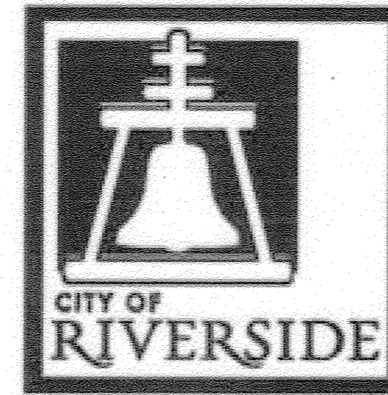


# RIVERSIDE



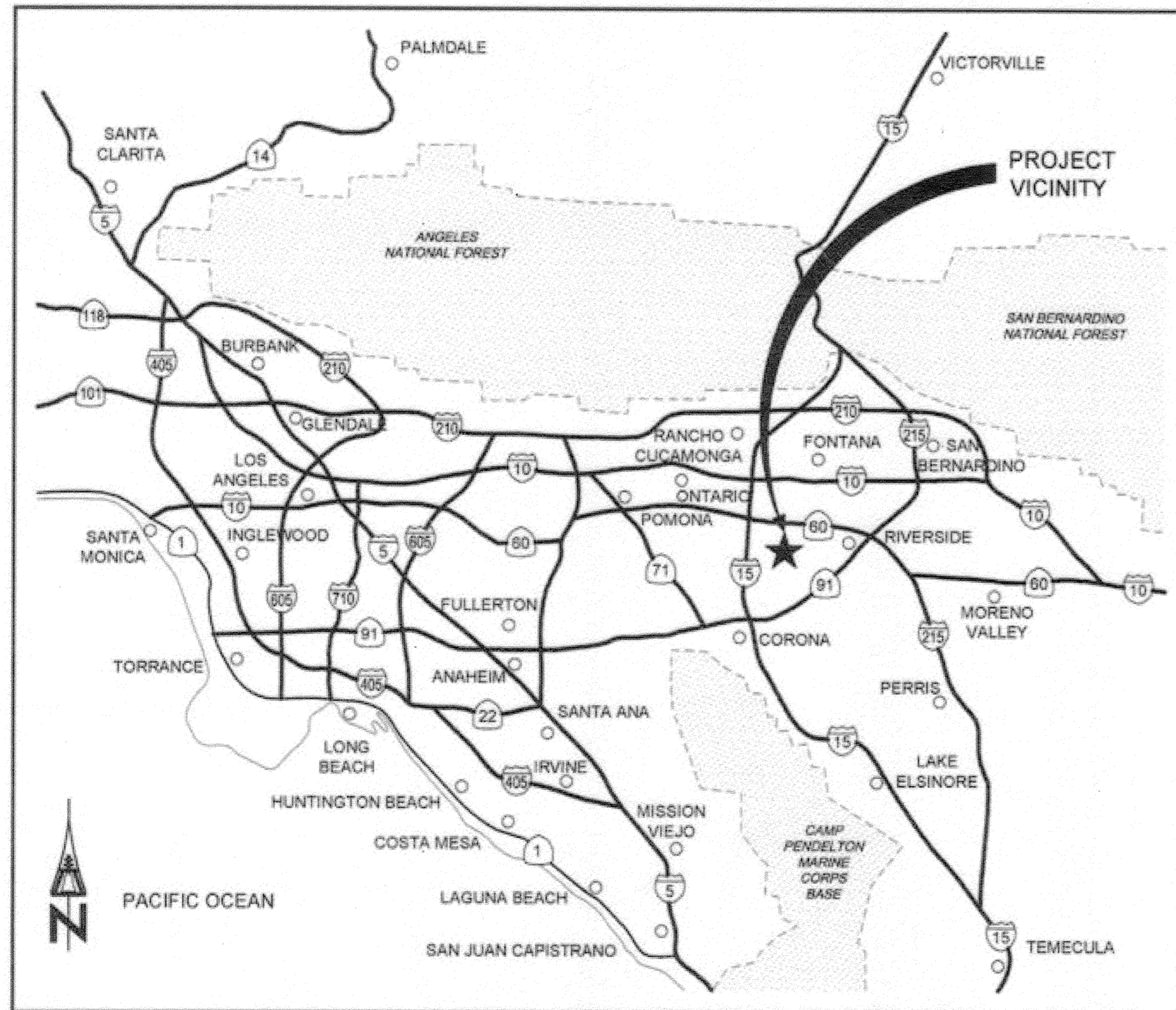
# CALIFORNIA

## PUBLIC WORKS DEPARTMENT

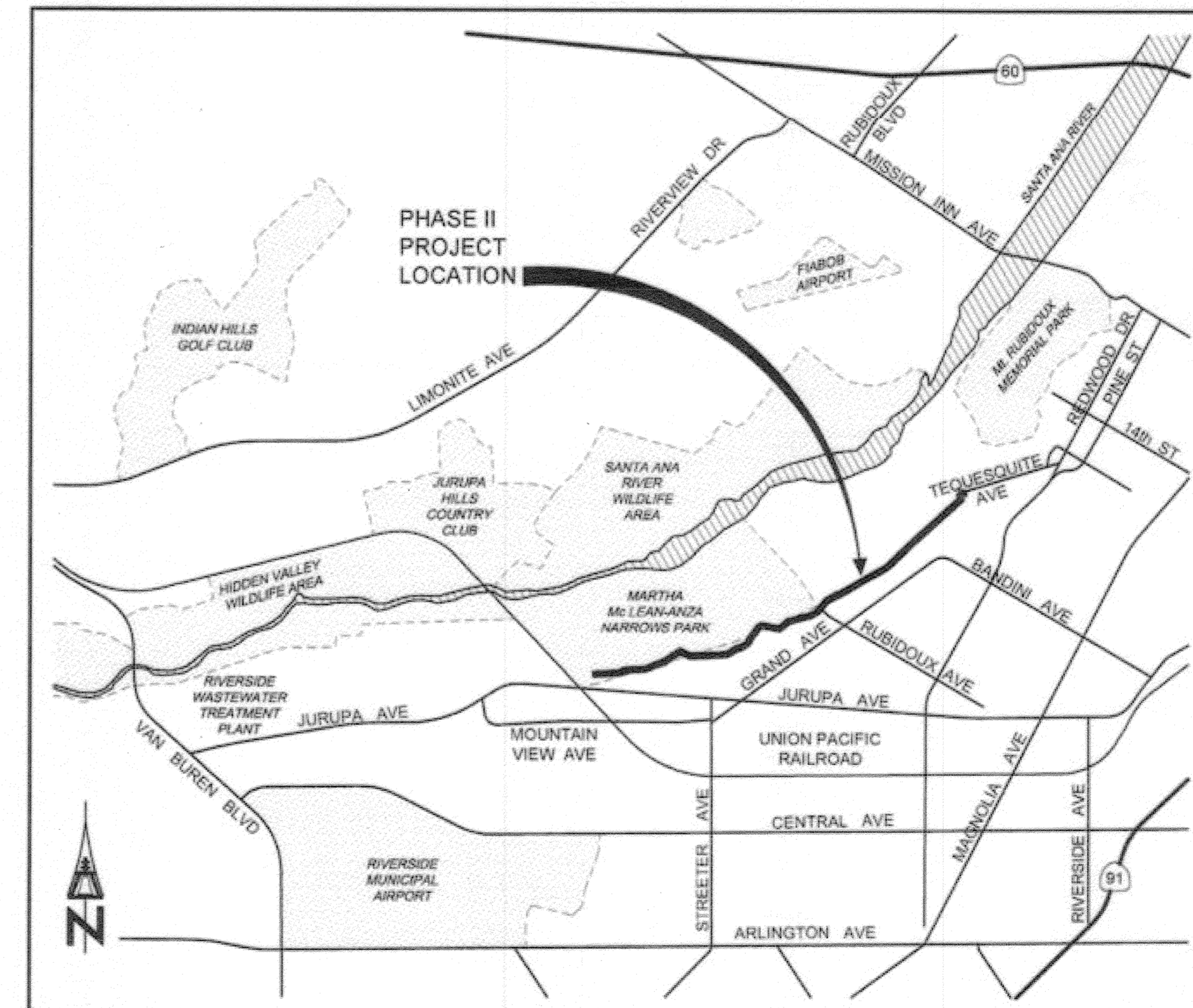
### SANTA ANA RIVER TRUNK SEWER REPLACEMENT PROJECT - PHASE II

# AS-BUILT

## JANUARY 3, 2017



**VICINITY MAP**  
NO SCALE

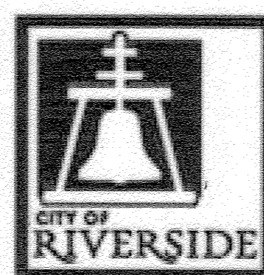


**PROJECT LOCATION MAP**  
NO SCALE

**Brown and Caldwell**

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

**Under Ground Service Alert** of Southern California  
Call: TOLL FREE 1-800-227-2600  
TWO WORKING DAYS BEFORE YOU DIG



**ENGINEER IN RESPONSIBLE CHARGE**  
Mark Owen Briggs



NO.	REVISIONS	APPR.	DATE

CITY OF RIVERSIDE, CALIFORNIA DEPARTMENT OF PUBLIC WORKS			
APPROVED BY	BY	DATE	APPROVED BY
ENGINEERING MANAGER	EM	1/13/15	<i>[Signature]</i>
PRINCIPAL ENGINEER			CITY ENGINEER
TRAFFIC DIVISION			
INSPECTION			
SURVEYOR			
			DATE 1/16/2015

**SANTA ANA RIVER TRUNK SEWER REPLACEMENT - PHASE II**  
**COVER SHEET**

DESIGN WORK ORDER NO. S-2089  
CONSTR. WORK ORDER NO. SHEET 1 OF 35  
FILE NAME: SRRS\_PHASE2\_SRRS.dwg

**GENERAL NOTES:**

- UNLESS OTHERWISE SHOWN ON DRAWINGS, INDICATED IN SPECIFICATIONS, OR CONTAINED IN ANY PERMITS, THE CONTRACTOR SHALL REPLACE IN KIND ALL SERVICE LATERALS, PAVEMENT, SIDEWALKS, CURBS, BERMS, DRAINAGE DITCHES, LANDSCAPING, GOLF COURSE IMPROVEMENTS, STORM DRAINS, WATER AND SEWER PIPELINES, ELECTRICAL AND TELEPHONE CONDUITS AND ALL OTHER EXISTING UTILITIES, BIKEWAYS AND TRAILS, TREES AND BUSHES (SPECIFIED SIZE AND TYPE), DRY UTILITIES, CONCRETE RIVER LINING, RIP RAP, RIVER CHANNEL SECTIONS/SHAPES, AND ALL OTHER EXISTING UTILITIES AND FACILITIES, ABOVE OR BELOW GROUND, WHICH ARE REMOVED OR DAMAGED DURING CONSTRUCTION.
- CONTRACTOR SHALL REFER TO SPECIAL PROVISIONS FOR ALL CONSTRUCTION PERMIT AND FEE REQUIREMENTS.
- CONTRACTOR AGREES TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF THE PROJECT, INCLUDING, BUT NOT LIMITED TO, THE SAFETY OF ALL PERSONS AND PROPERTY, THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.
- BENCHMARK/MONUMENT NOTE:**  
ANY MONUMENT OR BENCHMARK WHICH IS DISTURBED OR DESTROYED SHALL BE REESTABLISHED AND REPLACED BY A STATE OF CALIFORNIA CIVIL ENGINEER REGISTERED PRIOR TO DECEMBER 31, 1981 OR A LICENSED LAND SURVEYOR, AND A CORNER RECORD OR RECORD OF SURVEY FILED AS REQUIRED BY THE LAND SURVEYOR'S ACT.
- CONTRACTOR SHALL RESTORE ALL EXISTING SURFACE FEATURES AND GRADES TO THEIR ORIGINAL OR BETTER CONDITION EXCEPT WHERE MODIFICATIONS ARE SPECIFICALLY NOTED ON THESE PLANS.
- CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY OF ANY CHANGES OR IF INCONSISTENCIES ARE FOUND BETWEEN THESE PLANS AND ACTUAL FIELD CONDITIONS.
- EXISTING UTILITIES SHOWN ON THIS PLAN ARE PLOTTED FROM PUBLIC RECORDS. THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO LOCATE AND PROTECT ALL UTILITIES WHETHER OR NOT SHOWN ON THIS PLAN.
- CONTRACTOR SHALL POTHOLE AND VERIFY ALL LOCATIONS AND ELEVATIONS OF UTILITIES PRIOR TO THE START OF CONSTRUCTION TO ELIMINATE INTERFERENCE WITH NEW CONSTRUCTION.
- THE EXISTENCE AND LOCATION OF ANY EXISTING UNDERGROUND UTILITIES OR STRUCTURES SHOWN ON THESE PLANS WERE OBTAINED BY A SEARCH OF AVAILABLE RECORDS AND ARE APPROXIMATE ONLY. THE PLANS DO NOT NECESSARILY REFLECT ALL OF THE GAS, ELECTRICAL PHONE, CABLE TV, SEWER AND WATER SERVICES. THE CONTRACTOR SHALL FIELD VERIFY ALL OF THE GAS, ELECTRICAL, PHONE, CABLE TV, SEWER, WATER SERVICES, OTHER UTILITIES, AND STRUCTURES. THE CONTRACTOR IS REQUIRED TO TAKE ALL PRECAUTIONARY MEASURES TO PROTECT ALL EXISTING UTILITIES AND STRUCTURES BOTH SHOWN AND NOT SHOWN ON THESE PLANS, AND IS RESPONSIBLE FOR THE PROTECTION OF, AND ANY DAMAGE TO THOSE UTILITIES AND STRUCTURES.
- ALL CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH LOCAL CODES AND REGULATIONS, EXCEPT WHERE MODIFIED ON THE CONSTRUCTION DRAWINGS AND SPECIFICATIONS.
- ALL WORK SHALL COMPLY WITH CONDITIONS ESTABLISHED BY THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD AND THE RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION (RCFCWC) FOR ANY DEWATERING OR RUN OFF FROM THE SITE. SEE SPECIFICATIONS FOR COPY OF RCFCWC'S DISCHARGE PERMIT FOR CONSTRUCTION DEWATERING.
- EXISTING OR FINISHED GRADE SHOWN ON PROFILE IS OVER CENTERLINE OF PIPE. ELEVATIONS REFER TO THE INVERT OF PIPE OR INVERT AT POINTS OF INTERSECTIONS OR SLOPE CHANGES AND ARE BASED ON U.S.G.S MEAN SEA LEVEL (MSL). SEE SHEET 5.
- STATIONS, COORDINATES, AND RADII REFER TO THE CENTERLINE OF PIPE. STATIONS SHOWN ARE VERTICAL PROJECTIONS ALONG THE CENTERLINE OF PIPE. DISTANCES SHOWN IN PROFILE AND IN THE ESTIMATED QUANTITIES ARE HORIZONTAL DISTANCES.
- CONTRACTOR SHALL MAINTAIN THE WORK AREA IN A NEAT, SAFE, CLEAN AND SANITARY CONDITION AT ALL TIMES AND TO THE SATISFACTION OF THE AGENCY HAVING JURISDICTION OVER THE AREA. STREETS SHALL BE KEPT CLEAN OF DEBRIS, WITH DUST AND OTHER NUISANCE BEING CONTROLLED AT ALL TIMES. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR ANY CLEANUP ON ADJACENT STREETS AFFECTED BY CONTRACTORS CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL HAVE A FUNCTIONAL STREET SWEEPER AVAILABLE AT ALL TIMES DURING CONSTRUCTION WORK HOURS FOR PORTION OF PROJECT WITHIN PUBLIC STREETS. CONTRACTOR SHALL CLEAN STREET WITH SWEEPER PRIOR TO THE END OF EACH WORKDAY.

**GENERAL NOTES (continued):**

- ALL CONCRETE SIDEWALKS OR CURBS TO BE REMOVED AND REPLACED SHALL BE SAW CUT TO THE NEAREST TRANSVERSE SCORE MARK OR ADJUSTABLE CONTROL JOINT OR WEAKENED PLANE JOINT AND REPLACED IN CONFORMANCE WITH THE APPLICABLE PROVISIONS OF THE AGENCY HAVING JURISDICTION OVER THE AREA. ALL EXPOSED CONCRETE SURFACES SHALL CONFORM IN GRADE, COLOR AND FINISH TO ALL ADJOINING CURB AND WALKS.
- ALL P.C.C AND A.C. PAVEMENT REMOVALS SHALL BE OUTLINED TO NECESSARY WORKING LIMITS AND SAW CUT PRIOR TO THE REMOVAL. ALL DEBRIS CREATED BY THE REMOVAL OPERATIONS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OFF AWAY FROM THE JOB SITE IN A MANNER AND AT A LOCATION ACCEPTABLE TO ALL REGULATORY AGENCIES.
- ALL LANDSCAPING AND GRASS AREAS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION PER THE PROJECT SPECIFICATIONS. ALL IRRIGATION LINES, SPRINKLERS, CONTROL WIRES AND CONTROL BOXES THAT ARE DAMAGED SHALL BE REPAIRED TO THE SATISFACTION OF THE OWNER AND TO THE REGULATORY AGENCY HAVING JURISDICTION PER THE PROJECT SPECIFICATIONS. LANDSCAPED AREAS SHALL BE CLOSELY PHOTOGRAPHED AND VIDEO TAPED. A PLAN PREPARED SHOWING ALL ELEMENTS OF EXISTING PLANTINGS, IRRIGATION, AND HARDSCAPE TO BE REMOVED, AND REPLACED; PLAN SHALL BE SUBMITTED AND APPROVED PRIOR TO ANY WORK THAT DISTURBS THOSE ELEMENTS.
- ALL EXISTING STREET LIGHTING INSTALLATIONS SHALL BE PROTECTED IN PLACE. DISRUPTED OR DAMAGED STREET LIGHTING SYSTEM SHALL BE REPAIRED OR REPLACED TO THE CURRENT STANDARDS OF THE AGENCY HAVING JURISDICTION OVER THE AREA. DAMAGED STREET LIGHT CONDUIT OR CABLE SHALL BE REPLACED FROM POLE TO POLE.
- IN THE EVENT THAT EXISTING TRAFFIC STRIPING OR STENCILING IS OBLITERATED OR THE EFFECTIVENESS OF WHICH IS REDUCED BY CONSTRUCTION, IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPLACE SAID STRIPING OR STENCILING TO THE SATISFACTION OF THE AGENCY HAVING JURISDICTION OVER THE STREET. ALL RESTRIPING WILL REQUIRE TWO COATS (TWO PASSES) AS A MINIMUM AND BE SUPPLEMENTED WITH RAISED REFLECTIVE PAVEMENT MARKERS AS REQUIRED.
- CONTRACTOR SHALL REPLACE ALL EXISTING REFLECTION MARKERS THAT ARE REMOVED LOCATED ALONG THE ALIGNMENT PER THE REGULATORY AGENCY REQUIREMENTS.
- CONTRACTOR SHALL FIELD VERIFY THE LOCATION AND DEPTH OF ALL UTILITIES AND PROTECT IN-PLACE PER STANDARD SPECIFICATION SECTION 5 UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
- ENTIRE SITE SHALL BE VIDEOTAPED, AND PHOTOGRAPHED PRIOR TO COMMENCEMENT OF CONSTRUCTION, PER PROJECT SPECIFICATIONS.
- AT THE END OF EACH WORKING DAY AND AT TIMES WHEN CONSTRUCTION OPERATIONS ARE SUSPENDED FOR ANY REASON, THE CONTRACTOR SHALL REMOVE ALL EQUIPMENT, VEHICLES, MATERIALS, TRAFFIC CONTROL DEVICES, STOCKPILE OR ANY OTHER FORM OF OBSTRUCTION FROM THE STREET RIGHT-OF-WAY UNLESS ALLOWED BY CONTRACT DOCUMENTS.
- ALL TRENCHING AND/OR SHORING SHALL MEET REQUIREMENTS OF CAL-OSHA. THE CONTRACTOR SHALL OBTAIN A PERMIT TO PERFORM EXCAVATION OR TRENCH WORK FROM CAL-OSHA.
- ALL PIPE SHALL BE CONSTRUCTED WITH A MINIMUM OF FORTY-EIGHT INCHES OF COVER UNLESS OTHERWISE NOTED ON THE PLANS. PIPELINE ENCASEMENT MAY BE ALLOWED AS AN ALTERNATIVE.
- NO PERSON SHALL PERFORM ANY CONSTRUCTION ACTIVITY OR INSTALL ANY OBJECTS WITHIN THE PUBLIC RIGHT-OF-WAY OR EASEMENTS OF THE CITY OF RIVERSIDE WITHOUT A VALID CONSTRUCTION PERMIT OR, A STREET OPENING PERMIT OR AN ENCROACHMENT PERMIT ISSUED BY THE CITY'S PUBLIC WORKS DEPARTMENT.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CLEAR THE RIGHT-OF-WAY IN ACCORDANCE WITH THE PROVISIONS OF LAW AS IT AFFECTS EACH UTILITY INCLUDING IRRIGATION LINES AND APPURTENANCES AND AT NO COST TO THE CITY.
- CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF RIVERSIDE DEPARTMENT OF PUBLIC WORKS, STANDARD DRAWINGS, ITS SUPPLEMENTAL NOTES AND STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, CURRENT EDITION.

**GENERAL NOTES (continued):**

- THE PRIVATE ENGINEER SIGNING THESE PLANS IS RESPONSIBLE FOR ASSURING THE ACCURACY AND ACCEPTABILITY OF THE WORK HEREON. IN THE EVENT OF DISCREPANCIES ARISING DURING CONSTRUCTION, THE PRIVATE ENGINEER SHALL BE RESPONSIBLE FOR DETERMINING AN ACCEPTABLE SOLUTION AND REVISING THE PLANS FOR APPROVAL BY THE CITY.
- QUANTITIES SHOWN ARE FOR INFORMATION ONLY AND THE CITY OF RIVERSIDE IS NOT RESPONSIBLE FOR THEIR ACCURACY.
- THE CONTRACTOR SHALL CALL IN A LOCATION REQUEST TO UNDERGROUND SERVICE ALERT (U.S.A.), TELEPHONE No. (800) 227-2600, TWO WORKING DAYS BEFORE DIGGING. NO CONSTRUCTION PERMIT WILL BE ISSUED BY THE PUBLIC WORKS DEPARTMENT INVOLVING EXCAVATION FOR UNDERGROUND FACILITIES UNLESS THE APPLICANT HAD BEEN PROVIDED AN INQUIRY IDENTIFICATION NUMBER BY U.S.A.
- A PLUG SHALL BE INSTALLED AND WILL REMAIN IN PLACE WHERE THE NEW SEWER CONNECTS WITH THE EXISTING SEWER UNTIL THE NEW SEWER IS ACCEPTED BY THE CITY. ALL MANHOLE RIMS WITHIN THE FLOODPLAIN SHALL BE A MINIMUM 18" ABOVE GRADE UNLESS OTHERWISE SPECIFIED.
- THE SEWER CONTRACTOR SHALL ADJUST MANHOLES TO FINAL GRADE AFTER PAVING IS COMPLETED.
- BEFORE THE RIP-RAP AT THE OUTLET OF ANY DRAINAGE STRUCTURE IS ACCEPTED BY THE CITY, IT SHALL BE TESTED UNDER FLOWS AS CLOSE AS POSSIBLE TO DESIGN CONDITIONS WITH WATER OBTAINED FROM FIRE HYDRANTS IN THE IMMEDIATE AREA.
- FOR ABBREVIATIONS, REFER TO CITY OF RIVERSIDE, PUBLIC WORKS DEPARTMENT, ENGINEERING DIVISION - STANDARD ABBREVIATIONS - STANDARD DRAWING NUMBER 2. ANY ABBREVIATIONS NOT COVERED, REFER TO "GREENBOOK", STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION 1-2 AND 1-3.2.
- CONSTRUCTION ACTIVITIES SHALL BE CONFINED WITHIN THE WORK LIMITS, TEMPORARY CONSTRUCTION EASEMENT AND PERMANENT SEWER EASEMENTS SHOWN. BOUNDARIES SHOWN ARE FOR REFERENCE ONLY. ESTABLISHMENT OF BOUNDARIES SHALL BE BASED ON RECORDED EASEMENT DOCUMENTS.
- CONTRACTOR TO MAINTAIN, PROTECT AND/OR BYPASS EXISTING 24", 33", AND 39" RCP SEWER AS REQUIRED BY SPECIAL PROVISIONS SECTION 306-1.8 AND 313.
- SEGMENTS OF THE NEWLY CONSTRUCTED SEWER PIPELINE THAT HAVE BEEN CLEANED, INSPECTED AND TESTED BY THE CONTRACTOR MAY BE PUT IN SERVICE TO LIMIT BYPASS PUMPING DURING CONSTRUCTION. TESTING SHALL BE REVIEWED AND APPROVED BY THE ENGINEER PRIOR TO THE INTRODUCTION OF FLOW TO SEWER. USE OF THE SEWER WILL BE CONTINGENT ON SATISFACTORY COMPLETION OF THESE TESTS AS DETERMINED BY THE ENGINEER AND ANY FAULTY INSTALLATION OF THE PIPE, REPAIRS OR REPLACEMENTS SHALL BE MADE PRIOR TO USE.
- AERIAL MAPPING PROVIDED BY INLAND AERIAL SURVEY, INC. FROM AERIAL PHOTOGRAPHY DATED 12-13-07. AERIAL MAPPING AND ASSOCIATED DIGITAL DATA HAS BEEN COMPILED PHOTOGRAMMETRICALLY AND SHOULD BE FIELD VERIFIED. FEATURES IN SHADOWS AND VEGETATION MAY BE OBSCURED. FEATURES NEAR TALL OBJECTS MAY BE OBSCURED DUE TO PHOTOGRAPHIC "LEAN".

**DRAWING INDEX:**

SHEET NO.	DRAWING TITLE
<b>GENERAL</b>	
1	TITLE SHEET
2	EQUIPMENT CODES, PIPING SYSTEM, DRAWING INDEX AND EQUIPMENT LIST
3	ABBREVIATIONS, LEGEND, SYMBOLS AND AGENCY INDEX
<b>CIVIL</b>	
4	SHEET INDEX MAP
5	SURVEY CONTROL DATA
6	PLAN AND PROFILE STATION 91+00 TO 100+50
7	PLAN AND PROFILE STATION 100+50 TO 109+50
8	PLAN AND PROFILE STATION 109+50 TO 118+50
9	PLAN AND PROFILE STATION 118+50 TO 127+50
10	PLAN AND PROFILE STATION 127+50 TO 136+50
11	PLAN AND PROFILE STATION 136+50 TO 145+50
12	PLAN AND PROFILE STATION 145+50 TO 154+50
13	PLAN AND PROFILE STATION 154+50 TO 163+50
14	PLAN AND PROFILE STATION 163+50 TO 172+50
15	PLAN AND PROFILE STATION 172+50 TO 181+50
16	PLAN AND PROFILE STATION 181+50 TO 190+50
17	PLAN AND PROFILE STATION 190+50 TO 196+25.00
18	TUCSON TRUNK SEWER CONNECTION DETAILS
19	RIO RANCHO TRUNK SEWER CONNECTION DETAILS
20	GRASSY TRAIL TRUNK SEWER CONNECTION DETAILS
21	OLD MILL ROAD TRUNK SEWER CONNECTION DETAILS
22	LONDONERRY TRUNK SEWER CONNECTION DETAILS
23	JURUPA TRUNK SEWER CONNECTION DETAILS
24	RUBIDOUX TRUNK SEWER CONNECTION DETAILS
25	SIPHON AREA TRUNK SEWER CONNECTION DETAILS
26	SIPHON AREA DEMOLITION AND PAVEMENT REPLACEMENT PLAN
27	STORM DRAIN AT STATION 108+00 ENLARGED PLAN
28	MISCELLANEOUS DETAILS
29	CCFRPM MANHOLE DETAILS
30	STORM DRAIN OUTLET DETAILS
31	BYPASS DETAILS
32	TRENCH SECTIONS - 1
33	TRENCH SECTIONS - 2
34	EARTH PRESSURE DIAGRAMS
35	PHASE I CONNECTION AND DEMOLITION PLAN

AS-BUILT

Path: P:\Projects\Riverside, City of (CA)\133410 - Santa Ana River Trunk Sewer\CAD\2-SHEETS PHASE I\GENERAL - HANSON, SARTIS, PHASE2\_SHT102\_Plot.dwg - Nov 20, 2013 10:56AM 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 RESPONSIBLE CHARGE:  
*Mark O. Bigger*  
REGISTERED CIVIL ENGINEER No. C-36183  
DATE: 11-22-13

DATE	REVISIONS	APP'D	DATE

DESIGNED BY: \_\_\_\_\_ DRAWN BY: \_\_\_\_\_ CHECKED BY: \_\_\_\_\_

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

APPROVED BY: \_\_\_\_\_  
ENGINEERING MANAGER  
PROFESIONAL ENGINEER  
TRAFFIC ENGINEER  
DATE: 11/22/13

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

EQUIPMENT CODES, PIPING SYSTEM,  
DRAWING INDEX & EQUIPMENT LIST

HORIZ. SCALE: NONE    VERT. SCALE: NONE

ACCT. NO.: 9799123  
S-2089  
2 OF 35  
SHEET  
FILE NO. SARTIS\_PHASE2\_SHT102

**LEGEND:**

	RIGHT-OF-WAY OR PROPERTY LINE
	TEMPORARY CONSTRUCTION EASEMENT (SEE GENERAL NOTE 36, SHT 2)
	EXISTING SEWER EASEMENT (SEE GENERAL NOTE 36, SHT 2)
	NEW SEWER EASEMENT
	WORK LIMITS (SEE GENERAL NOTE 36, SHT 2)
	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
	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 DRAWING WHERE DETAIL IS SHOWN "C-08"  
 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:**

<b>LOCAL AUTHORITIES:</b>	
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
<b>UTILITIES:</b>	
CITY OF RIVERSIDE	WES WISNIEWSKI (951) 826-5554
WATER ENGINEERING DEPARTMENT 3901 ORANGE STREET RIVERSIDE, CA 92501	
CITY OF RIVERSIDE - TRAFFIC 3900 MAIN STREET, 4TH FLOOR RIVERSIDE, CA 92522	GILBERT HERNANDEZ (951) 826-5366
CITY OF RIVERSIDE - WATER 3900 MAIN STREET, ORANGE SQUARE RIVERSIDE, CA 92522	BLAKE YAMAMOTO (951) 826-5549
CHARTER COMMUNICATIONS ENGINEERING DEPARTMENT 7337 CENTRAL AVENUE RIVERSIDE, CA 92504	CELINA AVILA (951) 343-5171
JURUPA COMMUNITY SERVICES ENGINEERING DEPARTMENT 11201 HARREL STREET MIRA LOMA, CA 91752	UMESH SHAH (951) 685-7434 EXT 150
METROPOLITAN WATER DISTRICT SUBSTRUCTURES TEAM P.O. BOX 54153 TERMINAL ANNEX LOS ANGELES, CA 90054	FRANCISCO FLORES (213) 217-6679
UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA (USA) PO BOX 77070 CORONA, CA 92877	POLLY DUNN (951) 808-8100
RUBIDOUX COMMUNITY SERVICES ENGINEERING DEPARTMENT P.O. BOX 3098 RIVERSIDE, CA 92519-3098	STEVEN APPEL (951) 684-7580
SoCAL EDISON DISTRIBUTION 287 TENNESSEE STREET REDLANDS, CA 92373	KEVIN PURDY (909) 286-5961 (626) 302-1212
TIME WARNER TELECOM 3281 GUASTI RD #350 ONTARIO, CA 91761	RICHARD WILKINSON (951) 751-5791
SOUTHERN CALIFORNIA GAS TECHNICAL SERVICE SUPERVISOR 1981 W. LUGONIA AVENUE REDLANDS, CA 92374	KEN FAZEKAS (909) 335-7744
SC GAS 251-A EAST FIRST STREET BEAUMONT, CA 92223-2903	TIM PEARCE (951) 845-0709
SBC/PAC BELL (AT&T CALIFORNIA) 1265 N. VAN BUREN STREET, SUITE 180 ANAHEIM, CA 92807	LEE CORBY (951) 359-2255
T-MOBILE USA 3 IMPERIAL PROMENADE #1100 SANTA ANA, CA 92626	STEVE RODRIGUEZ (714) 820-2657
ATT INQUIRIES 22311 BROOKHURST STREET SUITE 203 HUNTINGTON BEACH, CA 92646	WALTER VERSTIJK (714) 763-7964

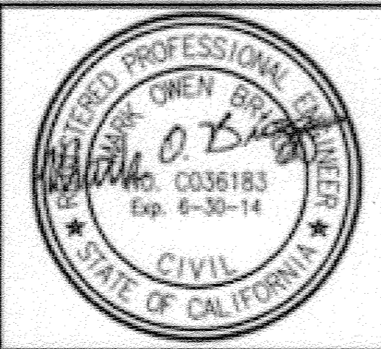
**ABBREVIATIONS:**

AB	AGGREGATE BASE	PC	POINT OF CURVE
ABAN	ABANDON	PCC	COMPOUND CURVE/CURVE INTERSECT
AC	ASPHALT CONCRETE	PE	PLANE END
ACP	ASBESTOS CEMENT PIPE	PF, RD	PUBLIC FACILITIES AND RESOURCES DEPARTMENT
AV	AIR VACUUM & RELEASE VALVE	PH	POTHOLE
AV, AVE	AVENUE	PI	POINT INTERSECTION
BC	BACK OF CURB/BEGINNING OF CURB	PL	PROPERTY LINE
BFV	BUTTERFLY VALVE	PRC	REVERSE CURVE/CURVE INTERSECT
BGS	BELOW GROUND SURFACE	PT	CURVE/TANGENT INTERSECT
BLVD	BOULEVARD	PVC	POLYVINYL CHLORIDE
BM	BENCH MARK	RBC	REINFORCED CONCRETE BOX
CATV	CABLE TELEVISION	RCP	REINFORCED CONCRETE PIPE
CB	CULVERT BOX	RED	REDUCER
CCFRPM	CENTRIFUGALLY CAST FIBERGLASS REINFORCED PLASTIC MORTAR CURB FACE	RR	RAILROAD
CF	CAST IRON PIPE, CAST-IN-PLACE	S	SOUTH
CIP	CURED IN-PLACE PIPE	SAR	SANTA ANA RIVER
CIPP	CONTROLLED LOW STRENGTH MATERIAL CEMENT MORTAR LINED AND COATED CORRUGATED METAL PIPE	SCH	SCHEDULE
CLSM	CONCRETE, CONCENRIC	SO.	SOUTH
CML, C		SD	STORM DRAIN
CMP		SP	SOUTHERN PACIFIC
CONC		SPPWC	STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION
DBL	DOUBLE	SSPWC	STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION
DG	DISINTEGRATED GRANITE	ST.	STREET
DWG	DRAWING	STA	STATION
E	EAST, EASTING	STD	STANDARD
EA	EACH	STL	STEEL
EC	END CURB/END OF CURB	SWR	SEWER
ECC	ECCENTRIC	SQ	SQUARE
EL	ELEVATION	T	THICKNESS
ELEC	ELECTRICAL	TC	TOP OF CURB
ENC	ENCASED	TCE	TEMPORARY CONSTRUCTION EASEMENT
ENG	ENGINEER	TEL, T	TELEPHONE
EX, EXIST	EXISTING	TOP	TOP OF PIPE
FL	FLOW LINE	TYP	TYPICAL
FLG	FLANGE	UP	UNION PACIFIC RAILROAD
FLG'D	FLANGED	VCP	VITRIFIED CLAY PIPE
FOB	FLAT ON BOTTOM	VERT	VERTICAL
FOT	FLAT ON TOP	W	WEST
FS	FINISHED SURFACE	W/	WITH
G	GAS	WTR	WATER
GPS	GLOBAL POSITIONING SYSTEM	WSP	WELDED STEEL PIPE
HORIZ	HORIZONTAL		
HP	HIGH POINT/HIGH PRESSURE		
HW	HIGH WATER		
ID	INSIDE DIAMETER		
IE	INVERT ELEVATION		
IRR	IRRIGATION		
LDDC	LOW DENSITY CELLULAR CONCRETE		
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		

**AS-BUILT**

Path: P:\Projects\Riverside, City of (CA11314) - Santa Ana River Trunk Sewer/CADD\Y-SHEETS\PHASE 2\GENERAL - FILENAME: SARTS\_PHASE2\_SHT03 - Plot Date: Nov 20, 2013 10:57AM - 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. B...*  
 REGISTERED CIVIL ENGINEER No. C-36183  
 DATE: 11-22-13

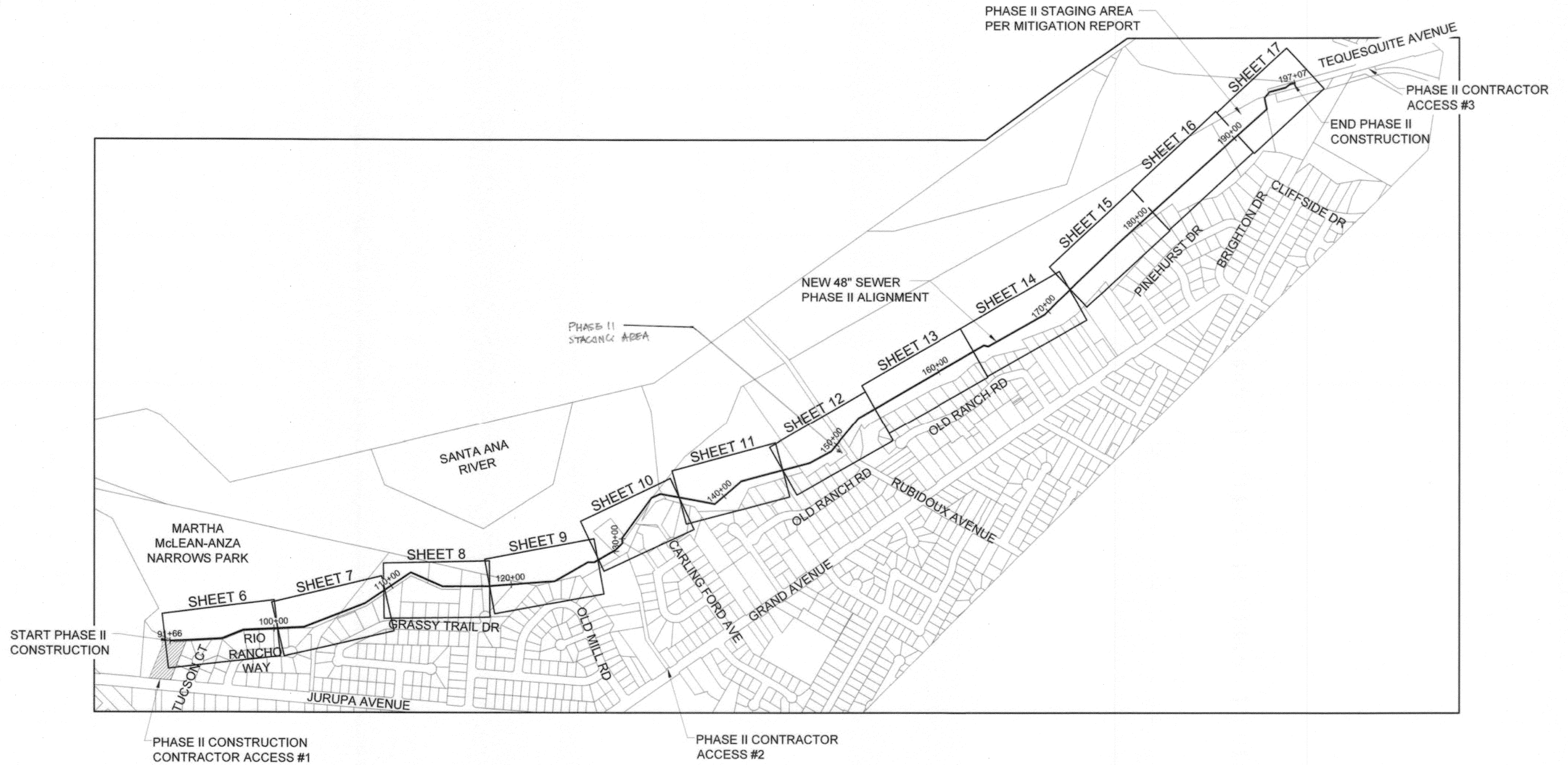
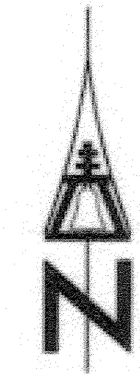
DATE	REVISION	APPRO. DATE
DESIGNED BY	DRAWN BY	CHECKED BY

**CITY OF RIVERSIDE, CALIFORNIA**  
**PUBLIC WORKS DEPARTMENT**  
 APPROVED BY: *[Signature]*  
 DATE: 1/16/2015

**SANTA ANA RIVER TRUNK**  
**SEWER REPLACEMENT- PHASE II**  
 ABBREVIATIONS, LEGEND, SYMBOLS AND AGENCY INDEX  
 HORIZ. SCALE: NONE VERT. SCALE: NONE

ACCT. NO.: 9799123  
**S-2089**  
 SHEET **3** OF **35**  
 FILE NO. SARTS\_PHASE2\_SHT03

# AS-BUILT



Path: P:\Projects\Overseas, City of CA\1133410 - Santa Ana River Trunk Sewer\LEAD02-SHEETS\PHASE II\AS-BUILT - SARTS\_SHT04.dwg, Plot date: Nov 20, 2013 11:00AM, CAD User: David, David

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



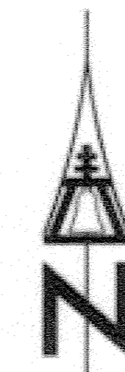
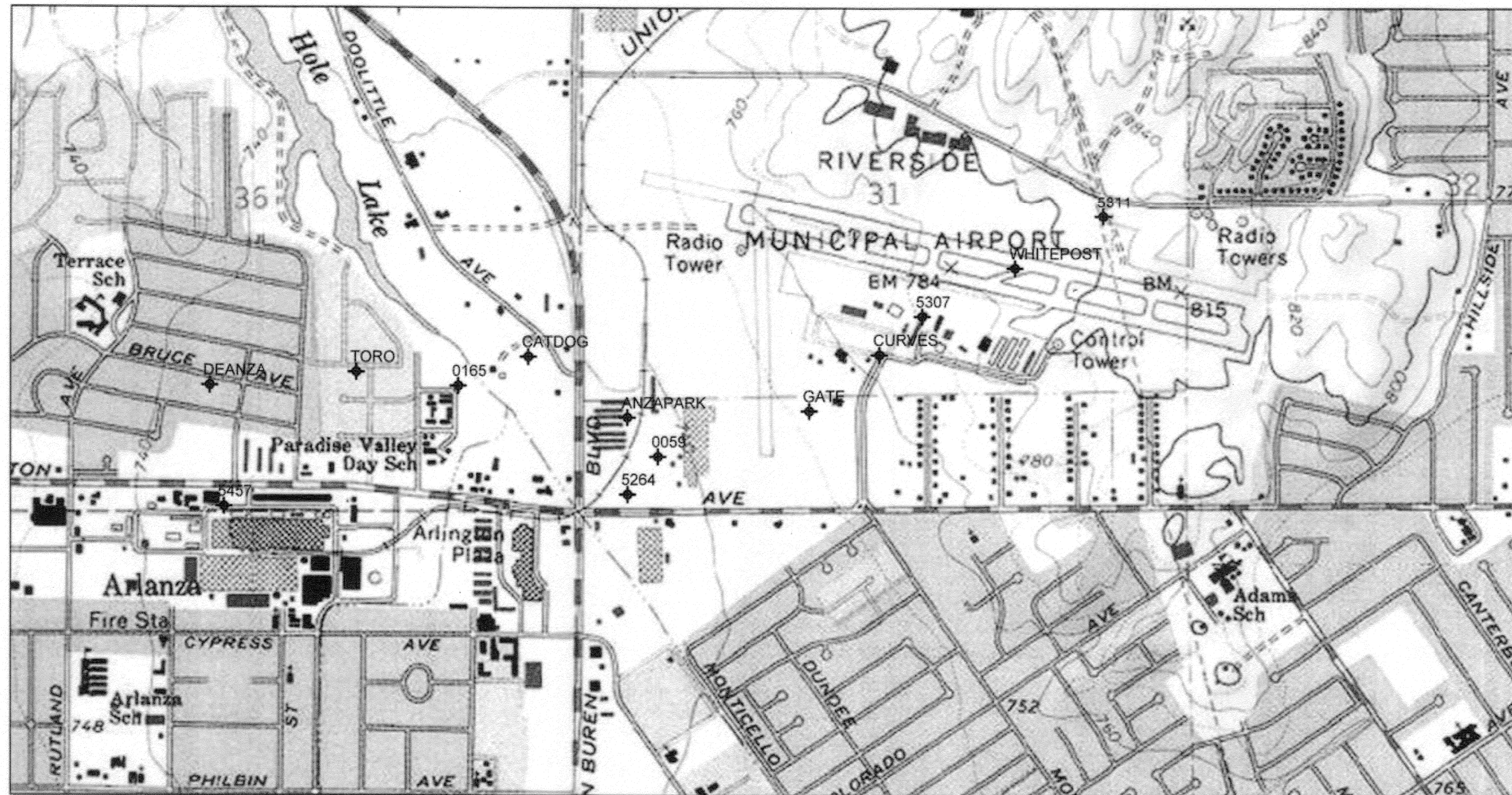
**BROWN AND CALDWELL**  
 SAN DIEGO, CALIFORNIA  
 ENGINEER IN RESPONSIBLE CHARGE: *Mark O'Brien*  
 REGISTERED CIVIL ENGINEER No. C-36183  
 DATE: 11-22-13

DESIGNED BY: \_\_\_\_\_ DRAWN BY: \_\_\_\_\_ CHECKED BY: \_\_\_\_\_  
 REVISIONS: \_\_\_\_\_ APPR. DATE: \_\_\_\_\_

**CITY OF RIVERSIDE, CALIFORNIA**  
**PUBLIC WORKS DEPARTMENT**  
 APPROVED BY: \_\_\_\_\_ BY: \_\_\_\_\_ DATE: 11/14/2013  
 ENGINEERING MANAGER: \_\_\_\_\_  
 PRINCIPAL ENGINEER: \_\_\_\_\_  
 TRAFFIC DIVISION: \_\_\_\_\_  
 PUBLIC WORKS DEPARTMENT: \_\_\_\_\_  
 INSPECTION: \_\_\_\_\_  
 SUPERVISOR: \_\_\_\_\_

**SANTA ANA RIVER TRUNK**  
**SEWER REPLACEMENT- PHASE II**  
**SHEET INDEX MAP**  
 HORIZ. SCALE: 1" = 400' VERT. SCALE: NONE

ACCT. NO.: 9799123  
**S-2089**  
 SHEET **4** OF **35**  
 FILE NO. SARTS\_SHT04.DWG



**LEGEND**

⊕ BENCHMARK AS NOTED

**BASIS OF BEARINGS AND BENCHMARK ELEVATIONS**

PER RECORD BENCHMARKS AS NOTED IN SURVEY CONTROL TABLE BELOW.

**BENCHMARK DESCRIPTIONS**

**BENCHMARK**

POINT ID: I5-A3  
 ELEVATION: 753.831  
 DATE LVLD: 1997  
 REFERENCE: LL44/109A  
 DATUM: 1929  
 ADJUSTMENT YEAR: 1970  
 3RD ORDER POINT  
 DESCRIPTION: CITY OF RIVERSIDE BRASS DISK IN A STANDARD MONUMENT WELL STAMPED "I5-A" ON THE CENTERLINE OF TEQUESQUITE 506.74 FEET SOUTHWESTERLY OF THE P.I. AT THE LANDFILL ENTRANCE.

POINT ID: H4-I3  
 ELEVATION: 713.400  
 DATE LVLD: 1998  
 REFERENCE: LL45/50A  
 DATUM: 1929  
 ADJUSTMENT YEAR: 1970  
 3RD ORDER POINT  
 DESCRIPTION: P.K. NAIL AND CITY ENGINEER TAG IN THE CONCRETE BASE OF A STREET LIGHT POLE AT THE SOUTHWEST CORNER OF THE SAMPLE STATION, A BRICK BUILDING LOCATED AT THE SOUTHWEST CORNER OF THE OPERATIONS BUILDING/BREAK ROOM OF THE RIVERSIDE SEWAGE TREATMENT PLANT.

**AS-BUILT**

**SITE MAP**  
 SCALE: 1"=1,000'

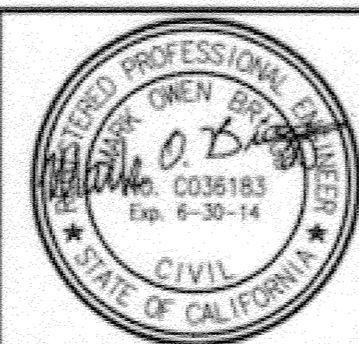
SURVEY CONTROL				
BENCHMARK (PRIMARY)	DESCRIPTION	NORTHING	EASTING	ELEVATION (SEE NOTE 8)
0163	INTERSECTION MILFORD & PINEHURST	2298939.580	6212367.800	811.340
0165	INTERSECTION ORDWAY & INDUSTRIAL; 8/01/07 FO 3/4" IP W/ TACK W/O TAG	2297162.538 (2297162.570)	6200976.949 (6200976.940)	782.648 (782.670)
2076	50 FT E OF INTERSECTION JURUPA & ACORN	2294974.520	6196608.300	752.694
BENCHMARK (SUPPLEMENTAL)				
CATDOG	3/4" IP W/ TAG LS5478	2297701.363	6202272.315	769.565
ANZAPARK	3/4" IP W/ TAG LS5478	2296581.632	6204112.515	767.351
TORO	3/4" IP W/ TAG LS5478	2297412.014	6199086.299	790.313
0059	S SIDE OF JURUPA OPPO ANZA PARK 0.5 MI E VAN BUREN	2295857.773 (2295857.760)	6204679.007 (6204679.030)	769.930 (769.940)
5264	MOUNTAIN VIEW AVE & ANITA PL; FD. 1 1/2" I.P. W/ SPIKE DN 0.15 - NO REF., SEE LL46/155	2295164.024 (2295163.931)	6204118.650 (6204118.712)	776.581 (776.510)
5457	XX	2294934.158 (2294934.145)	6196641.127 (6196641.124)	752.627 (752.606)
DEANZA	3/4" IP W/ TAG LS5478	2297170.101	6196375.553	701.353
GATE	3/4" IP W/ TAG LS5478	2296703.936	6207476.537	743.125
CURVES	3/4" IP W/ TAG LS5478	2297743.706	6208776.120	736.569
5307	FD 1 1/2" W/ TAG, W/ TAG MISSING OR NON-READABLE	2298448.588 (2298448.549)	6209563.549 (6209563.410)	738.750 (738.833)
5311	FD IN WELL MONUMENT	2300565.103 (2300565.098)	6213360.788 (6213360.778)	760.120 (760.110)
WHITEPOST	3/4" IP W/ TAG LS5478	2299350.686	6211281.770	747.072

( ) INDICATES RECORD INFORMATION PER CITY OF RIVERSIDE PUBLISHED CONTROL

**SURVEY CONTROL DATA NOTES**

1. TO OBTAIN GROUND DISTANCES DIVIDE GRID DISTANCES BY A COMBINED FACTOR OF 0.99998237.
2. CONVERGENCE ANGLE = 0°37'59"
3. HORIZONTAL DATUM = CCS83, CALIFORNIA STATE PLANE COORDINATES ZONE 6.
4. VERTICAL DATUM = NGVD29.
5. COMBINED SCALE FACTOR AND CONVERGENCE ANGLE CALCULATED AT BENCHMARK 0163.
6. UNITS ARE: FEET FOR COORDINATES AND ELEVATIONS; DEGREES, MINUTES, SECONDS FOR BEARINGS AND ANGLES.
7. VERIFY SUPPLEMENTAL CONTROL PRIOR TO UTILIZING.
8. VERIFY ELEVATIONS SHOWN PRIOR TO UTILIZING.

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

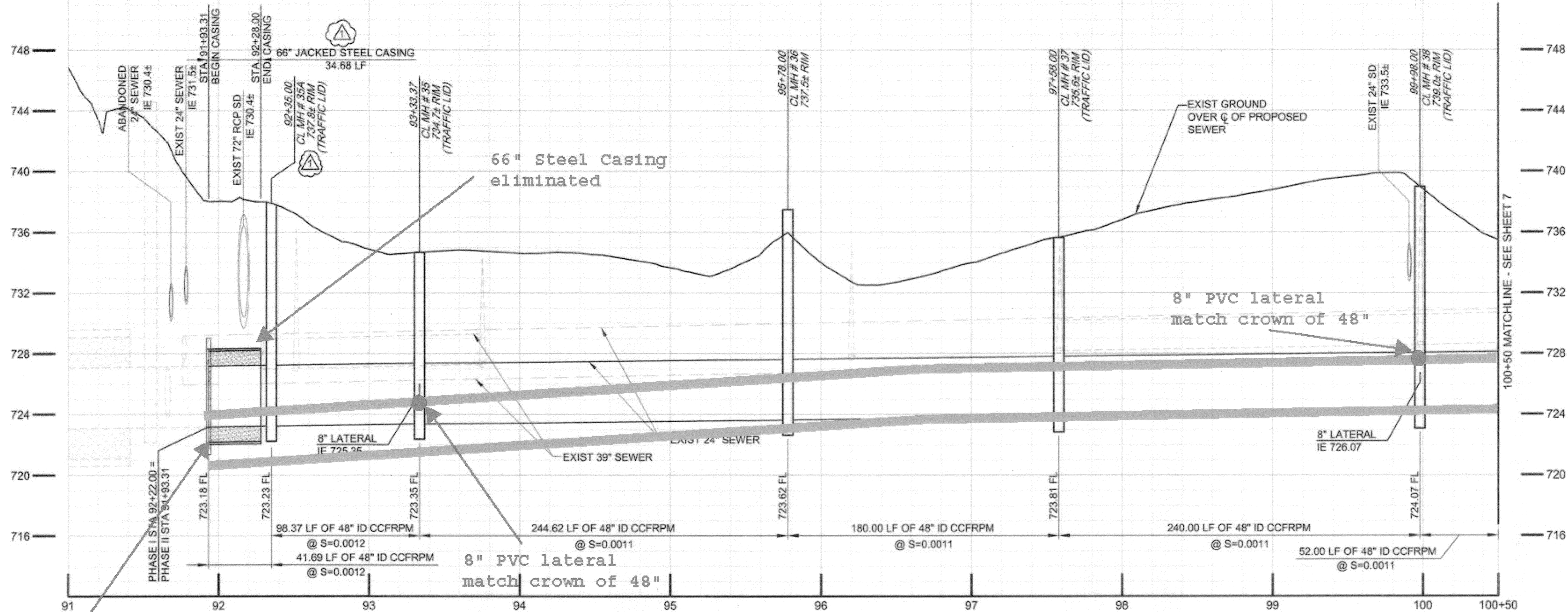


**BROWN AND CALDWELL**  
 SAN DIEGO, CALIFORNIA  
 ENGINEER IN CHARGE: Mark O. B...  
 REGISTERED CIVIL ENGINEER No. C-36183  
 DATE: 11-22-13

**CITY OF RIVERSIDE, CALIFORNIA**  
**PUBLIC WORKS DEPARTMENT**  
 APPROVED BY: [Signature]  
 DATE: 11/16/2015

**SANTA ANA RIVER TRUNK**  
**SEWER REPLACEMENT- PHASE II**  
**SURVEY CONTROL DATA**  
 HORIZ. SCALE: 1" = 1000' VERT. SCALE: NONE

ACCT. NO.: 9799123  
**S-2089**  
**5 OF 35**  
 SHEET  
 FILE NO. SARTS\_SHT05.DWG



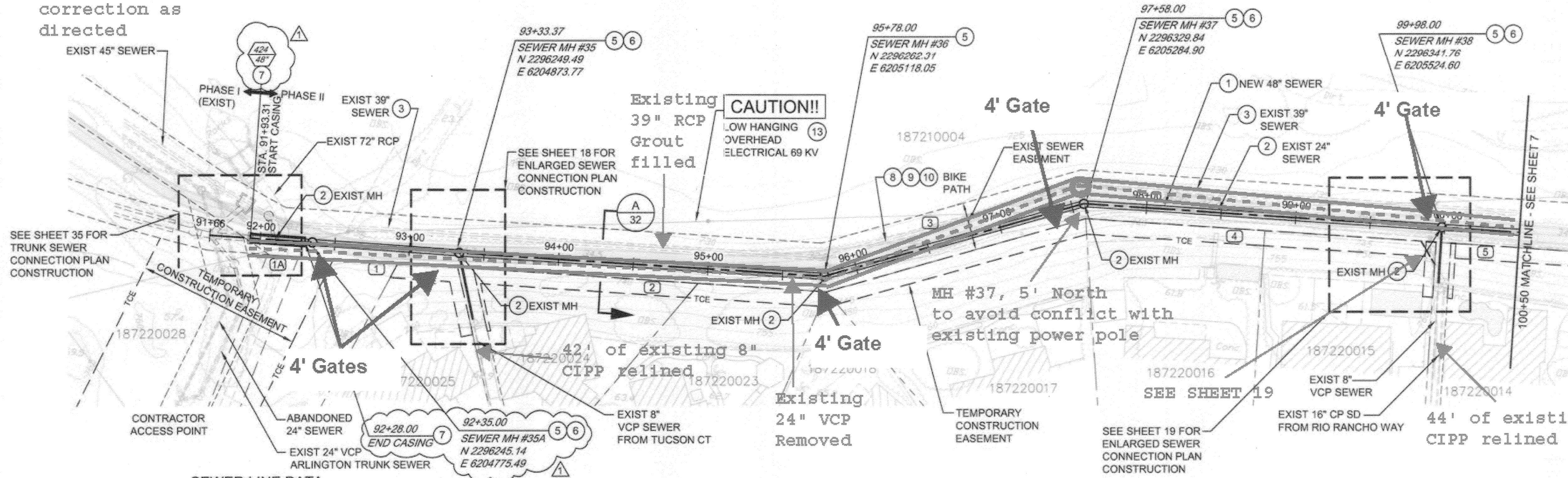
- SEWER CONSTRUCTION NOTES**
- INSTALL 48" CCFRPM PER TRENCH DETAILS SHEET 32 & 33 AS SHOWN.
  - DEMOLISH INTERFERING PORTIONS OF EXIST 24" SEWER PIPELINE AND MANHOLES WHERE SHOWN ON PLANS AND AS NEEDED FOR CONSTRUCTION PER SECTION 306-5 OF THE SPECIAL PROVISIONS.
  - ABANDON ALL REMAINING PORTIONS OF EXIST 24" VCP SEWER, EXIST 39", 36" & 33" RCP SEWER AND EXIST MANHOLES IN PLACE IN ACCORDANCE WITH SECTION 306-5.
  - INSTALL CONCRETE ENCASEMENT PER DETAIL 3, SHT. 28.
  - INSTALL NEW CCFRPM MANHOLE PER DETAIL 1, SHT. 29.
  - TRAFFIC MANHOLE LIDS SHALL BE H-20, EPOXY COATED.
  - INSTALL 48" CCFRPM WITHIN MIN. 66" DIA STEEL CASING PER DETAIL 1, SHT. 28.
  - THE BIKE PATH SHALL BE CLOSED DURING CONSTRUCTION ACTIVITIES FROM MONDAY (7 AM) THRU SATURDAY (7AM). 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.
  - 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).
  - BIKE PATH SHALL BE REPLACED WITH PAVEMENT AND BASE IN-KIND TO MATCH EXISTING AND PER SANTA ANA RIVER BIKEWAY PHASE IIB R-3172 FROM STA 91+66 TO RUBIDOUX AVE. & PHASE IIA R-2570 FROM RUBIDOUX AVE. TO STA 196+94.
  - INSTALL CONCRETE SUPPORT FOR PROTECTION OF EXISTING UTILITY CROSSING PER DETAIL 4, SHEET 28.
  - NOT USED
  - CONTRACTOR SHALL VISIT THE SITE AND EXAMINE SITE PARAMETER CONDITIONS FOR TYPES OF EQUIPMENT, EQUIPMENT ACCESSIBILITY, AND EQUIPMENT CLEARANCE REQUIRED TO COMPLETE THE WORK PRIOR TO SUBMITTING A BID.
  - APPROXIMATE DEPTH TO GROUNDWATER PER SUBSURFACE INVESTIGATIONS. THE INDICATED GROUNDWATER ELEVATIONS IS THAT WHICH EXISTED ON THE DATE TAKEN PER SSPWC PART 1, SECTION 2-7 SUBSURFACE DATA.

Existing 48" stub  
.79' low, alignment  
2.2' to South  
Grade & Alignment  
correction as  
directed

Remove & Dispose abandoned  
8" gas line concrete encased  
HDPE STA 92+00 - 100+50

Bike Path Paving  
STA 91+66 - 100+50

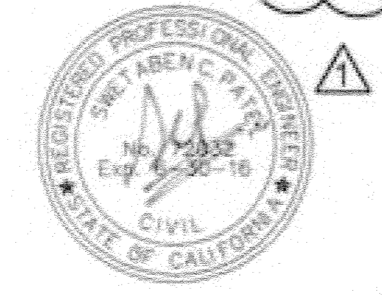
39" grout filled  
24" VCP removed  
Manholes abandoned



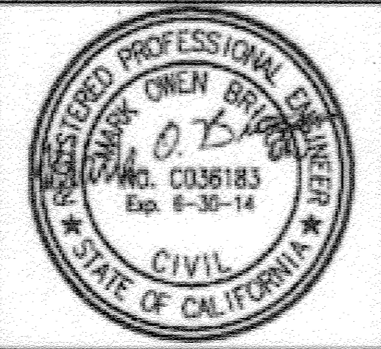
**AS-BUILT**

**SEWER LINE DATA**

	L	BEARING
(1A)	41.89'	N 87°27'46" E
(1)	98.37'	N 87°27'46" E
(2)	244.62'	N 86°59'50" E
(3)	180.00'	N 67°57'50" E
(4)	240.00'	N 87°9'8" E
(5)	52.00'	N 87°9'8" 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. King*  
REGISTERED CIVIL ENGINEER No. C-36183  
DATE: 11-22-13

NO.	REVISIONS	DATE	BY
1	ADDED STEEL CASING, MANHOLE AND COLLAR	11/22/13	MLK

**CITY OF RIVERSIDE, CALIFORNIA**  
**PUBLIC WORKS DEPARTMENT**  
APPROVED BY: *Shawn Red*  
DATE: 11/22/13

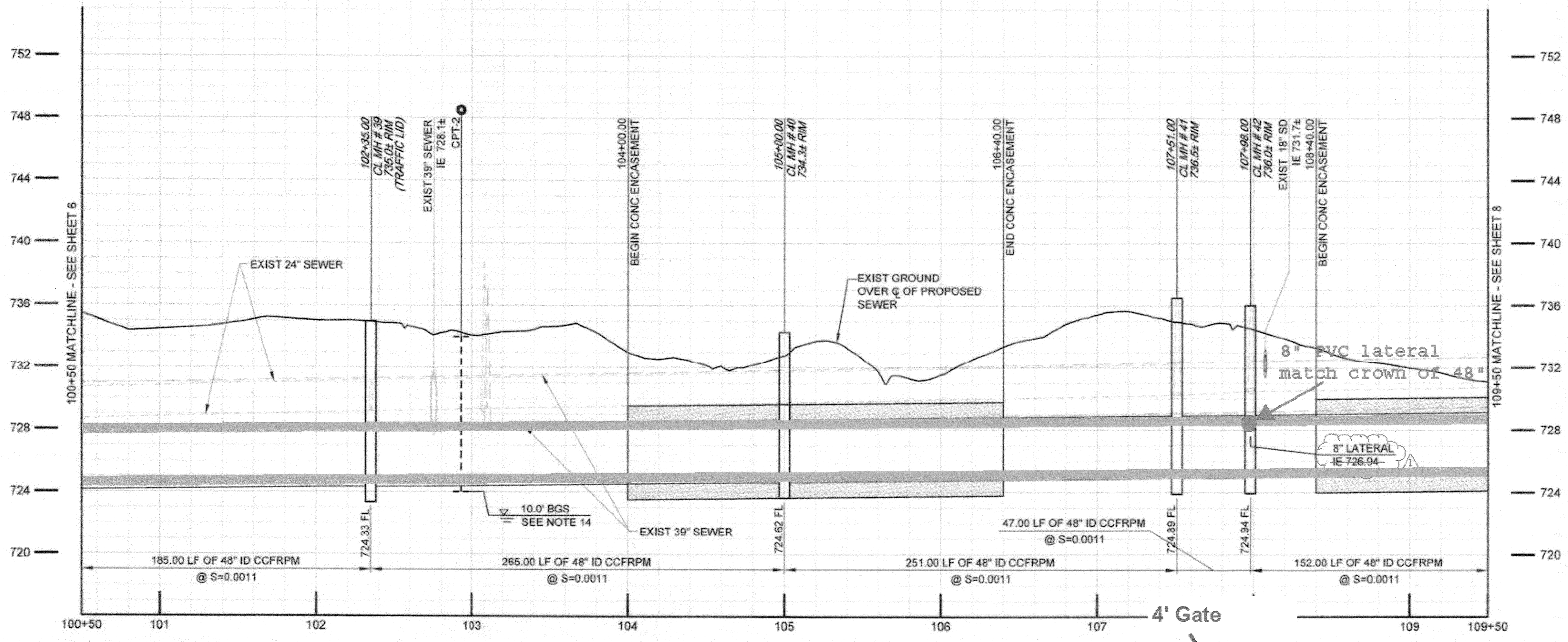
**SANTA ANA RIVER TRUNK SEWER**  
**REPLACEMENT - PHASE II**  
**PLAN AND PROFILE**  
**STATION 91+00 TO 100+50**

ACCT. NO.: 9799123  
S-2089  
SHEET 6A OF 35  
FILE NO. SARTS\_SHT06.DWG

Path: C:\Admin\Cadman\Design Projects\11-03A\_SARTS\_PHASE II\AS-Built\Drawings (Original)\_PWA\Drawings\Revisions\New folder - File name: SARTS\_SHT06\_Plot date: Feb 13, 2015 01:55PM CAD User: Patel, Svetlana



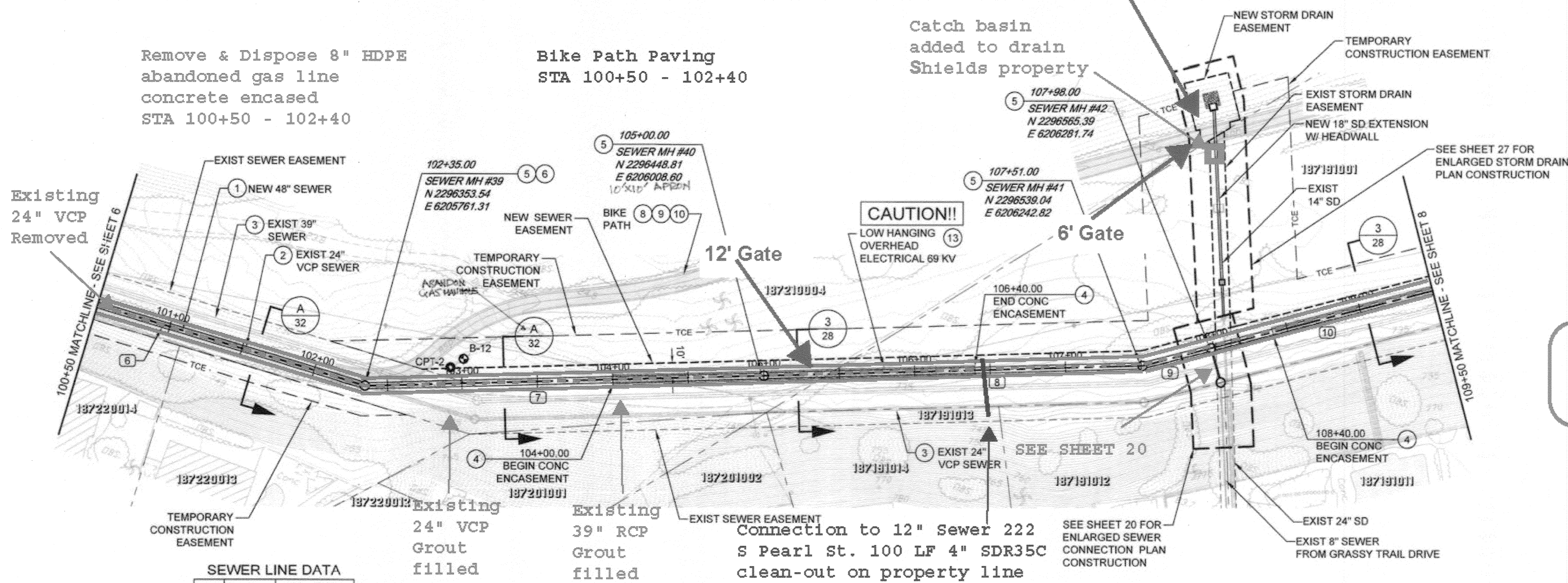
- SEWER CONSTRUCTION NOTES**
- INSTALL 48" CCFRPM PER TRENCH DETAILS SHEET 32 & 33 AS SHOWN.
  - DEMOLISH INTERFERING PORTIONS OF EXIST 24" SEWER PIPELINE AND MANHOLES WHERE SHOWN ON PLANS AND AS NEEDED FOR CONSTRUCTION PER SECTION 306-5 OF THE SPECIAL PROVISIONS.
  - ABANDON ALL REMAINING PORTIONS OF EXIST 24" VCP SEWER, EXIST 39", 36" & 33" RCP SEWER AND EXIST MANHOLES IN PLACE IN ACCORDANCE WITH SECTION 306-5.
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  - INSTALL NEW CCFRPM MANHOLE PER DETAIL 1, SHT. 29.
  - TRAFFIC MANHOLE LIDS SHALL BE H-20, EPOXY COATED.
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  - INSTALL CONCRETE SUPPORT FOR PROTECTION OF EXISTING UTILITY CROSSING PER DETAIL 4, SHEET 28.
  - NOT USED
  - CONTRACTOR SHALL VISIT THE SITE AND EXAMINE SITE PARAMETER CONDITIONS FOR TYPES OF EQUIPMENT, EQUIPMENT ACCESSIBILITY, AND EQUIPMENT CLEARANCE REQUIRED TO COMPLETE THE WORK PRIOR TO SUBMITTING A BID.
  - APPROXIMATE DEPTH TO GROUNDWATER PER SUBSURFACE INVESTIGATIONS. THE INDICATED GROUNDWATER ELEVATIONS IS THAT WHICH EXISTED ON THE DATE TAKEN PER SSPWC PART 1, SECTION 2-7 SUBSURFACE DATA.



Remove & Dispose 8" HDPE abandoned gas line concrete encased STA 100+50 - 102+40

Bike Path Paving STA 100+50 - 102+40

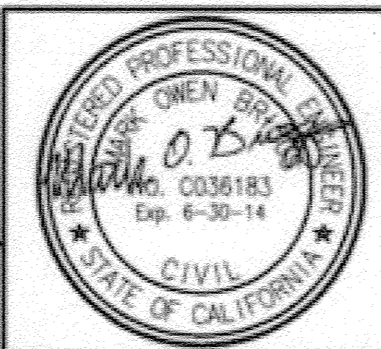
Catch basin added to drain Shields property



**SEWER LINE DATA**

	L	BEARING
(6)	185.00'	N 87° 9' 8" E
(7)	265.00'	N 68° 55' 52" E
(8)	251.00'	N 68° 55' 52" E
(9)	47.00'	N 55° 53' 50" E
(10)	152.00'	N 55° 54' 0" 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. Biggs*  
REGISTERED CIVIL ENGINEER No. C-36183  
DATE: 11-22-13

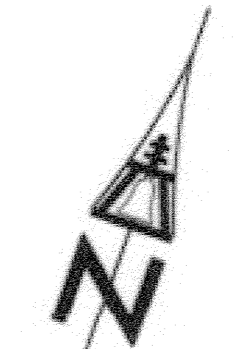
Revised plan as shown  
DESIGNED BY: \_\_\_\_\_ DRAWN BY: \_\_\_\_\_ CHECKED BY: \_\_\_\_\_  
DATE: 3/19/15

**CITY OF RIVERSIDE, CALIFORNIA**  
**PUBLIC WORKS DEPARTMENT**  
APPROVED BY: \_\_\_\_\_ DATE: 1/14/2015  
CITY ENGINEER

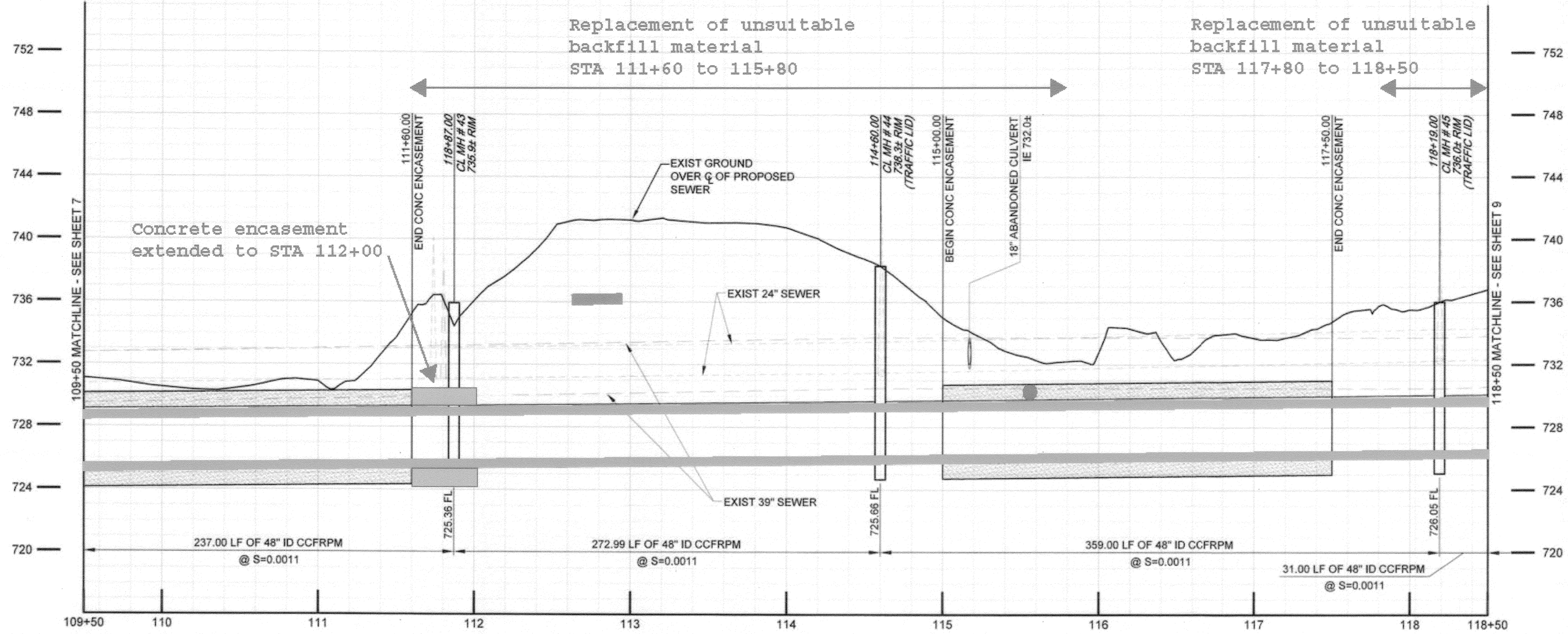
**SANTA ANA RIVER TRUNK SEWER REPLACEMENT - PHASE II**  
PLAN AND PROFILE  
STATION 100+50 TO 109+50  
HORIZ. SCALE: 1" = 40' VERT. SCALE: 1" = 4'

ACCT. NO.: 9799123  
**S-2089**  
SHEET **7** OF **35**  
FILE NO. SARTS\_SHT07.DWG

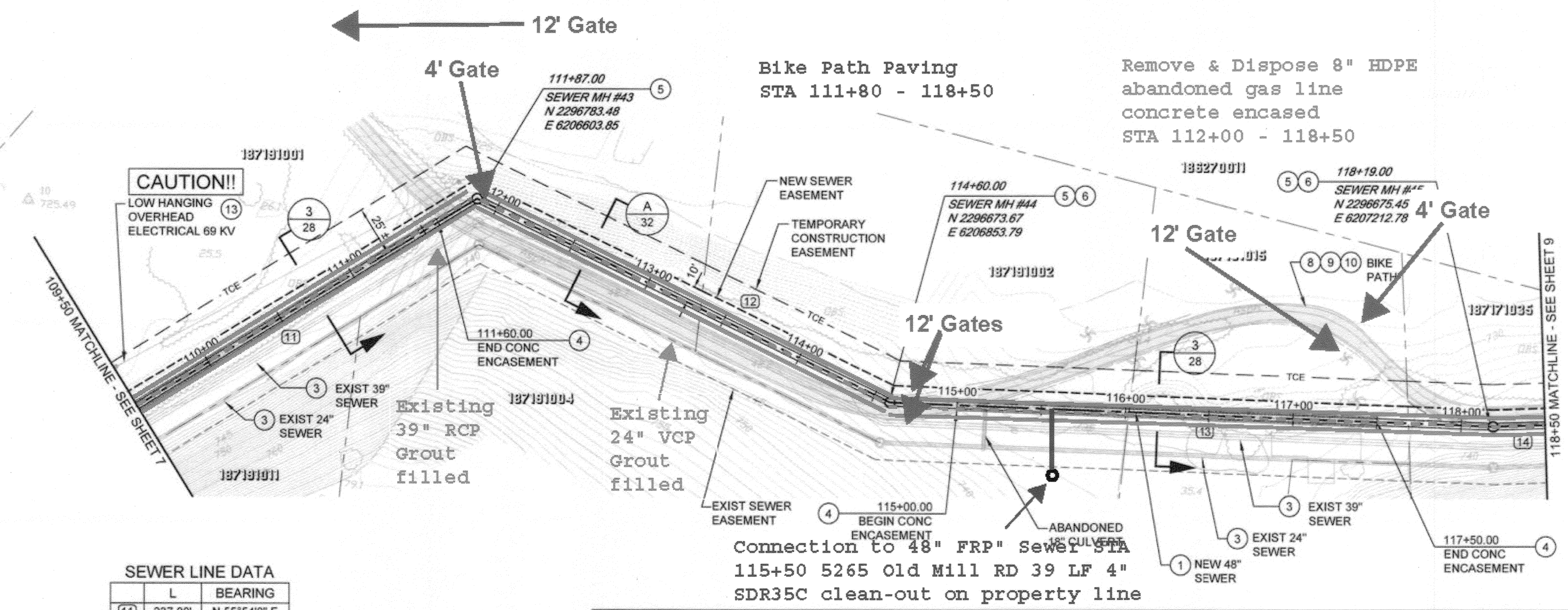
**AS-BUILT**



Path: P:\Projects\Riverside, City of\CA\133410 - Santa Ana River Trunk Sewer\CA0007-SHEETS PHASE 2\C-CIVIL File Name: SARTS\_SHT07 Plot Date: Nov 21, 2013 02:05PM CAD User: Davidc, David



- SEWER CONSTRUCTION NOTES**
- INSTALL 48" CCFRPM PER TRENCH DETAILS SHEET 32 & 33 AS SHOWN.
  - 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.
  - ABANDON ALL REMAINING PORTIONS OF EXIST 24" VCP SEWER, EXIST 39", 36" & 33" RCP SEWER AND EXIST MANHOLES IN PLACE IN ACCORDANCE WITH SECTION 306-5.
  - INSTALL CONCRETE ENCASEMENT PER DETAIL 3, SHT. 28.
  - INSTALL NEW CCFRPM MANHOLE PER DETAIL 1, SHT. 29.
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  - INSTALL CONCRETE SUPPORT FOR PROTECTION OF EXISTING UTILITY CROSSING PER DETAIL 4, SHEET 28.
  - NOT USED
  - CONTRACTOR SHALL VISIT THE SITE AND EXAMINE SITE PARAMETER CONDITIONS FOR TYPES OF EQUIPMENT, EQUIPMENT ACCESSIBILITY, AND EQUIPMENT CLEARANCE REQUIRED TO COMPLETE THE WORK PRIOR TO SUBMITTING A BID.
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**AS-BUILT**

**SEWER LINE DATA**

	L	BEARING
(11)	237.00'	N 55°54'0" E
(12)	272.99'	S 66°16'53" E
(13)	359.00'	N 89°42'59" E
(14)	31.00'	N 85°35'42" 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. Biggs*  
REGISTERED CIVIL ENGINEER No. C-36183  
DATE: 11-22-13

MARK	REVISIONS	DATE	CHECKED BY

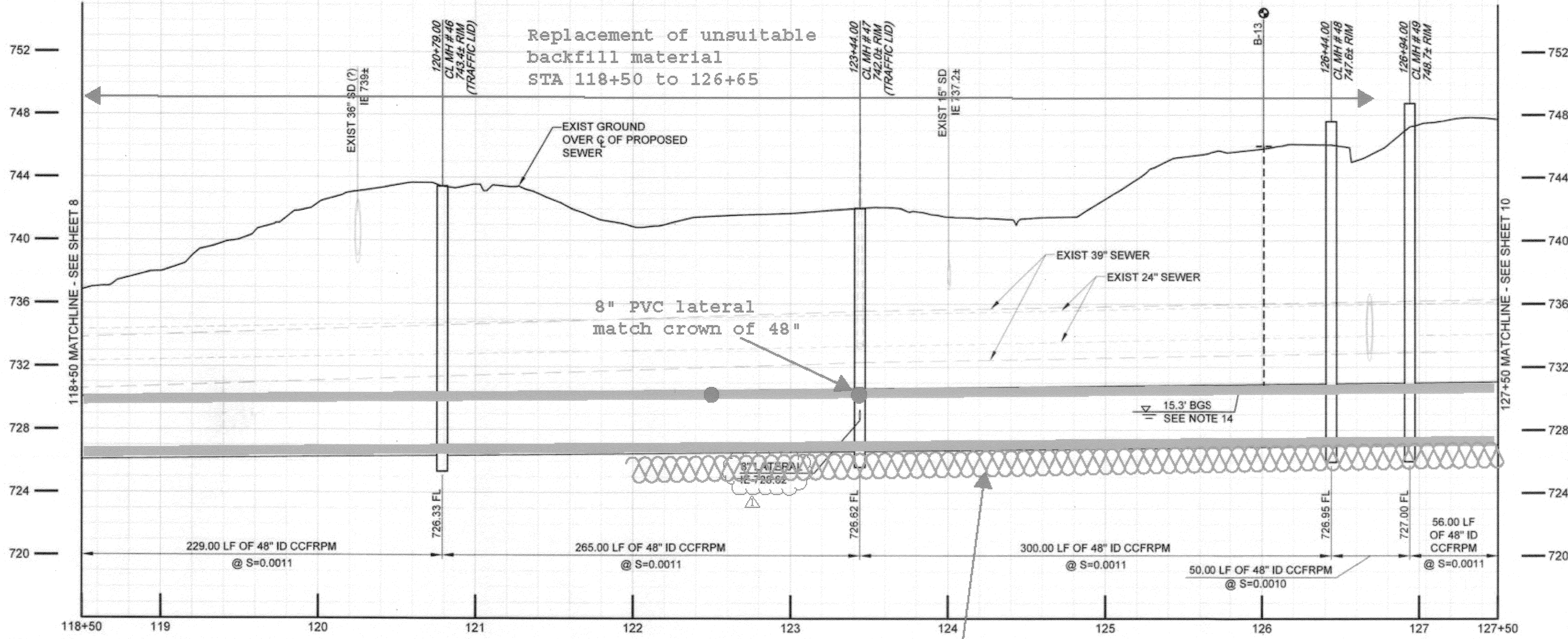
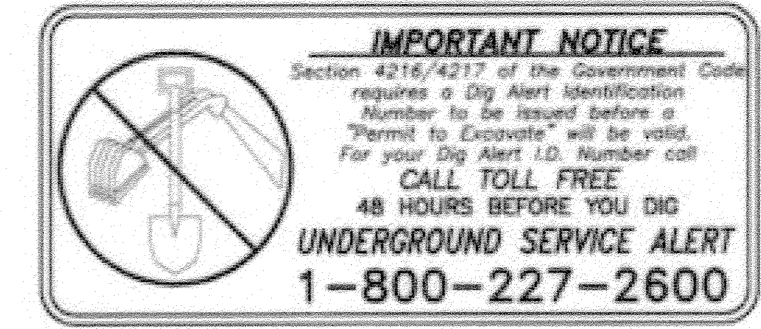
**CITY OF RIVERSIDE, CALIFORNIA**  
**PUBLIC WORKS DEPARTMENT**  
APPROVED BY: *[Signature]*  
DATE: 11/14/2015

**SANTA ANA RIVER TRUNK SEWER REPLACEMENT - PHASE II**  
PLAN AND PROFILE  
STATION 109+50 TO 118+50

ACCT. NO.: 9799123  
**S-2089**  
SHEET **8** OF **35**  
FILE NO. SARTS\_SHT08.DWG

Path: P:\Projects\Riverside, City of\CA1133410 - Santa Ana River Trunk Sewer\CA002-SHEETS\PHASE II\DWG - SARTS\_SHT08.dwg Plot date: Nov 21, 2013 02:19PM CAD User: Davidosa, David





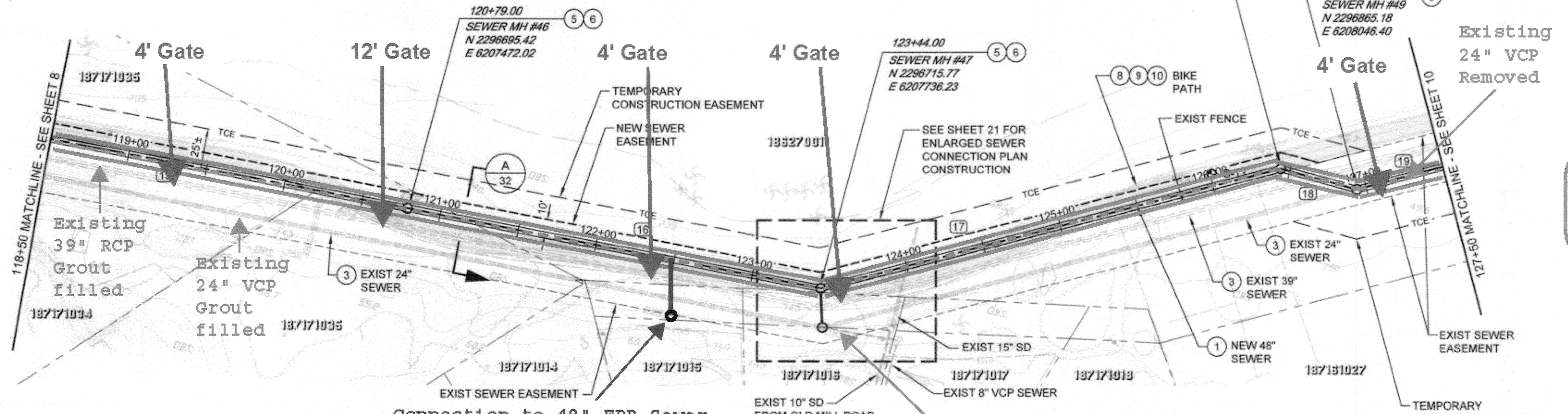
**SEWER CONSTRUCTION NOTES**

- 1 INSTALL 48" CCFRPM PER TRENCH DETAILS SHEET 32 & 33 AS SHOWN.
- 2 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 ABANDON ALL REMAINING PORTIONS OF EXIST 24" VCP SEWER, EXIST 39", 36" & 33" RCP SEWER AND EXIST MANHOLES IN PLACE IN ACCORDANCE WITH SECTION 306-5.
- 4 INSTALL CONCRETE ENCASEMENT PER DETAIL 3, SHT. 28.
- 5 INSTALL NEW CCFRPM MANHOLE PER DETAIL 1, SHT. 29.
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- 12 NOT USED
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- 14 APPROXIMATE DEPTH TO GROUNDWATER PER SUBSURFACE INVESTIGATIONS. THE INDICATED GROUNDWATER ELEVATIONS IS THAT WHICH EXISTED ON THE DATE TAKEN PER SSPWC PART 1, SECTION 2-7 SUBSURFACE DATA.

Remove & Dispose 8" HDPE abandoned gas line concrete encased STA 118+50 - 127+50

2' Foundation Stabilization STA 122+00 through STA 196+36  
6' W x 2' D x 7,436' = 3,304 CYS

Bike Path Paving STA 118+50 - 127+50



Connection to 48" FRP Sewer STA 122+50, 5313 Carlingford.  
34 LF 4" SDR35C clean-out on property line

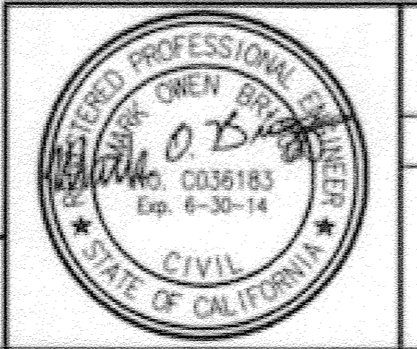
**SEWER LINE DATA**

	L	BEARING
(15)	229.00'	N 85°35'42" E
(16)	265.00'	N 85°35'42" E
(17)	300.00'	N 60°8'10" E
(18)	50.00'	N 89°58'5" E
(19)	56.00'	N 59°52'50" E

**AS-BUILT**

Path: P:\Projects\Riverside, City of (RAN)133410 - Santa Ana River Trunk Sewer\CAD\DWG-SHEETS\PHASE IIC - CIVIL - PLAN\133410 - SARTS\_SHT09 Plot date: Nov 20, 2013 11:10:44 CAD User: David, David

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



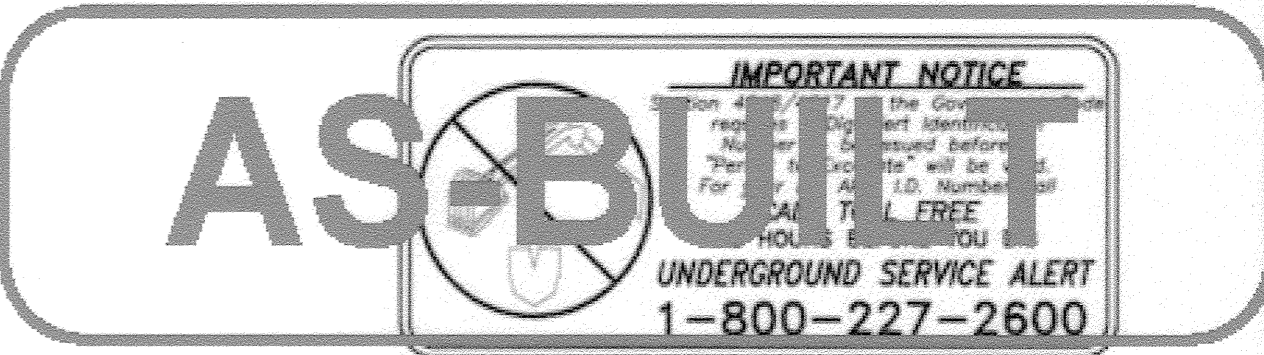
**BROWN AND CALDWELL**  
SAN DIEGO, CALIFORNIA  
ENGINEER IN RESPONSIBLE CHARGE: *Mark O. D. Brown*  
REGISTERED CIVIL ENGINEER No. C-36183  
DATE: 11-22-13

Revised plan as shown  
3/18/15  
DESIGNED BY: \_\_\_\_\_ DRAWN BY: \_\_\_\_\_ CHECKED BY: \_\_\_\_\_

**CITY OF RIVERSIDE, CALIFORNIA**  
PUBLIC WORKS DEPARTMENT  
APPROVED BY: \_\_\_\_\_ DATE: 11/14/2015  
CITY ENGINEER

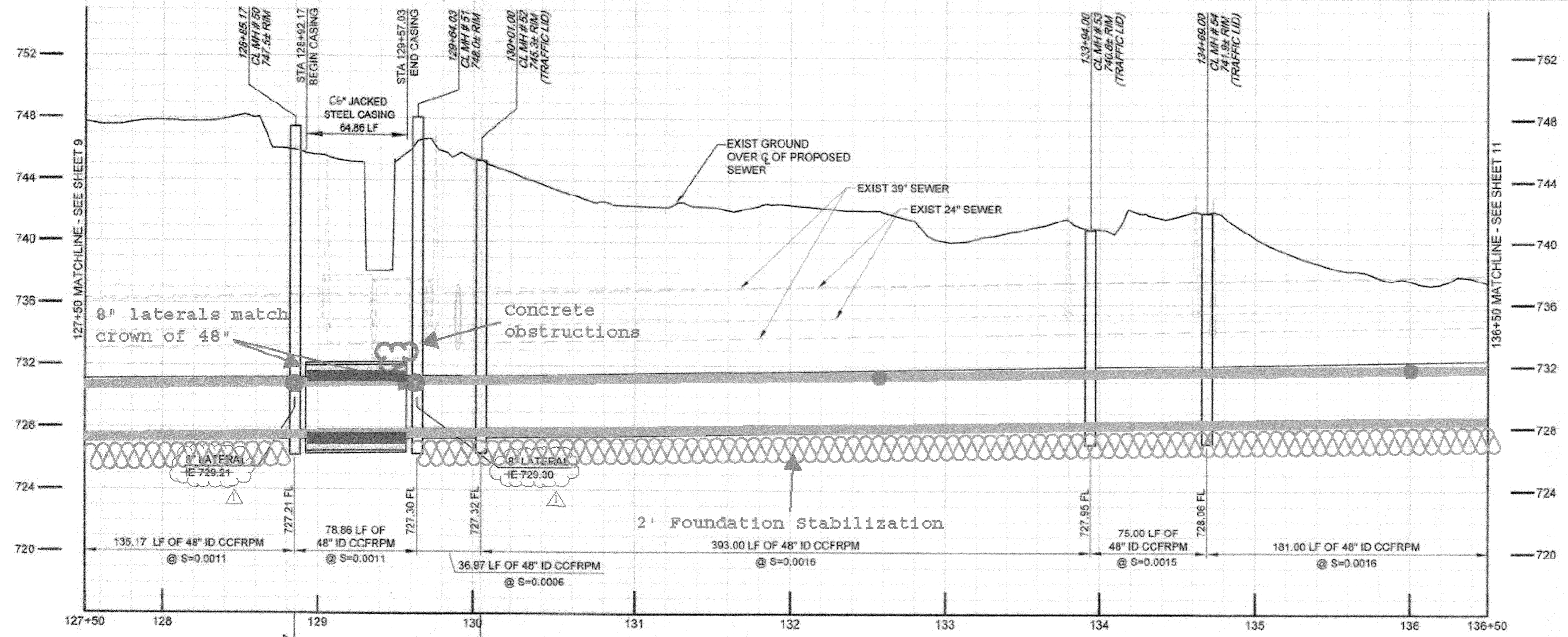
**SANTA ANA RIVER TRUNK SEWER REPLACEMENT - PHASE II**  
PLAN AND PROFILE  
STATION 118+50 TO 127+50  
HORIZ. SCALE: 1" = 40' VERT. SCALE: 1" = 4'

ACCT. NO.: 9799123  
S-2089  
SHEET 9 OF 35  
FILE NO. SARTS\_SHT09.DWG



**SEWER CONSTRUCTION NOTES**

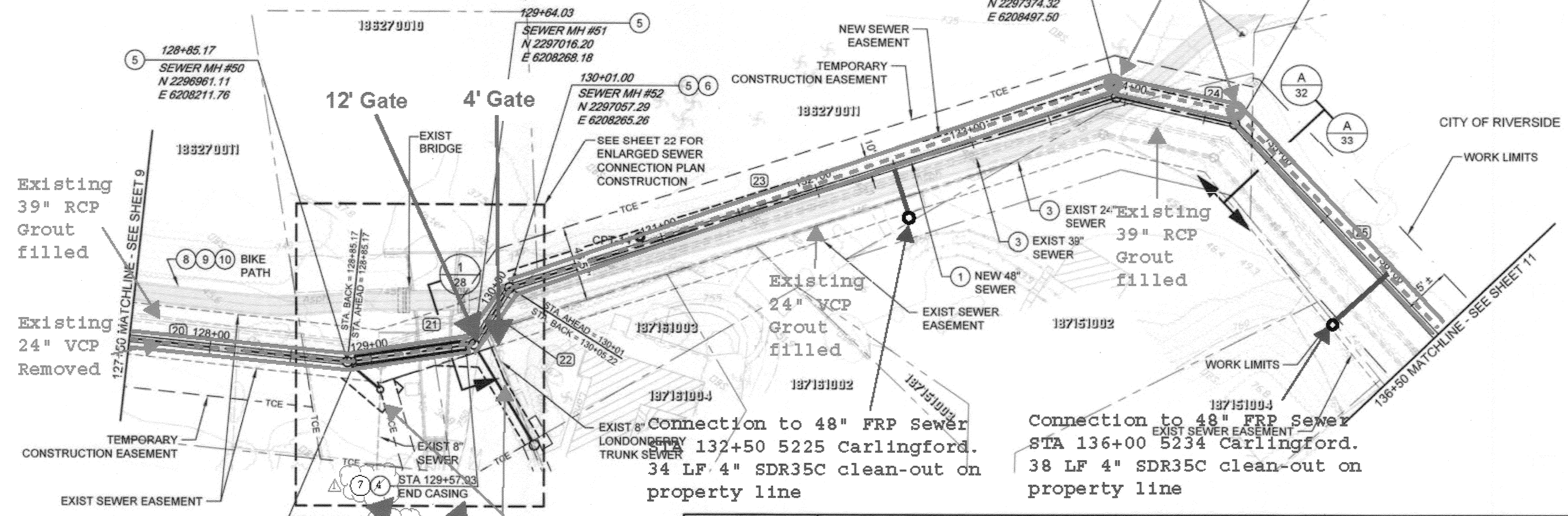
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Remove & Dispose 8" HDPE abandoned gas line concrete encased STA 127+50 - 128+50

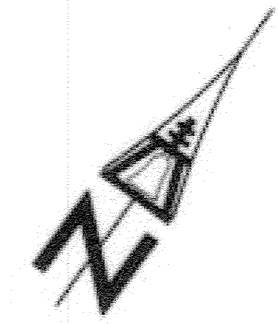
Bike Path Paving STA 127+50 - 134+00

ABANDON GAS MANHOLE AS MANHOLE MH #53 & #54 5' North to avoid existing 39" conflict



**SEWER LINE DATA**

	L	BEARING
(20)	135.17'	N 59°52'50" E
(21)	78.86'	N 45°41'03" E
(22)	41.19'	N 4°04'21" W
(23)	393.00'	N 36°13'30" E
(24)	75.00'	N 66°38'56" E
(25)	181.00'	S 79°32'59" E



Path: P:\Projects\Riverside, City of\CA11131310 - Santa Ana River Trunk Sewer\CAD\2-SHEETS PHASE 2\2-CIVIL - Filename: SARTS\_SHT10 - Plot date: Nov 20, 2013 11:02AM CAD User: Davidse, David



**BROWN AND CALDWELL**  
SAN DIEGO, CALIFORNIA

ENGINEER IN CHARGE: *Mark O. Sainz*  
REGISTERED CIVIL ENGINEER No. C-36183

DATE: 11-22-13

APPROVED BY:	DATE:
PROJECT MANAGER:	11/15/13
PRINCIPAL ENGINEER:	11/15/13
TRAFFIC DESIGNER:	11/15/13
INSPECTOR:	11/15/13
SURVEYOR:	11/15/13

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

APPROVED BY: *Shirley Red*  
CITY ENGINEER

DATE: 11/16/2015

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

PLAN AND PROFILE  
STATION 127+50 TO 136+50

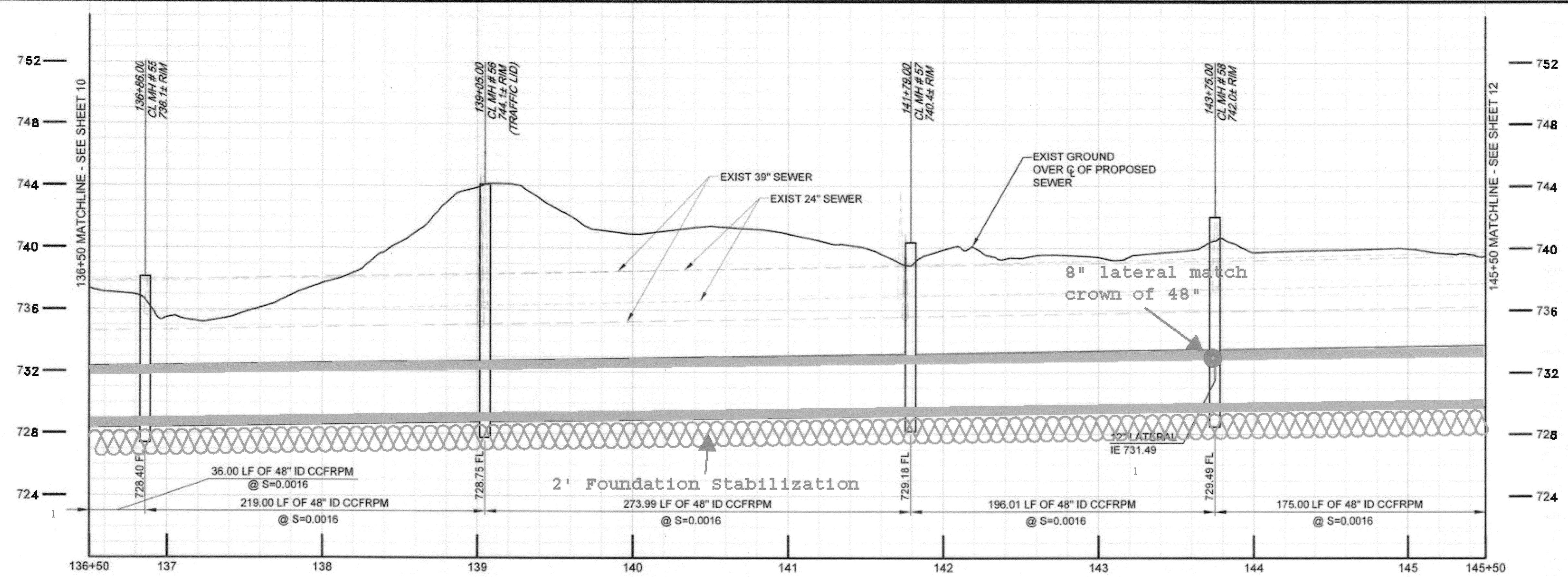
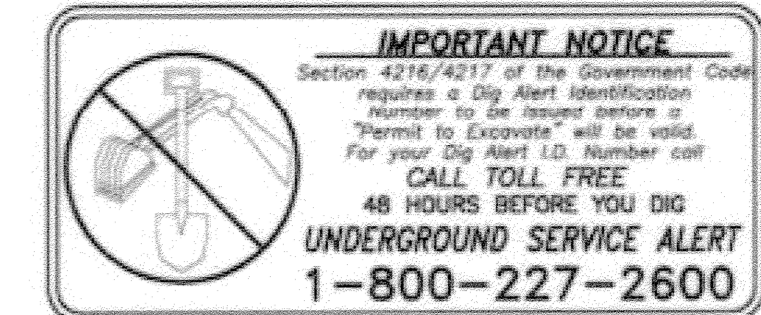
HORIZ. SCALE: 1" = 40' VERT. SCALE: 1" = 4'

ACCT. NO.: 9799123

**S-2089**

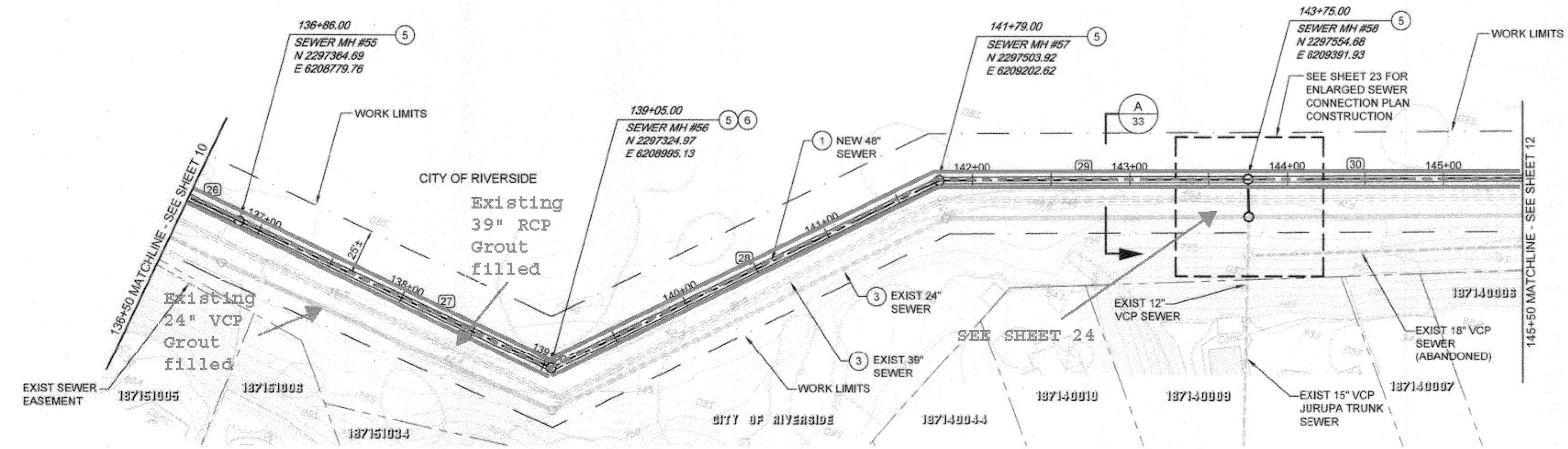
**10 OF 35**

SHEET NO. SARTS\_SHT10.DWG



- SEWER CONSTRUCTION NOTES**
- INSTALL 48" CCFRPM PER TRENCH DETAILS SHEET 32 & 33 AS SHOWN.
  - 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.
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48" FRP Alignment mirrors Existing 36" & 39" RCP



**SEWER LINE DATA**

	L	BEARING
(26)	36.00'	S 79°32'59" E
(27)	219.00'	S 79°32'59" E
(28)	273.99'	N 49°13'25" E
(29)	196.01'	N 74°59'18" E
(30)	175.00'	N 74°58'0" 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. B...*  
 REGISTERED CIVIL ENGINEER No. C-36183  
 DATE: 11-22-13

NO.	REVISIONS	DATE
1	Revised plan as shown	3/9/15

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

APPROVED BY: *[Signature]*  
 DATE: 1/14/2015

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

PLAN AND PROFILE  
 STATION 136+50 TO 145+50

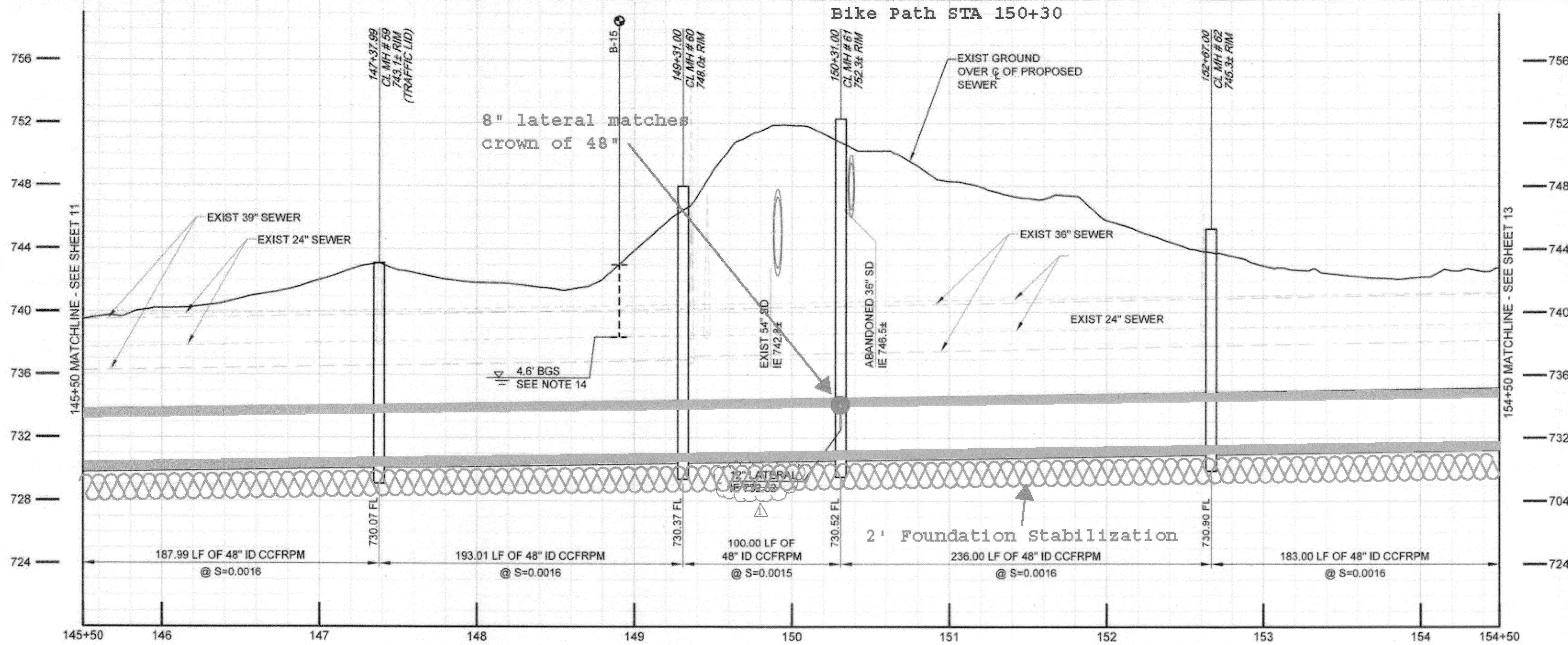
HORIZ. SCALE: 1" = 40' VERT. SCALE: 1" = 4'

ACCT. NO.: 9799123

**S-2089**  
 SHEET 11 OF 35

FILE NO. SARTS\_SHT11.DWG

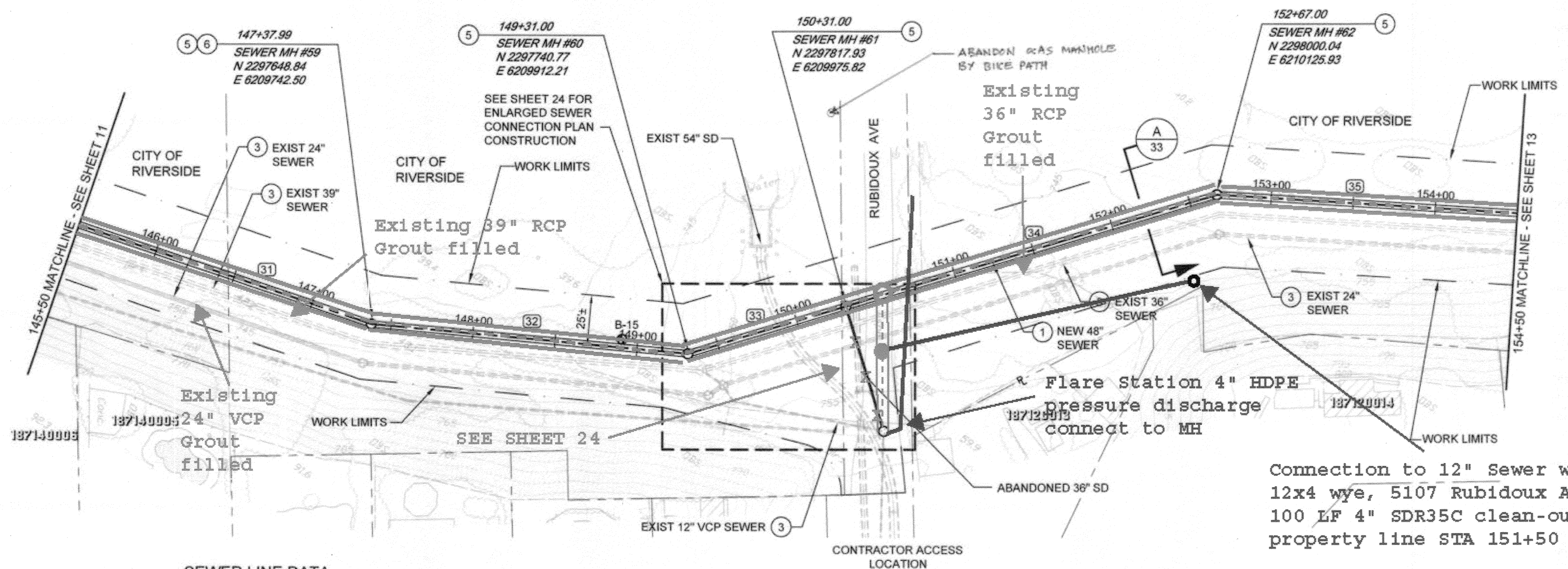
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**SEWER CONSTRUCTION NOTES**

- 1 INSTALL 48" CCFRPM PER TRENCH DETAILS SHEET 32 & 33 AS SHOWN.
- 2 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.
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48" FRP Alignment mirrors Existing 33" - 36" RCP

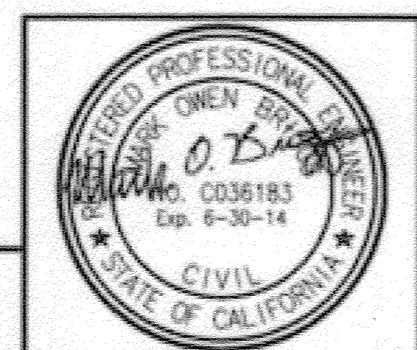


**AS-BUILT**

**SEWER LINE DATA**

	L	BEARING
31	187.99'	N 74°58'0" E
32	193.01'	N 61°33'23" E
33	100.00'	N 39°29'54" E
34	236.00'	N 39°29'54" E
35	183.00'	N 59°53'4" 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. Brien*  
REGISTERED CIVIL ENGINEER No. C-36183  
DATE: 11-22-13

Revised plan as shown  
APPROVED BY: [Signature]  
DATE: 3/18/15

**CITY OF RIVERSIDE, CALIFORNIA**  
PUBLIC WORKS DEPARTMENT  
APPROVED BY: [Signature]  
DATE: 1/14/2015

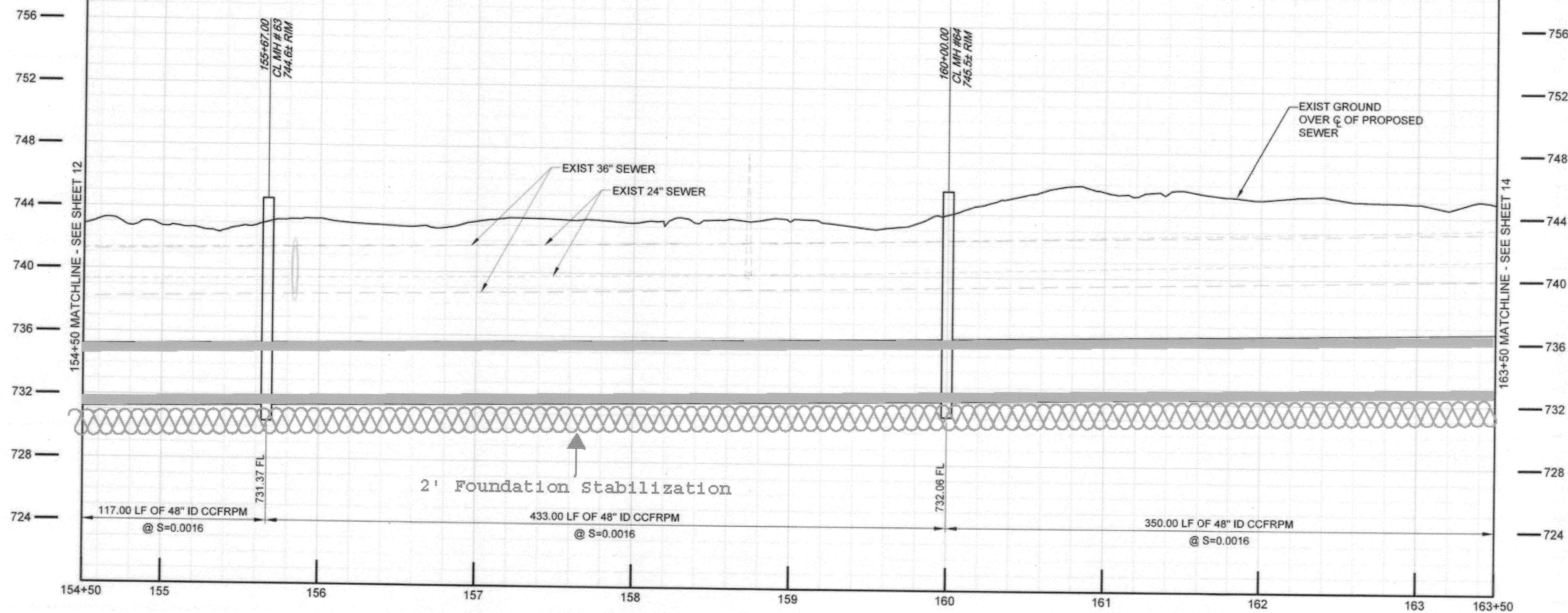
**SANTA ANA RIVER TRUNK SEWER REPLACEMENT - PHASE II**  
PLAN AND PROFILE  
STATION 145+50 TO 154+50  
ACCT. NO.: 9799123  
S-2089  
SHEET 12 OF 35  
FILE NO. SARTS\_SHT12.DWG  
HORIZ. SCALE: 1" = 40' VERT. SCALE: 1" = 4'

Path: P:\Projects\Riverside, City of\EA\133410 - Santa Ana River Trunk Sewer\CA00V2-SHEETS\PHASE 2\12-CIVIL File Name: SARTS\_SHT12 Plot Date: Nov 20, 2013 11:04 AM CAD User: David D. David

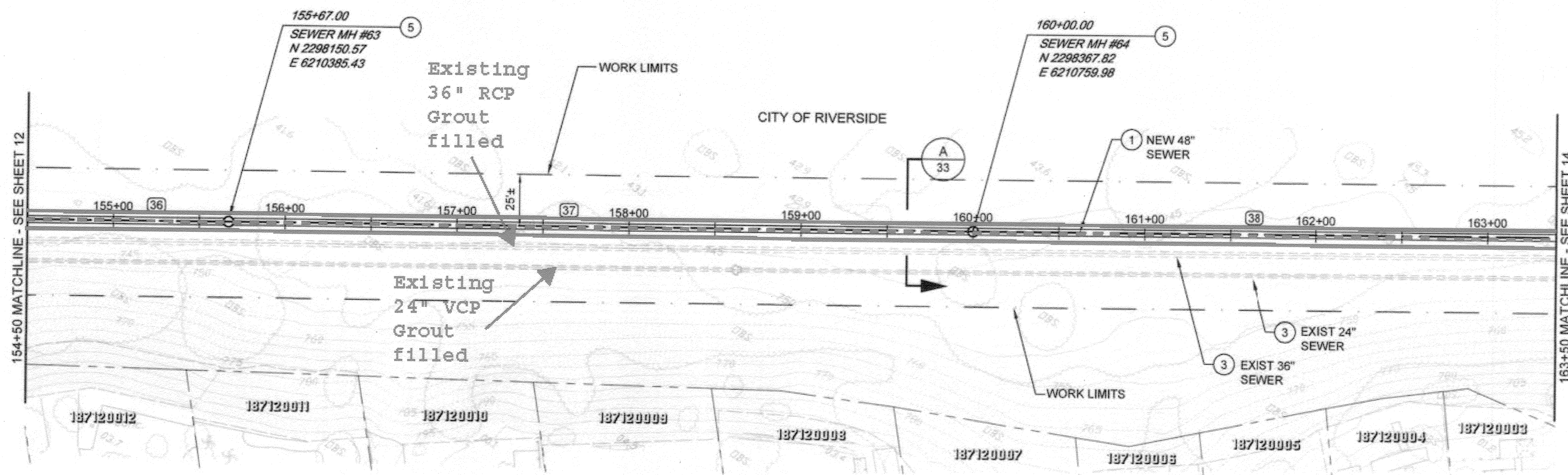


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48" FRP Alignment mirrors Existing 36" RCP



**AS-BUILT**

**SEWER LINE DATA**

	L	BEARING
36	117.00'	N 59°53'4" E
37	433.00'	N 59°53'4" E
38	350.00'	N 59°53'4" 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. B...*  
REGISTERED CIVIL ENGINEER No. C-36183  
DATE: 11-22-13

CITY OF RIVERSIDE, CALIFORNIA  
PUBLIC WORKS DEPARTMENT

APPROVED BY: [Signature]  
ENGINEERING MANAGER  
DATE: 11/16/2015

SANTA ANA RIVER TRUNK SEWER  
REPLACEMENT - PHASE II

PLAN AND PROFILE  
STATION 154+50 TO 163+50

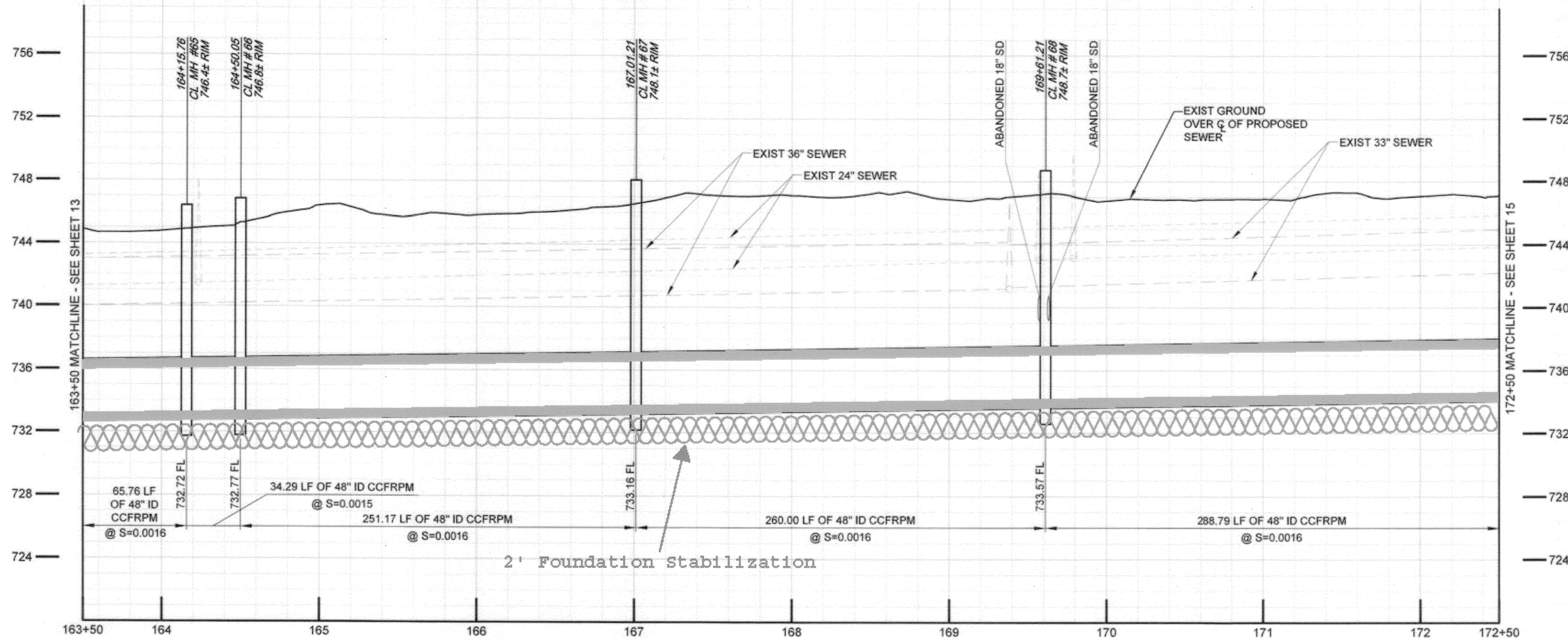
HORIZ. SCALE: 1" = 40' VERT. SCALE: 1" = 4'

ACCT. NO.: 9799123

S-2089  
SHEET 13 OF 35

FILE NO. SARTS\_SHT13.DWG

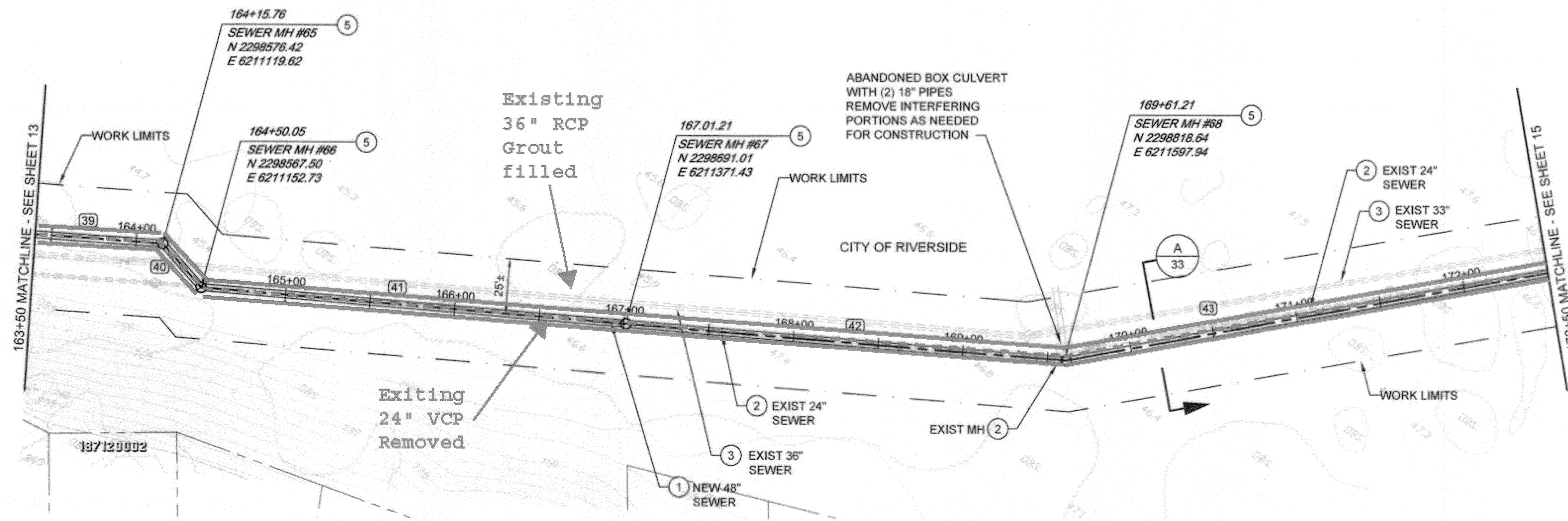
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**SEWER CONSTRUCTION NOTES**

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- 11 INSTALL CONCRETE SUPPORT FOR PROTECTION OF EXISTING UTILITY CROSSING PER DETAIL 4, SHEET 28.
- 12 NOT USED
- 13 CONTRACTOR SHALL VISIT THE SITE AND EXAMINE SITE PARAMETER CONDITIONS FOR TYPES OF EQUIPMENT, EQUIPMENT ACCESSIBILITY, AND EQUIPMENT CLEARANCE REQUIRED TO COMPLETE THE WORK PRIOR TO SUBMITTING A BID.
- 14 APPROXIMATE DEPTH TO GROUNDWATER PER SUBSURFACE INVESTIGATIONS. THE INDICATED GROUNDWATER ELEVATIONS IS THAT WHICH EXISTED ON THE DATE TAKEN PER SSPWC PART 1, SECTION 2-7 SUBSURFACE DATA.

48" FRP Alignment overlays Existing 24" VCP

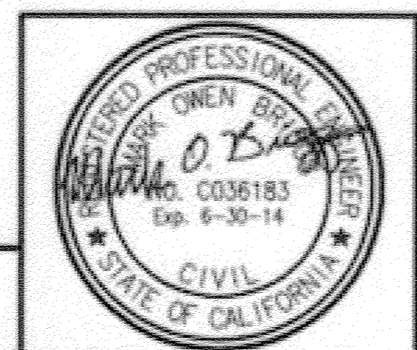


**AS-BUILT**

**SEWER LINE DATA**

	L	BEARING
(39)	65.76'	N 59°53'4" E
(40)	34.29'	S 74°55'6" E
(41)	251.17'	N 60°32'46" E
(42)	260.00'	N 60°36'2" E
(43)	288.79'	N 45°34'15" E

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



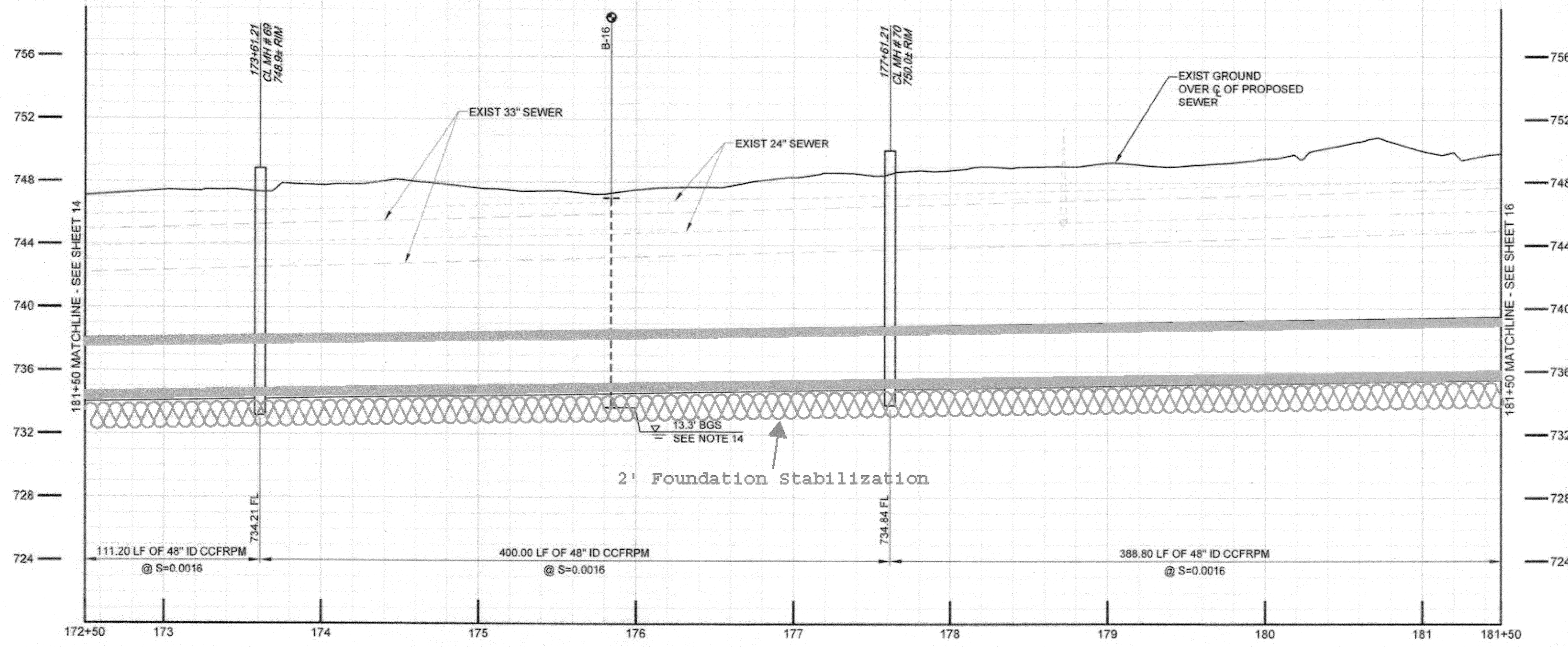
**BROWN AND CALDWELL**  
SAN DIEGO, CALIFORNIA  
ENGINEER IN RESPONSIBLE CHARGE: *Mark O. B...*  
REGISTERED CIVIL ENGINEER No. C-36183  
DATE: 11-22-13

NO.	REVISIONS	APPROV.	DATE

**CITY OF RIVERSIDE, CALIFORNIA**  
**PUBLIC WORKS DEPARTMENT**  
APPROVED BY: *Mark O. B...*  
DATE: 11/22/13

**SANTA ANA RIVER TRUNK SEWER REPLACEMENT - PHASE II**  
PLAN AND PROFILE  
STATION 163+50 TO 172+50  
ACCT. NO.: 9799123  
S-2089  
SHEET 14 OF 35  
HORIZ. SCALE: 1" = 40' VERT. SCALE: 1" = 4'  
FILE NO. SARTS\_SHT14.DWG

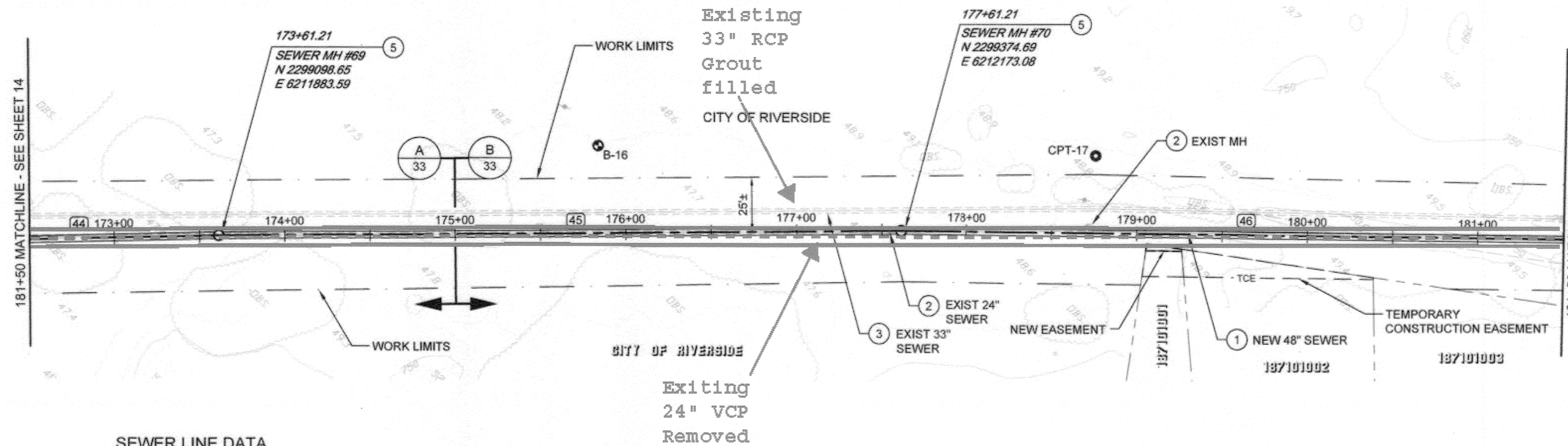
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**SEWER CONSTRUCTION NOTES**

- 1 INSTALL 48" CCFRPM PER TRENCH DETAILS SHEET 32 & 33 AS SHOWN.
- 2 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 ABANDON ALL REMAINING PORTIONS OF EXIST 24" VCP SEWER, EXIST 39", 36" & 33" RCP SEWER AND EXIST MANHOLES IN PLACE IN ACCORDANCE WITH SECTION 306-5.
- 4 INSTALL CONCRETE ENCASEMENT PER DETAIL 3, SHT. 28.
- 5 INSTALL NEW CCFRPM MANHOLE PER DETAIL 1, SHT. 29.
- 6 TRAFFIC MANHOLE LIDS SHALL BE H-20, EPOXY COATED.
- 7 INSTALL 48" CCFRPM WITHIN MIN. 66" DIA STEEL CASING PER DETAIL 1, SHT. 28.
- 8 THE BIKE PATH SHALL BE CLOSED DURING CONSTRUCTION ACTIVITIES FROM MONDAY (7 AM) THRU SATURDAY (7AM). 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.
- 9 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).
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- 11 INSTALL CONCRETE SUPPORT FOR PROTECTION OF EXISTING UTILITY CROSSING PER DETAIL 4, SHEET 28.
- 12 NOT USED
- 13 CONTRACTOR SHALL VISIT THE SITE AND EXAMINE SITE PARAMETER CONDITIONS FOR TYPES OF EQUIPMENT, EQUIPMENT ACCESSIBILITY, AND EQUIPMENT CLEARANCE REQUIRED TO COMPLETE THE WORK PRIOR TO SUBMITTING A BID.
- 14 APPROXIMATE DEPTH TO GROUNDWATER PER SUBSURFACE INVESTIGATIONS. THE INDICATED GROUNDWATER ELEVATIONS IS THAT WHICH EXISTED ON THE DATE TAKEN PER SSPWC PART 1, SECTION 2-7 SUBSURFACE DATA.

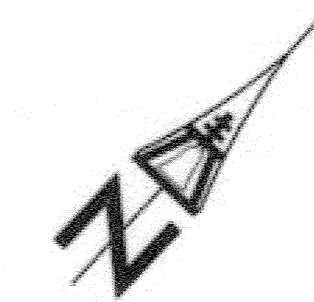
48" FRP Alignment overlays Existing 24" VCP



**SEWER LINE DATA**

	L	BEARING
(44)	111.21'	N 45°34'15" E
(45)	400.00'	N 46°21'42" E
(46)	388.80'	N 47°35'57" E

**AS-BUILT**



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. Bagg*  
REGISTERED CIVIL ENGINEER No. C-36183  
DATE: 11-22-13

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

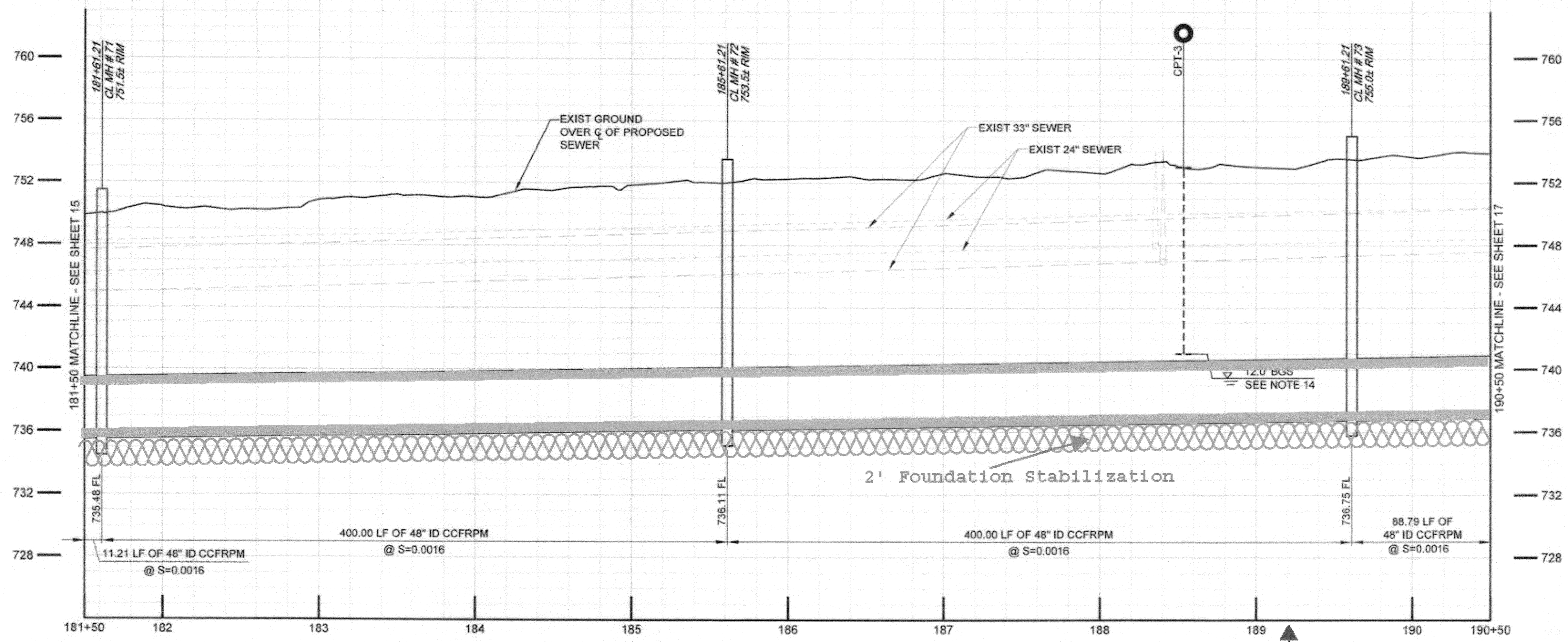
APPROVED BY: [Signature]  
DATE: 11/13/13  
INSPECTION: [Signature]  
DATE: 11/13/13

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

PLAN AND PROFILE  
STATION 172+50 TO 181+50

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

ACCT. NO.: 9799123  
S-2089  
SHEET 15 OF 35  
FILE NO. SARTS\_SHT15.DWG

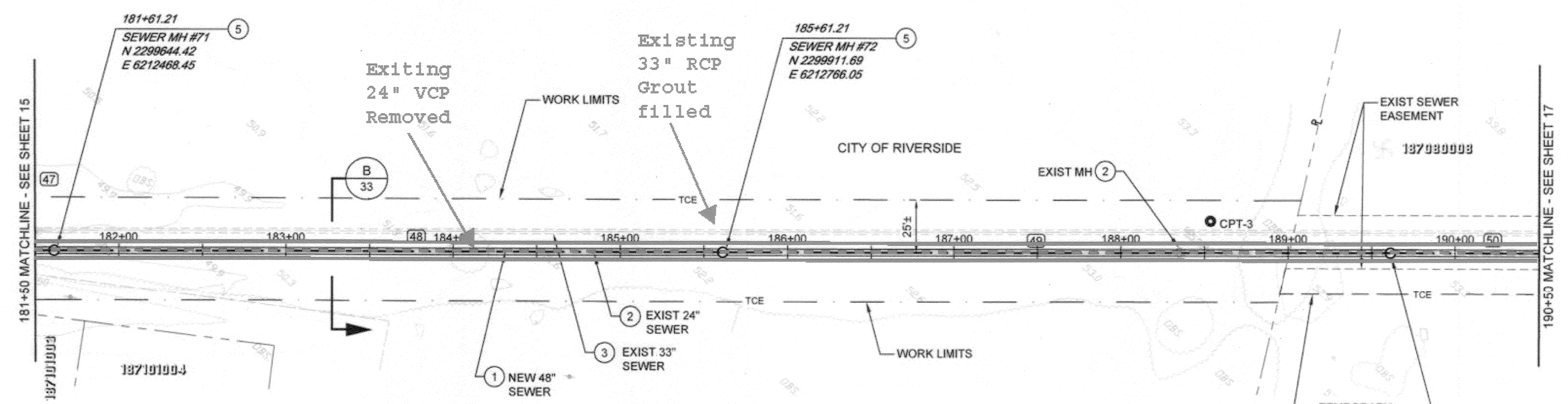


**SEWER CONSTRUCTION NOTES**

- 1 INSTALL 48" CCFRPM PER TRENCH DETAILS SHEET 32 & 33 AS SHOWN.
- 2 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 ABANDON ALL REMAINING PORTIONS OF EXIST 24" VCP SEWER, EXIST 39", 36" & 33" RCP SEWER AND EXIST MANHOLES IN PLACE IN ACCORDANCE WITH SECTION 306-5.
- 4 INSTALL CONCRETE ENCASEMENT PER DETAIL 3, SHT. 28.
- 5 INSTALL NEW CCFRPM MANHOLE PER DETAIL 1, SHT. 29.
- 6 TRAFFIC MANHOLE LIDS SHALL BE H-20, EPOXY COATED.
- 7 INSTALL 48" CCFRPM WITHIN MIN. 66" DIA STEEL CASING PER DETAIL 1, SHT. 28.
- 8 THE BIKE PATH SHALL BE CLOSED DURING CONSTRUCTION ACTIVITIES FROM MONDAY (7 AM) THRU SATURDAY (7AM). 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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- 10 BIKE PATH SHALL BE REPLACED WITH PAVEMENT AND BASE IN-KIND TO MATCH EXISTING AND PER SANTA ANA RIVER BIKEWAY PHASE IIB R-3172 FROM STA 91+66 TO RUBIDOUX AVE. & PHASE IIA R-2570 FROM RUBIDOUX AVE. TO STA 196+94.
- 11 INSTALL CONCRETE SUPPORT FOR PROTECTION OF EXISTING UTILITY CROSSING PER DETAIL 4, SHEET 28.
- 12 NOT USED
- 13 CONTRACTOR SHALL VISIT THE SITE AND EXAMINE SITE PARAMETER CONDITIONS FOR TYPES OF EQUIPMENT, EQUIPMENT ACCESSIBILITY, AND EQUIPMENT CLEARANCE REQUIRED TO COMPLETE THE WORK PRIOR TO SUBMITTING A BID.
- 14 APPROXIMATE DEPTH TO GROUNDWATER PER SUBSURFACE INVESTIGATIONS. THE INDICATED GROUNDWATER ELEVATIONS IS THAT WHICH EXISTED ON THE DATE TAKEN PER SSPWC PART 1, SECTION 2-7 SUBSURFACE DATA.

48" FRP Alignment overlays Existing 24" VCP

Bike Path Paving Start STA 189+20

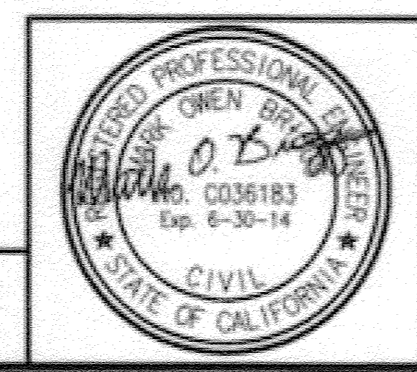


**AS-BUILT**

**SEWER LINE DATA**

	L	BEARING
(47)	11.21'	N 47°35'57" E
(48)	400.00'	N 48°4'24" E
(49)	400.00'	N 48°6'59" E
(50)	88.79'	N 48°12'39" 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. Bignardi*  
REGISTERED CIVIL ENGINEER No. C-36183  
DATE: 11-22-13

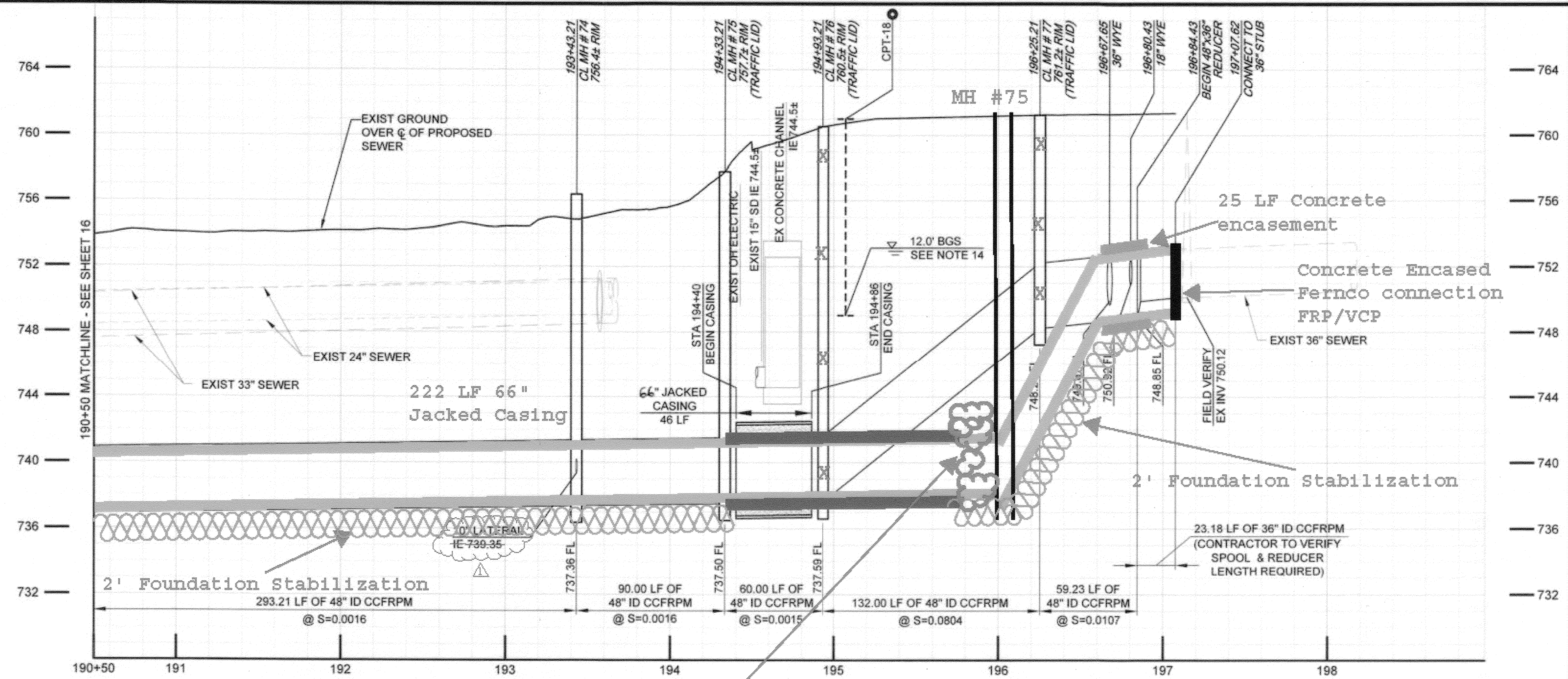
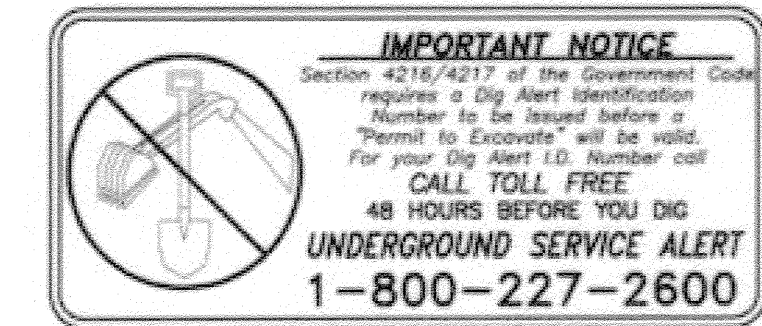
REVISIONS	DATE	APPROVED

CITY OF RIVERSIDE, CALIFORNIA  
PUBLIC WORKS DEPARTMENT  
APPROVED BY: *[Signature]*  
DATE: 11/22/13

SANTA ANA RIVER TRUNK SEWER REPLACEMENT - PHASE II  
PLAN AND PROFILE  
STATION 181+50 TO 190+50  
ACCT. NO.: 9799123  
S-2089  
SHEET 16 OF 35  
FILE NO. SARTS\_SHT16.DWG  
HORIZ. SCALE: 1" = 40' VERT. SCALE: 1" = 4'

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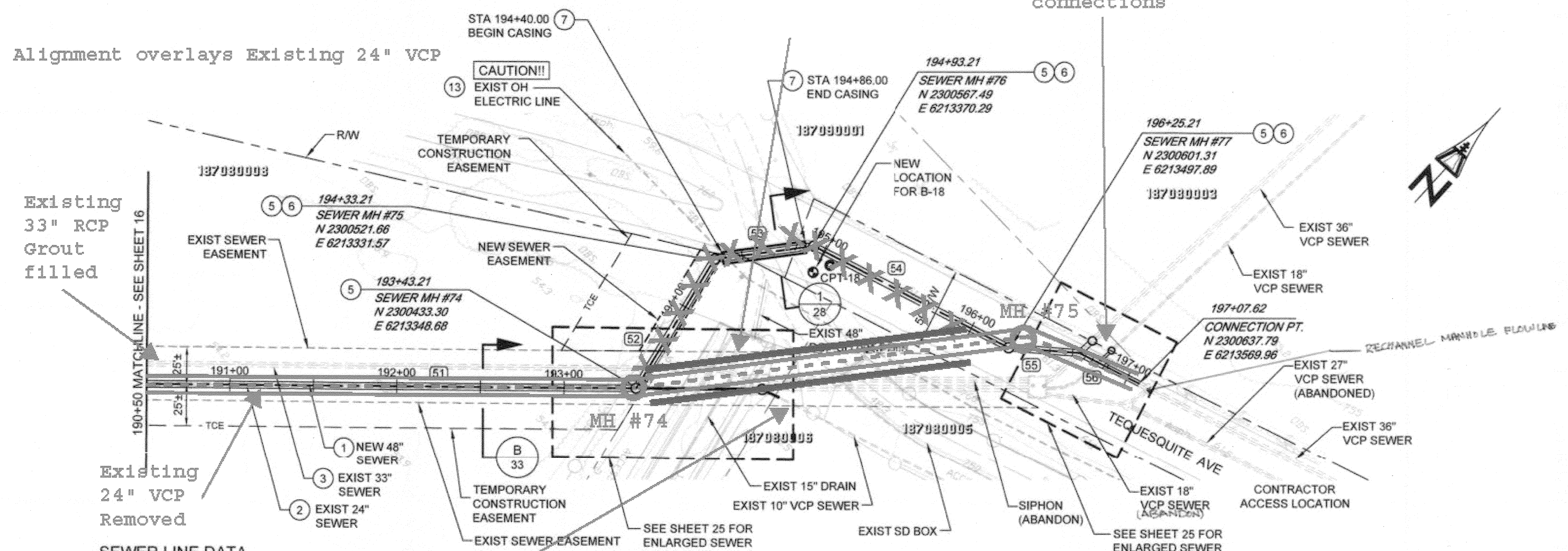




- SEWER CONSTRUCTION NOTES**
- INSTALL 48" CCFRPM PER TRENCH DETAILS SHEET 32 & 33 AS SHOWN.
  - DEMOLISH INTERFERING PORTIONS OF EXIST 24" SEWER PIPELINE AND MANHOLES WHERE SHOWN ON PLANS AND AS NEEDED FOR CONSTRUCTION PER SECTION 306-5 OF THE SPECIAL PROVISIONS.
  - ABANDON ALL REMAINING PORTIONS OF EXIST 24" VCP SEWER, EXIST 39", 36" & 33" RCP SEWER AND EXIST MANHOLES IN PLACE IN ACCORDANCE WITH SECTION 306-5.
  - INSTALL CONCRETE ENCASUREMENT PER DETAIL 3, SHT. 28.
  - INSTALL NEW CCFRPM MANHOLE PER DETAIL 1, SHT. 29.
  - TRAFFIC MANHOLE LIDS SHALL BE H-20, EPOXY COATED.
  - INSTALL 48" CCFRPM WITHIN MIN. 66" DIA STEEL CASING PER DETAIL 1, SHT. 28.
  - THE BIKE PATH SHALL BE CLOSED DURING CONSTRUCTION ACTIVITIES FROM MONDAY (7 AM) THRU SATURDAY (7AM). 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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  - INSTALL CONCRETE SUPPORT FOR PROTECTION OF EXISTING UTILITY CROSSING PER DETAIL 4, SHEET 28.
  - NOT USED
  - CONTRACTOR SHALL VISIT THE SITE AND EXAMINE SITE PARAMETER CONDITIONS FOR TYPES OF EQUIPMENT, EQUIPMENT ACCESSIBILITY, AND EQUIPMENT CLEARANCE REQUIRED TO COMPLETE THE WORK PRIOR TO SUBMITTING A BID.
  - APPROXIMATE DEPTH TO GROUNDWATER PER SUBSURFACE INVESTIGATIONS. THE INDICATED GROUNDWATER ELEVATIONS IS THAT WHICH EXISTED ON THE DATE TAKEN PER SSPWC PART 1, SECTION 2-7 SUBSURFACE DATA.

Bore encountered rip rap obstructions and was stopped at Revision 2 STA 194+84 See Sheet #25 for 36" & 18" connections

48" FRP Alignment overlays Existing 24" VCP

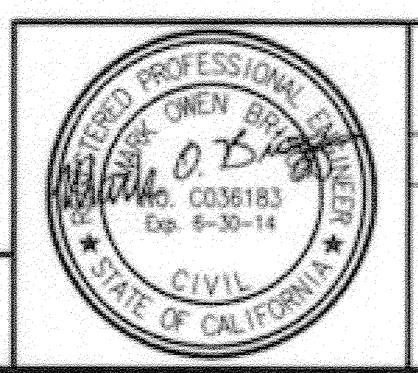


**SEWER LINE DATA**

	L	BEARING
(51)	293.21'	N 48°12'39" E
(52)	90.00'	N 10°57'20" W
(53)	60.00'	N 40°11'23" E
(54)	132.00'	N 75°9'26" E
(55)	42.44'	N 52°6'44" E
(56)	39.96'	N 74°52'48" E

See Sheet #25 for 10" connection

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. Zing*  
REGISTERED CIVIL ENGINEER No. C-36183  
DATE: 11-22-13

Revised plan as shown  
DESIGNED BY: \_\_\_\_\_ DRAWN BY: \_\_\_\_\_ CHECKED BY: \_\_\_\_\_  
DATE: 3/16/15

**CITY OF RIVERSIDE, CALIFORNIA**  
PUBLIC WORKS DEPARTMENT  
APPROVED BY: \_\_\_\_\_ DATE: 1/16/2015

**SANTA ANA RIVER TRUNK SEWER REPLACEMENT - PHASE II**  
PLAN AND PROFILE  
STATION 190+50 TO 196+25.00  
ACCT. NO.: 9799123  
S-2089  
SHEET 17 OF 35  
FILE NO. SARTS\_SHT17.DWG

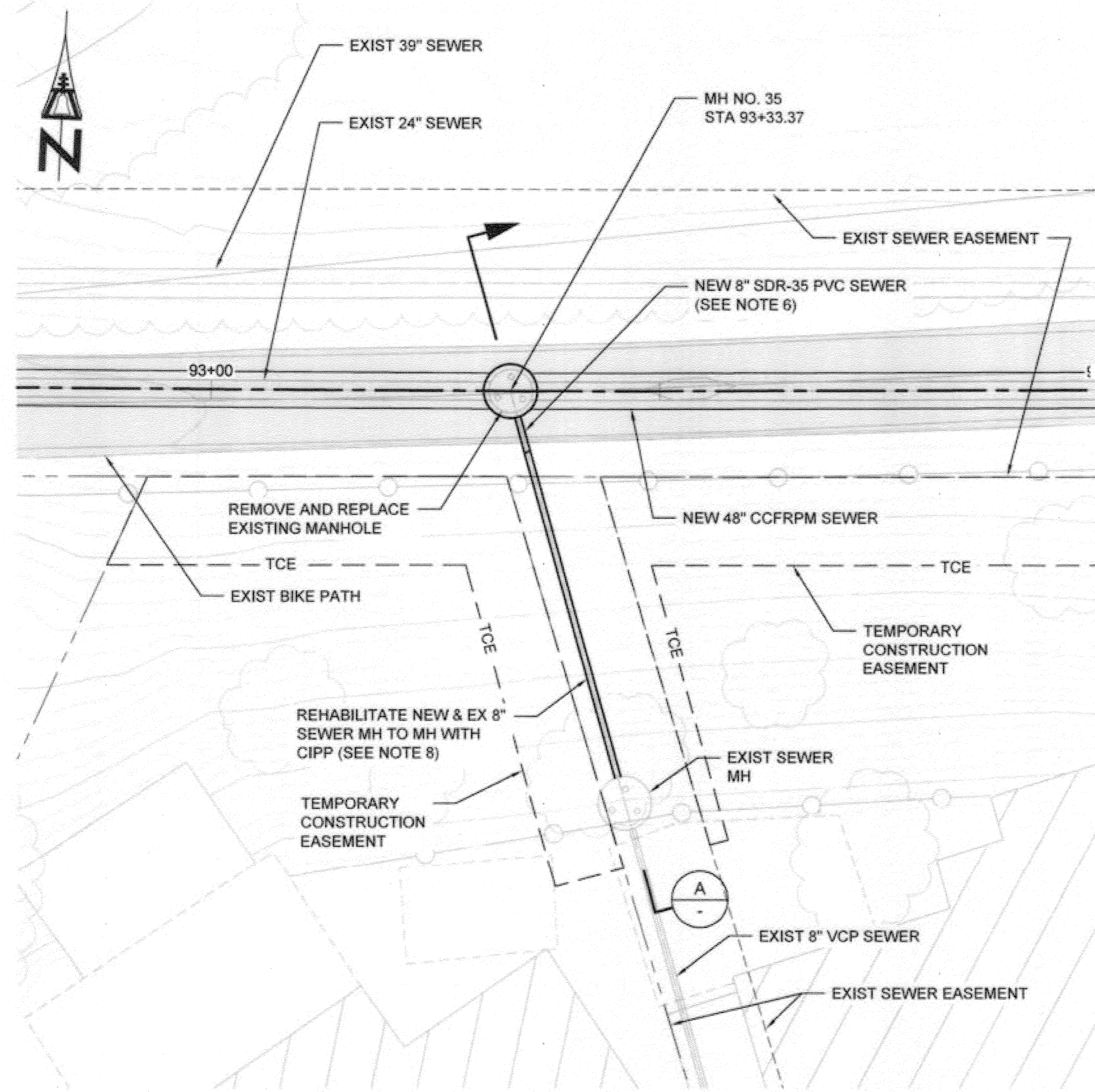
**AS-BUILT**

SEE CITY PLAN REVISION No.2

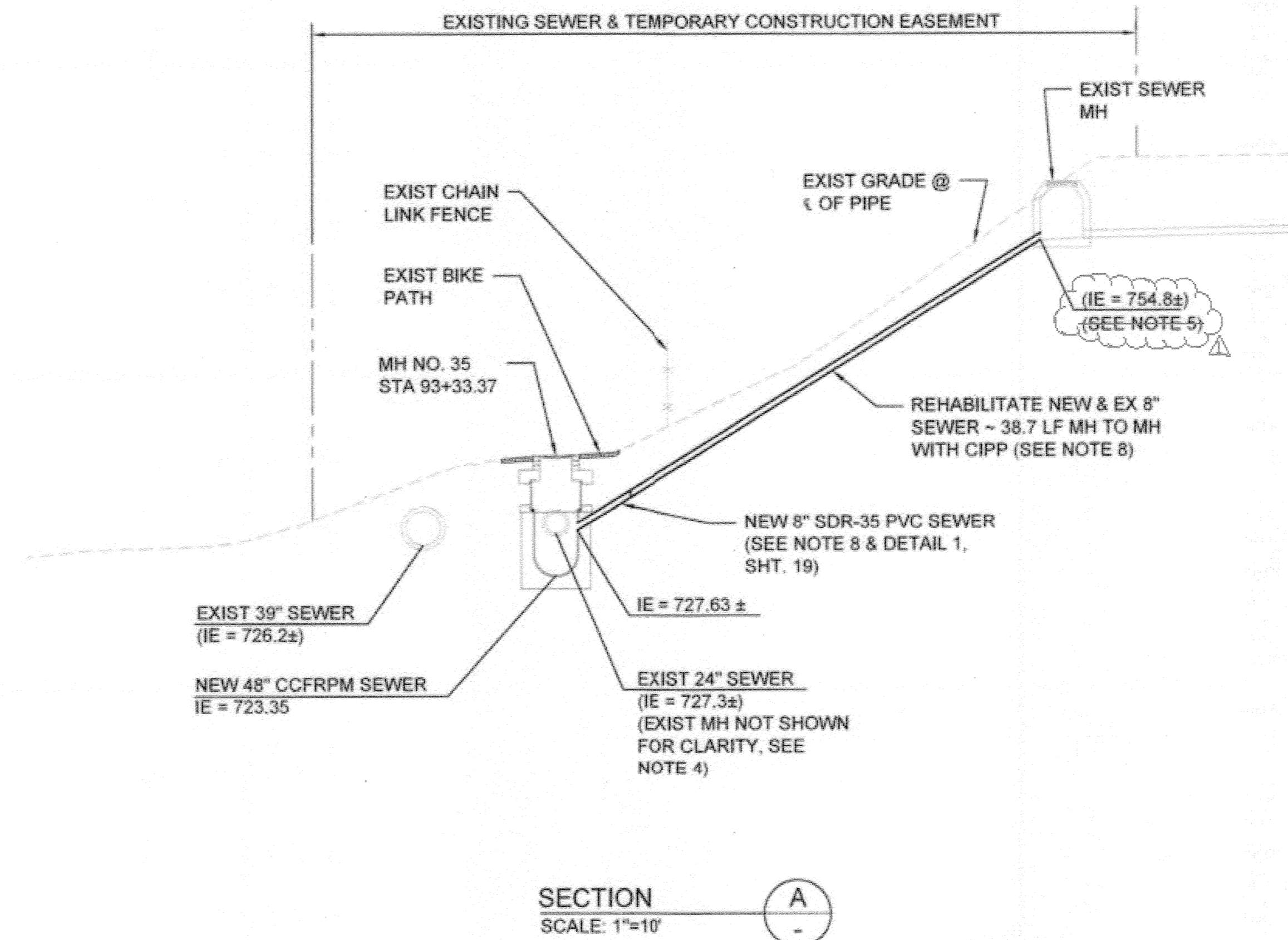
# AS-BUILT

**CONNECTION NOTES:**

1. SEE SHEET 6 FOR PLAN AND PROFILE OF THE 48" CCFRPM.
2. MAINTAIN FLOW IN EXISTING 8" TUCSON TRUNK SEWER DURING CONSTRUCTION.
3. INSTALL 8" PVC IN ACCORDANCE WITH STANDARD DRAWING 453 AND STANDARD SPECIFICATIONS.
4. DEMOLISH INTERFERING PORTIONS OF EXISTING SANITARY SEWER AND MANHOLES WHERE SHOWN ON PLANS AND AS NEEDED FOR CONSTRUCTION PER SECTION 306-5 OF THE SPECIAL PROVISIONS.
5. CONTRACTOR TO CORE DRILL SEWER INTO WALL OF EXISTING MANHOLE AND FILL ANY VOIDS WITH-IN MANHOLE WALL WITH NON-SHRINK GROUT. CONSTRUCT SLOPING INLET CHANNEL AND SHAPE NEW CHANNEL SIDES TO PROVIDE SMOOTH FLOW SURFACE. CONNECTION OF PIPES TO MANHOLE SHALL BE WATER TIGHT.
6. MATCH EXISTING SLOPE. PVC TO VCP CONNECTION SHALL BE "REDUCER" BANDED RUBBER COUPLING WITH STL STEEL COMPONENTS. GLADDING McBEAN, CALDER COUPLING, FERNCO FLEXIBLE COUPLING OR EQUAL. ENCASE COUPLING IN CLSM.
7. THE CONTRACTOR SHALL COORDINATE WITH THE CITY AND PRIVATE PROPERTY OWNERS TO SCHEDULE AND MINIMIZE ENTRY TO PRIVATE PROPERTIES TO COMPLETE THE WORK. DISTURBED, DAMAGED, OR DEMOLISHED IMPROVEMENTS OR LANDSCAPING SHALL BE RESTORED BY THE CONTRACTOR TO PREVIOUS OR BETTER CONDITION AND BE TO THE SATISFACTION OF THE CITY AND THE PRIVATE PROPERTY OWNER AS PART OF THE INSTALLED, COMPLETE AND IN-PLACE BID PRICE FOR THE WORK AND NO ADDITIONAL ALLOWANCE WILL BE MADE THEREFORE.
8. CIPP LINER SHALL CONSIST OF ONE OR MORE LAYERS OF NON-WOVEN MATERIAL AND HAVE PLASTIC COATING(S), HAVE A MINIMUM 4.5mm LINER THICKNESS AND RESIN PER SECTION 500-1.4 OF THE SSPWC. PROVIDE IN ACCORDANCE WITH SECTION 500-1 OF THE SSPWC IN ITS ENTIRETY.



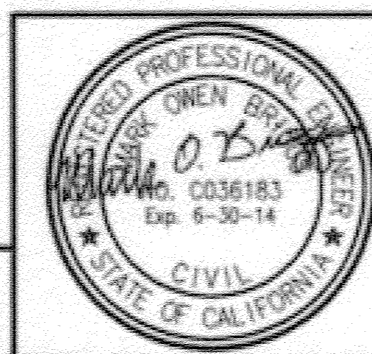
**TUCSON TRUNK SEWER CONNECTION - PLAN VIEW**  
SCALE: 1"=10'



**SECTION A-A**  
SCALE: 1"=10'

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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. Bignardi*  
REGISTERED CIVIL ENGINEER No. C-36183  
DATE: 11-22-13

Revised plan as shown	3/16/13
DESIGNED BY:	DRAWN BY:
CHECKED BY:	

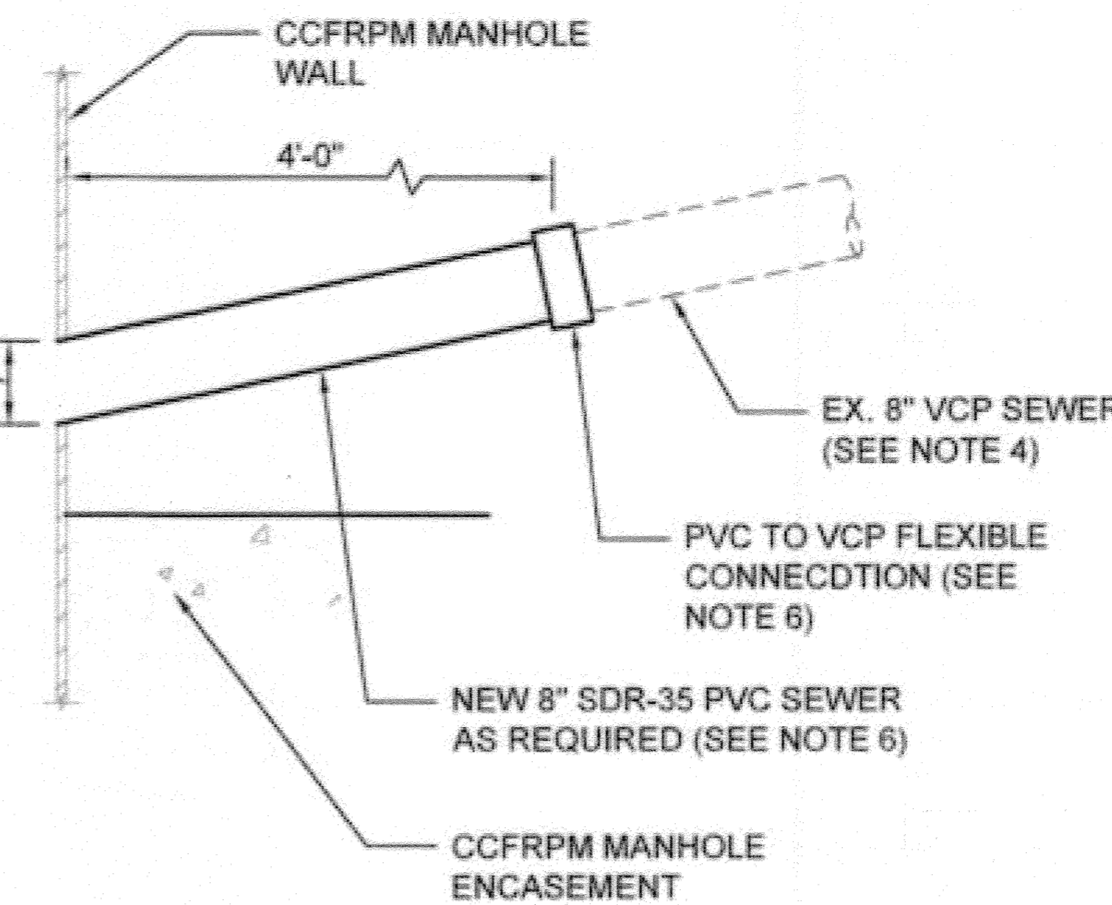
CITY OF RIVERSIDE, CALIFORNIA PUBLIC WORKS DEPARTMENT	
APPROVED BY: <i>[Signature]</i>	DATE: 1/14/2016
ENGINEERING MANAGER	CITY ENGINEER
PAVING SUPERVISOR	
INSPECTOR	
SUPERVISOR	

SANTA ANA RIVER TRUNK SEWER REPLACEMENT- PHASE II  
**TUCSON TRUNK SEWER CONNECTION DETAILS**  
HORIZ. SCALE: 1" = 10' VERT. SCALE: 1" = 10'

ACCT. NO.: 9799123  
S-2089  
SHEET 18 OF 35  
FILE NO. SARTS\_SHT18.DWG

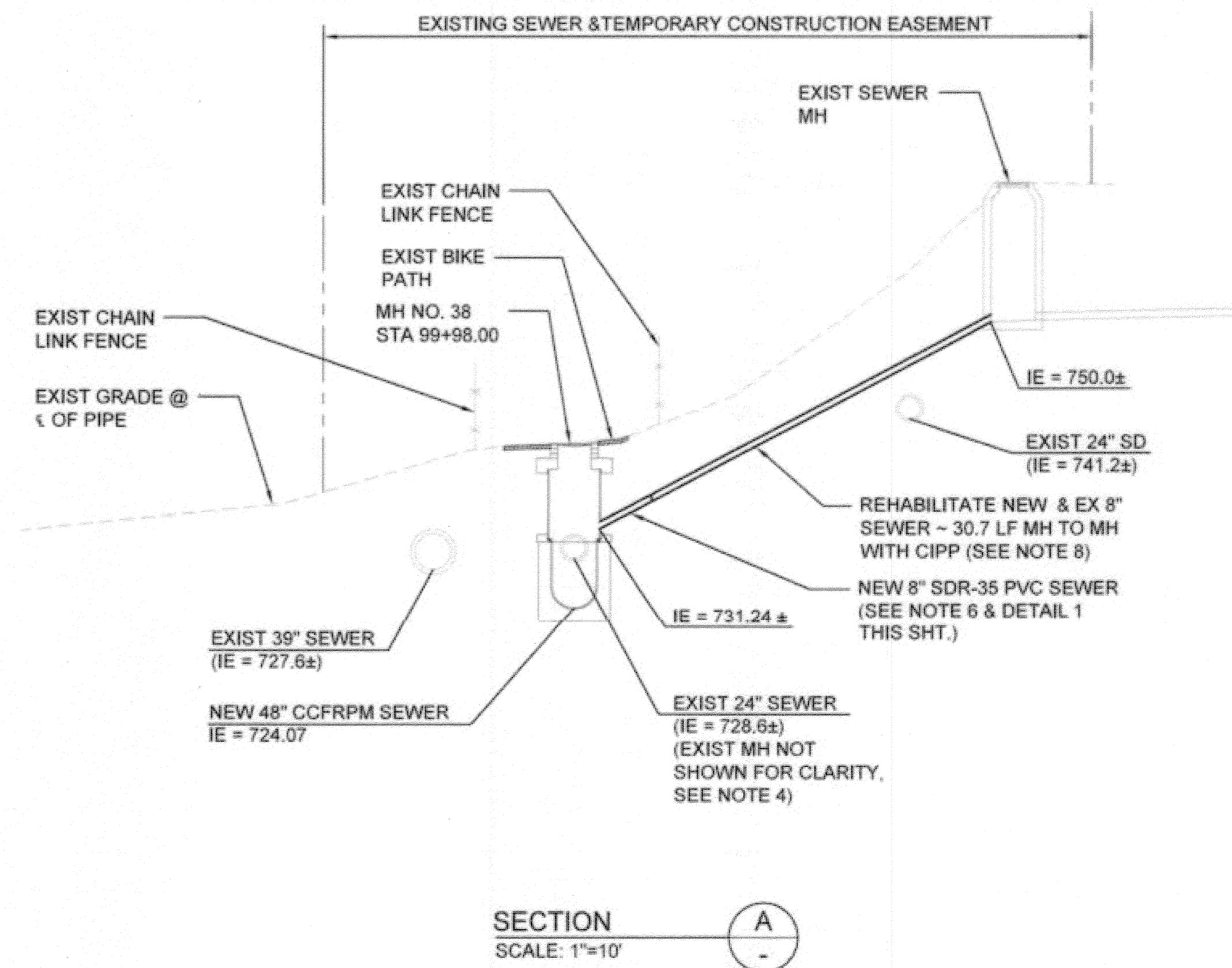
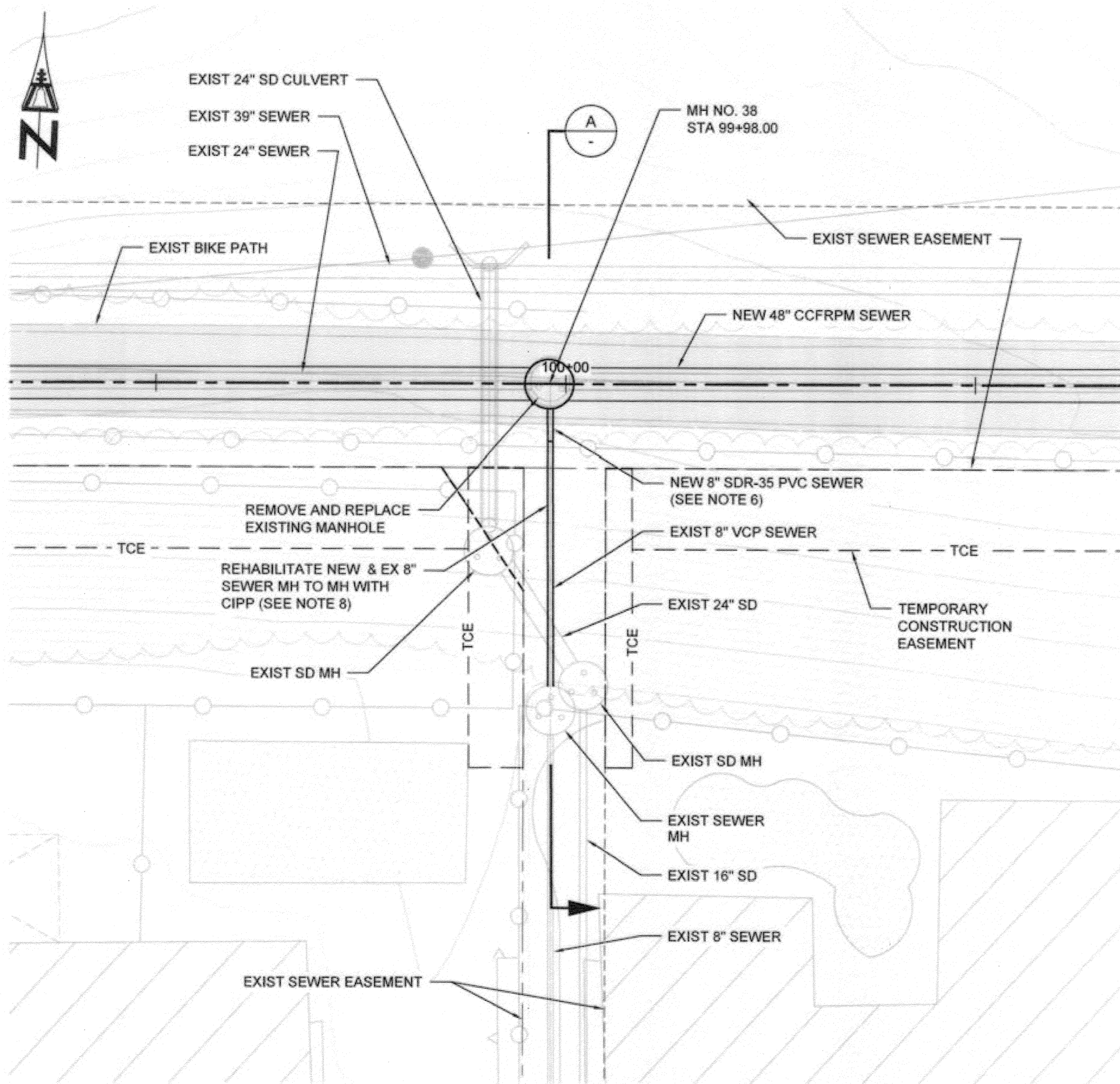
# AS-BUILT

FIELD INSTALLED WATER-TIGHT SEWER CONNECTION TO CCFRPM TEE BASE MANHOLE PER CCFRPM MANUFACTURER'S RECOMMENDATION. CONTRACTOR TO SUBMIT PROPOSED METHOD AND PRODUCT DATA AS NECESSARY TO FULLY DESCRIBE ALL METHODS, MATERIALS AND FINISHED CONNECTION FOR REVIEW AND APPROVAL BY THE ENGINEER. UNLESS OTHERWISE DIRECTED, SEWER CONNECTION SHALL BE A MINIMUM 3" ABOVE THE TRUNK SEWER SPRING LINE



### CONNECTION NOTES:

- SEE SHEET 6 FOR PLAN AND PROFILE OF THE 48" CCFRPM.
- MAINTAIN FLOW IN EXISTING 8" RIO RANCHO TRUNK SEWER DURING CONSTRUCTION.
- INSTALL 8" PVC IN ACCORDANCE WITH STANDARD DRAWING 453 AND STANDARD SPECIFICATIONS.
- DEMOLISH INTERFERING PORTIONS OF EXISTING SANITARY SEWER AND MANHOLES WHERE SHOWN ON PLANS AND AS NEEDED FOR CONSTRUCTION PER SECTION 306-5 OF THE SPECIAL PROVISIONS.
- CONTRACTOR TO CORE DRILL SEWER INTO WALL OF EXISTING MANHOLE AND FILL ANY VOIDS WITH-IN MANHOLE WALL WITH NON-SHRINK GROUT. CONSTRUCT SLOPING INLET CHANNEL AND SHAPE NEW CHANNEL SIDES TO PROVIDE SMOOTH FLOW SURFACE. CONNECTION OF PIPES TO MANHOLE SHALL BE WATER TIGHT.
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- CIPP LINER SHALL CONSIST OF ONE OR MORE LAYERS OF NON-WOVEN MATERIAL AND HAVE PLASTIC COATING(S), HAVE A MINIMUM 4.5mm LINER THICKNESS AND RESIN PER SECTION 500-1.4 OF THE SSPWC. PROVIDE IN ACCORDANCE WITH SECTION 500-1 OF THE SSPWC IN ITS ENTIRETY.



RIO RANCHO TRUNK SEWER CONNECTION - PLAN VIEW  
SCALE: 1"=10'

SECTION A  
SCALE: 1"=10'

Path: P:\Projects\Riverside, City of\CA\133410 - Santa Ana River Trunk Sewer\CA0012-SHEET15 PHASE 2V-CIVIL File: SARTS\_SHT19 Plot date: Nov 20, 2013 12:51PM CAD User: Davidde, 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. Boring*  
REGISTERED CIVIL ENGINEER No. C-36183  
DATE: 11-22-13

## CITY OF RIVERSIDE, CALIFORNIA PUBLIC WORKS DEPARTMENT

APPROVED BY: *[Signature]*  
ENGINEERING MANAGER  
PRINCIPAL ENGINEER  
TRAFFIC DIVISION  
DATE: 11/15/13  
CITY ENGINEER

## SANTA ANA RIVER TRUNK SEWER REPLACEMENT- PHASE II

RIO RANCHO TRUNK SEWER  
CONNECTION DETAILS

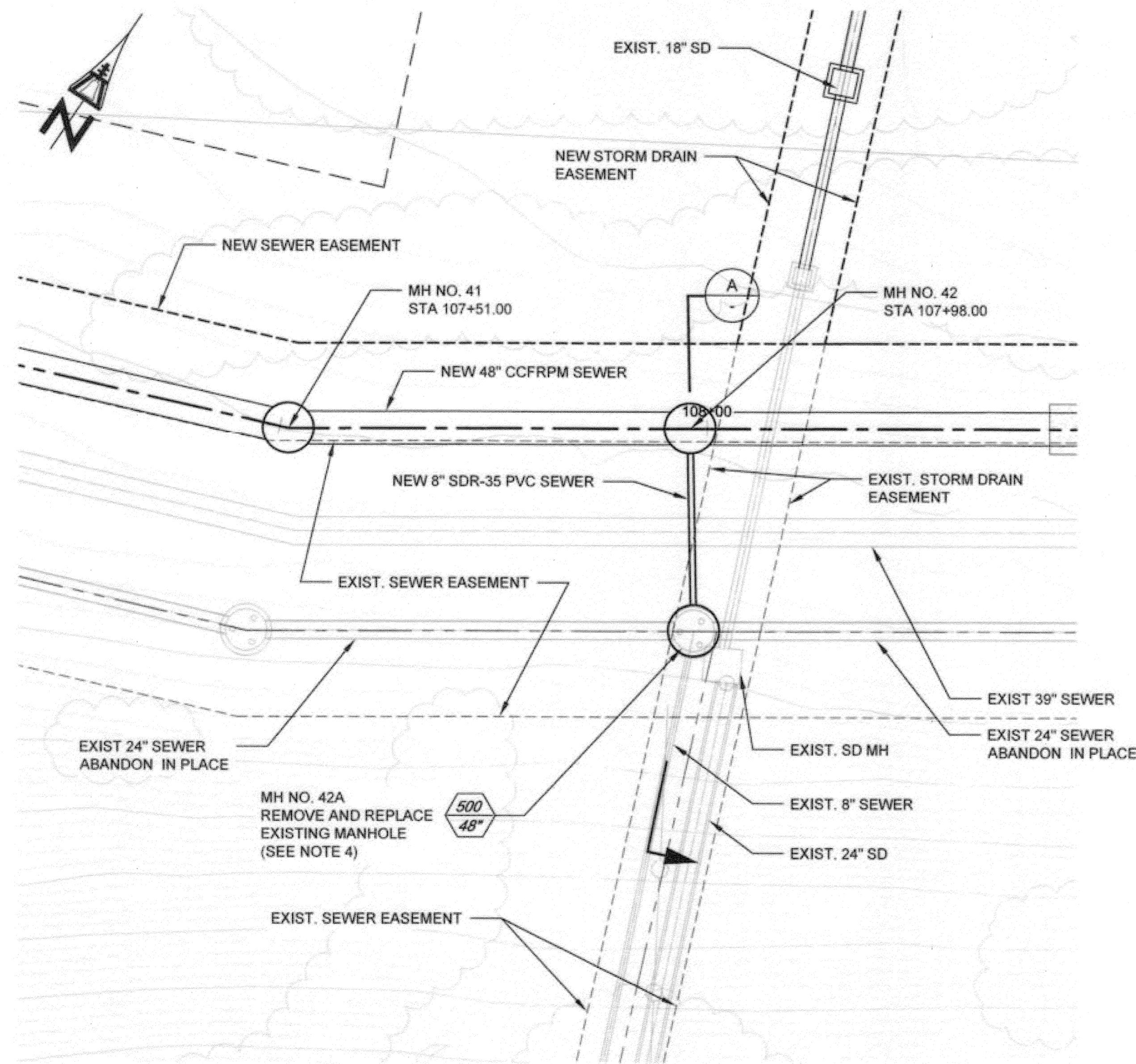
HORIZ. SCALE: 1" = 10' VERT. SCALE: 1" = 10'

ACCT. NO.: 9799123  
S-2089  
19 35  
SHEET OF  
FILE NO. SARTS\_SHT19.DWG

# AS-BUILT

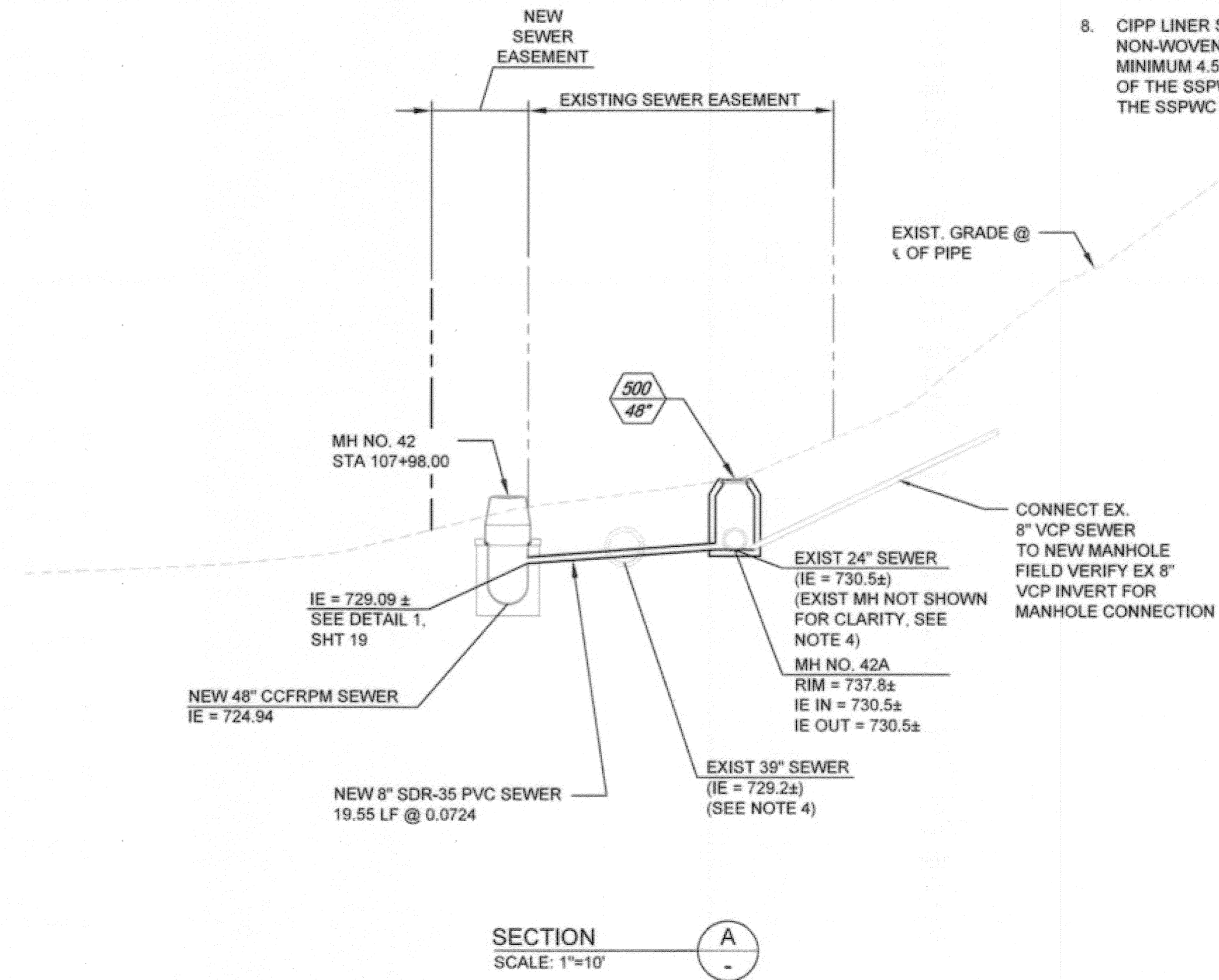
### CONNECTION NOTES:

- SEE SHEET 7 FOR PLAN AND PROFILE OF THE 48" CCFRPM.
- MAINTAIN FLOW IN EXISTING 8" GRASSY TRAIL TRUNK SEWER DURING CONSTRUCTION.
- INSTALL 8" PVC IN ACCORDANCE WITH STANDARD DRAWING 453 AND STANDARD SPECIFICATIONS.
- DEMOLISH INTERFERING PORTIONS OF EXISTING SANITARY SEWER AND MANHOLES WHERE SHOWN ON PLANS AND AS NEEDED FOR CONSTRUCTION PER SECTION 306-5 OF THE SPECIAL PROVISIONS.
- CONTRACTOR TO CORE DRILL SEWER INTO WALL OF EXISTING MANHOLE AND FILL ANY VOIDS WITH-IN MANHOLE WALL WITH NON-SHRINK GROUT. CONSTRUCT SLOPING INLET CHANNEL AND SHAPE NEW CHANNEL SIDES TO PROVIDE SMOOTH FLOW SURFACE. CONNECTION OF PIPES TO MANHOLE SHALL BE WATER TIGHT.
- MATCH EXISTING SLOPE. PVC TO VCP CONNECTION SHALL BE "REDUCER" BANDED RUBBER COUPLING WITH STL STEEL COMPONENTS, GLADDING McBEAN, CALDER COUPLING, FERNCO FLEXIBLE COUPLING OR EQUAL. ENCASE COUPLING IN CLSM.
- THE CONTRACTOR SHALL COORDINATE WITH THE CITY AND PRIVATE PROPERTY OWNERS TO SCHEDULE AND MINIMIZE ENTRY TO PRIVATE PROPERTIES TO COMPLETE THE WORK. DISTURBED, DAMAGED, OR DEMOLISHED IMPROVEMENTS OR LANDSCAPING SHALL BE RESTORED BY THE CONTRACTOR TO PREVIOUS OR BETTER CONDITION AND BE TO THE SATISFACTION OF THE CITY AND THE PRIVATE PROPERTY OWNER AS PART OF THE INSTALLED, COMPLETE AND IN-PLACE BID PRICE FOR THE WORK AND NO ADDITIONAL ALLOWANCE WILL BE MADE THEREFORE.
- CIPP LINER SHALL CONSIST OF ONE OR MORE LAYERS OF NON-WOVEN MATERIAL AND HAVE PLASTIC COATING(S), HAVE A MINIMUM 4.5mm LINER THICKNESS AND RESIN PER SECTION 500-1.4 OF THE SSPWC. PROVIDE IN ACCORDANCE WITH SECTION 500-1 OF THE SSPWC IN ITS ENTIRETY.



GRASSY TRAIL TRUNK SEWER CONNECTION - PLAN VIEW  
SCALE: 1"=10'

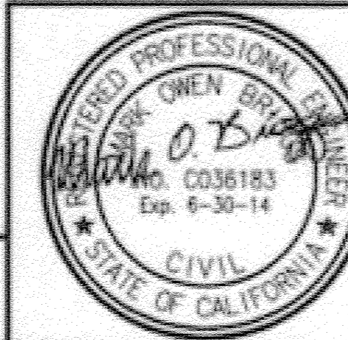
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7



SECTION A-A  
SCALE: 1"=10'

Path: P:\Projects\Riverside, City of\CA133410 - Santa Ana River Trunk Sewer\CA002-SHEETS\PHASE 2-CIVIL - FIREMAN SARTS\_SHT20 - Plot date: Nov 20, 2013 10:58PM CAD User: Davida, 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. Baig*  
REGISTERED CIVIL ENGINEER No. C-36183  
DATE: 11-22-13

CITY OF RIVERSIDE, CALIFORNIA  
PUBLIC WORKS DEPARTMENT

APPROVED BY: [Signature]  
DATE: 11/13/13  
CITY ENGINEER

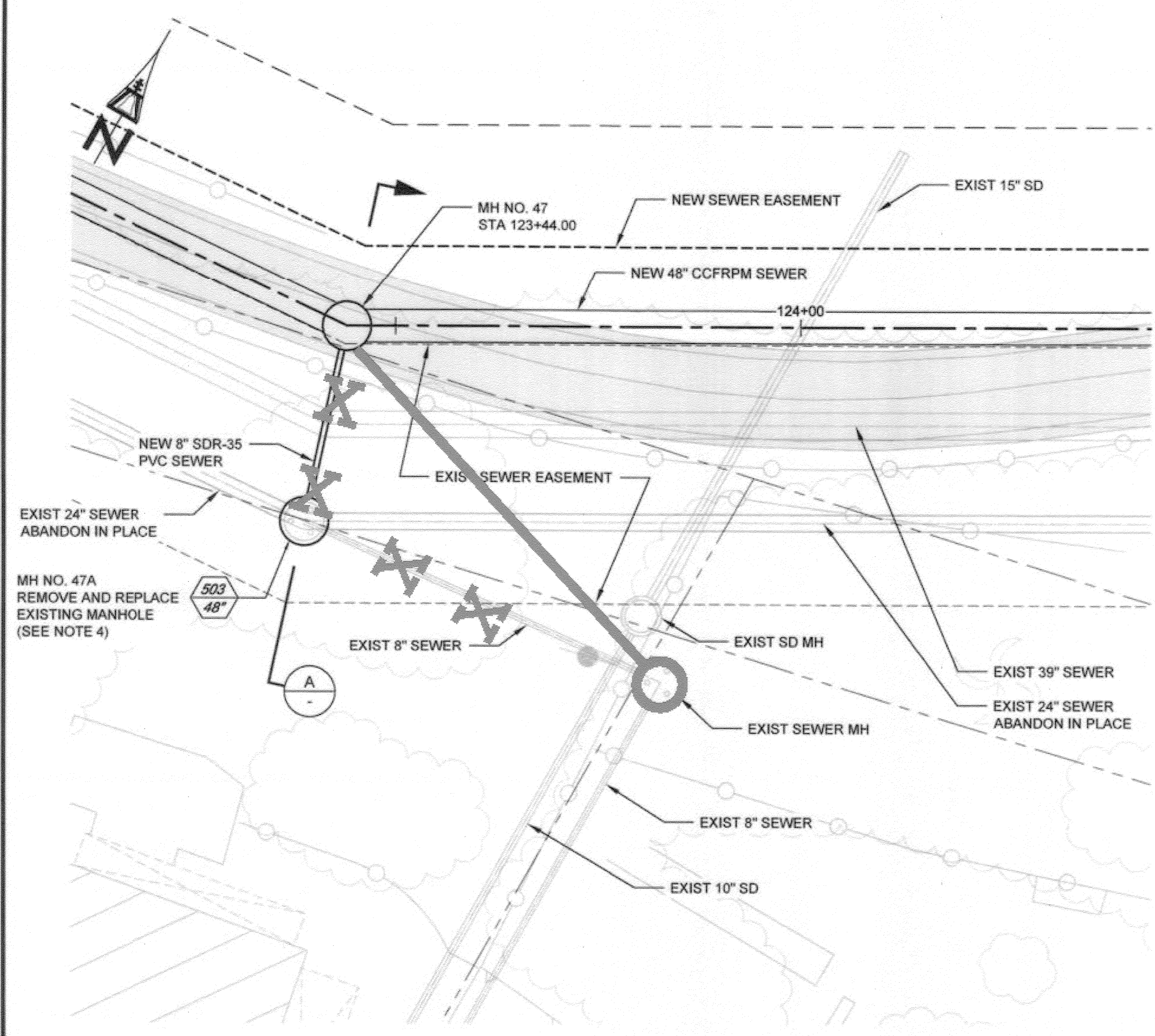
SANTA ANA RIVER TRUNK  
SEWER REPLACEMENT- PHASE II

GRASSY TRAIL TRUNK SEWER  
CONNECTION DETAILS

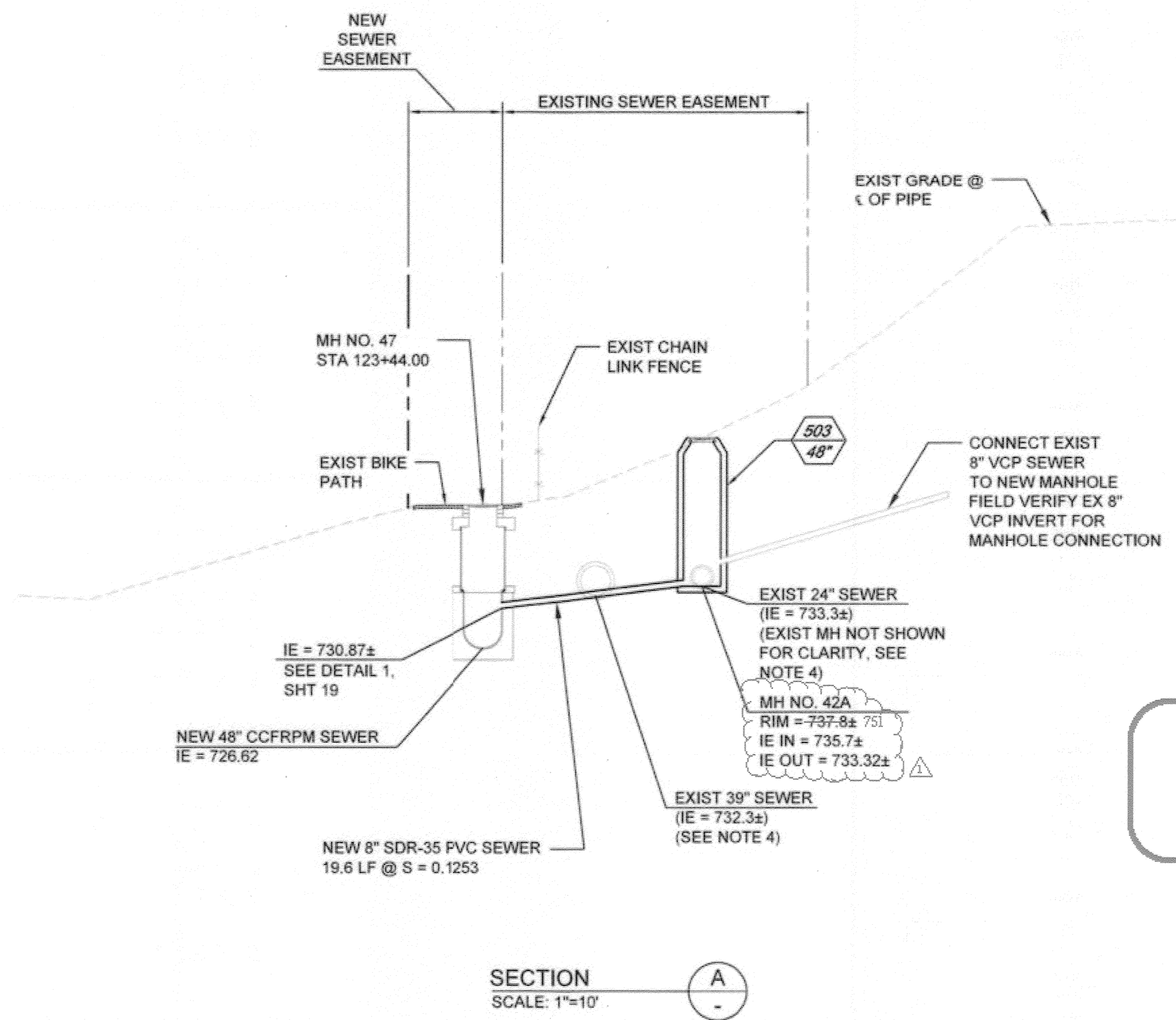
ACCT. NO.: 9799123  
S-2089  
20 OF 35  
SHEET OF  
FILE NO. SARTS\_SHT20.DWG

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

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**OLD MILL ROAD TRUNK SEWER CONNECTION - PLAN VIEW**  
 SCALE: 1"=10'



**SECTION A-A**  
 SCALE: 1"=10'

- CONNECTION NOTES:**
- SEE SHEET 9 FOR PLAN AND PROFILE OF THE 48" CCFRPM.
  - MAINTAIN FLOW IN EXISTING 8" OLD MILL ROAD TRUNK SEWER DURING CONSTRUCTION.
  - INSTALL 8" PVC IN ACCORDANCE WITH STANDARD DRAWING 453 AND STANDARD SPECIFICATIONS.
  - DEMOLISH INTERFERING PORTIONS OF EXISTING SANITARY SEWER AND MANHOLES WHERE SHOWN ON PLANS AND AS NEEDED FOR CONSTRUCTION PER SECTION 306-5 OF THE SPECIAL PROVISIONS.
  - CONTRACTOR TO CORE DRILL SEWER INTO WALL OF EXISTING MANHOLE AND FILL ANY VOIDS WITH-IN MANHOLE WALL WITH NON-SHRINK GROUT. CONSTRUCT SLOPING INLET CHANNEL AND SHAPE NEW CHANNEL SIDES TO PROVIDE SMOOTH FLOW SURFACE. CONNECTION OF PIPES TO MANHOLE SHALL BE WATER TIGHT.
  - MATCH EXISTING SLOPE. PVC TO VCP CONNECTION SHALL BE "REDUCER" BANDED RUBBER COUPLING WITH STL STEEL COMPONENTS. GLADDING McBEAN, CALDER COUPLING, FERNO FLEXIBLE COUPLING OR EQUAL. ENCASE COUPLING IN CLSM.
  - THE CONTRACTOR SHALL COORDINATE WITH THE CITY AND PRIVATE PROPERTY OWNERS TO SCHEDULE AND MINIMIZE ENTRY TO PRIVATE PROPERTIES TO COMPLETE THE WORK. DISTURBED, DAMAGED, OR DEMOLISHED IMPROVEMENTS OR LANDSCAPING SHALL BE RESTORED BY THE CONTRACTOR TO PREVIOUS OR BETTER CONDITION AND BE TO THE SATISFACTION OF THE CITY AND THE PRIVATE PROPERTY OWNER AS PART OF THE INSTALLED, COMPLETE AND IN-PLACE BID PRICE FOR THE WORK AND NO ADDITIONAL ALLOWANCE WILL BE MADE THEREFORE.
  - CIPP LINER SHALL CONSIST OF ONE OR MORE LAYERS OF NON-WOVEN MATERIAL AND HAVE PLASTIC COATING(S), HAVE A MINIMUM 4.5mm LINER THICKNESS AND RESIN PER SECTION 500-1.4 OF THE SSPWC. PROVIDE IN ACCORDANCE WITH SECTION 500-1 OF THE SSPWC IN ITS ENTIRETY.

AS-BUILT

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

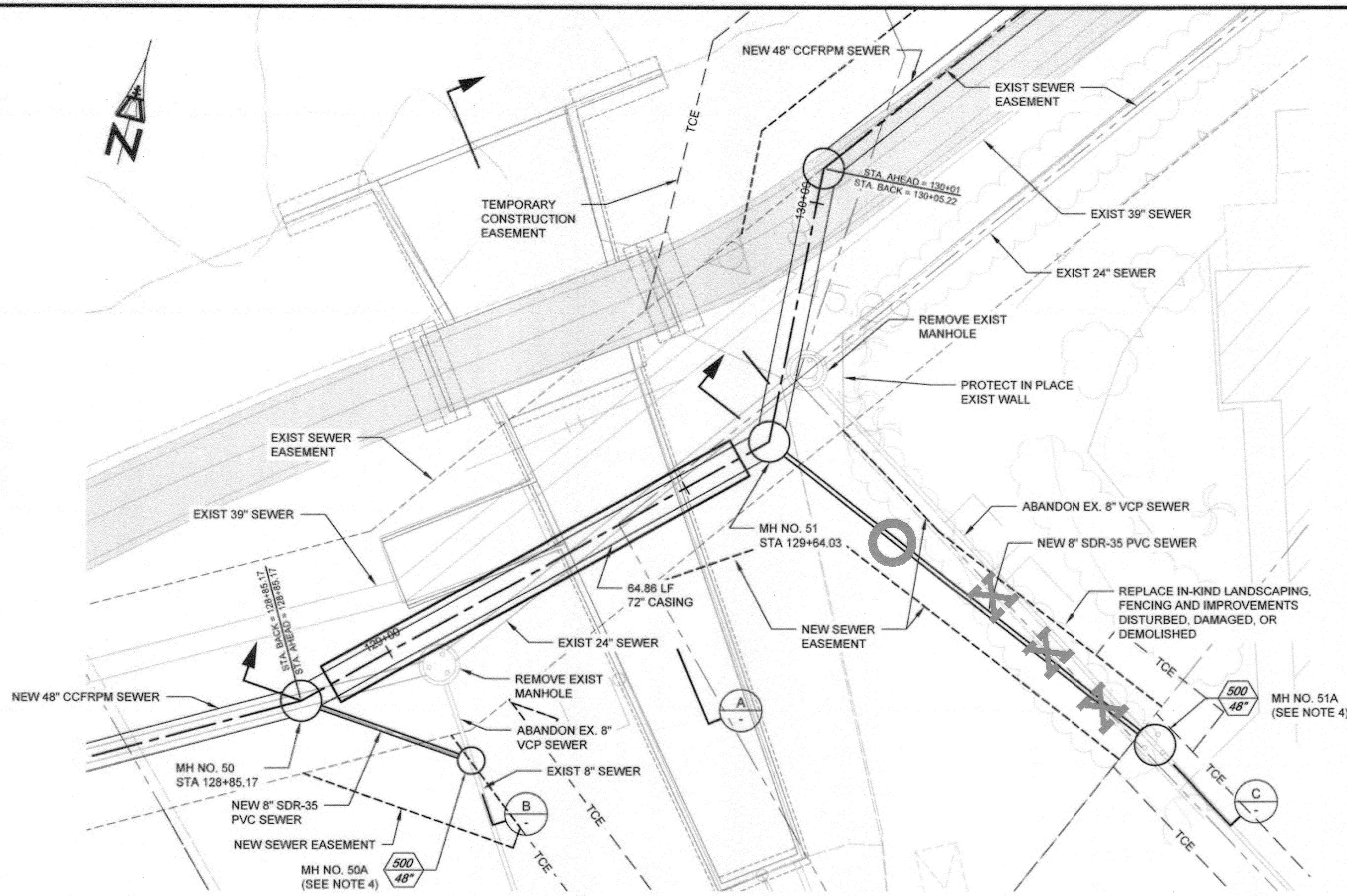


**BROWN AND CALDWELL**  
 SAN DIEGO, CALIFORNIA  
 ENGINEER IN CHARGE: *Mark O. Ziegler*  
 REGISTERED CIVIL ENGINEER No. C-36183  
 DATE: 11-22-13

Revised plan as shown	3/16/15
DESIGNED BY:	DRAWN BY:
CHECKED BY:	

**CITY OF RIVERSIDE, CALIFORNIA**  
 PUBLIC WORKS DEPARTMENT  
 APPROVED BY: *[Signature]* DATE: 1/16/2015  
 CITY ENGINEER

**SANTA ANA RIVER TRUNK SEWER REPLACEMENT- PHASE II**  
 OLD MILL ROAD TRUNK SEWER CONNECTION DETAILS  
 ACCT. NO.: 9799123  
 S-2089  
 SHEET 21 OF 35  
 HORIZ. SCALE: 1" = 10' VERT. SCALE: 1" = 10' FILE NO. SARTS\_SHT21.DWG



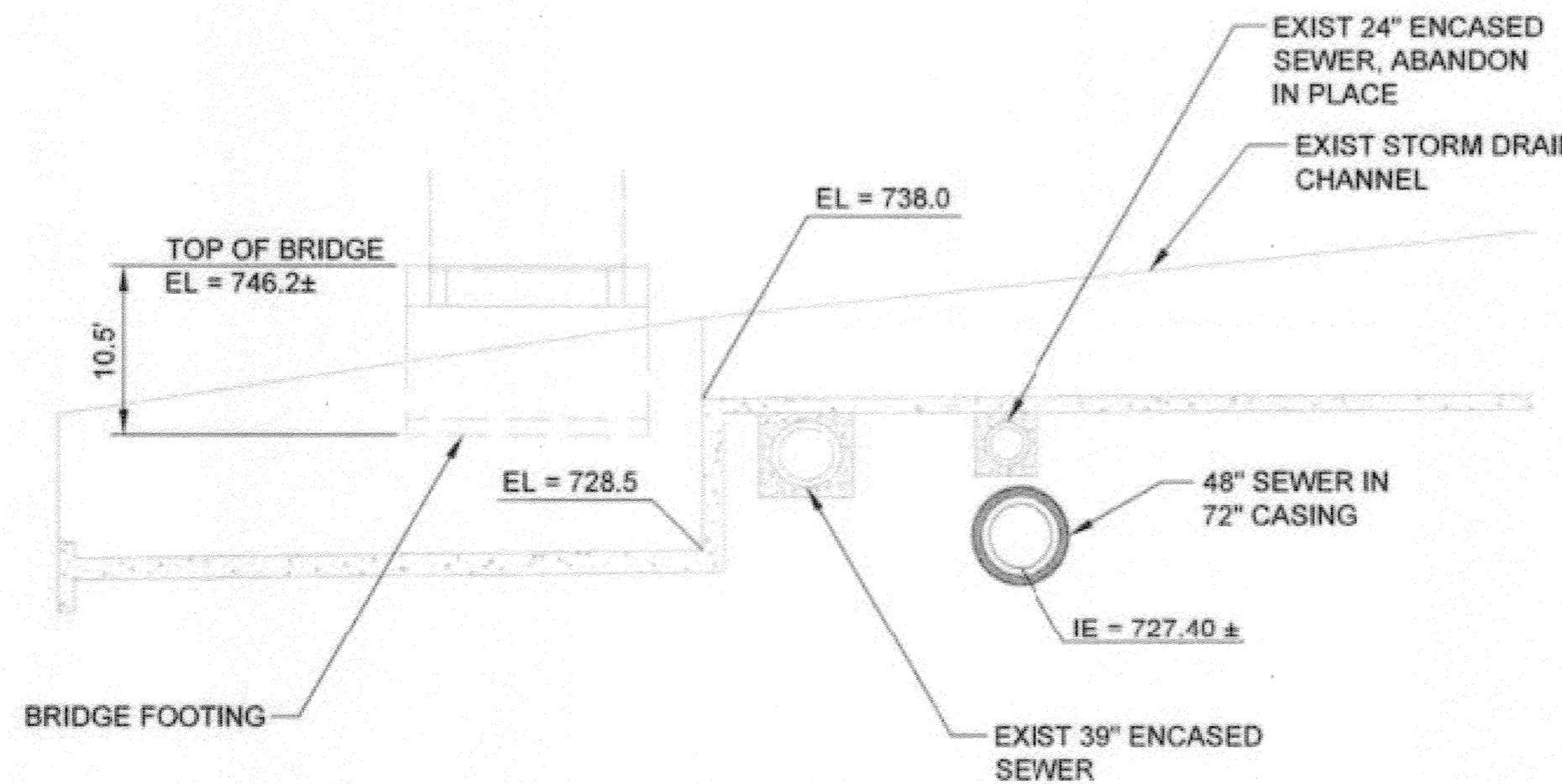
LONDONDERRY TRUNK SEWER CONNECTIONS - PLAN VIEW

SCALE: 1"=10'

1/10

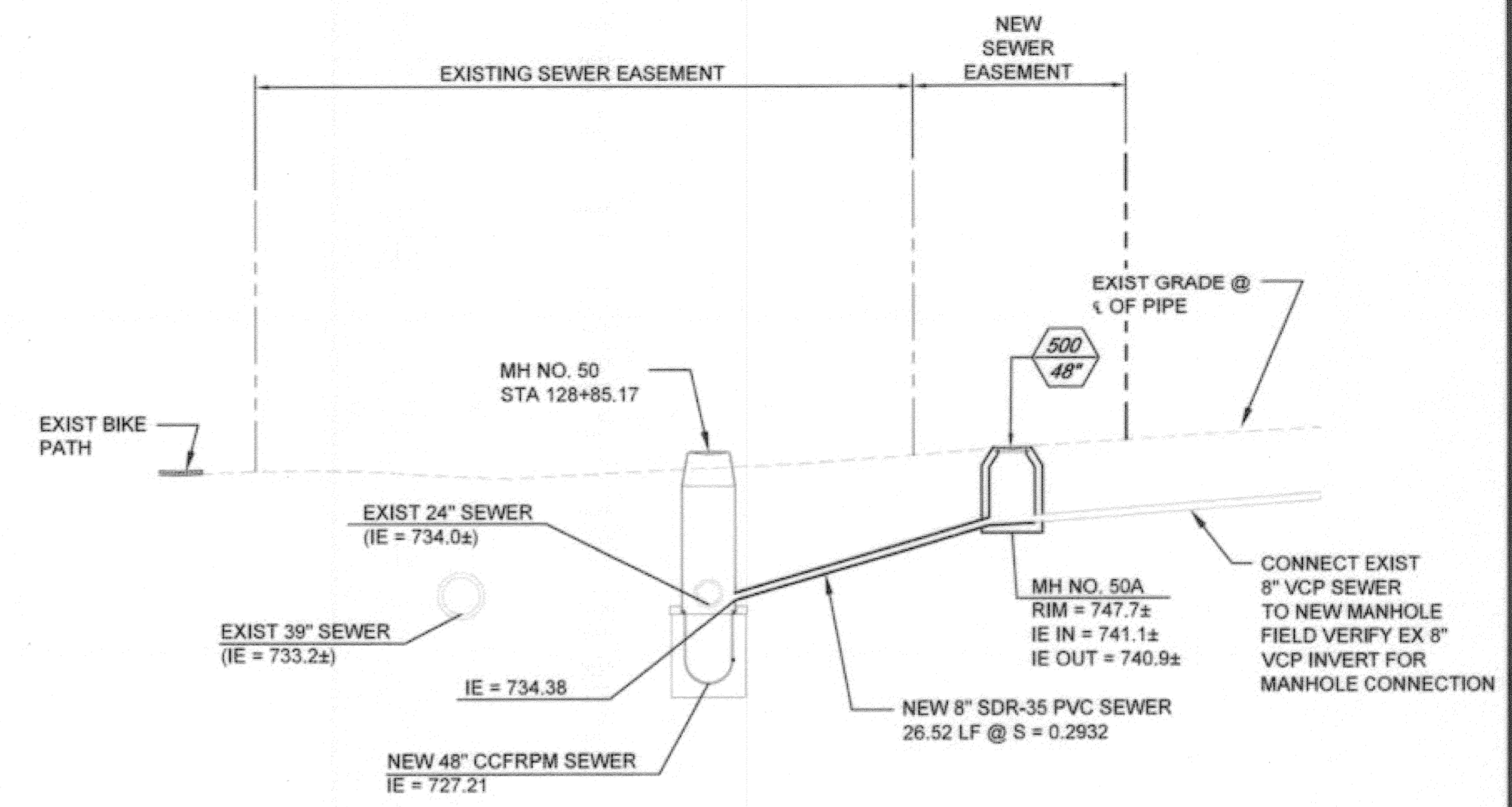
CONNECTION NOTES:

- 1. SEE SHEET 10 FOR PLAN AND PROFILE OF THE 48" CCFRPM.
2. MAINTAIN FLOW IN EXISTING 8" LONDONDERRY TRUNK SEWERS DURING NEW SEWER CONSTRUCTION.
3. INSTALL 8" PVC IN ACCORDANCE WITH STANDARD DRAWING 453 AND STANDARD SPECIFICATIONS.
4. DEMOLISH INTERFERING PORTIONS OF EXISTING SANITARY SEWER AND MANHOLES WHERE SHOWN ON PLANS AND AS NEEDED FOR CONSTRUCTION PER SECTION 306-5 OF THE SPECIAL PROVISIONS.
5. CONTRACTOR TO CORE DRILL SEWER INTO WALL OF EXISTING MANHOLE AND FILL ANY VOIDS WITH-IN MANHOLE WALL WITH NON-SHRINK GROUT. CONSTRUCT SLOPING INLET CHANNEL AND SHAPE NEW CHANNEL SIDES TO PROVIDE SMOOTH FLOW SURFACE. CONNECTION OF PIPES TO MANHOLE SHALL BE WATER TIGHT.
6. MATCH EXISTING SLOPE. PVC TO VCP CONNECTION SHALL BE "REDUCER" BANDED RUBBER COUPLING WITH STL STEEL COMPONENTS. GLADDING McBEAN, CALDER COUPLING, FERNOCO FLEXIBLE COUPLING OR EQUAL. ENCASE COUPLING IN CLSM.
7. THE CONTRACTOR SHALL COORDINATE WITH THE CITY AND PRIVATE PROPERTY OWNERS TO SCHEDULE AND MINIMIZE ENTRY TO PRIVATE PROPERTIES TO COMPLETE THE WORK. DISTURBED, DAMAGED, OR DEMOLISHED IMPROVEMENTS OR LANDSCAPING SHALL BE RESTORED BY THE CONTRACTOR TO PREVIOUS OR BETTER CONDITION AND BE TO THE SATISFACTION OF THE CITY AND THE PRIVATE PROPERTY OWNER AS PART OF THE INSTALLED, COMPLETE AND IN-PLACE BID PRICE FOR THE WORK AND NO ADDITIONAL ALLOWANCE WILL BE MADE THEREFORE.
8. CIPP LINER SHALL CONSIST OF ONE OR MORE LAYERS OF NON-WOVEN MATERIAL AND HAVE PLASTIC COATING(S), HAVE A MINIMUM 4.5mm LINER THICKNESS AND RESIN PER SECTION 500-1.4 OF THE SSPWC. PROVIDE IN ACCORDANCE WITH SECTION 500-1.4 OF THE SSPWC IN ITS ENTIRETY.



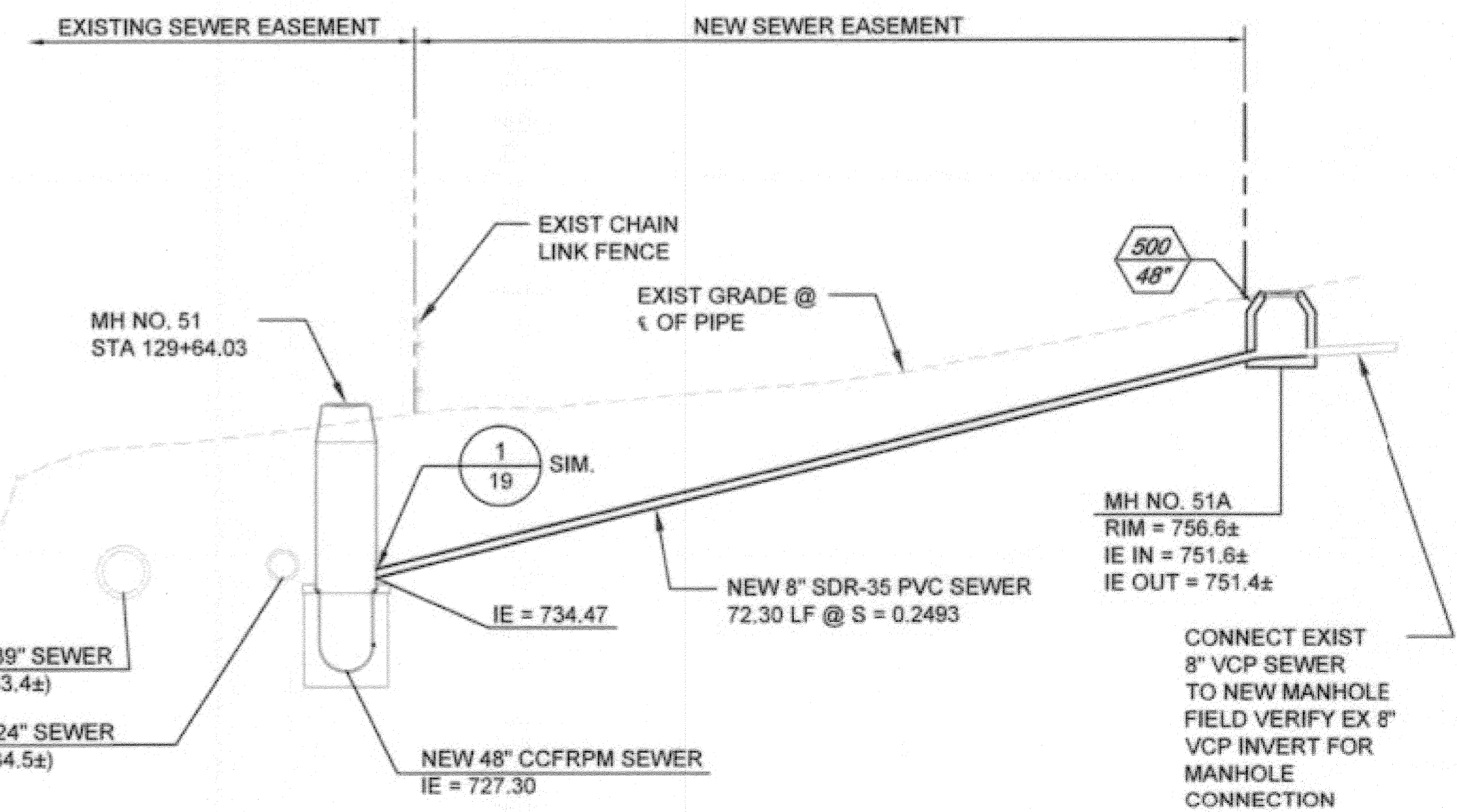
SECTION A SCALE: 1"=10'

A



SECTION B SCALE: 1"=10'

B



SECTION C SCALE: 1"=10'

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. Bering
REGISTERED CIVIL ENGINEER No. C-36183
DATE: 11-22-13

CITY OF RIVERSIDE, CALIFORNIA
PUBLIC WORKS DEPARTMENT

APPROVED BY: [Signature]
DATE: 1/16/2015

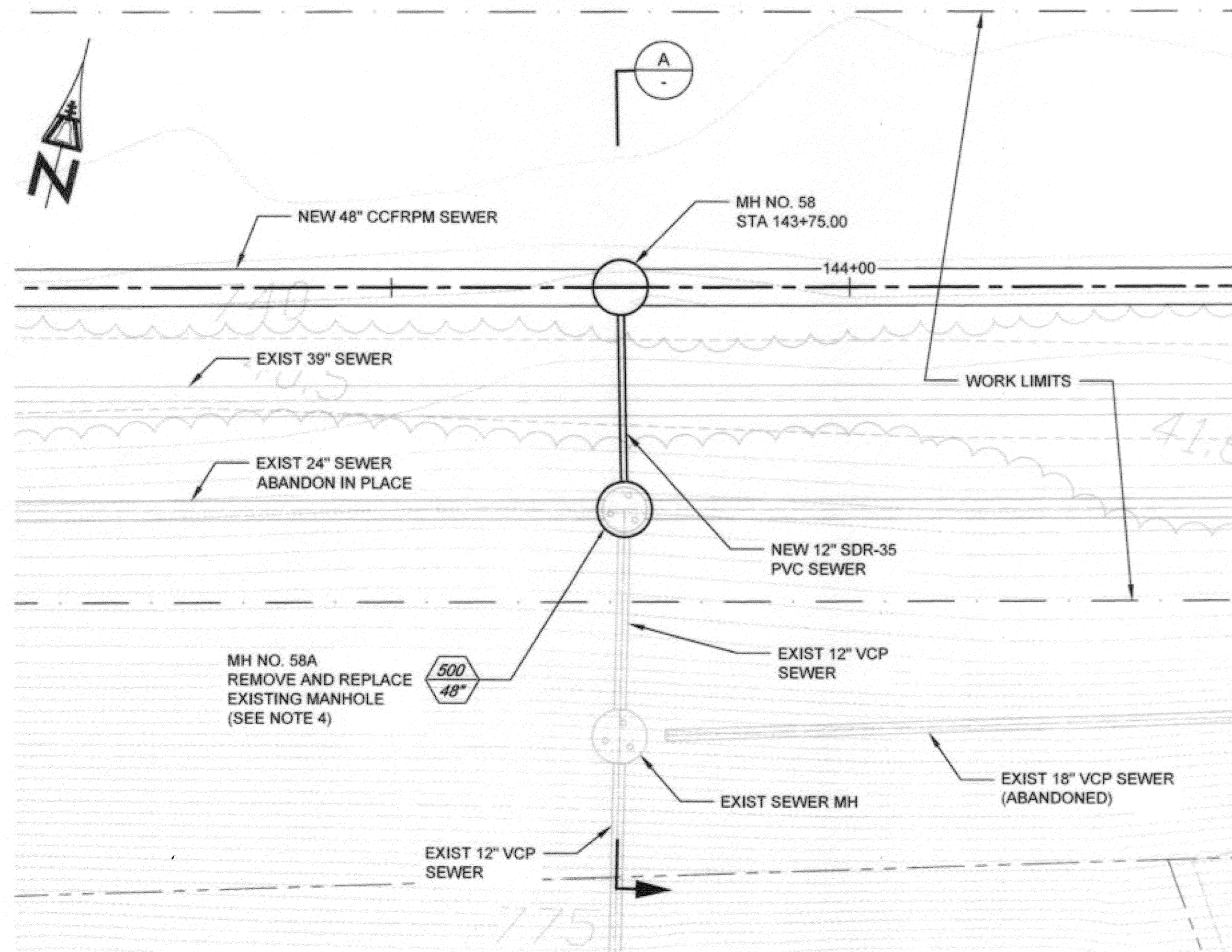
SANTA ANA RIVER TRUNK SEWER REPLACEMENT- PHASE II
LONDONDERRY TRUNK SEWER CONNECTION DETAILS

ACCT. NO.: 9799123
S-2089
22 OF 35
SHEET NO. SARTS\_SHT22.DWG

# AS-BUILT

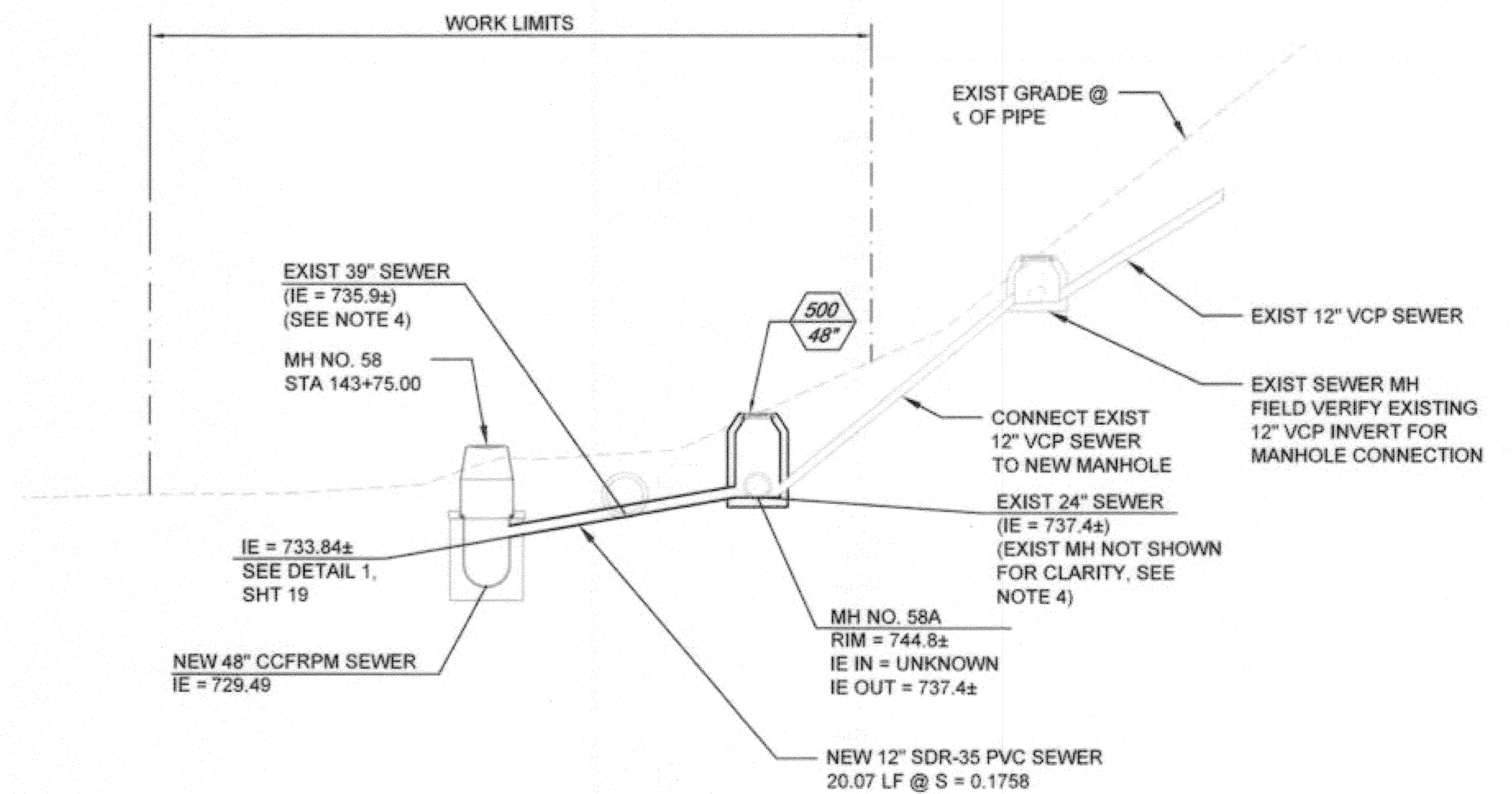
### CONNECTION NOTES:

- SEE SHEET 11 FOR PLAN AND PROFILE OF THE 48" CCFRPM.
- MAINTAIN FLOW IN EXISTING 12" JURUPA TRUNK SEWER DURING NEW SEWER CONSTRUCTION.
- INSTALL 8" PVC IN ACCORDANCE WITH STANDARD DRAWING 453 AND STANDARD SPECIFICATIONS.
- DEMOLISH INTERFERING PORTIONS OF EXISTING SANITARY SEWER AND MANHOLES WHERE SHOWN ON PLANS AND AS NEEDED FOR CONSTRUCTION PER SECTION 306-5 OF THE SPECIAL PROVISIONS.
- CONTRACTOR TO CORE DRILL SEWER INTO WALL OF EXISTING MANHOLE AND FILL ANY VOIDS WITH-IN MANHOLE WALL WITH NON-SHRINK GROUT. CONSTRUCT SLOPING INLET CHANNEL AND SHAPE NEW CHANNEL SIDES TO PROVIDE SMOOTH FLOW SURFACE. CONNECTION OF PIPES TO MANHOLE SHALL BE WATER TIGHT.
- MATCH EXISTING SLOPE. PVC TO VCP CONNECTION SHALL BE "REDUCER" BANDED RUBBER COUPLING WITH STL STEEL COMPONENTS. GLADDING McBEAN, CALDER COUPLING, FERNCO FLEXIBLE COUPLING OR EQUAL. ENCASE COUPLING IN CLSM.
- THE CONTRACTOR SHALL COORDINATE WITH THE CITY AND PRIVATE PROPERTY OWNERS TO SCHEDULE AND MINIMIZE ENTRY TO PRIVATE PROPERTIES TO COMPLETE THE WORK. DISTURBED, DAMAGED, OR DEMOLISHED IMPROVEMENTS OR LANDSCAPING SHALL BE RESTORED BY THE CONTRACTOR TO PREVIOUS OR BETTER CONDITION AND BE TO THE SATISFACTION OF THE CITY AND THE PRIVATE PROPERTY OWNER AS PART OF THE INSTALLED, COMPLETE AND IN-PLACE BID PRICE FOR THE WORK AND NO ADDITIONAL ALLOWANCE WILL BE MADE THEREFORE.
- CIPP LINER SHALL CONSIST OF ONE OR MORE LAYERS OF NON-WOVEN MATERIAL AND HAVE PLASTIC COATING(S), HAVE A MINIMUM 4.5mm LINER THICKNESS AND RESIN PER SECTION 500-1.4 OF THE SSPWC. PROVIDE IN ACCORDANCE WITH SECTION 500-1 OF THE SSPWC IN ITS ENTIRETY.



JURUPA TRUNK SEWER CONNECTION - PLAN VIEW  
SCALE: 1"=10'

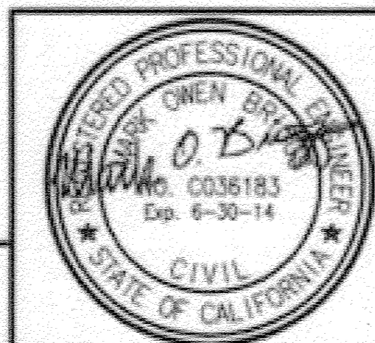
1  
11



SECTION  
SCALE: 1"=10'

A  
-

Path: P:\Projects\Riverside, City of (CA)\133410 - Santa Ana River Trunk Sewer\CA0012-SHEETS PHASE 2\C-CIVIL - SARTS\_SHT23 - Plot date: Nov. 20, 2013 8:02PM CAD User: David



**BROWN AND CALDWELL**  
SAN DIEGO, CALIFORNIA

ENGINEER IN RESPONSIBLE CHARGE:  
*Mark O. Brown*  
REGISTERED CIVIL ENGINEER No. C-36183  
DATE: 11-22-13

CITY OF RIVERSIDE, CALIFORNIA  
PUBLIC WORKS DEPARTMENT

APPROVED BY: *[Signature]* DATE: 1/16/2015  
ENGINEERING MANAGER  
PRINCIPAL ENGINEER  
TRAFFIC DIVISION  
PUBLIC WORKS DEPARTMENT  
INSPECTION SUPERVISOR  
DATE: 1/16/2015

SANTA ANA RIVER TRUNK  
SEWER REPLACEMENT- PHASE II

JURUPA TRUNK SEWER  
CONNECTION DETAILS

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

ACCT. NO.: 9799123

S-2089

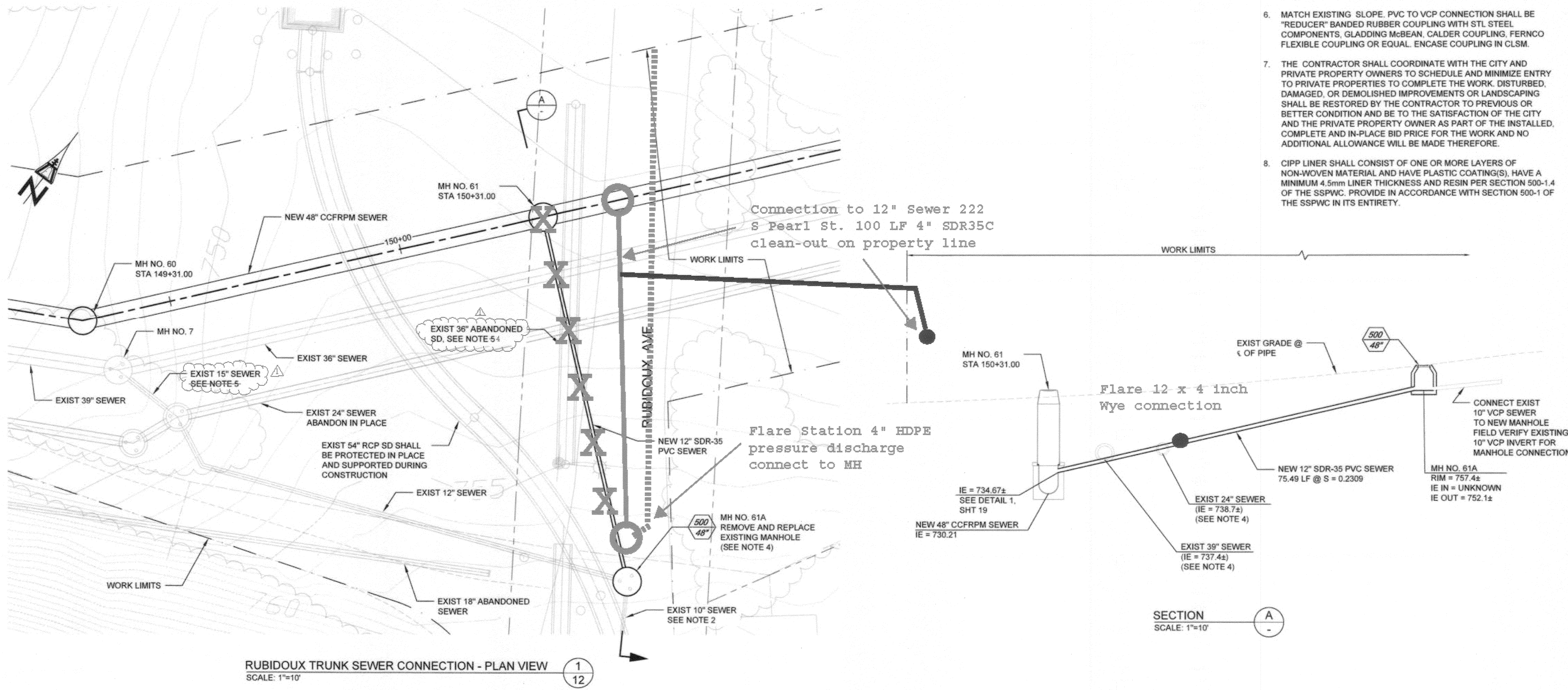
23 OF 35

FILE NO. SARTS\_SHT23.DWG

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

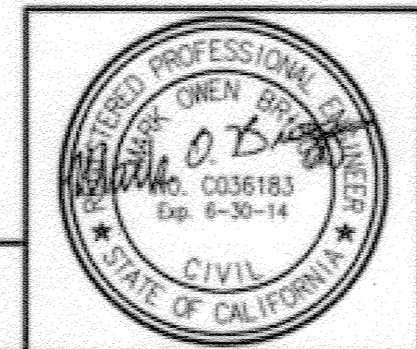
# AS-BUILT

- CONNECTION NOTES:**
- SEE SHEET 12 FOR PLAN AND PROFILE.
  - MAINTAIN FLOW IN EXISTING RUBIDOUX TRUNK SEWER DURING NEW SEWER CONSTRUCTION.
  - DEMOLISH INTERFERING SEGMENTS OF EXISTING 12" PIPELINE AFTER FLOW IS DIVERTED TO NEW SEWER. ABANDON REMAINING PORTIONS PER SPECIFICATIONS.
  - DEMOLISH INTERFERING PORTION OF ABANDONED 36" STORM DRAIN TO ALLOW CONSTRUCTION OF 12" SEWER LATERAL.
  - CONTRACTOR TO CORE DRILL SEWER INTO WALL OF EXISTING MANHOLE AND FILL ANY VOIDS WITH-IN MANHOLE WALL WITH NON-SHRINK GROUT. CONSTRUCT SLOPING INLET CHANNEL AND SHAPE NEW CHANNEL SIDES TO PROVIDE SMOOTH FLOW SURFACE. CONNECTION OF PIPES TO MANHOLE SHALL BE WATER TIGHT.
  - MATCH EXISTING SLOPE. PVC TO VCP CONNECTION SHALL BE "REDUCER" BANDED RUBBER COUPLING WITH STL STEEL COMPONENTS. GLADDING McBEAN, CALDER COUPLING, FERNCO FLEXIBLE COUPLING OR EQUAL. ENCASE COUPLING IN CLSM.
  - THE CONTRACTOR SHALL COORDINATE WITH THE CITY AND PRIVATE PROPERTY OWNERS TO SCHEDULE AND MINIMIZE ENTRY TO PRIVATE PROPERTIES TO COMPLETE THE WORK. DISTURBED, DAMAGED, OR DEMOLISHED IMPROVEMENTS OR LANDSCAPING SHALL BE RESTORED BY THE CONTRACTOR TO PREVIOUS OR BETTER CONDITION AND BE TO THE SATISFACTION OF THE CITY AND THE PRIVATE PROPERTY OWNER AS PART OF THE INSTALLED, COMPLETE AND IN-PLACE BID PRICE FOR THE WORK AND NO ADDITIONAL ALLOWANCE WILL BE MADE THEREFORE.
  - CIPP LINER SHALL CONSIST OF ONE OR MORE LAYERS OF NON-WOVEN MATERIAL AND HAVE PLASTIC COATING(S), HAVE A MINIMUM 4.5mm LINER THICKNESS AND RESIN PER SECTION 500-1.4 OF THE SSPWC. PROVIDE IN ACCORDANCE WITH SECTION 500-1 OF THE SSPWC IN ITS ENTIRETY.



RUBIDOUX TRUNK SEWER CONNECTION - PLAN VIEW  
SCALE: 1"=10"  
1  
12

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. Baig*  
REGISTERED CIVIL ENGINEER No. C-36183  
DATE: 11-22-13

DESIGNED BY:	DRAWN BY:	CHECKED BY:
REVISIONS:	APPROVAL:	DATE:
3/18/15		

CITY OF RIVERSIDE, CALIFORNIA  
PUBLIC WORKS DEPARTMENT

APPROVED BY: *Shard Bid*  
CITY ENGINEER  
DATE: 1/14/2015

SANTA ANA RIVER TRUNK  
SEWER REPLACEMENT- PHASE II

RUBIDOUX TRUNK SEWER  
CONNECTION DETAILS

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

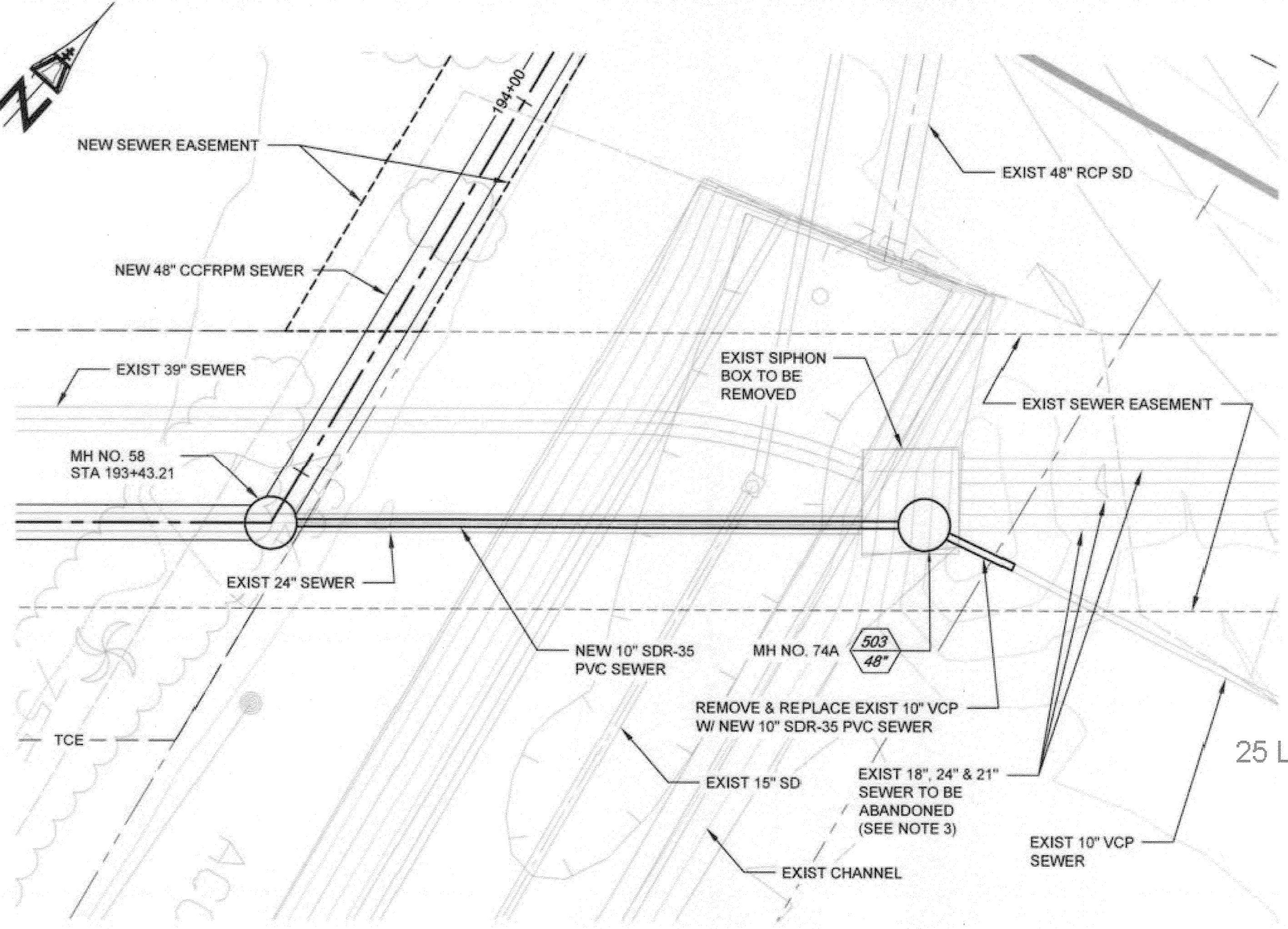
ACCT. NO.: 9799123  
S-2089  
SHEET 24 OF 35  
FILE NO. SARTS\_SHT24.DWG

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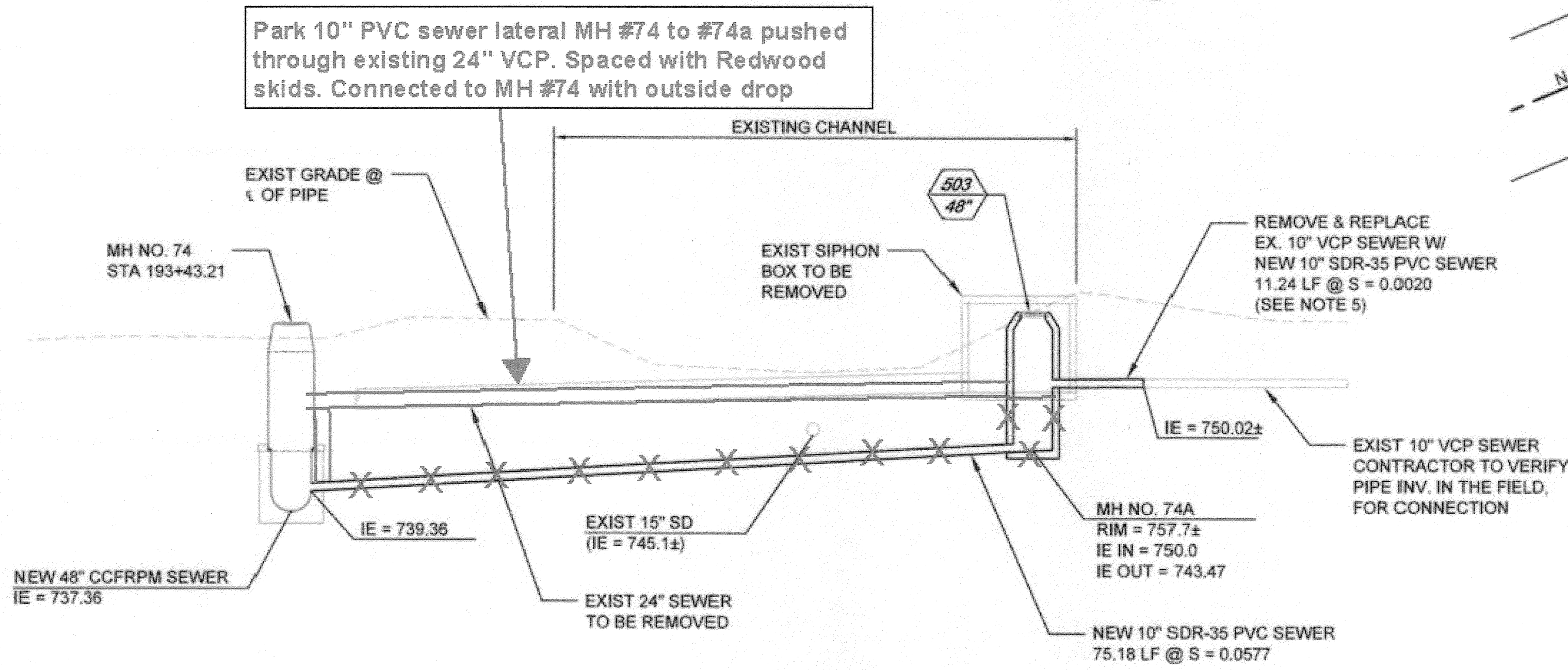


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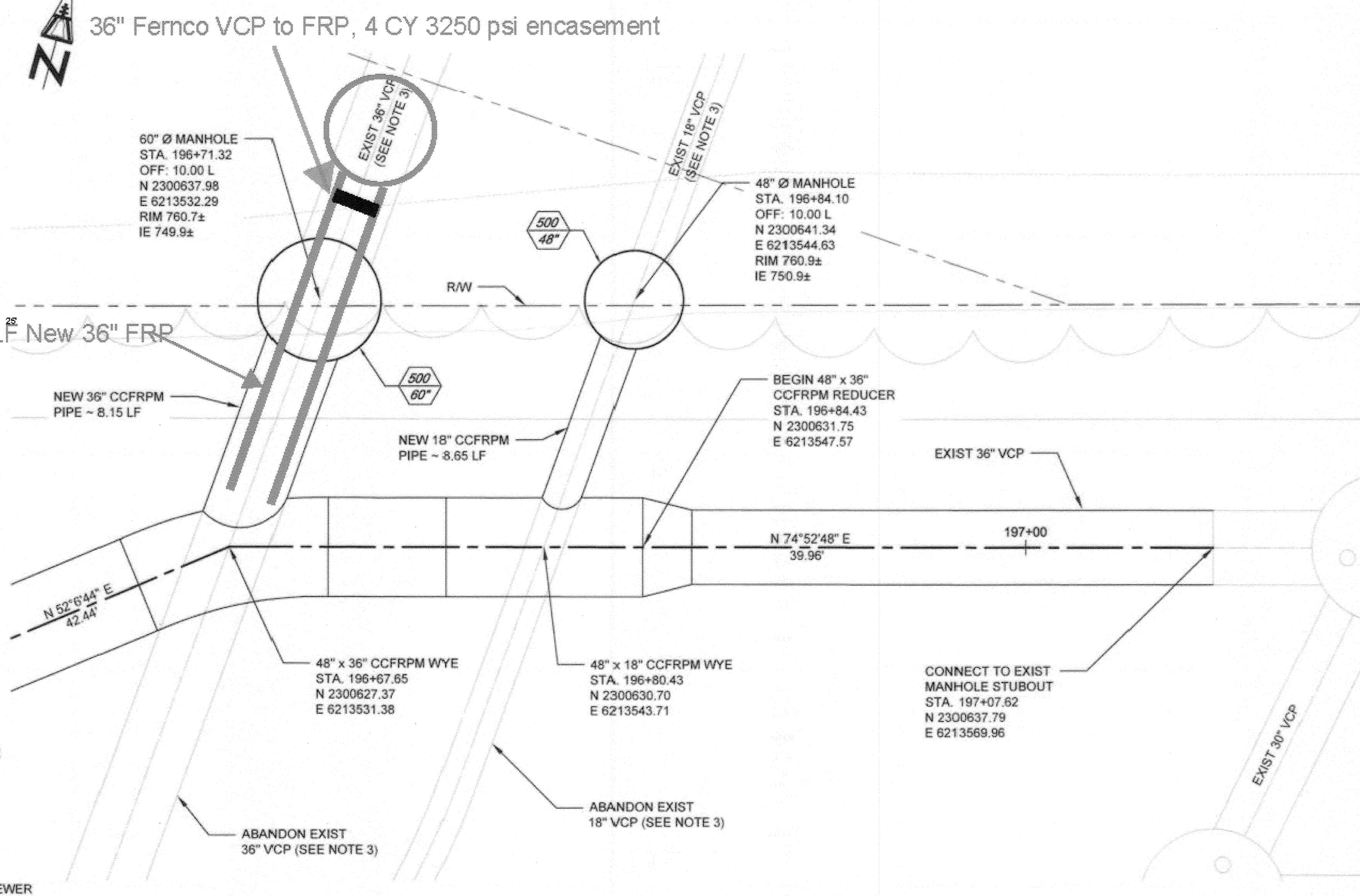
- CONNECTION NOTES:**
- SEE SHEET 17 FOR PLAN AND PROFILE.
  - MAINTAIN FLOW IN EXISTING 10" VCP SEWER DURING NEW SEWER CONSTRUCTION.
  - DEMOLISH INTERFERING SEGMENTS OF EXISTING 24", 36", 18" AND SIPHON SEWER PIPELINES AFTER FLOW IS DIVERTED TO NEW SEWER. ABANDON REMAINING PORTIONS PER SPECIFICATIONS, SEE SHEET 26.
  - DEMOLISH INTERFERING PORTION OF SIPHON BOX TO ALLOW CONSTRUCTION OF 10" SEWER LATERAL.
  - CONNECT TO EXISTING SEWER WITH FLEXIBLE COUPLING (FERACO OR APPROVED EQUAL). ENCASE COUPLING IN CLSM.



**WEST SIPHON AREA TRUNK SEWER CONNECTION - PLAN VIEW**  
SCALE: 1"=10'

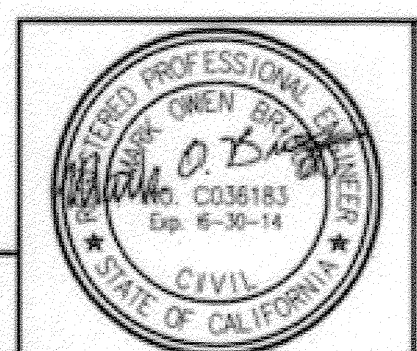


**SECTION A**  
SCALE: 1"=10'



**EAST SIPHON AREA TRUNK SEWER CONNECTION - PLAN VIEW**  
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 CHARGE: *Wade O. Boring*  
REGISTERED CIVIL ENGINEER No. C-36183  
DATE: 11-22-13

Revised plan as shown  
3/16/15

**CITY OF RIVERSIDE, CALIFORNIA**  
PUBLIC WORKS DEPARTMENT  
APPROVED BY: *[Signature]*  
DATE: 1/14/2015

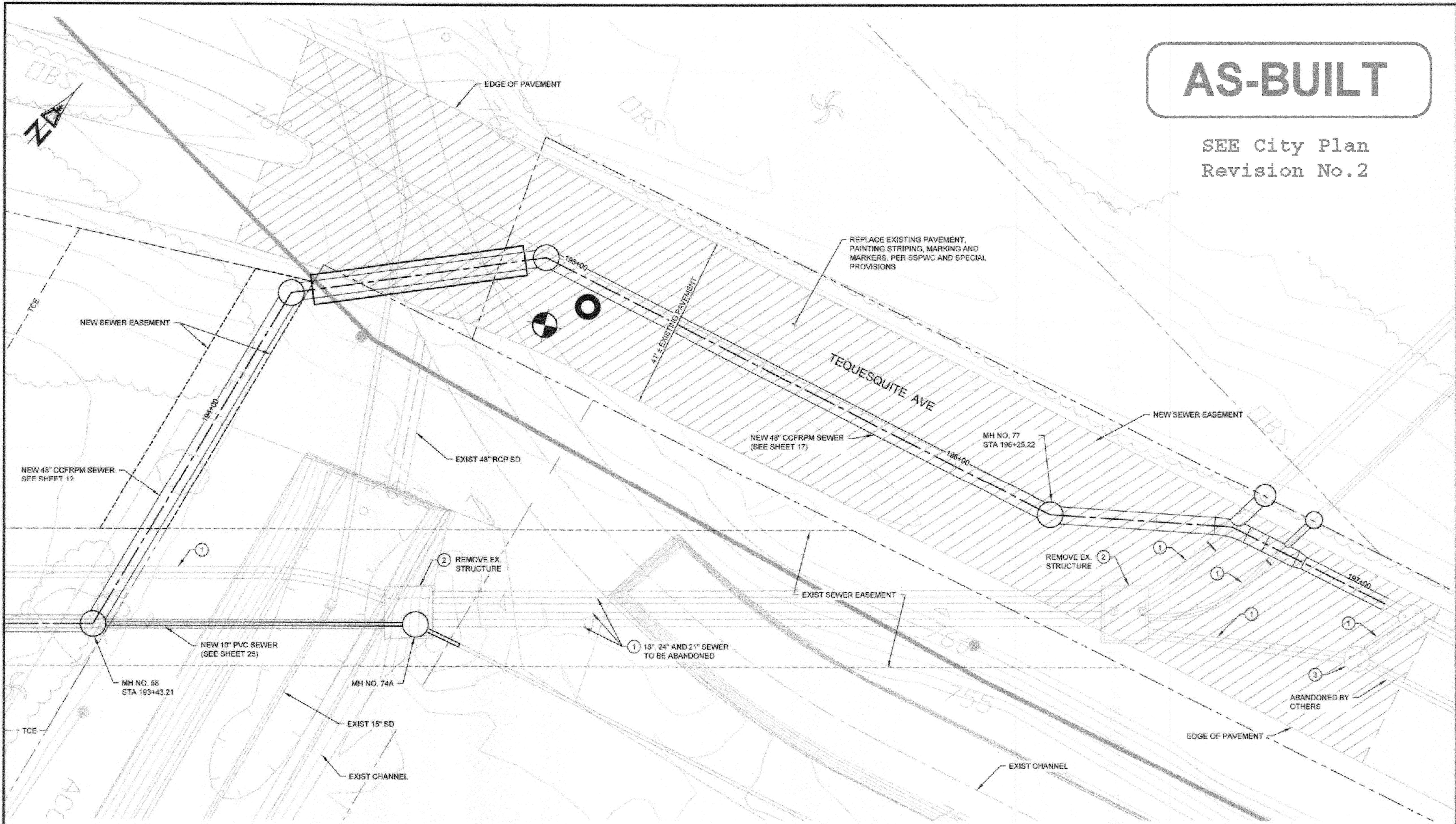
**SANTA ANA RIVER TRUNK SEWER REPLACEMENT - PHASE II**  
SIPHON AREA TRUNK SEWER CONNECTION DETAILS  
HORIZ. SCALE: 1" = 10' VERT. SCALE: 1" = 10'

ACCT. NO.: 9799123  
S-2089  
25 OF 35  
SHEET NO. SARTS\_SHT25.DWG

Path: P:\Projects\Riverside, City of\CA133410 - Santa Ana River Trunk Sewer\CA133410-SHEETS\PHASE 2\AC-CIVIL - FINISHED\SARTS\_SHT25.dwg Date: Nov 20, 2013 10:05PM CAD User: David D. David

# AS-BUILT

SEE City Plan  
Revision No.2



SIPHON AREA - PLAN VIEW  
SCALE: 1"=10'

1  
17

**DEMOLITION NOTES**

- 1 DEMOLISH INTERFERING SEGMENTS OF EXISTING SEWER PIPELINES AND ABANDON REMAINING PORTIONS PER SPECIFICATIONS.
- 2 REMOVE EXISTING STRUCTURES PER SPECIFICATIONS.
- 3 ABANDON EXISTING MANHOLES PER SPECIFICATIONS.

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: Wade O. Boring  
REGISTERED CIVIL ENGINEER No. C-36183  
DATE: 11-22-13

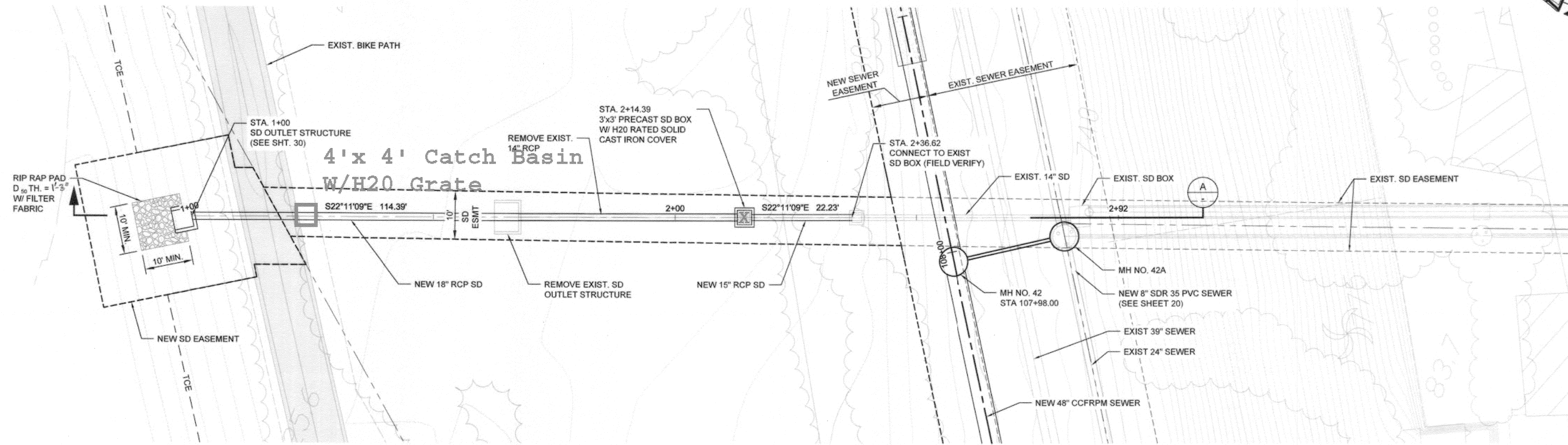
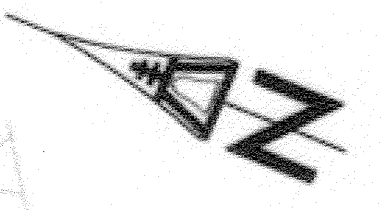
NO.	REVISIONS	APPR.	DATE

**CITY OF RIVERSIDE, CALIFORNIA  
PUBLIC WORKS DEPARTMENT**  
APPROVED BY: [Signature]  
DATE: 11/11/2015

**SANTA ANA RIVER TRUNK  
SEWER REPLACEMENT- PHASE II**  
SIPHON AREA DEMOLITION AND  
PAVEMENT REPLACEMENT PLAN

ACCT. NO.: 9799123  
S-2089  
SHEET 26 OF 35  
FILE NO. SARTS\_SHT26.DWG

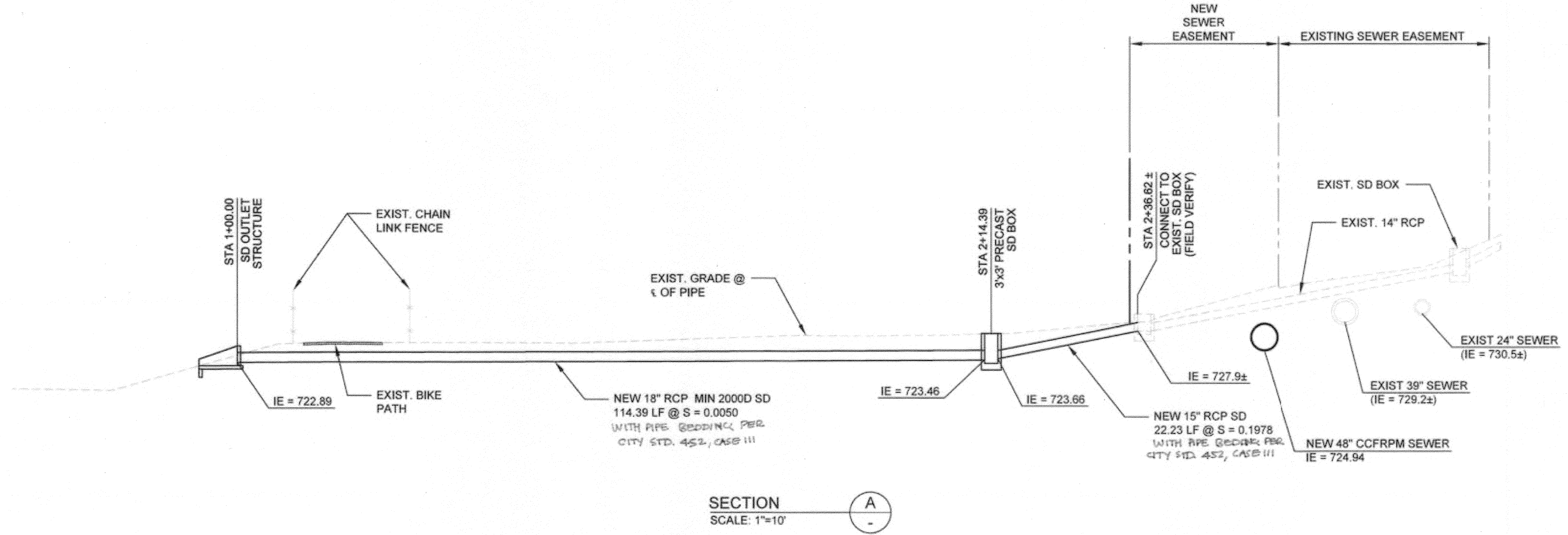
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STORM DRAIN - PLAN VIEW  
SCALE: 1"=10'

STORM DRAIN NOTES:  
1. SEE SHEET 7 FOR PLAN AND PROFILE.

**AS-BUILT**



SECTION  
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. Zingales*  
REGISTERED CIVIL ENGINEER No. C-36183  
DATE: 11-22-13

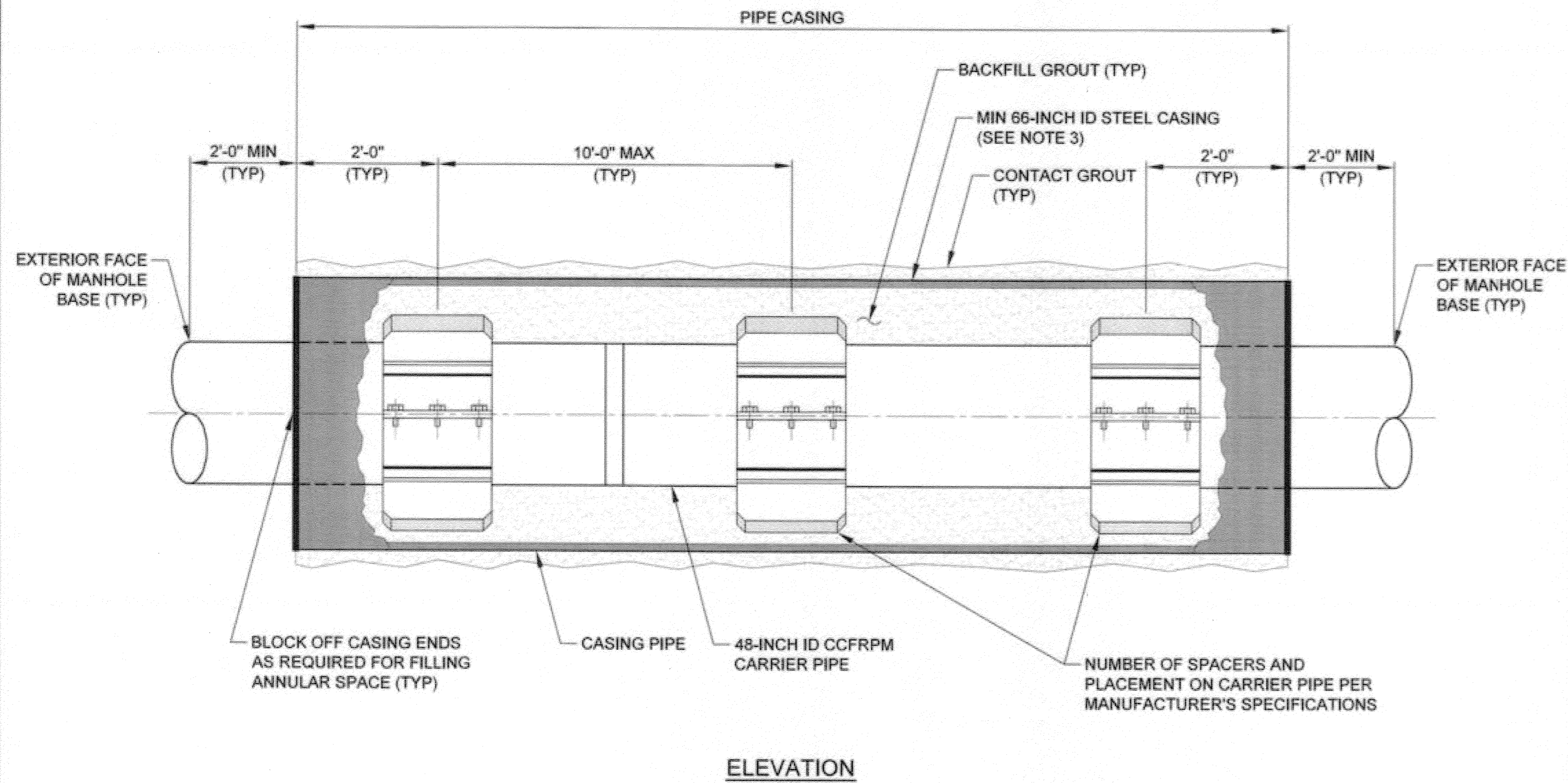
MARK	REVISIONS	APPRO. DATE
DESIGNED BY:	DRAWN BY:	CHECKED BY:

CITY OF RIVERSIDE, CALIFORNIA  
PUBLIC WORKS DEPARTMENT  
APPROVED BY: [Signature]  
DATE: 1/16/2015

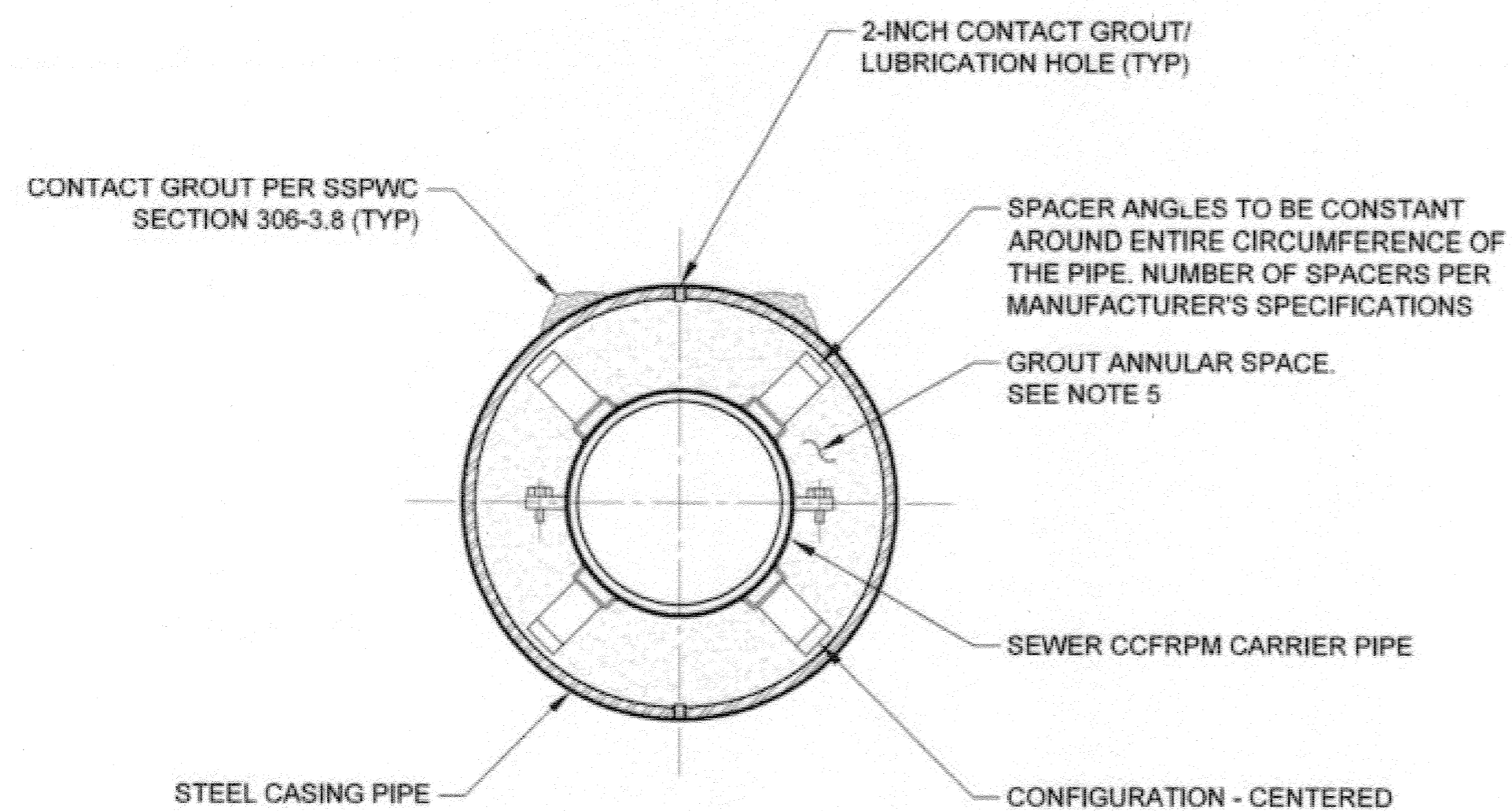
SANTA ANA RIVER TRUNK  
SEWER REPLACEMENT- PHASE II  
STORM DRAIN AT STATION 108+00  
ENLARGED PLAN  
HORIZ. SCALE: 1" = 10' VERT. SCALE: 1" = 10'

ACCT. NO.: 9799123  
S-2089  
27 OF 35  
SHEET  
FILE NO. SARTS\_SHT27.DWG

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ELEVATION



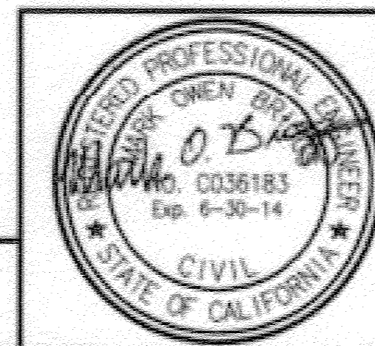
CROSS SECTION

NOTES:

- INTERIOR OF CASING TO BE GRIND SMOOTH AND LUBRICATED FOR SPACER INSTALLATION.
- ENTIRE PIPE CASING TO BE INSTALLED TO MAINTAIN GRAVITY SEWER SLOPE AS SHOWN ON DRAWINGS. SEE STANDARD SPECIFICATIONS FOR FURTHER REQUIREMENTS.
- STEEL CASING SHALL BE AS DESIGNED BY THE CONTRACTOR THAT WILL ALLOW FOR EARTH LOAD, LINE LOAD AND METHOD OF CONSTRUCTION.
- 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.
- GROUT ANNULAR SPACE WITH LOW DENSITY CELLULAR CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH OF 300PSI IN 28 DAYS PER SECTION 306-13. MIX AND PLACEMENT PROCEDURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO USE.

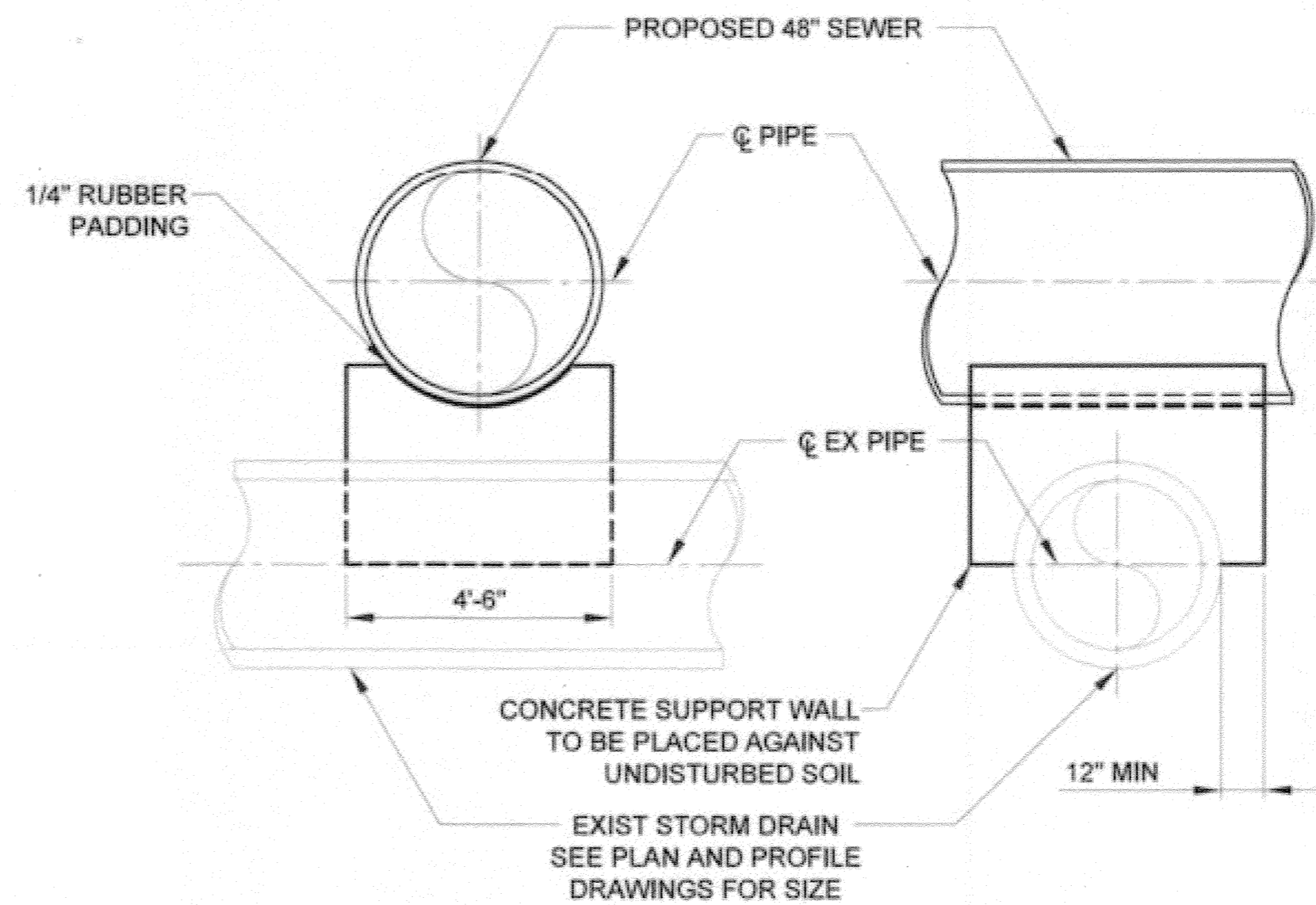
TYPICAL JACK AND BORE SECTION 1  
SCALE: NONE

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. Bui*  
REGISTERED CIVIL ENGINEER No. C-36183  
DATE: 11-22-13

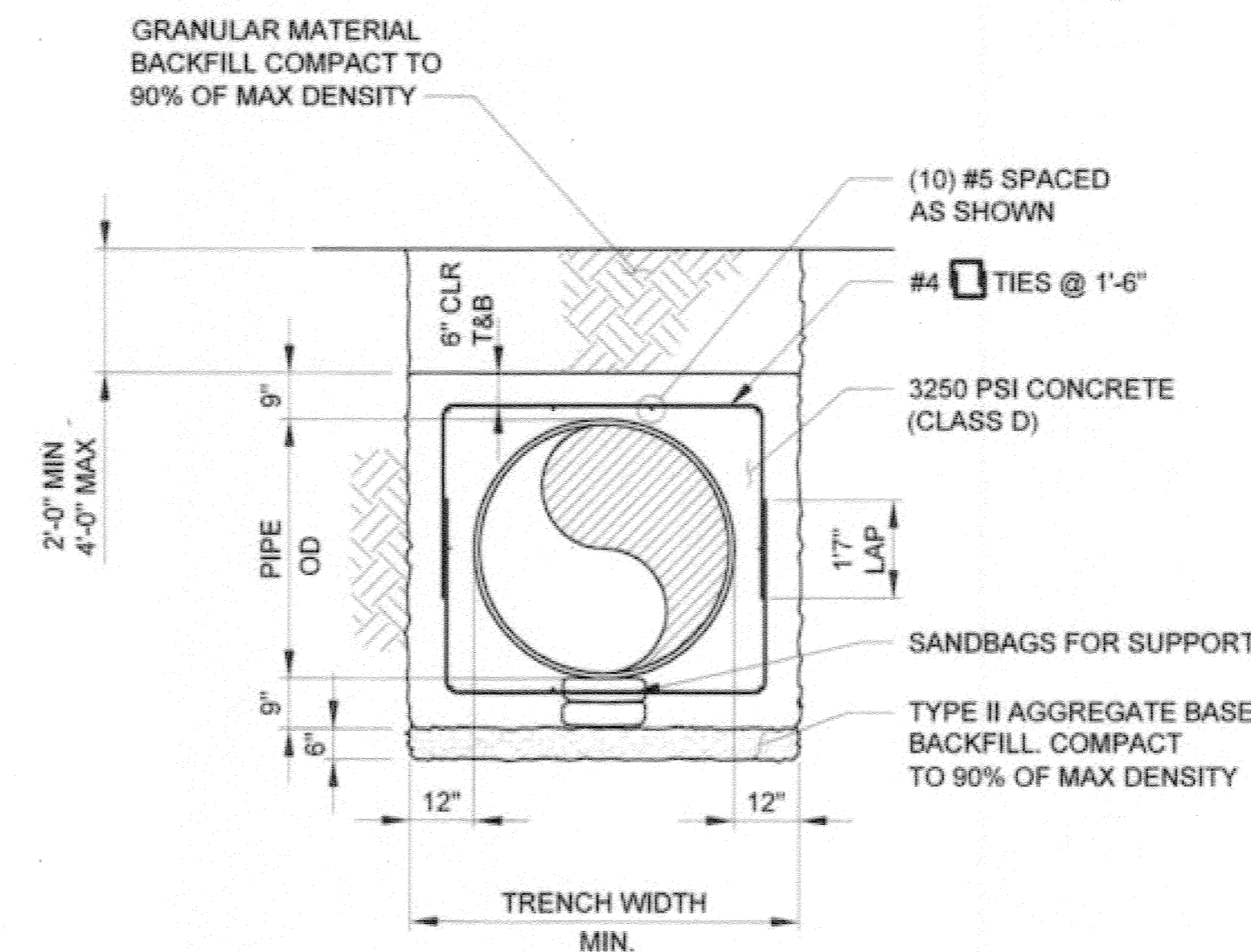


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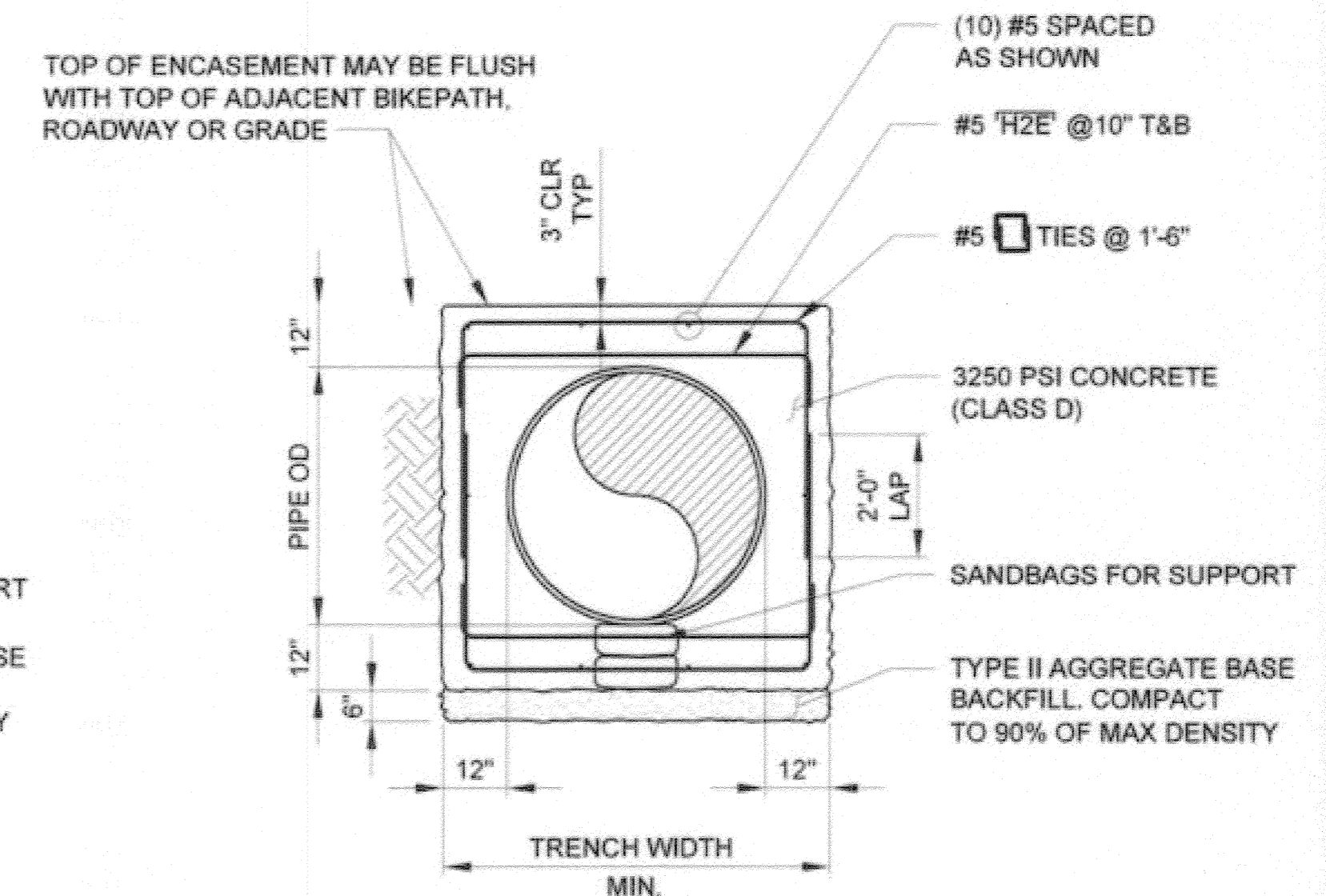
- SUPPORTING WALL SHALL HAVE A FIRM BEARING ON SUBGRADE AND AGAINST THE SIDES OF EXCAVATION.
- APERTURES TO BE PROVIDED FOR FREE DRAINAGE THROUGH WALLS.
- BACKFILL TO BE BROUGHT UP EVENLY ON BOTH SIDES OF WALLS AND CAREFULLY COMPACTED AT CROSS CONDUITS.
- AN ALTERNATE METHOD FOR SUPPORT OF A CROSS CONDUIT 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 2  
SCALE: 3/8" = 1'-0"

**AS-BUILT**



ENCASEMENT WHERE DEPTH OF COVER > 2 FEET



ENCASEMENT WHERE DEPTH OF COVER < 2 FEET

ENCASEMENT DETAIL 3  
SCALE: NONE

CITY OF RIVERSIDE, CALIFORNIA  
PUBLIC WORKS DEPARTMENT

APPROVED BY: [Signature]  
DATE: 11-13-15  
INSPECTOR: [Signature]  
DATE: 11/14/2015

SANTA ANA RIVER TRUNK  
SEWER REPLACEMENT- PHASE II

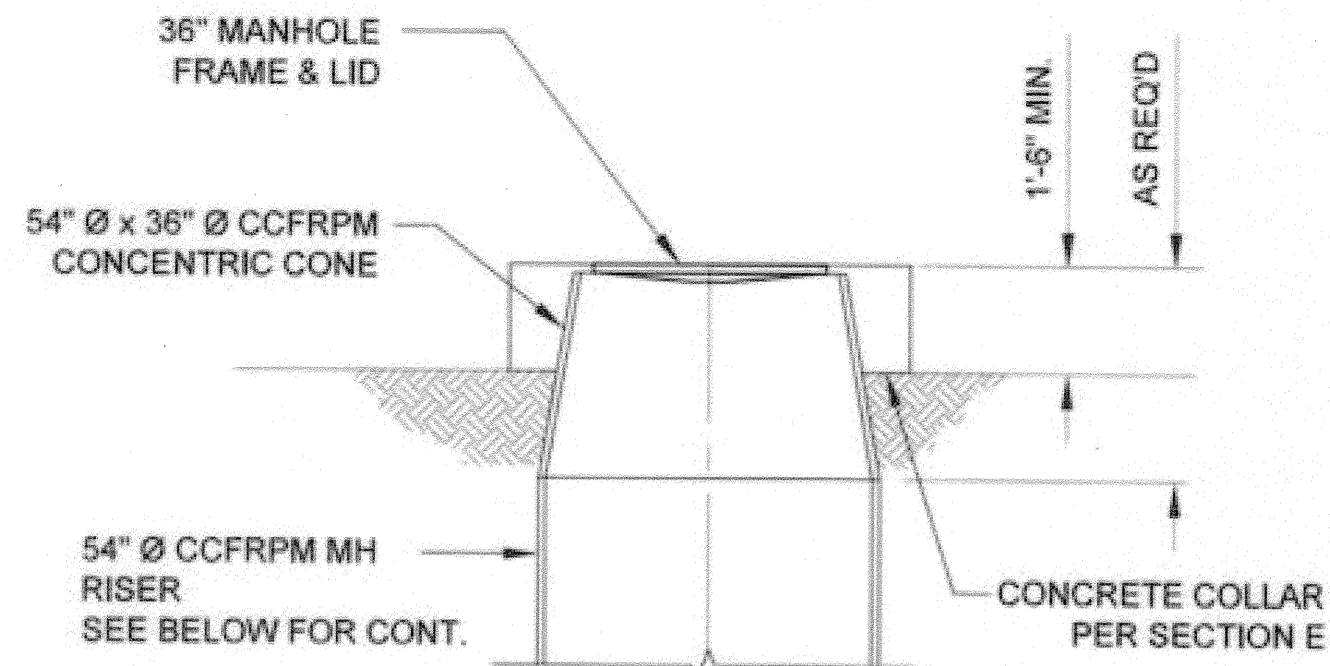
MISCELLANEOUS DETAILS

ACCT. NO.: 9799123  
S-2089  
28 OF 35  
SHEET

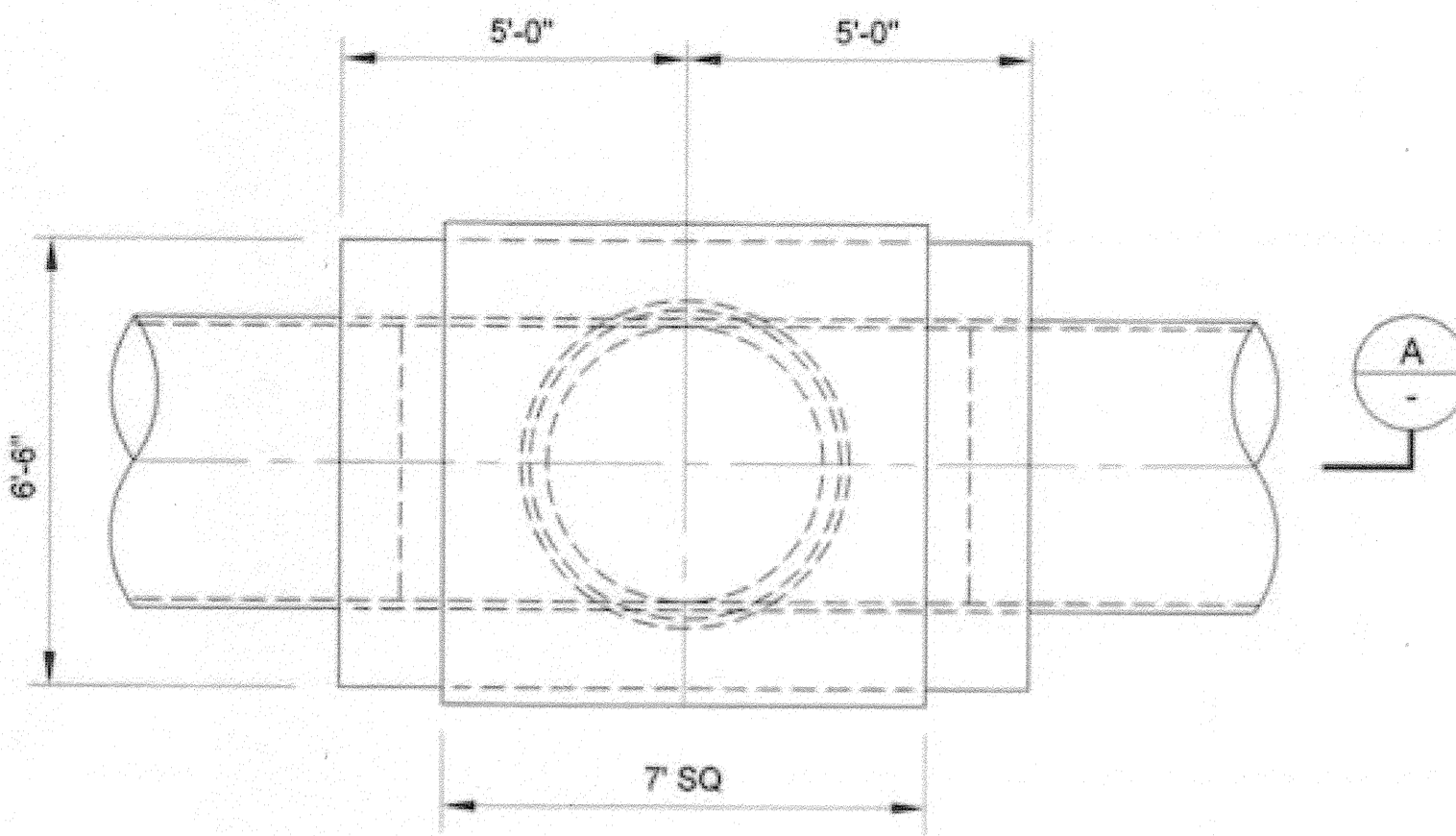
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FILE NO. SARTS\_SHT28.DWG

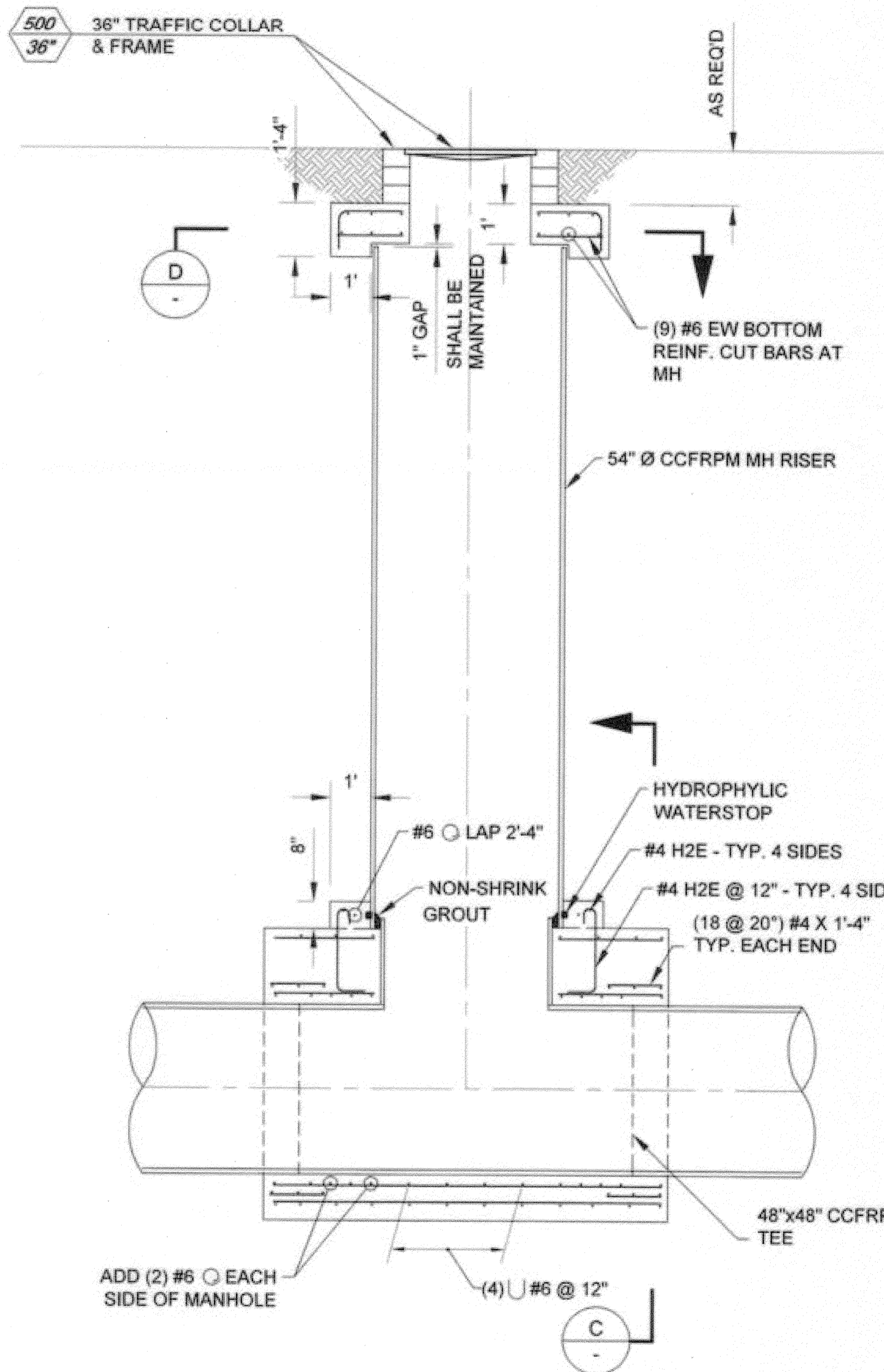
# AS-BUILT



**NON - TRAFFIC CONDITION**  
(SEE PLAN & PROFILES FOR LOCATIONS)

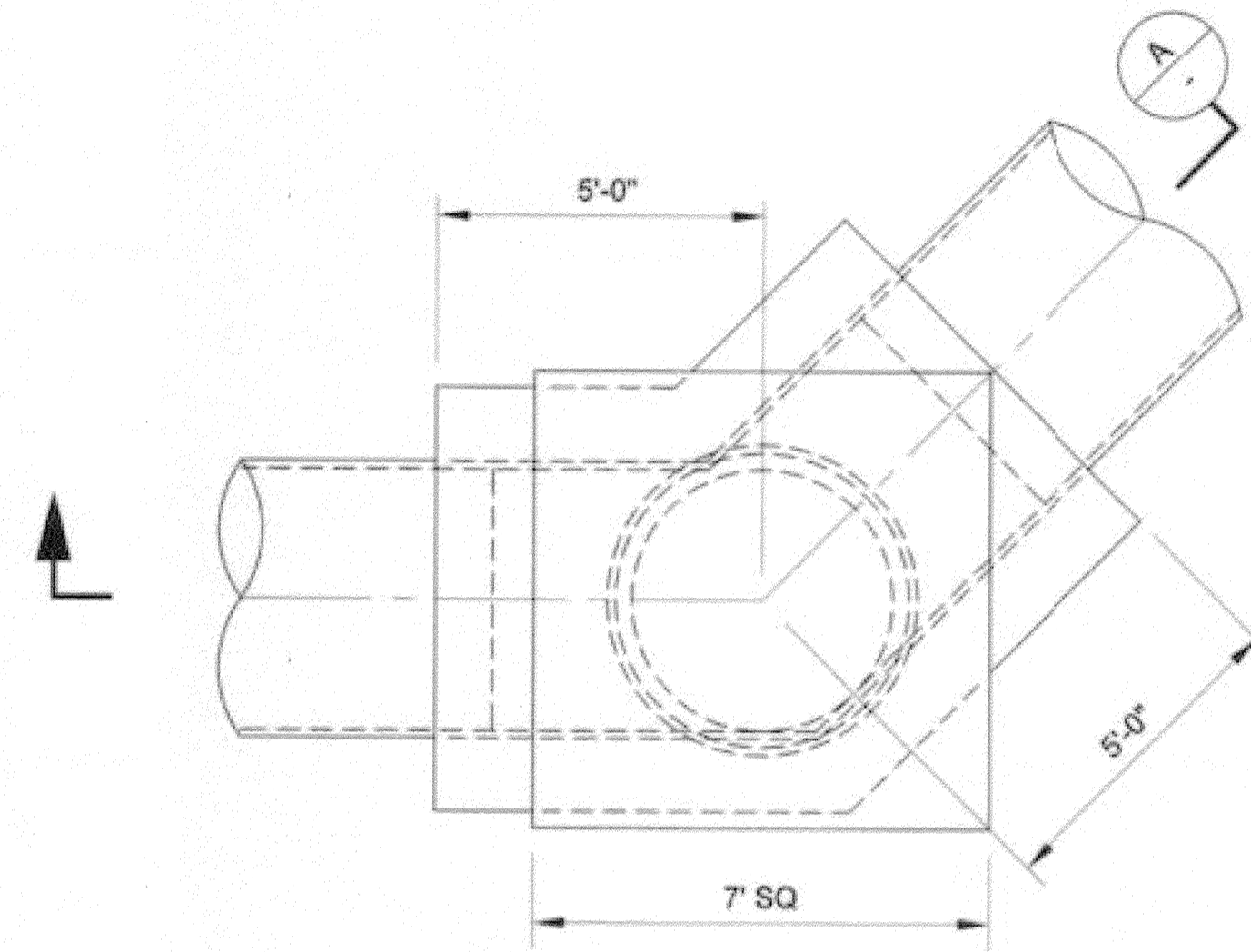


**MANHOLE WITHIN STRAIGHT RUN - PLAN**

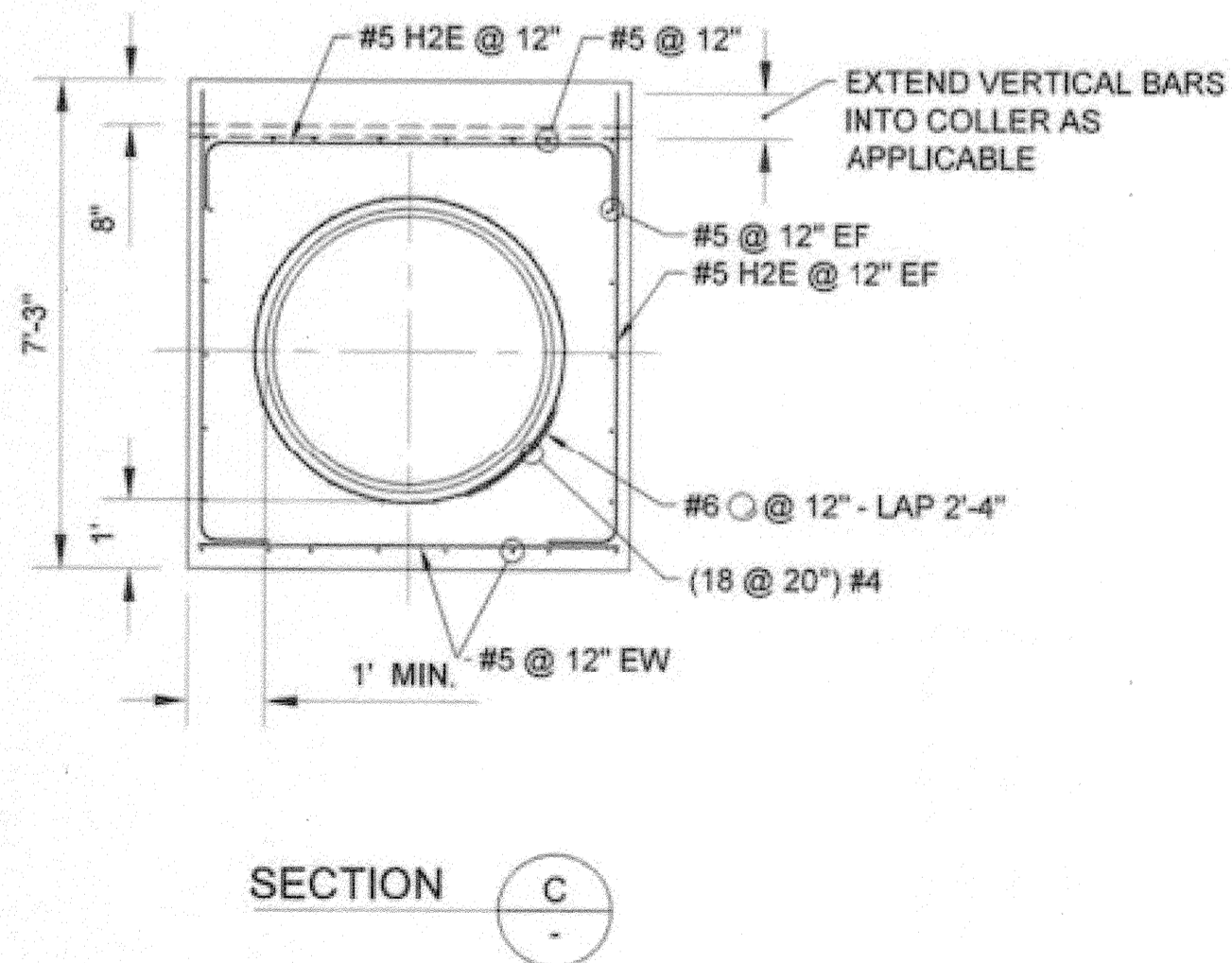


**SECTION (TRAFFIC CONDITION)**  
(SEE PLAN & PROFILES FOR LOCATIONS)

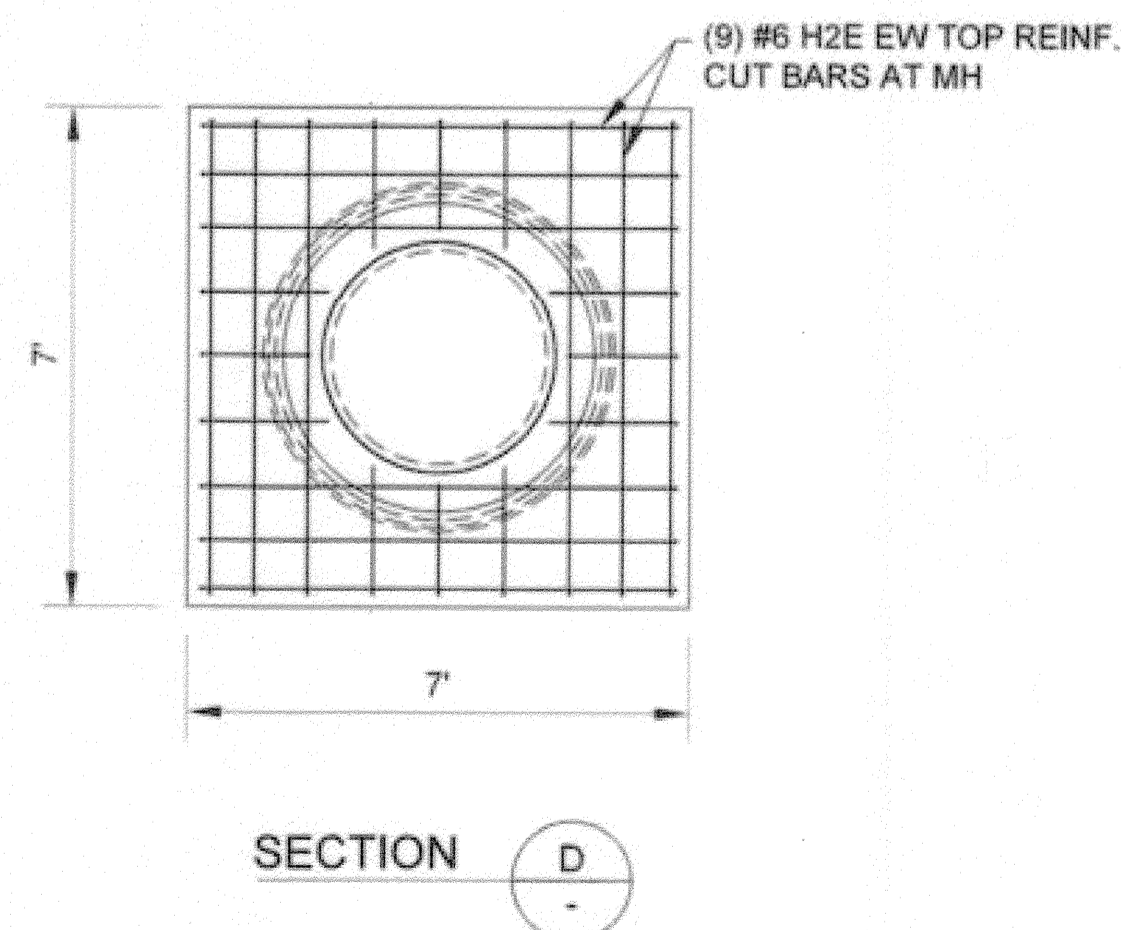
TYP. CCFRPM MANHOLE DETAIL  
SCALE: 3/8" = 1'-0"



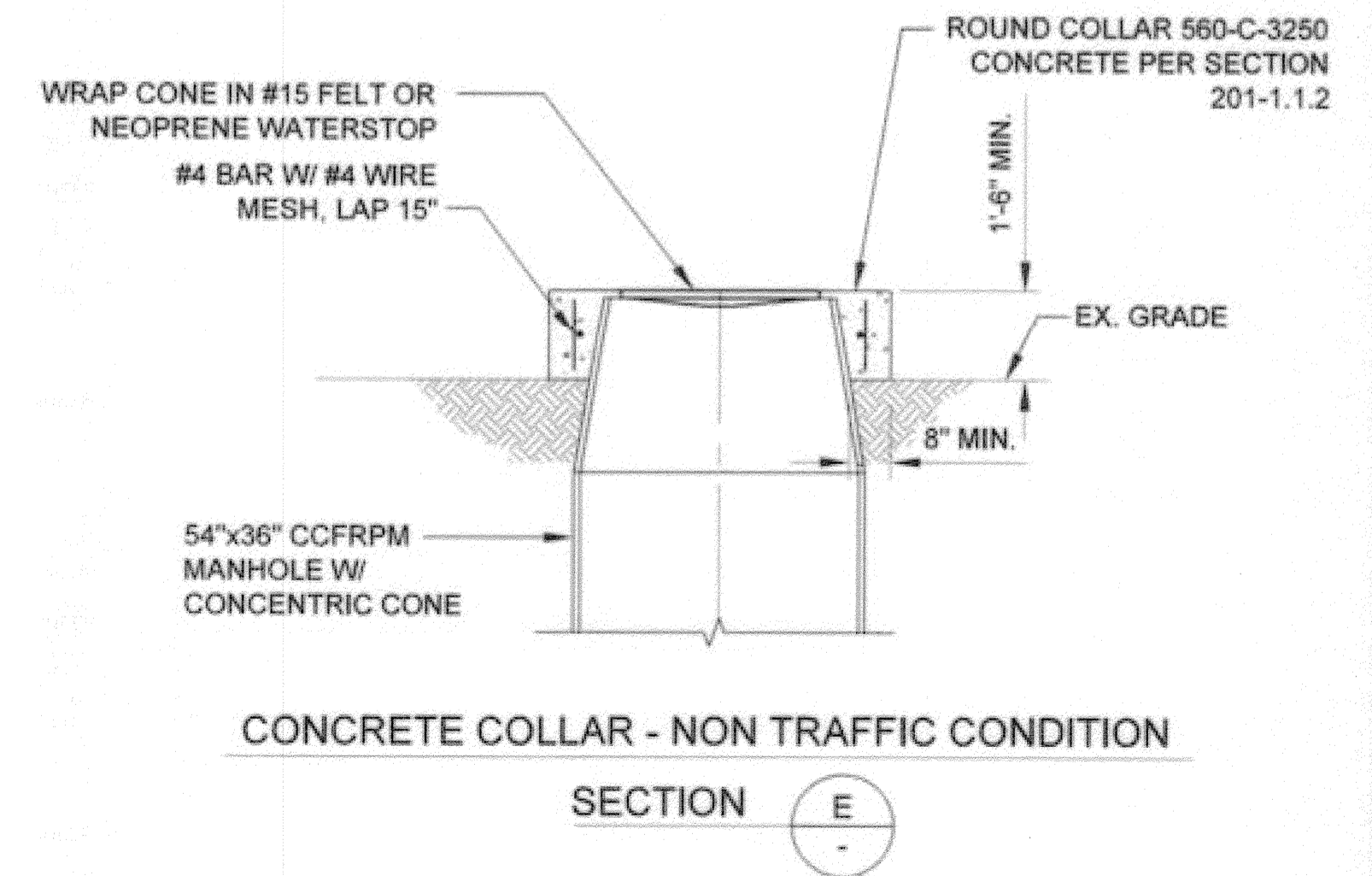
**MANHOLE AT HORIZONTAL DEFLECTION - PLAN**



**SECTION C**



**SECTION D**



**CONCRETE COLLAR - NON TRAFFIC CONDITION**  
**SECTION E**

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**BROWN AND CALDWELL**  
SAN DIEGO, CALIFORNIA

ENGINEER IN RESPONSIBLE CHARGE:  
*Wade O. Buzg*  
REGISTERED CIVIL ENGINEER No. C-36183  
DATE: 11-22-13

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

APPROVED BY: [Signature]  
DATE: 11/14/2013  
CITY ENGINEER

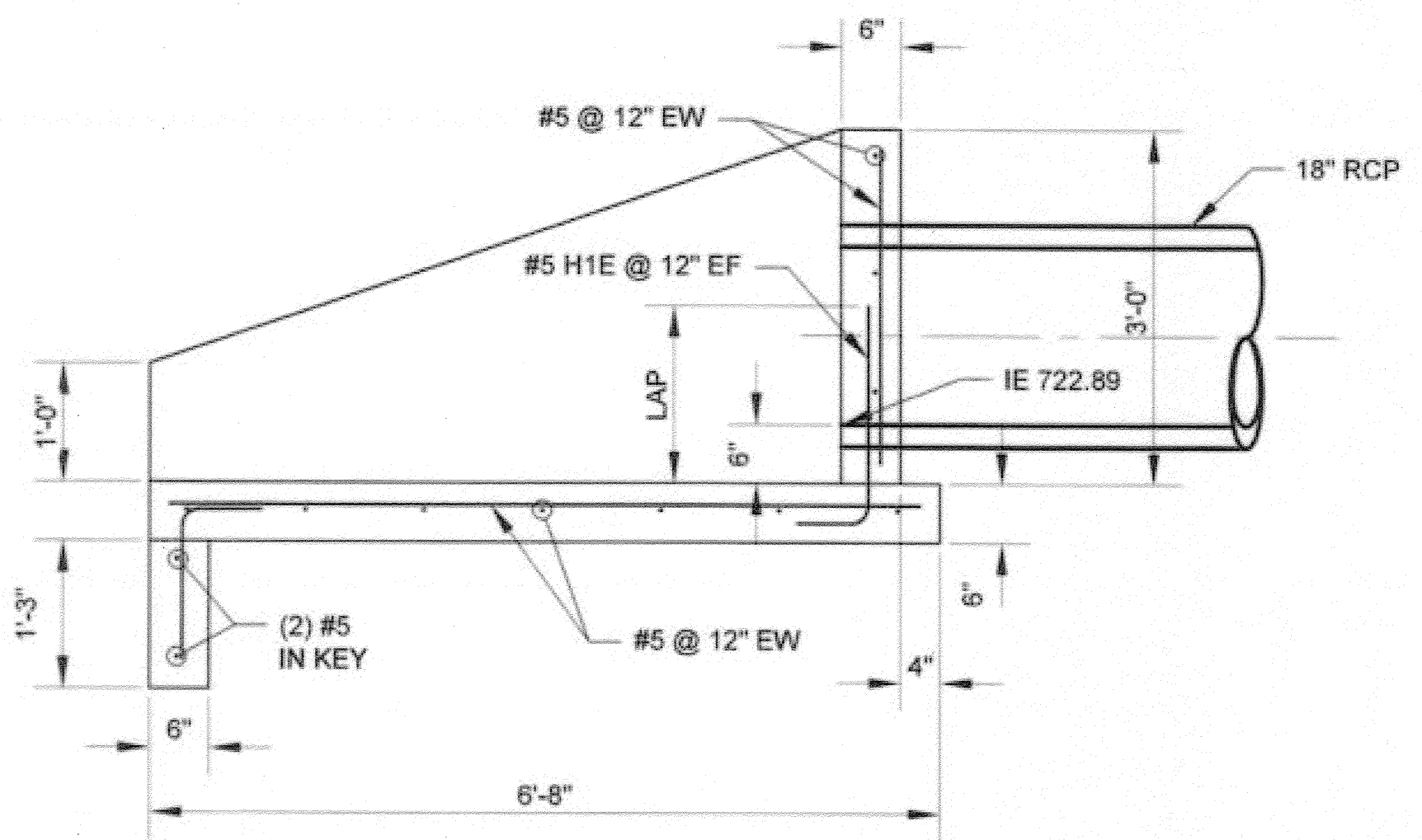
**SANTA ANA RIVER TRUNK**  
**SEWER REPLACEMENT - PHASE II**

CCFRPM MANHOLE DETAILS

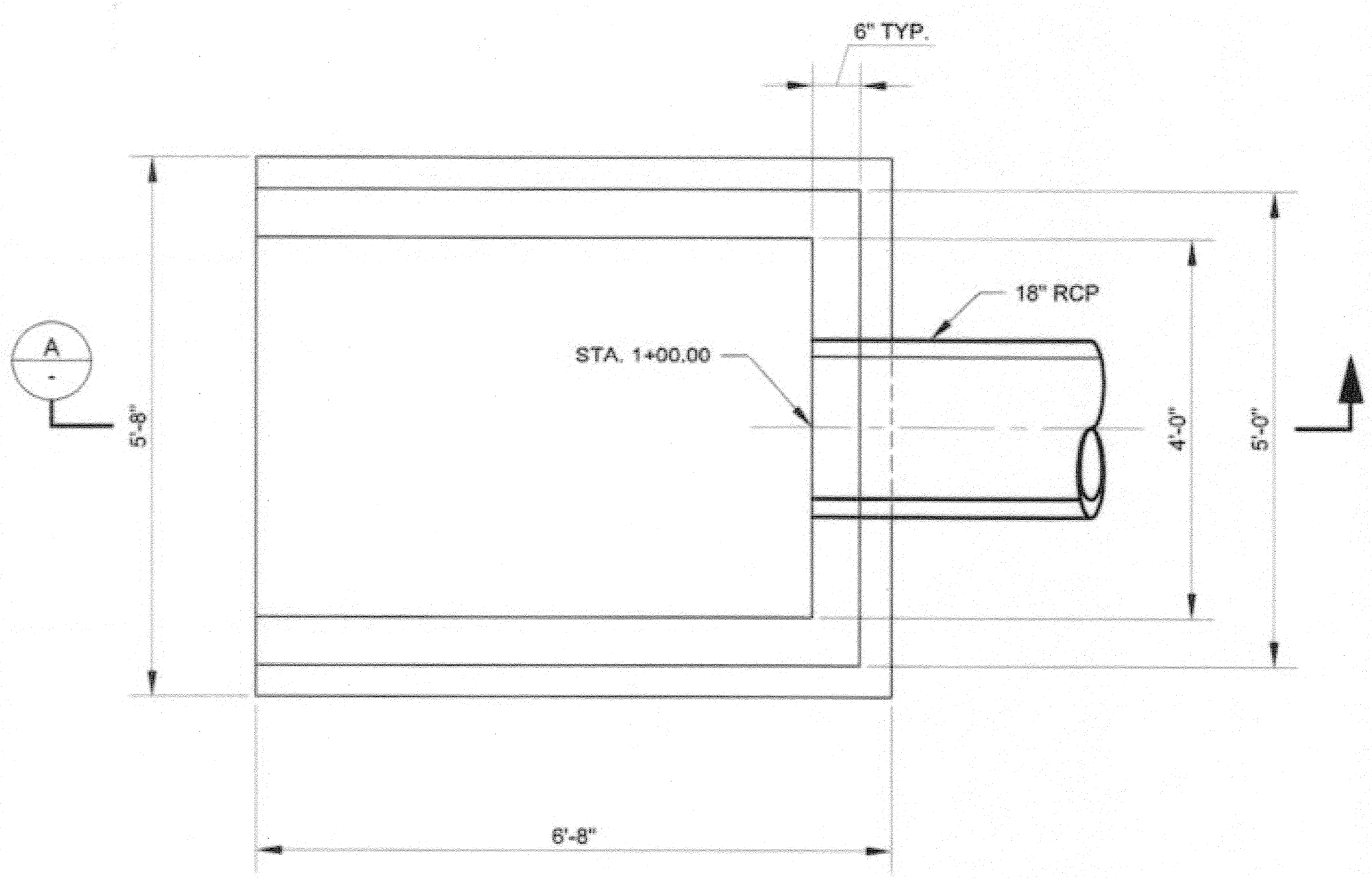
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**S-2089**  
**29 35**  
SHEET OF

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

FILE NO. SARTS\_SHT29.DWG



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

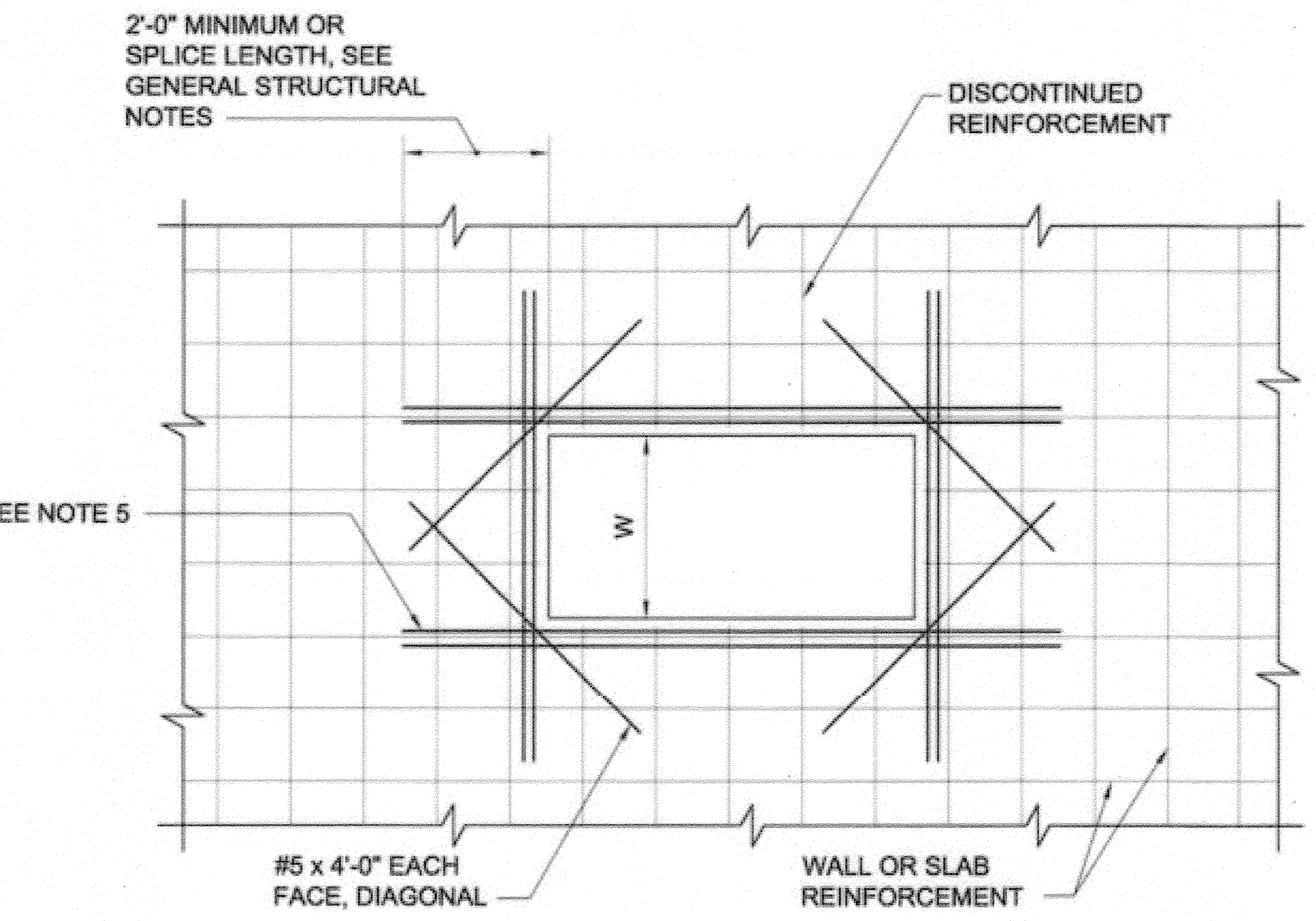
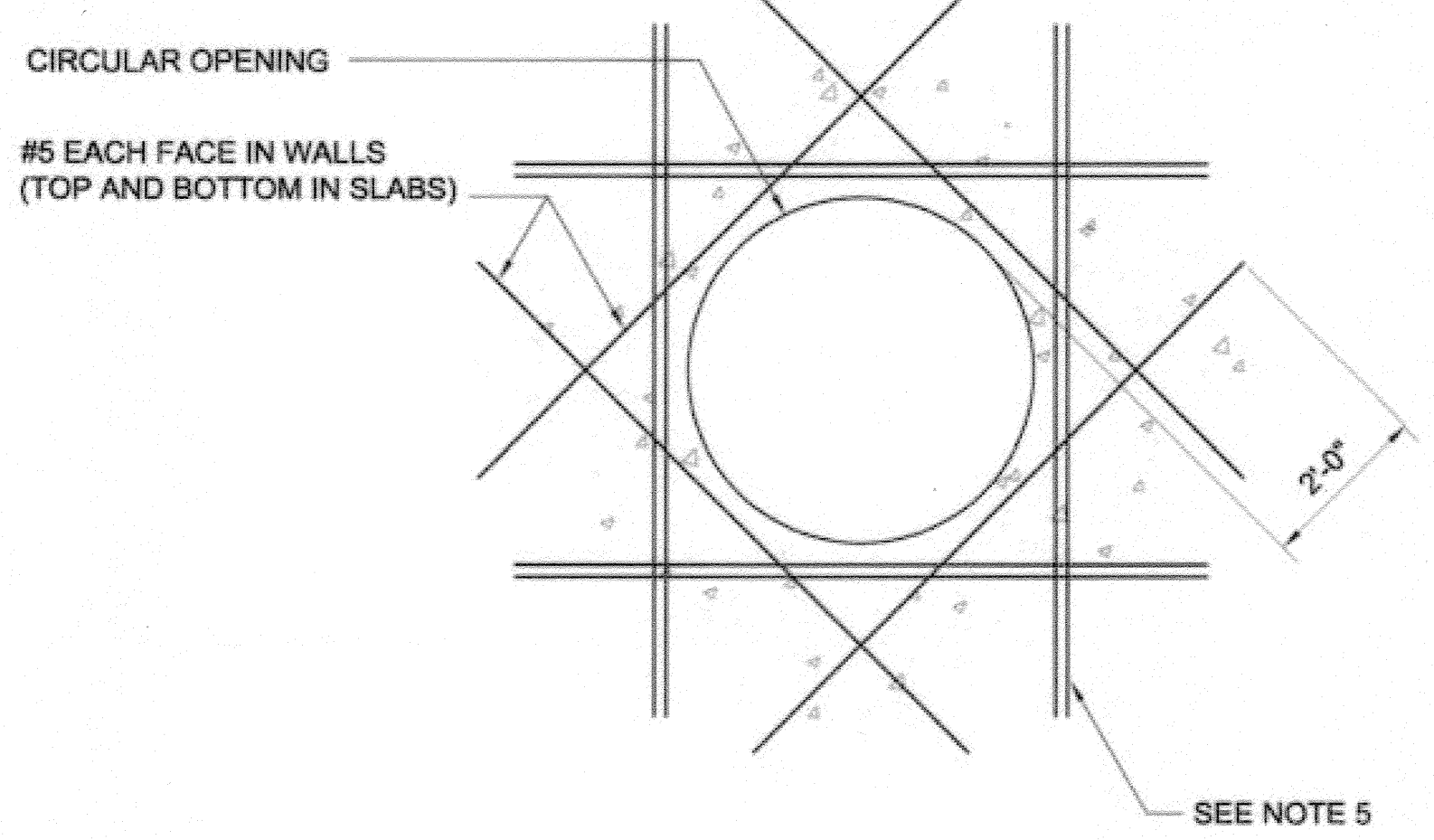


PLAN

STORM DRAIN OUTLET STRUCTURE  
SCALE: 3/4" = 1'-0"

**AS-BUILT**

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



- NOTES:
- THIS DETAIL APPLIES TO UP TO 3'-0" MAXIMUM DIMENSION FOR RECTANGULAR OPENINGS AND UP TO 3'-0" DIAMETER FOR CIRCULAR OPENINGS.
  - AT OPENINGS 18" OR LESS, NO ADDITIONAL REINFORCEMENT IS REQUIRED UNLESS NOTED OTHERWISE. REINFORCEMENT SHALL BE SPREAD TO ALLOW FOR OPENING.
  - OPENINGS ARE NOT ALL SHOWN ON STRUCTURAL DRAWINGS. PROVIDE OPENINGS IN ACCORDANCE WITH ARCHITECTURAL, MECHANICAL AND OTHER CONTRACT DRAWINGS.
  - ADDITIONAL REINFORCEMENT MAY BE OMITTED ONLY WHERE OPENING IS FRAMED BY BEAMS OR WALLS.
  - 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: NONE

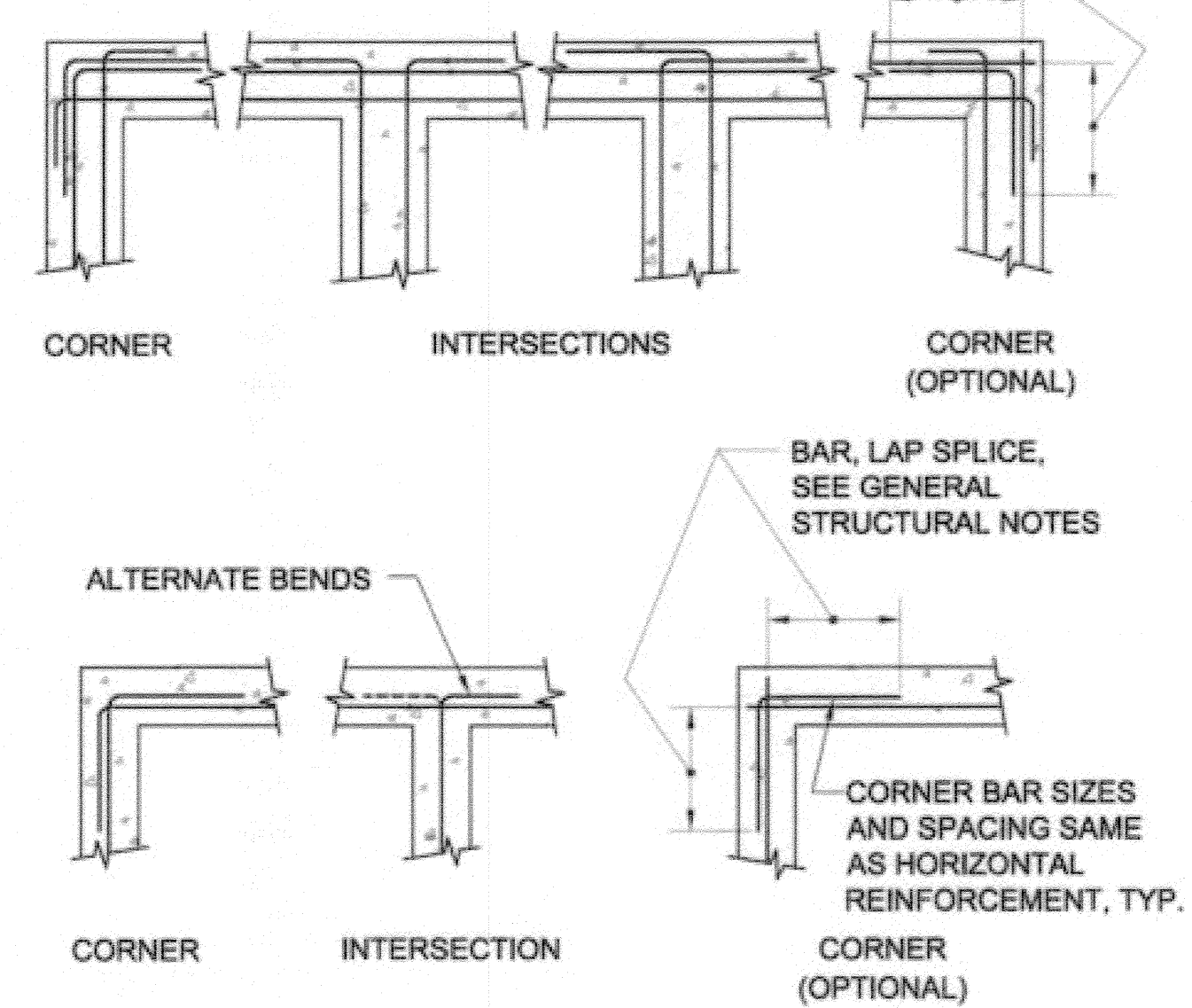
**CONCRETE NOTES:**

- 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.

**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.

**BAR, LAP SPLICE, SEE GENERAL STRUCTURAL NOTES**



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

STEEL REINFORCEMENT  
AT WALL INTERSECTIONS  
SCALE: NONE



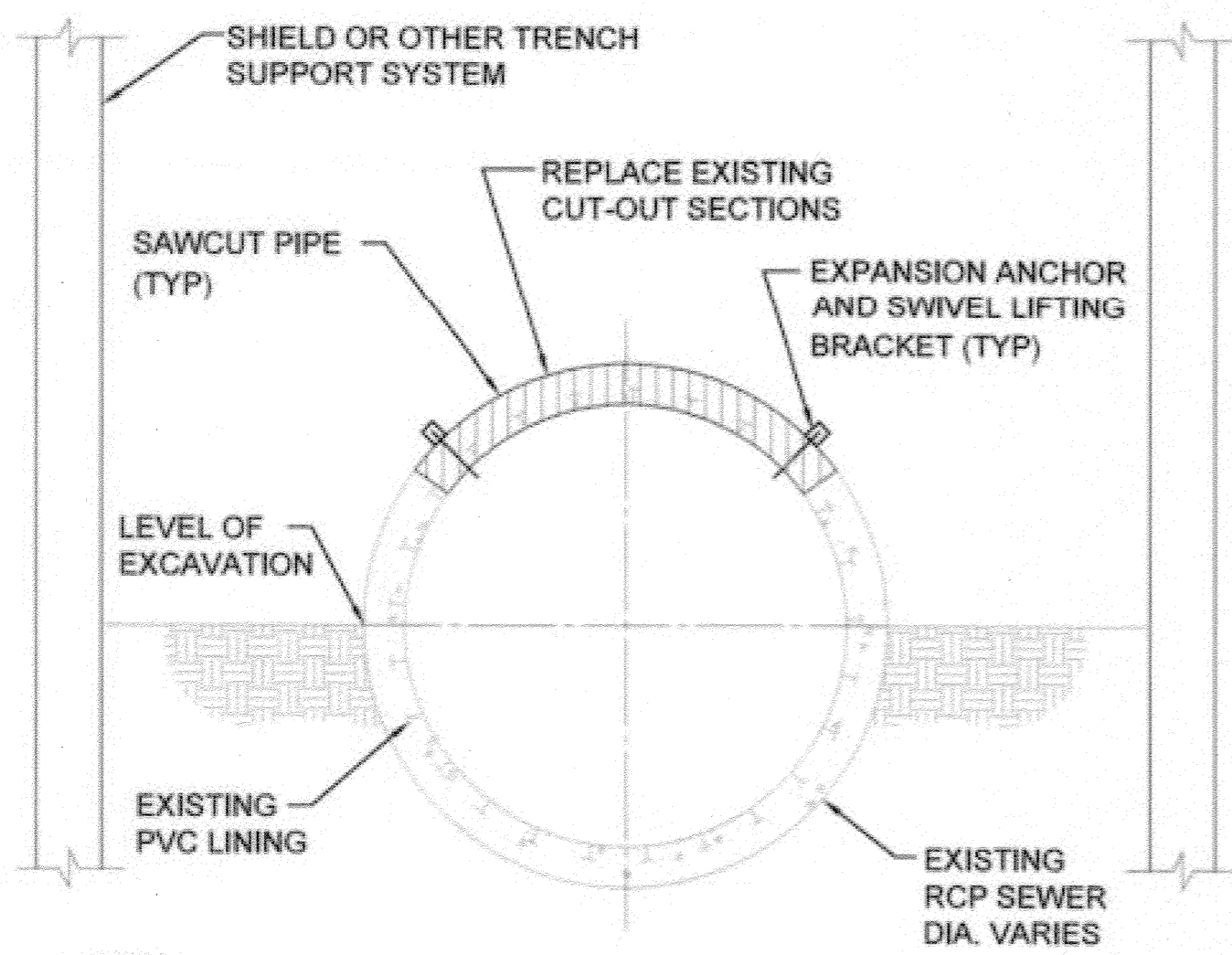
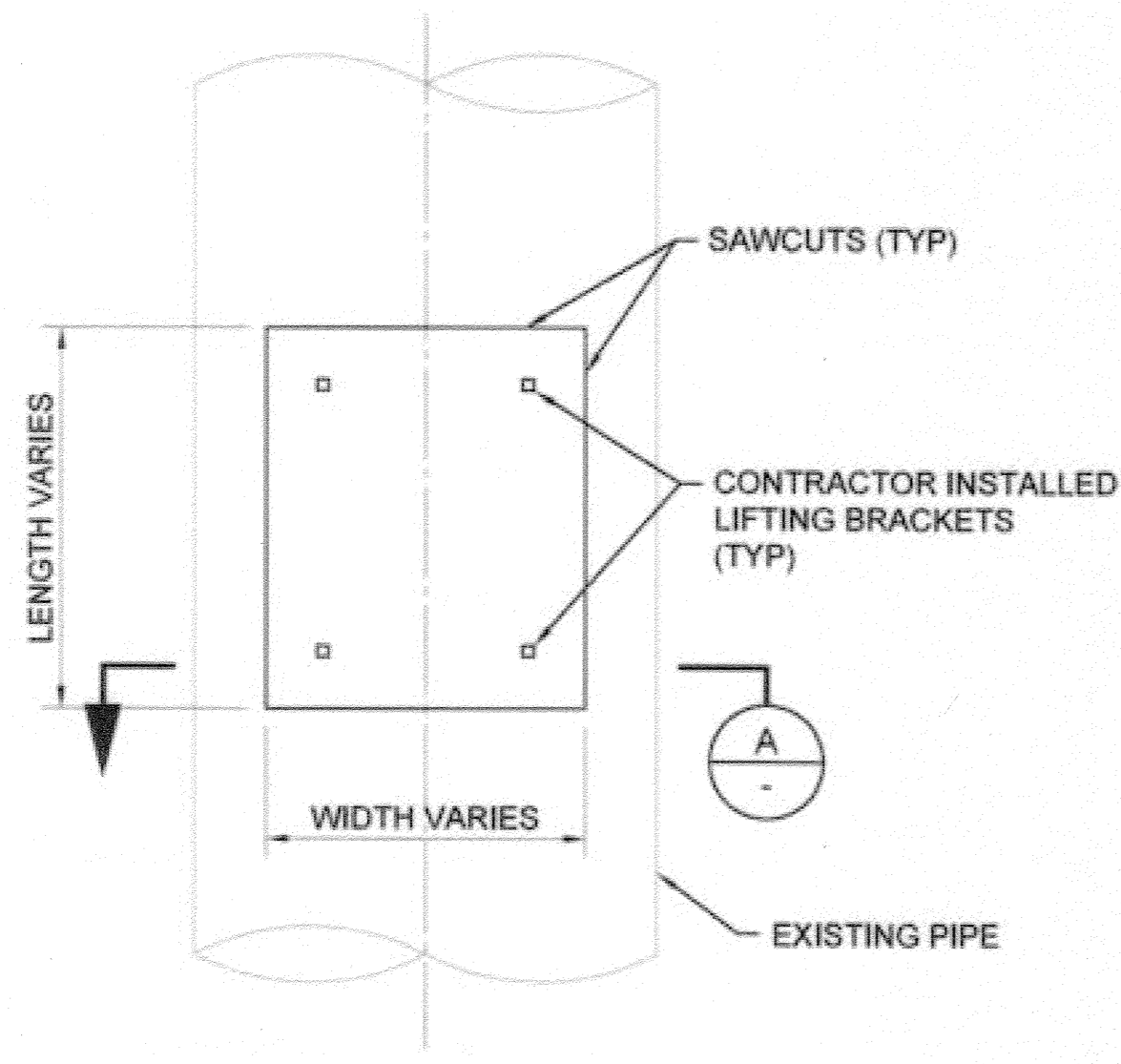
**BROWN AND CALDWELL**  
SAN DIEGO, CALIFORNIA  
ENGINEER IN RESPONSIBLE CHARGE:  
*Mark O. Buehler*  
REGISTERED CIVIL ENGINEER No. C-36183  
DATE: 11-22-13

**CITY OF RIVERSIDE, CALIFORNIA**  
PUBLIC WORKS DEPARTMENT  
APPROVED BY: *[Signature]* DATE: 11/14/2015  
INSPECTOR: *[Signature]* DATE: 11/14/2015

**SANTA ANA RIVER TRUNK**  
SEWER REPLACEMENT- PHASE II  
STORM DRAIN OUTLET DETAILS

ACCT. NO.: 9799123  
S-2089  
30 OF 35 SHEET  
FILE NO. SARTS\_SHT30.DWG

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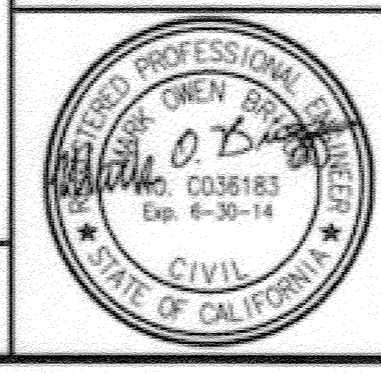


- NOTES:**
1. PROVIDE EXPANSION ANCHORS AND LIFTING BRACKETS FOR REMOVAL OF TOP SECTION OF PIPE.
  2. CONTRACTOR SHALL DETERMINE THE NUMBER OF LIFTING BRACKETS REQUIRED BASED ON THE CONDITION OF THE EXISTING PIPE AND SIZE OF SECTION OF PIPE TO BE REMOVED.
  3. REPLACE PIPE SECTIONS TO ORIGINAL LOCATIONS PER REPLACEMENT DETAILS 2/SHEET 33.
  4. REMOVE EXCESS GROUNDWATER PER SPECIFICATION SECTION 306-3.7.

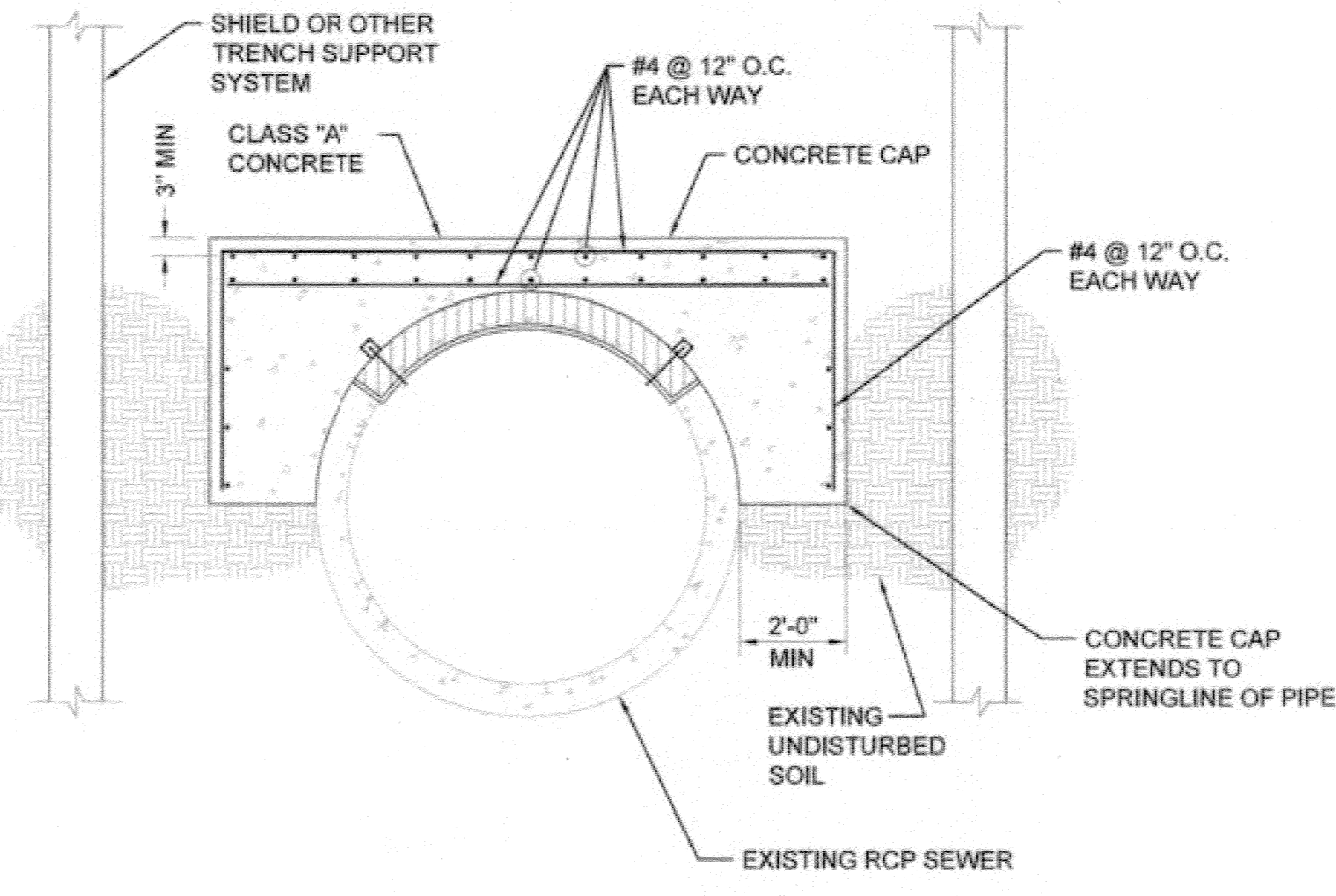
SECTION A  
SCALE: NONE

TOP OF PIPE REMOVAL DETAIL 1  
SCALE: NONE

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

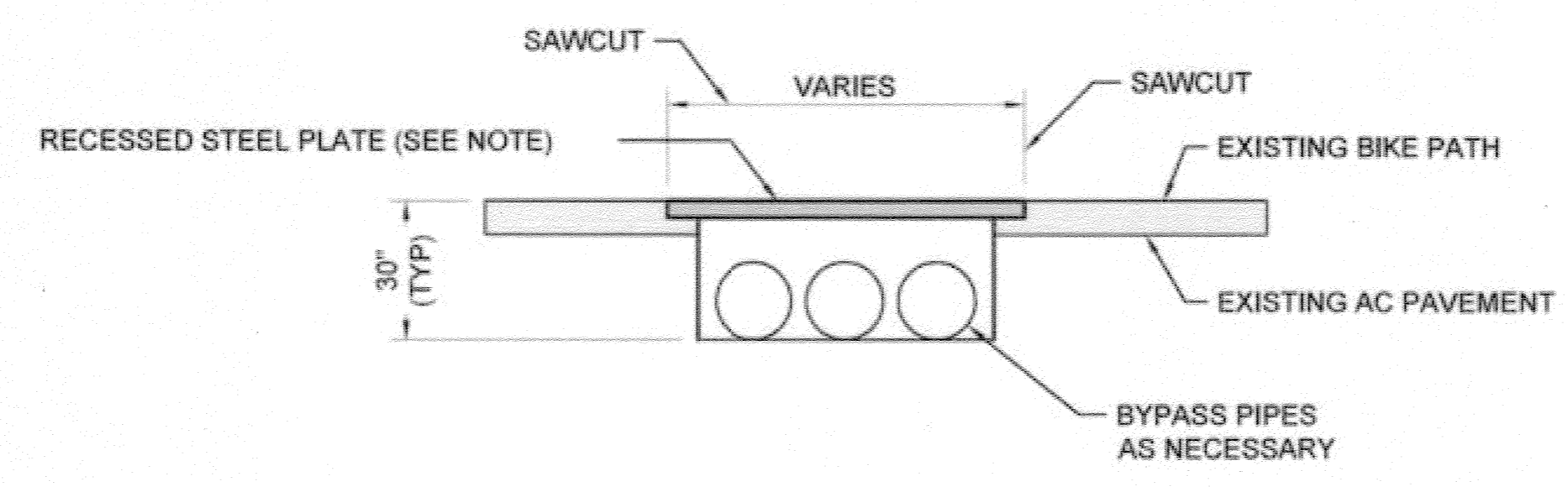


**BROWN AND CALDWELL**  
SAN DIEGO, CALIFORNIA  
ENGINEER IN RESPONSIBLE CHARGE: *Mark O. Baig*  
REGISTERED CIVIL ENGINEER No. C-36183  
DATE: 11-22-13



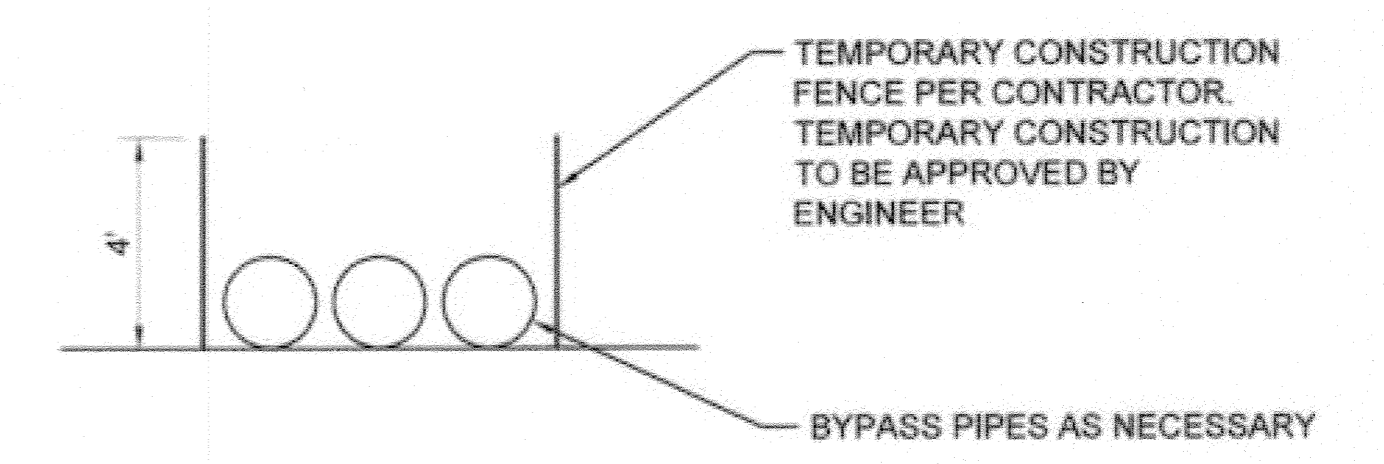
- NOTE:**
1. CONCRETE CAP SHALL EXTEND 2- FEET BEYOND END OF PIPE SECTION REMOVED.

TOP OF PIPE REPLACEMENT DETAIL 2  
SCALE: NONE



- NOTE:**
- TEMPORARY PAVEMENT MAY BE ALLOWED AS APPROVED BY CITY OF RIVERSIDE PUBLIC WORKS.

TYPICAL TRENCH DETAIL 3  
SCALE: NONE



CONSTRUCTION FENCE DETAIL 4  
SCALE: NONE

**AS-BUILT**

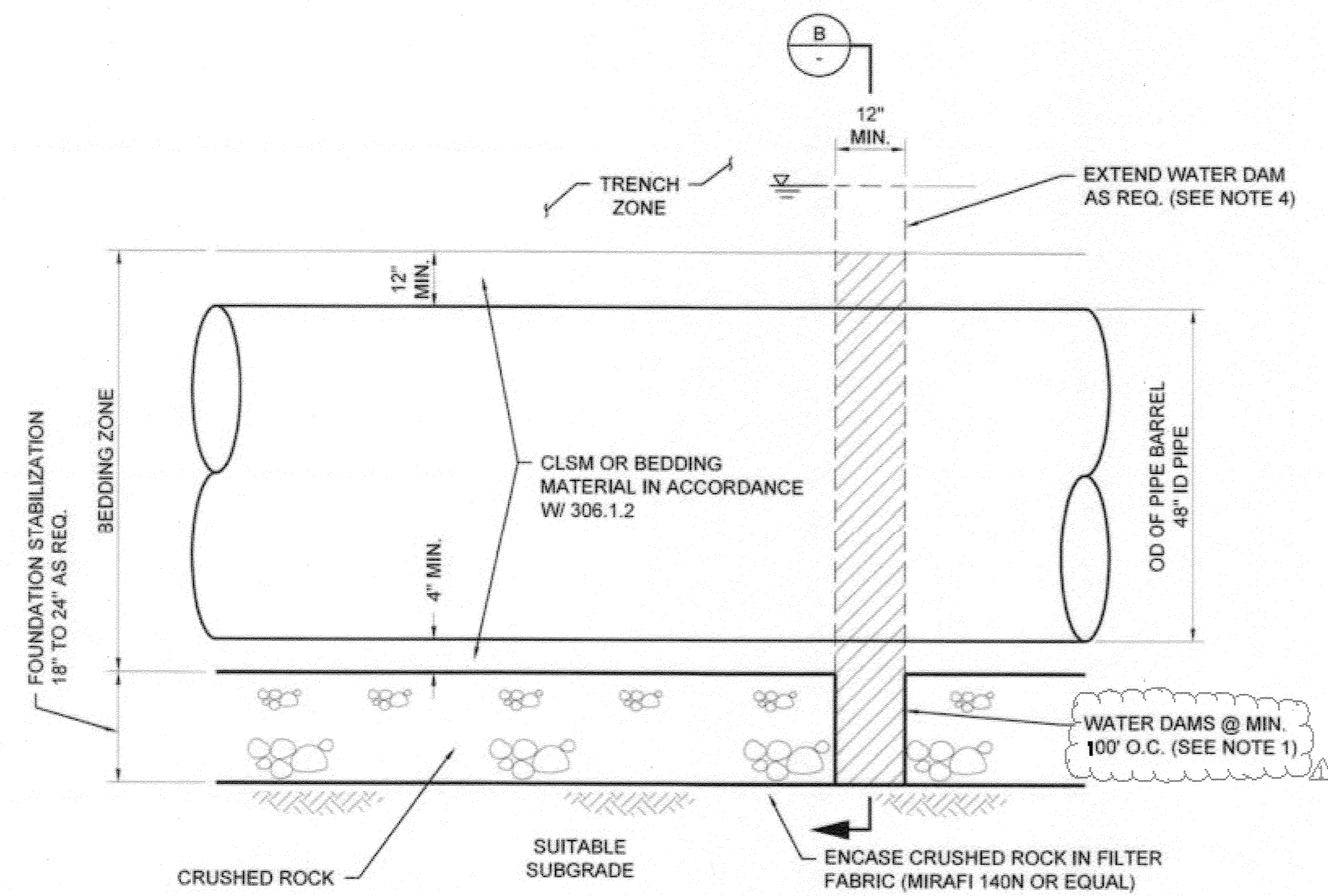
CITY OF RIVERSIDE, CALIFORNIA  
PUBLIC WORKS DEPARTMENT  
APPROVED BY: [Signature] DATE: 11/16/2015  
INSPECTOR: [Signature] DATE: 11/16/2015

SANTA ANA RIVER TRUNK  
SEWER REPLACEMENT- PHASE II  
BYPASS DETAILS  
HORIZ. SCALE: AS NOTED VERT. SCALE: AS NOTED

ACCT. NO.: 9799123  
S-2089  
SHEET 31 OF 35  
FILE NO. SARTS\_SHT31.DWG

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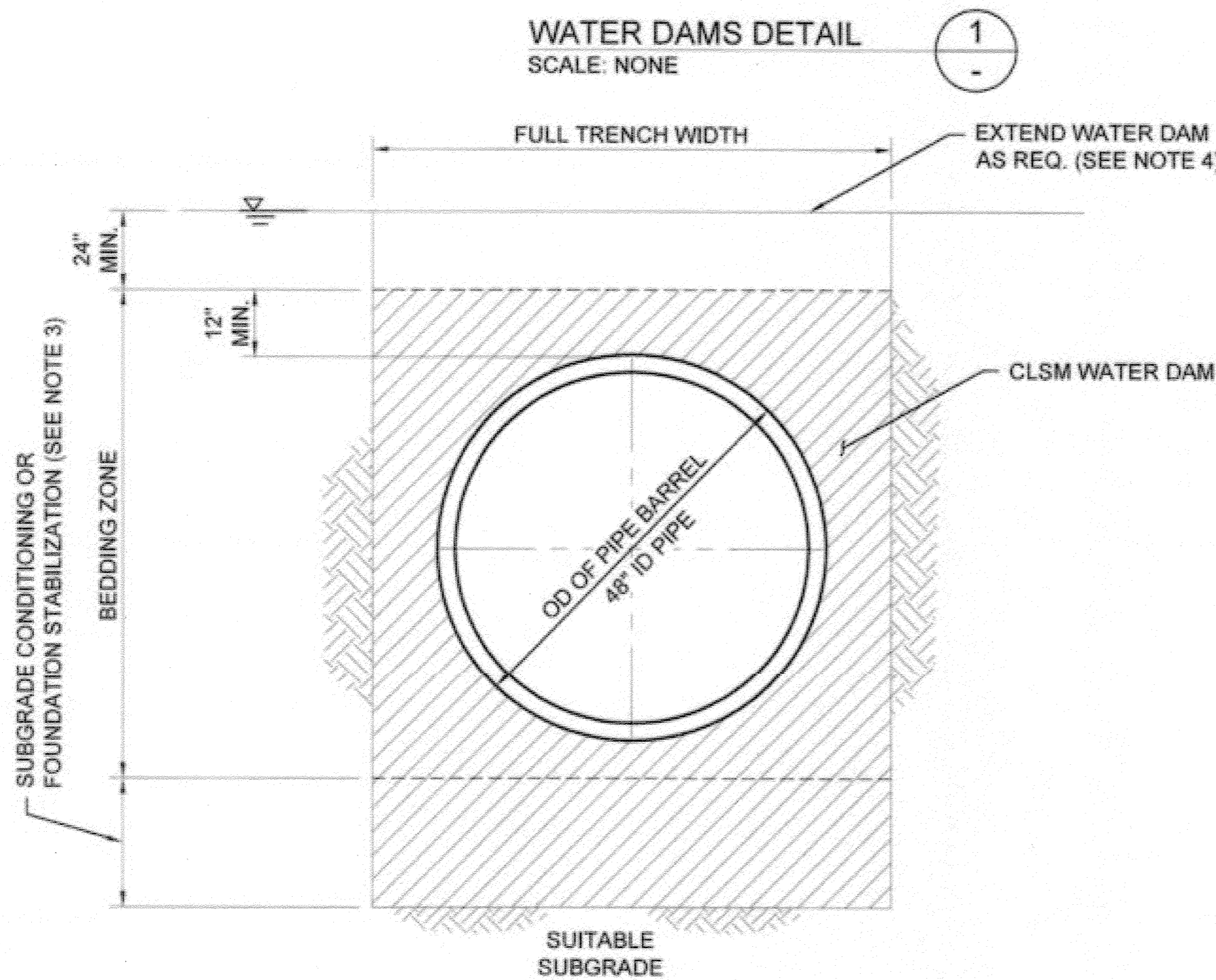
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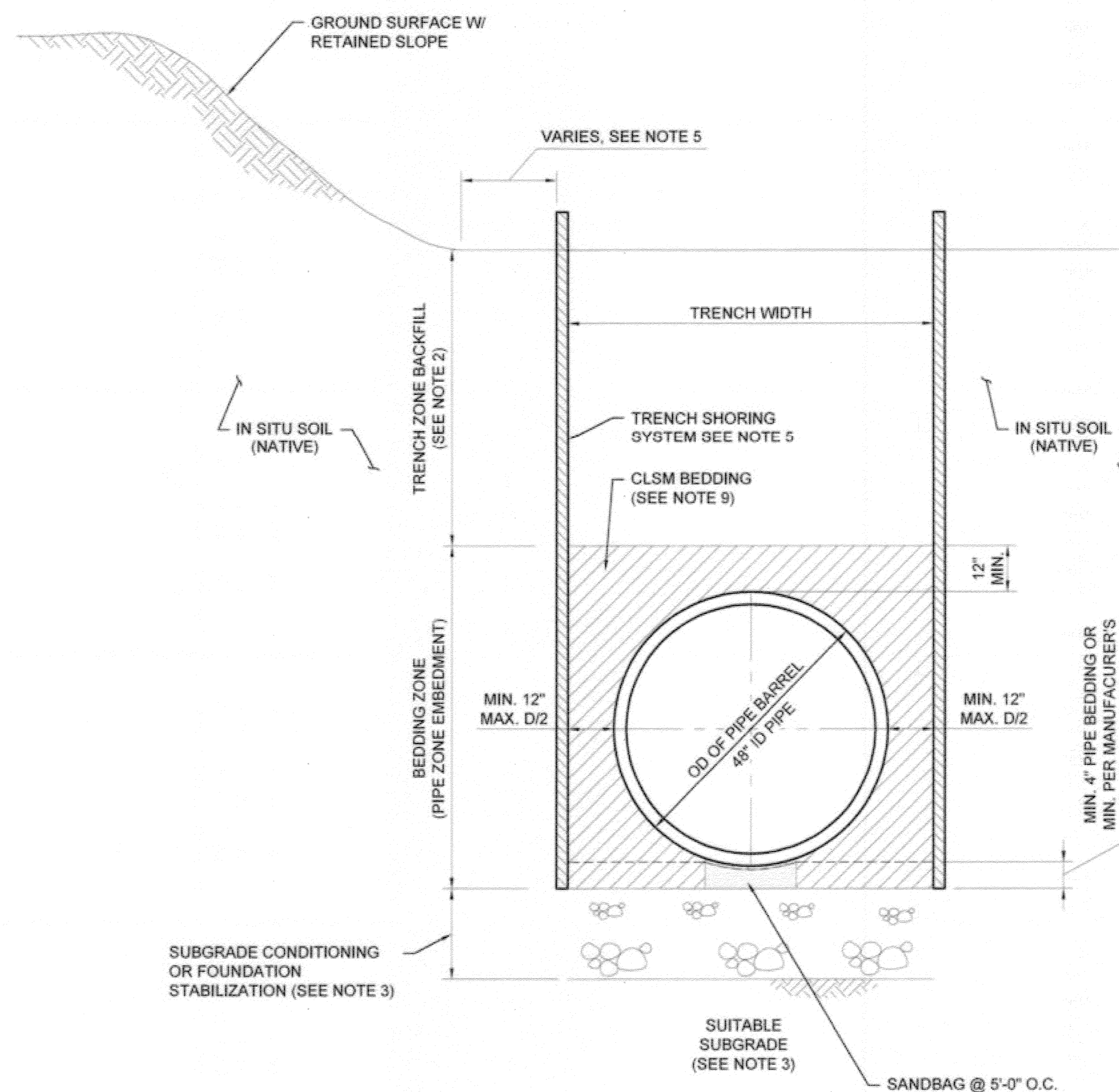
**WATER DAM NOTES:**

1. WATER DAMS SHALL BE INSTALLED ALONG THE TRENCH AT 100 FOOT INTERVALS UNLESS OTHERWISE DIRECTED.
2. WATER DAMS SHALL BE CONSTRUCTED OF A 1 FOOT NOMINAL THICKNESS OF CLSM.
3. WATER DAMS SHALL EXTEND THE FULL WIDTH OF THE TRENCH.
4. WATER DAMS SHALL EXTEND FROM THE TOP OF THE SUITABLE SUBGRADE TO A HEIGHT EQUAL TO THE TOP OF THE ESTABLISHED WATER TABLE OR 2 FEET ABOVE THE TOP OF THE PIPE, WHICHEVER IS GREATER. WHERE THE PIPE IS BEDDED IN CLSM, WATER DAMS SHALL EXTEND TO SUITABLE SUBGRADE.

**WATER DAMS DETAIL**  
SCALE: NONE



SCALE: NONE



**OPEN CUT TRENCH SECTION**  
STA. 91+93.31 TO 135+00  
SCALE: NONE

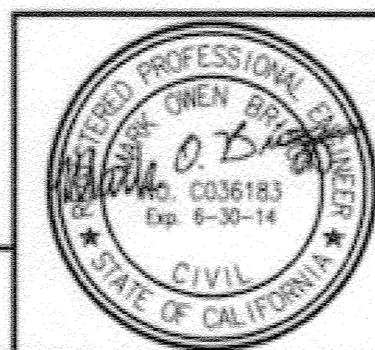
6,7,8,9,10

**TRENCH NOTES:**

1. INSTALL 48" CCFRPM BY CUT & COVER IN ACCORDANCE WITH DETAILS A/32, A/33 AND B/33 AS SHOWN.
2. BEDDING AND BACKFILL SHALL CONFORM TO SECTION 306 UNDERGROUND CONDUIT CONSTRUCTION AND AS MODIFIED BY THE SPECIAL PROVISIONS.
3. REMOVE GROUNDWATER TO A MINIMUM LEVEL TWO (2) FEET BELOW THE PIPE INVERT. THE TRENCH SUBGRADE SHALL BE OBSERVED AND TESTED TO DETERMINE ITS SUITABILITY FOR PLACEMENT OF THE BEDDING MATERIAL.  
  
IF SO DIRECTED, THE SUBGRADE SHALL BE SCARIFIED TO A DEPTH OF 6-8 INCHES BELOW THE BEDDING ZONE. THE MATERIAL SHALL BE CONDITIONED TO 2% OF OPTIMAL MOISTURE CONTENT AND MECHANICALLY COMPACTED TO A MINIMUM 90% OF MAXIMUM DRY DENSITY (ASTM D1557).  
  
IF SO DIRECTED, THE SUBGRADE SHALL BE REMOVED BY OVER EXCAVATING 18-24 INCHES BELOW THE BEDDING ZONE. THE OVER EXCAVATED AREA SHALL BE LINED WITH A FILTER FABRIC AS SHOWN IN DETAIL 1 AND A CRUSHED ROCK SHALL BE PLACED AND MECHANICALLY COMPACTED AND FULLY ENCAPSULATED IN FILTER FABRIC. CRUSHED ROCK SHALL CONFORM TO THE REQUIREMENTS OF SECTION 200-1.2 AND TABLE 306-1.2.1.3 (B).  
  
WHEN THE PIPE IS INSTALLED BELOW THE GROUNDWATER TABLE, WATER DAMS SHALL BE INSTALLED AS CALLED FOR IN DETAIL 1.
4. PROTECT IN PLACE EXISTING 33", 36" AND/OR 39" SANITARY SEWER. ALIGNMENT AND OFFSET VARIES (NOT SHOWN).
5. THE MINIMUM LATERAL EARTH PRESSURE TO BE USED FOR THE DESIGN OF ALL TRENCH SHORING SYSTEMS SHALL BE IN ACCORDANCE WITH DETAIL 1, SHEET 34.
6. CONTRACTOR SHALL USE MECHANICAL COMPACTION METHODS. JETTING SHALL NOT BE USED TO DENSIFY BEDDING OR BACKFILL MATERIALS.
7. NOT USED
8. JET GROUT SHALL BE DESIGNED TO RESIST HYDROSTATIC UPLIFT PRESSURE IN ADDITION TO LATERAL EARTH AND WATER PRESSURE.
9. CLSM SHALL BE POURED AGAINST UNDISTURBED NATIVE MATERIAL OR CONTRACTOR SHALL PROVIDE AN EPA OR AGENCY APPROVED BOND BREAKER BETWEEN TRENCH SUPPORT AND CLSM MATERIALS.
10. CONTRACTOR SHALL SUBMIT A DETAILED PLAN FOR PLACEMENT OF BEDDING AND REMOVAL OF TRENCH SUPPORT TO BACKFILL VOID SPACES DUE TO TRENCH SUPPORT REMOVAL.

**AS-BUILT**

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. B...*  
REGISTERED CIVIL ENGINEER No. C-36183  
DATE: 11-22-13

Revised mismatched information	3/9/15
DESIGNED BY:	DRAWN BY:
CHECKED BY:	

CITY OF RIVERSIDE, CALIFORNIA PUBLIC WORKS DEPARTMENT			
APPROVED BY:	BY:	DATE:	APPROVED BY:
ENGINEERING MANAGER	PK	11/16/15	<i>Mark O. B...</i>
PRINCIPAL ENGINEER			
TRAFFIC DIVISION			
TRANS DEPARTMENT			
DIRECTOR			
SUPERVISOR			

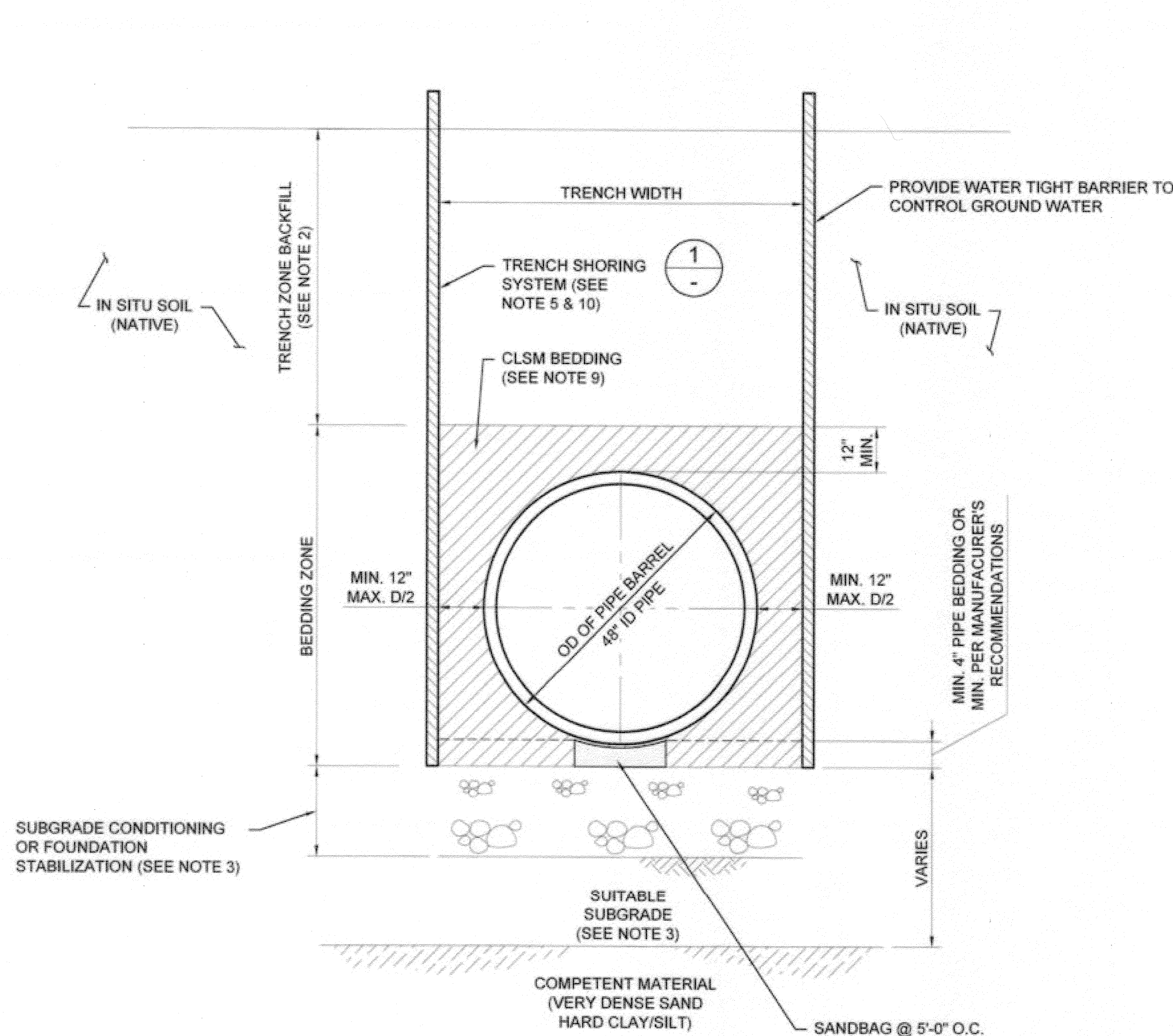
**SANTA ANA RIVER TRUNK  
SEWER REPLACEMENT- PHASE II**  
TRENCH SECTIONS - 1

ACCT. NO.: 9799123  
S-2089  
SHEET 32 OF 35  
FILE NO. SARTS\_SHT32DWG

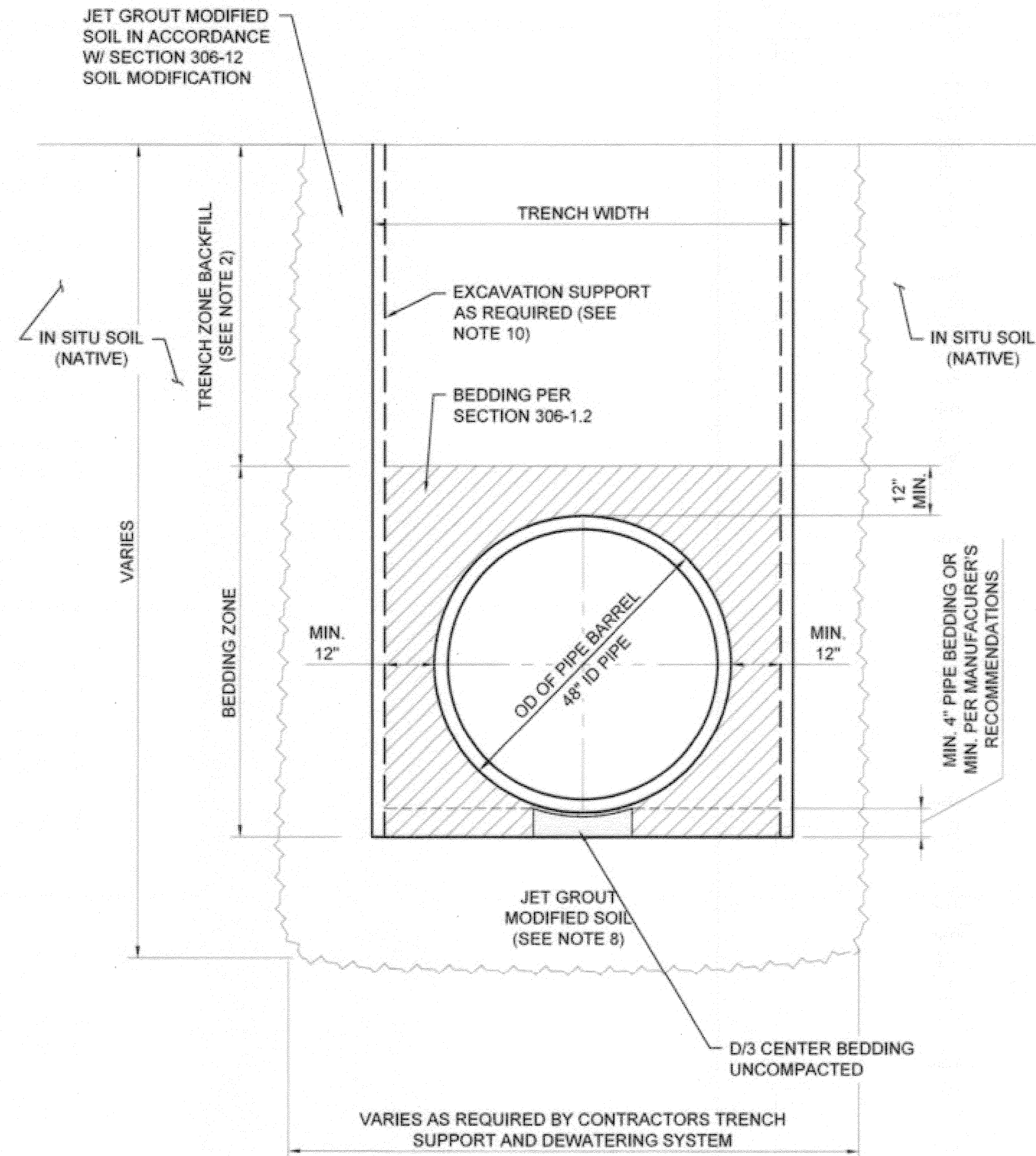
HORIZ. SCALE: AS NOTED VERT. SCALE: AS NOTED



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**SHEETING & SHORING TRENCH SECTION**  
 STA. 135+00 TO STA. 175+00  
 SCALE: NONE  
 A  
 10,11,12,13,14,15



**JET GROUTING TRENCH SECTION**  
 STA. 175+00 TO STA. 196+94  
 SCALE: NONE  
 B  
 15,16,17

- TRENCH NOTES:**
- INSTALL 48" CCFRPM BY CUT & COVER IN ACCORDANCE WITH DETAILS A/32, A/33 AND B/33 AS SHOWN.
  - BEDDING AND BACKFILL SHALL CONFORM TO SECTION 306 UNDERGROUND CONDUIT CONSTRUCTION AND AS MODIFIED BY THE SPECIAL PROVISIONS.
  - REMOVE GROUNDWATER TO A MINIMUM LEVEL TWO (2) FEET BELOW THE PIPE INVERT. THE TRENCH SUBGRADE SHALL BE OBSERVED AND TESTED TO DETERMINE ITS SUITABILITY FOR PLACEMENT OF THE BEDDING MATERIAL.  
  
IF SO DIRECTED, THE SUBGRADE SHALL BE SCARIFIED TO A DEPTH OF 6-8 INCHES BELOW THE BEDDING ZONE. THE MATERIAL SHALL BE CONDITIONED TO 2% OF OPTIMAL MOISTURE CONTENT AND MECHANICALLY COMPACTED TO A MINIMUM 90% OF MAXIMUM DIG DENSITY.  
  
IF SO DIRECTED, THE SUBGRADE SHALL BE REMOVED BY OVER EXCAVATING 18-24 INCHES BELOW THE BEDDING ZONE. THE OVER EXCAVATED AREA SHALL BE LINED WITH A FILTER FABRIC AS SHOWN IN DETAIL 1 AND A CRUSHED ROCK SHALL BE PLACED AND MECHANICALLY COMPACTED TO 90% OF MAXIMUM DIG DENSITY. CRUSHED ROCK SHALL CONFORM TO THE REQUIREMENTS OF SECTION 200-1.2 AND TABLE 306-1.2.1.3 (B).  
  
WHEN THE PIPE IS INSTALLED BELOW THE GROUNDWATER TABLE, WATER DAMS SHALL BE INSTALLED AS CALLED FOR IN DETAIL 1.
  - PROTECT IN PLACE EXISTING 33", 36" AND/OR 39" SANITARY SEWER. ALIGNMENT AND OFFSET VARIES (NOT SHOWN).
  - THE MINIMUM LATERAL EARTH PRESSURE TO BE USED FOR THE DESIGN OF ALL TRENCH SHORING SYSTEMS SHALL BE IN ACCORDANCE WITH DETAIL 1, SHEET 34.
  - CONTRACTOR SHALL USE MECHANICAL COMPACTION METHODS. JETTING SHALL NOT BE USED TO DENSIFY BEDDING OR BACKFILL MATERIALS.
  - NOT USED
  - JET GROUT SHALL BE DESIGNED TO RESIST HYDROSTATIC UPLIFT PRESSURE IN ADDITION TO LATERAL EARTH AND WATER PRESSURE.
  - CLSM SHALL BE POURED AGAINST UNDISTURBED NATIVE MATERIAL OR CONTRACTOR SHALL PROVIDE AN EPA OR AGENCY APPROVED BOND BREAKER BETWEEN TRENCH SUPPORT AND CLSM MATERIALS.
  - CONTRACTOR SHALL SUBMIT A DETAILED PLAN FOR PLACEMENT OF BEDDING AND REMOVAL OF TRENCH SUPPORT TO BACKFILL VOID SPACES DUE TO TRENCH SUPPORT REMOVAL.

**AS-BUILT**

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



**BROWN AND CALDWELL**  
 SAN DIEGO, CALIFORNIA  
 ENGINEER IN RESPONSIBLE CHARGE: *Mark O. Baig*  
 REGISTERED CIVIL ENGINEER No. C-36183  
 DATE: 11-22-13

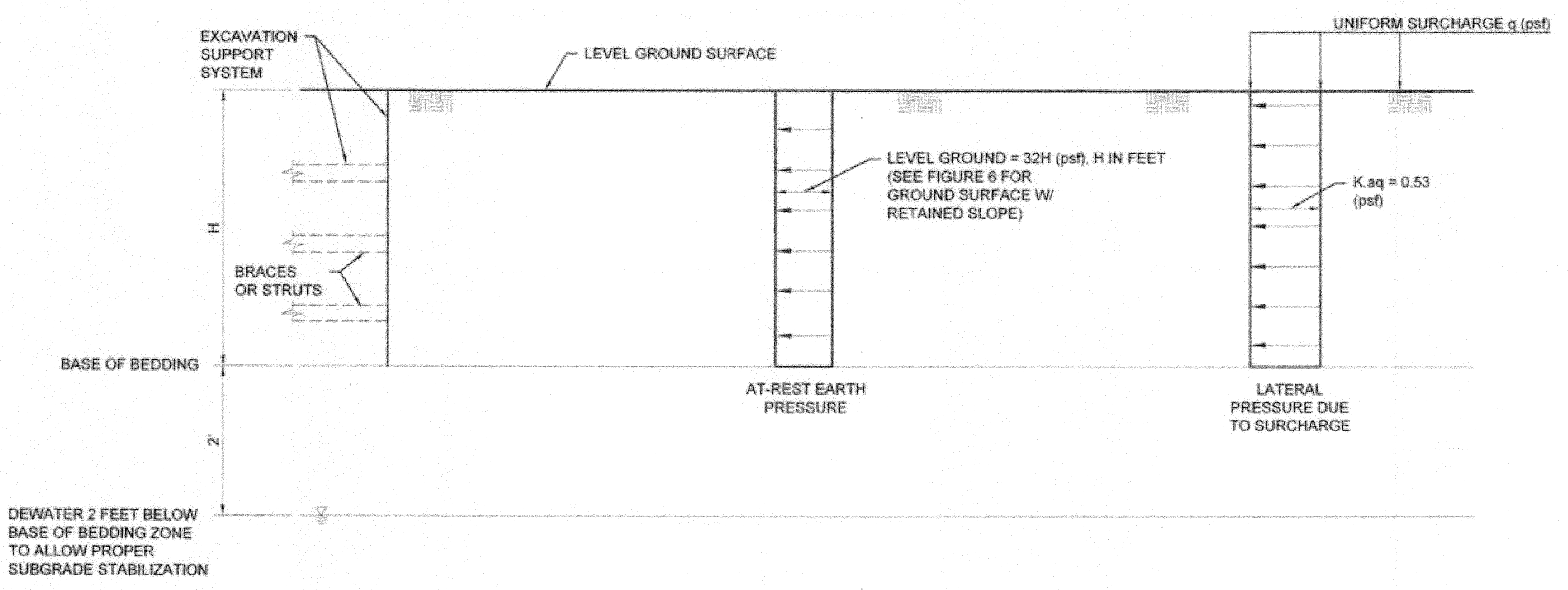
NO.	REVISIONS	APPR.	DATE

**CITY OF RIVERSIDE, CALIFORNIA**  
**PUBLIC WORKS DEPARTMENT**  
 APPROVED BY: [Signature] DATE: 11/13/15  
 TRAFFIC DIVISION  
 PUBLIC WORKS DEPARTMENT  
 SUPERVISOR: [Signature] DATE: 11/16/2015

**SANTA ANA RIVER TRUNK**  
**SEWER REPLACEMENT- PHASE II**  
 TRENCH SECTIONS - 2  
 HORIZ. SCALE: AS NOTED VERT. SCALE: AS NOTED

ACCT. NO.: 9799123  
 S-2089  
 SHEET 33 OF 35  
 FILE NO. SARTS\_SHT33DWG

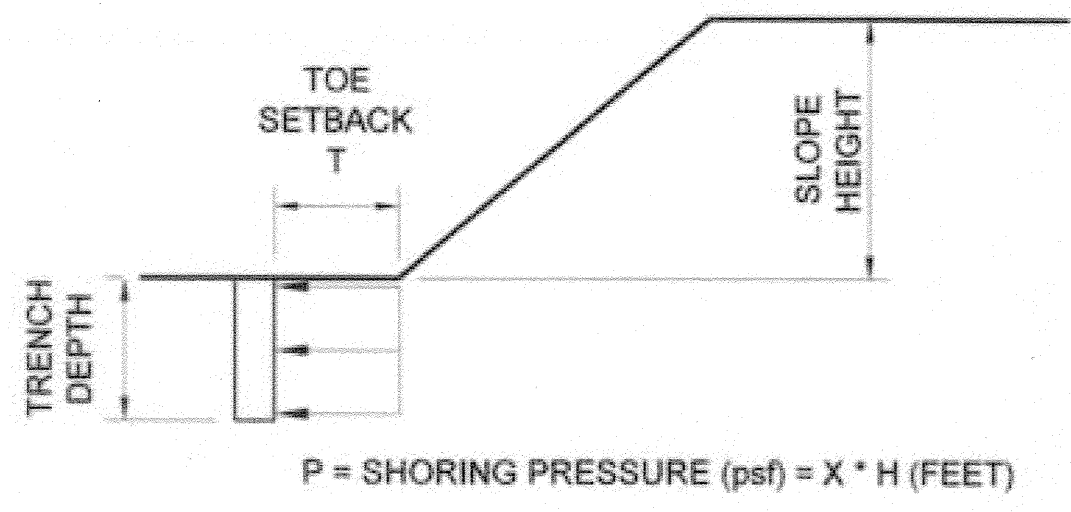
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- LATERAL EARTH PRESSURE NOTES:**
1. THE LATERAL PRESSURES ARE THE MINIMUM TO BE USED FOR DESIGN OF ANY TRENCH OR EXCAVATION SUPPORT SYSTEM. THE LOADS DO NOT INCLUDE ANY SAFETY FACTOR THAT MUST BE APPLIED IN THE FINAL DESIGN. CONTRACTOR IS RESPONSIBLE FOR EVALUATING ACTUAL LOADS, BUT IN NO CASE SHALL BE LESS THAN THAT SHOWN.
  2. HYDROSTATIC PRESSURES SHALL BE ADDED TO THE LATERAL PRESSURES DUE TO EARTH, AND SURCHARGES, UNLESS DEWATERED 2 FEET BELOW BASE OF BEDDING ON BOTH SIDES OF SHORING.
  3. THE TEMPORARY SURCHARGE LOAD IS THE MINIMUM. DEVELOP SPECIFIC SURCHARGE PRESSURES BASED ON ACTUAL EQUIPMENT USED.
  4. NOT USED.
  5. TRENCH SHORING AND DEWATERING SYSTEM TO BE DETERMINED BY CONTRACTOR AS REQUIRED BY SITE CONDITIONS.
  6. SURCHARGE LOADS WITHIN A HORIZONTAL DISTANCE OF H/2 FROM THE TOP OF SHORING (ZONE 1) SHALL BE INCLUDED AS AN AT REST LATERAL PRESSURE WITHIN THE DEPTH H.
  7. q = 240 psf FOR NORMAL HIGHWAY TRAFFIC

**SOIL PARAMETERS**

SOIL TOTAL UNIT WEIGHT	γ = 120 Pcf
SOIL BUOYANT UNIT WEIGHT	γ' = 57.6 Pcf
UNIT WEIGHT WATER	γ <sub>w</sub> = 62.4 Pcf
SOIL FRICTION ANGLE	φ = 28°
COEFFICIENT OF LATERAL EARTH PRESSURE (PASSIVE)	K <sub>p</sub> = 2.77
COEFFICIENT OF LATERAL EARTH PRESSURE (AT-REST)	K <sub>0</sub> = 0.53
COEFFICIENT OF LATERAL EARTH PRESSURE (ACTIVE)	K <sub>a</sub> = 0.36



SHORING PRESSURE FOR FS=1.5 VS. TRENCH DISTANCE FROM TOE

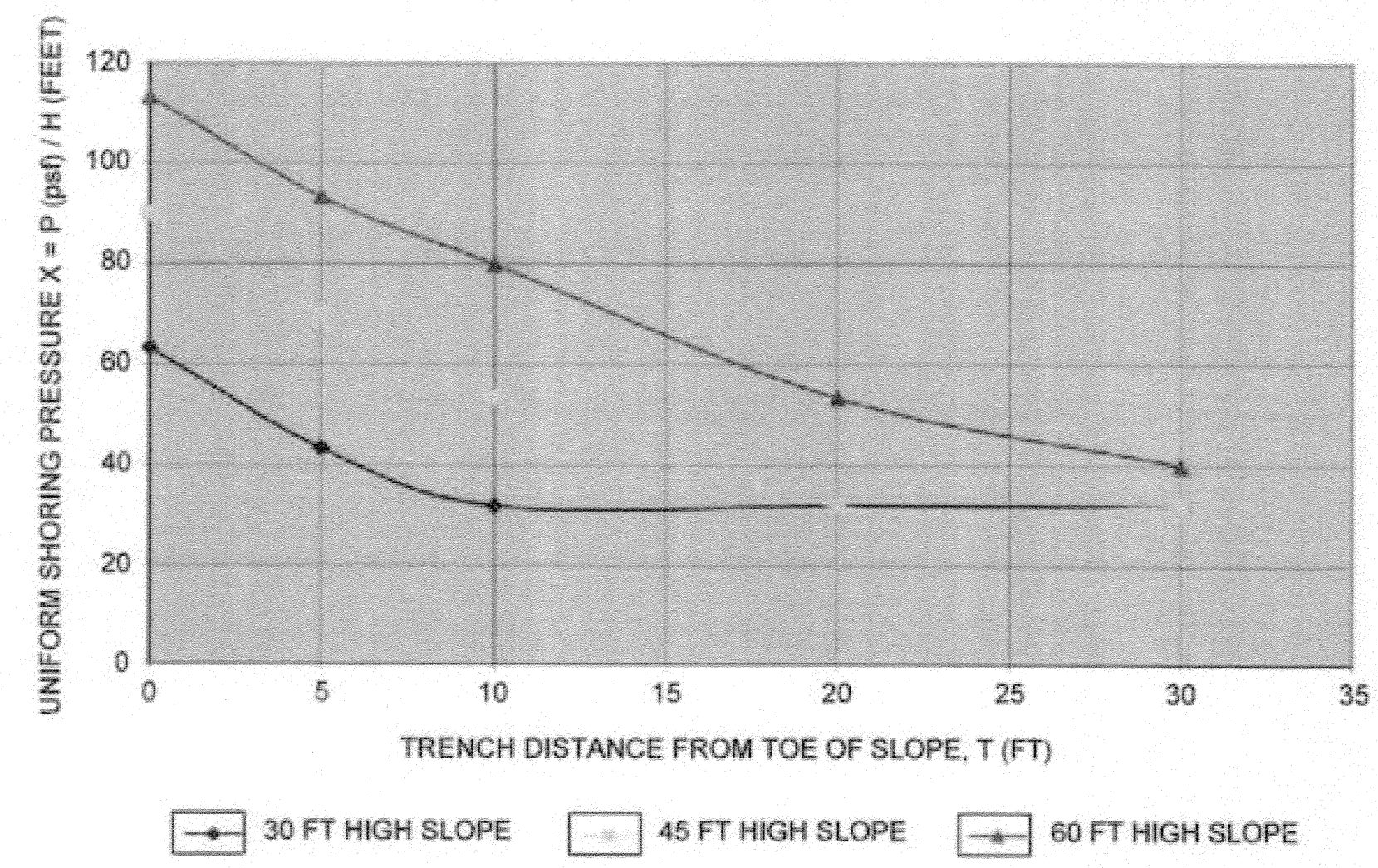
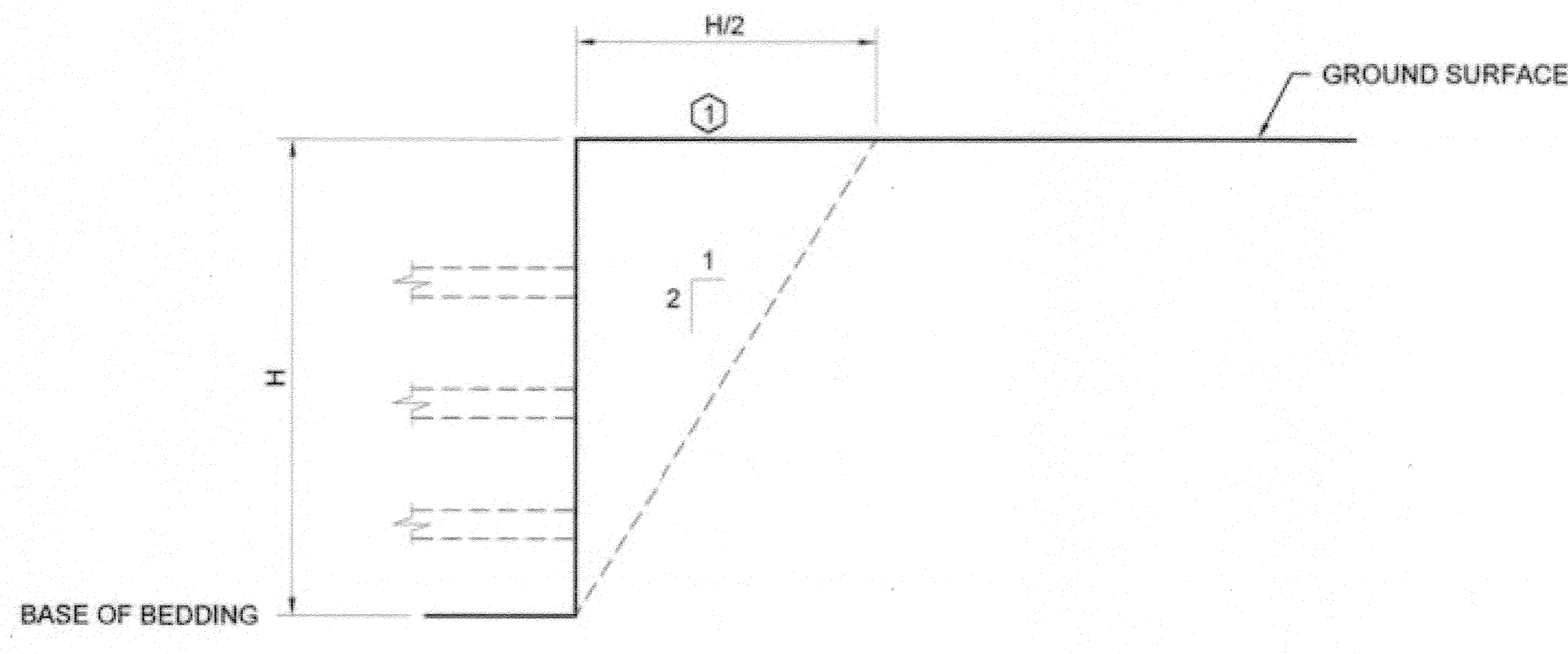


FIGURE 6  
SCALE: NONE

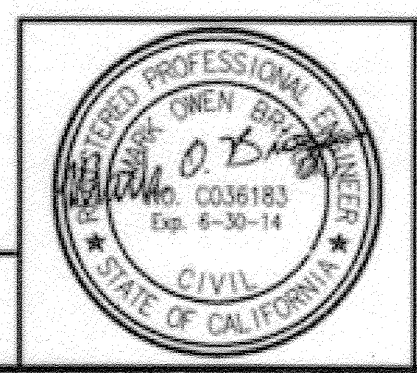
LATERAL EARTH PRESSURES  
SCALE: NONE



SURCHARGE LOADS  
SCALE: NONE

**AS-BUILT**

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:  
Wade O. Zing  
REGISTERED CIVIL ENGINEER No. C-36183  
DATE: 11-22-13

DESIGNED BY: \_\_\_\_\_ DRAWN BY: \_\_\_\_\_ CHECKED BY: \_\_\_\_\_

CITY OF RIVERSIDE, CALIFORNIA  
PUBLIC WORKS DEPARTMENT

APPROVED BY: \_\_\_\_\_ DATE: 11/14/2015

SANTA ANA RIVER TRUNK  
SEWER REPLACEMENT- PHASE II

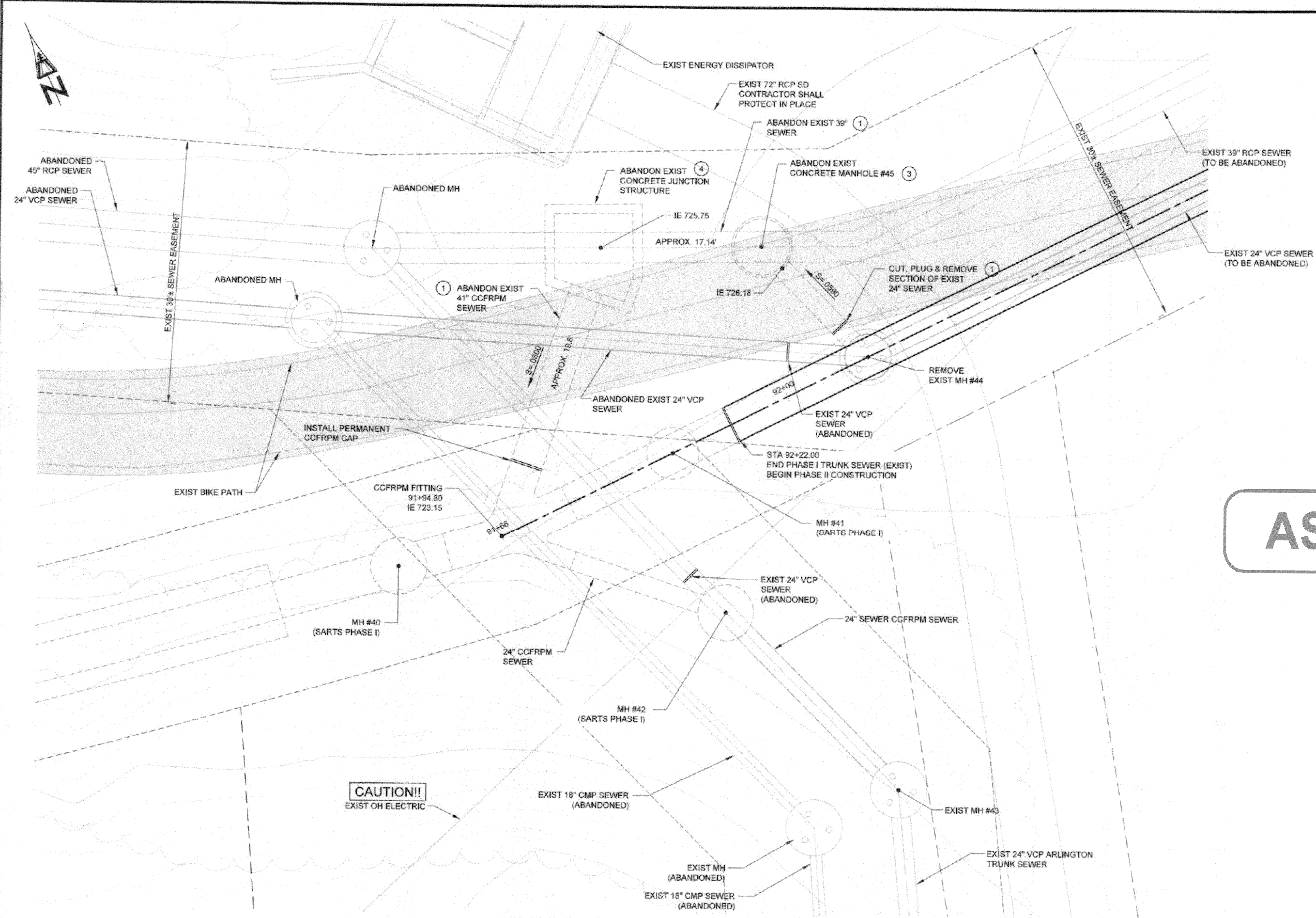
EARTH PRESSURE DIAGRAMS

ACCT. NO.: 9799123  
S-2089  
SHEET 34 OF 35  
FILE NO. SARTS\_SHT34DWG

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

**DEMOLITION NOTES**

- ① DEMOLISH INTERFERING SEGMENTS OF EXISTING SEWER PIPELINES AND ABANDON REMAINING PORTIONS PER SPECIFICATIONS.
- ② REMOVE EXISTING STRUCTURES PER SPECIFICATIONS.
- ③ ABANDON EXISTING MANHOLES PER SPECIFICATIONS.
- ④ REMOVE EXISTING FRAME, COVER, RISER SECTIONS AND TOP SLAB, CRACK BASE AND BACK FILL WITH CEMENT SLURRY OR LDCC.



AS-BUILT

**CAUTION!!**  
EXIST OH ELECTRIC

**TRUNK SEWER CONNECTION - ENLARGED PLAN** 1  
6

SCALE: 1"=5'-0"

Path: P:\Project\15\Beverlyside, City of (CA)\1338\10 - Santa Ana River Trunk Sewer\CA0012-SHETS PHASE 2\1-C-DWG. Filename: SARTS\_SHT35\_Plot.dwg, Nov 20, 2013 01:28PM 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 RESPONSIBLE CHARGE:  
*Mark O. Bui*  
REGISTERED CIVIL ENGINEER No. C-36183  
DATE: 11-22-13

NO.	REVISIONS	APPRO. DATE

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

APPROVED BY: *[Signature]* DATE: 11/16/2015  
CITY ENGINEER

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

**PHASE I CONNECTION AND DEMOLITION PLAN**

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

ACCT. NO.: 9799123  
**S-2089**  
**35** OF **35**  
SHEET  
FILE NO. SARTS\_SHT35.DWG