CITY OF SPARKS
EL RANCHO SEWER IMPROVEMENT PLANS
PWP #WA-2018-271
AUGUST 2018

CITY OF SPARKS OFFICIALS

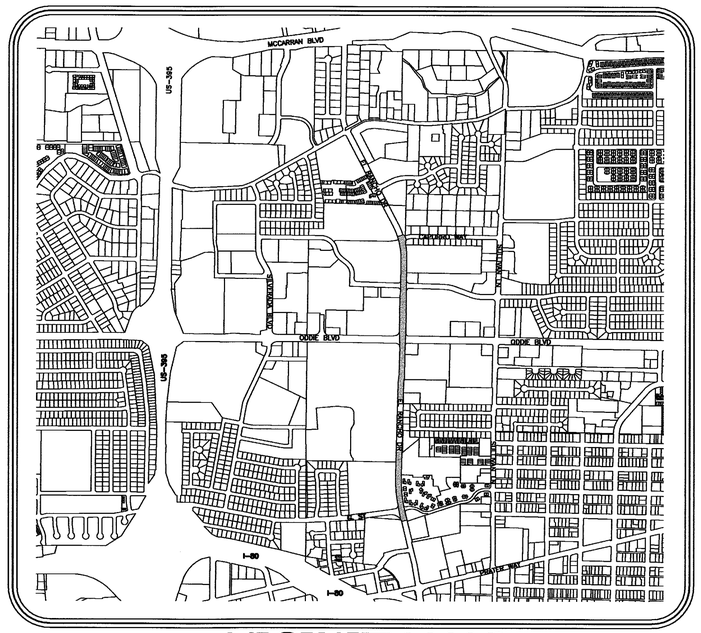
GENO MARTINI	.....	MAYOR
DONALD ABBOTT	.....	COUNCIL MEMBER WARD 1
ED LAWSON	.....	COUNCIL MEMBER WARD 2
RON SMITH	.....	COUNCIL MEMBER WARD 3
CHARLENE BYBEE	.....	COUNCIL MEMBER WARD 4
KRISTOPHER DAHIR	.....	COUNCIL MEMBER WARD 5
STEPHEN DRISCOLL	.....	CITY MANAGER

City of Sparks Community Services

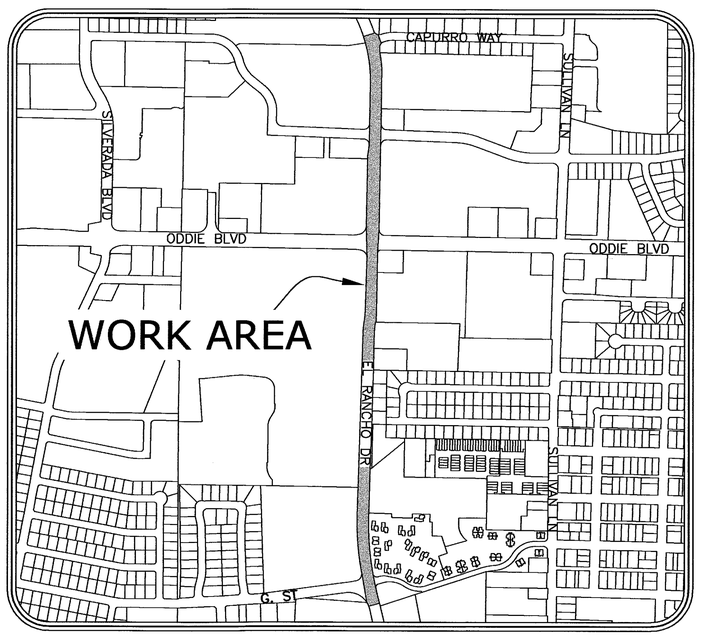
BID#18/19-009

APPROVED BY: _____ DATE: 8/27/18
JON R. ERICSON, P.E., P.T.O.E
CITY ENGINEER

APPROVED BY: _____ DATE: 8-24-2018
ANDY HUMMEL, P.E.
UTILITY MANAGER



VICINITY MAP



SITE PLAN

ENGINEER

Axion ENGINEERING
Civil Engineering • Land Development
681 EDISON WAY – RENO, NEVADA 89502
PH 775-771-5554 / FX 775-856-3951

SHEET INDEX

ABBREVIATIONS

AC	ASPHALT CEMENT	LF	LINEAR FEET
BC	BEGINNING OF CURVE	LP	LOW POINT
BF	BOTTOM OF FOOTING	M.D.D.	MAXIMUM DRY DENSITY
BFC	BACK FACE OF CURB	MIN.	MINIMUM
BVC	BEGINNING OF VERTICAL CURVE	MPOC	MID POINT OF CURVE
CB	CATCH BASIN	PI	POINT OF INTERSECTION
CL	CENTERLINE	PCC	POINT OF COMPOUND CURVATURE
DI	DROP INLET	PRC	POINT OF REVERSE CURVATURE
ELEV.	ELEVATION	PVC	POLYVINYL CHLORIDE
EC	END OF CURVE	R	RADIUS
EP	EDGE OF PAVEMENT	REF.	REFERENCE
EVC	END OF VERTICAL CURVE	RET.	RETURN
EXIST.	EXISTING	RCP	REINFORCED CONCRETE PIPE
(e)	EXISTING	RT.	RIGHT
FF	FINISH FLOOR	R/W	RIGHT OF WAY
FFC	FRONT FACE OF CURB	SD	STORM DRAIN
FG	FINISH GRADE	SS	SANITARY SEWER
FHA	FIRE HYDRANT ASSEMBLY	SF	SQUARE FEET
FL	FLOW LINE	SSMH	SANITARY SEWER MANHOLE
G	GAS	SDMH	STORM DRAIN MANHOLE
GB	GRADE BREAK	S	SLOPE
HORIZ.	HORIZONTAL	STA.	STATION
IE	INVERT ELEVATION	TC	TOP OF CURB
LAT.	LATERAL	VC	VERTICAL CURB
LT.	LEFT	VPI	VERTICAL POINT OF INTERSECTION

APPROVED BY: _____ DATE: 8/24/18
GARY K. GUZELIS, P.E.
AXION ENGINEERING

PROFESSIONAL ENGINEER-STATE OF NEVADA
GARY K. GUZELIS
Exp. 6-30-19
CIVIL
No. 10372
8/24/18

TITLE SHEET

Axion ENGINEERING
Civil Engineering • Land Development
681 EDISON WAY – RENO, NEVADA 89502
PH 775-771-5554 / FX 775-856-3951

SEWER IMPROVEMENT PLANS FOR
EL RANCHO DRIVE
SPARKS, NEVADA

revisions

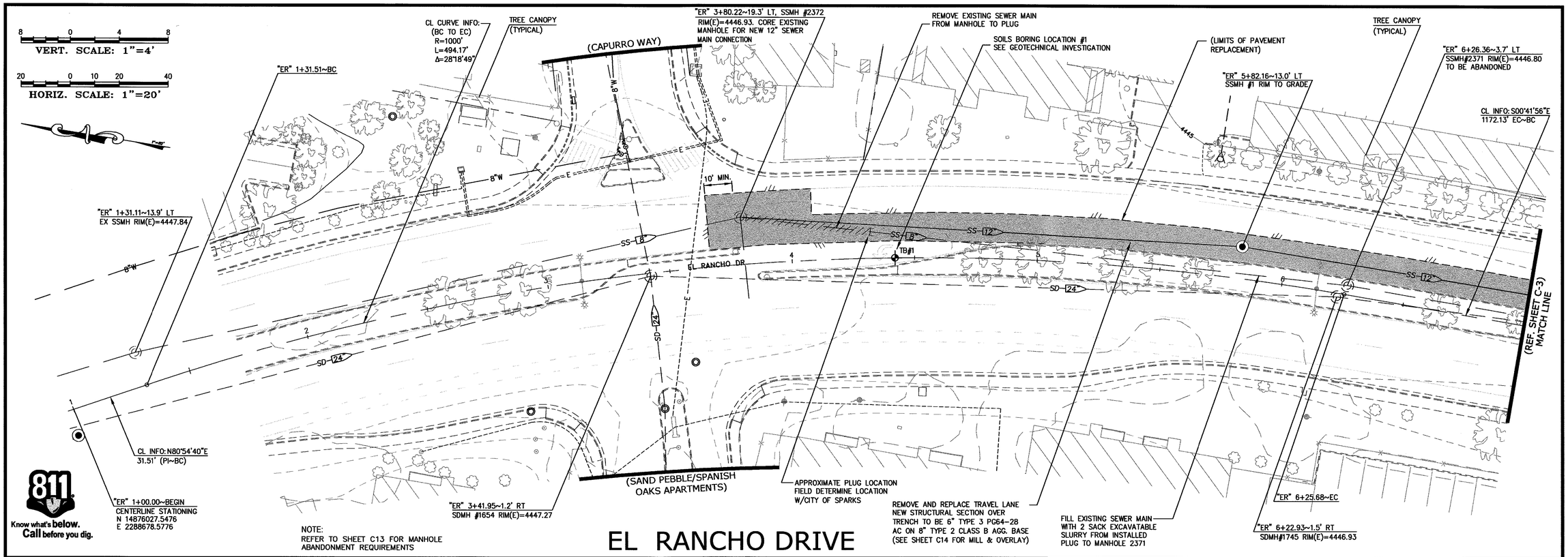
drawn:	GKG
checked:	GKG
date:	AUGUST 2018
scale:	
project no:	17020

C-1

N:\Axion Engineering\Projects A-E\City of Sparks\Sparks_CIP\ El Rancho Sewer\drawings\El Rancho Title.dwg

8 0 4 8
VERT. SCALE: 1"=4'

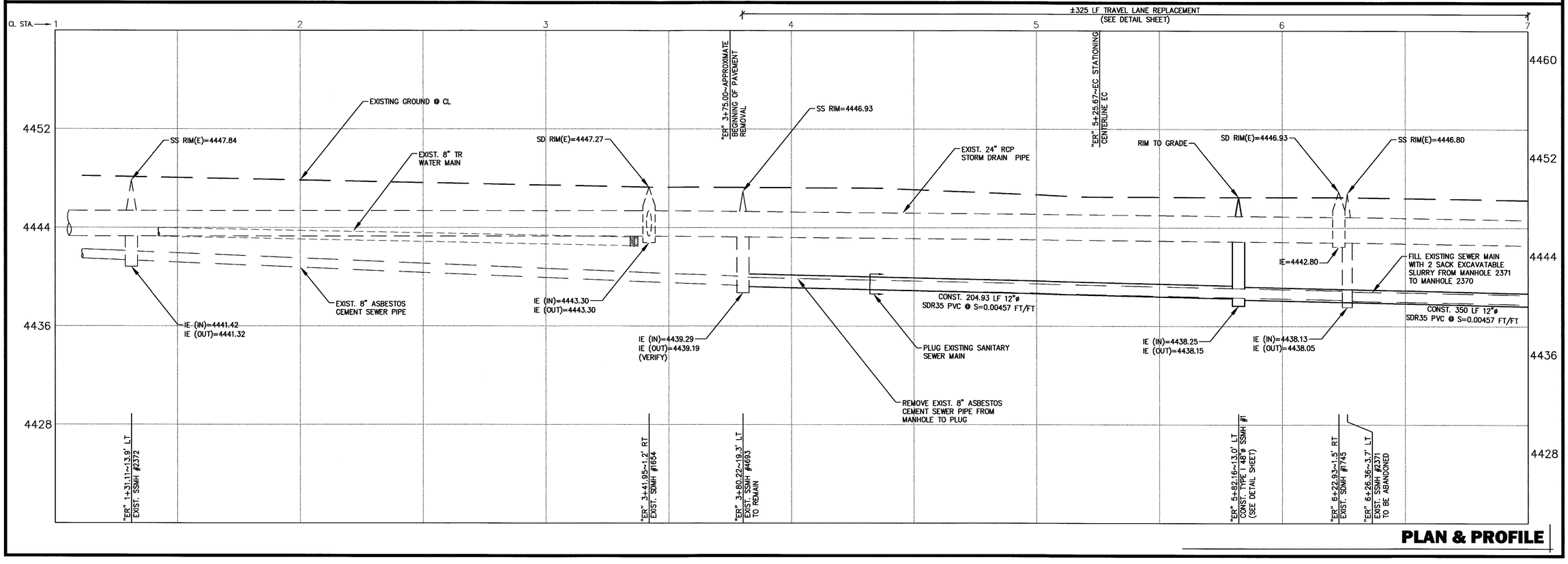
20 0 10 20 40
HORIZ. SCALE: 1"=20'



811 Know what's below. Call before you dig.

NOTE:
REFER TO SHEET C13 FOR MANHOLE
ABANDONMENT REQUIREMENTS

EL RANCHO DRIVE



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Civil Engineering • Land Development
661 EDISON WAY – RENO, NEVADA 89502
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PROFESSIONAL ENGINEER – STATE OF NEVADA
CARY G. GUZELIS
Exp. 6-30-19
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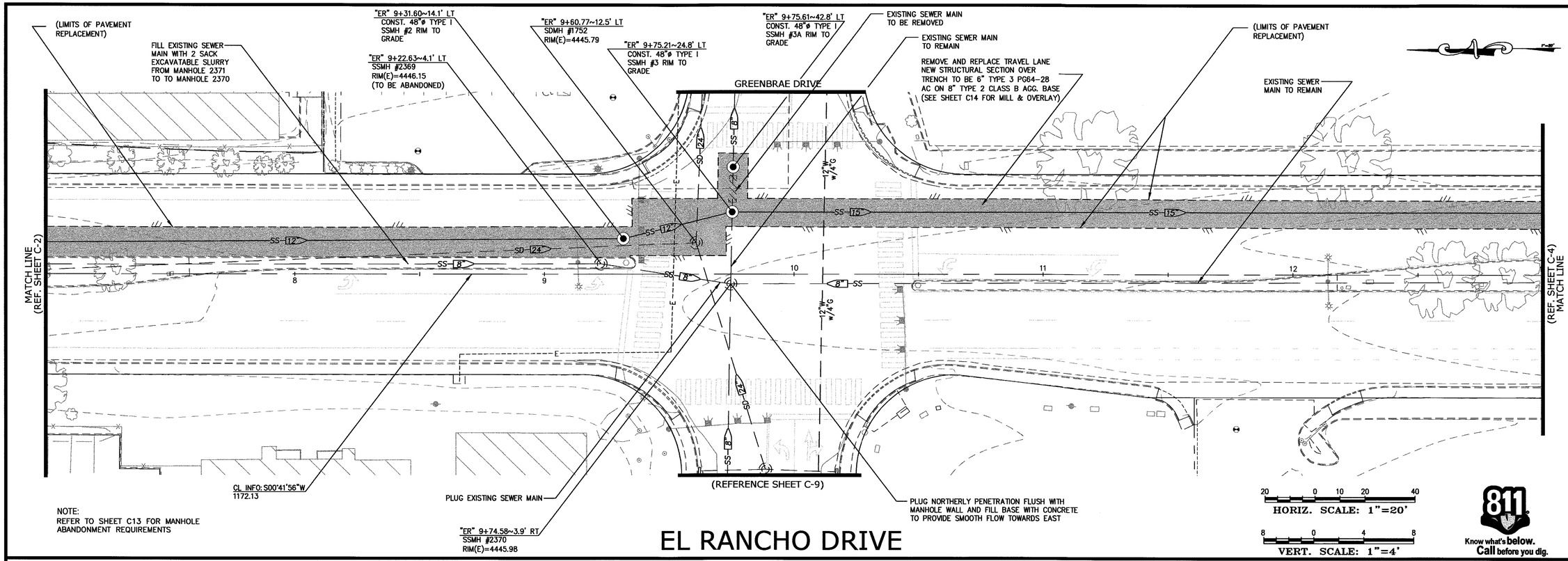
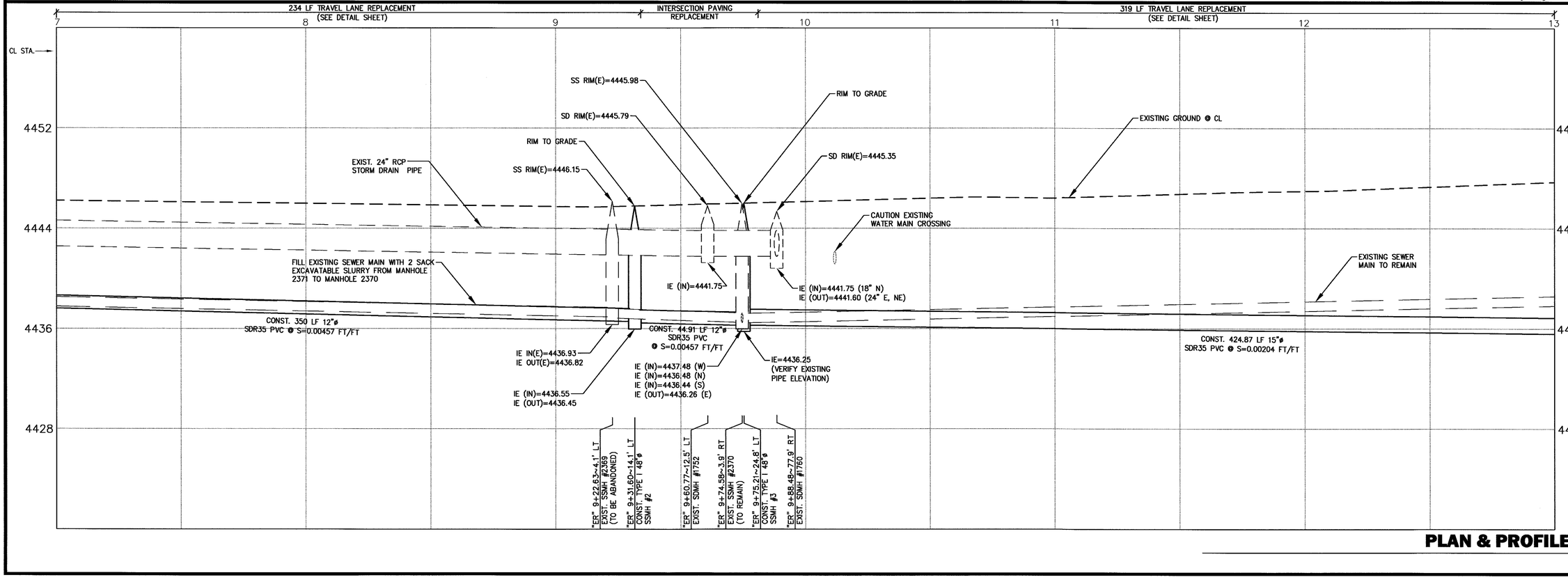
OF 14



EL RANCHO DRIVE



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GARY K. GUZELIS Exp. 6-30-19 CIVIL No. 10372
8/24/18

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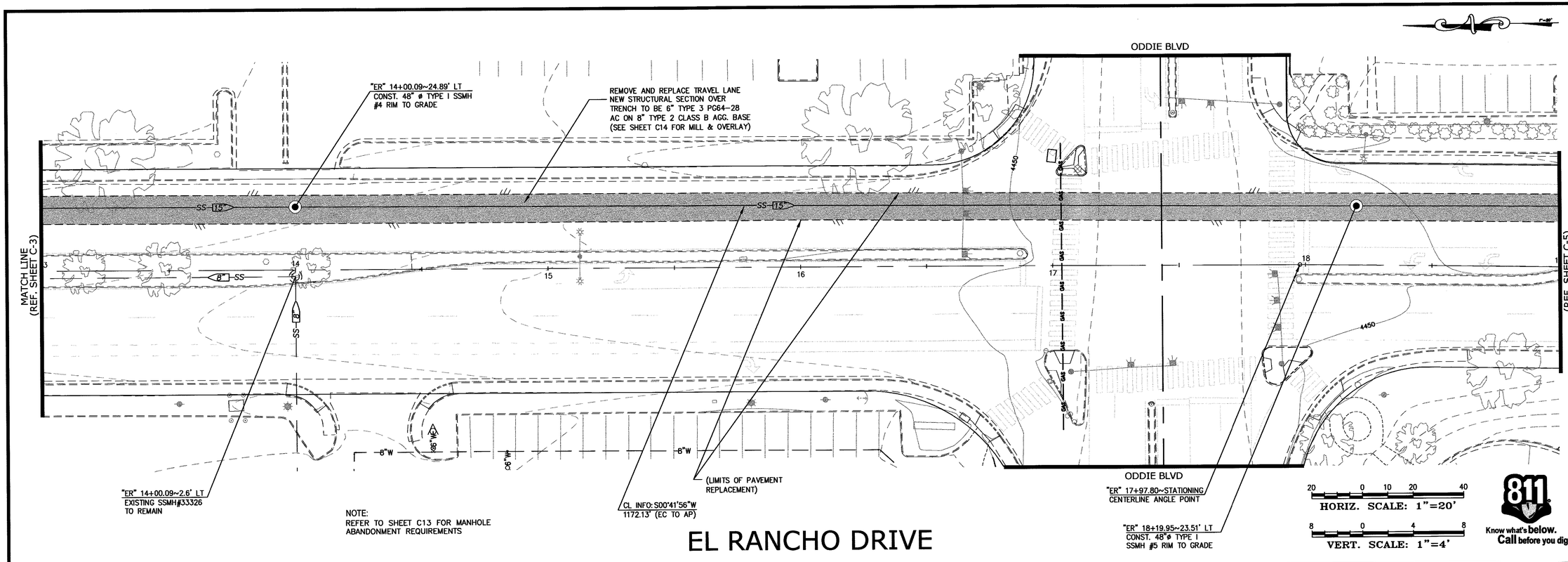
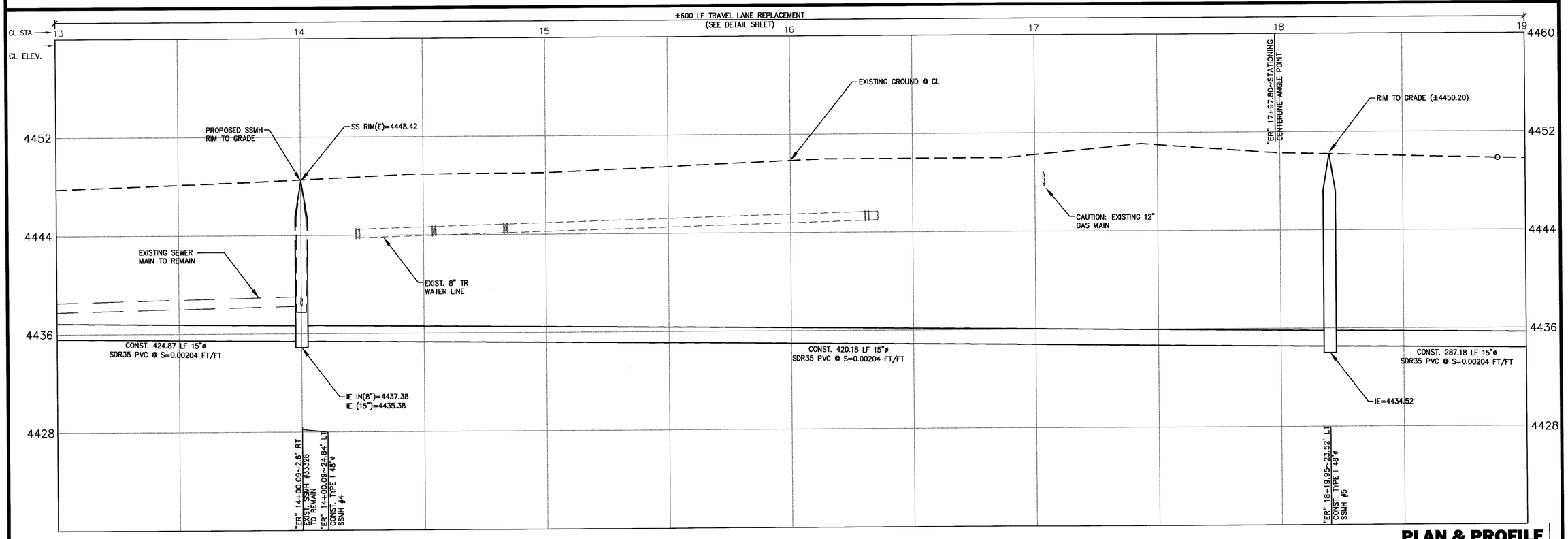
OF 14





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OF 14

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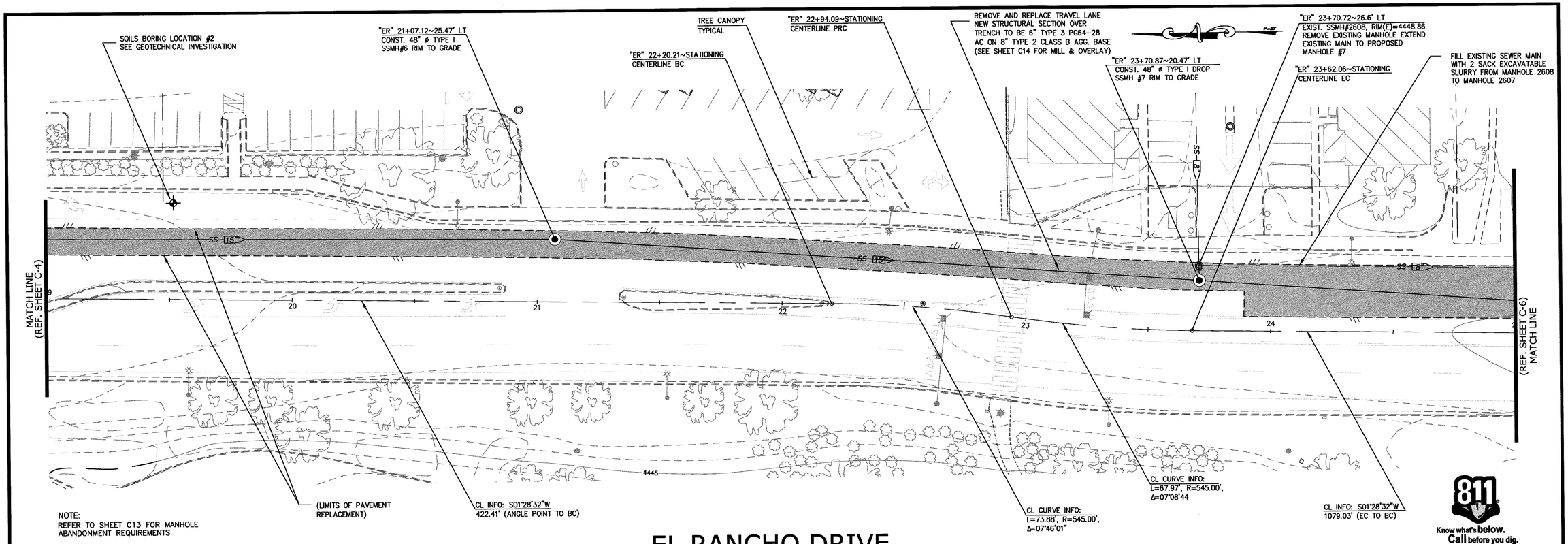
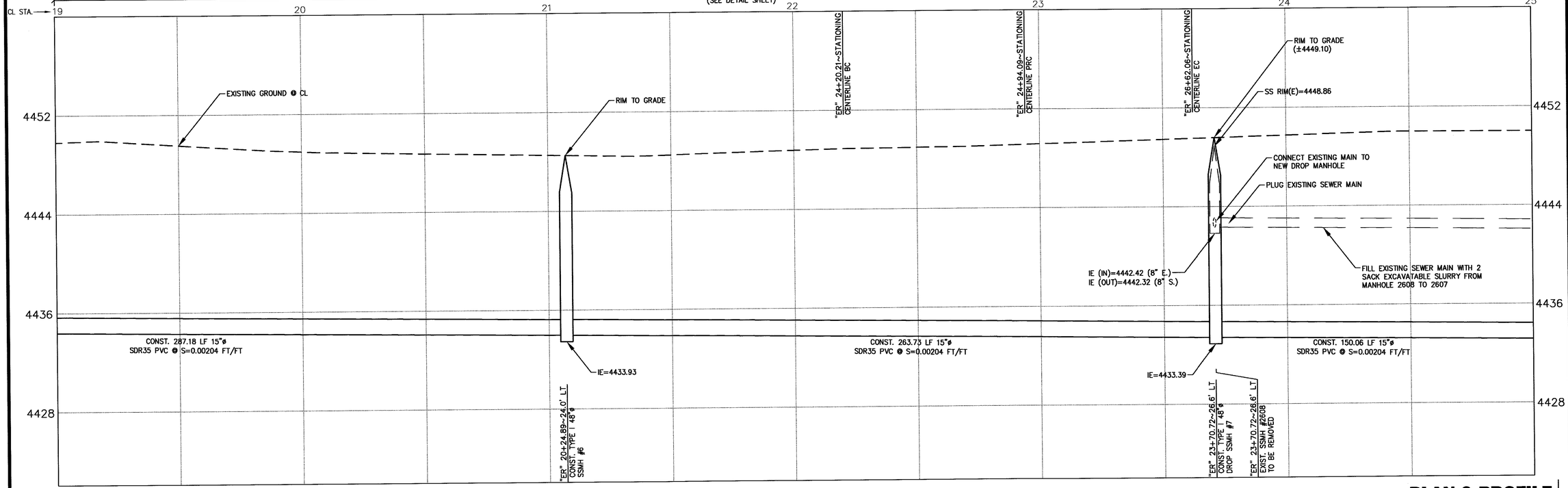


NOTE:
REFER TO SHEET C13 FOR MANHOLE ABANDONMENT REQUIREMENTS

EL RANCHO DRIVE

489 LF TRAVEL LANE REPLACEMENT
(SEE DETAIL SHEET)

111 LF TRAVEL LANE REPLACEMENT
(SEE DETAIL SHEET)



HORIZ. SCALE: 1"=20'

VERT. SCALE: 1"=4'

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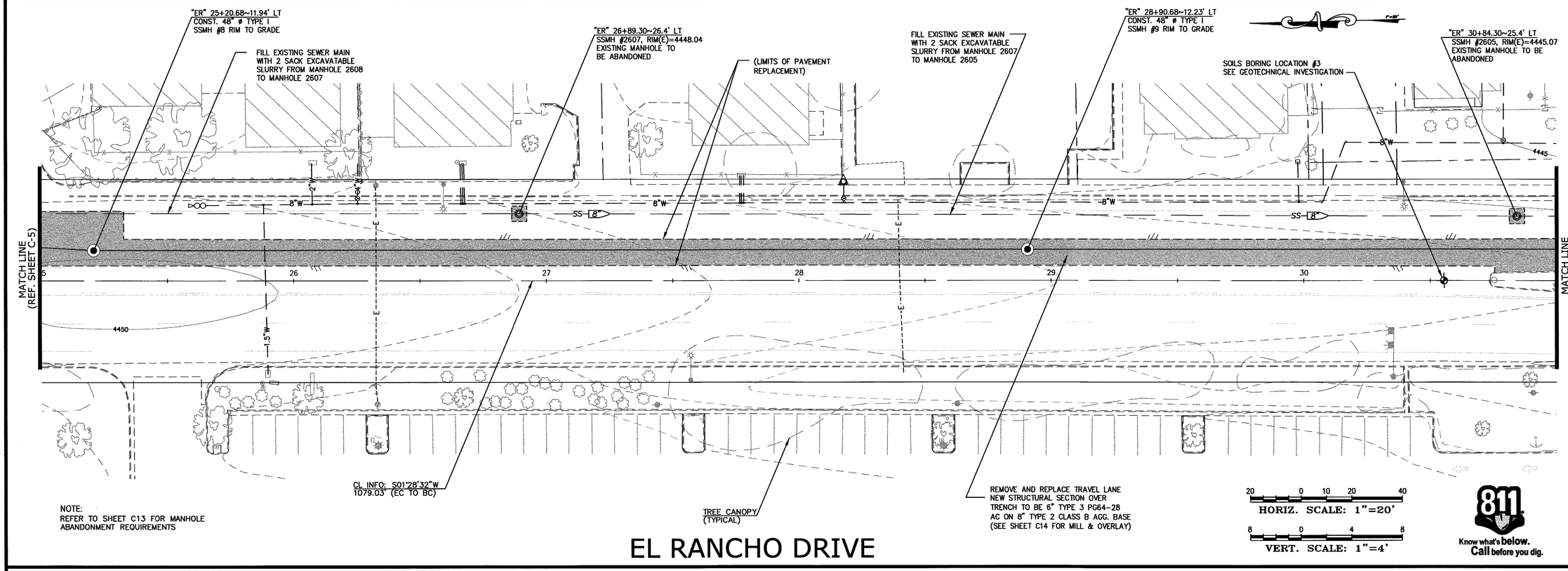

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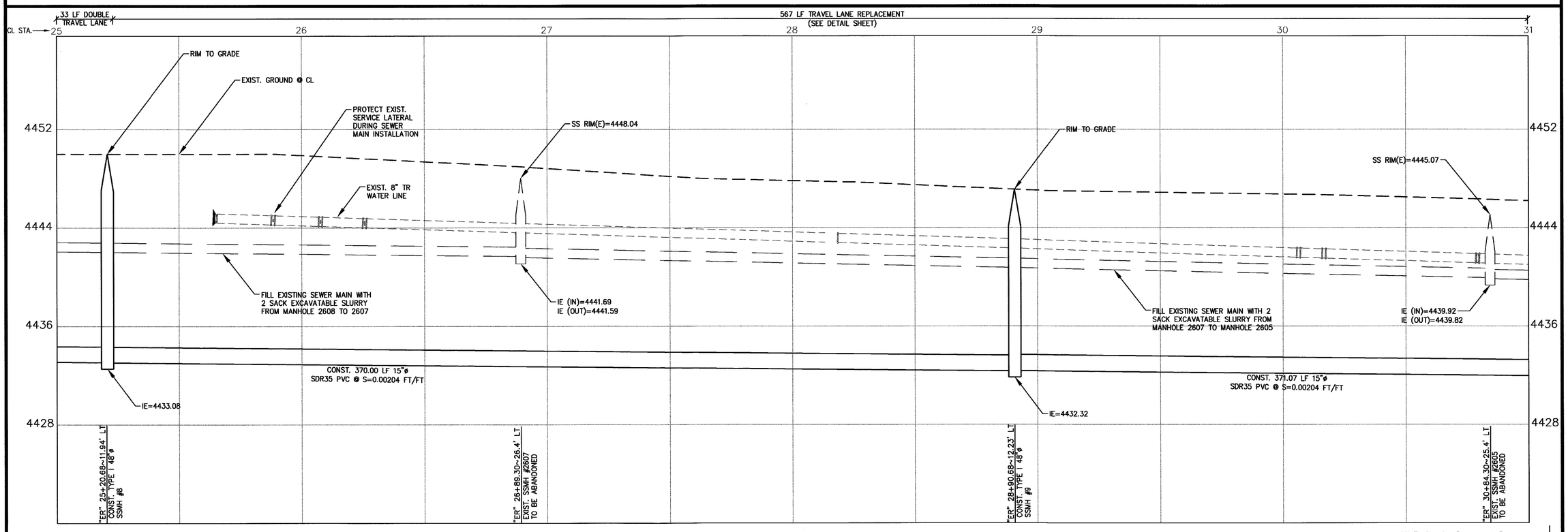
EL RANCHO DRIVE



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PROFESSIONAL ENGINEER - STATE OF NEVADA
GARY K. GUZELIS
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C-6

OF 14

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NOTE:
REFER TO SHEET C13 FOR MANHOLE ABANDONMENT REQUIREMENTS

TREE CANOPY (TYPICAL)

"ER" 32+61.76~12.53' LT
CONST. 48" ø TYPE I
SSMH #9 RIM TO GRADE

"ER" 33+12.90~25.4' LT
SSMH #2606, RIM(E)=4444.22
EXISTING MANHOLE TO BE ABANDONED

APPROXIMATE PLUG LOCATION
FIELD DETERMINE LOCATION
W/CITY OF SPARKS

"ER" 33+89.62~22.20' LT
CONST. 48" ø TYPE I
SSMH #11 RIM TO GRADE

SAWCUT & PATCH FOR LATERAL RECONNECTION. REMOVE & REPLACE CURB & GUTTER IF NECESSARY

"ER" 34+82.32~24.0' LT
SSMH #35106 RIM(E)=4443.74
REMOVE EXISTING MANHOLE

CL INFO: S01°28'07"W
190.20' (ANGLE POINT TO BC)

CL CURVE INFO:
L=533.42', R=2002.32',
Δ=15°15'49"

ELEMENTARY DRIVE

8"W w/GAS
8"W
8"W
12"W
12"W w/GAS
16"W w/GAS
20"W w/GAS
10"W w/GAS
SS 8"
SS 15"
SD 54"
SS LATERAL
4445
4440
4448

MATCH LINE (REF. SHEET C-6)

(REF. SHEET C-8) MATCH LINE

FILL EXISTING SEWER MAIN WITH 2 SACK OF EXCAVATABLE SLURRY FROM MANHOLE 2608 TO 2606

REMOVE AND REPLACE TRAVEL LANE NEW STRUCTURAL SECTION OVER TRENCH TO BE 6" TYPE 3 PG64-28 AC ON 8" TYPE 2 CLASS B AGG. BASE (SEE SHEET C14 FOR MILL & OVERLAY)

FILL EXISTING SEWER MAIN WITH 2 SACK EXCAVATABLE SLURRY FROM MANHOLE 2606 TO PLUG

REMOVE EXISTING SEWER MAIN BETWEEN PLUGS

"ER" 33+94.28~11.8' LT
SDMH #13 RIM(E)=4444.64

FILL EXISTING SEWER MAIN WITH 2 SACK EXCAVATABLE SLURRY FROM PLUG TO PLUG

APPROXIMATE PLUG LOCATION
FIELD DETERMINE LOCATION
W/CITY OF SPARKS

(LIMITS OF PAVEMENT REPLACEMENT)

"ER" 36+37.22~STATIONING
CENTERLINE BC

EL RANCHO DRIVE

HORIZ. SCALE: 1"=20'
VERT. SCALE: 1"=4'

811 Know what's below. Call before you dig.

156 LF TRAVIEL LANE RELACEMENT (SEE DETAIL SHEET)
136 LF DOUBLE TRAVEL LANE REPLACEMENT (SEE DETAIL SHEET)
308 LF TRAVEL LANE REPLACEMENT (SEE DETAIL SHEET)

CL STA. 31 32 33 34 35 36 37

4452
4444
4436
4428

RIM TO GRADE
EXIST. 8" TR WATER MAIN
EXIST. 12" TR WATER MAIN
SS RIM(E)=4444.22
EXIST. 16" MLS WATER MAIN
RIM TO GRADE
SD RIM(E)=4444.64
"ER" 34+47.00~STATIONING CENTERLINE ANGLE POINT
REMOVE EXISTING SEWER MAIN FROM PLUG TO PLUG
EXIST. 20" MLS WATER MAIN
REMOVE EXIST. 8" ASBESTOS CEMENT SEWER PIPE
SS RIM(E)=4443.74
CUT BACK EXISTING LATERAL AND RECONNECT w/45° ELBOW DOWN TO NEW MAIN
EXISTING GROUND @ CL
"ER" 36+37.22~STATIONING CENTERLINE BC
EXIST. 20" WATER MAIN
EXIST. 54" RCP STORM DRAIN PIPE

FILL EXISTING SEWER MAIN WITH 2 SACK EXCAVATABLE SLURRY FROM MANHOLE 2605 TO 2606

CONST. 371.07 LF 15"ø SDR35 PVC @ S=0.00204 FT/FT

IE=4431.56

"ER" 32+61.76~12.53' LT
CONST. TYPE I 48"ø
SSMH #10

"ER" 33+12.90~25.4' LT
EXIST. SSMH #2606
TO BE ABANDONED

IE (IN)=4438.93
IE (OUT)=4438.83

PLUG EXISTING SANITARY SEWER MAIN

CONST. 128.23 LF 15"ø SDR35 PVC @ S=0.00204 FT/FT

"ER" 33+89.62~22.20' LT
CONST. TYPE I 48"ø
SSMH #11

"ER" 33+94.28~22.20' LT
EXIST. SDMH #13

IE=4431.30

IE (IN)= 54"(RCP) 4435.65

IE (IN)=4438.28
IE (OUT)=4438.18

PLUG EXISTING SANITARY SEWER MAIN

"ER" 34+82.32~24.0' LT
EXIST. SSMH #35106
TO BE REMOVED

CONST. 315.26 LF 15"ø SDR35 PVC @ S=0.00204 FT/FT

FILL EXISTING SEWER MAIN WITH 2 SACK EXCAVATABLE SLURRY FROM PLUG TO PLUG

PLAN & PROFILE

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Civil Engineering - Land Development
681 EDISON WAY - RENO, NEVADA 89502
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PROFESSIONAL ENGINEER-STATE OF NEVADA
GARY K. GUZELIS
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SEWER IMPROVEMENT PLANS FOR EL RANCHO DRIVE

SPARKS, NEVADA

revisions

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C-7

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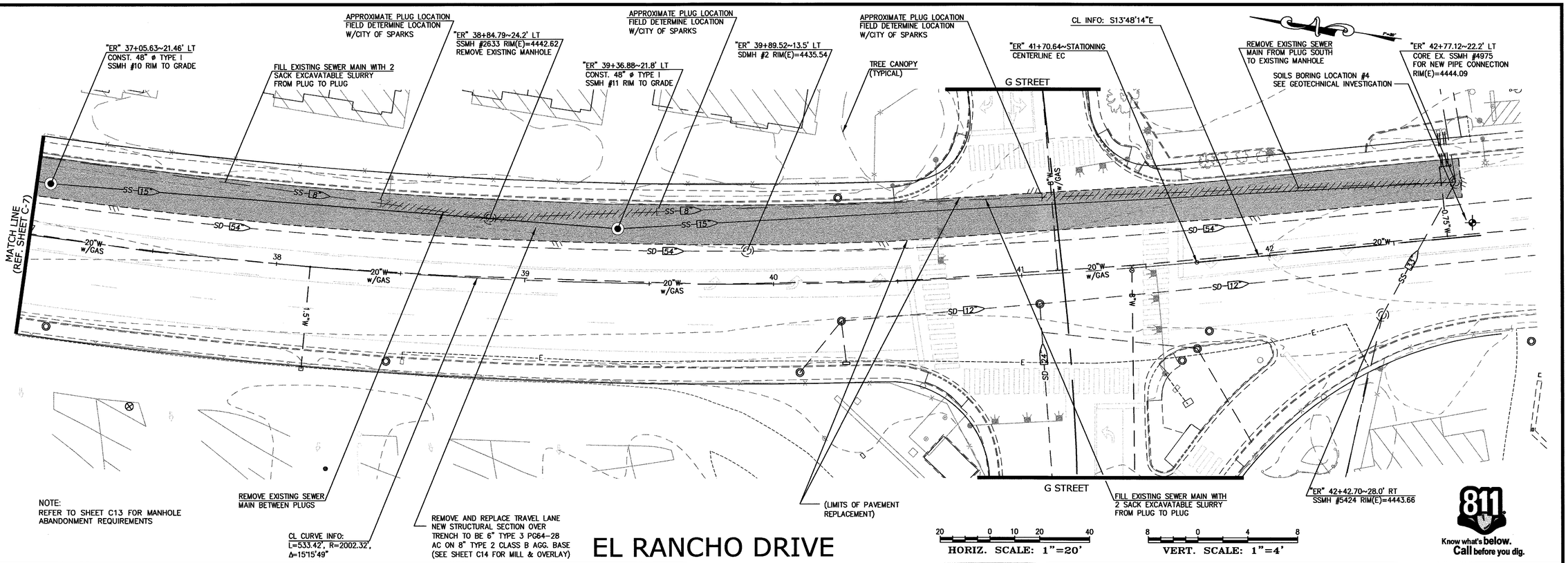

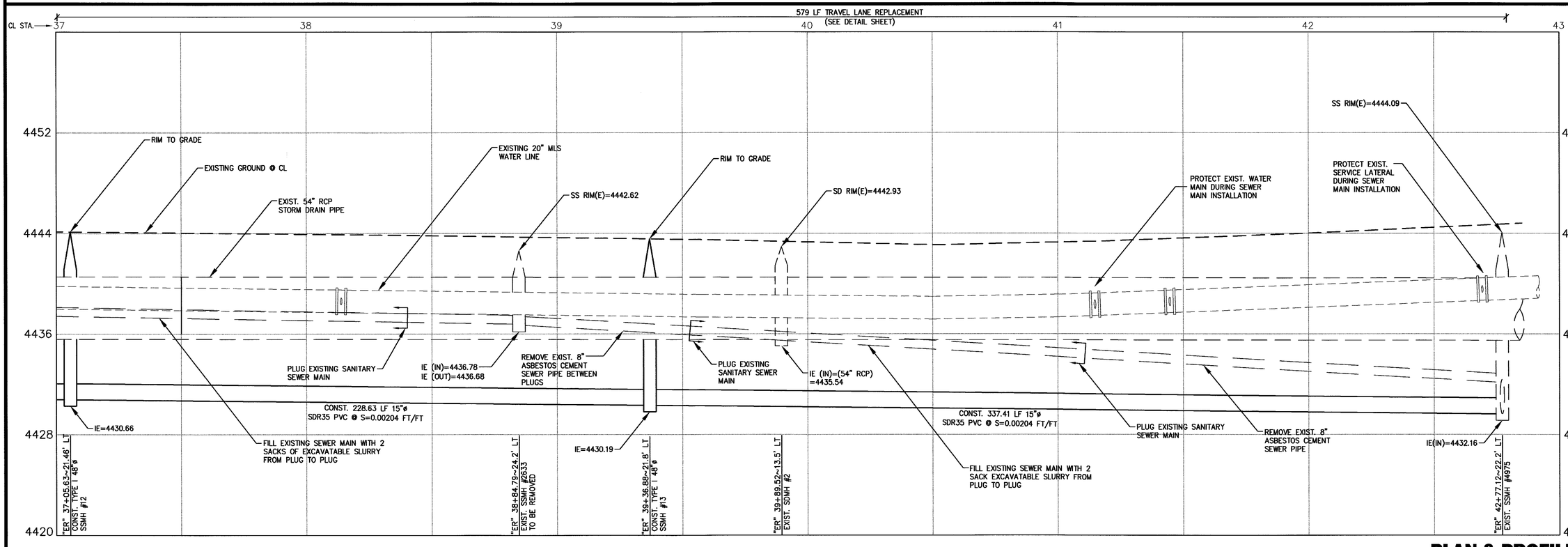

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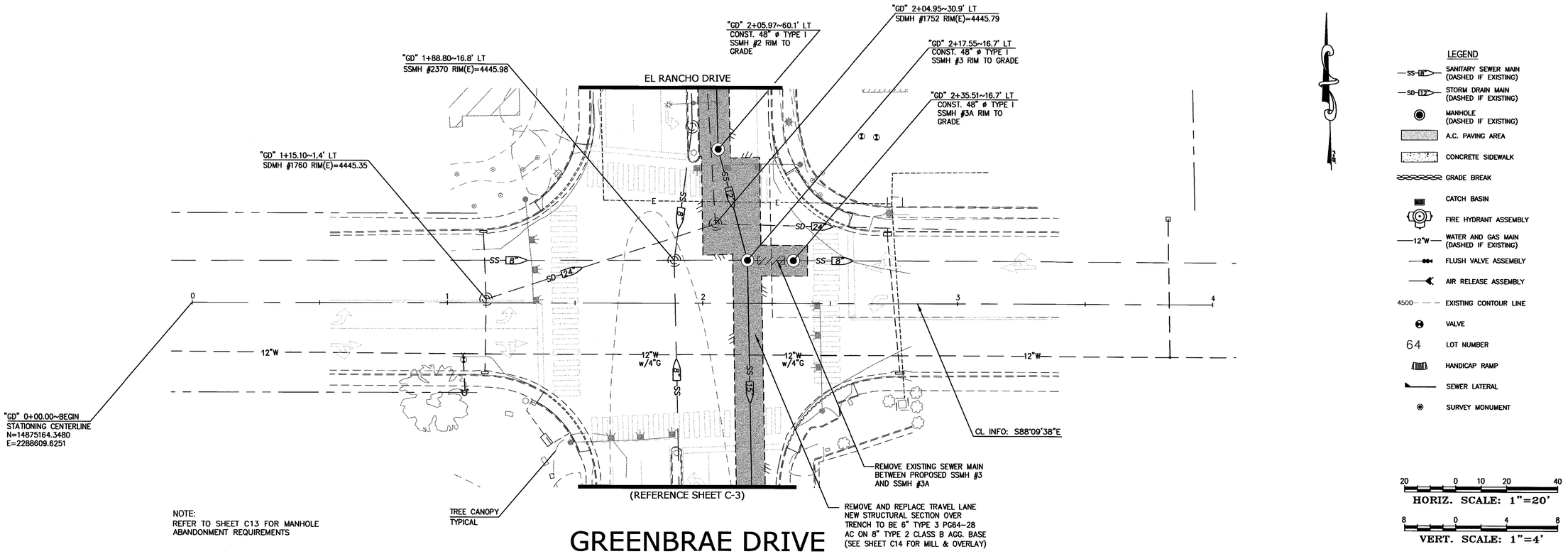
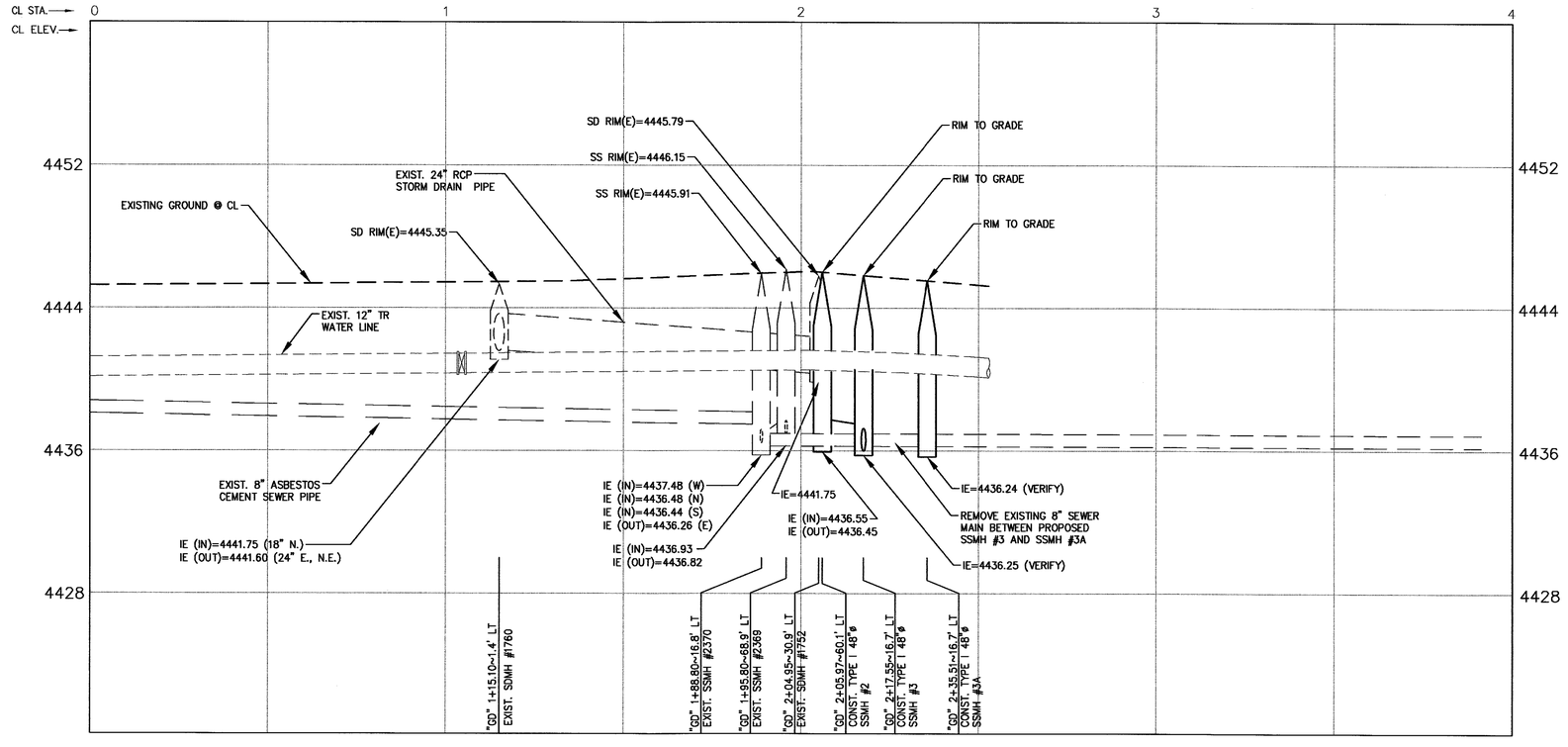


LEGEND

- SS-8" — SANITARY SEWER MAIN (DASHED IF EXISTING)
- SD-12" — STORM DRAIN MAIN (DASHED IF EXISTING)
- MANHOLE (DASHED IF EXISTING)
- A.C. PAVING AREA
- CONCRETE SIDEWALK
- GRADE BREAK
- CATCH BASIN
- FIRE HYDRANT ASSEMBLY
- 12"W — WATER AND GAS MAIN (DASHED IF EXISTING)
- FLUSH VALVE ASSEMBLY
- AIR RELEASE ASSEMBLY
- 4500 — EXISTING CONTOUR LINE
- VALVE
- 64 — LOT NUMBER
- HANDICAP RAMP
- SEWER LATERAL
- SURVEY MONUMENT

20 0 10 20 40
HORIZ. SCALE: 1"=20'

8 0 4 8
VERT. SCALE: 1"=4'



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NOTES

1. ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO THE BOOK "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION" (2012 EDITION), AND THE "STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION", AS ADOPTED AND MODIFIED BY THE CITY OF SPARKS AND DISTRIBUTED BY WASHOE COUNTY, INCLUDING ANY ADDITIONS OR MODIFICATIONS THAT ARE SET FORTH IN THE DRAWINGS OR SPECIFICATIONS.
2. BYPASS PUMPING SHALL BE MONITORED 24 HOURS A DAY 7 DAYS A WEEK BY A MECHANICALLY QUALIFIED AND PROPERLY TRAINED PERSON THAT CAN QUICKLY AND EFFECTIVELY ADDRESS POTENTIAL EMERGENCY SITUATIONS WHILE IN OPERATION.
3. THE BYPASS PUMPING SYSTEM SHALL INCLUDE REDUNDANT BYPASS PUMP(S), INTAKE AND DISCHARGE PIPE(S), AND ANY OTHER EQUIPMENT REQUIRED TO PROVIDE CONTINUOUS WASTEWATER PUMPING AT ALL TIMES.
4. SUCTION AND DISCHARGE AREAS SHALL BE SECURED TO PREVENT ACCESS FROM THE PUBLIC AND NON-AUTHORIZED PERSONNEL AT ALL TIMES.
5. THE BYPASS PUMPING PLAN IS SCHEMATIC IN NATURE. THE CONTRACTOR SHALL SUBMIT THEIR PROPOSED PLAN TO THE CITY OF SPARKS FOR REVIEW AND APPROVAL PRIOR TO BEGINNING THE WORK.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EXCAVATION AND SHORING PROCEDURES AND CONFORM TO THE LATEST OSHA REQUIREMENTS.
7. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND FEES REQUIRED FOR CONSTRUCTION.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION SIGNING, BARRICADES, AND TRAFFIC DELINEATION TO CONFORM TO THE STATE OF NEVADA, DEPARTMENT OF TRANSPORTATION "NEVADA WORK ZONE TRAFFIC CONTROL MANUAL" AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), LATEST EDITION. THE TRAFFIC CONTROL PLAN SHALL BE SUBMITTED TO THE CITY OF SPARKS FOR APPROVAL PRIOR TO BEGINNING THE WORK.
9. ANY EXISTING IMPROVEMENTS REMOVED OR DAMAGED DURING THE BYPASS PUMPING OPERATION SHALL BE REPAIRED/REPLACED PER ORANGE BOOK REQUIREMENTS, THE CITY OF SPARKS REQUIREMENTS AND PER THE PLANS AND SPECIFICATIONS.

EMERGENCY PHONE NUMBERS

TMWRF 775-861-4100

SPARKS POLICE DEPARTMENT 775-353-2231 (AFTER HOURS)

SPARKS MAINTENANCE 775-353-2271

FLOW DATA

(33" MAIN)

2015	
PEAK	3,125 gpm (JULY)
HIGH AVG.	1,320 gpm (NOV)
YEAR AVG.	1,289 gpm

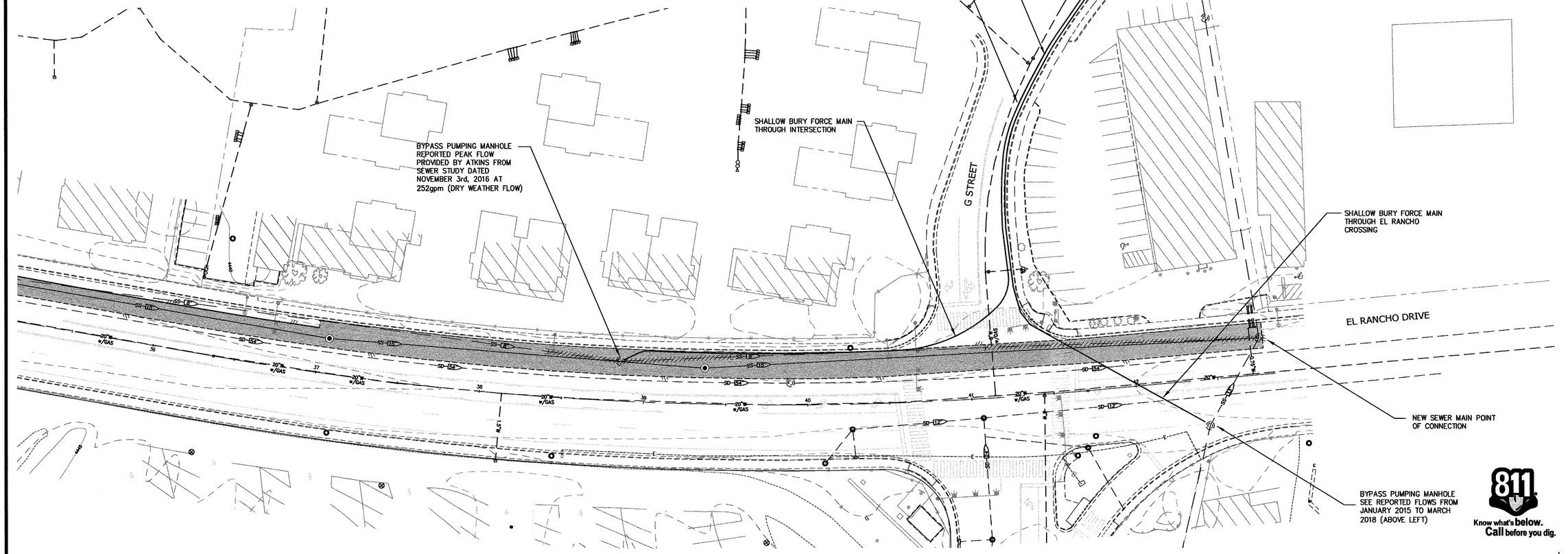
2016	
PEAK	3,210 gpm (APR)
HIGH AVG.	1,302 gpm (OCT)
YEAR AVG.	1,246 gpm

2017	
PEAK	3,271 gpm (JAN)
HIGH AVG.	1,468 gpm (FEB)
YEAR AVG.	1,331 gpm

2018 1st QUARTER	
PEAK	2,892 gpm (MAR)
HIGH AVG.	1,317 gpm (MAR)
QUATER AVG.	1,293 gpm

30 0 15 30 60

HORIZ. SCALE: 1"=30'



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PUMP AROUND PLAN

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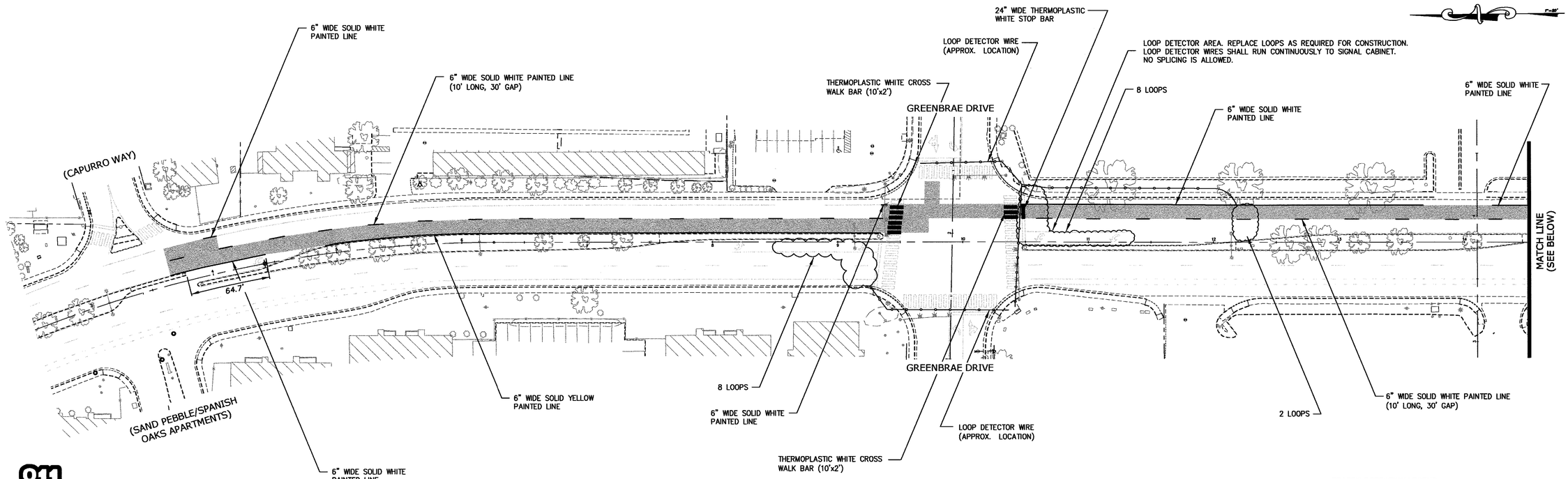
date:	AUGUST 2018
scale:	1"=30'
project no:	17020

C-10

OF 14

N:\Axion Engineering\Projects AE\City of Sparks\Sparks, CIP 1 El Rancho Sewer\drawings\El Rancho Base 1.dwg



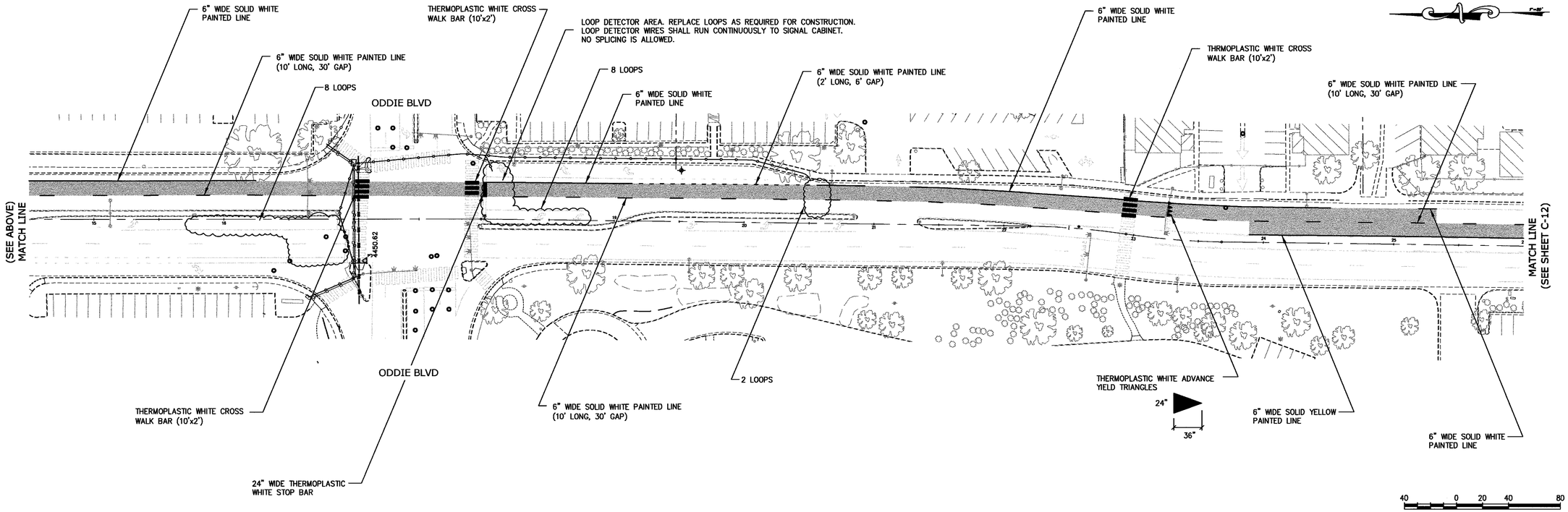
811 Know what's below. Call before you dig.

TRAFFIC DETECTION LEGEND:

COMMUNICATION

POWER/LOOPS

EL RANCHO DRIVE



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HORIZ. SCALE: 1"=40'

EL RANCHO DRIVE

STRIPING PLAN

Axion ENGINEERING
Civil Engineering - Land Development
681 EDISON WAY - RENO, NEVADA 89502
PH. 775-771-5554 / FX. 775-856-3851

PROFESSIONAL ENGINEER - STATE OF NEVADA
GARY K. CUZELIS
Exp. 6-30-19
CIVIL
No. 10372
8/24/18

SEWER IMPROVEMENT PLANS FOR EL RANCHO DRIVE

SPARKS, NEVADA

revisions

drawn:	GKG
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date:	AUGUST 2018
scale:	1"=20'
project no:	17020

C-11

OF 14

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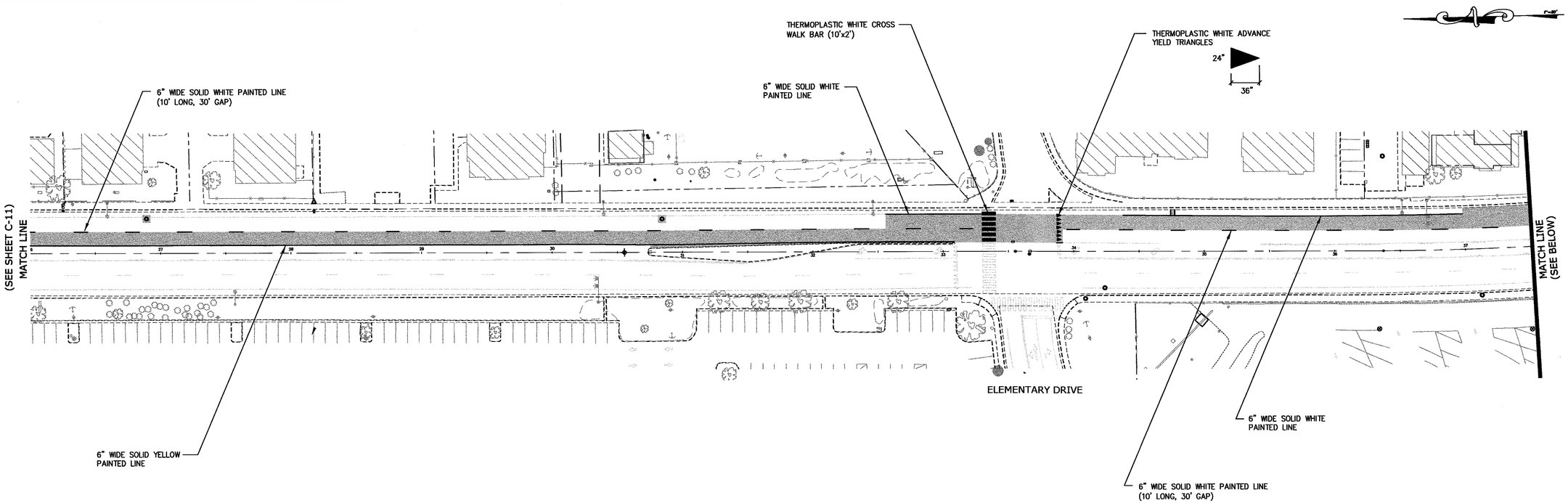
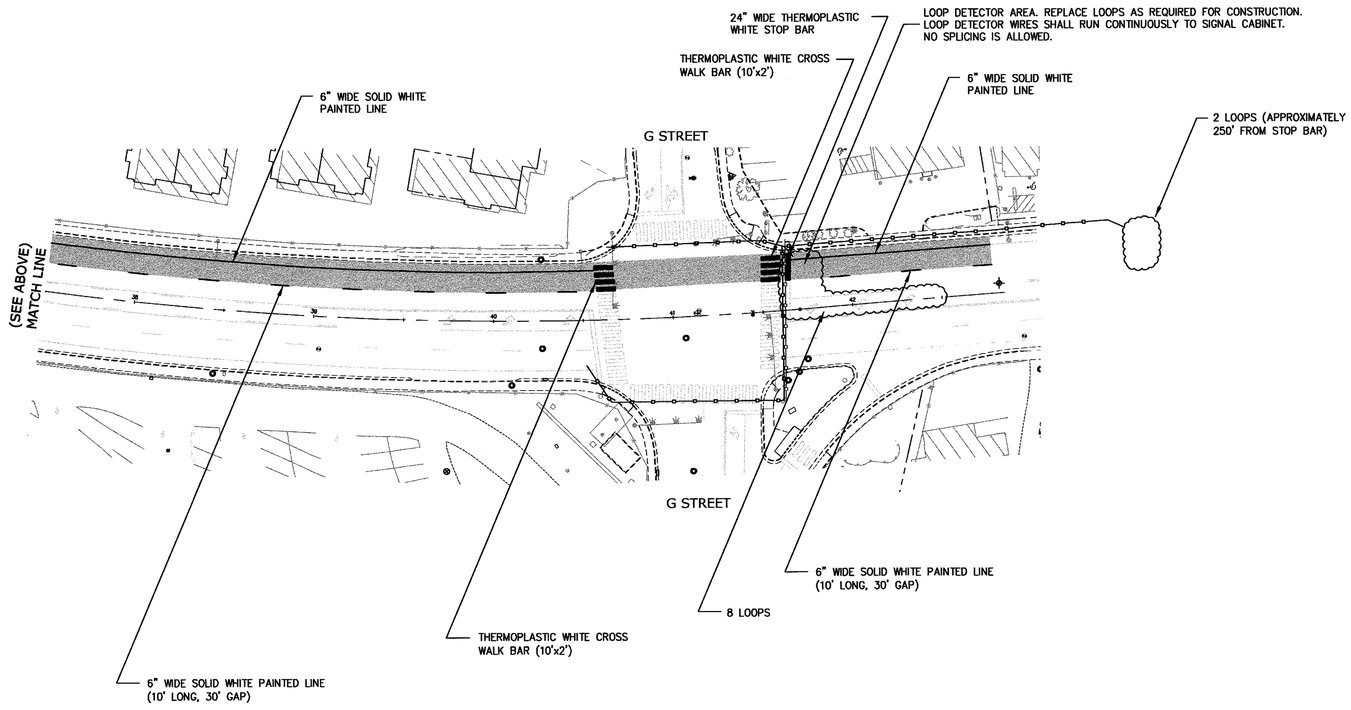


EL RANCHO DRIVE

STRIPING NOTES:

ALL LONG LINES SHALL BE 2 COATS NDOT TYPE II PAINT OR APPROVED EQUAL.

ALL STOP BARS SHALL BE PREMARK OR HOTTAPE, 90 MILS.



TRAFFIC DETECTION LEGEND:

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POWER/LOOPS

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HORIZ. SCALE: 1"=40'

STRIPING PLAN

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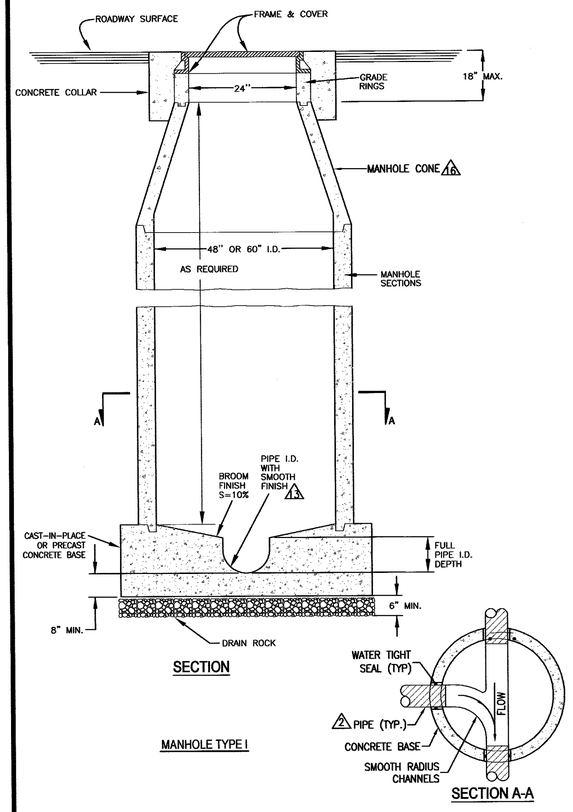


SECTION

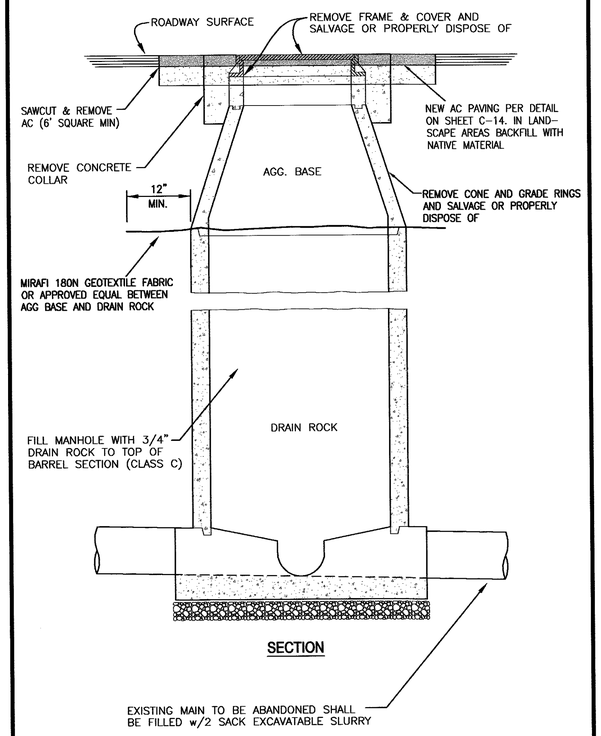
MANHOLE TYPE I

SECTION A-A

GENERAL MANHOLE NOTES

1. ALL PRECAST MANHOLE COMPONENTS SHALL CONFORM TO ASTM C-478.
2. PIPES SHALL NOT PROTRUDE MORE THAN 3" INSIDE MANHOLE SECTION AS MEASURED AT THE OUTSIDE EDGES OF THE PIPE, VERTICALLY ALIGNED WITH THE SPRINGLINE. PIPE CONNECTION TO MANHOLE SHALL BE WATERTIGHT.
3. MANHOLE BASE SHALL BE PORTLAND CEMENT CONCRETE (P.C.C.) AND SHALL HAVE THE FOLLOWING CHARACTERISTICS: 3000 PSI MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS, MINIMUM 6 SACKS OF CEMENT PER CUBIC YARD WITH SLUMP AT 1 TO 4 INCHES. ALL MATERIAL SHALL CONFORM TO STANDARD SPECIFICATIONS OF PUBLIC WORKS CONSTRUCTION (SSPWC). PRECAST CONCRETE BASE MAY BE USED IN LIEU OF CAST-IN-PLACE BASE.
4. TYPE I 48"ø MANHOLE TO BE UTILIZED FOR PIPE DIAMETERS OF 12" OR SMALLER AND DEPTHS NOT EXCEEDING 18 FEET.
5. TYPE I 60"ø MANHOLE TO BE UTILIZED FOR PIPE DIAMETERS OF 15" THROUGH 27" OR DEPTHS EXCEEDING 18 FEET.
6. MANHOLE MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF SECTION 204 "MANHOLES AND CATCH BASINS" OF THE STANDARD SPECIFICATIONS.
7. PRECAST MANHOLE SECTIONS, OTHER THAN GRADE RINGS, SHALL BE JOINED WITH FLEXIBLE GASKET MATERIAL SUCH AS "RAM-NEK" OR EQUAL AS PER MANUFACTURER'S RECOMMENDATIONS.
8. EXCAVATION AND BACKFILL SHALL BE AS SPECIFIED FOR "TRENCH EXCAVATION AND BACKFILL" IN SECTION 305 OF THE STANDARD SPECIFICATIONS.
9. EXCAVATION SHALL BE AS NEARLY VERTICAL AS POSSIBLE (SHEET AND SHORE IF SOIL CONDITIONS REQUIRE) IN EXISTING STREET SECTIONS, ALLEY SECTIONS, AND CONFINED AREAS, SUCH AS LIMITED EASEMENTS OR ADJACENT STRUCTURES.
10. MANHOLE PRECAST SECTION LENGTH SHALL BE ARRANGED TO FIT THE REQUIRED DEPTH.
11. NO LATERALS OR PIPES LESS THAN 8" IN DIAMETER SHALL BE CONNECTED TO THE MANHOLE.
12. PRECAST CONCRETE BASE MAY BE USED IN LIEU OF CAST-IN-PLACE BASE.
13. MATCH PIPE INVERTS TO MANHOLE INVERTS WHERE PIPES CONNECT TO MANHOLE BASE.
14. ALL MANHOLES SHALL BE WATERTIGHT.
15. SEE DETAIL ON SHEET C14 FOR INSIDE DROP MANHOLE.
16. THE USE OF FLAT TOP MANHOLE CONES REQUIRES PRIOR APPROVAL FROM THE CITY ENGINEER.
17. PRIOR TO BACKFILLING, ALL MANHOLES SHALL BE VACUUM TESTED PER ASTM C-1244.
18. NO STEPS, LADDERS, OR OTHER CLIMBING DEVICES SHALL BE INSTALLED IN THE MANHOLE.
19. REINFORCING STEEL SHALL BE AS SHOWN, WIRED TIGHTLY AT ALL INTERSECTIONS AND EMBEDDED AT LEAST 1½" CLEAR, UNLESS OTHERWISE NOTED.
20. WHEN PIPE CONNECTIONS TO EXISTING MANHOLES ARE ALLOWED, THEY SHALL BE MADE BY CORE DRILLING THE MANHOLE AND CONNECTING THE PIPE PENETRATION PER CONNECTION DETAIL THIS SHEET.

NOTES - MANHOLE

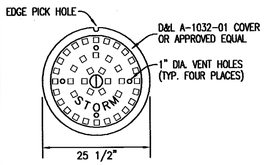


SECTION

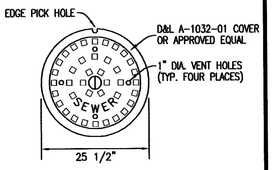
MANHOLE ABANDONMENT

GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO THE BOOK "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION" (2012 EDITION), AND THE "STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION", AS ADOPTED AND MODIFIED BY THE CITY OF SPARKS AND DISTRIBUTED BY WASHOE COUNTY, INCLUDING ANY ADDITIONS OR MODIFICATIONS THAT ARE SET FORTH IN THE DRAWINGS OR SPECIFICATIONS.
2. THE CONTRACTOR SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION FOR THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY, AND NOT BE LIMITED TO NORMAL WORKING HOURS.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EXCAVATION AND SHORING PROCEDURES AND CONFORM TO THE LATEST OSHA REQUIREMENTS.
4. THE CONTRACTOR SHALL MAINTAIN AN ON-GOING DUST CONTROL PROGRAM, INCLUDING WATERING OF OPEN AREAS, IN ORDER TO CONFORM WITH THE LATEST FEDERAL, STATE, AND COUNTY AIR POLLUTION REGULATIONS.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAILY REMOVAL OF ALL CONSTRUCTION MATERIALS SPILLED ON PAVED STREETS, ON-SITE OR OFF-SITE. AT THE CLOSE OF EACH DAY, THE CONTRACTOR SHALL INSPECT THE SITE FOR ANY DEBRIS OR TRASH AND PROPERLY DISPOSE OF IT.
6. THE CONTRACTOR SHALL NOTIFY THE DESIGN PROFESSIONAL, ALL GOVERNING AGENCIES HAVING JURISDICTION OVER THE WORK, UTILITY COMPANIES, TELEPHONE COMPANIES, CABLE TELEVISION COMPANIES, AND ANY OTHER ENTITY IMPACTED BY THE WORK 48 HOURS PRIOR TO BEGINNING CONSTRUCTION. THE CONTRACTOR SHALL GIVE 48 HOURS PRIOR NOTICE FOR ALL CONSTRUCTION STAKING AND INSPECTIONS REQUIRED DURING CONSTRUCTION.
7. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND FEES REQUIRED FOR CONSTRUCTION.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION SIGNING, BARRICADES, AND TRAFFIC DELINEATION TO CONFORM TO THE STATE OF NEVADA, DEPARTMENT OF TRANSPORTATION "NEVADA WORK ZONE TRAFFIC CONTROL MANUAL" AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), LATEST EDITION.
9. THE CONTRACTOR SHALL PROTECT FROM DAMAGE EXISTING UTILITY STRUCTURES ON AND AROUND THE SITE INCLUDING, BUT NOT LIMITED TO, PAVEMENT, CURB AND GUTTER, SIDEWALK, LANDSCAPING, IRRIGATION LINES, SIGNAGE, STORM AND SANITARY SEWERS, UTILITIES, TELEPHONE, TRAFFIC CONTROL, AND CABLE TELEVISION. THE CONTRACTOR SHALL ASSUME SOLE RESPONSIBILITY FOR THE REPAIR AND/OR REPLACEMENT OF ANY IMPROVEMENTS (NEW OR EXISTING) DAMAGED THROUGHOUT THE COURSE OF CONSTRUCTION EITHER AS A DIRECT RESULT OF THE ACTIVITIES OR THE FAILURE TO ADEQUATELY PROTECT THE IMPROVEMENT.
10. THE CONTRACTOR SHALL, DURING THE COURSE OF THE PROJECT, MAINTAIN RECORD DRAWINGS INDICATING BY DIMENSION AND DESCRIPTION ANY FACILITY CONSTRUCTED CONTRARY TO THAT SHOWN ON THE DRAWINGS OR DESCRIBED IN THE SPECIFICATIONS. AT THE END OF CONSTRUCTION, THE RECORD DRAWINGS SHALL BE TURNED OVER TO THE ENGINEER.
11. PRIOR TO THEIR INCORPORATION INTO THE WORK, THE CONTRACTOR SHALL SUBMIT FOR THE ENGINEER'S APPROVAL SHOP DRAWINGS AND MATERIAL SPECIFICATIONS FOR ALL MATERIALS TO BE USED ON THE PROJECT.
12. ANY DAMAGED ASPHALT OR CONCRETE BEYOND THAT SHOWN ON THE PLANS WILL BE THE CONTRACTOR'S RESPONSIBILITY TO REPLACE.
13. REFER TO GEOTECHNICAL INVESTIGATION PREPARED BY AXION GEOTECHNICAL, LLC DATED MARCH 19, 2018 SOILS INFORMATION.



STROM DRAIN LID



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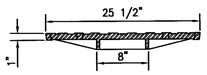
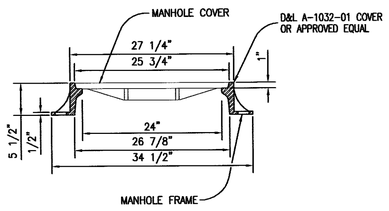
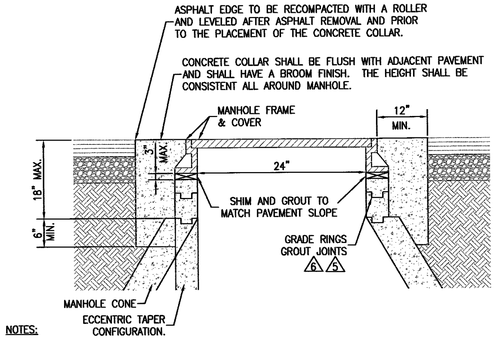




SEWER LID NOTE:

1. THE UTILIZATION OF THIS FRAME AND COVER IN FLOOD SUSCEPTIBLE AREAS SHALL BE DETERMINED BY THE CITY ENGINEER.

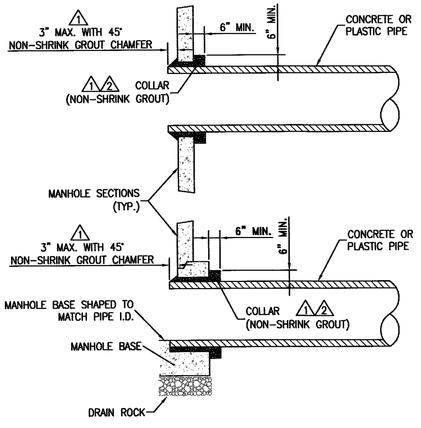
24" SANITARY SEWER FRAME & COVER



NOTES:

1. FIBER-REINFORCED PORTLAND CEMENT CONCRETE (P.C.C.) SHALL HAVE THE FOLLOWING CHARACTERISTICS: 4000 PSI MIN. COMPRESSIVE STRENGTH AT 28 DAYS, MIN. 6 SACKS OF CEMENT PER CUBIC YARD WITH MAX. WATER-CEMENT RATIO OF 0.45, AIR ENTRAINMENT 6% ±1.5%, SLUMP AT 1 TO 4 INCHES. MIX DESIGN SHALL CONFORM TO THE REQUIREMENTS OF SECTION 337 OF STANDARD SPECIFICATIONS OF PUBLIC WORKS CONSTRUCTION (SSPWC). CEMENT SHALL BE TYPE II. ALL CEMENT CONCRETE SHALL HAVE A COARSE AGGREGATE GRADATION CONFORMING TO SIZE No. 67. ALL MATERIALS SHALL CONFORM TO SSPWC.
2. CIRCUMSTANCES MAY REQUIRE THE NEED FOR SPECIAL TYPES OF TOP OF MANHOLE CONFIGURATIONS SUCH AS FLAT TOP, ABOVE GROUND, ETC. AS DIRECTED BY THE CITY OF RENO. DETAILED PLANS OF ANY SPECIAL TOP OF MANHOLE CONFIGURATIONS AND ASSOCIATED COLLARS MUST BE APPROVED BY THE ENGINEER.
3. IN UNPAVED AREAS, IT SHALL BE NECESSARY TO SET THE MANHOLE RIM APPROXIMATELY 6 INCHES ABOVE THE SURROUNDING AREA. INSTALL A 6 INCH THICK RING OF CONCRETE, TAPERED AT A 3:1 SLOPE, FROM THE TOP, OUTSIDE EDGE OF THE COLLAR TO THE EXISTING GROUND SURFACE.
4. EXISTING SANITARY SEWER MANHOLE LIDS LOCATED IN GUTTER PANS, SHALL HAVE NEW WATER TIGHT FRAMES AND COVERS.
5. ALL GRADE RING JOINTS ARE TO BE GROUTED WITH NON-SHRINK GROUT HAVING THE FOLLOWING CHARACTERISTICS: 3000 PSI MIN. COMPRESSIVE STRENGTH AT 28 DAYS, MIN. 6 SACKS OF CEMENT PER CUBIC YARD AND SLUMP AT 1 TO 4 INCHES. ALL MATERIAL SHALL CONFORM TO SSPWC.
6. ALL GRADE RINGS SHALL BE PORTLAND CEMENT CONCRETE. PVC GRADE RINGS ARE NOT ALLOWED.

MANHOLE COLLAR

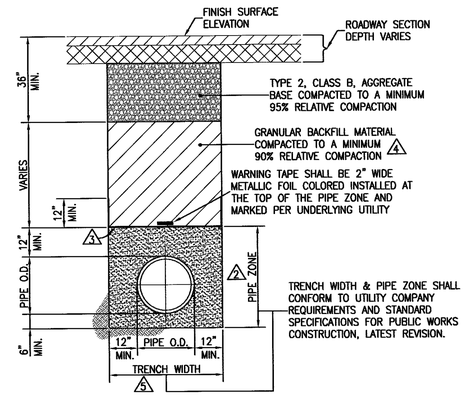


SECTION

NOTES:

1. NON-SHRINK GROUT SHALL HAVE THE FOLLOWING CHARACTERISTICS: 3000 PSI MIN. COMPRESSIVE STRENGTH AT 28 DAYS, MIN. 6 SACKS OF CEMENT PER CUBIC YARD AND SLUMP AT 1 TO 4 INCHES. ALL MATERIAL SHALL CONFORM TO STANDARD SPECIFICATIONS OF PUBLIC WORKS CONSTRUCTION (SSPWC) SECTION 202.
2. AN AGENCY-APPROVED FORM OF SEAL OR WATER STOP IS REQUIRED ON ALL STORM DRAIN INSTALLATIONS.
3. A RESILIENT FLEXIBLE CONNECTOR INSTALLED IN ACCORDANCE WITH STD. CONNECTION DETAIL A OF STD. DETAIL R-223B MAY BE USED TO SATISFY THE REQUIREMENTS OF NOTE 2 ABOVE.
4. ALL PIPE OPENINGS TO NEW MANHOLES MUST BE EITHER CAST-IN-PLACE OR PRE-FORMED AND PIPE OPENINGS TO EXISTING MANHOLES MUST BE CORE DRILLED.

SANITARY SEWER OR STORM
PIPE TO MANHOLE CONNECTION



NOTES:

1. ALL MATERIALS AND INSTALLATION PROCEDURES SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (SSPWC), LATEST REVISION.
2. BEDDING MATERIAL SHALL CONFORM TO OWNING-UTILITY COMPANY REQUIREMENTS AS APPROVED BY THE CITY OF SPARKS. FOR CITY-OWNED UTILITIES, BEDDING MATERIAL SHALL BE CLASS A OR C, COMPACTED TO MINIMUM 90% RELATIVE COMPACTION. MATERIALS SHALL CONFORM TO SSPWC SECTION 200.
3. CLASS C BEDDING REQUIRES INSTALLATION OF GEOTEXTILE FABRIC BETWEEN PIPE ZONE AND BACKFILL MATERIAL. GEOTEXTILE FABRIC SHALL BE MIRAFI 180N OR APPROVED EQUAL.
4. BACKFILL MATERIAL SHALL BE TYPE 2, CLASS B OR CLASS E AND COMPACTED TO MINIMUM 90% RELATIVE COMPACTION. MATERIALS SHALL CONFORM TO SSPWC SECTION 200.
5. ALL EXCAVATIONS SHALL CONFORM TO THE LATEST O.S.H.A. REQUIREMENTS.
6. EXISTING PIPE TO BE ABANDONED SHALL BE GROUT FILLED OR COMPLETELY REMOVED.

TRENCH EXCAVATION/BACKFILL

DETAIL SHEET

Axion ENGINEERING
Civil Engineering Land Development
691 EDISON WAY - RENO, NEVADA 89502
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CITY OF SPARKS
EL RANCHO DRIVE
SPARKS, NEVADA

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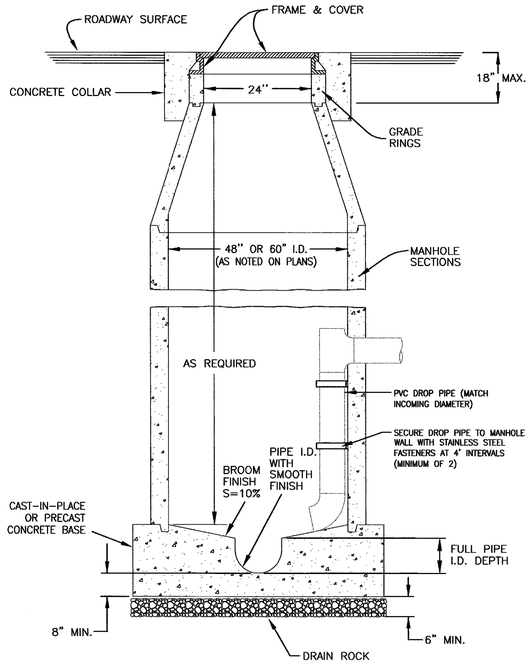
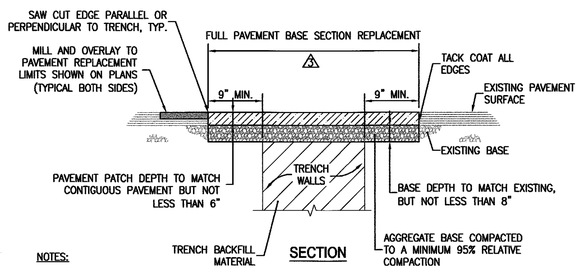
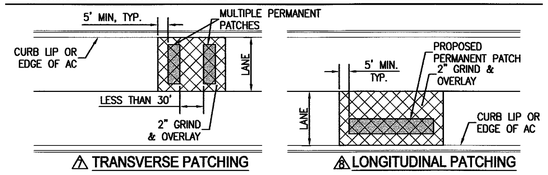


DROP MANHOLE



NOTES:

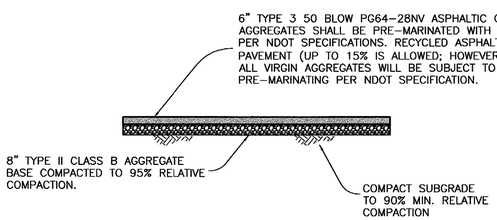
1. AN EXCAVATION/ENCROACHMENT PERMIT MUST BE OBTAINED FROM CITY OF SPARKS PRIOR TO CUTTING ANY PUBLIC RIGHT-OF-WAY.
2. IF SAW CUT IS WITHIN 2 FEET OF AN EXISTING PAVEMENT EDGE OR EXISTING PAVEMENT PATCH, REMOVE EXISTING PAVEMENT TO THAT EDGE AND REPLACE ENTIRE SECTION.
3. ALL PERMANENT PATCH REPLACEMENT REQUIREMENTS ARE MINIMUM WIDTHS ONLY AND INCLUDES ALL AREAS WHERE THE ASPHALT PAVEMENT HAS BEEN UNDERMINED. THE CITY ENGINEER MAY REQUIRE WIDER PATCH SECTIONS OR OTHERWISE ALTER THESE REQUIREMENTS.
4. AGGREGATE BASE MATERIAL UNDER BITUMINOUS PAVEMENT PATCH SHALL BE TYPE 2, CLASS B CRUSHED AGGREGATE BASE. MATERIALS SHALL CONFORM TO SSPWC SECTION 200.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACEMENT OF LOOP DETECTORS, ADJUSTMENT OF UTILITIES AND SURVEY MONUMENTS TO GRADE AND INSTALLATION OF PERMANENT PAVEMENT MARKINGS.
6. FOR P.C.C. CURB REPLACEMENT, SAW CUT EXISTING PAVEMENT 18 INCHES MIN. FROM GUTTER LIP LINE, REMOVE AND REPLACE PAVEMENT TO SAW CUT EDGES. CONCRETE MAY BE POURED NEAT AGAINST EXISTING EDGE OF ASPHALT IF APPROVED BY CITY ENGINEER.



ALL STREETS WITH PAVEMENT CONDITION INDEX (PCI) GREATER THAN 65:

7. TRANSVERSE PATCHES SHALL INCLUDE A 2" GRIND AND OVERLAY WHEREVER THERE ARE MULTIPLE PATCHES WITHIN 30 FEET OF EACH OTHER.
8. LONGITUDINAL PATCHES SHALL INCLUDE 2" GRIND AND OVERLAY TO THE LANE LINES (BIKE, PARKING, OR TRAVEL).

PAVEMENT PATCH



PAVEMENT SECTION

DETAIL SHEET

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