

A completion notice will not be filed, and the final payment will not be made to the Contractor until the areas of disturbed soil on the construction site, including roadway shoulders, are suitably stabilized for long term control of fugitive dust.

**The successful Contractor shall attend an AQMD PM10 Dust Control Program training session, and furnish evidence of attendance to the Engineer.** Attendance at AQMD training seminars can be scheduled through AQMD at 1-866-861-DUST (1-866-861-3878) or by email to [dustcontrol@aqmd.gov](mailto:dustcontrol@aqmd.gov). Current AQMD certification of previous attendance will be accepted.

At that training session, the successful Contractor will be furnished with the AQMD prepared Rule 403 and Rule 403.1 implementation handbooks, which include the “Best Available Control Measures” and “Reasonably Available Control Measures”, and other associated information, including a listing of suggested dust control related devices, materials and chemicals.

The signature of the Contractor on the Bid constitutes acknowledgement by the Contractor of the dust control requirements established by law and described herein, and the enforceability of those requirements.

Payment

When the contract includes a bid item for Dust Abatement, full compensation for conformance with these dust abatement requirements, including labor, equipment, materials, developing water supply and incidentals, shall be paid at the lump sum price for Dust Abatement, and no additional compensation will be allowed therefor.

When the contract does not include a bid item for Dust Abatement, full compensation for conformance with these dust abatement requirements, including labor, equipment, materials, developing water supply and incidentals, shall be considered as included in the various items of work, and no additional compensation will be allowed therefor.

## Table of Contents

SPECIAL PROVISIONS.....	1
DESCRIPTION:.....	1
SPECIFICATIONS:.....	2
MODIFIED HOURS OF WORK:.....	2
LIQUIDATED DAMAGES:.....	2
RECORD DRAWINGS:.....	3
PROJECT APPEARANCE:.....	3
DISPOSAL OF EXCESS EXCAVATION OR MATERIALS:.....	4
SURVEY STAKING.....	5
CONSTRUCTION PROJECT FUNDING IDENTIFICATION SIGNS:.....	5
ADDITIONAL INSURANCE AND HOLD HARMLESS:.....	6
OBTAIN RIGHT OF ENTRY PERMIT:.....	7
COOPERATION:.....	7
GRAFFITI REMOVAL AND CLEANING:.....	8
PARTIAL PAYMENTS:.....	9
ORDER OF WORK:.....	10
OBSTRUCTIONS:.....	11
WATER POLLUTION CONTROL (SANTA ANA REGION):.....	14
STREET SWEEPING:.....	17
TRAFFIC CONTROL SYSTEM/ PUBLIC CONVENIENCE/ PUBLIC SAFETY:.....	19
MAINTAINING TRAFFIC:.....	21
CONSTRUCTION AREA SIGNS:.....	22
PORTABLE CHANGEABLE MESSAGE SIGN:.....	23
CONSTRUCTION AREA TRAFFIC CONTROL DEVICES:.....	24
DEVELOP WATER SUPPLY:.....	26
DUST ABATEMENT:.....	26
CLEARING AND GRUBBING:.....	26
WEDGE PLANE/COLD PLANE ASPHALT CONCRETE PAVEMENT:.....	27
REMOVE METAL BEAM GUARD RAIL:.....	28
REPAIR SLOPE:.....	28
ROADWAY EXCAVATION:.....	29
PREPARING EXISTING ROADBED FOR RESURFACING:.....	29
ROUT AND SEAL RANDOM CRACKS:.....	30
PAVEMENT REINFORCING FABRIC (TruPave or approved equal):.....	31
ASPHALT TREATED PERMEABLE BASE:.....	34
AGGREGATE BASE:.....	34
HOT MIX ASPHALT CONCRETE (Type A and Type C):.....	35
COMPENSATION ADJUSTMENTS FOR PRICE INDEX FLUCTUATIONS:.....	45
EDGE TREATMENT, HOT MIX ASPHALT - SAFETY EDGE:.....	47
SHOULDER BACKING:.....	48
ASPHALT CONCRETE DIKE AND OVERSIDE DRAIN:.....	48
REMOVE ASPHALT CONCRETE DIKE:.....	49
3" PLASTIC PIPE - EDGE DRAIN and CROSSING DRAIN / INTERCEPTOR DRAIN:.....	50
CURB DRAIN - EDGE DRAIN OUTLET:.....	50
FINISHING ROADWAY:.....	50
MINOR CONCRETE (CURB RAMP, CURB, GUTTER, SIDEWALK):.....	51
REMOVE TRAFFIC STRIPE:.....	52
THERMOPLASTIC CROSSWALK AND PAVEMENT MARKING:.....	53
PAINT TRAFFIC STRIPE:.....	54
PAVEMENT MARKERS:.....	54
ROADSIDE SIGN - ONE POST:.....	55
DETECTOR LOOP:.....	56
ADJUST MANHOLE TO GRADE:.....	57
MISCELLANEOUS DIRECTED WORK:.....	57
SLURRY SEAL (TYPE II):.....	58

**Cajalco Road & Ramona Expressway Resurfacing Project  
Lake Mathews and Mead Valley Areas  
and  
Camino Del Sol Area-Group 2 Resurfacing Project  
Avenida Luna, Camino Del Oro & Gem Lane  
Woodcrest Area**

**Project Nos. C1-0494, C1-0547, C1-0549 and C2-0153**

**Cajalco Road / Ramona Expressway Resurfacing Project**

<b>Street Name</b>	<b>Begin</b>	<b>End</b>	<b>Project No.</b>
Cajalco Road	Segment 1	Extravaganza Lane to Wood Road	C10494
Cajalco Road	Segment 2	Harvill Ave to RR bridge @ I-215	C10547
Ramona Expy	Segment 3	I-215 Bridge to Patterson Ave	C10549

**Camino del Sol Area-Group 2 Resurfacing Project**

<b>Street Name</b>	<b>Begin</b>	<b>End</b>	<b>Project No.</b>
Avenida Luna	Camino Del Sol	to Avenida Hacienda	C2-0153
Camino Del Oro	Gem Lane	to 275 feet westerly	C2-0153
Gem Lane	Camino Del Oro	to Alessandro Boulevard	C2-0153

**SPECIAL PROVISIONS**

**DESCRIPTION:**

**Cajalco Road / Ramona Expressway Resurfacing Project:**

The Resurfacing Projects include two separate segments of Cajalco Road and a segment of Ramona Express Way. The name of Cajalco Road changes to Ramona Expressway at Interstate 215. The resurfacing work consists of cold planing the existing asphalt, crack filling, reinforcing fabric and overlay with Hot Mix Asphalt concrete pavement. Additional improvements include AC dike, concrete curb, gutter, sidewalk, access ramp removal and replacement, installation of new striping, pavement markings, detector loops, and other work as may be required.

**Camino del Sol Area Group 2 Resurfacing Project:**

The Camino del Sol Area Group 2 Reconstruction Projects are three locations where intermittent springs have caused roadway damage. At these locations, the existing asphalt pavement, base and subgrade will be excavated and the road will be reconstructed with asphalt treated permeable base with an overlay of Hot Mix Asphalt concrete pavement. Perforated PVC sub-drains will be placed

in the asphalt treated permeable base, and other specific locations, to collect subsurface moisture and outlet in the roadway downstream. Additional improvements include AC dike, sidewalk, driveway removal and replacement, installation of new striping, pavement markings, and other work as may be required.

**SPECIFICATIONS:**

This project shall conform to the requirements of the May 2006 edition of the Standard Specifications and Standard Plans as issued by the State of California Department of Transportation.

Amendments to May 2006 Standard Specifications, updated June 20, 2012, are incorporated herein and can be found on the County of Riverside website during the Bid Period.

<http://rctlma.org/trans/Contractors-Corner/Notices-Inviting-Bids>

**MODIFIED HOURS OF WORK:**

Hours of work as stated elsewhere in these Special Provisions are modified below and applied to this project. These hours of work shall be considered as regular working hours.

**Night Time Work:**

Resurfacing work on Cajalco Expressway, Segment 2, and Ramona Expressway, Segment 3, shall be performed at night. The work hours will be **9:00 PM to 5:00 AM**.

**Day Time Work:**

Resurfacing work Cajalco Road, Segment 1, and any other locations on this project shall be performed during normal daytime working hours. The work hours are **7:00 AM to 6:00 PM**.

**LIQUIDATED DAMAGES:**

The Contractor shall diligently prosecute the work to completion before the expiration of 50 working days from the date stated in the "Notice to Proceed". The Contractor shall pay to the County of Riverside the sum of \$5,000.00 per day, for each and every calendar day's delay in finishing the work in excess of the number of working days prescribed above.

***Additional Liquidated Damages:***

**Late Reopening of Lane Closures:** There are additional Liquidated Damages for late reopening of lanes for **Cajalco Expressway, Segment 2** and for **Ramona Expressway, Segment 3**. For each 15 minute interval, or fraction thereof past the time specified to reopen all lanes to traffic, the Department will deduct \$500 per interval from moneys due or that may become due the Contractor under the contract.

Contractor shall complete the resurfacing work and striping for **Cajalco Expressway, Segment 2**, from Harvill Avenue to Railroad bridge at Interstate 215 within 10 working days. The Contractor shall pay to the County of Riverside the sum of **\$5,000.00** per day, for each and every calendar day delay in finishing the work in excess of the number of working days prescribed above.

Contractor shall complete the resurfacing work and striping for **Ramona Expressway, Segment 3**, from Interstate 215 Bridge to Patterson Avenue within 10 working days. The Contractor shall pay to the County of Riverside the sum of **\$5,000.00** per day, for each and every calendar day delay in finishing the work in excess of the number of working days prescribed above.

Contractor shall complete the reconstruction work for **Camino Del Oro and Gem Lane** within 10 working days. The Contractor shall pay to the County of Riverside the sum of **\$2,500.00** per day, for each and every calendar day delay in finishing the work in excess of the number of working days prescribed above.

Contractor shall complete the reconstruction work for **Avenida Luna** within 10 working days. The Contractor shall pay to the County of Riverside the sum of **\$2,500.00** per day, for each and every calendar day delay in finishing the work in excess of the number of working days prescribed above.

In addition to the Liquidated damages set forth above, refer to Special Provisions section entitled "PROJECT APPEARANCE" for additional Liquidated damages.

**RECORD DRAWINGS:**

The Contractor shall keep one clean set of bond originals to note any changes which take place during construction. These changes to the original plans and/or specifications shall be noted at the appropriate locations with the appropriate changes indicated in red pencil or ink. The Contractor shall note in large letters "RECORD DRAWINGS" on the Title Sheet of the plans. The job will not be finalized by the Engineer until these record drawings have been completed to the satisfaction of the Engineer. The changes shall be noted on the plans as the changes occur. The record drawings shall be submitted to the Resident Engineer, and become the property of the County at conclusion of the project.

Full compensation for maintaining and compiling the record drawings shall be considered to be included in other items of work and no additional compensation will be allowed therefor.

**PROJECT APPEARANCE:**

The Contractor shall maintain a neat appearance to the work.

In any area visible to the public, the following shall apply:

Prior to the leaving the project site daily, the Contractor shall collect and dispose of any trash or debris within the project area.

When practicable, broken concrete and debris developed during clearing and grubbing shall be disposed of concurrently with its removal. If stockpiling is necessary, the material shall be removed or disposed of weekly.

The Contractor shall furnish covered trash bins for all debris from construction. All debris shall be placed in the covered trash bins daily. Trash bins must be able to fully close at the end of the workday.

**Additional Liquidated Damages:**

In addition to the Liquidated damages set forth in section "Liquidated Damages", if the Contractor fails to comply with the requirements of this section, the Contractor shall pay to the County of Riverside the sum of **\$500.00** per day for each and every calendar days delay after the expiration of 48 hours notification from the Engineer.

Full compensation for conforming to the provisions in this section, not otherwise provided for, 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.

**DISPOSAL OF EXCESS EXCAVATION OR MATERIALS:**

Excess earth excavation, pavement grindings and other excess materials resulting from construction operations shall be disposed of by the Contractor outside of the highway right of way, as provided in Section 7-1.13 of the Standard Specifications.

The second paragraph of Section 7-1.13 of the Standard Specifications is modified to read as follows:

When any material is to be disposed of outside the highway right of way, and the County of Riverside has not made arrangements for the disposal of such material, the Contractor shall first obtain written authorization from the property owner on whose property the disposal is to be made, and obtain all required permits from the jurisdictional agency(s) for said work, and he shall file with the Engineer said authorization or a certified copy thereof together with a written release from the property owner absolving the County of Riverside from any and all responsibility in connection with the disposal of material on said property. If the disposal of materials is to be made at an established disposal facility that is available for public use, the Contractor shall retain all authorizations and receipts from said disposal facility and shall provide copies to the Engineer upon request.

Full compensation for all costs involved in disposing of materials as specified in this section, including all costs of hauling, shall be considered as included in the various contract items of work and no additional compensation will be allowed therefor.

**SURVEY STAKING**

County surveyors will establish external primary survey control marks and/or monuments to be used throughout the construction period. These control marks are to be protected by the contractor and will be used to set construction stakes. The control marks will also be used to make verification surveys at various stages of work.

Survey stakes and marks are set per the County’s Survey Manual.

Contractor must submit a written request for County furnished construction staking before or once area to receive staking is ready for the installation of the construction stakes. The County will provide Contractor with a survey request form. Survey staking requests must be received from the Contractor a minimum of 2 business days prior to the installation of the requested construction staking. The County shall receive survey request from the contractor on normal business days, Monday through Thursday, 7:00 A.M. to 4:00 P.M. Requests received after 4:00 PM or on any day not previously noted, shall be considered as submitted at 7:00 AM the next business day.

A “business day” is as defined by County Ordinance 358 (County Holidays, open and closed days, and hours of operation, etc.) and as revised by Board of Supervisor’s resolution to alter days and/or hours for which a County office may be open for transaction of business.

Contractor must preserve primary survey control monuments and marks, construction stakes and construction marks placed by the County. Survey costs are incurred by the County; however, if the Contractor fails to protect and/or destroys these survey items, the County shall replace them at the County’s earliest convenience and deduct the cost of replacement from payment due to the Contractor.

**CONSTRUCTION PROJECT FUNDING IDENTIFICATION SIGNS:**

The Contractor shall furnish and install Construction Project Funding Identification Signs Type A (4' X 8') or Type B (4' X 4'). The signs shall be installed at locations listed below or as to be determined by the Engineer, within or near the project limits, in accordance with the relevant requirements of Section 56-2 of the Standard Specifications and the appropriate details of Standard Plans RS1 through RS4 for two post installation of signs, and as directed by the Engineer.

**CAJALCO ROAD & RAMONA EXPRESS WAY  
RESURFACING PROJECTS**

<b>Street Name</b>	<b>Begin</b>	<b>End</b>	<b>Signs</b>
Cajalco Road	Segment 1	Extravaganza Lane to Wood Road	Type A (2)
Cajalco Expy	Segment 2	Harvill Ave to RR bridge @ I-215	Type A (2)
Ramona Expy	Segment 3	I-215 Bridge to Patterson Ave	Type A (1)

## CAMINO DEL SOL AREA GROUP 2 RECONSTRUCTION PROJECT

<u>Street Name</u>	<u>Begin</u>	<u>End</u>	<u>W.O. No.</u>
Avenida Luna	Camino Del Sol	to Avenida Hacienda	Type B (1)
Camino Del Oro/Gem Lane	Camino Del Oro	to Alessandro Blvd	Type B (1)
Canyonwood Dr	Birch Hill Rd	to Canyonwood Dr	0

A reference exhibit displaying the text and colors of the sign will be provided to the awarded Contractor after award of the contract. The Contractor shall submit a copy of the final sign design for approval by the resident Engineer prior to fabrication.

The Contractor shall submit to the Engineer the final sign design in the form of an editable picture file in .eps format – Encapsulated PostScript file.

At the completion of the project, the signs will become property of the County. When directed by the Engineer, the Contractor shall remove all hardware from the signs. Posts and hardware shall become the property of the Contractor. The Contractor shall deliver and off-load the signs to the address listed below or as directed by the Engineer:

Traffic Signal Shop  
Riverside County Transportation Department  
McKenzie Highway Operations Center  
2950 Washington Street  
Riverside, California 92504  
Telephone (951) 955-6894

### **Method of Payment:**

Full compensation for furnishing and installing Construction Project Funding Identification Sign including all labor, materials, tools, equipment, incidentals and for doing all the work including sign installation, transportation, maintenance, removal, delivery, excavation and backfill as specified in the Standard Specification and these Special Provisions shall be considered to be included in the various items of work, and no additional compensation will be allowed therefor.

### **ADDITIONAL INSURANCE AND HOLD HARMLESS:**

In addition to the requirements of Section 4, “Insurance and Hold Harmless” in General Condition section of the contract documents, the Contractor’s Certificate of Insurance and endorsements for the project shall name the following entities as additional insured under the Contractor’s general liability, excess liability and auto liability insurance policies and on the Waiver of Subrogation for the Contractor’s Workers Compensation policy.

1. “The County of Riverside, its elected and appointed officials, employees, agents, and representatives”.
2. “State of California, Department of Transportation, its elected and appointed officials, employees, agents, and representatives”.



3. "The City of Perris, its elected and appointed officials, employees, agents, and representatives".
4. "Western Municipal Water District, its elected and appointed officials, employees, agents, and representatives".

Each of the above listed entities shall also be held harmless, in accordance with the requirements of Section 4, "Insurance – Hold Harmless" of these contract documents.

**Method of Payment:**

Full compensation for compliance with the requirements of this Section shall be considered as included in the various items of work, and no additional compensation will be allowed therefor.

**OBTAIN RIGHT OF ENTRY PERMIT:**

It shall be the responsibility of the Contractor to obtain a Right of Entry Permit for work done within the Right-Of-Way of the City of Perris prior to commencing any work.

Right of Entry permit shall be at no cost to the contractor.

If the Contractor pays any fees to the City of Perris to obtain Right of Entry Permit, then full compensation for the actual cost of the Right of Entry Permit fees, as paid by the Contractor to City of Perris shall be made on a force account basis, in accordance with Section 9-1.03 of the Standard Specifications and these Special Provisions. The Contractor shall submit a request for payment for Right of Entry Permit fees paid upon completion of all work within City of Perris Right-Of-Way. The request shall include copies of the Right of Entry Permit and all receipts and refund payment documents issued by City of Perris. No markups will be allowed. All incidental costs incurred by the Contractor shall be considered as included in the various items of work and no compensation will be allowed therefor.

**COOPERATION:**

Attention is directed to Section 7-1.14, "Cooperation" of the Standard Specifications and these Special Provisions.

The Contractor is hereby advised to cooperate with utility companies; Southern California Edison (SCE), Southern California Gas (SCG), Western Municipal Water District (WMWD) and/or others for adjusting water valves, gas valves, manholes and other facilities to grade.

Should construction be under way by other forces or by other Contractors within or adjacent to those limits, the Contractor shall cooperate with all the other Contractors or other forces to the end that any delay or hindrance to their work will be avoided. The right is reserved to perform other or additional work at or near the site (including material sources) at any time, by the use of other forces.

## **GRAFFITI REMOVAL AND CLEANING:**

The Contractor shall remove existing graffiti within the project limits and any new graffiti produced during the construction period of the project.

Contractor shall submit a graffiti removal plan indicating methods of removal to the Engineer for approval. Sand blasting will not be allowed. Methods may include but not limited to power washing, solvent washing, and painting over graffiti, as appropriate for the surface to be cleaned.

All graffiti shall be completely removed or obliterated and the area feathered out to hide any imperfections.

Graffiti shall be removed from, but not limited to, the surfaces listed as follows: bricks, cinder blocks, concrete sidewalks, pavement, bridge under passes, overhead structures, drainage channels, roadside signs, temporary construction signs, barricades, k-railing, traffic control devices, all types of poles, and other objects within the project limits as directed by the Engineer. Painting of k-railing for the purposes of graffiti removal shall not be considered as repainting as outlined in paragraph one of Section 12-3.08 and shall not be paid for as extra work.

Graffiti to be removed may include, but shall not be limited to: paint, signs, wood, metal, plastic, decals, gum, markers, crayons, ropes, chains, strings, wires, and tapes of any kind on an as needed basis.

All painting over graffiti must be done with exact color matches, so as not to show any blocking or shadowing of colors. Painting over graffiti is the preferred option on previously painted surfaces, and where solvents are unsuccessful at removing graffiti. Painting services shall be done on an as needed basis on the following types of surfaces, but not limited to: walls, hardscapes, poles, fences, bollards, railings, and buildings.

Paint shall be exact color match. Paint types may include oil base, water base and enamels as approved by the Engineer. Graffiti cover-up by paint will be allowed with appropriate type of paint at locations where graffiti cannot be removed only upon direction by the Engineer. All paint applications shall adhere to the manufacture's recommendations. All material and solutions shall be safe and biodegradable and approved by the Engineer.

Regional Water Quality Control Board (RWQCB) and Air Quality Management District (AQMD) regulations, as well as all NPDES required best management practices shall be complied with and followed.

The Contractor shall so conduct his operation as to cause the least possible obstruction and inconvenience to public traffic. The Contractor shall provide, erect and maintain barricades, lights, danger signals, and warning signs as deemed appropriate by the Engineer.

When necessary, the Contractor shall provide and erect safe and adequate scaffolding and equipment, barriers, and masking, required for the proper execution of the work. All scaffolding shall be properly braced and erected to insure the safety of the workmen and meet all appropriate OSHA regulations.

The Contractor shall respond and provide manpower for any urgent graffiti removal and cleaning notifications within two (2) working days.

Urgent graffiti will be classified as any graffiti that causes a safety hazard for motorist and affects the traffic flow as determined by the Resident Engineer.

This work will be monitored/controlled by the construction Resident Engineer. The Contractor must coordinate the work with the Resident Engineer during the construction. Payment is included in the contract price paid for Traffic Control System.

**Method of Payment:**

Full compensation for conformance with these Graffiti Removal and Cleaning requirements, including labor, equipment, materials, necessary traffic control, and incidentals, shall be paid at the lump sum price for Traffic Control System, and no additional compensation will be allowed therefor.

**PARTIAL PAYMENTS:**

Attention is directed to Sections 9 1.06, "Partial Payments," and 9 1.07, "Payment After Acceptance," of the Standard Specifications and these special provisions.

For the purpose of making partial payments pursuant to Section 9- 1.06, "Partial Payments," of the Standard Specifications, the amount set forth for the contract items of work hereinafter listed shall be deemed to be the maximum value of the contract item of work which will be recognized for progress payment purposes:

**Cajalco Road / Ramona Expressway Resurfacing Project:**

- |    |                       |          |
|----|-----------------------|----------|
| A. | Clearing and Grubbing | \$ 5,000 |
| B. | Develop Water Supply  | \$ 3,000 |

**Camino Del Sol Area-Group 2 Resurfacing Project:**

- |    |                       |          |
|----|-----------------------|----------|
| A. | Clearing and Grubbing | \$ 3,000 |
| B. | Develop Water Supply  | \$ 2,000 |

After acceptance of the contract pursuant to the provisions in Section 7-1.17, "Acceptance of Contract" of the Standard Specifications, the amount, if any, payable for a contract item of work in excess of the maximum value for progress payment purposes hereinabove listed for the item, will be included for payment in the first estimate made after acceptance of the contract.

## **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.

### **Public Safety**

#### Emergency access

Attention is directed to "Public Safety" of these Special Provisions regarding access for emergency vehicles. The Contractor shall provide continual 12 feet drivable access for emergency vehicles through the construction zones.

### **Public Convenience**

#### Business access

Attention is directed to "Public Convenience" of these Special Provisions regarding access to the business adjacent to the road improvements. Driveway access must be maintained and driveway closure is not permitted during non-working hours. Contractor shall notify and coordinate with the business in advance of any construction activities that may affect customer access.

#### Residential access

Attention is directed to "Public Convenience" of these Special Provisions regarding access to the residents in the vicinity of the projects. For residents directly adjacent to the construction area, the Contractor shall coordinate with the residents to provide access to the properties.

#### Public Awareness Program

Attention is directed to "Public Convenience" of these Special Provisions regarding the Public Awareness Program and responding to communications with the public. The Contractor shall coordinate with the Resident Engineer on project signage, responding to comments and complaints from the public and other public awareness requests as needed.

#### Maintaining Traffic

Attention is directed to "Maintaining Traffic" of these special provisions regarding Segment 1. Resurfacing work Cajalco Road, Segment 1, shall be performed during normal daytime working hours. The work hours are 7:00 AM to 6:00 PM. One lane for traffic shall be maintained at all times. With the limited roadway width, traffic may be limited to one lane but will be controlled by flagmen and a pilot car. Each day the Contractor shall cold plane, and place the first lift of HMA prior to opening the lanes to traffic. The final lift of HMA or ARHM shall be placed as the final operation. If pockets of moisture are encountered, Contractor shall excavate an addition 0.30' and place Class 2 base to subgrade and compact to 95%. The contractor shall have no vertical drops between drive lanes during non-working hours.

Attention is directed to "Maintaining Traffic" of these special provisions regarding Segment 2. Resurfacing work for Cajalco Express Way, Segment 2, from Harvill Ave to RR bridge @ I-215 shall be performed at night. The work hours will be 9:00 PM to 5:00 AM. One paved lane for traffic in each direction shall be maintained at all times. Contractor shall excavate, compact, place the first lift of HMA and provide temporary AC transitions so all lanes are open to traffic each day

by 5:00 AM. The contractor shall have no vertical drops between drive lanes during non-working hours.

Attention is directed to "Maintaining Traffic" of these special provisions regarding Segment 3. Resurfacing work for Ramona Express Way, Segment 3, from I-215 Bridge to Patterson Ave shall be performed at night. The work hours will be 9:00 PM to 5:00 AM. One paved lane for traffic in each direction shall be maintained at all times. Contractor shall excavate, compact, place the first lift of HMA and provide temporary AC transitions so all lanes are open to traffic each day by 5:00 AM. The contractor shall have no vertical drops between drive lanes during non-working hours.

Liquidated Damages

Attention is directed to "Liquidated Damages" of these Special Provisions regarding specific duration times for completion of work. There are substantial liquidated damages for delays.

Encroachment Permit

Attention is directed to "Encroachment Permit" of these Special Provisions regarding Encroachment Permits. The Contractor shall be responsible to prepare the Traffic Control Plans and submit to Caltrans and City of Perris for review and approval for a duplicate permit.

Clearing and Grubbing

Attention is directed to "Clearing and Grubbing" of these Special Provisions. The Contractor shall work directly with the County Inspector and property owners on the removal and relocation of the property owner's improvements within and adjacent to the right of way. The Contractor shall minimize the disturbance to the improvements, including grading, driveway reconstruction, fencing, walls, landscaping, hardscape, irrigation and decorative features.

Mail Delivery

Attention is directed to "Mail Delivery/Mailbox Relocation" of these Special Provisions regarding mail delivery on Grand Ave. Contractor shall comply with the "Coordination" section that may affect mail delivery.

**OBSTRUCTIONS:**

Attention is directed to Sections 8-1.10, "Utility and Non-Highway Facilities", and 15, "Existing Highway Facilities" of the Standard Specifications and these Special Provisions.

Existing utility and privately owned facilities shall be protected in accordance with Section 7-1.11, "Preservation of Property" and these Special Provisions. The Contractor is also responsible to protect those facilities that are to be relocated by others prior to or during construction, and shall protect those facilities in both their existing and their ultimate locations. The Contractor shall cooperate with owners and their Contractors of utility and privately owned facilities, for the relocation of said facilities, in accordance with Section 7-1.14, "Cooperation" of the Standard Specifications.

All water valves and covers, gas valves and covers, sewer manholes, survey monuments, survey markers and any other utility appurtenances shall be protected in place.

The Contractor's attention is directed to the existence of certain underground facilities that may require special precautions be taken by the Contractor to protect the health, safety and welfare of workmen and the public. Facilities requiring special precautions include, but are not limited to: conductors of petroleum products, oxygen, chlorine, and toxic or flammable gases; natural gas in pipe lines greater than 6 inches in diameter or pipe lines operating at pressures greater than 60 psi (gage); underground electric supply system conductors or cables either directly buried or in duct or conduit which do not have concentric neutral conductors or other effectively grounded metal shields or sheaths; and underground electrical conductors with potential to ground of more than 300 volts. The Contractor shall notify the Engineer at least twenty-four hours prior to performing any work in the vicinity of such facilities.

Attention is directed to the requirements of Government Code Sections 4216-4216.9 pertaining to existing utility facilities.

The Contractor shall assume that every house, building and lot within the project limits has utility service pipes and conductors (laterals), and that utility main and trunk facilities exist within the project limits. The Contractor shall determine if it is warranted to determine the exact location of these utility service laterals and existing main lines, unless directed by the Engineer to pot-hole at specific locations, or as otherwise required herein. The Contractor will not be directly reimbursed for determining the exact location of the utility main lines or services laterals but shall include any compensation for this work in the contract price paid for the various items of work. Any damage to existing main lines or service laterals for which pot-holing was not performed shall be considered damage due to not using reasonable care and the damage shall be repaired at the Contractor's expense.

The Contractor shall conduct his operations with the assumption that underground utility facilities exist within the project limits. The Contractor shall exercise caution and best construction practices for safety and for protection of underground facilities. The approximate locations of underground utility facilities, as shown on the plans, are based on information provided by the respective owners, listed below. The Contractor shall also utilize the markings of the regional notification center (Underground Service Alert), and above-ground utility appurtenances to determine the existence and approximate location of underground utilities.

No excavation shall be made **within 4 feet of any other underground utilities**, as shown on the plans and/or marked by Underground Service Alert, unless and until such utilities have been positively located as to horizontal and vertical position. This requirement applies to all underground electric, natural gas, toxic or flammable gas, chlorine, oxygen or petroleum facilities.

Forty-eight hours prior to beginning construction, the Contractor shall notify the following agencies:

Underground Service Alert	800-227-2600
Southern California Edison Company	909-357-6221
Southern California Gas Company	909-335-7561
Western Municipal Water District	951-928-6107
Verizon Communications	951-925-6253
Santa Ana Watershed	951-354-4220

**Adjustments to Grade for Obstructions**

The Contractor shall adjust to finish grade any valve covers encountered within the project limits, as required, for those utility valves that are provided with slip cans and are adjustable without the replacement of parts or the removal of concrete collars. In cases where the owning utility company insists upon upgrades in the standards, or when additional parts or the removal of concrete collars are required for the adjustment, said adjustment will be the responsibility of the owning utility company.

Communication and coordination with the owning utility company shall be the responsibility of the contractor.

For public safety, traffic shall not be allowed on temporary or permanent pavement until all manholes are either adjusted to grade or otherwise protected, as approved by the Engineer. The Contractor shall adjust to grade manholes and valves when and as necessary for the protection of the traveling public during construction, and shall coordinate all work on said facilities with the owning utility companies. This requirement is intended for traffic that is to be allowed on temporary surfaces during the course of construction. Final adjustment to grade will be the responsibility of the owning utility company, except as provided herein.

Said work shall be performed in accordance with Section 15-2.05A, "Frames, Covers, Grates, and Manholes" of the Standard Specifications. Full compensation for adjustment of valve covers shall be considered as included in the contract price paid for asphalt concrete, or applicable items of work in the event that there is no asphalt concrete bid item, and no additional compensation will be allowed therefor.

All existing utility facilities shall be protected from damage by the Contractor's operations.

Unless otherwise provided herein, the owning utility companies will not be obligated to lower their surface utilities (manholes and valve covers) for Contractor's grading, grinding and/or paving operations. The contractor shall lower surface facilities, including manholes and valve covers, to facilitate construction, and the following shall apply:

1. Contractor shall coordinate all work with the utility owner.
2. Contractor shall be responsible for all costs and shall be responsible for any damage caused to the owner's facilities. If the Contractor observes any pre-existing damage to the utility facilities, the Contractor shall notify the Engineer and the utility owner of that damage prior to performing additional work on the facility.
3. Contractor shall, after removing grade rings and covers, arrange for pickup by, or delivery to, the owner's yard. Any and all concrete collars removed by the Contractor shall become the property of the Contractor, and shall be disposed of as specified elsewhere in these special provisions.

4. The Contractor is advised that he is responsible for ensuring that construction materials do not enter the utility owner's facilities. The Contractor shall install traffic bearing steel plates for this purpose, and provide all coordination and transportation necessary. It is recommended that the Contractor request the utility owner to provide such steel plates. If the Contractor provides steel plates, it shall be the Contractor's responsibility to coordinate with the utility owner for the return of the steel plates to the Contractor after final adjustment to grade. If the Contractor utilizes utility owner's steel plates, and if the Contract items of work include adjustment to final grade, the Contractor shall return the steel plates to the Utility owner's yard, or as otherwise arranged with the Utility owner.
5. Prior to paving or covering the plated utility facility, the Contractor shall tie-out the facility utilizing a method acceptable to the utility owner and provide notes and data of all covered facilities to both the utility owner and the Engineer.
6. The Contractor shall notify the utility owner, upon completion of the Contractor's work, when the utility owner may move in to make the final adjustments to grade.
7. The requirements for lowering of surface facilities shall not apply to vaults. The Contractor shall notify the utility owner of the need to make adjustments to such major facilities.
8. The Contractor is reminded that the utility facilities are owned by public and private utility companies that operate their facilities within public rights of way. The utility owner's preferences with regards to the handling of its facilities shall be complied with to the greatest extent feasible.

**Method of Payment:**

Full compensation for all costs, including labor, equipment, materials and incidentals, required to comply with the requirements of this section above, including protection of water valves and covers, gas valves and covers, sewer manholes, survey monuments, survey markers and any other utility appurtenances, shall be considered as included in the various items of work, and no additional compensation will be allowed therefor.

Full compensation for initial lowering of surface utilities facilities shall be considered as included in the contract price paid for asphalt concrete, or applicable items of work in the event that there is no asphalt concrete bid item, and no additional compensation will be allowed therefor.

**WATER POLLUTION CONTROL (SANTA ANA REGION):**

Throughout the term of this contract, the total land disturbance area of the project site shall be less than 1 acre. The Contractor shall comply the Area-Wide Municipal Stormwater Permit NPDES No. CAS 618033, hereafter referred to in this section as the "Municipal Permit", issued by the California Regional Water Quality Control Board (CRWQCB) – Santa Ana Region. This Permit regulates both stormwater and non-stormwater discharges associated with Contractor's construction activities. A copy of the Permit may be obtained at the office of the County of Riverside Transportation Department, 14<sup>th</sup> Street Transportation Annex, 3525 14<sup>th</sup> Street,



Riverside, California. (951) 955-6780, or may be obtained on the internet at: <http://www.waterboards.ca.gov/santaana/>

The Contractor shall comply with the requirements of the Municipal Permit, and all other applicable federal, state and local laws, ordinances, statutes, rules, and regulations concerning water pollution control.

Contractor's Water Pollution Control Program (WPCP) shall be prepared by a Qualified SWPPP Developer in accordance with Section 3, "Preparing a Water Pollution Control Program (WPCP)", of the *Caltrans Stormwater Pollution Prevention Plan (SWPPP) and Water Pollution Control Program (WPCP) Preparation Manual (June 2011)*, which is available as a free download from:

<http://www.dot.ca.gov/hq/construc/stormwater/manuals.htm>

#### WATER POLLUTION CONTROL MEASURES

- A. Work having the potential to cause water pollution shall not commence until the Contractor's WPCP has been reviewed and approved by the Engineer. The Engineer's review and approval of the Contractor's WPCP shall not waive any contractual requirements and shall not relieve the Contractor from achieving and maintaining compliance with all federal, state, and local laws, ordinances, statutes, rules, and regulations. A copy of Contractor's WPCP shall be maintained onsite. When the WPCP or access to the construction site is requested by a representative of a federal, state, or local regulatory agency, Contractor shall make the WPCP available and Contractor shall immediately contact the Engineer. Requests from the public for the Contractor's WPCP shall be directed to the Engineer.
- B. Contractor's WPCP shall describe the Contractor's plan for managing runoff during each construction phase. Contractor's WPCP shall describe the Best Management Practices (BMPs) that will be implemented to control erosion, sediment, tracking, construction materials, construction wastes, and non-stormwater flows. BMP details shall be based upon California Stormwater Quality Association's (CASQA) California Stormwater Quality BMP Handbook Subscription Portal (<http://www.cabmphandbooks.com>) or the Caltrans Construction Site BMP Manual (<http://www.dot.ca.gov/hq/construc/stormwater/manuals.htm>). Contractor's WPCP shall describe installation, operation, inspection, maintenance, and monitoring activities that will be implemented for compliance with the Municipal Permit and all applicable federal, state, and local laws, ordinances, statutes, rules, and regulations related to the protection of water quality.
- C. The Contractor's WPCP preparer shall have been trained to prepare WPCPs or SWPPPs and shall have previous experience with preparing SWPPP or WPCP requirements on a previous project.

The Contractor shall designate a Water Pollution Control Manager that shall have been trained to implement WPCP or SWPPP requirements. Contractor's Water Pollution Control Manager shall:

1. Be responsible for all water pollution control work.

2. Be the Engineer's primary contact for all water pollution control work.
3. Have the authority to mobilize resources (crews, supplies, equipment, etc.) to make immediate repairs of water pollution control measures or to supplement water pollution control measures to maintain compliance with all federal, state, and local laws, ordinances, and regulations related to the protection of water quality, including the Municipal Permit.

The WPCP shall contain all required and applicable certifications and evidence of training for the Water Pollution Control Manager, WPCP Developer, and all other employees working on the project receiving formal training or certification.

- D. Water Pollution Control Training: Contractor shall provide water pollution control training to Contractor's employees and subcontractors prior to their performing work on the work site. The water pollution control training shall be appropriate to the employee or subcontractor function and area of responsibility and shall address (as applicable):
1. Erosion Control (water and wind)
  2. Sediment Control
  3. Tracking Control
  4. Materials & Waste Management
  5. Non-Stormwater Discharge Management
  6. Run-on and Run-off Control

- E. Monitoring and Reporting: Observations and inspections conducted by the Contractor's Water Pollution Control Manager shall be documented on the Construction Site Inspection Checklist included in Contractor's WPCP. A copy of each completed Construction Site Inspection Checklist shall be submitted to the Engineer within 24 hours of conducting the inspection.

### **General Requirements:**

In the event the County incurs any Administrative Civil Liability (fine) imposed by the CRWQCB – Santa Ana Region, the State Water Resources Control Board, or EPA, as a result of Contractor's failure to fully implement the provisions of "Stormwater and Non-Stormwater Pollution Control", the Engineer, may, in the exercise of his sole judgment and discretion, withhold from payments otherwise due Contractor a sufficient amount to cover the Administrative Civil Liability including County staff time, legal counsel, consultant support costs and all other associated cost.

The Contractor shall be responsible for all costs and for any liability imposed by law as a result of the Contractor's failure to comply with the requirements set forth in "Water Pollution Control", including but not limited to, compliance with the applicable provisions of the Caltrans Handbooks, Municipal Permit, Federal, State, and local regulations. For the purpose of this paragraph, costs and liabilities include, but not limited to, fines, penalties, damages, and costs associated with defending against enforcement actions whether taken against the County or the Contractor, including those levied under the Federal Clean Water Act and the State Porter-Cologne Water Quality Act.

Within fifteen (15) working days after the award of the contract, the Contractor shall submit two (2) copies and one pdf file of the WPCP to the Engineer for review and approval. The Contractor shall allow ten (10) working days for the Engineer to review the WPCP. If revisions are required as determined by the Engineer, the Contractor shall revise and resubmit the WPCP within three (3) working days of receipt of the Engineer's comments and shall allow ten (10) working days for the Engineer to review the revisions. The Contractor shall submit four (4) copies of the approved WPCP and one pdf file to the Engineer prior to notice to proceed. The Contractor must have an approved WPCP prior to the notice to proceed.

Unless otherwise directed by the Engineer or specified in these Special Provisions, the Contractor's responsibility for WPCP implementation shall continue throughout any temporary suspension of work ordered in accordance with Section 8-1.05, "Temporary Suspension of the Work", of the Standard Specifications. The Engineer may withhold progress payments or order the suspension of construction operations without an extension of the contract time, if the Contractor fails to comply with the requirements of "Water Pollution Control" as determined by the Engineer.

All BMP repairs shall be implemented by the Contractor within 72 hrs.

**Method of Payment:**

Payment for Water Pollution Control shall be on a lump sum basis and shall include full compensation for the work performed, including, developing, preparing, revising, obtaining approval of, and amending the WPCP, implementing, installing, constructing, operating, maintaining, and removing and disposing of temporary BMPs, performing the observations, inspections, sampling, analysis, reporting, and street sweeping, and as specified in the Caltrans Handbooks, Municipal Permit and these Special Provisions, and as directed by the Engineer.

**STREET SWEEPING:**

**GENERAL**

**Summary**

This work includes street sweeping.

The WPCP shall describe and include the use of street sweeping as a Water Pollution Control practice for sediment control and tracking control. Street sweeping shall also conform to all applicable AQMD requirements.

**Submittals**

At least 5 working days before starting clearing and grubbing, or other activities with the potential for tracking sediment or debris, submit:

- A. The number of street sweepers that will be used as described in the WPCP.
- B. Type of sweeper technology (or technologies).

**Quality Control and Assurance**

Retain the following records related to street sweeping and submit weekly to Engineer:

- A. Tracking Inspection Log
- B. Sweeping times and locations.
- C. Quantity of sweeping waste disposal.

## **CONSTRUCTION**

### **Street Sweepers**

Sweepers must use one of these technologies:

- A. Mechanical sweeper followed by a vacuum-assisted sweeper.
- B. Vacuum-assisted dry (waterless) sweeper.
- C. Regenerative-air sweeper.
- or
- D. Sweeping by hand is acceptable in lieu of A, B, and C above.

### **Operation**

Street sweeping shall be conducted at:

- A. Paved roads at job site entrance and exit locations.
- B. Paved areas within the job site that flow to storm drains or water bodies.

Street sweeping shall be conducted, and sweeper(s) shall be available to operate at all times, for the following:

- A. During clearing and grubbing activities.
- B. During earthwork activities.
- C. During trenching activities.
- D. During roadway structural section activities.
- E. When vehicles are entering and leaving the job site.
- F. After soil disturbing activities.
- G. After observing offsite tracking of material.

Contractor's Water Pollution Control Manager shall inspect adjacent paved areas at job site entrances and exits and paved roadways within the job site on a minimum daily basis, and more frequently when activities that require street sweeping are being performed. Contractor's Water Pollution Control Manager shall maintain a "Tracking Inspection Log." Street sweeping shall be conducted:

- A. Within 1 hour, if sediment or debris is observed on paved areas or paved roadways.

At least one sweeper, in good working order, must be on the job site at all times when sweeping work may be required.

Perform street sweeping to minimize dust. If dust generation is excessive or sediment pickup is ineffective, water may be used but shall be contained, collected (e.g. vacuum), and properly disposed.

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.

**Method of Payment:**

Full compensation to conform with the requirements of this section shall be considered as included in the contract lump sum price paid for Water Pollution Control including 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. Therefore, no additional compensation will be allowed for street sweeping.

**TRAFFIC CONTROL SYSTEM/ PUBLIC CONVENIENCE/ PUBLIC SAFETY:**

Contractor shall prepare construction staging, and traffic control plans for review and approval by the Transportation Department.

Proposed plans shall be submitted by the Contractor for review and approval by the Transportation Department at least two weeks prior to the start of construction. The construction staging, and traffic control plans shall be prepared, signed and stamped by a Civil Engineer or Traffic Engineer who is registered as such in the State of California, unless otherwise specifically allowed by the Engineer. The Contractor shall revise and implement the plans as directed by the Engineer. Construction shall not begin until the Engineer provides Contractor with County approval of the plans.

Construction staging, and traffic control plans shall be in accordance with the appropriate standards and specifications for construction staging, detour roads, traffic control, including the State of California Highway Design Manual, the manual on Uniform Traffic Control Devices 2006 Edition, the corresponding California Supplement, and subsequent modifications as adopted by the State of California Department of Transportation, Standard Plans and Standard Specifications, and the Work Area Traffic Control Handbook (WATCH), as published by Building News, Inc. Any requests for deviation from the established design standards or specifications are to be submitted to the Engineer for review and approval prior to submission of the required plans.

With regard to the preparation and implementation of the plans, attention is especially directed to Sections 7-1.06, 7-1.08, 7-1.09, 7-1.11, 7-1.12 and Section 12 of the State of California Standard Specifications. Section 12-2.02 of the Standard Specifications is deleted.

Maintaining traffic shall conform to the provisions in 7-1.02 "Load Limitations", 7-1.06 "Safety and Health Provisions", 7-1.08 "Public Convenience", 7-1.09 "Public Safety", and 12-3.04 "Portable Delineators" of the Standard Specifications, the Manual on Uniform Traffic Control Devices 2006 Edition, the corresponding California Supplement, and subsequent modifications as

adopted by the State of California Department of Transportation, the Section of these contract documents entitled "Insurance - Hold Harmless", and these Special Provisions.

All existing traffic control signs and street name signs shall be maintained in visible locations as directed by the Engineer.

Portable changeable message signs shall be furnished, placed, operated and maintained at those locations shown on the approved Traffic Control Plans or where designated by the Engineer in conformance with the provisions in Section 12, "Construction Area Traffic Control Devices" of the Standard Specifications and these Special Provisions.

All warning lights, signs, flares, barricades and other facilities for the sole convenience and direction of public traffic shall be furnished and maintained by the Contractor. All traffic control devices shall conform to and be placed in accordance with the Manual on Uniform Traffic Control Devices 2006 Edition, the corresponding California Supplement, and subsequent modifications as adopted by the State of California Department of Transportation.

All construction signs shall be either covered or removed when not required by the nature of the work or if no present hazard to the motorist exists.

The Contractor shall notify the appropriate regional notification center for operators of subsurface installations at least 2 working days, but not more than 14 calendar days, prior to commencing excavation for construction area sign posts. The regional notification centers include, but not limited to, the following:

Notification Center	Telephone Number
Underground Service Alert-Southern California (USA)	1-800-422-4133, 1-800-227-2600 or 811

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.

No payment for extra work will be allowed for work performed as specified in Section 12-2.02 (Flagging Costs) of the Standard Specifications. Flagging costs will be borne entirely by the Contractor.

Dust control shall conform to the provision of Section 10 of the Standard Specifications except that no extra work will be allowed when the Engineer orders the application of water for the purpose of controlling dust caused by public traffic as provided for in the last paragraph of Section 10.

The Contractor shall be responsible to distribute an information letter pertaining to the planned work to all affected residences and businesses, at least one week prior to commencing work adjacent to those residences and businesses. It shall be the responsibility of the Contractor to prepare, print sufficient copies, and distribute the letter. A computer file of the logo may be

obtained from the Engineer in .WPG, .DXF, .DGN or .DWG format. The letter shall be similar to the sample provided by the Engineer, and shall include a project description, the scope of work, the anticipated construction schedule, and other information as appropriate.

The Contractor shall post temporary no parking signs on affected streets 24 hours prior to work on those streets. The temporary no parking signs shall state the anticipated dates and hours of work on those streets.

**Method of Payment:**

Full compensation, except as otherwise provided herein, for conforming to the requirements of this article, including furnishing, installing and maintaining all traffic control devices shown on the construction staging, and traffic control plans, including construction area signs, channelizers, portable changeable message signs, temporary pavement markers, temporary traffic stripes, graffiti removal and cleaning, shall be considered as included in the contract lump sum price paid for Traffic Control System, and no additional compensation will be allowed therefor.

**MAINTAINING TRAFFIC:**

Maintaining traffic shall conform to the provisions in Section 7-1.08, "Public Convenience", Section 7-1.09, "Public Safety" and Section 12, "Construction Area Traffic Control Devices" of the Standard Specifications and "Public Safety" of these Special Provisions.

Daily working hours shall be between the hours of 7:00 a.m. and 6:00 p.m., Monday through Friday, except legal holidays, as approved by the Engineer. Exceptions and specific work schedules shall be submitted to the Engineer for consideration.

Closure is defined as the closure of a traffic lane or lanes, including shoulder, ramp or connector lanes, within a single traffic control system. Lane closure is allowed only during contractor's work hours. All traveled lanes must be opened to traffic during non working hours excluding reconstruction area.

Contractor must have at least one lane in each direction open at all times. Traffic cannot be directed into the on-coming traffic lanes at any time.

Attention is directed to Liquidated Damages of these Special Provisions for delays.

Closure shall conform to the provisions in "Traffic Control System" of these Special Provisions.

Local authorities shall be notified at least five (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.

Personal vehicles of the Contractor's employees shall not be parked on the traveled way or shoulders including sections closed to public traffic.

When work vehicles or equipment are parked on the shoulder within six (6) feet of a traffic lane, the shoulder area shall be closed.

When work vehicles or equipment are parked on the shoulder within six (6) feet of a traffic lane, 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 location a traffic cone or delineator that is displaced or overturned, during the progress of work.

If minor deviations are required on traffic control plan, 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 County and if the work can be expedited and better serve the public traffic.

Designated County legal holidays are January 1<sup>st</sup>, the third Monday in January, February 12<sup>th</sup>, the third Monday in February, the last Monday in May, July 4<sup>th</sup>, the first Monday in September, the second Monday in October, November 11<sup>th</sup>, Thanksgiving Day, the Friday following Thanksgiving Day, December 24<sup>th</sup> and 31<sup>st</sup> when they fall on Monday, December 25<sup>th</sup>, December 26<sup>th</sup> and January 2<sup>nd</sup> when they fall on Friday, When a designated legal holiday falls on a Sunday, the following Monday shall be a designated legal holiday. When January 1<sup>st</sup>, February 12<sup>th</sup>, July 4<sup>th</sup>, November 11<sup>th</sup>, or December 25<sup>th</sup> fall on a Saturday, the preceding Friday shall be a designated legal holiday.

**Method of Payment:**

Full compensation for furnishing, erecting, maintaining, removing and disposing of the C43 (CA), W20-1, W21-5b and C24 (CA) signs shall be considered as included in the contract lump sum price paid for Traffic Control System and no additional compensation will be allowed therefor.

**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.

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.

Orange background on construction area signs shall be fluorescent orange.



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.

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.

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.

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.

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.

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.

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.

Full compensation, except as otherwise provided herein, for conforming to the requirements of this article, shall be considered as included in the lump sum price paid for Traffic Control System and no additional compensation will be allowed therefor.

**PORTABLE CHANGEABLE MESSAGE SIGN:**

Six(6) portable changeable message signs shall be furnished, placed, operated, and maintained at locations shown on the plans or where designated by the Engineer and shall conform to the provisions in Section 12, "Construction Area Traffic Control Devices" of the Standard Specifications and these Special Provisions. Messages displayed on the portable changeable message signs shall be as specified on the plans and shall conform to Section 12-3.12 "Portable Changeable Message Signs" of the Standard Specifications and "Maintaining Traffic" of these Special Provisions".

A portable changeable message sign shall be placed in advance of the first warning sign for each stationary lane closure.

A portable changeable message sign shall be placed before and during ramp and connector closure.

A portable changeable message sign shall be placed during speed zone reductions. When used in conjunction with a lane closure, use one portable changeable message sign, with both the speed zone reduction and the lane closure messages.

Full compensation for portable changeable message signs shall include all labor, materials, tools, equipment and incidentals, and for doing all work involved in furnishing, placing, operating, maintaining, repairing, transporting from location to location and removing portable changeable message signs as directed by the Engineer shall be considered as included in the lump sum price paid for Traffic Control System and no additional compensation will be allowed therefor.

### **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.

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.

If requested by the Engineer, the Contractor shall provide written self-certification for crashworthiness of Category 1 temporary traffic control devices at least 5 days before beginning any work using the devices or within 2 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.

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.

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](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>

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.

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 days before beginning any work using the devices or within 2 days after the request if the devices are already in use.

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.

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.

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/HighwaySafe.htm](http://www.dot.ca.gov/hq/esc/approved_products_list/HighwaySafe.htm)

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.

**Method of Payment:**

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 lump sum price paid for the Traffic Control system, and no additional compensation will be allowed therefor.

**DEVELOP WATER SUPPLY:**

Develop water supply shall conform to the provisions of Section 17 of the Standard Specifications and these Special Provisions.

Attention is directed to the requirements of Section 10, "Dust Control", of the Standard Specifications. Water in amounts specified by the Engineer will be used for dust control, and the cost thereof will be included in the lump sum price paid for Dust Abatement.

No extra work will be allowed when the Engineer orders the application of water for the purpose of controlling dust caused by public traffic as provided for in the last paragraph of Section 10.

**Method of Payment:**

Full compensation for developing water supply and furnishing watering equipment shall be paid for on a lump sum basis and no additional compensation will be allowed therefore.

**DUST ABATEMENT:**

For dust abatement requirements and payment refer to Section 32, "Dust Abatement" of the General Conditions on pages GC27 through GC29 in this book. In addition, the Contractor shall comply with the AQMD Recommendations found in Appendix A.

**CLEARING AND GRUBBING:**

Clearing and grubbing shall conform to the provisions in Section 16 of the Standard Specifications.

Shrubs and bushes shall be removed as directed by the Engineer and disposed of completely.

Removed vegetation and hardscape shall be the property of the Contractor and shall be disposed of by the Contractor, as provided in Section 7-1.13 of the Standard Specifications.

**Method of Payment:**

Clearing and Grubbing shall be paid on a Lump sum basis.

Full compensation, except as otherwise provided herein, for conforming to the requirements of this article shall be paid for on a lump sum basis including furnishing of all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in and no additional compensation will be allowed therefor.

## **WEDGE PLANE/COLD PLANE ASPHALT CONCRETE PAVEMENT:**

The Contractor shall wedge plane/cold plane the asphalt concrete pavement to a depth as shown on the approved plans or as directed by the Engineer.

The Contractor shall wedge plane 6 feet adjacent to the concrete curb and gutter, spandrels, cross gutters, and paved driveways to a depth as shown on the plans or as directed by the Engineer.

The cold plane machine shall have a cutter head at least 72 inches wide and shall be operated so as not to produce fumes or smoke.

The depth, width and shape of the cut shall be as indicated on the plans. The outside lines of the planed area shall be neat and uniform. The road surfacing to remain in place shall not be damaged in any way.

The material planed from the roadway surface, including material deposited in existing gutters or on the adjacent traveled way shall become the property of the Contractor and shall be immediately removed from the site of the work and disposed of as provided in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way", of the Standard Specifications. The removal crew shall follow within 50 feet of the planer, unless otherwise directed by the Engineer.

Nothing in these Special Provisions shall relieve the Contractor from his responsibilities as provided in Section 7-1.09, "Public Safety" of the Standard Specifications.

During the pavement operation, no vertical drops are permitted between lanes during non-working hours. Transitions between lifts shall not exceed 2% or as approved by Engineer during non-working hours.

### **Header Cut:**

At road connections and at limits of asphalt paving, existing pavement shall be header cut as shown on the plans or as directed by the Engineer. Full compensation for furnishing all labor, tools and doing all the work necessary including grinding, and sawcutting shall be considered as included in the contract prices paid per square yard for Cold Plane Asphalt Concrete Pavement and no additional compensation will be allowed therefor.

### **Method of Payment:**

The contract unit bid price paid per square yard for Cold Plane Asphalt Concrete Pavement and per linear foot for Wedge Plane Asphalt Concrete Pavement shall include full compensation for providing all labor, tools, equipment and disposing of the grindings, and no additional compensation will be allowed therefor.

### **REMOVE METAL BEAM GUARD RAIL:**

Existing metal beam guard railing, where shown on the plans to be removed, shall be removed and disposed of.

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 the contract price paid per linear foot for remove metal beam guard railing and no separate payment will be made therefor.

#### **Method of Payment:**

The contract price paid per linear foot for Remove Metal Beam Guard Railing shall include full compensation for furnishing all labor, tools, materials, equipment and incidentals, and for doing all the work involved, including removing cable anchor assemblies, terminal anchor assemblies or steel foundation tubes, and no separate payment will be made therefor.

### **REPAIR SLOPE:**

Slope repair must conform to the requirements in Section 19, "Earthwork," of the Standard Specifications, these special provisions, and as directed by the Engineer. The provisions in the fourth paragraph of Section 19-6.01, "Placing," of the Standard Specifications to cut into the embankment 6 feet horizontally shall not apply to slope repair work.

Slope repair shall consist of backfilling eroded areas with 1 sack slurry, grading or hand shaping slopes and compacting eroded areas at the locations shown on the plans. Prior to slope repair work, clear the area in accordance with Section 16, "Clearing and Grubbing" of the Standard Specifications and these special provisions. Embankment for slope repair shall be approved by Engineer. The slope repair areas, and adjacent areas, shall be graded to a uniform slope line.

Slurry cement backfill shall conform to Section 19-3.062, "Slurry Cement Backfill", of the Standard Specifications, except for full compensation for furnishing and placing slurry cement backfill shall be considered as included in the contract unit bid price paid per lump sum for Repair Slope and no additional compensation will be allowed therefor.

#### **Method of Payment:**

The contract price paid per lump sum for Repair Slope shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in slope repair, including embankment materials and preparation of the areas upon which embankment materials are to be placed, and slope compaction, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer and no additional compensation will be allowed therefor.

### **ROADWAY EXCAVATION:**

Earthwork shall conform to the provisions of Section 19 "Earthwork" of the Standard Specifications and these Special Provisions.

At road connections and at limits of asphalt paving, existing pavement shall be header cut as directed by the Engineer. Full compensation for furnishing all labor, tools and doing all the work necessary including grinding, and sawcutting shall be considered as included in the contract prices paid per ton for the various asphalt concrete items and no additional compensation will be allowed therefor.

Existing pavement including any base material shall be cut back to neat lines and removed as shown on the plans or as directed by the Engineer. Excess material will become the property of the Contractor and will be disposed of as provided in Section 7-1.13 of the Standard Specifications.

Pavement and base material removal will be considered as roadway excavation for payment purposes.

### **Relative Compaction**

Relative compaction shall conform to the provisions of Section 19-5.03, "Relative Compaction (95 Percent)" of the Standard Specifications, these Special Provisions and/or as directed by the Engineer.

Whenever relative compaction is specified to be determined by Test Method No. Calif. 216, the in-place density may be determined by Test Method No. Calif. 231. The in-place density required by Test Method No. Calif. 312 may be determined by Test Method No. 231. The wet weight or dry weight basis and English Units of Measurement may be used at the option of the Materials Engineer.

### **Method of Payment:**

The unit price paid per cubic yard for Roadway Excavation shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all work involved including hauling, excavation and compaction, removal of existing pavement and base, as directed by the Engineer and no additional compensation will be allowed therefor.

### **PREPARING EXISTING ROADBED FOR RESURFACING:**

When asphalt concrete is to be spread over existing pavement, the existing pavement shall first be cleaned of all dirt and extraneous material. The area shall be sprayed with paint binder prior to resurfacing.

The area to which paint binder has been applied shall be closed to public traffic. Care shall be taken to avoid tracking binder material onto existing pavement surfaces beyond the limits of construction. Full compensation for furnishing all labor, tools, and materials necessary to clean

tracked paint binder shall be considered as included in the contract price paid per ton for Asphalt Concrete.

Asphalt concrete shall be placed on all existing surfacing, including curve widening, public road connections, and left turn pockets, unless otherwise directed by the Engineer.

All raised pavement markers shall be removed prior to the application of paint binder.

The Contractor will be required to place and remove temporary pavement markings as directed by the Engineer.

At the end of each day's work, preceding a non-working day or a day on which the Contractor does not work, the distance between the ends of the adjacent surfaced lanes shall not be greater than 10 feet nor less than 5 feet.

**Method of Payment:**

Except as otherwise provided, full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in preparing existing roadbed as shown on the plans, as specified herein, and as directed by the Engineer shall be considered as included in the contract prices paid for the various asphalt concrete items.

**ROUT AND SEAL RANDOM CRACKS:**

All cracks will be filled with a rubberized asphalt material that has a minimum softening point temperature of 200 degrees Fahrenheit and a safe heating temperature of 380 degrees Fahrenheit, or as otherwise directed by the Engineer.

For cracks in size of 1/4 inch to 1/2 inch in width, the crack shall be widened using a router to form a sealant reservoir which is a minimum of 1/2 inch wide and 3/4 inch to 1 inch deep. The routed crack shall then be cleaned with compressed air to remove all dust and free moisture, and then sealed to service level. If a 3/8 inch asphalt concrete mix overlay is to be used, the filler material shall be deleted.

Cracks wider than 1/2 inch width shall be cleaned for the entire crack depth using sandblasting, brushing and air blowing techniques, as required to provide a crack free from all debris, dust, loose material and moisture. Gauging or plowing may be required to remove incompressible deep in the crack. The clean crack shall be filled with sealant, from the bottom up to surface level, in a manner which does not result in sealant bridging or entrapped air pockets. With deep cracks, settlement of sealant may occur, thus requiring application of a second layer of sealant material. For cracks with depressed surfaces on each side of the crack shall be over filled beyond level with pavement surface and then squeezed to fill in depressed area.

Cracks wider than 1 inch width shall be filled with pea-gravel and SS grade asphaltic emulsion as directed by the Engineer.

**APPLICATION OF HERBICIDE AND WEED REMOVAL**



Herbicide shall be applied to all visible weeds and vegetation, and to all cracks exceeding 1/4 inch in width, within the pavement areas at least 10 days prior to removal of weeds and vegetation, or longer if the manufacturer’s recommendation is for a period of time in excess of 10 days. All weeds and vegetation shall be removed from the pavement areas.

The herbicide used shall meet all Federal, State and County health and safety requirements for the intended use of the product, as described herein. Contractor shall obtain specific approval from the Engineer for the use of the herbicide proposed by the Contractor.

Contractor shall provide all necessary protection to prevent injury to adjacent plant life or property from herbicide. The Contractor will be held responsible for any personal injury or property damage caused by the transportation, storage or application of herbicides.

The Contractor shall notify the Engineer two days in advance prior to any application of herbicide.

Herbicide shall be applied by a Contractor that is properly licensed to do this work.

**Method of Payment:**

Full compensation for Rout And Seal Random Cracks shall be considered as included in the contract price paid per ton for Hot Mix Asphalt and it shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals required for cracks routing, cracks cleaning, sweeping and application of herbicide and sealant, as directed by the Engineer and no additional compensation will be allowed therefor.

**PAVEMENT REINFORCING FABRIC (TruPave or approved equal):**

This work shall consist of furnishing and placing the engineered fiber glass fabric (TruPave or approved equal) within the pavement structure as shown on the plans or as directed by the Engineer. The engineered fiber glass fabric placing beneath the hot mix asphalt, shall provide a moisture barrier/stress relieving membrane and meeting the following physical properties table.

<b>PHYSICAL PROPERTIES OF ENGINEERED FIBER GLASS FABRIC</b>			
<b>Property</b>	<b>Test Method</b>	<b>Units</b>	<b>MARV*</b>
Mass per unit area	ASTM D5261	g/m2 (oz/yd2)	136 (4.0)
Tensile strength, MD	ASTM D5035	N/50 mm (lb/2 in)	200 (45)
Tensile Strength, CD	ASTM D5035	N/50 mm (lb/2 in)	200 (45)
Elongation at maximum load, MD	ASTM D5035	percent	<5
Elongation at maximum load, CD	ASTM D5035	percent	<5
Melting point	ASTM D276	C ( F)	>230 (>446)
* MARV = Minimum Average Roll Value			

The same asphalt binder to be used in the first hot mix asphalt layer over the engineered fiber glass fabric shall be used as the tack coat material for the engineered fiber glass fabric, unless the manufacturer of the engineered fiber glass fabric material recommends a higher performance grade asphalt binder. Asphalt binder for use as tack coat shall be at least PG 70–10.

Clean sand may be used for blotting purposes if necessary. Sand shall be a washed sand meeting the approval of the Engineer.

Equipment used to place the asphalt tack for the engineered fiber glass fabric, to install the engineered fiber glass fabric or to roll the engineered fiber glass fabric into the tack coat shall be in accordance with the manufacturer's recommendations.

**Construction Requirements:**

The engineered fiber glass fabric shall be stored as per the manufacturer's recommendations in a dry covered condition free from dust, dirt, and moisture. The engineered fiber glass fabric shall be installed in accordance with the manufacturer's specifications and these Special Provisions. Where a conflict exists between the specifications, the more stringent specifications will apply. A copy of the manufacturer's specifications shall be provided to the Engineer at the pre-construction meeting or no later than five working days prior to installation. A manufacturer representative shall be present, at minimum, for the first two days of installation of the engineered fiber glass fabric and available thereafter upon request by the Engineer. This requirement may be waived by the Engineer under the following conditions:

- a. The Contractor has been certified by the manufacturer for installation of the engineered fiber glass fabric.
- b. A manufacturer representative will be on at least the first two days of paving to ensure the certified Contractor's installation is correct.

The surface on which the engineered fiber glass fabric is to be placed shall be reasonably free of dirt, water, vegetation or other debris. The engineered fiber glass fabric shall be placed on a drainable surface, and any rutting or low spots in the pavement shall be removed by milling or by the use of a leveling course as shown on the plans. Cracks exceeding 1/8 inch in width shall be filled with suitable crack filler. Potholes shall be properly repaired as directed by the Engineer. Fillers shall be allowed to cure prior to placement of the engineered fiber glass fabric.

Neither the asphalt binder nor the engineered fiber glass fabric shall be placed when weather conditions, in the judgment of the Engineer, are not suitable. Air and pavement temperature shall be sufficient to allow the tack coat to hold the engineered fiber glass fabric in place. The air temperature shall be 50<sup>0</sup>F and rising for placement of the asphalt tack coat.

The application rate of tack coat shall be 0.20 gal/square yard +/- 0.03 gal/square yard. Tack coat application rate shall be sufficient to satisfy the asphalt retention properties of the engineered fiber glass fabric and to bond the engineered fiber glass fabric and hot mix asphalt overlay to the existing pavement. If the engineered fiber glass fabric is to be placed in milled areas, it is recommended that the milled area be pre-treated with the tack coat in order to ensure enough tack material is present to bond the engineered fiber glass fabric and create a suitable moisture barrier.

Application of the tack coat shall be by a calibrated distributor truck spray bar. Hand spraying, squeegee and brush application will only be allowed where the distributor truck does not have

room to operate and shall be kept to a minimum. Temperature of the tack coat shall be sufficiently high enough to permit uniform spray pattern and shall be between 300<sup>0</sup>F and 400<sup>0</sup>F. It is recommended that tack coat be at least 350<sup>0</sup>F.

The target width of the tack coat application shall be the engineered fiber glass fabric material width plus 4 inches. Tack coat application shall be wide enough to cover the entire width of engineered fiber glass fabric material overlaps. The tack coat shall be applied only as far in advance of the engineered fiber glass fabric material installation as is appropriate to ensure a tacky surface at the time of the engineered fiber glass fabric material placement. Traffic shall not be allowed on the tack coat.

The engineered fiber glass fabric shall be placed onto the tack coat with minimum folds or wrinkles and before the tack coat has cooled and lost tackiness. As directed by the Engineer, wrinkles or folds in excess of 1 inch shall be slit and laid flat or pulled out and replace. In these repaired areas, additional tack coat shall be applied as needed to achieve a sound bond to the substrate. Damaged engineered fiber glass fabric shall be removed and replaced, per the manufacturer's recommendations, at the Contractor's expense with the same type of material.

Overlap of engineered fiber glass fabric joints shall be sufficient to ensure full closure of the joint, but shall not exceed 6 inches. Transverse joints shall be lapped in the direction of paving to prevent edge pickup by the paver. A second application of tack coat shall be placed beneath the overlapping engineered fiber glass fabric to ensure proper bonding of the double material layer.

Brooming, squeegee or pneumatic rolling shall be used to remove any air bubbles and to maximize engineered fiber glass fabric contact with the pavement surface and shall be done in accordance with the manufacturer's specifications and to the satisfaction of the Engineer.

Excess tack coat that bleeds through the engineered fiber glass fabric shall be removed by broadcasting clean sand on the engineered fiber glass fabric interlayer. Broadcasting of clean sand may also be used to facilitate movement of equipment during construction, to prevent tearing or delaminating of the engineered fiber glass fabric or to prevent pickup by the paving machine. If sand is applied, any excess sand shall be removed from the interlayer prior to placing hot mix asphalt overlay. Scattering loose hot mix asphalt out in front of the paver tires will also be permissible. No other material, such as asphalt release agents or diesel, shall be used for this purpose.

No traffic, except necessary construction traffic or emergency vehicles, shall be driven on the engineered fiber glass fabric, unless approved by the Engineer. If traffic on the interlayer is approved by the Engineer, clean sand shall be lightly broadcasted over the engineered fiber glass fabric interlayer, and any loose sand shall be removed prior to paving.

Placement of the first lift of hot mix asphalt overlay shall closely follow placement of the engineered fiber glass fabric. All areas in which the engineered fiber glass fabric has been placed shall be paved during the same day, unless approved otherwise by the Engineer. In the event of rainfall on the engineered fiber glass fabric prior to the placement of the first hot mix asphalt overlay lift, the engineered fiber glass fabric shall be allowed to dry before the hot mix asphalt is placed. The compacted thickness of the first lift of hot mix asphalt overlay on the engineered fiber glass fabric shall not be less than 1.5 inches, and the temperature of the mix at placement shall not

exceed the engineered fiber glass fabric melting point temperature. Where the total hot mix asphalt overlay thickness is less than 1.5 inches, engineered fiber glass fabric shall not be placed.

**Method of Payment**

The contract unit bid price paid per square yard for Pavement Reinforcing Fabric shall include full compensation for all labor, materials, tools, equipment, and incidentals, for doing all the work involved in placement of the engineered fiber glass fabric, complete in place, as shown on the plans, and no additional compensation will be allowed therefor.

**ASPHALT TREATED PERMEABLE BASE:**

Asphalt treated permeable base shall conform to Section 29-1.02A, "Asphalt Treated Permeable Base" of the Standard Specifications and these Special Provisions.

Asphalt treated permeable base shall be placed as shown on the approved plans or as directed by the Engineer.

**Method of Payment:**

The contract unit bid price paid per cubic yard for Asphalt Treated Permeable Base shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved including the furnishing and placing of filter fabric as specified, and no additional compensation will be allowed therefor.

**AGGREGATE BASE:**

Aggregate base shall be Class 2 and shall conform to the provisions in Section 26, "Aggregate Bases" of the Standard Specifications and these Special Provisions and shall meet the gradation requirements for ¾ inch maximum.

The first paragraph of Section 26-1.02A, "Class 2 Aggregate Base" shall be modified to read:

Aggregate for Class 2 aggregate base shall be free from organic matter and other deleterious matter, and shall be of such nature that it can be compacted readily under watering and rolling to form a firm and stable base. Aggregate may consist of broken and crushed asphalt concrete or Portland cement concrete and may contain crushed aggregate base or other rock materials. The material may contain no more than 3 percent brick by weight as determined by California Test Method 202 as modified: Brick material retained on a No.4 sieve shall be identified visually and separated manually. Brick quantification shall be based on total weight of dry sample. Also, material retained on the 4.75 mm (No.4) sieve shall contain no more than 15 percent of particles (gravel) that have no more than one fractured face.

The Quality Requirements contained in Section 26-1.02A shall be modified to read:

**QUALITY REQUIREMENTS**

Test	Contract Compliance
<u>Resistance (R-Value)</u>	
Virgin Rock	78 Minimum
Crushed Miscellaneous	80 Minimum
<u>Sand Equivalent</u>	
Virgin Rock	25 Minimum
Crushed Miscellaneous	35 Minimum
<u>Durability Index</u>	35 Minimum
<u>Percentage Wear</u>	
100 Revolutions	15 Maximum
500 Revolutions	52 Maximum

**Method of Payment:**

Quantities of Aggregate Base will be paid for at the contract unit price per cubic yard and in accordance with the provisions of Sections 26-1.06 and 26-1.07 of the Standard Specifications, and will include the base requirements under all proposed AC pavement improvements. No adjustment in the bid price per cubic yard for overages or underages from the stated quantity will be allowed.

**HOT MIX ASPHALT CONCRETE (Type A and Type C):**

The asphalt concrete shall be Type "A" and Type "C" and shall conform to the requirements of Section 39 of the Standard Specifications and the following:

Aggregate grading shall be three-quarter inch (3/4") maximum for HMA Type "A".

Aggregate grading shall be one inch (1") for HMA Type "C".

The grade of asphalt binder mixed with aggregate for HMA Type "A" and "C" must be PG 64-10 and PG 70-10 respectively as shown on the plans.

The aggregate for HMA Type "C" must comply with the 1-inch grading as presented in the following table.

**Aggregate Gradation  
(Percentage Passing)  
HMA Type C**

**1-inch HMA Type C**

Sieve Sizes	Target Value Limits	Allowable Tolerance
1"	100	—
3/4"	88 - 93	TV ±5
1/2"	72 - 85	TV ±6
3/8"	55 - 70	TV ±6
No. 4	35 - 52	TV ±7
No. 8	22 - 40	TV ±5
No. 30	8 - 24	TV ±4
No. 50	5 - 18	TV ±4
No. 200	3 - 7	TV ±2

The aggregate shall conform to the following quality requirements prior to the addition of asphalt binder.

**Aggregate Quality**

Quality Characteristic	Test Method	Requirement
Percent of crushed particles <sup>a</sup> Coarse aggregate (% min.) Two fractured faces	CT 205	95
Fine aggregate (Passing No. 4 sieve and retained on No. 8 sieve.) (% min.) One fractured face		90
Los Angeles Rattler (% Max.) <sup>a</sup> Loss at 100 rev. Loss at 500 rev.	CT 211	12 40
Sand equivalent <sup>a, b</sup> (min.)	CT 217	47
Fine aggregate angularity (% min.) <sup>a</sup>	AASHTO T 304 Method A	45
Flat and elongated particles (% max. by weight @ 5:1.) <sup>a</sup>	ASTM D 4791	10

Note:

<sup>a</sup> Combine aggregate in the JMF proportions.

<sup>b</sup> Reported value must be the average of 3 tests from a single sample.

During mix design, determine the optimum binder content (OBC) at 5 percent air voids content. Determine the proposed JMF from a mix design that complies with the following table:

**Hot Mix Asphalt Mix Design Requirements**

Quality Characteristic	Test Method or Lab Procedure	Requirement		
Design air voids content (%)		4.0	5.0	
Air voids content <sup>a</sup> (%)	CT 367	4.0	5.0	
Voids in mineral aggregate (% min.) <sup>b</sup> 1" grading	LP-2			
		with NMAS = 1"	12	13
		with NMAS = 3/4"	13	14
Voids filled with asphalt (%) 1" grading	LP-3	65.0 – 75.0	60.0 – 70.0	
Dust proportion <sup>c</sup> (P200/Pbe)	LP-4	0.6 – 1.3	0.6 – 1.3	
Stabilometer value (min.)	CT 366	37 <sup>d</sup>	37 <sup>d</sup>	

Notes:

<sup>a</sup> Calculate the air voids content of each specimen using CT 309 and LP-1. Modify CT 367, Paragraph C5, to use the exact air voids content specified in the selection of OBC.

<sup>b</sup> Minimum VMA is dependent upon NMAS of JMF. NMAS is defined as one sieve size larger than the first sieve to retain more than 10 percent.

<sup>c</sup> Asphalt content based on dry weight of aggregate

<sup>d</sup> Follow CT 366: 150 tamps at 500 psi tamping pressure and 230 °F compaction temperature; cool specimens to 140 °F; apply 12,600 lb leveling load; and perform stabilometer test at 140 °F.

The asphalt lift thickness table, as shown in Section 39-6.01, "General Requirements" of the Standard Specifications, is revised as follows:

Total Thickness Shown on Plans	Minimum No. of Layers	Top Layer Thickness (foot)		Next Lower Layer Thickness (foot)		All Other Lower Layer Thickness (foot)	
		Min.	Max.	Min.	Max.	Min.	Max.
0.24-foot or less <sup>a</sup>	1	-	-	-	-	-	-
0.25-foot	2 <sup>b</sup>	0.12	0.13	0.12	0.13	-	-
0.26 - 0.46 foot	2	0.12	0.21	0.14	0.25	-	-
0.47-foot or more	3 or more	0.15	0.21	0.15	0.25	0.17	0.25

Footnotes to asphalt thickness table are revised as follows:

- a. No Change.
- b. One layer of 0.25 foot thick may be placed as approved by the Engineer. When the Traffic Index specified is 5.5 or below, two layers shall be placed.

**Asphalt:**

Asphalt shall conform to the provisions in this Section, "Asphalts". Section 92, "Asphalts" of the Standard Specifications shall not apply.

Asphalt shall consist of refined petroleum or a mixture of refined liquid asphalt and refined solid asphalt, prepared from crude petroleum. Asphalt shall be:

1. Free from residues caused by the artificial distillation of coal, coal tar, or paraffin;
2. Free from water;
3. Homogeneous.

**General:**

The Contractor shall furnish asphalt in conformance with the State of California Department of transportation'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/fpmcoc.htm>.

The Contractor shall ensure the safe transportation, storage, use, and disposal of asphalt.

The Contractor shall prevent the formation of carbonized particles caused by overheating asphalt during manufacturing or construction.



Performance Grade:

Performance graded (PG) asphalt binder shall conform to the following:

Property	AASHTO Test Method	Specification Grade		
		PG 64-10	PG 64-16	PG 70-10
Original Binder				
Flash Point, Minimum °C	T48	230	230	230
Solubility, Minimum % <sup>b</sup>	T44	99	99	99
Viscosity at 135 °C, Maximum, Pa s	T316	3.0	3.0	3.0
Dynamic Shear, Test Temp. at 10 rad/s, °C Minimum G <sup>*</sup> /sin(delta), kPa	T315	64 1.00	64 1.00	70 1.00
RTFO Test <sup>e</sup> , Mass Loss, Maximum, %	T240	1.00	1.00	1.00
RTFO Test Aged Binder				
Dynamic Shear, Test Temp. at 10 rad/s, °C Minimum G <sup>*</sup> /sin(delta), kPa	T315	64 2.20	64 2.20	70 2.20
Ductility at 25 °C Minimum, cm	T51	75	75	75
PAV <sup>f</sup> Aging, Temperature, °C	R28	100	100	110
RTFO Test and PAV Aged Binder				
Dynamic Shear, Test Temp. at 10 rad/s, °C Maximum G <sup>*</sup> /sin(delta), kPa	T315	31 <sup>d</sup> 5000	28 <sup>d</sup> 5000	34 <sup>d</sup> 5000
Creep Stiffness, Test Temperature, °C Maximum S-value, Mpa Minimum M-value	T313	0 300 0.300	-6 300 0.300	0 300 0.300

**Notes:**

- a. Not used.
- b. The Engineer will waive this specification if the supplier is a Quality Supplier as defined by Department's "Certification Program for Suppliers of Asphalt".
- c. The Engineer will waive 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<sup>\*</sup>sin(delta) shall remain 5000 kPa maximum.
- e. "RTFO Test" means the asphaltic residue obtained using the Rolling Thin Film Oven Test, AASHTO Test Method T240 or ASTM Designation: D2827.
- f. "PAV" means Pressurized Aging Vessel.

Performance graded polymer modified asphalt binder (PG Polymer Modified) is:

Performance Graded Polymer Modified Asphalt Binder <sup>a</sup>

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 % <sup>b</sup>	T 44 <sup>c</sup>	98.5	98.5	98.5
Viscosity at 135°C, <sup>d</sup> 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 <sup>f</sup> , Test Temp., °C Minimum recovery, %	T 301	25 75	25 75	25 65
PAV <sup>g</sup> 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 Modifier 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 D5546 instead of AASHTO T44.
- 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. Test without a force ductility clamp may be performed.
- g. "PAV" means Pressurized Aging Vessel.

**Sampling:**

The Contractor shall provide a sampling device in the asphalt feed line connecting the plant storage tanks to the asphalt weighing system or spray bar. The sampling device shall be accessible between 24 and 30 inches above the platform. The Contractor shall provide a receptacle for flushing the sampling device.

The sampling device shall include a valve:

1. With a diameter between 1/2 and 3/4 inches;
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.

The Contractor shall replace failed valves.

In the presence of the Engineer, the Contractor shall take 2 one-quart samples per operating day. The Contractor shall provide round friction top containers with one-quart capacity for storing samples.

**Applying Asphalt:**

Unless otherwise specified, the Contractor shall heat and apply asphalt in conformance with the provisions in Section 93, "Liquid Asphalts" of the Standard Specifications.

Section 39-2.01, "Asphalts" is replaced in its entirety with the followings:

Asphalt binder to be mixed with aggregate shall conform to the provisions in "Asphalts" of these Special Provisions.

Liquid asphalt for prime coat shall conform to the provisions in Section 93, "Liquid Asphalts" of the Standard Specifications and shall be Grade PG 64-10 unless otherwise designated by the contract item or otherwise specified in the Special Provisions.

Asphaltic emulsion for paint binder (tack coat) shall conform to the provisions in Section 94, "Asphaltic Emulsion" of the Standard Specifications for the rapid-setting or slow-setting type and grade approved by the Engineer.

Section 39-3.01B (1) shall be amended to include:

Aggregate of the 3/4 inch or 1/2 inch maximum size and aggregate for asphalt concrete base shall be separated into 3 or more sizes and each size shall be stored in separate bins. If 3 sizes are used, one bin shall contain that portion of the material which will pass the maximum size specified and be retained on a 3/8 inch sieve; one bin shall contain that portion of the material which will pass a

3/8 inch sieve and be retained on a No. 8 sieve; and one bin shall contain that portion of the material which will pass a No. 8 sieve.

Aggregate of 3/8 inch maximum size shall be separated into 2 sizes and each size shall be stored in separate bins. One bin shall contain that portion of the material which will pass the maximum size specified and be retained on a No. 8 sieve and one bin shall contain that portion of the material which will pass a No. 8 sieve.

The bin containing the fine material shall not contain more than 15 percent of material retained on the No. 8 sieve. The material in any of the other bins shall not contain more than 15 percent of material passing a No. 8 sieve. Failure to comply with this requirement shall be corrected immediately, and the material in the bins not meeting these requirements shall be re-screened or wasted.

All asphalt concrete for this project shall be supplied from one source unless approved by the Engineer. Said source shall be listed on the Contractors Source of Materials List as required in Section 6 of the Standard Specifications.

Asphaltic emulsion shall be furnished and applied as provided in Section 39-4.02.

In addition to the provisions in Section 39-5.01, "Spreading Equipment" of the Standard Specifications, asphalt paving equipment shall be equipped with automatic screed controls and a sensing device or devices.

When placing asphalt concrete to the lines and grades established by the Engineer, the automatic controls shall control the longitudinal grade and transverse slope of the screed. Grade and slope references shall be furnished, installed, and maintained by the Contractor. Should the Contractor elect to use a ski device, the minimum length of the ski device shall be 30 feet. The ski device shall be a rigid one piece unit and the entire length shall be utilized in activating the sensor.

When placing the initial mat of asphalt concrete on existing pavement, the end of the screed nearest the centerline shall be controlled by a sensor activated by a ski device not less than 30 feet. The end of the screed farthest from centerline shall be controlled by an automatic transverse slope device set to reproduce the cross slope designated by the Engineer, by a sensor activated by a similar ski device or as directed by the Engineer.

When paving contiguously with previously placed mats, the end of the screed adjacent to the previously placed mat shall be controlled by a sensor that responds to the grade of the previously placed mat and will reproduce the grade in the new mat within a 0.12 inch tolerance. The end of the screed farthest from the previously placed mat shall be controlled in the same way it was controlled when placing the initial mat.

Should the methods and equipment furnished by the Contractor fail to produce a layer of asphalt concrete conforming to the provisions, including straightedge tolerance, of Section 39-6.03, "Compacting" of the Standard Specifications or elsewhere in these Special Provisions, the paving operations shall be discontinued and the Contractor shall modify the equipment or methods, or furnish substitute equipment.

Should the automatic screed controls fail to operate properly during a day's work, the Contractor may manually control the spreading equipment for the remainder of that day. However, the equipment shall be corrected or replaced with alternative automatically controlled equipment conforming to the provisions in this section before starting another day's work.

**General Criteria for Profiling:**

In addition to the straightedge provisions in Section 39-6.03, "Compacting" of the Standard Specifications, asphalt concrete pavement shall conform to the surface tolerances specified herein.

The uppermost layer of asphalt concrete surfacing shall be profiled in the presence of the Engineer using a California Profilograph or equivalent in conformance with California Test 526 and as specified in these Special Provisions.

The California Profilograph or equivalent will not be required for the following areas of the pavement surface but shall conform to the straightedge requirements in Section 39-6.03, "Compacting" of the Standard Specifications:

1. Pavement with a total thickness less than 0.24 foot;
2. Pavement on horizontal curves with a centerline curve radius of less than 1,000 feet and the pavement within the superelevation transition on those curves;
3. Pavement placed in a single lift when required by the Special Provisions;
4. Pavement with extensive grade or cross slope correction which does not receive advance leveling operations in conformance with the provisions in Section 39-6.02, "Spreading" of the Standard Specifications;
5. Pavement for ramps and connectors with steep grades and high rates of superelevation, as determined by the Engineer;
6. Shoulders and miscellaneous areas.

The Contractor shall conform to California Test 526, except a zero (null) blanking band shall be used for determining the Profile Index. Prior to beginning profiles, the profilograph shall be calibrated in the presence of the Engineer. Two profiles shall be obtained within each traffic lane, 3 feet from and parallel with the edges of the lane.

Pavements profiled shall conform to the following Profile Index requirements:

1. Pavement on tangent alignment and pavement on horizontal curves having a centerline curve radius of 2,000 feet or more shall have a Profile Index of 0.16 foot or less for each 330 feet section profiled;

2. Pavement on horizontal curves having a centerline curve radius of 1,000 feet or more but less than 2,000 feet, including the pavement within the superelevation transition of these curves, shall have a Profile Index of 0.32 foot or less for each 330 feet section profile;
3. Pavement within any 330 feet section, containing high point areas with deviations in excess of 0.025 foot in a length of 25 feet or less, when tested in conformance with the requirements in California Test 526, shall be corrected by the Contractor regardless of the Profile Index.

The Contractor shall complete initial runs of the profilograph prior to opening the pavement to public traffic. If initial profiles cannot be made prior to opening the pavement to public traffic, the initial runs of the profilograph shall be made the next day that traffic control is permitted for the area to be profiled.

Areas of the top surface of the uppermost layer of asphalt concrete pavement that do not meet the specified surface tolerances shall be brought within tolerance by abrasive grinding.

Abrasive grinding shall be performed to reduce individual deviations in excess of 0.025 foot, and to reduce the Profile Index of the pavement to be within the specified tolerance. Areas which have been subjected to abrasive grinding shall receive a seal coat. Deviations in excess of 0.025 foot which cannot be brought into specified tolerance by abrasive grinding shall be corrected by either (1) removal and replacement or (2) placing an overlay of asphalt concrete. The corrective method for each area shall be selected by the Contractor and shall be approved by the Engineer prior to beginning the corrective work. Replacement or overlay pavement not meeting the specified tolerances shall be corrected by the methods specified above. Corrective work shall be at the Contractor's expense. The Contractor shall run profilograms on the areas that have received abrasive grinding or corrective work until the final profilograms indicate the Profile Index of the area is within the specified tolerance.

When abrasive grinding is used to bring the top surface of the uppermost layer of asphalt concrete surfacing within the specified surface tolerances, additional abrasive grinding shall be performed as necessary to extend the area ground in each lateral direction so that the lateral limits of grinding are at a constant offset from, and parallel with, the nearest lane line or pavement edge, and in each longitudinal direction so that the grinding begins and ends at lines normal to the pavement centerline, within a ground area. Ground areas shall be neat rectangular areas of uniform surface appearance.

The original of the final profilograms that indicate the pavement surface is within the Profile Index specified shall become the property of the County and shall be delivered to the Engineer prior to acceptance of the contract.

**Method of Payment:**

The contract bid price paid per ton for Hot Mix Asphalt for the type shown in bid proposal shall include full compensation for furnishing all labor, tools, materials, equipment, and incidentals, and for doing all the work involved including the furnishing and applying asphaltic emulsion (paint binder/tack coat).

At road connections and at limits of asphalt paving, existing pavement shall be header cut as shown on the plans or as directed by the Engineer. Full compensation for furnishing all labor, tools and doing all the work necessary including grinding, and sawcutting shall be considered as included in the contract prices paid per ton for the various asphalt concrete items and no additional compensation will be allowed therefor.

Full compensation for furnishing and applying asphaltic emulsion (paint binder/tack coat) shall be considered as included in the contract price paid for Hot Mix Asphalt Concrete.

The quantity of Asphalt Concrete for placement of AC Dike, Overside Drain will be paid for at a unit price per ton as a combined item, including mineral aggregate and asphalt binder in place on the roadbed.

Full compensation for furnishing all labor, materials, tools, and equipment and incidentals, and for doing all the work involved in placing Safety Edge shall be considered as included in the contract bid price paid per ton for Hot Mix Asphalt and no additional compensation shall be allowed therefor.

**COMPENSATION ADJUSTMENTS FOR PRICE INDEX FLUCTUATIONS:**

The provisions of this section shall apply only to the following contract items:

ITEM CODE	ITEM
390130	Hot Mix Asphalt

The compensation payable for asphalt binder used in hot mix asphalt will be increased or decreased in conformance with the provisions of this section for paving asphalt price fluctuations exceeding 10 percent ( $I_u/I_b$  is greater than 1.10 or less than 0.90) which occur during performance of the work.

The adjustment in compensation will be determined in conformance with the following formulae when the item of asphalt concrete is included in a monthly estimate:

- A. Total monthly adjustment =  $AQ$
- B. For an increase in paving asphalt price index exceeding 10 percent:
 
$$A = 0.90 (I_u/I_b - 1.10) I_b$$
- C. For a decrease in paving asphalt price index exceeding 10 percent:
 
$$A = 0.90 (I_u/I_b - 0.90) I_b$$
- D. Where:

A = Adjustment in dollars per ton of paving asphalt used to produce asphalt hot mix asphalt 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.

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.

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 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.

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, Mobil, and Unocal for the Buena Vista, Huntington Beach, Kern River, Long Beach, Midway Sunset, and Wilmington fields.

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.

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](http://www.dot.ca.gov/hq/esc/oe/asphalt_index/astable.html).



## **EDGE TREATMENT, HOT MIX ASPHALT - SAFETY EDGE:**

### **General**

This work includes constructing the edges of HMA pavement as shown on the plans.

### **Materials**

HMA for safety edge treatment must comply with Section 39, "Hot Mix Asphalt," of the Standard Specifications and "Hot Mix Asphalt" Section of these Special Provisions.

For the safety edge, use the same type of HMA used for the adjacent lane or shoulder.

### **Construction**

The edge of roadway where the safety edge treatment is to be placed must have a solid base, free of debris such as loose material, grass, weeds, or mud. Grade areas to receive the safety edge as required.

The safety edge treatment must be placed monolithic with the adjacent lane or shoulder and shaped and compacted with a device attached to the paver.

The device must be capable of shaping and compacting HMA to the required cross section as shown on the plans. Compaction must be by constraining the HMA to reduce the cross sectional area by 10 to 15 percent. The device must produce a uniform surface texture without tearing, shoving, or gouging and must not leave marks such as ridges and indentations. The device must be capable of transition to cross roads, driveways, and obstructions.

For safety edge treatment, the angle of the slope must not deviate by more than  $\pm 5$  degrees from the angle shown on the plans. Measure the angle from the plane of the adjacent finished pavement surface.

If paving is done in multiple lifts, the safety edge treatment can be placed either with each lift or with the final lift.

Short sections of hand work are allowed to construct transitions for safety edge treatment.

For more information on the safety edge treatment, go to:

[http://safety.fhwa.dot.gov/roadway\\_dept/pavement/safedge/](http://safety.fhwa.dot.gov/roadway_dept/pavement/safedge/)

A list of commercially available devices can be found at the above Web site under "Frequently Asked Questions" and "Construction Questions."

### **Method of Payment:**

Full compensation for constructing edge treatments (Safety Edge), including grading when required for preparation of the area to receive the safety edge treatment, shall be considered as included in the contract price paid per ton for Hot Mix Asphalt and it shall include full compensation for furnishing all labor, materials, tools, equipment, incidentals, and for doing all the work as specified in the Standard Specifications and these Special Provisions and no additional compensation will be allowed.

### **SHOULDER BACKING:**

Shoulder backing shall provide for the grading of the shoulder as shown on the plans, or as directed by the Engineer. Unless otherwise directed, the width of the shoulder backing shall be 6 feet minimum, measured from edge of pavement.

Onsite material may be used to fill in low areas, subject to approval by the Engineer. Ground asphalt concrete may be used subject to Engineer's approval.

Ground asphalt concrete shall not be placed in or in close proximity to streambeds or drainage courses, the limits of which shall be determined by the Engineer.

Imported material, if required to fill in low areas, shall conform to the provisions of Section 25, "Aggregate Subbases" of the Standard Specifications and these Special Provisions, and the aggregate shall conform to the grading and quality requirements for Class 1 aggregate subbases.

The Aggregate Grading Requirements table, as shown in Section 25-1.02, "Class 1, Class 2, and Class 3 Aggregate Subbases" of the Standard Specifications, is revised as follows:

- For Class 1, Sieve Size No. 4, the Operating Range shall be **35-50**.
- For Class 1, Sieve Size No. 200, the Operating Range shall be **0-15**.

Subbase material shall be clean and free from roots, vegetable matter and other deleterious substances, and be of such character that when wet it will compact to form a firm stable base. The shall be of such sizes that the percentage composition by weight of material shall conform to the aggregate grading requirements at the time the material is deposited on the roadbed when determined by Test Method No. Calif. 202.

### **Method of Payment:**

The contract unit price paid per linear foot for Shoulder Backing and shall include full compensation for furnishing all labor, materials, tools, and equipment, including the grading of any existing dirt driveways to match new improvements, other miscellaneous shoulder grading to promote positive drainage, and importing of material and/or handling of onsite material as shown on the plans and/or as directed by the Engineer, and no additional payment will be allowed therefor.

### **ASPHALT CONCRETE DIKE AND OVERSIDE DRAIN:**

Asphalt concrete dikes and overside drians shall be constructed in accordance to the plans, Standard Plans and Specifications, Riverside County Road Improvement Standards and Specifications, as specified and as directed by the Engineer.

The pay quantity of asphalt concrete dikes and overside drain shall be for placement, and shall be paid for as a separate item of work in addition to the price paid for the asphalt concrete material.

The transition of AC dike shall be paid in the same manner as placement of AC dike.

The asphalt concrete shall conform to the requirements of Section 39 of the Standard Specifications and aggregate grading shall be three-quarter inch (3/4") maximum.

Asphalt binder to be mixed with the aggregate shall be PG 70-10 in accordance with the Special Provision for Asphalt, or as directed by the Engineer.

**AC Driveways:**

Existing asphalt concrete driveway approaches shall be protected in place. Damages to existing AC driveway approaches shall be repaired to the satisfaction of the Resident Engineer. Full compensation for repairing existing AC driveway approaches shall be considered as included in the contract bid price paid per linear foot for Asphalt Concrete Dike. No additional compensation will be allowed.

**Method of Payment:**

For payment purposes, removal and disposal of existing asphalt concrete dike shall be considered as included in the contract bid price paid per linear foot for placement of AC Dike. No additional compensation will be allowed.

The contract unit bid price paid per linear foot for Place Asphalt Concrete Dike, and per each for Asphalt Concrete Overside Drain shall include full compensation for furnishing all labor, material other than asphalt concrete, tools, and equipment and for doing all the work involved in placing and compacting the dikes, including removal of existing AC Dike, and no additional compensation will be allowed therefor.

**REMOVE ASPHALT CONCRETE DIKE:**

Existing asphalt concrete dike, where shown on the plans to be removed, shall be removed.

Prior to removing the dike, the outside edge of the asphalt concrete to remain in place shall be cut on a neat line to a minimum depth of 0.17-foot.

The dike shall be removed in such a manner that the surfacing which is to remain in place is not damaged.

The dike shall be disposed of outside the highway right of way in conformance with the provisions in Section "Disposal of Excess Excavation or Materials" of these Special Provisions.

**Method of Payment:**

Full compensation for furnishing all labor, materials, tools, and equipment and incidentals, and for doing all the work involved in the removal of asphalt concrete dike shall be considered as included in the contract bid price paid per linear foot for Place Asphalt Concrete Dike and no additional compensation will be allowed therefor.

**3" PLASTIC PIPE - EDGE DRAIN and CROSSING DRAIN / INTERCEPTOR DRAIN:**

Edge drain and cross drain / interceptor drain shall conform to the provisions in Section 68-3, "Edge Drains" of the Standard Specifications and these Special Provisions.

The Contractor shall install the edge drain and cross drain pipe as shown on the plans and as directed by the Engineer and shall conform to Caltrans Standard Plans.

Interceptor drains as shown on the plans will be considered as edge drains and shall be furnished and installed in conformance with the provisions for edge drains in Section 68-3 and these Special Provisions.

**Filter Fabric:**

Filter fabric shall conform to the provisions in Section 88, "Engineering Fabrics."

**Method of Payment:**

The contract unit bid price paid per linear foot for 3" Plastic Pipe (Edge Drain) shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all work involved for the installation and shall include excavation, furnishing and placing filter fabric, 3/4" rock, cleanouts and vents, valve box (Carson 0809 or equivalent), drain outlets, as shown on the detail sheets of the construction plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefor.

**CURB DRAIN - EDGE DRAIN OUTLET:**

Curb drain outlet shall conform to the details shown on the plans, the provisions in Section 68-3, "Edge Drains" of the Standard Specifications and these Special Provisions.

The Contractor shall install the edge drain outlets as shown on the plans and as directed by the Engineer and shall conform to Caltrans Standard Plans and Specifications.

**Method of Payment:**

The contract unit bid price paid per each for Curb Drain shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all work involved for the installation and shall include excavation, coring through existing concrete curb and gutter or existing asphalt concrete dike as shown on the detail sheet of the construction plans and no additional compensation will be allowed therefor.

**FINISHING ROADWAY:**

Finishing roadway shall conform to Section 22 of the Standard Specifications and these Special Provisions.

**Method of Payment:**

Full compensation for finishing roadway shall be paid for on a lump sum basis and no additional compensation will be allowed therefore.

**MINOR CONCRETE (CURB RAMP, CURB, GUTTER, SIDEWALK):**

Concrete curb ramp, curb, gutter, driveway (including approach), and sidewalk, shall be constructed in accordance with the County Road Improvement Standards and Specifications, and in conformance with Section 51, 73 and 90 of Standard Specifications, except as herein modified:

Class 3 concrete shall be used for curb ramp, curb, gutter, driveway (including approach), and sidewalk.

Preparation of subgrade for the concrete structures shall be done in conformance with the requirements of Section 73-1.02 of the Standard Specifications.

The placement of aggregate base material is required under all concrete in accordance with County Road Improvement Standards and Specifications.

Excess material resulting from the excavation of the subgrade shall be disposed of as elsewhere provided in these Special Specifications. Full compensation for the removal of existing concrete and/or asphalt concrete structures as shown on the plan to be removed shall be included in the contract lump sum price paid for Roadway Excavation.

The Contractor is responsible for meeting all requirements of the Americans with Disability Act (ADA).

Construction of curb ramp, curb, gutter, driveway (including approach), and sidewalk, shall include, but not be limited to, the following:

- 1) Removal and disposal of existing sidewalk, curb, and/or curb and gutter, and existing soil and aggregate as required;
- 2) Establishing grades, and assuring that all grades are met;
- 3) Performing all grading and compaction – including all required aggregate import, as directed by the Engineer and in accordance with County Standards;
- 4) Construction of new curb ramp, curb, gutter, driveway (including approach), and sidewalk;
- 5) All scoring/grooving and required saw cutting;
- 6) Repair of existing asphalt and PCC surfacing;
- 7) Installing 1/2" wide expansion joints;
- 8) All landscaping, and related work, to return the area adjacent to the curb ramp, Curb and gutter, driveway approaches and driveways to its original condition and to conform the area to the new improvements;

At a minimum, the area from the BCR to ECR shall meet all required ADA standards. Therefore, to conform to existing conditions and/or to achieve the required four-foot level area (maximum of

2.0% crossfall) at the top portion of the curb ramp, it may be necessary to extend the work beyond the BCR/ECR in certain instances.

The area behind and along the sidewalk shall be filled and compacted with native or select material and graded to match and provide a smooth transition from the back of sidewalk, to the satisfaction of the Engineer.

Full compensation for the construction of driveway approaches shall include the replacing or cutting the curb and gutter including wings and minor concrete tie-in as directed by the Engineer to complete the driveway installation and no additional compensation will be allowed.

Full compensation for the sidewalk construction shall include the areas adjacent to the planters as directed by the Engineer and no additional compensation will be allowed therefor.

Full compensation for the sidewalk construction shall include the placing of private drain through concrete curb to tie in existing drain pipe as directed by the Engineer and no additional compensation will be allowed therefor.

**Method of Payment:**

The contract unit bid prices paid per each for Curb Ramp; per linear foot for Type "D" Curb and Curb and Gutter; and per square foot for Sidewalk and Driveway (including approach), shall include full compensation for furnishing all labor, equipment, materials and tools, and incidentals, and for doing all the work involved in the construction and complete in place including the furnishing and placing of expansion joints, and removal of existing curb shown on the plan to be removed, no additional compensation will be allowed therefor.

**REMOVE TRAFFIC STRIPE:**

Where blast cleaning/grinding is used for the removal of painted/thermoplastic traffic stripe, and such removal operation 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 sand and the surface being treated. Such removal shall be by wet abrasive blasting, hydro-blasting or vacuum blasting, and shall comply with AQMD regulations.

Blast cleaning/grinding for removal of traffic stripe shall be feathered out to irregular and varying widths.

After removal of traffic stripes, a fog seal coat shall be applied in conformance with the provisions in Section 37, "Bituminous Seals" of the Standard Specifications and the following:

If removal of existing striping is performed more than 24 hours prior to final striping, the Contractor shall place reflective temporary striping tape throughout the limits of sandblasting, to provide channelization of traffic, for all lanes of travel.

Temporary striping tape shall be removed subsequent to final striping.

Nothing in these Special Provisions shall relieve the Contractor from his responsibilities as provided in Section 7-1.09, "Public Safety," of the Standard Specifications.

**Method of Payment:**

The price paid per linear foot for Remove Traffic Striping shall include full compensation for furnishing all labor, tools, materials, and equipment and no additional compensation will be allowed therefor.

**THERMOPLASTIC CROSSWALK AND PAVEMENT MARKING:**

Thermoplastic crosswalk and pavement markings shall conform to the provisions in Sections 84-1, "General," and 84-2, "Thermoplastic Traffic Stripes and Pavement Markings," of the Standard Specifications and these Special Provisions.

Thermoplastic material shall be free of lead and chromium, and shall conform to the requirements in State Specification PTH-02ALKYD.

Retro-reflectivity of the thermoplastic crosswalk and pavement markings shall conform to the requirements in ASTM Designation: D 6359 99. White thermoplastic pavement markings shall have a minimum initial retro-reflectivity of 250 mcd m<sup>2</sup> lx<sup>-1</sup>. Yellow thermoplastic pavement markings shall have a minimum initial retro-reflectivity of 150 mcd m<sup>2</sup> lx<sup>-1</sup>.

Thermoplastic pavement markings shall be free of runs, bubbles, craters, drag marks, stretch marks, and debris.

Newly installed thermoplastic crosswalk and pavement markings shall be protected from damage by public traffic or other causes until the thermoplastic is thoroughly dry. Any newly installed thermoplastic crosswalk and pavement markings which are damaged as a result of the construction, including wheel markings by public traffic and the construction equipment, shall be reinstalled by the Contractor and any associated removals shall be performed as called for in these Special Provisions.

**Method of Payment:**

The contract unit bid price paid per square foot for Thermoplastic Crosswalk and Pavement Markings including removal of existing thermoplastic striping, crosswalk lines and pavement markings shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and doing all the work necessary to place the striping, and pavement markings complete in place and no additional compensation will be allowed therefor.

### **PAINT TRAFFIC STRIPE:**

Painting traffic stripe shall conform to the provisions in Sections 84-1, "General" and 84-3, "Painted Traffic Stripes and Pavement Markings" of the Standard Specifications and these Special Provisions.

Traffic striping shall be applied in two coats with airless equipment and shall be performed with a roadliner truck mounted striping machine. Where the configuration or location of a traffic stripe is such that the use of a roadliner truck mounted striping machine is unsuitable, traffic striping and glass spheres may be applied by other methods and equipment approved by the Engineer.

Newly painted traffic striping shall be protected from damage by public traffic or other causes until the paint is thoroughly dry. Any newly painted traffic striping which are damaged as a result of the construction, including wheel markings by public traffic and the construction equipment, shall be repainted by the Contractor and any associated removals shall be performed as called for in these Special Provisions.

### **Method of Payment:**

The contract price paid per linear foot for Paint Traffic Stripe (2 Coat) shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in painting traffic stripe (regardless of the number, widths, and types of individual stripes involved in each traffic stripe) including any necessary cat tracks, dribble lines any layout work, complete in place as shown on the plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer.

### **PAVEMENT MARKERS:**

Pavement markers shall conform to the provisions of Section 85, "Pavement Markers," of the State of California Standard Specifications and these Special Provisions.

Certificates of compliance shall be furnished for pavement markers as specified in "Prequalified and Tested Signing and Delineation Materials," elsewhere in these Special Provisions.

Reflective pavement markers shall comply with the specific intensity requirements for reflectance after abrading the lens surface in accordance with the "Steel Wool Abrasion Procedure," specified for pavement markers placed in pavement recesses in Section 85-1.05, "Reflective Pavement Markers", of the State of California Standard Specifications.

Non-reflective pavement markers shall conform to the requirements of Section 85-1.04 "Non-Reflective Pavement Markers," of the State of California Standard Specifications. The bituminous adhesive used to install the markers shall be a hot melt bituminous adhesive asphaltic material with homogeneously mixed mineral filler and shall conform to the requirements specified in Section 85-1.055, "Adhesives," of the State of California Standard Specifications.

Reflective pavement markers shall be installed at locations as established by the applicable Caltrans striping detail noted on the approved striping Plan, which includes, but is not limited to



temporary painted line(s), new striping or existing striping. There shall be one marker for each location. All work necessary to establish satisfactory locations for markers shall be performed by the Contractor.

Existing reflective pavement markers that do not conform to the approved Plan shall be removed by the Contractor.

Reflective pavement markers shall be of the prismatic reflector type (3M model white RP290w and yellow RPM 2912y or equal) as outlined in Subsection 85-1.05, "Reflective Pavement Markers" of the State of California Standard Specifications.

Blue reflective pavement markers designating the location of fire hydrants within project limits shall be replaced after the paving is completed at all fire hydrants locations, whether the blue reflective markers exist or not prior to paving. Installation of blue markers shall comply with the requirements of Riverside County Fire Department, Standard No. 06-11, attached to these Special Provisions.

**Method of Payment:**

Full compensation for reflective pavement markers, non-reflective pavement markers, and blue pavement markers (at fire hydrants) shall be considered as included in the contract price paid per each for Pavement Marker (Reflective) and shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in installing pavement markers (reflective, non-reflective, or blue) complete, in place, as shown on the Plans, as specified in the Standard Specifications and these Special Provisions or as directed by the Engineer.

Section 4-1.03 B(1), Increases of More Than 25 Percent, of the State Standard Specifications will not apply to Pavement Markers (Reflective). No adjustment to the contract unit bid price will be allowed for any excess of over 25 percent of the estimated quantity for Pavement Markers (Reflective).

**ROADSIDE SIGN - ONE POST:**

The Contractor shall furnish and install roadside signs at the locations shown on the plans or as directed by the Engineer, in conformance to the provisions in Section 56-2 "Roadside Signs," of the State Standard Specifications and these Special Provisions.

All Signs shall be installed on new square perforated steel tube posts in accordance with County Standard No. 1222.

Street name signs shall be furnished and installed in conformance with County Standard No. 1221 as shown on the plans, as specified in these Special Provisions and as directed by the Resident Engineer.

All roadway signs shall have retroreflective sheeting. Except as stated below, the retro-reflectivity for all roadway signs, both temporary and permanent installations, shall meet or exceed ASTM Standard D 4956 Type III (3M Co. High Intensity Grade or approved equal). The retroreflectivity

for R1-1 ("STOP") signs and W3-1 (Stop Ahead) signs shall meet ASTM Standard D 4956 Type IX (3M Co. Diamond Grade or approved equal).

**Method of Payment:**

The contract unit price paid per each for Roadside Sign - One Post, including street name signs, shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work including all necessary including all necessary concrete excavation and backfill as specified in the Standard Specifications and these Special Provisions and no additional compensation will be allowed therefor.

**DETECTOR LOOP:**

Detectors shall conform to the provisions in Section 86-5, "Detectors", of the Standard Specifications and these Special Provisions.

Delay timers shall delay calls only during display of the associated red or yellow indications. If a vehicle departs the area of detection prior to expiration of the assigned delay period, the timer shall reset and no call shall be placed upon the controller. During display of the associated green indication, detectors shall operate in the present mode and calls shall not be delayed.

**Inductive Loops**

Detector loop configuration shall be Type E per Standard Plans ES-5B unless otherwise shown on the construction plan, in the Special Provisions, or as directed by the Engineer.

Limit Line detector loop configuration shall be modified Type E with diagonal saw cuts and wire winding conforming to Type D loop configuration.

Detector loop wire shall be Type 2.

Detector loop lead-in cable shall be Type B.

Detector loop curb terminations shall be Type A in accordance with Standard Plans ES-5D.

Loop sealant shall be the Hot-Melt Rubberized Asphalt sealant type, unless otherwise directed by the Engineer. Loop conductors and sealant shall be installed on the same day the loop slots are cut.

All detector loops shall be tested sequentially by the following methods:

- impedance (measured by megaohms)
- resistance (measured by ohms)
- inductance (measured in microhenries)

**Method of Payment:**

The contract unit bid price paid per each for Detector Loops including the removal and disposal of existing detector loops as shown on the plans and as specified in the special provisions and as directed by the Engineer shall include full compensation for furnishing all labor, materials, tools,

and equipment and no additional compensation will be allowed therefor.

**ADJUST MANHOLE TO GRADE:**

Existing manholes (Western Municipal Water District) shall be adjusted to finish grade with materials similar in quality to those in the original structure in accordance with the applicable provisions of Sections 15-2 and 71 of the Standard Specifications, the requirements of the owning utility company and these Special Provisions. WMWD standard drawing W-1130 is attached and made a part hereof.

After the manhole frame has been removed, the top of the structure shall be carefully trimmed to provide a suitable foundation for the new material.

Steel plates shall be used to prevent asphalt and debris from entering the sewer system.

Additionally, a "False Bottom" shall be fabricated and placed in the manhole cone as a second barrier to prohibit foreign objects from entering the sewer system. Said "false bottom" shall be made from plywood of suitable thickness (3/4" minimum) or stronger material to prohibit heavy objects from breaking the barrier. The false bottom shall comply with the attached "Standard No. 11" of the Lake Hemet Municipal Water District, or as otherwise approved by the Engineer.

Coordination and communication shall be maintained between the Contractor and the owning utility company:

- Western Municipal Water District
- Southern California Edison

**Method of Payment:**

Payment shall be on a unit price basis per manhole and shall include full compensation for furnishing all labor, equipment, materials except as provided herein, and doing all work required to adjust the manholes to grade.

**MISCELLANEOUS DIRECTED WORK:**

Miscellaneous directed work shall consist of necessary work that is not included in other contract bid items, as determined by the Engineer. Miscellaneous directed work shall be performed as directed by the Engineer and in accordance with the applicable standards and specifications.

**Method of Payment:**

Payment for implementing miscellaneous directed work will be paid for on a force account basis, in accordance with Section 9-1.03 of the Standard Specifications, up to the fixed bid price, for the work performed.

**SLURRY SEAL (TYPE II):**

Slurry seal shall be performed in accordance with Subsections 203-5 and 302-4, "Emulsion-Aggregate Slurry," of the Standard Specifications for Public Works Construction (Green Book) 2009 ed. and noted herein as the Green Book Standard Specifications, and the following Provisions. The type of slurry aggregate used shall be the type designated in the Bid.

Modify the following - Subsection 203-5.2, "Materials" of the Green Book Standard Specifications;

- (2) Admixtures, such as Portland Cement or aluminum sulfate may be mixed into the slurry material to adjust the curing time such that the applied slurry can support vehicular traffic within 60 minutes.
- (5) Use of slag shall not be permitted.
- (6) Deliveries of aggregate and emulsion shall not be made without the engineer present. Emulsion is not to be transferred to an on-site storage tanker without the sieve test performed by the County.

Modify the first paragraph of Subsection 203-5.4, "Mix Design," of the Standard Specifications to include the following:

The Contractor shall submit a Mix Design for approval within fourteen (14) working days after the Board of Supervisors Approval/Award. The Contractor will receive a "Notice to Proceed with Construction" only after the Mix Design is approved. The Contractor shall provide materials for verification of the Mix Design. Periodically throughout the project, at the direction of the Engineer, the County will perform further testing as necessary to provide assurance of the Mix Design.

If the Contractor changes sources of material, i.e. aggregate and/or oil, a new Mix Design shall be resubmitted. The cost of all Mix Design retest and testing as a result of changes to the Mix Design shall be borne by the Contractor, and the amount due to the County for said retesting will be deducted from the Contractor's Progress Payments.

Modify the second paragraph of Subsection 203-5.4, "Mix Design," of Green Book Standard Specifications to read as follows:

The Contractor shall allow ten (10) working days prior to start of work for calibration and testing at a location designated by the Engineer. The County's testing laboratory will obtain field samples at the time of calibration for Extraction Test (ASTM D 2172), Consistency Test, Wet Track Abrasion Test (ASTM D 3910), a verification of the 60 minute set time previously specified. When the County's testing laboratory has determined that the field samples meet the requirements stipulated in these Specifications, the Engineer will notify the Contractor to start work. In the event that the product does not meet Specification, another testing and calibration date shall be set ten (10) day prior to the start of work for a complete retest of the product at the expense of the Contractor.

Modify the following Subsection 302-4.2.2, “Continuous-Flow Mixers,” of the Green Book Standard Specifications to read as follows:

All slurry mixing machines shall be equipped with a Fines Feeder for the adding of cement or granular Aluminum Sulfate.

Modify the following Subsection 302-4.3.1, “General,” Table 302-4.3.1 (A) of the Green Book Standard Specifications:

<u>Slurry Seal</u>	<u>Min.</u>	<u>Max.</u>
Type I	ELT/1700 ft <sup>2</sup>	ELT/2000 ft <sup>2</sup>
Type II	ELT/1150 ft <sup>2</sup>	ELT/1350 ft <sup>2</sup>
Type I (in Scrub Seal)	ELT/950 ft <sup>2</sup>	ELT/1150 ft <sup>2</sup>

The estimated quantity for slurry seal in the Bid Schedule were based on an application rate of 1850 SF/ELT for Type I and 1250 SF/ELT for Type II. The total areas in Slurry Seal Quantity Tables in the appendix, shall be considered as approximate only and no guarantee is made as to the accuracy.

Add the following to Subsection 302-4.3.1, “General” of the Green Book Standard Specifications:

The Contractor shall have two slurry trucks or machines and at least one additional mixer as a backup.

Prior to the beginning of slurry operations, the Contractor shall furnish, at no cost to the County, current licensed weigh master’s certificates indicating the net weight capacity of the aggregate bin. The Contractor shall provide a drive upon scale at the project site or an alternate site approved by the County. The drive on scale shall show the net weight of the aggregate bin on each slurry machine before the machine and product will be approved for applying slurry on the project.

All slurry machines are to carry, at all times, a calibrated emulsion measuring stick. The emulsion measuring stick is to be calibrated in 10-gallon increments to the slurry machine it is used on. Emulsion measuring sticks from other slurry machines will not be allowed to measure the gallons of emulsions on the slurry machines they were not calibrate to. The emulsion measuring stick is to have the slurry machine number or identification permanently marked on the stick. The gallons of emulsion are to be measured with a calibrated emulsion measuring stick and recorded before leaving and after returning to materials site. Use of a slurry machine will not be allowed if it does not have a calibrated emulsion measuring stick.

The Contractor shall furnish prior to commencing work, a calibrated stick in 10-gallon increments to measure the oil in the trailer storage tanks in gallons. The measuring stick shall be calibrated to the trailer storage tank it is used on. The inspector shall check the oil in each load “in and out” and in the storage tanks at the beginning and end of each day to determine the amount of emulsion used for that day. Emulsion is not to be transferred from delivery tank to on-site storage tank before the County performs the sieve analysis on the emulsion. Aggregate used in the slurry shall not exceed a moisture content of four percent (4%) by weight of dry aggregate.

Contractor may not schedule more than **150 tons of slurry to be placed per day**. Slurry may not be applied at more than 150 feet per minute. Contractor shall not run more than two slurry machines per day.

The Contractor shall provide a self propelled 10 ton pneumatic roller with a tire pressure of 50 PSI and equipped with a water spray system. The Contractor shall roll all the required streets the same day they are slurried. The Contractor will be responsible for proper scheduling of the work such that the rolling can be properly done within the given time constraint. The cost of furnishing the roller and operator shall be included in the price paid for slurry seal.

Prior to storing aggregate on private property, the Contractor shall submit to the Engineer written permission from the property owner for such stockpiling. The County may provide a stockpile location at a County Facility if space is available. The stock pile of material at a County Yard requires prior approval from the County Maintenance Division and the Engineer. The County does not guarantee that space will be available at a County Yard for the stockpile of material for this Project. If the County Yard location is provided for the Project, the notice of termination and final pay estimate will not be processed until the County Facility has been restored to the prior condition before the contractor utilized the site.

Precautions shall be taken to ensure that stockpiles do not become contaminated with oversized rock, clay, silt, or excessive amounts of moisture. The stockpiles shall be kept in areas that drain readily. Segregation of the aggregate will not be permitted.

The stockpile areas shall be thoroughly cleaned of all excess material and left in a neat, orderly appearance upon completion of slurry operations in any area.

The Contractor shall protect the wet slurry from traffic at all times and if damaged or defaced, the Contractor shall repair said damage at no additional cost to the County.

The placement of slurry seal may be suspended with the concurrence of the Engineer due to unsuitable weather, temperature conditions, or other conditions that are considered unfavorable for the prosecution of the work. The Contractor shall immediately comply with the order of suspension by the Engineer, and work shall not be resumed until authorized by the Engineer.

If work cannot resume on the same day to completion as scheduled, then this work shall be rescheduled in one to two weeks and the residents notified that the work will not be done as scheduled and renotified of new work day promptly. All "NO PARKING", "NO DRIVING" signs must be promptly removed. No more than two (2) rescheduled streets shall be scheduled for the same day and they shall be the first order of work for that day.

The days during which the suspension of work is in effect due to unsuitable weather shall not be considered working days and the date of completion shall be extended to allow for work and notification.

In the event of a suspension of work, the Contractor shall remove all barricades, equipment and "No Parking" signs (if appropriate) upon the curing of the completed portion of slurry.

No adjustment of unit prices of any items shall be allowed due to a suspension of work as described above.

Replace the first and second paragraphs of Subsection 302-4.3.2, "Spreading," of the Green Book Standard Specifications with the following:

Prior to applying slurry seal, the Contractor shall clean, to the satisfaction of the Engineer, the street surface with a power sweeper, **remove all R.P.M.'s including "Blue Dots", abrasive grind completely all lane lines, street legends, crosswalks or other painted or thermoplastic surfaces. All abrasive grinding shall be flush with the existing surface and not cause indentations into the pavement. This is necessary to provide a good bonding surface for the slurry seal, as well as eliminate "ghosting" of the old striping and markings as the new slurry wears off over time.**

It is anticipated that nuisance water, such as storm water runoff and irrigation water, will run in and across the right-of-way at various time throughout the period of construction. It shall be the responsibility of the Contractor, at their own expense, to provide for and protect the work from such water. In addition, the Contractor's responsibility shall include handling nuisance waters such that their operations do not cause them to damage existing improvements or properties adjacent to or near the site of work.

Slurry shall be applied when the atmospheric temperature is greater than 50°F but not more than 100°F.

The application of slurry shall not commence until after 8:00 a.m., and shall conclude at 2:00 p.m. unless other authorized by the Engineer. The slurry shall be sufficiently cured to be open to traffic by 5:00 p.m. The portions of streets to be slurried shall be closed from the time the application begins until the mixture as achieved sufficient set to be opened to traffic.

The slurry shall be applied in such a manner that no ripples or waves exist. If ripples or waves occur in the slurry during the application, the work shall cease and the Contractor shall correct the situation. The Contractor may use a drag to knock down ridges. If ripples or waves are not corrected to the Engineer's satisfaction, the street shall be reslurried at the Contractor's expense.

The Contractor shall, at the direction of the Engineer, repair the reseal to **the entire street, or complete section thereof, as determined by the Engineer**, which have not been sealed properly (includes areas that have failed to meet yield and mix design specifications) and completely. No compensation will be provided for slurry seal used in repair and reseal work.

Add the following to the third paragraph of the Subsection 302-4.3.2, "Spreading" of the Green Book Standard Specifications:

Each slurry crew shall be composed, at a minimum, of a coordinator at the project site at all times, a competent quick-set mixing man, a competent driver, two squeegee men, and sufficient laborers for any handiwork and cleanup.

Surface oil and grease shall be removed or sealed with shellac or an equivalent material approved by the County before the application of the slurry seal. Full compensation for surface oil and grease removal shall be considered as included in the unit cost for slurry seal.

The start and finish of slurry application shall be a straight line which, unless otherwise approved by the Engineer, shall be obtained by laying a strip of building paper or other material approved by the Engineer on the pavement surface. After application of slurry, the paper is to be removed leaving a straight edge. The entire street surface area shall be sealed the same day.

**The grading of the combined aggregate and the percentage of emulsified asphalt shall conform to the requirements of Type I or TYPE II as specified in Subsection 203-5.3, of the Green Book Standard Specifications.**

Asphalt emulsion shall be a QUICK-SET ANIONIC OR CATIONIC EMULSIFIED ASPHALT conforming to the requirements of Subsection 203-1.3, "Test Reports and Certification," and Subsection 203-3.2, "Testing Requirements" of the Green Book Standard Specifications.

The latex additive shall be Ultra Pave 70 (for anionic) or Ultra Pave 65 K (for cationic) or an approved equal. The latex shall be added at the emulsion plant after weighing the asphalt and before the addition of mixing water. The latex shall be added at a rate of **two to two-and-one-half (2 to 2½)** parts to one-hundred (100) parts of emulsion by volume.

The Contractor is hereby advised that County streets, parking lots, or other County-approved property will not be allowed as a site for stockpiling and batching. Arrangements for an acceptable site shall be the sole responsibility of the Contractor. Exception: Stockpiling will be allowed at the County Yard, located at 15670 Perris Boulevard, after arrangements are made with the County's Maintenance and Operations Division, at (909) 413-3160.

The Contractor shall sweep any raveled material on the street one (1) week after the initial placement. One additional sweeping shall occur (1) month after the first initial sweeping or as directed by the Engineer. If the Engineer determines the raveling is excessive, the frequency of sweeping shall be adjusted to the field conditions of the raveling. If excessive raveling, as determined by the Engineer, continues after two (2) weeks of the initial placement, the street shall be swept and reslurred with a Type I mixtures (Local Streets) or a Type II (Arterial/Collector Streets) at no cost to the County.

The Contractor shall remove any and all weeds that are growing through cracks from the project street located within the pavement or growing between the concrete gutter and the pavement and spray a herbicide mixture of either Hyvar mixed with Roundup or Pramamol mixed with Roundup, or approved equal, at least ten (10) working days prior to slurring. The herbicide mixture shall contain Blazon, or approved equal, a purple dye to easily confirm the herbicide has been applied. The work shall be approved by the Engineer or his representative prior to slurring. Full compensation for plant removal and herbicide treatment shall be considered as included in the unit cost for slurry seal.

Full compensation for developing a water supply, for furnishing and placing all water required for work done in the Contract, including extra work shall be included in the prices paid for the various items of work requiring water; and no separate payment will be made therefore.

The Contractor shall supply the County with licensed weighmaster's certificates of weight for all delivered aggregates to the job during the course of each day. Aggregate shall be delivered to the project only in the presence of a County representative. The Contractor shall also present weighmaster certificates for the amount of such aggregate remaining at the completion of the



project at no cost to the County. Payment shall be determined by the amount that is physically placed, which cannot exceed the amount that is delivered to the job site with the certified weighmaster tickets. There shall be no outside work done utilizing materials from the tanks or stockpiles stored for the County's Contract.

**Method of Payment:**

The contract price paid per square yard for Slurry Seal (Type 2) shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in placing Slurry Seal (Type 2) complete in place, as shown on the plans, as specified in the Green Book Standard Specifications and these Special Provisions, and as directed by the Engineer.

**Appendix A**  
**AQMD Recommendations**

## Dust Abatement Attachments

### Table of Contents

<u>Description</u>	<u>Page</u>
Signage Recommendation (AQMD document, modified)	DA1
Sample Dust Control Plan (AQMD sample)	DA5
Dust Control Plan Review Checklists (AQMD document)	DA6
Reasonably Available Control Measures (from Rule 403 Implementation Handbook)	DA10
Best Available Control Measures (from Rule 403 Implementation Handbook)	DA16
Best [Reasonably] Available Control Measures for High Winds Conditions (from Rule 403 Implementation Handbook)	DA22
Track Out Control Options (from Rule 403 Implementation Handbook)	DA26

**AQMD SIGNAGE RECOMMENDATIONS****November, 2001**

Plan holder shall post signage at specified locations on the subject property in accordance with the standards specified below. The exception to the standards is that all letters shall be 4 inches high, with the names and telephone numbers of appropriate contacts and services in bold print, as indicated in the standards. These signs shall also include the SCAQMD toll free complaint line 1-800-CUT-SMOG (1-800-288-7664) and the telephone number for the Environmental Observer. These signs shall be posted within 50 feet of the curb on all four (4) corners of the subject property.

For each Dust Control Plan aggregating less than, or equal to, ten (10) acres:

1. The applicant shall install a sign on such property which is visible to the public that meets the following requirements:
  - (a) Such sign shall measure at least four (4) feet wide by four (4) feet high and conform to the specifications in 1 (a) below.

For each Dust Control Plan aggregating over ten (10) acres:

2. The applicant shall install a sign on such property which is visible to the public that meets the following requirements:
  - (a) Such sign shall measure at least eight (8) feet wide by four (4) feet high and conform to the specifications in 1 (b) below.

**THE SIGN SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:****1. The sign boards shall be constructed with materials capable of withstanding the environment in which they are placed.**

(a) For 4' x 4' signs, the District recommends the following:

- I. 3/4" A/C laminated plywood board
- II. Two 4" x 4" posts
- III. The posts should be attached to the edges of the plywood board with at least 2 carriage bolts on each post.
- IV. The front surface of the sign board should be painted in the contrasting color of a white background with black lettering.

(b) For 4' x 8' signs, the District recommends the following:

- I. 1" A/C laminated plywood board
- II. Two 5" x 6" posts
- III. The posts should be attached to the 4' edges of the plywood board with at least 2 carriage bolts on each post.
- IV. The front surface of the sign board should be painted in the contrasting color of a white background with black lettering.

**2. The sign board shall be installed and maintained in a condition such that members of the public can easily view, access, and read the sign at all times until the expiration date of the Dust Control plan.**

(a) For 4' x 4' signs, the District recommends the following:

- I. The lower edge of the sign board should be mounted at least 2' above the existing ground surface to facilitate ease of viewing.
- II. The posts should be set in a hole at least 3' deep with concrete footings to preclude downing by high winds.
- III. On the construction site, the sign should be positioned such that nothing obstructs the public's view from the primary street access point.
- IV. For construction projects that are developed in phases, the sign should be moved to the area that is under active construction.
- V. In situations where all phases of the construction project are completed on a property prior to expiration of the Dust Control Plan, a written request for cancellation of the Dust Control Plan must be submitted to the Engineer.

(b) For 4' x 8' signs, the District recommends the following:

- I. The lower edge of the sign board should be mounted at least 2' above the existing ground surface to facilitate ease of viewing.
- II. The posts should be set in a hole at least 4' deep with concrete footings to preclude downing by high winds.
- III. On the construction site, the sign should be positioned such that nothing obstructs the public's view from the primary street access point.
- IV. For construction projects that are developed in phases, the sign should be moved to the area that is under active construction.
- V. In situations where all phases of the construction project are completed on a property prior to expiration of the Dust Control Plan, a written request for cancellation of the Dust Control Plan must be submitted to the Engineer.

**3. The sign board shall contain the following information:**

- (a) Project Name
- (b) Name of Prime Contractor
- (c) Phone Number of Contractor's Employee Responsible for Dust Control Matters
- (d) County designated phone number (to be provided by the Engineer)
- (e) South Coast Air Quality Management District Phone Number

**4. The sign board shall be designed to the following alpha and numeric text dimensions (sign boards written in longhand are unacceptable).**

(a) For a permittee subject to the 4' x 4' sign requirement, the District provides the following example: (as modified by the County of Riverside for use on County Public Works projects)

1" UPPERCASE Letters →	PROJECT NAME:		3 ½" Title Case Bold Letters ←
1" UPPERCASE Letters →	CONTRACTOR		3 ½" Title Case Bold Letters ←
1" Title Case Letters →	Contractor's Dust Control Phone #		3" Bold Numbers ←
1" Title Case Letters →	County of Riverside Phone #		3" Bold Numbers ←
1" Title Case Letters →	Phone Number:	<b>SCAQMD</b> <b>1-800-CUT-SMOG</b>	3 ½" Bold Numbers ←

"Title Case" means the first letter of a word is capitalized and subsequent letters are lower case.

AQMD Recommendations

(b) For a permittee subject to the 4' x 8' sign requirement, the District provides the following example: (as modified by the County of Riverside)

2" UPPERCASE Letters	PROJECT NAME:	4" Title Case Bold Letters
2" UPPERCASE Letters	CONTRACTOR	4" Title Case Bold Letters
2" Title Case Letters	Contractor's Dust Control Phone #	4" Bold Numbers
2" Title Case Letters	County of Riverside Phone #	4" Bold Numbers
2" Title Case Letters	Phone Number:	4 1/2" Bold Numbers
2" Title Case Letters	<b>SCAQMD 1-800-CUT-SMOG</b>	
	<b>COUNTY OF RIVERSIDE TRANSPORTATION DEPARTMENT</b>	

Section 1

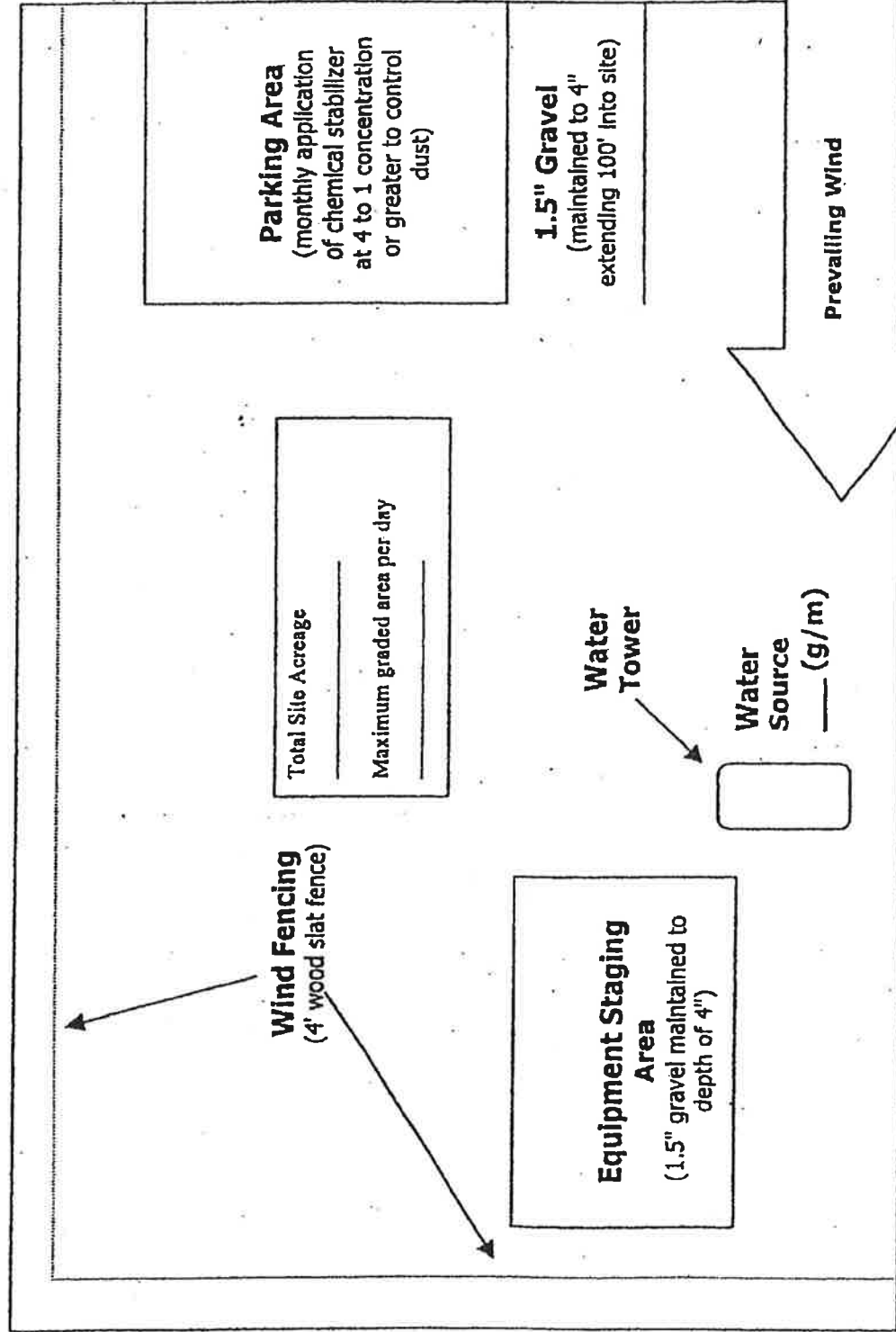
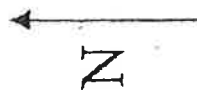
Simplified Sample Site Plan

Existing Residential

Distance and location of nearest:

Residence \_\_\_\_\_

Business \_\_\_\_\_



Existing Residential  
Site Access  
A6 QMD Recommendations

Total Site Acreage \_\_\_\_\_

Maximum graded area per day \_\_\_\_\_

Vacant Land

Existing Residential

Remember...  
DUST CONTROL IS REQUIRED 24 HOURS A DAY, 7 DAYS A WEEK,  
REGARDLESS OF CONSTRUCTION STATUS



### Plan Review Checklist Clearing/Grubbing/Mass Grading Phase

- If feasible, use grading permit conditions to break the project into phases so that only a portion of the site is disturbed at any given time to ensure control of fugitive dust. This technique is critical for project sites with greater than 100 acres.
- Prior to initiating activity, pre-water site through use of portable irrigation lines. At least 72 hours of pre-watering is recommended for each area prior to initiating earth-movement. Require the Applicant to specify water source and available flow rate (g/m).
- Water applied continuously to all disturbed portions of the site by means of water truck/water pull as necessary to maintain sufficient visible moisture on the soil surface. For reference, one 2,000 gallon water truck can treat approximately 4 acres of active construction per hour. Also, for cut and fill activities, one 10,000 gallon water pull is estimated to be necessary for each 7,000 cubic yards of daily earth-movement. Multiple 4,000-gallon water trucks may be used in place of one 10,000-gallon water pull. Touch and visual contrast are reasonably good indicators of soil moisture. Surface areas that are dry to the touch and appear lighter-colored require the application of additional water to prevent visible or fugitive dust. Require the Applicant to specify the number of watering vehicles available for dust control during mass grading and during off-hours as well as availability of back-up water trucks if the site experiences dust control problems.
- Water towers are necessary for projects with more than 10 acres of active construction. Without a water tower, it can take up to 30 minutes to fill a 2,000 gallon water truck. Also, multiple water towers are necessary for projects that use water pulls as filling one 10,000 gallon water pull can drain a water tower which takes up to 40 minutes to refill.
- Wind fencing is necessary between the site and nearby residences or businesses. Off-site upwind fencing and on-site wind fencing for larger projects can also keep blowsand from being deposited onto the site or traveling through the site.
- A perimeter watering system consisting of portable irrigation equipment may be an effective mitigation system to protect surrounding residences and businesses. The portable watering system may be used in place of or in conjunction with watering trucks. The local jurisdiction may also be provided access to this equipment.

Remember...

**DUST CONTROL IS REQUIRED 24 HOURS A DAY, 7 DAYS A WEEK,  
REGARDLESS OF CONSTRUCTION STATUS**

Construction site accesses are to be improved with 1.5" gravel maintained to a depth of 4", at least 20' wide, and extending 100 feet into the site. If the project site is not balanced, a wheel washing system and/or ribbed steel plates should be placed in the roadway before the vehicle enters the graveled area to clean the tires and prevent trackout.

Equipment staging areas are to be treated with 1.5" gravel maintained to a depth of 4".

Employee parking areas are to be covered with 1.5" gravel maintained to a depth of 4" or treated with chemical dust suppressants at a 4 to 1 ratio on at least a monthly basis to prevent fugitive dust.

Chemical dust suppressants are to be mixed at a ratio of 20 to 1 and applied to all disturbed surfaces that are proposed to remain inactive for a period of at least 10 consecutive days. These products are effective in preventing and controlling dust. Recordkeeping is necessary to demonstrate compliance.

All project sites greater than 100 acres shall monitor daily wind speeds and AQMD forecasted wind events (call 1.800.CUT.SMOG, press one for air quality information, and then press five for Coachella Valley wind forecasts). Operators shall maintain these records for review by any local code enforcement officer or AQMD inspector.

An environmental observer whose primary duty is to oversee dust control at the site is to be used for construction projects greater than 100 acres and/or sites with more than 50 acres of active construction. The environmental observer is tasked with monitoring dust abatement measures and authorized to deploy additional water trucks and other dust control actions (i.e., wind fencing, street sweepers, chemical dust suppressants, etc.) as necessary to prevent or control fugitive dust.

Other (specify): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Remember...**  
**DUST CONTROL IS REQUIRED 24 HOURS A DAY, 7 DAYS A WEEK,**  
**REGARDLESS OF CONSTRUCTION STATUS**

**Plan Review Checklist  
Finish Grading Phase**

- Water applied continuously to all disturbed portions of the site by means of water truck/water pull as necessary to maintain sufficient visible moisture on the soil surface. For reference, one 2,000 gallon water truck can treat approximately 4 acres of active construction per hour. Also, for cut and fill activities, one 10,000 gallon water pull is estimated to be necessary for each 7,000 cubic yards of daily earth-movement. Multiple 4,000-gallon water trucks may be used in place of a 10,000-gallon water pull. Touch and visual contrast are reasonably good indicators of soil moisture. Surface areas that are dry to the touch and appear lighter-colored require the application of additional water to prevent visible or fugitive dust. Require the Applicant to specify the number of watering vehicles available for dust control during finish grading and during off-hours as well as availability of back-up water trucks if the site experiences dust control problems.
- Water towers are necessary for projects with more than 10 acres of active construction. Without a water tower, it can take up to 30 minutes to fill a 2,000 gallon water truck. Also, multiple water towers are necessary for projects that use water pulls as filling one 10,000 gallon water pull can drain a water tower which takes up to 40 minutes to refill.
- Wind fencing is necessary between the site and nearby residences or businesses to reduce fugitive dust. Off-site upwind fencing and on-site wind fencing for larger projects can also keep blowsand from being deposited onto the site or traveling through a site.
- Chemical dust suppressants are to be applied at a concentration of at least 10 to 1 to finish graded areas once final elevations have been reached. For areas that will remain inactive for longer periods, vegetation can be a cost-effective alternative to chemical stabilization. Wind fencing or other obstructions can keep the stabilized area free from future disturbances.
- Construction site access(es) are to be improved with 1.5" gravel maintained to a depth of at least 4" with a minimum width of at least 20', extending 100 feet into the project site.
- Equipment staging areas are to be treated with 1.5" gravel maintained to a depth of 4".
- Internal roadway networks are to be treated with chemical dust suppressants at a minimum rate of at least 4 to 1 and retreated on a monthly basis once final roadway elevations have been reached.
- Employee parking areas are to be treated with chemical dust suppressants at a mix ratio of at least 4 to 1 and retreated on at least a monthly basis or covered with 1.5" gravel maintained to a depth of 4" to prevent fugitive dust.
- Other (specify): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Remember...  
DUST CONTROL IS REQUIRED 24 HOURS A DAY, 7 DAYS A WEEK,  
REGARDLESS OF CONSTRUCTION STATUS**

### Plan Review Checklist Construction Phase

Water applied continuously to all disturbed portions of the site by means of water truck/water pull is necessary to maintain sufficient visible moisture on the soil surface. For reference, one 2,000 gallon water truck can treat approximately 4 acres of active construction per hour. Touch and visual contrast are reasonably good indicators of soil moisture. Surface areas that are dry to the touch and appear lighter-colored require the application of additional water to prevent visible or fugitive dust. Require the Applicant to specify the number of watering vehicles available for dust control during the construction phase and during off-hours as well as availability of back-up water trucks if the site experiences dust control problems.

Wind fencing is necessary between the site and nearby residences or businesses. Off-site upwind fencing and on-site wind fencing for larger projects can also keep blowsand from being deposited onto the site or traveling through the site. Block walls, if part of the final project, can replace wind fencing during the construction phase.

Chemical dust suppressants are to be applied at a concentration of at least 20 to 1 to finish graded areas once final elevations have been reached. For areas that will remain inactive for longer periods, vegetation can be a cost-effective alternative to chemical stabilization. Wind fencing or other obstructions can keep the stabilized area free from future disturbances.

Construction site accesses are to be improved with 1.5" gravel, maintained to a depth of 4", with a width of at least 20', extending 100' into the project site. Paving internal roadways can substitute for gravel.

Internal roadway networks are to be paved as early as feasible in the construction phase. Street sweeping of internal and/or external access roads will likely be required to control entrained road dust.

Employee parking areas are to be treated with chemical dust suppressants at a mix ratio of no less than 4 to 1 and retreated on a monthly basis, or more frequently if fugitive dust is observed. If internal roadway is complete, employees are to be instructed to park on paved roads.

Other (specify): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Remember...**  
**DUST CONTROL IS REQUIRED 24 HOURS A DAY, 7 DAYS A WEEK,**  
**REGARDLESS OF CONSTRUCTION STATUS**

**RULE 403 IMPLEMENTATION HANDBOOK**

---

**REASONABLY AVAILABLE CONTROL MEASURES**

Paragraph (d)(3) of Rule 403 allows activities outside the South Coast Air Basin (see Figure 2-1) to implement reasonably available control measures in lieu of best available control measures. Additionally, as specified by subparagraph (f)(3)(D) of Rule 403, any person seeking approval of a fugitive dust emissions control plan for projects outside the South Coast Air Basin must demonstrate to the satisfaction of the District that the given activity is employing all reasonably available fugitive dust control measures.

The District has prepared the attached listing of reasonably available fugitive dust control measures for a variety of source categories. This list is based on the U.S. Environmental Protection Agency's reference document entitled, "Control of Open Fugitive Dust Sources," Midwest Research Institute, September 1988.

The District encourages the use of those dust control measures that minimize the use of potable water. When water is needed, reclaimed water should be utilized to the greatest extent feasible.

**REASONABLY AVAILABLE CONTROL MEASURES**

The left column contains a listing of the sources of fugitive dust which are intended for emission control under District Rule 403 and a listing of control measures and high-wind measures. The right column contains a description of the reasonably available fugitive dust control measures for each of the sources.

Source: (1) Land Clearing/Earth-Moving

**CONTROL MEASURES**

**DESCRIPTION**

- |                                |   |
|--------------------------------|---|
| (A) Watering                   | <ul style="list-style-type: none"> <li>(1) Application of water by means of trucks, hoses and/or sprinklers prior to conducting any land clearing. This will increase the moisture content of the soils; thereby increasing its stability.</li> <li>(2) Pre-application of water to depths of proposed cuts.</li> <li>(3) Once the land clearing/earth moving activities are complete, a second application of water can generate a thin crust that stabilizes the disturbed surface area provided that it is not disturbed. (Security fencing can be used to prevent unwanted future disturbances of sites where a surface crust has been created).</li> </ul> |
| (B) Chemical stabilizers       | <ul style="list-style-type: none"> <li>(1) Only effective in areas which are not subject to daily disturbances.</li> <li>(2) Vendors can supply information on product application and required concentrations to meet the specifications established by the Rule.</li> </ul>   |
| (C) Wind fencing               | <ul style="list-style-type: none"> <li>(1) Three- to five-foot barriers with 50% or less porosity located adjacent to roadways or urban areas can be effective in reducing the amount of windblown material leaving a site.</li> <li>(2) Would likely be used in conjunction with other measures (e.g., watering, chemical stabilization, etc.) to ensure that visible emissions do not cross a property line.</li> </ul>   |
| (D) Cover haul vehicles        | <ul style="list-style-type: none"> <li>(1) Entire surface area of hauled earth should be covered once vehicle is full.</li> </ul>   |
| (E) Bedliners in haul vehicles | <ul style="list-style-type: none"> <li>(1) When feasible, use in bottom-dumping haul vehicles.</li> </ul>   |

**HIGH WIND MEASURE**

- (a) Cease all active operations; or
- (b) Apply water within 15 minutes to any soil surface which is being moved or otherwise disturbed.

Source: (2) Unpaved Roads

**CONTROL MEASURES**

**DESCRIPTION**

- |                            |   |
|----------------------------|---|
| (F) Paving                 | (1) Requires street sweeping/cleaning if subject to material accumulation.  |
| (G) Chemical stabilization | (1) Vendors can supply information as to application methods and concentrations to meet the specifications established by the Rule<br>(2) Not recommended for high volume or heavy equipment traffic use. |
| (H) Watering               | (1) In sufficient quantities to keep surface moist.<br>(2) Required application frequency will vary according to soil type, weather conditions, and vehicular use.  |
| (I) Reduce speed limits    | (1) 15 mile per hour maximum. May need to be used in conjunction with watering or chemical stabilization to prevent visible emissions from crossing the property line.                                    |
| (J) Reduce vehicular trips | (1) Access restriction or redirecting traffic to reduce vehicle trips by a minimum of 60 percent.   |
| (K) Gravel                 | (1) Gravel maintained to a depth of four inches can be an effective measure.<br>(2) Should only be used in areas where paving, chemical stabilization or frequent watering is not feasible.               |

**HIGH WIND MEASURE**

- (c) Apply a chemical stabilizer (to meet the specifications established by the Rule) prior to wind events; or  
(d) Apply water once each hour; or  
(e) Stop all vehicular traffic.

January 1999

**RULE 403 IMPLEMENTATION HANDBOOK**

**Source:** (3) Storage Piles

**CONTROL MEASURES**

**DESCRIPTION**

- (L) Wind sheltering
  - (1) Enclose in silos.
  - (2) Install three-sided barriers equal to height of material, with no more than 50 percent porosity.
- (M) Watering
  - (1) Application methods include: spray bars, hoses and water trucks.
  - (2) Frequency of application will vary on site-specific conditions.
- (N) Chemical stabilizers
  - (1) Best for use on storage piles subject to infrequent disturbances.
- (O) Altering load-in/load-out procedures
  - (1) Confine load-in/load-out procedures to leeward (downwind) side of the material.
  - (2) May need to be used in conjunction with wind sheltering to prevent visible emissions from crossing the property line.
- (P) Coverings
  - (1) Tarps, plastic, or other material can be used as a temporary covering.
  - (2) When used, these should be anchored to prevent wind from removing coverings.

**HIGH WIND MEASURE**

- (f) Apply chemical stabilizers (to meet the specifications established by the Rule) prior to wind events; or
- (g) Apply water once per hour; or
- (h) Install temporary covers.



Source: (4) Paved Road Track-Out

CONTROL MEASURES

DESCRIPTION

- |                                |  |
|--------------------------------|--|
| (Q) Chemical stabilization     | (1) Most effective when used on areas where active operations have ceased.<br>(2) Vendors can supply information on methods for application and required concentrations. |
| (R) Sweep/clean roadways       | (1) Either sweeping or water flushing may be used.   |
| (S) Cover haul vehicles        | (1) Entire surface area should be covered once vehicle is full.  |
| (T) Bedliners in haul vehicles | (1) When feasible, use in bottom dumping vehicles.   |
| (U) Site access improvement    | (1) Pave internal roadway system.<br>(2) Most important segment, last 100 yards from the connection with paved public roads  |

HIGH WIND MEASURE

- (i) Cover all haul vehicles; and
- (j) Clean streets with water flushing, unless prohibited by the Regional Water Quality Control Board.

RULE 403 IMPLEMENTATION HANDBOOK

---

Source: (5) Disturbed Surface Areas/ Inactive Construction Sites

CONTROL MEASURES

DESCRIPTION

- (Q) Chemical stabilization
  - (1) Most effective when used on areas where active operations have ceased.
  - (2) Vendors can supply information on methods for application and required concentrations.
- (R) Watering
  - (1) Requires frequent applications unless a surface crust can be developed.
- (S) Wind fencing
  - (1) Three- to five-foot barriers with 50% or less porosity adjacent to roadways or urban areas can be effective in reducing the amount of wind blown material leaving a site.
- (T) Vegetation
  - (1) Establish as quickly as possible when active operations have ceased.
  - (2) Use of drought tolerant, native vegetation is encouraged.

HIGH WIND MEASURES

- (k) Apply chemical stabilizers (to meet the specifications established by the Rule); or
- (l) Apply water to all disturbed surface areas 3 times per day.

**RULE 403 IMPLEMENTATION HANDBOOK**

---

**BEST AVAILABLE CONTROL MEASURES**

Rule 403, paragraph (d)(2) requires active operations [defined in Rule 403, paragraph (c)(1)] within the South Coast Air Basin (see Figure 2-1) to implement at least one best available control measure for each fugitive dust source type on site. Additionally, as specified by subparagraph (f)(3)(D) of Rule 403, any person seeking approval of a fugitive dust emissions control plan for projects within the South Coast Air Basin must demonstrate to the satisfaction of the AQMD that the given activity is employing all best available fugitive dust control measures.

The AQMD has prepared the attached listing of best available fugitive dust control measures for a variety of source categories. This list is based on the U.S. Environmental Protection Agency's reference document entitled, "Fugitive Dust Background Document and Technical Information Document for Best Available Control Measures," Office of Air and Radiation, September 1992.

The AQMD encourages the use of those dust control measures that minimize the use of potable water. When water is needed, reclaimed water should be utilized to the greatest extent feasible.

**RULE 403 IMPLEMENTATION HANDBOOK**

**BEST AVAILABLE CONTROL MEASURES**

The left column contains a listing of the sources of fugitive dust which are intended for emission control under District Rule 403 and a listing of control measures and high-wind measures. The right column contains a description of the best available fugitive dust control measures for each of the sources.

Source: (1) Land Clearing/Earth-Moving

**CONTROL MEASURES**

**DESCRIPTION**

- (A) Watering (pre-grading)
  - (1) Application of water by means of trucks, hoses and/or sprinklers prior to conducting any land clearing. This will increase the moisture content of the soils; thereby increasing its stability.
  - (2) Pre-application of water to depths of proposed cuts.
- (A-1) Watering (post-grading)
  - (1) In active earth-moving areas water should be applied at sufficient frequency and quantity to prevent visible emissions from extending more than 100 feet from the point of origin.
- (A-2) Pre-grading planning
  - (1) Grade each phase separately, timed to coincide with construction phase; or
  - (2) Grade entire project, but apply chemical stabilizers or ground cover to graded areas where construction phase begins more than 60 days after grading phase ends.
- (B) Chemical stabilizers
  - (1) Only effective in areas which are not subject to daily disturbances.
  - (2) Vendors can supply information on product application and required concentrations to meet the specifications established by the Rule.
- (C) Wind fencing
  - (1) Three- to five-foot barriers with 50% or less porosity located adjacent to roadways or urban areas can be effective in reducing the amount of windblown material leaving a site. Must be implemented in conjunction with either measure (A-1) or (B).
- (D) Cover haul vehicles
  - (1) Entire surface area of hauled earth should be covered once vehicle is full.
- (E) Bedliners in haul vehicles
  - (1) When feasible, use in bottom-dumping haul vehicles.

**HIGH WIND MEASURE**

- (a) Cease all active operations; or
- (b) Apply water within 15 minutes to any soil surface which is being moved or otherwise disturbed.

# RULE 403 IMPLEMENTATION HANDBOOK

Source: (2) Unpaved Roads

## CONTROL MEASURES

### DESCRIPTION

- (F) Paving
  - (1) Requires street sweeping/cleaning if subject to material accumulation.
- (G) Chemical stabilization
  - (1) Vendors can supply information as to application methods and concentrations to meet the specifications established by the Rule
  - (2) Not recommended for high volume or heavy equipment traffic use.
- (H) Watering
  - (1) In sufficient quantities to keep surface moist.
  - (2) Required application frequency will vary according to soil type, weather conditions, and vehicular use.
- (I) Reduce speed limits
  - (1) 15 mile per hour maximum. May need to be used in conjunction with watering or chemical stabilization to prevent visible emissions from crossing the property line.
- (J) Reduce vehicular trips
  - (1) Access restriction or redirecting traffic to reduce vehicle trips by a minimum of 60 percent.
- (K) Gravel
  - (1) Gravel maintained to a depth of four inches can be an effective measure.
  - (2) Should only be used in areas where paving, chemical stabilization or frequent watering is not feasible.

## HIGH WIND MEASURE

- (a) Apply a chemical stabilizer (to meet the specifications established by the Rule ) prior to wind events; or
- (b) Apply water once each hour; or
- (c) Stop all vehicular traffic.

# RULE 403 IMPLEMENTATION HANDBOOK

---

Source: (3) Storage Piles

## CONTROL MEASURES

### DESCRIPTION

- |  |  |
|--|--|
| (L) Wind sheltering                      | (1) Enclose in silos.<br>(2) Install three-sided barriers equal to height of material, with no more than 50 percent porosity.                                  |
| (M) Watering                             | (1) Application methods include: spray bars, hoses and water trucks.<br>(2) Frequency of application will vary on site-specific conditions.                    |
| (N) Chemical stabilizers                 | (1) Best for use on storage piles subject to infrequent disturbances.  |
| (O) Altering load-in/load-out procedures | (1) Confine load-in/load-out procedures to leeward (downwind) side of the material.<br>Must be used in conjunction with either measure (L), (M), (N), or (P).  |
| (P) Coverings                            | (1) Tarps, plastic, or other material can be used as a temporary covering.<br>(2) When used, these should be anchored to prevent wind from removing coverings. |

## HIGH WIND MEASURE

- (a) Apply chemical stabilizers (to meet the specifications established by the Rule) prior to wind events; or
- (b) Apply water once per hour; or
- (c) Install temporary covers.

**RULE 403 IMPLEMENTATION HANDBOOK**

---

Source: (4) Paved Road Track-Out

CONTROL MEASURES

DESCRIPTION

Compliance with District Rule 403.

Paragraph (d)(5).

January 1999

**RULE 403 IMPLEMENTATION HANDBOOK**

---

**Source: (S) Disturbed Surface Areas/ Inactive Construction Sites**

**CONTROL MEASURES**

**DESCRIPTION**

- (Q) Chemical stabilization
  - (1) Most effective when used on areas where active operations have ceased.
  - (2) Vendors can supply information on methods for application and required concentrations.
- (R) Watering
  - (1) Requires frequent applications unless a surface crust can be developed.
- (S) Wind fencing
  - (1) Three- to five-foot barriers with 50% or less porosity adjacent to roadways or urban areas can be effective in reducing the amount of wind blown material leaving a site. Must be used in conjunction with either measure (Q), (R), or (T).
- (T) Vegetation
  - (1) Establish as quickly as possible when active operations have ceased.\*

**HIGH WIND MEASURES**

- (a) Apply chemical stabilizers (to meet the specifications established by the Rule); or
- (b) Apply water to all disturbed surface areas 3 times per day.

---

\* Use of drought tolerant, native vegetation is encouraged.



TABLE 1

**BEST [REASONABLY]\* AVAILABLE CONTROL MEASURES FOR HIGH WIND CONDITIONS**

<b>FUGITIVE DUST SOURCE CATEGORY</b>	<b><u>CONTROL MEASURES</u></b>
<b>Earth-moving</b>	(1A) Cease all active operations; OR (2A) Apply water to soil not more than 15 minutes prior to moving such soil.
<b>Disturbed surface areas</b>	(0B) On the last day of active operations prior to a weekend, holiday, or any other period when active operations will not occur for not more than four consecutive days: apply water with a mixture of chemical stabilizer diluted to not less than 1/20 of the concentration required to maintain a stabilized surface for a period of six months; OR (1B) Apply chemical stabilizers prior to wind event; OR (2B) Apply water to all unstabilized disturbed areas 3 times per day. If there is any evidence of wind driven fugitive dust, watering frequency is increased to a minimum of four times per day; OR (3B) Take the actions specified in Table 2, Item (3c); OR (4B) Utilize any combination of control actions (1B), (2B), and (3B) such that, in total, these actions apply to all disturbed surface areas.
<b>Unpaved roads</b>	(1C) Apply chemical stabilizers prior to wind event; OR (2C) Apply water twice [once] per hour during active operation; OR (3C) Stop all vehicular traffic.
<b>Open storage piles</b>	(1D) Apply water twice [once] per hour; OR (2D) Install temporary coverings.
<b>Paved road track-out</b>	(1E) Cover all haul vehicles; OR (2E) Comply with the vehicle freeboard requirements of Section 23114 of the California Vehicle Code for both public and private roads.
<b>All Categories</b>	(1F) Any other control measures approved by the Executive Officer and the U.S. EPA as equivalent to the methods specified in Table 1 may be used.

\* Measures in [brackets] are reasonably available control measures and only apply to sources not within the South Coast Air Basin.

**TABLE 2**  
**DUST CONTROL ACTIONS FOR EXEMPTION FROM PARAGRAPH (d)(4)**

<u>FUGITIVE DUST SOURCE CATEGORY</u>	<u>CONTROL ACTIONS</u>
<b>Earth-moving (except construction cutting and filling areas, and mining operations)</b>	<p>(1a) Maintain soil moisture content at a minimum of 12 percent, as determined by ASTM method D-2216, or other equivalent method approved by the Executive Officer, the California Air Resources Board, and the U.S. EPA. Two soil moisture evaluations must be conducted during the first three hours of active operations during a calendar day, and two such evaluations each subsequent four-hour period of active operations; OR</p> <p>(1a-1) For any earth-moving which is more than 100 feet from all property lines, conduct watering as necessary to prevent visible dust emissions from exceeding 100 feet in length in any direction.</p>
<b>Earth-moving: Construction fill areas:</b>	<p>(1b) Maintain soil moisture content at a minimum of 12 percent, as determined by ASTM method D-2216, or other equivalent method approved by the Executive Officer, the California Air Resources Board, and the U.S. EPA. For areas which have an optimum moisture content for compaction of less than 12 percent, as determined by ASTM Method 1557 or other equivalent method approved by the Executive Officer and the California Air Resources Board and the U.S. EPA, complete the compaction process as expeditiously as possible after achieving at least 70 percent of the optimum soil moisture content. Two soil moisture evaluations must be conducted during the first three hours of active operations during a calendar day, and two such evaluations during each subsequent four-hour period of active operations.</p>

\* Measures in [brackets] are reasonably available control measures and only apply to sources not within the South Coast Air Basin.

TABLE 2 (Continued)

<b>FUGITIVE DUST SOURCE CATEGORY</b>	<b>CONTROL ACTIONS</b>
<b>Earth-moving: Construction cut areas and mining operations:</b>	(1c) Conduct watering as necessary to prevent visible emissions from extending more than 100 feet beyond the active cut or mining area unless the area is inaccessible to watering vehicles due to slope conditions or other safety factors.
<b>Disturbed surface areas (except completed grading areas)</b>	(2a/b) Apply dust suppression in sufficient quantity and frequency to maintain a stabilized surface. Any areas which cannot be stabilized, as evidenced by wind driven fugitive dust must have an application of water at least twice per day to at least 80 [70] percent of the unstabilized area.
<b>Disturbed surface areas: Completed grading areas</b>	(2c) Apply chemical stabilizers within five working days of grading completion; OR  (2d) Take actions (3a) or (3c) specified for inactive disturbed surface areas.
<b>Inactive disturbed surface areas</b>	(3a) Apply water to at least 80 [70] percent of all inactive disturbed surface areas on a daily basis when there is evidence of wind driven fugitive dust, excluding any areas which are inaccessible to watering vehicles due to excessive slope or other safety conditions; OR  (3b) Apply dust suppressants in sufficient quantity and frequency to maintain a stabilized surface; OR  (3c) Establish a vegetative ground cover within 21 [30] days after active operations have ceased. Ground cover must be of sufficient density to expose less than 30 percent of unstabilized ground within 90 days of planting, and at all times thereafter; OR  (3d) Utilize any combination of control actions (3a), (3b), and (3c) such that, in total, these actions apply to all inactive disturbed surface areas.

\* Measures in [brackets] are reasonably available control measures and only apply to sources not within the South Coast Air Basin.

TABLE 2 (Continued)

<b><u>FUGITIVE DUST SOURCE CATEGORY</u></b>	<b><u>CONTROL ACTIONS</u></b>
<b>Unpaved Roads</b>	(4a) Water all roads used for any vehicular traffic at least once per every two hours of active operations [3 times per normal 8 hour work day]; OR (4b) Water all roads used for any vehicular traffic once daily and restrict vehicle speeds to 15 miles per hour; OR (4c) Apply a chemical stabilizer to all unpaved road surfaces in sufficient quantity and frequency to maintain a stabilized surface.
<b>Open storage piles</b>	(5a) Apply chemical stabilizers; OR (5b) Apply water to at least 80 [70] percent of the surface area of all open storage piles on a daily basis when there is evidence of wind driven fugitive dust; OR (5c) Install temporary coverings; OR (5d) Install a three-sided enclosure with walls with no more than 50 percent porosity which extend, at a minimum, to the top of the pile.
<b><u>All Categories</u></b>	(6a) Any other control measures approved by the Executive Officer and the U.S. EPA as equivalent to the methods specified in Table 2 may be used.

\* Measures in [brackets] are reasonably available control measures and only apply to sources not within the South Coast Air Basin.

AQMD Recommendations

**TABLE 3**

**TRACK-OUT CONTROL OPTIONS**

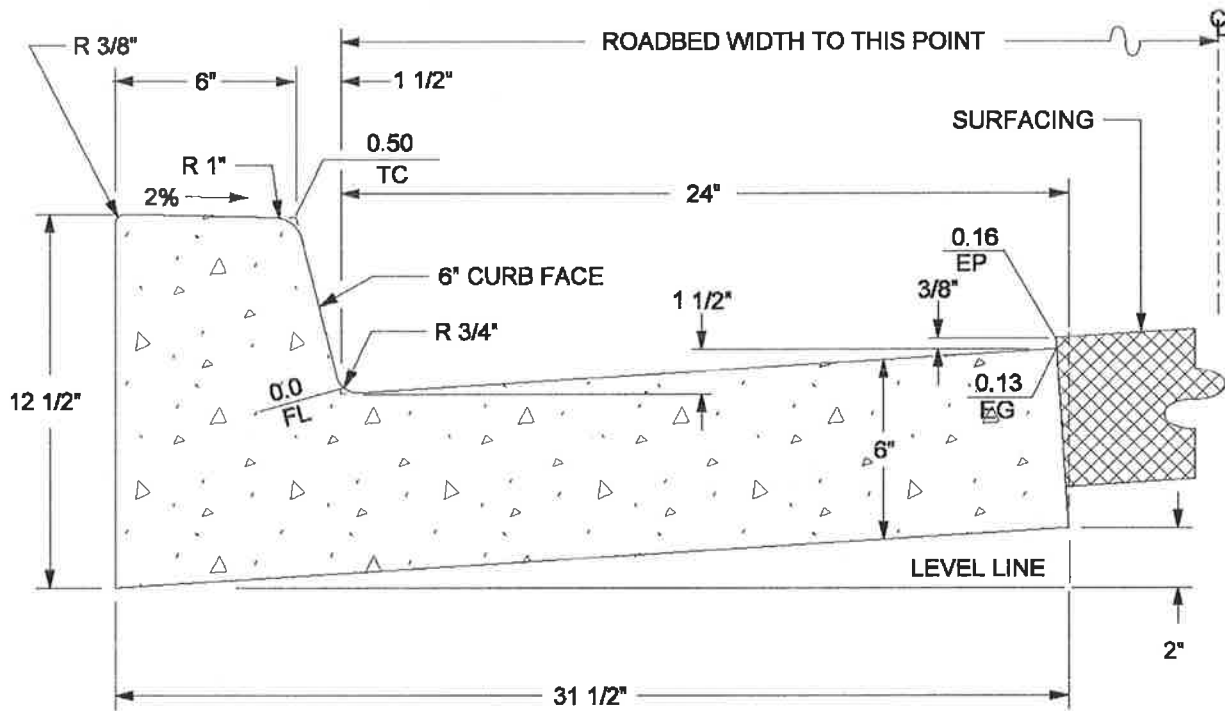
**PARAGRAPH (d)(5)(B)**

**CONTROL OPTIONS**

(1)	Pave or apply chemical stabilization at sufficient concentration and frequency to maintain a stabilized surface starting from the point of intersection with the public paved surface, and extending for a centerline distance of at least 100 feet and a width of at least 20 feet.
(2)	Pave from the point of intersection with the public paved road surface, and extending for a centerline distance of at least 25 feet and a width of at least 20 feet, and install a track-out control device immediately adjacent to the paved surface such that exiting vehicles do not travel on any unpaved road surface after passing through the track-out control device.
(3)	Any other control measures approved by the Executive Officer and the U.S. EPA as equivalent to the methods specified in Table 3 may be used.

# **Appendix B**

## **Reference Drawings**



CLASS "B" CONCRETE

1.601 CU. FT. / L.F.

1 CU. YD. = 16.86 L.F.

**ABBREVIATIONS:**

TC = TOP OF CURB

FL = FLOWLINE

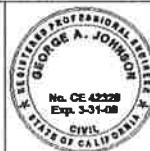
EG = EDGE OF GUTTER

EP = EDGE OF PAVEMENT

APPROVED BY:

*George A. Johnson*  
 DIRECTOR OF TRANSPORTATION  
 GEORGE A. JOHNSON, RCE 42328

DATE: 05/01/07

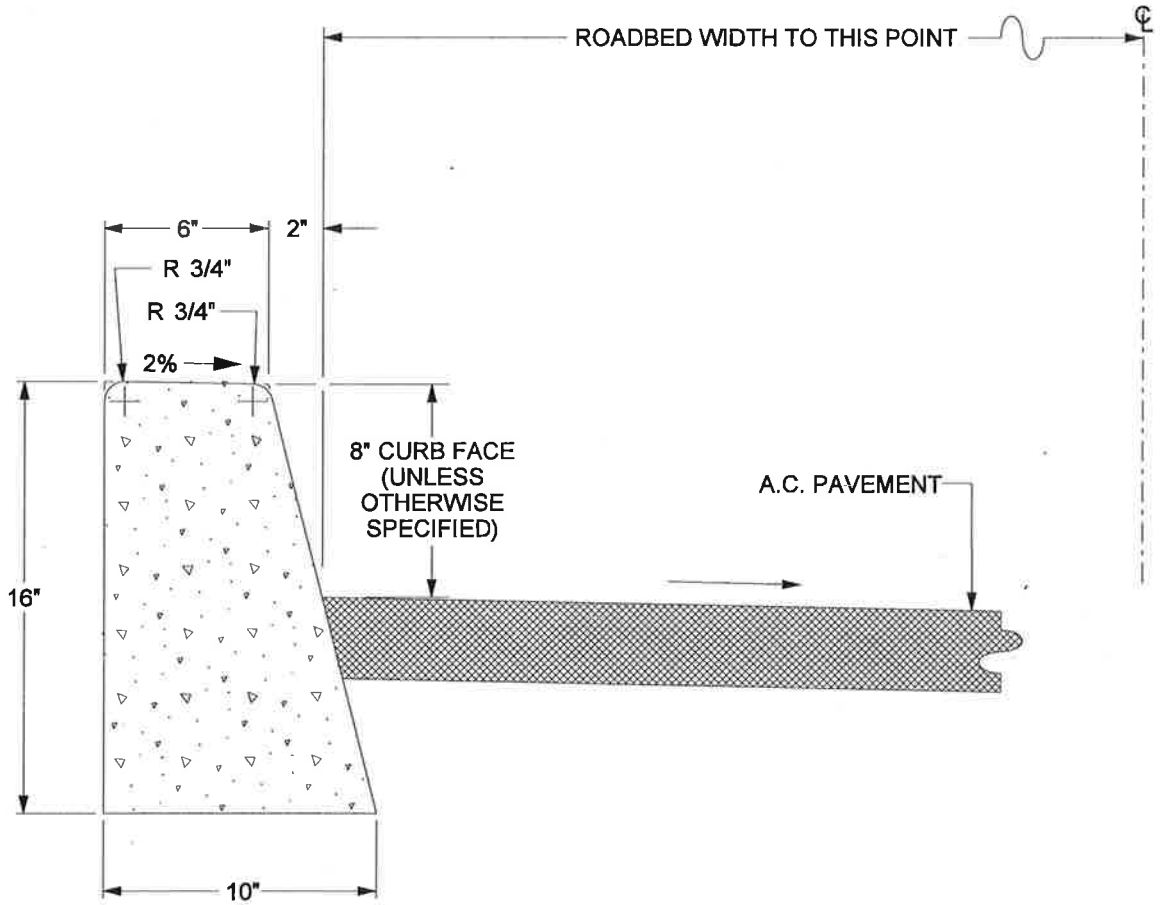


COUNTY OF RIVERSIDE

**TYPE A-6 CURB**

STANDARD NO. 200

REVISIONS	REV.	BY:	APR'D	DATE	REV.	BY:	APR'D	DATE
8-71, 9-88	1				4			
2-90, 11-04	2				5			
	3				6			



CLASS "B" CONCRETE

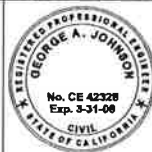
0.888 CU FT. / L.F.

1 CU. YD. = 30.41 L.F.

APPROVED BY:

*George A. Johnson*  
 DIRECTOR OF TRANSPORTATION  
 GEORGE A. JOHNSON, RCE 42328

DATE: 05/01/07



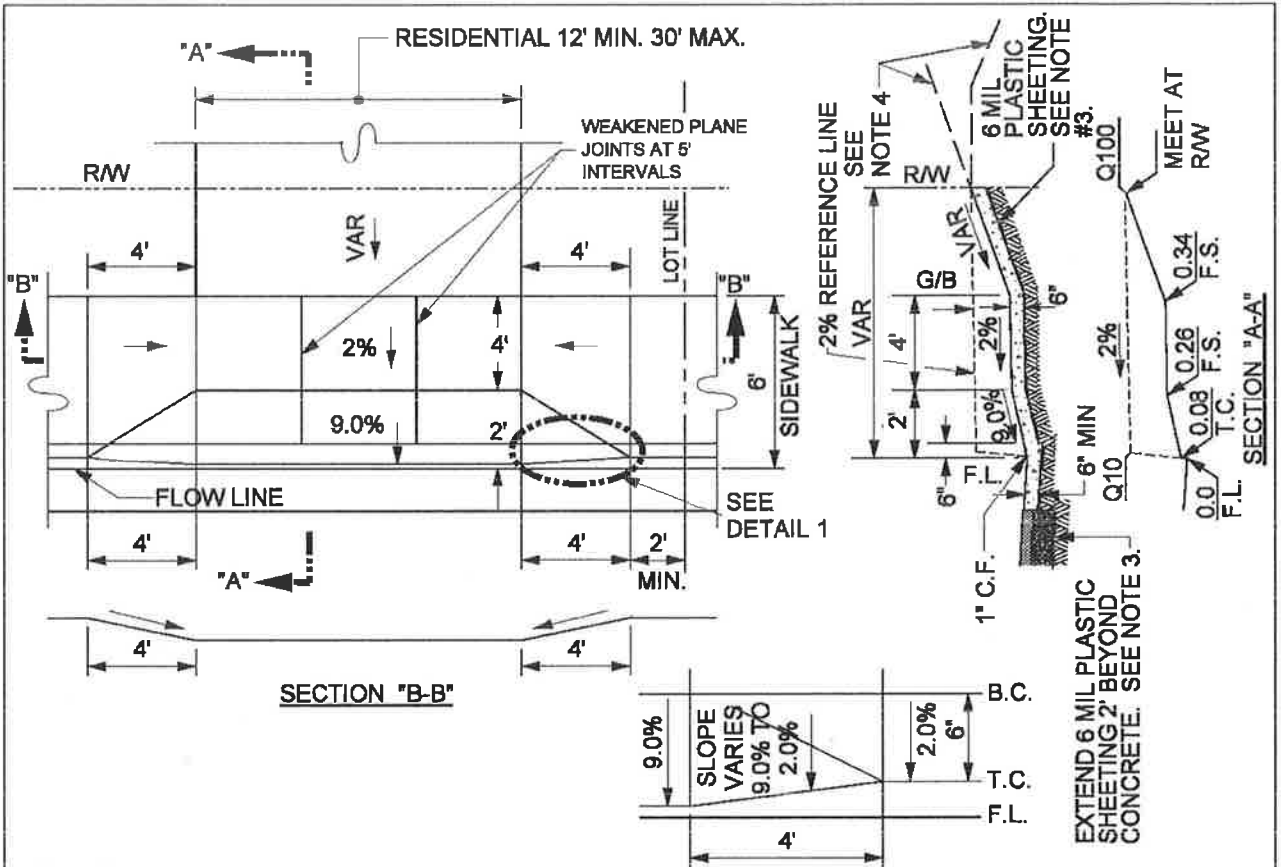
COUNTY OF RIVERSIDE

**TYPE "D" CURB**

REVISIONS	REV.	BY:	APR'D	DATE	REV.	BY:	APR'D	DATE
8-71, 2-90	1				4			
11-04	2				5			
	3				6			

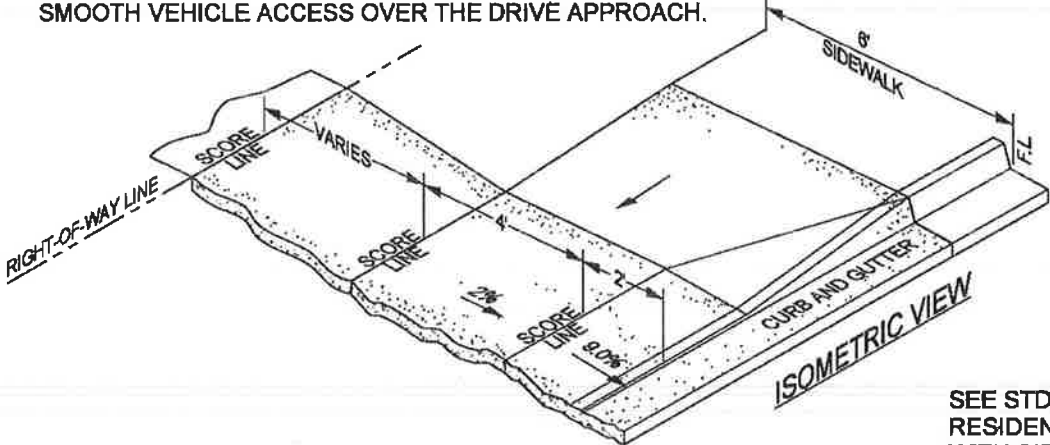
STANDARD NO. 204






**NOTES:**

1. ALL CONSTRUCTION SHALL BE CLASS "3" CONCRETE.
2. 20' OF FULL-HEIGHT CURB REQUIRED BETWEEN DRIVEWAYS WITHIN ANY ONE PROPERTY FRONTAGE.
3. USE 6 MIL PLASTIC SHEETING WHEN ABUTTING SOIL HAS A HIGH SULFATE CONTENT, SPECIAL CONSIDERATIONS ARE REQUIRED. SEE SPECIFICATIONS (SECTION 16.04).
4. CONSTRUCT THE PROFILE GRADE OF THE PRIVATE ON-SITE DRIVEWAY SO THAT IT PROVIDES SMOOTH VEHICLE ACCESS OVER THE DRIVE APPROACH.



NOT TO SCALE

SEE STD NO. 213 FOR RESIDENTIAL DRIVEWAY WITH SIDEWALK AT RAW

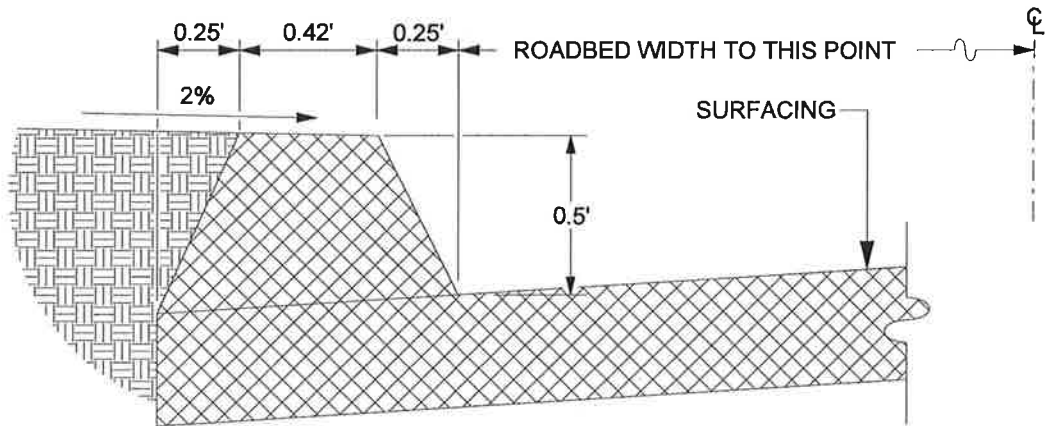
APPROVED BY:  
  
 DATE: 11/15/04  
 DIRECTOR OF TRANSPORTATION  
 GEORGE A. JOHNSON, RCE 42328



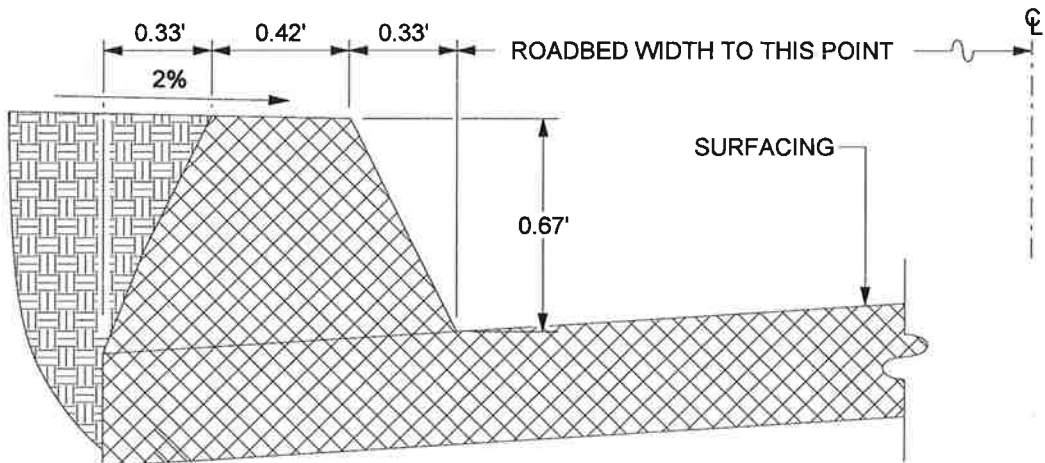
COUNTY OF RIVERSIDE  
**RESIDENTIAL DRIVEWAY WITH SIDEWALK AT CURB**

REVISIONS		REV.	BY:	APR'D	DATE	REV.	BY:	APR'D	DATE
8-71, 8-77	11-04	1				4			
5-80, 2-82		2				5			
2-90, 12-97		3				6			

STANDARD NO. 207



6" A.C. DIKE



8" A.C. DIKE

NOT TO SCALE

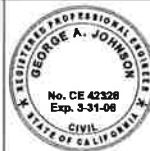
NOTE: A.C. DIKE REQUIRED WHERE FILL SLOPES ARE STEEPER THAN 4:1, MATERIAL IS SUSCEPTIBLE TO EROSION, OR WHERE ROADWAY GRADIENT EXCEEDS 3%.

APPROVED BY:

*George A. Johnson*

DATE: 05/01/07

DIRECTOR OF TRANSPORTATION  
GEORGE A. JOHNSON, RCE 42328

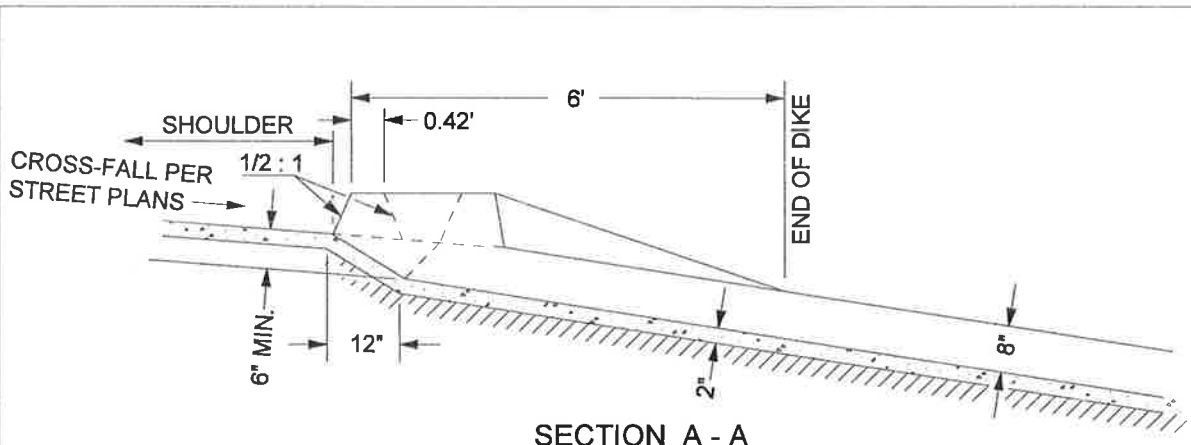


COUNTY OF RIVERSIDE

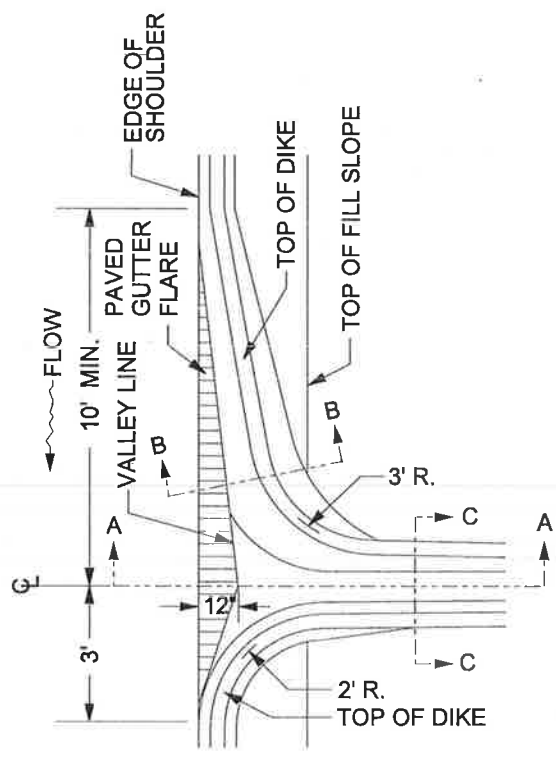
**ASPHALT CONCRETE  
DIKES**

STANDARD NO. 212

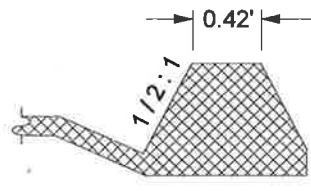
REVISIONS	REV.	BY:	APR'D	DATE	REV.	BY:	APR'D	DATE
	1				4			
	2				5			
	3				6			



SECTION A - A

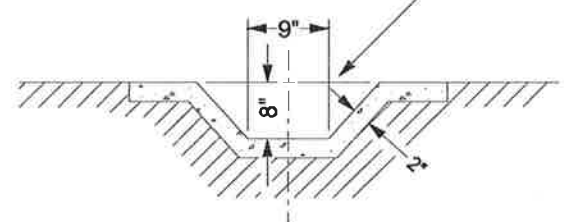


PLAN



SECTION B - B


NOTE:  
 CROSS - SECTION OF SLOPE DITCH MAY BE SEMICIRCULAR, VEE, OR TRAPEZOIDAL.  
 MIN. TOP WIDTH = 25", MIN. DEPTH = 8".



SECTION C - C

TO BE USED ON FILL SLOPES FLATTER THAN 4 : 1.  
 USE MIN. 10' LENGTH OF GUTTER ON BOTH SIDES  
 IN A SAG LOCATION. USE PIPE DOWNDRAINS FOR  
 SLOPES STEEPER THAN 4 : 1 SLOPES.

NOT TO SCALE

APPROVED BY:  
  
 DIRECTOR OF TRANSPORTATION  
 GEORGE A. JOHNSON, RCE 42328  
 DATE: 05/01/07

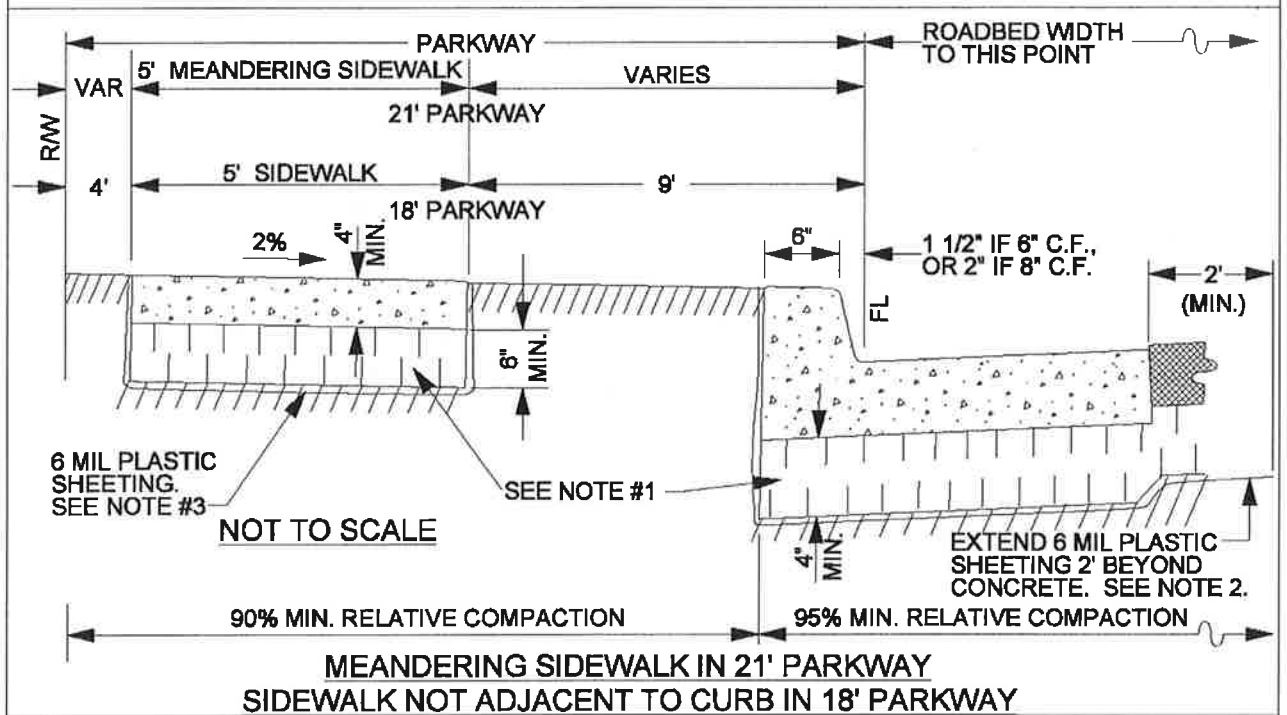
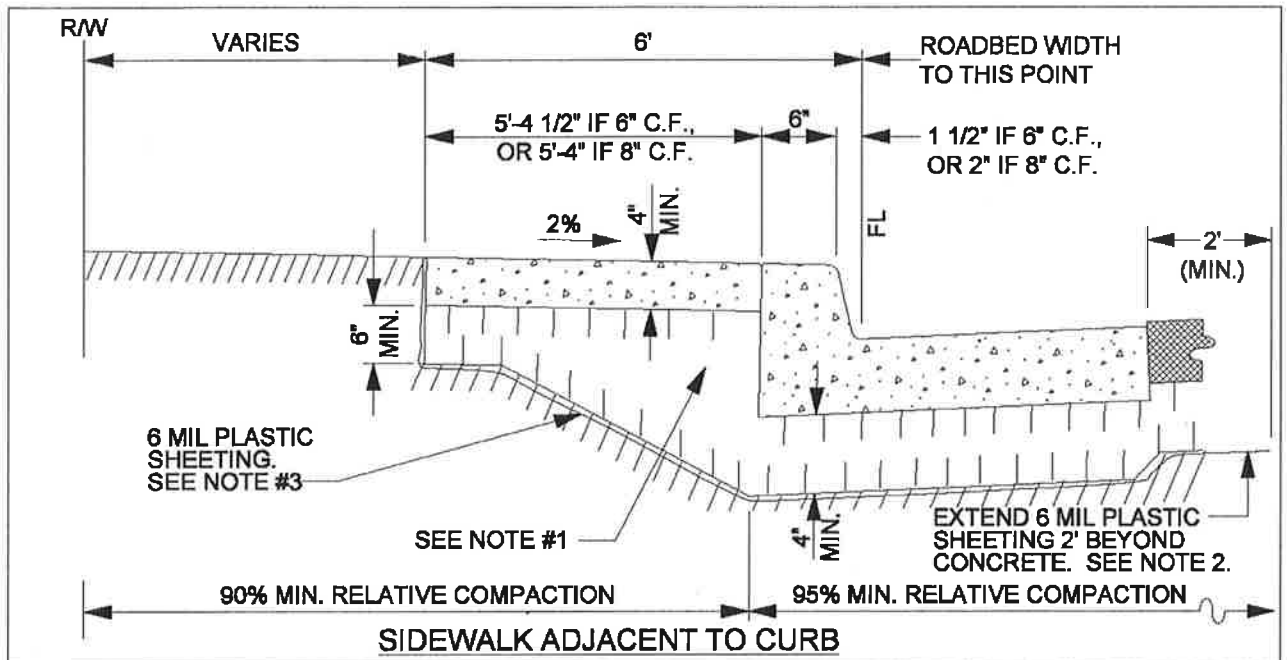


COUNTY OF RIVERSIDE

**ASPHALT CONCRETE  
 OVSIDE DRAIN**

REVISIONS	REV	BY:	APR'D	DATE	REV	BY:	APR'D	DATE
8-18-77, 2-82	1				4			
11-04	2				5			
	3				6			

STANDARD NO. 306



**NOTE:**

1. AGGREGATE BASE OR APPROVED SELECT MATERIAL WHEN SOILS REPORT INDICATES PRESENCE OF EXPANSIVE SOIL CONDITIONS.
2. ALL CONSTRUCTION SHALL BE CLASS "B" CONCRETE.
3. WHEN ABUTTING SOIL HAS A HIGH SULFATE CONTENT, SPECIAL CONSIDERATIONS ARE REQUIRED. SEE SPECIFICATIONS (SECTION 16.04).

APPROVED BY:

*George A. Johnson*  
 DIRECTOR OF TRANSPORTATION  
 GEORGE A. JOHNSON, RCE 42328

DATE: 05/01/07

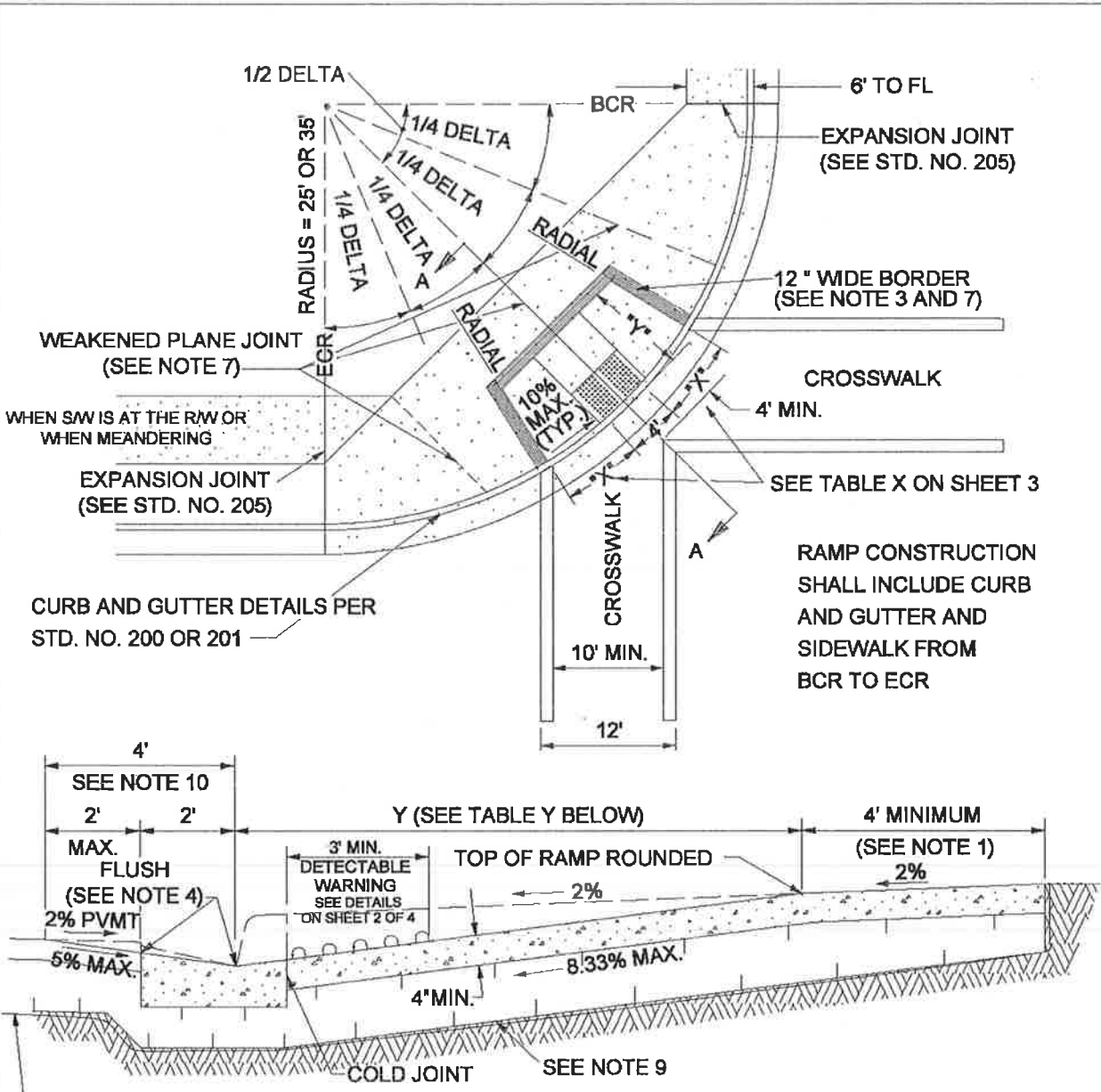


COUNTY OF RIVERSIDE

**SIDEWALK AND CURB**

REVISIONS	REV.	BY:	APR'D	DATE	REV.	BY:	APR'D	DATE
8-71, 11-77	1				4			
8-82, 9-88	2				5			
4-90, 11-04	3				6			

STANDARD NO. 401



**TABLE Y**

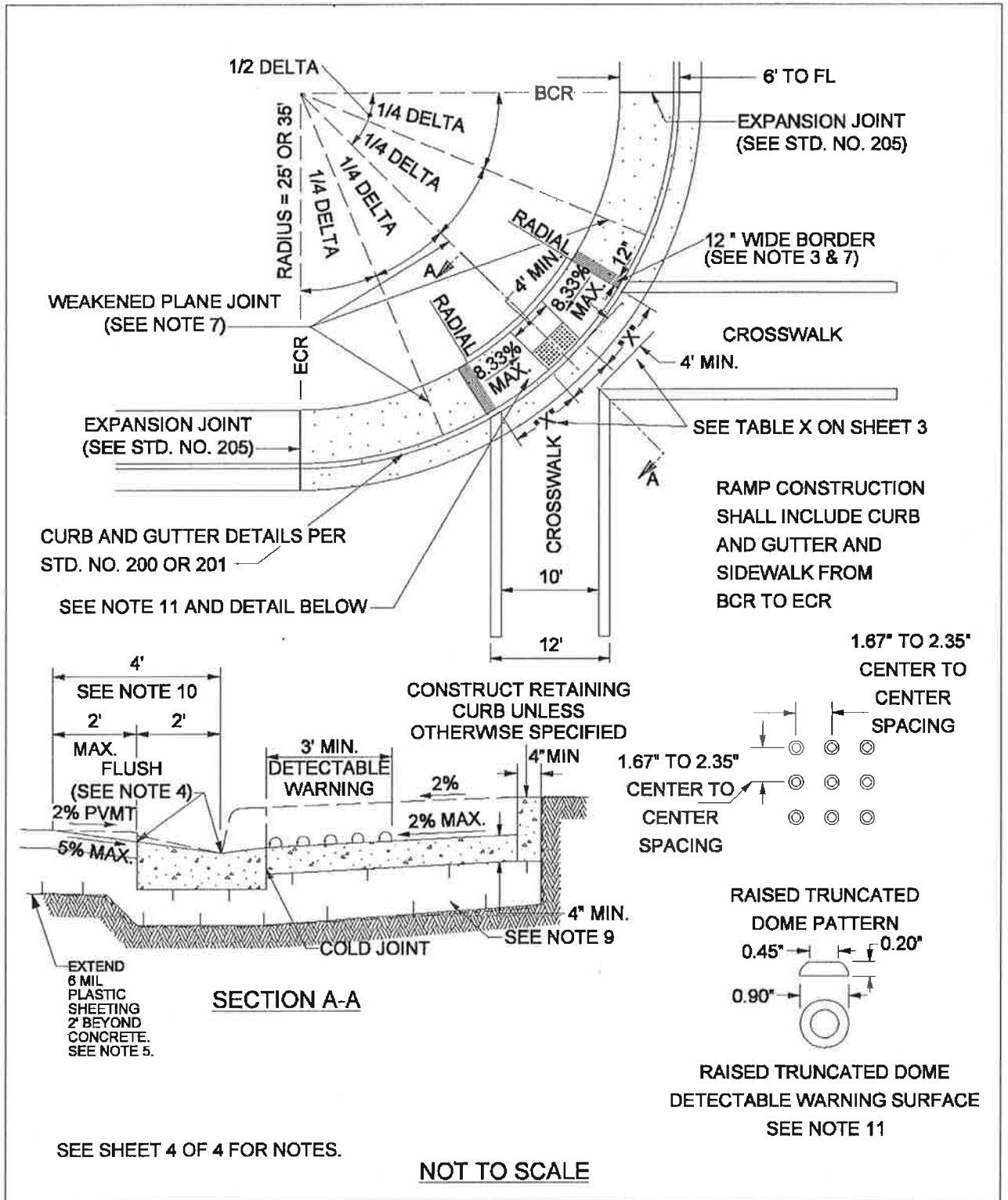
CF	Y
6"	7.90'
8"	10.53'

$$Y = \frac{\text{CURB FACE (FT.)}}{6.33\%}$$

**NOT TO SCALE**


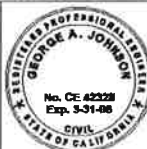
SEE SHEET 4 OF 4 FOR NOTES.

<p>APPROVED BY:</p> <p><i>George A. Johnson</i>      DATE: 11/15/04</p> <p>DIRECTOR OF TRANSPORTATION GEORGE A. JOHNSON, RCE 42328</p>		<p>COUNTY OF RIVERSIDE</p> <p><b>CURB RAMP CASE A</b></p>																																				
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>REVISIONS</th> <th>REV.</th> <th>BY:</th> <th>APR'D</th> <th>DATE</th> <th>REV.</th> <th>BY:</th> <th>APR'D</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td>8-77, 5-80</td> <td>1</td> <td></td> <td></td> <td></td> <td>4</td> <td></td> <td></td> <td></td> </tr> <tr> <td>10-81, 6-82</td> <td>2</td> <td></td> <td></td> <td></td> <td>5</td> <td></td> <td></td> <td></td> </tr> <tr> <td>9-88, 2-90</td> <td>3</td> <td></td> <td></td> <td></td> <td>6</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	REVISIONS	REV.	BY:	APR'D	DATE	REV.	BY:	APR'D	DATE	8-77, 5-80	1				4				10-81, 6-82	2				5				9-88, 2-90	3				6					<p>STANDARD NO. 403 (1 OF 4)</p>
REVISIONS	REV.	BY:	APR'D	DATE	REV.	BY:	APR'D	DATE																														
8-77, 5-80	1				4																																	
10-81, 6-82	2				5																																	
9-88, 2-90	3				6																																	



SEE SHEET 4 OF 4 FOR NOTES.

NOT TO SCALE

APPROVED BY:					COUNTY OF RIVERSIDE																																												
 DIRECTOR OF TRANSPORTATION GEORGE A. JOHNSON, RCE 42328					DATE: 11/15/04 																																												
<table border="1"> <thead> <tr> <th colspan="2">REVISIONS</th> <th>REV.</th> <th>BY:</th> <th>APR'D</th> <th>DATE</th> <th>REV.</th> <th>BY:</th> <th>APR'D</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td>8-77, 5-80</td> <td>11-04</td> <td>1</td> <td></td> <td></td> <td></td> <td>4</td> <td></td> <td></td> <td></td> </tr> <tr> <td>10-81, 6-82</td> <td></td> <td>2</td> <td></td> <td></td> <td></td> <td>5</td> <td></td> <td></td> <td></td> </tr> <tr> <td>9-88, 2-90</td> <td></td> <td>3</td> <td></td> <td></td> <td></td> <td>6</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>					REVISIONS		REV.	BY:	APR'D	DATE	REV.	BY:	APR'D	DATE	8-77, 5-80	11-04	1				4				10-81, 6-82		2				5				9-88, 2-90		3				6				<b>CURB RAMP CASE B</b>  STANDARD NO. 403 (2 OF 4)				
REVISIONS		REV.	BY:	APR'D	DATE	REV.	BY:	APR'D	DATE																																								
8-77, 5-80	11-04	1				4																																											
10-81, 6-82		2				5																																											
9-88, 2-90		3				6																																											
					12-97																																												

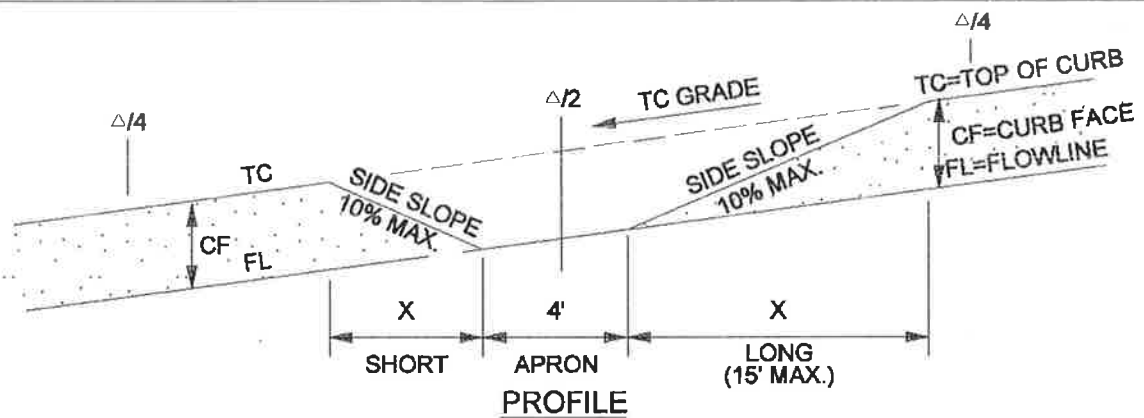


TABLE X

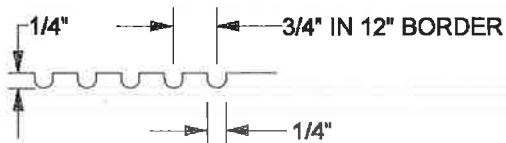
CF (IN)	RADIUS (FT)	SIDE SLOPE	X	TC GRADE (ALONG CURB RETURN)					
				1%	2%	3%	4%	5%	6%
6"	35'	10%	X <sub>S</sub>	4.6	4.2	3.9	3.6	3.4	3.2
			X <sub>L</sub>	5.6	6.3	7.2	8.4	10.0	12.5
8"	35'	10%	X <sub>S</sub>	6.1	5.6	5.2	4.8	4.5	4.2
			X <sub>L</sub>	7.5	8.4	9.6	11.2	13.4	15.0

TO CALCULATE "X" DIMENSION:

SHORT SIDE (DOWN SLOPE):  $X_S (FT) = \frac{\text{CURB FACE (FT)}}{\text{SIDE SLOPE} + \text{TC GRADE}}$

LONG SIDE (UP SLOPE):  $X_L (FT) = \frac{\text{CURB FACE (FT)}}{\text{SIDE SLOPE} - \text{TC GRADE}}$

ENGINEER TO SHOW X<sub>S</sub> AND X<sub>L</sub> ON IMPROVEMENT PLANS



GROOVING DETAIL

APPROVED BY:

*George A. Johnson*  
 DIRECTOR OF TRANSPORTATION  
 GEORGE A. JOHNSON, RCE 42328

DATE: 03/05/07



COUNTY OF RIVERSIDE



**CURB RAMP**

REVISIONS	REV	BY	APR'D	DATE	REV	BY	APR'D	DATE
8-77, 5-80	1				4			
10-81, 8-82	2				5			
9-88, 2-90	3				6			

STANDARD NO. 403 (3 OF 4)

**CONSTRUCTION NOTES:**

1. IF DISTANCE FROM CURB TO BACK OF SIDEWALK IS TOO SHORT TO ACCOMODATE RAMP AND 4' LANDING, THEN USE THE CASE "B" RAMP.
2. IF SIDEWALK IS LESS THAN 6' WIDE, THE FULL WIDTH OF THE SIDEWALK SHALL BE DEPRESSED AS SHOWN IN CASE B. MINIMUM SIDEWALK WIDTH IS 4' FROM BACK OF CURB.
3. THE RAMP SHALL HAVE A 12" WIDE BORDER WITH GROOVES 1/4" WIDE AND 1/4" DEEP APPROXIMATELY 3/4" ON CENTER. SEE GROOVING DETAIL.
4. TRANSITIONS FROM RAMPS TO WALKS, GUTTERS, OR STREETS SHALL BE FLUSH AND FREE OF ABRUPT CHANGES.
5. WHEN ABUTTING SOIL HAS A HIGH SULFATE CONTENT, SPECIAL CONSIDERATIONS ARE REQUIRED. SEE SPECIFICATIONS (SECTION 16.04).
6. RAMP SIDE SLOPE VARIES UNIFORMLY FROM A MAXIMUM OF UP TO 10% AT CURB TO CONFORM WITH LONGITUDINAL SIDEWALK SLOPE ADJACENT TO TOP OF THE RAMP (EXCEPT IN CASE B).
7. CONSTRUCT WEAKENED PLANE JOINTS AT 1/4 DELTAS WHEN RADIUS EQUALS 35' AND AT INSIDE EDGE OF GROOVED BORDER WHEN RADIUS EQUALS 25'.
8. IF EXPANSIVE SOIL IS ENCOUNTERED, THEN RAMP SHALL BE CONSTRUCTED OVER CLASS 2 AGGRÉGATE MATERIAL.
9. CONCRETE SHALL BE CLASS B.
10. MAXIMUM SLOPES OF ADJOINING GUTTERS: THE ROAD SURFACE IMMEDIATELY ADJACENT TO THE CURB RAMP AND CONTINUOUS PASSAGE TO THE CURB RAMP SHALL NOT EXCEED 5% WITHIN 4' OF THE BOTTOM OF THE CURB RAMP.
11. DETECTABLE WARNING SURFACES ARE REQUIRED ON ALL CURB RAMPS THAT ENTER INTO A VEHICULAR TRAVEL WAY.

APPROVED BY:  DATE: 11/15/04										COUNTY OF RIVERSIDE				
DIRECTOR OF TRANSPORTATION GEORGE A. JOHNSON, RCE 42328					<b>CURB RAMP CONSTRUCTION NOTES</b>					STANDARD NO. 403 (4 OF 4)				
REVISIONS		REV.	BY:	APR'D	DATE	REV.	BY:	APR'D	DATE	12-97				
8-77, 5-80	11-04	1				4								
10-81, 8-82		2				5								
9-88, 2-90		3				6								



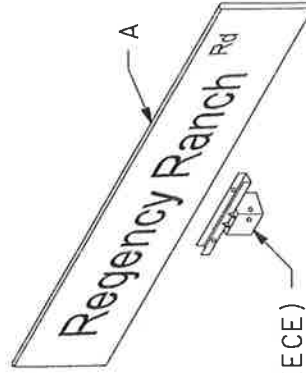
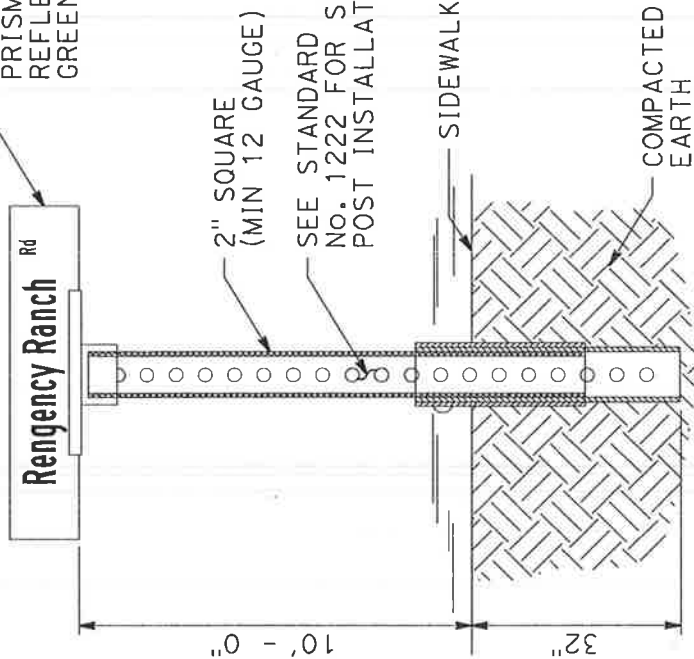
STD SUFFIXES

SUFFIX	ABBREV
AVENUE	Ave
BOULEVARD	Bivd
CIRCLE	Cir
COURT	Ct
DRIVE	Dr
LANE	Ln
PARKWAY	Pkwy
PLACE	Pl
ROAD	Rd
STREET	St
TERRACE	Ter
TRAIL	Tr
WAY	Way
LOOP	Lp

NOTES:

- WHEN ONE OF THE INTERSECTING ROADWAYS HAS AN ULTIMATE PAVED WIDTH OR CURBED WIDTH GREATER THAN 60 FEET, STD 1220 SHALL BE USED.
- TWO SIGNS ARE REQUIRED FOR EACH DIRECTION OF TRAVEL, ON THE FAR RIGHTHAND SIDE OF THE INTERSECTION FOR TRAFFIC ON THE MAJOR STREET. SEE SIGN INSTALLATION DETAIL.
- AT "T" INTERSECTIONS, ONLY TWO STREET NAME SIGNS SHALL BE REQUIRED.
- MORE THAN FOUR STREET NAME SIGNS MAY BE REQUIRED AT INTERSECTIONS WITH MORE THAN FOUR LEGS.
- WHEN ALL INTERSECTING STREETS HAVE ULTIMATE PAVED WIDTHS OR CURBED WIDTHS OF 60 FEET OR LESS, AND THEY ARE NOT GENERAL PLAN ROADS, USE STANDARD 1221.

WHITE HIGH INTENSITY PRISMATIC (HIP) REFLECTIVE LETTERS ON GREEN (HIP) SHEETING



- A - SIGN PLATES (5052-H38 ALUMINUM ALLOY MATERIAL)
- B - 2" SQ X 12" CAST ANODIZED ALUMINUM POST CAP WITH SIX 3/8" ALLEN HEAD STAINLESS STEEL SET SCREWS TO FIT 0.125 SIGN BLANK

APPROVED BY:

JUAN C. PEREZ  
TLMA DIRECTOR

DATE



COUNTY OF RIVERSIDE

**STREET NAME SIGN  
(CURB TO CURB WIDTH  
GREATER THAN 60')**

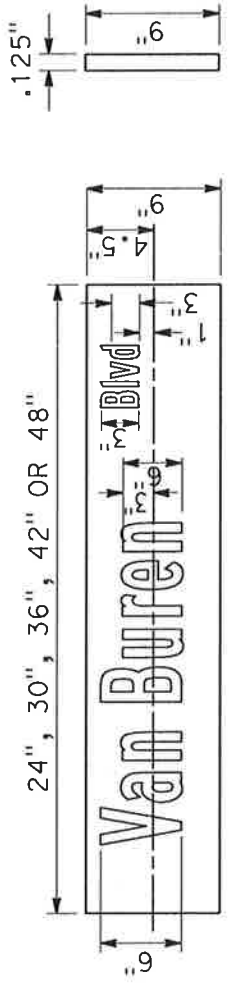
NO SCALE

STANDARD No. 1220 (1 OF 2)

REVISIONS	REV	BY:	APR'D	DATE	REV	BY:	APR'D	DATE
	1	GR	KN	01/2014				

NOTE:

1. FOR NOTES, SEE SHEET 1.



MAJOR STREET NAME SIGN SPECS (SIGN LOCATION A)



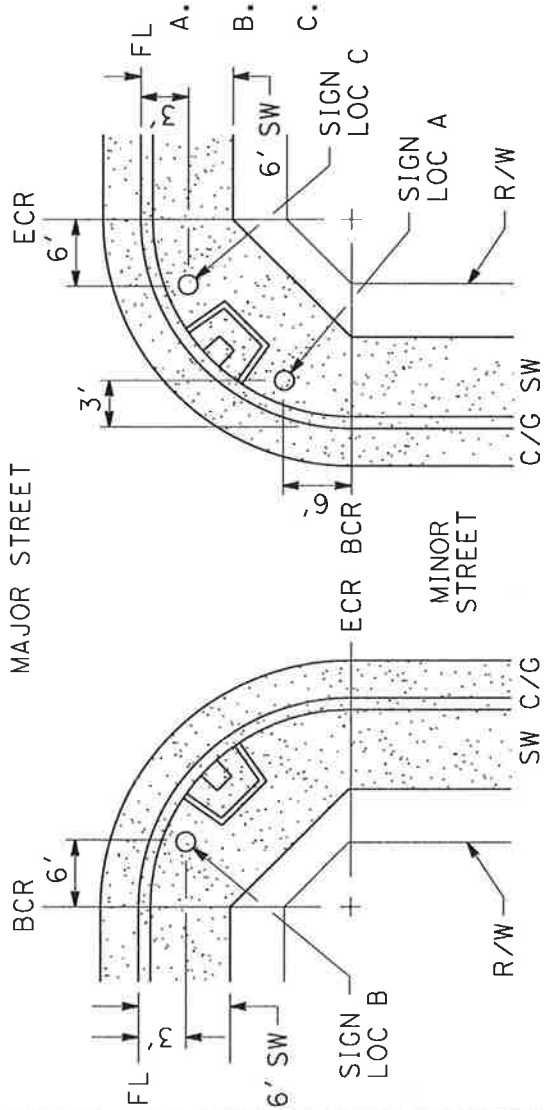
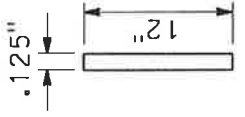
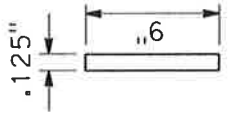
MINOR STREET NAME SIGN SPECS (SIGN LOCATION B)

\* LETTER SIZING AND SPACING MUST MEET FHWA SPACING GUIDE LINES. MINOR VARIATIONS AS APPROVED BY ENGINEER.

\* SIGNS SHALL NOT EXCEED 48" IF STREET NAME CONTAINS A SECOND WORD, SECOND WORD MAY BE ABBREVIATED AS FOLLOWS:

WORD	ABBREV
CENTER	Ctr
CANYON	Cyn
RANCH	Rch
SPRING	Spr
SCHOOL	Sch

SIGN (CROSS-SECTION) (CROSS-SECTION)



SIGN INSTALLATION DETAIL

- A. 9" BLADE, WITH MAJOR STREET NAME, PERPENDICULAR TO MINOR STREET.
  - B. 12" BLADE, WITH MINOR STREET NAME, PERPENDICULAR TO MAJOR STREET.
  - C. 12" BLADE, WITH MINOR STREET NAME, PERPENDICULAR TO MAJOR STREET.
- \*(ONLY USED IF SIGN LOCATION B DOES NOT PROVIDE GOOD SIGN VISIBILITY)

APPROVED BY:

JUAN C. PEREZ  
TLMA DIRECTOR

DATE



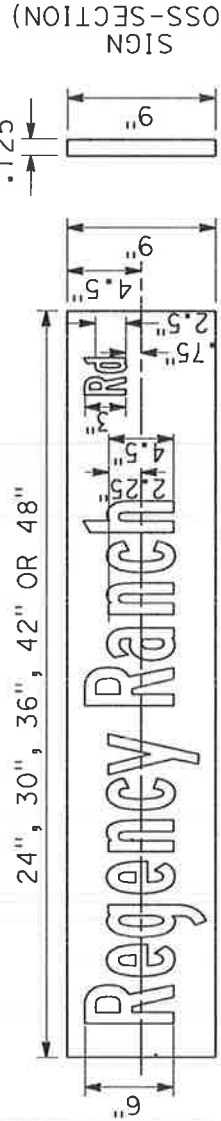
COUNTY OF RIVERSIDE

**STREET NAME SIGN  
(CURB TO CURB WIDTH  
GREATER THAN 60')**  
NO SCALE

REVISIONS	REV	BY:	APR'D	DATE	REV	BY:	APR'D	DATE
	1	GR	KN	01/2014				

**NOTE:**

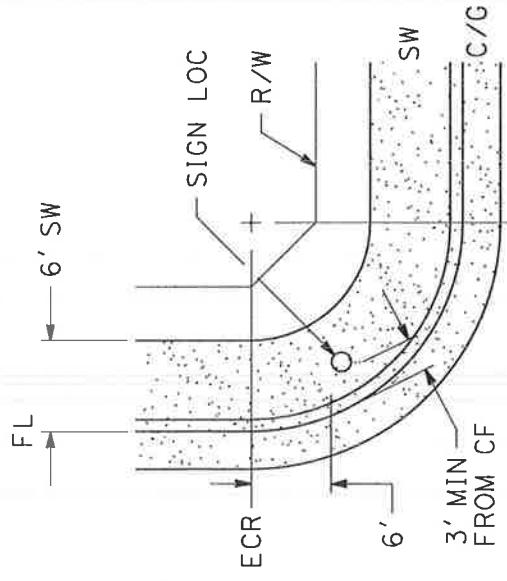
- ONE COMPLETE NAME SIGN UNIT IS REQUIRED AT EACH INTERSECTION WHEN PAVED WIDTHS OR CURBED WIDTHS OF ALL INTERSECTING STREETS ARE 60 FEET OR LESS. AT INTERSECTIONS WITH ONE OR MORE STREETS WITH AN ULTIMATE PAVED WIDTH OR CURBED WIDTH GREATER THAN 60 FEET, USE STANDARD 1220.



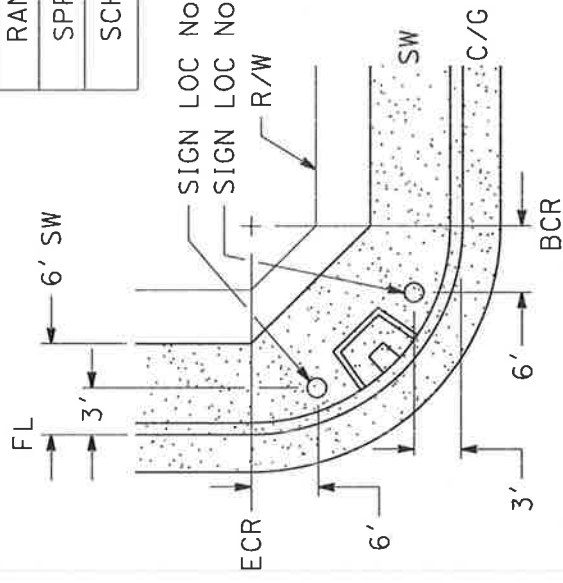
- \* LETTER SIZING AND SPACING MUST MEET FHWA SPACING GUIDE LINES. MINOR VARIATIONS AS APPROVED BY ENGINEER.

- SIGNS SHALL NOT EXCEED 48" IF STREET NAME CONTAINS A SECOND WORD, SECOND WORD MAY BE ABBREVIATED AS FOLLOWS:

WORD	ABBREV
CENTER	Ctr
CANYON	Cyn
RANCH	Rch
SPRING	Spr
SCHOOL	Sch



INSIDE OF KNUCKLE



INTERSECTION

**SIGN INSTALLATION DETAILS**

- SIGN LOC No. 1 - FOR RESIDENTIAL STREETS WITHIN A TRACT
- SIGN LOC No. 2 - ALL OTHER STREETS THAT ARE NON-RESIDENTIAL STREETS WITHIN A TRACT

- FINAL SIGN LOCATION TO BE DETERMINED BY ENGINEER

APPROVED BY:

JUAN C. PEREZ  
TLMA DIRECTOR

DATE



COUNTY OF RIVERSIDE

**STREET NAME SIGN  
(CURB TO CURB WIDTH LESS THAN OR EQUAL TO 60')**

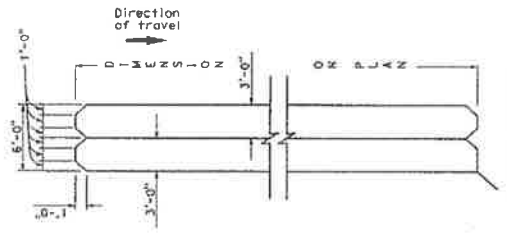
NO SCALE

STANDARD No. 1221 (2 OF 2)

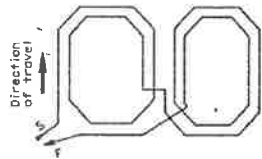
REVISIONS	REV	BY:	APR'D	DATE	REV	BY:	APR'D	DATE
	1	GR	KN	01/2014				



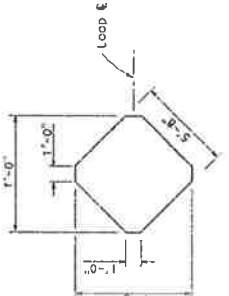
COUNTY: \_\_\_\_\_ ROUTE: \_\_\_\_\_ SHEET NO.: \_\_\_\_\_ TOTAL SHEETS: \_\_\_\_\_  
**College & O'Neil**  
 REGISTERED ELECTRICAL ENGINEERS  
 No. 1, 2006  
 State of California License No. 11512  
 The State of California or its officers or employees shall not be responsible for the accuracy or completeness of any information on this plan.  
 To get to the Caltrans web site go to: <http://www.dot.ca.gov>



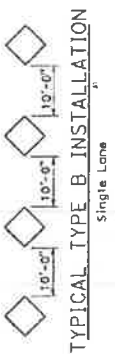
SAWCUT DETAIL  
TYPE C LOOP DETECTOR CONFIGURATION



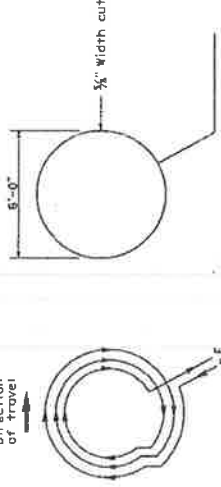
WINDING DETAIL  
TYPE Q LOOP DETECTOR CONFIGURATION



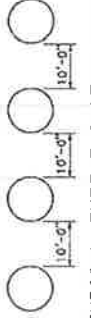
SAWCUT DETAIL  
TYPE B LOOP DETECTOR CONFIGURATION



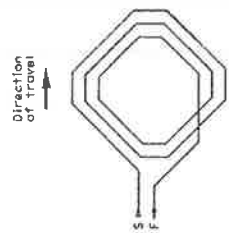
TYPICAL TYPE B INSTALLATION  
Single Lane



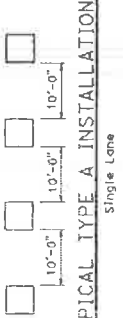
SAWCUT DETAIL  
TYPE E LOOP DETECTOR CONFIGURATION



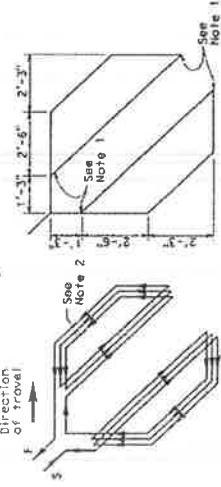
TYPICAL TYPE E INSTALLATION  
Single Lane



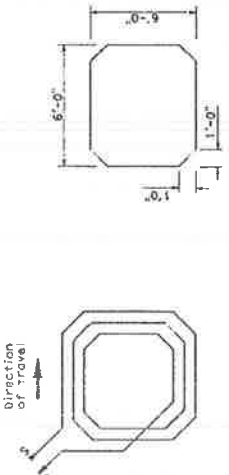
WINDING DETAIL  
TYPE B LOOP DETECTOR CONFIGURATION



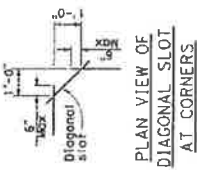
TYPICAL TYPE A INSTALLATION  
Single Lane



WINDING DETAIL  
TYPE D LOOP DETECTOR CONFIGURATION



SAWCUT DETAIL  
TYPE A LOOP DETECTOR CONFIGURATION



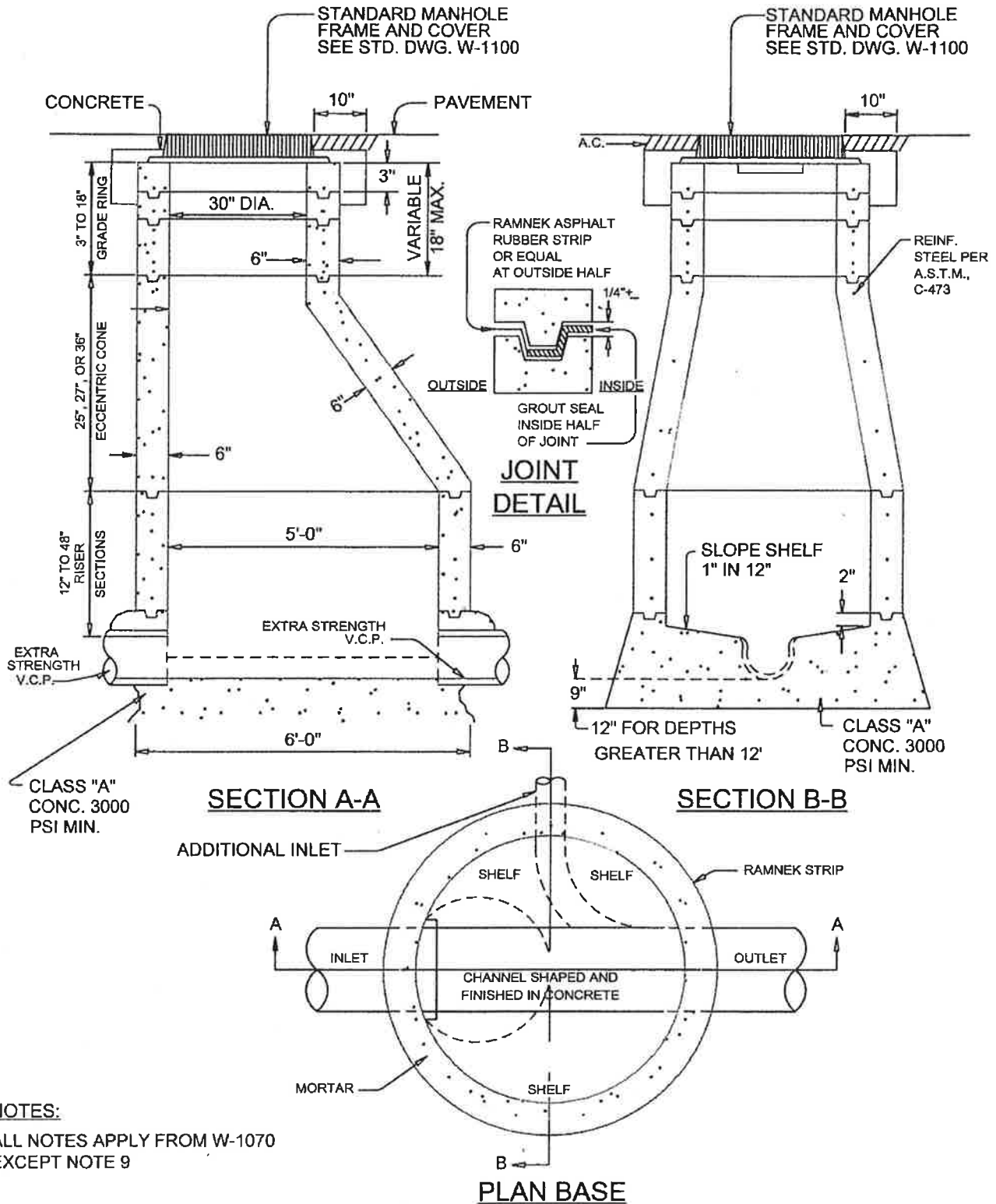
PLAN VIEW OF  
DIAGONAL SLOT  
AT CORNERS

- NOTES:**
1. Round corners of acute angle sawcuts to prevent damage to conductors.
  2. Install 3 turns when only one Type D loop is on a sensor unit channel. Install 5 turns when one Type D loop is connected with 3 additional 6'-0" x 6'-0" loops on a sensor unit.

**ELECTRICAL SYSTEMS  
(DETECTORS)**

NO SCALE

ES-5B



**NOTES:**

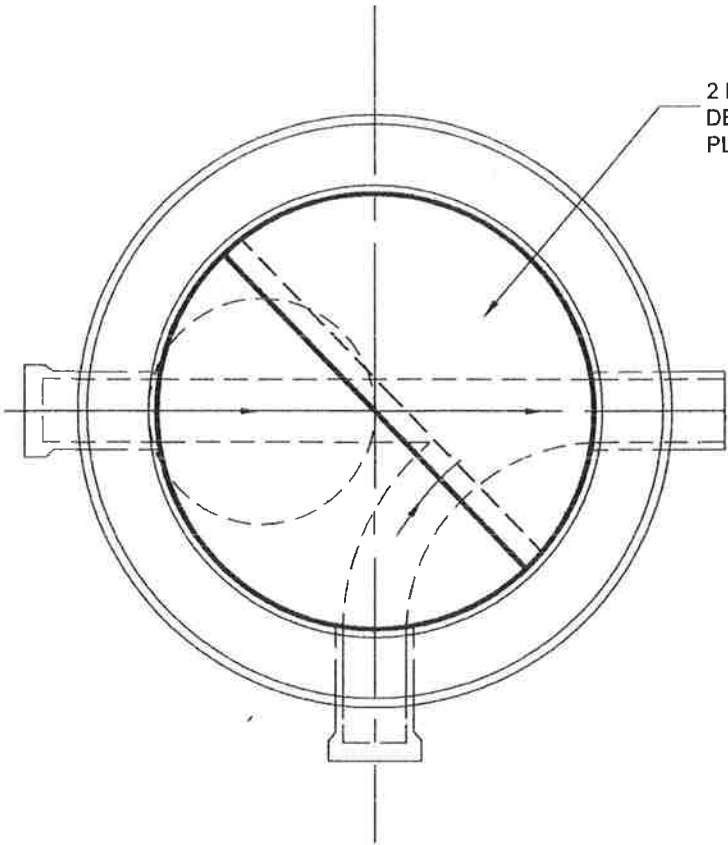
ALL NOTES APPLY FROM W-1070 EXCEPT NOTE 9



APPROVED DATE: \_\_\_\_\_  
*Joseph Hendry*  
 \_\_\_\_\_  
 DIRECTOR OF ENGINEERING

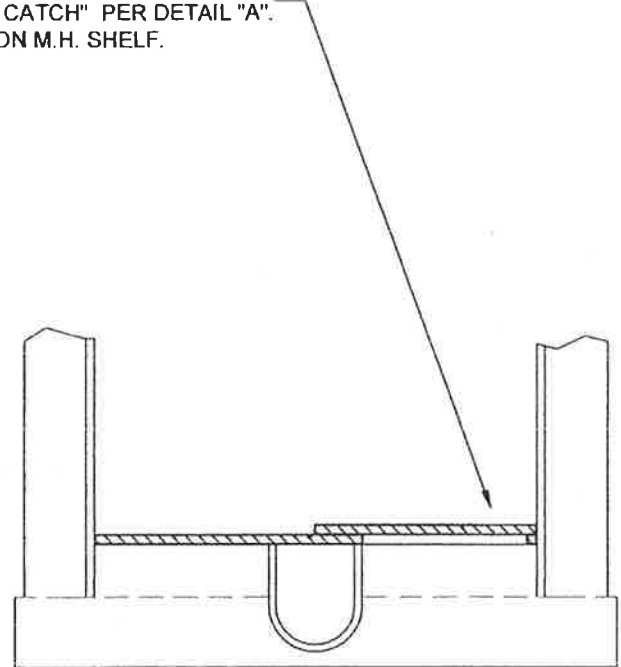
STANDARD DRAWING  
 5' DIA. MANHOLE WITH  
 CAST IN PLACE BASE

STD. DWG. NO.  
 W-1130

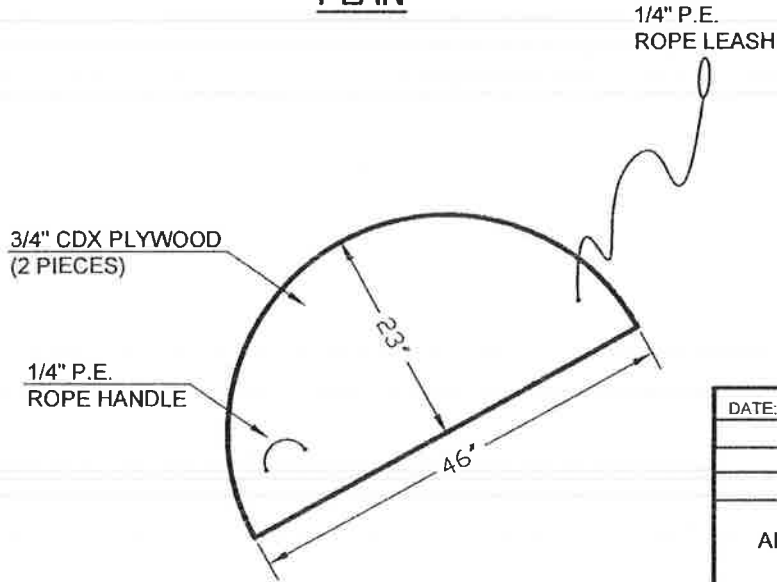


PLAN

2 PIECE "FALSE BOTTOM/  
DEBRIS CATCH" PER DETAIL "A".  
PLACE ON M.H. SHELF.



SECTION



DETAIL "A"

DATE:	REVISION	BY
APPROVED BY _____ GENERAL MANAGER      DATE: _____ <i>S. R. Wall</i> 6/5/09 CHIEF ENGINEER      DATE: _____		
SCALE: NONE		DRAWN BY: S.R.W.
<b>LAKE HEMET MUNICIPAL WATER DIST.</b> <b>WATER IMPROVEMENT</b> <b>TEMPORARY FALSE BOTTOM / DEBRIS</b> <b>CATCH FOR STANDARD SEWER MANHOLE</b> <b>STANDARD NO.11</b>		



Riverside Office: 2300 Market St., Ste. 150, Riverside, CA 92501 Ph. (951) 955-4777 Fax (951) 955-4886  
 Palm Desert Office: 77-933 Las Montañas Rd., # 201 Palm Desert, CA 92211-4131 Ph. (760) 863-8886 (760) 863-7072

# Fire Prevention Standard

<b>Title: Blue Reflective Pavement Markers</b>			
<b>Standard:#</b> 06-11	<b>Effective Date:</b> 02/09/2007	<b>Revised Date:</b> 06/30/2011	
<b>Code References: 2010 CFC, Sec. 501</b>			
<b>Note:</b> <i>This standard is a summary of Fire Department clarifications of County and State Codes. Information contained herein applies to typical circumstances and may not address all situations.</i>			
Author: Committee	Date:	Approved: T. Hobday, FM	Date:
Sign:		Sign: On File	02-09-07

**Scope**

This standard has been developed to assist development applicants, architects, and contractors in determining the minimum requirements for the proper placement of blue reflective pavement markers for indicating the location and identification of fire hydrants and water supply locations for fire fighting purposes only. Blue markers used for any other purpose should be removed.

The applicant must obtain approval from Caltrans where blue markers are to be placed on roadways/highways regulated and maintained by Caltrans prior to installation. Encroachment permits may be required.

**Codes and Standards**

This standard has been based upon the 2010 California Fire Code (CFC), Chapter 5.

**Plans Required**

The location of blue reflective markers shall be indicated on the appropriate water plans that are required to be submitted to the Riverside County Fire Department for the installation of all fire hydrants and water supply locations used for the fire fighting purposes.

**Specific Requirements**

- 1) Two-Way Streets and Roads: Markers are to be placed six inches from the edge of the painted centerline on the side nearest the fire hydrant. If the street has no centerline, the marker should be placed six inches from the approximate center of the roadway on the side nearest the hydrant. (Ref. Fig. 1 through 3)
- 2) Streets With Left Turn Lane at Intersection: Markers are to be placed six inches from the edge of the painted white channelizing line on the side nearest the hydrant. (Ref. Fig. 4)
- 3) Streets With Continuous Two-Way Left Turn Lane: Markers are to be placed six inches from the edge of the painted yellow barrier line on the side nearest the fire hydrant. (Ref. Fig. 5)
- 4) Freeways and Expressways: Because of higher maintenance at these locations, if placed on the roadway, markers are to be placed on the shoulder on-foot to the right of the painted edgeline opposite the off-right of way from the fire hydrant location. (Ref. Fig. 6)



# TYPICAL HYDRANT MARKER LOCATION

⊙ = Fire Hydrant

◆ = Blue Pavement Marker

Figure 1  
Two Lane Streets

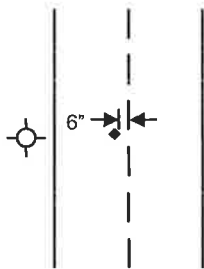


Figure 2  
Multi-Lane Streets

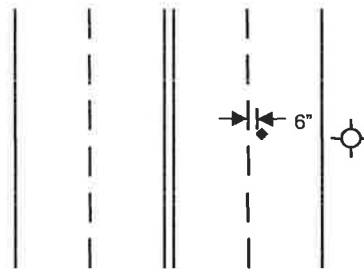


Figure 3  
An Intersection

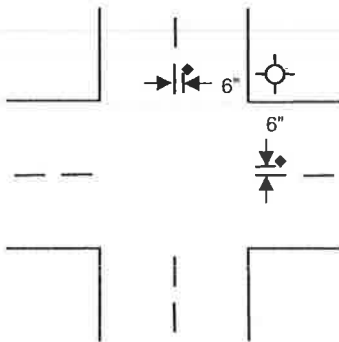


Figure 4  
Four Lane Streets with  
Turn Lane at Intersection

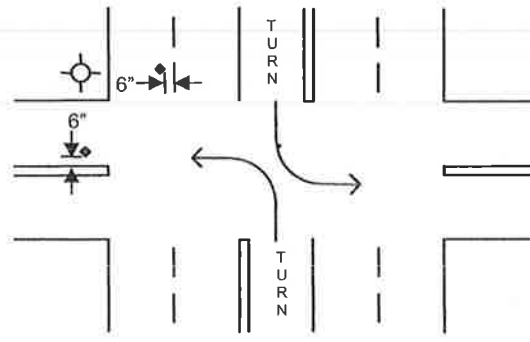


Figure 5  
Multi-Lane Streets  
With Turn Lane

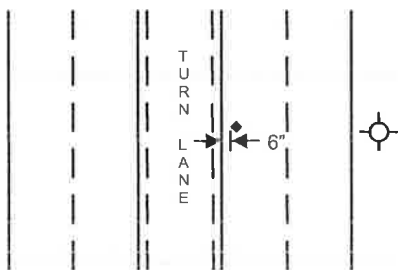


Figure 6  
Freeways and Expressways

