible pollutants or disturbed soil areas. The Contractor shall show non-visible pollutant sampling locations on the SWPPP Water Pollution Control Drawings.

40

The Contractor shall identify in the SAP the analytical method to be used for downhill and control samples for potential non-visible pollutants on the project.

Use Paras 41 thru 43 and Para 66 when Para 28 thru 33 or when Paras 34 thru 40 are used.

41

Analytical Results and Evaluation

The Contractor shall submit a hard copy and electronic copy of water quality analytical results, and quality assurance and quality control data to the Engineer within 5 days of sampling for field analyses, and within 30 days for laboratory analyses. The Contractor shall also provide an evaluation of whether the downhill samples show levels of the tested parameter higher than in the control sample. If downhill or downstream samples show increased levels, the Contractor will assess the water pollution control measures, site conditions, and surrounding influences to determine the probable cause for the increase. As determined by the assessment, the Contractor will repair or modify water pollution control measures to address increases and amend the SWPPP as necessary. Electronic results (in one of the following file formats: .xls, .txt, .csv, .dbs, or .mdb) shall have the following information:

A. Sample identification number.
B. Contract number.
C. Constituent.
D. Reported value.
E. Analytical method.
F. Method detection limit.
G. Reported limit.

42

The Contractor shall maintain the water quality sampling documentation and analytical results with the SWPPP on the project site.

43

If construction activities or knowledge of site conditions change such that discharges or sampling locations change, the Contractor shall amend the SAP in conformance with this section, "Water Pollution Control."

44

IMPLEMENTATION REQUIREMENTS

The Contractor's responsibility for SWPPP implementation shall continue throughout any temporary suspension of work ordered in conformance with the provisions in Section 8-1.05, "Temporary Suspension of Work," of the Standard Specifications.

45

If the Contractor or the Engineer identifies a deficiency in the implementation of the approved SWPPP, the deficiency shall be corrected immediately, unless an agreed date for correction is approved in writing by the Engineer. The deficiency shall be corrected before the onset of precipitation. If the Contractor fails to correct the deficiency by the agreed date or before the onset of precipitation, the Department may correct the deficiency and deduct the cost of correcting deficiencies from payments.

46

If the Contractor fails to conform to the provisions of this section, "Water Pollution Control," the Engineer may order the suspension of work until the project complies with the requirements of this section.

47. Use if early construction is required for permanent water pollution control items such as slope paving, rock slope protection, ditch lining, and infiltration or detention basins, etc. Identify the schedule in "Order of Work."

The Contractor shall construct permanent water pollution control items identified in the SWPPP as specified in "Order of Work" of these special provisions. The Contractor shall maintain the permanent water pollution control items in the locations and condition shown on the plans throughout the duration of the project.

48

Year-Round

The Contractor shall monitor the National Weather Service weather forecast on a daily basis during the contract. The Contractor may use an alternative weather forecasting service if approved by the Engineer. Appropriate water pollution control practices shall be in place before precipitation.

49

The Contractor may discontinue earthwork operations for a disturbed area for up to 21 days and the disturbed soil area will still be considered active. When earthwork operations in the disturbed area have been completed, the Contractor shall implement appropriate water pollution control practices within 15 days, or before predicted precipitation, whichever occurs first.

50. Use only for projects at or below 4,000 feet in elevation in the Lahontan RWQCB areas of Districts 2, 3, 6, 7, 8, 9, & 10 and Colorado River Basin RWQCB areas of Districts 8 & 11.

Consult the District NPDES or Construction Storm Water Coordinator for special soil stabilization and sediment control

required by the RWQCB to be implemented during the rainy season for the project, and add these special requirements as part of Para 50. Delete Para 51.

KC 9-15-2009**

~~**Rainy Season**~~

~~The Contractor shall provide soil stabilization and sediment control practices during the rainy season between August 1 and October 1, and between November 1 and May 1.~~

51*. Use for projects not using Para 50 and insert designated rainy seasons as defined in Appendix E of the June 2007 Stormwater Management Plan (SWMP) (available at: http://www.dot.ca.gov/hq/env/stormwater/index.htm). Delete Para 50, but keep heading. For projects with 2 rainy seasons, add the following text to the end of the paragraph: ", and between _____ and _____." and insert dates of second rainy season.

KC 9-15-2009**

The Contractor shall provide soil stabilization and sediment control practices during the rainy season between Oct 15 and April 15.

52. Use when early assurance of rainy season control practice implementation is deemed critical by the District Construction Storm Water Coordinator.

The Contractor shall implement soil stabilization and sediment control practices a minimum of 10 days before the start of the rainy season.

53*. For projects with less than 5 acres of total disturbed project area, insert the disturbed project area as the active disturbed soil area.

For most projects with 5 acres or more total disturbed project area, insert 5 acres as the active disturbed soil area. For sensitive projects, the 5 acres of active disturbed soil area may be decreased. The active disturbed soil area may be increased if concurrence is obtained from the appropriate District Storm Water Coordinator.

KC 10-8-2009**

During the defined rainy season, the active disturbed soil area of the project site shall be not more than 1.32 acres. The Engineer may approve expansions of the active disturbed soil area limit if requested in writing. The Contractor shall maintain soil stabilization and sediment control materials on site to protect disturbed soil areas.

DRAFT

54. Use for all projects located in the Lake Tahoe, Truckee River, East Fork Carson River, or West Fork Carson River Hydrologic Units, or for projects above 5,000 feet in elevation in the portions of Mono County or Inyo County within the Lahontan RWQCB, unless granted a variance by the RWQCB Executive Officer.

KC 10-8-2009**

~~**Winter Shutdown**~~

~~The Contractor shall not remove vegetation or disturb existing ground surface conditions between October 15 and May 1.~~

55*. For items "D" & "E" below, edit the inspection period. For Lake Tahoe Hydrologic Unit "D" shall be every day and "E" shall be daily. Otherwise, insert time appropriate for project conditions.

INSPECTION AND MAINTENANCE

The WPCM shall inspect the water pollution control practices identified in the SWPPP as follows:

A. Before a forecasted storm,
B. After precipitation that causes site runoff,
C. At 24-hour intervals during extended precipitation,
D. On a predetermined schedule, a minimum of once every 2 weeks outside of the defined rainy season, and
E. On a predetermined schedule, a minimum of once a week during the defined rainy season.

56

The WPCM shall oversee the maintenance of the water pollution control practices.

57

The WPCM shall use the Storm Water Quality Construction Site Inspection Checklist provided in the Preparation Manual or an alternative inspection checklist provided by the Engineer. A copy of the completed site inspection checklist shall be submitted to the Engineer within 24 hours of finishing the inspection.

58. Use in projects with plant establishment work.

The Contractor may request approval from the Engineer to suspend inspections of water pollution control practices after work except plant establishment is complete. The Engineer's approval is contingent on approval from the Regional Water Quality Control Board. The Contractor shall not suspend inspections until written approval from the Engineer is received.

59. Edit the number of days in the second sentence if a local RWQCB requires a shorter notification period.

REPORTING REQUIREMENTS

If the Contractor identifies discharges into surface waters or drainage systems causing or potentially causing pollution, or if the project receives a written notice or order from a

DRAFT

regulatory agency, the Contractor shall immediately inform the Engineer. The Contractor shall submit a written report to the Engineer within 7 days of the discharge, notice or order. The report shall include the following information:

A. The date, time, location, and nature of the operation, type of discharge and quantity, and the cause of the notice or order.
B. The water pollution control practices used before the discharge, or before receiving the notice or order.
C. The date of placement and type of additional or altered water pollution control practices placed after the discharge, or after receiving the notice or order.
D. A maintenance schedule for affected water pollution control practices.

60

Annual Certifications

By June 15 of each year, the Contractor shall complete and submit to the Engineer an Annual Certification of Compliance, as contained in the Preparation Manual.

61

PAYMENT

During each estimate period the Contractor fails to conform to the provisions in this section, "Water Pollution Control," or fails to implement the water pollution control practices shown on the plans or specified elsewhere in these special provisions as items of work, the Department will withhold 25 percent of the progress payment.

62

Withholds for failure to perform water pollution control work will be in addition to all other withholds provided for in the contract. The Department will return performance-failure withholds in the progress payment following the correction of noncompliance.

63. Include Item 074019 "Prepare Storm Water Pollution Prevention Plan."

The contract lump sum price paid for prepare storm water pollution prevention plan shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in preparing, obtaining approval of, and amending the SWPPP and inspecting water pollution control practices as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

64. Use only for projects with 60 working days or less.

KC 10-8-2009**

~~Payments for prepare storm water pollution prevention plan will be made as follows:~~

~~A. After the SWPPP has been approved by the Engineer, 75 percent of the contract item price for prepare storm water pollution prevention plan will be included in the monthly progress estimate.~~
~~B. After acceptance of the contract in conformance with the provisions in Section 7-1.17, "Acceptance of Contract," of the Standard Specifications, payment for the remaining percentage of the contract item price for prepare storm~~

~~water pollution prevention plan will be made in conformance with the provisions in Section 9-1.07A, "Payment Prior to Proposed Final Estimate."~~

65. Use only for projects with more than 60 working days.

Payments for prepare storm water pollution prevention plan will be made as follows:

A. After the SWPPP has been approved by the Engineer, 50 percent of the contract item price for prepare storm water pollution prevention plan will be included in the monthly progress estimate.
B. Forty percent of the contract item price for prepare storm water pollution prevention plan will be paid over the life of the contract.
C. After acceptance of the contract in conformance with the provisions in Section 7-1.17, "Acceptance of Contract," of the Standard Specifications, payment for the remaining 10 percent of the contract item price for prepare storm water pollution prevention plan will be made in conformance with the provisions in Section 9-1.07A, "Payment Prior to Proposed Final Estimate."

66. Include additional supplemental funds to cover extra work for Item 066597 "Storm Water Sampling and Analysis."

Storm water sampling and analysis will be paid for as extra work as provided in Section 4-1.03D, "Extra Work," of the Standard Specifications. No payment will be made for the preparation, collection, analysis, and reporting of storm water samples where appropriate water pollution control practices are not implemented before precipitation or if a failure of a water pollution control practice is not corrected before precipitation.

67

Implementation of water pollution control practices in areas outside the highway right of way not specifically provided for in the SWPPP or in these special provisions will not be paid for.

68

Water pollution control practices for which there are separate contract items of work will be measured and paid for as those contract items of work.

DRAFT

USE WITH 2006 STANDARDS.

Use in all projects.

Do not edit except where indicated.

Use BEES item 074016, "Construction Site Management."

10-1.__ CONSTRUCTION SITE MANAGEMENT

GENERAL

Summary

1

This work includes controlling potential sources of water pollution before they come in contact with storm water systems or watercourses.

2

Control material pollution and manage waste and non-storm water at the job site by implementing effective handling, storage, use, and disposal practices.

3

For information on documents under these special provisions, refer to the Department's Preparation Manual, Dewatering Guide, and BMP Manual.

4

Preparation Manual, Dewatering Guide, and BMP Manual are available from the Department's Construction Storm Water and Water Pollution Control web site at:

http://www.dot.ca.gov/hq/construc/stormwater/stormwater1.htm

Definitions

5

BMP Manual: The Department's Construction Site Best Management Practices (BMP) Manual.

Dewatering Guide: The Department's Field Guide to Construction Site Dewatering.

Minor spills: Small quantities of oil, gasoline, paint, or other material that are small enough to be controlled by a first responder upon discovery of the spill.

Preparation Manual: The Department's Storm Water Pollution Prevention Plan (SWPPP) and Water Pollution Control Program (WPCP) Preparation Manual.

Semi-significant spills: Spills that can be controlled by a first responder with help from other personnel.

Significant or hazardous spills: Spills that cannot be controlled by construction personnel.

DRAFT

Submittals

6

Submit the following:

1. Material Safety Data Sheet (MSDS) at least 5 days before material is used or stored
2. Monthly inventory records for material used or stored
3. Stormwater training:

    3.1. Include training dates and subject for employees and subcontractors with SWPPP or WPCP. Include dates and subject for ongoing training, including tailgate meetings.
    3.2. Employee training records:

        3.2.1. Within 5 days of SWPPP or WPCP approval for existing employees
        3.2.2. Within 5 days of training for new employees
        3.2.3. At least 5 days before subcontractors begin work for subcontractor's employees

4. Manifest forms for hazardous waste disposal within 5 days of transport and disposal
5. Copy of written approval to discharge into a sanitary sewer system at least 5 days before beginning discharge activities

Quality Control and Assurance

7

Train all employees and subcontractors in these subjects:

1. Material pollution prevention and control
2. Waste management
3. Non-storm water management
4. Identifying and handling hazardous substances
5. Potential dangers to humans and the environment from spills and leaks or exposure to toxic or hazardous substances

8

Training must take place before starting work on this job. New employees must receive the complete training before starting work on this job. Conduct weekly meetings to discuss and reinforce spill prevention and control; material delivery, storage, use, and disposal; waste management; and non-storm water management procedures.

MATERIALS

9

Not used.

DRAFT

CONSTRUCTION

Spill Prevention and Control

10

Implement spill and leak prevention procedures for chemicals and hazardous substances stored on the job site.

11

As soon as it is safe, contain and clean up spills of petroleum products, sanitary and septic waste substances listed under C
R Title 40, Parts 110, 117, and 302.

12

Minor Spills: Clean up minor spills using these procedures:

1. Contain spread of the spill
2. Recover spilled material using absorption
3. Clean contaminated area
4. Dispose of contaminated material promptly and properly

13

Semi-significant Spills: Clean up semi-significant spills immediately using these procedures:

1. Contain spread of the spill
2. Recover spilled material using absorption where the spill occurs on paved or an impermeable surface
3. Contain the spill with an earthen dike and dig up contaminated soil for disposal where the spill occurs on soil
4. When the spill occurs during precipitation, cover the spill with plastic or other material to prevent contaminated runoff
5. Dispose of contaminated material promptly and properly

14

Significant or Hazardous Spills: Immediately notify qualified personnel of significant or hazardous spills. Take these steps:

1. Construction personnel must not attempt to cleanup the spill until qualified staff have arrived
2. Notify the Engineer and follow up with a written report
3. Obtain the services of a spills contractor or hazardous material team immediately
4. Notify the local emergency response team by dialing 911 and county officials at the emergency phone numbers kept on the job site
5. Notify the Governor's Office of Emergency Services Warning Center at (805) 852-7550
6. Notify the National Response Center at (800) 424-8802 regarding spills of Federal reportable quantities under CFR Title 40, Parts 110, 119, and 302

DRAFT

7. Notify other agencies as appropriate, including:

    7.1. Fire Department
    7.2. Public Works Department
    7.3. Coast Guard
    7.4. Highway Patrol
    7.5. City Police or County Sheriff Department
    7.6. Department of Toxic Substances
    7.7. California Division of Oil and Gas
    7.8. Cal OSHA
    7.9. Regional Water Resources Control Board

15

Report minor, semi-significant, and significant spills to the WPC (Water Pollution Control) manager. WPC manager must notify the Engineer immediately. WPC manger must oversee and enforce proper spill prevention and control measures.

16

Prevent spills from entering storm water runoff before and during cleanup. Spills must not be buried or washed with water.

17

Keep material or waste storage areas clean, well organized, and equipped with enough cleanup supplies for the material being stored.

Material Management

General

18

Material must be delivered, used, and stored for this job in a way that minimizes or eliminates discharge of material into the air, storm drain systems, or watercourses.

19

Implement the practices described in this section while taking delivery of, using, or storing these materials:

1. Hazardous chemicals including:

    1.1. Acids
    1.2. Lime
    1.3. Glues
    1.4. Adhesives
    1.5. Paints
    1.6. Solvents
    1.7. Curing compounds

2. Soil stabilizers and binders

3. Fertilizers
4. Detergents
5. Plaster
6. Petroleum products including:

    6.1. Fuel
    6.2. Oil
    6.3. Grease

7. Asphalt components and concrete components
8. Pesticides and herbicides

20

Employees trained in emergency spill cleanup procedures must be present during unloading of hazardous materials or chemicals.

21

If practical, use less hazardous products.

Material Storage

22

Use these storage procedures:

1. Store liquids, petroleum products, and substances listed in CFR Title 40, Parts 110, 117, and 302 in containers or drums approved by the United States Environmental Protection Agency, and place them in secondary containment facilities.
2. Secondary containment facilities must be impervious to the materials stored there for a minimum contact time of 72 hours.
3. Throughout the rainy season, cover secondary containment facilities during non-working days and when precipitation is predicted. Secondary containment facilities must be adequately ventilated.
4. Keep secondary containment facility free of accumulated rainwater or spills. After precipitation, or in the event of spills or leaks, collect accumulated liquid and place into drums within 24 hours. Handle these liquids as hazardous waste under "Hazardous Waste" unless testing determines them to be nonhazardous.
5. Do not store incompatible materials, such as chlorine and ammonia, in the same secondary containment facility.
6. Store materials in the original containers with the original product labels maintained in legible condition. Replace damaged or illegible labels immediately.
7. Secondary containment facility must have the capacity to contain precipitation from a 24-hour-long, 25-year storm; and 10 percent of the aggregate volume of all containers, or entire volume of the largest container within the facility, whichever is greater.

DRAFT

8. Store bagged or boxed material on pallets. Throughout the rainy season, protect bagged or boxed material from wind and rain during non-working days and while precipitation is predicted.
9. Provide sufficient separation between stored containers to allow for spill cleanup or emergency response access. Storage areas must be kept clean, well organized, and equipped with cleanup supplies appropriate for the materials being stored.
10. Repair or replace perimeter controls, containment structures, covers, and liners as necessary. Inspect storage areas before and after precipitation, and at least weekly during other times.

Stockpile Management

23

Implement practices described in this section for managing stockpiles:

1. During the rainy season
2. During the non-rainy season when the National Weather Service predicts precipitation with a probability of at least 30 percent

24

Use these stockpile management procedures:

1. Reduce or eliminate potential air and water pollution from stockpiled material including soil, paving material, or pressure treated wood.
2. Locate stockpiles:

    2.1. If within the floodplain, at least 100 feet from concentrated flows of storm water, drainage courses, or inlets unless approved
    2.2. If outside the floodplain, at least 50 feet from concentrated flows of storm water, drainage courses, or inlets unless approved

25

Active and inactive soil stockpiles must be:

1. Covered with soil stabilization measures, plastic sheeting, or geosynthetic fabric
2. Surrounded with a linear sediment barrier

26

Portland cement concrete rubble, AC, HMA, AC and HMA rubble, aggregate base or aggregate sub-base stockpiles must be:

1. Covered with plastic sheeting, or geosynthetic fabric
2. Surrounded with a linear sediment barrier

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27

Pressure treated wood stockpiles must be:

1. Placed on pallets
2. Covered with impermeable material

28

Cold mix asphalt concrete stockpiles must be:

1. Placed on impervious surface
2. Covered with impermeable material
3. Protected from run-on and runoff

29

If you discontinue adding or removing material for up to 21 days the stockpile is considered still active during that period.

30

Control wind erosion during the non-rainy season and dry weather under Section 10, "Dust Control".

31

Repair or replace linear sediment barriers and covers as needed to keep them functioning properly. If sediment accumulates to 1/3 of the linear sediment barrier height, remove sediment.

Waste Management

Solid Waste

32

Do not allow litter or debris to accumulate anywhere on the job site, including storm drain grates, trash racks, and ditch lines. Pick up and remove trash and debris from the job site at least once a week. WPC manager must monitor solid waste storage and disposal procedures on the job site.

33

If practicable, recycle nonhazardous job site waste and excess material. If recycling is not practicable, disposal must comply with Section 7-1.13, "Disposal of Material Outside the Highway Right of Way."

34

Furnish enough closed-lid dumpsters of sufficient size to contain the solid waste generated by work activities. When refuse reaches the fill line, empty dumpsters. Dumpsters must be watertight. Do not wash out dumpsters at the job site. Furnish additional containers and more frequent pickup during the demolition phase of construction.

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35

Solid waste includes:

1. Brick
2. Mortar
3. Timber
4. Metal scraps
5. Sawdust
6. Pipe
7. Electrical cuttings
8. Non-hazardous equipment parts
9. Styrofoam and other packaging materials
10. Vegetative material and plant containers from highway planting
11. Litter and smoking material, including litter generated randomly by the public
12. Other trash and debris

36

Furnish and use trash receptacles in the job site yard, field trailers, and locations where workers gather for lunch and breaks.

Hazardous Waste

37

Use hazardous waste management practices if waste is generated on the job site from these substances:

1. Petroleum products
2. Asphalt products
3. Concrete curing compound
4. Pesticides
5. Acids
6. Paints
7. Stains
8. Solvents
9. Wood preservatives
10. Roofing tar
11. Road flares
12. Lime
13. Glues and adhesives
14. Materials classified as hazardous by California Code of Regulations, Title 22, Division 4.5; or listed in CFR Title 40, Parts 110, 117, 261, or 302

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38

WPC manager must oversee and enforce hazardous waste management practices. Minimize the production of hazardous materials and hazardous waste at the job site. If damaged, repair or replace perimeter controls, containment structures, and covers.

39

If hazardous material levels are unknown, use a laboratory certified by the Environmental Laboratory Accreditation Program (ELAP) under the California Department of Public Health (CDPH) to sample and test waste to determine safe methods for storage and disposal.

40

Separate potentially hazardous waste from nonhazardous waste at the job site. Hazardous waste must be handled, stored, and disposed of under California Code of Regulations, Title 22, Division 4.5, Section 66262.34; and in CFR Title 49, Parts 261, 262, and 263.

41

Store hazardous waste in sealed containers constructed and labeled with the contents and date accumulated under California Code of Regulations, Title 22, Division 4.5; and in CFR Title 49, Parts 172, 173, 178, and 179. Keep hazardous waste containers in temporary containment facilities under "Material Storage" of these special provisions.

42

Furnish containers with adequate storage volume at convenient locations for hazardous waste collection. Do not overfill hazardous waste containers. Do not mix hazardous wastes. Do not allow potentially hazardous waste to accumulate on the ground. Store containers of dry waste that are not watertight on pallets. Store hazardous waste away from storm drains, watercourses, moving vehicles, and equipment.

43

Clean water based or oil based paint from brushes or equipment within a contained area and in a way that does not contaminate soil, watercourses, or storm drain systems. Handle and dispose of these as hazardous waste: paints, thinners, solvents, residues, and sludges that cannot be recycled or reused. When thoroughly dry, dispose of these as solid waste: dry, latex paint and paint cans, used brushes, rags, absorbent materials, and drop cloths.

44

Dispose of hazardous waste within 90 days of being generated. Use a licensed hazardous waste transporter to take hazardous waste to a Class I Disposal Site. Submit a copy of uniform hazardous waste manifest forms within 24 hours of transporting hazardous waste.

45

WPC manager must inspect these daily:

1. Storage areas for hazardous materials and wastes
2. Hazardous waste disposal and transporting activities
3. Hazardous material delivery and storage activities

Contaminated Soil

46

Identify contaminated soil from spills or leaks by noticing discoloration, odors, or differences in soil properties. Soil with evidence of contamination must be sampled and tested by a laboratory certified by ELAP.

47

If levels of contamination are found to be hazardous, handle and dispose of the soil as hazardous waste.

48

Prevent the flow of water, including ground water, from mixing with contaminated soil by using one or a combination of these measures:

1. Berms
2. Cofferdams
3. Grout curtains
4. Freeze walls
5. Concrete seal course

49

If water mixes with contaminated soil and becomes contaminated, sample and test the water using a laboratory certified by ELAP. If levels of contamination are found to be hazardous, handle and dispose of the water as hazardous waste.

Concrete Waste

50

Use practices to prevent the discharge of portland cement concrete, AC, or HMA waste into storm drain systems or watercourses.

51

Collect and dispose of portland cement concrete, AC, or HMA waste at locations where:

1. Concrete material, including grout, is used
2. Concrete dust and debris result from demolition
3. Sawcutting, coring, grinding, grooving, or hydro-concrete demolition of portland cement concrete, AC, or HMA creates a residue or slurry
4. Concrete truck or other concrete-coated equipment is cleaned at the job site

Sanitary and Septic Waste

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52

Do not bury or discharge wastewater from sanitary or septic systems within Department right of way. WPC manager must inspect sanitary or septic waste storage and monitor disposal procedures at least weekly. Sanitary facilities that discharge to the sanitary sewer system must be properly connected and free from leaks. Place sanitary facilities at least 50 feet away from storm drains, watercourse, and flow lines.

53

Obtain written approval from local health agency, city, county, and sewer district before discharging from a sanitary or septic system directly into a sanitary sewer system, and submit a copy to the Engineer. Comply with local health agency provisions while using an on-site disposal system.

Liquid Waste

54

Use practices to prevent job site liquid waste from entering storm drain systems or watercourses. Liquid wastes include the following:

1. Drilling slurries or fluids
2. Grease-free or oil-free wastewater or rinse water
3. Dredgings, including liquid waste from drainage system cleaning
4. Liquid waste running off a surface including wash or rinse water
5. Other non-storm water liquids not covered by separate permits

55

Hold liquid waste in structurally sound, leak proof containers such as:

1. Roll-off bins
2. Portable tanks

56

Liquid waste containers must be of sufficient quantity and volume to prevent overflow, spills and leaks.

57

Store containers:

1. At least 50 feet from moving vehicles and equipment
2. If within the floodplain, at least 100 feet from concentrated flows of storm water, drainage courses, watercourses, or storm drain inlets unless approved
3. If outside the floodplain, at least 50 feet from concentrated flows of storm water, drainage courses, watercourses, or storm drain inlets unless approved

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58

Remove and dispose of deposited solids from sediment traps under "Solid Waste" unless the Engineer authorizes another method.

59

Liquid waste may require testing to determine hazardous material content before disposal.

60

Drilling fluids and residue must be disposed of outside the highway right of way.

61

If an approved location is available within the job site, fluids and residue exempt under California Code of Regulations, Title 23, Section 2511(g) may be dried by evaporation in a leak proof container. Dispose of remaining solid waste under "Solid Waste" of these special provisions.

Non-Storm Water Management

Water Control and Conservation

62

Manage water used for work activities to prevent erosion or discharge of pollutants into storm drain systems or watercourses. Obtain approval before washing anything on the job site with water that could discharge into a storm drain system or watercourse. Report discharges immediately.

63

If water is used at the job site, implement water conservation practices . Inspect irrigation areas. Adjust watering schedules to prevent erosion, excess watering, or runoff. Shut off water source to broken lines, sprinklers, or valves, and repair breaks within 24 hours. If possible, reuse water from waterline flushing for landscape irrigation. Sweep and vacuum paved areas: do not wash with water.

64

Direct job site water runoff, including water from water line repair, to areas where it can infiltrate into the ground and not enter storm drain systems or watercourses. Do not allow spilled water to escape water truck filling areas. If possible, direct water from off-site sources around the job site. Minimize the contact of off-site water with job site water.

Illegal Connection and Discharge Detection and Reporting

65

Inspect the job site and the site perimeter before starting work for evidence of illegal connections, discharges, or dumping. After starting work, inspect the job site and perimeter on a daily schedule.

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66

When illegal connections, discharges, or dumping are discovered, notify the Engineer immediately. Take no further action unless ordered by the Engineer. Assume unlabeled or unidentifiable material is hazardous.

67

Look for the following evidence of illegal connections, discharges, or dumping:

1. Debris or trash piles
2. Staining or discoloration on pavement or soils
3. Pungent odors coming from drainage systems
4. Discoloration or oily sheen on water
5. Stains or residue in ditches, channels or drain boxes
6. Abnormal water flow during dry weather
7. Excessive sediment deposits
8. Nonstandard drainage junction structures
9. Broken concrete or other disturbances near junction structures

Vehicle and Equipment Cleaning

68

Limit vehicle and equipment cleaning or washing at the job site except what is necessary to control vehicle tracking or hazardous waste. Notify the Engineer before cleaning vehicles and equipment at the job site with soap, solvents, or steam. Contain and recycle or dispose of resulting waste under "Liquid Waste" or "Hazardous Waste" of these special provisions, whichever is applicable. Do not use diesel to clean vehicles or equipment, and minimize the use of solvents.

69

Clean or wash vehicles and equipment in a structure equipped with disposal facilities. If using a structure is not possible, vehicles and equipment must be cleaned or washed in an outside area:

1. Paved with AC, HMA, or portland cement concrete
2. Surrounded by a containment berm
3. Equipped with a sump to collect and dispose of wash water
4. If within the floodplain, located at least 100 feet from concentrated flows of storm water, drainage courses, watercourses, or storm drain inlets unless approved
5. If outside the floodplain, located at least 50 feet from concentrated flows of storm water, drainage courses, watercourses, or storm drain inlets unless approved

70

When washing vehicles or equipment with water, use as little water as possible. Hoses must be equipped with a positive shutoff valve.

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71

Discharge liquid from wash racks to a recycle system or to another approved system. Remove liquids and sediment as necessary.

72

WPC manger must inspect vehicle and equipment cleaning facilities:

1. Daily when vehicle and equipment cleaning occurs daily
2. Weekly when vehicle and equipment cleaning does not occur daily

Vehicle and Equipment Fueling and Maintenance

73

If practicable, perform maintenance on vehicles and equipment off the job site.

74

If fueling or maintenance must be done at the job site, designate a site, or sites, and obtain approval before using. Minimize mobile fueling or maintenance.

75

If vehicle and equipment fueling and maintenance must be done on the job site, areas for these activities must be:

1. On level ground
2. Protected from stormwater run-on
3. If within the floodplain, located at least 100 feet from concentrated flows of storm water, drainage courses, watercourses, or storm drain inlets unless approved
4. If outside the floodplain, located at least 50 feet from concentrated flows of storm water, drainage courses, watercourses, or storm drain inlets unless approved

76

Use containment berms or dikes around the fueling and maintenance area. Keep adequate quantities of absorbent spill cleanup material and spill kits in the fueling and maintenance area and on fueling trucks. Dispose of spill cleanup material and kits immediately after use. Use drip pans or absorbent pads during fueling or maintenance.

77

Fueling or maintenance activities must not be left unattended. Fueling nozzles must be equipped with an automatic shutoff control. Vapor recovery fueling nozzles must be used where required by the Air Quality Management District. When not in use, nozzles must be secured upright. Do not top-off fuel tanks.

78

Recycle or properly dispose of used batteries and tires.

79

WPC manager must inspect vehicle and equipment maintenance and fueling areas:

1. Daily when vehicle and equipment maintenance and fueling occurs daily

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2. Weekly when vehicle and equipment maintenance and fueling does not occur daily

80

WPC manager must inspect vehicles and equipment at the job site for leaks and spills on a daily schedule. Operators must inspect vehicles and equipment each day of use.

81

If leaks cannot be repaired immediately, remove the vehicle or equipment from the job site.

Material and Equipment Used Over Water

82

Place drip pans and absorbent pads under vehicles or equipment used over water. Keep an adequate supply of spill cleanup material with the vehicle or equipment. If the vehicle or equipment will be idle for more than one hour, place drip pans or plastic sheeting under vehicles or equipment on docks, barges, or other surfaces over water.

83

Furnish watertight curbs or toe boards on barges, platforms, docks, or other surfaces over water to contain material, debris, and tools. Secure material to prevent spills or discharge into water due to wind.

Structure Removal Over or Adjacent to Water

84

Do not allow demolished material to enter storm water systems or watercourses. Use approved covers and platforms to collect debris. Use attachments on equipment to catch debris on small demolition activities. Empty debris catching devices daily and handle debris under "Waste Management" of these special provisions.

85

WPC manager must inspect demolition sites within 50 feet of storm water systems or watercourses daily.

Paving, Sealing, Sawcutting, and Grinding Activities

86

Prevent these materials from entering storm drain systems or water courses:

1. Cementitious material
2. Asphaltic material
3. Aggregate or screenings
4. Grinding or sawcutting residue
5. Pavement chunks

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6. Shoulder backing
7. Methacrylate

87

Cover drainage inlets and use linear sediment barriers to protect downhill watercourses until paving, sealing, sawcutting, or grinding activities are completed and excess material has been removed. Cover drainage inlets and manholes during the application of seal coat, tack coat, slurry seal, or fog seal.

88

During the rainy season or when precipitation is predicted, limit paving, sawcutting, and grinding to places where runoff can be captured.

89

Do not start seal coat, tack coat, slurry seal, or fog seal activities when precipitation is predicted during application or curing period. Do not excavate material from existing roadways during precipitation.

90

Use a vacuum to remove slurry from sawcutting activities immediately after slurry is produced. Do not allow slurry to run onto lanes open to public traffic or off the pavement.

91

Collect residue from portland cement concrete grinding activities with a vacuum attachment on the grinding machine. Do not leave residue on pavement or allow residue to flow across pavement.

92

If approved, material excavated from existing roadways may be stockpiled under "Stockpile Management" of these special provisions.

93

Do not coat asphalt trucks and equipment with substances that contain soap, foaming agents, or toxic chemicals.

94

When paving equipment is not in use, park over drip pans or plastic sheeting with absorbent material to catch drips.

Thermoplastic Striping and Pavement Markers

95

Thermoplastic striping and preheating equipment shutoff valves must work properly at all times. Do not preheat, transfer, or load thermoplastic within 50 feet of drainage inlets or watercourses. Do not fill preheating container above a level that is 6 inches below the top. Truck beds must be cleaned daily of scraps or melted thermoplastic.

DRAFT

96

Do not unload, transfer, or load bituminous material for pavement markers within 50 feet of drainage inlets or watercourses. Release all pressure from melting tanks before removing the lid to fill or service. Do not fill melting tanks above a level that is 6 inches below the top.

97

Collect bituminous material from the roadway after marker removal.

Pile Driving

98

Keep spill kits and cleanup material at pile driving locations. Pile driving equipment must be parked over drip pans, absorbent pads, or plastic sheeting with absorbent material. When precipitation is predicted, protect pile driving equipment by parking on plywood and covering with plastic.

99

When not in use, store pile driving equipment:

1. On level ground
2. Protected from stormwater run-on
3. If within the floodplain, at least 100 feet from concentrated flows of storm water, drainage courses, watercourses, or storm drain inlets unless approved
4. If outside the floodplain, at least 50 feet from concentrated flows of storm water, drainage courses, watercourses, or storm drain inlets unless approved

100

If practicable, use vegetable oil instead of hydraulic fluid.

101

WPC manager must inspect pile driving area for leaks and spills:

1. Daily when pile driving occurs daily
2. Weekly when pile driving does not occur daily

Concrete Curing

102

Do not overspray chemical curing compound. Minimize drift by spraying as close to the concrete as possible. Cover drainage inlets before applying curing compound.

103

Minimize the use and discharge of water by using wet blankets or similar methods to maintain moisture while curing concrete.

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Concrete Finishing

104

Collect and dispose of water and solid waste from high-pressure water blasting. Cover drainage inlets within 50 feet before sandblasting. Minimize drift of dust and blast material by keeping the nozzle close to the surface of the concrete. Blast residue may contain hazardous material.

105

Inspect containment structures for concrete finishing activities for damage before each day of use and before predicted precipitation. Remove liquid and solid waste from the containment structure after each work shift.

Paras 106 thru 110: For jobs with more than one acre of DSA, consider using SSP 07-360 "Street Sweeping".

Sweeping

106

Sweeping must be done using hand or mechanical methods such as vacuuming.

107

Sweeping must be done:

1. At the end of each work shift
2. When the National Weather Service predicts precipitation with a probability of at least 30 percent
3. On paved roads at job site entrance and exit locations
4. On paved areas within the job site that flow to storm drains or water bodies

108

You may stockpile collected material at the job site. Dispose of collected material at least once per week. Remove collected material including sediment from paved shoulders, drain inlets, curbs and dikes, and other drainage areas.

109

Sediment collected from the roadway during sweeping may be disposed of within the job site. Protect disposal areas against erosion.

110

Remove and dispose of trash collected during sweeping under Section 7-1.13, "Disposal of Material Outside the Highway Right of Way".

Paras 111 to 113: Use on all jobs even if the job includes work items for temporary active treatment system or dewatering/discharge.

Dewatering

111

Dewatering consists of discharging accumulated storm water, ground water, or surface water from excavations or temporary containment facilities.

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112

If dewatering and discharging activities are specified under another work item such as "Temporary Active Treatment System" or "Dewatering and Discharge", then perform dewatering work as specified in those sections.

113

If dewatering and discharging activities are not specified under another work item, then:

1. At least 10 days before starting dewatering, submit a Dewatering and Discharge Plan under Section 5-1.02, "Plans and Working Drawings," and "Water Pollution Control" of the Standard Specifications. Dewatering and Discharge Plan must include:

    1.1. Title sheet and table of contents
    1.2. Description of dewatering and discharge activities detailing locations, quantity of water, equipment, and discharge point
    1.3. Estimated schedule for dewatering and discharge (start and end dates, intermittent or continuous)
    1.4. Discharge alternatives such as dust control or percolation
    1.5. Visual monitoring procedures with inspection log

2. Conduct dewatering activities under the Field Guide for Construction Dewatering.
3. Ensure that dewatering discharge does not cause erosion, scour, or sedimentary deposits that impact natural bedding materials.
4. Discharge water within project limits. If water cannot be discharged within project limits due to site constraints, dispose of it in the same way specified for material in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way".
5. Do not discharge storm water or non-storm water that has an odor, discoloration other than sediment, an oily sheen, or foam on the surface. Notify the Engineer immediately upon discovering any of those conditions.
6. WPC manager must inspect dewatering activities:

    6.1. Daily when dewatering work occurs daily
    6.2. Weekly when dewatering work does not occur daily

113a New

KC 9-25-2009

Added per Caltrans comment

<u>As the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB) does not have an existing general NPDES permit for construction related non-storm water discharges, during construction a notification will need to be sent to the Board prior to commencement of on-site discharges. The Regional Board's basin plan refers to the State Water Resources Control Board resolution No. 89-21 on "Resources Value of Treated Groundwater", which requires the Regional Board to maximize its utilization for the</u>

highest beneficial use. The Field Guide for Construction Dewatering provides guidelines to cover this requirement through on-site irrigation or dust control. These discharges should however, not cause erosion, or scour resulting in sediment discharges to the receiving water body.

PAYMENT

114

The contract lump sum price paid for construction site management includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in spill prevention and control, material management, waste management, non-storm water management, and dewatering and identifying, sampling, testing, handling, and disposing of hazardous waste, as specified in the Standard Specifications and these special provisions, and as ordered by the Engineer.

DRAFT

USE WITH 2006 STANDARDS.

Use when unfinished construction slopes require straw or fiber anchored with a stabilizing emulsion. Designate locations on the plans where Temporary Erosion Control is to be applied.

Consider using SSP 07-380 or SSP 07-370 as an alternative.

Insert in Section 10-1. DO NOT insert in Section 10-2.

10-1.__ TEMPORARY EROSION CONTROL

Temporary erosion control shall conform to the provisions for erosion control in Section 20-3, "Erosion Control," of the Standard Specifications and these special provisions.

2

Attention is directed to "Water Pollution Control" of these special provisions.

3*. Insert the beginning and ending dates of the winter season to define the period that Temporary Erosion Control will be applied.

KC 9-15-2009**

Temporary erosion control work shall consist of applying erosion control materials to embankment slopes, excavation slopes and other areas designated on the plans. Temporary erosion control work shall be completed in the designated areas during the period starting October 15 and ending April 15, or within 14 days after an area becomes inactive during this period as defined in "Water Pollution Control" of these special provisions.

4

MATERIALS

Materials shall conform to the provisions in Section 20-2, "Materials," of the Standard Specifications and these special provisions.

5*. Use Para 5 or Para 6 when commercial fertilizer other than 16-20-0 per the Standard Specifications is required. Delete both Paras if 16-20-0 is to be used. Use and edit when the SSP for permanent erosion control specifies the commercial fertilizer to be used.

KC 9-15-2009**

~~**Commercial Fertilizer**~~

~~Commercial fertilizer for temporary erosion control shall conform to the provisions specified for commercial fertilizer in "Erosion Control (Type ___)" of these special provisions.~~

6*. Edit for commercial fertilizer required.

KC 9-15-2009**

~~**Commercial Fertilizer**~~

~~Commercial fertilizer shall conform to the provisions in Section 20-2.02, "Commercial Fertilizer," of the Standard Specifications and shall have a guaranteed chemical analysis of __ percent nitrogen, __ percent phosphoric acid, and __ percent water soluble potash.~~

7. Use Para 7 or Para 8 when type of straw is to be specified. Delete both Paras if types of straw in Standard Specifications are acceptable.

KC 9-15-2009**

~~**Straw**~~

~~Straw shall be derived from rice.~~

8

~~**Straw**~~

~~Straw shall be derived from wheat or barley. Wheat and barley straw shall not be derived from dry farmed cereal crops.~~

9

Stabilizing Emulsion

Stabilizing emulsion shall conform to the provisions in Section 20-2.11, "Stabilizing Emulsion," of the Standard Specifications and these special provisions. The requirement of an effective life of at least one year for stabilizing emulsion shall not apply. Stabilizing emulsion shall be in a dry powder form, may be reemulsifiable, and shall be a processed organic adhesive.

10*. Edit for number of applications.

KC 9-15-2009**

APPLICATION

Temporary erosion control materials shall be applied in 2 separate applications in the following sequence:

10A*. If straw is to be used, delete commercial fertilizer from the table.

KC 9-15-2009**

~~A. The following mixture in the proportions indicated shall be applied with hydroseeding equipment within 60 minutes after the seed has been added to the mixture:~~

DRAFT

~~Material~~	~~Pounds Per Acre (Slope Measurement)~~
~~Fiber~~	
~~Seed~~	
~~Commercial Fertilizer~~	

10B*. Indicate application rate for straw, normally 2 tons per acre for wheat or barley and 1.6 tons per acre for rice.

KC 9-15-2009**

B. Straw shall be applied at the rate of 1.8 tons per acre based on slope measurements. Incorporation of straw will not be required.

10C*

KC 9-15-2009**

C. The following mixture in the proportions indicated shall be applied with hydroseeding equipment:

Material	Pounds Per Acre (Slope Measurement)
Fiber	1500
Commercial Fertilizer	
Stabilizing Emulsion (solids)	120

D. The ratio of total water to total stabilizing emulsion in the mixture shall be as recommended by the manufacturer.
E. Once straw work is started in an area, the remaining applications shall be completed in that area on the same working day.

11

KC 9-15-2009**

MEASUREMENT AND PAYMENT

Temporary erosion control work will be measured by the square yard ~~or acre, whichever is designated in the Engineer's Estimate~~. The quantity of temporary erosion control to be paid for by the square yard ~~or acre~~ will be calculated on the basis of actual or computed slope measurements.

12

KC 9-15-2009**

The contract price paid per square yard ~~or acre~~ for temporary erosion control shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in temporary erosion control, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

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13*. Add "Water Pollution Control Program" if SSP 07-340 is used OR "Storm Water Pollution Prevention Plan" if SSP 07-345 is used.

KC 9-15-2009**

Temporary erosion control placed at locations other than as shown on the project plans or directed by the Engineer, in conformance with the Contractor's Water Pollution Control Program, will not be measured and will be paid for as specified in "Water Pollution Control" of these special provisions.

{ XE "07-353_E_A03-07-08" }
Page 1 of 7

USE WITH 2006 STANDARDS.

Use as a temporary source control for soil stabilization. Temporary hydroseed is used to cover and protect disturbed soil area.

Refer to SS-3 Hydraulic Mulch, SS-4 Hydroseed, and SS-5 Soil Binders, of the Caltrans Storm Water Quality Handbook Construction Site Best Management Practices (BMPs) Manual for information related to the use of this BMP.

Use BEES item 074053 Temporary Hydroseed.

KC 9-15-2009**

~~**10-1. TEMPORARY HYDROSEED**~~

~~**GENERAL**~~

~~**Summary**~~

~~This work includes applying, maintaining, and removing temporary hydroseed. Hydroseed uses a mixture of tackifier, fiber, seed, and water to stabilize active and nonactive disturbed soil areas.~~

~~**2. Replace "SWPPP" with "WPCP" if SSP 07-340 is used.**~~

~~The SWPPP must describe and include the use of temporary hydroseed as a water pollution control practice for soil stabilization.~~

~~**Submittals**~~

~~**3**~~

~~At least 5 business days before applying hydroseed, submit:~~

1. ~~Material Safety Data Sheet for the tackifier.~~
2. ~~Product label describing the tackifier as an erosion control product.~~
3. ~~List of pollutant indicators and potential pollutants for the use of temporary hydroseed. Pollutant indicators are described under "Sampling and Analysis Plan for Non-Visible Pollutants" in the Preparation Manual.~~

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4. ~~Determination of acute and chronic toxicity for aquatic organisms conforming to EPA methods for the tackifier.~~
5. ~~Composition of ingredients including chemical formulation.~~

~~4~~

~~Submit a Certificate of Compliance as specified in Section 6-1.07, "Certificates of Compliance" of the Standard Specifications for:~~

1. ~~Tackifier~~
2. ~~Fiber~~
3. ~~Seed~~

~~Quality Control and Assurance~~

~~5~~

~~Retain and submit records of temporary hydroseed applications including:~~

1. ~~Compliance with specified rates~~
2. ~~Application area~~
3. ~~Application time~~
4. ~~Quantity~~

~~Paras 6 thru 11. Edit if a particular type of tackifier is desired.~~

~~MATERIALS~~

~~Tackifier~~

~~6~~

~~The tackifier must be:~~

1. ~~Nonflammable~~
2. ~~Nontoxic to aquatic organisms~~
3. ~~Free from growth or germination inhibiting factors~~
4. ~~Either a plant-based product or a polymeric emulsion blend~~

~~7~~

~~Tackifier classified as plant-based product must be:~~

1. ~~A natural high molecular weight polysaccharide~~
2. ~~A high viscosity hydrocolloid that is miscible in water~~
3. ~~Functional for at least 180 days~~
4. ~~Labeled as either guar, psyllium, or starch~~

~~8~~

~~Guar must be:~~

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1. ~~A guar gum based product derived from the ground endosperm of the guar plant, cyanmopsis tetragonolobus~~
2. ~~Treated with dispersant agents for easy mixing~~
3. ~~Able to be diluted at the rate of 1 to 5 pounds per 100 gallons of water~~

~~**9**~~

~~Psyllium must be:~~

1. ~~Made of the finely ground muciloid coating of plantago ovata or plantago ispaghula seeds~~
2. ~~Able to dry and form a firm but rewettable membrane~~

~~**10**~~

~~Starch must be a non-ionic, water-soluble granular material derived from corn, potato, or other plant-based source.~~

~~**11**~~

~~Tackifier classified as polymeric emulsion blend must be:~~

1. ~~A polymeric emulsion blend with a liquid or dry powder formulation~~
2. ~~Anionic with a residual monomer content that is at most 0.05 percent by weight~~
3. ~~Functional for at least 180 days~~
4. ~~A prepackaged product labeled as containing one of the following as the primary active ingredient of the polymeric emulsion blend:~~

   ~~4.1 Acrylic copolymers and polymers~~
   ~~4.2 Polymers of methacrylates and acrylates~~
   ~~4.3 Copolymers of sodium acrylates and acrylamides~~
   ~~4.4 Polyacrylamide (PAM) and copolymer of acrylamide~~
   ~~4.5 Hydrocolloid polymers~~

~~**Fiber**~~

~~**12**~~

~~Fiber must be wood fiber, cellulose fiber, alternate fiber, or a combination of these fibers as specified. Fiber must be:~~

1. ~~Free from lead paint, printing ink, varnish, petroleum products, seed germination inhibitors, or chlorine bleach~~
2. ~~Free from synthetic or plastic materials~~
3. ~~At most 7 percent ash~~

~~**13**~~

~~If wood fiber is specified, wood fiber must be:~~

DRAFT

1. ~~Long strand, whole wood fibers, thermo-mechanically processed from clean, whole wood chips~~
2. ~~Not made from sawdust, cardboard, paper, or paper byproducts~~
3. ~~At least 25 percent of fibers 3/8 inch long~~
4. ~~At least 40 percent held on a No. 25 sieve~~

~~14~~

~~If cellulose fiber is specified, cellulose fiber must be made from natural or recycled pulp fiber, such as wood chips, sawdust, newsprint, chipboard, corrugated cardboard, or a combination of these materials.~~

~~15~~

~~If alternate fiber is specified, alternate fiber must be:~~

1. ~~Long strand, whole natural fibers made from clean straw, cotton, corn, or other natural feed stock~~
2. ~~At least 25 percent of fibers 3/8 inch long~~
3. ~~At least 40 percent held on a No. 25 sieve~~

~~Coloring Agent~~

~~16~~

~~Use a biodegradable nontoxic coloring agent free from copper, mercury, and arsenic to ensure the hydroseed contrasts with the application area.~~

~~Seed~~

~~17. Use when another erosion control SSP specifies the same seed specifications; otherwise delete. Delete Paras 18 thru 23 when this Para is used. Edit blank space for the type of erosion control.~~

~~Seed for erosion control must comply with "Erosion Control (_____)" of these special provisions.~~

~~18. Use Paras 18 thru 23 when seed is NOT specified elsewhere in the special provisions. Delete Para 17.~~

~~Seed must comply with Section 20-2.10, "Seed," of the Standard Specifications. Seed not required to be labeled under the California Food and Agricultural Code must be tested for purity and germination by a seed laboratory certified by the Association of Official Seed Analysts or by a seed technologist certified by the Society of Commercial Seed Technologists. Measure and mix individual seed species in the presence of the Engineer.~~

~~19~~

~~Seed must contain at most 1.0 percent total weed seed by weight.~~

DRAFT

~~**20. Use this Para only on projects of a sensitive nature, e.g. mitigation site, where specific weed seed of major concern are likely to be found in erosion control seed specified. List a maximum of three. Do not insert names of prohibited noxious weeds listed in 3CA Code of Regs §3854.**~~

~~Seed must be free of the following specific weed species:_____, _____, and _____.~~

~~**21**~~

~~Deliver seed to the job site in unopened separate containers with the seed tags attached. A container without a seed tag attached is not accepted. The Engineer takes a sample of approximately 1 ounce or 0.25 cup of seed for each seed lot greater than 2 pounds.~~

~~**22*. Insert seed names, germination and application rates in the table. Increase or decrease rows in table as required. Do NOT edit column headings. Percent germination shown in the table may be 10 percent less than the published rates. Do NOT list short-lived seed. Show an * at the end of botanical name if seed must be produced in CA ONLY. If there is no requirement for seed to be produced in CA delete "Seed produced in CA only" at the bottom of the table.**~~

~~Seed must comply with the following:~~

~~**SEED**~~

~~Botanical Name (Common Name)~~	~~Percent Germination (Minimum)~~	~~Pounds Pure Live Seed Per Acre (Slope Measurement)~~

~~[a]Seed produced in CA only.~~

~~**Seed Sampling Supplies**~~

~~**23**~~

~~At the time of seed sampling, furnish a glassine lined bag and custody seal tag for each seed lot sample.~~

~~**CONSTRUCTION**~~

~~**Application**~~

~~**24. Use only when SSP 07-485, "Move-in/Move-out (Temporary Erosion Control)," is included in project.**~~

~~Apply temporary hydroseed when an area is ready to receive temporary erosion control under "Move-in/Move-out (Temporary Erosion Control)."~~

DRAFT

~~**25. Delete this paragraph and include a material and application rate table in 28 (1) if a specific type of tackifier is desired. These edits to be consistent with Paras 6 thru 11 edits.**~~

~~The quantity of tackifier in the mixture must be as recommended by the manufacturer.~~

~~**26**~~

~~The ratio of water to fiber and tackifier in the mixture must be as recommended by the manufacturer. The proportions of various erosion control materials may be changed by the Engineer to meet field conditions.~~

~~**27**~~

~~Use hydroseeding equipment to apply hydroseed.~~

~~**28*. Determine total fiber rate based upon slope and soil conditions. Consider the following application rates:**~~

~~**2H:1V slope 1800-2500 lbs/acre**~~

~~**3H:1V slope 1500-1800 lbs/acre**~~

~~**4H:1V slope 1200-1500 lbs/acre**~~

~~**5H:1V slope 1000-1200 lbs/acre**~~

~~**6H:1V & flatter slope 1000 lbs/acre**~~

~~**Adjust quantities of wood fiber, cellulose fiber, and alternate fiber. Fiber blends of 50/50 or 30/70 wood to cellulose (paper) are common. If substitution of the cellulose fiber is allowed, delete row for "Alternate fiber", add a row to end of table (merge cells), and add the following text in Table (Lt) style: "Wood fiber or alternate fiber may be substituted for cellulose fiber."**~~

~~Apply hydroseed:~~

~~1. At application rate indicated. Successive applications or passes may be needed to achieve the indicated rate:~~

~~Material~~	~~Application Rate lbs/acre~~
~~Wood Fiber~~	
~~Cellulose Fiber~~	
~~Alternate Fiber~~	
~~Seed~~	

~~2. To form a continuous mat with no gaps between the mat and the soil surface.~~
~~3. From 2 or more directions to achieve a continuous mat.~~
~~4. In layers to avoid slumping and to aid drying.~~

~~**28(5). Edit if a particular type of tackifier allows a different dry weather cure period. These edits to be consistent with Paras 6 thru 11 edits.**~~

~~5. During dry weather or at least 24 hours before predicted rain.~~

DRAFT

~~**29**~~

~~Do not apply hydroseed if:~~

~~1. Water is standing on or moving across the soil surface~~
~~2. Soil is frozen~~
~~3. Air temperature is below 40 ºF during the tackifier curing period unless allowed by the tackifier manufacturer and approved by the Engineer~~

~~**30**~~

~~Do not allow over-spray onto the traveled way, sidewalks, lined drainage channels, or existing vegetation.~~

~~**Maintenance**~~

~~**31**~~

~~Reapply hydroseed within 24 hours of discovering visible erosion, unless the Engineer approves a longer period.~~

~~**32**~~

~~Temporary hydroseed disturbed or displaced by your vehicles, equipment, or operations must be reapplied at your expense.~~

~~**33**~~

~~Cleanup, repair, removal, disposal, or replacement due to improper installation or your negligence are not included in the cost for performing maintenance.~~

~~**Removal**~~

~~**34**~~

~~Remove hydroseed by mechanically blending it into the soil with track laying equipment, disking, or other approved method.~~

~~**MEASUREMENT AND PAYMENT**~~

~~**35**~~

~~Temporary hydroseed is measured by the square yard from measurements along the slope of the areas covered by the hydroseed.~~

~~**36**~~

~~The contract price paid per square yard for temporary hydroseed includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in applying temporary hydroseed, complete in place, including removal of hydroseed, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.~~

~~**37. Include funds for supplemental work item 066595, "Water Pollution Control Maintenance Sharing."**~~

~~The State and you share the cost of maintaining the temporary hydroseed. The State determines the maintenance cost under Section 9-1.03, "Force Account Payment," of the Standard Specifications and pays you one-half of that cost.~~

DRAFT

USE WITH 2006 STANDARDS.

Use for project conditions that require street sweeping to 1) control sediment in conjunction with other tracking controls and 2) control sediment, particulate matter, debris, and trash that may be tracked off site.

This item is not intended to replace the main residue collection requirements considered as included in construction operations such as grooving, Grinding, or asphalt concrete planing.

To calculate the Street Sweeping pay item price in the BEES use $400-500 times the number of sweepers, times the total number of days that soil disturbance activities (such as clearing and grubbing, grading, etc.) may cause sediment tracking as defined in the "Storm Water Quality Handbooks PPDG." Typically, a single sweeper is needed for one day per week.

Use BEES item 074041, Street Sweeping.

10-1.__ STREET SWEEPING

GENERAL

Summary

1

This work includes street sweeping.

Para 2 and 3. Replace "SWPPP" with "WPCP" if SSP 07-340 is used.

2

The SWPPP must describe and include the use of street sweeping as a water pollution control practice for sediment control and tracking control.

Submittals

3

At least 5 business days before starting clearing and grubbing, earthwork, or other activities with the potential for tracking sediment or debris, submit:

1. Number of sweepers described in the SWPPP
2. Type of sweeper technology

Quality Control and Assurance

4

Retain and submit records of street sweeping including:

1. Quantity of sweeping waste disposal
2. Sweeping times and locations

CONSTRUCTION

Street Sweepers

5

Sweepers must use one of these technologies:

1. Mechanical sweeper followed by a vacuum-assisted sweeper
2. Vacuum-assisted dry (waterless) sweeper
3. Regenerative-air sweeper

Operation

6. Edit if different locations are anticipated.

Street sweeping must be done at:

1. Paved roads at job site entrance and exit locations
2. Paved areas within the job site that flow to storm drains or water bodies

7. Edit if different operations are anticipated.

Street sweeping must be done:

1. During clearing and grubbing activities
2. During earthwork activities
3. During trenching activities
4. During roadway structural section activites
5. When vehicles are entering and leaving the job site
6. After soil disturbing activities
7. After observing offsite tracking of material

8. Edit if a shorter response time is needed or if a longer time is allowed. Consult with Construction Storm Water Coordinator for sweeping frequency.

Increase the estimate due to requiring the sweeper at more of the Contractor's operations. If you require the Contractor to provide the sweeper within 1 hour of a request from the RE the costs will increase. Add additional cost in the range of $50,000 to $125,000.

Monitor paved areas and roadway within the jobsite. Street sweeping must be done:

DRAFT

1. Within 1 hour, if sediment or debris is observed during activities that require sweeping
2. Within 24 hours, if sediment or debris is observed during activities that do not require sweeping

9. Consult with Construction Storm Water Coordinator for the quantity of sweepers to be on the job site at all times. Edit the number of sweepers if required.

At least 1 sweeper must be on the job site at all times when sweeping work is required. The sweeper must be in good working order.

10

Perform street sweeping to minimize dust. If dust generation is excessive or sediment pickup is ineffective, use water or a vacuum.

11. Replace "SWPPP" with "WPCP" if SSP 07-340 is used.

You may stockpile collected material on the jobsite according to the approved SWPPP. Dispose of collected material at least once per week.

12

Material collected during street sweeping must be removed and disposed of under Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

13. Edit if a different inspection schedule is needed.

Your WPCM must inspect paved roads at job site access points:

1. Daily if earthwork and other sediment or debris generating activities occur daily
2. Weekly if earthwork and other sediment or debris generating activities do not occur daily
3. When the National Weather Service predicts precipitation with a probability of at least 30 percent

14

MEASUREMENT AND PAYMENT

The contract lump sum price paid for street sweeping includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in street sweeping, including disposal of collected material, as shown on the plans, as specified in the Standard Specifications, these special provisions, and as directed by the Engineer.

DRAFT

USE WITH 2006 STANDARDS.

Use for waste management and material pollution control for concrete activities, and to eliminate discharge of portland cement concrete slurries and asphalt concrete wastes from entering storm drain systems or watercourses.

Refer to WM-8 Concrete Waste Management, of the Caltrans Storm Water Quality Handbook Construction Site Best Management Practices (BMPs) Manual for information related to the use of this BMP.

Include Standard Plan T59.

Use BEES item 074032 Temporary Concrete Washout Facility.

10-1.__ TEMPORARY CONCRETE WASHOUT FACILITY

GENERAL

Summary

1

This work includes removal and disposal of concrete waste by furnishing, maintaining, and removing temporary concrete washout facilities.

2. Replace "SWPPP" with "WPCP" if SSP 07-340 is used.

SWPPP must describe and include the use of temporary concrete washout facilities as a water pollution control practice for waste management and materials pollution control.

Submittals

3

At least 5 business days before concrete activities start, submit:

1. Location of washout facilities
2. Name and location of off-site concrete waste disposal facility to receive concrete waste
3. Copy of permit issued by RWQCB for off-site commercial disposal facility
4. Copy of license for off-site commercial disposal facility
5. Copy of permit issued by state or local agency having jurisdiction over disposal facility if disposal site is located outside of the State of California
6. Gravel-filled bag fabric
7. Plastic liner
8. Alternate attachment device for staples, if used

Quality Control and Assurance

4

Retain and submit records of disposed concrete waste.

MATERIALS

Straw Bales

5

Straw bales must comply with Section 20-2.06, "Straw," of the Standard Specifications and be:

1. At least 14 inches wide, 18 inches high, 36 inches long, and weigh at least 50 pounds.
2. Composed entirely of vegetative matter, except for binding material.
3. Bound by wire, nylon, or polypropylene string. Do not use jute or cotton binding. Baling wire must be minimum 16 gauge. Nylon or polypropylene string must be approximately 0.08-inch in diameter with 80 pounds of breaking strength.

Stakes

6

Stakes may be either wood or metal and must comply with the following:

1. Wood stakes must be:

    1.1. Untreated fir, redwood, cedar, or pine and cut from sound timber
    1.2. Straight and free of loose or unsound knots and other defects which would render stakes unfit for use
    1.3. Pointed on the end to be driven into the ground
    1.4. At least 2" x 2" x 48" in size

2. Metal stakes must be at least 0.5-inch diameter and 48 inches long. Tops of metal stakes must be bent at a 90-degree angle or capped with an orange or red plastic safety cap that fits snugly to the metal stake.

Concrete Washout Sign

7

Concrete washout sign must comply with Section 12-3.06B, "Portable Signs" of the Standard Specifications and:

1. Be approved by the Engineer
2. Consist of base, framework, and sign panel
3. Be made of plywood
4. Be minimum 2' x 4' in size
5. Read "Concrete Washout" with 3 inches high black letters on white background

DRAFT

Gravel-filled Bag Fabric

8

Geosynthetic fabric for temporary gravel bag berm must consist of one of these:

1. Polyester
2. Polypropylene
3. Combined polyester and polypropylene

9

Sample under ASTM D 4354, Procedure C.

10

Test under ASTM D 4759. All properties must be based on Minimum Average Roll Value (MARV).

11

Identify, store, and handle under ASTM D 4873.

12

Protect geosynthetics from moisture, sunlight, and damage during shipping and storage. Label each unit with manufacturer's name, identifying information, and product identification.

13

Gravel-filled bag fabric must comply with requirements in this table:

Specification	Requirements
Grab breaking load 1-inch grip, lb, min. in each direction	205
Apparent elongation percent, min., in each direction	50
Water Flow Rate max. average roll value, gallons per minute/square foot	80-150
Permittivity 1/sec., min	1.2
Apparent opening size max. average roll value, U.S. Standard sieve size	40-80
Ultraviolet Degradation percent of original unexposed grab breaking load 500 hour, minimum	70

Gravel

14

Gravel for gravel-filled bags must be:

1. From 3/8 to 3/4 inch in diameter
2. Clean and free of clay balls, organic matter, and other deleterious materials

DRAFT

Gravel-filled Bag

15

Gravel-filled bag must:

1. Be made of gravel-filled bag fabric.
2. Have inside dimensions from 24 to 32 inches long, and from 16 to 20 inches wide.
3. Have bound opening to retain gravel. Opening must be sewn with yarn, bound with wire, or secured with a closure device.
4. Weigh from 30 to 50 pounds when filled with gravel.

Plastic Liner

16

Plastic liner must be:

1. Single ply, new polyethylene sheeting
2. At least 10 mils thick
3. Free of holes, punctures, tears or other defects
4. Without seams or overlapping joints

CONSTRUCTION

Placement

17

Place concrete washout facilities at job site:

1. Before concrete placement activities start
2. In the immediate area of concrete work as approved by the Engineer
3. No closer than 50 feet from storm drain inlets, open drainage facilities, ESAs, or watercourses
4. Away from construction traffic or public access areas

18

Install a concrete washout sign adjacent to each temporary concrete washout facility location.

19

For at grade and below grade concrete washout facilities:

1. Build to contain liquid and concrete waste without seepage, spills, or overflow
2. Build in sufficient quantity and size to contain liquid and concrete waste generated by washout activities for concrete wastes
3. Install with plastic liner

DRAFT

20

If approved, the length and width of temporary concrete washout facility may be increased from minimum dimensions shown on the plans.

21

If below grade concrete washout facilities are used, construct berms from compacted native material. Gravel may be used in conjunction with compacted native material.

Operation

22. Edit if different concrete wastes are anticipated.

Use concrete washout facilities for:

1. Washout from concrete delivery trucks
2. Slurries containing portland cement concrete or hot mix asphalt from sawcutting, coring, grinding, grooving, and hydro-concrete demolition
3. Concrete waste from mortar mixing stations

23

Relocate concrete washout facilities as needed for concrete construction work.

24

Do not fill higher than 6 inches below rim.

25. Edit if a different inspection schedule is needed.

Your WPC manager must inspect concrete washout facilities:

1. Daily if concrete work occurs daily
2. Weekly if concrete work does not occur daily

Maintenance

26

Maintain temporary concrete washout facility by:

1. Providing adequate holding capacity with 12-inch minimum freeboard
2. Removing and disposing of hardened concrete under Section 15-3.02, "Removal Methods"
3. Patching holes, rips, and voids in plastic liner with tape
4. If plastic liner leaks after patching, replace plastic liner
5. Repairing or replacing gravel-filled bags when they become split, torn, unraveled, or gravel spills out

27

Repair temporary concrete washout facility within 24 hours of discovering damage unless the Engineer approves a longer period.

DRAFT

28

If your vehicles, equipment, or activities disturb or displace temporary concrete washout facility, repair temporary concrete washout facility at your expense.

Removal

29

Dispose of concrete waste material at a facility specifically licensed to receive solid concrete waste, liquid concrete waste, or both. When concrete washout facility is full, remove and dispose of concrete waste within 2 days.

30

When the Engineer determines that temporary concrete washout facility is not needed, remove and dispose of it under Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

31

Backfill and repair ground disturbance, including holes and depressions, caused by the installation and removal of temporary concrete washout facility, under Section 15-1.02, "Preservation of Property," of the Standard Specifications.

PAYMENT

32

Temporary concrete washout facility is measured by the actual count of concrete washout facilities in place.

33

The contract unit price paid for temporary concrete washout facility includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing, maintaining, and removing the concrete washout facility, including removal and disposal of concrete waste, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

DRAFT

USE WITH 2006 STANDARDS.

Use for waste management and material pollution control for concrete activities, and to eliminate discharge of portland cement concrete slurries and hot mix asphalt wastes from entering storm drain systems or watercourses.

Use in place of "Temporary Concrete Washout Facility" when there is not enough space for the placement of this facility.

Refer to WM-8 Concrete Waste Management, of the Caltrans Storm Water Quality Handbook Construction Site Best Management Practices (BMPs) Manual for information related to the use of this BMP.

Include contract item 074042, "Temporary Concrete Washout (Portable)."

10-1.__ TEMPORARY CONCRETE WASHOUT (PORTABLE)

GENERAL

Summary

1

This work includes removal and disposal of concrete waste by furnishing, maintaining, and removing portable temporary concrete washouts.

2. Replace "SWPPP" with "WPCP" if SSP 07-340 is used.

SWPPP must describe and include the use of a portable temporary concrete washout as a water pollution control practice for waste management and materials pollution control.

Submittals

3

At least 5 business days before concrete activities start, submit:

1. Name and location of off-site concrete waste disposal facility to receive concrete waste
2. Copy of permit issued by RWQCB for off-site commercial disposal facility
3. Copy of license for off-site commercial disposal facility
4. Copy of permit issued by state or local agency having jurisdiction over disposal facility if disposal site is located outside of the State of California

DRAFT

Quality Control and Assurance

4

Retain and submit records of disposed concrete waste including:

1. Weight tickets
2. Delivery and removal of temporary concrete washouts

MATERIALS

Portable Temporary Concrete Washout

5

Portable temporary concrete washout must:

1. Be a commercially available watertight container.
2. Have sufficient capacity to contain all liquid and concrete waste generated by washout activities without seepage or spills.
3. Have at least 55-gallon capacity.
4. Be labeled for the exclusive use as a concrete waste and washout facility. Stencil "Concrete Waste material" in 3-inch high letters on white background. Top of stenciling must be 12 inches from the top of the container.

Concrete Washout Sign

6

Concrete washout sign must comply with the provisions in Section 12-3.06B, "Portable Signs" of the Standard Specifications and:

1. Be approved by the Engineer
2. Consist of base, framework, and sign panel
3. Be made of plywood
4. Be minimum 2' x 4' in size
5. Read "Concrete Washout" with 3 inches high black letters on white background

CONSTRUCTION

Placement

7

Place portable temporary concrete washouts at job site:

1. Before concrete placement activities start
2. In the immediate area of concrete work as approved by the Engineer
3. No closer than 50 feet from storm drain inlets, open drainage facilities, ESAs, or watercourses
4. Away from construction traffic or public access areas

DRAFT

8

Install a concrete washout sign adjacent to each portable temporary concrete washout location.

Operation

9. Edit if different concrete wastes are anticipated.

Use portable temporary concrete washouts for:

1. Washout from concrete delivery trucks
2. Slurries containing portland cement concrete or hot mix asphalt from sawcutting, coring, grinding, grooving, and hydro-concrete demolition
3. Concrete waste from mortar mixing stations

10

Relocate portable temporary concrete washouts as needed for concrete construction work.

11

Replace portable temporary concrete washouts when filled to capacity. Do not fill higher than 6 inches below rim.

12. Edit if a different inspection schedule is needed.

Your WPC manager must inspect portable temporary concrete washouts:

1. Daily if concrete work occurs daily
2. Weekly if concrete work does not occur daily

Maintenance

13

When relocating or transporting a portable temporary concrete washout within the job site, secure it to prevent spilling of concrete waste material. If any spilled material is observed, remove spilled material and place it into portable temporary concrete washout.

Removal

14

Dispose of concrete waste material at a facility specifically licensed to receive solid concrete waste, liquid concrete waste, or both. When portable temporary concrete washout is full, remove and dispose of concrete waste within 2 days.

PAYMENT

15

The contract lump sum price paid for temporary concrete washout (portable) includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in furnishing, maintaining, and removing the portable temporary concrete washout, including removal and disposal of concrete waste, as

DRAFT

specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

DRAFT

USE WITH 2006 STANDARDS.

Use as a temporary sediment control structure in ditches and swales to trap and detain sediment in concentrated flows of storm water runoff from construction sites. Temporary check dams reduce scour and channel erosion by reducing flow velocity.

Refer to SC-4, Check Dam, of the Caltrans Storm Water Quality Handbook Construction Site Best Management Practices (BMPs) Manual for information related to the use of this BMP.

Include Standard Plan T57.

Use BEES item 074035 Temporary Check Dam.

KC 9-15-2009**

~~10-1.__ TEMPORARY CHECK DAM~~

~~GENERAL~~

~~Summary~~

~~1~~

~~This work includes constructing, maintaining, and removing temporary check dams.~~

~~2. Replace "SWPPP" with "WPCP" if SSP 07-340 is used.~~

~~The SWPPP must describe and include the use of temporary check dams as a water pollution control practice for soil stabilization in flow conveyances.~~

~~Submittals~~

~~3~~

~~Submit a Certificate of Compliance as specified in Section 6-1.07, "Certificates of Compliance" of the Standard Specifications for:~~

~~1. Fiber rolls~~
~~2. Gravel-filled bag fabric~~

~~MATERIALS~~

~~Fiber Rolls~~

~~4. Edit to specify fiber roll type if only a single type is desired.~~

~~Fiber rolls must:~~

~~1. Last for at least one year after installation~~
~~2. Be Type 1 or Type 2~~

~~**5. If environmental requirements include protecting wildlife from entrapment, delete "extruded photodegradable plastic netting or ".**~~

~~If specified, Type 1 fiber rolls must be:~~

~~1. Made from an erosion control blanket:~~

~~1.1. Classified by the Erosion Control Technology Council (ECTC) as ECTC 2D~~
~~1.2. With a Universal Soil Loss Equation (USLE) C-Factor of not more than 0.20 at a 2:1 (horizontal:vertical) slope~~
~~1.3. Capable to withstand a maximum shear stress of 1.75 pounds per square foot under ASTM D 6460~~
~~1.4. With a minimum tensile strength of 75 pounds per foot under ASTM D 5035~~
~~1.5. With top and bottom surfaces covered with extruded photodegradable plastic netting or lightweight non-synthetic netting~~
~~1.6. Either of the following:~~

~~1.6.1. Double net straw and coconut blanket with 70 percent straw and 30 percent coconut fiber~~
~~1.6.2. Double net excelsior blanket with 80 percent of the wood excelsior fibers being 6 inches or longer~~

~~2. Rolled along the width~~
~~3. Secured with natural fiber twine every 6 feet and 6 inches from each end~~
~~4. Finished to be either:~~

~~4.1. From 8 to 10 inches in diameter, from 10 to 20 feet long, and at least 0.5 pounds per linear foot~~
~~4.2. From 10 to 12 inches in diameter, at least 10 feet long, and at least 2 pounds per linear foot~~

~~**6. If environmental requirements include protecting wildlife from entrapment, delete "photodegradable plastic netting or ".**~~

~~If specified, Type 2 fiber rolls must:~~

~~1. Be filled with rice or wheat straw, wood excelsior, or coconut fiber~~
~~2. Be covered with a photodegradable plastic netting or a biodegradable jute, sisal, or coir fiber netting~~
~~3. Have the netting secured tightly at each end~~
~~4. Be finished to be either:~~

~~4.1. From 8 to 10 inches in diameter, from 10 to 20 feet long, and at least 1.1 pounds per linear foot~~
~~4.2. From 10 to 12 inches in diameter, at least 10 feet long, and at least 3 pounds per linear foot~~

DRAFT

~~**Wood Stakes**~~

~~**7**~~

~~Wood stakes must be:~~

~~1. Untreated fir, redwood, cedar, or pine and cut from sound timber~~
~~2. Straight and free of loose or unsound knots and other defects which would render the stakes unfit for use~~
~~3. Pointed on the end to be driven into the ground~~

~~**8**~~

~~For fiber rolls, wood stakes must be at least:~~

~~1. 1" x 1" x 24" in size for Type 1 installation~~
~~2. 1" x 2" x 24" in size for Type 2 installation~~

~~**Rope**~~

~~**9**~~

~~For Type 2 installation, rope must:~~

~~1. Be biodegradable, such as sisal or manila~~
~~2. Have a minimum diameter of 1/4 inch~~

~~**Gravel-filled Bag Fabric**~~

~~**10**~~

~~Geosynthetic fabric for temporary gravel bag berm must consist of one of the following:~~

~~1. Polyester~~
~~2. Polypropylene~~
~~3. Combined polyester and polypropylene~~

~~Sample under ASTM D 4354, Procedure C.~~

~~**11**~~

~~Test under ASTM D 4759. All properties are based on Minimum Average Roll Value (MARV).~~

~~**12**~~

~~Identify, store, and handle under ASTM D 4873.~~

~~**13**~~

~~Protect geosynthetics from moisture, sunlight and damage during shipping and storage. Label each unit with the manufacturer's name, identifying information and product identification.~~

DRAFT

~~**14**~~

~~Gravel-filled bag fabric must comply with:~~

~~Specification~~	~~Requirements~~
~~Grab breaking load~~ ~~1-inch grip, lb, min. in each direction~~	~~205~~
~~Apparent elongation~~ ~~percent, min., in each direction~~	~~50~~
~~Water Flow Rate~~ ~~max. average roll value, gallons per minute/square foot~~	~~80-150~~
~~Permittivity~~ ~~1/sec., min~~	~~1.2~~
~~Apparent opening size~~ ~~max. average roll value, U.S. Standard sieve size~~	~~40-80~~
~~Ultraviolet Degradation~~ ~~percent of original unexposed grab breaking load 500 hr, minimum~~	~~70~~

~~**Gravel**~~

~~**15**~~

~~Gravel for gravel-filled bags must be:~~

~~1. From 3/8 to 3/4 inch in diameter~~
~~2. Clean and free from clay balls, organic matter, and other deleterious materials~~

~~**Gravel-filled Bags**~~

~~**16**~~

~~Gravel-filled bags must:~~

~~1. Be made from gravel-filled bag fabric.~~
~~2. Have inside dimensions from 24 to 32 inches in length, and from 16 to 20 inches in width.~~
~~3. Have the opening bound to retain the gravel. The opening must be sewn with yarn, bound with wire, or secured with a closure device.~~
~~4. Weigh from 30 to 50 pounds when filled with gravel.~~

~~**CONSTRUCTION**~~

~~**17**~~

~~Before placing temporary check dam, remove obstructions including rocks, clods, and debris greater than one inch in diameter from the ground.~~

~~**18**~~

~~If check dams are to be placed in the same areas as erosion control blankets, then install the blankets before placing the check dams.~~

~~**19. Edit to specify check type if only a single type is desired.**~~

~~Temporary check dams must be:~~

DRAFT

1. ~~Placed approximately perpendicular to the centerline of the ditch or drainage line~~
2. ~~Installed with sufficient spillway depth to prevent flanking of concentrated flow around the ends of the check dam~~
3. ~~Type 1 for lashed fiber rolls, Type 2 for gravel-filled bags, or a combination:~~

    3.1. ~~If the ditch is lined with concrete or hot mix asphalt, use temporary check dam (Type 2)~~
    3.2. ~~If the ditch is unlined, you may use temporary check dam (Type 1) or (Type 2)~~

~~20~~

~~Temporary check dam (Type 1) must be:~~

1. ~~Secured with rope and notched wood stakes.~~
2. ~~Installed by driving stakes into the soil until the notch is even with the top of the fiber roll.~~
3. ~~Installed by lacing the rope between stakes and over the fiber roll. Knot the rope at each stake.~~
4. ~~Tightened by driving the stakes further into the soil forcing the fiber roll against the surface of the ditch or drainage line.~~

~~21~~

~~Temporary check dam (Type 2) must be:~~

1. ~~Placed as a single layer of gravel bags~~
2. ~~End-to-end to eliminate gaps~~

~~22~~

~~If you need to increase the height of the temporary check dam (Type 2):~~

1. ~~Increase height by adding rows of gravel-filled bags~~
2. ~~Stack bags in a way that the bags in the top row overlap the joints in the lower row~~
3. ~~Stabilize dam by adding rows of bags at the bottom~~

~~MAINTENANCE~~

~~23~~

~~Maintain temporary check dams to provide sediment holding capacity and to reduce concentrated flow velocities.~~

~~24~~

~~Remove sediment deposits, trash, and debris from temporary check dams as needed or when directed by the Engineer. If removed sediment is deposited within project limits, it must be stabilized and not subject to erosion by wind or water. Trash and debris must~~

DRAFT

~~be removed and disposed of as specified in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.~~

~~**25**~~

~~Maintain temporary check dams by:~~

1. ~~Removing sediment from behind the check dam when sediment is 1/3 the height of the check dam above ground~~
2. ~~Repairing or adjusting the check dams when scour and other evidence of concentrated flow occur beneath the fiber roll~~
3. ~~Repairing or replacing the fiber rolls or gravel-filled bags when they become split, torn, or unraveled~~
4. ~~Adding stakes when the fiber rolls slump or sag~~
5. ~~Replacing broken or split wood stakes~~

~~**26**~~

~~Repair temporary check dams within 24 hours of discovering damage unless the Engineer approves a longer period.~~

~~**27**~~

~~If your vehicles, equipment, or activities disturb or displace temporary check dams, repair temporary check dams at your expense.~~

~~**28**~~

~~The Department does not pay maintenance costs for cleanup, repair, removal, disposal, or replacement due to improper installation or your negligence.~~

~~**REMOVAL**~~

~~**29**~~

~~When the Engineer determines that temporary check dams are not required, they must be removed and disposed of under Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.~~

~~**30**~~

~~Ground disturbance, including holes and depressions, caused by the installation and removal of the temporary check dams must be backfilled and repaired under Section 15-1.02, "Preservation of Property," of the Standard Specifications.~~

~~**MEASUREMENT AND PAYMENT**~~

~~**31**~~

~~Temporary check dam is measured by the linear foot along the centerline of the check dams. Where temporary fiber rolls are joined and overlapped, the overlap is measured as a single installed check dam.~~

~~**32**~~

~~The contract price paid per linear foot for temporary check dams includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing the temporary check dams, complete in~~

DRAFT

~~place, including removal of materials, cleanup and disposal of retained sediment and debris, and backfilling and repairing holes, depressions and other ground disturbance, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer~~

~~**33. Include funds for supplemental work item 066595, "Water Pollution Control Maintenance Sharing."**~~

~~The State and you share the cost of maintaining the temporary check dams. The State determines the maintenance cost under Section 9-1.03, "Force Account Payment," of the Standard Specifications and pays you one-half of that cost.~~

DRAFT

USE WITH 2006 STANDARDS.

Use as a temporary linear barrier for sediment control to intercept runoff, reduce runoff flow velocity, and release runoff as sheet flow. Temporary fiber roll should be used primarily as a slope interrupter device to shorten slope lengths and to intercept and retain limited amounts of sediment on slope surfaces.

Refer to SC-5, Fiber Rolls, of the Caltrans Storm Water Quality Handbook Construction Site Best Management Practices (BMPs) Manual for information related to the use of this BMP.

Include Standard Plan T56.

Use BEES item 074028 Temporary Fiber Roll.

10-1.__ TEMPORARY FIBER ROLL

GENERAL

Summary

1

This work includes constructing, maintaining, and removing temporary fiber roll.

2. Replace "SWPPP" with "WPCP" if SSP 07-340 is used.

The SWPPP must describe and include the use of temporary fiber roll as a water pollution control practice for sediment control.

Submittals

3

Submit a Certificate of Compliance as specified in Section 6-1.07, "Certificates of Compliance" of the Standard Specifications for fiber roll.

MATERIALS

Fiber Roll

4. Edit to specify fiber roll type if only a single type is desired.

Fiber roll must:

1. Last for at least one year after installation
2. Be Type 1 or Type 2

DRAFT

5. If environmental requirements include protecting wildlife from entrapment, delete "extruded photodegradable plastic netting or ".

If specified, Type 1 fiber roll must be:

1. Made from an erosion control blanket:

    1.1. Classified by the Erosion Control Technology Council (ECTC) as ECTC 2D
    1.2. With a Universal Soil Loss Equation (USLE) C-Factor of not more than 0.20 at a 2:1 (horizontal:vertical) slope
    1.3. Capable to withstand a maximum shear stress of 1.75 pounds per square foot under ASTM D 6460
    1.4. With a minimum tensile strength of 75 pounds per foot under ASTM D 5035
    1.5. With top and bottom surfaces covered with extruded photodegradable plastic netting or lightweight non-synthetic netting
    1.6. That complies with one of the following:

        1.6.1. Double net straw and coconut blanket with 70 percent straw and 30 percent coconut fiber
        1.6.2. Double net excelsior blanket with 80 percent of the wood excelsior fibers being 6 inches or longer

2. Rolled along the width
3. Secured with natural fiber twine every 6 feet and 6 inches from each end
4. Finished to be either:

    4.1. From 8 to 10 inches in diameter, from 10 to 20 feet long, and at least 0.5 pounds per linear foot
    4.2. From 10 to 12 inches in diameter, at least 10 feet long, and at least 2 pounds per linear foot

6. If environmental requirements include protecting wildlife from entrapment, delete "photodegradable plastic netting or ".

If specified, Type 2 fiber roll must:

1. Be filled with rice or wheat straw, wood excelsior, or coconut fiber
2. Be covered with a photodegradable plastic netting or a biodegradable jute, sisal, or coir fiber netting
3. Have the netting secured tightly at each end
4. Be finished to be either:

    4.1. From 8 to 10 inches in diameter, from 10 to 20 feet long, and at least 1.1 pounds per linear foot
    4.2. From 10 to 12 inches in diameter, at least 10 feet long, and at least 3 pounds per linear foot

DRAFT

Wood Stakes

7

Wood stakes must be:

1. Untreated fir, redwood, cedar, or pine and cut from sound timber
2. Straight and free of loose or unsound knots and other defects which would render the stakes unfit for use
3. Pointed on the end to be driven into the ground

8

For fiber roll, wood stakes must be at least:

1. 1" x 1" x 24" in size for Type 1 installation
2. 1" x 2" x 24" in size for Type 2 installation

Rope

9

For Type 2 installation, rope must:

1. Be biodegradable, such as sisal or manila
2. Have a minimum diameter of 1/4 inch

CONSTRUCTION

10

Before placing fiber roll, remove obstructions including rocks, clods, and debris greater than one inch in diameter from the ground.

11

If fiber roll is to be placed in the same area as erosion control blanket, install the blanket before placing the fiber roll. For other soil stabilization practices such as hydraulic mulch or compost, place the fiber roll and then apply the soil stabilization practice.

12

Place fiber roll on slopes at the following spacing unless the plans show a different spacing:

1. 10 feet apart for slopes steeper than 2:1 (horizontal:vertical)
2. 15 feet apart for slopes from 2:1 to 4:1 (horizontal:vertical)
3. 20 feet apart for slopes from 4:1 to 10:1 (horizontal:vertical)
4. 50 feet apart for slopes flatter than 10:1 (horizontal:vertical)

13

Place fiber roll approximately parallel to the slope contour. For any 20 foot section of fiber roll, do not allow the fiber roll to vary more then 5 percent from level.

DRAFT

14. Edit to specify an installation method if only a single type is desired.

Type 1 and Type 2 fiber roll may be installed using installation method Type 1, Type 2, or a combination:

15

For installation method Type 1, install fiber roll by:

1. Placing in a furrow that is from 2 to 4 inches deep
2. Securing with wood stakes every 4 feet along the length of the fiber roll
3. Securing the ends of the fiber roll by placing a stake 6 inches from the end of the roll
4. Driving the stakes into the soil so that the top of the stake is less then 2 inches above the top of the fiber roll

16

For installation method Type 2, install fiber roll by:

1. Securing with rope and notched wood stakes.
2. Driving stakes into the soil until the notch is even with the top of the fiber roll.
3. Lacing the rope between stakes and over the fiber roll. Knot the rope at each stake.
4. Tightening the fiber roll to the surface of the slope by driving the stakes further into the soil.

MAINTENANCE

17

Maintain temporary fiber roll to provide sediment holding capacity and to reduce runoff velocities.

18

Remove sediment deposits, trash, and debris from temporary fiber roll as needed or when directed by the Engineer. If removed sediment is deposited within project limits, it must be stabilized and not subject to erosion by wind or water. Trash and debris must be removed and disposed of as specified in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

19

Maintain temporary fiber roll by:

1. Removing sediment from behind the fiber roll when sediment is 1/3 the height of the fiber roll above ground
2. Repairing or adjusting the fiber roll when rills and other evidence of concentrated runoff occur beneath the fiber roll.
3. Repairing or replacing the fiber roll when they become split, torn, or unraveled
4. Adding stakes when the fiber roll slump or sag

DRAFT

5. Replacing broken or split wood stakes

20

Repair temporary fiber roll within 24 hours of discovering damage unless the Engineer approves a longer period.

21

If your vehicles, equipment, or activities disturb or displace temporary fiber roll, repair temporary fiber roll at your expense.

22

The Department does not pay maintenance costs for cleanup, repair, removal, disposal, or replacement due to improper installation or your negligence.

REMOVAL

23

When the Engineer determines that temporary fiber roll is not required, they must be removed and disposed of under Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

24

Ground disturbance, including holes and depressions, caused by the installation and removal of the temporary fiber roll must be backfilled and repaired under Section 15-1.02, "Preservation of Property," of the Standard Specifications.

MEASUREMENT AND PAYMENT

25

Temporary fiber roll is measured by the linear foot along the centerline of the installed roll. Where temporary fiber roll is joined and overlapped, the overlap is measured as a single installed roll.

26

KC 9-15-2009**

The contract price paid per linear foot for temporary fiber roll includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing the temporary fiber roll, complete in place, including removal of materials, cleanup and disposal of retained sediment and debris, and backfilling and repairing holes, depressions and other ground disturbance~~, as shown on the plans,~~ as specified in the Standard Specifications and these special provisions, and as directed by the Engineer

27. Include funds for supplemental work item 066595, "Water Pollution Control Maintenance Sharing."

The State and you share the cost of maintaining the temporary fiber roll. The State determines the maintenance cost under Section 9-1.03, "Force Account Payment," of the Standard Specifications and pays you one-half of that cost.

DRAFT

USE WITH 2006 STANDARDS.

Use as a temporary linear barrier for sediment control to intercept and detain sediment in storm water runoff from unprotected areas at construction sites. Temporary silt fence allows sediment to settle from runoff before storm water leaves the construction site.

Refer to SC-1, Silt Fence, of the Caltrans Storm Water Quality Handbook Construction Site Best Management Practices (BMPs) Manual for information related to the use of this BMP.

Include Standard Plan T51.

Use BEES item 074029 Temporary Silt Fence.

10-1.__ TEMPORARY SILT FENCE

GENERAL

Summary

1

This work includes installing, maintaining, and removing temporary silt fence.

2. Replace "SWPPP" with "WPCP" if SSP 07-340 is used.

The SWPPP must describe and include the use of temporary silt fence as a water pollution control practice for sediment control.

Submittals

3

Submit a Certificate of Compliance as specified in Section 6-1.07, "Certificates of Compliance" of the Standard Specifications for silt fence fabric.

MATERIALS

Silt Fence Fabric

4

Geosynthetic fabric for temporary silt fence must consist of one of the following:

1. Polyester
2. Polypropylene
3. Combined polyester and polypropylene

Sample under ASTM D 4354, Procedure C.

5

Test under ASTM D 4759. All properties must be based on Minimum Average Roll Value (MARV).

6

Identify, store, and handle under ASTM D 4873.

7

Protect geosynthetics from moisture, sunlight, and damage during shipping and storage. Label each unit with the manufacturer's name, identifying information, and product identification.

8

Silt fence fabric must comply with:

Property	ASTM Designation	Specification	
		Woven	Non-woven
Grab breaking load 1-inch grip, lb, min. in each direction	D 4632	120	120
Apparent elongation percent, min., in each direction	D 4632	15	50
Water Flow Rate max. average roll value, gallons per minute/square foot	D 4491	10-50	100-150
Permittivity 1/sec., min.	D 4491	0.05	0.05
Apparent opening size max. average roll value, U.S. Standard sieve size	D 4751	30	30
Ultraviolet Degradation percent of original unexposed grab breaking load 500 hr, minimum	D 4595	70	

Posts

9

Posts must be wood or metal.

10

Wood posts must be:

1. Untreated fir, redwood, cedar, or pine and cut from sound timber
2. Straight and free of loose or unsound knots and other defects that would render the stakes unfit for use
3. Pointed on the end to be driven into the ground
4. At least 2" x 2" in size, and 4 feet long

11

Metal posts must:

1. Be made of steel.

DRAFT

2. Have a "U," "T," "L," or other cross sectional shape that can resist failure from lateral loads.
3. Be pointed on the end to be driven into the ground.
4. Weigh at least 0.75-pound per foot.
5. Be at least 4 feet long.
6. Have a safety cap attached to the exposed end. The safety cap must be orange or red plastic and fit snugly to the metal post.

CONSTRUCTION

12

Silt fence must be:

1. Constructed with silt fence fabric, posts, and fasteners
2. Prefabricated or assembled at the job site

13

Silt fence fabric must be attached to posts using these methods:

1. If prefabricated silt fence is used, posts must be inserted into sewn pockets
2. If assembled on the job site:

    2.1. If wood posts are used, fasteners must be staples or nails
    2.2. If steel posts are used, fasteners must be tie wires or locking plastic fasteners
    2.3. Spacing of the fasteners must be no more than 8 inches apart

14

Place silt fence approximately parallel to the slope contour. For any 50 foot section of silt fence, do not allow the elevation at the base of the fence to vary more than 1/3 of the fence height.

15

Install silt fence by:

1. Placing the bottom of the fabric in a trench that is 6 inches deep
2. Securing with posts placed on the downhill side of the fabric
3. Backfilling the trench with soil and hand or mechanically tamping to secure the fabric in the trench

16

If you reinforce the silt fence fabric with wire or plastic mesh, you may increase the post spacing to a maximum of 10 feet. The field-assembled reinforced silt fence must be able to retain saturated sediment without collapsing.

17

Connect silt fence sections by:

DRAFT

1. Joining separate sections of silt fence to form reaches that are no more than 500 feet long
2. Securing the end posts of each section by wrapping the tops of the posts with at least two wraps of 16-gage diameter tie wire
3. Ensuring that each reach is a continuous run of silt fence from end to end or from an end to an opening, including joined panels

18

If you mechanically push the silt fence fabric vertically through the soil, you must demostrate that the silt fence fabric will not be damaged and will not slip out of the soil, resulting in sediment passing under the silt fence fabric.

MAINTENANCE

19

Maintain temporary silt fence to provide sediment holding capacity and to reduce runoff velocities.

20

Remove sediment deposits, trash, and debris from temporary silt fence as needed or when directed by the Engineer. If removed sediment is deposited within project limits, it must be stabilized and not subject to erosion by wind or water. Trash and debris must be removed and disposed of as specified in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

21

Maintain temporary silt fence by:

1. Removing sediment from behind the silt fence when sediment is 1/3 the height of the silt fence above ground
2. Repairing or adjusting the silt fence when rills and other evidence of concentrated runoff occur beneath the silt fence fabric
3. Repairing or replacing the silt fence fabric when it become split, torn, or unraveled

22

Repair temporary silt fence within 24 hours of discovering damage unless the Engineer approves a longer period.

23

If your vehicles, equipment, or activities disturb or displace temporary silt fence, repair temporary silt fence at your expense.

24

The Department does not pay maintenance costs for cleanup, repair, removal, disposal, or replacement due to improper installation or your negligence.

DRAFT

REMOVAL

25

When the Engineer determines that temporary silt fence is not required, remove and dispose of fence under Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

26

Ground disturbance, including holes and depressions, caused by the installation and removal of the temporary silt fence must be backfilled and repaired under Section 15-1.02, "Preservation of Property," of the Standard Specifications.

MEASUREMENT AND PAYMENT

27

Temporary silt fence is measured by the linear foot along the centerline of the installed fence.

28

KC 9-15-2009**

The contract price paid per linear foot for temporary silt fence includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing the temporary silt fence, complete in place, including removal of materials, cleanup and disposal of retained sediment and debris, and backfilling and repairing holes, depressions and other ground disturbance~~, as shown on the plans,~~ as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

29. Include funds for supplemental work item 066595, "Water Pollution Control Maintenance Sharing."

The State and you share the cost of maintaining the temporary silt fence. The State determines the maintenance cost under Section 9-1.03, "Force Account Payment," of the Standard Specifications and pays you one-half of that cost.

DRAFT

USE WITH 2006 STANDARDS.

Use if project requires a temporary fence to delineate environmentally sensitive areas, preserve existing vegetation, or other conditions that require a temporary, high visibility fence.

Refer to SS-2, Preservation of Existing Vegetation, of the Caltrans Storm Water Quality Handbook Construction Site Best Management Practices (BMPs) Manual for information related to the use of temporary fencing to protect existing vegetated areas.

Consult with appropriate Environmental staff to confirm adequacy of fencing for environmental needs.

Consider using with S5-760 Environmentally Sensitive Area.

Include New Standard Plan NSP T65.

Use BEES item 071325 Temporary Fence (Type ESA).

10-1.__ TEMPORARY FENCE (TYPE ESA)

GENERAL

Summary

1

This work includes constructing, maintaining, and removing temporary fence (Type ESA). Temporary fence (Type ESA) provides a visible boundary adjacent to protected areas such as an environmentally sensitive area.

2. If signs are not required, edit to read: "not required".

KC 9-16-2009**

Signs are <u>not</u> required for temporary fence (Type ESA).

Submittals

3

Submit a Certificate of Compliance as specified in Section 6-1.07, "Certificates of Compliance" of the Standard Specifications for:

1. High visibility fabric
2. Safety cap for metal posts

DRAFT

MATERIALS

High Visibility Fabric

4

High visibility fabric for temporary fence (Type ESA) must consist of one of the following:

1. Polyethylene
2. Polypropylene
3. Combined polyethylene and polypropylene

Sample under ASTM D 4354, Procedure C.

5

Test under ASTM D 4759. All properties must be based on Minimum Average Roll Value.

6

Identify, store, and handle under ASTM D 4873.

7

High visibility fabric must:

1. Contain ultraviolet inhibitors
2. Comply with the following:

Property	Specifications	Requirements
Width, inches, Min	Measured	48
Opening size inches	Measured	1" x 1" (Min) 2" x 2" (Max)
Color	Observed	Orange
Grab breaking load 1-inch grip, lb, Min. in each direction	ASTM D4632	260
Apparent elongation percent, Min., in each direction	ASTM D4632	5
Ultraviolet Degradation percent of original unexposed grab breaking load 500 hr, minimum	ASTM D4355	70

Posts

8

Posts must be wood or steel.

9

Wood posts must be:

1. Untreated fir, redwood, cedar, or pine and cut from sound timber
2. Straight and free of loose or unsound knots and other defects that would render the stakes unfit for use

DRAFT

3. Pointed on the end to be driven into the ground
4. At least 2" x 2" in size and 6 feet long

10

Steel posts must:

1. Have a "U," "T," "L," or other cross sectional shape that can resist failure from lateral loads.
2. Be pointed on the end to be driven into the ground.
3. Weigh at least 0.75-pound per foot.
4. Be at least 6 feet long.
5. Have a safety cap attached to the exposed end. The safety cap must be yellow, orange or red plastic and fit snugly to the metal post.

Signs

11. Edit as needed. If sign text and appearance has been negotiated with regulatory agencies, include exact text here. If the required sign appearance is different than shown on the Standard Plan, include a detail drawing of the sign with size, shape, text, color of text and background on the plans.

If specified, signs must be:

1. Weatherproof and fade-proof and may include plastic laminated printed paper affixed to an inflexible weatherproof backer board
2. Attached to the high visibility fabric with tie wire or locking plastic fasteners

CONSTRUCTION

General

12

Install temporary fence (Type ESA):

1. With high visibility fabric, posts, and fasteners as follows:

    1.1. If wood posts are used, fasteners must be staples or nails
    1.2. If steel posts are used, fasteners must be tie wires or locking plastic fasteners
    1.3. Spacing of the fasteners must be no more than 8 inches apart

2. Before clearing and grubbing activities
3. From outside of the protected area
4. With posts spaced 8 feet apart and embedded at least 16 inches in the soil

13. Edit if different sign spacing is required.

If specified, signs must be:

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1. Attached with the top of the sign panel flush with the top of the high visibility fabric
2. Placed 100 feet apart along the length and at each end of the fence

14

If trees and other plants need protection, install fence to:

1. Enclose the foliage canopy (drip line) of protected plants
2. Protect visible roots from encroachment

Maintenance

15

Maintain temporary fence (Type ESA) by:

1. Keeping posts in a vertical position
2. Reattaching fabric to posts
3. Replacing damaged sections of fabric
4. Replacing and securing signs

Removal

16

When the Engineer determines that temporary fence (Type ESA) is no longer required, remove and dispose of it under Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

17

Backfill and repair ground disturbance caused by the installation and removal of temporary fence (Type ESA), including holes and depressions, under Section 15-1.02, "Preservation of Property," of the Standard Specifications.

MEASUREMENT AND PAYMENT

18

Temporary fence (Type ESA) is measured and paid for by the linear foot in the same manner specified for fence (Type BW or WM) in Section 80, "Fences," of the Standard Specifications.

19

The contract price paid per linear foot for temporary fence (Type ESA) includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing the temporary fence (Type ESA), complete in place, including maintenance, removal of materials, and backfilling and repairing holes, depressions and other ground disturbance, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as ordered by the Engineer.

DRAFT

USE WITH 2006 STANDARDS.

Use as a temporary tracking control at points of ingress and egress at the construction sites to reduce tracking of mud and sediment onto public roads by construction vehicles.

Include Standard Plan T58.

Use BEES item 074033 Temporary Construction Entrance.

Edit Paras 1 & 2 to replace "Storm Water Pollution Prevention Plan (SWPPP)" with "Water Pollution Control Program" if SSP 07-340 is used.

10-1.__ TEMPORARY CONSTRUCTION ENTRANCE

Temporary construction entrances shall be constructed, maintained, and later removed at the locations shown on the approved Storm Water Pollution Prevention Plan (SWPPP) in conformance with "Water Pollution Control" of these special provisions, and in conformance with details shown on the plans and these special provisions.

2

Temporary construction entrances shall be one of the water pollution control practices for tracking control. The SWPPP shall include the use of temporary construction entrances.

3. Edit to specify temporary construction entrance type if shown on the plans.

Temporary construction entrances shall be either Type 1 or Type 2.

4

MATERIALS

Temporary Entrance Fabric

Temporary entrance fabric shall be manufactured from polyester, nylon, or polypropylene material, or any combination thereof. Temporary entrance fabric shall be a nonwoven, needle-punched fabric, free of needles which may have broken off during the manufacturing process. Temporary entrance fabric shall be permeable and shall not act as a wicking agent.

5

Temporary entrance fabric shall be manufactured from virgin, recycled, or a combination of virgin and recycled polymer materials. No virgin or recycled materials shall contain biodegradable filler materials that can degrade the physical or chemical characteristics of the finished fabric. The Engineer may order tests to confirm the

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absence of biodegradable filler materials in conformance to the requirements in ASTM Designation: E 204 (Fourier Transformed Infrared Spectroscopy-FTIR).

6

Temporary entrance fabric shall conform to the following requirements:

Specification	Requirements
Weight per unit area, ounces per square yard, min. ASTM Designation: D 5261	6.5
Grab tensile strength (one inch grip), pounds, min. ASTM Designation: D 4632*	200
Elongation at break, percent min. ASTM Designation: D 4632*	50
Toughness, pounds, min. (percent elongation x grab tensile strength)	12,000

* or appropriate test method for specific polymer

7

Rocks

Rocks shall conform to the material quality requirements in Section 72-2.02, "Materials," of the Standard Specifications for shape and for apparent specific gravity, absorption, and durability index. Rocks used for the temporary entrance shall conform to the following sizes:

Square Screen Size (inch)	Percentage Passing	Percentage Retained
6	100	0
3	0	100

8. Delete if Type 1 is the only construction entrance type specified.

Corrugated Steel Panels

Corrugated steel panels shall be prefabricated and shall be pressed or shop welded, with a slot or hooked section to facilitate coupling at the ends of the panels.

9

INSTALLATION

Temporary construction entrances shall be installed as follows:

1. Before placing the temporary entrance fabric, the areas shall be cleared of all trash and debris. Vegetation shall be removed to the ground level. Trash, debris, and removed vegetation shall be disposed of in conformance with the provisions in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.
2. A sump shall be constructed within 20 feet of each temporary construction entrance as shown on the plans.
3. Before placing the temporary entrance fabric, the ground shall be graded to a uniform plane. The relative compaction of the top 1.5 feet shall be not less than

90 percent. The ground surface shall be free of sharp objects that may damage the temporary entrance fabric, and shall be graded to drain to the sump as shown on the plans.

4. Temporary entrance fabric shall be positioned longitudinally along the alignment of the entrance, as directed by the Engineer.
5. The adjacent ends of the fabric shall be overlapped a minimum length of 12 inches.
6. Rocks to be placed directly over the fabric shall be spread in the direction of traffic, longitudinally and along the alignment of the temporary construction entrance.
7. During spreading of the rocks, vehicles or equipment shall not be driven directly on the fabric. A layer of rocks a minimum 6 inches thick shall be placed between the fabric and the spreading equipment to prevent damage to the fabric.

9H. Delete if Type 1 is the only construction entrance type specified.

8. For Type 2 temporary construction entrances, a minimum of 6 coupled panel sections shall be installed for each temporary construction entrance. Before installing the panels, the ground surface shall be cleared of all debris to ensure uniform contact with the ground surface.

10

Fabric damaged during rock placement shall be repaired by placing a new piece of fabric over the damaged area. The piece of fabric shall be large enough to cover the damaged area and provide a minimum 18-inch overlap on all edges.

11

Details for a proposed alternative temporary construction entrance or alternative sump shall be submitted to the Engineer for approval at least 7 days before installation. The Contractor may eliminate the sump if approved in writing by the Engineer.

12

When no longer required as determined by the Engineer, temporary construction entrances shall be removed and disposed of in conformance with the provisions in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

13

Ground disturbance, including holes and depressions, caused by the installation and removal of the temporary construction entrance, including the sumps, shall be backfilled and repaired in conformance with the provisions in Section 15-1.02, "Preservation of Property," of the Standard Specifications.

14

While the temporary construction entrance is in use, pavement shall be cleaned and sediment removed at least once a day, and as often as necessary when directed by the Engineer. Soil and sediment or other extraneous material tracked onto existing pavement shall not be allowed to enter drainage facilities.

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15. Delete "or corrugated steel panels" if Type 1 is the only construction entrance type specified.

MAINTENANCE

The Contractor shall maintain temporary construction entrances throughout the contract or until removed. The Contractor shall prevent displacement or migration of the rock surfacing or corrugated steel panels. Significant depressions resulting from settlement or heavy equipment shall be repaired by the Contractor as directed by the Engineer.

16

Temporary construction entrances shall be maintained to minimize tracking of soil and sediment onto existing public roads.

17. Delete "and install additional corrugated steel panels" if Type 1 is the only construction entrance type specified.

If buildup of soil and sediment deter the function of the temporary construction entrance, the Contractor shall immediately remove and dispose of the soil and sediment, and install additional corrugated steel panels and spread additional rocks to increase the capacity of the temporary construction entrance.

18

Temporary construction entrances shall be repaired or replaced on the same day the damage occurs. Damage to the temporary construction entrance resulting from the Contractor's vehicles, equipment, or operations shall be repaired at the Contractor's expense.

19

MEASUREMENT AND PAYMENT

Quantities of temporary construction entrances will be determined from actual count in place.

20. Edit to delete "maintenance and" if paras 21 and 22 are used.

KC 9-16-2009**

The contract unit price paid for temporary construction entrance shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing temporary construction entrance, complete in place, including excavation and backfill, ~~maintenance, and~~ removal~~, as shown on the plans,~~ as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

21. Include paras 21 and 22 when district policy allows cost sharing for maintaining critical temporary BMPs. Include funds for supplemental work (item 066595, "Water Pollution Control Maintenance Sharing"). Consult with District Storm Water Coordinator for district policy.

The cost of maintaining the temporary construction entrance will be borne equally by the State and the Contractor. The division of cost will be made be determining the cost of

maintaining temporary construction entrance in conformance with the provisions in Section 9-1.03, "Force Account Payment," of the Standard Specifications and paying to the Contractor one-half of that cost.

22

Cleanup, repair, removal, disposal, or replacement due to improper installation or the Contractor's negligence will not be considered as included in the cost for performing maintenance.

DRAFT

USE WITH 2006 STANDARDS.

Use to apply temporary soil stabilization (erosion control) BMPs on newly completed slopes. Use where grading is sequential and slopes are not all finished at the same time.

Recommended for large projects (25 acres or more DSA) that extend through several rainy seasons and use SSP 07-345. Not recommended for small projects with a single rainy season.

Estimate the number of mobilizations (Move-In/Move-Out) by including 6 for each additional rainy season. Consult with the District Construction Storm Water Coordinator for the number of mobilizations.

Include contract item 074037 Move-In/Move-Out (Temporary Erosion Control).

KC 9-16-2009**

~~10-1.__ MOVE-IN/MOVE-OUT (TEMPORARY EROSION CONTROL)~~

~~GENERAL~~

~~Summary~~

~~1~~

~~This work includes moving onto the project when an area is ready to receive temporary erosion control, setting up required personnel and equipment for the application of erosion control materials, and moving out all personnel and equipment when temporary erosion control in that area is completed.~~

~~2. Do not edit since all temporary erosion control BMPs are covered.~~

~~Temporary erosion control consists of any water pollution control practice for soil stabilization.~~

~~3~~

~~When notified by the Engineer that an area is ready for temporary erosion control, start erosion control work within 5 business days.~~

~~MEASUREMENT AND PAYMENT~~

~~4~~

~~Move-in/move-out (temporary erosion control) is measured as units from actual count. A move-in followed by a move-out is considered one unit.~~

DRAFT

~~5~~

~~The contract unit price paid for move-in/move-out (temporary erosion control) includes full compensation for furnishing all labor, materials (excluding temporary erosion control materials), tools, equipment, and incidentals and for doing all the work involved in moving in and removing from the project all personnel and equipment necessary for application of temporary erosion control, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.~~

{ XE "07-490_E_A03-13-09" }
Page 1 of 15

USE WITH 2006 STANDARDS.

Use for project conditions that require a temporary sediment control by providing temporary drainage inlet protection to filter or settle sediment-laden runoff before discharge into a storm drainage system or watercourse.

Refer to SS-10 Storm Drain Protection, of the Caltrans Storm Water Quality Handbook Construction Site Best Management Practices (BMPs) Manual for information related to the use of this BMP.

Include Standard Plan NSPs T61, T62, T63, and T64. If you edit item 2 of Para 3, include the NSPs required only.

Use BEES item 074038 Temporary Drainage Inlet Protection.

10-1.__ TEMPORARY DRAINAGE INLET PROTECTION

GENERAL

Summary

1

This work includes constructing, maintaining, and removing temporary drainage inlet protection. Drainage inlet protection settles and filters sediment before stormwater runoff discharges into storm drainage systems.

2. Replace "SWPPP" with "WPCP" if SSP 07-340 is used.

The SWPPP must describe and include the use of temporary drainage inlet protection as a water pollution control practice for sediment control.

3. Edit to specify types of drainage inlet protection if only certain types are desired. If all types designated in the Standard Plans NSPs T61 through T64 are allowed, delete item 2 in the list and incorporate item 1 into Para 3.

KC 9-16-2009**

Provide temporary drainage inlet protection to meet the changing conditions around the drainage inlet. Temporary drainage inlet protection must be:

1. Appropriate type to meet the conditions around the drainage inlet

2. ~~Type 1, Type 2, Type 3A, Type 3B, Type 4, Type 4B, Type 5, Type 6A, Type 6B, or a combination~~ Type 3A, Type 3B, Type 4A, or Type 4B

Submittals

4

KC 9-16-2009**

Submit a Certificate of Compliance as specified in Section 6-1.07, "Certificates of Compliance" of the Standard Specifications for:

1. Erosion control blanket
2. Fiber rolls
~~3. Safety cap for metal posts~~
~~4~~3. Silt fence fabric
~~5. Sediment filter bag~~
~~6~~4. Foam barrier
~~7. Rigid plastic barrier~~
~~8~~5. Gravel-filled bag fabric

5

If you substitute the steel wire staple with an alternative attachment device, submit a sample of the device for approval at least 5 business days before installation.

MATERIALS

Geosynthetic Fabrics

6

Geosynthetic fabrics for temporary drainage inlet protection must consist of one of the following:

1. Polyester
2. Polypropylene
3. Combined polyester and polypropylene

DRAFT

7

Geosynthetic fabrics for temporary drainage inlet must comply with the specifications for water pollution control in Section 88-1.05, "Water Pollution Control," of the Standard Specifications.

8

Foam barrier must comply with:

Foam Barrier

Property	ASTM Designation	Specification
Grab breaking load 1-inch grip, lb, min. in each direction	D 4632	200
Apparent elongation percent, min., in each direction	D 4632	15
Water Flow Rate max. average roll value, gallons per minute/square foot	D 4491	100-150
Permittivity 1/sec., min.	D 4491	0.05
Apparent opening size max. average roll value, U.S. Standard sieve size	D 4751	40
Ultraviolet Degradation percent of original unexposed grab breaking load 500 hr, minimum	D 4595	70

9

Sample under ASTM D 4354, Procedure C.

10

Test under ASTM D 4759. All properties are based on Minimum Average Roll Value (MARV).

11

Identify, store, and handle under ASTM D 4873.

Erosion Control Blanket

12

Erosion control blanket must be:

1. Described as a rolled erosion control product (RECP)
2. Classified as temporary and degradable or long-term and non-degradable
3. Machine-made mats
4. Provided in rolled strips
5. Classified by the Erosion Control Technology Council (ECTC)

DRAFT

13. If environmental requirements include protecting wildlife from entrapment, delete "extruded photodegradable plastic netting or " in items 1.8 and 2.8.

Erosion control blanket classified as temporary and degradable must be one of the following:

1. Double net excelsior blanket:

    1.1. Classified as ECTC Type 2D
    1.2. Classified as an erosion control blanket
    1.3. Designed to last for at least one year after installation
    1.4. With a Universal Soil Loss Equation (USLE) C-Factor of not more than 0.20 at a 2:1 (horizontal:vertical) slope
    1.5. With 80 percent of the wood excelsior fibers being 6 inches or longer
    1.6. Capable to withstand a maximum shear stress of 1.75 pounds per square foot under ASTM D 6460
    1.7. With a minimum tensile strength of 75 pounds per foot under ASTM D 5035
    1.8. With top and bottom surfaces covered with extruded photodegradable plastic netting or lightweight non-synthetic netting

2. Double net straw and coconut blanket:

    2.1. Classified as ECTC Type 2D
    2.2. Classified as an erosion control blanket
    2.3. Designed to last for at least one year after installation
    2.4. With a USLE C-Factor of not more than 0.20 at a 2:1 (horizontal:vertical) slope
    2.5. Comprised of 70 percent straw and 30 percent coconut fiber
    2.6. Capable to withstand a maximum shear stress of 1.75 pounds per square foot under ASTM D 6460
    2.7. With a minimum tensile strength of 75 pounds per foot under ASTM D 5035
    2.8. With top and bottom surfaces covered with extruded photodegradable plastic netting or lightweight non-synthetic netting

3. Jute netting:

    3.1. Classified as ECTC Type 3B
    3.2. Classified as an open weave textile and have from 14 to 20 strands per foot in each direction
    3.3. Designed to last for at least one year after installation
    3.4. With a USLE C-Factor of not more than 0.25 at a 1.5:1 (horizontal:vertical) slope

DRAFT

3.5. Comprised of 100 percent unbleached and undyed spun yarn made of jute fiber
3.6. With an average open area from 63 to 70 percent
3.7. From 48 to 72 inches in width
3.8. Capable to withstand a maximum shear stress of 2.0 pounds per square foot under ASTM D 6460
3.9. With a minimum tensile strength of 100 pounds per foot under ASTM D 5035
3.10. From 0.90 to 1.20 pounds per square yard in weight

4. Coir netting:

4.1. Classified as ECTC Type 4
4.2. Classified as an open weave textile and from 13 to 18 strands per foot in each direction
4.3. Designed to last for at least three years after installation
4.4. With a USLE C-Factor of not more than 0.25 at a 1:1 (horizontal:vertical) slope
4.5. Comprised of 100 percent unbleached and undyed spun coir yarn made of coconut fiber
4.6. With an average open area from 63 to 70 percent
4.7. From 72 to 158 inches in width
4.8. Capable to withstand a maximum shear stress of 2.25 pounds per square foot under ASTM D6460
4.9. With a minimum tensile strength of 125 pounds per foot under ASTM D 5035
4.10. From 1.20 to 1.67 pounds per square yard in weight

14

Erosion control blanket classified as long-term and non-degradable must:

1. Be a geosynthetic fabric
2. Comply with the specifications for rock slope protection fabric (Class 8) in Section 88-1.06, "Channel and Shore Protection," of the Standard Specifications

Staples

15

You may use an alternative attachment device such as a geosynthetic pins or plastic pegs to install erosion control blanket.

~~Rock~~

16

KC 9-16-2009**

~~Rock must comply with:~~

DRAFT

~~1. Requirements under Section 72-2.02, "Materials," of the Standard Specifications~~
~~2. Following sizes:~~

~~Square Screen Size (inch)~~	~~Percentage Passing~~	~~Percentage Retained~~
~~6~~	~~100~~	~~0~~
~~3~~	~~0~~	~~100~~

Rope

17

Rope for fiber rolls must be:

1. Biodegradable, such as sisal or manila
2. At least 1/4 inch in diameter

Fiber Rolls

18

Fiber rolls must:

1. Last for at least one year after installation
2. Be Type 1 or Type 2

19

For Type 1, fiber rolls must be:

1. Made from an erosion control blanket classified as temporary and degradable
2. Rolled along the width
3. Secured with natural fiber twine every 6'-6" from each end
4. Finished to be either:

    4.1. From 8 to 10 inches in diameter, from 10 to 20 feet long, and at least 0.5 pounds per linear foot
    4.2. From 10 to 12 inches in diameter, at least 10 feet long, and at least 2 pounds per linear foot

20. If environmental requirements include protecting wildlife from entrapment, delete "photodegradable plastic netting, ".

For Type 2, fiber rolls must:

1. Be filled with rice or wheat straw, wood excelsior, or coconut fiber
2. Be covered with photodegradable plastic netting, biodegradable jute, sisal, or coir fiber netting
3. Have netting secured tightly at each end
4. Be finished to be either:

DRAFT

4.1. From 8 to 10 inches in diameter, from 10 to 20 feet long, and at least 1.1 pounds per linear foot
4.2. From 10 to 12 inches in diameter, at least 10 feet long, and at least 3 pounds per linear foot

Wood Stakes

21

Wood stakes must be:

1. Untreated fir, redwood, cedar, or pine and cut from sound timber
2. Straight and free of loose or unsound knots and other defects which would render the stakes unfit for use
3. Pointed on the end to be driven into the ground

22

For fiber rolls, wood stakes must be at least:

1. 1" x 1" x 24" in size for Type 1 installation
2. 1" x 2" x 24" in size for Type 2 installation

Posts

23

Posts must be wood or metal.

24

Wood posts must be:

1. Untreated fir, redwood, cedar, or pine and cut from sound timber
2. Straight and free of loose or unsound knots and other defects that would render the stakes unfit for use
3. Pointed on the end to be driven into the ground
4. At least 2" x 2" in size, and 4 feet long

25

Metal posts must:

1. Be made of steel.
2. Have a "U," "T," "L," or other cross sectional shape that can resist failure from lateral loads.
3. Be pointed on the end to be driven into the ground.
4. Weigh at least 0.75-pound per foot.
5. Be at least 4 feet long.
6. Have a safety cap attached to the exposed end. The safety cap must be orange or red plastic and fit snugly to the metal post.

DRAFT

Silt Fence

26

Silt fence must be:

1. Constructed with silt fence fabric, posts, and fasteners
2. Prefabricated or assembled at the job site

27

Silt fence fabric must be attached to posts using these methods:

1. If prefabricated silt fence is used, posts must be inserted into sewn pockets
2. If assembled on the job site:

    2.1. If wood posts are used, fasteners must be staples or nails
    2.2. If steel posts are used, fasteners must be tie wires or locking plastic fasteners
    2.3. Spacing of the fasteners must be at least 8 inches

Gravel-filled Bags

28

Gravel-filled bags must:

1. Be made from fabric.
2. Have inside dimensions from 24 to 32 inches in length, and from 16 to 20 inches in width.
3. Have the opening bound to retain the gravel. The opening must be sewn with yarn, bound with wire, or secured with a closure device.
4. Weigh from 30 to 50 pounds when filled with gravel.

29

Gravel for gravel-filled bags must be:

1. From 3/8 to 3/4 inch in diameter
2. Clean and free from clay balls, organic matter, and other deleterious materials

~~**Sediment Filter Bag**~~

30

KC 9-16-2009**

~~Sediment filter bag must:~~

~~1. Be made of fabric~~
~~2. Be sized to fit the catch basin or drainage inlet~~
~~3. Include a high-flow bypass~~

DRAFT

31

KC 9-16-2009**

~~Sediment filter bag may include a metal frame. Sediment filter bags that do not have a metal frame and are deeper than 18 inches must:~~

~~1. Include lifting loops and dump straps~~
~~2. Include a restraint cord to keep the sides of the bag away from the walls of the catch basin~~

Foam Barriers

32

Foam barriers must:

1. Be filled with a urethane foam core
2. Have a geosynthetic fabric cover and flap
3. Have a triangular, circular, or square shaped cross section
4. Have a vertical height of at least 5 inches after installation
5. Have a horizontal flap of at least 8 inches in width
6. Have a length of at least 4 feet per unit
7. Have the ability to interlock separate units into a longer barrier so that water does not flow between the units
8. Be secured to:

    8.1. Pavement with 1-inch concrete nails with 1-inch washers and solvent-free adhesive
    8.2. Soil with 6-inch nails with 1-inch washers

~~Rigid Plastic Barriers~~

33

KC 9-16-2009**

~~Rigid plastic barriers must:~~

~~1. Have an integrated filter~~
~~2. Have a formed outer jacket of perforated high-density polyethylene (HDPE) or polyethylene terephthalate (PET)~~
~~3. Have a flattened tubular shaped cross section~~
~~4. Be made from virgin or recycled materials~~
~~5. Be free from biodegradable filler materials that degrade the physical or chemical characteristics of the finished filter core or outer jacket~~
~~6. Have a length of at least 4 feet per unit~~
~~7. Have the ability to interlock separate units into a longer barrier so that water does not flow between the units~~
~~8. Be secured to:~~

DRAFT

~~8.1 Pavement with 1-inch concrete nails with 1-inch washers and solvent-free adhesive, with gravel-filled bags, or a combination~~
~~8.2 Soil with 6-inch nails with 1-inch washers and wood stakes~~

~~9. Comply with the following properties:~~

~~Specification~~	~~Requirements~~
~~Grab tensile strength of outer jacket material, pounds/square inch, min. in each direction~~ ~~ASTM D 4632*~~	~~4000~~
~~Break strength of outer jacket, pounds/square inch~~ ~~ASTM D 4632*~~	~~1300~~
~~Permittivity of filter core, 1/sec., min.~~ ~~ASTM D 4491~~	~~0.38~~
~~Flow rate of filter core, gallons per minute per square foot,~~ ~~ASTM D 4491~~	~~100 min.~~ ~~200 max.~~
~~Filter core aperture size, max., Average Opening Size (AOS), microns~~	~~425~~
~~Ultraviolet stability (outer jacket & filter core), percent tensile strength retained after 500 hours, min.~~ ~~ASTM D 4355 (xenon-arc lamp and water spray weathering method)~~	~~90~~

~~* or appropriate test method for specific polymer~~

~~34~~

~~If used at a curb inlet without a grate, rigid plastic barriers must:~~

~~1. Have a horizontal flap of at least 6 inches with an under-seal gasket to prevent underflows~~
~~2. Include a high-flow bypass~~
~~3. Have a vertical height of at least 7 inches after installation~~
~~4. Be sized to fit the catch basin or drainage inlet~~

~~35~~

~~If used at a grated catch basin without a curb inlet, rigid plastic barriers must:~~

~~1. Cover the grate by at least 2 inches on each side and have an under-seal gasket to prevent underflows~~
~~2. Include a high-flow bypass~~
~~3. Have a vertical height of at least 1.5 inches after installation~~
~~4. Be sized to fit the catch basin or drainage inlet~~

~~36~~

~~If used at a curb inlet with a grate, rigid plastic barriers must:~~

~~1. Have a horizontal flap that covers the grate by at least 2 inches on the 3 sides away from the curb opening and have an under-seal gasket to prevent underflows~~
~~2. Include a high-flow bypass~~

DRAFT

~~3. Have a vertical section that covers the curb opening by at least 5 inches after installation~~
~~4. Be sized to fit the catch basin or drainage inlet~~

~~37~~

~~If used as a linear sediment barrier, rigid plastic barriers:~~

~~1. Must have an installed height of at least 6 inches~~
~~2. May have a horizontal flap of at least 4 inches~~

Linear Sediment Barrier

38

Linear sediment barriers must consist of one or more of the following:

1. Silt fence
2. Gravel-filled bags
3. Fiber roll
4. Rigid plastic barrier
5. Foam barrier

Flexible Sediment Barrier

39

Flexible sediment barriers consist of one or more of the following:

1. Rigid plastic barrier
2. Foam barrier

CONSTRUCTION

40

For drainage inlet protection at drainage inlets in paved and unpaved areas:

1. Prevent ponded runoff from encroaching on the traveled way or overtopping the curb or dike. Use linear sediment barriers to redirect runoff and control ponding.
2. Clear the area around each drainage inlet of obstructions including rocks, clods, and debris greater than one inch in diameter before installing the drainage inlet protection.
3. Install a linear sediment barrier up-slope of the existing drainage inlet and parallel with the curb, dike, or flow line to prevent sediment from entering the drainage inlet.

Erosion Control Blanket

41

To install erosion control blanket and geosynthetic fabric:

DRAFT

1. Secure blanket or fabric to the surface of the excavated sediment trap with staples and embed in a trench adjacent to the drainage inlet
2. Anchor the perimeter edge of the erosion control blanket in a trench

Silt Fence

42

If silt fence is used as a linear sediment barrier:

1. Place fence along the perimeter of the erosion control blanket, with the posts facing the drainage inlet
2. Install fence with the bottom edge of the silt fence fabric in a trench. Backfill the trench with soil and compact manually

Gravel Bag Berm

43

If gravel bag berm is used as a linear sediment barrier:

1. Place gravel-filled bags end-to-end to eliminate gaps
2. Stack bags in a way that the bags in the top row overlap the joints in the lower row

44

If gravel bag berms are used for Type 3A and Type 3B:

1. Place gravel-filled bags end-to-end to eliminate gaps
2. Stack bags in a way that the bags in the top row overlap the joints in the lower row
3. Arrange bags to create a spillway by removing one or more gravel-filled bags from the upper layer

45. Edit as directed by Traffic Operations for conditions that would allow the use of gravel filled bags without K-rail protection.

If used within shoulder area, place gravel-filled bags behind temporary railing (Type K).

Fiber Rolls

46

If fiber rolls are used as a linear sediment barrier:

1. Place fiber rolls in a furrow.
2. Secure fiber rolls with stakes installed along the length of the fiber rolls. Stakes must be installed from 6 to 12 inches from the end of the rolls.

DRAFT

47

If fiber rolls are used as a linear sediment barrier for Type 4A, place them over the erosion control blanket.

Foam Barriers

48

If foam barriers are used as a linear sediment barrier:

1. Install barriers with the horizontal flap in a 3 inch deep trench and secured with nails and washers placed no more than 4 feet apart
2. Secure barriers with 2 nails at the connection points where separate units overlap
3. Place barriers without nails or stakes piercing the core

Flexible Sediment Barriers

49

If flexible sediment barriers are used:

1. Secure barriers to the pavement with nails and adhesive, gravel-filled bags, or a combination
2. Install barriers flush against the sides of concrete, asphalt concrete, or hot mix asphalt curbs or dikes
3. Place barriers to provide a tight joint with the curb or dike and anchored in a way that runoff cannot flow behind the barrier

50

If flexible sediment barriers are used for Type 4B:

1. Secure barriers to the pavement according to the angle and spacing shown on the plans
2. Place barriers to provide a tight joint with the curb or dike. Cut the cover fabric or jacket to ensure a tight fit

Rigid Sediment Barriers

51

KC 9-16-2009**

~~If rigid sediment barriers are used at a grated catch basin without a curb inlet:~~

~~1. Place barriers using the gasket to prevent runoff from flowing under the barrier~~
~~2. Secure barriers to the pavement with nails and adhesive, gravel-filled bags, or a combination~~

52

KC 9-16-2009**

~~If rigid sediment barriers are used for linear sediment barriers:~~

~~1. Install barriers in a trench. Backfill the trench with soil and compact manually~~
~~2. Place barrier with separate units overlapping at least 4 inches~~
~~3. Reinforce barriers with a wood stake at each overlap~~
~~4. Fasten barriers to the wood stakes with steel screws, 16 gauge galvanized steel wire, or with UV stabilized cable ties that are from 5 to 7 inches in length~~

Sediment Filter Bags

53

KC 9-16-2009**

~~Install sediment filter bags for Type 5 by:~~

~~1. Removing the drainage inlet grate~~
~~2. Placing the sediment bag in the opening~~
~~3. Replacing the grate to secure the sediment filter bag in place~~

MAINTENANCE

54

Maintain temporary drainage inlet protection to provide sediment holding capacity and to reduce runoff velocities.

55

Remove sediment deposits, trash, and debris from temporary drainage inlet protection as needed or when directed by the Engineer. If removed sediment is deposited within project limits, it must be stabilized and not subject to erosion by wind or water. Trash and debris must be removed and disposed of as specified in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

56

KC 9-16-2009**

Maintain temporary drainage inlet protection by removing sediment from:

1. Behind flexible sediment barriers when sediment exceeds 1 inch in depth
2. Surface of the erosion control blanket when sediment exceeds 1 inch in depth
3. Sediment trap for Type 2 when the volume has been reduced by approximately one-half
4. Behind silt fence when the sediment is 1/3 the height of the silt fence fabric above ground
~~5. Sediment filter bags when filled or when the restraint cords are no longer visible~~

57

If rills and other evidence of concentrated runoff occur beneath the linear sediment barrier, repair or adjust the barrier.

58

If silt fence fabric becomes split, torn, or unraveled, repair or replace silt fence.

DRAFT

59

If geosynthetic fabric becomes split, torn, or unraveled, repair or replace foam barriers.

60

Repair or replace sagging or slumping linear sediment barriers with additional stakes. Replace broken or split wood stakes.

61

KC 9-16-2009**

Reattach foam barriers ~~and rigid plastic barriers~~ that becomes detached or dislodged from the pavement.

62

KC 9-16-2009**

~~Repair split or torn rigid plastic barriers with 16 gauge galvanized steel wire or UV stabilized cable ties that are from 5 to 7 inches in length.~~

63

KC 9-16-2009**

~~For sediment filter bags without metal frames, empty by placing one inch steel reinforcing bars through the lifting loops and then lift the filled bag from the drainage inlet. For sediment filter bags with metal frames, empty by lifting the metal frame from the drainage inlet. Rinse before replacing in the drainage inlet. When rinsing the sediment filter bags, do not allow the rinse water to enter a drain inlet or waterway.~~

64

Repair temporary drainage inlet protection within 24 hours of discovering damage unless the Engineer approves a longer period.

65

If your vehicles, equipment, or activities disturb or displace temporary drainage inlet protection, repair temporary drainage inlet protection at your expense.

66

The Department does not pay maintenance costs for cleanup, repair, removal, disposal, or replacement due to improper installation or your negligence.

REMOVAL

67

When the Engineer determines that the temporary drainage inlet protection is not required, it must be removed and disposed of under Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

68

Ground disturbance, including holes and depressions, caused by the installation and removal of the temporary drainage inlet protection must be backfilled and repaired under Section 15-1.02, "Preservation of Property," of the Standard Specifications.

DRAFT

MEASUREMENT AND PAYMENT

69

Quantities of temporary drainage inlet protection will be determined from actual count in place. The protection will be measured one time only and no additional measurement will be recognized.

70

KC 9-15-2009**

The contract unit price paid for temporary drainage inlet protection includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing the temporary drainage inlet protection, complete in place, including removal of materials, cleanup and disposal of retained sediment and debris, and backfilling and repairing holes, depressions and other ground disturbance~~, as shown on the plans,~~ as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

71

No additional compensation will be made if the temporary drainage inlet protection is relocated during the course of construction.

72. Include funds for supplemental work item 066595, "Water Pollution Control Maintenance Sharing."

The State and you share the cost of maintaining the temporary drainage inlet protection. The State determines the maintenance cost under Section 9-1.03, "Force Account Payment," of the Standard Specifications and pays you one-half of that cost.

DRAFT

USE WITH 2006 STANDARDS.

Use when bridges are shown on the plans to carry the materials hauling equipment loading.

KC 9-16-2009**

~~10-1.__ MATERIALS HAULING EQUIPMENT LOADING ON BRIDGES~~

~~The operation of materials hauling equipment on bridges shall conform to the provisions in Section 7-1.02, "Load Limitations," of the Standard Specifications and these special provisions.~~

~~2*. Edit for lane or entire bridge. Include bridge name and number.~~

~~A designated lane has been designed for crossing of materials hauling equipment on the following bridges:~~

~~A. _____, Bridge No. _____~~
~~B. _____, Bridge No. _____~~

~~3~~

~~The Contractor will be permitted to cross the bridges listed with pneumatic-tired materials hauling equipment which exceeds the size and weight limitations specified in Section 7-1.02, but does not exceed the load limitations given in the "Materials Hauling Equipment Loading" diagram shown on the plans. The provisions in the last paragraph of Section 7-1.02 concerning increase of load carrying capacity of a structure or structures shall not apply to the above listed bridges, but the provisions in Section 7-1.02 shall apply to all other bridges to be constructed as a part of this contract.~~

4

~~The crossing of the above listed bridges with materials hauling equipment shall be in conformance with the following provisions:~~

~~A. Each bridge roadway shall be maintained in a smooth condition free of spillage when operating equipment over the bridge.~~
~~B. The approaches at each end of each bridge over which the equipment is to be operated shall be constructed to grades providing a smooth transition to the bridge roadway grades and shall be maintained in a smooth and uniform condition at all times during the operation of the equipment for a length of not less than 150 feet measured from the bridge ends. There shall be no local depressions in the approaches in the vicinity of the bridge ends.~~

DRAFT

~~C. Equipment, either loaded or unloaded, shall be operated at all times at a speed and in a manner resulting in no jolting or bouncing of the equipment while crossing the bridge.~~

~~4D*. Edit for lane or entire bridge.~~

~~D. Equipment shall be confined to the materials hauling equipment lane shown on the plans by means of substantial, temporary physical barriers.~~

~~4E*. Edit. Check with designer on bridges over 400 feet long.~~

~~E. Only one piece of equipment may be on the bridge at one time.~~

~~5~~

~~The weight of loaded materials hauling equipment shall be verified by weighing when required by the Engineer. Scales will be of the individual wheel or axle type as furnished by the State. The weighing will be done within the limits of the project and within the State highway right-of-way at a location accessible to the equipment and suitable for weighing operations. The exact location of the weighing shall be determined by the Contractor.~~

~~6. Include funds in the Engineer's Estimate under Supplemental Work for installing and maintaining scales.~~

~~The work of installing and maintaining the scales, when ordered by the Engineer, will be paid for as extra work as provided in Section 4-1.03D of the Standard Specifications.~~

~~7*. Edit for lane or entire bridge.~~

~~Upon completion of the Contractor's hauling operations over the bridges, the Contractor shall remove all stains from the bridge roadways, and shall leave the bridge roadways in a condition as good as when the Contractor entered upon the work, in conformance with the provisions in Section 7-1.11, "Preservation of Property," of the Standard Specifications.~~

~~8~~

~~Equipment and methods used to clean the bridge roadway shall not damage the structure. Any damage shall be repaired or replaced by the Contractor at the Contractor's expense.~~

~~9~~

~~Physical barriers used in connection with the materials hauling equipment lane shall be removed from the site of the work and shall be disposed of in conformance with the provisions in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.~~

~~10~~

~~Full compensation for conforming to the requirements of this section, including all costs involved in the weighing of loaded materials hauling equipment not otherwise provided for herein, shall be considered as included in the contract prices paid per cubic yard for the items of earthwork involved and no additional compensation will be allowed therefor.~~

DRAFT

USE WITH 2006 STANDARDS.

Use when one or more projects are adjacent to or within the project limits.

Edit table to include Contract No., county-route-postmile (beginning and end limits of project adjacent to or within the limits of this project), city where project is located, and type of construction work.

KC 9-16-2009**

10-1.__ COOPERATION

It is anticipated that work by another contractor may be in progress adjacent to or within the limits of this project during progress of the work on this contract. The following table lists contracts anticipated to be in progress during this contract.

Contract No.	Co-Rte-PM	Location	Type of Work
04-263724	CC-80-8.5/13.6	Hercules	Freeway Widening and HOV
04-1A2504	CC-80-5.8/6.2	Richmond	Interchange Inprovements
04-2A8904	CC-80-0.8/1.2	Richmond	Interchange Inprovements

2

Comply with Section 7-1.14, "Cooperation," of the Standard Specifications.

DRAFT

USE WITH 2006 STANDARDS.

Use in projects (except highway planting) over $5 million AND 100 or more working days.

Use Contract Item Code No: 070012 PROGRESS SCHEDULE (CRITICAL PATH METHOD)

DO NOT EDIT unless approval from the Division of Construction has been obtained.

10-1.__ PROGRESS SCHEDULE (CRITICAL PATH METHOD)

GENERAL

Summary

1

Comply with Section 8-1.04, "Progress Schedule," of the Standard Specifications, except you must:

1. Use a computer software to prepare the schedule
2. Furnish compatible software for the Engineer's exclusive possession and use

2

You are responsible for assuring that all activity sequences are logical and that each schedule shows a coordinated plan for complete performance of the work.

3

Definitions

The following definitions apply to this section:

contract completion date: The current extended date for completion of the contract shown on the weekly statement of working days furnished by the Engineer as specified in Section 8-1.06, "Time of Completion," of the Standard Specifications.

data date: The day after the date through which a schedule is current. Everything occurring earlier than the data date is "as-built" and everything on or after the data date is "planned."

early completion time: The difference in time between an early scheduled completion date and the contract completion date.

float: The difference between the earliest and latest allowable start or finish times for an activity.

milestone: An event activity that has zero duration and is typically used to represent the beginning or end of a certain stage of the project.

narrative report: A document submitted with each schedule that discusses topics related to project progress and scheduling.

near critical path: A chain of activities with total float exceeding that of the critical path but having no more than 10 working days of total float.

State owned float activity: The activity documenting time saved on the critical path by actions of the State. It is the last activity prior to the scheduled completion date.

time impact analysis: A schedule and narrative report developed specifically to demonstrate what effect a proposed change or delay has on the current scheduled completion date.

time-scaled network diagram: A graphic depiction of a CPM schedule comprised of activity bars with relationships for each activity represented by arrows. The tail of each arrow connects to the activity bar for the predecessor and points to the successor.

total float: The amount of time that an activity or chain of activities can be delayed before extending the scheduled completion date.

4

Submittals

General Requirements

Submit to the Engineer baseline, monthly updated, and final updated schedules, each consistent in all respects with the time and order of work requirements of the contract. Perform work in the sequence indicated on the current accepted schedule.

5

Each schedule must show:

1. Calculations using the critical path method to determine controlling activities.
2. Duration activities less than 20 working days.
3. At least 50 but not more than 500 activities, unless authorized. The number of activities must be sufficient to assure adequate planning of the project, to permit monitoring and evaluation of progress, and to do an analysis of time impacts.
4. Each required constraint. Constraints other than those required by the special provisions may be included only if authorized.
5. State-owned float as the predecessor activity to the scheduled completion date.
6. Activities with identification codes for responsibility, stage, work shifts, location, and contract pay item numbers.

6

You may show early completion time on any schedule provided that the requirements of the contract are met. Early completion time is considered a resource for your exclusive use. You may increase early completion time by improving production, reallocating resources to be more efficient, performing sequential activities concurrently, or by completing activities earlier than planned. You may also submit for approval a VCEP as specified in Section 4-1.035B, "Value Engineering Change Proposal." of the Standard Specifications that will reduce time of construction.

DRAFT

7

You may show a scheduled completion date that is later than the contract completion date on an update schedule, after the baseline schedule is accepted. Provide an explanation for a late scheduled completion date in the narrative report that is included with the schedule.

8

State-owned float is considered a resource for the exclusive use of the State. The Engineer may accrue State-owned float by the early completion of review of any type of required submittal when it saves time on the critical path. Prepare a time impact analysis, when requested by the Engineer, to determine the effect of the action as specified in "Time Impact Analysis." The Engineer documents State-owned float by directing you to update the State-owned float activity on the next updated schedule. Include a log of the action on the State-owned float activity and include a discussion of the action in the narrative report. The Engineer may use State-owned float to mitigate past, present, or future State delays by offsetting potential time extensions for contract change orders.

9

The Engineer may adjust contract working days for ordered changes that affect the scheduled completion date as specified in Section 4-1.03, "Changes," of the Standard Specifications. Prepare a time impact analysis to determine the effect of the change as specified in "Time Impact Analysis" and include the impacts acceptable to the Engineer in the next updated schedule. Changes that do not affect the controlling operation on the critical path will not be considered as the basis for a time adjustment. Changes that do affect the controlling operation on the critical path will be considered by the Engineer in decreasing time or granting an extension of time for completion of the contract. Time extensions will only be granted if the total float is absorbed and the scheduled completion date is delayed one or more working days because of the ordered change.

10

The Engineer's review and acceptance of schedules does not waive any contract requirements and does not relieve you of any obligation or responsibility for submitting complete and accurate information. Correct rejected schedules and resubmit them within 7 days of notification by the Engineer, at which time a new review period of 7 days will begin.

11

Errors or omissions on schedules do not relieve you from finishing all work within the time limit specified for completion of the contract. If, after a schedule has been accepted by the Engineer, either you or the Engineer discover that any aspect of the schedule has an error or omission, you must correct it on the next updated schedule.

12

Computer Software

Submit to the Engineer for review a description of proposed schedule software to be used. After the Engineer accepts the proposed software, furnish schedule software and all original software instruction manuals. All software must be compatible with the

DRAFT

current version of the Windows operating system in use by the Engineer. The schedule software must include:

1. Latest version of Primavera SureTrak Project Manager for Windows, or equivalent
2. Latest version of schedule-comparing HST SureChange, or equivalent

13

If a schedule software equivalent to SureTrak is proposed, it must be capable of generating files that can be imported into SureTrak. The schedule-comparing software must be compatible with schedule software submitted and must be able to compare two schedules and provide reports of changes in activity ID, activity description, constraints, calendar assignments, durations, and logic ties.

14

The schedule software and schedule-comparing software will be returned to you before the final estimate. The Department will compensate you as specified in Section 4-1.03, "Extra Work," of the Standard Specifications for replacement of software or manuals damaged, lost, or stolen after delivery to the Engineer.

15

Instruct the Engineer in the use of the software and provide software support until the contract is accepted. Within 15 days of contract approval, provide a commercial 8-hour training session for 2 Department employees in the use of the software at a location acceptable to the Engineer. It is recommended that you also send at least 2 employees to the same training session to facilitate development of similar knowledge and skills in the use of the software. If schedule software other than SureTrak is submitted, then the training session must be a total of 16-hours for each Department employee.

16

Network Diagrams, Reports, and Data

Include the following with each schedule submittal:

1. Two sets of originally plotted, time-scaled network diagrams
2. Two copies of a narrative report
3. One read-only compact disk or floppy diskette containing the schedule data

17

The time-scaled network diagrams must conform to the following:

1. Show a continuous flow of information from left to right
2. Be based on early start and early finish dates of activities
3. Clearly show the primary paths of criticality using graphical presentation
4. Be prepared on 34" x 44"
5. Include a title block and a timeline on each page

DRAFT

18

The narrative report must be organized in the following sequence with all applicable documents included:

1. Transmittal letter
2. Work completed during the period
3. Identification of unusual conditions or restrictions regarding labor, equipment or material; including multiple shifts, 6-day work weeks, specified overtime or work at times other than regular days or hours
4. Description of the current critical path
5. Changes to the critical path and scheduled completion date since the last schedule submittal
6. Description of problem areas
7. Current and anticipated delays:

    7.1. Cause of delay
    7.2. Impact of delay on other activities, milestones, and completion dates
    7.3. Corrective action and schedule adjustments to correct the delay

8. Pending items and status thereof:

    8.1. Permits
    8.2. Change orders
    8.3. Time adjustments
    8.4. Noncompliance notices

9. Reasons for an early or late scheduled completion date in comparison to the contract completion date

19

Schedule submittals will only be considered complete when all documents and data have been submitted as described above.

Preconstruction Scheduling Conference

20

Schedule a preconstruction scheduling conference with your project manager and the Engineer within 15 days after contract approval. The Engineer will conduct the meeting and review the requirements of this section with you.

21

Submit a general time-scaled logic diagram displaying the major activities and sequence of planned operations and be prepared to discuss the proposed work plan and schedule methodology that comply with the requirements of this section. If you propose deviations to the construction staging, then the general time-scaled logic diagram must also display the deviations and resulting time impacts. Be prepared to discuss the proposal.

22

At this meeting, also submit the alphanumeric coding structure and activity identification system for labeling work activities. To easily identify relationships, each activity description must indicate its associated scope or location of work by including such terms as quantity of material, type of work, bridge number, station to station location, side of highway (such as left, right, northbound, southbound), lane number, shoulder, ramp name, ramp line descriptor, or mainline.

23

The Engineer reviews the logic diagram, coding structure, and activity identification system, and provide any required baseline schedule changes to you for implementation.

Baseline Schedule

24

Beginning the week following the preconstruction scheduling conference, meet with the Engineer weekly to discuss schedule development and resolve schedule issues until the baseline schedule is accepted.

25

Submit a baseline schedule within 20 days of contract approval. Allow 20 days for the Engineer's review after the baseline schedule and all support data are submitted. In addition, the baseline schedule submittal is not considered complete until the computer software is delivered and installed for use in review of the schedule.

26

The baseline schedule must include the entire scope of work and how you plan to complete all work contemplated. The baseline schedule must show the activities that define the critical path. Multiple critical paths and near-critical paths must be kept to a minimum. A total of not more than 50 percent of the baseline schedule activities must be critical or near critical, unless otherwise authorized.

27

The baseline schedule must not extend beyond the number of contract working days. The baseline schedule must have a data date of contract approval. If you start work before contract approval, the baseline schedule must have a data date of the 1st day you performed work at the job site.

28

If you submit an early completion baseline schedule that shows contract completion in less than 85 percent of the contract working days, the baseline schedule must be supplemented with resource allocations for every task activity and include time-scaled resource histograms. The resource allocations must be shown to a level of detail that facilitates report generation based on labor crafts and equipment classes for you and your subcontractors. Use average composite crews to display the labor loading of on-site construction activities. Optimize and level labor to reflect a reasonable plan for accomplishing the work of the contract and to assure that resources are not duplicated in concurrent activities. The time-scaled resource histograms must show labor crafts and equipment classes to be used. The Engineer may review the baseline schedule activity

DRAFT

resource allocations using Means Productivity Standards or equivalent to determine if the schedule is practicable.

Updated Schedule

29

Submit an updated schedule and meet with the Engineer to review contract progress, on or before the 1st day of each month, beginning one month after the baseline schedule is accepted. Allow 15 days for the Engineer's review after the updated schedule and all support data are submitted, except that the review period will not start until the previous month's required schedule is accepted. Updated schedules that are not accepted or rejected within the review period are considered accepted by the Engineer.

30

The updated schedule must have a data date of the 21st day of the month or other date established by the Engineer. The updated schedule must show the status of work actually completed to date and the work yet to be performed as planned. Actual activity start dates, percent complete, and finish dates must be shown as applicable. Durations for work that has been completed must be shown on the updated schedule as the work actually occurred, including Engineer submittal review and your resubmittal times.

31

You may include modifications such as adding or deleting activities or changing activity constraints, durations, or logic that do not (1) alter the critical path(s) or near critical path(s) or (2) extend the scheduled completion date compared to that shown on the current accepted schedule. Justify in writing the reasons for any changes to planned work. If any proposed changes in planned work will result in (1) or (2) above, then submit a time impact analysis as specified in this section.

Time Impact Analysis

32

Submit a written time impact analysis (TIA) with each request for adjustment of contract time, or when you or the Engineer consider that an approved or anticipated change may impact the critical path or contract progress.

33

The TIA must illustrate the impacts of each change or delay on the current scheduled completion date or internal milestone, as appropriate. The analysis must use the accepted schedule that has a data date closest to and before the event. If the Engineer determines that the accepted schedule used does not appropriately represent the conditions before the event, the accepted schedule must be updated to the day before the event being analyzed. The TIA must include an impact schedule developed from incorporating the event into the accepted schedule by adding or deleting activities, or by changing durations or logic of existing activities. If the impact schedule shows that incorporating the event modifies the critical path and scheduled completion date of the accepted schedule, the difference between scheduled completion dates of the two schedules must be equal to the adjustment of contract time. The Engineer may construct and use an appropriate project

DRAFT

schedule or other recognized method to determine adjustments in contract time until you provide the TIA.

34

Submit 2 copies of your TIA within 20 days of receiving a written request for a TIA from the Engineer. Allow the Engineer 15 days after receipt to review the submitted TIA. All approved TIA schedule changes must be shown on the next updated schedule.

35

If a TIA you submit is rejected, meet with the Engineer to discuss and resolve issues related to the TIA. If agreement is not reached, you are allowed 15 days from the meeting with the Engineer to give notice as specified in Section 9-1.04, "Notice of Potential Claim," of the Standard Specifications. Only show actual as-built work, not unapproved changes related to the TIA, in subsequent updated schedules. If agreement is reached at a later date, approved TIA schedule changes must be shown on the next updated schedule. The Engineer withholds remaining payment on the schedule contract item if a TIA is requested and not submitted within 20 days. The schedule item payment resumes on the next estimate after the requested TIA is submitted. No other contract payment is withheld regarding TIA submittals.

Final Updated Schedule

36

Submit a final update, as-built schedule with actual start and finish dates for the activities, within 30 days after completion of contract work. Provide a written certificate with this submittal signed by your project manager or an officer of the company stating, "To my knowledge and belief, the enclosed final update schedule reflects the actual start and finish dates of the actual activities for the project contained herein." An officer of the company may delegate in writing the authority to sign the certificate to a responsible manager.

PAYMENT

37

Progress schedule (critical path method) will be paid for at a lump sum price. The contract lump sum price paid for progress schedule (critical path method) includes full compensation for furnishing all labor, material, tools, equipment, and incidentals, including computer software, and for doing all the work involved in preparing, furnishing, and updating schedules, and instructing and assisting the Engineer in the use of computer software, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

38

Payments for the progress schedule (critical path method) contract item will be made progressively as follows:

1. A total of 25 percent of the item amount will be paid upon achieving all of the following:

1.1. Completion of 5 percent of all contract item work.
1.2. Acceptance of all schedules and approval of all TIAs required to the time when 5 percent of all contract item work is complete.
1.3. Delivery of schedule software to the Engineer.
1.4. Completion of required schedule software training.

2. A total of 50 percent of the item amount will be paid upon completion of 25 percent of all contract item work and acceptance of all schedules and approval of all TIAs required to the time when 25 percent of all contract item work is complete.
3. A total of 75 percent of the item amount will be paid upon completion of 50 percent of all contract item work and acceptance of all schedules and approval of all TIAs required to the time when 50 percent of all contract item work is complete.
4. A total of 100 percent of the item amount will be paid upon completion of all contract item work, acceptance of all schedules and approval of all TIAs required to the time when all contract item work is complete, and submittal of the certified final update schedule.

39

If you fail to complete any of the work or provide any of the schedules required by this section, the Engineer makes an adjustment in compensation as specified in Section 4-1.03C, "Changes in Character of Work," of the Standard Specifications for the work not performed. Adjustments in compensation for schedules will not be made for any increased or decreased work ordered by the Engineer in submitting schedules.

DRAFT

USE WITH 2006 STANDARDS.

Use in projects (except highway planting) over $5 million AND 100 or more working days.

Include SSPs S5-135, 05-050, and 08-015 when this SSP is used.

Do not include in A+B Contracts. Use SSP 08-018 on A+B Contracts.

Do not use when the item for building work is over 50% of the total bid items.

Do not edit, except as directed by instructions. Any other editing must be approved in writing by the Chief, Division of Construction.

Do not include plant establishment period working days in the quantity for Time-Related Overhead.

Use Contract Item Code No.: 070018 TIME-RELATED OVERHEAD.

10-1.__ TIME-RELATED OVERHEAD

The Contractor will be compensated for time-related overhead as described below and in conformance with "Force Account Payment" of these special provisions. The Contractor will not be compensated for time-related overhead for delays to the controlling operations caused by the Engineer that occur prior to the first working day, but will be compensated for actual overhead costs incurred, as determined by an independent Certified Public Accountant audit examination and report.

2

Attention is directed to "Beginning of Work, Time of Completion and Liquidated Damages," "Force Account Payment," and "Progress Schedule (Critical Path Method)" of these special provisions.

3

The provisions in Section 9-1.08, "Adjustment of Overhead Costs," of the Standard Specifications shall not apply.

4

Time-related overhead shall consist of those overhead costs, including field and home office overhead, that are in proportion to the time required to complete the work. Time-related overhead shall not include costs that are not related to time, including but not limited to, mobilization, licenses, permits, and other charges incurred only once during the contract. Time-related overhead shall not apply to subcontractors of any tier, suppliers, fabricators, manufacturers, or other parties associated with the Contractor.

5

Field office overhead expenses include time-related costs associated with the normal and recurring operations of the construction project, and shall not include costs directly attributable to the work of the contract. Time-related costs of field office overhead

include, but are not limited to, salaries, benefits, and equipment costs of project managers, general superintendents, field office managers and other field office staff assigned to the project, and rent, utilities, maintenance, security, supplies, and equipment costs of the project field office.

6

Home office overhead or general and administrative expenses refer to the fixed costs of operating the Contractor's business. These costs include, but are not limited to, general administration, insurance, personnel and subcontract administration, purchasing, accounting, and project engineering and estimating. Home office overhead costs shall exclude expenses specifically related to other contracts or other businesses of the Contractor, equipment coordination, material deliveries, and consultant and legal fees.

7

The quantity of time-related overhead associated with a reduction in contract time for an accepted VECP under Section 4-1.035B, "Value Engineering Change Proposal," of the Standard Specifications shall be considered a construction cost attributable to the resultant estimated net savings due to the cost reduction incentive.

8

If the final increased quantity of time-related overhead exceeds 149 percent of the number of working days specified in the verified Bid Item List, the Contractor shall, within 60 days of the Engineer's written request, submit to the Engineer an audit examination and report performed by an independent Certified Public Accountant of the Contractor's actual overhead costs. The audit examination and report shall depict the Contractor's project and company-wide financial records and shall specify the actual overall average daily rates for both field and home office overhead for the entire duration of the project, and whether the costs have been properly allocated. The rates of field and home office overhead shall exclude unallowable costs as determined in the Federal Acquisition Regulations, 48 CFR, Chapter 1, Part 31.

9

Independent Certified Public Accountant's audit examinations shall be performed in conformance with the requirements of the American Institute of Certified Public Accountants Attestation Standards. Audit examinations and reports shall determine if the rates of field office overhead and home office overhead are:

A. Allowable in conformance with the requirements of the Federal Acquisition Regulations, 48 CFR, Chapter 1, Part 31.
B. Adequately supported by reliable documentation.
C. Related solely to the project under examination.

10

Within 20 days of receipt of the Engineer's written request, the Contractor shall make its financial records available for audit by the State for the purpose of verifying the actual rate of time-related overhead specified in the audit submitted by the Contractor. The actual rate of time-related overhead specified in the audit, submitted by the Contractor, will be subject to approval by the Engineer.

11

If the Engineer requests the independent Certified Public Accountant audit, or if it is requested in writing by the Contractor, the contract item payment rate for time-related overhead, in excess of 149 percent of the number of working days specified in the verified Bid Item List, will be adjusted to reflect the actual rate.

12

The cost of performing an independent Certified Public Accountant audit examination and submitting the report, requested by the Engineer, will be borne equally by the State and the Contractor. The division of the cost will be made by determining the cost of providing an audit examination and report in conformance with the provisions of Section 9-1.03B, "Work Performed by Special Forces or Other Special Services," of the Standard Specifications, and paying to the Contractor one-half of that cost. The cost of performing an audit examination and submitting the independent Certified Public Accountant audit report for overhead claims other than for the purpose of verifying the actual rate of time-related overhead shall be entirely borne by the Contractor. The cost of performing an audit examination and submitting the independent Certified Public Accountant audit report to verify actual overhead costs incurred prior to the first working day shall be entirely borne by the Contractor.

13

The quantity of time-related overhead to be paid will be measured by the working day, designated in the verified Bid Item List as WDAY. The estimated number of working days is the number of working days, excluding days for plant establishment, as specified in "Beginning of Work, Time of Completion and Liquidated Damages" of these special provisions. The quantity of time-related overhead will be increased or decreased only as a result of suspensions or adjustments of contract time which revise the current contract completion date, and which satisfy any of the following criteria:

A. Suspensions of work ordered in conformance with the provisions in Section 8-1.05, "Temporary Suspension of Work," of the Standard Specifications, except:

    1. Suspensions ordered due to weather conditions being unfavorable for the suitable prosecution of the controlling operation or operations.
    2. Suspensions ordered due to the failure on the part of the Contractor to carry out orders given, or to perform the provisions of the contract.
    3. Suspensions ordered due to factors beyond the control of and not caused by the State or the Contractor, for which the Contractor is granted extensions of time in conformance with the provisions of the third paragraph of Section 8-1.07, "Liquidated Damages," of the Standard Specifications.
    4. Other suspensions that mutually benefit the State and the Contractor.

B. Extensions of contract time granted by the State in conformance with the provisions in the fifth paragraph in Section 8-1.07, "Liquidated Damages," of the Standard Specifications and set forth in approved contract change orders, in conformance with the provisions in Section 4-1.03, "Changes," of the Standard Specifications.

C. Reductions in contract time set forth in approved contract change orders, in conformance with the provisions in Section 4-1.03, "Changes," of the Standard Specifications.

14

A delay to the controlling operation may be concurrent and any of the following:

1. Nonexcusable: A nonexcusable delay is caused by the fault, nonperformance, or deficiency of the Contractor, subcontractors of any tier, or suppliers. No extension of contract time or additional compensation of loss is allowed.
2. Excusable: An excusable delay is caused by factors beyond the control and without the fault of the State or the Contractor. Only an extension of contract time is allowed.
3. Compensable: A compensable delay is caused solely by the fault, deficiency, error, or omission of the State. An extension of contract time and compensation for the actual cost without markup or profit are allowed.

15

A concurrent delay occurs when 2 separate delays overlap partially or entirely. A nonexcusable delay concurrent with either an excusable or a compensable delay is a nonexcusable delay. An excusable delay concurrent with a compensable delay is an excusable delay.

16

The quantity of time-related overhead is only adjusted as a result of a compensable delay and is not adjusted as a result of either a nonexcusable or an excusable delay.

17

An approved time impact analysis submitted as specified in "Progress Schedule (Critical Path Method)" of these special provisions is used to determine the type and duration of a delay.

18

In the event an early completion progress schedule, as defined in "Progress Schedule (Critical Path Method)" of these special provisions, is submitted by the Contractor and approved by the Engineer, the amount of time-related overhead eligible for payment will be based on the total number of working days for the project, in conformance with the provisions in "Beginning of Work, Time of Completion and Liquidated Damages" of these special provisions, rather than the Contractor's early completion progress schedule.

19

The contract price paid per working day for time-related overhead shall include full compensation for time-related overhead, including the Contractor's share of costs of the independent Certified Public Accountant audit of overhead costs requested by the Engineer, as specified in these special provisions, and as directed by the Engineer.

DRAFT

20

The provisions in Sections 4-1.03B, "Increased or Decreased Quantities," and 4-1.03C, "Changes in Character of the Work," of the Standard Specifications shall not apply to the contract item of time-related overhead.

21. Use when incentive/disincentive provisions are included in "Beginning of Work, Time of Completion and Liquidated Damages" of these special provisions.

KC 10-8-2009**

~~Full compensation for additional overhead costs involved in incentive and disincentive provisions to satisfy internal milestone or multiple calendar requirements shall be considered as included in the contract items of work involved and no additional compensation will be allowed therefor.~~

22

Full compensation for additional overhead costs incurred during days of inclement weather when the contract work is extended into additional construction seasons due to delays caused by the State shall be considered as included in the time-related overhead paid during the contract working days, and no additional compensation will be allowed therefor.

23

Full compensation for additional overhead costs involved in performing additional contract item work that is not a controlling operation shall be considered as included in the contract items of work involved and no additional compensation will be allowed therefor.

24

Full compensation for overhead, other than time-related overhead measured and paid for as specified above, and other than overhead costs included in the markups specified in "Force Account Payment" of these special provisions, shall be considered as included in the various items of work and no additional compensation will be allowed therefor.

25

Overhead costs incurred by subcontractors of any tier, suppliers, fabricators, manufacturers, and other parties associated with the Contractor shall be considered as included in the various items of work and as specified in Section 9-1.03, "Force Account Payment," of the Standard Specifications.

26

For the purpose of making partial payments pursuant to the provisions in Section 9-1.06, "Partial Payments," of the Standard Specifications, the number of working days to be paid for time-related overhead in each monthly partial payment will be the number of working days, specified above to be measured for payment that occurred during that monthly estimate period, including compensable suspensions and right of way delays. Working days granted by contract change order due to extra work or changes in character of the work, will be paid for upon completion of the contract. The amount earned per working day for time-related overhead shall be the lesser of the following amounts:

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A. The contract item price.
B. Twenty percent of the original total contract amount divided by the number of working days specified in "Beginning of Work, Time of Completion and Liquidated Damages," of these special provisions.

27. Use only on ROADWAY CONSTRUCTION projects <u>without</u> plant establishment work. Delete Para 28

KC* 9-16-2009**

~~After acceptance of the contract in conformance with the provisions in Section 7-1.17, "Acceptance of Contract," of the Standard Specifications, the amount of the total contract item price for time-related overhead not yet paid, will be included for payment in the first estimate made after acceptance of the contract in conformance with the provisions in Section 9-1.07, "Payment After Acceptance," of the Standard Specifications.~~

28. Use only on ROADWAY CONSTRUCTION projects <u>with</u> plant establishment work. Delete Para 27

After the work has been completed, except plant establishment work, as provided in Section 20-4.08, "Plant Establishment Work," of the Standard Specifications, the amount of the total contract item price for time-related overhead not yet paid will be included for payment in the first estimate made after completion of roadway construction work, in conformance with the provisions in Section 9-1.06, "Partial Payments," of the Standard Specifications.

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USE WITH 2006 STANDARDS.

Used in all projects.

Estimate the number of reports based on the total number of working days.

For projects with 60 working days or less, 1 report is needed.

For projects over 60 working days, estimate 1 report for each 60 working-day period plus 1 final report.

Use BEES item code 070013, Small Business Utilization Report, at $250 each.

10-1.__ SMALL BUSINESS UTILIZATION REPORT

1

Submit a completed Small Business Utilization Report form on or before the following dates for the prior reporting period:

1. January 15th
2. April 15th
3. July 15th
4. October 15th

2

Submit a completed final Small Business Utilization Report form within 30 days after contract acceptance.

3

The Department pays $250 for each report submitted. The contract unit price paid for small business utilization report includes full compensation for doing all the work involved in submitting the completed Small Business Utilization Report form. If you fail to submit a completed form by the specified time, you will not receive payment for that report.

4

The Department does not adjust payment for an increase or decrease in the quantity of small business utilization reports submitted. Section 4-1.03B, "Increased or Decreased Quantities," of the Standard Specifications does not apply.

5

The work to complete the final Small Business Utilization Report contract item is excluded from Section 7-1.17, "Acceptance of Contract," of the Standard Specifications.

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6

Failure to submit the Small Business Utilization Report is not considered a performance failure. Section 9-1.053, "Performance Failure Withholds," of the Standard Specifications does not apply.

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USE WITH 2006 STANDARDS.

Use in ALL projects.

Category 1, 2 and 3 temporary traffic control devices to be used in work zones.

10-1.__ CONSTRUCTION AREA TRAFFIC CONTROL DEVICES

Flagging, signs, and temporary traffic control devices furnished, installed, maintained, and removed when no longer required shall conform to the provisions in Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications and these special provisions.

2

Category 1 temporary traffic control devices are defined as small and lightweight (less than 100 pounds) devices. These devices shall be certified as crashworthy by crash testing, crash testing of similar devices, or years of demonstrable safe performance. Category 1 temporary traffic control devices include traffic cones, plastic drums, portable delineators, and channelizers.

3

If requested by the Engineer, the Contractor shall provide written self-certification for crashworthiness of Category 1 temporary traffic control devices at least 5 business days before beginning any work using the devices or within 2 business days after the request if the devices are already in use. Self-certification shall be provided by the manufacturer or Contractor and shall include the following:

A. Date,
B. Federal Aid number (if applicable),
C. Contract number, district, county, route and post mile of project limits,
D. Company name of certifying vendor, street address, city, state and zip code,
E. Printed name, signature and title of certifying person; and
F. Category 1 temporary traffic control devices that will be used on the project.

The Contractor may obtain a standard form for self-certification from the Engineer.

4

Category 2 temporary traffic control devices are defined as small and lightweight (less than 100 pounds) devices that are not expected to produce significant vehicular velocity change, but may cause potential harm to impacting vehicles. Category 2 temporary traffic control devices include barricades and portable sign supports.

5

Category 2 temporary traffic control devices shall be on the Federal Highway Administration's (FHWA) list of Acceptable Crashworthy Category 2 Hardware for Work Zones. This list is maintained by FHWA and can be located at:

http://safety.fhwa.dot.gov/roadway_dept/road_hardware/listing.cfm?code=workzone

The Department also maintains this list at:

http://www.dot.ca.gov/hq/traffops/signtech/signdel/pdf/Category2.pdf

6

Category 2 temporary traffic control devices that have not received FHWA acceptance shall not be used. Category 2 temporary traffic control devices in use that have received FHWA acceptance shall be labeled with the FHWA acceptance letter number and the name of the manufacturer. The label shall be readable and permanently affixed by the manufacturer. Category 2 temporary traffic control devices without a label shall not be used.

7

If requested by the Engineer, the Contractor shall provide a written list of Category 2 temporary traffic control devices to be used on the project at least 5 business days before beginning any work using the devices or within 2 business days after the request if the devices are already in use.

8

Category 3 temporary traffic control devices consist of temporary traffic-handling equipment and devices that weigh 100 pounds or more and are expected to produce significant vehicular velocity change to impacting vehicles. Temporary traffic-handling equipment and devices include crash cushions, truck-mounted attenuators, temporary railing, temporary barrier, and end treatments for temporary railing and barrier.

9

Type III barricades may be used as sign supports if the barricades have been successfully crash tested, meeting the NCHRP Report 350 criteria, as one unit with a construction area sign attached.

10

Category 3 temporary traffic control devices shall be shown on the plans or on the Department's Highway Safety Features list. This list is maintained by the Division of Engineering Services and can be found at:

http://www.dot.ca.gov/hq/esc/approved_products_list/

11

Category 3 temporary traffic control devices that are not shown on the plans or not listed on the Department's Highway Safety Features list shall not be used.

12

Full compensation for providing self-certification for crashworthiness of Category 1 temporary traffic control devices and for providing a list of Category 2 temporary traffic control devices used on the project shall be considered as included in the prices paid for

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the various items of work requiring the use of the Category 1 or Category 2 temporary traffic control devices and no additional compensation will be allowed therefor.

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USE WITH 2006 STANDARDS.

Use in ALL projects.

Include 2006 Standard Plans S93, S94, and S95 as needed.

Include SSP S8-M03, SSP 56-800, SSP 56-810, SSP 56-820, SSP 56-830 and SSP 56-840 for stationary mounted construction area signs.

Include SSP 56-850 as needed for stationary mounted construction area signs.

Include a lump sum contract item for Construction Area Signs, except when the only Construction Area Signs required for the project are for traffic control system for lane closure.

10-1.__ CONSTRUCTION AREA SIGNS

Construction area signs for temporary traffic control shall be furnished, installed, maintained, and removed when no longer required in conformance with the provisions in Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications and these special provisions.

2. Use only when stationary mounted construction area signs are used.

Attention is directed to "Furnish Sign" of these special provisions.

3

Attention is directed to the provisions in "Prequalified and Tested Signing and Delineation Materials" of these special provisions. Type II retroreflective sheeting shall not be used on construction area sign panels. Type III, IV, VII, VIII, or IX retroreflective sheeting shall be used for stationary mounted construction area sign panels.

4. Use only if SSP 05-000, "Construction Project Information Signs," is used.

Attention is directed to "Construction Project Information Signs" of these special provisions regarding the number and type of construction project information signs to be furnished, erected, maintained, and removed and disposed of.

5

Unless otherwise shown on the plans or specified in these special provisions, the color of construction area warning and guide signs shall have black legend and border on orange background, except W10-1 or W47(CA) (Highway-Rail Grade Crossing Advance Warning) sign shall have black legend and border on yellow background.

6. Use only when construction area signs are fluorescent orange in color.

Orange background on construction area signs shall be fluorescent orange.

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7

Repair to construction area sign panels will not be allowed, except when approved by the Engineer. At nighttime under vehicular headlight illumination, sign panels that exhibit irregular luminance, shadowing or dark blotches shall be immediately replaced at the Contractor's expense.

8

The Contractor shall notify the appropriate regional notification center for operators of subsurface installations at least 2 business days, but not more than 14 days, prior to commencing excavation for construction area sign posts. The regional notification centers include, but are not limited to, the following:

Notification Center	Telephone Number
Underground Service Alert	811

9

Excavations required to install construction area signs shall be performed by hand methods without the use of power equipment, except that power equipment may be used if it is determined there are no utility facilities in the area of the proposed post holes. The post hole diameter, if backfilled with portland cement concrete, shall be at least 4 inches greater than the longer dimension of the post cross section.

10

Construction area signs placed within 15 feet from the edge of the travel way shall be mounted on stationary mounted sign supports as specified in "Construction Area Traffic Control Devices" of these special provisions.

11

The Contractor shall maintain accurate information on construction area signs. Signs that are no longer required shall be immediately covered or removed. Signs that convey inaccurate information shall be immediately replaced or the information shall be corrected. Covers shall be replaced when they no longer cover the signs properly. The Contractor shall immediately restore to the original position and location any sign that is displaced or overturned, from any cause, during the progress of work.

12 new

KC** 9-16-2009

PAYMENT

Construction area signs shown on the plans, including those signs required for traffic control system for lane closure will be paid for on a lump sum basis, which lump sum price shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in furnishing construction area signs required for the direction of public traffic through or around the work and for erecting or placing, maintaining (including covering and uncovering as needed), relocating, and, when no longer required, removing construction area signs at locations shown on plans, or as directed by the engineer.

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USE WITH 2006 STANDARDS.

Use when temporary object markers are used in conjunction with "Construction Area Signs."

Add to SSP 12-003. Include Standard Plans A73A and A73B in project.

KC 9-16-2009**

~~The term "construction area signs" shall include temporary object markers required for the direction of public traffic through or around the work during construction. Object markers listed or designated on the plans as construction area signs shall be considered to be signs and shall be furnished, erected, maintained, and removed by the Contractor in the same manner specified for construction area signs.~~

~~**2**~~

~~Object markers shall be stationary mounted on wood or metal posts in conformance with the details shown on the plans and the provisions in Section 82, "Markers and Delineators," of the Standard Specifications.~~

~~**3. Edit as required.**~~

~~Marker panels for Type N (CA), Type P (CA) and Type R (CA) object markers shall conform to the provisions for sign panels for stationary mounted signs.~~

~~**4. Edit as required.**~~

~~Target plates for Type K (CA) and Type L (CA) object markers and posts, reflectors and hardware shall conform to the provisions in Section 82, "Markers and Delineators," but need not be new.~~

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USE WITH 2006 STANDARDS.

Use when work will be performed over, on, or adjacent to lanes carrying public traffic, including the contiguous or adjacent shoulders.

10-1.__ MAINTAINING TRAFFIC

Maintaining traffic shall conform to the provisions in Sections 7-1.08, "Public Convenience," Section 7-1.09, "Public Safety," and Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications and these special provisions.

2. As directed by Traffic Operations, edit to match project closure requirements.

Closure is defined as the closure of a traffic lane or lanes, including shoulder, ramp or connector lanes, within a single traffic control system.

3. Use when closures are allowed or required. Include SSP 12-260, 12-265, 12-270, or 12-275.

Closures shall conform to the provisions in "Traffic Control System for Lane Closure" of these special provisions.

4. Use when no closures are allowed. Edit as appropriate when multiple locations are involved.

KC **9-16-2009

~~No work that would require a closure shall be performed.~~

USE WITH 2006 STANDARDS.

Add to SSP 12-010.

Use for high-volume freeways with sufficient number of lanes to allow closure of the adjacent lanes. There must be 2 or more lanes adjacent to the lane where work is being performed.

KC 9-16-2009**

~~In addition to the provisions set forth in Section 7-1.09, "Public Safety," of the Standard Specifications, whenever work, including the work of installing, maintaining, and removing temporary railing (Type K) is to be performed on the freeway within 6 feet of the adjacent traffic lane, the adjacent traffic lane shall be closed.~~

~~**2. Delete Para 3 when Para 2 is used.**~~

~~Except as listed above, closure of adjacent traffic lane will not be required for installing, maintaining and removing traffic control devices.~~

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~~**3. Use for projects which require grinding or grooving operations where equipment can be operated up to the edge of the lane using the 2-foot offset of the cones for separation between the work and the traffic. Delete Para 2 when Para 3 is used.**~~

~~Except as listed above, closure of adjacent traffic lane will not be required for grinding and grooving operations, and for installing, maintaining and removing traffic control devices.~~

{ XE "12-100_E_A12-19-08" }

USE WITH 2006 STANDARDS.

Add to SSP 12-010.

Include SSPs 12-128, 12-160, 12-162, 12-164, 12-166, 12-168, and 12-170 as appropriate.

Specific location and road condition edits do not require approval by the SSP Owner, but must be verified by the District Traffic Manager or the District TMP Manager.

Work that interferes with public traffic shall be limited to the hours when lane closures are allowed, except for work required under Sections 7-1.08, "Public Convenience," and Section 7-1.09, "Public Safety."

2. Use when no lane requirement charts are provided and SSP 12-128 is included.

KC 9-16-2009**

~~The full width of the traveled way shall be open for use by public traffic as shown in the table "Lane Closure Restriction for Designated Legal Holidays and Special Days" included in this section, "Maintaining Traffic."~~

3. Use if designated legal holidays are specified in Para 2 or if lane requirement charts are included. Edit for holidays that do not generate heavy traffic through project.

Designated legal holidays are: January 1st, the third Monday in February, the last Monday in May, July 4th, the first Monday in September, November 11th, Thanksgiving Day, and December 25th. When a designated legal holiday falls on a Sunday, the following Monday shall be a designated legal holiday. When November 11th falls on a Saturday, the preceding Friday shall be a designated legal holiday.

4*. Use if special days are specified in Para 2. Include SSP 12-128 after this SSP. Consult with District Traffic Managers for special days.

KC 9-16-2009**

~~Special days are:_____.~~

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Paras 5, 6, and 7 to be edited by the District Traffic Manager or the District TMP Manager.

5*

KC 9-16-2009**

~~Under one-way reversing traffic control operations, public traffic may be stopped in one direction for periods not to exceed _____ minutes. After each stoppage, all accumulated traffic for that direction shall pass through the work zone before another stoppage is made.~~

6*

KC 9-16-2009**

~~The maximum length of a single stationary lane closure shall be _____ miles.~~

7*

KC 9-16-2009**

~~Not more than _____ separate stationary lane closures will be allowed in each direction of travel at one time. Concurrent stationary closures shall be spaced no closer than _____ miles apart.~~

8. Use on seal coat projects if closure is not in conflict with SSP 12-128. Add "or ramp in each direction of travel" after "one lane" when multilane roadways are involved.

KC 9-16-2009**

~~On days that lane closures are not allowed, one lane may be closed to maintain the seal coat surface as required in Section 37-1.07, "Finishing," of the Standard Specifications. Lane closures to maintain the seal coat surface shall be restricted to daylight hours when public traffic will be least inconvenienced and delayed, as determined by the Engineer.~~

9. Use in urban areas where local agencies regulate traffic.

Local authorities shall be notified at least 5 business days before work begins. The Contractor shall cooperate with local authorities to handle traffic through the work area and shall make arrangements to keep the work area clear of parked vehicles.

10*. Use if closures of local streets are included in the project. To be edited by the District Traffic Manager or the District TMP Manager.

KC 9-16-2009**

~~No work on local streets is allowed between _____ a.m. and _____ a.m. and between _____ p.m. and _____ p.m.~~

11. Delete when SSP 12-166 is used or if adjacent ramps do not exist on the project.

KC 9-16-2009**

~~Ramps adjacent to the closed freeway lane may be closed.~~

12. Use when closure of several on ramps and off ramps are required within the project limits.

Adjacent ramps, in the same direction of travel, servicing 2 consecutive local streets shall not be closed simultaneously unless directed by the Engineer.

Paras 13, 14, 15, 16, and 17 to be used when special signs are required for concrete slab replacement work and for connector or ramp closures.

13. Use for projects with concrete slab replacement work.

KC 9-16-2009**

~~C43(CA) (FRESH CONCRETE) sign shall be used at the beginning of the pavement slab replacement work area. The sign shall be in place during the entire curing period.~~

Paras 14, 15, 16, and 17 to be used when SC6-3(CA) or SC6-4(CA) signs are required for connector or ramp closure.

14

KC **9-16-2009

SC6-3(CA) (RAMP CLOSED) sign shall be used to inform motorists of the temporary closing of a connector, entrance ramp ~~or exit ramp~~ ~~for 1 business day~~.

15

KC 9-16-2009**

~~SC6-4(CA) (RAMP CLOSED) sign shall be used to inform motorists of the temporary closing of a connector, entrance ramp or exit ramp for more than 1 business day.~~

16

KC 9-16-2009**

The SC6-3(CA) ~~or SC6-4(CA)~~ signs shall be installed at least 7 days before closing the connector or ramp, but not more than 15 days before the connector or ramp closure. The Contractor shall notify the Engineer at least 2 business days before installing the SC6-3(CA) ~~or SC6-4(CA)~~ signs.

17

KC 9-16-2009**

Accurate information shall be maintained on the SC6-3(CA) ~~or SC6-4(CA)~~ signs. The SC6-3(CA) ~~or SC6-4(CA)~~ signs, when no longer required, shall be immediately covered or removed.

Para 18 and 19 to be edited by the District Traffic Manager or the District TMP Manager.

18

KC 9-16-2009**

~~Freeways may be closed only if signed for closing 7 days in advance. The Contractor shall notify the Engineer not less than 5 business days prior to signing the freeway. If the freeway is not closed on the posted day, the closure shall be changed to allow a 3-business-day advance notice before closure.~~

19. Edit for project work.

KC 9-23-2009**

~~Freeway closure charts are for the erection and removal of falsework, placement and removal of overhead sign bridges, and other work as approved in writing by the Engineer.~~

20*. Use on undivided highways as needed. Edit as directed by Traffic Operations for the type of operation which require stopping of traffic including erection of girders, falsework erection and removal, and time requirements. If delays of more than a few minutes are anticipated, advance warning and advisory signs must be erected in order for motorists to consider alternative routes.

KC 9-16-2009**

~~During blasting, hauling, slide removal excavation operations, the road may be closed and public traffic stopped for periods not to exceed _____ hours _____ minutes. After one closure is made, accumulated traffic shall pass through the work before another closure is allowed.~~

Use Para 21, 22, or 23.

21. Use when personal vehicles of the Contractor's employees may be parked at various locations except on the traveled way or shoulders. Delete "or shoulders" as needed.

Personal vehicles of the Contractor's employees shall not be parked on the traveled way or shoulders including sections closed to public traffic.

22*. Use when personal vehicles of the Contractor's employees may be parked within the right of way but only within certain limits.

KC 9-16-2009**

~~Personal vehicles of the Contractor's employees shall not be parked within the right of way except between _____ and _____.~~

23*. Use when personal vehicles of the Contractor's employees may be parked within the right of way but only at a designated area.

KC 9-16-2009**

~~Personal vehicles of the Contractor's employees shall not be parked within the right of way except in the area _____.~~

Use Para 24 or 25.

24. Use when Standard Plan T-10 is included.

KC 9-16-2009**

~~When work vehicles or equipment are parked within 6 feet of a traffic lane to perform active construction, the shoulder area shall be closed as shown on the plans.~~

25. Use when Standard Plan T-10 is not included.

When work vehicles or equipment are parked within 6 feet of a traffic lane to perform active construction, the shoulder area shall be closed with fluorescent orange traffic cones or portable delineators placed on a taper in advance of the parked vehicles or equipment and along the edge of the pavement at 25-foot intervals to a point not less than 25 feet past the last vehicle or piece of equipment. A minimum of 9 traffic cones or portable delineators shall be used for the taper. A W20-1 (ROAD WORK AHEAD) or W21-5b (RIGHT/LEFT SHOULDER CLOSED AHEAD) or C24(CA) (SHOULDER WORK AHEAD) sign shall be mounted on a crashworthy portable sign support with flags. The sign shall be placed where designated by the Engineer. The sign shall be a minimum of 48" x 48" in size. The Contractor shall immediately restore to the original position and

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location a traffic cone or delineator that is displaced or overturned, during the progress of work.

26*. Use for multilane roadways and undivided highways when lane requirement charts are not required because closures are allowed without restriction. A lane width of less than 10 feet must be justified. When a lane width of less than 10 feet is specified, add the following to the beginning of Para 26, "Regardless of the minimum lane width requirements specified in Section 7-1.09, "Public Safety," of the Standard Specifications,". Delete "paved" when project allows traffic to travel on unpaved surface.

KC 9-16-2009**

~~A minimum of one paved traffic lane, not less than _____ feet wide, shall be open for use by public traffic in each direction of travel.~~

27*. Use for 2-lane, 2-way roadways and undivided highways if one-way traffic is OK and lane requirement charts are not required. A lane width of less than 10 feet must be justified. When a lane width of less than 10 feet is specified add the following to the beginning of Para 27 "Regardless of the minimum lane width requirements specified in Section 7-1.09, "Public Safety," of the Standard Specifications". Delete "paved" when project allows traffic to travel on unpaved surface.

KC 9-16-2009**

~~A minimum of one paved traffic lane, not less than _____ feet wide, shall be open for use by public traffic.~~

28. Use only when there are time restrictions on the Contractor's operations.

If minor deviations from the lane requirement charts are required, a written request shall be submitted to the Engineer at least 15 days before the proposed date of the closure. The Engineer may approve the deviations if there is no significant increase in the cost to the State and if the work can be expedited and better serve the public traffic.

29*. Use when SSP 12-162 or SSP 12-170 is used. Fill in type of operations that require complete closure, such as bridge demolition, 2-post overhead sign structure installation and removal, erection of girders, falsework erection and removal, and loop detector installation.

KC 9-16-2009**

~~When complete freeway, expressway or conventional highway closure is required, only one detour for each direction of travel will be allowed for the following operations: _____ _____.~~

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30. Use when closure of connectors with more than one lane is required along with closure of freeway lanes. Use ONLY for landscape, electrical or pavement delineation projects. Edit based on connector geometrics.

KC 9-16-2009**

~~When closure of a connector is required along with the freeway lane closure, work on the connector shall be completed first, followed by work located in transitioning areas from the connector to the freeway lanes. At least one lane on the connector shall be open when the remaining work is located in the transitioning areas or on the freeway lanes.~~

31. When there is no item for CAS, replace "contract lump sum price paid for construction area signs" with "prices paid for the various contract items of work involved". Edit for applicable signs.

KC 9-16-2009**

Full compensation for furnishing, erecting, maintaining, and removing and disposing of the ~~C43(CA),~~ SC6-3(CA), ~~SC6-4(CA),~~ W20-1, W21-5b, and C24(CA) signs shall be considered as included in the contract lump sum price paid for construction area signs and no additional compensation will be allowed therefor.

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USE WITH 2006 STANDARDS.

Add to the end of SSP 12-100. District Traffic Managers will edit based on regional requirements.

Lane Closure Restriction for Designated Legal Holidays and Special Days

Thu	Fri	Sat	Sun	Mon	Tues	Wed	Thu	Fri	Sat	Sun
x	**H** xx	xx	xx							
	SD xx									
x	xx	**H** xx	xx							
		SD xx								
	x	xx	**H** xx	xx						
			SD xx							
	x	xx	xx	**H** xx	xxx					
	x	xx	xx	**SD** xx	xxx					
				x	**H** xx					
				x	**SD** xx					
					x	**H** xx				
						SD xx				
						x	**H** xx	xx	xx	xx
							SD xx			

Legends:

	Refer to lane closure charts
5 AM	The full width of the traveled way shall be open for use by public traffic after __.
xx	The full width of the traveled way shall be open for use by public traffic.
xxx	The full width of the traveled way shall be open for use by public traffic until __.
H	Designated Legal Holiday
SD	~~Special Day~~Martin Luther King Jr. day (3rd Monday in January) and Cesar Chavez day (March 31)

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USE WITH 2006 STANDARDS.

Use when pedestrian traffic will pass through construction areas. Add to SSP 12-010.

Pedestrian access facilities shall be provided through construction areas within the right of way as shown on the plans and as specified herein. Pedestrian walkways shall be surfaced with hot mix asphalt, portland cement concrete or timber. The surface shall be skid resistant and free of irregularities. Hand railings shall be provided on each side of pedestrian walkways as necessary to protect pedestrian traffic from hazards due to construction operations or adjacent vehicular traffic. Protective overhead covering shall be provided as necessary to insure protection from falling objects and drip from overhead structures.

2

In addition to the required openings through falsework, pedestrian facilities shall be provided during pile driving, footing, wall, and other bridge construction operations. At least one walkway shall be available at all times. If the Contractor's operations require the closure of one walkway, then another walkway shall be provided nearby, off the traveled roadway.

3

Railings shall be constructed of wood, S4S, and shall be painted white. Railings and walkways shall be maintained in good condition. Walkways shall be kept clear of obstructions.

4

Full compensation for providing pedestrian facilities shall be considered as included in the prices paid for the various contract items of work involved and no additional compensation will be allowed therefor.

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USE WITH 2006 STANDARDS.

Add charts to SSP 12-100.

Use for multilane highways. Edit chart title and use as many charts as needed.

Edits do not require approval by the SSP Owner, but must be verified by the District Traffic Manager.

~~Chart No. _~~ ~~Freeway/Expressway Lane Requirements~~		
~~County:~~	~~Route/Direction:~~	~~PM:~~
~~Closure Limits:~~		

~~FROM HOUR TO HOUR~~	~~24~~	~~1~~	~~2~~	~~3~~	~~4~~	~~5~~	~~6~~	~~7~~	~~8~~	~~9~~	~~10~~	~~11~~	~~12~~	~~13~~	~~14~~	~~15~~	~~16~~	~~17~~	~~18~~	~~19~~	~~20~~	~~21~~	~~22~~	~~23~~	~~24~~
~~Mondays through Thursdays~~																									
~~Fridays~~																									
~~Saturdays~~																									
~~Sundays~~																									

~~Legend:~~

~~**Delete [cut] any legend not used.**~~

~~**Do NOT use shading or crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.**~~

~~**Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.**~~

~~1~~	~~Provide at least one through freeway lane open in direction of travel~~
~~2~~	~~Provide at least two adjacent through freeway lanes open in direction of travel~~
~~3~~	~~Provide at least three adjacent through freeway lanes open in direction of travel~~
~~4~~	~~Provide at least four adjacent through freeway lanes open in direction of travel~~
~~5~~	~~Provide at least five adjacent through freeway lanes open in direction of travel~~
~~S~~	~~Shoulder closure permitted (right / left)~~
~~N~~	~~No work permitted~~
	~~Work permitted within project right of way where shoulder or lane closure is not required.~~

~~REMARKS:~~

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~~**USE WITH 2006 STANDARDS.**~~

~~**Add charts to SSP 12-100.**~~

~~**Use for connector closure. Edit chart title and use as many charts as needed. Use "Complete Connector Closure Hours" as chart title for complete connector closure. Use "Connector Lane Requirements" as chart title for lane closure on connector with multiple lanes.**~~

~~**Specify in REMARKS detour route or reference to the applicable detour or traffic handling plans, if appropriate.**~~

~~**Edits do not require approval by the SSP Owner, but must be verified by the District Traffic Manager.**~~

~~Chart No. –~~ ~~Complete Connector Closure Hours/Connector Lane Requirements~~		
~~County:~~	~~Route/Direction:~~	~~PM:~~
~~Closure Limits:~~		

~~FROM HOUR TO HOUR~~	~~24~~	~~1~~	~~2~~	~~3~~	~~4~~	~~5~~	~~6~~	~~7~~	~~8~~	~~9~~	~~10~~	~~11~~	~~12~~	~~13~~	~~14~~	~~15~~	~~16~~	~~17~~	~~18~~	~~19~~	~~20~~	~~21~~	~~22~~	~~23~~	~~24~~
~~Mondays through Thursdays~~																									
~~Fridays~~																									
~~Saturdays~~																									
~~Sundays~~																									

~~Legend:~~

~~**Delete [cut] any legend not used.**~~

~~**Do NOT use shading or crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.**~~

~~**Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.**~~

~~1~~	~~Provide at least one connector lane open in direction of travel~~
~~2~~	~~Provide at least two adjacent connector lanes open in direction of travel~~
~~C~~	~~Connector may be closed completely~~
~~S~~	~~Shoulder closure permitted~~
~~N~~	~~No work permitted.~~
	~~Work permitted within project right of way where shoulder or lane closure is not required.~~

~~REMARKS:~~

DRAFT

~~**USE WITH 2006 STANDARDS.**~~

~~**Add charts to SSP 12-100.**~~

~~**Use for ramp closure. Edit chart title and use as many charts as needed. Use "Complete Ramp Closure Hours" as chart title for complete ramp closure. Use "Ramp Lane Requirements" as chart title for lane closure on ramp with multiple lanes.**~~

~~**Specify in REMARKS detour route or reference to the applicable detour or traffic handling plans, if appropriate.**~~

~~**Edits do not require approval by the SSP Owner, but must be verified by the District Traffic Manager.**~~

~~Chart No. _~~ ~~Complete Ramp Closure Hours/Ramp Lane Requirements~~		
~~County:~~	~~Route/Direction:~~	~~PM:~~
~~Closure Limits:~~		

~~FROM HOUR TO HOUR~~	~~24~~	~~1~~	~~2~~	~~3~~	~~4~~	~~5~~	~~6~~	~~7~~	~~8~~	~~9~~	~~10~~	~~11~~	~~12~~	~~13~~	~~14~~	~~15~~	~~16~~	~~17~~	~~18~~	~~19~~	~~20~~	~~21~~	~~22~~	~~23~~	~~24~~
~~Mondays through Thursdays~~																									
~~Fridays~~																									
~~Saturdays~~																									
~~Sundays~~																									

~~Legend:~~

~~**Delete [cut] any legend not used.**~~

~~**Do NOT use shading or crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.**~~

~~**Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.**~~

~~1~~	~~Provide at least one ramp lane, not less than 11feet in width, open in direction of travel~~
~~2~~	~~Provide at least two adjacent ramp lanes open in direction of travel~~
~~C~~	~~Ramp may be closed completely~~
~~S~~	~~Shoulder closure permitted~~
~~N~~	~~No work permitted~~
	~~Work permitted within project right of way where shoulder or lane closure is not required.~~

~~REMARKS:~~

DRAFT

~~**USE WITH 2006 STANDARDS.**~~

~~**Add charts to SSP 12-100.**~~

~~**Use for conventional highways. Edit chart title and use as many charts as needed.**~~

~~**Edits do not require approval by the SSP Owner, but must be verified by the District Traffic Manager.**~~

~~**Chart No. –**~~ ~~**Conventional Highway Lane Requirements**~~		
~~County:~~	~~Route/Direction:~~	~~PM:~~
~~Closure Limits:~~		

~~FROM HOUR TO HOUR~~	~~24~~	~~1~~	~~2~~	~~3~~	~~4~~	~~5~~	~~6~~	~~7~~	~~8~~	~~9~~	~~10~~	~~11~~	~~12~~	~~13~~	~~14~~	~~15~~	~~16~~	~~17~~	~~18~~	~~19~~	~~20~~	~~21~~	~~22~~	~~23~~	~~24~~
~~Mondays through Thursdays~~																									
~~Fridays~~																									
~~Saturdays~~																									
~~Sundays~~																									

~~Legend:~~

~~**Delete [cut] any legend not used.**~~

~~**Do NOT use shading or crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.**~~

~~**Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.**~~

~~1~~	~~Provide at least one through traffic lane open in direction of travel~~
~~2~~	~~Provide at least two adjacent through traffic lanes open in direction of travel~~
~~3~~	~~Provide at least three adjacent through traffic lanes open in direction of travel~~
~~R~~	~~Provide at least one through traffic lane, not less than 10 feet in width, for use by both directions of travel (Reversing Control)~~
~~S~~	~~Shoulder closure permitted~~
~~N~~	~~No work permitted.~~
	~~Work permitted within project right of way where shoulder or lane closure is not required.~~

~~REMARKS:~~

DRAFT

53

{ XE "12-160_E_A12-19-08" }

Chart No. 1
Ramp Lane Requirements

County: Ala	Route/Direction:80 Westbound	PM: Ala PM 3.37

Closure Limits: Westbound I-80 on-ramp from Eastbound Powell St.

FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	
Fridays	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	
Saturdays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Sundays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	

Legend:

Delete [cut] any legend not used.

Do NOT use shading or crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.

Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.

0	Ramp closure
1	Provide at least one ramp lane open in direction of travel
2	Provide at least two adjacent ramp lanes open in direction of travel
3	Provide at least three adjacent ramp lanes open in direction of travel
4	Provide at least four adjacent ramp lanes open in direction of travel
5	Provide at least five adjacent ramp lanes open in direction of travel
S	Shoulder closure permitted (right / left)
N	No work permitted
	Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS:

DRAFT

Chart No. 2
Ramp Lane Requirements

County: Ala	Route/Direction:80 Westbound	PM: Ala PM 3.88

Closure Limits: Westbound I-80 on-ramp from Westbound Powell St.

FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	2	2	2	2	1	1	1	1	1	
Fridays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	2	2	2	2	2	1	1	1	1	1	
Saturdays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Sundays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	

Legend:

Delete [cut] any legend not used.

Do NOT use shading or crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.

Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.

0	Ramp closure
1	Provide at least one ramp lane open in direction of travel
2	Provide at least two adjacent ramp lanes open in direction of travel
3	Provide at least three adjacent ramp lanes open in direction of travel
4	Provide at least four adjacent ramp lanes open in direction of travel
5	Provide at least five adjacent ramp lanes open in direction of travel
S	Shoulder closure permitted (right / left)
N	No work permitted
	Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS:

DRAFT

Chart No. 3
Ramp Lane Requirements

County: Ala	Route/Direction:80 Eastbound	PM: Ala PM 3.94

Closure Limits: Eastbound I-80 on-ramp from Powell St.

FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Fridays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Saturdays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Sundays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Legend:

Delete [cut] any legend not used.

Do NOT use shading or crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.

Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.

0	Ramp closure
1	Provide at least one ramp lane open in direction of travel
2	Provide at least two adjacent ramp lanes open in direction of travel
3	Provide at least three adjacent ramp lanes open in direction of travel
4	Provide at least four adjacent ramp lanes open in direction of travel
5	Provide at least five adjacent ramp lanes open in direction of travel
S	Shoulder closure permitted (right / left)
N	No work permitted
	Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS:

DRAFT

Chart No. 4
Ramp Lane Requirements

County: Ala	Route/Direction:80 Westbound	PM: Ala PM 4.33

Closure Limits: Westbound I-80 on-ramp from Northbound Route 13

FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	
Fridays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	
Saturdays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Sundays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	

Legend:

Delete [cut] any legend not used.

Do NOT use shading or crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.

Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.

0	Ramp closure
1	Provide at least one ramp lane open in direction of travel
2	Provide at least two adjacent ramp lanes open in direction of travel
3	Provide at least three adjacent ramp lanes open in direction of travel
4	Provide at least four adjacent ramp lanes open in direction of travel
5	Provide at least five adjacent ramp lanes open in direction of travel
S	Shoulder closure permitted (right / left)
N	No work permitted
	Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS:

DRAFT

Chart No. 5
Ramp Lane Requirements

County: Ala	Route/Direction:80 Eastbound	PM: Ala PM 4.67

Closure Limits: Eastbound I-80 on-ramp from Northbound Route 13

FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1
Fridays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1
Saturdays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Sundays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Legend:

Delete [cut] any legend not used.

Do NOT use shading or crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.

Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.

0	Ramp closure
1	Provide at least one ramp lane open in direction of travel
2	Provide at least two adjacent ramp lanes open in direction of travel
3	Provide at least three adjacent ramp lanes open in direction of travel
4	Provide at least four adjacent ramp lanes open in direction of travel
5	Provide at least five adjacent ramp lanes open in direction of travel
S	Shoulder closure permitted (right / left)
N	No work permitted
	Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS:

DRAFT

Chart No. 6
Ramp Lane Requirements

County: Ala	Route/Direction:80 Westbound	PM: Ala PM 5.67

Closure Limits: Westbound I-80 on-ramp from University Avenue

FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Fridays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Saturdays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Sundays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	

Legend:

Delete [cut] any legend not used.

Do NOT use shading or crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.

Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.

0	Ramp closure
1	Provide at least one ramp lane open in direction of travel
2	Provide at least two adjacent ramp lanes open in direction of travel
3	Provide at least three adjacent ramp lanes open in direction of travel
4	Provide at least four adjacent ramp lanes open in direction of travel
5	Provide at least five adjacent ramp lanes open in direction of travel
S	Shoulder closure permitted (right / left)
N	No work permitted
	Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS:

DRAFT

Chart No. 7
Ramp Lane Requirements

County: Ala	Route/Direction:80 Eastbound	PM: Ala PM 6.00

Closure Limits: Eastbound I-80 on-ramp from Westbound University Avenue

FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Fridays	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Saturdays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Sundays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	

Legend:

Delete [cut] any legend not used.

Do NOT use Shading or Crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.

Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.

0	Ramp closure
1	Provide at least one ramp lane open in direction of travel
2	Provide at least two adjacent ramp lanes open in direction of travel
3	Provide at least three adjacent ramp lanes open in direction of travel
4	Provide at least four adjacent ramp lanes open in direction of travel
5	Provide at least five adjacent ramp lanes open in direction of travel
S	Shoulder closure permitted (right / left)
N	No work permitted
	Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS: **If directed by Traffic Operations include a remark regarding a reference to the "Lane Closure Restriction for Designated Legal Holidays and Special Days" table as follows: "See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions."**

DRAFT

Chart No. 8
Ramp Lane Requirements

County: Ala	Route/Direction:80 Westbound	PM: Ala PM 6.40

Closure Limits: Westbound I-80 on-ramp from Gilman Street

FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Fridays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Saturdays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Sundays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	

Legend:

Delete [cut] any legend not used.

Do NOT use Shading or Crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.

Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.

0	Ramp closure
1	Provide at least one ramp lane open in direction of travel
2	Provide at least two adjacent ramp lanes open in direction of travel
3	Provide at least three adjacent ramp lanes open in direction of travel
4	Provide at least four adjacent ramp lanes open in direction of travel
5	Provide at least five adjacent ramp lanes open in direction of travel
S	Shoulder closure permitted (right / left)
N	No work permitted
	Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS: **If directed by Traffic Operations include a remark regarding a reference to the "Lane Closure Restriction for Designated Legal Holidays and Special Days" table as follows: "See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions."**

DRAFT

Chart No. 9
Ramp Lane Requirements

County: Ala	Route/Direction:80 Eastbound	PM: Ala PM 6.79

Closure Limits: Eastbound I-80 on-ramp from Gilman Street

FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	1	1	
Fridays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	
Saturdays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Sundays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	

Legend:

Delete [cut] any legend not used.

Do NOT use Shading or Crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.

Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.

0	Ramp closure
1	Provide at least one ramp lane open in direction of travel
2	Provide at least two adjacent ramp lanes open in direction of travel
3	Provide at least three adjacent ramp lanes open in direction of travel
4	Provide at least four adjacent ramp lanes open in direction of travel
5	Provide at least five adjacent ramp lanes open in direction of travel
S	Shoulder closure permitted (right / left)
N	No work permitted
	Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS: **If directed by Traffic Operations include a remark regarding a reference to the "Lane Closure Restriction for Designated Legal Holidays and Special Days" table as follows: "See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions."**

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Chart No. 10
Ramp Lane Requirements

County: Ala	Route/Direction:80 Westbound	PM: Ala PM 7.08

Closure Limits: Westbound I-80 on-ramp from Buchanan Street

FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Fridays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Saturdays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Sundays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	

Legend:

Delete [cut] any legend not used.

Do NOT use Shading or Crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.

Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.

0	Ramp closure
1	Provide at least one ramp lane open in direction of travel
2	Provide at least two adjacent ramp lanes open in direction of travel
3	Provide at least three adjacent ramp lanes open in direction of travel
4	Provide at least four adjacent ramp lanes open in direction of travel
5	Provide at least five adjacent ramp lanes open in direction of travel
S	Shoulder closure permitted (right / left)
N	No work permitted
	Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS: **If directed by Traffic Operations include a remark regarding a reference to the "Lane Closure Restriction for Designated Legal Holidays and Special Days" table as follows: "See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions."**

DRAFT

Chart No. 11
Ramp Lane Requirements

County: Ala	Route/Direction:80 Eastbound	PM: Ala PM 7.63

Closure Limits: Eastbound I-80 on-ramp from Cleveland Ave.

FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
Fridays	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
Saturdays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Sundays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Legend:

Delete [cut] any legend not used.

Do NOT use Shading or Crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.

Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.

0	Ramp closure
1	Provide at least one ramp lane open in direction of travel
2	Provide at least two adjacent ramp lanes open in direction of travel
3	Provide at least three adjacent ramp lanes open in direction of travel
4	Provide at least four adjacent ramp lanes open in direction of travel
5	Provide at least five adjacent ramp lanes open in direction of travel
S	Shoulder closure permitted (right / left)
N	No work permitted
	Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS: **If directed by Traffic Operations include a remark regarding a reference to the "Lane Closure Restriction for Designated Legal Holidays and Special Days" table as follows: "See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions."**

DRAFT

Chart No. 12
Ramp Lane Requirements

County: CC	Route/Direction:80 Westbound	PM: CC PM 0.13

Closure Limits: Westbound I-80 on-ramp from Central Avenue

FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Fridays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Saturdays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Sundays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	

Legend:

Delete [cut] any legend not used.

Do NOT use Shading or Crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.

Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.

0	Ramp closure
1	Provide at least one ramp lane open in direction of travel
2	Provide at least two adjacent ramp lanes open in direction of travel
3	Provide at least three adjacent ramp lanes open in direction of travel
4	Provide at least four adjacent ramp lanes open in direction of travel
5	Provide at least five adjacent ramp lanes open in direction of travel
S	Shoulder closure permitted (right / left)
N	No work permitted
	Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS: **If directed by Traffic Operations include a remark regarding a reference to the "Lane Closure Restriction for Designated Legal Holidays and Special Days" table as follows: "See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions."**

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Chart No. 13
Ramp Lane Requirements

County: CC	Route/Direction:80 Eastbound	PM: CC PM 0.34

Closure Limits: Eastbound I-80 on-ramp from Central Avenue

FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Fridays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Saturdays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Sundays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	

Legend:

Delete [cut] any legend not used.

Do NOT use Shading or Crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.

Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.

0	Ramp closure
1	Provide at least one ramp lane open in direction of travel
2	Provide at least two adjacent ramp lanes open in direction of travel
3	Provide at least three adjacent ramp lanes open in direction of travel
4	Provide at least four adjacent ramp lanes open in direction of travel
5	Provide at least five adjacent ramp lanes open in direction of travel
S	Shoulder closure permitted (right / left)
N	No work permitted
	Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS: **If directed by Traffic Operations include a remark regarding a reference to the "Lane Closure Restriction for Designated Legal Holidays and Special Days" table as follows: "See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions."**

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Chart No. 14
Ramp Lane Requirements

County: CC	Route/Direction:80 Westbound	PM: CC PM 0.82

Closure Limits: Westbound I-80 on-ramp from Carlson Boulevard

FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Fridays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Saturdays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Sundays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Legend:

Delete [cut] any legend not used.

Do NOT use shading or crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.

Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.

0	Ramp closure
1	Provide at least one ramp lane open in direction of travel
2	Provide at least two adjacent ramp lanes open in direction of travel
3	Provide at least three adjacent ramp lanes open in direction of travel
4	Provide at least four adjacent ramp lanes open in direction of travel
5	Provide at least five adjacent ramp lanes open in direction of travel
S	Shoulder closure permitted (right / left)
N	No work permitted
	Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS:

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Chart No. 15
Ramp Lane Requirements

County: CC	Route/Direction:80 Eastbound	PM: CC PM 1.12

Closure Limits: Eastbound I-80 on-ramp from Carlson Boulevard

FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Fridays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Saturdays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Sundays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	

Legend:

Delete [cut] any legend not used.

Do NOT use shading or crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.

Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.

0	Ramp closure
1	Provide at least one ramp lane open in direction of travel
2	Provide at least two adjacent ramp lanes open in direction of travel
3	Provide at least three adjacent ramp lanes open in direction of travel
4	Provide at least four adjacent ramp lanes open in direction of travel
5	Provide at least five adjacent ramp lanes open in direction of travel
S	Shoulder closure permitted (right / left)
N	No work permitted
	Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS:

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Chart No. 16
Ramp Lane Requirements

County: CC	Route/Direction:80 Westbound	PM: CC PM 1.54

Closure Limits: Westbound I-80 on-ramp from Potrero Avenue

FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Fridays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Saturdays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Sundays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	

Legend:

Delete [cut] any legend not used.

Do NOT use shading or crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.

Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.

0	Ramp closure
1	Provide at least one ramp lane open in direction of travel
2	Provide at least two adjacent ramp lanes open in direction of travel
3	Provide at least three adjacent ramp lanes open in direction of travel
4	Provide at least four adjacent ramp lanes open in direction of travel
5	Provide at least five adjacent ramp lanes open in direction of travel
S	Shoulder closure permitted (right / left)
N	No work permitted
	Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS:

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Chart No. 17
Ramp Lane Requirements

County: CC	Route/Direction:80 Eastbound	PM: CC PM 2.03

Closure Limits: Eastbound I-80 on-ramp from Eastbound Cutting Boulevard

FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Fridays	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Saturdays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Sundays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	

Legend:

Delete [cut] any legend not used.

Do NOT use shading or crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.

Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.

0	Ramp closure
1	Provide at least one ramp lane open in direction of travel
2	Provide at least two adjacent ramp lanes open in direction of travel
3	Provide at least three adjacent ramp lanes open in direction of travel
4	Provide at least four adjacent ramp lanes open in direction of travel
5	Provide at least five adjacent ramp lanes open in direction of travel
S	Shoulder closure permitted (right / left)
N	No work permitted
	Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS:

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Chart No. 18
Ramp Lane Requirements

County: CC	Route/Direction:80 Eastbound	PM: CC PM 2.17

Closure Limits: Eastbound I-80 on-ramp from Westbound Cutting Boulevard

FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Fridays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Saturdays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Sundays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Legend:

Delete [cut] any legend not used.

Do NOT use shading or crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.

Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.

0	Ramp closure
1	Provide at least one ramp lane open in direction of travel
2	Provide at least two adjacent ramp lanes open in direction of travel
3	Provide at least three adjacent ramp lanes open in direction of travel
4	Provide at least four adjacent ramp lanes open in direction of travel
5	Provide at least five adjacent ramp lanes open in direction of travel
S	Shoulder closure permitted (right / left)
N	No work permitted
	Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS:

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Chart No. 19
Ramp Lane Requirements

County: CC	Route/Direction:80 Westbound	PM: CC PM 2.71

Closure Limits: Westbound I-80 on-ramp from Barrett Avenue

FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Fridays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Saturdays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Sundays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	

Legend:

Delete [cut] any legend not used.

Do NOT use Shading or Crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.

Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.

0	Ramp closure
1	Provide at least one ramp lane open in direction of travel
2	Provide at least two adjacent ramp lanes open in direction of travel
3	Provide at least three adjacent ramp lanes open in direction of travel
4	Provide at least four adjacent ramp lanes open in direction of travel
5	Provide at least five adjacent ramp lanes open in direction of travel
S	Shoulder closure permitted (right / left)
N	No work permitted
	Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS: **If directed by Traffic Operations include a remark regarding a reference to the "Lane Closure Restriction for Designated Legal Holidays and Special Days" table as follows: "See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions."**

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Chart No. 20
Ramp Lane Requirements

County: CC	Route/Direction:80 Eastbound	PM: CC PM 3.05

Closure Limits: Eastbound I-80 on-ramp from San Pablo Avenue

FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	
Fridays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Saturdays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Sundays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	

Legend:

Delete [cut] any legend not used.

Do NOT use Shading or Crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.

Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.

0	Ramp closure
1	Provide at least one ramp lane open in direction of travel
2	Provide at least two adjacent ramp lanes open in direction of travel
3	Provide at least three adjacent ramp lanes open in direction of travel
4	Provide at least four adjacent ramp lanes open in direction of travel
5	Provide at least five adjacent ramp lanes open in direction of travel
S	Shoulder closure permitted (right / left)
N	No work permitted
	Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS: **If directed by Traffic Operations include a remark regarding a reference to the "Lane Closure Restriction for Designated Legal Holidays and Special Days" table as follows: "See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions."**

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Chart No. 21
Ramp Lane Requirements

County: CC	Route/Direction:80 Westbound	PM: CC PM 3.33

Closure Limits: Westbound I-80 on-ramp from Solano Avenue

FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
Fridays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
Saturdays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Sundays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Legend:

Delete [cut] any legend not used.

Do NOT use Shading or Crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.

Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.

0	Ramp closure
1	Provide at least one ramp lane open in direction of travel
2	Provide at least two adjacent ramp lanes open in direction of travel
3	Provide at least three adjacent ramp lanes open in direction of travel
4	Provide at least four adjacent ramp lanes open in direction of travel
5	Provide at least five adjacent ramp lanes open in direction of travel
S	Shoulder closure permitted (right / left)
N	No work permitted
	Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS: **If directed by Traffic Operations include a remark regarding a reference to the "Lane Closure Restriction for Designated Legal Holidays and Special Days" table as follows: "See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions."**

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Chart No. 22
Ramp Lane Requirements

County: CC	Route/Direction:80 Westbound	PM: CC PM 4.22

Closure Limits: Westbound I-80 on-ramp from San Pablo Dam Road

FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Fridays	0	0	0	0	0	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Saturdays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Sundays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	

Legend:

Delete [cut] any legend not used.

Do NOT use Shading or Crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.

Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.

0	Ramp closure
1	Provide at least one ramp lane open in direction of travel
2	Provide at least two adjacent ramp lanes open in direction of travel
3	Provide at least three adjacent ramp lanes open in direction of travel
4	Provide at least four adjacent ramp lanes open in direction of travel
5	Provide at least five adjacent ramp lanes open in direction of travel
S	Shoulder closure permitted (right / left)
N	No work permitted
	Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS: **If directed by Traffic Operations include a remark regarding a reference to the "Lane Closure Restriction for Designated Legal Holidays and Special Days" table as follows: "See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions."**

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Chart No. 23
Ramp Lane Requirements

County: CC	Route/Direction:80 Eastbound	PM: CC PM 4.58

Closure Limits: Eastbound I-80 on-ramp from San Pablo Dam Road

FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Fridays	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Saturdays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Sundays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Legend:

Delete [cut] any legend not used.

Do NOT use Shading or Crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.

Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.

0	Ramp closure
1	Provide at least one ramp lane open in direction of travel
2	Provide at least two adjacent ramp lanes open in direction of travel
3	Provide at least three adjacent ramp lanes open in direction of travel
4	Provide at least four adjacent ramp lanes open in direction of travel
5	Provide at least five adjacent ramp lanes open in direction of travel
S	Shoulder closure permitted (right / left)
N	No work permitted
	Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS: **If directed by Traffic Operations include a remark regarding a reference to the "Lane Closure Restriction for Designated Legal Holidays and Special Days" table as follows: "See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions."**

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Chart No. 24
Ramp Lane Requirements

County: CC	Route/Direction:80 Westbound	PM: CC PM 4.74

Closure Limits: Westbound I-80 on-ramp from El Portal Drive

FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Fridays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Saturdays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Sundays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	

Legend:

Delete [cut] any legend not used.

Do NOT use Shading or Crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.

Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.

0	Ramp closure
1	Provide at least one ramp lane open in direction of travel
2	Provide at least two adjacent ramp lanes open in direction of travel
3	Provide at least three adjacent ramp lanes open in direction of travel
4	Provide at least four adjacent ramp lanes open in direction of travel
5	Provide at least five adjacent ramp lanes open in direction of travel
S	Shoulder closure permitted (right / left)
N	No work permitted
	Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS: **If directed by Traffic Operations include a remark regarding a reference to the "Lane Closure Restriction for Designated Legal Holidays and Special Days" table as follows: "See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions."**

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Chart No. 25
Ramp Lane Requirements

County: CC	Route/Direction:80 Eastbound	PM: CC PM 5.44

Closure Limits: Eastbound I-80 on-ramp from El Portal Drive

FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Fridays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Saturdays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Sundays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	

Legend:

Delete [cut] any legend not used.

Do NOT use Shading or Crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.

Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.

0	Ramp closure
1	Provide at least one ramp lane open in direction of travel
2	Provide at least two adjacent ramp lanes open in direction of travel
3	Provide at least three adjacent ramp lanes open in direction of travel
4	Provide at least four adjacent ramp lanes open in direction of travel
5	Provide at least five adjacent ramp lanes open in direction of travel
S	Shoulder closure permitted (right / left)
N	No work permitted
	Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS: **If directed by Traffic Operations include a remark regarding a reference to the "Lane Closure Restriction for Designated Legal Holidays and Special Days" table as follows: "See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions."**

DRAFT

{ XE "12-160_E_A12-19-08" }

Chart No. 26
Ramp Lane Requirements

County: CC	Route/Direction:80 Westbound	PM: CC PM 5.82

Closure Limits: Westbound I-80 on-ramp from Eastbound Hilltop Drive

FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Fridays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Saturdays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Sundays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Legend:

Delete [cut] any legend not used.

Do NOT use shading or crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.

Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.

0	Ramp closure
1	Provide at least one ramp lane open in direction of travel
2	Provide at least two adjacent ramp lanes open in direction of travel
3	Provide at least three adjacent ramp lanes open in direction of travel
4	Provide at least four adjacent ramp lanes open in direction of travel
5	Provide at least five adjacent ramp lanes open in direction of travel
S	Shoulder closure permitted (right / left)
N	No work permitted
	Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS:

DRAFT

Chart No. 27
Ramp Lane Requirements

County: CC	Route/Direction:80 Eastbound	PM: CC PM 5.95

Closure Limits: Eastbound I-80 on-ramp from Eastbound Hilltop Drive

FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
Fridays	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
Saturdays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Sundays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Legend:

Delete [cut] any legend not used.

Do NOT use shading or crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.

Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.

0	Ramp closure
1	Provide at least one ramp lane open in direction of travel
2	Provide at least two adjacent ramp lanes open in direction of travel
3	Provide at least three adjacent ramp lanes open in direction of travel
4	Provide at least four adjacent ramp lanes open in direction of travel
5	Provide at least five adjacent ramp lanes open in direction of travel
S	Shoulder closure permitted (right / left)
N	No work permitted
	Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS:

DRAFT

Chart No. 28
Ramp Lane Requirements

County: CC	Route/Direction:80 Westbound	PM: CC PM 6.02

Closure Limits: Westbound I-80 on-ramp from Westbound Hilltop Drive

FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	
Fridays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	
Saturdays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Sundays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	

Legend:

Delete [cut] any legend not used.

Do NOT use shading or crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.

Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.

0	Ramp closure
1	Provide at least one ramp lane open in direction of travel
2	Provide at least two adjacent ramp lanes open in direction of travel
3	Provide at least three adjacent ramp lanes open in direction of travel
4	Provide at least four adjacent ramp lanes open in direction of travel
5	Provide at least five adjacent ramp lanes open in direction of travel
S	Shoulder closure permitted (right / left)
N	No work permitted
	Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS:

DRAFT

Chart No. 29
Ramp Lane Requirements

County: CC	Route/Direction:80 Eastbound	PM: CC PM 6.14

Closure Limits: Eastbound I-80 on-ramp from Westbound Hilltop Drive

FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Fridays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Saturdays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Sundays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Legend:

Delete [cut] any legend not used.

Do NOT use shading or crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.

Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.

0	Ramp closure
1	Provide at least one ramp lane open in direction of travel
2	Provide at least two adjacent ramp lanes open in direction of travel
3	Provide at least three adjacent ramp lanes open in direction of travel
4	Provide at least four adjacent ramp lanes open in direction of travel
5	Provide at least five adjacent ramp lanes open in direction of travel
S	Shoulder closure permitted (right / left)
N	No work permitted
	Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS:

DRAFT

Chart No. 30
Ramp Lane Requirements

County: CC	Route/Direction:80 Westbound	PM: CC PM 6.69

Closure Limits: Westbound I-80 on-ramp from Richmond Parkway

FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Fridays	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Saturdays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Sundays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	

Legend:

Delete [cut] any legend not used.

Do NOT use shading or crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.

Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.

0	Ramp closure
1	Provide at least one ramp lane open in direction of travel
2	Provide at least two adjacent ramp lanes open in direction of travel
3	Provide at least three adjacent ramp lanes open in direction of travel
4	Provide at least four adjacent ramp lanes open in direction of travel
5	Provide at least five adjacent ramp lanes open in direction of travel
S	Shoulder closure permitted (right / left)
N	No work permitted
	Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS:

DRAFT

Chart No. 30
Ramp Lane Requirements

County: CC	Route/Direction:80 Eastbound	PM: CC PM 6.73

Closure Limits: Eastbound I-80 on-ramp from Eastbound Richmond Parkway

FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	1	1	1	
Fridays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	
Saturdays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Sundays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	

Legend:

Delete [cut] any legend not used.

Do NOT use Shading or Crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.

Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.

0	Ramp closure
1	Provide at least one ramp lane open in direction of travel
2	Provide at least two adjacent ramp lanes open in direction of travel
3	Provide at least three adjacent ramp lanes open in direction of travel
4	Provide at least four adjacent ramp lanes open in direction of travel
5	Provide at least five adjacent ramp lanes open in direction of travel
S	Shoulder closure permitted (right / left)
N	No work permitted
	Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS: **If directed by Traffic Operations include a remark regarding a reference to the "Lane Closure Restriction for Designated Legal Holidays and Special Days" table as follows: "See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions."**

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Chart No. 31
Ramp Lane Requirements

County: CC	Route/Direction:80 Eastbound	PM: CC PM 6.98

Closure Limits: Eastbound I-80 on-ramp from Westbound Richmond Parkway

FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	0	
Fridays	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	
Saturdays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Sundays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	

Legend:

Delete [cut] any legend not used.

Do NOT use Shading or Crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.

Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.

0	Ramp closure
1	Provide at least one ramp lane open in direction of travel
2	Provide at least two adjacent ramp lanes open in direction of travel
3	Provide at least three adjacent ramp lanes open in direction of travel
4	Provide at least four adjacent ramp lanes open in direction of travel
5	Provide at least five adjacent ramp lanes open in direction of travel
S	Shoulder closure permitted (right / left)
N	No work permitted
	Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS: **If directed by Traffic Operations include a remark regarding a reference to the "Lane Closure Restriction for Designated Legal Holidays and Special Days" table as follows: "See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions."**

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Chart No. 32
Ramp Lane Requirements

County: CC	Route/Direction:80 Westbound	PM: CC PM 7.45

Closure Limits: Westbound I-80 on-ramp from Appian Way

FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	0	0	0	0	0	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Fridays	0	0	0	0	0	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Saturdays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Sundays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	

Legend:

Delete [cut] any legend not used.

Do NOT use Shading or Crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.

Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.

0	Ramp closure
1	Provide at least one ramp lane open in direction of travel
2	Provide at least two adjacent ramp lanes open in direction of travel
3	Provide at least three adjacent ramp lanes open in direction of travel
4	Provide at least four adjacent ramp lanes open in direction of travel
5	Provide at least five adjacent ramp lanes open in direction of travel
S	Shoulder closure permitted (right / left)
N	No work permitted
	Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS: **If directed by Traffic Operations include a remark regarding a reference to the "Lane Closure Restriction for Designated Legal Holidays and Special Days" table as follows: "See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions."**

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Chart No. 33
Ramp Lane Requirements

County: CC	Route/Direction:80 Eastbound	PM: CC PM 7.57

Closure Limits: Eastbound I-80 on-ramp from Southbound Appian Way

FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	
Fridays	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	
Saturdays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Sundays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	

Legend:

Delete [cut] any legend not used.

Do NOT use Shading or Crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.

Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.

0	Ramp closure
1	Provide at least one ramp lane open in direction of travel
2	Provide at least two adjacent ramp lanes open in direction of travel
3	Provide at least three adjacent ramp lanes open in direction of travel
4	Provide at least four adjacent ramp lanes open in direction of travel
5	Provide at least five adjacent ramp lanes open in direction of travel
S	Shoulder closure permitted (right / left)
N	No work permitted
	Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS: **If directed by Traffic Operations include a remark regarding a reference to the "Lane Closure Restriction for Designated Legal Holidays and Special Days" table as follows: "See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions."**

DRAFT

Chart No. 34
Ramp Lane Requirements

County: CC	Route/Direction:80 Eastbound	PM:CC PM 7.73

Closure Limits: Eastbound I-80 from Northbound Appian Way

FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1
Fridays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Saturdays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Sundays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Legend:

Delete [cut] any legend not used.

Do NOT use Shading or Crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.

Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.

0	Ramp closure
1	Provide at least one ramp lane open in direction of travel
2	Provide at least two adjacent ramp lanes open in direction of travel
3	Provide at least three adjacent ramp lanes open in direction of travel
4	Provide at least four adjacent ramp lanes open in direction of travel
5	Provide at least five adjacent ramp lanes open in direction of travel
S	Shoulder closure permitted (right / left)
N	No work permitted
	Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS: **If directed by Traffic Operations include a remark regarding a reference to the "Lane Closure Restriction for Designated Legal Holidays and Special Days" table as follows: "See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions."**

DRAFT

Chart No. 35
Ramp Lane Requirements

County: CC	Route/Direction:80 Westbound	PM: CC PM 8.40

Closure Limits: Westbound I-80 on-ramp from Pinole Valley Road

FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	0	0	0	0	0	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Fridays	0	0	0	0	0	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Saturdays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Sundays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	

Legend:

Delete [cut] any legend not used.

Do NOT use Shading or Crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.

Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.

0	Ramp closure
1	Provide at least one ramp lane open in direction of travel
2	Provide at least two adjacent ramp lanes open in direction of travel
3	Provide at least three adjacent ramp lanes open in direction of travel
4	Provide at least four adjacent ramp lanes open in direction of travel
5	Provide at least five adjacent ramp lanes open in direction of travel
S	Shoulder closure permitted (right / left)
N	No work permitted
	Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS: **If directed by Traffic Operations include a remark regarding a reference to the "Lane Closure Restriction for Designated Legal Holidays and Special Days" table as follows: "See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions."**

DRAFT

Chart No. 36
Ramp Lane Requirements

County: CC	Route/Direction:80 Eastbound	PM:CC PM 8.72

Closure Limits: Eastbound I-80 PM from Pinole Valley Road

FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
Fridays	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Saturdays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Sundays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Legend:

Delete [cut] any legend not used.

Do NOT use Shading or Crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.

Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.

0	Ramp closure
1	Provide at least one ramp lane open in direction of travel
2	Provide at least two adjacent ramp lanes open in direction of travel
3	Provide at least three adjacent ramp lanes open in direction of travel
4	Provide at least four adjacent ramp lanes open in direction of travel
5	Provide at least five adjacent ramp lanes open in direction of travel
S	Shoulder closure permitted (right / left)
N	No work permitted
	Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS: **If directed by Traffic Operations include a remark regarding a reference to the "Lane Closure Restriction for Designated Legal Holidays and Special Days" table as follows: "See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions."**

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Chart No. 37
Ramp Lane Requirements

County: CC	Route/Direction:80 Westbound	PM: CC PM 9.67

Closure Limits: Westbound I-80 on-ramp from Route 4

FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1
Fridays	0	0	0	0	0	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1
Saturdays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Sundays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Legend:

Delete [cut] any legend not used.

Do NOT use shading or crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.

Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.

0	Ramp closure
1	Provide at least one ramp lane open in direction of travel
2	Provide at least two adjacent ramp lanes open in direction of travel
3	Provide at least three adjacent ramp lanes open in direction of travel
4	Provide at least four adjacent ramp lanes open in direction of travel
5	Provide at least five adjacent ramp lanes open in direction of travel
S	Shoulder closure permitted (right / left)
N	No work permitted
	Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS:

DRAFT

Chart No. 38
Ramp Lane Requirements

County: CC	Route/Direction:80 Eastbound	PM: CC PM 10.13

Closure Limits: Eastbound I-80 on-ramp from Eastbound Route 4

FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Fridays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Saturdays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Sundays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Legend:

Delete [cut] any legend not used.

Do NOT use shading or crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.

Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.

0	Ramp closure
1	Provide at least one ramp lane open in direction of travel
2	Provide at least two adjacent ramp lanes open in direction of travel
3	Provide at least three adjacent ramp lanes open in direction of travel
4	Provide at least four adjacent ramp lanes open in direction of travel
5	Provide at least five adjacent ramp lanes open in direction of travel
S	Shoulder closure permitted (right / left)
N	No work permitted
	Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS:

DRAFT

Chart No. 39
Ramp Lane Requirements

County: CC	Route/Direction:80 Westbound	PM: CC PM 10.54

Closure Limits: Westbound I-80 on-ramp from Willow Avenue

FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Fridays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Saturdays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Sundays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Legend:

Delete [cut] any legend not used.

Do NOT use shading or crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.

Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.

0	Ramp closure
1	Provide at least one ramp lane open in direction of travel
2	Provide at least two adjacent ramp lanes open in direction of travel
3	Provide at least three adjacent ramp lanes open in direction of travel
4	Provide at least four adjacent ramp lanes open in direction of travel
5	Provide at least five adjacent ramp lanes open in direction of travel
S	Shoulder closure permitted (right / left)
N	No work permitted
	Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS:

DRAFT

Chart No. 40
Ramp Lane Requirements

County: CC	Route/Direction:80 Eastbound	PM: CC PM 10.87

Closure Limits: Eastbound I-80 on-ramp from Willow Avenue

FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	
Fridays	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	
Saturdays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Sundays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	

Legend:

Delete [cut] any legend not used.

Do NOT use shading or crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.

Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.

0	Ramp closure
1	Provide at least one ramp lane open in direction of travel
2	Provide at least two adjacent ramp lanes open in direction of travel
3	Provide at least three adjacent ramp lanes open in direction of travel
4	Provide at least four adjacent ramp lanes open in direction of travel
5	Provide at least five adjacent ramp lanes open in direction of travel
S	Shoulder closure permitted (right / left)
N	No work permitted
	Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS:

DRAFT

Chart No. 41
Ramp Lane Requirements

County: CC	Route/Direction:80 Westbound	PM: CC PM 12.54

Closure Limits: Westbound I-80 on-ramp from Cummings Skyway

FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fridays	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Saturdays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Sundays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Legend:

Delete [cut] any legend not used.

Do NOT use shading or crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.

Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.

0	Ramp closure
1	Provide at least one ramp lane open in direction of travel
2	Provide at least two adjacent ramp lanes open in direction of travel
3	Provide at least three adjacent ramp lanes open in direction of travel
4	Provide at least four adjacent ramp lanes open in direction of travel
5	Provide at least five adjacent ramp lanes open in direction of travel
S	Shoulder closure permitted (right / left)
N	No work permitted
	Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS:

DRAFT

Chart No. 42
Ramp Lane Requirements

County: CC	Route/Direction:80 Eastbound	PM: CC PM 12.99

Closure Limits: Eastbound I-80 on-ramp from Cummings Skyway

FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Fridays	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Saturdays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Sundays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Legend:

Delete [cut] any legend not used.

Do NOT use Shading or Crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.

Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.

0	Ramp closure
1	Provide at least one ramp lane open in direction of travel
2	Provide at least two adjacent ramp lanes open in direction of travel
3	Provide at least three adjacent ramp lanes open in direction of travel
4	Provide at least four adjacent ramp lanes open in direction of travel
5	Provide at least five adjacent ramp lanes open in direction of travel
S	Shoulder closure permitted (right / left)
N	No work permitted
	Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS: **If directed by Traffic Operations include a remark regarding a reference to the "Lane Closure Restriction for Designated Legal Holidays and Special Days" table as follows: "See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions."**

DRAFT

Chart No. 43
Ramp Lane Requirements

County: CC	Route/Direction:80 Westbound	PM: CC PM 13.48

Closure Limits: Westbound I-80 on-ramp from Pomona St

FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	
Fridays	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	
Saturdays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Sundays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	

Legend:

Delete [cut] any legend not used.

Do NOT use Shading or Crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.

Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.

0	Ramp closure
1	Provide at least one ramp lane open in direction of travel
2	Provide at least two adjacent ramp lanes open in direction of travel
3	Provide at least three adjacent ramp lanes open in direction of travel
4	Provide at least four adjacent ramp lanes open in direction of travel
5	Provide at least five adjacent ramp lanes open in direction of travel
S	Shoulder closure permitted (right / left)
N	No work permitted
	Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS: **If directed by Traffic Operations include a remark regarding a reference to the "Lane Closure Restriction for Designated Legal Holidays and Special Days" table as follows: "See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions."**

DRAFT

Chart No. 44
Ramp Lane Requirements

County: CC	Route/Direction:80 Eastbound	PM: CC PM 13.71

Closure Limits: Eastbound I-80 on-ramp from Pomona St

FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	0	0	0	0	0	0	1	1	1	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	
Fridays	0	0	0	0	0	0	1	1	0	0	0	1	1	1	1	1	1	1	1	1	0	0	0	0	
Saturdays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Sundays	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	

Legend:

Delete [cut] any legend not used.

Do NOT use Shading or Crosshatching. The "Lane Requirement Chart" toolbar is no longer to be used. 1/2-hour increments can be accomplished by splitting the appropriate cell.

Edit for right or left shoulder closure. Do not edit if both shoulder closures apply.

0	Ramp closure
1	Provide at least one ramp lane open in direction of travel
2	Provide at least two adjacent ramp lanes open in direction of travel
3	Provide at least three adjacent ramp lanes open in direction of travel
4	Provide at least four adjacent ramp lanes open in direction of travel
5	Provide at least five adjacent ramp lanes open in direction of travel
S	Shoulder closure permitted (right / left)
N	No work permitted
	Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS: **If directed by Traffic Operations include a remark regarding a reference to the "Lane Closure Restriction for Designated Legal Holidays and Special Days" table as follows: "See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions."**

DRAFT

USE WITH 2006 STANDARDS.

Use on projects that allow lane closures. Use with "Maintaining Traffic" SSPs and either SSP 12-260, SSP 12-265, SSP 12-270 or SSP 12-275.

10-1.__ CLOSURE REQUIREMENTS AND CONDITIONS

Closures shall conform to the provisions in "Maintaining Traffic" of these special provisions and these special provisions.

2. Check with the District Traffic Manager to edit days of the week as appropriate. Add additional closure types as needed.

CLOSURE SCHEDULE

A written schedule of planned closures for the next week period, defined as Sunday noon through the following Sunday noon, shall be submitted by noon each Monday. A written schedule shall be submitted not less than 25 days and not more than 125 days before the anticipated start of any operation that will:

1. Reduce horizontal clearances, traveled way, including shoulders, to two lanes or less due to such operations as temporary barrier placement and paving
2. Reduce the vertical clearances available to the public due to such operations as pavement overlay, overhead sign installation, or falsework or girder erection

3

The Closure Schedule shall show the locations and times of the proposed closures. The Closure Schedule request forms furnished by the Engineer shall be used. Closure Schedules submitted to the Engineer with incomplete or inaccurate information will be rejected and returned for correction and resubmittal. The Contractor will be notified of disapproved closures or closures that require coordination with other parties as a condition of approval.

Para 4 may be deleted on conventional highways and freeways where the traffic demand is low enough that it is not necessary to restrict the Contractor's access during the week to accommodate a daily commute. Weekend and holiday restrictions are permitted.

4*. Edit the last sentence of Para 4 as necessary.

Closure Schedule amendments, including adding additional closures, shall be submitted by noon to the Engineer, in writing, at least 3 business days in advance of a planned closure. Approval of Closure Schedule amendments will be at the discretion of the Engineer.

5 Delete Paras 5, 6, 7, 8, 9, 10 and 11 for emergency Force Account contracts.

The Engineer shall be notified of cancelled closures 2 business days before the date of closure.

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6

Closures that are cancelled due to unsuitable weather may be rescheduled at the discretion of the Engineer.

6a new

KC 10-8-2009**

Closure of two consecutive on-ramp or off-ramps in the same direction of travel will not be permitted simultaneously unless otherwise provided in these special provisions or permitted by the Engineer.

7

CONTINGENCY PLAN

A detailed contingency plan shall be prepared for reopening closures to public traffic. If required by "Beginning of Work, Time of Completion and Liquidated Damages" of these special provisions, the contingency plan shall be submitted to the Engineer before work at the job site begins. Otherwise, the contingency plan shall be submitted to the Engineer within one business day of the Engineer's request.

8

LATE REOPENING OF CLOSURES

If a closure is not reopened to public traffic by the specified time, work shall be suspended in conformance with the provisions in Section 8-1.05, "Temporary Suspension of Work," of the Standard Specifications. No further closures are to be made until the Engineer has accepted a work plan, submitted by the Contractor, that will insure that future closures will be reopened to public traffic at the specified time. The Engineer will have 2 business days to accept or reject the Contractor's proposed work plan. The Contractor will not be entitled to compensation for the suspension of work resulting from the late reopening of closures.

9*. Include if estimated damages equal or exceed $6,000 per hour for a mainline closure. Use for all connector closures. The District Traffic Operations Office will calculate the damages. The concurrence of the Regional or District Division Chief of Construction is required when damages are included. Edit the number and type of facilities as appropriate. Calculate damages as follows:

Mainline and Connector	**1st half hour:** **Use higher of a) 50% of the amount for 10-minute intervals or b) $1,000 per 10 minutes.** **2nd half hour:** **Use higher of a) 75% of the amount for 10-minute intervals or b) $1,000 per 10 minutes.** **2nd hour and beyond:** **Use amount for 10-minute intervals**	**Example:** **Amount = $18,000/hour based on traffic volumes over a 2-hour period** **1st half hour = $3,000/10 minutes x 50% = $1,500/10 minutes (> $1,000/10 minutes)** **2nd half hour = $3,000/10 minutes x 75% = $2,250/10 minutes (> $1,000/10 minutes)** **2nd hour and beyond = $3,000/10 minutes**

For each 10-minute interval, or fraction thereof past the time specified to reopen the closure, the Department will deduct the amount per interval shown below from moneys due or that may become due the Contractor under the contract. Damages are limited to 5 percent of project cost per occurrence and will not be assessed when the Engineer requests that the closure remain in place beyond the scheduled pickup time.

Type of Facility	Route or Segment	Period	Damages/interval ($)
~~Mainline~~ Ramp	All ramps	All hours ~~1st half hour~~ ~~2nd half hour~~ ~~2nd hour and beyond~~	$335 / 10 minutes ~~$xx / 10 minutes~~ ~~$xx / 10 minutes~~
Connector	SR-4 Connector	All hours ~~1st half hour~~ ~~2nd half hour~~ ~~2nd hour and beyond~~	$2,190 / 10 minutes ~~$xx / 10 minutes~~ ~~$xx / 10 minutes~~

10

COMPENSATION

The Engineer shall be notified of delays in the Contractor's operations due to the following conditions, and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of those conditions, and the Contractor's loss due to that delay could not have been avoided by rescheduling the affected closure or by judicious handling of forces, equipment and plant, the delay will be considered a right of way delay and will be compensated in conformance with the provisions in Section 8-1.09, "Right of Way Delays," of the Standard Specifications:

1. The Contractor's proposed Closure Schedule is denied and his planned closures are within the time frame allowed for closures in "Maintaining Traffic" of these special provisions, except that the Contractor will not be entitled to compensation for amendments to the Closure Schedule that are not approved.
2. The Contractor is denied a confirmed closure.

11

Should the Engineer direct the Contractor to remove a closure before the time designated in the approved Closure Schedule, delay to the Contractor's schedule due to removal of the closure will be considered a right of way delay and compensation for the delay will be determined in conformance with the provisions in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

DRAFT

USE WITH 2006 STANDARDS.

Use for lane closures on multilane highways without moving lane closures.

When lane closures are required on both multilane and 2-lane, 2-way highways, use SSP 12-275 and add Para 4 of this SSP, except on seal coat projects.

NOTES: (1) Traffic Control System includes only those items shown on the Standard Plans. (2) Traffic Control System is almost always a separate contract item; however, Para 10 or Para 11 may be used to include Traffic Control System in other items of work when ALL work requires lane closures, e.g., pavement grooving, surfacing or pavement marker projects.

1. Use Paras 1 and 8 when lane closures do NOT include ramp closures. Delete Paras 2 and 9 when Paras 1 and 8 are used.

~~**10-1.__ TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE**~~

KC 9-23-2009**

~~A traffic control system shall consist of closing traffic lanes in conformance with the details shown on the plans, the provisions in Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications, the provisions under "Maintaining Traffic" and "Construction Area Signs" of these special provisions, and these special provisions.~~

2. Use Paras 2 and 9 when lane closures include ramp closures. Delete Paras 1 and 8 when Paras 2 and 9 are used.

10-1.__ TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE

A traffic control system shall consist of closing traffic lanes and ramps in conformance with the details shown on the plans, the provisions in Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications, the provisions under "Maintaining Traffic" and "Construction Area Signs" of these special provisions, and these special provisions.

3

The provisions in this section will not relieve the Contractor from the responsibility to provide additional devices or take measures as may be necessary to comply with the provisions in Section 7-1.09, "Public Safety," of the Standard Specifications.

4

Each vehicle used to place, maintain and remove components of a traffic control system on multilane highways shall be equipped with a Type II flashing arrow sign which shall be in operation when the vehicle is being used for placing, maintaining or removing components. Vehicles equipped with Type II flashing arrow sign not involved in placing, maintaining or removing components when operated within a stationary lane closure shall only display the caution display mode. The sign shall be controllable by the operator of the vehicle while the vehicle is in motion. The flashing arrow sign shown on the plans shall not be used on vehicles which are being used to place, maintain and remove components of a traffic control system and shall be in place before a lane closure requiring its use is completed.

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5. Use when closure of multiple lanes is required on freeways and expressways and the District wants to require continuous closure tapers without the 1,700-foot non-taper section between tapers. Delete when the 1,700-foot non-tapered section is required.

KC 9-23-2009**

~~The 1,700-foot section of lane closure, shown along lane lines between the 1,000-foot lane closure tapers on the plans entitled "Traffic Control System for Lane Closures on Freeways and Expressways" and "Traffic Control System for Lane and Complete Closures on Freeways and Expressways" shall not be used.~~

6. Use when lane closures are to be made on freeways and expressways and the District wants to omit the cones across closed lanes. Delete when cones across closed lanes are required.

KC 9-23-2009**

~~The traffic cones shown to be placed transversely across closed traffic lanes and shoulders on the plans entitled "Traffic Control System for Lane Closures on Freeways and Expressways" and "Traffic Control System for Lane and Complete Closures on Freeways and Expressways" shall not be placed.~~

7

If components in the traffic control system are displaced or cease to operate or function as specified, from any cause, during the progress of the work, the Contractor shall immediately repair the components to the original condition or replace the components and shall restore the components to the original location.

8. Use Paras 1 and 8 when lane closures do not include ramp closures. Delete Paras 2 and 9 when Paras 1 and 8 are used.

KC 9-23-2009**

~~When lane closures are made for work periods only, at the end of each work period, components of the traffic control system, except portable delineators placed along open trenches or excavation adjacent to the traveled way, shall be removed from the traveled way and shoulder. If the Contractor so elects, the components may be stored at selected central locations designated by the Engineer within the limits of the highway right of way.~~

9. Use Paras 2 and 9 when lane closures include ramp closures. Delete Paras 1 and 8 when Paras 2 and 9 are used.

When lane and ramp closures are made for work periods only, at the end of each work period, components of the traffic control system, except portable delineators placed along open trenches or excavation adjacent to the traveled way, shall be removed from the traveled way and shoulder. If the Contractor so elects, the components may be stored at selected central locations designated by the Engineer within the limits of the highway right of way.

10. Use only when all work requires lane closures and flaggers are shown on lane closure plans. Delete Paras 11, 12 and 13 when Para 10 is used.

KC 9-23-2009**

~~Except for flagging costs, full compensation for providing the traffic control system shown on the plans (including signs) shall be considered as included in the contract prices paid for the various items of work and no separate payment will be made therefor. Flagging costs will be paid for as provided in Section 12-2.02, "Flagging Costs," of the Standard Specifications.~~

DRAFT

11. Use only when all work requires lane closures and flaggers are NOT shown on lane closure plans. Delete Paras 10, 12 and 13 when Para 11 is used.

KC 9-23-2009**

~~Full compensation for providing the traffic control system shown on the plans (including signs) shall be considered as included in the contract prices paid for the various items of work and no separate payment will be made therefor.~~

12. Use when only portions of the work require lane closures and flaggers are shown on lane closure plans. Delete Paras 10, 11 and 13 when Para 12 is used.

KC 9-23-2009**

~~The contract lump sum price paid for traffic control system shall include full compensation for furnishing all labor (except for flagging costs), materials (including signs), tools, equipment, and incidentals, and for doing all the work involved in placing, removing, storing, maintaining, moving to new locations, replacing, and disposing of the components of the traffic control system shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer. Flagging costs will be paid for as provided in Section 12-2.02, "Flagging Costs," of the Standard Specifications.~~

13. Use when only portions of the work require lane closures and flaggers are NOT shown on lane closure plans. Delete Paras 10, 11 and 12 when Para 13 is used.

The contract lump sum price paid for traffic control system shall include full compensation for furnishing all labor, materials (including signs), tools, equipment, and incidentals, and for doing all the work involved in placing, removing, storing, maintaining, moving to new locations, replacing, and disposing of the components of the traffic control system shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

14. Use only with Para 12 or Para 13.

The adjustment provisions in Section 4-1.03, "Changes," of the Standard Specifications shall not apply to the item of traffic control system. Adjustments in compensation for traffic control system will be made only for increased or decreased traffic control system required by changes ordered by the Engineer and will be made on the basis of the cost of the increased or decreased traffic control necessary. The adjustment will be made on a force account basis as provided in Section 9-1.03, "Force Account Payment," of the Standard Specifications for increased work and estimated on the same basis in the case of decreased work.

15. Include funds in the Engineer's Estimate under Supplemental Work for traffic control system.

Traffic control system required by work which is classed as extra work, as provided in Section 4-1.03D of the Standard Specifications, will be paid for as a part of the extra work.

DRAFT

USE WITH 2006 STANDARDS.

Use when ramp closures are required and traffic lanes are not being closed.

10-1.__ TRAFFIC CONTROL SYSTEM FOR RAMP CLOSURES

At the times and locations specified under "Maintaining Traffic" of these special provisions, ramps shall be closed in conformance with the details shown on the plans, the provisions in Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications, and these special provisions.

2

The provisions in this section will not relieve the Contractor of the responsibility to provide additional devices or take measures as may be necessary to comply with the provisions in Section 7-1.09, "Public Safety," of the Standard Specifications.

3

If components used for closing a ramp are displaced or cease to operate or function as specified, from any cause, during the progress of the work, the Contractor shall immediately repair the components to the original condition or replace the components and shall restore the components to the original location.

4

When ramp closures are made for work periods only, at the end of each work period, components used for the ramp closure, except portable delineators placed along open trenches or excavation adjacent to the traveled way, shall be removed from the traveled way and shoulder. If the Contractor so elects, the components may be stored at selected central locations designated by the Engineer within the limits of the highway right of way.

5

KC 9-23-2009**

RAMP CLOSED signs [SC6-3(CA)] shall be used to inform motorists of the temporary closing of a freeway or expressway entrance. ~~or exit ramp for not more than one day.~~

6

KC 9-23-2009**

~~RAMP CLOSED signs [SC6-4(CA)] shall be used to inform motorists of the temporary closing of a freeway or expressway entrance or exit ramp for more than one day.~~

7

KC 9-23-2009**

The SC6-3(CA) ~~or SC6-4(CA)~~ signs shall be installed at least 7 calendar days prior to closing the ramp, but not more than 14 days in advance of the ramp closure. The Contractor shall notify the Engineer not less than 2 calendar days prior to installing the SC6-3(CA) ~~or SC6-4(CA)~~ signs. The SC6-3(CA) ~~or SC6-4(CA)~~ signs shall be stationary mounted at locations shown on the plans and shall remain in place and visible to motorists during ramp closures.

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The Contractor shall be responsible for maintaining accurate and timely information on the SC6-3(CA) ~~or SC6-4(CA)~~ signs. The SC6-3(CA) ~~or SC6-4(CA)~~ signs, when no longer required or when the information becomes outdated, shall be immediately covered or removed, or the sign message shall be updated.

9. Check project plans to ensure that the SC6-3(CA) and SC6-4(CA) signs are not included with the construction area signs which are paid for separately.

Full compensation for providing the ramp closures shown on the plans, including furnishing, installing, maintaining, covering, and removing SC6-3(CA) ~~and SC6-4(CA)~~ signs, 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.

DRAFT

USE WITH 2006 STANDARDS.

Use when existing pavement delineation will be obliterated on lanes opened to public traffic and temporary pavement delineation will be in place longer than 14 days but less than 180 days.

NOTE: Use permanent delineation SSPs and contract items for temporary pavement delineation locations to be in place longer than 180 days. Provide for removal by separate contract item when removal is required.

Temporary pavement markers used in addition to temporary traffic stripe must be shown on the plans.

Use with amended Section 39, "Hot Mix Asphalt."

10-1.__ TEMPORARY PAVEMENT DELINEATION

Temporary pavement delineation shall be furnished, placed, maintained, and removed in conformance with the provisions in Section 12-3.01, "General," of the Standard Specifications and these special provisions. Nothing in these special provisions shall be construed as reducing the minimum standards specified in the California MUTCD or as relieving the Contractor from the responsibilities specified in Section 7-1.09, "Public Safety," of the Standard Specifications.

1a. new

KC 9-23-2009**

Attention is directed to "Traffic Plastic Drums," of these special provisions regarding the use of traffic plastic drums in place of portable delineators or cones.

2. Use either Para 2 or Para 3. Use Para 2 when multilane roadway edgeline will be obliterated. Use Para 3 when NO multilane roadway edgeline will be obliterated.

GENERAL

When the work causes obliteration of pavement delineation, temporary or permanent pavement delineation shall be in place before opening the traveled way to public traffic. Laneline or centerline pavement delineation shall be provided for traveled ways open to public traffic. On multilane roadways (freeways and expressways) edgeline delineation shall be provided for traveled ways open to public traffic.

3

GENERAL

KC 9-23-2009**

~~When the work causes obliteration of pavement delineation, temporary or permanent pavement delineation shall be in place before opening the traveled way to public traffic. Laneline or centerline pavement delineation shall be provided for traveled ways open to public traffic.~~

4

The Contractor shall perform the work necessary to establish the alignment of temporary pavement delineation, including required lines or markers. Surfaces to receive application of paint or removable traffic tape temporary pavement delineation shall be dry and free of dirt and

loose material. Temporary pavement delineation shall not be applied over existing pavement delineation or other temporary pavement delineation. Temporary pavement delineation shall be maintained until superseded or replaced with a new pattern of temporary pavement delineation or permanent pavement delineation, or as determined by the Engineer.

5

Temporary pavement markers, including underlying adhesive, and removable traffic tape that are applied to the final layer of surfacing or existing pavement to remain in place or that conflicts with a subsequent or new traffic pattern for the area shall be removed when no longer required for the direction of public traffic, as determined by the Engineer.

6

TEMPORARY LANELINE AND CENTERLINE DELINEATION

When lanelines or centerlines are obliterated and temporary pavement delineation to replace the lines is not shown on the plans, the minimum laneline and centerline delineation to be provided for that area shall be temporary pavement markers placed at longitudinal intervals of not more than 24 feet. The temporary pavement markers shall be the same color as the laneline or centerline the pavement markers replace. Temporary pavement markers shall be, at the option of the Contractor, one of the temporary pavement markers listed for short term day/night use (14 days or less) or long term day/night use (180 days or less) in "Prequalified and Tested Signing and Delineation Materials" of these special provisions. The temporary pavement markers shall be placed in conformance with the manufacturer's instructions. Temporary pavement markers for long term day/night use (180 days or less) shall be cemented to the surfacing with the adhesive recommended by the manufacturer, except epoxy adhesive shall not be used to place the temporary pavement markers in areas where removal of the temporary pavement markers will be required.

7

Temporary laneline or centerline delineation consisting entirely of temporary pavement markers listed for short term day/night use (14 days or less), shall be placed on longitudinal intervals of not more than 24 feet and shall be used for a maximum of 14 days on lanes opened to public traffic. Before the end of the 14 days the permanent pavement delineation shall be placed. If the permanent pavement delineation is not placed within the 14 days, the Contractor shall replace the temporary pavement markers and provide additional temporary pavement delineation and shall bear the cost thereof. The additional temporary pavement delineation to be provided shall be equivalent to the pattern specified for the permanent pavement delineation for the area, as determined by the Engineer.

8. Use only when "no passing" centerline pavement delineation will be obliterated. Delete when not applicable to the project.

KC 9-23-2009**

~~Where "no passing" centerline pavement delineation is obliterated, the following "no passing" zone signing shall be installed before opening the lanes to public traffic. W20-1 (ROAD WORK AHEAD) signs shall be installed from 1,000 feet to 2,000 feet in advance of "no passing" zones. R4-1 (DO NOT PASS) signs shall be installed at the beginning and at every 2,000-foot interval within "no passing" zones. For continuous zones longer than 2 miles, W7-3a or W71(CA) (NEXT _____ MILES) signs shall be installed beneath the W20-1 signs installed in advance of "no passing" zones. R4-2 (PASS WITH CARE) signs shall be installed at the end of "no passing" zones. The exact location of "no passing" zone signing will be as determined by~~

~~the Engineer and shall be maintained in place until permanent "no passing" centerline pavement delineation has been applied. The signing for "no passing" zones, shall be removed when no longer required for the direction of public traffic. The signing for "no passing" zones shall conform to the provisions in "Construction Area Signs" of these special provisions, except for payment.~~

9. Use Paras 9, 10, 11, 12 and 13 when edgeline on multilane roadways will be obliterated.

TEMPORARY EDGELINE DELINEATION

On multilane roadways (freeways and expressways), when edgelines are obliterated and temporary pavement delineation to replace those edgelines is not shown on the plans, the edgeline delineation to be provided for those areas adjacent to lanes open to public traffic shall be as follows:

1. Temporary pavement delineation for right edgelines shall, at the option of the Contractor, consist of either a solid 4-inch wide traffic stripe tape of the same color as the stripe it replaces, traffic cones, portable delineators or channelizers placed at longitudinal intervals not to exceed 100 feet.
2. Temporary pavement delineation for left edgelines shall, at the option of the Contractor, consist of either solid 4-inch wide traffic stripe tape of the same color as the stripe it replaces, traffic cones, portable delineators or channelizers placed at longitudinal intervals not to exceed 100 feet or temporary pavement markers placed at longitudinal intervals of not more than 6 feet.

10

Where removal of the 4-inch wide traffic stripe will not be required, painted traffic stripe conforming to the provisions of "Temporary Traffic Stripe (Paint)" of these special provisions may be used.

11

The lateral offset for traffic cones, portable delineators or channelizers used for temporary edgeline delineation shall be as determined by the Engineer. If traffic cones or portable delineators are used as temporary pavement delineation for edgelines, the Contractor shall provide personnel to remain at the project site to maintain the cones or delineators during the hours of the day that the portable delineators are in use.

12

Channelizers used for temporary edgeline delineation shall be the surface mounted type and shall be orange in color. Channelizer bases shall be cemented to the pavement in the same manner provided for cementing pavement markers to pavement in "Pavement Markers" of these special provisions, except epoxy adhesive shall not be used to place channelizers on the top layer of pavement. Channelizers shall be, at the Contractor's option, one of the surface mount types (36 inch) listed in "Prequalified and Tested Signing and Delineation Materials" of these special provisions.

13

Temporary edgeline delineation shall be removed when no longer required for the direction of public traffic as determined by the Engineer.

DRAFT

14. Use with Para 10, 15 and 16 when there is an item for temporary traffic stripe (tape).

KC 9-23-2009**

~~**TEMPORARY TRAFFIC STRIPE (TAPE)**~~

~~The temporary traffic stripe tape shall be complete in place at the location shown before opening the traveled way to public traffic.~~

~~**15**~~

~~Removable traffic stripe tape shall be the temporary removable traffic stripe tape as listed in "Prequalified and Tested Signing and Delineation Materials" of these special provisions.~~

~~**16**~~

~~Removable traffic stripe tape shall be applied in conformance with the manufacturer's installation instructions and shall be rolled slowly with a rubber tired vehicle or roller to ensure complete contact with the pavement surface. Traffic stripe tape shall be applied straight on tangent alignment and on a true arc on curved alignment. Traffic stripe tape shall not be applied when the air or pavement temperature is less than 50°F, unless the installation procedures to be used are approved by the Engineer, before beginning installation of the tape.~~

17. Use Paras 17 and 18 when there is an item for temporary traffic stripe (paint).

TEMPORARY TRAFFIC STRIPE (PAINT)

The painted temporary traffic stripe shall be complete in place at the location shown before opening the traveled way to public traffic. Removal of painted temporary traffic stripe will not be required.

18*. If there is a section for "Paint Traffic Stripe and Pavement Marking," delete reference to Section 84-3; otherwise, delete " 'Paint Traffic Stripe and Pavement Marking' of these special provisions".

Temporary painted traffic stripe shall conform to the provisions in ~~"Paint Traffic Stripe and Pavement Marking" of these special provisions,~~ Section 84-3, "Painted Traffic Stripes and Pavement Markings," of the Standard Specifications, except for payment. At the option of the Contractor, either one or 2 coats shall be applied regardless of whether on new or existing pavement.

19. Use with Para 20 when there is an item for temporary pavement marking (tape) in the project.

KC 9-23-2009**

~~**TEMPORARY PAVEMENT MARKING (TAPE)**~~

~~Temporary pavement marking consisting of removable pavement marking tape shall be applied at the locations shown on the plans. The temporary pavement marking tape shall be complete in place at the location shown, before opening the traveled way to public traffic.~~

~~**20**~~

~~Removable pavement marking tape shall be the temporary removable type pavement marking tape listed in "Prequalified and Tested Signing and Delineation Materials" of these special provisions and shall be applied and removed in conformance with the provisions specified for applying and removing the temporary traffic stripe tape.~~

DRAFT

21. Use Paras 21, 22 and 23 when there is an item for temporary pavement marking (paint) in the project. SSP 84-100 must be included.

TEMPORARY PAVEMENT MARKING (PAINT)

Temporary pavement marking consisting of painted pavement marking shall be applied and maintained at the locations shown on the plans. The painted temporary pavement marking shall be complete in place at the location shown before opening the traveled way to public traffic. Removal of painted temporary pavement marking will not be required.

22

Temporary painted pavement marking shall conform to the provisions in "Paint Traffic Stripe and Pavement Marking" of these special provisions, except for payment. At the option of the Contractor, either one or 2 coats shall be applied regardless whether on new or existing pavement.

23

At the Contractor's option, temporary removable pavement marking tape or permanent pavement marking tape listed in "Prequalified and Tested Signing and Delineation Materials" of these special provisions may be used instead of painted temporary pavement markings. When pavement marking tape is used, regardless of which type of tape is placed, the tape will be measured and paid for by the square foot as temporary pavement marking (paint).

24. Use with Paras 25, 26 and 27 only when there is an item for temporary pavement markers included in the project.

TEMPORARY PAVEMENT MARKERS

Temporary pavement markers shall be applied complete in place before opening the traveled way to public traffic.

25

Temporary pavement markers shall be, at the option of the Contractor, one of the temporary pavement markers for long term day/night use (180 days or less) listed in "Prequalified and Tested Signing and Delineation Materials" of these special provisions.

26

Temporary pavement markers shall be placed in conformance with the manufacturer's instructions and shall be cemented to the surfacing with the adhesive recommended by the manufacturer, except epoxy adhesive shall not be used in areas where removal of the pavement markers will be required.

27*. If there is a section "Pavement Markers," delete reference to Section 85; otherwise delete " 'Pavement Markers,' of these special provisions".

KC 9-23-2009**

Retroreflective pavement markers conforming to the provisions in "Pavement Markers" of these special provisions ~~Section 85, "Pavement Markers," of the Standard Specifications~~ may be used in place of temporary pavement markers for long term day/night use (180 days or less) except to simulate patterns of broken traffic stripe. Placement of the retroreflective pavement markers used for temporary pavement markers shall conform to the provisions in "Pavement Markers" of these special provisions except the waiting period provisions before placing the pavement markers on new hot mix asphalt surfacing as specified in Section 85-1.06,

DRAFT

"Placement," of the Standard Specifications shall not apply and epoxy adhesive shall not be used to place pavement markers in areas where removal of the pavement markers will be required.

28. Edit Paras 28, 29, 30 and 31 to correspond with the items and details shown on the plans.

MEASUREMENT AND PAYMENT

Temporary traffic stripe and temporary pavement marking shown on the plans will be measured and paid for in the same manner specified for paint traffic stripe and paint pavement marking in Section 84-3.06, "Measurement," and Section 84-3.07, "Payment," of the Standard Specifications.

29

Temporary pavement markers shown on the plans will be measured and paid for by the unit in the same manner specified for retroreflective pavement markers in Section 85-1.08, "Measurement," and Section 85-1.09, "Payment," of the Standard Specifications.

30. Delete references to "no passing" zone signing when Para 8 is deleted.

Full compensation for furnishing, placing, maintaining, and removing the temporary pavement markers (including underlying adhesive, layout (dribble) lines to establish alignment of temporary pavement markers or used for temporary laneline ~~and centerline delineation and signing specified for "no passing" zones~~) for those areas where temporary laneline and centerline delineation is not shown on the plans and for providing equivalent patterns of permanent traffic lines for those areas when required, shall be considered as included in the contract prices paid for the items of work that obliterated the laneline and centerline pavement delineation and no separate payment will be made therefor.

31

Full compensation for furnishing, placing, maintaining, and removing temporary edgeline delineation not shown on the plans shall be considered as included in the contract prices paid for the items of work that obliterated the edgeline pavement delineation and no separate payment will be made therefor. The quantity of channelizers used as temporary edgeline delineation will not be included in the quantity of channelizer (surface mounted) to be paid for.

DRAFT

USE WITH 2006 STANDARDS.

Use if portable changeable message signs are required on the project.

When no longer required on the project, portable changeable message signs remain the property of the Contractor.

10-1.__ PORTABLE CHANGEABLE MESSAGE SIGNS

GENERAL

Summary

1

Work includes furnishing, placing, operating, maintaining, and removing portable changeable message signs.

2

Comply with Section 12-3.12 "Portable Changeable Message Signs," of the Standard Specifications.

Definitions

3

useable shoulder area: Paved or unpaved contiguous surface adjacent to the traveled way with:

1. Sufficient weight bearing capacity to support portable changeable message sign
2. Slope not greater than 6:1 (horizontal:vertical)

Submittals

4

Upon request, submit a Certificate of Compliance for each portable changeable message sign under Section 6-1.07, "Certificates of Compliance," of the Standard Specifications.

Quality Control and Assurance

5

Comply with the manufacturer's operating instructions for portable changeable message sign.

6

Approaching drivers must be able to read the entire message for all phases at least twice at the posted speed limit before passing portable changeable message sign. You may use more than 1 portable changeable message sign to meet this requirement.

7

Only display the message shown on the plans or ordered by the Engineer or specified in these special provisions.

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MATERIALS

8. Use if needed. Typically used in District 7.

Portable changeable message sign must have 24-hour timer control or remote control capability.

9

The text of the message displayed on portable changeable message sign must not scroll, or travel horizontally or vertically across the face of the message panel.

CONSTRUCTION

10

Continuously repeat the entire message in no more than 2 phases of at least 3 seconds per phase.

11

If useable shoulder area is at least 15 feet wide, the displayed message on portable changeable message sign must be minimum 18-inch character height. If useable shoulder area is less than 15 feet wide, you may use a smaller message panel with minimum 12-inch character height to prevent encroachment in the traveled way.

12. Use if needed. Typically used in District 7.

You or your representative must be available by cell phone for operations that require portable changeable message signs. Give the Engineer your cell phone number. When the Engineer contacts you, immediately comply with the Engineer's request to modify the displayed message.

13*. Edit per District Traffic Manager's instructions.

KC 9-23-2009**

Start displaying the message on portable changeable message sign ___5__ minutes before closing the lane.

Paras 14 and 15: Edit to include number of portable changeable message signs and locations.

14. Edit as necessary to fit type of work if the location of the portable changeable message sign is not shown on the plans.

KC 9-23-2009**

Place portable changeable message sign in advance of the first warning sign for:

1. Each stationary lane closure
~~2. Each off-ramp closure~~
~~3~~2. Each connector closure
~~4~~3. Each shoulder closure

or as necessary per ramp closure locations and as standard traffic control requires.
~~5. Each speed reduction zone~~

DRAFT

15. Use for newly installed traffic signals.

KC 9-23-2009**

~~For 5 days starting on the day of signal activation, place 1 portable changeable message sign in each direction of travel and display the message, "SIGNAL AHEAD -- PREPARE TO STOP."~~

16

Place portable changeable message sign as far from the traveled way as practicable where it is legible to traffic and does not encroach on the traveled way. Place portable changeable sign before or at the crest of vertical roadway curvature where it is visible to approaching traffic. Avoid placing portable changeable message sign within or immediately after horizontal roadway curvature. Where possible, place portable changeable message sign behind guardrail or temporary railing (Type K).

17

Except where placed behind guardrail or temporary railing (Type K) use traffic control for shoulder closure to delineate portable changeable message sign.

18

Remove portable changeable message sign when not in use.

MEASUREMENT AND PAYMENT

19. Use if payment for portable changeable message sign is included in contract lump sum price paid for traffic control system and delete Paras 20 and 21. Delete if not applicable.

KC 9-23-2009**

~~Full compensation for portable changeable message signs, including furnishing, placing, operating, modifying messages, maintaining, transporting from location to location, removing, and repairing or replacing defective or damaged portable changeable message signs is included in the contract lump sum price paid for traffic control system and no separate payment will be made therefor.~~

20. Use if payment for portable changeable message sign is a separate contract item and paid as "lump sum." Delete if not applicable.

KC 9-23-2009**

The contract unit price paid ~~lump sum price paid~~ for portable changeable message signs includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in furnishing, placing, operating, modifying messages, maintaining portable changeable message signs, complete in place, including transporting from location to location, removing, and repairing or replacing defective or damaged portable changeable message signs**,** ~~as shown on the plans,~~ as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

21. Use with Para 20 if payment method is lump sum. Delete if not applicable.

KC 9-23-2009**

~~Portable changeable message signs ordered by the Engineer in excess of the number shown on the plans or specified in these special provisions will be paid for as extra work under Section 4-1.03D, "Extra Work," of the Standard Specifications.~~

USE WITH 2006 STANDARDS

Use item code 120199, "Traffic Plastic Drum."

10-1.__ TRAFFIC PLASTIC DRUMS

GENERAL

Summary

1

Work includes placing traffic plastic drums.

2

Comply with:

1. Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications
2. Section 6F.62, "Drums," of the California Manual On Uniform Traffic Control Devices
3. Traffic plastic drum manufacturer's recommendations for weight and ballast

Definitions

3

orange-colored: Orange-colored may be either orange, red-orange, fluorescent orange or fluorescent red-orange in color.

Submittals

4

Upon request, submit a Certificate of Compliance for Traffic Plastic Drum under Section 6-1.07, "Certificates of Compliance," of the Standard Specifications.

Quality Control and Assurance

5

White and orange-colored retroreflective stripes must be a brand of retroreflective sheeting listed on the Department's "Prequalified and Tested Signing and Delineation Materials," of these special provisions. White and orange-colored stripe may be either Type III, Type IV, Type VI, Type VII, Type VIII, or Type IX retroreflective sheeting. Use the same type and brand of retroreflective sheeting for all traffic plastic drums.

MATERIALS

6

Traffic plastic drum must:

1. Be orange-colored low-density polyethylene
2. Be flexible and collapsible upon vehicle impact
3. Have a weighted-base to maintain an upright position and prevent displacement under passing traffic

DRAFT

7

Weighted-base must be:

1. Detachable
2. Shaped to prevent rolling upon impact
3. 38-inch maximum outside diameter
4. 4-inch maximum height above the ground surface

CONSTRUCTION

8

Place a traffic plastic drum on only one side of the traveled way, in a straight line on a tangent alignment, and in a true arc on a curved alignment.

9

Use only one type of traffic plastic drum on the job site. Do not intermix traffic plastic drums, portable delineators, tubular markers, traffic cones, and Type I and Type II barricades on the same alignment.

10

Do not use sandbags or comparable ballast.

11

Traffic plastic drum must be a minimum of 36 inches in height above the traveled way.

12

Immediately restore a displaced traffic plastic drum to its original location and upright position.

13

Upon completion of work, traffic plastic drums become your property and must be removed from the job site.

MEASUREMENT AND PAYMENT

14

Traffic plastic drum is measured by the unit from actual count designated on the plans or ordered by the Engineer.

15

After initial placement of traffic plastic drums, and if ordered by the Engineer, traffic plastic drums must be moved from location to location, the cost thereof will be paid for as extra work as specified in Section 4-1.03D, "Extra Work," of the Standard Specifications.

16

The contract unit price paid for traffic plastic drum includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in placing and maintaining traffic plastic drums, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

DRAFT

USE WITH 2006 STANDARDS.

Use in ALL projects

10-1.__ TEMPORARY CRASH CUSHION MODULE

This work shall consist of furnishing, installing, and maintaining sand filled temporary crash cushion modules in groupings or arrays at each location shown on the plans, as specified in these special provisions or where designated by the Engineer. The grouping or array of sand filled modules shall form a complete sand filled temporary crash cushion in conformance with the details shown on the plans and these special provisions.

2

Temporary crash cushions shall be secured in place prior to commencing work for which the temporary crash cushions are required.

3

Whenever the work or the Contractor's operations establishes a fixed obstacle, the exposed fixed obstacle shall be protected with a sand filled temporary crash cushion. The sand filled temporary crash cushion shall be in place prior to opening the lanes adjacent to the fixed obstacle to public traffic.

4

Sand filled temporary crash cushions shall be maintained in place at each location, including times when work is not actively in progress. Sand filled temporary crash cushions may be removed during a work period for access to the work provided that the exposed fixed obstacle is 15 feet or more from a lane carrying public traffic and the temporary crash cushion is reset to protect the obstacle prior to the end of the work period in which the fixed obstacle was exposed. When no longer required, as determined by the Engineer, sand filled temporary crash cushions shall be removed from the site of the work.

5

Sand filled temporary crash cushion modules shall be one of the following, or equal, and be manufactured after March 31, 1997:

1. Energite III and Fitch Inertial Modules, manufactured by Energy Absorption Systems, Inc., 35 East Wacker Drive, Suite 1100, Chicago, IL 60601:

    1.1. Northern California: Traffic Control Service, Inc., 8585 Thys Court, Sacramento, CA 95828, telephone (800) 884-8274, FAX (916) 387-9734
    1.2. Southern California: Traffic Control Service, Inc., 1818 E. Orangethorpe, Fullerton, CA 92831-5324, telephone (800) 222-8274, FAX (714) 526-9501

2. TrafFix Sand Barrels, manufactured by TrafFix Devices, Inc., 220 Calle Pintoresco, San Clemente, CA 92672, telephone (949) 361-5663, FAX (949) 361-9205

    2.1. Northern California: United Rentals, Inc., 1533 Berger Drive, San Jose, CA 95112, telephone (408) 287-4303, FAX (408) 287-1929

DRAFT

2.2. Southern California: Statewide Safety & Sign, Inc., P.O. Box 1440, Pismo Beach, CA 93448, telephone (800) 559-7080, FAX (805) 929-5786

3. CrashGard Model CC-48 Sand Barrels, manufactured by Plastic Safety Systems, Inc., 2444 Baldwin Road, Cleveland, OH 44104:

3.1. Northern California:

3.1.1. Capitol Barricade Safety & Sign, 6329 Elvas Ave, Sacramento, CA 95819, telephone (888) 868-5021, FAX (916) 451-5388

3.1.2. Sierra Safety, Inc., 9093 Old State Highway, New Castle, CA 95658, telephone (916) 663-2026, FAX (916) 663-1858

3.2. Southern California: Hi Way Safety Inc., 13310 5th Street, Chino, CA 91710, telephone (909) 591-1781, FAX (909) 627-0999

6. Do not change the color to be specified.

Modules contained in each temporary crash cushion shall be of the same type at each location. The color of the modules shall be the standard yellow color, as furnished by the vendor, with black lids. The modules shall exhibit good workmanship free from structural flaws and objectionable surface defects. The modules need not be new. Good used undamaged modules conforming to color and quality of the types specified herein may be utilized. If used Fitch modules requiring a seal are furnished, the top edge of the seal shall be securely fastened to the wall of the module by a continuous strip of heavy duty tape.

7

Modules shall be filled with sand in conformance with the manufacturer's directions, and to the sand capacity in pounds for each module shown on the plans. Sand for filling the modules shall be clean washed concrete sand of commercial quality. At the time of placing in the modules, the sand shall contain not more than 7 percent water as determined by California Test 226.

8

Modules damaged due to the Contractor's operations shall be repaired immediately by the Contractor at the Contractor's expense. Modules damaged beyond repair, as determined by the Engineer, due to the Contractor's operations shall be removed and replaced by the Contractor at the Contractor's expense.

9

Temporary crash cushion modules may be placed on movable pallets or frames. Comply with dimensions shown on the plans. The pallets or frames shall provide a full bearing base beneath the modules. The modules and supporting pallets or frames shall not be moved by sliding or skidding along the pavement or bridge deck.

10

A Type R or P marker panel shall be attached to the front of the crash cushion as shown on the plans, when the closest point of the crash cushion array is within 12 feet of the traveled way. The marker panel, when required, shall be firmly fastened to the crash cushion with commercial quality hardware or by other methods determined by the Engineer.

DRAFT

11

At the completion of the project, temporary crash cushion modules, sand filling, pallets or frames, and marker panels shall become the property of the Contractor and shall be removed from the site of the work. Temporary crash cushion modules shall not be installed in the permanent work.

Use either Para 12 or Paras 13, 14, 15, and 16.

12. Use when temporary crash cushions are not required by the work shown on the project plans and the only temporary crash cushions will be those required by "Public Safety".

KC 9-23-2009**

~~Temporary crash cushion modules placed in conformance with Section 7-1.09, "Public Safety," of the Standard Specifications will not be measured nor paid for.~~

Use Paras 13, 14, 15, and 16 when items of work shown on the project plans require temporary crash cushions AND include a contract item.

13

Temporary crash cushion modules will be measured by the unit as determined from the actual count of modules used in the work or ordered by the Engineer at each location. Temporary crash cushion modules placed in conformance with Section 7-1.09, "Public Safety," of the Standard Specifications and modules placed in excess of the number specified or shown will not be measured nor paid for.

14

Repairing modules damaged by public traffic will be paid for as extra work as provided in Section 4-1.03D of the Standard Specifications. Modules damaged beyond repair by public traffic, when ordered by the Engineer, shall be removed and replaced immediately by the Contractor. Modules replaced due to damage by public traffic will be measured and paid for as temporary crash cushion module.

15

If the Engineer orders a lateral move of the sand filled temporary crash cushions and the repositioning is not shown on the plans, moving the sand filled temporary crash cushion will be paid for as extra work as provided in Section 4-1.03D of the Standard Specifications and these temporary crash cushion modules will not be counted for payment in the new position.

16

The contract unit price paid for temporary crash cushion module shall include full compensation for furnishing all labor, materials (including sand, pallets or frames and marker panels), tools, equipment, and incidentals, and for doing all the work involved in furnishing, installing, maintaining, moving, and resetting during a work period for access to the work, and removing from the site of the work when no longer required (including those damaged by public traffic) sand filled temporary crash cushion modules, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

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Use with 2006 STANDARDS

Use if work includes removal of treated wood, such as remove metal beam guard railing, remove thrie beam barrier, or remove roadside sign.

Consult with district hazardous waste technical specialists for assistance.

10-1.__TREATED WOOD WASTE

GENERAL

Summary

This work includes handling, storing, transporting, and disposing of treated wood waste.

2. Insert the source of treated wood (metal beam guard railing, thrie beam barrier, roadside sign).

KC 9-25-2009**

Wood removed from metal beam guard railing is treated with one or more of the following:

1. Creosote
2. Pentachlorophenol
3. Copper azole
4. Copper boron azole
5. Chromated copper arsenate
6. Ammoniacal copper zinc arsenate
7. Copper naphthenate
8. Alkaline copper quaternary

3

Manage treated wood waste under Title 22 CA Code of Regulations, Division 4.5, Chapter 34.

Submittals

For disposal of treated wood waste submit a copy of each completed shipping record and weight receipt to the Engineer within 5 business days of disposal.

4

CONSTRUCTION

Provide training to personnel who handle treated wood waste or may come in contact with treated wood waste that includes:

1. All applicable requirements of Title 8 CA Code of Regulations
2. Procedures for identifying and segregating treated wood waste
3. Safe handling practices
4. Requirements of Title 22 CA Code of Regulations, Division 4.5, Chapter 34
5. Proper disposal methods

DRAFT

5

Store treated wood waste before disposal using any of the following methods:

1. Elevate on blocks above a reasonably foreseeable run-on elevation and protect from precipitation
2. Place in water-resistant containers designed for shipping or solid waste collection
3. Place on a containment surface protected from run-on and precipitation

6

Prevent unauthorized access to treated wood waste using a secured enclosure such as a locked chain link fenced area or a lockable shipping container located within the project limits.

7

Resize and segregate treated wood waste at a location where debris from the operation including sawdust and chips can be contained. Collect and manage the debris as treated wood waste.

8

Provide water-resistant labels, that comply with Title 22 CA Code of Regulations, Division 4.5, Chapter 34, § 67386.5,. to clearly mark and identify treated wood waste and accumulation areas. Labels must include:

1. Caltrans, District number, Construction, contract number
2. District office address
3. Engineer's name, address, and telephone number
4. Contractor's contact name and telephone number

9. For projects with less than 10,000 lbs of treated wood waste (approximately 775 feet of MBGR) delete the 3rd sentence and item 13 "Generator identification number" from the list.

Before transporting treated wood waste, obtain agreement from the receiving facility that the treated wood waste will be accepted. Protect shipments of treated wood waste from loss and exposure to precipitation. ~~Request a generator identification number from the Engineer at least 5 business days before the first shipment~~. Each shipment must be accompanied by a shipping record such as a manifest or bill of lading that includes:

1. Caltrans with district number
2. Construction contract number
3. District office address
4. Engineer name, address, and telephone number
5. Contractor contact name and telephone number
6. Receiving facility name and address
7. Waste description: Treated wood waste (preservative type if known or unknown/mixture)
8. Project location
9. Estimated quantity of shipment by weight or volume
10. Date of transport
11. Date of receipt by the receiving treated wood waste facility
12. Weight of shipment as measured by the receiving treated wood waste facility

~~13. Generator identification number~~

The shipping record must be at least a 4-part carbon or carbonless 8-1/2" x 11" form to allow retention of copies by the Engineer, transporter, and disposal facility.

10

Dispose of treated wood waste in an approved treated wood waste facility. A list of currently approved treated wood waste facilities may be viewed at:

http://www.dtsc.ca.gov/HazardousWaste/upload/TWW_Confirmed_Landfill_List.pdf

Dispose of treated wood waste within:

1. 90 days of generation if stored on blocks
2. 90 days of filling a container if containerized
3. 180 days of generation if stored on a containment surface

11*. Insert unit of measure in the 1st blank. Insert exact contract item that involve treated wood waste (e.g. remove metal beam guard railing, remove thrie beam barrier, remove roadside sign) in the 2nd blank.

MEASUREMENT AND PAYMENT

Full compensation for handling, storing, transporting, and disposing treated wood waste, including personnel training, is included in the contract price paid per linear foot for remove metal beam guard railing and no additional compensation will be allowed therefor.

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USE WITH 2006 STANDARDS.

Use when existing highway facilities are involved.

Add applicable 15-XXX SSPs and special features which apply to the particular project.

Include Paras 2 & 3 when material from existing facilities is to be salvaged.

If salvaged material is to be delivered to a different location, edit Paras 2 & 3 accordingly.

KC 9-23-2009**

10-1.__ EXISTING HIGHWAY FACILITIES

The work performed in connection with various existing highway facilities shall conform to the provisions in Section 15, "Existing Highway Facilities," of the Standard Specifications and these special provisions.

2*. Add location of District/Regional Recycle Center. Edit for type of center.

Except as otherwise provided for damaged materials in Section 15-2.04, "Salvage," of the Standard Specifications, the materials to be salvaged shall remain the property of the State, and shall be cleaned, packaged, bundled, tagged, and hauled to the District ~~Regional~~ Recycle Center at San Francisco-Oakland Bay Bridge Toll Plaza Warehouse and stockpiled.

3*. Add telephone number for District/Regional Recycle Coordinator. Edit for type of Coordinator.

The Contractor shall notify the Engineer and the District Regional Recycle Coordinator, telephone (510) 286-6111 a minimum of 48 hours prior to hauling salvaged material to the Recycle Center.

USE WITH 2006 STANDARDS.

Use when existing guard railing is unsuitable for reconstruction or salvage. Edit as appropriate if guard railing is other than metal beam.

Add to SSP 15-010.

KC 9-23-2009**

REMOVE METAL BEAM GUARD RAILING AND REMOVE TERMINAL SECTION

Existing metal beam guard railing, where shown on the plans to be removed, shall be removed and disposed of.

2*. Edit locations of anchor or steel foundation tube removal when required.

Existing concrete anchors or steel foundation tubes shall be completely removed and disposed of. Full compensation for removing concrete anchors shall be considered as included in

DRAFT

the contract price paid per linear foot for remove metal beam guard railing and for the contract unit price paid for remove terminal section and no separate payment will be made therefor.

3

Full compensation for removing cable anchor assemblies, terminal anchor assemblies or steel foundation tubes shall be considered as included in the contract price paid per linear foot for remove metal beam guard railing and for the contract price paid for remove terminal section and no separate payment will be made therefor.

{ XE "15-240_E_A11-16-07" }
Page 1 of 1

USE WITH 2006 STANDARDS.

Use when applicable. Add to SSP 15-010.

Use with amended Section 39, "Hot Mix Asphalt."

REMOVE PAVEMENT MARKER

Existing pavement markers, including underlying adhesive, when no longer required for traffic lane delineation as determined by the Engineer, shall be removed and disposed of.

2. Use when there is no separate pay item for removal of pavement markers. Edit contract item description as appropriate.

Full compensation for removing and disposing of pavement markers and underlying adhesive shall be considered as included in the contract price paid per ton for hot mix asphalt and no separate payment will be made therefor.

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USE WITH 2006 STANDARDS.

Add to SSP 15-010.

Use if residue from removing yellow thermoplastic and paint, traffic stripes, and pavement markings will not contain hazardous waste levels of lead (less than 1000 mg/kg total lead and 5mg/l soluble lead). Use if removing other colors of paint (white, blue, black, etc.).

Contact the district hazardous waste technical specialist for assistance to determine which yellow residues are expected to contain hazardous waste levels of lead and which are not.

If yellow residue is a hazardous waste use SSP 14-001.

If both hazardous waste and non–hazardous waste residue will be generated at separate locations within the project, use both SSP 15-301 and SSP 14-001.

For additional guidance related to SSP 15-301 and SSP 14-001, go to: http://pd.dot.ca.gov/env/haz/html/hw_sp.htm

Show type, location, and quantities of traffic stripe and pavement marking to be removed on Pavement Delineation Sheet.

Use the following bid item code (1 per project):

190110 Lead Compliance Plan

Use the following bid item codes, as applicable:

150711 Remove Painted Traffic Stripe

150712 Remove Painted Pavement Marking

150714 Remove Thermoplastic Traffic Stripe

150715 Remove Thermoplastic Pavement Marking

REMOVE TRAFFIC STRIPE AND PAVEMENT MARKING

This work includes removing existing traffic stripe and pavement marking at the locations shown on the plans.

2

Submit a lead compliance plan under Section 7-1.07, "Lead Compliance Plan," of the Standard Specifications.

3

Waste residue from removal of thermoplastic and painted traffic stripe and pavement marking is a non–hazardous waste residue and contains lead in average concentrations less than 1000 mg/kg total lead and 5 mg/L soluble lead. This waste residue does not contain heavy metals in concentrations that exceed thresholds established by the Health and Safety Code and 22 CA Code of Regs and is not regulated under the Federal Resource Conservation and Recovery Act (RCRA), 42 USC § 6901 et seq.

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USE WITH 2006 STANDARDS.

Use when frames and grates are to be reused and/or salvaged.

Add to SSP 15-010 when used.

1. Edit to match facilities involved in project.

KC 9-23-2009**

REMOVE DRAINAGE FACILITY

Existing ~~box~~ culverts, inlets, and grated line drains, ~~headwalls and endwalls,~~ where any portion of these structures is within 3 feet of the grading plane in excavation areas, or within one foot of original ground in embankment areas, or where shown on the plans to be removed, shall be completely removed and disposed of.

Use Paras 2 & 3 when there are frames and grates to be reused in the work.

KC 9-23-2009**

~~**2**~~

~~Frames and grates shall be removed and reused in the work as shown on the plans.~~

~~**3**~~

~~Full compensation for removing and reusing frames and grates shall be considered as included in the contract price paid for the item of work requiring reuse of the frame and grate.~~

~~**Use Paras 4 & 5 when there are frames and grates to be salvaged.**~~

~~**4**~~

~~Frames and grates shall be removed and salvaged as shown on the plans.~~

~~**5**~~

~~Full compensation for salvaging existing frames and grates shall be considered as included in the contract lump sum unit price paid for remove inlet drainage facility and no additional compensation will be allowed therefor.~~

6 new

KC 9-23-2009**

Remove of inlets to be paid for shall be measured by actual unit count in the field. The contract unit price for removal of inlets shall include full compensation for actual removal, disposal outside the project limits, backfilling of removed portion where necessary, and plugging or capping of adjacent pipes as directed by Engineer. Removal of culverts to be paid for shall be measured by linear foot in the field. The contract unit price paid for removal of culverts shall include full compensation of excavation, actual removal, disposal outside the project limits, backfilling of removed portion where necessary, and plugging and capping of adjacent pipes as directed by the Engineer. Removal of grated line drain to be paid for shall measured by linear foot in the field. The contract unit price paid for removal of grated line drain shall include full compensation of excavation, actual removal, disposal outside the project limits, backfilling of removed portion where necessary, and plugging and capping of adjacent pipes as directed by the Engineer.

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USE WITH 2006 STANDARDS.

Use when applicable. Add to SSP 15-010.

~~**REMOVE ROADSIDE SIGN**~~

KC 9-23-2009**

~~Existing roadside signs, at those locations shown on the plans to be removed, shall be removed and disposed of.~~

~~**Use with Para 4 or Para 5 when sign panels are to be salvaged.**~~

~~2 Sign panels shown on the plans shall be salvaged.~~

~~**3**~~

~~Existing roadside signs shall not be removed until replacement signs have been installed or until the existing signs are no longer required for the direction of public traffic, unless otherwise directed by the Engineer.~~

~~**4. Use with Para 2 when sign panels are to be salvaged and there is a contract item for removing roadside signs.**~~

~~Full compensation for salvaging sign panels shall be considered as included in the contract unit price paid for remove roadside sign and no separate payment will be made therefor.~~

~~**5. Use with Para 2 when sign panels are to be salvaged and removing signs is included in clearing and grubbing.**~~

~~lump sum price paid for clearing and grubbing and no separate payment will be made therefor.~~

USE WITH 2006 STANDARDS.

Use when applicable. Add to SSP 15-010.

~~**RESET ROADSIDE SIGN**~~

KC 9-23-2009**

~~Existing roadside signs, where shown on the plans to be reset, shall be removed and reset.~~

~~**2**~~

~~Each roadside sign shall be reset on the same day that the sign is removed.~~

~~**3**~~

~~Two holes shall be drilled in each existing post as required to provide the breakaway feature shown on the plans.~~

DRAFT

USE WITH 2006 STANDARDS.

Use when applicable. Add to SSP 15-010.

RELOCATE ROADSIDE SIGN

Existing roadside signs shall be removed and relocated to the new locations shown on the plans.

2

Each roadside sign shall be installed at the new location on the same day that the sign is removed from its original location.

3

Two holes shall be drilled in each existing post as required to provide the breakaway feature shown on the plans.

USE WITH 2006 STANDARDS

Add to SSP 15-010.

Use when removed base and surfacing are not to be replaced with structural section material, for example, change of alignment or construction of planter boxes. When base and surfacing are to be replaced with new structural section, use SSP 39-300 or SSP 40-020.

REMOVE BASE AND SURFACING

Existing base and bituminous surfacing shown on the plans to be removed, shall be removed to a depth of at least 6 inches below the grade of the existing surfacing. Resulting holes and depressions shall be backfilled with earthy material selected from excavation to the lines and grade established by the Engineer.

2. Use when it is mandatory that removed material be disposed of outside the highway right of way.

KC 10-8-2009**

~~The material removed shall be disposed of outside the highway right of way in conformance with the provisions in Section 15-2.03, "Disposal," of the Standard Specifications.~~

3. Use when removal is to be paid for as roadway excavation.

Removing base and surfacing will be measured and paid for as roadway excavation.

4. Use when removal is to be paid for as a separate pay item.

KC 10-8-2009**

~~Removing base and surfacing will be measured by the cubic yard in the same manner specified for roadway excavation in conformance with the provisions in Section 19,~~

~~"Earthwork," of the Standard Specifications and will be paid for at the contract price per cubic yard for remove base and surfacing.~~

USE WITH 2006 STANDARDS
Use when planing of existing pavement is required.
Show the maximum depth to be planed at each location on the plans.
Add to SSP 15-010.
Use Item Code: 153103, "Cold Plane Asphalt Concrete Pavement."

KC 9-24-2009**

~~COLD PLANE ASPHALT CONCRETE PAVEMENT~~

~~Existing asphalt concrete pavement shall be cold planed at the locations and to the dimensions shown on the plans.~~

~~2~~

~~Planing asphalt concrete pavement shall be performed by the cold planing method. Planing of the asphalt concrete pavement shall not be done by the heater planing method.~~

~~3~~

~~Cold planing machines shall be equipped with a cutter head not less than 30 inches in width and shall be operated so that no fumes or smoke will be produced. The cold planing machine shall plane the pavement without requiring the use of a heating device to soften the pavement during or prior to the planing operation.~~

4

~~The depth, width, and shape of the cut shall be as shown on the plans or as designated by the Engineer. The final cut shall result in a uniform surface conforming to the plans. The outside lines of the planed area shall be neat and uniform. Planing asphalt concrete pavement operations shall be performed without damage to the surfacing to remain in place.~~

~~5~~

~~Planed widths of pavement shall be continuous except for intersections at cross streets where the planing shall be carried around the corners and through the conform lines. Following planing operations, a drop-off of more than 0.15-foot will not be allowed between adjacent lanes open to public traffic.~~

~~6~~

~~Where transverse joints are planed in the pavement at conform lines no drop-off shall remain between the existing pavement and the planed area when the pavement is opened to public traffic. If Hot Mix Asphalt (HMA) has not been placed to the level of existing pavement before the pavement is to be opened to public traffic a temporary HMA taper shall be constructed. HMA for temporary tapers shall be placed to the level of the existing pavement and tapered on a slope of 30:1 (Horizontal: Vertical) or flatter to the level of the planed area.~~

~~7. Add SSP 39-300, "Minor Hot Mix Asphalt."~~

~~HMA for temporary tapers shall be the same quality as the HMA used elsewhere on the project or shall conform to the material requirements for minor HMA. HMA for tapers shall be~~

~~compacted by any method that will produce a smooth riding surface. Temporary HMA tapers shall be completely removed, including the removal of loose material from the underlying surface, before placing the permanent surfacing. The removed material shall be disposed of outside the highway right of way in conformance with the provisions in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.~~

~~8. Use when the District determines that temporary tapers should be in place no longer than 7 days.~~

~~Operations shall be scheduled so that not more than 7 days shall elapse between the time when transverse joints are planed in the pavement at the conform lines and the permanent surfacing is placed at the conform lines.~~

~~9~~

~~The material planed from the roadway surface, including material deposited in existing gutters or on the adjacent traveled way, shall be disposed of in conformance with the provisions in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications. Removal operations of cold planed material shall be concurrent with planing operations and follow within 50 feet of the planer, unless otherwise directed by the Engineer.~~

~~10~~

~~Cold plane asphalt concrete pavement will be measured by the square yard. The quantity to be paid for will be the actual area of surface cold planed irrespective of the number of passes required to obtain the depth shown on the plans.~~

~~11~~

~~The contract price paid per square yard for cold plane asphalt concrete pavement shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in cold planing asphalt concrete surfacing and disposing of planed material, including furnishing the HMA for and constructing, maintaining, removing, and disposing of temporary HMA tapers, as specified in the Standard Specifications and these special provisions and as directed by the Engineer.~~

{ XE "15-740_E_A05-01-06" }
Page 1 of 1

USE WITH 2006 STANDARDS.

ADD to SSP 15-010. Use only on ROADWAY CONSTRUCTION projects when existing irrigation facilities to remain are located within the limits of other work and there is a high risk of damage to said existing irrigation facilities. Include funds in Engineer's Estimate under Supplemental Work for repair and replacement of unmarked existing facilities.

EXISTING HIGHWAY IRRIGATION FACILITIES

Existing irrigation facilities within the limits of work shall remain in place. Irrigation facilities that are damaged by the Contractor's operation shall be reported immediately to the Engineer.

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2. Delete Para 2 if all existing irrigation facilities are shown on the plans.

Existing below ground irrigation facilities will be marked by the Engineer. Marked Irrigation facilities damaged by the Contractor's operations shall be repaired or replaced at the Contractor's expense. The replacement and repair of damaged unmarked below ground irrigation facilities will be paid for as extra work as provided in Section 4-1.03D,"Extra Work," of the Standard Specifications.

3

Water shall be maintained in conformance with the provisions in Section 20-5.025, "Maintain Existing Water Supply," of the Standard Specifications.

DRAFT

USE WITH 2006 STANDARDS.

Use if either para 2 or 3 applies to the project.

10-1.__ CLEARING AND GRUBBING

Clearing and grubbing shall conform to the provisions in Section 16, "Clearing and Grubbing," of the Standard Specifications and these special provisions.

2. Use if a maximum amount of vegetation is to be protected.

Vegetation shall be cleared and grubbed only within the excavation and embankment slope lines.

3. Use ONLY if SSP 19-200 is included in "Earthwork" and there is an item for clearing and grubbing.

Vegetable growth from clearing and grubbing operations may be disposed of in embankments in conformance with the provisions in "Earthwork" of these special provisions.

4. new

KC 9-23-2009**

Attention is directed to “”Temporary Fence (ESA)” of these special provisions. Prior to beginning work, ESA shall be clearly delineated in the field, as shown in the plans, by installltion of temporary fence (Type ESA).

DRAFT

USE WITH 2006 STANDARDS.

Do not use on Highway Planting projects.

Use when there is an item for "Develop Water Supply" OR there is a "Materials Information" handout identifying all water sources OR SSP S4-070 is used.

10-1.__ WATERING

Developing a water supply and applying watering shall conform to the provisions in Section 17, "Watering," of the Standard Specifications and these special provisions.

2. Use when a "Materials Information" handout is to be provided.

Attention is directed to the source or sources of water for use on the project specified in the "Materials Information" handout available to the contractors.

3. Use when SSP S4-070 is used.

KC 10-8-2009**

~~Attention is directed to "Beginning of Work, Time of Completion and Liquidated Damages" of these special provisions regarding availability of water.~~

DRAFT

USE WITH 2006 STANDARDS.

Use if the Standard Specifications do not cover all earthwork specifications.

10-1.__ EARTHWORK

Earthwork shall conform to the provisions in Section 19, "Earthwork," of the Standard Specifications and these special provisions.

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Added
KC ** 9-23-2009

USE WITH 2006 STANDARDS.

Add to SSP 19-010.

1. Use only when there will be surplus excavated material that cannot be disposed of inside the highway right of way as provided in the Standard Specifications, and SSP 19-900 is not used.

KC ** 9-23-2009

~~Surplus excavated material shall become the property of the Contractor and shall be disposed of in conformance with the provisions in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.~~

2. Use only when there will be surplus excavated material that cannot be disposed of inside the highway right of way as provided in the Standard Specifications, and SSP 19-900 is used.

KC ** 9-23-2009

**** Waiting for results from ADL testing by Caltrans. Will update this section accordingly once the results are received**

Surplus excavated material not designated as hazardous waste due to aerially deposited lead shall become the property of the Contractor and shall be disposed of in conformance with the provisions in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

3. Use when existing pavement and surfacing is to be removed and a neat saw cut is required at the removal line. Revise "Full compensation clause" if cutting is not included in the item of roadway excavation.

Where a portion of the existing surfacing is to be removed, the outline of the area to be removed shall be cut on a neat line with a power-driven saw to a minimum depth of 0.17-foot before removing the surfacing. Full compensation for cutting the existing surfacing shall be considered as included in the contract price paid per cubic yard for roadway excavation and no additional compensation will be allowed therefor.

4*. May be used for specific low volume roadways with a structural section less than 2 feet in depth.

KC ** 9-23-2009

~~The provisions in the second paragraph of Section 19-5.03, "Relative Compaction (95 Percent)," of the Standard Specifications shall not apply to~~ _____.

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5*. Use when imported borrow may be required on the project. Do not specify R-Value greater than that of native material nor specify location where imported borrow is to be placed.

KC ** 9-23-2009

The portion of imported borrow placed within 4 feet of the finished grade shall have a Resistance (R-Value) of not less than 15.

6. Use in all projects.

Reinforcement or metal attached to reinforced concrete rubble placed in embankments shall not protrude above the grading plane. Prior to placement within 2 feet below the grading plane of embankments, reinforcement or metal shall be trimmed to no greater than 3/4 inch from the face of reinforced concrete rubble. Full compensation for trimming reinforcement or metal shall be considered as included in the contract prices paid per cubic yard for the types of excavation shown in the Engineer's estimate, or the contract prices paid for furnishing and placing imported borrow or embankment material, as the case may be, and no additional compensation will be allowed therefor.

7. Use when aluminum or aluminum coated pipe culverts are specified.

KC 10-8-2009**

~~At the option of the Contractor, slurry cement backfill conforming to the provisions in Section 19-3.062, "Slurry Cement Backfill," of the Standard Specifications may be used as structure backfill for pipe culverts, including aluminum and aluminum coated pipe culverts.~~

8. Use when imported borrow is required on the project.

Imported borrow shall be mineral material including rock, sand, gravel, or earth. The Contractor shall not use man-made refuse in imported borrow including:

A. Portland cement concrete
B. Asphalt concrete
C. Hot mix asphalt
D. Material planed from roadway surfaces
E. Residue from grooving or grinding operations
F. Metal
G. Rubber
H. Mixed debris
I. Rubble

DRAFT

USE WITH 2006 STANDARDS.

Use when imported borrow is to be paid for on theoretical volume basis.

Add to SSP 19-010.

Imported borrow will be measured and paid for by the cubic yard and the quantity to be paid for will be computed in the following manner:

A. The total quantity of embankment will be computed in conformance with the provisions for roadway excavation in Section 19-2.08, "Measurement," of the Standard Specifications, on the basis of the planned or authorized cross section for embankments as shown on the plans and the measured ground surface.

B. The Contractor, at the Contractor's option, may compact the ground surface on which embankment is to be constructed before placing any embankment thereon. If the compaction results in an average subsidence exceeding 0.25-foot, the ground surface will be measured after completion of the compaction. The Engineer shall be allowed the time necessary to complete the measurement of an area before placement of embankment is started in that area.

4C. Use either this paragraph or the following paragraph. Use this paragraph when excavation quantities are NOT minor. Edit excavation items as required.

C. The quantities of roadway excavation, structure excavation and ditch excavation, which have been used in the embankment, will be adjusted by multiplying by a grading factor to be determined in the field by the Engineer. No further adjustment will be made in the event that the grading factor determined by the Engineer does not equal the actual grading factor.

4C*. Use either this paragraph or the preceding paragraph. Use this paragraph only when excavation quantities are minor. Edit excavation items as required.

KC ** 9-23-2009

~~C. The quantities of roadway excavation, structure excavation and ditch excavation, which have been used in the embankment, will be adjusted by multiplying by a specified grading factor of ___. No further adjustment will be made in the event that the specified grading factor does not equal the actual grading factor.~~

4D*. Edit for the quantity for the anticipated effect of subsidence.

KC ** 9-23-2009

~~D.The quantity of imported borrow to be paid for will be that quantity remaining after deducting the adjusted quantities of excavation from the total embankment quantity and then adding a quantity of _____ cubic yards for the anticipated effect of subsidence. No adjustment will be made in the event that the anticipated subsidence does not equal the actual subsidence.~~

~~E~~D. The Contractor may propose a plan whereby the Contractor would be paid on the basis of measured settlement in lieu of the allowance specified above. The proposal shall

include complete details of the subsidence-measuring devices and a detailed plan of each installation. If the proposed plan is approved by the Engineer, the Contractor, at the Contractor's expense, shall provide, install and maintain the subsidence-measuring devices. The Engineer will take necessary readings to determine the progress of subsidence, if any, and the Contractor shall provide necessary assistance to make the readings.

E~~F~~. Installed devices which are determined by the Engineer to have been damaged will not be used for the determination of subsidence for the area the devices represent in the pattern of approved installations. The subsidence of the area represented by that installation shall be considered zero, regardless of the subsidence measured at other installations.

F~~G~~. The volumes required as a result of subsidence will be computed by the average-end-area method from the original measurements and the final measurements, including zero subsidence at all points and for all areas as provided herein. It shall be understood and agreed that the subsidence at the point of intersection of the side slopes (and end slopes at structures) with the ground line as established by the original cross sections shall be considered as zero. Unless otherwise agreed to by the Engineer, the subsidence shall be considered as zero at the points on the cross sections 50 feet beyond the beginning and ending of the instrumented area. The computed volumes for such subsidence will be added to the quantities of embankment measured as specified herein.

G~~H~~. Detachable elements of the subsidence-measuring devices which can be salvaged without damage to the work shall remain the property of the Contractor and shall be removed from the highway right of way after final measurements are made.

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~~KC ** 9-23-2009~~

~~USE WITH 2006 STANDARDS.~~

~~Use when one or more projects are adjacent to or within the project limits.~~

~~Edit table to include Contract No., county-route-postmile (beginning and end limits of project adjacent to or within the limits of this project), city where project is located, and type of construction work.~~

~~10-1.__ COOPERATION~~

~~It is anticipated that work by another contractor may be in progress adjacent to or within the limits of this project during progress of the work on this contract. The following table lists contracts anticipated to be in progress during this contract.~~

~~Contract No.~~	~~Co-Rte-PM~~	~~Location~~	~~Type of Work~~
~~EA 1A2504~~	~~04-CC-80-5.8/6.2~~	~~Hilltop Drive~~	~~Overcrossing Replacement~~
~~EA 2A8904~~	~~04-CC-80-08/1.2~~	~~Carlson Blvd~~	~~Installing Signalized Intersection~~
~~EA 263724~~	~~04-CC-80-15.3/21.9~~	~~I-80~~	~~I-80 HOV Work~~

~~2~~

~~Comply with Section 7-1.14, "Cooperation," of the Standard Specifications.~~

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USE WITH 2006 STANDARDS.

Use in Districts 4, 6, 7, 8, 10, 11, and 12.

DO NOT EDIT, EXCEPT WHERE INDICATED.

Use with SSP S5-740 "Aerially Deposited Lead" and SSP 16-010 "Clearing and Grubbing."

Use on projects that have known aerially deposited lead contamination at average levels high enough to require special handling as a hazardous waste (total lead greater than 1000 mg/kg or soluble lead greater than 5.0 mg/l), and that are subject to the Variance of the Department of Toxic Substances Control (DTSC).

Use on projects where material containing aerially deposited lead will be stockpiled, transported in the right of way, placed within project limits, or disposed of in a landfill.

Use SSP 07-330, "Material Containing Aerially Deposited Lead" for projects with minor soil disturbance where all disturbed material can remain within the area of disturbance.

Use the following contract items in the Engineer's Estimate, as applicable:

190107	**Roadway Excavation (Type Y-1) (Aerially Deposited Lead)**
190108	**Roadway Excavation (Type Y-2) (Aerially Deposited Lead)**
190105	**Roadway Excavation (Type Z-2) (Aerially Deposited Lead)**
190106	**Roadway Excavation (Type Z-3) (Aerially Deposited Lead)**
192057	**Structure Excavation (Type Y-1) (Aerially Deposited Lead)**
192058	**Structure Excavation (Type Y-2) (Aerially Deposited Lead)**
192053	**Structure Excavation (Type Z-2) (Aerially Deposited Lead)**
192054	**Structure Excavation (Type Z-3) (Aerially Deposited Lead)**
190110	**Lead Compliance Plan**

**** Waiting for results from ADL testing by Caltrans. Will update this section accordingly once the results are received.**

KC 9-24-2009**

10-1.__ MATERIAL CONTAINING AERIALLY DEPOSITED LEAD

Earthwork involving material containing aerially deposited lead shall conform to the provisions in Section 19, "Earthwork," of the Standard Specifications and these special provisions.

2

Attention is directed to "Aerially Deposited Lead" of these special provisions.

3*. Use for material reusable under the DTSC Variance under soil.

Edit for location of Type Y-1 Material.

Edit to include the width, length, and depth of excavation based on the site investigation report and the decision of the design engineer on use of the material. Delete width, length, and depth of excavation if showing the complete information on the plans and you do not want to also describe it here.

Use a minimum cover of one foot except for planned landscaping areas.

Use a minimum cover of 2 feet for planned landscaping areas.

Delete Para 3 if it does not apply.

KC 10-7-2009**

Type Y-1 material contains aerially deposited lead in average concentrations of 0.5 mg/L or less extractable lead (based on a modified waste extraction test using deionized water as the extractant) and 1411 mg/kg or less total lead. Type Y-1 material exists between ____ feet and ____ feet, measured horizontally from the edges of existing pavement, from Station ____ to Station ____, and from a depth of ____ feet to ____ feet below existing grade~~ as shown on the plans~~. This material shall be placed~~ as shown on the plans~~, unless otherwise directed by the Engineer, and covered with a minimum ____-foot layer of nonhazardous soil or pavement. This material is hazardous waste regulated by the State of California that may be reused as permitted under the Variance of the California Department of Toxic Substances Control (DTSC) provided that the lead contaminated soil is placed a minimum of 5 feet above the maximum water table elevation and covered with at least one foot of nonhazardous soil. Temporary surplus material may be generated on this project due to the requirements of stage construction. Temporary surplus material shall not be transported outside the State right of way. In order to conform to the requirements of these provisions it may be necessary to stockpile material for subsequent stages, to construct some embankments out of stage, or to handle temporary surplus material more than once.

4*. Use for material reusable under the DTSC Variance under pavement.

Edit for location of Type Y-2 Material.

Edit to include the width, length, and depth of excavation based on the site investigation report and the decision of the design engineer on use of the material. Delete width, length, and depth of excavation if showing the complete information on the plans and you do not want to also describe it here.

Use a minimum cover of one foot except for planned landscaping areas.

Use a minimum cover of 2 feet for planned landscaping areas.

Delete Para 4 if it does not apply.

Type Y-2 material contains aerially deposited lead in average concentrations that exceed either 0.5 mg/L extractable lead (based on a modified waste extraction test using deionized water as the extractant) or 1411 mg/kg total lead but are less than 50 mg/L extractable lead (based on a modified waste extraction test using deionized water as the extractant) and less than 3397 mg/kg of total lead. Type Y-2 material exists between ____ feet and ____ feet, measured horizontally from the edges of existing pavement, from Station ____ to Station ____, and from a depth of ____ feet to ____ feet below existing grade, as shown on the plans. This material

shall be placed as shown on the plans, unless otherwise directed by the Engineer, and covered with a layer of pavement. This material is hazardous waste regulated by the State of California that may be reused as permitted under the Variance of DTSC provided that the lead contaminated soil is placed a minimum of 5 feet above the maximum water table elevation and protected from infiltration by a pavement structure which will be maintained by the Department. Temporary surplus material may be generated on this project due to the requirements of stage construction. Temporary surplus material shall not be transported outside the State right of way. In order to conform to the requirements of these provisions, it may be necessary to stockpile material for subsequent stages, to construct some embankments out of stage, or to handle temporary surplus material more than once.

5*. Use for waste subject to California hazardous waste regulation that can not be re-used on Caltrans right of way.

Edit for location of Type Z-2 Material.

Edit to include the width, length, and depth of excavation based on the site investigation report and the decision of the design engineer on use of the material. Delete width, length, and depth of excavation if showing the complete information on the plans and you do not want to also describe it here.

Delete Para 5 if it does not apply.

Type Z-2 material contains aerially deposited lead in average concentrations (using the 95 percent Upper Confidence Limit) greater than or equal to 1000 mg/kg total lead; greater than or equal to 5.0 mg/L soluble lead (as tested using the California Waste Extraction Test) and the material is surplus; or greater than 3397 mg/kg total lead. Type Z-2 material exists between ____ feet and ____ feet, measured horizontally from the edges of existing pavement, from Station ____ to Station ____, and from a depth of ____ feet to ____ feet below existing grade, as shown on the plans. This material is hazardous waste regulated by the State of California and shall be transported to and disposed of at a Class I Disposal Site. Material excavated from these areas shall be transported by a hazardous waste transporter registered with the DTSC using the required procedures for creating a manifest for the material. The vehicles used to transport the hazardous material shall conform to the current certifications of compliance of the DTSC.

6*. Use for waste subject to Federal hazardous waste regulation. California standards are different.

Edit for location of Type Z-3 Material.

Edit to include the width, length, and depth of excavation based on the site investigation report and the decision of the design engineer on use of the material. Delete width, length, and depth of excavation if showing the complete information on the plans and you do not want to also describe it here.

Delete Para 6 when it does not apply.

Type Z-3 material contains aerially deposited lead in average concentrations (using the 95 percent Upper Confidence Limit) greater than 5.0 mg/L soluble lead, as tested using the Toxicity Characteristic Leaching Procedure Test. Type Z-3 material exists between ____ feet and ____ feet, measured horizontally from the edges of existing pavement, from Station ____ to Station ____, and from a depth of ____ feet to ____ feet below existing grade as shown on the plans. This material is Federally regulated hazardous waste and shall be transported to and disposed of at a Class I Disposal Site. Material excavated from these areas shall be transported

by a hazardous waste transporter registered with the DTSC using the required procedures for creating a manifest for the material. The vehicles used to transport the hazardous material shall conform to the current certifications of compliance of the DTSC.

7

LEAD COMPLIANCE PLAN

The Contractor shall prepare a project specific Lead Compliance Plan to prevent or minimize worker exposure to lead while handling material containing aerially deposited lead. Attention is directed to Title 8, California Code of Regulations, Section 1532.1, "Lead," for specific California Department of Industrial Relations, Division of Occupational Safety and Health (Cal-OSHA) requirements when working with lead.

8*. For most projects, insert 15 days for Contractor to submit Lead Compliance Plan. For less complex projects, fast-track projects, or short construction periods, the time needed for submittal of the Lead Compliance Plan may be reduced to 7 days.

KC 10-7-2009**

The Lead Compliance Plan shall contain the elements listed in Title 8, California Code of Regulations, Section 1532.1(e)(2)(B). Before submission to the Engineer, the Lead Compliance Plan shall be approved by an Industrial Hygienist certified in Comprehensive Practice by the American Board of Industrial Hygiene. The plan shall be submitted to the Engineer for review and acceptance at least 15 days prior to beginning work in areas containing aerially deposited lead.

9. Use when excavation of material containing aerially deposited lead borders on land used for schools, daycare centers, hospitals, or areas of special community concern. Consult with District Environmental staff to determine if this paragraph is necessary.

Delete Para 9 if it does not apply.

KC 9-23-2009**

~~The Lead Compliance Plan shall include perimeter air monitoring incorporating upwind and downwind locations as shown on the plans or as approved by the Engineer. Monitoring shall be by personal air samplers using National Institute of Safety and Health Method 7082. Sampling shall achieve a detection limit of 0.05 µg/m^3 of air per day. Daily monitoring shall take place while the Contractor clears and grubs and performs earthwork operations. A single representative daily sample shall be analyzed for lead. Results shall be analyzed and provided to the Engineer within 24 hours. Average lead concentrations shall not exceed 1.5 µg/m^3 of air per day. If concentrations exceed this level the Contractor shall stop work and modify the work to prevent release of lead. Monitoring shall be done under the direction of, and the data shall be reviewed by and signed by a Certified Industrial Hygienist.~~

10

The Contractor shall not work in areas containing aerially deposited lead within the project limits, unless authorized in writing by the Engineer, until the Engineer has accepted the Lead Compliance Plan.

11

Prior to performing work in areas containing aerially deposited lead, personnel who have no prior training or are not current in their training status, including Department personnel, shall

complete a safety training program provided by the Contractor. The safety training program shall meet the requirements of Title 8, California Code of Regulations, Section 1532.1, "Lead."

12*. Edit to include number of Department employees.

KC 9-23-2009**

Personal protective equipment, training, and washing facilities required by the Contractor's Lead Compliance Plan shall be supplied to Department personnel by the Contractor. The number of Department personnel will be 4.

13

The Engineer will notify the Contractor of acceptance or rejection of the submitted or revised Lead Compliance Plan not more than 10 days after submittal of the plan.

14

The contract lump sum price paid for Lead Compliance Plan shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in preparing the Lead Compliance Plan, including paying the Certified Industrial Hygienist, and for providing personal protective equipment, training and medical surveillance, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

15*. For most projects, insert 15 days for Contractor to submit the Excavation and Transportation Plan and 7 days for each subsequent revision. For less complex projects, fast-track schedules, or short construction periods, the time needed for submittal of the Excavation and Transportation Plan may be reduced to 7 days.

KC 9-23-2009**

EXCAVATION AND TRANSPORTATION PLAN

Within 15 days after approval of the contract, the Contractor shall submit 3 copies of an Excavation and Transportation Plan to the Engineer. The Engineer will have 7 days to review the plan. If revisions are required, as determined by the Engineer, the Contractor shall revise and resubmit the plan within 7 days of receipt of the Engineer's comments. The Engineer will have 7 days to review the revisions. Upon the Engineer's approval of the plan, 3 additional copies incorporating the required changes shall be submitted to the Engineer. Minor changes to or clarifications of the initial submittal may be made and attached as amendments to the Excavation and Transportation Plan. In order to allow construction to proceed, the Engineer may conditionally approve the plan while minor revisions or amendments are being completed.

16. Reorder the outline letters as necessary.

The Contractor shall prepare the written, project specific Excavation and Transportation Plan establishing the procedures the Contractor will use to comply with requirements for excavating, stockpiling, transporting, and placing (or disposing) of material containing aerially deposited lead. The plan shall conform to the regulations of the DTSC and Cal-OSHA. The sampling and analysis portions of the Excavation and Transportation Plan shall meet the requirements for the design and development of the sampling plan, statistical analysis, and reporting of test results contained in USEPA, SW 846, "Test Methods for Evaluating Solid Waste," Volume II: Field Manual Physical/Chemical, Chapter Nine, Section 9.1. The plan shall contain, but not be limited to the following elements:

A. Excavation schedule (by location and date),

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Use 16B and 16C when temporary stockpiling is likely to be needed.

B. Temporary locations of stockpiled material,
C. Sampling and analysis plans for areas after removal of a stockpile,

1. Location and number of samples,
2. Analytical laboratory,

Use 16D for optional use with Type Y-1 material. Confer with District Hazardous Waste staff.

D. Sampling and analysis plan for soil cover,

Use 16E for optional use with all material. Confer with District Hazardous Waste staff.

E. Sampling and analysis plan for post excavation from Station ____ to Station ____ as shown on the plans,
F. Dust control measures,

Use 16G when air monitoring is required.

G. Air monitoring,

1. Location and type of equipment,
2. Sampling frequency,
3. Analytical laboratory,

H. Transportation equipment and routes,
I. Method for preventing spills and tracking material onto public roads,
J. Truck waiting and staging areas,

Use 16K for projects with Type Z-2 or Type Z-3 material.

KC 10-7-2009**

~~K. Site for disposal of hazardous waste,~~

Add 16L for Type Y-1 or Y-2 material moving from the project to a second project.

KC 10-7-2009**

K~~L~~. Example of Bill of Lading to be carried by trucks transporting Type Y-1 orY-2, material. The Bill of Lading shall contain: US DOT description including shipping name, hazard class, and ID number; handling codes; quantity of material; and volume of material. Copies of the bills of lading shall be provided to the Engineer upon placement of Type Y-1 or Y-2 material in its final location. Trucks carrying Type Y-1 or Y-2 material shall not leave the highway right of way.

L~~M~~. Spill Contingency Plan for material containing aerially deposited lead.

17

DUST CONTROL

Excavation, transportation, placement, and handling of material containing aerially deposited lead shall result in no visible dust migration. The Contractor shall have a water truck or tank on the job site at all times while clearing and grubbing and performing earthwork operations in work areas containing aerially deposited lead.

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18

STOCKPILING

Stockpiles of material containing aerially deposited lead shall not be placed where affected by surface run-on or run-off. Stockpiles shall be covered with plastic sheeting 13 mils minimum thickness or one foot of nonhazardous material. Stockpiles shall not be placed in environmentally sensitive areas. Stockpiled material shall not enter storm drains, inlets, or waters of the State.

19

MATERIAL TRANSPORTATION

Prior to traveling on public roads, loose and extraneous material shall be removed from surfaces outside the cargo areas of the transporting vehicles and the cargo shall be covered with tarpaulins or other cover, as outlined in the approved Excavation and Transportation Plan. The Contractor shall be responsible for costs due to spillage of material containing lead during transport.

20

The Department will not consider the Contractor a generator of the hazardous material, and the Contractor will not be obligated for further cleanup, removal, or remedial action for such material handled or disposed of in conformance with the requirements specified in these special provisions and the appropriate State and Federal laws and regulations and county and municipal ordinances and regulations regarding hazardous waste.

21. Delete if the project does not have surplus excavated material.

DISPOSAL

Surplus material for which the lead content is not known shall be analyzed for aerially deposited lead by the Contractor prior to removing the material from within the project limits. The Contractor shall submit a sampling and analysis plan and the name of the analytical laboratory to the Engineer at least 15 days prior to beginning sampling or analysis. The Contractor shall use a laboratory certified by the California Department of Health Services. Sampling shall be at a minimum rate of one sample for each 200 cubic yards of surplus material and tested for lead using EPA Method 6010 or 7000 series.

22. Use Paras 22 and either 23 or 24 when material is to be disposed of outside the State right of way.

Materials containing aerially deposited lead shall be disposed of within California. The disposal site shall be operating under a permit issued by the appropriate California Environmental Protection Agency board or department.

23. Use for Z-2 and Z-3 material only. Use either Para 23 or Para 24. Delete Para 23 when Para 24 is used.

The Engineer will obtain the Environmental Protection Agency Generator Identification Number for hazardous waste disposal. The Engineer will sign all hazardous waste manifests. The Contractor shall notify the Engineer 5 days before the manifests are to be signed.

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24. Use for Z-2 and Z-3 material only. Delete Para 24 when Para 23 is used. District 4 uses the Board of Equalization number for administrative convenience.

The Engineer will obtain the State of California Board of Equalization Identification Number for hazardous waste disposal. The Engineer will sign all hazardous waste manifests. The Contractor shall notify the Engineer 5 days before the manifests are to be signed.

25. Edit if the project has other excavation items, such as structure excavation.

Sampling, analyzing, transporting, and disposing of material containing aerially deposited lead excavated outside the pay limits of excavation will be at the Contractor's expense.

26

MEASUREMENT AND PAYMENT

Quantities of roadway excavation (aerially deposited lead) and structure excavation (aerially deposited lead), of the types shown in the Engineer's Estimate, will be measured and paid for in the same manner specified for roadway excavation and structure excavation, respectively, in Section 19, "Earthwork," of the Standard Specifications.

27

Full compensation for preparing an approved Excavation and Transportation Plan, transporting material containing aerially deposited lead reused in the work from location to location, and transporting and disposing of material containing aerially deposited lead shall be considered as included in the contract prices paid per cubic yard for the items of roadway excavation (aerially deposited lead) and structure excavation (aerially deposited lead) of the types involved, and no additional compensation will be allowed therefor.

28

No payment for stockpiling of material containing aerially deposited lead will be made, unless the stockpiling is ordered by the Engineer.

29. Delete if the project does not have surplus excavated material.

KC 9-23-2009**

~~Sampling, analyses, and reporting of results for surplus material not previously sampled will be paid for as extra work as provided in Section 4-1.03D, "Extra Work," of the Standard Specifications.~~

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USE WITH 2006 STANDARDS.
Insert in Section 10-1. DO NOT USE in Section 10-2.

KC 9-23-2009**

~~**10-1.__ DUFF**~~

~~This work shall consist of excavating, stockpiling, removing from stockpiles, spreading, and compacting duff in conformance with these special provisions.~~

~~**2**~~

~~Duff shall consist of a mixture of existing decomposed, chopped, broken or chipped plant material, leaves, grasses, weeds, and other plant material excavated from areas within the project limits. Existing shrubs and other small plants shall be incorporated into the duff by discing, or by other methods which will break or chop the material into particles not greater than 0.5-foot in greatest dimension.~~

~~**3**~~

~~When duff is to be excavated to a specified depth, duff may consist of plant material and soil. Rocks and plant material in excess of 0.5-foot in greatest dimension shall be removed from the excavated duff.~~

~~**4**~~

~~Trash and objectionable material shall be removed from duff excavation sites prior to duff excavation. The trash and objectionable material shall be removed and disposed of outside the highway right of way in conformance with the provisions in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.~~

~~**5*. Edit as required. Areas of duff excavation shall be shown on the plans.**~~

~~Duff shall be obtained by excavating the top __ foot of existing material from proposed excavation and embankment areas and other areas designated on the plans. Duff shall be stockpiled along the top of proposed excavation slopes and along the toe of proposed embankment slopes. When duff cannot be stockpiled outside the slope lines as specified herein, excavated duff material may be stockpiled at other locations when designated by the Engineer.~~

~~**6*. Edit as required. Areas to receive duff excavation shall be shown on the plans. Duff is typically applied less than 12 inches in depth.**~~

~~Upon completion of the grading operations for the excavation and embankment slopes and other areas to receive duff, the duff shall be spread on the areas designated to receive duff. Duff shall be placed to a uniform depth of not less than __ foot and shall be compacted or stabilized in a manner that retains the material in place on the slopes. Duff shall not be compacted or stabilized to the degree that the duff is not maintained as a viable growing medium.~~

~~**7**~~

~~Duff shall be placed on designated excavation and embankment slopes prior to applying erosion control materials. Erosion control materials shall be furnished and applied as specified in these special provisions.~~

DRAFT

~~**Use Paras 8 & 9 when duff is to be paid for by the square yard. Delete Paras 10 & 11.**~~

~~**8**~~

~~Duff placed on the finished slopes will be measured by the square yard. The areas of duff will be calculated on the basis of actual or computed slope measurements.~~

~~**9**~~

~~The contract price paid per square yard for duff shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in excavating, stockpiling, removing duff from stockpiles, spreading and compacting or stabilizing duff, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.~~

~~**Use Paras 10 & 11 when duff is to be paid for by the acre. Delete Paras 8 & 9.**~~

~~**10**~~

~~Duff placed on the finished slopes will be measured by the acre. The areas of duff will be calculated on the basis of actual or computed slope measurements.~~

~~**11**~~

~~The contract price paid per acre for duff shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in excavating, stockpiling, removing duff from stockpiles, spreading and compacting or stabilizing duff, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.~~

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Use with Erosion Control (Type D) for seed, fiber, stabilizer, etc.

Use for small areas that have high erosion potential, such as bridge abutments.

Insert in Section 10-1. Do NOT USE in Section 10-2.

Include detail on plans and show size, depth, location, and spacing of the anchor stakes or staples, except as provided herein.

Use Item Code 203018 Erosion Control (Netting).

10-1.__ EROSION CONTROL (NETTING)

Erosion control (netting) shall conform with the details as shown on the plans, as specified in these special provisions, and as directed by the Engineer.

2. Netting areas must be shown on the plans.

Erosion control (netting) work shall consist of installing and maintaining erosion control (netting).

3. Use if Erosion Control (Type D) is included.

Following the installation of erosion control (netting), erosion control materials shall be applied onto the netting face as specified in "Erosion Control (Type D)," of these special provisions.

4

MATERIALS

Materials for the erosion control (netting) shall conform to the provisions in Section 20-2, "Materials," of the Standard Specifications and these special provisions.

5

Erosion Control Netting

Erosion control netting shall consist of 100 percent spun coir fiber and shall conform to the following:

Specification	Requirement
Weight, ounces/square yard ASTM Designation: D 3776	11.8
Minimum Tensile Strength, pounds per square foot ASTM Designation: D 4595	615 to 750 in longitudinal direction (dry) 340 to 700 in cross-direction (dry) 410 to 650 in longitudinal direction (wet) 270 to 615 in cross- direction (wet)
Roll Width, feet, min.	13
Area/Roll, square yards, min.	239
Open Area, percent	63-70

6

Staples

Staples shall be as shown on the plans.

7

INSTALLATION

Erosion control (netting) shall be installed in ditches or swales~~, on embankment slopes, or excavation slopes~~ as follows:

A. Erosion control (netting) strips shall be placed loosely along the ditch or swale with the longitudinal edges and joints parallel to the centerline of the ditch or swale. Longitudinal joints of netting shall be overlapped and stapled. Transverse joints of netting shall be secured in intermediate joint trenches. Staples shall be driven perpendicular to the slopes. Ends of the netting shall be secured in place in key trenches.

~~B. Erosion control (netting) strips shall be placed loosely on the embankment or excavation slope with the longitudinal joints perpendicular to the slope contour lines. Longitudinal and transverse joints of netting shall be overlapped and stapled. Staples shall be driven perpendicular to the slopes. Ends of the netting shall be secured in place in key trenches.~~

8

Damaged netting shall be replaced on the same day the damage occurs. Washouts between joints or beneath the netting shall be repaired on the same day damaged occurs. Erosion control (netting) damaged by the Contractor's vehicles, equipment, or operations shall be replaced or repaired by the Contractor at the Contractor's expense.

9

MEASUREMENT AND PAYMENT

The quantity of erosion control (netting) will be measured by the square yard as determined from actual slope measurements of the areas covered by the erosion control (netting) excluding overlaps.

10

The contract price paid per square yard for erosion control (netting) shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in installing erosion control (netting), complete in place, including trench excavation and backfill, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

DRAFT

USE WITH 2006 STANDARDS.

Insert in Section 10-1. Do not use in Section 10-2.

Use item code 203026.

Add a para in "Order of Work" that application of erosion control may require several move-in/move-outs of erosion control equipment and attention is directed to this SSP.

Recommended for use on large projects extending through a rainy season and using SSP 07-345.

Use when the intent is to have the Contractor apply the erosion control right after "substantial completion" of embankments and excavations. The number of move-in/move-outs are to be estimated by determining the phased scheduled "substantial completions" of embankments and excavations. Recommend three move-in/move-outs to six move-in/move-outs per rainy season. Move-in/move-out should be excluded in the unit price calculations of erosion control items (e.g., seed, straw, fiber, etc.).

10-1.__ MOVE-IN/MOVE-OUT (EROSION CONTROL)

Move-in/move-out (erosion control) shall include moving onto the project when an area is ready to receive erosion control as determined by the Engineer, setting up all required personnel and equipment for the application of erosion control materials and moving out all personnel and equipment when erosion control in that area is completed.

2. Edit para to match Type(s) of permanent erosion control used on project.

When areas are ready to receive applications of erosion control (Types ~~C or~~ D), as determined by the Engineer, the Contractor shall begin erosion control work in that area within 5 working days of the Engineer's notification to perform the erosion control work.

3. Edit para to match Type(s) of permanent erosion control used on project.

Attention is directed to the requirements of erosion control (Types ~~C or~~ D) elsewhere in these special provisions.

4

Quantities of move-in/move-out (erosion control) will be determined as units from actual count as determined by the Engineer. For measurement purposes, a move-in followed by a move-out will be considered as one unit.

5. Edit para to match Type(s) of permanent erosion control used on project.

The contract unit price paid for move-in/move-out (erosion control) shall include full compensation for furnishing all labor, materials (excluding erosion control materials), tools, equipment, and incidentals and for doing all the work involved in moving in and removing from the project all personnel and equipment necessary for application of erosion control (Types ~~C or~~ D), as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

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6

No adjustment of compensation will be made for any increase or decrease in the quantities of move-in/move-out (erosion control) required, regardless of the reason for the increase or decrease. The provisions in Section 4-1.03B, "Increased or Decreased Quantities," of the Standard Specifications shall not apply to the item of move-in/move-out (erosion control).

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USE WITH 2006 STANDARDS

Inoculation of legume seed has been eliminated on the recommendations of a study done by the Earth and Soil Sciences Department of Cal Poly State University, San Luis Obispo. The Report may be viewed at: http://www.dot.ca.gov/hq/LandArch/policy/legume.pdf

Consult with District Landscape Architect when using this SSP.

Contact local AQMD representative to discuss potential air quality constraints (e.g. Placer Co.) when allowing blown on straw or compost as part of this SSP. If air quality constraints are an issue consider using alternative methods, i.e., Erosion Control (Compost Blanket).

Use this specification when straw incorporation IS NOT required. Use SSP 20-030 when straw incorporation is required.

(When more than one seed mix is required, revise the seed mix to "Seed (Type 1)" and "Seed (Type 2)" and add the appropriate locations, tables, materials and application rates.)

Use Item Code 203016 "Erosion Control (Type D)".

Insert in Section 10-1. DO NOT USE in Section 10-2.

10-1.__ EROSION CONTROL (TYPE D)

Erosion control (Type D) includes applying erosion control materials to embankment and excavation slopes and other areas disturbed by construction activities. Erosion control (Type D) must comply with Section 20-3, "Erosion Control," of the Standard Specifications and these special provisions.

2. Use only when SSP 20-020, "Move-in/Move-out (Erosion Control)," is included in project.

Apply erosion control (Type D) when an area is ready to receive erosion control as determined by the Engineer and under "Move-in/Move-out (Erosion Control)" of these special provisions.

3. Use when Para 2 is deleted.

If the slope on which the erosion control to be placed is finished during the rainy season as specified under "Water Pollution Control" of these special provisions, apply erosion control to the slope immediately.

4

Before applying erosion control materials, prepare soil surface under Section 19-2.05, "Slopes," of the Standard Specifications, except that rills and gullies exceeding 2 inches in depth or width must be leveled. Remove vegetative growth, temporary erosion control materials, and other debris from areas to receive erosion control.

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5. Use with SSP 05-200, "Order of Work," pre-measurement of areas to receive Erosion Control (Type D), otherwise delete Para.

Before applying erosion control materials, the Engineer designates the ground location of erosion control (Type D) in increments of one acre or smaller for smaller areas. Place stakes or other suitable markers at the locations designated by the Engineer. Furnish all tools, labor and materials required to adequately indicate the various locations.

6

MATERIALS

Materials must comply with Section 20-2, "Materials," of the Standard Specifications and these special provisions.

7*. Use when another erosion control SSP specifies the same seed specifications; otherwise delete. Delete Paras 8 thru 13 when this Para is used. Edit blank space for the type of erosion control.

KC 9-23-2009**

Seed

~~Seed for erosion control (Type D) must comply with "Erosion Control (_____)" of these special provisions.~~

8. Use Paras 8 thru 13 when seed is NOT specified elsewhere in the special provisions. Delete Para 7.

Seed

Seed must comply with Section 20-2.10, "Seed," of the Standard Specifications. Seed not required to be labeled under the California Food and Agricultural Code shall be tested for purity and germination by a seed laboratory certified by the Association of Official Seed Analysts or by a seed technologist certified by the Society of Commercial Seed Technologists. Measure and mix individual seed species in the presence of the Engineer.

9

Seed must contain at most 1.0 percent total weed seed by weight.

10*. Use this Para only on projects of a sensitive nature, e.g. mitigation site, where specific weed seed of major concern are likely to be found in erosion control seed specified. List a maximum of three. Do not insert names of "prohibited noxious weeds" listed in Title 3, California Code of Regulations, Section 3854.

KC 9-23-2009**

~~Seed must be free of the following specific weed species:_____, _____, and _____.~~

11

Deliver seed to the job site in unopened separate containers with the seed tag attached. Containers without a seed tag attached are not accepted. The Engineer takes a sample of approximately 1 ounce or 0.25 cup of seed for each seed lot greater than 2 pounds.

12*. Insert seed names, germination and application rates in the table. Increase or decrease rows in table as required. Do NOT edit column

headings. Percent germination shown in the table may be 10 percent less than the published rates. Do NOT list short-lived seed. Show an asterisk at the end of botanical name if seed must be produced in California ONLY. If there is no requirement for seed to be produced in California delete "*Seed produced in California only" at the bottom of the table.

KC 9-23-2009**

Seed must comply with the following:

Seed

Botanical Name (Common Name)	Percent Germination (Minimum)	Pounds Pure Live Seed Per Acre (Slope Measurement)
Hordeum vulgare 'UC 603' (Cereal Barley)	80	12.0
Eschscholzia California (California Poppy)	50	1.0
Hordeum brachyantherum (Meadow Barley)	50	4.0
Vulpia microstachys (Three weeks Fescue)	50	3.0
Linaria Maroccana	50	1.0
Achillea millefolium (White Yarrow)	50	1.0

*Seed produced in California only.

13

Seed Sampling Supplies

At the time of seed sampling, provide the Engineer a glassine lined bag and custody seal tag for each seed lot sample.

Use Para 14 OR Para 15.

14*. Edit for commercial fertilizer required.

KC 9-23-2009**

~~**Commercial Fertilizer**~~

~~Commercial fertilizer must comply with Section 20-2.02, "Commercial Fertilizer," of the Standard Specifications and have a guaranteed chemical analysis within 2 percent of __ percent nitrogen, __ percent phosphoric acid and __ percent water soluble potash.~~

15*. Use when another erosion control SSP specifies commercial fertilizer to be used and delete Para 14. Edit for erosion control type.

KC 9-23-2009**

~~**Commercial Fertilizer**~~

~~Commercial fertilizer for erosion control (Type D) must comply with "Erosion Control (_____)" of these special provisions.~~

DRAFT

Use Paras 16, 17, and 18 when the types of straw in the Standard Specifications are acceptable and delete Paras 19, 20 and 21.

Straw

16

Straw must comply with Section 20-2.06, "Straw," of the Standard Specifications and these special provisions.

17

KC 9-23-2009**

~~Wheat and barley straw must be derived from irrigated crops.~~

18

KC 9-23-2009**

~~Before delivery of wheat or barley straw to the job site, provide the name, address and telephone number of the grower.~~

19. Use when wheat or barley straw is desired. Use with Paras 16, 17 and 18 and delete Paras 20 and 21.

KC 9-23-2009**

~~Straw must be derived from wheat or barley.~~

20. Use when only rice straw is desired. Use with Para 16 and delete Paras 17, 18, 19 and 21.

Straw must be derived from rice.

21*. Use when a unique type of straw is to be used. Edit for species. Use "Order of Work" SSP to show evidence the straw order has been placed. Delete Paras 16 thru 20.

KC 9-23-2009**

~~Straw must be derived from _____.~~

22. Use when Para 19, 20 or 21 is used; otherwise delete.

Straw must be free of plastic, glass, metal, rocks, and refuse or other deleterious material.

23. Use when compost is desired; otherwise delete Paras 23 thru 31.

Compost

The compost producer must be fully permitted as specified under the California Integrated Waste Management Board, Local Enforcement Agencies and any other State and Local Agencies that regulate Solid Waste Facilities. If exempt from State permitting requirements, the composting facility must certify that it follows guidelines and procedures for production of compost meeting the environmental health standards of Title 14, California Code of Regulations, Division 7, Chapter 3.1, Article 7.

24

The compost producer must be a participant in United States Composting Council's Seal of Testing Assurance program.

25

Compost may be derived from any single, or mixture of any of the following feedstock materials:

1. Green material consisting of chipped, shredded, or ground vegetation; or clean processed recycled wood products
2. Biosolids
3. Manure
4. Mixed food waste

26

Compost feedstock materials to reduce weed seeds, pathogens and deleterious materials as specified under Title 14, California Code of Regulations, Division 7, Chapter 3.1, Article 7, Section 17868.3

27

Compost must not be derived from mixed municipal solid waste and must be reasonably free of visible contaminates. Compost must not contain paint, petroleum products, pesticides or any other chemical residues harmful to animal life or plant growth. Compost must not possess objectionable odors.

28

Metal concentrations in compost must not exceed the maximum metal concentrations listed in Title 14, California Code of Regulations, Division 7, Chapter 3.1, Section 17868.2.

29

Compost must comply with the following:

DRAFT

Physical/Chemical Requirements

Property	Test Method	Requirement
pH	*TMECC 04.11-A, Elastometric pH 1:5 Slurry Method, pH Units	6.0–8.0
Soluble Salts	TMECC 04.10-A, Electrical Conductivity 1:5 Slurry Method dS/m (mmhos/cm)	0-10.0
Moisture Content	TMECC 03.09-A, Total Solids & Moisture at 70+/- 5 deg C, % Wet Weight Basis	N/A
Organic Matter Content	TMECC 05.07-A, Loss-On-Ignition Organic Matter Method (LOI), % Dry Weight Basis	30–65
Maturity	TMECC 05.05-A, Germination and Vigor Seed Emergence Seedling Vigor % Relative to Positive Control	 80 or Above 80 or Above
Stability	TMECC 05.08-B, Carbon Dioxide Evolution Rate mg CO_2-C/g OM per day	8 or below
Particle Size	TMECC 02.02-B Sample Sieving for Aggregate Size Classification % Dry Weight Basis	95% Passing 5/8 inch 70% Passing 3/8 inch
Pathogen	TMECC 07.01-B, Fecal Coliform Bacteria < 1000 MPN/gram dry wt.	Pass
Pathogen	TMECC 07.01-B, Salmonella < 3 MPN/4 grams dry wt.	Pass
Physical Contaminants	TMECC 02.02-C, Man Made Inert Removal and Classification: Plastic, Glass and Metal, % > 4mm fraction	Combined Total: < 1.0
Physical Contaminants	TMECC 02.02-C, Man Made Inert Removal and Classification: Sharps (Sewing needles, straight pins and hypodermic needles), % > 4mm fraction	None Detected

*TMECC refers to "Test Methods for the Examination of Composting and Compost," published by the United States Department of Agriculture and the United States Compost Council (USCC).

30

Before compost application, provide the Engineer with a copy of the compost producer's compost technical data sheet and a copy of the compost producers Seal of Testing Assurance certification. The compost technical data sheet includes:

1. Laboratory analytical test results
2. Directions for product use
3. List of product ingredients

31

Before compost application, provide the Engineer with a Certificate of Compliance under Section 6-1.07, "Certificates of Compliance," of the Standard Specifications.

32

Stabilizing Emulsion

Stabilizing emulsion must comply with Section 20-2.11, "Stabilizing Emulsion," of the Standard Specifications and these special provisions.

Stabilizing emulsion:

DRAFT

1. Must be in a dry powder form
2. Must be a processed organic adhesive used as a soil tackifier
3. May be reemulsifiable

33

APPLICATION

Apply erosion control materials in separate applications in the following sequence:

Delete "materials" not desired from tables and fill in the rates. Do not edit the time frame (60 minutes) that the seed can be in the mixture. Delete "compost" table below if not applicable.

KC 9-23-2009**

1. Apply the following mixture with hydroseeding equipment at the rates indicated within 60 minutes after the seed has been added to the mixture:

Material	Pounds Per Acre (Slope Measurement)
Seed	20
Fiber	286
~~Commercial Fertilizer~~	

Material	Cubic Yards Per Acre (Slope Measurement)
Compost	498

Delete this Para when the "compost" tables above and below are deleted and change 3 and 4 in Paras below to 2 and 3, respectively.

2. Compost may be dry applied at the total of the rates specified in the preceding table and the following table instead of including it as part of the hydro-seeding operations. In areas where the compost is dry applied, all compost for that area must be applied before the next operation.

Indicate application rate for straw. The application rate is normally 2.0 tons per acre for wheat or barley and 1.75 tons to 2.0 tons per acre for rice.

KC 9-23-2009**

3. Apply straw at the rate of 1.8 tons per acre based on slope measurements. Incorporation of straw will not be required. Distribute straw evenly without clumping or piling.

Delete "compost" table when compost is not desired.

KC 9-23-2009**

4. Apply the following mixture with hydro-seeding equipment at the corresponding rates:

Material	Pounds Per Acre (Slope Measurement)
Fiber	286
~~Commercial Fertilizer~~	
Stabilizing Emulsion (Solids)	125

DRAFT

Material	Cubic Yards Per Acre (Slope Measurement)
Compost	498

34. Delete when stabilizing emulsion is not used.

The ratio of total water to total stabilizing emulsion in the mixture must be as recommended by the manufacturer.

35. Use with SSP 20-015.

Hydraulic application of materials for erosion control (netting) areas shall be applied by hose, from the ground. Erosion control (Type D) materials shall be applied onto the slope face such that the materials are well integrated into the erosion control (netting) and in contact with ground surface. Application shall be perpendicular to the slope face such that erosion control (netting) materials are not damaged or displaced. Erosion control (netting) damaged by the Contractor's operations shall be replaced by the Contractor at the Contractor's expense.

36.

Once straw work is started in an area, complete stabilizing emulsion applications in that area on the same working day.

37. Do NOT edit or delete.

The Engineer may change the rates of erosion control materials to meet field conditions.

38

MEASUREMENT AND PAYMENT

KC 9-23-2009**

Erosion control (Type D) will be measured by the square yard ~~or by the acre~~, whichever is designated in the Engineer's Estimate. The area will be calculated on the basis of actual or computed slope measurements.

39

KC 9-23-2009**

The contract price paid per square yard ~~or acre~~ for erosion control (Type D) includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in applying erosion control (Type D) complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

DRAFT

USE WITH 2006 STANDARDS.

Use as a linear barrier for sediment control to intercept runoff, reduce runoff flow velocity, and release runoff as sheet flow. Fiber rolls should be used primarily as a slope interrupter device to shorten slope lengths and to intercept and retain limited amounts of sediment on slope surfaces.

Use BEES item 203021 Fiber Rolls.

10-1.__ FIBER ROLLS

Fiber rolls shall be furnished and installed in conformance with details shown on the plans and these special provisions and as directed by the Engineer.

2. Edit as needed.

Fiber rolls shall be installed on excavation and embankment slopes and other disturbed soil areas.

3

At the option of the Contractor, fiber rolls shall be Type 1 or Type 2.

MATERIALS

4. Edit as needed to meet environmental requirements including the deletion of "photodegradable plastic netting" where wildlife entrapment may occur.

Fiber Roll

Fiber roll shall be either:

1. Constructed with a premanufactured blanket consisting of either wood excelsior, rice or wheat straw, or coconut fibers or a combination of these materials. The blanket shall be between 6 feet and 8 feet in width and between 65 feet and 95 feet in length. Wood excelsior shall be individual fibers, of which 80 percent shall be 6 inches or longer in length. The blanket shall have a photodegradable plastic netting or biodegradable jute, sisal, or coir fiber netting on at least one side. The blanket shall be rolled along the width and secured with jute twine spaced 6 feet apart along the full length of the roll and placed 6 inches from the ends of each roll. The finished roll shall be between 8 inches and 10 inches in diameter, a minimum of 20 feet in length, and shall weigh a minimum of 0.5 pound per linear foot. More than one blanket may be required to achieve the finished roll diameter. When more than one blanket is required, blankets shall be jointed longitudinally with an overlap of 6 inches along the length of the blanket.
2. A premanufactured roll of rice or wheat straw, wood excelsior, or coconut fiber encapsulated within a photodegradable plastic or biodegradable jute, sisal, or coir fiber netting. The netting shall have a minimum durability of one year after installation. The netting shall be secured tightly at each end of the roll. Rolls shall be between 8 inches and 12 inches in diameter. Rolls between 8 inches and 10 inches in diameter shall have a minimum weight of 1 pound per linear foot and a minimum length of 20 feet. Rolls between 10 inches and 12 inches in diameter shall have a minimum weight of 3 pounds per linear foot and a minimum length of 10 feet.

DRAFT

5

Stakes

Wood stakes shall be a minimum of 1" x 1" x 24" in size for Type 1 installation, or a minimum of 1" x 2" x 24" in size for Type 2 installation. Wood stakes shall be untreated fir, redwood, cedar, or pine and cut from sound timber. They shall be straight and free of loose or unsound knots and other defects which would render them unfit for the purpose intended. Metal stakes shall not be used.

6

Rope

Rope shall be biodegradable, such as sisal or manila, with a minimum diameter of 1/4 inch.

7

INSTALLATION

Fiber rolls shall be installed as follows:

1. Fiber rolls (Type 1): Furrows shall be constructed to a depth between 2 inches and 4 inches, and to a sufficient width to hold the fiber roll. Stakes shall be installed 24 inches apart along the length of the fiber rolls and stopped at 12 inches from each end of the rolls. Stakes shall be driven to a maximum of 2 inches above, or flush with the top of the roll.
2. Fiber rolls (Type 2): Rope and notched stakes shall be used to restrain the fiber rolls against the slope. Stakes shall be driven into the slope until the notch is even with the top of the fiber roll. Rope shall be knotted at each stake and laced between stakes. After installation of the rope, stakes shall be driven into the slope such that the rope will hold the fiber roll tightly to the slope. Furrows will not be required.

   If different spacing is desired, replace the following with "Fiber rolls shall be placed ____ feet apart along the slope." If fiber roll locations are shown on the plans, replace this subparagraph with "Fiber rolls shall be placed as shown on the plans."

~~3. Fiber rolls shall be placed 10 feet apart along the slope for slope inclination (horizontal:vertical) of 2:1 and steeper, 15 feet apart along the slope for slope inclination between 2:1 and 4:1, 20 feet apart along the slope for slope inclination between 4:1 and 10:1, and a maximum of 50 feet apart along the slope for slope inclination of 10:1 and flatter.~~

3a. new

KC 9-24-2009**

3a. Fiber rolls shall be placed 10 feet apart on embankment slope as shown on the plans.

3b. new

KC 9-24-2009**

3b. Fiber rolls shall be placed around all soil disturbed due to the installation of the ramp metering equipments.

4. The bedding area for the fiber rolls shall be cleared of obstructions including rocks, clods, and debris greater than one inch in diameter before installation.

If cross slope drainage is desired, replace the following with "The installed angle of the fiber roll to the slope contour shall create a 2 percent to 5 percent grade from the center of the slope to the slope conform at the limit of disturbance." The limit of disturbance refers to the edge of a disturbed soil area (DSA) created by grading, vegetation removal, etc. Edit as needed.

5. Fiber rolls shall be installed approximately parallel to the slope contour.

Edit when alternative soil stabilization treatments, such as blankets, are to be installed before the fiber rolls. Edit as needed.

6. Fiber rolls shall be installed before the application of other erosion control or soil stabilization materials in the same area.

8

If the intended function of the fiber rolls to disperse concentrated water runoff and to reduce runoff velocities is impaired, the Contractor shall take action to repair or replace the fiber rolls. Split, torn, or unraveling rolls shall be repaired or replaced. Broken or split stakes shall be replaced. Sagging or slumping fiber rolls shall be repaired with additional stakes or replaced. Locations where rills and other evidence of concentrated runoff have occurred beneath the rolls shall be corrected. Fiber rolls shall be repaired or replaced within 24 hours of identifying the deficiency.

9

MEASUREMENT AND PAYMENT

Quantities of fiber rolls to be paid for will be determined by the linear foot measured along the centerline of the installed roll. Where fiber rolls are joined and overlapped, the overlap will be measured as a single installed roll.

10

The contract price paid per linear foot for fiber roll shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in installing fiber rolls, complete in place, including furrow excavation and backfill, repairing or replacing fiber rolls as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

11

Damage to fiber rolls resulting from the Contractor's vehicles, equipment, or operations shall be repaired at the Contractor's expense.

DRAFT

USE WITH 2006 STANDARDS.

Use when existing irrigation crossovers are shown on the plans to be extended. Insert in Section 10-1. DO NOT USE in Section 10-2.

Include an Extend Irrigation Crossover Table on the plans. A copy of the Table is available in the Caltrans Master Cell Library (CTCELLIB.cel). The file name is IRSXCH (extend irrigation crossover schedule).

The types of materials and sizes of the various components of the existing irrigation crossovers to be extended shall be included in the table.

Include Standard Plan H9 for Extend Irrigation Crossover Detail.

Include Standard Plan A20A for Type A pavement marker.

10-1.__ EXTEND IRRIGATION CROSSOVERS

Extend existing irrigation crossovers shall conform to the provisions in Section 20-5, "Irrigation Systems," of the Standard Specifications and these special provisions.

2. Edit if there are no sprinkler control crossovers to be extended.

Extend irrigation crossovers shall include conduit, water line crossover, and sprinkler control crossover extensions and appurtenances, locating existing irrigation crossovers and pressure testing existing and new water line crossovers. The sizes of conduit, water line crossover, and sprinkler control crossover extensions shall be as shown on the plans.

3

Before work is started in an area where an existing irrigation crossover conduit is to be extended, the existing conduit shall be located by the Contractor. When exploratory holes are used to locate the existing conduit, the exploratory holes shall be excavated in conformance with the provisions in Section 20-5.03B, "Conduit for Irrigation Crossovers," of the Standard Specifications.

4. Include funds in the Engineer's Estimate under Supplemental Work for remove debris from conduit.

If debris is encountered in the ends of conduits to be extended, the debris shall be removed prior to extending conduits. Removal of debris within the 3 feet in the conduits shall be included in the price of extend conduit. If debris is encountered in the conduit more than 3 feet from the ends of the conduits to be extended, the additional debris shall be removed as directed by the Engineer and will be paid for as extra work as provided in Section 4-1.03D, "Extra Work," of the Standard Specifications.

5

Prior to installation of water line crossover extensions, the existing water lines shall be pressure tested for leakage in conformance with the provisions in Section 20-5.03H, "Pressure Testing," of the Standard Specifications. Repairs to the existing water line crossover, when ordered by the Engineer, will be paid for as extra work as provided in Section 4-1.03D, "Extra Work," of the Standard Specifications.

DRAFT

6. Delete "bituminous coated" when uncoated corrugated steel pipe is satisfactory. Use corrugated steel pipe (CSP) or corrugated high density polyethylene (CHDPE) pipe, but not both.

Conduit extensions shall be bituminous coated corrugated steel pipe or corrugated high density polyethylene (CHDPE) pipe.

7

Water line crossover extensions shall be plastic pipe (PR 315) (supply line).

Use Paras 8, 9 & 10 if there are sprinkler control crossovers to be extended.

8

Sprinkler control crossover extensions shall be Type 3 electrical conduit.

9

Conductors shall be removed from existing sprinkler control crossovers to be extended.

10

After installation of the sprinkler control crossover extensions, new conductors shall be installed without splices in existing and extended sprinkler control crossovers. New conductors shall match the removed conductors in color and size and shall be spliced to the existing conductors in adjacent pull boxes. After the new conductors are installed, the conductors shall be tested in the same manner specified for traffic signal, sign illumination, and lighting circuits in conformance with the provisions in Section 86-2.14B, "Field Testing," of the Standard Specifications.

11

After water line crossover extensions have been installed, existing and extended water line crossovers shall be retested for leakage in conformance with the provisions in Section 20-5.03H, "Pressure Testing," of the Standard Specifications. Leaks that develop shall be repaired at the Contractor's expense and the water line crossovers shall be retested until a satisfactory pressure test is achieved.

DRAFT

USE WITH 2006 STANDARDS

Use for Class 4 aggregate subbase.

10-1.__ AGGREGATE SUBBASE

Aggregate subbase must comply with Section 25, "Aggregate Subbases," of the Standard Specifications and these special provisions.

2

Aggregate subbase must be Class 4.

3. A Construction Engineering Work Plan (CEWP) with FHWA is required to use this paragraph.

KC 10-8-2009**

~~Aggregate may include processed glass. Place aggregate subbase with glass only where the material is to be permanently covered.~~

4. Deleting this paragraph must be approved by District Environmental.

Do not store reclaimed asphalt concrete or aggregate subbase with reclaimed asphalt concrete within 100 feet measured horizontally of any culvert, watercourse, or bridge.

5*. Specify grading and quality requirements.

KC 9-24-2009**

Class 4 aggregate subbase must comply with:

Grading (Percentage Passing)

Sieve Sizes	Operating Range	Contract Compliance
1-1/2"	100	100
No.4	30-65	25-70
No. 200	0-15	0-18

Quality

Test	Operating Range	Contract Compliance
Sand Equivalent (217)	21Min.	18 Min.
Resistance (R-value)(301)	50	50 Min.

6

If tests show grading or sand equivalent does not comply with the "Operating Range" specifications but complies with the "Contract Compliance" specifications, you may place aggregate subbase for the remainder of that day. Do not start another day's work until tests or other information indicate the next day's material complies with the "Operating Range" specifications.

7

If tests show grading or sand equivalent does not comply with the "Contract Compliance" specifications, remove the aggregate subbase represented by the tests. If you request and the

Engineer approves, that aggregate subbase may remain in place and the Department reduces payment by $2.00 per cubic yard for that aggregate subbase. If both the grading and sand equivalent do not comply with "Contract Compliance" specifications and the subbase remains in place, the Department only makes one payment reduction.

8

No single grading or sand equivalent test may represent more than the smaller of 500 cubic yards or one day's production.

9. Use if aggregate subbase is specified to be measured by the ton.

The Engineer converts tons to cubic yards for the purpose of reducing payment for noncompliant aggregate subbase left in place.

10*. Enter Class 1, Class 2 or Class 3.

KC 9-24-2009**

Instead of Class 4 aggregate subbase, you may place Class 1 aggregate subbase complying with the aggregate grading and quality requirements in Section 25-1.02A, "Class 1, Class 2, and Class 3 Aggregate Subbases," of the Standard Specifications. If you place Class 1 aggregate subbase, do not change back to Class 4 subbase without written approval from the Engineer.

11

Regardless of the aggregate subbase class supplied, the Department pays for aggregate subbase as Class 4 aggregate subbase.

DRAFT

USE WITH 2006 STANDARDS.

Use for Class 3 aggregate base.

10-1.__ AGGREGATE BASE

Aggregate base must comply with Section 26, "Aggregate Bases," of the Standard Specifications and these special provisions.

2

Aggregate base must be Class 3.

3. A Construction Engineering Work Plan (CEWP) with FHWA is required to use this paragraph.

KC 10-8-2009**

~~Aggregate may include processed glass. Place aggregate base with glass only where the material is to be permanently covered.~~

4. Deleting this paragraph must be approved by District Environmental.

Do not store reclaimed asphalt concrete or aggregate base with reclaimed asphalt concrete within 100 feet measured horizontally of any culvert, watercourse, or bridge.

5*. Specify grading and quality requirements. Add a row to the "Quality" table if a durability index is required. If the alternative gradings specified in Section 26-1.02B are to be used, delete the "Grading" table.

Class 3 aggregate base must comply with:

Grading (Percentage Passing)

	1-1/2 inch Maximum		**¾ inch Maximum**	
Sieve Sizes	Operating Range	Contract Compliance	Operating Range	Contract Compliance
2”	100	100		
1-1/2”	90-100	87-100		
1”	--	--	100	100
¾”	50-85	45-90	90-100	87-100
No.4	24-45	20-50	35-60	30-65
No. 30	10-25	6-29	10-30	5-35
No. 200	2-11	0-14	2-11	0-14

Quality

Test	Operating Range	Contract Compliance
Sand Equivalent	25 Min.	22 Min.
Resistance (R-value)	----	78 Min.
Durability Index	-	35 Min

6. Use when durability index is added to the "Quality" table.

Do not treat aggregate with lime, cement, or other chemical material before the Department performs the Durability Index test. The Engineer does not consider any untreated reclaimed asphalt concrete and portland cement concrete to be treated with lime, cement, or other chemical material for purposes of performing the Durability Index test.

DRAFT

7

If tests show grading or sand equivalent does not comply with the "Operating Range" specifications but complies with the "Contract Compliance" specifications, you may place aggregate base for the remainder of that day. Do not start another day's work until tests or other information indicate the next day's material complies with the "Operating Range" specifications.

8

If tests show grading or sand equivalent does not comply with the "Contract Compliance" specifications, remove the aggregate base represented by the tests. If you request and the Engineer approves, that aggregate base may remain in place and the Department reduces payment by $2.25 per cubic yard for that aggregate base. If both the grading and sand equivalent do not comply with "Contract Compliance" specifications and the base remains in place, the Department only makes one payment reduction.

9

No single grading or sand equivalent test may represent more than the smaller of 500 cubic yards or one day's production.

10. Use if aggregate base is specified to be measured by the ton.

KC 9-24-2009**

~~The Engineer converts tons to cubic yards for the purpose of reducing payment for noncompliant aggregate base left in place.~~

11*. Use this paragraph if the 0.50-foot maximum compacted thickness specified in Section 26-1.04, "Spreading," of the Standard Specifications is increased.

KC 9-24-2009**

~~The maximum compacted thickness of any 1 layer of aggregate base must not exceed __ foot.~~

12. Use when theoretical volume CTB is placed over theoretical volume Class 3 AB.

KC 9-24-2009**

~~If cement treated base is placed over Class 3 aggregate base, the aggregate base finished surface must not project above the grade established by the Engineer at any point. At locations where the aggregate base planned thickness, less allowable tolerance, is not obtained and is not compensated for by an equivalent thickness of cement treated base, take corrective measures to obtain the thickness. If you request and the Engineer approves, aggregate base at these locations may remain in place and the Department reduces payment for that aggregate base. The Department deducts the product of:~~

~~1. The deficient thickness less allowable tolerance~~
~~2. The planned width~~
~~3. The longitudinal distance between locations showing specified thickness~~
~~4. The higher of $20.00 per cubic yard or the aggregate base contract bid price~~

DRAFT

USE WITH 2006 STANDARDS.

Use with amended Section 39, "Hot Mix Asphalt." Edit in plain language.

Use for projects with hot mix asphalt (HMA) Type A or Type B.

Use the Method process on small volume projects, miscellaneous areas, and areas inaccessible to spreading and rolling equipment.

Use the Standard process on all projects that do not meet the criteria for Method and Quality Control / Quality Assurance including thin HMA blankets and projects in traffic lanes.

Use the Quality Control / Quality Assurance (QC / QA) process on projects containing at least 10,000 tons of HMA Type A or Type B.

For projects using the QC / QA process, include SSP 39-400, "Hot Mix Asphalt Aggregate Lime Treatment - Slurry Method," SSP 39-450, "Hot Mix Asphalt Aggregate Lime Treatment - Dry Lime Method," and SSP 39-500, "Liquid Antistrip Treatment."

BEES item codes possibly triggered by this SSP are:

390130	**Hot Mix Asphalt**
390131	**Hot Mix Asphalt ((use with QC / QA))**
390132	**Hot Mix Asphalt (Type A)**
390133	**Hot Mix Asphalt (Type B)**
390135	**Hot Mix Asphalt (Leveling)**
397005	**Tack Coat**
394060	**Data Cores**

Use other HMA BEES item codes required by the plans or other SSPs (e.g., RHMA, OGFC, dike, rumble strips, etc.)

1*. Fill in the type of HMA (Type A or Type B) and the construction process to be used (Method, Standard, or Quality Control / Quality Assurance). Edit for multiple types and methods.

10-1.__ HOT MIX ASPHALT

KC 9-24-2009**

GENERAL

Summary

This work includes producing and placing hot mix asphalt (HMA) Type A using the standard process.

2

Comply with Section 39, "Hot Mix Asphalt," of the Standard Specifications.

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Submittals

3. Use Paras 3 through 5 for QC / QA projects only. The District may have an agreement with the Statewide Pavement Engineer for antistrip treatment on Method and Standard process projects. This agreement is reflected in District SSPs (e.g., 39-052 is District 2's version of 39-050).

KC 9-23-2009**

~~Quality Control / Quality Assurance Projects~~

~~With the job mix formula (JMF) submittal, submit:~~

~~1. California Test 204 plasticity index results~~
~~2. California Test 371 tensile strength ratio results for untreated HMA~~
~~3. California Test 371 tensile strength ratio results for treated HMA if untreated HMA tensile strength ratio is below 70~~

4

~~At project start-up and once during production, submit samples split from your HMA production sample for California Test 371 to the Engineer and the Transportation Laboratory, Attention: Moisture Test.~~

~~5~~

~~With the JMF submittal, at project start-up, and each 5,000 tons, submit the California Test 371 test results for mix design and production to the Engineer and electronically to:~~

~~Moisture_Tests@dot.ca.gov~~

6. If there is no paving on the traveled way, delete Paras 6 through 10.

Data Cores

Three business days before starting coring, submit proposed methods and materials for backfilling data core holes.

7

Submit to the Engineer and electronically to Coring@dot.ca.gov:

1. A summary of data cores taken
2. A photograph of each data core

8

For each data core, the summary must include:

1. Project identification number
2. Date cored
3. Core identification number
4. Type of materials recovered
5. Type and approximate thickness of unstabilized material not recovered
6. Total core thickness
7. Thickness of each individual material to within:

DRAFT

7.1 For recovered material, 1/2 inch
7.2 For unstabilized material, 1.0 inch

8. Location including:

8.1. County
8.2. Route
8.3. Post mile
8.4. Lane number
8.5. Lane direction
8.6. Station

9

Each data core digital photograph must include a ruler laid next to the data core. Each photograph must include:

1. The core
2. Project identification number
3. Core identification number
4. Date cored
5. County
6. Route
7. Post mile
8. Lane number
9. Lane direction

10

After data core summary and photograph submittal, dispose of cores under Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

11. Use Paras 11 through 14 for QC / QA projects only. Delete the subsection headings if the paras are deleted.

KC 9-24-2009**

~~**Quality Control and Assurance**~~

~~***Quality Control / Quality Assurance Projects***~~

~~For the mix design, determine the plasticity index of the aggregate blend under California Test 204. Choose an antistrip treatment and use the corresponding laboratory procedure for the mix design in compliance with:~~

DRAFT

~~**Antistrip Treatment Lab Procedures for Mix Design**~~

~~Antistrip Treatment~~	~~Lab Procedure~~
~~Plasticity index from 4 to 10[a]~~	
~~Dry hydrated lime with marination~~	~~LP 6~~
~~Lime slurry with marination~~	~~LP 7~~
~~Plasticity index less than 4~~	
~~Liquid~~	~~LP 5~~
~~Dry hydrated lime without marination~~	~~LP 6~~
~~Dry hydrated lime with marination~~	~~LP 6~~
~~Lime slurry with marination~~	~~LP 7~~

~~Notes:~~

~~[a] If the plasticity index is greater than 10, do not use that aggregate blend.~~

~~**12**~~

~~For the mix design, determine tensile strength ratio under California Test 371 on untreated HMA. If the tensile strength ratio is less than 70:~~

~~1. Choose from the antistrip treatments specified based on plasticity index.~~
~~2. Test treated HMA under California Test 371.~~
~~3. Treat to a minimum tensile strength ratio of 70.~~

~~**13**~~

~~On the first production day and at least every 5,000 tons, sample HMA and test under California Test 371.~~

~~**14**~~

~~The Department does not use California Test 371 test results for JMF verification and production to determine specification compliance.~~

MATERIALS

Asphalt Binder

15*. Fill in the HMA type and asphalt binder grade. See Design Information Bulletin 86.) Edit for multiple types and grades.

KC 9-24-2009**

The grade of asphalt binder mixed with aggregate for HMA Type A must be PG64-10.

Aggregate

16*. For QC/QA and Standard projects, use the following table to determine the grading. Edit for multiple types and grades.

KC 9-24-2009**

Specified Total Thickness Range	Grading
0.08 foot – 0.125 foot	**3/8-inch**
0.125 foot – 0.20 foot	**1/2-inch**
0.20 foot and above	**3/4-inch**

The aggregate for HMA Type A must comply with the 3/4-inch grading.

DRAFT

CONSTRUCTION

Paras 17 through 26 are miscellaneous clauses for HMA projects. Delete paragraphs that do not apply.

17. Use when rumble strips are shown on the plans.

~~**Rumble Strips**~~

KC 9-24-2009**

~~Construct rumble strips in the top layer of new HMA surfacing.~~

Vertical Joints

18. Use on 2-lane highways where the thickness of HMA is 0.15 foot or less and the vertical joint between lanes is to be kept to a minimum. Do not use this para with Para 21.

KC 9-24-2009**

~~If you perform half-width paving, at the end of each day's work the distance between the ends of adjacent surfaced lanes must not be greater than can be completed in the following day of normal paving.~~

19. Use when shoulders or median borders are to be paved.

Before opening the lane to public traffic, pave shoulders and median borders adjacent to a lane being paved.

20. Use on projects or portions of projects with HMA surfacing thicker than 0.15 foot. Delete this para if Para 21 is used.

Do not leave a vertical joint more than 0.15 foot high between adjacent lanes open to public traffic.

21. Use if a vertical joint is not allowed between lanes open to traffic, regardless of thickness.

Place HMA on adjacent traveled way lanes so that at the end of each work shift, the distance between the ends of HMA layers on adjacent lanes is between 5 feet and 10 feet. Place additional HMA along the transverse edge at each lane's end and along the exposed longitudinal edges between adjacent lanes. Hand rake and compact the additional HMA to form temporary conforms. You may place Kraft paper or another approved bond breaker under the conform tapers to facilitate the taper removal when paving operations resume.

Widening

22. Use for widening if new structural section is to be placed to the elevation of the existing surfacing for the entire length of the project before placing the uppermost layer of HMA. If a surface treatment other than HMA is to be placed on the existing pavement, edit "HMA" to match the surface treatment. Delete "on both sides of the existing pavement," if widening is only on one side.

If widening existing pavement, construct new structural section on both sides of the existing pavement to match the elevation of the existing pavement's edge for the project's entire length before placing HMA over the existing pavement.

23. Use when widening is not continuous for the entire length of the project, and new structural section is to be constructed to the elevation of the existing

surfacing at each location of widening before placing the uppermost layer of HMA surfacing at each location. If a surface treatment other than HMA is to be placed on the existing pavement, edit "HMA" to match the surface treatment. Delete "on both sides of the existing pavement," if widening is only on one side.

KC 9-24-2009**

~~If widening existing pavement, construct new structural section on both sides of the existing pavement to match the elevation of the existing pavement's edge at each location before placing HMA over the existing pavement.~~

24*. Use when the structural section is to be constructed to the elevation of the existing surfacing for the specified lengths before placing the uppermost layer of HMA surfacing at each location. If a surface treatment other than HMA is to be placed on the existing pavement, edit "HMA" to match the surface treatment. Fill in the increment. Delete "on both sides of the existing pavement," if widening is only on one side.

KC 9-24-2009**

~~If widening existing pavement, construct new structural section on both sides of the existing pavement to match the elevation of the existing pavement's edge in increments of at least _____ feet before placing HMA over the existing pavement.~~

Conform Tapers

25. Use when conform tapers are used in place of paving shoulders and/or median borders.

KC 9-24-2009**

~~Place shoulder conform tapers concurrently with the adjacent lane's paving.~~

26. DO NOT use for paving driveways and road connections. This paragraph covers the short conform taper at the edge of pavement.

KC 9-24-2009**

~~Place additional HMA along the pavement's edge to conform to road connections and private drives. Hand rake, if necessary, and compact the additional HMA to form a smooth conform taper.~~

27. If there is no paving on the traveled way, delete Paras 27 through 31.

Data Cores

Take data cores that include the completed HMA pavement, underlying base, and subbase material. Protect data cores and surrounding pavement from damage.

28

Take 4-inch or 6-inch diameter data cores:

1. At the beginning, end, and every 1/2 mile within the paving limits of each route on the project
2. After all paving is complete
3. From the center of the specified lane

DRAFT

29

On a 2-lane roadway, take data cores from either lane. On a 4-lane roadway, take data cores from each direction in the outermost lane. On a roadway with more than 4 lanes, take data cores from the median lane and the outermost lane in each direction.

30

Each core must include the stabilized materials encountered. You may choose not to recover unstabilized material but you must identify the material. Unstabilized material includes:

1. Granular material
2. Crumbled or cracked stabilized material
3. Sandy or clayey soil

PAYMENT

31

The contract lump sum price paid for data cores includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in data coring, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

DRAFT

USE WITH 2006 STANDARDS.

Use with amended Section 39, "Hot Mix Asphalt." Edit in plain language.

Use when project includes miscellaneous areas.

Choose a standard item code for the HMA material and use:

394090 Place Hot Mix Asphalt (Miscellaneous Area)

Do not create an item for Tack Coat for this work.

10-1.__ HOT MIX ASPHALT (MISCELLANEOUS AREAS)

GENERAL

Summary

This work includes producing hot mix asphalt (HMA) and placing it on miscellaneous areas.

2

Comply with Section 39, "Hot Mix Asphalt," of the Standard Specifications.

CONSTRUCTION

3*. Edit for maximum HMA thickness. Delete if not applicable.

KC 9-24-2009**

In ~~median areas adjacent to slotted median drains, each layer of HMA must not exceed ___ foot maximum compacted thickness.~~

MEASUREMENT AND PAYMENT

4. Use when HMA (miscellaneous area) locations to be paid for as place hot mix asphalt (miscellaneous area) are designated on the plans. Delete Para 5 when Para 4 is used.

If there is a contract item for place hot mix asphalt (miscellaneous area) paid for by the square yard, this item is limited to the areas listed on the plans and is in addition to the contract items for the materials involved.

5*. Use when HMA (miscellaneous area) locations to be paid for as place hot mix asphalt (miscellaneous area) are designated in the special provisions (not on the plans). Edit as required including deletion of non-applicable facilities. Delete Para 4 when Para 5 is used.

KC 9-24-2009**

~~If there is a contract item for place hot mix asphalt (miscellaneous area) paid for by the square yard, this item is limited to ditches, overside drains, aprons at the ends of drainage structures, and _____, and is in addition to the contract items for the materials involved.~~

6. Delete if an item for tack coat is in the Engineer's Estimate and add the tack coat quantity for this work to that tack coat item.

Full compensation for tack coat for miscellaneous areas is considered as included in the contract price paid per ton for the hot mix asphalt used in miscellaneous areas and no separate payment will be made therefor.

DRAFT

USE WITH 2006 STANDARDS.

Use with amended Section 39, "Hot Mix Asphalt." Edit in plain language.

Use with Standard Plan A40B.

Use for rumble strips in new or existing material. Variations in width and location of rumble strips, including centerlines, require approval from the Traffic Safety Research Branch. Centerline rumble strips, if approved, should use a separate one-time item code.

Use Contract Item Code:

394050 Rumble Strip

1. If the method (ground-in or rolled-in) is not a choice, edit to suit. Edit for rumble strips in existing asphalt concrete (i.e., use the term "existing asphalt concrete.")

KC 9-24-2009**

~~**10-1.__ RUMBLE STRIP**~~

~~**GENERAL**~~

~~**Summary**~~

~~This work includes constructing rumble strips in hot mix asphalt surfacing by ground-in or rolled-in methods.~~

~~**CONSTRUCTION**~~

~~**2**~~

~~If you choose to grind, select the method and equipment for constructing ground-in indentations.~~

~~**3**~~

~~Construct rumble strips within 2 inches of the specified alignment. The grinding equipment must be equipped with a sighting device enabling the operator to maintain the rumble strip alignment.~~

~~**4**~~

~~Indentations must comply with the specified dimensions within 0.06 inch in depth and 10 percent in length and width.~~

~~**5**~~

~~The Engineer orders grinding or removal and replacement of noncompliant rumble strips to bring them within specified tolerances. Ground surface areas must be neat and uniform in appearance.~~

~~**6**~~

~~The grinding equipment must be equipped with a vacuum attachment to remove residue from the roadbed.~~

DRAFT

~~7~~

~~Dispose of removed material under Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.~~

~~8~~

~~On ground areas, apply fog seal coat under Section 37-1, "Seal Coats," of the Standard Specifications.~~

~~**MEASUREMENT AND PAYMENT**~~

~~9~~

~~The contract item for rumble strip is measured by the station along the length of the rumble strips without deductions for gaps between indentations.~~

~~**10. Delete fog seal coat clause if rolled-in indentations are specified.**~~

~~The contract price paid per station for rumble strip includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing rumble strip complete in place including furnishing and applying fog seal coat to the actual ground areas, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.~~

{ XE "49-200_E_B06-06-08" }

USE WITH 2006 STANDARDS.

Use for all piles. Add SSP 49-400, SSP S8-W04, and other 49-XXX specs as needed.

KC 9-24-2009**

10-1.__ PILING

GENERAL

Piling shall conform to the provisions in Section 49, "Piling," of the Standard Specifications, and these special provisions.

2

Unless otherwise specified, welding of any work performed in conformance with the provisions in Section 49, "Piling," of the Standard Specifications, shall be in conformance with the requirements in AWS D1.1.

KC 9-24-2009**

3. For projects with precast piles, use with SSP S8-C15; otherwise delete "Precast Concrete Quality Control."

~~Attention is directed to "Project Information," "Precast Concrete Quality Control," and "Welding" of these special provisions.~~

4*. Use only for locations with low overhead clearance, generally < 20 feet.

KC 9-24-2009**

~~At the option of the Contractor, internal drop hammers that strike the tip of closed ended piles, or impact hammers that do not meet the minimum energy requirements, will be allowed to advance the piles to within 3 feet of the specified tip elevation at the locations listed in the~~

~~following table. The piles shall be driven the remaining 3 feet to the specified tip elevation using impact hammers that conform to the provisions in Section 49-1.05, "Driving Equipment," of the Standard Specifications.~~

~~Bridge Name or Number~~	~~Abutment Number~~	~~Bent Number~~

5*. Use only for sheet piles or for CISS shells and CIDH permanent casings that have NO geotechnical capacity along the length of the pile or casing. Delete "at ... table:" when the table is not used. Delete "or oscillators" when this paragraph is used for sheet piles only.

KC 9-24-2009**

~~At the option of the Contractor, vibratory hammers, rotators, or oscillators may be used to install piles or permanent casings at the locations listed in the following table:~~

~~Bridge Name or Number~~	~~Abutment Number~~	~~Bent Number~~

6*. Edit or delete to suit project. Use ONLY items that apply to the project. DO NOT leave this unedited. This para is for project specific conditions ONLY. Use multiple structure specific paragraphs when foundation reports show differing conditions for different structures.

KC 9-24-2009**

~~Difficult pile installation is anticipated due to the presence of soft bay mud overlying dense soils, caving soils, hazardous and contaminated materials, serpentine materials, tidal flow fluctuation, high ground water, cobbles and boulders, subsurface concrete debris, low overhead clearance, underground utilities, overhead utilities, the requirements of pile embedment into rock, sound control, vibration monitoring and traffic control.~~

7. Use when driven piles are shown for sound walls. Delete for special designs where bearing is required and nominal resistance is shown on the plans; verify with designer.

KC 9-24-2009**

~~Driven piles for sound walls shall be driven to obtain the specified penetration; nominal resistance will not be determined in conformance with the provisions in Section 49-1.08, "Pile Driving Acceptance Criteria," of the Standard Specifications, nor by the provisions specified in these special provisions.~~

8*. Use for Alt. X piles for strutted abutments, cantilever abutments, Type 1 retaining walls, counterfort retaining walls, or when instructed by the Offices of Structure Design and insert locations.

KC 9-24-2009**

~~Alternative "X" type piles shall have a dimension, T, not less than 14 inches at ____.~~

9*. Use for nonstandard unfilled pipe piles. Verify locations and diameters with designer. Create a table format for multiple locations and sizes. Strike when piles are already shown to be placed at the minimum allowed spacing per BDS Article 4.3.6.1.1.

KC 9-24-2009**

~~At the Contractor's option, the Contractor may substitute larger diameter unfilled pipe piles for the unfilled pipe piles shown on the plans at _____. The maximum allowable diameter of the substituted pile shall be _____ inches, and the wall thickness shall be at least that shown on the plans.~~

10*. Use for nonstandard cast-in-steel-shell concrete piles. Verify locations and diameters with designer. Create a table format for multiple locations and sizes. Strike when piles are already shown to be placed at the minimum allowed spacing per BDS Article 4.3.6.1.1.

KC 9-24-2009**

~~At the Contractor's option, larger diameter filled steel shells may be substituted for the filled steel shells shown on the plans at _____. The maximum allowable diameter of the substituted pile shall be ____ inches, and the wall thickness for the steel shells shall be at least that shown on the plans. The reinforcement and depth of concrete filling shall be that shown on the plans.~~

11*. Use when the pile data table on the plans shows a nominal driving resistance for driven piling. If the foundations recommendations show a calculated nominal driving resistance greater than the nominal resistance shown on the plans, this value should be shown on the pile data table on the plans instead of the nominal resistance. Delete ",the plans," when there are no standard plan piles on the project.

KC 9-24-2009**

~~When a calculated nominal driving resistance is shown on the plans for piling, that value shall be utilized in lieu of nominal resistance in Section 49, "Piling," of the Standard Specifications, the plans, and these special provisions.~~

DRAFT

USE WITH 2006 STANDARDS.

Use with SSP 49-200 for CIDH concrete piling.

CAST-IN-DRILLED-HOLE CONCRETE PILES

Added
KC 9-24-2009**

GENERAL

Summary

Cast-in-drilled-hole (CIDH) concrete piling shall conform to the provisions in Section 49-4, "Cast-In-Place Concrete Piles," of the Standard Specifications and these special provisions.

2

The provisions of "Welding" of these special provisions shall not apply to temporary steel casings.

SUBMITTALS

Pile Installation Plan

3

The Contractor shall submit a pile installation plan to the Engineer for approval for all CIDH concrete piling. The pile installation plan shall be submitted at least 15 days before constructing CIDH concrete piling and shall include complete descriptions, details, and supporting calculations for the following:

A. Concrete mix design, certified test data, and trial batch reports.
B. Drilling or coring methods and equipment.
C. Proposed method for casing installation and removal when necessary.
D. Plan view drawing of pile showing reinforcement. Include inspection pipes on the drawing if inspection pipes are required.
E. Methods for placing, positioning, and supporting bar reinforcement.
F. Methods and equipment for determining the depth of concrete and actual and theoretical volume placed, including effects on volume of concrete when any casings are withdrawn.
G. Methods and equipment for verifying that the bottom of the drilled hole is clean before placing concrete.
H. Methods and equipment for preventing upward movement of reinforcement, including the Contractor's means of detecting and measuring upward movement during concrete placement operations.

DRAFT

Paras 4 thru 7, use when CIDH concrete piling is greater than or equal to 24 inches in diameter AND greater than 5 feet in length.

4

For concrete placed under slurry, the pile installation plan shall also include complete descriptions, details, and supporting calculations for the following:

A. Concrete batching, delivery, and placing systems, including time schedules and capacities. Time schedules shall include the time required for each concrete placing operation at each pile.
B. Concrete placing rate calculations. When requested by the Engineer, calculations shall be based on the initial pump pressures or static head on the concrete and losses throughout the placing system, including anticipated head of slurry and concrete to be displaced.
C. Suppliers' test reports on the physical and chemical properties of the slurry and any proposed slurry chemical additives, including Material Safety Data Sheet.
D. Slurry testing equipment and procedures.
E. Methods of removal and disposal of excavation, slurry, and contaminated concrete, including removal rates.
F. Methods and equipment for slurry agitating, recirculating, and cleaning.

QUALITY ASSURANCE

Concrete Test Batch

5

Before concrete is deposited under slurry, a concrete test batch shall be produced and delivered to the project under conditions and in time periods similar to those expected during placement of concrete in the piles. Concrete shall be placed in an excavated hole or suitable container of adequate size to allow for testing as specified herein. Depositing of concrete under slurry will not be required. In addition to meeting the specified nominal slump, the concrete test batch shall meet the following requirements:

A. For piles where the time required for each concrete placing operation, as submitted in the placing plan, will be 2 hours or less, the concrete test batch shall demonstrate that the proposed concrete mix design achieves a slump of at least 7 inches after twice that time has elapsed.
B. For piles where the time required for each concrete placing operation, as submitted in the placing plan, will be more than 2 hours, the concrete test batch shall demonstrate that the proposed concrete mix design achieves a slump of at least 7 inches after that time plus 2 hours has elapsed.

6

The time period shall begin at the start of placement. Concrete shall not be vibrated or agitated during the test period. Slump tests will be performed in conformance with the requirements in California Test 556.

7

Upon completion of testing, concrete shall be disposed of in conformance with the provisions in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

DRAFT

MATERIALS

Concrete

8. Use when CIDH concrete piling is greater than or equal to 24 inches in diameter AND greater than 5 feet in length.

Concrete deposited under slurry shall have a nominal slump equal to or greater than 7 inches, contain not less than 675 pounds of cementitious material per cubic yard, and be proportioned to prevent excessive bleed water and segregation. The nominal and maximum slump and penetration requirements in Section 90-6.06, "Amount of Water and Penetration," of the Standard Specifications shall not apply.

9. Use where CIDH concrete piling is in a corrosive environment or shown in slag embankments (District 07, 08, 11, and 12 projects). Add SSP S8-C04. For CIDH concrete piling in slag embankments, edit SSP S8-C04 assuming the slag embankments contain sulfates in excess of 2000 ppm.

KC 9-24-2009**

~~Concrete shall conform to the requirements in "Corrosion Control for Portland Cement Concrete" of these special provisions.~~

10. Use in Climate Area III. Also use SSP 51-321 for projects in District 02.

KC 9-24-2009**

~~Concrete for portions of CIDH concrete piling to be formed shall contain not less than 675 pounds of cementitious material per cubic yard and shall contain 6.0±1.5 percent air entrainment in the freshly mixed concrete.~~

11. Use where CIDH concrete piling has a diameter of greater than 8 feet. Add SSP 49-340. For CIDH piles with a diameter greater than 14 feet, delete "for Cast-in-Place Concrete Piles" and add SSP 51-331.

KC 9-24-2009**

~~Concrete shall conform to the requirements in "Mass Concrete for Cast-in-Place Concrete Piles" of these special provisions.~~

Aggregate Grading

12

The combined aggregate grading shall be either the 1-inch maximum grading, the 1/2-inch maximum grading, or the 3/8-inch maximum grading and shall conform to the requirements in Section 90-3, "Aggregate Gradings," of the Standard Specifications.

13. Use when CIDH concrete piling is greater than or equal to 24 inches in diameter AND greater than 5 feet in length.

When concrete is placed under slurry, the combined aggregate grading shall be either the 1/2-inch maximum grading or the 3/8-inch maximum grading and shall conform to the requirements in Section 90-3, "Aggregate Gradings," of the Standard Specifications.

DRAFT

14. Use when permanent steel casings are shown on the plans. Add SSP 49-350.

KC 9-24-2009**

~~Permanent Steel Casings~~

~~Permanent steel casings shall conform to the provisions of "Steel Pipe Piling" of these special provisions.~~

15. Use when permanent steel casings are shown on the plans or an optional construction joint is shown on the plans for Type II CIDH piles.

KC 9-24-2009**

~~Grout~~

~~Grout used to backfill casings shall conform to the provisions in Section 50-1.09, "Bonding and Grouting," of the Standard Specifications. Aggregate shall be used to extend the grout, but only to the extent that the cement content of the grout is not less than 845 pounds per cubic yard of grout. California Test 541 will not be required nor will the grout be required to pass through a sieve with a 0.07-inch maximum clear opening before being introduced into the grout pump. Aggregate shall consist of at least 70 percent fine aggregate and approximately 30 percent pea gravel, by weight. Fine aggregate shall conform to the provisions of Section 90-2, "Materials," of the Standard Specifications. The size of pea gravel shall be such that 100 percent passes the 1/2-inch sieve, a minimum 90 percent passes the 3/8-inch sieve, and not more than 5 percent passes the No. 8 sieve.~~

16. Use ONLY when recommended by Geotechnical Services for backfilling the annular space between the soil and the casing for Type II CIDH piles.

KC 9-24-2009**

Slurry Cement Backfill

~~Slurry cement backfill shall conform to Section 19-3.062, "Slurry Cement Backfill," of the Standard Specifications except that the slurry cement backfill shall contain not less than 282 pounds of cementitious material per cubic yard.~~

Slurry

17*

INSERT SSP 49-311 when CIDH concrete piling is greater than or equal to 24 inches in diameter AND greater than 5 feet in length. Delete "Slurry" heading if SSP 49-311 is not inserted.

KC 9-24-2009**

Inserted

DRAFT

USE WITH 2006 STANDARDS.

Use for Slurry. Insert into SSP 49-310.

Mineral Slurry

Mineral slurry shall be mixed and thoroughly hydrated in slurry tanks, and slurry shall be sampled from the slurry tanks and tested before placement in the drilled hole.

2

Slurry shall be recirculated or continuously agitated in the drilled hole to maintain the specified properties.

3

Recirculation shall include removal of drill cuttings from the slurry before discharging the slurry back into the drilled hole. When recirculation is used, the slurry shall be sampled and tested at least every 2 hours after beginning its use until tests show that the samples taken from the slurry tank and from near the bottom of the hole have consistent specified properties. Subsequently, slurry shall be sampled at least twice per shift as long as the specified properties remain consistent.

4

Slurry that is not recirculated in the drilled hole shall be sampled and tested at least every 2 hours after beginning its use. The slurry shall be sampled mid-height and near the bottom of the hole. Slurry shall be recirculated when tests show that the samples taken from mid-height and near the bottom of the hole do not have consistent specified properties.

5

Slurry shall also be sampled and tested before final cleaning of the bottom of the hole and again just before placing concrete. Samples shall be taken from mid-height and near the bottom of the hole. Cleaning of the bottom of the hole and placement of the concrete shall not start until tests show that the samples taken from mid-height and near the bottom of the hole have consistent specified properties.

DRAFT

6

Mineral slurry shall be tested for conformance to the requirements shown in the following table:

MINERAL SLURRY		
PROPERTY	REQUIREMENT	TEST
Density (pcf) - before placement in the drilled hole - during drilling - before final cleaning - immediately before placing concrete	64.3* to 69.1* 64.3* to 75.0*	Mud Weight (Density) API 13B-1 Section 1
Viscosity (seconds/quart) bentonite attapulgite	28 to 50 28 to 40	Marsh Funnel and Cup API 13B-1 Section 2.2
pH	8 to 10.5	Glass Electrode pH Meter or pH Paper
Sand Content (percent) - before final cleaning - immediately before placing concrete	less than or equal to 4.0	Sand API 13B-1 Section 5
*When approved by the Engineer, slurry may be used in salt water, and the allowable densities may be increased up to 2 pcf. Slurry temperature shall be at least 40°F when tested.		

7

Any caked slurry on the sides or bottom of hole shall be removed before placing reinforcement. If concrete is not placed immediately after placing reinforcement, the reinforcement shall be removed and cleaned of slurry, the sides of the drilled hole cleaned of caked slurry, and the reinforcement again placed in the hole for concrete placement.

DRAFT

8

Synthetic Slurry

Synthetic slurries shall be used in conformance with the manufacturer's recommendations and these special provisions. The following synthetic slurries may be used:

PRODUCT	MANUFACTURER
SlurryPro CDP	KB Technologies Ltd. 3648 FM 1960 West Suite 107 Houston, TX 77068 (800) 525-5237
Super Mud	PDS Company c/o Champion Equipment Company 8140 East Rosecrans Ave. Paramount, CA 90723 (562) 634-8180
Shore Pac GCV	CETCO Drilling Products Group 1350 West Shure Drive Arlington Heights, IL 60004 (847) 392-5800
Novagel Polymer	Geo-Tech Drilling Fluids 220 N. Zapata Hwy, Suite 11A Laredo, TX 78043 (210) 587-4758

9

Inclusion of a synthetic slurry on the above list may be obtained by meeting the Department's requirements for synthetic slurries. The requirements can be obtained from the Offices of Structures Design, P.O. Box 168041, MS# 9-4/11G, Sacramento, CA 95816-8041.

10

Synthetic slurries listed may not be appropriate for a given site.

11

Synthetic slurries shall not be used in holes drilled in primarily soft or very soft cohesive soils as determined by the Engineer.

12

A manufacturer's representative, as approved by the Engineer, shall provide technical assistance for the use of their product, shall be at the site before introduction of the synthetic slurry into a drilled hole, and shall remain at the site until released by the Engineer.

13

Synthetic slurries shall be sampled and tested at both mid-height and near the bottom of the drilled hole. Samples shall be taken and tested during drilling as necessary to verify the control of the properties of the slurry. Samples shall be taken and tested when drilling is complete, but before final cleaning of the bottom of the hole. When samples are in conformance with the requirements shown in the following tables for each slurry product, the bottom of the hole shall be cleaned and any loose or settled material removed. Samples shall be obtained and tested after final cleaning and immediately before placing concrete.

DRAFT

14

SlurryPro CDP synthetic slurries shall be tested for conformance to the requirements shown in the following table:

SLURRYPRO CDP KB Technologies Ltd.		
PROPERTY	REQUIREMENT	TEST
Density (pcf) - during drilling - before final cleaning - just before placing concrete	 less than or equal to 67.0* less than or equal to 64.0*	Mud Weight (Density) API 13B-1 Section 1
Viscosity (seconds/quart) - during drilling -before final cleaning - just before placing concrete	 50 to 120 less than or equal to 70	Marsh Funnel and Cup API 13B-1 Section 2.2
pH	6 to 11.5	Glass Electrode pH Meter or pH Paper
Sand Content (percent) - before final cleaning - just before placing concrete	 less than or equal to 0.5	Sand API 13B-1 Section 5
*When approved by the Engineer, slurry may be used in salt water, and the allowable densities may be increased up to 2 pcf. Slurry temperature shall be at least 40°F when tested.		

DRAFT

15

Super Mud synthetic slurries shall be tested for conformance to the requirements shown in the following table:

SUPER MUD PDS Company		
PROPERTY	REQUIREMENT	TEST
Density (pcf) - before final cleaning - just before placing concrete	less than or equal to 64.0*	Mud Weight (Density) API 13B-1 Section 1
Viscosity (seconds/quart) - during drilling - before final cleaning - just before placing concrete	32 to 60 less than or equal to 60	Marsh Funnel and Cup API 13B-1 Section 2.2
pH	8 to 10.0	Glass Electrode pH Meter or pH Paper
Sand Content (percent) - before final cleaning -just before placing concrete	less than or equal to 0.5	Sand API 13B-1 Section 5
*When approved by the Engineer, slurry may be used in salt water, and the allowable densities may be increased up to 2 pcf. Slurry temperature shall be at least 40°F when tested.		

DRAFT

16

Shore Pac GCV synthetic slurries shall be tested for conformance to the requirements shown in the following table:

Shore Pac GCV CETCO Drilling Products Group		
PROPERTY	REQUIREMENT	TEST
Density (pcf) - before final cleaning - just before placing concrete	less than or equal to 64.0*	Mud Weight (Density) API 13B-1 Section 1
Viscosity (seconds/quart) - during drilling - before final cleaning - just before placing concrete	33 to 74 less than or equal to 57	Marsh Funnel and Cup API 13B-1 Section 2.2
pH	8.0 to 11.0	Glass Electrode pH Meter or pH Paper
Sand Content (percent) - before final cleaning -just before placing concrete	less than or equal to 0.5	Sand API 13B-1 Section 5
*When approved by the Engineer, slurry may be used in salt water, and the allowable densities may be increased up to 2 pcf. Slurry temperature shall be at least 40°F when tested.		

DRAFT

17

Novagel Polymer synthetic slurries shall be tested for conformance to the requirements shown in the following table:

NOVAGEL POLYMER Geo-Tech Drilling Fluids		
PROPERTY	REQUIREMENT	TEST
Density (pcf) - during drilling - before final cleaning - just before placing concrete	 less than or equal to 67.0* less than or equal to 64.0*	Mud Weight (Density) API 13B-1 Section 1
Viscosity (seconds/quart) - during drilling - before final cleaning - just before placing concrete	 45 to 104 less than or equal to 104	Marsh Funnel and Cup API 13B-1 Section 2.2
pH	6.0 to 11.5	Glass Electrode pH Meter or pH Paper
Sand Content (percent) - before final cleaning -just before placing concrete	 less than or equal to 0.5	Sand API 13B-1 Section 5
*When approved by the Engineer, slurry may be used in salt water, and the allowable densities may be increased up to 2 pcf. Slurry temperature shall be at least 40°F when tested.		

DRAFT

18

Water Slurry

At the option of the Contractor, water may be used as slurry when casing is used for the entire length of the drilled hole.

19

Water slurry shall be tested for conformance to the requirements shown in the following table:

WATER SLURRY		
PROPERTY	REQUIREMENT	TEST
Density (pcf) - before final cleaning - just before placing concrete	63.5*	Mud Weight (Density) API 13B-1 Section 1
Sand Content (percent) - before final cleaning -just before placing concrete	less than or equal to 0.5	Sand API 13B-1 Section 5
*When approved by the Engineer, salt water slurry may be used and the allowable densities may be increased up to 2 pcf.		

CONSTRUCTION

General

18. Use when CIDH concrete piling is greater than or equal to 24 inches in diameter AND greater than 5 feet in length

CIDH concrete piling 24 inches in diameter or larger may be constructed by excavation and depositing concrete under slurry.

19. Use when the plans show CIDH rock sockets.

KC 9-25-2009**

~~CIDH concrete piling (rock socket) shall consist of drilling or coring sockets in rock to the depths or lengths specified and filling the sockets with reinforced concrete. Cored holes shall conform to the provisions of Section 49-4.03, "Drilled Holes," of the Standard Specifications.~~

20*. Use when hazardous materials are present and refer to District hazardous earthwork specifications.

KC 9-25-2009**

**** Waiting for results from ADL testing by Caltrans. Will update this section accordingly once the results are received.**

Disposal of drill cuttings shall conform to the provisions in of these special provisions.

DRAFT

21

Portions of CIDH concrete piling shown on the plans to be formed shall be formed and finished in conformance with the provisions for concrete structures in Section 51, "Concrete Structures," of the Standard Specifications.

22. Use for piles that are end bearing. Edit "3 inches" if different from the clearance shown on the plans. If there are both end bearing and non–end bearing piles on the project, add "Except for CIDH concrete piling at ,". (Sign foundation and sound wall piles are typically not end bearing.)

KC 9-25-2009**

~~Reinforcement shall extend to 3 inches clear of the bottom of the drilled hole when the hole is drilled below the specified tip elevation.~~

Paras 23 and 24, use when permanent steel casings or optional construction joints for Type II CIDH piles are shown on the plans.

KC 9-25-2009**

~~***Permanent Steel Casing Installation***~~

~~**23. Delete methods of installation not allowed per the Foundation Report.**~~

~~Permanent steel casings shall be installed by impact or vibratory hammers, oscillators, rotators, or by placing in a drilled hole. The provisions of Section 49-1.08, "Pile Driving Acceptance Criteria," of the Standard Specifications shall not apply to permanent steel casings.~~

~~**24**~~

~~Permanent steel casings placed in a drilled hole shall conform to the following requirements:~~

~~A. Casings shall be positioned with spacers to center the casing inside the drilled hole. Spacers may be welded to the outside of the casing.~~
~~B. Voids in the annular space between the casing and the soil shall be filled with grout.~~
~~C. Grout shall be placed from the bottom of the casing using grout tubes. Placement of grout shall continue until all voids have been filled and the grout reaches the top of the casing. Free fall of the grout from the top to the bottom of the casing will not be allowed.~~
~~D. Grout shall be pumped into the annular space such that the grout head is maintained uniformly around the casing and no visible evidence of water or air is ejected at the top of the grout.~~
~~E. One grout tube shall be placed every 4 feet along the circumference of the casing with a minimum of 4 grout tubes per casing.~~
~~F. Grout tubes shall extend down to no less than 1 foot from the bottom of the casing.~~

~~**25. Use when the plans show permanent steel casings for CIDH concrete piling above CIDH rock sockets.**~~

~~If a permanent steel casing tip elevation above a CIDH concrete piling (rock socket) is lowered:~~

~~A. The CIDH concrete piling, including bar reinforcing steel, shall extend to that same elevation.~~
~~B. The specified tip elevation of the CIDH concrete piling (rock socket) shall extend to maintain the length of the rock socket into rock as shown on the plans.~~

~~**26. Use when Type II CIDH piles with an OPTIONAL construction joint is shown on the plans below the column cage reinforcement. RETAIN paras 23 and 24.**~~

~~If the Contractor elects to construct the optional construction joint shown on the plans for CIDH concrete piling and a permanent steel casing is not shown on the plans, the Contractor shall furnish and install a casing that:~~

~~A. Remains permanently in place.~~
~~B. Is watertight and of sufficient strength to prevent damage and to withstand the loads from installation procedures, drilling and tooling equipment, lateral concrete pressures, and earth pressures.~~

~~**26C. Revise "5 feet" to "2 feet" when placing in rock.**~~

~~C. Extends to an elevation at least 5 feet below the construction joint.~~
~~D. Does not extend above the top of the drilled hole or final grade which ever is lower.~~
~~E. Conforms to the requirements in Section 5-1.02A, "Excavation Safety Plans," of the Standard Specifications.~~
~~F. Does not increase the diameter of the CIDH concrete piling more than 2 feet.~~

~~**26G. Add "except that slurry cement backfill may be used instead of grout" after "casings" when recommended by Geotechnical Services.**~~

~~G. Is installed in conformance with the installation requirements for permanent steel casings.~~

Paras 27 thru 35, use when CIDH concrete piling is greater than or equal to 24 inches in diameter AND greater than 5 feet in length.

Placing Concrete

27

Concrete deposited under slurry shall be carefully placed in a compact, monolithic mass and by a method that will prevent washing of the concrete. Concrete deposited under slurry need not be vibrated. Placing concrete shall be a continuous operation lasting not more than the time required for each concrete placing operation at each pile, as submitted in the placing plan, unless otherwise approved in writing by the Engineer. Concrete shall be placed with concrete pumps and delivery tube system of adequate number and size to complete the placing of concrete in the time specified. The delivery tube system shall consist of one of the following:

A. A tremie tube or tubes, each of which are at least 10 inches in diameter, fed by one or more concrete pumps.
B. One or more concrete pump tubes, each fed by a single concrete pump.

28

The delivery tube system shall consist of watertight tubes with sufficient rigidity to keep the ends always in the mass of concrete placed. If only one delivery tube is utilized to place the concrete, the tube shall be placed near the center of the drilled hole. Multiple tubes shall be uniformly spaced in the hole. Internal bracing for the steel reinforcing cage shall accommodate the delivery tube system. Tremies shall not be used for piles without space for a 10-inch tube.

DRAFT

29

Spillage of concrete into the slurry during concrete placing operations shall not be allowed. Delivery tubes shall be capped with a watertight cap, or plugged above the slurry level with a good quality, tight fitting, moving plug that will expel the slurry from the tube as the tube is charged with concrete. The cap or plug shall be designed to be released as the tube is charged. The pump discharge or tremie tube shall extend to the bottom of the hole before charging the tube with concrete. After charging the delivery tube system with concrete, the flow of concrete through a tube shall be induced by slightly raising the discharge end. During concrete placement, the tip of the delivery tube shall be maintained as follows to prevent reentry of the slurry into the tube. Until at least 10 feet of concrete has been placed, the tip of the delivery tube shall be within 6 inches of the bottom of the drilled hole, and then the embedment of the tip shall be maintained at least 10 feet below the top surface of the concrete. Rapid raising or lowering of the delivery tube shall not be permitted. If the seal is lost or the delivery tube becomes plugged and must be removed, the tube shall be withdrawn, the tube cleaned, the tip of the tube capped to prevent entrance of the slurry, and the operation restarted by pushing the capped tube 10 feet into the concrete and then reinitiating the flow of concrete.

30

When slurry is used, a fully operational standby concrete pump, adequate to complete the work in the time specified, shall be provided at the site during concrete placement. The slurry level shall be maintained 10 feet above the piezometric head or within 12 inches of the top of the drilled hole, whichever is higher.

31

A log of concrete placement for each drilled hole shall be maintained by the Contractor when concrete is deposited under slurry. The log shall show the pile location, tip elevation, dates of excavation and concrete placement, total quantity of concrete deposited, length and tip elevation of any casing, and details of any hole stabilization method and materials used. The log shall include a 8-1/2" x 11" sized graph of the concrete placed versus depth of hole filled. The graph shall be plotted continuously throughout placing of concrete. The depth of drilled hole filled shall be plotted vertically with the pile tip oriented at the bottom and the quantity of concrete shall be plotted horizontally. Readings shall be made at least at each 5 feet of pile depth, and the time of the reading shall be indicated. The graph shall be labeled with the pile location, tip elevation, cutoff elevation, and the dates of excavation and concrete placement. The log shall be delivered to the Engineer within 1 working day of completion of placing concrete in the pile.

32

After placing reinforcement and before placing concrete in the drilled hole, if drill cuttings settle out of the slurry, the bottom of the drilled hole shall be cleaned. The Contractor shall verify that the bottom of the drilled hole is clean.

33

If a temporary casing is used, concrete placed under slurry shall be maintained at a level at least 5 feet above the bottom of the casing. The withdrawal of the casing shall not cause contamination of the concrete with slurry. If slurry is not used, the temporary casing shall not be withdrawn until the concrete head in the casing is greater than the groundwater outside of the casing. This positive concrete head shall be maintained during the withdrawal of the casing.

DRAFT

34

Material resulting from using slurry shall be disposed of in conformance with the provisions in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

35*. Use when hazardous materials are present and refer to District hazardous earthwork specifications. Delete para 34.

**** Waiting for results from ADL testing by Caltrans. Will update this section accordingly once the results are received.**

Disposal of material resulting from using slurry shall conform to the provisions in of these special provisions.

Paras 36 thru 56, use when CIDH concrete piling is greater than or equal to 24 inches in diameter AND greater than 5 feet in length.

36

Acceptance Testing and Mitigation

Vertical inspection pipes for acceptance testing shall be provided in all CIDH concrete piling 24 inches in diameter or larger, except when the holes are dry or when the holes are dewatered without the use of temporary casing in a manner that controls ground water.

37

The furnishing and placing of inspection pipes shall conform to the following:

A. Inspection pipes shall be Schedule 40 PVC pipe with a nominal inside diameter of 2 inches. Watertight PVC couplers are permitted to facilitate pipe lengths in excess of those which are commercially available. The Contractor shall log the location of the inspection pipe couplers with respect to the plane of pile cut off, and these logs shall be delivered to the Engineer upon completion of the placement of concrete in the drilled hole.
B. Each inspection pipe shall be capped at the bottom and shall extend from 3 feet above the pile cutoff down to the bottom of the reinforcing cage. A temporary top cap or similar means shall be provided to keep the pipes clean before testing. If pile cutoff is below the ground surface or working platform, inspection pipes shall be extended to 3 feet above the ground surface or working platform. Approved covers or railings shall be provided and inspection pipes shall be located as necessary to minimize exposure of testing personnel to potential falling hazards.
C. Inspection pipes shall be completely clean, dry, and unobstructed at the time of testing providing a 2-inch diameter clear opening.
D. The inspection pipes shall be installed in straight alignment, parallel to the main reinforcement, and securely fastened in place to prevent misalignment during installation of the reinforcement and placing of concrete in the hole. The CIDH concrete piling shall be constructed so that the relative distance of inspection pipes to vertical steel reinforcement shall remain constant.
E. When any changes are made to the tip of CIDH concrete piling, the Contractor shall also extend the inspection pipes to the bottom of the reinforcing cage.

DRAFT

38

The following additional requirements apply if inspection pipes are not shown on the plans:

A. Inspection pipes shall be placed radially around the pile, inside the outermost spiral or hoop reinforcement and no more than 1 inch clear of the outermost spiral or hoop reinforcement.
B. Inspection pipes shall be placed around the pile at a uniform spacing not exceeding 33 inches measured along the circle passing through the centers of inspection pipes. A minimum of 2 inspection pipes per pile shall be used. Inspection pipes shall be placed to provide the maximum diameter circle that passes through the centers of the inspection pipes while maintaining the spacing required herein.
C. Inspection pipes shall be placed a minimum of 3 inches clear of the vertical reinforcement. When the vertical reinforcement configuration does not permit this clearance while achieving radial location requirements, distance to vertical rebar shall be maximized while still maintaining the requirement for radial location.
D. Where the dimensions of the pile reinforcement do not permit inspection pipes to be placed per these requirements, a plan for tube placement shall be submitted to the Engineer for approval in the Pile Placement Plan with a request for deviation before fabricating pile reinforcement.

39

After placing concrete and before requesting acceptance tests, each inspection pipe shall be tested by the Contractor in the presence of the Engineer by passing a 1-1/4-inch-diameter rigid cylinder 4.5 feet long through the length of pipe. If an inspection pipe fails to pass the 1-1/4-inch-diameter cylinder, the Contractor shall immediately fill all inspection pipes in the pile with water.

40

For each inspection pipe that does not pass the 1-1/4-inch-diameter cylinder, the Contractor shall core a nominal 2-inch diameter hole through the concrete for the entire length of the pile. Cored holes shall be located as close as possible to the inspection pipes they are replacing and shall be no more than 5 inches clear from the reinforcement.

41

Coring shall not damage the pile reinforcement. Cored holes shall be made with a double wall core barrel system utilizing a split tube type inner barrel. Coring with a solid type inner barrel will not be allowed. Coring methods and equipment shall provide intact cores for the entire length of the pile. The coring operation shall be logged by an Engineering Geologist or Civil Engineer licensed in the State of California and experienced in core logging. Coring logs shall be in conformance with the Department's "Soil and Rock Logging, Classification, and Presentation Manual." Coring logs shall include Core Recovery (REC), Rock Quality Designation (RQD), locations of breaks, and complete descriptions of inclusions and voids encountered during coring, and shall be delivered to the Engineer upon completion. Concrete cores shall be preserved, identified with the exact location the core was recovered from within the pile, and delivered to the Engineer upon completion. The Engineer will evaluate the portion of the pile represented by the cored hole based on the submitted core logs.

DRAFT

42

Acceptance tests of the concrete will be made by the Engineer, without cost to the Contractor. Acceptance tests will evaluate the homogeneity of the placed concrete. Tests will include gamma-gamma logging conducted in conformance with California Test 233. The Contractor shall not conduct operations within 25 feet of the gamma-gamma logging operations. The Contractor shall separate reinforcing steel as necessary to allow the Engineer access to the inspection pipes to perform gamma-gamma logging or other acceptance testing. After requesting acceptance tests and providing access to the piles, the Contractor shall allow 20 days for the Engineer to conduct these tests and make determination of acceptance. Should the Engineer fail to complete these tests within the time allowance, and if in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in inspection, the delay will be considered a right of way delay as specified in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

43

The Engineer may elect to perform additional tests to further evaluate a pile. These tests may include crosshole sonic logging and other means of inspection selected by the Engineer. When the Engineer elects to perform additional tests to further evaluate anomalies for a rejected pile, no time requirement exists for performing these tests. The Contractor may progress with the mitigation plan process without waiting for these supplemental results.

44

Inspection pipes and cored holes shall be dewatered and filled with grout after notification by the Engineer that the pile is acceptable. Grout shall conform to the provisions in Section 50-1.09, "Bonding and Grouting," of the Standard Specifications. Inspection pipes and holes shall be filled using grout tubes that extend to the bottom of the pipe or hole or into the grout already placed.

45

If acceptance testing performed by the Engineer determines that a pile does not meet the requirements of the specifications and California Test 233, Part 5C, then that pile will be rejected and all depositing of concrete under slurry or concrete placed using temporary casing for the purpose of controlling groundwater shall be suspended until written changes to the methods of pile construction are approved in writing by the Engineer.

46

The Engineer will determine whether the rejected pile requires mitigation due to structural, geotechnical, or corrosion concerns. The Engineer will consider the estimated size and location of the anomaly and potential effects upon the design. The Engineer will provide the conclusions of this analysis to the Contractor for development of a mitigation plan, if required. The Contractor shall allow 35 days for the Engineer to determine whether the pile requires mitigation and provide information to the Contractor. Day 1 of the 35 days shall be the 1st day after access has been provided to the Engineer to perform acceptance testing. If additional information is submitted to the Engineer that modifies the size, shape, or nature of the anomaly, the Contractor shall allow 15 additional days for the subsequent analysis.

47

If the Engineer determines that a rejected pile does not require mitigation, the Contractor may elect to (1) repair the pile per the approved mitigation plan or (2) not repair anomalies found during acceptance testing of that pile. For such unrepaired piles, the Contractor shall pay to the State, $300 per cubic yard for the portion of the pile affected by the anomalies. The volume, in

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cubic yards, of the portion of the pile affected by the anomalies, shall be calculated as the area of the cross section of the pile affected by each anomaly, in square yards, as determined by the Engineer, multiplied by the distance, in yards, from the top of each anomaly to the specified tip of the pile. If the volume calculated for one anomaly overlaps the volume calculated for additional anomalies within the pile, the calculated volume for the overlap shall only be counted once. In no case shall the amount of the payment to the State for any such pile be less than $300. The Department may deduct the amount from any moneys due, or that may become due the Contractor under the contract.

48

If the Engineer determines that a rejected pile requires mitigation, the Contractor shall submit to the Engineer for approval a mitigation plan for repair, supplementation, or replacement for each rejected CIDH concrete pile conforming to the provisions in Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications. If the Engineer determines that it is not feasible to repair the rejected pile, the Contractor shall not include repair as a means of mitigation and shall proceed with the submittal of a mitigation plan for replacement or supplementation of the rejected pile.

49

Pile mitigation plans shall include the following:

A. The designation and location of the pile addressed by the mitigation plan.
B. A review of the structural, geotechnical, and corrosion design requirements of the rejected pile.
C. A step by step description of the mitigation work to be performed, including drawings if necessary.
D. An assessment of how the proposed mitigation work will address the structural, geotechnical, and corrosion design requirements of the rejected pile.
E. Methods for preservation or restoration of existing earthen materials.
F. A list of affected facilities, if any, with methods and equipment for protection of these facilities during mitigation.
G. The State assigned contract number, bridge number, full name of the structure as shown on the contract plans, District-County-Route-Post Mile, and the Contractor's (and Subcontractor's if applicable) name on each sheet.
H. A list of materials, with quantity estimates, and personnel, with qualifications, to be used to perform the mitigation work.
I. The seal and signature of an engineer who is licensed as a Civil Engineer by the State of California. This requirement is waived for approved mitigation plans when either of the following conditions are present:

    1. The proposed mitigation will be performed in conformance with the most recent Department approved version of "ADSC Standard Mitigation Plan 'A' - Basic Repair" without exception or modification.
    2. The Engineer has determined that the rejected pile does not require mitigation due to structural, geotechnical, or corrosion concerns, and the Contractor elects to repair the pile using most recent Department approved version of "ADSC Standard Mitigation Plan 'B' - Grouting Repair" without exception or modification.

DRAFT

50

The most recent Department approved version of the "ADSC Standard Mitigation Plan" is available at:

http://www.dot.ca.gov/hq/esc/geotech/ft/adscmitplan.htm

51

For rejected piles to be repaired, the Contractor shall submit a pile mitigation plan that contains the following additional information:

A. An assessment of the nature and size of the anomalies in the rejected pile.
B. Provisions for access for additional pile testing if required by the Engineer.

52

For rejected piles to be replaced or supplemented, the Contractor shall submit a pile mitigation plan that contains the following additional information:

A. The proposed location and size of additional piles.
B. Structural details and calculations for any modification to the structure to accommodate the replacement or supplemental piles.

53

All provisions for CIDH concrete piling shall apply to replacement piles.

54. Check the review time with Geotechnical Services.

The Contractor shall allow the Engineer 20 days to review the mitigation plan after a complete submittal has been received.

55

Should the Engineer fail to review the complete pile mitigation submittal within the time specified, and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in reviewing the pile mitigation plan, an extension of time commensurate with the delay in completion of the work thus caused will be granted in conformance with the provisions in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

56

When repairs are performed, the Contractor shall submit a mitigation report to the Engineer within 10 days of completion of the repair. This report shall state exactly what repair work was performed and quantify the success of the repairs relative to the submitted mitigation plan. The mitigation report shall be stamped and signed by an engineer that is licensed as a Civil Engineer by the State of California. The mitigation report shall show the State assigned contract number, bridge number, full name of the structure as shown on the contract plans, District-County-Route-Post Mile, and the Contractor (and subcontractor if applicable) name on each sheet. The Engineer will be the sole judge as to whether a mitigation proposal is acceptable, the mitigation efforts are successful, and to whether additional repairs, removal and replacement, or construction of a supplemental foundation is required.

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USE WITH 2006 STANDARDS.
Add to any SSP 49-XXX series.

KC 9-25-2009**
Deleted

~~**MEASUREMENT AND PAYMENT (PILING)**~~

~~Measurement and payment for the various types and classes of piles shall conform to the provisions in Sections 49-6.01, "Measurement," and 49-6.02, "Payment," of the Standard Specifications and these special provisions.~~

~~**2. Use if 24-inch or larger size cast-in-place concrete piles are in the contract. Edit to exclude sign foundation piles (Item 56xxxx) if they are included in the project.**~~

~~Payment for cast-in-place concrete piling shall conform to the provisions in Section 49-6.02, "Payment," of the Standard Specifications and these special provisions except that, when the diameter of cast-in-place concrete piling is shown on the plans as 24 inches or larger, reinforcement in the piling will be paid for by the pound as bar reinforcing steel (bridge).~~

~~**3. Use when substitution of steel piling (pipe, H, or shell) is allowed.**~~

~~Driven piling which is substituted, at the Contractor's option, for the piling shown on the plans, will be measured and paid for by the linear foot as furnish piling and by the unit as drive pile of the type or class shown in the Engineer's Estimate. Additional length needed to develop the required bearing shall be at the Contractor's expense. Full compensation for furnishing and placing the pile anchors, splicing piles, additional removal of materials inside cast-in-steel-shell piling, additional concrete inside cast-in-steel-shell piling, or other expenses resulting from said substitution shall be considered as included in the contract price paid per linear foot for furnish piling and the contract unit price paid for drive pile of the type or class shown in the Engineer's Estimate, and no additional compensation will be allowed therefor.~~

~~**4. Use only when OSD approves splicing precast prestressed concrete piles; see SSP 49-300.**~~

~~Full compensation for the cost of splicing precast prestressed concrete piling, including furnishing of dowels, epoxy or epoxy mortar, and miscellaneous metal, shall be considered as included in the contract price paid per linear foot for furnish concrete piling, and no additional compensation will be allowed therefor.~~

~~**5. Use when SSP 49-310 is used. Edit if CIDH piling is not paid for by the linear foot.**~~

~~Full compensation for slurry, depositing concrete under slurry, test batches, inspection pipes, filling inspection holes and pipes with grout, drilling oversized cast-in-drilled-hole concrete piling, filling cave-ins and oversized piles with concrete, and redrilling through concrete, shall be considered as included in the contract prices paid per linear foot for cast-in-drilled-hole concrete piling of the types and sizes listed in the Engineer's Estimate, and no additional compensation will be allowed therefor.~~

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~~**6. Use when CIDH (rock socket) is shown on the plans. When the diameter of the rock socket is less than 24 inches, add "and reinforcement" after "concrete." Use with 49-310.**~~

~~The contract price paid per linear foot for cast-in-drilled-hole concrete piling (rock socket) of the sizes listed 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 drilling or coring holes, disposing of the material resulting from drilling or coring holes, and furnishing and placing concrete, complete in place, to the required penetration, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.~~

~~**7. Use when CIDH with permanent casings are shown on the plans. Edit to suit project.**~~

~~The contract price paid per linear foot for permanent steel casing of the sizes listed 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 furnishing and installing permanent steel casing, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.~~

~~**8. Use when CIDH (rock socket) or CIDH with permanent casings are shown on the plans. EDIT TO SUIT PROJECT.**~~

~~Additional permanent steel casing and cast-in-drilled-hole concrete piling, including inspection pipes, and bar reinforcing steel, required when the Engineer lowers permanent steel casing tip elevations to maintain the length of cast-in-drilled-hole concrete piling (rock socket) into rock, as shown on the plans, will be paid for as extra work as provided in Section 4-1.03D, "Extra Work," of the Standard Specifications.~~

~~**9. Use for Type II shafts when an optional construction joint is shown on the plans just below the column cage reinforcement. Add specific locations as necessary.**~~

~~Full compensation for furnishing and installing permanent steel casing at due to the Contractor's choice to utilize the optional construction joint shown on the plans shall be considered as included in the contract prices paid per linear foot for cast-in-drilled-hole concrete piling of the types and sizes listed in the Engineer's Estimate, and no separate payment will be made therefor.~~

~~**10. Use when REF SPEC 49CISS is used.**~~

~~Full compensation for cleaning out the open ended steel shells prior to installing reinforcement and filling with concrete, for disposing of materials removed from the inside of the pile, and for placing seal course concrete and dewatering the open ended steel shells, as shown on the plans, as specified in these special provisions, and as directed by the Engineer, shall be considered as included in the contract unit price paid for drive pile, and no additional compensation will be allowed therefor.~~

~~**11*. Use this paragraph with REF SPECS 49PIPE and 49NDTP. Edit or delete titles to suit project.**~~

~~Full compensation for conforming to the provisions in "Steel Pipe Piling" and "Nondestructive Testing" of these special provisions shall be considered as included in the contract prices paid for the various items of work involved, and no additional compensation will be allowed therefor.~~

~~12. Use when "Dynamic Monitoring" from SSP 49-230 is used.~~

~~Full compensation for redriving monitored piles, for dewatering during monitoring, and for installing and removing the instruments from the pile, shall be considered as included in the contract unit price paid for drive pile, and no separate payment will be made therefor. The length of piling to be paid for as furnish piling of the classes listed in the Engineer's Estimate shall include the lengths that monitored piles are redriven.~~

~~13. Use when REF SPEC 49PSOL is used and edit according to what is shown on the plans.~~

~~The contract price paid per linear foot for steel soldier pile of the types shown 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 furnishing and installing the steel soldier piles at the site to the required depth, including securing the piling to maintain accurate alignment prior to and during encasing the pile with concrete, shaping pile tops, cutting holes for pile anchors, cleaning and preparing heat-affected areas of piles for splicing and welding concrete anchors to the piles, splicing steel soldier piles, furnishing pile anchors, and furnishing, cleaning, and welding concrete anchors to the piles as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.~~

~~14. Use when REF SPEC 49HAMR is used.~~

~~Full compensation for driving system submittals shall be considered as included in the contract unit price paid for drive pile, and no additional compensation will be allowed therefor.~~

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USE WITH 2006 STANDARDS.

Use for both state- and contractor-furnished roadside signs. Include SSP 56-800, SSP 56-810, SSP 56-820, SSP 56-830 and SSP 56-880 when roadside signs are furnished by the Contractor.

Include SSP 56-840, SSP 56-860 and SSP 56-870 as needed when roadside signs are furnished by the Contractor.

10-1.__ ROADSIDE SIGNS

Roadside signs shall be furnished and installed at the locations shown on the plans or where designated by the Engineer and in conformance with the provisions in Section 56-2, "Roadside Signs," of the Standard Specifications and these special provisions.

2. Use when sign panels are contractor-furnished.

KC 9-25-2009**

~~The Contractor shall furnish roadside sign panels in conformance with the provisions in "Furnish Sign" of these special provisions.~~

3

Wood posts shall be pressure treated after fabrication in conformance with the provisions in Section 58, "Preservative Treatment of Lumber, Timber and Piling," of the Standard Specifications and AWPA Use Category System: UC4A, Commodity Specification A or B.

4. Use when object marker panels are mounted on the same post as a roadside sign. Edit as required.

KC 9-25-2009**

~~Type N (CA), Type P (CA), and Type R (CA) marker panels mounted on a post with a roadside sign shall be considered to be sign panels and will not be paid for as markers.~~

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USE WITH 2006 STANDARDS.

Use when applicable and when reinforced concrete pipe (RCP) is a separate pay item.

When reinforced concrete pipe (RCP) is to be installed in a corrosive environment use recommendations from District Materials Engineer and/or HQ Office of Highway Drainage Design to meet 50-year service life requirements.

Use with Standard Plans A62D and A62DA.

10-1.__ REINFORCED CONCRETE PIPE

Reinforced concrete pipe shall conform to the provisions in Section 65, "Reinforced Concrete Pipe," of the Standard Specifications and these special provisions.

GENERAL

2

Where embankment will not be placed over the top of the pipe, a relative compaction of not less than 85 percent shall be required below the pipe spring line for pipe installed using Method 1 backfill in trench, as shown on Standard Plan A62D. Where the pipe is to be placed under the traveled way, a relative compaction of not less than 90 percent shall be required unless the minimum distance between the top of the pipe and the pavement surface is the greater of 4 feet or one half of the outside diameter of the pipe.

3

Except as otherwise designated by classification on the plans or in the specifications, joints for culvert and drainage pipes shall conform to the plans or specifications for standard joints.

4. Include Paras 4, 5 and 14 when it is anticipated that rock or other unyielding material will be encountered in the excavation below the bottom of the bedding shown on Standard Plan A62DA.

KC 9-25-2009**

~~When reinforced concrete pipe is installed in conformance with the details shown on Standard Plan A62DA, the fifth paragraph of Section 19-3.04, "Water Control and Foundation Treatment," of the Standard Specifications shall not apply.~~

~~**5**~~

~~When solid rock or other unyielding material is encountered at the planned elevation of the bottom of the bedding, shown on Standard Plan A62DA, the material below the bottom of the bedding shall be removed to a depth of 1/50 of the height of the embankment over the top of the culvert, but not less than 6 inches nor more than 12 inches. The resulting trench below the bottom of the bedding shall be backfilled with structure backfill material in conformance with the provisions in Section 19-3.06, "Structure Backfill," of the Standard Specifications. The Outer Bedding shall not be compacted prior to placement of the pipe.~~

6. Use only if applicable, otherwise delete.

KC 9-25-2009**

~~Timber bulkheads shall be constructed and placed across the ends of unconnected reinforced concrete pipe as shown on the plans. Wood for timber bulkheads shall be construction heart grade redwood at least one inch thick.~~

MATERIALS

7. Use either Para 7 or 8. Use Para 7 for non-corrosive and non-abrasive condition installations and delete Paras 8 through 12. Change the 1 inch reinforcement cover to 3/4 inches if all nominal pipe diameters are less than or equal to 18 inches. If there are larger and smaller pipe diameters on project add the following clause to the end of the last sentence, "except for pipe diameters less than or equal to 18 inches the minimum cover must be 3/4 inches."

KC 9-25-2009**

The concrete for reinforced concrete pipe must contain not less than 470 pounds of cementitious material per cubic yard with a water–cementitious material ratio not to exceed 0.35 by weight. Supplementary cementitious material is optional. Reinforcement shall have a minimum cover of 3/4~~1~~ inch<u>s</u>.

8.* Use for corrosive or abrasive condition installations such as low PH (<4.5), Chlorides (>2,000 ppm) or Sulfates (> 2,000 ppm). Edit as necessary. Include the recommended values from District Materials Engineer and/or HQ Office of Highway Drainage Design. Use reinforcement cover at 1/4-inch intervals from 1 inch to maximum of 1 1/2 inches. If cover increase is not adequate to provide required service life, increase cementitious material content (from 470 pounds) in increments of 47 pounds up to a maximum of 564 pounds. If the DME recommended inputs still do not meet the required 50-year service life, contact HQ Office of Highway Drainage Design for recommendations.

KC 9-25-2009**

~~The concrete for reinforced concrete pipe must contain not less than ____ pounds of cementitious material per cubic yard with a water–cementitious material ratio not to exceed 0.35 by weight. Reinforcement shall have a minimum cover of _____ inch. Supplementary cementitious material is optional.~~

~~**9. Use Paras 9 through 12 only when adding additional pipe concrete cover over reinforcement in 1/4-inch increments beyond the 1 inch minimum and delete Para 7.**~~

~~Special reinforced concrete pipe, having concrete cover over the steel reinforcement greater than the cover specified in AASHTO Designation: M 170, shall conform to the provisions in Section 65-1.02, "Materials," and Section 65-1.02A, "Circular Reinforced Concrete Pipe," of the Standard Specifications, except the width of crack produced by the D-load test specified in AASHTO Designation: M 170 shall be the width determined by the following formula:~~

$$\cancel{b = \frac{t - 3/8d}{t - 3/8d - C} \times 0.01 \text{ inch}}$$

~~Where:~~

~~b =~~ ~~Width of crack to be produced in lieu of the 0.01-inch crack specified in AASHTO Designation: M 170~~

~~t =~~ ~~Wall thickness of pipe, inches~~

~~d =~~ ~~Effective depth of the section to be tested, feet~~

~~C =~~ ~~Concrete cover over steel reinforcement in excess of cover specified in AASHTO Designation: M 170~~

~~**10**~~

~~Reinforced concrete pipe that is to be hydrostatically tested shall be strength tested by the 3-edge bearing method to a maximum D-load of 10 percent greater than the 0.01-inch cracking D-load specified in AASHTO Designation: M 170 or to the actual D-load required to produce a 0.01-inch crack, whichever is the lesser.~~

~~**11**~~

~~Special oval shaped reinforced concrete pipe, having concrete cover over the steel reinforcement greater than the cover specified in AASHTO Designation: M 207, shall conform to the provisions in Section 65-1.02, "Materials," and Section 65-1.02B, "Oval Shaped Reinforced Concrete Pipe," of the Standard Specifications, except the width of crack produced by the D-load test specified in AASHTO Designation: M 207 shall be the width determined by the following formula:~~

$$\cancel{b = \frac{t - 3/8d}{t - 3/8d - C} \times 0.01 \text{ inch}}$$

~~Where:~~

~~b =~~ ~~Width of crack to be produced in lieu of the 0.01-inch crack specified in AASHTO Designation: M 207~~

~~t =~~ ~~Wall thickness of pipe, inches~~

~~d =~~ ~~Effective depth of the section to be tested, feet~~

~~C =~~ ~~Concrete cover over steel reinforcement in excess of cover specified in AASHTO Designation: M 207~~

~~**12**~~

~~Oval shaped reinforced concrete pipe that is to be hydrostatically tested shall be strength tested by the 3-edge bearing method to a maximum D-load of 10 percent greater than the 0.01-inch cracking D-load specified in AASHTO Designation: M 207 or to the actual D-load required to produce a 0.01-inch crack, whichever is the lesser.~~

MEASUREMENT AND PAYMENT

13. Delete when no timber bulkheads, also delete Para 6 when not used.

KC 9-25-2009**

~~Compensation for constructing and placing timber bulkheads shall be considered as included in the contract price paid per linear foot for the reinforced concrete pipe involved and no separate payment will be made therefor.~~

DRAFT

14. Use when Paras 4 and 5 are included and provide funds in the Engineer's Estimate under Supplemental Work when it is anticipated that rock or other unyielding material will be encountered in the excavation below the bottom of the bedding, otherwise delete.

KC 9-25-2009**

~~The excavation and backfill below the planned elevation of the bottom of the bedding shown on Standard Plan A62DA will be paid for as extra work as provided in Section 4-1.03D, "Extra Work," of the Standard Specifications.~~

DRAFT

USE WITH 2006 STANDARDS.

KC 9-25-2009**

Deleted

~~10-1.__ GRATED LINE DRAIN~~

~~This work shall consist of furnishing and installing precast grated line drain, with necessary fittings, coupling systems, frames, grates and associated items as shown on the plans and in conformance with these special provisions.~~

~~2~~

~~The interior surface of the grated line drain, below the level of the frame and grate and associated connections, shall be smooth. Grated line drain channel sections shall be manufactured of monolithic polymer concrete with no side extensions.~~

~~3~~

~~Monolithic polymer concrete shall be made from a composition of aggregate and polyester resin or vinylester resin and shall have the following properties when tested as follows:~~

~~PROPERTY~~	~~ASTM TEST METHOD~~	~~VALUE~~
~~Tensile Strength, psi~~	~~C 307~~	~~1,450 min.~~
~~Compressive Strength, psi~~	~~C 579~~	~~11,600 min.~~
~~Bending Strength, psi~~	~~C 580~~	~~2,900 min.~~
~~Moisture Absorption, %~~	~~C 140~~	~~0.5 max.~~
~~Chemical Resistance~~	~~C 267~~	~~Pass~~
~~Freeze/Thaw, number of cycles w/o weight loss~~	~~C 666~~	~~1,600 min.~~

~~4~~

~~The manufacturer of the grated line drain shall furnish the Engineer a Certificate of Compliance in conformance with the provisions in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications.~~

~~5~~

~~Grated line drain frames and grates shall be manufactured of ductile iron conforming to the provisions in Section 75-1.02, "Miscellaneous Iron and Steel," of the Standard Specifications. The frames and grates need not be galvanized or coated with asphalt paint. Bolts, nuts, frame anchors, and other connecting hardware shall conform to the provisions in Section 75-1.02, "Miscellaneous Iron and Steel," of the Standard Specifications.~~

~~6~~

~~Frames and grates, when installed in conformance with the manufacturer's recommendations and these special provisions, shall be classified as heavy duty 25,000 proof load when tested in accordance with Commercial Item Description A-A-60005 for "Frames, Covers, Gratings, Steps, Manhole, Sump and Catch Basin." Frames and grates shall be matchmarked in pairs before delivery to the work and grates shall fit into the frames without rocking.~~

DRAFT

~~7~~

~~Frames shall be secured to the surrounding concrete backfill with steel anchoring rods as shown on the plans. Other methods may be used to secure the frame to the concrete backfill or grated line drain wall provided that a minimum pullout resistance of 685 pounds per foot of length of grated line drain frame is maintained.~~

~~8~~

~~Grates and frames shall be one piece unless shown on the plans to be removable. Removable grates shall be held in place by locking devices that are tamper resistant. Locking devices shall not constrict the waterway area of the grated line drain and shall be fully replaceable. Removable grates shall provide a minimum repetitive pullout resistance of 340 pounds per foot of length after completion of 1,000 hours of salt spray testing in conformance with the requirements in ASTM Designation: B 117. When a combination of one piece frame and grate and removable grates are used, the locations of the removable grates shall be as shown on the plans.~~

~~9~~

~~Except for grates installed within designated pedestrian paths of travel, grates shall accept inflow of runoff through openings. The openings shall consist of a minimum of 60 percent of the total top surface area of the grate, with individual openings or slots having a dimension not greater than 2 inches measured in the direction of the grated line drain flow line. Grates installed within designated pedestrian paths of travel shall be certified as conforming to the requirements of the "Americans with Disabilities Act."~~

~~10~~

~~Grated line drains shall be installed in trenches excavated to the lines and grades established by the Engineer. The bottom of the trench shall be graded and prepared to provide a firm and uniform bearing throughout the entire length of the grated line drain.~~

~~11~~

~~Grated line drains shall be installed and jointed in conformance with the manufacturer's recommendations.~~

~~12~~

~~Grated line drains shall be installed to the lines and grades with sections closely jointed and secured to ensure that no separation of the line drains occurs during backfilling.~~

~~13~~

~~The frame or grate of the grated line drain shall not extend above the level of the surrounding concrete backfill.~~

~~14~~

~~Grated line drains shall be connected to new or existing drainage facilities as shown on the plans.~~

~~15~~

~~Excavation and backfill shall conform to the provisions in Section 19-3, "Structure Excavation and Backfill," of the Standard Specifications.~~

~~16~~

~~Backfill for the grated line drains shall be either minor concrete or Class 3 concrete conforming to the provisions in Section 90, "Portland Cement Concrete," of the Standard~~

DRAFT

~~Specifications. Minor concrete shall contain not less than 506 pounds of cementitious material per cubic yard.~~

~~**17**~~

~~Concrete backfill shall be placed in the trench as shown on the plans. Concrete backfill shall be placed against undisturbed material at the sides and bottom of the trench and in a manner that will prevent floating or shifting of the grated line drain and voids in, or segregation of, the concrete. Foreign material which falls into the trench, before or during placement of the concrete, shall be immediately removed. Where necessary, earth plugs shall be constructed and compacted at the ends of the planned concrete backfill to contain the concrete within the trench.~~

~~**18**~~

~~Concrete backfill shall be finished flush with the adjacent surfacing.~~

~~**19**~~

~~The surface of the concrete shall be textured with a broom or burlap drag to produce a durable skid-resistant surface.~~

~~**20**~~

~~The length the grated line drain to be paid for will be the length measured by the linear foot along the pavement surface as designated by the Engineer. No payment will be made for grated line drain placed in excess of the designated length.~~

~~**21**~~

~~The contract price paid per linear foot for grated line drain shall include full compensation for furnishing all labor, materials (including frames and grates), tools, equipment, and incidentals, and for doing all the work involved in installing grated line drains, complete in place, including excavation and backfill, connecting grated line drains to new or existing facilities, concrete collars, reinforcement, and other connecting devices, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.~~

DRAFT

USE WITH 2006 STANDARDS.

1. Add "and these special provisions." if there are provisions to be added.

KC 9-25-2009**

Deleted

~~**10-1.__ SLOPE PROTECTION**~~

~~Slope protection shall be placed or constructed in conformance with the provisions in Section 72, "Slope Protection," of the Standard Specifications.~~

~~**{ XE "72-150_E_A03-13-09" }**~~
~~**Page 1 of 1**~~

~~**USE WITH 2006 STANDARDS.**~~

~~**Use when rock slope protection fabric is specified. Do NOT use the nomenclature or contract item Filter Fabric (Rock Slope Protection).**~~

~~**Include a contract item for backing in the project when 1/4 T class or larger rock slope protection is specified.**~~

~~**Add to SSP 72-010.**~~

~~**1*. Use the following class of RSP fabric based on:**~~

~~**If 1-ton rock or lighter, use Class 8.**~~

~~**If heavier than 1-ton, use Class 10.**~~

~~Rock slope protection fabric must be Class __.~~

DRAFT

USE WITH 2006 STANDARDS.

Use for miscellaneous iron and steel items, such as frames and grates.

1. Delete " and these special provisions." if there are no added Paras.

10-1.__ MISCELLANEOUS IRON AND STEEL

Miscellaneous iron and steel shall conform to the provisions in Section 75, "Miscellaneous Metal," of the Standard Specifications and these special provisions.

DRAFT

USE WITH 2006 STANDARDS.

Use when applicable.

10-1.__ MARKERS AND DELINEATORS

Markers and delineators shall conform to the provisions in Section 82, "Markers and Delineators," of the Standard Specifications and these special provisions.

2

Markers and delineators on flexible posts shall conform to the provisions in "Prequalified and Tested Signing and Delineation Materials" of these special provisions. Flexible posts shall be made from a flexible white plastic which shall be resistant to impact, ultraviolet light, ozone, and hydrocarbons. Flexible posts shall resist stiffening with age and shall be free of burns, discoloration, contamination, and other objectionable marks or defects which affect appearance or serviceability.

3

Retroreflective sheeting for metal and flexible target plates shall be the retroreflective sheeting designated for channelizers, markers, and delineators conforming to the requirements in ASTM Designation: D 4956-95 and in conformance with the provisions in "Prequalified and Tested Signing and Delineation Materials" of these special provisions.

DRAFT

USE WITH 2006 STANDARDS.

10-1.__ METAL BEAM GUARD RAILING

Metal beam guard railing shall be constructed in conformance with the provisions in Section 83-1, "Railings," of the Standard Specifications and these special provisions.

2. Use when public traffic is involved. Include SSP 05-150.

Attention is directed to "Order of Work" of these special provisions.

3

Line posts shall be wood, steel, or plastic. Blocks shall be wood or plastic.

4. Use when project is located within 0.5-mile of coast.

Metal beam guard railing elements and required backup plates, terminal sections, end caps, and return caps shall conform to the requirements of Type 2 W-Beam as shown in AASHTO Designation: M 180.

USE WITH 2006 STANDARDS.

Include 2006 Standard Plan A77L4.

Use when Terminal System (Type CAT) is included in the project. Add to SSP 83-010.

KC 9-25-2009**

Deleted

~~**TERMINAL SYSTEM (TYPE CAT)**~~

~~Terminal system (Type CAT) and terminal system (Type CAT) backup shall be furnished and installed as shown on the plans and in conformance with these special provisions.~~

~~**2**~~

~~Terminal system (Type CAT) shall be a CAT-350 Crash Cushion Attenuating Terminal as manufactured by Trinity Industries, Inc., and shall include items detailed for terminal system (Type CAT) shown on the plans.~~

~~**3**~~

~~Terminal system (Type CAT) backup shall consist of items detailed for terminal system (Type CAT) backup shown on the plans, and shall conform to the provisions in Section 83-1.02B, "Metal Beam Guard Railing," of the Standard Specifications.~~

DRAFT

~~**Paras 4 and 5. The price quoted for the 31.25 ft terminal system includes all wood posts and rail elements required within the pay limits. For price quotation and price expiration date, refer to the price information available at: http://oc.dot.ca.gov.**~~

~~**4***~~

~~Excluding the terminal system (Type CAT) backup, arrangements have been made to ensure that any successful bidder can obtain the CAT-350 Crash Cushion Attenuating Terminal from the manufacturer, Trinity Industries, Inc., P.O. Box 99, 950 West 400S, Centerville, UT 84014, telephone (800) 772-7976. The price quoted by the manufacturer for the CAT-350 Crash Cushion Attenuating Terminal, FOB Centerville, Utah is $_____, not including sales tax.~~

~~**5***~~

~~The above price will be firm for orders placed on or before _____, provided delivery is accepted within 90 days after the order is placed.~~

~~**6**~~

~~The Contractor shall provide the Engineer with a Certificate of Compliance from the manufacturer in conformance with the provisions in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications. The Certificate of Compliance shall certify that the terminal system (Type CAT) conforms with the contract plans and specifications, conforms to the prequalified design and material requirements, and was manufactured in conformance with the approved quality control program.~~

~~**7**~~

~~The terminal system (Type CAT) shall be installed in conformance with the manufacturer's installation instructions and these requirements. The steel foundation tubes with soil plates attached shall be, at the Contractor's option, either driven, with or without pilot holes, or placed in drilled holes. Space around the steel foundation tubes shall be backfilled with selected earth, free of rock, placed in layers approximately 4 inches thick and each layer shall be moistened and thoroughly compacted. Wood posts shall be inserted into the steel foundation tubes by hand. Before the wood posts are inserted, the inside surfaces of the steel foundation tubes to receive the wood posts shall be coated with a grease which will not melt or run at a temperature of 149 °F or less. The edges of the wood posts may be slightly rounded to facilitate insertion of the post into the steel foundation tubes.~~

~~**8**~~

~~Surplus excavated material remaining after the terminal system (Type CAT) and backup have been constructed shall be disposed of in a uniform manner along the adjacent roadway where designated by the Engineer.~~

~~**9**~~

~~The contract unit price paid for terminal system (Type CAT) backup shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in furnishing and installing terminal system (Type CAT) backup, complete in place, including excavation, backfill, and disposal of surplus material, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.~~

DRAFT

USE WITH 2006 STANDARDS.

Include 2006 Standard Plans A77L1 and A77L5.

Use when alternative flared terminal system is included in the project. Add to SSP 83-010.

If terminal system (Type FLEAT) or terminal system (Type SRT) is to be used specifically, contact HQ Traffic for approval to use, contact DES-Office Engineer for the special provision and prepare a public interest finding to justify the use of a sole source item.

ALTERNATIVE FLARED TERMINAL SYSTEM

Alternative flared terminal system shall be furnished and installed as shown on the plans and in conformance with these special provisions.

2

The allowable alternatives for a flared terminal system shall consist of one of the following or a Department approved equal.

A. TERMINAL SYSTEM (TYPE FLEAT) - Terminal system (Type FLEAT) shall be a Flared Energy Absorbing Terminal 350 manufactured by Road Systems, Inc., located in Big Spring, Texas, and shall include items detailed for terminal system (Type FLEAT) shown on the plans. The Flared Energy Absorbing Terminal 350 can be obtained from the distributor, Universal Industrial Sales, P.O. Box 699, Pleasant Grove, UT 84062, telephone (801) 785-0505 or from the distributor, Gregory Highway Products, 4100 13th Street, S.W., Canton, OH 44708, telephone (330) 477-4800.

B. TERMINAL SYSTEM (TYPE SRT) - Terminal system (Type SRT) shall be an SRT-350 Slotted Rail Terminal (8-post system) as manufactured by Trinity Industries, Inc., and shall include items detailed for terminal system (Type SRT) shown on the plans. The SRT-350 Slotted Rail Terminal (8-post system) can be obtained from the manufacturer, Trinity Industries, Inc., P.O. Box 99, 950 West 400S, Centerville, UT 84014, telephone (800) 772-7976.

3

The Contractor shall provide the Engineer with a Certificate of Compliance from the manufacturer in conformance with the provisions in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications. The Certificate of Compliance shall certify that the terminal systems furnished conform to the contract plans and specifications, conform to the prequalified design and material requirements, and were manufactured in conformance with the approved quality control program.

4

Terminal systems shall be installed in conformance with the manufacturer's installation instructions and these requirements. Each terminal system installed shall be identified by painting the type of terminal system in neat black letters and figures 2 inches high on the backside of the rail element between system posts numbers 4 and 5.

DRAFT

5

For terminal system (Type SRT), the steel foundation tubes with soil plates attached shall be, at the Contractor's option, either driven, with or without pilot holes, or placed in drilled holes. Space around the steel foundation tubes shall be backfilled with selected earth, free of rock, placed in layers approximately 4 inches thick and each layer shall be moistened and thoroughly compacted. The wood terminal posts shall be inserted into the steel foundation tubes by hand and shall not be driven. Before the wood terminal posts are inserted, the inside surfaces of the steel foundation tubes to receive the wood posts shall be coated with a grease which will not melt or run at a temperature of 149° F or less. The edges of the wood terminal posts may be slightly rounded to facilitate insertion of the post into the steel foundation tubes.

6

For terminal system (Type FLEAT), the soil tubes shall be, at the Contractor's option, driven with or without pilot holes, or placed in drilled holes. Space around the steel foundation tubes shall be backfilled with selected earth, free of rock, placed in layers approximately 4 inches thick and each layer shall be moistened and thoroughly compacted. Wood posts shall be inserted into the steel foundation tubes by hand. Before the wood terminal posts are inserted, the inside surfaces of the steel foundation tubes to receive the wood posts shall be coated with a grease which will not melt or run at a temperature of 149° F or less. The edges of the wood posts may be slightly rounded to facilitate insertion of the post into the steel foundation tubes.

7

Surplus excavated material remaining after the terminal system has been installed shall be disposed of in a uniform manner along the adjacent roadway where designated by the Engineer.

8

The contract unit price paid for alternative flared terminal system shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in furnishing and installing alternative flared terminal system, complete in place, including excavation, backfill and disposal of surplus material, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

DRAFT

USE WITH 2006 STANDARDS.

Use with 2006 Standard Plan A77J4.

Use when Transition Railing (Type WB) is included in the project for connection of concrete barrier railing or wall to metal beam guard railing.

10-1.__ TRANSITION RAILING (TYPE WB)

Transition railing (Type WB) shall be furnished and installed in conformance with details shown on the plans, the provisions in Section 83-2, "Barriers," of the Standard Specifications and these special provisions.

2

The 10-gage rail elements shall conform to the requirements of Class B, Type 1 thrie beam guard railing as shown in AASHTO Designation: M 180. End caps shall conform to the requirements of Class A, Type 1 thrie beam guard railing as shown in AASHTO Designation: M 180.

3. Use when project is within 0.5-mile of coast. Delete Para 2.

The 10-gage rail elements shall conform to Class B, Type 2 thrie beam guard railing as shown in AASHTO Designation: M 180. Other rail elements including end caps shall conform to the requirements of Class A, Type 2 thrie beam guard railing as shown in AASHTO Designation: M 180.

4

Surplus excavated material remaining after the transitional railing (Type WB) has been constructed shall be disposed of in a uniform manner along the adjacent roadway where designated by the Engineer.

5

The contract unit price paid for transition railing (Type WB) shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in furnishing and installing transition railing (Type WB), complete in place, including drilling holes for wood posts, driving posts, backfill, and disposal of surplus material, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

DRAFT

USE WITH 2006 STANDARDS.
Use when applicable.

KC 9-25-2009**

10-1.__ CRASH CUSHION, SAND FILLED

Sand filled crash cushions shall be furnished and installed as shown on the plans and in conformance with these special provisions.

2

A sand filled crash cushion shall consist of a grouping of sand filled modules.

3*

Crash cushions shall be installed at the following locations:

John Muir Parkway/SR-4/I-80 Connector.
_____.
_____.

4

At the Contractor's option, modules for use in sand filled crash cushions shall be either Energite III Inertial Modules, Fitch Inertial Modules or TrafFix Sand Barrels manufactured after March 31, 1997, or equal:

1. Energite III and Fitch Inertial Modules, manufactured by Energy Absorption Systems, Inc., 35 East Wacker Drive, Suite 1100, Chicago, IL 60601:

   1.1. Northern California: Traffic Control Service, Inc., 8585 Thys Court, Sacramento, CA 95828, telephone (800) 884-8274, FAX (916) 387-9734
   1.2. Southern California: Traffic Control Service, Inc., 1818 E. Orangethorpe, Fullerton, CA 92831-5324, telephone (800) 222-8274, FAX (714) 526-9501

2. TrafFix Sand Barrels, manufactured by TrafFix Devices, Inc., 220 Calle Pintoresco, San Clemente, CA 92672, telephone (949) 361-5663, FAX (949) 361-9205

   2.1. Northern California: United Rentals, Inc., 1533 Berger Drive, San Jose, CA 95112, telephone (408) 287-4303, FAX (408) 287-1929
   2.2. Southern California: Statewide Safety & Sign, Inc., P.O. Box 1440, Pismo Beach, CA 93448, telephone (800) 559-7080, FAX (805) 929-5786

5. Do not edit to change color specified.

Modules contained in the crash cushion shall be of the same type at each location. The color of the modules shall be the standard yellow color as furnished by the vendor, with black lids. The exterior components of the modules shall be formulated or processed to resist deterioration

from ambient ultraviolet rays. The modules shall exhibit good workmanship free from structural flaws and objectionable surface defects.

6

The Contractor shall provide the Engineer with a Certificate of Compliance from the manufacturer in conformance with the provisions in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications. The Certificate of Compliance shall certify that the crash cushions comply with the contract plans and specifications, conform to the prequalified design and material requirements, and were manufactured in conformance with the approved quality control program.

7

Sand for filling the modules shall be clean washed concrete sand of commercial quality. At the time of placing in the modules, the sand shall contain not more than 7 percent water, as determined by California Test 226.

8

Modules placed on bridge decks shall be provided with positioning blocks fastened to the deck surface. Positioning blocks shall be shaped as segments of a ring and placed along the inner or outer periphery of the module wall. A minimum of 2 blocks, a minimum of one-sixth of a ring in length shall be provided for each module. Positioning blocks and fasteners shall be of a material that is corrosion and water resistant.

9

Module cylinders shall be filled with sand in conformance with the manufacturer's directions and to the sand capacity in pounds for each module shown on the plans.

10

Lids shall be securely attached as recommended by the manufacturer.

11

A Type R or Type P marker panel shall be attached to the front of the crash cushion as shown on the plans, when the closest point of the crash cushion array is within 12 feet of the traveled way. The marker panel, when required, shall be firmly fastened to the crash cushion with commercial quality hardware or by other methods approved by the Engineer.

12

Sand filled crash cushions, regardless of the number of modules required in each sand filled crash cushion, will be measured and paid for by the unit as crash cushion, sand filled. The quantity to be paid for will be determined from actual count of the units in place in the completed work.

13

The contract unit price paid for crash cushion, sand filled shall include full compensation for furnishing all labor, materials (including sand and marker panels), tools, equipment, and incidentals, and for doing all the work involved in furnishing and installing crash cushions, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

DRAFT

{"D03-04-08" }
KC 9-25-2009**
Added

10-1.__ VEGETATION CONTROL (SEAMLESS ASPHALT COMPOSITE)

1. Seamless asphalt composite can be used in freezing climates, but application needs to be scheduled during the season of temperatures above 50 degrees.

This work shall consist of furnishing and constructing vegetation control at the locations shown on the plans in conformance with the Standard Specifications, these special provisions, the details shown on the plans, and as directed by the Engineer.

MATERIALS

Seamless asphalt composite shall consist of high strength fiberglass reinforcement disbursed within asphalt emulsion as specified below.

Asphalt Emulsion

2. Bentonite asphalt emulsions are available from road and roofing emulsion manufacturers. Note the physical product characteristics and test specifications needed to assure the emulsion will perform as expected physically, environmentally, and in long term weathering.

Asphalt emulsion for the seamless composite vegetation shall consist of a colloidal mixture of no less than 50% asphalt flux, 8% fine milled (8 micron) pure bentonite clay, and water. Filler clay is not acceptable due to the negative affect on drying, and weathered flex. At the specified application rate, the emulsion shall carry a UL Class A fire rating and exceed ASTM D 1187-97 Standard Specification for Asphalt-Base Emulsions for use as Protective Coatings for Metal "Type 1" as specified. The emulsion must have a minimum 15 year proven weathering record, have multi viscosity (thixotropic) properties, with a viscosity of no less than 5500 centipoise during spraying, and approximately 10,000 centipoise at immediate rest as measured with a Brookfield Viscometer. The emulsion shall have a 90% uniform asphalt and bentonite particle size of approx. 8 microns, with uniform dispersion as measured in a 10 to 1 dilute solution under a 40x microscope. The emulsion should be able to skin quickly to withstand the possibility of a a short unexpected rain. On a test dish, apply the standard composite materials and let sun dry at 85^0 f (29.4 C) 50% relative humidity. This test can be performed in a lab Weatherometer, or on site if weather conditions approximate. Take the sample and immerse in a water bath at 70^0 F, (21.1 C) for 8 hrs. Acceptable emulsion will not leach asphalt into the bath.

3. Required section

Emulsion components shall be incorporated homogeneously at the emulsion plant before delivery to the work site.

Asphalt Emulsion Penetrant

4. Chemical ionic type emulsions are not compatible with bentonite colloidal emulsion. Inorganic bentonite protected emulsion is used due to the exceptional weathering of bentonite compared to pure unprotected chemical emulsions.

Asphalt emulsion penetrant shall be made from the same or similar compatible asphalt emulsion as used for application of the seamless asphalt composite. Chemical ionic type emulsions shall not be used. The penetrant shall consist of a minimum of one part asphalt emulsion to two parts water, or in proportion as directed by the Engineer.

Fiberglass Reinforcement

5. Type E fiberglass roving is the most widely used fiberglass roving used in boat, car and other composite applications. It is important that the specification of Type E roving is strictly enforced.

Fiberglass reinforcing strands for seamless asphalt composite shall consist of continuous filament multi-end 207 yard yield Type E gun roving loosely bound with water soluble sizing. The fiberglass roving roll shall not have looped filaments which can cause feeding problems. The roving shall be delivered in original sealed containers, test dry, and have not been exposed to moisture at any time prior to application.

SITE PREPARATION

Clearing

6. If the soil bed is already clear of vegetation, delete 6

Areas to receive vegetation control shall be cleared of trash and debris in conformance with Section 16, "Clearing and Grubbing" of the Standard Specifications and these special provisions.

Vegetation shall be removed to the ground level or below to prevent regrowth. The ground surface shall be left a smooth uniform surface free of sharp edged stones or other debris that could cause puncture. If these sharps cannot be removed, then additional composite materials sufficient to cover the sharp edges shall be applied before or during installation of the composite barrier.

7. Required section

Cleared trash, debris and removed vegetation shall be disposed of outside highway right of way in conformance with Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

8 If the soil bed is already clear of possible regrowth vegetation, delete 8

The prepared area shall be treated using a State Engineer approved pre-emergent soil sterilizer, let to stand per the manufacturer's directions, and cleared of dead vegetation prior to application of the

Seamless Asphalt Composite weed barrier. The soil sterilizer shall conform to the provisions in Section 20-4.026, "Pesticides," of the Standard Specification, shall be mixed in conformance with the manufacturer's recommendations and shall be applied by a device approved by the Engineer. Pesticides shall not be applied more than 12 inches beyond the areas to be surfaced.

Earthwork

9. The composite thickness eliminates dig out type earthwork. If not needed, delete 9.

Earthwork shall conform to the provisions in Section 19, "Earthwork," of the Standard Specifications and these special provisions.

Any excavated areas to receive vegetation control shall be graded to a smooth, uniform surface and compacted to a relative compaction of not less than 90 percent

10. Required section

The area to receive vegetation control shall be excavated as needed to maintain planned flow lines, slope gradient and contours of the project site.

11. Use when there will be surplus excavated material that cannot be disposed of inside the highway right of way as provided in the Standard Specifications, and SSP 07-330 is not used. Delete Para 11.

Surplus excavated material shall become the property of the Contractor and shall be disposed of outside the highway right of way in conformance with Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

12. Use when SSP 07-330 "Material Containing Aerially Deposited Lead" is used. Delete Para 12.

Attention is directed to "Material Containing Aerially Deposited Lead," of these special provisions regarding the handling and disposal of soil containing aerially deposited lead.

INSTALLATION

13. To assure a solid seal, the posts must be in place.

The guardrail system shall be in place prior to the seamless asphalt composite installation.

Protection

14. Standard post finish. If used delete 15

Signs, concrete, and painted areas shall be protected from overspray. The area above the composite seal to the post shall be gradually feathered for approx 6" above the seal to the post. Transition / overspray area above the composite seal shall have minimal overspray form a reasonably straight line horizontally from post to post.

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15. Use for a hard visual transition of the asphalt seal to the guardrail post. Extra cost of masking off each post. If used delete 14.

The area above the composite seal to the post shall be masked or protected from overspray to form a straight even line.

16. Required section

As determined by the Resident Engineer, overspray shall be cleaned with environmentally acceptable cleaners or painted before job completion.

Post Base Reinforcement (Composite)

17. This is the standard treatment for existing posts that are in stable soil in areas of normal seismic activity.

At the ground to post juncture, build-up the composite to form a minimum 2" vertical conforming. Approximately 4-5 times the standard material is necessary to form the a solid juncture. These materials may be applied by hand, mold or spray providing they are solid and approximate a 45 degree build-up at the base.

Penetrant

18. The Engineer or Contractor can pre test soil beds of concern using sample penetrant and composite available in 5 gallon containers from the Manufacturer.

The penetrant shall be applied on the soil bed to provide saturation deep and dense enough to assure adhesion of the seamless asphalt composite to the surface of the compacted soil. The penetrant mixture may be blended on site providing water is ph adjusted to match the emulsion. On average, 0.05 gallons per sq. ft is an adequate application rate to break the surface tension of the compacted soil and penetrate to a depth of 150 to 200 mills. If ability to meet application rates is in question by the Contractor, the Contractor should test the area prior to submitting bids. The asphalt penetrant shall not be allowed to freeze prior to application.

19. Penetrant testing can be done using containerized pre manufactured asphalt composite available from the manufacturer which is applied by trowel over the penetrant and let to dry. Project inspection and testing is available from EnviroWeld (888) 440-3224 at no cost to Cal Trans. Any areas not able to be adhered with the penetrant process alone, can be adhered at the edge with the addition of ground spikes, or a key to the edge. (see edge detail #2 and #3) The keyed edge should be considered where water would run against the vegetation barrier edge, eroding and depositing seeds under the barrier. The key edge is also required anywhere that it is possible that the composite could become a skid surface of a vehical. The key is designed to bury the edge with two 90 degree bends which act as horizontal anchors. Remember in designing for the width of the vegetation barrier, the key if filled with dirt which could support vegetation growth. Typical testing of edge adhesion is done by gluing a 3" (76.2 mm) diameter galvanized disc at 6" (.91 meter) in from the outside edge of a fully strengthened dry composite usually 30 days or a zero reading on a Demorest type moisture meter.

Connect the disk to an in line scale (fish scale) and pull evenly at a rate of approximately 1" per minute directly upward. The pull up results should be no less than 5 lbs (2.27 k) before the leading edge of the composite completely breaks loose from the penetrant saturated soil bed. .

In areas in which the penetrant by itself is not sufficient to adhere the composite to the compacted soil, or where it is anticipated that water will run, eroding under the vegetation barrier, the edge shall be keyed and covered with compacted soil to create a water stop and smooth transition from the soil to the vegetation barrier. The minimum key is formed by digging 4" down and 4" back perpendicular to the edge. The asphalt composite is applied to the walls and bottom of the key with attention that all materials are present at the first corner down into the key. The keyway may need to be brushed with a soft wet brush to assure the composite is uniform and fully down into the keyway. Every 18" cut a 1.5" round hole in the bottom to allow for water drainage. Once the composite is dry enough to support foot traffic, the key can be backfilled and compacted to form a smooth even transition from the composite to the natural soil. (see Edge-Key Detail on plan Sheet C-3). .

20. Required section

Penetrant shall be sprayed, mopped or poured to achieve the saturation level necessary to assure adhesion of the seamless composite at the edge. While still wet but without any ponding, the penetrant layer may be covered by the seamless asphalt composite application. The penetrant layer shall not be allowed to become covered with dry soil that would interfere with adhesion of the composite.

21. Insert the width of the penetrant layer which corresponds to the width of the seamless asphalt composite vegetation barrier. If the barrier is not to be centered to the posts, designate the offset.

The width of the penetrant application layer shall be not to exceed 1" to 3" wider than the width of the seamless asphalt composite application. The width shall be centered using the center of the rail posts as a guide.

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Composite

22. Placement method is the responsibility of the contractor, just as with other barriers like crum-crete. Placement of seamless asphalt composite may be accomplished in a variety of methods including mechanical, manual, and/or by spray equipment. Knowledge, equipment and methods for creating composites are available from industries like aviation, autos, boats and roofing. The responsibility for production design, equipment and methods necessary to accomplish a satisfactory final installation, is part of the competitive bidding process for the contractor. For inexperienced contractors, the EnviroWeld Division of Liquiform Technologies Inc., 9757 7th Street # 803, Rancho Cucamonga, CA 91730, Tel. (888) 440-3224, Email info@enviroweld.com rents and trains personnel on use of it's patented hand held spray applicator which is relatively easy to use to produce a satisfactory composite. The hand held applicator is furnished to the contractor with supplies for the project. The fee per square foot is based on the use of the equipment and tech support required. Equipment is supplied with applicator training and tech support including periodic onsite inspection as requested for the project during bidding.

Placement of the seamless asphalt composite may be accomplished by hand or machine, in individual steps or mixed simultaneously with spray equipment. It is the responsibility of the contractor to supply all equipment necessary to complete the job. Generally, mechanically and/or by air, the reinforcement strands are mixed equally in all directions to create a reinforcement matrix of uniform density and physical characteristics. The fiberglass reinforcement is saturated in emulsion and evenly dispersed within the thickness of the composite. A hand held applicator shall be used to cut and intertwine the fiberglass reinforcement while also covering the reinforcement strands with asphalt emulsion in a spray application. The final composite shall be uniform, solid, and have a smooth surface without voids or loose strands.

23. We can't require the Contractor to apply the materials using a "Trade Name" device – unless we get the District Director's approval.

Seamless asphalt composite fiberglass and emulsion shall be applied as follows: High strength Type E fiberglass reinforcement at a rate of 0.16 lbs per sq. ft. shall be uniformly disbursed within 0.30 gallons per sq. ft. of high solids colloidal bentonite water based asphalt emulsion. Fiberglass must be disbursed from the applicator in varying lengths no greater than 24 inches. Both the fiberglass reinforcement and the emulsion must be thoroughly mixed before coming in contact with the surface to be covered.

24.

Any loose fiberglass strands shall be brushed or removed to create a solid surface. Areas where there is anticipated additional stress like tie-ins, flashings, etc, shall receive additional materials as designated by the Resident Engineer. Areas in excess of 0.36-inch thick wet shall be brushed by hand to prevent surface crazing. The entire dried surface shall be completely solid and covered with asphalt emulsion.

25.

The composite shall be created and installed such that the structure is continuous and seamless. Where necessary to stop and later commence application, the composite is normally tapered to zero at the stopping point, and overlapped at the start to assure a smooth appearance with equal physical

DRAFT

performance at the overlap. Whatever method is used to create the seamless asphalt composite, the following physical characteristics of 90-day aged samples shall be considered a minimum standard.

26. Use for native soil appearance. Test to assure satisfaction with the results as some soil will saturate with emulsion. Delete 27 if natural weathered gray asphalt appearance preferred.

While seamless asphalt composite is still wet on the surface, lightly broadcast approximately 0.02 inch of native soil to the top of emulsion material, to provide a native soil appearance.

27. If the composite application should freeze before it dries, freezing will drive water to the surface which then expands, leaving a crazed look to the surface. The basic physical performance of the composite will not be affected by the freeze drying. The surface fill in is for aesthetic reasons.

If the installed composite materials should freeze, additional emulsion at the rate of approximately 0.05 gallons per sq. ft. may be need to be applied to the top surface to fill in surface crazing from water expansion during freezing.

28. In areas of constant moisture, alternate materials should be specified

Complete drying generally takes 2 to 4 days in warm dry conditions. In areas where no sunlight reaches the materials and temperature is less than 70 degrees, drying may take considerably longer. The contractor should scheduled installation so that no foot or equipment traffic is necessary on the seamless vegetation barrier until it is thoroughly dry.

29. Minimum standard

At completion, the finished grade of the vegetation control (seamless asphalt composite) shall be uniform; maintaining planned flow lines, slope gradient and contours of the project site.

30. Do Not Delete This Table

Whatever method is used to create the seamless asphalt composite, the following physical characteristics of 90-day aged samples shall be considered a minimum standard.

PHYSICAL CHARACTERISTICS OF SEAMLESS ASPHALT COMPOSITE:

Test	Method	Description	Results	Temp
Min. Strength	ASTM D 2523-78	V notched tear/tensile	300 lbs per inch width	77 °F
Min. Puncture	ASTM D4830-88	2 in. mandrel burst	750 lbs	77 °F
Min. Elongation	ASTM D2523-78	Stretch before break	10 %	77 °F
Weight			1.4 lbs per sq. ft.	
Thickness			0.24 inch	

MEASUREMENT

31. Measurement

Quantities of vegetation control (seamless asphalt composite) will be measured by the square foot computed from measurements of actual areas placed where designated. Vegetation control (seamless asphalt composite) placed outside the dimensions shown on the plans will not be paid for.

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32. Payment

The contract price paid per square foot of vegetation control (seamless asphalt composite) shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing vegetation control (seamless asphalt composite), including clearing trash, debris and vegetation, compaction and excavation, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

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USE WITH 2006 STANDARDS.

Edit title and paragraphs when project does not require BOTH thermoplastic traffic stripes and thermoplastic pavement markings.

10-1.__ THERMOPLASTIC TRAFFIC STRIPE AND PAVEMENT MARKING

Thermoplastic traffic stripes (traffic lines) and pavement markings shall be applied in conformance with the provisions in Section 84, "Traffic Stripes and Pavement Markings," of the Standard Specifications and these special provisions.

2

Thermoplastic material shall be free of lead and chromium, and shall conform to the requirements in State Specification PTH-02ALKYD.

3

Retroreflectivity of the thermoplastic traffic stripes and pavement markings shall conform to the requirements in ASTM Designation: D 6359-99. White thermoplastic traffic stripes and pavement markings shall have a minimum initial retroreflectivity of 250 mcd m^{-2} lx^{-1}. Yellow thermoplastic traffic stripes and pavement markings shall have a minimum initial retroreflectivity of 150 mcd m^{-2} lx^{-1}.

4. Delete when thermoplastic traffic stripe is not required.

Where striping joins existing striping, as shown on the plans, the Contractor shall begin and end the transition from the existing striping pattern into or from the new striping pattern a sufficient distance to ensure continuity of the striping pattern.

5 & 6. Use Para 5 or 6. Delete both paragraphs when thermoplastic traffic stripe is not required.

5*. Use when 0.059-inch minimum stripe thickness is acceptable, insert application rate, 0.20-lb/ft. Delete Para 6. The 0.059-inch minimum stripe thickness may also be used for roads with light traffic.

KC 9-25-2009**

~~Thermoplastic material for traffic stripes shall be applied at a minimum rate of _____. The minimum application rate is based on a solid stripe of 4 inches in width.~~

6*. Delete row that is not applicable. Use 0.079-inch or 0.098-inch minimum thickness when more durable traffic striping is required or when striping is placed on open graded AC pavement.

Thermoplastic traffic stripes shall be applied at the minimum thickness and application rate as specified below. The minimum application rate is based on a solid stripe of 4 inches in width.

Minimum Stripe Thickness (inch)	Minimum Application Rate (lb/ft)
0.079	0.27
0.098	0.34

7

Thermoplastic traffic stripes and pavement markings shall be free of runs, bubbles, craters, drag marks, stretch marks, and debris.

8

At the option of the Contractor, permanent traffic striping and pavement marking tape conforming to the provisions in "Prequalified and Tested Signing and Delineation Materials" of these special provisions may be placed instead of the thermoplastic traffic stripes and pavement markings specified herein. Permanent tape, if used, shall be installed in conformance with the manufacturer's specifications.

9

If permanent tape is placed instead of thermoplastic traffic stripes and pavement markings, the tape will be measured and paid for by the linear foot as thermoplastic traffic stripe and by the square foot as thermoplastic pavement marking.

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USE WITH 2006 STANDARDS.

Edit title and paragraphs when project does not require BOTH painted traffic stripes and pavement markings.

KC 10-8-2009**

Deleted

~~**10-1.__ PAINT TRAFFIC STRIPE AND PAVEMENT MARKING**~~

~~Painted traffic stripes (traffic lines) and pavement markings shall be applied in conformance with the provisions in Section 84, "Traffic Stripes and Pavement Markings," of the Standard Specifications and these special provisions.~~

~~**2**~~

~~Traffic stripe and pavement marking paint shall conform to the requirements in State Specification No. PTWB-01.~~

~~**3**~~

~~The color of the painted traffic stripes and pavement markings shall conform to the requirements in ASTM Designation: D 6628-01.~~

~~**4**~~

~~Retroreflectivity of the paint traffic stripes and pavement markings shall conform to the requirements in ASTM Designation: D 6359-99. White painted traffic stripes and pavement markings shall have a minimum initial retroreflectivity of 250 mcd m^{-2} lx^{-1}. Yellow painted traffic stripes and pavement markings shall have a minimum initial retroreflectivity of 150 mcd m^{-2} lx^{-1}.~~

~~**5**~~

~~At the option of the Contractor, permanent traffic striping and pavement marking tape conforming to the provisions in "Prequalified and Tested Signing and Delineation Materials" of these special provisions may be placed instead of painted traffic stripes and pavement markings. Permanent tape, if used, shall be placed in conformance with the manufacturer's specifications.~~

~~**6**~~

~~If permanent tape is placed instead of painted traffic stripes and pavement markings, the tape will be measured and paid for by the linear foot as paint traffic stripe and by the square foot as paint pavement marking of the number of coats designated in the Engineer's Estimate.~~

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USE WITH 2006 STANDARDS.

10-1.__ PAVEMENT MARKERS

Pavement markers shall be placed in conformance with the provisions in Section 85, "Pavement Markers," of the Standard Specifications and these special provisions.

2. Include when SSP 12-260 or SSP 12-270 is used and moving lane closures are allowed.

Attention is directed to "Traffic Control System For Lane Closure" of these special provisions regarding the use of moving lane closures during placement of pavement markers with bituminous adhesive.

3

The Contractor shall furnish the Engineer certificates of compliance for the pavement markers in conformance with the provisions in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications.

4

Retroreflective pavement markers shall be marked as abrasion resistant on the body of the markers.

Paras 5, 6, 7, 8, and 9. Use when pavement markers are to be placed in pavement recesses.

5

Retroreflective pavement markers placed in pavement recesses shall be cemented with a flexible, polymer-modified, hot-melt asphaltic adhesive conforming to the following requirements:

Specification	ASTM Designation	Requirement
Penetration, mm, 100 g, 5 seconds, 25°C	D 5	3.0 Maximum
Softening Point, °C	D 36	93 Minimum
Brookfield Thermosel Viscosity, Pa s, No. 27 Spindle, 20 RPM, 191°C	D 4402	2.5 - 6
Ductility, cm, 5 cm/min, 25°C	D 113	15 Minimum
Ductility, cm, 1 cm/min, 4°C	D 113	5 Minimum
Flexibility	D 3111[1, 2, 3, 4]	No breaks or cracks

Notes:
1. Modify ASTM Designation: D 3111, Paragraph 6, to "The test apparatus consists of a mandrel one inch in diameter by 3 inch to 6 inch in length, supported at each end."
2. Modify ASTM Designation: D 3111, Paragraph 7, to "The test specimen dimensions are one inch wide, 6 inch long, and 1/8 inch thick."
3. Modify ASTM Designation: D 3111, Paragraph 8, to "Condition the test specimens and apparatus for 4 hours at 19° F before testing.
4. Modify ASTM Designation: D 3111, Paragraph 10.5, to "Bend the test specimens 90° over the mandrel at a uniform rate in 10 seconds while maintaining intimate contact with the mandrel."

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Testing of adhesive bond strength will be performed on sandblasted concrete brick surface in conformance with the requirements in California Test 669 and these special provisions. The concrete brick surface will be sandblasted in conformance with the requirements in California Test 423. The test plugs of 2-inch diameter will be conditioned at 221° F for a minimum of 2 hours before bonding to the sandblasted concrete surface. The adhesive sample will be heated to the application temperature as recommended by the manufacturer and a sample of 3 inch diameter in area will be poured onto the sandblasted concrete surface. The heated plug will immediately be pressed onto the puddle of hot adhesive to squeeze out excess adhesive. The excess adhesive extruding from under the plug will be removed. The assembly will be allowed to cure for 24 hours at 73° F ± 3.6° F and then be tested to bond failure at a crosshead speed of 2 inches per minute. The reported peak load and the bond strength value will be the average of 3 tests, respectively. The same bond strength test will be performed on retroreflective pavement markers. Instead of placing the heated adhesive sample on the sandblasted concrete surface, it will be placed on the bottom of the pavement markers.

7

Minimum bond strength to the sandblasted concrete brick surface shall be 100 psi and minimum bond strength to retroreflective pavement markers shall be 119 psi.

8

Adhesive placed in pavement recesses shall be applied as recommended by the manufacturer.

9

Retroreflective pavement markers placed in pavement recesses will be measured and paid for as pavement marker (retroreflective-recessed).

DRAFT

USE WITH 2006 STANDARDS.

Insert after Section 10-1. Include SSPs 20-200 thru 20-930 in this Section 10-2.

Do NOT include erosion control, irrigation crossover, extend irrigation crossover, water supply lines (Bridge), rock blanket, decomposed granite or any roadway work in this Section 10-2.

SECTION 10-2 HIGHWAY PLANTING AND IRRIGATION SYSTEMS

10-2.01 GENERAL

The work performed in connection with highway planting and irrigation systems shall conform to the provisions in Section 20, "Erosion Control and Highway Planting," of the Standard Specifications and these special provisions.

2. Use only when the Contractor may need access to existing irrigation control equipment.

The Contractor shall notify the Engineer not less than 72 hours prior to requiring initial access to the existing irrigation controllers. When the Engineer determines that access to the controllers is required at other times, arrangements will be made to provide this access.

Use either Paras 3 & 4 OR Paras 3 & 5 when watering cannot be performed during normal hours due to fluctuations in water pressure or supply, otherwise delete all 3 paras. USE Paras 3 & 5 when Highway Planting is a lump sum pay item, use Paras 3 & 4 when it is not. [NEVER EDIT PARA 4 OR 5.]

3

When fluctuations of water pressure and water supply are encountered during normal working hours, plants shall be watered at other times, as often, and in sufficient amounts as conditions may require to keep the soil and plant roots moist during the life of the contract.

4.

Full compensation for watering plants outside normal working hours shall be considered as included in the contract unit prices paid for the plants involved and the contract lump sum price paid for plant establishment work and no additional compensation will be allowed therefor.

5

Full compensation for watering plants outside normal working hours shall be considered as included in the contract lump sum prices paid for highway planting and plant establishment work and no additional compensation will be allowed therefor.

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Delete Paras 6 thru 10 when progress inspections are not required. "Progress inspections" should only be used as a District option.

6

PROGRESS INSPECTIONS

Progress inspections will be performed by the Engineer for completed highway planting and irrigation system work at designated stages during the life of the contract.

7

Progress inspections will not relieve the Contractor of responsibility for installation in conformance with the special provisions, plans and Standard Specifications. Work within an area shall not progress beyond each stage until the inspection has been completed, corrective work has been performed, and the work is approved, unless otherwise permitted by the Engineer.

8

The requirements for progress inspections will not preclude additional inspections of work by the Engineer at other times during the life of the contract.

9

The Contractor shall notify the Engineer, in writing, at least 4 working days prior to completion of the work for each stage of an area and shall allow a minimum of 3 working days for the inspection.

10. Delete items of work that will not be part of the contract and reletter the following items that remain.

Progress inspections will be performed at the following stages of work:

A. During pressure testing of the pipelines on the supply side of control valves.
B. During testing of low voltage conductors.
C. Before planting begins and after completion of the work specified for planting in Section 20-4.03, "Preparing Planting Areas," of the Standard Specifications.
D. Before plant establishment work begins and after completion of the work specified for planting in Section 20-4.05, "Planting," of the Standard Specifications.
E. At intervals of one month during the plant establishment period.

DRAFT

USE WITH 2006 STANDARDS.

Use in highway construction projects with lump sum items for both Highway Planting and Irrigation System.

Use SSP 20-202 when only one lump sum item: either Highway Planting or Irrigation System.

Add to SSP 20-200.

CAUTION: Delete Para 2 and edit Para 5 when SSP 08-017 or 08-018 is NOT included in the project.

List units of work, quantities, and units of measurement in the two Cost Break-Down tables.

Do NOT include "Willow Cuttings (Plant Group W)," "Imported Topsoil," "Maintain Existing Planted Areas" and "Plant Establishment Work" in the Highway Planting Cost Break-Down table. Show as separate contract items.

Do NOT include "Irrigation Crossovers," "Extend Irrigation Crossovers," "Irrigation Sleeve," and "Maintain Existing Irrigation Facilities," in the Irrigation System Cost Break-Down table. Show as separate contract items.

Add as many rows of highway planting and irrigation system items to the two Cost Break-Down tables as necessary, and add three blank rows at the end of each table. Do not use "Strike and Hide" to eliminate rows; instead, delete them. Do not "underline" text in the tables.

Include sizes and/or number of controller stations to the irrigation facilities listed in the Irrigation System Cost Break-Down table. List sizes (single or double) of "Irrigation Controller Enclosure Cabinet." Payment for rain sensor unit is included with Irrigation Controller Enclosure Cabinet.

Payment for Electric Service Installation for irrigation systems should be included in Section 10-3.

1*. District to determine number of working days required for cost break-down submittals. Use 15 working days unless otherwise specified.

KC for SA 9-27-2009**

COST BREAK-DOWN

The Contractor shall furnish the Engineer a cost break-down for the contract lump sum items of highway planting and irrigation system. Cost break-down tables shall be submitted to the Engineer for approval within 15 working days after the contract has been approved. Cost break-down tables will be approved, in writing, by the Engineer before any partial payment will be made for the applicable items of highway planting and irrigation system involved.

2. Delete Para 2 when SSP 08-017 or 08-018 is NOT included in the project.

Attention is directed to "Time-Related Overhead" of these special provisions regarding compensation for time-related overhead.

DRAFT

3

Cost break-downs shall be completed and furnished in the format shown in the samples of the cost break-downs included in this section. Line item descriptions of work shown in the samples are the minimum to be submitted. Additional line item descriptions of work may be designated by the Contractor. If the Contractor elects to designate additional line item descriptions of work, the quantity, value and amount for those line items shall be completed in the same manner as for the unit descriptions shown in the samples. The line items and quantities given in the samples are to show the manner of preparing the cost break-downs to be furnished by the Contractor.

4

The Contractor shall determine the quantities required to complete the work shown on the plans. The quantities and their values shall be included in the cost break-downs submitted to the Engineer for approval. The Contractor shall be responsible for the accuracy of the quantities and values used in the cost break-downs submitted for approval.

5. Delete ", except for time-related overhead," when SSP 08-017 or 08-018 is NOT included in the project.

The sum of the amounts for the line items of work listed in each cost break-down table for highway planting and for irrigation system work shall be equal to the contract lump sum price bid for Highway Planting and Irrigation System, respectively. Overhead and profit, except for time-related overhead, shall be included in each individual line item of work listed in a cost break-down table.

6

No adjustment in compensation will be made in the contract lump sum prices paid for highway planting and irrigation system due to differences between the quantities shown in the cost break-downs furnished by the Contractor and the quantities required to complete the work as shown on the plans and as specified in these special provisions.

7

Individual line item values in the approved cost break-down tables will be used to determine partial payments during the progress of the work and as the basis for calculating an adjustment in compensation for the contract lump sum items of highway planting and irrigation system due to changes in line items of work ordered by the Engineer. When the total of ordered changes to line items of work increases or decreases the lump sum price bid for either Highway Planting or Irrigation System by more than 25 percent, the adjustment in compensation for the applicable lump sum item will be determined in the same manner specified for increases and decreases in the total pay quantity of an item of work in Section 4-1.03B, "Increased or Decreased Quantities," of the Standard Specifications.

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HIGHWAY PLANTING COST BREAK-DOWN

Contract No. _____

UNIT DESCRIPTION	UNIT	APPROXIMATE QUANTITY	VALUE	AMOUNT

TOTAL _____

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IRRIGATION SYSTEM COST BREAK-DOWN

Contract No. _____

UNIT DESCRIPTION	UNIT	APPROXIMATE QUANTITY	VALUE	AMOUNT

TOTAL _____

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USE WITH 2006 STANDARDS.

Add to SSP 20-200.

1. Use if there is NO existing planting work, such as maintaining, removing, pruning or transplanting existing plants. Delete Paras 2 and 3.

10-2.02 (BLANK)

2. Use if SSP 15-010 is NOT USED and there is existing planting within the limits of work. Delete Paras 1 and 3.

10-2.02 EXISTING HIGHWAY PLANTING

In addition to the provisions in Section 20, "Erosion Control and Highway Planting," of the Standard Specifications, work performed in connection with existing highway planting shall conform to the provisions in Section 15, "Existing Highway Facilities," of the Standard Specifications and these special provisions.

3. Use if SSP 15-010 is USED and there is existing planting within the limits of work. Delete Paras 1 and 2.

KC for SA 9-27-2009**

~~**10-2.02 EXISTING HIGHWAY PLANTING**~~

~~In addition to the provisions in Section 20, "Erosion Control and Highway Planting," of the Standard Specifications, work performed in connection with existing highway planting shall conform to the provisions in "Existing Highway Facilities," of these special provisions.~~

USE WITH 2006 STANDARDS.

Use when existing planted areas are to be maintained and NOT paid for as extra work, except for pruning and correcting deficiencies. Add to SSP 20-250.

Plans: Existing planted areas MUST be shown on the plans. Show trees, shrubs and groundcover masses or use one bubble for each planted area. Add symbol to legend on the Plant List.

Use Item Code 204096, "Maintain Existing Planted Areas."

MAINTAIN EXISTING PLANTED AREAS

Existing planted areas, designated on the plans to be maintained, shall be maintained throughout the life of the contract in conformance with these special provisions.

2

Existing plants shall be watered in conformance with the provisions in Section 20-4.06, "Watering," of the Standard Specifications.

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3

Existing planted areas to be maintained shall be inspected for deficiencies by the Contractor in the presence of the Engineer. Deficiencies requiring corrective action shall include weeds; dead, diseased, or unhealthy plants; missing plant stakes and tree ties; inadequate plant basins; and other deficiencies needing corrective action to promote healthy plant life. The inspection shall be completed within 15 days after the start of work.

4. Include funds in the Engineer's Estimate under Supplemental Work for correction of deficiencies.

Deficiencies found during the inspection shall be corrected within 15 days after the inspection ends. Correction of deficiencies, as directed by the Engineer, will be paid for as extra work in conformance with the provisions in Section 4-1.03D, "Extra Work," of the Standard Specifications.

5. Use when pruning is required and SSP 20-254 is NOT used. Include funds in the Engineer's Estimate under Supplemental Work for pruning.

When directed by the Engineer, existing plants shall be pruned and the work will be paid for as extra work in conformance with the provisions in Section 4-1.03D, "Extra Work," of the Standard Specifications.

6. Edit as required.

After deficiencies have been corrected, the Contractor shall perform work to maintain existing planted areas in a neat appearance and to promote healthy plant growth. The work shall include the following:

A. Weeds shall be killed before the weeds reach the seed stage of growth or exceed 6 inches in length.
B. Weeds shall be removed from existing planted areas. Weeds shall be killed prior to removal. Weed removal in ground cover areas shall extend beyond the outer limits of ground cover areas to the adjacent edges of paving, fences and proposed plants and planting areas, and a 6-foot diameter area centered at each existing tree and shrub outside of existing ground cover areas.
C. When a portion of a new automatic irrigation system is completed, the existing plants to be watered by that portion of the irrigation system shall be watered automatically.
D. Pesticides for maintaining existing planted areas shall conform to the provisions in "Pesticides" of these special provisions.

Delete when plant basins are no longer required.

E. Existing plant basins shall be kept well-formed and free of silt. If existing plant basins require repairs, and the plant basins contain mulch, the mulch shall be replaced after the plant basins have been repaired.

7. This pay clause MUST be used on Highway Planting Projects and Highway Construction Projects with highway planting. On Highway Construction Projects show as a separate bid item in the Engineers Estimate and NOT in the Highway Planting Cost Break-Down SSP.

The contract lump sum price paid for maintain existing planted areas shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in maintain existing planted areas, complete in place, as shown on the

plans, as specified in the standard specifications and these special provisions, and as directed by the Engineer.

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USE WITH 2006 STANDARDS.

Add to SSP 20-200.

1. Use if there is NO existing irrigation facility located within the limits of work. Delete Paras 2, 3 & 4.

10-2.03 (BLANK)

2. Use if SSP 15-010 is NOT USED and there is an existing irrigation facility located within the limits of work. Delete Paras 1 & 3.

KC for SA 9-27-2009**

~~**10-2.03 EXISTING HIGHWAY IRRIGATION FACILITIES**~~

~~The work performed in connection with the various existing highway irrigation system facilities shall conform to the provisions in Section 15, "Existing Highway Facilities," of the Standard Specifications and these special provisions.~~

3. Use if SSP 15-010 is USED and there is an existing irrigation facility located within the limits of work. Delete Paras 1 & 2.

10-2.03 EXISTING HIGHWAY IRRIGATION FACILITIES

The work performed in connection with the various existing highway irrigation system facilities shall conform to the provisions in "Existing Highway Facilities," of these special provisions.

4

Water shall be maintained in conformance with the provisions in Section 20-5.025, "Maintain Existing Water Supply," of the Standard Specifications.

USE WITH 2006 STANDARDS.

Add to SSP 20-300 when required.

LOCATE EXISTING CROSSOVERS AND CONDUITS

Existing crossovers and conduits shown on the plans to be incorporated in the new work shall be located in conformance with the provisions for locating conduits in Section 20-5.03B, "Conduit for Irrigation Crossovers," of the Standard Specifications.

2

Unless otherwise directed by the Engineer, existing crossovers and conduits shown on the plans to be incorporated in the new work shall be located prior to performing work on irrigation systems.

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3

If debris is encountered in the ends of conduits, the debris shall be removed prior to performing other work in the conduits. Removal of debris within the first 3 feet in these conduits shall be at the Contractor's expense. If debris is encountered in the conduits more than 3 feet from the ends of the conduits, the additional debris shall be removed as directed by the Engineer and the removal work will be paid for as extra work as provided in Section 4-1.03D,"Extra Work," of the Standard Specifications.

{ XE "20-304_E_A05-01-06" }
Page 1 of 2

USE WITH 2006 STANDARDS.

Add to SSP 20-300.

1. Use for Highway Construction projects. Delete Para 2.

KC for SA 9-27-2009**

~~**CHECK AND TEST EXISTING IRRIGATION FACILITIES**~~

~~Existing irrigation facilities that are to remain or to be relocated, and that are within those areas where clearing and grubbing or earthwork operations are to be performed, shall be checked for missing or damaged components and proper operation prior to performing clearing and grubbing or earthwork operations. Existing irrigation facilities outside of work areas that are affected by the construction work shall also be checked for proper operation.~~

2. Use for Highway Planting projects. Delete Para 1.

CHECK AND TEST EXISTING IRRIGATION FACILITIES

Existing irrigation facilities that are to remain or to be relocated, and that are to be part of the new irrigation system, shall be checked for missing or damaged components, and for proper operation prior to performing irrigation system work.

3

A written list of existing irrigation system deficiencies shall be submitted to the Engineer within 5 working days after checking the existing facilities.

4. Include funds in the Engineer's Estimate under Supplemental Work for corrective work.

Deficiencies found during checking of the existing facilities shall be corrected as directed by the Engineer. Corrective work ordered by the Engineer will be paid for as extra work as provided in Section 4-1.03D, "Extra Work," of the Standard Specifications.

Use Paras 5 & 6 when existing backflow preventers are on the project.

5

When existing irrigation facilities are checked, existing backflow preventers shall be tested for proper operation in conformance with the provisions in Section 20-5.03J, "Check and Test Backflow Preventers," of the Standard Specifications.

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6

Existing backflow preventers shall be retested one year after the satisfactory completion of the previous test, and each year thereafter until the plant establishment period is completed. An additional test shall be provided not more than 10 days prior to acceptance of the contract.

7

Length of watering cycles for use of potable water from water meters for checking or testing existing irrigation facilities shall be as determined by the Engineer.

8. Use when SSP 15-740 is used. Include funds in the Engineer's Estimate under Supplemental Work for repair existing irrigation systems.

Additional repairs required for the existing irrigation system as ordered by the Engineer, except as otherwise provided for in "Existing Highway Irrigation Facilities" of these special provisions, will be paid for as extra work as provided in Section 4-1.03D, "Extra Work," of the Standard Specifications.

9. Use when SSP 20-305 is used. Include funds in the Engineer's Estimate under Supplemental Work for repair existing irrigation systems.

Additional repairs required for the existing irrigation system as ordered by the Engineer, except as otherwise provided for in "Maintain Existing Irrigation Facilities" of these special provisions, will be paid for as extra work as provided in Section 4-1.03D, "Extra Work," of the Standard Specifications.

10. Use on Highway Planting projects. Delete on Highway Construction projects and include "Check and Testing Existing Irrigation Facilities" in the cost break-down of SSP 20-201 or SSP 20-202.

Full compensation for checking and testing existing irrigation facilities, including testing existing backflow preventers, shall be considered as included in the contract prices paid per linear foot for the various sizes of plastic pipe (supply line) involved and no additional compensation will be allowed therefor.

{ XE "20-305_E_A06-06-08" }
Page 1 of 2

USE WITH 2006 STANDARDS.

Add to SSP 20-300.

1. Include SSP 20-304 in Section 10-2 when the second sentence in Para 1 is used.

MAINTAIN EXISTING IRRIGATION FACILITIES

Existing irrigation facilities shall be maintained throughout the life of the contract. Prior to the start of maintaining existing irrigation facilities work, the facilities shall be checked for proper operation, and repaired in conformance with the provisions in "Check and Test Existing Irrigation Facilities" of these special provisions.

2. Include SSP 20-304.

After the existing facilities have been checked and repaired, the Contractor shall be responsible for the routine maintenance of existing irrigation systems. The work shall include, but not limited to, checking irrigation systems for proper operation and adjusting, repairing or

replacing valves, valve boxes, sprinklers, risers, swing joints, wye strainers, valve assembly units, and filter assembly units.

3

The Contractor will not be responsible for maintaining existing water meters, underground pipe supply lines, control and neutral conductors, and electrical conduits. Except as otherwise specified in "Existing Highway Irrigation Facilities" of these special provisions, repair work to these facilities ordered by the Engineer will be paid for as extra work as provided in Section 4-l.03D, "Extra Work," of the Standard Specifications.

4

Existing automatic irrigation systems shall be operated automatically during the life of the contract, except manual operation will be allowed for the work during plant replacement, fertilization, weed germination, and the repair of irrigation facilities.

5

Irrigation controllers shall be programmed by the Contractor for seasonal water requirements. During winter seasons irrigation systems shall be operated automatically a minimum of 2 minutes every 2 weeks.

6

Irrigation systems and facilities shall be checked for proper operation at least once every 30 days. When required, as determined by the Engineer, adjusting, repairing or replacing irrigation facilities shall be completed within 5 working days after checking the irrigation systems. Except as provided in these special provisions, repair and replacement of irrigation facilities shall conform to the provisions in "Existing Highway Irrigation Facilities" of these special provisions.

7. Use on Highway Construction and Highway Planting projects. When SSP 20-201 or 20-202 is used, do not include in the Highway Planting Cost Break-Down. Show as a separate contract item.

Except as provided in these special provisions, the contract lump sum price paid for maintain existing irrigation facilities shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in maintaining existing irrigation facilities, complete in place, including checking irrigation facilities, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

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USE WITH 2006 STANDARDS.

Section 10-2.04: LEAD SSP. Add to SSP 20-200.

1. Use when no Highway Planting is involved and delete Paras 2 and 3.

10-2.04 (BLANK)

2. Use when Highway Planting is involved and delete Para 1.

10-2.04 HIGHWAY PLANTING

The work performed in connection with highway planting shall conform to the provisions in Section 20-4, "Highway Planting," of the Standard Specifications and these special provisions.

3. Use when material special provisions are required. Add the applicable SSPs & special provisions for the required planting materials to Para 3. Include only material special provisions.

HIGHWAY PLANTING MATERIALS

KC for SA 9-27-2009**
Added

PREPARING PLANTING AREAS

Plants adjacent to drainage ditches shall be located so that after construction of the basins, no portion of the basin walls shall be less than the minimum distance shown on the plans for each plant involved.

PLANTING

Backfill material for plant holes must be a mixture of soil and soil amendment. The quantity of soil amendment shall be as shown on the Plant List. Thoroughly mix backfill material and uniformly distribute throughout the entire depth of the plant hole without clods and lumps.

2. Delete reference to iron sulfate when not specified on the Plant List. Delete reference to granular or slow-releace fertilizer if not used. Include SSP 20-353 when this Para is used.

Apply or place commercial fertilizer (granular and slow release) and iron sulfate at the time of planting and at the rates shown on the Plant List.

3. Use when fertilizer packets have been specified on the Plant List, otherwise delete.

Place commercial fertilizer packets in the backfill of each plant at the time of planting and at the rate shown on the Plant List to within 6 inches to 8 inches of the soil surface and approximately one inch from the roots. When more than one fertilizer packet is required per plant, the packets must be distributed evenly around the root ball.

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4. Use when root protectors are specified on the Plant List. Include SSP 20-506 when this Para is used.

Root protectors must conform to the provisions in "Root Protectors" of these special provisions.

5. Use when mulch is NOT required in plant basins. Edit as required.

Mulch is not required in the plant basins when mulch is not indicated on the Plant List for the plants involved.

6. Use with SSP 20-430, Paras 3 & 4, when a preemergent is to be applied under mulch areas, otherwise delete.

A granular preemergent must be applied to areas to be covered with mulch outside of plant basins.

7*. Use when there are mulched areas outside of plant basins, otherwise delete. Show mulched areas on the plans with quantities in cubic yards.

Mulch placed in areas outside of plant basins shall be spread to a uniform depth.

8. Use when mulch is to be applied to areas outside of proposed plant basins and when areas for mulch are to be restricted, otherwise delete.

Spread mulch from the outside of the proposed plant basin to the adjacent edges of shoulders, dikes, curbs, sidewalks, walls, fences, and existing plantings. If the proposed plant material is 12 feet or more from the adjacent edges of shoulders, dikes, curbs, sidewalks, walls, fences, and other existing plantings, the mulch must be spread 6 feet beyond the outside edge of the proposed plant basins.

9. Use when mulch is spread in areas. Ditches MUST be shown on the plans.

Do not place mulch within 4 feet of the centerline of earthen drainage ditches, within 4 feet of the edge of paved ditches, and within 4 feet of the centerline of drainage flow lines.

10. Use when SSP 20-630 or 20-640 is included.

Attention is directed to "Irrigation Systems Functional Test" of these special provisions regarding functional tests of the irrigation systems. Do not perform planting in an area until the functional test has been completed for the irrigation system serving that area.

Delete Paras 11 & 12 when Highway Planting Cost Break-Down is used in SSP 20-201 or 20-202. Include "Commercial Fertilizer (Packet)" in the Cost Break-Down.

11. Use Paras 11 & 12 when "Commercial Fertilizer (Packet)" is specified on the Plant List and is paid for as a separate contract item.

MEASUREMENT AND PAYMENT

Quantities of commercial fertilizer (packet) will be measured by the unit as determined from actual count in place.

12

The contract unit price paid for commercial fertilizer (packet) includes full compensation for furnishing and placing commercial fertilizer (packet), complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

PREPARE TRENCH

Planting trenches shall be centered on the planting line.

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2. Edit "soil amendments" and "fertilizer" if not required.

Unless otherwise specified or shown on the plans, the trench width and depth shall be large enough to receive the plant root ball, soil amendments and commercial fertilizer.

3. Delete if no soil amendments are required.

Soil amendments, when specified to be added to the plants, shall be added to the plant location of each plant at the rate shown on the plans and thoroughly mixed with the trench soil.

4. Use when there is an item for prepare trench but no items for soil amendments. Delete if there are no soil amendments.

Full compensation for furnishing and mixing soil amendments for planting trenches shall be considered as included in the contract price paid per linear foot for prepare trench and no separate payment will be made therefor.

CULTIVATE

Areas to be planted with trees, ground cover and hydroseeding shall be cultivated. Areas shown on the plans to be cultivated shall be cultivated.

2*. Use when soil amendment and commercial fertilizer are required at the time of cultivation. Edit as required.

Immediately prior to cultivation, soil amendment and commercial fertilizer shall be added to the areas to be cultivated. Soil amendment shall be added at the rate shown on the plans and commercial fertilizer shall be applied at the rate of __ pounds per 1,000 square feet. Soil amendment and fertilizer shall be thoroughly mixed with the soil.

3*. Use when weed germination is required. Specify number of days for weed germination. Do NOT use SSP 20-451 with this SSP.

After cultivation is complete and the irrigation systems have been installed and the plant holes have been excavated and backfilled, no further planting work shall be done in the cultivated areas for a period of ___ days, except the soil shall be kept sufficiently moist to germinate weeds. Weeds that germinate shall be killed.

4. Use when cultivation is not paid for separately. Delete references to soil amendment and commercial fertilizer when Para 6 is used. Delete reference to weed germination and killing of germinated weeds when not applicable. Delete Para 4 when Para 5 is used or when Highway Planting is paid for on a lump sum basis.

Unless payment is made separately in these special provisions, full compensation for performing cultivation, weed germination, killing of weeds that germinate, and for furnishing and mixing soil amendment and fertilizer shall be considered as included in the contract unit prices paid for the plants involved and no separate payment will be made therefor.

5. Use when cultivation is paid for separately and soil amendment and commercial fertilizer are included in the price paid for cultivation. Delete reference to weed germination and killing of germinated weeds when not applicable. Delete Para 5 when Para 4 is used or when Highway Planting is paid for on a lump sum basis.

Full compensation for weed germination and killing of weeds that germinate and for furnishing and mixing fertilizer and soil amendment shall be considered as included in the contract price paid per square yard for cultivate (soil amendment) and no additional compensation will be allowed therefor.

6. Use when soil amendment and commercial fertilizer are paid for separately. Edit Para 4 or Para 5 when Para 6 is used. Delete Para 6 when Highway Planting is paid for on a lump sum basis.

Soil amendment and commercial fertilizer for cultivated areas will be paid for separately.

PLANT ESTABLISHMENT WORK

The plant establishment period shall be Type 2 and shall not be less than ___ working days.

3. Use when there are time restraints for sowing wild flower seed.

If wild flower seeding cannot be performed within the time limits specified under "Wild Flower Seeding" of these special provisions and the Engineer determines that the work except wild flower seeding and plant establishment work has been completed, the Engineer will notify the Contractor in writing of the start of the plant establishment period.

4. Use when SSP 20-530 is used.

Wild flower seeding not performed prior to the start of the plant establishment period shall be performed during the plant establishment period. The work involved in preparing areas to receive wild flower seeding and applying seed shall be in conformance with the provisions in "Wild Flower Seeding" of these special provisions.

5. Use when SSP 20-530 is used.

After sowing wild flower seed, plant establishment work for the wild flower seeding areas will not be required except for removing trash and debris and mowing. Mowing shall be performed after the wild flower seeds have set and the wild flowers have begun to die back.

6. Use for Highway Construction projects when SSP S5-790 is used.

Attention is directed to "Relief From Maintenance and Responsibility" in these special provisions regarding relief from maintenance and protection.

7*. Use with SSP 20-353 when a granular form of fertilizer is to be applied. Insert months of application to meet the region.

Commercial fertilizer (granular) shall be applied to trees, shrubs, vines and ground cover during the first week of _____ and _____ of each year. Commercial fertilizer shall be applied at the rates shown on the plans and shall be spread with a mechanical spreader wherever possible.

8*. Use with SSP 20-353 when a slow release fertilizer is to be applied. Insert months of application to meet the region.

Commercial fertilizer (slow release) shall be applied to trees, shrubs, vines and ground cover during the first week of _____ and _____ of each year. Commercial fertilizer shall be applied at the rates shown on the plans and shall be spread with a mechanical spreader wherever possible.

9. Use only if the plant establishment period is more than 125 working days. Edit or delete columns as applicable .

The center to center spacing of replacement plants for unsuitable ground cover plants shall be determined by the number of completed plant establishment working days at the time of replacement and the original spacing in conformance with the following:

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ORIGINAL SPACING (Inches)	SPACING OF REPLACEMENT GROUND COVER PLANTS (Inches)		
	Number of Completed Plant Establishment Working Days		
	1-125	126-190	191-End of Plant Establishment
9	9	6	6
12	12	9	6
18	18	12	9
24	24	18	12
36	36	24	18

10. Use when a Remote Irrigation Control System (RICS) controls the irrigation system, otherwise delete.

During the plant establishment period, the plants shall be watered utilizing the Remote Irrigation Control System (RICS) software program. A watering schedule shall be submitted to the Engineer for use during the plant establishment period.

11. Edit as required.

Weeds within plant basins, including basin walls and ground cover, shall be controlled by hand pulling.

12. Edit as required.

Weeds within mulched and ground cover areas and outside of plant basins shall be controlled by killing.

13. If the ENTIRE project area outside of mulched areas, plant basins, ground cover, median areas, and paved areas is to be mowed, delete the second sentence. If the plan is to limit the mowing areas, retain both sentences. Add or delete items to fit conditions.

Weeds outside of mulched areas, plant basins, ground cover, the median, and paved areas shall be controlled by mowing. At locations where proposed planting areas are 12 feet or more from the edges of existing plantings to remain and from shoulders, dikes, curbs, sidewalks, fences, and walls, the mowing limit shall be 6 feet beyond the outer limits of the proposed planting area.

14. Edit as required.

Weeds within median areas, pavement, curbs, sidewalk, and other surfaced areas shall be controlled by killing.

15. Edit as required.

Vines shall be trained onto fences and walls or through cored holes in walls.

16

Except as specified in these special provisions, disposal of mowed material will not be required unless ordered by the Engineer. Disposal of mowed material, as directed by the Engineer, will be paid for as extra work as provided in Section 4-1.03D,"Extra Work," of the Standard Specifications.

17. Use with SSP 20-430 when a growth regulator may be applied as provided in these special provisions.

At the option of the Contractor, a growth regulator may be applied to mowed areas, provided the growth regulator is approved in advance by the Engineer and the growth regulator is applied in conformance with these special provisions.

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18

At the option of the Contractor, plants of a larger container size than those originally specified may be used for replacement plants during the first 125 working days of the plant establishment period.

19. Use when plant establishment period is 125 working days or more. Replacement plants for plants larger than 15-gallon size shall be the same size as originally planted.

After 125 working days of the plant establishment period have been completed, replacement of plants, except for ground cover plants, shall be one-gallon size for seedlings, pot and liner size plants; 5-gallon size for one-gallon size plants; 15-gallon size for 5-gallon size plants; and other plant replacement plants shall be the same size as originally specified.

20. Use with SSP 20-430 when a preemergent is required. Include funds in the Engineer's Estimate under Supplemental Work for applying a preemergent pesticide.

When ordered by the Engineer, one application of a preemergent pesticide conforming to the provisions in "Pesticides" of these special provisions, shall be applied between 40 working days and 50 working days prior to completion of the plant establishment period. This work will be paid for as extra work as provided in Section 4-1.03D,"Extra Work," of the Standard Specifications.

21. Use when foliage protectors are to be removed at the end of plant establishment (PE) period, otherwise delete.

During the plant establishment period, if plants become restricted by foliage protectors, the tops of foliage protectors shall be removed. Foliage protectors shall be completely removed, including the support stakes, within 15 working days prior to completion of the plant establishment period.

22

Wye strainers shall be cleaned at least 15 days prior to the completion of the plant establishment period.

23. Use with SSP 20-900, otherwise delete.

Previously installed filters shall be removed, cleaned and reinstalled at least 15 days prior to the completion of the plant establishment period.

24

The final inspection shall be performed in conformance with the provisions in Section 5-1.13, "Final Inspection," of the Standard Specifications and shall be completed a minimum of 20 working days before the estimated completion of the contract.

Use Paras 25 & 26 with SSP 20-504 when turf (sod) is to be planted.

25

Turf areas shall be mowed in conformance with the provisions in "Turf (Sod)" of these special provisions.

26

Full compensation for mowing and trimming turf (sod) and disposing of mowed and trimmed material during the plant establishment period shall be considered as included in the contract lump sum price paid for plant establishment work and no additional compensation will be allowed therefor.

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USE WITH 2006 STANDARDS.

Add the applicable sections as required to cover irrigation work.

When conduit is to be installed, include Standard Plan A20A for Type A pavement marker.

1. Use when no irrigation work is to be performed and delete remainder of SSP.

10-2.05 (BLANK)

2. Use when irrigation work is to be performed.

10-2.05 IRRIGATION SYSTEMS

Irrigation systems shall be furnished and installed in conformance with the provisions in Section 20-5, "Irrigation Systems," of the Standard Specifications, except materials containing asbestos fibers shall not be used.

3. Do not delete this Para.

Method A pressure testing shall conform to the provisions in Section 20-5.03H(1), "Method A", of the Standard Specifications, except leaks that develop in the tested portion of the system shall be located and repaired after each test period when a drop of more than 5 pounds per square inch is indicated by the pressure gage. After the leaks have been repaired, the one hour pressure test shall be repeated and additional repairs made until the drop in pressure is 5 pounds per square inch or less.

4. Use in District 5 projects. May be used in other districts, otherwise delete.

Pipe supply lines shall be pressure tested in conformance with the provisions in Section 20-5.03H, "Pressure Testing," of the Standard Specifications, except the pipe (supply line) on the discharge side of the control valve shall be tested by Method B as specified in Section 20-5.03H(2), "Method B," of the Standard Specifications.

5. Use when water for irrigation is to be supplied from more than one service point.

Only pipeline trenches and excavation pits for supply lines being supplied from one water service point shall be open at one time. After pressure testing is complete, trenches and pits excavated for pipe supply lines, being supplied from one water service point, shall be backfilled prior to commencing excavations for pipe supply lines being supplied from another water service point.

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ELECTRIC AUTOMATIC IRRIGATION COMPONENTS

Electric Remote Control Valves

Electric remote control valves shall conform to the provisions in Section 20-2.23, "Control Valves," of the Standard Specifications and the following:

Paras 5A thru 5E, realphabetize remaining Paras after editing.

5A. Edit for type of valves required.

A. Valves shall be glass filled nylon, brass, bronze, or cast iron construction.

5B. Edit if only one type of valve is to be installed. Delete Para 5C when Para 5B is used.

B. Valves shall be angle pattern (bottom inlet) or straight pattern (side inlet) as shown on the plans.

5C. Use when valves with combination angle patterns are required. Delete Para 5B when Para 5C is used.

C. Valves shall be combination angle pattern (bottom inlet and side inlet) installed as an angle pattern (bottom inlet), as shown on the plans.

5D. Use when a pressure regulator is required on a electric remote control valve. Insert a "P" in the center of the RCV standard symbol. Show new symbol in an Irrigation Legend on the plans.

D. Electric remote control valves shall be outfitted with adjustable pressure regulators as shown on the plans. Pressure regulators shall be compatible for use with the electric remote control valves and shall be of the same manufacturer as the electric remote control valves. Pressure regulators shall regulate and maintain the outlet pressure regardless of the incoming pressure. Pressure regulators shall withstand a cold water working pressure of 200 psi. The Contractor shall adjust the pressure regulators to provide proper operation of the irrigation system downstream of the electric remote control valves.

5E. Use when DC latching solenoids are required, otherwise delete.

E. Valve solenoids for (solar/battery) controller shall be DC latching and operate on 3.5 V.

6

Pull Boxes

Pull box installations shall conform to the provisions in Section 20-5.027I, "Conductors, Electrical Conduits and Pull Boxes," of the Standard Specifications.

7

Conductors

Low voltage, as used in this section "Conductors," shall mean 36 V or less.

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8. Use when only adhesive cloth wrap-around markers are required, otherwise delete.

Low voltage control and neutral conductors in pull boxes and valve boxes, at irrigation controller terminals, and at splices shall be marked with adhesive cloth wrap-around markers.

9. Use when clear heat-shrinkable sleeves for markers at terminations and splices are required in addition to other markers, otherwise delete.

Low voltage control and neutral conductors in pull boxes and valve boxes, at irrigation controller terminals, and at splices shall be marked as follows:

A. Conductor terminations and splices shall be marked with adhesive backed paper markers or adhesive cloth wrap-around markers, with clear, heat-shrinkable sleeves sealed over the markers.
B. Non-spliced conductors in pull boxes and valve boxes shall be marked with clip-on, "C" shaped, white extruded polyvinyl chloride sleeves. Marker sleeves shall have black, indented legends of uniform depth with transparent overlays over the legends and "chevron" cuts for alignment of 2 or more sleeves.

10

Markers for the control conductors shall be identified with the appropriate number or letter designations of irrigation controllers and station numbers. Markers for neutral conductors shall be identified with the appropriate number or letter designations of the irrigation controllers.

11. Use when new conductors are to be installed in existing installations, otherwise delete.

New control and neutral conductors that are to replace existing control and neutral conductors shall be the same size and color as the existing control and neutral conductors being connected to.

12

The color of low voltage neutral and control conductor insulation, except for the striped portions, shall be homogeneous throughout the entire thickness of the insulation.

13

Insulation for conductors may be UL listed polyethylene conforming to UL44 test standards with a minimum insulation thickness of 41 mils for wire sizes 10AWG and smaller.

14. Use this Para with SSP S5-790 when the landscaping within the project limits has different locations and start times; otherwise, delete this Para.

Relief from maintenance and responsibility for electric automatic irrigation components will be granted in conformance with "Relief from Maintenance and Responsibility" of these special provisions. Before the Engineer grants relief from maintenance and responsibility, the functional test specified in Section 20-5.027J, "Testing," of the Standard Specifications shall be satisfactorily completed, and the manufacturer's written instructions shall be provided to the Engineer on the use and adjustment of the installed irrigation controllers.

PIPE

1*. Use when galvanized steel pipe is required between water meters and backflow preventer assemblies. Delete "installed between water meters and

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backflow preventer assemblies" when galvanized steel pipe supply lines are required but there are no water meters or backflow preventer assemblies.

2

Plastic Pipe

Plastic pipe supply lines must be polyvinyl chloride (PVC) 1120 or 1220 pressure rated pipe with the minimum pressure rating (PR) shown on the plans.

3. Use when plastic pipe supply lines with ring type joints are specified for pipe with a diameter of 3 inches or larger.

Plastic pipe supply lines and fittings that are 3 inches or larger in diameter on the supply side of control valves must be the rubber ring gasket type, except when pressure rating (PR) 315 plastic pipe supply line is required.

4. Use when plastic pipe supply lines require solvent cemented type joints.

Plastic pipe supply lines less than 3 inches in diameter must have solvent cemented type joints. Primers must be used on the solvent cemented type joints.

5. Use ONLY when district maintenance has determined that additional coverage over plastic pipe supply lines main with solvent cemented type joints is necessary. Be sure to increase plastic pipe supply line estimate prices to account for deeper trenches and riser length. The Standard Specifications requires one foot coverage over pipe with solvent cemented type joints.

Plastic pipe supply lines (main) must have a minimum cover of 1.5 feet.

6. Use when the plastic pipe supply lines for Type C sprinklers must have a minimum cover of 6 inches. Delete if the standard depth of one foot for plastic pipe supply line (lateral) is desired.

Plastic pipe supply lines downstream from the remote control valves for Type C sprinklers must have a minimum cover of 6 inches.

7*. Use for "plastic pipe (irrigation lines)" ONLY and NOT "plastic pipe supply lines." Edit as required. Ensure that depth specified agrees with plan details

Plastic pipe (irrigation lines) must be installed not less than ___ inches below the finished grade, measured to the top of the pipe.

8. Use when the use of pipe thread sealant tape is NOT permitted.

A nonhardening joint compound must be used in place of the pipe thread sealant tape conforming to the provisions in Section 20-5.03E, "Pipe," of the Standard Specifications. Joint compounds must be applied in conformance with the manufacturer's recommendations.

9

Fittings for plastic pipe supply lines with a pressure rating (PR) of 315 must be Schedule 80.

GATE VALVES

Gate valves shall be as shown on the plans and in conformance with the provisions in Section 20-2.28, "Gate Valves," of the Standard Specifications and these special provisions.

2

Gate valves, smaller than 3 inches in size, shall be furnished with a cross-handle.

3. Use when square nuts are desired.

Gate valves, 3 inches and larger in size, shall be furnished with a square nut and 3 long shank keys that will operate the valve.

4. Use when "flanged" gate valves are desired.

Gate valves, 3 inches and larger in size, shall be flanged type gate valves. Pipe flanges used to connect plastic or metal pipe to gate valves shall be plastic or metal.

5

Gate valves shall have a solid bronze or brass wedge.

VALVE BOXES

Valve boxes shall conform to the provisions in Section 20-2.24, "Valve Boxes," of the Standard Specifications, except as otherwise provided herein.

2. Use when one kind of valve box material is required and edit accordingly. Delete Para 2 if there are no specific material requirements for valve boxes.

Valve boxes shall be precast portland cement concrete, fiberglass or reinforced plastic.

3. Use for concrete valve boxes and edit for type of cover.

Covers for concrete valve boxes shall be glass fiber reinforced plastic, plastic, concrete, cast iron or steel. Cast iron and steel covers shall be hinged with brass hinge pins for valve boxes containing valves smaller than 2 inches.

4. Use for plastic valve boxes and edit for type of cover.

Covers for plastic valve boxes shall be glass fiber reinforced plastic or plastic.

5. Use when valve box identification is to be stenciled on covers. Delete Paras 6, 7 & 8.

Valve boxes shall be identified on the top surface of the covers by stenciling with paint the appropriate abbreviations for the irrigation facilities contained in the valve boxes as shown on the plans. Valve boxes that contain remote control valves shall be identified by the appropriate letters and numbers (controller and station numbers). The letters and numbers shall be 2 inches in height. The stenciling paint shall be a commercial quality, epoxy resin base paint of a color which contrasts with the valve box covers.

6. Use when valve box identification is to be branded on glass fiber reinforced plastic or plastic valve box covers . Delete Paras 5, 7 & 8.

Valve boxes shall be identified on the top surface of the covers by branding the appropriate abbreviations for the irrigation facilities contained in the valve boxes as shown on the plans. Valve boxes that contain remote control valves shall be identified by the appropriate letters and numbers (controller and station numbers). The letters and numbers shall be 2 inches in height.

7. Use when valve box identification is to be by labels attached to covers. Delete Paras 5 & 6.

Valve boxes shall be identified on the top surface of the covers by labels containing the appropriate abbreviation for the irrigation facility contained in the valve box as shown on the plans. Valve boxes that contain remote control valves shall be identified by the appropriate letters and numbers (controller and station numbers). Labels for valve boxes shall conform to the provisions in Section 20-5.03F, "Valves and Valve Boxes," of the Standard Specifications.

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8. Use when only one kind of label material is required and edit accordingly, otherwise delete. Use with Para 7.

Label material shall be plate plastic or polyurethane.

THRUST BLOCK

Thrust blocks shall be installed in accordance with the plans and these special provisions. Thrust blocks shall be installed on the main supply line at all changes in direction and terminus run.

SPRINKLERS

Sprinklers shall conform to the type, pattern, material, and operating characteristics listed in the "Sprinkler Schedule" shown on the plans.

2. Use when Type III risers are required.

Flexible risers shall be ultraviolet (UV) resistant, brown in color and shall conform to the details shown on the plans.

3. Use when a flow shutoff device is required. Place an X in the Sprinkler Schedule column for flow shutoff device. If a specific flow shutoff device is desired, add additional information as required.

Flow shutoff device on risers shall automatically and instantly stop the flow of water from a riser when the riser is broken on the downstream side of the device. The flow shutoff device shall be installed as recommended by the manufacturer of the device.

FINAL IRRIGATION SYSTEM CHECK

A final check of existing and new irrigation facilities shall be performed not more than 40 working days and not less than 30 working days prior to acceptance of the contract.

2

The length of watering cycles using potable water measured by water meters for the final check of irrigation facilities will be determined by the Engineer.

3

Remote control valves connected to existing and new irrigation controllers shall be checked for automatic performance when the controllers are in automatic mode.

4

Unsatisfactory performance of irrigation facilities installed or modified by the Contractor shall be repaired and rechecked at the Contractor's expense until satisfactory performance is obtained, as determined by the Engineer.

5

Repair or replacement of existing irrigation facilities due to unsatisfactory performance shall conform to the provisions in "Existing Highway Irrigation Facilities" of these special provisions.

6

Nothing in this section "Final Irrigation System Check" shall relieve the Contractor of full responsibility for making good or repairing defective work or materials found before the formal written acceptance of the entire contract by the Director.

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7. Use when there is a contract item for plant establishment work, otherwise use "prices paid for the various contract items of irrigation systems involved."

Full compensation for checking the irrigation systems prior to the acceptance of the contract shall be considered as included in the contract lump sum price paid for plant establishment work and no additional compensation will be allowed therefor.

USE WITH 2006 STANDARDS.

Use in highway construction projects with lump sum items for both Highway Planting and Irrigation System.

Use SSP 20-202 when only one lump sum item: either Highway Planting or Irrigation System.

Add to SSP 20-200.

CAUTION: Delete Para 2 and edit Para 5 when SSP 08-017 or 08-018 is NOT included in the project.

List units of work, quantities, and units of measurement in the two Cost Break-Down tables.

Do NOT include "Willow Cuttings (Plant Group W)," "Imported Topsoil," "Maintain Existing Planted Areas" and "Plant Establishment Work" in the Highway Planting Cost Break-Down table. Show as separate contract items.

Do NOT include "Irrigation Crossovers," "Extend Irrigation Crossovers," "Irrigation Sleeve," and "Maintain Existing Irrigation Facilities," in the Irrigation System Cost Break-Down table. Show as separate contract items.

Add as many rows of highway planting and irrigation system items to the two Cost Break-Down tables as necessary, and add three blank rows at the end of each table. Do not use "Strike and Hide" to eliminate rows; instead, delete them. Do not "underline" text in the tables.

Include sizes and/or number of controller stations to the irrigation facilities listed in the Irrigation System Cost Break-Down table. List sizes (single or double) of "Irrigation Controller Enclosure Cabinet." Payment for rain sensor unit is included with Irrigation Controller Enclosure Cabinet.

Payment for Electric Service Installation for irrigation systems should be included in Section 10-3.

1*. District to determine number of working days required for cost break-down submittals. Use 15 working days unless otherwise specified.

COST BREAK-DOWN

The Contractor shall furnish the Engineer a cost break-down for the contract lump sum items of highway planting and irrigation system. Cost break-down tables shall be submitted to the Engineer for approval within 15 working days after the contract has been approved. Cost

break-down tables will be approved, in writing, by the Engineer before any partial payment will be made for the applicable items of highway planting and irrigation system involved.

2. Delete Para 2 when SSP 08-017 or 08-018 is NOT included in the project.

Attention is directed to "Time-Related Overhead" of these special provisions regarding compensation for time-related overhead.

3

Cost break-downs shall be completed and furnished in the format shown in the samples of the cost break-downs included in this section. Line item descriptions of work shown in the samples are the minimum to be submitted. Additional line item descriptions of work may be designated by the Contractor. If the Contractor elects to designate additional line item descriptions of work, the quantity, value and amount for those line items shall be completed in the same manner as for the unit descriptions shown in the samples. The line items and quantities given in the samples are to show the manner of preparing the cost break-downs to be furnished by the Contractor.

4

The Contractor shall determine the quantities required to complete the work shown on the plans. The quantities and their values shall be included in the cost break-downs submitted to the Engineer for approval. The Contractor shall be responsible for the accuracy of the quantities and values used in the cost break-downs submitted for approval.

5. Delete ", except for time-related overhead," when SSP 08-017 or 08-018 is NOT included in the project.

The sum of the amounts for the line items of work listed in each cost break-down table for highway planting and for irrigation system work shall be equal to the contract lump sum price bid for Highway Planting and Irrigation System, respectively. Overhead and profit, except for time-related overhead, shall be included in each individual line item of work listed in a cost break-down table.

6

No adjustment in compensation will be made in the contract lump sum prices paid for highway planting and irrigation system due to differences between the quantities shown in the cost break-downs furnished by the Contractor and the quantities required to complete the work as shown on the plans and as specified in these special provisions.

7

Individual line item values in the approved cost break-down tables will be used to determine partial payments during the progress of the work and as the basis for calculating an adjustment in compensation for the contract lump sum items of highway planting and irrigation system due to changes in line items of work ordered by the Engineer. When the total of ordered changes to line items of work increases or decreases the lump sum price bid for either Highway Planting or Irrigation System by more than 25 percent, the adjustment in compensation for the applicable lump sum item will be determined in the same manner specified for increases and decreases in the total pay quantity of an item of work in Section 4-1.03B, "Increased or Decreased Quantities," of the Standard Specifications.

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HIGHWAY PLANTING COST BREAK-DOWN

Contract No._____

UNIT DESCRIPTION	UNIT	APPROXIMATE QUANTITY	VALUE	AMOUNT

TOTAL_____

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IRRIGATION SYSTEM COST BREAK-DOWN

Contract No._____

UNIT DESCRIPTION	UNIT	APPROXIMATE QUANTITY	VALUE	AMOUNT

TOTAL_____

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USE WITH 2006 STANDARDS.

Add to SSP 20-350.

To comply with Federal Highway Administration (FHWA) wild flower seeding requirements, seed MUST be California Native Wild Flower species.

Show wild flower seeding areas on the plans with call outs for area measurements in square yards or acres.

Use item code:

204054 Wild Flower Seeding (acre)

204055 Wild Flower Seeding (sq yd)

WILD FLOWER SEEDING

GENERAL

Summary

1. Edit to suit project.

This work includes mowing weeds, scarifying the soil, furnishing and incorporating commercial fertilizer, organic fertilizer, and dry applying native wild flower seed to wild flower seeding areas shown on the plans.

2. Use if seasonal rains will promote seed growth.

Wild flower seeding materials must not be applied prior to _____ or after _____. If wild flower seeding work cannot be performed prior to the start of plant establishment and within the above specified time limit, then the work must be performed during the plant establishment period when directed by the Engineer.

3

Pesticides must not be used on wild flower seeding areas after the seed has been applied.

4

The Engineer will designate the ground location of all wild flower seeding areas in increments of one acre or smaller by directing the placing of stakes or other suitable markers. Furnish all tools, labor, materials, and transportation required to adequately indicate the various wild flower seeding locations.

MATERIALS

5

Seed

Seed not required to be labeled under the California Food and Agricultural Code must be tested for purity and germination by a seed laboratory certified by the Association of Official Seed Analysts or by a seed technologist certified by the Society of Commercial Seed Technologists. Measure and mix individual seed species in the presence of the Engineer.

DRAFT

6

Seed must contain at most 1.0 percent total weed seed by weight.

7. Use this Para only on projects of a sensitive nature, e.g. mitigation site, where specific weed seed of major concern are likely to be found in erosion control seed specified. List a maximum of three. Do not insert names of "prohibited noxious weeds" listed in Title 3, California Code of Regulations, Section 3854.

Seed must be free of the following specific weed species: _____, _____, and _____.

8

Deliver seed to the job site in unopened separate containers with the seed tag attached. Containers without a seed tag attached are not accepted. The Engineer takes a sample of approximately one ounce or 0.25 cup of seed for each seed lot greater than 2 pounds.

9. Insert seed names, germination and application rates in the table. Increase or decrease rows in table as required. Do NOT edit column headings. Percent germination shown in the table may be 10 percent less than the published rates. Do NOT list short-lived seed. Do NOT underline text in the table. Pounds of pure live seed in the table must be shown to no more than one decimal place.

When more than one seed mix is required, revise the seed mix table to "Seed (Type 1)," and add additional "Seed" tables as required, e.g. "Seed (Type 2)," etc..

Show superscript numbers at the end of the "Botanical Name/(Common Name)" to match all applicable requirements shown at the bottom of the table. Delete all superscript numbers and text that does not apply. Reorder superscript numbers when necessary.

When specific seed requirements are specified at the bottom of the table confirm availability and any seasonal requirements for the seed specified.

Seed must consist of the following:

Seed

Botanical Name (Common Name)	Percent Germination (Minimum)	Pounds Pure Live Seed Per Acre (Slope Measurement)
	Total	

Notes:
Applicable when numbers below are shown after a Botanical Name/(Common Name) above:
[1]Seed produced in California only.
[2]Seed source from _____ County only.
[3]Seed source from above/below the _____ foot elevation level.

10

Seed Sampling Supplies

At the time of seed sampling, provide the Engineer a glassine lined bag and custody seal tag for each seed lot sample.

Delete Paras 11 and 12 if no commercial fertilizer is used.

11. Use for commercial fertilizer specified elsewhere. When used, delete Para 12. Edit for the type of erosion control.

Commercial Fertilizer

Commercial fertilizer must comply with "Erosion Control (_____)" of these special provisions.

12. Use when commercial fertilizer, other than the guaranteed chemical analysis of 16-20-0 as specified in the Standard Specifications, is to be used. Edit for the commercial fertilizer required. When used, delete Para 11.

Commercial Fertilizer

Commercial fertilizer must have a guaranteed chemical analysis within 10 percent of __ percent nitrogen, __ percent phosphoric acid and __ percent water soluble potash.

Delete Paras 13 and 14 if no organic fertilizer is used.

13. Use for organic fertilizer specified elsewhere. When used, delete Para 14. Edit for the type of erosion control.

Organic Fertilizer

Organic fertilizer must comply with "Erosion Control (_____)" of these special provisions.

14. Use when organic fertilizer is to be used. When used, delete Para 13.

Organic Fertilizer

Organic fertilizer must be a pelleted or granular form and must be one of the following:

DRAFT

Organic Fertilizer

Products	Guaranteed Chemical Analysis (N-P-K) (%)	Company
Biosol Mix® - Granular	7-2-3	Rocky Mountains Bioproducts Edwards, CO
Fertil-Fibers™	6-4-1	Quattro Environmental Coronado, CA
Sustane®	5-2-4	Natural Fertilizer of America Cannon Falls, MN
Approved Equa1[1]	(N) 5 to 7 (P) 1 to 5 (K) 2 to 10	--

Notes:
[1]Approved equal must be within the ranges shown for N-P-K. The cumulative (N) release rate must be no more than 70 percent the first 70 days after incubation (86° F) with 100 percent at 350 days or more.

CONSTRUCTION

15

Site Preparation

Immediately prior to applying wild flower seed to wild flower seeding areas, trash and debris must be removed, and weeds must be mowed as close to the ground as possible. Removal of mowed material will not be required.

16

After mowing and just prior to seed application, wild flower seeding areas must be scarified to a minimum depth of one inch.

17. Edit for fertilizer and seed and fertilizer application rates. Use whole numbers to indicate the seed and fertilizer application rates. Include Para 18.

Application

Seed for wild flower seeding must be applied at the rate of __ pounds per acre (slope measurement). Commercial fertilizer must be applied at the rate of __ pounds per acre (slope measurement). Organic fertilizer must be applied at the rate of __ pounds per acre (slope measurement).

18. Edit for fertilizer.

Seed and commercial fertilizer, organic fertilizer, must be incorporated into the soil to a maximum depth of 1/4 inch by raking, dragging or drilling.

DRAFT

19. Use when watering is NOT required. Include funds in the Engineer's Estimate under Supplemental Work for watering of erosion control (Seeding) areas.

Watering of wild flower seeding areas will not be required unless directed by the Engineer. When directed by the Engineer, watering will be paid for as extra work as specified in Section 4-1.03D,"Extra Work," of the Standard Specifications.

20

MEASUREMENT AND PAYMENT

Wild flower seeding will be measured by the square yard or by the acre, whichever is designated in the Engineer's Estimate. The area will be calculated on the basis of actual or computed slope measurements.

21

The contract price paid per square yard or acre for wild flower seeding includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in wild flower seeding, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

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USE WITH 2006 STANDARDS.
Use in ALL electrical projects.

SECTION 10-2. (BLANK)

SECTION 10-3. SIGNALS, LIGHTING AND ELECTRICAL SYSTEMS

1*. Edit as required.

SC 9-27-2009**

10-3.01 DESCRIPTION

Highway ~~Traffic signals flashing beacons~~ Lighting, ~~sign illumination electric service (irrigation)~~ ~~r~~Ramp metering systems, Variable Message Sign, and ~~traffic monitoring stations communication conduit sprinkler control conduit~~ maintaining existing traffic management system elements during construction shall conform to the provisions in Section 86, "Signals, Lighting and Electrical Systems," of the Standard Specifications and these special provisions.

Ramp Metering Systems shall consist of:

Location 1 – Powell Street eastbound and westbound on-ramps
Location 2 – Ashby Avenue eastbound and westbound on-ramps
Location 3 – University Avenue eastbound and westbound on-ramps
Location 4 – Gilman Street eastbound and westbound on-ramps
Location 5 – Buchanan Street eastbound and westbound on-ramps
Location 6 – Central Avenue eastbound and westbound on-ramps
Location 7 – Carlson Boulevard eastbound and westbound on-ramps
Location 8 – Potereo Avenue westbound on-ramp
Location 9 – Cutting Boulevard eastbound on-ramp
Location 10 – Barrett Avenue westbound on-ramp
Location 11 – San Pablo Avenue eastbound on-ramp
Location 12 – Solano Avenue westbound on-ramp
Location 13 – San Pablo Dam Road eastbound and westbound on-ramps
Location 14 – El Portal Drive eastbound and westbound on-ramps
Location 15 – Hilltop Drive eastbound and westbound on-ramps
Location 16 – Richmond Parkway eastbound and westbound on-ramps
Location 17 – Appian Way eastbound and westbound on-ramps
Location 18 – Pinole Valley Road eastbound and westbound on-ramps
Location 19 – John Muir Parkway (Hwy 4) westbound on-ramp
Location 20 – Cumming Skyway westbound on-ramp
Location 21 – Pomona Street westbound on-ramp

DRAFT

Highway lighting shall consist of:

Location 1 – John Muir Parkway (Hwy 4) westbound on-ramp

~~**2*. Delete if not needed. Edit for types of installation and where the locations are shown.**~~

~~Locations of _____ installations are shown on the _____ plans.~~

~~**Paras 3, 4 and 5: Identify Structures by name and number. Delete paragraph if not used.**~~

~~**3***~~

~~Lighting equipment is included in the following structures:~~

~~A. _____~~
~~B. _____~~

~~**4***~~

~~Communication conduit is included in the following structures:~~

~~A. _____~~
~~B. _____~~

~~**5***~~

~~Sprinkler control conduit is included in the following structures:~~

~~A. _____~~
~~B. _____~~

~~**6*. Delete when there is only 1 location.**~~

~~Traffic signal work shall be performed at the following locations:~~

~~A. _____~~
~~B. _____~~

DRAFT

USE WITH 2006 STANDARDS.

Use for projects that have lump sum item(s) for Electrical System work.

10-3.__ COST BREAK-DOWN

Cost break-downs shall conform to the provisions in Section 86-1.03, "Cost Break-Down," of the Standard Specifications and these special provisions.

2

The Engineer shall be furnished a cost break-down for each contract lump sum item of work described in this Section 10-3.

3*. District to determine number of days required for cost break-down submittal. Use 15 days unless otherwise specified.

SC 9-27-2009**

The cost break-down shall be submitted to the Engineer for approval within 20 days after the contract has been approved. The cost break-down shall be approved, in writing, by the Engineer before any partial payment for the items of electrical work will be made.

4*. List items to suit the project.

SC 9-27-2009**

Deleted

~~The cost break-down shall include the following items in addition to those listed in the Standard Specifications:~~

~~A. _____~~
~~B. _____~~
~~C. _____~~

DRAFT

USE WITH 2006 STANDARDS.

Use when applicable and edit as required.

Use only when Contractor furnishes equipment.

10-3.__ EQUIPMENT LIST AND DRAWINGS

The controller cabinet schematic wiring diagram and intersection sketch shall be combined into one drawing, so that, when the cabinet door is fully open, the drawing is oriented with the intersection.

2

A maintenance manual shall be furnished for all controller units, auxiliary equipment, and vehicle detector sensor units, control units, and amplifiers. The maintenance manual and operation manual may be combined into one manual. The maintenance manual or combined maintenance and operation manual shall be submitted at the time the controllers are delivered for testing or, if ordered by the Engineer, prior to purchase. The maintenance manual shall include, but need not be limited to, the following items:

A. Specifications
B. Design characteristics
C. General operation theory
D. Function of all controls
E. Trouble shooting procedure (diagnostic routine)
F. Block circuit diagram
G. Geographical layout of components
H. Schematic diagrams
I. List of replaceable component parts with stock numbers

DRAFT

USE WITH 2006 STANDARDS.

Use in all projects unless the District's Traffic Operations Electrical Representative provides an exception based on zero existing TMS elements within the project limits.

Do not use for "Building" projects.

Use BEES item 860090 Maintaining Existing Traffic Management System Elements During Construction.

Use Supplemental Work item 066866 Operation of Existing Traffic Management System Elements During Construction.

SC 9-24-2009**

10-3.__ MAINTAINING EXISTING TRAFFIC MANAGEMENT SYSTEM ELEMENTS DURING CONSTRUCTION

Traffic Management System (TMS) elements include, but are not limited to ramp metering (RM) system, communication system, traffic monitoring stations, video image vehicle detection system (VIVDS), microwave vehicle detection system (MVDS), loop detection system, changeable message sign (CMS) system, extinguishable message sign (EMS) system, highway advisory radio (HAR) system, closed circuit television (CCTV) camera system, ~~roadway weather information system (RWIS), visibility sensor,~~ and fiber optic system.

2

Existing TMS elements, including detection systems, identified on the plans and located within the project limits shall remain in place, and be protected from damage. If the construction activities require existing TMS elements to be nonoperational or off line, and if temporary or portable TMS elements are not shown on the plans, the Contractor shall provide for temporary or portable TMS elements. The Contractor shall receive the Engineer's approval on the type of temporary or portable TMS elements and installation method.

3. Designer to generate a notice to Construction (in RE pending file) to coordinate with the Department's Traffic Operations Electrical Representatives for operational status check/meeting.

Before work is performed, the Engineer, the Contractor, and the Department's Traffic Operations Electrical representatives shall jointly conduct a pre-construction operational status check of all existing TMS elements and each element's communication status with the Traffic Management Center (TMC), including existing TMS elements that are not shown on the plans and elements that may not be impacted by the Contractor's activities. The Department's Traffic Operations Electrical representatives will certify the TMS elements' location and status, and provide a copy of the certified list of the existing TMS elements within the project limits to the Contractor. The status list will include the operational, defined as having full functionality, and the nonoperational components.

4

The Contractor shall obtain written approval from the Engineer, at least 72 hours before interrupting existing TMS elements' communication with the TMC that will result in the

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elements being nonoperational or off line. The Contractor shall notify the Engineer at least 72 hours before starting excavation activities.

5

Traffic monitoring stations and their associated communication systems which were verified to be operational during the pre-construction operational status check, shall remain operational on freeway/highway mainline at all times, except:

1. for a duration of up to 15 days on any continuous segment of the freeway/highway longer than 3 miles
2. for a duration of up to 60 days on any continuous segment of the freeway/highway shorter than 3 miles

6

If the construction activities require existing detection systems to be nonoperational or off line for a longer time period or the spacing between traffic monitoring stations is more than the specified criteria above, and temporary or portable detection operations are not shown on the plans, the Contractor shall provide provisions for temporary or portable detection operations. The Contractor shall receive the Engineer's approval on the type of detection and installation before installing the temporary or portable detection.

7. Designer to modify the maximum acceptable number of "hours or working days" for every TMS element after verification with its operating division/owner when different from "24 hours."

If existing TMS elements shown on the plans or identified during the pre-construction operational status check, except traffic monitoring stations, are damaged or fail due to the Contractor's activity, where the elements are not fully functional, the Engineer shall be notified immediately. If the Contractor is notified by the Engineer that existing TMS elements have been damaged, have failed or are not fully functional due to the Contractor's activity, the damaged or failed TMS elements, excluding Structure-related elements, shall be repaired or replaced, at the Contractor's expense, within 24 hours. For a Structure-related elements, the Contractor shall install temporary or portable TMS elements within 24 hours. For nonstructure-related TMS elements, the Engineer may approve temporary or portable TMS elements for use during the construction activities.

8. Use if project includes fiber optic specifications.

If fiber optic cables are damaged due to the Contractor's activities, the Contractor shall install new fiber optic cables from an original splice point or termination to an original splice point or termination, unless otherwise authorized in writing by the Engineer. Fiber optic cable shall be spliced at the splice vaults if available. The amount of new fiber optic cable slack in splice vaults and the number of new fiber optic cable splices shall be equivalent to the amount of slack and number of splices existing before the damage or as directed by the Engineer. Fusion splicing will be required.

9

The Contractor shall demonstrate that repaired or replaced elements operate in a manner equal to or better than the replaced equipment or as directed by the Engineer. If the Contractor fails to perform required repairs or replacement work, as determined by the Engineer, the State may perform the repair or replacement work and the cost will be deducted from monies due to the Contractor.

10

A TMS element shall be considered nonoperational or off line for the duration of time that active communications with the TMC is disrupted, resulting in messages and commands not transmitted from or to the TMS element.

11

The Contractor shall provide provisions for replacing existing TMS elements within the project limits, including detection systems, that were not identified on the plans or during the pre-construction operational status check that became damaged due to Contractor's activities.

12

If the pre-construction operational status check identified existing TMS elements, then the Contractor, the Engineer, and the Department's Traffic Operations Electrical representatives shall jointly conduct a post construction operational status check of all existing TMS elements and each element's communication status with the TMC. The Department's Traffic Operations Electrical representatives will certify the TMS elements' status and provide a copy of the certified list of the existing TMS elements within the project limits to the Contractor. The status list will include the operational, defined as having full functionality, and the nonoperational components. TMS elements that cease to be functional between pre and post construction status checks shall be repaired at the Contractor's expense and as directed by the Engineer.

13

The Engineer will approve, in writing, the schedule for final replacement, the replacement methods and the replacement elements, including element types and installation methods before repair or replacement work is performed. The final TMS elements shall be new and of equal or better quality than the existing TMS elements.

PAYMENT

14

The contract lump sum price paid for maintaining existing traffic management system elements during construction shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in maintaining existing traffic management system elements as shown on the plans, specified in the Standard specifications and these special provisions, and as directed by the Engineer.

15

If no electrical work exists on the project and no TMS elements are identified within the project limits, the pre-construction operational status check will be paid for as extra work as provided in Section 4-1.03D, "Extra Work," of the Standard Specifications.

16

Furnishing and installing temporary or portable TMS elements that are not shown on the plans, but are required when an existing TMS element becomes nonoperational or off line due to construction activities, will be paid for as extra work as provided in Section 4-1.03D, "Extra Work," of the Standard Specifications.

17

Furnishing and installing temporary or portable TMS elements and replacing TMS elements that are not shown on the plans nor identified during the pre-construction operational status check and were damaged by construction activities will be paid for as extra work as provided in Section 4-1.03D, "Extra Work," of the Standard Specifications.

DRAFT

18

If the Contractor is required to submit provisions for the replacement of TMS elements that were not identified, the provisions will be paid for as extra work as provided in Section 4-l.03D, "Extra Work," of the Standard Specifications.

{ XE "86-070_E_B08-15-08" }
Page 1 of 1

USE WITH 2006 STANDARDS.

Include SSPs 49-200 and 49-310 and edit appropriately when cast-in-drilled-hole concrete piling is greater than or equal to 24 inches in diameter AND greater than 5 feet in length.

Edit para 1 for other types of standards.

10-3.__ CAST-IN-DRILLED-HOLE CONCRETE PILE FOUNDATIONS

GENERAL

Summary

This work includes constructing cast-in-drilled-hole concrete pile foundations for traffic signal and lighting standards.

2. Add "and "Piling" of these special provisions" when piling is greater than or equal to 24 inches in diameter AND greater than 5 feet in length.

Comply with Section 86-2.03, "Foundations," of the Standard Specifications.

MATERIALS

3

Concrete must contain not less than 590 pounds of cementitious material per cubic yard.

CONSTRUCTION

4

For standards located in sidewalk areas, the pile foundation must be:

1. Placed to final sidewalk grade before the sidewalk is placed
2. Square for the top 4 inches

5. Use when sleeve nuts are required for Type 1-B standards.

Use sleeve nuts on Type 1-B standards. The bottom of the base plate of Type 1-B standards must be flush with finished grade.

PAYMENT

6

Payment for cast-in-drilled-hole concrete pile foundations shall conform to the provisions in Section 86-8, "Payment," of the Standard Specifications.

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USE WITH 2006 STANDARDS.

Use for all Section 86 work requiring standards, steel pedestals, or posts.

Include SSP S8-W04, S8-W05, S8-W06, and applicable portions of SSP 55-500 for bolted connections and welding.

When nonstandard support structures are shown on the plans, check that the designer has identified the location of the longitudinal seam on the dead load compression side of tubular members.

10-3.__ STANDARDS, STEEL PEDESTALS, AND POSTS

Standards, steel pedestals, and posts for traffic signal and lighting standards shall conform to the provisions in Section 86-2.04, "Standards, Steel Pedestals and Posts," of the Standard Specifications, "Steel Structures" of these special provisions, and the following requirements.

2

Steel bolts not designated on the plans as high-strength (HS) or stainless steel shall be for general applications and shall conform to the requirements in ASTM Designation: A 307.

3

Where the plans refer to the side tenon detail at the end of the signal mast arm, the applicable tip tenon detail may be substituted.

4

The sign mounting hardware shall be installed at the locations shown on the plans.

5. Use when mast arm mounted signs are not provided under "Roadside Signs."

The sign panels will be State furnished in conformance with the provisions in "Materials" of these special provisions.

~~**6. Use where 2-sided non-illuminated street name signs are to be used.**~~

~~Mast arm mounted street name signs shall be installed on signal mast arms at the locations shown on the plans. The street name signs and mounting hardware (except straps, seals, and saddle brackets) will be State furnished in conformance with the provisions in "Materials" of these special provisions. The State-furnished hanger assembly will be similar to that shown for internally illuminated street name signs. The mounting hardware and sign shall be assembled. The assembly shall be attached to the mast arm using a 3/4" x 0.020" stainless steel strap in a manner similar to the strap and saddle bracket method shown on the plans. The band shall be wrapped at least twice around the mast arm, tightened, and secured with a stainless strap seal in the same manner shown for strap and saddle bracket sign mounting. Straps, seals, and saddle brackets shall be furnished by the Contractor. The sign panel shall be leveled and hardware securely tightened.~~

7

Handhole reinforcement rings for standards, steel pedestals, and posts shall be continuous around the handholes.

DRAFT

8. Use when Type 1 signal standards are in the project.

Type 1 standards shall be assembled and set with the handhole on the downstream side of the pole in relation to traffic or as shown on the plans.

~~**9. Delete when the contract calls for tubular signal and lighting support structures to be painted.**~~

~~All ferrous metal parts of tubular sign structures shall be galvanized and shall not be painted.~~

{ XE "86-086_E_A05-01-06" }

Page 1 of 3

USE WITH 2006 STANDARDS.

Use when applicable with fiberglass-reinforced plastic (FRP) Highway Advisory Radio (HAR) Pole Standard details.

{ XE "86-090_E_A05-01-06" }

Page 1 of 1

USE WITH 2006 STANDARDS.

Use when a slip base is required for 4-anchor bolt standard foundation.

{ XE "86-130_E_A03-21-08" }

Page 1 of 2

USE WITH 2006 STANDARDS.

See Section 86-2.05, "Conduit," of the Standard Specifications for conduit types.

10-3.__ CONDUIT

1. Edit for type of conduit allowed.

Conduit to be installed underground shall be Type 1 or Type 3 unless otherwise specified. Detector termination conduits shall be Type 3 or Type 4.

2. Edit for type of conduit allowed.

The conduit in a foundation and between a foundation and the nearest pull box shall be Type 1~~, Type 2, or Type 3~~.

Use Paras 3, 4, and 5 when applicable.

3. Edit for type of metal conduit if not Type 1.

When a standard coupling cannot be used for joining Type 1 conduit, a UL listed threaded union coupling conforming to the provisions in Section 86-2.05C, "Installation," of the Standard Specifications~~, or a concrete-tight split coupling, or concrete-tight set screw coupling shall be used~~.

4

When Type 3 conduit is placed in a trench (not in pavement or under portland cement concrete sidewalk), after the bedding material is placed and the conduit is installed, the trench

DRAFT

shall be backfilled to not less than 4 inches above the conduit with minor concrete conforming to the provisions in Section 90-10, "Minor Concrete," of the Standard Specifications, except the concrete shall contain not less than 421 pounds of cementitious material per cubic yard. The remaining trench shall be backfilled to finished grade with backfill material.

~~5~~

SC 9-24-2009**

~~Conduit runs shown on the plans to be located behind curbs may be installed in the street, within 3 feet of, and parallel with the face of the curb, by the "Trenching in Pavement Method" in conformance with the provisions in Section 86-2.05C, "Installation," of the Standard Specifications. Pull boxes shall be located behind the curb or at the locations shown on the plans.~~

6. Edit as required.

After conductors have been installed, the ends of conduits terminating in pull boxes, service equipment enclosures, and controller cabinets shall be sealed with an approved type of sealing compound.

7. Use if, at conduit locations, the vertical location of existing high risk facilities has not been determined by field survey and SSP 08-026 is included. Delete Para 7 and "other" from Para 8 if no high risk facilities exist or if SSP 08-026 is not included.

At those locations where conduit is required to be installed under pavement and existing underground facilities require special precautions in conformance with the provisions in "Obstructions" of these special provisions, conduit shall be placed by the "Trenching in Pavement Method" in conformance with the provisions in Section 86-2.05C, "Installation," of the Standard Specifications.

8. The 5-minute delay to vehicles may be edited as required.

At other locations where conduit is required to be installed under pavement and if a delay to vehicles will not exceed 5 minutes, conduit may be installed by the "Trenching in Pavement Method."

9. May be used when structure pull boxes are on the project.

At the option of the Contractor, the final 2 feet of conduit entering a pull box in a reinforced concrete structure may be Type 4.

10-3.__ PULL BOXES

Grout shall not be placed in the bottom of pull boxes.

SC 9-24-2009**

Ramp metering pull box cover shall be labeled “Caltrans Ramp Meter”.

DRAFT

USE WITH 2006 STANDARDS.

Use when applicable.

SC 9-24-2009**

10-3.__ CONDUCTORS AND WIRING

1. Edit if both types are NOT allowed.

Splices shall be insulated by "Method B" ~~or, at the Contractor's option, splices of conductors shall be insulated with heat-shrink tubing of the appropriate size after thoroughly painting the spliced conductors with electrical insulating coating~~.

Use either Para 2 or Para 3 as applicable.

2

Signal Interconnect Cable (SIC) shall be the 3-pair type.

3

Signal Interconnect Cable (SIC) shall be the 6-pair type.

Use Para 4 and 5 when high-voltage testing is required

4

The Contractor shall perform a high-voltage series lighting test consisting of the open circuit voltage of the connected constant current transformer between conductors and ground.

5

The high-voltage test shall not be performed on existing circuits or equipment. Non-testing of existing circuits and equipment shall not relieve the Contractor from the responsibility for malfunctioning of existing lighting circuits due to the Contractor making splices in or connecting to the circuits and such malfunctions shall be corrected at the Contractor's expense.

USE WITH 2006 STANDARDS.

Use for projects with new service equipment enclosures.

10-3.__ SERVICE

1. Delete when continuous welding of exterior seams in service equipment enclosures is required.

Continuous welding of exterior seams in service equipment enclosures is not required.

2. Use when corrosion is expected to be a problem.

Service equipment enclosures shall be the aluminum type.

DRAFT

3. Edit to describe required circuit-breaker mounting. Delete if not needed.

Circuit breakers shall be the cable-in/cable-out type, mounted on non-energized clips. All circuit breakers shall be mounted vertically with the up position of the handle being the "ON" position.

~~**4. Use for projects with Model 500 changeable message signs.**~~

SC 9-24-2009**

~~Circuits with Model 500 changeable message signs shall have service equipment enclosures which have main busses and terminal lugs rated for 100 A, minimum, and a No. 2 bare copper ground wire.~~

5. Edit the circuit breaker rating as required by the service utility.

Each service shall be provided with up to 2 main circuit breakers which shall disconnect ungrounded service entrance conductors. Where the "Main" circuit breaker consists of 2 circuit breakers as shown on the plans or required in the special provisions, each of the circuit breakers shall have a minimum interrupting capacity of 10,000 A, rms.

6. Use when project is in District 11 or when required by the service utility.

Circuit breakers used as service disconnect equipment shall have a minimum interrupting capacity of 42,000 A, rms, for 120/240 V(ac) services and 30,000 A, rms, for 480 V(ac) services.

{ XE "86-220_E_A05-01-06" }
Page 1 of 1

USE WITH 2006 STANDARDS.
Use when fused switches are required.

SC 9-24-2009**

~~**10-3.__ SIGN DISCONNECTS**~~

~~Sign disconnects shall be fused switches.~~

10-3.__ NUMBERING ELECTRICAL EQUIPMENT

1. Use if inventory/identification numbers are shown on the plans but are to be placed by State forces. Delete Paras 2 thru 9.

The placement of numbers on electrical equipment will be done by others.

Paras 2 thru 9: Use if inventory/identification numbers are shown on the plans and are to be placed by the Contractor.

2. Edit for materials used.

Self-adhesive reflective numbers and edge sealer shall be Contractor-furnished.

SC 9-24-2009**

~~**3. Delete reference to edge sealer if not used.**~~

~~The numbers and edge sealer shall be placed on the equipment where designated by the Engineer.~~

~~**4. Delete if not applicable.**~~

~~Where new numbers are to be placed on existing or relocated equipment, the existing numbers shall be removed.~~

~~**5. Delete reference to edge sealer if not used.**~~

~~Reflective numbers shall be applied to a clean surface. Only the edges of the numbers shall be treated with edge sealer.~~

~~**6. Edit for electrical components used.**~~

~~Where shown on the plans, 5-digit, self-adhesive equipment numbers shall be placed for all electroliers, soffit lighting, sign lighting, and service pedestals. On service pedestals, the numbers shall be placed on the front door. On electroliers, the numbers shall be placed as shown on the plans.~~

~~**7. Use if signs are to be mounted on overcrossings or if soffit luminaires are used and edit accordingly.**~~

~~Numbers for illuminated signs mounted on overcrossings or for soffit luminaires shall be placed on the nearest adjacent bent or abutment at approximately the same station as the sign or soffit luminaire. Where no bent or abutment exists near the sign or soffit luminaire, the number shall be placed on the underside of the structure adjacent to the sign or soffit luminaire. Arrangement of numbers shall be the same as those used for electroliers.~~

~~**8. Delete if not applicable.**~~

~~Numbers for overhead sign bridges shall be placed on both posts.~~

~~**9. Delete if not applicable.**~~

~~Numbers for wood poles shall be 3-inch embossed aluminum fastened to the pole with 1-1/4-inch aluminum nails. Numbers for wood poles shall be furnished by the Contractor.~~

{ XE "86-450_E_C11-07-08" }

Cancelled

Recommended by Electrical Specification Committee to cancel this SSP.

10-3.__ STATE-FURNISHED CONTROLLER ASSEMBLIES

1. Edit for controller model type, as required.

The Model 170 and 2070 controller assemblies, excluding anchor bolts, will be State-furnished as provided under "Materials" of these special provisions.

2. Substitute "336" for "332A/334" if that type cabinet is being used.

SC 9-24-2009**

The Contractor shall construct each controller cabinet foundation as shown on the plans for Model ~~332A and~~ 334 cabinets (including furnishing and installing anchor bolts), shall install the controller cabinet on the foundation, and shall make field wiring connections to the terminal blocks in the controller cabinet.

3

A listing of field conductor terminations, in each State-furnished controller cabinet, will be furnished free of charge to the Contractor at the site of the work.

4

State forces will maintain controller assemblies. The Contractor's responsibility for controller assemblies shall be limited to conforming to the provisions in Section 6-1.02, "State-Furnished Materials," of the Standard Specifications.

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10-3.__ LIGHT EMITTING DIODE SIGNAL MODULE

GENERAL

Summary

1

This work includes installing LED signal module. Comply with Section 86, "Signals, Lighting and Electrical Systems," of the Standard Specifications.

2

Location of LED signal module is shown on the plans. The Engineer will approve exact location.

3. Edit LED list for type used. Use left arrows for all protected left-turn indications, unless guidelines to use U-turn are satisfied.

SC 9-24-2009**

Use LED signal module as the light source for the following traffic signal faces:

1. 12-inch section
2. ~~8-inch section~~
3. ~~12-inch arrow section~~
4. ~~12-inch U-turn section~~
5. ~~12-inch bicycle section~~
6. ~~12-inch programmed visibility (PV) section~~
7. ~~12-inch lane control section~~

Submittals

4

Before shipping LED signal modules to job site, submit the following to the Transportation Laboratory:

1. Delivery form including district number, EA, and contact information
2. List containing all LED signal module serial numbers anticipated for use
3. LED signal modules

Quality Control and Assurance

5

Module must be one listed on the Pre-Qualified Products List for LED traffic signals at:

http://www.dot.ca.gov/hq/esc/approved_products_list

6

The State will test LED signal module shipments as specified in ANSI/ASQ Z1.4.. Testing will be completed within 30 days of delivery to the Transportation Laboratory. LED signal modules tested or submitted for testing must be representative of typical production units. LED and circular LED signal modules will be tested as specified in California Test 604. Arrow, U-turn, and bicycle LED signal modules will be tested as specified in California Test 3001. All parameters of the specification may be tested on the modules. LEDs must be spread evenly

DRAFT

across the module. LED arrow indication must provide the minimum initial luminous intensity listed. Measurements will be performed at the rated operating voltage of 120 V(ac).

7

Delays resulting from submittal of non-compliant materials do not relieve you from executing the contract within the allotted time. Non-compliant materials will be rejected. You must resubmit new LED for retesting and pick up the failed units within 7 days of notification. You must provide new LED signal modules and allow a minimum of 30 days for the retest. You must pay for all shipping and handling costs related to testing and retesting. Delays resulting from resubmittal and retesting are your responsibility and no extra time will be allowed.

8

After testing, you must pick up the tested LED signal modules from the Transportation Laboratory and deliver to the job site.

Warranty

9*. Fill in shop location.

The manufacturer must provide a written warranty against defects in materials and workmanship for LED signal modules for a minimum period of 48 months after installation of LED signal modules. Replacement LED signal modules must be provided within 15 days after receipt of failed LED modules at your expense. The State pays for shipping the failed modules to you. All warranty documentation must be submitted to the Engineer before installation. Replacement LED signal modules must be delivered to State Maintenance Electrical Shop at 30 Rickard Street, San Francisco, CA 94134.

MATERIALS

10

Minimum power consumption for LED signal module must be 5 W.

11

LED signal module must have an operational lifecycle rating of 48 months. During the operational lifecycle, LED signal module must meet all parameters of this specification.

12

LED signal module must be designed for installation in the door frame of standard traffic signal housing.

13. Edit size and types of LED used.

LED signal module must:

1. Be 4 pounds maximum weight
2. Be manufactured for 12-inch circular, 8-inch circular, arrow, U-turn, bicycle, and lane control section
3. Be from the same manufacturer
4. Be the same model for each size
5. Be sealed units with:

    5.1. 2 color-coded conductors for power connection, except for lane control LED signal modules use 3 color-coded conductors.

5.2. Printed circuit board and power supply contained inside and complying with Chapter 1, Section 6 of TEES published by the Department.
5.3. Lens that is:

5.3.1. Integral to the units
5.3.2. Convex or flat with a smooth outer surface
5.3.3. Made of UV stabilized plastic or glass, and withstands UV exposure from direct sunlight for 48 months without exhibiting evidence of deterioration

5.4. 1-piece EPDM gasket

6. Include 3-foot long conductors with quick disconnect terminals attached as specified in Section 86-4.01C, "Electrical Components," of the Standard Specifications
7. Be sealed in door frames
8. Fit into existing traffic signal section housing and comply with ITE publication, Equipment and Material Standards, Chapter 2, "Vehicle Traffic Control Signal Heads"

14

Individual LEDs must be wired so catastrophic loss or failure of 1 LED will not result in loss of more than 5 percent of the signal module light output. Failure of an individual LED in a string must not result in loss of entire string or other indication.

15

No special tools for installation are allowed.

Edit Paras 16 thru 19 as applicable.

SC 9-24-2009**

~~**12-inch Arrow**~~

~~**16**~~

~~Comply with Section 9.01 of ITE publication, Equipment and Material Standards, Chapter 2, "Vehicle Traffic Control Signal Heads" for arrow indications.~~

~~**Paras 17 thru 19: Include drawing of symbol on plans.**~~

~~**12-inch U-turn**~~

~~**17**~~

~~Symbol is an inverted "U" with arrow on left end and is 15/16 inch wide. Approximate shape and size for the U-turn face is shown on the plans.~~

~~**12-inch Bicycle**~~

~~**18**~~

~~Approximate shape and size for the bicycle signal face is shown on the plans.~~

~~**12-inch Lane Control**~~

~~**19**~~

~~Combination module with a red X and green arrow. Approximate shape and size for lane control modules is shown on the plans. Conductor function and color code must be as follows:~~

DRAFT

~~Conductor Function and Color Code~~

~~Function~~	~~Color~~
~~Neutral~~	~~White~~
~~Red X~~	~~Red~~
~~Green Arrow~~	~~Brown~~

20

LED signal module must:

1. Be weather tight and connect directly to electrical wiring.
2. Be capable of optical unit replacement.
3. Be a single, self-contained device, ready for installation into traffic signal housing.
4. Have manufacturer's name, trademark, model number, serial number, lot number, month and year of manufacture, and required operating characteristics, including rated voltage, power consumption, and volt-ampere, permanently marked on the back of the module.
5. Have a symbol of module type and color. Symbol must be an inch in diameter. Color must be written out in 0.50 inch high letters next to the symbol.
6. Be AlInGaP technology for red and yellow indications and gallium nitride technology for green indications.
7. Be ultra bright type rated for 100,000 hours of continuous operation from -40 °C to +74 °C.
8. Have a maximum power consumption as follows:

Power Consumption Requirements

LED Signal Module Type	Power Consumption (Watts)					
	Red		Yellow		Green	
	25 °C	74 °C	25 °C	74 °C	25 °C	74 °C
12-inch circular	11	17	22	25	15	15

21

Lens may be tinted, or may use transparent film or materials with similar characteristics to enhance "ON/OFF" contrasts. Tinting or other materials to enhance "ON/OFF" contrast must not affect chromaticity and must be uniform across the face of the lens.

22

If polymeric lens is used, surface coating or chemical surface treatment must be applied for front surface abrasion resistance.

23

Power supply must be integral to the module.

24

Internal components must be adequately supported to withstand mechanical shock and vibration from high winds and other sources.

25

Lens and LED signal module material must comply with the ASTM specifications for that material.

DRAFT

26

Enclosures containing either the power supply or electronic components of LED signal module, except lenses, must be made of UL94VO flame-retardant material.

27

If a specific mounting orientation is required, the LED signal module must have prominent and permanent vertical markings for accurate indexing and orientation within the signal housing. Markings must include an up arrow, or the word "UP" or "TOP."

28. Edit table for LED types used.

LED signal module must meet or exceed the following values when operating at 25 °C:

Minimum Initial Intensities for Circular Indications (cd)

	8-inch			12-inch		
Angle (v,h)	Red	Yellow	Green	Red	Yellow	Green
2.5, ±2.5	157	314	314	399	798	798
2.5, ±7.5	114	228	228	295	589	589
2.5, ±12.5	67	133	133	166	333	333
2.5, ±17.5	29	57	57	90	181	181
7.5, ±2.5	119	238	238	266	532	532
7.5, ±7.5	105	209	209	238	475	475
7.5, ±12.5	76	152	152	171	342	342
7.5, ±17.5	48	95	95	105	209	209
7.5, ±22.5	21	43	43	45	90	90
7.5, ±27.5	12	24	24	19	38	38
12.5, ±2.5	43	86	86	59	119	119
12.5, ±7.5	38	76	76	57	114	114
12.5, ±12.5	33	67	67	52	105	105
12.5, ±17.5	24	48	48	40	81	81
12.5, ±22.5	14	29	29	26	52	52
12.5, ±27.5	10	19	19	19	38	38
17.5, ±2.5	19	38	38	26	52	52
17.5, ±7.5	17	33	33	26	52	52
17.5, ±12.5	12	24	24	26	52	52
17.5, ±17.5	10	19	19	26	52	52
17.5, ±22.5	7	14	14	24	48	48
17.5, ±27.5	5	10	10	19	38	38

Minimum Luminance for Arrows, U-turn, Bicycle, Lane Control, and PV Indications (FL)

	Red	Yellow	Green
Arrow Indication	1,605	3,210	3,210
U-turn Indication	1,605	3,210	3,210
Bicycle Indication	1,605	1,605	1,605
Lane Control Indication (X)	1,605	--	--
Lane Control Indication (Arrow)	--	--	1,605
PV Indication (cd at 2.5°±2.5°)	91	91	91

DRAFT

29. Edit table for LED types used.

SC 9-24-2009**

LED signal module must meet or exceed the following illumination values for 48 months when operating over a temperature range of -40 °C to + 74 °C. Yellow LED signal module must meet or exceed the following illumination values for 48 months, when operating at 25 °C:

Minimum Maintained Intensities for Circular Indications (cd)

	8-inch			12-inch		
Angle (v,h)	Red	Yellow	Green	Red	Yellow	Green
2.5, ±2.5	133	267	267	339	678	678
2.5, ±7.5	97	194	194	251	501	501
2.5, ±12.5	57	113	113	141	283	283
2.5, ±17.5	25	48	48	77	154	154
7.5, ±2.5	101	202	202	226	452	452
7.5, ±7.5	89	178	178	202	404	404
7.5, ±12.5	65	129	129	145	291	291
7.5, ±17.5	41	81	81	89	178	178
7.5, ±22.5	18	37	37	38	77	77
7.5, ±27.5	10	20	20	16	32	32
12.5, ±2.5	37	73	73	50	101	101
12.5, ±7.5	32	65	65	48	97	97
12.5, ±12.5	28	57	57	44	89	89
12.5, ±17.5	20	41	41	34	69	69
12.5, ±22.5	12	25	25	22	44	44
12.5, ±27.5	9	16	16	16	32	32
17.5, ±2.5	16	32	32	22	44	44
17.5, ±7.5	14	28	28	22	44	44
17.5, ±12.5	10	20	20	22	44	44
17.5, ±17.5	9	16	16	22	44	44
17.5, ±22.5	6	12	12	20	41	41
17.5, ±27.5	4	9	9	16	32	32

~~**Minimum Maintained Luminance for Arrow, U-turn, Bicycle, Lane Control, and PV Indications (FL)**~~

	~~Red~~	~~Yellow~~	~~Green~~
~~Arrow Indication~~	~~1,610~~	~~3,210~~	~~3,210~~
~~U-turn Indication~~	~~1,610~~	~~3,210~~	~~3,210~~
~~Bicycle Indication~~	~~1,610~~	~~1,610~~	~~1,610~~
~~Lane Control Indication (X)~~	~~1,610~~	~~—~~	~~—~~
~~Lane Control Indication (Arrow)~~	~~—~~	~~—~~	~~1,610~~
~~PV Indication (at 2.5°±2.5°)~~	~~91~~	~~91~~	~~91~~

30

LED signal module must comply with the following chromaticity requirements for 48 months when operating over a temperature range of -40 °C to +74 °C.

Chromaticity Standards (CIE Chart)

Red	Y: not greater than 0.308, or less than 0.998 -x
Yellow	Y: not less than 0.411, nor less than 0.995 - x, nor greater than 0.452
Green	Y: not less than 0.506 - 0.519x, nor less than 0.150 + 1.068x, nor more than 0.730 - x

31

LED signal module must operate:

1. At a frequency of 60 Hz ± 3 Hz, over a voltage range from 95 V(ac) to 135 V(ac), without perceptible flicker to the unaided eye. Fluctuations of line voltage must have no visible effect on luminous intensity of the indications. Rated voltage for measurements must be 120 V(ac).
2. Compatible with currently used controller assemblies, including solid state load switches, flashers, and conflict monitors. Comply with TEES Chapters 3 and 6. If a 20 mA alternating current or less is applied to the unit, the voltage read across the 2 leads must be 15 V(ac) or less.

32. Delete the last sentence if Lane Control LED signal modules will NOT be used.

Wiring and terminal block must comply with Section 13.02 of ITE publication, Equipment and Material Standards, Chapter 2, "Vehicle Traffic Control Signal Heads." Electrical connection for each Type 1 LED signal module must be 2 secured, color-coded, 3-foot long, 600 V(ac), 20 AWG minimum stranded jacketed copper wires. Wires must comply with NEC, rated for service at +105 °C. Three wires must be used for lane control LED signal module.

33

LED signal module on-board circuitry must:

1. Include voltage surge protection to withstand high-repetition noise transients. The voltage surge protection must comply with NEMA Standard TS2, Section 2.1.6.
2. Comply with FCC, Title 47, SubPart B, Section 15 regulations for Class A emission limits for electronic noise.

34

LED signal module must provide a power factor of 0.90 or greater.

35

Total harmonic distortion from current and voltage induced into an alternating current power line by LED signal module must not exceed 20 percent at an operating temperature of 25 °C.

36

When power is applied to LED signal module, light emission must occur within 90 ms.

DRAFT

Delete Paras 37 thru 43 if flashing LED signal modules are NOT used. For Paras 37 and 41, delete 120 V(ac) signal voltage levels if not used.

SC 9-24-2009**

~~Red and Yellow Flashing LED Signal Module~~

~~37~~

~~No external circuitry to flash the LED signal module is allowed. Use 12 V(dc) or 120 V(ac).~~

~~38~~

~~Flashing LED signal module circuitry must prevent perceptible light emission to the unaided eye when a voltage, 50 V(ac) or less for alternating current or 5 V(dc) for 12 V(dc) flasher units, is applied to the unit.~~

~~39~~

~~Electrical connection for each flashing LED signal module must be 4 secured, color-coded, 600 V(ac), 20 AWG minimum stranded jacketed copper wires. Wire must comply with NEC, rated for service at +105 °C. Conductors for flashing LED signal module must be 3 feet in length, with quick disconnect terminals attached, and must comply with Section 86-4.01C, "Electrical Components," of the Standard Specifications. The color code is as follows:~~

~~Color Code Requirements~~

~~Function~~	~~Color~~
~~Neutral/DC common~~	~~white~~
~~Steady On~~	~~red~~
~~Flash On~~	~~brown~~
~~Flash Out~~	~~orange~~

~~40~~

~~Flashing LED signal module must include all necessary electronics to:~~

1. ~~Operate in a "Steady On" mode~~
2. ~~Perform, in "Flash On" mode, 50 to 60 flashes per minute with a 50 percent ± 5 duty cycle~~
3. ~~Allow alternating flashing operation, wig-wag, if the "Steady On" input of another flashing LED signal module is connected~~

~~41~~

~~When power is applied to the "Flash On" control conductor, the control output must allow a 12 V(dc) or 120 V(ac) signal that is switched opposite of the flash state of the module. Output must be able to source a maximum of 2.5 A for 12 V(dc), or 0.3 A for 120 V(ac).~~

~~42~~

~~Do not use the power consumption from "Flash Out" output of the flashing LED signal module when determining maximum power consumption.~~

~~43~~

~~The flashing LED Signal module must be clearly marked on the back, as "DC FLASHER" or "AC FLASHER", in 0.50-inch letters.~~

DRAFT

10-3.__ DETECTORS

1*. Edit as necessary.

SC 9-24-2009**

Loop detector sensor units , ~~magnetic detector amplifiers, magnetic sensing elements~~ and asphaltic concrete sealant for inductive detector loop installation will be State-furnished in conformance with the provisions in "Materials" of these special provisions.

Paras 2 and 3: Use applicable Paras and edit as required. If all types are acceptable, delete Paras.

2*

SC 9-24-2009**

Loop wire shall be Type 1 ~~Type 2.~~

3*

SC 9-24-2009**

Loop detector lead-in cable shall be Type B ~~Type C.~~

4*. Edit for sealant type. Delete if Type E loops are the only type allowed.

Slots shall be filled with elastomeric sealant asphaltic emulsion sealant hot-melt rubberized asphalt sealant.

Paras 5 and 6: Use if circular loops are allowed. Delete loop types not applicable.

5

At the Contractor's option, where a Type A or a Type B loop is designated on the plans, a Type E loop may be substituted.

6

For Type E detector loops, sides of the slot shall be vertical and the minimum radius of the slot entering and leaving the circular part of the loop shall be 1-1/2 inches. Slot width shall be a maximum of 5/8 inch. Loop wire for circular loops shall be Type 2. Slots of circular loops shall be filled with elastomeric sealant or hot melt rubberized asphalt sealant.

7. Use if deeper sawed slots are to be required and the pavement depth is adequate.

The depth of loop sealant above the top of the uppermost loop wire in the sawed slots shall be 2 inches, minimum.

8. Use if asphaltic concrete sealant is required and is to be State-furnished. Delete "asphaltic . . . installation" from Para 1 if asphaltic concrete sealant is NOT to be State-furnished.

Slots in hot mix asphalt pavement shall be filled with asphaltic concrete sealant as follows:

A. After conductors are installed in the slots cut in the pavement, tack coat shall be applied to the vertical surfaces of slots in conformance with the provisions in Section 39, "Hot Mix Asphalt," of the Standard Specifications.
B. Temperature of sealant material during installation shall be above 21°C. Air temperature during installation shall be above 10°C. Sealant placed in the slots shall be compacted by use of a 8-inch diameter by 1/8-inch thick steel hand roller or other tool approved by the Engineer. Compacted sealant shall be flush with the pavement surface. Minimum

DRAFT

conductor coverage shall be one inch. Excess sealant remaining after rolling shall not be reused. On completion of rolling, traffic will be permitted to travel over the sealant.

9. Use if epoxy slot sealant is optional on PCC pavement.

Slots in portland cement concrete shall be filled with elastomeric sealant or hot-melt rubberized asphalt sealant, or shall be filled with an epoxy sealant conforming to the provisions in Section 95-2.09, "Epoxy Sealant for Inductive Loops," of the Standard Specifications.

10-3.__ MODEL 334 CONTROLLER CABINETS

The Model 334 cabinets shall conform to the provisions in Section 86-3.01, "Controller Assemblies," of the Standard Specifications and these special provisions.

2. Use for Model 334 Contractor-furnished cabinets. Edit for required equipment. Add "Model 208 watch dog monitor" to list if a State-furnished Model 170/2070 cabinet is needed for the application.

Cabinets shall be Model 334 and shall consist of a housing (A), a mounting cage 1, and the following listed equipment. The equipment shall conform to Chapter 6 of the Transportation Electrical Equipment Specifications (TEES).

1. Service panel No. 1
2. Power distribution assembly
3. Input file No. 3, upper part
4. Police door with on/off control switches
5. C1 harness
6. Controller and equipment shelves
7. Dual fan assembly with thermostatic control
8. Mechanical armature-type relays

3. Delete if the police panel is required.

Police panels will not be required.

4*. Use if cabinets contain Contractor-furnished electrical/electronic equipment and testing at the Transportation Laboratory is required. Provide sufficient time in delayed start or in working days for 30 days testing at the Transportation Laboratory. Fill in blank to match designation on the plans.

**

Prior to shipping to the project site, each Model 334 cabinet shall be submitted to the Transportation Laboratory for acceptance testing.

5*. Use when required and fill in blank to match the cabinet designation on the plans.

**

The Engineer shall be notified when each Model 334 cabinet is ready for the functional test. The functional test will be conducted by State forces.

6. Suggested circuit breakers are listed. Edit as required for the work.

The following equipment shall be provided with each power distribution assembly:

1. Two each of Duplex NEMA 5-20R controller receptacle

DRAFT

2. One each of 30 A, 1-pole, 120 V(ac) Main circuit breaker
3. One each of 15 A, 1- pole, 120 V(ac) circuit breaker
4. Two each of 20 A, 1- pole, 120 V(ac) circuit breaker

7

Three shelves shall be furnished as shown on the plans. Each shelf shall be attached to the tops of 2 supporting angles with 4 screws. Supporting angles shall extend from the front to the back rails. The front of the shelf shall abut the front member of the mounting cage. The shelves shall be arranged as shown on the plans. The angles shall be designed to support a minimum of 50 pounds each. The horizontal side of each angle shall be a minimum of 3 inches. The angles shall be vertically adjustable.

8

Three terminal blocks shall be furnished as shown on the plans. Terminal blocks shall conform to the requirements in Chapter 6 of the TEES, except that the screw size shall be 8-32.

9

A maintenance manual shall be furnished for all controller units, auxiliary equipment, vehicle detector sensor units, control units, and amplifiers. The maintenance and operation manuals may be combined into one manual. The maintenance manual or combined maintenance and operation manual shall be submitted at the time the controllers are delivered for testing or, if ordered by the Engineer, before purchasing. The maintenance manual shall include the following:

1. Specifications
2. Design characteristics
3. General operation theory
4. Function of all controls
5. Trouble shooting procedure (diagnostic routine)
6. Block circuit diagram
7. Geographical layout of components
8. Schematic diagrams
9. List of replaceable component parts with stock numbers

10-3.__ Long Lead-in cable Loop Detector (LLLD) Sensor Unit

General

Each Long Lead-in cable Loop Detector (LLLD) sensor unit shall comply with the following:

1. Chapter 5 of the Transportation Electrical Equipment Specifications (TEES), November 19, 1999.
2. Section 86-5.01 of the May 2006, Standard Specifications.
3. The enhancements as specified in this specification.

Each LLLD sensor unit shall have 2 channels and shall be capable of detecting Agency licensed vehicles on a single Type A or E loop with a 3000 feet lead-in-cable.

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Sensitivity

Each LLLD sensor unit channel shall have a sensitivity based on delta L threshold rather than delta L (only). There shall be 8 threshold levels corresponding to 8 nH, 16 nH, 32 nH, 64 nH, 128 nH, 256 nH, 512 nH and 1024 nH.

Variations

Each LLLD sensor unit channel shall be permitted the following exceptions to the TEES and Standard Specifications:

1. Three frequency settings minimum.
2. The operating frequency of 40 kHz is not required as long as the sensor unit adheres to all other FCC rules.
3. The minimum Q requirement of 5 is not required if all other functional requirements are met.
4. Pulse mode requirements may vary from TEES but are subject to the approval of the Engineer.

Certificate of Compliance

The Contractor shall provide the Engineer with a Certificate of Compliance from the manufacturer in accordance with the provisions of Section 6-1.07, "Certificates of Compliance" of the Standard Specifications for each LLLD sensor unit furnished.

Warranty

Each LLLD sensor unit shall have a complete manufacturer's warranty of at least 1 year parts.

10-3.__ GENERAL PACKET RADIO SYSTEM WIRELESS MODEM ASSEMBLY

The General Packet Radio System (GPRS) Wireless Modem Assembly shall be configured with the following major components:

A. Modem
B. Power supply
C. Modem mounting bracket and hardware
D. Serial communication cable
E. Antenna

MODEM

The reason for obtaining the serial and security numbers is because they are required to activate the IP addresses. 7/15/02

All modems shall be configurable remotely through the wireless network and through the modem serial port. The contractor shall configure all modems prior to acceptance. The contractor shall provide the Engineer with the modem serial and SIM numbers 30 days prior to requiring the PDP context. The Engineer will make available the PDP context comprising the IP (assigned) and APN (obtained from service provider) and configuration parameters (if different from those listed below) after the serial and SIM numbers are provided to the Engineer by the Contractor. All modems shall be complete

with all cables, conductors, hardware, antenna and other equipment as required to make the system completely operational. Location and mounting of the equipment shall be directed by the Engineer and details shown on the plans. The modems shall be fully compliant with PCCA STD-101.

Environmental Requirements

The operating temperature range of the modem shall range from -22°F to +158°F, with humidity from 5 percent to 95 percent (non-condensing) and have transmissions at 10 percent duty cycle above 140°F.

Physical Characteristics

The modem shall weigh less than 2.2 lb and shall have overall dimensions of less than 7 in × 3.5 in × .1.5 in. The housing shall be constructed of anodized aluminum.

The modem shall have the following status indicators:

1. Power (on).
2. Channel acquired.
3. Link status.
4. Network registration.
5. Received signal strength indicator.
6. Transmit and receive data.
7. Block errors.

Operational Parameters

The modem shall operate in a dynamic IP addressing environment of GPRS Networks at 1900/850 MHz and meet the following operational parameters:

Transmit power at antenna port	1.0 W for 1900 MHz 0.8 W for 850 MHz
Transmit frequency	1850-1910 MHz and 824-849 MHz
Receiver frequency	1930-1990 MHz and 869-894 MHz
Receiver sensitivity	-107 dBm (2.439 % bit error rate)
Input voltage	10 VDC to 28 VDC
Input current	40 mA to 200 mA

Application Interfaces

The modem shall have the following standard interfaces:

1. The AT command serial character stream uses TCP/IP.
2. Host communicates with modem using either UDP or TCP packet modes.
3. Computer terminal platform using Windows 98/2000/NT and Dial-Up Networking communicates with the modem using PPP.

Features

The modem shall have the following features:

1. 53.6 kbps raw data transfer rate minimum.
2. Full duplex transceiver.

DRAFT

3. 1900/850 MHz dual band networking.
4. Integrated TCP/IP protocol stack with UDP.
5. Security such to prevent unauthorized access.
6. Includes a DC power cable at least 1 meter in length with a connector compatible with the modem power connector.
7. Packet buffering and forwarding feature that provides discipline to the output of the serial port. The packet forwarding time interval shall be configurable from a rate of 0 (undisciplined) to 400ms in increments of 100ms or less.
8. Choice of "Friends Only" access mode.

Configuration parameters

The modem shall be configured with the following parameters (using the default AT command mode):

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Command	Current value and Description
ADBGP=n(?)	n=0
AIP=n(?)	n=1: Allow any incoming IP to connect when UDP auto answer is enabled.
DAE=n(?)	n=0: Enable +++AT escape sequence detection.
E=n(?)	n=1: Toggle AT command echo On.
FM=n(?)	n=0: Disable Friends mode.
HOR=n(?)	n=0: No response codes when UDP session is initiated.
I0?	#####GPRS: Returns the product name.
I1?	###########: Returns firmware version, hardware ID, and copyright.
I2?	###########: Returns firmware version and relevant hardware ID.
I3?	##########: Returns the OEM Modem's unique ID.
MD=nn(?)	nn=00: normal (AT command) mode.
MVLEN=n(?)	n=0: Modbus-Variant length
MVMSK=nn(?)	nn=00:Modbus-Variant ID Mask
MVOFF=n(?)	n=0:Modbus-Variant offset
MVTYP=n(?)	n=0: Modbus –Variant Type
Q=n(?)	n=1: Quiet-mode On
RKEY=n(?)	n=0: Disable Transceiver Keying
S0=n(?)	n=1: On, TCP Auto Answer Mode
S7=nn(?)	nn=30: TCP Establishment Timeout in seconds
S23=<speed>,<databits>,<parity>, <stopbits>	9600,8,N,1: Serial line parameters are set
S50=n(?)	n=1: Data Forwarding Timeout in tenths of seconds
S51=n(?)	n=0: No Data Forwarding character
S53=d/[ppppp](?)	T/12345: Destination IP address,port and method
S60=n(?)	n=1: Telnet echo mode, Local echo(Default)
S82=n(?)	n=2: Enable UDP auto answer mode
S83=n(?)	n=10: UDP auto answer timeout in seconds
S110=d.d.d.d/[ppppp](?)	192.168.36.24/12345: IP address and port for GPRS modems
S211=n(?)	n=1: Ignore DTR.
S221=n(?)	n=1: Delay Connect Response in seconds.
TCPS=n(?)	n=0: TCP connection timeout in minutes.
TCPT=n(?)	n=6: TCP inactive timeout in minutes.

DRAFT

V=n(?)	n=1: Command Response Mode, Verbose(default)
&C=n(?)	n=1: Assert DCD when in a data mode.
&D=n(?)	n=0: Ignore DTR
&S=n(?)	n=1: Assert DSR when in a data mode.
*CTSE=n(?)	n=0: Clear To Send Enable, Disabled (default)
*DATE=[mm/dd/yyyy],[hh:mm:ss](?)	Sets the date and time, hours specified in 24-hours format.
*DATZ=n(?)	n=0: Normal Reset (default) on ATZ.
*DEVICEID=n(?)	Queries the 64-bit Device ID that is used by the modem to identify itself to the server.
*DNS1=d.d.d.d(?)	209.183.48.10: Sets the DNS addresses to be returned during the PPP negotiations.
*DNS2=d.d.d.d(?)	209.183.48.11: Sets the DNS addresses to be returned during the PPP negotiations.
*DPORT=n(?)	12345: Sets the modem's Device Port.
*DU=n(?)	n=0: dial command always uses UDP.
*ENQ=n(?)	n=0: Outputs an ENQ after the TCP CONNECT delay, Disabled (default).
*HOSTPRIVMODE=n(?)	n=0: public IP to be used when the Host initiates a PPP connection to the modem.
*HOSTPRIVIP=d.d.d.d(?)	0.0.0.0: private IP address if *HOSTPRIVMODE=1
*IPMANAGER1=d.d.d.d(?)	155.173.38.215: IP addresses to send IP change notifications to.
*IPMANAGER2=d.d.d.d(?)	155.173.38.210: Second IP address to send IP notifications to.
*IPMGRKEY1=[key](?)	0000000000: Sets the 128-bit key to use to authenticate the IP update notifications. If the key's value is all zeros, a default key will be used, with IPMANAGER1.
*IPMGRKEY2=[key](?)	0000000000: Sets the 128-bit key to use to authenticate the IP update notifications. If the key's value is all zeroes, default key will be used with IPMANAGER2.
*IPMGRUPDATE1=n(?)	xx: Sets the number of minutes to periodically send an IP update to IPMANAGER1.
*IPMGRUPDATE2=n(?)	xx: Sets the number of minutes to periodically send an IP update to IPMANAGER2.
*MODEMNAME=[name](?)	Name of the modem(up to 20 characters long) to use when performing IP change notices to IPManager. This name should not be a fully qualified domain name, but simply the first portion.
*MSCIUPDADDR=[name/port](?)	Modem Status Update Address-where Name/Port is the domain name and port of the machine where the modem status updates will be sent.
*MSCIUPDPERIOD=n(?)	Modem status update period- where n is in minutes.
*NETCHAN?	Returns the current active channel number.
*NETIP?	Queries the current public(network) IP address of the modem. Note: This could be 0.0.0.0 if there is no current network IP.
*NETPHONE?	Queries the device's phone number, if applicable.
*NETPW=pw(?)	The password that is used to login to wireless network.

DRAFT

*NETRSSI?	Returns the current RSSI of the modem as a negative dBm value.
*NETSTATE?	Queries the current network state.
*NETUID=[uid](?)	The login that is used to login to the network,when required
*TPORT=ppppp(?)	Sets or queries the port used for the AT Telnet server. Valid values are 0-65535.
*UALL=n(?)	n=0: No(default).If there is no UDP session active, an incoming UDP packet will be treated according to the UDP auto answer and AIP settings.
*UDPLAST=n(?)	n=0. Does not change S53 setting.(default). If enabled,sets S53 to the last accepted IP address through UDP auto answer.

System Compliance

The modem and associated firmware, software, hardware, protocol, and other features shall be fully and completely compatible with the existing GPRS network currently in use. The existing GPRS network utilizes the AT&T Wireless (now Cingular) cellular system (band compatible with this modem), the AirLink Raven GPRS modem, and the AirLink Gateway. The Contractor shall demonstrate the compatibility to the Engineer by actual installation demonstration or by other means approved by the Engineer.

Installation

The installation of the modem shall be according to the plans, the manufacturer's instructions, and adjusted per field conditions with the Engineers approval.

Certificate of Compliance

The Contractor shall provide the Engineer with a Certificate of Compliance from the manufacturer in accordance with the provisions of Section 6-1.07, "Certificates of Compliance" of the Standard Specifications for all of the modems furnished for the project.

Fill in the location and phone number of the shop.

Warranty

The manufacturer shall provide a written warranty against defects in materials and workmanship for modems for a period of 12 months after installation for parts and labor. Replacement modems shall be provided within 5 days after receipt of failed modem at no cost to the State, except the cost of shipping the failed modem. All warranty documentation shall be given to the Engineer prior to installation. Replacement modems shall be delivered to Caltrans Maintenance Electrical Shop at 30 Rickard Street, San Francisco, CA, 94134, 415-330-6500.

The software warranty shall be for one (1) year, including upgrades and feature enhancements.

POWER SUPPLY

The power supply shall be vertically mountable on a 19 inch standard rack rail using two machine screws and two wing nuts. The power supply shall have provisions to attach the modem power cable securely without the need for modifying the modem power cable.

The power supply shall meet the following requirements:

DRAFT

Power Cord	Standard 120 V(ac), 3 prong cord, at least 3.5 foot in length (may be added by Contractor)
Type	Switching mode type
Power Rated	40 W minimum with no minimum load required
Operating Temperature Range	From -223°F to +158°F
Operating Humidity Range	From 5 percent to 95 percent non-condensing
Input Voltage	From 85 V (ac) to 264 V (ac) or 120 V (dç) to 370 V (dc)
Input Frequency	From 47 Hz to 63 Hz
Inrush Current	Cold start, 25 A at 115 V
Output Voltage	12 V (dc), adjustable over a ±10 percent range
Overload Protection	From 105 percent to 150 percent in output pulsing mode
Over Voltage Protection	From 115 percent to 135 percent of output voltage
Setup, Rise, Hold Up Time	800 ms, 50 ms,15 ms at 115 V (ac)
Withstand Voltage	I/P-0/P:3 kV, I/P-FG:1.5 kV, for 60 seconds
Working Temperature*	158°F@30%
Safety Standards	UL 1012, TUV EN60950
EMC Standards	EN55022 Class B, EN61000-4-2, 3, 4, 5 and EN61000-3-2, 3

- Note: A substitute may be proposed by the Contractor which meets the 70°C environmental rating at a lower load percentage as long as the temperature rating is maintained at the maximum modem load and all other electrical specifications are met.

Certificate of Compliance

The Contractor shall provide the Engineer with a Certificate of Compliance from the manufacturer in accordance with the provisions of Section 6-1.07, "Certificates of Compliance" of the Standard Specifications for all of the power supplies furnished for the project.

Fill in the location and phone number of the shop.

Warranty

The manufacturer shall provide a written warranty against defects in materials and workmanship for power supplies for a period of 12 months after installation for parts and labor. Replacement power supplies shall be provided within 5 days after receipt of failed power supply at no cost to the State, except the cost of shipping the failed power supply. All warranty documentation shall be given to the Engineer prior to installation. Replacement power supplies shall be delivered to State Maintenance Electrical Shop at 30 Rickard Street, San Francisco, CA, 415-330-6500.

MODEM MOUNTING BRACKET AND HARDWARE

The mounting bracket and hardware shall be stainless steel. The mounting bracket shall securely hold the modem in a vertical attitude with all cables and conductors installed. The mounting bracket shall contain the modem using a method that allows the removal of the modem without tools or without removing the bracket from its attachment to the cabinet frame.

D SERIAL COMMUNICATION CABLE

Where the modem is designed to interface with a Model 170E controller, the Contractor shall provide a communication cable known as the C2 cable. The C2 cable shall interface the Model 170E controller C2 connector and the GPRS modem and include all conductors and connectors required for that purpose. The GPRS modem connector shall meet EIA RS-232 standard using a DB-9 connector. The Model 170E controller end connector shall comply with AMP

DRAFT

201360-2-ND or equivalent. All pins in both connectors shall be gold plated. The cable shall have four No. 20 AWG conductors with (UL) Type CM shielded or AWM 2464 80C 300 Volts – C (UL) CMG. The cable shall be at least 1 meter long. The cable wiring shall comply with the following:

AMP 201360-2-ND -L to DB9-P - 2
AMP 201360-2-ND -K to DB9-P - 3
AMP 201360-2-ND -N to DB9-P - 5
AMP 201360-2-ND -D to AMP 201360-2-ND - H
AMP 201360-2-ND -J to AMP 201360-2-ND - M

ANTENNA

The antenna shall be the low profile disc type, and shall adhere to the cabinet using a factory installed double-sided waterproof acrylic foam adhesive. The coax cable shall be at least 1 meter in length and shall have a 50 Ω TNC connector on the modem end. In addition, the antenna shall meet the following requirements:

VSWR (at resonant point)	1.2:1 or better
Frequency	1850-1990 MHz and 824-894 MHz
Nominal Impedance	50 Ω
Gain	2 dB
Radiation Pattern	Omni-directional
Polarization	Vertical
Ground Plane Required	Yes, see note below

Ground plane requirements: The antenna shall require a reflective ground plane to function properly. The required ground plane shall extend beyond the antenna at least 20 cm in all directions.

10-3.__ VARIABLE MESSAGE SIGN (VMS) ASSEMBLY

SC 9-24-2009**

Each variable message sign (VMS) assembly shall include a VMS display panel and a sign control cabinet with all sign control hardware and software. The VMS display panel shall use Light Emitting Diodes (LED) pixels. The pixels shall uniformly arranged in multiple modules to fill up the entire usable display area. The pixel pitch shall be 0.787". Each module shall have 8wx10h pixel arrangement. The display area shall be filled by 7wx3h LED module array. The entire display is a full matrix 56 pixel length and 30 pixel height which shall be capable of full size static and dynamic display of text and graphic.

2

The LED pixels shall automatically adjust its light output by means of photo sensors installed in the EMS housing. Light output shall be proportional to the ambient light (more ambient light / more output and less ambient light / less output). There shall be a minimum of three adjustable levels of luminance: 100 percent, 60 percent, and 30 percent luminance.

3

SC 9-24-2009**

The Overall dimensions of the VMS panel shall be 113" in length, 63" in height and shall not exceed more than 10 inches in width. The VMS shall not weight more than 400 lbs.

4

CONSTRUCTION

VMS panel shall be constructed so that an anti-glare polycarbonate or hardened acrylic front face panel with anti-glare film shall be contained within an extruded aluminum frame. The extruded aluminum frame shall be hinged on the top of the sign frame to allow access to the interior of the sign and have fully welded seams with a high gloss textured black finish powder coat paint meeting the color standards of Federal specifications 595b, 17038.

5

VMS shall be gasketed with a closed cell neoprene gasket making the sign rain tight. Stainless steel latches shall provide for quick access to the interior of the sign. The sign shall be provided with devices to retain the face panel in a fully open mode assisting the servicing of the sign. Exterior hardware shall be of stainless steel or cadmium plated materials.

6

VMS shall be vented on the bottom and shall have an interior temperature controlled ventilation fan to ensure the interior of the housing remains below 55°C without compromising the rain tight integrity. Vents shall have insects screen installed.

7

SC 9-24-2009**

Each LED pixel shall consist of at least 4 high intensity LED's with a viewing angle of 30 degrees. Each LED shall be encased in an enhanced optical lens to maximize legibility. The LED shall bee Aluminum Indium Gallium Phosphide (AlInGaP), and shall be the ultra bright type rated for 100,000 hours of continuous operation from –37°C to +74°C. LED pixels shall be Ultra Violet stabilized. Individual LED's shall be wired so that a failure of one LED will not result in the loss of more than one thirdhalf of a pixel. Each pixel shall be 590 nanometers nominal amber in color having an initial nominal luminous intensity of 9.5 candela (cd) on the maximum setting. All LED's shall be from the same manufacturer and same color bin. Each LED pixel shall consume no more than 16 watts of power.

8

SC 9-24-2009**

LED modules shall consist of multiple pixels in a 8w x 10h configuration. A removable black plastic cadet visor shall be installed above each LED pixels to enhance resistance to sun phantom. Individual modules shall be 100 percent solid state design with no moving parts or switches and shall be identical to and mutually interchangeable with all other modules Each LED module shall be interchangeable. Each LED module shall be secured to the sign support framing at each of its four corners by metal Philip roundhead screws. All LED module wiring shall be No. 22 AWG or larger.

9

The LED module panel shall be fabricated from 0.0625 inch minimum thick aluminum sheet. After fabrication the panel and support shall be treated with a high gloss textured black finish powder coat paint meeting the color standards of Federal specifications 595b, 17038.

10

Each LED module shall have the manufacturer's name, trademark, model number, serial number permanently marked on the back of the panel. Rated voltage, current, power consumption and volt-amperes (VA) per pixel shall also be identified.

DRAFT

11

Each LED module shall be rated for a minimum useful life of 48 months. All LED modules shall meet all parameters of this specification during this period

12

SC 9-24-2009**

OPERATION

VMS messages shall be activated either on steadily lit mode or a flashing mode. The mode of display and the flashing rate shall be programmable by the sign operatingcontrol software (SOS). VMS shall have internal power supplies and dimming capability to fully operate the sign. The VMS power factor shall be greater than 90 percent, and current total harmonic distortion shall be less than 25 percent. The maximum power consuption of the sign shall 150 watts.

13

SC 9-24-2009**

The sign operating software (SOS) shall provide operator interaction with the sign panel through the main and subsidiary menus and shall be directly accessible through the local "QWERTY" keyboard or The sign display parameters and communication port configurations shall be either entered locally by using the keyboard installed in the sign control cabinet or remotely by the sign control software through. RS232 communication a wireless GPRS modem. The access to sign operation shall be protected by multilevel password. The SOSsign control software shall allow the user to create, edit and save up to 50 messages and 99 pages. The sign control software shall be NTCIP compliant. The SOS shall be NTCIP (National Transportation Communication for ITS Protocol) compliant including, but not limited to, the following standards:

A. NTCIP 1201, - Global Object Definitions for Dynamic Message Signs, all mandatory objects of all mandatory conformance groups
B. Application Profile Level, NTCIP 1101; Simple Transportation Management Framework (STMF) – and shall meet Conformance Level 1;
C. Subnetwork Profile Level, NTCIP 2103, Object Definitions for Dynamic Message Signs and
D. Transport Profile Level, NTCIP 2201, Transportation Transport Profile.

The VMS manufacturer shall supply the SOSremote control software in CD format to the state free of charge. Wireless GPRS modem assembly shall be installed in the sign control cabinet. GPRS wireless modem assembly shall conform to the provisions elsewhere in this specifications.

14

VMS assembly shall operate at a frequency of 60Hz +/- 3Hz AC line over a voltage ranging from 90 volts to 135 volts. The LED circuitry shall prevent perceptible flicker over the voltage range specified. Line voltage fluctuations shall have no visible effect on the luminous intensity of the VMS. The rated voltage for measurements shall be 120 volts AC.

15

VMS shall include voltage surge protection to withstand high repetition noise transient as stated in section 2.1.6 of NEMA Standard TS-2, 1992.

16

VMS shall meet Federal Communications Commission (FCC) Title 47, SubPart B, Section 15 regulations concerning the emission of electronic noise.

17

PHOTOMETRIC REQUIREMENTS

VMS pixels shall meet at least 85 percent of the minimum intensity requirements while operating throughout the operating range of –37°C to +74°C.

18

The minimum initial luminous intensity values for LED pixels shall be 650 cd/m^2 at 25°C. Each VMS pixel shall have a viewing angle of 30 degrees to the sign.

19

The measured chromatic coordinates of the VMS pixels shall conform to the chromaticity requirements of section 5.3.2.1. and Figure C of the Equipment and Materials Standards of the Institute of Transportation Engineers ITE Publication No. ST-017A.

20

SIGN CONTROL CABINET

Sign control cabinet shall house the sign control board, the communication interface board, a GPRS wireless modem assembly, a AC to DC power supply, a standard IBM PC-compatible keyboard, and a LCD multiline display. The display and keyboard shall be installed on a operation panel which is attached to the cabinet by a continues stainless steel hinge. The panel shall be secured with thumb screws when the panel is closed.

21

The cabinet shall be fabricated from galvanized sheet steel, or fabricated from sheet steel and zinc or cadmium plated after fabrication, or shall be fabricated from aluminum. Fabrication of the cabinet shall conform to the provisions in Section 86-3.04A, "Cabinet Construction." Steel cabinet shall be painted in conformance with the provisions in Section 86-2.16, "Painting." Overlapping exterior seams and door shall meet the requirements for Type 3R enclosure specified in the NEMA Enclosure Standards.

22

The cabinet door shall have a handheld latch to keep the door closed. Padlock hoops shall be welled to the cabinet and door to enable the installation of a padlock.

VMS shall be equipped with RS-422 repeater inside the sign control cabinet to allow remote sign control and operation through a 4-wire VMS Control Cable from a distance up to 4000 feet. The RS-422 repeater specifications are as follow:

A. Compatibility: EIA/TIA RS-422 standard
B. Baud Rates: 300 to 115,200bps (auto-sensing and self adjusting)
C. Connector: 2X DB-9 Male connectors; 2X termination boards: DB-9 Female and a 6-Way terminal block

D. Surge Protection: 600 Watts
E. Static Protection (ESD): Up to 15KV
F. Operation Temperature: –10°C to 50°C

23
TERMINAL BLOCKS

Terminal blocks shall be installed in the interior bottom of the sign panel housing and the sign control cabinet with sufficient number of terminals to accommodate the wiring. Wiring shall be bundled, wrapped, and permanently labeled.

24

DOCUMENTATION

Complete shop drawings for VMS shall be submitted to the Engineers for testing, evaluation and approval, a minimum of 30 days before ordering or fabrication of equipment.

25

The following operating characteristics shall be identified: Rated Voltage, Power Consumption, Amperes and volt-amperes. VMS assembly shall have the manufacturer's name and trademark permanently marked on the side of sign panel and cabinet. Individual VMS assembly shall be identified with a model, serial number and shipping date stamped on a tag attached to the sign panel and cabinet for warranty purposes. The lettering shall be a minimum of 7 mm high. The information may be either depressed or raised, and shall be legible and durable.

26

The Contractor shall provide to the Engineer a minimum of 2 copies of operation and maintenance manuals for each VMS assembly delivered in the contract.. Each manual shall contain the following sections and sub-sections.

27
General information section

a. A list of applicable subassemblies that comprise the specified equipment.
b. Overall description of the equipment design features (including all enhance features if applicable), performance, and applications.
c. Equipment specifications summary.
d. Equipment installation instructions.

28
Theory of operations section

a. Theory of operation of the standard equipment, with unique or unusual circuitry described in detail.
b. Theory of operation reflecting any modifications to the standard equipment.

29
Maintenance section

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a. Recommended test equipment and fixtures, or minimum operational and performance requirements for appropriate test equipment.

b. Trouble shooting information and charts.

c. Removal and installation procedures for replacing assemblies and subassemblies, if not obvious or if improper sequencing of steps may result in component damage.

30
Replacement parts section

a. Each manual shall contain an equipment replacement parts list including electrical parts, mechanical parts and assemblies.

b. All semiconductors shall be identified by the supplier's numbers and by JEDEC numbers if applicable.

31
Diagram section

a. Schematic diagrams(s) identifying all circuit components and showing normal test voltages and levels.

b. An overall functional block diagram.

c. Detailed interconnecting diagram(s) showing wiring between modules, circuit boards and major components.

d. Pictorial circuit board layout diagram(s) showing both component placement and printed wiring detail.

e. Diagram(s) showing location of circuit boards and other subassemblies.

f. Exploded view diagram(s) of complex mechanical assemblies.

32
Physical requirements

a. All pages, including latest revisions, shall be securely fastened together between protective covers (loose-leaf ring binding is acceptable).

b. No page shall be subject to fading from exposure to any normal source of ambient lighting (ozalid reproduced pages are not acceptable).

33

PERFORMANCE WARRANTY

The manufacturer shall provide a Certificate of Compliance to this standard and shall replace or repair any VMS that exhibits a failure due to workmanship or material defects within 60 months of delivering the sign to the State or the date of acceptance whichever is later. The manufacturer shall replace or repair any sign that exhibits light degradation greater than 50 percent within the first 36 months of operation, or if more than 20 percent of the LED's fail during that same period.**13**

10-3.__ VARIABLE MESSAGE SIGN (VMS) CONTROL CABLE

SC 9-24-2009**

Variable Message Sign (VMS) Control Cable shall be eunshielded, outdoor rated, non-gel filled type, and shall meet the requirements of TIA/EIA 568B.2, Category 5Ee Cable, and the following:

2

A. The cable shall contain 8 conductors, each of which shall be No. 24, minimum, solid bare copper conductors. Each conductor shall be insulated with polyolefin, polyethylene, polyvinyl chloride or fluorinated ethylene propylene material. Conductors shall be in twisted pairs. Color coding shall distinguish each pair: blue, blue/white; brown, brown/white; green, green/white; orange, orange/white.

B. The cable jacket shall be rated for a minimum of 300 V and 60°C and shall be polyvinyl chloride, polyethylene, polyolefin or fluorinated ethylene propylene. The jacket shall be black, gray, or blue. The jacket shall be marked as required by NEMA. The jacket shall be marked at not more than every meter with the cable identification: manufacturer's name, product identification, number of conductors and conductor size, and voltage and temperature ratings. Cable length markings may be sequentially alternated with the cable identification markings at not more than every other meter.

C. The finished outside diameter of the cable shall not exceed 0.5 inch.

D. The cable run between components shall be continuous without splices. A minimum of one meter of slack shall be provided at each pull box, junction box or vault, and a minimum of 3 m at each cabinet. The ends of category 5Ee cable shall be terminated with appropriate RJ-type connectors as necessary to connect the equipment shown on the plans, or shall be terminated with crimped and soldered spade type terminals at terminal blocks where shown on the plans.

E. Category 5Ee Certified installations are required for installed lengths of less than 328 feet of finished cable 2.

~~5. Telephone demarcation cabinets~~

10-3.__ REMOVING, REINSTALLING OR SALVAGING ELECTRICAL EQUIPMENT

1*. Insert location where salvaged electrical equipment is to be stockpiled.

Salvaged electrical materials shall be hauled to State Maintenance Electrical Shop, 30 Rickard Street, San Francisco, CA 94134 and stockpiled.

2. Edit for days of notice. Add contact person (e.g. maintenance superintendent) and phone number as needed.

The Contractor shall provide the equipment, as necessary, to safely unload and stockpile the material. A minimum notice of 2 business days shall be given prior to delivery.

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10-3.__ PAYMENT

3. Use when hauling and stockpiling of salvaged electrical materials is involved.

SC 9-24-2009**

Full compensation for hauling and stockpiling electrical materials shall be considered as included in the contract price paid for the item requiring the material to be salvaged and no additional compensation will be allowed therefor.

The contract lump sum price paid for each ramp meter system shall include full compensation for furnishing all labor, materials (except items covered by other bid items), tools, equipment, and incidentals, and for doing all the work involved in installing ramp meter system, complete in place, including all the foundations, poles, signal heads, service equipment enclosure, Variable Message Sign system, GPRS wireless modem assembly, loop detectors, pull boxes, conductors, cables, conduits, manuals and testing, as shown on the plans, as specified in the Standard Specifications and these special provisions,

The contract lump sum price paid for each highway lighting shall include full compensation for furnishing all labor, materials (except items covered by other bid items), tools, equipment, and incidentals, and for doing all the work involved in installing complete in place, including all the luminaires, foundations, poles, signal heads, pull boxes, conductors, conduits, and testing, as shown on the plans, as specified in the Standard Specifications and these special provisions,

~~**and as directed by the Engineer.4. Use in projects that contain any of the listed materials. Strike and hide materials not in the project.**~~

~~If any of the fabrication sites for the materials listed are located more than 300 air line miles from both Sacramento and Los Angeles, additional shop inspection expenses will be sustained by the State. Whereas it is and will be impractical and difficult to determine the actual increase in these expenses, it is agreed that payment to the Contractor for furnishing these listed materials from each fabrication site located more than 300 air line miles from both Sacramento and Los Angeles will be reduced $2,000:~~

~~1. Extinguishable message signs~~
~~1. Variable message signs~~
~~3. Changeable message signs~~
~~2. Service equipment enclosures~~
~~5. Telephone demarcation cabinets~~
~~6. Closed circuit television cabinets furnished by the Contractor~~
~~7. Weigh-in-motion cabinets furnished by the Contractor~~
~~8. Highway advisory radio cabinets furnished by the Contractor~~

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~~**10-3.__ EXTINGUISHABLE MESSAGE SIGN**~~

~~Each extinguishable message sign shall be an internally illuminated weathertight and dust tight unit which will produce a clearly visible message only when internally illuminated and shall conform to these special provisions.~~

~~**2**~~

~~The design of each sign shall be as shown on the plans. Minor details of construction shown are typical and may be modified subject to approval by the Engineer.~~

~~**3**~~

~~Six sets of shop drawings shall be submitted to the Engineer for review prior to performing work on the signs.~~

~~**4**~~

~~**HOUSING**~~

~~The housing shall be ruggedly constructed, shall be rigid, weathertight, dust tight and corrosion resistant, and shall be made of durable materials.~~

~~**5**~~

~~Provisions shall be made for ease of maintenance of components.~~

~~**6**~~

~~Sign panels and housing window shall be made of acrylic plastic which, including painted portions, shall be highly resistant to crazing, staining, discoloration, creep, warping, and the long range deleterious effects of vehicle fumes, direct sunlight, heat (up to 90°C), water, oils and aging.~~

~~**7**~~

~~The housing skin shall be made of Type 5052-H32 aluminum alloy sheet with clad finish. The housing reinforcing and miscellaneous parts shall be made of suitable gages and types of aluminum, except external fasteners, machine screw parts, lock washers, hinge pins, and other mechanical parts, which shall be made of Type 316 stainless steel.~~

~~**8**~~

~~Interior metal parts shall be made of suitable gages and types of plated steel or aluminum, except fasteners, machine screw parts, lock washers and other miscellaneous parts shall be made of corrosion resistant metals other than aluminum.~~

~~**9**~~

~~The separable hinge for mounting the reflector shall be brass as shown on the plans or shall be stainless steel.~~

~~**10**~~

~~Gaskets shall be uniform and even textured, and shall be highly resistant to stiffening and setting and the long range deleterious effects of vehicle fumes, direct sunlight, heat (up to 70°C), water, oils and aging.~~

DRAFT

~~11~~

~~Terminal strips shall be used for input, output and tie point connections and shall be of the molded phenolic, barrier type.~~

~~12~~

~~**BALLASTS, CONTROL RELAYS AND TERMINAL BLOCKS**~~

~~Ballast inductors shall meet the requirements in ANSI Standard: C82.1, "Fluorescent Lamp Ballasts."~~

~~13~~

~~The inductors shall have the inductance noted on the plans (±10 percent), losses not exceeding 15 percent of lamp watts at rated current of inductor and a maximum current crest factor of 1.5 at rated current of inductor. The maximum temperature rise of the inductor coils shall be limited to 40°C above an ambient temperature of 40°C.~~

~~14~~

~~Heater transformers shall produce the rated secondary voltage (±10 percent) at full load and at one-third load. The maximum temperature rise of the transformer coils shall not exceed 40°C above an ambient temperature of 40°C.~~

~~15~~

~~Inductors and transformers shall have cores made of a suitable grade of silicon steel lamination material and shall have thorough resin impregnation.~~

~~16~~

~~Each mounting chassis shall be fabricated of 1/8 inch, Type 5052-H32 aluminum alloy sheet. Units shall be mounted on the chassis with plated brass or steel hardware, except for lock washers which shall be beryllium copper, externally toothed.~~

~~17~~

~~Capacitors shall be rated 660 V (ac), 60 Hz, for operation down to -20°C with capacity as shown on the plans and shall be oil filled, paper type, hermetically sealed with solder lug terminals. Capacitance shall be within ±10 percent of rating at 25°C. Each capacitor shall withstand a limited direct current, 15-second breakdown test at 25°C of 3,000 V (ac) from each terminal to case. Minimum insulation leakage resistance from terminal to terminal, in megohms, shall be not less than 1,500 divided by capacitance in microfarads.~~

~~18~~

~~Each magnetic control relay shall be of the heavy-duty, power type with 120-V (ac) coil and double-pole, double-throw contacts with a minimum rating of 2 A at 480 V (ac), 60 Hz. The coil shall consume not more than 10 VA with sealed armature.~~

~~19~~

~~The relay coil shall be designed to provide reliable service under the following conditions:~~

~~A. Maximum operating voltage: 10 percent over rated volts.~~
~~B. Ambient temperature: 60°C.~~

~~20~~

~~The relay coil shall meet NEMA requirements for temperature rise and voltage breakdown.~~

DRAFT

~~21~~

~~Maximum dimensions of the relay shall be: mounting base, 2-1/2" x 4"; overall height, 2-1/2 inches.~~

~~22~~

~~Fuseholders shall be the panel mounting type rated at 250 V (ac), complete with a 13/32-inch diameter by 1-1/2-inch length, slow blowing, cartridge type fuse.~~

~~23~~

~~Surge limiting and ballast resistors shall be ceramic coated, 20-watt, wirewound units. Resistor leads shall have plastic insulation rated 600 V (ac), for operation at 200°C.~~

~~24~~

~~Wiring connections from components shall be terminated on 2 molded phenolic, barrier type, terminal block assemblies rated at 15 A, 600 V (ac). Terminal designations shall be marked as indicated on the plans.~~

~~25~~

~~**LAMPHOLDERS AND LAMPS**~~

~~Lampholders shall have silver plated contacts.~~

~~26~~

~~Lamps shall be the extra-high output, rapid-start type with T-12 bulb of the length shown on the plans, cool-white color and plated contacts for operation up to 1,500 mA.~~

~~27~~

~~**CONDUCTORS AND WIRING**~~

~~Ballast and sign conductors shall be No. 16 stranded copper wire and shall be labeled by UL as 105°C appliance wiring material (AWM) for use at 600 V (ac). Ballast conductors shall be secured with easily removable, spring cross straps (not clamped, cabled or served) on the underside of the chassis. Color coding and terminal markings shall be as shown on the plans.~~

~~28~~

~~Lead ends shall be fitted with spade lugs.~~

~~29~~

~~**LUG DISCONNECT**~~

~~Each plug disconnect shall consist of molded nylon plug and receptacle housings containing plug pins and individual sockets designed to be crimped to conductors and snapped into the housings. Housings shall have integral, molded, polarizing and locking devices. Minimum UL electrical rating shall be 10 A, 600 V (ac). Pins and sockets shall be tin plated phosphor bronze secured to conductors using a ratchet type precision crimping tool.~~

~~30~~

~~**TESTING**~~

~~Tests shall verify that the following conditions exist:~~

~~A. Transformer output voltage: 480 V (ac) ±10 percent.~~

~~B. Sign input current (daytime level): 4 A maximum.~~

~~C. Lamp current each (daytime level): 1.4 A ±15 percent (nighttime level) 30 mA ±15 percent.~~

~~D. Cathode filament voltage: 3.6 V (ac) ±10 percent and shall be supplied from a steady (non-flashing) source.~~

~~**31**~~

~~**SIGN OPERATION**~~

~~The sign shall operate as follows:~~

~~A. During daytime, the lamps shall operate at full rated brightness.~~

~~B. During nighttime, the lamps shall be dimmed to approximately one-thirty-fifth of daytime brightness.~~

~~C. Starting and flashing shall be positive, without flickering, during daytime and nighttime levels.~~

~~**10-3.__ PAYMENT**~~

~~The contract lump sum price or prices paid for signal and lighting shall include highway lighting at intersections in connection with signals only.~~

~~**2. Edit as required for contract item.**~~

~~Other roadway lighting on the project shall be considered as included in the contract lump sum price paid for lighting and sign illumination.~~

~~**3. Use when hauling and stockpiling of salvaged electrical materials is involved.**~~

~~Full compensation for hauling and stockpiling electrical materials shall be considered as included in the contract price paid for the item requiring the material to be salvaged and no additional compensation will be allowed therefor.~~

~~**4. Use in projects that contain any of the listed materials. Strike and hide materials not in the project.**~~

~~If any of the fabrication sites for the materials listed are located more than 300 air line miles from both Sacramento and Los Angeles, additional shop inspection expenses will be sustained by the State. Whereas it is and will be impractical and difficult to determine the actual increase in these expenses, it is agreed that payment to the Contractor for furnishing these listed materials from each fabrication site located more than 300 air line miles from both Sacramento and Los Angeles will be reduced $2,000:~~

~~1. Extinguishable message signs~~

~~4. Service equipment enclosures~~

~~5. Telephone demarcation cabinets~~

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USE WITH 2006 STANDARDS.

Do not include the Standard Plans List in the project plans. Division of Engineering Services, Office Engineer will add RSP and NSP sheets in the project plans, except for an AADD project, the District will add RSP and NSP sheets in the project plans. Sheet numbers are included on the Title Sheet Index under the heading, "Revised and New Standard Plans."

Instructions for editing: Click in the left margin to select Standard Plan sheets to be included (the entire row must be selected). Use "StrikeHide no initials" key to select or undo a previous selection.

Standard Plans List

The Standard Plan sheets applicable to this contract include, but are not limited to those indicated below. Applicable Revised Standard Plans (RSP) and New Standard Plans (NSP) indicated below are included in the project plans as Standard Plan sheets.

ACRONYMS, ABBREVIATIONS AND SYMBOLS

A10A	**Acronyms and Abbreviations (Sheet 1 of 2)**
A10B	**Acronyms and Abbreviations (Sheet 2 of 2)**
A10C	**Symbols (Sheet 1 of 2)**
A10D	**Symbols (Sheet 2 of 2)**

PAVEMENT MARKERS, TRAFFIC LINES, AND PAVEMENT MARKINGS

A20A	**Pavement Markers and Traffic Lines, Typical Details**
A20B	**Pavement Markers and Traffic Lines, Typical Details**
A20C	**Pavement Markers and Traffic Lines, Typical Details**
A20D	**Pavement Markers and Traffic Lines, Typical Details**
A24A	**Pavement Markings – Arrows**
A24B	**Pavement Markings – Arrows**
RSP A24C	**Pavement Markings – Symbols and Numerals**
A24D	**Pavement Markings – Words**
A24E	**Pavement Markings – Words and Crosswalks**

~~**RUMBLE STRIP**~~

~~**A40A**~~	~~**Shoulder Rumble Strip Details – Rolled-In Indentations**~~
~~**A40B**~~	~~**Shoulder Rumble Strip Details – Ground-In Indentations**~~

EXCAVATION AND BACKFILL

A62A	**Excavation and Backfill – Miscellaneous Details**

~~A62B~~	~~Limits of Payment for Excavation and Backfill – Bridge Surcharge and Wall~~
~~A62C~~	~~Limits of Payment for Excavation and Backfill – Bridge~~
A62D	Excavation and Backfill – Concrete Pipe Culverts
RSP A62DA	Excavation and Backfill – Concrete Pipe Culverts
~~A62E~~	~~Excavation and Backfill – Cast-In-Place Reinforced Concrete Box and Arch Culverts~~
~~A62F~~	~~Excavation and Backfill – Metal and Plastic Culverts~~
	~~PORTABLE CONCRETE BARRIER~~
~~A63A~~	~~Portable Concrete Barrier (Type 60K)~~
~~A63B~~	~~Portable Concrete Barrier (Type 60K)~~
	OBJECT MARKERS, DELINEATORS, CHANNELIZERS AND BARRICADES
A73A	Object Markers
A73B	Markers
A73C	Delineators, Channelizers and Barricades
	~~SURVEY MONUMENTS~~
~~RSP A74~~	~~Survey Monuments~~
	~~CONCRETE BARRIER TYPE 60 SERIES~~
~~RSP A76A~~	~~Concrete Barrier Type 60~~
~~A76B~~	~~Concrete Barrier Type 60~~
~~A76C~~	~~Concrete Barrier Type 60E~~
~~A76D~~	~~Concrete Barrier Type 60G~~
~~A76E~~	~~Concrete Barrier Type 60G~~
~~A76F~~	~~Concrete Barrier Type 60GE~~
~~A76G~~	~~Concrete Barrier Type 60S~~
~~A76H~~	~~Concrete Barrier Type 60S~~
~~A76I~~	~~Concrete Barrier Type 60SE~~
	~~CONCRETE BARRIER WILDLIFE PASSAGEWAY~~
~~RSP A76J~~	~~Concrete Barrier – Wildlife Passageway (Type S)~~
~~A76K~~	~~Concrete Barrier – Wildlife Passageway (Type M)~~
~~A76L~~	~~Concrete Barrier – Wildlife Passageway (Type L)~~
	METAL BEAM GUARD RAILING – STANDARD RAILING SECTIONS
A77A1	Metal Beam Guard Railing – Standard Railing Section (Wood Post with Wood Block)
~~A77A2~~	~~Metal Beam Guard Railing – Standard Railing Section (Steel Post with Notched Wood or Notched Recycled Plastic Block)~~
A77B1	Metal Beam Guard Railing – Standard Hardware
A77C1	Metal Beam Guard Railing – Wood Post and Wood Block Details
~~A77C2~~	~~Metal Beam Guard Railing Steel Post, Notched Wood Block and Notched~~

DRAFT

	~~Recycled Plastic Block Details~~
A77C3	Metal Beam Guard Railing – Typical Line Post Embedment and Hinge Point Offset Details
RSP A77C4	Metal Beam Guard Railing – Typical Railing Delineation and Dike Positioning Details
NSP A77C5	Metal Beam Guard Railing – Typical Vegetation Control Standard Railing Section
NSP A77C6	Metal Beam Guard Railing – Typical Vegetation Control for Terminal System End Treatments
NSP A77C7	Metal Beam Guard Railing – Typical Vegetation Control at Structure Approach and Departure
NSP A77C8	Metal Beam Guard Railing – Typical Vegetation Control at Fixed Object
NSP A77C9	Metal Beam Guard Railing – Typical Vegetation Control at Fixed Object
NSP A77C10	Metal Beam Guard Railing – Typical Vegetation Control at Fixed Object
	METAL BEAM GUARD RAILING – TYPICAL LAYOUTS FOR EMBANKMENTS
RSP A77E1	Metal Beam Guard Railing – Typical Layouts for Embankments
RSP A77E2	Metal Beam Guard Railing – Typical Layouts for Embankments
RSP A77E3	Metal Beam Guard Railing – Typical Layouts for Embankments
RSP A77E4	Metal Beam Guard Railing – Typical Layouts for Embankments
RSP A77E5	Metal Beam Guard Railing – Typical Layouts for Embankments
RSP A77E6	Metal Beam Guard Railing – Typical Layouts for Embankments
	METAL BEAM GUARD RAILING – TYPICAL LAYOUTS FOR STRUCTURES
RSP A77F1	Metal Beam Guard Railing – Typical Layouts for Structure Approach
A77F2	Metal Beam Guard Railing – Typical Layouts for Structure Approach and Between Structures
RSP A77F3	Metal Beam Guard Railing – Typical Layouts for Structure Approach
RSP A77F4	Metal Beam Guard Railing – Typical Layouts for Structure Departure
A77F5	Metal Beam Guard Railing – Typical Layouts for Structure Departure
	~~METAL BEAM GUARD RAILING – TYPICAL LAYOUTS FOR FIXED OBJECTS~~
~~RSP A77G1~~	~~Metal Beam Guard Railing – Typical Layouts for Fixed Objects between Separate Roadbeds (Two-Way Traffic)~~
~~RSP A77G2~~	~~Metal Beam Guard Railing – Typical Layouts for Fixed Objects between Separate Roadbeds (One-Way Traffic)~~
RSP A77G3	Metal Beam Guard Railing – Typical Layouts for Roadside Fixed Objects
~~RSP A77G4~~	~~Metal Beam Guard Railing – Typical Layouts for Roadside Fixed Objects~~
~~RSP A77G5~~	~~Metal Beam Guard Railing – Typical Layouts for Roadside Fixed Objects~~
~~RSP A77G6~~	~~Metal Beam Guard Railing – Typical Layouts for Roadside Fixed Objects~~
~~RSP A77G7~~	~~Metal Beam Guard Railing – Typical Layouts for Roadside Fixed Objects~~
~~RSP A77G8~~	~~Metal Beam Guard Railing – Typical Layouts for Roadside Fixed Objects~~

DRAFT

~~METAL BEAM GUARD RAILING – END ANCHORAGE AND RAIL TENSIONING ASSEMBLY~~

~~A77H1~~	~~Metal Railing – End Anchor Assembly (Type SFT)~~
~~A77H2~~	~~Metal Railing – Rail Tensioning Assembly~~
~~A77H3~~	~~Metal Railing – Anchor Cable and Anchor Plate Details~~
~~A77I1~~	~~Metal Railing – End Anchor Assembly (Type CA)~~
~~A77I2~~	~~Metal Beam Guard Railing – Buried Post End Anchor~~

METAL BEAM GUARD RAILING – CONNECTIONS DETAILS AND TRANSITION RAILING TO BRIDGE RAILINGS, ABUTMENTS AND WALLS

RSP A77J1	**Metal Beam Guard Railing – Connections to Bridge Railings without Sidewalks Details No. 1**
RSP A77J2	**Metal Beam Guard Railing – Connections to Bridge Railings without Sidewalks Details No. 2**
A77J3	**Metal Beam Guard Railing – Connections to Abutments and Walls**
RSP A77J4	**Metal Beam Guard Railing – Transition Railing (Type WB)**
~~A77K1~~	~~Metal Beam Guard Railing – Connections to Bridge Railings with Sidewalks Details No. 1~~
~~A77K2~~	~~Metal Beam Guard Railing – Connections to Bridge Railings with Sidewalks Details No. 2~~

METAL BEAM GUARD RAILING – TERMINAL SYSTEM END TREATMENT

A77L1	**Metal Beam Railing – Terminal System (Type SRT)**
~~A77L2~~	~~Metal Beam Railing – Terminal System (Type SKT)~~
~~A77L3~~	~~Metal Beam Railing – Terminal System (Type ET)~~
~~A77L4~~	~~Metal Beam Railing – Terminal System (Type CAT)~~
~~A77L5~~	~~Metal Beam Railing – Terminal System (Type FLEAT)~~

~~THRIE BEAM BARRIER – STANDARD BARRIER SECTIONS~~

~~A78A~~	~~Thrie Beam Barrier – Standard Barrier Railing Section (Wood Post with Wood Block)~~
~~RSP A78B~~	~~Thrie Beam Barrier – Standard Barrier Railing Section (Steel Post with Notched Wood Block or Notched Recycled Plastic Block)~~
~~RSP A78C1~~	~~Thrie Beam Barrier – Standard Hardware Details~~
~~A78C2~~	~~Thrie Beam Barrier – Post and Block Details~~
~~NSP A78C3~~	~~Single Thrie Beam Barrier – Typical Vegetation Control Standard Barrier Railing Section~~
~~NSP A78C4~~	~~Double Thrie Beam Barrier – Typical Vegetation Control Standard Barrier Railing Section~~
~~NSP A78C5~~	~~Thrie Beam Barrier – Typical Vegetation Control at Fixed Objects in Median~~
~~NSP A78C6~~	~~Thrie Beam Barrier – Typical Vegetation Control at Structure Approach~~

DRAFT

~~THRIE BEAM BARRIER AT FIXED OBJECTS AND ON BRIDGE~~

~~A78D1~~	~~Thrie Beam Barrier – at Fixed Objects in Median~~
~~A78D2~~	~~Double Thrie Beam Barrier – on Bridge~~

~~THRIE BEAM BARRIER – END ANCHORAGE END TREATMENT AND EMERGENCY PASSEAGEWAY~~

~~A78E1~~	~~Single Thrie Beam Barrier – End Anchor Assembly and Terminal System End Treatment~~
~~A78E2~~	~~Double Thrie Beam Barrier – Emergency Passageway and End Anchor Assembly Details~~
~~A78E3~~	~~Double Thrie Beam Barrier – Crash Cushion End Treatment~~

~~THRIE BEAM BARRIER – CONNECTIONS TO BRIDGE RAILINGS, ABUTMENTS, WALLS AND BARRIER~~

~~RSP A78F1~~	~~Double Thrie Beam Barrier – Connection to Bridge Railings without Sidewalks~~
~~RSP A78F2~~	~~Single Thrie Beam Barrier – Connections to Bridge Railings without Sidewalks~~
~~A78G~~	~~Single Thrie Beam Barrier – Connections to Abutments and Walls~~
~~RSP A78H~~	~~Thrie Beam Barrier – Typical Layout for Connection to Bridge Railing~~
~~RSP A78I~~	~~Double Thrie Beam Barrier – Connection to Concrete Barrier~~

~~THRIE BEAM BARRIER – TRANSITION RAILING~~

~~RSP A78J~~	~~Single Thrie Beam Barrier – Transition Railing (Type STB)~~
~~A78K~~	~~Double Thrie Beam Barrier – Transition Railing (Type DTB)~~

CRASH CUSHIONS

RSP A81A	**Crash Cushion, Sand Filled (Unidirectional)**
~~RSP A81B~~	~~Crash Cushion, Sand Filled (Unidirectional)~~
~~RSP A81C~~	~~Crash Cushion, Sand Filled (Bidirectional)~~
~~A82A1~~	~~Crash Cushion (Type CAT)~~
~~A82B1~~	~~Crash Cushion (Type ADIEM)~~
~~RSP A82C1~~	~~Crash Cushion (Type React 9CBB)~~
~~A82C2~~	~~Crash Cushion (Type React 9CBB) – Backup Block Details~~
~~A82C3~~	~~Crash Cushion (Type React 9CBB) – Concrete Barrier Transition Details~~
~~A82D1~~	~~Crash Cushion (Type React 9SCBS)~~
~~RSP A82D2~~	~~Crash Cushion (Type React 9SCBS) – Connection to Concrete Barrier~~
~~A82D3~~	~~Crash Cushion (Type React 9SCBS) – Alignment Offset Details~~
~~A82D4~~	~~Crash Cushion (Type React 62B060)~~

~~FENCES~~

~~A85~~	~~Chain Link Fence~~
~~A86~~	~~Barbed Wire and Wire Mesh Fences~~

CURBS, DRIVEWAYS, DIKES, CURB RAMPS AND ACCESSIBLE PARKING

~~RSP A87A~~	~~Curbs and Driveways~~

DRAFT

A87B	**Asphalt Concrete Dikes**
~~**RSP A88A**~~	~~**Curb Ramp Details**~~
~~**A88B**~~	~~**Curb Ramp and Island Passageway Details**~~
~~**RSP A90A**~~	~~**Accessible Parking – Off-Street**~~
~~**RSP A90B**~~	~~**Accessible Parking – On-Street**~~
	~~**PAVEMENTS**~~
~~**P1**~~	~~**Jointed Plain Concrete Pavement**~~
~~**P2**~~	~~**Jointed Plain Concrete Pavement – Widened Slab Details**~~
~~**RSP P3**~~	~~**Jointed Plain Concrete Pavement – Nondoweled – Shoulder Addition/Reconstruction**~~
~~**P7**~~	~~**Dowel Bar Retrofit (Existing Concrete Jointed Plain Pavement)**~~
~~**RSP P8**~~	~~**Jointed Plain Concrete Pavement – Individual Slab Replacement**~~
~~**P10**~~	~~**Concrete Pavement – Dowel Bar Details**~~
~~**RSP P12**~~	~~**Concrete Pavement – Dowel Bar Basket Details**~~
~~**RSP P17**~~	~~**Concrete Pavement – Tie Bar Basket Details**~~
~~**RSP P18**~~	~~**Concrete Pavement – Lane Schematics and Isolation Joint Detail**~~
~~**P20**~~	~~**Concrete Pavement – Joint Details**~~
~~**P30**~~	~~**Concrete Pavement – End Panel Pavement Transitions**~~
~~**P33**~~	~~**Concrete Pavement – Lane Drop Paving Details**~~
~~**P35**~~	~~**Concrete Pavement – Ramp Gore Area Paving Details**~~
~~**P45**~~	~~**Concrete Pavement – Drainage Inlet Details No. 1**~~
~~**P46**~~	~~**Concrete Pavement – Drainage Inlet Details No. 2**~~
P70	**Asphalt Concrete Paving (Longitudinal Tapered Notched Wedge Joint)**
	CRIB WALLS
~~**C7A**~~	~~**Reinforced Concrete Crib Wall – Battered Wall – Types A, B and C**~~
~~**C7B**~~	~~**Reinforced Concrete Crib Wall – Battered Wall – Types D, E and F**~~
~~**C7C**~~	~~**Reinforced Concrete Crib Wall – Vertical Wall – Types A, B and C**~~
~~**C7D**~~	~~**Reinforced Concrete Crib Wall – Vertical Wall – Types D, E and F**~~
~~**C7E**~~	~~**Reinforced Concrete Crib Wall – Types A, B, C, D, E and F – Header and Stretcher Details**~~
~~**C7F**~~	~~**Design Data for Reinforced Concrete Crib Wall – Foundation Pressure – Battered Wall**~~
~~**C7G**~~	~~**Reinforced Concrete Crib Wall – Foundation Pressure – Vertical Wall**~~
~~**C8A**~~	~~**Steel Crib Wall Construction Details**~~
~~**C8B**~~	~~**Steel Crib Wall – Design Data**~~
~~**C8C**~~	~~**Steel Crib Wall – Design Data**~~
~~**C9A**~~	~~**Timber Crib Wall – Types A, B, C and D**~~
~~**C9B**~~	~~**Timber Crib Wall – Types A, B, C and D – Design Data**~~
	DRAINAGE INLETS, PIPE INLETS AND GRATES
NSP D71	**Drainage Inlet Markers**

DRAFT

D72	**Drainage Inlets**
D73	**Drainage Inlets**
D74A	**Drainage Inlets**
RSP D74B	**Drainage Inlets**
D74C	**Drainage Inlets Details**
D75A	**Steel Pipe Inlets**
RSP D75B	**Concrete Pipe Inlets**
D75C	**Pipe Inlets – Ladder and Trash Rack Details**
RSP D77A	**Grate Details**
~~**D77B**~~	~~**Bicycle Proof Grate Details**~~
~~**D77C**~~	~~**Alternative Hinged Cover for Type OL and OS Inlets and Trash Rack for Type OCP Inlet**~~

GUTTER AND INLET DEPRESSIONS

D78A	**Gutter Depressions**
D78B	**Inlet Depressions – Concrete Shoulders**
D78C	**Inlet Depressions – Asphalt Concrete Shoulders**

~~**CONCRETE PIPE – DIRECT DESIGN METHOD**~~

~~**D79**~~	~~**Precast Reinforced Concrete Pipe – Direct Design Method**~~

~~**BOX CULVERTS**~~

~~**D80**~~	~~**Cast-In-Place Reinforced Concrete – Single Box Culvert**~~
~~**D81**~~	~~**Cast-In-Place Reinforced Concrete – Double Box Culvert**~~
~~**D82**~~	~~**Cast-In-Place Reinforced Concrete Box Culvert – Miscellaneous Details**~~
~~**D84**~~	~~**Box Culvert Wingwalls – Types A, B and C**~~
~~**D85**~~	~~**Box Culvert Wingwalls – Types D and E**~~
~~**D86A**~~	~~**Box Culvert Warped Wingwalls**~~

~~**PIPE AND ARCH CULVERT – ENDWALLS AND WARPED WINGWALLS**~~

~~**D86B**~~	~~**Pipe Culvert Headwalls, Endwalls and Warped Wingwalls**~~
~~**D86C**~~	~~**Arch Culvert Headwalls, Endwalls and Warped Wingwalls**~~

~~**PIPE DOWNDRAINS, ANCHORAGE SYSTEMS AND OVERSIDE DRAINS**~~

~~**D87A**~~	~~**Corrugated Metal Pipe Downdrain Details**~~
~~**D87B**~~	~~**Plastic Pipe Downdrain Details**~~
~~**D87C**~~	~~**Cable Anchorage System**~~
~~**D87D**~~	~~**Overside Drains**~~

~~**CONSTRUCTION LOADS ON CULVERTS AND STRUT DETAILS**~~

~~**D88**~~	~~**Construction Loads on Culverts**~~
~~**D88A**~~	~~**Strut Details for Structural Steel Pipes, Arches and Vehicular Undercrossing**~~

DRAFT

~~PIPE HEADWALLS, ENDWALLS AND WINGWALLS~~

~~D89~~	~~Pipe Culver Headwalls – Straight and "L"~~
~~D90~~	~~Pipe Culvert Headwalls, Endwalls and Wingwalls – Types A, B and C~~

~~PIPE RISER AND DRAINAGE INLET RISER CONNECTIONS~~

~~D93A~~	~~Pipe Riser Connections~~
~~D93B~~	~~Drainage Inlet Riser Connections~~
~~D93C~~	~~Pipe Riser with Debris Rack Cage~~

~~FLARED END SECTIONS~~

~~D94A~~	~~Metal and Plastic Flared End Sections~~
~~D94B~~	~~Concrete Flared End Sections~~

~~PIPE COUPLING AND JOINT DETAILS~~

~~D97A~~	~~Corrugated Metal Pipe Coupling Details No. 1 – Annular Coupling Band Bar and Strap and Angle Connections~~
~~D97B (Canceled)~~	~~CANCELED ON JUNE 6, 2008~~
~~D97C~~	~~Corrugated Metal Pipe Coupling Details No. 3 – Helical and Universal Couplers~~
~~RSP D97D~~	~~Corrugated Metal Pipe Coupling Details No. 4 – Hugger Coupling Bands~~
~~RSP D97E~~	~~Corrugated Metal Pipe Coupling Details No. 5 – Standard Joint~~
~~RSP D97F~~	~~Corrugated Metal Pipe Coupling Details No. 6 – Positive Joint~~
~~RSP D97G~~	~~Corrugated Metal Pipe Coupling Details No. 7 – Downdrain~~
D97H	**Reinforced Concrete Pipe or Non-Reinforced Concrete Pipe – Standard and Positive Joints**
~~NSP D97I~~	~~Corrugated Polyvinyl Chloride Pipe with Smooth Interior – Standard and Positive Joints~~
~~NSP D97J~~	~~Composite Steel Spiral Rib Pipe with Smooth Interior – Standard Joint~~

~~SLOTTED AND GRATED LINE DRAINS~~

~~D98A~~	~~Slotted Corrugated Steel Pipe Drain Details~~
~~D98B~~	~~Slotted Corrugated Steel Pipe Drain Details~~
~~D98C~~	~~Grated Line Drain Details~~
~~NSP D98D~~	~~Slotted Plastic Pipe Drain Details~~
~~NSP D98E~~	~~Heel Resistant Grate for Slotted Plastic Pipe Drain~~

~~STRUCTURAL SECTION DRAINS~~

~~D99A~~	~~Structural Section Drainage System Details~~
~~D99B~~	~~Edge Drain Outlet and Vent Details~~
~~D99C~~	~~Edge Drain Cleanout and Vent Details~~
~~D99D~~	~~Cross Drain Interceptor Details~~

~~GABIONS AND UNDERDRAINS~~

~~D100A~~	~~Gabion Basket Details No. 1~~
~~D100B~~	~~Gabion Basket Details No. 2~~
~~D102~~	~~Underdrains~~

DRAFT

PLANTING AND IRRIGATION

H1	**Planting and Irrigation – Abbreviations**
RSP H2	**Planting and Irrigation – Symbols**
H3	**Planting and Irrigation Details**
H4	**Planting and Irrigation Details**
H5	**Planting and Irrigation Details**
H6	**Planting and Irrigation Details**
H7	**Planting and Irrigation Details**
H8	**Planting and Irrigation Details**
H9	**Planting and Irrigation Details**
H10	**Irrigation Controller Enclosure Cabinet**

EROSION CONTROL

RNSP H51	**Erosion Control Details (Fiber Roll)**
NSP H52	**Erosion Control Details (Compost Sock)**

TEMPORARY CRASH CUSHIONS, RAILING AND TRAFFIC SCREEN

RSP T1A	**Temporary Crash Cushion, Sand Filled (Unidirectional)**
~~**RSP T1B**~~	~~**Temporary Crash Cushion, Sand Filled (Bidirectional)**~~
RSP T2	**Temporary Crash Cushion, Sand Filled (Shoulder Installations)**
T3	**Temporary Railing (Type K)**
~~**T4**~~	~~**Temporary Traffic Screen**~~
T5	**Temporary Terminal Section (Type K)**

PROJECT FUNDING SIGNS

RSP T7	**Construction Project Funding Identification Signs**

TEMPORARY TRAFFIC CONTROL SYSTEMS

T10	**Traffic Control System for Lane Closure On Freeways and Expressways**
T10A	**Traffic Control System for Lane and Complete Closures on Freeways and Expressways**
T11	**Traffic Control System for Lane Closure on Multilane Conventional Highways**
T12	**Traffic Control System for Lane Closure on Multilane Conventional Highways**
~~**T13**~~	~~**Traffic Control System for Lane Closure on Two Lane Conventional Highways**~~
T14	**Traffic Control System for Ramp Closure**
T15	**Traffic Control System for Moving Lane Closure on Multilane Highways**
T16	**Traffic Control System for Moving Lane Closure on Multilane Highways**
~~**T17**~~	~~**Traffic Control System for Moving Lane Closure on Two Lane Highways**~~

TEMPORARY WATER POLLUTION CONTROL

T51	**Temporary Water Pollution Control Details (Temporary Silt Fence)**
T52	**Temporary Water Pollution Control Details (Temporary Straw Bale**

DRAFT

	Barrier)
T53	**Temporary Water Pollution Control Details (Temporary Cover)**
T54	**Temporary Water Pollution Control Details (Temporary Erosion Control Blanket)**
T55	**Temporary Water Pollution Control Details (Temporary Erosion Control Blanket)**
RSP T56	**Temporary Water Pollution Control Details (Temporary Fiber Roll)**
~~**T57**~~	~~**Temporary Water Pollution Control Details (Temporary Check Dam)**~~
T58	**Temporary Water Pollution Control Details (Temporary Construction Entrance)**
T59	**Temporary Water Pollution Control Details (Temporary Concrete Washout Facility)**
NSP T60	**Temporary Water Pollution Control Details (Temporary Reinforced Silt Fence)**
NSP T61	**Temporary Water Pollution Control Details (Temporary Drainage Inlet Protection)**
NSP T62	**Temporary Water Pollution Control Details (Temporary Drainage Inlet Protection)**
NSP T63	**Temporary Water Pollution Control Details (Temporary Drainage Inlet Protection)**
NSP T64	**Temporary Water Pollution Control Details (Temporary Drainage Inlet Protection)**
NSP T65	**Temporary Water Pollution Control Details [Temporary Fence (Type ESA)]**

~~**BRIDGE DETAILS**~~

~~**B0-1**~~	~~**Bridge Details**~~
~~**B0-3**~~	~~**Bridge Details**~~
~~**B0-5**~~	~~**Bridge Details**~~
~~**B0-13**~~	~~**Bridge Details**~~

PILES

~~**B2-3**~~	~~**16" and 24" Cast-In-Drilled-Hole Concrete Pile**~~
~~**B2-5**~~	~~**Pile Details – Class 90 and Class 140**~~
~~**RSP B2-8**~~	~~**Pile Details – Class 200**~~
~~**B2-9**~~	~~**Load Test Pile Details (1)**~~
~~**B2-10**~~	~~**Load Test Pile Details (2)**~~
~~**B2-11**~~	~~**Load Test Pile Details (3)**~~

~~**RETAINING WALLS**~~

~~**B3-1**~~	~~**Retaining Wall Type 1 – H = 4' through 30'**~~
~~**B3-2**~~	~~**Retaining Wall Type 1 – H = 32' through 36'**~~
~~**B3-3**~~	~~**Retaining Wall Type 1A**~~
~~**B3-4**~~	~~**Retaining Wall Type 2**~~

DRAFT

~~B3-5~~	~~Counterfort Retaining Wall Type 3~~
~~B3-6~~	~~Counterfort Retaining Wall Type 4~~
~~B3-7~~	~~Retaining Wall Type 5~~
~~B3-8~~	~~Retaining Wall Details No. 1~~
~~B3-9~~	~~Retaining Wall Details No. 2~~
~~B3-11~~	~~Retaining Wall Type 6 – 6'-0" Maximum~~
	~~T-BEAM DETAILS~~
~~B6-1~~	~~T-Beam Details~~
~~B6-10~~	~~Utility Openings, T-Beam~~
	~~JOINT SEALS~~
~~RSP B6-21~~	~~Joint Seals (Maximum Movement Rating = 2")~~
	~~BOX GIRDER DETAILS~~
~~B7-1~~	~~Box Girder Details~~
	~~DECK DRAINS~~
~~B7-5~~	~~Deck Drains~~
~~B7-6~~	~~Deck Drains – Types D-1 and D-2~~
~~B7-7~~	~~Deck Drains – Type D-3~~
~~B7-8~~	~~Deck Drainage Details~~
	~~UTILITY OPENING~~
~~B7-10~~	~~Utility Opening – Box Girder~~
~~B7-11~~	~~Utility Details~~
	~~CAST-IN-PLACE PRESTRESSED GIRDER~~
~~B8-5~~	~~Cast-In-Place Prestressed Girder Details~~
	~~CHAIN LINK RAILING, CABLE RAILING AND TUBULAR HAND RAILING~~
~~B11-7~~	~~Chain Link Railing~~
~~B11-47~~	~~Cable Railing~~
~~B11-51~~	~~Tubular Hand Railing~~
~~B11-52~~	~~Chain Link Railing Type 7~~
	~~BRIDGE CONCRETE BARRIERS~~
~~B11-53~~	~~Concrete Barrier Type 25~~
~~B11-54~~	~~Concrete Barrier Type 26~~
~~B11-55~~	~~Concrete Barrier Type 732~~
~~B11-56~~	~~Concrete Barrier Type 736~~
~~B11-57~~	~~Concrete Barrier Type 742~~
~~RSP B11-60~~	~~Concrete Barrier Type 80 (Sheet 1 of 2)~~
~~B11-61~~	~~Concrete Barrier Type 80 (Sheet 2 of 2)~~
~~RSP B11-62~~	~~Concrete Barrier Type 80SW (Sheet 1 of 3)~~
~~B11-63~~	~~Concrete Barrier Type 80SW (Sheet 2 of 3)~~
~~RSP B11-64~~	~~Concrete Barrier Type 80SW (Sheet 3 of 3)~~

DRAFT

~~BRIDGE METAL RAIL BARRIERS~~

~~B11-65~~	~~California ST-30 Bridge Rail~~
~~RSP B11-66~~	~~California ST-40 Bridge Rail (Sheet 1 of 2)~~
~~RSP B11-67~~	~~California ST-40 Bridge Rail (Sheet 2 of 2)~~
~~RSP B11-68~~	~~California ST-10 Bridge Rail (Sheet 1 of 3)~~
~~B11-69~~	~~California ST-10 Bridge Rail (Sheet 2 of 3)~~
~~B11-70~~	~~California ST-10 Bridge Rail (Sheet 3 of 3)~~

~~STRUCTURAL STEEL PLATE VEHICULAR UNDERCROSSING~~

~~B14-1~~	~~Structural Steel Plate Vehicular Undercrossing~~

~~COMMUNICATION AND SPRINKLER CONTROL CONDUITS (BRIDGE)~~

~~B14-3~~	~~Communication and Sprinkler Control Conduits (Conduit Less Than 4")~~

~~WATER SUPPLY LINE (BRIDGE)~~

~~B14-4~~	~~Water Supply Line (Bridge) (Pipe Sizes Less Than 4")~~
~~B14-5~~	~~Water Supply Line (Details) (Pipe Sizes Less Than 4")~~

~~SOUND WALLS~~

~~RSP B15-1~~	~~Sound Wall Masonry Block on Footing Detail (1)~~
~~B15-2~~	~~Sound Wall Masonry Block on Footing Detail (2)~~
~~B15-3~~	~~Sound Wall Masonry Block on Pile Cap Detail (1)~~
~~RSP B15-4~~	~~Sound Wall Masonry Block on Pile Cap Detail (2)~~
~~RSP B15-5~~	~~Sound Wall Masonry Block on Pile Cap Detail (3)~~
~~RSP B15-6~~	~~Sound Wall Masonry Block on Type 736S/SV Barrier Details (1)~~
~~RSP B15-7~~	~~Sound Wall Masonry Block on Type 736S/SV Barrier Details (2)~~
~~RSP B15-8~~	~~Sound Wall Masonry Block on Type 736S/SV Barrier Details (3)~~
~~B15-9~~	~~Sound Wall Masonry Block Miscellaneous Details~~
~~B15-10~~	~~Sound Wall Masonry Block on Footing or Pile Cap 5'-0" Access Gate Detail (1)~~
~~B15-11~~	~~Sound Wall Masonry Block on Footing or Pile Cap 5'-0" Access Gate Details (2)~~
~~B15-12~~	~~Sound Wall Masonry Block on Barrier 5'-0" Access Gate Details (1)~~
~~B15-13~~	~~Sound Wall Masonry Block on Barrier 5'-0" Access Gate Details (2)~~
~~B15-14~~	~~Sound Wall Masonry Block Access Gate Locking Details~~
~~RSP B15-15~~	~~Sound Wall Masonry Block on Type 736S/SV Barrier on Pile Footing for Spanning Utilities~~

ROADSIDE SIGNS

RS1	**Roadside Signs, Typical Installation Details No. 1**
RS2	**Roadside Signs – Wood Post, Typical Installation Details No. 2**
~~RS3~~	~~Roadside Signs – Laminated Wood Box Post Typical Installation Details No. 3~~
RS4	**Roadside Signs, Typical Installation Details No. 4**

DRAFT

~~OVERHEAD SIGNS (TRUSS)~~

~~S1~~	~~Overhead Signs – Truss, Instructions and Examples~~
~~S2~~	~~Overhead Signs – Truss, Single Post Type – Post Type II thru IX~~
~~S3~~	~~Overhead Signs – Truss, Single Post Type – Base Plate and Anchorage Details~~
~~S4~~	~~Overhead Signs – Truss, Single Post Type – Structural Frame Members Details No. 1~~
~~S5~~	~~Overhead Signs – Truss, Single Post Type – Structural Frame Members Details No. 2~~
~~S6~~	~~Overhead Signs – Truss, Gusset Plate Details~~
~~S7~~	~~Overhead Signs – Truss, Single Post Type – Square Pedestal Pile Foundation~~
~~S8~~	~~Overhead Signs – Truss, Single Post Type – Round Pedestal Pile Foundation~~
~~S9~~	~~Overhead Signs – Truss, Two Post Type – Post Types I-S thru VII-S~~
~~S10~~	~~Overhead Signs – Truss, Two Post Type – Base Plate and Anchorage Details~~
~~S11~~	~~Overhead Signs – Truss, Two Post Type – Structural Frame Members~~
~~S12~~	~~Overhead Signs – Truss, Structural Frame Details~~
~~S13~~	~~Overhead Signs – Truss, Frame Juncture Details~~
~~S14~~	~~Overhead Signs – Truss, Two Post Type – Square Pedestal Foundation~~
~~S15~~	~~Overhead Signs – Truss, Two Post Type – Round Pedestal Foundation~~
~~S16~~	~~Overhead Signs – Walkway Details No. 1~~
~~S17~~	~~Overhead Signs – Walkway Details No. 2~~
~~S17A~~	~~Overhead Signs – Walkway Details No. 3~~
~~S18~~	~~Overhead Signs – Walkway Safety Railing Details~~
~~S19~~	~~Overhead Signs – Truss, Sign Mounting Details – Laminated Panel – Type A~~
~~S20~~	~~Overhead Signs – Steel Frames – Removable Sign Panel Frames~~
~~S21~~	~~Overhead Signs – Removable Sign Panel Frames Mounting Details~~
~~S22~~	~~Overhead Signs – Truss, Removable Sign Panel Frames – 110" and 120" Sign Panels~~

~~OVERHEAD SIGNS (TUBULAR)~~

~~S30~~	~~Overhead Signs – Tubular, Instructions and Examples~~
~~S31~~	~~Overhead Signs – Tubular, Single Post Type – Layout and Pipe Selection~~
~~S32~~	~~Overhead Signs – Tubular, Two Post Type – Layout and Pipe Selection~~
~~S33~~	~~Overhead Signs – Tubular, Structural Frame – Details No. 1~~
~~S34~~	~~Overhead Signs – Tubular, Structural Frame – Details No. 2~~
~~S35~~	~~Overhead Signs – Tubular, Single and Two Post Type – Base Plate and Anchorage Details~~
~~S36~~	~~Overhead Signs – Tubular, Single Post and Two Post Type – Square~~

DRAFT

	~~Pedestal Pile Foundation~~
~~S37~~	~~Overhead Signs – Tubular, Single Post and Two Post Type – Round Pedestal Pile Foundation~~
	~~OVERHEAD SIGNS (LIGHTWEIGHT)~~
~~S41~~	~~Overhead Signs – Lightweight Balanced – Single Steel Post Connection and Mounting Details~~
~~S42~~	~~Overhead Signs – Lightweight Balanced – Single Steel Post Details~~
~~S43~~	~~Overhead Signs – Lightweight, Type A, Connection Details~~
~~S44~~	~~Overhead Signs – Lightweight, Type B, Connection Details~~
~~S45~~	~~Overhead Signs – Lightweight, Type C, Connection Details~~
~~S46~~	~~Overhead Signs – Lightweight, Sign Panel Mounting Details, Laminated Panel – Type A~~
~~S47~~	~~Overhead Signs – Lightweight, Light Fixture Mounting Details~~
~~S48~~	~~Overhead Signs – Lightweight Post Details~~
~~S49~~	~~Overhead Signs – Lightweight Foundation Details~~
	~~OVERHEAD AND~~ ROADSIDE SIGNS PANELS
~~S81~~	~~Overhead Laminated Sign – Single or Multiple Panel, Type A (1" Thick)~~
S82	**Roadside Laminated Sign – Single or Multiple Panel, Type B (1" Thick)**
S83	**Roadside Laminated Sign – Single or Multiple Panel, Type B (2-1/2" Thick)**
S84	**Roadside Laminated Sign – Single or Multiple Panel, Type H (2-1/2" Thick)**
~~S85~~	~~Seam Closure, "H" Section Extrusion and Post Spacing Tables, Multi-Horizontal Laminated Panel Aluminum Signs~~
~~S86~~	~~Laminated Panel Details – Extrusions for Type A, B and H Panels~~
~~S87~~	~~Type A-1 Mounting Hardware – Overhead Laminated Type A Panel, Truss and Lightweight Sign Structures~~
~~S88~~	~~Type A-2 Mounting Hardware – Overhead Laminated Type A Panel, Bridge Mounted and Tubular Sign Structures~~
~~S89~~	~~Roadside Sign – Formed Single Sheet Aluminum Panel~~
~~S90~~	~~Channel and Bolt Hole Location, Overhead Formed Sign Panel~~
~~S91~~	~~Overhead Sign – Formed Sign Panel, Type A-3 Mounting Hardware~~
~~S92~~	~~Overhead Formed Sign Panel~~
~~S93~~	~~Framing Details for Framed Single Sheet Aluminum Signs, Rectangular Shape~~
~~S94~~	~~Roadside Framed Single Sheet Aluminum Signs, Rectangular Shape~~
~~S95~~	~~Roadside Single Sheet Aluminum Signs, Diamond Shape~~
	~~OVERHEAD SIGN – CHANGEABLE MESSAGE SIGN (MODEL 500)~~
~~S101~~	~~Overhead Sign – Truss, Single Post Type, Layout, Unbalanced Butterfly Changeable Message Signs, Model 500~~
~~S102~~	~~Overhead Sign – Truss, Single Post Type, Structural Frame Details, Unbalanced Butterfly Changeable Message Signs, Model 500~~

DRAFT

~~S103~~ ~~Overhead Sign – Truss, Single Post Type, Plan and Upper Bolt Details, Unbalanced Butterfly Changeable Message Signs, Model 500~~

~~S104~~ ~~Overhead Sign – Truss, Single Post Type, Frame Juncture Details, Unbalanced Butterfly Changeable Message Signs, Model 500~~

~~S105~~ ~~Overhead Sign – Truss, Single Post Type, Layout, Balanced Butterfly Changeable Message Signs, Model 500~~

~~S106~~ ~~Overhead Sign – Truss, Single Post Type, Structural Frame Details, Balanced Butterfly Changeable Message Signs, Model 500~~

~~S107~~ ~~Overhead Sign – Truss, Single Post Type, Plan and Upper Bolt Details, Balanced Butterfly Changeable Message Signs, Model 500~~

~~S108~~ ~~Overhead Sign – Truss, Single Post Type, Frame Juncture Details, Balanced Butterfly Changeable Message Signs, Model 500~~

~~S109~~ ~~Overhead Sign – Truss, Single Post Type, Layout, Full Cantilever Changeable Message Signs, Model 500~~

~~S110~~ ~~Overhead Sign – Truss, Single Post Type, Structural Frame Details, Full Cantilever Changeable Message Signs, Model 500~~

~~S111~~ ~~Overhead Sign – Truss, Single Post Type, Plan and Upper Bolt Details, Full Cantilever Changeable Message Signs, Model 500~~

~~S112~~ ~~Overhead Sign – Truss, Single Post Type, Frame Juncture Details, Full Cantilever Changeable Message Signs, Model 500~~

~~S113~~ ~~Overhead Sign – Truss, Single Post Type, Mounting Details, Changeable Message Signs, Model 500~~

~~S114~~ ~~Overhead Sign – Truss, Single Post Type, Walkway Details, Changeable Message Signs, Model 500~~

~~S115~~ ~~Overhead Sign – Truss, Single Post Type, Anchorage and Base Plate Details, Changeable Message Signs, Model 500~~

~~S116~~ ~~Overhead Sign – Truss, Single Post Type, Foundation And Miscellaneous Details, Changeable Message Signs, Model 500~~

~~OVERHEAD SIGN – CHANGEABLE MESSAGE SIGN (MODEL 510)~~

~~S120~~ ~~Overhead Sign – Truss, Single Post Type, Layout, Unbalanced Butterfly Changeable Message Signs, Model 510~~

~~S121~~ ~~Overhead Sign – Truss, Single Post Type, Structural Frame Details, Unbalanced Butterfly Changeable Message Signs, Model 510~~

~~S122~~ ~~Overhead Sign – Truss, Single Post Type, Plan and Upper Bolt Details, Unbalanced Butterfly Changeable Message Signs, Model 510~~

~~S123~~ ~~Overhead Sign – Truss, Single Post Type, Frame Juncture Details, Unbalanced Butterfly Changeable Message Signs, Model 510~~

~~S124~~ ~~Overhead Sign – Truss, Single Post Type, Layout, Balanced Butterfly Changeable Message Signs, Model 510~~

~~S125~~ ~~Overhead Sign – Truss, Single Post Type, Structural Frame Details, Balanced Butterfly Changeable Message Signs, Model 510~~

~~S126~~ ~~Overhead Sign – Truss, Single Post Type, Plan and Upper Bolt Details, Balanced Butterfly Changeable Message Signs, Model 510~~

DRAFT

~~S127~~	~~Overhead Sign – Truss, Single Post Type, Frame Juncture Details, Balanced Butterfly Changeable Message Signs, Model 510~~
~~S128~~	~~Overhead Sign – Truss, Single Post Type, Layout, Full Cantilever Changeable Message Signs, Model 510~~
~~S129~~	~~Overhead Sign – Truss, Single Post Type, Structural Frame Details, Full Cantilever Changeable Message Signs, Model 510~~
~~S130~~	~~Overhead Sign – Truss, Single Post Type, Plan and Upper Bolt Details, Full Cantilever Changeable Message Signs, Model 510~~
~~S131~~	~~Overhead Sign – Truss, Single Post Type, Frame Juncture Details, Full Cantilever Changeable Message Signs, Model 510~~
~~S132~~	~~Overhead Sign – Truss, Single Post Type, Mounting Details, Changeable Message Signs, Model 510~~
~~S133~~	~~Overhead Sign – Truss, Single Post Type, Walkway Details, Changeable Message Signs, Model 510~~
~~S134~~	~~Overhead Sign – Truss, Single Post Type, Anchorage and Base Plate Details, Changeable Message Signs, Model 510~~
~~S135~~	~~Overhead Sign – Truss, Single Post Type, Foundation and Miscellaneous Details, Changeable Message Signs, Model 510~~
	~~OVERHEAD SIGN – CHANGEABLE MESSAGE SIGN (MODEL 500 AND 510) WALKWAY SAFETY RAILING AND GUSSET PLATE DETAILS~~
~~S140~~	~~Overhead Sign – Truss, Single Post Type, Walkway Safety Railing Details, Changeable Message Signs, Model 500 and 510~~
~~S141~~	~~Overhead Sign – Truss, Single Post Type, Safety Cable Anchorage Details, Changeable Message Signs, Model 500 and 510~~
~~S142~~	~~Overhead Sign – Truss, Single Post Type, Gusset Plate Details, Changeable Message Signs, Model 500 and 510~~
	ELECTRICAL SYSTEMS – SYMBOLS AND ABBREVIATIONS
RSP ES-1A	**Electrical Systems (Symbols and Abbreviations)**
RSP ES-1B	**Electrical Systems (Symbols and Abbreviations)**
RSP ES-1C	**Electrical Systems (Symbols and Abbreviations)**
	ELECTRICAL SYSTEMS – SERVICE EQUIPMENT AND WIRING DIAGRAMS
ES-2A	**Electrical Systems (Service Equipment)**
~~**RSP ES-2B**~~	~~**Electrical Systems (Service Equipment, Type II Series)**~~
RSP ES-2C	**Electrical Systems (Service Equipment Notes, Type III Series)**
RSP ES-2D	**Electrical Systems (Service Equipment and Typical Wiring Diagram, Type III – A Series)**
~~**RSP ES-2E**~~	~~**Electrical Systems (Service Equipment and Typical Wiring Diagram, Type III – B Series)**~~
~~**RSP ES-2F**~~	~~**Electrical Systems (Service Equipment and Typical Wiring Diagram Type III – C Series)**~~
~~**RSP ES-2G**~~	~~**Electrical Systems (Service Equipment and Typical Wiring Diagram**~~

DRAFT

	~~Type III – D Series)~~
	ELECTRICAL SYSTEMS – CONTROLLER CABINETS
~~ES-3A~~	~~Electrical Systems (Controller Cabinet Details)~~
ES-3B	Electrical Systems (Controller Cabinet Details)
~~ES-3C~~	~~Electrical Systems (Controller Cabinet Details)~~
	~~ELECTRICAL SYSTEMS – TELEPHONE DEMARCATION CABINETS~~
~~ES-3D~~	~~Electrical Systems (Telephone Demarcation Cabinet, Type A)~~
~~RSP ES-3E~~	~~Electrical Systems (Telephone Demarcation Cabinet, Type B)~~
~~RSP ES-3F~~	~~Electrical Systems (Telephone Demarcation Cabinet, Type C)~~
~~ES-3G~~	~~Electrical Systems (Telephone Demarcation Cabinet, Type C Details)~~
	ELECTRICAL SYSTEMS – IRRIGATION CONTROLLER ENCLOSURE CABINET
ES-3H	Electrical Systems (Electric Service Irrigation)
	ELECTRICAL SYSTEMS – SIGNAL HEADS, SIGNAL FACES AND MOUNTINGS
ES-4A	Electrical Systems (Signal Heads and Mountings)
ES-4B	Electrical Systems (Signal Heads and Mountings)
RSP ES-4C	Electrical Systems (Signal Heads and Mountings)
RSP ES-4D	Electrical Systems (Signal Heads and Mountings)
ES-4E	Electrical Systems (Signal Faces and Mountings)
	ELECTRICAL SYSTEMS – DETECTORS
RSP ES-5A	Electrical Systems (Detectors)
ES-5B	Electrical Systems (Detectors)
~~ES-5C~~	~~Electrical Systems (Detectors)~~
~~ES-5D~~	~~Electrical Systems (Detectors)~~
	ELECTRICAL SYSTEMS – LIGHTING STANDARDS
~~RSP ES-6A~~	~~Electrical Systems (Lighting Standard, Types 15 and 21)~~
~~ES-6B~~	~~Electrical Systems (Lighting Standard, Types 15 and 21, Barrier Rail Mounted Details)~~
~~ES-6D~~	~~Electrical Systems (Lighting Standard, Types 15D and 21D, Double Arm)~~
~~RSP ES-6E~~	~~Electrical Systems (Lighting Standard, Types 30 and 31)~~
~~ES-6F~~	~~Electrical Systems (Lighting Standard, Types 30 and 31, Slip Base Plate Details)~~
~~ES-6G~~	~~Electrical Systems (Lighting Standard, Type 32)~~
~~ES-6H~~	~~Electrical Systems (Lighting Standard, Types 35 and 36-20A, 10 Degree Type)~~
~~ES-6I~~	~~Electrical Systems (Lighting Standard, Types 35 and 36-20A, 10 Degree Type Details)~~
~~ES-6J~~	~~Electrical Systems (Lighting Standard – 80' to 160', High Mast Light Pole Foundation Details)~~

DRAFT

~~ES-6K~~	~~Electrical Systems (Lighting Standard, Types 5 and 10 Overhead Sign Mounted)~~
	~~ELECTRICAL SYSTEMS – SIGNAL AND LIGHTING STANDARD, PUSH BUTTON POSTS AND TYPE 15TS STANDARD~~
~~ES-7A~~	~~Electrical Systems (Signal and Lighting Standards, Push Button Posts and Type 15TS Standard)~~
	ELECTRICAL SYSTEMS – SIGNAL AND LIGHTING STANDARDS
RSP ES-7B	**Electrical Systems (Signal and Lighting Standard – Type 1 Standards and Equipment Numbering)**
~~RSP ES-7C~~	~~Electrical Systems (Signal and Lighting Standard – Case 1 Arm Loading, Wind Velocity = 100 mph, Arm Lengths 15' to 30')~~
RSP ES-7D	**Electrical Systems (Signal and Lighting Standard – Case 2 Arm Loading, Wind Velocity = 100 mph, Arm Lengths 15' to 30')**
RSP ES-7E	**Electrical Systems (Signal and Lighting Standard – Case 3 Arm Loading, Wind Velocity = 100 mph, Arm Lengths 15' to 45')**
~~RSP ES-7F~~	~~Electrical Systems (Signal and Lighting Standard – Case 4 Arm Loading, Wind Velocity = 100 mph, Arm Lengths 25' to 45')~~
~~RSP ES-7G~~	~~Electrical Systems (Signal And Lighting Standard – Case 5 Arm Loading, Wind Velocity = 100 mph, Arm Lengths 50' to 55')~~
~~ES-7H~~	~~Electrical Systems (Signal and Lighting Standard – Case 5 Arm Loading, Wind Velocity = 100 mph, Arm Lengths 60' to 65')~~
~~ES-7I~~	~~Electrical Systems (Signal and Sign Standard – Type 33, Left Turn)~~
	~~ELECTRICAL SYSTEMS – FLASHING BEACONS~~
~~ES-7J~~	~~Electrical Systems (Signal and Lighting Standard – Advance Flashing Beacons)~~
~~RSP ES-7K~~	~~Electrical Systems (Signal and Lighting Standard – Cantilever Flashing Beacon, Types 9, 9A and 9B)~~
~~RSP ES-7L~~	~~Electrical Systems (Signal and Lighting Standard – Cantilever Flashing Beacon, Types 9, 9A and 9B)~~
	ELECTRICAL SYSTEMS – SIGNAL AND LIGHTING STANDARD DETAILS
ES-7M	**Electrical Systems (Signal and Lighting Standards – Details No. 1)**
ES-7N	**Electrical Systems (Signal and Lighting Standards – Details No. 2)**
	~~ELECTRICAL SYSTEMS – INTERNALLY ILLUMINATION STREET NAME SIGN~~
~~ES-70~~	~~Electrical Systems (Sign Illumination – Internally Illumination Street Name Sign)~~
	~~ELECTRICAL SYSTEMS – PEDESTRIAN BARRICADES~~
~~ES-7P~~	~~Electrical Systems (Pedestrian Barricades)~~
	ELECTRICAL SYSTEMS – PULL BOX DETAILS
ES-8	**Electrical Systems (Pull Box Details)**

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	ELECTRICAL SYSTEMS – ELECTRICAL DETAILS, STRUCTURE INSTALLATIONS
RSP ES-9A	**Electrical Systems (Electrical Details, Structure Installations)**
~~**ES-9B**~~	~~**Electrical Systems (Electrical Details, Structure Installations)**~~
RSP ES-9C	**Electrical Systems (Electrical Details, Structure Installations)**
ES-9D	**Electrical Systems (Electrical Details, Structure Installations)**
~~**ES-9E**~~	~~**Electrical Systems (Electrical Details, Structure Installations)**~~
~~**ES-9F**~~	~~**Electrical Systems (Flush Soffit Luminaire Modification Details, Structure Installations)**~~
	ELECTRICAL SYSTEMS – ISOFOOTCANDLE DIAGRAMS AND FOUNDATION DETAILS
~~**ES-10**~~	~~**Electrical Systems (Isofootcandle Diagrams)**~~
ES-11	**Electrical Systems (Foundation Installations)**
	ELECTRICAL SYSTEMS – PEDESTRIAN OVERHEAD LIGHTING
~~**ES-12A**~~	~~**Electrical Systems (Pedestrian Overcrossing Fluorescent Lighting Fixture)**~~
~~**ES-12B**~~	~~**Electrical Systems (Pedestrian Undercrossing Fluorescent Lighting Fixture)**~~
	ELECTRICAL SYSTEMS – SPLICING, WIRING DETAILS AND FUSE RATINGS
ES-13A	**Electrical Systems (Splicing Details)**
ES-13B	**Electrical Systems (Wiring Details and Fuse Ratings)**
	ELECTRICAL SYSTEMS – EXTINGUISHABLE MESSAGE SIGN
~~**RSP ES-14A**~~	~~**Electrical Systems (LED Extinguishable Message Sign, 10" Letters)**~~
~~**RSP ES-14B**~~	~~**Electrical Systems (LED Extinguishable Message Sign Wiring Diagram)**~~
~~**RSP ES-14C**~~	~~**Electrical Systems (Extinguishable Message Sign and Flashing Beacons)**~~
	ELECTRICAL SYSTEMS – SIGN ILLUMINATION EQUIPMENT AND CONTROLS
~~**ES-15A**~~	~~**Electrical Systems (Sign Illumination Equipment)**~~
~~**ES-15B**~~	~~**Electrical Systems (36" Fluorescent Sign Illumination Equipment)**~~
~~**ES-15C**~~	~~**Electrical Systems (Sign Illumination Equipment)**~~
~~**RSP ES-15D**~~	~~**Electrical Systems (Lighting and Sign Illumination Control)**~~
	~~**ELECTRICAL SYSTEMS – CLOSED CIRCUIT TELEVISION POLE AND FOUNDATION DETAILS**~~
~~**ES-16A**~~	~~**Electrical Systems (Closed Circuit Television, Pole Details)**~~
~~**ES-16B**~~	~~**Electrical Systems (Close Circuit Television, Pole Details – Overhead Sign Mounted)**~~
~~**ES-16C**~~	~~**Electrical Systems (Closed Circuit Television – 60' to 90' High Mast Pole Details)**~~

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