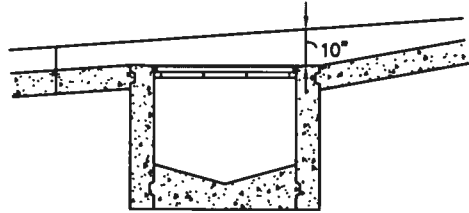
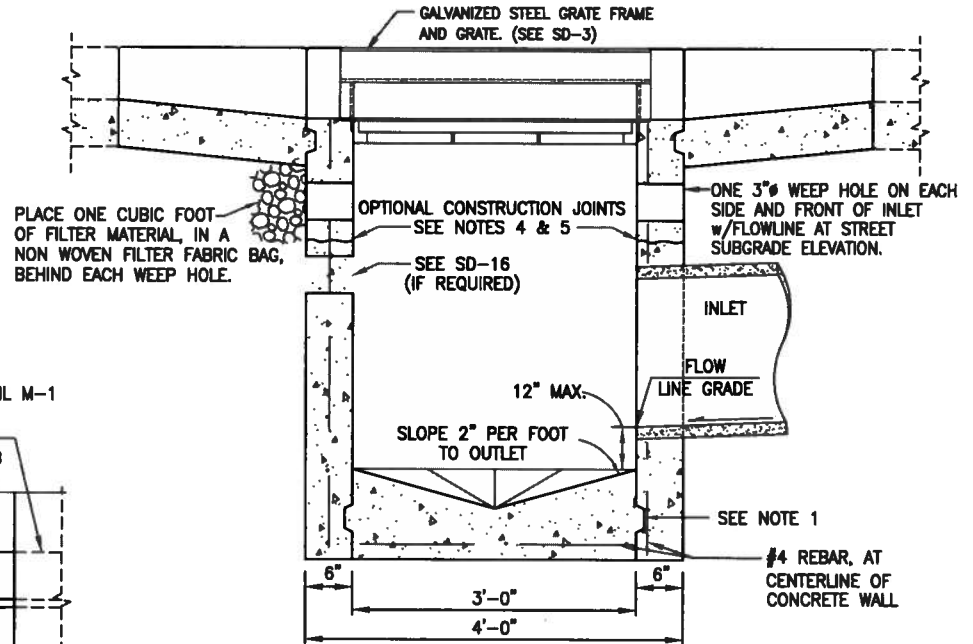


WHEN CURB GRADE UPSTREAM IS 5% OR GREATER  
DEPRESS UPSTREAM EDGE OF GRATE FRAME TO 10"



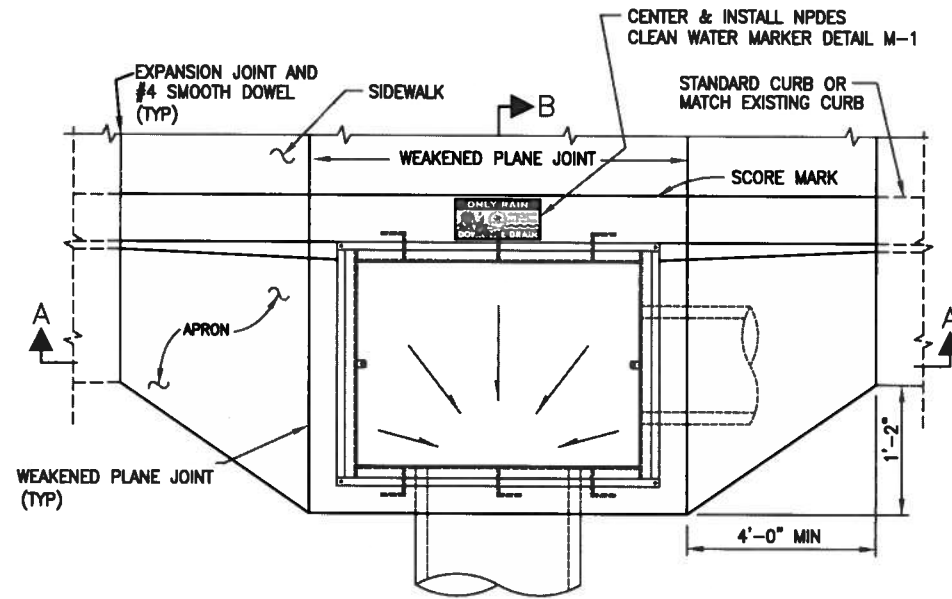
DETAIL FOR STEEP CURB SLOPE

N.T.S.



SECTION A-A

N.T.S.



PLAN

N.T.S.

GRATE NOT SHOWN

UPSTREAM CURB GRADE	DIMENSION "A"	
	"A" UPSTREAM	"A" DOWNSTREAM
2% & LESS	2'	2'
3%	3'	2'
4%	4'	2'
5%	5'	2'
6%	6'	2'
7%	7'	1'
8%	8'	1'
9%	9'	1'
10% & GREATER	10'	1'

SEE "DETAIL FOR STEEP CURB SLOPE"



CITY OF SAN RAMON

DETAIL SD-1

DRAWN BY: ELR

CHECKED BY: ENGINEERING

DATE: 08/01/08

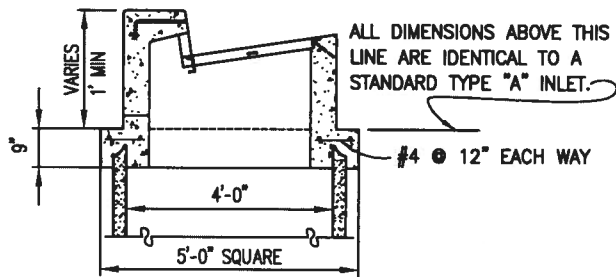
STANDARD DETAIL

TYPE "A" INLET  
CURB INLET

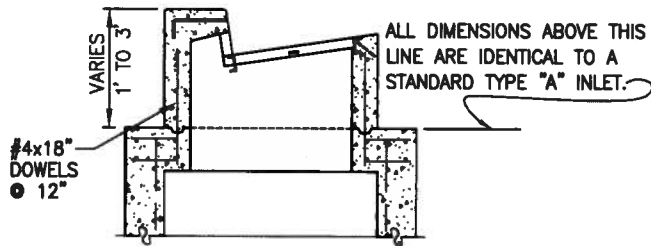
APPROVED BY: DATE: 6/15/09

*Jorge Gutierrez*  
CITY ENGINEER

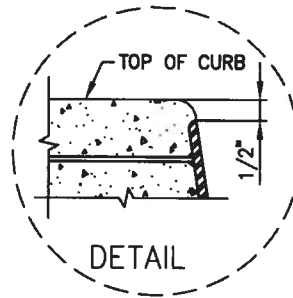
SHT 1 of 2



SECTION OF  
TYPE "A" OPENING  
ON PRECAST MANHOLE BARREL  
N.T.S.  
REFER TO STANDARD DETAIL SD-6



SECTION OF  
TYPE "A" OPENING  
ON MANHOLE BASE  
N.T.S.  
REFER TO STANDARD DETAIL SD-7

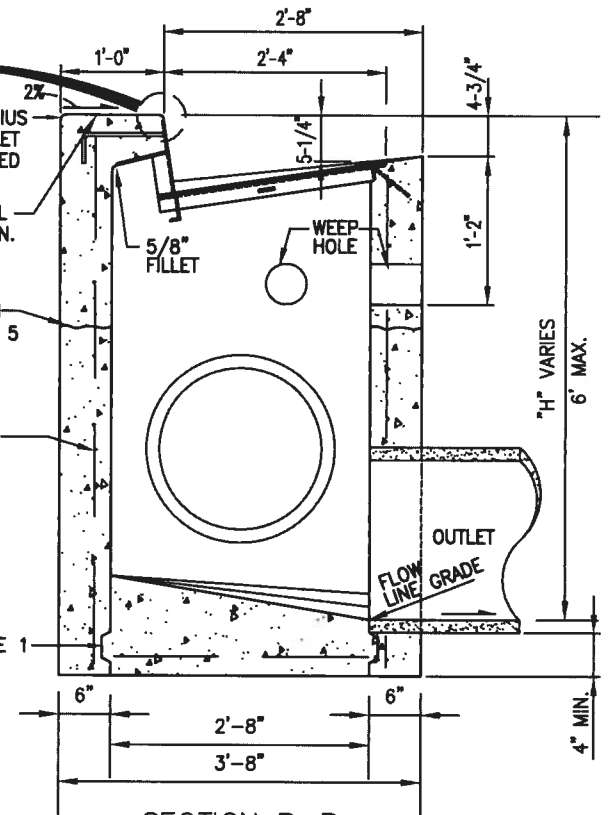


ROUND TO 1/8" RADIUS  
IF SIDEWALK AND INLET  
ARE NOT CONSTRUCTED  
MONOLITHICALLY  
SCORE MARK AT NORMAL  
BACK OF CURB LOCATION.

OPTIONAL CONSTRUCTION  
JOINTS SEE NOTES 4 & 5

#4 REBAR, 12" O.C.  
EACH WAY. (TYP)

SEE NOTE 1



SECTION B-B  
N.T.S.  
GRATE NOT SHOWN

NOTES:

- CONSTRUCTION JOINTS ARE OPTIONAL WHERE SHOWN; OTHER LOCATIONS ARE SUBJECT TO THE APPROVAL OF THE ENGINEER. KEY DIMENSIONS - 3/4" x 2-1/2".
- WHEN DIMENSION "H" EXCEEDS 6', USE A MANHOLE WITH A TYPE "A" INLET OPENING ON TOP.
- INLET AND OUTLET PIPES SHALL NOT INTERCEPT A BOX THROUGH A CORNER. IF THE PIPE IS TOO LARGE OR THE SKEW ANGLE IS TOO GREAT TO PERMIT THE OPENING TO BE MADE IN A SINGLE WALL, USE A MANHOLE BASE WITH A TYPE "A" INLET OPENING ON TOP.
- CONSTRUCTION JOINTS SHOWN ARE PERMITTED WHEN TOP PORTION OF INLET IS TO BE CONSTRUCTED MONOLITHICALLY WITH CURB AND SIDEWALK, IN WHICH CASE THE FOLLOWING SHALL APPLY:
  - CONCRETE ABOVE & BELOW CONSTRUCTION JOINT SHALL BE CLASS A (6 SACKS PER CU. YD.)
  - CONSTRUCTION JOINT SHALL BE LOCATED AT PAVEMENT SUBGRADE.
- WHEN INLET IS CONSTRUCTED AS A SINGLE UNIT, ALL CONCRETE SHALL BE CLASS A.
- CLEARANCE SHALL BE 1 1/2" FOR ALL REINFORCING STEEL.



CITY OF SAN RAMON

DETAIL SD-1

DRAWN BY: ELR

CHECKED BY: ENGINEERING

DATE: 08/01/08

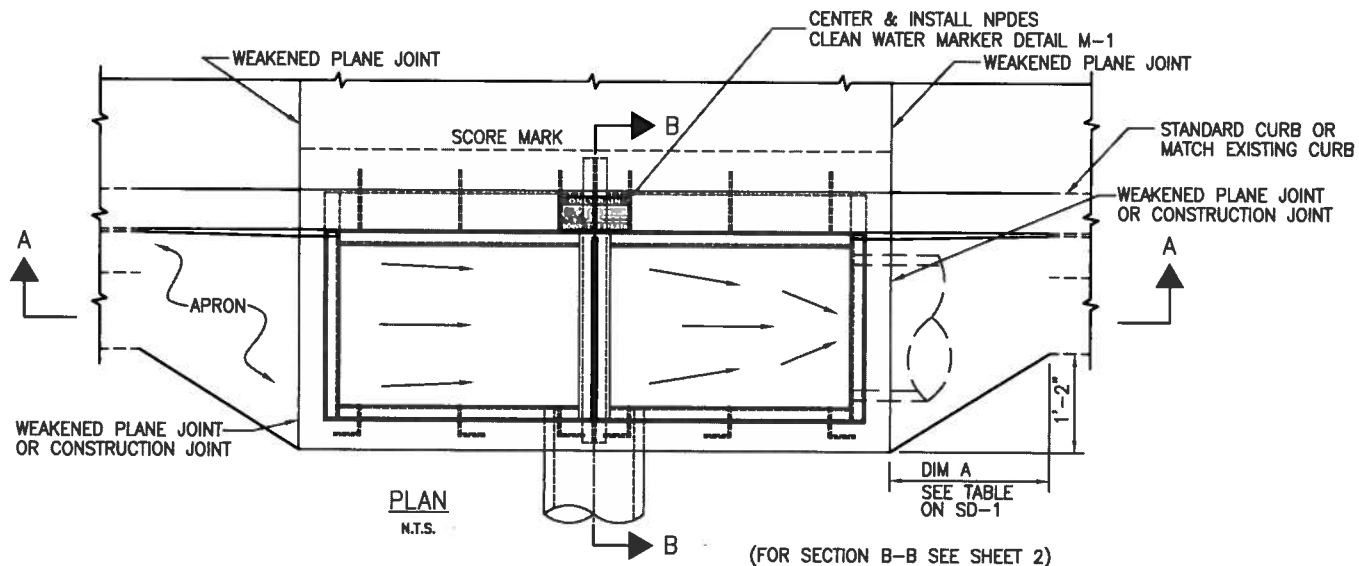
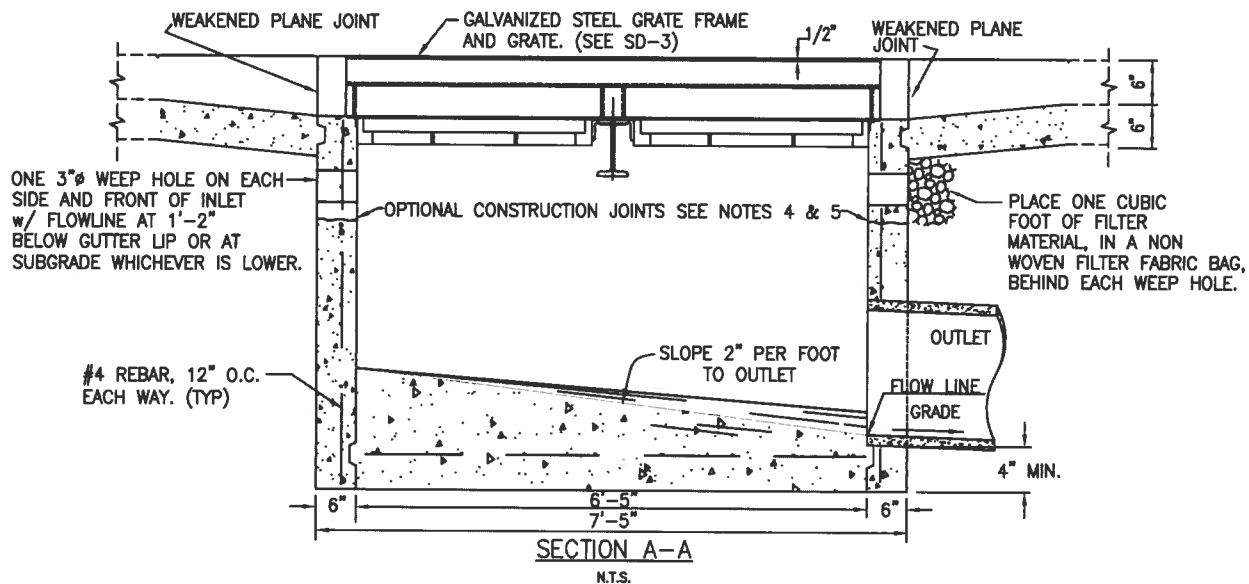
STANDARD DETAIL

TYPE "A" INLET  
CURB INLET

APPROVED BY: DATE: 6/15/09

*[Signature]*  
CITY ENGINEER

SHT 2 of 2



CITY OF SAN RAMON

DETAIL SD-2

DRAWN BY: ELR

CHECKED BY: ENGINEERING

DATE: 08/01/08

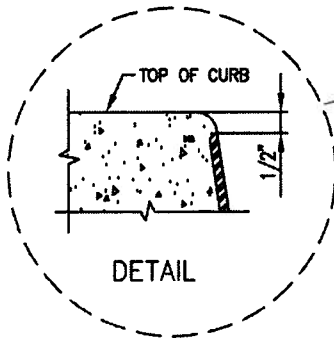
STANDARD DETAIL

TYPE "B" INLET  
CURB INLET

APPROVED BY: DATE: 6/15/09

*Joseph J. ...*  
CITY ENGINEER

SHT 1 of 2



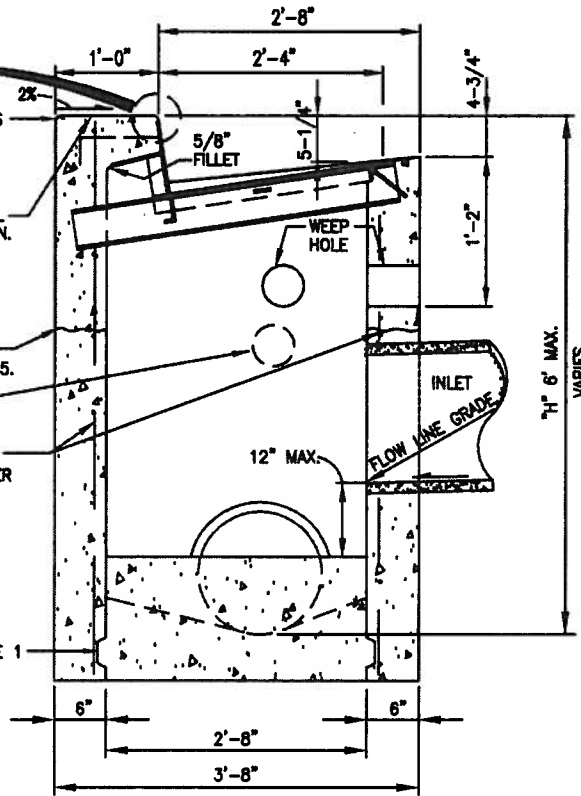
TOP OF CURB  
1/2"  
ROUND TO 1/8" RADIUS IF SIDEWALK AND INLET ARE NOT CONSTRUCTED MONOLITHICALLY  
SCORE MARK AT NORMAL BACK OF CURB LOCATION.

DETAIL

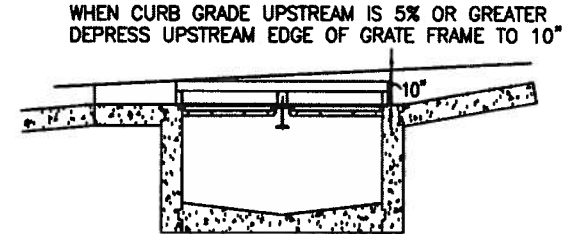
SEE SD-16 (IF REQUIRED) SUBDRAIN

OPTIONAL CONSTRUCTION JOINTS SEE NOTES 4 & 5.  
# 4@12" EACH WAY WHEN "H" IS GREATER THAN 6'.

SEE NOTE 1



SECTION B-B  
N.T.S.  
GRATE NOT SHOWN



DETAIL FOR STEEP CURB SLOPE

NOTES:

1. CONSTRUCTION JOINTS ARE OPTIONAL WHERE SHOWN; OTHER LOCATIONS ARE SUBJECT TO THE APPROVAL OF THE ENGINEER. KEY DIMENSIONS - 3/4" x 2-1/2".
2. WHEN DIMENSION "H" EXCEEDS 6', USE A MANHOLE WITH A TYPE "A" INLET OPENING ON TOP.
3. INLET AND OUTLET PIPES SHALL NOT INTERCEPT A BOX THROUGH A CORNER. IF THE PIPE IS TOO LARGE OR THE SKEW ANGLE IS TOO GREAT TO PERMIT THE OPENING TO BE MADE IN A SINGLE WALL, USE A MANHOLE BASE WITH A TYPE "A" INLET OPENING ON TOP.
4. CONSTRUCTION JOINTS SHOWN ARE PERMITTED WHEN TOP PORTION OF INLET IS TO BE CONSTRUCTED MONOLITHICALLY WITH CURB AND SIDEWALK, IN WHICH CASE THE FOLLOWING SHALL APPLY:
  - a. CONCRETE ABOVE & BELOW CONSTRUCTION JOINT SHALL BE CLASS A (6 SACKS PER CU. YD.)
  - b. CONSTRUCTION JOINT SHALL BE LOCATED AT PAVEMENT SUBGRADE.
5. WHEN INLET IS CONSTRUCTED AS A SINGLE UNIT, ALL CONCRETE SHALL BE CLASS A.
6. CLEARANCE SHALL BE 1 1/2" FOR ALL REINFORCING STEEL.



CITY OF SAN RAMON

DETAIL SD-2

DRAWN BY: ALA, DB, AH

CHECKED BY: ENGINEERING

DATE: 11/21/00

STANDARD DETAIL

TYPE "B" INLET  
(CURB INLET)

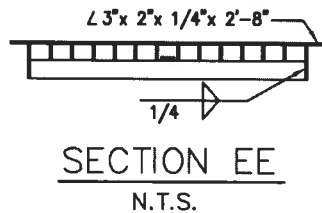
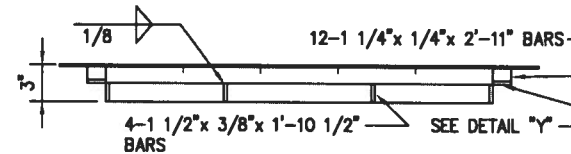
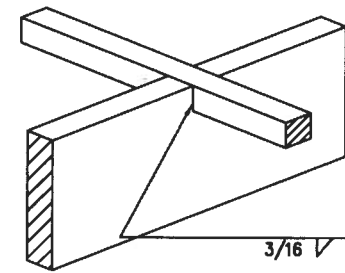
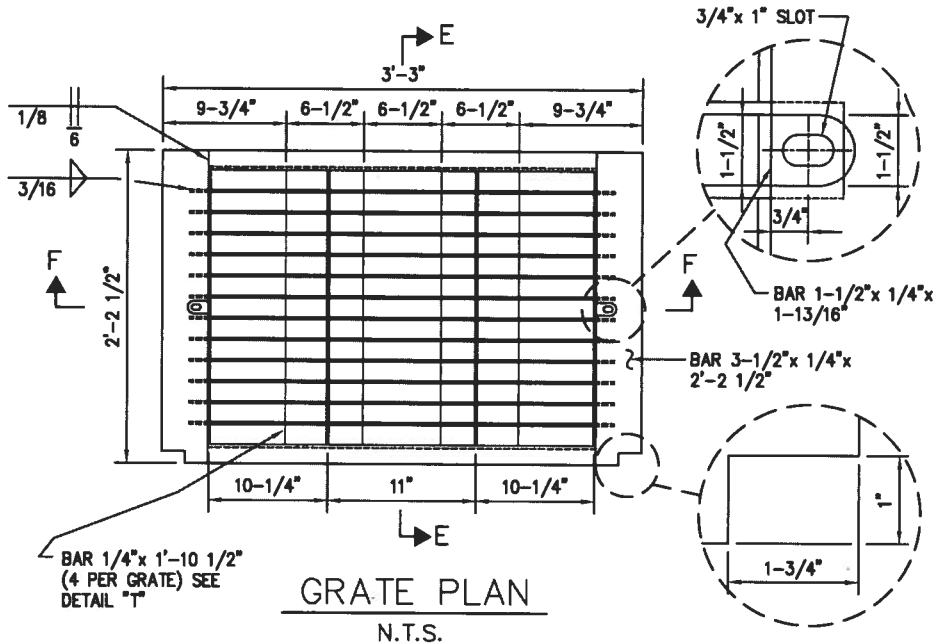
APPROVED BY: DATE: 9/18/01

*[Signature]*  
CITY ENGINEER

SHT 2 of 2

C:\WORK\PROJ\NEW\100007\SD-2





NOTES:

1. ALL MATERIALS, FABRICATION, GALVANIZING, AND SURFACE TREATMENT SHALL BE IN ACCORDANCE WITH SECTIONS 75 AND 96 OF THE CURRENT ISSUE OF THE STANDARD SPECIFICATIONS OF THE STATE OF CALIFORNIA, BUSINESS AND TRANSPORTATION AGENCY, DEPARTMENT OF TRANSPORTATION.
2. FRAMES AND COVERS SHALL FIT TOGETHER WITHOUT ROCKING.
3. FABRICATOR SHALL SUPPLY FASTENING SCREWS WITH FRAMES.
4. WEIGHTS: GRATE FRAME 88 lb., GRATE 94 lb.
5. 1/2" x 5 1/4" NELSON-TYPE HEADED STUDS MAY BE USED IN LIEU OF 1/2" x 5" x 3" ANCHORS.
6. IF THE GRATE IS IN THE BIKE LANE, A BIKE GRATE MAY BE REQUIRED BY THE CITY ENGINEER.



CITY OF SAN RAMON

DETAIL SD-3

DRAWN BY: ELR

CHECKED BY: ENGINEERING

DATE: 12/30/08

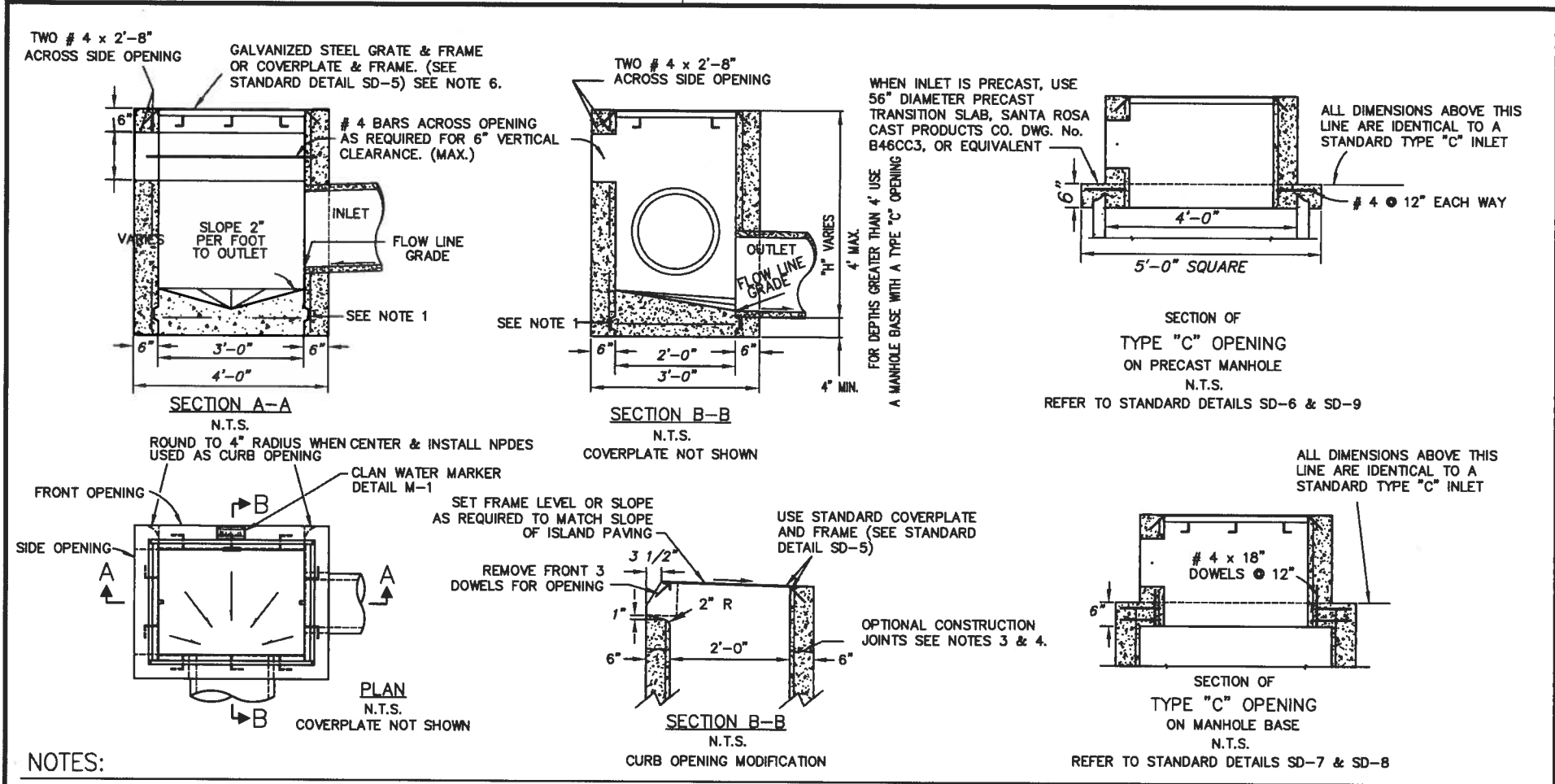
STANDARD DETAIL

CURB INLET  
FRAME AND GRATE

APPROVED BY: DATE: 6/15/09

*Joey Zahed*  
CITY ENGINEER

SHT 2 of 2



**NOTES:**

1. CONSTRUCTION JOINTS ARE OPTIONAL WHERE SHOWN; OTHER LOCATIONS ARE SUBJECT TO THE APPROVAL OF THE ENGINEER. KEY DIMENSIONS - 3/4" x 2-1/2".
2. INLET AND OUTLET PIPES SHALL NOT INTERCEPT A BOX THROUGH A CORNER. IF THE PIPE IS TOO LARGE OR THE SKEW ANGLE IS TOO GREAT TO PERMIT THE OPENING TO BE MADE IN A SINGLE WALL, USE A MANHOLE BASE WITH A TYPE "C" INLET OPENING ON TOP.
3. CONSTRUCTION JOINTS SHOWN ARE PERMITTED WHEN TOP PORTION OF INLET IS TO BE CONSTRUCTED MONOLITHICALLY WITH CURB AND SIDEWALK, IN WHICH CASE THE FOLLOWING SHALL APPLY:
  - a. CONCRETE ABOVE & BELOW CONSTRUCTION JOINT SHALL BE CLASS A (6 SACKS PER CU. YD.)
  - b. CONSTRUCTION JOINT SHALL BE LOCATED AT PAVEMENT SUBGRADE.
4. WHEN INLET IS CONSTRUCTED AS A SINGLE UNIT, ALL CONCRETE SHALL BE CLASS A.
5. LOCATION AND SIZE OF OPENINGS TO BE AS SHOWN ON PLANS OR AS OTHERWISE DETERMINED BY ENGINEER.
6. ALL INLETS SHALL BE CONSTRUCTED WITH GRATE UNLESS THE INLET IS TO BE IN PEDESTRIAN AREA, THEN A COVER PLATE SHALL BE USED.
7. PRECAST INLET, CONFORMING TO SANTA ROSA, CAST PRODUCTS CO. DRAWING No. B44CC1 OR EQUIVALENT, CAN BE SUBSTITUTED FOR CAST-IN-PLACE INLET.
8. #4 REBAR 12" O.C. BOTHWAYS IN WALLS AND BOTTOM.



CITY OF SAN RAMON

DRAWN BY: ELR

CHECKED BY: ENGINEERING

DATE: 08/01/08

DETAIL SD-4

STANDARD DETAIL

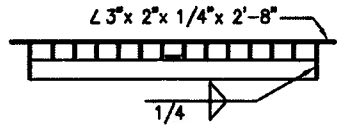
TYPE "C" INLET  
(DROP INLET)

APPROVED BY: DATE: 6/15/09

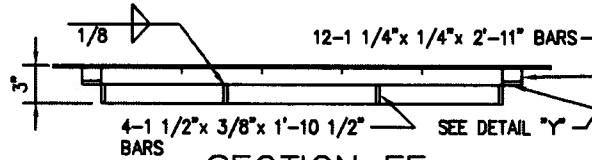
*John F. ...*  
CITY ENGINEER

SHT 1 of 1

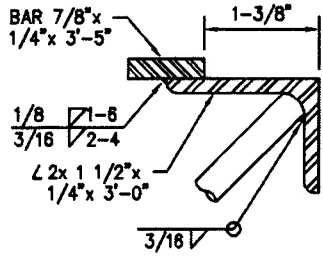
RD 2:0:36:49 6/2/99 11:50:54 G:\STANDARDDRAWINGS\2000SD-5



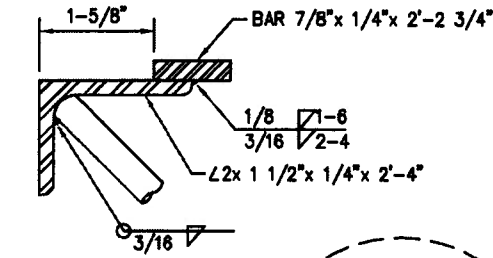
**SECTION EE**  
N.T.S.



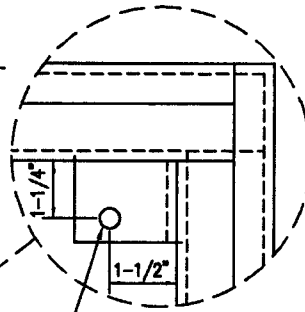
**SECTION FF**  
N.T.S.



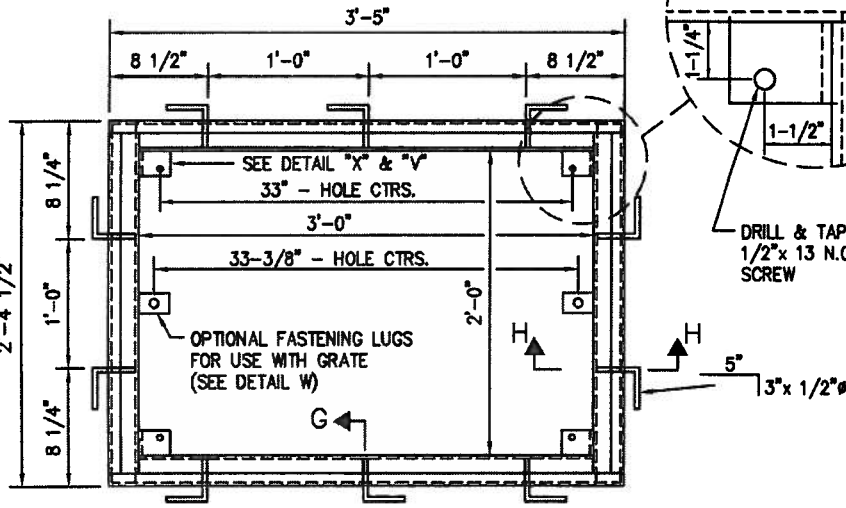
**SECTION GG**  
N.T.S.



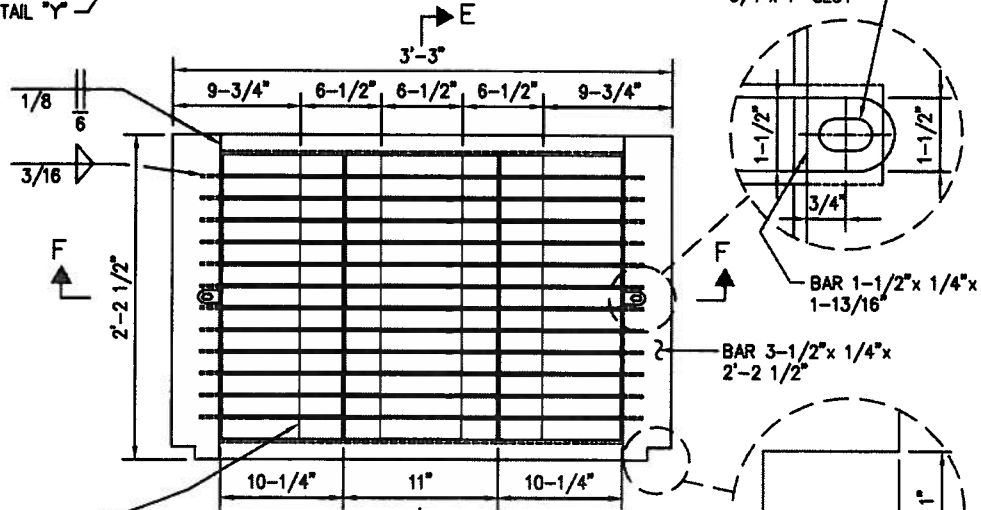
**SECTION HH**  
N.T.S.



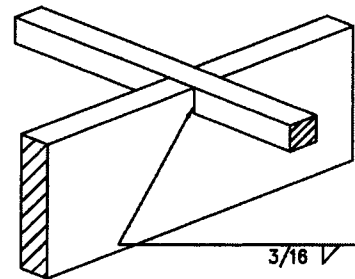
DRILL & TAP FOR  
1/2" x 13 N.C. MACH.  
SCREW



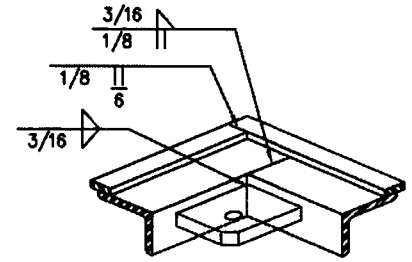
**COVERPLATE FRAME**  
N.T.S.



**GRATE PLAN**  
N.T.S.



**DETAIL T**  
N.T.S.



**DETAIL X**  
N.T.S.  
ALSO SEE DETAIL V



CITY OF SAN RAMON

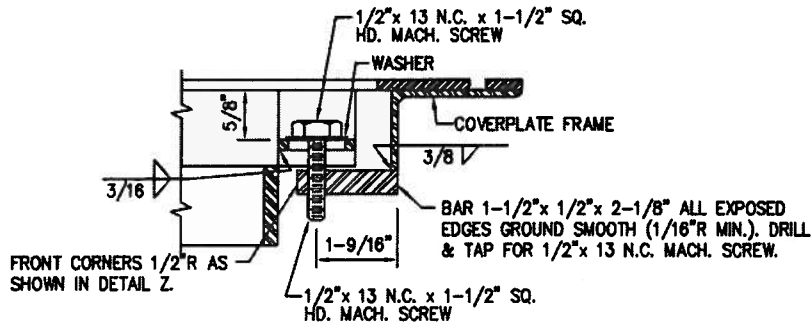
DETAIL SD-5

DRAWN BY: AA & AH  
CHECKED BY: ENGINEERING  
DATE: 11/21/00

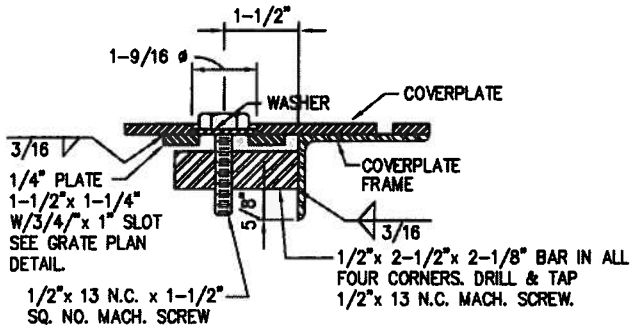
STANDARD DETAIL  
DROP INLET - FRAME &  
GRATE & COVERPLATE

APPROVED BY: *[Signature]* DATE: 1/10/01  
CITY ENGINEER

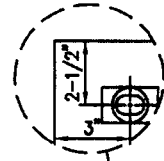
SHT 1 of 2



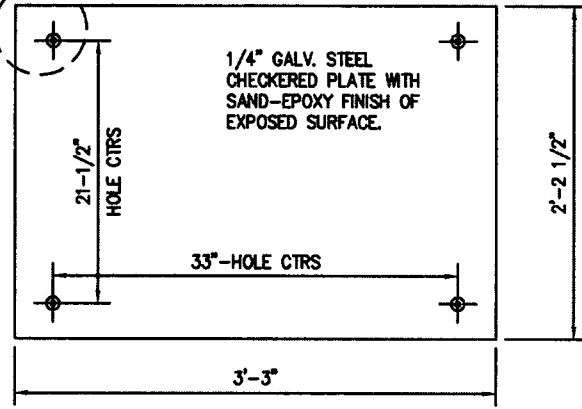
**DETAIL W** - GRATE FASTENING LUG FOR COVERPLATE FRAME  
N.T.S.



**DETAIL V**  
N.T.S.  
ALSO SEE DETAIL X COVERPLATE FASTENER



NOTE: WHEN GRATE IS TO BE USED, DO NOT INSTALL CORNER FASTENERS SHOWN IN DETAILS "X" AND "V".



**COVERPLATE**  
N.T.S.

**COVERPLATE - SAND-EPOXY FINISH NOTES**

1. SURFACE TO BE COATED SHALL BE SAND BLASTED THE MINIMUM REQUIRED TO OBTAIN A DULL GREY FINISH.(SEE NOTE 1)
2. A 60 MIL. COAT OF BINDER (ADHESIVE), EPOXY RESIN BASE, AS PER SECTION 96-2.01 OF THE STANDARD SPECIFICATIONS SHALL BE APPLIED TO THE EXPOSED SURFACE OF THE COVER PLATE. BOLT HOLES SHALL NOT BE COATED. (SEE NOTE 1)
3. CLEAN, DRY, SILICA SAND SHALL BE APPLIED TO COMPLETELY COVER THE EPOXIED SURFACE.
4. THE SAND-EPOXY FINISH SHALL BE CURED FOR 6 HOURS AND EXCESS SAND SHALL BE REMOVED.

**NOTES:**

1. ALL MATERIALS, FABRICATION, GALVANIZING, AND SURFACE TREATMENT SHALL BE IN ACCORDANCE WITH SECTIONS 75 AND 96 OF THE CURRENT ISSUE OF THE STANDARD SPECIFICATIONS OF THE STATE OF CALIFORNIA, BUSINESS AND TRANSPORTATION AGENCY, DEPARTMENT OF TRANSPORTATION.
2. FRAMES AND COVERS SHALL FIT TOGETHER WITHOUT ROCKING.
3. FABRICATOR SHALL SUPPLY FASTENING SCREWS WITH FRAMES.
4. WEIGHTS: GRATE FRAME 88 lb., GRATE 94lb., COVERPLATE FRAME 45lb., COVERPLATE 74 lb.
5. 1/2"x 5 1/4" NELSON-TYPE HEADED STUDS MAY BE USED IN LIEU OF 1/2"x 5"x 3" ANCHORS.



**CITY OF SAN RAMON**

DETAIL SD-5

DRAWN BY: AA, DB, & AH  
CHECKED BY: ENGINEERING

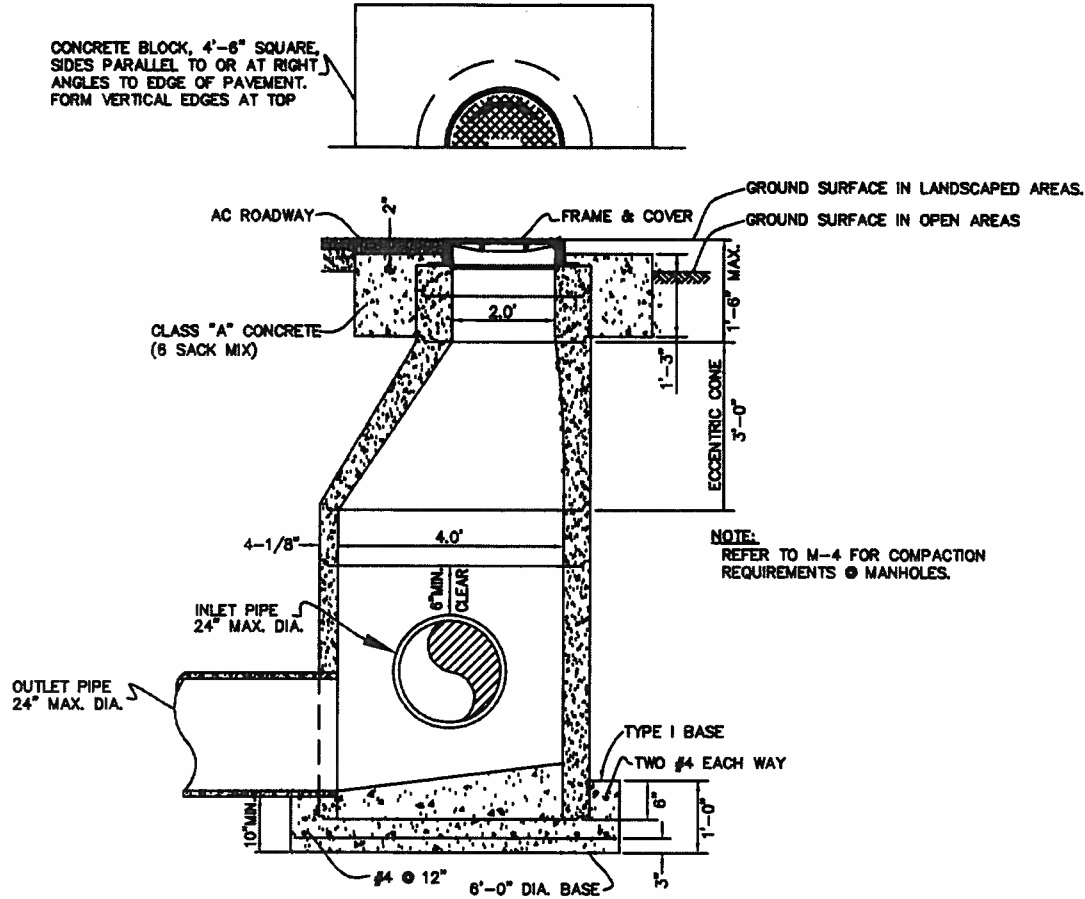
DATE: 11/21/00

**STANDARD DETAIL**  
DROP INLET FRAME, GRATE AND COVER PLATE

APPROVED BY: DATE: 9/18/01  
*Jay Dymally*  
CITY ENGINEER

SHT 2 of 2

CONCRETE BLOCK, 4'-6" SQUARE,  
SIDES PARALLEL TO OR AT RIGHT  
ANGLES TO EDGE OF PAVEMENT.  
FORM VERTICAL EDGES AT TOP



NOTE:  
REFER TO M-4 FOR COMPACTION  
REQUIREMENTS @ MANHOLES.

NOTES:

1. ALL REINFORCED CONCRETE SHALL BE CLASS A (6 SACK MIX).
2. ALL CONCRETE JOINTS SHALL BE CLEANED, WETTED, AND MORTARED PRIOR TO SETTING NEXT SECTION. JOINTS SHALL THEN BE PATCHED, TROWELLED, AND BRUSHED SMOOTH.
3. TYPE "I" MANHOLE BASES 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. TYPE "II" MANHOLE BASES (SD-7) ARE FOR USE WITH PIPES TO 42" IN DIAMETER. TYPE "III" MANHOLE BASES (SD-8) ARE FOR USE WITH PIPES TO 60" IN DIAMETER. MANHOLE BASES FOR PIPES LARGER THAN 60" IN DIAMETER SHALL REQUIRE A SPECIAL DESIGN.
4. USE OF THE EXTENSION RINGS IS LIMITED TO 18" MANHOLE THROAT LENGTH.
5. FRAME AND EXTENSION RINGS MUST BE SECURED BY CONCRETE RING.
6. MANHOLE COVER FRAME SHALL BE ADJUSTED TO CONFORM TO GRADE AND CROSS-SLOPE OF PAVEMENT.
7. FOR DETAILS OF MANHOLE FRAME AND COVER, SEE STANDARD DETAIL SD-9.



CITY OF SAN RAMON

DETAIL SD-6

DRAWN BY: DB, AH

CHECKED BY: ENGINEERING

DATE: 11/28/00

STANDARD DETAIL

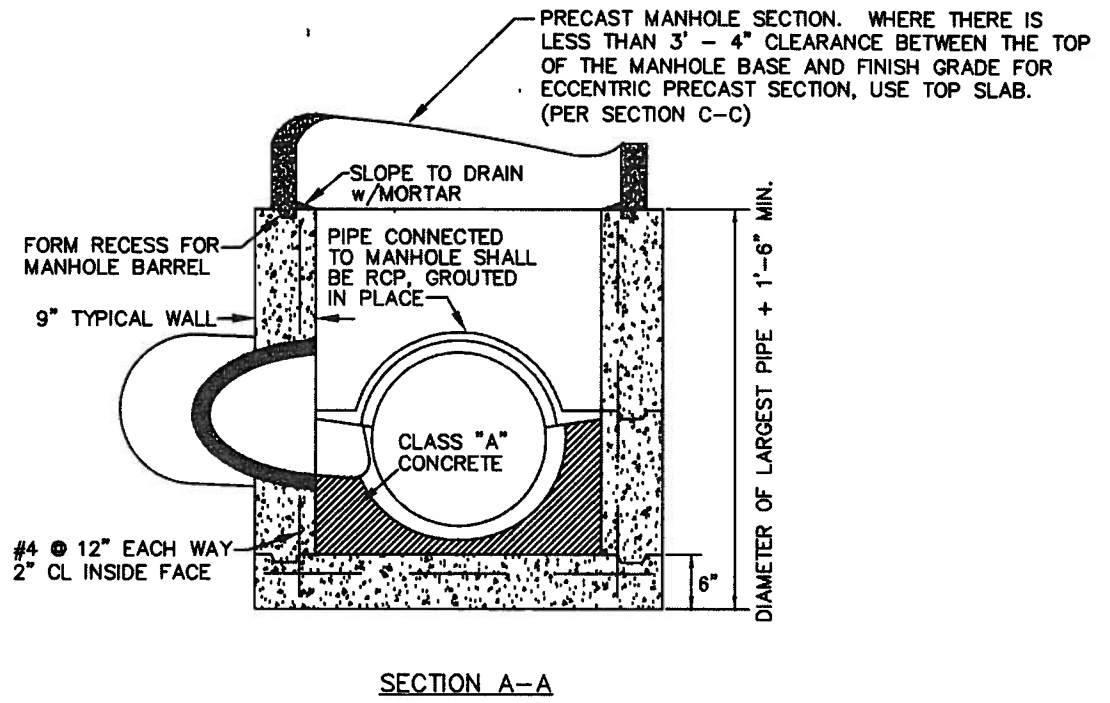
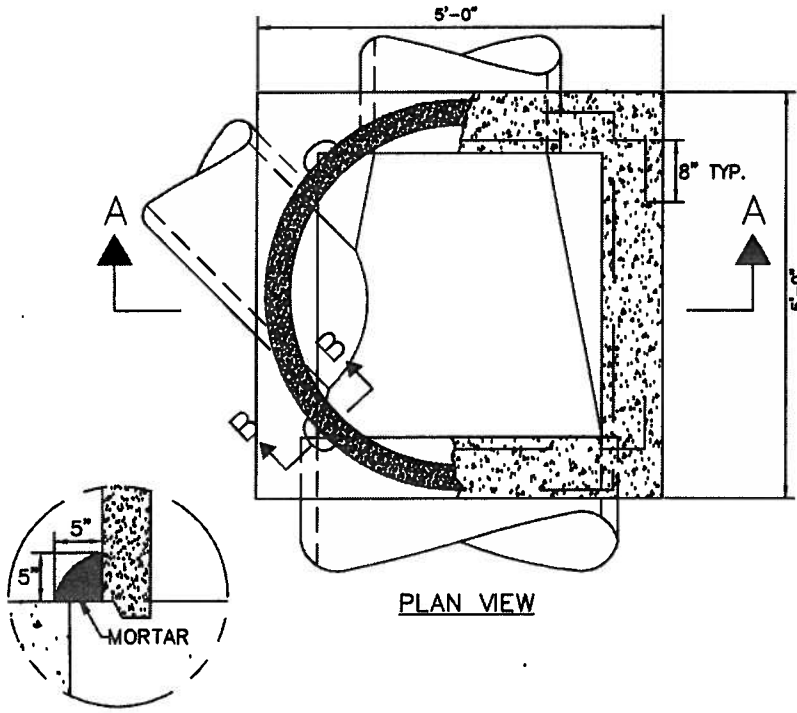
PRECAST MANHOLE AND  
TYPE I BASE

APPROVED BY: DATE: 9/18/01

*Jay DePaulis*  
CITY ENGINEER

SHT 1 of 1

10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100



NOTES:

1. ALL REINFORCED CONCRETE SHALL BE CLASS "A" (6 SACK MIX).
2. CONSTRUCTION JOINTS ARE OPTIONAL WHERE SHOWN; OTHER LOCATIONS ARE SUBJECT TO THE APPROVAL OF THE ENGINEER. KEY DIMENSIONS ARE 1 1/2" x 3 1/2".
3. INLET AND OUTLET PIPES SHALL NOT INTERCEPT A MANHOLE BASE THROUGH A CORNER. IF THE SKEW ANGLE IS TOO GREAT TO PERMIT THE OPENING TO BE MADE IN A SINGLE WALL, USE A TYPE "III" MANHOLE BASE. (SEE SD-8)
4. TYPE "I" MANHOLE BASES (SD-6) ARE FOR USE WITH PIPES TO 24" IN DIAMETER AND WHERE THERE IS SUFFICIENT COVER TO USE A MINIMUM LENGTH MANHOLE BARREL, ECCENTRIC CONE, AND COVER FRAME. TYPE "II" MANHOLE BASES (SD-7) ARE FOR PIPES TO 42" DIAMETER. TYPE "III" MANHOLE BASES (SD-8) ARE FOR USE WITH PIPES TO 60" IN DIAMETER. MANHOLE BASES FOR PIPES LARGER THAN 60" IN DIAMETER SHALL REQUIRE A SPECIAL DESIGN.
5. FOR DETAILS OF PRECAST MANHOLE, SEE STANDARD DETAIL SD-6.
6. FOR DETAILS OF MANHOLE FRAME AND COVER, SEE STANDARD DETAIL SD-9.



CITY OF SAN RAMON

DETAIL SD-7

DRAWN BY: DB, AH

CHECKED BY: ENGINEERING

DATE: 11/28/00

STANDARD DETAIL

TYPE II

MANHOLE BASE

APPROVED BY: DATE: 9/10/01

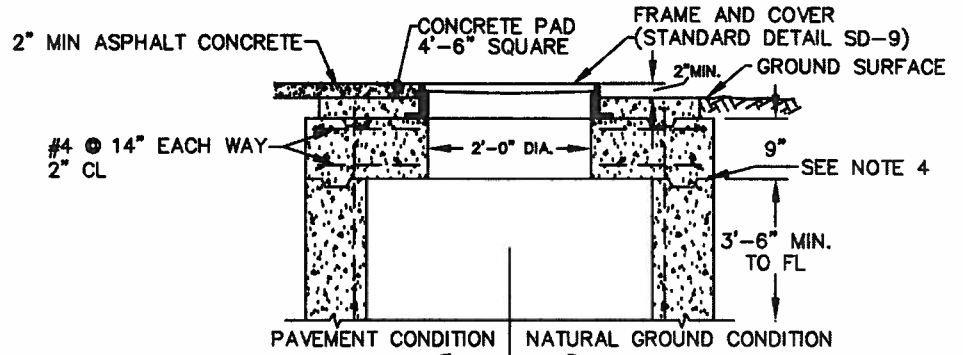
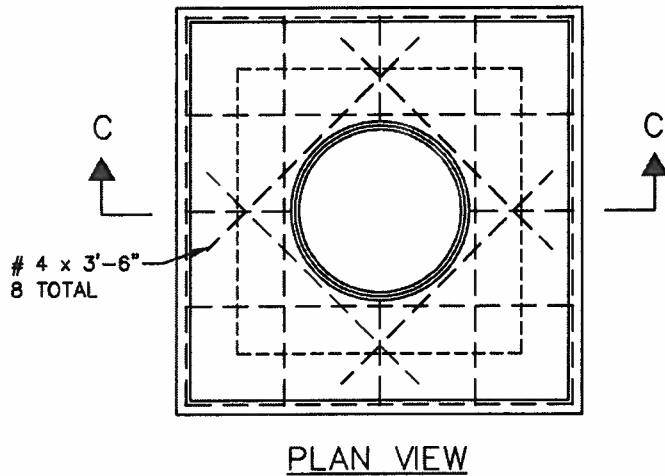
*Jay... ..*

CITY ENGINEER

SHT 1 of 2

12/28/00 11:28 AM

W:\STANDARD\DRAWINGS\2000\SD-7-A



SECTION C-C  
TOP SLAB

NOTES:

- USE WHERE THERE IS LESS THAN 3' - 4" CLEARANCE BETWEEN THE TOP OF THE MANHOLE BASE AND FINISH GRADE FOR A PRECAST SECTION AND MANHOLE COVER FRAME. ALL REINFORCED CONCRETE SHALL BE CLASS "A".
- WHEN PLACING A TYPE "A" OR TYPE "C" INLET OPENING ON A TYPE "II" MANHOLE BASE, THE OPENING IN THE SLAB SHALL CONFORM TO THE INSIDE DIMENSIONS OF THE INLET TO BE USED.
- ALL REINFORCED CONCRETE SHALL BE CLASS "A" (6 SACK MIX).
- KEY DIMENSIONS ARE 1 1/2" x 3 1/2".
- FOR DETAILS OF MANHOLE FRAME AND COVER, SEE STANDARD DETAIL SD-9.



CITY OF SAN RAMON

DETAIL SD-7

DRAWN BY: DB, AH

CHECKED BY: ENGINEERING

DATE: 11/28/00

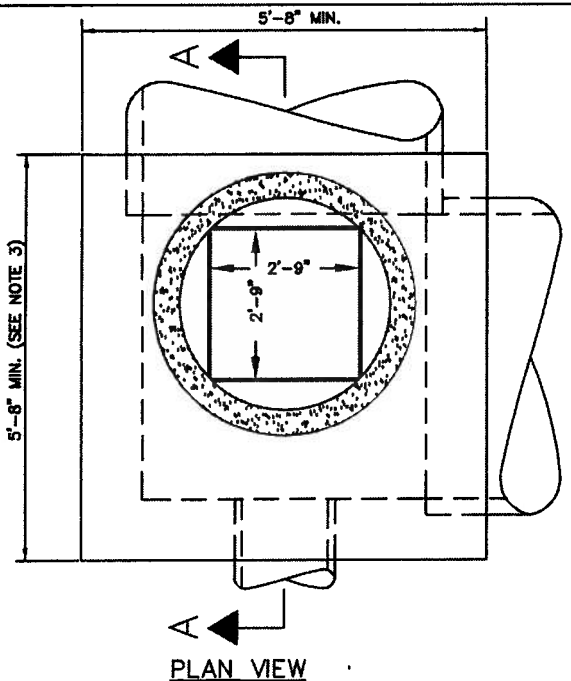
STANDARD DETAIL  
TYPE II  
MANHOLE BASE

APPROVED BY: DATE: 9/18/01

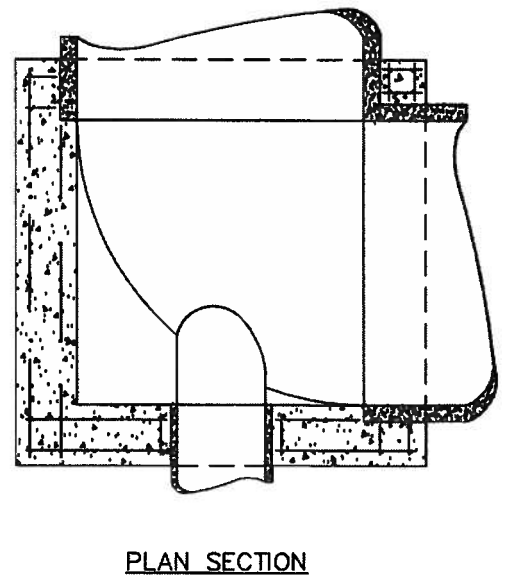
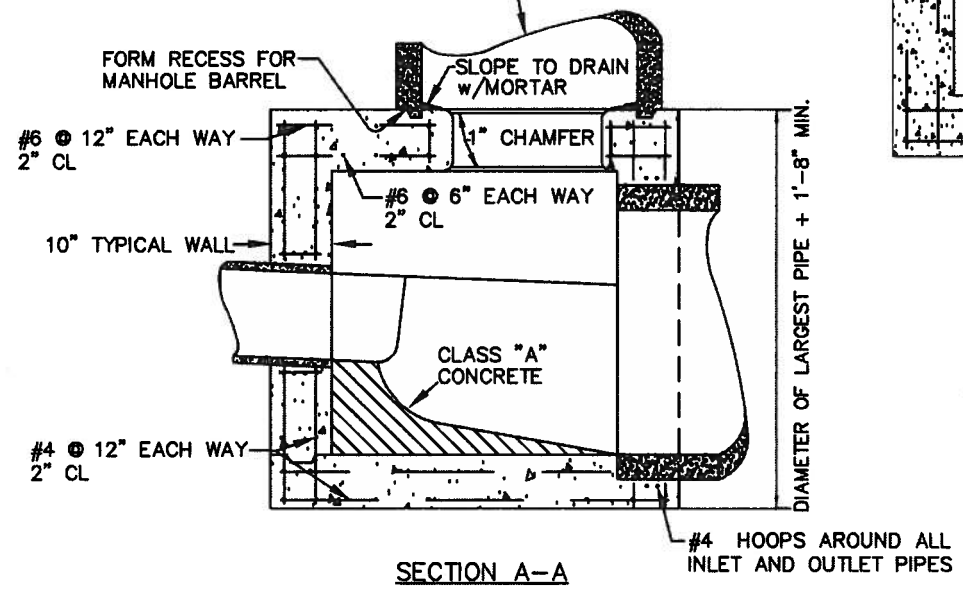
*John DeLeon*  
CITY ENGINEER

SHT 2 of 2



RO 3:16:55:37 6/4/99 9:32:25 G:\STANDARDDRAWINGS\2000SD-8

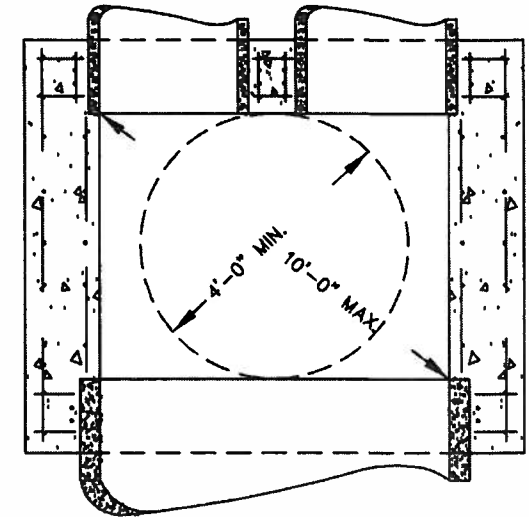
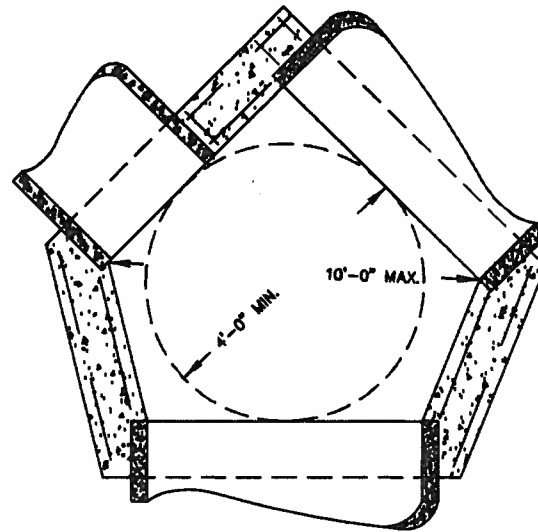
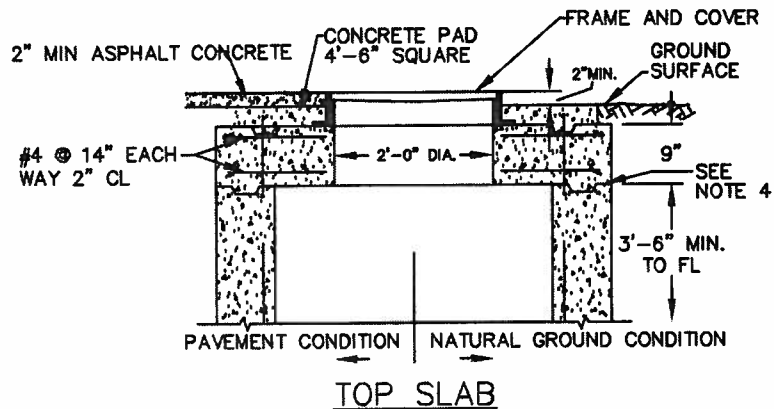


PRECAST MANHOLE SECTION, WHERE THERE IS LESS THAN 3' - 4" CLEARANCE BETWEEN THE TOP OF THE MANHOLE BASE AND FINISH GRADE FOR PRECAST SECTION, USE TOP SLAB.



- NOTES:**
- ALL REINFORCED CONCRETE SHALL BE CLASS "A" (6 SACK MIX).
  - CONSTRUCTION JOINTS ARE OPTIONAL WHERE SHOWN; OTHER LOCATIONS ARE SUBJECT TO THE APPROVAL OF THE ENGINEER. KEY DIMENSIONS ARE 1 1/2" x 3 1/2".
  - INLET AND OUTLET PIPES SHALL NOT INTERCEPT A MANHOLE BASE THROUGH A CORNER. IF THE SKEW ANGLE IS TOO GREAT TO PERMIT THE OPENING TO BE MADE IN A SINGLE WALL, THE WALL MAY BE LENGTHENED OR RELOCATED AS EXPLAINED ON SHEET 2 OF 2.
  - TYPE "I" MANHOLE BASES (SD-6) ARE FOR USE WITH PIPES TO 24" IN DIAMETER AND WHERE THERE IS SUFFICIENT COVER TO USE A MINIMUM LENGTH MANHOLE BARREL, ECCENTRIC CONE, AND COVER FRAME. TYPE "II" MANHOLE BASES (SD-7) ARE FOR PIPES TO 42" DIAMETER. TYPE "III" MANHOLE BASES (SD-8) ARE FOR USE WITH PIPES TO 60" IN DIAMETER. MANHOLE BASES FOR PIPES LARGER THAN 60" IN DIAMETER SHALL REQUIRE A SPECIAL DESIGN.
  - FOR DETAILS OF PRECAST MANHOLE, SEE STANDARD DETAIL SD-6.
  - FOR DETAILS OF MANHOLE FRAME AND COVER, SEE STANDARD DETAIL SD-9.

	CITY OF SAN RAMON	DRAWN BY: DB, AH	STANDARD DETAIL TYPE III MANHOLE BASE	APPROVED BY: DATE: 9/10/00
	DETAIL SD-8	CHECKED BY: ENGINEERING		 CITY ENGINEER
		DATE: 11/28/00		SHT 1 of 2



PLAN SECTION

PLAN SECTION

SPECIAL APPLICATIONS OF TYPE "III" MANHOLE BASES

TOP SLAB NOTES:

1. USE A TOP SLAB WHERE THERE IS LESS THAN 3' - 4" CLEARANCE BETWEEN THE TOP OF THE MANHOLE BASE AND FINISH GRADE FOR A PRECAST SECTION AND MANHOLE COVER FRAME.
2. ALSO USE A TOP SLAB WHEN PLACING A TYPE "A" OR TYPE "C" INLET OPENING ON A TYPE "III" MANHOLE BASE. THE OPENING IN THE SLAB SHALL CONFORM TO THE INSIDE DIMENSIONS OF THE INLET TO BE USED.
3. ALL REINFORCED CONCRETE SHALL BE CLASS "A" (6 SACK MIX).
4. CONSTRUCTION JOINTS ARE OPTIONAL WHERE SHOWN. OTHER LOCATIONS ARE SUBJECT TO THE APPROVAL OF THE ENGINEER. KEY DIMENSIONS ARE 1 1/2" x 3 1/2".
5. FOR DETAILS OF MANHOLE FRAME AND COVER, SEE STANDARD DETAIL SD-9.

NOTE:

WHEN UNUSUAL CIRCUMSTANCES, SUCH AS EXCESSIVE SKEW OR PARALLEL PIPES PREVENT THE USE OF A NORMAL TYPE "III" MANHOLE BASE, THE WALLS MAY BE LENGTHENED OR RELOCATED TO ACCOMMODATE THE PIPES, PROVIDING THE FOLLOWING CRITERIA ARE MET:

1. THE INSIDE DIMENSIONS OF THE BASE SHALL BE SUCH THAT A FOUR FOOT DIAMETER CIRCLE WILL LAY FLAT ON THE FLOOR, AS SHOWN.
2. THE MAXIMUM DISTANCE BETWEEN ANY TWO INSIDE CORNERS SHALL BE 10'-0", 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" INSIDE DIAMETER.

IF ANY ONE OF THESE CRITERIA CANNOT BE MET, A SPECIAL DESIGN WILL BE REQUIRED.



CITY OF SAN RAMON

DRAWN BY: DB & AH

CHECKED BY: ENGINEERING

DETAIL SD-8

DATE: 11/28/00

STANDARD DETAIL

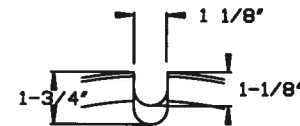
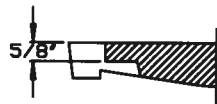
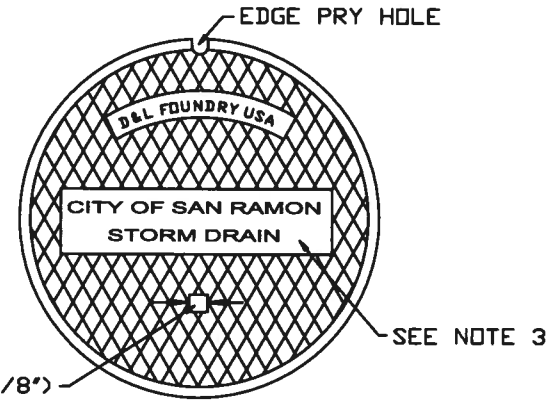
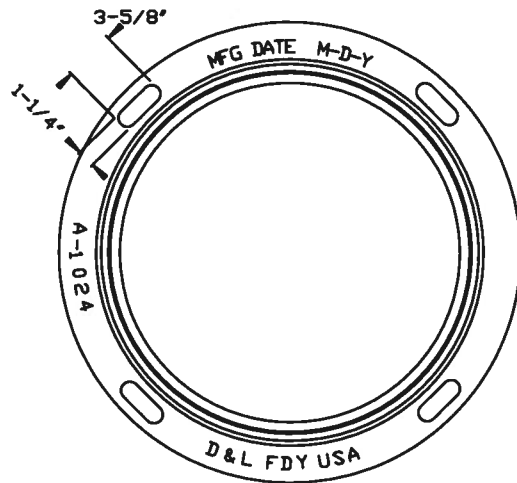
TYPE III  
MANHOLE BASE

APPROVED BY: DATE: 9/10/01

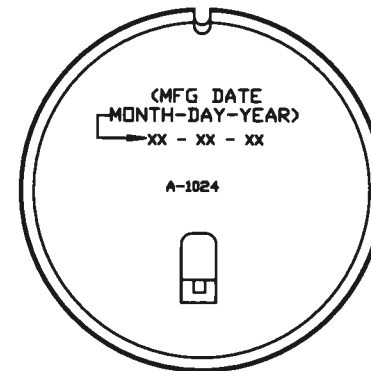
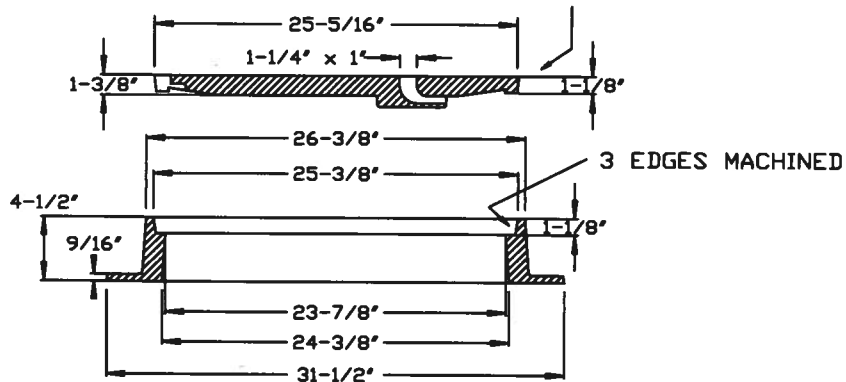
*J. J. [Signature]*  
CITY ENGINEER

SHT 2 of 2

KU 3:23:40:38 0/4/98 10:48:40 U: \SIAMUAKULUKAWINGS\200001-04



SIDE AND BOTTOM EDGES MACHINED



**NOTES:**

1. ALL MANHOLE COVER CONTACT AND BEARING SURFACES SHALL BE MACHINED TO FIT ACCURATELY SO THAT COVERS WILL NOT ROCK.
2. MANHOLE FRAME AND COVER SHALL BE D&L FOUNDRY MODEL A-1040 OR APPROVED EQUIVALENT.
3. PRIVATE STORM DRAINS MUST BE NOTED AS SUCH.



CITY OF SAN RAMON

DETAIL SD-9

DRAWN BY: ELR

CHECKED BY: ENGINEERING

DATE: 12/29/08

STANDARD DETAIL

STORM MANHOLE FRAME & COVER

APPROVED BY: DATE: 6/15/09

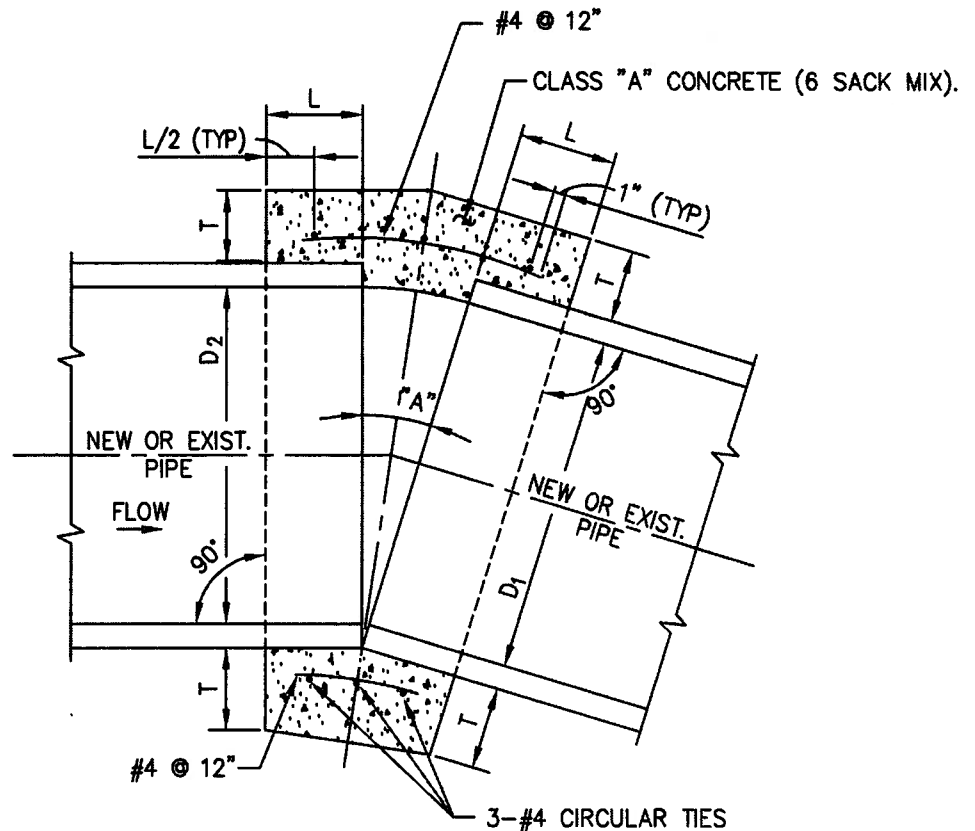
*James J. ...*  
CITY ENGINEER

SHT 1 of 1





D	L	T
12"	1.0'	4"
18"	1.0'	5"
24"	1.0'	6"
36"	1.5'	8"
48"	1.5'	10"
57"	1.5'	10"
60"	1.75'	11"
66"	1.75'	11"



NOTES:

1. TO BE USED ONLY WITH APPROVAL OF THE CITY ENGINEER.
2. WHERE PIPES OF DIFFERENT DIAMETERS ARE JOINED WITH A CONCRETE COLLAR, L AND T SHALL BE THOSE OF THE LARGER PIPE  $D=D_1$  OR  $D_2$ , WHICHEVER IS GREATER.
3. FOR PIPES LARGER THAN 66" A SPECIAL COLLAR DETAIL IS REQUIRED.
4. FOR PIPE SIZE NOT LISTED USE NEXT SIZE LARGER.
5. OMIT REINFORCING ON PIPES 24" AND LESS IN DIAMETER AND ON ALL PIPES WHERE ANGLE "A" IS LESS THAN 10°.
6. WHERE REINFORCING IS REQUIRED THE DIAMETER OF THE CIRCULAR TIES SHALL BE  $D + (2 \times \text{WALL THICKNESS}) + 8"$ .
7. WHEN  $D_1$  IS EQUAL TO OR LESS THAN  $D_2$ , JOIN INVERTS AND WHEN  $D_1$  IS GREATER THAN  $D_2$  JOIN SOFFITS.
8. PIPE MAY BE CORRUGATED METAL PIPE, CONCRETE PIPE, OR REINFORCED CONCRETE PIPE.



CITY OF SAN RAMON

DETAIL SD-12

DRAWN BY: AA, DB, & AH

CHECKED BY: ENGINEERING

DATE: 12/19/00

STANDARD DETAIL

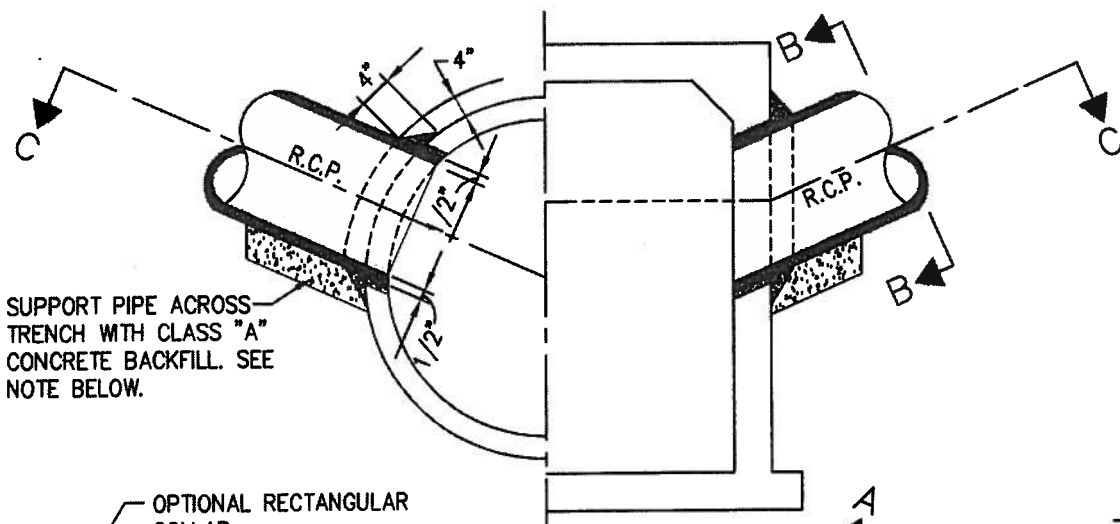
CONCRETE COLLAR

APPROVED BY: DATE: 9/18/01

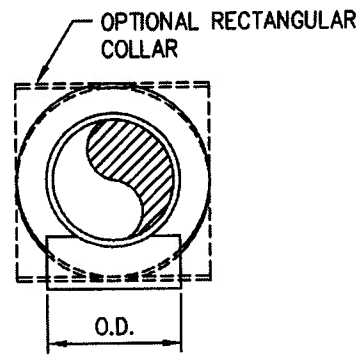
*Joe Deane*  
CITY ENGINEER

SHT 1 of 1

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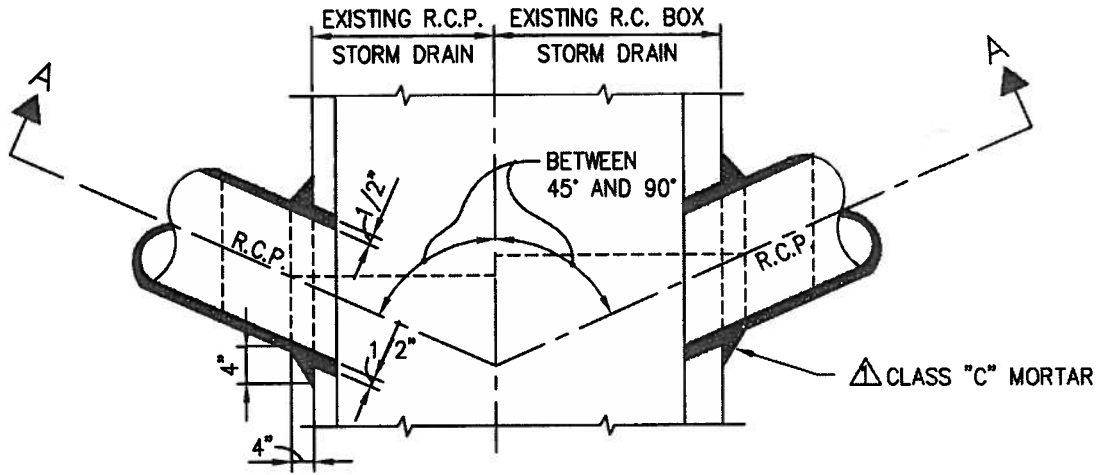


SUPPORT PIPE ACROSS TRENCH WITH CLASS "A" CONCRETE BACKFILL. SEE NOTE BELOW.



SECTION B-B  
N.T.S.

SECTION A-A  
N.T.S.



SECTION C-C  
N.T.S.

NOTES :

1. TO BE USED ONLY WITH APPROVAL OF THE CITY ENGINEER.
2. O.D. OF CONNECTOR PIPE SHALL NOT BE LARGER THAN ONE-HALF ID OF MAIN R.C.P. STORM DRAIN.
3. THE MINIMUM OPENING INTO THE EXISTING STORM DRAIN SHALL BE THE OUTSIDE DIAMETER OF THE CONNECTING PIPE PLUS 1 INCH.
4. THE CONCRETE BACKFILL SUPPORTING THE CONNECTING PIPE MAY BE OMITTED IF THE PIPE IS LAID ON UNDISTURBED EARTH TO STORM DRAIN WALL.



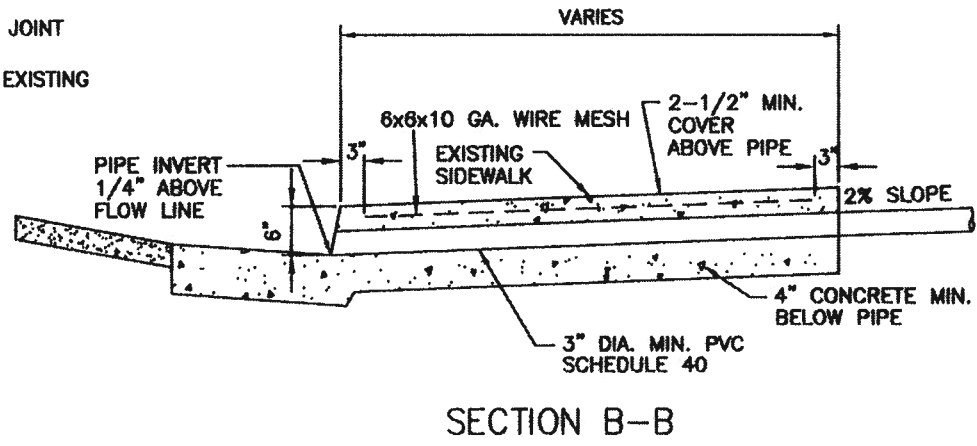
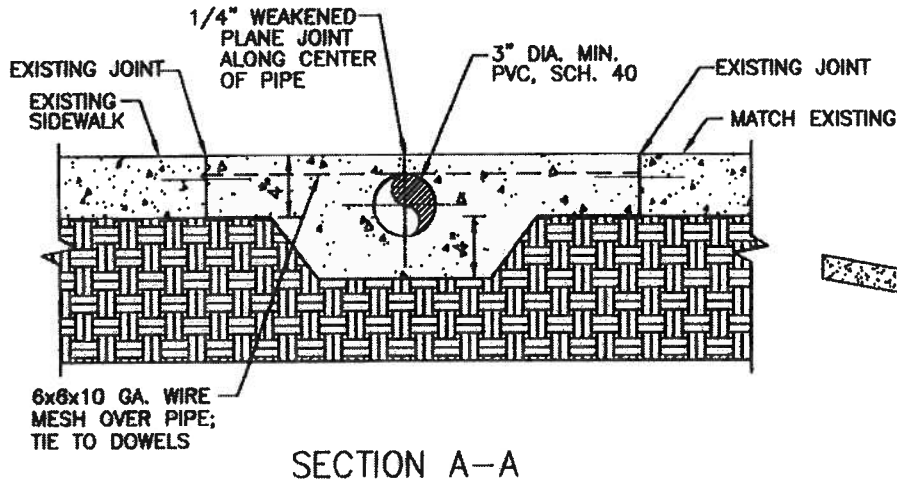
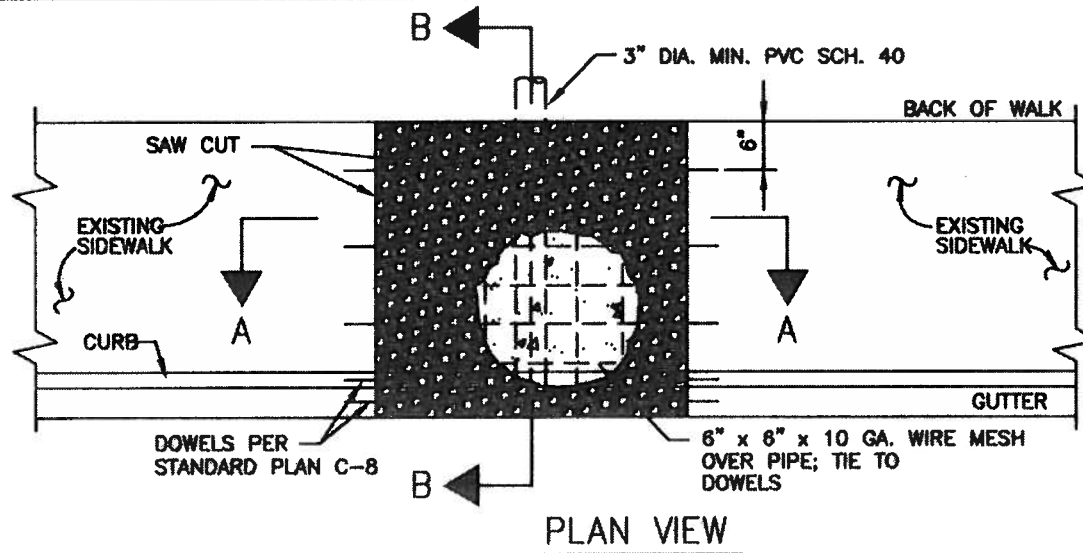
<b>CITY OF SAN RAMON</b>	DRAWN BY: AA & AH
	CHECKED BY: ENGINEERING
DETAIL SD-13	DATE: 12/19/00

STANDARD DETAIL

CONNECTION TO EXISTING STORM DRAIN

APPROVED BY:	DATE: 9/18/01
<i>John Deppa Dehnd</i> CITY ENGINEER	
SHT 1	of 1

G:\STANDARDDRAWINGS\2000SD-15



NOTES:

1. BROOM FINISH, UNLESS OTHERWISE DIRECTED
2. SAWCUT EXISTING SIDEWALK AT THE NEAREST WEAKENED PLANE JOINTS AND/OR SCORE LINES.
3. ADD WEAKENED PLANE JOINTS AND SCORE LINES PER STANDARD PLAN C-7.
4. USE OF CORING SUBJECT TO APPROVAL BY CITY ENGINEER.



CITY OF SAN RAMON

DETAIL SD-14

DRAWN BY: AA, AH

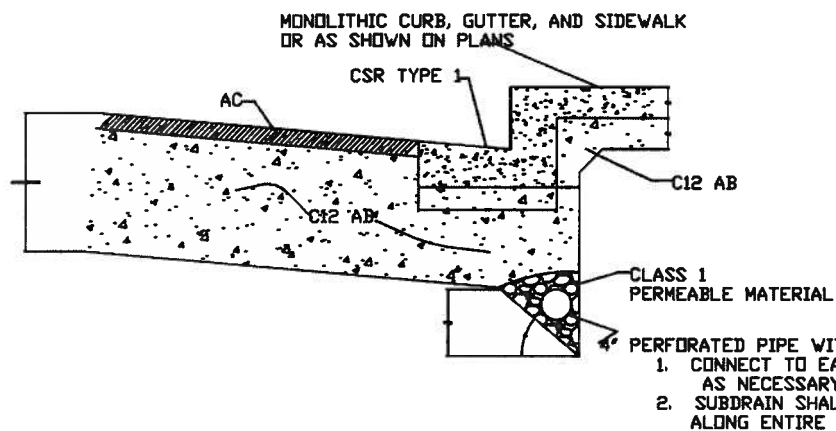
CHECKED BY: ENGINEERING

DATE: 5/21/04

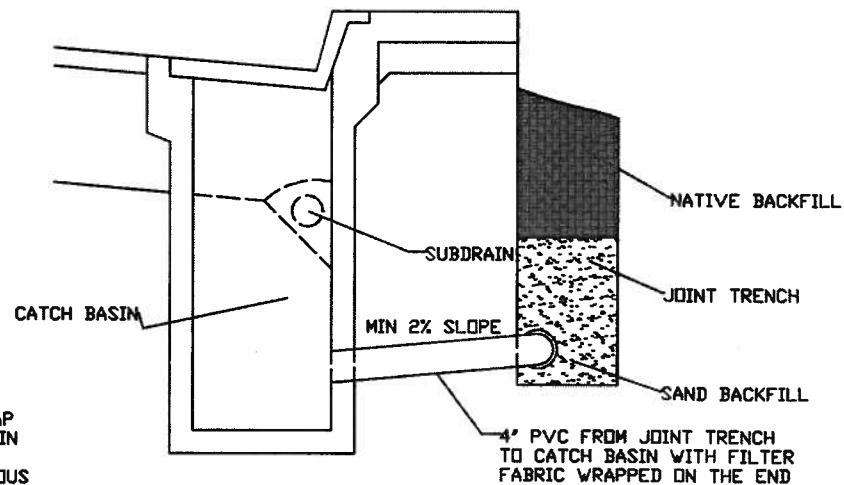
STANDARD DETAIL  
SIDEWALK  
CROSS - DRAIN

APPROVED BY: DATE: 5/20/04  
*Jorge D. Zebuda*  
CITY ENGINEER

SHT 1 of 1



SUBDRAIN



SUBDRAIN AT CATCH BASIN



CITY OF SAN RAMON

DETAIL SD-15

DRAWN BY: AH

CHECKED BY: ENGINEERING

DATE: 1/30/01

STANDARD DETAIL

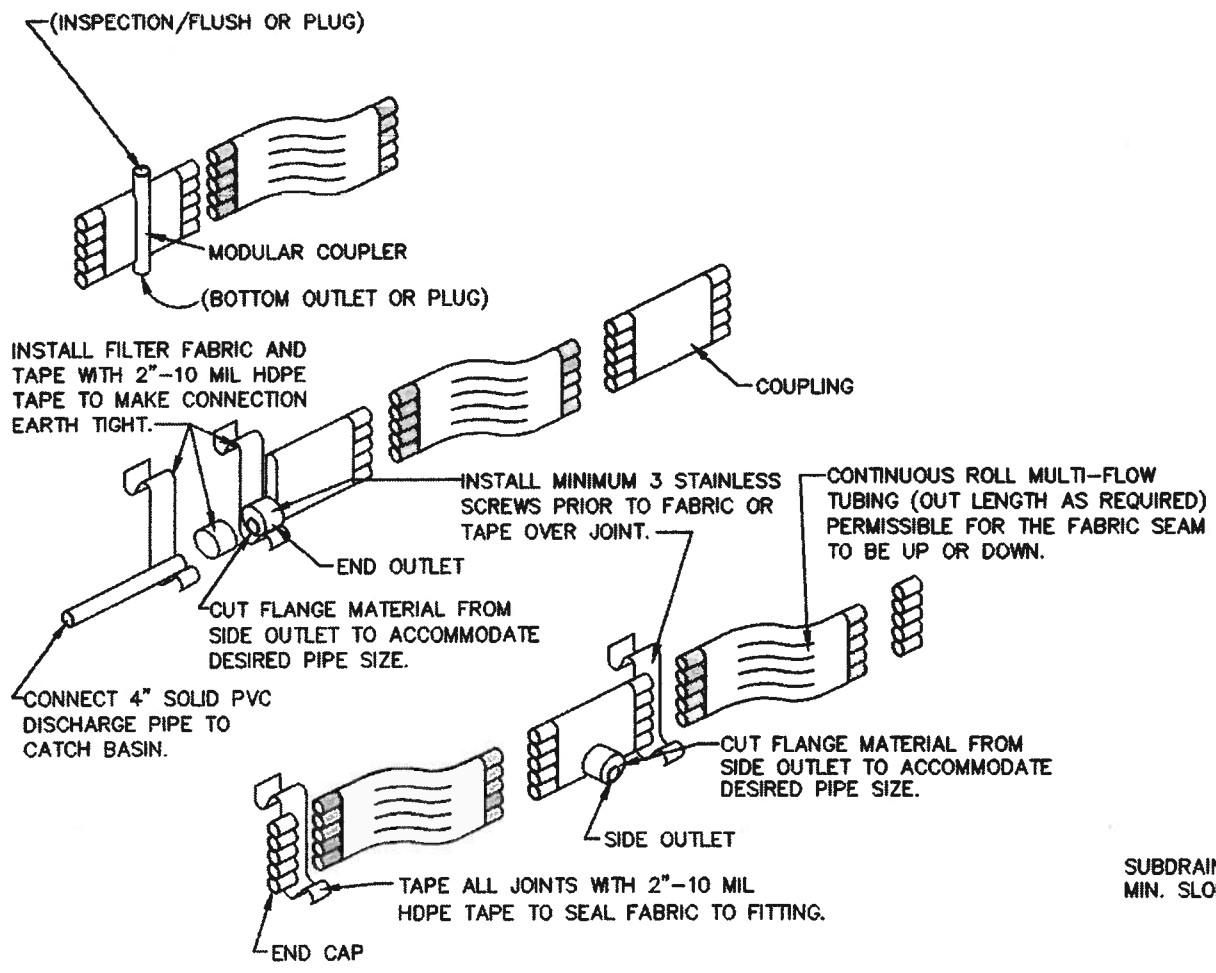
ROADWAY SUB-DRAIN DETAIL

APPROVED BY:

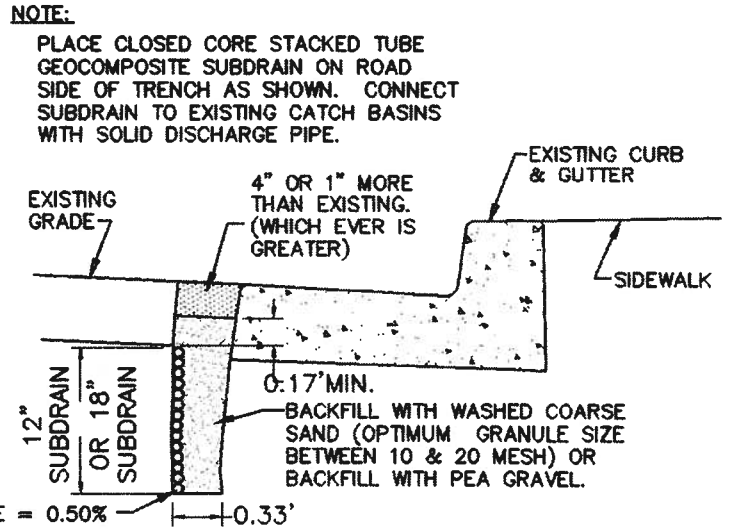
DATE: 9/18/01

*John DeWitt*  
CITY ENGINEER

SHT 1 of 1



**SUBDRAIN ASSEMBLIES**  
N.T.S.



**NOTE:** BOTTOM OF SUBGRADE TO BE SET 3" BELOW PAVEMENT SUBGRADE.

**SUBDRAIN AT LIP OF GUTTER**  
N.T.S.

**NOTE:**  
ON NEW STREET INSTALLATIONS INSTALL SUBDRAIN PRIOR TO PAVING. AC THICKNESS SAME AS STREET.



CITY OF SAN RAMON

DETAIL **SD-16**

DRAWN BY: DB

CHECKED BY: RICK A.

DATE: 10/4/99

**STANDARD DETAIL**

**SUBDRAIN**

APPROVED BY: DATE: 1/14/2000

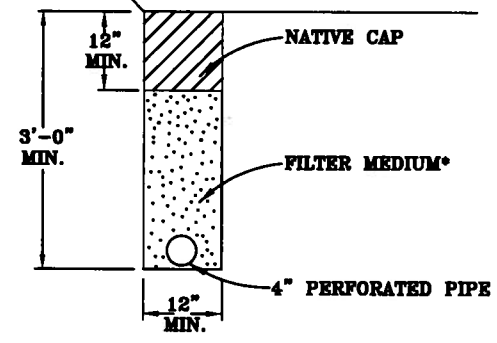
*Jay Ingram*  
CITY ENGINEER

SHT 1 of 1



**NOTES:**

1. ALL PIPE JOINTS SHALL BE GLUED
2. ALL PERFORATED PIPE PLACED PERFORATIONS DOWN
3. 1% FALL (MINIMUM) ON ALL TRENCHES AND DRAIN LINES



**\*FILTER MEDIUM**

**CLASS 2 PERMEABLE MATERIAL**

MATERIAL SHALL CONSIST OF CLEAN, COARSE SAND AND GRAVEL OR CRUSHED STONE, CONFORMING TO THE FOLLOWING GRADING REQUIREMENTS:

<u>SIEVE SIZE</u>	<u>% PASSING SIEVE</u>
1"	100
3/4"	90-100
3/8"	40-100
#4	25-40
#8	18-33
#30	5-15
#50	0-7
#200	0-3

NOT TO SCALE



CITY OF SAN RAMON

DRAWN BY: ELR  
 CHECKED BY: ENGINEERING

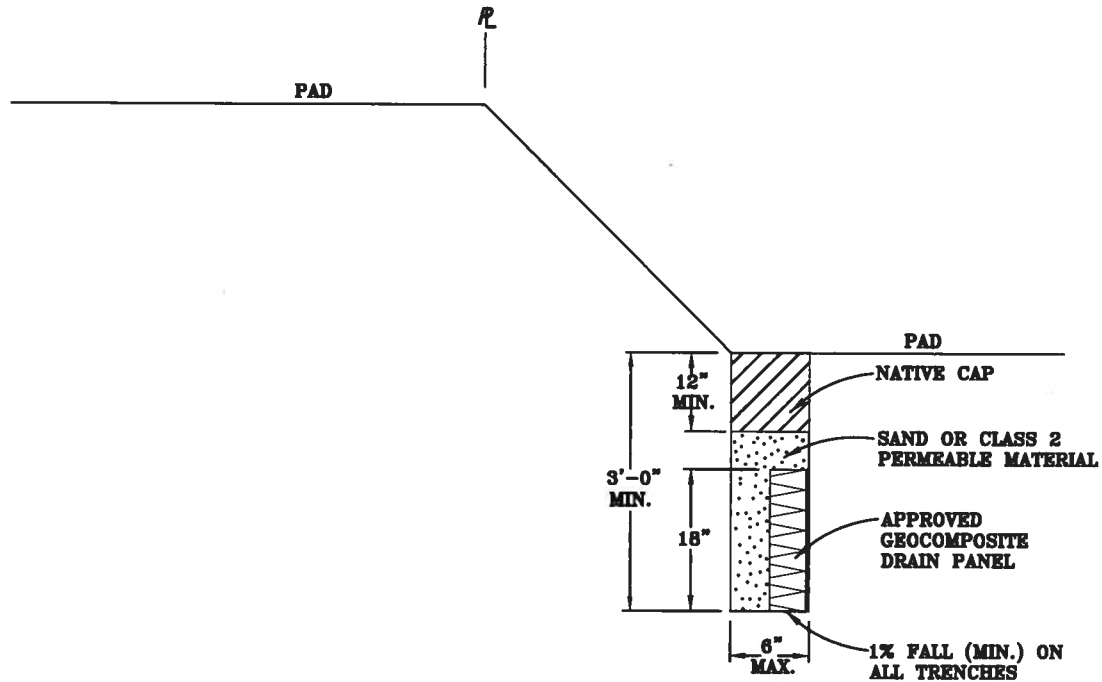
STANDARD DETAIL

APPROVED BY: *Joey DeLeon* DATE: 6/15/09  
 CITY ENGINEER

DETAIL SD-17

DATE: 10/30/08

TYPICAL TOE SUBDRAIN DETAIL-PIPE



**CLASS 2 PERMEABLE MATERIAL**

MATERIAL SHALL CONSIST OF CLEAN, COARSE SAND AND GRAVEL OR CRUSHED STONE, CONFORMING TO THE FOLLOWING GRADING REQUIREMENTS:

<u>SIEVE SIZE</u>	<u>% PASSING SIEVE</u>
1"	100
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3/8"	40-100
#4	25-40
#8	18-33
#30	5-15
#50	0-7
#200	0-3

NOT TO SCALE



CITY OF SAN RAMON

DETAIL SD-17

DRAWN BY: ELR

CHECKED BY: ENGINEERING

DATE: 10/30/08

STANDARD DETAIL

TYPICAL TOE SUBDRAIN DETAIL -  
DRAIN PANEL

APPROVED BY:

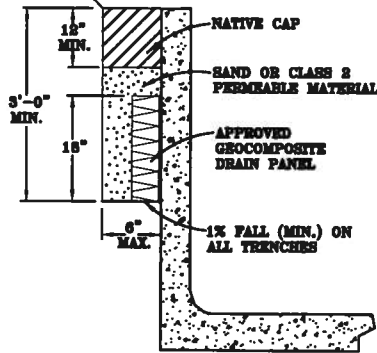
DATE: 6/15/09

*John J. Ireland*  
CITY ENGINEER

SHT 2 of 3

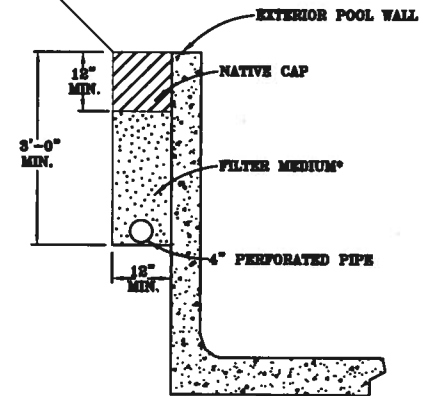
**NOTES:**

1. ALL PIPE JOINTS SHALL BE GLUED
2. ALL PERFORATED PIPE PLACED PERFORATIONS DOWN
3. 1% FALL (MINIMUM) ON ALL TRENCHES AND DRAIN LINES
4. TOE SUBDRAIN TO BE INDEPENDENT OF POOL SUBDRAIN



**NOTES:**

1. ALL PIPE JOINTS SHALL BE GLUED
2. ALL PERFORATED PIPE PLACED PERFORATIONS DOWN
3. 1% FALL (MINIMUM) ON ALL TRENCHES AND DRAIN LINES
4. TOE SUBDRAIN TO BE INDEPENDENT OF POOL SUBDRAIN



FILTER MEDIUM SHALL CONFORM TO THE REQUIREMENT OF CALTRANS CLASS 2 PERMEABLE MATERIAL UNLESS OTHERWISE APPROVED.

MATERIAL SHALL CONSIST OF CLEAN, COARSE SAND AND GRAVEL OR CRUSHED STONE, CONFORMING TO THE FOLLOWING GRADING REQUIREMENTS:

SIEVE SIZE	% PASSING SIEVE
1"	100
3/4"	90-100
3/8"	40-100
#4	25-40
#8	18-33
#30	5-15
#50	0-7
#200	0-3

NOT TO SCALE



CITY OF SAN RAMON

DETAIL SD-17

DRAWN BY: ELR

CHECKED BY: ENG'G., PS

DATE: 10/30/08

STANDARD DETAIL

TYPICAL TOE SUBDRAIN DETAIL-POOL

APPROVED BY:

DATE: 6/15/09

*John J. ...*  
CITY ENGINEER

SHT 3 of 3