CONTRA COSTA COUNTY PUBLIC WORKS DEPARTMENT

STANDARD PLANS

March 2014

Plan updates are available on our website at:
www.cccounty.us/standardplans
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<td>Sanitary Sewer Manhole (SSM)</td>
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<td>Storm Drain Manhole (SDM)</td>
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<td>Utility Pole</td>
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### Abbreviations and Symbols

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<td>Detectable Warning Surface</td>
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<tr>
<td>EP</td>
<td>Edge of Pavement</td>
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<td>Portable Changeable Message Sign</td>
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<td>Top Face of Curb</td>
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<td>TL</td>
<td>Taper Length</td>
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<td>TOB</td>
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</tr>
<tr>
<td>TW</td>
<td>Top of Wall</td>
</tr>
<tr>
<td>w/</td>
<td>Wing</td>
</tr>
<tr>
<td>◄</td>
<td>Angle Point</td>
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<tr>
<td>◄</td>
<td>Remove Tree (including Stump)</td>
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### Miscellaneous Lines

- Sewout Line
- Culvert
- Ditch Flowline
- Fence w/gate
- ESA Fence
- ESA/Silt Fence
- Cut (Top of Slope)
- Fill (Toe of Slope)
- Joint Utility Trench

### Miscellaneous Symbols

- Underground Service (Call before you dig)

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**COUNTY OF CONTRA COSTA**
**PUBLIC WORKS DEPARTMENT**
**MCINNIS, CALIFORNIA**
**STANDARD PLAN**

**STANDARD DRAFTING SYMBOLS / ABBREV.**
Supplement to State Std Plans ATG, B, C & D

**SCALE** HO SCALE
**DATE** 3/14
**DRAWN BY** M. MOSSY/ L. COSTA
**PLAN NO.** CA01

---

**NOTE**

- 0.15" Max Keycut
- 0.00 Cut "Daylight"
REQUIRED CLEARANCE AT LOW VOLUME
SUBDIVISION STREET INTERSECTIONS

NOTES:
1. This plan is intended for use on low volume subdivision streets. For commercial or high volume streets refer to the California Department of Transportation Highway Design Manual, Chapter 400, Section 405 - "Intersection Design Standards, Sight Distance".
2. For utility clearances, see Standard Plan CJ60.
3. For mailbox locations, see Standard Plan C490.
4. For sign locations, see Standard Plan CRS1.
5. For driveway setbacks, see Standard Plan CA70.

COUNTY OF CONTRA COSTA
PUBLIC WORKS DEPARTMENT
PACIFIC GROVE, CALIFORNIA
STANDARD PLAN
REQUIRED CLEARANCE AT INTERSECTIONS

SCALE NO. SCALE DATE: 3/14
DRAWN BY: M. HARVEY PLAN NO. CA10
CHECKED BY: M. HOLLINGSWORTH

R/W lines are typically 10' from existing FC or EP. Verify R/W location with Contra Costa County Public Works Records Section, if needed.
NOTES:

1. Car dimensions were obtained from the 1991 edition of "Parking Dimensions," Motor Vehicle Manufacturers Association. This design and construction aid is based on the most unfavorable dimensions of cars listed. For unique or oversized cars, a special design is required.

2. For maximum grade breaks at numbered points, see chart on this plan. Wherever possible grades should be as flat as possible.

3. 20' minimum allowed if garage has sectional door(s). Otherwise, 24' minimum to garage.


5. If pavement cross slope exceeds 4%, a modified driveway profile shall be used with the grade of the driveway ramp reduced such that the difference in slope of the driveway ramp and the slope of a line between the gutter and a point on the roadway 5' from gutter line shall not exceed 1%. Reduce driveway ramp slope, not the gutter slope. Otherwise dimensions shall be modified as approved by the Public Works Department.

6. If the Public Works Department determines that no sidewalk will ever be constructed, this 4' segment of 2% may be deleted.

7. If no grade at point 6 is not a minimum of 0.5' above reference line, the grade at this point shall be a minimum of 0.5' above reference line. Exceptions to this requirement are subject to the approval of the Public Works Department.
**STREET BARRICADE**

- **W31 (CA) Sign, 30" x 30"**
  - with yellow retroreflective sheening and black letters.

- **SEE NOTE 2 & 3**

- **W-Beam End Section** (Flared) See Note 4

- **ROAD WIDTH (ft)**
  - **W (ft)**
  - **NO. POSTS**
  - 32 and 36
    - 25
    - 3
  - 40
    - 37.5
    - 4
  - 64
    - 50
    - 5

**NOTES:**

1. Sign, metal beam guardrail, and barricade wood posts shall conform to the current California Department of Transportation Standard Specifications and Standard Plans, except as shown on this plan.

2. All subdivision streets that are stubbed out for future use shall have a sign posted at the end of the dead-end street that reads "THIS STREET PLANNED TO BE EXTENDED." The sign shall be retroreflective with black 2" capital series "E" letters on a white background and measure 18" high by 36" wide.

3. All signs shall be installed as per Standard Plan CRS1.

4. End section shall be W-Beam rail end section, Trinity Highway Safety Products, Model 901C or equivalent.
MINIMUM TWO - LANE RURAL SHOULDER/LANE WIDTHS

<table>
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<th>&lt;400</th>
<th>&lt;1000</th>
<th>&lt;3000</th>
<th>&lt;6000</th>
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<tr>
<td></td>
<td>1'/11'/11'</td>
<td>2'/11'/11'</td>
<td>4'/12'/12'/4'</td>
<td>5'/12'/12'/5'</td>
<td>6'/12'/12'/6'</td>
<td>8'/12'/12'/8'</td>
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<tr>
<td>TOTAL PAVEMENT WIDTH</td>
<td>24'</td>
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<td>32'</td>
<td>34'</td>
<td>36'</td>
<td>40'</td>
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NOTES:
1. These guidelines do not override County Ordinance Code requirements for development projects. Based on various factors such as accident history, alignment and traffic speed, the County Traffic Engineer may require paved shoulders wider than these minimums in isolated locations or for long segments of roadway.
2. Guardrail may be required, depending on embankment height and steepness of slope. (See Chapter 7 of the California Department of Transportation's Traffic Manual).
3. Distance to cut slope from ETW shall be increased for sight distance in curves. (See Chapter 200 of the California Department of Transportation's Highway Design Manual).
4. Paved shoulders shall be 4', if shoulders are designated as bike lanes.
5. A wider swale and/or buffer between tee of slope and roadway should be considered where there is potential rock fall, the slope is highly erodable or there is significant longitudinal surface flow.
6. If cut slope is ≥ 20° vertically to bench or top of cut, buffer width shall be increased.
7. Design ADT shall be approved by the Public Works Department.
8. 5% cross slope for shoulders greater than 4' wide, typical.
9. Cut slopes steeper than 2 horizontal to vertical require geotechnical engineer's approval.
10. HMA dikes shall be Type E or F per 2018 Caltrans Standard Plans or as specified on the plans.

TYPICAL RURAL 2-LANE ROAD SECTIONS

TYPICAL RURAL 2-LANE ROAD

SUPERELEVATED SECTION

COUNTRY OF CONTRA COSTA
PUBLIC WORKS DEPARTMENT
MARTINEZ, CALIFORNIA
STANDARD PLAN

TWO LANE RURAL ROAD GUIDELINES

SCALE NO. SCALE DATE 3/14

DRAWN BY L. COSTA PLAN NO. CA53

NO DATE REVISION DESCRIPTION BY CHECKED BY W. HOLMSTRON
NOTES:

1. Minor concrete, not less than 50% by weight of the aggregate, 1" maximum aggregate shall be used for all construction detailed on this plan. Minor concrete shall comply with Section 90 of the California Department of Transportation Standard Specifications. New curbs and adjoining sidewalks shall be constructed monolithically.

2. Transverse scoremarks shall be placed at 10' intervals on the sidewalk and a longitudinal scoremark shall be placed along the centerline at any sidewalk which is 8' or more in width. Weakened plane joints shall be provided at 10' intervals (staggered with scoremarks) in curb and sidewalk. See Standard Plan CA72 for scoremark and weakened plane joint layout through driveways, and Standard Plan CA75 for scoremark, weakened plane and expansion joint locations for curb ramps.

3. Curb reference stakes shall not be offset more than 3' from the back of curb or more than 2' from the back of the sidewalk.

4. Where there is a planter strip between the sidewalk and the curb, the curb in a driveway depression shall be constructed monolithically with the driveway.

5. When the street slopes away from the curb, the gutter slope shall match the cross slope of the street.

6. Paving at the gutter lip shall conform to Detail A except when the street slopes away from the curb and at the bottom of curb ramps, the paving shall match the gutter lip.

7. Meter boxes, poles, and fire hydrants locations shall conform to locations shown on Standard Plan C902.

8. Minimum sidewalk widths, measured from face of curb, are 5'-0" for residential 6'-0" for multiple zones 10'-0" for retail business and commercial areas 8'-0" in retail and commercial areas where right of way is limited.

9. A 3" layer of Class 2 aggregate base shall be placed under all curb and sidewalk sections unless otherwise noted.

10. Expansion joint detail C shall be installed at or near BC and EC per Standard Plan CA75 and the back of sidewalk at driveways. Premixed joint filler material for expansion joints shall conform to Section S1-1.2C Premixed Expansion Fillers of the California Department of Transportation Standard Specifications.


12. 35 is the minimum offset on low volume, low speed residential streets. For higher volume, higher speed roads, the 35 dimension shall increase to comply with Topic 405 "Intersection Design Standards" Subsection 405.1 "Sight Distance" of the California Department of Transportation Highway Design Manual.

13. All sidewalk inside curb returns shall be 6" minimum thickness from BC to EC.

14. For curb ramp details, see appropriate Caltrans standard plans as specified on the project plans.
NOTES:

1. Minor Concrete in conformance with Section 90-2, "Minor Concrete" of the California Department of Transportation's Standard Specifications. All concrete construction details are shown on this sheet.

2. As new curb width is to be provided at 10' intervals on all curbs. See Standard Plan CA70, "Detail B".

3. Where new curb width conforms to existing facilities, a transition slope will be provided as per Standard Plan CA47.

4. When the street slopes away from the curb, the gutter slope shall be the same as the slope of the street. Paving at the gutter lip shall conform to Standard Plan CA70, "Detail A", except where the street slopes away from the curb, the paving shall match the gutter lip.

5. Curb may be constructed monolithically with the median paving, in which case a weakened plane joint conforming to Standard Plan CA70, "Detail B", shall be provided at the back of the curb.

6. Type M3 curb shall be used only when placed on existing or overlaid pavement.

7. A 3" minimum compacted layer of Class 2 aggregate base or subbase shall be placed under Type M1 curbs, unless noted otherwise on the plans.

8. Place dowels in 1" diameter drilled holes filled with 51 sand grout. Omit dowels when curb is extruded.

9. Reinforcement shall be: 4 bars @ 18" OC each way or 6" x 6", 8" x 8", or 10 gauge welded wire fabric.

10. Median paving may be "textured" as approved by the Public Works Department.

11. Width of HMA path shall be a minimum of 4'-6" measured from top face of curb or dike.
NOTES:
1. New depressed curb and driveway ramps shall be constructed monolithically. Minor concrete, not less than 505 f cementitious material per cubic yard, 1" maximum aggregate shall be used for all construction detailed on this plan. Minor concrete shall comply with Section 90 of the California Department of Transportation Standard Specifications.
2. When existing road right of way restricts use of standard driveway ramp, the modified driveway may be used when approved by the Public Works Department. "X" shall be as large as possible, as specified on the plans.
3. Retaining curbs and driveway conform as required by the Public Works Department. See Standard Plan CA43 for retaining curb details.
4. For depressed driveways (Section B-B) the sidewalk shall be a minimum of 3¾" (1"-2") above the gutter flow line grade. Depth of gutter flows shall be calculated and compared to proposed depressed sidewalk elevations during design to make sure gutter flows are contained.
5. See Standard Plan CA70 for weakened plane joint, expansion joint, and scoremark details. See Standard Plan CA46 for dowelling details when conforming to existing curb and sidewalk.
6. If pavement cross slope exceeds 4%, the modified driveway shall be used with the slope of the driveway ramp reduced such that the difference in slope of the driveway ramp and the slope of a line between the gutter and a point on the roadway 5' from gutter flow line shall not exceed 1%. Reduce driveway ramp slope, not the gutter slope. Other dimensions shall be modified as approved by the Public Works Department.
7. Minimum width of clear passage shall be 4' with a 2½ cross slope. Where right of way restrictions, natural barriers or other restrictions create an unacceptable hardship, the clear width may be reduced to 3' with a 2½ cross slope, with approval of the Public Works Department.
8. Acquisition of construction easement may be necessary where right of way is limited to construct driveway conform.
9. Driveway width, W, as specified on the plans, and in compliance with the following:
   Residential: 10' Min to 20' Max
   Commercial: 20' Min to 35' Max
10. Extend driveway conform beyond curb transition to conform to sidewalk to maintain 8.33% maximum ramp slope.
11. # reinforcing steel bars at 18" c-c bothways, for commercial driveways.

COUNTY OF CONTRA COSTA
PUBLIC WORKS DEPARTMENT
MARTINEZ CALIFORNIA
STANDARD PLAN

DRIVEWAY RAMP DETAILS

SCALE NO. SCALE DATE 3/14
ORIGIN BY: M. HUSSEY PLAN NO. CA72

NO. DATE REVISION DESCRIPTION BY CHECKED BY: M. HOLMSWORTH
NOTES:
1. Valley gutters shall only be used on local roads or roads with a low volume of traffic as approved by the Public Works Department.
2. Concrete to be used for all construction shown on this plan and shall contain a minimum of 590 lbs per cubic yard of cementitious material. 1" maximum aggregate grading in conformance with Section 90, "Concrete" of the California Department of Transportation Standard Specifications.
3. If total pavement structural section thickness of side street exceeds 14", aggregate base thickness shall be increased to match total side street pavement structural section thickness.
4. For weakened plane joint and expansion joint details, see details on Standard Plan CA70.
SECTION A-A

DOWELING LOCATION FOR NEW CURB CONFORMING TO EXISTING CURB

NOTES:

1. All curb, gutter, and sidewalk shall conform to Standards Plans CA70 and CA71.

2. Concrete sidewalks removed for replacement construction shall be sawcut to a neat line at the nearest weakened plane joint, expansion joint or scoremark.

3. Dowels shall be placed in a 1/8" diameter drilled hole filled with 1:1 sand cement grout.

4. When replacing existing curb on existing alignment and grade, sawcut existing pavement 6" from gutter lip (or face of curb for Type 'B' curb replacement). Remove existing HMA and base to minimum 6" depth, compact subgrade and replace with full depth HMA. If placing new curb, sawcut pavement minimum of 12" inside existing edge of pavement. EP, unless otherwise directed on project plans. New pavement structural section shall be 0.5" HMA, 0.00" AB minimum unless otherwise specified on the plans or as required by the Public Works Department.

5. Paving at the gutter lip shall conform to Detail A of Standard Plan CA70. When the street slopes away from the curb, the paving shall match the gutter lip.

6. If W/D add additional sawcutting, 4' maximum spacing between dowels.
GENERAL NOTES:

1. This plan provides guidelines for placement of weakened plane and expansion joints in curb returns with curb ramps. See appropriate standard plans for curb ramp, sidewalk, and curb for other construction details.

2. While Type A ramps are shown on this plan, these guidelines in general should be applied when constructing County Standard "Retrofit Curb Ramp", Standard Plan CA54.

3. If A20', adjust weakened plane joints equally spaced between weakened plane joints ① and ② with 10' maximum spacing, typical.

4. Weakened plane joints and scoremarks @ 10' intervals per Standard Plan CA70, typical.

5. Retaining curbs to be constructed as needed per Standard Plan CA54.
GENERAL NOTES:

1. This plan provides guidelines for placement of weakened plane and expansion joints in curb returns with curb ramps only. See appropriate standard plans for curb ramp, sidewalk and curb for other construction details.

2. Add weakened plane joints equally spaced between weakened plane joints ① and ② with 10' maximum spacing, typical.

3. End weakened plane joint when transverse weakened plane joint is < 10 feet.

4. Weakened plane joints and scoremarks @ 10' intervals per Standard Plan CA70, typical.
MAILBOX LOCATION
Monolithic curb and sidewalk

Outline of extreme limits of mailbox installation, type and artistic treatment vary. Construction includes single and multiple box units with box opening facing street. Mailbox pedestal shall be limited to 4" x 4" wood posts along any road with posted speed limit > 25 mph.

MAILBOX LOCATION
Separated sidewalk with planting strip

Outline of extreme limits of mailbox installation, type and artistic treatment vary. Construction includes single and multiple box units with box opening facing street. Mailbox pedestal shall be limited to 4" x 4" wood posts along any road with posted speed limit > 25 mph.

RURAL MAILBOX DETAIL

4"x4" redwood post
(No. 2 Hemlock or pressure treated DF
Larger/stronger posts are not allowed.

NOTES:
1. Distances are established by Postal regulations and may vary depending on jurisdiction. Check with local Post Office for current regulations.
2. Encroachment permit is required if mailbox is to be installed in existing sidewalk, or if installation requires modification of dimensions shown on this plan.
4. Where AC pipe or curb is placed at edge of pavement, the minimum distance is measured from the face of curb or AC pipe.
5. Post depth shall be as required to adequately support mailbox to be installed. Minimum 2' depth with compacted soil backfill, no PCC backfill.

COUNTY OF CONTRA COSTA
PUBLIC WORKS DEPARTMENT
MANTES, CALIFORNIA

STANDARD PLAN CA90

MAILBOX DETAILS

SCALE: NO SCALE
DATE: 3/14
DRAWN BY: H. NEDDEY
CHECKED BY: H. HOLLINGSWORTH

NO. DATE REVISION DESCRIPTION BY.

CA90
**WALL HEIGHT** | **TIMBER POSTS** | **PIPE POSTS** | **PER DIMENSIONS** | **LAGGING**
---|---|---|---|---
| (ft) | POST SIZE (in) | POST GRADE | POST DIAMETER (in) | PCC PIPE DIAMETER IN GROUND (in) | DEPTH (ft) | LAGGING SIZE (in) | LAGGING GRADE |
| 1 | 2 x 4 | -2 | 1/2 | 8 | 1.5 | 2 x 12 | +2 |
| 2 | 4 x 4 | -2 | 1/2 | 10 | 3.0 | 2 x 12 | +2 |
| 3 | 4 x 6 | Structural | 2 1/2 | 12 | 4.5 | 2 x 12 | Structural |
| 4 | 6 x 6 | Structural | 3 | 14 | 6.0 | 2 x 12 | Structural |
| 5 | 6 x 6 | Structural | 4 | 18 | 6.5 | PCC | Structural |

X Note: Lumber grades are based on designations from the West Coast Lumber Inspection Bureau (WCLIB) and the Western Wood Products Association (WWPA) design values. Grades shown are minimums. See "Assumptions" for more details and requirements.

**DESIGN CRITERIA:**

The standard plan for "Timber Retaining Wall" is designed as a temporary structure, in place for 5 years or less, in areas which can sustain wall movements up to 1/2 inch. The following assumptions were made in the design. If these assumptions cannot be met for the installation site, then the wall should be designed for actual site conditions by a Registered Professional Engineer in consultation with a Geotechnical Engineer.

**ASSUMPTIONS:**

1. Soil Parameters used were for soils exhibiting an equivalent fluid pressure of 40 lb./ft² and a passive pressure of 300 lb./ft².
2. 1994 Uniform Building Code values for timber members:
   - Pressure Treated Douglas Fir SFI: Fb = 930 psi
   - Pressure Treated Douglas Fir Structural: Fb = 80 psi

3. Design includes 2' soil surcharge, drained conditions.

4. Pipe posts shall be standard weight, or higher, steel pipe conforming to ASTM designation A53, Grade B. (Steel pipe fence posts are not acceptable.)

5. Wood posts and logging shall be pressure treated Douglas Fir, rough.

**NOTES:**

1. All walls spaced at 4' on center, maximum.
2. All wood posts and logging shall be pressure treated Douglas Fir, rough.
3. All sizes and depths are minimum.
4. Do not drill holes in pipe posts. Connections to logging shall be made with steel post welded to post.
5. Permeable material shown shall be placed behind all walls, when wall height is greater than 1'. Permeable material shall be in conformance with the latest California Department of Transportation Standard Specifications. Class I permeable material wrapped in filter fabric may be used in place of Class 2 permeable material.
6. Concrete shall be Minor Concrete containing not less than 50 lbs. per cubic yard of cementitious material in conformance with Section 90 of California Department of Transportation Standard Specifications.
CONFORM NOTES:

The pavement conform shall be as follows:

STANDARD CONFORM:

Cut through the full depth of existing HMA to a neat straight line at least 1.0 foot beyond the trench line. Re-cut any pavement edges damaged during construction to neat lines prior to paving. Paint binder (tack coat) shall be applied to all vertical surfaces in accordance with the latest edition of Caltrans Standard Specifications.

ALTERNATE CONFORM:

Grind existing HMA to a minimum depth of 0.20 feet on a neat straight line at least 1.0 foot beyond the trench line. Any pavement edges, including ground edges, damaged during construction shall be re-cut or re-ground to neat lines prior to paving. Paint binder (tack coat) shall be applied to all vertical surfaces in accordance with the latest edition of Caltrans Standard Specifications.

NOTES:

1. Unsuitable native material shall be excavated below the limit of excavation and replaced with suitable backfill material when directed by the Public Works Department.

2. "X" shall be as a minimum, the dimensions shown below for the storm drain "T.D."

<table>
<thead>
<tr>
<th>L.D.</th>
<th>&quot;X&quot;</th>
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</thead>
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<tr>
<td>up to 12&quot;</td>
<td>0.5'</td>
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<tr>
<td>12&quot; to 54&quot;</td>
<td>1.0'</td>
</tr>
<tr>
<td>over 54&quot;</td>
<td>2.0'</td>
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</tbody>
</table>

3. If cover is less than 1/2" or the storm drain L.D. exceeds 54 inches in shallow installations, a special design is required with approval by the Public Works Department.

4. Where the trench parallels curb and the nearest trench line is less than 3 feet from the gutter lip, all existing HMA shall be replaced to the gutter lip. For gutter lip paving details see Detail A.

5. Hot mix asphalt shall be 1/4-inch Type A HMA in conformance with Section 39, "Hot Mix Asphalt," of the California Department of Transportation’s Standard Specifications, unless otherwise specified in the County contract, Encroachment permit or Special Road Encroachment Permit Conditions as or directed by the Public Works Department.

6. Concrete shall contain not less than 505 lbs of cementitious material per cubic yard in conformance with Section 90, "Concrete," of the California Department of Transportation’s Standard Specifications.

7. This standard plan shall govern over encroachment permit’s Special Road Encroachment Permit Conditions, and General Permit Conditions-Attachment 1, County Contract Special Provisions and Plans, or Encroachment permit’s Special Road Encroachment Permit Conditions as govern over this standard plan.

8. HMA thickness shall be existing HMA plus 0.1. If PCC backfill encroaches into this specified thickness, the HMA thickness may be reduced, except the minimum HMA thickness shall not be less than 0.20".
SILT FENCE DETAIL

See Note 1 for post requirements

2" x 2" 14 Ga wire fabric or equivalent

Bury bottom of FF and WM in trench

0'-0" Max

SILT FENCE SECTION

Fabric Joint Detail
For silt fence fabrics

SILT FENCE DETAIL

See Note 1 for post requirements

2" x 2" 14 Ga wire fabric or equivalent

Fold and set FF into compacted Blk

FF

5'-0" Min

5'-0" Min

2'-0" Min

2'-0" Min

SILO FENCE DETAIL

See Note 1 for post requirements

2" x 2" 14 Ga wire fabric or equivalent

Angle stakes towards previously placed bale

Straw bale

Excavate trench to width of bale

Straw bale

Exist ground

Existed soil

Compacted soil

Straw bale

Exist ground

Straw Bale Section

SILF BALE DETAIL

TYPICAL SITE PLAN

Stake as per "Straw Bale Detail"

Straw bales

See Note 5

DRAINAGE INLET PROTECTION
Field Type C inlet

Gutter apron

DI

Curb face

DRAINAGE INLET PROTECTION
Road Type A inlet

NOTE: Only valid when road surface is unpaved in a surf paint condition and road is closed to traffic.

NOTES:
1. Minimum size of posts shall be 2" x 2" treated wooden or steel posts with projections for fasteners AS/NZS 4674:1995 Designation A602 Class B or approved equivalent. Do not staple fabric or wire mesh to tree in lieu of required posts.
2. Fasteners shall be 1" long heavy-duty staples or hog rings.
3. Post depths are established minimums and may vary depending on site conditions.
4. When a continuous roll of filter fabric cannot be used fabric shall be spaced at posts as shown in "Fabric Joint Detail" of this plan.
5. Silt fences shall be installed parallel to the contours.
6. Silt fences shall be cleaned after any rainfall or when 8" of silt has accumulated at any point along the fence.
7. All straw bales shall be staked and entrenched to a minimum depth of 4".
8. Silt fence may be installed as alternative protection and shall be installed as shown on this plan.
9. Straw bales shall be butted together. Any gaps remaining shall be filled by wedging loose straw between bales.
10. These details are not a substitute for a project specific Storm Water Pollution Prevention Plan. Additional sediment and erosion controls will most likely be required to satisfy local, State, and Federal clean water requirements and regulations.

COUNTY OF CONTRA COSTA
PUBLIC WORKS DEPARTMENT
MARTINEZ, CALIFORNIA
STANDARD PLAN

SILT FENCE AND HAYBALE SEDIMENT CONTROL DETAILS

SCALE: NO SCALE
DATE: 3/14
DRAWN BY: K. HOLLINGWORTH
PLN. NO.: CD03

NO DATE REVISION DESCRIPTION BY CHECKED BY: K. HOLLINGWORTH
2" x 2" x 24" rough redwood stakes - at 3
36" Max spacing.

2" x 8" rough redwood (No. 2 Heart),
length as required

NOTE: Tightly compact ground
on each side of diverter.

PCC diverter Optional
See Note 1

Back of curb or SW

ELEVATION
Redwood Diverter

Back of curb or SW

ELEVATION
4"x8" Concrete Diverter

NOTES:
1. Concrete shall contain not less than 590 lbs of
cementious material per cubic yard in conformance with
Section 90, "Concrete," of California Department of Transportation's
Standard Specifications.

COUNTY OF CONTRA COSTA
PUBLIC WORKS DEPARTMENT
MATTHEWS, CALIFORNIA
STANDARD PLAN

BACK OF CURB
FLOW DIVERTER

SCALE NO. SCALE DATE 5/34
DRAWN BY H. NESSEY PLAN NO. CD04
CHECKED BY K. WOLLMACHER

NO. DATE REVISION DESCRIPTION

STD PLAN CD04
SIDEWALK CROSS DRAIN (SCD) WITH CONCRETE DITCH

SIDEWALK CROSS DRAIN

SECTION A-A

SIDEWALK CROSS DRAIN WITH AREA DRAIN

SECTION C-C

SECTION B-B

RESIDENTIAL SIDEWALK DRAIN

SECTION D-D

CONCRETE DITCH

SECTION E-E

NOTES:

1. Concrete shall contain not less than 505 lbs of cementitious material per cubic yard in conformance with Section 90, "Concrete," of the California Department of Transportation's Standard Specifications. It shall be used for all concrete construction detailed in this plan.

2. PVC pipe shall be capped if drain connection will be made at a later date.

3. See Standard Plan CA70 for weakened plane joint and expansion joints details.

4. All sidewalk drains which conform to existing facilities shall be dovetailed as shown. Dowels shall be placed in a 1" drilled hole filled with 1/1 sand cement grout.

5. Concrete removed for construction of sidewalk drains shall be sawcut to a neat line at the nearest weakened plane joint or scoremark. New concrete shall be dovetailed to existing as per Standard Plan CA74.

6. Drain may be skewed as approved by the Public Works Department.

7. See Standard Plan CA71 for Si-6 curb detail.

8. Drainage channels adjacent to drain shall be the same type.

9. Frame and grate shall be Ahabo Foundry Co. A2012 14" x 14" (12" x 12" clear opening) or approved alternate.

10. Metal duct form shall be supported from distortion during pouring of concrete. Colsalite removable form may be used in lieu of 19 GA metal duct.

COUNTY OF CONTRA COSTA
PUBLIC WORKS DEPARTMENT

STANDARD PLAN

SIDEWALK CROSS DRAIN & RESIDENTIAL SIDEWALK DRAIN

SCALE: NO SCALE

DATE: 3/14

DRAWN BY: H. HUSEY

CHECKED BY: G. KELLOGG

PLAN NO. CD06

NO. DATE REVISION DESCRIPTION

CD06
This standard plan specifically approved for

by

of the Public Works Department on

NOTES:
1. Concrete shall contain not less than 505 lbs of cementitious material per cubic yard in
   conformance with California Department of Transportation's
   Standard Specifications for all construction detailed
   on this plan.
2. This plan shall be used ONLY with the submittal of
   a report clearly showing economically that
   there are no other feasible design alternatives, the
   storm drain is still hydraulically adequate and is approved
   by the Public Works Department. This plan is not valid
   unless signed by a representative of Public Works.
3. If dimension "X" is less than 18", concrete cradle shall be
   extended 18" past pipe joint.
4. Rolled steel plate to be painted with two applications of
   bituminous material after plate is installed and
   utility line is not yet in place.
5. Rolled steel plate minimum thickness shall be 3/16".
6. All exposed storm drain pipe reinforcement shall be bent
   into concrete cradle prior to pouring.
NOTES:

1. Edge drains shall be installed to the lengths (L) as directed by the Public Works Department or as shown on project construction plans.

2. Place cap at end and dimension "L" is less than 250'. For "L" greater than 250', place cleanout every 250' and a cleanout at end of edge drain.

3. Edge drain pipe shall conform to Section 68, "Subsurface Drains," of California Department of Transportation Standard Specifications, or as approved by the Public Works Department.

4. Edge drain elevation varies depending on depth of the adjoining pavement section. It shall be as or slightly below, the pavement section subgrade elevation with a minimum depth of 18" below curb line and a minimum slope of 0.33:

5. Rectangular box (10¾" x 17½") shall be Christy, Model 89 or equivalent. See Standard Plan C050 for box clearances.

6. No single elbow shall be installed with a bend greater than 45 degrees.

7. Alternate Designs: Other proprietary subdrain products such as "Multi-Flow Drainage Systems" may be allowed by the Public Works Department on a case-by-case basis. These alternate edge drain systems must be placed at the same depths as shown on this plan with access points for flushing located outside road pavement no less than every 250 feet.
CULVERT DOWNDRAIN

NOTES:
1. Use polymer coated corrugated steel pipe if specified on project plans or in project specifications.

LOCKABLE METAL COVER

SECTION B-B

LOCK BAR

COLLAR DETAIL

SECTIONS A-A

DOWNDRAIN OUTLET TO CONCRETE DITCH

COUNTY OF CONTRA COSTA
PUBLIC WORKS DEPARTMENT
MARTINEZ, CALIFORNIA

STANDARD PLAN

DOWNDRAIN DETAILS

SCALE: NO SCALE
DATE: 3/14
DRAWN BY: L. COSTA
PLAN NO: CD09

NO. DATE REVISION DESCRIPTION BY CHECKED BY: K. HUNTINGTON
COUNTY OF CONTRA COSTA
PUBLIC WORKS DEPARTMENT
MATTHEW, CALIFORNIA
STANDARD PLAN

TYPE A, B & C
INLET FRAMES AND GRATES
(NO NEW CONSTRUCTION, SEE NOTE 6)

SCALE NO SCALE
DATE 3/14
DRAWN BY H. HIRSH
CHECKED BY H. HIRSH
NO DATE REVISION DESCRIPTION

0 0 0 0
CD11

NOTES:
1. All materials, fabrication, galvanizing, and surface treatment shall be in accordance with Sections 75 and 95 of the California Department of Transportation's Standard Specifications.
2. Frames and covers shall fit together without rocking.
3. Fabricator shall supply fastening screws with frames.
4. Weights: Type A grate frame 88 lbs., Grates 86 lbs.
5. 1/4" x 5/16" Nelson-Type studs may be used in lieu of 1/2" x 5" x 3" anchors.
6. Type A, B, and C inlets have been replaced with Type G, H and J inlets respectively. These details are to be used for repair and maintenance of existing inlets, no new construction.
CAST-IN GALVANIZED FRAME

SECTION A-A

SECTION B-B

NOTES:
1. All materials, fabrication, galvanizing and surface treatment shall be in accordance with Section 75 of the California Department of Transportation's Standard Specifications.
2. Frames and covers shall fit together without rocking.
5. This Standard Plan is to be used for ease of maintenance on those manganese bases where a potential debris problem is anticipated. The grate is not intended to be used as a drain.
6. For monophase base steel details see Standard Plan CD32.
7. For step details and layout see Standard Plan CD35.

COUNTY OF CONTRA COSTA
PUBLIC WORKS DEPARTMENT
MARTINEZ, CALIFORNIA
STANDARD PLAN

MAINTENANCE ACCESS OPENING

SCALE: NO SCALE
DATE: 3/14
DRAWN BY: P. WARDEN
PLAN NO. CD12

NO. DATE REVISION DESCRIPTION BY CHECKED BY: M. HOLLINGSWORTH
NOTES:
1. Plan shows modifying existing inlet, but this plan can be used in new construction.
2. For Manhole, General Notes and Details, see Standard Plan CD35.
4. Distance varies depending on depth to any existing side opening, minimum 6" below new top slab.
5. Manhole cover frame shall be adjusted to conform to finished grade and cross slope of pavement.
6. Dowels shall be placed in 1/2" diameter drilled holes with 1/1 sand cement grout.
7. Length of "diagonal" bars varies depending on top slab dimensions. The bars shall extend over existing inlet base walls with 2" clearance to edge of slab.
NOTES:
1. Unless approved by the County Public Works Department, all B inlets are to be constructed. Type H inlets, Standard Plan CD28, are to be used. This plan is maintained for Record purposes and reference for repairs of existing Type B inlets.
2. For inlet General Notes and Details, see Standard Plan CD35.
3. Construction joint is optional where shown, other locations are subject to the approval of the Public Works Department.
4. Key dimensions: 1/2" x 3".
5. When dimension "H" exceeds 12'-0", use a manhole base with Type "H" inlet top.
6. If edge drain is specified by Public Works Department or shown on the plans, see Standard Plan CD06 for edge drain details.
7. See Standard Plan CD35 for edge drain details specified by Public Works Department.
8. For edge drain details, see Standard Plan CD06.
NOTES:

1. Unless approved by the County Public Works Department, no new Type C Inlets are to be constructed. Type J Inlets, Standard Plan CD29, are to be used. This plan is to include purposes and references for repair or existing Type C Inlets.

2. Construction joints are optional where shown. Other locations are subject to the approval of the Public Works Department. Key Dimensions - 9" x 9/4".

3. Clearance shall be 2" for all reinforcing steel.

4. For Inlet General Notes and Details, see Standard Plan CD35.

5. Location, sawn elevation, and size of opening to be as shown on plans or as directed by the Public Works Department.

6. All Inlets shall be constructed with grooves. Inlets installed in a pedestrian area shall be Type "D".

7. Precast Inlet conforming to Santa Rosa Cast Products Co. Drawing No. TYPE C or equivalent, can be substituted for cast-in-place Inlet unless otherwise specified in project special provisions.

8. Minimum depth for Type "C" inlet shall be 4'. For depths greater than 4', use a manhole base with a Type "C" lap. The Type "C" inside wall steps shall be flush with manhole base inside wall.

9. Details apply to all metal, plastic, and concrete pipe.
NOTES:

1. For Inlet General Notes and Details, see Standard Plan CD35.

2. Type D inlet not permitted when street grade exceeds 6%. If grade exceeds 6%, use Type E inlet.

3. Precast concrete curb inlet shall be Central Precast Model 4A or Christy Concrete Products Model U-37, or equivalent, as approved by the Public Works Department. See manufacturer's catalog for details of inlet and circular cover not shown on this plan. Covers shall have a pick hole for access.

4. When curb and sidewalk are extruded, construction joints shall be provided at location □ as shown in plan view.

5. Curb and sidewalk shall be constructed monolithically.

6. If "H" exceeds 6'-0", construct precast inlet on a Type II or Type III manhole base as shown in detail "D" on this plan. See Standard Plans CD31 and CD32 for manhole 3 and top slab details.

7. A pipe shall not enter the inlet through a corner, if pipe exceeds maximum diameter allowed and the pipe skew angle prevents the pipe opening from being made in a single wall, construct a Type II or Type III manhole base to accept storm drain pipes.

8. If edge drains are specified by Public Works Department or shown on the plans, see Standard Plan CD03 for edge drain (ED) details.

9. See Standard Plan CD35 for weep hole drainage details unless edge drain is shown on plans or as specified by Public Works Department. For edge drain details, see Standard Plan CD08.
NOTES:
1. For Intel General Notes and Details, see Standard Plan CD35.
2. The pre-cast concrete curb inlet shall be Central Precast Model 4A or Christy Concrete Prod. Model U-37, or equivalent, as approved by the Public Works Department. See manufacturer’s catalog for details of inlet and cover not shown on this plan. Covers shall here be has a hole in center.
3. Fiberglass liner for gallery shall be Central Precast Pelican Gallery Model 67, or approved equivalent.
4. When curb and sidewalk are excluded construction joints shall be provided at location as shown in plan view.
5. Curb and gallery section and sidewalk shall be constructed monolithically.
6. If "N" exceeds 6", construct pre-cast inlet on a Type B or Type H manifold base as shown on diagram C on Standard Plan CD23, Type D Inlet. See Standard Plan CD31 and CD32 for manifold base and top slab details.
7. A pipe shall not enter the inlet through a corner, if pipe exceeds maximum diameter allowed or the slope angle prevents the pipe from being made in a single weld, construct a Type 8 or 8 manifold base to accept storm drain pipes.
8. Back out portion of cost-in-place base as required to permit construction of gallery to inside face of base, and fill in when gallery concrete is placed.
9. If edge drains are specified by Public Works Department or shown on the plans, see Standard Plan CD80 for edge drain (ED) details.
10. See Standard Plan CD35 for weep hole drainage details unless edge drain is shown on plans or as specified by Public Works Department. For edge drain details, see Standard Plan CD08.
SECTION A-A

Top Slab Details
See Std Plan CD35

Slope at 6:1
See Note 5

Const Jt with
1/8" x 3/16" key
only if floor poured
separate from walls

STEELE LIST

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</tbody>
</table>

Dowels-Typ
all four corners

Weakened plane Jt
Const Jt per Std Plan
CA70, Typ

SECTION B-B

NOTES:

1. See County Standard Plan CD26 for top slab and inlet opening details.
2. For inlet General Notes and Details, see Standard Plan CD35.
3. For street grades less than or equal to 6%, "W" = "4" - 0". For street grades greater than 6%, "W" = "7" - 0". See Steel List for required steel.
4. L = 6 inches if "W" is 4 feet or less.
   L = 10 inches if "W" is greater than 6 feet.
5. If "W" exceeds 12", construct precast inlet on a Type II manhole base. See Standard Plan CD32 for Type II manhole details.
6. A pipe shall not enter the inlet through a corner, if pipe exceeds 36" in diameter, or the skew angle prevents the pipe opening from being made in a single wall, construct a Type II manhole base per County Standard Plan CD32 to accept storm drain pipe.
7. Curvature of the lip and sidewalks at gutter opening shall be formed and shall not be made by plastering.
8. Inlet and outlet pipes shall be trimmed to the final shape and length before concrete is poured.
9. All exposures surfaces in the basin shall conform in slope, grade, color, finish, and grading to existing or proposed curb and sidewalk adjacent to the inlet.
10. All exposed surfaces shall be finished by Public Works Department or shown on plans or as specified by Public Works Department. For edge drain details, see Standard Plan CD08.
11. See Standard Plan CD35 for weep hole drainage details unless edge drain is shown on plans or as specified by Public Works Department. For edge drain details, see Standard Plan CD08.

COUNTY OF CONTRA COSTA
PUBLIC WORKS DEPARTMENT
MARTINEZ, CALIFORNIA

STANDARD PLAN

TYPE "F" INLET

SCALE NO SCALE
DRAWN BY: DATE: 3/14
CHECKED BY: PLAN NO: 2520
ANCHOR BAR SPACING
R & L Length=8' for w=7'
R & L Length=5' for w=4'

6'' Typ

TOP SLAB DETAILS

COUNTY OF CONTRA COSTA
PUBLIC WORKS DEPARTMENT
MARTINEZ, CALIFORNIA

STANDARD PLAN

TYPE "F" TOP SLAB & INLET OPENING DETAILS

NOTES:
1. Cost iron malleable frame and cover shall be D & L Foundry & Supply Model No. H-5028 or approved equal. Alternate F & C must meet ASTM A58 Class 30B specifications and H-20 wheel loading. Cover marking shall be "STORM DRAIN".
2. See CD35 for additional reinforcement details.
3. Steel to be assembled as one unit prior to galvanizing.

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NOTES:
1. For inlet General Notes and Details, see Standard Plan CD35.
2. Construction joints are optional where shown, other locations are subject to the approval of the Public Works Department. Key dimensions: 1/4" x 3".
3. When dimension "A" exceeds 6'-0", use a manhole base with Type "G" inlet top.
5. If edge drains are specified by Public Works Department or shown on the plans, see Standard Plan CD08 for edge drain (ED) details.
6. See Standard Plan CD35 for weephole drainage details unless edge drain is shown on plans or as specified by Public Works Department. For edge drain details, see Standard Plan CD08.

TABLE

<table>
<thead>
<tr>
<th>CURB GRADE</th>
<th>UPSTREAM &quot;A&quot;</th>
<th>CURB &quot;A&quot;</th>
<th>DOWNSTREAM &quot;A&quot;</th>
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</table>

When curb grade upstream is 5% or greater, depress upstream edge of grate to 10%.

DETAIL FOR STEEP CURB SLOPE

When curb grade upstream is 5% or greater, depress upstream edge of grate to 10%.

DETAIL FOR STEEP CURB SLOPE

COUNTY OF CONTRA COSTA
PUBLIC WORKS DEPARTMENT
MARTINEZ, CALIFORNIA

STANDARD PLAN

TYPE "G" INLET
SECTION A-A

SECTION B-B

NOTES:
2. Type J inlets shall not be used in pedestrian areas.
3. Construction joints are optional where shown. Other locations are subject to the approval of the Public Works Department. Key Dimensions are 3/4" x 2 1/2".
4. Min clearance shall be 2" for all reinforcing steel.
5. Location, flowline elevation and size of side openings to be as shown on plans, or as directed by the Public Works Department.
6. All inlets shall be constructed with Caltrans Type 24-105 grotes, see Caltrans Standard Plan D77B, and Type J Inlet frame shown on this plan.
7. No precast Type J inlets are allowed without prior approval of the Public Works Department.
8. Maximum depth for Type J Inlet shall be 4'. For depths greater than 4' use a manhole base with a Type J top. The Type J inside wall with steps shall be flush with manhole base inside wall below.
NOTES:

1. For General Manhole Notes and Details, see Standard Plan CD35.

2. All concrete joints shall be cleaned wetted, and mortared prior to setting next section. Joints shall then be patched, tramped, and brushed smooth.

3. Frame and extension rings must be secured by concrete block, unless approved otherwise by the Public Works Department.

4. Manhole cover frame shall be adjusted to conform to grade and cross slope of pavement.

5. Manhole frame and cover shall be Phoenix Iron (Oakland) Model P-X060 or South Bay Foundry No. 1900 GFP or approved equivalent.

6. Use of precast grade rings are limited by 18" maximum manhole throat length. Cast iron extension rings are allowed for conforming to pavement overlays only.

7. The precast components shall conform to the Central Precast (U.S. Concrete Precast Group, Northern California) Drawing Nos. 20-48A, 20-48A and 20-48 E, or equivalent.
NOTES:

1. For Manhole General Notes and Details, see Standard Plan CD35.
2. Construction joints are optional where shown. Other locations are subject to approval by the Public Works Department. Key dimensions are 1/2" x 3".
3. Inlet and outlet pipes shall not intersect a manhole base through a corner. If skew angle is too great to permit the opening to be made in a single wall, use a Type III manhole base. (See Std. Plan CD32).
4. For details of manhole frame and cover, see Standard Plan CD30. Orient frame directly above steps.
**SPECIAL APPLICATIONS OF TYPE "III" MANHOLE BASES**

When circumstances, such as excessive skew or parallel pipes prevent the use of a standard Type II manhole base detailed elsewhere on this plan, the walls may be lengthened or relocated to accommodate the pipes provided the following criteria are met:

1. The ladder dimensions or the base shall be such that a 48 inch diameter circle will lay flat on the manhole base floor as shown.
2. The maximum distance between any two inside corners shall be 15 feet, as shown.
3. Reinforcement and floor, wall and top thickness shall remain the same as for a normal Type III manhole base.
4. No pipe shall exceed 60 inches (inside diameter).

If any one of these criteria cannot be met, a special design will be required.
**TYPICAL MANHOLE BASE**
30” thru 48” Dia

**TYPICAL MANHOLE BASE**
54” thru 120” Dia

**TYPICAL LATERAL CONNECTION**

**SECTION A-A**

**SECTION B-B**

**SECTION C-C**

---

**DIMENSION TABLE (in)**

<table>
<thead>
<tr>
<th>A, Dia</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
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<td>46</td>
<td>9</td>
<td>3</td>
<td>56</td>
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<td>3 ½</td>
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<td>67</td>
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<td>12</td>
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<td>154</td>
<td>17</td>
<td>12</td>
<td>82</td>
<td>48</td>
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**USES OF AN “A” > 154 REQUIRE A SPECIAL DESIGN**

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**NOTES:**

1. For General Manhole Notes and Details, see Standard Plan CD35.
2. Clearance shall be 2” for all steel, unless otherwise noted.
3. The Type IV manhole base shall be used only on straight runs of CIP of the same diameter.
4. For precast manhole details, see Standard Plan CD30.
SECTION A-A

Note: Section A-A steel is structurally designed and limited to a 10' internal span.

SECTION B-B

Note: Partial reinforcement shown

SECTION C-C

Note: Partial reinforcement shown

NOTES:

1. For Manhole General Notes and Details, see Standard Plan CD35.

2. Sub parameters used for design are limited to the following:
   - Active equivalent fluid pressure of 45 lbs./ft² up to a saturated condition of 62 lbs./ft².
   - Passive equivalent fluid pressure of 300 lbs./ft².
   - Structures to be constructed in soil not exhibiting these characteristics shall be designed by a licensed professional engineer under consultation with a licensed geotechnical engineer.

3. Minimum Strength:
   - Steel: fy=60000 psi
   - PCC: f'c=5000 psi

4. Reinforcing steel placement shall be as directed in American Concrete Institute, Building Code and Commentary 318-11.

5. Inlet and outlet pipes shall not intercept a manhole base through a corner. If skew angle is too great to permit the openings to be made through a single wall, a special design will be required.

6. For details of manhole frame and cover, see Standard Plan CD30.
NOTES:
1. All inlets shall have a County approved "anti-pollution" plastic marker attached to the inlet as directed by the Inspector or Resident Engineer. The marker shall be applied following manufacturer's recommendations. PCC surfaces shall be mechanically cleaned just prior to attaching the marker. This marker and adhesive may be furnished by the Public Works Department, check your permit conditions or contract Special Provisions.
2. Steps shall be steel reinforced polypropylene plastic, M.A. Industries, Inc. No. PS2-PF or equivalent. Steps to be cast in place or press fitted into holes per manufacturer. Install steps with lowest rung 12" maximum above the floor and highest rung not more than 6" below top of inlet. The spacing between steps shall not exceed 16" and shall be uniform throughout the length of the wall. Place steps in the wall without an opening. Steps shall not be installed in inlet back wall. No steps required where distance from floor of inlet to top of grate is 4" or less. See "Step Detail".
3. Weephole elevation varies depending on the depth of the adjoining pavement section. It shall be set, or slightly below, the pavement section subgrade elevation with a minimum depth of 18" below the curb inlet grate elevation. The side weephole detail shall be used at all "jump" locations. Edge drain (Standard Plan CD08), or side weepholes drain detail of other locations may be required as shown on the construction plans or by the Public Works Department. Where the side weephole detail or edge drains are not required, these weepholes shall conform to the front face weephole details shown on this plan.
4. 3" edge drain per Standard Plan CD08, when shown on the plans or specified by the Public Works Department.
5. Concrete shall conform to Section 90, “Concrete” of California Department of Transportation’s Standard Specifications and the following.
   A. Construction joints shown on standard plans are permitted when top portion of inlet is to be constructed monolithically with curb and sidewalk. Key dimensions: ⅛" x 3".
   B. Concrete construction joint shall be located 12" to 18" below top of curb elevation.
   C. Concrete above construction joint shall contain a minimum of 505 lbs of cementitious material per cubic yard, 1" maximum aggregate grading.
   D. Concrete below construction joint shall contain a minimum of 590 lbs of cementitious material per cubic yard, 1" maximum aggregate grading.
   E. When inlet is constructed as a single unit concrete shall comply with Item D, described above.
6. Type "Y" manhole (Std Pin CD30) boxes are for use with pipes to 24" in diameter and where there is sufficient cover to use minimum length manhole barrel, eccentric, cone, and cover frame. Use Type "Y" manhole bases (Std Pin CD30) with pipes to 42" in diameter. Type "B" manhole boxes (Std Pin CD32) for 60" in diameter. Use Type "Y" manhole bases (Std Pin CD34) for pipes up to 96" in diameter. For pipe larger than 96" in diameter, a special manhole base design is required.
7. Unless otherwise noted on Standard Plans all concrete shall contain not less than 590 lbs. of cementitious material per cubic yard, 1" maximum grading, in conformance with Section 90, "Concrete" of California Department of Transportation’s Standard Specifications. Invert paving concrete shall contain not less than 505 lbs. of cementitious material, 1" maximum grading, in conformance with said Standard Specifications.
8. Inlet and outlet pipes shall not intercept a manhole base through a corner, if skew angle is too great to permit the opening to be made in a single wall face, use a Type "B" manhole base. (See Std Pin CD32).

STANDARD FRONTSIDE

COUNTY OF CONTRA COSTA
PUBLIC WORKS DEPARTMENT

STANDARD PLAN

STD INLET/MANHOLE PLAN
GENERAL NOTES & DETAILS

SCALE: NO SCALE
DRAWN BY: M.E. MOSSER
CHECKED BY: A. GILES

CD35

46
CONCRETED-ROCK SLOPE PROTECTION (CRSP)

ROCK TABLE

<table>
<thead>
<tr>
<th>Rock Grading</th>
<th>Min. Conc penetration</th>
<th>T-20' (lb)</th>
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<tr>
<td>1/4 Tan</td>
<td>18</td>
<td>42</td>
</tr>
<tr>
<td>1/2 Tan</td>
<td>14</td>
<td>32</td>
</tr>
<tr>
<td>Light</td>
<td>10</td>
<td>24</td>
</tr>
<tr>
<td>Facing</td>
<td>8</td>
<td>18</td>
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</tbody>
</table>

SECTION A-A - CUTOFF WALL DETAIL

NOTES:
1. All materials shown on this plan shall conform to Section 72 of the California Department of Transportation's Standard Specifications unless otherwise specified.
2. Side slopes shall be varied on the basis of supporting engineering data.
3. Thickness of T-2 shall conform to the "Rock Table" as shown, unless otherwise directed by the Public Works Department.
4. Depth of keyway may vary. The 48" minimum may decrease in the event bed rock is less than 48" below channel bed and directed by the Public Works Department.
5. Use class 2 permeable material conforming to Section 88-2.02F of California Department of Transportation's Standard Specifications, unless otherwise directed by the Public Works Department.
6. Soil cover placed over the rock slope protection or concrete-rock slope protection as required by the Public Works Department, as shown on the plans.

COUNTY OF CONTRA COSTA
PUBLIC WORKS DEPARTMENT
MARTINEZ, CALIFORNIA

STANDARD PLAN

ROCK SLOPE PROTECTION

SCALE NO. SCALE DATE: 3/74
DRAWN BY: H. HUBER PLAN NO: CD40
CHECKED BY: S. HUBER

NO DATE REVISION DESCRIPTION
**COLLAR DETAIL**

When Chnl/creek bottom width < 20, extend 24" thick rock to opposite bank & up a height D.

When C > 2/3 bottom Chnl/creek width, extend 30" thick rock to opposite toe of bank.

**NOTES:**

1. Concreted-Rock Slope Protection, Rock Slope Protection and Rock Slope Protection fabric shall conform to Section 72 of the California Department of Transportation's Standard Specifications. Unless otherwise specified, the rock class shall be light. When the channel conditions warrant the use of any rock class other than light, proper documentation must be submitted for approval by the Public Works Department. Larger rock will require increase in detail dimensions as per "Rock Table" on Standard Plan CD40.

2. Lap rock slope protection fabric in accordance with the manufacturer's requirements.

3. Concrete shall be placed in accordance with County Standard Specifications or project Special Provisions.

4. Minimum pipe diameter "D" shall be 18", unless otherwise approved by the Public Works Department.

5. Dimension "H" shall be a minimum of 24", unless otherwise approved by the Public Works Department.

---

**SECTION A-A**

- Concrete RSP
- **Concreted RSP**
- **Compacted native MII**
- **Polymer Ctd CSP or HDPEP**
- **Length 4D, 18'-0" Min**

**SECTION B-B**

- **Nonwoven RSP fabric**
- **See Note 1**
- **Concrete RSP**
- **Y'-D/4, 10'-0" Min**

---

**COUNTY OF CONTRA COSTA**

**PUBLIC WORKS DEPARTMENT**

**MARTINEZ, CALIFORNIA**

**STANDARD PLAN**

**ROCK SLOPE PROTECTION PIPE OUTFALL**

<table>
<thead>
<tr>
<th>H (ft)</th>
<th>E (ft)</th>
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<tbody>
<tr>
<td>2 to 7</td>
<td>2</td>
</tr>
<tr>
<td>7 to 14</td>
<td>4</td>
</tr>
<tr>
<td>Over 14</td>
<td>8</td>
</tr>
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</table>

**SCALE**

NO SCALE

**DATE**

3/18

**CHECKED BY**

K. HINCHCLIFFE

**PLAN NO**

CD50
GENERAL NOTES

USE:
This headwall can be used in a variety of locations: channel outlet, basin outlet/inlet, and side channel outlet. This standard plan does not address the various facets unique to its planned use, e.g., these items shall be included in the specific project construction plans approved by the Public Works Department.

Items to address include, but are not limited to:
- Safety pipe rolling details for basin inlets and outlets or chain link rolling details for channel outlets and outlets. The rolling placed above the pipe shall be gated to allow maintenance access unless otherwise directed by the Public Works Department.
- Flap gate details, if required.
- Trash rack details, if required by the Public Works Department.
- Adjacent rock slope protection (RSP) layout, type and dimensions.
- Pipe flowline orientation dimensions "H" and "L": invert slope and top of wall elevation.
- Finish grades behind walls. (A level area above the headwall may be required by the Public Works Department to service trash racks or flap gates.)
- Optional outlet sill design.

PLAN NOTES
1. Unit Stresses: f_c=24,000 psi, f_y=3600 psi.
2. Wall designed for 2' live load surcharge, 1.5' sloping surcharge not to exceed 2' in elevation plus 2 live load surcharge, or unlimited 2/1 surcharge.
3. Dimensions "H" and "L" are shown on the project or construction plans. Wall height may be exceeded by 6" before going to next greater "H".
4. "D" maximum = 72", "D" minimum = 18".
5. "a = 12" minimum for basin or creek headwall structures unless otherwise approved by the Public Works Department. For basin outlet structures, pipe flowline shall be depressed to match structure invert elevation.
6. See California Department of Transportation's Standard Plan BD-3 for weephole and pervious backfill details. Weephole centered either side of pipe, back wall only.

COUNTY OF CONTRA COSTA
PUBLIC WORKS DEPARTMENT
MARTINEZ, CALIFORNIA

STANDARD PLAN

TYPE "H" HEADWALL
STRUCTURE DETAILS

REINFORCED CONCRETE WALLS

<table>
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<tr>
<th>&quot;H&quot; (ft)</th>
<th>4'</th>
<th>5'</th>
<th>6'</th>
<th>7'</th>
<th>8'</th>
<th>9'</th>
<th>10'</th>
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<tbody>
<tr>
<td>&quot;C&quot; Bars</td>
<td>#4</td>
<td>#4</td>
<td>#4</td>
<td>#4</td>
<td>#4</td>
<td>#4</td>
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</tr>
</tbody>
</table>

NOTE: Rebar reinforcement not shown for clarity.
"D" = "h" x 3"  

DITCH CAPACITY IN C.F.S. (Q)
**CONCRETE DITCH CUTOFF WALL**

**SIDE VIEW**

**ELEVATION**

Normal ditch height inside of curve

**SUPERELEVATION OF CONCRETE DITCH CURBS**

ALL CURVES W/RADIUS < 50 FT

**CONCRETE DITCH INLET STRUCTURE**

**NOTES:**

1. Channel shape shall conform to Standard Plan CD60. Shape of channel shown on this plan for clarity.

2. Location of cutoff walls shall be as follows:
   a. At the transition from earth to concrete "V" ditches.
   b. Below all eyes and junctions.
   c. At the E.C. of all vertical curves or below any abrupt break in steep to flatter gradient.
   d. At the E.C. of sharp horizontal curves (< 30' R) or abrupt turns.
   e. At such other locations along a concrete lined ditch where in the opinion of the Public Works Department, cutoff walls are necessary to direct or control the flow within the ditch.

3. The alignment shall be approved by the Public Works Department, after excavation before concrete is poured.

Denotes superelevated portion of channel wall

---

**CONCRETE 'V' DITCH DETAILS**

**COUNTY OF CONTRA COSTA**

**PUBLIC WORKS DEPARTMENT**

**MARTINEZ, CALIFORNIA**

**STANDARD PLAN**

**SCALE NO SCALE**

**DATE 3/14**

**DRAWN BY: K. HUSEY**

**CHECKED BY: K. DE LA CRUZ**

**PLAN NO. CD61**
**Chain Link Fence on Sharp Break in Grade**

**Fence Location**

- 2" ID
- 12" (See Note 5)
- Drainage

**Corner Post**

- Not less than 3 times outside diameter post with minimum of 8" or minimum of 10" for slotted fence, Typ

**Chain Link Gate Installation**

- Length as specified
- 10' Max for Single Gate
- 20' Max for Double Gate (See Note 6)

**Notes:**

1. Dimensions shown are nominal. Height of fence as shown on plans or as specified on permit.
2. Post diameters and weights are minimums.
3. Chain link fabric shall be 9-Gage woven into approximately 2" x 2" mesh and conform to Section 80.3, "Chain Link Fence" of California Department of Transportation's Standard Specifications.
4. Chain link slotted fence shall be 9-Gage chain link fabric with 2" x 2" mesh and vinyl slots pre-installed with a privacy factor of 90% or greater. Color of slats shall be brown with galvanized wire mesh unless specified on the plans.
5. Offset to be 2'-0" where corner or line post conflicts with properly
6. All double gates shall have removable center post per California Department of Transportation Standard Plan A55A.
7. All gates, single and double gates (regardless of width), shall have chain and lock cutouts per California Department of Transportation Standard Plan A55A and Gate Keepers per detail on this plan.

**Gate Post**

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<tr>
<th>FENCE HEIGHT</th>
<th>GATE WIDTHS</th>
<th>NOMINAL ID</th>
<th>WEIGHT PER FOOT</th>
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<tr>
<td>Over 6'-0&quot; thru 10'-0&quot; and all double gates</td>
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<td>14.62 LB</td>
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**Typical Member Dimensions**

<table>
<thead>
<tr>
<th>Line Posts</th>
<th>End, Latch &amp; Corner Posts</th>
<th>Braces/Top Rail</th>
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</thead>
<tbody>
<tr>
<td>ROUND ID</td>
<td>WEIGHT PER FOOT</td>
<td>ROUND ID</td>
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<tr>
<td>2&quot;</td>
<td>3.65 LB</td>
<td>0.5&quot;</td>
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</table>

**County of Contra Costa**

**Public Works Department**

**Martinez, California**

**Standard Plan**

**Chain Link Fence**

**DRAINAGE FACILITY**

**DRAWN BY:** L. COSTA  
**PLAN NO.:** CD70  
**DATE:** 3/14  
**CHECKED BY:** M. HOLLANDSWORTH

---

**GATE POSTS**

<table>
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<th>End, Latch &amp; Corner Posts</th>
<th>Braces/Top Rail</th>
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</thead>
<tbody>
<tr>
<td>ROUND ID</td>
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<tr>
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<td>3.65 LB</td>
<td>0.5&quot;</td>
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**GATE POSTS**

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<th>End, Latch &amp; Corner Posts</th>
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<td>3.65 LB</td>
<td>0.5&quot;</td>
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</table>
TREE & SHRUB SLOPE PLANTING DETAIL

TREE & SHRUB ROCK SLOPE PLANTING DETAIL

NOTES:
1. 4" diameter perforated pipe shall be positioned so that it is a minimum of 1' from finish grade of planting fill, and wire mesh deformed such that it is outside of the wire mesh foliage protector.

2. Foliage protector shall be a minimum of 4' high and 1' clear from top of plant.

3. All plants shall be as shown on project plans, or as specified by the Public Works Department.

4. Minimum spacing between trees shall be 10', all ways,
Minimum spacing between shrubs shall be 5', all ways.
All plants shall be 1-gallon size unless otherwise specified on construction plans. Plant selection (mature size) shall be appropriate for the space available.

5. Install root protectors when shown on project plans, when specified in project special provisions, or as directed by the Public Works Department. Root protector shall be fabricated from 1/4" hexagonal pattern, 20-gauge galvanized wire mesh having a diameter that will provide a minimum clearance of 6" between the root ball and all sides of the basket. Basket shall extend 3' above finished grade.

WEED CONTROL FABRIC DETAIL

3 x Dia. of rootball

4" overlap Min

Fertilizer tablet slow release (14-14-14) (2 total)

Compacted earth berm

3" Mulch

Jute mesh cover

4" overlap Min

6 (3/4" Dia) " Steel Reinforcement support stake. 3-total Typ

8" Staples 8 Typ

2 x Dia of rootball (14" Min)

6" Min

Tamped Bkf soil

WEED CONTROL FABRIC DETAIL

3 x 3" weed control fabric
NOTES:
1. No plants, trees, branches or other vegetation shall encroach into clear zone.
2. Shrub and tree selection shall be appropriate for the planting area. Shrubs and trees that would overwhelm an area of maturity shall not be planted. The Public Works Department or Flood Control District shall approve all proposed types of shrubs and trees.
3. Clear zone must be contained within creek/channel right of way.
4. Channel bank landscaping that not be placed adjacent to side drain outlets/outfalls greater than 24" in diameter.
5. This plan applies to earth filled, non-leveed channels.
6. Landscape areas that occur on both sides of the channel shall be staggered, not opposite each other.

LEGEND
■ ALLOWABLE LIMITS OF LANDSCAPING
■ CLEAR ZONE

COUNTY OF CONTRA COSTA
PUBLIC WORKS DEPARTMENT
MARTINEZ, CALIFORNIA

STANDARD PLAN
TYPICAL LANDSCAPING LIMITS ON CREEK/CHANNEL EMBANKMENTS

SCALE: NO SCALE
DRAWN BY: H. HUSSEY
DATE: 3/14
PLAN NO: CH80

NO DATE REVISION DESCRIPTION
BY CHECKED BY: A. KUMCHER

PUBLIC WORKS DIRECTOR
PLAINT APPROVAL DATE
PLAINTS APPROVED DATE
NOTES:
2. All sign support posts shall be 2" (12 gauge) "Unitrust", except as noted on this plan. Square sign post system approved for highway sign use by the FHWA is an acceptable substitute for "Unitrust".
3. Posts supporting street name signs and traffic signs shall not be painted, 7" minimum clearance between bottom of sign and any sidewalk or pedestrian path.
4. Only wood posts shall be used in rural locations and shall conform to Section 56 of California Department of Transportation's Standard Specifications for roads, species and preservative treatment. a. Use 4" x 4" wood posts with any size R7 signs. b. Use 4" x 6" wood post with any 36" x 42" R-2 sign. A hole must be drilled at the base in accordance with California Department of Transportation's Standard Plan RS2, "Breakaway Feature".
5. Street name signs (SNS) shall be installed on the corner with the greatest sight distance and which favors the major street where conditions permit. SNS may be installed on the same sign post with a STOP (R7) sign.
6. One SNS shall be installed at an intersection on each side of the major road with two or more lanes in each direction.
7. Where sign posts are to be installed in an existing sidewalk, the sidewalk shall be sawcut to a near appearance. New concrete placed and finished to match surrounding grade after sign post installation.
8. Stripping details and markings shall conform to the California Department of Transportation's Standard Plans, and this Standard Plan.
9. Pavement markings and striping shall be thermoplastic and shall conform to Section 84 of the California Department of Transportation's Standard Specifications, Public Works Department Standard Provisions for Public Works Construction and project special provisions, if any.
10. For G7 sign use 8" U.C. and 41/2" L.C. lettering.
11. The first 3 of all medion curb noses shall be painted with reflective white paint.
12. All button head bolt threads shall be peened after assembly.
13. Sidewalk with parking restriction signs should be minimum 6'-0" wide.
14. Sign bars shall always be placed prior to a curb ramp.
15. Mid-block signs in residential areas shall be placed at or near lot line, except as indicated on this Standard Plan.

COUNTY OF CONTRA COSTA
PUBLIC WORKS DEPARTMENT
MARTINEZ CALIFORNIA
STANDARD PLAN

SIGNING & STRIPING STANDARDS

SCALE  NO SCALE  DATE  3/14
DRAWN BY M. ASBURY  PLAN NO.  CRS1
CHECKED BY W. HOLLISWORTH

NO  DATE  REVISION DESCRIPTION  BY

56
CONFORM NOTES:
The pavement conform shall be as follows:

STANDARD CONFORM:
Cut through the full depth of existing HMA to a neat straight line at least 1.0 foot outside the trench line. Rutted pavement edges damaged during construction to neat lines prior to paving. Apply paint binder (rock coat) to all vertical surfaces in accordance with the latest edition of Caltrans Standard Specifications.

ALTERNATE CONFORM:
Grind existing HMA to a minimum depth of 0.2 feet to a neat straight line at least 1.0 foot outside the trench line. Cut through the full depth of the existing HMA to a neat straight line at the trench lines. Any pavement edges, including ground edges, damaged during construction shall be re-cut or re-ground to neat lines prior to paving. Apply paint binder (rock coat) to all vertical surfaces in accordance with the latest edition of Caltrans Standard Specifications.

DETAIL A
Gutter Lip Paving

NOTES:
1. An encroachment permit is required for all work within County road right of way. The permit shall be obtained prior to beginning work.
2. Backfill material and any bedding material shall be as specified by the utility owner, and approved by the Public Works Department. In no case shall "pea" gravel be allowed.
3. Unsuitable native material shall be excavated below the limit of excavation and replaced with suitable backfill material when directed by the Public Works Department.
4. Dimensions "X" and "Y" are shown below for the utility "O.D."

<table>
<thead>
<tr>
<th>Utility O.D.</th>
<th>&quot;X&quot; Min</th>
<th>&quot;Y&quot; Min</th>
</tr>
</thead>
<tbody>
<tr>
<td>under 1.0&quot;</td>
<td>0.5&quot;</td>
<td>0.25&quot;</td>
</tr>
<tr>
<td>1.0&quot; to 4.5&quot;</td>
<td>0.5&quot;</td>
<td>0.5&quot;</td>
</tr>
<tr>
<td>4.5&quot; to 10&quot;</td>
<td>2.0&quot;</td>
<td>1.0&quot;</td>
</tr>
</tbody>
</table>

5. Minimum cover over utilities is governed by the California Public Utilities Commission. Utility owners shall consider placing their utility line at a greater depth to avoid future relocation due to street/road reconstruction. The increased depth should include sufficient clearance between the utility and pavement structural section subgrade to prevent damage by construction equipment. The Public Works Department recommends a minimum of 4.0 feet of cover in arterial roads and 3.0 feet elsewhere. If cover is less than 3.0 feet, a special design is required with approval by the Public Works Department.

6. Where the trench parallels curb and the nearest trench line is less than 3 feet from the gutter lip, all existing HMA shall be removed to the gutter lip. For gutter lip paving detail see Detail "A."

7. Hot mix asphalt (HMA) shall be 1/2-inch Type A in conformance with Section 39 of the California Department of Transportation's Standard specifications, unless otherwise specified in the encroachment permit's Special Road Encroachment Permit Conditions or as directed by the Public Works Department.

8. Slurry cement backfill shall comply with Section 19-3.020 of the California Department of Transportation's Standard Specifications.

9. This standard plan shall govern over encroachment permit’s Standard Road Encroachment Permit Conditions, and General Permit Conditions - Attachment 1. Encroachment permit's Special Road Encroachment Permit Conditions shall govern over this standard plan.