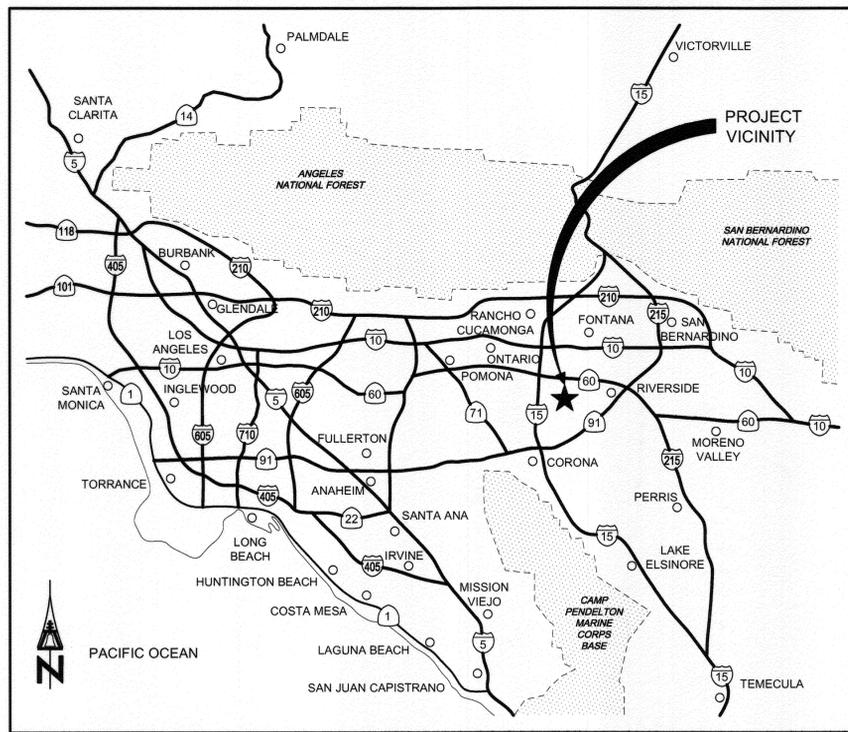


RIVERSIDE CALIFORNIA

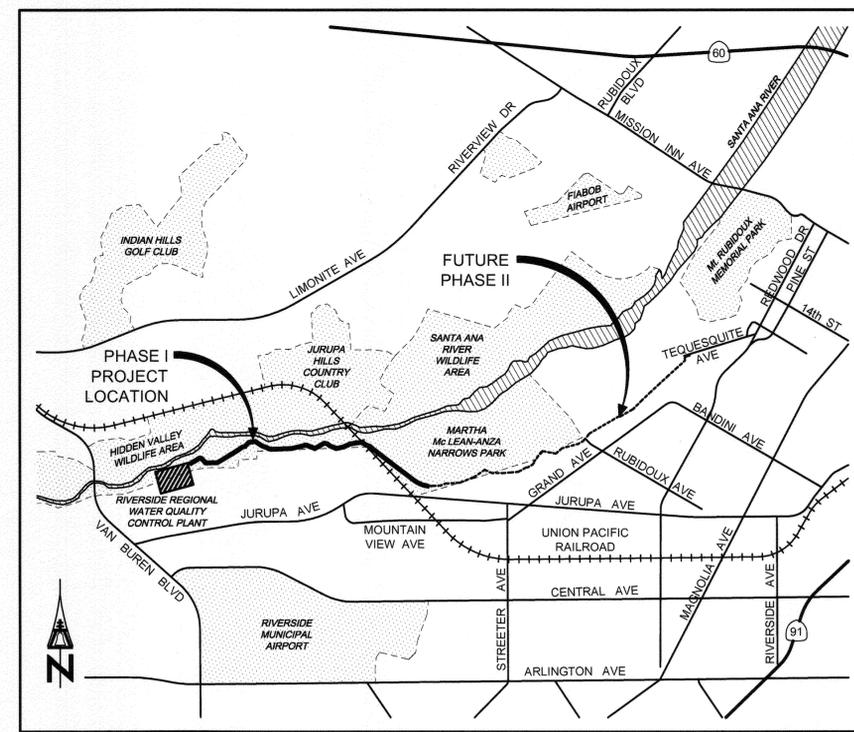


PUBLIC WORKS DEPARTMENT

SANTA ANA RIVER TRUNK SEWER REPLACEMENT PROJECT - PHASE I



VICINITY MAP
NO SCALE



PROJECT LOCATION MAP
NO SCALE

AS-BUILT
01/07/2013

IMPORTANT NOTICE
Section 4216/4217 of the Government Code requires a Dig Alert Identification Number to be issued before a "Permit to Excavate" will be valid. For your Dig Alert I.D. Number call CALL TOLL FREE 48 HOURS BEFORE YOU DIG **UNDERGROUND SERVICE ALERT 1-800-227-2600**

BENCHMARK
H6-B2- BRASS DISK STAMPED "H6-B" IN A MONUMENT WELL AT THE INTERSECTION OF JURUPA AVENUE AND MAGNOLIA AVENUE.
ELEV- 834.784



BROWN and CALDWELL
SAN DIEGO, CALIFORNIA
ENGINEER IN RESPONSIBLE CHARGE: *Mark O. Briggs*
REGISTERED CIVIL ENGINEER No. C036183
DATE: 2-15-11 REGISTRATION EXPIRES 6-30-12

MARK	REVISIONS	APPR.	DATE
DESIGNED BY: DM	DRAWN BY: RMK	CHECKED BY: CDL	

CITY OF RIVERSIDE, CALIFORNIA
PUBLIC WORKS DEPARTMENT
APPROVED BY: *[Signature]*
DATE: 3/2/11
CITY ENGINEER

SANTA ANA RIVER TRUNK SEWER REPLACEMENT - PHASE I
COVER SHEET
HORIZ. SCALE: NONE VERT. SCALE: NONE

ACCT. NO.: S-2054
SHEET 1 OF 33
FILE NO. SARTS_SHT01.DWG

Inclosed 6-13-12 B.M.

Path: P:\Projects\Riverside, City of (CA)\133410 - Santa Ana River Trunk Sewer\CAD\2-SHEET'S PHASE I-SHT01 Plot date: Feb. 14, 2011 04:17PM CAD User: Davide, David

LEGEND:

	RIGHT-OF-WAY OR PROPERTY LINE
	TEMPORARY CONSTRUCTION EASEMENT
	EXISTING SEWER EASEMENT
	NEW SEWER EASEMENT
	BUILDING
	EDGE OF PAVEMENT
	CONTOURS
	TREES OR BUSHES
	EQUIPMENT, STRUCTURES, ETC.
	PROPOSED SEWER
	CENTERLINE
	CHAIN LINK FENCE
	STREET LIGHT
	SIGN
	SPOT ELEVATION
	NATURAL GROUND OR GRADE
	ROCK
	COORDINATE PER C-03
	EXISTING POWER POLE
	MANHOLE
	HYDRANT
	BURIED VALVE
	BORING LOCATION
	CONE PENETRATION LOCATION
	AT
	AND
	ROUND OR DIAMETER
	ANGLE
	CENTER LINE
	PLATE OR PROPERTY LINE
	SURVEY MONUMENT

CROSS REFERENCING SYSTEM:

- SECTION CUTS ARE IDENTIFIED AS FOLLOWS:
- SECTION CUTS ARE TITLED AS FOLLOWS:
- DETAILS ARE IDENTIFIED AS FOLLOWS:
 A. BY NOTE: SEE DETAIL 1/C-08 "1" DETAIL NUMBER "C-08" DRAWING WHERE DETAIL IS SHOWN
 B. BY CIRCLING AREA TO BE DETAILED AND LEADERING OUT TO AN ENLARGED DETAIL OF THE CIRCLED AREA.
- DETAILS ARE TITLED AS FOLLOWS:
- KEY NOTES LISTED ELSEWHERE ON THE SAME DRAWING ARE REFERENCED BY:
- CITY OF RIVERSIDE STANDARD DETAILS ARE IDENTIFIED AS FOLLOWS:

AGENCY INDEX:

LOCAL AUTHORITIES:	
U.S. ARMY CORPS OF ENGINEERS (ACOE)	(213) 452-3393
CA DEPT. OF FISH AND GAME	(562) 590-5132
U.S. FISH AND WILDLIFE SERVICE	(760) 431-9440
U.S. ENVIRONMENTAL PROTECTION AGENCY	(415) 744-1933
DEPARTMENT OF HEALTH SERVICES	(714) 558-4708
REGIONAL WATER QUALITY CONTROL BOARD	(951) 782-4130
DIVISION OF INDUSTRIAL SAFETY	(562) 590-5036
DIVISION OF MINING AND TUNNELING	(909) 383-6782
METROPOLITAN WATER DISTRICT	(626) 844-5610
UNION PACIFIC RAILROAD	(626) 476-7220
	1-800-336-9193
UTILITIES:	
CITY OF RIVERSIDE	WES WISNIEWSKI
WATER ENGINEERING DEPARTMENT	(951) 826-5554
3901 ORANGE STREET	
RIVERSIDE, CA 92501	
CITY OF RIVERSIDE - TRAFFIC	GILBERT HERNANDEZ
3900 MAIN STREET, 4TH FLOOR	(951) 826-5366
RIVERSIDE, CA 92522	
CITY OF RIVERSIDE - WATER	BLAKE YAMAMOTO
3900 MAIN STREET, ORANGE SQUARE	(951) 826-5549
RIVERSIDE, CA 92522	
CHARTER COMMUNICATIONS	CELINA AVILA
ENGINEERING DEPARTMENT	(951) 343-5171
7337 CENTRAL AVENUE	
RIVERSIDE, CA 92504	
JURUPA COMMUNITY SERVICES	UMESH SHAH
ENGINEERING DEPARTMENT	(951) 685-7434 EXT 150
11201 HARREL STREET	
MIRA LOMA, CA 91752	
METROPOLITAN WATER MILLS	FRANCISCO FLORES
SUBSTRUCTURES TEAM	(213) 217-6679
P.O. BOX 54153 TERMINAL ANNEX	
LOS ANGELES, CA 90054	
UNDERGROUND SERVICE ALERT	POLLY DUNN (951)
OF SOUTHERN CALIFORNIA (USA)	808-8100
PO BOX 77070	
CORONA, CA 92877	
RUBIDOUX COMMUNITY SERVICES	STEVEN APPEL
ENGINEERING DEPARTMENT	(951) 684-7580
P.O. BOX 3098	
RIVERSIDE, CA 92519-3098	
CITY OF RIVERSIDE - ELECTRIC	(951) 687-0791
3901 ORANGE STREET	
RIVERSIDE, CA 92522	
TIME WARNER TELECOM	RICHARD WILKINSON
3281 GUASTI RD #350	(951) 751-5791
ONTARIO, CA 91761	
SOUTHERN CALIFORNIA GAS	KEN FAZEKAS
TECHNICAL SERVICE SUPERVISOR	(909) 335-7744
1981 W. LUGONIA AVENUE	
REDLANDS, CA 92374	
SC GAS	TIM PEARCE
251-A EAST FIRST STREET	(951) 845-0709
BEAUMONT, CA 92223-2903	
SBC/PAC BELL	LEE CORBY
(AT&T CALIFORNIA)	(951) 359-2255
1265 N. VAN BUREN STREET, SUITE 180	
ANAHEIM, CA 92807	
T-MOBILE USA	STEVE RODRIGUEZ
3 IMPERIAL PROMENADE #1100	(714) 820-2657
SANTA ANA, CA 92626	
ATT INQUIRIES	WALTER WERSTIUK
22311 BROOKHURST STREET	(714) 763-7964
SUITE 203	
HUNTINGTON BEACH, CA 92646	

ABBREVIATIONS:

AB	AGGREGATE BASE	RCB	REINFORCED CONCRETE BOX
ABAN	ABANDON	RCP	REINFORCED CONCRETE PIPE
AC	ASPHALT CONCRETE	RED	REDUCER
ACP	ASBESTOS CEMENT PIPE	RR	RAILROAD
AV	AIR VACUUM & RELEASE VALVE	S	SOUTH
AV, AVE	AVENUE	SAR	SANTA ANA RIVER
BC	BACK OF CURB/BEGINNING OF CURB	SCH	SCHEDULE
BFV	BUTTERFLY VALVE	SO.	SOUTH
BLVD	BOULEVARD	SD	STORM DRAIN
BM	BENCH MARK	SP	SOUTHERN PACIFIC
CATV	CABLE TELEVISION	SPPWC	STANDARD PLANS FOR PUBLIC WORKS
CB	CULVERT BOX	CONSTRUCTION	
CCFRPM	CENTRIFUGALLY CAST FIBERGLASS	SSPWC	STANDARD SPECIFICATIONS FOR PUBLIC
	REINFORCED PLASTIC MORTAR	WORKS CONSTRUCTION	
CF	CURB FACE	ST.	STREET
CIP	CAST IRON PIPE, CAST-IN-PLACE	STA	STATION
CML, C	CEMENT MORTAR LINED AND COATED	STD	STANDARD
CMP	CORRUGATED METAL PIPE	STL	STEEL
CONC	CONCRETE, CONCENTRIC	SWR	SEWER
		SQ	SQUARE
DBL	DOUBLE	T	THICKNESS
DG	DISINTEGRATED GRANITE	TC	TOP OF CURB
DWG	DRAWING	TEL, T	TELEPHONE
E	EAST, EASTING	TOP	TOP OF PIPE
EA	EACH	TYP	TYPICAL
EC	END CURB/END OF CURB	UP	UNION PACIFIC RAILROAD
ECC	ECCENTRIC	VCP	VITRIFIED CLAY PIPE
EL	ELEVATION	VERT	VERTICAL
ELEC	ELECTRICAL	W	WEST
ENC	ENCASED	W/	WITH
ENG	ENGINEER	WTR	WATER
EX, EXIST	EXISTING	WSP	WELDED STEEL PIPE
FL	FLOW LINE		
FLG	FLANGE		
FLG'D	FLANGED		
FOB	FLAT ON BOTTOM		
FOT	FLAT ON TOP		
FS	FINISHED SURFACE		
G	GAS		
GPS	GLOBAL POSITIONING SYSTEM		
HORIZ	HORIZONTAL		
HP	HIGH POINT/HIGH PRESSURE		
HW	HIGH WATER		
ID	INSIDE DIAMETER		
IE	INVERT ELEVATION		
IRR	IRRIGATION		
LF	LINEAR FEET		
LP	LOW POINT		
LW	LOW WATER		
MIN.	MINIMUM		
MAX	MAXIMUM		
MH	MANHOLE		
MW	MANWAY		
MWD	METROPOLITAN WATER DISTRICT		
N	NORTH		
NO	NUMBER		
NAD	NORTH AMERICAN DATUM		
NIC	NOT IN CONTRACT		
NTS	NOT TO SCALE		
OC	ON CENTER		
OD	OUTSIDE DIAMETER		
OH	OVERHEAD		
OHE	OVERHEAD ELECTRIC		
PC	POINT OF CURVE		
PCC	COMPOUND CURVE/CURVE INTERSECT		
PCC	PORTLAND CONCRETE CEMENT		
PE	PLANE END		
PF, RD	PUBLIC FACILITIES AND RESOURCES		
	DEPARTMENT		
PH	POTHOLE		
PI	POINT INTERSECTION		
PL	PROPERTY LINE		
PRC	REVERSE CURVE/CURVE INTERSECT		
PT	CURVE/TANGENT INTERSECT		
PVC	POLYVINYL CHLORIDE		

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BC JOB No. 133410
 LINE IS 2 INCHES AT FULL SIZE
 (IF NOT 2" - SCALE ACCORDINGLY)



BROWN AND CALDWELL
 SAN DIEGO, CALIFORNIA

ENGINEER IN RESPONSIBLE CHARGE: *Mark O. Briggs*
 REGISTERED CIVIL ENGINEER No. C036183
 DATE: 2-15-11 REGISTRATION EXPIRES 6-30-12

DESIGNED BY: <i>DM</i>	DRAWN BY: <i>RMK</i>	CHECKED BY: <i>RAF</i>
APPROVED BY: <i>[Signature]</i>	DATE: <i>2/15/11</i>	

CITY OF RIVERSIDE, CALIFORNIA
PUBLIC WORKS DEPARTMENT

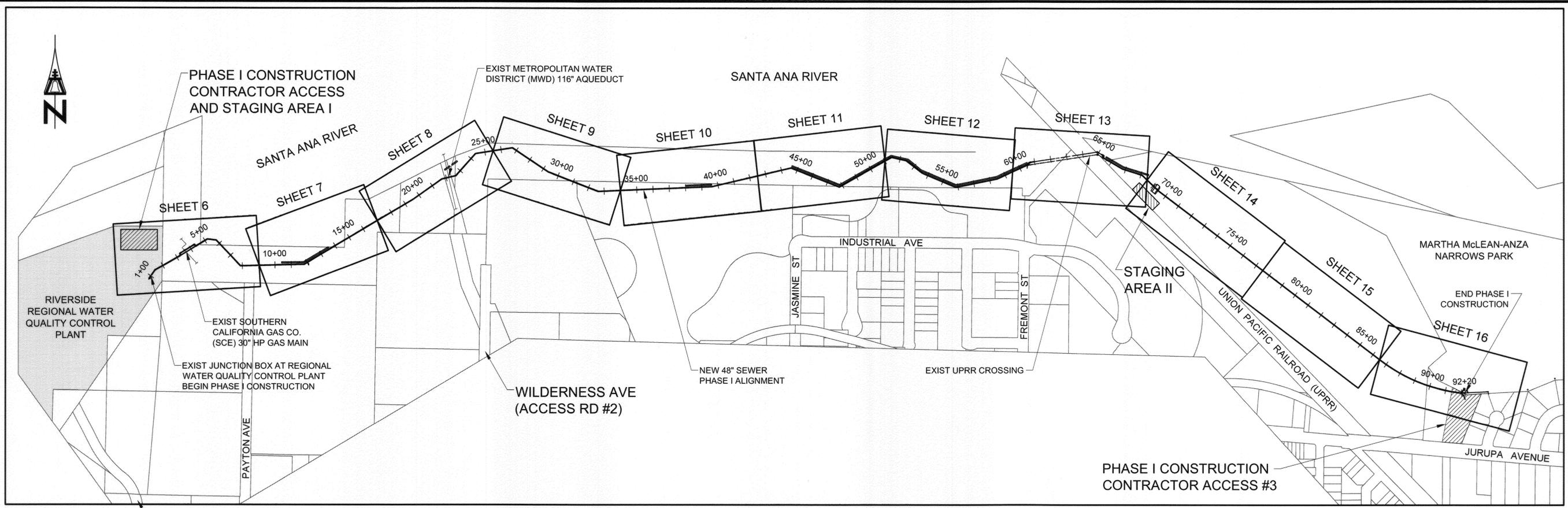
APPROVED BY: *[Signature]* DATE: *2/15/11*
 ENGINEERING MANAGER
 PRINCIPAL ENGINEER
 TRAFFIC DIVISION
 CITY ENGINEER

SANTA ANA RIVER TRUNK
SEWER REPLACEMENT - PHASE I

ABBREVIATIONS, LEGEND, SYMBOLS AND AGENCY INDEX

HORIZ. SCALE: NONE VERT. SCALE: NONE

ACCT. NO.: **S-2054**
 SHEET **3** OF **33**
 FILE NO. SARTS_SHT03.DWG



SEWER CONSTRUCTION NOTES

- ① INSTALL 48" CCFRPM PER DETAIL 1, SHT. 25.
- ①A DEMOLISH INTERFERING PORTIONS OF EXIST 24" SEWER PIPELINE AND MANHOLES WHERE SHOWN ON PLANS AND AS NEEDED FOR CONSTRUCTION PER SECTION 306-5 OF THE SPECIAL PROVISIONS.
- ② UPRR RIGHT-OF-WAY CROSSING. REPAIR IN PLACE EXIST 30" VCP AND EXIST 45" RCP SEWERS BY SLIPLINE WITH NEW CCFRPM PIPE WHERE SHOWN ON PLANS.
- ③ INSTALL 41" ID / 42.9" OD CCFRPM INSIDE OF EXIST 45" RCP SEWER PIPELINE BY SLIPLINE CONSTRUCTION METHOD AND PER DETAIL 4, SHT 27.
- ④ INSTALL 24" ID / 25.8" OD CCFRPM INSIDE OF EXIST 30" VCP SEWER PIPELINE BY SLIPLINE CONSTRUCTION METHOD AND PER DETAIL 4, SHT 27.
- ⑤ INSTALL 20" ID / 21.6" OD CCFRPM INSIDE OF EXIST 24" RCP SEWER PIPELINE BY SLIPLINE CONSTRUCTION METHOD AND PER DETAIL 4, SHT 27.
- ⑥ INSTALL 48" CCFRPM WITHIN MIN 96" DIA TUNNEL PER DETAIL 2, SHT 26.
- ⑦ METROPOLITAN WATER DISTRICT (MWD) AQUEDUCT RIGHT-OF-WAY CROSSING. INSTALL 48" CCFRPM WITHIN MIN 66" DIA STEEL CASING PER DETAIL 1, SHT 26. SEE MWD UTILITY CROSSING PERMIT NO. R.L. 3077 & 2002-07-037 FOR MWD CONSTRUCTION REQUIREMENTS.
- ⑧ PROPOSED LAUNCHING PIT.
- ⑨ PROPOSED RECEIVING PIT.
- ⑩ PROPOSED ACCESS SHAFT FOR TUNNEL CONSTRUCTION.
- ⑪ INSTALL CONCRETE SUPPORT FOR PROTECTION OF EXIST UTILITY CROSSING PER DETAIL 3, SHT 25.
- ⑫ ABANDON ALL REMAINING PORTIONS OF EXIST 24" VCP SEWER, EXIST 45" RCP SEWER AND EXIST MANHOLES IN PLACE IN ACCORDANCE WITH SECTION 306-5 OF THE SPECIAL PROVISIONS.
- ⑬ THE BIKE PATH SHALL BE CLOSED DURING CONSTRUCTION ACTIVITIES FROM MONDAY (7 AM) THRU FRIDAY (7PM). A DETOUR PLAN HAS BEEN PREPARED BY THE CITY OF RIVERSIDE AND IS LOCATED IN THE PROJECT SPECIFICATIONS. THE CONTRACTOR IS REQUIRED TO MAINTAIN CITY PROVIDED SIGNAGE, STRIPING AND OTHER NECESSARY EQUIPMENT IN ACCORDANCE WITH THE DETOUR PLAN.
- ⑭ THE BIKE PATH SHALL BE REOPENED TO THE PUBLIC NO LATER THAN SATURDAY (7AM) AND SHALL REMAIN OPEN THROUGH SUNDAY (7PM). PRIOR TO OPENING THE BIKE PATH TO THE PUBLIC, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING AND CLEANING THE BIKE PATH, MAKING IT SUITABLE AND SAFE FOR PUBLIC USE BEFORE SATURDAY (7AM).
- ⑮ BIKE PATH SHALL BE REPLACED WITH PAVEMENT AND BASE IN-KIND TO MATCH EXISTING AND PER SANTA ANNA RIVER BIKEWAY PHASE II R-3456.
- ⑯ CONTRACTOR TO PROVIDE ADDITIONAL PROTECTIVE MEASURES FOR THE EXISTING 45" RCP SEWER AS REQUIRED WITH SPECIAL PROVISION SECTION 306-1.8.
- ⑰ CONTRACTOR SHALL INSTALL TEMPORARY FENCE TO SECURE CONSTRUCTION AND STAGING AREA, TO BE REMOVED AFTER CONSTRUCTION OF NEW SEWER IS COMPLETE.
- ⑱ CONTRACTOR SHALL INSTALL NEW PERMANENT 4" "HOG WIRE" FENCE. FENCE SHALL BE PANEL TYPE W/ 4"x4" SPACING, 6 GAUGE GALVANIZED WIRE. POST SPACING SHALL BE PER MANUFACTURER RECOMMENDATIONS.
- ⑲ INSTALL CONCRETE ENCASUREMENT PER DETAIL 4, SHT. 25.
- ⑳ UPRR FLAGMAN TO BE PRESENT DURING RR TUNNEL WORK.
- ㉑ INSTALL NEW CCFRPM MANHOLE PER DETAIL 1, SHT. 28.
- ㉒ INSTALL NEW CCFRPM MANHOLE PER DETAIL 2, SHT. 28.
- ㉓ INSTALL NEW CCFRPM MANHOLE PER DETAIL 1, SHT. 29.
- ㉔ INSTALL NEW CCFRPM MANHOLE PER DETAIL 2, SHT. 29.
- ㉕ INSTALL NEW CCFRPM MANHOLE PER DETAIL 1, SHT. 30.
- ㉖ INSTALL NEW CCFRPM MANHOLE PER DETAIL 2, SHT. 30.
- ㉗ EXISTING JUNCTION BOX TO BE DEMOLISHED.
- ㉘ SUPPORT AND PROTECT EXISTING MWD AQUEDUCT CONCRETE SUPPORT PIERS.
- ㉙ GAS PERSONNEL SHALL BE PRESENT AT ALL TIMES DURING CONSTRUCTION WITHIN THEIR 30" HPG PIPE.
- ㉚ TEMPORARY CONSTRUCTION EASEMENT DOCUMENTS TO BE PROVIDED IN SPECIAL PROVISIONS.
- ㉛ CONTRACTOR TO USE FIRE ROAD FOR CONSTRUCTION EQUIPMENT DRIVING.
- ㉜ CONTRACTOR TO MAKE TEMPORARY CONNECTION OF EXIST 8" SEWER TO EXIST 45" RCP SEWER DURING CONSTRUCTION OF 48" CCFRPM SEWER. CONTRACTOR TO MAKE FINAL CONNECTION OF EXIST 8" SEWER TO NEW 48" CCFRPM SEWER.
- ㉝ OPEN TOP OF EXISTING PIPE FOR SUCTION PIT, SLIP LINING AND RECEIVING PIT AS NECESSARY PER BYPASS DETAILS ON SHT. 33.
- ㉞ INSTALL 10'x10'x4" CONCRETE APRON FLUSH W/ MANHOLE LID PER DETAIL 3, SHT. 28.
- ㉟ CONTRACTOR TO FIELD VERIFY EXISTING GROUND OVER PIPELINE. CONTRACTOR TO PROTECT EXISTING PIPELINE AS NEEDED.
- ㊱ 2.5' LONG CCFRPM SPOOL
- ㊲ CONNECT TO EXISTING 45" RCP SEWER DURING BYPASS PHASE, CAP END OF SPOOL AFTER FINAL CONNECTIONS HAVE BEEN MADE.
- ㊳ REMOVE EXISTING 45" RCP SEWER AND CAP END AFTER FINAL CONNECTIONS HAVE BEEN MADE.

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BC JOB No.133410
 LINE IS 2 INCHES
 AT FULL SIZE
 (IF NOT 2" - SCALE ACCORDINGLY)



BROWN AND CALDWELL
 SAN DIEGO, CALIFORNIA

ENGINEER IN RESPONSIBLE CHARGE: *Mark O. Briggs*
 REGISTERED CIVIL ENGINEER No. 0036183
 DATE: 2-15-11 REGISTRATION EXPIRES 6-30-12

MARK	REVISIONS	APPR.	DATE

DESIGNED BY: DM DRAWN BY: TAP CHECKED BY: RHF

**CITY OF RIVERSIDE, CALIFORNIA
 PUBLIC WORKS DEPARTMENT**

APPROVED BY:	BY:	DATE:	APPROVED BY:
ENGINEERING MANAGER	<i>[Signature]</i>	2/11	<i>[Signature]</i>
PRINCIPAL ENGINEER			
TRAFFIC DIVISION			
PARKS DEPARTMENT			
INSPECTION			
SURVEYOR			

DATE: 2/2/11

**SANTA ANA RIVER TRUNK
 SEWER REPLACEMENT - PHASE I**

**SHEET INDEX MAP AND
 CONSTRUCTION NOTES**

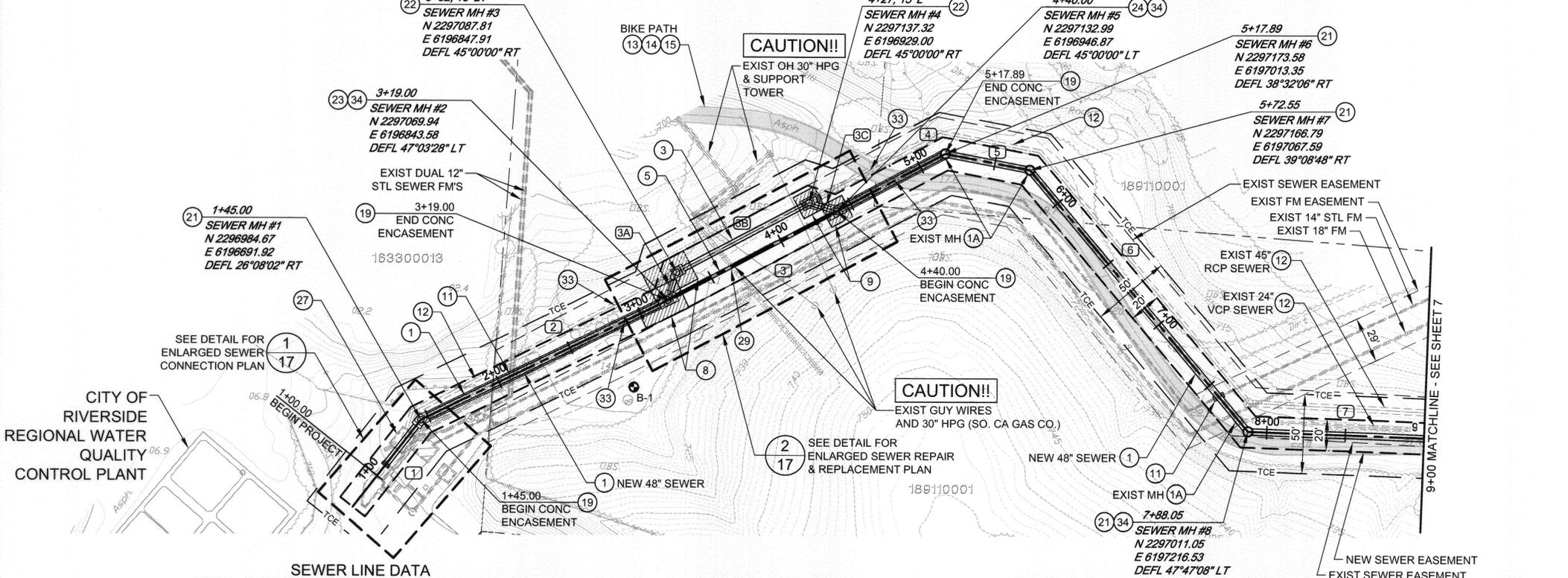
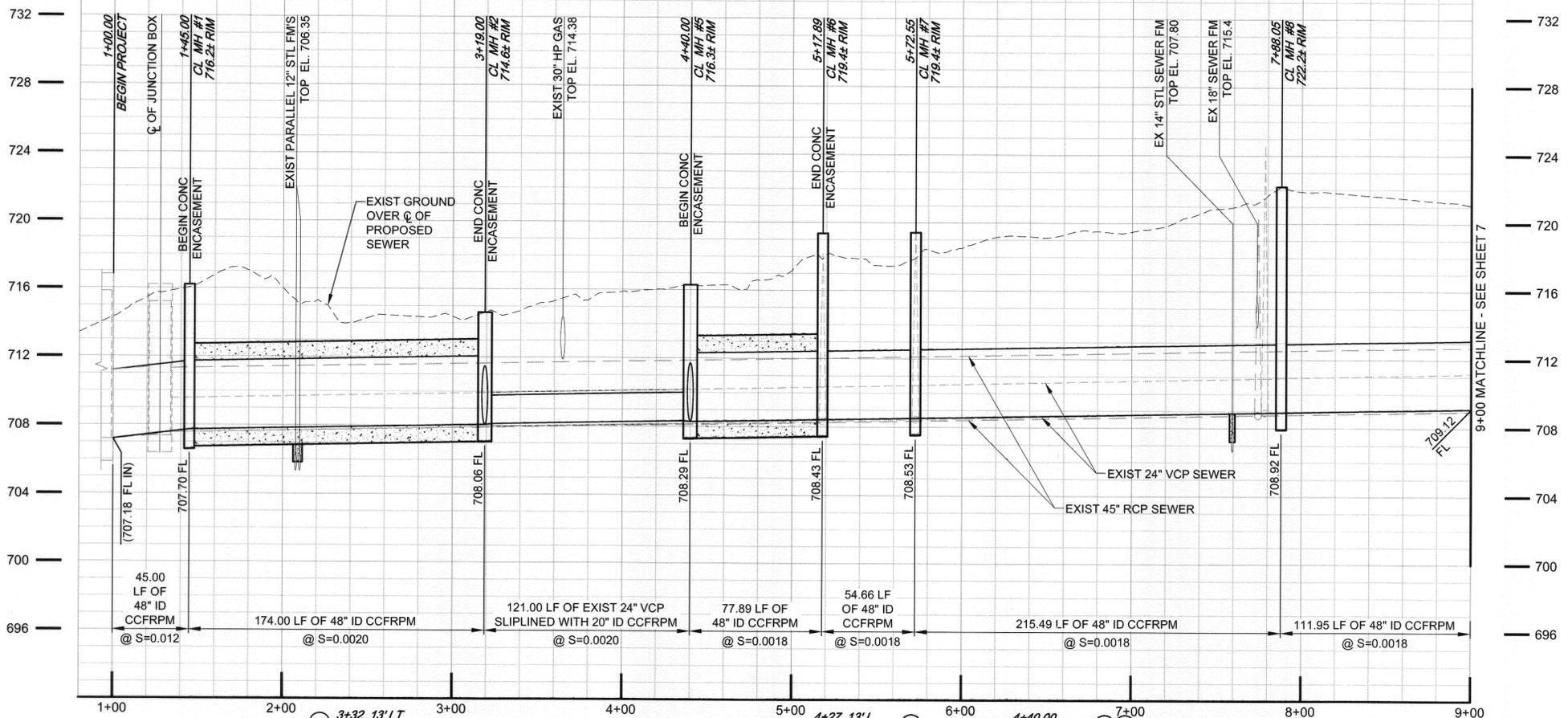
HORIZ. SCALE: 1" = 300' VERT. SCALE: NONE

ACCT. NO.: S-2054
 SHEET 4 OF 33
 FILE NO. SARTS_SHT04.DWG



SEWER CONSTRUCTION NOTES

- 1 INSTALL 48" CCFRPM PER DETAIL 1, SHT. 25.
- 1A DEMOLISH INTERFERING PORTIONS OF EXIST 24" SEWER PIPELINE AND MANHOLES WHERE SHOWN ON PLANS AND AS NEEDED FOR CONSTRUCTION PER SECTION 306-5 OF THE SPECIAL PROVISIONS.
- 3 INSTALL 41" ID / 42.9" OD CCFRPM INSIDE OF EXIST 45" RCP SEWER PIPELINE BY SLIPLINE CONSTRUCTION METHOD AND PER DETAIL 4, SHT 27.
- 5 INSTALL 20" ID / 21.6" OD CCFRPM INSIDE OF EXIST 24" VCP SEWER PIPELINE BY SLIPLINE CONSTRUCTION METHOD AND PER DETAIL 4, SHT 27.
- 8 PROPOSED LAUNCHING PIT.
- 9 PROPOSED RECEIVING PIT.
- 11 INSTALL CONCRETE SUPPORT FOR PROTECTION OF EXIST UTILITY CROSSING PER DETAIL 3, SHT 25.
- 12 ABANDON ALL REMAINING PORTIONS OF EXIST 24" VCP SEWER, EXIST 45" RCP SEWER AND EXIST MANHOLES IN PLACE IN ACCORDANCE WITH SECTION 306-5 OF THE SPECIAL PROVISIONS.
- 13 THE BIKE PATH SHALL BE CLOSED DURING CONSTRUCTION ACTIVITIES FROM MONDAY (7 AM) THRU FRIDAY (7PM). A DETOUR PLAN HAS BEEN PREPARED BY THE CITY OF RIVERSIDE AND IS LOCATED IN THE PROJECT SPECIFICATIONS. THE CONTRACTOR IS REQUIRED TO MAINTAIN CITY PROVIDED SIGNAGE, STRIPING AND OTHER NECESSARY EQUIPMENT IN ACCORDANCE WITH THE DETOUR PLAN.
- 14 THE BIKE PATH SHALL BE REOPENED TO THE PUBLIC NO LATER THAN SATURDAY (7AM) AND SHALL REMAIN OPEN THROUGH SUNDAY (7PM). PRIOR TO OPENING THE BIKE PATH TO THE PUBLIC, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING AND CLEANING THE BIKE PATH, MAKING IT SUITABLE AND SAFE FOR PUBLIC USE BEFORE SATURDAY (7AM).
- 15 BIKE PATH SHALL BE REPLACED WITH PAVEMENT AND BASE IN-KIND TO MATCH EXISTING AND PER SANTA ANNA RIVER BIKEWAY PHASE II R-3456.
- 19 INSTALL CONCRETE ENCASUREMENT PER DETAIL 4, SHT 25.
- 21 INSTALL NEW CCFRPM MANHOLE PER DETAIL 1, SHT. 28.
- 22 INSTALL NEW CCFRPM MANHOLE PER DETAIL 2, SHT. 28.
- 23 INSTALL NEW CCFRPM MANHOLE PER DETAIL 1, SHT. 29.
- 24 INSTALL NEW CCFRPM MANHOLE PER DETAIL 2, SHT. 29.
- 27 EXISTING JUNCTION BOX TO BE DEMOLISHED.
- 29 GAS PERSONNEL SHALL BE PRESENT AT ALL TIMES DURING CONSTRUCTION WITHIN THEIR 30" HPG PIPE.
- 33 OPEN TOP OF EXISTING PIPE FOR SUCTION PIT, SLIP LINING AND RECEIVING PIT AS NECESSARY PER BYPASS DETAILS ON SHT. 33.
- 34 INSTALL 10'x10'x4" CONCRETE APRON FLUSH W/ MANHOLE LID PER DETAIL 3, SHT. 28.



SEWER LINE DATA

L	BEARING	L	BEARING
1	45.00' N 34°31'14\"/>		

BC JOB No. 133410
 LINE IS 2 INCHES
 AT FULL SIZE
 (IF NOT 2\"/>



BROWN AND CALDWELL
 SAN DIEGO, CALIFORNIA

ENGINEER IN RESPONSIBLE CHARGE:
Mark O. Bridges
 REGISTERED CIVIL ENGINEER No. C036183
 DATE: 2-15-11 REGISTRATION EXPIRES 6-30-12

MARK	REVISIONS	APPR.	DATE

**CITY OF RIVERSIDE, CALIFORNIA
 PUBLIC WORKS DEPARTMENT**

APPROVED BY: *[Signature]*
 CITY ENGINEER

DESIGNED BY: VCH DRAWN BY: RMR CHECKED BY: CDL

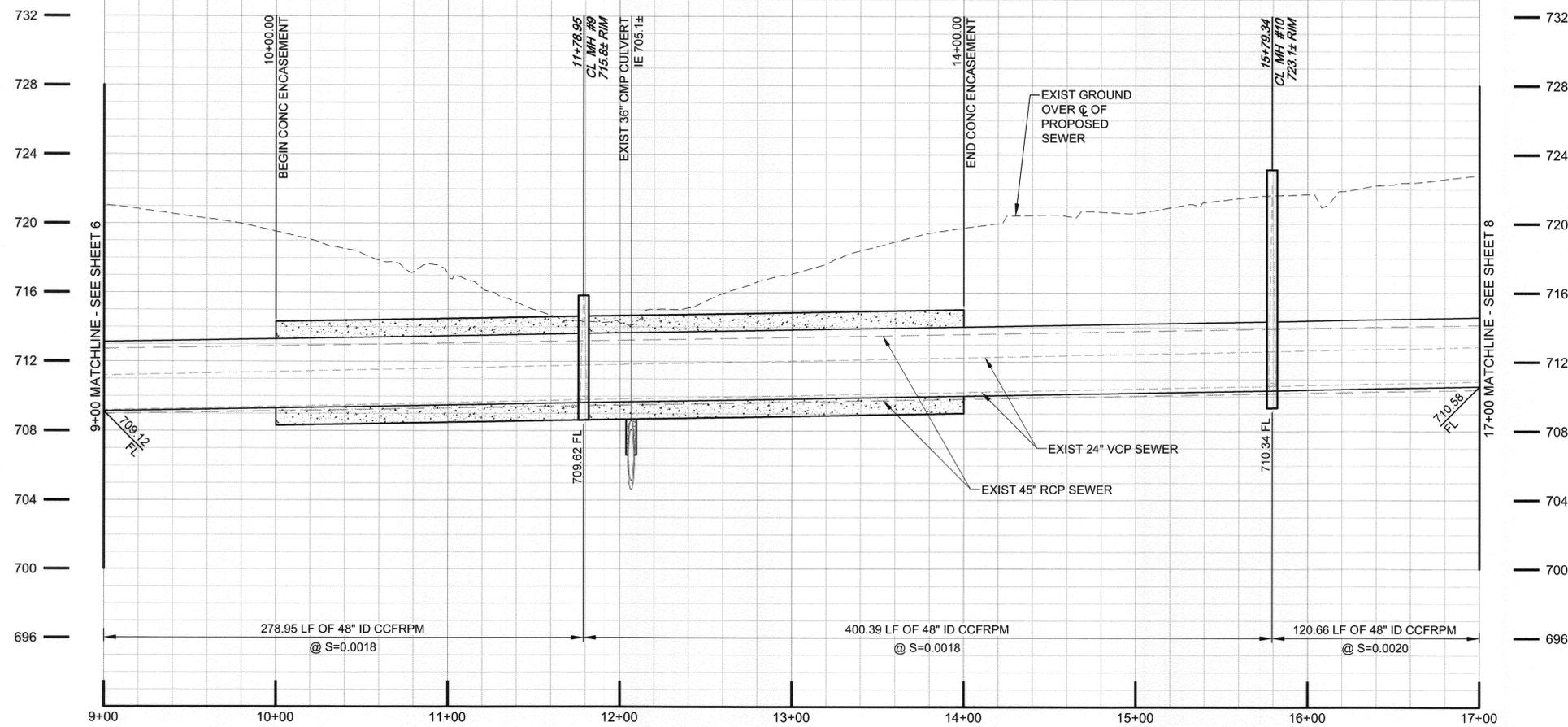
**SANTA ANNA RIVER TRUNK SEWER
 REPLACEMENT - PHASE I**

PLAN AND PROFILE
 STATION 1+00 TO 9+00

HORIZ. SCALE: 1" = 40' VERT. SCALE: 1" = 4'

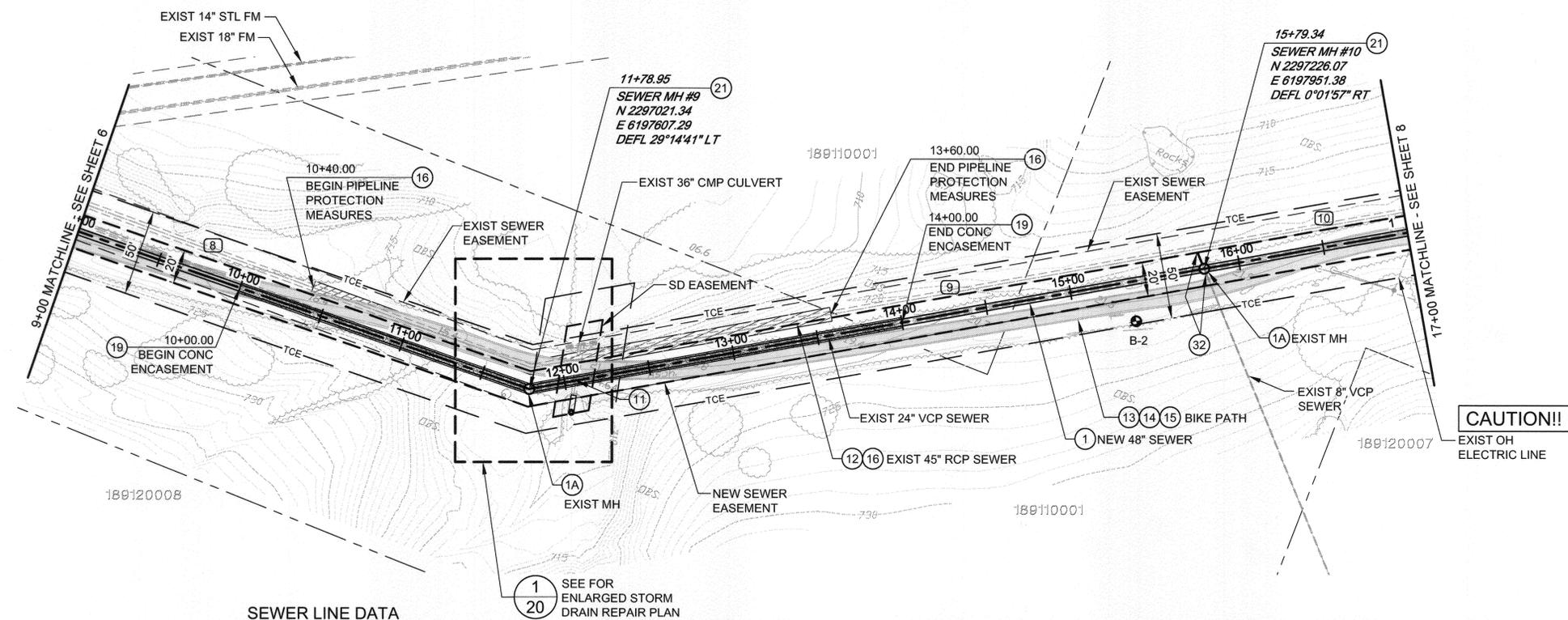
ACCT. NO.: S-2054
 SHEET 6 OF 33
 FILE NO. SARTS_SHT06.DWG

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SEWER CONSTRUCTION NOTES

- 1 INSTALL 48" CCFRPM PER DETAIL 1, SHT. 25.
- 1A DEMOLISH INTERFERING PORTIONS OF EXIST 24" SEWER PIPELINE AND MANHOLES WHERE SHOWN ON PLANS AND AS NEEDED FOR CONSTRUCTION PER SECTION 306-5 OF THE SPECIAL PROVISIONS.
- 11 INSTALL CONCRETE SUPPORT FOR PROTECTION OF EXIST UTILITY CROSSING PER DETAIL 3, SHT. 25.
- 12 ABANDON ALL REMAINING PORTIONS OF EXIST 24" VCP SEWER, EXIST 45" RCP SEWER AND EXIST MANHOLES IN PLACE IN ACCORDANCE WITH SECTION 306-5 OF THE SPECIAL PROVISIONS.
- 13 THE BIKE PATH SHALL BE CLOSED DURING CONSTRUCTION ACTIVITIES FROM MONDAY (7 AM) THRU FRIDAY (7PM). A DETOUR PLAN HAS BEEN PREPARED BY THE CITY OF RIVERSIDE AND IS LOCATED IN THE PROJECT SPECIFICATIONS. THE CONTRACTOR IS REQUIRED TO MAINTAIN CITY PROVIDED SIGNAGE, STRIPING AND OTHER NECESSARY EQUIPMENT IN ACCORDANCE WITH THE DETOUR PLAN.
- 14 THE BIKE PATH SHALL BE REOPENED TO THE PUBLIC NO LATER THAN SATURDAY (7AM) AND SHALL REMAIN OPEN THROUGH SUNDAY (7PM). PRIOR TO OPENING THE BIKE PATH TO THE PUBLIC, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING AND CLEANING THE BIKE PATH, MAKING IT SUITABLE AND SAFE FOR PUBLIC USE BEFORE SATURDAY (7AM).
- 15 BIKE PATH SHALL BE REPLACED WITH PAVEMENT AND BASE IN-KIND TO MATCH EXISTING AND PER SANTA ANNA RIVER BIKEWAY PHASE II R-3456.
- 16 CONTRACTOR TO PROVIDE ADDITIONAL PROTECTIVE MEASURES FOR THE EXISTING 45" RCP SEWER AS REQUIRED WITH SPECIAL PROVISION SECTION 306-1.8.
- 19 INSTALL CONCRETE ENCASEMENT PER DETAIL 4, SHT. 25.
- 21 INSTALL NEW CCFRPM MANHOLE PER DETAIL 1, SHT. 28.
- 32 CONTRACTOR TO MAKE TEMPORARY CONNECTION OF EXIST 8" SEWER TO EXIST 45" RCP SEWER DURING CONSTRUCTION OF 48" CCFRPM SEWER. CONTRACTOR TO MAKE FINAL CONNECTION OF EXIST 8" SEWER TO NEW 48" CCFRPM SEWER.



SEWER LINE DATA

	L	BEARING
8	278.95'	N 88°29'33" E
9	400.39'	N 59°14'53" E
10	120.66'	N 59°16'50" E

BC JOB No.133410
 LINE IS 2 INCHES
 AT FULL SIZE
 (IF NOT 2" - SCALE ACCORDINGLY)



BROWN AND CALDWELL
 SAN DIEGO, CALIFORNIA

ENGINEER IN RESPONSIBLE CHARGE: *Mark O. Bridges*
 REGISTERED CIVIL ENGINEER No. C036183
 DATE: 2-15-11 REGISTRATION EXPIRES 6-30-12

MARK	REVISIONS	APPR.	DATE

DESIGNED BY: VCH DRAWN BY: RMK CHECKED BY: CDL

CITY OF RIVERSIDE, CALIFORNIA
PUBLIC WORKS DEPARTMENT

APPROVED BY: *[Signature]*
 ENGINEERING MANAGER
 TRAFFIC DIVISION
 DATE: 3/2/11

SANTA ANA RIVER TRUNK SEWER REPLACEMENT - PHASE I

PLAN AND PROFILE
 STATION 9+00 TO 17+00

HORIZ. SCALE: 1" = 40' VERT. SCALE: 1" = 4'

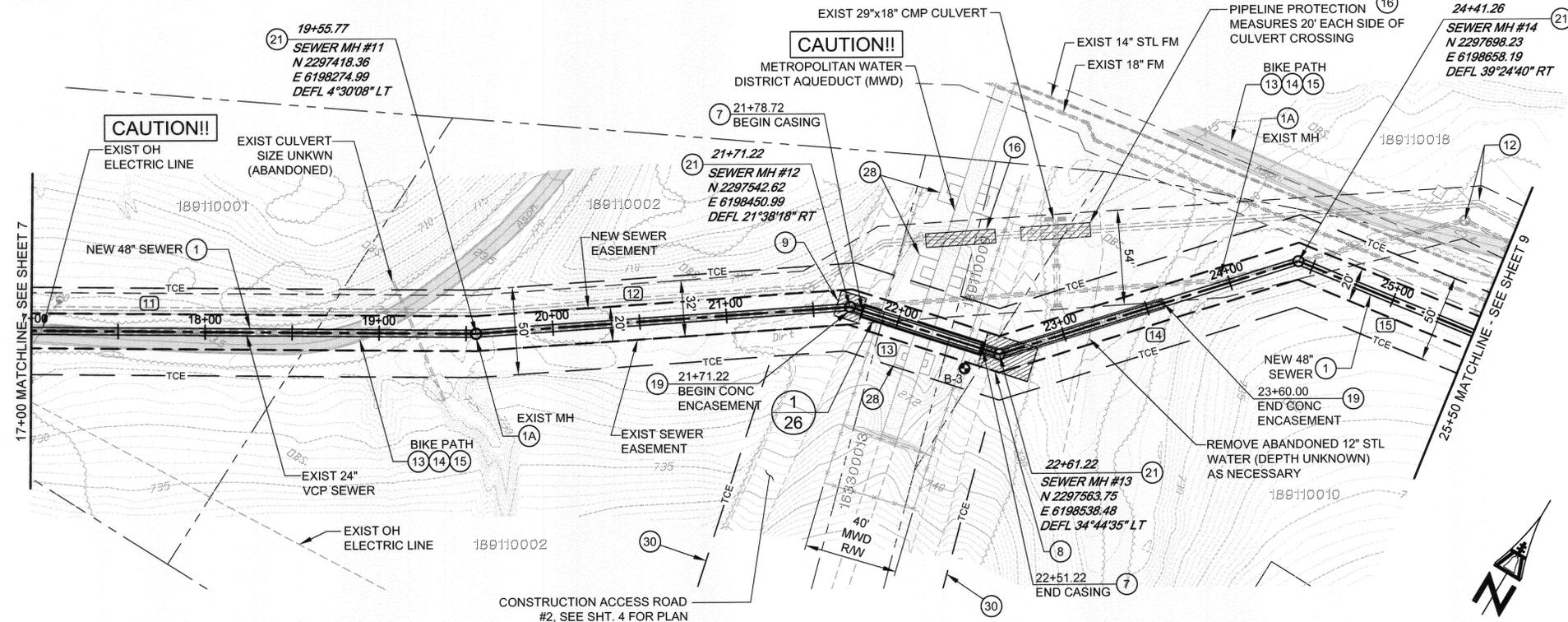
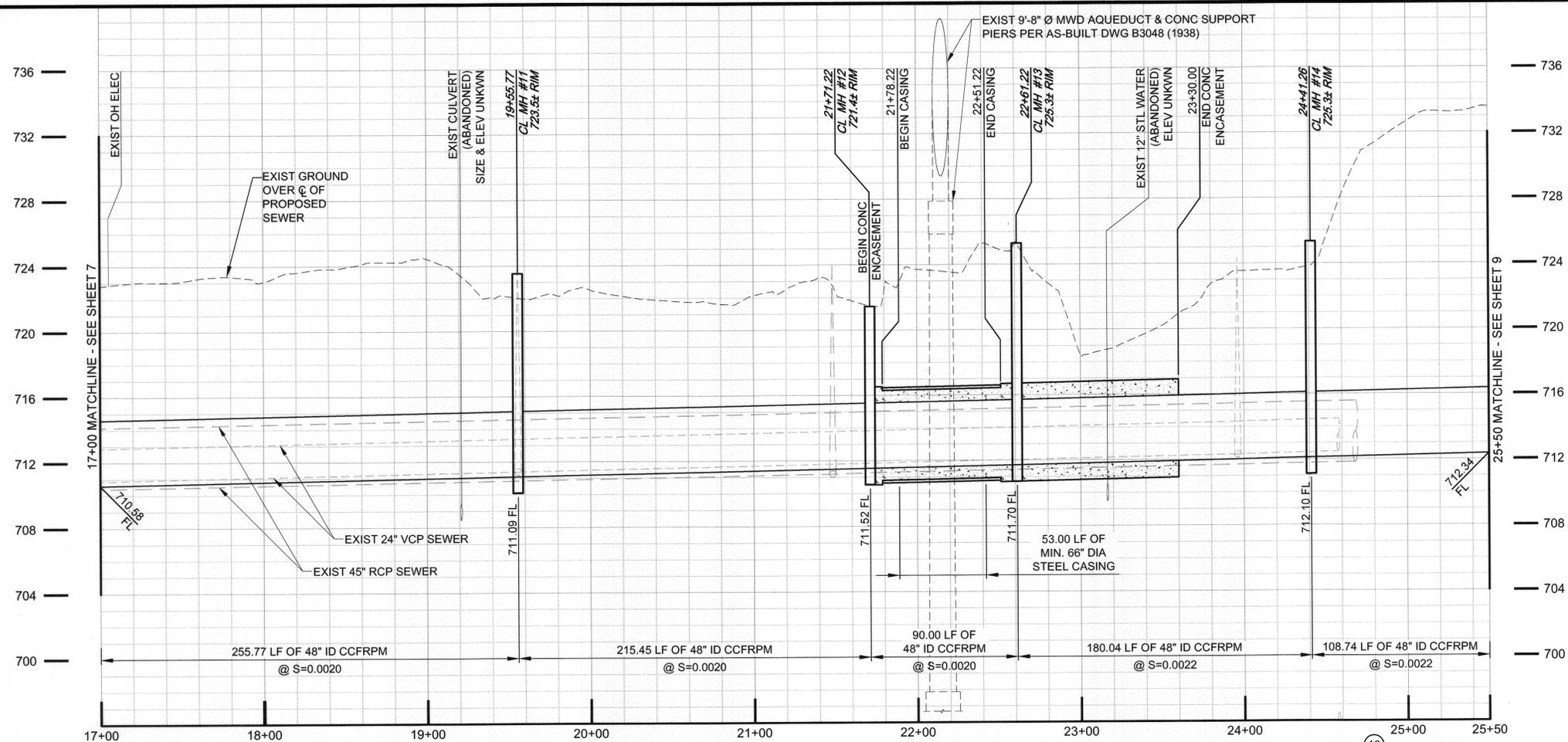
W.O. ACCT. NO.:
S-2054
 SHEET **7** OF **33**
 FILE NO. SARTS_SHT07.DWG

Path: P:\Projects\Riverside, City of (CA1133410) - Santa Ana River Trunk Sewer\CAD\12-SHEETS PHASE I\1-C-CIVIL File: SARTS_SHT07 Plot date: Feb. 14, 2011 04:25PM CAD User: David, David



SEWER CONSTRUCTION NOTES

- 1 INSTALL 48" CCFRPM PER DETAIL 1, SHT. 25.
- 1A DEMOLISH INTERFERING PORTIONS OF EXIST 24" SEWER PIPELINE AND MANHOLES WHERE SHOWN ON PLANS AND AS NEEDED FOR CONSTRUCTION PER SECTION 306-5 OF THE SPECIAL PROVISIONS.
- 7 METROPOLITAN WATER DISTRICT (MWD) AQUEDUCT RIGHT-OF-WAY CROSSING. INSTALL 48" CCFRPM WITHIN MIN 66" DIA STEEL CASING PER DETAIL 1, SHT 26. SEE MWD UTILITY CROSSING PERMIT NO. R.L. 3077 & 2002-07-037 FOR MWD CONSTRUCTION REQUIREMENTS.
- 8 PROPOSED LAUNCHING PIT.
- 9 PROPOSED RECEIVING PIT.
- 12 ABANDON ALL REMAINING PORTIONS OF EXIST 24" VCP SEWER, EXIST 45" RCP SEWER AND EXIST MANHOLES IN PLACE IN ACCORDANCE WITH SECTION 306-5 OF THE SPECIAL PROVISIONS.
- 13 THE BIKE PATH SHALL BE CLOSED DURING CONSTRUCTION ACTIVITIES FROM MONDAY (7 AM) THRU FRIDAY (7PM). A DETOUR PLAN HAS BEEN PREPARED BY THE CITY OF RIVERSIDE AND IS LOCATED IN THE PROJECT SPECIFICATIONS. THE CONTRACTOR IS REQUIRED TO MAINTAIN CITY PROVIDED SIGNAGE, STRIPING AND OTHER NECESSARY EQUIPMENT IN ACCORDANCE WITH THE DETOUR PLAN.
- 14 THE BIKE PATH SHALL BE REOPENED TO THE PUBLIC NO LATER THAN SATURDAY (7AM) AND SHALL REMAIN OPEN THROUGH SUNDAY (7PM). PRIOR TO OPENING THE BIKE PATH TO THE PUBLIC, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING AND CLEANING THE BIKE PATH, MAKING IT SUITABLE AND SAFE FOR PUBLIC USE BEFORE SATURDAY (7AM).
- 15 BIKE PATH SHALL BE REPLACED WITH PAVEMENT AND BASE IN-KIND TO MATCH EXISTING AND PER SANTA ANNA RIVER BIKEWAY PHASE II R-3456.
- 16 CONTRACTOR TO PROVIDE ADDITIONAL PROTECTIVE MEASURES FOR THE EXISTING 45" RCP SEWER AS REQUIRED WITH SPECIAL PROVISION SECTION 306-1.8.
- 19 INSTALL CONCRETE ENCASUREMENT PER DETAIL 4, SHT 25.
- 21 INSTALL NEW CCFRPM MANHOLE PER DETAIL 1, SHT. 28.
- 28 SUPPORT AND PROTECT EXISTING MWD AQUEDUCT CONCRETE SUPPORT PIERS.
- 30 TEMPORARY CONSTRUCTION EASEMENT DOCUMENTS TO BE PROVIDED IN SPECIAL PROVISIONS.



SEWER LINE DATA

	L	BEARING
11	255.77'	N 59°16'50" E
12	215.45'	N 54°46'42" E
13	90.00'	N 76°25'00" E
14	180.04'	N 41°40'35" E
15	108.74'	N 81°05'15" E

BC JOB No.133410
 LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" - SCALE ACCORDINGLY)



BROWN AND CALDWELL
 SAN DIEGO, CALIFORNIA
 ENGINEER IN RESPONSIBLE CHARGE:
 Mark O. Briggs
 REGISTERED CIVIL ENGINEER No. C036183
 DATE: 2-15-11 REGISTRATION EXPIRES 6-30-12

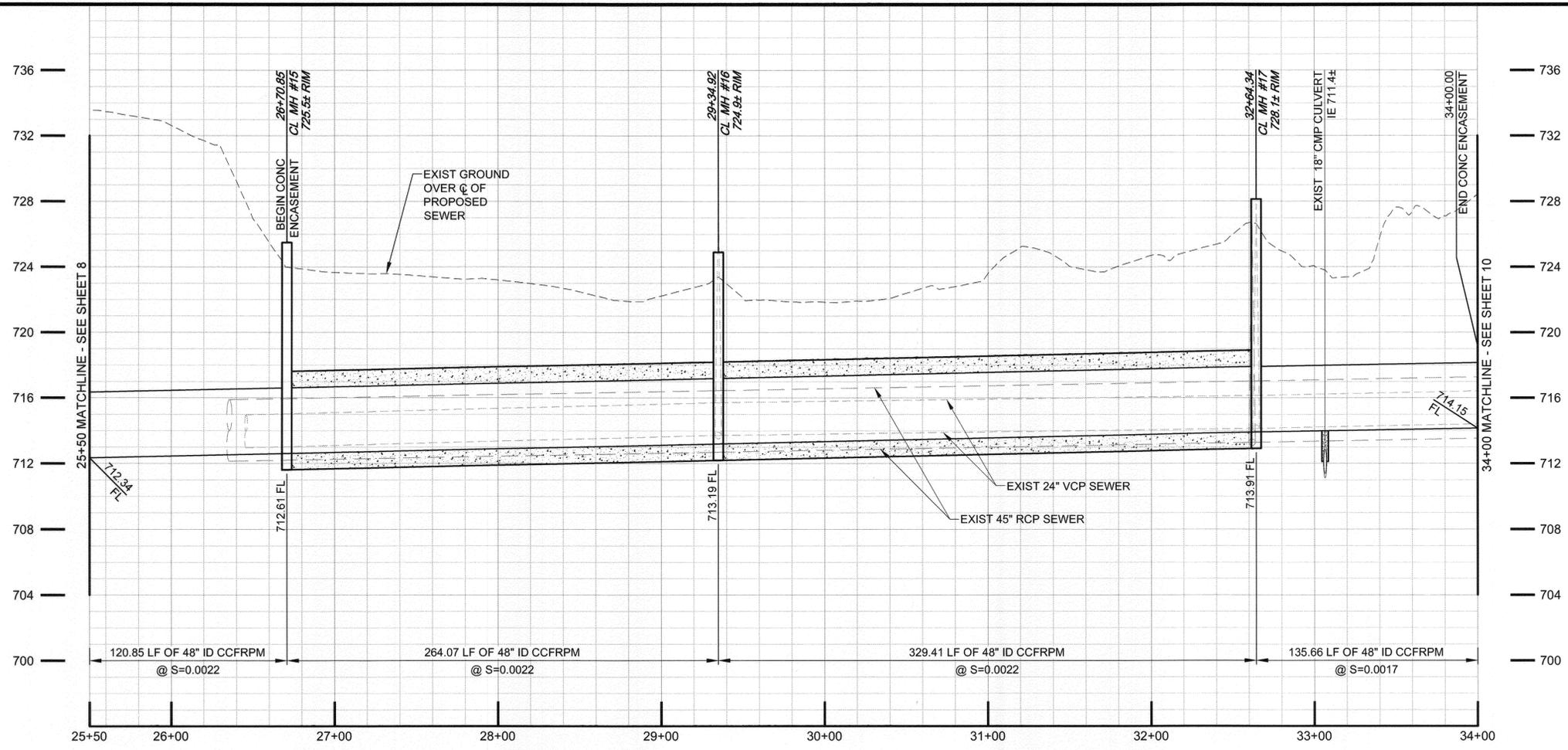
MARK	REVISIONS	APPR.	DATE

CITY OF RIVERSIDE, CALIFORNIA
PUBLIC WORKS DEPARTMENT
 APPROVED BY: [Signature]
 DATE: 2/2/11
 CITY ENGINEER

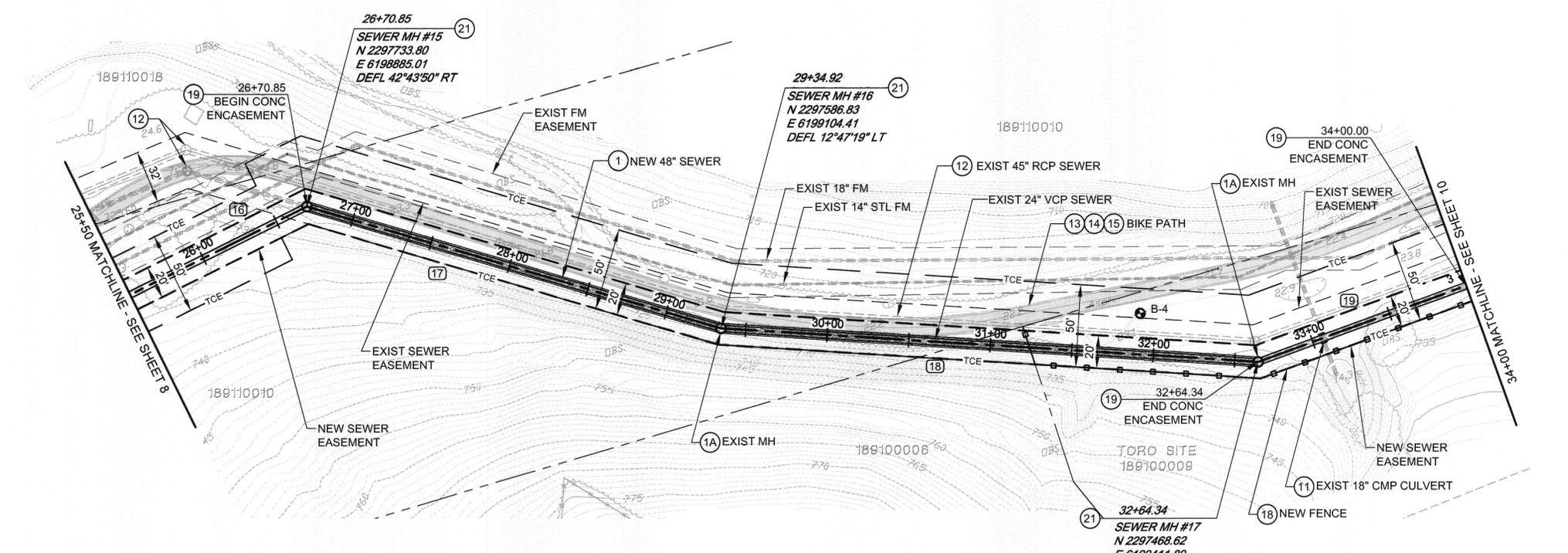
SANTA ANA RIVER TRUNK SEWER REPLACEMENT - PHASE I
 PLAN AND PROFILE
 STATION 17+00 TO 25+50
 HORIZ. SCALE: 1" = 40' VERT. SCALE: 1" = 4'

ACCT. NO.:
S-2054
 SHEET **8** OF **33**
 FILE NO. SARTS_SHT08.DWG

Path: P:\Projects\Riverside, City of [CAN\133410 - Santa Ana River Trunk Sewer\CAD\2-SHEETS\PHASE 1\C-CVIL File Name: SARTS_SHT08 Plot date: Feb. 15, 2011 04:16PM CAD User: Davidse, David



- SEWER CONSTRUCTION NOTES**
- 1 INSTALL 48" CCFRPM PER DETAIL 1, SHT. 25.
 - 1A DEMOLISH INTERFERING PORTIONS OF EXIST 24" SEWER PIPELINE AND MANHOLES WHERE SHOWN ON PLANS AND AS NEEDED FOR CONSTRUCTION PER SECTION 306-5 OF THE SPECIAL PROVISIONS.
 - 11 INSTALL CONCRETE SUPPORT FOR PROTECTION OF EXIST UTILITY CROSSING PER DETAIL 3, SHT. 25.
 - 12 ABANDON ALL REMAINING PORTIONS OF EXIST 24" VCP SEWER, EXIST 45" RCP SEWER AND EXIST MANHOLES IN PLACE IN ACCORDANCE WITH SECTION 306-5 OF THE SPECIAL PROVISIONS.
 - 13 THE BIKE PATH SHALL BE CLOSED DURING CONSTRUCTION ACTIVITIES FROM MONDAY (7 AM) THRU FRIDAY (7PM). A DETOUR PLAN HAS BEEN PREPARED BY THE CITY OF RIVERSIDE AND IS LOCATED IN THE PROJECT SPECIFICATIONS. THE CONTRACTOR IS REQUIRED TO MAINTAIN CITY PROVIDED SIGNAGE, STRIPING AND OTHER NECESSARY EQUIPMENT IN ACCORDANCE WITH THE DETOUR PLAN.
 - 14 THE BIKE PATH SHALL BE REOPENED TO THE PUBLIC NO LATER THAN SATURDAY (7AM) AND SHALL REMAIN OPEN THROUGH SUNDAY (7PM). PRIOR TO OPENING THE BIKE PATH TO THE PUBLIC, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING AND CLEANING THE BIKE PATH, MAKING IT SUITABLE AND SAFE FOR PUBLIC USE BEFORE SATURDAY (7AM).
 - 15 BIKE PATH SHALL BE REPLACED WITH PAVEMENT AND BASE IN-KIND TO MATCH EXISTING AND PER SANTA ANNA RIVER BIKEWAY PHASE II R-3456.
 - 18 CONTRACTOR SHALL INSTALL NEW PERMANENT 4" "HOG WIRE" FENCE. FENCE SHALL BE PANEL TYPE W/ 4"x4" SPACING, 6 GAUGE GALVANIZED WIRE. POST SPACING SHALL BE PER MANUFACTURER RECOMMENDATIONS.
 - 19 INSTALL CONCRETE ENCASUREMENT PER DETAIL 4, SHT. 25.
 - 21 INSTALL NEW CCFRPM MANHOLE PER DETAIL 1, SHT. 28.



SEWER LINE DATA

	L	BEARING
16	120.84'	N 81°05'15" E
17	264.07'	S 56°10'55" E
18	329.42'	S 68°58'14" E
19	135.67'	N 87°32'31" E

BC JOB No.133410
 LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" - SCALE ACCORDINGLY)



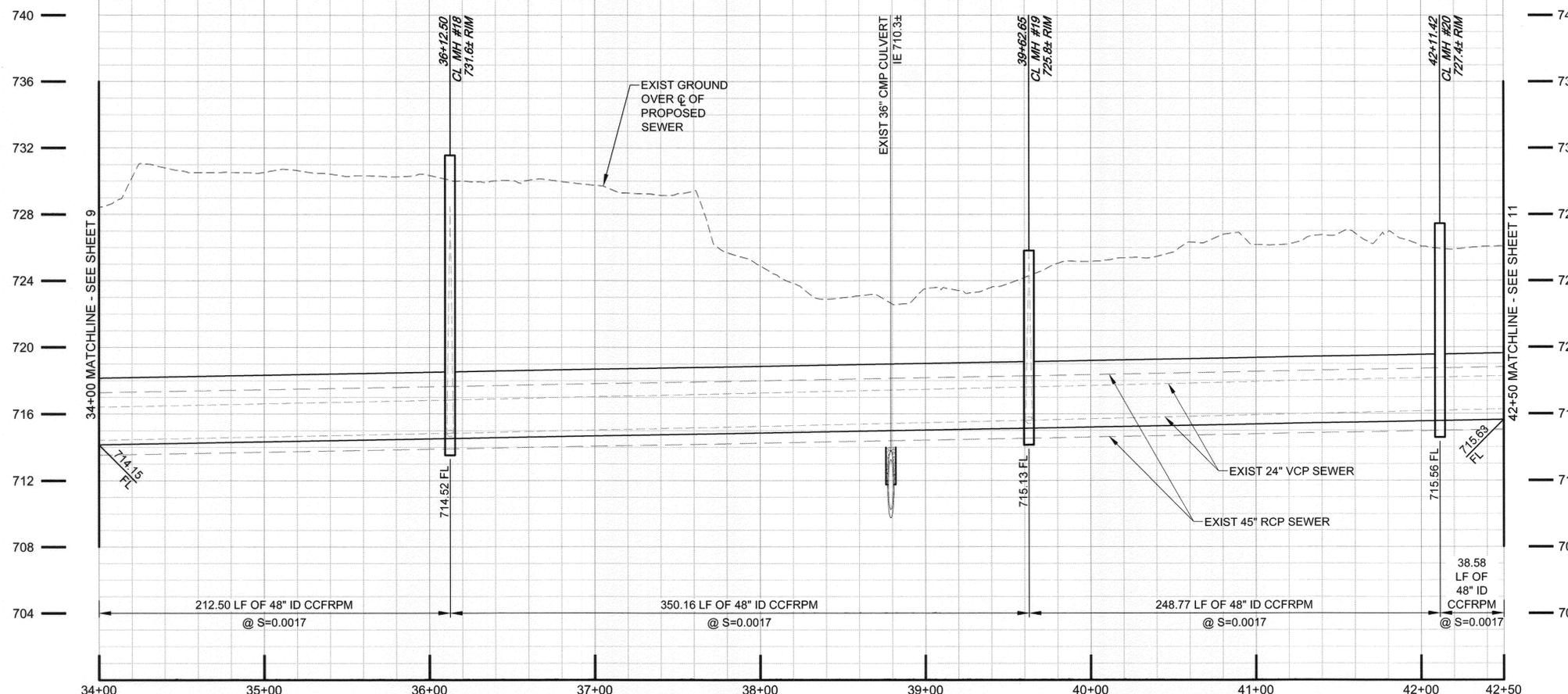
BROWN AND CALDWELL
 SAN DIEGO, CALIFORNIA
 ENGINEER IN RESPONSIBLE CHARGE: *Mark O. Bridges*
 REGISTERED CIVIL ENGINEER No. C036183
 DATE: 2-15-11 REGISTRATION EXPIRES 6-30-12

MARK	REVISIONS	APPR.	DATE

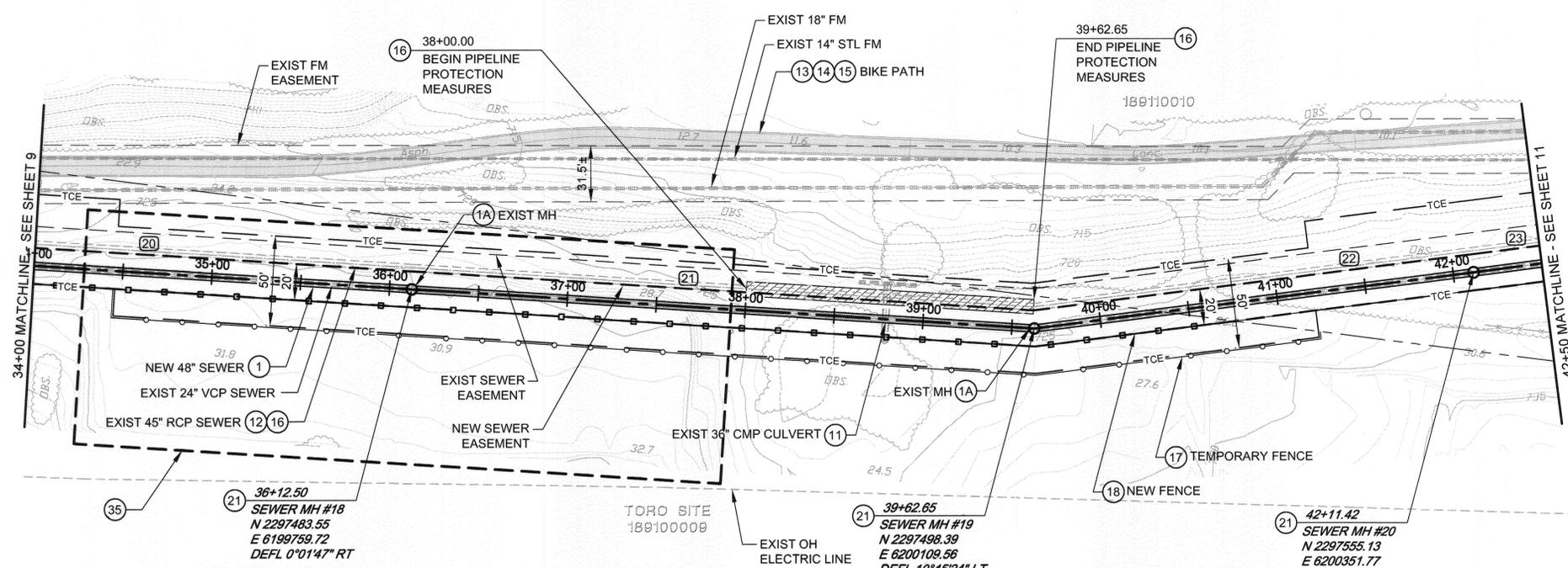
CITY OF RIVERSIDE, CALIFORNIA
 PUBLIC WORKS DEPARTMENT
 APPROVED BY: *[Signature]*
 CITY ENGINEER
 DATE: 3/4/11

SANTA ANA RIVER TRUNK SEWER REPLACEMENT - PHASE I
 PLAN AND PROFILE
 STATION 25+50 TO 34+00
 HORIZ. SCALE: 1" = 40' VERT. SCALE: 1" = 4'

ACCT. NO.:
 S-2054
 SHEET 9 OF 33
 FILE NO. SARTS_SHT09.DWG



- SEWER CONSTRUCTION NOTES**
- 1 INSTALL 48" CCFRPM PER DETAIL 1, SHT. 25.
 - 1A DEMOLISH INTERFERING PORTIONS OF EXIST 24" SEWER PIPELINE AND MANHOLES WHERE SHOWN ON PLANS AND AS NEEDED FOR CONSTRUCTION PER SECTION 306-5 OF THE SPECIAL PROVISIONS.
 - 11 INSTALL CONCRETE SUPPORT FOR PROTECTION OF EXIST UTILITY CROSSING PER DETAIL 3, SHT 25.
 - 12 ABANDON ALL REMAINING PORTIONS OF EXIST 24" VCP SEWER, EXIST 45" RCP SEWER AND EXIST MANHOLES IN PLACE IN ACCORDANCE WITH SECTION 306-5 OF THE SPECIAL PROVISIONS.
 - 13 THE BIKE PATH SHALL BE CLOSED DURING CONSTRUCTION ACTIVITIES FROM MONDAY (7 AM) THRU FRIDAY (7PM). A DETOUR PLAN HAS BEEN PREPARED BY THE CITY OF RIVERSIDE AND IS LOCATED IN THE PROJECT SPECIFICATIONS. THE CONTRACTOR IS REQUIRED TO MAINTAIN CITY PROVIDED SIGNAGE, STRIPING AND OTHER NECESSARY EQUIPMENT IN ACCORDANCE WITH THE DETOUR PLAN.
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 - 15 BIKE PATH SHALL BE REPLACED WITH PAVEMENT AND BASE IN-KIND TO MATCH EXISTING AND PER SANTA ANNA RIVER BIKEWAY PHASE II R-3456.
 - 16 CONTRACTOR TO PROVIDE ADDITIONAL PROTECTIVE MEASURES FOR THE EXISTING 45" RCP SEWER AS REQUIRED WITH SPECIAL PROVISION SECTION 306-1.8.
 - 17 CONTRACTOR SHALL INSTALL TEMPORARY FENCE TO SECURE CONSTRUCTION AND STAGING AREA, TO BE REMOVED AFTER CONSTRUCTION OF NEW SEWER IS COMPLETE.
 - 18 CONTRACTOR SHALL INSTALL NEW PERMANENT 4" "HOG WIRE" FENCE. FENCE SHALL BE PANEL TYPE W/ 4"x4" SPACING, 6 GAUGE GALVANIZED WIRE. POST SPACING SHALL BE PER MANUFACTURER RECOMMENDATIONS.
 - 21 INSTALL NEW CCFRPM MANHOLE PER DETAIL 1, SHT. 28.
 - 35 CONTRACTOR TO FIELD VERIFY EXISTING GROUND OVER PIPELINE. CONTRACTOR TO PROTECT EXISTING PIPELINE AS NEEDED.



SEWER LINE DATA

	L	BEARING
20	212.48'	N 87°32'31" E
21	350.16'	N 87°34'18" E
22	248.77'	N 76°48'54" E
23	38.59'	N 76°48'54" E

BC JOB No.133410
 LINE IS 2 INCHES AT FULL SIZE
 (IF NOT 2" - SCALE ACCORDINGLY)



BROWN AND CALDWELL
 SAN DIEGO, CALIFORNIA
 ENGINEER IN CHARGE: *Mark O. Briggs*
 REGISTERED CIVIL ENGINEER No. C036183
 DATE: 2-15-11 REGISTRATION EXPIRES 6-30-12

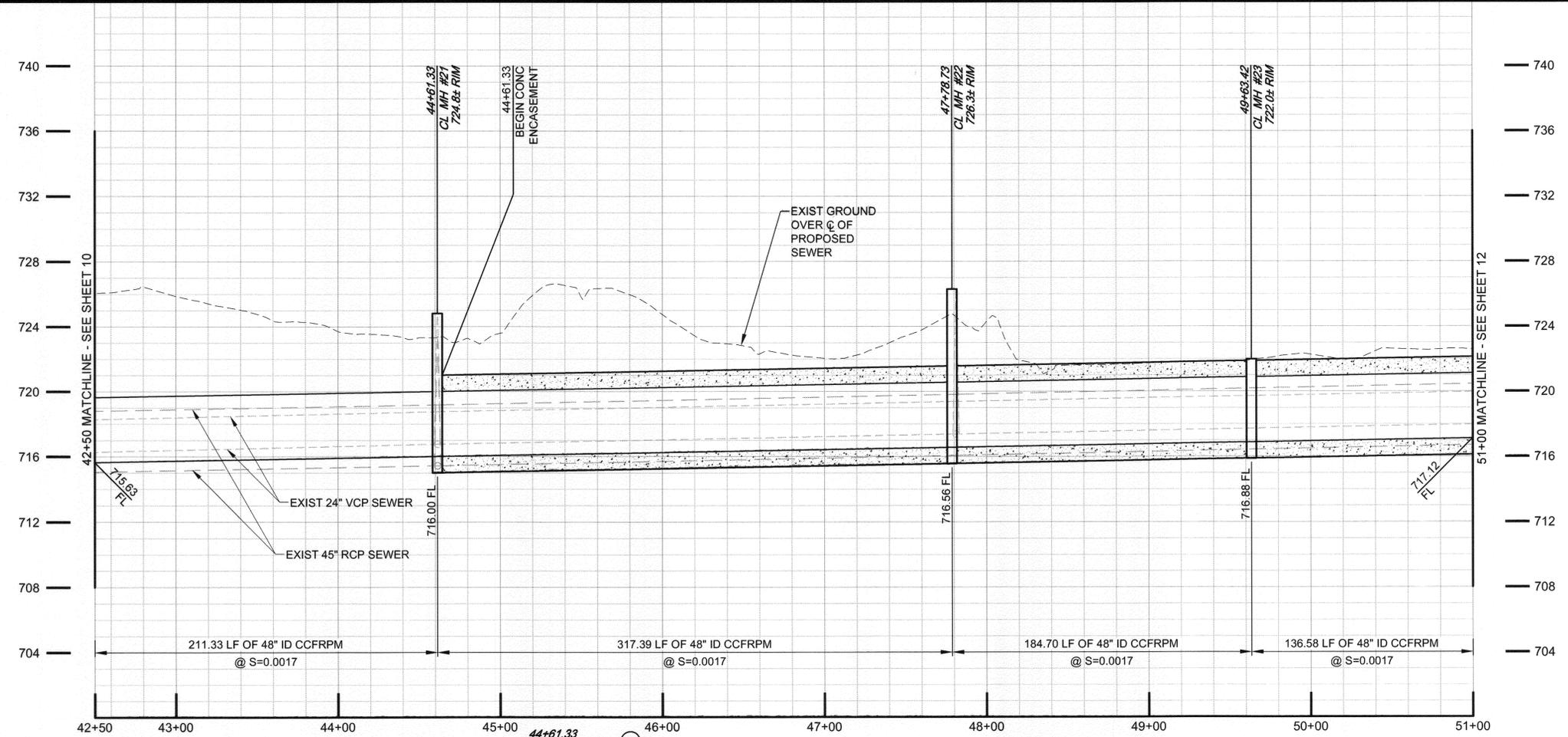
MARK	REVISIONS	APPR.	DATE

CITY OF RIVERSIDE, CALIFORNIA
 PUBLIC WORKS DEPARTMENT
 APPROVED BY: *[Signature]*
 ENGINEERING MANAGER
 TRAFFIC DIVISION
 DATE: 3/4/11

SANTA ANA RIVER TRUNK SEWER
 REPLACEMENT - PHASE I
 PLAN AND PROFILE
 STATION 34+00 TO 42+50
 HORIZ. SCALE: 1" = 40' VERT. SCALE: 1" = 4'

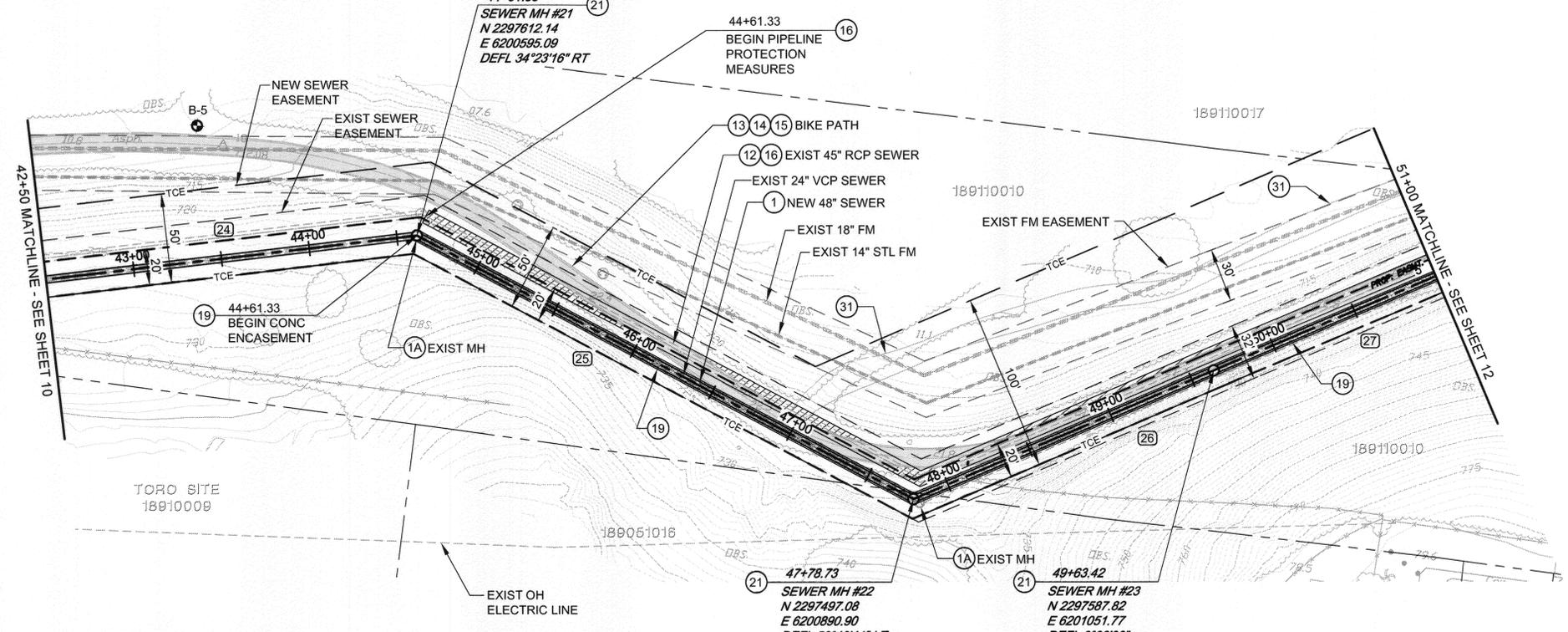
ACCT. NO.:
S-2054
 SHEET **10** OF **33**
 FILE NO. SARTS_SHT10.DWG

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SEWER CONSTRUCTION NOTES

- 1 INSTALL 48" CCFRPM PER DETAIL 1, SHT. 25.
- 1A DEMOLISH INTERFERING PORTIONS OF EXIST 24" SEWER PIPELINE AND MANHOLES WHERE SHOWN ON PLANS AND AS NEEDED FOR CONSTRUCTION PER SECTION 306-5 OF THE SPECIAL PROVISIONS.
- 12 ABANDON ALL REMAINING PORTIONS OF EXIST 24" VCP SEWER, EXIST 45" RCP SEWER AND EXIST MANHOLES IN PLACE IN ACCORDANCE WITH SECTION 306-5 OF THE SPECIAL PROVISIONS.
- 13 THE BIKE PATH SHALL BE CLOSED DURING CONSTRUCTION ACTIVITIES FROM MONDAY (7 AM) THRU FRIDAY (7PM). A DETOUR PLAN HAS BEEN PREPARED BY THE CITY OF RIVERSIDE AND IS LOCATED IN THE PROJECT SPECIFICATIONS. THE CONTRACTOR IS REQUIRED TO MAINTAIN CITY PROVIDED SIGNAGE, STRIPING AND OTHER NECESSARY EQUIPMENT IN ACCORDANCE WITH THE DETOUR PLAN.
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- 16 CONTRACTOR TO PROVIDE ADDITIONAL PROTECTIVE MEASURES FOR THE EXISTING 45" RCP SEWER AS REQUIRED WITH SPECIAL PROVISION SECTION 306-1.8.
- 19 INSTALL CONCRETE ENCASUREMENT PER DETAIL 4, SHT. 25.
- 21 INSTALL NEW CCFRPM MANHOLE PER DETAIL 1, SHT. 28.
- 31 CONTRACTOR TO USE FIRE ROAD FOR CONSTRUCTION EQUIPMENT DRIVING.



SEWER LINE DATA

	L	BEARING
(24)	211.33'	N 76°48'54" E
(25)	317.39'	S 68°44'50" E
(26)	184.70'	N 60°34'29" E
(27)	136.58'	N 60°34'29" E

BC JOB No. 133410
 LINE IS 2 INCHES
 AT FULL SIZE
 (IF NOT 2" = SCALE ACCORDINGLY)



BROWN AND CALDWELL
 SAN DIEGO, CALIFORNIA

ENGINEER IN RESPONSIBLE CHARGE: *Mark O. Briggs*
 REGISTERED CIVIL ENGINEER No. C036183
 DATE: 2-15-11 REGISTRATION EXPIRES 6-30-12

MARK	REVISIONS	APPR.	DATE

**CITY OF RIVERSIDE, CALIFORNIA
 PUBLIC WORKS DEPARTMENT**

APPROVED BY: *[Signature]* DATE: 3/2/11
 ENGINEERING MANAGER
 TRAFFIC DIVISION
 PARKS DEPARTMENT
 INSPECTION SUPERVISOR

**SANTA ANA RIVER TRUNK SEWER
 REPLACEMENT - PHASE I**

PLAN AND PROFILE
 STATION 42+50 TO 51+00

HORIZ. SCALE: 1" = 40' VERT. SCALE: 1" = 4'

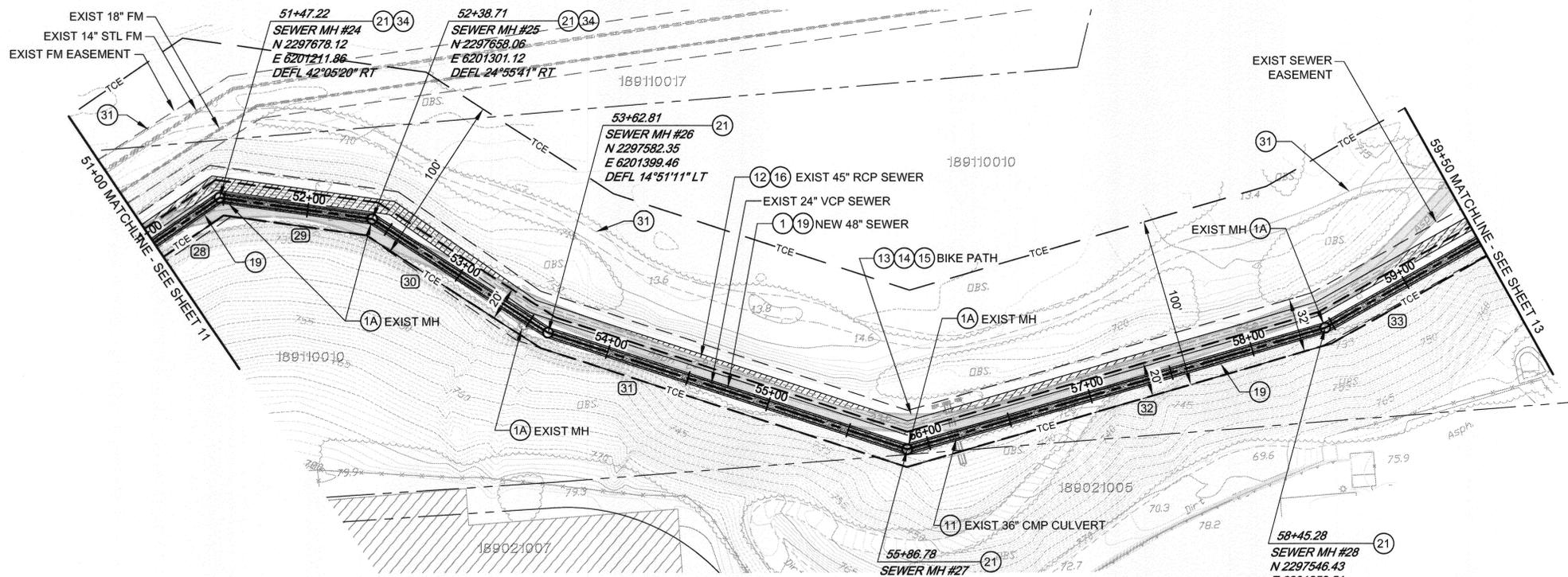
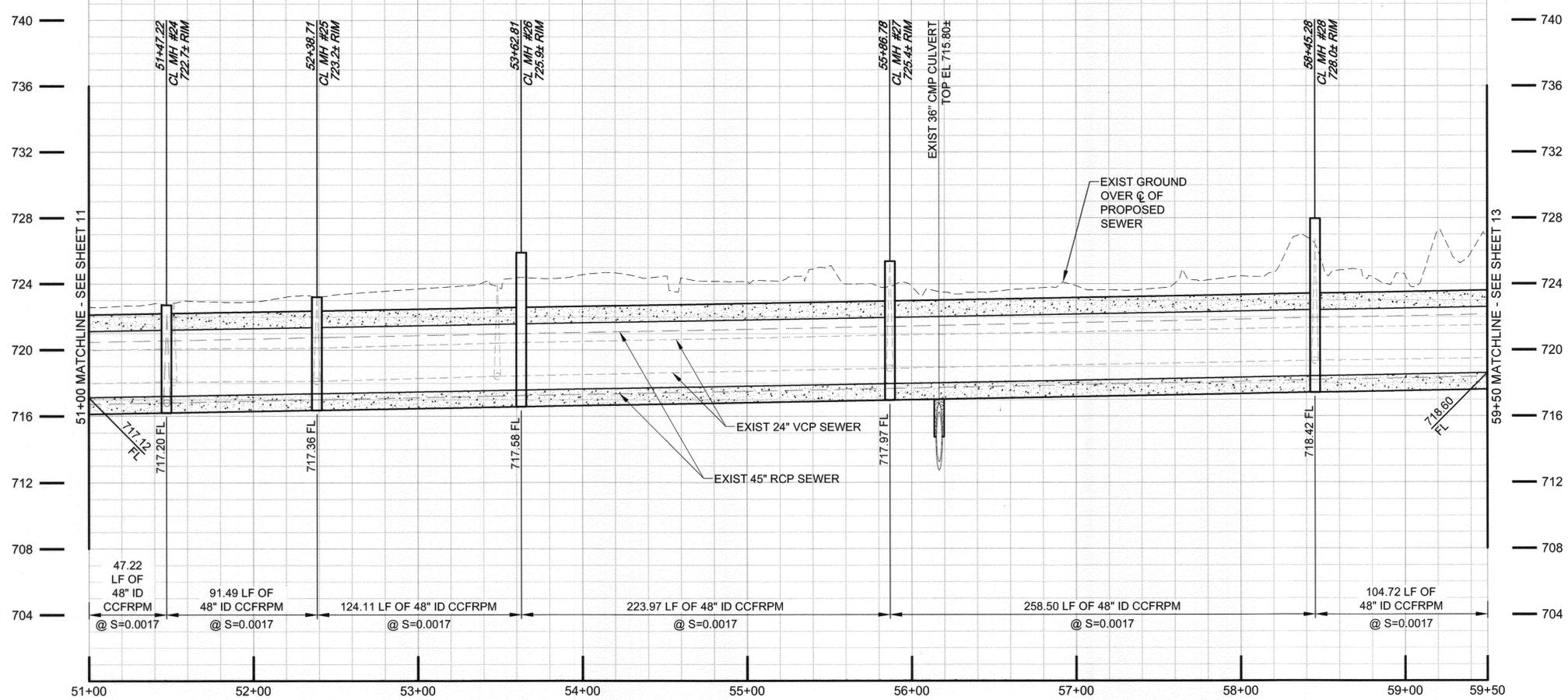
W.O.
 ACCT. NO.: S-2054
 SHEET 11 OF 33
 FILE NO. SARTS_SHT11.DWG

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SEWER CONSTRUCTION NOTES

- 1 INSTALL 48" CCFRPM PER DETAIL 1, SHT. 25.
- 1A DEMOLISH INTERFERING PORTIONS OF EXIST 24" SEWER PIPELINE AND MANHOLES WHERE SHOWN ON PLANS AND AS NEEDED FOR CONSTRUCTION PER SECTION 306-5 OF THE SPECIAL PROVISIONS.
- 11 INSTALL CONCRETE SUPPORT FOR PROTECTION OF EXIST UTILITY CROSSING PER DETAIL 3, SHT. 25.
- 12 ABANDON ALL REMAINING PORTIONS OF EXIST 24" VCP SEWER, EXIST 45" RCP SEWER AND EXIST MANHOLES IN PLACE IN ACCORDANCE WITH SECTION 306-5 OF THE SPECIAL PROVISIONS.
- 13 THE BIKE PATH SHALL BE CLOSED DURING CONSTRUCTION ACTIVITIES FROM MONDAY (7 AM) THRU FRIDAY (7PM). A DETOUR PLAN HAS BEEN PREPARED BY THE CITY OF RIVERSIDE AND IS LOCATED IN THE PROJECT SPECIFICATIONS. THE CONTRACTOR IS REQUIRED TO MAINTAIN CITY PROVIDED SIGNAGE, STRIPING AND OTHER NECESSARY EQUIPMENT IN ACCORDANCE WITH THE DETOUR PLAN.
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- 16 CONTRACTOR TO PROVIDE ADDITIONAL PROTECTIVE MEASURES FOR THE EXISTING 45" RCP SEWER AS REQUIRED WITH SPECIAL PROVISION SECTION 306-1.8.
- 19 INSTALL CONCRETE ENCASEMENT PER DETAIL 4, SHT. 25.
- 21 INSTALL NEW CCFRPM MANHOLE PER DETAIL 1, SHT. 28.
- 31 CONTRACTOR TO USE FIRE ROAD FOR CONSTRUCTION EQUIPMENT DRIVING.
- 34 INSTALL 10'x10'x4" CONCRETE APRON FLUSH W/ MANHOLE LID PER DETAIL 3, SHT. 28.



SEWER LINE DATA

	L	BEARING
28	47.20'	N 60°34'29" E
29	91.49'	S 77°20'11" E
30	124.11'	S 52°24'30" E
31	223.97'	S 67°15'40" E
32	258.50'	N 78°42'03" E
33	104.73'	N 65°33'51" E

BC JOB No.133410
 LINE IS 2 INCHES
 AT FULL SIZE
 (IF NOT 2" - SCALE ACCORDINGLY)



BROWN AND CALDWELL
 SAN DIEGO, CALIFORNIA

ENGINEER IN RESPONSIBLE CHARGE: *Mark O. Briggs*
 REGISTERED CIVIL ENGINEER No. C036183
 DATE: 2-15-11 REGISTRATION EXPIRES 6-30-12

**CITY OF RIVERSIDE, CALIFORNIA
 PUBLIC WORKS DEPARTMENT**

APPROVED BY: [Signature]
 ENGINEERING MANAGER
 TRAFFIC DIVISION
 DATE: 3/2/11

**SANTA ANA RIVER TRUNK SEWER
 REPLACEMENT - PHASE I**

PLAN AND PROFILE
 STATION 51+00 TO 59+50

HORIZ. SCALE: 1" = 40' VERT. SCALE: 1" = 4'

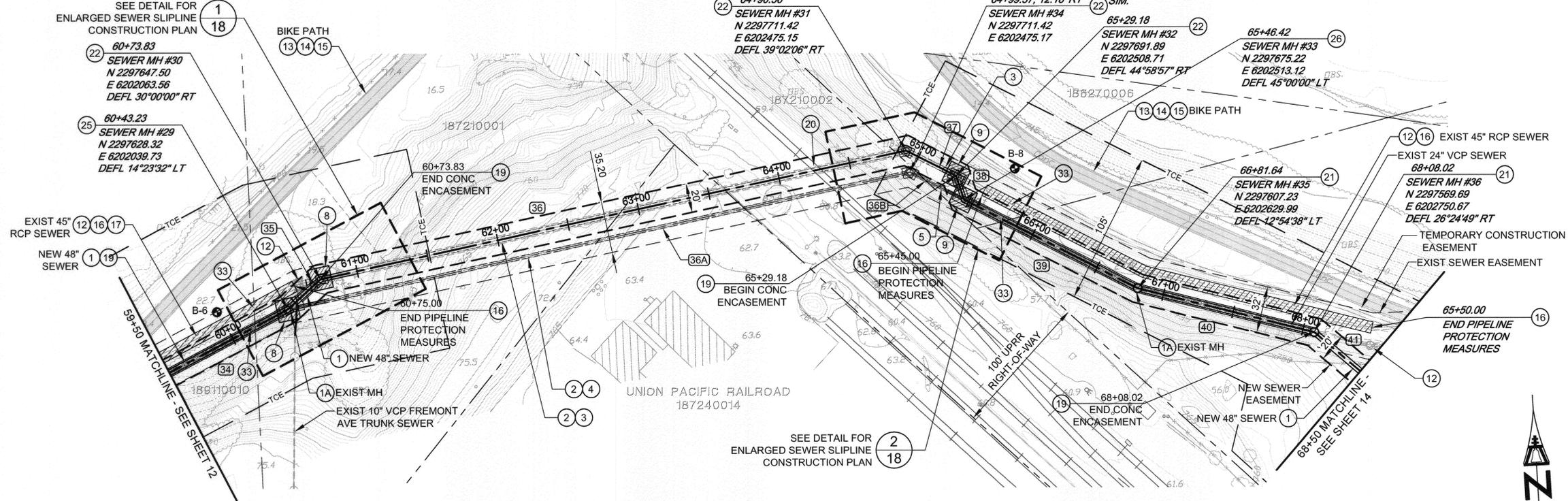
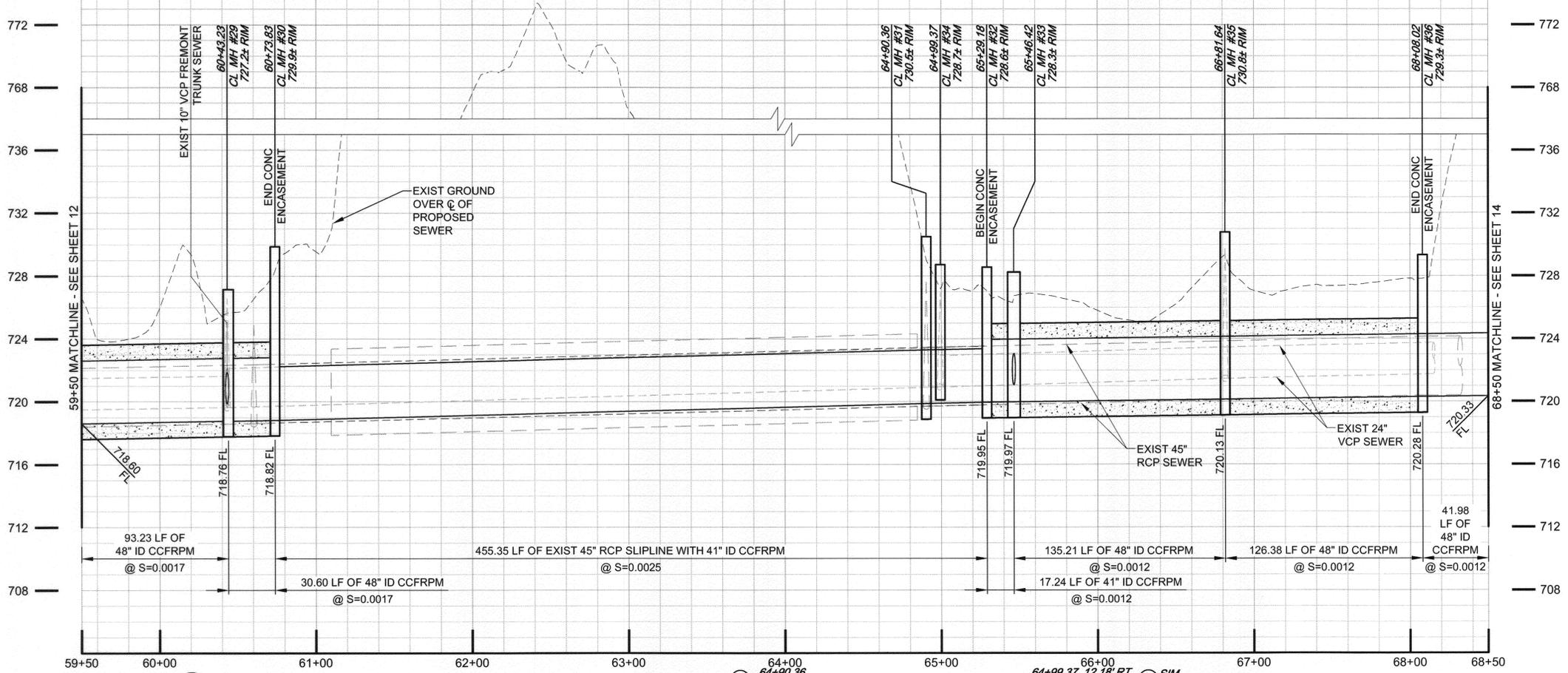
W.O.
 ACCT. NO.:
S-2054
 SHEET **12** OF **33**
 FILE NO. SARTS_SHT12.DWG

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SEWER CONSTRUCTION NOTES

- 1 INSTALL 48" CCFRPM PER DETAIL 1, SHT. 25.
- 1A DEMOLISH INTERFERING PORTIONS OF EXIST 24" SEWER PIPELINE AND MANHOLES WHERE SHOWN ON PLANS AND AS NEEDED FOR CONSTRUCTION PER SECTION 306-5 OF THE SPECIAL PROVISIONS.
- 2 UPRR RIGHT-OF-WAY CROSSING. REPAIR IN PLACE EXIST 30" VCP AND EXIST 45" RCP SEWERS BY SLIPLINE WITH NEW CCFRPM PIPE WHERE SHOWN ON PLANS.
- 3 INSTALL 41" ID / 42.9" OD CCFRPM INSIDE OF EXIST 45" RCP SEWER PIPELINE BY SLIPLINE CONSTRUCTION METHOD AND PER DETAIL 4, SHT. 27.
- 4 INSTALL 24" ID / 25.8" OD CCFRPM INSIDE OF EXIST 30" VCP SEWER PIPELINE BY SLIPLINE CONSTRUCTION METHOD AND PER DETAIL 4, SHT. 27.
- 5 INSTALL 20" ID / 21.6" OD CCFRPM INSIDE OF EXIST 24" RCP SEWER PIPELINE BY SLIPLINE CONSTRUCTION METHOD AND PER DETAIL 4, SHT. 27.
- 8 PROPOSED LAUNCHING PIT.
- 9 PROPOSED RECEIVING PIT.
- 12 ABANDON ALL REMAINING PORTIONS OF EXIST 24" VCP SEWER, EXIST 45" RCP SEWER AND EXIST MANHOLES IN PLACE IN ACCORDANCE WITH SECTION 306-5 OF THE SPECIAL PROVISIONS.
- 13 THE BIKE PATH SHALL BE CLOSED DURING CONSTRUCTION ACTIVITIES FROM MONDAY (7 AM) THRU FRIDAY (7PM). A DETOUR PLAN HAS BEEN PREPARED BY THE CITY OF RIVERSIDE AND IS LOCATED IN THE PROJECT SPECIFICATIONS. THE CONTRACTOR IS REQUIRED TO MAINTAIN CITY PROVIDED SIGNAGE, STRIPING AND OTHER NECESSARY EQUIPMENT IN ACCORDANCE WITH THE DETOUR PLAN.
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- 15 BIKE PATH SHALL BE REPLACED WITH PAVEMENT AND BASE IN-KIND TO MATCH EXISTING AND PER SANTA ANNA RIVER BIKEWAY PHASE II R-3456.
- 16 CONTRACTOR TO PROVIDE ADDITIONAL PROTECTIVE MEASURES FOR THE EXISTING 45" RCP SEWER AS REQUIRED WITH SPECIAL PROVISION SECTION 306-1.8.
- 17 CONTRACTOR SHALL INSTALL TEMPORARY FENCE TO SECURE CONSTRUCTION AND STAGING AREA, TO BE REMOVED AFTER CONSTRUCTION OF NEW SEWER IS COMPLETE.
- 19 INSTALL CONCRETE ENCASUREMENT PER DETAIL 4, SHT. 25.
- 20 UPRR FLAGMAN TO BE PRESENT DURING RR TUNNEL WORK.
- 21 INSTALL NEW CCFRPM MANHOLE PER DETAIL 1, SHT. 28.
- 22 INSTALL NEW CCFRPM MANHOLE PER DETAIL 2, SHT. 28.
- 25 INSTALL NEW CCFRPM MANHOLE PER DETAIL 1, SHT. 30.
- 26 INSTALL NEW CCFRPM MANHOLE PER DETAIL 2, SHT. 30.
- 33 OPEN TOP OF EXISTING PIPE FOR SUCTION PIT, SLIP LINING AND RECEIVING PIT AS NECESSARY PER BYPASS DETAILS ON SHT. 33.



SEWER LINE DATA

L	BEARING	L	BEARING
(34) 93.22'	N 65°33'51" E	(37) 38.82'	S 59°47'34" E
(35) 30.59'	N 51°10'20" E	(38) 17.24'	S 14°48'37" E
(36) 416.54'	N 81°10'20" E	(39) 135.21'	S 59°48'37" E
(36A) 442.36'	N 81°09'04" E	(40) 126.38'	S 72°43'15" E
(36B) 42.01'	S 59°46'46" E	(41) 42.00'	S 46°18'26" E

BC JOB No. 133410
 LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" = SCALE ACCORDINGLY)



BROWN AND CALDWELL
 SAN DIEGO, CALIFORNIA

ENGINEER IN RESPONSIBLE CHARGE:
 Mark O. Briggs
 REGISTERED CIVIL ENGINEER No. C036183
 DATE: 2-15-11 REGISTRATION EXPIRES 6-30-12

MARK	REVISIONS	APPR.	DATE

CITY OF RIVERSIDE, CALIFORNIA
 PUBLIC WORKS DEPARTMENT

APPROVED BY: [Signature]
 DATE: 3/2/11

SANTA ANA RIVER TRUNK SEWER REPLACEMENT - PHASE I

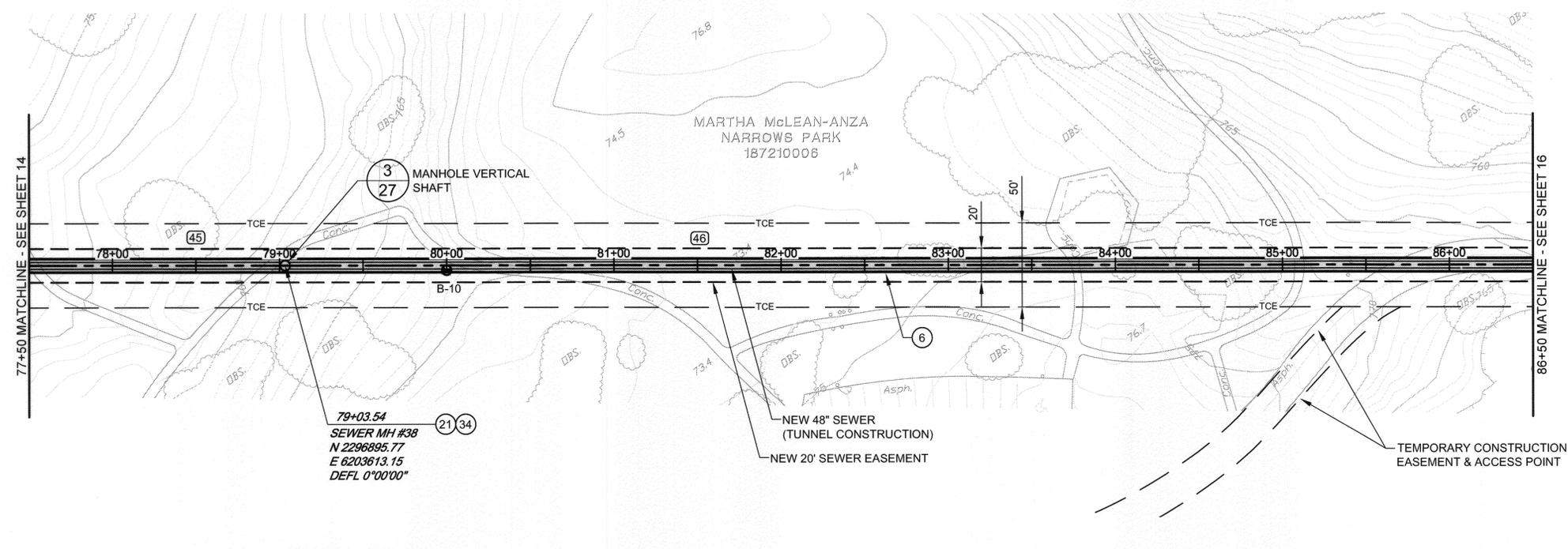
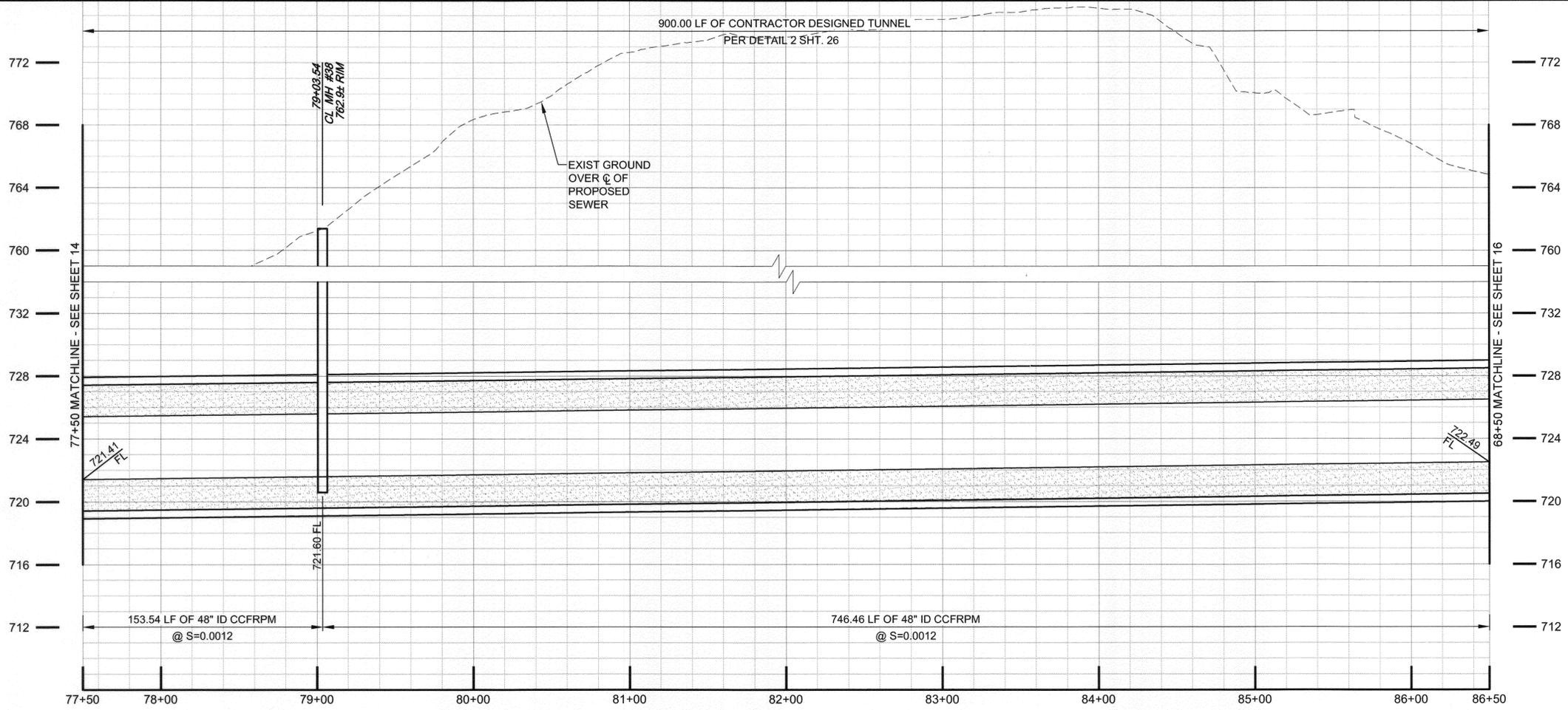
PLAN AND PROFILE
 STATION 59+50 TO 68+50

ACCT. NO.: S-2054
 SHEET 13 OF 33
 FILE NO. SARTS_SHT13.DWG

Path: P:\Projects\Riverside, City of (CA)033410 - Santa Ana River Trunk Sewer\CAD\2-SHEETS\PHASE I\CVL - Filename: SARTS_SHT13 - Plot date: Feb. 16, 2011 10:42AM CAD User: Davidas, David



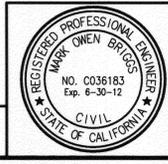
- SEWER CONSTRUCTION NOTES**
- (6) INSTALL 48" CCFRPM WITHIN MIN 96" DIA TUNNEL PER DETAIL 2, SHT. 26.
 - (21) INSTALL NEW CCFRPM MANHOLE PER DETAIL 1, SHT. 28.
 - (34) INSTALL 10'x10'x4" CONCRETE APRON FLUSH W/ MANHOLE LID PER DETAIL 3, SHT. 28.



SEWER LINE DATA

	L	BEARING
(45)	153.54'	S 52°49'50" E
(46)	746.46'	S 52°49'50" E

BC JOB No.133410
 LINE IS 2 INCHES AT FULL SIZE
 (IF NOT 2" - SCALE ACCORDINGLY)



BROWN and CALDWELL
 SAN DIEGO, CALIFORNIA

ENGINEER IN RESPONSIBLE CHARGE:
Mark O. Briggs
 REGISTERED CIVIL ENGINEER No. C036183
 DATE: 2-15-11 REGISTRATION EXPIRES 6-30-12

MARK	REVISIONS	APPR.	DATE

CITY OF RIVERSIDE, CALIFORNIA
PUBLIC WORKS DEPARTMENT

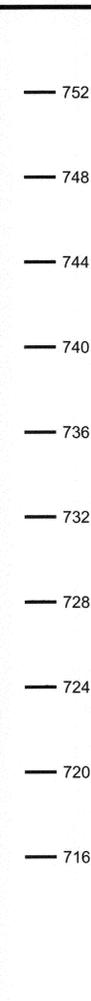
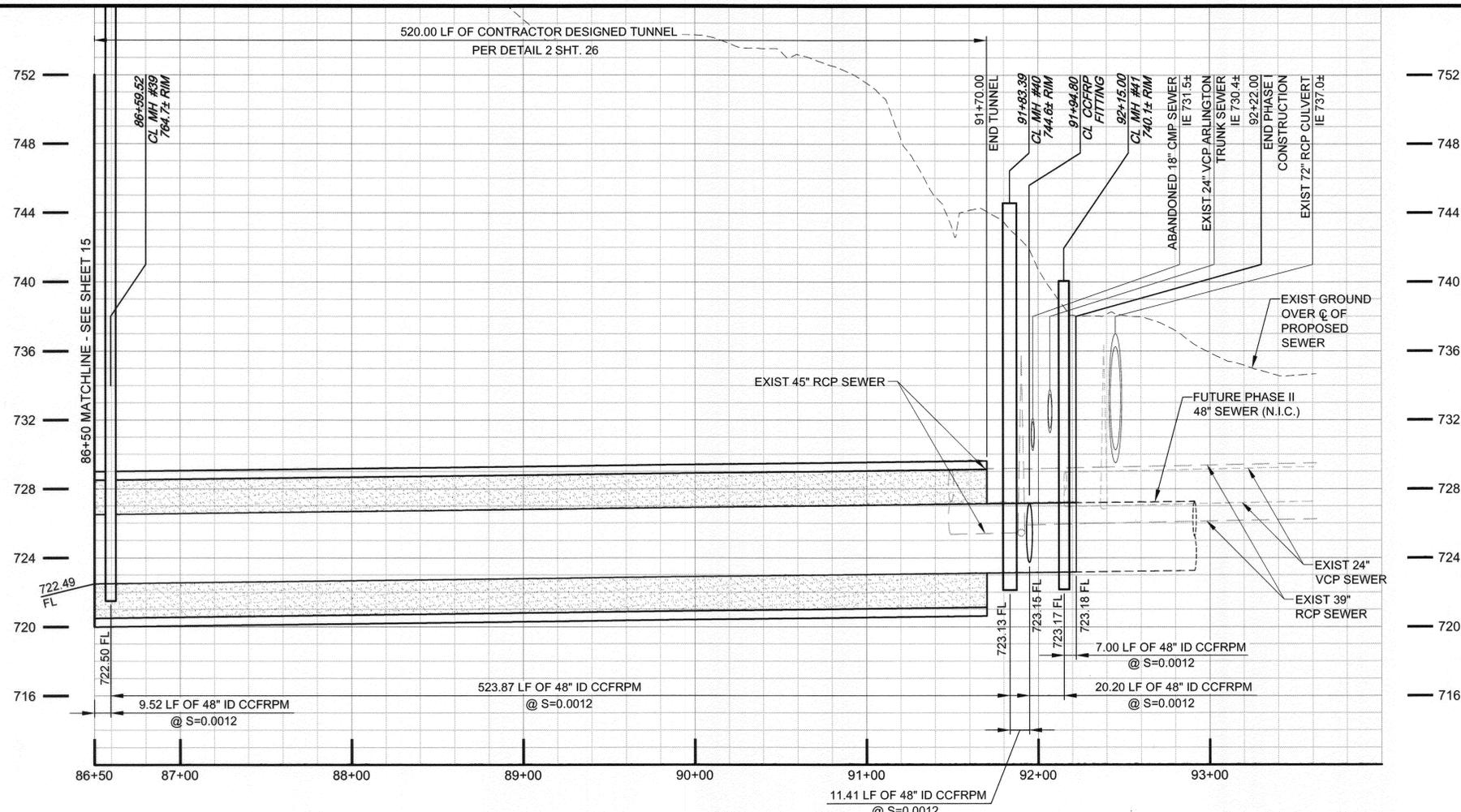
APPROVED BY: *[Signature]* DATE: 3/2/11
 ENGINEERING MANAGER
 PRINCIPAL ENGINEER
 TRAFFIC DIVISION
 PARKS DEPARTMENT
 INSPECTION SUPERVISOR

SANTA ANA RIVER TRUNK SEWER REPLACEMENT - PHASE I

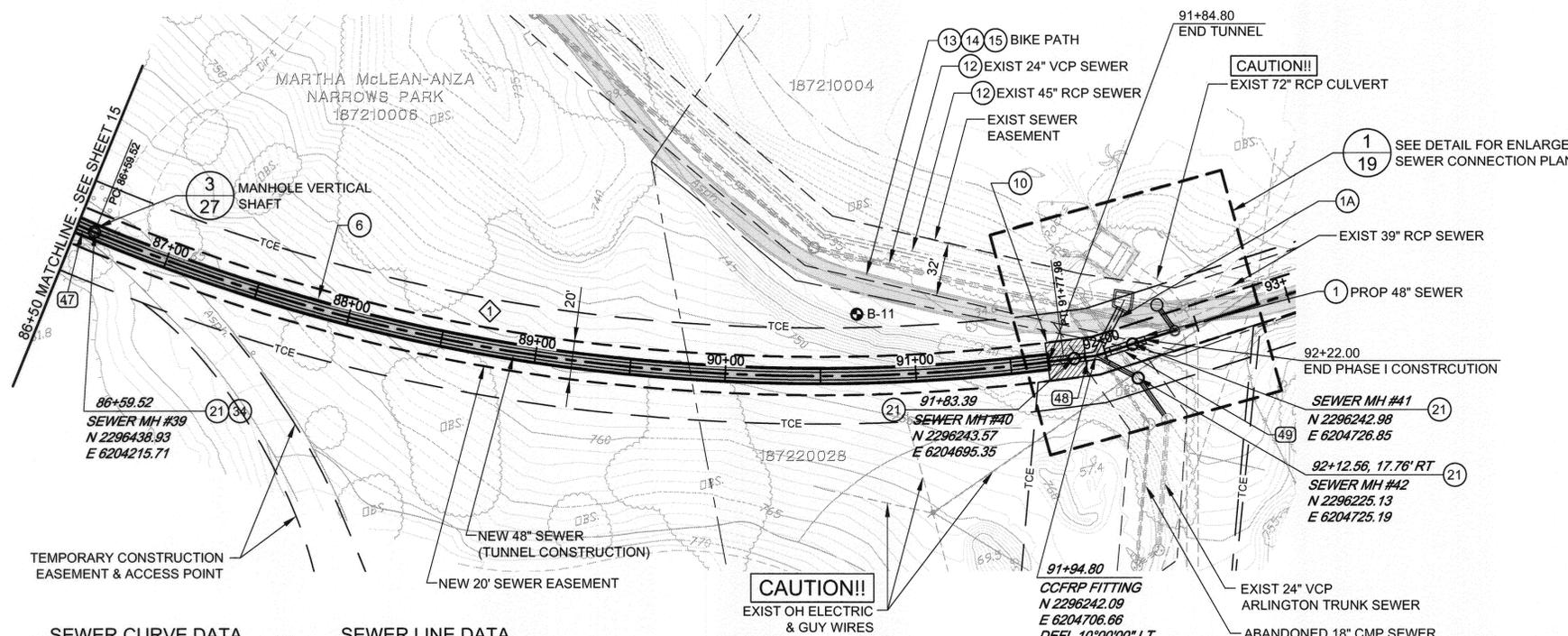
PLAN AND PROFILE
 STATION 77+50 TO 86+50

HORIZ. SCALE: 1" = 40' VERT. SCALE: 1" = 4'

W.O.
 ACCT. NO.: S-2054
 SHEET 15 OF 33
 FILE NO. SARTS_SHT15.DWG



- SEWER CONSTRUCTION NOTES**
- 1 INSTALL 48" CCFRPM PER DETAIL 1, SHT. 25.
 - 1A DEMOLISH INTERFERING PORTIONS OF EXIST 24" SEWER PIPELINE AND MANHOLES WHERE SHOWN ON PLANS AND AS NEEDED FOR CONSTRUCTION PER SECTION 306-5 OF THE SPECIAL PROVISIONS.
 - 6 INSTALL 48" CCFRPM WITHIN MIN 96" DIA TUNNEL PER DETAIL 2, SHT 26.
 - 10 PROPOSED ACCESS SHAFT FOR TUNNEL CONSTRUCTION.
 - 12 ABANDON ALL REMAINING PORTIONS OF EXIST 24" VCP SEWER, EXIST 45" RCP SEWER AND EXIST MANHOLES IN PLACE IN ACCORDANCE WITH SECTION 306-5 OF THE SPECIAL PROVISIONS.
 - 13 THE BIKE PATH SHALL BE CLOSED DURING CONSTRUCTION ACTIVITIES FROM MONDAY (7 AM) THRU FRIDAY (7PM). A DETOUR PLAN HAS BEEN PREPARED BY THE CITY OF RIVERSIDE AND IS LOCATED IN THE PROJECT SPECIFICATIONS. THE CONTRACTOR IS REQUIRED TO MAINTAIN CITY PROVIDED SIGNAGE, STRIPING AND OTHER NECESSARY EQUIPMENT IN ACCORDANCE WITH THE DETOUR PLAN.
 - 14 THE BIKE PATH SHALL BE REOPENED TO THE PUBLIC NO LATER THAN SATURDAY (7AM) AND SHALL REMAIN OPEN THROUGH SUNDAY (7PM). PRIOR TO OPENING THE BIKE PATH TO THE PUBLIC, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING AND CLEANING THE BIKE PATH, MAKING IT SUITABLE AND SAFE FOR PUBLIC USE BEFORE SATURDAY (7AM).
 - 15 BIKE PATH SHALL BE REPLACED WITH PAVEMENT AND BASE IN-KIND TO MATCH EXISTING AND PER SANTA ANNA RIVER BIKEWAY PHASE II R-3456.
 - 21 INSTALL NEW CCFRPM MANHOLE PER DETAIL 1, SHT. 28.
 - 34 INSTALL 10'x10'x4" CONCRETE APRON FLUSH W/ MANHOLE LID PER DETAIL 3, SHT. 28.



SEWER CURVE DATA

Station	Δ	R	L	T
47	29°42'24"	1000.00'	518.46'	265.20'

SEWER LINE DATA

Station	L	BEARING
47	9.52'	S 52°49'50" E
48	16.82'	S 82°32'14" E
49	27.20'	N 87°27'46" E

BC JOB No.133410
 LINE IS 2 INCHES AT FULL SIZE
 (IF NOT 2" - SCALE ACCORDINGLY)



BROWN AND CALDWELL
 SAN DIEGO, CALIFORNIA

ENGINEER IN RESPONSIBLE CHARGE:
Mark O. Briggs
 REGISTERED CIVIL ENGINEER No. C036183
 DATE: 2-15-11 REGISTRATION EXPIRES 6-30-12

CITY OF RIVERSIDE, CALIFORNIA
 PUBLIC WORKS DEPARTMENT

APPROVED BY: [Signature]
 DATE: 2/2/11

SANTA ANA RIVER TRUNK SEWER REPLACEMENT - PHASE I

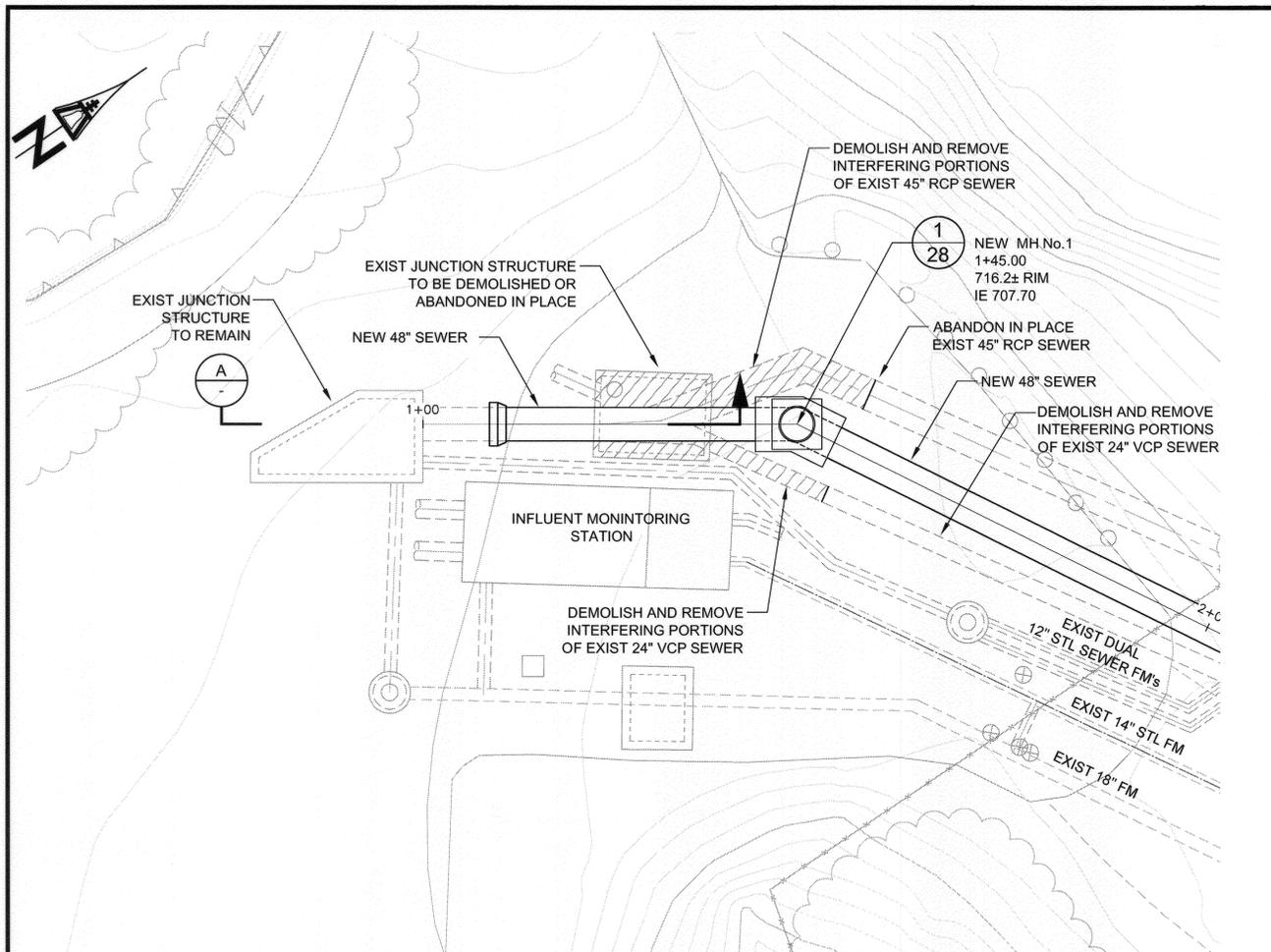
PLAN AND PROFILE
 STATION 86+50 TO 92+22

ACCT. NO.: S-2054
 SHEET 16 OF 33

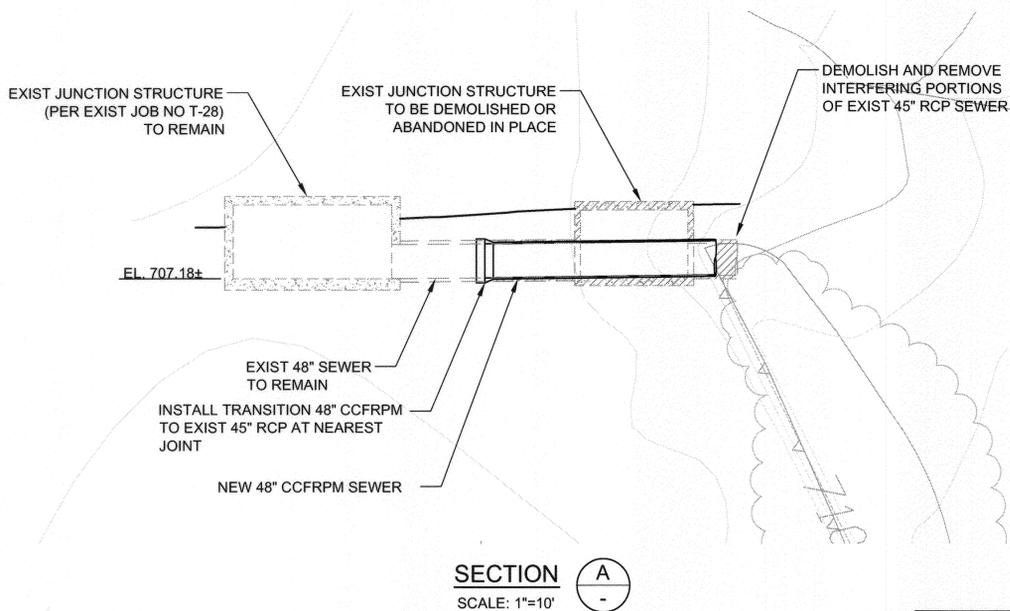
HORIZ. SCALE: 1" = 40' VERT. SCALE: 1" = 4'

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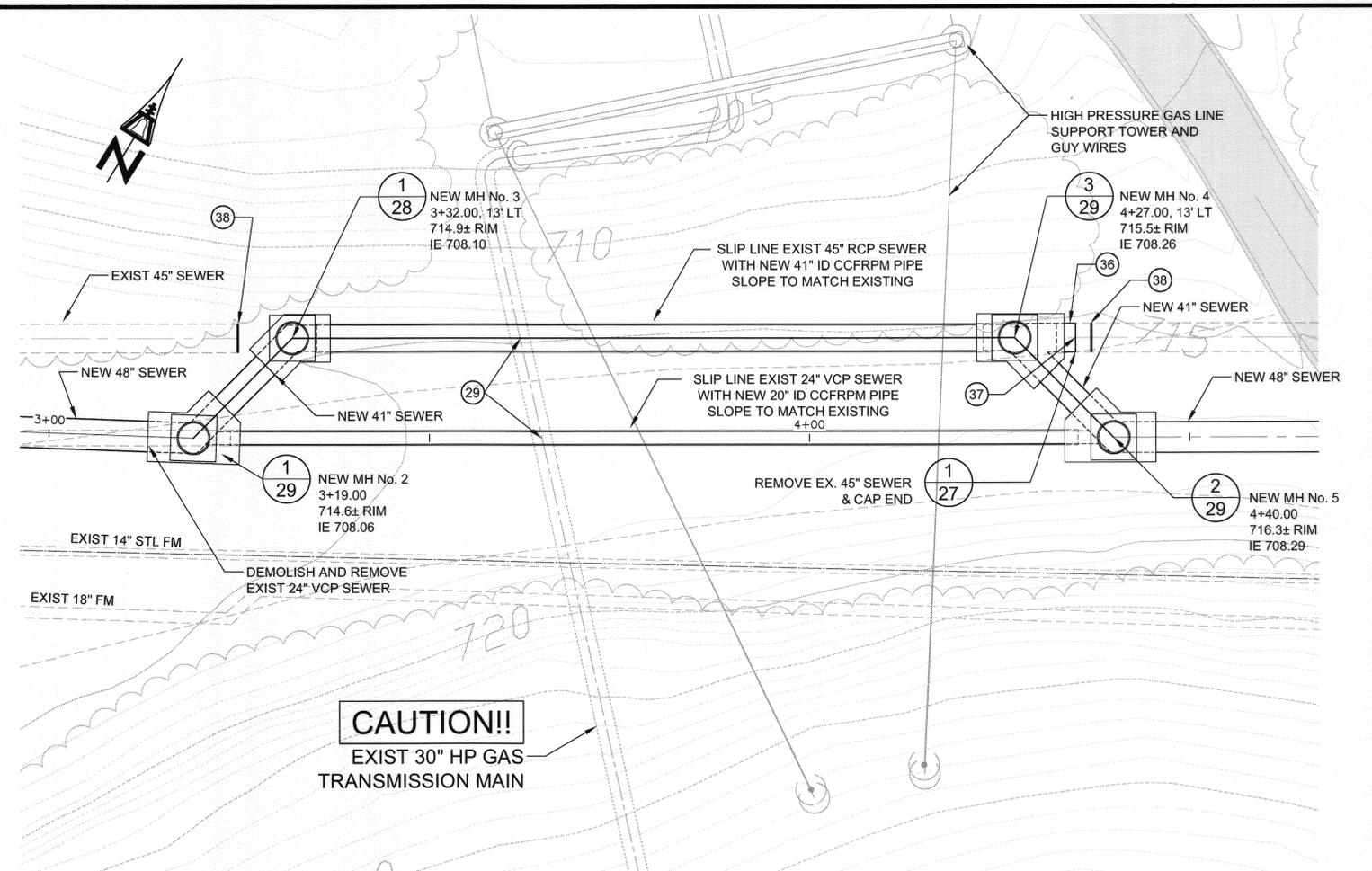
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SEWER CONNECTION AT RIVERSIDE REGIONAL WATER QUALITY CONTROL PLANT BETWEEN STA. 1+00 AND 2+00
 SCALE: 1"=10'
1
6



SECTION A
 SCALE: 1"=10'



SLIPLINING EXISTING SEWER PIPELINES BETWEEN STATIONS 3+19 AND 4+00
 SCALE: 1"=10'
2
6

CONSTRUCTION NOTES

- 29 GAS PERSONNEL SHALL BE PRESENT AT ALL TIMES DURING CONSTRUCTION WITHIN THEIR 30" HPG PIPE.
- 36 2.5' LONG CCFRPM POOL
- 37 CONNECT TO EXISTING 45" RCP SEWER DURING BYPASS PHASE. CAP END OF POOL AFTER FINAL CONNECTIONS HAVE BEEN MADE.
- 38 REMOVE EXISTING 45" RCP SEWER AND CAP END AFTER FINAL CONNECTIONS HAVE BEEN MADE.



BROWN AND CALDWELL
 SAN DIEGO, CALIFORNIA
 ENGINEER IN CHARGE: *Mark O. Bridges*
 REGISTERED CIVIL ENGINEER No. C036183
 REGISTRATION EXPIRES 6-30-12

CITY OF RIVERSIDE, CALIFORNIA
 PUBLIC WORKS DEPARTMENT
 APPROVED BY: *[Signature]*
 DATE: 3/2/11
 CITY ENGINEER

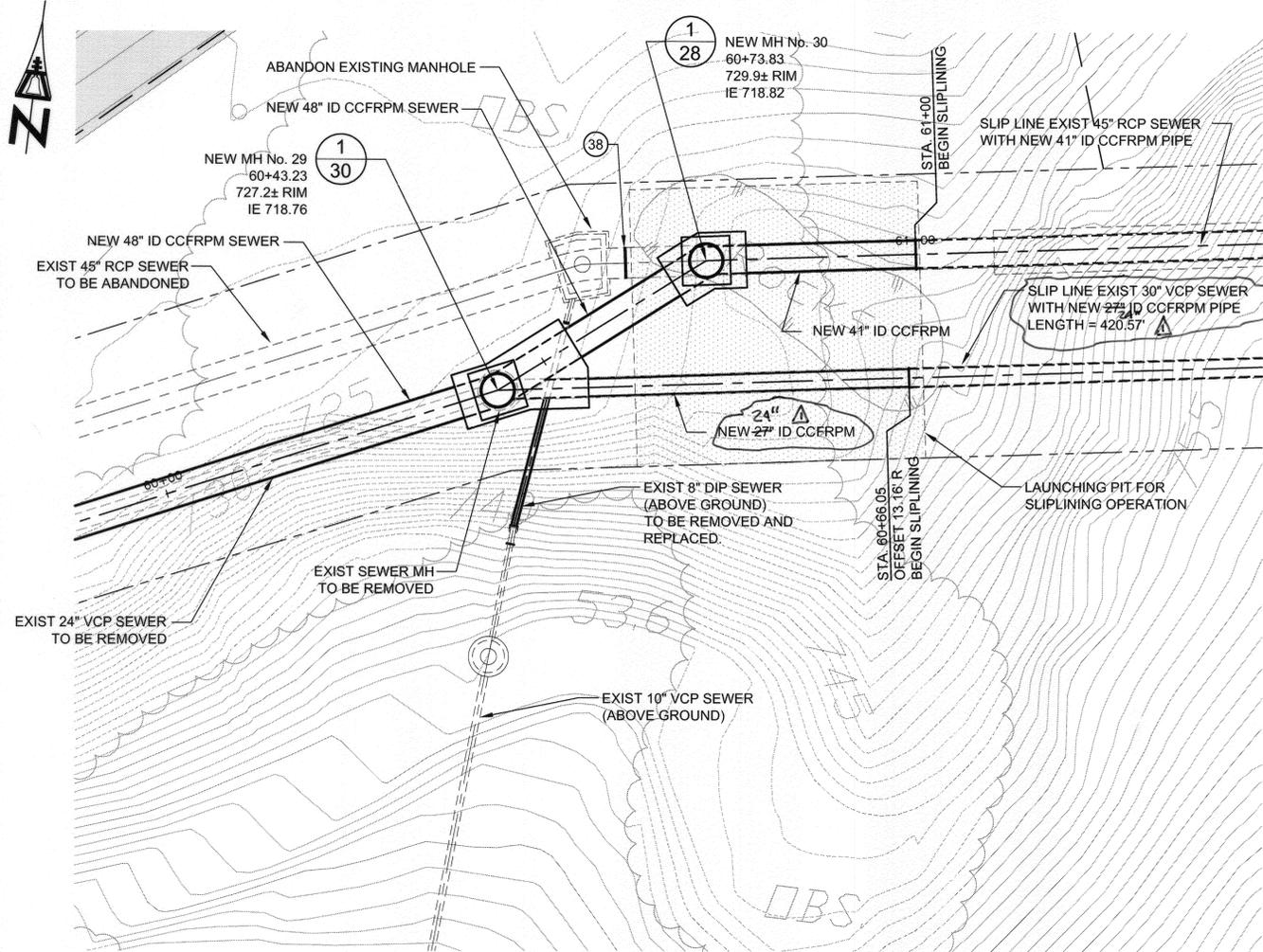
SANTA ANA RIVER TRUNK
 SEWER REPLACEMENT - PHASE I
 48" TRUNK SEWER ENLARGED PLAN
 AT RIVERSIDE WWTP

ACCT. NO.: S-2054
 SHEET 17 OF 33
 FILE NO. SARTS_SHT17.DWG

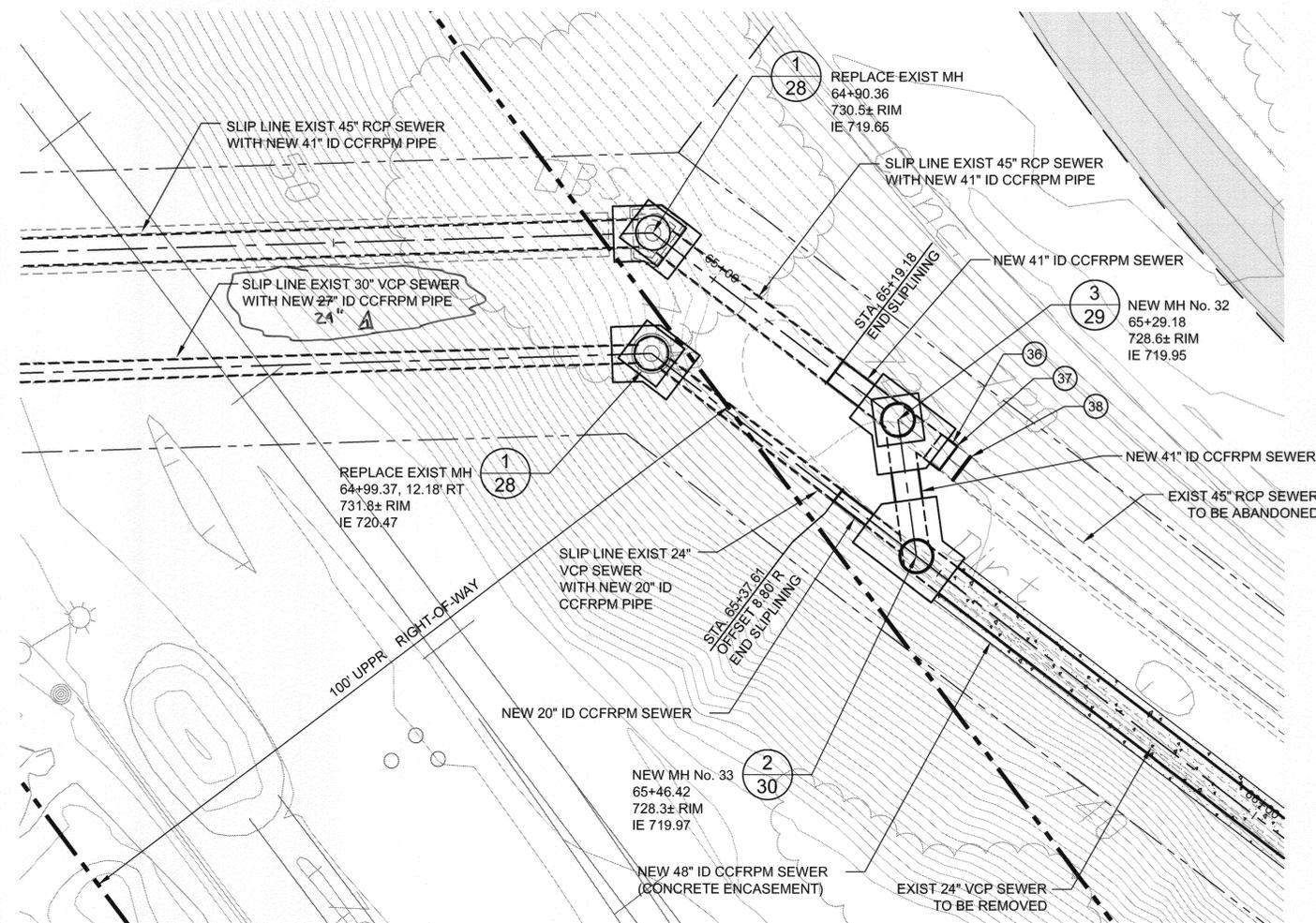
BC JOB No. 133410
 LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" - SCALE ACCORDINGLY)

DESIGNED BY: DPM DRAWN BY: RMK CHECKED BY: RF

HORIZ. SCALE: 1" = 10' VERT. SCALE: 1" = 10'



RAILROAD CROSSING TUNNEL AND JUNCTION CONNECTION 1
WEST SIDE OF RAILROAD,
BETWEEN STATIONS 60+00 AND 61+00
 SCALE: 1"=10'-0"



RAILROAD CROSSING TUNNEL AND JUNCTION CONNECTION 2
EAST SIDE OF RAILROAD,
BETWEEN STATIONS 64+50 AND 66+00
 SCALE: 1"=10'-0"

- CONSTRUCTION NOTES**
- 36 2.5' LONG CCFRPM POOL
 - 37 CONNECT TO EXISTING 45" RCP SEWER DURING BYPASS PHASE. CAP END OF POOL AFTER FINAL CONNECTIONS HAVE BEEN MADE.
 - 38 REMOVE EXISTING 45" RCP SEWER AND CAP END AFTER FINAL CONNECTIONS HAVE BEEN MADE.

Path: P:\Projects\Riverside, City of (CAN133410 - Santa Ana River Trunk Sewer\CAD\12-SHEETS PHASE 1\C-CVIL. Filename: SARTS_SHT18. Plot date: Feb. 15, 2011 02:58PM. CAD User: Dawdee, David

BC JOB No.133410
 LINE IS 2 INCHES
 AT FULL SIZE
 (IF NOT 2" SCALE ACCORDINGLY)



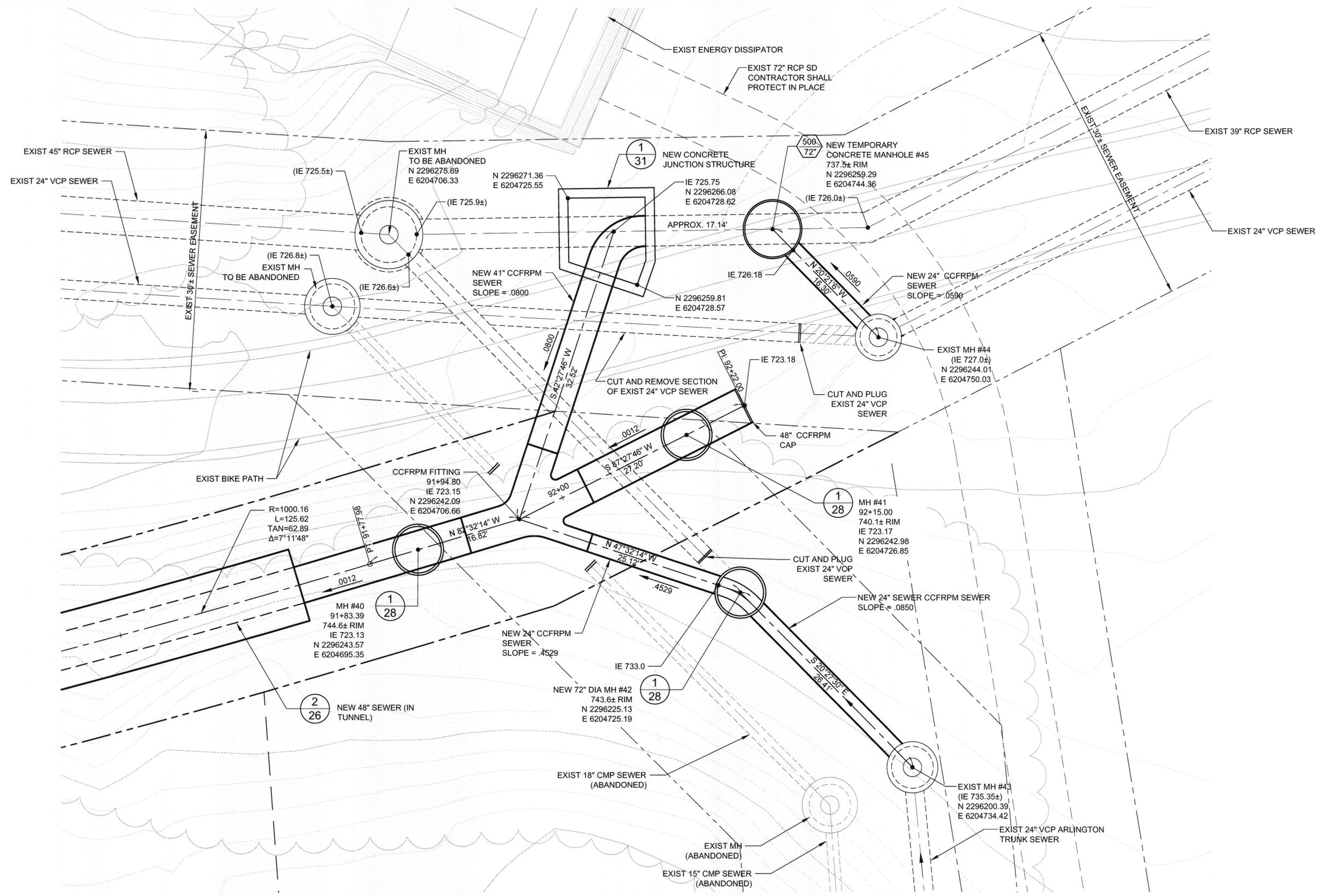
BROWN AND CALDWELL
 SAN DIEGO, CALIFORNIA
 ENGINEER IN RESPONSIBLE CHARGE:
Mark O. Briggs
 REGISTERED CIVIL ENGINEER No. C036183
 DATE: 2-15-11 REGISTRATION EXPIRES 6-30-12

MARK	REVISIONS	APPR	DATE
Δ	REVIS PIPE DIAMETER	RF	2/11

CITY OF RIVERSIDE, CALIFORNIA
PUBLIC WORKS DEPARTMENT
 APPROVED BY: *[Signature]* DATE: 3/2/11
 ENGINEERING MANAGER
 PRINCIPAL ENGINEER
 TRAFFIC DIVISION
 PUBLIC WORKS DEPARTMENT
 INSPECTION SURVEYOR

SANTA ANA RIVER TRUNK
SEWER REPLACEMENT - PHASE I
48" TRUNK SEWER ENLARGED PLAN
AT RAILROAD CROSSING
 HORIZ. SCALE: 1" = 10' VERT. SCALE: 1" = 10'

ACCT. NO.:
S-2054
 SHEET **18** OF **33**
 FILE NO. SARTS_SHT18.DWG



ARLINGTON JUNCTION STRUCTURE CONNECTION - ENLARGED PLAN
 BETWEEN STATION 91+50 AND 92+22

SCALE: 1"=5'-0"

Path: P:\Projects\Riverside, City of\CAV133410 - Santa Ana River Trunk Sewer\CA0012-SHEETS PHASE 1C-CIVIL File: SARTS_SHT19 Plot date: Feb. 15, 2011 12:07PM CAD User: Davidse, David

BC JOB No. 133410
 LINE IS 2 INCHES
 AT FULL SIZE
 (IF NOT 2" = SCALE ACCORDINGLY)



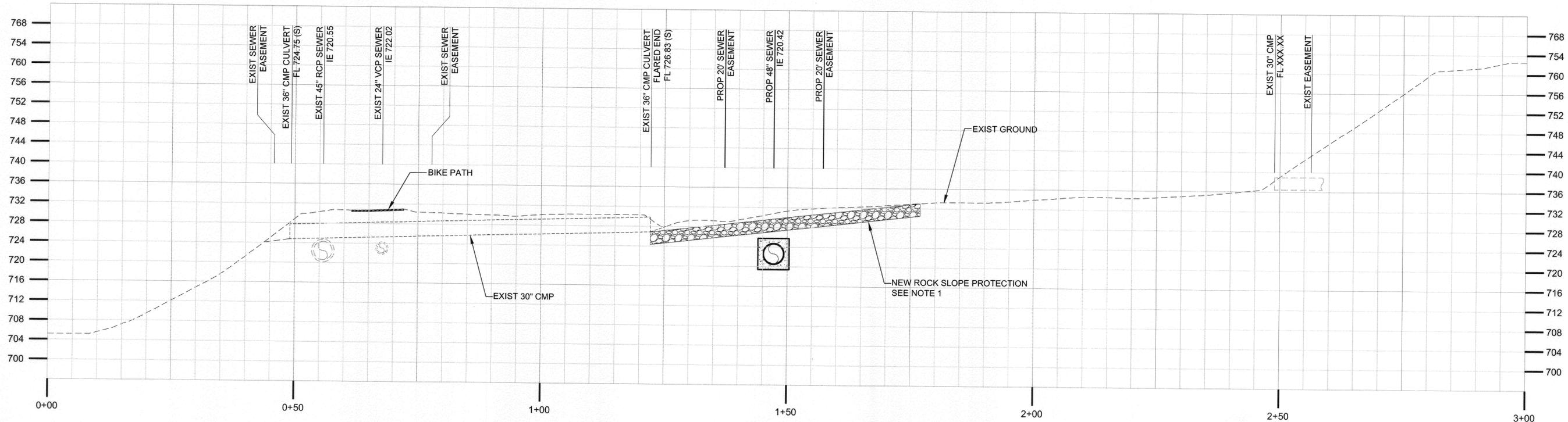
BROWN AND CALDWELL
 SAN DIEGO, CALIFORNIA
 ENGINEER IN CHARGE: *Mark O. Bridges*
 REGISTERED CIVIL ENGINEER No. C036183
 DATE: 2-15-11 REGISTRATION EXPIRES 6-30-12

MARK	REVISIONS	APPR.	DATE
DESIGNED BY: <i>DBM</i>	DRAWN BY: <i>VCH</i>	CHECKED BY: <i>RF</i>	

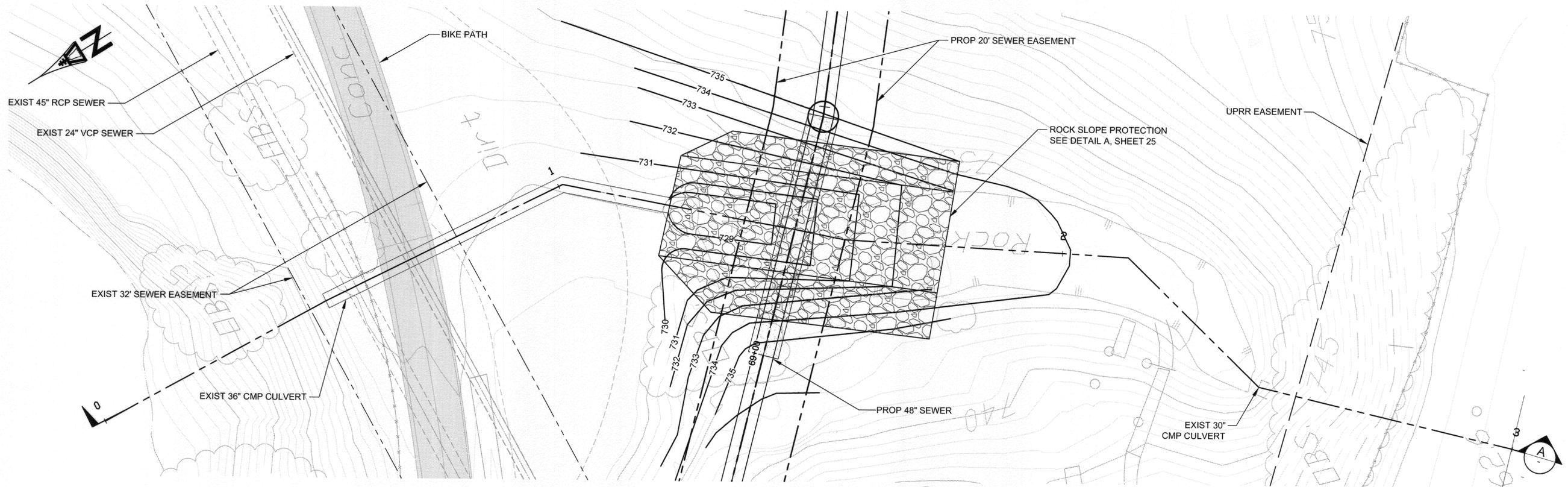
CITY OF RIVERSIDE, CALIFORNIA
PUBLIC WORKS DEPARTMENT
 APPROVED BY: *[Signature]*
 ENGINEERING MANAGER
 TRAFFIC DIVISION
 INSPECTION SURVEYOR

SANTA ANA RIVER TRUNK
SEWER REPLACEMENT - PHASE I
48" TRUNK SEWER ENLARGED PLAN
AT ARLINGTON TRUNK SEWER
 HORIZ. SCALE: AS NOTED VERT. SCALE: none

ACCT. NO.:
S-2054
19 33
 SHEET OF
 FILE NO. SARTS_SHT19.DWG



SECTION AT 69+25 A
SCALE: 1"=10'



STORM DRAIN - PLAN VIEW 1
SCALE: 1"=10'-0"

NOTE:
1. EXISTING GROUTED ROCK TO BE DEMOLISHED. REMOVE AND SALVAGE EXISTING ROCK SLOPE PROTECTION.

BC JOB No. 133410
LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" - SCALE ACCORDINGLY)



BROWN AND CALDWELL
SAN DIEGO, CALIFORNIA
ENGINEER IN CHARGE: *Mark O. Briggs*
REGISTERED CIVIL ENGINEER No. C036183
DATE: 2-15-11 REGISTRATION EXPIRES 6-30-12

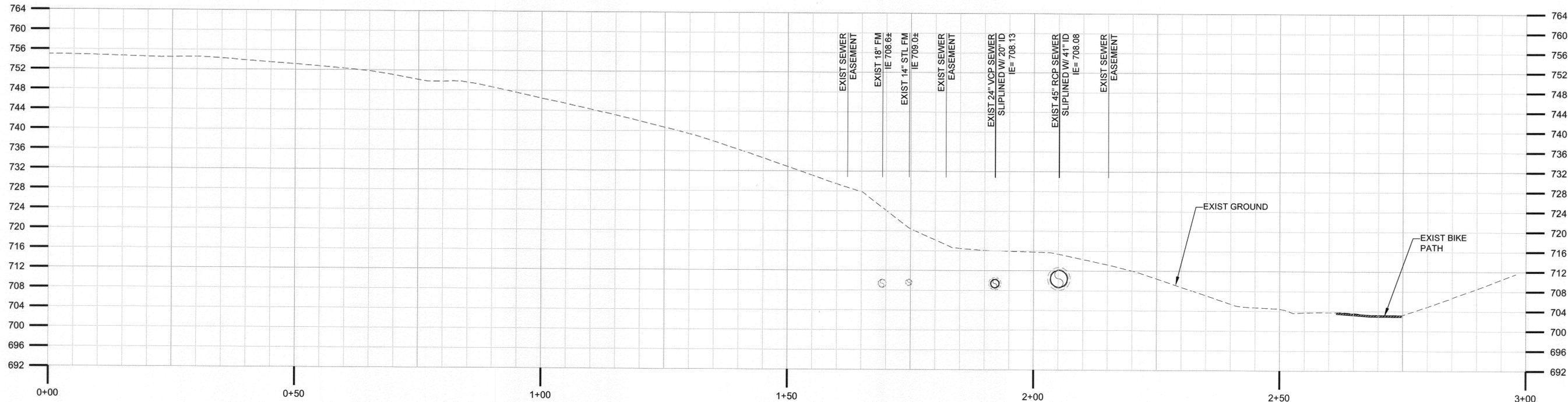
DESIGNED BY: NLH DRAWN BY: RMK CHECKED BY: CDL

CITY OF RIVERSIDE, CALIFORNIA
PUBLIC WORKS DEPARTMENT
APPROVED BY: *[Signature]*
PRINCIPAL ENGINEER
TRAFFIC DIVISION
INSPECTION SUPERVISOR

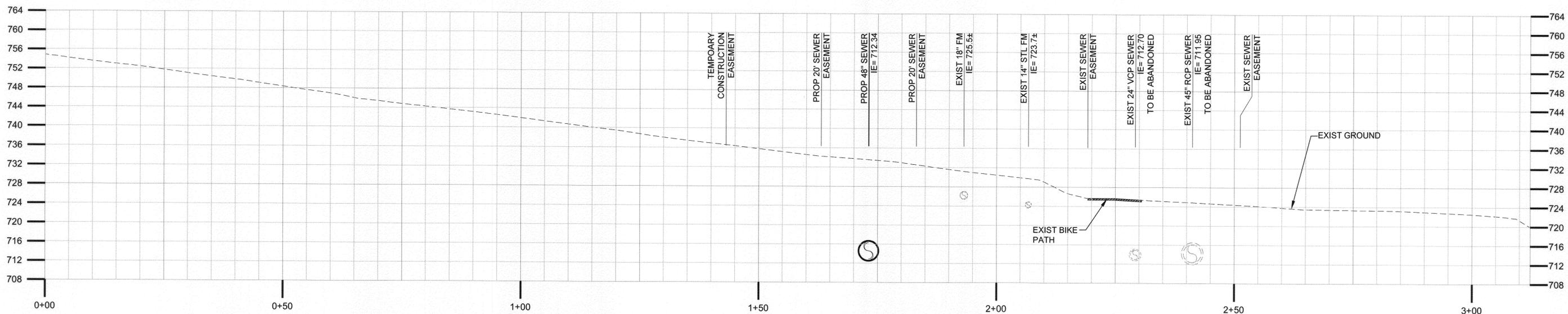
SANTA ANA RIVER TRUNK
SEWER REPLACEMENT - PHASE I
STORM DRAIN AT STATION 69+20
ENLARGED PLAN AND SECTION
HORIZ. SCALE: 1" = 10' VERT. SCALE: 1" = 10'

ACCT. NO.: S-2054
SHEET 21 OF 33
FILE NO. SARTS_SHT21.DWG

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SECTION AT 4+20
SCALE: 1" = 10'



SECTION AT 25+50
SCALE: 1" = 10'

BC JOB No.133410
LINE IS 2 INCHES
AT FULL SIZE
(IF NOT 2" - SCALE ACCORDINGLY)



BROWN AND CALDWELL
SAN DIEGO, CALIFORNIA
ENGINEER IN RESPONSIBLE CHARGE:
Mark O. Briggs
REGISTERED CIVIL ENGINEER No. C036183
DATE: 2-15-11 REGISTRATION EXPIRES 6-30-12

MARK	REVISIONS	APPR.	DATE

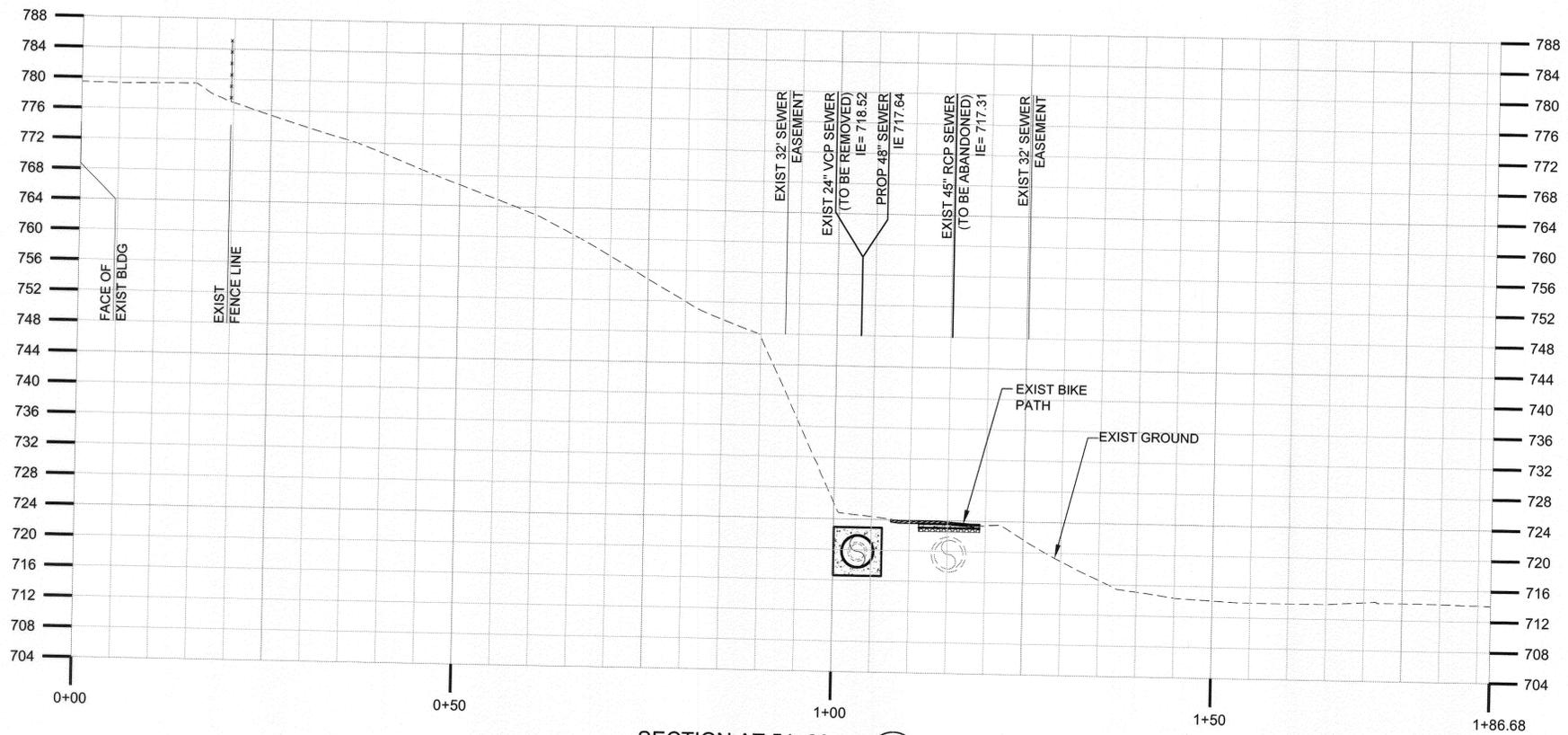
DESIGNED BY: *NLM* DRAWN BY: *RYM* CHECKED BY: *GDL*

CITY OF RIVERSIDE, CALIFORNIA
PUBLIC WORKS DEPARTMENT
APPROVED BY: *[Signature]* DATE: *3/2/11*
PRINCIPAL ENGINEER
TRAFFIC DIVISION
PARKS DEPARTMENT
INSPECTION SUPERVISOR

SANTA ANA RIVER TRUNK
SEWER REPLACEMENT - PHASE I
GROUND SECTIONS AT
STATION 4+20 AND 25+50
HORIZ. SCALE: 1" = 10' VERT. SCALE: 1" = 10'

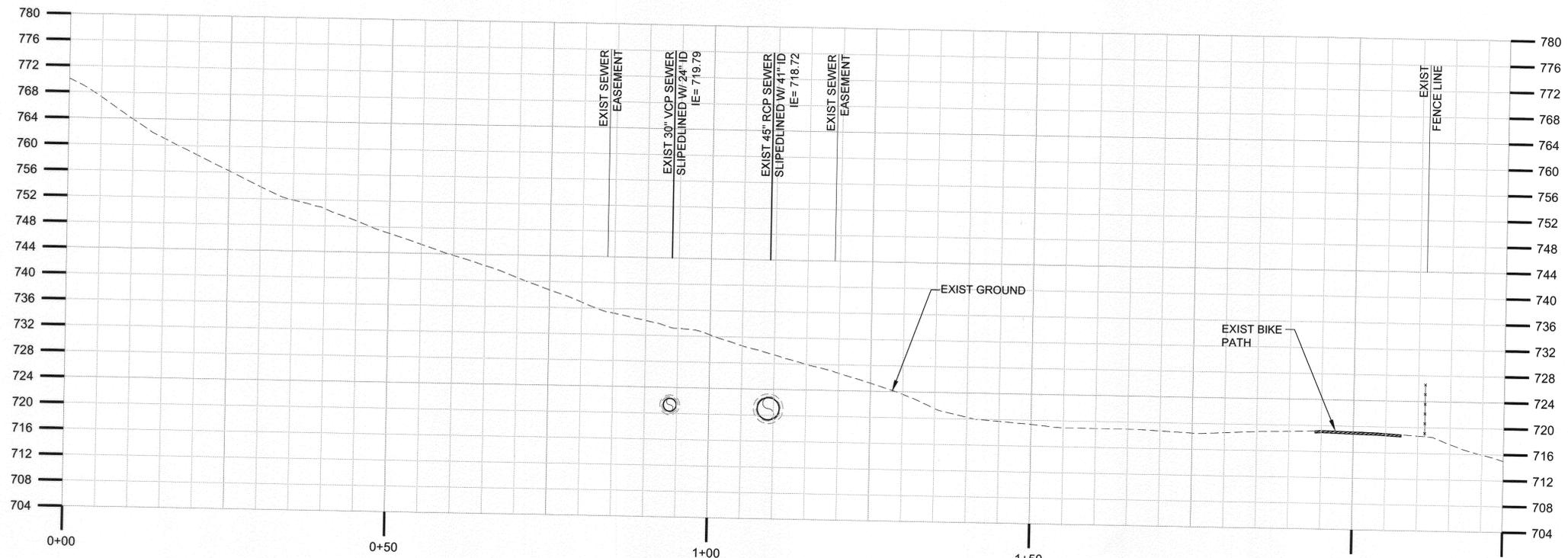
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S-2054
22 OF **33**
SHEET
FILE NO. SARTS_SHT22.DWG

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SECTION AT 54+00
SCALE: 1"= 10'

C
23



SECTION AT 61+00
SCALE: 1"= 10'

D
23

BC JOB No. 133410
LINE IS 2 INCHES
AT FULL SIZE
(IF NOT 2" - SCALE ACCORDINGLY)



BROWN AND CALDWELL
SAN DIEGO, CALIFORNIA
ENGINEER IN RESPONSIBLE CHARGE:
Mark O. Briggs
REGISTERED CIVIL ENGINEER No. 0036183
DATE: 2-15-11 REGISTRATION EXPIRES 6-30-12

MARK	REVISIONS	APPR.	DATE

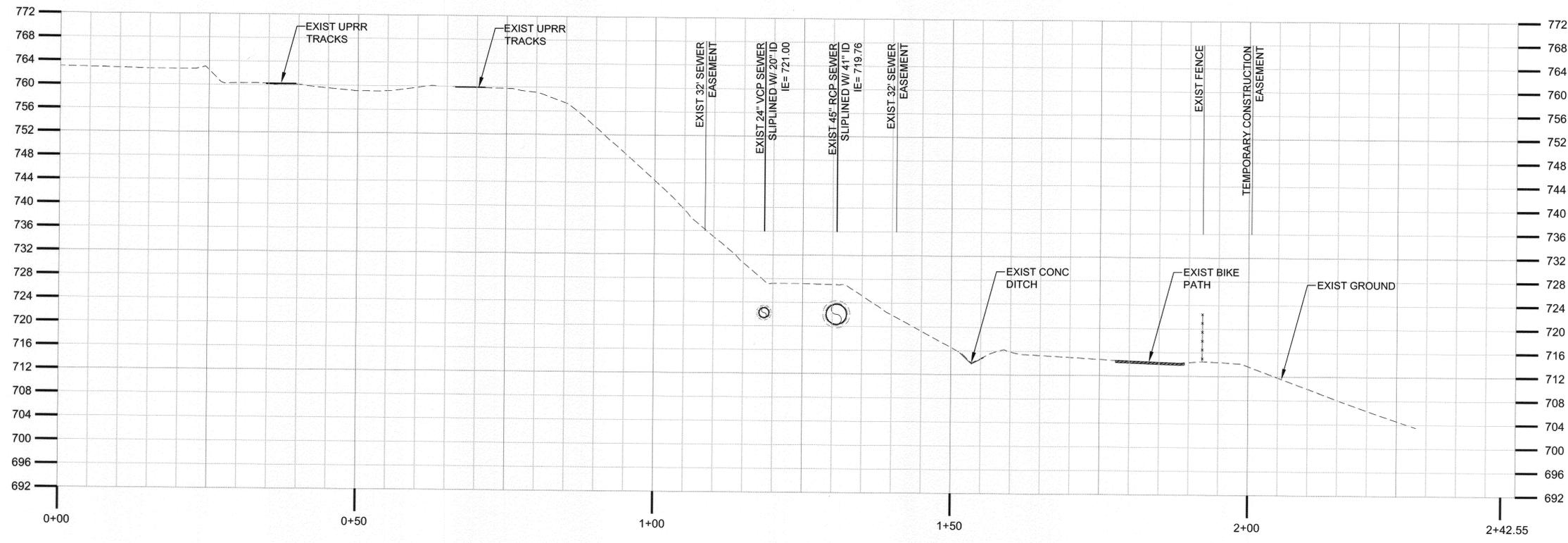
DESIGNED BY: *DBM* DRAWN BY: *RMK* CHECKED BY: *RHF*

CITY OF RIVERSIDE, CALIFORNIA PUBLIC WORKS DEPARTMENT	
APPROVED BY: ENGINEERING MANAGER <i>[Signature]</i>	BY DATE <i>[Signature]</i> 2/11
PRINCIPAL ENGINEER TRAFFIC DIVISION <i>[Signature]</i>	CITY ENGINEER <i>[Signature]</i>
INSPECTION SURVEYOR <i>[Signature]</i>	DATE: 2/11

SANTA ANA RIVER TRUNK
SEWER REPLACEMENT - PHASE I
GROUND SECTIONS AT
STATION 54+00 AND 61+00

ACCT. NO.:
S-2054
SHEET 23 OF 33

HORIZ. SCALE: AS NOTED VERT. SCALE: AS NOTED
FILE NO. SARTS_SHT23.DWG



SECTION AT 65+20
SCALE: 1"= 10'

E
24

Path: P:\Projects\Riverside, City of (CA)\33410 - Santa Ana River Trunk Sewer\CAD\2-SHEETS PHASE I\AC-CIVIL - File\Name: SARTS_SHT24 - Plot date: Feb. 14, 2011 04:42PM CAD User: David

BC JOB No.133410
LINE IS 2 INCHES
AT FULL SIZE
(IF NOT 2" - SCALE ACCORDINGLY)



BROWN AND CALDWELL
SAN DIEGO, CALIFORNIA
ENGINEER IN CHARGE: *Mark O. Briggs*
REGISTERED CIVIL ENGINEER No. C036183
DATE: 2-15-11 REGISTRATION EXPIRES 6-30-12

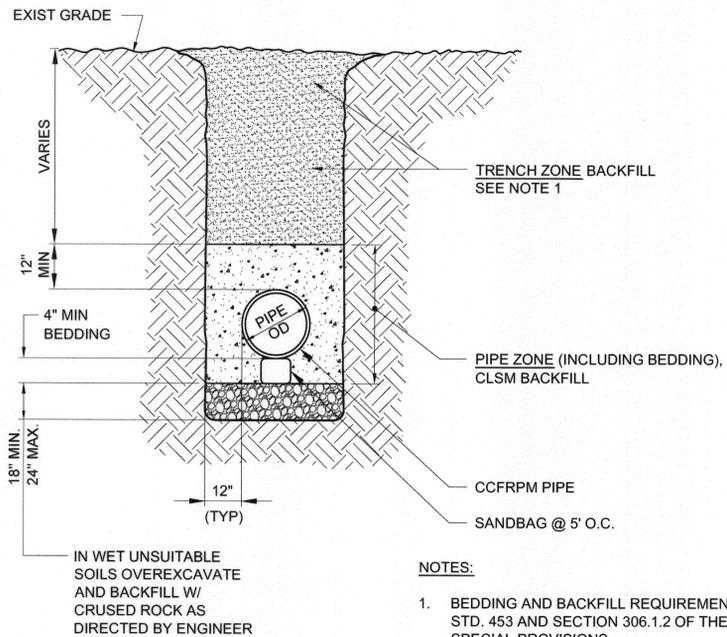
MARK	REVISIONS	APPR.	DATE

DESIGNED BY: DBM DRAWN BY: RMK CHECKED BY: RMF

CITY OF RIVERSIDE, CALIFORNIA
PUBLIC WORKS DEPARTMENT
APPROVED BY: *[Signature]*
DATE: 2/11/11
CITY ENGINEER

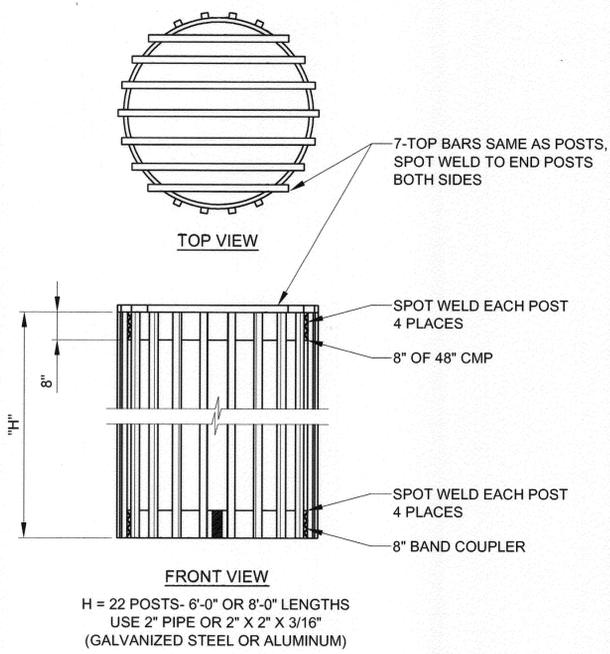
SANTA ANA RIVER TRUNK
SEWER REPLACEMENT - PHASE I
GROUND SECTION AT
STATION 65+20
HORIZ. SCALE: AS NOTED VERT. SCALE: AS NOTED

ACCT. NO.: S-2054
SHEET 24 OF 33
FILE NO. SARTS_SHT24.DWG



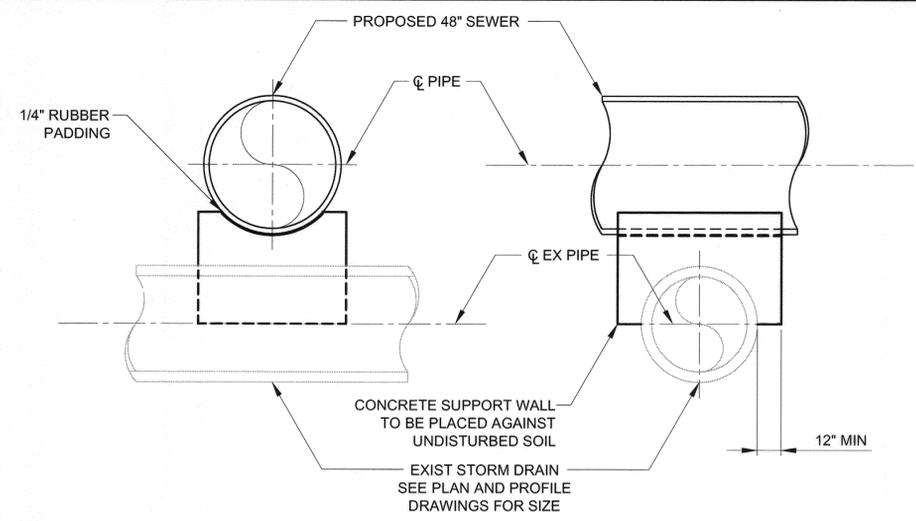
- NOTES:**
- BEDDING AND BACKFILL REQUIREMENTS PER STD. 453 AND SECTION 306.1.2 OF THE SPECIAL PROVISIONS

TRENCH SECTION 1
SCALE: NONE 6,7,8,9,10,11,13,14,15



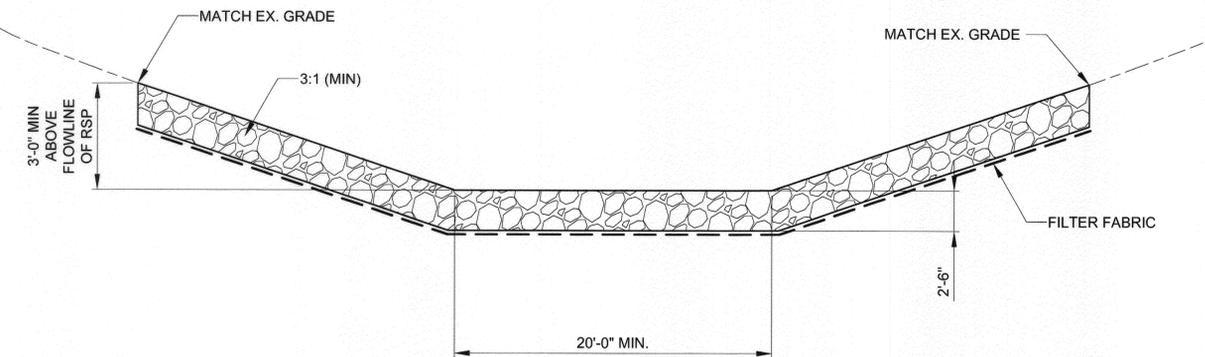
H = 22 POSTS- 6'-0" OR 8'-0" LENGTHS
USE 2" PIPE OR 2" X 2" X 3/16"
(GALVANIZED STEEL OR ALUMINUM)

DEBRIS RACK CAGE 2
SCALE: NONE 20

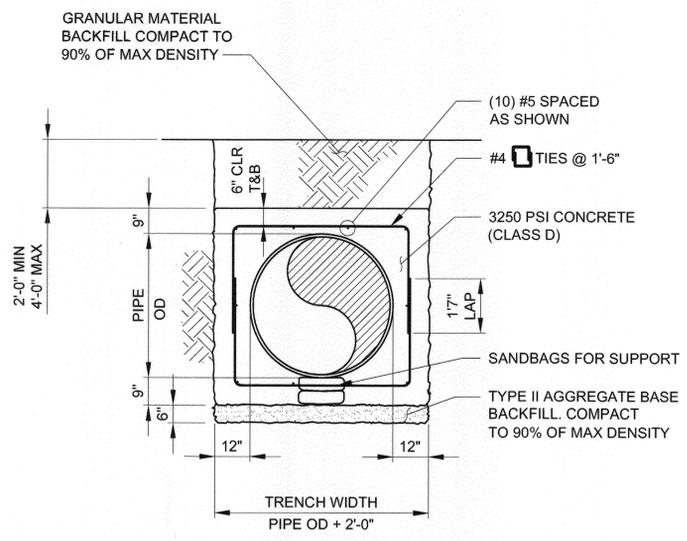


- NOTES:**
- SUPPORTING WALL SHALL HAVE A FIRM BEARING ON SUBGRADE AND AGAINST THE SIDES OF EXCAVATION.
 - APERTURES TO BE PROVIDED FOR FREE DRAINAGE THROUGH WALLS.
 - BACKFILL TO BE BROUGHT UP EVENLY ON BOTH SIDES OF WALLS AND CAREFULLY COMPACTED AT CROSS CONDUITS.
 - AN ALTERNATE METHOD FOR SUPPORT OF A CROSS CONDUIT BY A REINFORCED CONCRETE BEAM MAY BE USED BY THE CONTRACTOR IF DESIGN IS APPROVED BY THE AGENCY HAVING JURISDICTION OVER THE CONDUIT TO BE SUPPORTED.
 - CONCRETE FOR ENCASEMENT SHALL BE CLASS "C".

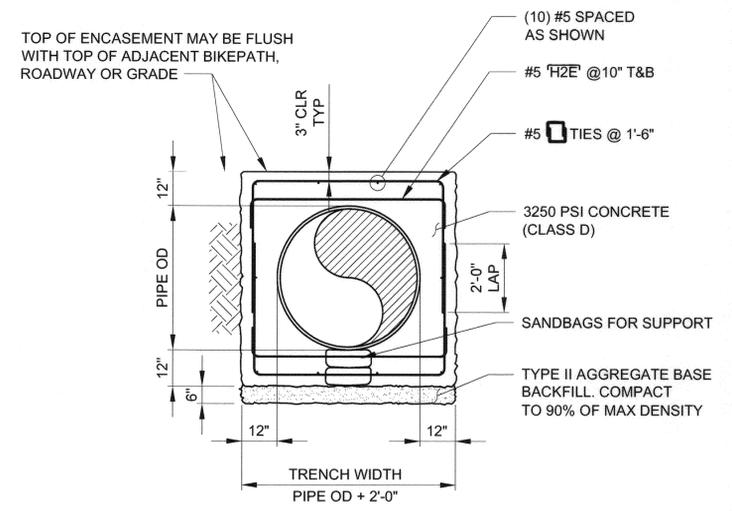
TYPICAL SUPPORT FOR CROSSING PIPELINE 3
SCALE: 3/8" = 1'-0" 6,7,9,10,12



SECTION @ STA. 69+25 A
SCALE: 3/16" = 1'-0" 21



ENCASEMENT WHERE DEPTH OF COVER > 2 FEET



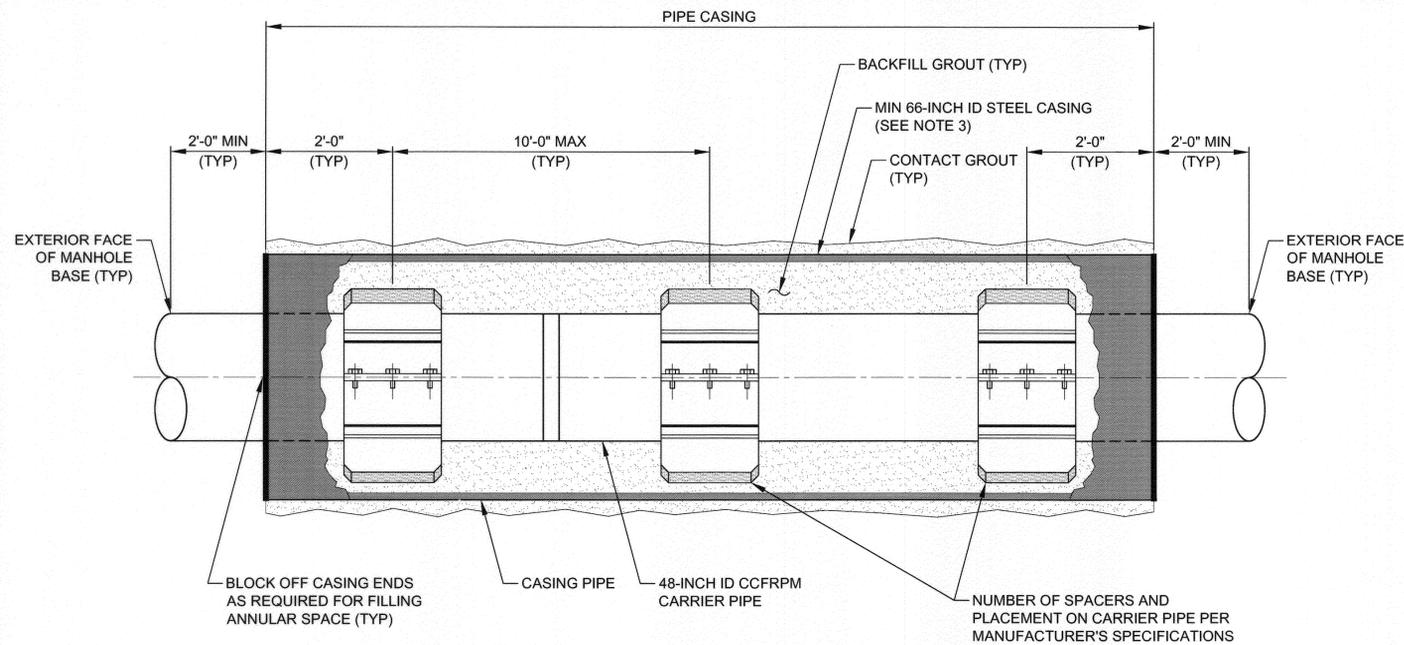
ENCASEMENT WHERE DEPTH OF COVER < 2 FEET

ENCASEMENT DETAIL 4
SCALE: NONE 6,7,8,9,11,12,13,14,

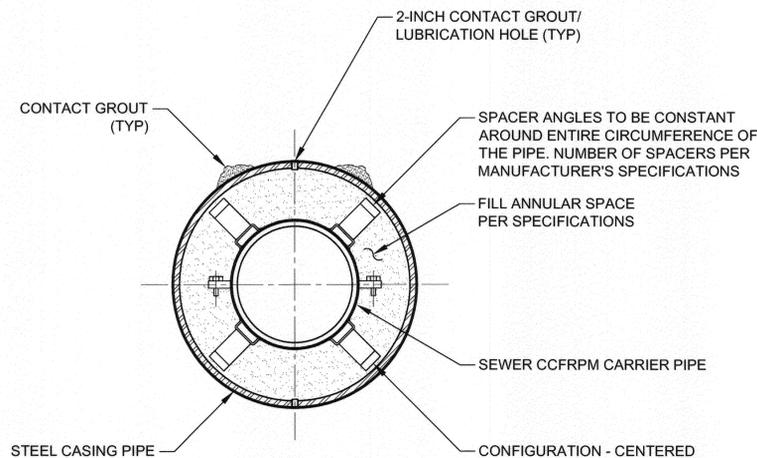
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	BROWN AND CALDWELL SAN DIEGO, CALIFORNIA		CITY OF RIVERSIDE, CALIFORNIA PUBLIC WORKS DEPARTMENT		ACCT. NO.: S-2054
	ENGINEER IN RESPONSIBLE CHARGE: <i>Mark O. Briggs</i> REGISTERED CIVIL ENGINEER No. C036183 DATE: 2-15-11 REGISTRATION EXPIRES 6-30-12	DESIGNED BY: VCH DRAWN BY: RMK CHECKED BY: CDL	APPROVED BY: ENGINEERING MANAGER: <i>[Signature]</i> PRINCIPAL ENGINEER: <i>[Signature]</i> TRAFFIC DIVISION: <i>[Signature]</i> PLANS DEPARTMENT: <i>[Signature]</i> INSPECTION: <i>[Signature]</i> SURVEYOR: <i>[Signature]</i>	APPROVED BY: CITY ENGINEER: <i>[Signature]</i> DATE: 3/4/11	SANTA ANA RIVER TRUNK SEWER REPLACEMENT - PHASE I MISCELLANEOUS DETAILS
BC JOB No.133410 LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" = SCALE ACCORDINGLY)		HORIZ. SCALE: AS NOTED VERT. SCALE: AS NOTED		HORIZ. SCALE: AS NOTED VERT. SCALE: AS NOTED	

Path: P:\Projects\Riverside, City of (CA)\133410 - Santa Ana River Trunk Sewer\CA0012-SHEETS PHASE 1A-CIVIL File Name: SARTS_SHT26 Plot date: Feb 14, 2011 04:19PM CAD User: Davidse, David



ELEVATION



CROSS SECTION

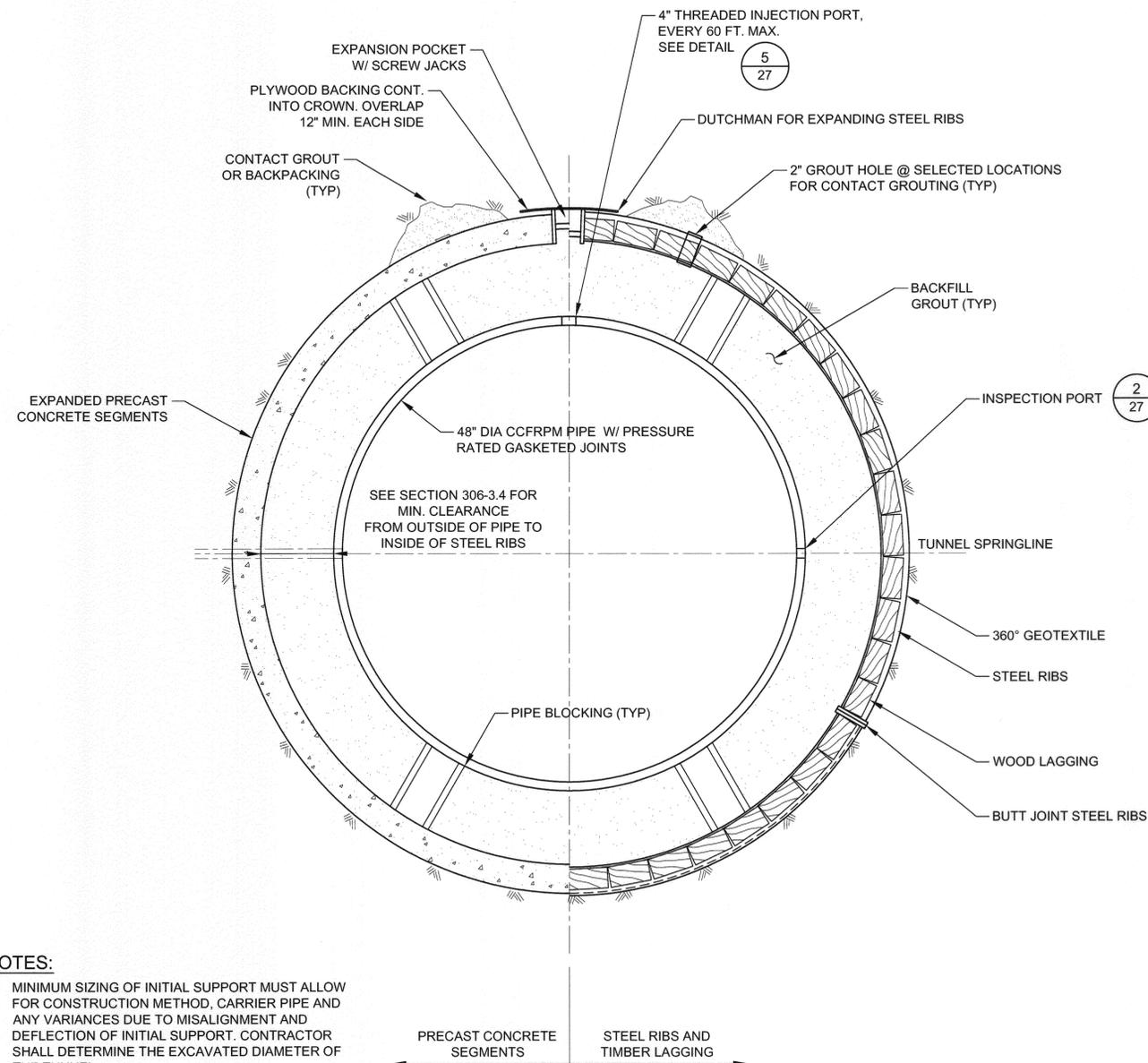
NOTES:

1. INTERIOR OF CASING TO BE GROUND SMOOTH AND LUBRICATED FOR SPACER INSTALLATION.
2. ENTIRE PIPE CASING TO BE INSTALLED TO MAINTAIN GRAVITY SEWER SLOPE AS SHOWN ON DRAWINGS. SEE STANDARD SPECIFICATIONS FOR FURTHER REQUIREMENTS.
3. STEEL CASING SHALL BE AS DESIGNED BY THE CONTRACTOR THAT WILL ALLOW FOR EARTH LOAD, LINE LOAD AND METHOD OF CONSTRUCTION, PER STANDARD SPECIFICATIONS SECTION 306-3.
4. PROVIDE 2-INCH GROUT CONNECTION IN THE FORM OF THREADED COUPLINGS WELDED TO THE STEEL SHELL REGULARLY SPACED ON 4-FEET ON CENTER AT THE TOP AND BOTTOM OF THE CASING.

TYPICAL JACK AND BORE SECTION 1
8
NO SCALE

NOTES:

1. MINIMUM SIZING OF INITIAL SUPPORT MUST ALLOW FOR CONSTRUCTION METHOD, CARRIER PIPE AND ANY VARIANCES DUE TO MISALIGNMENT AND DEFLECTION OF INITIAL SUPPORT. CONTRACTOR SHALL DETERMINE THE EXCAVATED DIAMETER OF THE TUNNEL.
2. MAXIMUM SPACING BETWEEN STEEL RIBS IS 4 FEET.
3. TUNNELS USING STEEL RIB INITIAL SUPPORT SHALL BE LAGGED SKINTIGHT FOR THE ENTIRE CIRCUMFERENCE.
4. PIPE BLOCKING: DESIGN, QUANTITY, LAYOUT AND LOCATION BY CONTRACTOR DESIGN. PIPE BLOCKING SHALL BE INTERMITTENT ALONG PIPE LENGTH TO ALLOW COMPLETE BACKFILL GROUT PLACEMENT. BLOCKING SHALL PREVENT MOVEMENT OR FLOTATION DURING BACKFILL GROUTING, PER THE STANDARD SPECIFICATIONS SECTION 306-3.
5. INSTALL TUNNEL INITIAL SUPPORT AND PIPE AT ORIENTATIONS SHOWN.
6. SEE SECTION 207.20 FOR CARRIER PIPE SPECIFICATIONS.
7. INSPECTION PORTS SHALL BE INSTALLED AS INDICATED AT THE SPRINGLINE OF THE PIPE AND SPACED AT A MAXIMUM 40 FOOT CENTERS BEGINNING AT THE CENTERPOINT OF THE EASTERN MOST PIPE SECTION.



TYPICAL TUNNEL SECTION 2
14,15,16
NO SCALE

BC JOB No.133410
LINE IS 2 INCHES
AT FULL SIZE
(IF NOT 2" - SCALE ACCORDINGLY)



BROWN AND CALDWELL
SAN DIEGO, CALIFORNIA

ENGINEER IN RESPONSIBLE CHARGE: *Mark O. Briggs*
REGISTERED CIVIL ENGINEER No. C036183
DATE: 2-15-11 REGISTRATION EXPIRES 6-30-12

DESIGNED BY: VCH DRAWN BY: RMK CHECKED BY: CDL

**CITY OF RIVERSIDE, CALIFORNIA
PUBLIC WORKS DEPARTMENT**

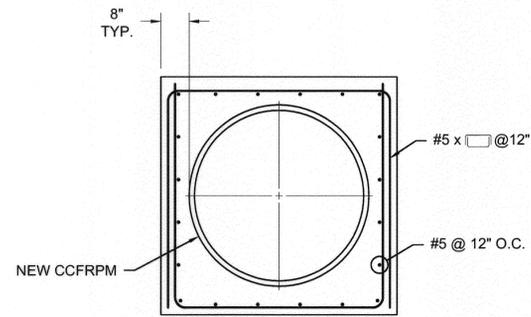
APPROVED BY: *[Signature]* DATE: 2/2/11
ENGINEERING MANAGER
PRINCIPAL ENGINEER
TRAFFIC DIVISION
PUBLIC WORKS DEPARTMENT
INSPECTOR
SURVEYOR

**SANTA ANA RIVER TRUNK
SEWER REPLACEMENT - PHASE I**

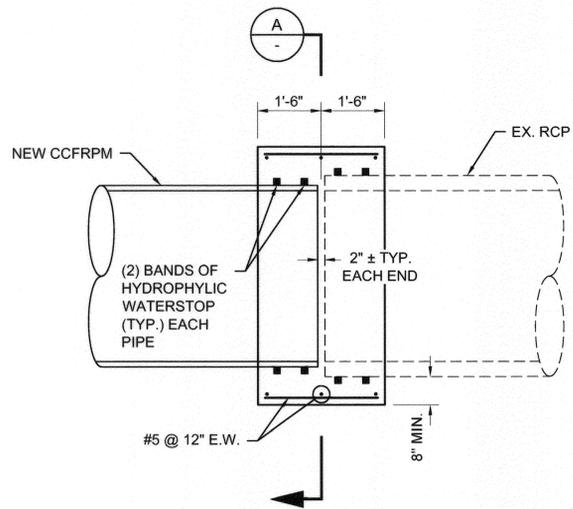
CASING AND TUNNELING DETAILS

HORIZ. SCALE: AS NOTED VERT. SCALE: AS NOTED

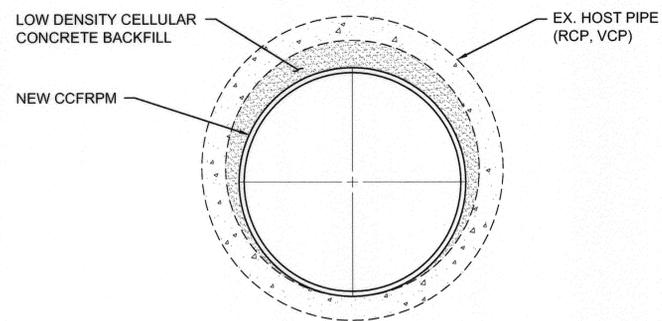
ACCT. NO.: S-2054
SHEET 26 OF 33
FILE NO. SARTS_SHT26.DWG



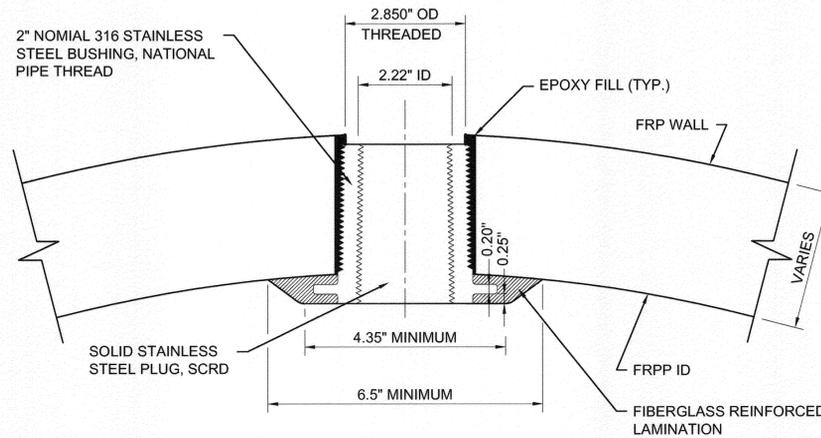
CONCRETE COLLAR SECTION
SCALE: NONE



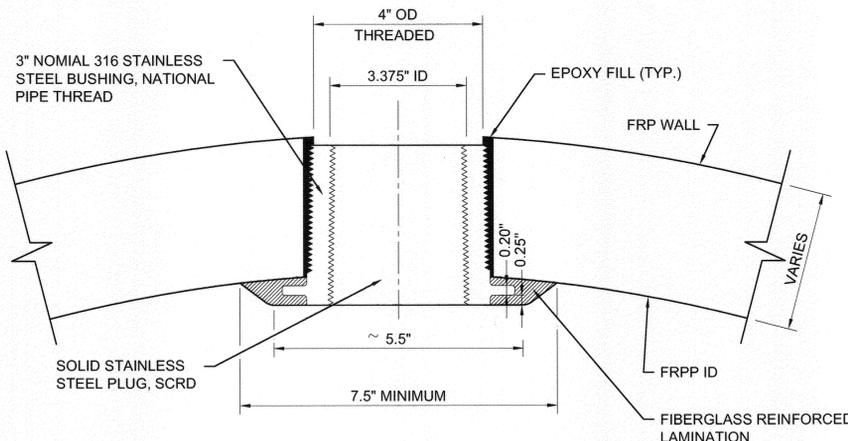
CONCRETE COLLAR DETAIL
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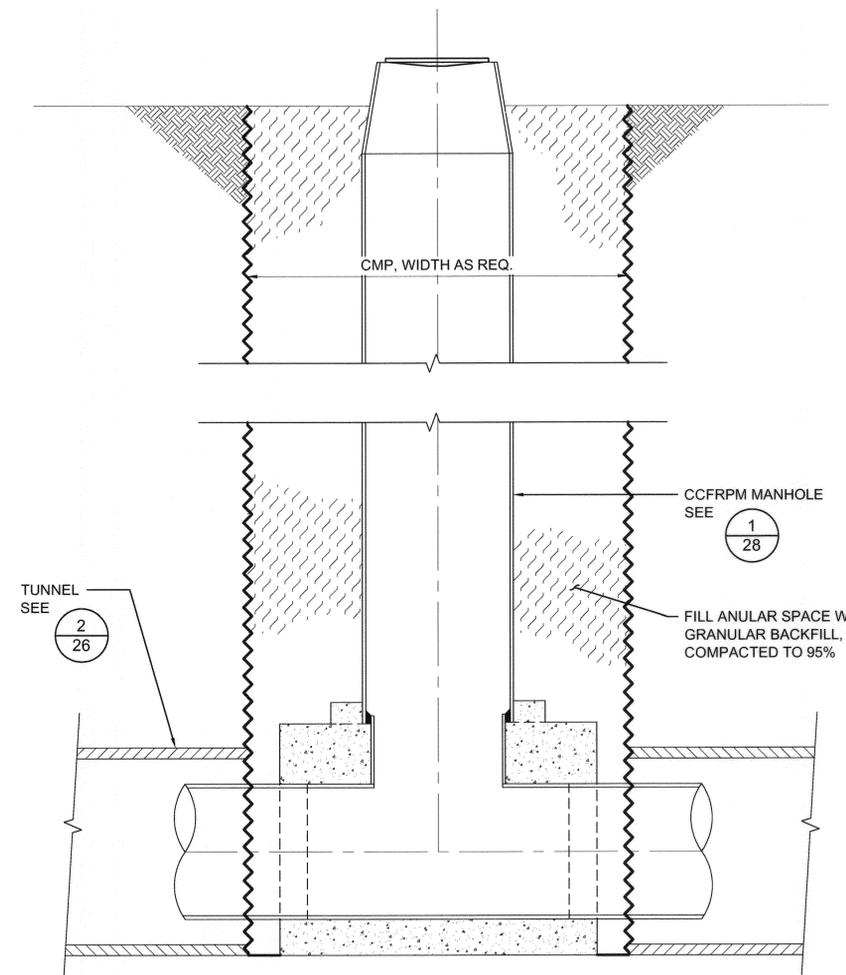
SLIP LINING DETAIL
SCALE: NONE



INSPECTION PORT DETAIL
SCALE: NONE



INJECTION PORT DETAIL
SCALE: NONE



VERTICAL SHAFT DETAIL
SCALE: NONE

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BC JOB No. 133410
LINE IS 2 INCHES
AT FULL SIZE
(IF NOT 2" - SCALE ACCORDINGLY)



BROWN AND CALDWELL
SAN DIEGO, CALIFORNIA

ENGINEER IN RESPONSIBLE CHARGE:
Mark O. Bridges
REGISTERED CIVIL ENGINEER No. C036183
DATE: 2-15-11 REGISTRATION EXPIRES 6-30-12

NO.	REVISIONS	APPR.	DATE

DESIGNED BY: VCH DRAWN BY: RMR CHECKED BY: CDL

CITY OF RIVERSIDE, CALIFORNIA
PUBLIC WORKS DEPARTMENT

APPROVED BY:	BY:	DATE:

DATE: 3/11

SANTA ANA RIVER TRUNK
SEWER REPLACEMENT - PHASE I

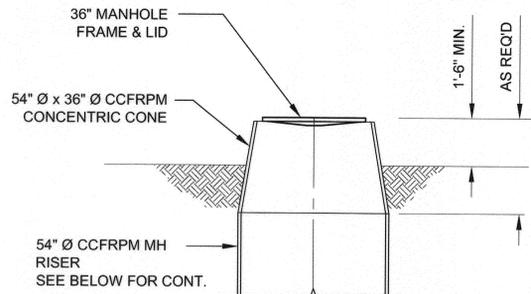
TUNNELING & MISCELLANEOUS DETAILS

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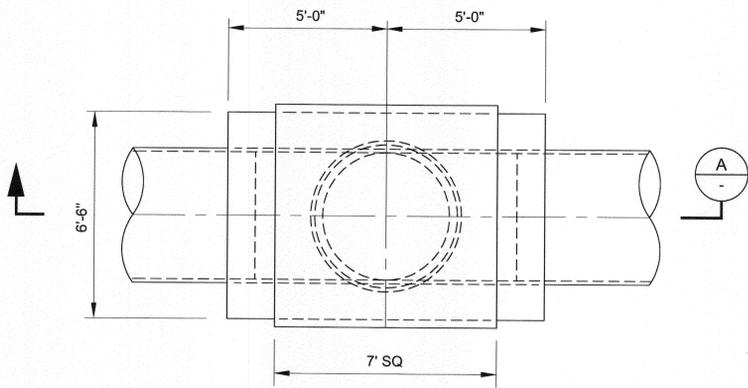
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27 OF 33

FILE NO. SARTS_SHT25.DWG

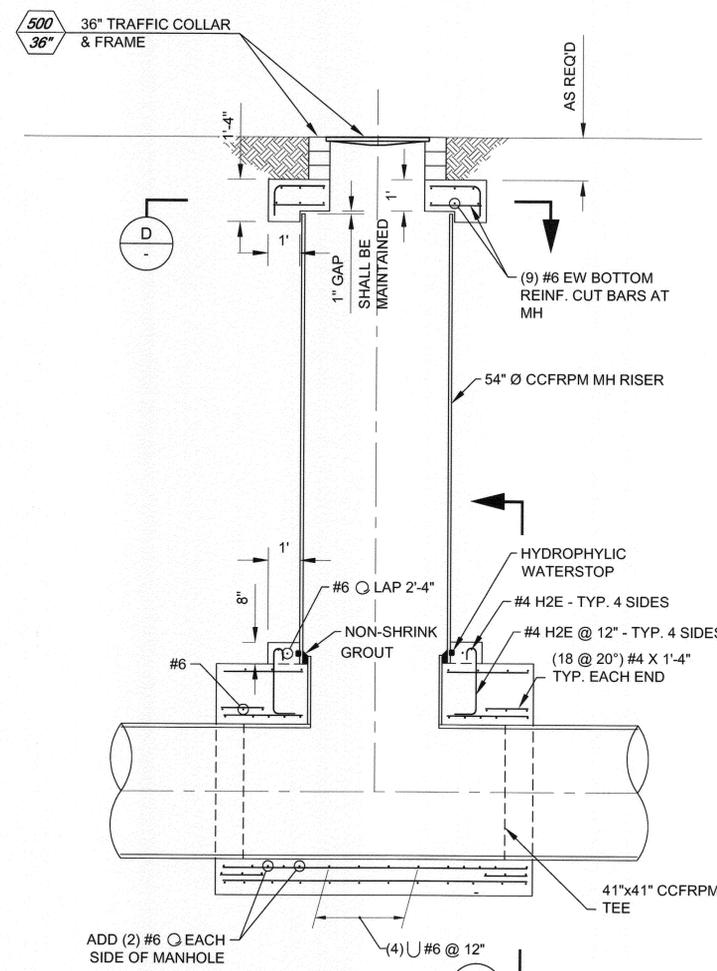


NON - TRAFFIC CONDITION

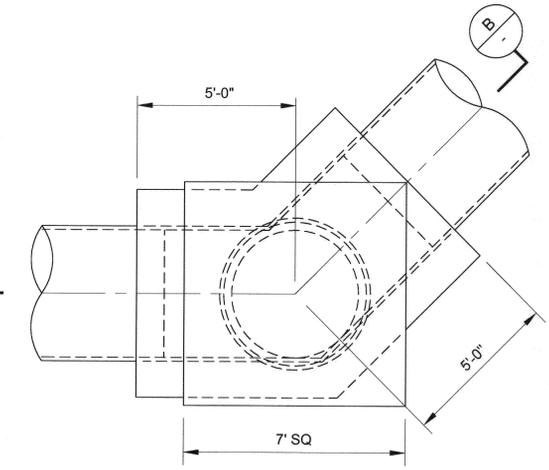
STA. 3+32, 5+17.89, 5+72.55, 11+78.95, 15+79.34, 19+55.77, 24+41.26, 26+70.85, 29+34.92, 32+64.34, 36+12.50, 39+62.65, 42+11.42, 44+61.33, 47+78.73, 53+62.81, 55+86.78, 58+45.28, 60+43.23, 60+73.83, 64+90.36, 64+99.37, 65+29.18, 65+46.42, 66+81.64, 68+08.02, 69+48.02, 91+83.39, 92+12.56 & 92+15



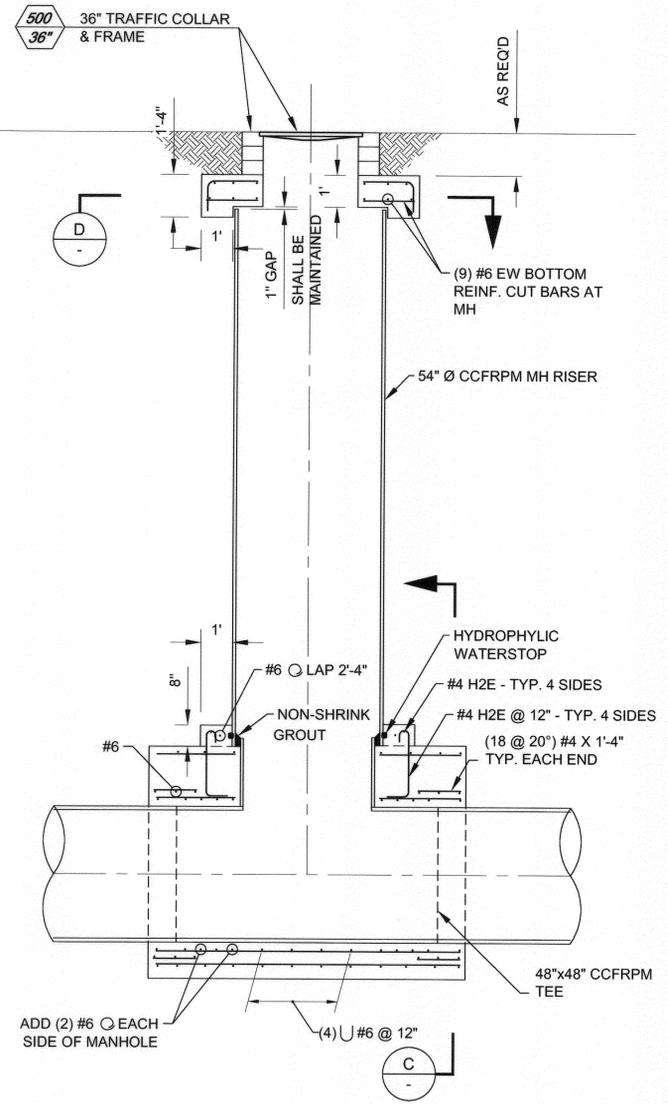
MANHOLE WITHIN STRAIGHT RUN - PLAN



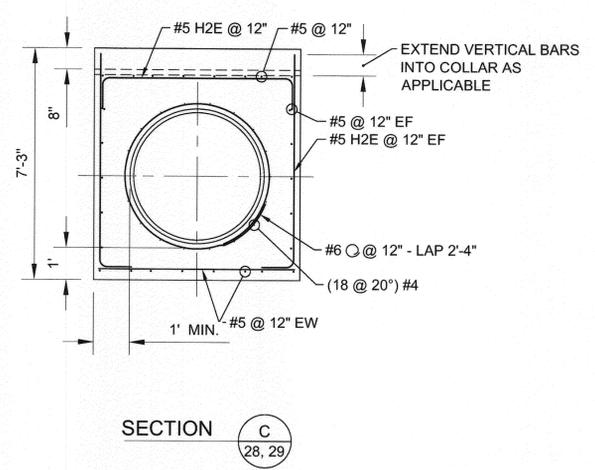
MANHOLE AT HORIZONTAL DEFLECTION - PLAN



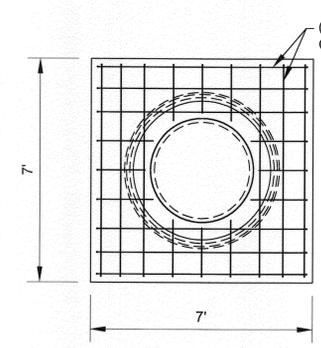
CCFRPM MANHOLE DETAIL AT STA. 3+32, STA. 60+73.83 AND STA. 64+90.36
SCALE: 3/8" = 1'-0"



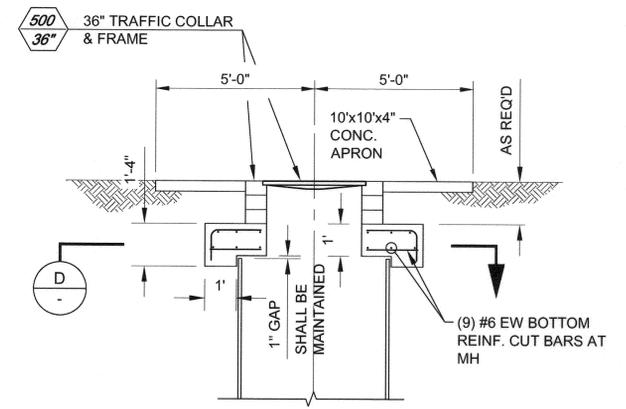
SECTION (TRAFFIC CONDITION)



SECTION C
28, 29



SECTION D
28, 29



CCFRPM MANHOLE W/ CONCRETE APRON AT STA. 3+19, STA. 4+40, 7+88.05, 51+42.77, 52+38.71, 79+03.54 AND STA. 64+90.36
SCALE: 3/8" = 1'-0"

TYP. CCFRPM MANHOLE DETAIL
SCALE: 3/8" = 1'-0"

BC JOB No. 133410
LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" - SCALE ACCORDINGLY)



BROWN AND CALDWELL
SAN DIEGO, CALIFORNIA
ENGINEER IN RESPONSIBLE CHARGE: *Mark O. Briggs*
REGISTERED CIVIL ENGINEER No. C036183
DATE: 2-15-11 REGISTRATION EXPIRES 6-30-12

MARK	REVISIONS	APPR.	DATE

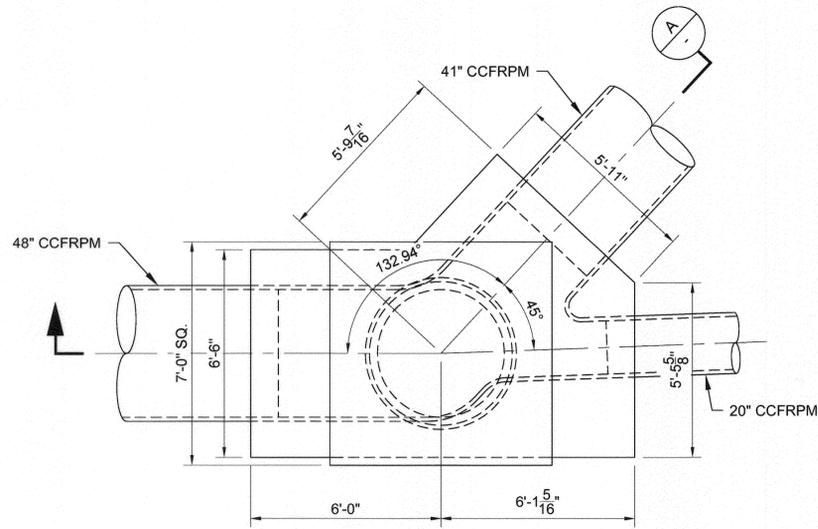
CITY OF RIVERSIDE, CALIFORNIA
PUBLIC WORKS DEPARTMENT
APPROVED BY: *[Signature]*
DATE: 3/2/11

SANTA ANA RIVER TRUNK
SEWER REPLACEMENT - PHASE I
CCFRPM MANHOLE DETAILS - 1
HORIZ. SCALE: AS NOTED VERT. SCALE: AS NOTED

ACCT. NO.: S-2054
SHEET 28 OF 33
FILE NO. SARTS_SHT27.DWG

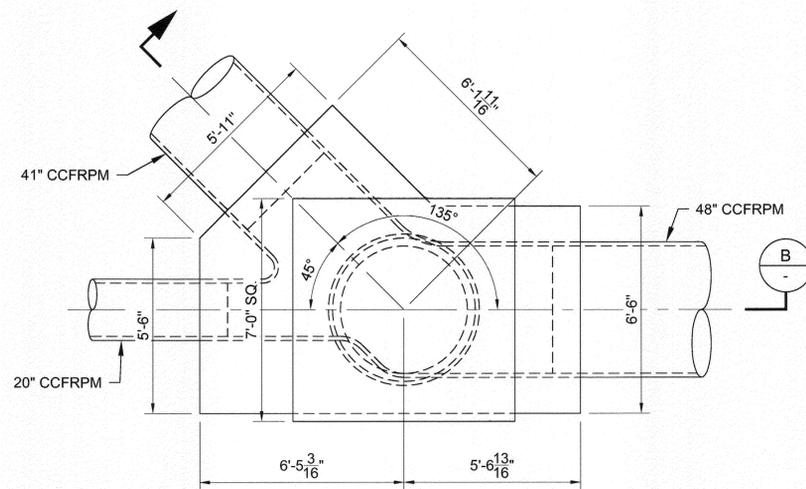
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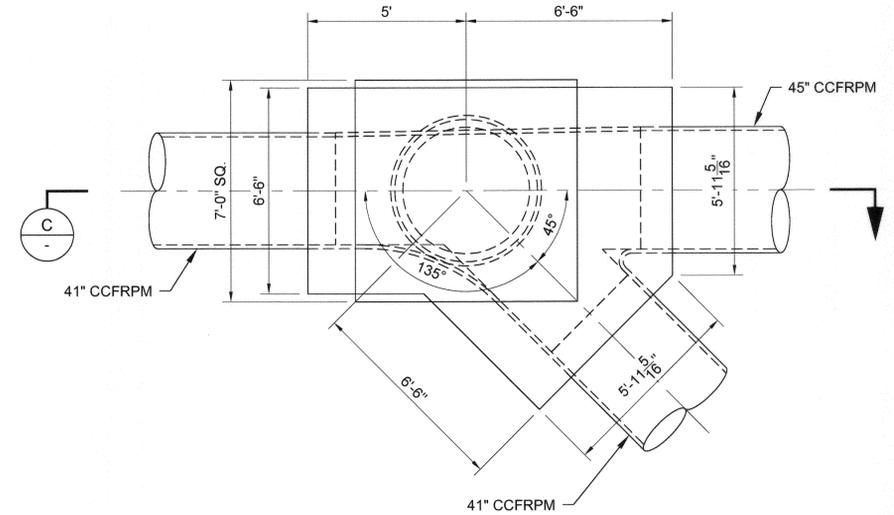
CCFRPM MANHOLE DETAIL AT STA. 3+19
SCALE: 3/8" = 1'-0"

1
17



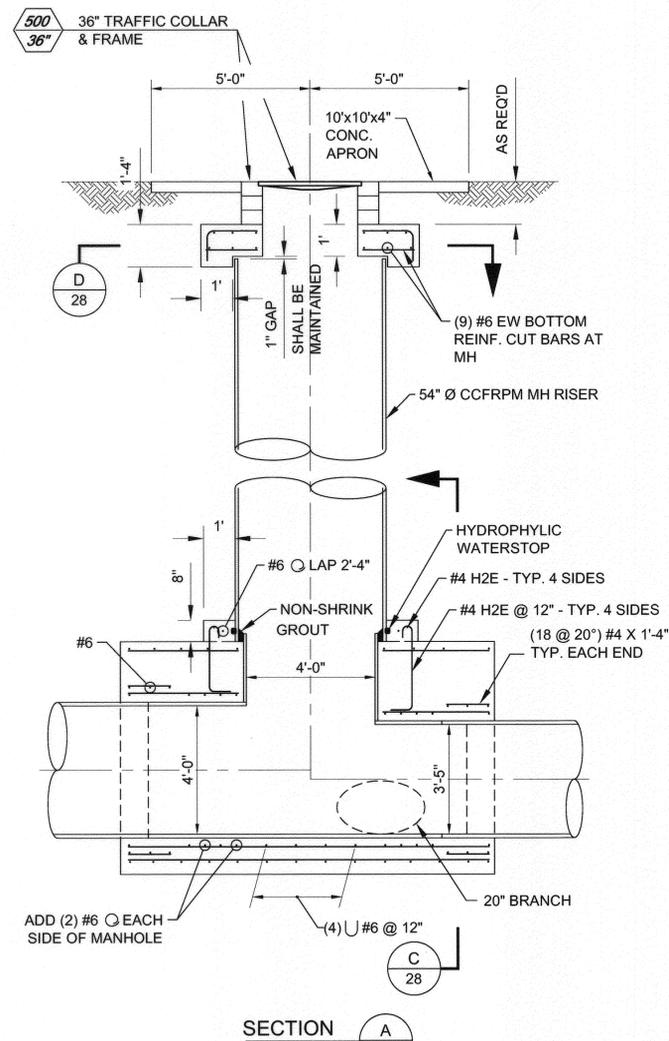
CCFRPM MANHOLE DETAIL AT STA. 4+40
SCALE: 3/8" = 1'-0"

2
17

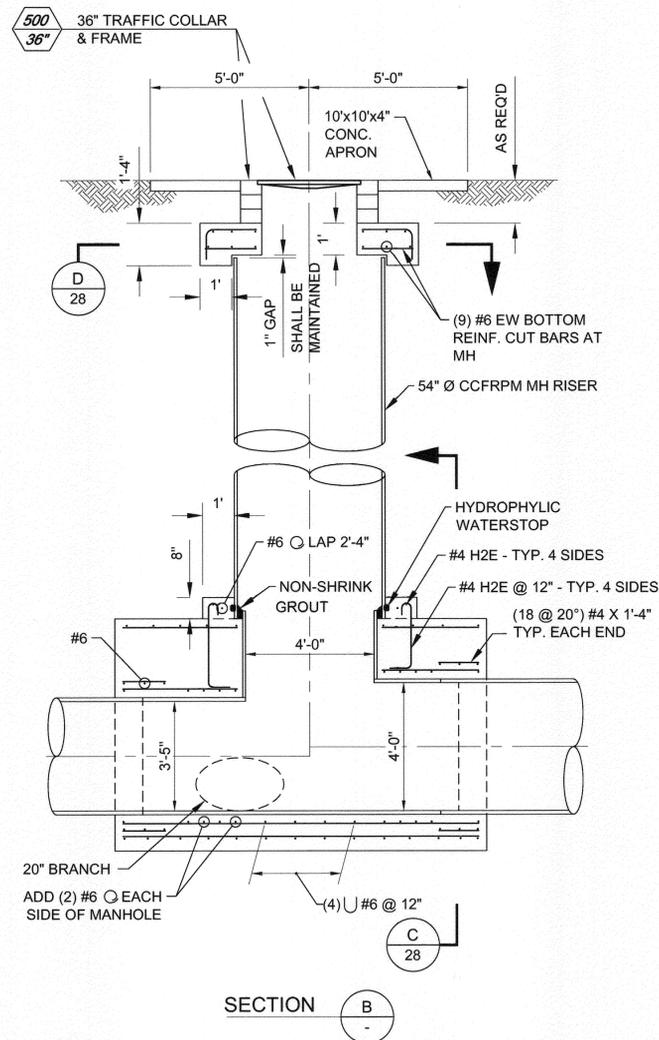


CCFRPM MANHOLE DETAIL AT STA. 4+27
AND STA. 65+29.18
SCALE: 3/8" = 1'-0"

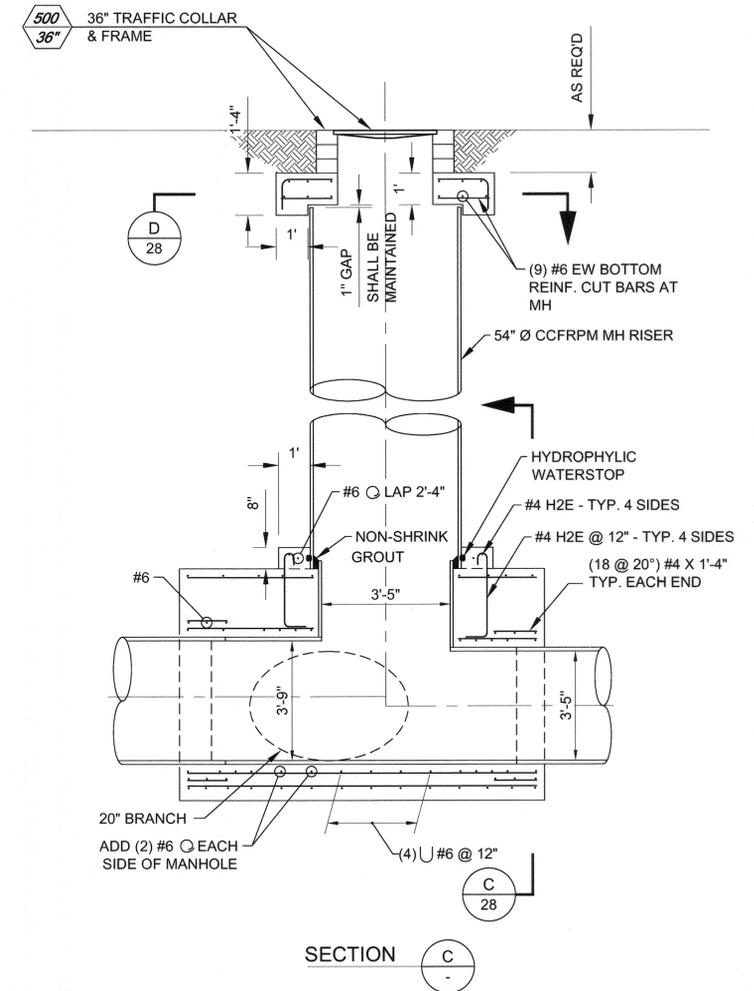
3
17



SECTION A



SECTION B



SECTION C

BC JOB No. 133410
LINE IS 2 INCHES
AT FULL SIZE
(IF NOT 2" - SCALE ACCORDINGLY)



BROWN AND CALDWELL
SAN DIEGO, CALIFORNIA

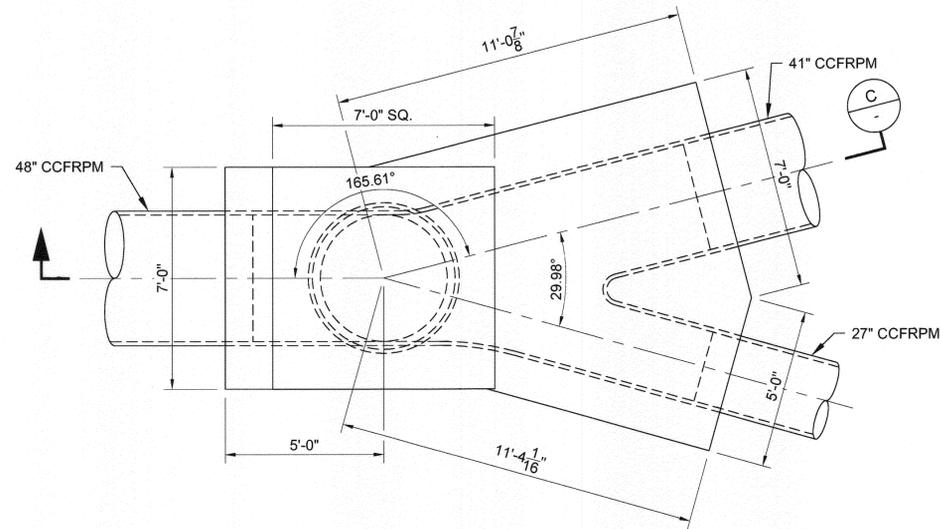
ENGINEER IN RESPONSIBLE CHARGE:
Mark O. Briggs
REGISTERED CIVIL ENGINEER No. C036183
DATE: 2-15-11 REGISTRATION EXPIRES 6-30-12

MARK	REVISIONS	APPR.	DATE

CITY OF RIVERSIDE, CALIFORNIA PUBLIC WORKS DEPARTMENT	
APPROVED BY: PRINCIPAL ENGINEER TRAFFIC DIVISION PARKS DEPARTMENT INSPECTION SUPERVISOR	BY: <i>[Signature]</i> DATE: 3-1-11
APPROVED BY: CITY ENGINEER	BY: <i>[Signature]</i> DATE: 3/1/11

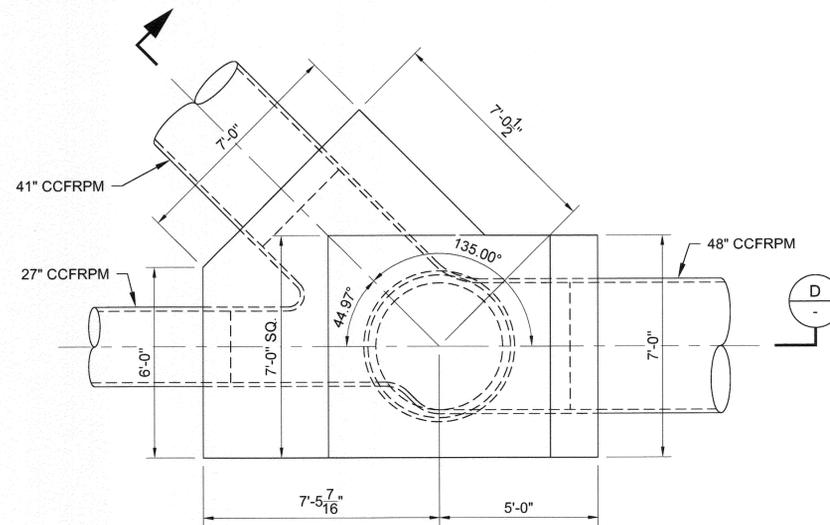
SANTA ANA RIVER TRUNK SEWER REPLACEMENT - PHASE I	
CCFRPM MANHOLE DETAILS - 2	
HORIZ. SCALE: AS NOTED	VERT. SCALE: AS NOTED

ACCT. NO.:
S-2054
29 OF **33**
SHEET
FILE NO. SARTS_SHT28.DWG



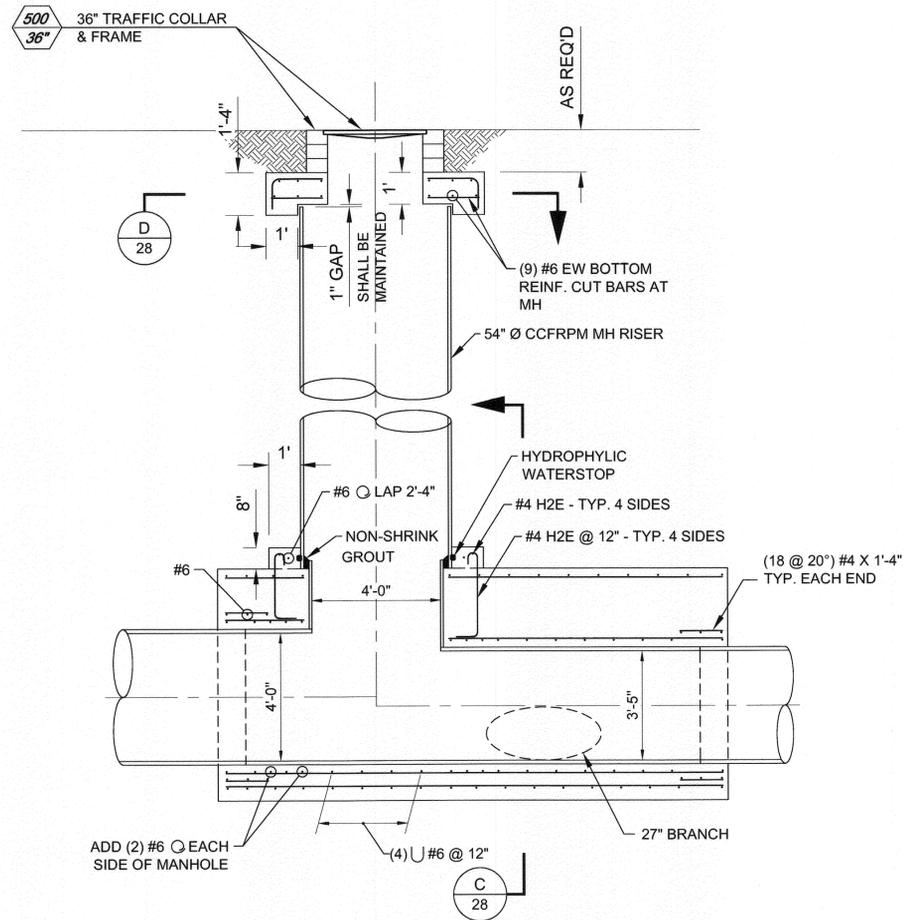
CCFRPM MANHOLE DETAIL AT STA. 60+43.23
SCALE: 3/8" = 1'-0"

1
13



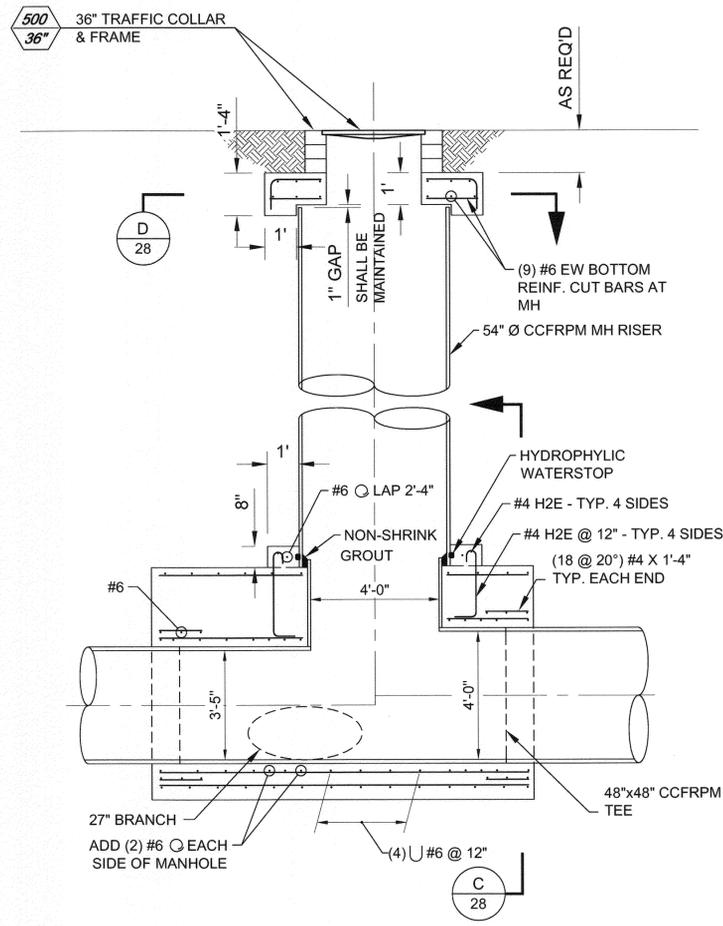
CCFRPM MANHOLE DETAIL AT STA. 65+46.42
SCALE: 3/8" = 1'-0"

2
13



SECTION C

D
28



SECTION D

D
28

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BC JOB No. 133410
LINE IS 2 INCHES
AT FULL SIZE
(IF NOT 2" - SCALE ACCORDINGLY)



BROWN AND CALDWELL
SAN DIEGO, CALIFORNIA

ENGINEER IN RESPONSIBLE CHARGE:
Mark O. Bridges
REGISTERED CIVIL ENGINEER No. C036183
DATE: 2-15-11 REGISTRATION EXPIRES 6-30-12

DESIGNED BY: DDM DRAWN BY: RMK CHECKED BY: RMF

CITY OF RIVERSIDE, CALIFORNIA
PUBLIC WORKS DEPARTMENT

APPROVED BY: *[Signature]*
DATE: 2/11/11
PRINCIPAL ENGINEER
TRAFFIC DIVISION
PARKS DEPARTMENT
INSPECTION SURVEYOR

APPROVED BY: *[Signature]*
DATE: 3/2/11
CITY ENGINEER

SANTA ANA RIVER TRUNK
SEWER REPLACEMENT - PHASE I

CCFRPM MANHOLE DETAILS - 3

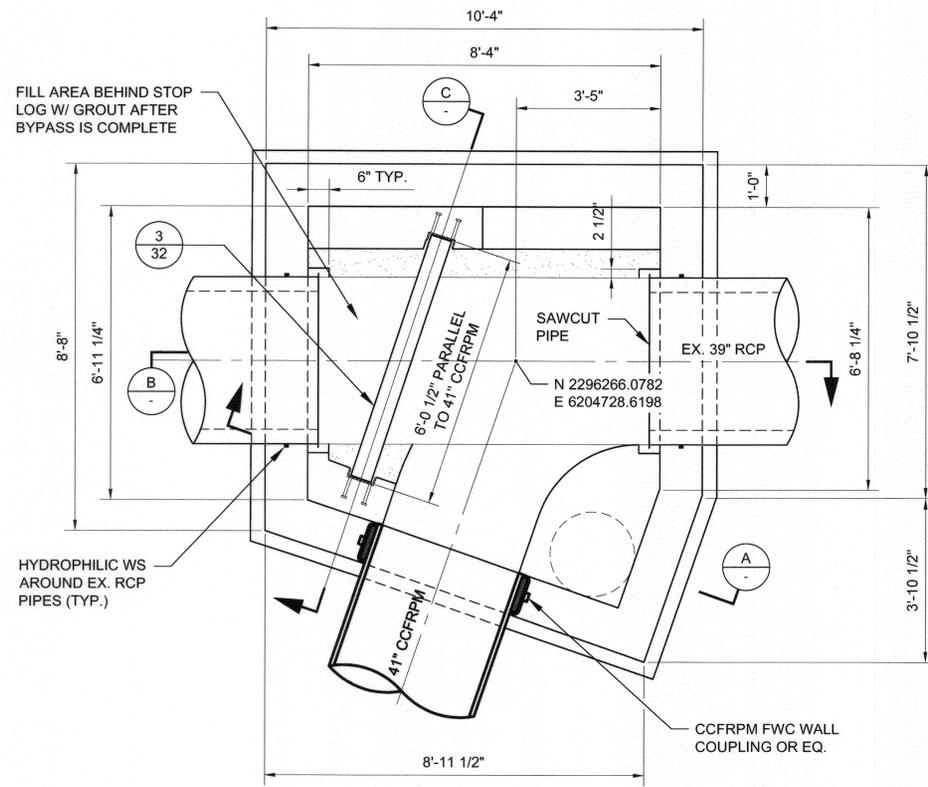
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ACCT. NO.:

S-2054
30 OF 33

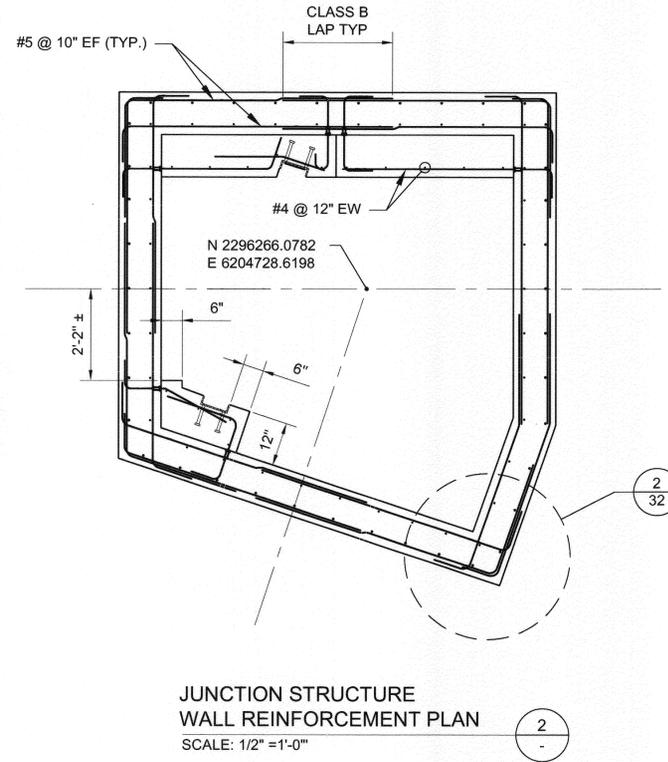
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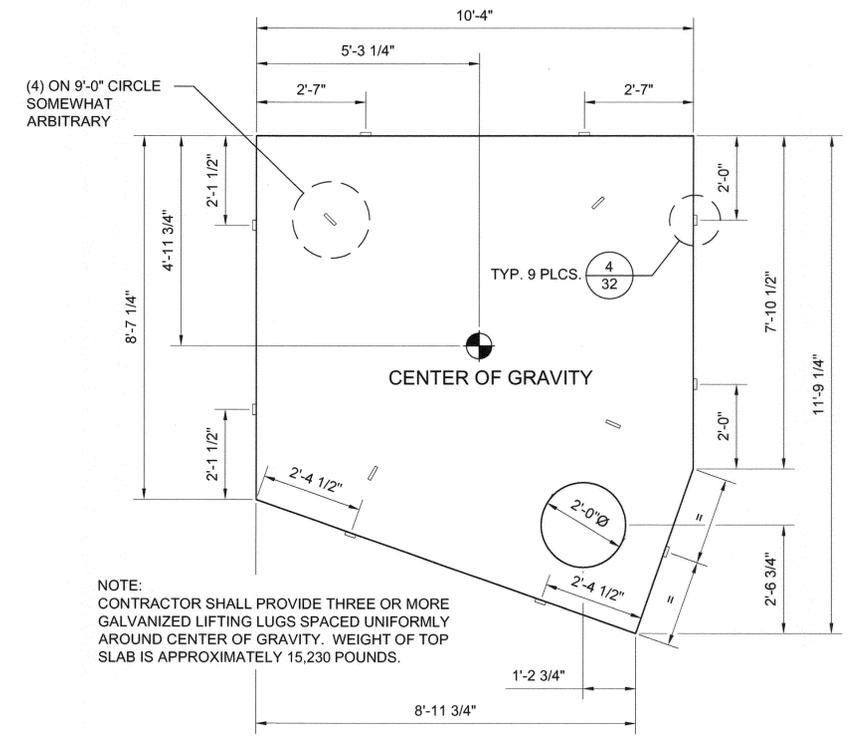
JUNCTION STRUCTURE FOUNDATION PLAN
SCALE: 1/2" = 1'-0"

1
19



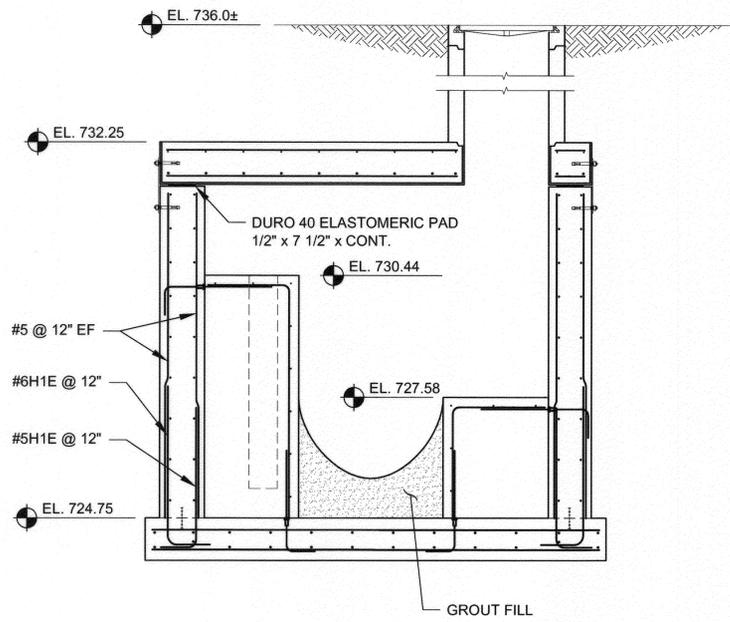
JUNCTION STRUCTURE WALL REINFORCEMENT PLAN
SCALE: 1/2" = 1'-0"

2
-



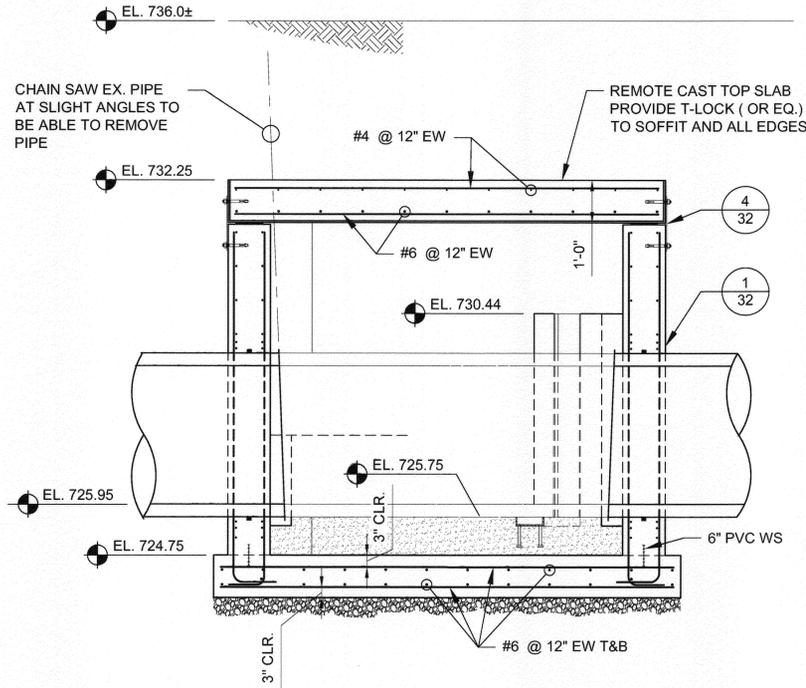
JUNCTION STRUCTURE TOP PLAN
SCALE: 1/2" = 1'-0"

3
-



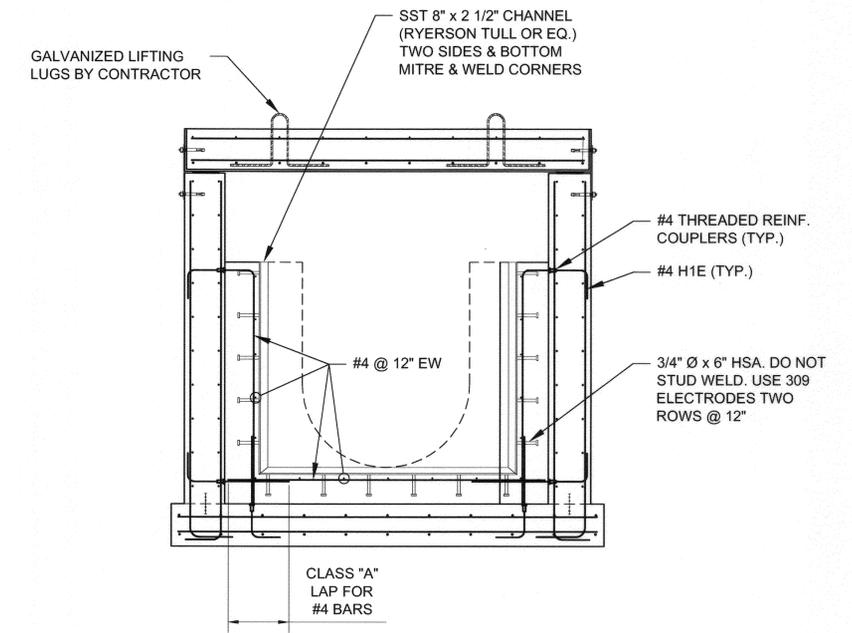
SECTION A
SCALE: 1/2" = 1'-0"

A
-



SECTION B
SCALE: 1/2" = 1'-0"

B
-



SECTION C
SCALE: 1/2" = 1'-0"

C
-

BC JOB No.133410

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" - SCALE ACCORDINGLY)



BROWN AND CALDWELL
SAN DIEGO, CALIFORNIA

ENGINEER IN RESPONSIBLE CHARGE: *Mark O. Briggs*
REGISTERED CIVIL ENGINEER No. C036183
DATE: 2-15-11 REGISTRATION EXPIRES 6-30-12

DESIGNED BY: DBM DRAWN BY: RMK CHECKED BY: RHF

CITY OF RIVERSIDE, CALIFORNIA
PUBLIC WORKS DEPARTMENT

APPROVED BY: *[Signature]* DATE: *[Date]*
ENGINEERING MANAGER
PRINCIPAL ENGINEER
TRAFFIC DIVISION
PARKS DEPARTMENT
INSPECTION
SURVEYOR

SANTA ANA RIVER TRUNK
SEWER REPLACEMENT - PHASE I

JUNCTION STRUCTURE DETAILS - 1

HORIZ. SCALE: AS NOTED VERT. SCALE: AS NOTED

ACCT. NO.:

S-2054
31 OF 33

FILE NO. SARTS_SHT31.DWG

**JUNCTION STRUCTURE (SHT. 31)
CONCRETE NOTES:**

- C1 APPLICABLE CODE
CONCRETE CONSTRUCTION SHALL CONFORM TO THE LATEST EDITION OF ACI 315, DETAILS AND DETAILING OF CONCRETE REINFORCEMENT.
- C2 CONCRETE
UNLESS OTHERWISE SPECIFIED, CONCRETE SHALL DEVELOP A 28 DAY COMPRESSIVE STRENGTH OF 4000 PSI. POZZOLINS MAY BE USED IN ACCORDANCE WITH THE SPECIFICATIONS.
- C3 REINFORCING STEEL DETAILS
UNLESS OTHERWISE SPECIFIED, DETAILING, FABRICATION, AND ERECTION OF REINFORCING BARS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF ACI 350, CODE REQUIREMENTS FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES.
- C4 CONCRETE COVER
CONCRETE COVER FOR REINFORCING BARS SHALL BE AS FOLLOWS WITH MINIMUM COVER OF ONE BAR DIAMETER, UNLESS OTHERWISE SPECIFIED.
 - A. CONCRETE CAST AGAINST EARTH - 3".
 - B. CONCRETE TO BE IN CONTACT WITH LIQUID - 2".
 - C. CONCRETE TO BE IN CONTACT WITH EARTH OR WEATHER.
 - (1) BARS GREATER THAN #5 - 2"
 - (2) BARS #5 OR LESS - 1 1/2"
 - D. CONCRETE NOT TO BE EXPOSED TO GROUND, WEATHER, OR LIQUID.
 - (1) BEAMS AND COLUMNS - 1 1/2"
 - (2) SLABS, WALLS, AND JOISTS - 3/4"
- C5 BAR LAP SPLICES
DOWELS SHALL BE THE SAME SIZE AND SPACING AS BARS WITH WHICH THEY ARE LAPPED. ALL BAR SPLICES SHALL BE LAPPED OR EMBEDDED AS FOLLOWS UNLESS OTHERWISE SPECIFIED.

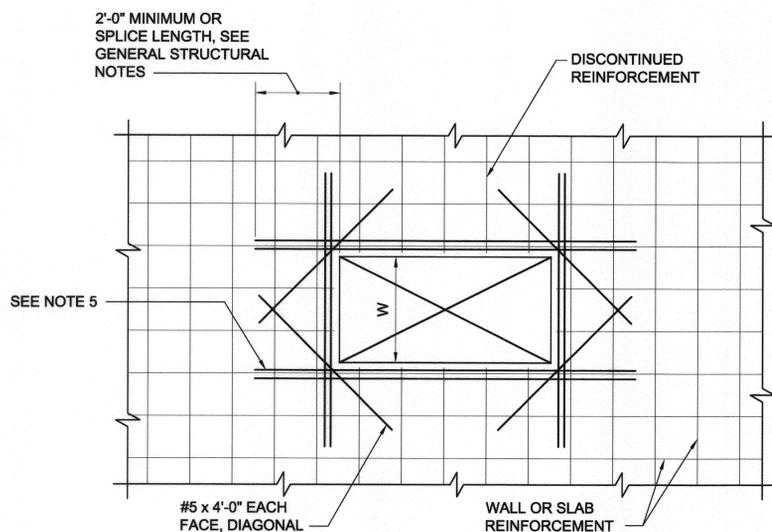
BAR SIZE	CLASS A SPLICE	CLASS B SPLICE
#3	1'-2"	1'-6"
#4	1'-7"	2'-1"
#5	2'-0"	2'-7"
#6	2'-4"	3'-1"
#7	3'-6"	4'-6"
#8	3'-11"	5'-2"
#9	4'-6"	5'-10"
- C6 RESTRICTED BAR ANCHORAGE
IN CASES WHERE REINFORCING BARS CANNOT BE EXTENDED AS FAR AS REQUIRED DUE TO THE LIMITED EXTENT OF THE ADJACENT CONCRETE STRUCTURE, THE BARS SHALL EXTEND AS FAR AS POSSIBLE AND END IN STANDARD HOOKS.
- C7 CHAMFERS
EXCEPT AS OTHERWISE REQUIRED, EXPOSED CORNERS AND EDGES SHALL HAVE 3/4" CHAMFERS, RE-ENTRANT CORNERS SHALL NOT HAVE FILLETS.

**JUNCTION STRUCTURE (SHT. 31)
GENERAL NOTES:**

- G1 APPLICABLE SPECIFICATIONS AND CODES
CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF "THE GREEN BOOK" STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, WHICH SHALL GOVERN EXCEPT WHERE OTHER APPLICABLE CODES OR THE FOLLOWING NOTES ARE MORE RESTRICTIVE.
- G2 SPECIAL INSPECTIONS
SPECIAL INSPECTIONS WILL BE PROVIDED FOR THE FOLLOWING TYPES OF WORK AS APPLICABLE.
 - 1. DURING THE PLACING OF REINFORCED CONCRETE AND TAKING OF TEST SPECIMENS.
 - 2. DURING THE INSTALLATION OF BOLTS IN CONCRETE AND PLACING OF CONCRETE AROUND SUCH BOLTS.
 - 3. DURING SPECIAL GRADING, EXCAVATION, AND FILLING OPERATIONS.
 - 4. ALL STRUCTURAL WELDING, INCLUDING WELDING OF REINFORCING STEEL.
- G3 DIMENSIONS
STRUCTURAL DIMENSIONS CONTROLLED BY OR RELATED TO PIPING SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
- G4 PROVISIONS FOR EQUIPMENT
PIPE THIMBLES, BELL RINGS, ANCHORAGES, OPENINGS, RECESSES AND EMBEDMENTS NOT SPECIFIED ON THE STRUCTURAL DRAWINGS BUT SPECIFIED ON OTHER CONTRACT DRAWINGS SHALL BE PROVIDED PRIOR TO CASTING CONCRETE.
- G5 CONSTRUCTION LOADS
STRUCTURES HAVE BEEN DESIGNED FOR OPERATIONAL LOADS ON COMPLETED STRUCTURES. STRUCTURES SHALL BE PROTECTED DURING CONSTRUCTION BY BRACING AND BALANCING WHEREVER EXCESSIVE LOADS MAY OCCUR.
- G6 DESIGN LIVE LOADS
 - A. FLOOR AREAS:
 - (5) TRUCK TRAFFIC AREAS - HS20 LOADING
 - (6) OTHER AREAS - 100 PSF
- G7 DRAINAGE SURFACES
SLOPE DRAINAGE SURFACES UNIFORMLY TO DRAIN. SLOPE SHALL BE 1/4" PER FOOT UNLESS OTHERWISE SPECIFIED.

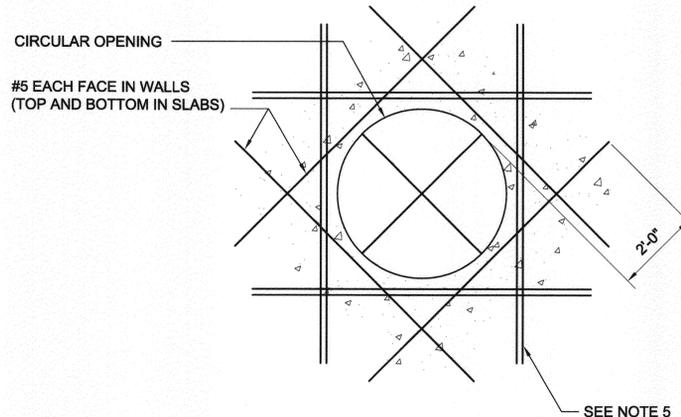
**JUNCTION STRUCTURE (SHT. 31)
SEQUENCE OF OPERATIONS**

- GENERAL:**
- THE CONSTRUCTION SEQUENCE CONSISTS OF BUILDING THE JUNCTION BOX WHILE THE 39" PIPE IS OPERATIONAL, WITH THE NEW 41" PIPE IN PLACE. AFTER A PORTION OF THE EXISTING 39" PIPE IS REMOVED, THE STOP LOG WILL BE INSTALLED. BENCHING BEHIND THE STOP LOG IS THEN POURED WITH 3000 PSI CONCRETE.
1. BUILD JUNCTION BOX, EXCEPT LEAVE REMOTE CAST ROOF OFF. COORDINATE WITH T-LOCK SPECIALIST FOR INSTALLATION OF T-LOCK. PROVIDE TEMPORARY BOTTOM SUPPORT FOR THE PIPE INSIDE THE JUNCTION BOX, USING CONCRETE FILL OR SLINGS AND AN ABOVE GROUND FRAME.
 2. PLACE BENCH CONCRETE IN TWO AREAS NOT BEHIND STOP LOG.
 3. OBTAIN OWNER'S REPRESENTATIVE'S APPROVAL TO REMOVE PIPE.
 4. SAWCUT AND REMOVE EXISTING PIPE AS SHOWN.
 5. INSTALL STOP LOG. CONCURRENT CLEANING THE BOTTOM GROOVE WITH A PRESSURE WAND WILL LIKELY BE REQUIRED.
 6. PLACE FILL CONCRETE BEHIND STOP LOG. RATE OF CONCRETE PLACEMENT SHALL BE SUCH THAT PRESSURE ON STOP LOG DOES NOT EXCEED HYDROSTATIC PRESSURE DUE TO RAW SEWAGE.
 7. INSTALL SITE CAST ROOF. CONTRACTOR IS RESPONSIBLE FOR LIFTING DEVICES.
 8. INSTALL ROOF ATTACHMENT BARS.
 9. REMOVE ALL CONSTRUCTION MATERIALS.
 10. COMPLETE ACCESS MANHOLE.



NOTES:

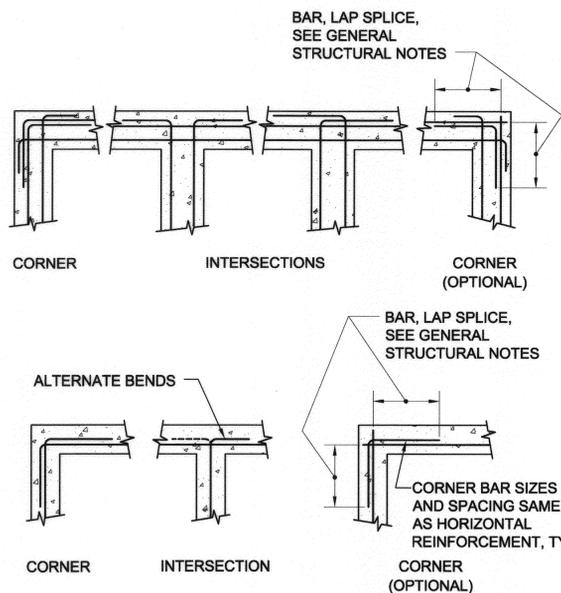
1. THIS DETAIL APPLIES TO UP TO 3'-0" MAXIMUM DIMENSION FOR RECTANGULAR OPENINGS AND UP TO 3'-0" DIAMETER FOR CIRCULAR OPENINGS.
2. AT OPENINGS 18" OR LESS, NO ADDITIONAL REINFORCEMENT IS REQUIRED UNLESS NOTED OTHERWISE. REINFORCEMENT SHALL BE SPREAD TO ALLOW FOR OPENING.
3. OPENINGS ARE NOT ALL SHOWN ON STRUCTURAL DRAWINGS. PROVIDE OPENINGS IN ACCORDANCE WITH ARCHITECTURAL, MECHANICAL AND OTHER CONTRACT DRAWINGS.
4. ADDITIONAL REINFORCEMENT MAY BE OMITTED ONLY WHERE OPENING IS FRAMED BY BEAMS OR WALLS.
5. ADDITIONAL REINFORCEMENT (4) SIDES OF OPENING EQUAL TO NUMBER AND SIZE OF DISCONTINUOUS REINFORCEMENT. WHERE AN ODD NUMBER OF REBAR ARE DISCONTINUOUS, PROVIDE (ODD NO. +1)/2 EACH SIDE OF OPENING.



**REINFORCEMENT AT
SLAB & WALL OPENINGS**

SCALE: 3/4" = 1'-0"

1
31

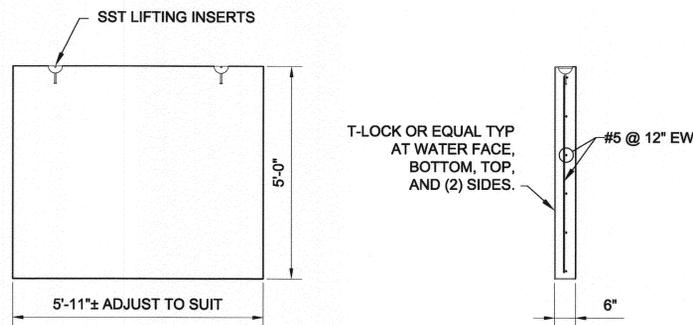


NOTE:
ALL 90° BENDS SHALL BE STANDARD HOOKS PER ACI 315 UNLESS OTHERWISE SPECIFIED

**STEEL REINFORCEMENT
AT WALL INTERSECTIONS**

SCALE: 3/4" = 1'-0"

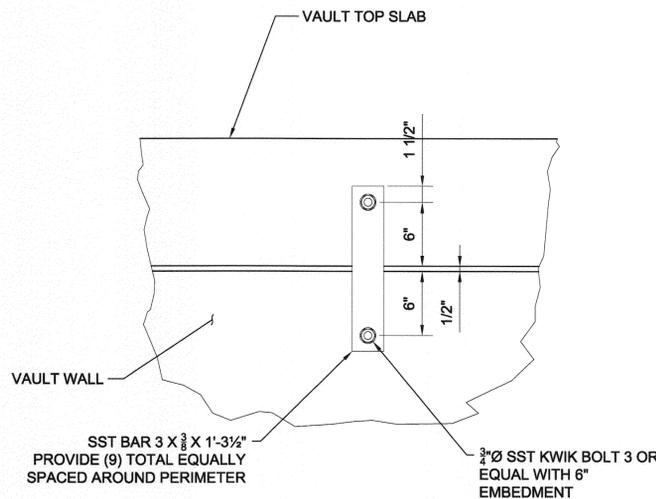
2
31



STOP LOG DETAIL

SCALE: 3/4" = 1'-0"

3
31



SLAB ANCHORS DETAIL

SCALE: 3/4" = 1'-0"

4
31



BROWN AND CALDWELL
SAN DIEGO, CALIFORNIA

ENGINEER IN RESPONSIBLE CHARGE:
Mark A. Briggs
REGISTERED CIVIL ENGINEER No. C036183
DATE: 2-15-11 REGISTRATION EXPIRES 6-30-12

DESIGNED BY: DBM DRAWN BY: RMK CHECKED BY: RHF

**CITY OF RIVERSIDE, CALIFORNIA
PUBLIC WORKS DEPARTMENT**

APPROVED BY: [Signature]
ENGINEERING MANAGER
TRAFFIC DIVISION
DATE: 2/11/11

**SANTA ANA RIVER TRUNK
SEWER REPLACEMENT - PHASE 1**

JUNCTION STRUCTURE DETAILS - 2
HORIZ. SCALE: AS NOTED VERT. SCALE: AS NOTED

ACCT. NO.: S-2054
SHEET 32 OF 33
FILE NO. SARTS_SHT31.DWG

