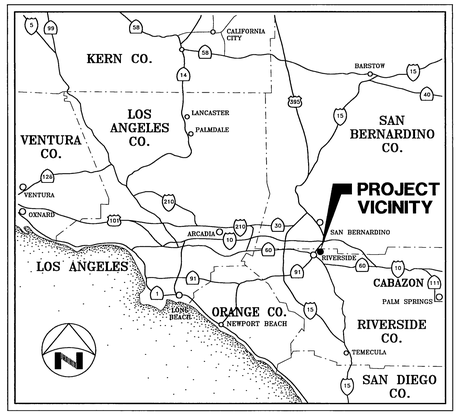
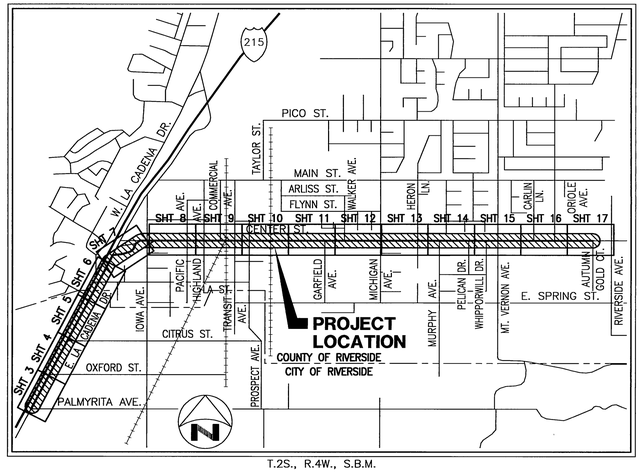
REDEVELOPMENT AGENCY FOR THE COUNTY OF RIVERSIDE
RIVERSIDE, CALIFORNIA

CONSTRUCTION DRAWINGS
FOR
COMMUNITY OF HIGHGROVE
CENTER STREET TRUNK SEWER



VICINITY MAP

NOT TO SCALE



T.2S., R.4W., S.B.M.

LOCATION MAP

NOT TO SCALE

SHEET INDEX

NO.	DESCRIPTION
1	TITLE SHEET
2	GENERAL CONSTRUCTION NOTES AND DETAILS
3	PLAN AND PROFILE: EAST LA CADENA DRIVE – STA.0+87.7± TO STA.4+74.46 BK STA.4+74.60 AH TO STA.6+00.00
4	PLAN AND PROFILE: EAST LA CADENA DRIVE – STA.6+00.00 TO STA.17+00.00
5	PLAN AND PROFILE: EAST LA CADENA DRIVE – STA.17+00.00 TO STA.27+00.00
6	PLAN AND PROFILE: EAST LA CADENA DRIVE – STA.27+00.00 TO STA.38+00.00
7	PLAN AND PROFILE: EAST LA CADENA DRIVE – STA.38+00.00 TO STA.43+54.90 BK STA.43+56.21 AH TO STA.49+50.00
8	PLAN AND PROFILE: CENTER STREET – STA.49+50.00 TO STA.60+00.00
9	PLAN AND PROFILE: CENTER STREET – STA.60+00.00 TO STA.71+50.00
10	PLAN AND PROFILE: CENTER STREET – STA.71+50.00 TO STA.82+00.00
11	PLAN AND PROFILE: CENTER STREET – STA.82+00.00 TO STA.82+30.40 BK STA.82+31.35 AH TO STA.93+00.00
12	PLAN AND PROFILE: CENTER STREET – STA.93+00.00 TO STA.104+00.00
13	PLAN AND PROFILE: CENTER STREET – STA.104+00.00 TO STA.105+20.93 STA.105+20.93 TO STA.107+40.06 BK STA.107+43.14 AH TO STA.115+00.00
14	PLAN AND PROFILE: CENTER STREET – STA.115+00.00 TO STA.126+00.00
15	PLAN AND PROFILE: CENTER STREET – STA.126+00.00 TO STA.132+51.43 BK STA.132+51.78 AH TO STA.137+00.00
16	PLAN AND PROFILE: CENTER STREET – STA.137+00.00 TO STA.148+00.00
17	PLAN AND PROFILE: CENTER STREET – STA.148+00.00 TO STA.152+95.56
18	METERING MANHOLE DETAILS

MATERIAL LIST AND QUANTITIES (SHEETS 1 THROUGH 18)

ITEM NO.	DESCRIPTION	QUANTITIES
1	4' ID SEWER MANHOLE	46 EA.
2	5' ID SEWER MANHOLE	15 EA.
3	18" BELL AND SPIGOT HIGH STRENGTH VCP	1,195± LF
4	15" BELL AND SPIGOT HIGH STRENGTH VCP	3,300± LF
5	12" BELL AND SPIGOT HIGH STRENGTH VCP	1,760± LF
6	10" BELL AND SPIGOT HIGH STRENGTH VCP	889± LF
7	8" BELL AND SPIGOT HIGH STRENGTH VCP	6,859± LF
8	6" BELL AND SPIGOT HIGH STRENGTH VCP	158± LF
9	4" BELL AND SPIGOT HIGH STRENGTH VCP	100± LF
10	18" VITRIFIED CLAY MICROTUNNELING PIPE	294± LF
11	15" VITRIFIED CLAY MICROTUNNELING PIPE	300± LF
12	12" VITRIFIED CLAY MICROTUNNELING PIPE	249± LF
13	10" VITRIFIED CLAY MICROTUNNELING PIPE	163± LF
14	8" VITRIFIED CLAY MICROTUNNELING PIPE	332± LF
15	10" PVC SDR 35 SEWER PIPE	45± LF
16	36" STEEL CASING (WALL THICKNESS AS NOTED)	48± LF
17	32" STEEL CASING (WALL THICKNESS AS NOTED)	14± LF
18	30" STEEL CASING (WALL THICKNESS AS NOTED)	406± LF
19	27" STEEL CASING (WALL THICKNESS AS NOTED)	128± LF
20	24" STEEL CASING (WALL THICKNESS AS NOTED)	317± LF
21	20" STEEL CASING (WALL THICKNESS AS NOTED)	150± LF
22	METERING MANHOLE, METERING EQUIPMENT, AND ELECTRICAL SERVICE COMPONENTS (SEE SHEET 18)	1 EA.

LEGEND

PROPOSED SEWER, SIZE AS NOTED	EXISTING STORM DRAIN
PROPOSED SEWER MANHOLE PER CITY OF RIVERSIDE STD. DWG. No.500 (4' I.D. DIA. UNLESS NOTED OTHERWISE)	EXISTING FUEL
BORE AND JACK STEEL CASING AND INSTALL CARRIER PIPE INSIDE CASING AS SPECIFIED	EXISTING CATV
EXISTING IRRIGATION	EXISTING EDGE OF PAVEMENT
EXISTING GAS	EXISTING RIGHT-OF-WAY
EXISTING WATERLINE	ROAD CENTERLINE
EXISTING ELECTRICAL	UTILITY INTERFERENCE FLAG. APPROXIMATE LOCATION OF INTERFERENCE WITH TYPE OF UTILITY INDICATED BY ABBREVIATION TO RIGHT.
EXISTING TELEPHONE	APPROXIMATE BORING/RECEIVING PIT LOCATION (FINAL LOCATION DETERMINED BY CONTRACTOR)
EXISTING SEWER	EXISTING CONCRETE

SEWER MAINTAINED BY CITY OF RIVERSIDE

GENERAL SEWER NOTES:

1. CONTRACTOR SHALL POTHOLE AND DETERMINE THE EXACT LOCATION OF EACH AND EVERY POTENTIAL INTERFERENCE AT LEAST 30 DAYS PRIOR TO ANY CONSTRUCTION IN ACCORDANCE WITH THE SPECIAL REQUIREMENTS OF THE SPECIFICATIONS.
2. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THESE CONSTRUCTION DRAWINGS AND SPECIFICATIONS, AND THE CITY OF RIVERSIDE (CITY) AND RIVERSIDE COUNTY TRANSPORTATION DEPARTMENT (RCTD) ENCROACHMENT PERMITS, SPECIFICATIONS, AND STANDARDS (MOST STRINGENT SHALL GOVERN).
3. 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 AND RCTD.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PRESERVING OR REESTABLISHING AND REFERENCING SURVEY MONUMENTS DESTROYED, DISTURBED, OR BURIED AS A RESULT OF CONSTRUCTION SHOWN HEREON.
5. ALL DESIGN GRADES WILL BE STAKED IN THE FIELD BY THE OWNER. VERTICAL INFORMATION IS BASED ON A FIELD SURVEY. RECORD INFORMATION IS DENOTED AS ( ).
6. THE CONTRACTOR SHALL CALL UNDERGROUND SERVICE ALERT (USA), PHONE # 1-800-227-2600, TWO WORKING DAYS BEFORE DIGGING. NO CONSTRUCTION PERMIT WILL BE ISSUED INVOLVING EXCAVATION FOR UNDERGROUND FACILITIES UNLESS THE APPLICANT HAS RECEIVED AN INQUIRY IDENTIFICATION NUMBER FROM USA.
7. CONTRACTOR SHALL PERFORM A PRECONSTRUCTION VIDEO OF ALL MAINLINE SEWERS ALONG EAST LA CADENA DRIVE FROM PALMYRITA AVENUE TO THE MOST NORTHERLY SEWER MANHOLE LOCATED SOUTHERLY OF THE RIVERSIDE CANAL IN ACCORDANCE WITH THE SPECIAL REQUIREMENTS OF THE SPECIFICATIONS.

   CONTRACTOR SHALL LOCATE ALL SEWER LATERALS AND RECONNECT ALL EXISTING SEWER LATERALS TO THE PROPOSED SEWER IN ACCORDANCE WITH THESE CONSTRUCTION DRAWINGS AND SPECIAL REQUIREMENTS OF THE SPECIFICATIONS.
8. NO FINISHED FLOOR ELEVATION SHALL BE LESS THAN 6" ABOVE THE UPPER MANHOLE RIM ELEVATION OF THE SEWER LINE SEGMENT BEING CONNECTED TO, WITHOUT HAVING A PROPER BACKWATER VALVE INSTALLED IN THE LATERAL.
9. THE SEWER CONTRACTOR SHALL ADJUST MANHOLE FRAMES AND COVERS TO FINAL GRADE AFTER FINAL PAVING IS COMPLETE.
10. NO PERSON SHALL PERFORM ANY CONSTRUCTION ACTIVITY OR INSTALL ANY OBJECTS WITHIN THE PUBLIC RIGHTS-OF-WAY OR EASEMENTS WITHOUT A VALID CONSTRUCTION PERMIT, A STREET OPENING PERMIT, OR AN ENCROACHMENT PERMIT.
11. QUANTITIES SHOWN ARE FOR INFORMATION ONLY AND REPRESENT ALL WORK TO BE PERFORMED UNLESS ERRORS ARE FOUND. CONTRACTOR SHALL VERIFY THE QUANTITIES OF WORK TO BE COMPLETED. IF ERRORS ARE FOUND, HE SHALL IMMEDIATELY NOTIFY THE OWNER SO THAT IF CHANGES IN QUANTITIES ARE FOUND NECESSARY, AN ADDENDUM MAY BE ISSUED TO ALL BIDDERS.

BENCHMARK

POINT ID: **600-56-68**
1929 ELEVATION: **948.860**
DATE LEVELED: 1970
REFERENCE: U.S.C.&G.S.
ADJUSTMENT YEAR: 1971
1988 ELEVATION: **951.289**
DATE LEVELED: 0
REFERENCE:
ADJUSTMENT YEAR: 2009
1st ORDER POINT DESCRIPTION:
A STANDARD U.S.C.&G.S. BRASS DISK STAMPED " Z 38 RESET 1946" SET IN THE TOP OF THE CONCRETE FOUNDATION OF THE FORMER HIGHGROVE RAILWAY STATION, 205' SOUTH ALONG THE A.T.&S.F. RAILROAD TRACKS FROM THE CENTER STREET CROSSING. RECOVERED 1996 IN GOOD CONDITION. THE BUILDING IS NOW REMOVED AND THE POINT REMAINS IN THE CONCRETE FOUNDATION FLUSH WITH THE GROUND.

BASIS OF BEARING

THE HORIZONTAL DATUM FOR THIS SURVEY IS GROUND BASED COORDINATE SYSTEM BASED ON THE CALIFORNIA CORRDINATE SYSTEM NAD '83, ZONE 6 (CORS96), (EPOCH: 2002.0000), ITRF00 (EPOCH:2008.0075) AS DERVED FROM GPS OBSERVATIONS FROM CORS STATIONS "LA WAAS 17" "POINT LOMA 5" AND "GOLDSTONE DS" TO POINTS 33 AND 128. THE COMPUTED OPUS COORDINATE @ POINT 33 IS HELD AS THE GROUND COORDINATE AND THE ORIGIN OF SCALING GRID TO GROUND. THE GRID AZIMUTH OF N 31° 38' 54" E IS HELD FIXED FROM POINT 33 TO 128. THE MEAN COMBINATION SCALE FACTOR IS APPLIED AS FOLLOWS GRID/0.99998452=GROUND. POINT 33: NORTH 2315020.127sft., EAST 6233332.913sft.

THE CONVERGENCE ANGLE AS CALCULATED @ POINT 33 IS –0.59537514 (DECIMAL DEGREES).

AERIAL CONTROL & CENTERLINE LOCATIONS WERE MEASURED WITH GPS AND DIFFERENTIAL LEVELING METHODS.

ABBREVIATIONS

AH	AHEAD (STATIONING)	FT	FEET	S=	SLOPE EQUALS
BC	BEGINNING CURVE	FWJ	FULLY WELDED JOINTS	SD	STORM DRAIN
BK	BACK (STATIONING)	G	GAS	SFT	SURVEYOR'S FEET
CATV	CABLE TELEVISION	GA	GAUGE	SDMH	STORM DRAIN MANHOLE
℄	CENTERLINE	HPI	HORIZONTAL POINT OF INFLECTION	SMH	SEWER MANHOLE
CML&C	CEMENT MORTAR LINED & COATED (WELDED STEEL PIPE)	I.D.	INSIDE DIAMETER	T	TELEPHONE
ø	DIAMETER	INV.	INVERT	T(FO)	TELEPHONE (FIBER OPTIC CABLE)
E	ELECTRIC	LF	LINEAR FEET ALONG HORIZONTAL	TMH	TELEPHONE MANHOLE
EC	END CURVE	O.D.	OUTSIDE DIAMETER	TR	TRAFFIC
F	FUEL	PVC	POLYVINYL CHLORIDE (PIPE)	TYP	TYPICAL
FG	FINISH GRADE	RCFC&WCD	RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT	UNK	UNKNOWN UTILITY
FH	FIRE HYDRANT	RCLW	RECYCLED WATER	W	WATER
FL	FLOWLINE	S	SEWER	WSP	WELDED STEEL PIPE

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

48 hours BEFORE excavation
1-800-227-2600
CALL Underground Service Alert

RIVERSIDE PUBLIC UTILITIES – WATER DIVISION
APPROVED BY _____ DATE 11/5/10

NOTE:
WORK CONTAINED WITHIN THESE PLANS SHALL NOT COMMENCE UNTIL AN ENCROACHMENT PERMIT AND/OR A GRADING PERMIT HAS BEEN ISSUED.

THE PRIVATE ENGINEER SIGNING THESE PLANS IS RESPONSIBLE FOR ASSURING THE ACCURACY AND ACCEPTABILITY OF THE DESIGN HEREON. IN THE EVENT OF DISCREPANCIES ARISING AFTER COUNTY APPROVAL OR DURING CONSTRUCTION, THE PRIVATE ENGINEER SHALL BE RESPONSIBLE FOR DETERMINING AN ACCEPTABLE SOLUTION AND REVISING THE PLANS FOR APPROVAL BY THE COUNTY.

SEAL–COUNTY
REGISTERED PROFESSIONAL ENGINEER ALAN D. FRENCH No. 45702 Exp. 12-31-10 CIVIL STATE OF CALIFORNIA

COUNTY OF RIVERSIDE
TRANSPORTATION DEPARTMENT
APPROVED BY: _____ DATE 2-11-10
ALAN D. FRENCH
RECOMMENDED _____ DATE 02-10-10

REGISTERED PROFESSIONAL ENGINEER RANDY ALLEN NEFF No. 46020 Exp. 12-31-10 CIVIL STATE OF CALIFORNIA

KRIEGER & STEWART INCORPORATED
3602 University Ave. · Riverside, CA. 92501 · 951-684-6900
APPROVED BY _____ DATE 01/05/10
REGISTERED ENGINEER No. 46020

MARK	REVISIONS	APPR.	DATE

DESIGNED BY RAN DRAWN BY RND CHECKED BY MGM

CITY OF RIVERSIDE, CALIFORNIA
PUBLIC WORKS DEPARTMENT

APPROVED BY	BY	DATE
PRINCIPAL ENGINEER		11/5/10
INSPECTION		2/3/10
SURVEYOR		
TRAFFIC DIVISION		2-3-10
SEWER DIVISION		01/13/10

APPROVED BY: _____ CITY ENGINEER
DATE 2/4/10

MS 4234 IP 090075 W.O. 10-00009

SEWER IMPROVEMENT PLAN — ACCT. No. W.O. No.
COMMUNITY OF HIGHGROVE CENTER STREET TRUNK SEWER
TITLE SHEET
S-2075
SHEET 1 OF 18

HORIZ. SCALE: N.T.S. VERT. SCALE: N.T.S. FILE NO.:

807-37

DWG. NO.: 807-37s1 FILE NO.: 807-37 UPDATE BY: JGS PROJ. ENG.: RAN PLOT DATE: 01/05/10 PLOT TIME: 10:43AM PLOT SCALE: 1=1

BNSF RAILROAD GENERAL NOTES

1. CONTRACTOR SHALL PERFORM ALL WORK IN ACCORDANCE WITH THE "BURLINGTON NORTHERN & SANTA FE UTILITY ACCOMMODATION POLICY, DATED APRIL 16, 2004".
2. THE USE OF WATER UNDER PRESSURE, JETTING OR PUDDLING WILL NOT BE PERMITTED TO FACILITATE BORING, PUSHING OR JACKING OPERATIONS.
3. CONTRACTOR SHALL PLAN, SCHEDULE AND CONDUCT ALL WORK ACTIVITIES SO AS NOT TO INTERFERE WITH THE MOVEMENT OF ANY TRAINS ON RCTC OR BNSF PROPERTY.
4. WHEN WORK IS PERFORMED WITHIN TWENTY–FIVE (25) FEET OF THE CENTERLINE OF THE TRACK, RAILROAD FLAGGING WILL BE REQUIRED. SEE NOTE 6 BELOW. IN ADDITION, CONTRACTOR SHALL NOT PLACE OR STORE ANY EQUIPMENT OR MATERIALS WITHIN 25 FEET OF THE CENTERLINE OF THE TRACKS.
5. CONTRACTOR SHALL CONTACT THE BURLINGTON NORTHERN SANTA FE (BNSF) ROADMASTER, DAVE GONZALES; PHONE NO. 909–386–4061, AT LEAST FIVE (5) WORKING DAYS (MONDAY THROUGH FRIDAY) BEFORE STARTING CONSTRUCTION.
6. CONTRACTOR SHALL CONTACT THE BURLINGTON NORTHERN SANTA FE (BNSF) ROADMASTER, DAVE GONZALES; PHONE NO. 909–386–4061, AT LEAST TEN (10) WORKING DAYS (MONDAY THROUGH FRIDAY) IN ADVANCE OF WHEN FLAGGING SERVICES WILL BE REQUIRED. EACH TIME A FLAGGER IS CALLED, THE MINIMUM PERIOD OF BILLING SHALL BE THE EIGHT (8) HOUR BASIC DAY. THE COST OF FLAGGING SERVICES PROVIDED BY THE RAILWAY, WHEN DEEMED NECESSARY BY THE RAILWAY'S REPRESENTATIVE, WILL BE BORNE BY THE CONTRACTOR.
7. DURING INSTALLATION OF THE CASING UNDER THE BNSF RIGHT–OF–WAY, CONTRACTOR SHALL MONITOR THE POTENTIAL GROUND SURFACE OR PAVEMENT MOVEMENT ALONG THE PROPOSED ALIGNMENT CROSSING THE METROLINK AND BNSF RAILROAD TRACKS. IF ANY DEFORMATION IN EXCESS OF 1/4" IS NOTED, WORK SHALL BE STOPPED AND CONTRACTOR SHALL IMMEDIATELY CALL THE BNSF ROADMASTER.

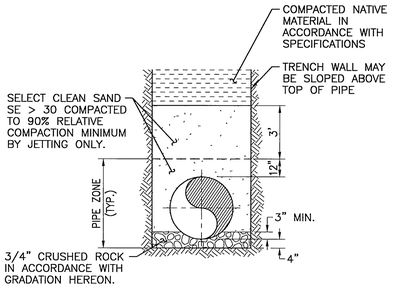
   CONTRACTOR SHALL BE RESPONSIBLE FOR ANY MOVEMENT TO METROLINK AND BNSF RAILROAD TRACKS DUE TO BORE AND JACK CONSTRUCTION OPERATIONS. ANY DAMAGE TO SAID TRACKS AS A RESULT OF CONTRACTOR'S OPERATIONS SHALL BE REPAIRED BY CONTRACTOR TO THE SATISFACTION OF THE BNSF AT NO ADDITIONAL COST TO THE OWNER OR TO THE BNSF.

   CONTRACTOR SHALL RETAIN THE SERVICES OF A STATE OF CALIFORNIA LICENSED LAND SURVEYOR TO PERFORM ALL SURFACE ELEVATION MONITORING. SAID SERVICES SHALL, AS A MINIMUM, INCLUDE SETTING HUBS, NAILS WITH TINS OR OTHER TEMPORARY REFERENCE POINTS OVER THE CENTERLINE OF PIPE AT CENTERLINE OF THE TRACK, AND AT 10 FEET EACH SIDE OF THE TRACKS. THE REFERENCE POINTS SHALL BE MONITORED PRIOR TO CONSTRUCTION, DAILY AS THE BORING AN JACKING PROGRESSES AND 2 WEEKS, 6 MONTHS AND 12 MONTHS AFTER BORING AND JACKING IS COMPLETE.

   A LETTER REPORT FROM THE SURVEYOR SHALL BE SUBMITTED TO BNSF STATING METHODOLOGY AND MONITORING RESULTS, WITHIN SEVEN (7) DAYS OF THE COMPLETION OF THE PIPE JACKING. THE REPORT SHALL BE SENT TO GREG ROUSSEAU OF BNSF AT 740 EAST CARNEGIE DRIVE, SAN BERNARDINO, CALIFORNIA.
8. A SAFETY ORIENTATION COURSE SHALL BE COMPLETED BY ALL WORKERS PRIOR TO ENTERING RAILROAD PROPERTY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONDUCT THE SAFETY TRAINING AND IMPLEMENTATION OF A SAFETY PROGRAM FOR ITS EMPLOYEES. TRAINING MATERIALS ARE AVAILABLE ON THE WEB SITE: www.contractororientation.com. THE CONTRACTOR MUST COMPLY WITH ALL FEDERAL, STATE AND LOCAL SAFETY REGULATIONS.

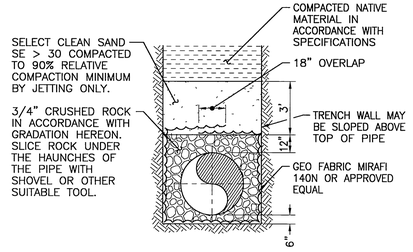
DEPARTMENT OF WATER RESOURCES GENERAL NOTES

1. A SEVEN (7) DAY ADVANCE NOTIFICATION IS REQUIRED PRIOR TO STARTING WORK WITHIN DEPARTMENT OF WATER RESOURCES RIGHT–OF–WAY. CONTACT THE DEPARTMENT OF WATER RESOURCES, DIVISION OF ENGINEERING, ENCROACHMENT PERMIT SECTION, SACRAMENTO, CALIFORNIA AT (800) 600–4397. THE SOUTHERN FIELD DIVISION SHALL BE SIMULTANEOUSLY NOTIFIED AT (661) 944–8500.
2. EXCEPT AS OTHERWISE PROVIDED HEREIN, MEASURES SHALL BE TAKEN BY THE CONTRACTOR TO PROTECT IN PLACE ALL DWR FACILITIES AND APPURTENANCES, INCLUDING BUT NOT LIMITED TO COMMUNICATION AND CONTROL CABLES AND CATHODIC PROTECTION TEST STATIONS. THE PERMITTEE AND CONTRACTOR WILL BE LIABLE FOR ALL DAMAGES TO DWR FACILITIES AND APPURTENANCES AS A RESULT OF THE CONSTRUCTION, AND FOR ANY OTHER DAMAGES OR LOSSES SUFFERED BY DWR OR ITS WATER CONTRACTORS, INCLUDING POWER, IRRIGATION, MUNICIPAL AND INDUSTRIAL WATER SUPPLY, AND COMMUNICATION LOSSES.
3. COMMUNICATION AND CONTROL CABLES CONNECTED WITH THE OPERATION OF THE STATE WATER PROJECT ARE BURIED ALONG EITHER OR BOTH SIDES OF THE AQUEDUCT/PIPELINE WITHIN DEPARTMENT OF WATER RESOURCES RIGHT–OF–WAY, AS APPROXIMATELY DEPICTED ON THE DRAWING. PRIOR TO ANY EXCAVATION IN THIS AREA, THE CABLE(S) SHALL BE LOCATED AND EXPOSED BY POTHOLING IN THE PRESENCE OF A DEPARTMENT OF WATER RESOURCES FIELD DIVISION REPRESENTATIVE. CALL SOUTHERN FIELD DIVISION AT (661) 944–8500 AT LEAST SEVEN (7) DAYS IN ADVANCE FOR AN APPOINTMENT. ALL EXCAVATIONS WITHIN THREE (3) FEET OF THE CABLE(S) SHALL BE DONE USING HAND–HELD TOOLS ONLY.
4. ENDS OF CASING PIPES SHALL BE SEALED WITH CASING END SEALS (LINK–SEAL OR DWR APPROVED EQUAL). THE CASING SEAL SHALL BE TESTED IN THE PRESENCE OF A DWR INSPECTOR TO VERIFY IT IS SEALED.
5. DWR'S ONGOING OPERATIONS AND MAINTENANCE ACTIVITIES SHALL NOT BE DISRUPTED DURING CONSTRUCTION.
6. ALL TRENCH EXCAVATION SHALL COMPLY WITH THE MOST CURRENT OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION STANDARDS. TRENCH BACKFILL SHALL BE PLACED IN NO GREATER THAN 4 INCH LIFTS, IF HAND COMPACTED, OR NO GREATER THAN 8 INCH LIFTS, IF POWER COMPACTED. TRENCH BACKFILL WITHIN DEPARTMENT OF WATER RESOURCES RIGHT–OF–WAY SHALL BE COMPACTED TO 95% RELATIVE COMPACTION (ASTM D1557).
7. CONTRACTOR SHALL SUBMIT TO OWNER A LIST OF CONSTRUCTION EQUIPMENT IN EXCESS OF AASHTO H–20 LOADING, PROPOSED TO BE USED OVER DWR'S SANTA ANA PIPELINE, AT LEAST 30 DAYS PRIOR TO COMMENCING WORK WITHIN DWR'S RIGHT–OF–WAY. OWNER WILL PROVIDE COPY OF THE EQUIPMENT LIST FURNISHED BY CONTRACTOR TO DWR FOR REVIEW AND WRITTEN APPROVAL. CONTRACTOR SHALL SATISFY ALL DWR EQUIPMENT RESTRICTIONS PRIOR TO COMMENCING ANY WORK NEAR DWR FACILITIES.
8. STAGING AND STORAGE OF SPOIL MATERIAL IS NOT ALLOWED WITHIN DWR'S RIGHT–OF–WAY.



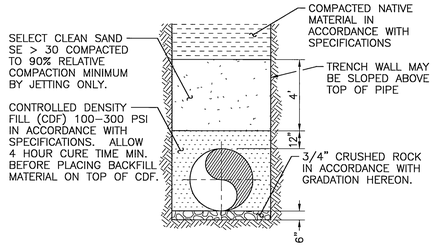
1.5 LOAD FACTOR

N.T.S.



2.2 LOAD FACTOR

N.T.S.



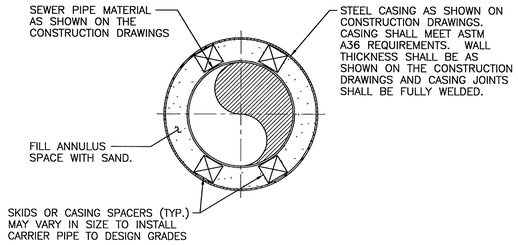
2.8 LOAD FACTOR

N.T.S.

3/4" CRUSHED ROCK BACKFILL GRADATION

SIEVE	% PASSING
1"	100%
3/4"	90%–100%
1/2"	55%–90%
3/8"	20%–55%
No.4	0%–10%
No.8	–

OPEN TRENCH PIPE BEDDING DETAILS



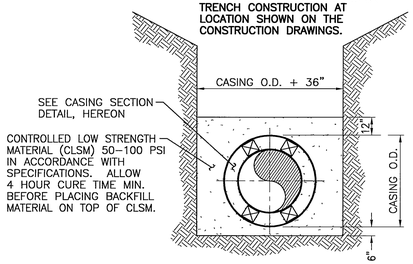
NOTES:

1. CONTRACTOR SHALL SUBMIT FOR OWNER APPROVAL THE CASING SIZE, MATERIAL SPECIFICATIONS ALONG WITH CARRIER PIPE MANUFACTURER'S RECOMMENDATIONS FOR SKID OR CASING SPACER, AND METHOD OF INSTALLATION.
2. UNLESS OTHERWISE NOTED, CONTRACTOR SHALL BORE AND JACK CASING (AS LOCATED ON CONSTRUCTION DRAWINGS) IN ACCORDANCE WITH SPECIAL REQUIREMENTS SECTION OF THE SPECIFICATIONS. ANY VOIDS CREATED BY BORING AND JACKING SHALL BE FILLED BY PRESSURE GROUTING. FITTINGS FOR PRESSURE GROUTING VOIDS CREATED BY BORING SHALL BE PLACED EVERY 8' ALONG THE CASING. VOIDS SHALL BE GROUTED PRIOR TO INSTALLING THE NEXT SECTION OF CASING. ALL GROUTING SHALL BE COMPLETED AND THE OPEN ENDS OF THE CASING SHALL BE CAPPED AT THE END OF EACH WORK DAY.
3. ENDS OF THE CASING PIPE SHALL BE CLOSED AROUND THE CARRIER PIPE WITH A RUBBER END SEAL.
4. THE STEEL CASING THICKNESS SPECIFIED IS REQUIRED FOR THE CASING IN PLACE AND DOES NOT ACCOUNT FOR CONSTRUCTION LOADS. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE STRUCTURAL INTEGRITY OF THE CASING DURING CONSTRUCTION, AND THE METHOD OF INSTALLATION.
5. THE HORIZONTAL AND VERTICAL AS–BUILT LOCATION OF THE CASING PIPE SHALL BE IN ACCORDANCE WITH THE SPECIAL REQUIREMENTS SECTION OF THE SPECIFICATIONS AND SHALL BE APPROVED BY THE OWNER PRIOR TO INSTALLATION OF THE CARRIER PIPE.
6. CARRIER PIPE SHALL BE TESTED PRIOR TO FILLING ANNULUS SPACE.

CASING SECTION DETAIL

NOT TO SCALE

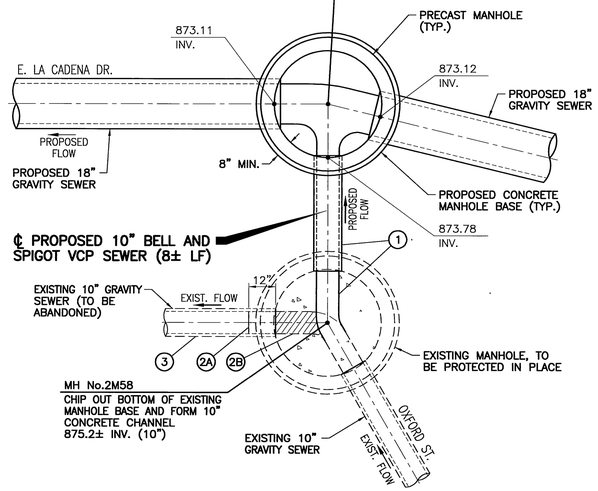
NOTE:
THIS DETAIL IS USED FOR OPEN TRENCH CONSTRUCTION AT LOCATION SHOWN ON THE CONSTRUCTION DRAWINGS.



OPEN TRENCH/CASING DETAIL STATION 143+70±

NOT TO SCALE

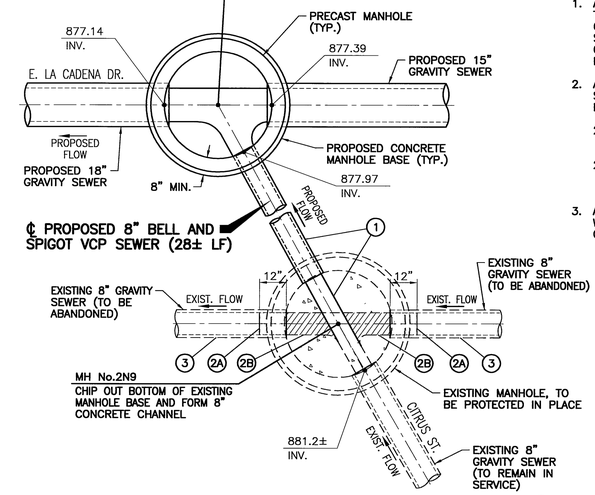
MH No.61
STA.STA.4+74.46 BK
STA.STA.4+74.60 AH/HPI
FURNISH AND INSTALL 4' DIA. MANHOLE PER STD. DWG. No. 500



MANHOLE CONNECTION AT STA.4+24.46

SCALE: 3/8"=1'–0"

MH No.65
STA.15+76.08
FURNISH AND INSTALL 4' DIA. MANHOLE PER STD. DWG. No. 500



MANHOLE CONNECTION AT STA.15+76.08

SCALE: 3/8"=1'–0"

(#) MANHOLE CONNECTION NOTES:

1. AFTER PROPOSED SEWER IS INSTALLED, TESTED, AND ACCEPTED BY OWNER, CONTRACTOR SHALL BYPASS EXISTING SEWAGE FLOW, CONSTRUCT MANHOLE CHANNELS, AND INSTALL CONNECTION PIPING.
2. AFTER EXISTING SEWER LATERALS AND SEWER MAINS ARE CONNECTED TO THE PROPOSED SEWER:
   2A. INSTALL 12" LONG BRICK AND MORTAR PLUG
   2B. FILL EXISTING MANHOLE CHANNELS TO BE ABANDONED WITH CONCRETE.
3. ABANDON EXISTING SEWERS IN ACCORDANCE WITH THE SPECIAL REQUIREMENTS SECTION OF THE SPECIFICATIONS.

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

48 hours BEFORE excavation
1–800–227–2600
CALL Underground Service Alert

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REGISTERED PROFESSIONAL ENGINEER — RANDY ALLEN ACFF — No. 46020 Exp. 12-31-10 — CIVIL — STATE OF CALIFORNIA

KRIEGER & STEWART INCORPORATED
3602 University Ave. · Riverside, CA. 92501 · 951–684–6900
APPROVED BY R. Allen REGISTERED ENGINEER No. 46020 DATE 01/05/10

MARK	REVISIONS	APPR.	DATE

DESIGNED BY RAN DRAWN BY PLNS CHECKED BY PMW

CITY OF RIVERSIDE, CALIFORNIA
PUBLIC WORKS DEPARTMENT

APPROVED BY	BY	DATE
PRINCIPAL ENGINEER	DH	1/25/10
INSPECTION		
SURVEYOR		
TRAFFIC DIVISION	[illegible]	2-3-10
SEWER	RAN	01/13/10

APPROVED BY: CITY ENGINEER
DATE 2/4/10

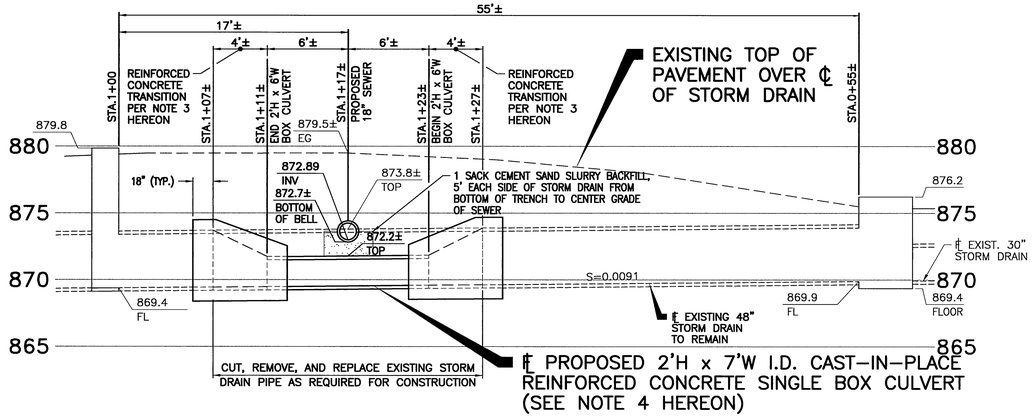
SEWER IMPROVEMENT PLAN
COMMUNITY OF HIGHGROVE CENTER STREET TRUNK SEWER
GENERAL CONSTRUCTION NOTES AND DETAILS

HORIZ. SCALE: N.T.S. VERT. SCALE: N.T.S.

ACCT. No.
W.O. No.
S–2075
SHEET 2 OF 18
FILE NO.:

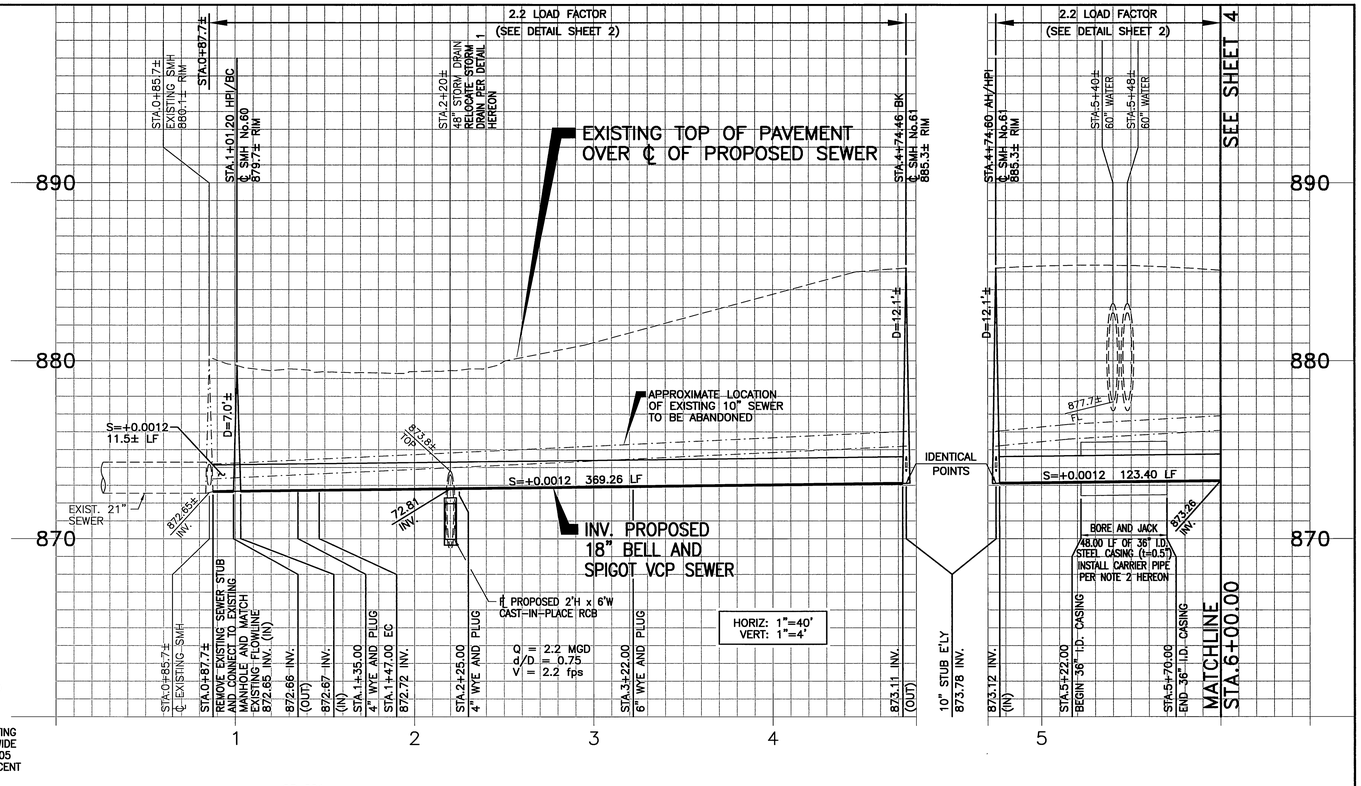
DWG. NO.: 807–37s2 FILE NO.: 807–37 UPDATE BY: JGS PROJ. ENG.: RAN PLOT DATE: 12/23/09 PLOT TIME: 12:24PM PLOT SCALE: 1=1

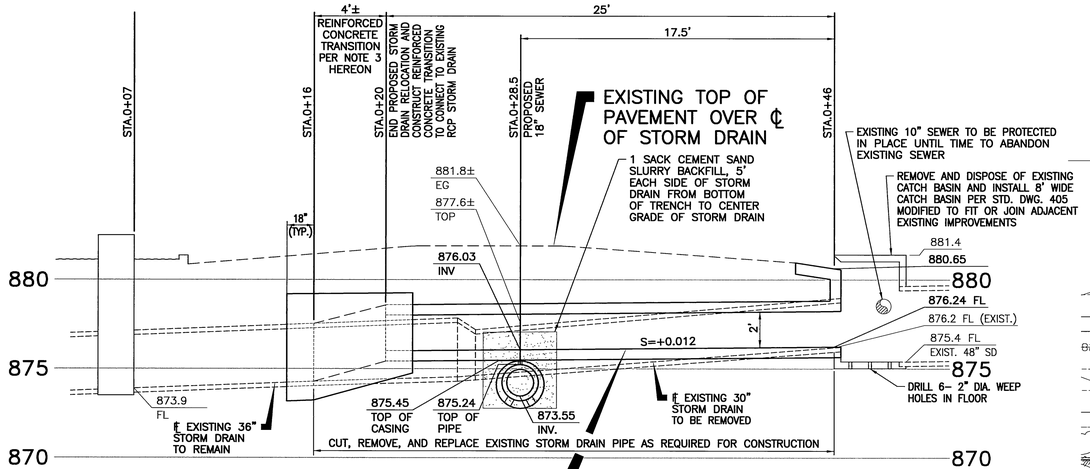
807–37



STORM DRAIN RELOCATION DETAIL 1 (STATION 2+20±)

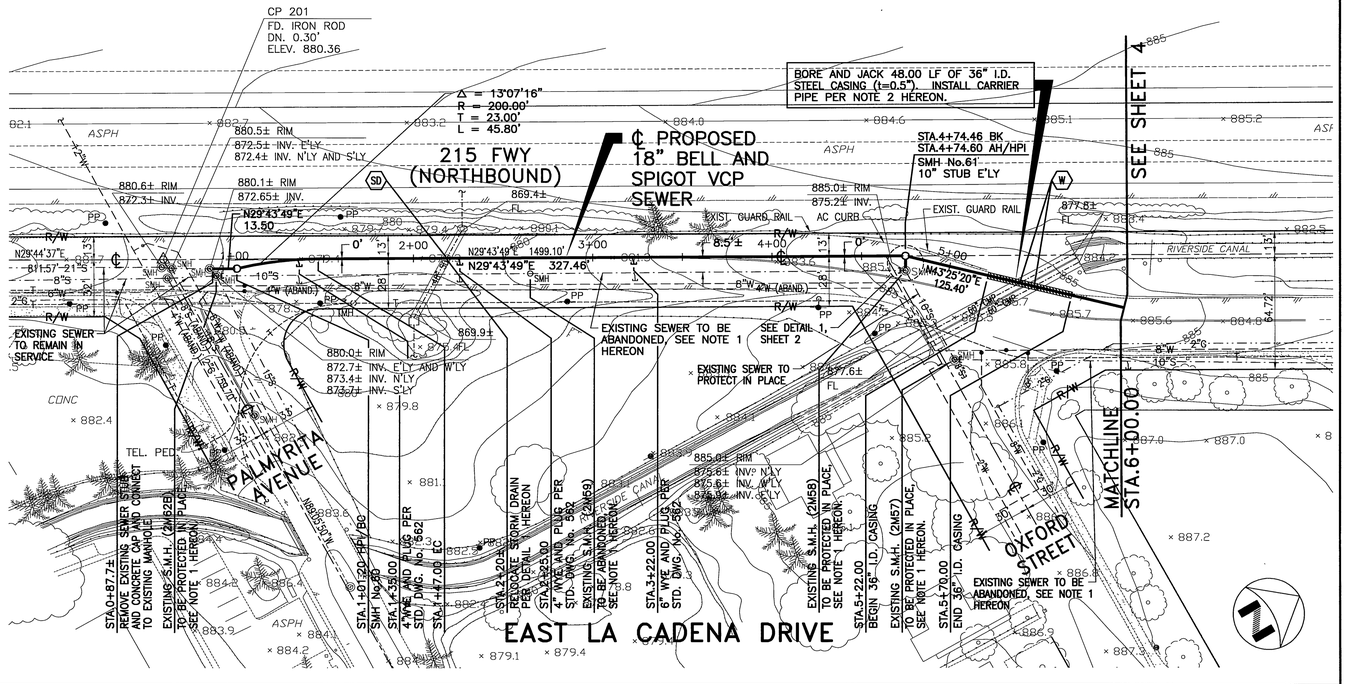
SCALE: 3/16"=1'-0"





STORM DRAIN RELOCATION DETAIL 2 (STATION 8+38±)

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



NOTES:

1. CONTRACTOR SHALL FOLLOW THE CONSTRUCTION SEQUENCE AND ABANDONMENT PROCEDURES IN ACCORDANCE WITH THE SPECIFICATIONS.
2. INSTALL 18" BELL AND SPIGOT VCP CARRIER PIPE INSIDE CASING. REFER TO SHEET 2 FOR CASING DETAIL.
3. REINFORCED CONCRETE TRANSITION.
   A. #5 REINFORCING BAR @ 12" O.C. EACH FACE EACH WAY.
   B. CONCRETE SHALL BE 4,000 PSI MINIMUM.
   C. THE CONCRETE TRANSITION WALL THICKNESS SHALL BE 10" MINIMUM AND SHALL OVERLAP EXISTING AND PROPOSED PIPE BY 1.5' MINIMUM.
   D. THE INTERIOR TRANSITION SURFACE SHALL BE SMOOTH AND VARY UNIFORMLY BETWEEN THE EXISTING AND PROPOSED INVERTS.
4. CAST-IN-PLACE REINFORCED CONCRETE SINGLE BOX CULVERT IN ACCORDANCE WITH STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD DRAWINGS D80A AND D80B INCLUDED IN THE SPECIFICATIONS (4,000 PSI MINIMUM CONCRETE, AASHTO HS-20 TRAFFIC LOADS, MINIMUM).

VERIFY SCALES
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0 1"
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CALL Underground Service Alert

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REGISTERED PROFESSIONAL ENGINEER — RANDY ALLEN NEFF — No. 46020 Exp. 12-31-10 — CIVIL — STATE OF CALIFORNIA

KRIEGER & STEWART INCORPORATED
3602 University Ave. · Riverside, CA. 92501 · 951-684-6900

APPROVED BY Ricky A. Neff
REGISTERED ENGINEER No. 46020 DATE 01/05/10

MARK	REVISIONS	APPR.	DATE

DESIGNED BY RMW DRAWN BY PMD CHECKED BY PMW

CITY OF RIVERSIDE, CALIFORNIA
PUBLIC WORKS DEPARTMENT

APPROVED BY	BY	DATE
PRINCIPAL ENGINEER	PH	1/5/10
INSPECTION	AB	1/12/10
SURVEYOR		
TRAFFIC DIVISION	GU	2-3-10
SEWER	[illegible]	1/13/10

APPROVED BY: [signature] CITY ENGINEER
DATE 2/4/10

SEWER IMPROVEMENT PLAN
COMMUNITY OF HIGHGROVE CENTER STREET TRUNK SEWER
EAST LA CADENA DRIVE
PLAN AND PROFILE STA.0+87.7± TO STA.4+74.46 BK STA.4+74.60 AH TO STA.6+00.00

ACCT. No.
W.O. No.

S-2075
SHEET 3 OF 18

HORIZ. SCALE: 1"=40' VERT. SCALE: 1"=4'
FILE NO.:

242

807-37

DWG. NO.: 807-37s3 FILE NO.: 807-37 UPDATE BY: JGS PROJ. ENG.: RAN PLOT DATE: 01/04/10 PLOT TIME: 3:05PM PLOT SCALE: 1=1

SEE SHEET 3

2.2 LOAD FACTOR (SEE DETAIL SHEET 2)

1.5 LOAD FACTOR (SEE DETAIL SHEET 2)

SEE SHEET 5

STA.6+52.04 HPI
℄ SMH No.62
884.8± RIM

STA.7+75± 16" WATER

STA.8+38± 30" STORM DRAIN RELOCATE STORM DRAIN PER DETAIL 2, SHEET 3

STA.8+43± 36" WATER

STA.9+45.76 HPI/VPI
℄ SMH No.63
882.9± RIM

STA.10+43± 24" STORM DRAIN

EXISTING TOP OF PAVEMENT OVER ℄ OF PROPOSED SEWER

STA.12+54.70 HPI
℄ SMH No.64
886.1± RIM

STA.15+62± 12" WATER

STA.15+78.08 HPI
℄ SMH No.65
887.3± RIM

APPROXIMATE LOCATION OF EXISTING 8" SEWER TO BE ABANDONED

APPROXIMATE LOCATION OF EXISTING 10" SEWER TO BE ABANDONED

APPROXIMATE LOCATION OF EXISTING 10" SEWER TO BE ABANDONED

D=11.6'±

D=8.2'±

D=10.1'±

D=9.8'±

878.3± INV.

877.0± INV.

73.95' 18"

℄ PROPOSED 2'H x 5'W CAST-IN-PLACE RCB

S=+0.0012 50.04' LF

S=+0.0012 289.72' LF

S=+0.0055 304.94' LF

S=+0.0055 317.38' LF

S=+0.0039 121.92' LF

873.26 INV.

877.87 INV.

INV. PROPOSED 18" BELL AND SPIGOT VCP SEWER

INSTALL 14.00 L.F. OF 32" I.D. STEEL CASING (t=0.5") BY OPEN CUT METHOD PER DETAIL 2, SHEET 3. INSTALL CARRIER PIPE PER NOTE 3 HEREON.

INV. PROPOSED 18" BELL AND SPIGOT VCP SEWER

INV. PROPOSED 18" BELL AND SPIGOT VCP SEWER

INV. PROPOSED 15" BELL AND SPIGOT VCP SEWER

Q = 2.2 MGD
d/D = 0.75
V = 2.2 fps

Q = 2.2 MGD
d/D = 0.46
V = 4.2 fps

MATCHLINE STA.6+00.00

STA.6+03.00
6" WYE AND PLUG

873.32' INV. (OUT)
873.33' INV. (IN)

STA.7+64± 8" VCP SEWER LATERAL, SEE NOTE 2 HEREON

STA.8+31.00 BEGIN 32" I.D. CASING

STA.8+45.00 END 32" I.D. CASING

873.68' INV. (OUT)
873.70' INV. (IN)

STA.10+65± 6" VCP SEWER LATERAL, SEE NOTE 2 HEREON

875.64' INV. (OUT)
875.66' INV. (IN)

877.14' INV. (OUT)
8" STUB E'LY
877.97' INV.
877.39' INV. (IN)

MATCHLINE STA.17+00.00

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

18" VITRIFIED CLAY MICROTUNNELING PIPE PER SPECIFICATIONS

NOTES:

1. CONTRACTOR SHALL FOLLOW THE CONSTRUCTION SEQUENCE AND ABANDONMENT PROCEDURES IN ACCORDANCE WITH THE SPECIFICATIONS.
2. CONSTRUCT VCP SEWER LATERAL (LENGTH AS REQUIRED) PER CITY OF RIVERSIDE STD. DWG. No. 562 AND CONNECT TO EXISTING SEWER LATERAL WITH VCP REPAIR COUPLING WITH STAINLESS STEEL BANDS.
3. INSTALL 18" VITRIFIED CLAY MICROTUNNELING CARRIER PIPE INSIDE CASING. REFER TO SHEET 2 FOR CASING DETAIL.

INSTALL 14.00 L.F. OF 32" I.D. STEEL CASING (t=0.5") BY OPEN CUT METHOD PER DETAIL 2, SHEET 3. INSTALL CARRIER PIPE PER NOTE 3 HEREON.

215 FWY (NORTHBOUND)

℄ PROPOSED 18" BELL AND SPIGOT VCP SEWER

℄ PROPOSED 18" BELL AND SPIGOT VCP SEWER

℄ PROPOSED 15" BELL AND SPIGOT VCP SEWER

REMOVE AND REPLACE EXISTING CATCH BASIN PER DETAIL 2, SHEET 3

CP 201
FD. RR SPIKE W/ PUNCH MARK
DN. 0.20'
ELEV. 886.88

885.01± RIM
875.6± INV. N'LY
875.6± INV. W'LY
875.9± INV. E'LY

877.6± FL

RIVERSIDE CANAL

N14°43'25"E 82.04'

N29°43'49"E 293.72'

N29°43'49"E 1499.10'

N23°02'19"E 308.94'

N29°43'49"E 321.38'

N29°43'58"E 1857.49'

886.3± RIM
879.4± INV.

887.1± RIM
881.3± INV. N'LY
881.2± INV. E'LY
880.8± INV. S'LY

APN 247-130-014

EXISTING SEWER TO BE ABANDONED, SEE NOTE 1 HEREON

10' SEWER EASEMENT TO BE VACATED

SEE DETAIL 2, SHEET 2

EXISTING SEWER TO BE ABANDONED, SEE NOTE 1 HEREON

EXISTING SEWER TO BE ABANDONED, SEE NOTE 1 HEREON

EXISTING SEWER TO BE ABANDONED, SEE NOTE 1 HEREON

EXISTING SEWER TO BE ABANDONED, SEE NOTE 1 HEREON

PALMYRITA TREATMENT FACILITY

OXFORD STREET

EAST LA CADENA DRIVE

STA.6+03.00 6" WYE AND PLUG PER STD. DWG. No. 562

STA.6+52.04 HPI SMH No.62

STA.7+64± 8" VCP SEWER LATERAL, SEE NOTE 2 HEREON (20± LF)

EXISTING S.M.H. (2M66) TO BE ABANDONED, SEE NOTE 1 HEREON.

STA.8+31.00 BEGIN 32" I.D. CASING

STA.8+38± RELOCATE STORM DRAIN PER DETAIL 2, SHEET 3

STA.8+45.00 END 32" I.D. CASING

STA.9+45.76 HPI SMH No.63

EXISTING S.M.H. (2M55) TO BE ABANDONED, SEE NOTE 1 HEREON.

STA.10+65± 6" VCP SEWER LATERAL, SEE NOTE 2 HEREON (28± LF)

STA.12+54.70 HPI SMH No.64

EXISTING S.M.H. (2N10) TO BE ABANDONED, SEE NOTE 1 HEREON.

STA.15+76.08 HPI SMH No.65 8" STUB E'LY

EXISTING S.M.H. (2N9) TO BE PROTECTED IN PLACE, SEE NOTE 1 HEREON.

EXISTING SEWER TO BE ABANDONED, SEE NOTE 1 HEREON

18" VITRIFIED CLAY MICROTUNNELING PIPE PER SPECIFICATIONS

VERIFY SCALES
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0 1"
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REGISTERED PROFESSIONAL ENGINEER RANDY ALLEN NEFF No. 46020 Exp. 12-31-10 CIVIL STATE OF CALIFORNIA

KRIEGER & STEWART INCORPORATED
3602 University Ave · Riverside, CA. 92501 · 951-684-6900

APPROVED BY Randy A. Neff
REGISTERED ENGINEER No. 46020 DATE 01/05/10

MARK	REVISIONS	APPR.	DATE

DESIGNED BY RAN DRAWN BY RMD CHECKED BY RMW

CITY OF RIVERSIDE, CALIFORNIA
PUBLIC WORKS DEPARTMENT

APPROVED BY	BY	DATE
PRINCIPAL ENGINEER	PH	1/25/10
INSPECTION	RB	2/3/10
SURVEYOR		
TRAFFIC DIVISION	CH	2-3-10
SEWER	RMW	01/8/10

APPROVED BY: CITY ENGINEER
DATE 2/4/10

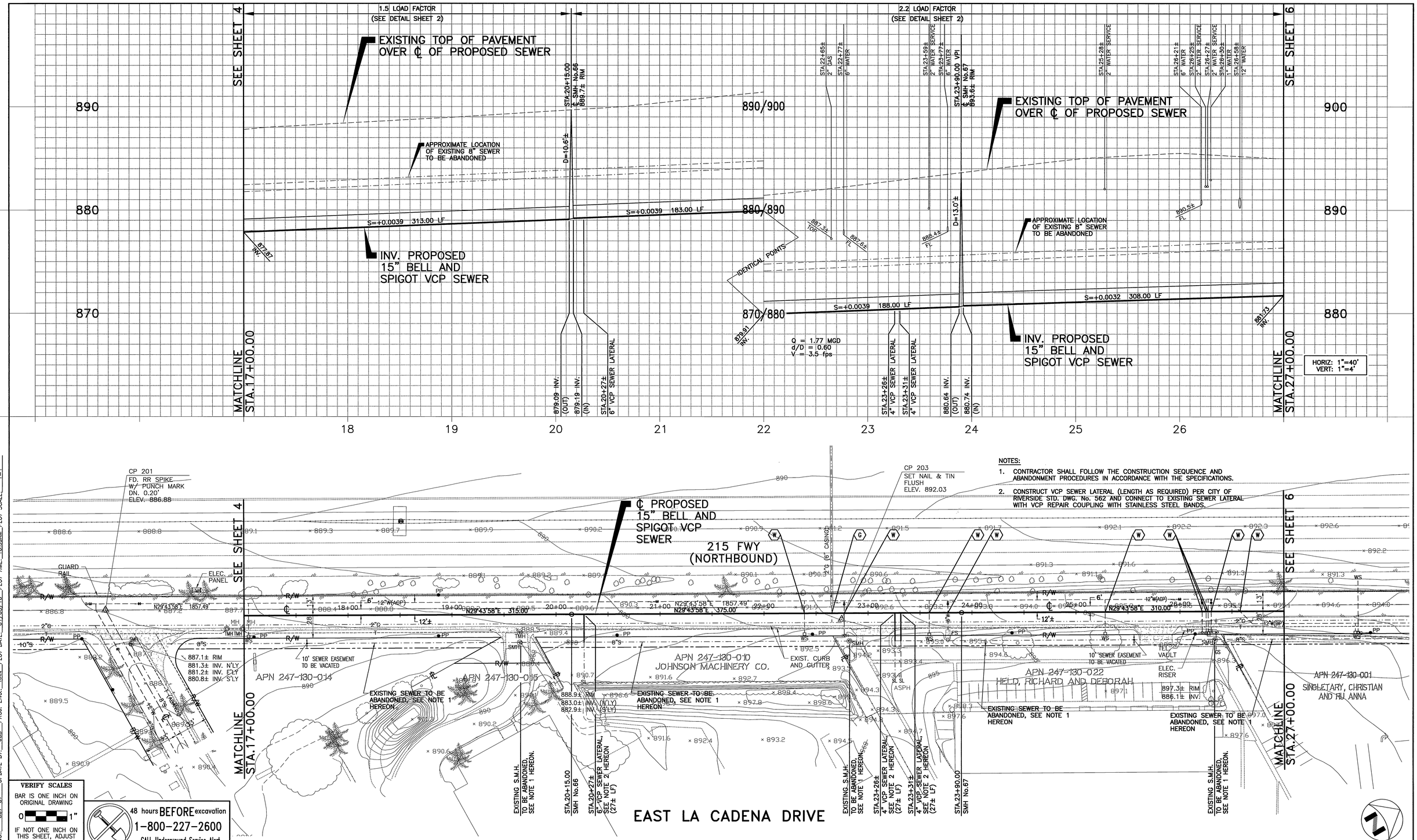
SEWER IMPROVEMENT PLAN
COMMUNITY OF HIGHGROVE CENTER STREET TRUNK SEWER
EAST LA CADENA DRIVE
PLAN AND PROFILE
STA.6+00.00 TO STA.17+00.00

ACCT. No.
W.O. No.
S-2075
SHEET 4 OF 18

HORIZ. SCALE: 1"=40' VERT. SCALE: 1"=4'
FILE NO.:

807-37

DWG. NO.: 807-3784 FILE NO.: 807-37 UPDATE BY: JGS PROJ. ENG.: RAN PLOT DATE: 01/05/10 PLOT TIME: 10:58AM PLOT SCALE: 1=1



NOTES:

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2. CONSTRUCT VCP SEWER LATERAL (LENGTH AS REQUIRED) PER CITY OF RIVERSIDE STD. DWG. No. 562 AND CONNECT TO EXISTING SEWER LATERAL WITH VCP REPAIR COUPLING WITH STAINLESS STEEL BANDS.

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REGISTERED PROFESSIONAL ENGINEER RANDY ALLEN NEFF No. 46020 Exp. 12-31-10 CIVIL STATE OF CALIFORNIA

KRIEGER & STEWART INCORPORATED
3602 University Ave. · Riverside, CA. 92501 · 951-684-6900

APPROVED BY _____ DATE 01/05/10
REGISTERED ENGINEER No. 46020

MARK	REVISIONS	APPR.	DATE

DESIGNED BY RMN DRAWN BY PMD CHECKED BY RMN

CITY OF RIVERSIDE, CALIFORNIA
PUBLIC WORKS DEPARTMENT

APPROVED BY	BY	DATE
PRINCIPAL ENGINEER	RH	1/25/10
INSPECTION	AB	1/12/10
SURVEYOR		
TRAFFIC DIVISION		2-3-10
SEWER		1/12/10

APPROVED BY: _____ CITY ENGINEER
DATE 2/4/10

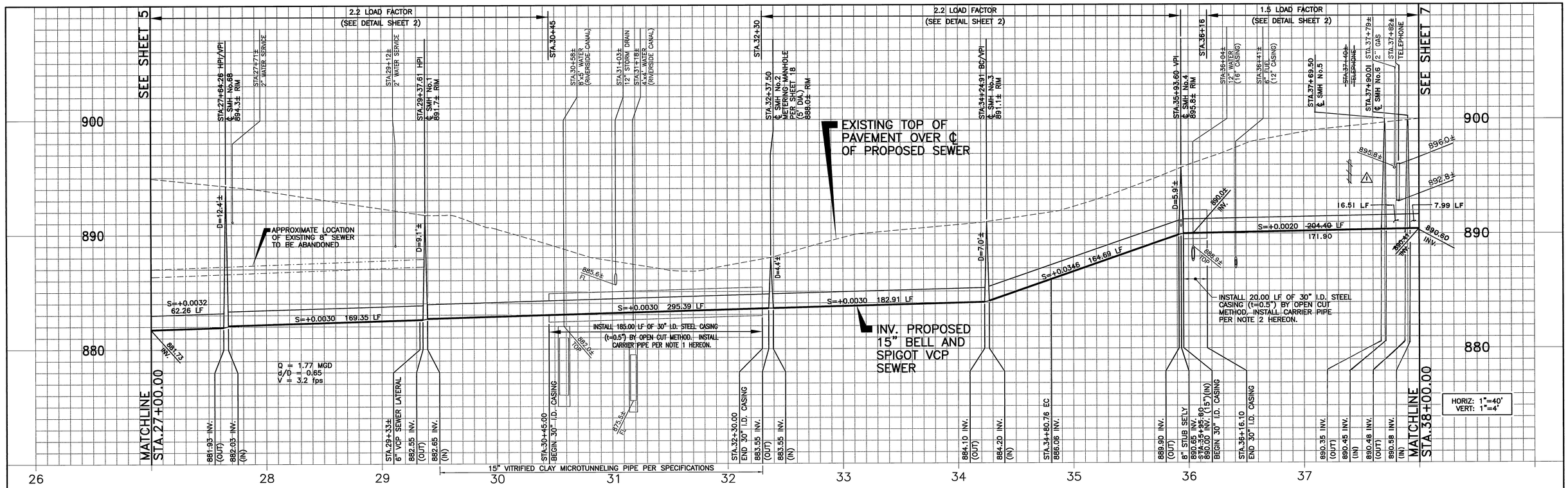
SEWER IMPROVEMENT PLAN
COMMUNITY OF HIGHGROVE CENTER STREET TRUNK SEWER
EAST LA CADENA DRIVE
PLAN AND PROFILE
STA.17+00.00 TO STA.27+00.00

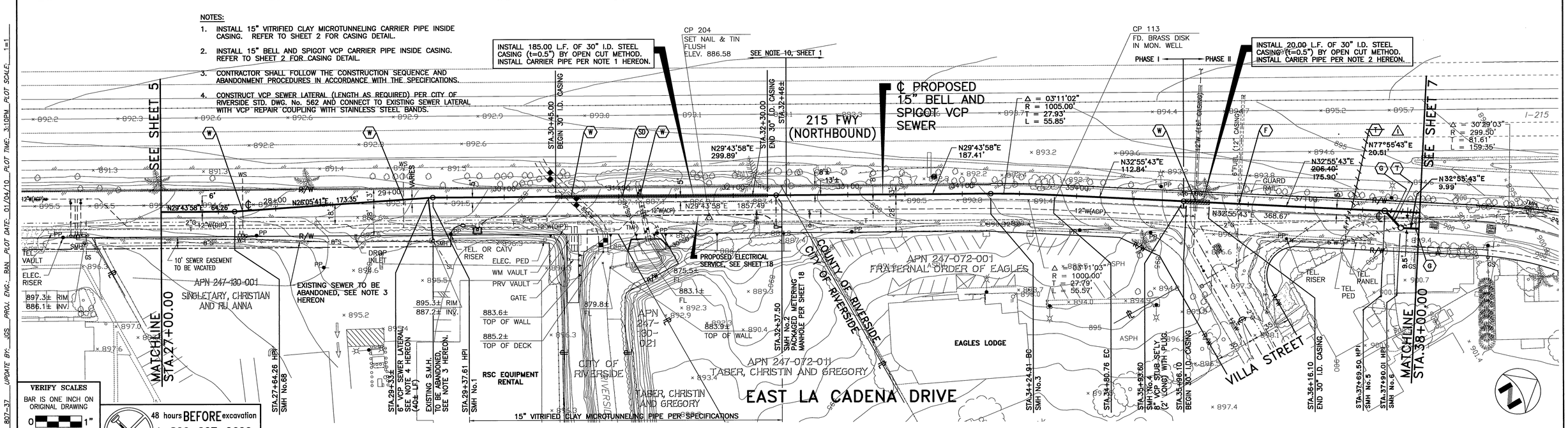
HORIZ. SCALE: 1"=40' VERT. SCALE: 1"=4'

ACCT. No.
W.O. No.
S-2075
SHEET 5 OF 18
FILE NO.:

807-37

DWG. NO.: 807-37&5 FILE NO.: 807-37 UPDATE BY: JGS PROJ. ENG.: RAN PLOT DATE: 01/05/10 PLOT TIME: 10:59AM PLOT SCALE: 1=1





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SEAL—COUNTY
REGISTERED PROFESSIONAL ENGINEER ALAN D. FRENCH No. 45702 Exp. 12-31-10 CIVIL STATE OF CALIFORNIA

COUNTY OF RIVERSIDE
TRANSPORTATION DEPARTMENT
APPROVED BY: Alan French 2-11-10
ALAN D. FRENCH DATE
RECOMMENDED 02-10-10 DATE

REGISTERED PROFESSIONAL ENGINEER RANDY ALLEN NEFF No. 46020 Exp. 12-31-10 CIVIL STATE OF CALIFORNIA

KRIEGER & STEWART INCORPORATED
3602 University Ave. · Riverside, CA. 92501 · 951—684—6900
APPROVED BY R. A. Neff
REGISTERED ENGINEER No. 46020 DATE 01/05/10

MARK	REVISIONS	APPR.	DATE
1	REVISED SEWER ALIGNMENT AND PROFILE PER CONTRACTOR'S POTHOLE DATA	RAN	1/05/10

DESIGNED BY RAN DRAWN BY PMP CHECKED BY RAN

CITY OF RIVERSIDE, CALIFORNIA
PUBLIC WORKS DEPARTMENT

APPROVED BY	BY	DATE
PRINCIPAL ENGINEER	DH	1/5/10
INSPECTION	MC	2/2/10
SURVEYOR		
TRAFFIC DIVISION	EH	2-3-10
SEWER	RAN	1/19/10

APPROVED BY: CITY ENGINEER
DATE 2/4/10

MS 4234 IP 090075 W.O. 10-00009

SEWER IMPROVEMENT PLAN
ACCT. No.
W.O. No.

COMMUNITY OF HIGHGROVE CENTER STREET TRUNK SEWER
EAST LA CADENA DRIVE
PLAN AND PROFILE
STA.27+00.00 TO STA.38+00.00

S-2075
SHEET 6 OF 18

HORIZ. SCALE: 1"=40'
VERT. SCALE: 1"=4'
FILE NO.:

807-37

DWG. NO.: 807-37p6 FILE NO.: 807-37 UPDATE BY: JGS PROJ. ENG.: RAN PLOT DATE: 01/04/10 PLOT TIME: 3:10PM PLOT SCALE: 1=1

VERIFY SCALES

BAR IS ONE INCH ON ORIGINAL DRAWING

0 1"

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SEAL–COUNTY

REGISTERED PROFESSIONAL ENGINEER — ALAN D. FRENCH — No. 45702 — Exp 12-31-10 — CIVIL — STATE OF CALIFORNIA

COUNTY OF RIVERSIDE
TRANSPORTATION DEPARTMENT
APPROVED BY:
Alan French 2-11-10
ALAN D. FRENCH — DATE
RECOMMENDED 02-10-10 DATE

REGISTERED PROFESSIONAL ENGINEER — RANDY ALLEN NEFF — No 46020 — Exp 12-31-10 — CIVIL — STATE OF CALIFORNIA

KRIEGER & STEWART INCORPORATED
3602 University Ave · Riverside, CA 92501 · 951-684-6900

APPROVED BY R. A. Neff
REGISTERED ENGINEER No. 46020 DATE 01/05/10

MARK	REVISIONS	APPR.	DATE
⚠1	REVISED SEWER ALIGNMENT AND PROFILE PER CONTRACTOR'S POTHOLE DATA		10/8/10

DESIGNED BY RAAJ DRAWN BY PMD CHECKED BY MGM

CITY OF RIVERSIDE, CALIFORNIA
PUBLIC WORKS DEPARTMENT

APPROVED BY	BY	DATE
PRINCIPAL ENGINEER	PH	1/25/10
INSPECTION	AS	2/2/10
SURVEYOR		
TRAFFIC DIVISION		
SEWER		1/13/10

APPROVED BY:
CITY ENGINEER
DATE 2/4/10

MS 4234 IP 090075 W.O. 10-00009

SEWER IMPROVEMENT PLAN

ACCT. No.
W.O. No.

COMMUNITY OF HIGHGROVE CENTER STREET TRUNK SEWER
EAST LA CADENA DRIVE AND HIGHGROVE PLACE
PLAN AND PROFILE
STA.38+00.00 TO STA.43+54.90 BK
STA.43+56.21 AH TO STA.49+50.00

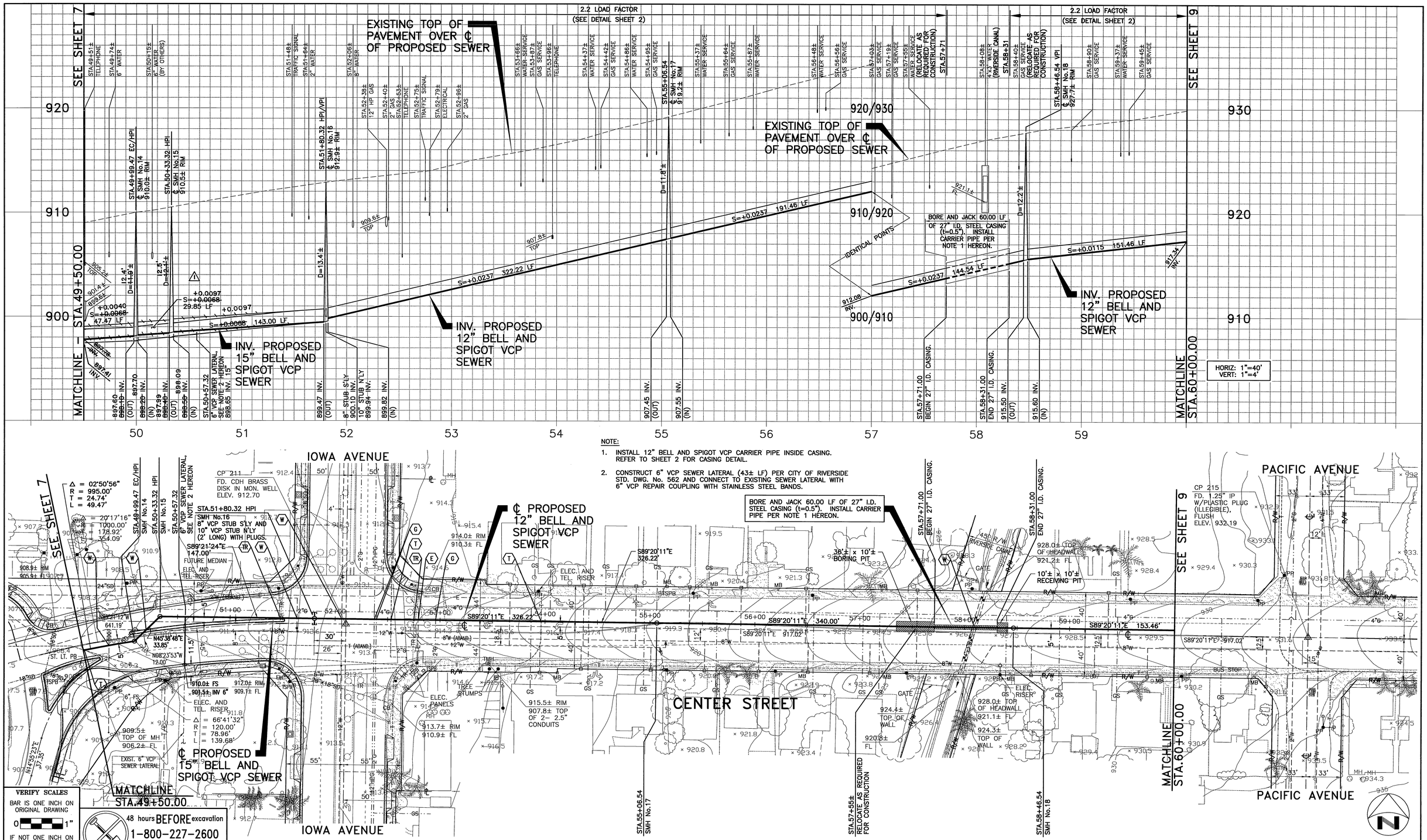
S–2075

SHEET 7 OF 18

HORIZ. SCALE: 1"=40' VERT. SCALE: 1"=4' FILE NO.:

807–37

DWG. NO.: 807-37s7 FILE NO.: 807-37 UPDATE BY SPK PROJ. ENG.: RAN PLOT DATE 12/22/09 PLOT TIME 11:24AM PLOT SCALE: 1=1



NOTE:

1. INSTALL 12" BELL AND SPIGOT VCP CARRIER PIPE INSIDE CASING. REFER TO SHEET 2 FOR CASING DETAIL.
2. CONSTRUCT 6" VCP SEWER LATERAL (43± LF) PER CITY OF RIVERSIDE STD. DWG. No. 562 AND CONNECT TO EXISTING SEWER LATERAL WITH 6" VCP REPAIR COUPLING WITH STAINLESS STEEL BANDS.

VERIFY SCALES

BAR IS ONE INCH ON ORIGINAL DRAWING

0 1"

IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

48 hours BEFORE excavation
1-800-227-2600
CALL Underground Service Alert

NOTE:

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SEAL—COUNTY

REGISTERED PROFESSIONAL ENGINEER ALAN D. FRENCH No. 45702 Exp. 12-31-10 CIVIL STATE OF CALIFORNIA

COUNTY OF RIVERSIDE
TRANSPORTATION DEPARTMENT
APPROVED BY: Alan French 2-11-10
ALAN D. FRENCH DATE
RECOMMENDED 02-10-10 DATE

REGISTERED PROFESSIONAL ENGINEER RANDY ALLEN NEFF No. 46020 Exp. 12-31-10 CIVIL STATE OF CALIFORNIA

KRIEGER & STEWART INCORPORATED
3602 University Ave. · Riverside, CA. 92501 · 951-684-6900

APPROVED BY Randy A. Neff
REGISTERED ENGINEER No. 46020 DATE 01/05/10

MARK	REVISIONS	APPR.	DATE
1	REVISED SEWER ALIGNMENT AND PROFILE PER CONTRACTOR'S POTHOLE DATA	RAN	01/05/10

DESIGNED BY RAN DRAWN BY RMD CHECKED BY MSM

CITY OF RIVERSIDE, CALIFORNIA
PUBLIC WORKS DEPARTMENT

APPROVED BY	BY	DATE
PRINCIPAL ENGINEER	DH	1/25/10
INSPECTION	[illegible]	2/2/10
SURVEYOR		
TRAFFIC DIVISION		
SEWER	RAN	1/25/10

APPROVED BY: [signature] CITY ENGINEER
DATE 2/4/10

MS 4234 IP 090075 W.O. 10-00009

SEWER IMPROVEMENT PLAN — ACCT. No. W.O. No.

COMMUNITY OF HIGHGROVE CENTER STREET TRUNK SEWER

CENTER STREET
PLAN AND PROFILE
STA.49+50.00 TO STA.60+00.00

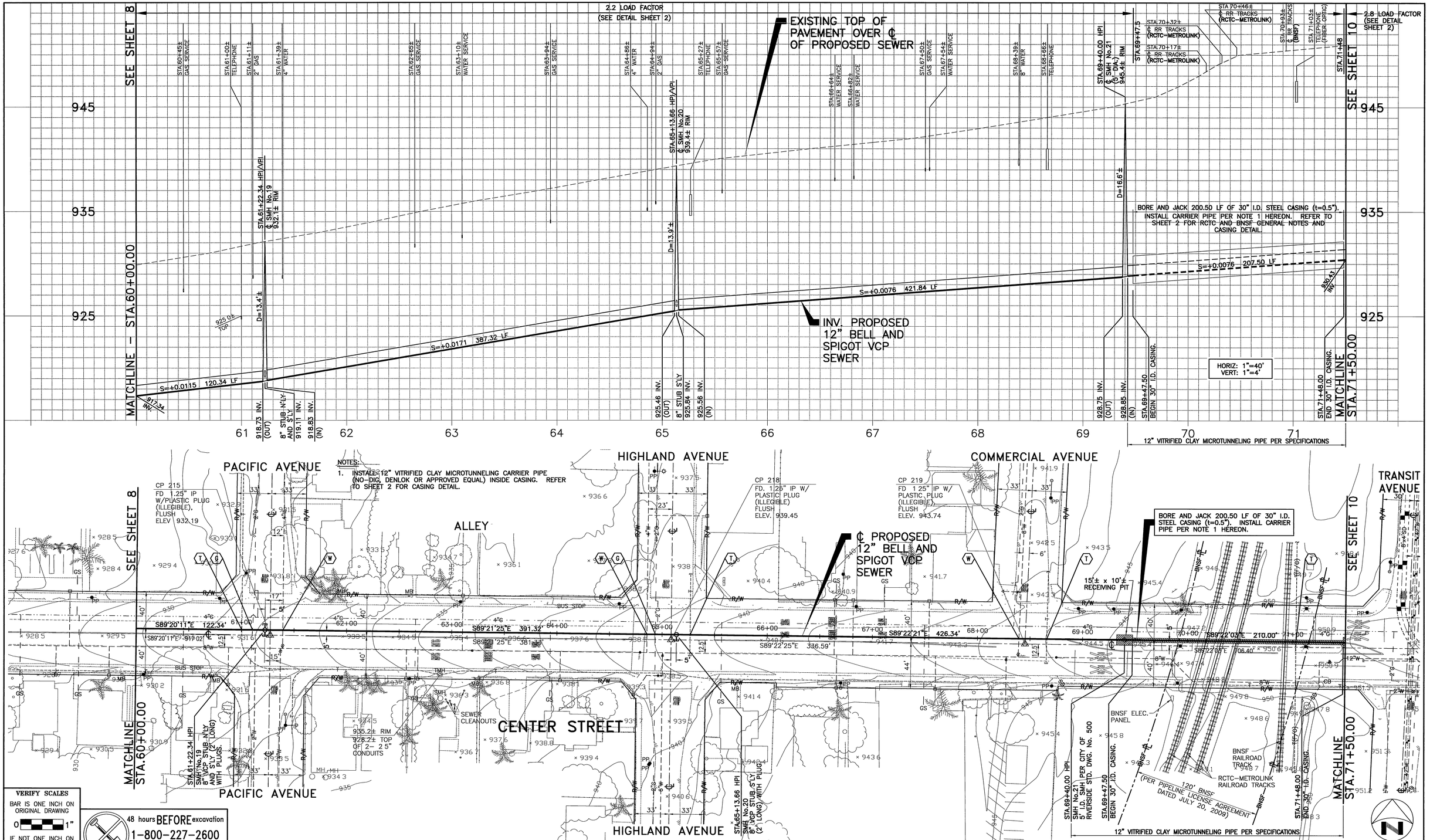
S-2075

SHEET 8 OF 18

HORIZ. SCALE: 1"=40' VERT. SCALE: 1"=4' FILE NO.:

807-37

DWG NO.: 807-37s8 FILE NO.: 807-37 UPDATE BY: SPK PROJ. ENG.: RAN PLOT DATE: 12/22/09 PLOT TIME: 11:28AM PLOT SCALE: 1=1



VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

48 hours BEFORE excavation
1-800-227-2600
CALL Underground Service Alert

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SEAL–COUNTY
REGISTERED PROFESSIONAL ENGINEER ALAN D. FRENCH No 45702 Exp 12-31-10 CIVIL STATE OF CALIFORNIA

COUNTY OF RIVERSIDE
TRANSPORTATION DEPARTMENT
APPROVED BY: Alan French 2-11-10
ALAN D. FRENCH DATE
RECOMMENDED 02-10-10 DATE

REGISTERED PROFESSIONAL ENGINEER RANDY ALLEN NEFF No 46020 Exp 12-31-10 CIVIL STATE OF CALIFORNIA

KRIEGER & STEWART INCORPORATED
3602 University Ave · Riverside, CA 92501 · 951-684-6900
APPROVED BY Randy A. Neff
REGISTERED ENGINEER No. 46020 DATE 01/05/10

MARK	REVISIONS	APPR.	DATE

DESIGNED BY RAN DRAWN BY SMD CHECKED BY MGA

CITY OF RIVERSIDE, CALIFORNIA
PUBLIC WORKS DEPARTMENT

APPROVED BY	BY	DATE
PRINCIPAL ENGINEER	DH	2/2/10
INSPECTION	BAS	2/2/10
SURVEYOR		
TRAFFIC DIVISION		
SEWER	RM	1/28/10

APPROVED BY: CITY ENGINEER
DATE 2/4/10

MS 4234 IP 090075 W.O. 10-00009

SEWER IMPROVEMENT PLAN
COMMUNITY OF HIGHGROVE CENTER STREET TRUNK SEWER
CENTER STREET
PLAN AND PROFILE
STA.60+00.00 TO STA.71+50.00

ACCT. No.
W.O. No.
S-2075
SHEET 9 OF 18

HORIZ. SCALE: 1"=40'
VERT. SCALE: 1"=4'
FILE NO.:

807-37

DWG. NO - 807-37sg FILE NO - 807-37 UPDATE BY - SPK PROJ. ENG. - RAN PLOT DATE - 12/22/09 PLOT TIME - 11:32AM PLOT SCALE - 1=1

SEE SHEET 9

SEE SHEET 11

EXISTING TOP OF PAVEMENT OVER ℄ OF PROPOSED SEWER

EXISTING TOP OF PAVEMENT OVER ℄ OF PROPOSED SEWER

2.8 LOAD FACTOR (SEE DETAIL SHEET 2)

2.2 LOAD FACTOR (SEE DETAIL SHEET 2)

2.2 LOAD FACTOR (SEE DETAIL SHEET 2)

STA.71+88.54 VPI
℄ SMH No.22
(5' DIA.)
951.4± RIM
STA.71+94
STA.71+90±
2" GAS
STA.72+14±
42" WATER
STA.72+16±
8'X4' STORM DRAIN (RCFC & WCD)
STA.72+62
STA.72+34±
STA.72+36±
TELEPHONE
STA.72+49±
12" WATER
STA.73+15±
18" STORM DRAIN
STA.73+45±
GAS SERVICE
STA.73+68±
WATER SERVICE
STA.73+93±
WATER SERVICE
STA.74+30
STA.75+50±
8" WATER
STA.75+25±
2" GAS
STA.75+07±
2" WATER
75+24.00
STA.75+41.50 HPI/VPI/BC
℄ SMH No.23
(5' DIA.)
955.0± RIM
954.8±
STA.75+59±
TELEPHONE
STA.76+77±
WATER SERVICE
STA.77+91.89 EO/HPI/VPI
℄ SMH No.24
(5' DIA.)
963.1± RIM
STA.78+07
STA.78+61±
12" WATER
STA.78+69±
(2) RACKS (UPRR)
STA.78+91±
TELEPHONE (FIBER OPTIC)
STA.79+14±
18" STORM DRAIN
STA.79+32
STA.79+55.17 HPI/BC
℄ SMH No.25
(5' DIA.)
965.0± RIM
STA.79+81±
GAS SERVICE
STA.80+31±
TELEPHONE
STA.81+16±
6" WATER (ABMNDDNED)

950
940
930
950/970
940/960
930/950
970
960
950

APPROXIMATE LOCATION OF 8'X4' RCB STORM DRAIN

APPROXIMATE LOCATION OF 66" RCP STORM DRAIN

APPROXIMATE LOCATION OF 66" RCP STORM DRAIN

62.00
BORE AND JACK ~~68.00~~ LF OF 27" I.D. STEEL CASING (t=0.5"). INSTALL CARRIER PIPE PER NOTE 2 HEREON.

INV. PROPOSED 12" MICROTUNNELING VCP SEWER

S=+0.0076
~~36.04~~ LF
46.50

(956.04±) FL

S=+0.0235 ~~346.05~~ LF
S=+0.0241 320.00 LF

S=+0.0275 ~~155.91~~ LF
S=+0.0273 173.39 LF

INV. PROPOSED 10" BELL AND SPIGOT VCP SEWER

INV. PROPOSED 10" BELL AND SPIGOT VCP SEWER

IDENTICAL POINTS

BORE AND JACK 125.00 LF OF 24" I.D. STEEL CASING (t=0.5"). INSTALL CARRIER PIPE PER NOTE 1 HEREON.

S=+0.0182 242.33 LF

S=+0.0275 89.39 LF
S=+0.0273

S=+0.0182 158.28 LF

D=16.1±
D=15.8±
D=17.1±
D=17.0±

MATCHLINE STA.71+50.00

MATCHLINE STA.82+00.00

930.43 INV.

983.49 INV.

943.26 INV.

8" STUB S'LY
~~930.79~~ INV. 930.78
(OUT)

~~931.08~~ INV. 931.14
(IN)

~~930.07~~ INV. 931.03
(IN)

72+04.00
STA.71+94.00
~~BEGIN 27" I.D. CASING~~

66.00
STA.72+62.00
END 27" I.D. CASING.

938.73 INV.
~~938.15~~ INV.
(OUT)

8" STUB S'LY
~~939.25~~ INV. 938.95
938.83
~~939.25~~ INV.
(IN)

75+46.52 BK
STA.75+86.83 PCC/AH
~~940.42~~ INV.
940.47

946.00 INV.
(OUT)

946.10 INV.
(IN)

STA.78+07.00
BEGIN 24" I.D. CASING.

STA.79+32.00
END 24" I.D. CASING.

948.98 INV.
(OUT)

949.08 INV.
(IN)

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

12" VITRIFIED CLAY MICROTUNNELING PIPE PER SPECIFICATIONS

10" VITRIFIED CLAY MICROTUNNELING PIPE PER SPECIFICATIONS

72 73 74 75 76 77 78 79 80 81

NOTES:

1. INSTALL 10" VITRIFIED CLAY MICROTUNNELING CARRIER PIPE (NO-DIG, DENLOK OR APPROVED EQUAL) INSIDE CASING. REFER TO SHEET 2 FOR CASING DETAIL.
2. INSTALL 10" BELL AND SPIGOT VCP CARRIER PIPE INSIDE CASING. REFER TO SHEET 2 FOR CASING DETAIL.

℄ PROPOSED 12" BELL AND SPIGOT VCP SEWER

TRANSIT AVENUE

PROSPECT AVENUE

CP 22K
FD. 1.25" IP W/ PLASTIC PLUG (ILLEGIBLE), FLUSH
ELEV. 955.25

62.00
BORE AND JACK ~~68.00~~ LF OF 27" I.D. STEEL CASING (t=0.5"). INSTALL CARRIER PIPE PER NOTE 2 HEREON.

℄ PROPOSED 10" BELL AND SPIGOT VCP SEWER

PHASE ~~PHASE~~ 2 — PHASE 3

CALIFORNIA AVENUE

UNION PACIFIC RAILROAD PER CONSENT LETTER DATED FEB. 20, 2009

BORE AND JACK 125.00 LF OF 24" I.D. STEEL CASING (t=0.5"). INSTALL CARRIER PIPE PER NOTE 1 HEREON.

CP 227
FD. 1.25" IP (TOP DAMAGED), FLUSH
ELEV. 968.92

Δ = 09°19'52"
R = 383.93'
T = 31.35'
L = 62.52'

~~Δ = 12°54'16"~~
~~R = 200.00'~~
~~T = 22.61'~~
~~L = 45.04'~~

Δ = 00°54'29"
R = 20000.00'
T = 158.50'
L = 317.00'

Δ = 00°35'16"
R = 20010.00'
T = 102.63'
L = 205.26'

Δ = 00°36'04"
R = 20010.00'
T = 104.94'
L = 209.87'

45'± x 10'± BORING PIT
49.00'
S89°22'03"E
~~36.54'~~

15'± x 10'± RECEIVING PIT

20'± x 10'± RECEIVING PIT

36'± x 10'± BORING PIT

S89°22'03"E 706.40'

325.00'
~~353.95'~~

S88°30'43"E 163.28'

S88°27'34"E 61.13'

S87°50'42"E 244.83'

S89°03'39"E 1117.81'

CENTER STREET

ALLEY

ALLEY

TRANSIT AVENUE

PROSPECT AVENUE

CALIFORNIA AVENUE

FUTURE STREET

MATCHLINE STA.71+50.00

MATCHLINE STA.82+00.00

SMH No.22
5' I.D. SMH PER CITY OF RIVERSIDE STD. DWG. No. 500
8" VCP 'STUB S'LY' (2' LONG) WITH PLUG.
STA.71+88.54 VPI
STA.71+93.00

STA.71+94.00
72+04.00
BEGIN 27" I.D. CASING.

66.00
STA.72+62.00
END 27" I.D. CASING.

SMH No.23
5' I.D. SMH PER CITY OF RIVERSIDE STD. DWG. No. 500
8" VCP 'STUB S'LY' (2' LONG) WITH PLUG.
24.00
STA.75+41.50 HPI/BC

75+46.52 BK
STA.75+86.83 PCC/AH

SMH No.24
5' I.D. SMH PER CITY OF RIVERSIDE STD. DWG. No. 500
STA.77+91.89 EO/HPI/VPI
STA.78+07.00
BEGIN 24" I.D. CASING.

STA.79+32.00
END 24" I.D. CASING.

SMH No.25
5' I.D. SMH PER CITY OF RIVERSIDE STD. DWG. No. 500
STA.79+55.17 HPI/BC

10" VITRIFIED CLAY MICROTUNNELING PIPE PER SPECIFICATIONS

500'

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

48 hours BEFORE excavation
1-800-227-2600
CALL Underground Service Alert

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SEAL—COUNTY
REGISTERED PROFESSIONAL ENGINEER ALAN D. FRENCH No. 45702 Exp. 12-31-10 CIVIL STATE OF CALIFORNIA

COUNTY OF RIVERSIDE
TRANSPORTATION DEPARTMENT
APPROVED BY: Alan French 2-11-10
ALAN D. FRENCH — DATE
RECOMMENDED — 02-10-10 DATE

REGISTERED PROFESSIONAL ENGINEER RANDY ALLEN NEFF No. 46020 Exp. 12-31-10 CIVIL STATE OF CALIFORNIA

KRIEGER & STEWART INCORPORATED
3602 University Ave. · Riverside, CA. 92501 · 951-684-6900

APPROVED BY Randy A. Neff
REGISTERED ENGINEER No. 46020 DATE 01/05/10

MARK	REVISIONS	APPR.	DATE
1	REVISED SEWER ALIGNMENT AND PROFILE PER CONTRACTOR'S POTHOLE DATA	RAN	10/6/10

DESIGNED BY RAN DRAWN BY RMD CHECKED BY MLM

CITY OF RIVERSIDE, CALIFORNIA
PUBLIC WORKS DEPARTMENT

APPROVED BY	BY	DATE
PRINCIPAL ENGINEER	DH	1/5/10
INSPECTION	RB	2/2/10
SURVEYOR		
TRAFFIC DIVISION		
SEWER	RAN	1/13/10

APPROVED BY: CITY ENGINEER
DATE 2/4/10

MS 4234 IP 090075 W.O. 10-00009

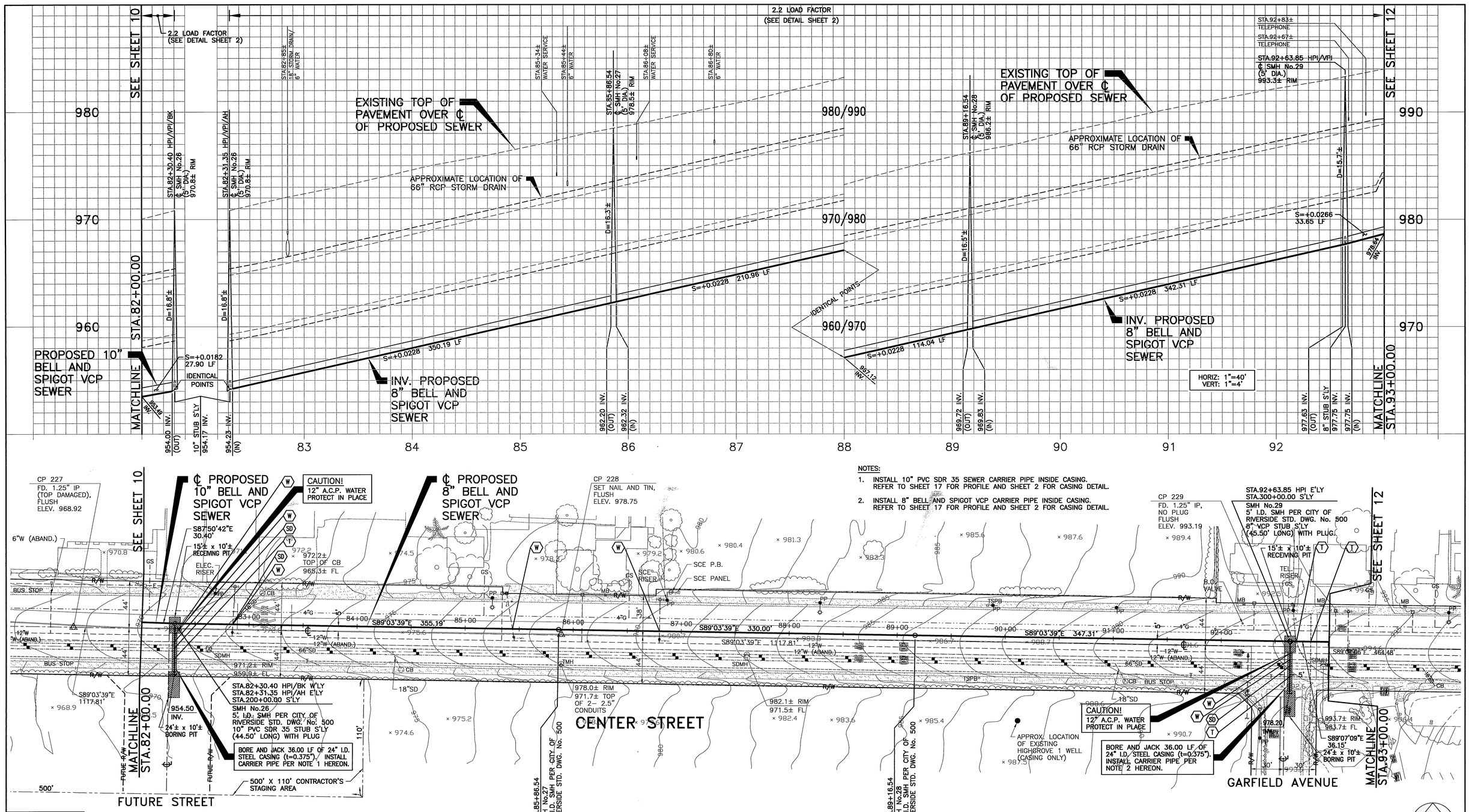
SEWER IMPROVEMENT PLAN
COMMUNITY OF HIGHGROVE CENTER STREET TRUNK SEWER
CENTER STREET
PLAN AND PROFILE
STA.71+50.00 TO STA.82+00.00

ACCT. No.
W.O. No.
S-2075
SHEET 10 OF 18

HORIZ. SCALE: 1"=40' VERT. SCALE: 1"=4'
FILE NO.:

807-37

DWG. NO.: 807-37s10 FILE NO.: 807-37 UPDATE BY: JGS PROJ. ENG.: RAN PLOT DATE: 01/05/10 PLOT TIME: 11:03AM PLOT SCALE: 1=1



VERIFY SCALES
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0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

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SEAL—COUNTY
REGISTERED PROFESSIONAL ENGINEER ALAN D. FRENCH No. 45702 Exp. 12-31-10 CIVIL STATE OF CALIFORNIA

COUNTY OF RIVERSIDE
TRANSPORTATION DEPARTMENT
APPROVED BY:
ALAN D. FRENCH — DATE 2-11-10
RECOMMENDED — DATE 02-10-10

REGISTERED PROFESSIONAL ENGINEER RANDY ALLEN NOFF No. 46020 Exp. 12-31-10 CIVIL STATE OF CALIFORNIA

KRIEGER & STEWART INCORPORATED
3602 University Ave. · Riverside, CA. 92501 · 951-684-6900
APPROVED BY Randy A. Noff
REGISTERED ENGINEER No. 46020 DATE 01/05/10

MARK	REVISIONS	APPR.	DATE

DESIGNED BY RAN DRAWN BY RMD CHECKED BY MEM

CITY OF RIVERSIDE, CALIFORNIA
PUBLIC WORKS DEPARTMENT

APPROVED BY	BY	DATE
PRINCIPAL ENGINEER	DH	1/12/10
INSPECTION	RS	2/2/10
SURVEYOR		
TRAFFIC DIVISION		
SEWER	RAY	1/12/10

APPROVED BY: CITY ENGINEER
DATE 2/4/10

MS 4234 IP 090075 W.O. 10-00009

SEWER IMPROVEMENT PLAN — ACCT. No. W.O. No.

COMMUNITY OF HIGHGROVE CENTER STREET TRUNK SEWER
CENTER STREET
PLAN AND PROFILE
STA.82+00.00 TO STA.82+30.40 BK
STA.82+31.35 AH TO STA.93+00.00

S-2075
SHEET 11 OF 18

HORIZ. SCALE: 1"=40' VERT. SCALE: 1"=4' FILE NO.:

807-37

DWG NO.: 807-37s11 FILE NO.: 807-37 UPDATE BY: JGS PROJ. ENG.: RAN PLOT DATE: 01/04/10 PLOT TIME: 3:27PM PLOT SCALE: 1=1