

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:

Asphalt Concrete for road pavement, and miscellaneous area 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 and applying asphaltic emulsion (paint binder) shall be considered as included in the contract price paid for HMA.

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

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 and asphalt rubber hot mix are 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 hot mix asphalt rounded to the nearest \$0.01.

I_u = 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.

I_b = The California Statewide Paving Asphalt Price Index for the month in which the bid opening for the project occurred.

Q = Quantity in tons of paving asphalt that was used in producing the quantity of asphalt concrete shown under "This Estimate" on the monthly estimate using the amount of asphalt 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.

ASPHALT CONCRETE DIKE AND OVERSIDE DRAIN:

Asphalt concrete dikes and overside drains shall conform to the County Road Improvement Standards and Specifications, the plans, and as specified and as directed by the Engineer.

The paid quantity of asphalt concrete dikes and overside drains 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.

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

Method of Payment:

Payment for the removal of existing asphalt concrete dike and overside drains as shown on the plans and as directed by the Engineer shall be included in the contract unit price paid per linear foot for Asphalt Concrete Dike; and per each for Asphalt Concrete Overside Drain.

The contract unit prices paid per linear foot for dikes and per each for overside drains shall include full compensation for furnishing all labor, materials other than asphalt concrete, tools, and equipment and for doing all the work involved in placing and compacting the dikes and overside drains, including placing 10' transitions between different dike types, and no additional compensation will be allowed therefore.

3" PLASTIC PIPE - EDGE DRAIN:

Edge 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, edge drain vents and outlets as shown on the plans and as directed by the Engineer and shall also conform to the applicable Caltrans Standard Plans.

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 other than asphalt treated permeable base (ATPB), tools, equipment, and incidentals, and for doing all work involved in the installation of plastic pipe (edge drain), edge drain vents (including Carson 0809 box or equivalent), and edge drain outlets; including excavation, the furnishing and placing of filter fabric, as shown on the detail sheet of the construction plans and no additional compensation will be allowed therefor.

SHOULDER BACKING

Shoulder backing shall conform to the provisions of Section 25, "Aggregate Subbases" of the Standard Specifications and these Special Provisions and have a minimum R-value of 60, and shall meet the requirements for Class 1 Aggregate Subbase. Material for shoulder backing shall consist of native material from within the project limits, imported material, or a combination of native material mixed with imported material.

Shoulder backing shall provide for the grading of the shoulder from the top edge of the pavement to the existing ground at a 2% slope minimum, 10% maximum away from the pavement, or as directed by the Engineer. Unless otherwise specified, the width of the graded shoulder/shoulder backing shall be 6 feet, measured from the edge of the pavement.

Onsite material may be used to fill in low areas, subject to approval by the Engineer. Ground asphalt concrete SHALL NOT be used as shoulder backing.

Imported material, if required shall be clean and free from roots, vegetation and other deleterious substances, and be of such character that when wet, it will compact to form a firm stable base. The material 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:

Payment for shoulder backing will be paid for at the linear foot bid price and shall include full compensation for furnishing all labor, materials, tools, and equipment, including the importing of material and/or the handling of onsite material, and no separate compensation will be allowed therefor.

RUMBLE STRIP:

Construction of rumble strips by ground-in indentations shall be per Caltrans Plan No. A40B, modified. Length, width, depth and spacing shall be per standard, modified with placement centered on centerline of road. Indentations shall be completed prior to striping. Centerline striping and RPM placement shall be per Riverside County standards.

Refer to plans for station numbering limits.

Select the method and equipment for constructing ground-in indentations.

Ground-in equipment must be equipped with a sighting device enabling the operator to maintain the rumble strip alignment.

Indentations must not vary from the specified dimensions by more than 1/16 inch in depth or more than 10 percent in length and width.

The Engineer orders grinding or removal and replacement of noncompliant rumble strips to bring them within specified tolerances. Ground surface areas must be neat and uniform in appearance.

The grinding equipment must be equipped with a vacuum attachment to remove residue.

Dispose of removed material under Section 7-1.13 of the Standard Specifications, "Disposal of Material Outside the Highway Right of Way", and "Disposal of Excess Excavation or Materials" of these special provisions.

Method of Payment:

The contract unit bid price paid per linear foot for Rumble Strip shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, for doing all the work involved and no additional compensation will be allowed therefor.

THERMOPLASTIC CROSSWALK AND PAVEMENT MARKING:

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

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

Method of Payment:

The "fixed final" contract price paid per square foot for Thermoplastic Crosswalk and Pavement Marking shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work necessary to place the crosswalk and pavement markings complete in place, and no additional compensation will be allowed.

Payment for the removal of existing thermoplastic pavement markings, crosswalks or stripes as shown on the plans and as directed by the Engineer shall be included in the "fixed final" contract unit price paid per square foot for Thermoplastic Crosswalk and Pavement Marking.

PAINT TRAFFIC STRIPE (2 COATS):

Painting traffic stripes (traffic lanes) shall conform to the provisions in Section 84-1, "General," and 84-3, "Painted Traffic Stripes and Pavement Markings," of the State Standard Specifications and these special provisions.

The Contractor shall furnish the necessary control points for all striping and markings and shall be responsible for the completeness and accuracy thereof to the satisfaction of the Engineer.

The Contractor shall perform all layout, alignment, and spotting for traffic stripes and markings. Traffic striping shall not vary by more than ½ inch in 50 feet from the alignment shown on the plans. The dimensional details of the stripes and markings shall conform to the provisions set forth in the California MUTCD and Maintenance Manual available from Caltrans.

Spotting with cat tracks or dribble lines shall be performed prior to the removal of existing stripes. Cat tracks shall consist of spots of paint not more than 3 inches in width and not more than 5 feet apart along the alignment of the stripe. Paint for the cat tracks shall be the same as that for the intended stripe. Paint for the dribble lines shall be neutral color obtained by mixing approximately two parts white paint with one part black paint.

SPOTTING - Spotting shall be completed prior to the removal of any existing stripes or markings. Existing stripes and markings shall be removed prior to painting new ones, but in no case shall any section of street be left without the proper striping for more than 24 hours, or over weekends or holidays.

No striping or painting work shall start until the Engineer has specifically approved the spotted markings. Existing striping and markings, if any, shall be removed prior to painting new, but in no case shall any section of street be left without the proper striping for more than 24 hours, or over the weekends or holidays.

MATERIALS - Materials shall conform to the provisions in Section 84-3.02, "Materials," of the State Standard Specifications and these Special Provisions. All traffic striping and pavement markings shall be two coats of paint with glass beads unless otherwise approved by the County and City Engineer. A minimum of 7 days and a maximum of 14 days shall elapse between application of the first and second coats of paint.

The paint for traffic striping and markings shall be as follows, or an approved equal:

White - PERVO Paint Co. #9000 ULTRA
Yellow - PERVO Paint Co #9003 ULTRA

Glass beads shall conform to State Specification 8010-21C-22 (Type II).

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 "fixed final" contract unit price paid per linear foot for Paint Traffic Stripe (2 Coats) 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 MARKER:

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

Pavement markers shall be placed to the line established by the Engineer. All additional work necessary to establish satisfactory lines for markers shall be performed by the Contractor.

Pavement markers shall be installed where indicated on the plans in accordance with the indicated striping detail. Refer to Standard Plans A20-A through A20-D for striping and markings details.

Markers and adhesive removal shall be performed by a method approved by the Engineer. Any pavement scarring resulting from the markers removal shall be repaired to the satisfaction of the Engineer.

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 MUTCD 2012, Figure 3B-11.

Method of Payment:

Payment for furnishing and placing Pavement Markers (Reflective) will be at the "fixed final" unit price bid and shall include full compensation for removal and disposal of existing markers, furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in furnishing and placing pavement markers, complete in place, including adhesives, and establishing alignment for pavement markers, as shown on the plans, as specified in these special provisions, and as directed by the Engineer and no additional compensation will be allowed therefor.

REMOVE PAVEMENT MARKERS:

Existing pavement markers shall be removed from the locations shown on the plans or as directed by the Engineer, in conformance with the provisions in Section 15 "Existing Highway Facilities" of the State Standard Specifications and these Special Provisions.

Pavement markers, including underlying adhesive, shall be removed by such methods that will cause the least possible damage to the pavement or surfacing. Damage to the pavement or surfacing caused by pavement marker removal shall be repaired by the Contractor at the Contractor's expense by methods acceptable to the Engineer.

During removal of ceramic type pavement markers, screens or other protective devices shall be furnished to contain any fragments as provided for in Section 7-1.09, "Public Safety".

Removed pavement markers shall become property of the Contractor and shall be disposed of as provided in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way."

Method of Payment:

Full compensation for removing and disposing of pavement markers and underlying adhesive shall be considered as included in the contract price paid per each for Remove Pavement Marker and no additional payment will be made therefor.

DELINEATORS, GUARD RAILING DELINEATORS, AND OBJECT MARKERS:

Markers and delineators shall conform to the provisions in Section 82, "Markers and Delineators," of the Standard Specifications and these special provisions.

Delineator, Guard railing delineator and object markers shall be installed in accordance with the plans, the Caltrans Standard Plans, and as directed by the Engineer.

Flexible posts shall be made from a flexible white plastic which shall be resistant to impact, ultraviolet light, ozone, and hydrocarbons. Flexible posts shall resist stiffening with age and shall

be free of burns, discoloration, contamination, and other objectionable marks or defects which affect appearance or serviceability.

Retroreflective sheeting for metal and flexible target plates shall be the retroreflective sheeting designated for channelizers, markers, and delineators conforming to the requirements in ASTM Designation: D 4956-95.

Method of Payment:

The contract unit bid prices paid per each for Marker (Delineator, Guard Railing Delineator and Object Marker) shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved and no additional compensation will be allowed therefor.

METAL BEAM GUARD RAILING:

Construction of metal beam guard railing, terminal anchor assemblies (Type SFT), and terminal system end treatments (Type SRT, Type SKT) shall conform to the plans, the provisions of Section 83 of the Standard Specifications, and these Special Provisions.

Existing utilities shall be protected in-place. It is not planned for any utilities to be relocated by the owner for the installation of the guard rail posts. Prior to performing any driving or excavation, the contractor shall determine if any of the existing utilities, as shown by DigAlert markings, exist within 3 feet of the closest point of the planned excavation or post location. If any existing underground utilities are within 3 feet of the guard rail post or the excavation area, the Contractor shall carefully hand-dig and expose the utility to determine its exact location. If the existing utility is found to be in conflict with the planned guard rail post installation, the post shall be adjusted longitudinally to eliminate the conflict, as directed by the Engineer. In the event that the guard rail post cannot be adjusted so as to eliminate the conflict, the matter shall be brought to the attention of the Engineer.

Method of Payment:

Payment will be made at the contract bid price per linear foot for Metal Beam Guard Railing and shall be considered as full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all work involved in constructing the barrier, complete in place including excavation and backfilling barrier post holes and cable anchor assembly holes, the removal of existing metal beam guard railing and shoulder grading, and no additional compensation will be allowed therefor.

TERMINAL ANCHOR ASSEMBLY (TYPE SFT):

Terminal anchor assembly (Type SFT) shall be furnished and installed as shown on the plans, in conformance with the provisions of Section 83 of the Standard Specifications, these Special Provisions, and as directed by the Engineer.

Method of Payment:

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all work involved in constructing the End Anchor Assembly, complete in place, including drilling anchor plate bolt holes in rail elements, driving steel foundation tubes, excavating for concrete anchor holes and disposing of surplus material, as shown on the plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer shall be considered as included in the contract price paid per linear foot for Metal Beam Guard Railing and no additional compensation will be allowed therefor.

TERMINAL SYSTEM (TYPE SRT, TYPE SKT):

Terminal system shall be furnished and installed as shown on the plans, in conformance with the provisions of Section 83 of the Standard Specifications, these Special Provisions, and as directed by the Engineer.

The allowable terminal system shall consist of one of the following or a County approved equal.

Terminal system (Type SRT) shall be an SRT-350 Slotted Rail Terminal (8-post system) as manufactured by Trinity Industries, Inc., and shall include items detailed for terminal system (Type SRT) shown on the plans. The SRT-350 Slotted Rail Terminal (8-post system) can be obtained from the manufacturer, Trinity Industries, Inc., P.O. Box 99, 950 West 400S, Centerville, UT 84014, Telephone (800) 772-7976.

Terminal system (Type SKT) shall be a SKT 350 Sequential Kinking Terminal manufactured by Raod Systems, Inc., located in Big Spring, Texas, and shall include items detailed for terminal system (Type SKT) shown on the plans. The SKT 350 Sequential Kinking Terminal can be obtained from the distributor, Universal Industrial Sales, P.O. Box 699, Pleasant Grove, UT 84062, Telephone (801) 785-0505 or from the distributor, Gregory Highway Products, 4100 13th Street, S.W., Canton, OH 44708, Telephone (330) 477-4800.

The Contractor shall provide the Engineer with a Certificate of Compliance from the manufacturer in conformance with the provisions in Section 6-1.07, "Certificates of Compliance" of the Standard Specifications. The Certificate of Compliance shall certify that the terminal systems furnished conform to the contract plans and specifications, conform to the prequalified design and material requirements, and were manufactured in conformance with the approved quality control program.

Terminal systems shall be installed in conformance with the manufacturer's installation instructions and these requirements. Each terminal system installed shall be identified by painting the type of terminal system in neat black letters and figures 2 inches high on the backside of the rail element between system posts numbers 4 and 5.

For terminal system (Type SRT), the steel foundation tubes with soil plates attached shall be, at the Contractor's option, either driven, with or without pilot holes, or placed in drilled holes. Space around the steel foundation tubes shall be backfilled with selected earth, free of rock, placed in layers approximately 4 inches thick and each layer shall be moistened and thoroughly compacted. The wood terminal posts shall be inserted into the steel foundation tubes by hand and shall not be driven. Before the wood terminal posts are inserted, the inside surfaces of the steel foundation

tubes to receive the wood posts shall be coated with a grease which will not melt or run at a temperature of 149° F or less. The edges of the wood terminal posts may be slightly rounded to facilitate insertion of the post into the steel foundation tubes.

For terminal system (Type SKT) the soil tubes shall be, at the Contractor's option, driven with or without pilot holes, or placed in drilled holes. Space around the steel foundation tubes shall be backfilled with selected earth, free of rock, placed in layers approximately 4 inches thick and each layer shall be moistened and thoroughly compacted. Wood posts shall be inserted into the steel foundation tubes by hand. Before the wood terminal posts are inserted, the inside surfaces of the steel foundation tubes to receive the wood posts shall be coated with a grease which will not melt or run at a temperature of 149 F° or less. The edges of the wood posts may be slightly rounded to facilitate insertion of the post into the steel foundation tubes.

Surplus excavated material remaining after the metal beam guard railing, terminal anchor assembly (type SFT), and terminal systems (type SKT, type SRT) have been installed shall be disposed as provided in the 'Disposal of Excess Excavation or Materials' section of these special provisions, or if approved by the Engineer, in a uniform manner along the adjacent roadway where designated by the Engineer.

Method of Payment:

Full compensation for Terminal System (Type SRT), and Terminal System (Type SKT) shall be considered as included in the contract price paid per linear foot for Metal Beam Guard Railing; and shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in furnishing and installing the terminal system, complete in place, including excavation, backfill and disposal of surplus material, as shown on the plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer.

REPAIR EROSION DAMAGE - SLOPE REPAIR:

Slope repair/protection shall be placed or constructed in conformance with the provisions in Section 72, "Slope Protection," of the Standard Specifications, these Special Provisions, the detail shown on the plans, and as directed by the Engineer.

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 also 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.

Rock slope protection fabric must be Class 8.

GABIONS

Gabions shall be constructed as shown on the plans and in conformance with these special provisions.

Gabions shall consist of wire mesh, cubical-celled baskets that are filled on the project site with hard, durable rock.

Standard gabion sizes and the overall plan and profile dimensions of the gabion structures shall be as shown on the plans. Each standard gabion size shall be divided into 36-inch long cells by diaphragm panels. The width, height or length of the standard gabions shall not vary more than 5 percent from the dimensions specified in these special provisions or as shown on the plans.

Empty gabion baskets shall be assembled individually and joined successively. Individual gabion mesh panels (base, front, ends, back, diaphragms, and lid) and successive gabions shall be assembled so that the strength and flexibility along the joints is comparable to a single panel.

MATERIALS

All materials for the gabions and gabion assembly shall conform to the provisions in these special provisions. Each shipment of gabion baskets to the project site shall be accompanied by a Certificate of Compliance conforming to the provisions in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications.

Mesh

At the Contractor's option, either twisted mesh or welded mesh shall be used, in conformance with Table 1 and Table 2 herein. For each standard gabion size, the same mesh style shall be used for the base, front, ends, back, diaphragms, and lid panels. Individual wires of either the twisted-mesh style or the welded-mesh style shall conform to the definitions and requirements in ASTM Designation: A 641/A 641M.

Cubical-celled gabion baskets that are 36 inches high by 36 inches wide shall be fabricated from 11-gage twisted mesh or welded mesh gages between 11-gage and 9-gage, inclusive.

Table 1

CUBICAL-CELLED FACILITIES	
USA WIRE GAGE	MESH STYLE
11	Twisted Mesh
11 Min to 9 Max	Welded Mesh

GABION MESH MATERIAL PROPERTIES

Characteristic	Test Designation	Requirement
Minimum tensile strength	ASTM A 370	60 ksi
Wire Size Wire Diameter (Minimum) Galvanizing, Zinc	USA Steel Wire Gage ASTM A 641/A 641M ASTM A 641/A 641M ASTM A 641/A 641M, Class 3 and ASTM A 90/A 90M	11 0.120 in. 0.116 in. 0.80 oz/ft ²
Wire Size Wire Diameter (Minimum) Galvanizing, Zinc	USA Steel Wire Gage ASTM A 641/A 641M ASTM A 641/A 641M ASTM A 641/A 641M, Class 3 and ASTM A 90/A 90M	9 0.148 in. 0.144 in. 0.85 oz/ft ²

Twisted-mesh wires shall form a uniform hexagonal pattern and shall be formed with a nonraveling twist. The area of the hexagonal opening shall not exceed the dimensions shown on the plans. Twisted-mesh gabion panels shall be manufactured from 11 gage wires with 9 gage selvage wires.

Welded-mesh wires shall form a grid pattern as shown on the plans. Welds shall be made by resistance welding. Welds and panels shall conform to the requirements in ASTM Designation: A 185, except weld shears shall be 600 pounds minimum for 11 gage wires and 800 pounds minimum for 9 gage wires. Resistance welding after coating the wire with zinc will be acceptable if there are no large splashes, flakes or flashes of zinc at the weld.

Joints

Standard tie wire and standard spiral binder shall conform to the definitions and requirements in ASTM Designation: A 641/A 641M and shall conform to the following provisions:

Characteristic	Test Designation	Requirement
Minimum Tensile Strength	ASTM A 370	60 ksi
Tie Wire Wire Size (Minimum) Wire Diameter (Minimum) Zinc Coating	USA Steel Wire Gage ASTM A 641/A 641M ASTM A 641/A 641M ASTM A 641/A 641M, Class 3 and ASTM A 90/A 90M	13.5 0.086 in. 0.082 in. 0.70 oz/ft ²
Spirals Wire Size (Maximum) Wire Diameter (Minimum) Zinc Coating	USA Steel Wire Gage ASTM A 641/A 641M ASTM A 641/A 641M ASTM A 641/A 641M, Class 3 and ASTM A 90/A 90M	9 0.148 in. 0.144 in. 0.85 oz/ft ²

Spiral binders shall have a 3-inch separation between continuous, successive loops.

Alternative fasteners shall have the configurations, wire diameters, and other dimensions shown on the plans. Alternative fasteners shall conform to the definitions and requirements in ASTM Designation: A 764 for "Metallic Coated Carbon Steel Wire, Coated at Size and Drawn to Size for Mechanical Springs." Interlocking fasteners shall conform to Tensile Requirement Class I, Finish 2 and shall have a Class 3 zinc coating, Overlapping fasteners shall conform to Tensile Requirement Class II, Finish 1 and shall have a Class 3 zinc coating.

Internal Connecting Wire

Internal connecting wires shall be 13.5-gage minimum. Each wire shall conform to the minimum requirements for standard tie wire in these special provisions and shall be installed in conformance with the provisions in these special provisions and as shown on the plans. Alternatively, at the Contractor's option, preformed stiffeners may be substituted for internal connecting wires. Preformed stiffener wire shall meet the requirements specified for standard tie wire and shall be installed in conformance with these special provisions and the manufacturer's recommendations.

Rock Slope Protection Fabric

Rock slope protection fabric for use with gabions shall conform to the provisions for Class 8 fabric in Section 88-1.06, "Channel and Shore Protection," of the Standard Specifications and these special provisions.

Rock

Rock for filling gabions, which are greater than or equal to 18 inches in height, shall vary in size and shall conform to the following:

Screen Size (inches)	Percentage Passing
12	100
4	0-5

Rock shall conform to the material provisions for rock slope protection in Section 72-2.02, "Materials," of the Standard Specifications.

The minimum unit weight of a rock-filled gabion shall be 110 pounds per cubic foot. Verification of the 110 pounds per cubic foot shall be performed when ordered by the Engineer. Verification shall be performed on the smallest standard gabion size to be used on the project. The rock supplied for the project shall be used for verification. Filling shall be done using the same method intended for actual construction. The weight of a rock-filled gabion shall be determined using available certified scales. The volume for calculating the unit weight shall be determined on the theoretical volume of the standard gabion which is rock-filled and weighed.

GRADING, EXCAVATION AND BACKFILL

Areas where gabions are to be placed shall be constructed to the lines and grades shown on the plans and as determined by the Engineer. Excavation or backfill for achieving the required

grades shall conform to the provisions for structure excavation and backfill in Section 19, "Earthwork," of the Standard Specifications.

ROCK SLOPE PROTECTION FABRIC PLACEMENT

Rock slope protection fabric shall be placed in conformance with the provisions in Section 72-2.025, "Rock Slope Protection Fabric" of the Standard Specifications. Rock slope protection fabric shall be placed on the subgrade, backslope, and sides of excavations. If earth fill is to be placed over the gabions, rock slope protection fabric shall be placed on top of the gabions, before placing the earth fill.

CONSTRUCTION

Gabions shall be assembled individually as empty units. Each gabion shall be manufactured with the necessary panels, properly spaced and secured, so that the panels can be rotated into position at the construction site with no additional tying of the rotation joint. The panels and diaphragms shall be rotated into position and joined along the vertical edges.

For twisted mesh, the joint shall be constructed using alternating double and single half hitches (locked loops) of 13.5-gage standard tie wire at 4-inch nominal spacing. Joints shall not be constructed with simple spiraling (looping without locking) of the standard tie wires.

When standard tie wire is used as a joint connector for welded mesh, the joint shall be constructed using alternating double and single half hitches (locked loops) in every mesh opening along the joint. When 9 gage spiral binders are used, the spiral shall be placed so that the spiral binder passes through each mesh opening along the joint. Both ends of all 9 gage spiral binders shall be crimped to secure the spiral in place.

Temporary fasteners may be used to hold panels wherever gabion-to-gabion joints will be constructed. Temporary fasteners may remain in place.

At the Contractor's option, interlocking fasteners or overlapping fasteners may be used for assembly of either the twisted-mesh or welded-mesh gabions. A fastener shall be placed in each mesh opening along the joint (a minimum of 10 fasteners per 40 inches).

ASSEMBLY OF SUCCESSIVE GABION BASKETS (GABION-TO-GABION JOINTS)

Gabion baskets shall be set in place. Individually constructed gabion baskets shall then be joined successively to the next gabion baskets with 13.5-gage tie wire or 9 gage standard spiral binder before filling the basket with rock. The 13.5-gage standard tie wire or 9 gage standard spiral binder shall secure, in one pass, all selvage or end wires of the panels of all adjacent baskets along the joint.

When forming successive gabion-to-gabion joints with alternative fasteners, there shall be one alternative fastener in each mesh opening. The alternative fastener shall contain and secure all the wires along the joint.

Gabion baskets shall be joined along the front, back, and ends, including the tops and bottoms of the adjacent gabions.

ASSEMBLY OF MULTIPLE LAYERED GABIONS

Multi-layered gabion configurations shall be stepped and staggered as shown on the plans or as designated by the Engineer.

When constructing multi-layered gabion configurations, each layer of gabions shall be joined to the underlying layer along the front, back, and ends.

ASSEMBLY OF SHEAR KEY GABIONS

Shear key gabions, or counterforts, shall be spaced as shown on the plans. Shear key gabions shall be tied to adjacent gabions in the manner specified for "Assembly of Successive Gabion Baskets (Gabion-to-Gabion Joints)" of these special provisions.

ASSEMBLY OF TRANSITIONAL GABIONS

To match the geometry of the planned gabion configuration, or to meet specific conditions, panels shall be folded, cut and fastened as shown on the plans or as directed by the Engineer.

FILLING WITH ROCK

Before filling each gabion basket with rock, all kinks and folds in the wire fabric shall be straightened and all successive gabions shall be properly aligned.

Rock shall be placed in the baskets to provide proper alignment, avoid bulges in the wire mesh, and provide a minimum of voids. All exposed rock surfaces shall have a smooth and neat appearance. Sharp rock edges shall not project through the wire mesh.

Internal connecting wires or preformed stiffeners shall be used to produce a flat, smooth external surface, when constructing with 18-inch or 36-inch high gabions. If the Engineer determines that there is excessive bulging or dimpling of the outside panels, the unit shall be reconstructed at the Contractor's expense.

When filling 36-inch high gabions, rock shall be placed in 3 nominal 12-inch layers to allow placement of the 13.5-gage internal connecting wires. The wires shall be fastened as shown on the plans. Alternatively, preformed stiffeners may be installed at the one-third points in conformance with the recommendations of the manufacturer, to produce a smooth external surface.

When filling 18-inch high gabions, 2 nominal 9-inch layers of rock shall be placed to allow placement of a set of internal connecting wires or preformed stiffeners. The configuration of wires shall be similar to those used on the 36-inch high gabions, except there shall be only one set of internal connecting wires instead of the 2 sets of internal connecting wires or preformed stiffeners.

The last layer of rock shall slightly overfill the gabion baskets so that the lid will rest on rock when the lid is closed.

CLOSURE OF LIDS

Lids shall be tied along the front, ends, and diaphragms in conformance with the provisions in "Assembly of Successive Gabion Baskets (Gabion-to-Gabion Joints)" of these special provisions.

Method of Payment:

The contract price paid per linear foot for Repair Slope shall include full compensation for furnishing all labor, materials (including gabion baskets, rock and rock slope protection fabric, 1-sack slurry backfill), tools, equipment, and incidentals, and for doing all the work involved in constructing slope repair, complete, in place, including excavation and backfill, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

MINOR CONCRETE STRUCTURES – DRAINAGE INLETS:

Minor concrete structures shall conform to the applicable portions of Section 51, 52, 75 and 90 of the Standard Specifications, these Special Provisions, the Standard Plans, the plans and as directed by the Resident Engineer.

Minor concrete structures for this project shall consist of:

- Inlets per Brooks Products Standards 2424 CB and 3636 CB or approved equivalent pre-cast product.

Concrete to be used in the construction of minor concrete structures shall be Class "2" concrete.

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

Excess material resulting from the excavation shall be disposed of as elsewhere provided in these Special Specifications. Full compensation for the removal of existing concrete structures shall be included in the contract bid prices for such items.

All exposed metal shall be galvanized in conformance with Section 75-1.05 of the Standard Specifications.

Method of Payment:

The contract prices paid by each for minor concrete structures listed above will not be adjusted if the constructed height of said minor structure, including revisions by Engineer, is within + 0.5 foot of the vertical dimension shown on the plans.

Payment for the cutting, removal and disposal of existing 24" Reinforced Concrete Pipe as shown on the plans and as directed by the Engineer, required for new catch basin installation, shall be considered as included in the contract unit price paid per each for Drainage Inlet (Minor Concrete (Catch Basin)) and no additional compensation shall be allowed.

Payment for all work involved in the construction of Drainage Inlet (Minor Concrete (Catch Basin)) will be paid **per each** and shall include full compensation for furnishing all labor, materials, tools and equipment, and doing all work involved in the complete structure, including the structure excavation and backfill, furnishing and placing reinforcement, and metal frames, covers and grates, miscellaneous asphalt work for AC aprons, and no further allowances shall be allowed.

REINFORCED CONCRETE PIPE:

Reinforced concrete pipe shall conform to the provisions in Section 65, "Reinforced Concrete Pipe" of the Standard Specifications and these Special Provisions.

GENERAL

Pipe shall be placed under existing paving in a trench 12" minimum wider than the outside diameter of the pipe being installed. Trenching shall be 6" minimum in width on each side of the pipe.

If required, pavement shall be cut to a depth of 3" with an abrasive type saw or with a rock cutting excavator specifically designed for this purpose. Cuts shall be neat and true with no shatter outside the removal area.

If directed by the Engineer, temporary road steel plates shall be installed over the trench and recessed to the existing pavement along the edges of the plates to allow traffic movements until the new asphalt concrete is installed or as directed by the Engineer.

The trench shall be backfilled with two sack slurry.

The D- loading for the proposed reinforced concrete pipes is 2000D.

Slurry cement backfill shall conform to Section 19-3.062 of the Standard Specifications, except for full compensation therefor shall be considered as included in the prices paid for the contract unit bid paid per linear foot for Reinforced Concrete Pipe of the types specified in the bid items list and no additional compensation will be allowed therefor.

Except as otherwise designated by classification on the plans or in the specifications, joints for culvert and drainage pipes shall conform to the plans or specifications for standard joints.

MATERIALS

The concrete for reinforced concrete pipe shall contain not less than 470 pounds of cementitious material per cubic yard and have a water-cementitious material ratio that does not exceed 0.40 by weight. Supplementary cementitious material is optional. Reinforcement shall have a minimum cover of 1 inch.

Special reinforced concrete pipe, having concrete cover over the steel reinforcement greater than the cover specified in AASHTO Designation: M 170, shall conform to the provisions in Section 65-1.02, "Materials" and Section 65-1.02A, "Circular Reinforced Concrete Pipe" of the Standard Specifications, except the width of crack produced by the D-load test specified in AASHTO Designation: M 170 shall be the width determined by the following formula:

$$b = \frac{t - 3/8d}{t - 3/8d - C} \times 0.01 \text{ inch}$$

Where:

- b = Width of crack to be produced in lieu of the 0.01-inch crack specified in AASHTO Designation: M 170
- t = Wall thickness of pipe, inches
- d = Effective depth of the section to be tested, feet
- C = Concrete cover over steel reinforcement in excess of cover specified in AASHTO Designation: M 170

Reinforced concrete pipe that is to be hydrostatically tested shall be strength tested by the 3-edge bearing method to a maximum D-load of 10 percent greater than the 0.01-inch cracking D-load specified in AASHTO Designation: M 170 or to the actual D-load required to produce a 0.01-inch crack, whichever is the lesser.

Method of Payment:

Full compensation for providing, installing and maintaining temporary road steel plates shall be considered as included in the prices paid per linear foot for Reinforced Concrete Pipe of the types specified in the bid items list and no additional compensation will be allowed therefor.

The contract unit bid price paid per linear foot for Reinforced Concrete Pipe shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved including structures excavation and slurry backing, as shown on the plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer.

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 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
Eastern Municipal Water District	951-928-6107
Western Municipal Water District	951-928-6107
MWD	213-217-7663
Verizon Communications	951-925-6253
MCI Network Services	972-729-6016
Santa Diego RWQC Board	858-467-2952
AT & T California	714-666-5401
Time Warner Telecom	925-953-7093

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.

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 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.

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.

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. ¾" 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:	SCAQMD 1-800-CUT-SMOG	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 ½" Bold Numbers
2" Title Case Letters	<p style="text-align: center;">SCAQMD 1-800-CUT-SMOG</p> <p style="text-align: center;">COUNTY OF RIVERSIDE TRANSPORTATION DEPARTMENT</p>	

Section 1

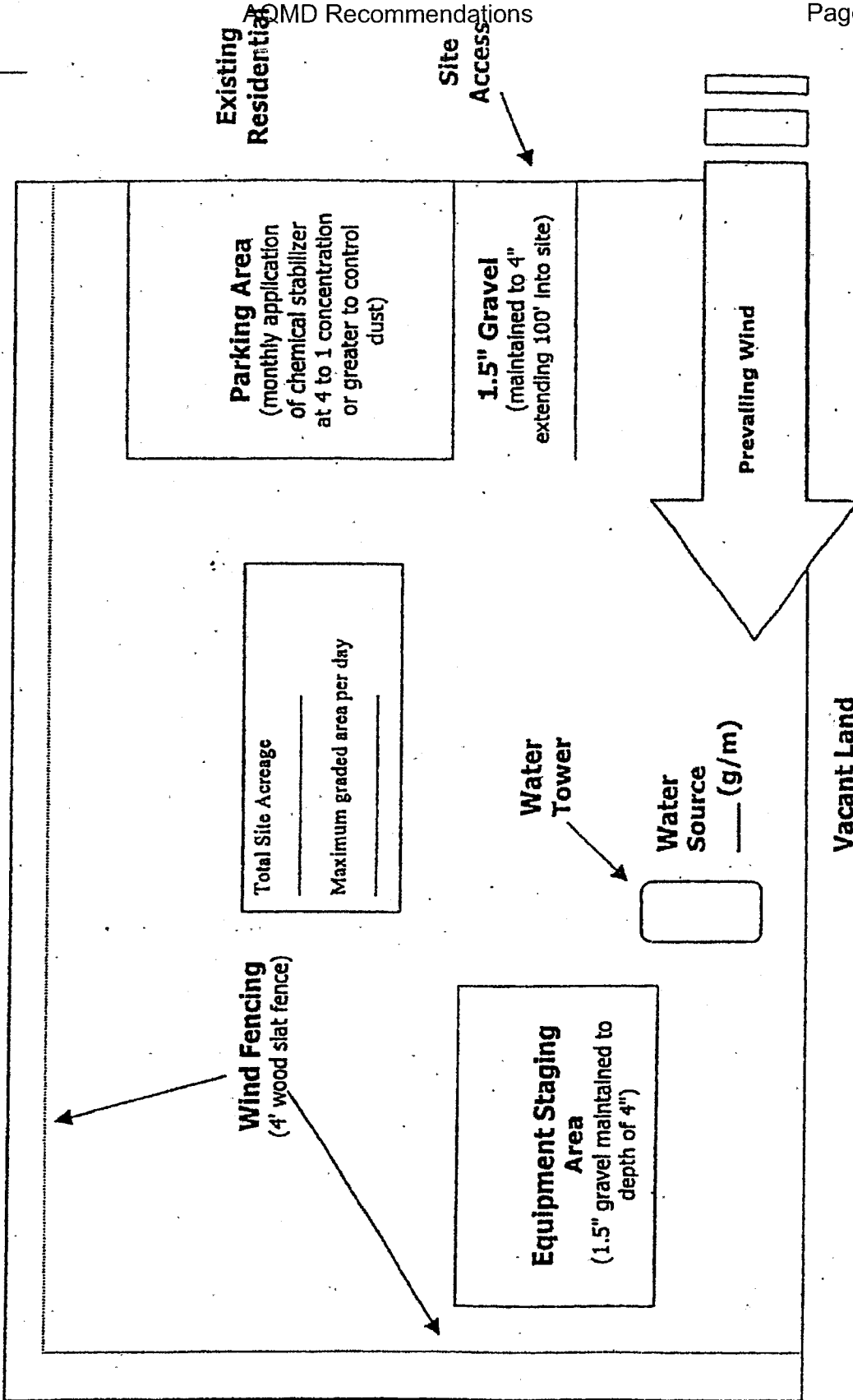
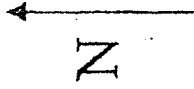
Simplified Sample Site Plan

Existing Residential

Distance and location of nearest:

Residence _____

Business _____



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

(A) Watering

DESCRIPTION

- (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.
- (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).

(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.
- (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.

(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.

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

- (e) 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.

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.
(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.
(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.

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.
- (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. |
| (A-1) Watering (post-grading) | (2) Pre-application of water to depths of proposed cuts. |
| (A-2) Pre-grading planning | (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. |
| (B) Chemical stabilizers | (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. |
| (C) Wind fencing | (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. |
| (D) Cover haul vehicles | (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). |
| (E) Bedliners in haul vehicles | (1) Entire surface area of hauled earth should be covered once vehicle is full.
(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.
(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.
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.
(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

FUGITIVE DUST SOURCE CATEGORY	<u>CONTROL MEASURES</u>
Earth-moving	(1A) Cease all active operations; OR (2A) Apply water to soil not more than 15 minutes prior to moving such soil.
Disturbed surface areas	(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.
Unpaved roads	(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.
Open storage piles	(1D) Apply water twice [once] per hour; OR (2D) Install temporary coverings.
Paved road track-out	(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.
All Categories	(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>
Earth-moving (except construction cutting and filling areas, and mining operations)	<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>
Earth-moving: Construction fill areas:	<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)*

<u>FUGITIVE DUST SOURCE CATEGORY</u>	<u>CONTROL ACTIONS</u>
Earth-moving: Construction cut areas and mining operations:	(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.
Disturbed surface areas (except completed grading areas)	(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.
Disturbed surface areas: Completed grading areas	(2c) Apply chemical stabilizers within five working days of grading completion; OR (2d) Take actions (3a) or (3c) specified for inactive disturbed surface areas.
Inactive disturbed surface areas	(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)

<u>FUGITIVE DUST SOURCE CATEGORY</u>	<u>CONTROL ACTIONS</u>
Unpaved Roads	(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.
Open storage piles	(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.
<u>All Categories</u>	(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

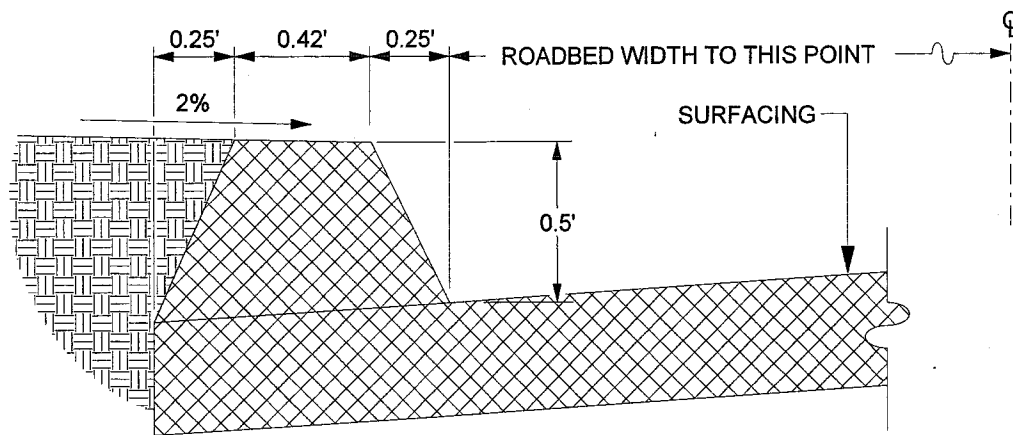
PARAGRAPH (d)(5)(B)

CONTROL OPTIONS

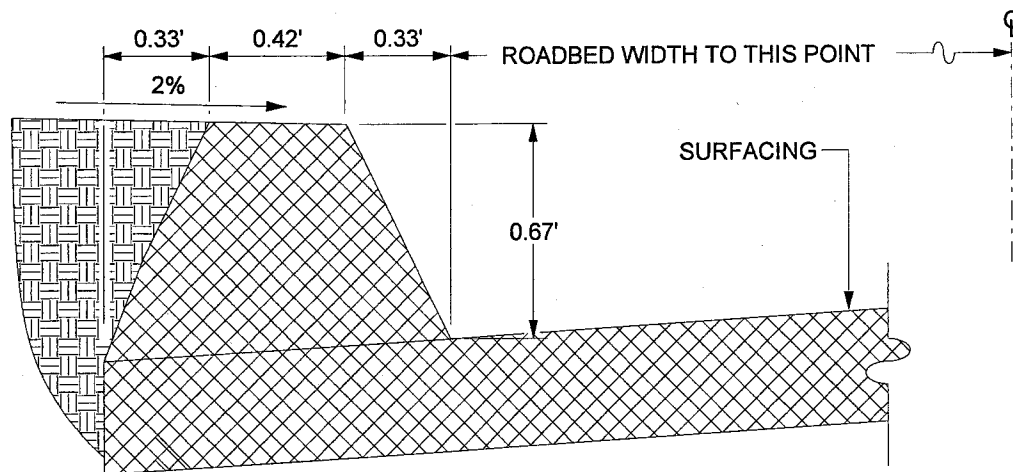
(1)	Pave or apply chemical stabilization at sufficient concentration and frequency to maintain a stabilized surface starting from the point of intersection with the public paved surface, and extending for a centerline distance of at least 100 feet and a width of at least 20 feet.
(2)	Pave from the point 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



6" A.C. DIKE



8" A.C. DIKE

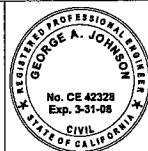
NOT TO SCALE

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
 DIRECTOR OF TRANSPORTATION
 GEORGE A. JOHNSON, RCE 42328

DATE: 05/01/07

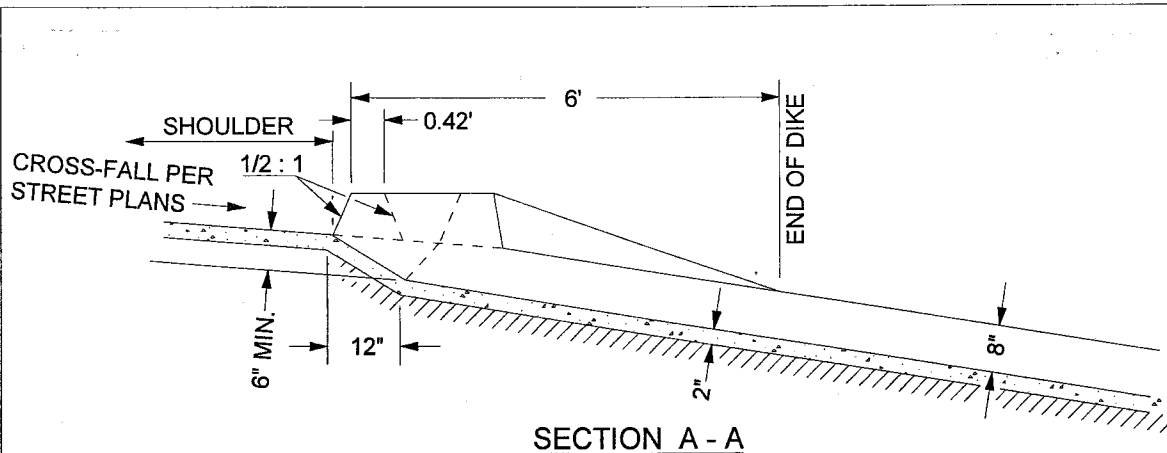


COUNTY OF RIVERSIDE

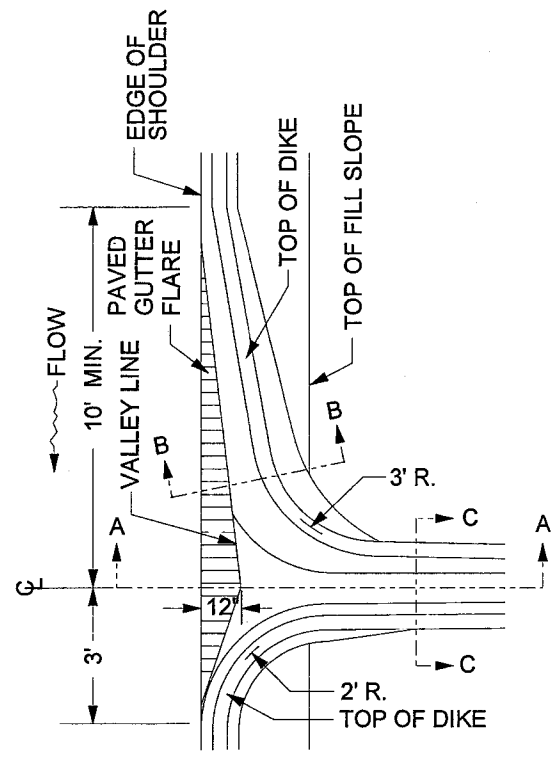
**ASPHALT CONCRETE
 DIKES**

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

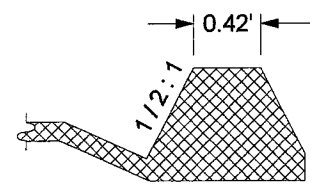
STANDARD NO. 212



SECTION A - A

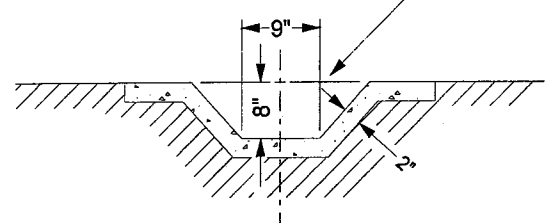


PLAN



SECTION B - B

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

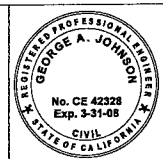


SECTION C - C

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




COUNTY OF RIVERSIDE

**ASPHALT CONCRETE
 OVERSIDE DRAIN**

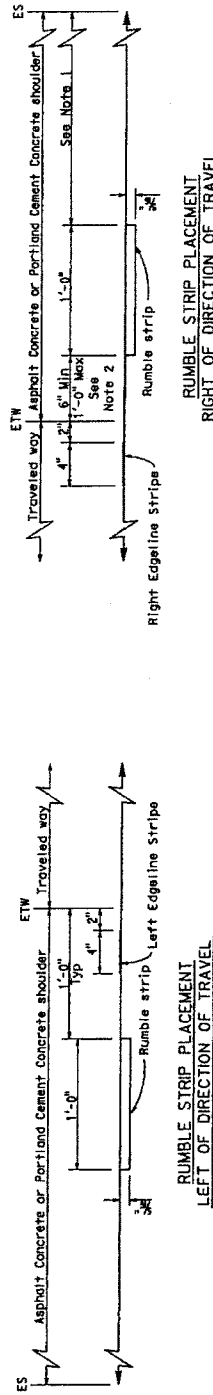
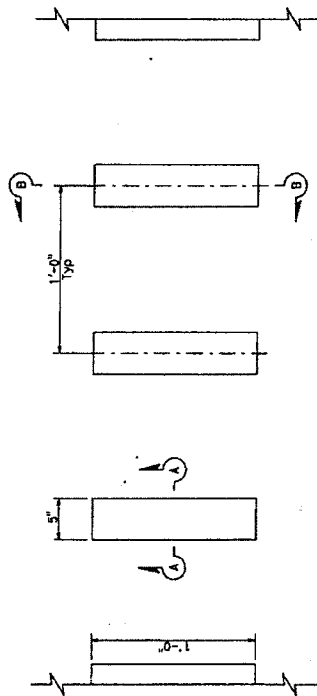
REVISIONS		REV.	BY:	APR'D	DATE	REV.	BY:	APR'D	DATE
8-18-77, 2-82		1				4			
11-04		2				5			
		3				6			

STANDARD NO. 306

DIST.	COUNTY	ROUTE	POST MILES	SHEET TOTAL
			TOTAL PROJECT	NO. SHEETS

REGISTERED CIVIL ENGINEER  MAY 1, 2006 EXPIRES:	REGISTERED CIVIL ENGINEER STATE OF CALIFORNIA No. 43880 Exp. 6-30-06
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THE BOARD OF PROFESSIONAL ENGINEERS AND SURVEYORS OF THE STATE OF CALIFORNIA
 HEREBY CERTIFIES THAT THE ABOVE NAMED ENGINEER IS A LICENSED PROFESSIONAL ENGINEER
 IN THE STATE OF CALIFORNIA AND IS QUALIFIED TO PREPARE AND SEAL THE ABOVE
 DRAWING FOR THE PURPOSES OF THE PROFESSIONAL ENGINEERS ACT.
 To get the full details see also the title/number/description



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

SHOULDER RUMBLE STRIP DETAILS GROUND-IN INDENTATIONS

NO SCALE

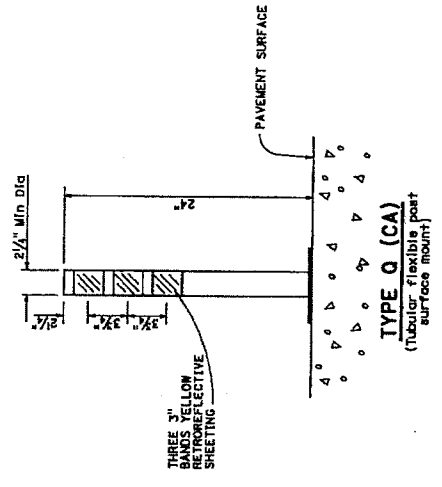
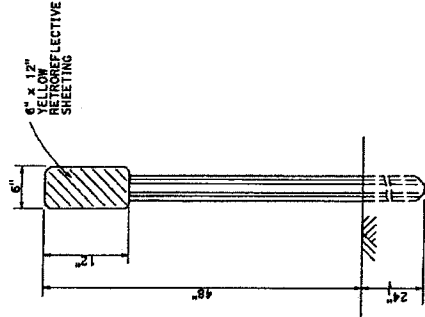
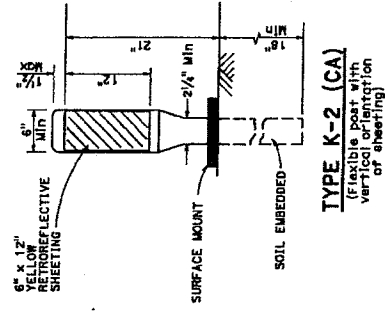
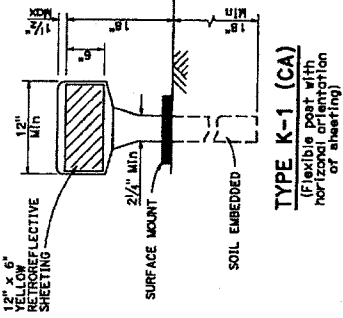
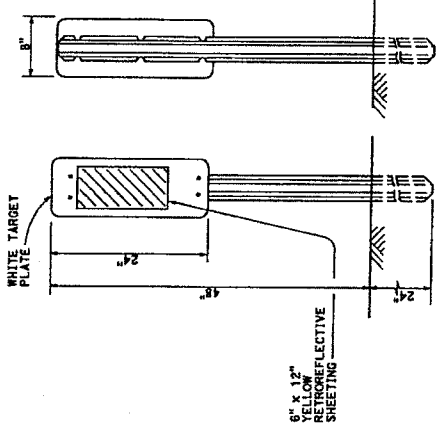
A 40B

NOTES:

- Where bicycles are permitted, shoulder rumble strips should not be used right of direction of travel unless a minimum of 5'-0" of clear shoulder width for bicycle use is available between the rumble strip and the edge of the shoulder. Where bicycles are not permitted, a minimum of 4'-0" of distance is required between the rumble strip and the outer edge of the shoulder.
- Unless otherwise shown on the plans or specified in the special provisions, the 6" offset from the edge of traveled way to the edge of the rumble strip shall be used for rumble strip placement right of the direction of travel.

DIST.	COUNTY	ROUTE	POST MILES	SHEET TOTAL
				NO. SHEETS

David F. Hahn
 REGISTERED CIVIL ENGINEER
 MAY 20, 2011
 PLAN APPROVAL DATE
 THE STATE OF CALIFORNIA OR ITS OFFICERS
 THE BOARD OF CIVIL ENGINEERS AND SURVEYORS
 HAS REVIEWED THIS PLAN SHEET.



NOTE:
1. See Standard Plan A73B for metal post details and additional markers.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
OBJECT MARKERS
NO SCALE

DIST. COUNTY ROUTE PROJECT NO. SHEET NO. TOTAL SHEETS

REGISTERED CIVIL ENGINEER

MOY J. 2006

PLANS APPROVAL DATE

Professional Seal: MOY J. 2006, No. 43838, State of California, Exp. 5-30-06

REGISTERED PROFESSIONAL ENGINEER

For full list of California rules, go to: <http://www.ced.ca.gov>

TABLE 1 - DELINEATORS

TYPE	FRONT	BACK
E	White	White (See Note 1)
F	White	None
G	Yellow	None
J	Yellow	Yellow (See Note 1)
K	Red	None

NOTES:

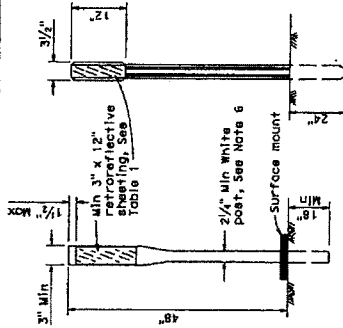
- The retroreflective sheeting used on the back of delineator shall be a minimum size of 3" x 3".
- The type of delineator to be installed will be designated on the plans.
- All barricade stripes shall be retroreflective.
- See Standard Plan A73B for Metal Post Details.
- Unless shown otherwise on the plans, or as directed by the Engineer, the color of the retroreflective sheeting for permanent delineators shall be consistent with the color of the pavement markings it supplements.
- Except, Class 1 (flexible post) temporary delineators in work zones shall be orange post with white retroreflective sheeting.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

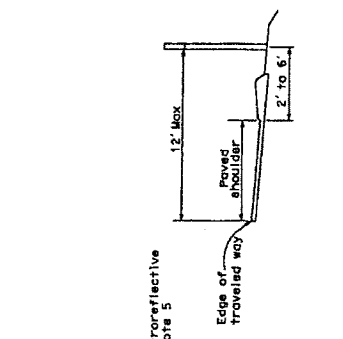
DELINEATORS, CHANNELIZERS AND BARRICADES

NO SCALE

A73C

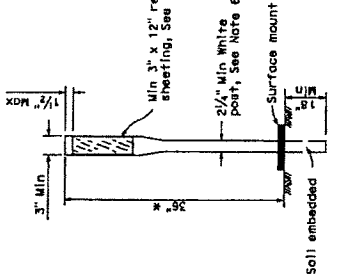


CLASS 1 FLEXIBLE POST



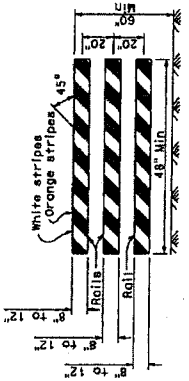
CLASS 2 METAL POST

DELINEATOR POSITIONING

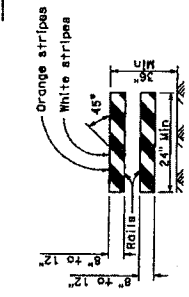


CHANNELIZERS

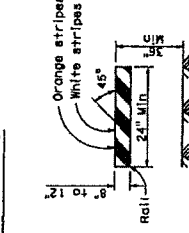
* 36" Min. where speeds are 40 miles/h or less.



TYPE III BARRICADE



TYPE II BARRICADE



TYPE I BARRICADE

BARRICADES (See Note 3)

Only face of rails shown. Barricade construction materials and supports as specified in the specifications.

TABLE 2 - BARRICADES

BARRICADE	TYPE I	TYPE II	TYPE III
Width of Rail	6" Min - 12" Max *	6" Min - 12" Max *	8" Min - 12" Max *
Length of Rail	24" Min	24" Min	48" Min
Width of Stripes **	6"	6"	6"
Height	36" Min	36" Min	60" Min
Number of Retroreflective Rail Faces	2 (one each direction)	4 (two each direction)	3 if facing traffic in one direction 6 if facing traffic in two directions

* For the wooden option dimensions are nominal lumber dimensions.

** For rails less than 36" long, 4" wide stripes shall be used.

NOTE A1:

Barricades to have a minimum of 270 square inches of retroreflective area facing traffic when used on freeways, expressways, and other high speed highways.

DIST COUNTY ROUTE TOTAL PROJECT SHEET NO. SHEETS

APPROVED FOR THE PROJECT BY

REGISTERED CIVIL ENGINEER

JUNE 5, 2008

PLANS APPROVAL DATE

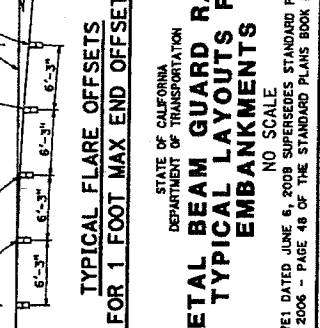
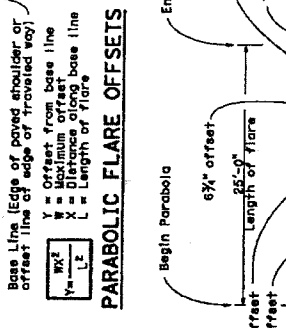
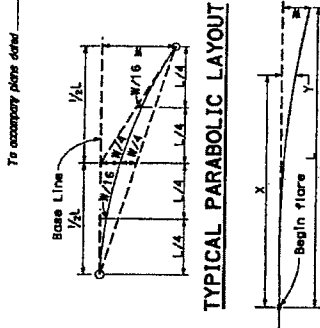
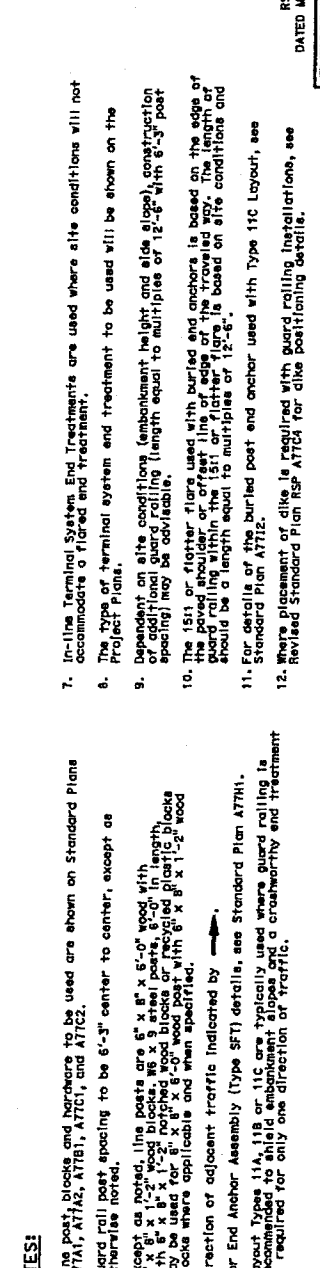
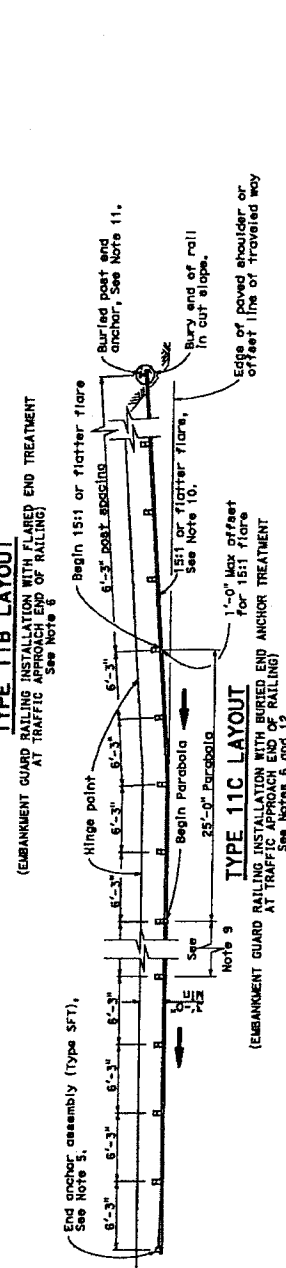
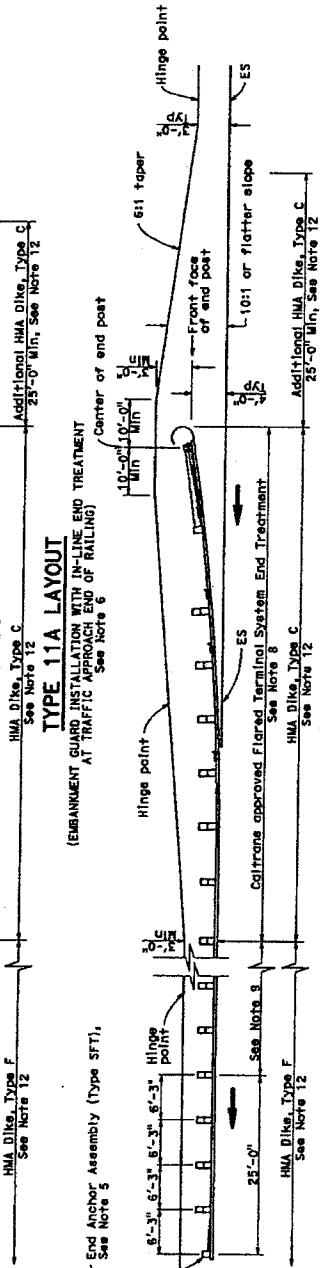
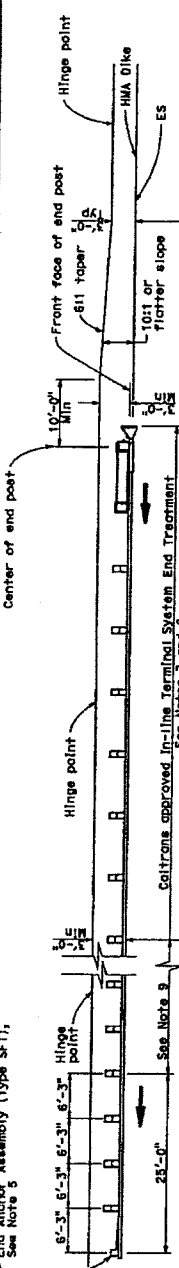
THE STATE OF CALIFORNIA

REGISTERED CIVIL ENGINEER

NO. 53263

EXPIRES 06/05/2011

TO ACCOMPANY PLANS DATED



METAL BEAM GUARD RAILING TYPICAL LAYOUTS FOR EMBANKMENTS

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

NO SCALE

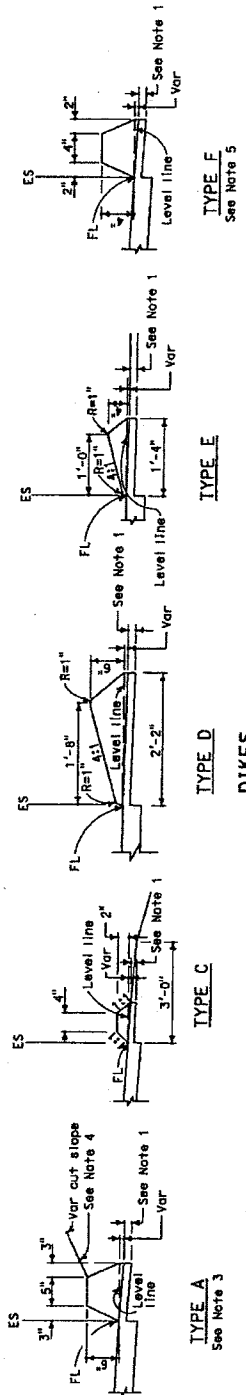
RSP A77E1 DATED JUNE 5, 2008 SUPERSEDES STANDARD PLAN A77E1
DATED MAY 1, 2006 - PAGE 46 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A77E1

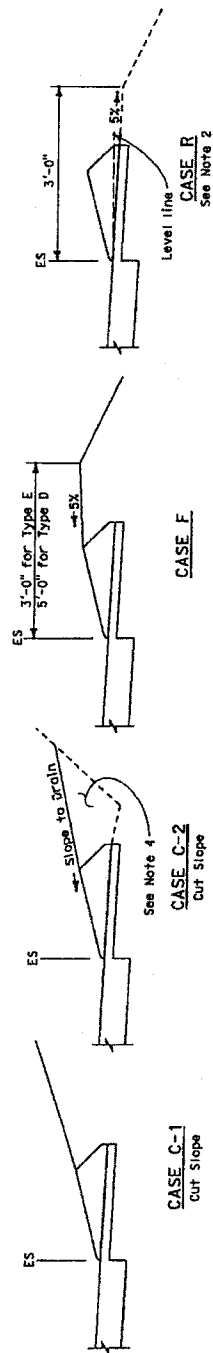
NOTES:

- Line post, blocks and hardware to be used are shown on Standard Plans A77A1, A77A2, A77B1, A77C1, and A77C2.
- Guard rail post spacing to be 6'-3" center to center, except as otherwise noted.
- Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks, 6" x 9" steel posts, 6'-0" in length with 6" x 8" x 1'-2" perforated wood blocks or recycled plastic blocks where applicable and when specified.
- Direction of adjacent traffic Indicated by →.
- For End Anchor Assembly (Type SFT) details, see Standard Plan A77H1.
- Layouts Type 11A, 11B or 11C are typically used where guard railing is required for only one direction of traffic.
- In-line Terminal System End Treatments are used where site conditions will not accommodate a flared end treatment.
- The type of terminal system end treatment to be used will be shown on the Project Plans.
- Dependent on site conditions (embankment height and side slope), construction of additional guard railing (length equal to multiple of 12'-6" with 6'-3" post spacing) may be advisable.
- The 1511 or flatter flare used with buried end anchors is based on the edge of guard railing within the 1511 or flatter flare is based on site conditions and should be a length equal to multiple of 12'-6".
- For details of the buried post end anchor used with Type 11C Layout, see Standard Plan A77I2.
- Where placement of dike is required with guard railing installations, see Revised Standard Plan RSP A77C4 for dike positioning details.

DIST.	COUNTY	ROUTE	POST MILE	POST MILE	POST MILE
REGISTERED CIVIL ENGINEER NOV. 1, 2006 PLEASE APPROVAL DATE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS 15, 16th St. Sacramento, CA 95833 Tel: 916/227-1500 Fax: 916/227-1501					



DIKES



TYPE D AND E BACKFILL DETAILS

DIKE TYPE	QUANTITIES CUBIC YARDS PER LINEAR FOOT
A	0.0135
C	0.0038
D	0.0253
E	0.0130
F	0.0086

Quantities based on 5% cross slope.

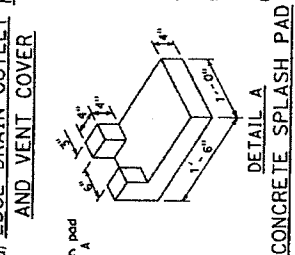
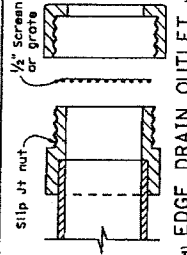
- NOTES:**
1. For AC shoulders only, extend top layer of AC placed on the shoulder under dike with no joint at the ES.
 2. Case R applies to retrofit only projects where restrictive conditions do not provide enough width for Case F backfill.
 3. Type A dikes only to be used where restrictive slope conditions do not provide enough width to use Type D or Type E dike.
 4. Fill and compact with excavated material to top of dike.
 5. Use Type F dikes where dike is required with guard rolling installations. See Standard Plan A77C for dike positioning details.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
ASPHALT CONCRETE DIKES
NO. SCALE

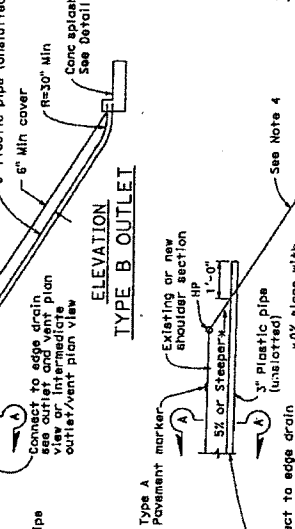
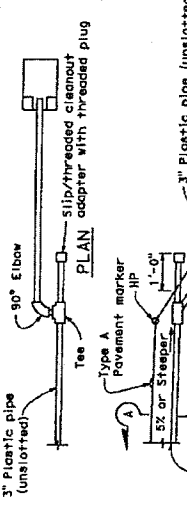
A87B

COUNTY	ROUTE	POST MILE	SECTION
		TOTAL PROJECT	NO. SHEETS
MAY 1, 2008 REGISTERED CIVIL ENGINEER PLEASE APPROVAL DATE State Seal and Signature of Professional Engineer License No. 12345 Exp. 12/31/08 Department of Transportation, Office of Engineering			

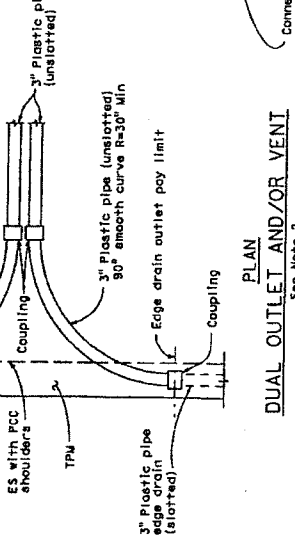
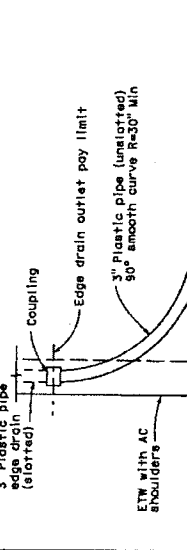
NOTES:
 1. See project plans for location and type of outlet and/or vent installations.
 2. The position of sloped plastic pipe and limits of treated permeable material shown are for the original section drainage system shown on Standard Plan D99A.
 3. The maximum length of plastic pipe outlet shall be 50'-0" (±) measured from the pipe outlet. For pipe lengths greater than 50'-0" use Type B outlets.
 4. See project plans for slope protection details of Type C pipe outlets.
 5. Backfill with aggregate base from outside edge paved shoulder to hinge point, and backfill with native material in slope area.
 6. See Standard Plan D99C for Type C vent detail used with portland cement concrete shoulders.



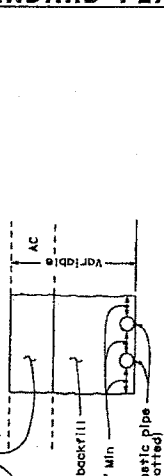
CONCRETE SPLASH PAD
 DETAIL A



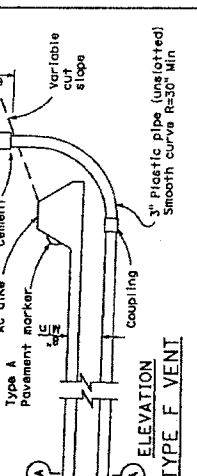
TYPE B OUTLET
 ELEVATION
TYPE C OUTLET AND/OR VENT
 ELEVATION



DUAL OUTLET AND/OR VENT
 PLAN
INTERMEDIATE OUTLET
 PLAN

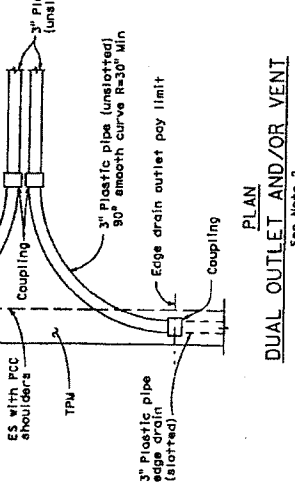
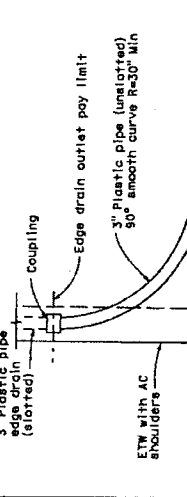


OUTLET EXCAVATION AND BACKFILL IN PAVED SHOULDERS
 SECTION A-A
 See Note 5

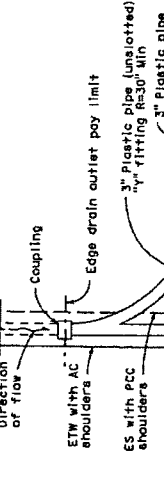


TYPE F VENT
 ELEVATION

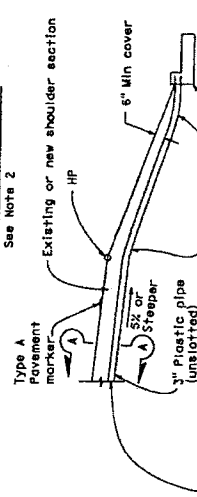
STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
 NO SCALE



TYPE A OUTLET
 ELEVATION
TYPE D OUTLET CONNECTION TO DRAINAGE INLET
 ELEVATION



TYPE E OUTLET CONNECTION TO DRAINAGE PIPE
 ELEVATION



TYPE D OUTLET CONNECTION TO DRAINAGE INLET
 ELEVATION

TYPE E OUTLET CONNECTION TO DRAINAGE PIPE
 ELEVATION

DIST.	COUNTY	ROUTE	POST MILE	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER

May 1, 2006

PLANS APPROVAL DATE

DATE OF EXPIRATION OF LICENSE

REGISTERED PROFESSIONAL ENGINEER

STATE OF CALIFORNIA

EXPIRES 5-31-07

REGISTERED CIVIL ENGINEER

To print the California web site, go to: <http://www.ced.gov>

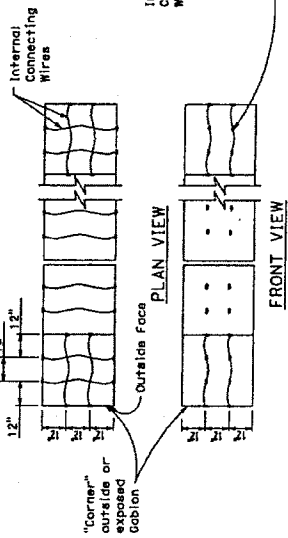
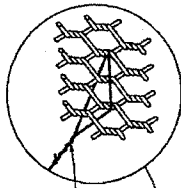
STANDARD GABION SIZES

LETTER CODE	LENGTH	WIDTH	HEIGHT	NUMBER OF DIAPHRAGMS	VOLUME CY
A	6'-0"	3'-0"	3'-0"	1	2.0
B	9'-0"	3'-0"	3'-0"	2	3.0
C	12'-0"	3'-0"	3'-0"	3	4.0
D	6'-0"	3'-0"	1'-6"	1	1.0
E	9'-0"	3'-0"	1'-6"	2	1.5
F	12'-0"	3'-0"	1'-6"	3	2.0
G	6'-0"	3'-0"	1'-0"	1	0.66
H	9'-0"	3'-0"	1'-0"	2	1.0
I	12'-0"	3'-0"	1'-0"	3	1.33

- NOTES:**
1. Internal connecting wire (13.5-gage) to be installed across width of interior gabions and across width and length of end gabions.
 2. Internal connecting wire and Gabion mesh shall be galvanized.
 3. Internal connecting wires required on all gabions 3'-0" high.
 4. Prefabricated stiffeners (11-gage or 9-gage) are an acceptable alternative to internal connecting wires. Install them as recommended by the Engineer at 1/4 points.
 5. Place rock in end Gabion cell first, and continue by filling interior Gabion cells.
 6. For Gabion dimensions, refer to table "Standard Gabion Sizes".

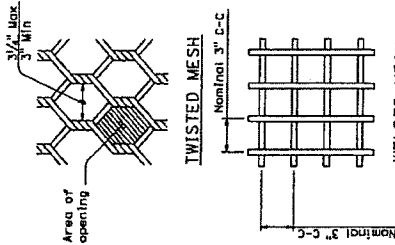
STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
GABION BASKET DETAILS No. 1
 NO. SCALE

D100A

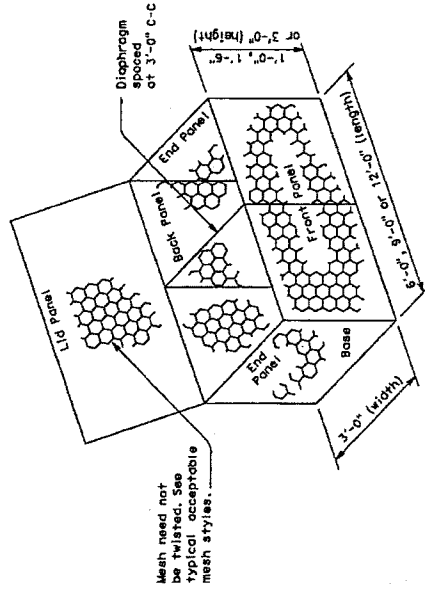


13.5-GAGE INTERNAL CONNECTING WIRES

NOTE:
 Area of opening not to exceed 10.3 square inches.



TYPICAL ACCEPTABLE MESH STYLES



TYPICAL GABION BASKET

2006 STANDARD PLAN D100B

DIST.	COUNTY	ROUTE	POST MILE	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER

May 1, 2006

PLANS APPROVAL DATE

APPROVED BY: [Signature]

REGISTERED CIVIL ENGINEER

EXPIRES: 5-30-07

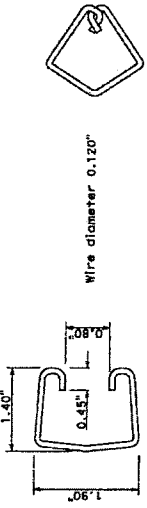
FOR THE STATE OF CALIFORNIA

FOR THE DEPARTMENT OF TRANSPORTATION

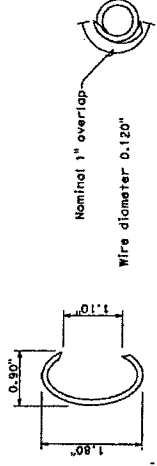
FOR THE DIVISION OF HIGHWAYS

FOR THE DISTRICT OF []

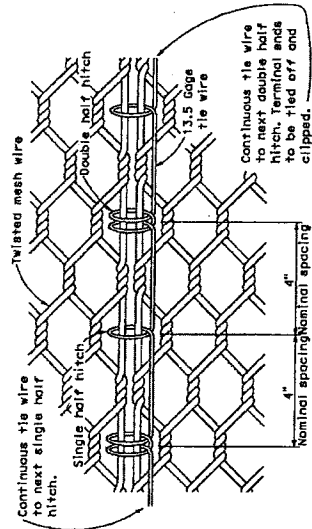
To get the Catalogue and fill up to: <http://www.dhs.gov>



INTERLOCKING FASTENER



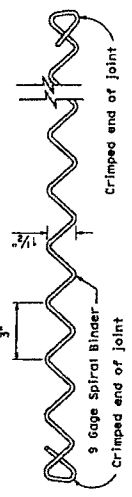
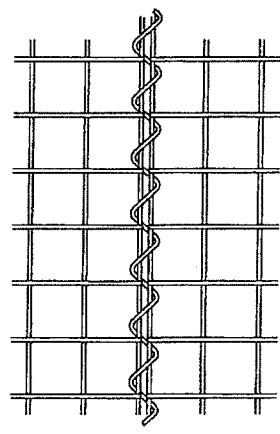
OVERLAPPING FASTENER



STANDARD TIE WIRE DETAIL

Alternating single and double half hitches (locked loops)

(See Note 2)



STANDARD SPIRAL BINDER

(See Note 2)

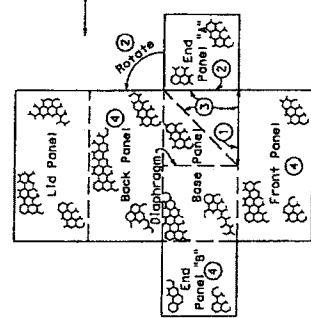
NOTES:

1. A joint connection must be made where any panel edge meets another panel. This includes adjacent gabion baskets, individual panels within a basket, diaphragm edges, etc. Standard tie wire may be used as a joint connector for either twisted or welded mesh. Spiral binder is to be used with welded mesh only.
2. When alternative Gabion joint material fasteners are used, fasteners must be installed in each mesh opening. For each mesh opening, the fasteners are counted along one of the panel edges at the joint.
3. When alternative Gabion joint material fasteners are not capable of enclosing all wires along a joint, especially at Basket-to-Basket joints, either standard tie wire or spiral binder, as applicable, must be used.

ALTERNATIVE GABION JOINT MATERIAL FASTENERS

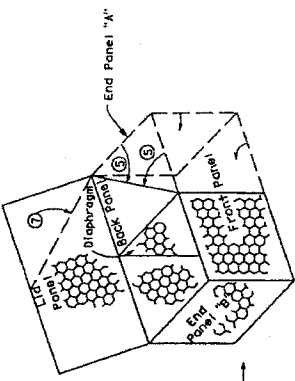
(Fastener dimensions nominal)

(See Notes 3 and 4)



FLAT LAYOUT OF GABION BASKET

- To Assemble Transitional Gabion Basket:
- Step 1 Cut mesh along joint between Front Panel and Base Panel.
 - Step 2 Rotate End Panel "a" from Base Panel and Panel "a" to Back Panel.
 - Step 3 Fold the cut portion of the Base Panel into upright position along diagonal from the diaphragm to the corner of the Back Panel.
 - Step 4 Fold the Back Panel, Front Panel and End Panel "b" to upright positions. Fasten End Panel "b" to the Back Panel and the Front Panel.
 - Step 5 Rotate End Panel "a" and the cut portion of the Front Panel inward against the cut portion of the Base Panel. Fasten along the cut portion of the Front Panel and the cut portion of the Base Panel. Fasten along the cut portion of the Front Panel and the cut portion of the Base Panel.
 - Step 6 Fill the Transitional Gabion Basket with rock as per specifications.
 - Step 7 Close lid and fold over corner of Lid Panel. Fasten along Lid Panel edges.



ASSEMBLED TRANSITIONAL GABION BASKET

TRANSITIONAL GABION BASKET

(For 6'-0", 9'-0" or 12'-0" gabion)

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

GABION BASKET DETAILS No. 2

NO SCALE

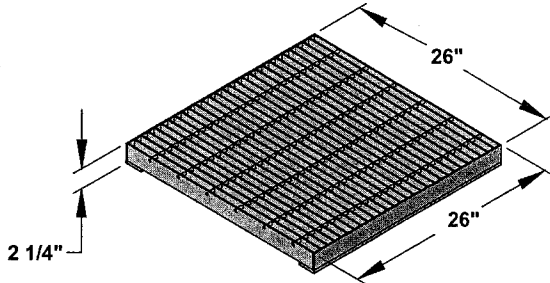
D100B

2424 CAST IRON GRATE

PARKWAY 112 lbs.

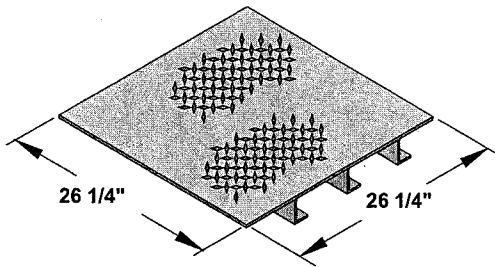
2424 STEEL GRATES

PARKWAY 48 lbs.
TRAFFIC 103 lbs.

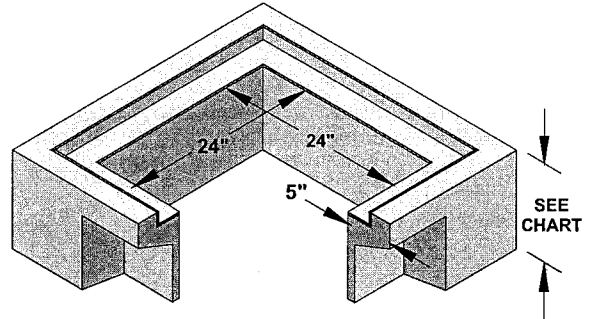


2424 STEEL COVER

PARKWAY 81 lbs.
TRAFFIC 114 lbs.

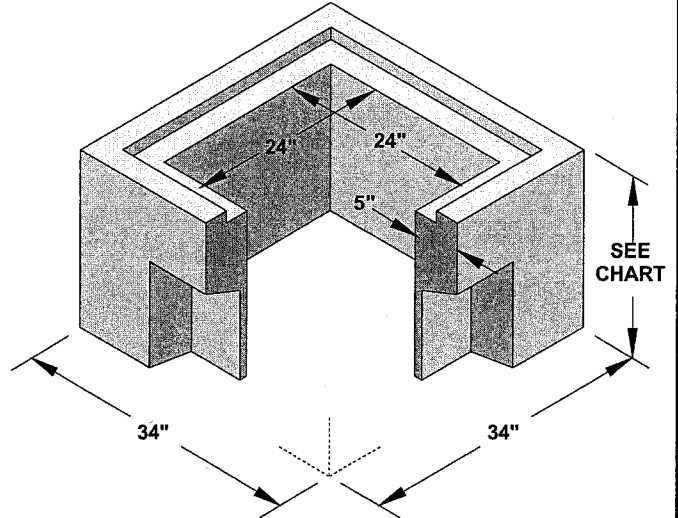


2424 TOP SECTION (WITH GALVANIZED FRAME)

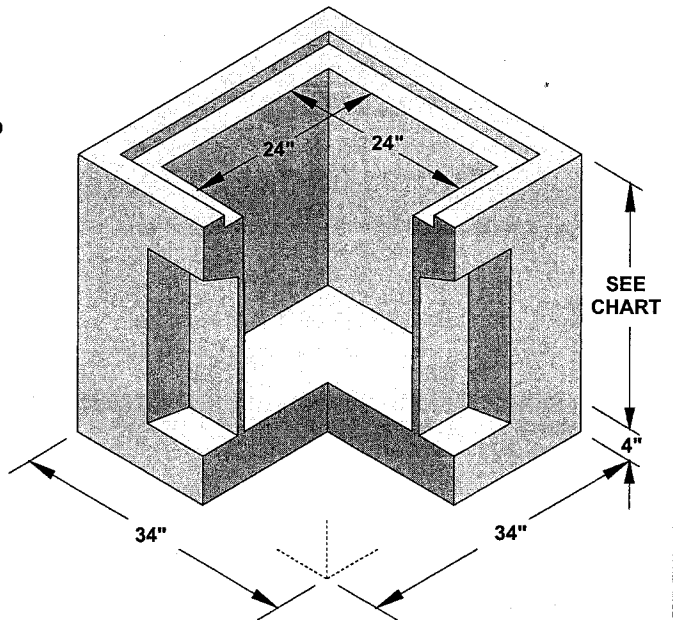


2424 LOWER SECTION (NO FRAME)

NOTE: USE 12", 18", 24" LOWERS TO INCREASE DEPTH UP TO A MAXIMUM OF 72"



2424 BOTTOM SECTION (WITH OR WITHOUT FRAME)



NOTES:

1. GRATES AND COVERS AVAILABLE PAINTED BLACK OR GALVANIZED
2. "ADA" GRATES AVAILABLE IN PARKWAY & TRAFFIC .
3. "HEEL PROOF" GRATES AVAILABLE IN PARKWAY ONLY
4. A TOP SECTION WITH FRAME MUST BE USED IF BOLT DOWN REQUIRED

TOP SECTION	HT.	LBS	KNOCK-OUTS
2424 T6	6"	270	NONE
2424 T12	12"	495	(4) 6" x 11"
2424 T18	18"	745	(4) 9" x 12"
2424 T24	24"	870	(4) 14" x 14"

EXTENSION SECTION	HT.	LBS	KNOCK-OUTS
2424 E6	6"	270	NONE

LOWER SECTION	HT.	LBS	KNOCK-OUTS
2424 L12	12"	495	(4) 6" x 11"
2424 L18	18"	745	(4) 9" x 12"
2424 L24	24"	870	(4) 14" x 14"

BOTTOM SECTION	HT.	LBS	KNOCK-OUTS
2424 B30	30"	1595	(4) 18" x 18"
2424 B36	36"	1905	(4) 18" x 18"

24" x 24"
CATCH BASIN



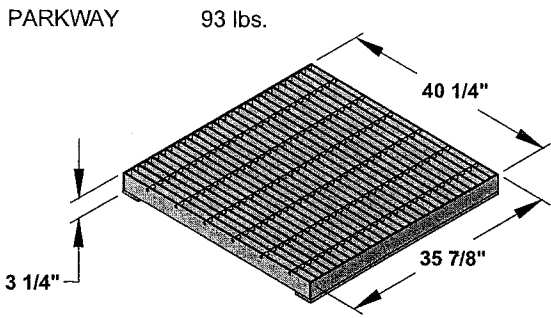
2424 CB

ORG. DWG. DATE
11-23-99

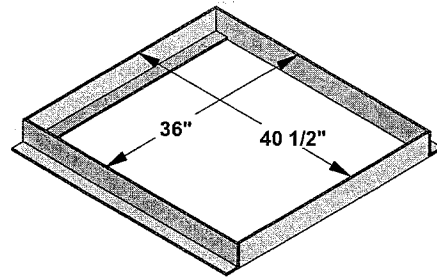
REV. DWG. DATE
02-28-00

7
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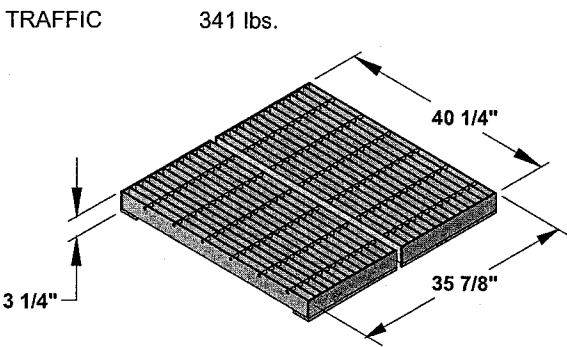
3636 STEEL GRATES - 1 Pc.



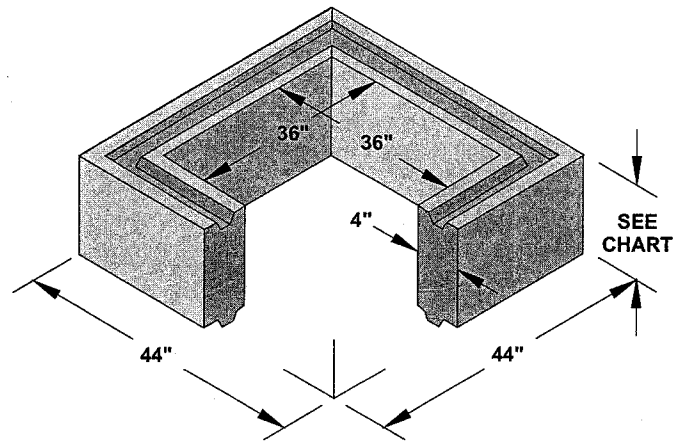
3636 FRAME ONLY



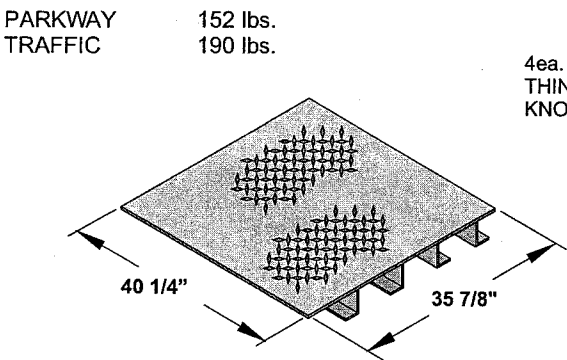
3636 STEEL GRATES - 2 Pc.



3636 EXTENSION (NO FRAME)

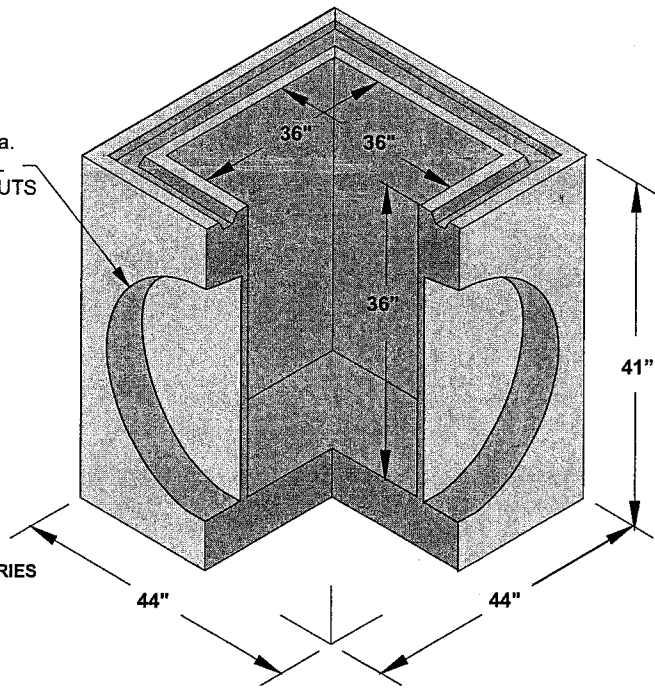


3636 STEEL COVER - 1 Pc.



3636 BOTTOM SECTION (NO FRAME)

4ea. 30" dia.
THINWALL
KNOCK-OUTS



NOTES:

1. GRATES AND COVERS AVAILABLE PAINTED BLACK OR GALVANIZED
2. "ADA" OR "HEEL-PROOF" GRATES ARE NOT AVAILABLE FOR THIS SERIES
3. BOLT DOWN GRATES AND COVERS ARE AVAILABLE

EXTENSION SECTION	HT.	LBS	KNOCK-OUTS
3636 E6	6"	525	NONE
3636 E12	12"	1050	NONE

BOTTOM SECTION	HT.	LBS	KNOCK-OUTS
3636 B36	36"	2,230	(4) 30" DIA.

36" x 36"
CATCH BASIN

ORG. DWG. DATE 11-23-99 REV. DWG. DATE 02-18-00



3636 CB