## APPENDIX B STANDARD PLAN LIST

*The Standard Plan sheets applicable to this contract include, but are not limited to those indicated below. Applicable Revised Standard Plans (RSP) and New Standard Plans (NSP) indicated below are included in the project plans as individual Standard Plan sheets.*

### GENERAL ROAD WORK

| | |
|---|---|
| **A10A** | **Acronyms and Abbreviations (Sheet 1 of 2)** |
| **A10B** | **Acronyms and Abbreviations (Sheet 2 of 2)** |
| **A10C** | **Symbols (Sheet 1 of 2)** |
| **A10D** | **Symbols (Sheet 2 of 2)** |

### PAVEMENT MARKERS, TRAFFIC LINES, AND PAVEMENT MARKINGS

| | |
|---|---|
| **A20A** | **Pavement Markers and Traffic Lines, Typical Details** |
| **A20B** | **Pavement Markers and Traffic Lines, Typical Details** |

### EXCAVATION AND BACKFILL

| | |
|---|---|
| **A62E** | **Excavation and Backfill – Cast-In-Place Reinforced Concrete Box and Arch Culverts** |

### BOX CULVERTS

| | |
|---|---|
| **(2010) D83B** | **Precast Reinforced Concrete Box Culvert Miscellaneous Details** |
| **(2010) D85** | **Box Culvert Wingwalls – Type D** |

### TEMPORARY RAILING

| | |
|---|---|
| **T3** | **Temporary Railing (Type K)** |
| **NSP T3A** | **Temporary Railing (Type K)** |

### TEMPORARY TRAFFIC CONTROL SYSTEMS

| | |
|---|---|
| **T13** | **Traffic Control System for Lane Closure on Two Lane Conventional Highways** |

## A

| | |
|---|---|
| AB | aggregate base |
| ABBC | asbestos bonded bituminous coated |
| ABM | air-blown mortar |
| Abn | abandon |
| Abut | abutment |
| AC | asphalt concrete |
| ACB | asphalt concrete base |
| ACP | asbestos cement pipe |
| ADL | added dead load |
| Adj | adjust |
| AFES | alternative flared end section |
| Ahd | ahead |
| Alt | alternate |
| AM | time from midnight to noon |
| AP | alternative pipe |
| APC | alternative pipe culvert |
| Approx | approximate |
| APU | alternative pipe underdrain |
| ARS | acceleration response spectrum |
| AS | aggregate subbase |
| ASRP | aluminum spiral rib pipe |
| Assy | assembly |
| ATPB | asphalt treated permeable base |
| ATPM | asphalt treated permeable material |
| Ave | avenue |
| Avg | average |
| @ | at |

## B

| | |
|---|---|
| BAGR | bridge approach guard railing |
| BB | beginning of bridge |
| B-B | back-to-back |
| BC | begin horizontal curve |
| BCR | begin curb return |
| Beg | begin |
| Bit Ctd | bituminous coated |
| Bk | back |
| Bkf | backfill |
| Bldg | building |
| BLM | bridge-log mile |
| Blvd | boulevard |
| BM | bench mark |
| Bot | bottom |
| Br | bridge |
| Brg | bearing |
| BTU | british thermal unit |
| BVC | begin vertical curve |
| BW | barbed wire |

## C

| | |
|---|---|
| CAA | cable anchor assembly |
| CAP | corrugated aluminum pipe |
| CAPA | corrugated aluminum pipe arch |
| CAS | construction area sign |
| CB | concrete barrier |
| CBW | concrete block wall |
| C-C | center to center |

## C continued

| | |
|---|---|
| CG | center of gravity |
| Chnl | channel |
| CI | cast iron |
| CIDH | cast-in-drilled-hole |
| CIP | cast-in-place, cast iron pipe |
| CIPCP | cast in place concrete pipe |
| CISS | cast-in-steel-shell |
| CJP | complete joint penetration |
| CL | chain link |
| CL-6 | chain link fence (6 ft) |
| Cl | class |
| Clr | clear, clearance |
| CM | corrugated metal |
| CMP | corrugated metal pipe |
| Co | county |
| Col | column |
| Conc | concrete |
| Cond | conduit |
| Conn | connector |
| Const | construct, construction |
| Cont | continuous |
| Coord | coordinate |
| CP | candlepower |
| Cr | creek |
| CRCP | continuous reinforced concrete pavement |
| CRSP | concreted rock slope protection |
| CSP | corrugated steel pipe |
| CSPA | corrugated steel pipe arch |
| CTB | cement treated base |
| CTPB | cement treated permeable base |
| CTPM | cement treated permeable material |
| Ctrs | centers |
| Culv | culvert |
| ℄ | centerline |

## D

| | |
|---|---|
| D | depth |
| DD | downdrain |
| Dbl | double |
| Deg | degree |
| Del | delineator |
| Det | detail, detour |
| DF | douglas fir |
| DI | drainage inlet, drop inlet |
| Dia | diameter |
| Diaph | diaphragm |
| Dist | distance, district |
| DMBB | double metal beam barrier |
| Dr | drive |
| DTBB | double thrie beam barrier |
| Dwy | driveway |

## E

| | |
|---|---|
| E | east |
| Ease | easement |
| EB | end of bridge, eastbound |
| EC | end horizontal curve |
| ECR | end curb return |
| ED | edge drain |
| EDC | edge drain cleanout |
| EDO | edge drain outlet |
| EDV | edge drain vent |
| Elec | electrolier |
| Elect | electric |
| Elev | elevation |
| Emb | embankment |
| Engr | Engineer |
| EOD | edge of deck |
| EP | edge of pavement |
| Eq | equation |
| ES | edge of shoulder |
| ETW | edge of traveled way |
| EVC | end vertical curve |
| EW | endwall |
| Exc | excavation |
| Exist, (E) | existing |
| Exp | expansion, expressway |
| Exp Jt | expansion joint |
| Ext | exterior |

## F

| | |
|---|---|
| F & C | frame and cover |
| F & G | frame and grate |
| FB | floor beam |
| Fdn | foundation |
| FEBT | facing eastbound traffic |
| FES | flared end section |
| FF | filter fabric |
| FG | finished grade |
| FH | fire hydrant |
| Fig | figure |
| FL | flow line |
| FNBT | facing northbound traffic |
| FOB | free on board |
| FOC | face of concrete |
| Fr Rd | frontage road |
| FS | far side, finished surface |
| FSBT | facing southbound traffic |
| Ftg | footing |
| FWBT | facing westbound traffic |
| Fwy | freeway |

## G

| | |
|---|---|
| g | acceleration due to gravity |
| Ga | gage |
| Galv | galvanized |
| GP | grading plane |
| GR | guard railing |
| GSP | galvanized steel pipe |

## G continued

| | |
|---|---|
| Gtr | gutter |

## H

| | |
|---|---|
| H | height |
| h, hr | hour |
| HD | horizontal drain |
| hdwl | headwall |
| Hex Hd | hexagonal head |
| HMA | hot mixed asphalt |
| Horiz | horizontal |
| HP | hinge point, horsepower |
| HPS | high performance steel |
| HS | high strength |
| HW | headwall, high water |
| HWM | high water mark |
| Hwy | highway |

## I

| | |
|---|---|
| IB | imported borrow |
| ID | inside diameter |
| IF | inside face |
| Int | interior |
| Inv | invert |
| Irr | irrigation |

## J

| | |
|---|---|
| Jct | junction |
| JP | joint pole |
| JPCP | jointed plain concrete pavement |
| JS | junction structure |
| Jt | joint |

## K

## L

| | |
|---|---|
| L | length |
| Lat | latitude |
| LCB | lean concrete base |
| Ln | lane |
| Loc | location |
| LOL | layout line |
| Long | longitude |
| Longit | longitudinal |
| LS | lump sum |
| Lt | left |

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

REGISTERED CIVIL ENGINEER

May 1, 2006

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Santo Wong — No. 58698 — Exp. 12-31-06 — CIVIL — STATE OF CALIFORNIA

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General Rules:

1. Abbreviations should be upper and lower case letters.
   i.e., Misc = miscellaneous
   and Bit Ctd = bituminous coated
2. Acronyms should be all upper case letters.
   i.e., BCR = begin curb return

Units of Measurement

(See Tables A, B and C on Standard Plan A10B)

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

# ACRONYMS AND ABBREVIATIONS (SHEET 1 OF 2)

NO SCALE

A10A

2006 STANDARD PLAN A10A

12-12-06

## M

| | |
|---|---|
| Maint | maintenance |
| Max | maximum |
| MB | metal beam |
| MBB | metal beam barrier |
| MBGR | metal beam guard railing |
| Med | median |
| MH | manhole |
| Min | minimum |
| Misc | miscellaneous |
| Misc I & S | miscellaneous iron and steel |
| Mkr | marker |
| Mod | modified,<br>modify |
| Mon | monument |
| MP | metal plate |
| MPGR | metal plate guard railing |
| MR | movement rating |
| MSE | mechanically stabilized embankment |
| Mtl | material |

## N

| | |
|---|---|
| N | north |
| NB | northbound |
| No. | number (must have period) |
| Nos. | numbers (must have period) |
| NPS | nominal pipe size |
| NS | near side |
| NTS | not to scale |

## O

| | |
|---|---|
| Oblr | obliterate |
| OC | overcrossing |
| OD | outside diameter |
| OF | outside face |
| OG | original ground |
| OGAC | open graded asphalt concrete |
| OH | overhead |
| O-O | out to out |
| Opp | opposite |

## P

| | |
|---|---|
| P | page |
| PAP | perforated aluminum pipe |
| PB | pull box |
| PC | point of curvature,<br>precast |
| PCC | point of compound curve,<br>portland cement concrete |
| PCP | perforated concrete pipe,<br>prestressed concrete pipe |
| PCVC | point of compound vertical curve |
| Ped | pedestrian |
| Ped OC | pedestrian overcrossing |
| Ped UC | pedestrian undercrossing |
| Perm Mtl | permeable material |
| PG | profile grade |

## P continued

| | |
|---|---|
| PI | point of intersection |
| PJP | partial joint penetration |
| ℄,PL | plate |
| P/L | property line |
| PM | post mile,<br>time from noon to midnight |
| PN | paving notch |
| POC | point of horizontal curve |
| POT | point of tangent |
| POVC | point of vertical curve |
| PP | pipe pile,<br>plastic pipe,<br>power pole |
| PPL | preformed permeable liner |
| PPP | perforated plastic pipe |
| PRC | point of reverse curve |
| PRF | pavement reinforcing fabric |
| PRVC | point of reverse vertical curve |
| PS&E | plans, specifications and estimates |
| PS, P/S | prestressed |
| PSP | perforated steel pipe |
| PT | point of tangency |
| PVC | polyvinyl chloride |
| Pvmt | pavement |

## Q

| | |
|---|---|
| Qty | quantity |

## R

| | |
|---|---|
| R | radius |
| R & D | remove and dispose |
| R & S | remove and salvage |
| R/C | rate of change |
| RCA | reinforced concrete arch |
| RCB | reinforced concrete box |
| RCP | reinforced concrete pipe |
| RCPA | reinforced concrete pipe arch |
| Rd | road |
| Reinf | reinforced,<br>reinforcement,<br>reinforcing |
| Rel | relocate |
| Repl | replacement |
| Ret | retaining |
| Rev | revised |
| Rdwy | roadway |
| RM | road-mixed |
| RP | radius point,<br>reference point |
| RR | railroad |
| RSP | rock slope protection |
| Rt | right |
| Rte | route |
| RW | redwood,<br>retaining wall |
| R/W | right of way |
| Rwy | railway |

## S

| | |
|---|---|
| S | south,<br>supplement |
| SAE | structure approach embankment |
| Salv | salvage |
| SAPP | structural aluminum plate pipe |
| SB | southbound |
| SC | sand cushion |
| SCSP | slotted corrugated steel pipe |
| SD | storm drain |
| Sec | second,<br>section |
| Sep | separation |
| SG | subgrade |
| Shld | shoulder |
| Sht | sheet |
| Sim | similar |
| ℄ | station line |
| SM | selected material |
| Spec | special,<br>specifications |
| SPP | slotted plastic pipe |
| SS | slope stake |
| SSBM | strap and saddle bracket method |
| SSD | structural section drain |
| SSPA | structural steel plate arch |
| SSPP | structural steel plate pipe |
| SSPPA | structural steel plate pipe arch |
| SSRP | steel spiral rib pipe |
| St | street |
| Sta | station |
| STBB | single thrie beam barrier |
| Std | standard |
| Str | structure |
| Surf | surfacing |
| SW | sidewalk,<br>sound wall |
| Swr | sewer |
| Sym | symmetrical |
| S4S | surface 4 sides |

## T

| | |
|---|---|
| T | semi-tangent |
| TAB | tablet |
| Tan | tangent |
| TBB | thrie beam barrier |
| Tbr | timber |
| TC | top of curb |
| TCB | traffic control box |
| Tel | telephone |
| Temp | temporary |
| TG | top of grade |
| Tot | total |
| TP | telephone pole |
| TPB | treated permeable base |
| TPM | treated permeable material |
| Trans | transition |

## T continued

| | |
|---|---|
| TS | transverse<br>traffic signal,<br>tubular steel |
| Typ | typical |

## U

| | |
|---|---|
| UC | undercrossing |
| UD | underdrain |
| UON | unless otherwise noted |
| UP | underpass |

## V

| | |
|---|---|
| V | valve,<br>design speed |
| Var | variable |
| VC | vertical curve |
| VCP | vitrified clay pipe |
| Vert | vertical |
| Via | viaduct |
| Vol | volume |

## W

| | |
|---|---|
| W | west,<br>width |
| WB | westbound |
| WH | weep hole |
| WM | wire mesh |
| WS | water surface |
| WSP | welded steel pipe |
| Wt | weight |
| WV | water valve |
| WW | wingwall |
| WWLOL | wingwall layout line |

## X

| | |
|---|---|
| X Sec | cross section |
| Xing | crossing |

## Y

| | |
|---|---|
| Yr | year |
| Yrs | years |

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

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May 1, 2006
PLANS APPROVAL DATE

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### UNITS OF MEASUREMENT

Some of the symbols for United States Customary units of measurement used in the Project Plans Quantity Summaries and in the Engineer's Estimate are as follows:

TABLE A

| Symbol Used | Definitions |
|---|---|
| EA | each |
| LB | pound(s) |
| ACRE | acre |
| GAL | gallon |
| LF | linear foot |
| SQFT | square foot |
| CF | cubic foot |
| SQYD | square yard |
| CY | cubic yard |
| STA | 100 feet |
| TAB | tablet |
| TON | 2,000 pounds |

Some of the symbols for United States Customary units of measurement used for physical properties of materials are as follows:

TABLE B

| Symbol Used | Definitions |
|---|---|
| ksi | kips per square inch |
| ksf | kips per square foot |
| psi | pounds per square inch |
| psf | pounds per square foot |
| $lb/ft^3$ | pounds per cubic foot |

Other commonly used symbols for United States Customary units of measurement:

TABLE C

| Symbol Used | Definitions |
|---|---|
| ø | nominal diameter |
| lb | pound |
| kip | 1,000 pounds |
| cal | calorie |
| Ft, ft | foot or feet |

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

# ACRONYMS AND ABBREVIATIONS (SHEET 2 OF 2)

NO SCALE

**A10B**

2006 STANDARD PLAN A10B



3-6-06

# SYMBOLOGY FOR CONSTRUCTION FEATURES

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

Jeffrey C. Kepley
REGISTERED CIVIL ENGINEER

May 1, 2006
PLANS APPROVAL DATE

Jeff C. Kepley No. 53361 Exp. 6-30-07 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

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Example - "A" Line
9 260 1
Station Line (Centerline)

R/W
Right of Way Line

Toe of Slope
C F
Top of Cut
Slope Line

OG
Original Ground Line

BB 217+93.45
Aerial Easement
EB 222+06.38
Approach Slab (See Structure Plans)
Bridge Name (See Structure Plans)
Structure (Bridge)

AC Dike
AC Overside Drain
Downdrain
Dike, Downdrain and Oversize Drain

Pipe Inlet
Drainage Inlet
Flared End Section
Pipe Culvert - single line (36" or less in diameter) (plus - other drainage features)

Wingwall
Headwall
Endwall
Pipe Culvert - two lines (36" to 6' in diameter) (plus - other drainage features) (Over 6' in diameter, draw to scale)

Face of Wall
Wall

Existing Guard Railing (work to be performed)

New Guard Railing

Concrete (Median) Barrier

Wall on Barrier

Temporary Railing (Type K)

Double Thrie Beam Barrier

Curb
Curb without Gutter

Curb with Gutter (curb-lip, flow line, back-top of curb)

X X
Fence

Ditch Flow Line

Existing Walls or Barriers should be shown as hollow filled (See example of Wall below)

Existing Wall

## AERIAL UTILITES

| | |
|---|---|
| -E-(OH)-E | New Electrical |
| -e-(oh)-e | Exist Electrical |
| --TC-(OH)--TC | New Telemeter Cable |
| --tc-(oh)--tc | Exist Telemeter Cable |
| --T-(OH)--T | New Telephone |
| --t-(oh)--t | Exist Telephone |
| --TV-(OH)--TV | New Television |
| --tv-(oh)--tv | Exist Televison |
| -FO-(OH)-FO | New Fiber Optic |
| -fo-(oh)-fo | Exist Fiber Optic |

## UNDERGROUND UTILITIES

| | |
|---|---|
| -W-W-W- | New Water |
| -w-w-w- | Exist Water |
| -G-G-G- | New Natural Gas |
| -g-g-g- | Exist Natural Gas |
| --S--S--S- | New Sewer |
| --s--s--s- | Exist Sewer |
| -E-E-E- | New Electrical |
| -e-e-e- | Exist Electrical |
| --T--T--T- | New Telephone |
| --t--t--t- | Exist Telephone |
| --GS--GS--GS- | New Gasoline |
| --gs--gs--gs- | Exist Gasoline |
| --O--O--O- | New Oil |
| --o--o--o- | Exist Oil |
| --TV--TV--TV- | New Television |
| --tv--tv--tv- | Exist Televison |
| -ST-ST-ST- | New Steam |
| -st-st-st- | Exist Steam |
| --TC--TC--TC- | New Telemeter Cable |
| --tc--tc--tc- | Exist Telemeter Cable |
| --SD--SD--SD- | New Storm Drain |
| --sd--sd--sd- | Exist Storm Drain |
| -FO-FO-FO- | New Fiber Optic |
| -fo-fo-fo- | Exist Fiber Optic |

STATE OF CALIFORNIA
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## SYMBOLS (SHEET 1 OF 2)

NO SCALE

A10C

2006 STANDARD PLAN A10C

3

3-20-06

# PHOTOGRAMMETRIC MAPPING LINES AND SYMBOLS

## PHOTOGRAMMETRIC MAPPING IS DROPPED OUT ON FINAL CONTRACT PLANS

- Curb
- Lane Stripe
- Edge of Traveled Way (State Highway)
- Edge of Traveled Way (Other)
- Edge of Asphalt (Shoulder)
- Concrete
- Guard Railing
- Median Barrier
- Fence
- Masonry Wall
- Masonry Wall and Fence
- Retaining Wall
- Retaining Wall and Fence
- Retaining Wall and Masonry Wall
- Flowline (Natural and Manmade)
- Edge of Body of Water, Surface Hatched and Spot Elevation on Surface (73.9)
- Deck (DECK) Building Covered Porch or Parking
- Dirt Pile, Rock (DP) (R)
- Pool, Spa (POOL) (P) (SPA) (S)
- Trees, Brush, or Vegetation over ½ contour interval in height
- Vineyard Row
- Cattle Guard
- Overhead Sign - Single Post
- Overhead Sign - Two Post
- Trail
- Dirt Road (DIRT)

## SYMBOLS
### ENLARGED FOR CLARITY

- Left Turn Lane Arrow
- HOV Lane (High Occupancy Vehicle)
- Drop Inlet, Round Drop Inlet
- Manhole
- Fire Hydrant
- Valve Cover, Stand Pipe, Well, Utility Box, Railroad Crossing Standard (VC SP WELL UB RS)
- Utility Pole, Pole and Wires, Pole with Wires and Anchor
- Transmission Tower
- Electrolier, Electrolier on Pole
- Traffic Signal, Railroad Signal (TS RS)
- Call Box
- Signs - Single Post, Two Posts
- Single Tree, Palm (P)
- Marsh or Swamp
- Crash Cushion (CC)
- Tank (TANK) (T)

## TOPOGRAPHY

- Index Contour (180)
- Intermediate Contours
- Index Contour (Scale 1"=50') (170)
- GNV Contour (Ground Not Visible)
- Depression Contour
- GNV Depresion Contour
- Spot Elevation (at decimal point) (657.2)

## RAILROAD

- Scale 1"=100'
- Scale 1"=50', 1"=20'

## CONTROL POINTS

- Horizontal and Vertial Control Point
- Horizontal Control Point
- Vertial Control Point

## BOUNDARY LINE

- State
- County
- City
- Forest
- Subdivision, Section, Grant
- Rancho

## WATER WAYS

- Rivers, Streams and Creeks - small (One Line)
- Rivers, Streams and Creeks - large (Two Lines) (which defines the water edge)
- Ocean -(Graduated Line Weights) (Land / Ocean)
- Water Edge, Lake, Pond, Swamp

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

Jeffry C. Kepley
REGISTERED CIVIL ENGINEER

May 1, 2006
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**SYMBOLS (SHEET 2 OF 2)**

NO SCALE

**A10D**

12-15-05

2006 STANDARD PLAN A10D

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

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May 1, 2006
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No. C46402
Exp. 3-31-07
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STATE OF CALIFORNIA



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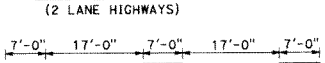
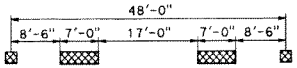
## CENTERLINES
(2 LANE HIGHWAYS)

DETAIL 1

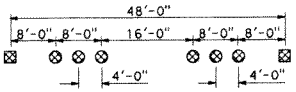



DETAIL 2

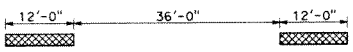



~~DETAIL 3~~ Detail 3 deleted

DETAIL 4

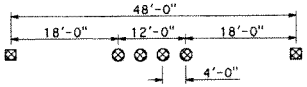



DETAIL 5



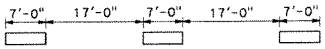

DETAIL 6


DETAIL 7

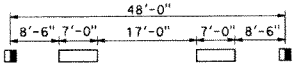



## LANELINES
(MULTILANE HIGHWAYS)

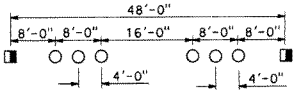
DETAIL 8



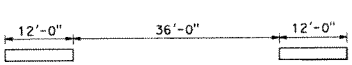

DETAIL 9




DETAIL 10

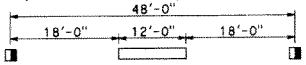



DETAIL 11

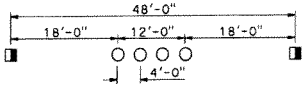



## LANELINES (CONT)
(MULTILANE HIGHWAYS)

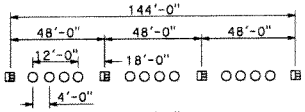
DETAIL 12



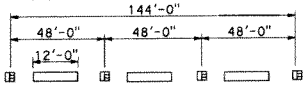

DETAIL 13




DETAIL 14

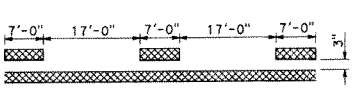



DETAIL 14A




## NO PASSING ZONES-ONE DIRECTION

DETAIL 15

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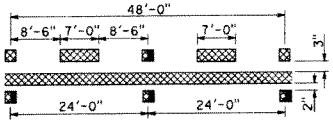
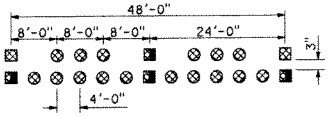
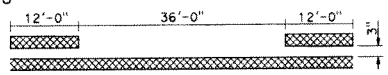


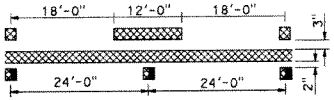

DETAIL 17



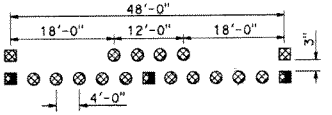

DETAIL 18




DETAIL 19

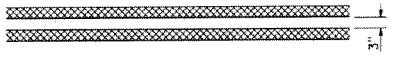



DETAIL 20

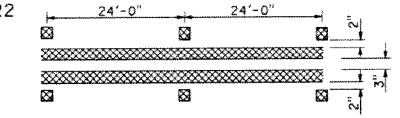



## NO PASSING ZONES-TWO DIRECTION

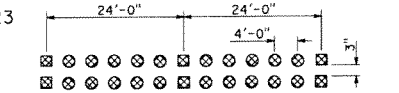
DETAIL 21




DETAIL 22




DETAIL 23




## LEGEND

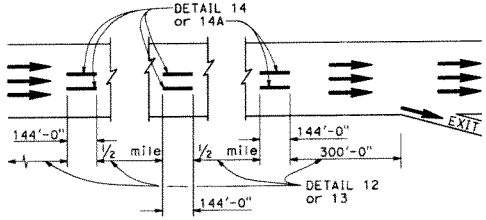
MARKERS

- TYPE A White Non-reflective
- TYPE AY Yellow Non-reflective
- TYPE C Red-clear Retroreflective
- TYPE D Two-way Yellow Retroreflective
- TYPE G One-way Clear Retroreflective
- TYPE H One-way Yellow Retroreflective

LINES

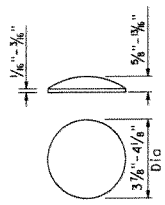
- 4" White
- 4" Yellow
- Direction of Travel

## TYPICAL LANE LINE DELINEATION IN ADVANCE OF EXIT RAMP

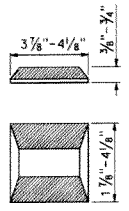



**NOTE:**
Detail 14 is to be used in combination with Detail 13. Detail 14A is to be used in combination with Detail 12.

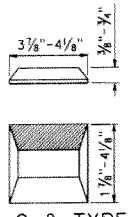
## MARKER DETAILS




TYPE A & TYPE AY




TYPE C & TYPE D




TYPE G & TYPE H

Retroreflective Face

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

# PAVEMENT MARKERS AND TRAFFIC LINES TYPICAL DETAILS

NO SCALE

**A20A**

**2006 STANDARD PLAN A20A**

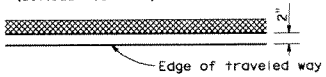


10-3-05

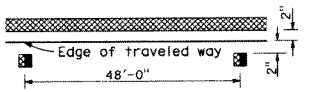
## LEFT EDGELINES

(DIVIDED HIGHWAYS)

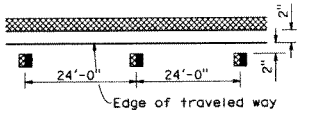
DETAIL 24



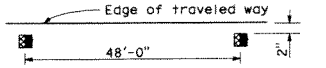

DETAIL 25



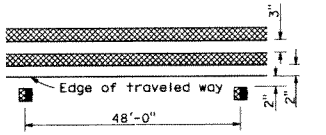

DETAIL 25A




DETAIL 26



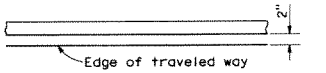

DETAIL 27




## RIGHT EDGELINES

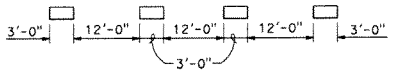
~~DETAIL 27A~~ Detail 27A deleted

DETAIL 27B



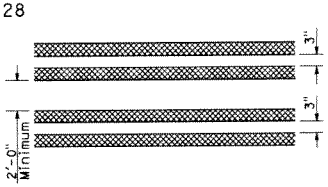

## RIGHT EDGELINE EXTENSION THROUGH INTERSECTIONS

DETAIL 27C

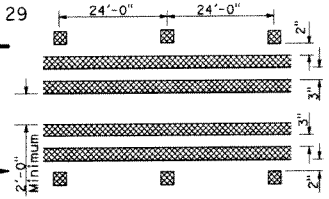



## MEDIAN ISLANDS

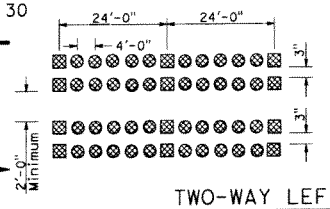
DETAIL 28




DETAIL 29

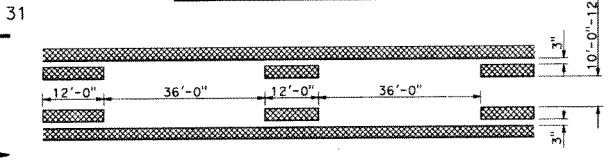



DETAIL 30

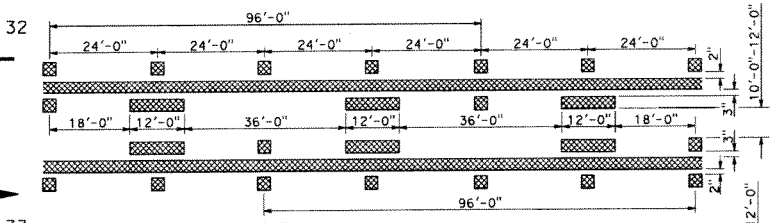



## TWO-WAY LEFT TURN LANES

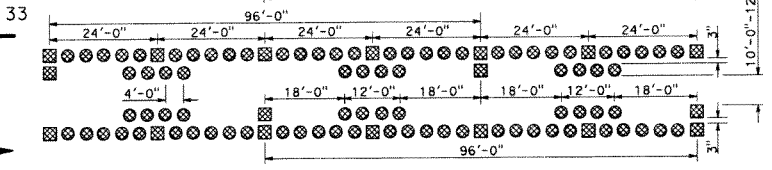
DETAIL 31




DETAIL 32




DETAIL 33




## LEGEND

MARKERS

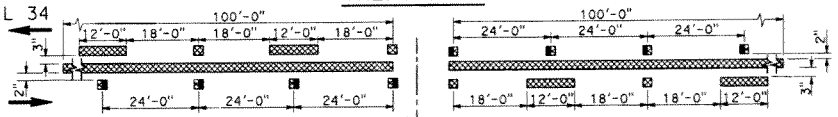
- TYPE AY Yellow Non-reflective
- TYPE D Two-way Yellow Retroreflective
- TYPE H One-way Yellow Retroreflective

LINES

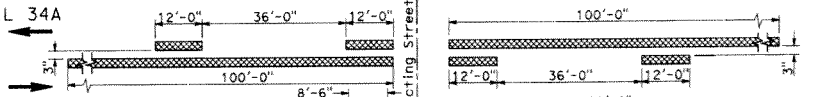
- 4" White
- 4" Yellow
- Direction of Travel

## INTERSECTION TREATMENTS

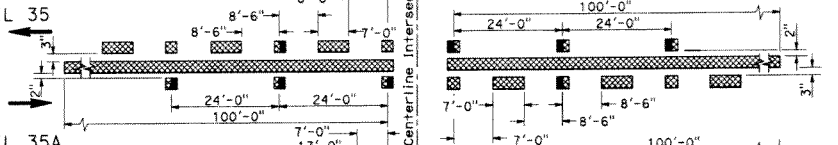
DETAIL 34



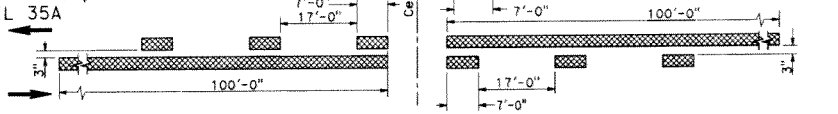

DETAIL 34A




DETAIL 35

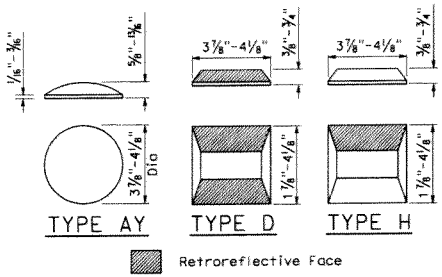



DETAIL 35A




Centerline Intersecting Street

## MARKER DETAILS




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

Donald E. Howe
REGISTERED CIVIL ENGINEER

May 1, 2006
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
Donald E. Howe
No. C46402
Exp. 3-31-07
CIVIL
STATE OF CALIFORNIA

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STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

# PAVEMENT MARKERS AND TRAFFIC LINES TYPICAL DETAILS

NO SCALE

A20B

2006 STANDARD PLAN A20B

3-8-06

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

REGISTERED CIVIL ENGINEER

May 1, 2006
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
Dallas Forester
No. C37765
Exp. 12-31-06
CIVIL
STATE OF CALIFORNIA

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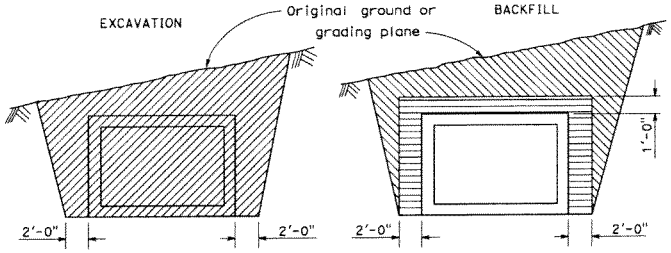
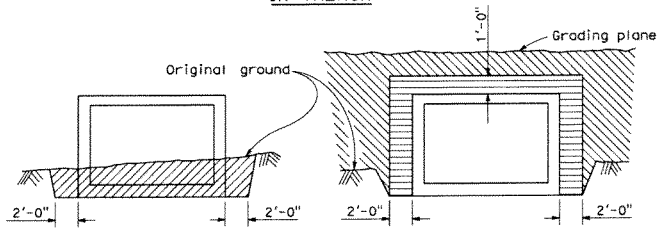
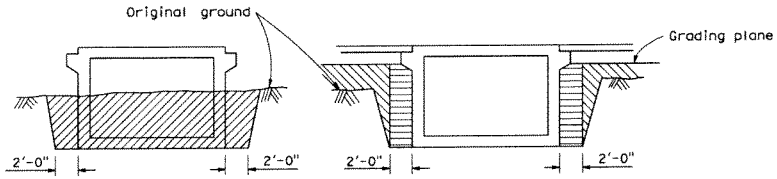


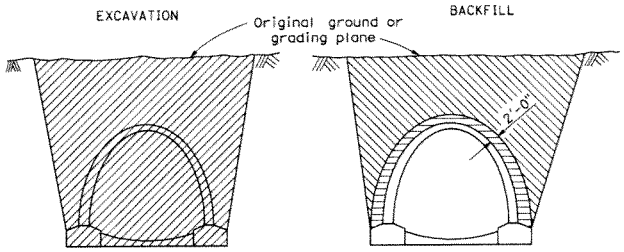

IN TRENCH



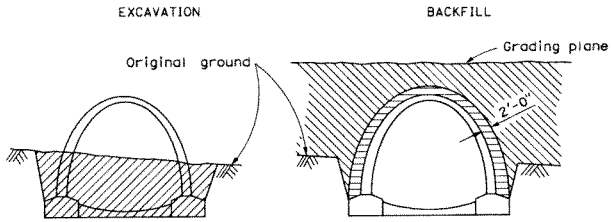

IN EMBANKMENT




EXPOSED TOP
REINFORCED CONCRETE BOX CULVERT




IN TRENCH




IN EMBANKMENT
REINFORCED CONCRETE ARCH CULVERT

NOTES:

1. Slope or shore excavation sides as necessary.
2. Dimensions shown are minimum.

LEGEND

- Structure Excavation (Culvert)
- Structure Backfill (Culvert) 95% relative compaction
- Roadway Embankment
- Original Ground

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

# EXCAVATION AND BACKFILL CAST-IN-PLACE REINFORCED CONCRETE BOX AND ARCH CULVERTS

NO SCALE

A62E

8-8-05

2006 STANDARD PLAN A62E

## DESIGN NOTES:

Specifications:

AASHTO LRFD Bridge Design Specifications, 4th Edition with California Amendments.

Earth load:

Earth pressures for two conditions:
140 pcf Vert, 42 pcf Horiz
140 pcf Vert, 140 pcf Horiz

Unit stresses:

f'c = 5.0 ksi
fy = 65.0 ksi for weld wire fabric
n = 7

Shear:

Based on

$V_c = \{2.14\sqrt{f'_c}+4600\,\frac{A_s}{bd_e}\,\frac{Vud_e}{Mu}\}\,b.d_e \le 4.0\sqrt{f'_c}\,b.d_e$ (Pounds)

$V_c$ shall not be less than $3.00\sqrt{f'_c}\,b.d_e$ for frame members and $2.5\sqrt{f'_c}\,b.d_e$ for simply supported members.

Exclusion:

Axial loading on the members has not been considered.

## GENERAL NOTES:

Designation:

Standard single or multiple precast box culverts are shown on the plans as span times height with maximum cover over roof thus: 8' x 5' RCB with 10'-0" or double 10' x 5' RCB with 20'-0", followed by alternatives.

Alternatives:

Single cell:

Standard dimensions of AASHTO Material Specification 'M259' or 'M273'.

Multiple cell:

Constructed by placing single cells adjacent to each other. Inlet and outlet ends of culvert will be rounded unless square ends are designated. Parapet will be shown unless designated in plans. Such designation may be different for inlet and outlet ends.

Limitations:

Where the overfill is less than 12", Precast RCB culverts are not to be used. Precast RCB culverts are not to be used in siphon or pressurized installations unless appropriate "watertight" jointing is provided.

Special reinforcement coverage:

Precast RCB culvert standard plans are not to be used in a corrosive environment or where there is a severe abrasive flow condition or freeze-thaw locations.

Special design:

Required for culvert with different conditions, loads or design bearing pressures greater than those given on these plans. Required for culverts where end details need higher skew angles, higher parapets or barrier sections.

## CONSTRUCTION NOTES:

Cutoff walls:

4'-0" Cutoff walls are to be provided at inlet and/or outlet unless channel is lined and unless otherwise shown. These walls are to be extended if scour conditions warrant. See Standard Plans D84, D85 and D86A.

Wingwalls:

Wingwalls shall be cast-in-place and shall conform to standard plan details for box culvert wingwalls. See Standard Plans D84, D85 and D86A.

Earthwork:

See Standard Plan A62G.

Construction loads:

Strutting may be required near temporary ends. For construction loads on culverts, See Standard Plan D88.

| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|---|---|---|---|---|---|
| | | | | | |

REGISTERED CIVIL ENGINEER

May 20, 2011
PLANS APPROVAL DATE

Dallas Forester
C37765
12-31-12
CIVIL
STATE OF CALIFORNIA

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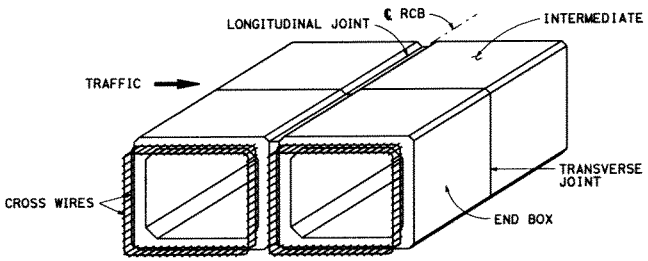
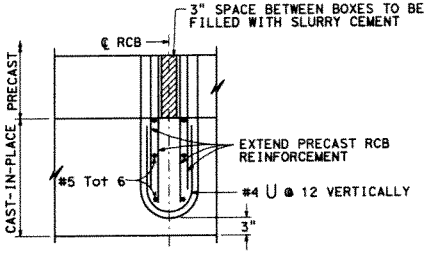



PRECAST RCB TERMINOLOGY

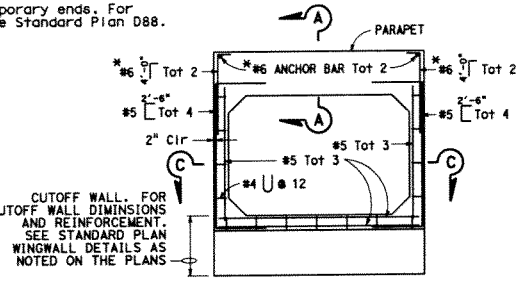
NOTE: Inner and outer reinforcement to be exposed as required to tie to cast-in-place construction. A minimum of two cross wires shall be exposed on all sides.




PARTIAL PLAN INTERIOR WALL MULTICELL CULVERT

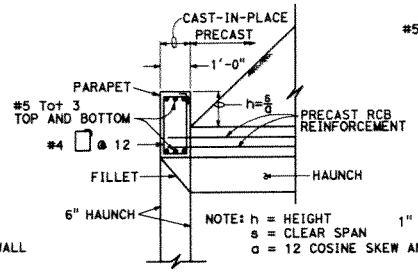
| PARAPET "P" BARS | | | |
|---|---|---|---|
| SKEW ANGLE / SPAN | 0°TO15° | 16°TO 30° | 31°TO 45° |
| 4'-0" | #5 | #5 | #5 |
| 5'-0" | #5 | #5 | #6 |
| 6'-0" | #6 | #6 | #6 |
| 7'-0" | #7 | #7 | #7 |
| 8'-0" | #7 | #7 | #8 |
| 10'-0" | #8 | #8 | #9 |
| 12'-0" | #9 | #9 | #10 |

BARRIER PARAPET REINFORCEMENT

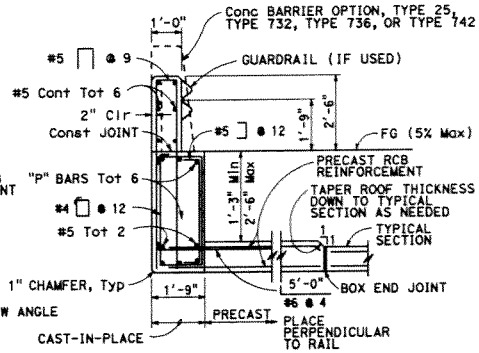



CAST-IN-PLACE END ELEVATION

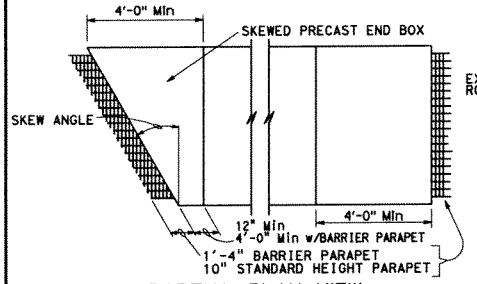
* Reinforcing required for barrier parapet application only.




SECTION A-A
(Standard Height Parapet)

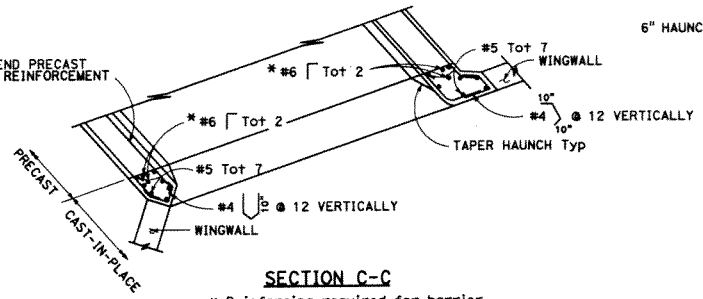



SECTION A-A
(Barrier Parapet)




PARTIAL PLAN VIEW

For illustrative purposes only.
For correct skew direction see plans.




SECTION C-C

* Reinforcing required for barrier parapet application only.

TYPICAL CULVERT END DETAILS

For wall and invert reinforcement not shown, See "End Elevation" detail.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

# PRECAST REINFORCED CONCRETE BOX CULVERT MISCELLANEOUS DETAILS

NO SCALE

D83B

10-4-10

| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|---|---|---|---|---|---|
| | | | | | |

REGISTERED CIVIL ENGINEER

May 20, 2011
PLANS APPROVAL DATE

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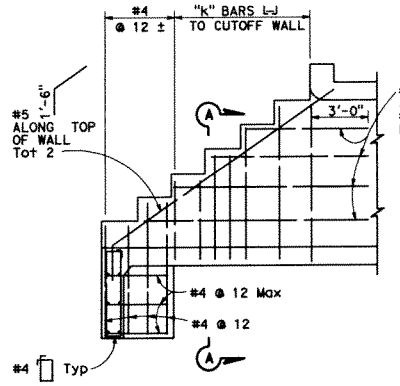
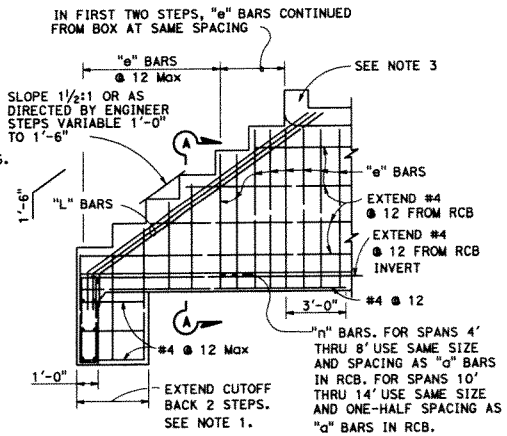
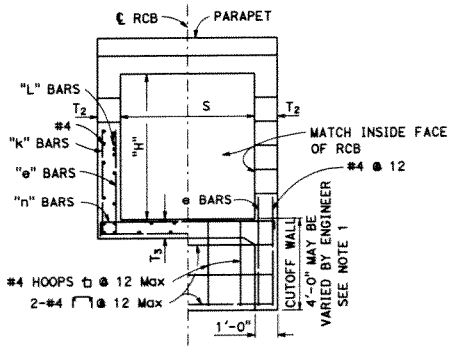
REGISTERED PROFESSIONAL ENGINEER
Dallas Forester
No. C37765
12-31-12
CIVIL
STATE OF CALIFORNIA




LONGITUDINAL SECTION
Showing reinforcement in outside face

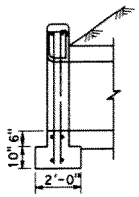



LONGITUDINAL SECTION
Showing reinforcement in inside face

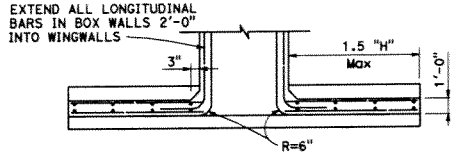



HALF SECTION A-A END ELEVATION

Dimensions S and $T_3$ to be same as adjacent RCB.
$T_2$ = Same as adjacent RCB (8" Min).

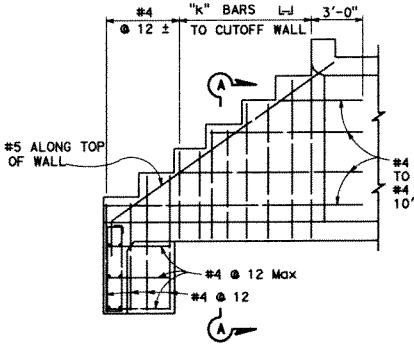



SECTION B-B

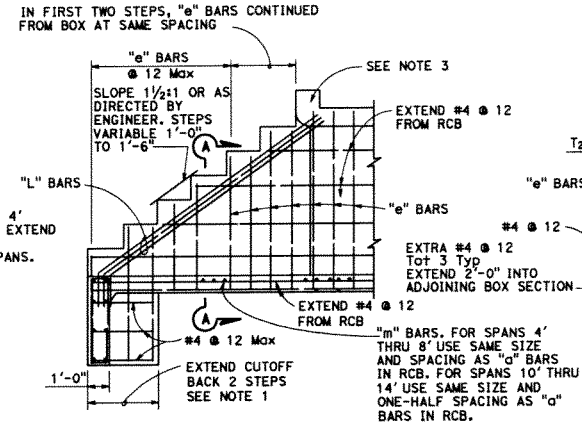



SECTION C-C

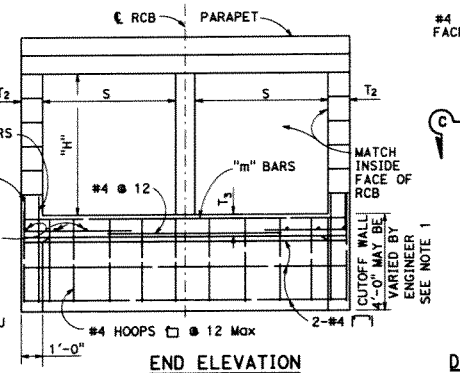
# TYPE "E" STEPPED WINGWALL (SINGLE BOX CULVERT)




LONGITUDINAL SECTION
Showing reinforcement in outside face

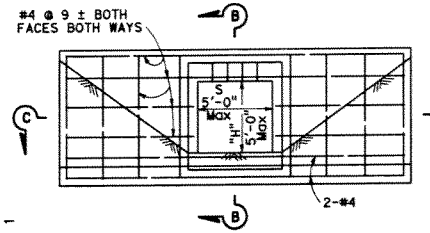



LONGITUDINAL SECTION
Showing reinforcement in inside face




END ELEVATION

Dimensions S and $T_3$ to be same as adjacent RCB.
$T_2$ = Same as adjacent RCB (8" Min).




ELEVATION

## TYPE "D" STRAIGHT WINGWALL

Details similar for multiple span boxes.
See Note 3.

DETAIL OF DESIGN LOADING CASES - TYPE "D" STRAIGHT WINGWALL

Case I Level + 240 psf surcharge
Case II 2:1 sloping ground with no surcharge
Case III 1½:1 limited slope (5'-0" Max height) + 240 psf surcharge

# TYPE "E" STEPPED WINGWALL (MULTIPLE BOX CULVERT)

| TABLE OF REINFORCEMENT FOR TYPE "E" WINGWALLS | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| "H" (SEE NOTE 2) | | 3' | 4' | 5' | 6' | 7' | 8' | 10' | 12' | 14' |
| "k" BARS | BAR No. | #4 | #4 | #5 | #5 | #5 | #5 | #5 | #5 | #5 |
| | SPACING | @ 12 | @ 12 | @ 12 | @ 10 | @ 9 | @ 8 | @ 7 | @ 5 | @ 4 |
| "L" BARS | BAR No. | #5 | #5 | #6 | #6 | #7 | #7 | #7 | #7 | #7 |
| | NUMBER EACH WALL | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |

NOTES:

1. Eliminate cutoff walls if adjacent channel is paved.
2. For "H" not shown use reinforcement for next greater height.
3. For parapet details not shown see Standard Plan D82.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

# BOX CULVERT WINGWALLS TYPES D AND E

NO SCALE

D85

8-21-10

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

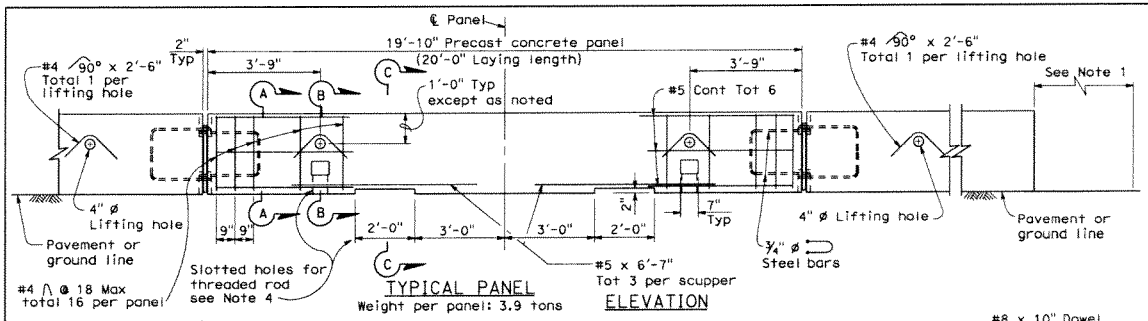
Randall D. Hiatt
REGISTERED CIVIL ENGINEER

May 1, 2006
PLANS APPROVAL DATE

Registered Professional Engineer — Randall D. Hiatt — No. C50200 — Exp. 6-30-07 — CIVIL — State of California

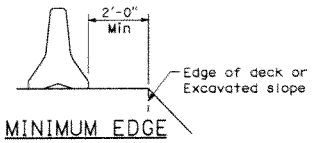


To get to the Caltrans web site, go to: http://www.dot.ca.gov




TYPICAL PANEL ELEVATION

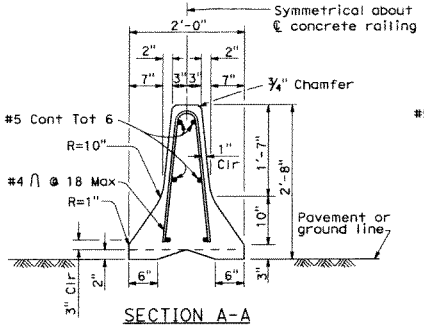
Weight per panel: 3.9 tons



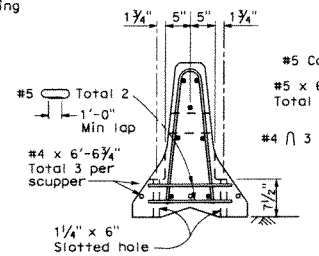

MINIMUM EDGE DISTANCE
See Note 4

NOTES:

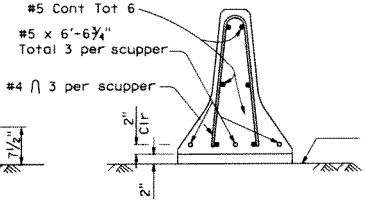
1. For end treatment, layout and crash cushions, where needed, see Project Plans or Special Provisions.
2. All 3½" gaps at removable panels are to be backed at the base with #8 x 10" dowel or 1" ø pin each side of joint. See Section G-G.
3. Where Temporary Railing (Type K) is placed on curves and radii that are too severe to connect panels with bolted joints, the railing is to be backed continuously with earth fill. See Section F-F.
4. Where the offset distance from the exposed edge of deck to the closest edge of the temporary railing is less than 2'-0", attach each panel to deck slab with 1" diameter threaded rods (total four per panel) inserted through the slotted holes of the panel and bond in drilled holes 6" deep in the deck slabs. See "Bridge Memo to Designers" Manual.



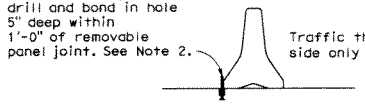

SECTION A-A




SECTION B-B

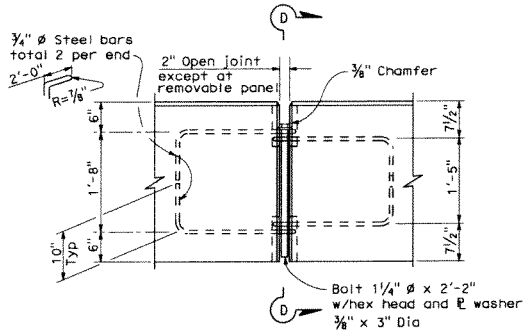



SECTION C-C

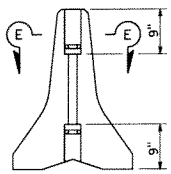



SECTION G-G *

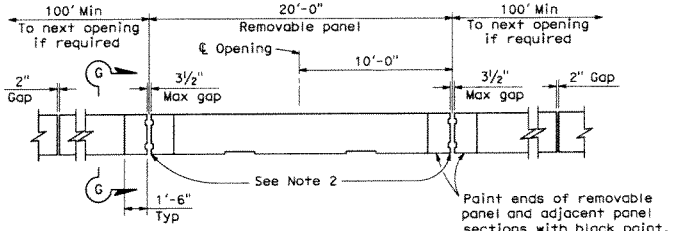
* Section G-G is for concrete pavement. Alternative detail, 1" ø pins 2'-0" long driven in AC or firm soil permitted, minimum 1'-6" deep.




ELEVATION

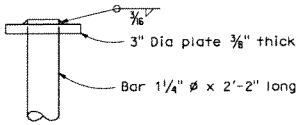



VIEW D-D

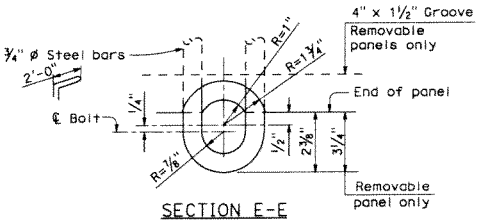



ELEVATION

TYPICAL OPENING DETAIL

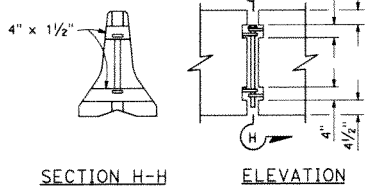



ALTERNATIVE HEAD DETAIL



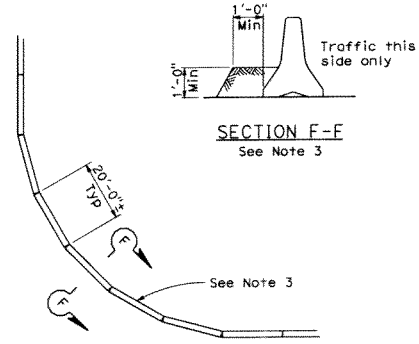

SECTION E-E

BOLT CONNECTION DETAIL




SECTION H-H ELEVATION

REMOVABLE PANEL GROOVE DETAILS




SECTION F-F
See Note 3

CURVED LAYOUT

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

# TEMPORARY RAILING (TYPE K)

NO SCALE

T3

11-8-05

| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|---|---|---|---|---|---|
| | | | | | |

Randall D. Hiatt
REGISTERED CIVIL ENGINEER

May 20, 2011
PLANS APPROVAL DATE

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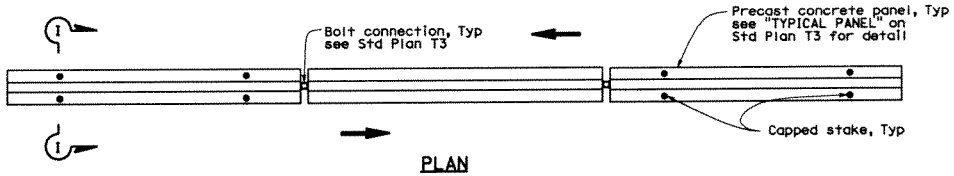
REGISTERED PROFESSIONAL ENGINEER — Randall D. Hiatt — No. C50200 — Exp. 6-30-11 — CIVIL — STATE OF CALIFORNIA

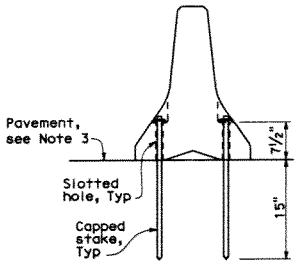
*To accompany plans dated* _____




PLAN

## RAILING STAKING CONFIGURATION FOR TWO-WAY TRAFFIC

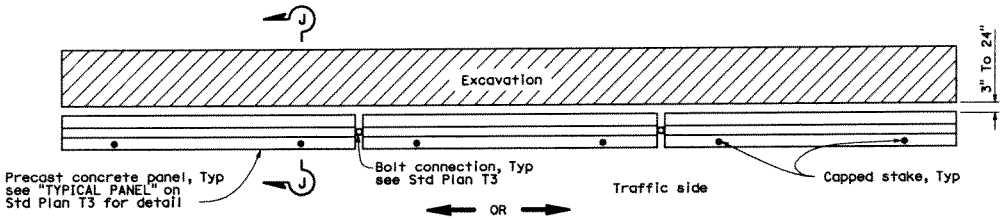
See Note 1




SECTION I-I

**NOTES:**

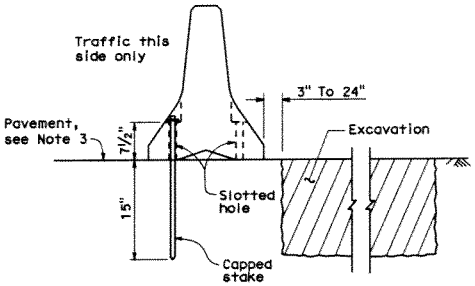
1. Where Type K Temporary Railing is placed as a temporary or long term barrier in two-way traffic on highways with less than 24" from the edge of traveled way, use four capped stakes per every other panel with end panels staked.
2. Where Type K Temporary Railing is placed 3" to 24" from the edge of an excavation on highways, use two capped stakes per panel along the traffic side.
3. Staked Type K Temporary Railing must be supported by at least 4" thick concrete, hot mix asphalt or existing asphalt concrete pavement.
4. The minimum yield strength for the washer must be 60,000 psi.
5. Direction of adjacent traffic indicated by ⟶.



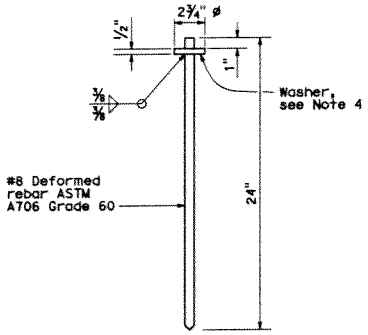

PLAN

## RAILING STAKING CONFIGURATION ADJACENT TO AN EXCAVATION

See Note 2




SECTION J-J




CAPPED STAKE DETAIL

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

# TEMPORARY RAILING (TYPE K)

NO SCALE

NSP T3A DATED MAY 20, 2011 SUPPLEMENTS
THE STANDARD PLANS BOOK DATED MAY 2006.

**NEW STANDARD PLAN NSP T3A**

8-31-10

2006 NEW STANDARD PLAN NSP T3A

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

REGISTERED CIVIL ENGINEER

May 1, 2006
PLANS APPROVAL DATE

Greg W. Edwards
No. C36386
Exp. 6-30-06
CIVIL
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

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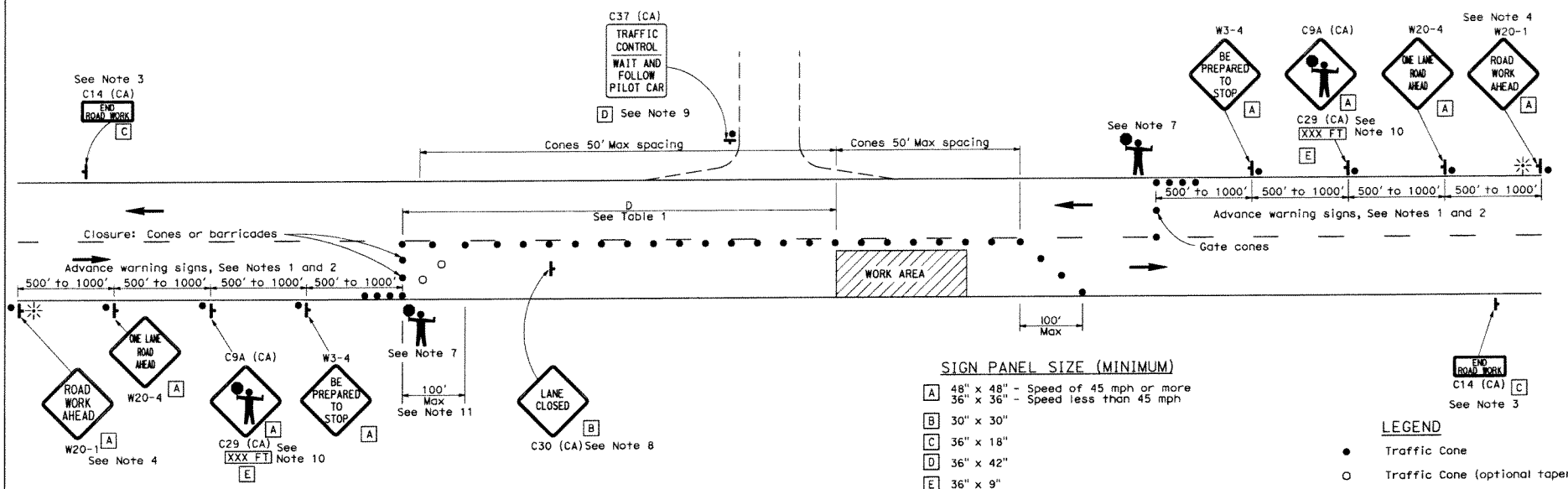
NOTES:

Unless otherwise specified in the special provisions, all temporary warning signs shall have black legend on orange background.

California code are designated by (CA). Otherwise, Federal (MUTCD) codes are shown.

## TYPICAL LANE CLOSURE WITH REVERSIBLE CONTROL




### SIGN PANEL SIZE (MINIMUM)

- A 48" x 48" - Speed of 45 mph or more
  36" x 36" - Speed less than 45 mph
- B 30" x 30"
- C 36" x 18"
- D 36" x 42"
- E 36" x 9"

### LEGEND

- Traffic Cone
- Traffic Cone (optional taper)
- Temporary Sign
- Direction of Travel
- Portable Flashing Beacon
- Flagger

NOTES:

1. Where approach speeds are low, advance warning signs may be placed at 300' spacing, and closer in urban areas.
2. Each advance warning sign in each direction of travel shall be equipped with at least two flags for daytime closure. Each flag shall be at least 16" x 16" in size and shall be orange or fluorescent red-orange in color. Flashing beacons shall be placed at the locations indicated for lane closure during hours of darkness.
3. A C14 (CA) "END ROAD WORK" sign, as appropriate, shall be placed at the end of the lane control unless the end of work area is obvious, or ends within a larger project's limits.
4. If the W20-1 sign would follow within 2000' of a stationary W20-1 or C11 (CA) "ROAD WORK NEXT _____MILES", use a W20-4 sign for the first advance warning sign.
5. All cones used for lane closures during the hours of darkness shall be fitted with retroreflective bands (or sleeves) as specified in the specifications.
6. Portable delineators, placed at one-half the spacing indicated for traffic cones, may be used instead of cones for daytime closures only.
7. Additional advance flaggers may be required. Flagger should stand in a conspicuous place, be visible to approaching traffic as well as approaching vehicles after the first vehicle has stopped. During the hours of darkness, the flagging-station and flagger shall be illuminated and clearly visible to approaching traffic. The illumination footprint of the lighting on the ground shall be at least 20' in diameter. Place a minimum of four cones at 50' intervals in advance of flagger station as shown.
8. Place C30 (CA) "LANE CLOSED" sign at 500' to 1000' intervals throughout extended work areas. They are optional if the work area is visible from the flagger station.
9. When a pilot car is used, place a C37 (CA) "TRAFFIC CONTROL-WAIT AND FOLLOW PILOT CAR" sign at all intersections within traffic control area. Signs shall be clean and visible at all times.
10. An optional C29 (CA) sign may be placed below the C9A (CA) sign.
11. Traffic cones or barricades may be placed on the optional taper as shown, barricades shall be Type I, II, or III.

TABLE 1

| Approach Speed | Minimum D | Downgrade Minimum D * | | |
|---|---|---|---|---|
| | | -3% | -6% | -9% |
| mph | ft | ft | ft | ft |
| 25 and below | 155 | 158 | 165 | 173 |
| 30 | 200 | 205 | 215 | 227 |
| 35 | 250 | 257 | 271 | 287 |
| 40 | 305 | 315 | 333 | 354 |
| 45 | 360 | 378 | 400 | 427 |
| 50 | 425 | 446 | 474 | 507 |
| 55 | 495 | 520 | 553 | 593 |
| 60 | 570 | 598 | 638 | 686 |
| 65 | 645 | 682 | 728 | 785 |

* Use on sustained downgrade steeper than -3 percent and longer than 1 mile.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

# TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE ON TWO LANE CONVENTIONAL HIGHWAYS

NO SCALE

T13

9-28-05