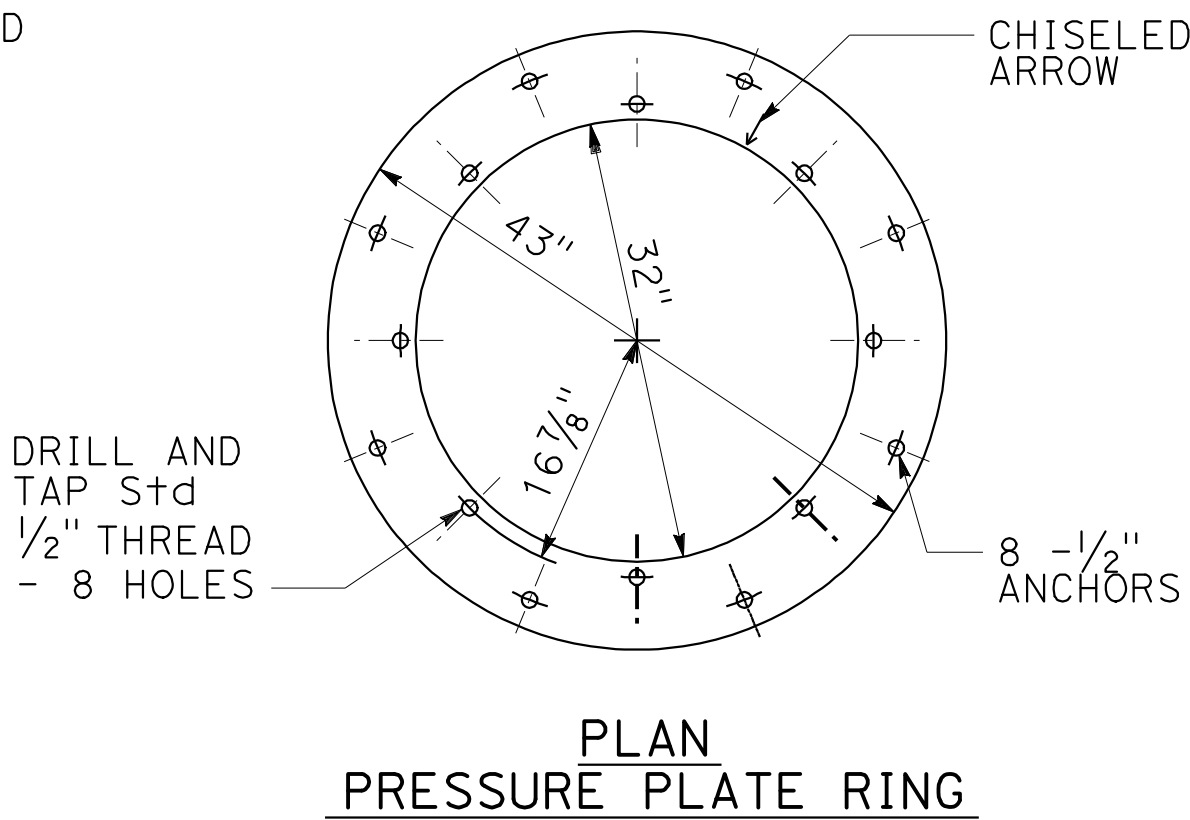
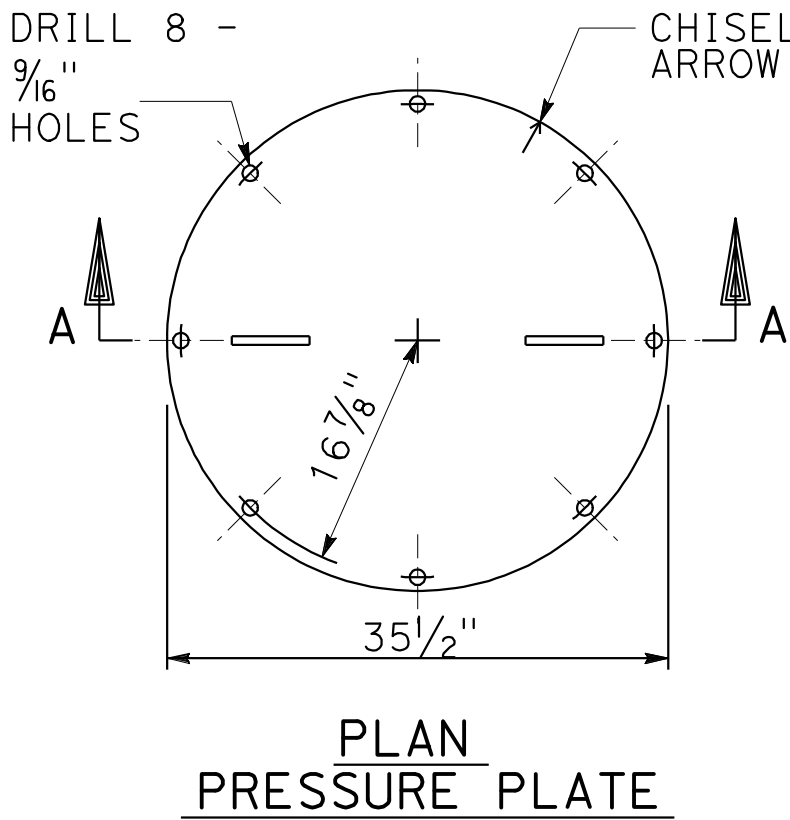


VERTICAL SECTION OF SPECIAL  
PRESSURE MANHOLE SHAFT



PRESSURE MANHOLE SHAFT AND PRESSURE PLATE DETAIL (329-2)  
36" WITHOUT ECCENTRIC REDUCER

NOTES:

1. THIS STRUCTURE MAY BE USED FOR HYDROSTATIC HEADS UP TO 25' ABOVE THE PRESSURE PLATE.
2. 36"MANHOLE FRAME AND COVER PER (633-3) SHALL BE USED.
3. REINFORCEMENT SHALL BE PER ASTM A 615, GRADE 40 AND SHALL TERMINATE 1 1/2" CLEAR OF CONCRETE SURFACES UNLESS OTHERWISE SHOWN. HOOPS MAY BE ELECTRICALLY BUTT WELDED OR THE ENDS LAPPED 18".
4. THE MANHOLE SHAFT SHALL BE LOCATED ABOVE AND IN LINE WITH THE SIDE OF THE CONDUIT BELOW.
5. STEPS SHALL CONFORM TO (635-3) OR (636-2). UNLESS OTHERWISE SHOWN, STEPS SHALL BE UNIFORMLY SPACED 14" TO 15" C-C.
6. GASKET MATERIAL SHALL BE NEOPRENE (OR EQUAL) 1/16" THICK BY 1 1/4" WIDE.
7. BOLTS SHALL BE STAINLESS STEEL CONFORMING TO ASTM A 320 (ASTM A), GRADE B8.
8. PRESSURE PLATE AND PRESSURE PLATE RING SHALL BE STEEL CONFORMING TO ASTM A 36 (ASTM A) AND SHALL BE GALVANIZED. PLATES SHALL BE MARKED IN SETS AND A CHISELED ARROW STAMPED ON BOTH PLATES, AFTER DRILLING AND TAPPING, TO FACILITATE FIELD ASSEMBLY.
9. SEE STANDARD SPECIFICATIONS FOR SECTION 51-1.14 PHYSICAL REQUIREMENTS OF WATERSTOP.
10. THE FOLLOWING DETAILS ARE INCORPORATED HEREIN:

- |       |                             |
|-------|-----------------------------|
| 633-3 | 36" MANHOLE FRAME AND COVER |
| 635-3 | STEEL STEP                  |
| 636-2 | POLYPROPYLENE PLASTIC STEP  |

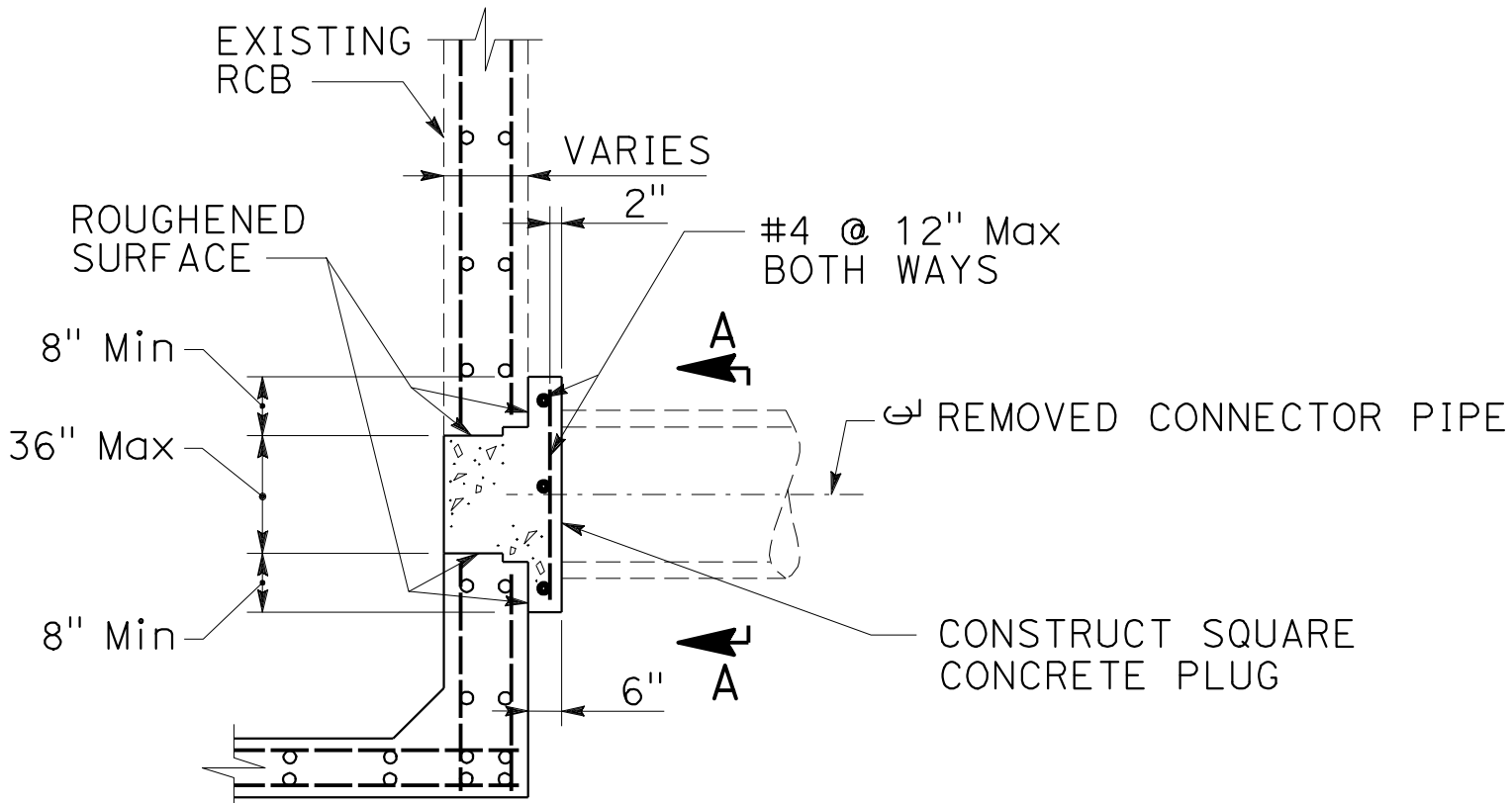
DRAINAGE DETAILS

NO SCALE

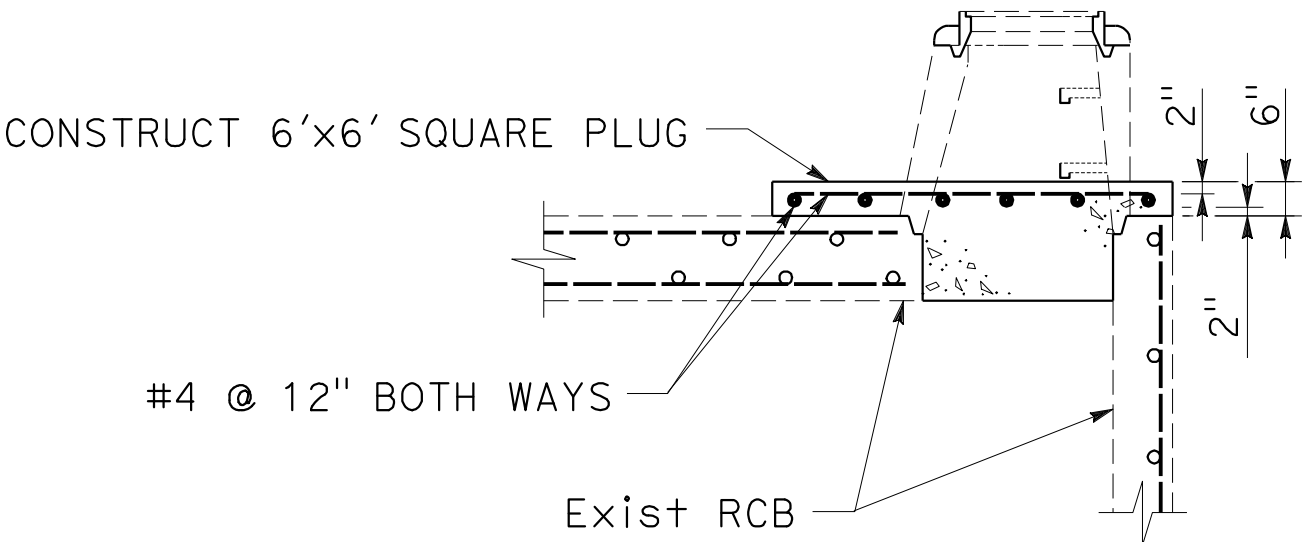
DD-34



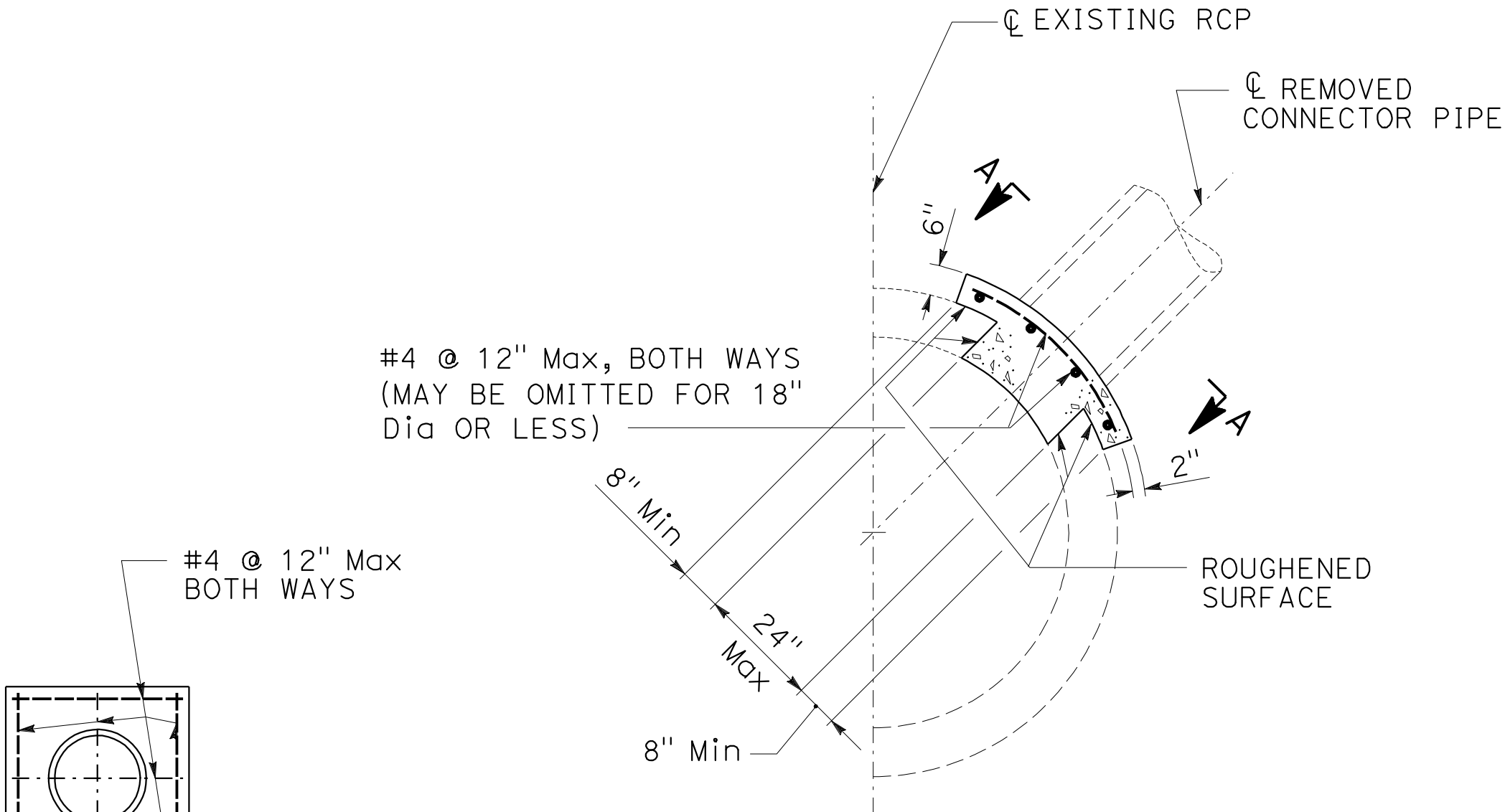
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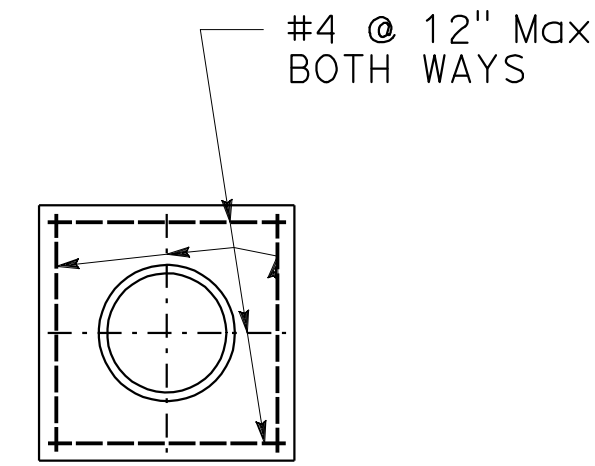
ABANDONMENT SEAL  
FOR RCB INLET



MANHOLE ABANDONMENT  
SEAL FOR RCB



ABANDONMENT SEAL  
FOR RCP INLET



SECTION A-A

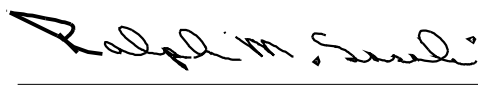
ABANDONMENT SEALS FOR MANHOLES AND INLETS (381-2)

DRAINAGE DETAILS

NO SCALE

DD - 36

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
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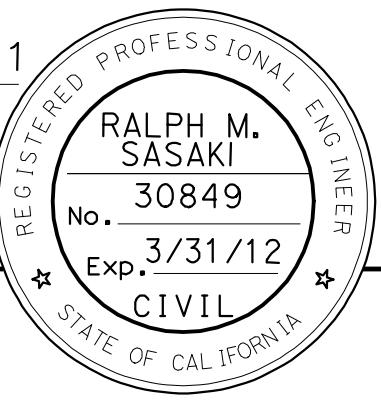
12-19-11

REGISTERED CIVIL ENGINEER

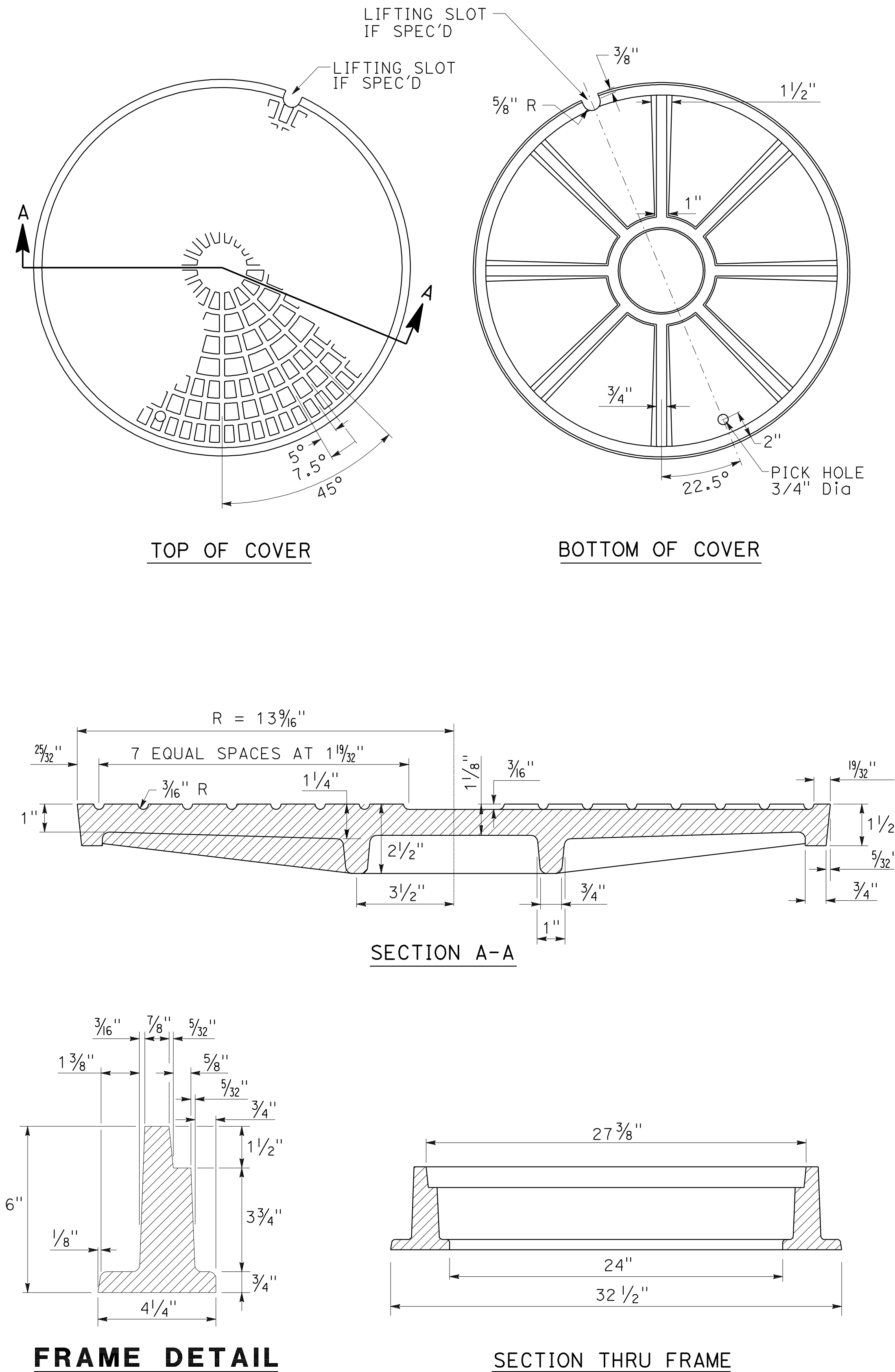
DATE

3-26-12

PLANS APPROVAL DATE



THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



NOTES:

1. THE CAST IRON USED SHALL CONFORM TO ASTM A-48 CLASS 35B.
2. COVERS SHALL BE CAST WITH THE LETTER "D" FOR STORM DRAINS AND "S" FOR SEWERS, AND THE AGENCY'S IDENTIFICATION IN ACCORDANCE WITH INSTRUCTIONS FURNISHED BY THE ENGINEER. THE LETTER "D" OR "S" SHALL BE APPROXIMATELY 1/2" HIGH WITH 1/2" LINE WIDTH, AND PLACED IN THE CENTER OF THE COVER. ALL LETTERS SHALL BE FLUSH WITH THE FINISHED SURFACE OF THE COVER.
3. FOUNDRY IDENTIFYING MARK, HEAT AND DATE SHALL BE CAST ON THE BOTTOM OF THE COVER AND ON THE INSIDE OF THE FRAME.
4. IMPORTED COVERS AND FRAMES SHALL CONFORM TO THE REQUIREMENT PER STANDARD SPECIFICATIONS SECTION 6-1 AND THE SPECIAL PROVISIONS.
5. WEIGHT OF FRAME SHALL BE 260 LBS. WEIGHT OF COVER SHALL BE 175 LBS. ACTUAL WEIGHTS SHALL BE WITHIN A RANGE OF 95% TO 110%.
6. THE MANHOLE FRAME AND COVER SHALL BE INSPECTED BY THE ENGINEER PRIOR TO SHIPMENT TO THE JOB SITE.
7. THE PROOF - LOAD SHALL BE EQUIVALENT TO TEST METHOD B, IS 40,700 LBS.
8. COVERS FOR MANHOLES LOCATED IN EASEMENTS, ALLEYS, PARKWAYS AND ALL PLACES OTHER THAN PAVED STREETS SHALL BE PROVIDED WITH SOCKET - SET SCREW LOCKING DEVICES. DRILL AND TAP TWO HOLES TO A DEPTH OF 1" AT 90 DEGREES TO PICK HOLE AND INSTALL 3/4" x 3/4" STAINLESS STEEL SOCKET - SET SCREWS WITH 3/8" RECESSED Hex HEAD. ALL THREADS SHALL BE NC











Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	5	2.4/4.0	209	1288

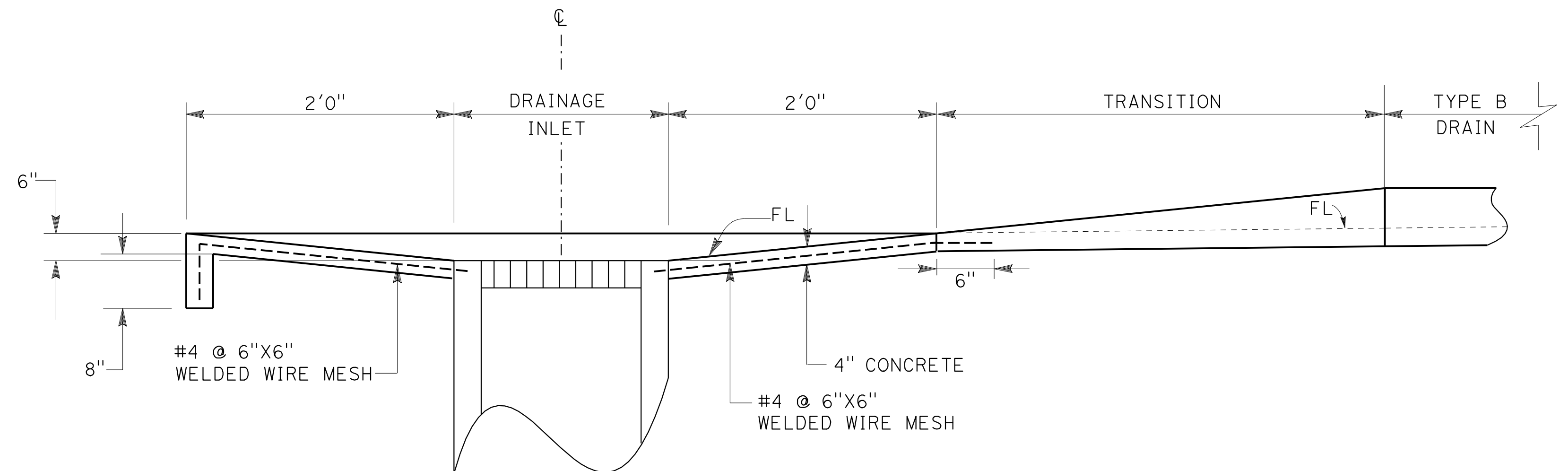
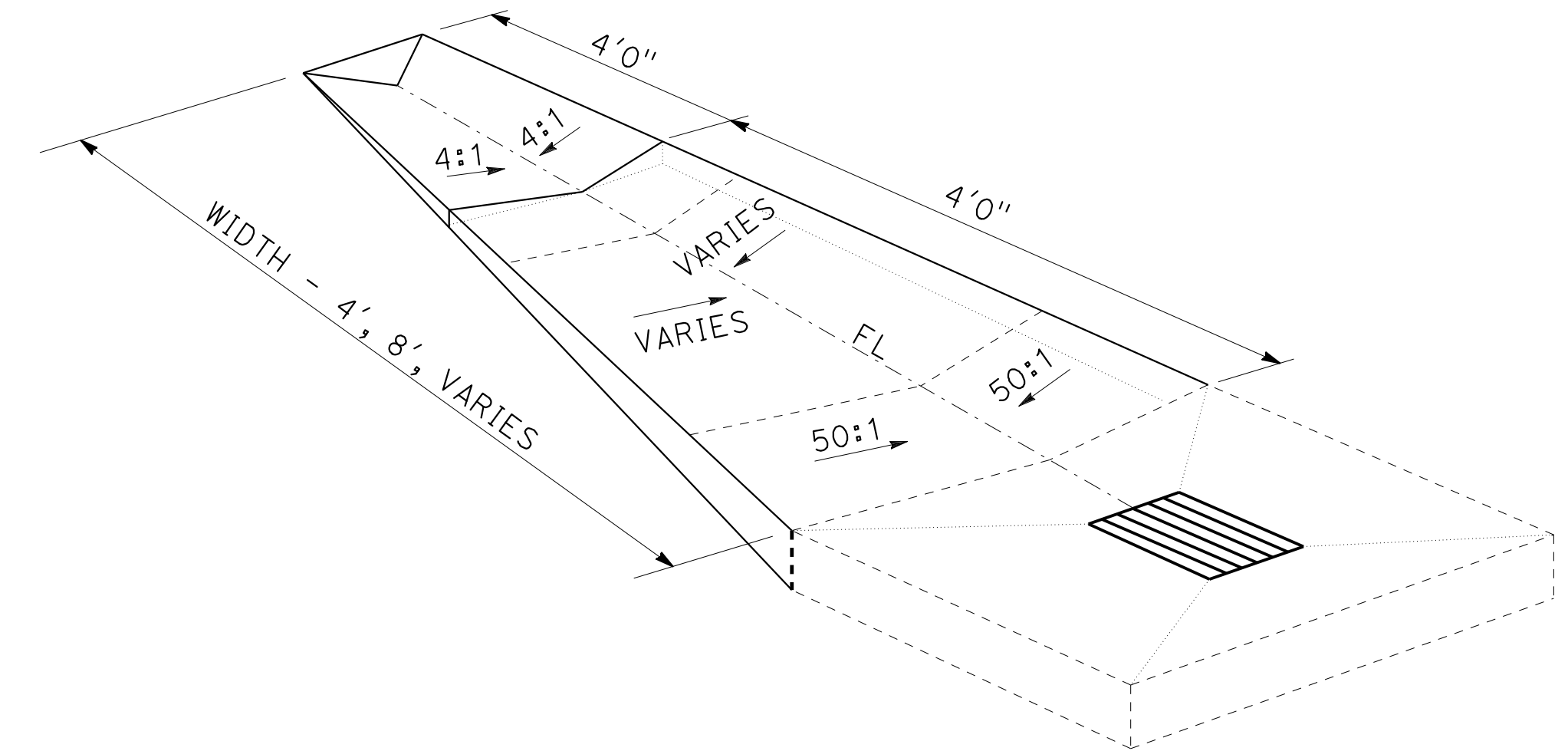
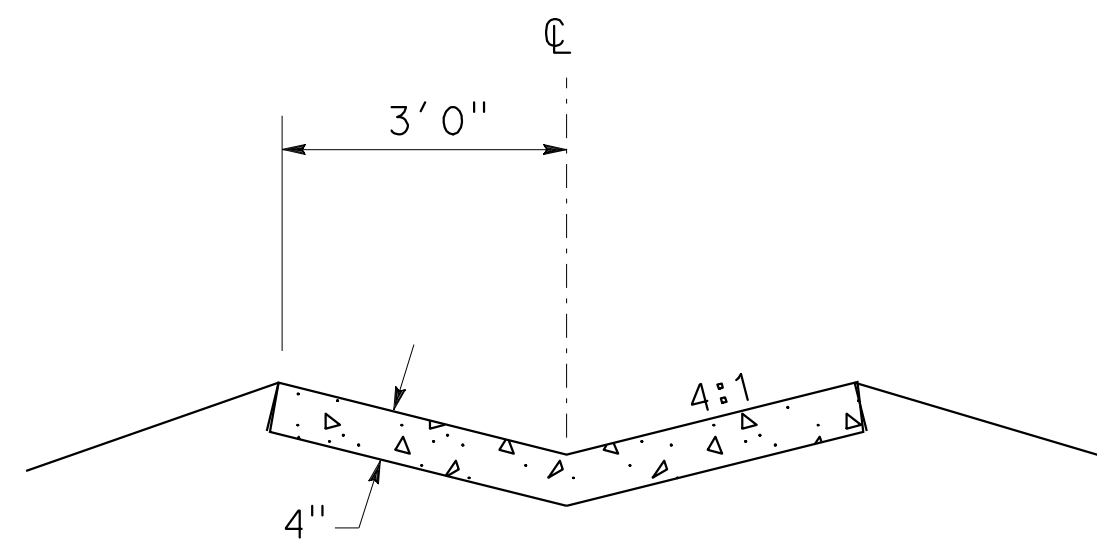
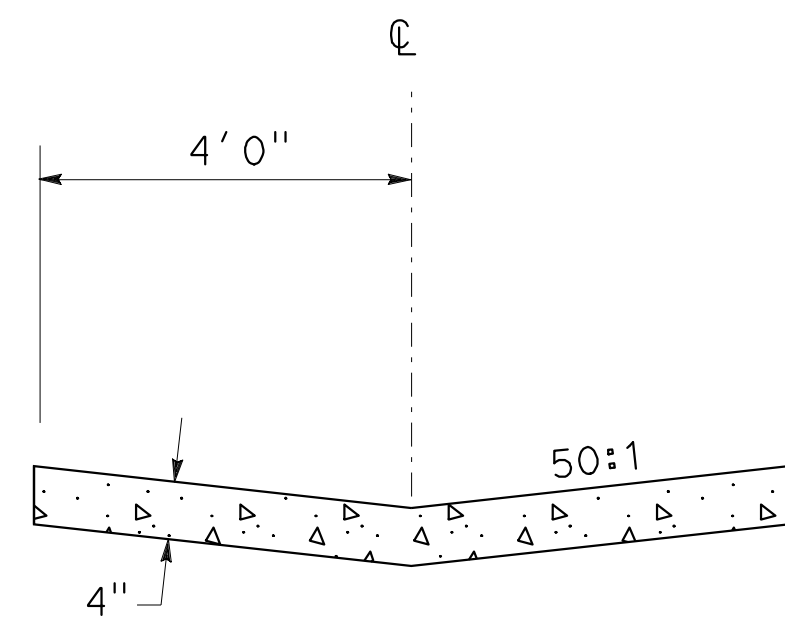
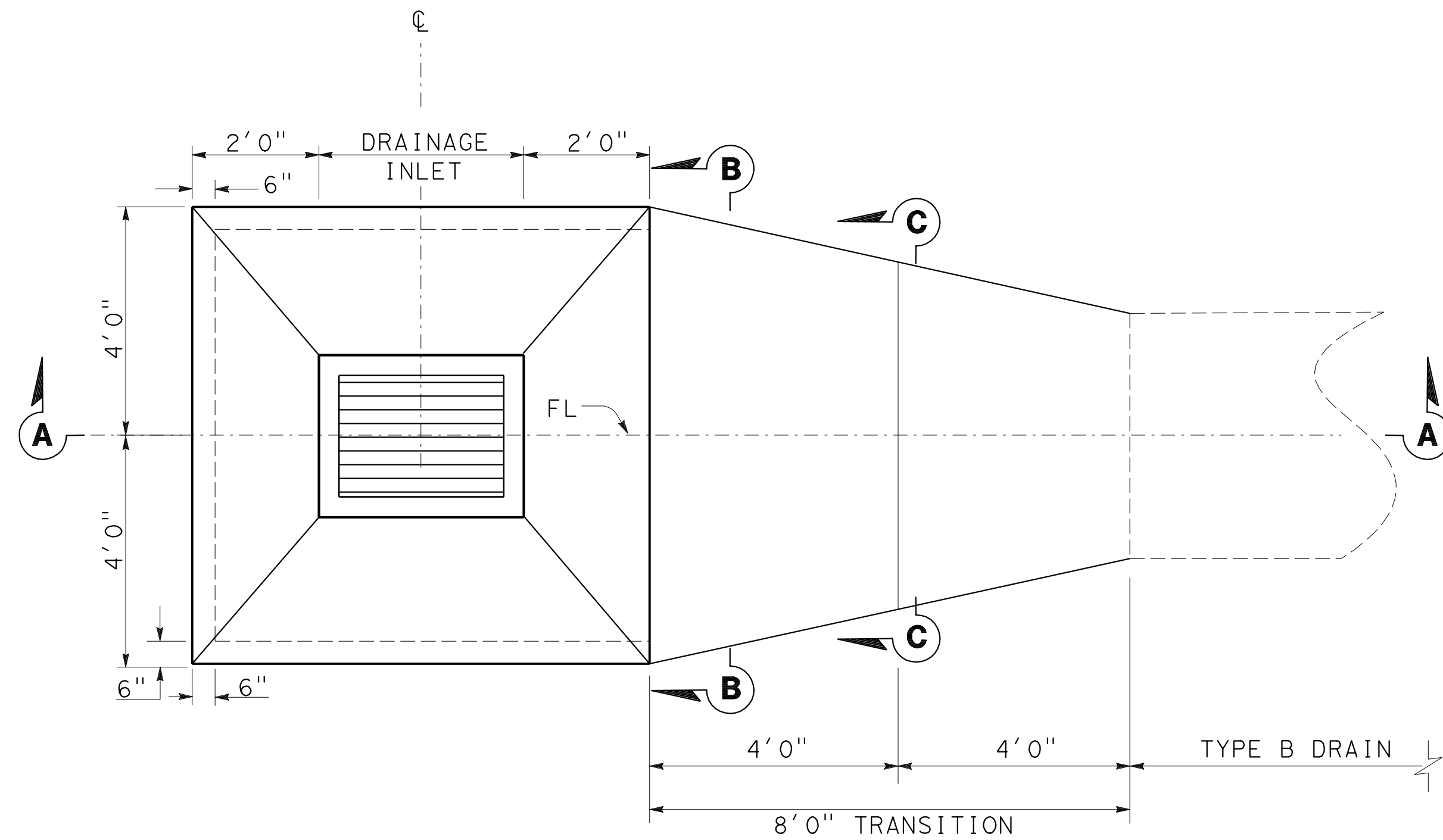
  

*Ralph M. Sasaki* 12-19-11  
 REGISTERED CIVIL ENGINEER DATE

3-26-12  
 PLANS APPROVAL DATE

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 COPIES OF THIS PLAN SHEET.

A circular professional engineer seal for the State of California. The outer ring contains the text 'REGISTERED PROFESSIONAL ENGINEER' at the top and 'STATE OF CALIFORNIA' at the bottom, separated by two stars. The inner circle contains the name 'RALPH M. SASAKI', the license number 'No. 30849', the expiration date 'Exp. 3/31/12', and the specialty 'CIVIL'.



## INLET WITH DEPRESSED APRON

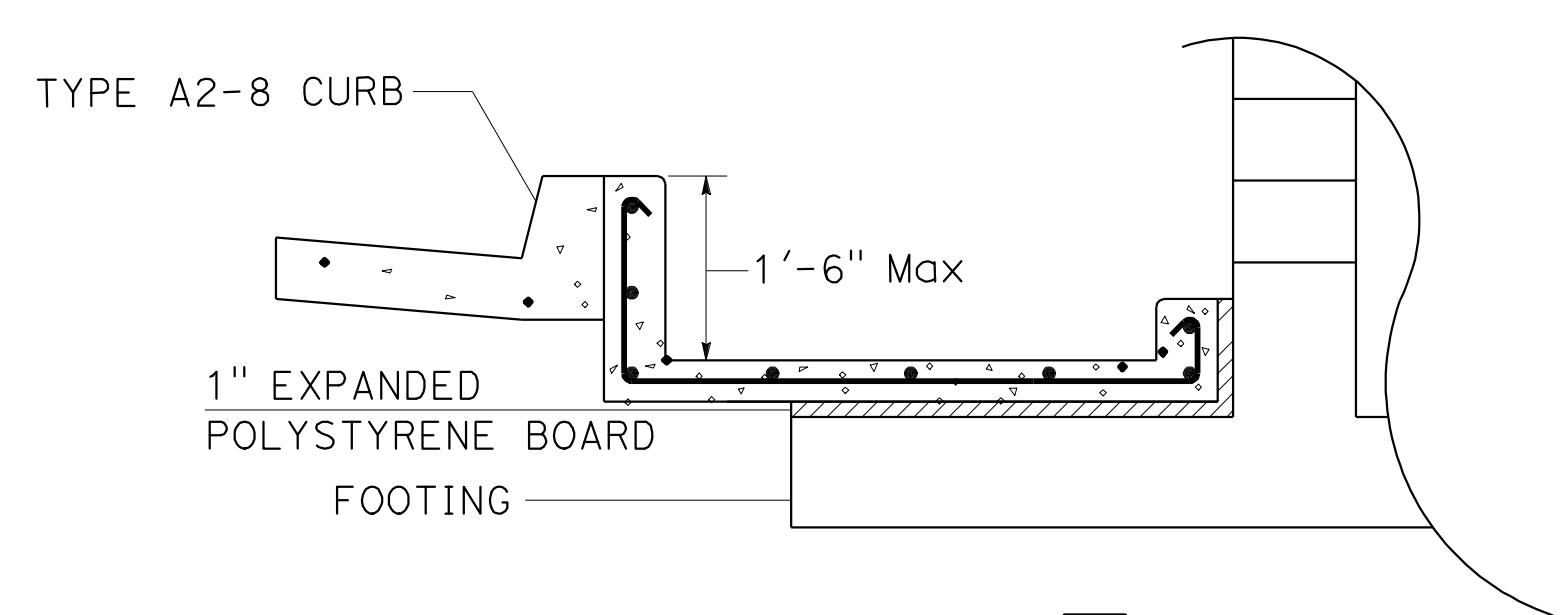
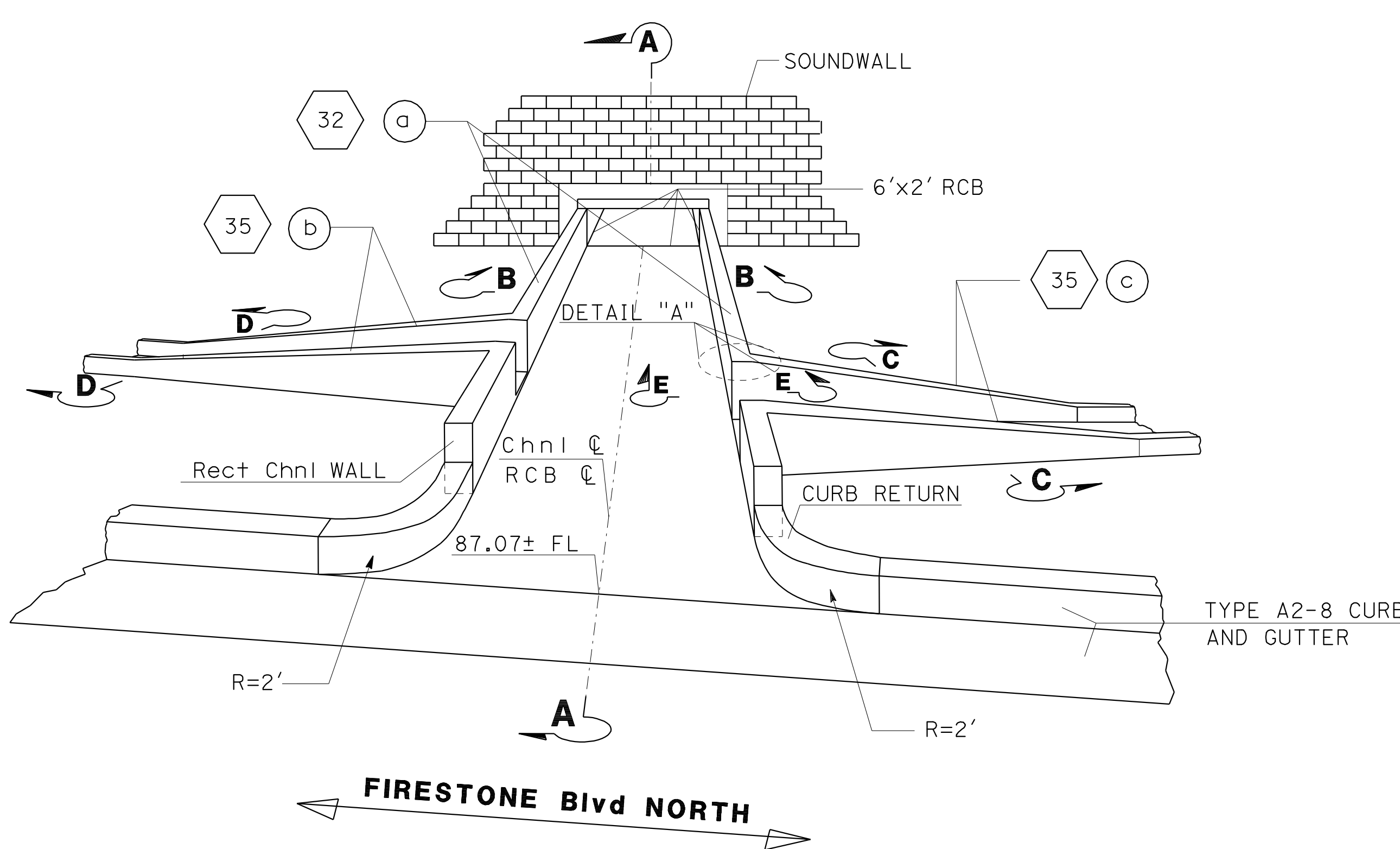
**DRAINAGE SYSTEM No.** 20 d e

## DRAINAGE DETAILS

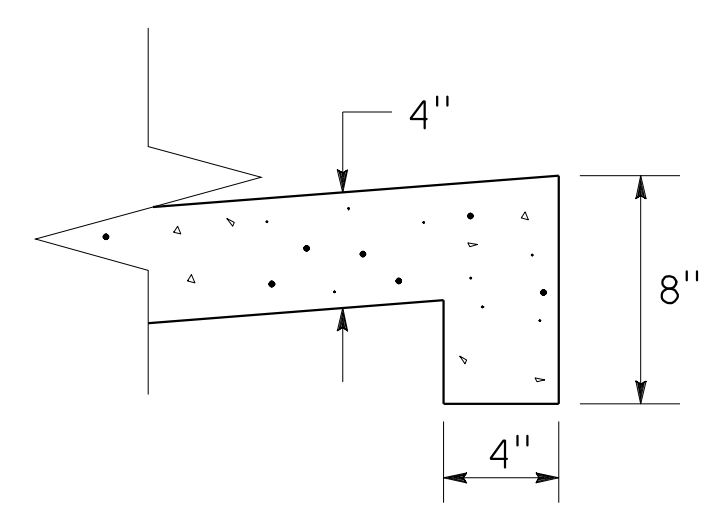
NO SCALE

DD - 42

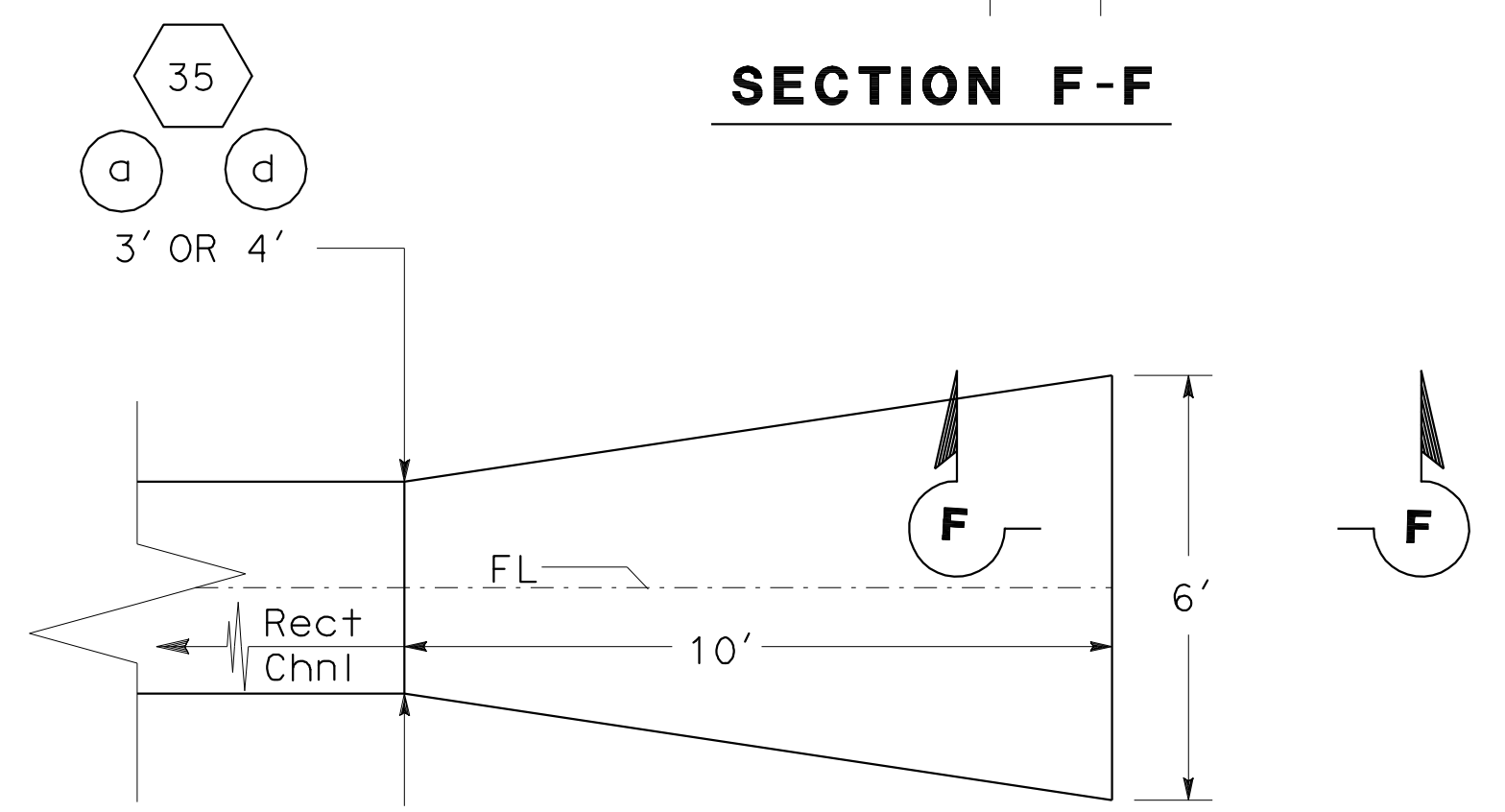




**DRAINAGE SYSTEM 35 c**  
**Sta 192+20 - Sta 192+40**  
TYPICAL

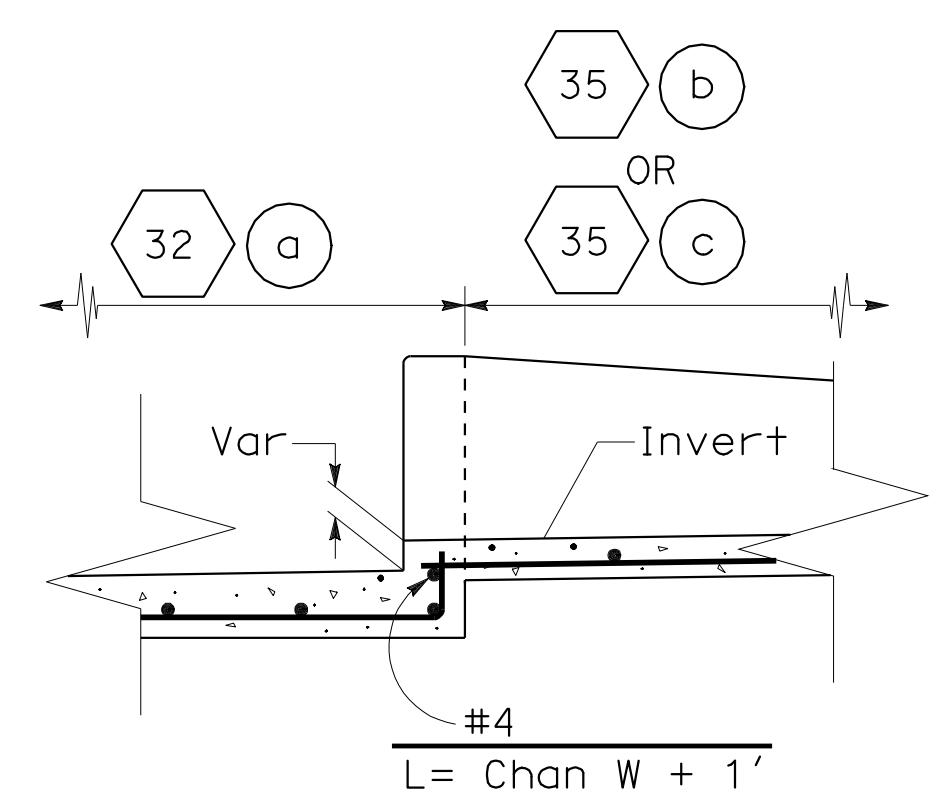


**SECTION F-F**

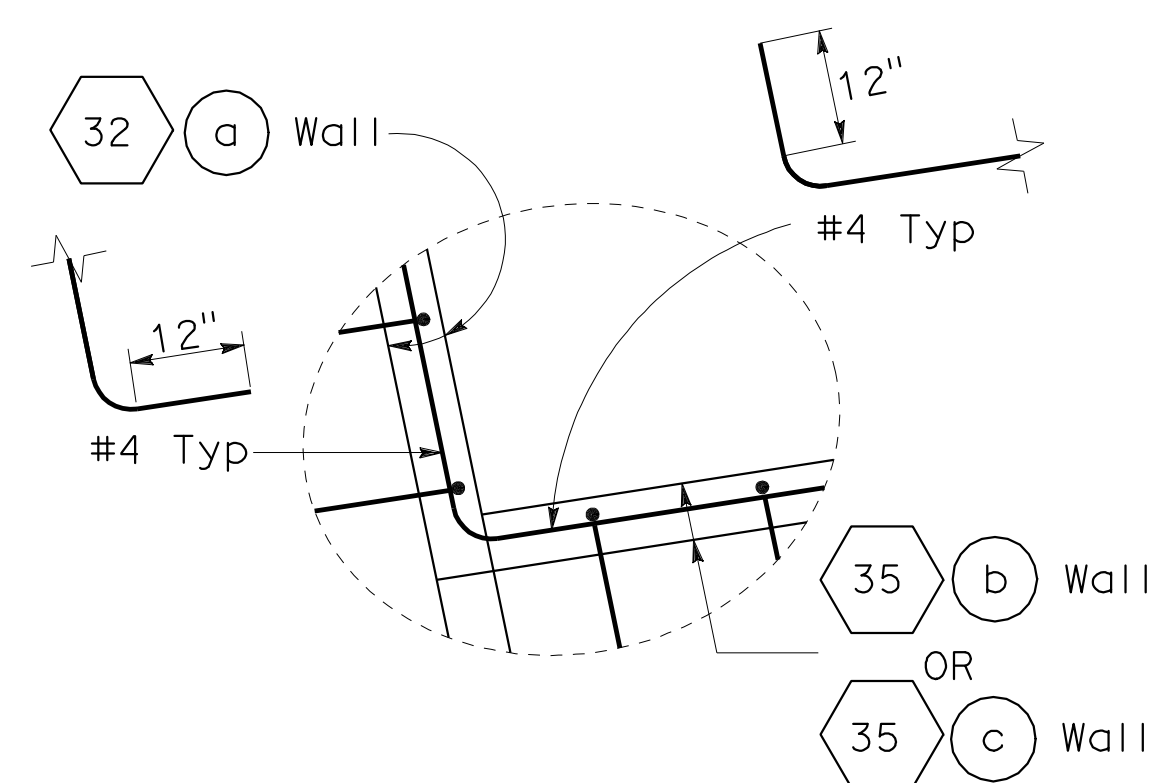


**35 a & 35 d**

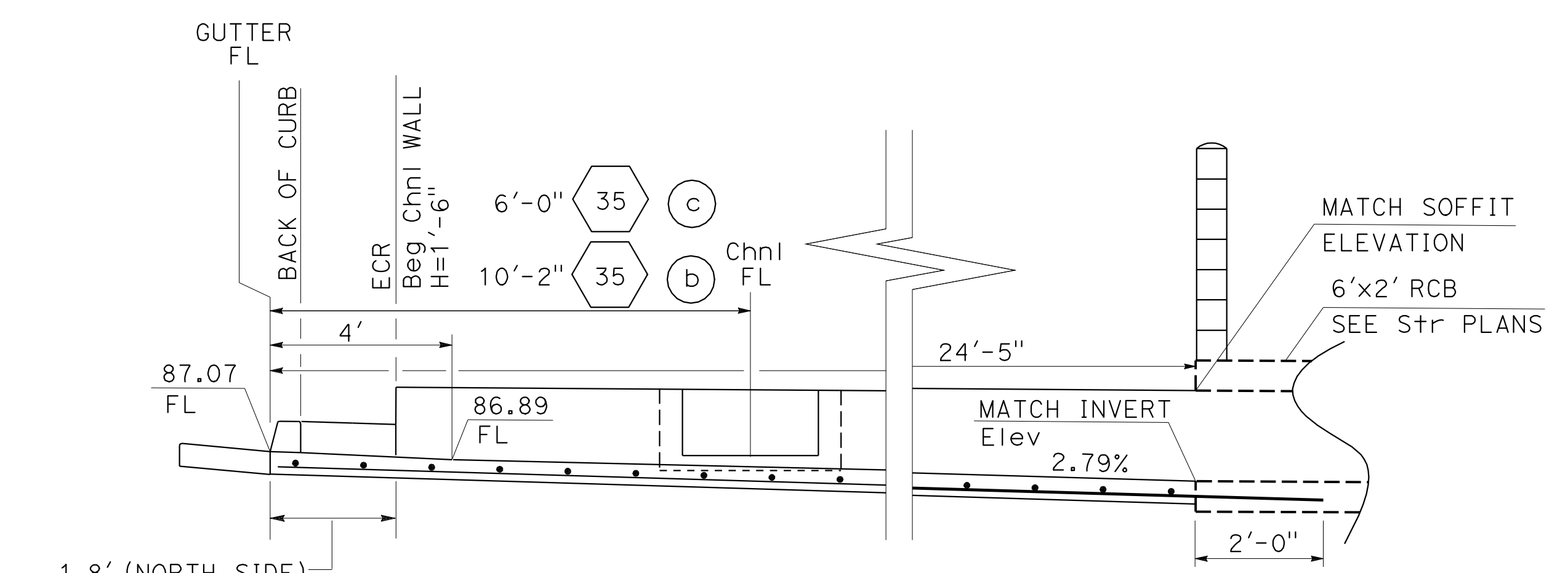
**TRANSITION DETAIL**



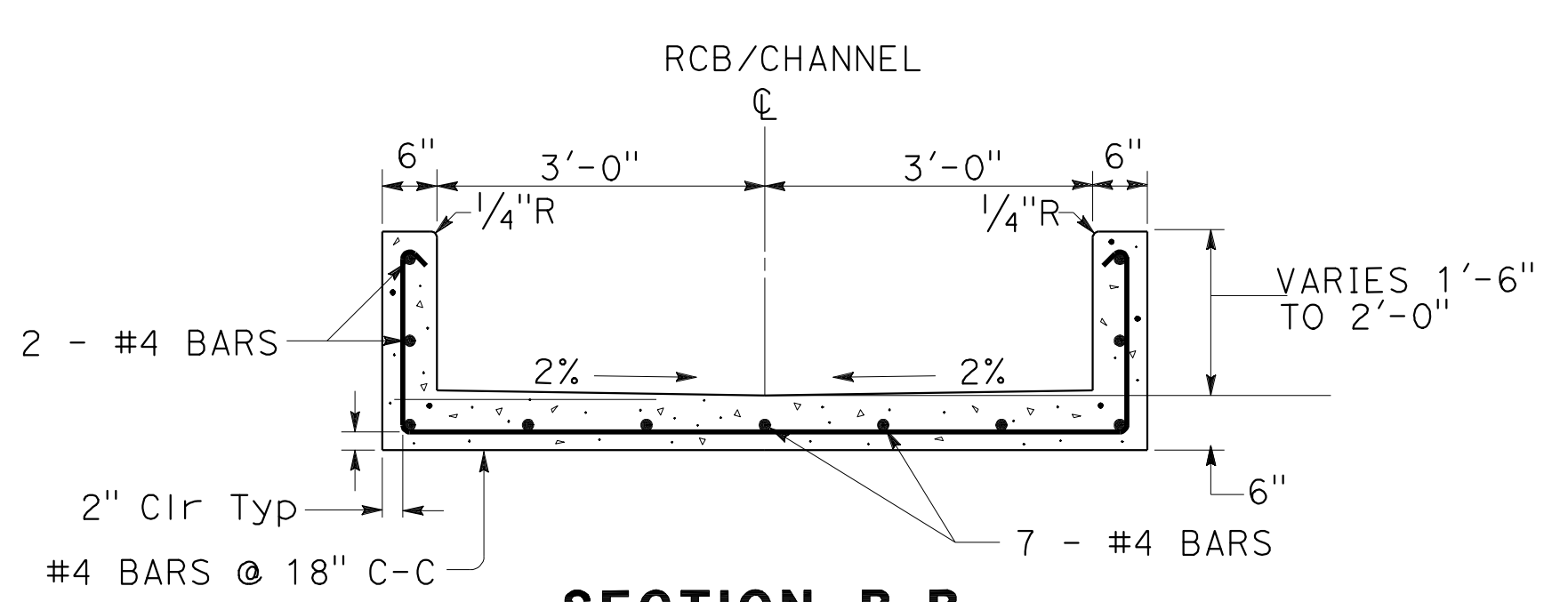
**SECTION E-E**



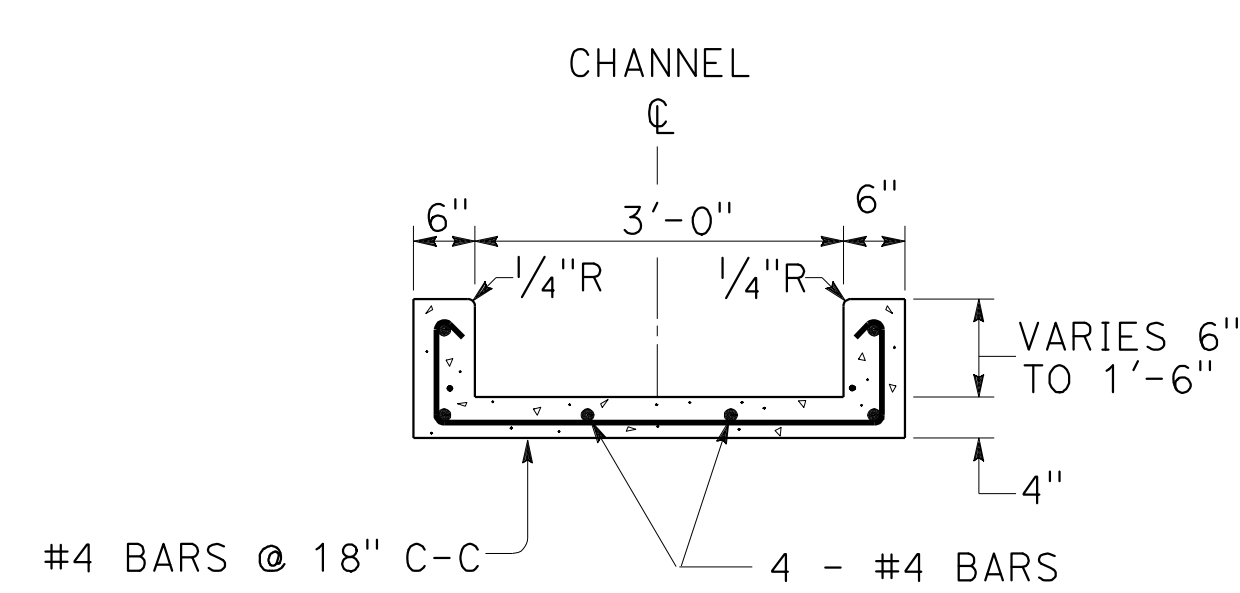
**DETAIL "A"**  
**CHANNEL TO CHANNEL**  
TYPICAL



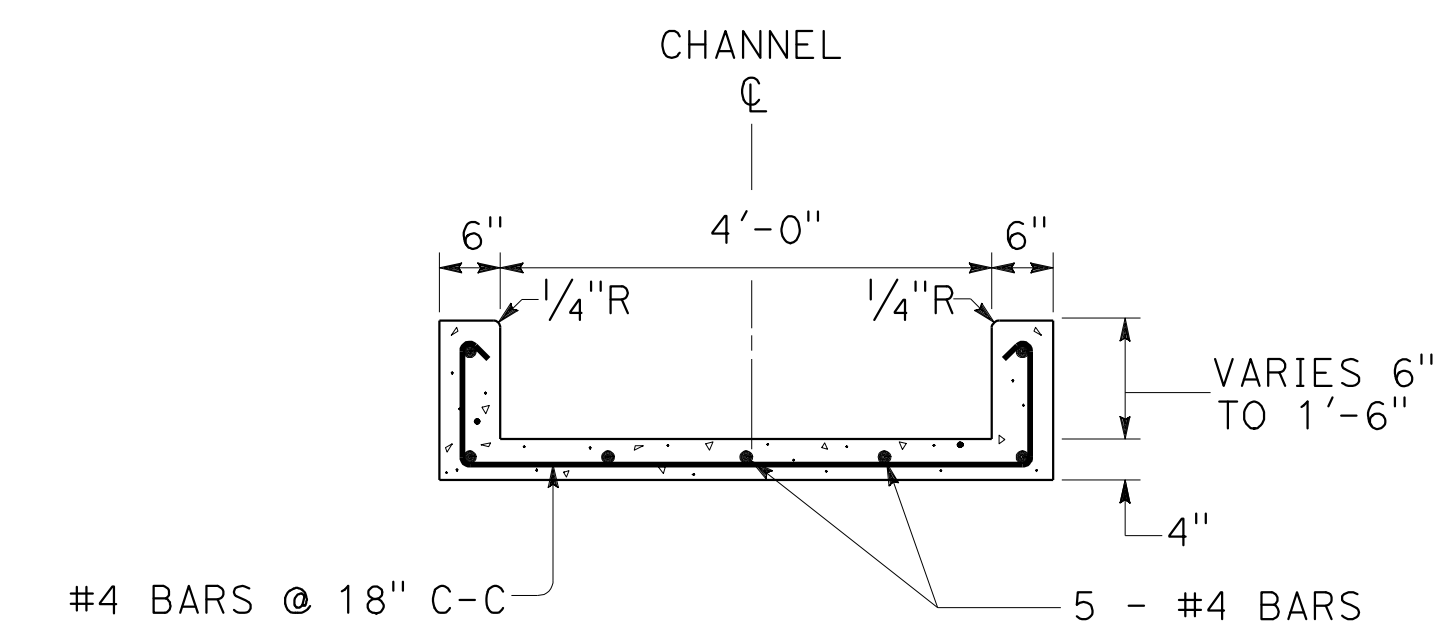
**SECTION A-A**



**SECTION B-B**  
**DRAINAGE SYSTEM 32 a**

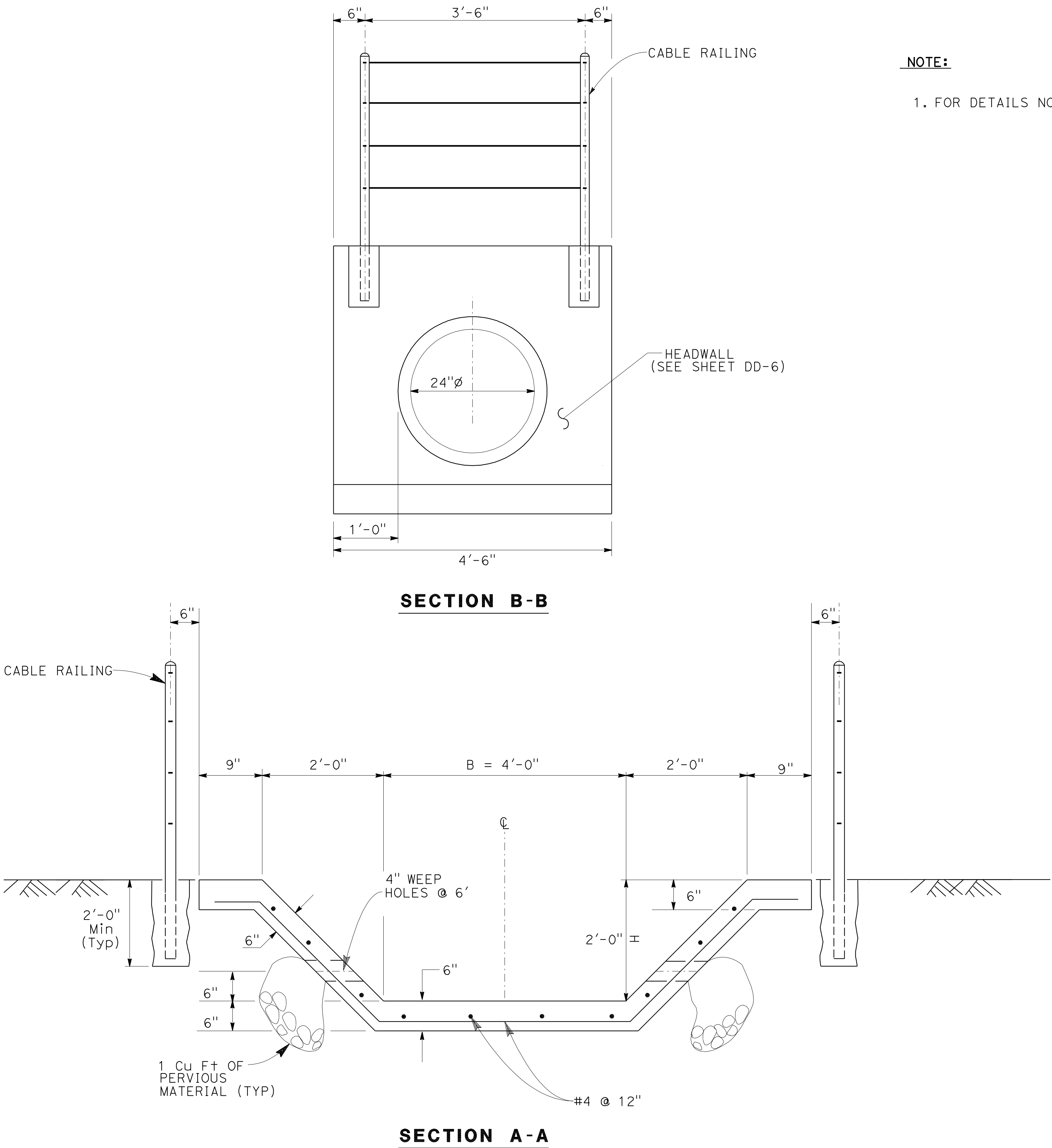


**SECTION D-D**  
**DRAINAGE SYSTEM 35 b**



**SECTION C-C**  
**DRAINAGE SYSTEM 35 c**

**DRAINAGE DETAILS**  
NO SCALE

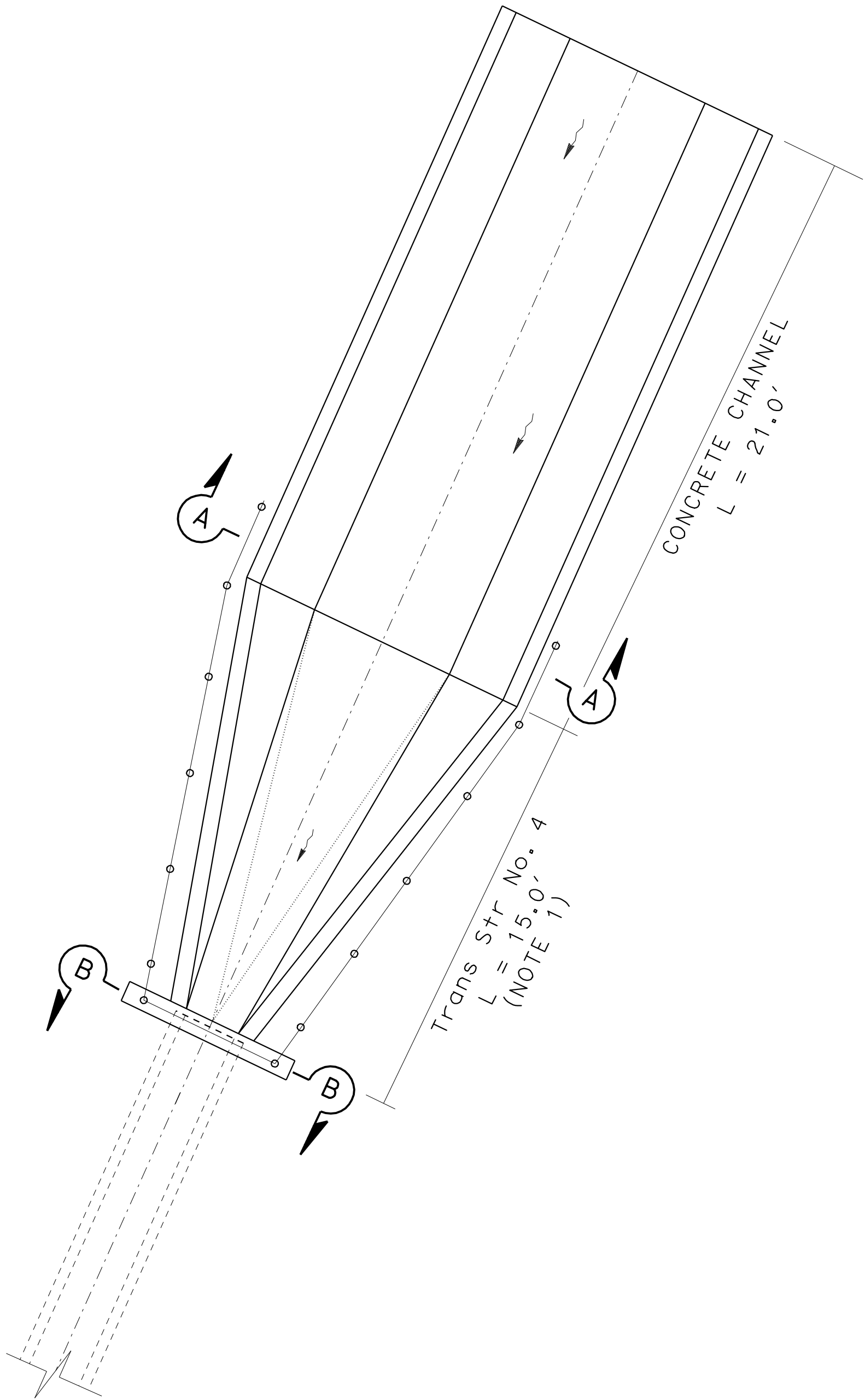


CONCRETE TRAPEZOID CHANNEL TO RCP PIPE

DRAINAGE SYSTEM No. 38

NOTE:

1. FOR DETAILS NOT SHOWN SEE DD-6.



DRAINAGE DETAILS

NO SCALE

DD - 44

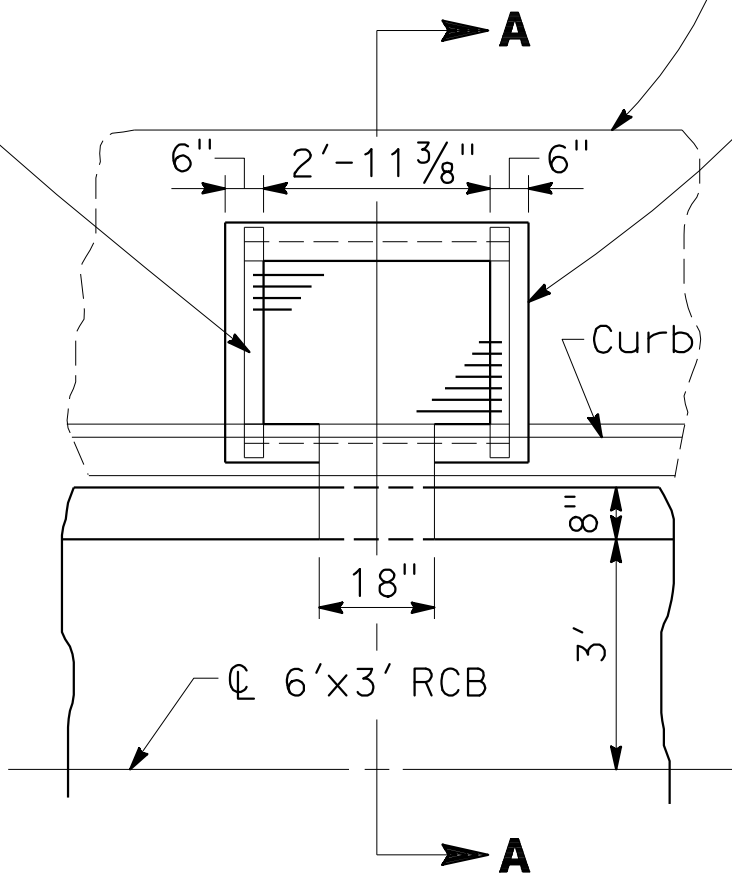
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	5	2.4/4.0	211	1288

REGISTERED CIVIL ENGINEER  
DATE 12-19-11  
PLANS APPROVAL DATE 3-26-12

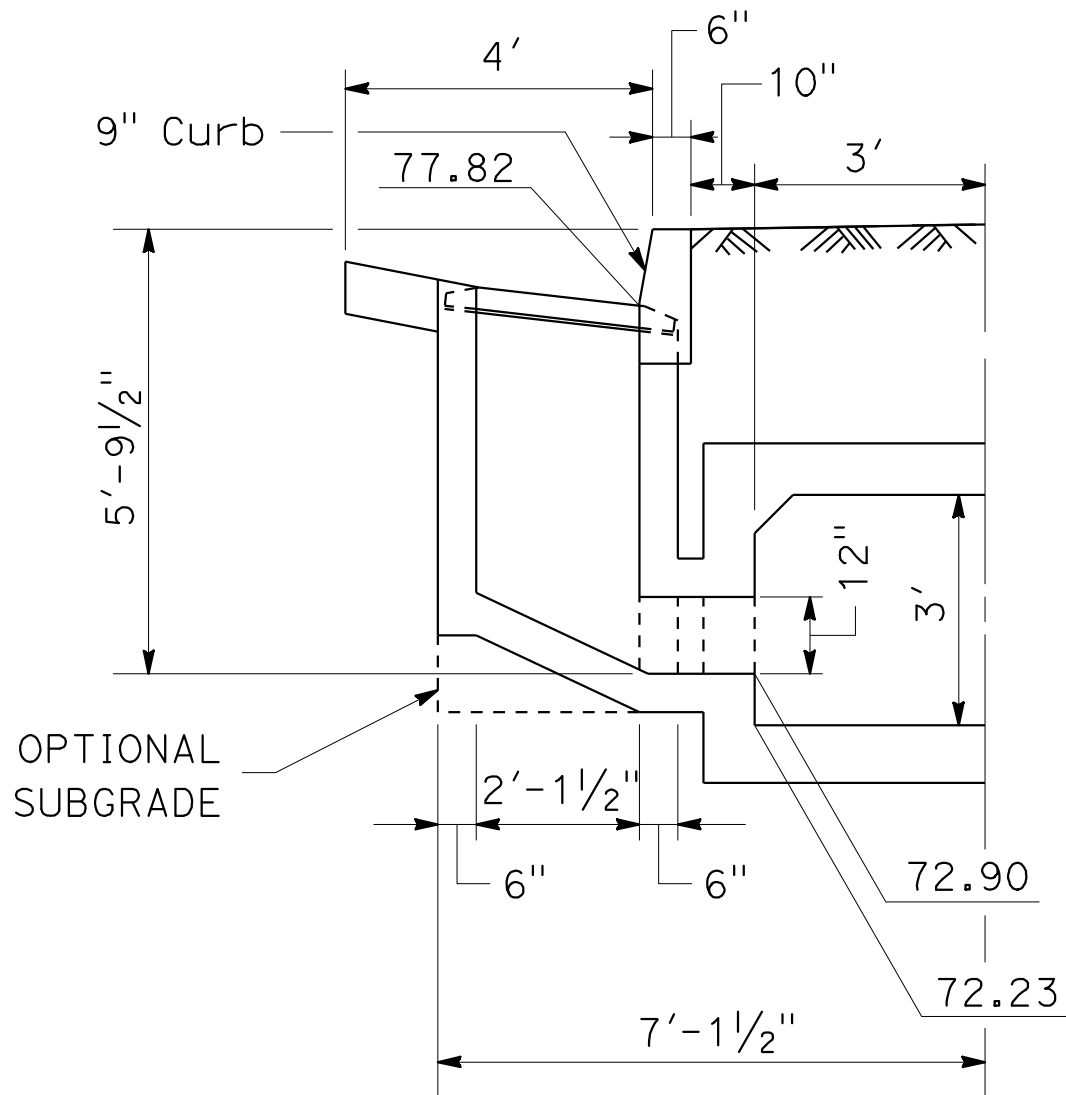
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CURBSIDE GRATING CATCH BASIN (303-3)  
w/ LOCAL DEPRESSION (CASE F).  
SIZE,SPACING AND CLEARANCE OF REINFORCING STEEL,  
SEE CATCH BASIN REINFORCEMENT (309-2)

FRAME AND GRATING  
FOR CATCH BASIN (311-3)



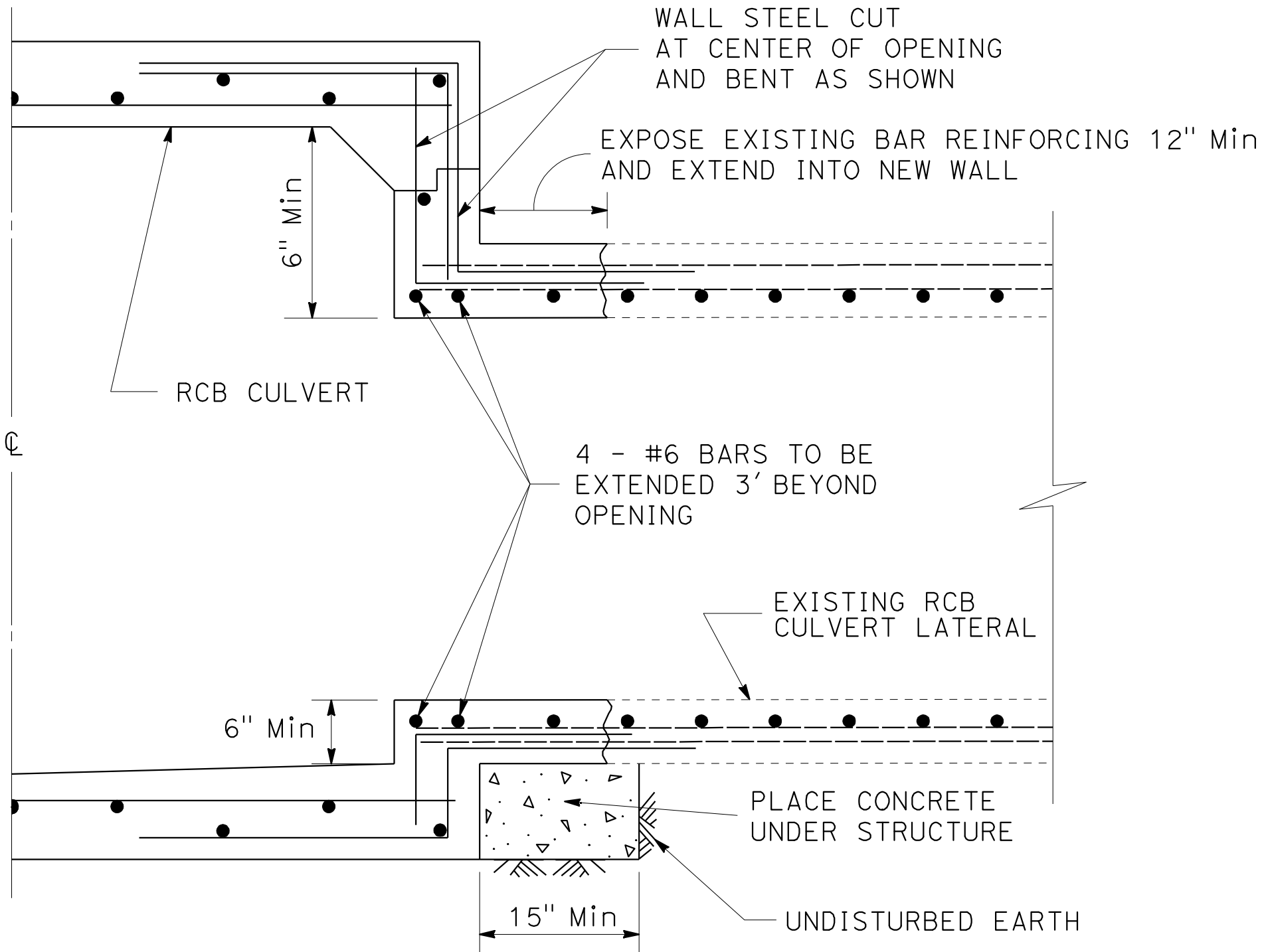
PLAN



SECTION A-A

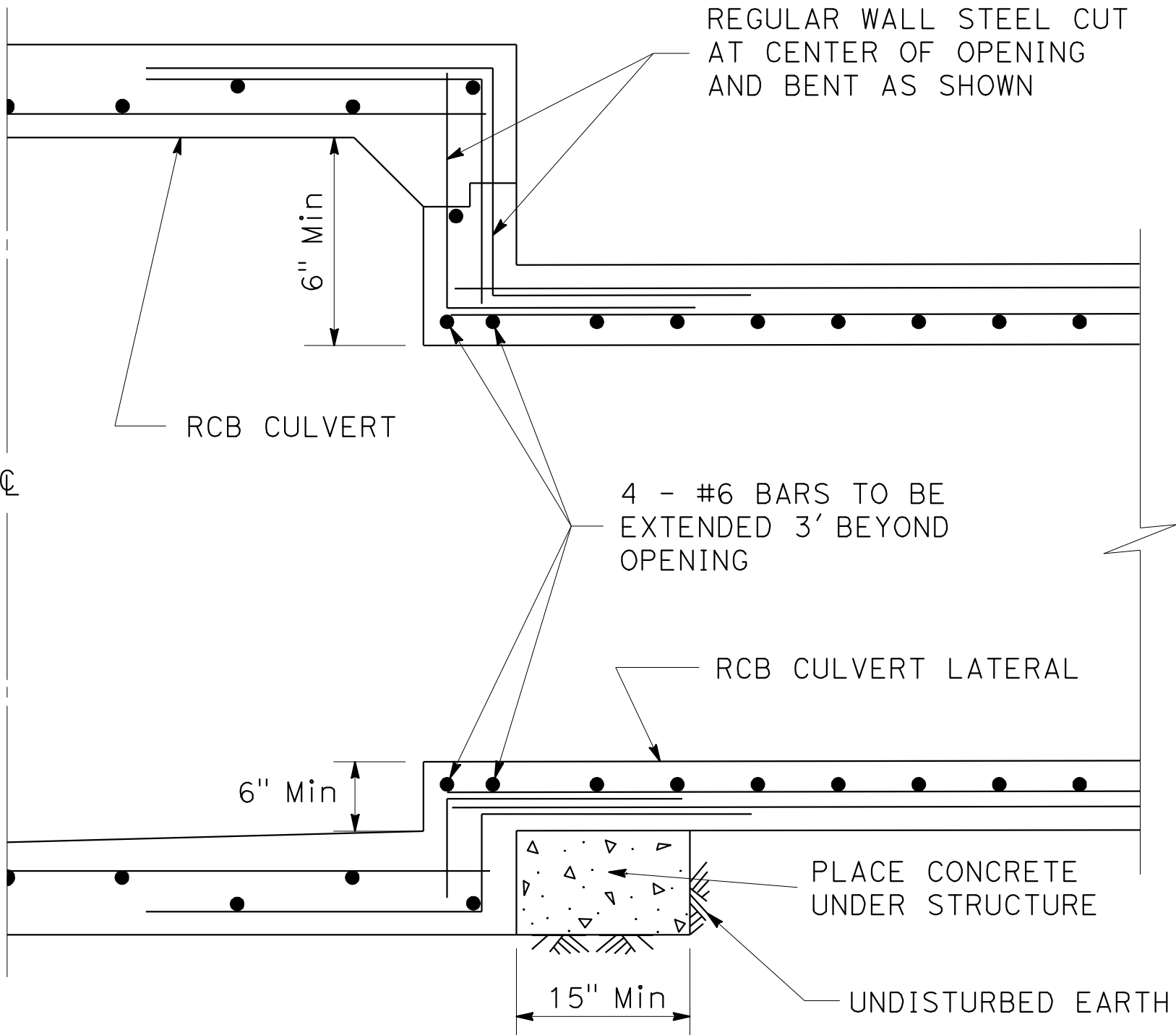
CURBSIDE GRATING CATCH BASIN (Mod) INTO 6'x3' RCB

DRAINAGE SYSTEM No. 4 e



EXISTING RCB TO RCB JUNCTION

DRAINAGE SYSTEM No. 4 m



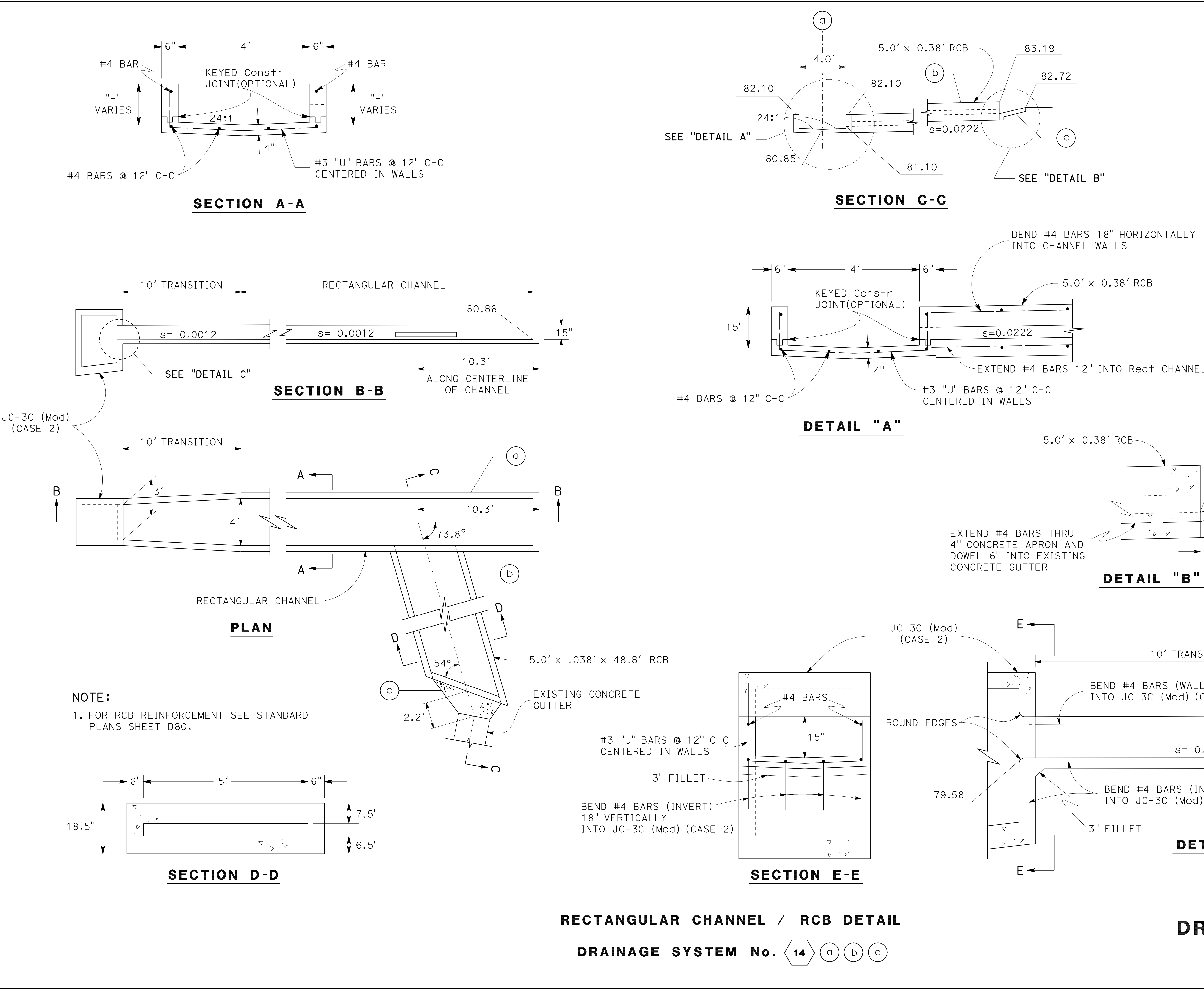
RCB TO RCB JUNCTION

DRAINAGE SYSTEM No. 3 a

DRAINAGE DETAILS

NO SCALE

DD - 45



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	5	2.4/4.0	213	1288

Ralph M. Sasaki 12-19-11 REGISTERED CIVIL ENGINEER DATE

3-26-12 PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER

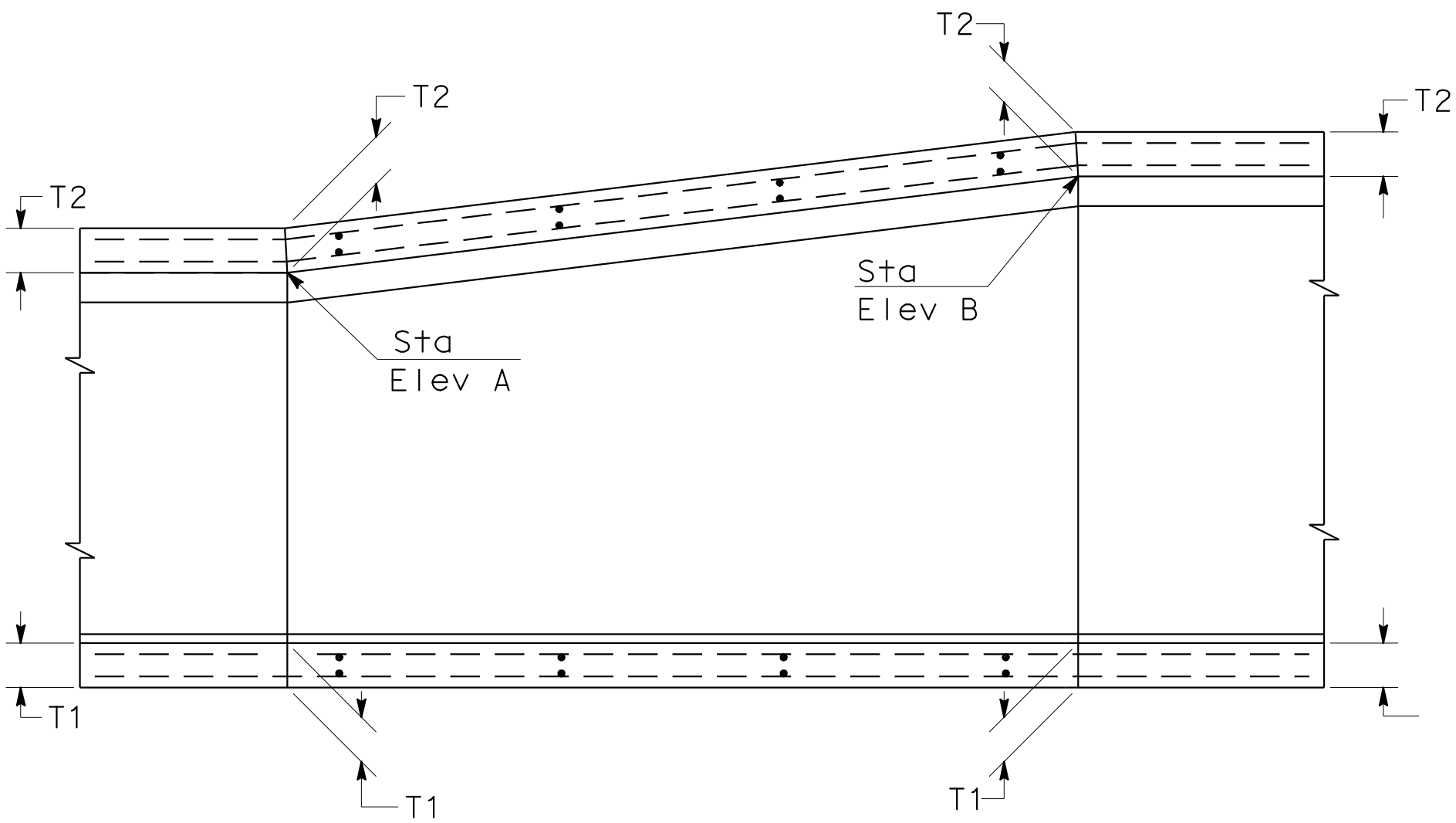
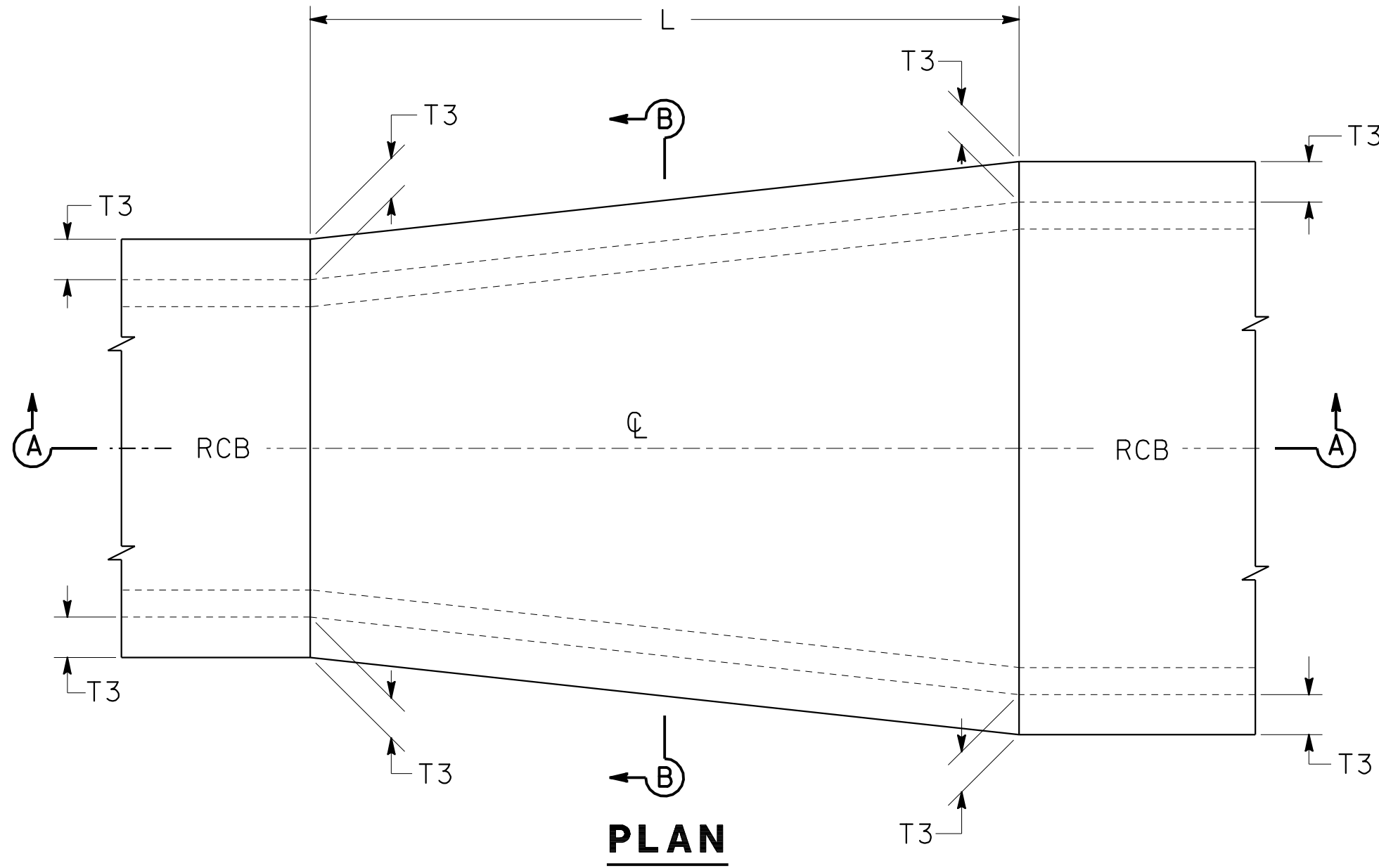
RALPH M. SASAKI

No. 30849

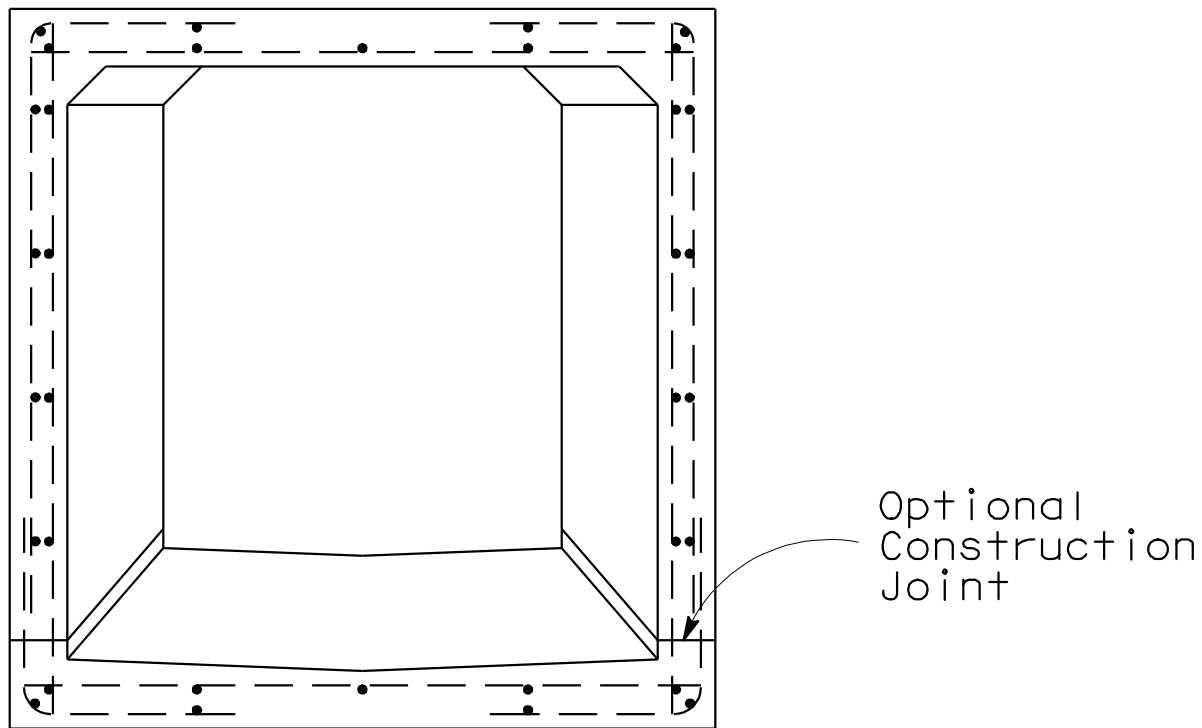
Exp. 3/31/12

CIVIL

STATE OF CALIFORNIA



SECTION A-A



SECTION B-B

NOTES:

- Values of 'L', Elev 'A', Elev 'B', shall be as shown on the drainage plans.
- Reinforcing steel bar sizes, spacing, pattern and cover over the steel shall be as follows:  
Box to box - that of the box section providing the greater steel area for each type of bar.  
The bar lengths shall vary uniformly throughout the transition.
- The concrete thickness shall be as follows:  
Box to box - that of the adjoining box section at each end of the transition and shall vary uniformly between the two ends.
- The interior surface shall be smooth and vary uniformly between the two adjoining sections.
- Keyed construction joints of the same dimensions as those of the box section may be carried through the transition structure at the contractor's option. See Section B-B.
- The transition structure shall be constructed in accordance with the general structural notes applying to box culverts shown on the Standard Plans.
- Dowels are required when joining to existing structures.  
#4 @ 12" to extend 2'- 0" into existing structures.

TRANSITION STRUCTURE No. 2 (Mod)

DRAINAGE SYSTEM No.   

DRAINAGE DETAILS

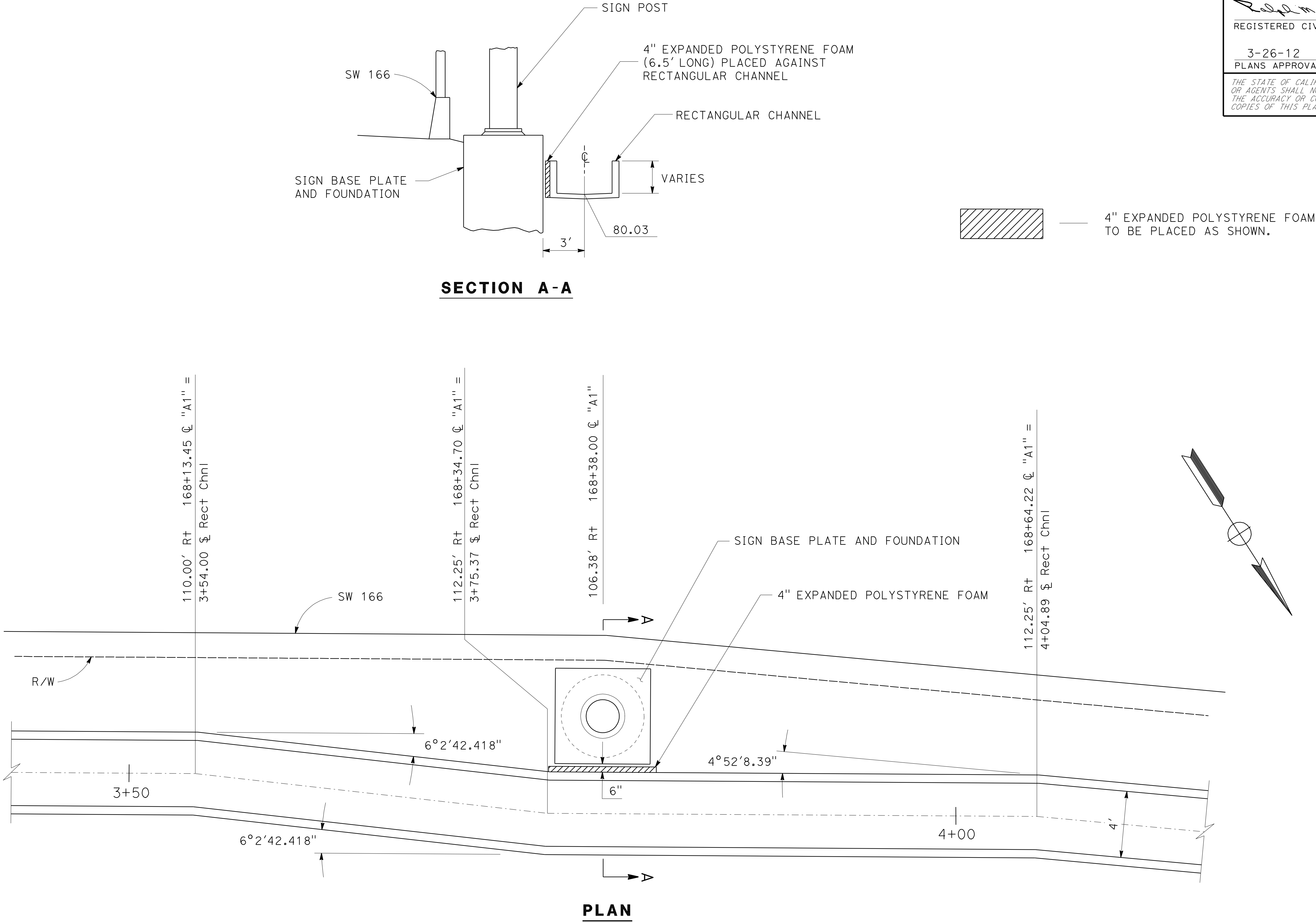
NO SCALE

DD- 47









RECTANGULAR CHANNEL AT SIGN No. 102

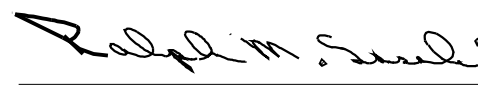
DRAINAGE SYSTEM No. 14 a

DRAINAGE DETAILS

NO SCALE


DD-50

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	5	2.4/4.0	217	1288

  
REGISTERED CIVIL ENGINEER

12-19-11  
DATE

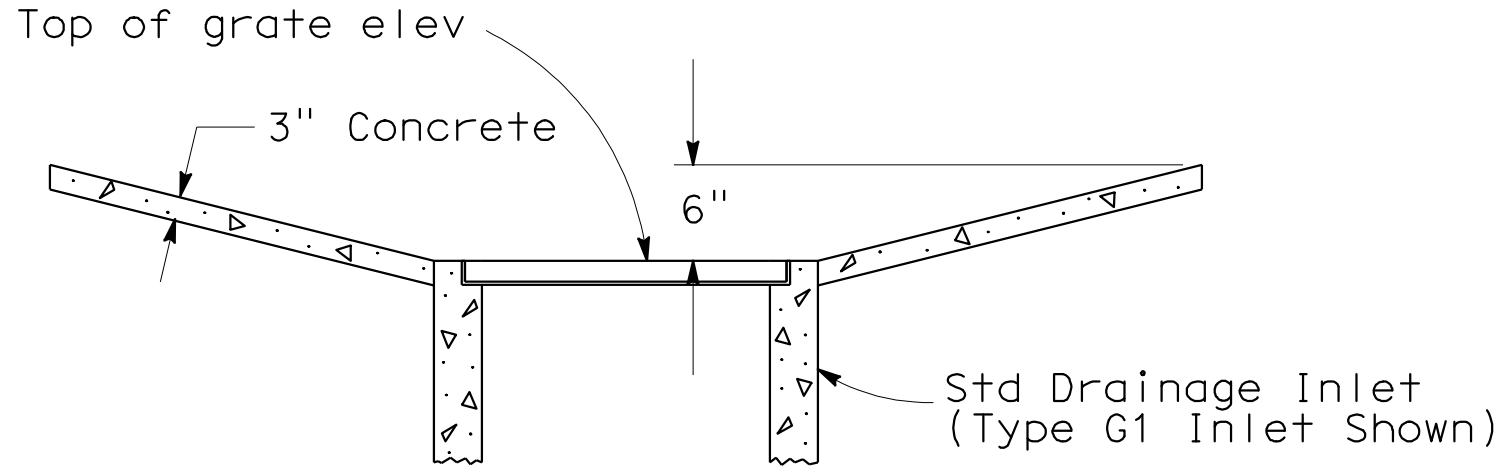
3-26-12  
PLANS APPROVAL DATE



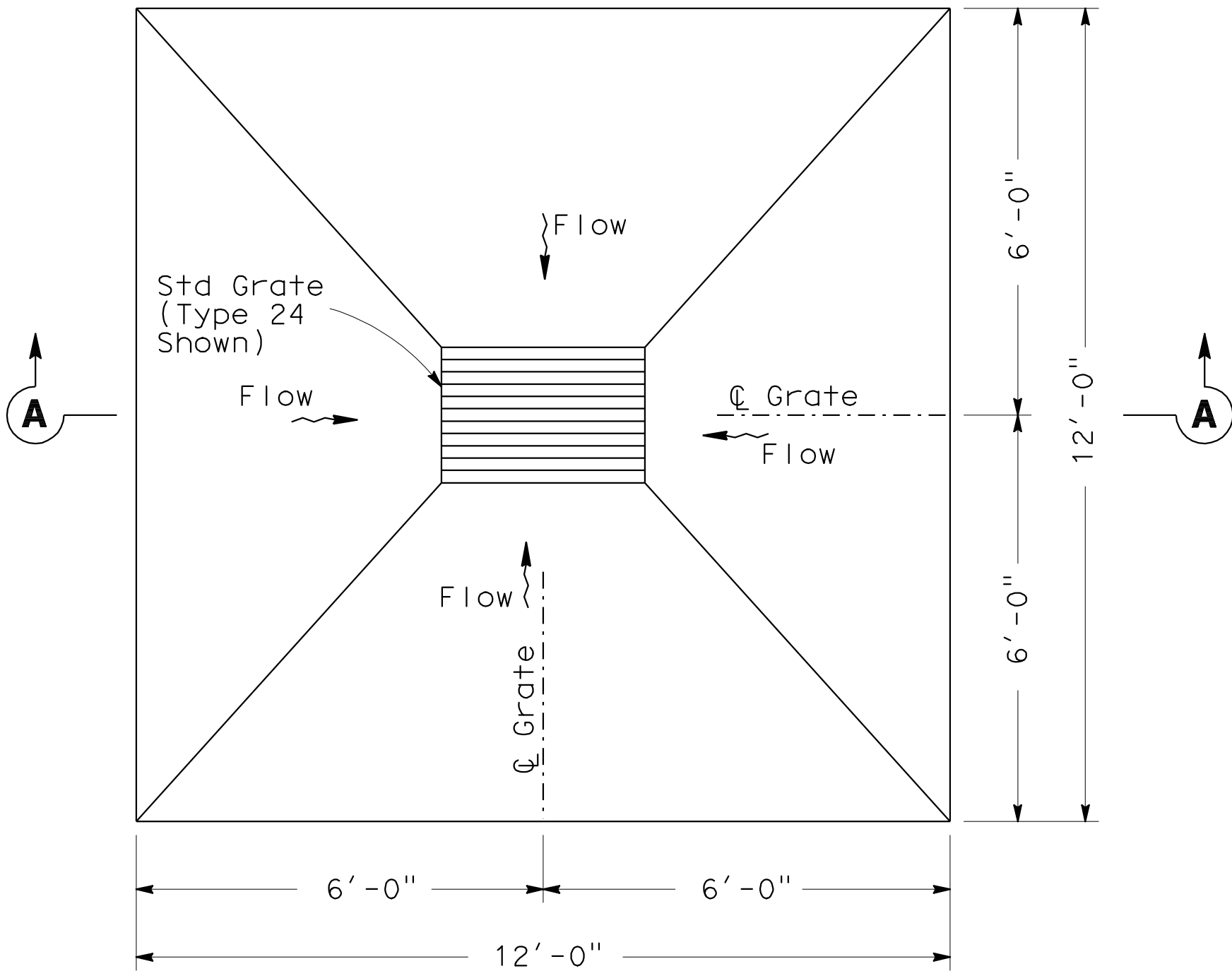
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DEPRESSED APRON AT INLET

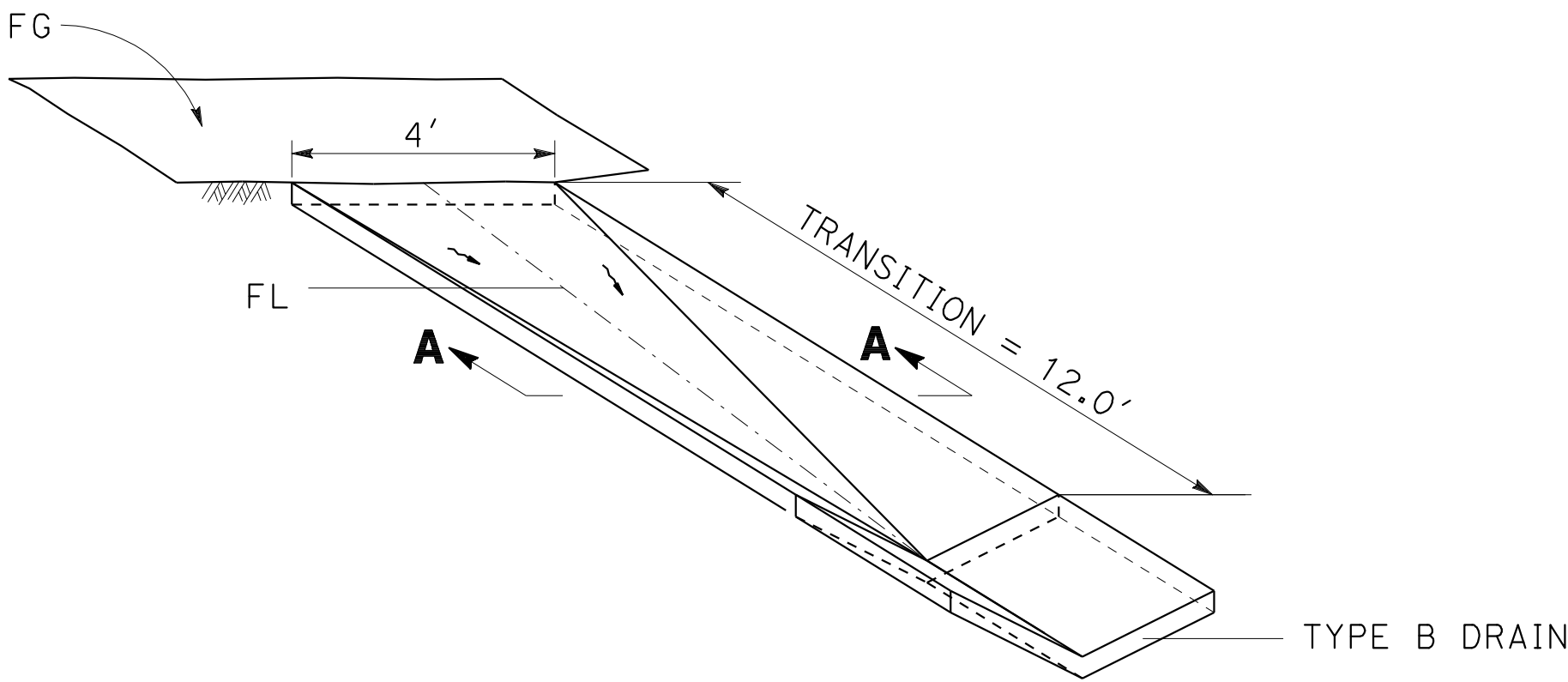
DRAINAGE SYSTEM No. 37 c



SECTION A-A

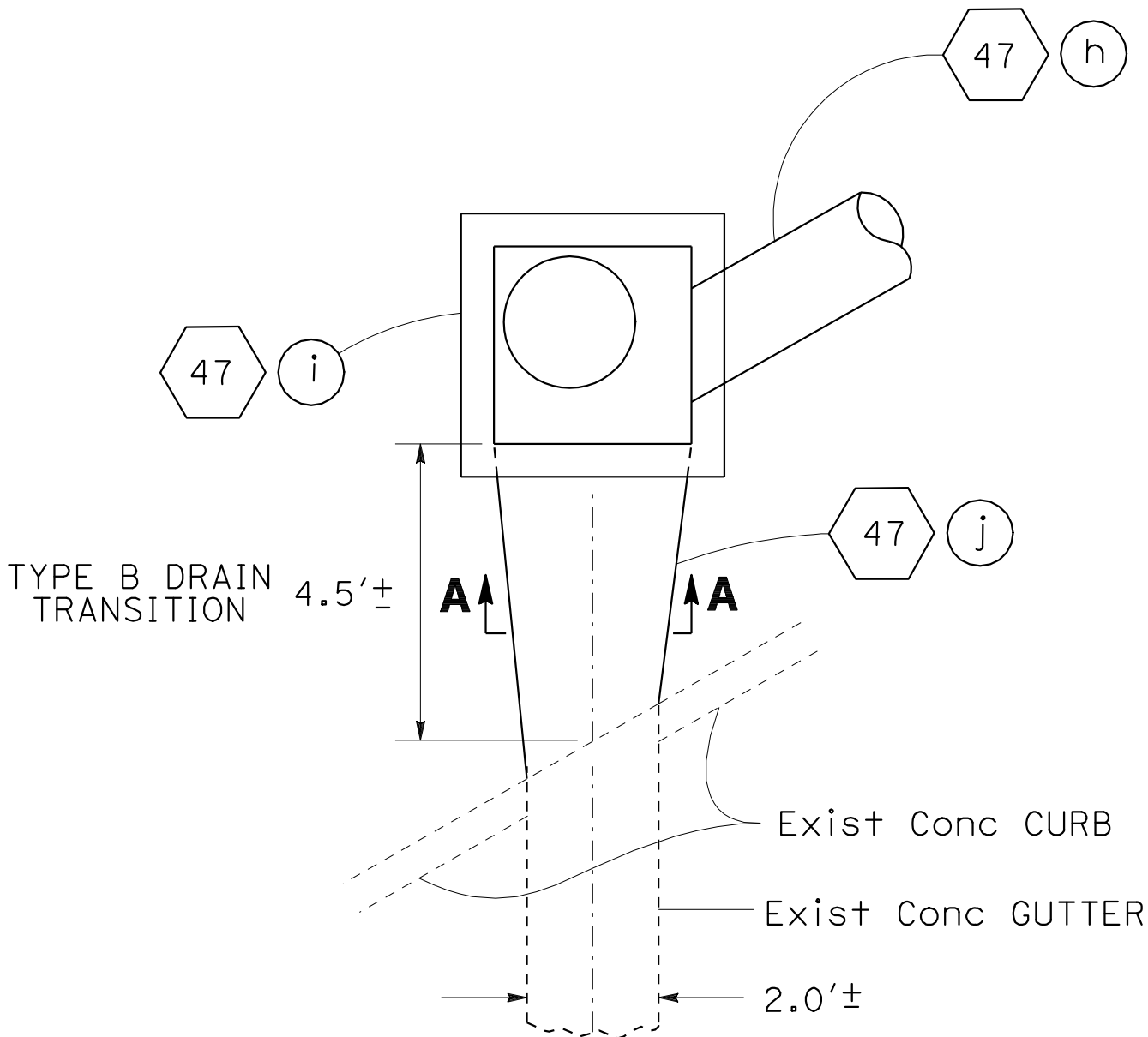


PLAN



DITCH TRANSITION

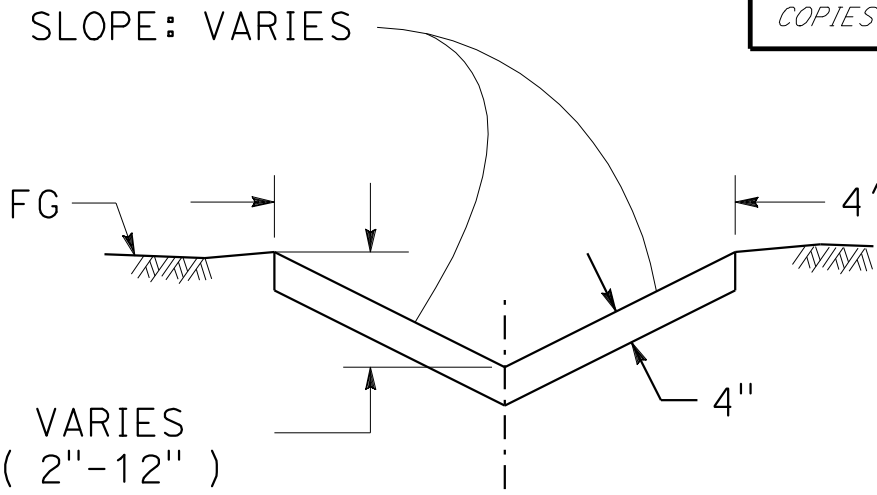
DRAINAGE SYSTEM No. 42 d h



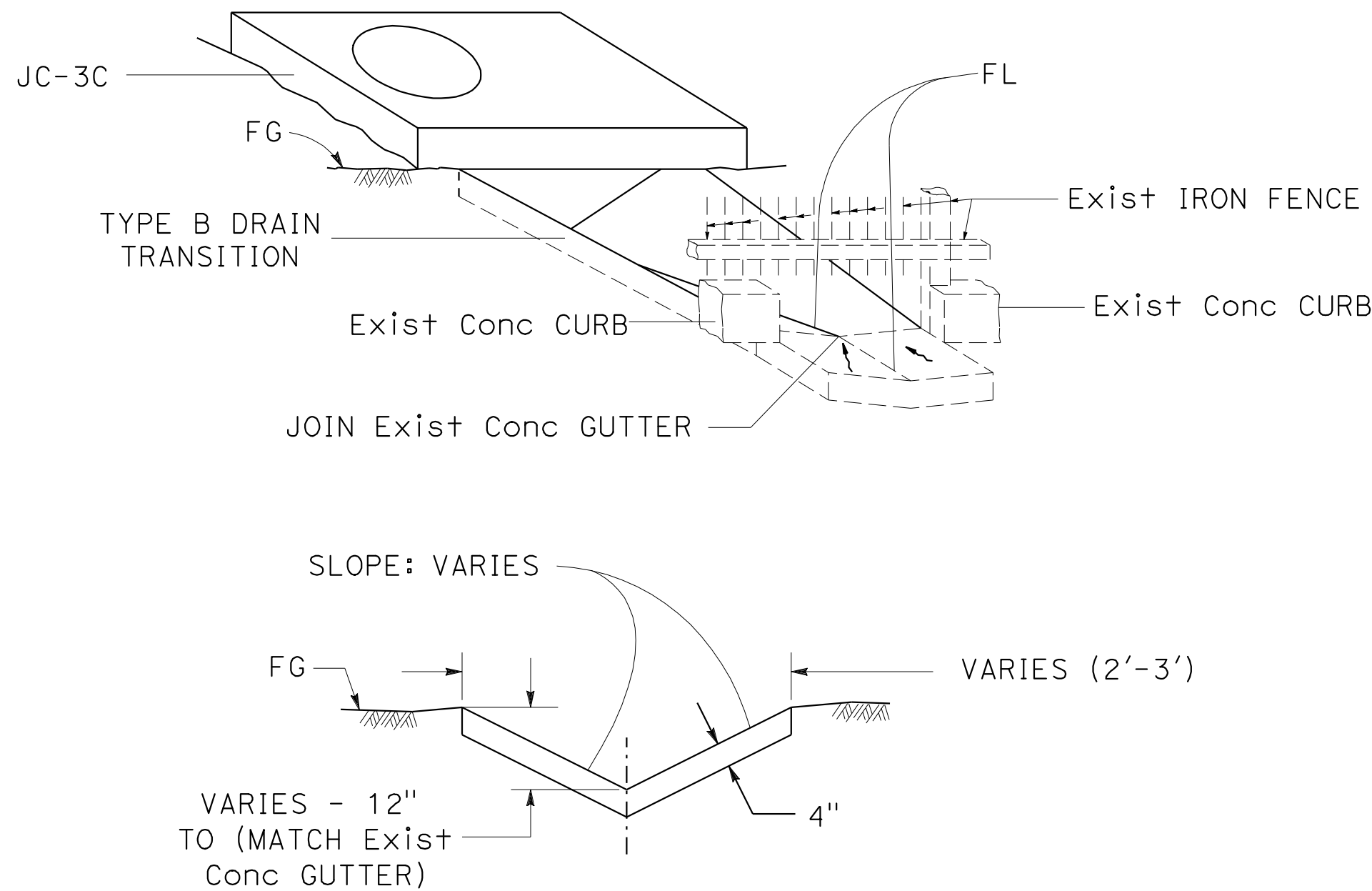
PLAN

TYPE B DRAIN TRANSITION

DRAINAGE SYSTEM No. 47 j



SECTION A-A

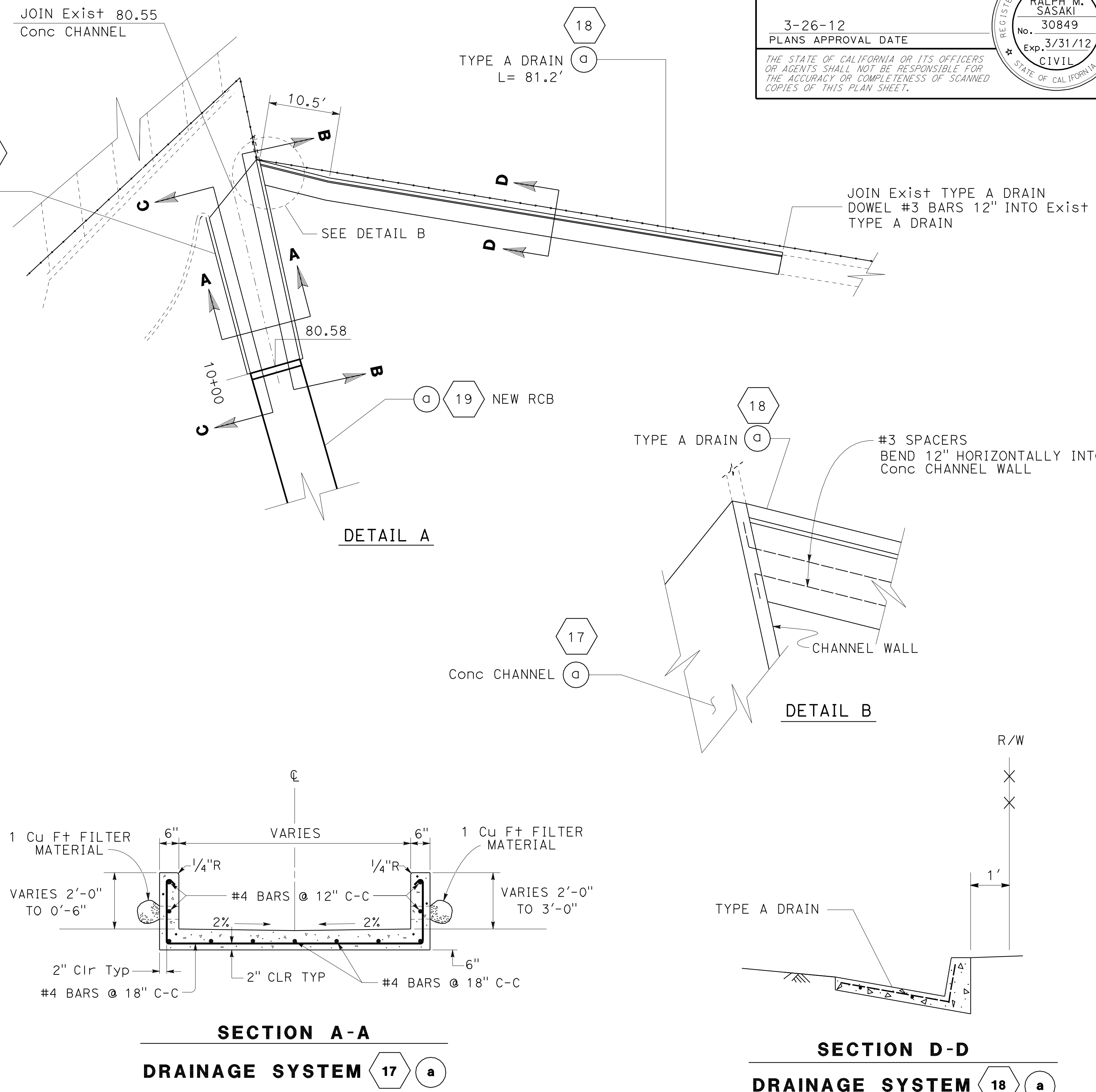
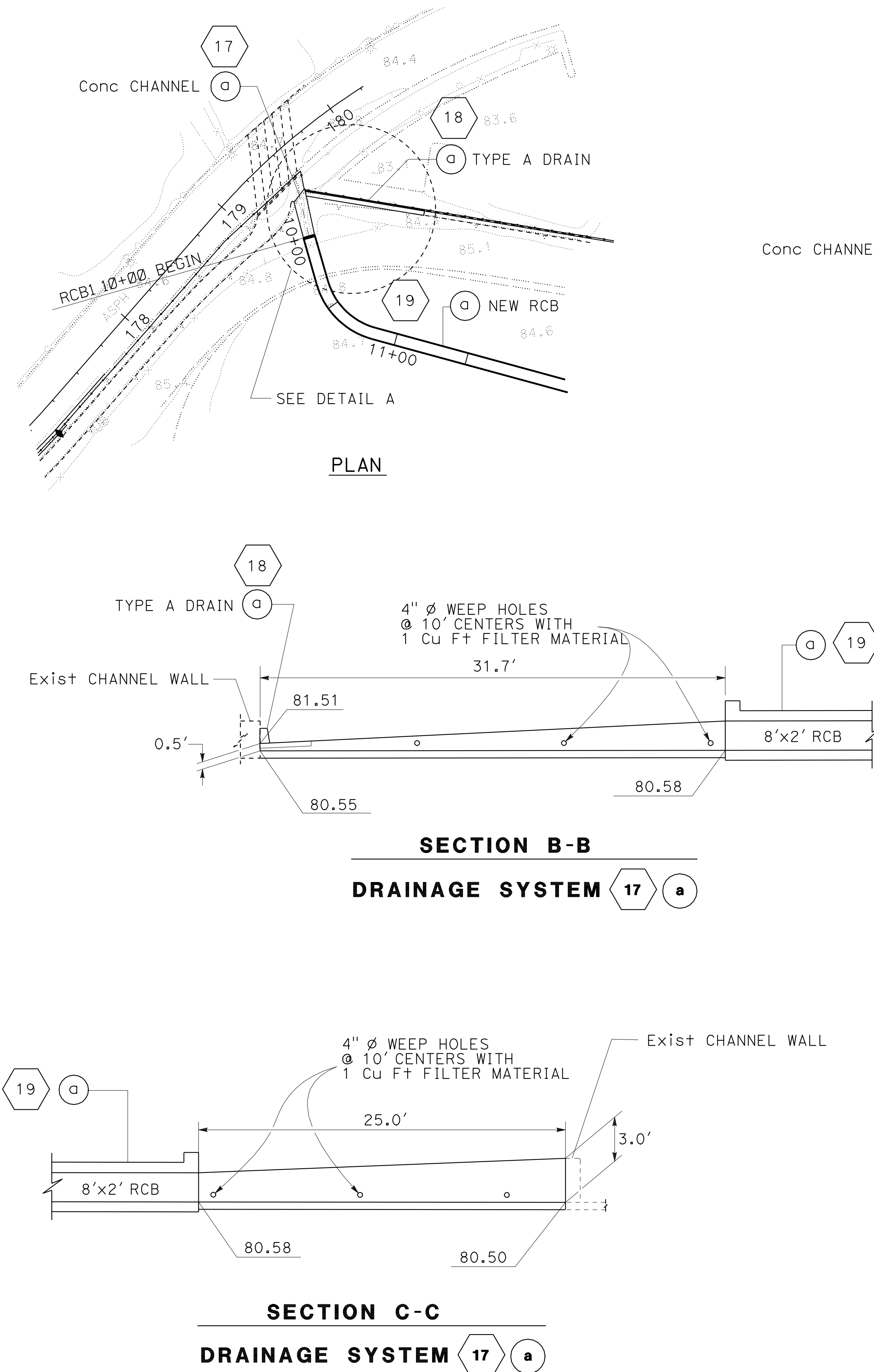


SECTION A-A

DRAINAGE DETAILS

NO SCALE

DD - 51

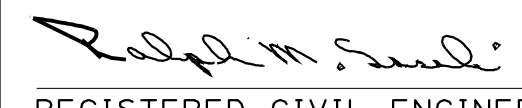


**DRAINAGE DETAILS**

NO SCALE

**DD-52**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	5	2.4/4.0	219	1288



12-19-11  
REGISTERED CIVIL ENGINEER  
DATE

3-26-12  
PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER

RALPH M. SASAKI  
No. 30849  
Exp. 3/31/12  
CIVIL  
STATE OF CALIFORNIA

BORDER LAST REVISED 7/2/2010

USERNAME => s121614  
DGN FILE => 7215931c052.dgn

RELATIVE BORDER SCALE IS IN INCHES

0 1 2 3

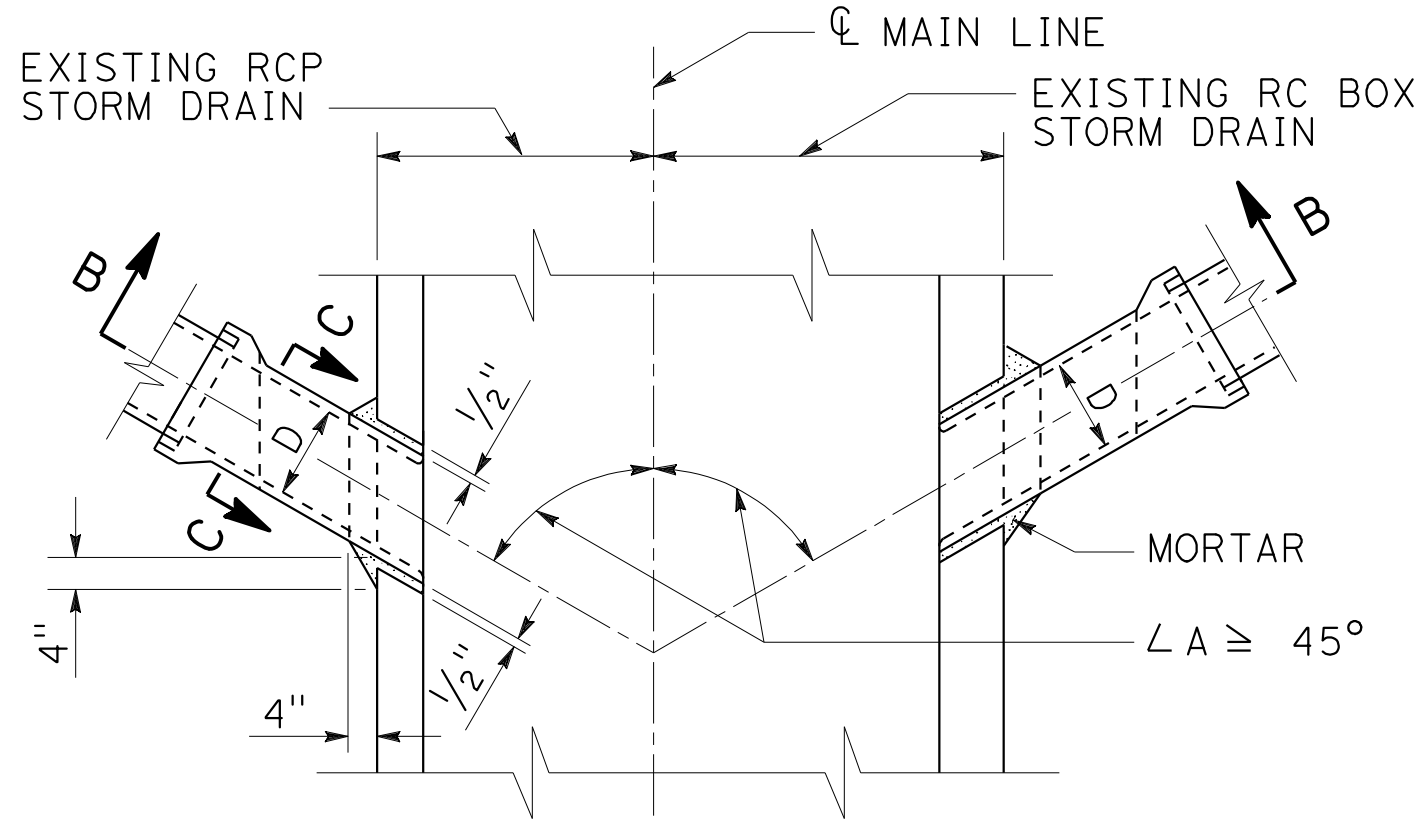
UNIT 1835

PROJECT NUMBER & PHASE

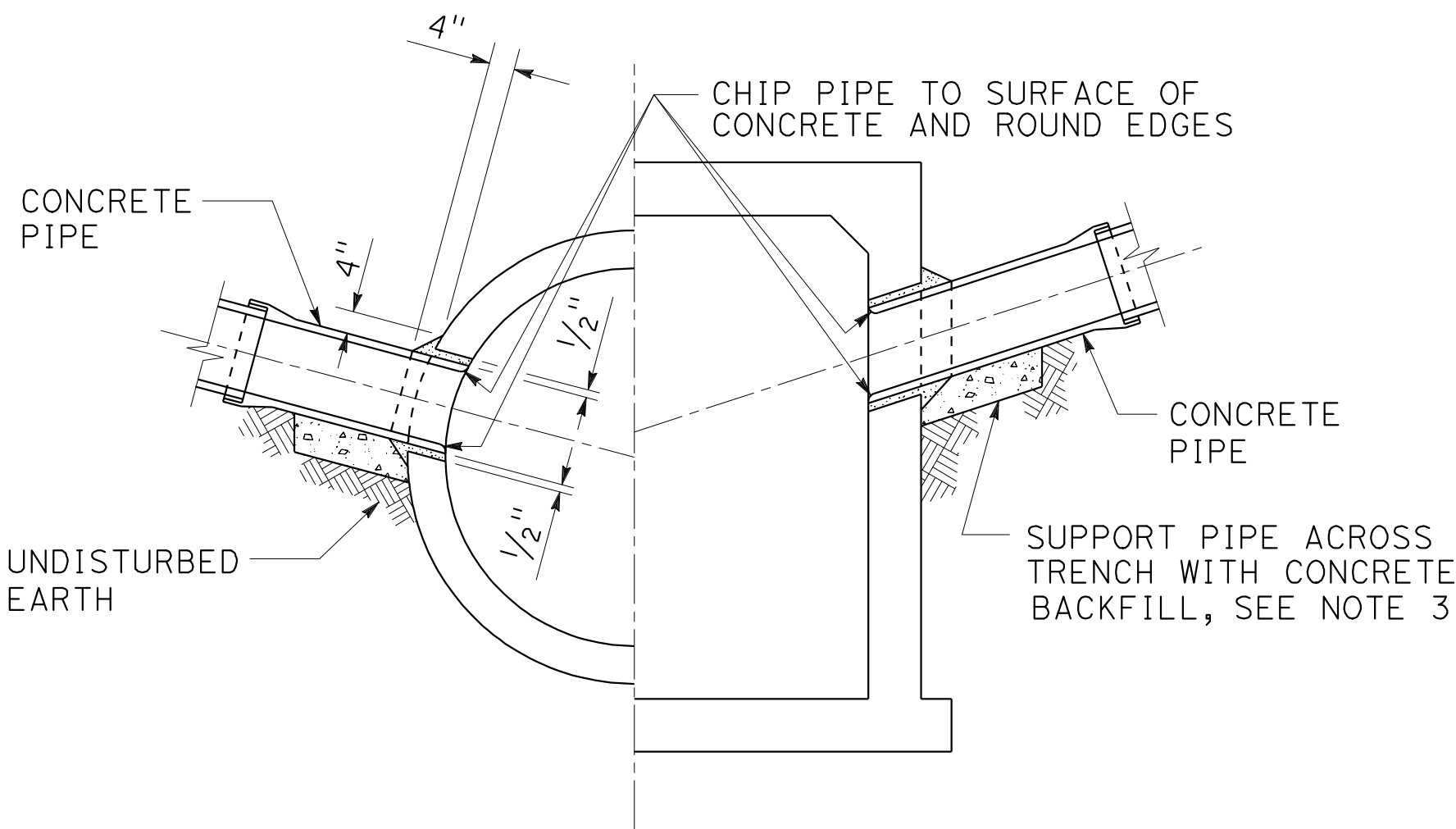
07000018331

LAST REVISION DATE PLOTTED => 26-MAR-2012  
00-00-00 TIME PLOTTED => 09:07

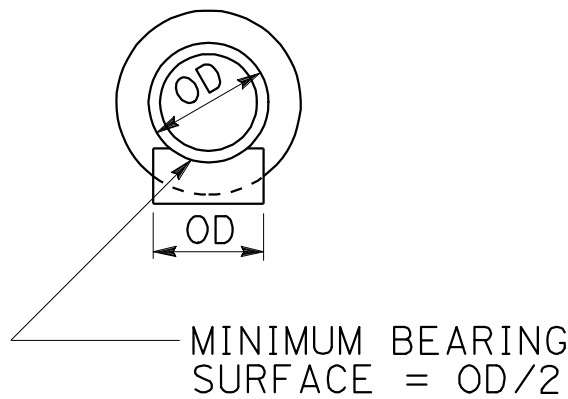




PLAN

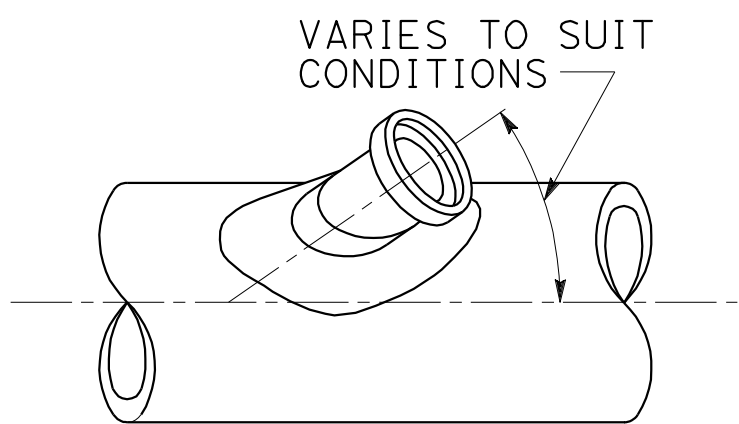


SECTION B-B

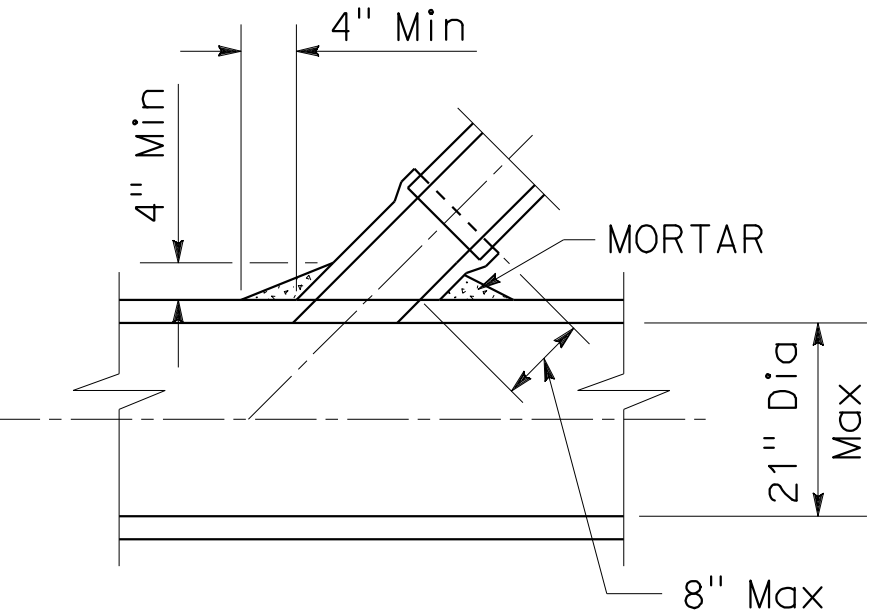


SECTION C-C

CASE 1  
PLAIN CONCRETE PIPE  
D = 24" Max

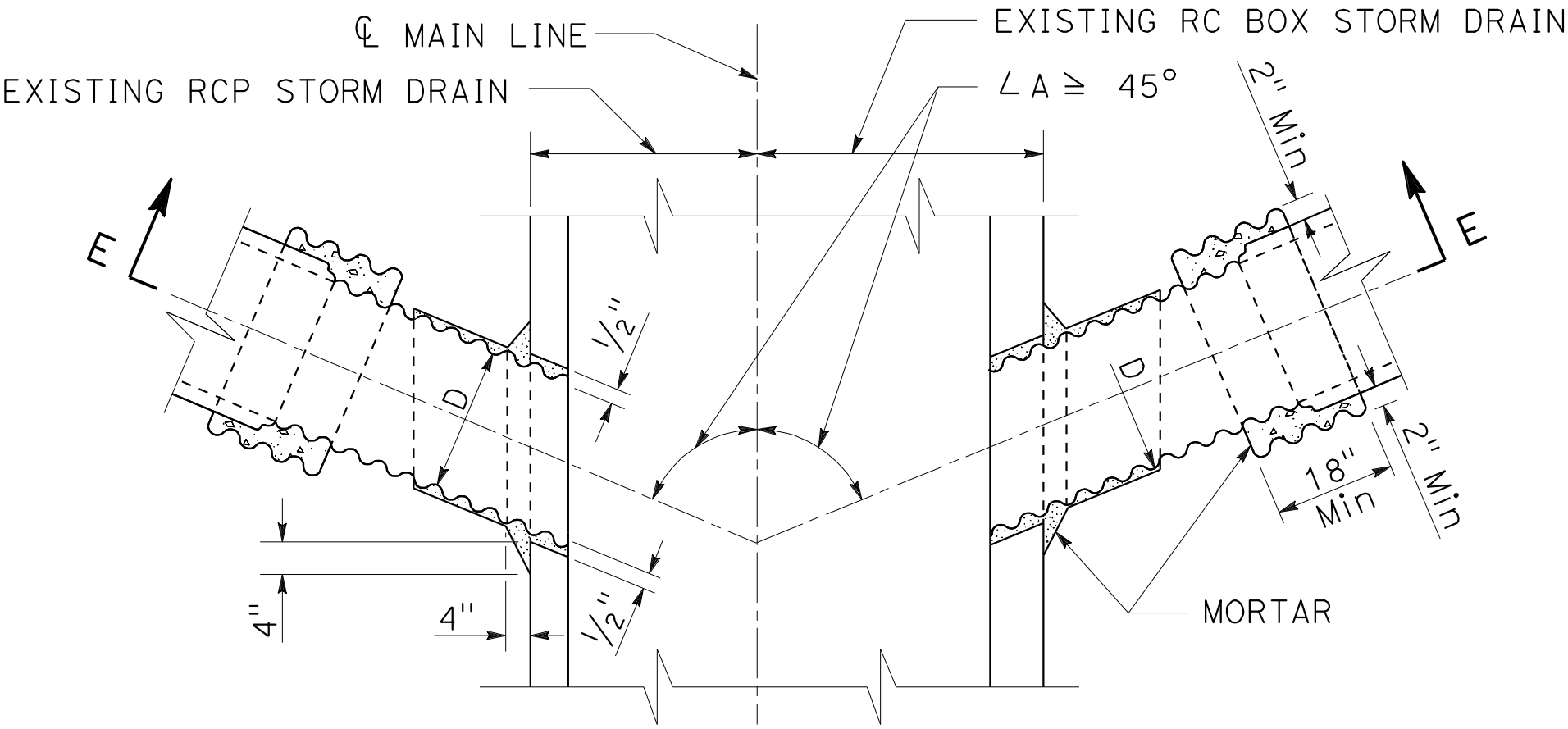


SADDLE  
PLAN

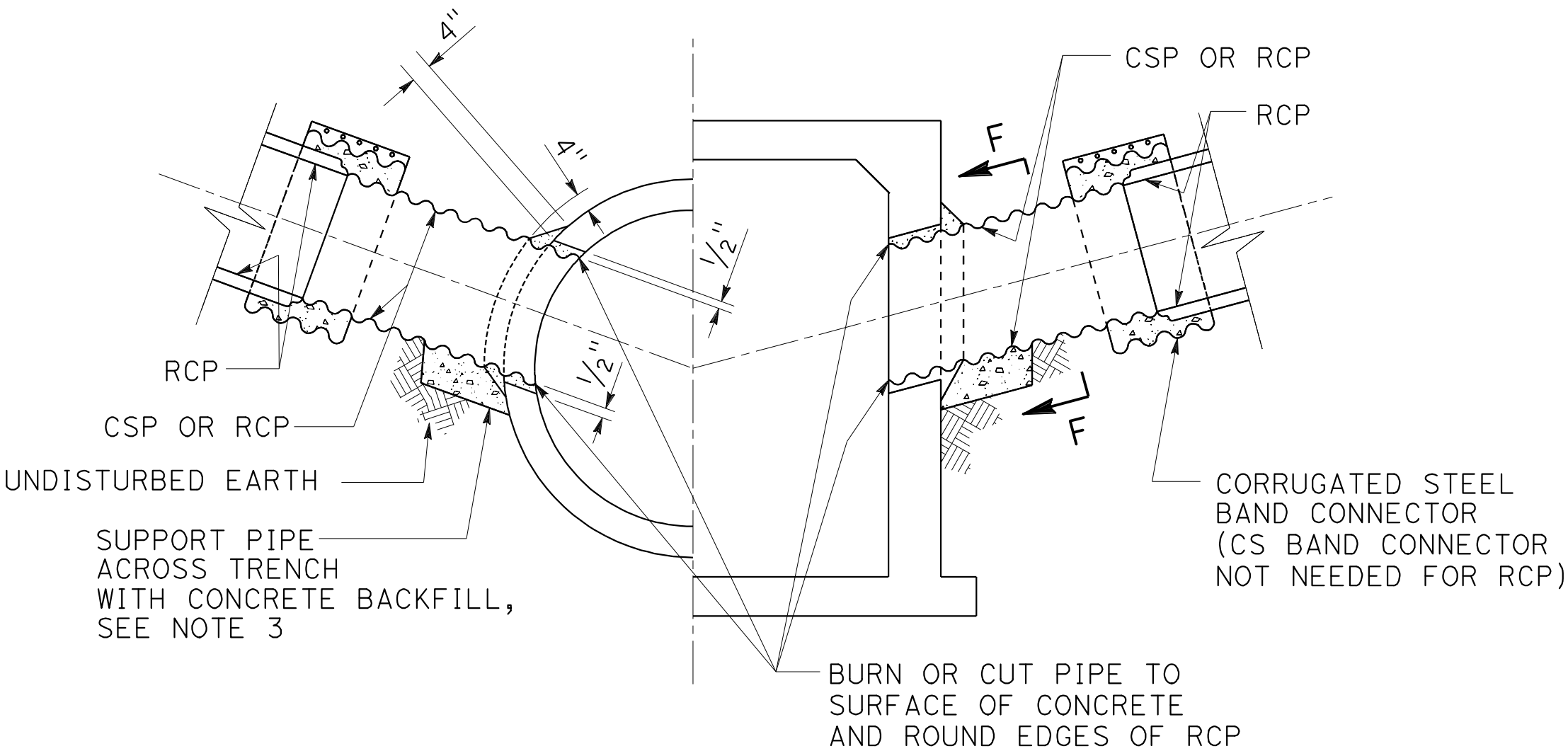


SADDLE  
SECTION

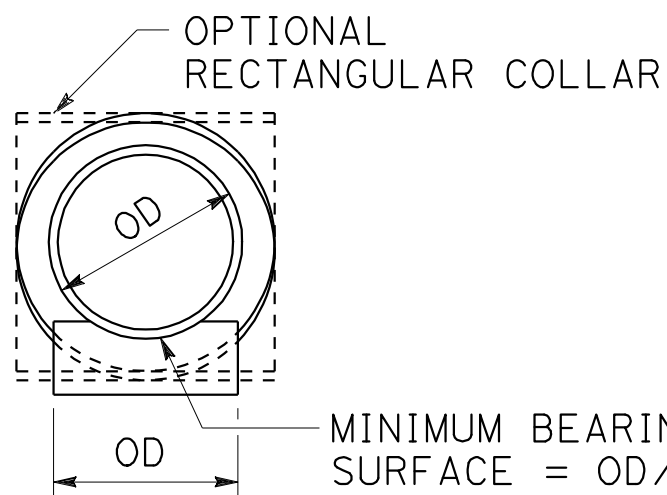
CASE 2  
SADDLE CONNECTION



PLAN



SECTION E-E



SECTION F-F

CASE 3  
RCP OR CSP  
D = 24" Max

DIAMETER OF CSP	Min GAGE
15" - 21"	16
24"	14

PIPE CONNECTIONS TO EXISTING STORM DRAINS (335-2)  
(SHEET 1 OF 2)

DRAINAGE DETAILS

NO SCALE

DD-53

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

 CALTRANS

HYDRAULICS

FUNCTIONAL SUPERVISOR

JAI P. THAKUR

CALCULATED, DESIGNED BY

CHECKED BY

MAY P. FUNG

RALPH M. SASAKI

REVISED BY

DATE REVISED

PIPE CONNECTIONS TO EXISTING STORM DRAINS (335-2)

(SHEET 2 OF 2)

NOTES:


CASE 1 AND CASE 3

1. OUTSIDE DIAMETER OF THE CONNECTOR PIPE SHALL NOT BE GREATER THAN 1/2" THE INSIDE DIAMETER OF THE RCP MAIN LINE.
2. INSIDE DIAMETER D OF THE CONNECTOR PIPE SHALL NOT BE GREATER THAN 24".
3. THE MINIMUM OPENING INTO THE EXISTING STORM DRAIN SHALL BE THE OUTSIDE DIAMETER OF THE CONNECTING PIPE PLUS 1". THE CONCRETE BACKFILL SUPPORTING THE CONNECTING PIPE MAY BE OMITTED IF THE PIPE IS LAID ON UNDISTURBED EARTH TO STORM DRAIN WALL.
4. ALL CSP AND FITTINGS SHALL BE GALVANIZED. BAND CONNECTORS MAY BE 2 GAGES LIGHTER THAN THE PIPE, BUT WITH A MINIMUM GAGE OF 16. THEY SHALL BE CONNECTED AT THE ENDS BY ANGLES HAVING MINIMUM DIMENSIONS OF 2" x 2" x 3/16" AND 5 1/2" BOLTS
5. WHEN JOINING A RCP CONNECTOR PIPE TO A CSP CONNECTOR PIPE, THE INSIDE DIAMETER D OF THE CSP SHALL BE AT LEAST EQUAL TO BUT NOT MORE THAN 3" GREATER THAN THAT OF THE RCP.
6. CONNECTOR PIPES SHALL BE NOT MORE THAN 5' ABOVE THE INVERT.
7. CONNECTOR PIPES SHALL ENTER MAIN LINE RCP RADially.

CASE 2

8. SADDLE CONNECTIONS SHALL BE USED WHEN CONNECTING TO PIPES 21" OR LESS IN DIAMETER WITHOUT THE USE OF JUNCTION STRUCTURES OR PRECAST Y BRANCHES.
9. TRIM OR CUT SADDLE TO FIT SNUGLY OVER THE OUTSIDE OF THE MAIN PIPE SO ITS AXIS WILL BE ON THE LINE AND GRADE OF THE CONNECTING PIPE.
10. THE OPENING INTO THE PIPE SHALL BE CUT AND TRIMMED TO FIT THE SADDLE SO THAT NO PART WILL PROJECT WITHIN THE BORE OF THE SADDLE PIPE.
11. THE CONNECTOR PIPE SHALL BE SUPPORTED AS SHOWN IN CASE 1 AND CASE 3.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	5	2.4/4.0	221	1288



12-19-11

REGISTERED CIVIL ENGINEER

DATE

3-26-12

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER

RALPH M. SASAKI

No. 30849

Exp. 3/31/12

CIVIL

STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS

OR AGENTS SHALL NOT BE RESPONSIBLE FOR

THE ACCURACY OR COMPLETENESS OF SCANNED

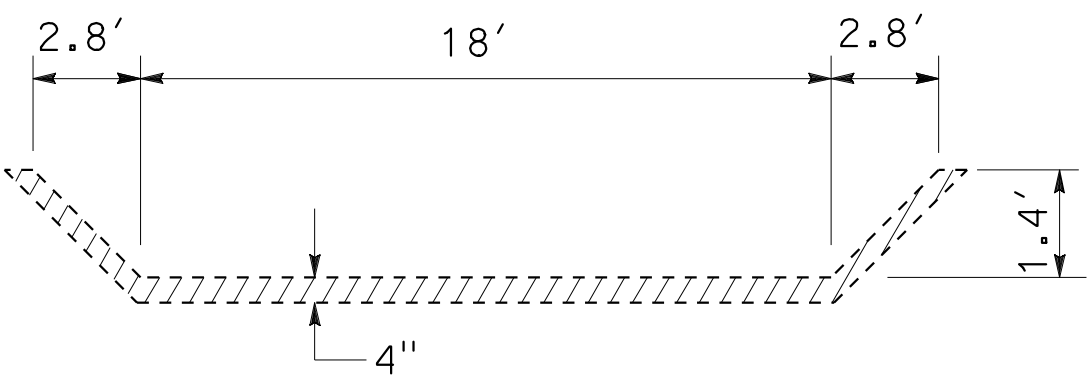
COPIES OF THIS PLAN SHEET.

DRAINAGE DETAILS

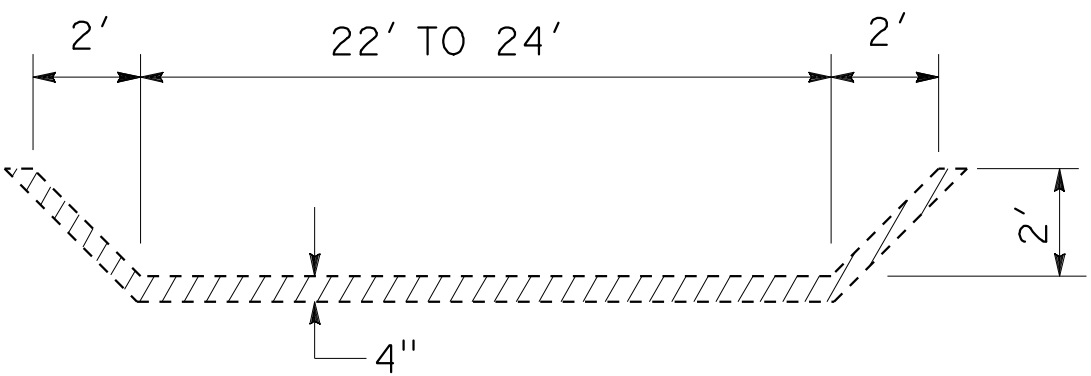
NO SCALE

DD-54

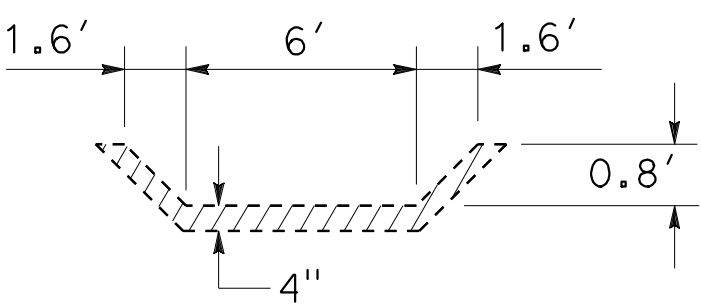




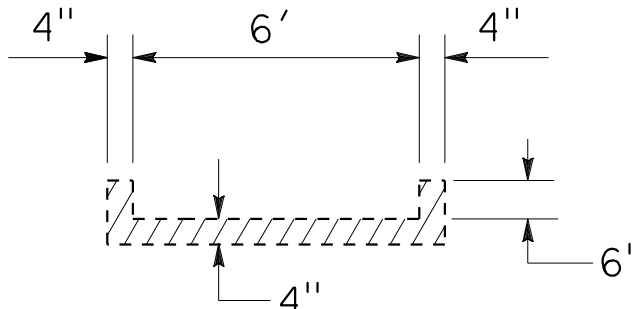
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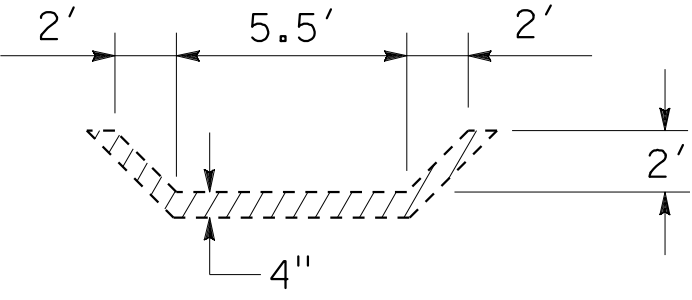
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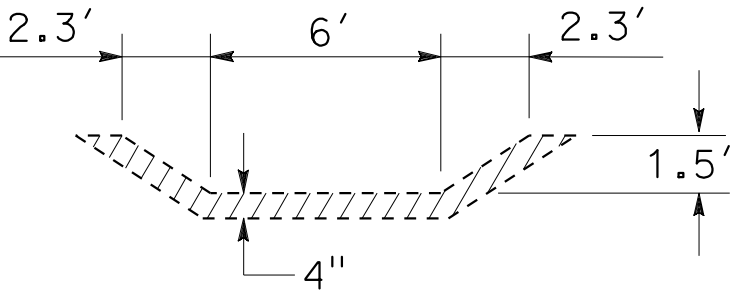
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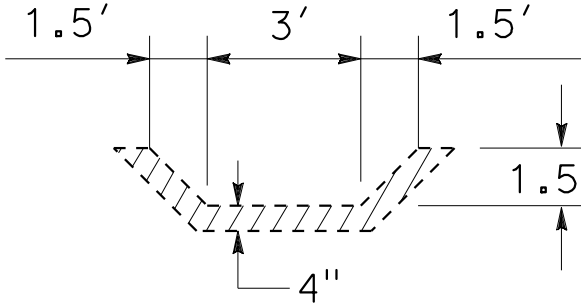
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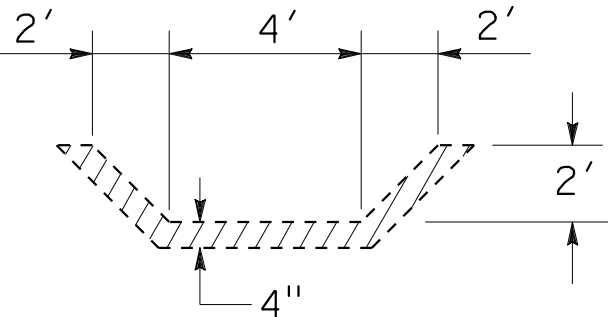
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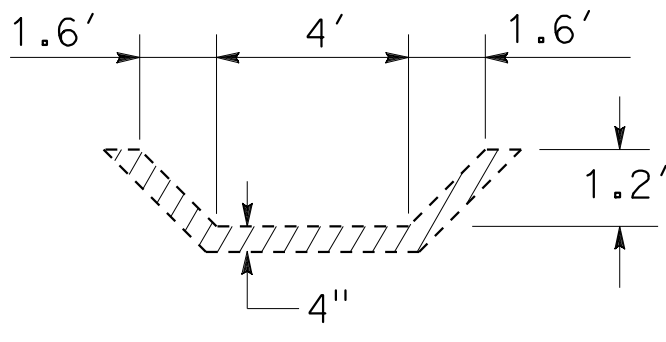
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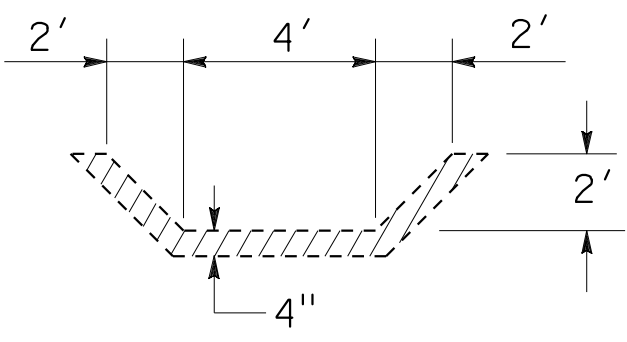
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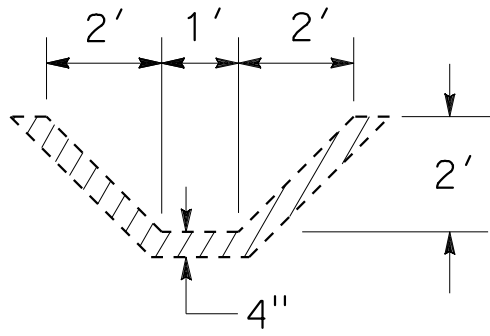
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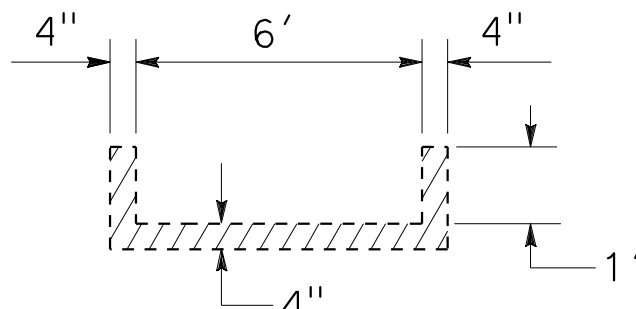
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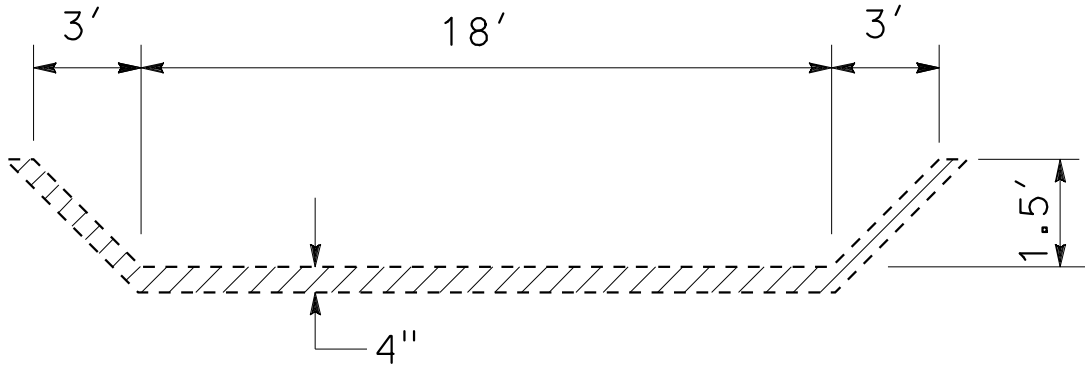
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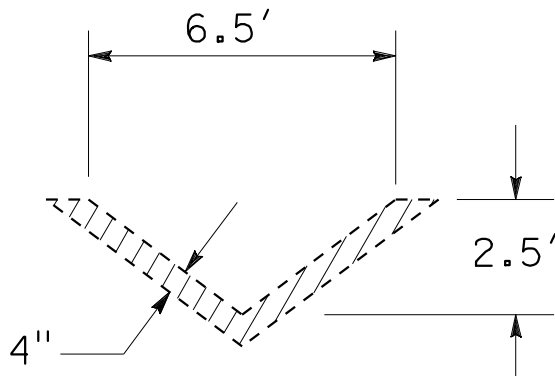
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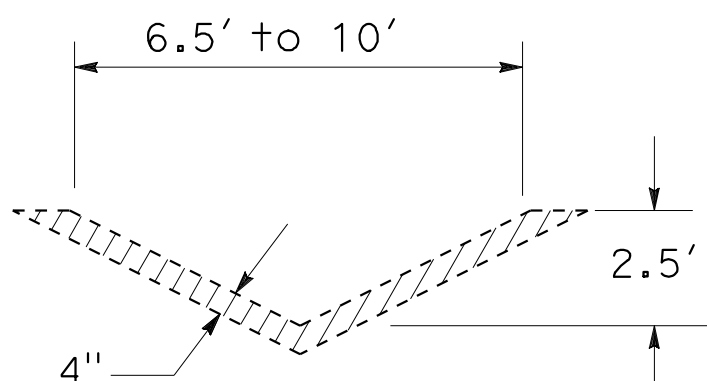
DRAINAGE SYSTEM No. 64 d



DRAINAGE SYSTEM No. 62 a



DRAINAGE SYSTEM No. 65 b

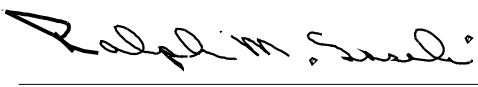


DRAINAGE SYSTEM No. 66 a

REMOVE CONCRETE CHANNEL

DRAINAGE DETAILS  
NO SCALE

DD-56

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	5	2.4/4.0	223	1288
<div><div>12-19-11 REGISTERED CIVIL ENGINEER DATE</div><div><div>3-26-12 PLANS APPROVAL DATE</div><div><div><div>REGISTERED PROFESSIONAL ENGINEER</div><div>RALPH M. SASAKI</div><div>No. 30849</div><div>Exp. 3/31/12</div><div>CIVIL</div></div><div>STATE OF CALIFORNIA</div></div></div></div>					
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.					























07

LA

5

2.4/4.0

233

1288

REGISTERED CIVIL ENGINEER

12-19-11

DATE

3-26-12

PLANS APPROVAL DATE



THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

NOTES:

1. JOINTS ARE STANDARD JOINT TYPE

2. LD ( ) - LOCAL DEPRESSIONS (CASE)

3. FOR ADDITIONAL QUANTITIES, SEE STRUCTURAL PLANS

SUMMARY OF DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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NOTES:

1. JOINTS ARE STANDARD JOINT TYPE
2. LD ( ) - LOCAL DEPRESSIONS (CASE)
3. FOR ADDITIONAL QUANTITIES, SEE STRUCTURAL PLANS

## SUMMARY OF DRAINAGE QUANTITIES

[illegible]

(\*) - INCLUDED IN ROADWAY QUANTITIES  
(N) - NOT A SEPARATE PAY ITEM, FOR INFORMATION ONLY

# DRAINAGE QUANTITIES

## DQ-20

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	5	2.4/4.0	243	1288

*Ralph M. Sasaki* 12-19-11  
 REGISTERED CIVIL ENGINEER DATE

3-26-12  
 PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS  
 OR AGENTS SHALL NOT BE RESPONSIBLE FOR  
 THE ACCURACY OR COMPLETENESS OF SCANNED  
 COPIES OF THIS PLAN SHEET.

A circular professional engineer seal for the State of California. The outer ring contains the text "REGISTERED PROFESSIONAL ENGINEER" at the top and "STATE OF CALIFORNIA" at the bottom, separated by two stars. The inner circle contains the name "RALPH M. SASAKI" at the top, the number "No. 30849" in the middle, and the expiration date "Exp. 3/31/12" at the bottom, with the word "CIVIL" centered below the date.

NOTES:

1. JOINTS ARE STANDARD JOINT TYPE
2. LD ( ) - LOCAL DEPRESSIONS (CASE)
3. FOR ADDITIONAL QUANTITIES, SEE STRUCTURAL PLANS

## SUMMARY OF DRAINAGE QUANTITIES

[illegible]

(\*) - INCLUDED IN ROADWAY QUANTITIES  
(N) - NOT A SEPARATE PAY ITEM, FOR INFORMATION ONLY

# DRAINAGE QUANTITIES

## DQ-21

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	5	2.4/4.0	244	1288

*Ralph M. Sasaki* 12-19-11  
 REGISTERED CIVIL ENGINEER DATE

3-26-12  
 PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS  
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 COPIES OF THIS PLAN SHEET.

A circular professional engineer seal for the State of California. The outer ring contains the text "REGISTERED PROFESSIONAL ENGINEER" at the top and "STATE OF CALIFORNIA" at the bottom, separated by two stars. The center of the seal contains the name "RALPH M. SASAKI", the license number "No. 30849", the expiration date "Exp. 3/31/12", and the word "CIVIL" at the bottom.







NOTES:

## SUMMARY OF DRAINAGE QUANTITIES

[illegible]

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	5	2.4/4.0	248	1288

*Ralph M. Sasaki* 12-19-11  
 REGISTERED CIVIL ENGINEER DATE  
 3-26-12  
 PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS  
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A circular professional engineer seal for the State of California. The outer ring contains the text "REGISTERED PROFESSIONAL ENGINEER" at the top and "STATE OF CALIFORNIA" at the bottom, separated by two stars. The center of the seal contains the name "RALPH M. SASAKI", the license number "No. 30849", the expiration date "Exp. 3/31/12", and the word "CIVIL" at the bottom.

# DRAINAGE QUANTITIES

## DQ- 25



NOTES:

1. JOINTS ARE STANDARD JOINT TYPE
2. LD ( ) - LOCAL DEPRESSIONS (CASE)
3. FOR ADDITIONAL QUANTITIES, SEE STRUCTURAL PLANS

## SUMMARY OF DRAINAGE QUANTITIES

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(\*) - INCLUDED IN ROADWAY QUANTITIES  
(N) - NOT A SEPARATE PAY ITEM, FOR INFORMATION ONLY

# DRAINAGE QUANTITIES

## DQ - 26

















NOTES:

1. JOINTS ARE STANDARD JOINT TYPE
2. LD ( ) - LOCAL DEPRESSIONS (CASE)
3. FOR ADDITIONAL QUANTITIES, SEE STRUCTURE PLANS

## SUMMARY OF DRAINAGE QUANTITIES


[illegible]

(\*) - INCLUDED IN ROADWAY QUANTITIES  
(N) - NOT A SEPARATE PAY ITEM, FOR INFORMATION ONLY

# DRAINAGE QUANTITIES

## DQ-34

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

HYDRAULICS

FUNCTIONAL SUPERVISOR

JAI P. THAKUR

CALCULATED, DESIGNED BY

CHECKED BY

MAY P. FUNG

RALPH M. SASAKI

REVISED BY

DATE REVISED

07

LA

5

2.4/4.0

258

1288


REGISTERED CIVIL ENGINEER

12-19-11

DATE

3-26-12

PLANS APPROVAL DATE



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NOTES:

1. JOINTS ARE STANDARD JOINT TYPE

2. LD ( ) - LOCAL DEPRESSIONS (CASE)

3. FOR ADDITIONAL QUANTITIES, SEE STRUCTURE PLANS

SUMMARY OF DRAINAGE QUANTITIES

SHEET No.	MINOR CONCRETE (MINOR STRUCTURE) (SEE NOTE 3)	MINOR CONCRETE (DITCH LINING)	MINOR CONCRETE (CHANNEL LINING)	MINOR CONCRETE (GUTTER DEPRESSION)	MINOR CONCRETE (BACKFILL)	STRUCTURAL CONCRETE, BOX CULVERT (SEE NOTE 3)	BAR REINFORCING STEEL (BOX CULVERT) (SEE NOTE 3)	MISCELLANEOUS IRON AND STEEL (SEE NOTE 3)	15" RCP	18" RCP	24" RCP	30" RCP	24" PLASTIC PIPE	18" SLOTTED CSP (0.079" THICK)	6" NON-PERFORATED PLASTIC PIPE UNDERDRAIN	36" PRECAST CONCRETE PIPE MANHOLE	ABANDON CULVERT	ABANDON MANHOLE	SAND BACKFILL	PERVIOUS BACKFILL MATERIAL (N)	CAP INLET	REMOVE CONCRETE	REMOVE PIPE	REMOVE RCB CULVERT	REMOVE INLET	REMOVE MANHOLE	DITCH EXCAVATION	CABLE RAILING (*)	TYPE 18-9 FRAME AND GRATE (N)	TYPE 24-12 FRAME AND GRATE (N)	TYPE U45 MANHOLE FRAME AND COVER (N)	TYPE U46 MANHOLE FRAME AND COVER (N)	CATCH BASIN FRAME AND GRATE (N)	CATCH BASIN MANHOLE FRAME AND COVER (N)	
	CY	CY	CY	CY	CY	CY	LB	LB	LF	LF	LF	LF	LF	LF	LF	LF	EA	EA	CY	EA	CY	LF	CY	EA	EA	CY	LF	EA	EA	EA	EA	EA	EA		
DQ-1	17.88							5220			1134.6			29.0																18					
DQ-2	12.54			2.10		195.48	31578	3639			62.6					7.9														2	2	1	3		
DQ-3	2.03					479.02	81867	1430								6.2															2		1		
DQ-4	18.24							4640			394.0	702.9																		16					
DQ-5	14.94							4132		42.8	776.5			37.0																14					
DQ-6	13.06				53.29			3480			329.2	183.4																		12					
DQ-7	15.85							4640			994.2																			16					
DQ-8	14.97			3.50				5115			523.4																					1	9		
DQ-9	18.99							4640			618.6			74.0																16					
DQ-10		17.13	139.03			186.23	45385																												
DQ-11	5.78					959.80	208647	3297		37.0						28.5														2	5	2			
DQ-12	29.58	34.68						4966			722.0																				17				
DQ-13	19.93							3370		18.3	518.3		57.5	60.6																10		2			
DQ-14	9.95	9.04			46.42			1030	271.7	113.4	46.5																					2		3	
DQ-15	36.35							3480			382.0																				12				
DQ-16	21.14							4640			1009.0																				16				
DQ-17	18.95				8.43			3461		9.1	599.2		17.6		37.8																11		1		

(\*) - INCLUDED IN ROADWAY QUANTITIES

(N) - NOT A SEPARATE PAY ITEM, FOR INFORMATION ONLY

DRAINAGE QUANTITIES

DQ-35



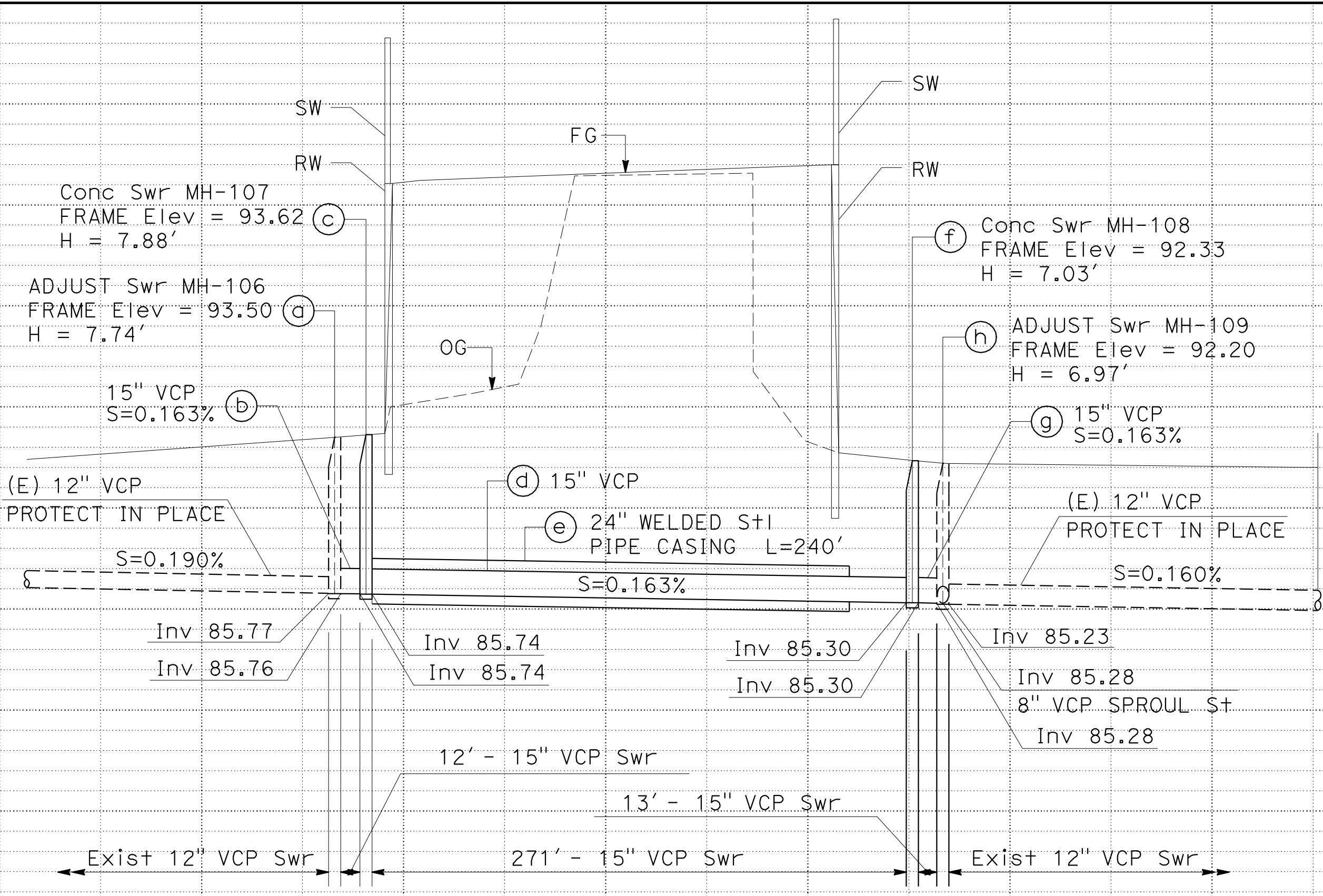


[illegible]

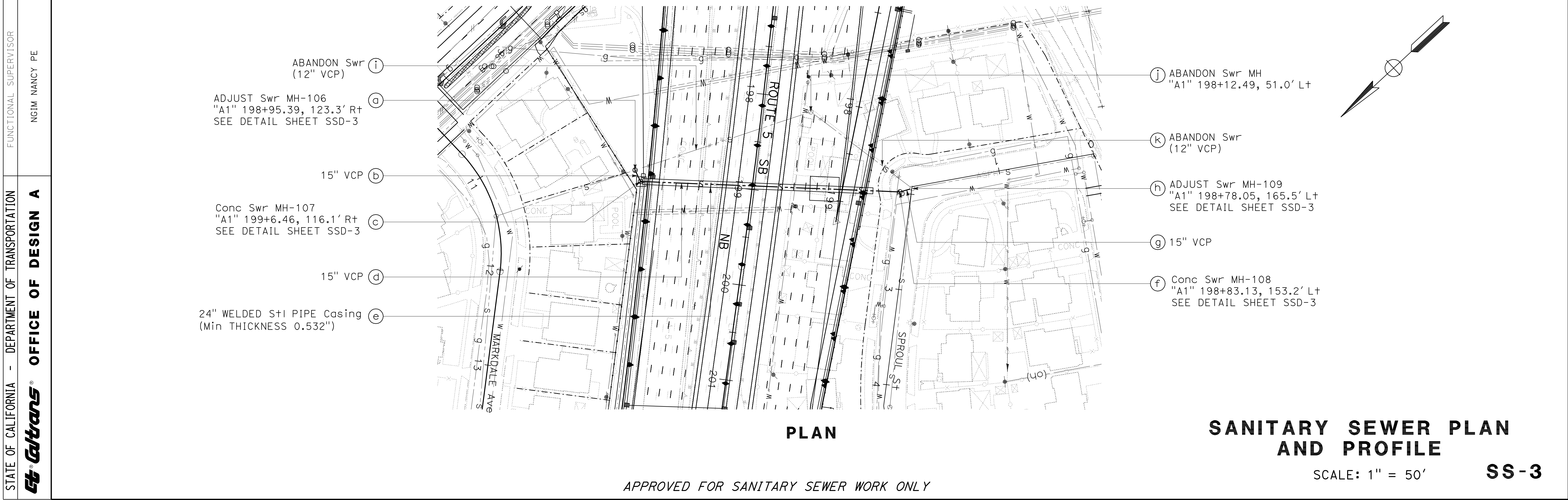




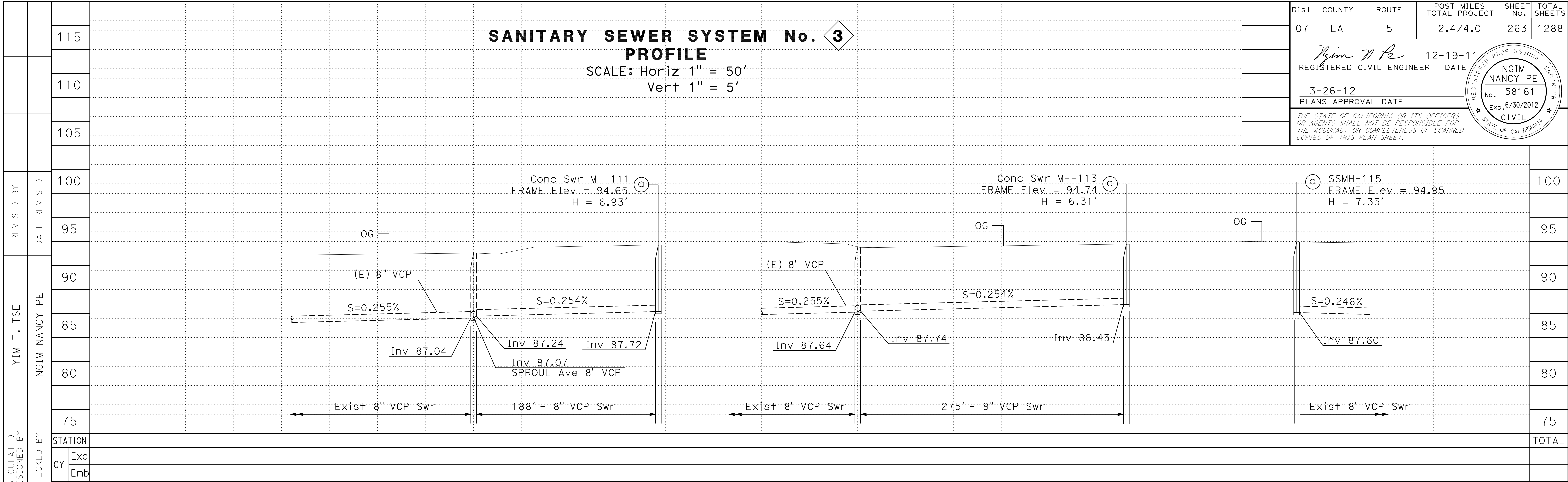
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS	110	
						105	
						100	
						95	
						90	
REVISED BY	DATE	REVISED BY	DATE	REVISED BY	DATE	85	
						80	
						75	
						70	
						STATION	
CY	Exc	Emb	Exc	Emb	TOTAL		

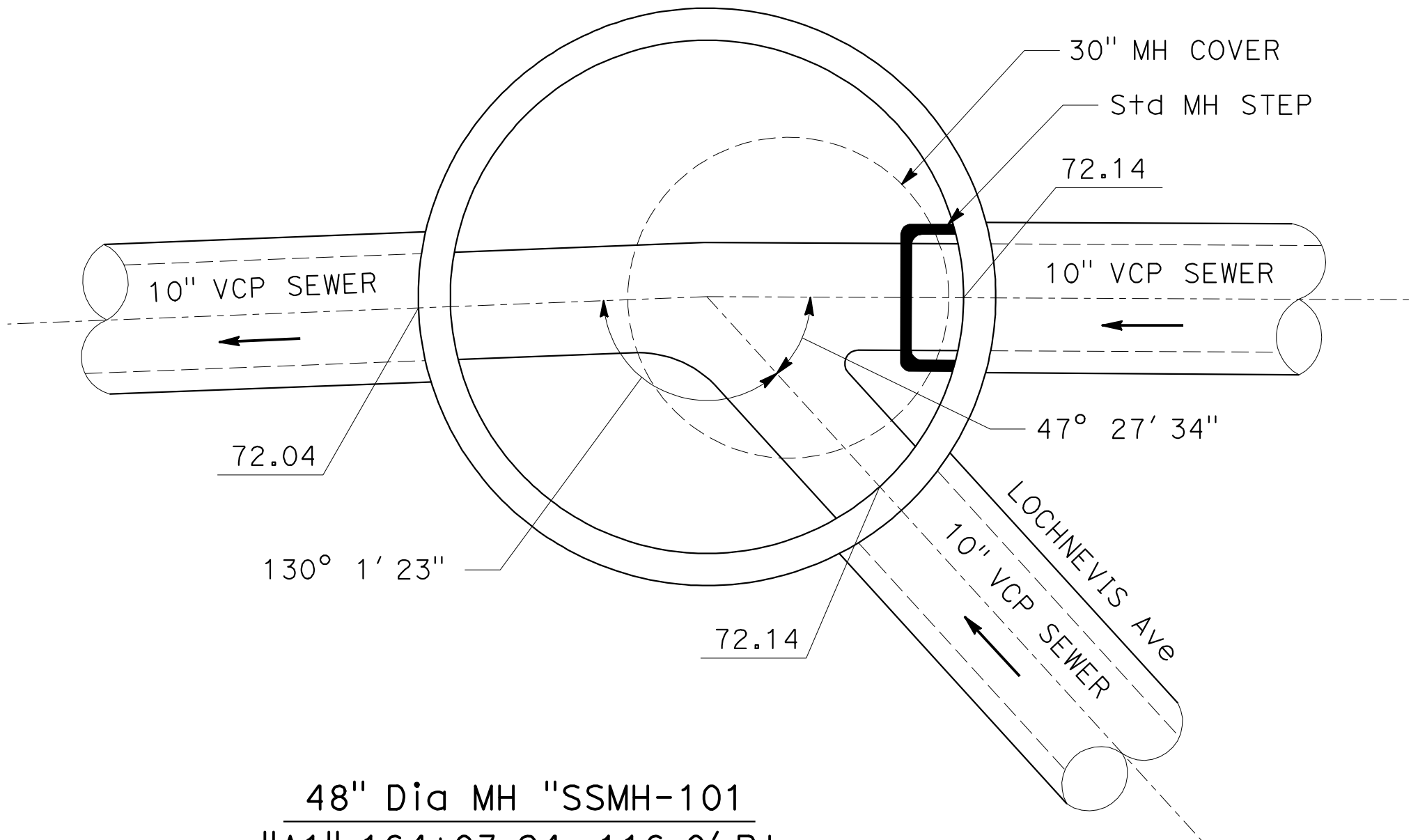
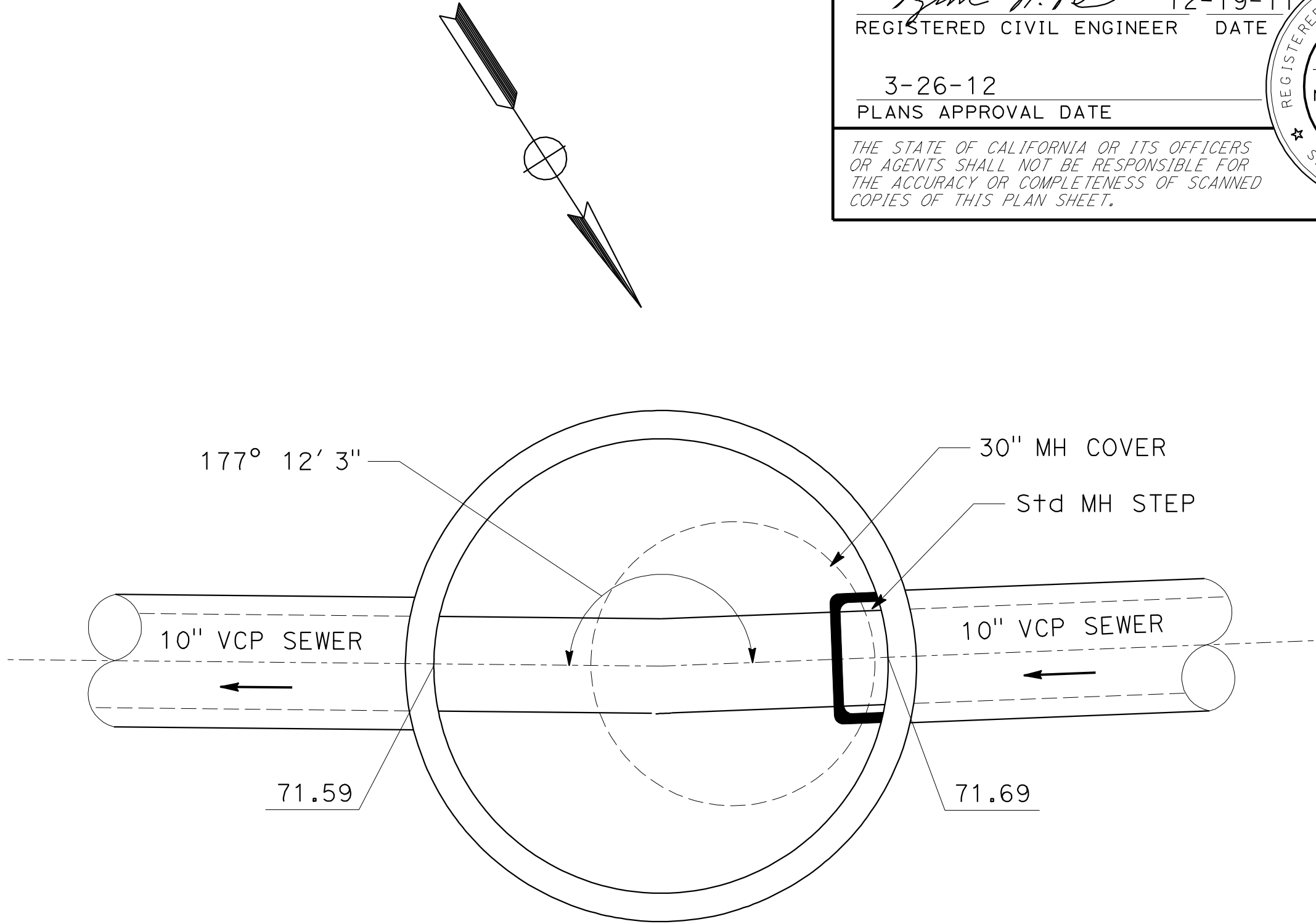
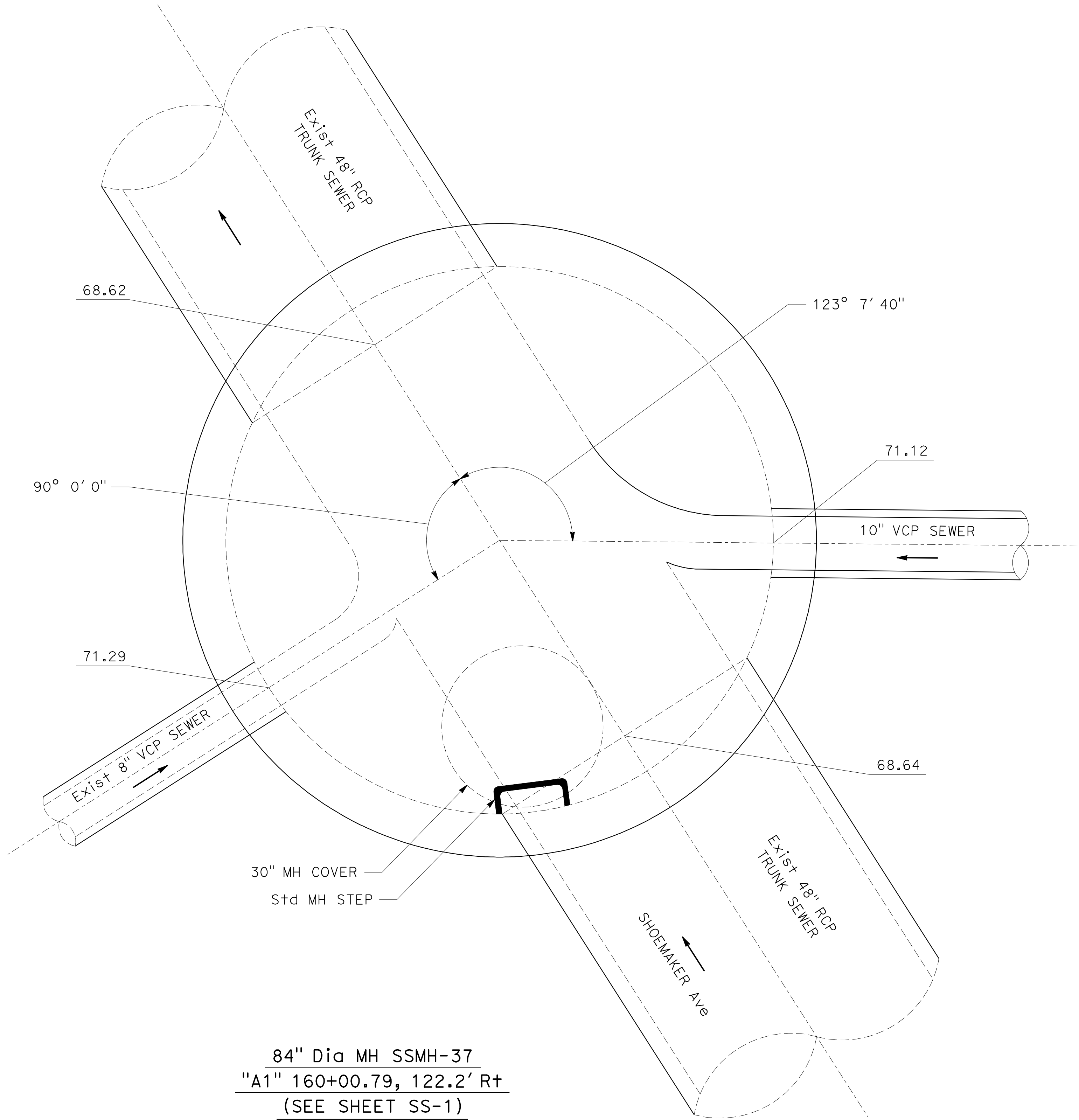


**SANITARY SEWER SYSTEM No. 2**  
**PROFILE**  
SCALE: Horiz 1" = 50'  
Vert 1" = 5'









SANITARY SEWER DETAIL

NO SCALE

SSD-1

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	5	2.4/4.0	265	1288

12-19-11

REGISTERED CIVIL ENGINEER

3-26-12

PLANS APPROVAL DATE

NGIM

NANCY PE

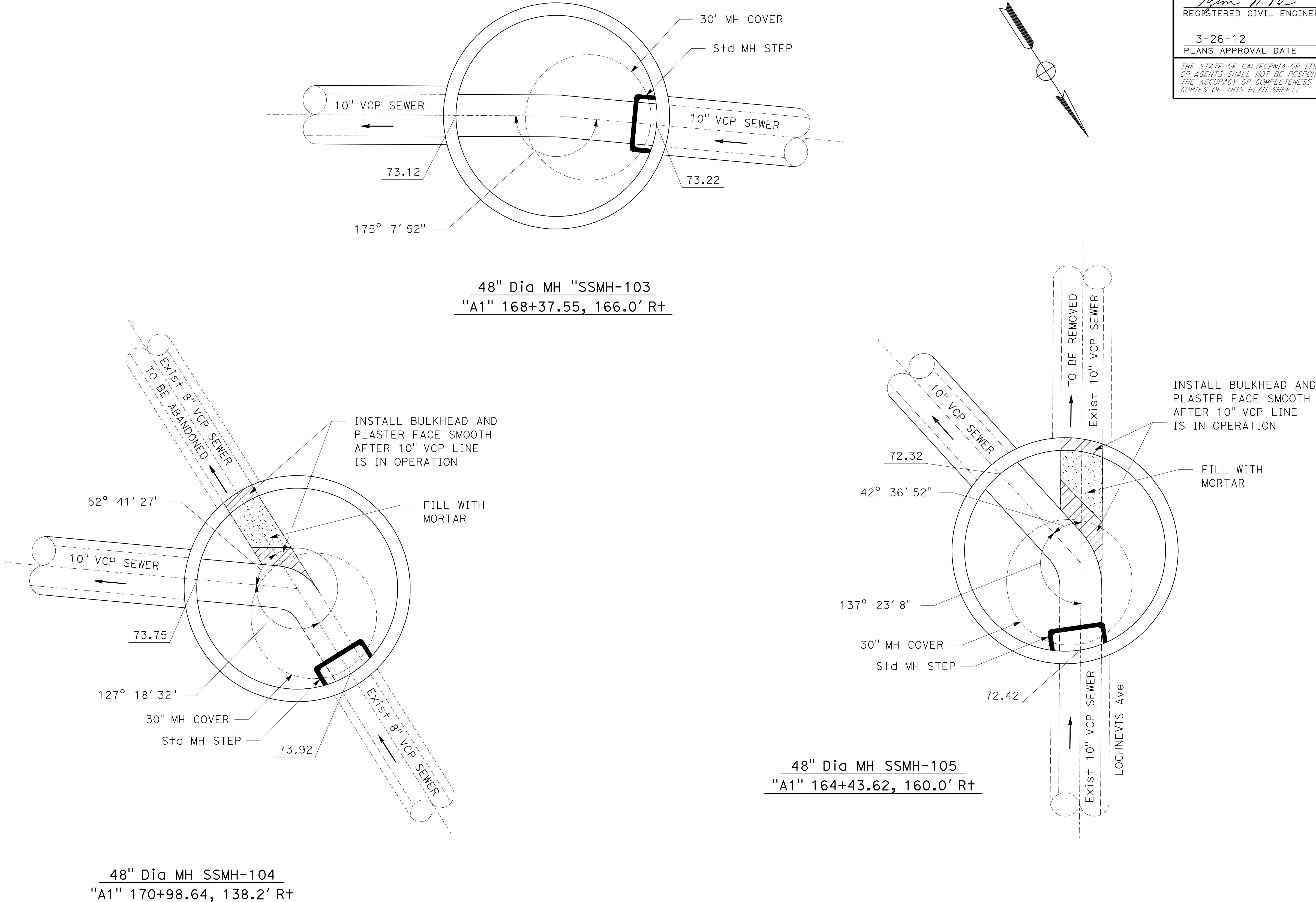
No. 58161

Exp. 6-30-2012

CIVIL

STATE OF CALIFORNIA

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OR AGENTS SHALL NOT BE RESPONSIBLE FOR  
THE ACCURACY OR COMPLETENESS OF SCANNED  
COPIES OF THIS PLAN SHEET.



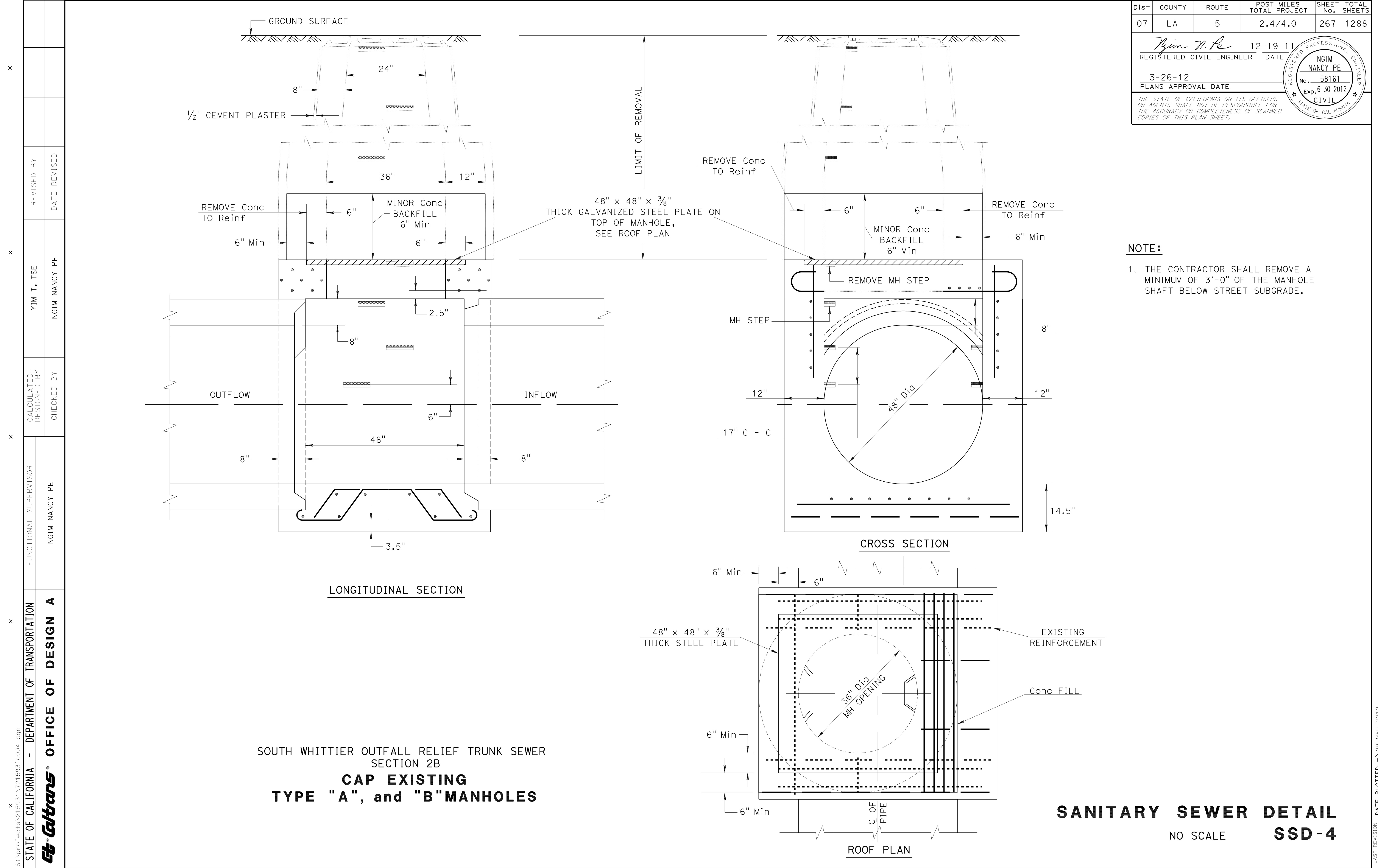
SANITARY SEWER DETAIL

NO SCALE

SSD-2











Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	5	2.4/4.0	269	1288

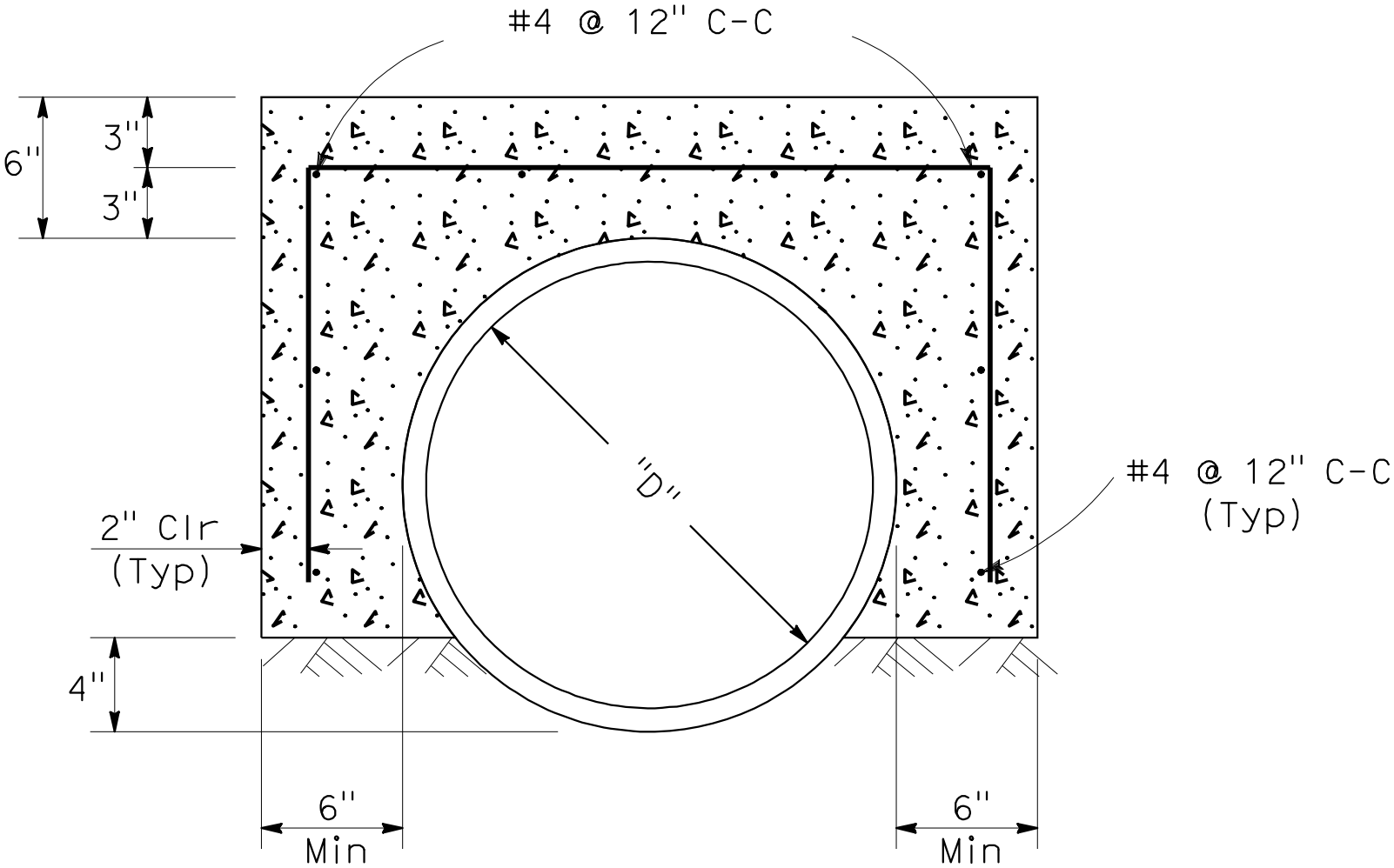
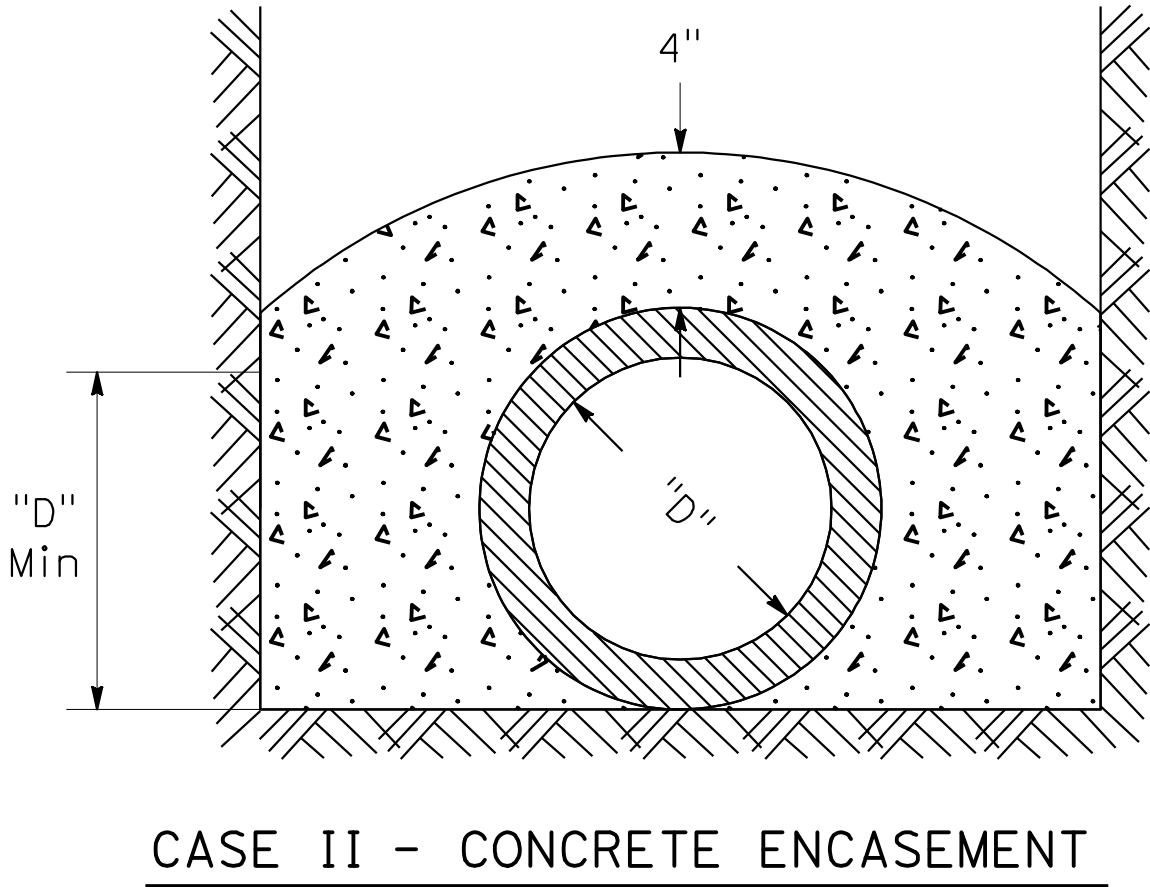
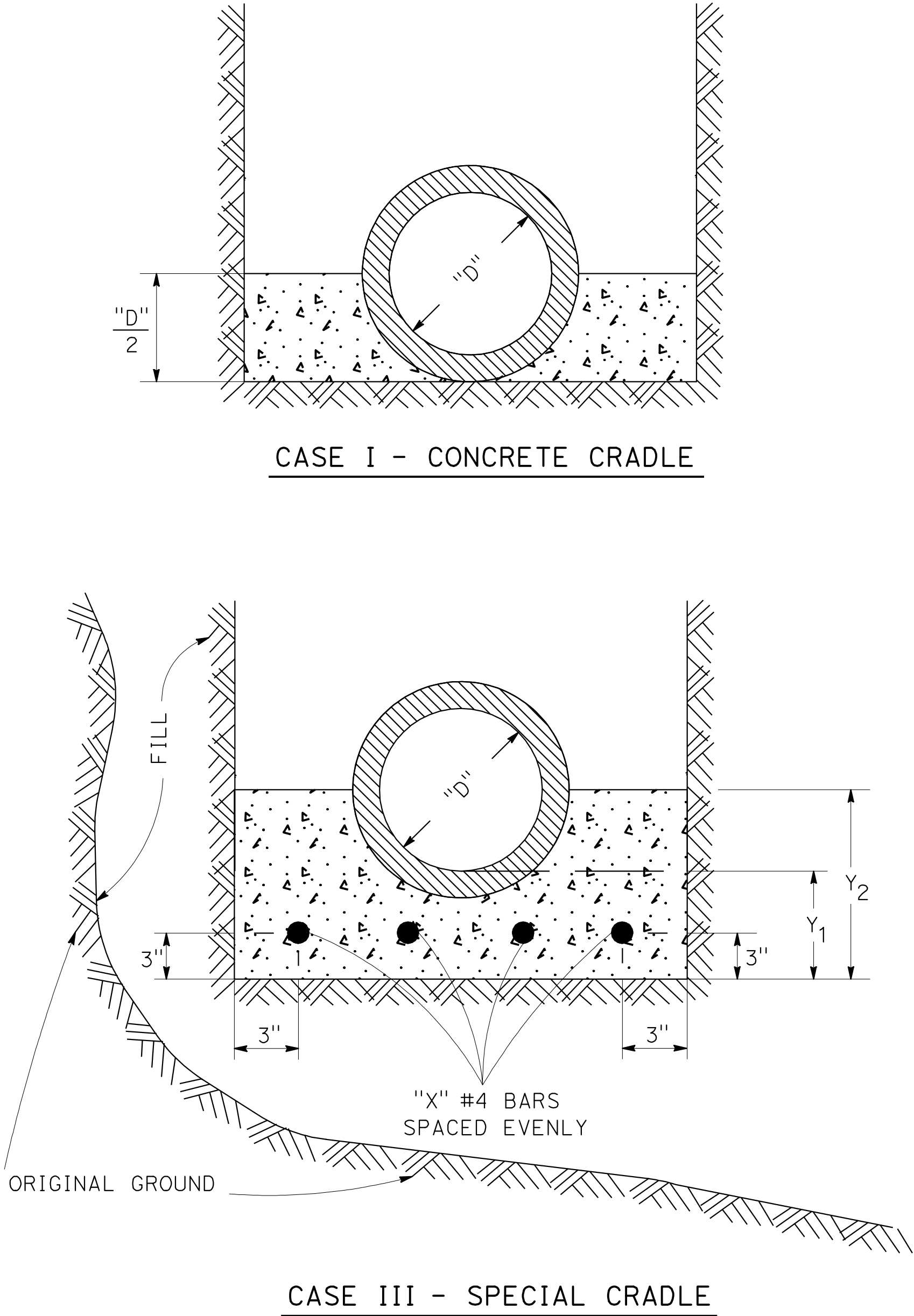
  
REGISTERED CIVIL ENGINEER

12-19-11  
DATE

3-26-12  
PLANS APPROVAL DATE

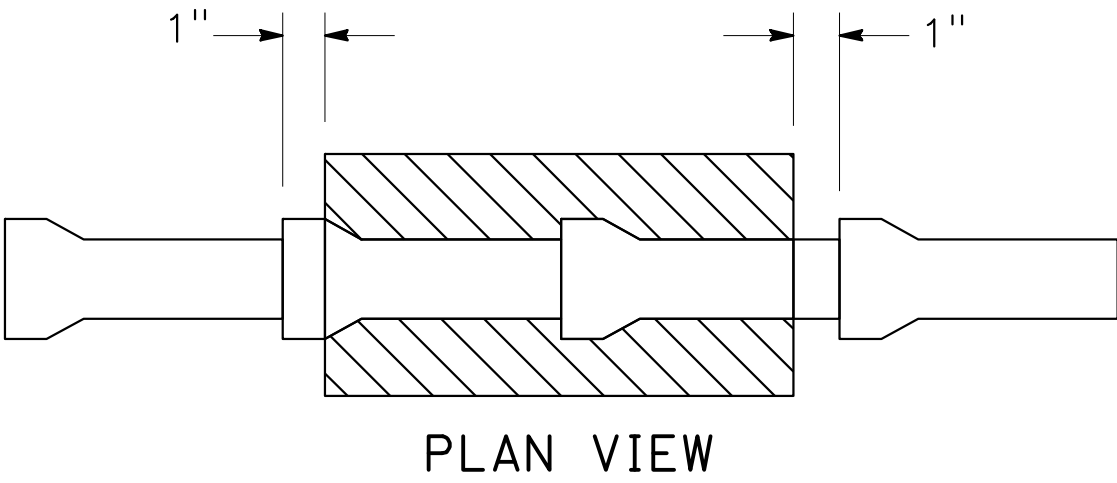


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COPIES OF THIS PLAN SHEET.



GENERAL NOTES:

1. EXTEND BOTH ENDS OF CRADLE OR ENCASEMENT TO A POINT 25 (ONE INCH) SHORT OF FIRST PIPE JOINT BEYOND LOCATIONS SPECIFIED ON PLAN.



2. APPLY FORM OIL, THIN PLASTIC SHEET, OR OTHER ACCEPTABLE MATERIAL TO PIPE, TO PREVENT BOND BETWEEN PIPE AND CONCRETE.
3. USE TYPE 2 CONCRETE.

SCHEDULE OF DIMENSIONS AND REINFORCING BARS  
FOR SPECIAL CRADLE CASE III

"D" (DIAMETER)	"X" NUMBER OF #4 BARS	THICKNESS	
		Y <sub>1</sub>	Y <sub>2</sub>
6"	2	4"	8"
8"	4	5"	10"
10"	4	6"	12"
12"	4	7"	15"
15"	5	9"	19"
18"	5	10"	22"
21"	6	12"	26"
24"	6	13"	28"

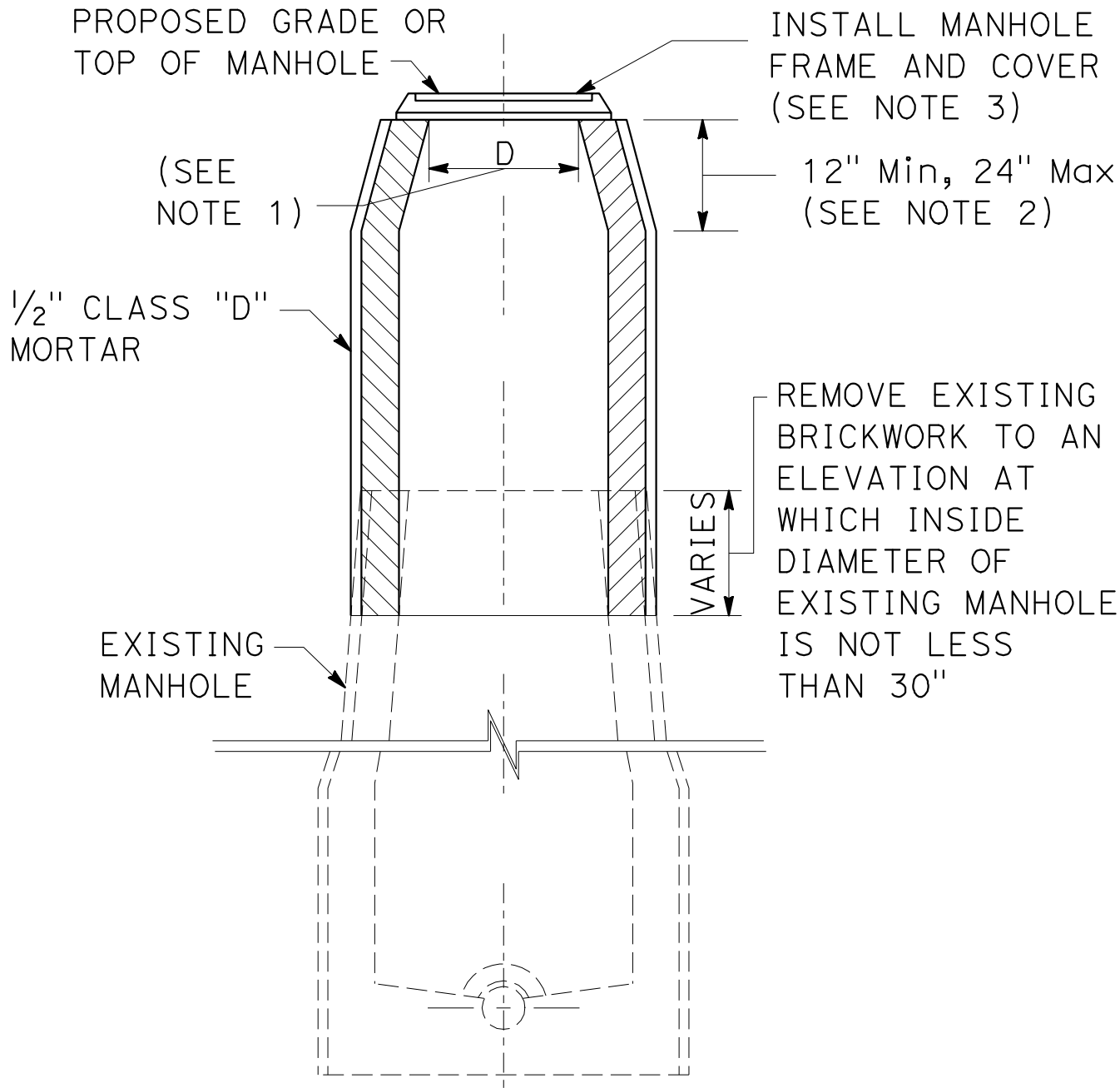
CRADLING AND ENCASEMENT

SANITARY SEWER DETAIL  
NO SCALE  
SSD-6

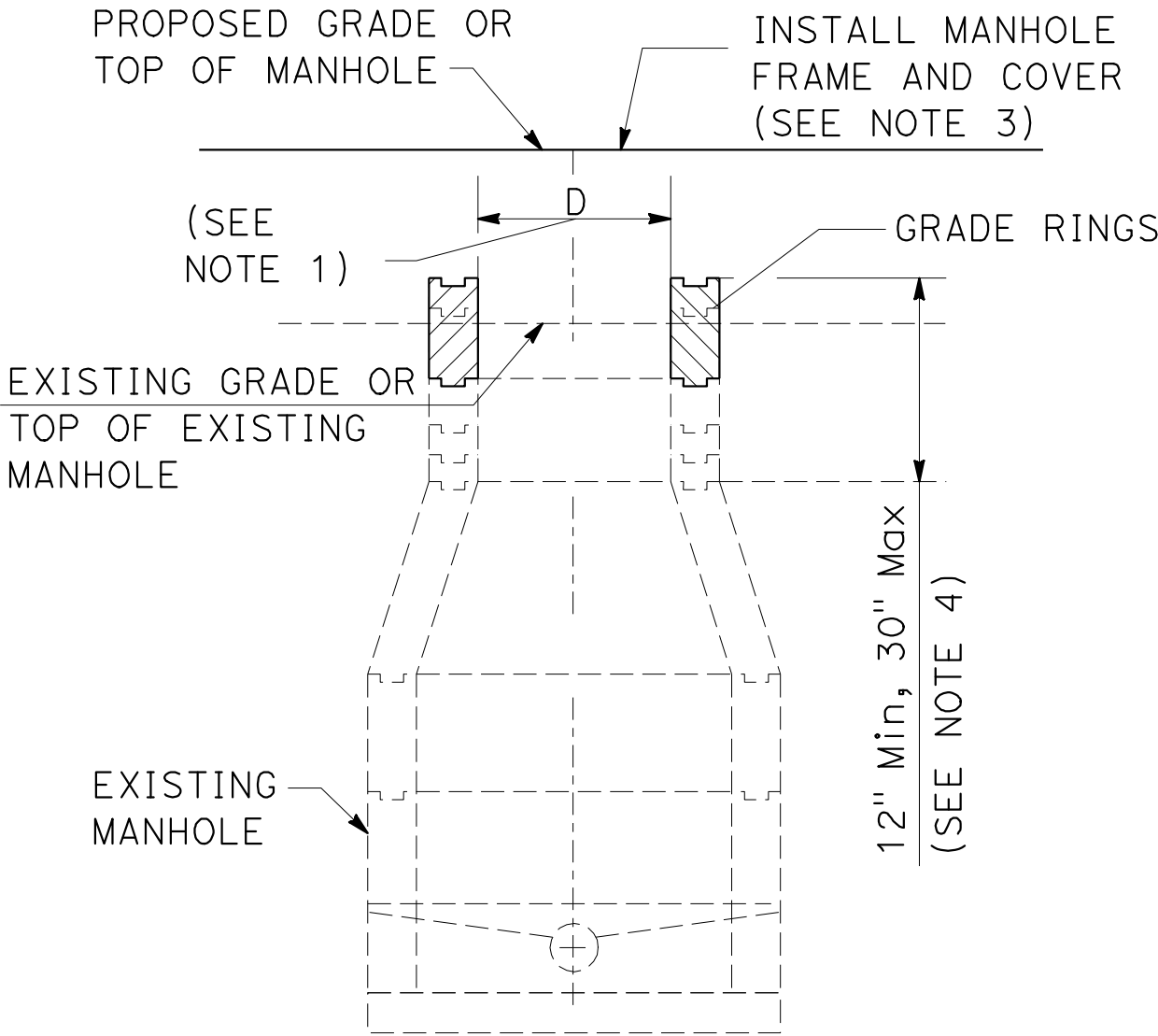




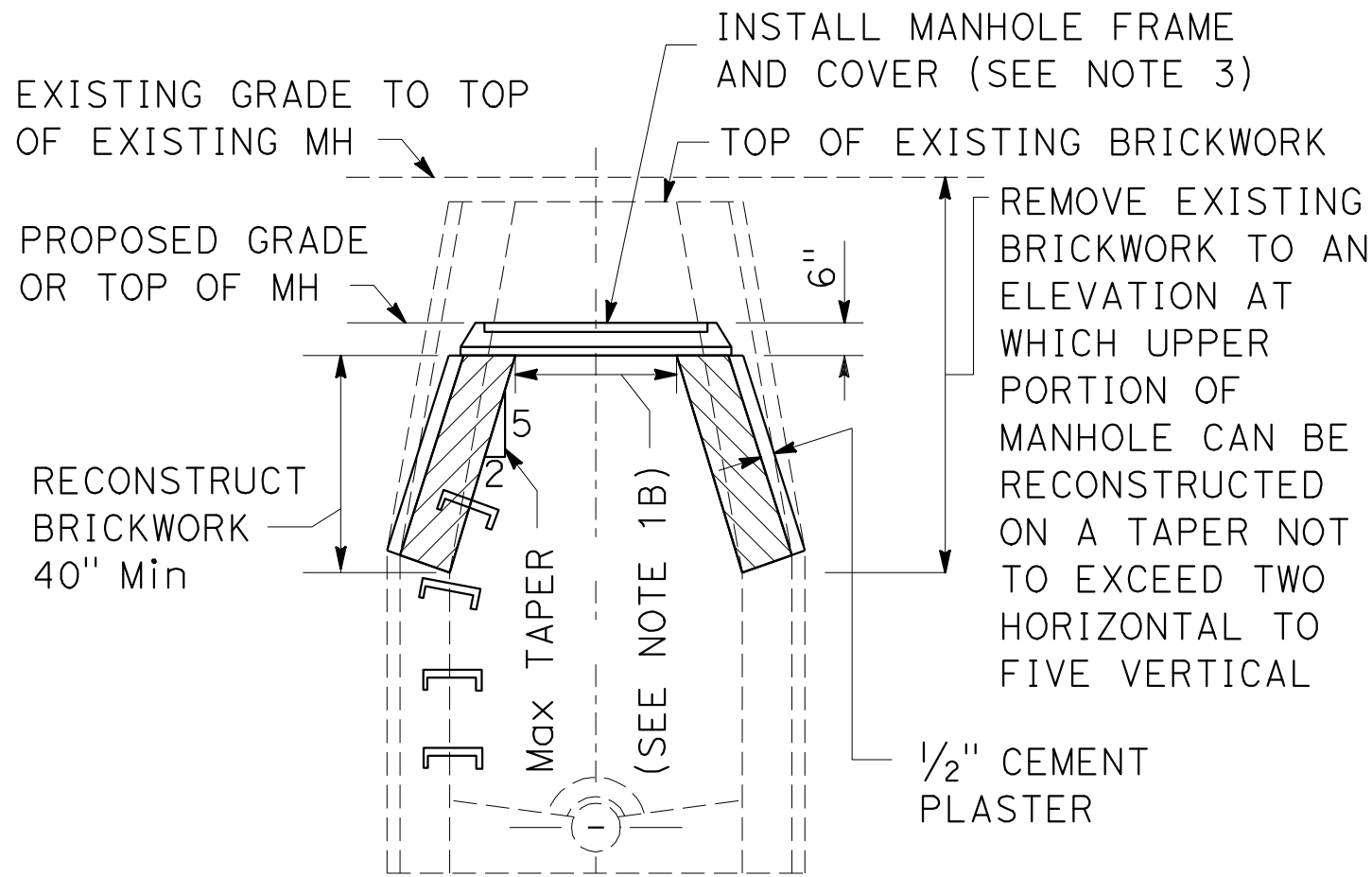




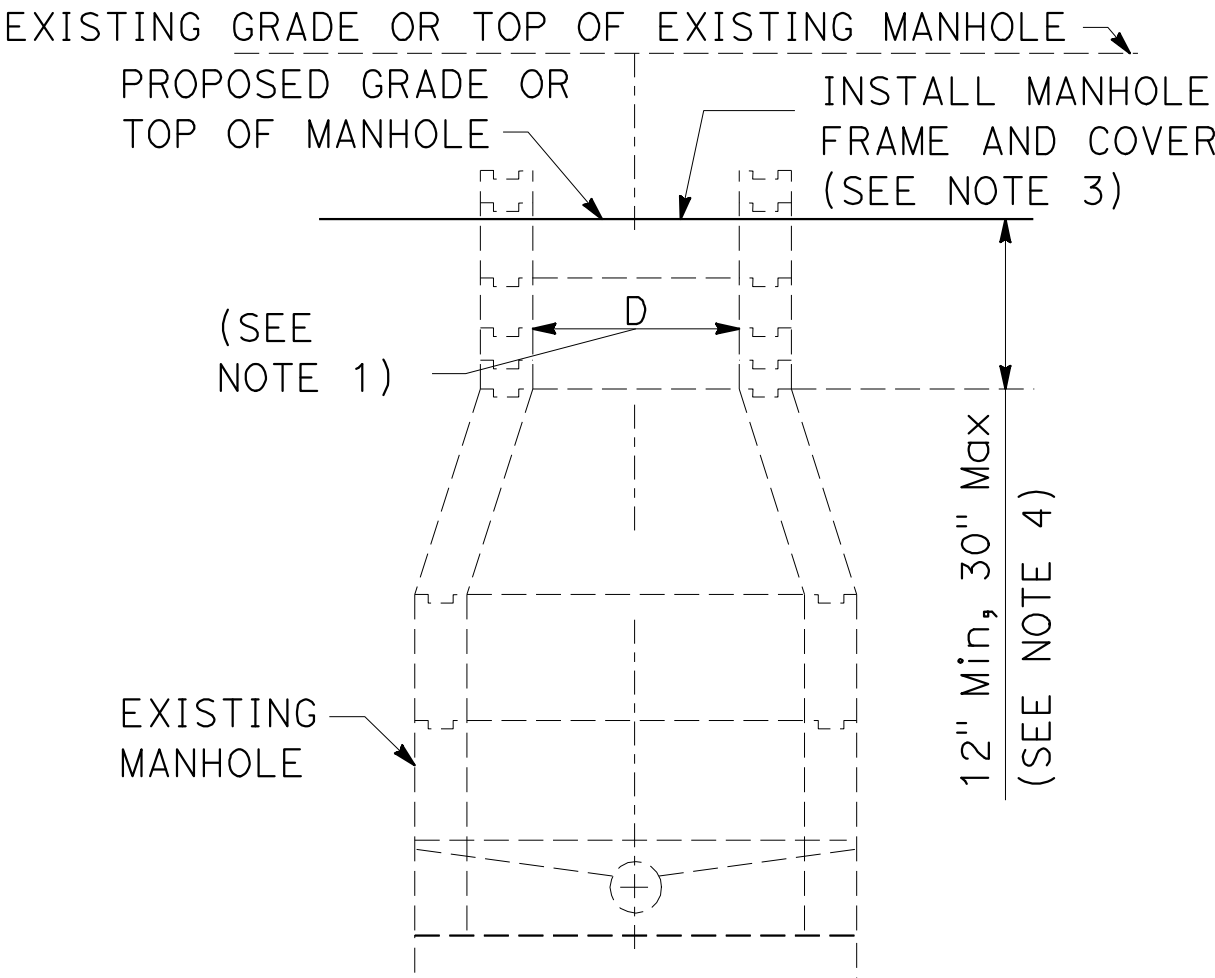
RAISING EXISTING BRICK MANHOLES



RAISING EXISTING PRECAST CONCRETE SEWER MANHOLES



LOWERING EXISTING BRICK MANHOLES  
BRICK MANHOLES

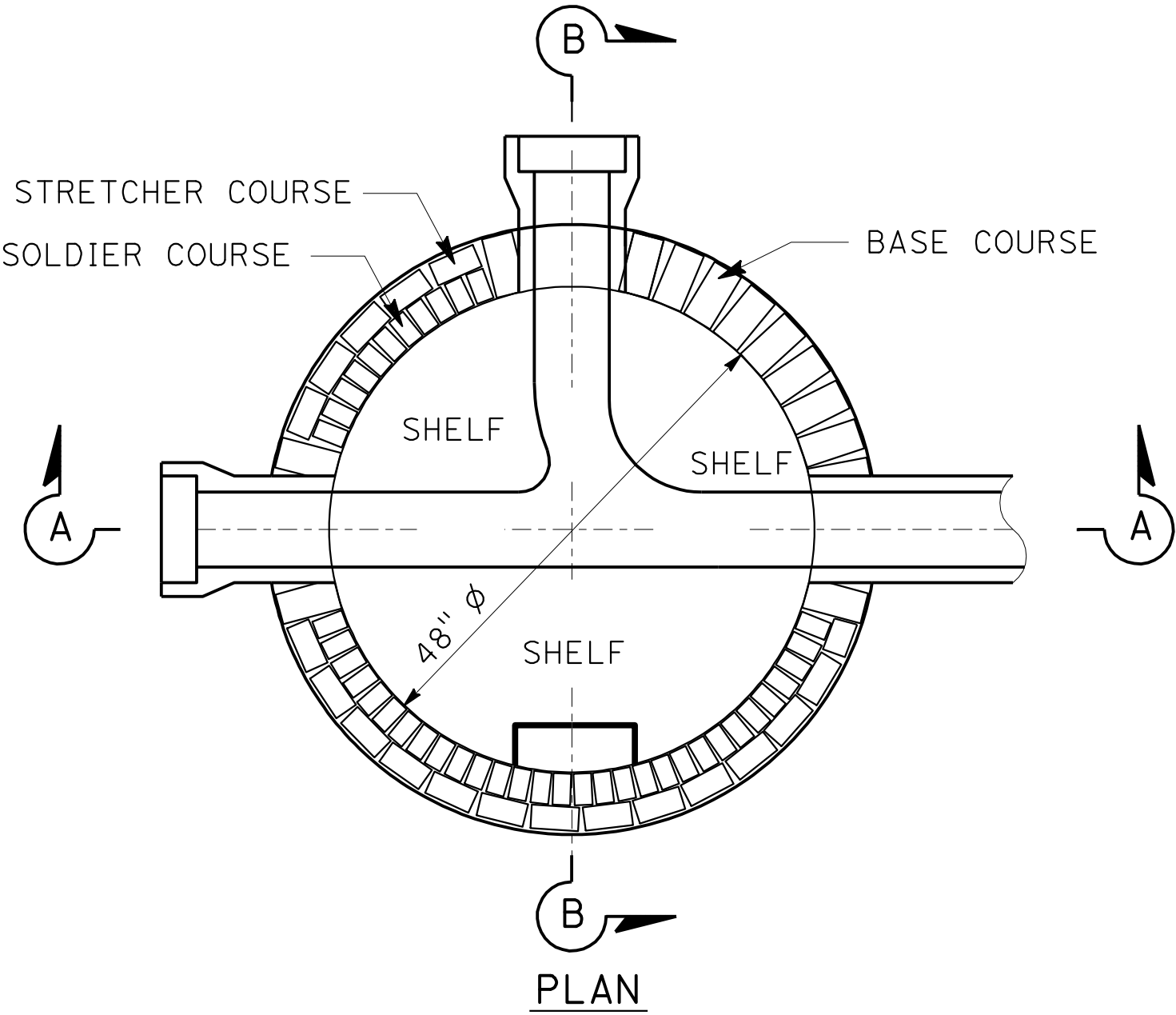


LOWERING EXISTING PRECAST CONCRETE SEWER MANHOLES  
PRECAST CONCRETE SEWER MANHOLES

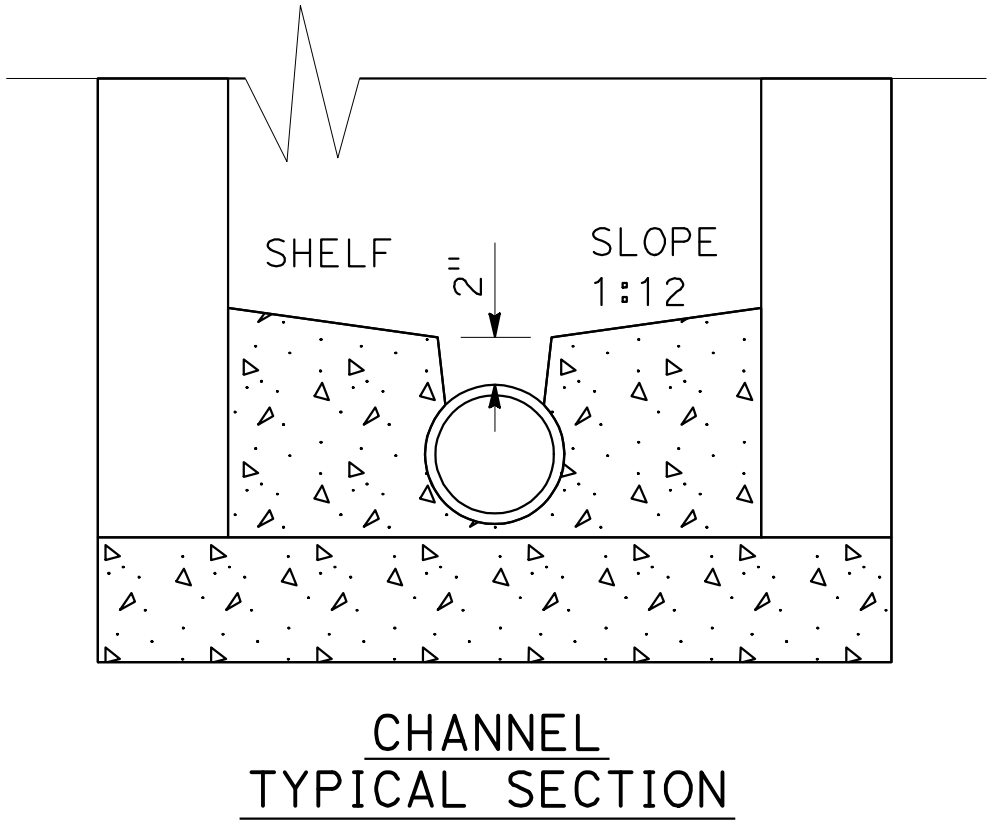
SEWER MANHOLE ADJUSTMENT

NOTES:

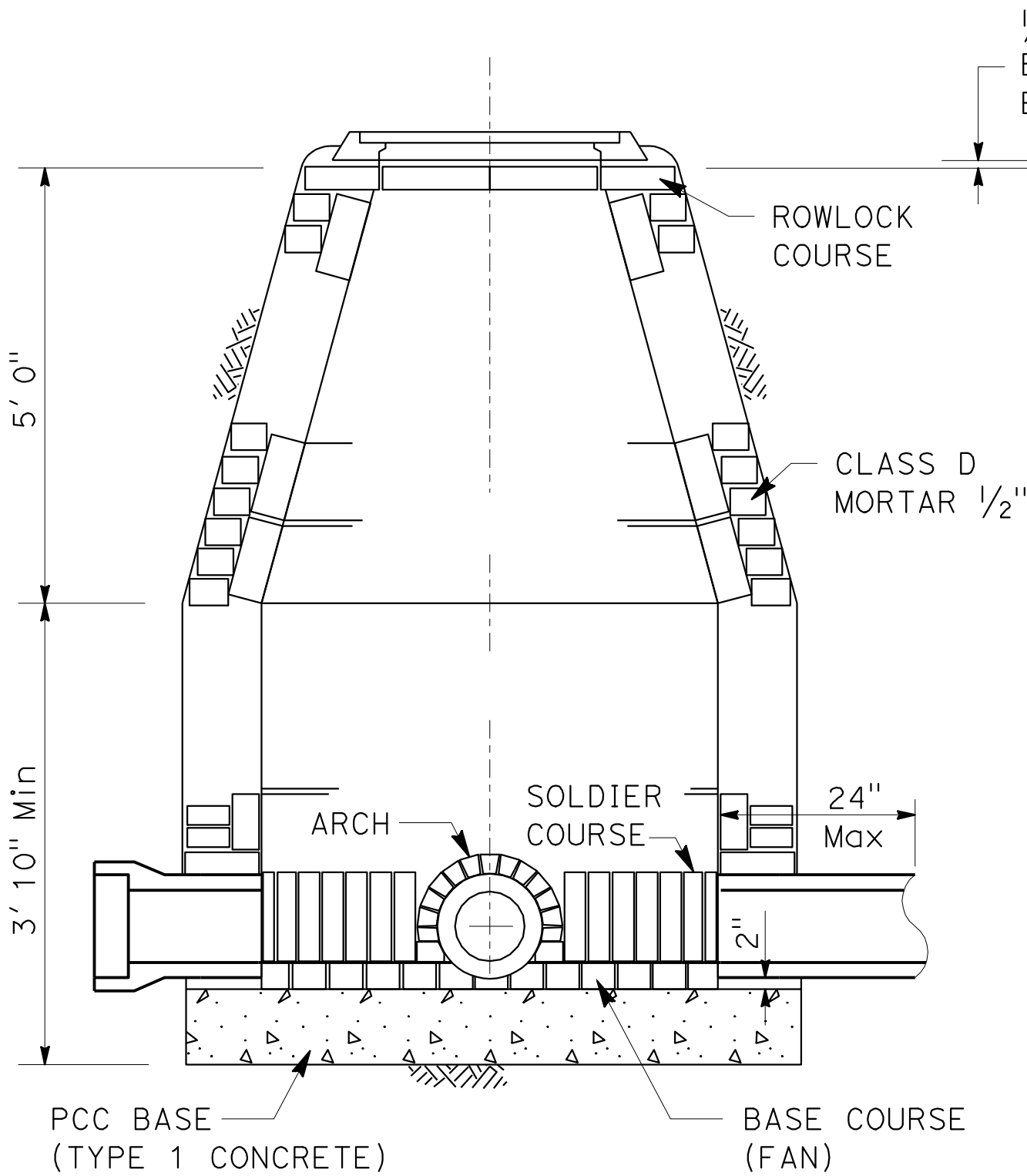
- DIMENSION "D" WILL BE THE SAME AS THE SIZE OF MANHOLE FRAME AND COVER TO BE USED.
- BRICK MANHOLES TO BE RAISED LESS THEN 1' MAY BE EXTENDED VERTICALLY, PROVIDED THAT AT A DEPTH OF 2.5' BELOW THE TOP OF THE MANHOLE AT ITS NEW ELEVATION, THE INSIDE DIAMETER OF THE MANHOLE IS 30" OR GREATER.
- THE CONTRACTOR MAY REUSE THE EXISTING MANHOLE FRAME AND COVER, UNLESS DAMAGED DURING THE WORK OR WHEN OTHERWISE SHOWN IN THE CONTRACT DOCUMENTS. ITEMS DAMAGED BY THE CONTRACTOR SHALL BE REPLACED WITH IDENTICAL NEW ITEMS AT NO EXPENSE TO THE AGENCY.
- PRECAST CONCRETE MANHOLES TO BE RAISED LESS THAN 3" MAY BE RAISED BY APPLYING CLASS "D" MORTAR TO THE TOP OF THE EXISTING MANHOLE, PROVIDED THE TOTAL HEIGHT OF MORTAR, EXISTING AND NEWLY APPLIED DOES NOT EXCEED 3"



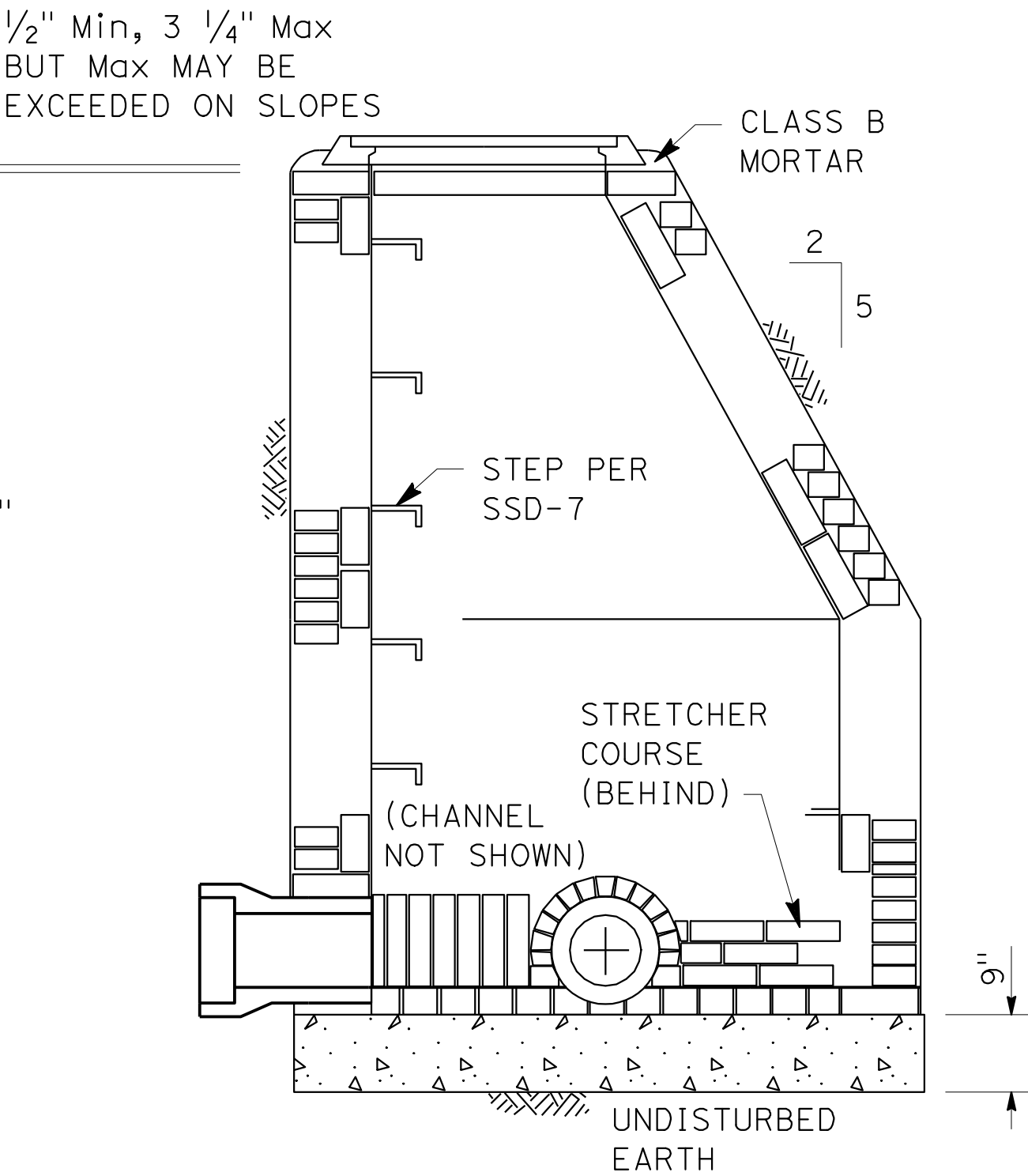
SECTION A-A



CHANNEL  
TYPICAL SECTION



SECTION A-A



SECTION B-B

BRICK SEWER MANHOLE

SANITARY SEWER DETAIL  
NO SCALE  
SSD-9





Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	5	2.4/4.0	274	1288

*Ngim T. Tse*  
REGISTERED CIVIL ENGINEER

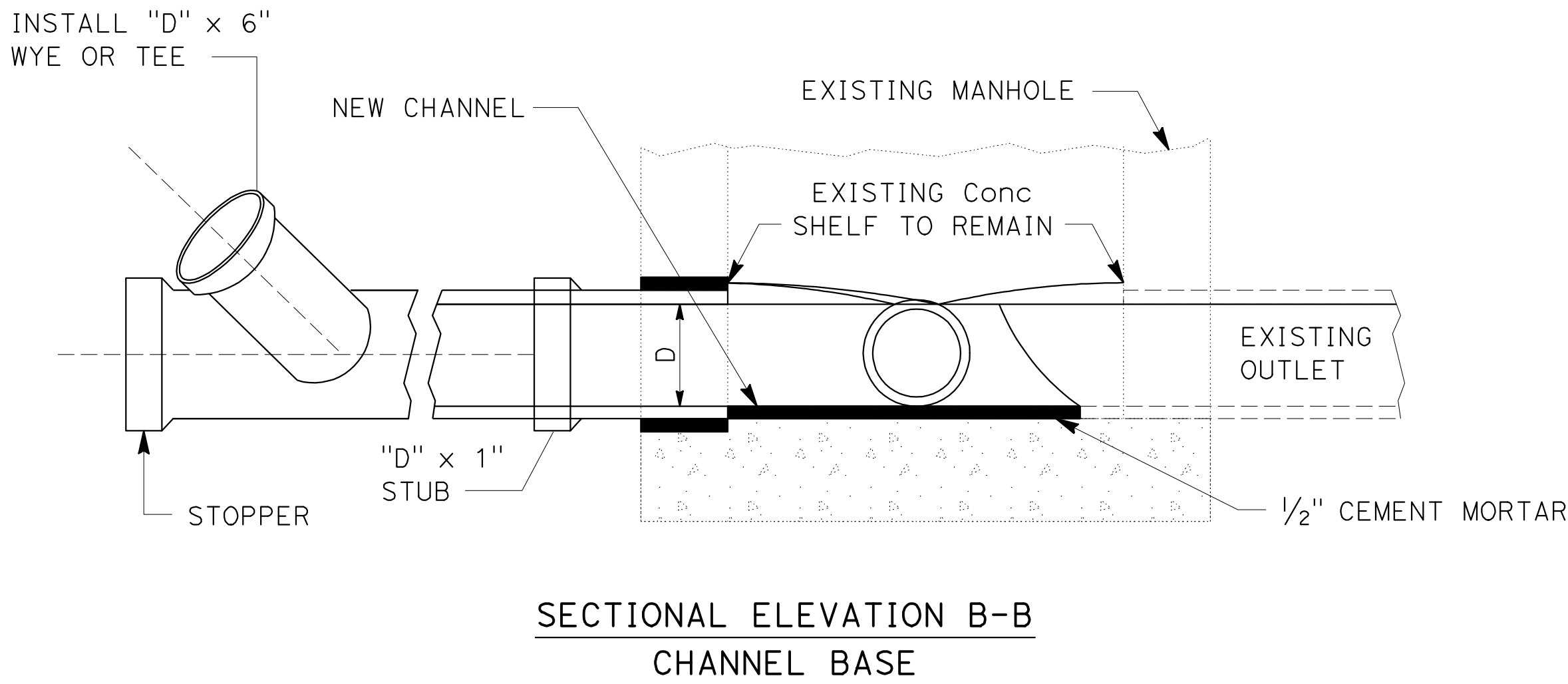
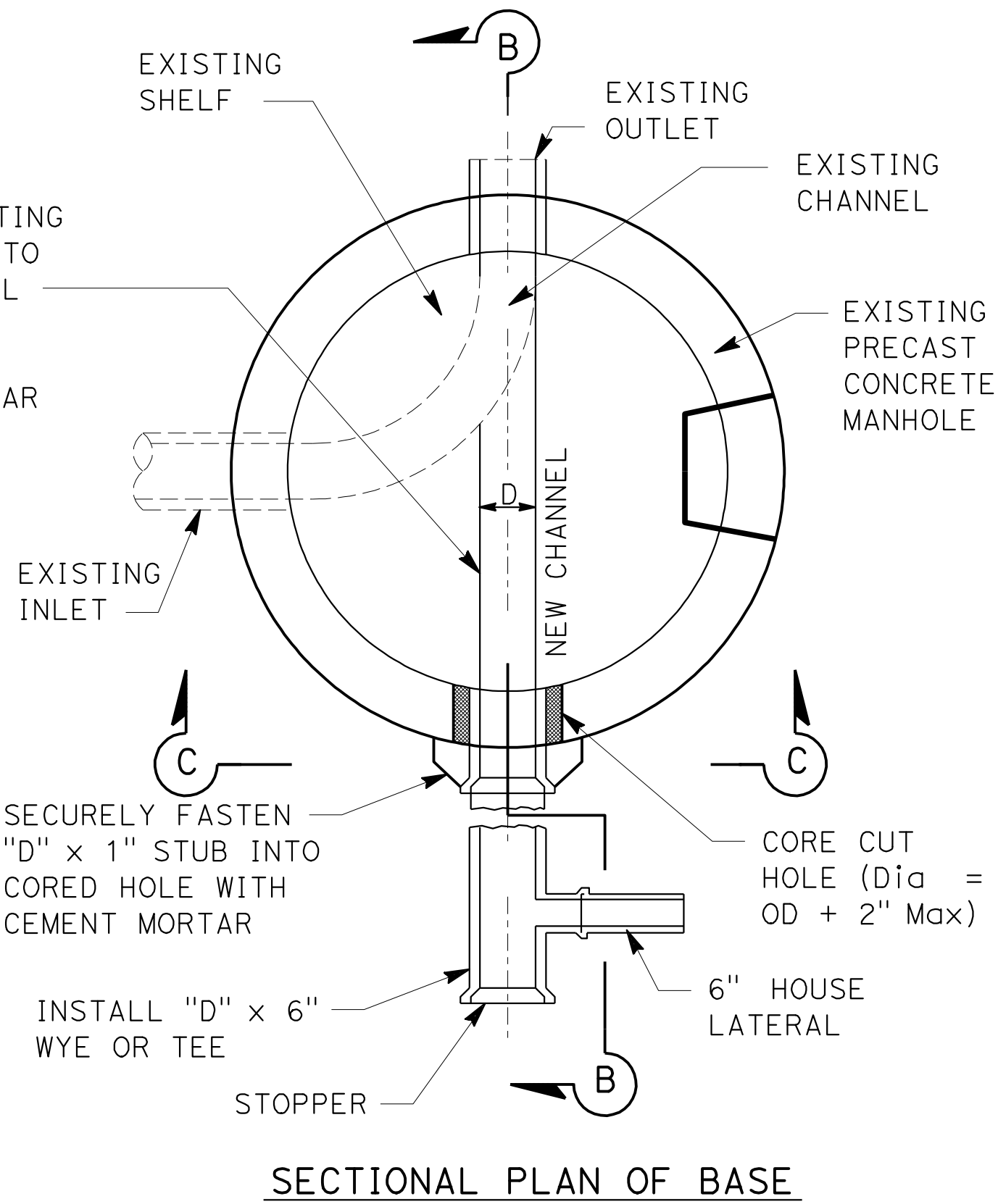
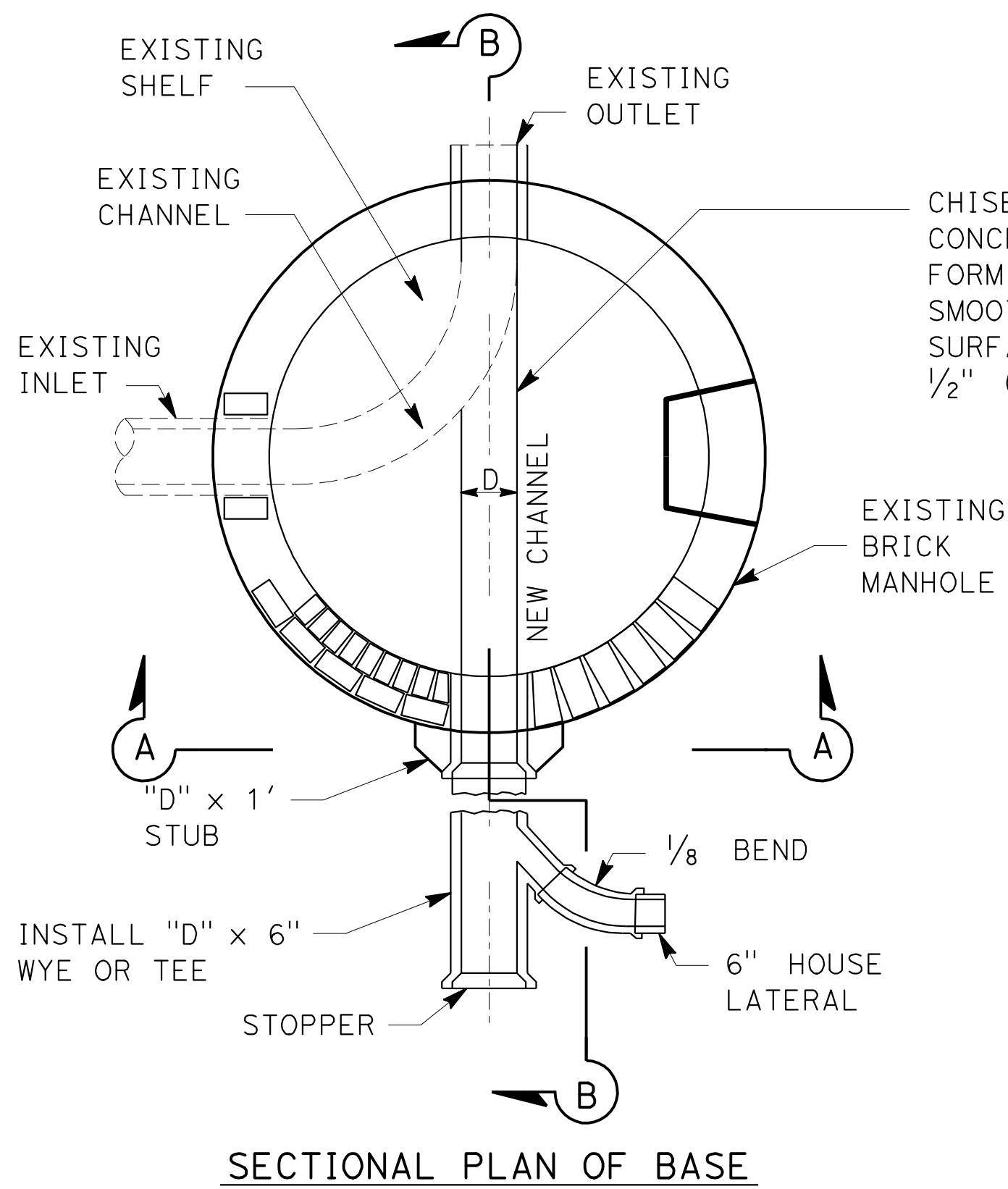
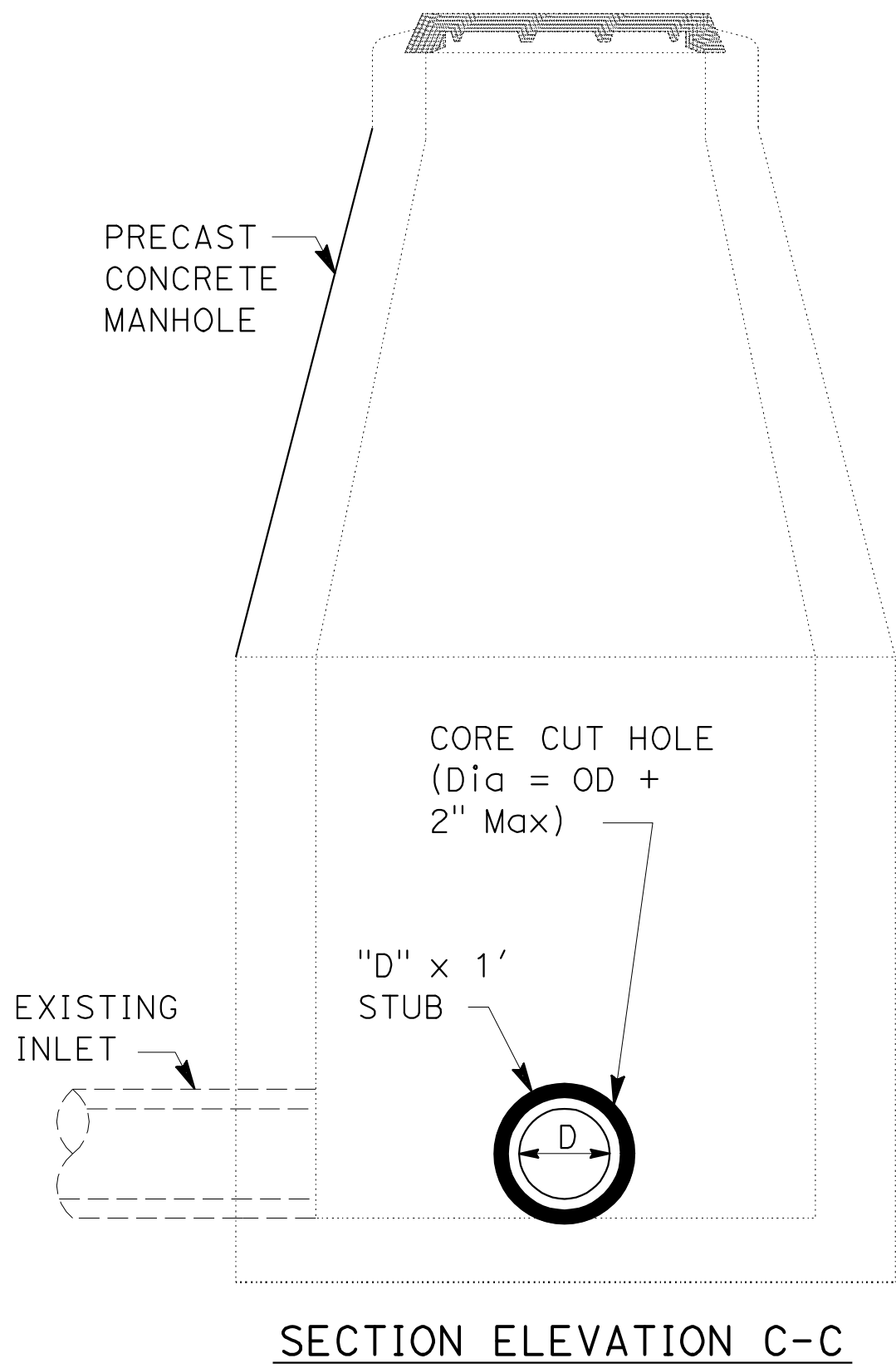
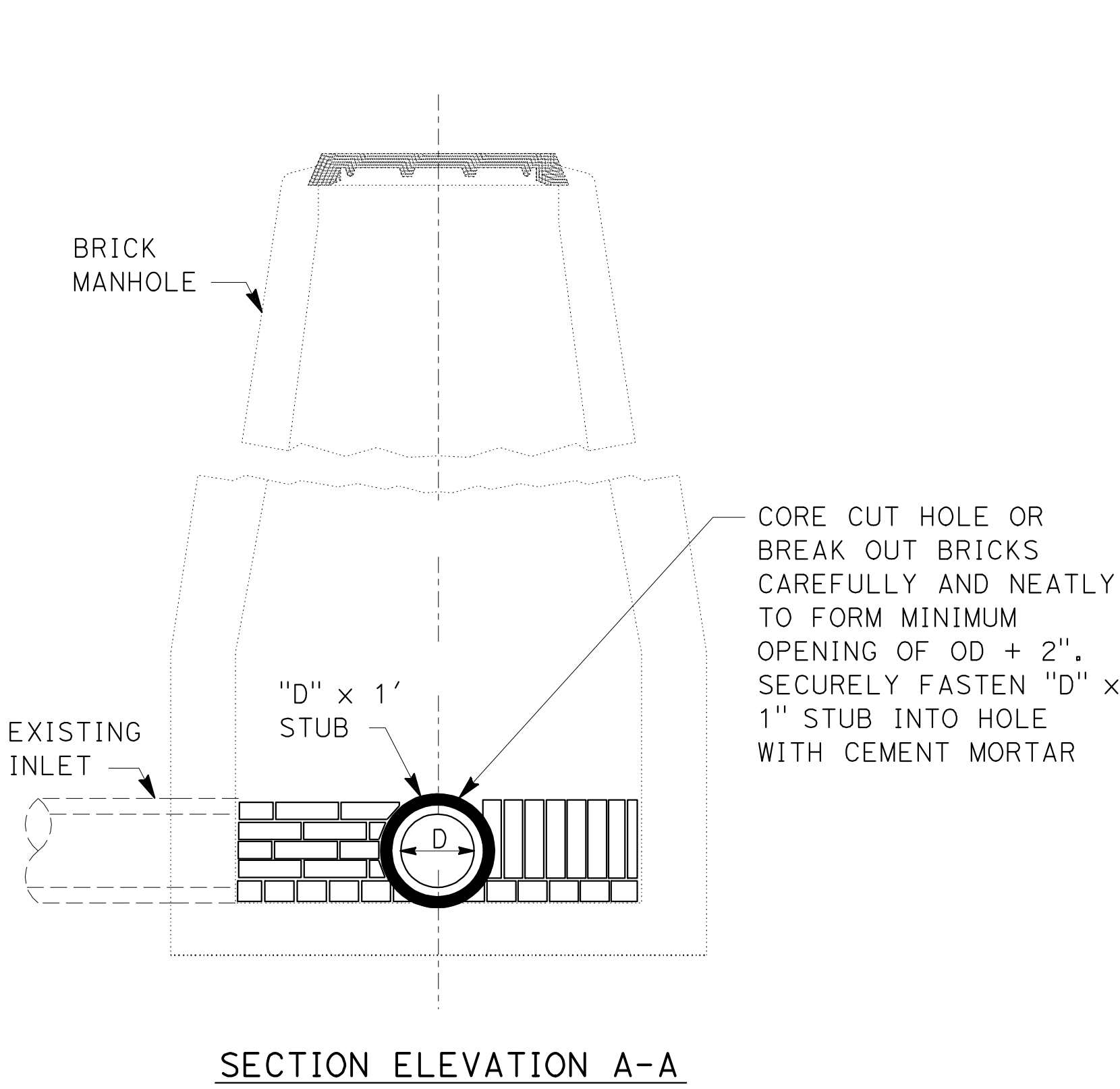
12-19-11  
DATE

3-26-12  
PLANS APPROVAL DATE

NGIM  
NANCY PE  
No. 58161  
Exp. 6-30-2012  
CIVIL

REGISTERED PROFESSIONAL ENGINEER  
STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS  
OR AGENTS SHALL NOT BE RESPONSIBLE FOR  
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**BREAKING INTO EXISTING MANHOLES**

**SANITARY SEWER DETAIL**  
**NO SCALE**  
**SSD-11**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	5	2.4/4.0	275	1288

3-26-12

PLANS APPROVAL DATE

12-19-11

DATE

REGISTERED CIVIL ENGINEER

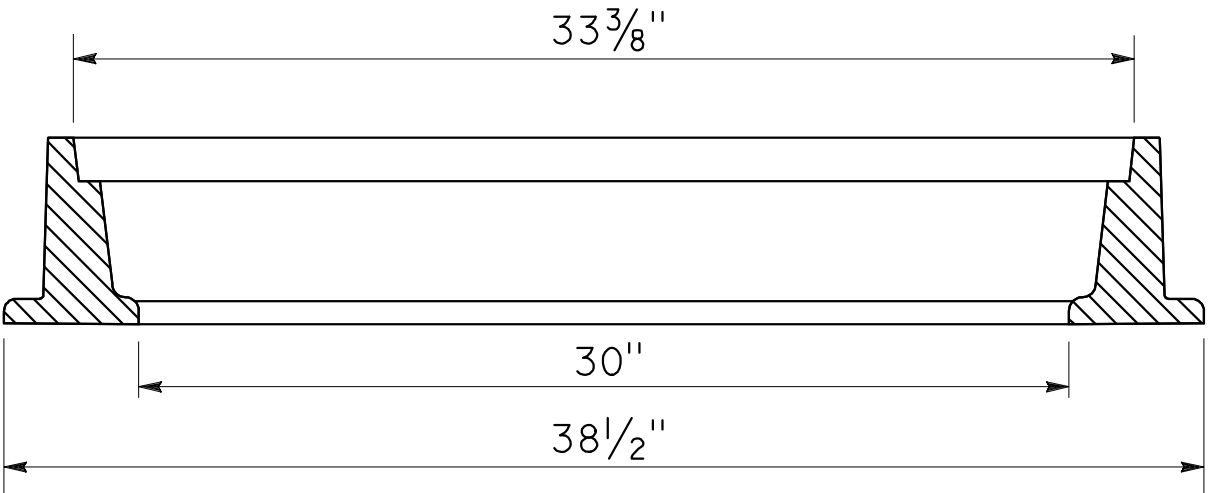
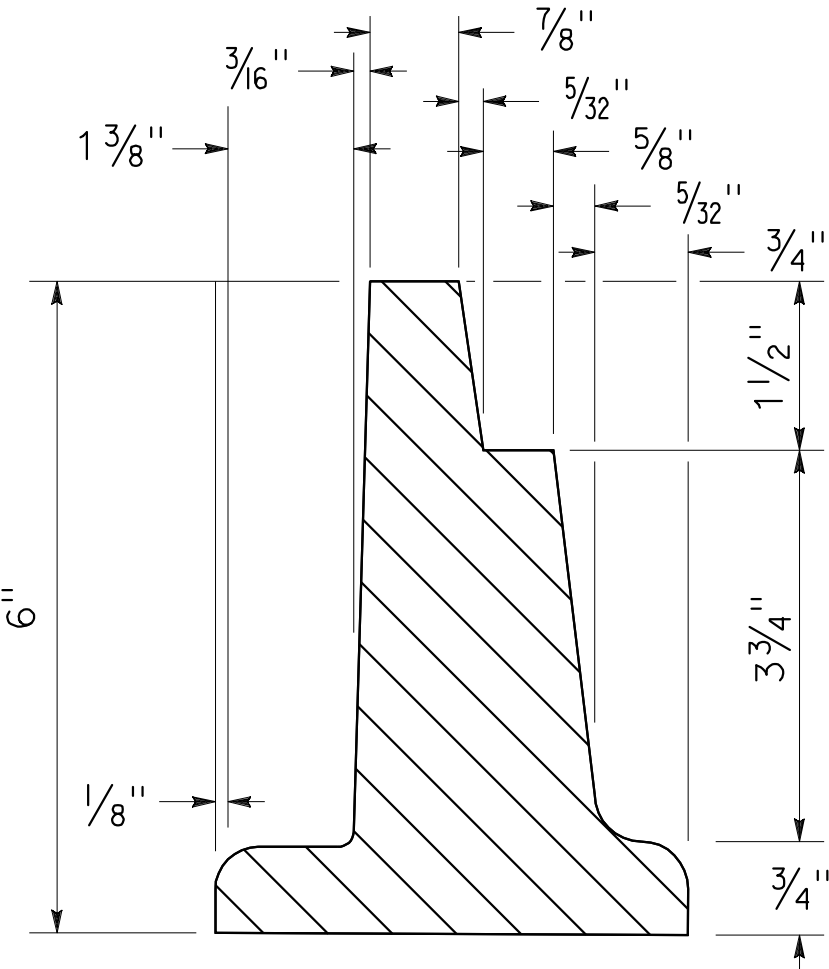
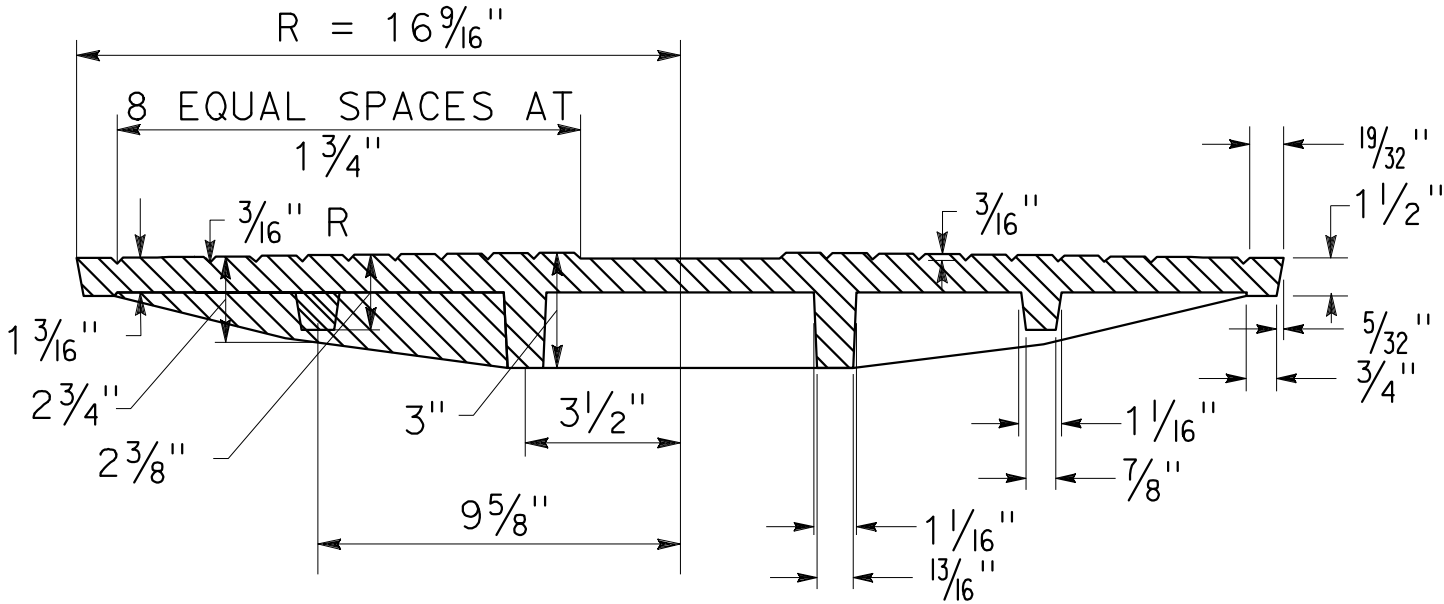
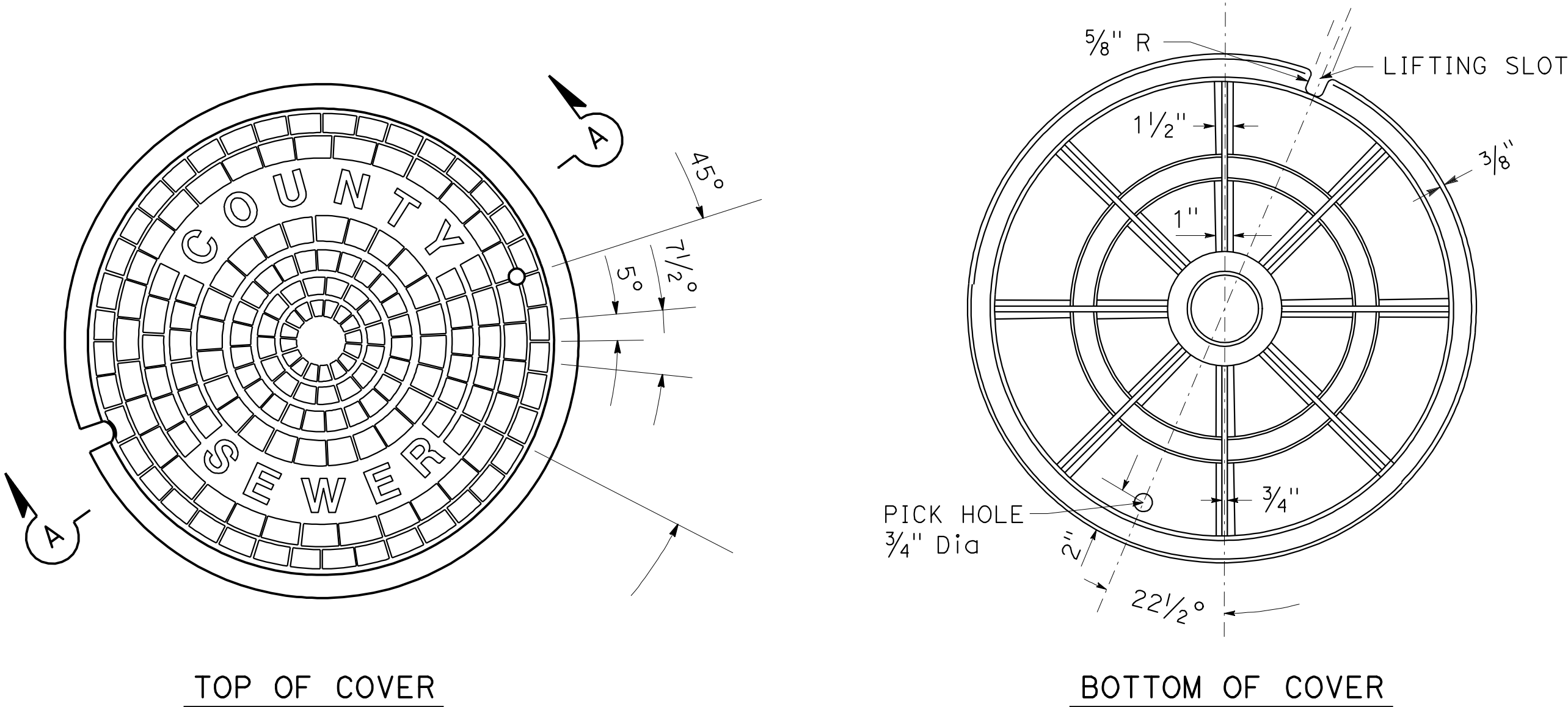
NGIM NANCY PE

No. 58161

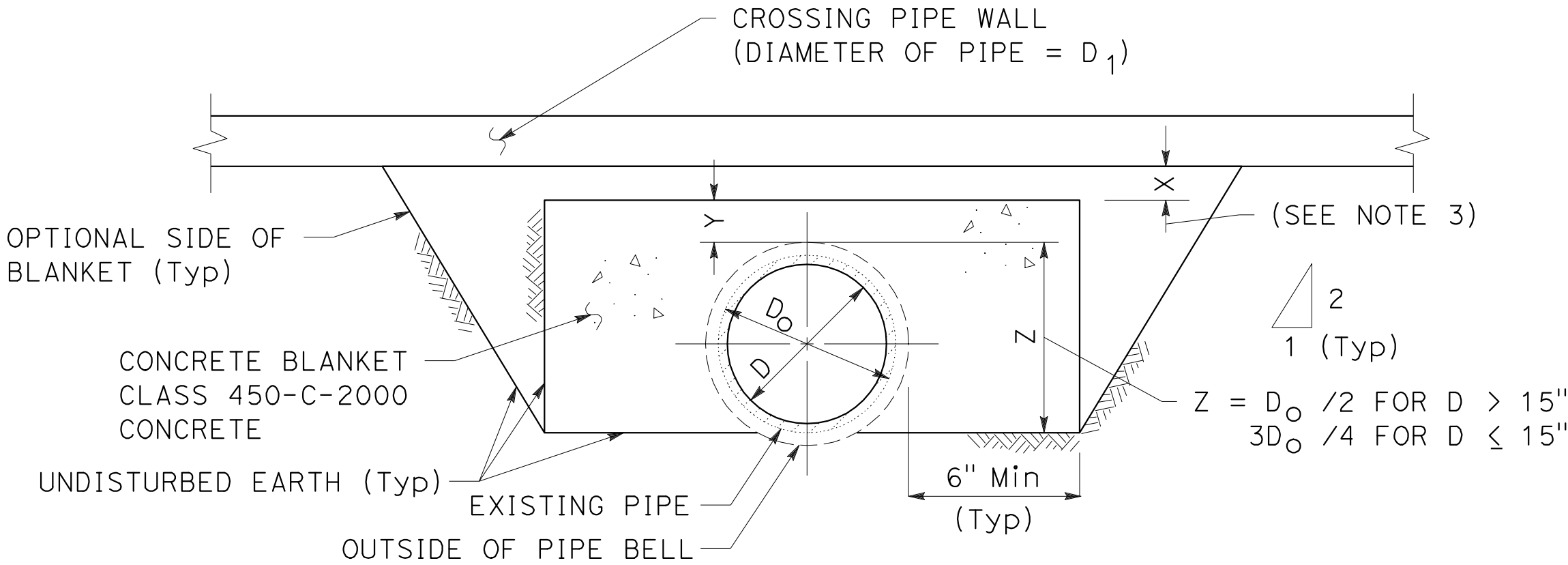
Exp. 6/30/2012

CIVIL

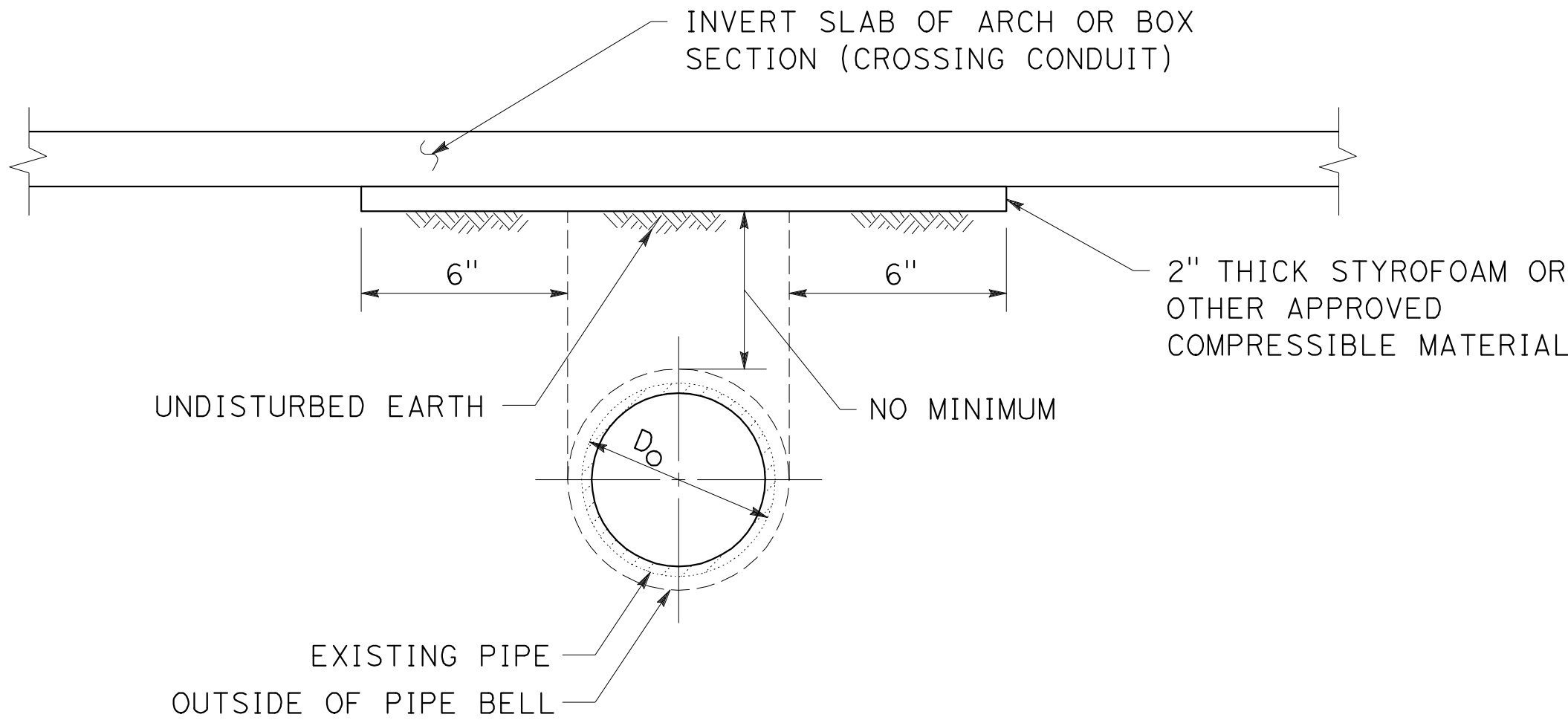
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30" MANHOLE FRAME AND COVER



CONCRETE BLANKET  
(FOR EXISTING PIPES CROSSED OVER BY A NEW BOX)



COMPRESSIBLE BLANKET  
(FOR EXISTING PIPES CROSSED OVER BY A NEW BOX OR ARCH)

BLANKET PROTECTION FOR PIPES

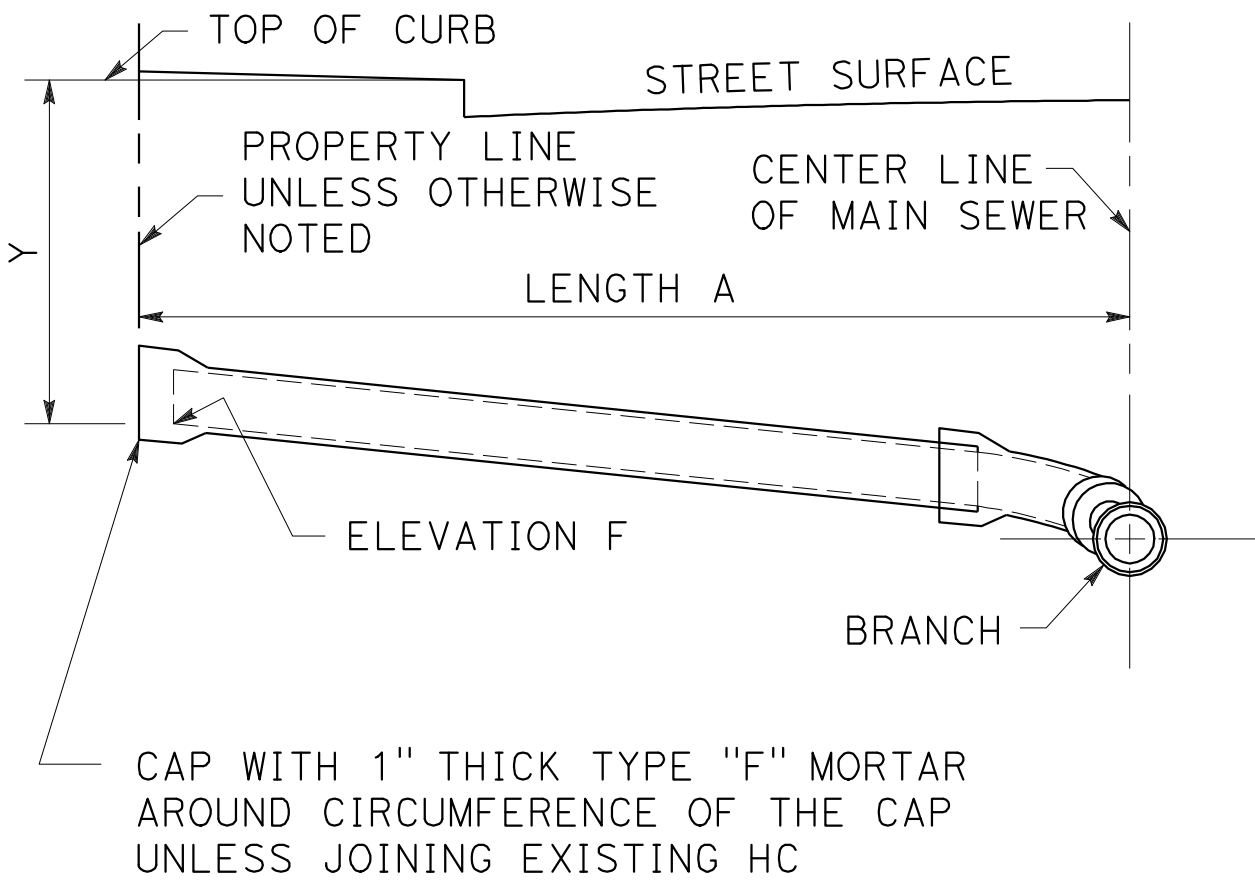


## ANCHORS

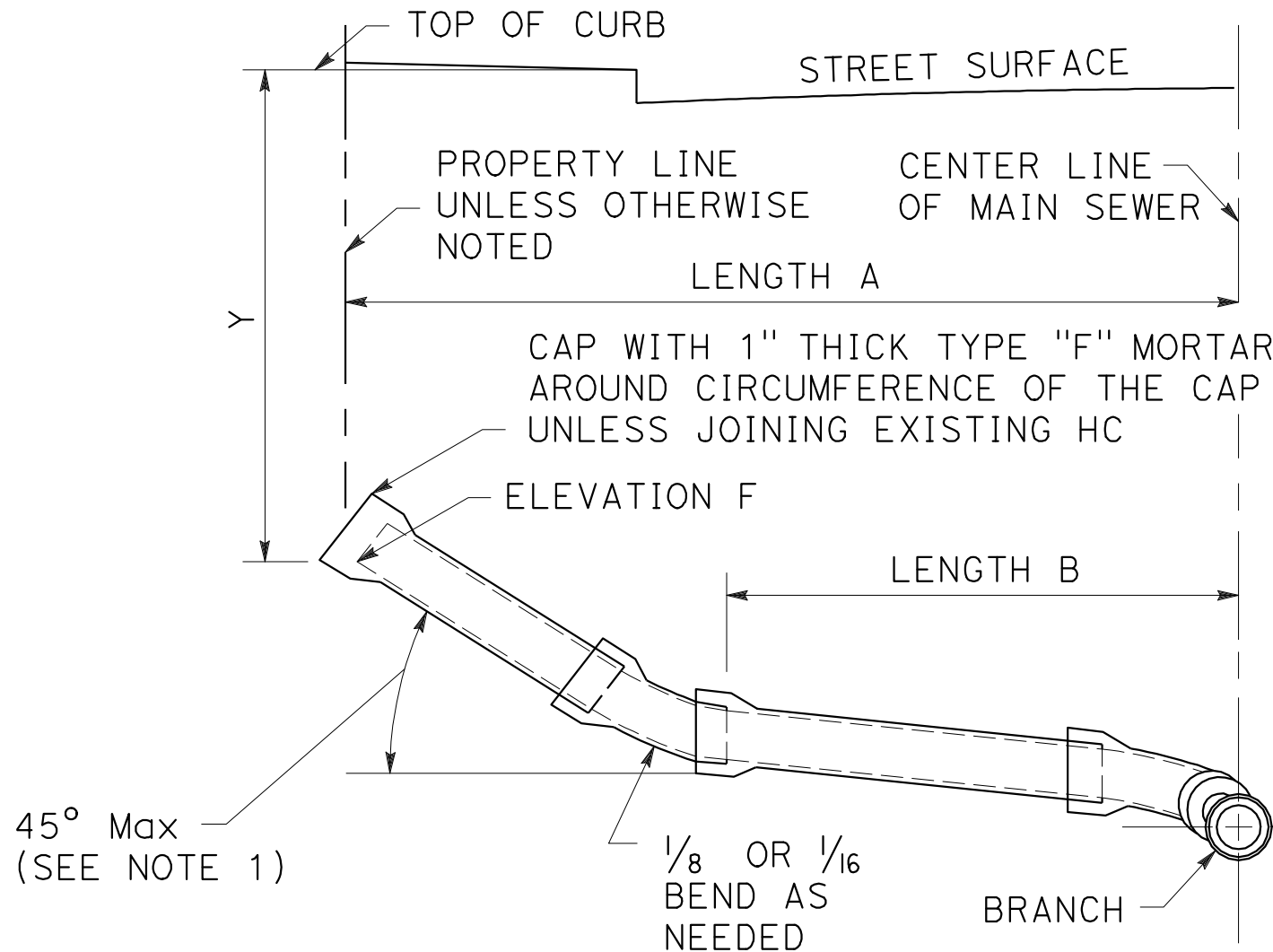
## PIPE ANCHORS AND BACKFILL STABILIZERS



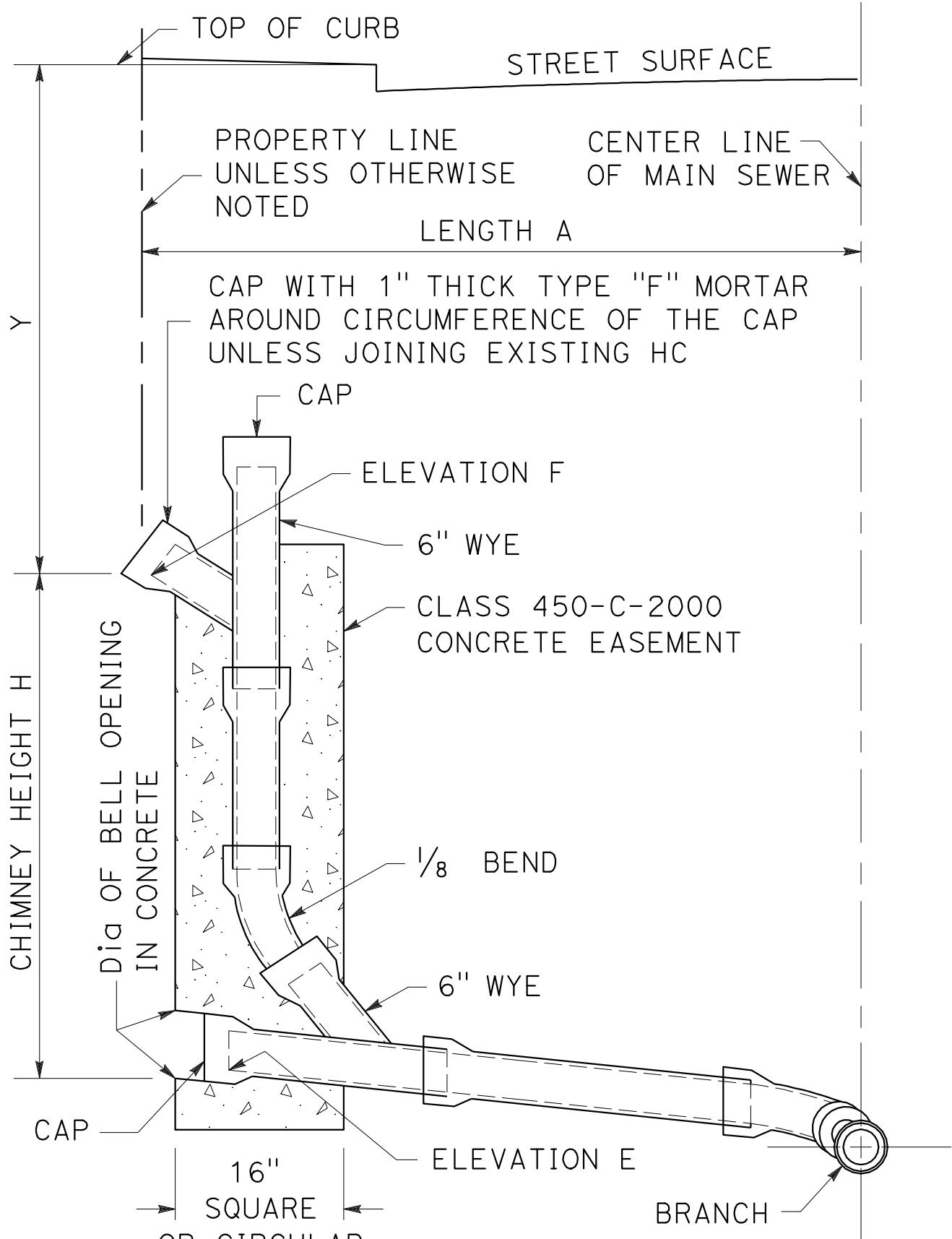
NOTE:  
1. ALL HOUSE CONNECTION SEWERS OR PORTIONS THEREOF CONSTRUCTED ON A SLOPE EXCEEDING 45° SHALL BE ANCHORED.



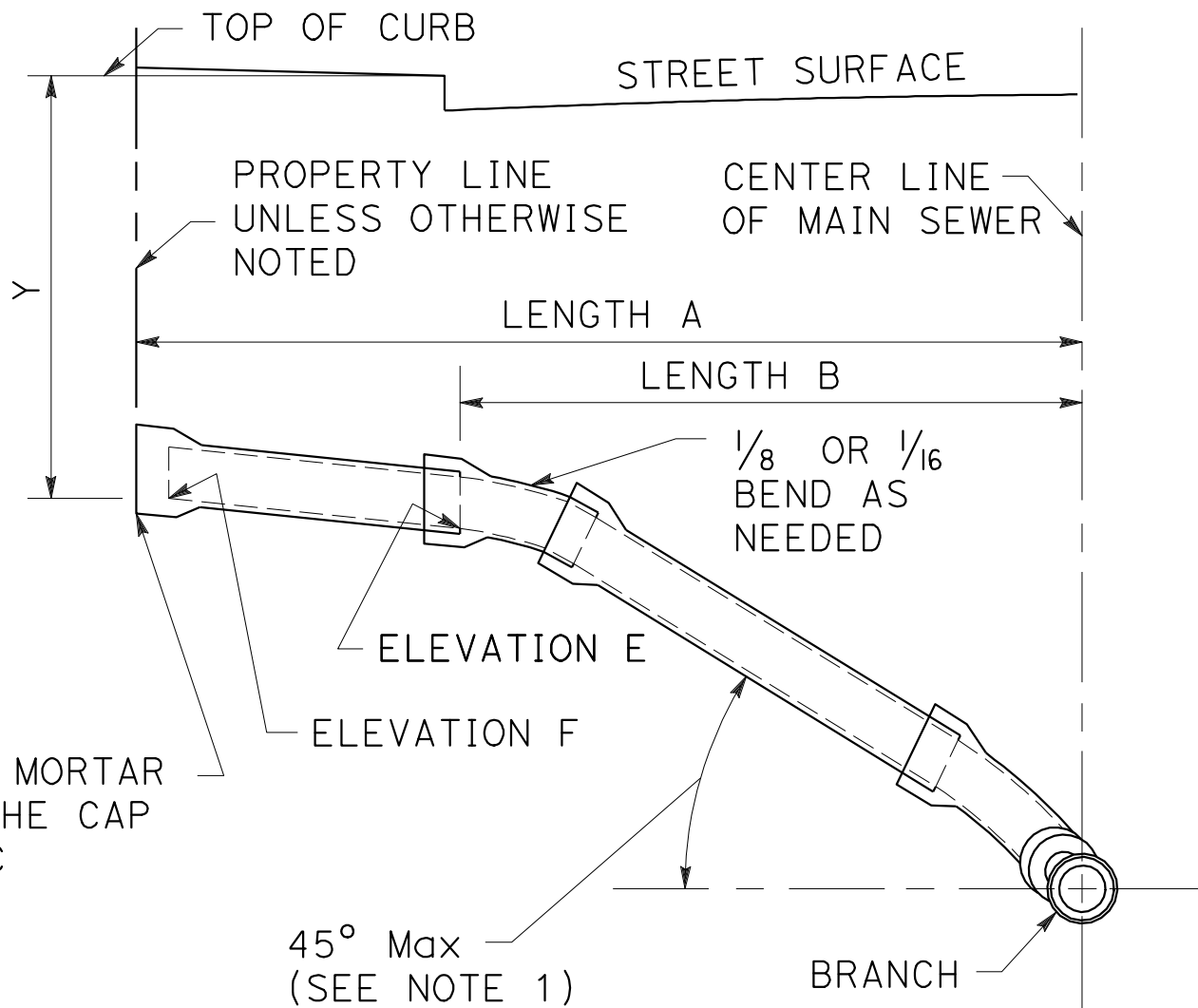
PROFILE  
TYPE A



PROFILE  
TYPE D



PROFILE  
TYPE B



PROFILE  
TYPE C

HOUSE CONNECTION SEWER

SANITARY SEWER DETAIL  
NO SCALE  
SSD-14

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	5	2.4/4.0	277	1288

12-19-11

REGISTERED CIVIL ENGINEER

DATE

3-26-12

PLANS APPROVAL DATE

NGIM NANCY PE


No. 58161

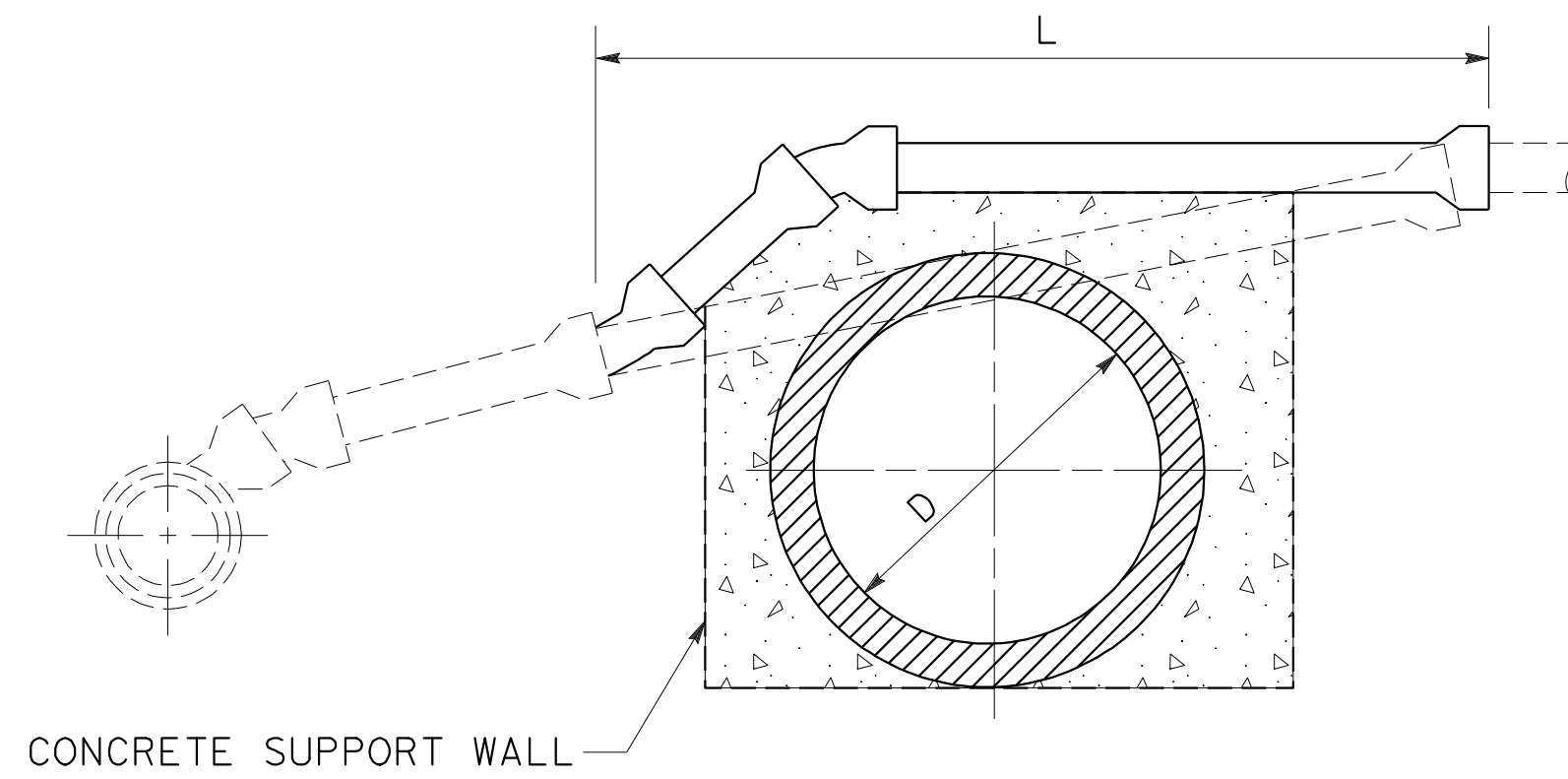
Exp. 6/30/2012

CIVIL

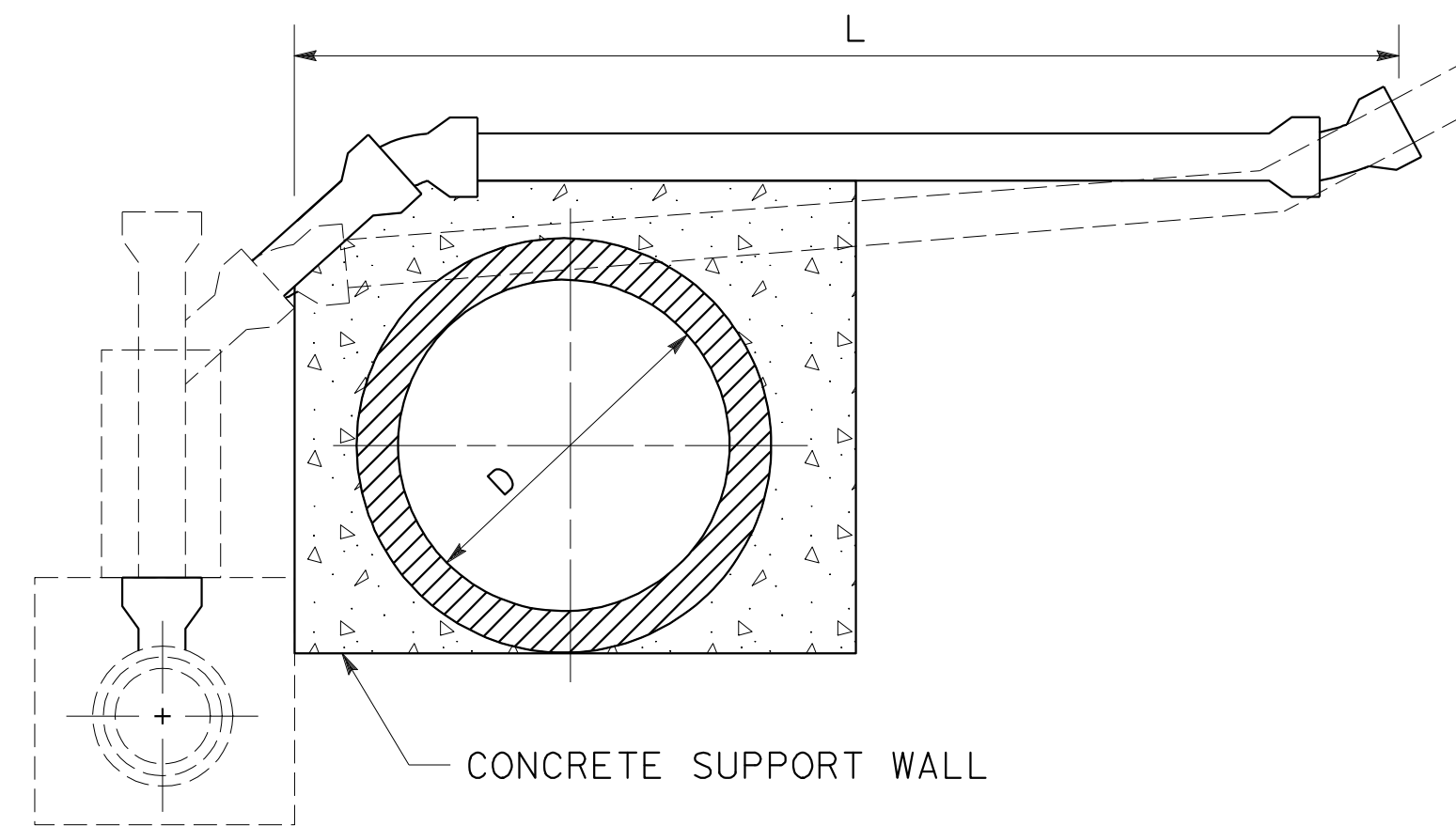
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	5	2.4/4.0	278	1288
<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="width: 45%;"> <p><i>Kim N. Pe</i></p> <p>REGISTERED CIVIL ENGINEER</p> </div> <div style="width: 10%; text-align: center;"> <p>12-19-11</p> <p>DATE</p> </div> <div style="width: 40%; text-align: center;">  </div> </div> <div style="margin-top: 10px;"> <p>3-26-12</p> <p>PLANS APPROVAL DATE</p> </div> <div style="margin-top: 10px; font-size: small;"> <p>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</p> </div>					



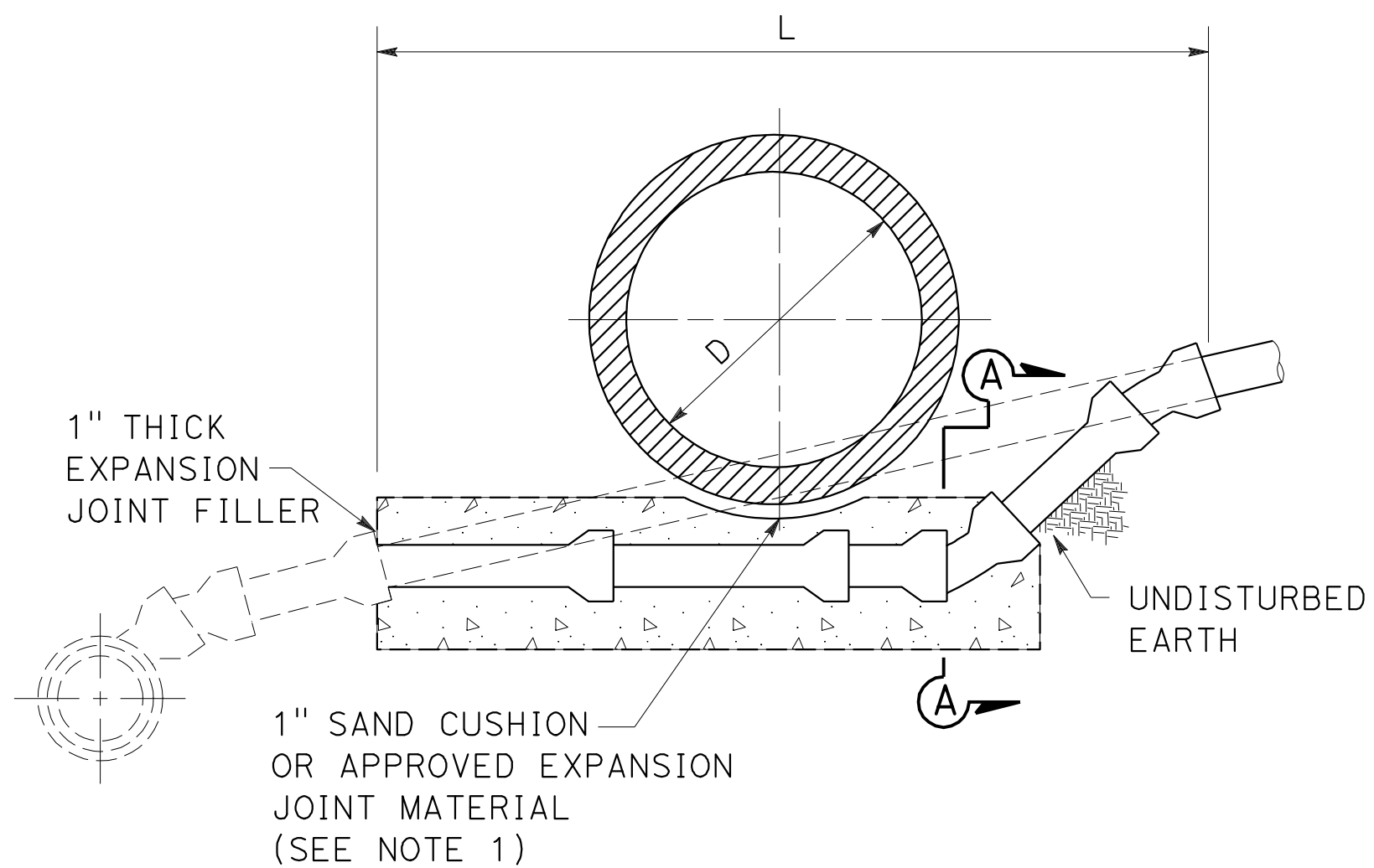
## CASE A



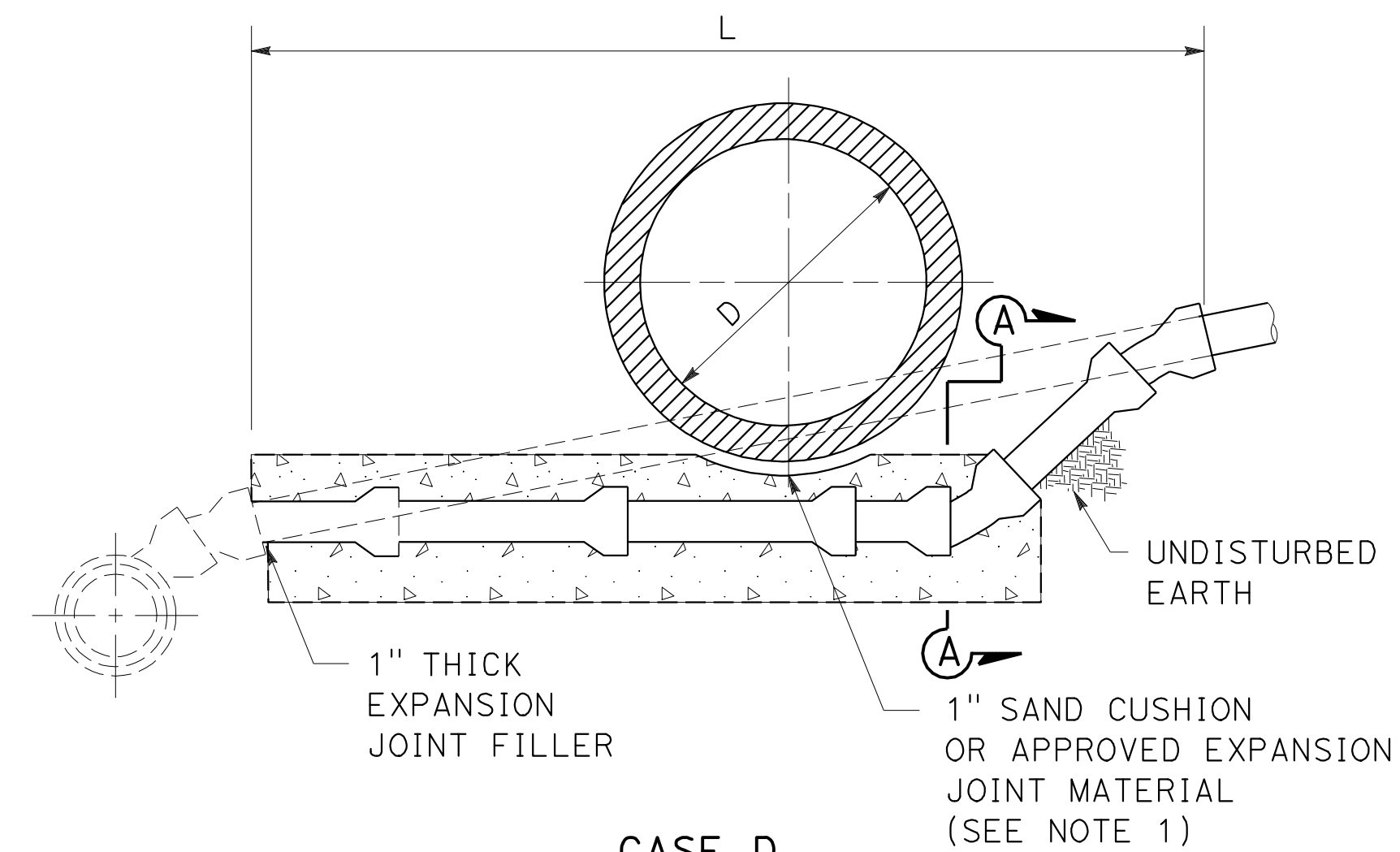
### CASE B

NOTE:

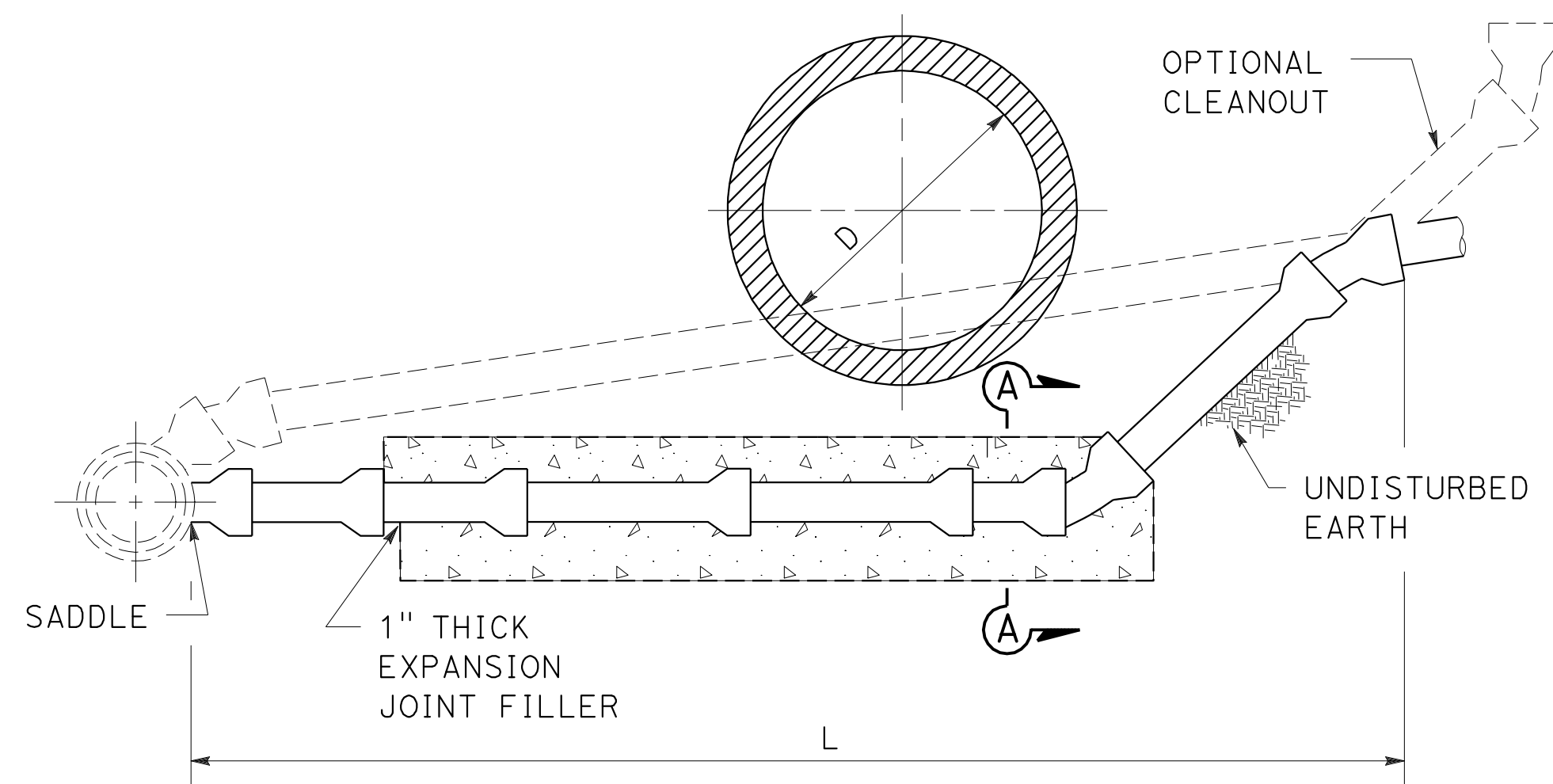
1. CONDUITS TO BE INSTALLED OVER OR WITHIN 1" OF ANY CONCRETE ENCASMENT OR STRUCTURE, WHETHER EXISTING OR TO BE PLACED IN CONFORMITY WITH THE REQUIREMENTS HEREIN, SHALL BE INSTALLED ON A 1" SAND CUSHION OR APPROVED EXPANSION JOINT MATERIAL. CONCRETE ENCASMENT INSTALLED PURSUANT TO THIS SANITARY SEWER DETAIL PLAN SHALL BE SEPARATED FROM EXISTING CONDUIT WITH 1" THICK EXPANSION JOINT MATERIAL.



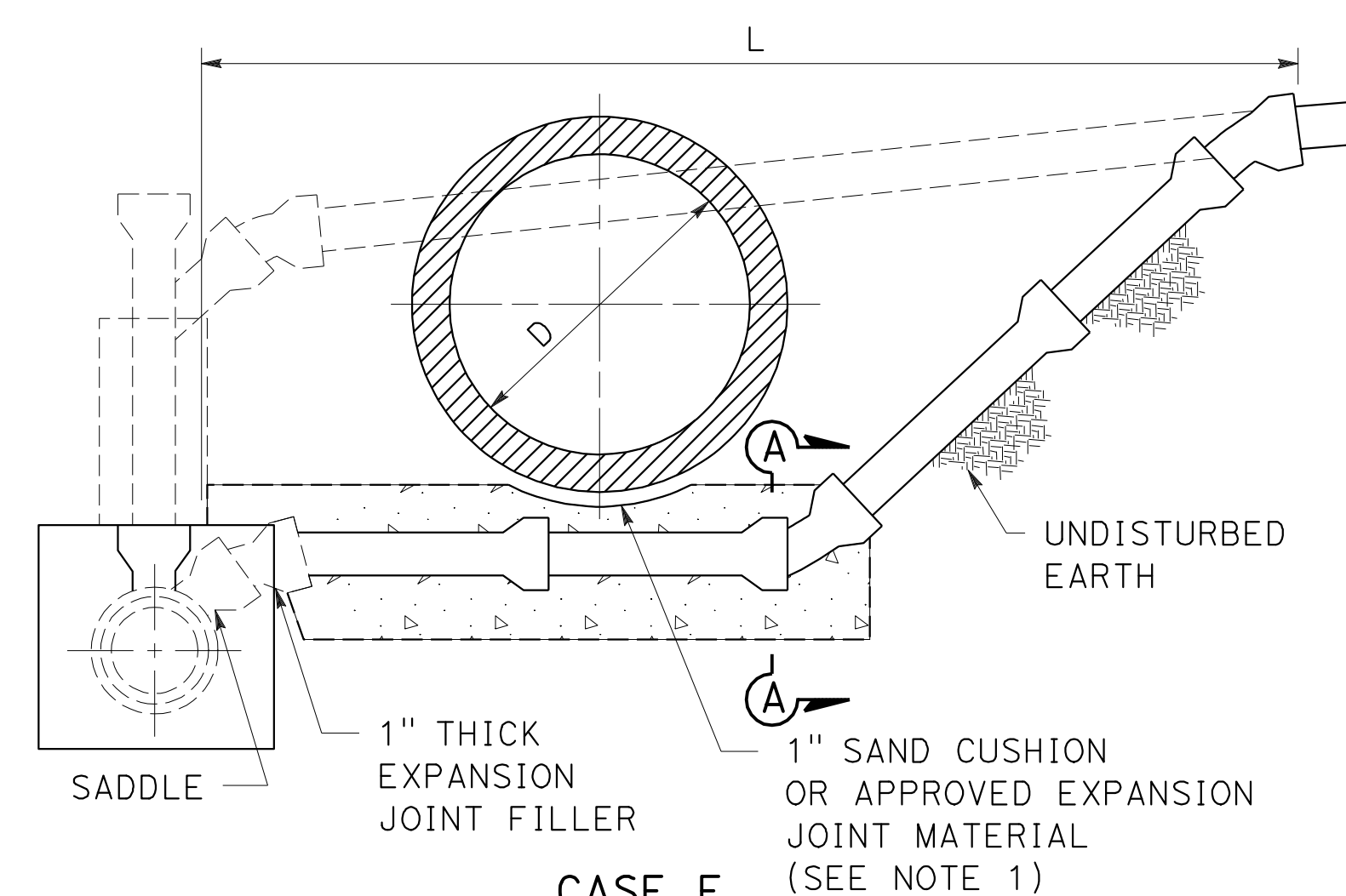
### CASE C



### CASE D



CASE E



CASE F

**HOUSE CONNECTION REMODELING 1 OF 2**

## SANITARY SEWER DETAIL

NO SCALE

SSD-15



Dist

COUNTY

ROUTE

POST MILES  
TOTAL PROJECT

SHEET  
No.

TOTAL  
SHEETS

07

LA

5

2.4/4.0

279

1288

12-19-11

12-19-11

REGISTERED CIVIL ENGINEER

DATE

3-26-12

PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER

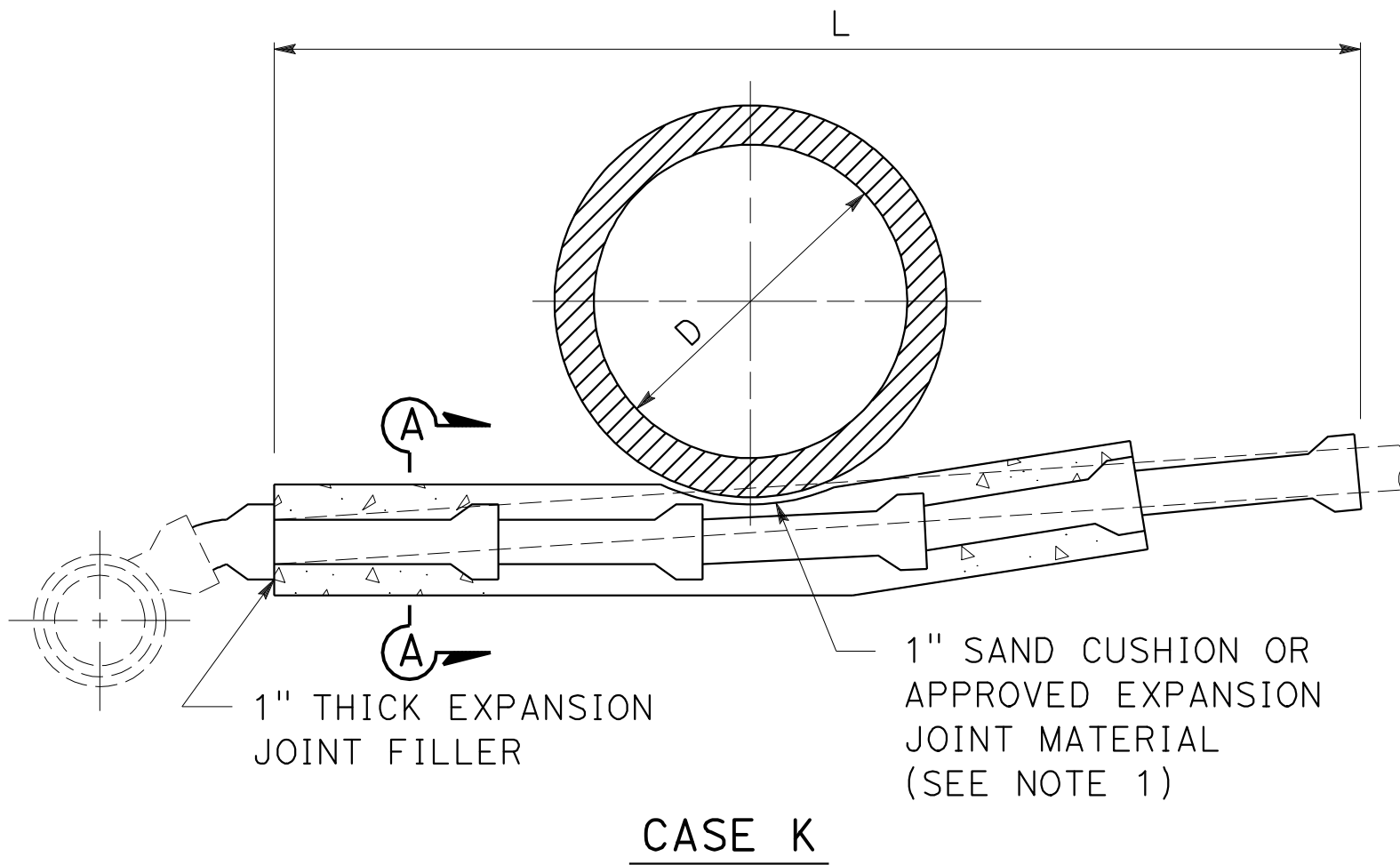
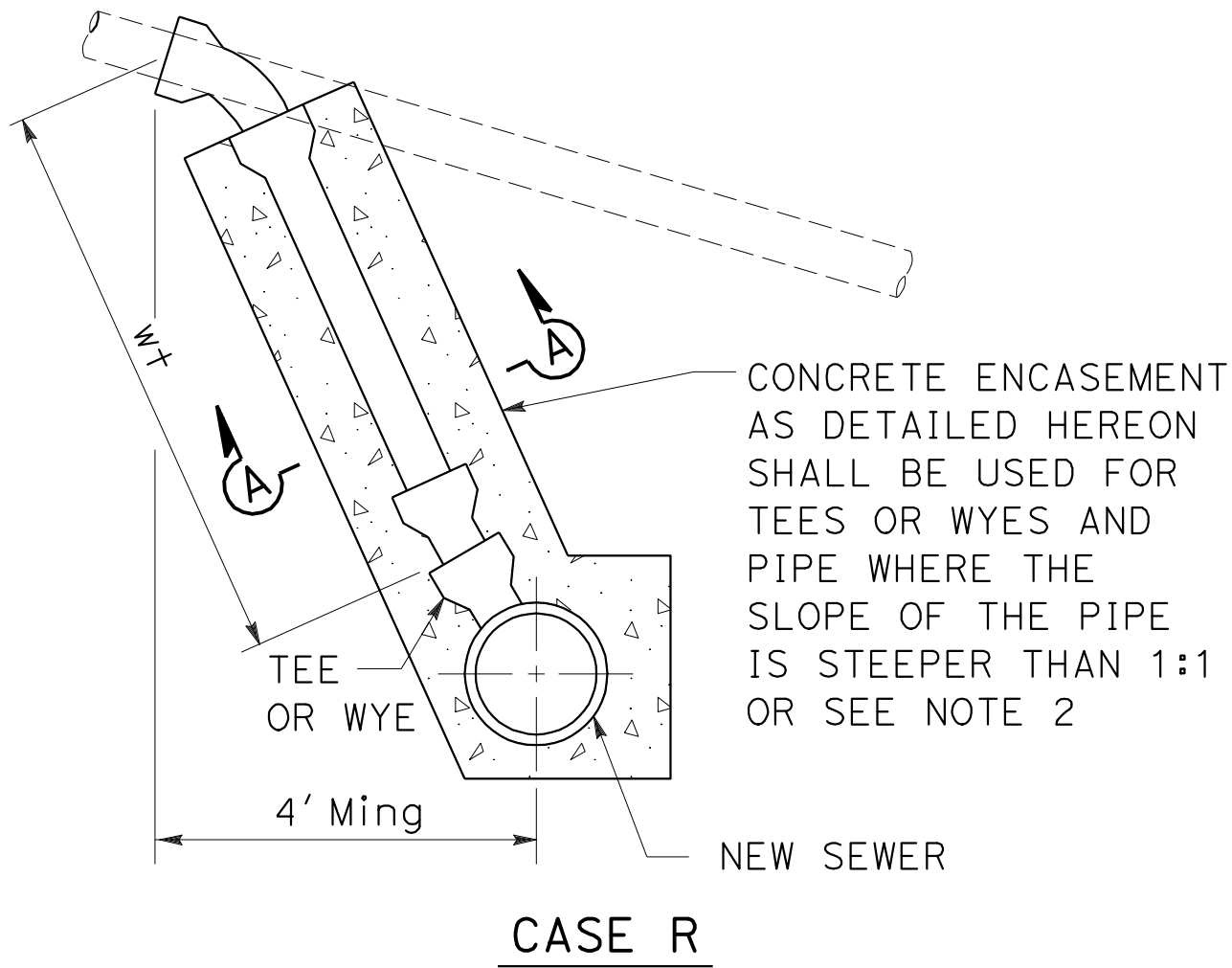
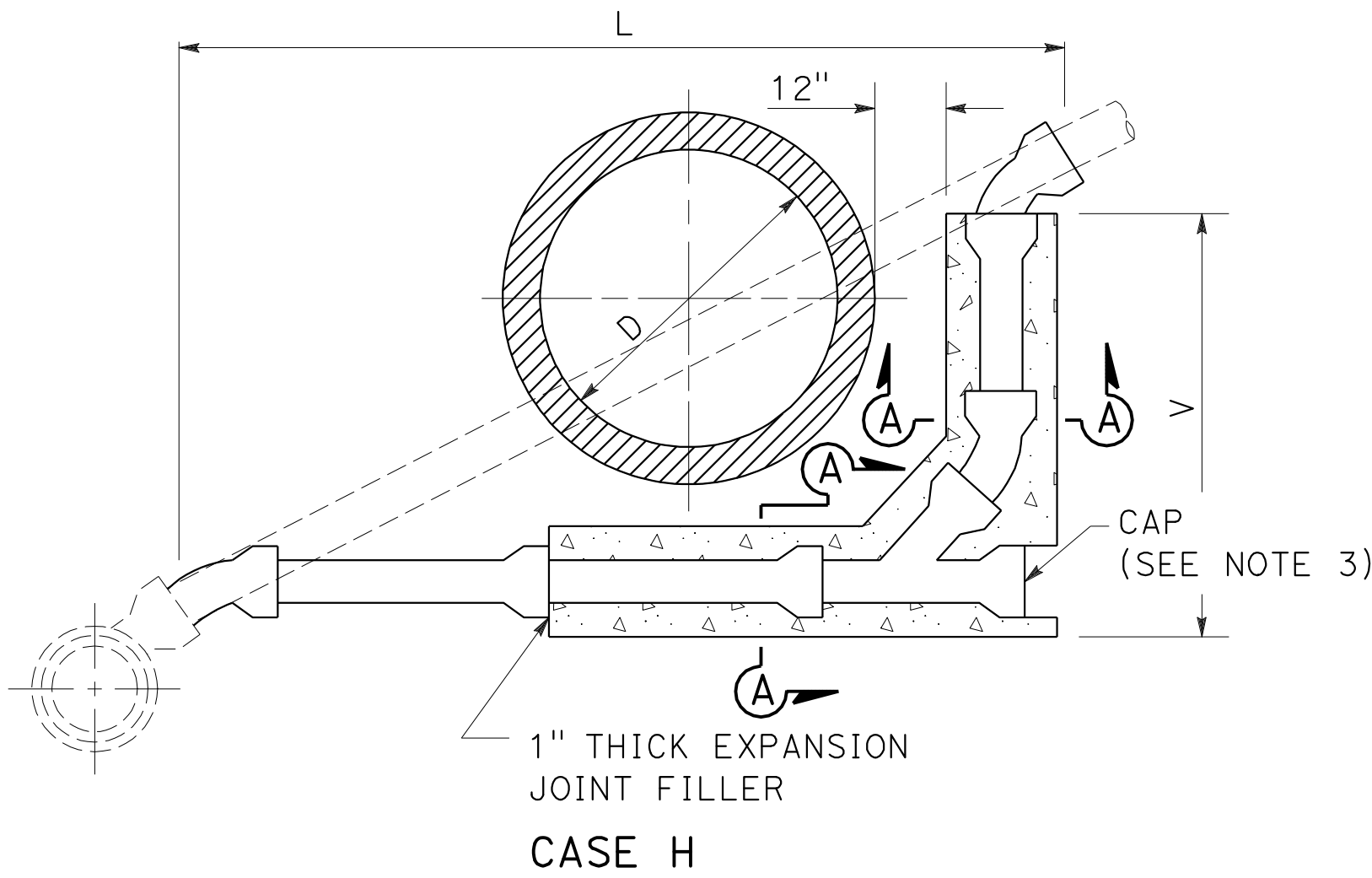
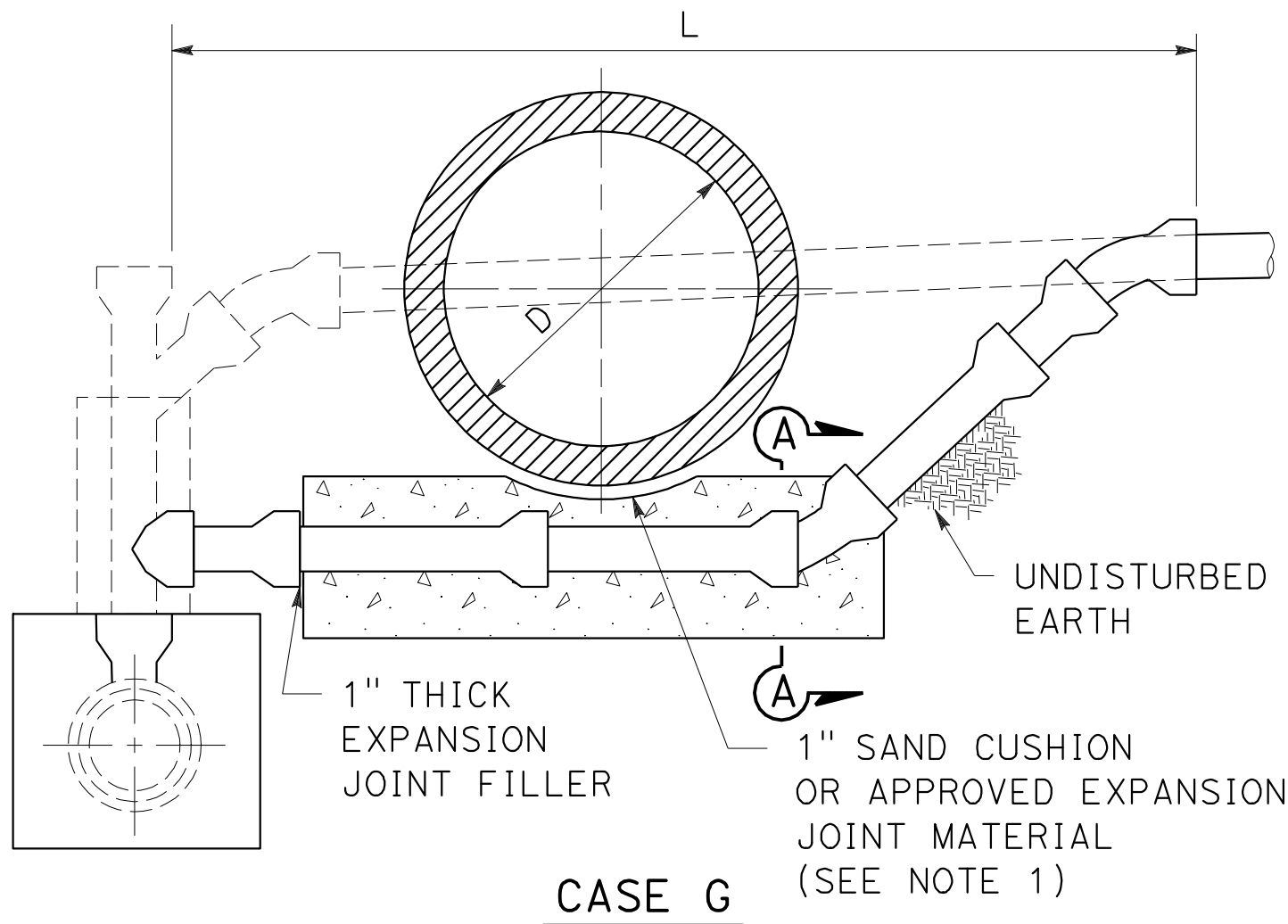
NGIM  
NANCY PE

No. 58161

Exp. 6/30/2012

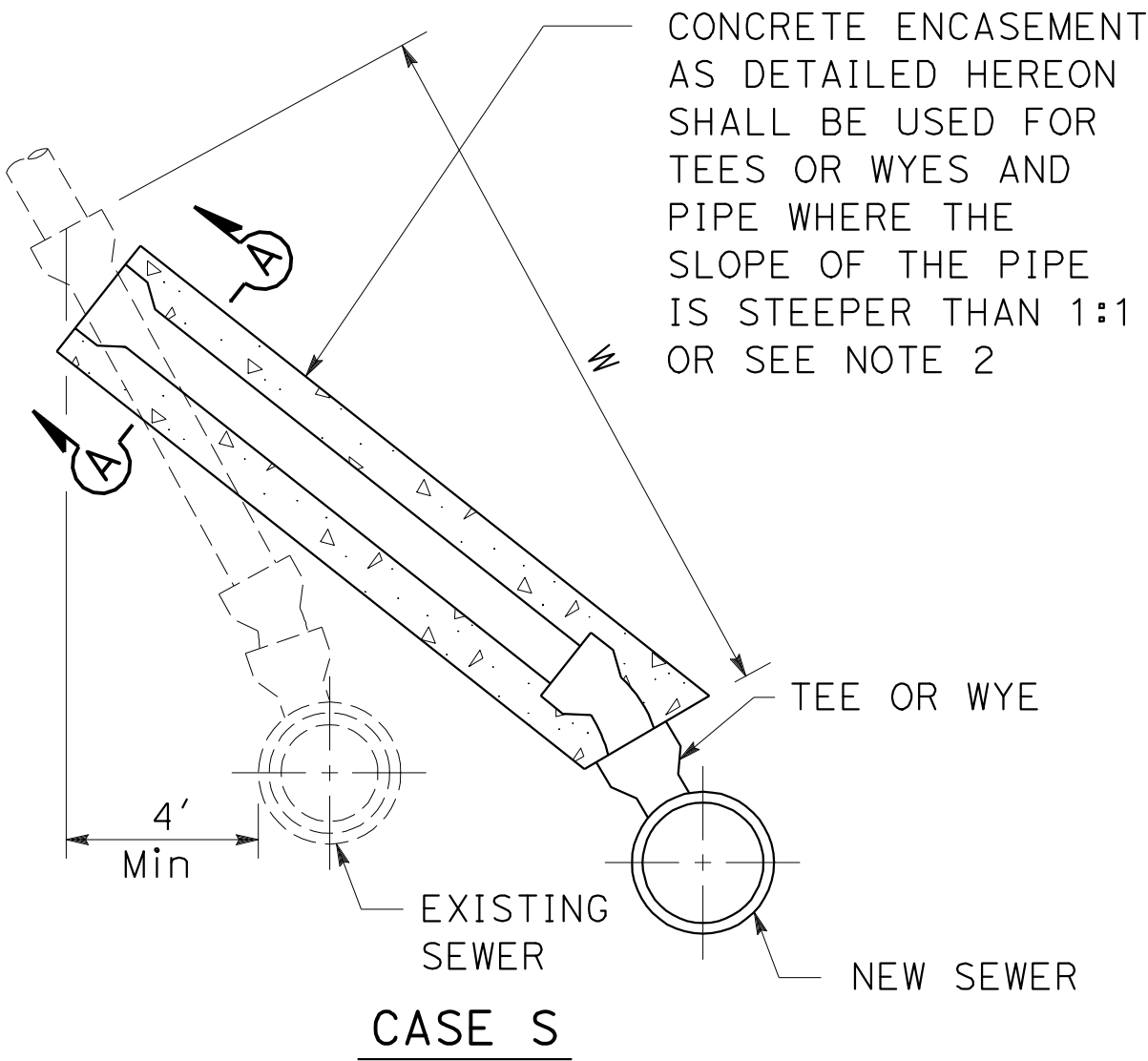
CIVIL

STATE OF CALIFORNIA



NOMINAL DIAMETER OF PIPE INCHES	MINIMUM DIMENSIONS X INCHES
6	3
8	4
10	5
12	6

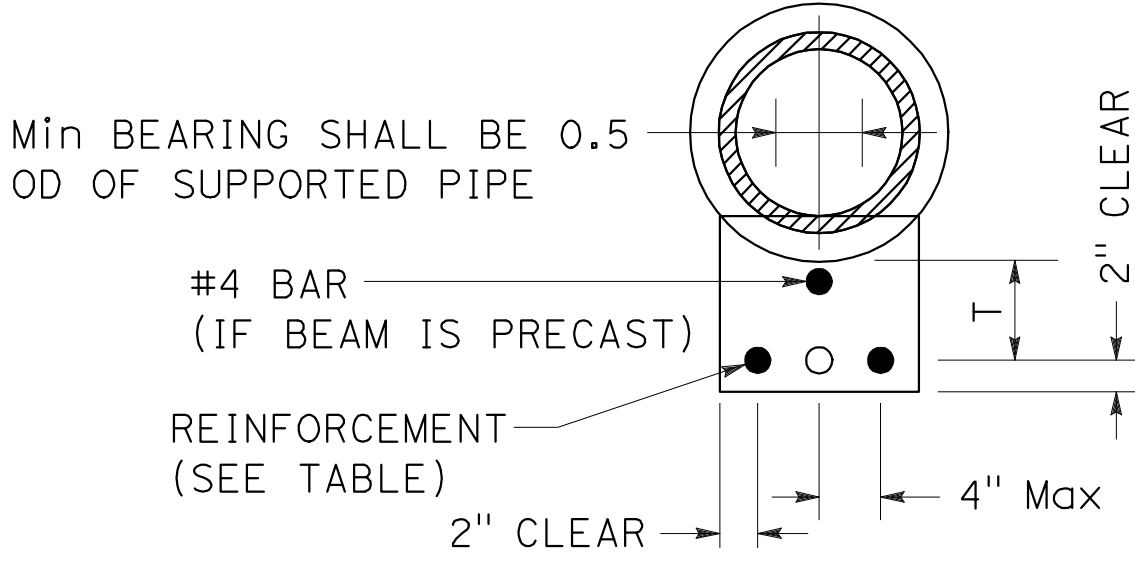
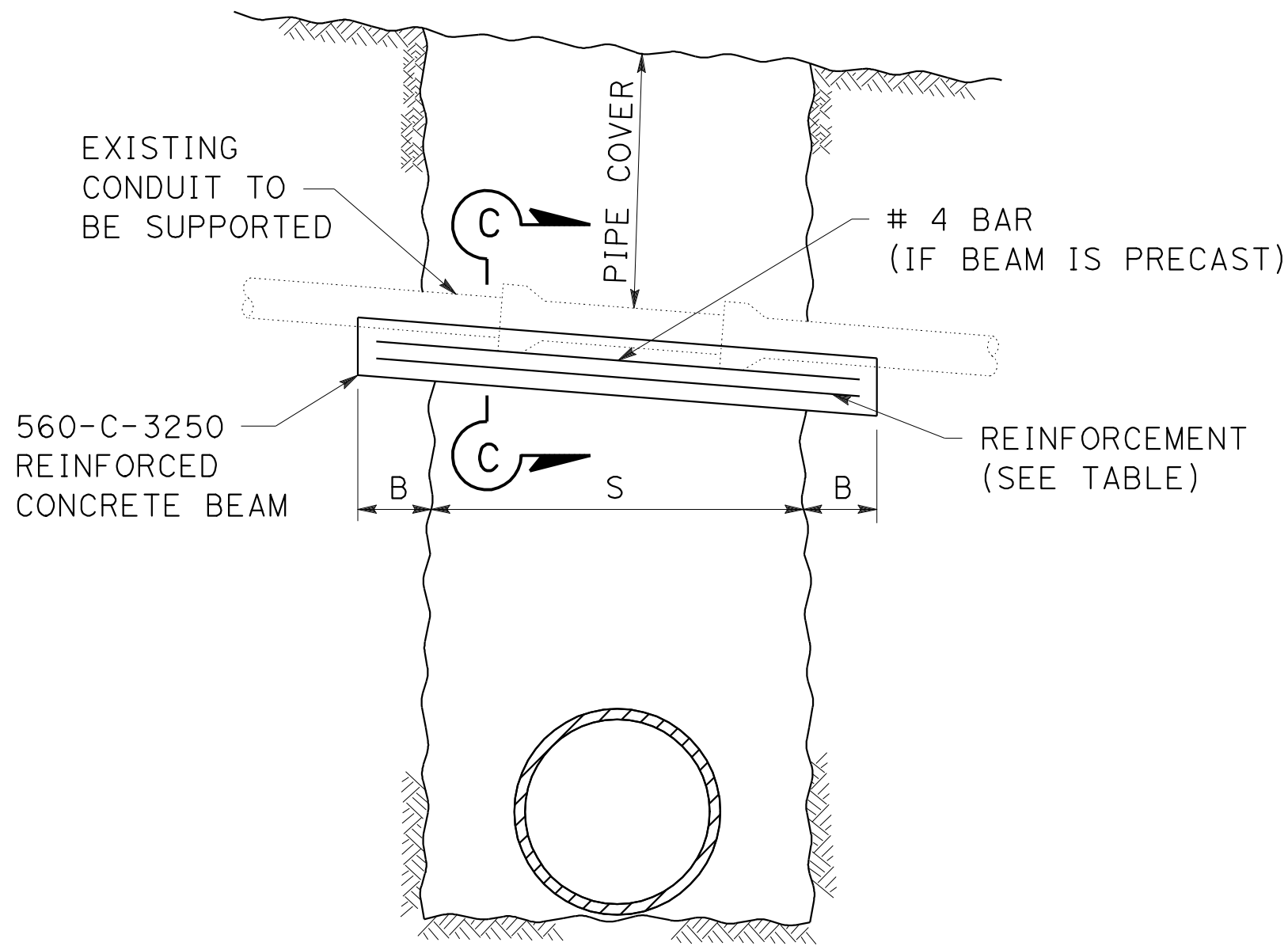
SECTION A-A  
CONCRETE ENCASEMENT DETAIL  
(SEE NOTE 5)



NOTES:

1. CONDUITS TO BE INSTALLED OVER OR WITHIN 1" OF ANY CONCRETE ENCASEMENT OR STRUCTURE, WHETHER EXISTING OR TO BE PLACED IN CONFORMITY WITH THE REQUIREMENTS HEREIN, SHALL BE INSTALLED ON A 1" SAND CUSHION OR APPROVED EXPANSION JOINT MATERIAL. CONCRETE ENCASEMENT INSTALLED PURSUANT TO THIS SANITARY SEWER DETAIL PLAN SHALL BE SEPARATED FROM EXISTING CONDUIT WITH 1" THICK EXPANSION JOINT MATERIAL.
2. FOR CASES R AND S, WHEN THE SLOPE OF THE PIPE EXCEEDS 1:1, THE CONTRACTOR MAY, AT ITS OPTION, CONSTRUCT A CHIMNEY ON THE NEW SEWER IN LIEU OF CONSTRUCTING THE ENCASEMENT SHOWN HEREON.
3. THOSE PORTIONS OF THE ABANDONED PIPE LOCATED BENEATH OR WITHIN 6" OF A RELOCATED HOSE CONNECTION SEWER SHALL BE REMOVED. THE EXCAVATION SHALL BE REFILLED TO THE GRADE OF THE NEW PIPE INVERT WITH CONCRETE. THE CONTRACTOR MAY, AT ITS OPTION SUBSTITUTE MECHANICALLY COMPACTED BACKFILL IN LIEU OF THE CONCRETE. THOSE PORTIONS OF ABANDONED PIPE NOT REMOVED SHALL BE SEALED. WHERE CAPS ARE USED, THEY SHALL BE SEALED BY FILLING THE SPACE ABOVE THE CAP WITH SAND AND A 1" THICK COATING OF TYPE "F+" MORTAR.

SANITARY SEWER DETAIL  
NO SCALE  
SSD-16



CASE 1  
REINFORCED CONCRETE BEAM  
FOR 4" TO 24" ID PIPE

REINFORCED CONCRETE BEAM (DIMENSIONS AND REINFORCEMENT)

S	PIPE COVER														
	0' TO 8'-0"			8'-0" TO 12'-0"			12'-0" TO 16'-0"			16'-0" TO 20'-0"			20'-0" TO 25'-0"		
	T	BARS	B	T	BARS	B	T	BARS	B	T	BARS	B	T	BARS	B
0" TO 4'-0"	8"	#4	1'-6"	8"	#4	1'-6"	9"	#4	1'-6"	10"	#4	1'-6"	10 1/2"	#4	1'-6"
4'-0" TO 5'-0"	8"	#4	1'-6"	9 1/2"	#4	1'-6"	11"	#4	1'-6"	12"	#4	1'-6"	12 1/2"	#5	1'-6"
5'-0" TO 6'-0"	9"	#4	1'-6"	11"	#5	1'-6"	12 1/2"	#5	1'-6"	13 1/2"	#5	2'-0"	14 1/2"	#5	2'-0"
6'-0" TO 7'-0"	10"	#5	1'-6"	12 1/2"	#5	2'-0"	14 1/2"	#5	2'-0"	15 1/2"	#5	2'-0"	16 1/2"	#6	2'-0"
7'-0" TO 8'-0"	11"	#5	1'-6"	14"	#5	2'-0"	16"	#5	2'-0"	17 1/2"	#5	2'-6"	19"	#6	2'-6"
8'-0" TO 9'-0"	12 1/2"	#5	2'-0"	15 1/2"	#6	2'-6"	17 1/2"	#6	3'-0"	19 1/2"	#6	2'-6"	21"	#6	2'-6"
9'-0" TO 10'-0"	13 1/2"	#6	2'-0"	17"	#6	2'-6"	19 1/2"	#6	3'-0"	21 1/2"	#6	3'-0"	23"	#6	3'-0"
10'-0" TO 11'-0"	14 1/2"	#6	2'-6"	18 1/2"	#6	3'-0"	21"	#6	3'-0"	23 1/2"	#7	3'-0"	25"	#7	3'-0"
11'-0" TO 12'-0"	15 1/2"	#6	2'-6"	20"	#6	3'-0"	23"	#7	3'-6"	25 1/2"	#7	3'-6"	27"	#7	3'-6"
12'-0" TO 13'-0"	17"	#6	3'-0"	21 1/2"	#7	3'-6"	24 1/2"	#7	3'-6"	27 1/2"	#7	4'-0"	29"	#7	4'-0"
13'-0" TO 14'-0"	18"	#7	3'-0"	23"	#7	3'-6"	26 1/2"	#7	4'-0"	29 1/2"	#7	4'-0"	31 1/2"	#7	4'-0"
14'-0" TO 15'-0"	19"	#7	3'-0"	25"	#7	4'-0"	28"	#7	4'-0"	31 1/2"	#7	4'-6"			
15'-0" TO 16'-0"	20 1/2"	#7	3'-6"	26 1/2"	#7	4'-0"	30"	#8	4'-6"						
16'-0" TO 17'-0"	21 1/2"	#7	3'-6"	28"	#8	4'-6"									
17'-0" TO 18'-0"	22 1/2"	#8	4'-6"	29 1/2"	#8	4'-6"									

SUPPORT FOR CONDUITS ACROSS TRENCHES 1 of 2

Dist

COUNTY

ROUTE

POST MILES  
TOTAL PROJECT

SHEET  
No.

TOTAL  
SHEETS

07

LA

5

2.4/4.0

280

1288

12-19-11

DATE

REGISTERED CIVIL ENGINEER

3-26-12

PLANS APPROVAL DATE

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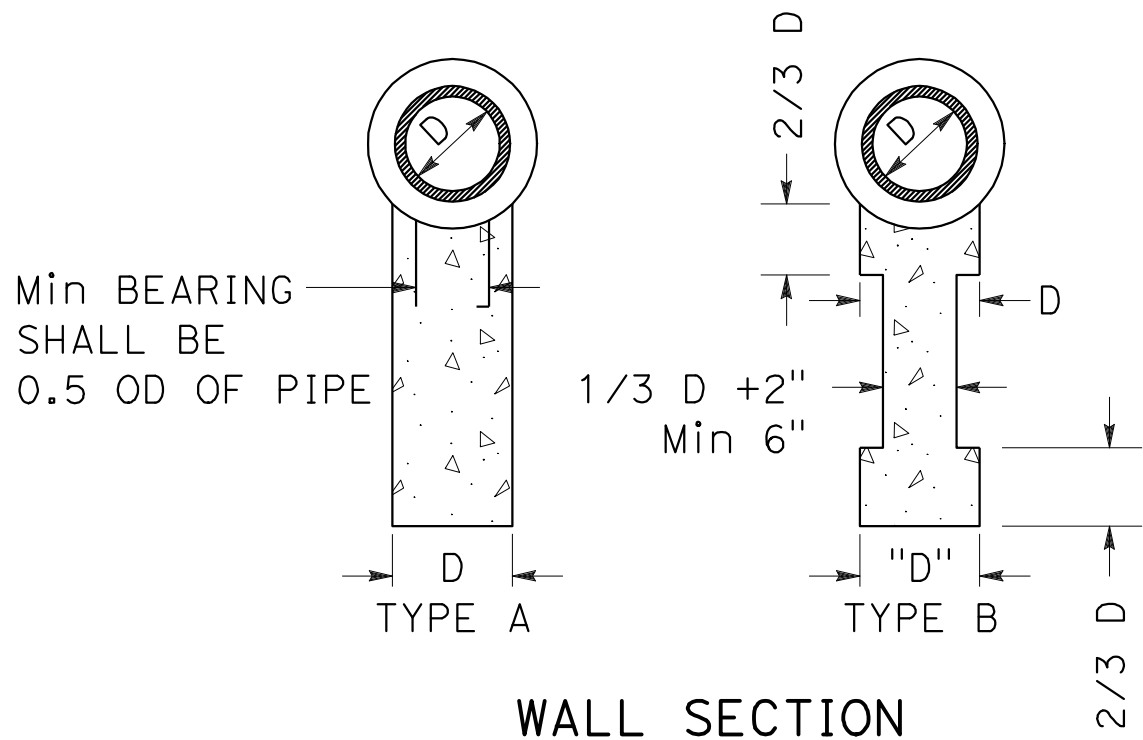
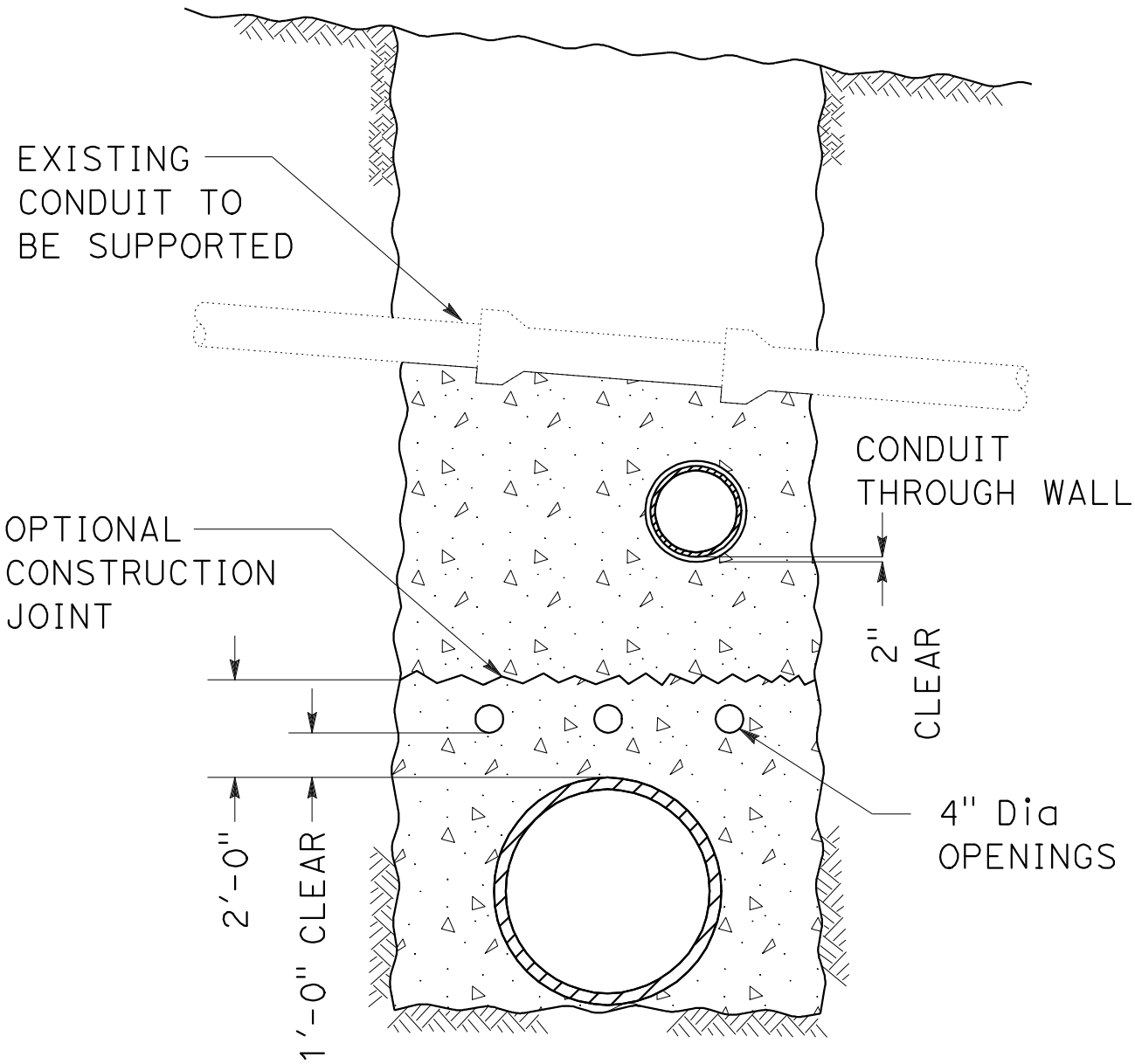
REGISTERED PROFESSIONAL ENGINEER

NGIM  
NANCY PE

No. 58161

Exp. 6/30/2012

CIVIL



WALL SECTION

CONCRETE WALL  
CASE 2

SANITARY SEWER DETAIL  
NO SCALE  
SSD-17



S:\projects\215931\21593j\c018.dgn

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

**Caltrans** OFFICE OF DESIGN & CONSTRUCTION

BORDER LAST REVISED 7/2/2010	USERNAME => s121614 DGN FILE => 721593jc018.dgn	RELATIVE BORDER SCALE IS IN INCHES		UNIT 1797	PROJECT NUMBER & PHASE	07000018331
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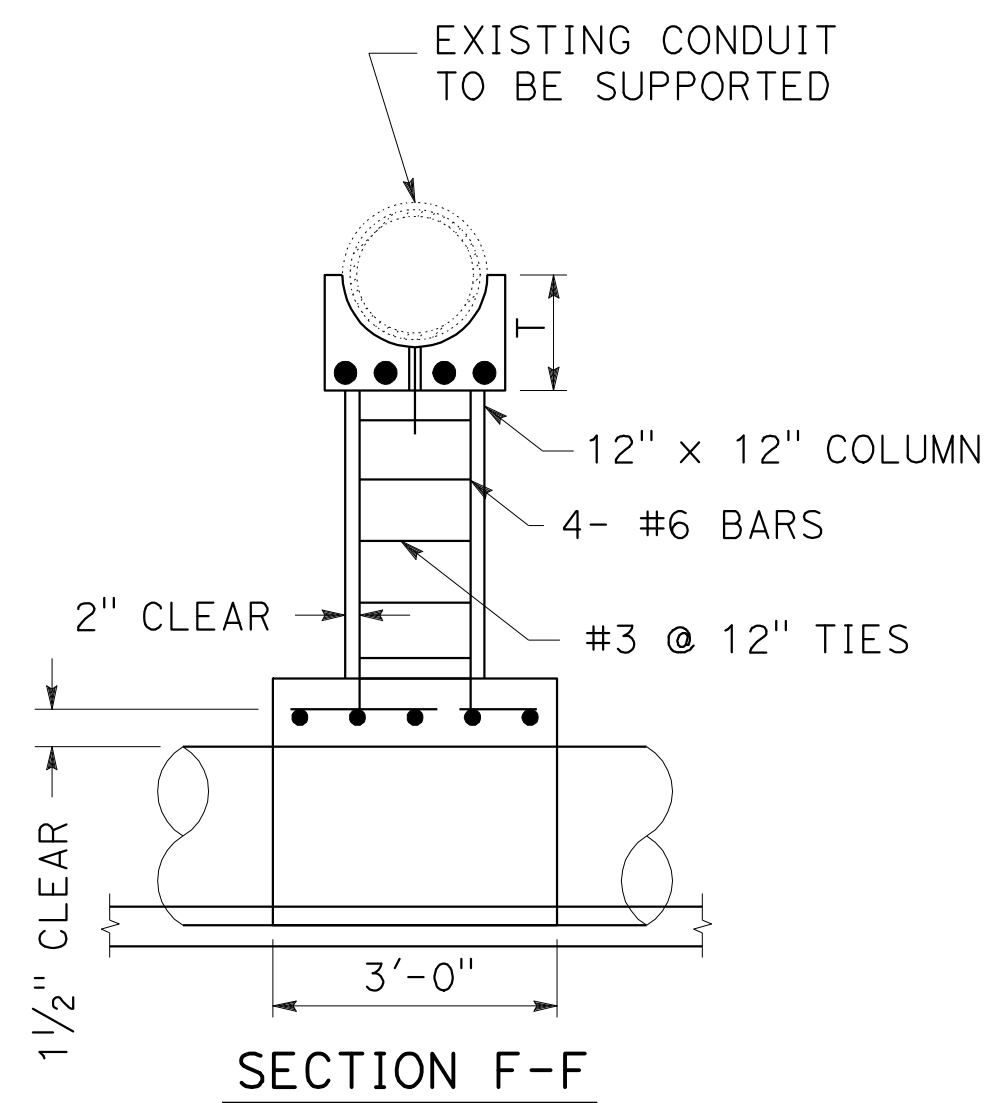


Diagram illustrating the cross-section and reinforcement details of an RC Box Conduit. The diagram shows a cross-section of the conduit with dimensions  $S$  (spacing between reinforcement bars),  $T$  (thickness of the top slab),  $B$  (width of the top slab), and  $H$  (height of the conduit). The reinforcement includes #4 bars at 12" spacing in both directions. The column support beam width is  $2 \times T$  (Min 2'-0"). The diagram also indicates a minimum depth of  $2/3 T$  and  $12''$  Min for the column support beam.

**SANITARY SEWER DETAIL**  
NO SCALE **SSD-18**

NO SCALE

SANITARY SEWER SHEET No.	SYSTEM No.	UNIT No.	10" VITRIFIED CLAY PIPE	15" VITRIFIED CLAY PIPE	JACKED 24" WELDED STEEL PIPE (.250" THICK)	ABANDON SEWER	REMOVE SEWER PIPE	ADJUST SEWER MANHOLE	ABANDON SEWER MANHOLE	REMOVE SEWER MANHOLE	CONCRETE SEWER MANHOLE	SEWER MANHOLE FRAME AND COVER	6" SEWER PIPE (LATERAL)	CAP SEWER MANHOLE	(N)	DESCRIPTION	SYSTEM No.	UNIT No.
			LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	LF	EA	LF			
SS-1	1	a						1							10.88	ADJUST SEWER MANHOLE (BASE), ADJUST TO GRADE Exist MH-37	1	a
	1	b	229														1	b
	1	c									1	1			9.33	MH-100	1	c
	1	d	169														1	d
	1	e									1	1			9.92	MH-101	1	e
	1	f	250														1	f
	1	g									1	1			10.45	MH-102	1	g
	1	h	179														1	h
	1	i									1	1			10.53	MH-103	1	i
	1	j	260														1	j
	1	k									1	1			10.25	MH-104	1	k
	1	l												1		CAP MANHOLE (TOP)	1	l
	1	m				136											1	m
SS-1 / SS-2	1	n															1	n
	1	o				356											1	o
	1	p															1	p
	1	q				120											1	q
	1	r				268											1	r
	1	s									1						1	s
	1	t				270											1	t
	1	u									1						1	u
	1	v				59											1	v
	1	w									1						1	w
	1	x				97											1	x
	1	y	57														1	y
	1	z									1	1			9.23	MH-105	1	z
SS-3	1	a1	20														1	a1
	1	a2					20										1	a2
	2	a						1							7.74	ADJUST SEWER MANHOLE (BASE), ADJUST TO GRADE Exist MH-106	2	a
	2	b		12													2	b
	2	c									1	1			7.88	MH-107	2	c
	2	d		271													2	d
	2	e			240.0												2	e
	2	f									1	1			7.03	MH-108	2	f
	2	g		13													2	g
	2	h						1							6.97	ADJUST SEWER MANHOLE (BASE), ADJUST TO GRADE Exist MH-109	2	h
TOTAL			1164	296	240.0	1306	20	3	5	0	8	8	0	1				

(N) = NOT A SEPARATE PAY ITEM, FOR INFORMATION ONLY.

SANITARY SEWER QUANTITIES

SSQ-1

Dist

COUNTY

ROUTE

POST MILES  
TOTAL PROJECT

SHEET  
No.

TOTAL  
SHEETS

07

LA

5

2.4/4.0

282

1288

12-19-11

DATE

REGISTERED CIVIL ENGINEER

3-26-12

PLANS APPROVAL DATE

NGIM

NANCY PE

No. 58161

Exp. 6-30-2012

CIVIL

THE STATE OF CALIFORNIA OR ITS OFFICERS  
OR AGENTS SHALL NOT BE RESPONSIBLE FOR  
THE ACCURACY OR COMPLETENESS OF SCANNED  
COPIES OF THIS PLAN SHEET.





NOTES:

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE
2. LOCATION OF UTILITY FACILITIES SHOWN ON THESE PLANS ARE APPROXIMATE AND SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION
3. FOR POTHOLING INFORMATION, REFER TO SHEETS U-11 AND U-13.
4. FOR RELOCATION PLANS OF UTILITIES, REFER TO PLANS U-14 THRU U-22.

5. UTILITY OWNERSHIP ON THIS PROJECT:

- ELECTRIC -

FIBER OPTICS -

GAS -

OIL -

SEWER -

TELEPHONE -

WATER -
- SOUTHERN CALIFORNIA EDISON (SCE)

CHARTER COMMUNICATIONS (CCTV)

SUNESYS (SUN)

TIME WARNER (TW)

XO COMMUNICATIONS (XO)

SOUTHERN CALIFORNIA GAS COMPANY (SCG)

GOLDEN WEST REFINERY (GOLDEN WEST)

KINDER MORGAN OIL COMPANY

LAKELAND OIL COMPANY

US AIRFORCE

VERIZON BUSINESS (VznBus)

WILSHIRE OIL COMPANY

SANITATION DISTRICTS OF LOS ANGELES COUNTY (LACSD)

CITY OF NORWALK (CN)

CITY OF SANTA FE SPRINGS (CSFS)

AT&T

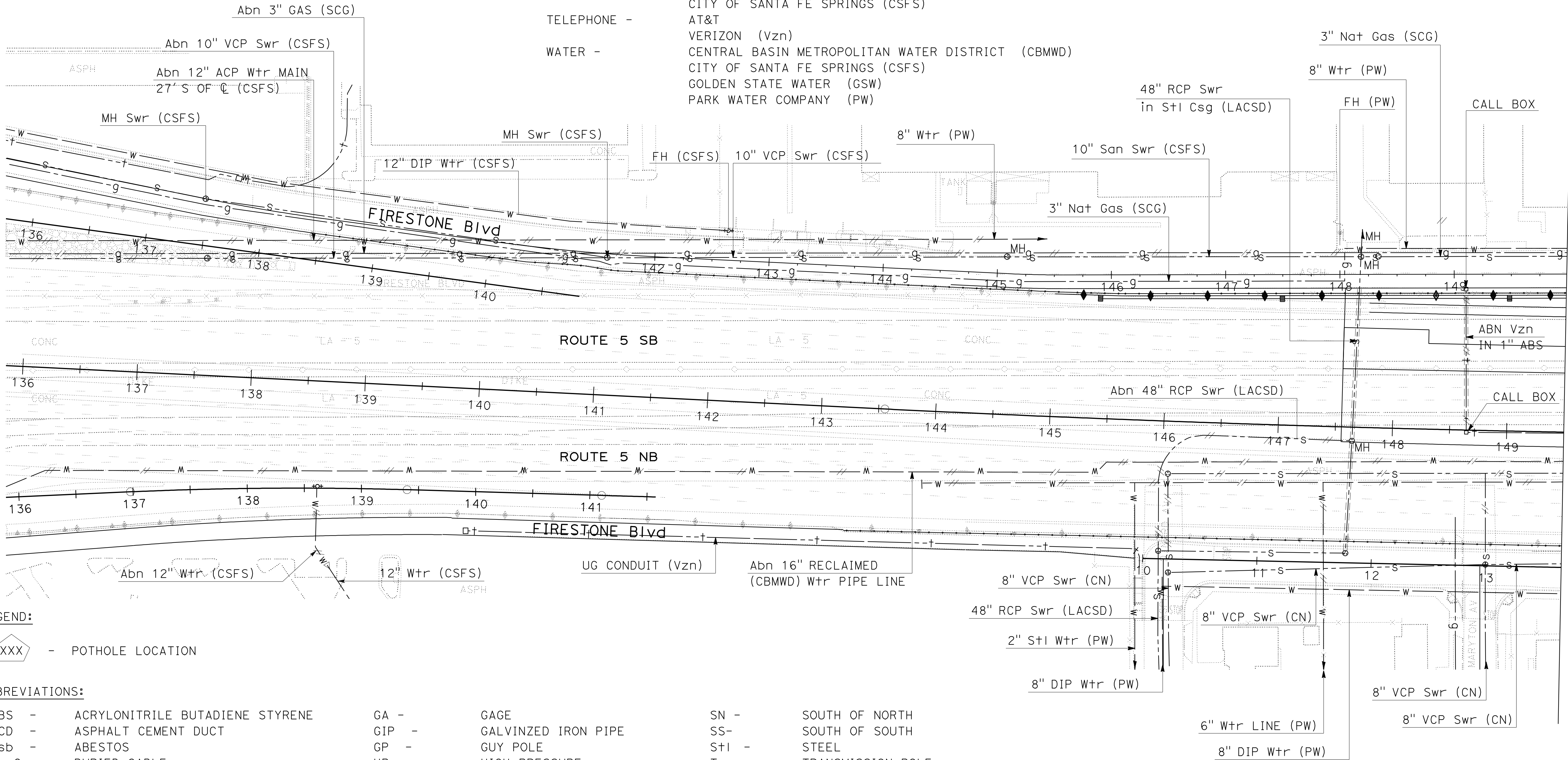
VERIZON (Vzn)

CENTRAL BASIN METROPOLITAN WATER DISTRICT (CBMWD)

CITY OF SANTA FE SPRINGS (CSFS)

GOLDEN STATE WATER (GSW)

PARK WATER COMPANY (PW)



LEGEND:

XXX - POT HOLE LOCATION

ABBREVIATIONS:

- ABS -

ACD -

Asb -

Bu Ca -

CML&C -

CF -

Comm -

Csg -

DIP -

EW -

F/O -
- ACRYLONITRILE BUTADIENE STYRENE

ASPHALT CEMENT DUCT

ABESTOS

BURIED CABLE

CEMENT MORTAR LINED & COATED

CURB FACE

COMMUNICATION

CASING

DUCTILE IRON PIPE

EAST OF WEST

FIBER OPTIC
- GA -

GIP -

GP -

HP -

M -

MFN -

Nat Gaso -

NS -

PM -

San Swr -

SL -
- GAGE

GALVINIZED IRON PIPE

GUY POLE

HIGH PRESSURE

MEDIUM

MICRO FIBER NETWORK

NATURAL GASOLINE

NORTH OF SOUTH

PLASTIC MEDIUM

SANITARY SEWER

STREET LIGHT
- SN -

SS -

Stl -

Trans p -

UB -

UG -

WE -

Wtr -

WV+ -

WW -
- SOUTH OF NORTH

SOUTH OF SOUTH

STEEL

TRANSMISSION POLE

UTILITY BOX

UNDERGROUND

WEST OF EAST

WATER

WATER VAULT

WALL TO WALL

THIS PLAN FOR UTILITY INFORMATION ONLY

UTILITY PLAN  
(EXISTING UTILITIES)  
SCALE 1"=50'

U-1

Dist

COUNTY

ROUTE

POST MILES  
TOTAL PROJECT

SHEET  
No.

TOTAL  
SHEETS

07

LA

5

2.4/4.0

284

1288

12-19-11

DATE

3-26-12

PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS  
OR AGENTS SHALL NOT BE RESPONSIBLE FOR  
THE ACCURACY OR COMPLETENESS OF SCANNED  
COPIES OF THIS PLAN SHEET.

REGISTERED CIVIL ENGINEER

TRUNG CHAU

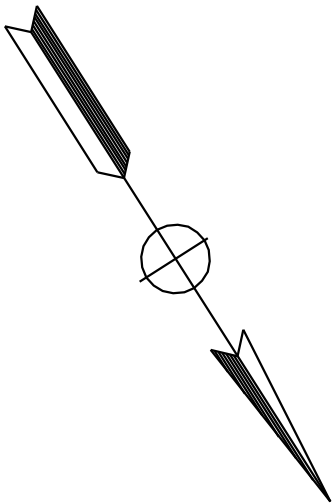
No. 61874

Exp. 9-30-13


CIVIL



1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT  
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE

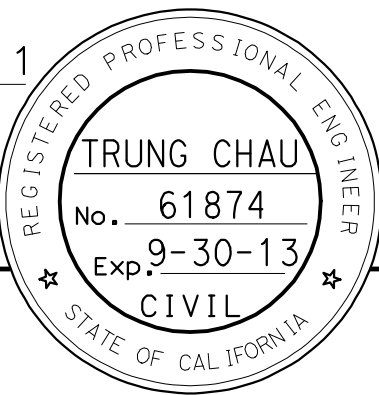


Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	5	2.4/4.0	285	1288

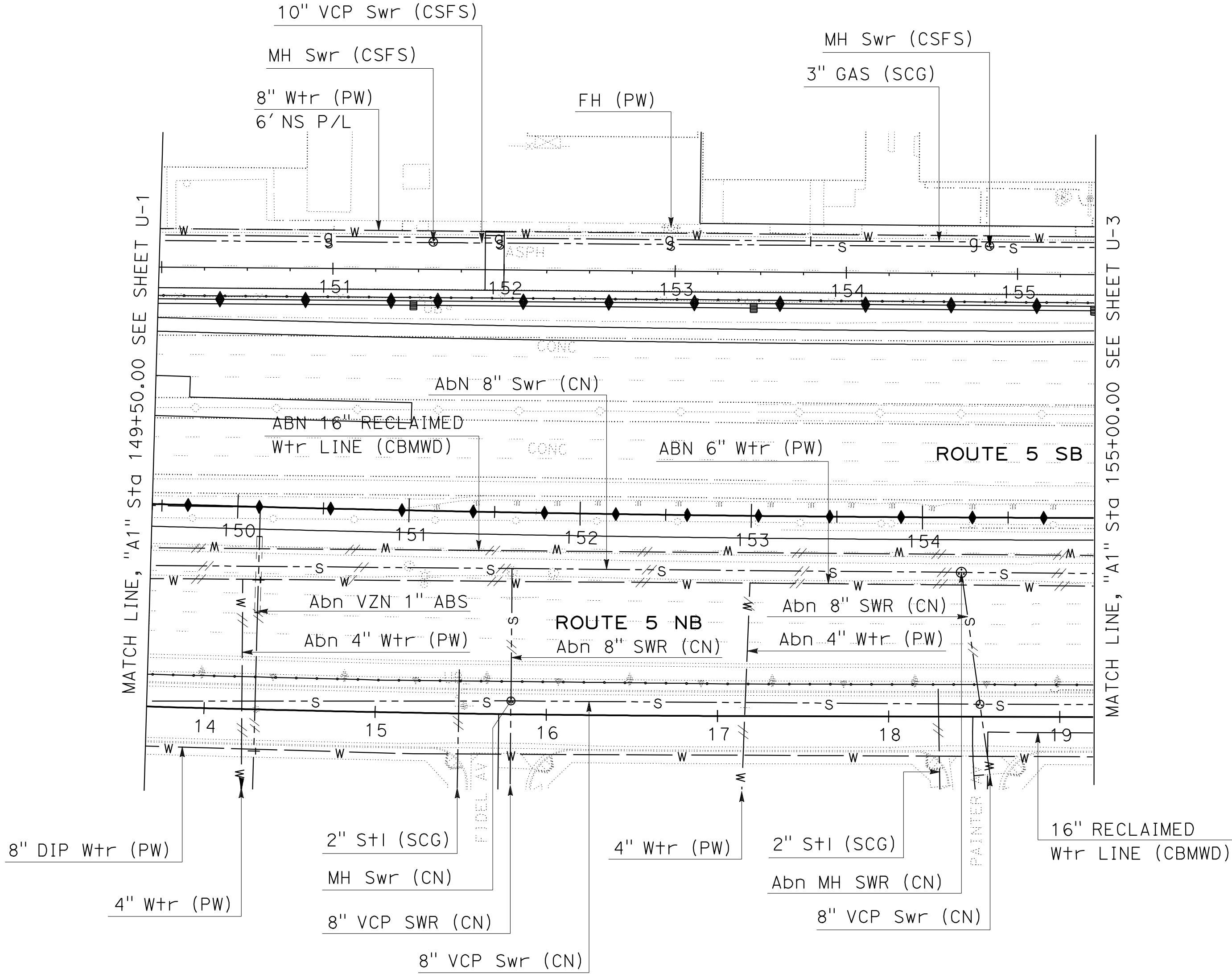
  
REGISTERED CIVIL ENGINEER

12-19-11  
DATE

3-26-12  
PLANS APPROVAL DATE



THE STATE OF CALIFORNIA OR ITS OFFICERS  
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COPIES OF THIS PLAN SHEET.



UTILITY PLAN  
(EXISTING UTILITIES)  
SCALE 1"=50'  
**U-2**

THIS PLAN FOR UTILITY INFORMATION ONLY

10" OIL LINE (KINDER MORGAN)

16" OIL LINE (KINDER MORGAN)

Cond 2 IN ENCASEMENT 25' (Vzn)

QWEST/GIS/MFS B.T.

Cond 2 (Vzn)

PP 1777986E (SCE)

2 OH CABLE (Vzn)

Cond 4 (Vzn)

3" GAS (SCG)

8" CI Wtr (PW)

48" RCP Swr SF 280 10-4-83 (LACSD)

3.5" ABS 10 (Vzn)

MH (Vzn)

8" CI Wtr (PW)

3" GAS (SCG)

10" VCP Swr (CSFS)

16" STI RECLAIMED Wtr (CBMWD)

Abn 16" RECLAIMED Wtr (CBMWD)

Abn 6" CI Wtr (PW)

Abn 8" VCP Swr (CN)

8" VCP Swr (CN)

4" CI Wtr (PW)

1 OH CABLE (Vzn)

1 OH FO CABLE (Vzn)

Abn 1 OH CABLE (Vzn)

1 OH CABLE (CCTV)

3.5" ABS 20 IN ENCASEMENT 66' (VZN)

UG CABLE (Vzn)

LEVEL-3

3.5" ABS 2 (Vzn)

PP 2062119E (SCE)

Elec OH (SCE)

OH CABLE (Vzn)

3.5" ABS 12 (Vzn)

Elec UG (SCE)

16" OIL LINE IN Csg (KINDER MORGAN)

24" OIL LINE IN Csg (KINDER MORGAN)

10" GASOLINE (LKO WILSHIRE)

PP E550 (CSFS)

3.5" ABS 20 IN ENCASEMENT 161' (Vzn)

24" OIL IN 30" Csg (KINDER MORGAN)

16" OIL IN 20" Csg (KINDER MORGAN)

Vzn, 4 Cond, Abn IN PLACE (Vzn)

6" CI Wtr (PW)

2" PEM (SCG)

8" VCP Swr 12' N PL (CSFS)

SL E548 (COSFS)

Elec UG (SCE)

PP 964686E (SCE)

4" PVC (Vzn)

16" OIL (KINDER MORGAN)

3.5" ABS 10 (Vzn)

16" RECLAIMED Wtr, 7' CURB (CBMWD)

48" RCP San Swr (LACSD)

8" VCP (CN)

3" GAS (SCG)

PP 1104874 (SCE)

1 UG FO CABLE (Vzn)

3.5" ABS 2 (Vzn)

1

2

3

UNIT 1797

PROJECT NUMBER & PHASE

07000018331

UTILITY PLAN  
(EXISTING UTILITIES)

SCALE 1"=50'


U-3

THIS PLAN FOR UTILITY INFORMATION ONLY

DATE PLOTTED => 28-MAR-2012

TIME PLOTTED => 09:15

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	5	2.4/4.0	286	1288

  
REGISTERED CIVIL ENGINEER

12-19-11  
DATE

3-26-12  
PLANS APPROVAL DATE

TRUNG CHAU  
No. 61874  
Exp. 9-30-13  
CIVIL


THE STATE OF CALIFORNIA OR ITS OFFICERS  
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COPIES OF THIS PLAN SHEET.

STATE OF CALIFORNIA

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT  
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT  
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE

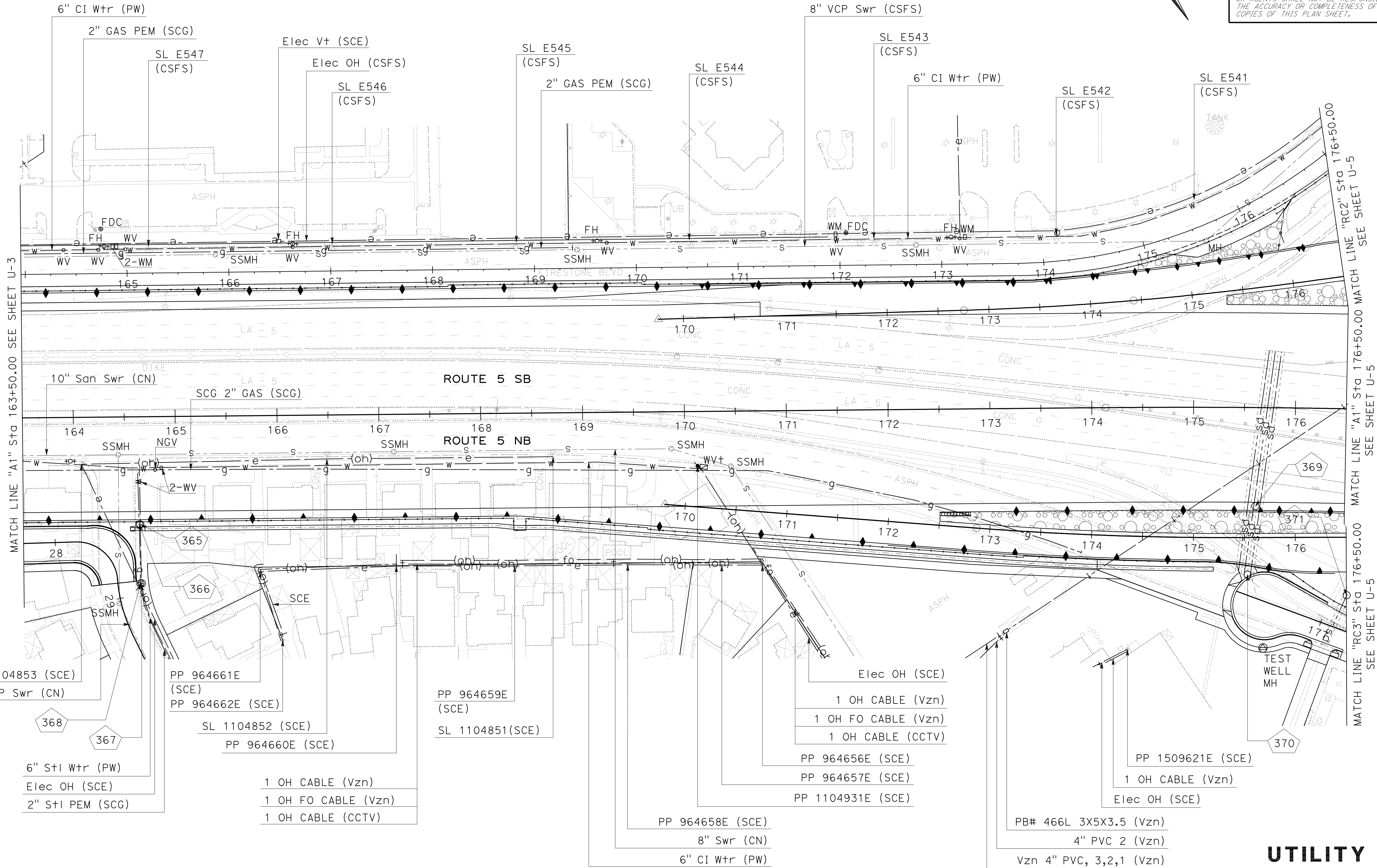
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	5	2.4/4.0	287	1288

  
REGISTERED CIVIL ENGINEER  
12-19-11  
DATE

3-26-12  
PLANS APPROVAL DATE

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THE ACCURACY OR COMPLETENESS OF SCANNED  
COPIES OF THIS PLAN SHEET.

TRUNG CHAU  
No. 61874  
Exp. 9-30-13  
CIVIL  
STATE OF CALIFORNIA



UTILITY PLAN  
(EXISTING UTILITIES)


SCALE 1"=50'

U-4

THIS PLAN FOR UTILITY INFORMATION ONLY

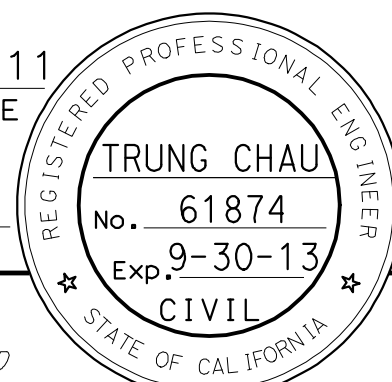


Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	5	2.4/4.0	288	1288

  
REGISTERED CIVIL ENGINEER

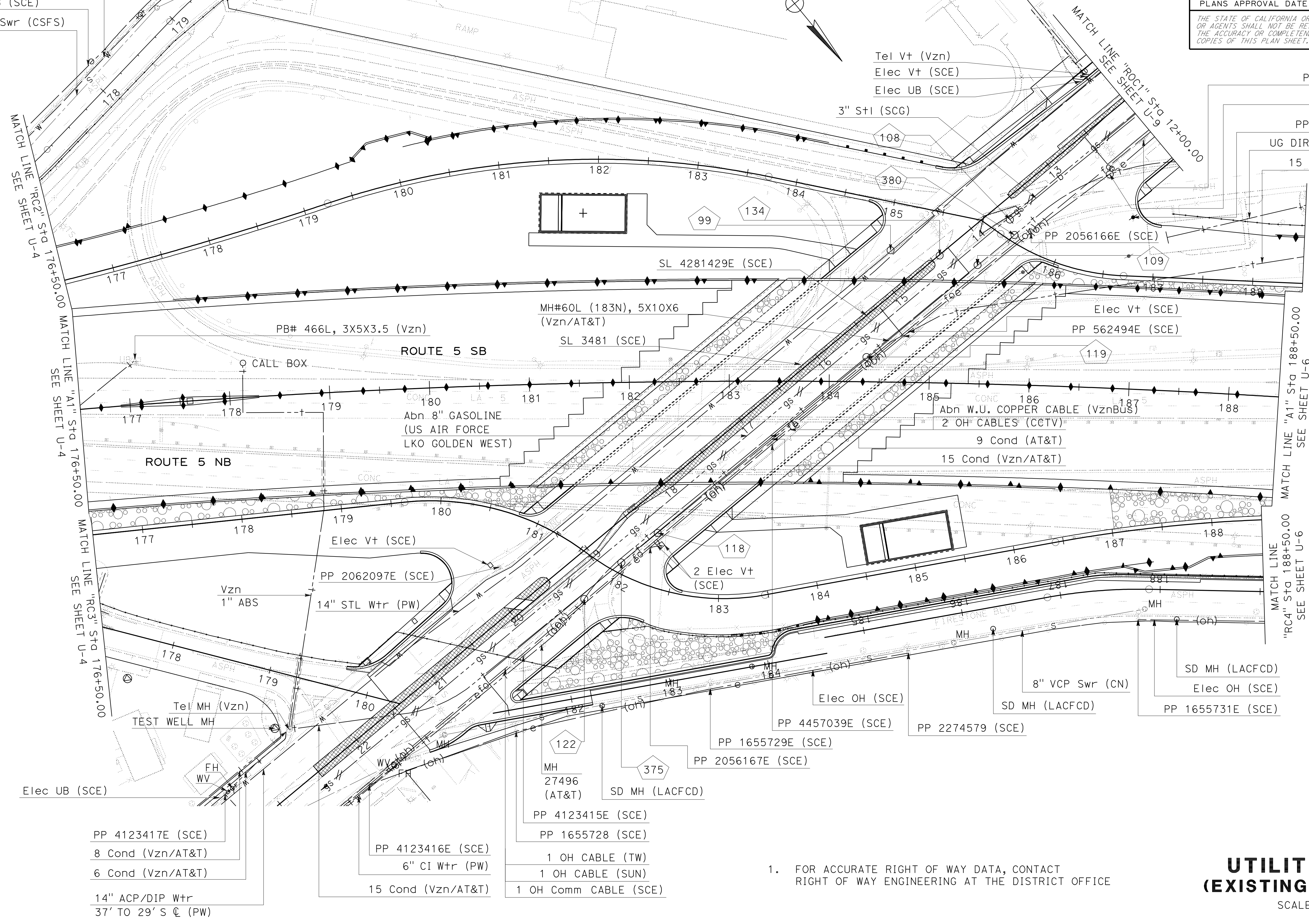
12-19-11  
DATE

3-26-12  
PLANS APPROVAL DATE



THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

6" CI Wtr (PW)  
Elec UG (SCE)  
8" VCP Swr (CSFS)



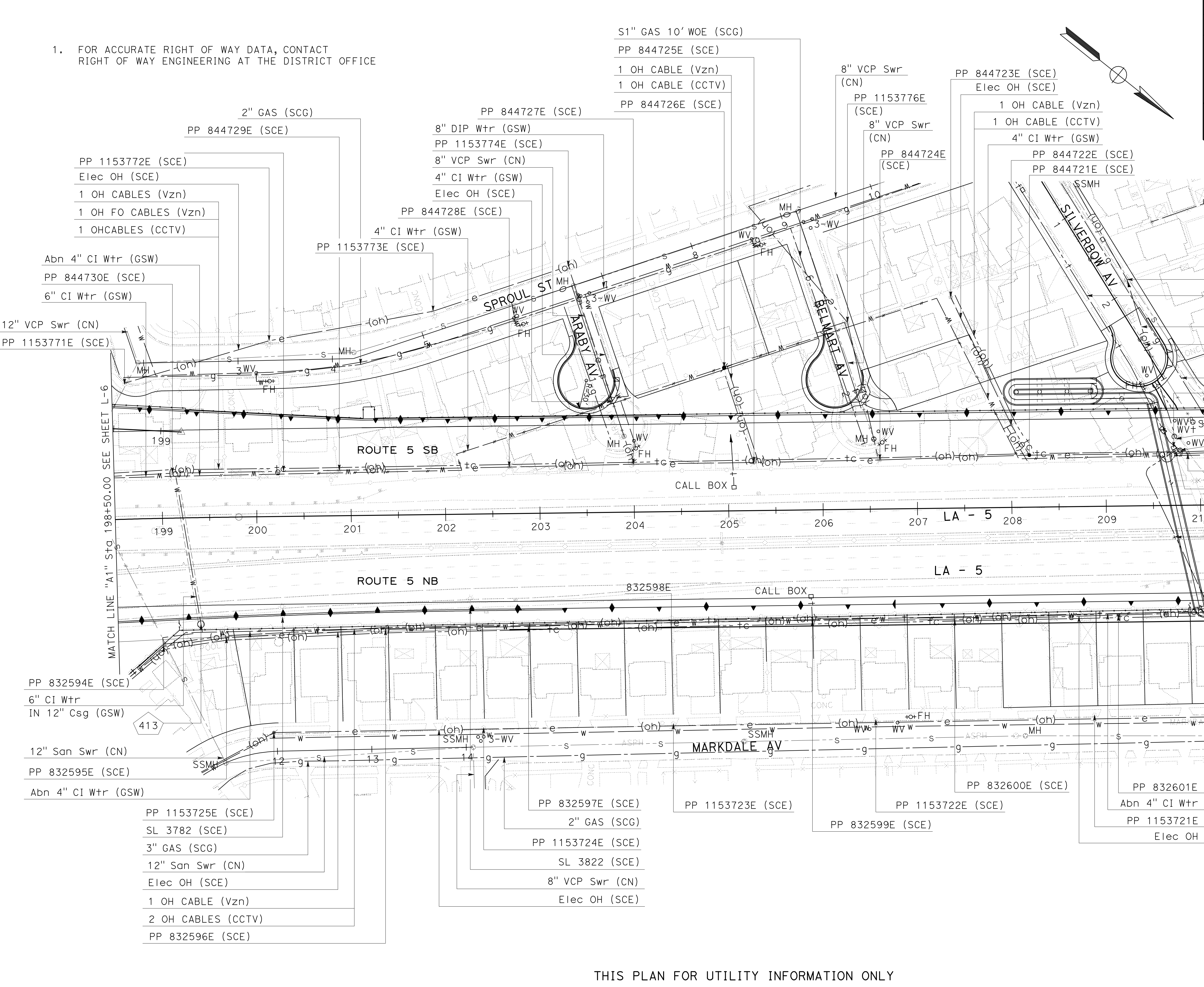
1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT  
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE

**UTILITY PLAN  
(EXISTING UTILITIES)**  
SCALE 1"=50'  
**U-5**









Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	5	2.4/4.0	290	1288

12-19-11

REGISTERED CIVIL ENGINEER DATE

3-26-12

PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

TRUNG CHAU  
No. 61874  
Exp. 9-30-13  
CIVIL

UTILITY PLAN  
(EXISTING UTILITIES)  
SCALE 1"=50'

U-7

LAST REVISION: 00-00-00  
DATE PLOTTED => 26-MAR-2012  
TIME PLOTTED => 09:15

BORDER LAST REVISED 7/1/2010

USERNAME => s121614  
DGN FILE => 721593ka007.dgn

RELATIVE BORDER SCALE IS IN INCHES

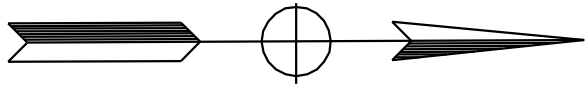
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UNIT 1797


PROJECT NUMBER &amp; PHASE

07000018331

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT  
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE



DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	5	2.4/4.0	291	1288

  
REGISTERED CIVIL ENGINEER

12-19-11  
DATE

3-26-12  
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER

TRUNG CHAU

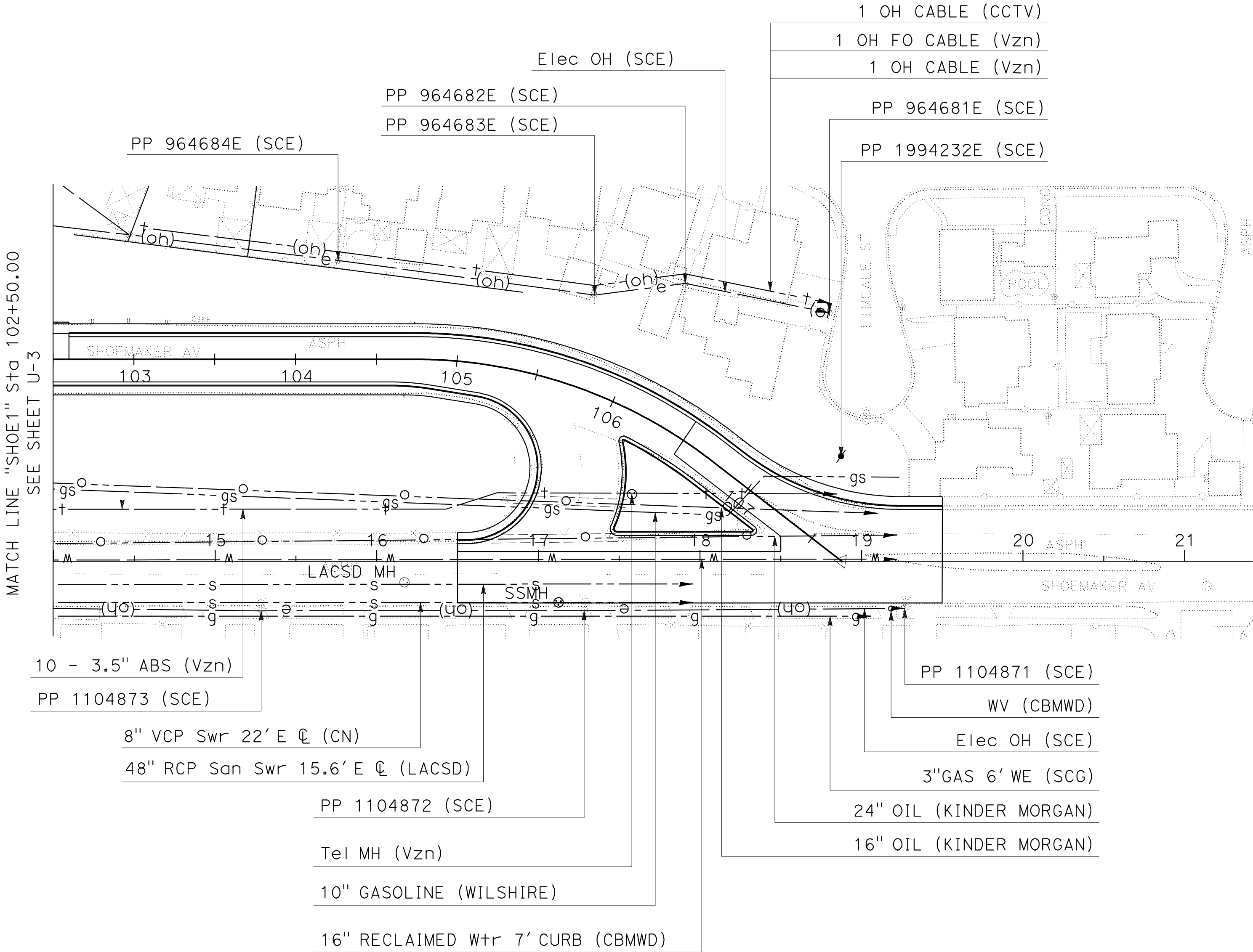
No. 61874

Exp. 9-30-13

CIVIL

STATE OF CALIFORNIA

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OR AGENTS SHALL NOT BE RESPONSIBLE FOR  
THE ACCURACY OR COMPLETENESS OF SCANNED  
COPIES OF THIS PLAN SHEET.




UTILITY PLAN  
(EXISTING UTILITIES)  
SCALE 1"=50'  
U-8

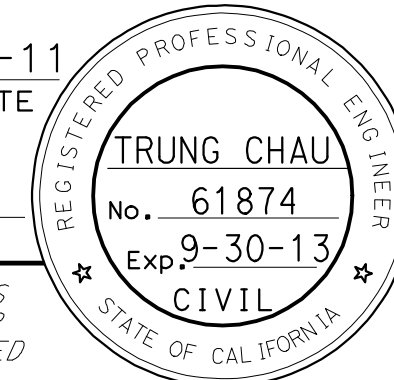
THIS PLAN FOR UTILITY INFORMATION ONLY

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT  
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE

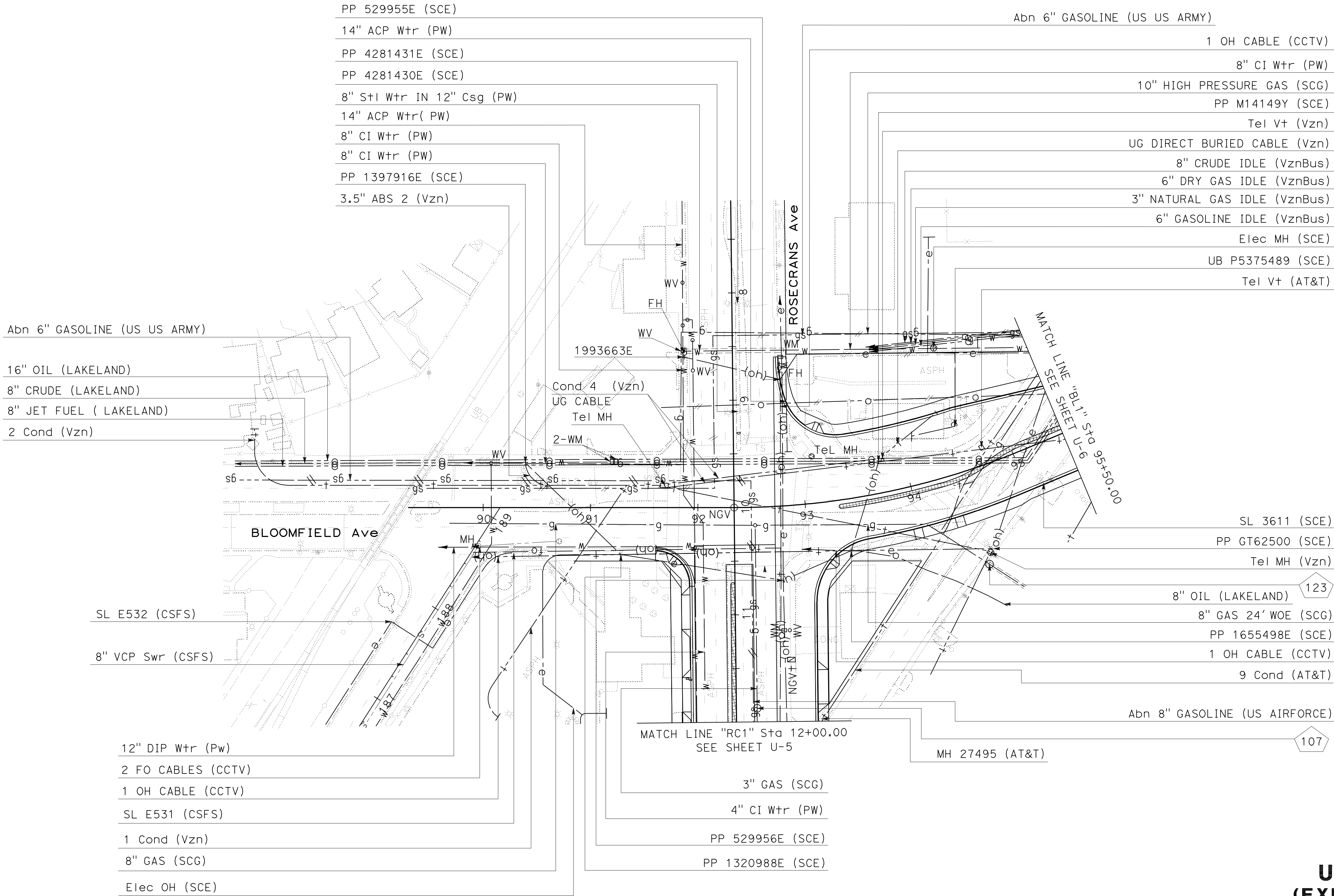
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	5	2.4/4.0	292	1288

  
REGISTERED CIVIL ENGINEER  
12-19-11  
DATE

3-26-12  
PLANS APPROVAL DATE



THE STATE OF CALIFORNIA OR ITS OFFICERS  
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THIS PLAN FOR UTILITY INFORMATION ONLY


# UTILITY PLAN (EXISTING UTILITIES)

SCALE 1"=50'

## U-9



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION



FUNCTIONAL SUPERVISOR

ERIC CHAU

CALCULATED-DESIGNED BY

CHECKED BY

YIM T. TSE


ERIC CHAU

REVISED BY

DATE REVISED

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT  
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	5	2.4/4.0	293	1288

  
REGISTERED CIVIL ENGINEER

12-19-11  
DATE

3-26-12  
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER

TRUNG CHAU

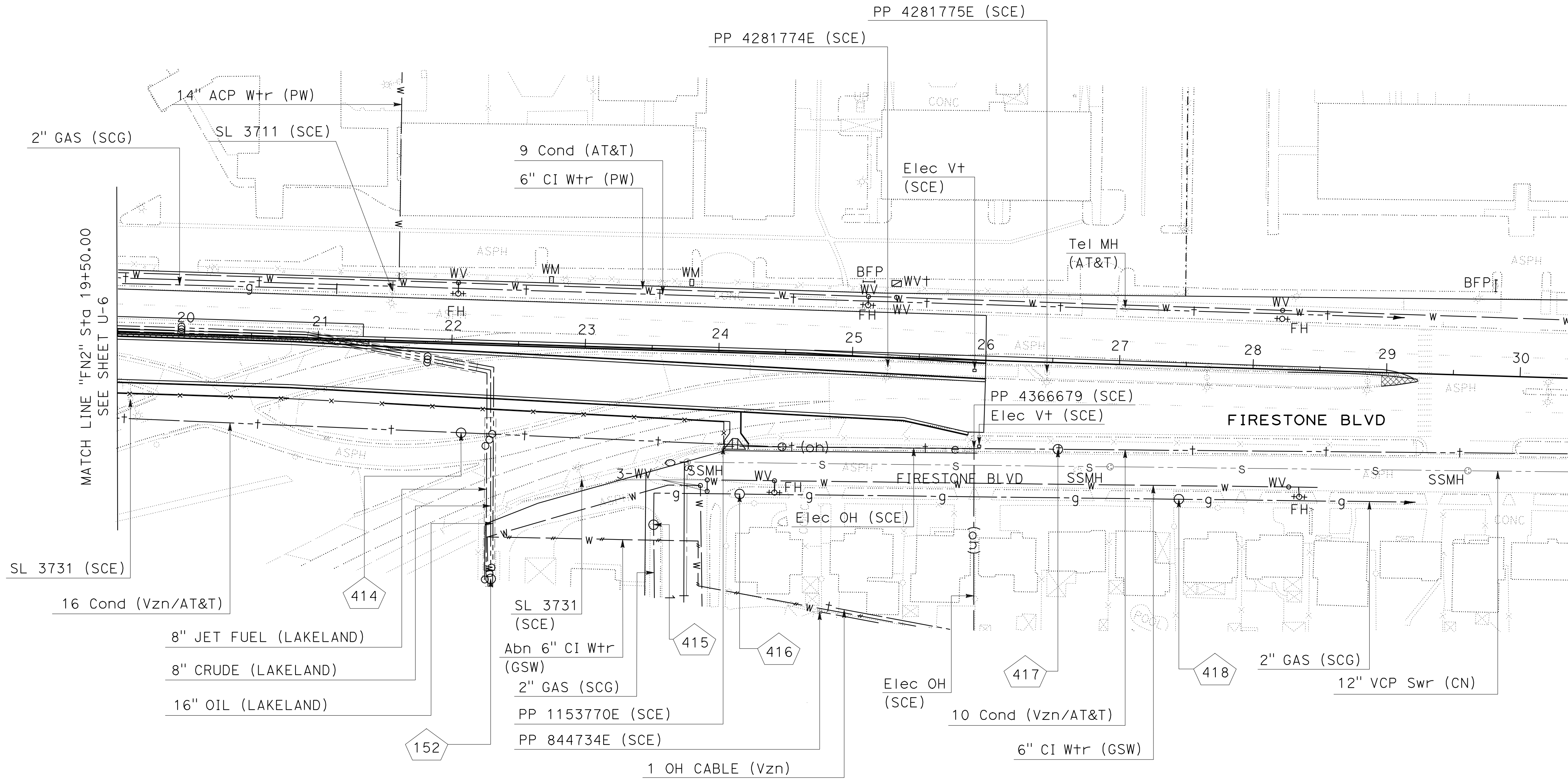
No. 61874

Exp. 9-30-13

CIVIL

STATE OF CALIFORNIA

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OR AGENTS SHALL NOT BE RESPONSIBLE FOR  
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COPIES OF THIS PLAN SHEET.



UTILITY PLAN  
(EXISTING UTILITIES)  
SCALE 1"=50'  
U-10

THIS PLAN FOR UTILITY INFORMATION ONLY

UTILITY PLAN  
(POTHOLE TABLE)

U-11

THIS PLAN FOR UTILITY INFORMATION ONLY



U-6				
POTHOLE No.	NORTHING/EASTING	UTILITY COMPANY	SURFACE/GROUND ELEVATION (ft)	DEPTH (ft)
124	1787433.87 6542525.17	12" Ø CONCRETE PROTECTION (GAS LINE)	87.47	2'-7"
143	1787757.84 6541837.91	SCG 8" Ø STL	90.43	6'-0"
144	1787673.97 6541882.19	SCG 8" Ø STL	91.40	6'-3"
145	1787919.97 6541962.67	16" Ø STL (GAS LINE)	94.71	8'-0"
146	1787999.91 6542050.91	12" Ø STL (GAS LINE)	90.34	5'-0"
151	1787770.74 6541823.03	20" Ø STL (OIL LINE)	90.08	3'-7"
151A	1787769.34 6541824.98	6" Ø STL (WATER LINE)	89.83	3'-7"
154	1787915.11 6541969.47	16" Ø STL (OIL LINE)	95.18	8'-8"
161	1788000.70 6542056.13	16" Ø STL (OIL LINE)	90.68	3'-8"
162	1788000.62 6542054.42	16" Ø STL (OIL LINE)	90.57	3'-8"
162A	1788000.43 6542053.02	16" Ø STL (OIL LINE)	90.43	3'-0"
385	1787181.92 6542078.73	SCG 10" Ø STL in 12" Csg	87.18	4'-6"
386	1787188.54 6542068.97	VERIZON BUSINESS 6" Ø CRUDE OIL	87.24	5'-3"
387	1787189.93 6542066.72	VERIZON BUSINESS 3" Ø STL (NATURAL GAS)	87.24	5'-3"
388	1787191.28 6542064.78	VERIZON BUSINESS 6" Ø STL (DRY GAS)	87.23	5'-3"
389	1787192.16 6542063.49	VERIZON BUSINESS 8" Ø STL (CRUDE OIL)	87.22	5'-3"
390	1787456.87 6542041.83	SCG 6" Ø STL	89.85	5'-6"
391	1787456.89 6542038.56	VERIZON BUSINESS 6" Ø STL CRUDE OIL	89.79	5'-6"
392	1787456.43 6542037.21	VERIZON BUSINESS 3" Ø STL (NATURAL GAS)	89.61	5'-6"
393	1787455.75 6542035.94	VERIZON BUSINESS 6" Ø STL (DRY GAS)	89.58	5'-5"
394	1787455.36 6542034.42	VERIZON BUSINESS 8" Ø STL (CRUDE OIL)	89.63	6'-5"
395	1787474.23 6542021.42	SCG 6" Ø STL	90.25	4'-6"

Dist

COUNTY

ROUTE

POST MILES TOTAL PROJECT

SHEET No.

TOTAL SHEETS

07


LA

5

2.4/4.0

295

1288



12-19-11

REGISTERED CIVIL ENGINEER

DATE

3-26-12

PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER

TRUNG CHAU

No. 61874

Exp. 9-30-13

CIVIL

STATE OF CALIFORNIA

U-6				
POTHOLE No.	NORTHING/EASTING	UTILITY COMPANY	SURFACE/GROUND ELEVATION (ft)	DEPTH (ft)
396	1787508.01 6542015.12	VERIZON BUSINESS 6" Ø STL CRUDE OIL	91.00	5'-1"
397	1787507.95 6542013.35	VERIZON BUSINESS 3" Ø STL (NATURAL GAS)	90.96	4'-2"
398	1787507.39 6542012.76	VERIZON BUSINESS 6" Ø STL (DRY GAS)	90.70	5'-0"
399	1787506.81 6542011.24	VERIZON BUSINESS 16" Ø STL (CRUDE OIL)	90.76	5'-0"
400	1787570.33 6541983.02	VERIZON BUSINESS 16" Ø STL (CRUDE OIL)	93.11	6'-2"
401	1787569.89 6541981.01	VERIZON BUSINESS 6" Ø STL (NATURAL GAS)	92.83	6'-6"
402	1787570.14 6541981.98	VERIZON BUSINESS 6" Ø STL (DRY GAS)	92.99	6'-6"
403	1787569.40 6541980.00	VERIZON BUSINESS 8" Ø STL (CRUDE OIL)	92.81	5'-4"
404	1787683.16 6541918.74	VERIZON BUSINESS 6" Ø STL (CRUDE OIL)	93.28	4'-0"
405	1787683.36 6541916.04	VERIZON BUSINESS 3" Ø STL (NATURAL GAS)	92.83	4'-5"
406	1787683.24 6541913.01	VERIZON BUSINESS 6" Ø STL (DRY GAS)	92.12	4'-5"
407	1787688.10 6541914.11	VERIZON BUSINESS 12" Ø STL (CRUDE OIL)	93.18	6'-0"
408	1787863.65 6542066.76	VERIZON BUSINESS 6" Ø STL (CRUDE OIL)	91.33	6'-8"
409	1787863.26 6542065.69	VERIZON BUSINESS 3" Ø STL (NATURAL GAS)	91.42	6'-8"
410	1787862.89 6542062.05	VERIZON BUSINESS 6" Ø STL (DRY GAS)	91.65	6'-9"
411	1787863.52 6542060.58	VERIZON BUSINESS 8" Ø STL (CRUDE OIL)	91.75	6'-8"
412	1787808.76 6541826.81	SCW 6" CI	92.53	5'-8"

UTILITY PLAN  
(POTHOLE TABLE)

U-12



X

**Subaru®**

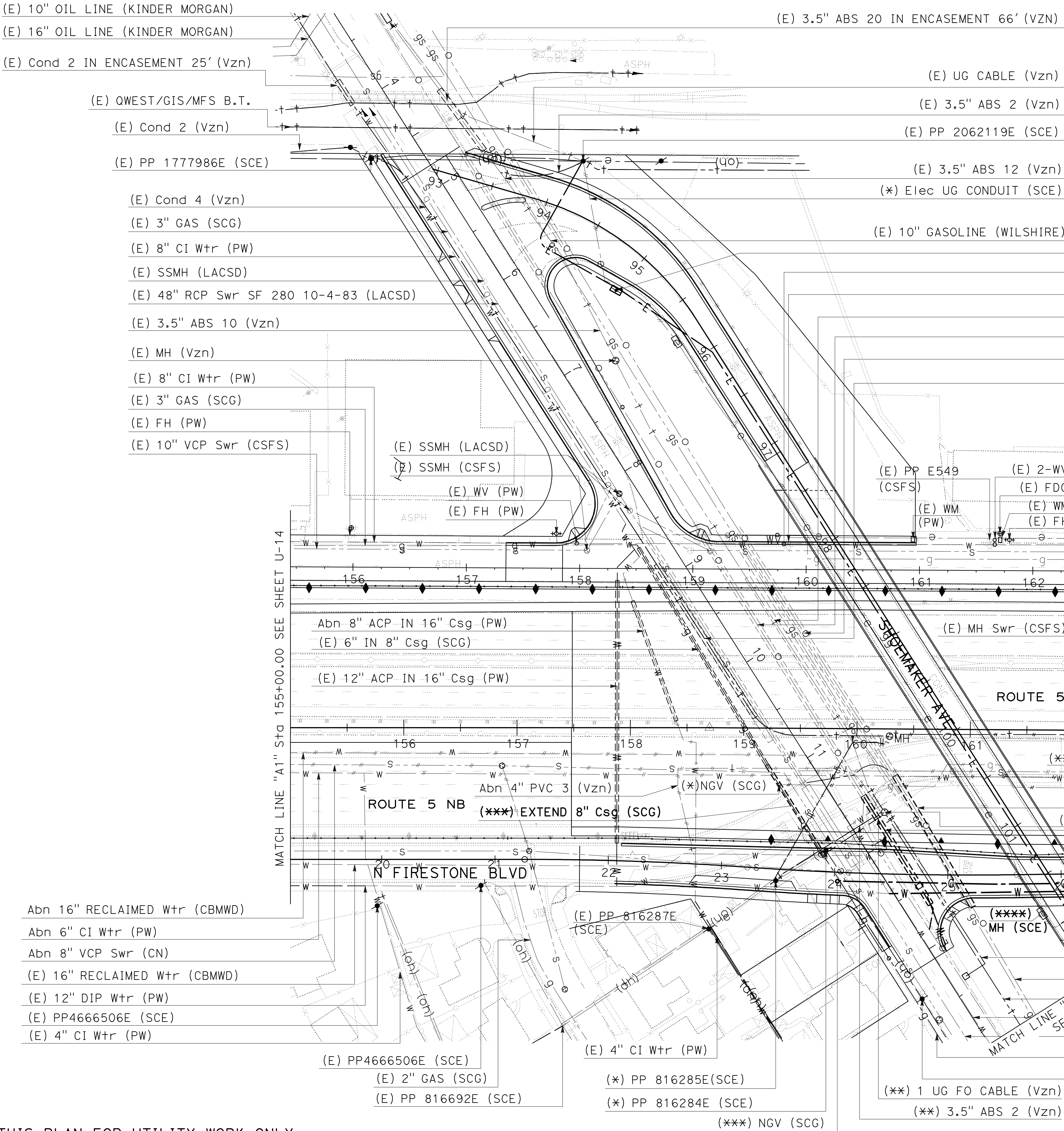
ERIC CHAU

CHECKED BY

ERIC CHAU

DATE REVISED

A horizontal number line is shown with tick marks at 0, 1, 2, and 3. The segment between 1 and 2 is shaded gray.



1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE
2. REFER TO NOTES 1, 2, and 3 FROM UTILITY PLAN U-14

(\*\*\*\*) Elec CONDUIT VAULT (SCE)

(E) WM (PW)

(E) SL E550 (CSFS)

(E) 3.5" ABS 20 IN ENCASEMENT 161' (Vzn)

(E) 24" OIL IN 30" Csg (KINDER MORGAN)

(E) 16" OIL IN 20" Csg (KINDER MORGAN)

(E) Vzn, 4 Cond (Vzn)

(E) 6" CI Wtr (PW)

(E) 2" PEM (SCG)

(E) 8" VCP Swr 12' N PL (CSFS)

(E) SL E548 (COSFS)

(E) Elec UG (SCE)

(\*\*\*\*) EXTEND 20" Csg (KINDER MORGAN)

(\*\*\*\*) EXTEND 24" OIL IN 30" Csg (KINDER MORGAN)

(\*) PP 977805E (SCE)

(\*\*) 2" GAS (SCG)

(\*\*) 6" DIP Wtr (PW)

(\*\*) 2 DUCT Elec CONDUIT (SCE)

(\*\*) 4 DUCT Elec CONDUIT (SCE)

(E) 4" PVC (Vzn)

(E) 16" OIL (KINDER MORGAN)

(E) 3.5" ABS 10 (Vzn)

(E) 16" RECLAIMED Wtr, 7' CURB (CBMWD)

(E) 48" RCP San Swr (LACSD)

(E) 3" GAS (SCG)

(E) PP 1104874 (SCE)

UTILITY PLAN

(RELOCATION UTILITIES)

SCALE 1"=50'

U-15

THIS PLAN FOR UTILITY WORK ONLY



1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT  
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE
2. REFER TO NOTES 1, 2, and 3 FROM UTILITY PLAN U-14

Dist

COUNTY

ROUTE

POST MILES  
TOTAL PROJECT

SHEET  
No.

TOTAL  
SHEETS

07

LA

5

2.4/4.0

299

1288

12-19-11

DATE

REGISTERED CIVIL ENGINEER

TRUNG CHAU

No. 61874

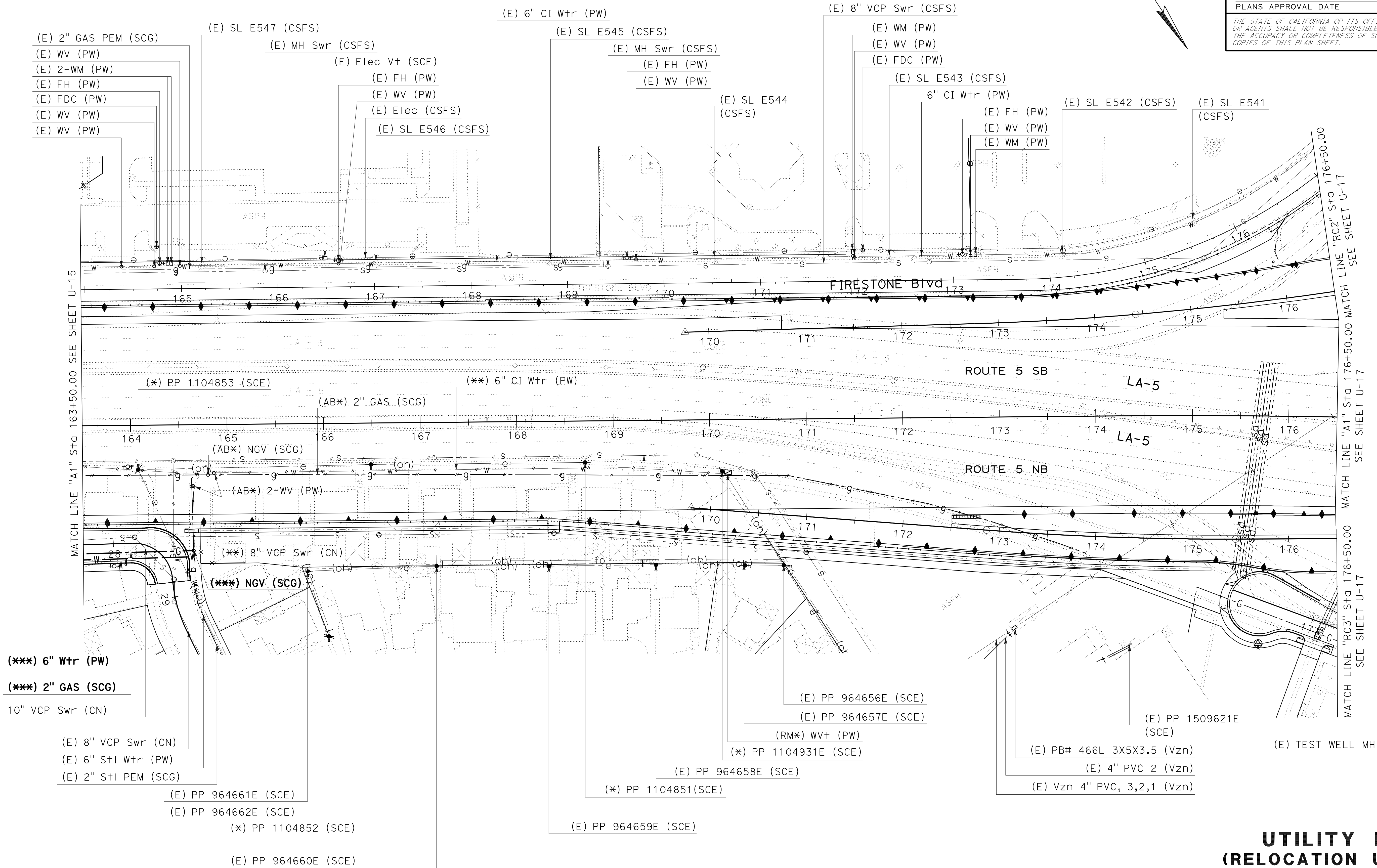
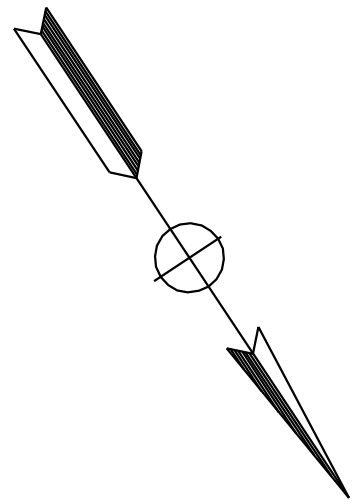
Exp. 9-30-13

CIVIL

3-26-12

PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS  
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THE ACCURACY OR COMPLETENESS OF SCANNED  
COPIES OF THIS PLAN SHEET.



THIS PLAN FOR UTILITY WORK ONLY

UTILITY PLAN  
(RELOCATION UTILITIES)  
SCALE 1"=50'  
U-16



