

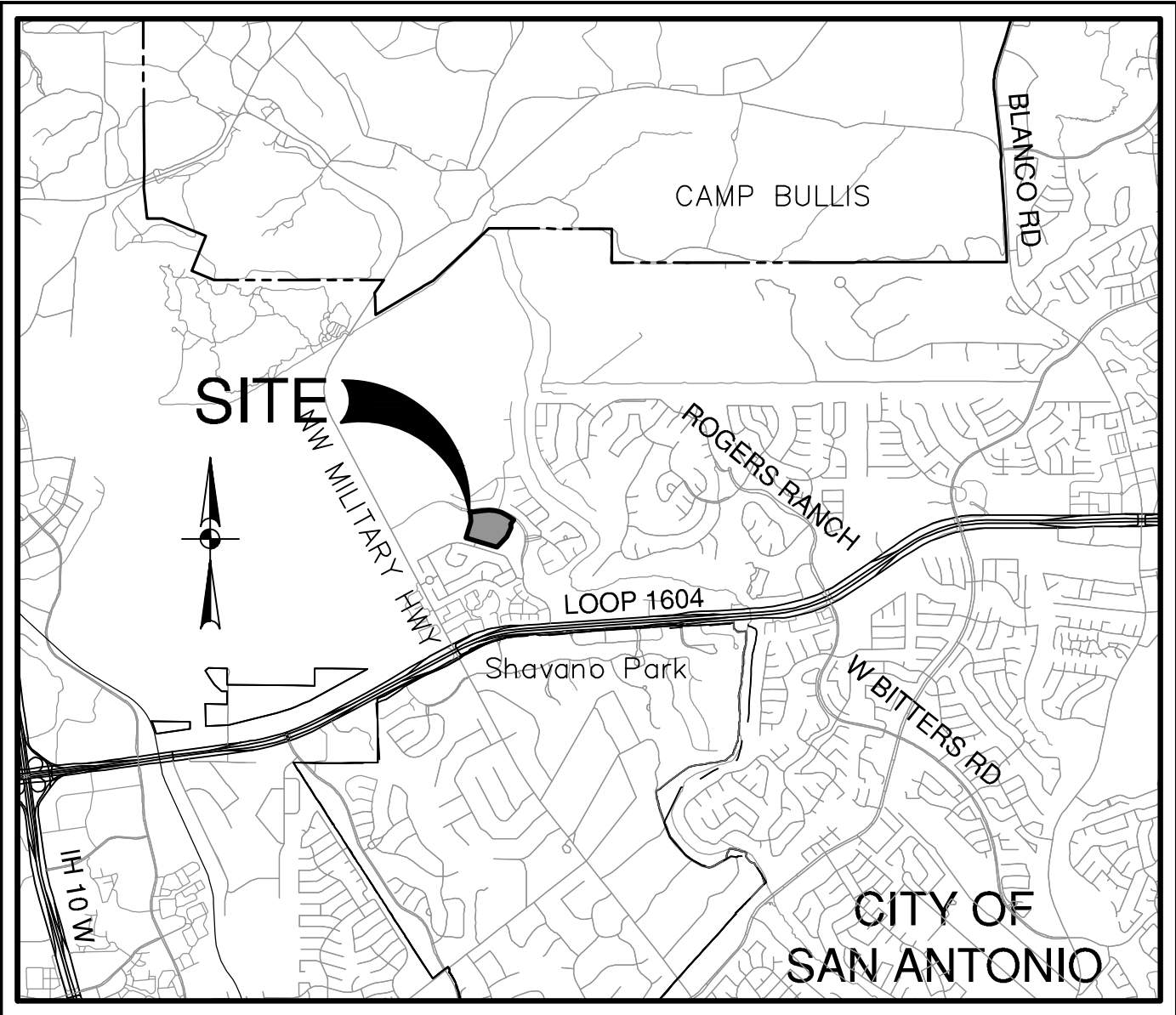
# SHAVANO HIGHLANDS HILLTOP

## SAN ANTONIO, TEXAS

### CIVIL CONSTRUCTION PLANS

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DRAINAGE DETAILS	C1.11
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SANITARY SEWER LINE B PLAN AND PROFILE (STA. 5+50.00 TO END)	C5.04
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UTILITY PLAN	C6.00
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LOCATION MAP  
NOT-TO-SCALE

PREPARED FOR:

SHAVANO ROGERS NORTH NO. 3, LTD  
11 LYNN BATTS LANE SUITE 100  
SAN ANTONIO, TEXAS 78218

MAY 2023  
UPDATED JANUARY 2024

**PAPE-DAWSON  
ENGINEERS**

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000  
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028800



*Caleb M. Chance*  
1/11/24

WATER (SAWS PRESSURE ZONE 11)

DEVELOPER'S NAME: SHAVANO ROGERS NORTH NO.3, LTD	
ADDRESS: 11 LYNN BATTS LANE SUITE 100	
CITY: SAN ANTONIO	STATE: TX ZIP: 78218
PHONE# (210)-828-6131	FAX#
SAWS BLOCK MAP# 138644 TOTAL EDU'S 57 TOTAL ACREAGE 18.91	
TOTAL LINEAR FOOTAGE OF PIPE: 8" 3087 LF PLAT NO. 23-11800016	
NUMBER OF LOTS 57	SAWS JOB NO. 23-1028

SEWER: LEWIS CREEK-SALADO CREEK,  
PANTHER SPRINGS CREEK-SALADO CREEK,  
& OLMOS CREEK-SAN ANTONIO RIVER  
WATERSHED - DOS RIOS W.R.C.

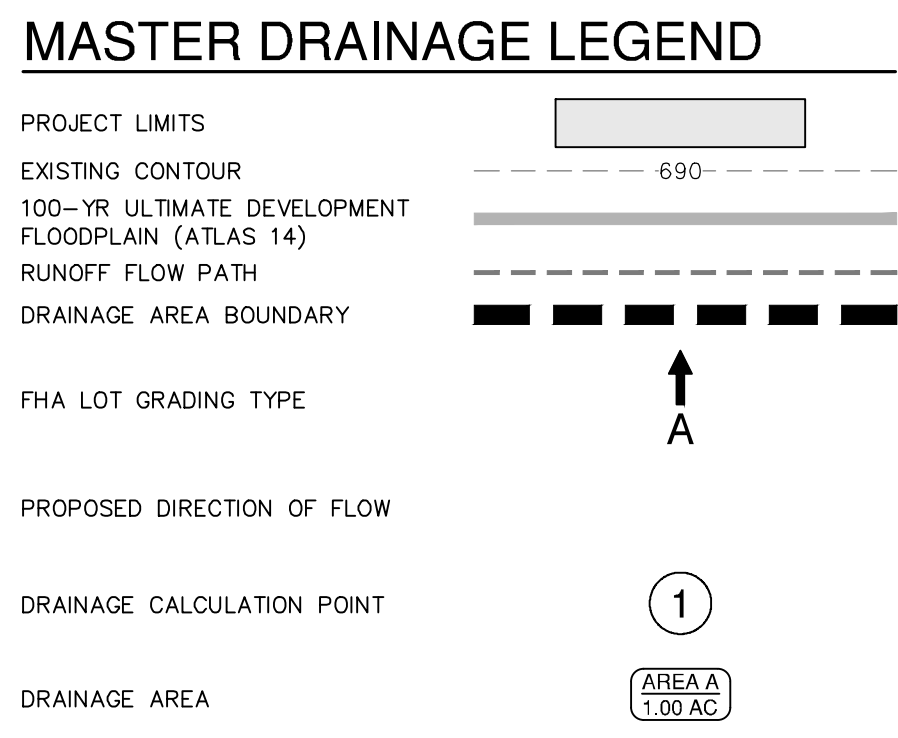
DEVELOPER'S NAME: SHAVANO ROGERS NORTH NO.3, LTD	
ADDRESS: 11 LYNN BATTS LANE SUITE 100	
CITY: SAN ANTONIO	STATE: TX ZIP: 78218
PHONE# (210) 496-2668	FAX#
SAWS BLOCK MAP# 138644 TOTAL EDU'S 57 TOTAL ACREAGE 18.91	
TOTAL LINEAR FOOTAGE OF PIPE: 8" 4079 LF PLAT NO. 23-11800016	
NUMBER OF LOTS 57	SAWS JOB NO. 23-1525

SHEET C0.00





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NO.	REVISION	DATE
	REVISED STREET NAMES	07/08/2023

**CALEB M. CHANCE**  
98401  
**LICENSED PROFESSIONAL ENGINEER**

*Caleb M. Chance*      10/17/24

**PAPE-DAWSON  
ENGINEERS**

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
20200 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000  
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

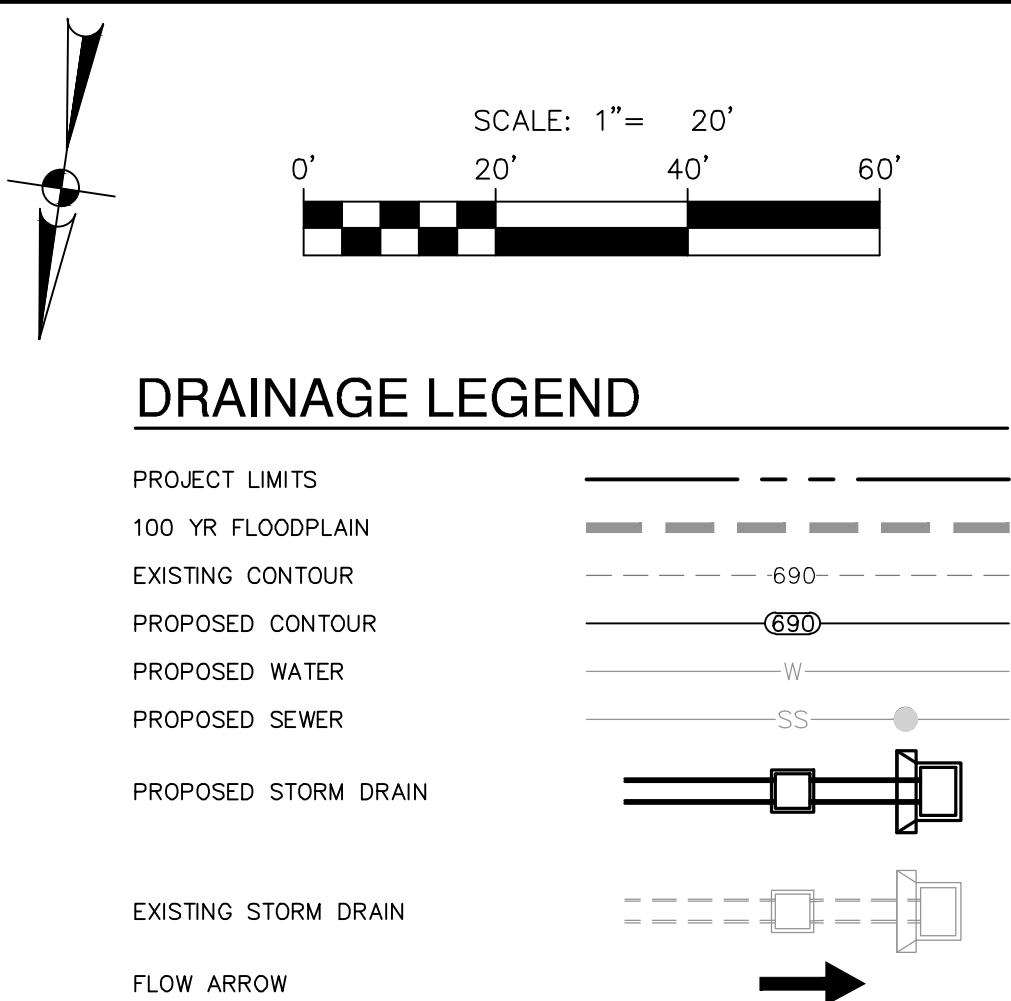
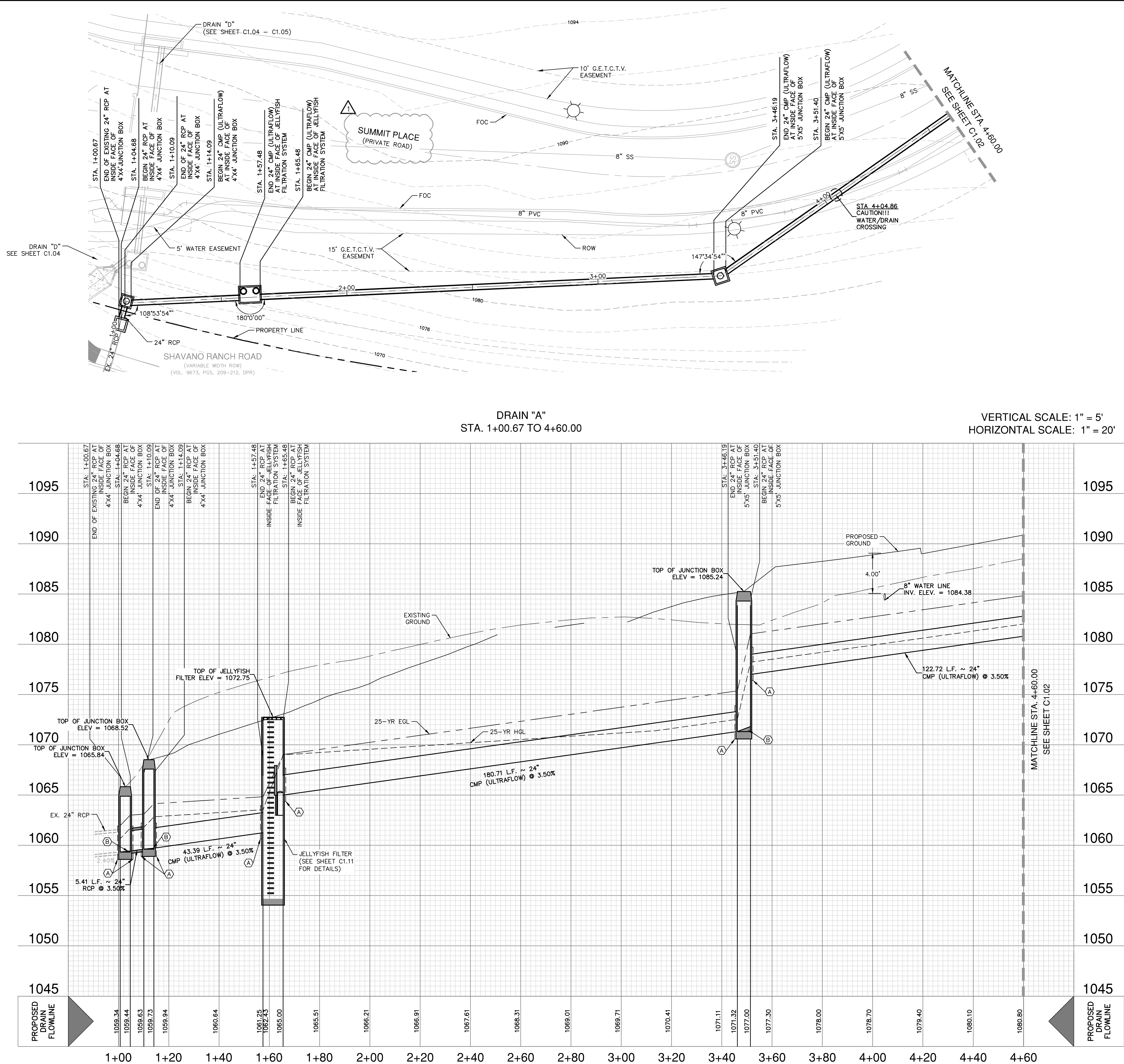
SHAVANO HIGHLANDS HILLTOP  
SAN ANTONIO, TX  
MASTER DRAINAGE PLAN

PLAT NO. 23-11800016  
JOB NO. 8834-25  
DATE MARCH 2023  
DESIGNER AA  
CHECKED BL DRAWN AA  
SHEET C1.00



Notes: Rev. 10, 2024, 8/23/24, User ID: Ribaerdgarcia  
File: P:\08\34\25\Drawings\GWA\DWG-083425.dwg

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**KEY LEGEND**

(A) CONCRETE COLLAR  
(SEE DETAIL SHEET C1.10)

(B) CONTRACTOR TO GROUT  
BOTTOM OF BOX TO ALLOW  
FOR POSITIVE DRAINAGE

HYDRAULIC CALCULATIONS STORM DRAIN STA. 1+04.68 TO 1+10.09	HYDRAULIC CALCULATIONS STORM DRAIN STA. 1+14.09 TO 1+57.48
Q25 = 28.76 CFS Dn = 1.21' Sf = 1.62% Vf = 9.15 FPS n = 0.013 D = 24" S = 3.50%	Q25 = 28.76 CFS Dn = 1.21' Sf = 1.62% Vf = 9.15 FPS n = 0.013 D = 24" S = 3.50%
HYDRAULIC CALCULATIONS STORM DRAIN STA. 1+65.48 TO 3+46.19	HYDRAULIC CALCULATIONS STORM DRAIN STA. 3+51.40 TO 4+74.12
Q25 = 28.76 CFS Dn = 1.21' Sf = 1.62% Vf = 9.15 FPS n = 0.013 D = 24" S = 3.50%	Q25 = 28.76 CFS Dn = 1.21' Sf = 1.62% Vf = 9.15 FPS n = 0.013 D = 24" S = 3.50%

**DRAINAGE & GRADING NOTES:**

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- CONTRACTOR SHALL MATCH TOP OF CHANNEL TO NATURAL GROUND AND MAINTAIN A MINIMUM CHANNEL DEPTH OF "D" AS SHOWN IN THE PROFILE.

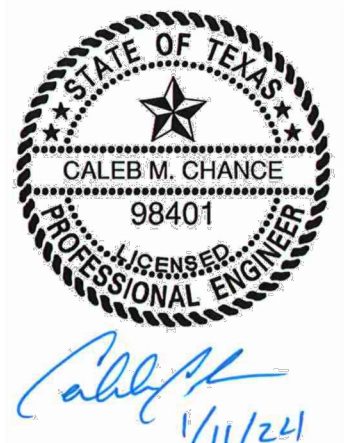
**TRENCH EXCAVATION SAFETY PROTECTION:**

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**CAUTION!!**

CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITING TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT 1-800-DIG-TESS A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.

DATE	01/08/2024
REVISION	
NO.	
REVISED STREET NAME	



**PAPE-DAWSON  
ENGINEERS**

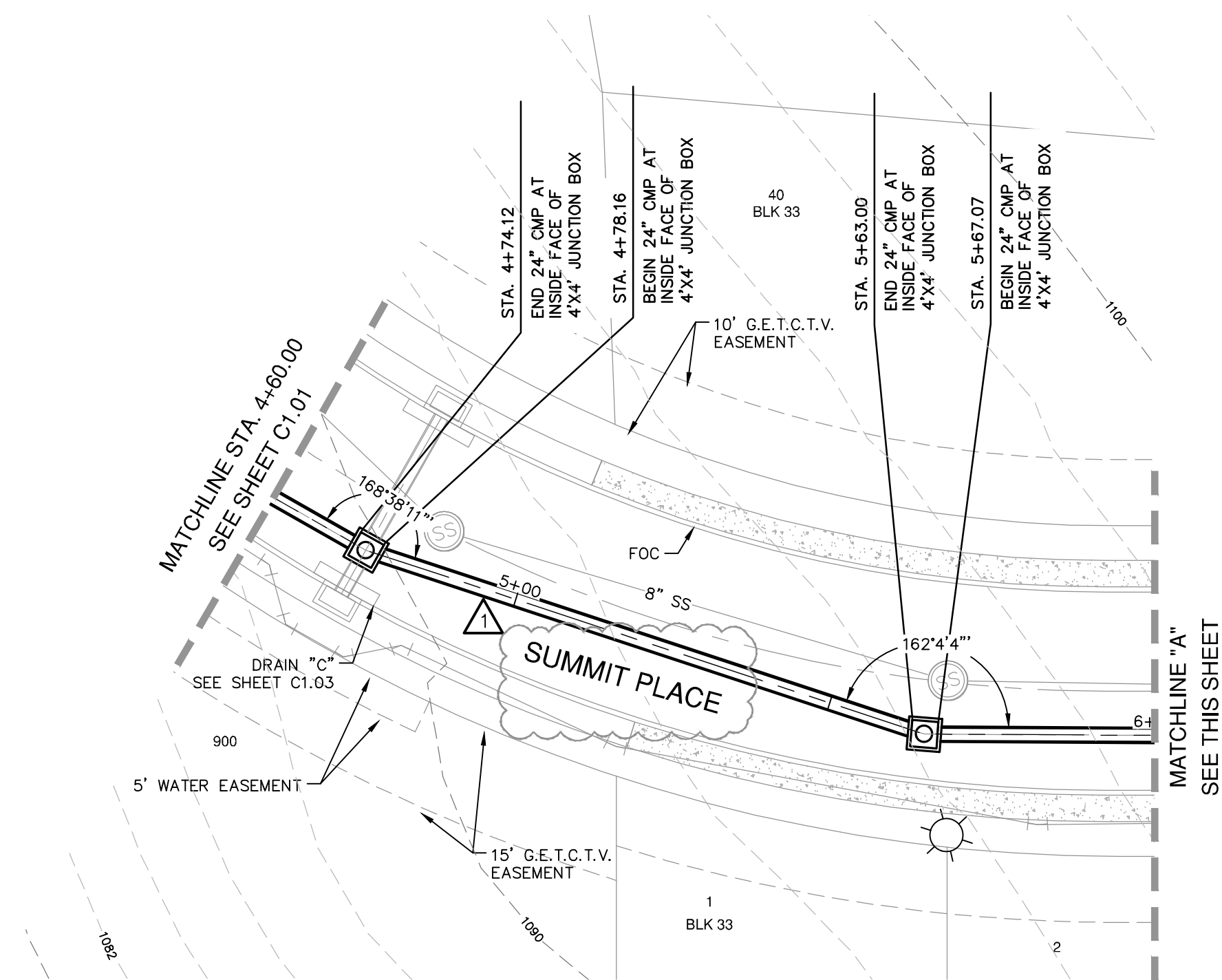
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000  
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028890

**SHAVANO HIGHLANDS HILLTOP**  
SAN ANTONIO, TEXAS

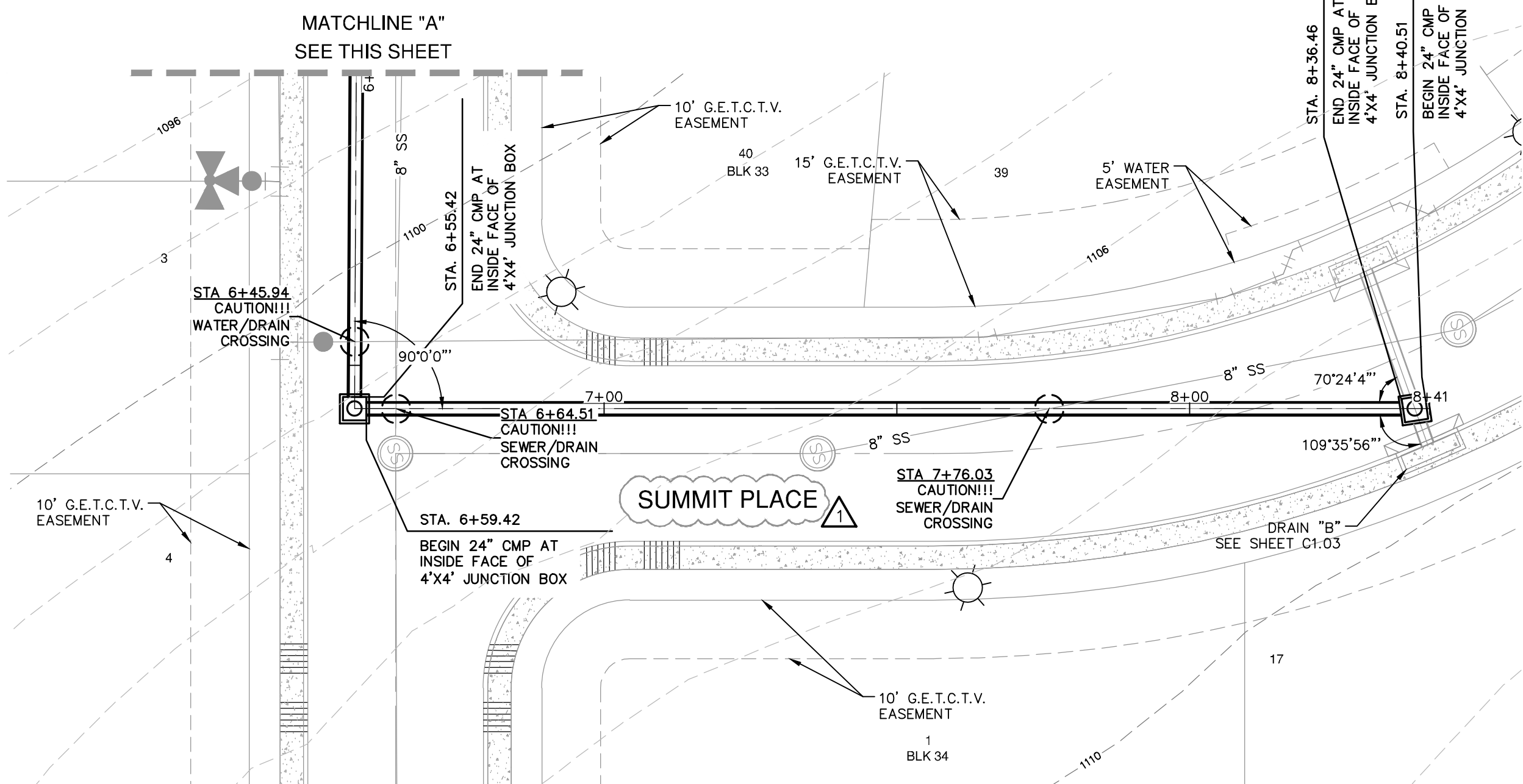
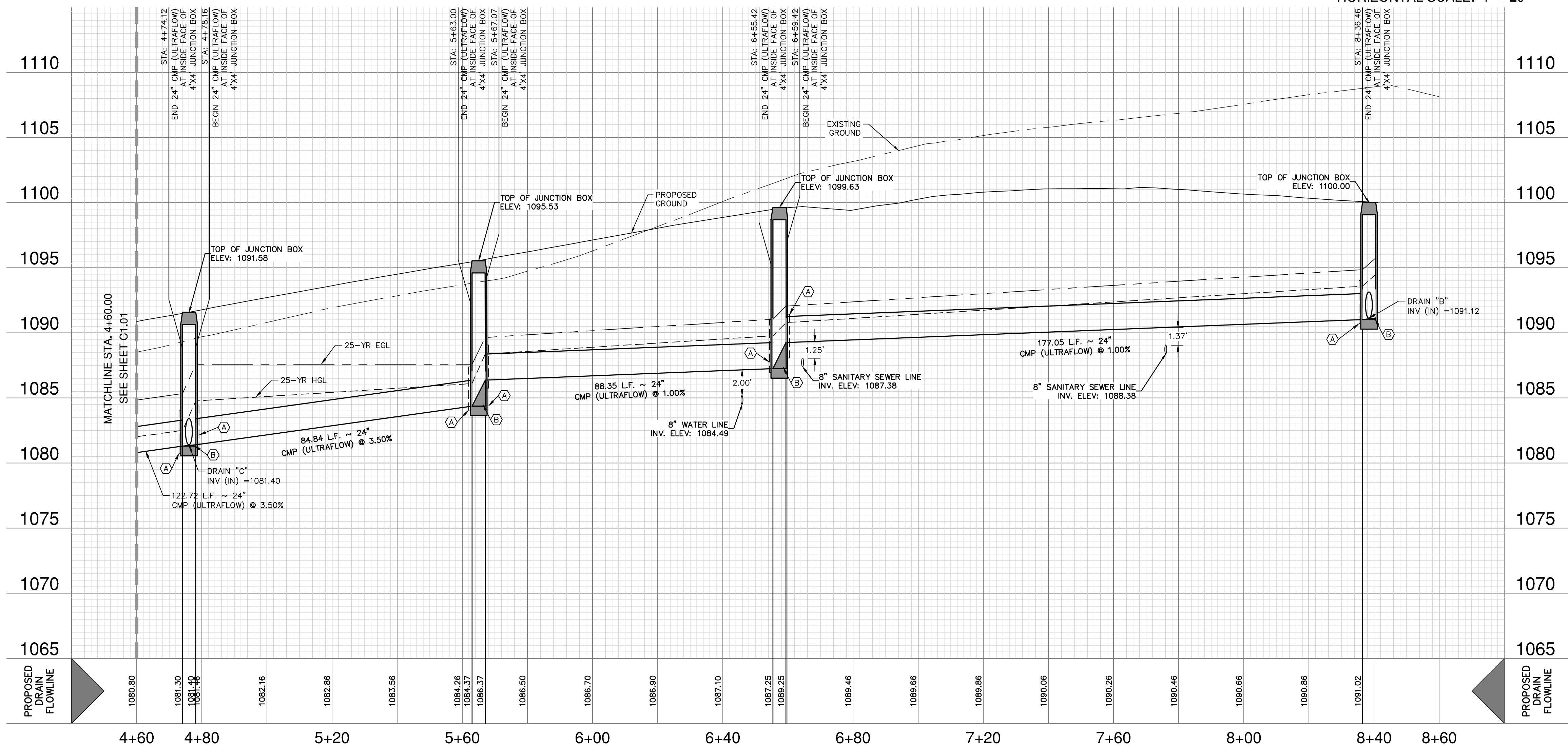
**DRAIN A PLAN & PROFILE**  
STA. 1+00.00 TO 4+60.00

PLAT NO.	23-11800016
JOB NO.	8834-25
DATE	MARCH 2023
DESIGNER	RG
CHECKED	BL
DRAWN	RG
SHEET	C1.01

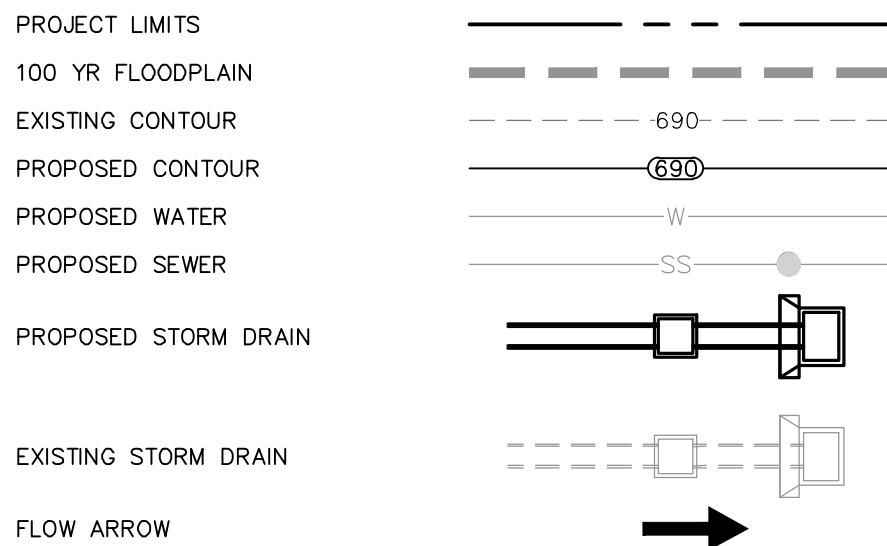




DRAIN "A"  
STA. 4+60.00 TO END



## DRAINAGE LEGEND



## KEY LEGEND

- (A) CONCRETE COLLAR  
(SEE DETAIL SHEET C1.10)
- (B) CONTRACTOR TO GROUT  
BOTTOM OF BOX TO ALLOW  
FOR POSITIVE DRAINAGE

HYDRAULIC CALCULATIONS STORM DRAIN STA. 3+51.40 TO 4+74.12	HYDRAULIC CALCULATIONS STORM DRAIN STA. 4+78.16 TO 5+63.00
Q25 = 28.76 CFS	Q25 = 28.40 CFS
Dn = 1.21'	Dn = 1.20'
Sf = 1.62%	Sf = 1.58%
Vf = 9.15 FPS	Vf = 9.04 FPS
n = 0.013	n = 0.013
D = 24"	D = 24"
S = 3.50%	S = 3.50%

HYDRAULIC CALCULATIONS STORM DRAIN STA. 5+67.07 TO 6+55.42	HYDRAULIC CALCULATIONS STORM DRAIN STA. 6+59.42 TO 8+36.46
Q25 = 28.40 CFS	Q25 = 28.40 CFS
Dn = 1.97'	Dn = 1.97'
Sf = 1.58%	Sf = 1.58%
Vf = 9.04 FPS	Vf = 9.04 FPS
n = 0.013	n = 0.013
D = 24"	D = 24"
S = 1.00%	S = 1.00%

## DRAINAGE & GRADING NOTES:

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## CAUTION!!

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**PAPE-DAWSON  
ENGINEERS**

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000  
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #1008890

**SHAVANO HIGHLANDS HILLTOP**  
SAN ANTONIO, TEXAS

**DRAIN A PLAN & PROFILE**  
STA. 4+60.00 TO END

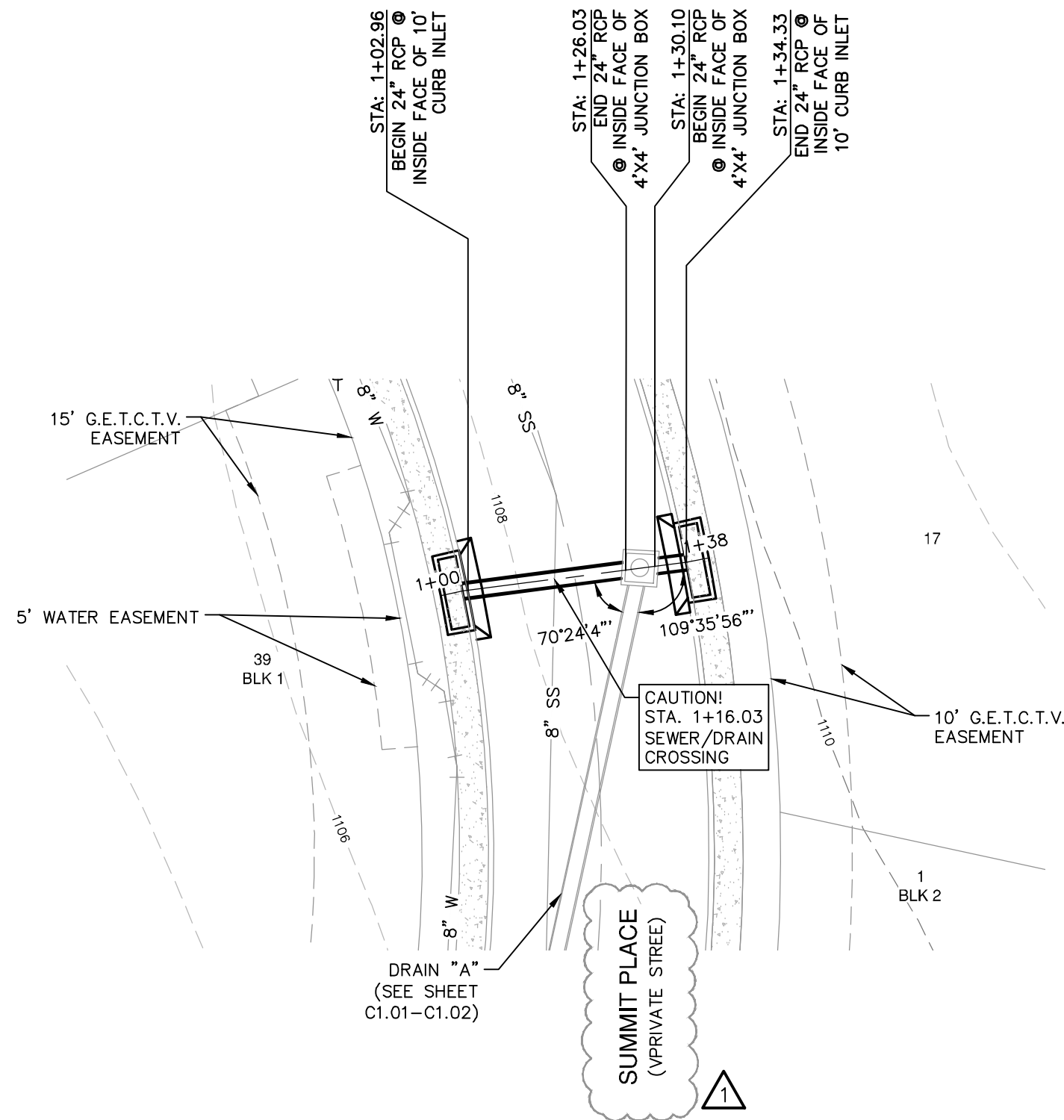
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JOB NO. 8834-25  
DATE MARCH 2023  
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SHEET C1.02

DATE	01/08/2024
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REVISION	
REVISED STREET NAME	

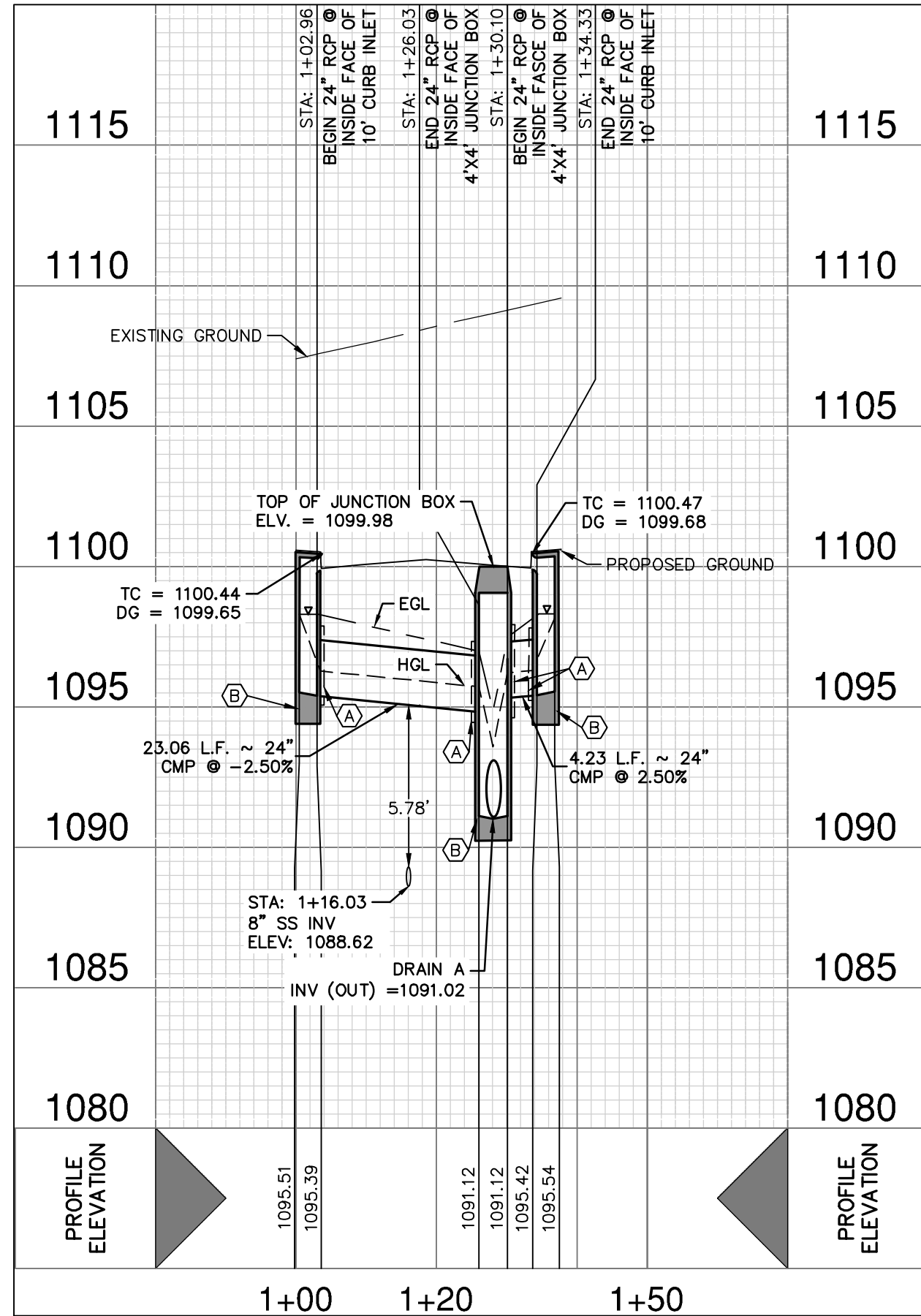


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1/11/24

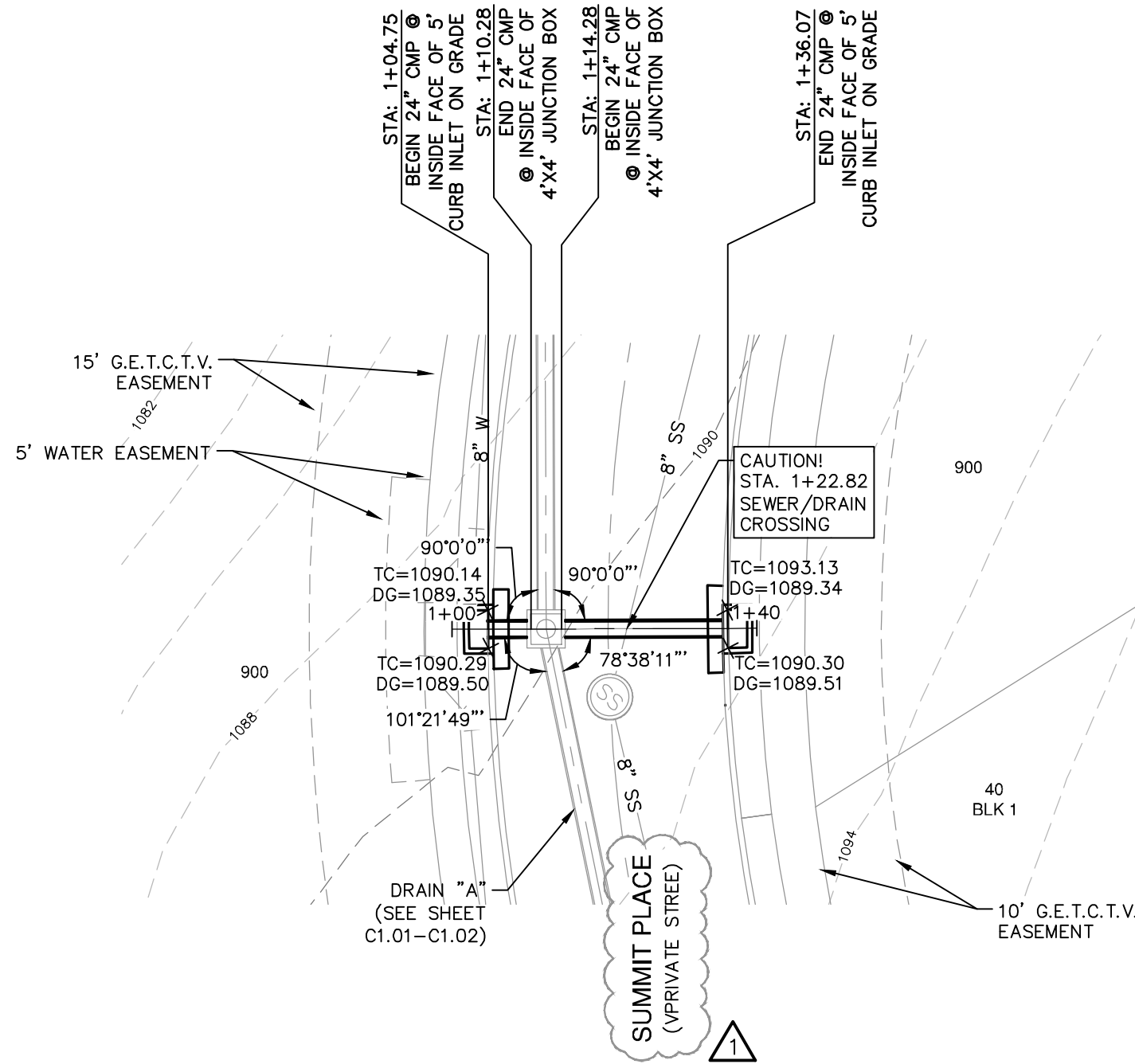




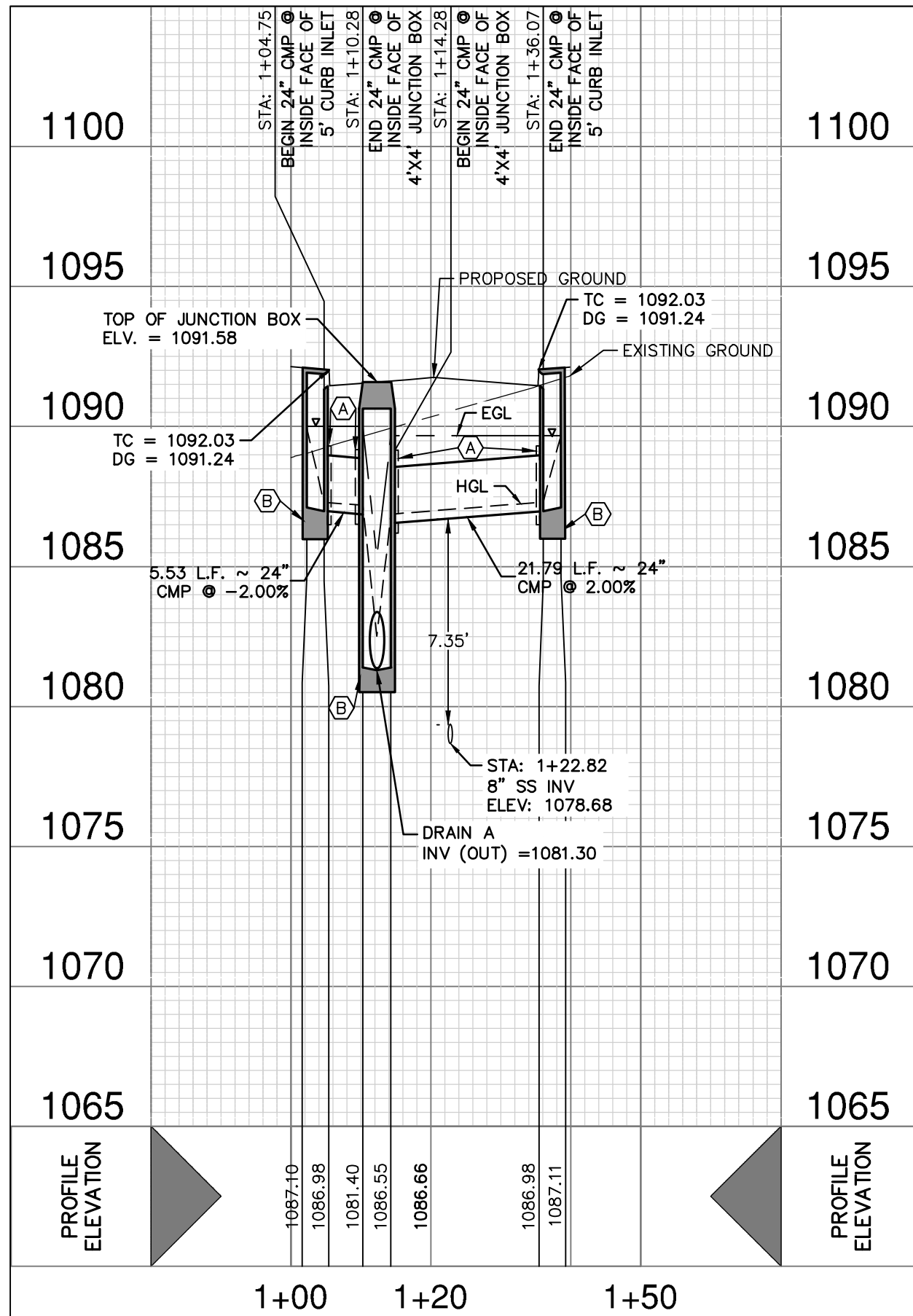
DRAIN "B"  
STA. 1+03.17 TO END  
VERTICAL SCALE: 1" = 5'  
HORIZONTAL SCALE: 1" = 20'



HYDRAULIC CALCULATIONS STORM DRAIN	HYDRAULIC CALCULATIONS STORM DRAIN
STA. 1+02.96 TO 1+26.03	STA. 1+30.10 TO 1+34.33
Q25 = 14.20 CFS	Q25 = 14.20 CFS
Dn = 0.9'	Dn = 0.9'
Sf = 0.39%	Sf = 0.39%
Vn = 10.46 FPS	Vn = 10.46 FPS
n = 0.013	n = 0.013
D = 24"	D = 24"
S = 2.50%	S = 2.50%



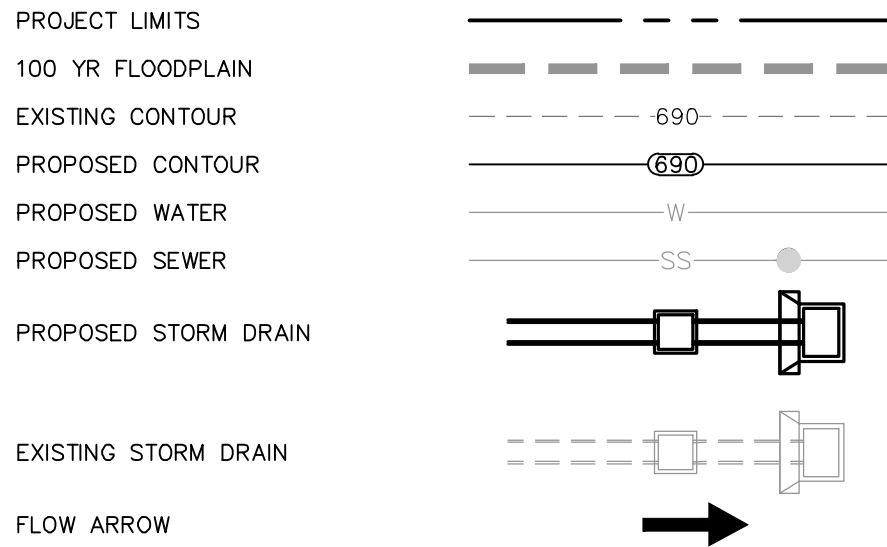
DRAIN "C"  
STA. 1+04.70 TO END  
VERTICAL SCALE: 1" = 5'  
HORIZONTAL SCALE: 1" = 20'



HYDRAULIC CALCULATIONS STORM DRAIN	HYDRAULIC CALCULATIONS STORM DRAIN
STA. 1+04.75 TO 1+10.28	STA. 1+14.28 TO 1+36.07
Q25 = 1.63 CFS	Q25 = 1.63 CFS
Dn = 0.32'	Dn = 0.32'
Sf = 0.01%	Sf = 0.01%
Vn = 4.76 FPS	Vn = 4.76 FPS
n = 0.013	n = 0.013
D = 24"	D = 24"
S = 2.00%	S = 2.00%



## DRAINAGE LEGEND



## KEY LEGEND

- (A) CONCRETE COLLAR  
(SEE DETAIL SHEET C1.10)
- (B) CONTRACTOR TO GROUT  
BOTTOM OF BOX TO ALLOW  
FOR POSITIVE DRAINAGE

## HYDRAULIC CALCULATIONS--DRAIN "B"

TOTAL Q25 = 28.4 CFS

Q25 = 14.2 CFS

Q25 = CA/2gh (ORIFICE FLOW EQN.)

A = L(0.50), h = 0.54, g = 32.2, c = 0.7

L =  $\frac{14.2 \text{ CFS}}{(0.7) (0.50) \sqrt{2} (32.2) (0.54)}$

L = 6.87 FT USE 2 ~ 10 FT CURB INLET

CHECK WITH WEIR FORMULA

h =  $\left(\frac{Q}{CL}\right)^{2/3} = \left(\frac{28.4}{(3.087) (20)}\right)^{2/3} = 0.60 \text{ FT.}$

h = 0.60 < 0.79 OK

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## CAUTION!!

CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITING TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT 1-800-DIG-TESS A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.

**PAPE-DAWSON  
ENGINEERS**  
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000  
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10088600

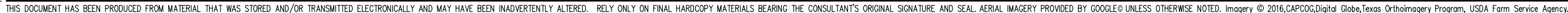
**SHAVANO HIGHLANDS HILLTOP**  
SAN ANTONIO, TEXAS  
DRAIN B & C PLAN & PROFILE  
DRAIN "B" STA. 1+03.17 TO END  
DRAIN "C" STA. 1+04.70 TO END

PLAT NO. 23-11800016  
JOB NO. 8834-25  
DATE MARCH 2023  
DESIGNER RG  
CHECKED BL DRAWN RG  
SHEET C1.03

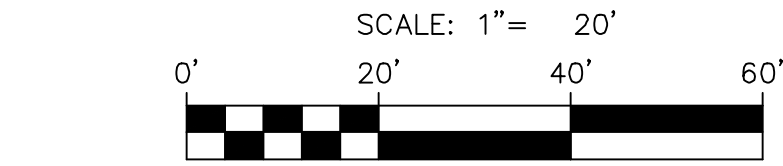
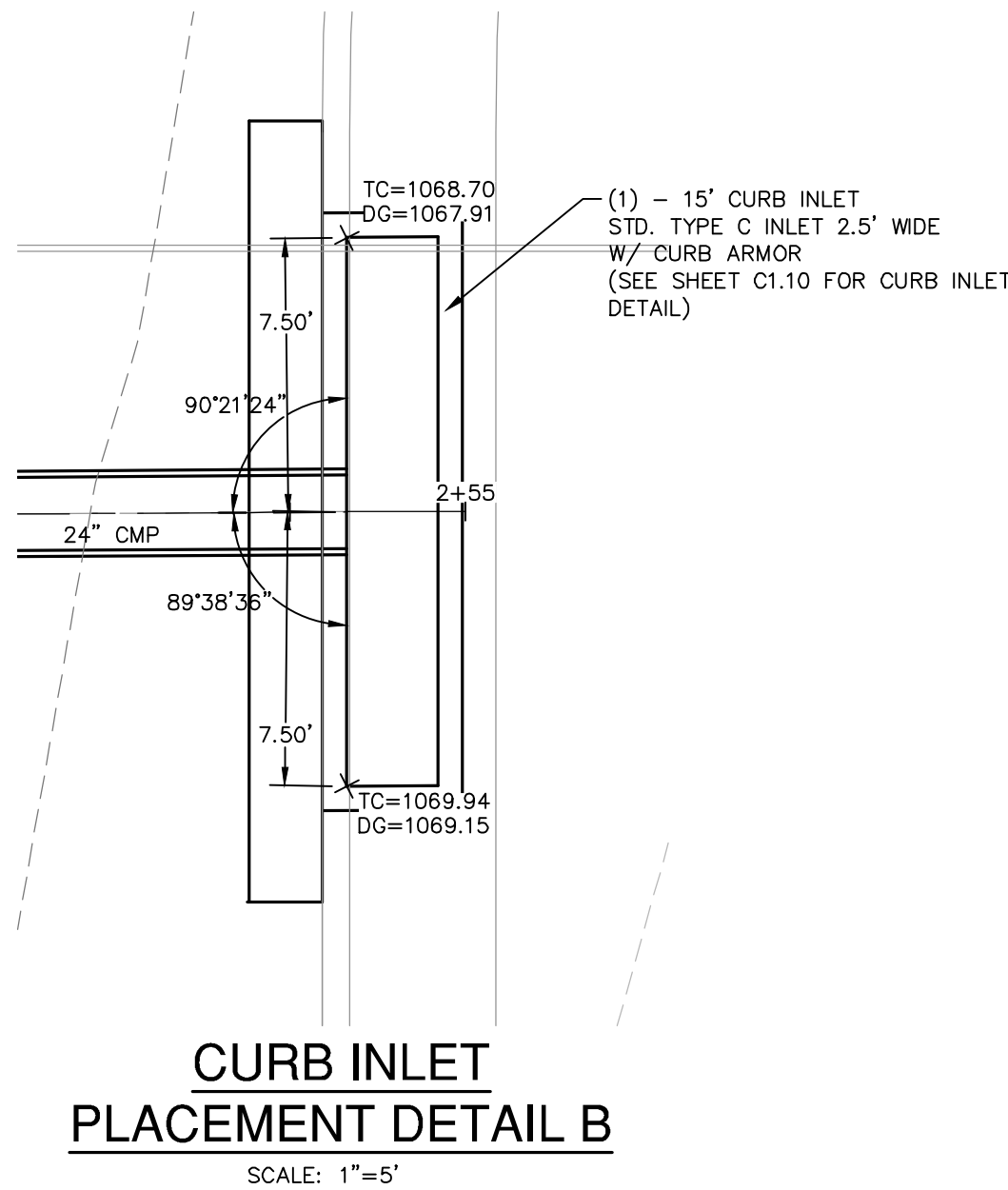
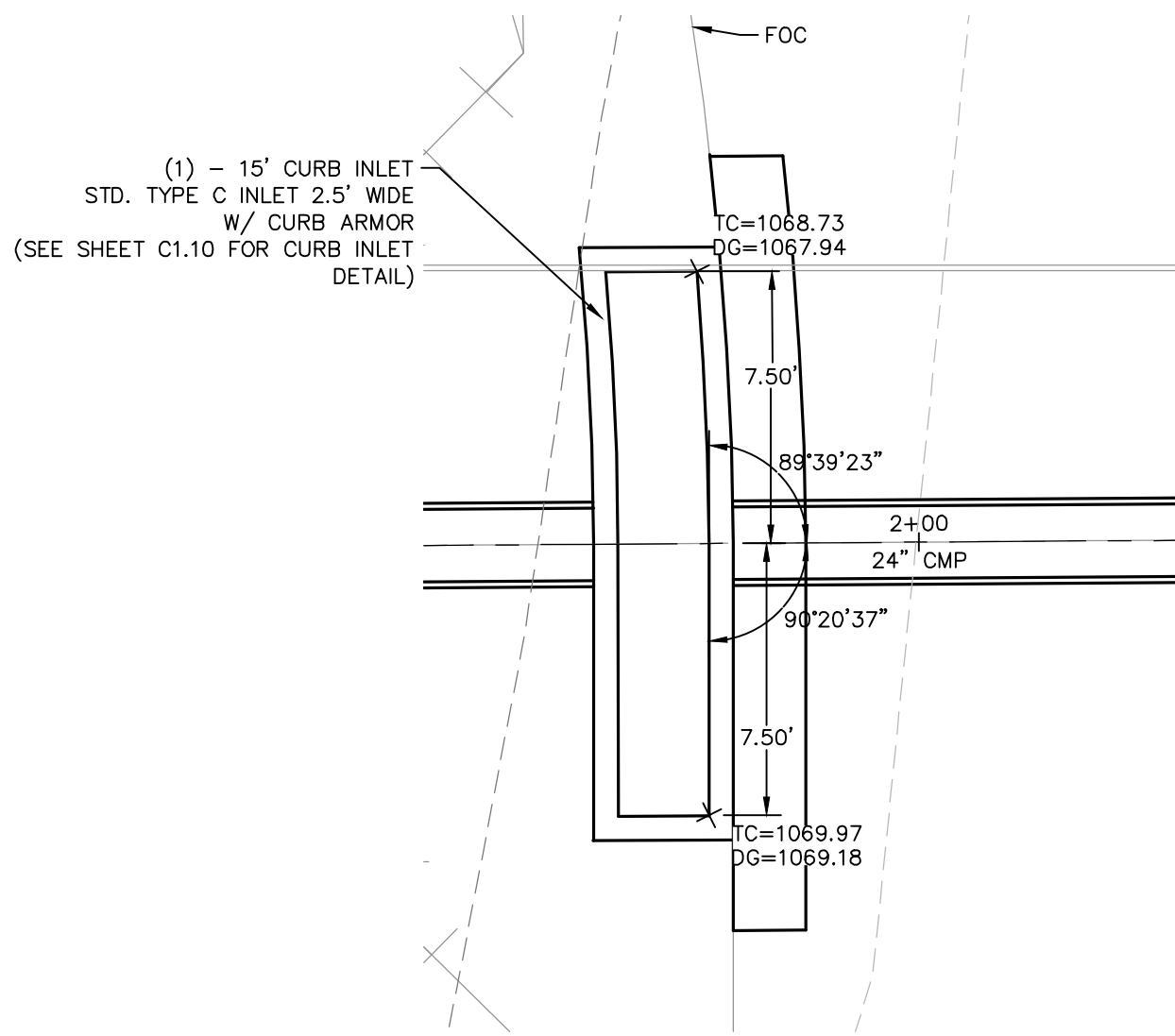
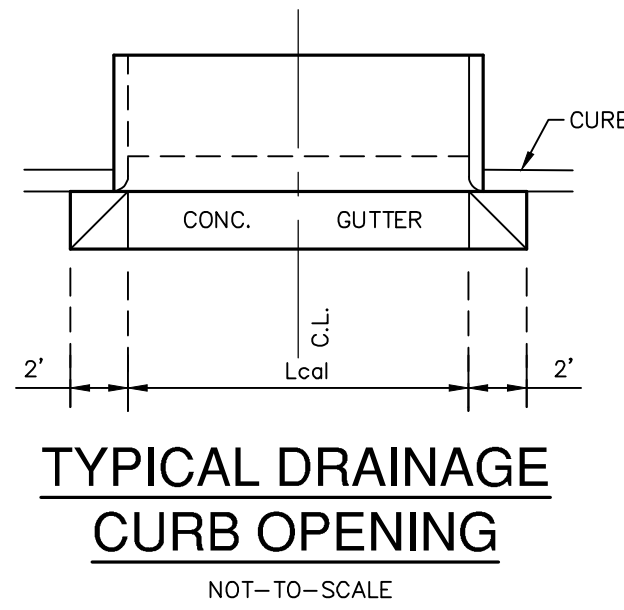
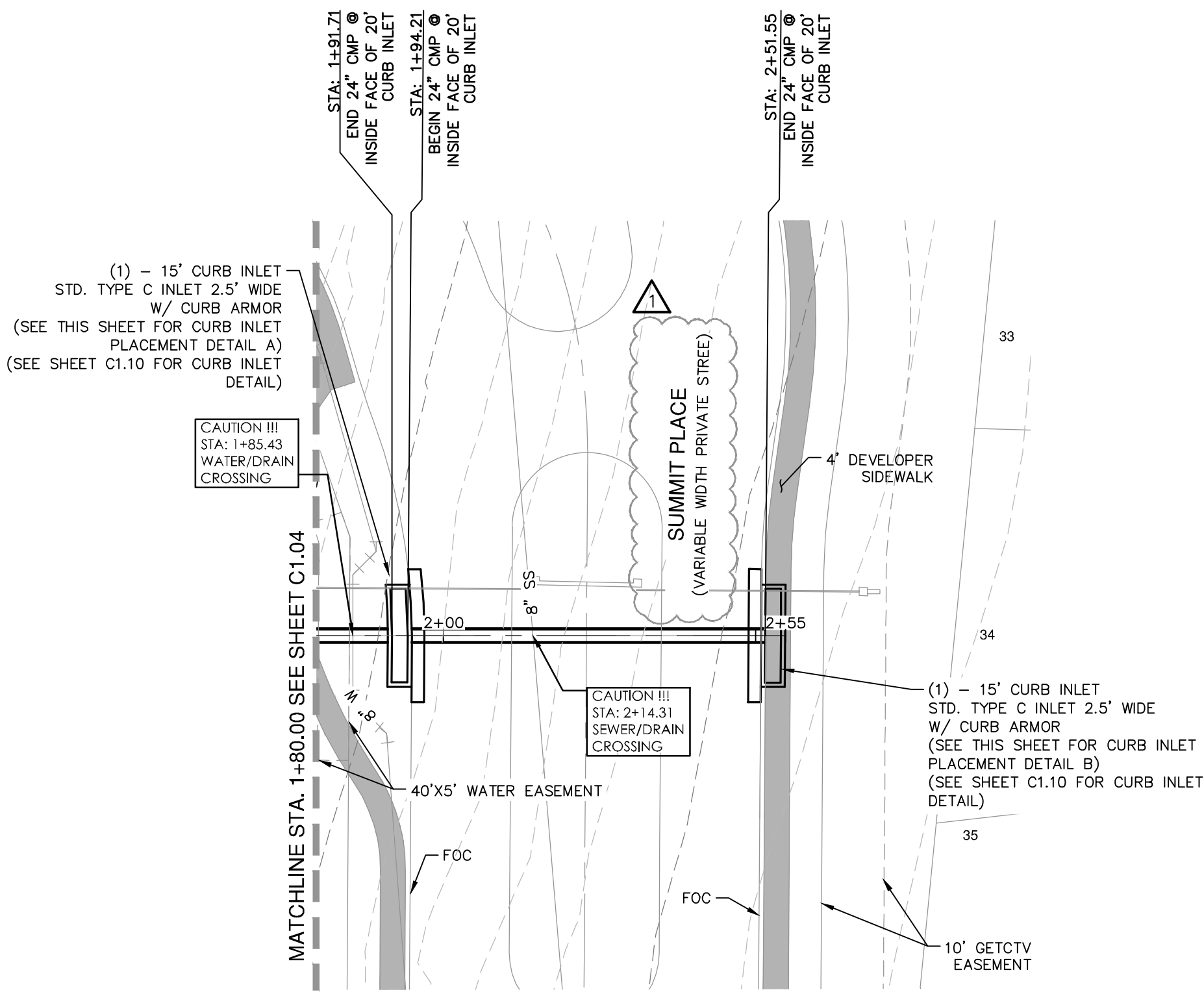
NO.	REVISION	DATE
1	REVISED STREET NAME	01/08/2024



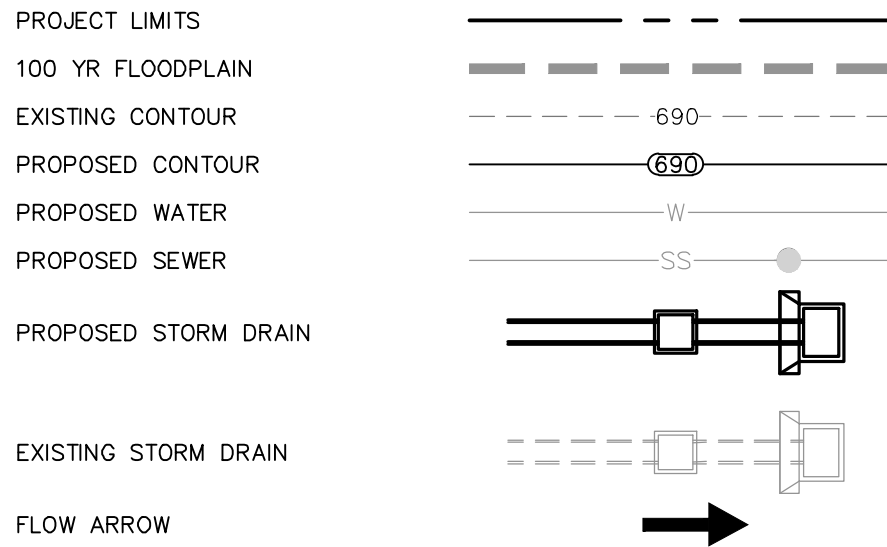








## DRAINAGE LEGEND



## KEY LEGEND

- (A) CONCRETE COLLAR  
(SEE DETAIL SHEET C1.10)
- (B) CONTRACTOR TO GROUT  
BOTTOM OF BOX TO ALLOW  
FOR POSITIVE DRAINAGE

HYDRAULIC CALCULATIONS STORM DRAIN	HYDRAULIC CALCULATIONS STORM DRAIN
STA. 1+80.00 TO 1+91.71	STA. 1+94.21 TO 2+51.55
Q25 = 10.18 CFS	Q25 = 6.78 CFS
Sf = .20%	Sf = .05%
Vf = 3.24 FPS	Vf = 1.62 FPS
n = 0.013	n = 0.013
D = 24"	D = 24"
S = 0.50%	S = 0.50%

## DRAINAGE & GRADING NOTES:

- A CITY OF SAN ANTONIO ROW PERMIT MUST BE OBTAINED BEFORE WORKING IN CITY OF SAN ANTONIO ROW. CONTRACTOR SHALL COORDINATE A TRAFFIC CONTROL PLAN FOR ALL WORK WITHIN THE ROW. ADDITIONAL WARNING SIGNS MAY BE RECOMMENDED BY THE ENGINEER ONCE THE ROADWAYS ARE CONSTRUCTED.
- THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES WHETHER SHOWN ON THE PLANS OR NOT. THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES PRIOR TO CONSTRUCTION TO VERIFY SIZE, GRADE, AND LOCATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DEVIATIONS FROM PLANS PRIOR TO BEGINNING CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR, AT HIS EXPENSE.
- ALL CONCRETE FOR TXDOT DRAINAGE STRUCTURES SHALL MEET TXDOT SPECIFICATIONS. ALL OTHER CONCRETE SHALL BE CLASS "A" 3000 PSI CYLINDER STRENGTH IN 28 DAYS.
- REFERENCE DRAINAGE DETAILS FOR PIPE TRENCH DETAILS, BOX CULVERT, HEADWALL, AND WINGWALL CONSTRUCTION DETAILS, AND BOX CULVERT BEDDING AND EXCAVATION LIMITS.
- CONTRACTOR SHALL GROUT ALL CURB INLETS AND JUNCTION BOXES TO PROVIDE FOR POSITIVE DRAINAGE.
- EARTHEN CHANNELS WILL BE VEGETATED BY SEEDING OR SODDING. 85% OF THE CHANNEL SURFACE MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF SAN ANTONIO WILL ACCEPT.
- CONTRACTOR SHALL MATCH TOP OF CHANNEL TO NATURAL GROUND AND MAINTAIN A MINIMUM CHANNEL DEPTH OF "D" AS SHOWN IN THE PROFILE.

## TRENCH EXCAVATION SAFETY PROTECTION:

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/ GEOTECHNICAL/ SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

## CAUTION!!

CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITING TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT 1-800-DIG-TESS A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.

**PAPE-DAWSON  
ENGINEERS**

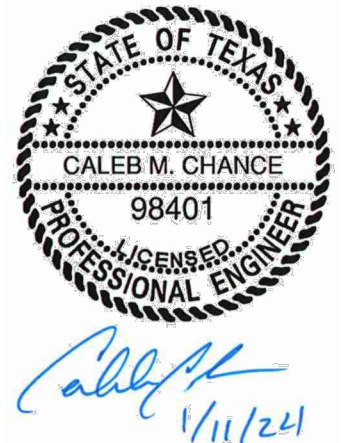
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000  
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #1008860

**SHAVANO HIGHLANDS HILLTOP**  
SAN ANTONIO, TEXAS

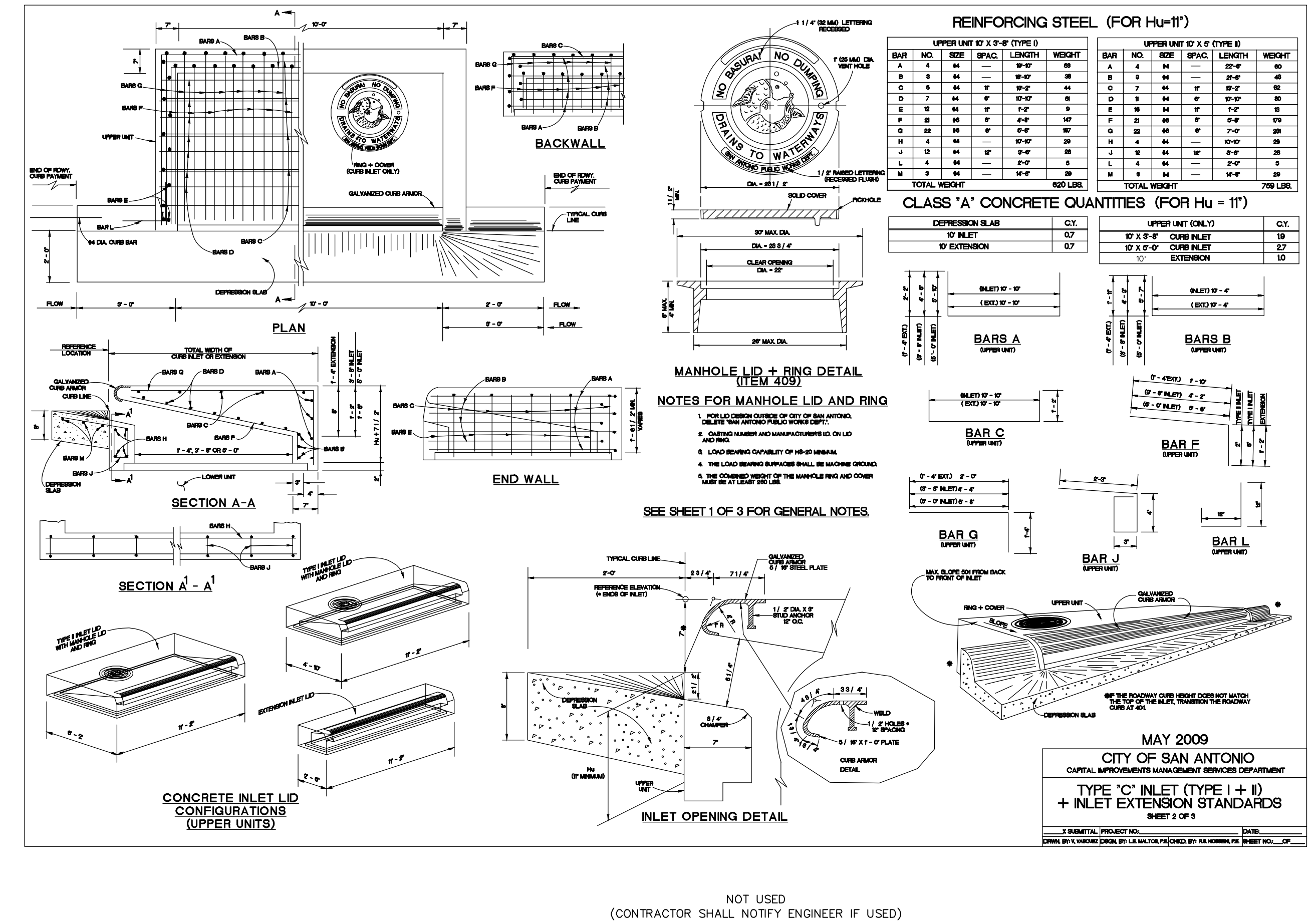
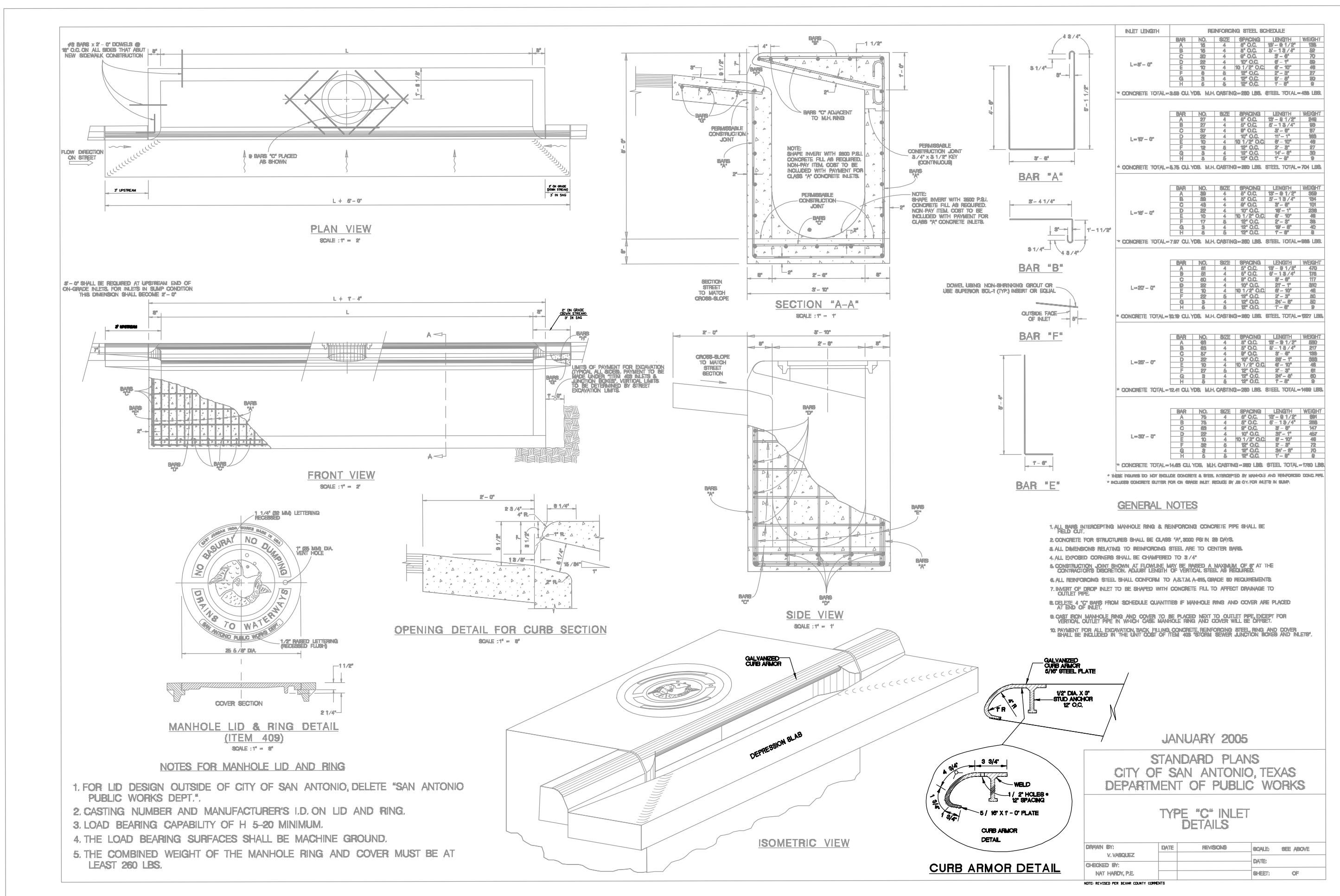
DRAIN D PLAN & PROFILE (STA. 1+80.00 TO END)

PLAT NO. 23-11800016  
JOB NO. 8834-25  
DATE MARCH 2023  
DESIGNER RG  
CHECKED BL DRAWN RG  
SHEET C1.05

NO.	REVISION	DATE
1	REVISED STREET NAME	01/09/2024







DATE: \_\_\_\_\_

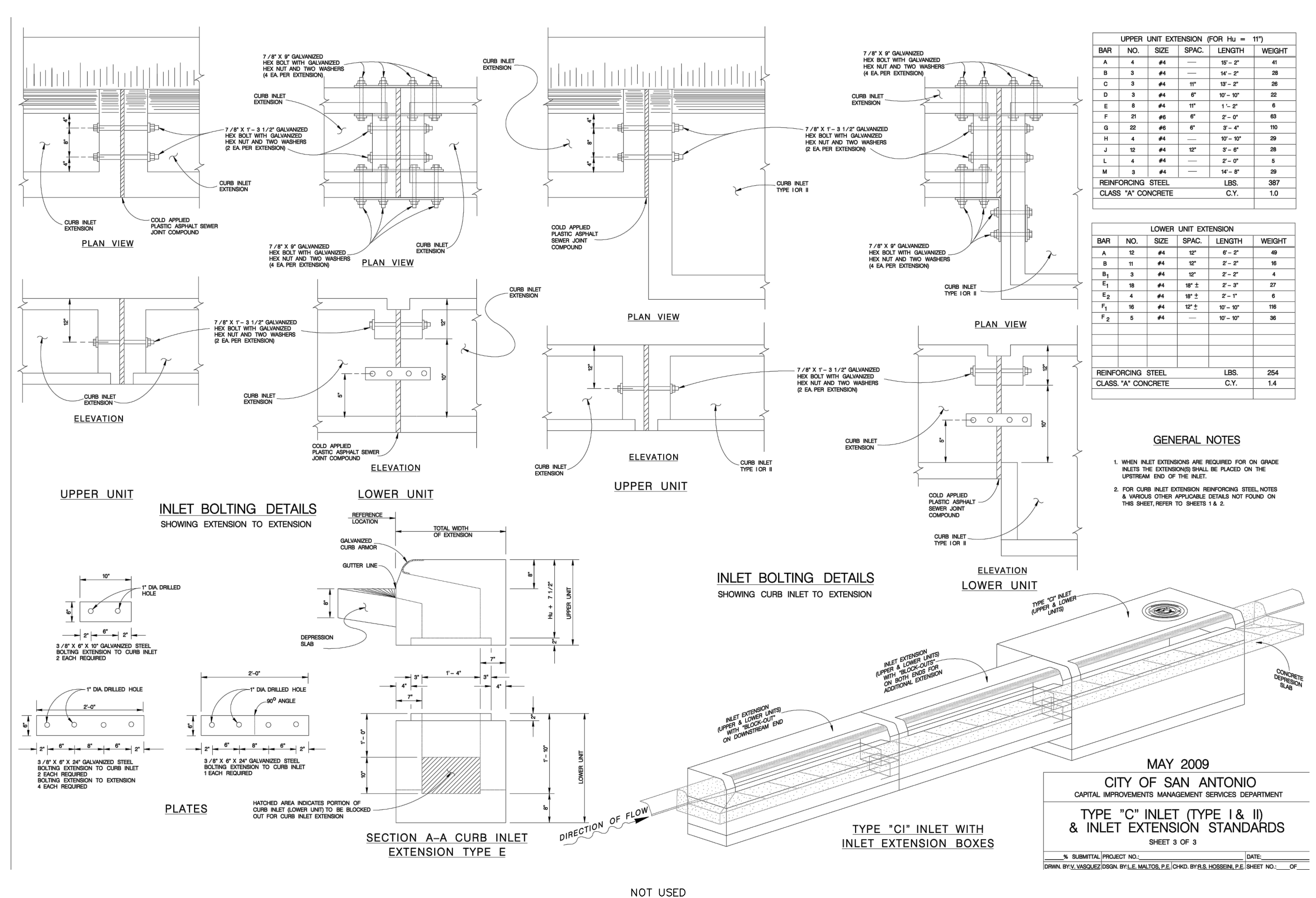
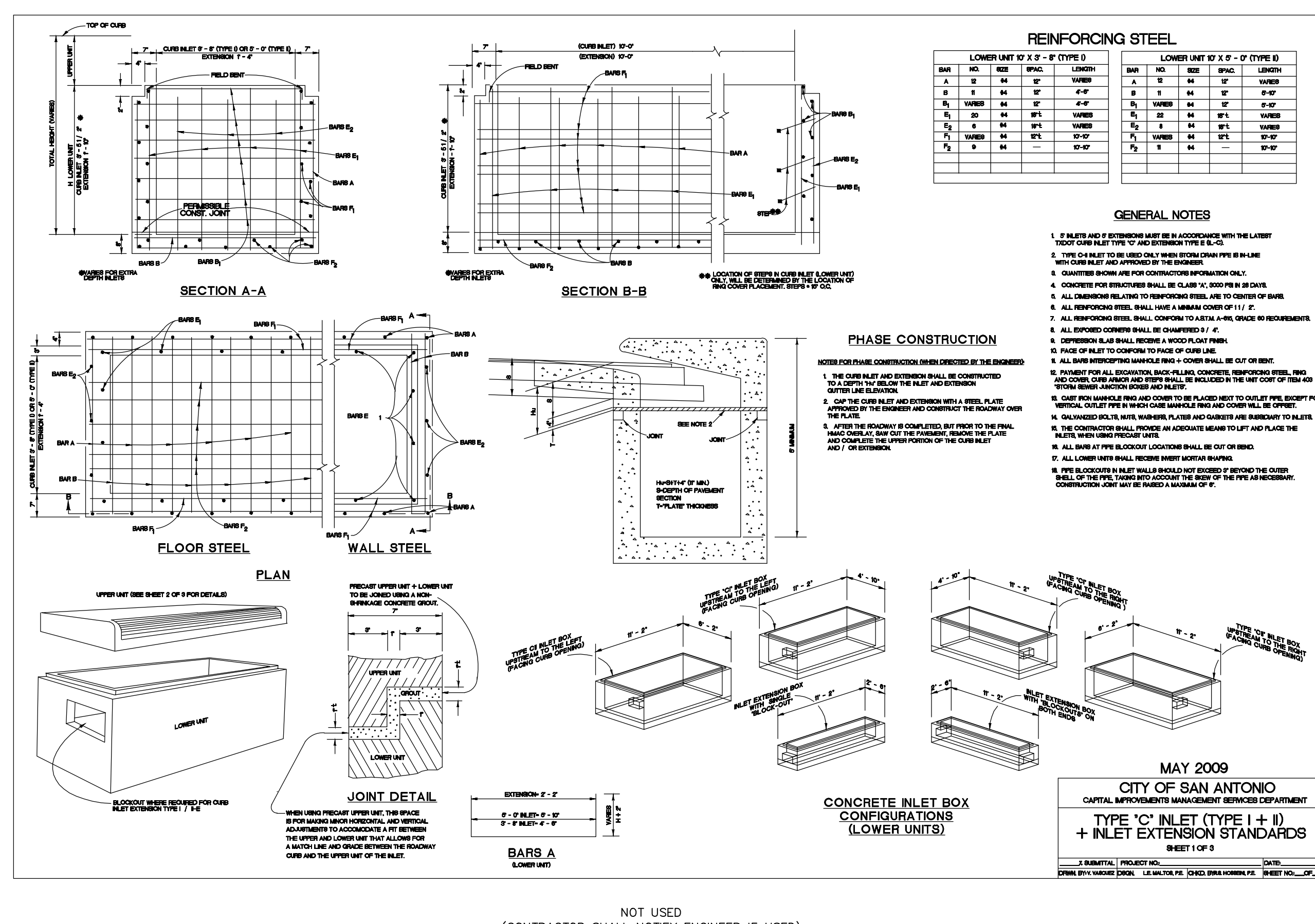
NO. \_\_\_\_\_

REVISION: \_\_\_\_\_

STATE OF TEXAS  
CALEB M. CHANGE  
98401  
PROFESSIONAL ENGINEER

PAPE-DAWSON  
ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000  
TEXAS ENGINEERING FIRM #10088600

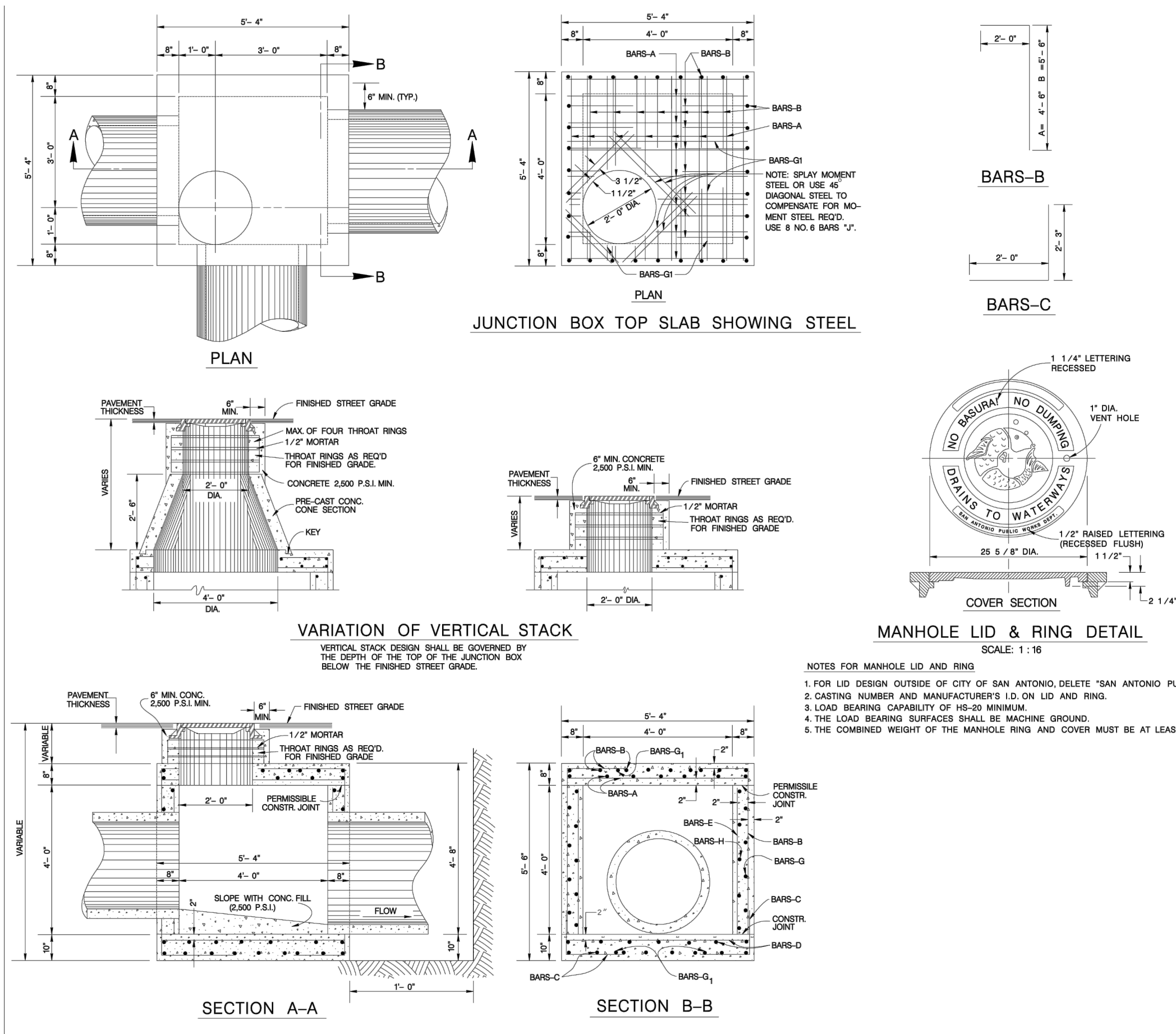


SHAVANO HIGHLANDS HILLTOP  
SAN ANTONIO, TEXAS

DRAINAGE DETAILS

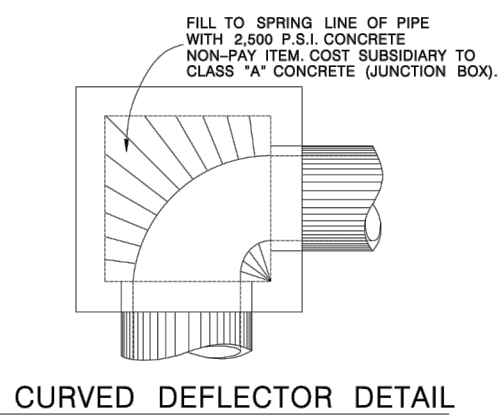
PLAT NO. 23-11800016  
JOB NO. 8834-25  
DATE FEBRUARY 2023  
DESIGNER AA  
CHECKED BL DRAWN AA  
SHEET C1.10



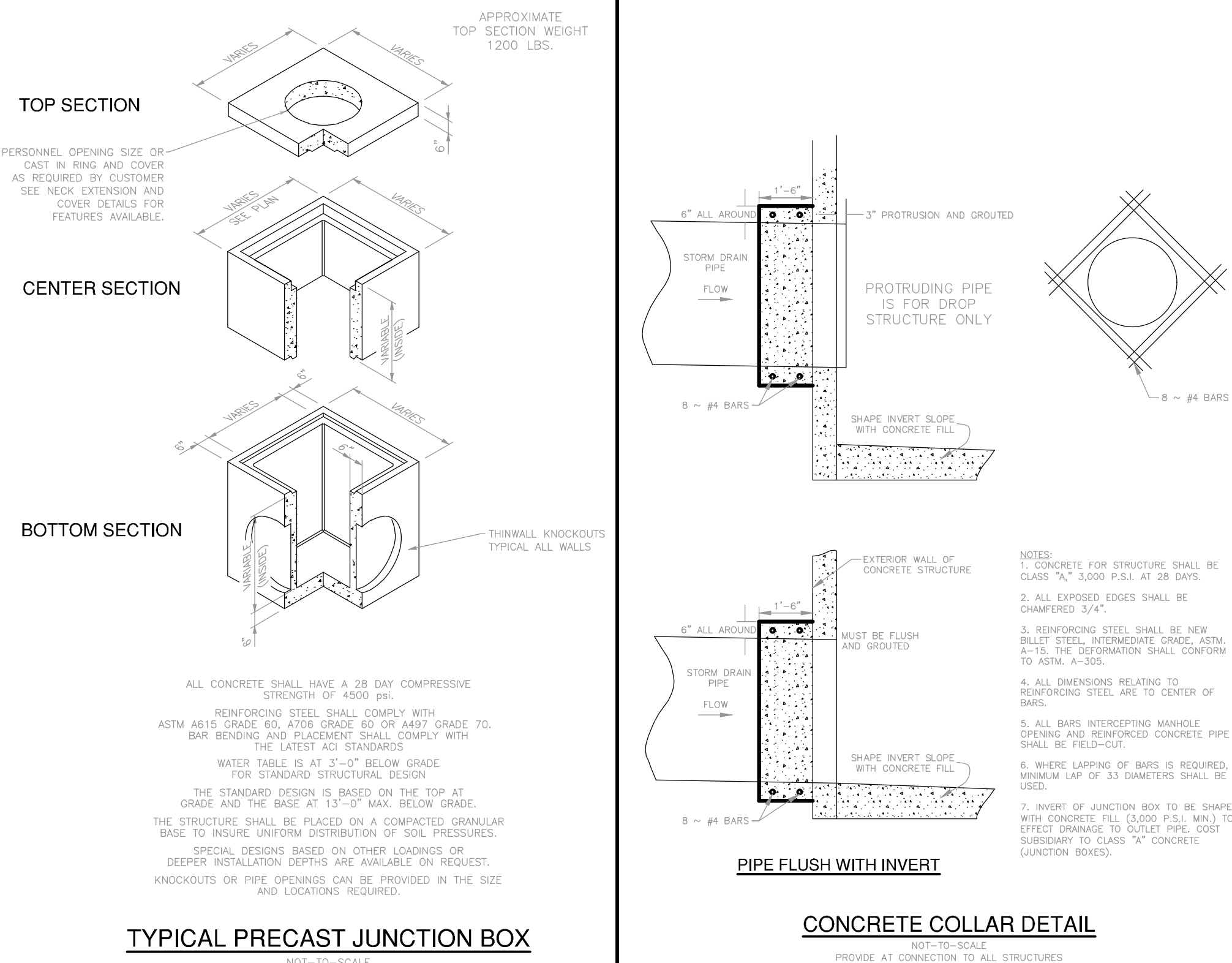
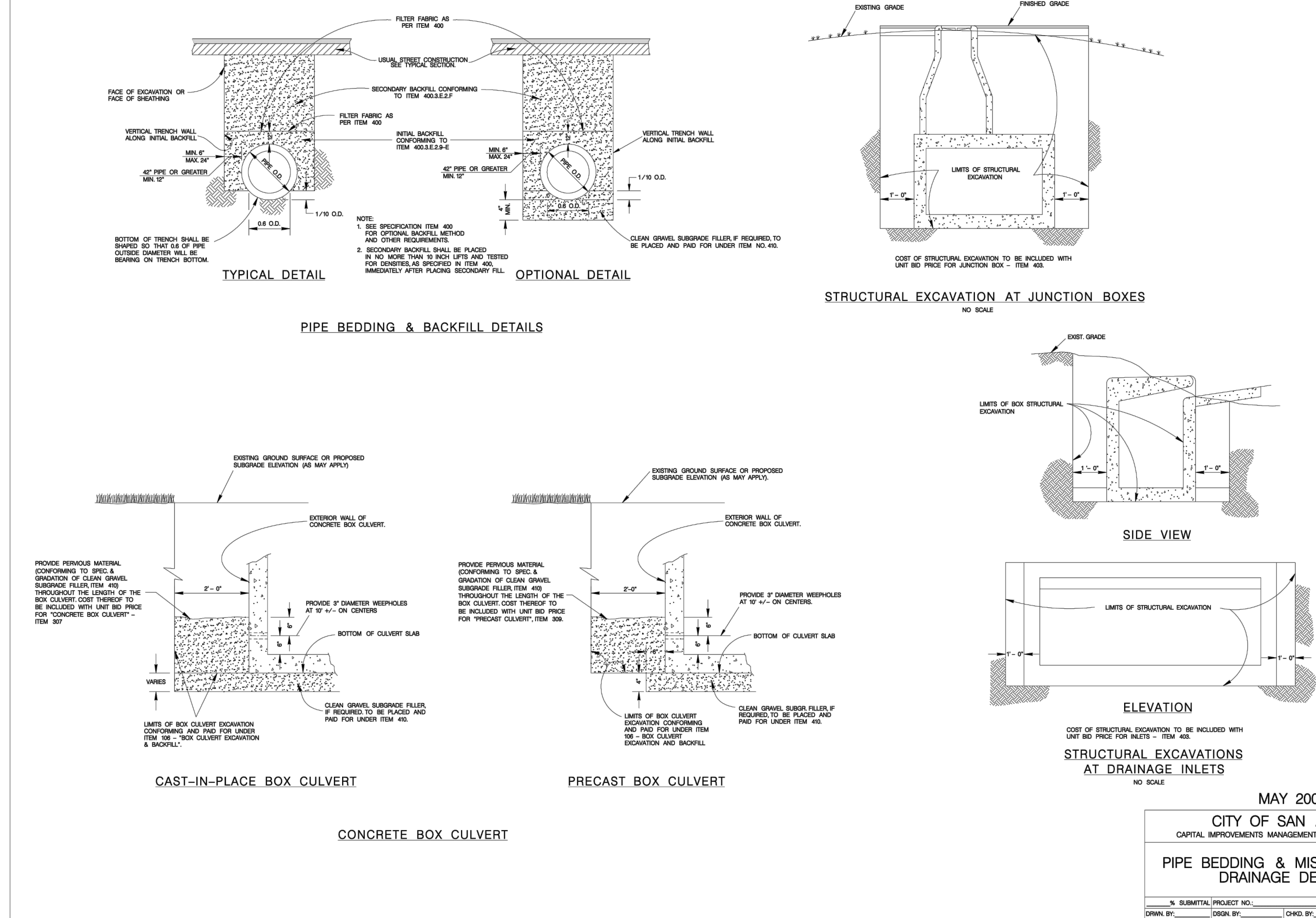


SCHEDULE FOR REINFORCING STEEL						
SHAPE	BAR	NO.	SIZE	SPACING	LENGTH	WEIGHT
STRAIGHT	A	16	4	8" O.C.	5'-1"	54
	B	32	5	8" O.C.	6'-10"	228
STRAIGHT	C	32	5	8" O.C.	4'-2"	142
	D	16	4	8" O.C.	5'-1"	54
STRAIGHT	E	16	3	12" O.C.	3'-11"	24
	G	16	4	12" O.C.	5'-1"	54
STRAIGHT	G <sub>1</sub>	8	4	AS SHOWN	5'-1"	27
	H	20	3	12" O.C.	4'-4"	33
STRAIGHT	J	8	6	3 1/2"	2'-10"	34
TOTAL						650 LBS.

- CLASS "A" CONCRETE- 3,400 C.U. YDS.  
(DOES NOT INCLUDE MANHOLE OPENINGS OR PIPE OPENINGS)
- \* NOTE: BAR SIZE AND SPACING BASED ON SPANS AS SHOWN - ANY MODIFICATIONS TO THESE SPANS SHALL INCLUDE A RE-DESIGN ON STEEL REQD.
1. CONCRETE FOR STRUCTURE SHALL BE CLASS "A" 3,000 P.S.I. AT 28 DAYS.
  2. ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4".
  3. REINFORCING STEEL SHALL BE NEW BILLET STEEL, INTERMEDIATE GRADE ASTM A-615; THE DEFORMATION SHALL CONFORM TO ASTM A-305.
  4. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS.
  5. ALL BARS INTERCEPTING MANHOLE OPENING AND REINFORCED CONCRETE PIPE SHALL BE FIELD-CUT.
  6. WHERE LAPPING OF BARS IS REQUIRED, A MINIMUM LAP OF 33 DIAMETERS SHALL BE USED.
  7. INVERT OF JUNCTION BOX TO BE SHAPED WITH CONCRETE FILL (2,000 P.S.I. MIN.) TO EFFECT DRAINAGE TO OUTLET PIPE. COST SUBSIDIARY TO CLASS "A" CONCRETE (JUNCTION BOXES).
  8. PAYMENT FOR ALL EXCAVATION BACKFILLING, CONCRETE REINFORCING STEEL, VERTICAL STACK, RING AND COVER SHALL BE INCLUDED IN THE UNIT COST OF ITEM 403 - "STORM SEWER JUNCTION BOXES AND INLETS".

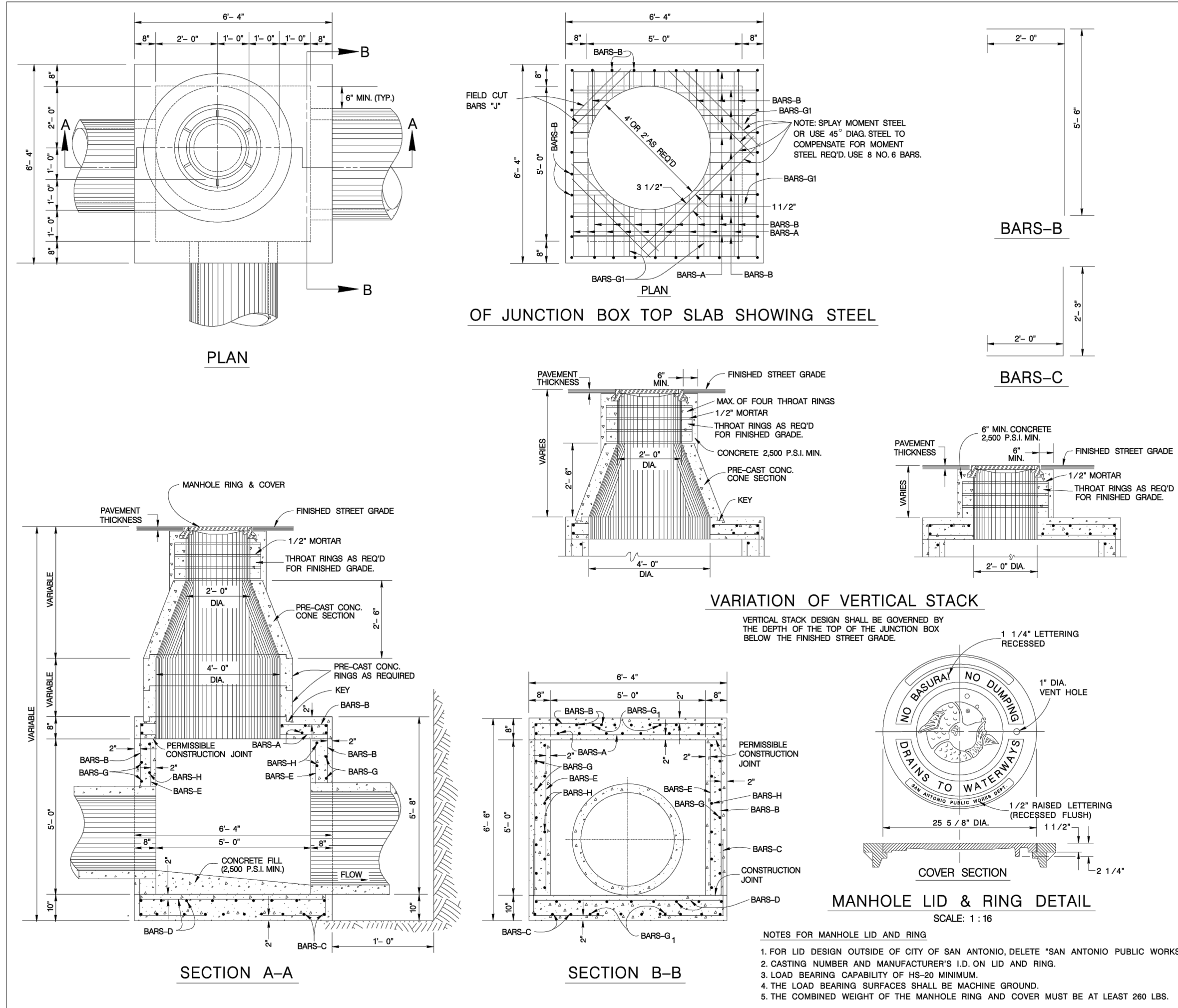


JANUARY 2005  
CITY OF SAN ANTONIO  
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT  
4'x4'x4' JUNCTION BOX STANDARDS



TYPICAL PRECAST JUNCTION BOX  
NOT-TO-SCALE





SCHEDULE FOR REINFORCING STEEL						
SHAPE	BAR	NO.	SIZE	SPACING	LENGTH	WEIGHT
STRAIGHT	A	18	4	8" O.C.	6'-1"	73
STRAIGHT	B	36	5	8" O.C.	7'-6"	282
STRAIGHT	C	36	5	8" O.C.	4'-3"	160
STRAIGHT	D	18	4	8" O.C.	6'-1"	73
STRAIGHT	E	20	3	12" O.C.	4'-11"	37
STRAIGHT	G	20	4	12" O.C.	6'-1"	81
STRAIGHT	H	8	4	AS SHOWN	6'-1"	33
STRAIGHT	I	24	3	12" O.C.	5'-8"	49
STRAIGHT	J	8	6	3 1/2" O.C.	4'-11"	59
TOTAL						847 lbs.

CLASS "A" CONCRETE - 8,000 PSI YIELD (DOES NOT EXCLUDE MANHOLE OPENINGS OR PIPE OPENING)

\* NOTE: BAR SIZE AND SPACING BASED ON SPANS AS SHOWN - ANY REVISIONS TO THESE SPANS SHALL INCLUDE A RE-DESIGN ON STEEL REED.

- CONCRETE FOR STRUCTURE SHALL BE CLASS "A" 3,000 P.S.I. AT 28 DAYS.
- ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4".
- REINFORCING STEEL SHALL BE NEW BILLET STEEL, INTERMEDIATE GRADE, ASTM A-616. THE DEFORMATION SHALL CONFORM TO ASTM A-305.
- ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS.
- ALL BARS INTERCEPTING MANHOLE OPENING AND REINFORCED CONCRETE PIPE SHALL BE FIELD-CUT.
- WHERE LAPPING OF BARS IS REQUIRED, A MINIMUM LAP OF 33 DIAMETERS SHALL BE USED.
- INVERT OF JUNCTION BOX TO BE SHAPED WITH CONCRETE FILL (2,500 P.S.I. MIN.) TO EFFECT DRAINAGE TO OUTLET PIPE. CUTOFF SUBSIDIARY TO CLASS "A" CONCRETE (JUNCTION BOXES).
- PAYMENT FOR ALL EXCAVATION, BACKFILLING, CONCRETE, REINFORCING STEEL, VERTICAL STACK, RING AND COVER SHALL BE INCLUDED IN THE UNIT COST OF ITEM 403 - "STORM SEWER JUNCTION BOXES AND INLETS".

FILL TO SPRING LINE OF PIPE WITH 2,500 P.S.I. CONCRETE NON-PAY ITEM COST SUBSIDIARY TO CLASS "A" CONCRETE (JUNCTION BOX).

**CURVED DEFLECTOR DETAIL**

SCALE: 1:16

**JANUARY 2005**

**CITY OF SAN ANTONIO**

**CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT**

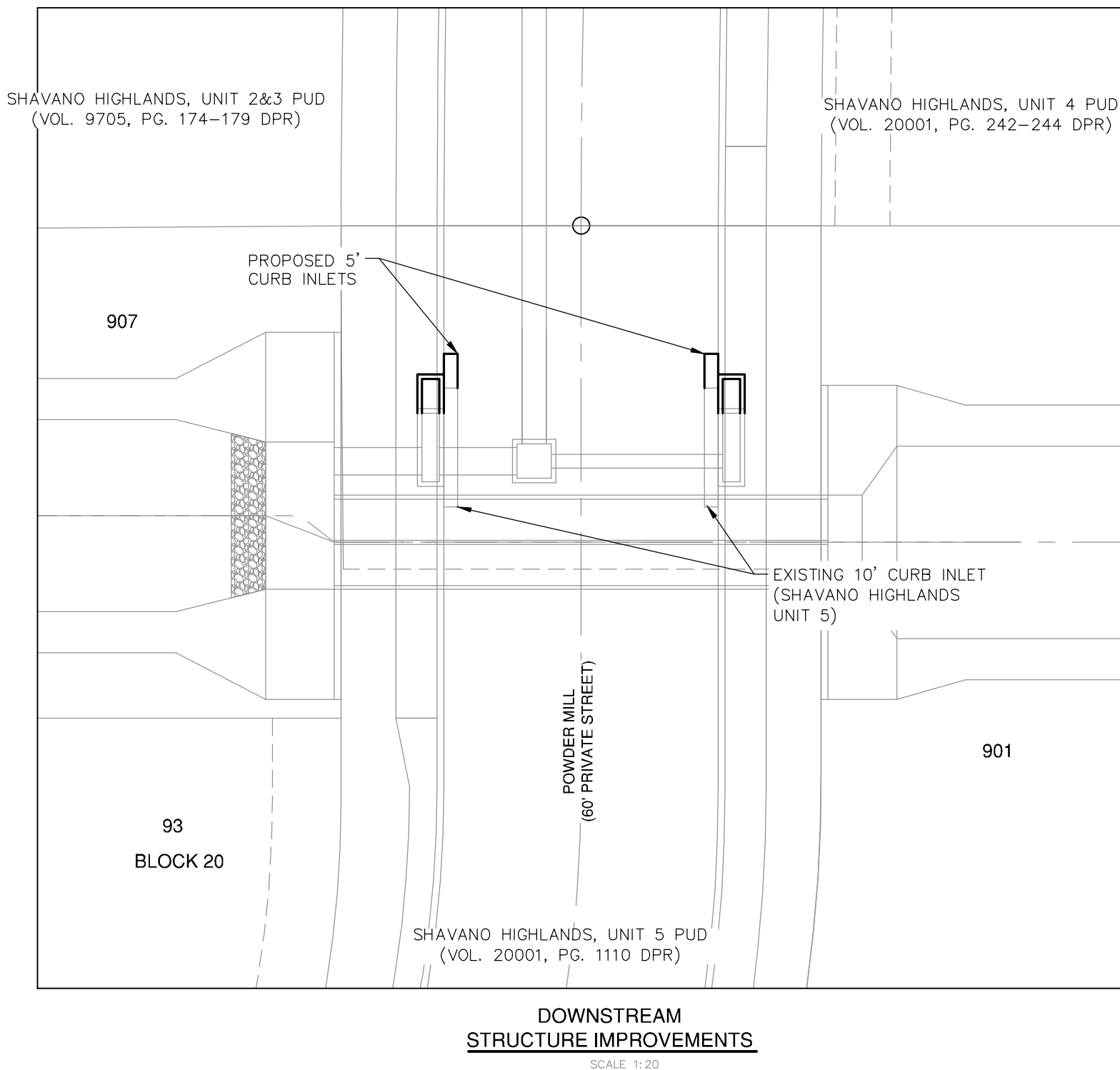
**5'x5'x5' JUNCTION BOX STANDARDS**

DATE: \_\_\_\_\_

DESIGN BY: \_\_\_\_\_

CHECK BY: \_\_\_\_\_

SHEET NO. \_\_\_\_\_ OF \_\_\_\_\_



**HYDRAULIC CALCULATIONS-PROPOSED DRAIN IMPROVEMENTS**

TOTAL  $Q_{25} = 58.06$  CFS

$Q_{25} = 29.03$  CFS

$Q_{25} = CA\sqrt{2gh}$  (ORIFICE FLOW EQN.)

$A = L(0.52)$ ,  $h = 0.54$ ,  $g = 32.2$ ,  $c = 0.70$

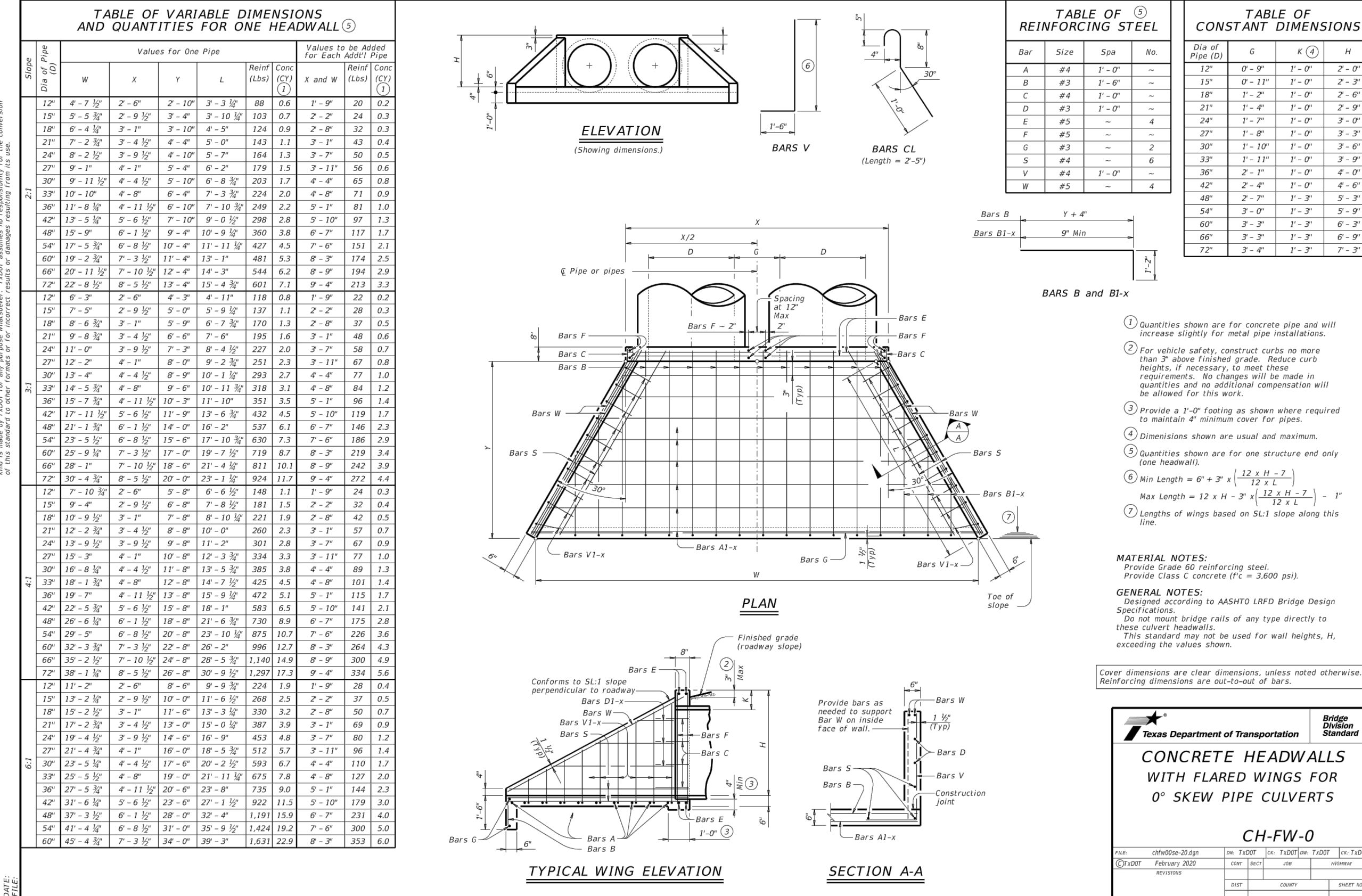
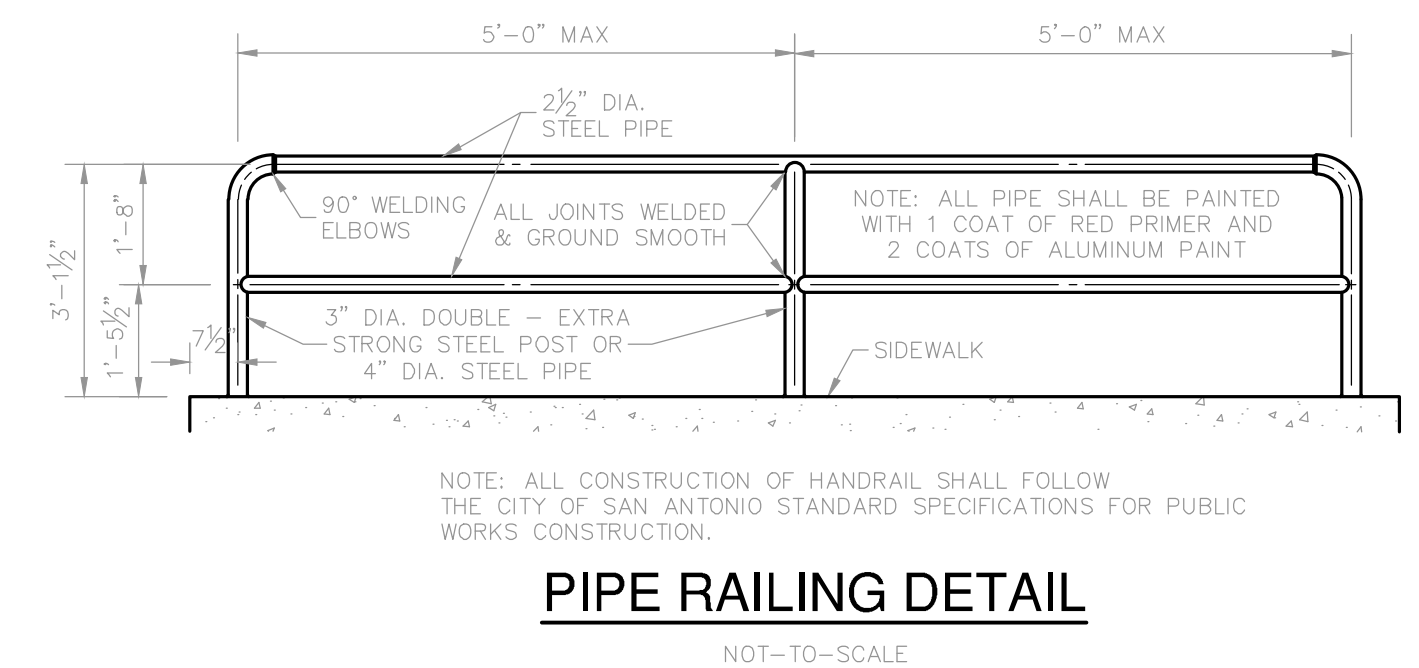
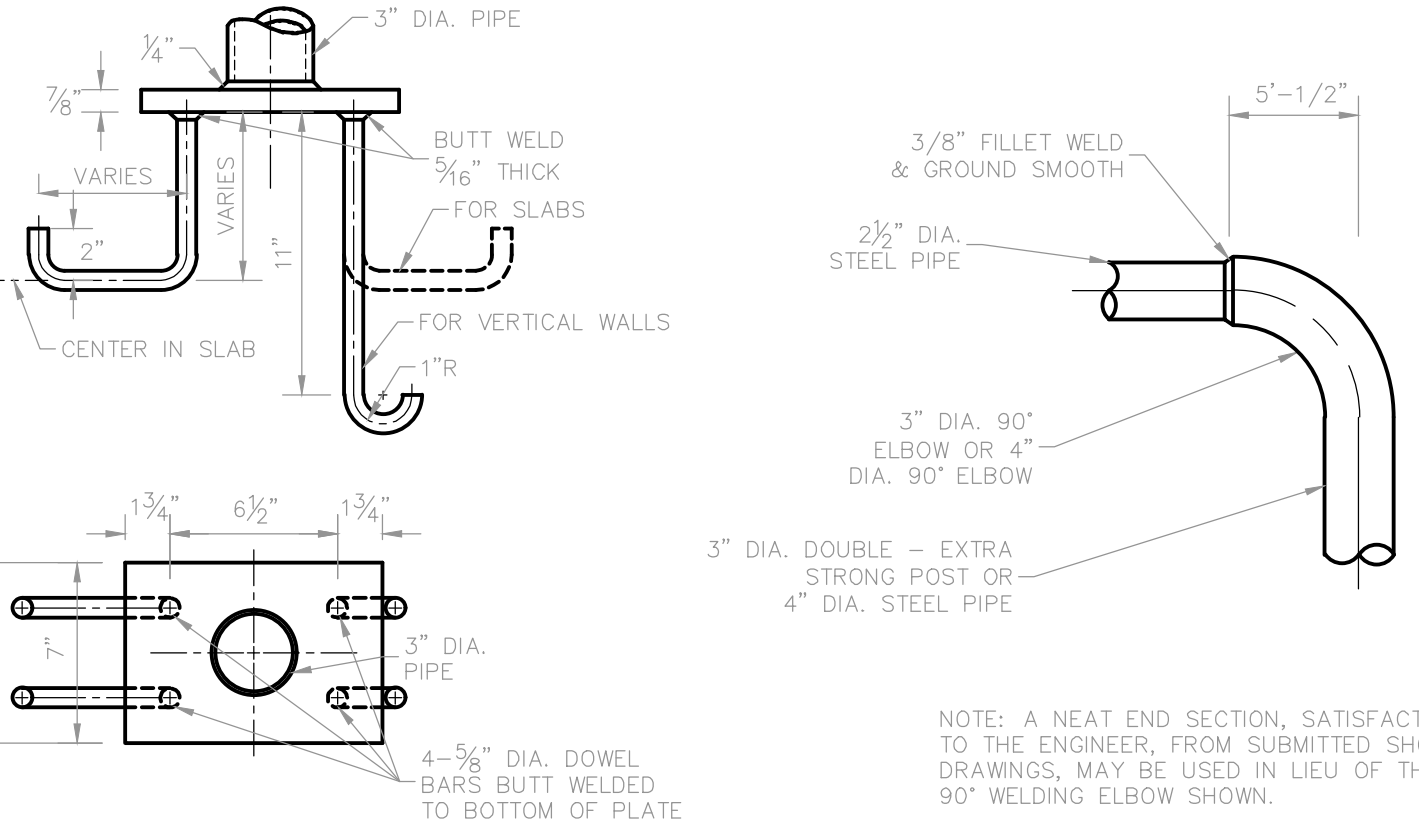
$L = \frac{29.03 \text{ CFS}}{(0.70)(0.52/2)(32.2)(0.54)}$

$L = 13.52$  FT USE 2 ~ 15 FT CURB INLET

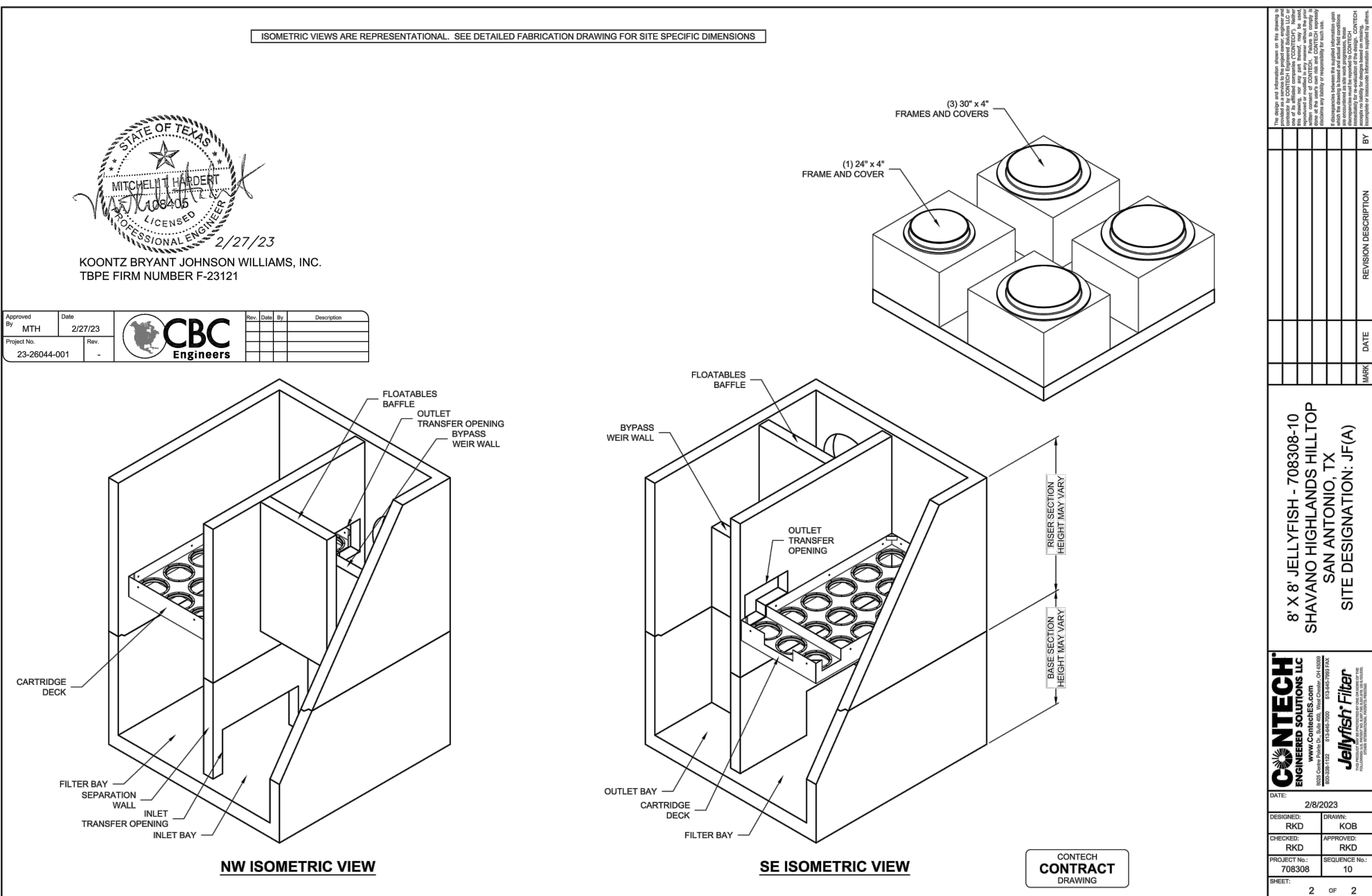
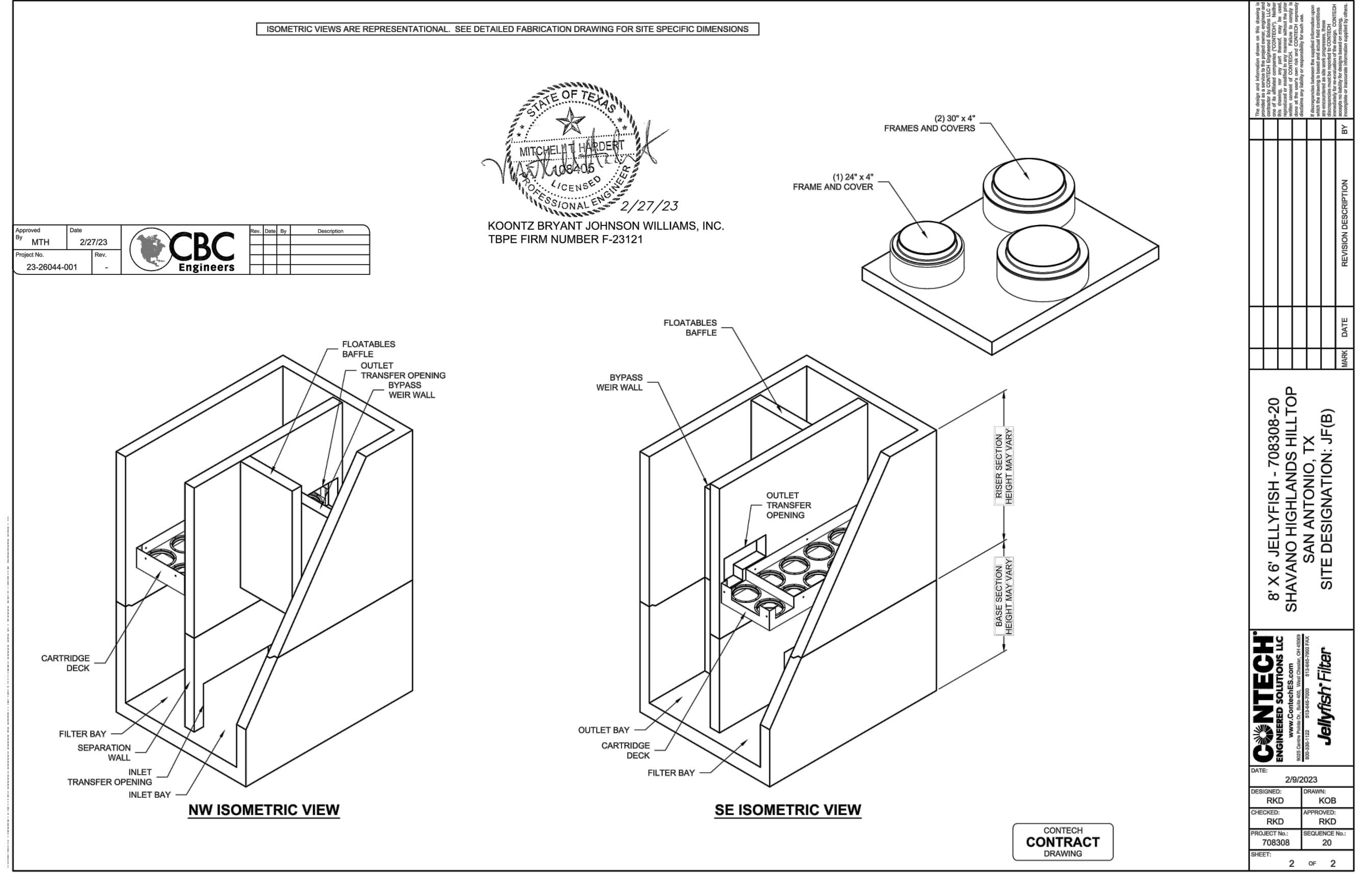
CHECK WITH WEIR FORMULA

$h = \left(\frac{Q}{(CL)}\right)^{2/3} = \left(\frac{29.03}{(3.087)(15)}\right)^{2/3} = 0.73$  FT.

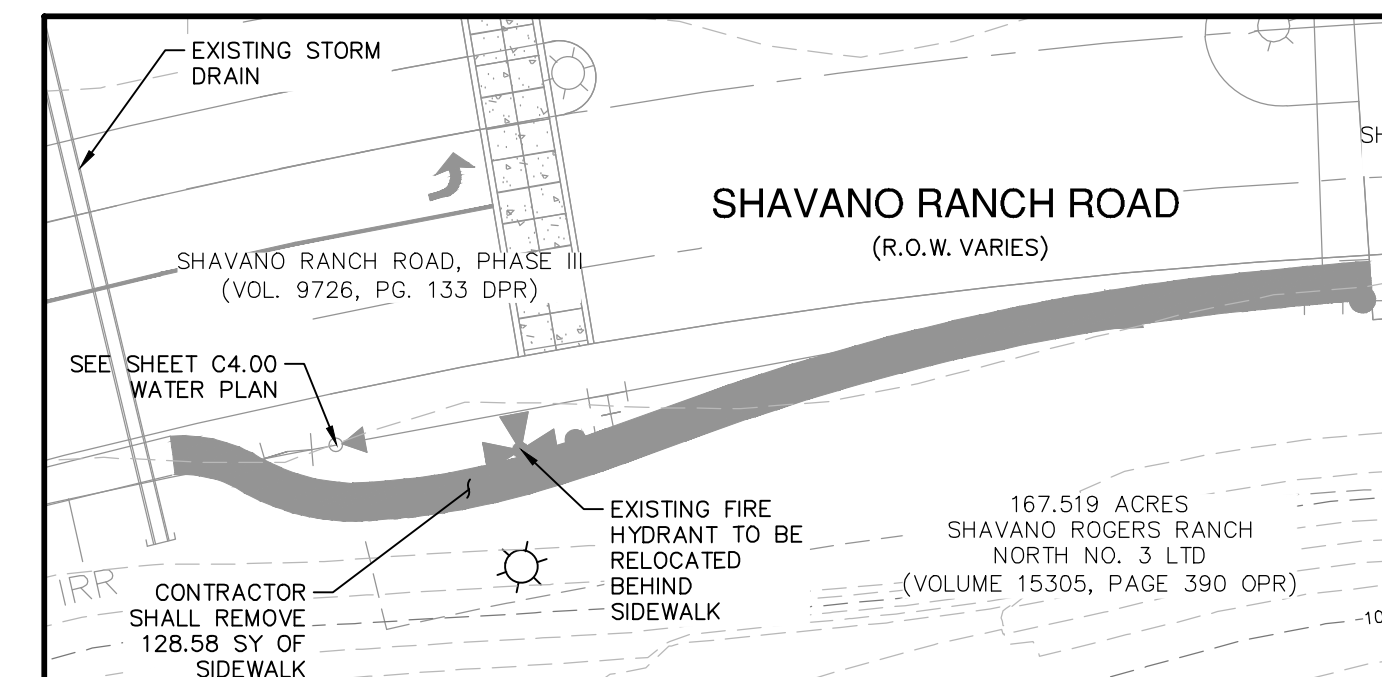
$h = 0.73 < 0.79$  OK



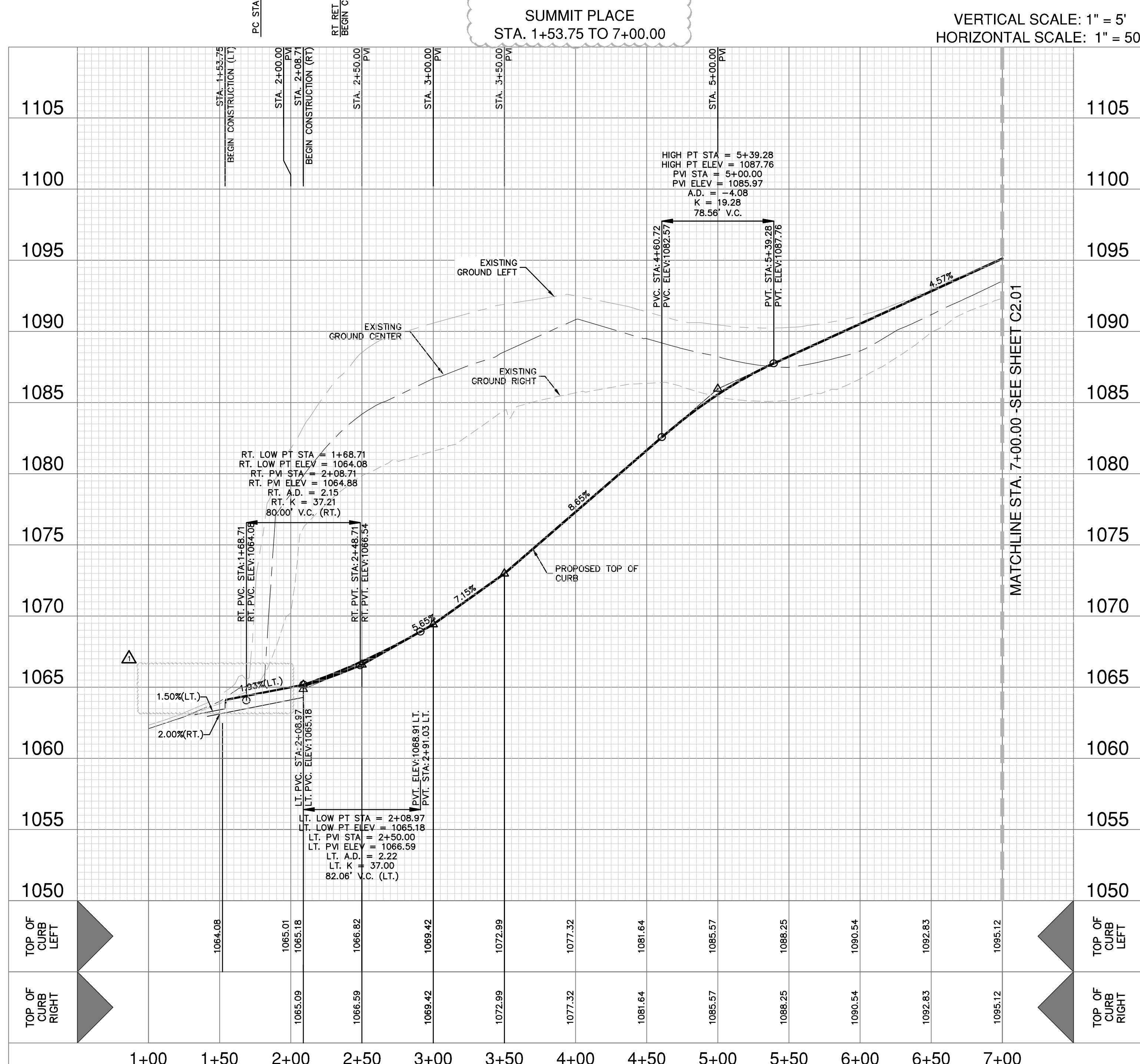
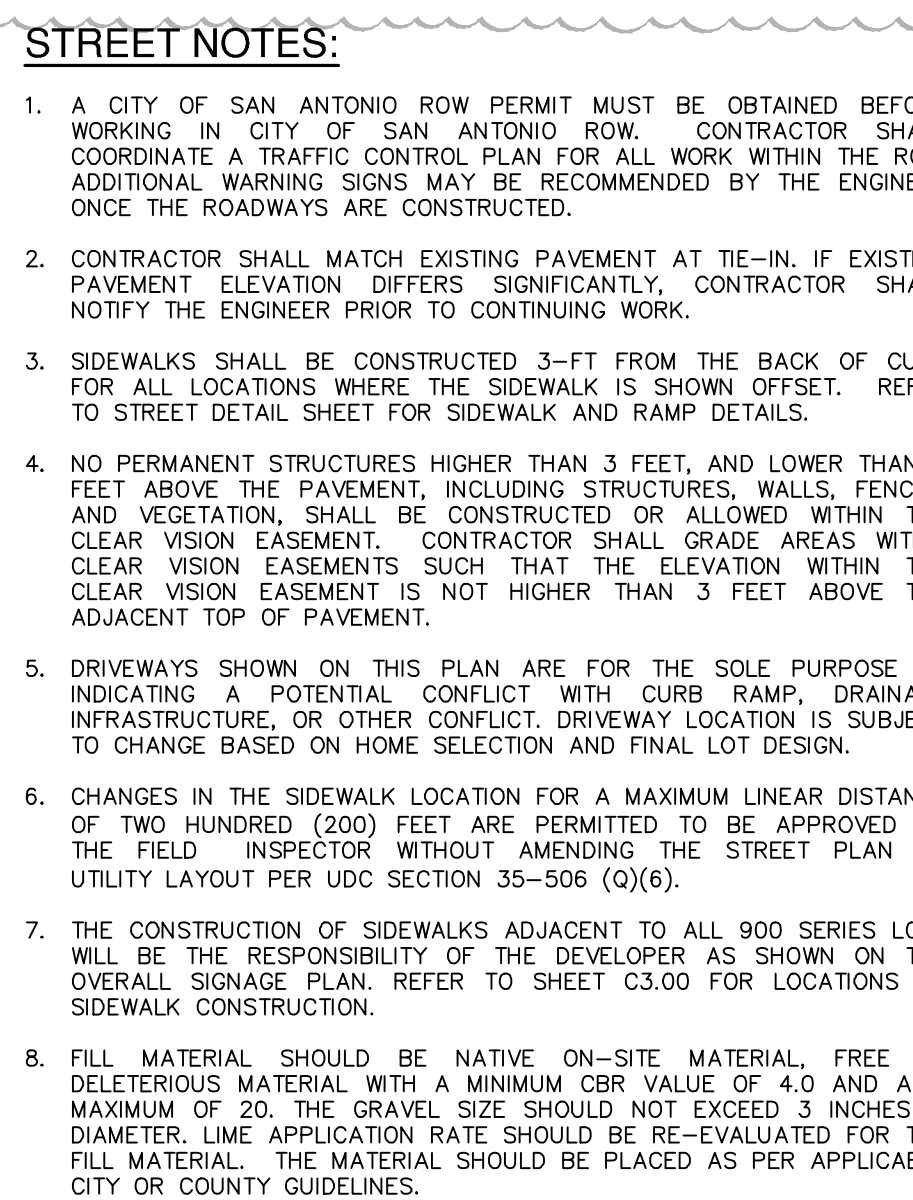
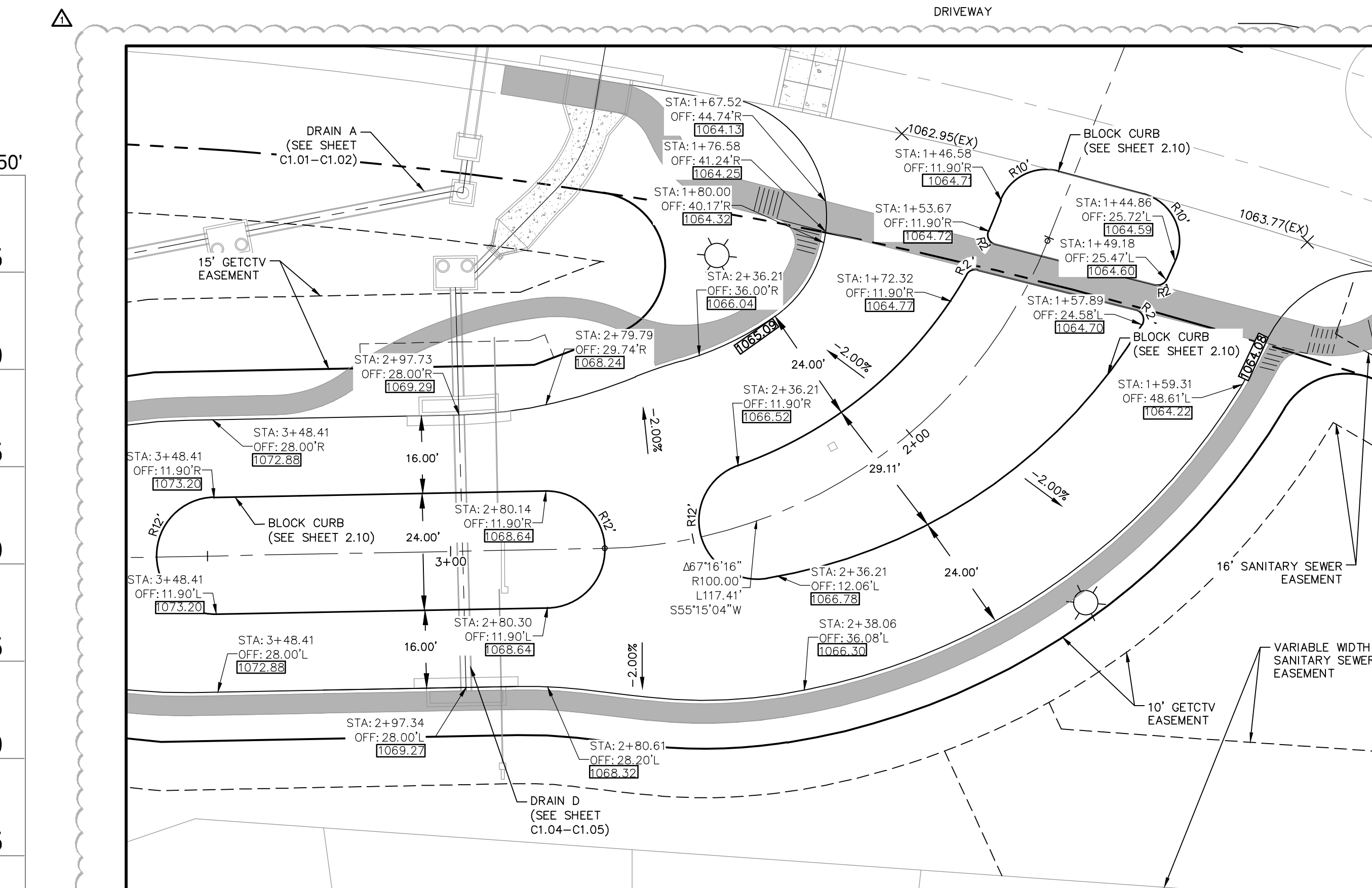








- | PROJECT LIMITS                        |                  |
|---------------------------------------|------------------|
| MAINTAIN GUTTER                       | →                |
| EXISTING CONTOUR                      | ----- 970' ----- |
| WHEELCHAIR RAMP                       | ⒶDWC             |
| CENTERLINE                            | CL               |
| RADIUS POINT                          | RP               |
| POINT OF CURVATURE                    | PC               |
| POINT OF TANGENCY                     | PT               |
| RETURN                                | RET              |
| DRAINAGE FLOW ARROW                   | ➡                |
| TOP OF CURB SPOT ELEVATION            | <u>857.30</u>    |
| PAVEMENT ELEVATION                    | 857.00(P' ×      |
| WASHOUT CROWN SECTION                 |                  |
| SIDEWALK (HOMEOWNER'S RESPONSIBILITY) |                  |
| SIDEWALK (DEVELOPER'S RESPONSIBILITY) |                  |
| DRIVEWAY                              | ↘                |



**PAPE-DAWSON  
ENGINEERS**

**SHAVANO HIGHLANDS HILLTOP**  
SAN ANTONIO, TEXAS

**SUMMIT PLACE PLAN & PROFILE**  
STA: 1+53.75 TO 7+00.00

PLAT NO. 23-1180001  
JOB NO. 8834-25  
DATE MARCH 2023  
DESIGNER AA  
CHECKED BL DRAWN RG  
SHEET C2.00

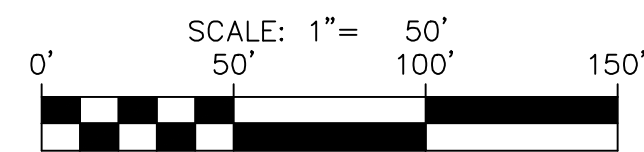
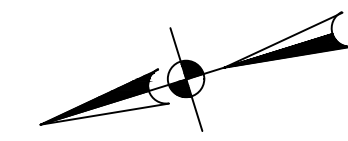
Date: Jan 12, 2024, 8:26am User ID: Richardgarcia  
File: P:\36\34\25\Design Civil\SURF34-25-SUMMIT PLACE.dwg

This cross-section diagram illustrates the vertical alignment of a road project between stations 1+00 and 6+50. The left side features two columns labeled "TOP OF CURB LEFT" and "TOP OF CURB RIGHT". Between them are triangular symbols representing curb profiles at various points. To the right of these is a large grid area containing elevation values corresponding to specific stations or points along the roadway.

Station / Point	Elevation
1+00	-
1+50	1064.08
2+00	1065.01
2+00	1065.18
2+50	1066.59
2+50	1066.82
3+00	1069.42
3+00	1072.99
3+50	1072.99
4+00	1077.32
4+00	1077.32
4+50	1081.64
5+00	1085.57
5+00	1085.57
5+50	1088.25
5+50	1088.25
6+00	1090.54
6+00	1090.54
6+50	1092.83
6+50	1092.83

THIS DOCUMENT HAS BEEN PRODUCED FROM MATERIAL THAT WAS STORED AND/OR TRANSMITTED ELECTRONICALLY AND MAY HAVE BEEN INDELIBLY ALTERED. RELY ONLY ON FINAL HARDCOPY MATERIALS BEARING THE CONSULTANT'S ORIGINAL SIGNATURE AND SEAL. AERIAL MAPPING PROVIDED BY GOOGLE UNLESS OTHERWISE NOTED. Imagery © 2016 CAPO Digital Globe, Terra OpenSource Program, USDA Farm Service Agency





PROJECT LIMITS	
MAINTAIN GUTTER	→
EXISTING CONTOUR	----- 970 -----
WHEELCHAIR RAMP	①WCR
CENTERLINE	CL
RADIUS POINT	RP
POINT OF CURVATURE	PC
POINT OF TANGENCY	PT
RETURN	RET
DRAINAGE FLOW ARROW	➡
TOP OF CURB SPOT ELEVATION	857.30
PAVEMENT ELEVATION	857.00(P) ×
WASHOUT CROWN SECTION	
SIDEWALK (HOMEOWNER'S RESPONSIBILITY)	
SIDEWALK (DEVELOPER'S RESPONSIBILITY)	
DRIVEWAY	—

STREET NOTES:

1. A CITY OF SAN ANTONIO ROW PERMIT MUST BE OBTAINED BEFORE WORKING IN CITY OF SAN ANTONIO ROW. CONTRACTOR SHALL COORDINATE A TRAFFIC CONTROL PLAN FOR ALL WORK WITHIN THE ROW. ADDITIONAL WARNING SIGNS MAY BE REQUIRED BY THE ENGINEER ONCE THE ROADWAYS ARE CONSTRUCTED.
2. CONTRACTOR SHALL MATCH EXISTING PAVEMENT AT TE-IN. IF EXISTING PAVEMENT ELEVATIONS DIFFERS SIGNIFICANTLY, CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO CONTINUING WORK.
3. SIDEWALKS SHALL BE CONSTRUCTED 3'-FT FROM THE BACK OF CURB FOR LOCATIONS WHERE THE SIDEWALK IS SHOWN ON PLANS. REFER TO STREET DETAIL SHEET FOR SIDEWALK AND RAMP DETAILS.
4. NO PERMANENT STRUCTURES HIGHER THAN 3 FEET, AND LOWER THAN 8 FEET ABOVE THE PAVEMENT, INCLUDING STRUCTURES, WALLS, FENCES, AND VEGETATION, SHALL BE CONSTRUCTED OR ALLOWED WITHIN THE CLEAR VISION EASEMENT. CONTRACTOR SHALL GRADE AREAS WITHIN THE CLEAR VISION EASEMENT WHERE THE ELEVATION WITHIN THE CLEAR VISION EASEMENT IS NOT HIGHER THAN 3 FEET ABOVE THE ADJACENT TOP OF PAVEMENT.
5. DRIVEWAYS SHOWN ON THIS PLAN ARE FOR THE SOLE PURPOSE OF INDICATING A POTENTIAL CONFLICT WITH CURB RAMP, DRAINAGE INFRASTRUCTURE, OR OTHER CONFLICT. DRIVEWAY LOCATION IS SUBJECT TO CHANGE BASED ON HOME SELECTION AND FINAL LOT DESIGN.
6. CHANGES IN THE SIDEWALK LOCATION FOR A MAXIMUM LINEAR DISTANCE OF TWO HUNDRED (200) FEET ARE PERMITTED TO BE APPROVED BY THE FIELD INSPECTOR WITHOUT AMENDING THE STREET PLAN OR UTILITY LAYOUT PER UDC SECTION 35-506 (J)(6).
7. THE CONSTRUCTION OF SIDEWALKS ADJACENT TO ALL 900A SERIES LOTS WILL BE THE RESPONSIBILITY OF THE DEVELOPER AS SHOWN ON THE OVERLAY SIGNAGE PLAN. REFER TO SHEET C300 FOR LOCATIONS OF SIDEWALK CONSTRUCTION.
8. FILL MATERIAL SHOULD BE NATIVE ON-SITE MATERIAL, FREE OF DELETERIOUS MATERIAL WITH A MINIMUM CBR VALUE OF 4.0 AND A PI MAXIMUM OF 20. THE GRAVEL SIZE SHOULD NOT EXCEED 3 INCHES IN DIAMETER. LIME APPLICATION RATE SHOULD BE RE-EVALUATED FOR THE FINAL MATERIAL. FILL SHOULD BE PLACED AS PER APPLICABLE CITY OR COUNTY GUIDELINES.

**PAPE-DAWSON  
ENGINEERS**

**SHAVANO HIGHLANDS HILLTOP**  
SAN ANTONIO, TEXAS

SUMMIT PLACE PLAN & PROFILE  
STA. 7+00.00 TO 12+00.00

PLAT NO. 23-11800016  
JOB NO. 8834-25  
DATE MARCH 2023  
DESIGNER RG  
CHECKED BL DRAWN RG  
SHEET C2.01

Date: Jan 12, 2024, 8:26am User ID: Richardgarcia  
File: P:\88\34\25\Design\Civil\ST883425-SUMMIT PLACE.dwg

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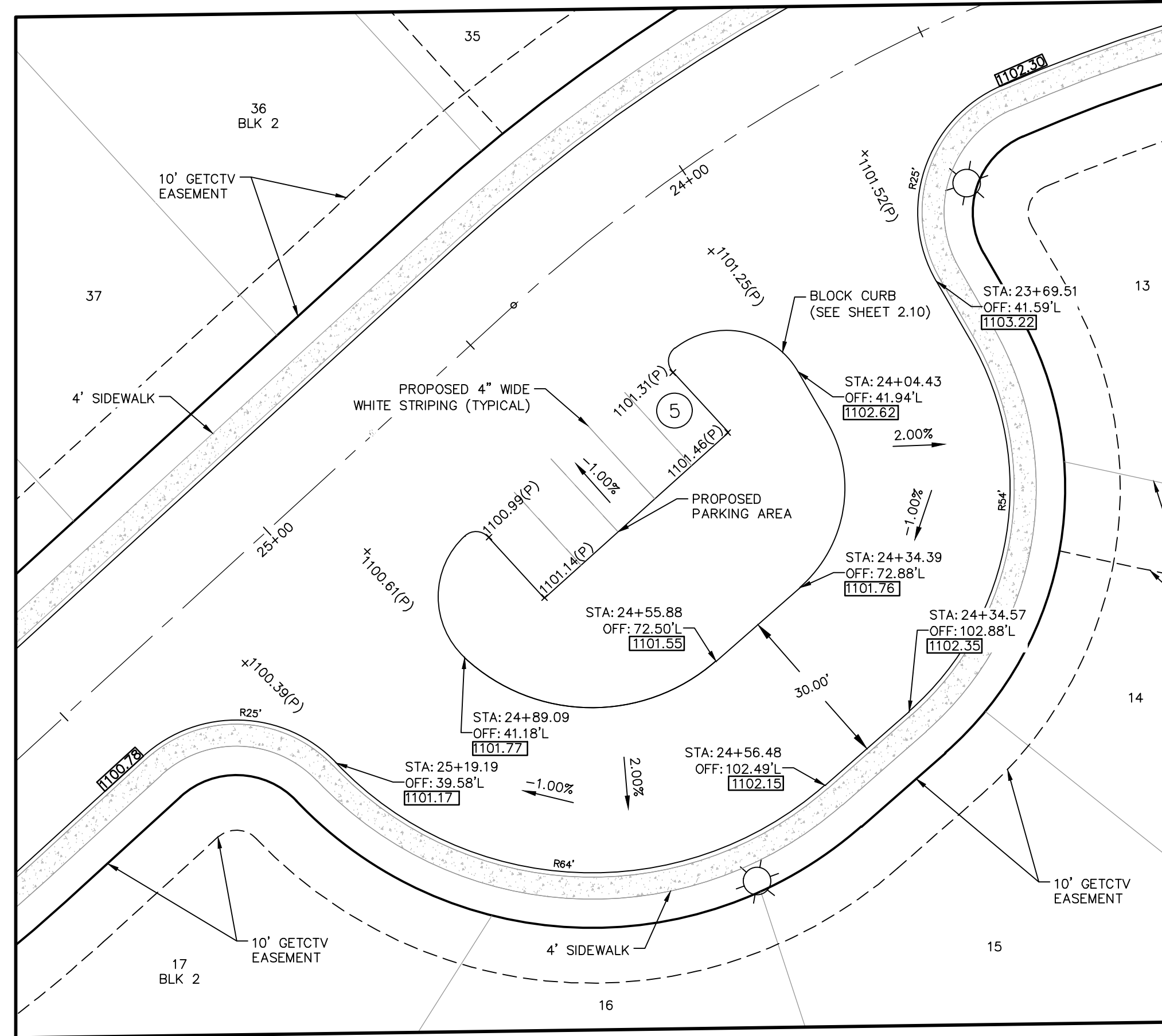
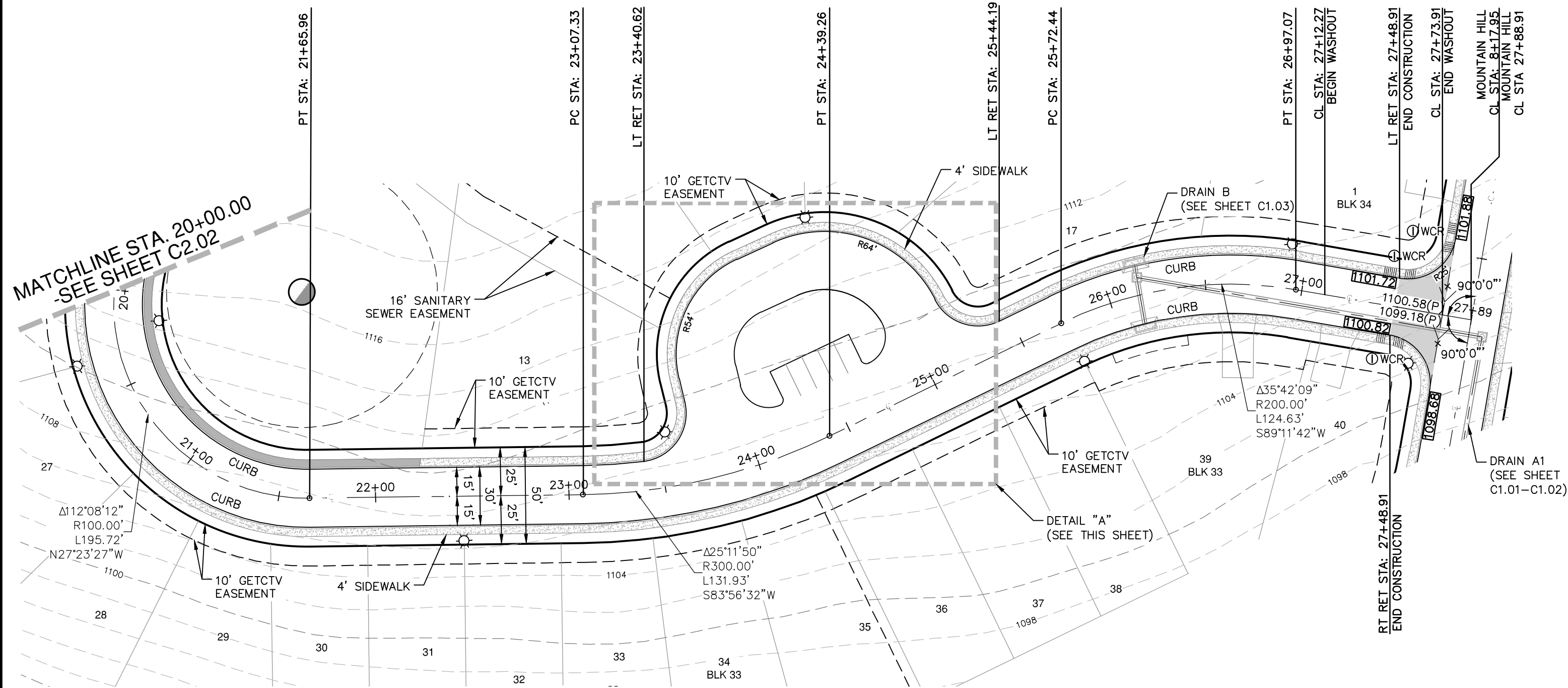






Notes: Rev. 10/2024, 8/27/24, User ID: R164849245, File Path: P:\88\3A\25\Drawings\GIS\ST683425-SUMMIT PLACE.dwg

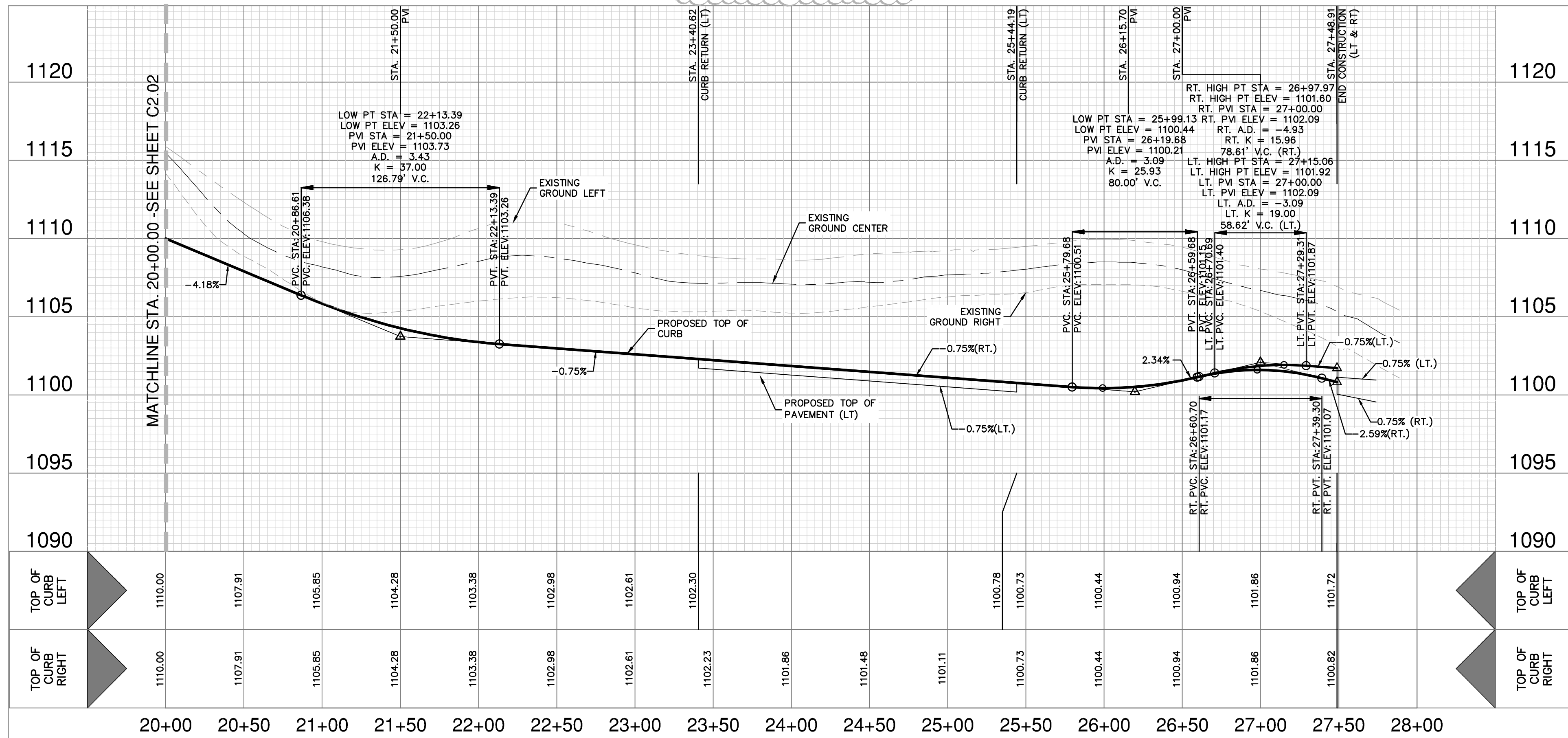
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DETAIL "A"  
SCALE: 1" = 20'

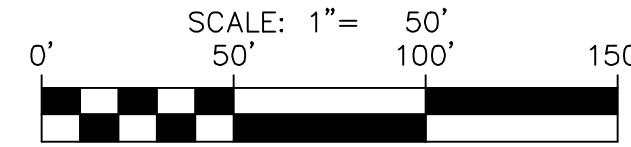
SUMMIT PLACE  
STA. 20+00.00 TO END

VERTICAL SCALE: 1" = 5'  
HORIZONTAL SCALE: 1" = 50'



#### STREET NOTES:

- A CITY OF SAN ANTONIO ROW PERMIT MUST BE OBTAINED BEFORE WORKING IN CITY OF SAN ANTONIO ROW. CONTRACTOR SHALL COORDINATE A TRAFFIC CONTROL PLAN FOR ALL WORK WITHIN THE ROW. ADDITIONAL WARNING SIGNS MAY BE RECOMMENDED BY THE ENGINEER ONCE THE ROADWAYS ARE CONSTRUCTED.
- CONTRACTOR SHALL MATCH EXISTING PAVEMENT AT TIE-IN, IF EXISTING PAVEMENT ELEVATION DIFFERS SIGNIFICANTLY, CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO CONTINUING WORK.
- SIDEWALKS SHALL BE CONSTRUCTED 3'-FT FROM THE BACK OF CURB FOR ALL LOCATIONS WHERE THE SIDEWALK IS SHOWN OFFSET. REFER TO STREET DETAIL SHEET FOR SIDEWALK AND RAMP DETAILS.
- NO PERMANENT STRUCTURES HIGHER THAN 3 FEET, AND LOWER THAN 8 FEET ABOVE THE PAVEMENT, INCLUDING STRUCTURES, WALLS, FENCES, AND VEGETATION, SHALL BE CONSTRUCTED OR ALLOWED WITHIN THE CLEAR VISION EASEMENT. CONTRACTOR SHALL GRADE AREAS WITHIN CLEAR VISION EASEMENTS SUCH THAT THE ELEVATION WITHIN THE CLEAR VISION EASEMENT IS NOT HIGHER THAN 3 FEET ABOVE THE ADJACENT TOP OF PAVEMENT.
- DRIVEWAYS SHOWN ON THIS PLAN ARE FOR THE SOLE PURPOSE OF INDICATING A POTENTIAL CONFLICT WITH CURB RAMP, DRAINAGE INFRASTRUCTURE, OR OTHER CONFLICT. DRIVEWAY LOCATION IS SUBJECT TO CHANGE BASED ON HOME SELECTION AND FINAL LOT DESIGN.
- CHANGES IN THE SIDEWALK LOCATION FOR A MAXIMUM LINEAR DISTANCE OF TWO HUNDRED (200) FEET ARE PERMITTED TO BE APPROVED BY THE FIELD INSPECTOR WITHOUT AMENDING THE STREET PLAN OR UTILITY LAYOUT PER UDC SECTION 35-506 (C)(6).
- THE CONSTRUCTION OF SIDEWALKS ADJACENT TO ALL 900 SERIES LOTS WILL BE THE RESPONSIBILITY OF THE DEVELOPER AS SHOWN ON THE OVERALL SIGNAGE PLAN. REFER TO SHEET C3.00 FOR LOCATIONS OF SIDEWALK CONSTRUCTION.
- FILL MATERIAL SHOULD BE NATIVE ON-SITE MATERIAL, FREE OF DELETERIOUS MATERIAL WITH A MINIMUM CBR VALUE OF 4.0 AND A PI MAXIMUM OF 20. THE GRAVEL SIZE SHOULD NOT EXCEED 3 INCHES IN DIAMETER. LIME APPLICATION RATE SHOULD BE RE-EVALUATED FOR THE FILL MATERIAL. THE MATERIAL SHOULD BE PLACED AS PER APPLICABLE CITY OR COUNTY GUIDELINES.



#### STREET LEGEND

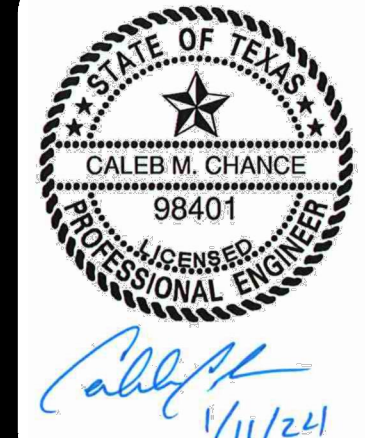
PROJECT LIMITS	---
MAINTAIN GUTTER	→
EXISTING CONTOUR	970
WHEELCHAIR RAMP	⊙WCR
CENTERLINE	CL
RADIUS POINT	RP
POINT OF CURVATURE	PC
POINT OF TANGENCY	PT
RETURN	RET
DRAINAGE FLOW ARROW	→
TOP OF CURB SPOT ELEVATION	857.30
PAVEMENT ELEVATION	857.00(P) ×
WASHOUT CROWN SECTION	857.30
SIDEWALK (HOMEOWNER'S RESPONSIBILITY)	857.30
SIDEWALK (DEVELOPER'S RESPONSIBILITY)	857.30
DRIVEWAY	5
PROPOSED PARKING COUNT	5

**PAPE-DAWSON  
ENGINEERS**  
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000  
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #1008860

**SHAVANO HIGHLANDS HILLTOP**  
SAN ANTONIO, TEXAS  
SUMMIT PLACE PLAN & PROFILE  
STA. 20+00.00 TO END

PLAT NO. 23-11800016  
JOB NO. 8834-25  
DATE MARCH 2023  
DESIGNER RG  
CHECKED BL DRAWN RG  
SHEET C2.03

DATE	07/08/2024
NO.	
REVISION	
REVISED STREET NAME	





PAVEMENT SECTION DETAIL							
STREET NAME	STATION	TYPE "D" HMAC	CRUSHED LIMESTONE BASE	SUBGRADE	CBR	GEOGRID (TENSAR TRIAX TX5)	STRUCTURAL NUMBER
<div><div></div><div>SUMMIT PLACE</div></div>	1+53.75 TO END	2	8.50	*	5.0	NO	2.07

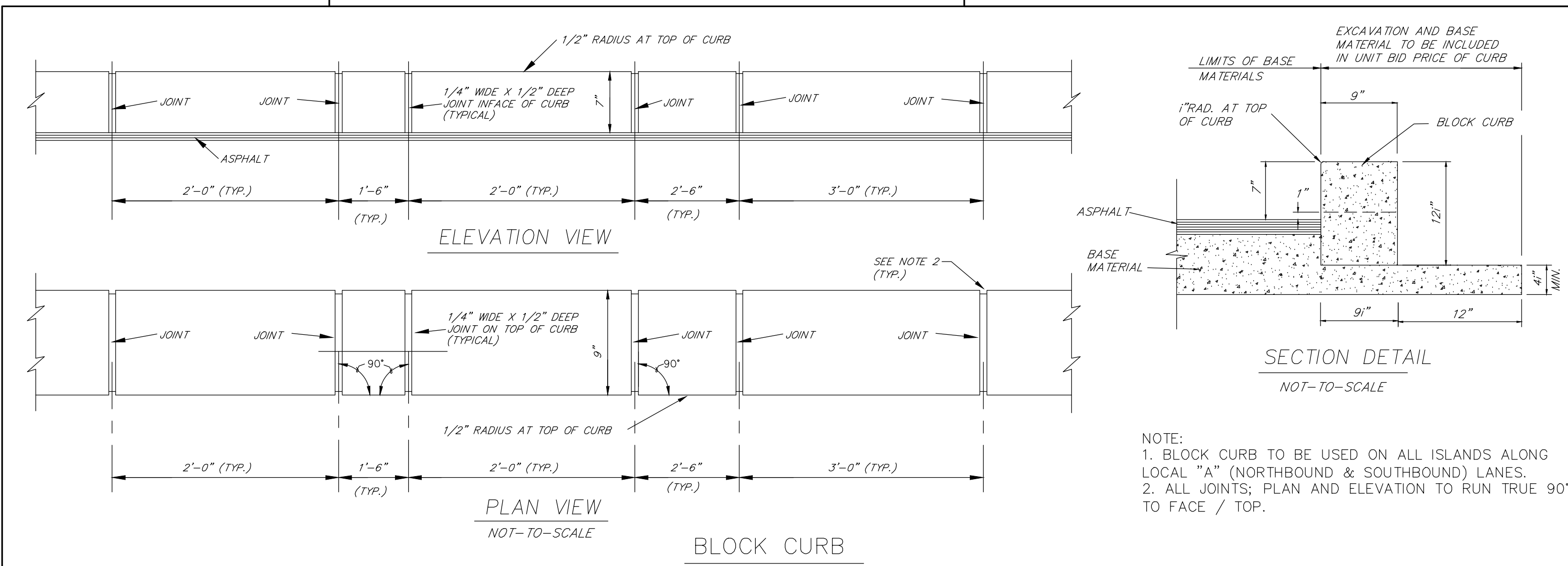
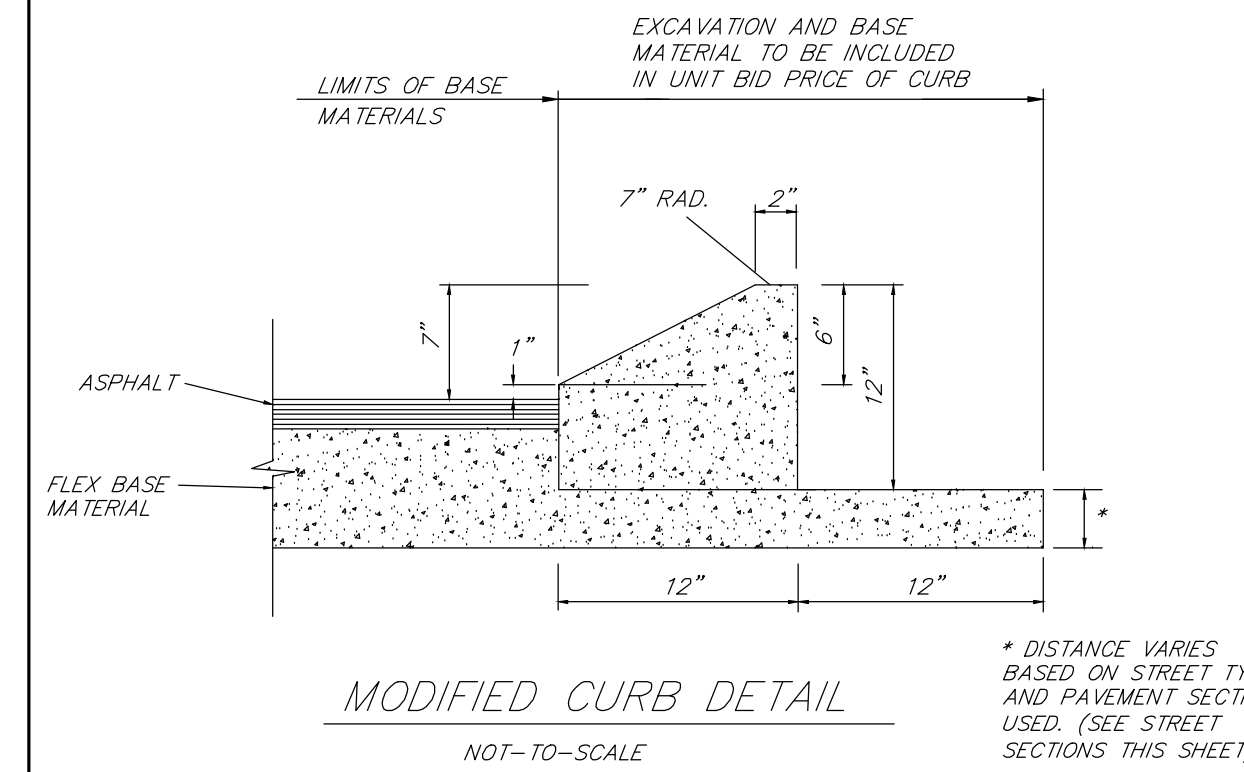
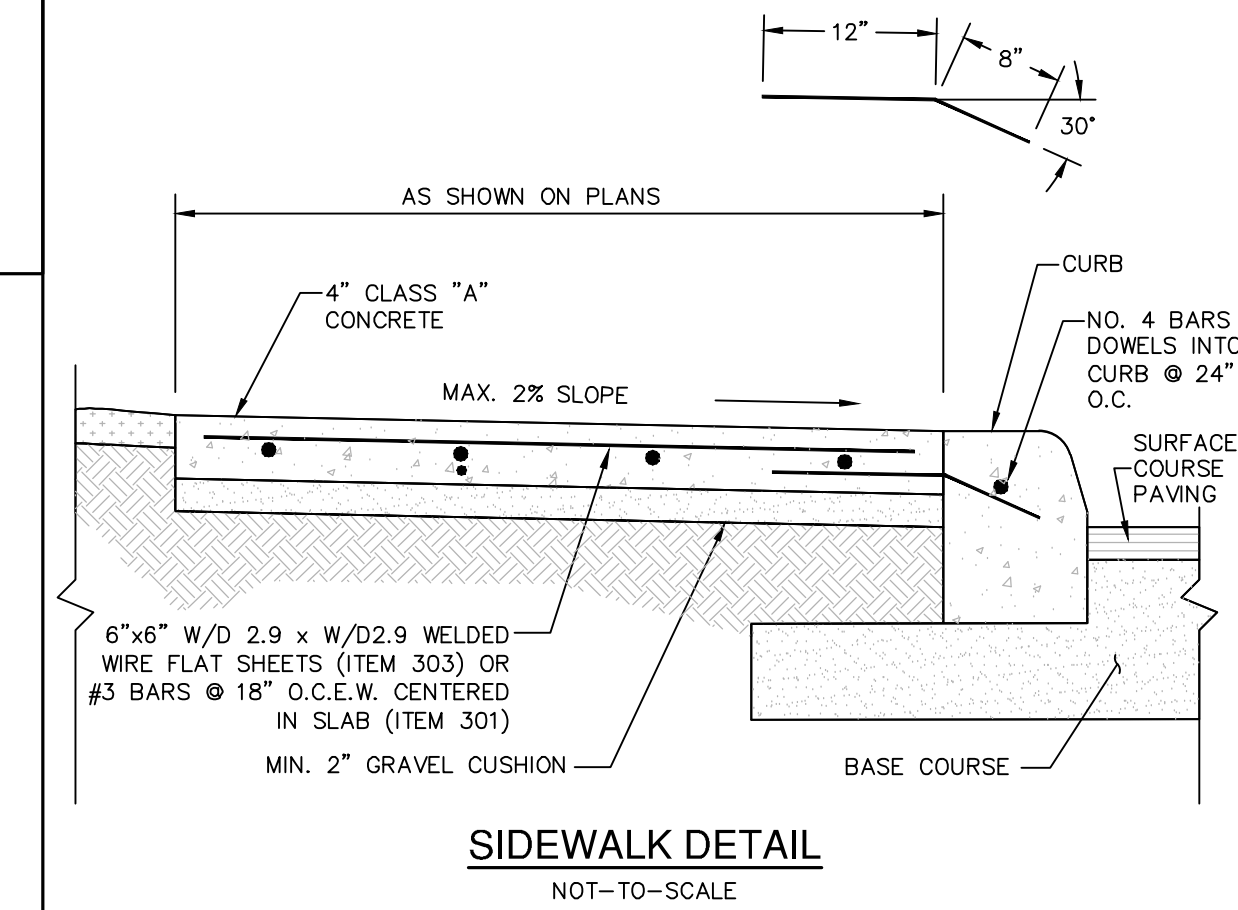
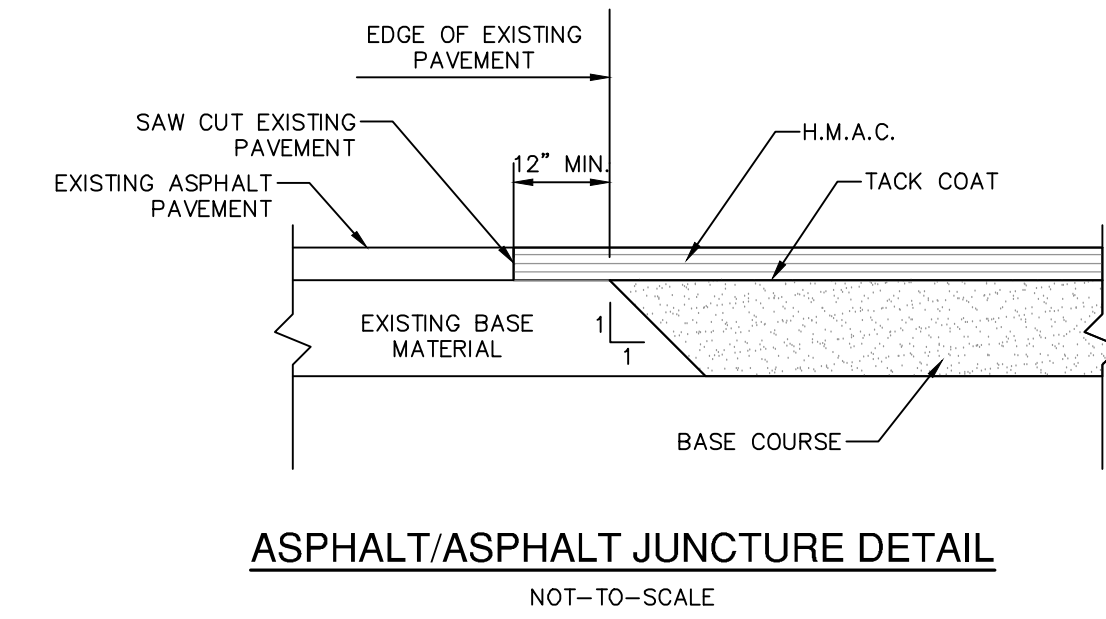
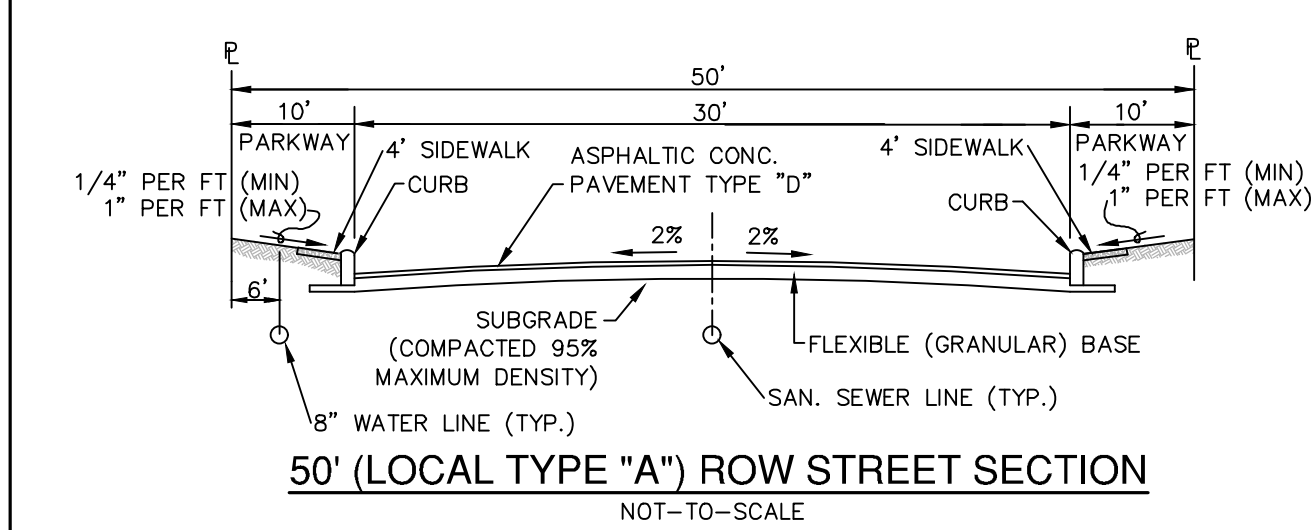
GENERAL NOTES:

- CONTRACTOR SHALL REFERENCE THE PROJECT PAVEMENT DESIGN REPORT NO. S221205 PREPARED BY INTEC DATED **1/17/2023**.
- CONTRACTOR SHALL RETAIN A GEOTECHNICAL ENGINEER TO VERIFY THE SUB GRADE CONDITION PRIOR TO PLACING ANY BASE MATERIAL. GEOTECHNICAL ENGINEER SHALL DETERMINE THE SUB GRADE CONDITION AND IF LIME STABILIZATION IS REQUIRED.
- GEOTECHNICAL ENGINEER SHOULD VERIFY THE STREET SUBGRADE AT THE TIME OF CONSTRUCTION PRIOR TO PLACEMENT OF AGGREGATE BASE.
- THE FLEXIBLE BASE COURSE SHOULD BE CRUSHED LIMESTONE CONFORMING TO TXDOT STANDARD SPECIFICATIONS, ITEM 247, TYPE A, GRADES 1 OR 2.
- THE MOISTURE CONTENT OF THE FILL SHOULD BE MAINTAINED WITHIN THE RANGE OF OPTIMUM WATER CONTENT TO 3 PERCENTAGE POINTS ABOVE THE OPTIMUM WATER CONTENT UNTIL PERMANENTLY COVERED.
- IN THE EVENT THAT THE CLAY FILL USED IS DIFFERENT THAN THE EXISTING SUBGRADE, THE RECOMMENDATIONS IN THE GEOTECHNICAL REPORT COULD BE INVALIDATED AND THE DESIGN ENGINEER MUST BE CONSULTED TO DETERMINE IF ADDITIONAL CBR TESTING AND THICKER PAVEMENT SECTIONS ARE REQUIRED.
- WHERE PAVEMENT SUBGRADE IS LOCATED WITHIN 2- FEET OF THE EXISTING GROUND SURFACE (STRATUM 1 CLAYS), MOISTURE CONDITIONED SUBGRADE WILL BE REQUIRED. GEOTECHNICAL ENGINEER SHOULD VERIFY THE STREET SUBGRADE AT THE TIME OF CONSTRUCTION PRIOR TO PLACEMENT OF AGGREGATE BASE TO DETERMINE WHERE THE MOISTURE CONDITIONED SUBGRADE IS NEEDED. REFERENCE GEOTECHNICAL ENGINEERING REPORT FOR MORE INFORMATION.

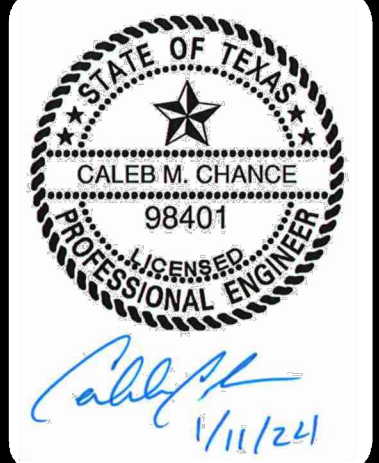
**NOTE:**  
PAVEMENT DESIGN IS IN ACCORDANCE WITH THE GEOTECHNICAL ENGINEERING REPORT PREPARED FOR SHAVANO HIGHLANDS HILLTOP BY INTEC, PROJECT NUMBER: S221205 **DATED: 1/17/23**

STREET SUBGRADE NOTES:

- BASED ON THE TESTED PLASTICITY INDEX OF THE CLAYS ENCOUNTERED IN THE BORINGS, WE ANTICIPATE THE FINAL PAVEMENT SUBGRADE PLASTICITY INDEX (PI) VALUES TO BE LESS THAN OR EQUAL TO 20
- CUT AND FILL DATA ARE NOT AVAILABLE AT THIS TIME.
- IF FILL IS USED TO RAISE THE GRADE, APPROVED FILL MATERIAL SHOULD BE FREE OF DELETERIOUS MATERIAL WITH A MINIMUM CBR VALUE OF 5.0 AND PLASTICITY INDEX VALUES OF 20 OR LESS. ANY STRATUM I CLAYS (ANY CLAYS WITH PLASTICITY INDEX VALUES GREATER THAN 20) SHOULD BE REMOVED PRIOR TO FILL PLACEMENT. THE GRAVEL SIZE SHOULD NOT EXCEED 3 INCHES IN DIAMETER. THE MATERIAL SHOULD BE PLACED AS PER APPLICABLE CITY OR COUNTY GUIDELINES.
- AS PER BEXAR COUNTY REQUIREMENTS, SUBGRADE TREATMENT IS NOT NEEDED IF THE FINAL SUBGRADE PLASTICITY INDEX VALUES ARE LESS THAN EQUAL TO 20.
- HOWEVER, IF THICKER CLAYS ARE ENCOUNTERED OR IF CALYCY FILL IS USED TO RAISE THE GREADE, THEN ONE OF THE FOLLOWING OPTIONS IS RECOMMENDED:
  - STRATUM I CLAYS REMOVED TO LIMESTONE STRATUM AND REPLACED WITH ON-SITE MILLED FILL MATERIAL (PLASTICITY INDEX VALUE 20 OR LESS)
  - SUBGRADE TREATED WITH LIME OR CEMENT, AN APPLICATION RATE OF 27 LBS PER SQ YARD FOR 6 INCH DEPTH OF TREATMENT MAY BE USED. WE RECOMMEND THAT THE APPLICATION RATE BE DETERMINED AT THE TIME OF CONSTRUCTION.
- FINAL PAVEMENT SUBGRADE SHOULD BE VERIFIED BY INTEC AT THE TIME OF CONSTRUCTION.



DATE	01/08/2024
REVISION	
NO.	
REVISED STREET NAME	



**PAPE-DAWSON ENGINEERS**  
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000  
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028890

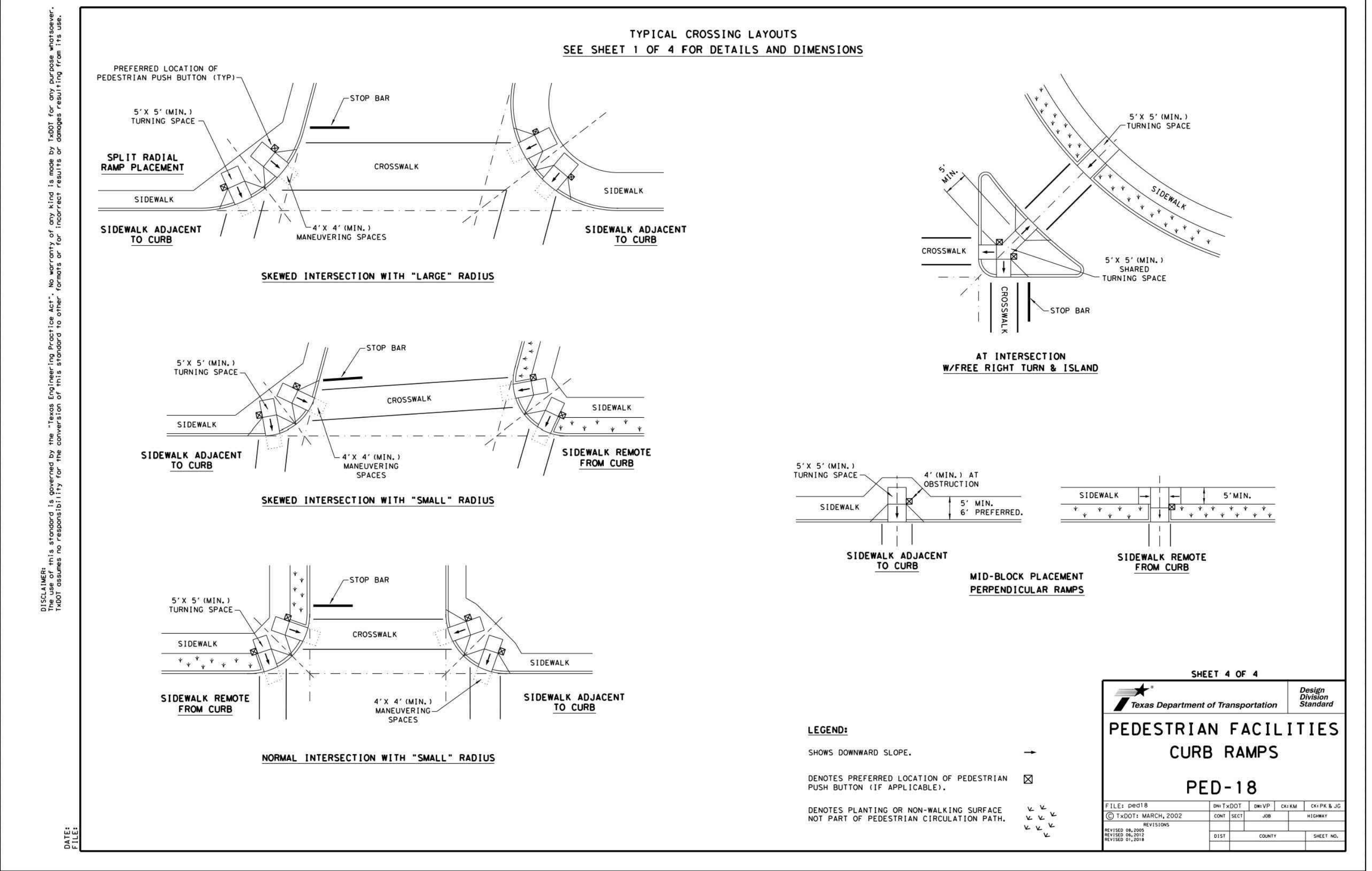
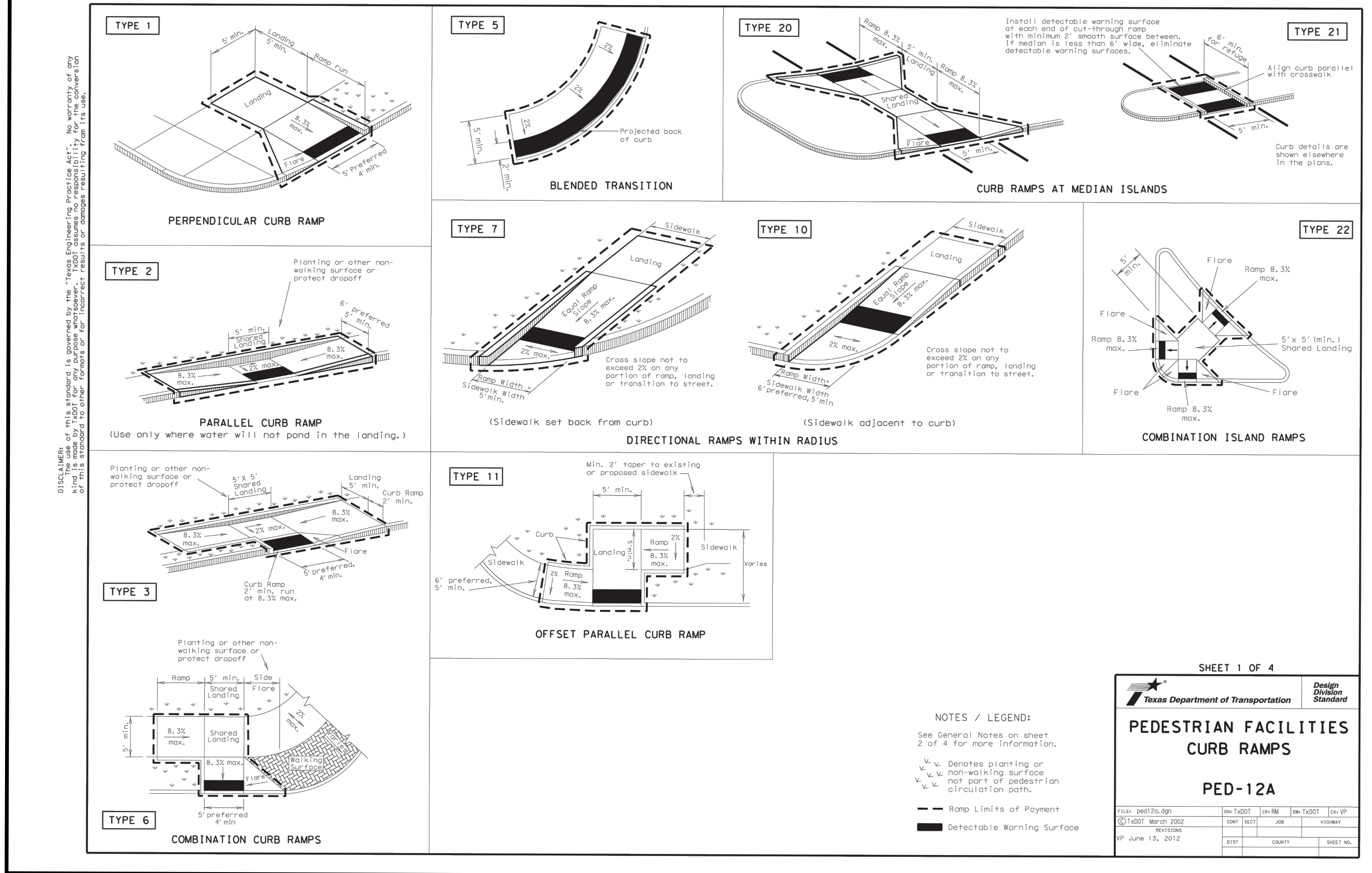
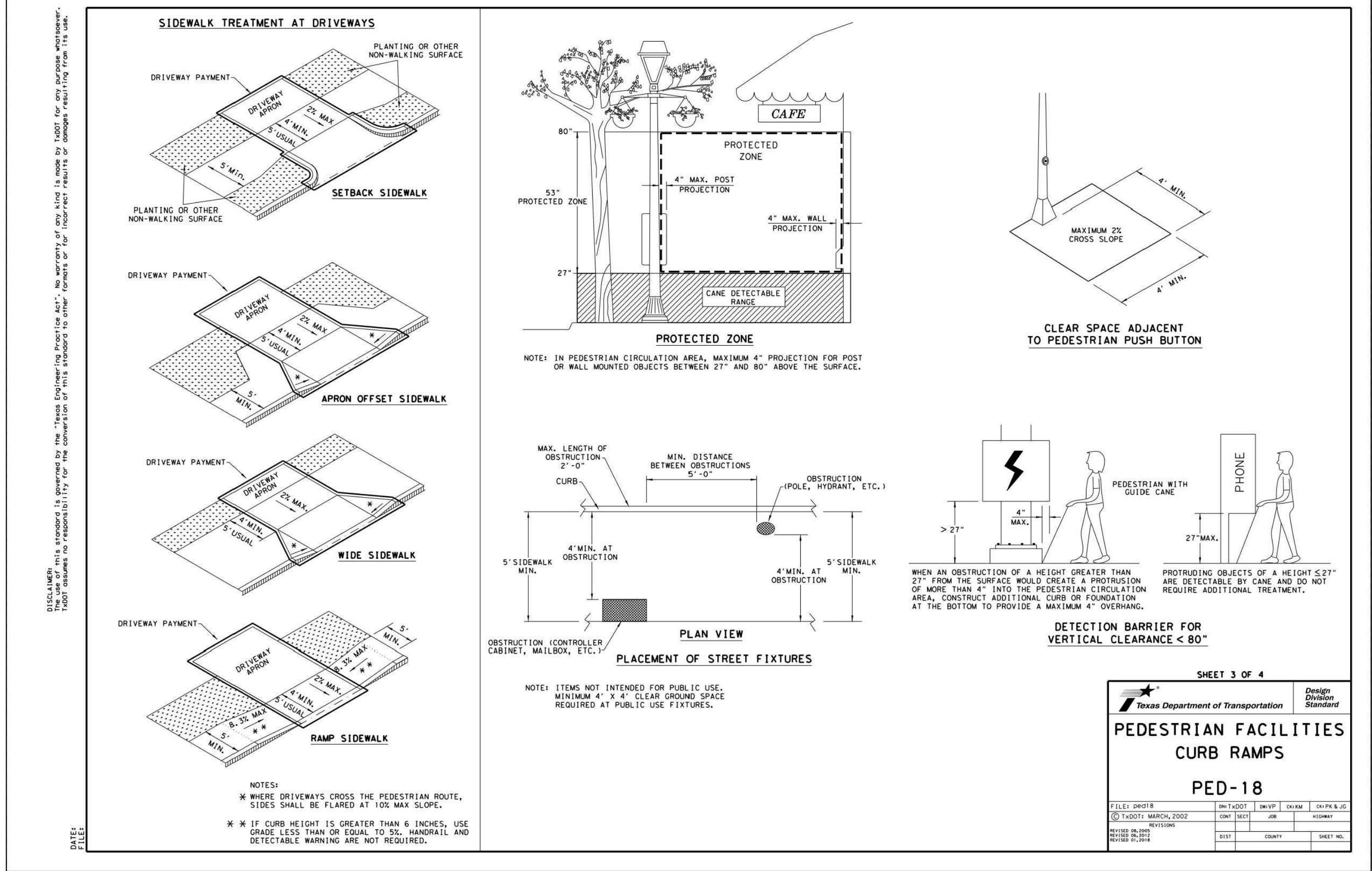
**SHAVANO HIGHLANDS HILLTOP**  
SAN ANTONIO, TEXAS  
STREET DETAILS SHEET 1 OF 3

PLAT NO.	23-11800016
JOB NO.	8834-25
DATE	MARCH 2023
DESIGNER	RG
CHECKED	BL
DRAWN	BM
SHEET	C2.10









DATE: \_\_\_\_\_

NO. REVISION: \_\_\_\_\_

STATE OF TEXAS  
CALEB M. CHANGE  
98401  
PROFESSIONAL ENGINEER  
Caleb M. Change  
2/16/23

**PAPE-DAWSON ENGINEERS**

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000  
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #1008860

**SHAVANO HIGHLANDS HILLTOP**  
SAN ANTONIO, TEXAS

STREET DETAILS SHEET 3 OF 3

PLAT NO. 23-11800016  
JOB NO. 8834-25  
DATE FEBRUARY 2023  
DESIGNER RG  
CHECKED BL DRAWN BM  
SHEET C2.12







## TRIANGULAR SLIPBASE INSTALLATION GENERAL REQUIREMENTS

### NOTE

There are various devices approved for the Triangular Slipbase System. Please reference the Material Producer List for approved slip base systems. [http://www.txdot.gov/business/producer\\_list.htm](http://www.txdot.gov/business/producer_list.htm)

The devices shall be installed per manufacturers' recommendations. Installation procedures shall be provided to the Engineer by Contractor.

### CONCRETE ANCHOR

Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end and heavy hex nut per ASTM A663, and hardened washer per ASTM F436. The stud bolt shall have a minimum yield and ultimate tensile strength of 50 and 75 KSI, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing". Adhesive Type anchors shall have stud bolts installed with Type 111 epoxy per MS-A105, "Epoxies and Adhesives". Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations. Top of bolt shall extend at least flush with top of the nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 5 1/2" minimum embedment, shall have a minimum allowable tension and shear of 3000 and 3100 psi, respectively.

### GENERAL NOTES:

- Slip base shall be permanently marked to indicate manufacturer, method, design, and location of marking are subject to approval of the TxDOT Traffic Standards Engineer.
- Material used as part with this system shall conform to the following specifications:
  - 10 M5 (ing 12.875" outside diameter)
  - 0.134" nominal wall thickness
  - Seamless or electric-resistance welded steel tubing or pipe
  - Steel shall be A53AS or 95 per ASTM A1011 or ASTM A1008
  - Other steels may be used if they meet the following:
    - 55,000 PSI minimum yield strength
    - 70,000 PSI minimum tensile strength
    - 205 minimum elongation in 2"
  - Wall thickness (uncoated) shall be within the range of 0.122" to 0.138"
  - Outside diameter (uncoated) shall be within the range of 12.861" to 12.873"
  - Galvanization per ASTM A153 or ASTM A653 G20. For pre-coated steel tubing (ASTM A653), recast tube outside diameter weld seam by metalizing with zinc wire per ASTM B633.
  - Schedule 80 Pipe (12.875" outside diameter)
  - 0.275" nominal wall thickness
  - Steel tubing per ASTM A606 Gr C
  - Other seamless or electric-resistance welded steel tubing or pipe with equivalent outside diameter and wall thickness may be used if they meet the following:
    - 48,000 PSI minimum yield strength
    - 62,000 PSI minimum tensile strength
    - 215 minimum elongation in 2"
  - Wall thickness (uncoated) shall be within the range of 0.248" to 0.304"
  - Outside diameter (uncoated) shall be within the range of 2.855" to 2.895"
  - Galvanization per ASTM A153
- See the Traffic Operations Division website for detailed drawings of sign cables and Texas Universal Triangular Slipbase System components. The website address is: <https://www.txdot.gov/pub/locations/traffic.htm>
- Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.

### ASSEMBLY PROCEDURE

#### Foundation

- Prepare 12-inch diameter by 42-inch deep hole. If solid rock is encountered, the depth of the foundation may be reduced such that it is embedded a minimum of 18 inches into the solid rock.
- Engineer may permit a bottom of concrete less than 2 cubic yards to be mixed with a portable, batched concrete mixer. For small jobs only, the concrete may be placed in 5.5 cubic yards, then using 1/2 ton portable concrete mixer may be allowed by Engineer. Concrete shall be Class A.
- Place the ends of the slip base into the hole before the slab is poured and the ends of the slab and firmly tamping it down into the concrete to assure good contact between the concrete and stud. Continue to work the stud into the concrete until it is between 2 to 4 inches above the ground.
- Place the stud. Allow a minimum of 4 days to set, unless otherwise directed by the Engineer.
- The triangular slipbase system is multidirectional and is designed to release when struck from any direction.

#### Support

- Cut support so that the bottom of the sign will be 7 to 7.5 feet above the edge of the travelway (i.e., edge of the closest lane) when slip plate is set on the edge of pavement or 7 to 7.5 feet above slip plate when the slip plate is above the edge of the travelway. The stud shall be plumb and straight.
- Attach sign to support using connections shown. When multiple signs are attached to the same support, ensure the minimum clearance between each sign is maintained. See SMO(SLIP-1) for clearances based on sign types.

## SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD (SLIP-1)-08

CUT DATE: July 2002		REV: 001		DATE: 07/02	BY: JCH	CHK: JCH	APP: JCH
9-06		10-06		11-06		12-06	
10-06		11-06		12-06		01-07	
11-06		12-06		01-07		02-07	

249

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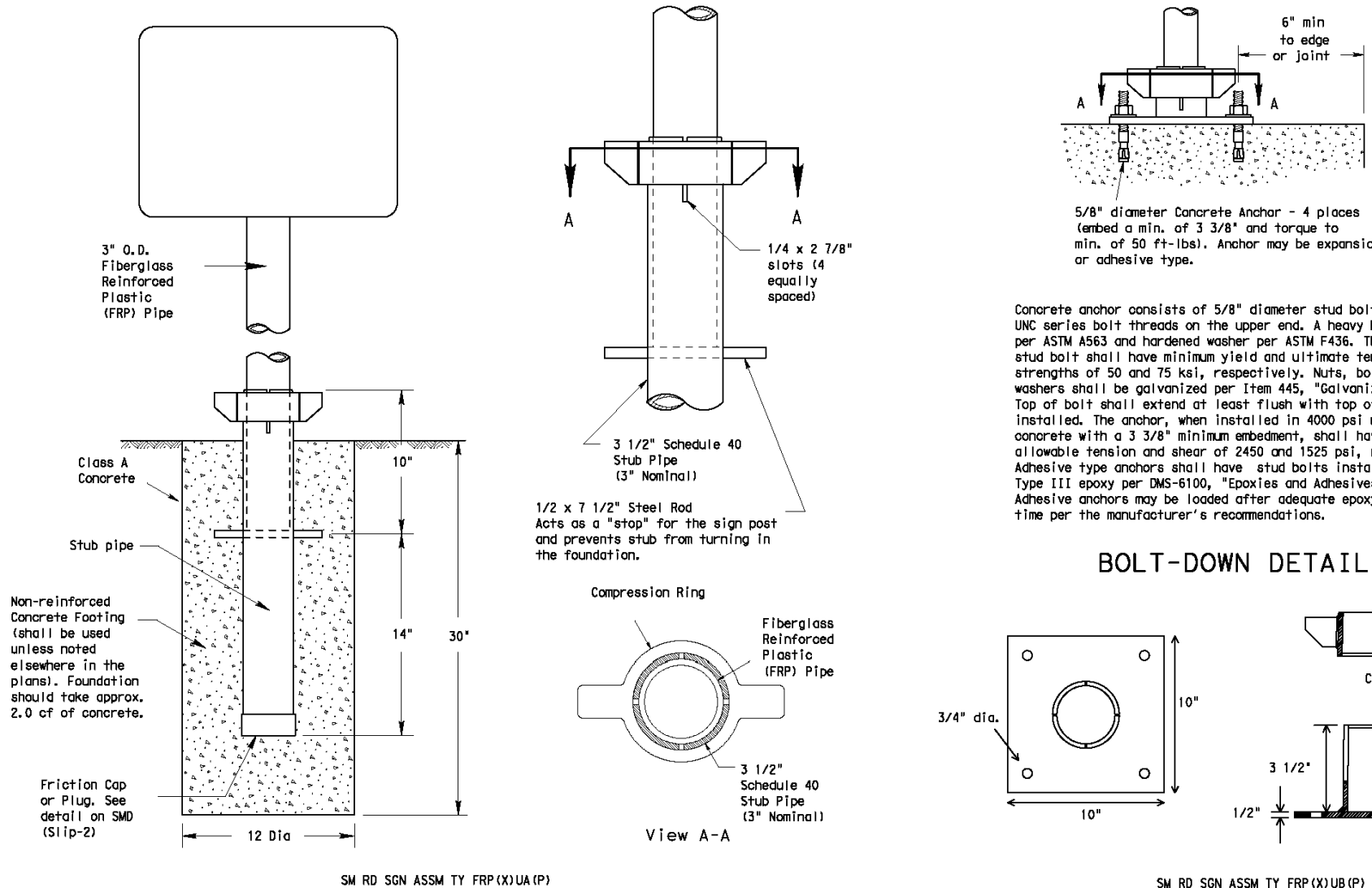
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DATE: FILE:

### Universal Anchor System with Fiberglass Reinforced Plastic (FRP) Post



Typical Sign Mounting Detail  
for FRP Support with Single Sign

Typical Sign Mounting Detail  
for FRP Support with Back-to-Back Signs

#### GENERAL NOTES:

- FRP sign supports for a single type sign support may be used for signs up to and including 32 square feet.
  - All nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing".
  - See the Traffic Operations Division website for detailed drawings of sign clamps. The website address is: <http://www.tdot.gov/publications/traffic.htm>
- FRP POST REQUIREMENTS
- Materials shall conform to the requirements of Departmental Material Specification DM-4410 and will be furnished in a yellow or gray color as specified elsewhere in the plans.
  - Thickness of FRP sign support is 0.125" ± 0.031", ± 0.01".
  - FRP sign supports are prequalified by the Traffic Operations Division. Prequalification procedures are obtained by writing: Texas Department of Transportation, Traffic Operations Division, 125 East 11th Street, Austin, Texas 78701-2463.
- UNIVERSAL ANCHOR SYSTEM INSTALLATION PROCEDURES
- Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18". When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is encountered, the socket/stub may be reduced in length as required to a minimum length of 18". Any material removed from the socket/stub shall be from the bottom and the clearance requirements given on SMD(SGN) must be followed. The inner surfaces of the socket/stub must remain free of concrete or other debris.
  - The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, motor-driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Place concrete into hole until it is approximately flush with the ground. Concrete shall be Class A.
  - Insert base post into foundation hole to depths shown and fill hole with concrete. Cure base post for 4 days, unless otherwise directed by Engineer.
  - Level and plate the base post using a torqued level and allow concrete adequate time to set. The bottom of the signs provided in the stub pipe shall remain above the top of the concrete foundation.
  - Attach the sign to the sign post.
  - Insert sign post into base post. Lower until the post comes to rest on steel rod.
  - Set compression ring using a hammer. Typically, the top of compression ring will be approximately level with top of stub post when correctly installed.
  - Check sign post by hand to ensure it is unable to turn. If loose, increase the tightening of the compression ring.

#### BOLT DOWN SIGN SUPPORT

- Post from base plate with coupler on existing concrete.
- Drill holes into concrete and insert the 5/8" diameter bolts with wedge anchors, and tighten nuts.
- Attach sign to FRP post.
- Insert bottom of sign post into pipe stub.
- Use hammer to ensure the coupler is firmly seated. Top of coupler should be level with top of base post in most instances.
- Check sign to ensure there is no twist. If loose, increase the tightening of coupler.

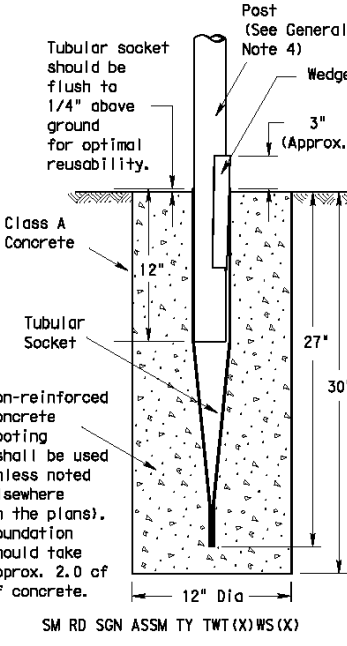
Texas Department of Transportation  
Traffic Operations Division  
**SIGN MOUNTING DETAILS**  
SMALL ROADSIDE SIGNS  
UNIVERSAL ANCHOR SYSTEM  
WITH FRP POST  
SMD (FRP) - 08

DATE	BY	CHKD	APP'D	REV
9-08	REVISED	REVISED	REVISED	REVISED
11-07	REVISED	REVISED	REVISED	REVISED

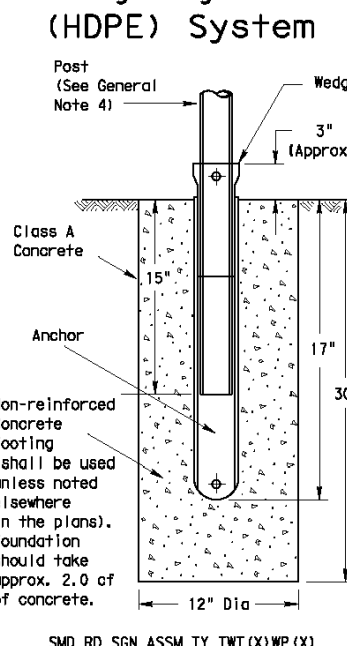
SHAVANO HIGHLANDS HILLTOP  
SAN ANTONIO, TEXAS  
SIGNAGE DETAILS

PLAT NO. 23-11800016  
JOB NO. 8834-25  
DATE FEBRUARY 2023  
DESIGNER RG  
CHECKED BL DRAWN BM  
SHEET C3.11

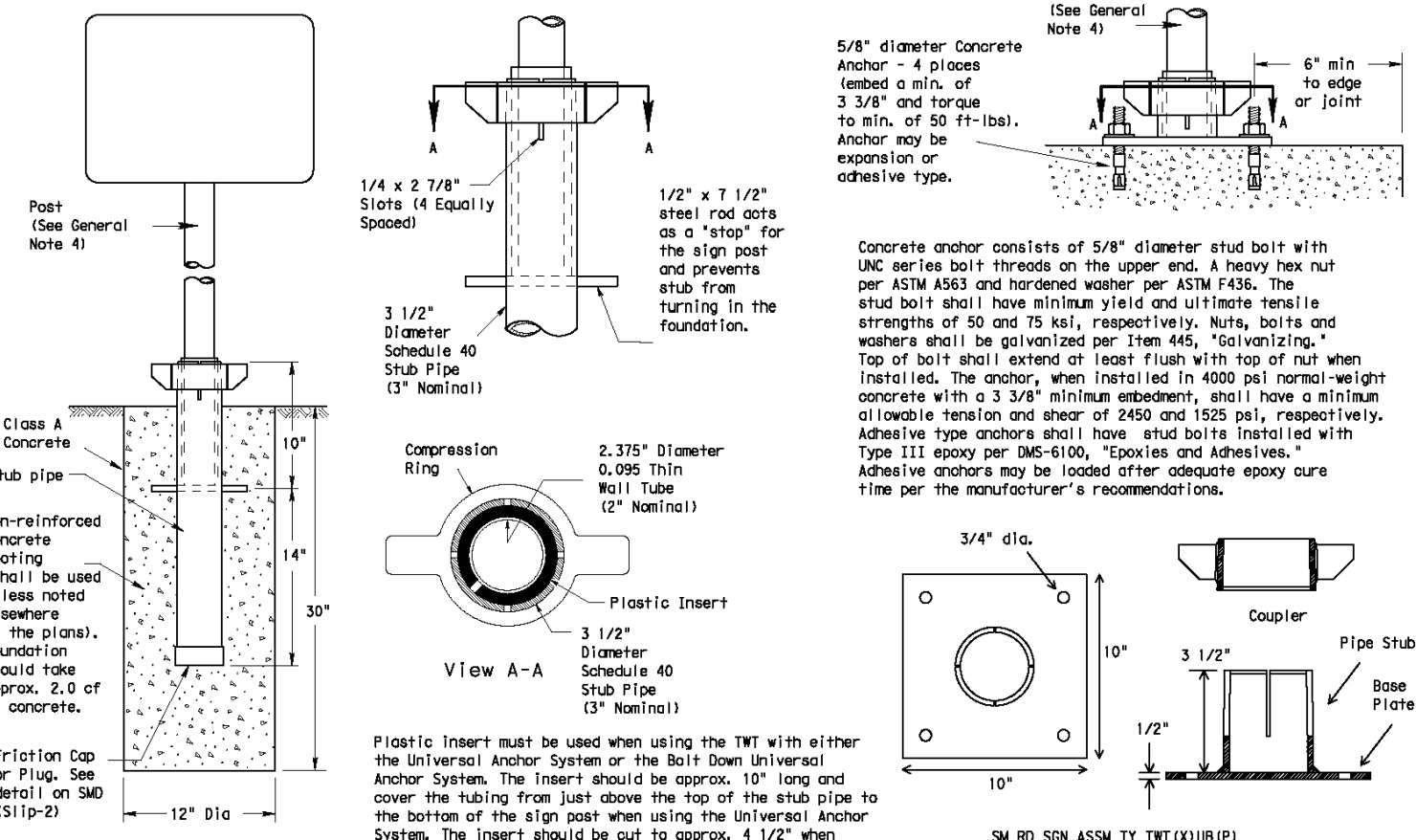
### Wedge Anchor Steel System



### Wedge Anchor High Density Polyethylene (HDPE) System



### Universal Anchor System with Thin-Walled Tubing Post



Sign Installation Using a Prefabricated T-Bracket for Thin-Wall Tubing Post

#### GENERAL NOTES:

- The Wedge Anchor System and the Universal Anchor System with thin wall tubing post may be used to support up to 10 square feet of sign area.
  - The tubular socket, wedge and prefabricated T-bracket shall be permanently marked to indicate manufacturer, method, design, and location of marking are subject to the approval of the TxDOT Traffic Structures Engineer.
  - Except for parts (13 BAC Tubing), clamps, nuts and bolts, all components shall be galvanized. A list of prequalified vendors may be obtained from the Material Producer List web page. The website address is: <http://www.tdot.gov/publications/traffic.htm>
  - Material used on post with this system shall conform to the following specifications:
    - 13 BAC Tubing (0.375 outside diameter (OD), 0.095 nominal wall thickness, seamless or electric resistance welded steel tubing. Steel shall be A513 or 55 per ASTM A101 or ASTM A106. Other steels may be used if they meet the following: 55,000 PSI minimum yield strength, 75,000 PSI minimum tensile strength, 18% minimum elongation in 2".
    - Wall thickness (uncoated) shall be within the range of .083" to .095". Outside diameter (uncoated) shall be within the range of 2.384" to 2.391". Galvanization per ASTM 123 or ASTM A653 D10. For precoated steel tubing (ASTM A853), report tube outside diameter weld size by metalizing with zinc wire per ASTM B833.
  - Sign supports shall be the sizes and shapes shown on the plans.
  - Additional sign clamp required on the "T-bracket" post for 24" high signs. Place clamp at least 3" above bottom of sign when possible.
  - Sign supports shall not be applied except where shown. Sign support posts shall not be spliced.
  - See the Traffic Operations Division website for detailed drawings of sign clamps and Wedge Anchor System components. The website address is: <http://www.tdot.gov/publications/traffic.htm>
- UNIVERSAL ANCHOR SYSTEM INSTALLATION PROCEDURES
- Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18". When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is encountered, the socket/stub may be reduced in length as required to a minimum length of 18". Any material removed from the socket/stub shall be from the bottom and the clearance requirements given on SMD(SGN) must be followed. The inner surfaces of the socket/stub must remain free of concrete or other debris.
  - The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, motor-driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Place concrete into hole until it is approximately flush with the ground. Concrete shall be Class A.
  - Insert tubular socket into concrete until top of socket is approximately 1/4" above the concrete footing.
  - Attach the sign to the sign post.
  - Insert the sign post into socket and align sign face with roadway.
  - Drive the wedge into the socket to secure post. This will leave approximately 3 inches of the wedge exposed.

#### UNIVERSAL ANCHOR SYSTEM INSTALLATION PROCEDURES

- Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18". When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is encountered, the socket/stub may be reduced in length as required to a minimum length of 18". Any material removed from the socket/stub shall be from the bottom and the clearance requirements given on SMD(SGN) must be followed. The inner surfaces of the socket/stub must remain free of concrete or other debris.
- The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, motor-driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Place concrete into hole until it is approximately flush with the ground. Concrete shall be Class A.
- Insert tubular socket into concrete until top of socket is approximately 1/4" above the concrete footing.
- Attach the sign to the sign post.
- Insert the sign post into socket and align sign face with roadway.
- Drive the wedge into the socket to secure post. This will leave approximately 3 inches of the wedge exposed.

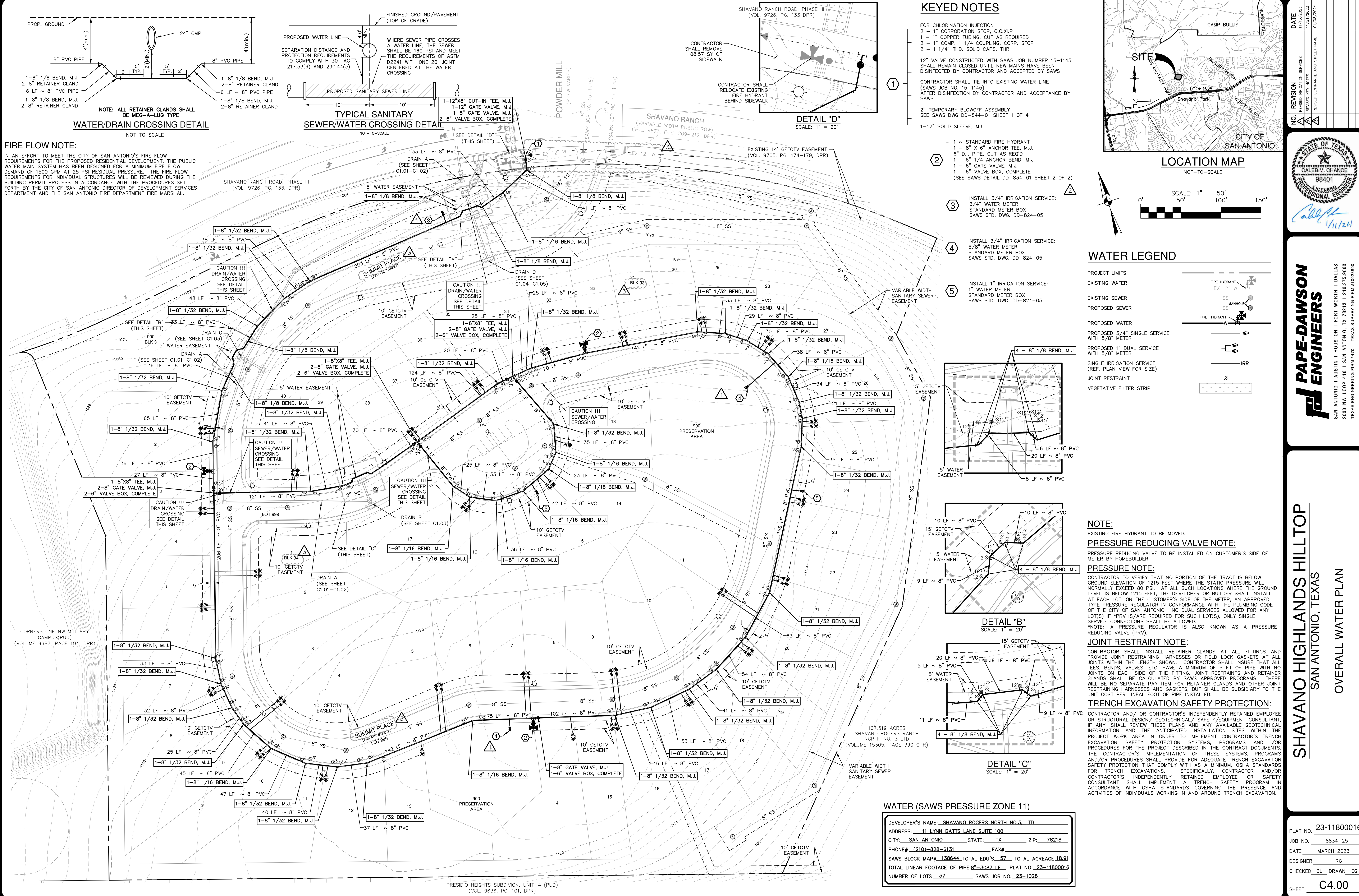
Texas Department of Transportation  
Traffic Operations Division  
**SIGN MOUNTING DETAILS**  
SMALL ROADSIDE SIGNS  
WEDGE & UNIVERSAL ANCHOR  
WITH THIN WALL TUBING POST  
SMD (TWT) - 08

DATE	BY	CHKD	APP'D	REV
9-08	REVISED	REVISED	REVISED	REVISED
11-07	REVISED	REVISED	REVISED	REVISED

STATE OF TEXAS  
CALEB M. CHANGE  
PROFESSIONAL ENGINEER  
98401  
2/16/23

PAPE-DAWSON  
ENGINEERS  
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000  
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #1008860



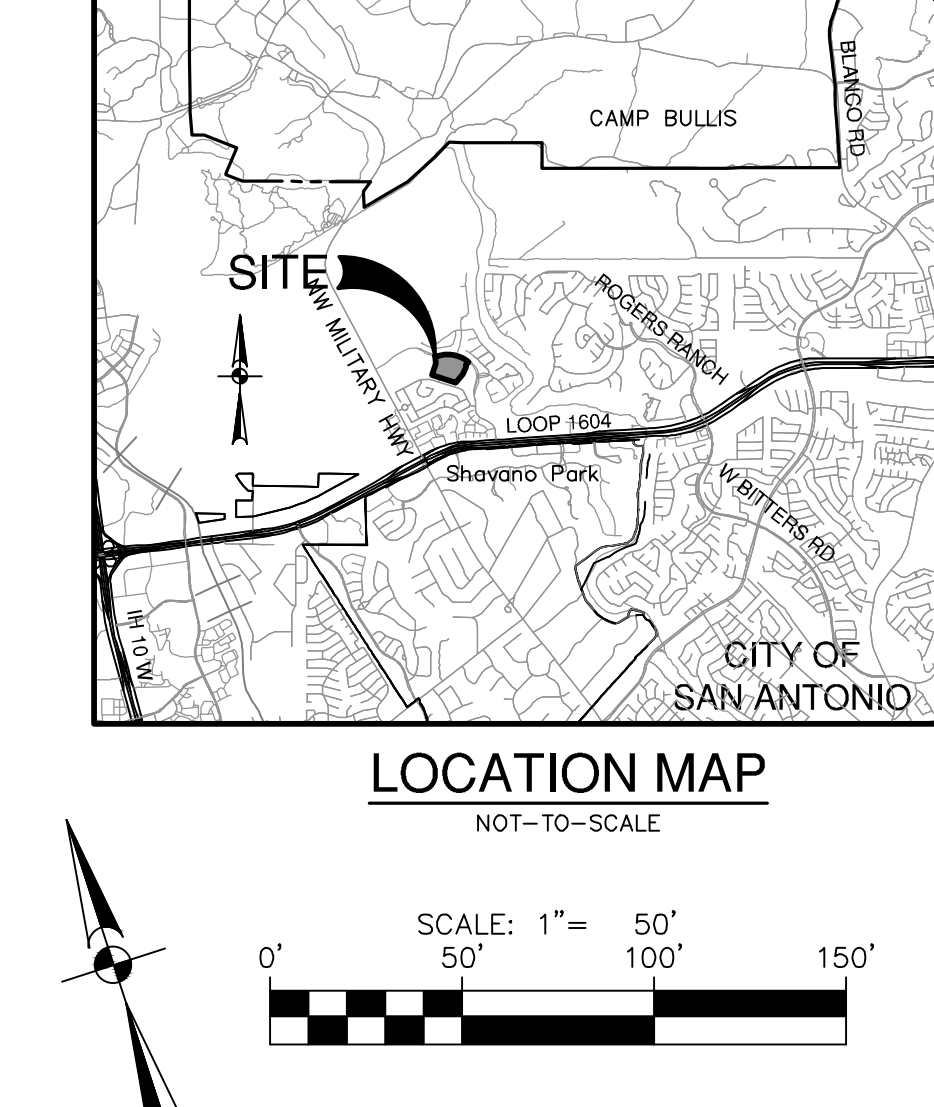


**FIRE FLOW NOTE:**  
IN AN EFFORT TO MEET THE CITY OF SAN ANTONIO'S FIRE FLOW REQUIREMENTS FOR THE PROPOSED RESIDENTIAL DEVELOPMENT, THE PUBLIC WATER MAIN SYSTEM HAS BEEN DESIGNED FOR A MINIMUM FIRE FLOW DEMAND OF 1500 GPM AT 25 PSI RESIDUAL PRESSURE. THE FIRE FLOW REQUIREMENTS FOR INDIVIDUAL STRUCTURES WILL BE REVIEWED DURING THE BUILDING PERMIT PROCESS IN ACCORDANCE WITH THE PROCEDURES SET FORTH BY THE CITY OF SAN ANTONIO DIRECTOR OF DEVELOPMENT SERVICES DEPARTMENT AND THE SAN ANTONIO FIRE DEPARTMENT FIRE MARSHAL.

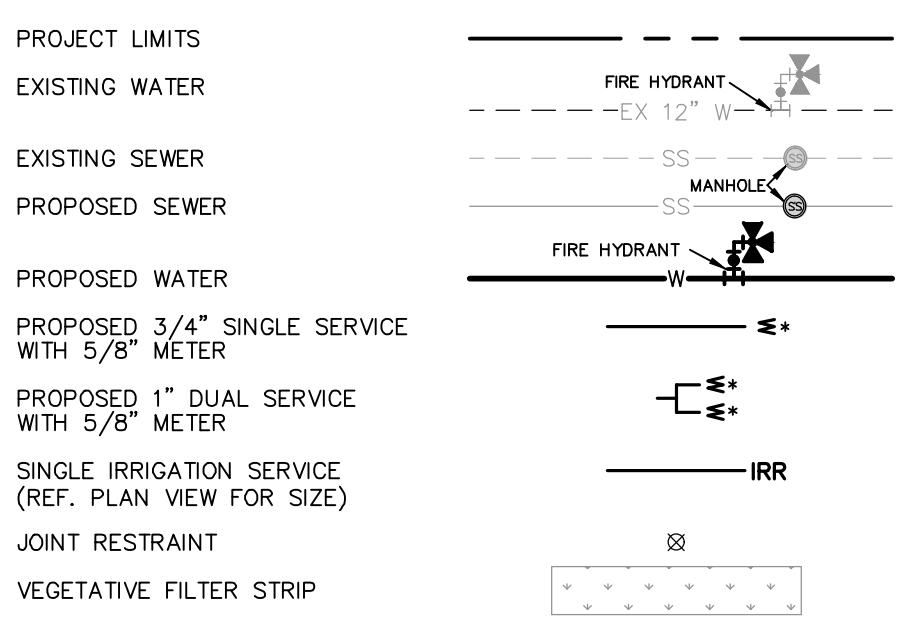
**KEYED NOTES**

- FOR CHLORINATION INJECTION  
2 - 1" CORPORATION STOP, C.C.X.I.P.  
1 - 1" COPPER TUBING, CUT AS REQUIRED  
2 - 1" COMP. 1 1/4 COUPLING, CORP. STOP  
2 - 1 1/4" THD. SOLID CAPS, THR.
- 12" VALVE CONSTRUCTED WITH SAWS JOB NUMBER 15-1145 SHALL REMAIN CLOSED UNTIL NEW MAINS HAVE BEEN DISINFECTED BY CONTRACTOR AND ACCEPTED BY SAWS
- CONTRACTOR SHALL TIE INTO EXISTING WATER LINE (SAWS JOB NO. 15-1145)  
AFTER DISINFECTION BY CONTRACTOR AND ACCEPTANCE BY SAWS
- 2" TEMPORARY BLOWOFF ASSEMBLY  
SEE SAWS DWG DD-844-01 SHEET 1 OF 4
- 1-12" SOLID SLEEVE, M.J

- 1 - STANDARD FIRE HYDRANT  
1 - 8" X 6" ANCHOR TEE, M.J.  
6" D.I. PIPE, CUT AS REQ'D  
1 - 6" 1/4 ANCHOR BEND, M.J.  
1 - 6" GATE VALVE, M.J.  
1 - 6" VALVE BOX, COMPLETE  
(SEE SAWS DETAIL DD-834-01 SHEET 2 OF 2)
- 3 - INSTALL 3/4" IRRIGATION SERVICE:  
3/4" WATER METER  
STANDARD METER BOX  
SAWS STD. DWG. DD-824-05
- 4 - INSTALL 3/4" IRRIGATION SERVICE:  
5/8" WATER METER  
STANDARD METER BOX  
SAWS STD. DWG. DD-824-05
- 5 - INSTALL 1" IRRIGATION SERVICE:  
1" WATER METER  
STANDARD METER BOX  
SAWS STD. DWG. DD-824-05



**WATER LEGEND**



**NOTE:**  
EXISTING FIRE HYDRANT TO BE MOVED.

**PRESSURE REDUCING VALVE NOTE:**  
PRESSURE REDUCING VALVE TO BE INSTALLED ON CUSTOMER'S SIDE OF METER BY HOMEOWNER.

**PRESSURE NOTE:**  
CONTRACTOR TO VERIFY THAT NO PORTION OF THE TRACT IS BELOW GROUND ELEVATION OF 1215 FEET WHERE THE STATIC PRESSURE WILL NORMALLY EXCEED 80 PSI. AT ALL SUCH LOCATIONS WHERE THE GROUND LEVEL IS BELOW 1215 FEET, THE DEVELOPER OR BUILDER SHALL INSTALL AT EACH LOT, ON THE CUSTOMER'S SIDE OF THE METER, AN APPROVED TYPE PRESSURE REGULATOR IN CONFORMANCE WITH THE PLUMBING CODE OF THE CITY OF SAN ANTONIO. NO DUAL SERVICES ALLOWED FOR ANY LOT(S) IF \*PRV IS/ARE REQUIRED FOR SUCH LOT(S), ONLY SINGLE SERVICE CONNECTIONS SHALL BE ALLOWED.  
\*NOTE: A PRESSURE REGULATOR IS ALSO KNOWN AS A PRESSURE REDUCING VALVE (PRV).

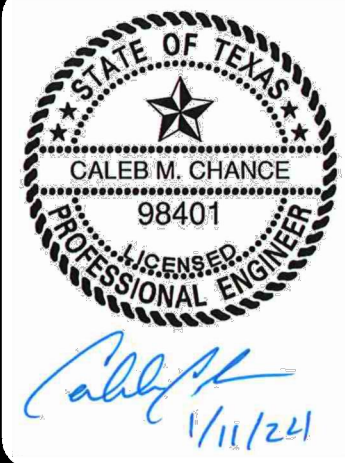
**JOINT RESTRAINT NOTE:**  
CONTRACTOR SHALL INSTALL RETAINER GASKETS AT ALL FITTINGS AND PROVIDE JOINT RESTRAINING HARNESSES OR FIELD LOCK GASKETS AT ALL JOINTS WITHIN THE LENGTH SHOWN. CONTRACTOR SHALL INSURE THAT ALL TEES, BENDS, VALVES, ETC. HAVE A MINIMUM OF 5 FT. OF PIPE WITH NO JOINTS ON EACH SIDE OF THE FITTING. JOINT RESTRAINTS AND RETAINER GASKETS SHALL BE CALCULATED BY SAWS APPROVED PROGRAMS. THERE WILL BE NO SEPARATE PAY ITEM FOR RETAINER GASKETS AND OTHER JOINT RESTRAINING HARNESSES AND GASKETS, BUT SHALL BE SUBSIDIARY TO THE UNIT COST PER LINEAL FOOT OF PIPE INSTALLED.

**TRENCH EXCAVATION SAFETY PROTECTION:**  
CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/ GEOTECHNICAL/ SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND /OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

**WATER (SAWS PRESSURE ZONE 11)**

DEVELOPER'S NAME:	SHAVANO ROGERS NORTH NO.3, LTD
ADDRESS:	11 LYNN BATTIS LANE SUITE 100
CITY:	SAN ANTONIO
STATE:	TX
ZIP:	78218
PHONE#	(210)-828-6131
FAX#	
SAWS BLOCK MAP#	138644
TOTAL EDU'S	57
TOTAL ACREAGE	18.91
SAW LINEAR FOOTAGE OF PIPE	8'-3087 LF
PLAT NO.	23-11800016
NUMBER OF LOTS	57
SAWS JOB NO.	23-1028

DATE	11/12/2023
REVISION	11/12/2023
NO.	1
REVISION	REVISED KEY NOTES
NO.	2
REVISION	REVISED ENLARGE AND STREET NAME
NO.	3

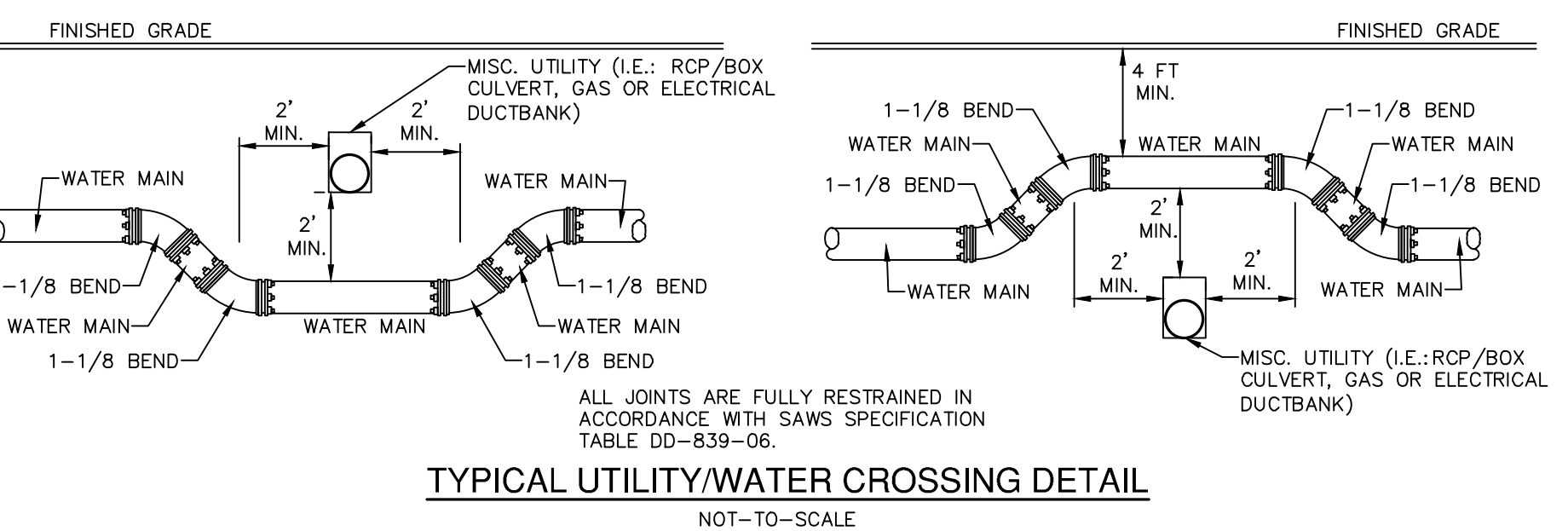
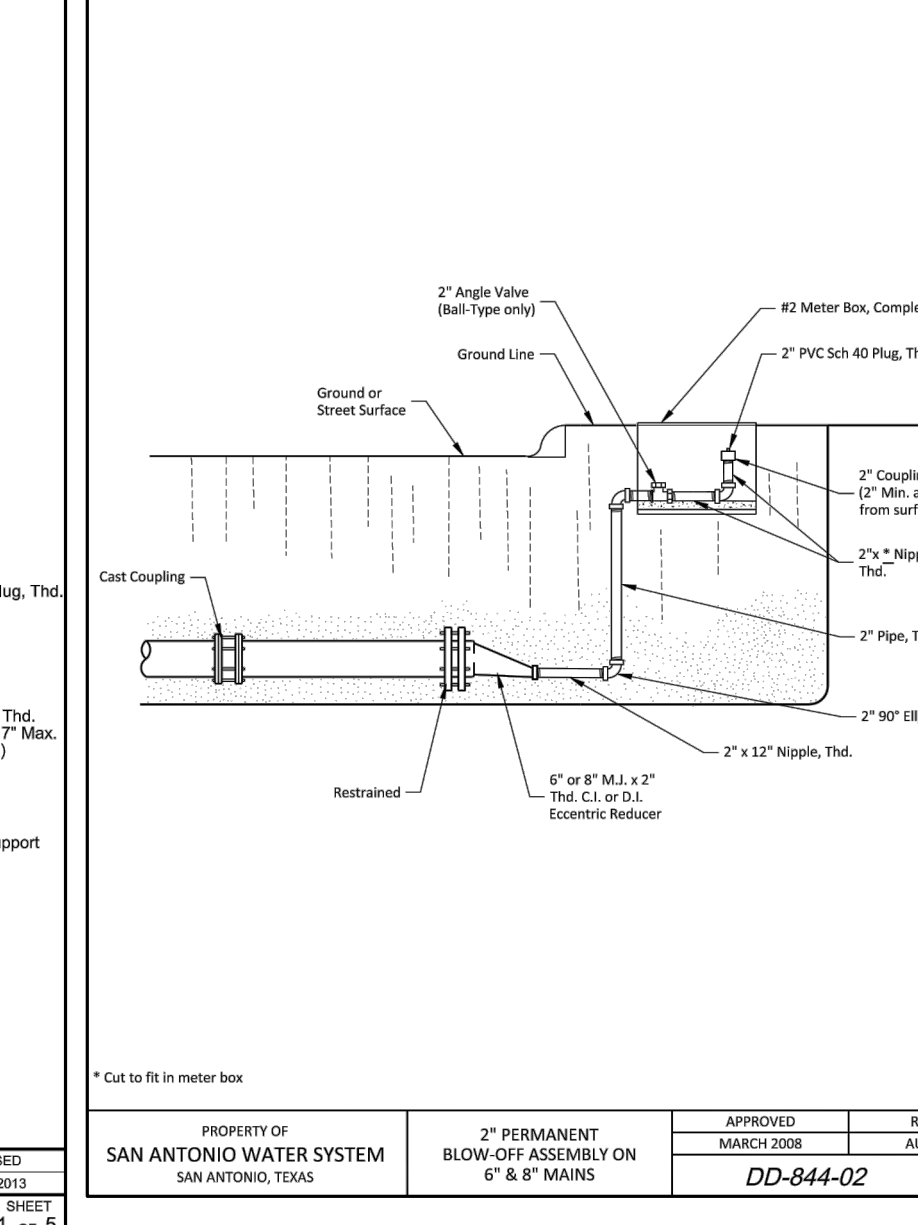
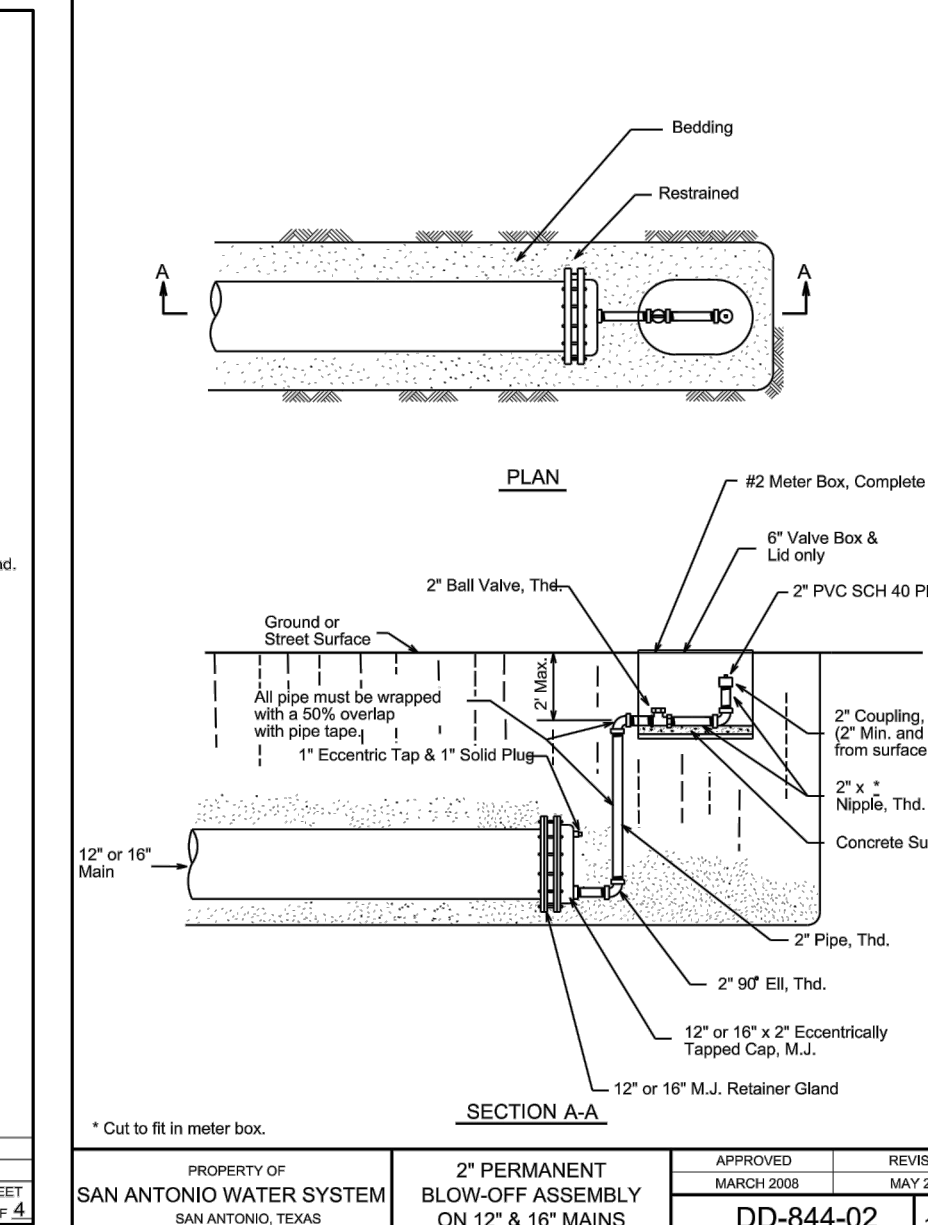
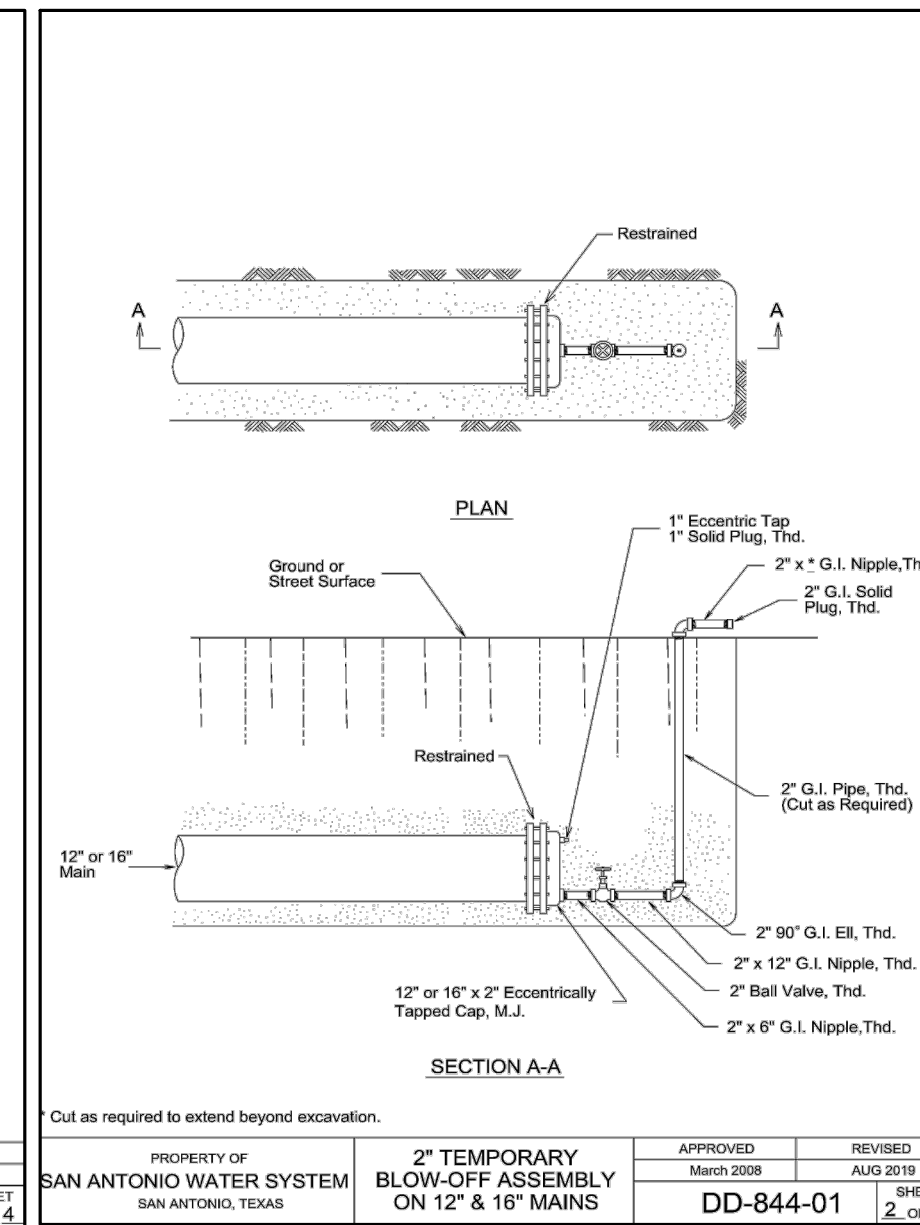
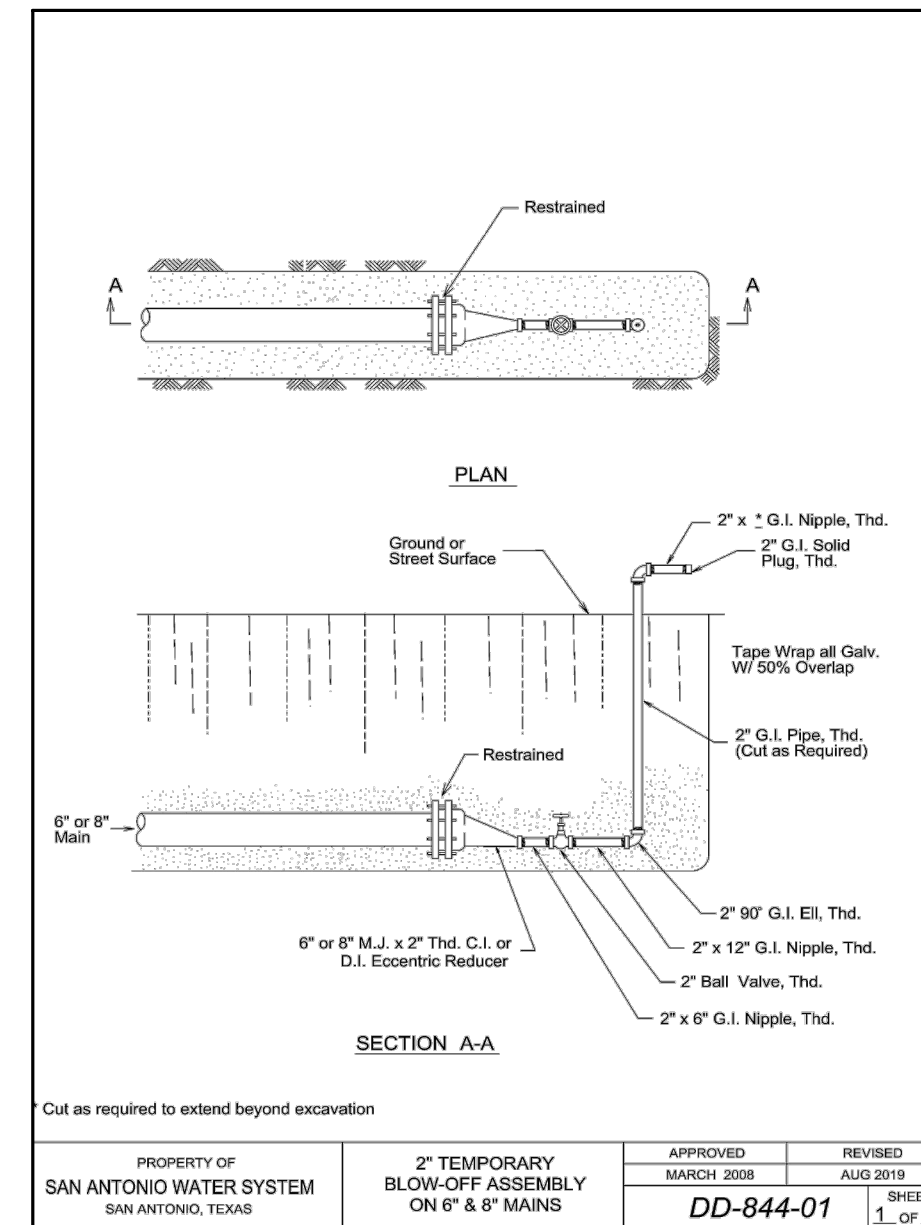
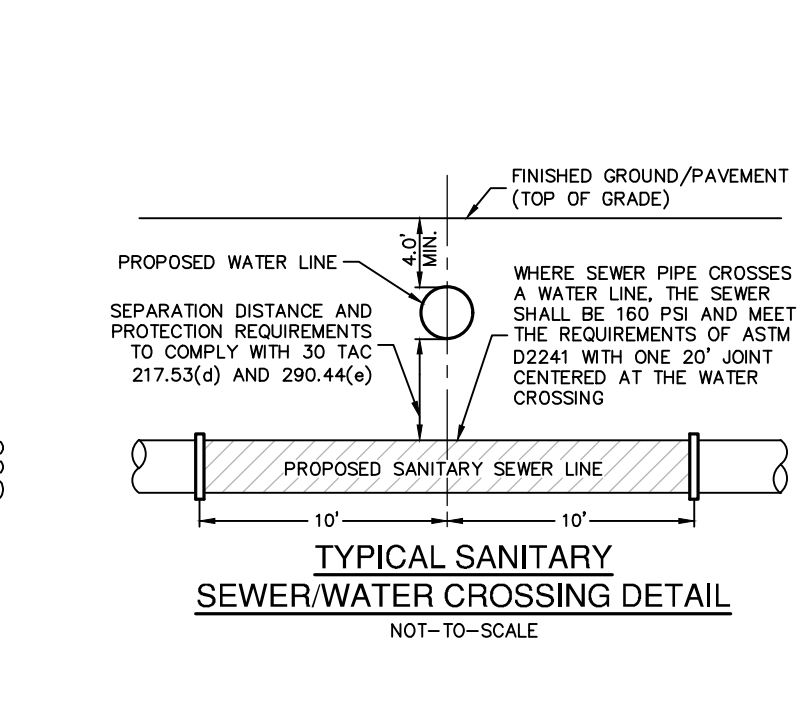
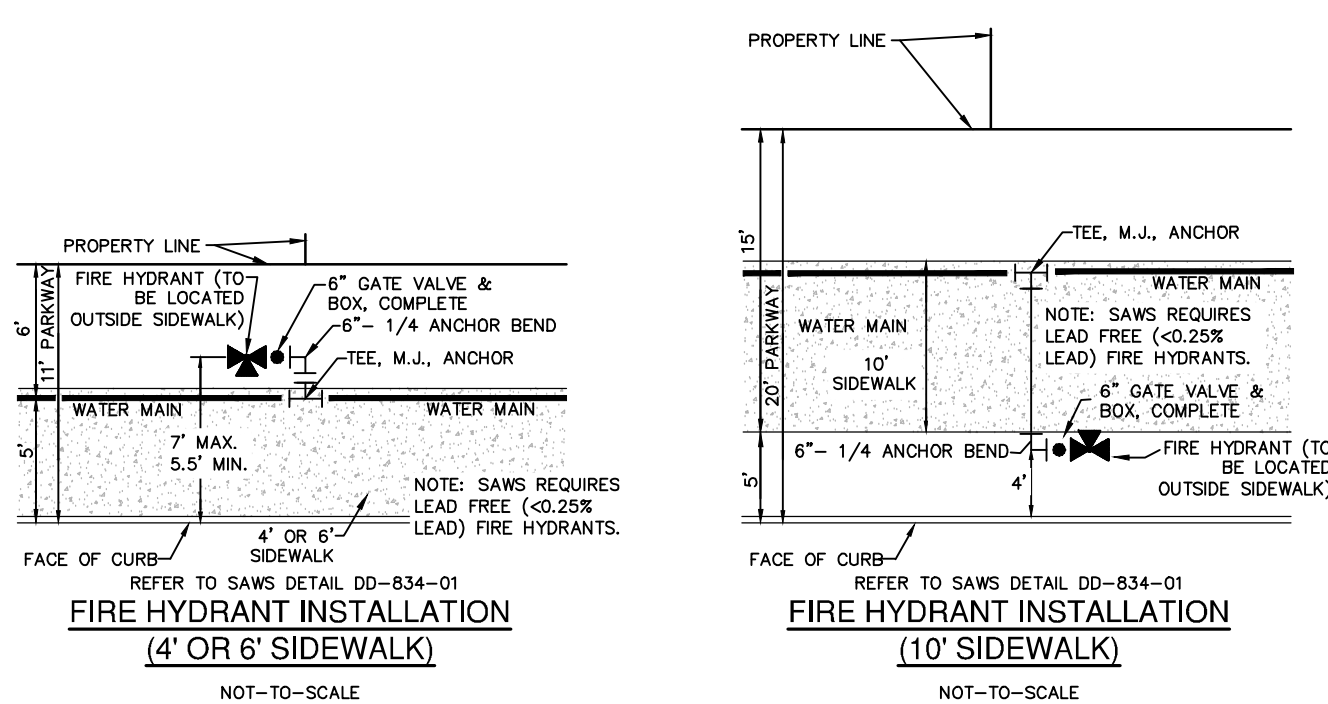
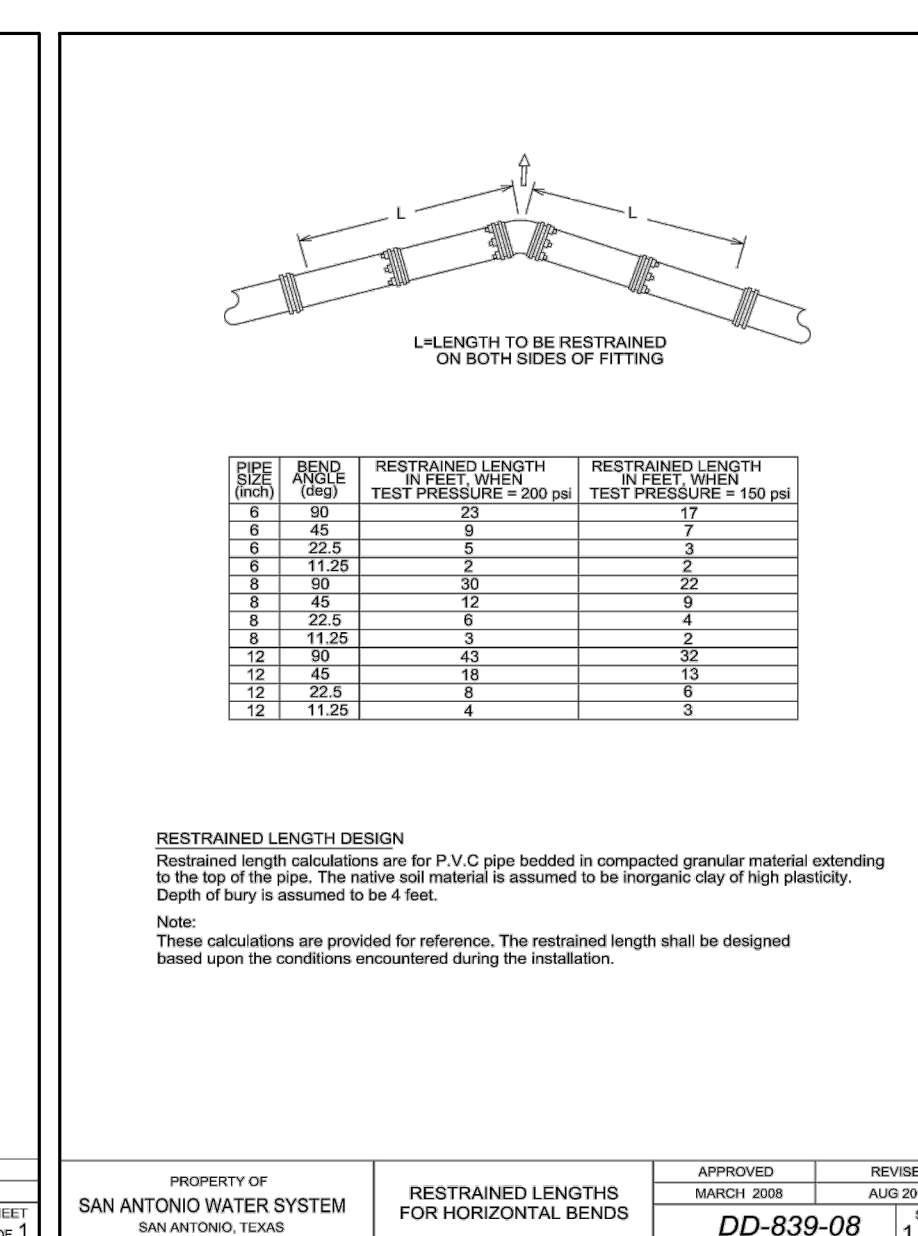
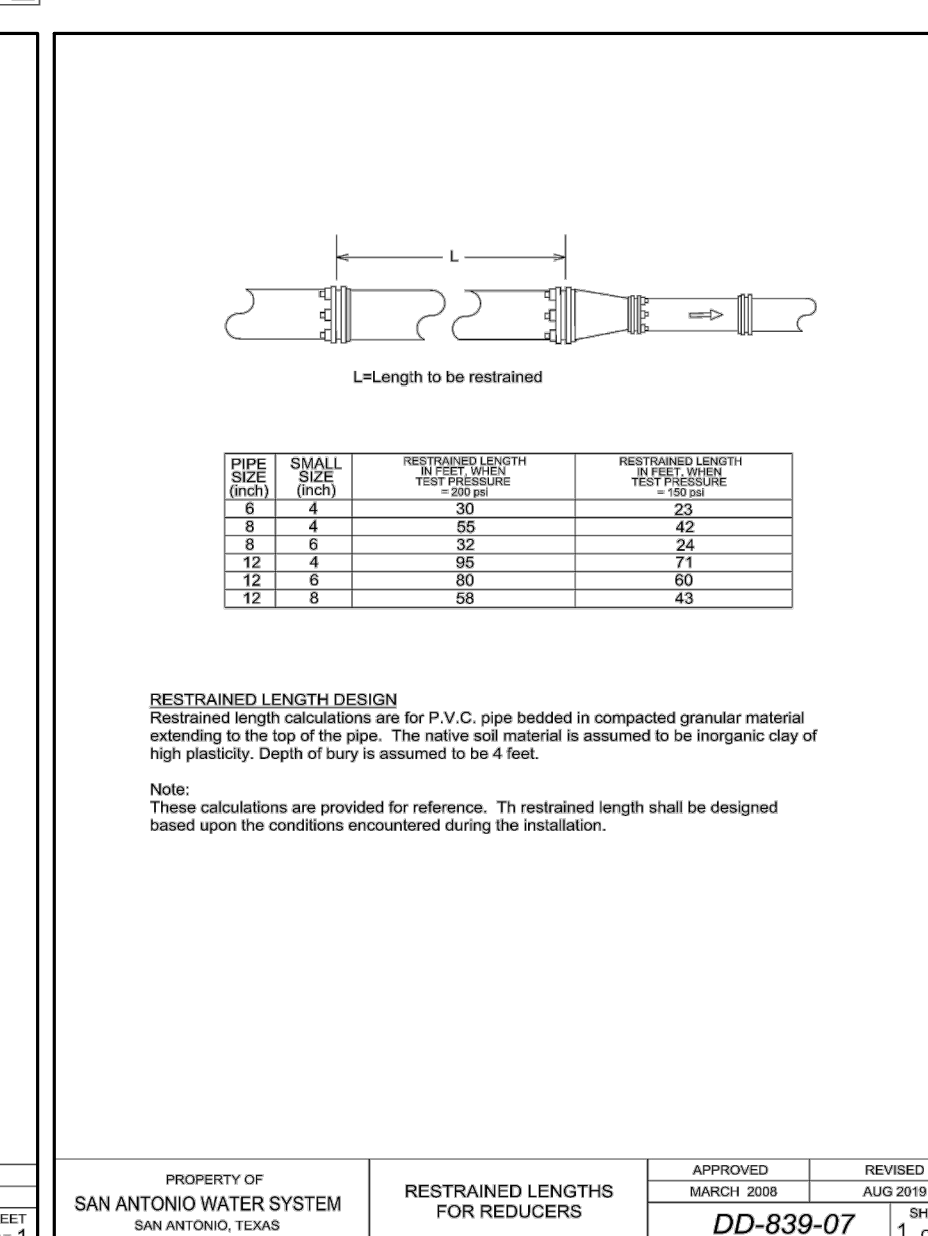
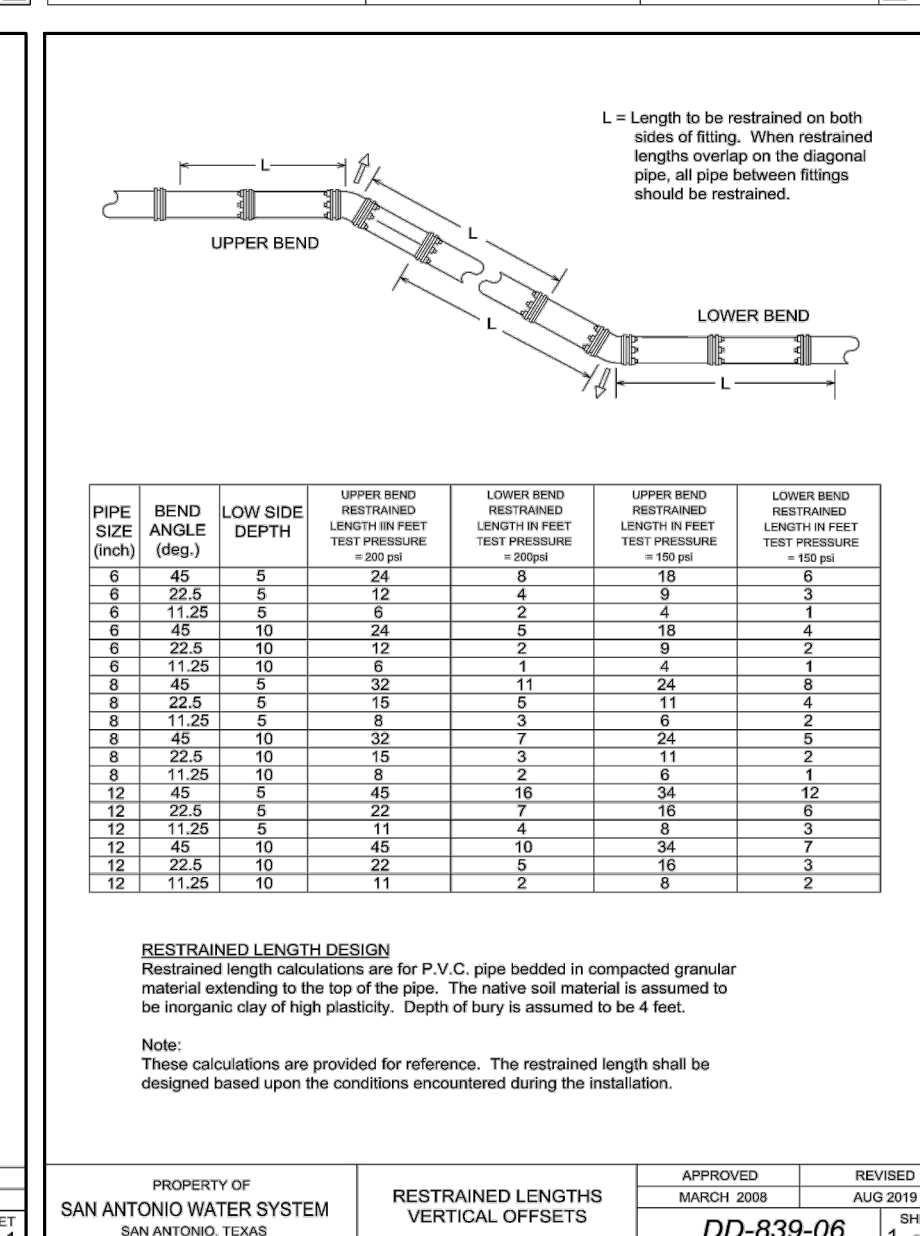
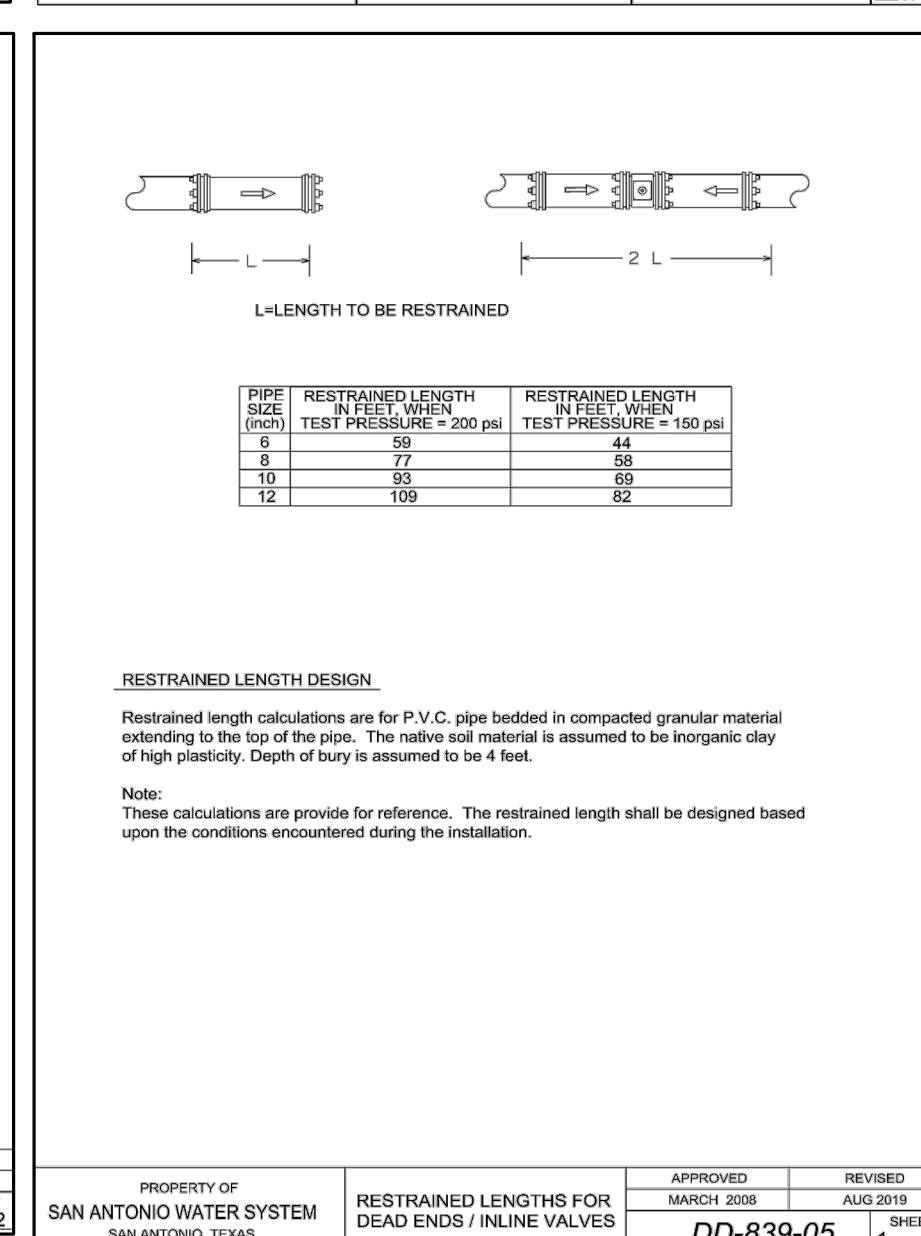
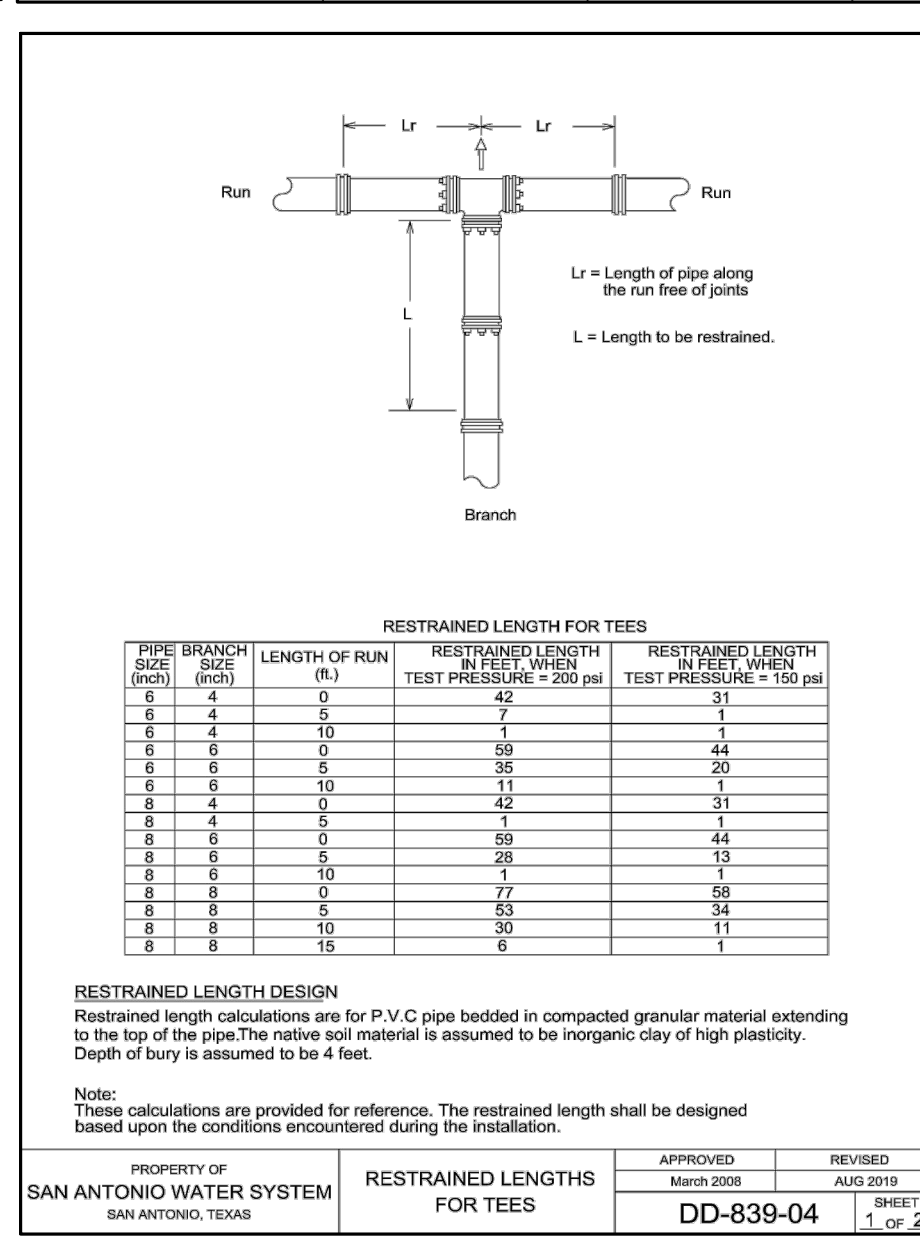
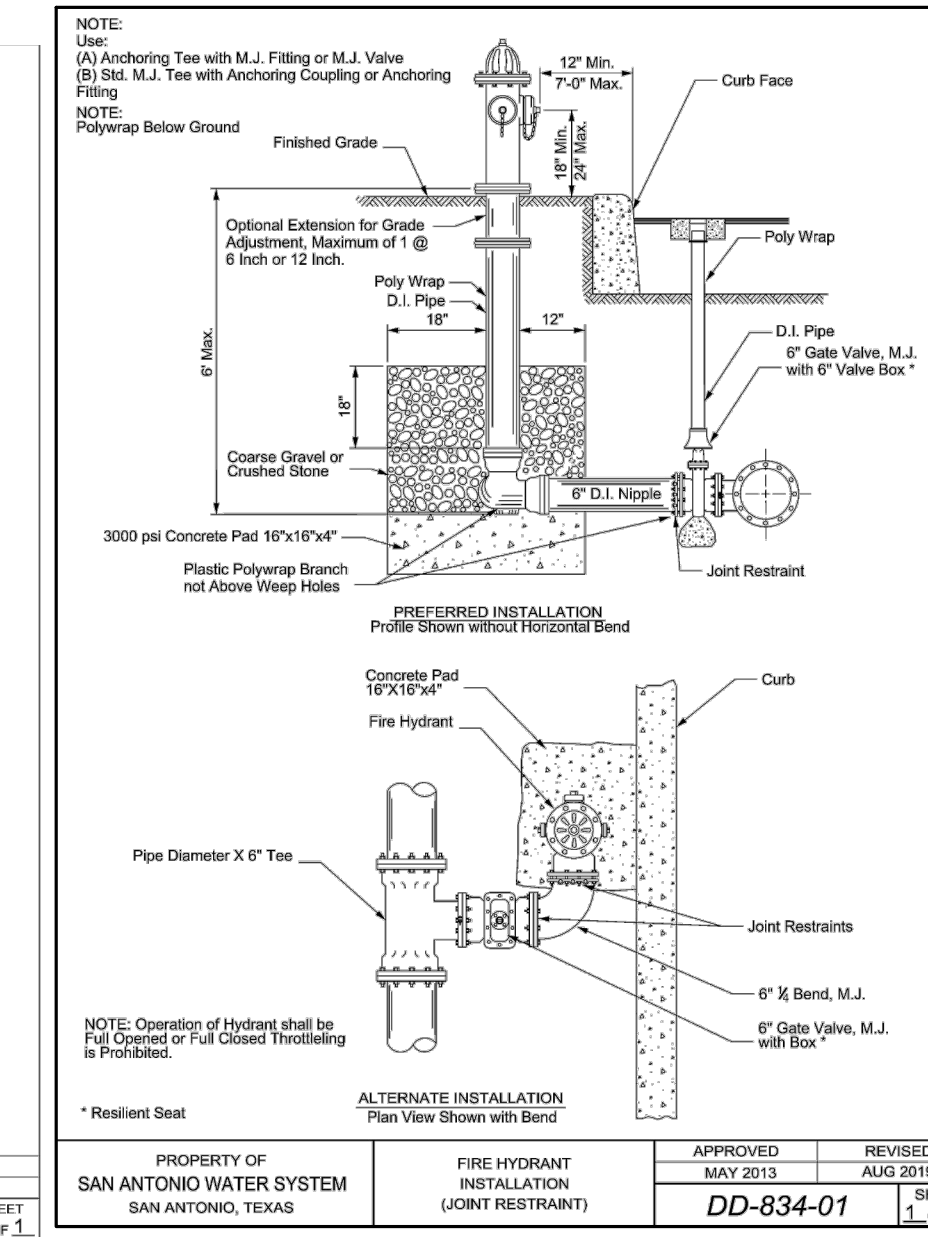
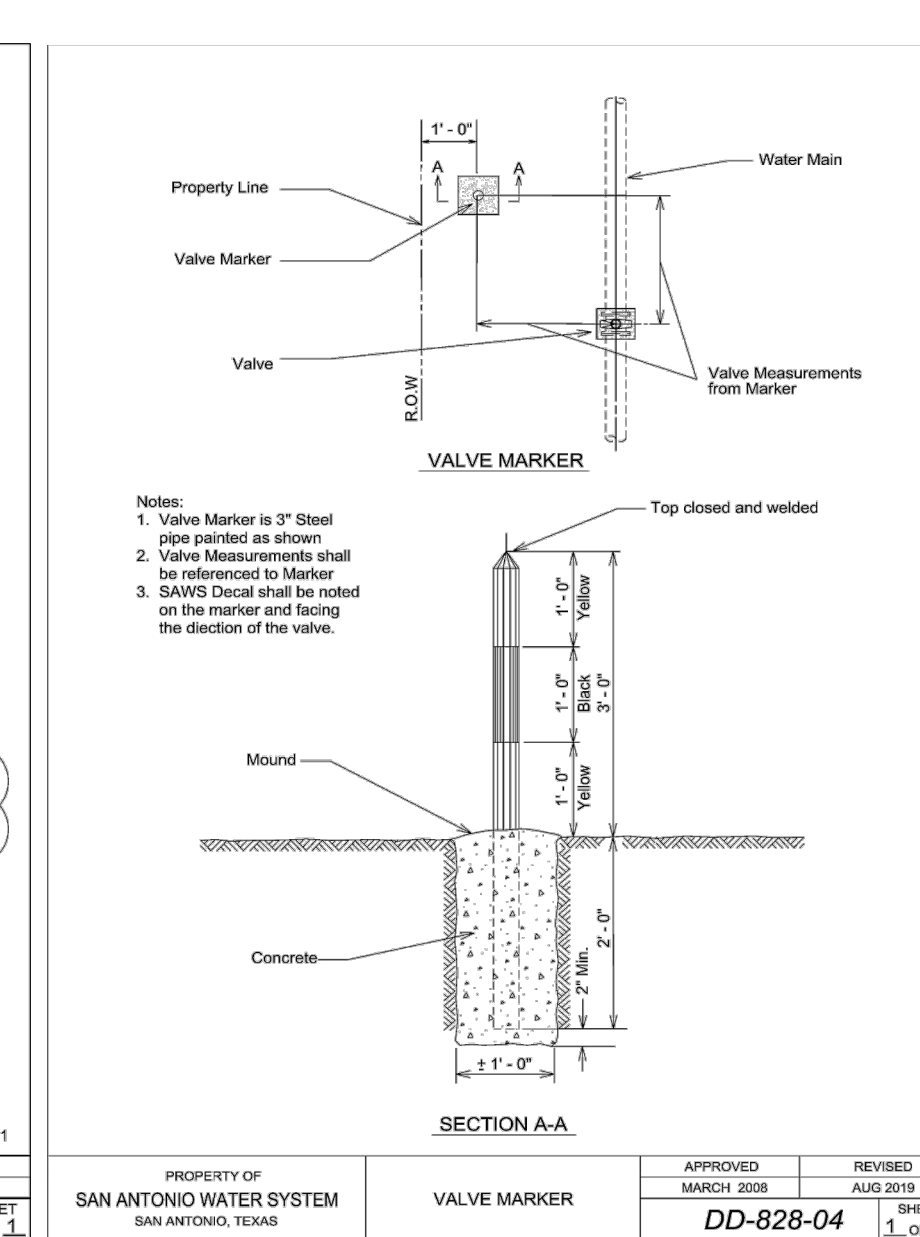
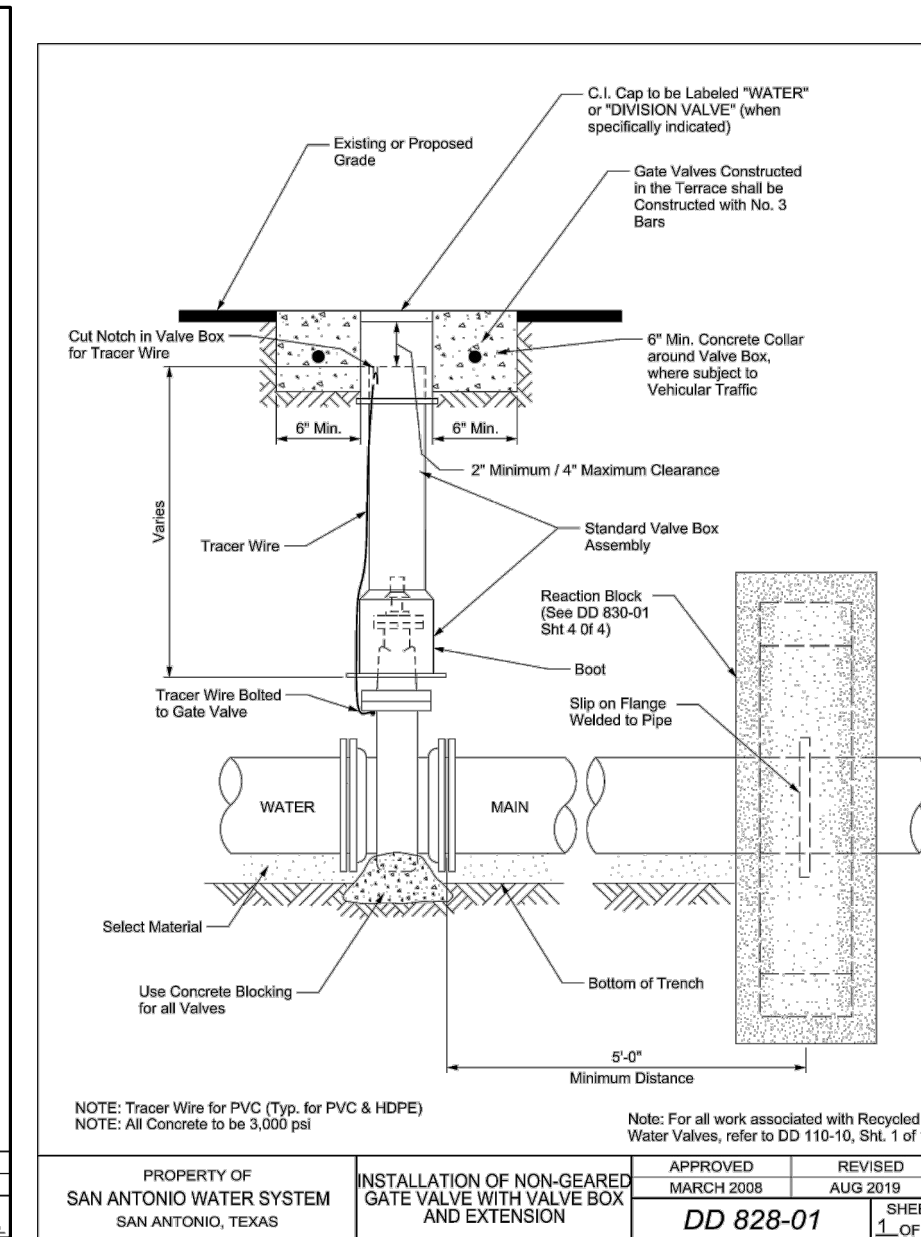
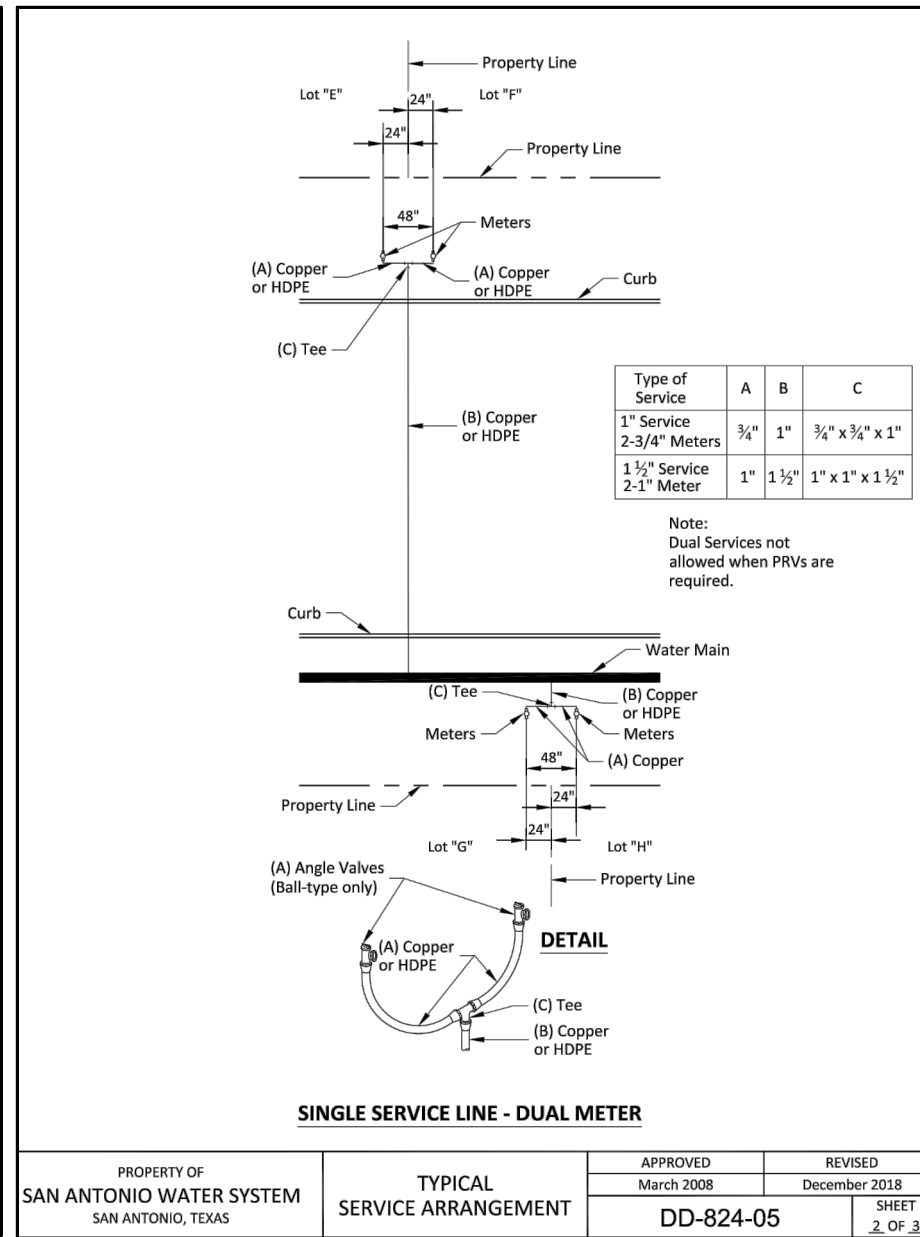
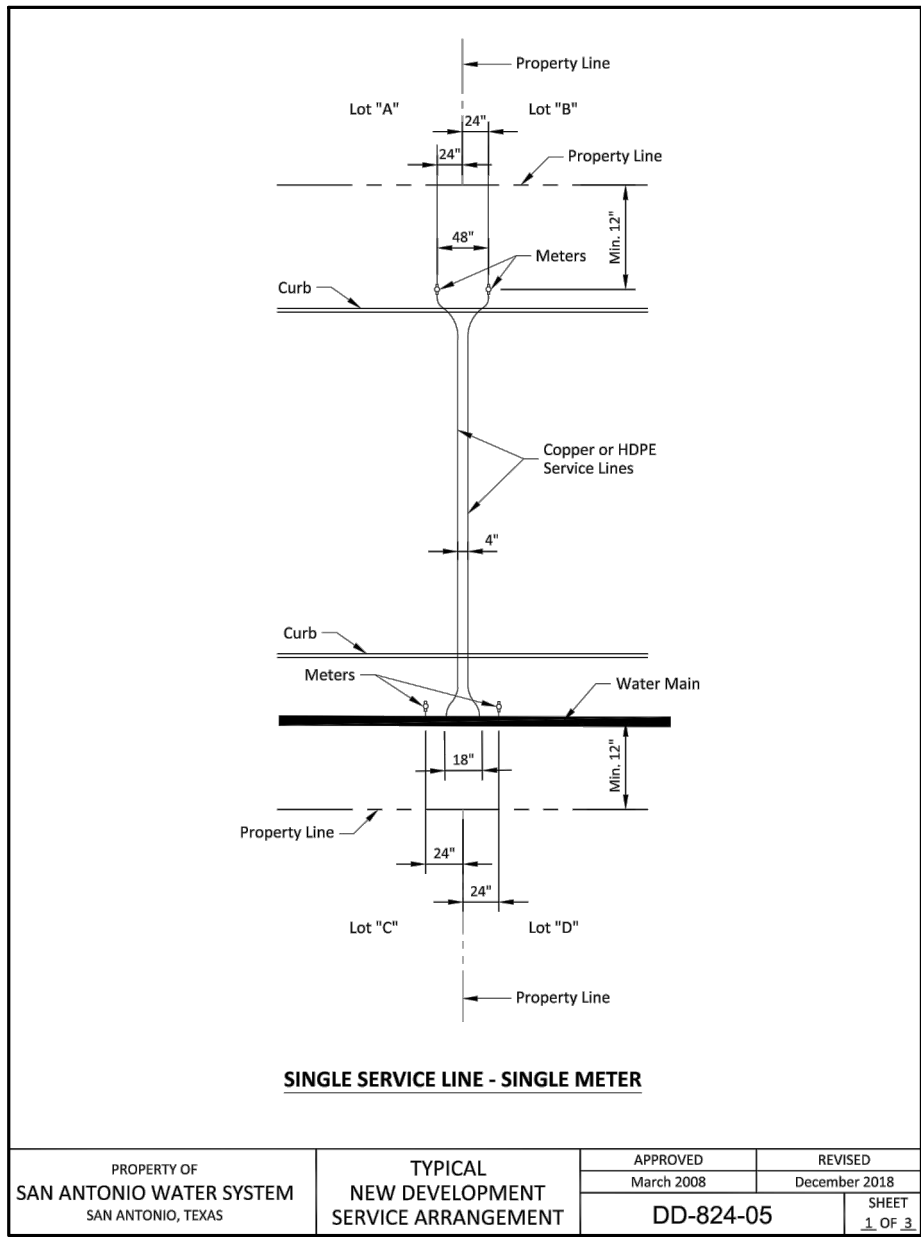


**PAPE-DAWSON ENGINEERS**  
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
2000 HW LOOP 410 | SAN ANTONIO, TX 78211 | 210.375.9000  
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #1008860

**SHAVANO HIGHLANDS HILLTOP**  
SAN ANTONIO, TEXAS  
OVERALL WATER PLAN

PLAT NO.	23-11800016
JOB NO.	8834-25
DATE	MARCH 2023
DESIGNER	RG
CHECKED	BL
DRAWN	EG
SHEET	C4.00





**WATER (SAWS PRESSURE ZONE 11)**

DEVELOPER'S NAME: SHAVANO ROGERS NORTH NO.3, LTD

ADDRESS: 11 LYNN BATTS LANE SUITE 100

CITY: SAN ANTONIO STATE: TX ZIP: 78218

PHONE# (210)-828-6131 FAX#

SAWS BLOCK MAP# 138644 TOTAL EDU'S 57 TOTAL ACREAGE 18.91

TOTAL LINEAR FOOTAGE OF PIPE: 8-3087 LF PLAT NO. 23-11800016

NUMBER OF LOTS 57 SAWS JOB NO. 23-1028

DATE

NO.

REVISION

4/10/23

**PAPE-DAWSON  
ENGINEERS**

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS

2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000

TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #1008860

**SHAVANO HIGHLANDS HILLTOP**

SAN ANTONIO, TEXAS

**WATER DETAILS**

PLAT NO. 23-11800016

JOB NO. 8834-25

DATE MARCH 2023

DESIGNER RG

CHECKED BL DRAWN BM

SHEET C4.10



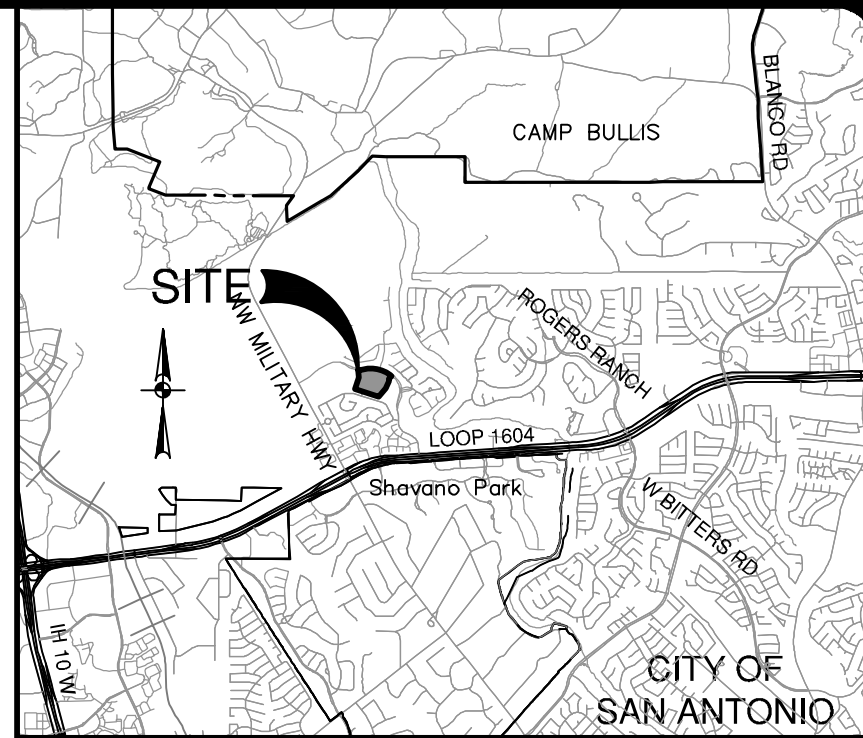
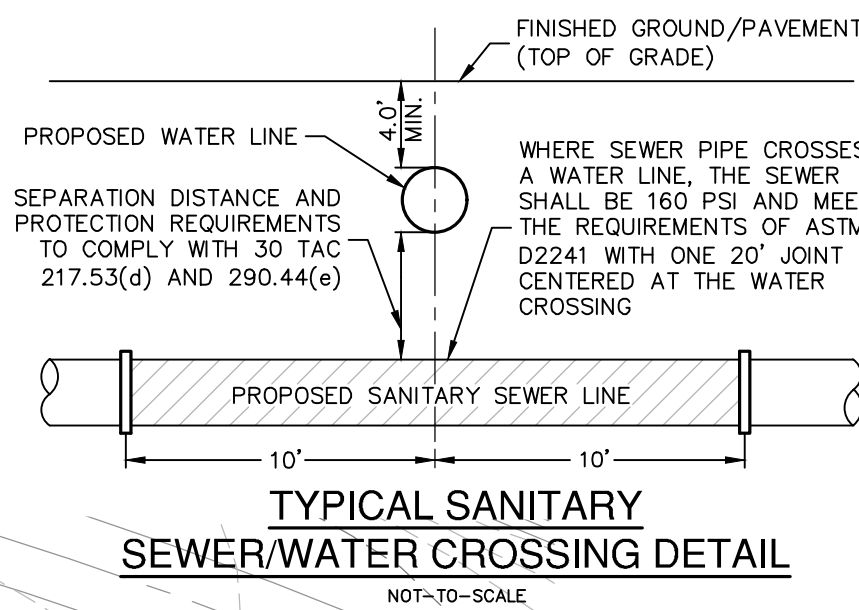
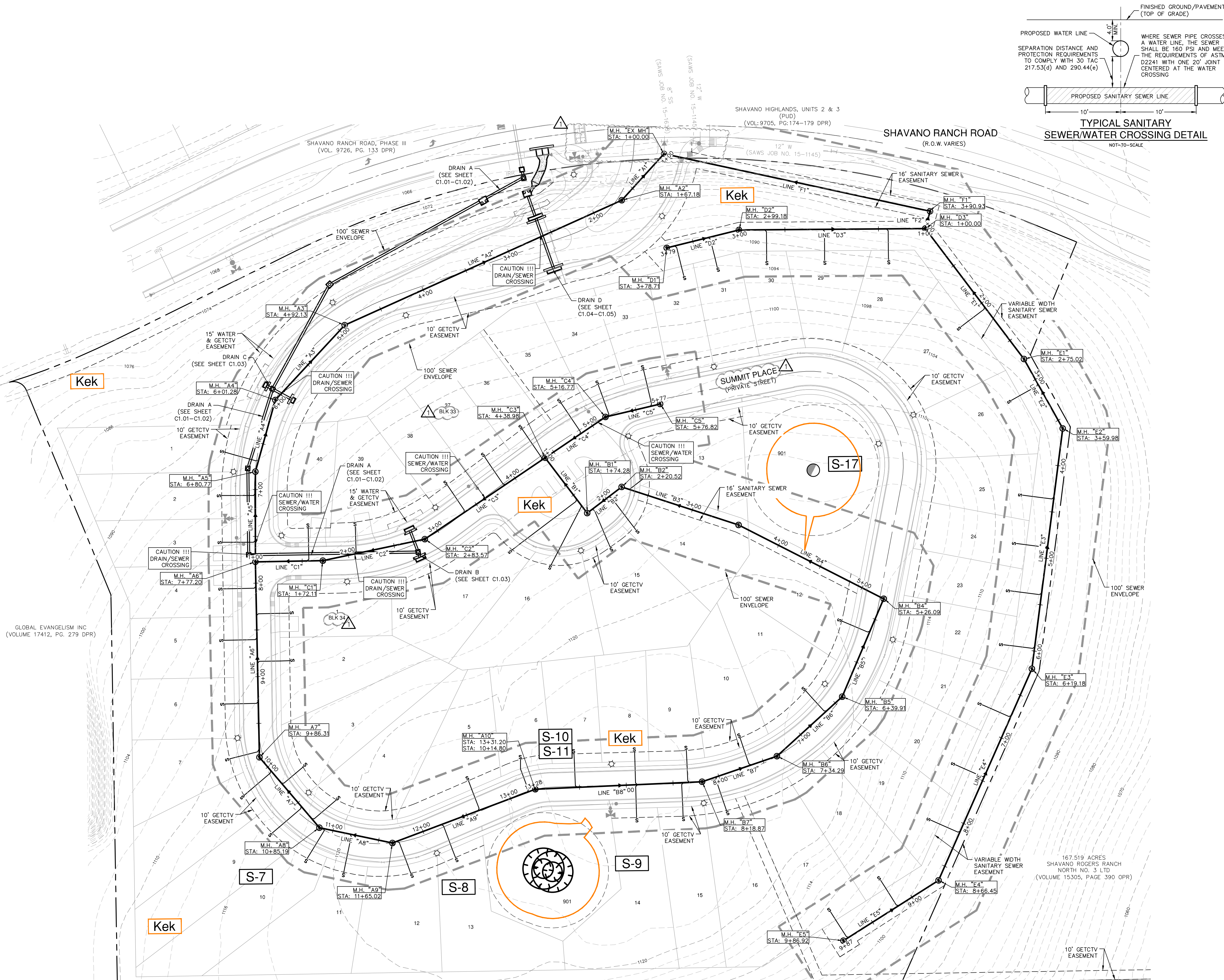




Notes: See 10/2/2024, 8:28am User ID: Ribaibadgarci  
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THIS DOCUMENT HAS BEEN PRODUCED FROM MATERIAL THAT WAS STORED AND/OR TRANSMITTED ELECTRONICALLY AND MAY HAVE BEEN INADVERTENTLY ALTERED. RELY ONLY ON FINAL HARDCOPY MATERIALS BEARING THE CONSULTANT'S ORIGINAL SIGNATURE AND SEAL. AERIAL IMAGERY PROVIDED BY GOOGLE/UNLESS OTHERWISE NOTED. Imagery © 2016/CAPD/Digital Globe/Teas Orthoimagery Program, USDA Farm Service Agency.

GLOBAL EVANGELISM INC  
(VOLUME 17412, PG. 279 DPR)



## SEWER LEGEND

PROJECT LIMITS	---
EXISTING WATER	---
EXISTING SEWER	---
PROPOSED SEWER	---
PROPOSED WATER	---
PROPOSED SEWER LATERAL	---
BUDA FORMATION	Kbu
DEL RIO FORMATION	Kdr
PERSON FORMATION	Kep
POTENTIAL RECHARGE FEATURE	S-1

## PRIVATE STREET DESIGNATION:

LOT 999, BLOCK 33, CB OR NCB 17701, IS A PRIVATE STREET AND IS DESIGNATED AS AN UNDERGROUND AND AT-GRADE INFRASTRUCTURE AND SERVICE FACILITIES EASEMENT FOR GAS, ELECTRIC, STREET LIGHT, TELEPHONE CABLE TELEVISION, DRAINAGE, PEDESTRIAN, PUBLIC WATER, WASTEWATER, AND RECYCLED WATER MAINS.

## OPEN SPACE:

BLOCK 33 LOTS 900 & 901 AND BLOCK 34 LOTS 900 NCB 17701, ARE DESIGNATED AS OPEN SPACE AND AS A COMMON AREA AND A DRAINAGE, SEWER, WATER, ELECTRIC, GAS, TELEPHONE AND CABLE TV EASEMENT.

## CAUTION!!

CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITING TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT 1-800-DIG-TESS A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.

## FINISHED FLOOR NOTES:

1. THE FINISHED FLOOR ELEVATIONS (FF) REPRESENT THE MINIMUM POSSIBLE FLOOR ELEVATION TO PROVIDE SANITARY SEWER SERVICE TO EACH LOT. ACTUAL FINISHED FLOOR ELEVATIONS FOR EACH LOT ARE TO BE DETERMINED BY THE BUILDER AND SHALL TAKE INTO CONSIDERATION AS-BUILT CONDITIONS FOR FOUND SEWER SERVICES AND ACTUAL LATERAL PLACEMENT. IT IS THE BUILDER'S SOLE RESPONSIBILITY TO DETERMINE ACTUAL FINISHED FLOOR ELEVATIONS FOR EACH LOT PRIOR TO THE START OF HOME FOUNDATION CONSTRUCTION TAKING INTO CONSIDERATION SITE DRAINAGE, STREET ACCESS AND SANITARY SEWER SERVICE ELEVATIONS.

2. THE MINIMUM SANITARY SEWER LATERAL GRADES WERE BASED UPON THE MINIMUM FINISHED FLOOR ELEVATIONS FOR THE LOTS LOCATED ON THE DOWNHILL SIDES OF THE PROPOSED ROADWAYS.

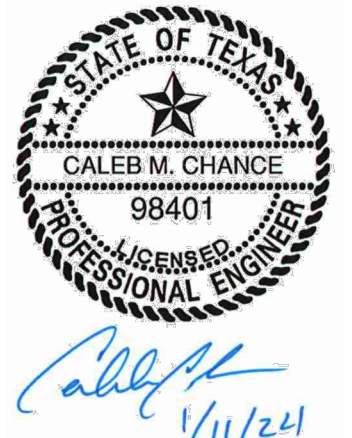
## TRENCH EXCAVATION SAFETY PROTECTION:

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

SEWER: LEWIS CREEK-SALADO CREEK,  
PANTHER SPRINGS CREEK-SALADO CREEK,  
& OLMOS CREEK-SAN ANTONIO RIVER  
WATERSHED - DOS RIOS W.R.C.

DEVELOPER'S NAME:	SHAVANO ROGERS NORTH NO.3, LTD
ADDRESS:	11 LYNN BATTS LANE SUITE 100
CITY:	SAN ANTONIO
STATE:	TX
ZIP:	78218
PHONE#	(210) 496-2668
FAX#	
SAWS BLOCK MAP#	138644
TOTAL EDU'S	57
TOTAL ACREAGE	18.91
TOTAL LINEAR FOOTAGE OF PIPE:	8" 4079 LF
PLAT NO.	23-11800016
NUMBER OF LOTS	57
SAWS JOB NO.	23-1525

NO.	REVISION	DATE
1	REVISED ENTRANCE AND STREET NAME	12/08/2024



**PAPE-DAWSON**  
**ENGINEERS**

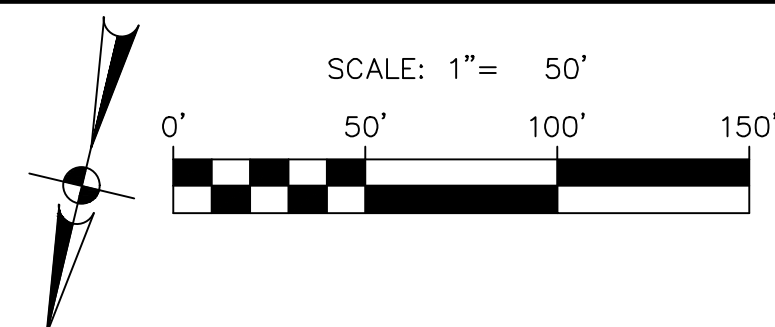
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000  
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #1008890

SHAVANO HIGHLANDS HILLTOP  
SAN ANTONIO, TEXAS

OVERALL SANITARY SEWER PLAN

PLAT NO.	23-11800016
JOB NO.	8834-25
DATE	JANUARY 2023
DESIGNER	RG
CHECKED	BL
DRAWN	BM
SHEET	C5.00





PROJECT LIMITS

EXISTING WATER

EXISTING SEWER

PROPOSED SEWER

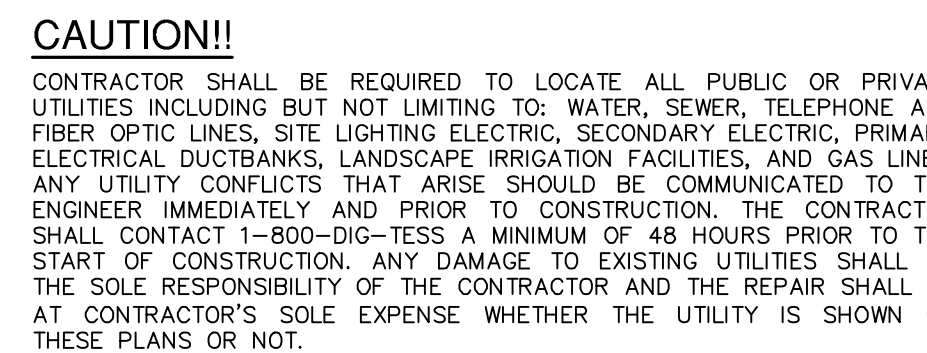
PROPOSED WATER

PROPOSED SEWER LATERAL

Diagram illustrating the project limits and existing infrastructure. The diagram shows a cross-section of the ground with various utility lines. A solid line represents the existing sewer line, and a dashed line represents the proposed sewer line. A solid line with a cross-hatch pattern represents the existing water line. A solid line with a cross-hatch pattern and a circle represents the proposed water line. A solid line with a cross-hatch pattern and a circle represents the proposed sewer lateral. A fire hydrant is shown on the right side of the diagram. Labels include: PROJECT LIMITS, EXISTING WATER, EXISTING SEWER, PROPOSED SEWER, PROPOSED WATER, PROPOSED SEWER LATERAL, FIRE HYDRANT, MANHOLE, and W.

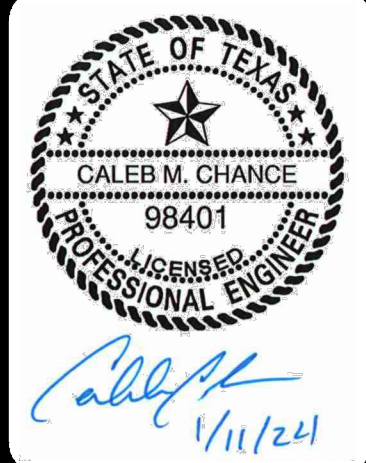
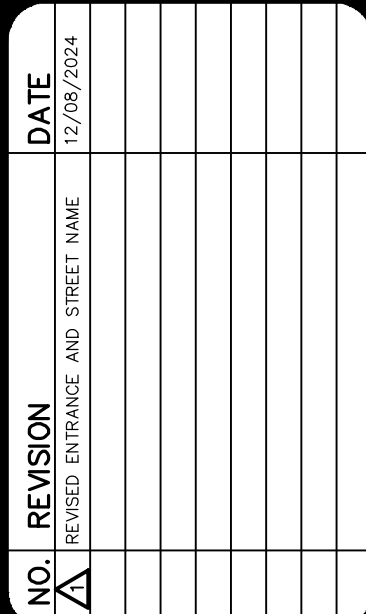
LOT 999, BLOCK 33, CB OR NCB 17701, IS A PRIVATE STREET AND IS DESIGNATED AS AN UNDERGROUND AND AT-GRADE INFRASTRUCTURE AND SERVICE FACILITIES EASEMENT FOR GAS, ELECTRIC, STREET LIGHT, TELEPHONE CABLE TELEVISION, DRAINAGE, PEDESTRIAN, PUBLIC WATER, WASTEWATER, AND RECYCLED WATER MAINS.

BLOCK 33 LOTS 900 & 901 AND BLOCK 34 LOTS 900 NCB 17701, ARE DESIGNATED AS OPEN SPACE AND AS A COMMON AREA AND A DRAINAGE SEWER, WATER, ELECTRIC, GAS, TELEPHONE AND CABLE TV EASEMENT.



CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEES OR STRUCTURAL DESIGNER/ GEOTECHNICAL/ SAFETY/EQUIPMENT CONSULTANT IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA TO IDENTIFY ANY POTENTIAL HAZARDS FOR TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND PROCEDURES FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFE CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM AND PROCEDURES WITH ALL PERSONNEL WORKING IN AND AROUND TRENCH ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

DEVELOPER'S NAME: SHAVANO ROGERS NORTH NO.3, LTD  
ADDRESS: 11 LYNN BATTS LANE SUITE 100  
CITY: SAN ANTONIO STATE: TX ZIP: 78218  
PHONE# (210) 496-2668 FAX# \_\_\_\_\_  
SAWS BLOCK MAP# 138644 TOTAL DUES 57 TOTAL ACRES 18.91  
TOTAL LINEAR FOOTAGE OF PIPE: 8" 4079 LF PLAT NO. 23-118000016  
NUMBER OF LOTS 57 SAWS JOB NO. 23-1525



**PAPE-DAWSON  
ENGINEERS**

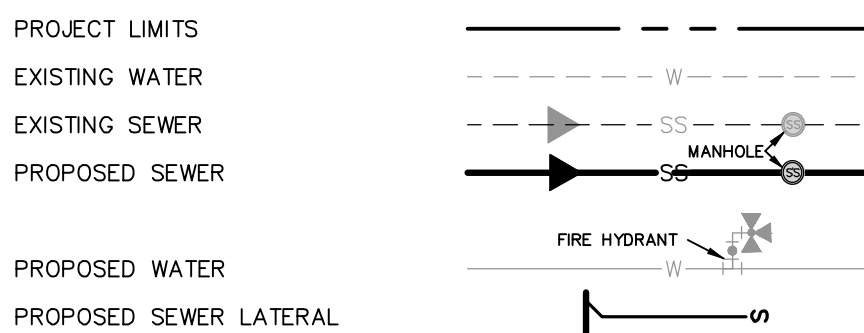
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000  
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028860

**SHAVANO HIGHLANDS HILLTOP**  
SAN ANTONIO, TEXAS

**SANITARY SEWER LINE A PLAN & PROFILE**  
STA 1+00.00 TO 8+00.00

PLAT NO. 23-11800016  
JOB NO. 8834-25  
DATE MARCH 2023  
DESIGNER RG  
CHECKED BL DRAWN RG  
SHEET C5.01



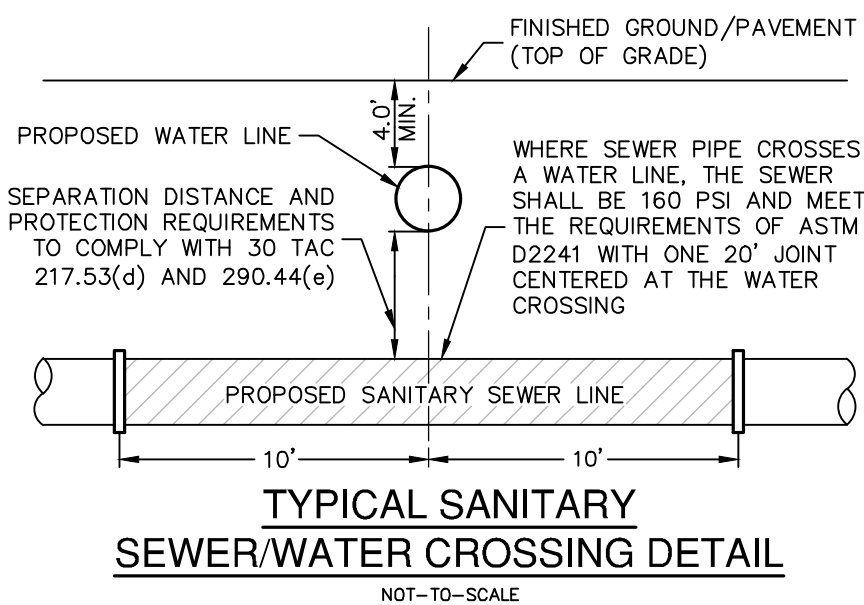


PRIVATE STREET DESIGNATION:

LOT 999, BLOCK 33, CB OR NCB 17701, IS A PRIVATE STREET AND IS DESIGNATED AS AN UNDERGROUND AND AT-GRADE INFRASTRUCTURE AND SERVICE FACILITIES EASEMENT FOR GAS, ELECTRIC, STREET LIGHT, TELEPHONE CABLE TELEVISION, DRAINAGE, PEDESTRIAN, PUBLIC WATER, WASTEWATER, AND RECYCLED WATER MAINS.

OPEN SPACE:

BLOCK 33 LOTS 900 & 901 AND BLOCK 34 LOTS 900 NCB 17701,  
DESIGNATED AS OPEN SPACE AND AS A COMMON AREA AND A DRAINAGE  
SEWER, WATER, ELECTRIC, GAS, TELEPHONE AND CABLE TV EASEMENT.



CAUTION!!

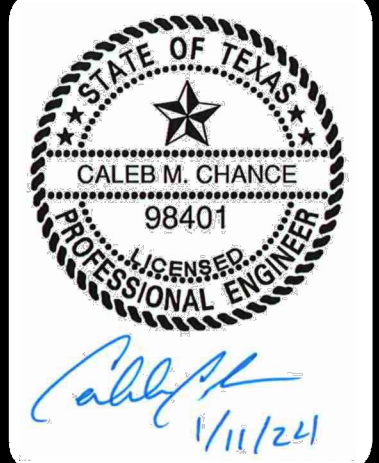
CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITING TO: WATER, SEWER, TELEPHONE, FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LI ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT 1-800-DIG-TESS AT MINIMUM OF 48 HOURS PRIOR TO THE CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN THESE PLANS OR NOT.

### TRENCH EXCAVATION SAFETY PROTECTION:

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYE E OR STRUCTURAL DESIGN/ GEOTECHNICAL/ SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT AREA AND ADVISE THE CONTRACTOR OF ANY POTENTIAL PROBLEMS WITH THE EXCAVATION, SAFETY, PROTECTION SYSTEMS, PROGRAMS AND PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY SYSTEMS, SPECIFICALLY, BUT NOT LIMITED TO, THE FOLLOWING: FOR TRENCH EXCAVATIONS, SPECIFICALLY, THE CONTRACTOR AND CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM THAT INCLUDES, BUT NOT LIMITED TO, THE FOLLOWING: (1) IDENTIFICATION OF ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATIONS;

SEWER: LEWIS CREEK-SALADO CREEK,  
PANTHER SPRINGS CREEK-SALADO CREEK,  
& OLMOS CREEK-SAN ANTONIO RIVER  
WATERSHED - DOS RIOS W.R.C.

DEVELOPER'S NAME: SHAVANO ROGERS NORTH NO.3, LTD  
ADDRESS: 11 LYNN BATTS LANE SUITE 100  
CITY: SAN ANTONIO STATE: TX ZIP: 78218  
PHONE# (210) 496-2668 FAX# \_\_\_\_\_  
SAWS BLOCK MAP# 138644 TOTAL EDUS. 57 TOTAL ACREAGE 18.91  
TOTAL LINEAR FOOTAGE OF PIPE: 8" 4079 LF PLAT NO. 23-1180001  
NUMBER OF LOTS 57 SAWS JOB NO. 23-1525

[illegible]

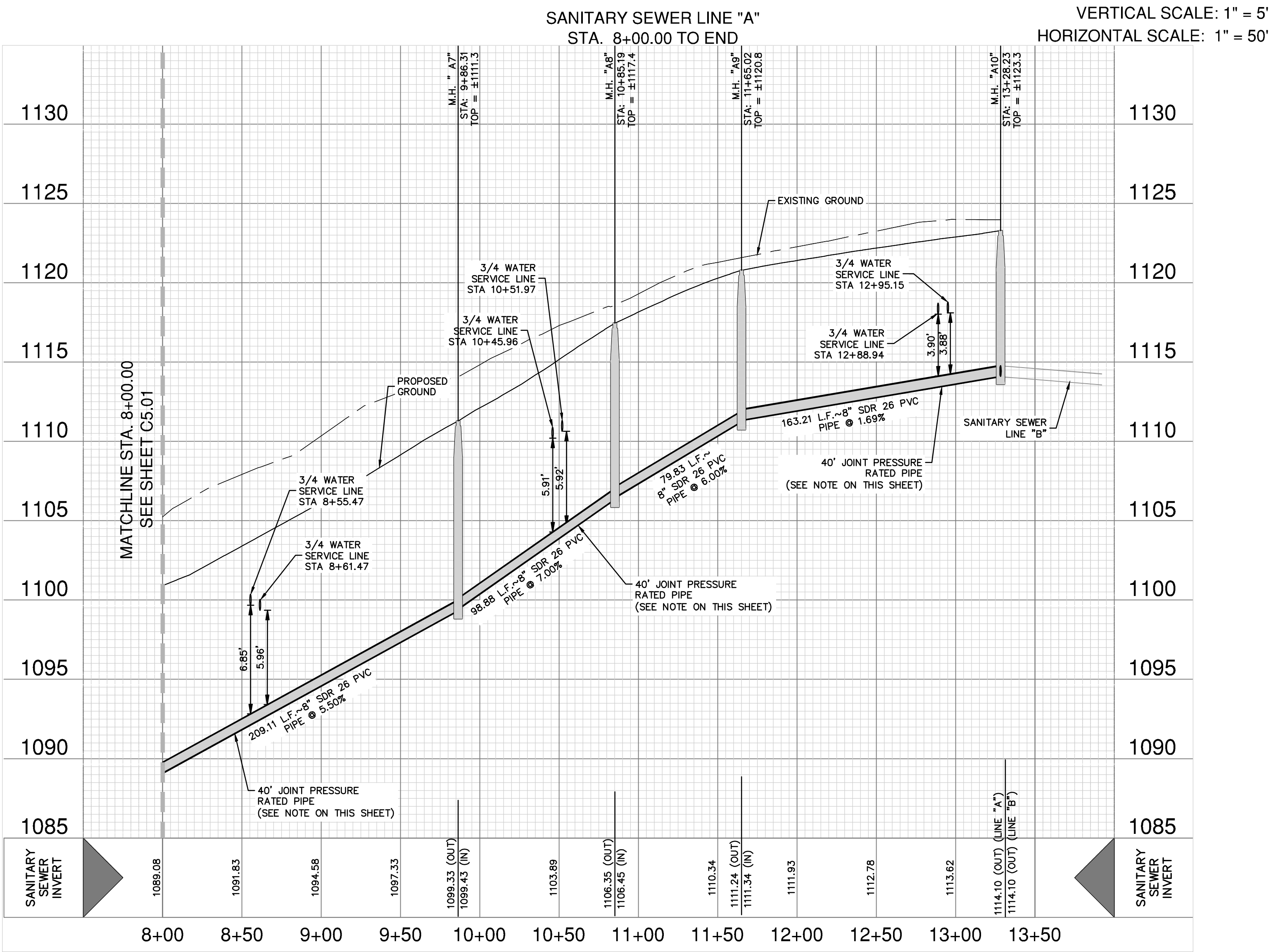
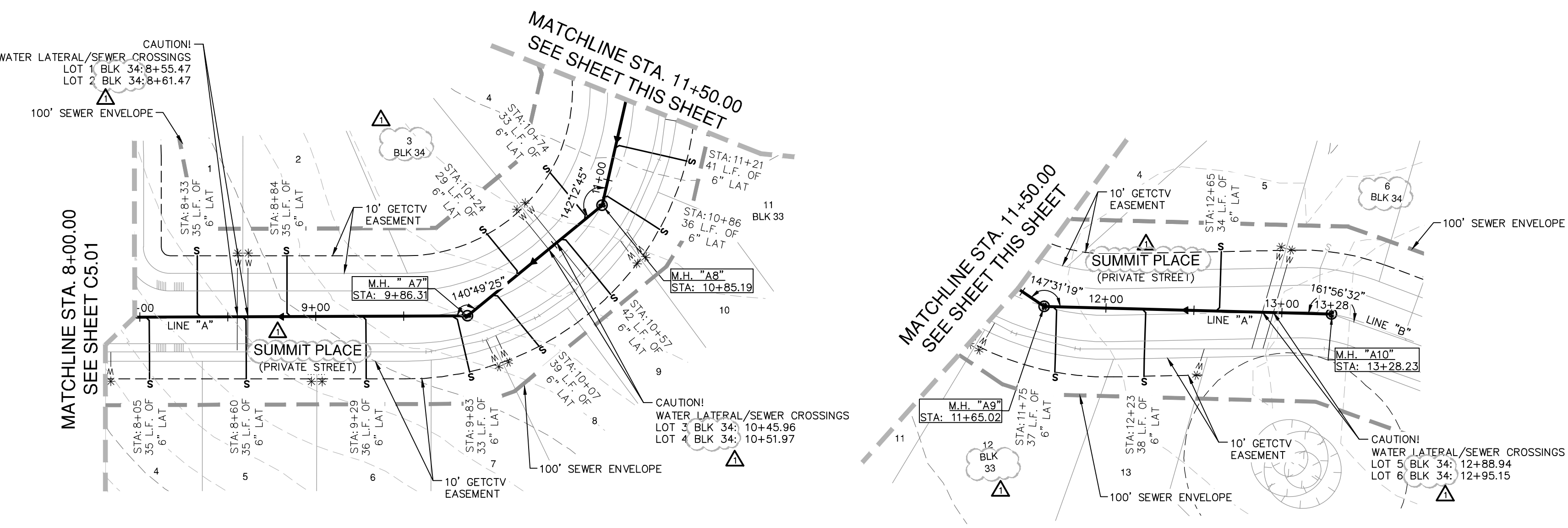
**PAPE-DAWSON  
ENGINEERS**

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.5000  
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #1028600

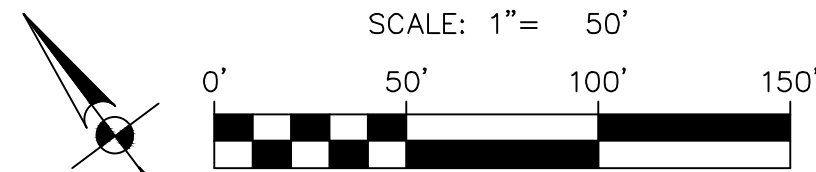
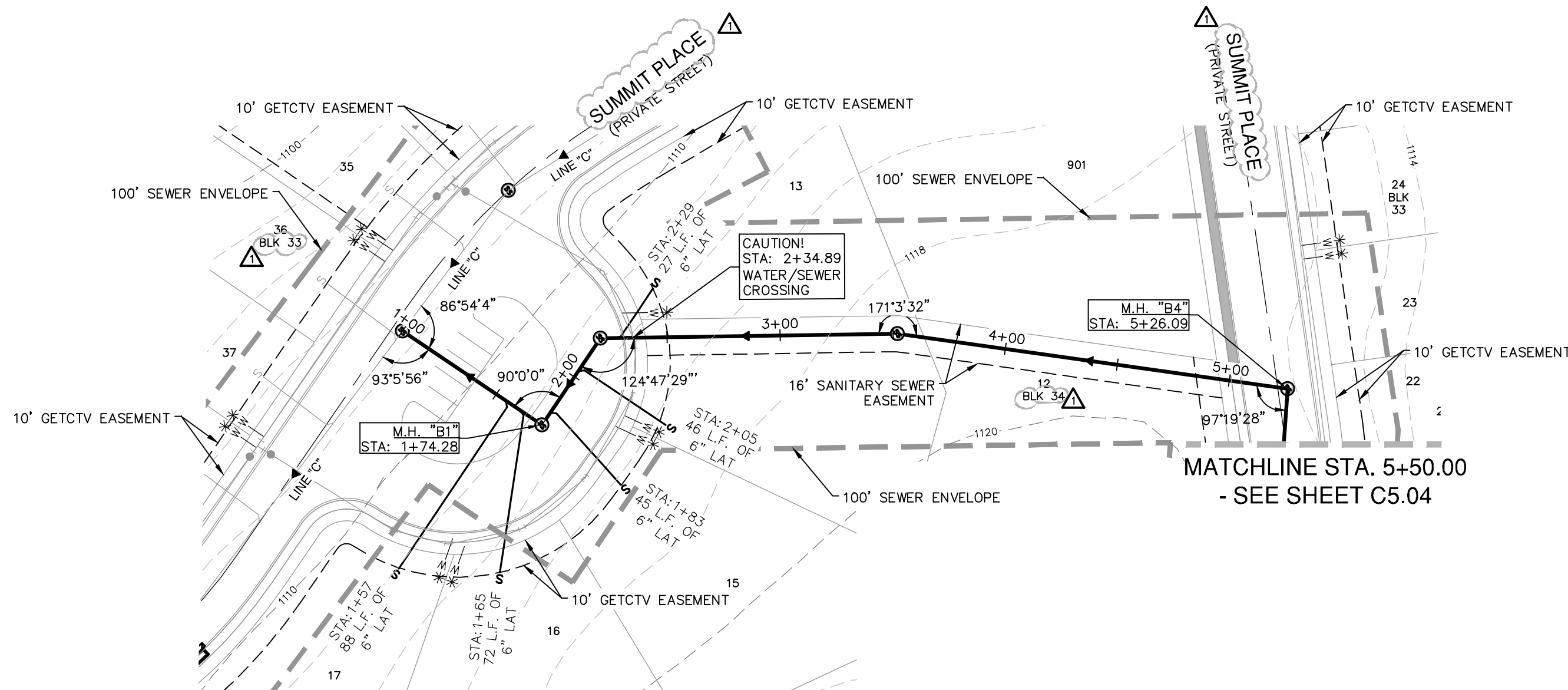
**SHAVANO HIGHLANDS HILLTOP**  
SAN ANTONIO, TEXAS

**SANITARY SEWER LINE A PLAN & PROFILE**  
8+00.00 TO END

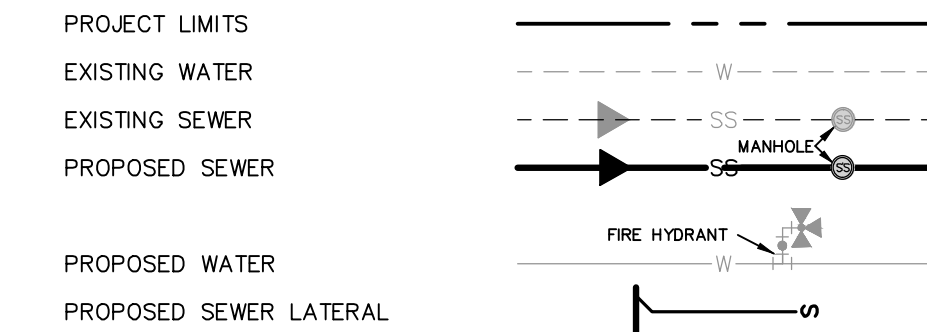
PLAT NO. 23-11800016  
 JOB NO. 8834-25  
 DATE JANUARY 2023  
 DESIGNER RG  
 CHECKED BL DRAWN RG  
 SHEET C5.02





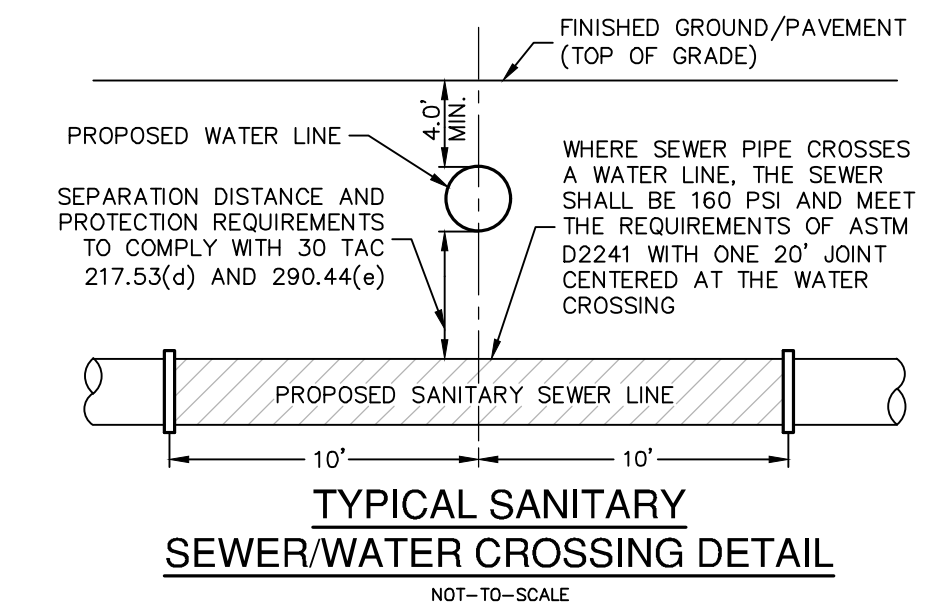


### SEWER LEGEND



**PRIVATE STREET DESIGNATION:**  
LOT 999, BLOCK 33, CB OR NCB 17701, IS A PRIVATE STREET AND IS DESIGNATED AS AN UNDERGROUND AND AT-GRADE INFRASTRUCTURE AND SERVICE FACILITIES EASEMENT FOR GAS, ELECTRIC, STREET LIGHT, TELEPHONE CABLE TELEVISION, DRAINAGE, PEDESTRIAN, PUBLIC WATER, WASTEWATER, AND RECYCLED WATER MAINS.

**OPEN SPACE:**  
BLOCK 33 LOTS 900 & 901 AND BLOCK 34 LOTS 900 NCB 17701, ARE DESIGNATED AS OPEN SPACE AND AS A COMMON AREA AND A DRAINAGE, SEWER, WATER, ELECTRIC, GAS, TELEPHONE AND CABLE TV EASEMENT.



**CAUTION!!**  
CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITING TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT 1-800-DIG-TESS A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.

**TRENCH EXCAVATION SAFETY PROTECTION:**  
CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/ GEOTECHNICAL/ SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND /OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

SEWER: LEWIS CREEK-SALADO CREEK,  
PANTHER SPRINGS CREEK-SALADO CREEK,  
& OLMOS CREEK-SAN ANTONIO RIVER  
WATERSHED - DOS RIOS W.R.C.

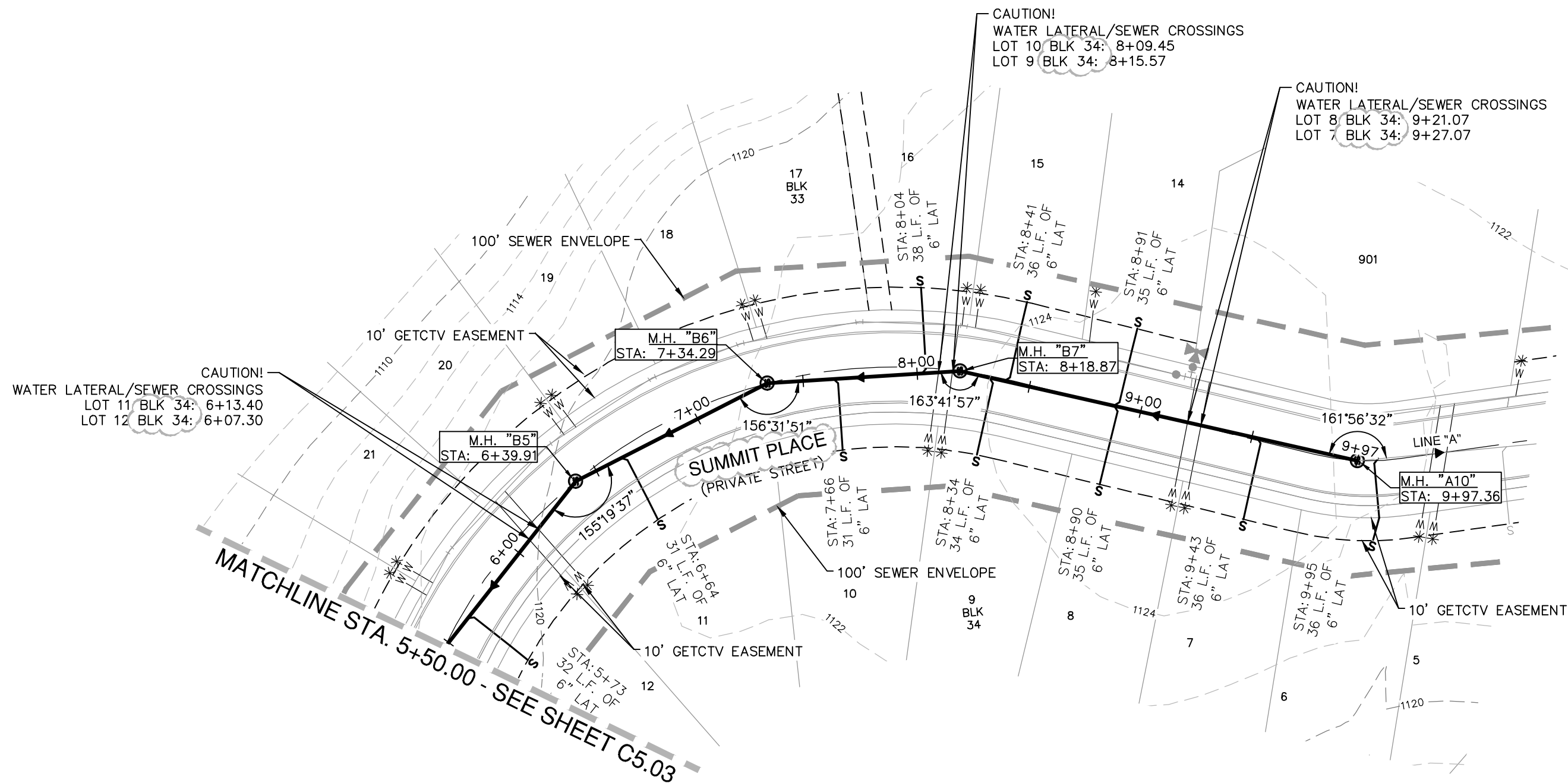
DEVELOPER'S NAME: SHAVANO ROGERS NORTH NO.3, LTD  
ADDRESS: 11 LYNN BATTS LANE SUITE 100  
CITY: SAN ANTONIO STATE: TX ZIP: 78218  
PHONE# (210) 496-2668 FAX#  
SAWS BLOCK MAP# 138644 TOTAL EDU'S .57 TOTAL ACREAGE 18.91  
TOTAL LINEAR FOOTAGE OF PIPE: 8" 4079 LF PLAT NO. 23-11800016  
NUMBER OF LOTS 57 SAWS JOB NO. 23-1525

**PAPE-DAWSON ENGINEERS**  
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000  
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

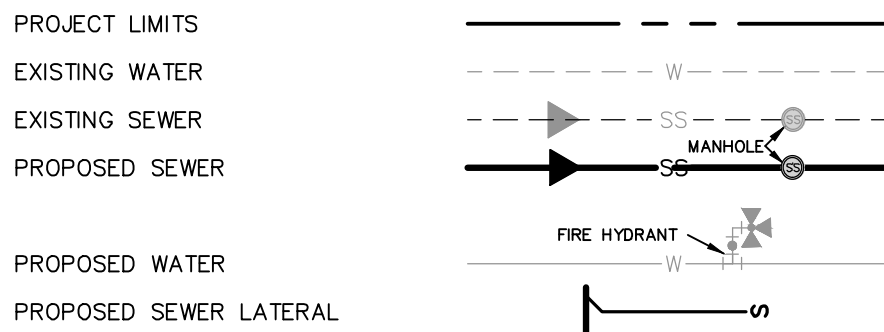
**SHAVANO HIGHLANDS HILLTOP**  
SAN ANTONIO, TEXAS  
SANITARY SEWER LINE B PLAN & PROFILE  
STA. 1+00.00 TO 5+50.00

PLAT NO. 23-11800016  
JOB NO. 8834-25  
DATE MARCH 2023  
DESIGNER RG  
CHECKED BL DRAWN EG  
SHEET C5.03





### SEWER LEGEND

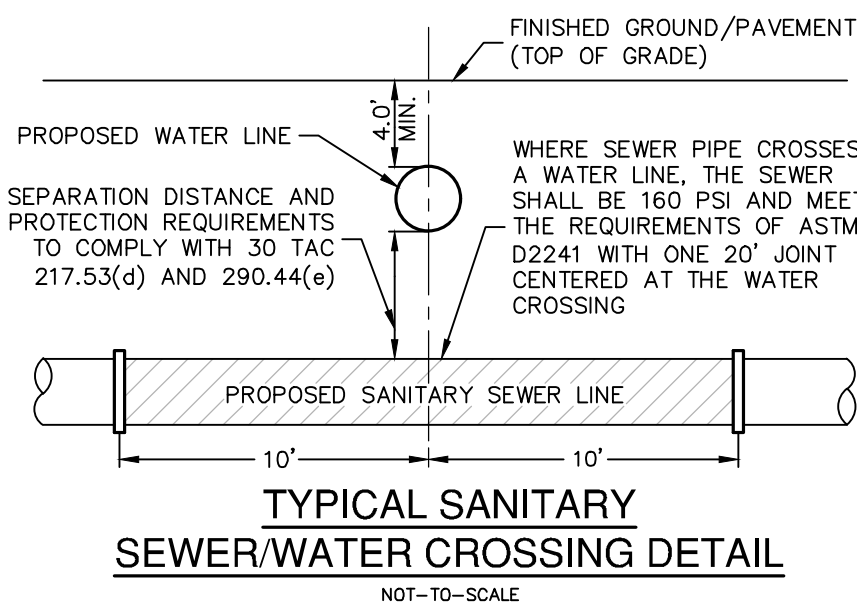


### PRIVATE STREET DESIGNATION:

LOT 999, BLOCK 33, OR NCB 17701, IS A PRIVATE STREET AND IS DESIGNATED AS AN UNDERGROUND AND AT-GRADE INFRASTRUCTURE AND SERVICE FACILITIES EASEMENT FOR GAS, ELECTRIC, STREET LIGHT, TELEPHONE CABLE TELEVISION, DRAINAGE, PEDESTRIAN, PUBLIC WATER, WASTEWATER, AND RECYCLED WATER MAINS.

### OPEN SPACE:

BLOCK 33 LOTS 900 & 901 AND BLOCK 34 LOTS 900 NCB 17701, ARE DESIGNATED AS OPEN SPACE AND AS A COMMON AREA AND A DRAINAGE, SEWER, WATER, ELECTRIC, GAS, TELEPHONE AND CABLE TV EASEMENT.



### CAUTION!!

CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITING TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT 1-800-DIG-TESS A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.

### TRENCH EXCAVATION SAFETY PROTECTION:

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/ GEOTECHNICAL/ SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND /OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

SEWER: LEWIS CREEK-SALADO CREEK, PANTHER SPRINGS CREEK-SALADO CREEK, & OLMOS CREEK-SAN ANTONIO RIVER WATERSHED - DOS RIOS W.R.C.

DEVELOPER'S NAME: SHAVANO ROGERS NORTH NO.3, LTD	
ADDRESS: 11 LYNN BATTS LANE SUITE 100	
CITY: SAN ANTONIO	STATE: TX ZIP: 78218
PHONE# (210) 496-2668	FAX#
SAWS BLOCK MAP# 138644 TOTAL EDU'S .57 TOTAL ACREAGE 18.91	
TOTAL LINEAR FOOTAGE OF PIPE: 8' 4079 LF PLAT NO. 23-11800016	
NUMBER OF LOTS 57	SAWS JOB NO. 23-1525

**PAPE-DAWSON ENGINEERS**  
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000  
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #1008890

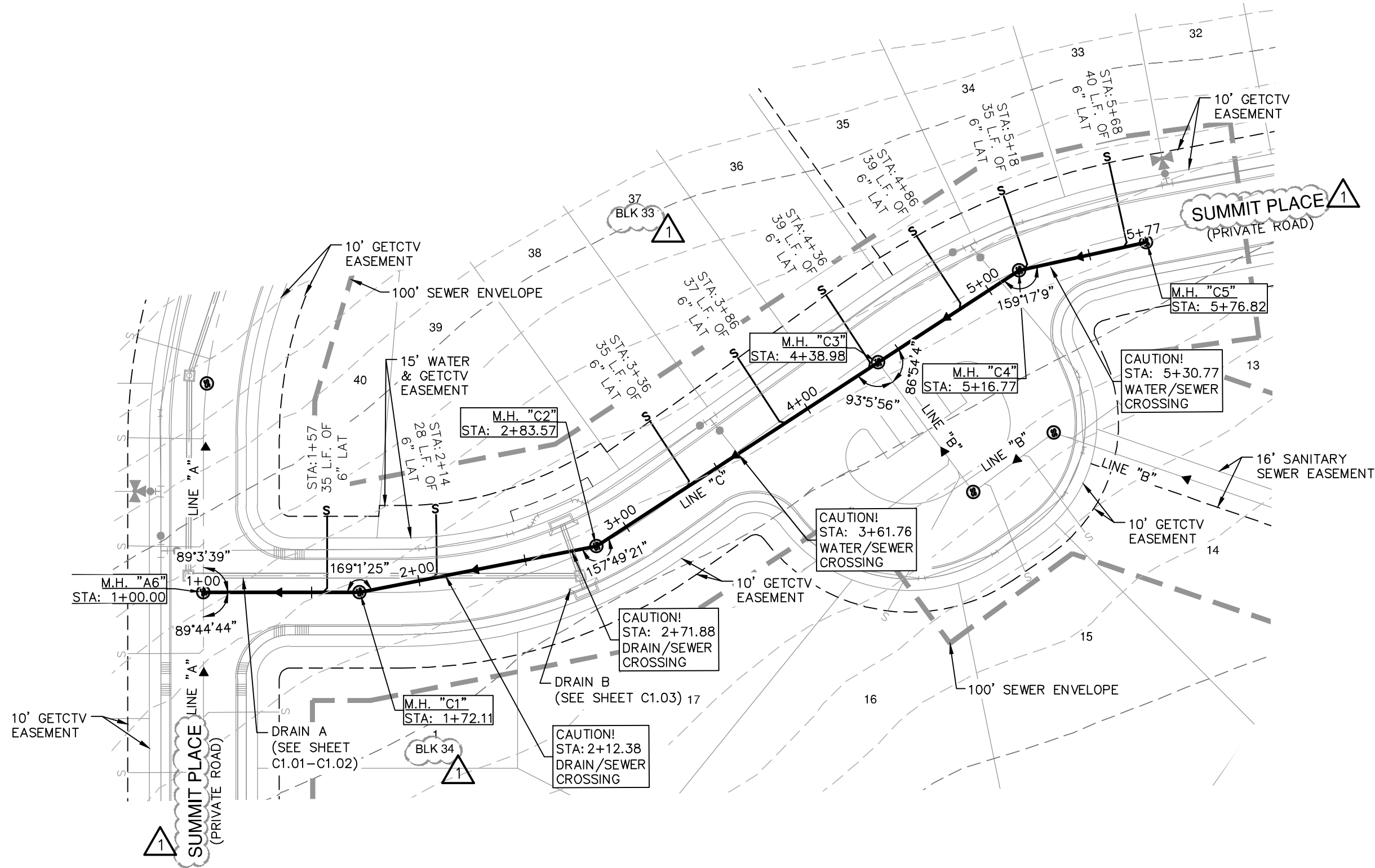
**SHAVANO HIGHLANDS HILLTOP**  
SAN ANTONIO, TEXAS  
**SANITARY SEWER LINE B PLAN & PROFILE**  
STA. 5+50.00 TO END

PLAT NO.	23-11800016
JOB NO.	8834-25
DATE	MARCH 2023
DESIGNER	RG
CHECKED	BL DRAWN
SHEET	C5.04

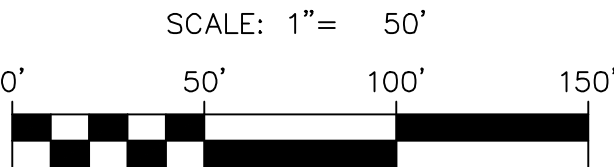
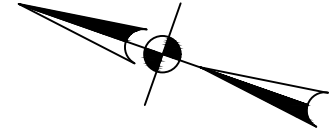
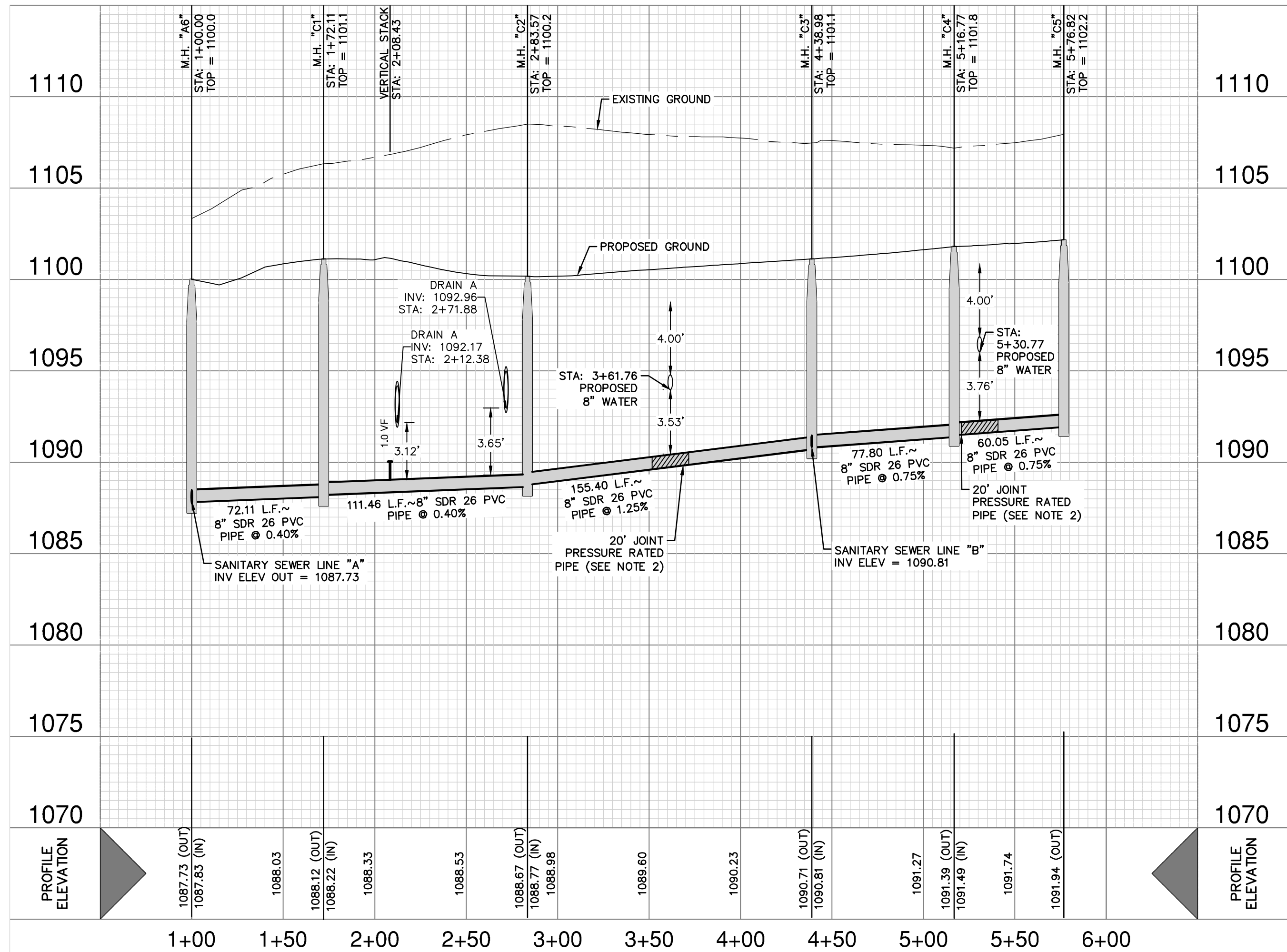


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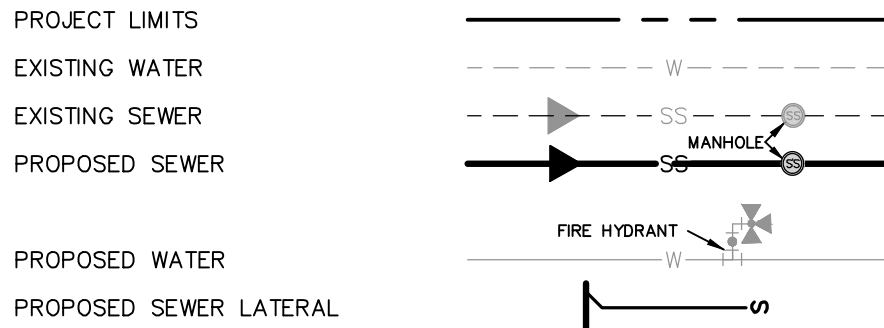
THIS DOCUMENT HAS BEEN PRODUCED FROM MATERIAL THAT WAS STORED AND/OR TRANSMITTED ELECTRONICALLY AND MAY HAVE BEEN INADVERTENTLY ALTERED. RELY ONLY ON FINAL HARDCOPY MATERIALS BEARING THE CONSULTANT'S ORIGINAL SIGNATURE AND SEAL. AERIAL IMAGERY PROVIDED BY GOOGLE/UNLESS OTHERWISE NOTED. Imagery © 2016/CAPDO/Digital Globe/Texas Orthoregistry Program, USDA Farm Service Agency.



SANITARY SEWER LINE "C"  
STA. 1+00.00 TO END  
VERTICAL SCALE: 1" = 5'  
HORIZONTAL SCALE: 1" = 50'

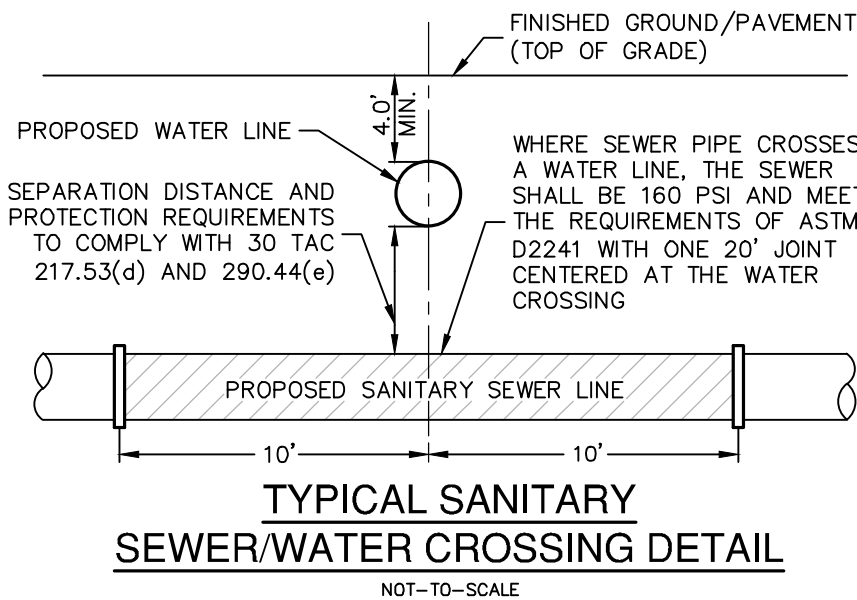


### SEWER LEGEND



**PRIVATE STREET DESIGNATION:**  
LOT 999, BLOCK 33, CB OR NCB 17701, IS A PRIVATE STREET AND IS DESIGNATED AS AN UNDERGROUND AND AT-GRADE INFRASTRUCTURE AND SERVICE FACILITIES EASEMENT FOR GAS, ELECTRIC, STREET LIGHT, TELEPHONE, CABLE TELEVISION, DRAINAGE, PEDESTRIAN, PUBLIC WATER, WASTEWATER, AND RECYCLED WATER MAINS.

**OPEN SPACE:**  
BLOCK 33 LOTS 900 & 901 AND BLOCK 34 LOTS 900 NCB 17701, ARE DESIGNATED AS OPEN SPACE AND AS A COMMON AREA AND A DRAINAGE, SEWER, WATER, ELECTRIC, GAS, TELEPHONE AND CABLE TV EASEMENT.



**CAUTION!!**  
CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITING TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT 1-800-DIG-TESS A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.

**TRENCH EXCAVATION SAFETY PROTECTION:**  
CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/ GEOTECHNICAL/ SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND /OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

SEWER: LEWIS CREEK-SALADO CREEK,  
PANTHER SPRINGS CREEK-SALADO CREEK,  
& OLMOS CREEK-SAN ANTONIO RIVER  
WATERSHED - DOS RIOS W.R.C.

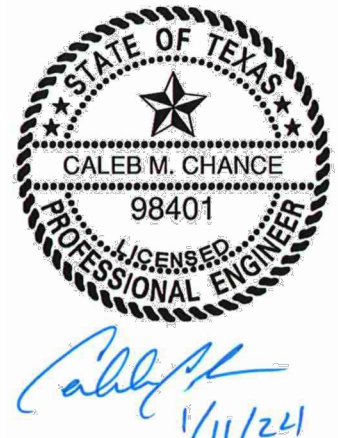
DEVELOPER'S NAME:	SHAVANO ROGERS NORTH NO.3, LTD
ADDRESS:	11 LYNN BATTS LANE SUITE 100
CITY:	SAN ANTONIO
STATE:	TX
ZIP:	78218
PHONE#	(210) 496-2668
FAX#	
SAWS BLOCK MAP#	138644
TOTAL EDU'S	57
TOTAL ACREAGE	18.91
TOTAL LINEAR FOOTAGE OF PIPE:	8" 4079 LF
PLAT NO.	23-1180001
NUMBER OF LOTS	57
SAWS JOB NO.	23-1525

**PAPE-DAWSON ENGINEERS**  
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000  
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #1008890

**SHAVANO HIGHLANDS HILLTOP**  
SAN ANTONIO, TEXAS  
SANITARY SEWER LINE C PLAN AND PROFILE  
STA. 1+00.00 TO END

PLAT NO.	23-11800016
JOB NO.	8834-25
DATE	MARCH 2023
DESIGNER	RG
CHECKED BY	DRAWN RG
SHEET	C5.05

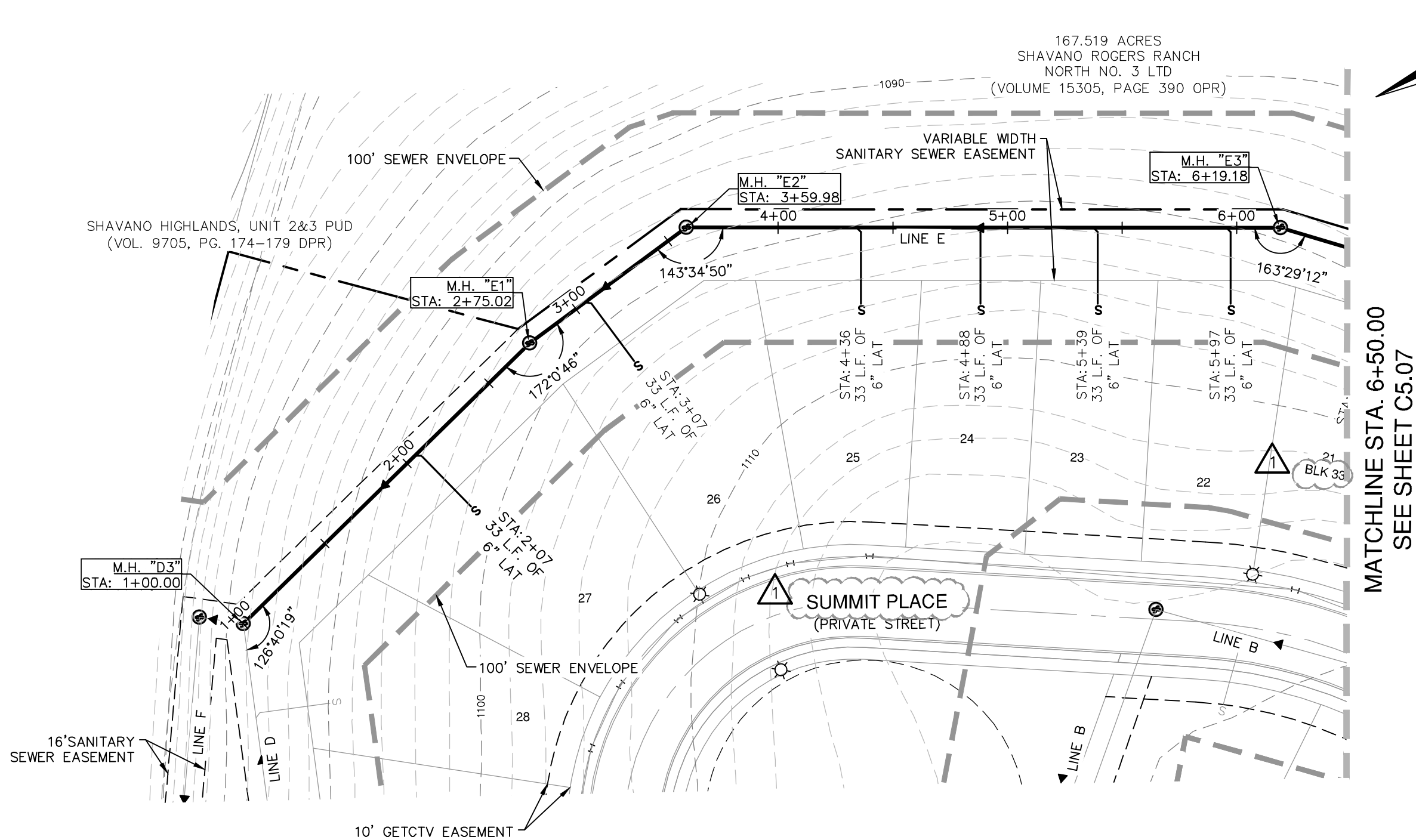
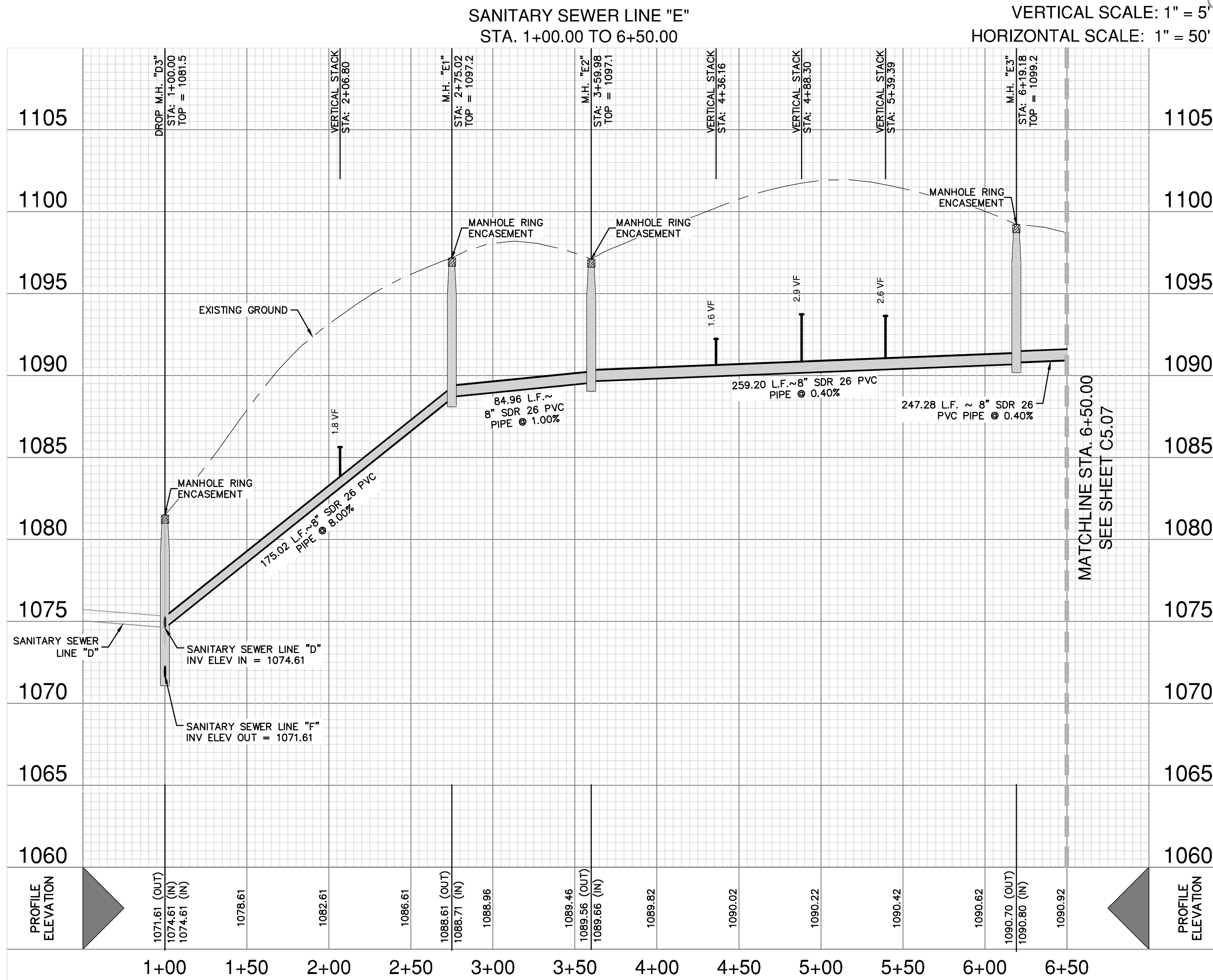
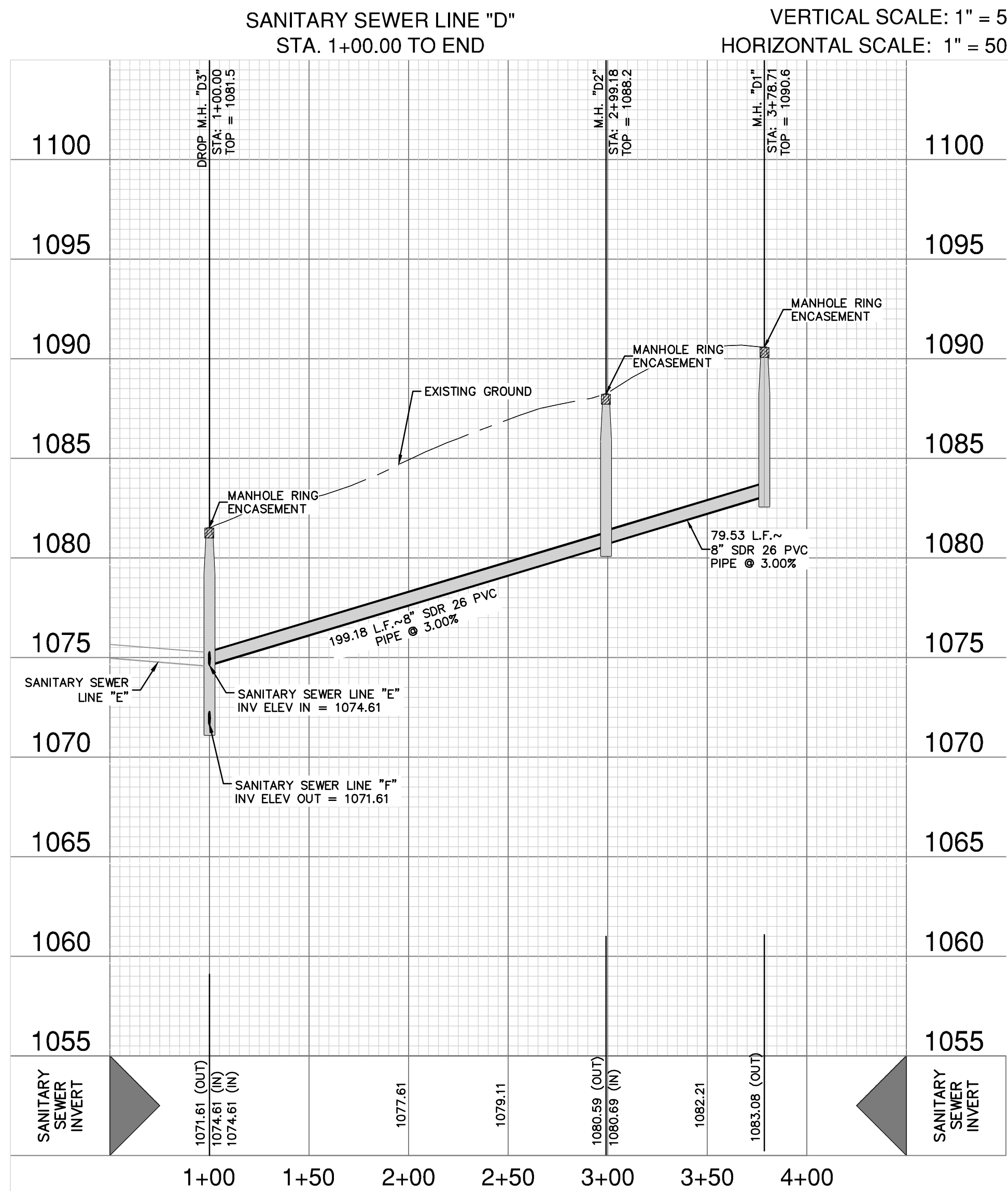
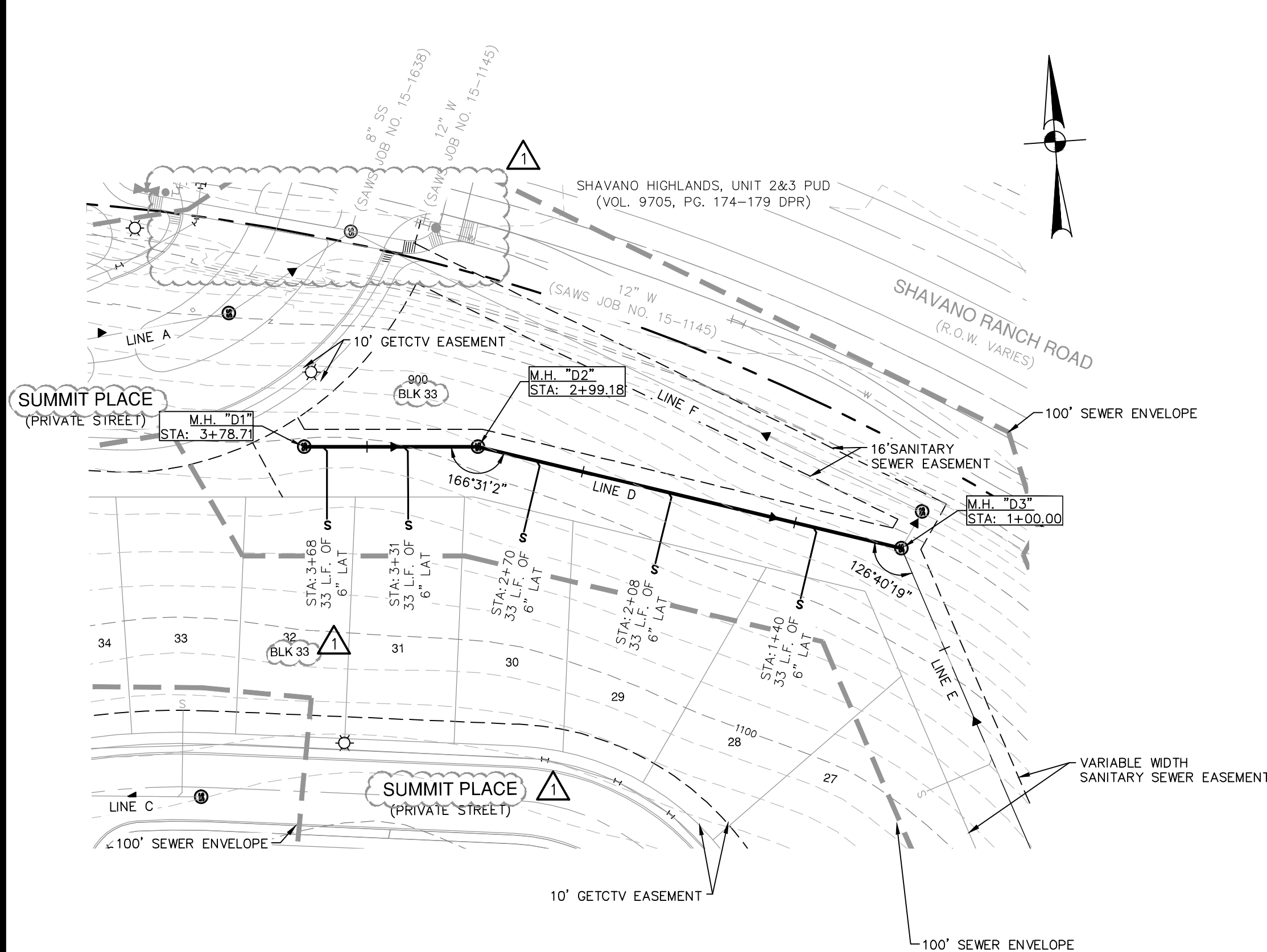
NO.	REVISION	DATE
1	REVISED ENTRANCE AND STREET NAME	12/08/2024



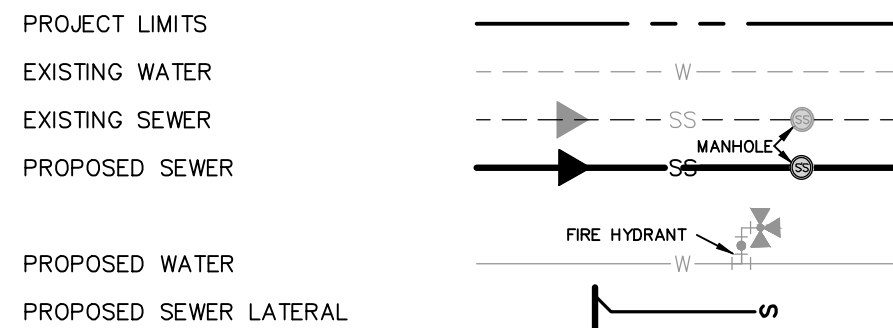


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THIS DOCUMENT HAS BEEN PRODUCED FROM MATERIAL THAT WAS STORED AND/OR TRANSMITTED ELECTRONICALLY AND MAY HAVE BEEN INADVERTENTLY ALTERED. RELY ONLY ON FINAL HARDCOPY MATERIALS BEARING THE CONSULTANT'S ORIGINAL SIGNATURE AND SEAL. AERIAL IMAGERY PROVIDED BY GOOGLE/UNLESS OTHERWISE NOTED. Imagery © 2016/CAPCO/Digital Globe/Texas Orthoregistry Program, USDA Farm Service Agency.

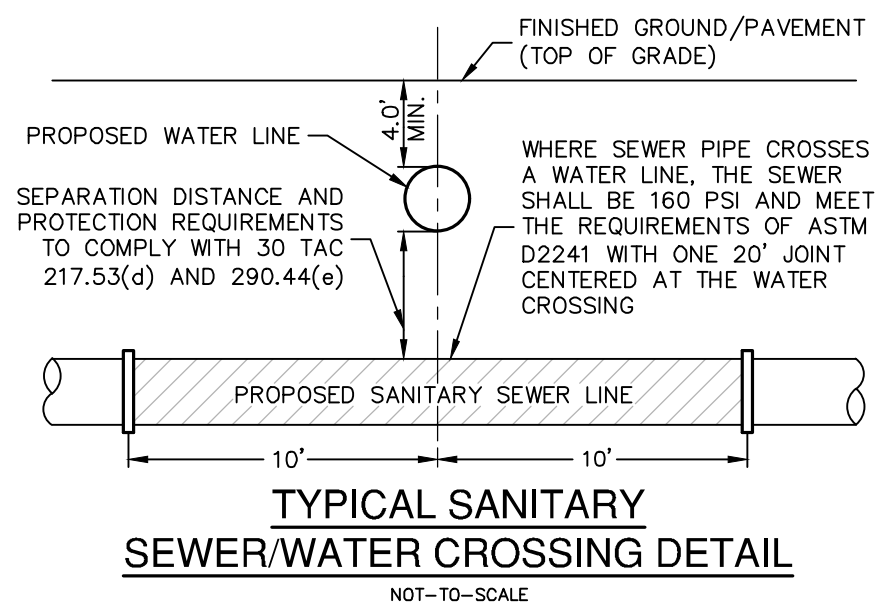


## SEWER LEGEND



**PRIVATE STREET DESIGNATION:**  
LOT 999, BLOCK 33, CB OR NCB 17701, IS A PRIVATE STREET AND IS DESIGNATED AS AN UNDERGROUND AND AT-GRADE INFRASTRUCTURE AND SERVICE FACILITIES EASEMENT FOR GAS, ELECTRIC, STREET LIGHT, TELEPHONE CABLE TELEVISION, DRAINAGE, PEDESTRIAN, PUBLIC WATER, WASTEWATER, AND RECYCLED WATER MAINS.

**OPEN SPACE:**  
BLOCK 33 LOTS 900 & 901 AND BLOCK 34 LOTS 900 NCB 17701, ARE DESIGNATED AS OPEN SPACE AND AS A COMMON AREA AND A DRAINAGE, SEWER, WATER, ELECTRIC, GAS, TELEPHONE AND CABLE TV EASEMENT.



**CAUTION!!**  
CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITING TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT 1-800-DIG-TESS A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.

**TRENCH EXCAVATION SAFETY PROTECTION:**  
CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/ GEOTECHNICAL/ SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

**SEWER: LEWIS CREEK-SALADO CREEK, PANTHER SPRINGS CREEK-SALADO CREEK, & OLMOS CREEK-SAN ANTONIO RIVER WATERSHED - DOS RIOS W.R.C.**

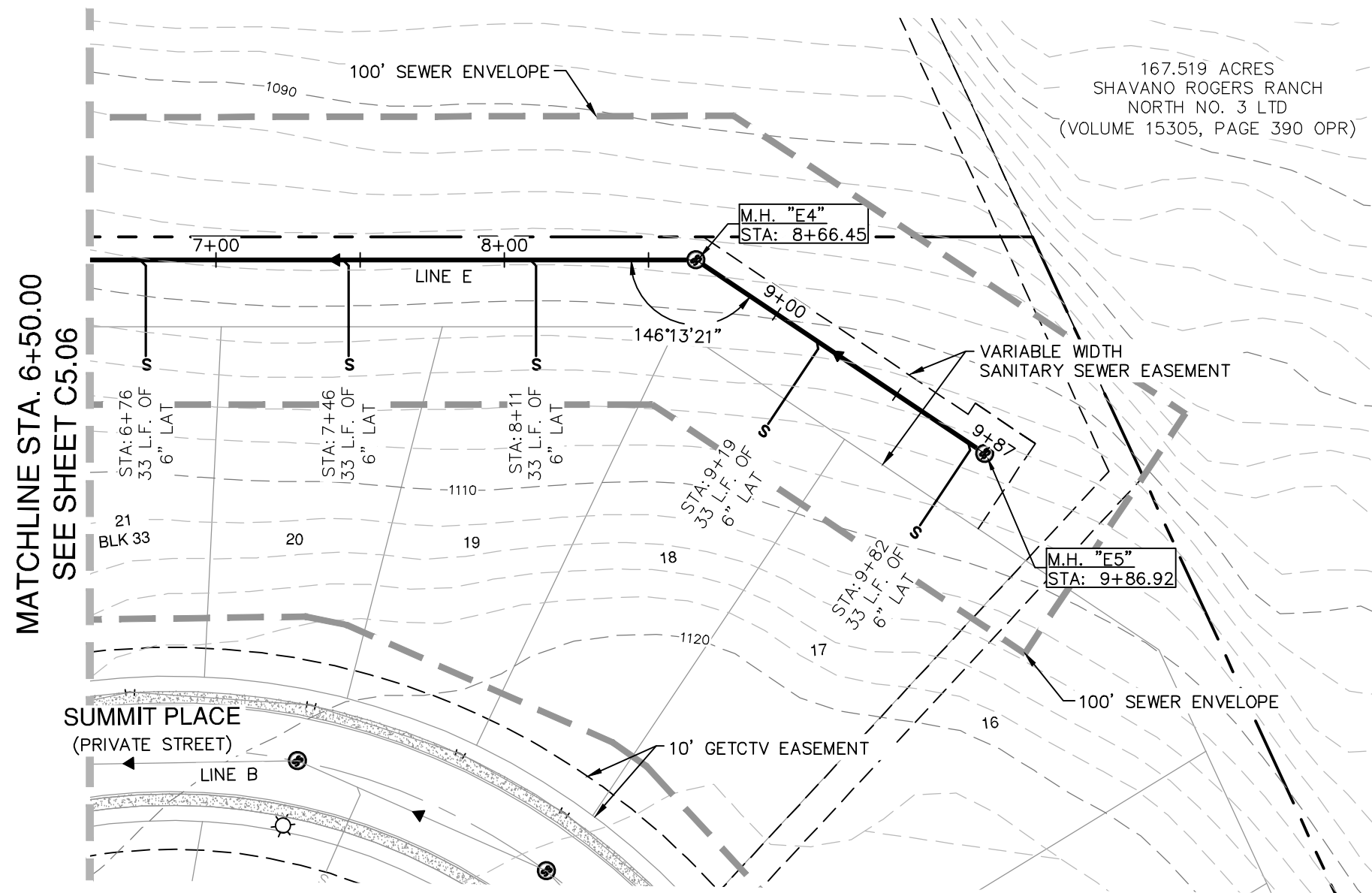
DEVELOPER'S NAME: SHAVANO ROGERS NORTH NO.3, LTD  
ADDRESS: 11 LYNN BATTS LANE SUITE 100  
CITY: SAN ANTONIO STATE: TX ZIP: 78218  
PHONE# (210) 496-2668 FAX#  
SAWS BLOCK MAP# 138644 TOTAL EDU'S .57 TOTAL ACREAGE 18.91  
TOTAL LINEAR FOOTAGE OF PIPE: 8" 4079 LF PLAT NO. 23-1180001  
NUMBER OF LOTS 57 SAWS JOB NO. 23-1525

**PAPE-DAWSON ENGINEERS**  
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000  
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #1008890

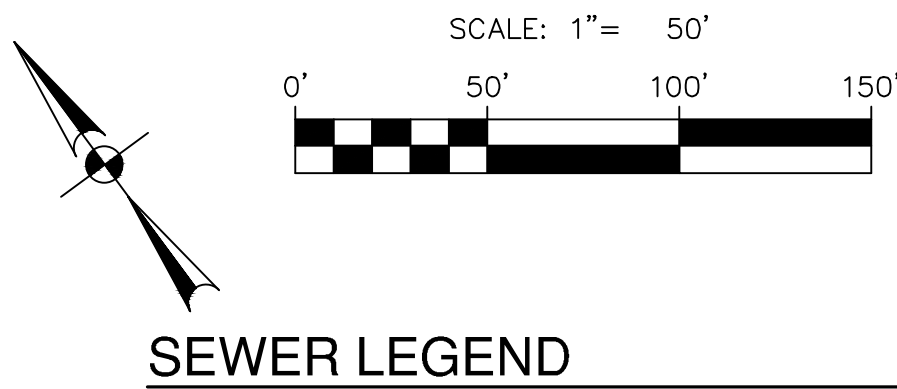
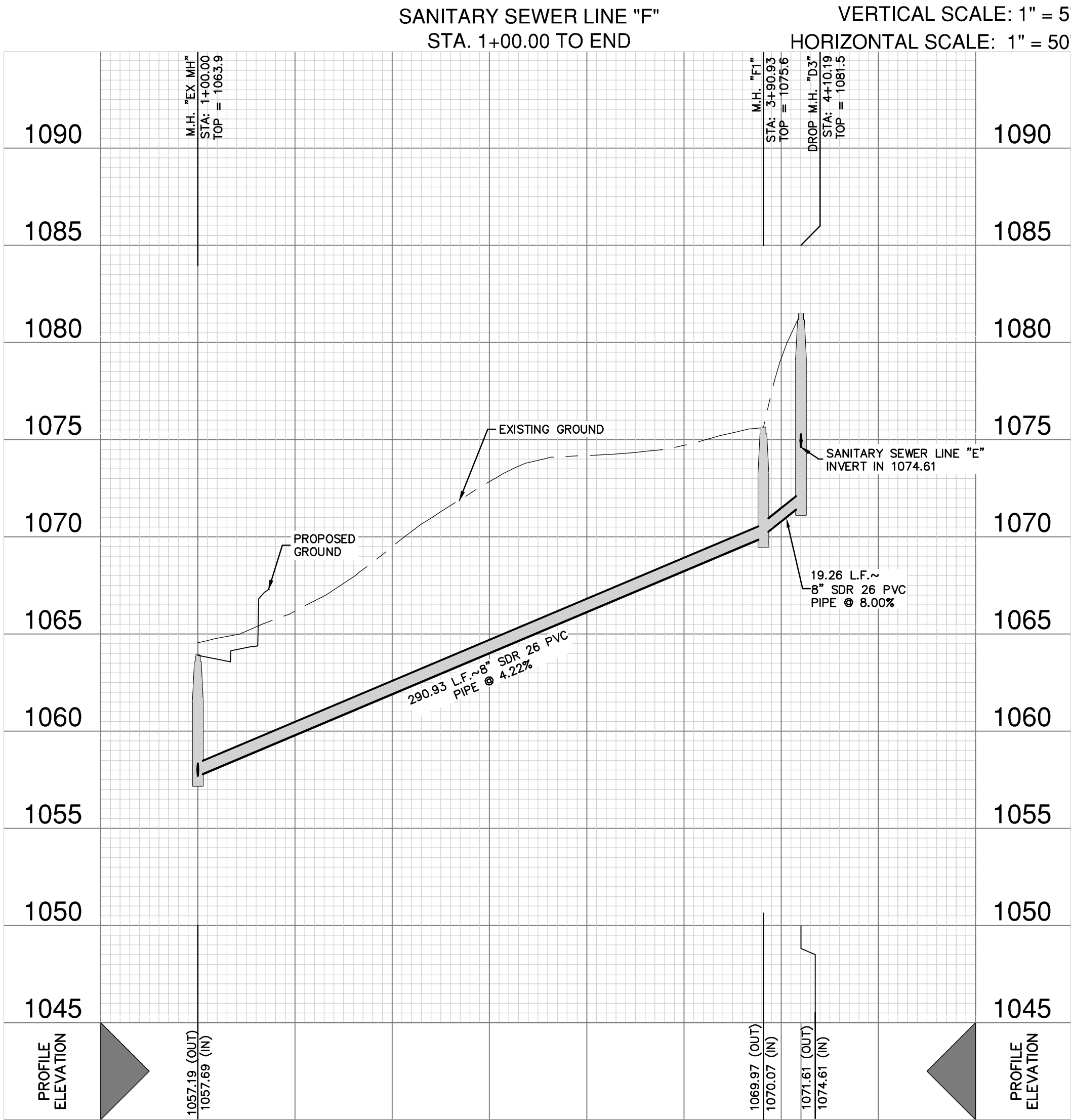
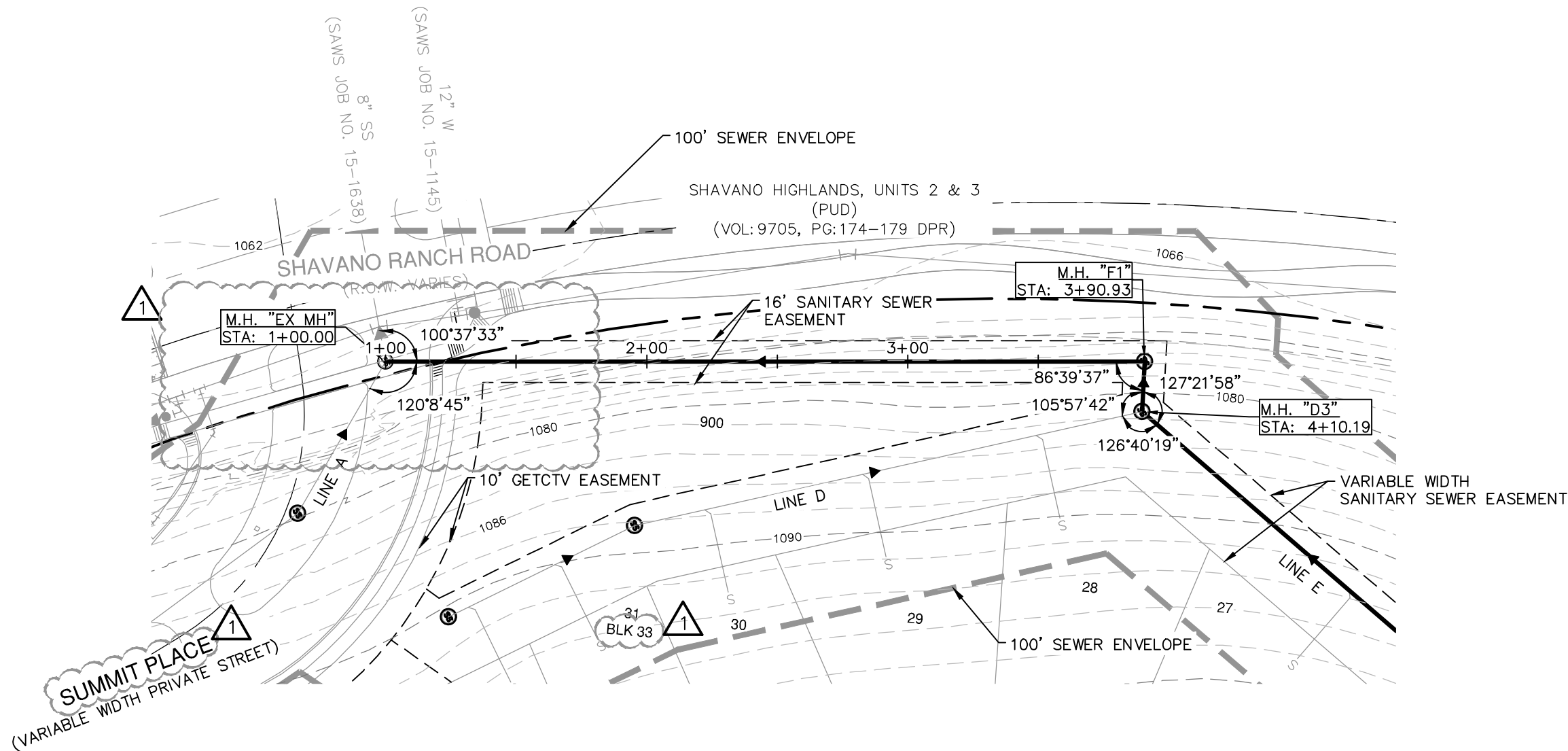
**SHAVANO HIGHLANDS HILLTOP**  
SAN ANTONIO, TEXAS  
**SANITARY SEWER LINE D & E PLAN AND PROFILE**  
STA 1+00.00 TO 9+00.00

PLAT NO. 23-11800016  
JOB NO. 8834-25  
DATE MARCH 2023  
DESIGNER RG  
CHECKED BL DRAWN BM  
SHEET C5.06

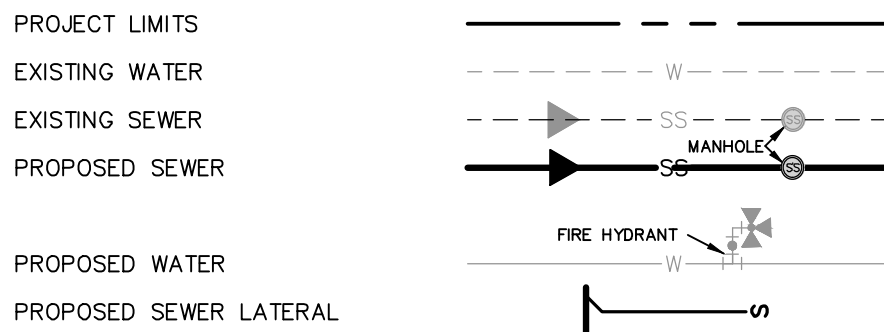








### SEWER LEGEND

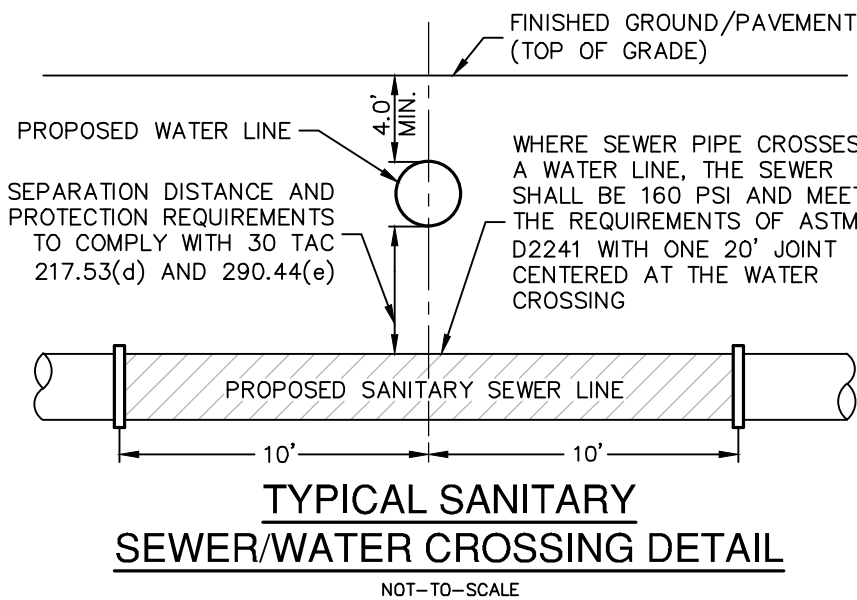


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### CAUTION!!

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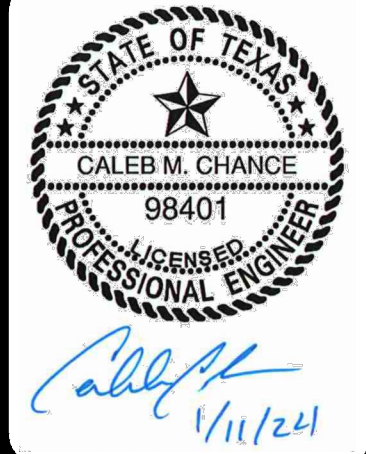
### TRENCH EXCAVATION SAFETY PROTECTION:

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SEWER: LEWIS CREEK-SALADO CREEK,  
PANTHER SPRINGS CREEK-SALADO CREEK,  
& OLMOS CREEK-SAN ANTONIO RIVER  
WATERSHED - DOS RIOS W.R.C.

DEVELOPER'S NAME: SHAVANO ROGERS NORTH NO.3, LTD	
ADDRESS: 11 LYNN BATTS LANE SUITE 100	
CITY: SAN ANTONIO	STATE: TX ZIP: 78218
PHONE# (210) 496-2668	FAX#
SAWS BLOCK MAP# 138644 TOTAL EDU'S .57 TOTAL ACREAGE 18.91	
TOTAL LINEAR FOOTAGE OF PIPE: 8" 4079 LF PLAT NO. 23-11800014	
NUMBER OF LOTS 57	SAWS JOB NO. 23-1525

NO.	REVISION	DATE
1	REVISED ENTRANCE AND STREET NAME	12/08/2024



**PAPE-DAWSON  
ENGINEERS**

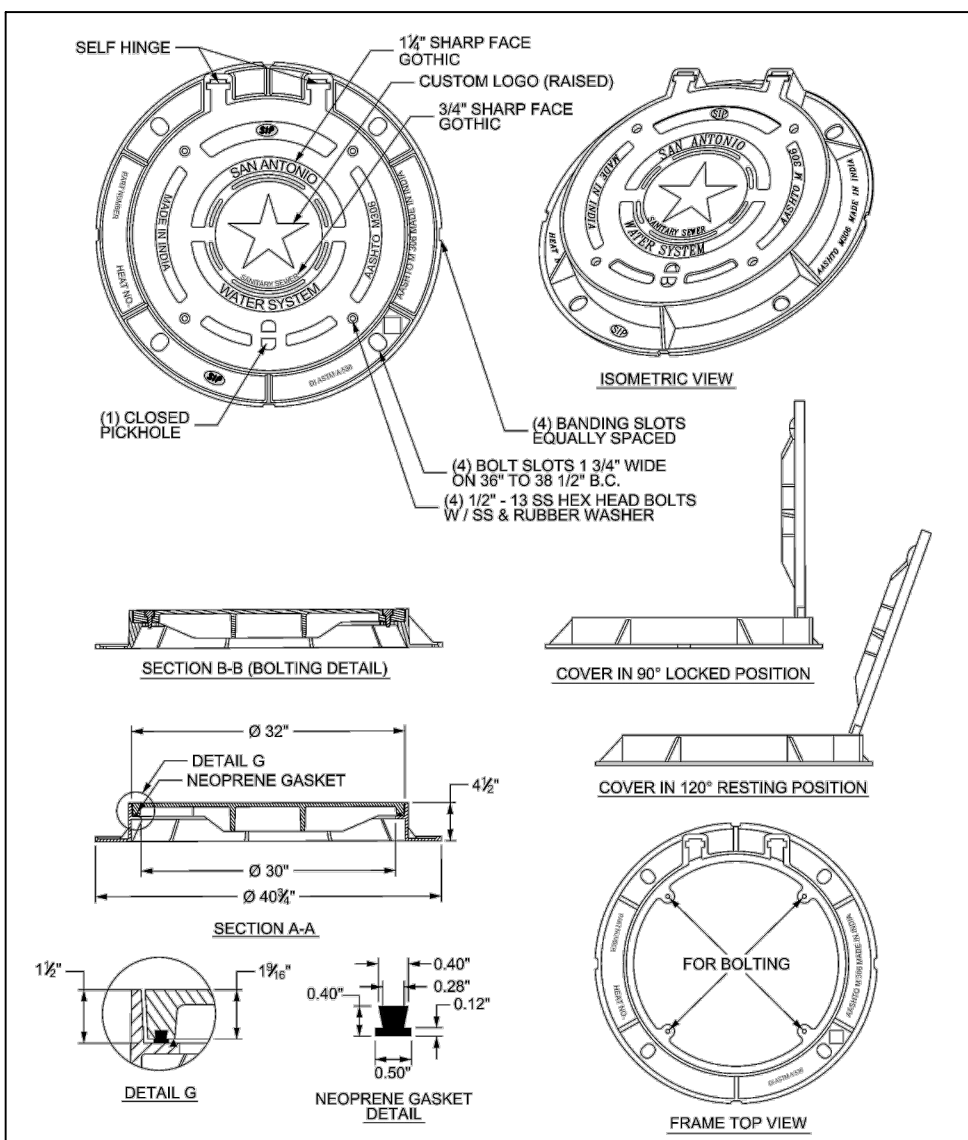
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000  
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10088600

**SHAVANO HIGHLANDS HILLTOP**  
SAN ANTONIO, TEXAS

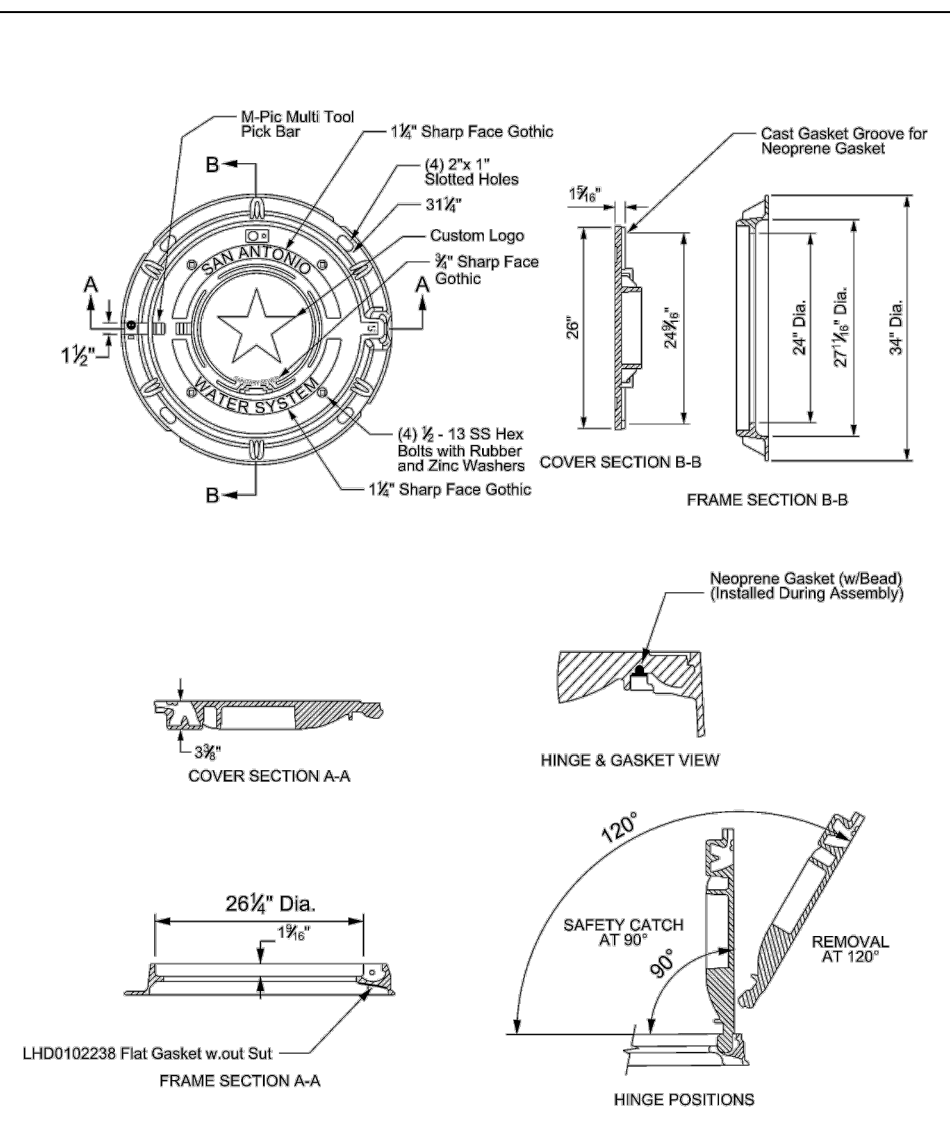
**SANITARY SEWER LINE F PLAN AND PROFILE**  
STA. 1+00.00 TO END

PLAT NO.	23-11800016
JOB NO.	8834-25
DATE	MARCH 2023
DESIGNER	RG
CHECKED	BL DRAWN
EG	C5.08

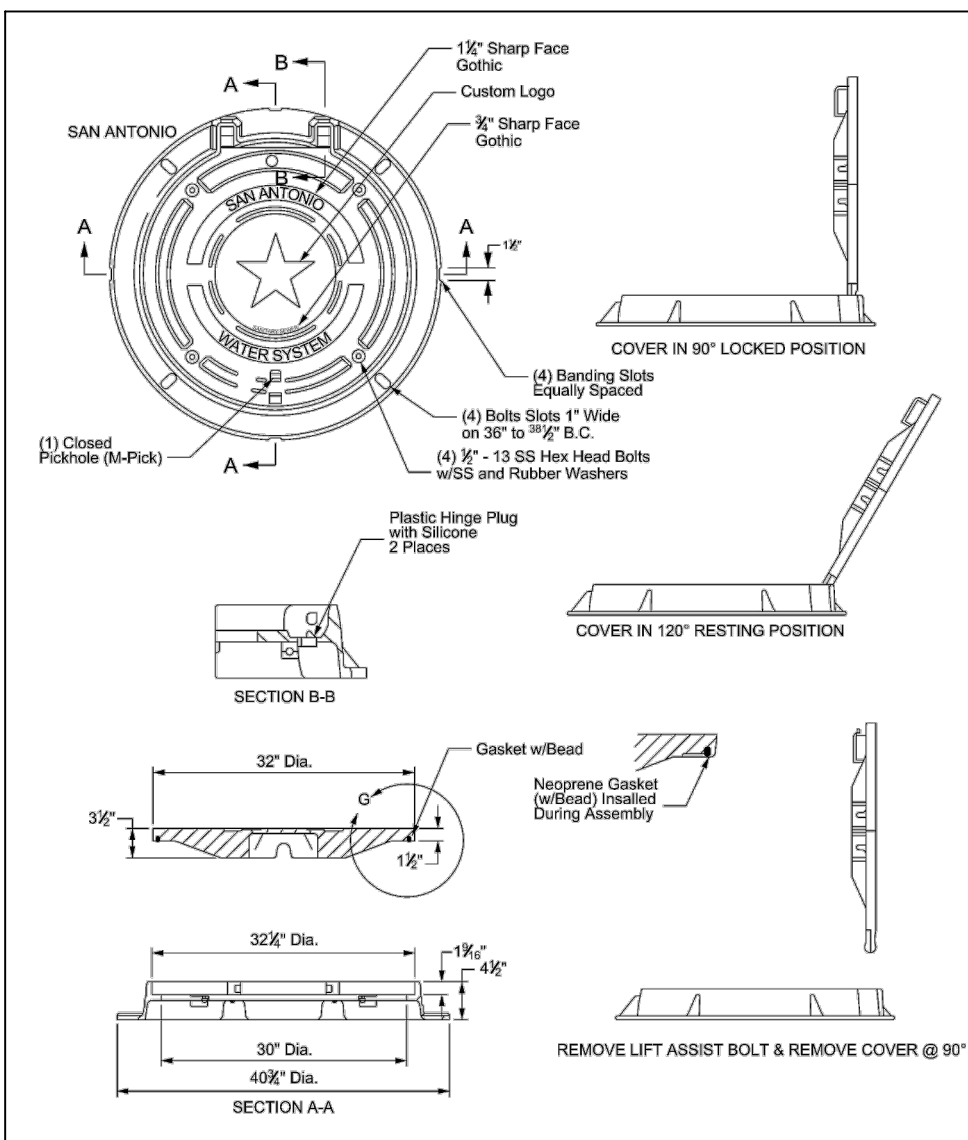




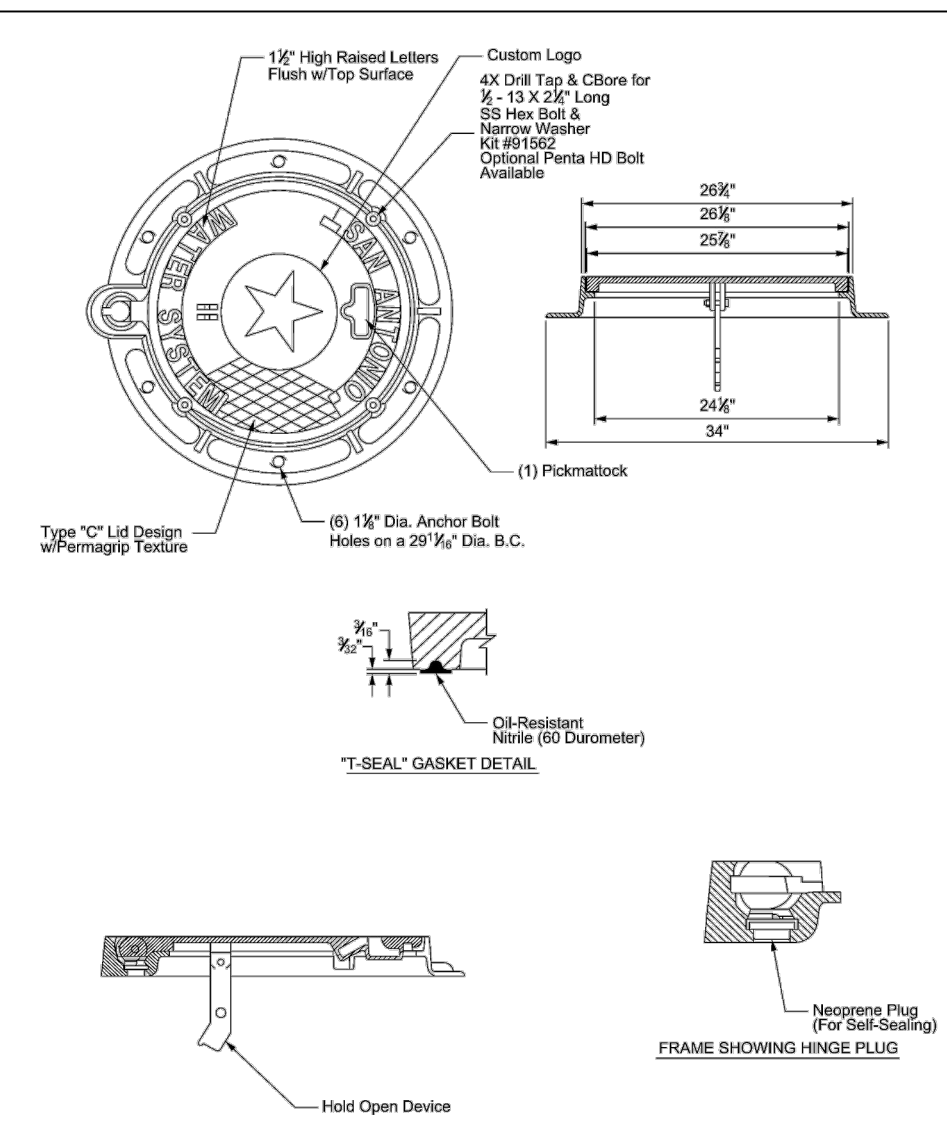
PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	30" MANHOLE RING AND COVER DETAIL	APPROVED MARCH 2008 DD 852-07	REVISED AUG 2019 SHEET 1 OF 5
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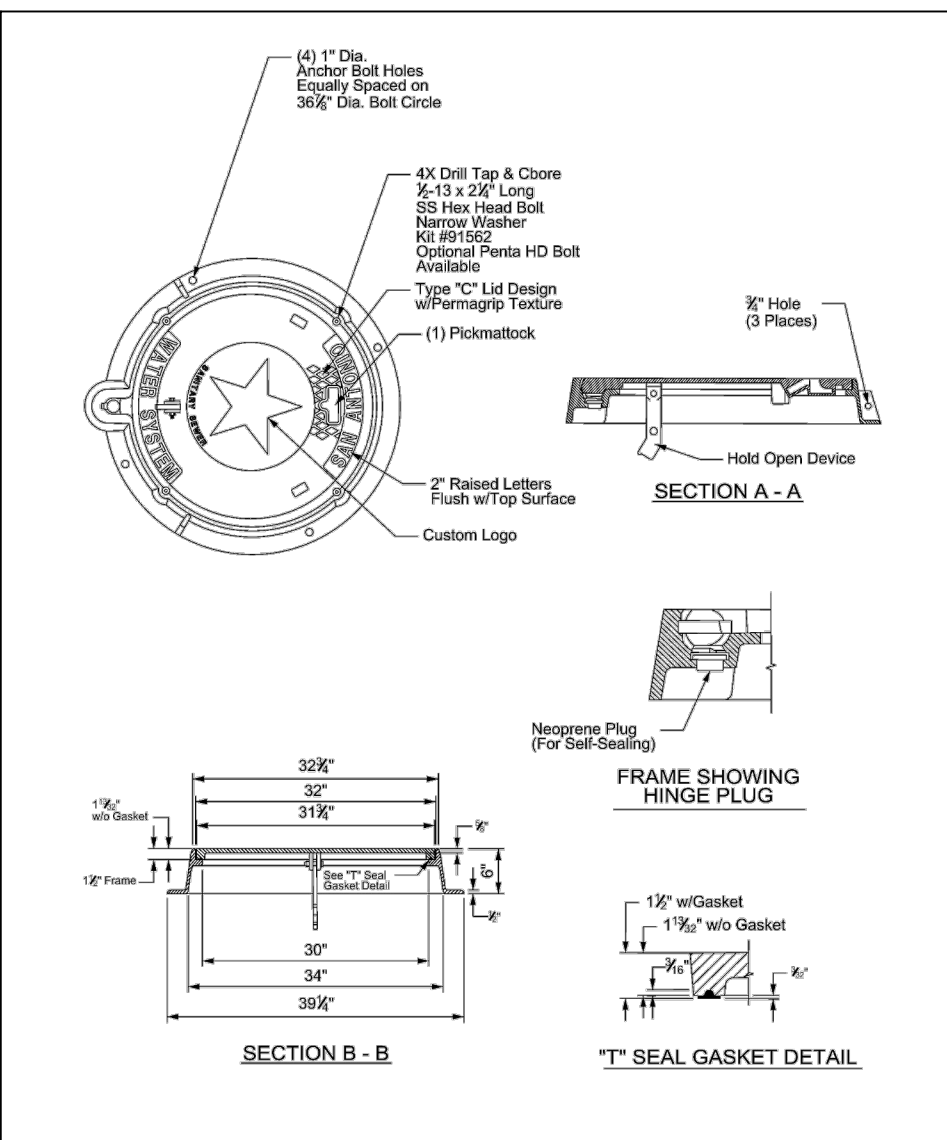
PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	MANHOLE RING AND COVER DETAIL	APPROVED MARCH 2008 DD 852-07	REVISED AUG 2019 SHEET 2 OF 5
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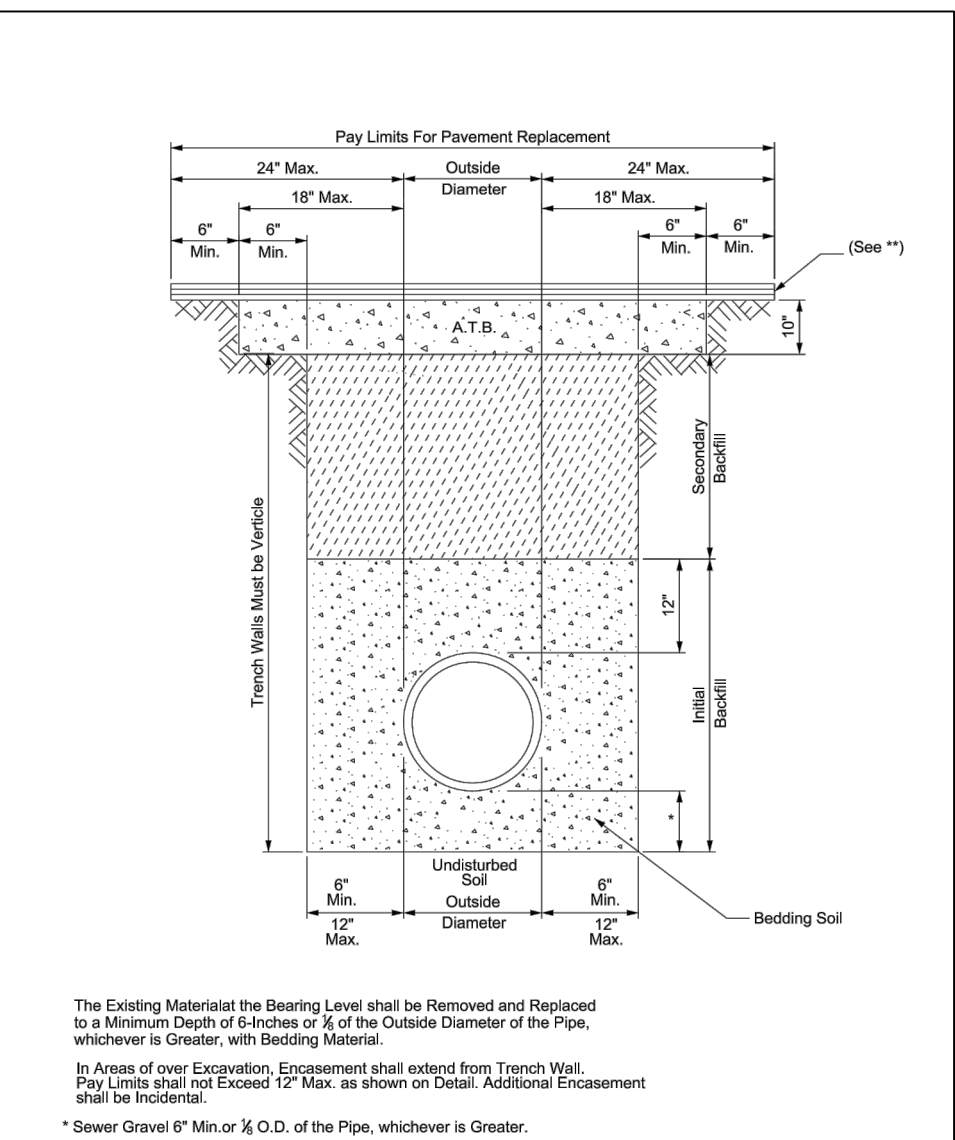
PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	MANHOLE RING AND COVER DETAIL	APPROVED MARCH 2008 DD 852-07	REVISED AUG 2019 SHEET 3 OF 5
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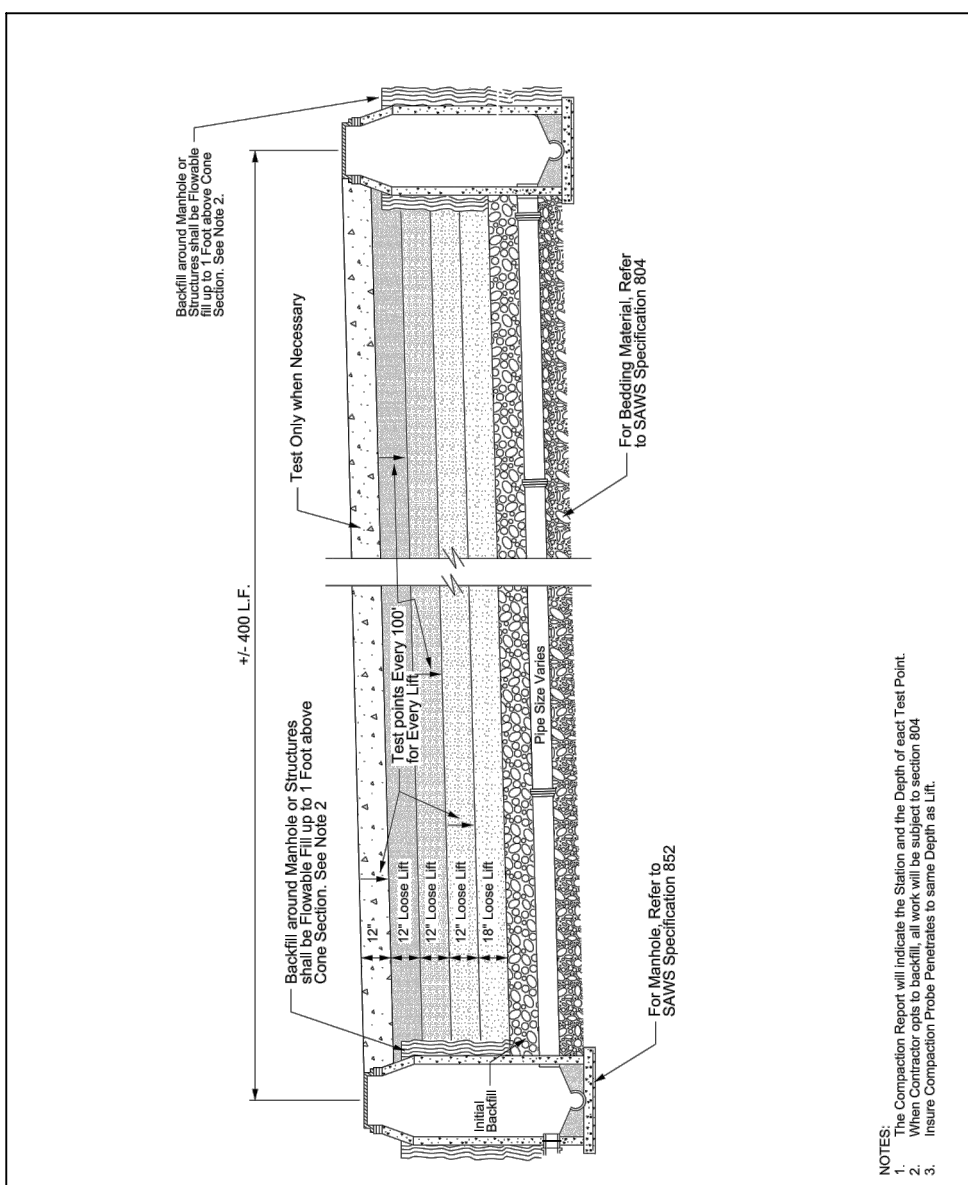
PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	MANHOLE RING AND COVER DETAIL	APPROVED MARCH 2008 DD 852-07	REVISED AUG 2019 SHEET 4 OF 5
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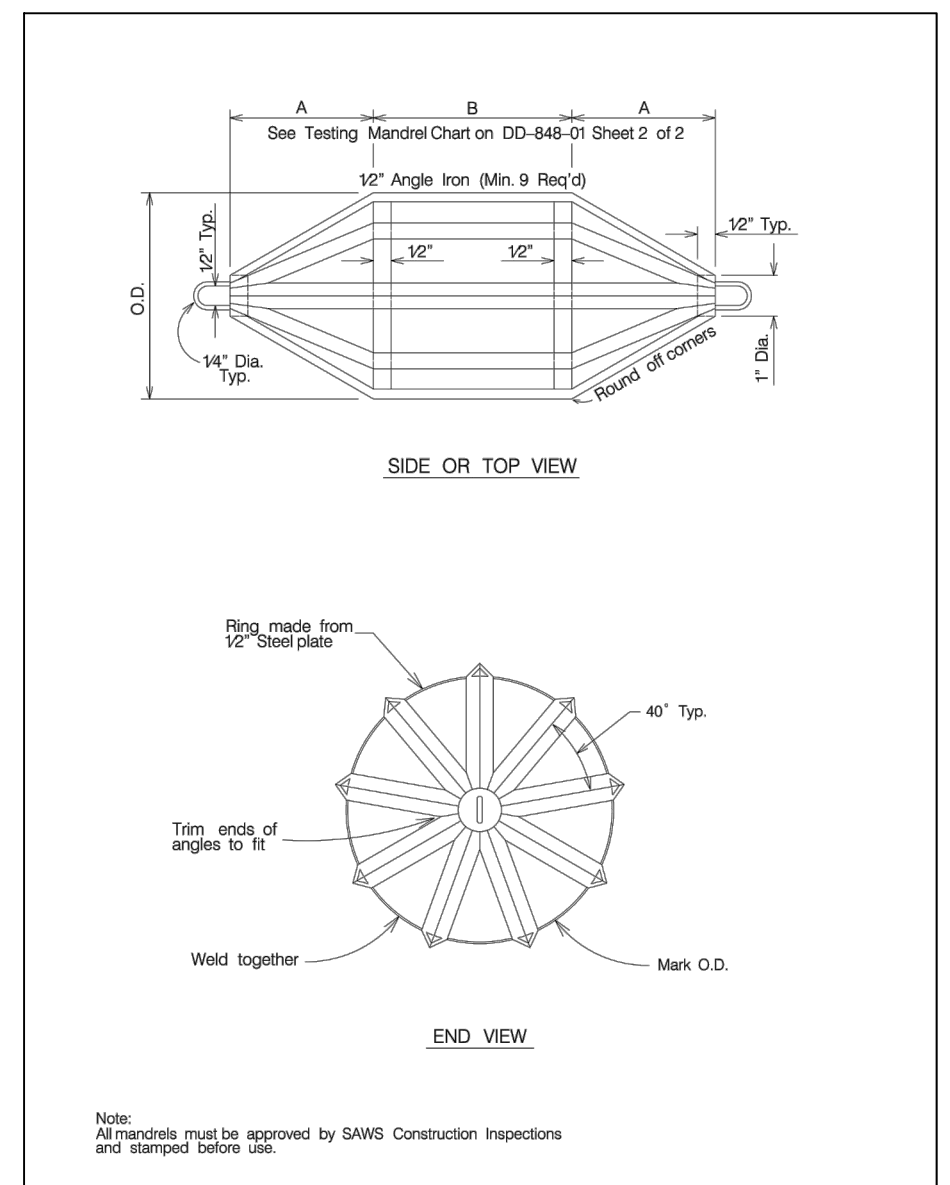
PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	MANHOLE RING AND COVER DETAIL	APPROVED MARCH 2008 DD 852-07	REVISED AUG 2019 SHEET 5 OF 5
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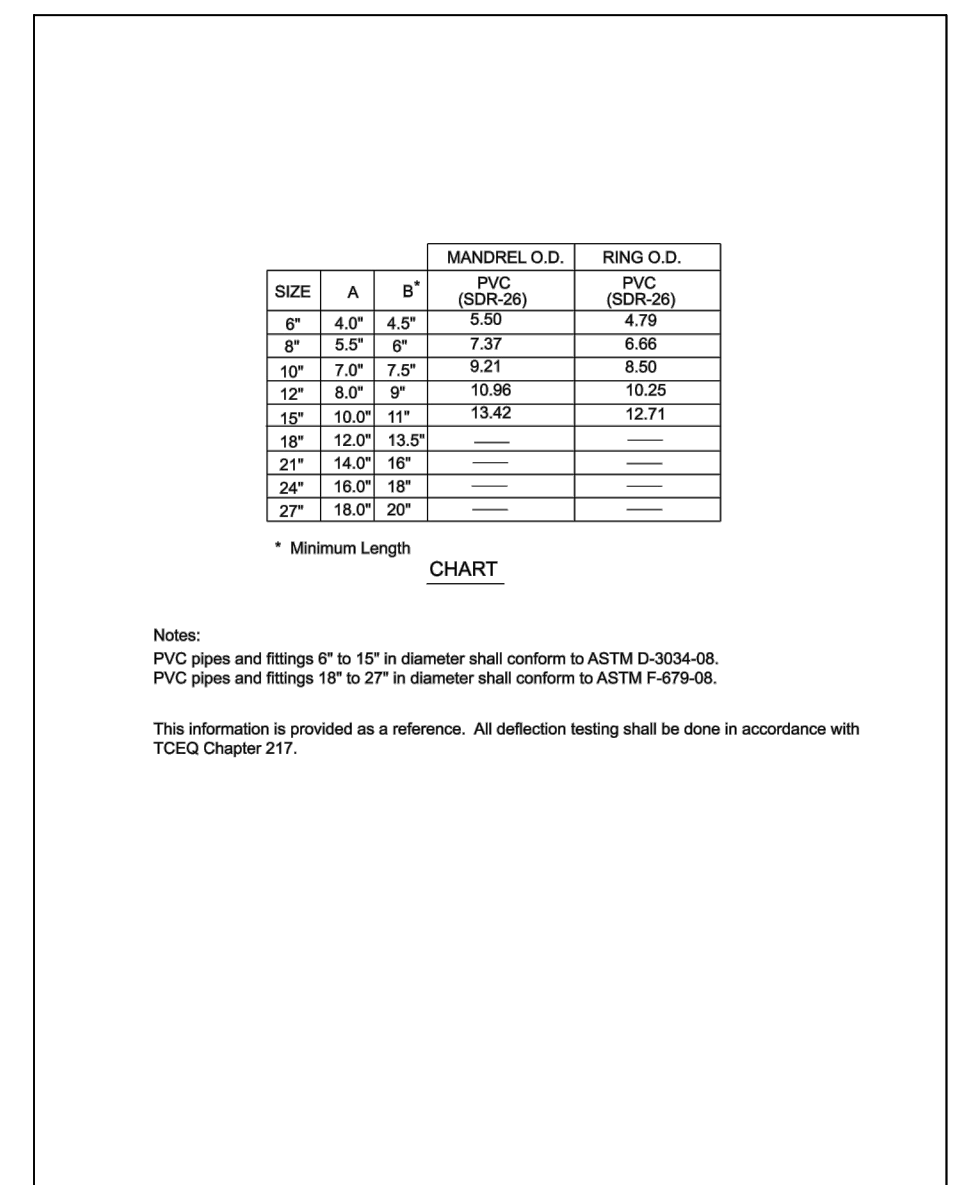
PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	SANITARY SEWER PIPE Laid in TRENCH	APPROVED MARCH 2008 DD-804-01	REVISED DEC 2018 SHEET 1 OF 1
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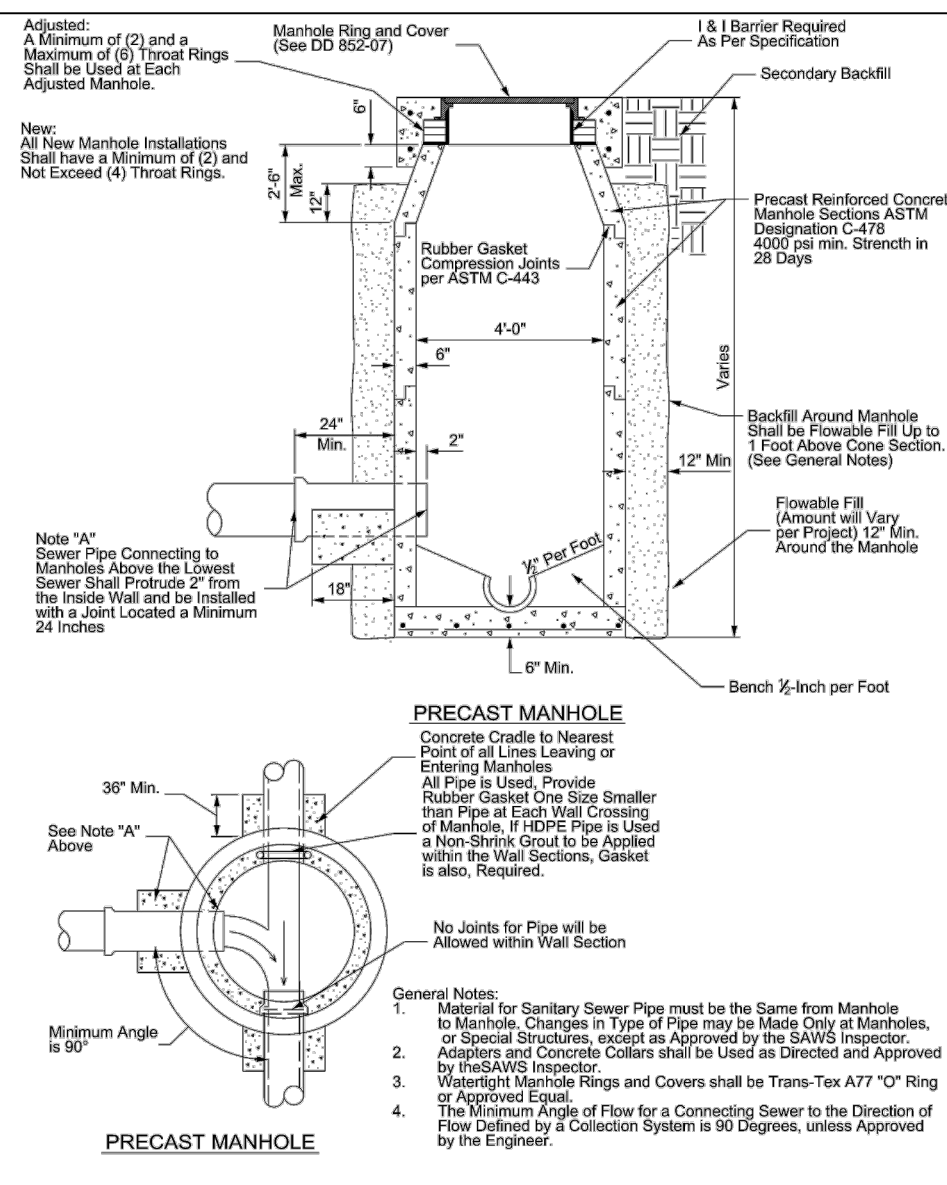
PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	TRENCH COMPACTION DETAIL	APPROVED MARCH 2008 DD 804-02	REVISED DEC 2018 SHEET 1 OF 1
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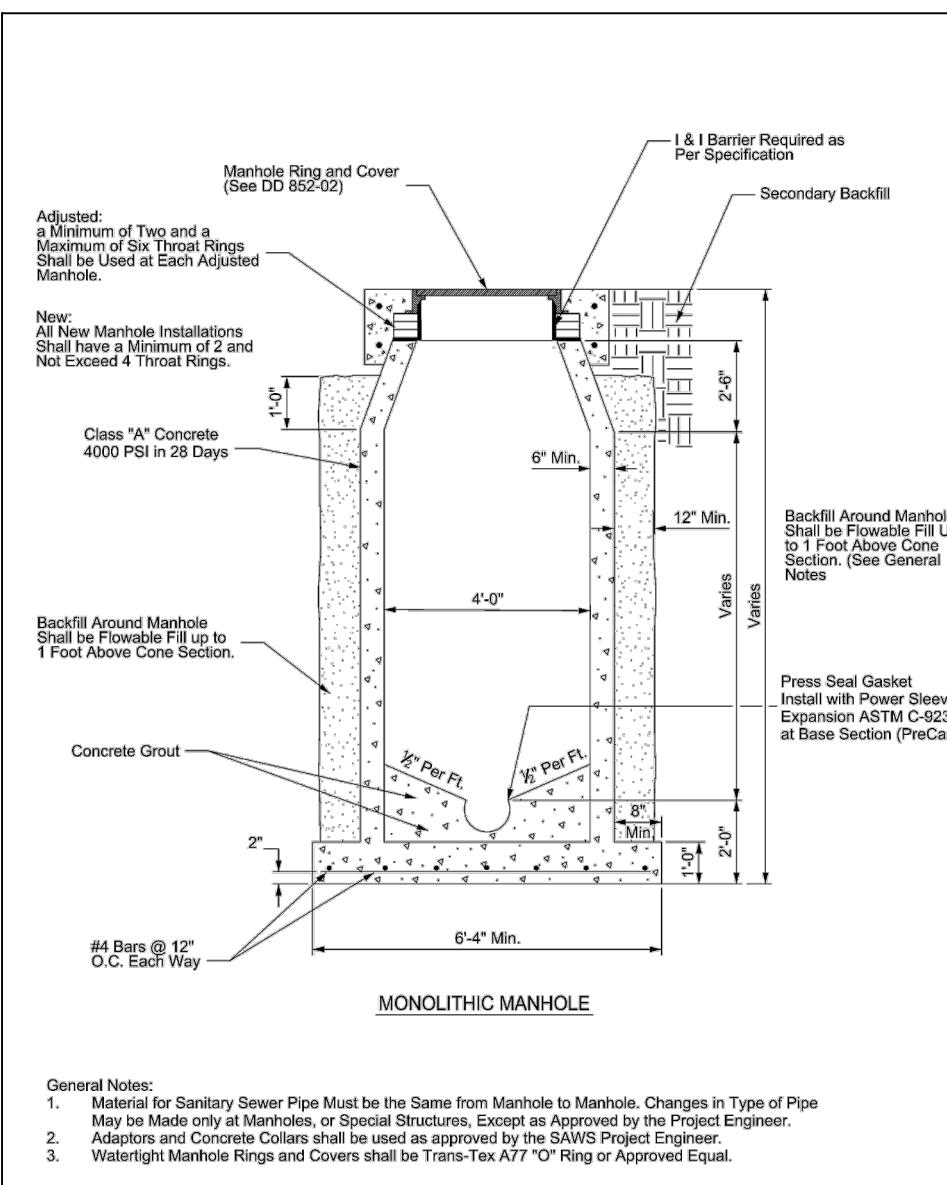
PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	GO, NO GO DEFLECTION TESTING MANDREL CHART	APPROVED MARCH 2008 DD-848-01	REVISED APRIL 2014 SHEET 2 OF 2
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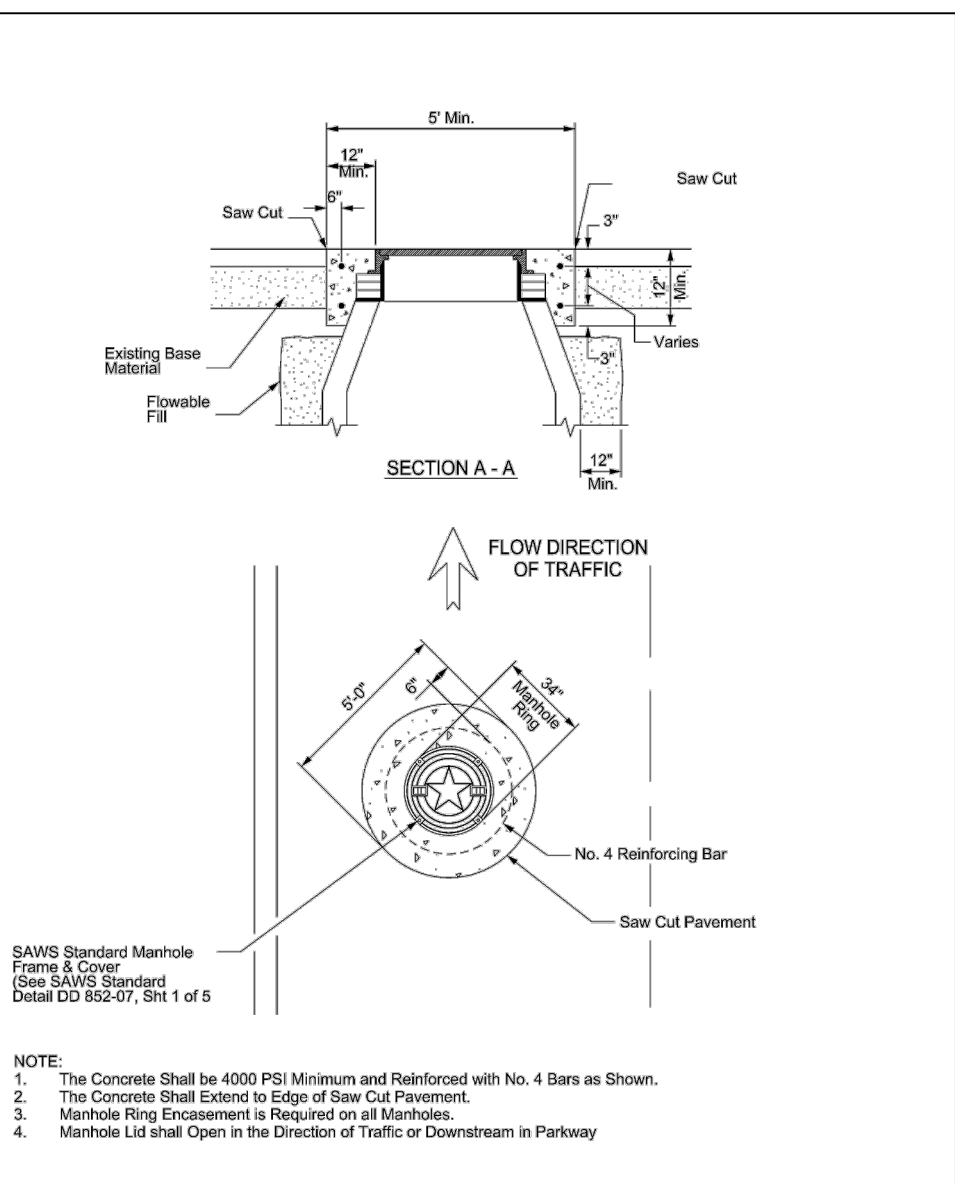
PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	GO, NO GO DEFLECTION TESTING MANDREL CHART	APPROVED MARCH 2008 DD-848-01	REVISED APRIL 2014 SHEET 2 OF 2
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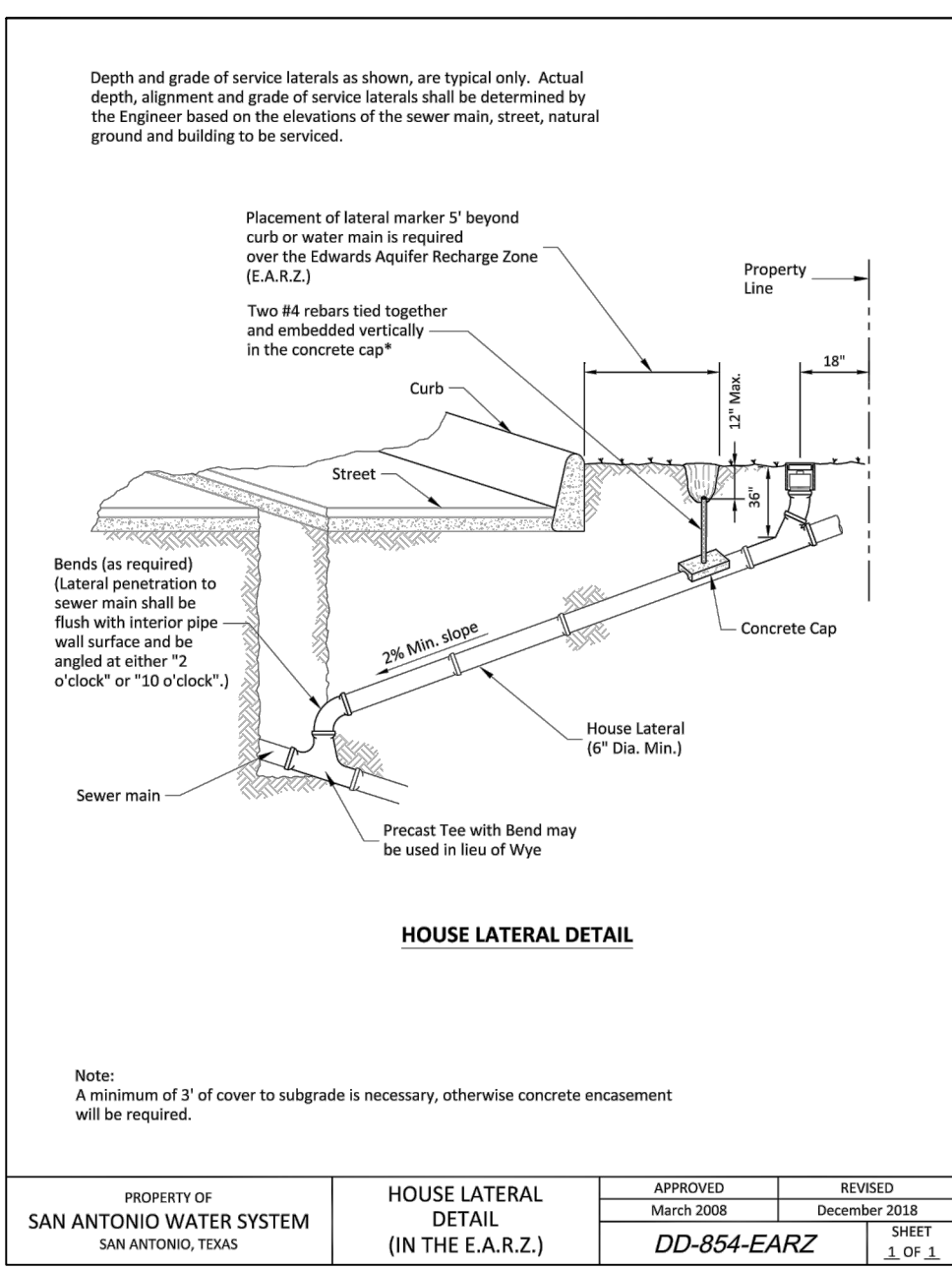
PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	STANDARD PRECAST MANHOLE	APPROVED MARCH 2008 DD-852-01	REVISED AUG 2019 SHEET 1 OF 2
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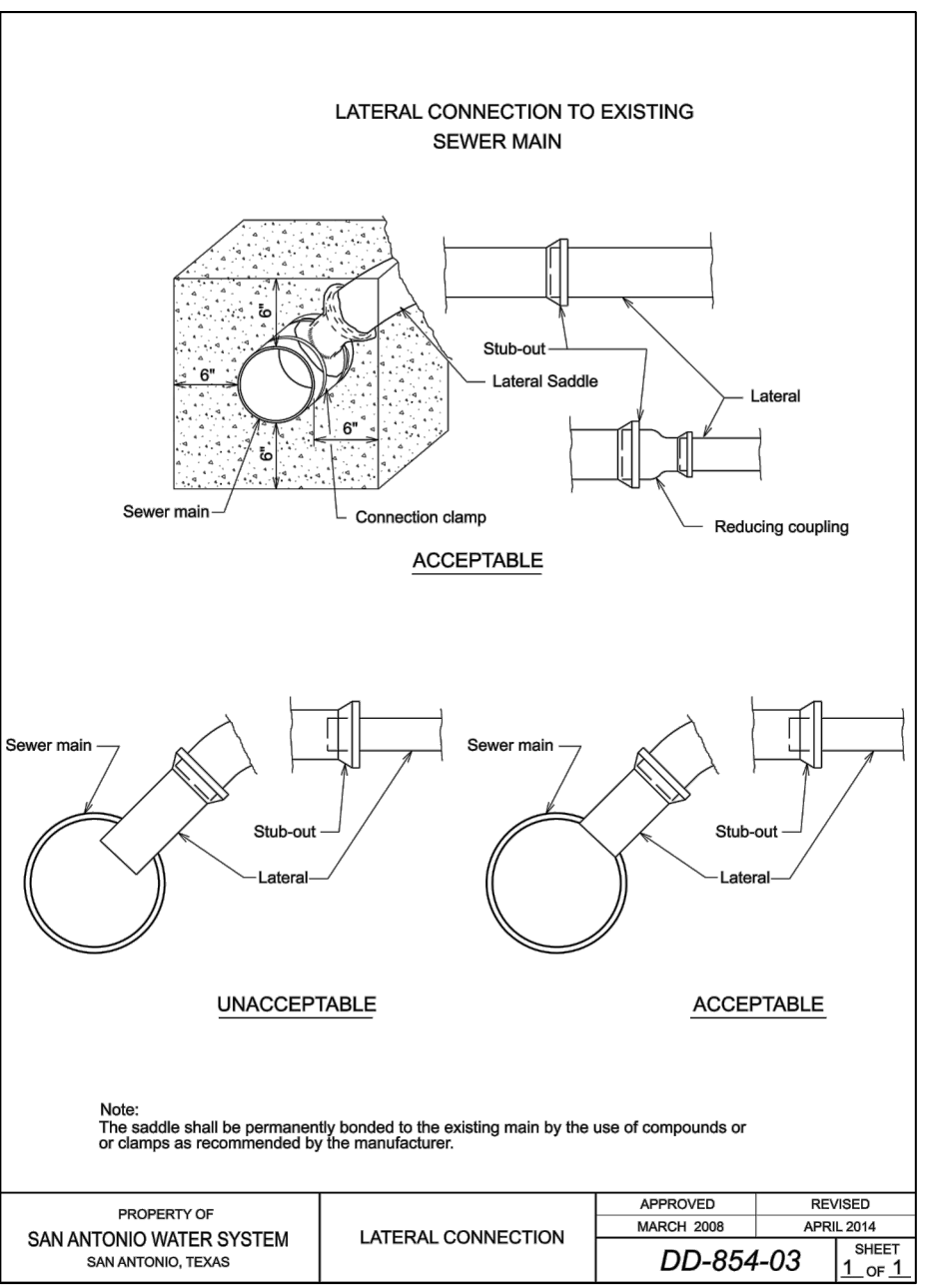
PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	STANDARD MONOLITHIC MANHOLE	APPROVED MARCH 2008 DD 852-01	REVISED AUG 2019 SHEET 2 OF 2
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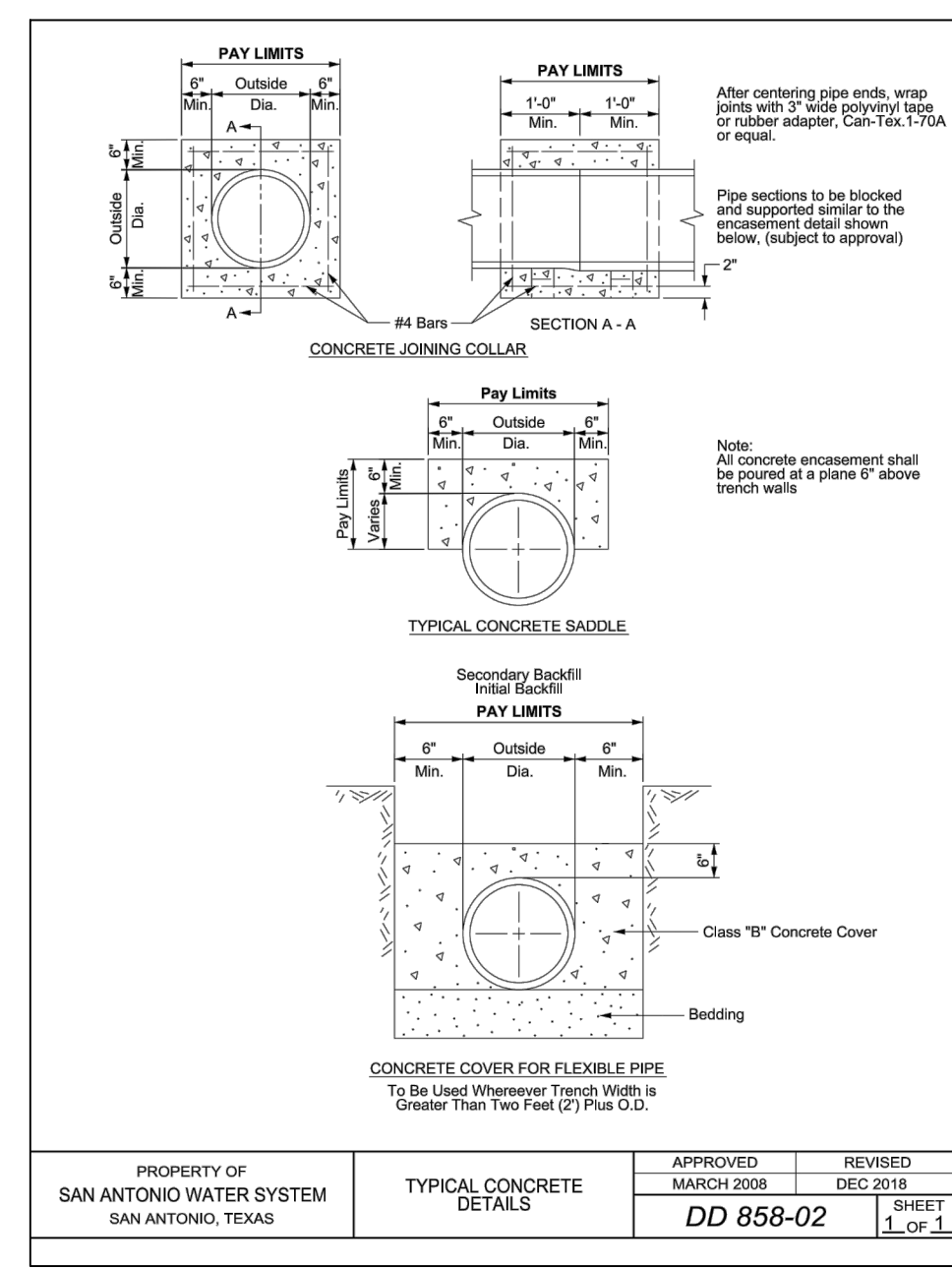
PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	MANHOLE RING ENCASEMENT DETAIL	APPROVED MARCH 2008 DD 852-03	REVISED AUG 2019 SHEET 1 OF 2
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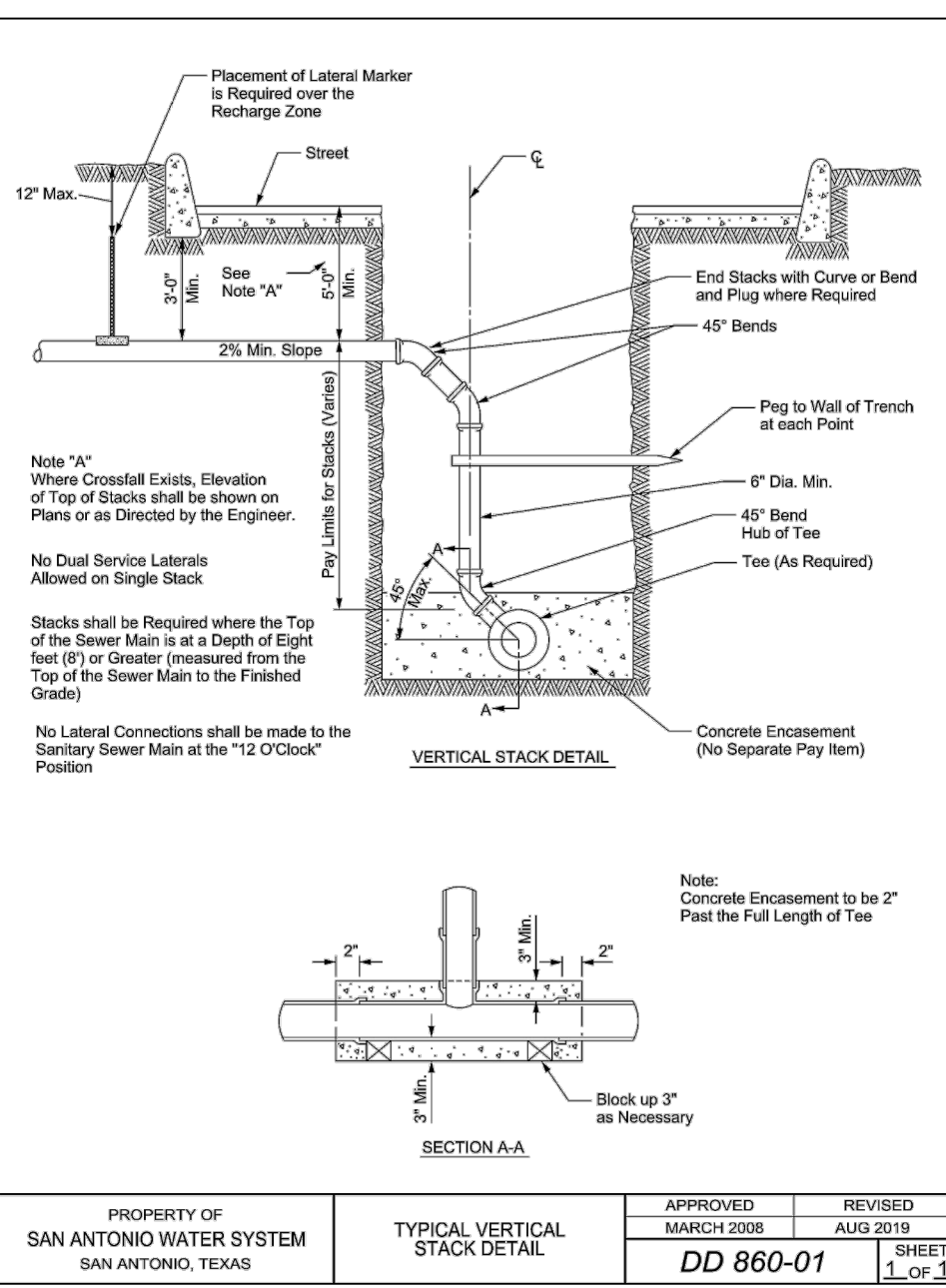
PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	HOUSE LATERAL DETAIL (IN THE E.A.R.Z.)	APPROVED MARCH 2008 DD-854-EARZ	REVISED DECEMBER 2018 SHEET 1 OF 1
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PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	LATERAL CONNECTION	APPROVED MARCH 2008 DD-854-03	REVISED APRIL 2014 SHEET 1 OF 1
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PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	TYPICAL CONCRETE DETAILS	APPROVED MARCH 2008 DD 858-02	REVISED DEC 2018 SHEET 1 OF 1
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PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	TYPICAL VERTICAL STACK DETAIL	APPROVED MARCH 2008 DD 860-01	REVISED AUG 2019 SHEET 1 OF 1
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SEWER

DEVELOPER'S NAME: SHAVANO ROGERS NORTH NO.3, LTD

ADDRESS: 11 LYNN BATTS LANE SUITE 100

CITY: SAN ANTONIO STATE: TX ZIP: 78218

PHONE# (210) 496-2668 FAX#

SAWS BLOCK MAP# 138644 TOTAL EDU'S .57 TOTAL ACREAGE 18.91

TOTAL LINEAR FOOTAGE OF PIPE: 8" 4098 LF PLAT NO. 23-11800019

NUMBER OF LOTS .57 SAWS JOB NO. XXXX-XX

DATE

NO.

REVISION

STATE OF TEXAS

CALEB M. CHANGE

98401

PROFESSIONAL ENGINEER

2/16/23

PAPE-DAWSON

ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS

2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000

TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10088600

SHAVANO HILLTOP

SAN ANTONIO, TEXAS

SANITARY SEWER DETAILS

PLAT NO.

23-11800016

JOB NO.

8834-25

DATE

FEBRUARY 2023

DESIGNER

RG

CHECKED

BL

DRAWN

EG

SHEET

C5.10



Date: Jan 10, 2024, 8:52am User ID: Ribaadgarciad  
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THIS DOCUMENT HAS BEEN PRODUCED FROM MATERIAL THAT WAS STORED AND/OR TRANSMITTED ELECTRONICALLY AND MAY HAVE BEEN INADVERTENTLY ALTERED. RELY ONLY ON FINAL HARDCOPY MATERIALS BEARING THE CONSULTANT'S ORIGINAL SIGNATURE AND SEAL. AERIAL IMAGERY PROVIDED BY GOOGLE/UNLESS OTHERWISE NOTED. Imagery © 2016, ©2002/2013 Google, Texas Orthoregistry Program, USDA Farm Service Agency.

TCEQ - ORGANIZED SEWAGE  
 COLLECTION SYSTEM  
 GENERAL CONSTRUCTION NOTES

- THIS ORGANIZED SEWAGE COLLECTION SYSTEM (SCS) MUST BE CONSTRUCTED IN ACCORDANCE WITH 30 TEXAS ADMINISTRATIVE CODE (TAC) §213.5(C), THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY'S (TCEQ) EDWARDS AQUIFER RULES AND ANY LOCAL GOVERNMENT STANDARD SPECIFICATIONS.
- ALL CONTRACTORS CONDUCTING REGULATED ACTIVITIES ASSOCIATED WITH THIS PROPOSED REGULATED PROJECT MUST BE PROVIDED WITH COPIES OF THE SCS PLAN AND THE TCEQ LETTER INDICATING THE SPECIFIC CONDITIONS OF ITS APPROVAL. DURING THE COURSE OF THESE REGULATED ACTIVITIES, THE CONTRACTORS MUST BE REQUIRED TO KEEP ON-SITE COPIES OF THE PLAN AND THE APPROVAL LETTER.
- A WRITTEN NOTICE OF CONSTRUCTION MUST BE SUBMITTED TO THE PRESIDING TCEQ REGIONAL OFFICE AT LEAST 48 HOURS PRIOR TO THE START OF ANY REGULATED ACTIVITIES. THIS NOTICE MUST INCLUDE:
  - THE NAME OF THE APPROVED PROJECT;
  - THE ACTIVITY START DATE; AND
  - THE CONTACT INFORMATION OF THE PRIME CONTRACTOR.
- ANY MODIFICATION TO THE ACTIVITIES DESCRIBED IN THE REFERENCED SCS APPLICATION FOLLOWING THE DATE OF APPROVAL MAY REQUIRE THE SUBMITTAL OF AN SCS APPLICATION TO MEET THIS APPROVAL, INCLUDING THE PAYMENT OF APPROPRIATE FEES AND ALL INFORMATION NECESSARY FOR ITS REVIEW AND APPROVAL.
- PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITY, ALL TEMPORARY EROSION AND SEDIMENTATION (E&S) CONTROL MEASURES MUST BE PROPERLY INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS. THESE CONTROLS MUST REMAIN IN PLACE UNTIL THE DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED.
- IF ANY SENSITIVE FEATURES ARE DISCOVERED DURING THE WASTEWATER LINE TRENCHING ACTIVITIES, ALL REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MUST BE SUSPENDED IMMEDIATELY. THE APPLICANT MUST IMMEDIATELY NOTIFY THE APPROPRIATE REGIONAL OFFICE OF THE TCEQ OF THE FEATURE DISCOVERED. A GEOLOGIST'S ASSESSMENT OF THE LOCATION AND EXTENT OF THE FEATURE DISCOVERED MUST BE REPORTED TO THAT REGIONAL OFFICE IN WRITING AND THE APPLICANT MUST SUBMIT A PLAN FOR ENSURING THE STRUCTURAL INTEGRITY OF THE SEWER LINE. FOR MODIFYING THE PROPOSED COLLECTION SYSTEM ALIGNMENT AROUND THE FEATURE, THE REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MAY NOT PROCEED UNTIL THE EXECUTIVE DIRECTOR HAS REVIEWED AND APPROVED THE METHODS PROPOSED TO PROTECT THE SENSITIVE FEATURE AND THE EDWARDS AQUIFER FROM ANY POTENTIALLY ADVERSE IMPACTS TO WATER QUALITY WHILE MAINTAINING THE STRUCTURAL INTEGRITY OF THE LINE.
- SEWER LINES LOCATED WITHIN OR CROSSING THE 5-YEAR FLOODPLAIN OF A DRAINAGE WAY WILL BE PROTECTED FROM INUNDATION AND STREAM VELOCITIES WHICH COULD CAUSE EROSION AND SCOURING OF BACKFILL. THE TRENCH MUST BE CAPPED WITH CONCRETE TO PREVENT SCOURING OF BACKFILL, OR THE SEWER LINES MUST BE ENCASED IN CONCRETE. ALL CONCRETE SHALL HAVE A MINIMUM THICKNESS OF 6 INCHES.
- BLASTING PROCEDURES FOR PROTECTION OF EXISTING SEWER LINES AND OTHER UTILITIES WILL BE IN ACCORDANCE WITH THE NATIONAL FIRE PROTECTION ASSOCIATION CRITERIA. SAND IS NOT ALLOWED AS BEDDING OR BACKFILL IN TRENCHES THAT HAVE BEEN BLASTED. IF ANY EXISTING SEWER LINES ARE DAMAGED, THE LINES MUST BE REPAIRED AND RETESTED.
- ALL MANHOLES CONSTRUCTED OR REHABILITATED ON THIS PROJECT MUST HAVE WATER-TIGHT SIZE ON RESIDENT CONNECTORS ALLOWING FOR DIFFERENTIAL SETTLEMENT. IF MANHOLES ARE CONSTRUCTED WITHIN THE 100-YEAR FLOODPLAIN, THE COVER MUST HAVE A GASKET AND BE BOLTED TO THE RING. WHERE GASKETED MANHOLE COVERS ARE REQUIRED FOR MORE THAN THREE MANHOLES IN SEQUENCE OR FOR MORE THAN 1500 FEET, ALTERNATE MEANS OF VENTING WILL BE PROVIDED. BRICKS ARE NOT AN ACCEPTABLE CONSTRUCTION MATERIAL FOR ANY PORTION OF THE MANHOLE.

THE DIAMETER OF THE MANHOLES MUST BE A MINIMUM OF FOUR FEET AND THE MANHOLE FOR ENTRY MUST HAVE A MINIMUM CLEAR OPENING DIAMETER OF 30 INCHES. THESE DIMENSIONS AND OTHER DETAILS SHOWING COMPLIANCE WITH THE COMMISSION'S RULES CONCERNING MANHOLES AND SEWER LINE/MANHOLE INVERTS DESCRIBED IN 30 TAC §217.55 ARE INCLUDED ON PLAN SHEET C4.05.

IT IS SUGGESTED THAT ENTRANCE INTO MANHOLES IN EXCESS OF FOUR FEET DEEP BE ACCOMPLISHED BY MEANS OF A PORTABLE LADDER. THE INCLUSION OF STEPS IN A MANHOLE IS PROHIBITED.

- WHERE WATER LINES AND NEW SEWER LINE ARE INSTALLED WITH A SEPARATION DISTANCE CLOSER THAN NINE FEET (I.E., WATER LINES CROSSING WASTEWATER LINES, WATER LINES PARALLELING WASTEWATER LINES, OR WATER LINES NEXT TO MANHOLES), THE INSTALLATION MUST MEET THE REQUIREMENTS OF 30 TAC §217.53(D) (PIPE DESIGN) AND 30 TAC §290.44(E) (WATER DISTRIBUTION).

- WHERE SEWERS LINES DEVIATE FROM STRAIGHT ALIGNMENT AND UNIFORM GRADE ALL CURVATURE OF SEWER PIPE MUST BE ACHIEVED BY THE FOLLOWING PROCEDURE WHICH IS RECOMMENDED BY THE PIPE MANUFACTURER: N/A

IF PIPE FLEXURE IS PROPOSED, THE FOLLOWING METHOD OF PREVENTING DEFLECTION OF THE JOINT MUST BE USED: N/A

SPECIFIC CARE MUST BE TAKEN TO ENSURE THAT THE JOINT IS PLACED IN THE CENTER OF THE TRENCH AND PROPERLY BEDDED IN ACCORDANCE WITH 30 TAC §217.54.

- NEW SEWAGE COLLECTION SYSTEM LINES MUST BE CONSTRUCTED WITH STUB OUTS FOR THE CONNECTION OF ANTICIPATED EXTENSIONS. THE LOCATION OF SUCH STUB OUTS MUST BE MARKED ON THE GROUND SUCH THAT THEIR LOCATION CAN BE EASILY DETERMINED AT THE TIME OF CONNECTION OF THE EXTENSIONS. SUCH STUB OUTS MUST BE MANUFACTURED WITH A 2" STUB OR CLEAN-OUT IS USED IN SIZE AND MATERIAL WITH BOTH THE SEWER LINE AND THE EXTENSION. AT THE TIME OF ORIGINAL CONSTRUCTION, NEW STUB-OUTS MUST BE CONSTRUCTED SUFFICIENTLY TO EXTEND BEYOND THE END OF THE STREET PAVEMENT. ALL STUB-OUTS MUST BE SEALED WITH A MANUFACTURED CAP TO PREVENT LEAKAGE. EXTENSIONS THAT WERE NOT ANTICIPATED AT THE TIME OF ORIGINAL CONSTRUCTION OR THAT ARE TO BE CONNECTED TO AN EXISTING SEWER LINE NOT FURNISHED WITH STUB OUTS MUST BE CONSIDERED USING A MANUFACTURED SADDLE AND IN ACCORDANCE WITH ACCEPTED PLUMBING TECHNIQUES.

IF NO STUB-OUT IS PRESENT AN ALTERNATE METHOD OF JOINING LATERALS IS SHOWN IN THE DETAIL ON SHEET C3.04. (FOR POTENTIAL FUTURE LATERALS).

THE PRIVATE SERVICE LATERAL STUB-OUTS MUST BE INSTALLED AS SHOWN ON THE PLAN AND PROFILE SHEETS ON PLAN SHEET C3.02 TO C3.04 AND MARKED AFTER BACKFILLING AS SHOWN IN THE DETAIL ON PLAN SHEET C3.03.

- TRENCHING, BEDDING AND BACKFILL MUST CONFORM WITH 30 TAC §217.54. THE BEDDING AND BACKFILL FOR FLEXIBLE PIPE MUST COMPLY WITH THE STANDARDS OF ASTM D-2321, CLASSES IA, IB, II OR III. RIGID PIPE BEDDING MUST COMPLY WITH THE REQUIREMENTS OF ASTM C 12 (ANSI A 106.2) CLASSES A, B OR C.

- SEWER LINES MUST BE TESTED FROM MANHOLE TO MANHOLE WHEN A NEW SEWER LINE IS CONNECTED TO AN EXISTING STUB OR CLEAN-OUT. IT MUST BE TESTED FROM EXISTING MANHOLE TO NEW MANHOLE. IF A STUB OR CLEAN-OUT IS USED AT THE END OF THE PROPOSED SEWER LINE, NO PRIVATE SERVICE ATTACHMENTS MAY BE CONNECTED BETWEEN THE LAST MANHOLE AND THE CLEANOUT UNLESS IT CAN BE CERTIFIED AS CONFORMING WITH THE PROVISIONS OF 30 TAC §213.5(C)(3)(E).

- ALL SEWER LINES MUST BE TESTED IN ACCORDANCE WITH 30 TAC §217.57. THE ENGINEER MUST RETAIN COPIES OF ALL TEST RESULTS WHICH MUST BE MADE AVAILABLE TO THE EXECUTIVE DIRECTOR UPON REQUEST. THE ENGINEER MUST CERTIFY IN WRITING THAT ALL WASTEWATER LINES HAVE PASSED ALL REQUIRED TESTING TO THE APPROPRIATE REGIONAL OFFICE WITHIN 30 DAYS OF TEST COMPLETION AND PRIOR TO USE OF THE NEW COLLECTION SYSTEM. TESTING METHOD WILL BE:
  - FOR A COLLECTION SYSTEM PIPE THAT WILL TRANSPORT WASTEWATER BY GRAVITY FLOW, THE DESIGN MUST SPECIFY AN INFILTRATION AND EXFILTRATION TEST OR A LOW-PRESSURE AIR TEST. A TEST MUST CONFORM TO THE FOLLOWING REQUIREMENTS:
    - LOW PRESSURE AIR TEST.

- A LOW PRESSURE AIR TEST MUST FOLLOW THE PROCEDURES DESCRIBED IN AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) C-828, ASTM C-924, OR ASTM F-1417 OR OTHER PROCEDURE APPROVED BY THE EXECUTIVE DIRECTOR, EXCEPT AS TO TESTING TIMES AS REQUIRED IN TABLE C.3 INSUBPARAGRAPH (C) OF THIS PARAGRAPH OR EQUATION C.3 IN SUBPARAGRAPH (B)(II) OF THIS PARAGRAPH.

- FOR SECTIONS OF COLLECTION SYSTEM PIPE LESS THAN 36 INCH AVERAGE INSIDE DIAMETER, THE FOLLOWING PROCEDURES MUST APPLY, UNLESS A PIPE IS TO BE TESTED AS REQUIRED BY PARAGRAPH (2) OF THIS SUBSECTION.

- A PIPE MUST BE PRESSURIZED TO 3.5 POUNDS PER SQUARE INCH (PSI) GREATER

- THAN THE PRESSURE EXERTED BY GROUNDWATER ABOVE THE PIPE.
- ONCE THE PRESSURE IS STABILIZED, THE MINIMUM TIME ALLOWABLE FOR THE PRESSURE TO DROP FROM 3.5 PSI GAUGE TO 2.5 PSI GAUGE IS COMPUTED FROM THE FOLLOWING EQUATION:

EQUATION C.3

WHERE: T= (0.085 \* D \* K)/Q

- T = TIME FOR PRESSURE TO DROP 1.0 POUND PER SQUARE INCH GAUGE IN SECONDS
- K = 0.000419 X D X L, BUT NOT LESS THAN 1.0
- D = AVERAGE INSIDE PIPE DIAMETER IN INCHES
- L = LENGTH OF LINE OF SAME SIZE BEING TESTED, IN FEET
- Q = RATE OF LOSS, 0.0015 CUBIC FEET PER MINUTE PER SQUARE FOOT INTERNAL SURFACE

- SINCE A K VALUE OF LESS THAN 1.0 MAY NOT BE USED, THE MINIMUM TESTING TIME FOR EACH PIPE DIAMETER IS SHOWN IN THE FOLLOWING TABLE C.3:

PIPE DIAMETER (INCHES)	MIN. TIME (SECONDS)	LENGTH FOR MIN. (FEET)	TIME, LONGER LENGTH (SECONDS)
6	340	398	0.855(L)
8	454	298	1.520(L)
10	567	239	2.374(L)
12	680	199	3.419(L)
15	850	159	5.342(L)
18	1020	133	7.693(L)
21	1190	114	10.471(L)
24	1360	100	13.678(L)
27	1530	88	17.309(L)
30	1700	80	21.369(L)
33	1870	72	25.856(L)

- AN OWNER MAY STOP A TEST IF NO PRESSURE LOSS HAS OCCURRED DURING THE FIRST 25% OF THE CALCULATED TESTING TIME.
- IF ANY PRESSURE LOSS OR LEAKAGE HAS OCCURRED DURING THE FIRST 25% OF A TESTING PERIOD, THEN THE TEST MUST CONTINUE FOR THE ENTIRE TEST DURATION AS OUTLINED ABOVE OR UNTIL FAILURE.
- WASTEWATER COLLECTION SYSTEM PIPES WITH A 27 INCH OR LARGER AVERAGE INSIDE DIAMETER MAY BE AIR TESTED AT EACH JOINT INSTEAD OF FOLLOWING THE PROCEDURE OUTLINED IN THIS SECTION.
- A TESTING PROCEDURE FOR PIPE WITH AN INSIDE DIAMETER GREATER THAN 33 INCHES MUST BE APPROVED BY THE EXECUTIVE DIRECTOR.
- INFILTRATION/EXFILTRATION TEST.
  - THE TOTAL EXFILTRATION, AS DETERMINED BY A HYDROSTATIC HEAD TEST, MUST NOT EXCEED 50 GALLONS PER INCH OF DIAMETER PER MILE OF PIPE PER 24 HOURS AT A MINIMUM TEST HEAD OF 2.0 FEET ABOVE THE CROWN OF A PIPE AT AN UPSTREAM MANHOLE.
  - AN OWNER SHALL USE AN INFILTRATION TEST IN LIEU OF AN EXFILTRATION TEST WHEN PIPES ARE INSTALLED BELOW THE GROUNDWATER LEVEL.
  - THE TOTAL EXFILTRATION, AS DETERMINED BY A HYDROSTATIC HEAD TEST, MUST NOT EXCEED 50 GALLONS PER INCH DIAMETER PER MILE OF PIPE PER 24 HOURS AT A MINIMUM TEST HEAD OF 2.0 FEET ABOVE THE CROWN OF A PIPE AT AN UPSTREAM MANHOLE, OR AT LEAST TWO FEET ABOVE EXISTING GROUNDWATER LEVEL, WHICHEVER IS GREATER.
- FOR CONSTRUCTION WITHIN A 25-YEAR FLOOD PLAIN, THE INFILTRATION OR EXFILTRATION MUST NOT EXCEED 10 GALLONS PER INCH DIAMETER PER MILE OF PIPE PER 24 HOURS AT THE SAME MINIMUM TEST HEAD AS IN SUBPARAGRAPH (C) OF THIS PARAGRAPH.
- IF THE QUANTITY OF INFILTRATION OR EXFILTRATION EXCEEDS THE MAXIMUM QUANTITY SPECIFIED, AN OWNER SHALL UNDERTAKE REMEDIAL ACTION IN ORDER TO REDUCE THE INFILTRATION OR EXFILTRATION TO AN AMOUNT WITHIN THE LIMITS SPECIFIED. AN OWNER SHALL RETEST A PIPE FOLLOWING A REMEDIATION ACTION.
- IF A GRAVITY COLLECTION PIPE IS COMPOSED OF FLEXIBLE PIPE, DEFLECTION TESTING IS ALSO REQUIRED. THE FOLLOWING PROCEDURES MUST BE FOLLOWED:
  - FOR A COLLECTION PIPE WITH INSIDE DIAMETER LESS THAN 27 INCHES, DEFLECTION MEASUREMENT REQUIRES A RIGID MANDREL.
  - A RIGID MANDREL MUST HAVE AN OUTSIDE DIAMETER (OD) NOT LESS THAN 95% OF THE BASE INSIDE DIAMETER (ID) OR AVERAGE ID OF A PIPE, AS SPECIFIED IN THE APPROPRIATE STANDARD BY THE ASTMs, AMERICAN WATER WORKS ASSOCIATION, UNI-BELL, OR AMERICAN NATIONAL STANDARDS INSTITUTE, OR ANY RELATED APPENDIX.
  - IF A MANDREL SIZING DIAMETER IS NOT SPECIFIED IN THE APPROPRIATE STANDARD, THE MANDREL MUST HAVE AN OD EQUAL TO 85% OF THE ID OF A PIPE. IN THIS CASE, THE ID OF THE PIPE, FOR THE PURPOSE OF DETERMINING THE OD OF THE MANDREL, MUST EQUAL BE THE AVERAGE OUTSIDE DIAMETER MINUS TWO MINIMUM WALL THICKNESSES FOR OD CONTROLLED PIPE AND THE AVERAGE INSIDE DIAMETER FOR ID CONTROLLED PIPE.
  - ALL DIMENSIONS MUST MEET THE APPROPRIATE STANDARD.
- MANDREL DESIGN.
  - A RIGID MANDREL MUST BE CONSTRUCTED OF A METAL OR A RIGID PLASTIC MATERIAL THAT CAN WITHSTAND 200 PSI WITHOUT BEING DEFORMED.
  - A MANDREL MUST HAVE NINE OR MORE ODD NUMBER OF RUNNERS OR LEGS.
  - A BARREL SECTION LENGTH MUST EQUAL AT LEAST 75% OF THE INSIDE DIAMETER OF A PIPE.
  - EACH SIZE MANDREL MUST USE A SEPARATE PROVING RING.
  - METHOD OPTIONS.
    - AN ADJUSTABLE OR FLEXIBLE MANDREL IS PROHIBITED.
    - A TEST MAY NOT USE TELEVISION INSPECTION AS A SUBSTITUTE FOR A DEFLECTION TEST.
  - IF REQUESTED, THE EXECUTIVE DIRECTOR MAY APPROVE THE USE OF A DEFLECTOMETER OR A MANDREL WITH REMOVABLE LEGS OR RUNNERS ON A CASE-BY-CASE BASIS.
- FOR A GRAVITY COLLECTION SYSTEM PIPE WITH AN INSIDE DIAMETER 27 INCHES AND GREATER, OTHER TEST METHODS MAY BE USED TO DETERMINE VERTICAL DEFLECTION. A DEFLECTION TEST METHOD MUST BE ACCURATE TO WITHIN PLUS OR MINUS 0.2% DEFLECTION.
- AN OWNER SHALL NOT CONDUCT A DEFLECTION TEST UNTIL AT LEAST 30 DAYS AFTER THE FINAL BACKFILL.
- GRAVITY COLLECTION SYSTEM PIPE DEFLECTION MUST NOT EXCEED FIVE PERCENT (5%).
  - IF A PIPE SECTION FAILS A DEFLECTION TEST, AN OWNER SHALL CORRECT THE PROBLEM AND CONDUCT A SECOND TEST AFTER THE FINAL BACKFILL HAS BEEN IN PLACE AT LEAST 30 DAYS.

- ALL MANHOLES MUST BE TESTED TO MEET OR EXCEED THE REQUIREMENTS OF 30 TAC §217.58.
- ALL MANHOLES MUST PASS A LEAKAGE TEST.
- AN OWNER SHALL TEST EACH MANHOLE (AFTER ASSEMBLY AND BACKFILLING) FOR LEAKAGE, SEPARATE AND INDEPENDENT OF THE COLLECTION SYSTEM PIPES, BY HYDROSTATIC EXFILTRATION TESTING, VACUUM TESTING, OR OTHER METHOD APPROVED BY THE EXECUTIVE DIRECTOR.
- HYDROSTATIC TESTING.
  - THE MAXIMUM LEAKAGE FOR HYDROSTATIC TESTING OR ANY ALTERNATIVE TEST METHODS IS 0.025 GALLONS PER FOOT DIAMETER PER FOOT OF MANHOLE DEPTH PER HOUR.
- TO PERFORM A HYDROSTATIC EXFILTRATION TEST, AN OWNER SHALL SEAL ALL WASTEWATER PIPES COMING INTO A MANHOLE WITH AN INTERNAL PIPE PLUG, FILL THE MANHOLE WITH WATER, AND MAINTAIN THE TEST FOR AT LEAST ONE HOUR.
- A TEST FOR CONCRETE MANHOLES MAY USE A 24-HOUR WETTING PERIOD BEFORE TESTING TO ALLOW SATURATION OF THE CONCRETE.
- VACUUM TESTING.
  - TO PERFORM A VACUUM TEST, AN OWNER SHALL PLUG ALL LIFT HOLES AND EXTERIOR JOINTS WITH A NON-SHRINK GROUT AND PLUG ALL PIPES ENTERING A MANHOLE.
  - NO GROUT MUST BE PLACED IN HORIZONTAL JOINTS BEFORE TESTING.
  - STUB-OUTS, MANHOLE BOOTS, AND PIPE PLUGS MUST BE SECURED TO PREVENT MOVEMENT WHILE A VACUUM IS DRAWN.
  - AN OWNER SHALL USE A MINIMUM 60 INCH/LB TORQUE WRENCH TO TIGHTEN THE EXTERNAL CLAMPS THAT SECURE A TEST COVER TO THE TOP OF A MANHOLE.
  - A TEST HEAD MUST BE PLACED AT THE INSIDE OF THE TOP OF A CONE SECTION, AND THE SEAL INFLATED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
  - THERE MUST BE A VACUUM OF 10 INCHES OF MERCURY INSIDE A MANHOLE TO PERFORM A VALID TEST.
  - A TEST DOES NOT BEGIN UNTIL AFTER THE VACUUM PUMP IS OFF.
  - A MANHOLE PASSES THE TEST IF AFTER 2.0 MINUTES AND WITH ALL VALVES CLOSED, THE VACUUM IS AT LEAST 9.0 INCHES OF MERCURY.

- ALL PRIVATE SERVICE LATERALS MUST BE INSPECTED AND CERTIFIED IN ACCORDANCE WITH 30 TAC §213.5(C)(3)(I). AFTER INSTALLATION OF AND, PRIOR TO COVERING AND CONNECTING A PRIVATE SERVICE LATERAL TO AN EXISTING ORGANIZED SEWAGE COLLECTION SYSTEM, A TEXAS LICENSED PROFESSIONAL ENGINEER, TEXAS REGISTERED SANITARIAN, OR APPROPRIATE CITY INSPECTOR MUST VISUALLY INSPECT THE PRIVATE SERVICE LATERAL AND THE CONNECTION TO THE SEWAGE COLLECTION SYSTEM, AND CERTIFY THAT IT IS CONSTRUCTED IN CONFORMITY WITH THE APPLICABLE PROVISIONS OF THIS SECTION. THE OWNER OF THE COLLECTION SYSTEM MUST MAINTAIN SUCH CERTIFICATIONS FOR FIVE YEARS AND FORWARD COPIES TO THE APPROPRIATE REGIONAL OFFICE UPON REQUEST. CONNECTIONS MAY ONLY BE MADE TO AN APPROVED SEWAGE COLLECTION SYSTEM.

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THESE GENERAL CONSTRUCTION NOTES MUST BE INCLUDED ON THE CONSTRUCTION PLANS PROVIDED TO THE CONTRACTOR AND ALL SUBCONTRACTORS.

SAWS CONSTRUCTION NOTES  
 (LAST REVISED JULY 2017)

SAWS GENERAL SECTION

- ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL BE APPROVED BY THE SAN ANTONIO WATER SYSTEM (SAWS) AND COMPLY WITH THE PLANS, SPECIFICATIONS, GENERAL CONDITIONS AND WITH THE FOLLOWING AS APPLICABLE:

- CURRENT TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) 'DESIGN CRITERIA FOR DOMESTIC WASTEWATER SYSTEM', TEXAS ADMINISTRATIVE CODE (TAC) TITLE 30 PART 1 CHAPTER 217 AND 'PUBLIC DRINKING WATER', TAC TITLE 30 PART 1 CHAPTER 290.
- CURRENT TxDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS AND DRAINAGE.
- CURRENT 'SAN ANTONIO WATER SYSTEM STANDARD SPECIFICATIONS FOR WATER AND SANITARY SEWER CONSTRUCTION'.
- CURRENT CITY OF SAN ANTONIO 'STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION'.
- CURRENT CITY OF SAN ANTONIO 'UTILITY EXCAVATION CRITERIA MANUAL' (UECM).

- THE CONTRACTOR SHALL NOT PROCEED WITH ANY PIPE INSTALLATION WORK UNTIL THEY OBTAIN A COPY OF THE APPROVED COUNTER PERMIT OR GENERAL CONSTRUCTION PERMIT (GCP) FROM THE CONSULTANT AND HAS BEEN NOTIFIED BY SAWS CONSTRUCTION INSPECTION DIVISION TO PROCEED WITH THE WORK AND HAS ARRANGED A MEETING WITH THE INSPECTOR AND CONSULTANT FOR THE WORK REQUIREMENTS, WORK COMPLETED BY THE CONTRACTOR WITHOUT AN APPROVED COUNTER PERMIT, AND/OR A GCP WILL BE SUBJECT TO REMOVAL AND REPLACEMENT AT THE EXPENSE OF THE CONTRACTORS AND/OR THE DEVELOPER.

- THE CONTRACTOR SHALL OBTAIN THE SAWS STANDARD DETAILS FROM THE SAWS WEBSITE, HTTP://WWW.SAWS.ORG/BUSINESS\_CENTER/SPECS. UNLESS OTHERWISE NOTED WITHIN THE DESIGN PLANS.

- THE CONTRACTOR IS TO MAKE ARRANGEMENTS WITH THE SAWS CONSTRUCTION INSPECTION DIVISION AT LEAST ONE WEEK IN ADVANCE OF THE SHUTDOWN (210) 233-2973, ON NOTIFICATION PROCEDURES THAT WILL BE USED TO NOTIFY AFFECTED HOME RESIDENTS AND/OR PROPERTY OWNERS 48 HOURS PRIOR TO BEGINNING ANY WORK.

- LOCATION AND DEPTH OF EXISTING UTILITIES AND SERVICE LATERALS SHOWN ON THE PLANS ARE UNDERSTOOD TO BE APPROXIMATE. ACTUAL LOCATIONS AND DEPTHS MUST BE FIELD VERIFIED BY THE CONTRACTOR AT LEAST 1 WEEK PRIOR TO CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE UTILITY SERVICE LINES AS REQUIRED FOR CONSTRUCTION AND TO PROTECT THEM DURING CONSTRUCTION AT NO COST TO SAWS.

- THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF UNDERGROUND UTILITIES AND DRAINAGE STRUCTURES AT LEAST 1-2 WEEKS PRIOR TO CONSTRUCTION WHETHER SHOWN ON PLANS OR NOT. PLEASE ALLOW UP TO 7 BUSINESS DAYS FOR LOCATING REQUESTED PIPE LOCATION MARKERS ON SAWS FACILITIES. THE FOLLOWING CONTACT INFORMATION ARE SUPPLIED FOR VERIFICATION PURPOSES:

- SAWS UTILITY LOCATES: HTTP://WWW.SAWS.ORG/SERVICE/LOCATES
- COSA DRAINAGE (210) 207-0724 OR (210) 207-6026
- COSA TRAFFIC SIGNAL OPERATIONS (210) 206-8480
- COSA TRAFFIC SIGNAL DAMAGES (210) 207-3951
- TEXAS STATE WIDE ONE CALL LOCATION 1-800-545-6005 OR 811

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING EXISTING FENCES, CURBS, STREETS, DRIVEWAYS, SIDEWALKS, LANDSCAPING AND STRUCTURES TO ITS ORIGINAL OR BETTER CONDITION IF DAMAGES ARE MADE AS A RESULT OF THE PROJECT'S CONSTRUCTION.

- ALL WORK IN TEXAS DEPARTMENT OF TRANSPORTATION (TxDOT) AND/OR BEXAR COUNTY RIGHT-OF-WAY SHALL BE DONE IN ACCORDANCE WITH RESPECTIVE CONSTRUCTION SPECIFICATIONS AND PERMIT REQUIREMENTS.

- THE CONTRACTOR SHALL COMPLY WITH CITY OF SAN ANTONIO OR OTHER GOVERNING MUNICIPALITY'S TREE ORDINANCES WHEN EXCAVATING NEAR TREES.

- THE CONTRACTOR SHALL NOT PLACE ANY WASTE MATERIALS IN THE 100-YEAR FLOOD PLAIN WITHOUT FIRST OBTAINING AN APPROVED FLOOD PLAN PERMIT.

- HOLIDAY WORK: CONTRACTORS WILL NOT BE ALLOWED TO PERFORM SAWS WORK ON SAWS RECOGNIZED HOLIDAYS. REQUEST SHOULD BE SENT TO CONSTWORKREQ@SAWS.ORG.

- WEEKEND WORK: CONTRACTORS ARE REQUIRED TO NOTIFY THE SAWS INSPECTION CONSTRUCTION DEPARTMENT 48 HOURS IN ADVANCE TO REQUEST WEEKEND WORK. REQUEST SHOULD BE SENT TO CONSTWORKREQ@SAWS.ORG.

ANY AND ALL SAWS UTILITY WORK INSTALLED WITHOUT HOLIDAY/WEEKEND APPROVAL WILL BE SUBJECT TO BE UNCOVERED FOR PROPER INSPECTION.

- COMPACTION NOTE (ITEM 804): THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING THE COMPACTION REQUIREMENTS ON ALL TRENCH BACKFILL AND FOR PAYING FOR THE TESTS PERFORMED BY A THIRD PARTY. COMPACTION TESTS WILL BE DONE AT ONE LOCATION POINT RANDOMLY SELECTED, OR AS INDICATED BY THE SAWS INSPECTOR AND/OR THE TEST ADMINISTRATOR, PER EACH 12-INCH LOOSE LIFT PER 400 LINEAR FEET AT A MINIMUM. THIS PROJECT WILL NOT BE ACCEPTED AND FINALIZED BY SAWS WITHOUT THIS REQUIREMENT BEING MET AND VERIFIED BY PROVIDING ALL NECESSARY DOCUMENTED TEST RESULTS.

- A COPY OF ALL TESTING REPORTS SHALL BE FORWARDED TO SAWS CONSTRUCTION INSPECTION DIVISION.

SAWS SEWER NOTES

- THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT NO SANITARY SEWER OVERFLOW (SSO) OCCURS AS A RESULT OF THEIR WORK. ALL CONTRACTOR PERSONNEL RESPONSIBLE FOR SSO PREVENTION AND CONTROL SHALL BE TRAINED ON PROPER RESPONSE. SHOULD AN SSO OCCUR, THE CONTRACTOR SHALL:

- IDENTIFY THE SOURCE OF THE SSO AND NOTIFY SAWS EMERGENCY OPERATIONS CENTER (EOC) IMMEDIATELY AT (210) 233-2014. PROVIDE THE ADDRESS OF THE SPILL AND AN ESTIMATED VOLUME OR FLOW.
- ATTEMPT TO ELIMINATE THE SOURCE OF THE SSO.
- CONTAIN SEWAGE FROM THE SSO TO THE EXTENT OF PREVENTING A POSSIBLE CONTAMINATION OF WATERWAYS.
- CLEAN UP SPILL SITE (RETURN CONTAINED SEWAGE TO THE COLLECTION SYSTEM IF POSSIBLE) AND PROPERLY DISPOSE OF CONTAMINATED SOIL/MATERIALS.
- CLEAN THE AFFECTED SEWER MAINS AND REMOVE ANY DEBRIS.

F. MEET ALL POST-SSO REQUIREMENTS AS PER THE EPA CONSENT DECREE, INCLUDING LINE CLEANING AND TELEVISIONING THE AFFECTED SEWER MAINS (AT SAWS DIRECTION) WITHIN 24 HOURS.

SHOULD THE CONTRACTOR FAIL TO ADDRESS AN SSO IMMEDIATELY AND TO SAWS SATISFACTION, THEY WILL BE RESPONSIBLE FOR ALL COSTS INCURRED BY SAWS, INCLUDING ANY FINES FROM EPA, TCEQ AND/OR ANY OTHER FEDERAL, STATE OR LOCAL AGENCIES.

NO SEPARATE MEASUREMENT OR PAYMENT SHALL BE MADE FOR THIS WORK. ALL WORK SHALL BE DONE ACCORDING TO GUIDELINES SET BY THE TCEQ AND SAWS.

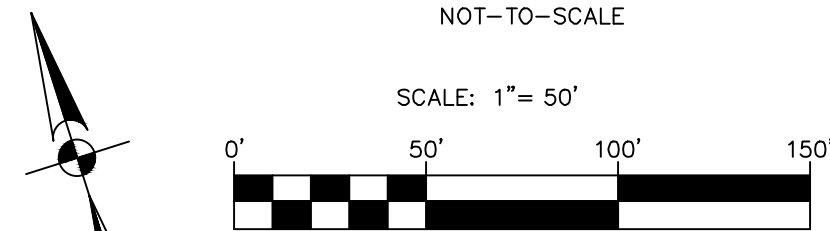
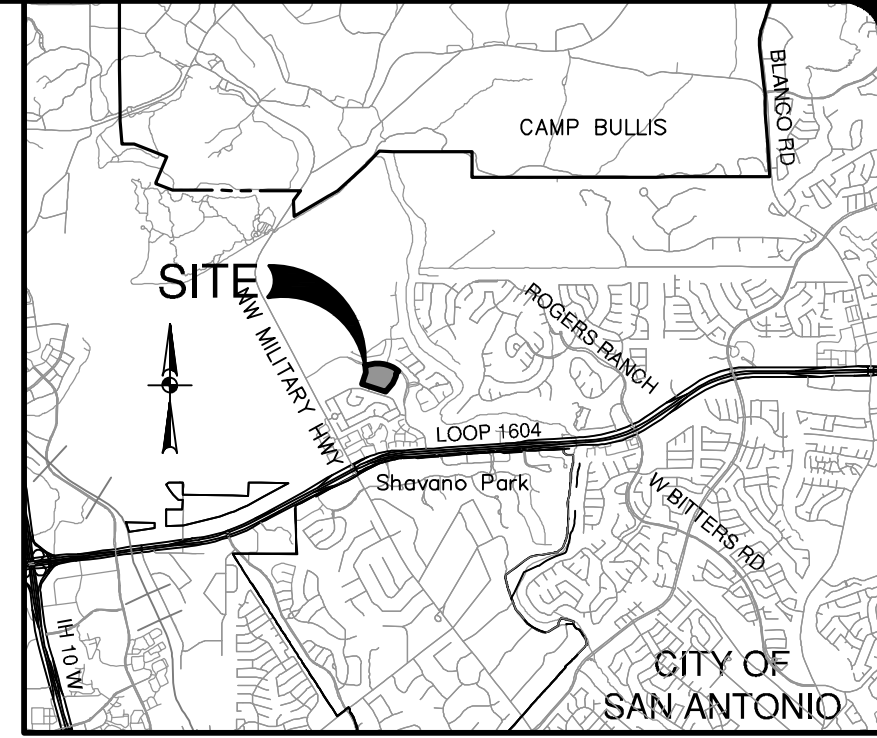
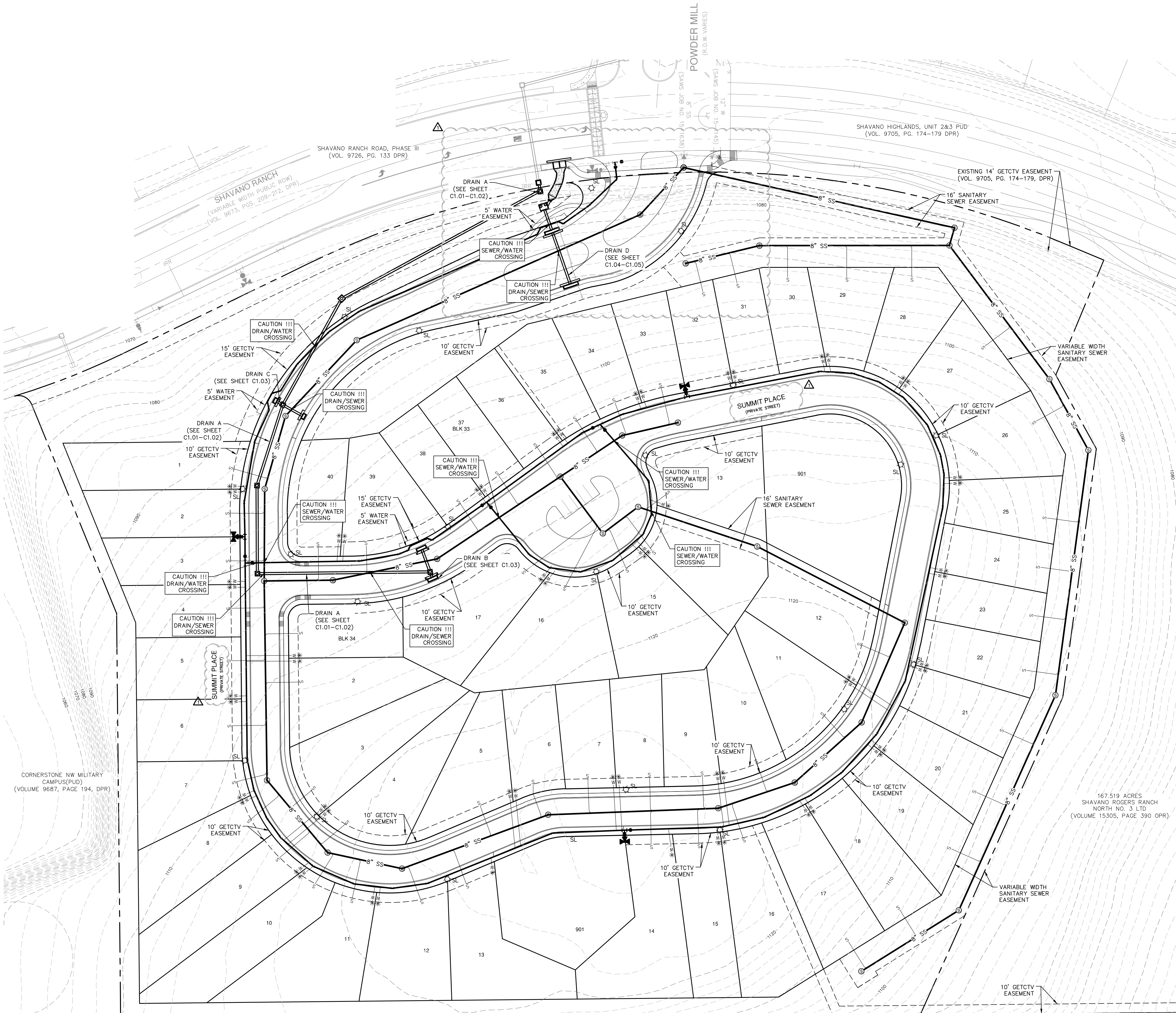
- IF BYPASS PUMPING IS REQUIRED, THE CONTRACTOR SHALL PERFORM SUCH WORK IN ACCORDANCE WITH SAWS STANDARD SPECIFICATION FOR WATER AND SANITARY SEWER CONSTRUCTION, ITEM NO. 864, "BYPASS PUMPING".

- PRIOR TO TIE-INS, ANY SHUTDOWNS OF EXISTING FLOW MAINS OF ANY SIZE MUST BE COORDINATED WITH THE SAWS CONSTRUCTION INSPECTION DIVISION AT (210) 233-2973 AT LEAST ONE WEEK IN ADVANCE OF THE SHUTDOWN. THE CONTRACTOR MUST ALSO PROVIDE A SEQUENCE OF WORKS AS RELATED TO THE TIE-INS; THIS IS AT NO ADDITIONAL COST TO SAWS OR THE PROJECT AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO SEQUENCE THE WORK ACCORDINGLY.



Notes: Rev. 10/2024, 8/3/2021, User ID: R164042024  
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#### UTILITY LEGEND

PROJECT LIMITS	---
EXISTING WATER	W
EXISTING SEWER	SS
PROPOSED SEWER	SS MANHOLE
PROPOSED WATER	FIRE HYDRANT
PROPOSED WYE & LATERAL	W
SINGLE WATER SERVICE	W
DUAL WATER SERVICE	W
STREET LIGHTS	SL
GAS, ELECTRIC, TELEPHONE & CABLE TELEVISION EASEMENT	GETCTV

#### CONDUIT NOTES:

- CONTRACTOR SHALL INSTALL PERMANENT MARKERS IN PROPOSED CURB WHERE CONDUITS CROSS THE ROADWAY (BOTH SIDES).
- CONDUITS SHALL BE PVC WITH MINIMUM BURY OF 36 INCHES BELOW PROPOSED FINISHED GRADE. SCHEDULE 80 TO BE USED FOR GFS CONDUITS, ALL OTHER CONDUITS ARE SCHEDULE 40.
- ALL CONDUITS SHALL BE EXTENDED BEHIND CURBS OR PROPOSED SIDEWALKS A MINIMUM OF 3 FEET AND CAPPED FOR FUTURE USE.
- ALL CONDUIT SLEEVES TO BE USED FOR ELECTRIC, GAS, OR TELECOMMUNICATION UTILITY CROSSINGS SHALL BE INSTALLED TO MEET OR EXCEED DESIGN REQUIREMENTS FOR THE UTILITY AGENCY WHICH THEY ARE SERVING, INCLUDING BUT NOT LIMITED TO THE DEPTH, TRENCH PLACEMENT, AND PROXIMITY TO OTHER UTILITIES. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR VERIFYING AND INSTALLING THE CONDUIT SLEEVES TO MEET THESE SPECIFICATIONS INCLUDING COORDINATING WITH THE UTILITY AGENCY FOR ANY REQUIRED INSPECTIONS.

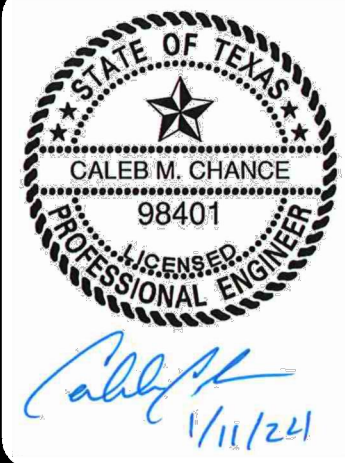
#### TRENCH EXCAVATION SAFETY PROTECTION:

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/ GEOTECHNICAL/ SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

#### CAUTION!!!

CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITING TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRICAL, ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT 1-800-DIG-TESS A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.

NO.	REVISION	DATE
1	REVISED STREET NAME & LAYOUT	07/08/2024

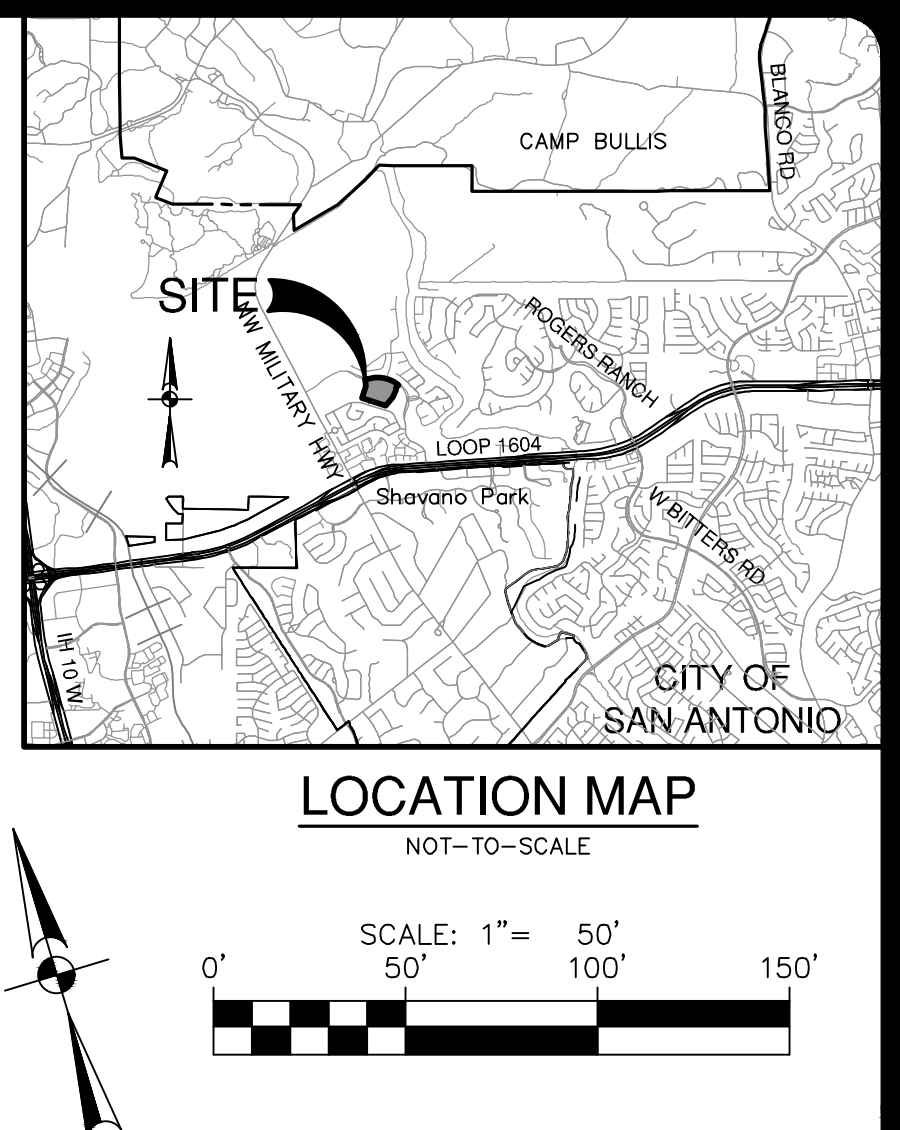
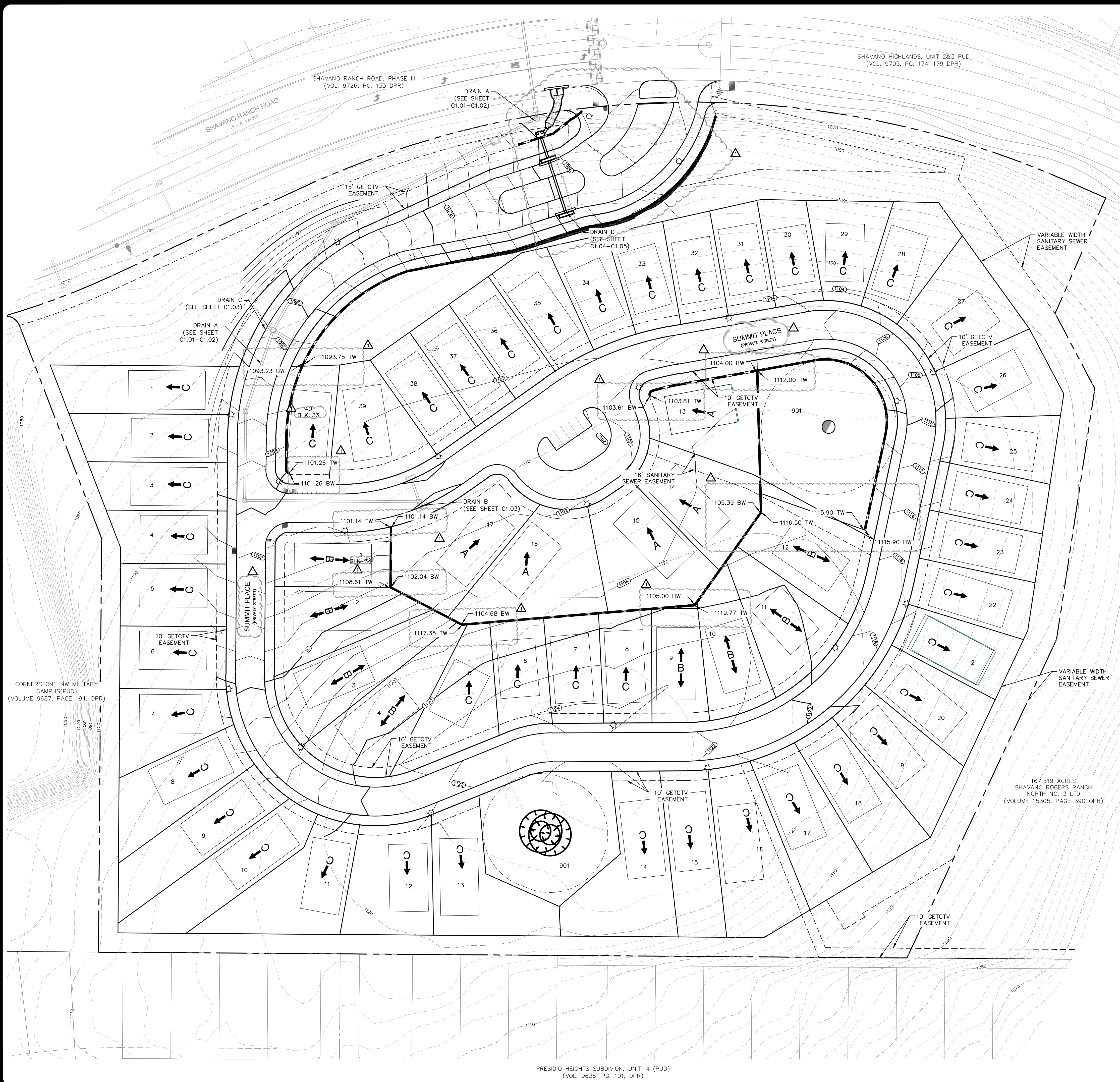


**PAPE-DAWSON ENGINEERS**  
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000  
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10088600

**SHAVANO HIGHLANDS HILLTOP**  
SAN ANTONIO, TEXAS  
**UTILITY PLAN**

PLAT NO.	23-11800016
JOB NO.	8834-25
DATE	MARCH 2023
DESIGNER	RG
CHECKED	BL
DRAWN	RG
SHEET	C6.00





GRADING LEGEND	
PROJECT LIMITS	---
100 YR FLOODPLAIN	---
EXISTING CONTOUR	---
PROPOSED CONTOUR	---
FLOW ARROW (PROPOSED)	→
EXPOSED ROCK WALL	---

- GRADING NOTES:**
- ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THIS SCOPE OF WORK WHERE NOT SPECIFICALLY COVERED IN THE SPECIFICATIONS OR GEOTECHNICAL REPORT SHALL CONFORM TO ALL APPLICABLE CITY, COUNTY AND TxDOT STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (LATEST EDITION).
  - SITE PREPARATION, GRADING, EXCAVATION AND FILL SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT GEOTECHNICAL REPORT AND SPECIFICATIONS.
  - ALL SELECT FILL MATERIAL PROVIDED SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACING AND COMPACTING.
  - ALL ELEVATIONS AND PROPOSED CONTOURS SHOWN ON THIS GRADING PLAN REFLECT FINISHED GRADES. THE THICKNESS OF PAVING, BASE, GRASS, TOPSOIL, AND MULCH MUST BE SUBTRACTED TO OBTAIN SUBGRADE ELEVATIONS.
  - THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY QUESTIONS THAT MAY ARISE CONCERNING THE INTENT, PLACEMENT, OR LIMITS OF DIMENSIONS OR GRADES NECESSARY FOR CONSTRUCTION OF THIS PROJECT.
  - THE CONTRACTOR SHALL VERIFY THE SUITABILITY OF ALL EXISTING AND PROPOSED SITE CONDITIONS INCLUDING GRADES AND DIMENSIONS BEFORE COMMENCEMENT OF CONSTRUCTION. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES.
  - THE CONTRACTOR SHALL BE RESPONSIBLE FOR ACQUIRING ALL PERMITS, TESTS, APPROVALS AND ACCEPTANCES REQUIRED TO COMPLETE CONSTRUCTION OF THIS PROJECT.
  - THE CONTRACTOR SHALL REMOVE TOP SOIL, GRASS, ROOTS, DEBRIS, ETC. AND DISPOSE OFF SITE THOSE MATERIALS NOT SUITABLE FOR EMBANKMENT AND TOPSOIL. CLEAN STRIPPINGS AND TOPSOIL MAY BE STOCKPILED ON SITE FOR REUSE IN A LOCATION SPECIFIED BY THE OWNER.
  - THE SITE CONTRACTOR SHALL BE RESPONSIBLE FOR SITE STABILIZATION, ALL DISTURBED AREAS SHALL BE REVEGETATED IN ACCORDANCE WITH PROJECT SPECIFICATIONS AND TPDES/SMPPP REQUIREMENTS. REFERENCE THE LANDSCAPE ARCHITECT'S PLAN, IF APPLICABLE.
  - THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS (USE OF SILT FENCES, ETC.) TO KEEP DRAINAGE AND SILT FROM WASHING ONTO ADJACENT PROPERTY, STREETS, OR DRAINAGE WAYS. CONTRACTOR SHALL IMMEDIATELY REMOVE SILT/DEBRIS WHICH WASHES OFFSITE OR INTO EXISTING STORM DRAIN SYSTEMS. (SEE SWPPP PLANS & TPDES BOOK).
  - THE CONTRACTOR SHALL OBTAIN GRADES SHOWN HEREON WITHIN +/- ONE-TENTH (0.10) FOOT.
  - IN PROPOSED PAVING AREAS, STREET DESIGN PLANS SHALL CONTROL. ALL EARTHEN SLOPES SHALL BE A MAXIMUM OF 3:1 AND A MINIMUM OF 1.0% UNLESS OTHERWISE SHOWN.
  - THE CONTRACTOR SHALL PROVIDE A SMOOTH TRANSITION BETWEEN EXISTING SITE AND PROPOSED IMPROVEMENTS.
  - THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING TO ITS ORIGINAL, OR BETTER, CONDITION ANY DAMAGE DONE TO EXISTING TREES, BUILDINGS, UTILITIES, FENCES, PAVEMENT, CURBS, OR DRIVEWAYS (NO SEPARATE PAY ITEMS).
  - THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION IN WORKING NEAR UTILITIES, GAS LINES, SEWER, OR EXISTING APPURTENANCES. PRIOR TO PERFORMING ANY EXCAVATION, CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES AND ASSURE HIMSELF THAT ALL UTILITIES HAVE BEEN ADEQUATELY LOCATED AND IDENTIFIED. THE ENGINEER SHALL BE NOTIFIED IF ANY UTILITY CONFLICTS ARE DISCOVERED.
  - UTILITIES SHOWN ON THE PLANS ARE FROM INFORMATION SOURCES AVAILABLE AT THE TIME OF DESIGN BUT MAY NOT REPRESENT ALL EXISTING UTILITIES ON SITE. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL UTILITIES WHETHER SHOWN ON THE PLANS OR NOT. THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES PRIOR TO CONSTRUCTION AND VERIFY SIZE, GRADE AND LOCATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DEVIATIONS FROM PLANS PRIOR TO BEGINNING CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, SHALL BE THE CONTRACTORS RESPONSIBILITY TO REPAIR, AT HIS OWN EXPENSE.
  - POSITIVE DRAINAGE SHALL BE MAINTAINED THROUGHOUT THE SCOPE OF THE PROJECT. DRAINAGE SHALL BE DIRECTED AWAY FROM ALL BUILDING FOUNDATIONS. CONTRACTOR SHOULD TAKE PRECAUTIONS NOT TO ALLOW ANY PONDING OF WATER.
  - FOR FILL PLACEMENT ON HILL SIDES OR STEEP SLOPE AREAS, THE CONTRACTOR SHALL REFERENCE THE PROJECT SPECIFICATIONS AND GEOTECHNICAL REPORT FOR SPECIAL INSTRUCTIONS REGARDING BENCHING.
  - NO WORK SHALL BE PERFORMED IN A PUBLIC RIGHT-OF-WAY WITHOUT A PERMIT.

DATE  
12/08/2024

NO. REVISION  
REVISED ENTRANCE AND STREET NAME

STATE OF TEXAS  
CALEB M. CHANCE  
PROFESSIONAL ENGINEER  
98401  
1/11/24

SHAVANO HIGHLANDS HILLTOP  
SAN ANTONIO, TEXAS

GRADING PLAN

PLAT NO. 23-11800016

JOB NO. 8834-25

DATE MARCH 2023

DESIGNER RG

CHECKED BL DRAWN EG

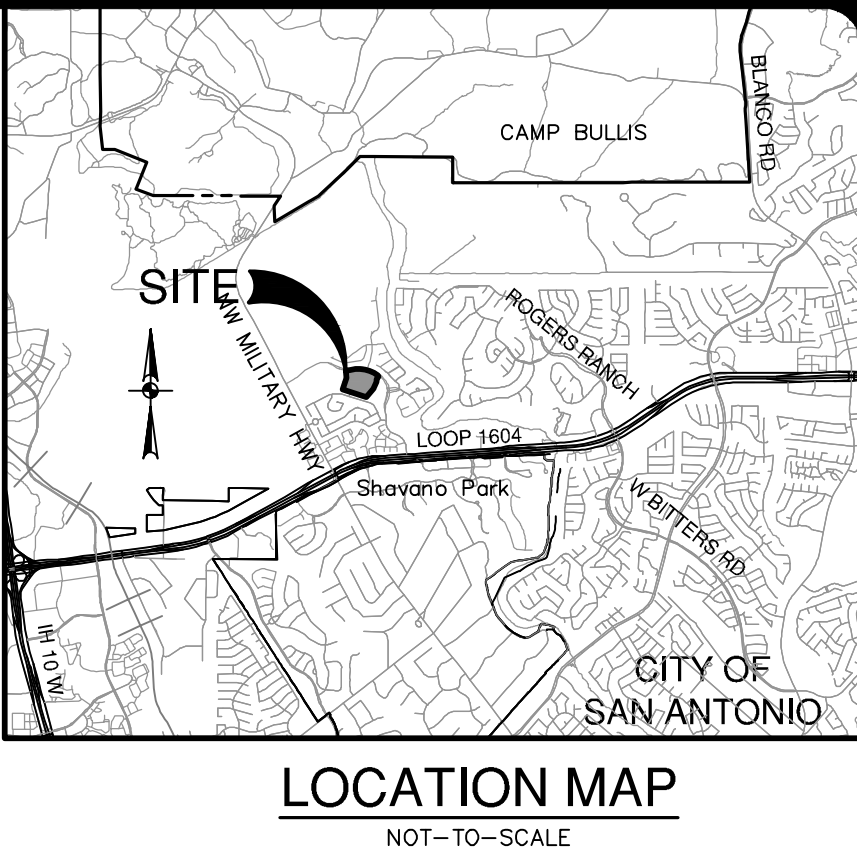
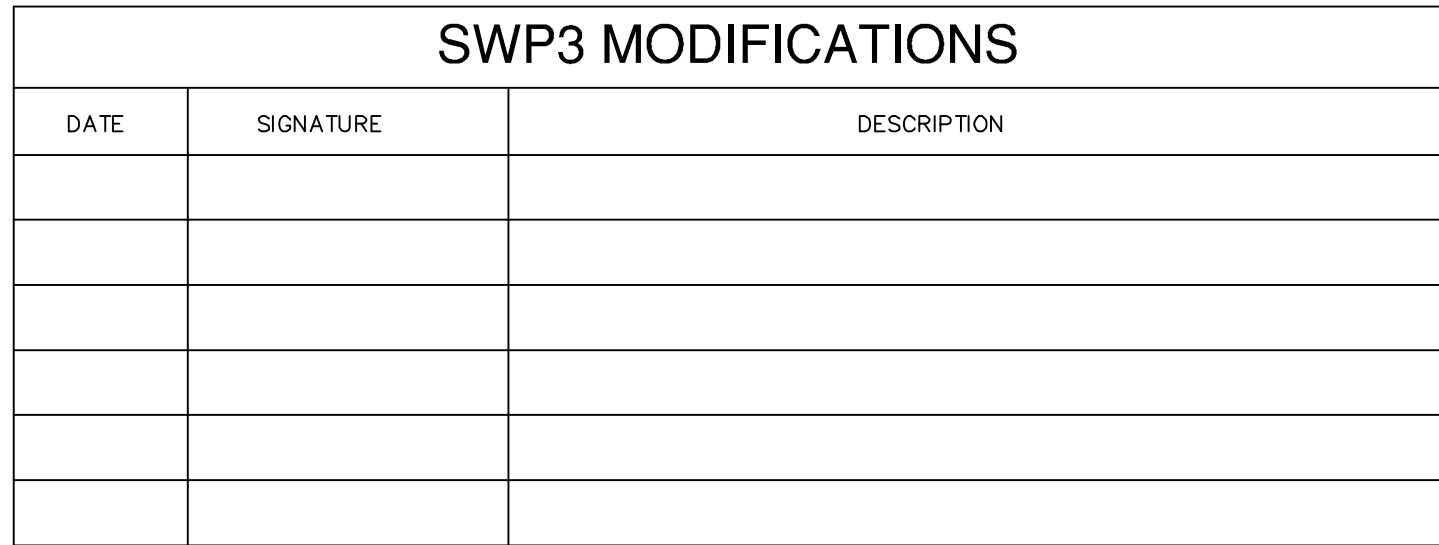
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PRESIDIO HEIGHTS SUBDIVISION, UNIT-4 (PUD)  
(VOL. 9636, PG. 101, DPR)





The diagram illustrates the proposed construction layout for the 18.913 AC disturbed area. It shows the following elements from top to bottom:

- PROJECT LIMITS:** Indicated by a solid horizontal line.
- EXISTING CONTOUR:** Indicated by a dashed horizontal line at elevation -976.
- PROPOSED CONTOUR:** Indicated by a solid horizontal line at elevation -970.
- FLOW ARROW (EXISTING):** A light gray arrow pointing to the right.
- FLOW ARROW (PROPOSED):** A thick black arrow pointing to the right.
- SILT FENCE:** Represented by a line with diagonal hatching.
- ROCK BERM:** Represented by a line with diamond-shaped patterns.
- GRAVEL FILTER BAGS:** Represented by a line with solid black oval patterns.
- GRATE INLET PROTECTION:** Represented by a line with solid black circle patterns.
- SEDIMENT CONTROL ROLL:** Represented by a line with a brick-like pattern.
- LIMITS OF DISTURBED AREA (18.913 AC):** A large rectangular area with a light gray background.
- STABILIZED CONSTRUCTION ENTRANCE/EXIT (FIELD LOCATE):** A rectangular area with a brick-like pattern.
- CONSTRUCTION EQUIPMENT, VEHICLE & MATERIALS STORAGE AREA (FIELD LOCATE):** A rectangular area with diagonal hatching.
- CONCRETE TRUCK WASH-OUT PIT (FIELD LOCATE):** A rectangular area with a pattern of small dots.

1. DO NOT DISTURB VEGETATED AREAS (TREES, GRASS, WEEDS, BUSH, ETC.) ANY MORE THAN NECESSARY FOR CONSTRUCTION.

2. CONSTRUCTION ENTRANCE/EXIT LOCATION, CONCRETE WASH-OUT PIT, AND CONSTRUCTION EQUIPMENT AND MATERIAL STORAGE YARD TO BE DETERMINED IN THE FIELD.

3. STORM WATER POLLUTION PREVENTION CONTROLS MAY NEED TO BE MODIFIED IN THE FIELD TO ACCOMPLISH THE DESIRED EFFECT. ALL MODIFICATIONS ARE TO BE NOTED ON THIS EXHIBIT AND SIGNED AND DATED BY THE RESPONSIBLE PARTY.

4. RESTRICT ENTRY/EXIT TO THE PROJECT SITE TO DESIGNATED LOCATIONS BY USE OF ADEQUATE FENCING, IF NECESSARY.

5. ALL STORM WATER POLLUTION PREVENTION CONTROLS ARE TO BE MAINTAINED AND IN WORKING CONDITIONS AT ALL TIMES.

6. FOR A COMPLETE LISTING OF TEMPORARY STORM WATER POLLUTION PREVENTION CONTROLS REFER TO THE TPDES STORM WATER POLLUTION PREVENTION PLAN.

7. STORM WATER POLLUTION PREVENTION STRUCTURES SHOULD BE CONSTRUCTED WITHIN THE SITE BOUNDARIES. SOME OF THESE FEATURES MAY BE SHOWN OUTSIDE THE SITE BOUNDARIES ON THIS PLAN FOR VISUAL CLARITY.

8. AS SOON AS PRACTICAL, ALL DISTURBED SOIL THAT WILL NOT BE COVERED BY IMPERVIOUS COVER SUCH AS PARKWAY AREAS, EASEMENT AREAS, EMBANKMENT SLOPES, ETC. WILL BE STABILIZED PER APPLICABLE PROJECT SPECIFICATIONS.

9. BEST MANAGEMENT PRACTICES MAY BE INSTALLED IN STAGES TO COINCIDE WITH THE DISTURBANCE OF UPGRADE AREAS.

10. BEST MANAGEMENT PRACTICES MAY BE REMOVED IN STAGES ONCE THE WATERSHED FOR THAT PORTION CONTROLLED BY THE BEST MANAGEMENT PRACTICES HAS BEEN STABILIZED IN ACCORDANCE WITH TPDES REQUIREMENTS.

11. UPON COMPLETION OF THE PROJECT, INCLUDING SITE STABILIZATION, AND BEFORE FINAL PAYMENT IS ISSUED, CONTRACTOR SHALL REMOVE ALL SEDIMENT AND EROSION CONTROL MEASURES, PAYING SPECIAL ATTENTION TO ROCK BERMS IN DRAINAGE FEEDERS.

12. WHERE VEGETATED FILTER STRIPS ARE INDICATED, CONTRACTOR SHALL VERIFY THAT SUFFICIENT VEGETATION EXISTS, OTHERWISE CONTRACTOR SHALL PLACE SILT FENCING IN LIEU OF VEGETATED FILTER STRIP.

13. SHADED AREA [ ] DENOTES LIMITS OF DISTURBED AREAS, OTHER AREAS WITHIN THE PROJECT LIMITS, WITH THE EXCEPTION OF A LIMITED AMOUNT OF EQUIPMENT AND MATERIAL STORAGE YARD, ARE NOT A PART OF THIS TPDES STORM WATER POLLUTION PREVENTION PLAN (SWP3) AND WILL NOT BE DISTURBED BY CIVIL CONSTRUCTION ACTIVITIES. HOUSE CONSTRUCTION ACTIVITIES WILL REQUIRE A SEPARATE STORM WATER POLLUTION PREVENTION PLAN.

14. PRIOR TO BEGINNING CONSTRUCTION, CONTRACTOR SHALL COORDINATE PLACEMENT OF ANY BEST MANAGEMENT PRACTICES WITHIN THIS PROJECT-OF-WORK WITH TxDOT.

15. CPS ENERGY WILL FUNCTION AS A SECONDARY OPERATOR ON THIS PROJECT AND OFF-SITE WILL INSTALL ELECTRIC UTILITIES FOR ON-SITE CONSTRUCTION AND OFF-SITE WILL FEED TO THE PROJECT.

THE ENGINEERING SEAL HAS BEEN AFFIXED TO THIS SHEET ONLY FOR THE PURPOSE OF DEMONSTRATING COMPLIANCE WITH THE TPDES-STORM WATER POLLUTION PREVENTION PLAN (SWP3) REGULATIONS.

THIS SHEET HAS BEEN PREPARED FOR PURPOSES OF THE SWP3 ONLY. ALL OTHER CIVIL ENGINEERING RELATED INFORMATION SHOULD BE ACQUIRED FROM THE APPROPRIATE SHEET IN THE CIVIL IMPROVEMENT PLANS.

EXHIBIT 2

[illegible]

**PAPE-DAWSON  
ENGINEERS**

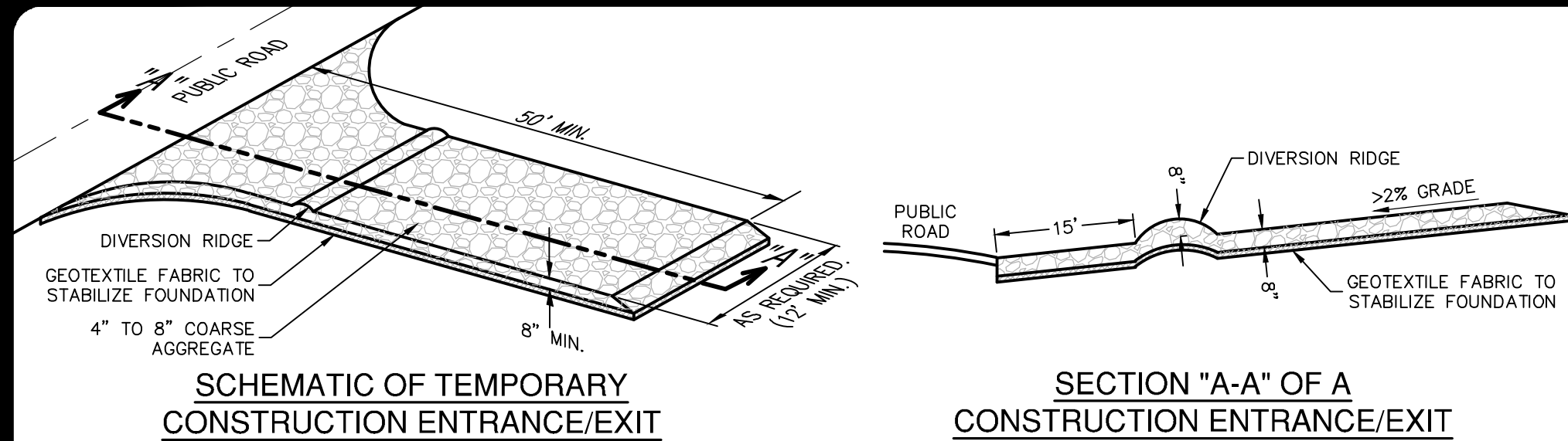
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
22000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000  
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028600

**SHAVANO HIGHLANDS HILLTOP**  
**SAN ANTONIO, TEXAS**

SWPPP

PLAT NO. 23-11800016  
JOB NO. 8834-25  
DATE MARCH 2023  
DESIGNER RG  
CHECKED BL DRAWN EG  
SHEET C8.00



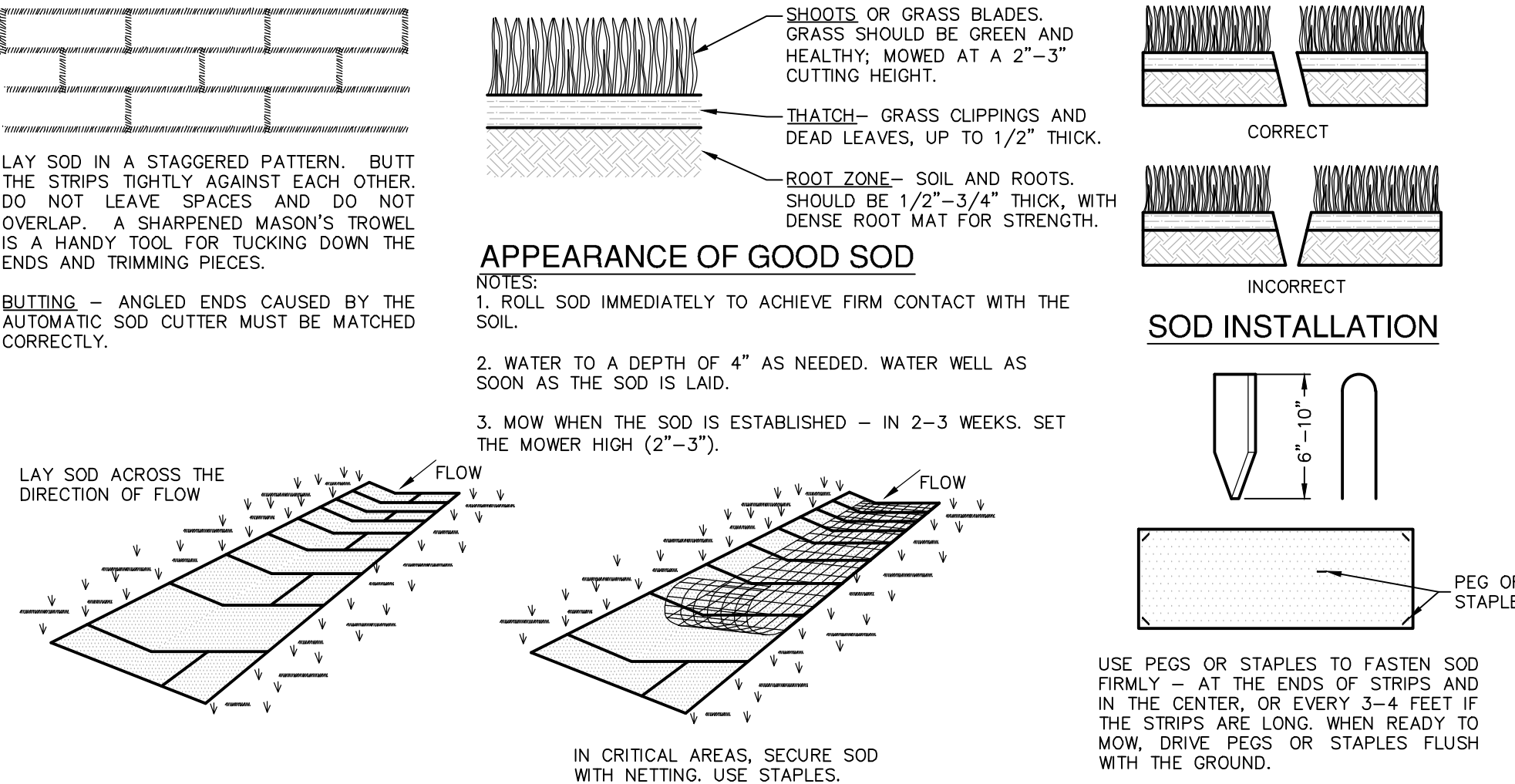


- MATERIALS**
1. THE AGGREGATE SHOULD CONSIST OF 4-INCH TO 8-INCH WASHED STONE OVER A STABLE FOUNDATION AS SPECIFIED IN THE PLAN.
  2. THE AGGREGATE SHOULD BE PLACED WITH A MINIMUM THICKNESS OF 8-INCHES.
  3. THE GEOTEXTILE FABRIC SHOULD BE DESIGNED SPECIFICALLY FOR USE AS A SOIL FILTRATION MEDIA WITH AN APPROXIMATE WEIGHT OF 6 OZ/YD<sup>2</sup>, A MULLEN BURST RATING OF 140 LB/IN<sup>2</sup>, AND AN EQUIVALENT OPENING SIZE GREATER THAN A NUMBER 50 SIEVE.
  4. IF A WASHING FACILITY IS REQUIRED, A LEVEL AREA WITH A MINIMUM OF 4-INCH DIAMETER WASHED STONE OR COMMERCIAL ROCK SHOULD BE INCLUDED IN THE PLANS. DIVERT WASTEWATER TO A SEDIMENT TRAP OR BASIN.

- INSTALLATION**
1. AVOID CURVES ON PUBLIC ROADS AND STEEP SLOPES. REMOVE VEGETATION AND OTHER OBJECTIONABLE MATERIAL FROM THE FOUNDATION AREA. GRADE CROWN FOUNDATION FOR POSITIVE DRAINAGE.
  2. THE MINIMUM WIDTH OF THE ENTRANCE/EXIT SHOULD BE 12 FEET OR THE FULL WIDTH OF EXIT ROADWAY, WHICHEVER IS GREATER.
  3. THE CONSTRUCTION ENTRANCE SHOULD BE AT LEAST 50 FEET LONG.
  4. IF THE SLOPE TOWARD THE ROAD EXCEEDS 2%, CONSTRUCT A RIDGE, 6-INCHES TO 8-INCHES HIGH WITH 3:1 (H:V) SIDE SLOPES, ACROSS THE FOUNDATION APPROXIMATELY 15 FEET FROM THE ENTRANCE TO DIVERT RUNOFF AWAY FROM THE PUBLIC ROAD.
  5. PLACE GEOTEXTILE FABRIC AND GRADE FOUNDATION TO IMPROVE STABILITY, ESPECIALLY WHERE WET CONDITIONS ARE ANTICIPATED.
  6. PLACE STONE TO DIMENSIONS AND GRADE SHOWN ON PLANS. LEAVE SURFACE SMOOTH AND SLOPE FOR DRAINAGE.
  7. DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM THE STONE PAD TO A SEDIMENT TRAP OR BASIN.
  8. INSTALL PIPE UNDER PAD AS NEEDED TO MAINTAIN PROPER PUBLIC ROAD DRAINAGE.

### STABILIZED CONSTRUCTION ENTRANCE/EXIT DETAIL

NOT-TO-SCALE



- MATERIALS**
1. SOD SHOULD BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 3/4" INCH (± 1/4" INCH) AT THE TIME OF CUTTING. THIS THICKNESS SHOULD EXCLUDE SHOOT GROWTH AND THATCH.
  2. PIECES OF SOD SHOULD BE CUT TO THE SUPPLIER'S STANDARD WIDTH AND LENGTH, WITH A MAXIMUM ALLOWABLE DEVIATION IN ANY DIRECTION OF 5%. TORN OR UNEVEN PADS SHOULD NOT BE ACCEPTABLE.
  3. STANDARD SIZE SECTIONS OF SOD SHOULD BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT, THEIR SIZE AND SHAPE WHEN SUBSEQUENT ROWS ARE PLACED. SOD SHOULD BE INSTALLED WITH THE LENGTH PERPENDICULAR TO THE SLOPE (ON CONTOUR).
  4. SOD SHOULD BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS.

### SITE PREPARATION

1. PRIOR TO SOIL PREPARATION, AREAS TO BE SODDED SHOULD BE BROUGHT TO FINAL GRADE IN ACCORDANCE WITH THE APPROVED PLAN.
2. THE SURFACE SHOULD BE CLEARED OF ALL TRASH, DEBRIS AND OF ALL ROOTS, BRUSH, WIRE, GRADE STAKES AND OTHER OBJECTS THAT WOULD INTERFERE WITH PLANTING, FERTILIZING OR MAINTENANCE OPERATIONS.
3. FERTILIZE ACCORDING TO SOIL TESTS. FERTILIZER NEEDS CAN BE DETERMINED BY A SOIL TESTING LABORATORY OR REGIONAL RECOMMENDATIONS CAN BE MADE BY COUNTY AGRICULTURAL EXTENSION AGENTS. FERTILIZER SHOULD BE WORKED INTO THE SOIL TO A DEPTH OF 3 INCHES WITH A DISC, SPRINGTOOTH HARROW OR OTHER SUITABLE EQUIPMENT ON SLOPING LAND, THE FINAL HARROWING OR DISCING OPERATION SHOULD BE ON THE CONTOUR.

### INSTALLATION IN CHANNELS

1. SOD STRIPS IN WATERWAYS SHOULD BE LAID PERPENDICULAR TO THE DIRECTION OF FLOW. CARE SHOULD BE TAKEN TO BUTT ENDS OF STRIPS TIGHTLY (SEE FIGURE ABOVE).
2. AFTER ROLLING OR TAMPING, SOD SHOULD BE PEGGED OR STAPLED TO RESIST WASHOUT DURING THE ESTABLISHMENT PERIOD. MESH OR OTHER NETTING MAY BE PEGGED OVER THE SOD FOR EXTRA PROTECTION IN CRITICAL AREAS.

### SOD INSTALLATION DETAIL

NOT-TO-SCALE

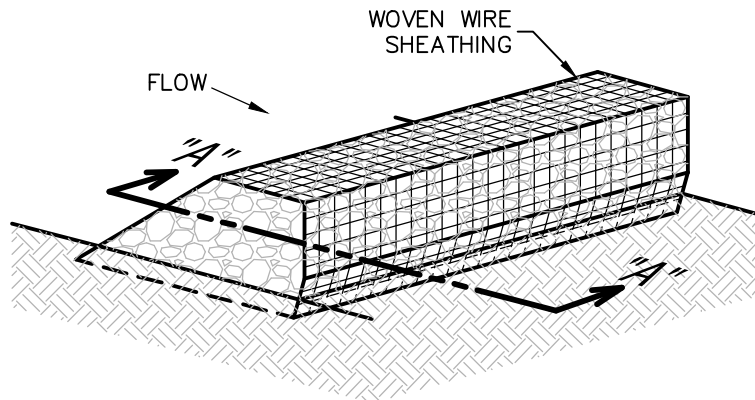
### COMMON TROUBLE POINTS

1. INADEQUATE RUNOFF CONTROL-SEDIMENT WASHES ONTO PUBLIC ROAD.
2. STONE TOO SMALL OR GEOTEXTILE FABRIC ABSENT, RESULTS IN MUDDY CONDITION AS STONE IS PRESSED INTO SOIL.
3. PAD TOO SHORT FOR HEAVY CONSTRUCTION TRAFFIC-EXTEND PAD BEYOND THE MINIMUM 50-FOOT LENGTH AS NECESSARY.
4. PAD NOT FLARED SUFFICIENTLY AT ROAD SURFACE, RESULTS IN MUD BEING TRACKED ON TO ROAD AND POSSIBLE DAMAGE TO ROAD.
5. UNSTABLE FOUNDATION - USE GEOTEXTILE FABRIC UNDER PAD AND/OR IMPROVE FOUNDATION DRAINAGE.

### INSPECTION AND MAINTENANCE GUIDELINES

1. THE ENTRANCE SHOULD BE MAINTAINED IN A CONDITION, WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY SHOULD BE REMOVED IMMEDIATELY BY CONTRACTOR.
3. WHEN NECESSARY, WHEELS SHOULD BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
4. WHEN WASHING IS REQUIRED, IT SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.
5. ALL SEDIMENT SHOULD BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATER COURSE BY USING APPROVED METHODS.

### ISOMETRIC PLAN VIEW



### ROCK BERMS

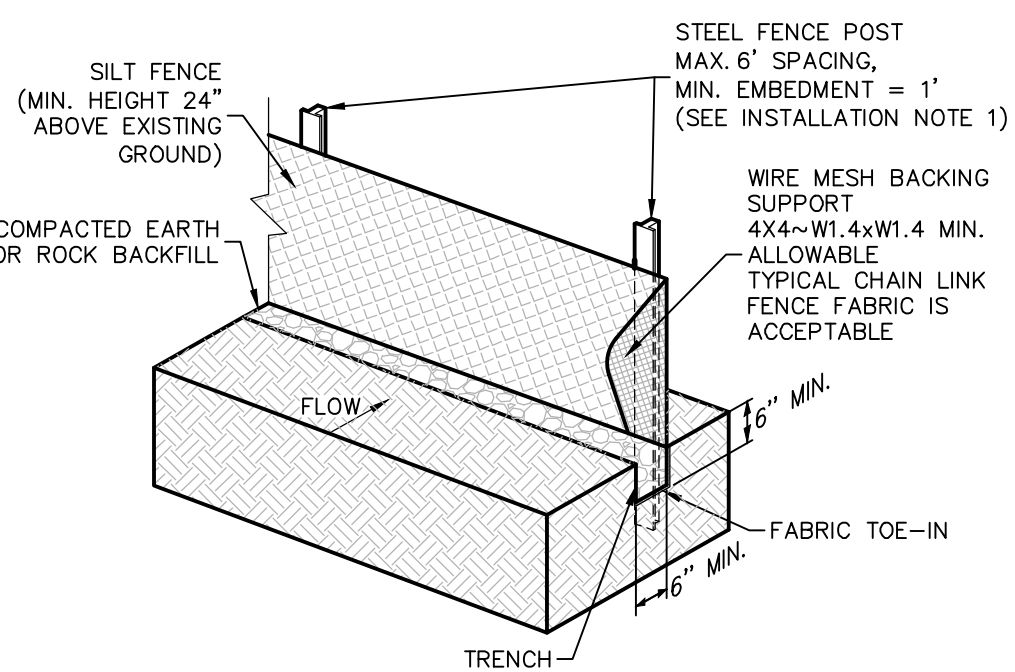
THE PURPOSE OF A ROCK BERM IS TO SERVE AS A CHECK DAM IN AREAS OF CONCENTRATED FLOW, TO INTERCEPT SEDIMENT-LADEN RUNOFF, DETAIN THE SEDIMENT AND RELEASE THE WATER IN SHEET FLOW. THE ROCK BERM SHOULD BE USED WHEN THE CONTRIBUTING DRAINAGE AREA IS LESS THAN 5 ACRES. ROCK BERMS ARE USED IN AREAS WHERE THE VOLUME OF RUNOFF IS TOO GREAT FOR A SILT FENCE TO CONTAIN. THEY ARE LESS EFFECTIVE FOR SEDIMENT REMOVAL THAN SILT FENCES, PARTICULARLY FOR FINE PARTICLES, BUT ARE ABLE TO WITHSTAND HIGHER FLOWS THAN A SILT FENCE. AS SUCH, ROCK BERMS ARE OFTEN USED IN AREAS OF CHANNEL FLOWS (DITCHES, GULLIES, ETC.). ROCK BERMS ARE MOST EFFECTIVE AT REDUCING BED LOAD IN CHANNELS AND SHOULD NOT BE SUBSTITUTED FOR OTHER EROSION AND SEDIMENT CONTROL MEASURES FARTHER UP THE WATERSHED.

### INSPECTION AND MAINTENANCE GUIDELINES

1. INSPECTION SHOULD BE MADE WEEKLY AND AFTER EACH RAINFALL BY THE RESPONSIBLE PARTY. FOR INSTALLATIONS IN STREAMBEDS, ADDITIONAL DAILY INSPECTIONS SHOULD BE MADE.
2. REMOVE SEDIMENT AND OTHER DEBRIS WHEN BUILDUP REACHES 6 INCHES AND DISPOSE OF THE ACCUMULATED SILT IN AN APPROVED MANNER THAT WILL NOT CAUSE ANY ADDITIONAL SILTATION.
3. REPAIR ANY LOOSE WIRE SHEATHING.
4. THE BERM SHOULD BE RESHAPED AS NEEDED DURING INSPECTION.
5. THE BERM SHOULD BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.
6. THE ROCK BERM SHOULD BE LEFT IN PLACE UNTIL ALL UPSTREAM AREAS ARE STABILIZED AND ACCUMULATED SILT REMOVED.

### ROCK BERM DETAIL

NOT-TO-SCALE



### SILT FENCE

A SILT FENCE IS A BARRIER CONSISTING OF GEOTEXTILE FABRIC SUPPORTED BY METAL POSTS TO PREVENT SOIL AND SEDIMENT LOSS FROM A SITE. WHEN PROPERLY USED, SILT FENCES CAN BE HIGHLY EFFECTIVE AT CONTROLLING SEDIMENT FROM DISTURBED AREAS. THEY CAUSE RUNOFF TO POND, ALLOWING HEAVIER SOLIDS TO SETTLE OUT. IF NOT PROPERLY INSTALLED, SILT FENCES ARE NOT LIKELY TO BE EFFECTIVE.

THE PURPOSE OF A SILT FENCE IS TO INTERCEPT AND DETAIN WATER-BORN SEDIMENT FROM UNPROTECTED AREAS OF A LIMITED EXTENT. SILT FENCE IS USED DURING THE PERIOD OF CONSTRUCTION NEAR THE PERIMETER OF A DISTURBED AREA TO INTERCEPT SEDIMENT WHILE ALLOWING WATER TO PERCOLATE THROUGH. THIS FENCE SHOULD REMAIN IN PLACE UNTIL THE DISTURBED AREA IS PERMANENTLY STABILIZED. SILT FENCE SHOULD NOT BE USED WHERE THERE IS A CONCENTRATION OF WATER IN A CHANNEL OR DRAINAGE WAY. IF CONCENTRATED FLOW OCCURS AFTER INSTALLATION, CORRECTIVE ACTION MUST BE TAKEN SUCH AS PLACING A ROCK BERM IN THE AREAS OF CONCENTRATED FLOW.

SILT FENCING WITHIN THE SITE MAY BE TEMPORARILY MOVED DURING THE DAY TO ALLOW CONSTRUCTION ACTIVITY PROVIDED IT IS REPLACED AND PROPERLY ANCHORED TO THE GROUND AT THE END OF THE DAY. SILT FENCES ON THE PERIMETER OF THE SITE OR AROUND DRAINAGE WAYS SHOULD NOT BE MOVED AT ANY TIME.

### MATERIALS

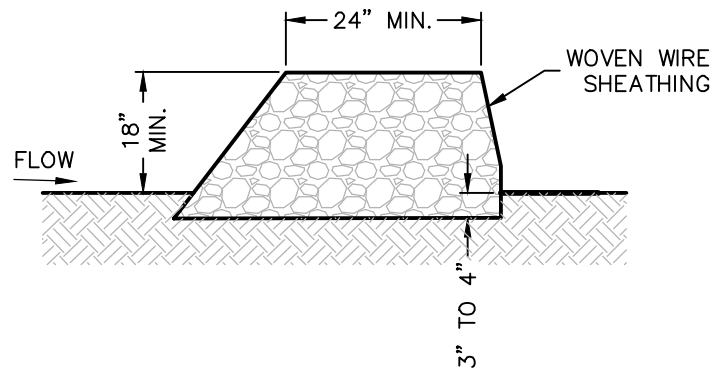
1. SILT FENCE MATERIAL SHOULD BE POLYPROPYLENE, POLYETHYLENE, OR POLYAMIDE WOVEN OR NONWOVEN FABRIC. THE FABRIC SHOULD BE 36 INCHES, WITH A MINIMUM UNIT WEIGHT OF 4.5 OZ/YD, MULLEN BURST STRENGTH EXCEEDING 190 LB/IN<sup>2</sup>, ULTRAVIOLET STABILITY EXCEEDING 70%, AND MINIMUM APPARENT OPENING SIZE OF U.S. SIEVE NUMBER 30.
2. FENCE POSTS SHOULD BE MADE OF HOT ROLLED STEEL, AT LEAST 4 FEET LONG WITH TEE OR Y-BAR CROSS SECTION, SURFACE PAINTED OR GALVANIZED, MINIMUM WEIGHT 1.25 LB/FT, AND BRINELL HARDNESS EXCEEDING 140.
3. WOVEN WIRE BACKING TO SUPPORT THE FABRIC SHOULD BE GALVANIZED 2" X 4" WELDED WIRE, 12 GAUGE MINIMUM.

### INSTALLATION

1. STEEL POSTS, WHICH SUPPORT THE SILT FENCE, SHOULD BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POSTS MUST BE EMBEDDED A MINIMUM OF 1-FOOT DEEP AND SPACED NOT MORE THAN 8 FEET ON CENTER. WHERE WATER CONCENTRATES, THE MAXIMUM SPACING SHOULD BE 6 FEET.
2. LAY OUT FENCING DOWN-SLOPE OF DISTURBED AREA, FOLLOWING THE CONTOUR AS CLOSELY AS POSSIBLE. THE FENCE SHOULD BE SITED SO THAT THE MAXIMUM DRAINAGE AREA IS ¼ ACRE/100 FEET OF FENCE.

### SILT FENCE DETAIL

NOT-TO-SCALE



### SECTION "A-A"

### MATERIALS

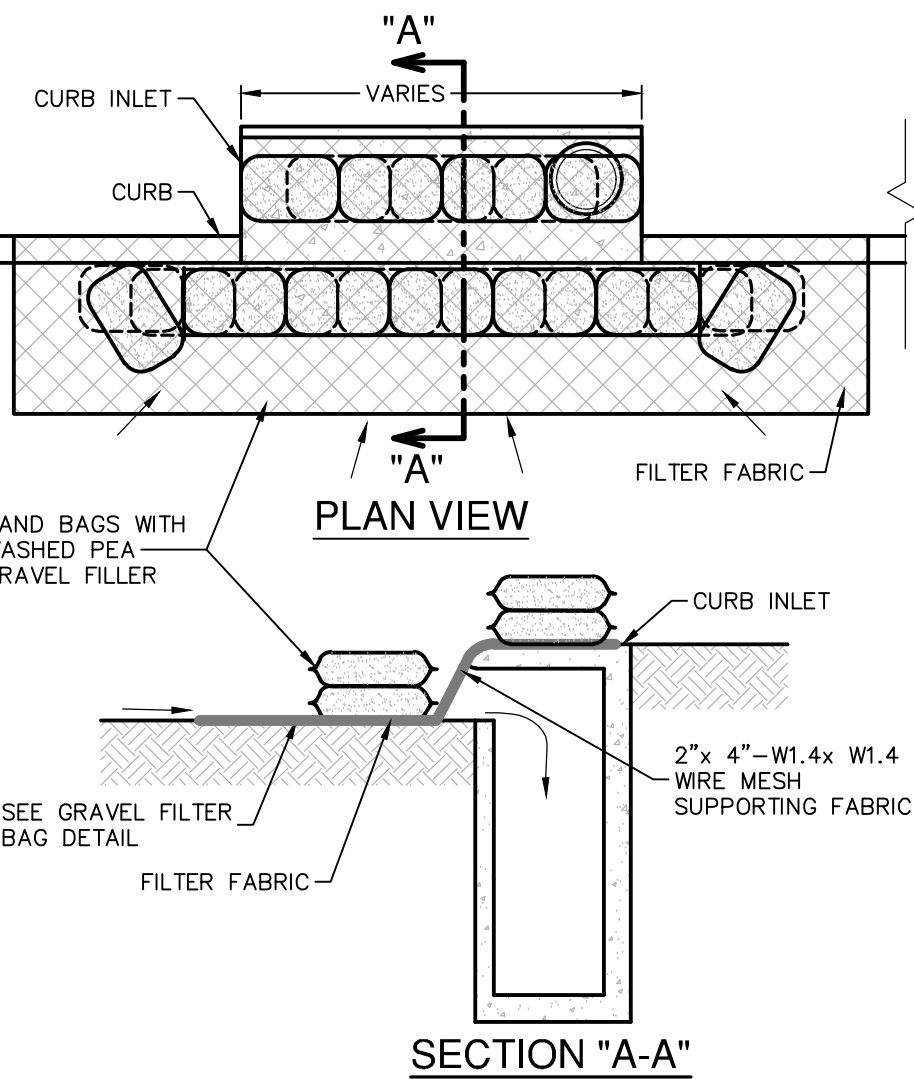
1. THE BERM STRUCTURE SHOULD BE SECURED WITH A WOVEN WIRE SHEATHING HAVING MAXIMUM OPENING OF 1 INCH AND A MINIMUM WIRE DIAMETER OF 20 GAUGE GALVANIZED AND SHOULD BE SECURED WITH SHOOT RINGS.
2. CLEAN, OPEN GRADED 3-INCH TO 5-INCH DIAMETER ROCK SHOULD BE USED, EXCEPT IN AREAS WHERE HIGH VELOCITIES OR LARGE VOLUMES OF FLOW ARE EXPECTED, WHERE 5-INCH TO 8-INCH DIAMETER ROCKS MAY BE USED.

### INSTALLATION

1. LAY OUT THE WOVEN WIRE SHEATHING PERPENDICULAR TO THE FLOW LINE. THE SHEATHING SHOULD BE 20 GAUGE WOVEN WIRE MESH WITH 1 INCH OPENINGS.
2. BERM SHOULD HAVE A TOP WIDTH OF 2 FEET MINIMUM WITH SIDE SLOPES BEING 2:1 (H:V) OR FLATTER.
3. PLACE THE ROCK ALONG THE SHEATHING AS SHOWN IN THE DIAGRAM TO A HEIGHT NOT LESS THAN 18".
4. WRAP THE WIRE SHEATHING AROUND THE ROCK AND SECURE WITH TIE WIRE SO THAT THE ENDS OF THE SHEATHING OVERLAP AT LEAST 2 INCHES, AND THE BERM RETAINS ITS SHAPE WHEN WALKED UPON.
5. BERM SHOULD BE BUILT ALONG THE CONTOUR AT ZERO PERCENT GRADE OR AS NEAR AS POSSIBLE.
6. THE ENDS OF THE BERM SHOULD BE TIED INTO EXISTING UPSLOPE GRADE AND THE BERM SHOULD BE BURIED IN A TRENCH APPROXIMATELY 3 TO 4 INCHES DEEP TO PREVENT FAILURE OF THE CONTROL.

### COMMON TROUBLE POINTS

1. INSUFFICIENT BERM HEIGHT OR LENGTH (RUNOFF QUICKLY ESCAPES OVER THE TOP OR AROUND THE SIDES OF BERM).
2. BERM NOT INSTALLED PERPENDICULAR TO FLOW LINE (RUNOFF ESCAPING AROUND ONE SIDE).

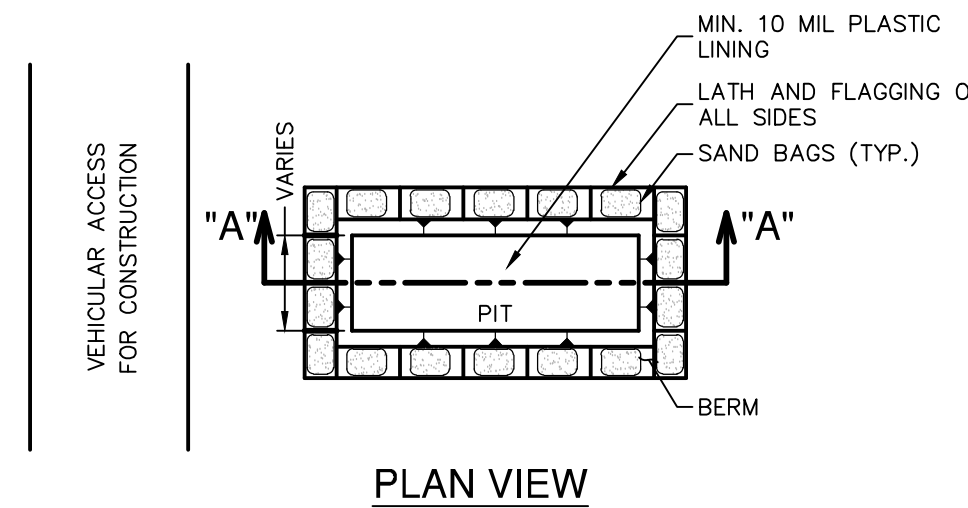


### GENERAL NOTES

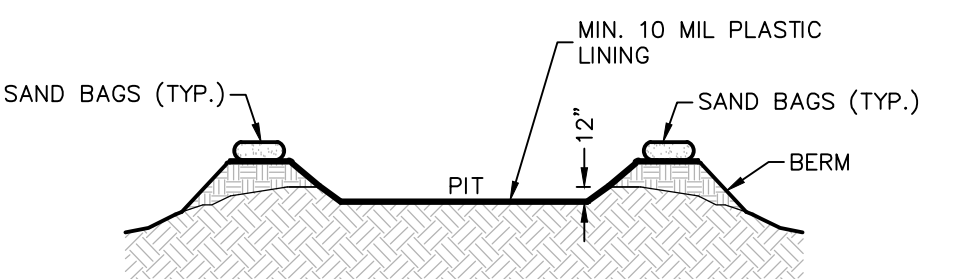
1. CONTRACTOR TO INSTALL 2"x4"-W1.4xW1.4 WIRE MESH SUPPORTING FILTER FABRIC OVER THE INLET OPENING. FABRIC MUST BE SECURED TO WIRE BACKING WITH CLIPS OR WIRE TIES AT THIS LOCATION. SAND BAGS FILLED WITH WASHED PEA GRAVEL SHOULD BE PLACED ON TOP OF WIRE MESH ON TOP OF THE INLET AS SHOWN ON THIS DETAIL TO HOLD WIRE MESH IN PLACE. SANDBAGS FILLED WITH WASHED PEA GRAVEL SHOULD ALSO BE PLACED ALONG THE CUTTER AS SHOWN ON THIS DETAIL TO HOLD WIRE MESH IN PLACE. SAND BAGS TO BE STACKED TO FORM A CONTINUOUS BARRIER AROUND INLETS.
2. THE BAGS SHOULD BE TIGHTLY ABUTTED AROUND EACH OTHER TO PREVENT RUNOFF FROM FLOWING BETWEEN THE BAGS.
3. CHECK PLACEMENT OF DEVICE TO PREVENT GAPS BETWEEN DEVICE AND CURB.
4. INSPECT FILTER FABRIC AND PATCH OR REPLACE IF TORN OR MISSING.
5. STRUCTURES SHOULD BE REMOVED AND THE AREA STABILIZED ONLY AFTER THE REMAINING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

### BAGGED GRAVEL CURB INLET PROTECTION DETAIL

NOT-TO-SCALE



### PLAN VIEW



### SECTION "A-A"

### GENERAL NOTES

1. DETAIL ABOVE ILLUSTRATES MINIMUM DIMENSIONS. PIT CAN BE INCREASED IN SIZE DEPENDING ON EXPECTED FREQUENCY OF USE.
2. WASHOUT PIT SHALL BE LOCATED IN AN AREA EASILY ACCESSIBLE TO CONSTRUCTION TRAFFIC.
3. WASHOUT PIT SHALL NOT BE LOCATED IN AREAS SUBJECT TO INUNDATION FROM STORM WATER RUNOFF.
4. LOCATE WASHOUT AREA AT LEAST 50 FEET FROM SENSITIVE FEATURES, STORM DRAINS, OPEN DITCHES OR WATER BODIES.
5. TEMPORARY CONCRETE WASHOUT FACILITY SHOULD BE CONSTRUCTED WITH SUFFICIENT QUANTITY AND VOLUME TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS.

### MATERIALS

PLASTIC LINING MATERIAL SHOULD BE A MINIMUM OF 10 MIL IN POLYETHYLENE SHEETING AND SHOULD BE FREE OF HOLES, TEARS, OR OTHER DEFECTS THAT COMPROMISE THE IMPERMEABILITY OF THE MATERIAL.

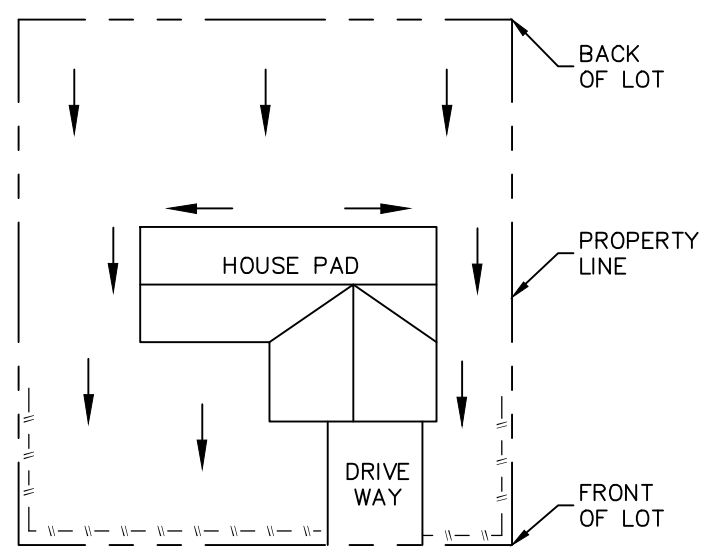
### MAINTENANCE

1. WHEN TEMPORARY CONCRETE WASHOUT FACILITIES ARE NO LONGER REQUIRED FOR THE WORK, THE HARDENED CONCRETE SHOULD BE REMOVED AND DISPOSED OF.
2. MATERIALS USED TO CONSTRUCT TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE REMOVED FROM THE SITE OF THE WORK AND DISPOSED OF.
3. HOLES, DEPRESSIONS OR OTHER GROUND DISTURBANCES CAUSED BY THE REMOVAL OF THE TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE BACKFILLED AND REPAIRED.

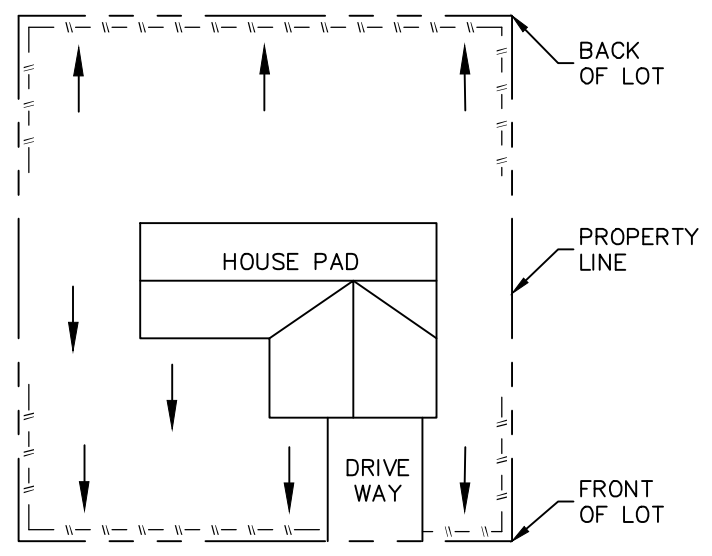
### CONCRETE TRUCK WASHOUT

### PIT DETAIL

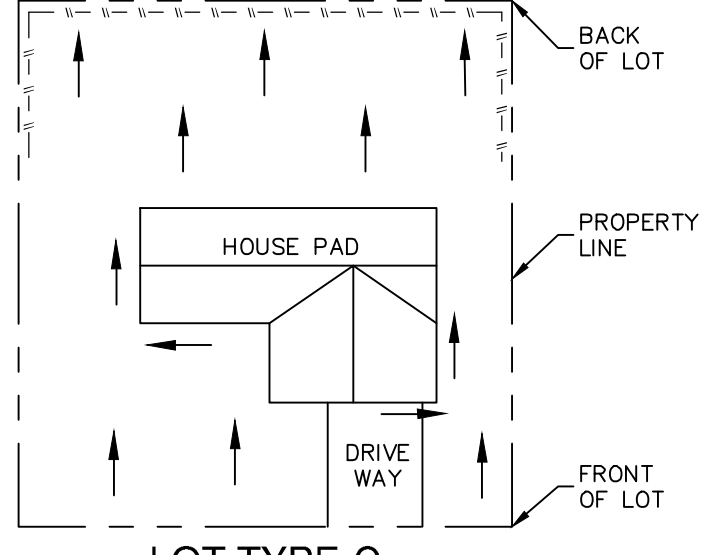
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### LOT TYPE-A



### LOT TYPE-B



### LOT TYPE-C

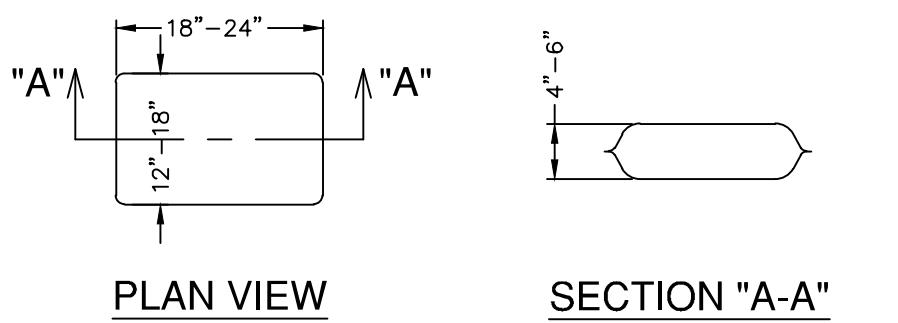
NOTE: SILT FENCE TO BE INSTALLED PER THESE DETAILS AND LOCATED ON THE DOWNDRAIN SIDE OF EACH LOT LINE OR LIMITS OF CLEARING AS GENERALLY SHOWN ON THE OVERALL SITE PLAN.

### LEGEND

--- SILT FENCE DRAINAGE FLOW

### TYPICAL HOUSE LOT LAYOUTS

NOT-TO-SCALE



### PLAN VIEW

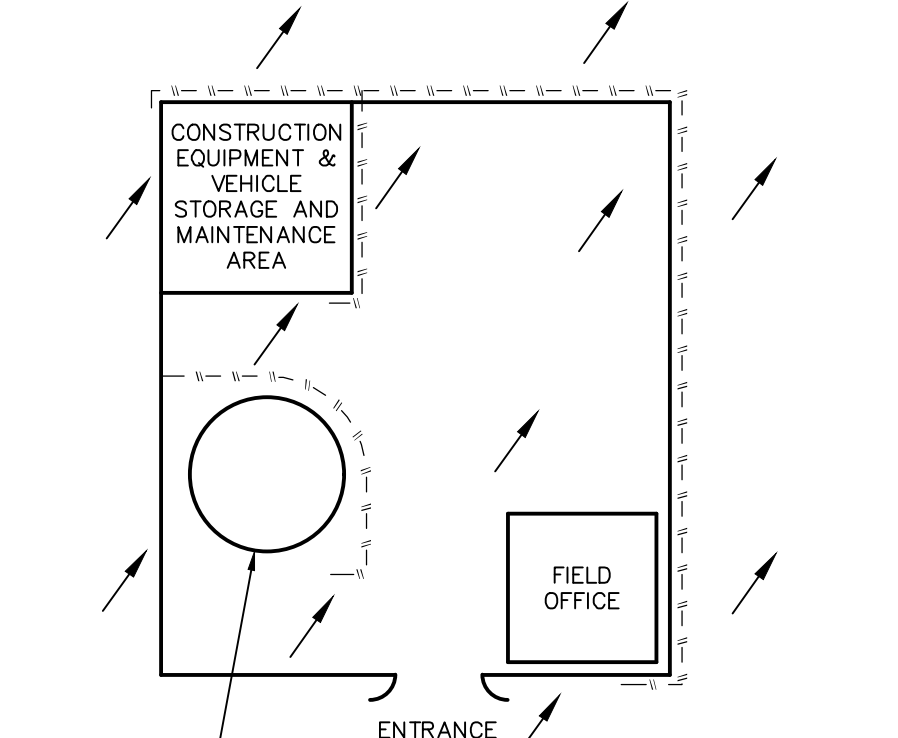
### SECTION "A-A"

NOTES:  
1. THE FILTER BAG MATERIAL SHALL BE MADE OF POLYPROPYLENE, POLYETHYLENE OR POLYAMIDE WOVEN FABRIC, MIN. UNIT WEIGHT OF 4 OUNCES/SY, HAVE A MULLEN BURST STRENGTH EXCEEDING 300 PSI AND ULTRAVIOLET STABILITY EXCEEDING 70%.

2. THE FILTER BAG SHALL BE FILLED WITH CLEAN, MEDIUM WASHED PEA GRAVEL TO COARSE GRAVEL (0.31 TO 0.75 INCH DIAMETER).
3. SAND SHALL NOT BE USED TO FILL THE FILTER BAGS.

### GRAVEL FILTER BAG DETAIL

NOT-TO-SCALE



### LEGEND

--- SILT FENCE FLOW ARROWS

### CONSTRUCTION STAGING AREA

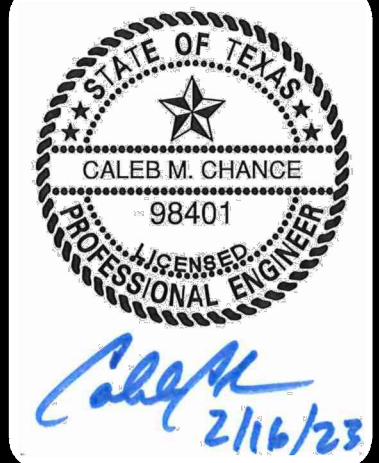
NOT-TO-SCALE

THE ENGINEERING SEAL HAS BEEN AFFIXED TO THIS SHEET ONLY FOR THE PURPOSE OF DEMONSTRATING COMPLIANCE WITH THE TPDES-STORM WATER POLLUTION PREVENTION PLAN (SWP3) REGULATIONS.

THIS SHEET HAS BEEN PREPARED FOR PURPOSES OF THE SWP3 ONLY. ALL OTHER CIVIL ENGINEERING RELATED INFORMATION SHOULD BE ACQUIRED FROM THE APPROPRIATE SHEET IN THE CIVIL IMPROVEMENT PLANS.

### EXHIBIT 3

DATE	
NO.	
REVISION	



**PAPE-DAWSON ENGINEERS**

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000  
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028600

**SHAVANO HIGHLANDS HILLTOP**

SAN ANTONIO, TEXAS

SWPPP DETAILS

PLAT NO.	23-11800016
JOB NO.	8834-25
DATE	FEBRUARY 2023
DESIGNER	RG
CHECKED	BL
DRAWN	BM
SHEET	C8.10