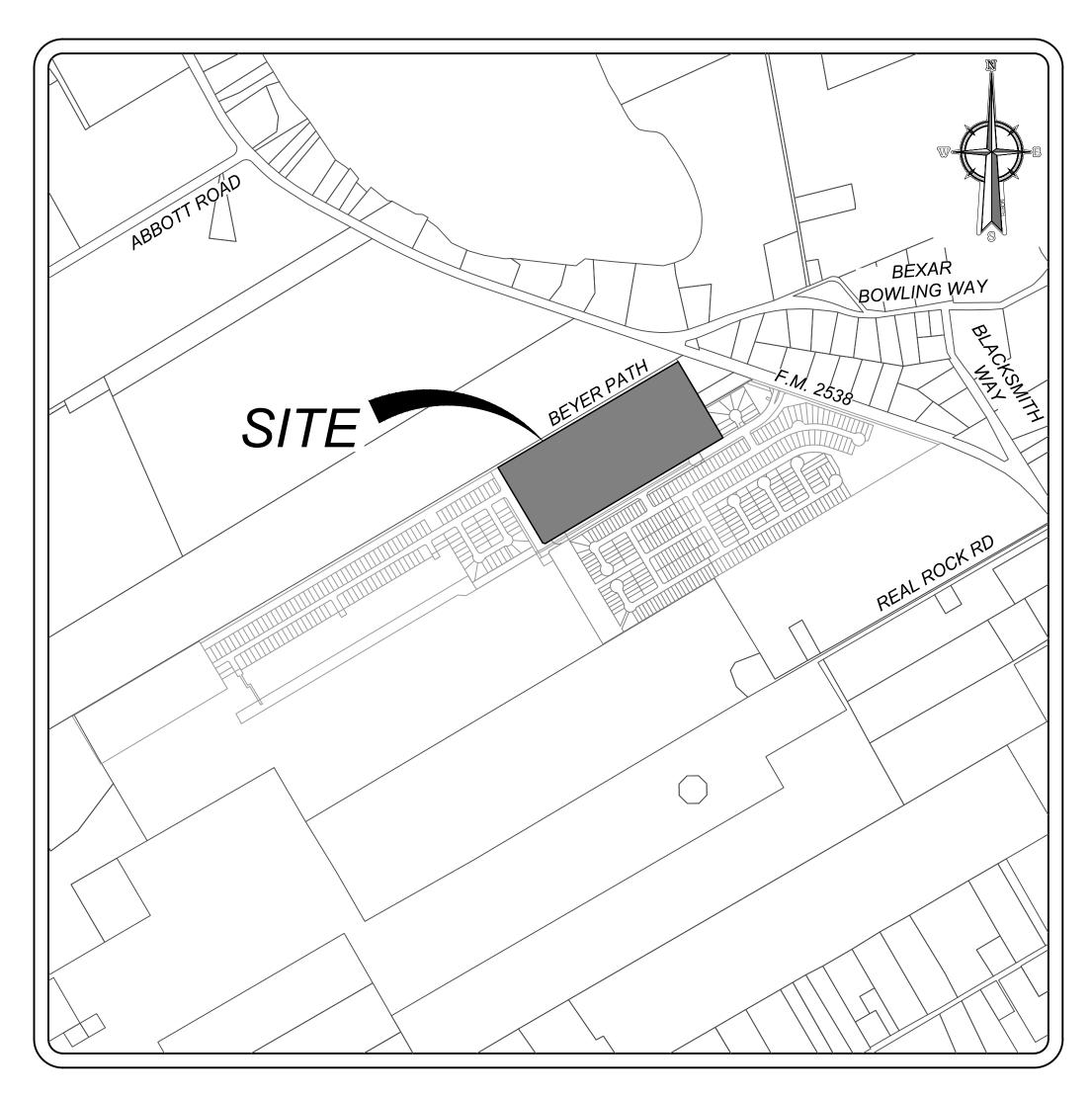
CLEARWATER CREEK PHASE 5

BEXAR COUNTY, TEXAS

UTILITY, DRAINAGE, STREET, SANITARY SEWER & WATER IMPROVEMENTS



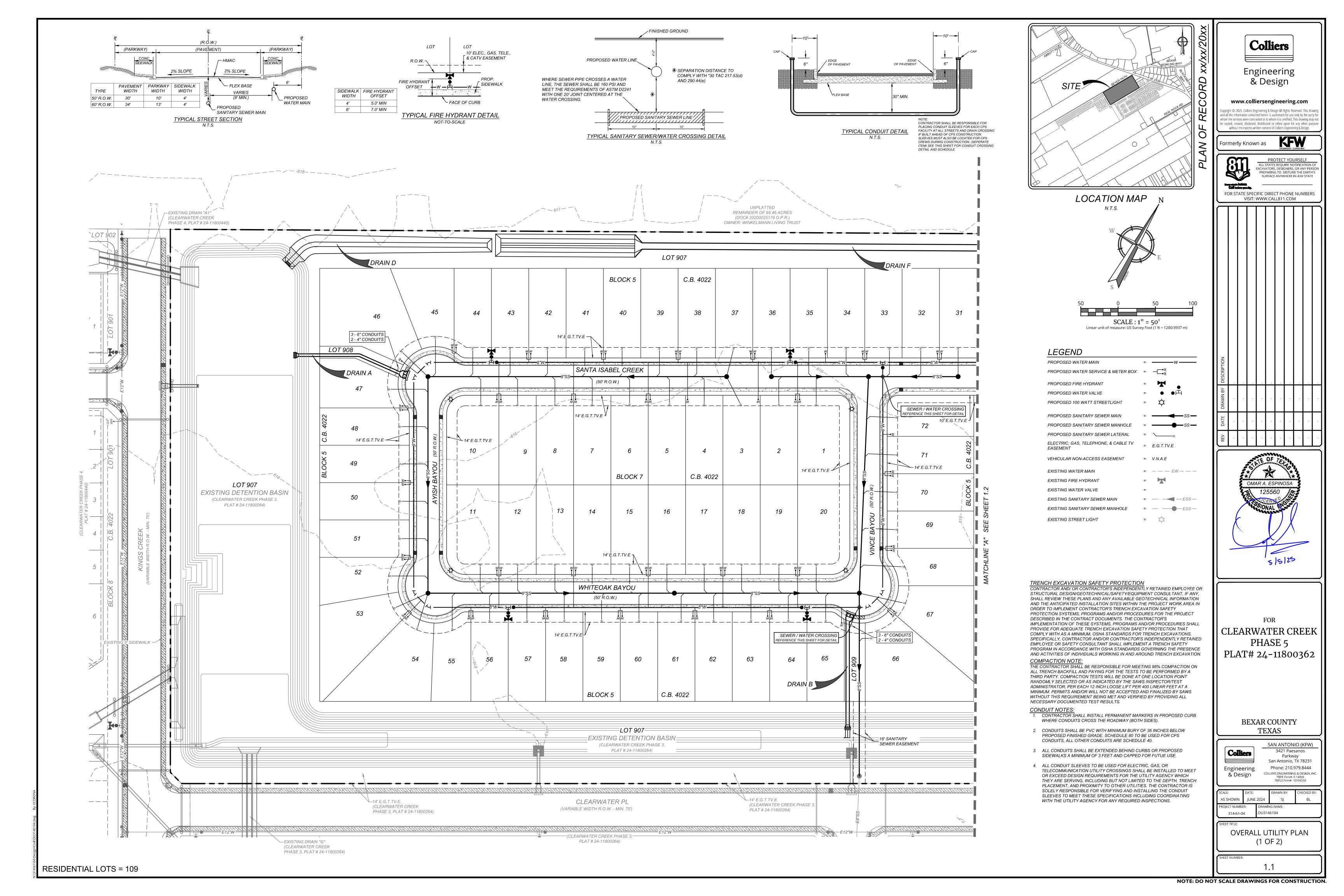
LOCATION MAP

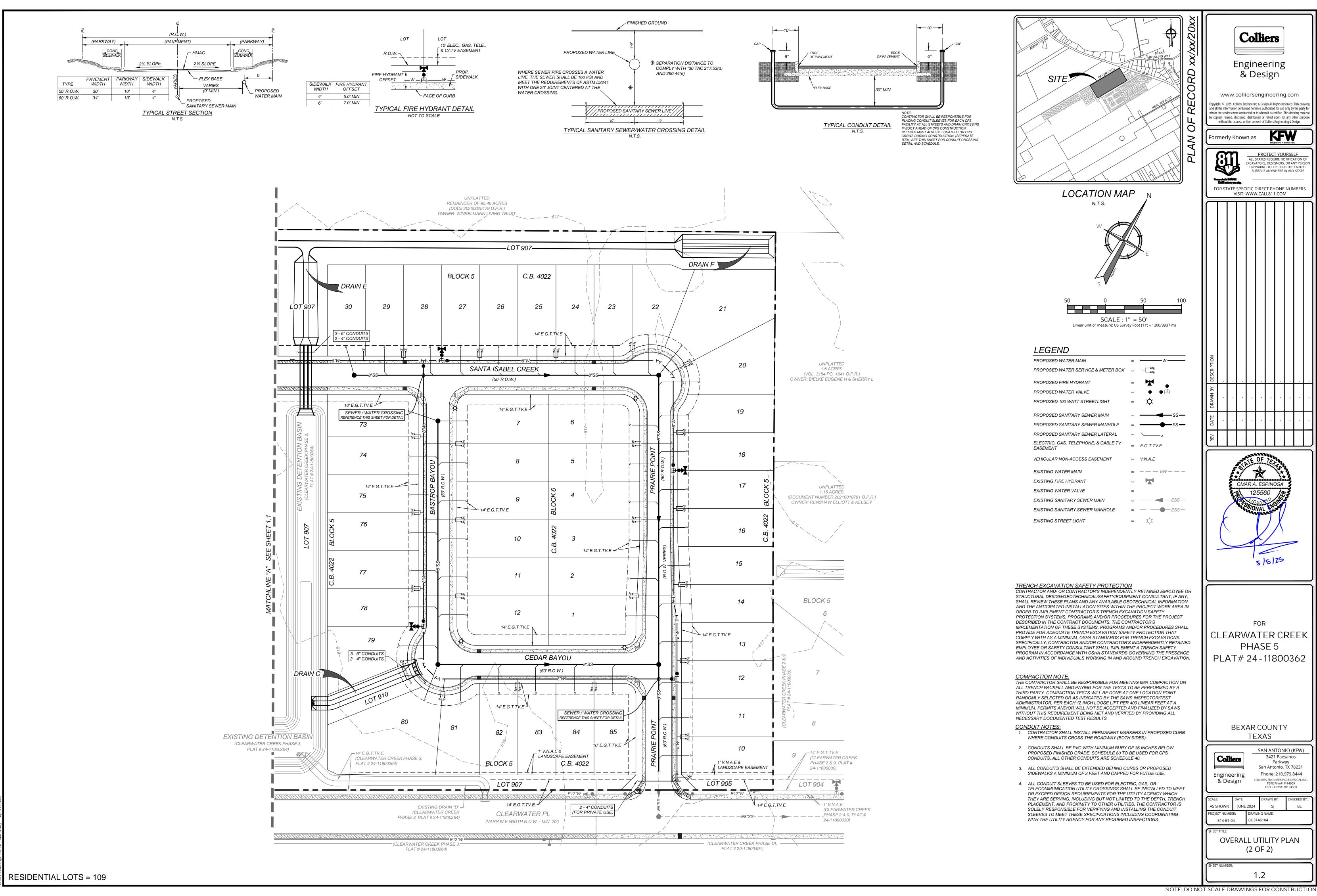
N.T.S.

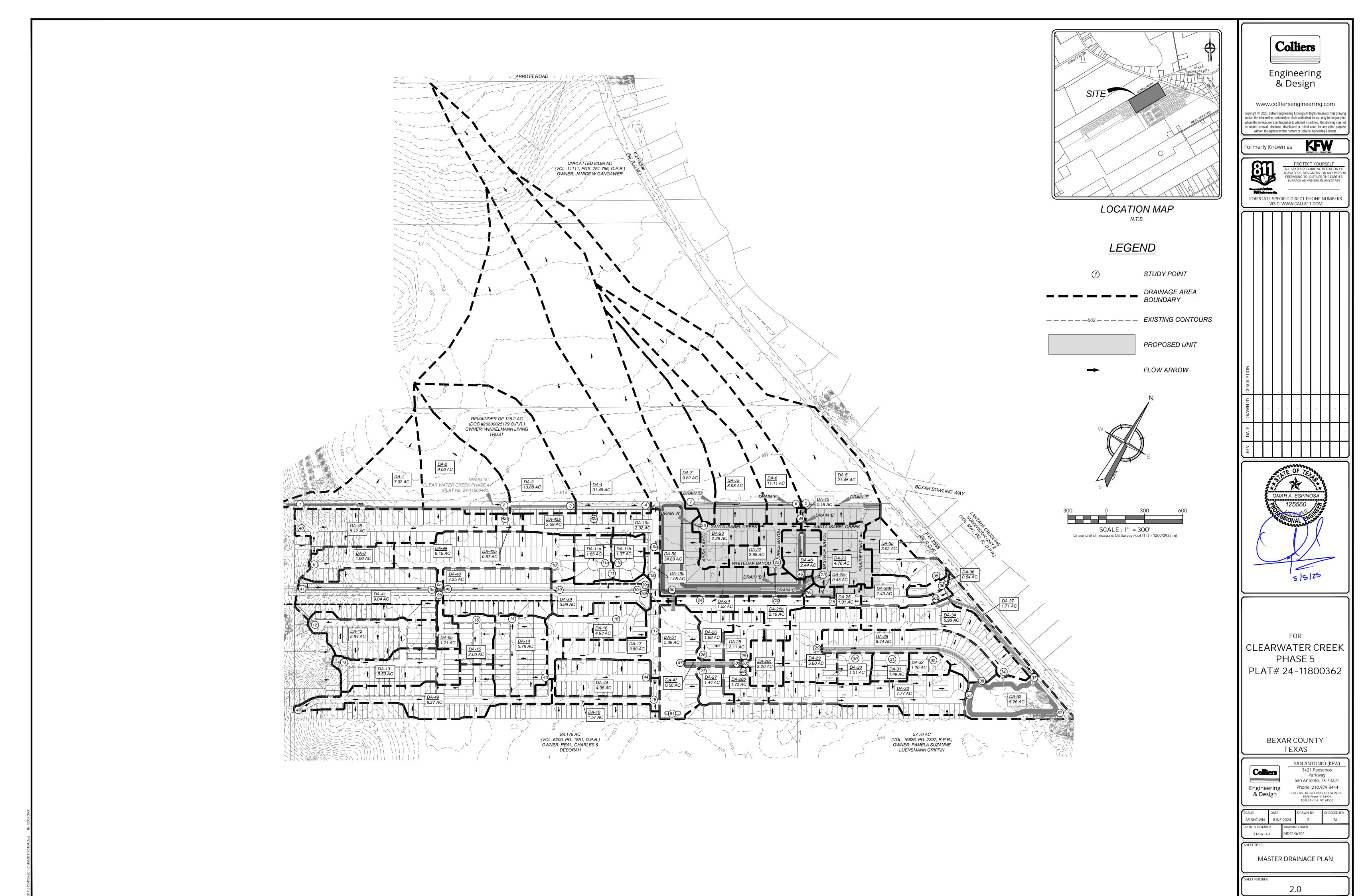
OWNER/DEVELOPER: LENNAR HOMES OF TEXAS LAND & CONSTRUCTION, LTD. 100 NE LOOP 410, SUITE 1155 SAN ANTONIO, TEXAS 78216 PHONE: (210) 403-6282

SA KOSTA BROWNE LTD & FAIR OAKS MOSAIC 6812 WEST AVE STE 100 SAN ANTONIO, TX 78213-1855 PHONE: (726) 223-4825

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	Sheet List Table	VISIT: WWW.CALL811.COM		
SHEET	NO. DESXRIPTION			
<u>0.0</u>	COVER SHEET			
1.1	OVERALL UTILITY PLAN (1 OF 2)			
<u>1.2</u> <u>2.0</u>	OVERALL UTILITY PLAN (2 OF 2) MASTER DRAINAGE PLAN			
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5.2	SANTA ISABEL CREEK PLAN & PROFILE	A DF TELL		
 5.3	SANTA ISABEL CREEK, AYISH BAYOU & WHITEOAK BAYOU	***************************************		
	PLAN & PROFILE	OMAR A. ESPINOSA 125560		
5.4 5.5	WHITEOAK BAYOU & VINCE BAYOU PLAN & PROFILE CEDAR BAYOU & BASTROP BAYOU PLAN & PROFILE	CENSEO CON TOUR PROPERTY OF THE PROPERTY OF TH		
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5.8	CONCRETE DRIVEWAY DETAILS			
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5.10	TRAFFIC SIGNAGE & PEDESTRIAN ACCESSIBILITY PLAN (1 OF 2)			
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6.0	SANITARY SEWER COVER SHEET OVERALL SANITARY SEWER DLAN (4.05.2)	FOR CLEARWATER C		
6.1 6.2	OVERALL SANITARY SEWER PLAN (1 OF 2) OVERALL SANITARY SEWER PLAN (2 OF 2)	PHASE 5		
6.3	LINE "E" PLAN & PROFILE	PLAT# 24-1180		
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6.8	SANITARY SEWER NOTES (2 OF 2)	BEXAR COUNT		
6.9	SANITARY SEWER DETAILS (1 OF 2)	TEXAS		
6.10	SANITARY SEWER DETAILS (2 OF 2)	Colliers SAN ANTON 3421 Pae		
7.0	WATER DISTRIBUTION COVER SHEET	Parkw San Antonio, Engineering Phone: 210.		
$\frac{7.1}{7.2}$ —	OVERALL WATER DISTRIBUTION PLAN (1 OF 2)	& Design COLLIERS ENGINEERIN TBPE Firm#: TBPLS Firm#:		
$\frac{7.2}{7.3}$ —	OVERALL WATER DISTRIBUTION PLAN (2 OF 2) TYPICAL WATER NOTES & DETAILS (1 OF 2)	SCALE: DATE: DRAWN BY:		
$\frac{7.3}{7.4}$ —	TYPICAL WATER NOTES & DETAILS (1 OF 2) TYPICAL WATER NOTES & DETAILS (2 OF 2)	AS SHOWN JUNE 2024 SJ PROJECT NUMBER: DRAWING NAME:		
7.4 8.1	STORM WATER POLLUTION PREVENTION PLAN (1 OF 2)	314-61-04 CV3146104		
8.2	STORM WATER POLLUTION PREVENTION PLAN (2 OF 2)	SHEET TITLE:		
8.3	STORM WATER POLLUTION PREVENTION PLAN DETAILS	COVER SHEET		
		SHEET NUMBER:		







Condition														
Conditions: Study Point	AREA	(Acres)	С	Tovrl (min)		Tsc (min)	Tch (min)	Ttot (min)	15 (in/hr)	125 (in/hr)	I100 (in/hr)	Q5 (ft3/s)	Q25 (ft3/s)	Q100 (ft3/s
1	DA-1	7.92	0.69	17.00		7.00	3.00	27	3.90	5.38	6.66	21.38	29.47	36.49
	DA-2	9.06	0.68											
2	DA-2 + pt. 42b	9.73	0.69	17.00		14.00	5.00	36	3.36	4.64	5.74	22.58	31.14	38.57
_	DA-3	13.88	0.68											
3	DA-3 + PT. 2 DA-4	23.61	0.68 0.67	17.00		15.00	9.00	41	3.13	4.32	5.35	50.44	69.65	86.36
4				41.00	CARRYOVER FROM PT.	0.00	0.00	50	2.77	2.04	4.70	100.16	454.24	100.24
4	DA-4 + PT. 3 + PT. 42a	57.78	0.68	41.00	3	0.00	9.00	50	2.77	3.84	4.78	109.16	151.31	188.24
5	DA-5	21.45	0.68	13.00		8.00	43.00	64	2.37	3.31	4.15	34.56	48.31	60.57
	DA-6	11.11	0.68		CARRYOVER FROM PT.									
6	DA-6 + PT. 7a	20.09	0.68	52.00	7a	0.00	4.00	56	2.56	3.56	4.45	35.11	48.84	60.95
7	DA-7	9.82	0.68	17.00		15.00	13.00	45	2.96	4.09	5.08	19.64	27.16	33.72
7a	DA-7a	8.98	0.69	17.00		15.00	20.00	52 15	2.96	3.74	4.66	18.28	23.11	28.78
9a	DA-8 DA-9a	3.21 9.16	0.77 0.77	14.00 14.00		0.00	1.00 15.00	15 29	5.28 3.76	7.32 5.19	9.12 6.42	13.05 26.55	18.09 36.60	22.53 45.32
9b	DA-9a	1.21	0.77	14.00		1.00	5.00	29	4.54	6.28	7.79	4.23	5.85	7.26
9c	PT. 9a + PT. 9B	5.19	0.77	29.00	CARRYOVER FROM PT.	0.00	0.00	29	3.76	5.19	6.42	15.03	20.72	25.65
	PT. 9a + PT. 9B	5.19	0.77		9a	0.00	0.00	29	3.76	5.19	6.42	15.03	20.72	25.65
9d				29.00	CARRYOVER FROM PT.		 		 	-	 	 		
11	PT. 11a + PT. 11b	4.52	0.77	18.00	11a	0.00	0.00	18	4.80	6.63	8.24	16.69	23.09	28.68
11a	DA-11a	2.50	0.77	14.00		0.00	4.00	18	4.80	6.63	8.24	9.23	12.77	15.86
11b	DA-11b	2.02	0.77	14.00		0.00	4.00	18	4.80	6.63	8.24	7.46	10.32	12.82
12	DA-12	5.94 5.59	0.77	14.00		1.00	6.00 9.00	21	4.43	6.12 5.84	7.59	20.27	27.99 25.14	34.72 31.16
13	DA-13 DA-14	5.59 5.78	0.77 0.77	14.00 14.00	1	0.00	9.00 8.00	23	4.23 4.33	5.84 5.98	7.24 7.41	18.22 19.27	25.14 26.59	31.16 32.97
± -1	DA-14 DA-15	2.06	0.77	17.00	 	0.00	5.50		7.00	3.30	/. .	13.27	20.33	32.31
15	DA-15 + PT. 14	7.84	0.77	22.00	1	0.00	3.00	25	4.06	5.60	6.93	24.50	33.79	41.86
16	DA-16	4.93	0.77	8.00		0.00	9.00	17	4.94	6.84	8.50	18.76	25.96	32.27
17	DA-17	3.80	0.77	14.00		0.00	9.00	23	4.23	5.84	7.24	12.39	17.09	21.18
18	DA-18	1.57	0.97	5.00		0.00	11.00	16	5.10	7.07	8.79	7.77	10.76	13.39
19a	DA-19a	1.90	0.77	11.00	ļ	0.00	4.00	15	5.28	7.32	9.12	7.72	10.71	13.34
19b	DA-19b	0.92	0.77	11.00		0.00	2.00	13	5.28	7.89 6.12	9.85	3.74	5.59	6.98
20	DA-20 DA-22	2.89	0.77 0.77	14.00 14.00	 	1.00	6.00	21	4.43 4.43	6.12 6.12	7.59 7.59	9.88 9.16	13.64 12.65	16.92 15.69
23	DA-22 DA-23	4.78	0.77	14.00		0.00	8.00	22	4.43	5.98	7.59	9.16 15.92	21.97	27.24
24	DA-23	1.52	0.77	8.00	1	0.00	4.00	12	5.86	8.19	10.24	6.86	9.58	11.98
25	DA-25	1.31	0.77	8.00		0.00	2.00	10	6.30	8.82	11.05	6.37	8.92	11.18
25b	DA-25b	2.19	0.77	11.00		0.00	3.00	14	6.30	7.60	9.48	10.63	12.83	16.00
25c	DA-25c	0.43	0.77	10.00	CARRYOVER FROM PT. 25	0.00	2.00	12	6.30	8.19	10.24	2.10	2.72	3.41
26	DA-26	1.98	0.77	5.00	25	0.00	6.00	11	6.08	8.50	10.64	9.26	12.95	16.21
27	DA-27	1.44	0.77	14.00		1.00	3.00	18	4.80	6.63	8.24	5.31	7.34	9.12
28	DA-28	2.11	0.77	11.00		0.00	5.00	16	5.10	7.07	8.79	8.29	11.49	14.29
28b	DA-28b	1.72	0.77	11.00		0.00	5.00	16	5.10	7.07	8.79	6.74	9.34	11.62
28c	DA-28c	2.20	0.77	14.00		1.00	4.00	19	5.10	6.45	8.00	8.65	10.93	13.57
28d	PT. 28 + PT. 28b + PT. 28c	6.03	0.77	19.00		0.00	0.00	19	5.10	6.45	8.00	23.68	29.92	37.15
29	DA-29	5.60	0.77	14.00		0.00	6.00	20	4.54	6.28	7.79	19.59	27.06	33.59
30	DA-30	1.51	0.77	14.00		0.00	3.00	17	4.94	6.84	8.50	5.74	7.95	9.88
31	DA-31 DA-32	1.49 1.20	0.77 0.77	14.00 14.00		0.00	3.00 2.00	17 16	4.94 5.10	6.84 7.07	8.50 8.79	5.67 4.71	7.85 6.53	9.75 8.12
33	DA-32	7.77	0.77	14.00		0.00	17.00	31	3.64	5.01	6.21	21.77	30.00	37.14
34	DA-34	5.98	0.77	14.00		1.00	19.00	34	3.47	4.78	5.92	15.95	21.99	27.23
35	DA-35	3.92	0.77	14.00		5.00	5.00	24	4.14	5.72	7.08	12.51	17.25	21.37
	DA-36	0.64	0.77											
36	DA-36 + PT. 35	4.56	0.77	24.00	CARRYOVER FROM PT. 35	0.00	1.00	25	4.06	5.60	6.93	14.25	19.65	24.35
36b	DA-36b	2.43	0.77	14.00		1.00	5.00	20	4.54	6.28	7.79	8.50	11.74	14.57
	DA-37	1.71	0.77											
37	DA-37 + PT. 36 + PT. 36B	8.70	0.77	25.00	CARRYOVER FROM PT. 36	0.00	12.00	37	3.31	4.57	5.66	22.19	30.61	37.92
	DA-38	6.44	0.77		эо		 		 			 		
38	DA-38 + PT. 29 + PT. 30 +	16.24	0.77	20.00	CARRYOVER FROM PT.	0.00	20.00	40	3.17	4.38	5.43	39.66	54.75	67.86
	PT. 31 + PT. 32	10.24	5.77	20.00	29					7.30	J. 4 3			
39a 39b							OR CALCULATION OR CALCULATION					42.50 73.90	71.70 78.30	86.30 79.30
39b 39c							R CALCULATION					73.90 116.40	78.30 150.00	79.30 165.60
JJC	DA-39	3.99	0.77		355	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	, J. LOULATIONS	, o Maxillary P		<u> </u>	<u> </u>	110.40	150.00	103.00
39	DA-39 + PT. 11 + PT. 16 +	13.44	0.77	18.00	CARRYOVER FROM PT.	0.00	8.00	26	3.98	5.49	6.80	157.58	206.78	235.92
	PT. 39a + PT. 39b			10.00	11	0.00	0.00		0.50	J.73	0.00		_55.76	200.02
	DA-40 DA-40 + PT. 15 + PT. 39 +	7.25	0.77		CARRYOVER FROM PT.		2- 1				_		2.5	_
40	PT. 9d	33.72	0.77	26.00	39	0.00	12.00	38	3.26	4.50	5.58	201.14	266.91	310.45
	DA-41	9.04	0.77		CARRYOVE									
41	DA-41 + PT. 9C + PT. 40 + PT. 8	51.15	0.77	38.00	CARRYOVER FROM PT. 40	0.00	8.00	46	2.92	4.04	5.02	231.42	309.13	363.22
42a	DA-42a	2.69	0.77	11.00		0.00	8.00	19	4.66	6.45	8.00	9.67	13.36	16.59
42b	DA-42b	0.67	0.77	11.00		0.00	3.00	14	5.47	7.60	9.48	2.83	3.93	4.90
_	DA-43	0.00	0.77		 						_ ·			-
44	DA-44	4.96	0.77	11.00	<u> </u>	1.00	11.00	23	4.23	5.84	7.24	16.17	22.31	27.65
	DA-45	0.18	0.77		CARRYOVER FROM PT.									
45	DA-45 + PT. 5 + PT. 6	41.73	0.68	64.00	CARRYOVER FROM PT. 5	0.00	2.00	66	2.34	3.27	4.11	66.52	93.09	116.82
	DA-46	2.44	0.77		64257757									
46	DA-46 + PT. 45	44.16	0.69	66.00	CARRYOVER FROM PT. 45	0.00	6.00	72	2.25	3.16	3.97	68.15	95.68	120.46
	DA-47	0.50	0.77											
47	DA-47 + PT. 26 + PT. 27 + PT. 28d	9.95	0.77	19.00	CARRYOVER FROM PT. 28d	0.00	3.00	22	4.33	5.98	7.41	33.15	45.76	56.73
	DA-48	8.76	0.77	10.00	200	1.00	13.00	24	4.14	5.72	7.08	27.95	38.55	47.76
48	DA-49	8.27	0.77	14.00	1	0.00	17.00	31	3.64	5.01	6.21	23.17	31.93	39.53
48 49	DA-50	34.86	0.69											
					-	-	. -	-	- -	-	- -			
	DA-50 + PT. 4 + PT. 7 + PT.		_	I			HYDROGRA	\PH				186.20	279.40	353.50
	DA-50 + PT. 4 + PT. 7 + PT. 19a + PT. 20 + PT. 22 + PT. 23 + PT. 24 + PT. 25b + PT.	163.02	0.69									_	_	•
49	DA-50 + PT. 4 + PT. 7 + PT. 19a + PT. 20 + PT. 22 + PT. 23 + PT. 24 + PT. 25b + PT. 25c + PT. 46											<u> </u>		
49 50	DA-50 + PT. 4 + PT. 7 + PT. 19a + PT. 20 + PT. 22 + PT. 23 + PT. 24 + PT. 25b + PT. 25c + PT. 46 DA-51	5.89	0.77					DU						
49	DA-50 + PT. 4 + PT. 7 + PT. 19a + PT. 20 + PT. 22 + PT. 23 + PT. 24 + PT. 25b + PT. 25c + PT. 46 DA-51 DA-51 + PT. 17 + PT. 18 + PT. 44 + PT. 47 + PT. 50	5.89 189.19	0.77 0.71				HYDROGRA	.PH				28.00	224.70	317.60
49 50	DA-50 + PT. 4 + PT. 7 + PT. 19a + PT. 20 + PT. 22 + PT. 23 + PT. 24 + PT. 25b + PT. 25c + PT. 46 DA-51 DA-51 + PT. 17 + PT. 18 +	5.89	0.77				HYDROGRA	.PH				28.00	224.70	317.60



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CLEARWATER CREEK PHASE 5 PLAT# 24-11800362

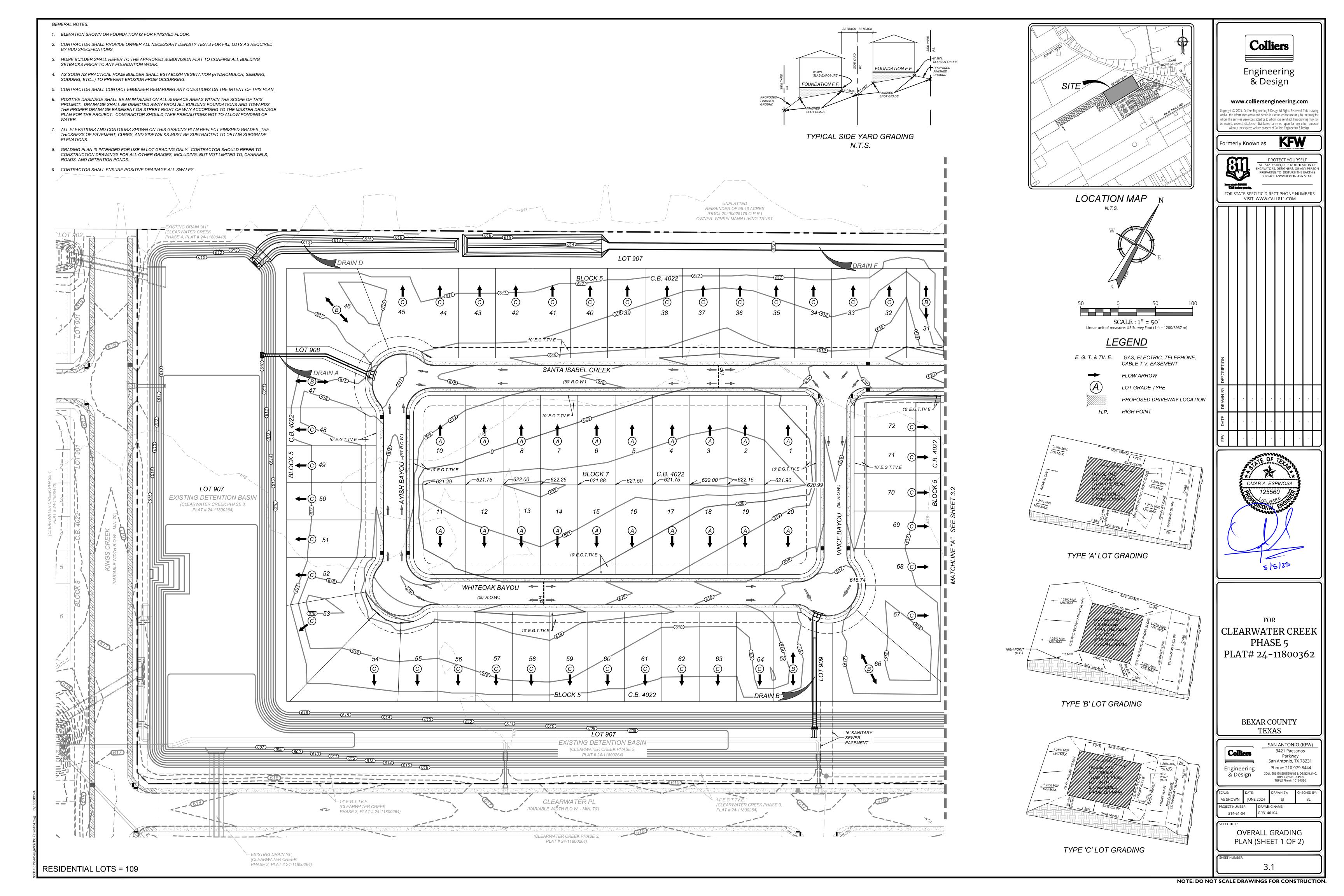
> BEXAR COUNTY TEXAS

Engineering & Design

SAN ANTONIO (KFW)
3421 Paesanos
Parkway
San Antonio, TX 78231 Phone: 210.979.8444

COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

MASTER DRAINAGE PLAN CALCULATIONS



GENERAL NOTES:

- 1. ELEVATION SHOWN ON FOUNDATION IS FOR FINISHED FLOOR.
- 2. CONTRACTOR SHALL PROVIDE OWNER ALL NECESSARY DENSITY TESTS FOR FILL LOTS AS REQUIRED
- 3. HOME BUILDER SHALL REFER TO THE APPROVED SUBDIVISION PLAT TO CONFIRM ALL BUILDING SETBACKS PRIOR TO ANY FOUNDATION WORK.
- 4. AS SOON AS PRACTICAL HOME BUILDER SHALL ESTABLISH VEGETATION (HYDROMULCH, SEEDING, SODDING, ETC...) TO PREVENT EROSION FROM OCCURRING.
- 5. CONTRACTOR SHALL CONTACT ENGINEER REGARDING ANY QUESTIONS ON THE INTENT OF THIS PLAN.
- 6. POSITIVE DRAINAGE SHALL BE MAINTAINED ON ALL SURFACE AREAS WITHIN THE SCOPE OF THIS PROJECT. DRAINAGE SHALL BE DIRECTED AWAY FROM ALL BUILDING FOUNDATIONS AND TOWARDS THE PROPER DRAINAGE EASEMENT OR STREET RIGHT OF WAY ACCORDING TO THE MASTER DRAINAGE PLAN FOR THE PROJECT. CONTRACTOR SHOULD TAKE PRECAUTIONS NOT TO ALLOW PONDING OF
- 7. ALL ELEVATIONS AND CONTOURS SHOWN ON THIS GRADING PLAN REFLECT FINISHED GRADES. THE THICKNESS OF PAVEMENT, CURBS, AND SIDEWALKS MUST BE SUBTRACTED TO OBTAIN SUBGRĀDE ELEVATIONS.
- 8. GRADING PLAN IS INTENDED FOR USE IN LOT GRADING ONLY. CONTRACTOR SHOULD REFER TO CONSTRUCTION DRAWINGS FOR ALL OTHER GRADES, INCLUDING, BUT NOT LIMITED TO, CHANNELS, ROADS, AND DETENTION PONDS.

UNPLATTED

REMAINDER OF 95.46 ACRES (DOC# 20200025179 O.P.R.) OWNER: WINKELMANN LIVING TRUST

14' E.G.T.TV.E 🗹

DETENTION BASIN 'B'

−14′ E.G.T.TV.E.

PLAT # 24-11800264)

(CLEARWATER CREEK PHASE 3

(CLEARWATER CREEK

PLAT # 24-11800264)

BLOCK 5

LOT 907

SANTA ISABEL CREEK

14' E.G.T.TV.E

622.87-

622.62-

622.36

619.76 620.01 620.27

CLEARWATER PL

CEDAR BAYOU

LANDSCAPE EASEMENT

 $A \rightarrow$

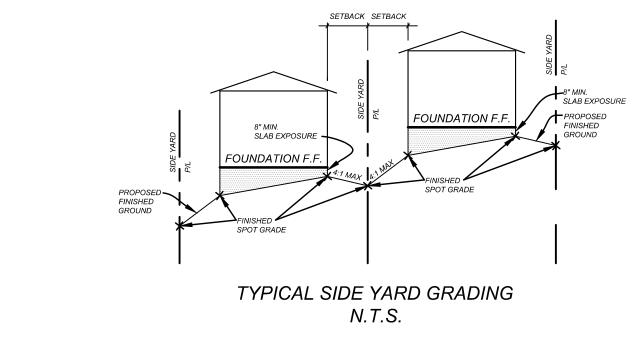
 $A \rightarrow$

14' E.G.T.TV.E

C.B. 4022

14' E.G.T.TV.E

9. CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE ALL SWALES.



UNPLATTED

1.5 ACRES (VOL. 3154 PG. 1641 O.P.R.)

OWNER: BIELKE EUGENE H & SHERRY L

UNPLATTED

(DOCUMENT NUMBER 20210018781 O.P.R.) OWNER: RENSHAW ELLIOTT & KELSEY

1.15 ACRES

the second special points about the party party and

-14' E.G.T.TV.E

(CLEARWATER CREEK

PHASE 2 & 9, PLAT#

└_1' V.N.A.E

24-11800030)

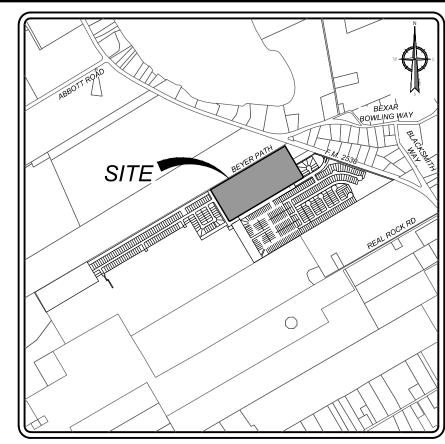
(CLEARWATER CREEK PHASE 2 & 9, PLAT#

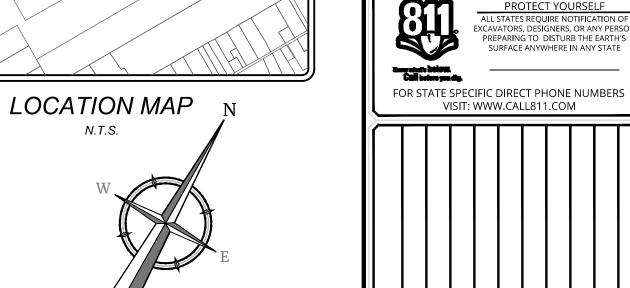
©**→** 18

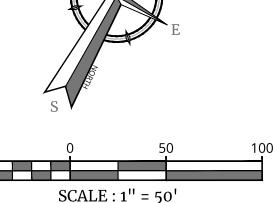
LANDSCAPE EASEMENT

(CLEARWATER CREEK PHASE 1A,

PLAT # 20-11800491)



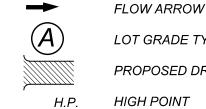




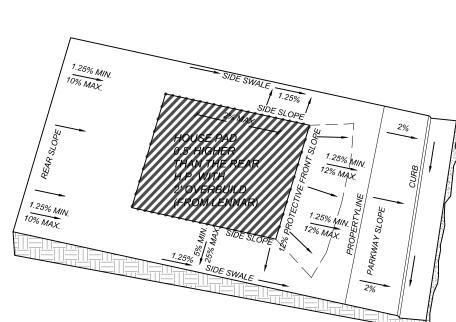
LEGEND

E. G. T. & TV. E. GAS, ELECTRIC, TELEPHONE, CABLE T.V. EASEMENT

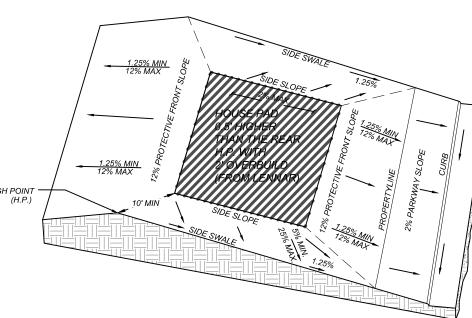
Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)



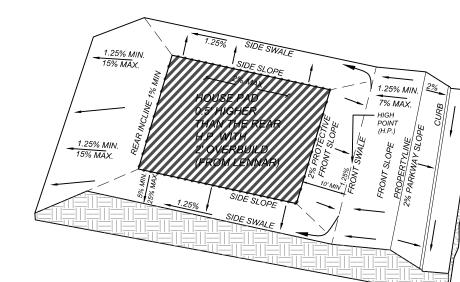
LOT GRADE TYPE PROPOSED DRIVEWAY LOCATION



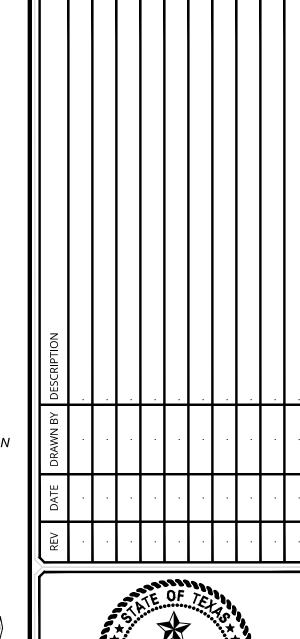
TYPE 'A' LOT GRADING



TYPE 'B' LOT GRADING



TYPE 'C' LOT GRADING



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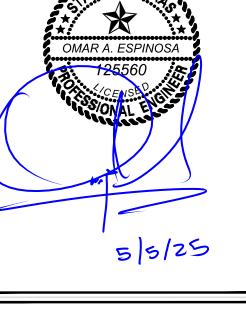
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CLEARWATER CREEK PHASE 5 PLAT# 24-11800362

> **BEXAR COUNTY TEXAS**

& Design

AS SHOWN

San Antonio, TX 78231 Phone: 210.979.8444 COLLIERS ENGINEERING & DESIGN, INC. TBPE Firm#: F-14909 TBPLS Firm#: 10194550

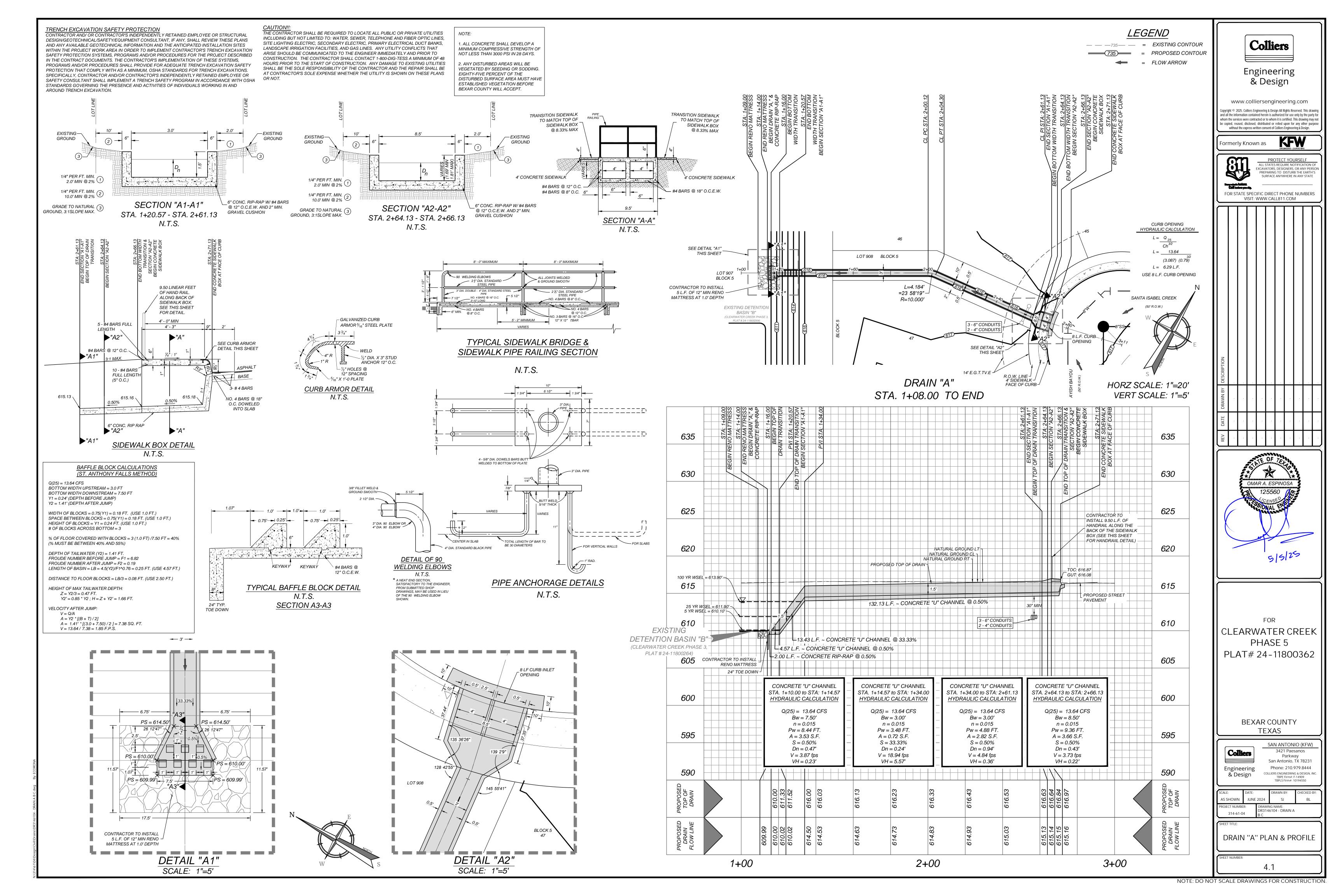
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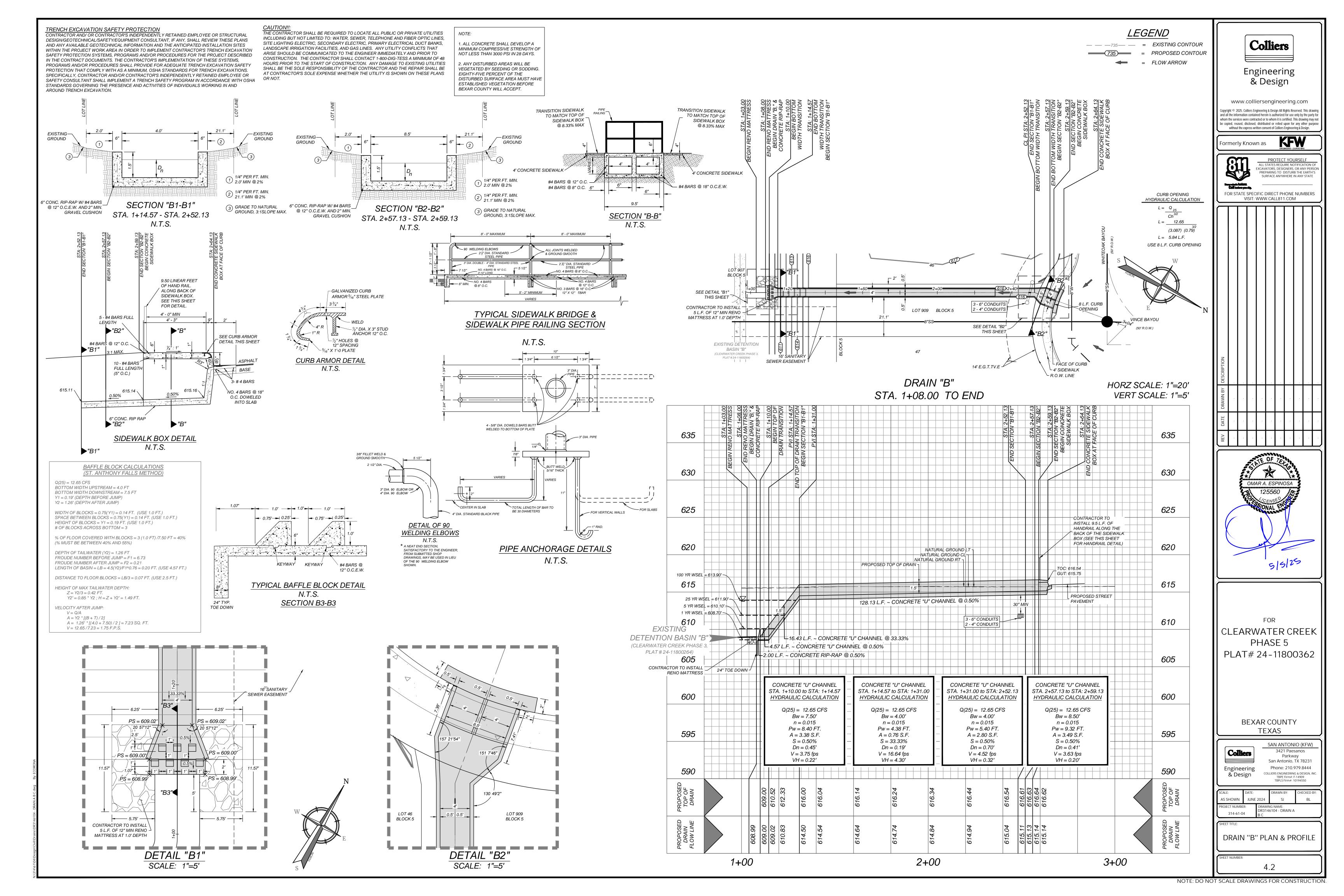
3421 Paesanos

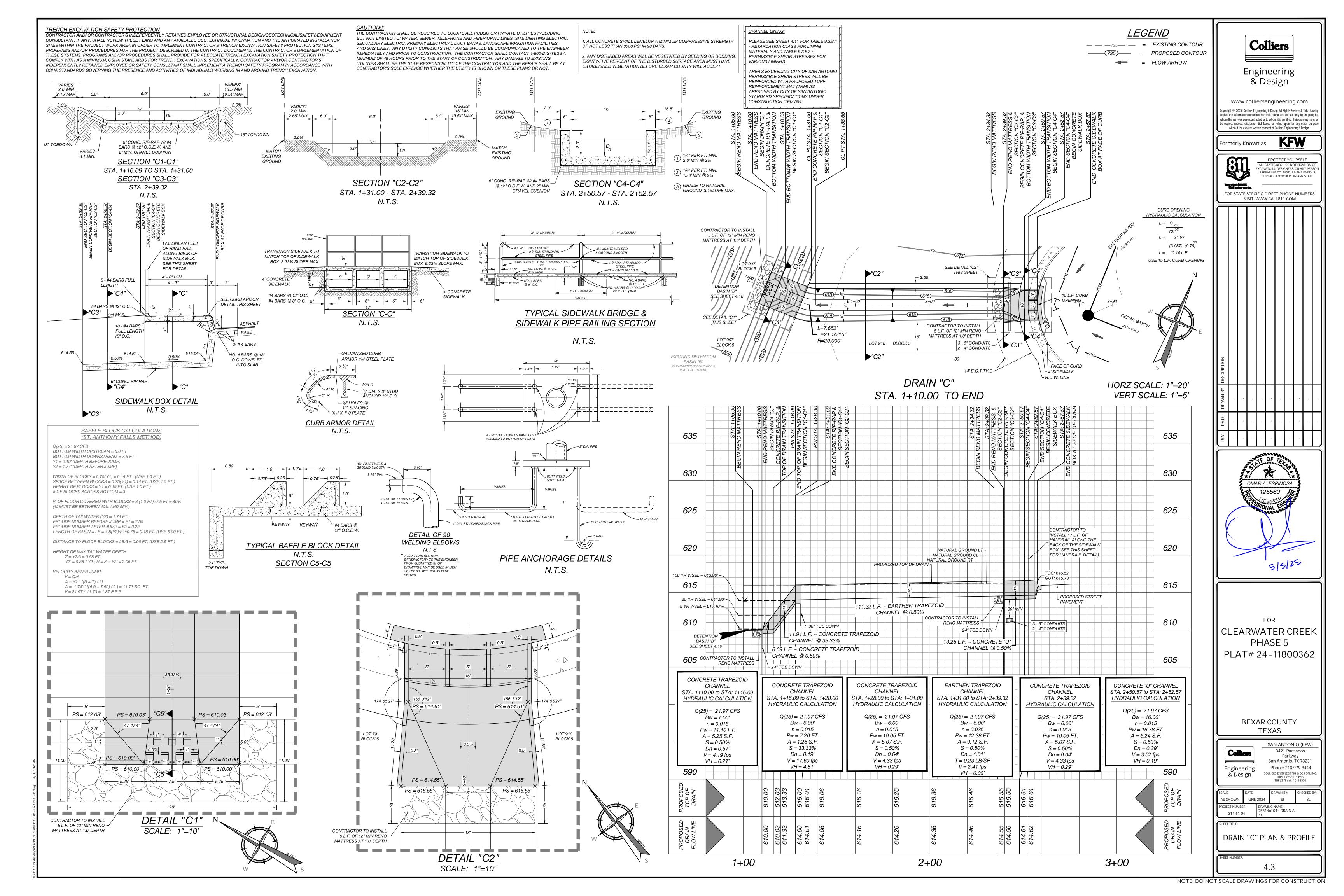
GR3146104

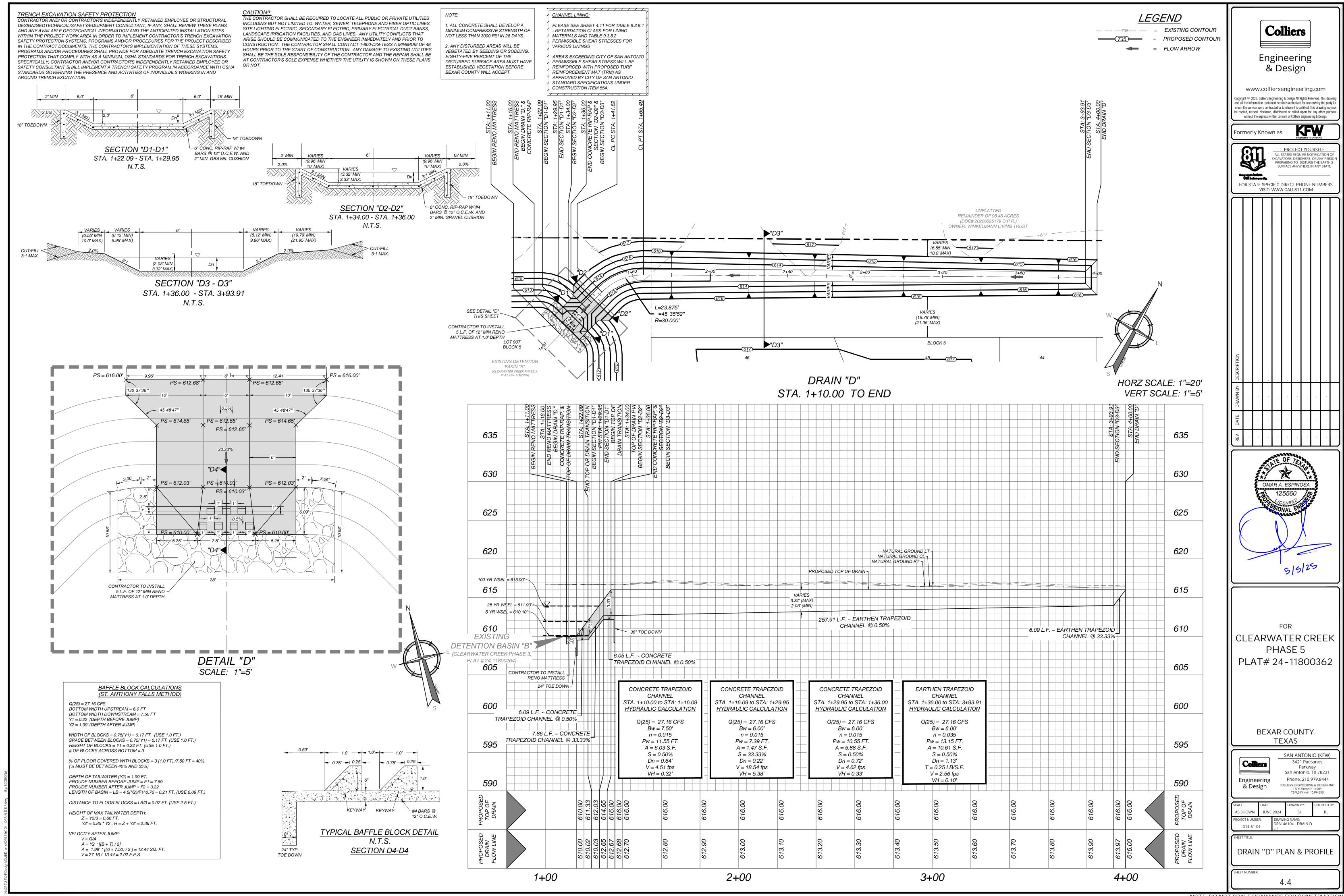
OVERALL GRADING PLAN (SHEET 2 OF 2)

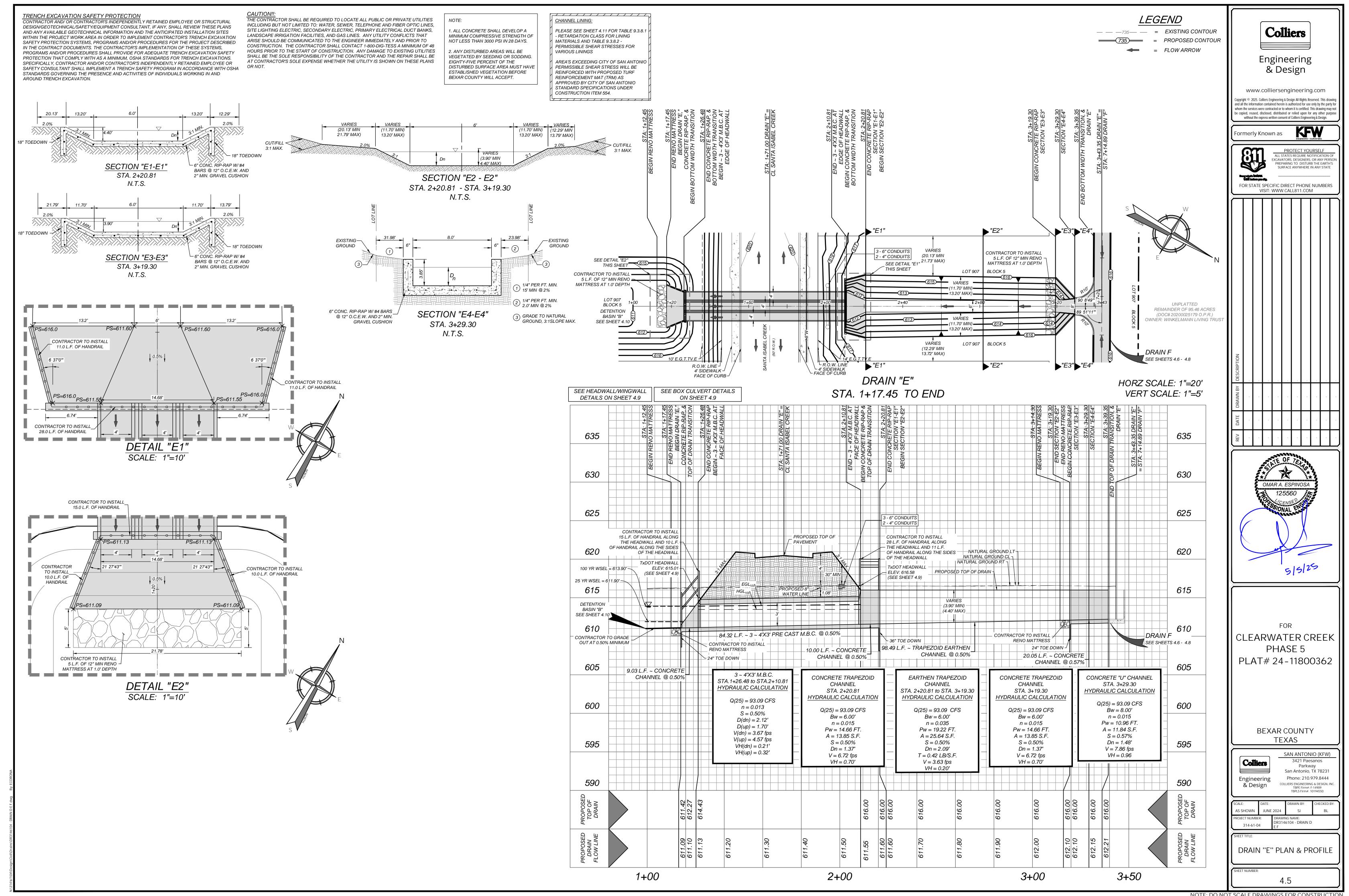
RESIDENTIAL LOTS = 109

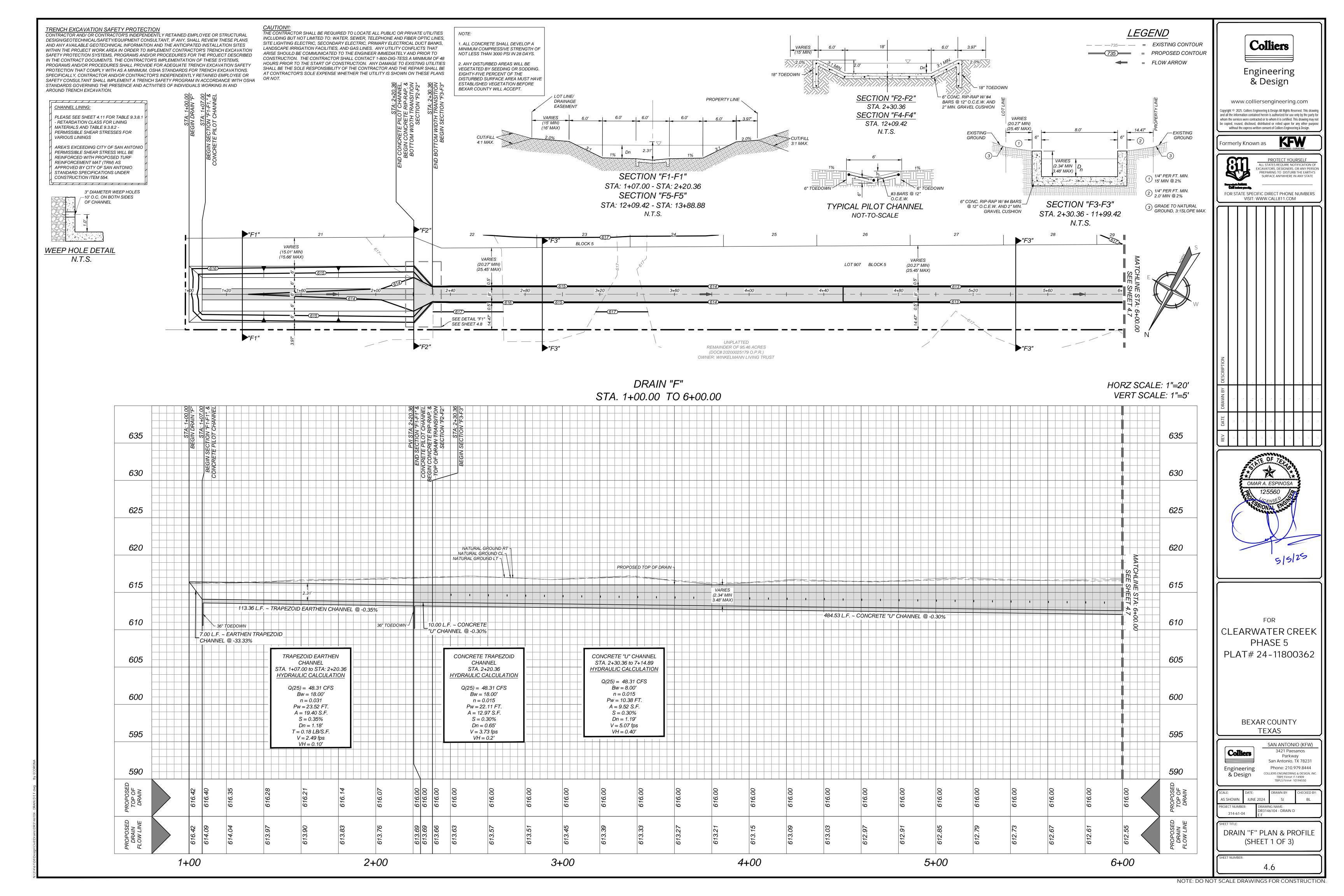


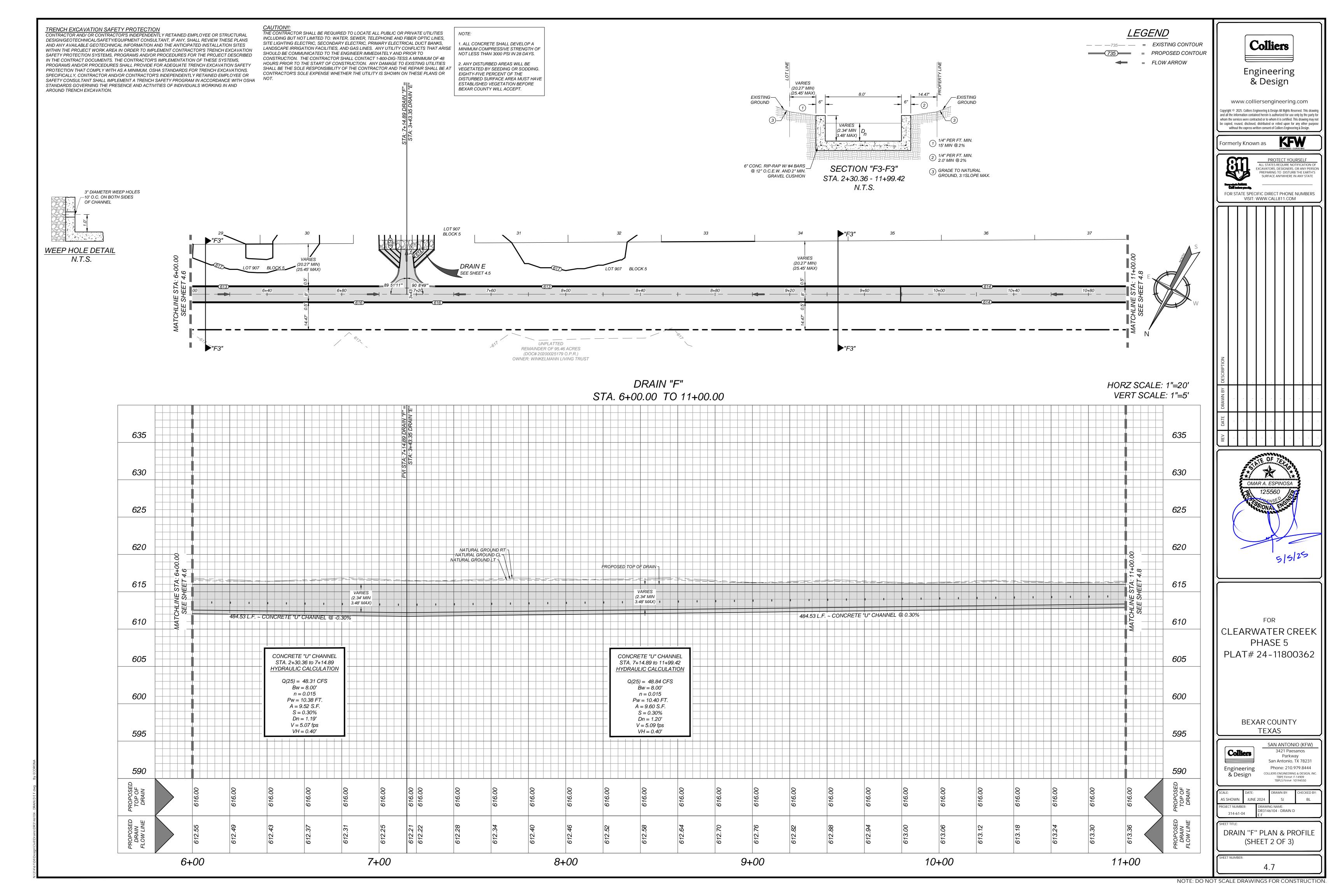


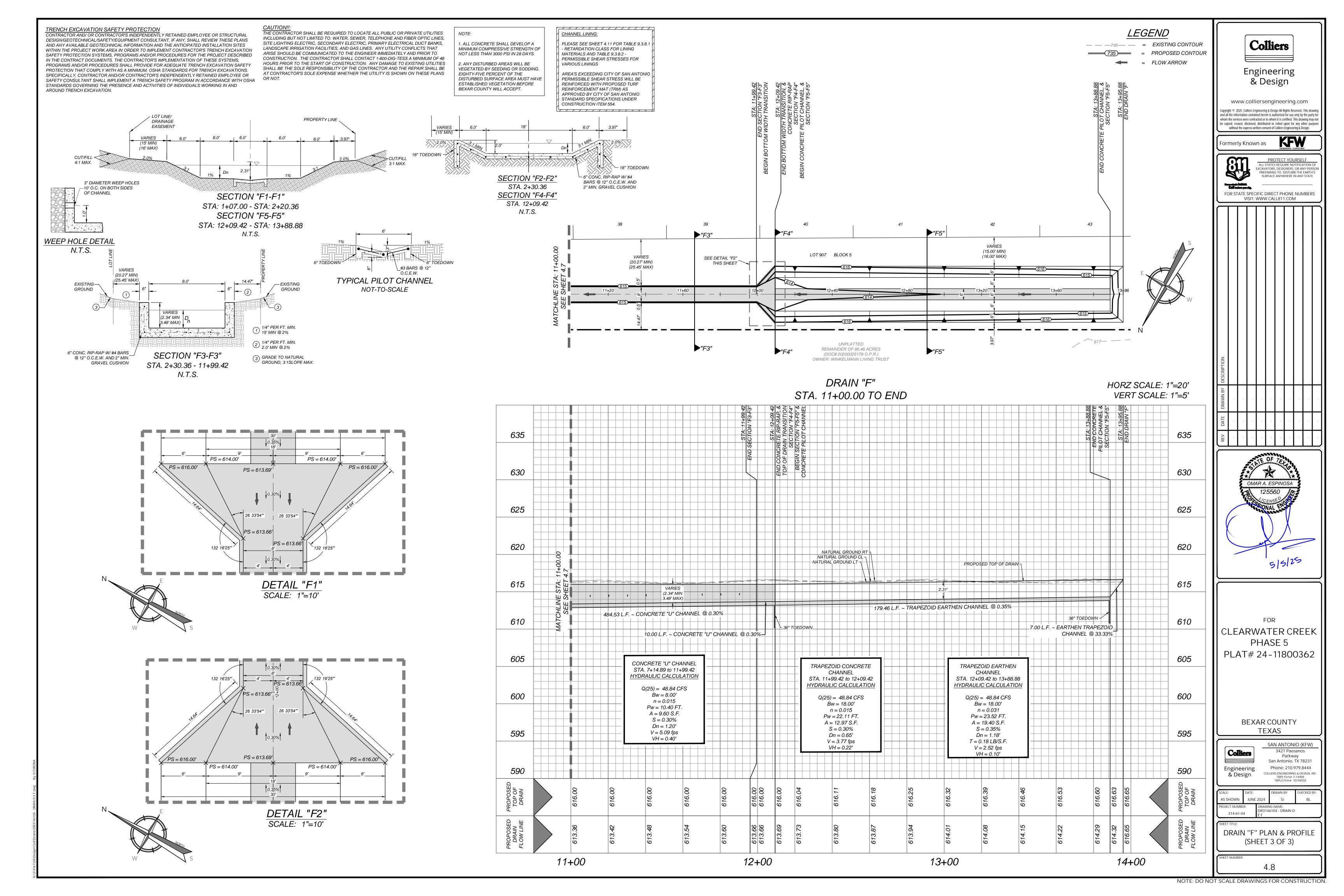


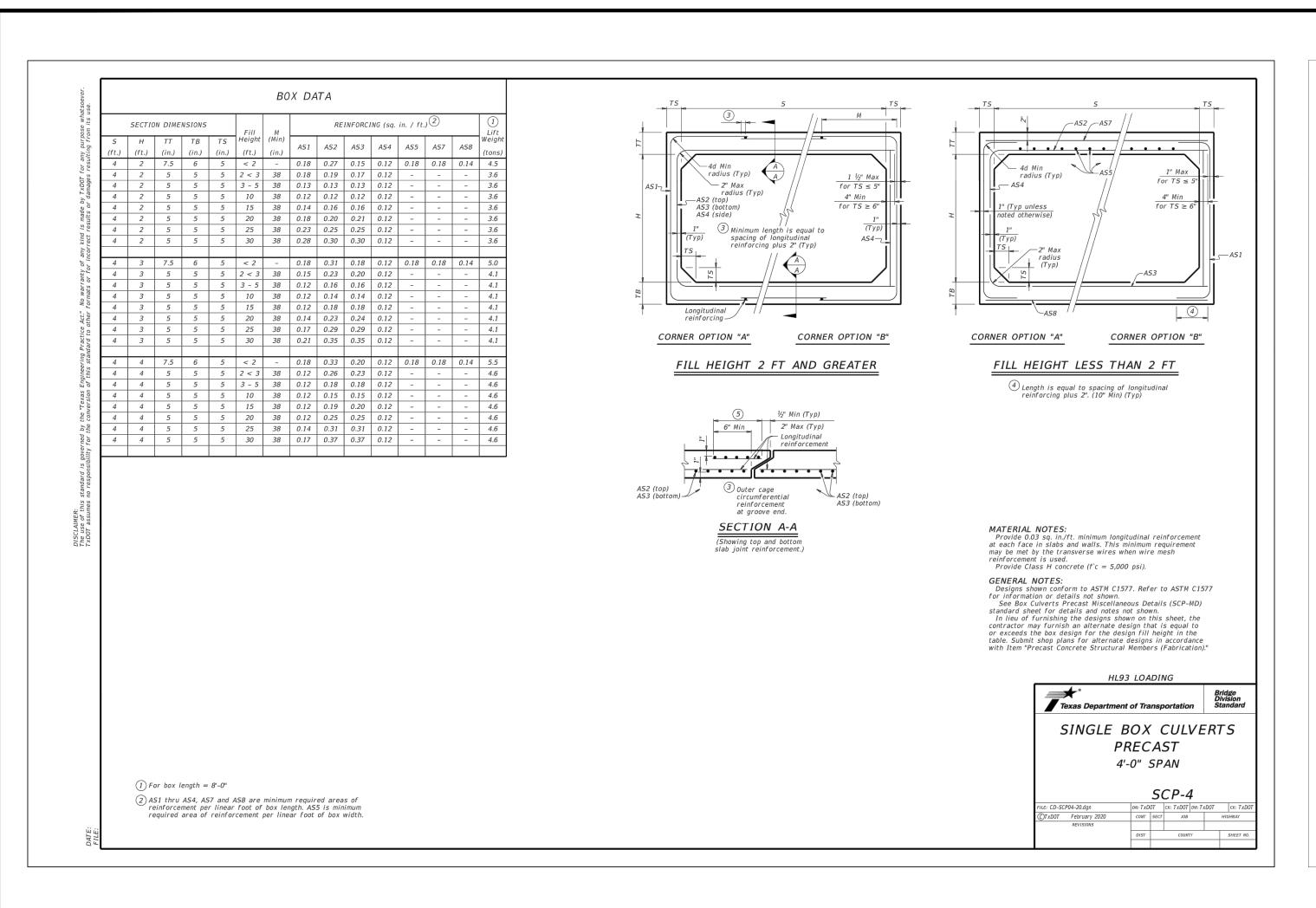


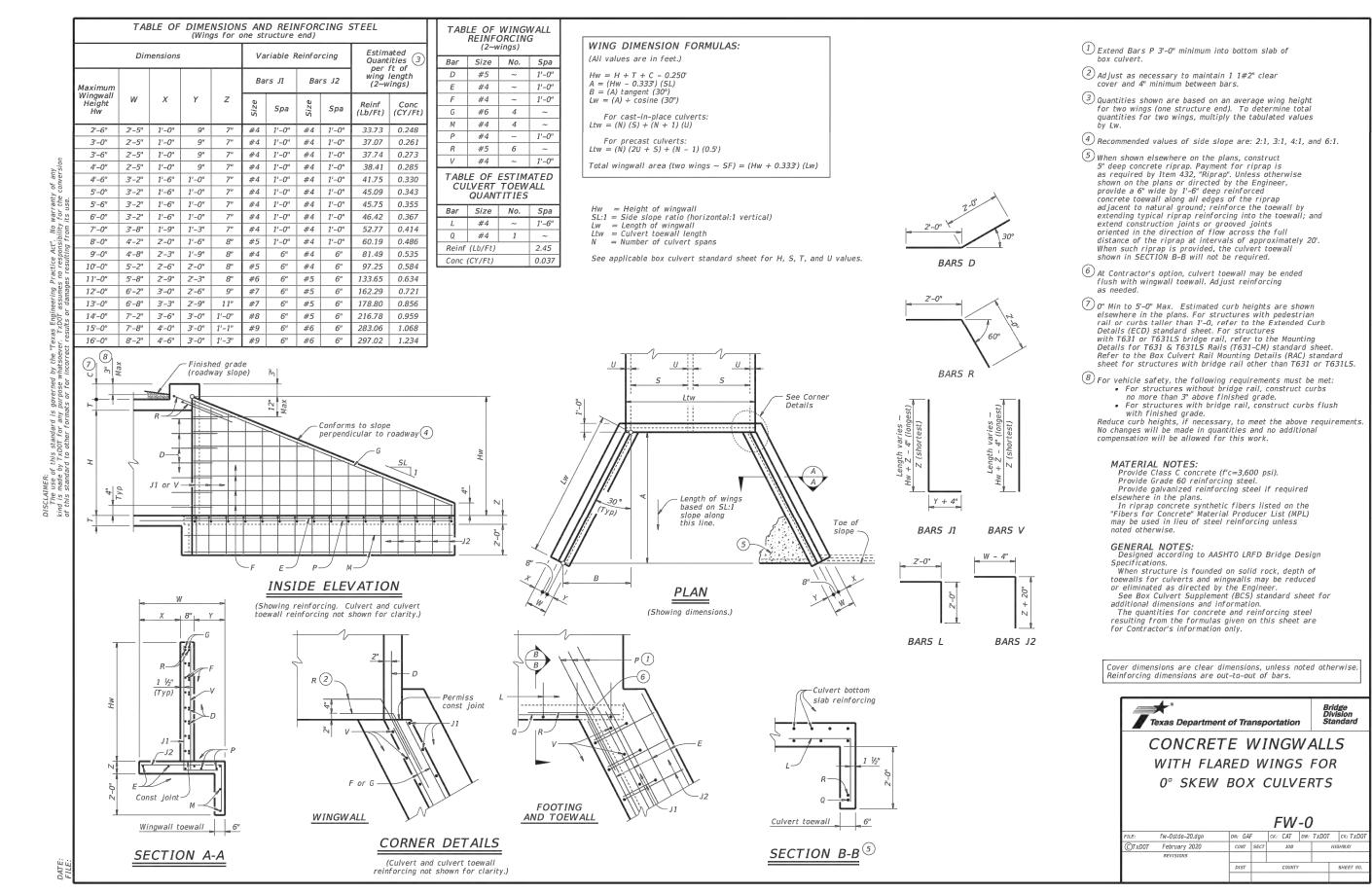


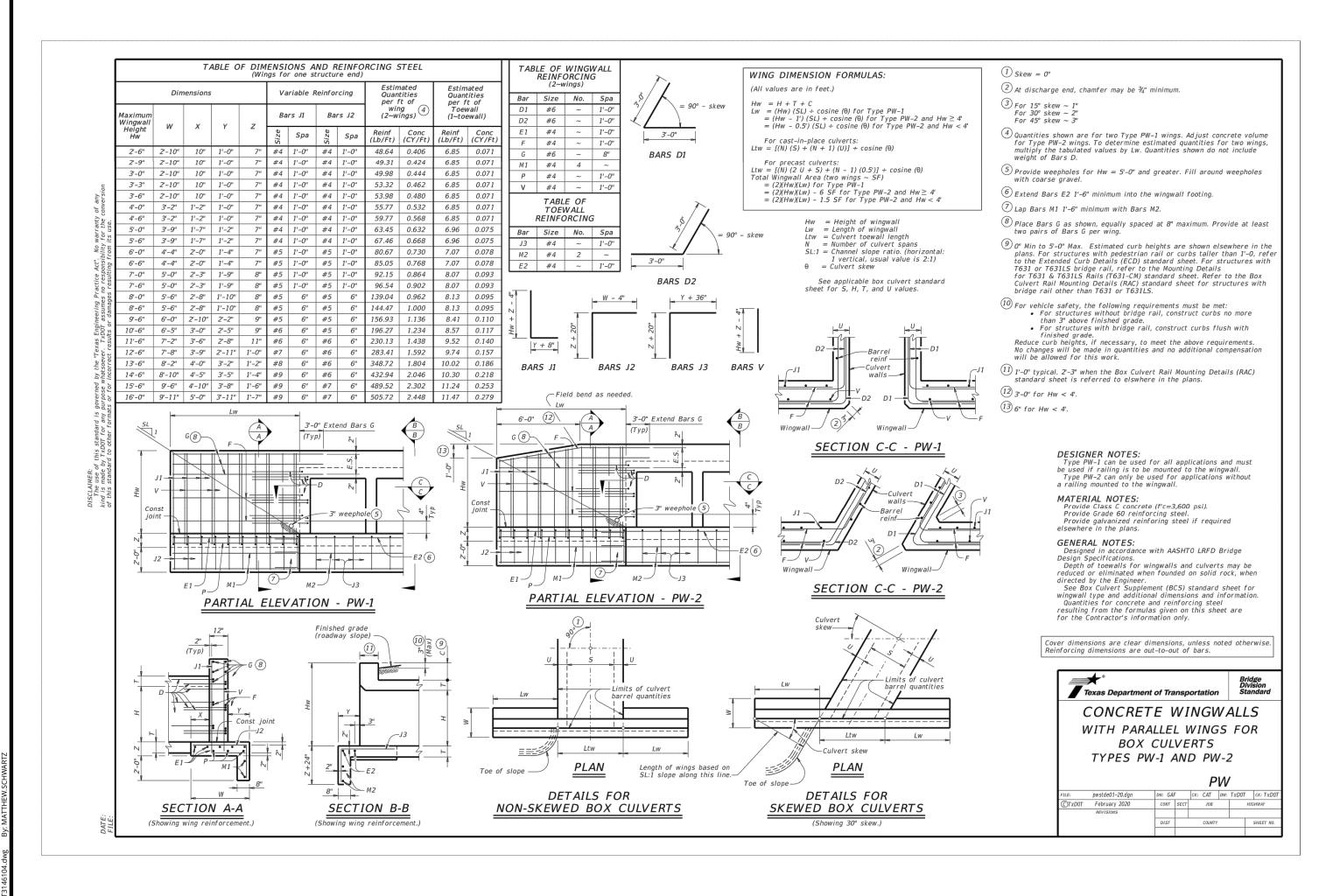


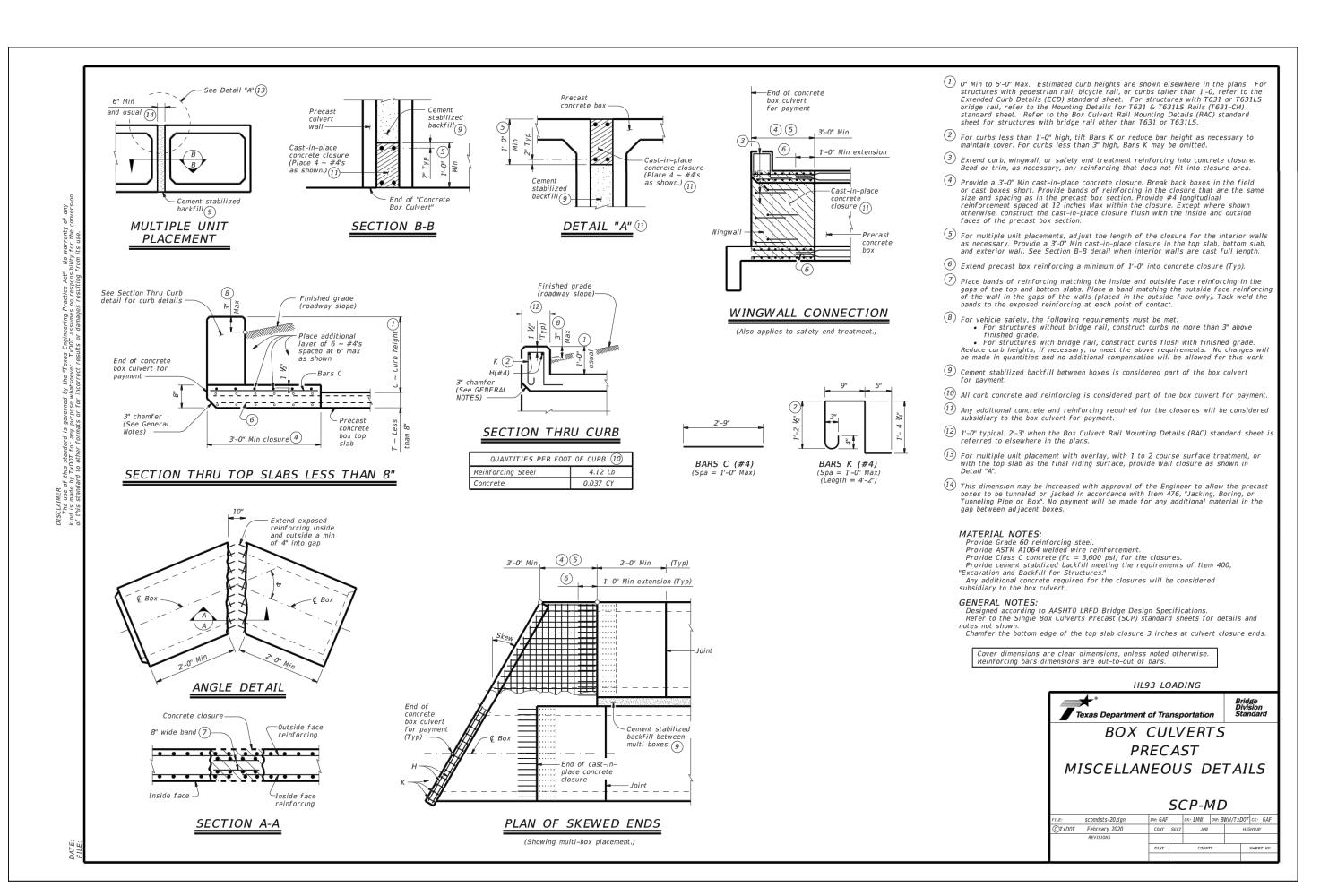


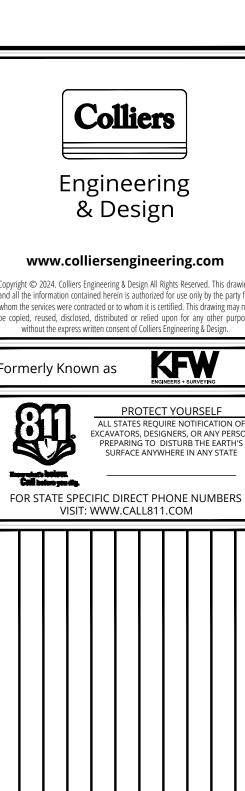


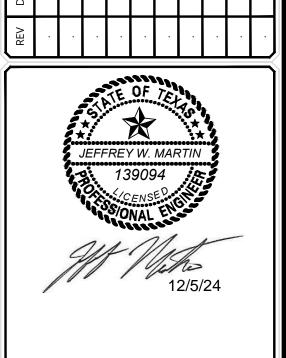












FOR **CLEARWATER CREEK** PHASE 5 PLAT# 24-11800362

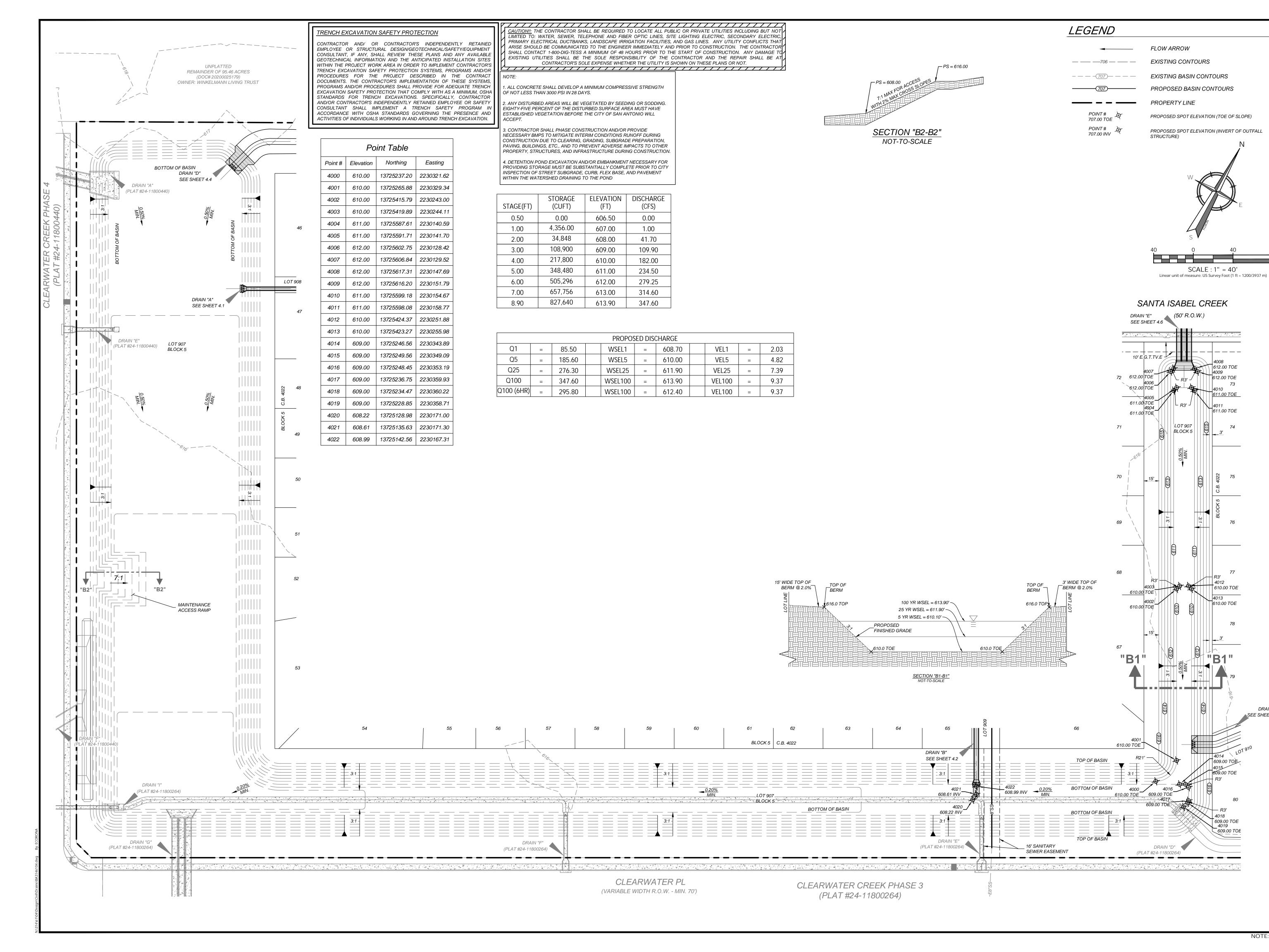
> **BEXAR COUNTY** TEXAS

	SAN ANTONIO (KFV
Colliers	3421 Paesanos Parkway
	San Antonio, TX 7823
Engineering	Phone: 210.979.8444
& Design	COLLIERS ENGINEERING & DESIGN TBPE Firm#: F-14909 TBPLS Firm#: 10194550

AS SHOWN JUNE 2024

AWING NAME DRDT3146104 314-61-04

DRAIN DETAILS



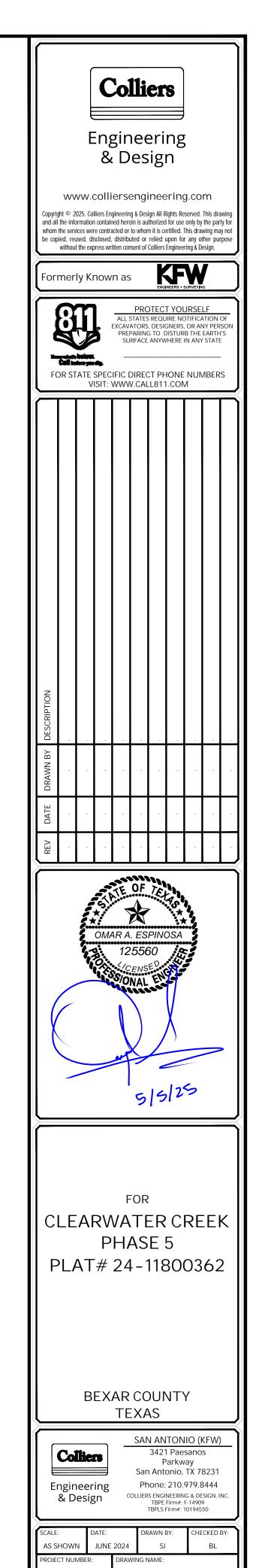
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TABLE 9.3.8.1 - RETARDATION CLASS FOR LINING MATERIALS

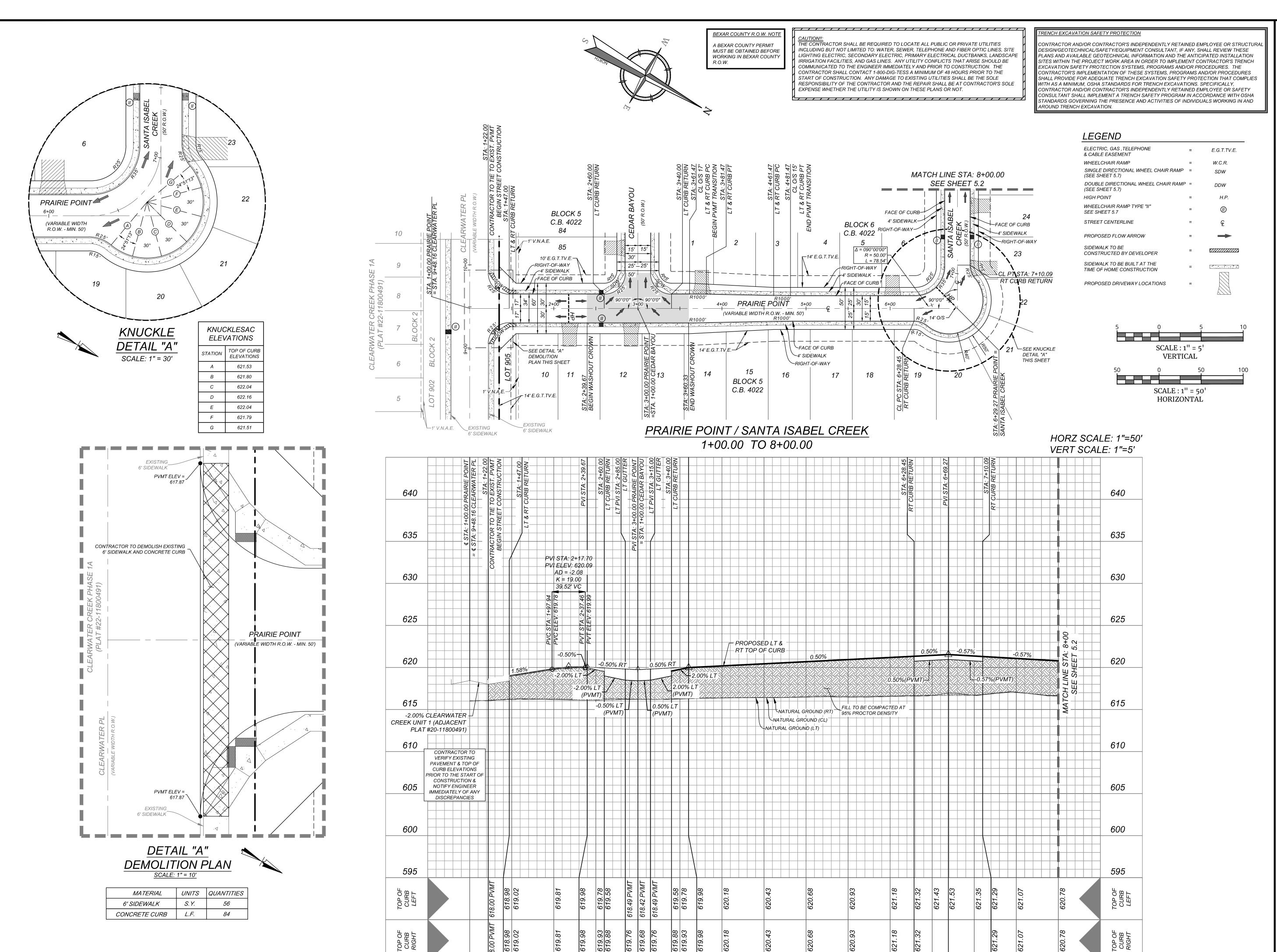
Retardance Class	Cover	Condition
В	Bermuda grass	Good stand, tall (average 12 in. or 305 mm)
-	Native grass mixture little bluestem, bluestem, blue gamma, other short and long stem midwest grasses	Good stand, unmowed
-	Lespedeza sericea	Good stand, not woody, tall (average 19 in. or 480 mm)
-	Alfalfa	Good stand, uncut (average 11 in or 280 mm)
-	Blue gamma	Good stand, uncut (average 13 in. or 330 mm)
-	Crabgrass	Fair stand, uncut (10-to-48 in. or 55-to-1220 mm)
С	Bermuda grass	Good stand, mowed (average 6 in. or 150 mm)
-	Common lespedeza	Good stand, uncut (average 11 in. or 280 mm)
-	Grass-legume mixture: summer (orchard grass redtop, Italian ryegrass, and common lespedeza)	Good stand, uncut (6-8 in. or 150- 200 mm)
-	Centipede grass	Very dense cover (average 6 in. or 150 mm)
-	Kentucky bluegrass	Good stand, headed (6-12 in. or 150-305 mm)
D	Bermuda grass	Good stand, cut to 2.5 in. or 65
-	Common lespedeza	Excellent stand, uncut (average 4.5 in. or 115 mm)
-	Buffalo grass	Good stand, uncut (3-6 in. or 75- 150 mm)
-	Grass-legume mixture: fall, spring (orchard grass Italian ryegrass, and common lespedeza	Good Stand, uncut (4-5 in. or 100- 125 mm)
-	Lespedeza sericea	After cutting to 2 in. or 50 mm (very good before
E	Bermuda grass	Good stand, cut to 1.5 in. or 40
-	Bermuda grass	Burned stubble

TABLE 9.3.8.2 - PERMISSIBLE SHEAR STRESSES FOR VARIOUS LININGS

Protective Cover	τ _d (lb./sq.ft.)	τ _d (N/m ²)
Retardance Class B Vegetation (See the "Retardation Class for Lining Materials" table above)	2.1	101
Retardance Class C Vegetation (See the "Retardation Class for Lining Materials" table above)	1	48
Retardance Class D Vegetation (See the "Retardation Class for Lining Materials" table above)	0.6	29
Retardance Class E Vegetation (See the "Retardation Class for Lining Materials" table above)	0.35	17
Woven Paper	0.15	7
Jute Net	0.45	22
Single Fiberglass	0.6	29
Double Fiberglass	0.85	41
Straw W/Net	1.45	69
Curled Wood Mat	1.55	74
Synthetic Mat	2	96
Gravel, D50 = 1 in. or 25 mm	0.4	19
Gravel, D50 = 2 in. or 50 mm	0.8	38
Rock, D50 = 6 in. or 150 mm	2.5	120
Rock, D50 = 12 in. or 300 mm	5	239
6-in. or 50-mm Gabions	35	1675
4-in. or 100-mm Geoweb	10	479
Soil Cement (8% cement)	>45	>2154
Dycel w/out Grass	>7	>335
Petraflex w/out Grass	>32	>1532
Armorflex w/out Grass	12-20	574-957
Erikamat w/3-in or 75-mm Asphalt	13-16	622-766
Erikamat w/1-in. or 25 mm Asphalt	<5	<239
Armorflex Class 30 with longitudinal and lateral cables, no grass	<5	>1628
Dycel 100, longitudinal cables, cells filled with mortar	<12	<574
Concrete construction blocks, granular filter underlayer	>20	>957
Wedge-shaped blocks with drainage slot	>25	>1197



CHANNEL LINING DETAIL



4+00

5+00

6+00

7+00

8+00

3+00

1+00

2+00

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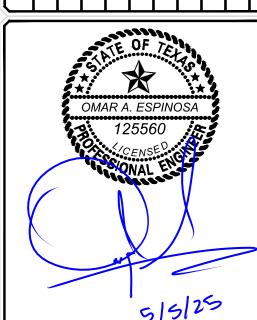
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FOR
CLEARWATER CREEK
PHASE 5
PLAT# 24-11800362

BEXAR COUNTY TEXAS

ColliersEngineering

SAN ANTONIO (KFW)

3421 Paesanos
Parkway
San Antonio, TX 78231
Phone: 210.979.8444

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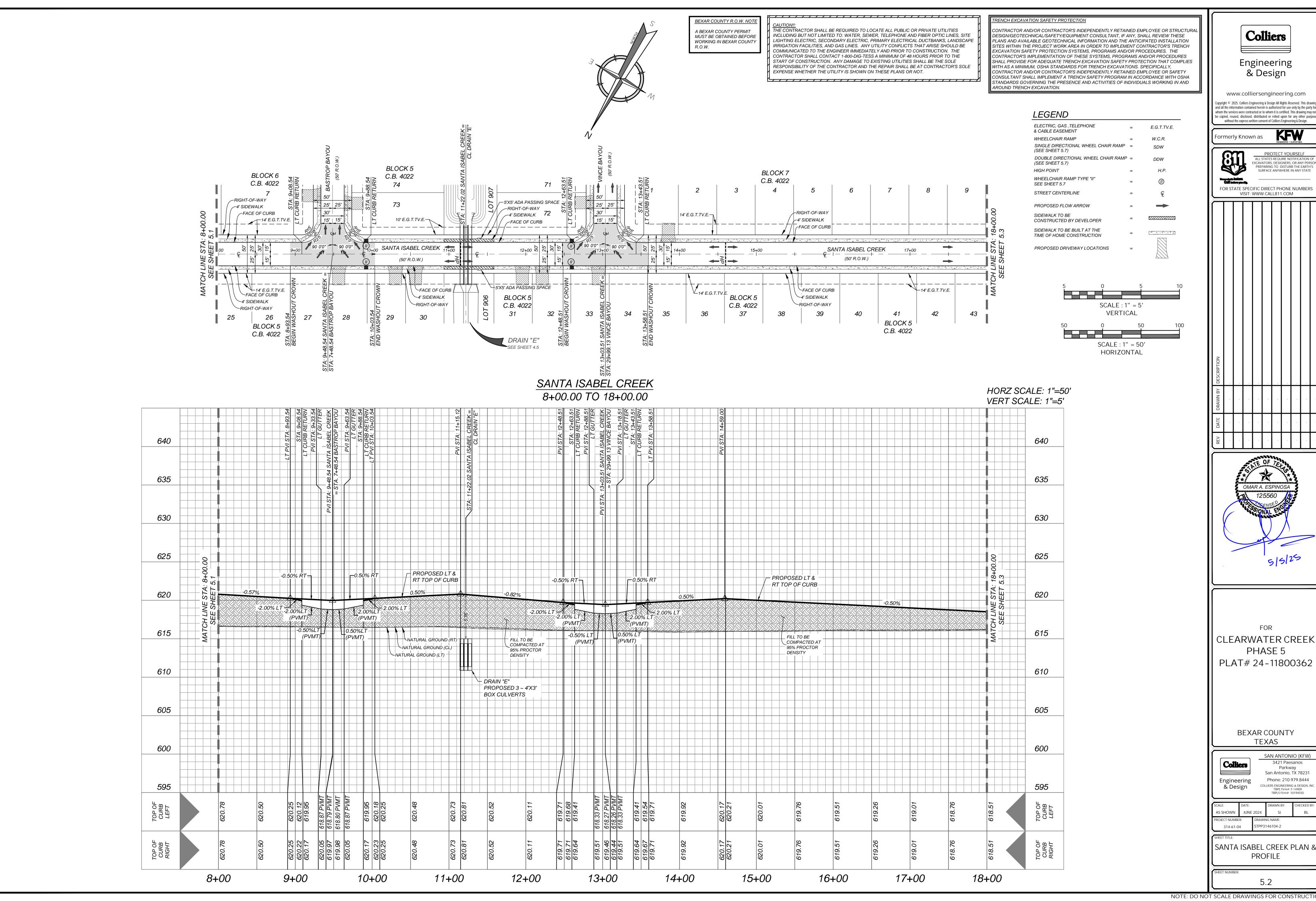
DIJECT NUMBER:
314-61-04

DRAWING NAME:
STPP3146104-1

EET TITLE:
PRAIRIE POINT & SANTA

ISABEL CREEK PLAN &

PROFILE
SHEET NUMBER:



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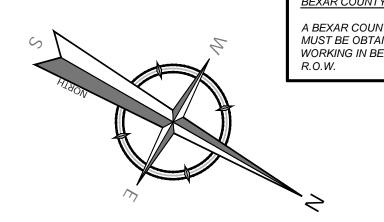
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CLEARWATER CREEK PHASE 5

BEXAR COUNTY

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BEGIN WASHOUT CROWN

STA: 18+41.96

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MATCH LINE STA: 18+00.00

CAUTION!!:
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THE CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES

RIGHT-OF-WAY

= 090 00'00"

L = 78.54'

~RIGHT-OF-WAY -4' SIDEWALK - -FACE OF CURB

AYISH BAYOU - OS IS

R = 50.00'

MATCH LINE STA: 22+50.00

FACE OF CURB

4' SIDEWALK

1GHT-OF-WAY

1 SIDEWALK

1

RIGHT-OF-WAY

-SEE KNUCKLE

DETAIL "C"

THIS SHEET

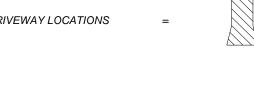
INCLUDING BUT NOT LIMITED TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. 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.

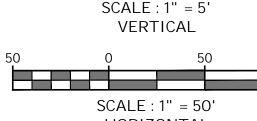
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LEGEND

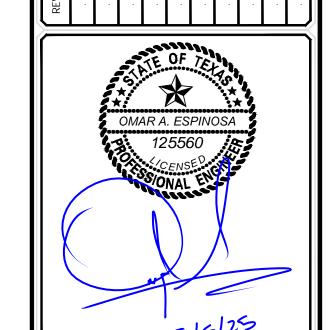
ELECTRIC, GAS ,TELEPHONE & CABLE EASEMENT	=	E.G.T.TV.E.
WHEELCHAIR RAMP	=	W.C.R.
SINGLE DIRECTIONAL WHEEL CHAIR RAMP (SEE SHEET 5.7)	=	SDW
DOUBLE DIRECTIONAL WHEEL CHAIR RAMP (SEE SHEET 5.7)	=	DDW
HIGH POINT	=	H.P.
WHEELCHAIR RAMP TYPE "II" SEE SHEET 5.7	=	(1)
STREET CENTERLINE	=	ę
PROPOSED FLOW ARROW	=	-
SIDEWALK TO BE CONSTRUCTED BY DEVELOPER	=	
SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION	=	
PROPOSED DRIVEWAY LOCATIONS	=	





HORIZONTAL

HORZ SCALE: 1"=50'



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PHASE 5 PLAT# 24-11800362

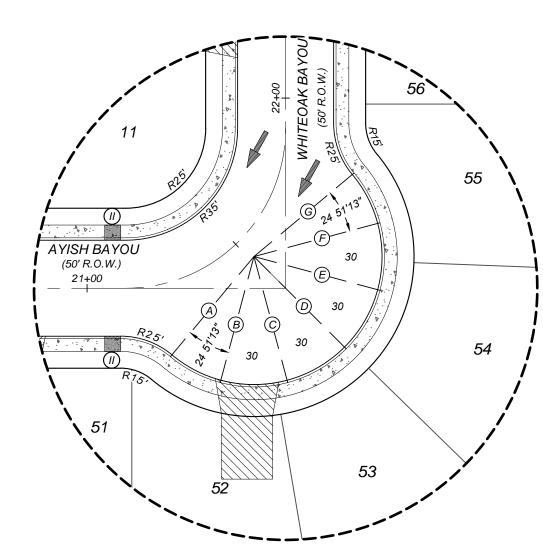
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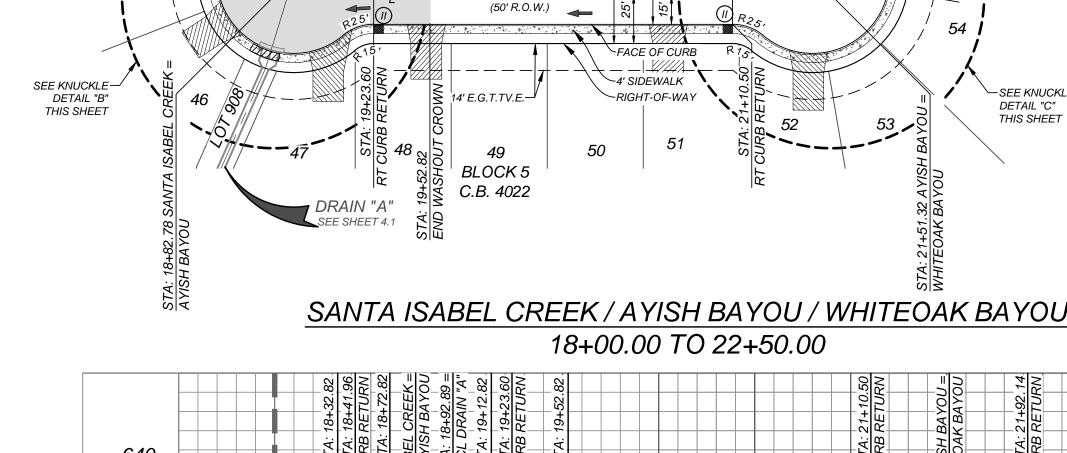
& Design JUNE 2024

SANTA ISABEL CREEK, AYISH **BAYOU & WHITEOAK BAYOU** PLAN & PROFILE

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION



KNUCKLESAC ELEVATIONS					
STATION	TOP OF CURB ELEVATIONS				
Α	619.35				
В	619.61				
С	619.85				
D	619.97				
Е	619.96				
F	619.82				
G	619.63				

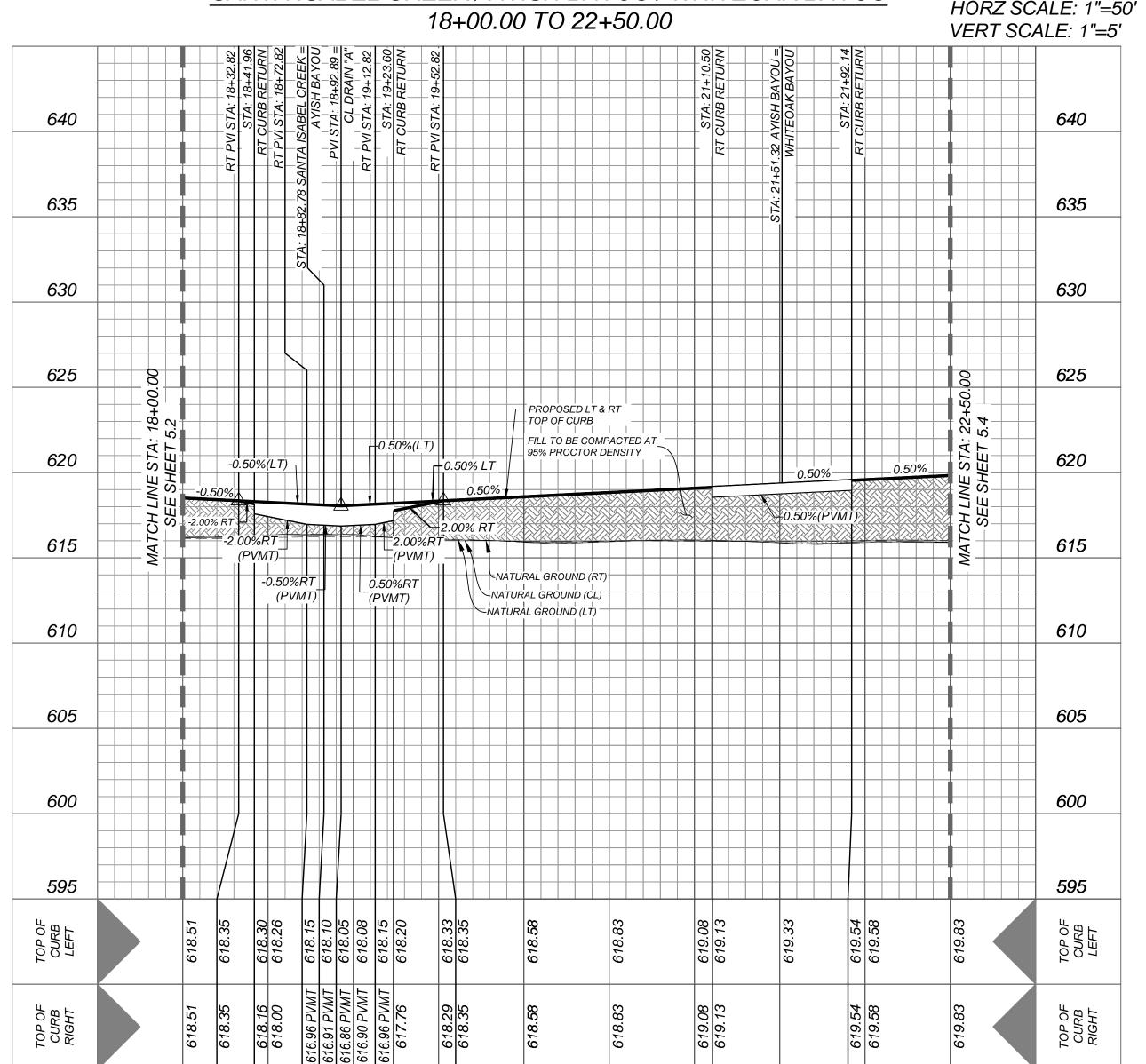


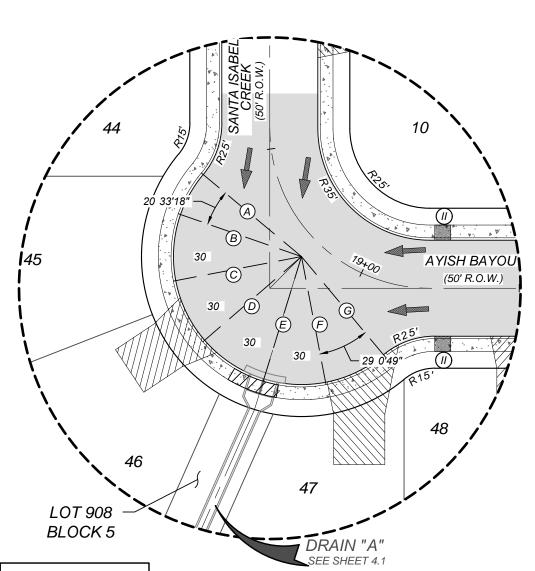
= 090 00'00" C.B. 4022

∕–14' E.G.T.TV.E.

R = 50.00'

L = 78.54'



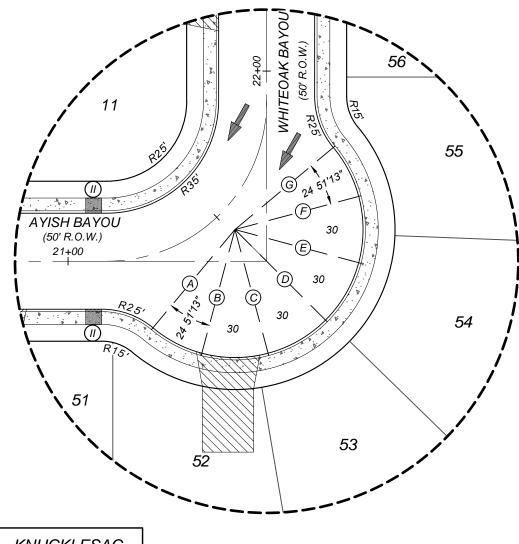


KNUCKLE

DETAIL "B"

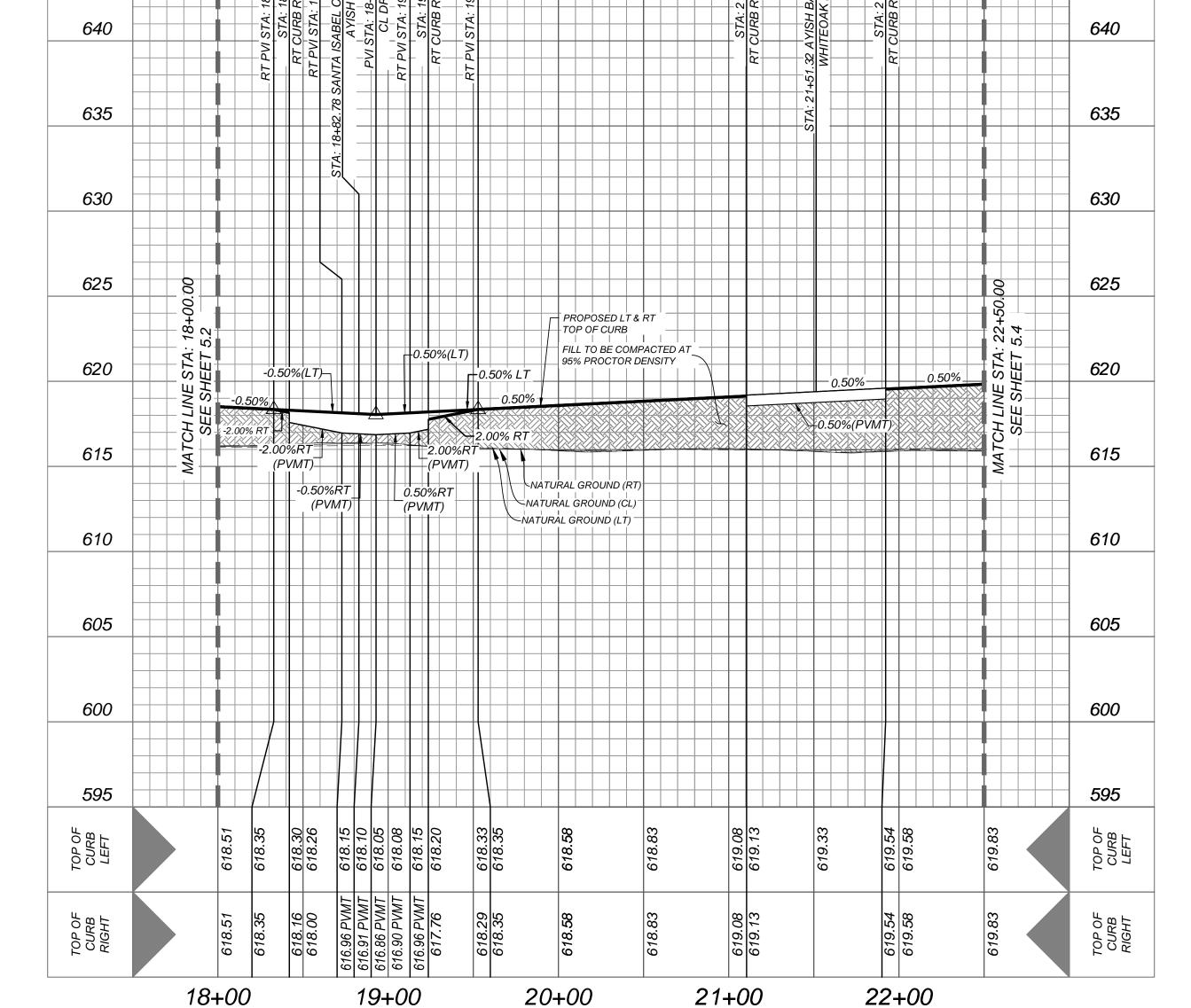
SCALE: 1" = 30'

KNUCKLESAC ELEVATIONS				
STATION	TOP OF CURB ELEVATIONS			
Α	617.91			
В	617.70			
С	617.40			
D	617.10			
E	616.87			
F	617.10			
G	617.46			



KNUCKLE

SCALE: 1" = 30'



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RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE

EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.

BLOCK 7 C.B. 4022

FACE OF CURB

14' E.G.T.TV.E.

BLOCK 5

C.B. 4022

ENCH EXCAVATION SAFETY PROTECTION

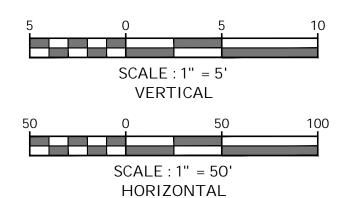
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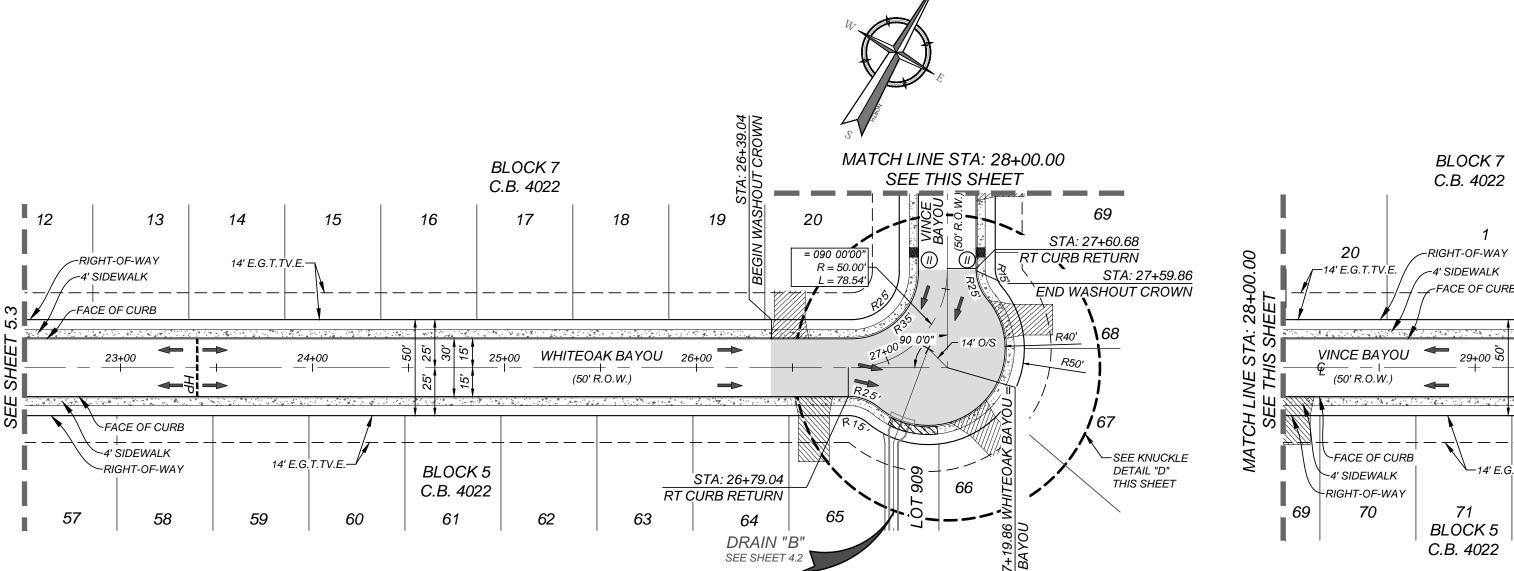
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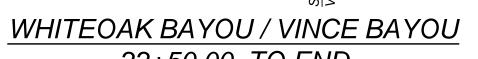
14' E.G.T.TV.E.

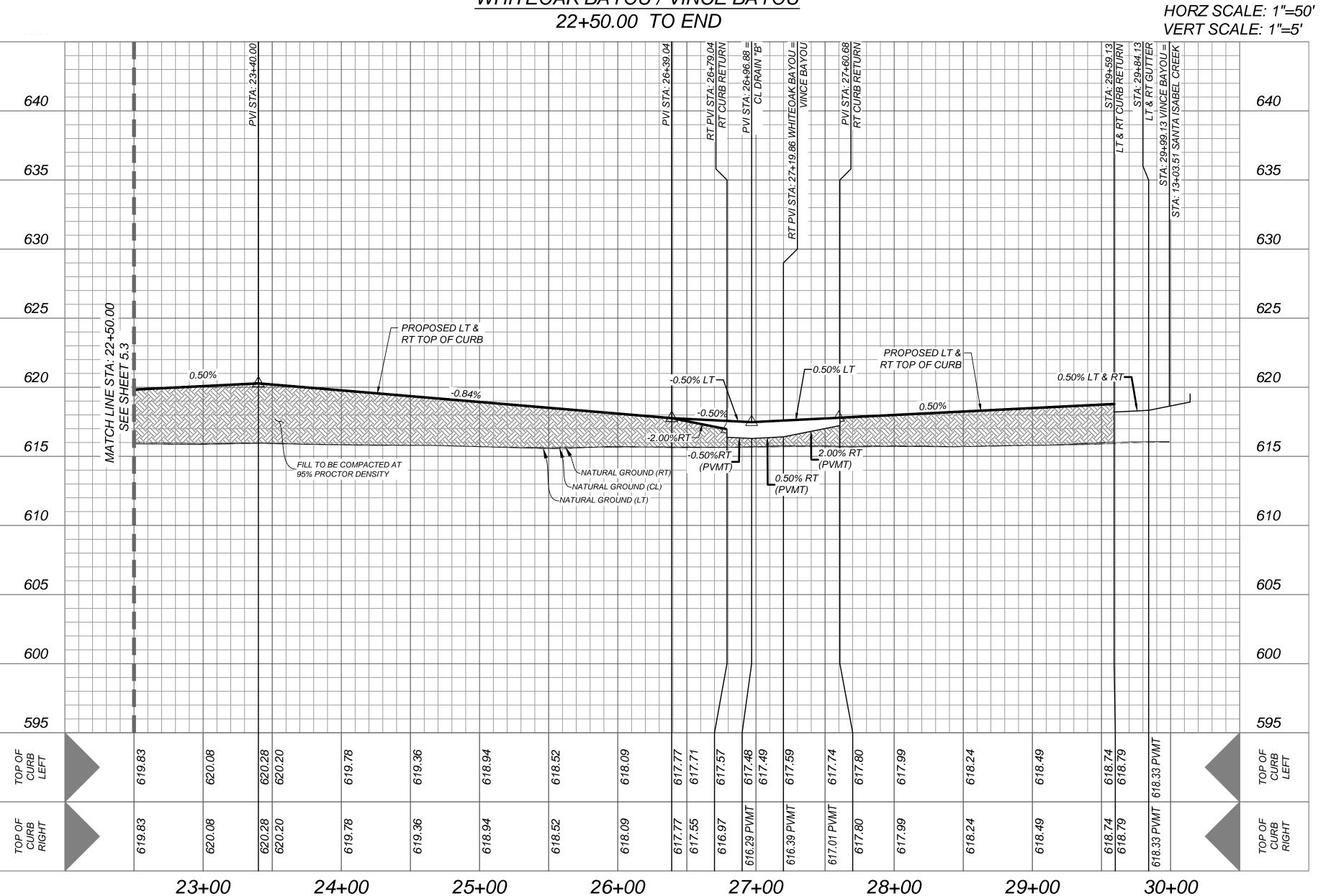
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LEGEND		
ELECTRIC, GAS ,TELEPHONE & CABLE EASEMENT	=	E.G.T.TV.E.
WHEELCHAIR RAMP	=	W.C.R.
SINGLE DIRECTIONAL WHEEL CHAIR RAMP (SEE SHEET 5.7)	=	SDW
DOUBLE DIRECTIONAL WHEEL CHAIR RAMP (SEE SHEET 5.7)	=	DDW
HIGH POINT	=	H.P.
WHEELCHAIR RAMP TYPE "II" SEE SHEET 5.7	=	(//
STREET CENTERLINE	=	arphi
PROPOSED FLOW ARROW	=	\rightarrow
SIDEWALK TO BE CONSTRUCTED BY DEVELOPER	=	
SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION	=	
PROPOSED DRIVEWAY LOCATIONS	=	









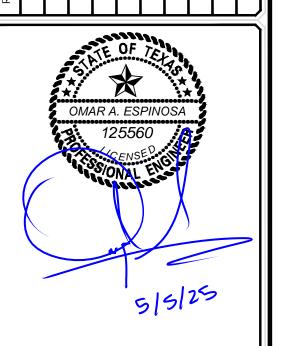


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FOR **CLEARWATER CREEK** PHASE 5 PLAT# 24-11800362

> **BEXAR COUNTY** TEXAS

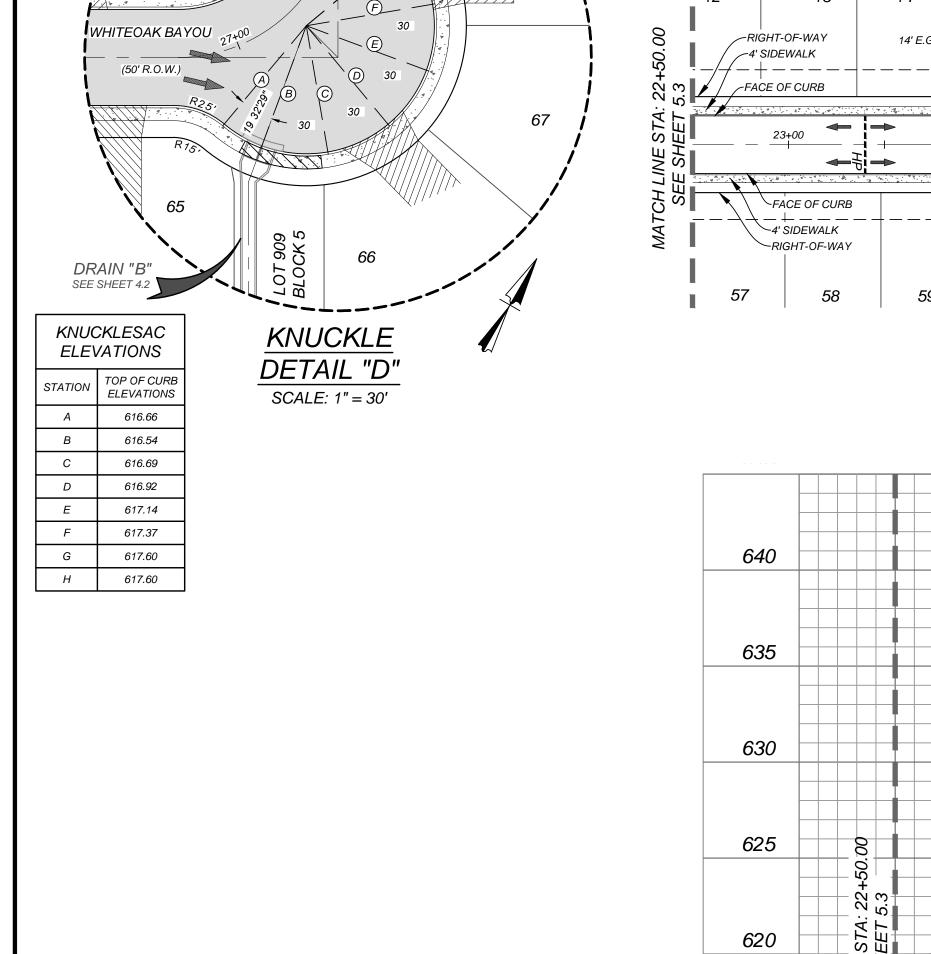
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WHITEOAK BAYOU & VINCE

BAYOU PLAN & PROFILE

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION



BEXAR COUNTY R.O.W. NOT A BEXAR COUNTY PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY

BLOCK 5

C.B. 4022

KNUCKLE

DETAIL "E"

SCALE: 1" = 30'

KNUCKLESAC

ELEVATIONS

STATION TOP OF CURB ELEVATIONS

617.72

617.30 617.85 616.52 616.67 616.84 617.19 617.32

1+00

2+00

3+00

CEDAR BAYOU

(50' R.O.W.)

BLOCK 6

THE CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITED 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.

7+00

RENCH 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 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. THE ONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES HALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLIES WITH AS A MINIMUM. OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY. CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY ONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

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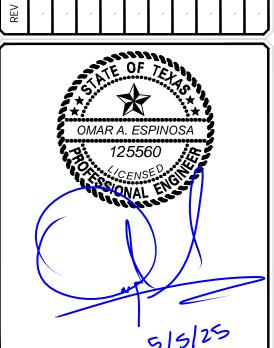
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FOR **CLEARWATER CREEK** PHASE 5

PLAT# 24-11800362

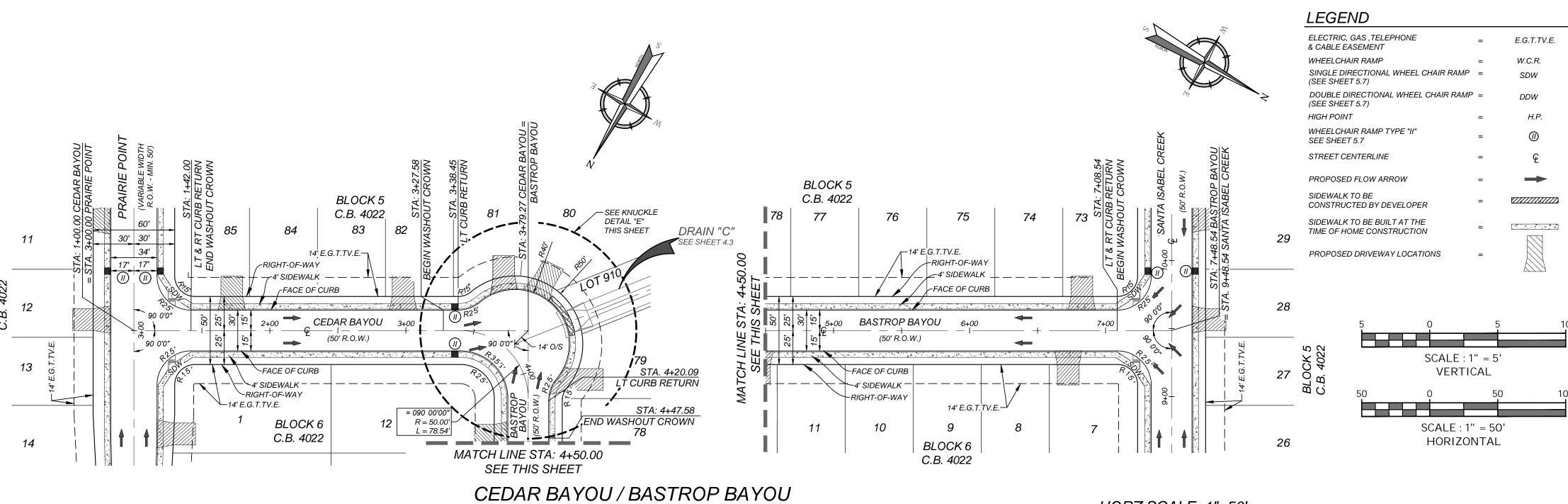
BEXAR COUNTY TEXAS

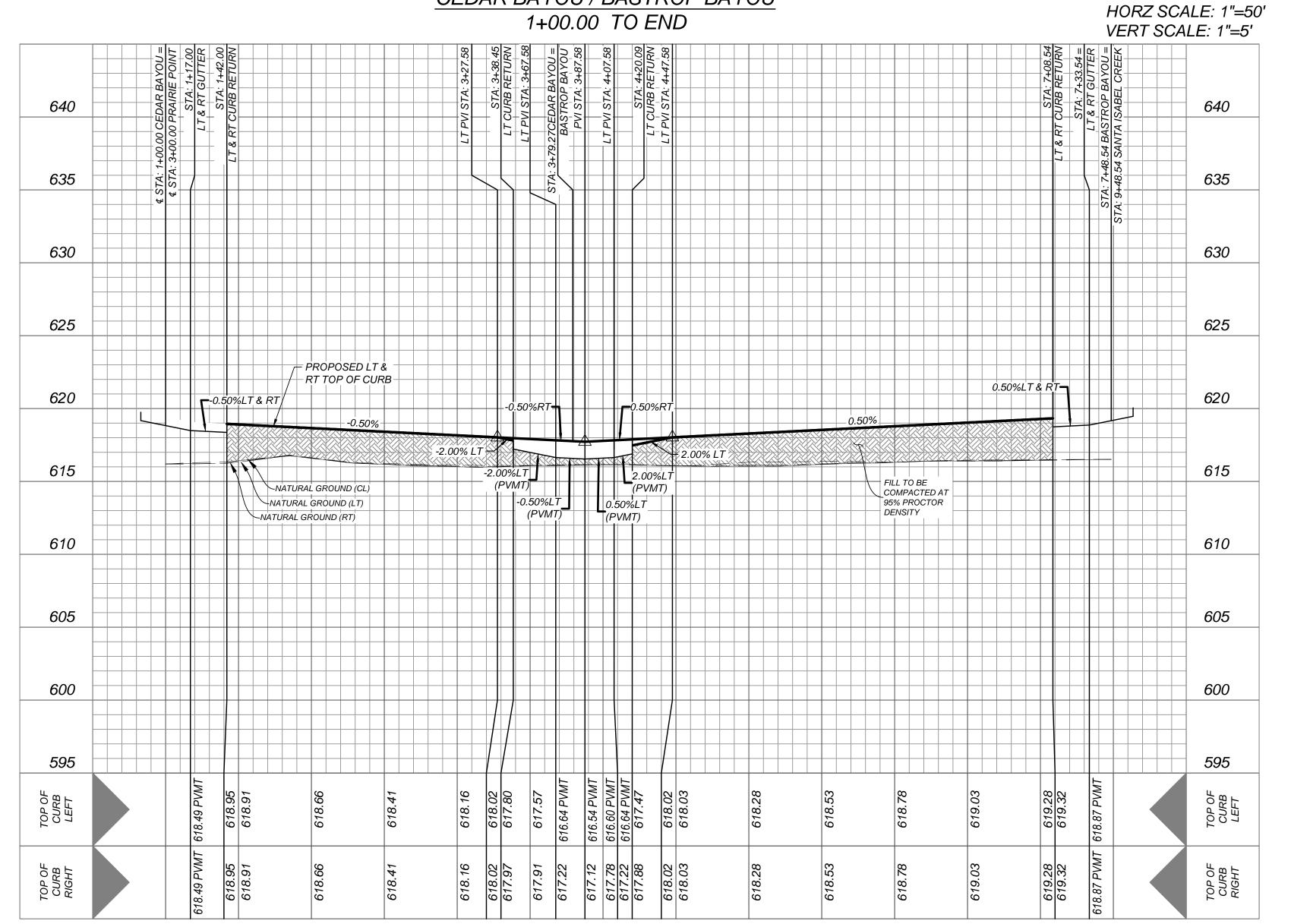
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CEDAR BAYOU & BASTROP BAYOU PLAN & PROFILE

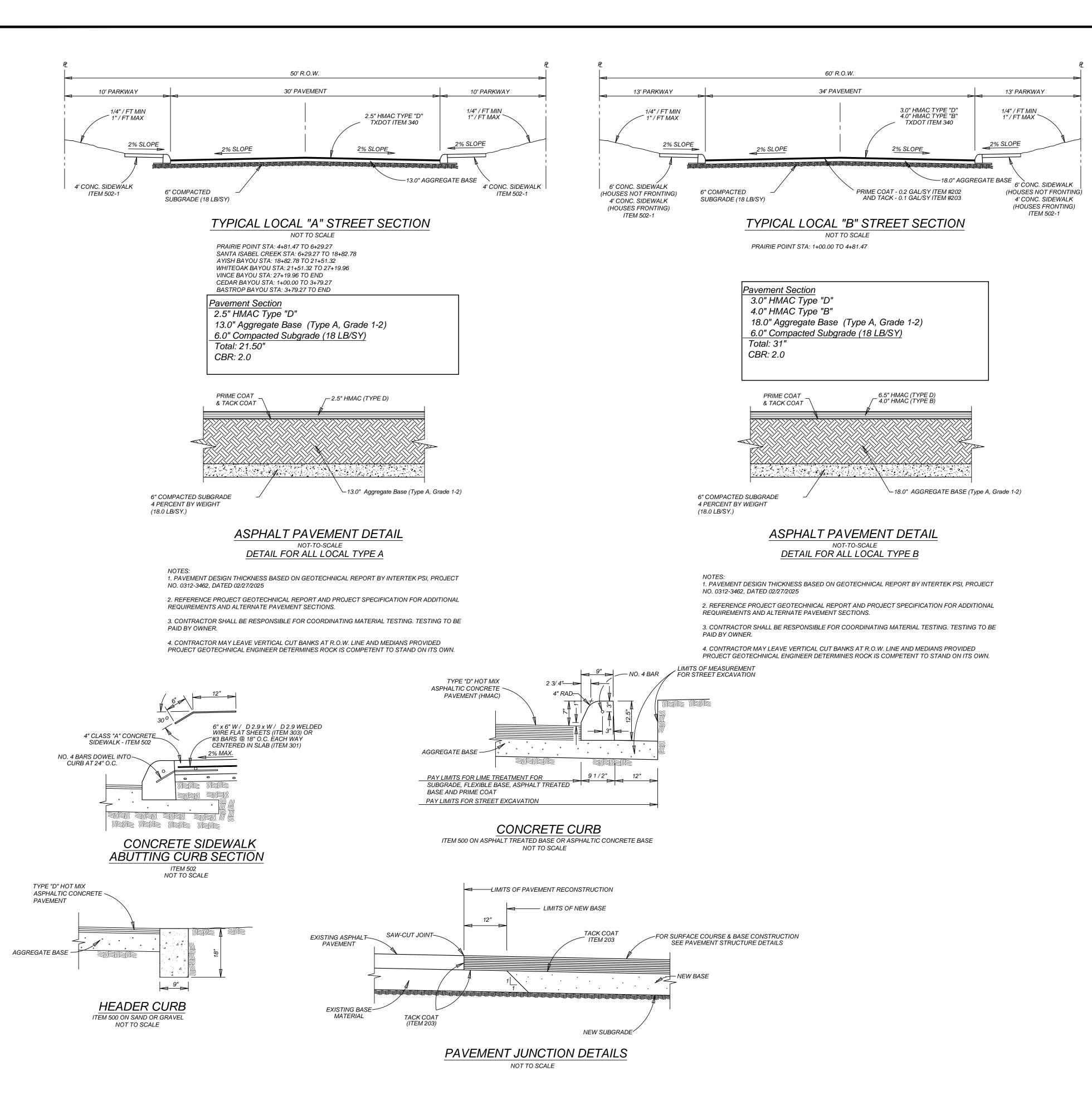




4+*00*

5+00

6+00



4" CLASS "A" CONCRETE

2" MINIMUM GRAVEL, CRUSHED ROCK— OR FLEXIBLE BASE MATERIAL

++++++

2% MAX. SLOPE TO CURB

CONCRETE SIDEWALK SECTION

NOT TO SCALE

444444

6" x 6" W / D 2.9 x W / D 2.9 WELDED WIRE FLAT SHEETS (ITEM 303) OR

GENERAL NOTES:

- 1. THE SUBGRADE SOILS SHOULD BE TESTED FOR SOLUBLE SULPHATE CONTENT PRIOR TO INSTALLATION OF THE LIME OR CEMENT.
- 2. THE APPLICATION RATE OF LIME SHALL BE DETERMINED BASED ON LABORATORY TESTING AND SHALL BE THE LOWEST PERCENTAGE OF LIME THAT PROVIDES AN UNCONFINED COMPRESSIVE STRENGTH (UCS) AT 7-DAYS OF AT LEAST 160 PSI IN ACCORDANCE WITH ASTM D5102 STANDARD TEST METHODS FOR UNCONFINED COMPRESSIVE STRENGTH OF COMPACTED SOIL-LIME MIXTURES (PROCEDURE B) (IN ADDITION, CURING SHOULD OCCUR FOR 7 DAYS AT 40 AND SPECIMENS SHOULD BE SUBJECT TO 24-HR CAPILLARY SOAK PRIOR TO TESTING.

FOR CONSTRUCTION VERIFICATION THE FOLLOWING SHALL BE CONDUCTED IN THE

- 1. AFTER INITIAL MIXING THE SOIL-LIME MIXTURE SHALL MELLOW FOR A PERIOD OF TWO TO THREE (2 - 3) DAYS. MAINTAIN MOISTURE DURING MELLOWING;
- 2. AFTER MELLOWING AND FINAL MIXING, THE PULVERIZATION SHALL BE CHECKED USING THE FOLLOWING CRITERIA (REMOVE NON-SLAKING AGGREGATES RETAINED ON THE 3/4 INCH SIEVE FROM THE SAMPLE): MINIMUM PASSING 1 3/4" SIEVE MINIMUM PASSING 3/4" SIEVE MINIMUM PASSING NO. 4 SIEVE
- 3. SAMPLE SOIL-LIME MIXTURE FOR DETERMINATION OF MAXIMUM DRY DENSITY (MDD). IN THE LABORATORY, MOLD SPECIMENS TO 95% OF MDD AT OPTIMUM MOISTURE CONTENT AND VERIFY UCS TO BE AT LEAST 160 PSI IN ACCORDANCE WITH PROCEDURE OUTLINED ABOVE FOR MIXTURE DESIGN.
- 4. COMPACT AND CHECK FIELD DENSITY (MINIMUM OF 95% OF MDD REQUIRED)
- 5. CURE FOR AN ADDITIONAL 2 TO 5 DAYS (TOTAL MELLOWING AND CURING TIME SHOULD TOTAL AT LEAST 5 DAYS).
- 6. VERIFY DEPTH OF LIME TREATED LAYER TO DEPTH AS NOTED ON PLAN TO WITHIN 1.0 INCH.

NOTES:

- ANY FILL USED TO RAISE THE SUBGRADE:
- SHOUD NOT CONTAIN ANY DELETERIOUS MATERIAL.
- SHOULD HAVE A CBR VALUE OF 2.0 OR GREATER SHOULD NOT HAVE GRAVELS LARGER THAN 3 INCH IN SIZE
- SHOULD HAVE THE "LIME PERCENTAGE/APPLICATION RATE" RE-RUN
- PRIOR TO INSTALLATION PI SHOULD BE GREATER THAN 20 FOR COMPACTED SUBGRADE

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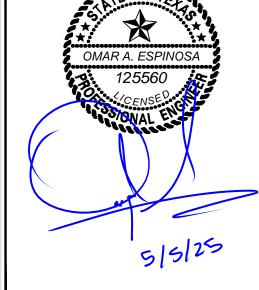
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> **BEXAR COUNTY** TEXAS

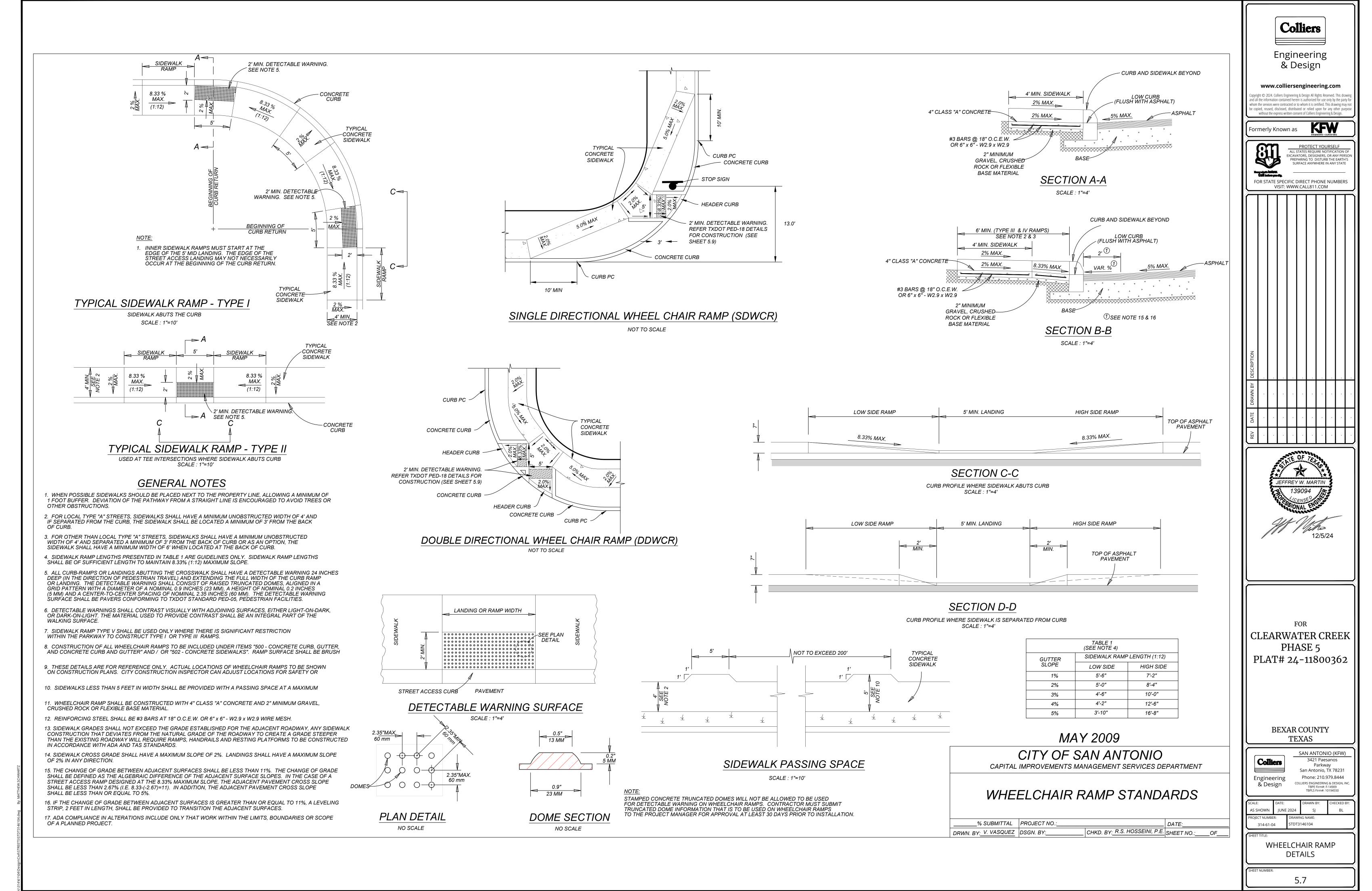
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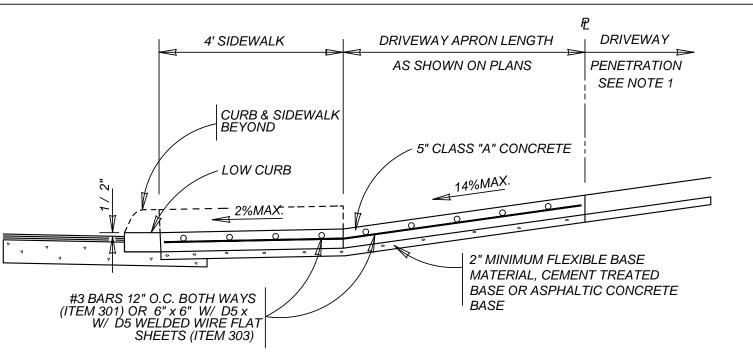
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& Design AS SHOWN AWING NAME:

ГDТ3146104 314-61-04 TYPICAL STREET

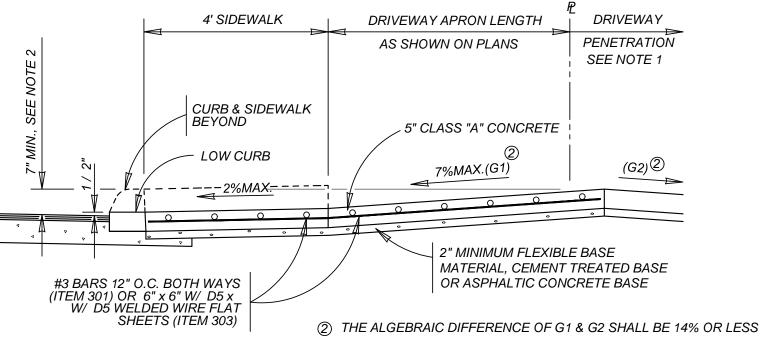
DETAILS





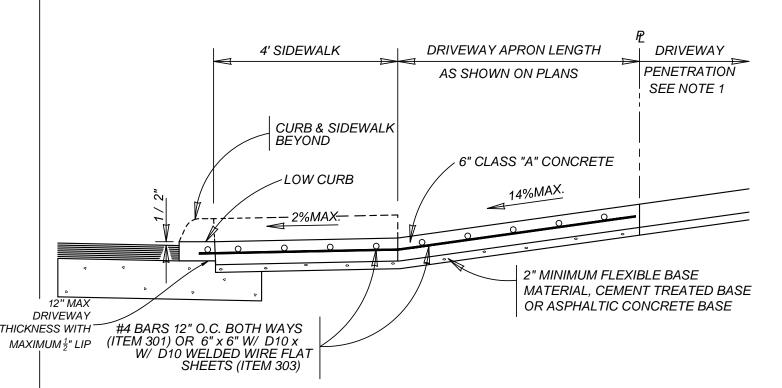
TYPICAL RESIDENTIAL DRIVEWAY SECTION

WITH SIDEWALK ABUTTING CURB ITEM 503.1



TYPICAL RESIDENTIAL DRIVEWAY SECTION

WHERE PROPERTY IS LOWER THAN STREET & SIDEWALK IS ABUTTING CURB ITEM 503.1



TYPICAL COMMERCIAL DRIVEWAY SECTION

WITH SIDEWALK ABUTTING CURB ITEM 503.2

CONCRETE DRIVEWAY NOTES

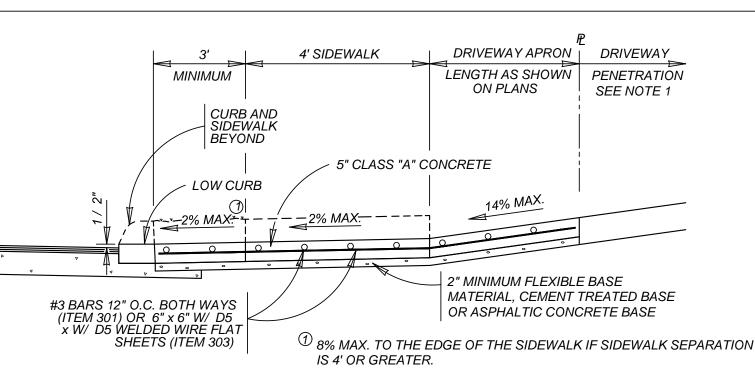
- 1. DRIVEWAY PENETRATION REFERS TO A PORTION OF THE DRIVEWAY THAT MAY BE NECESSARY TO RECONSTRUCT WITHIN PRIVATE PROPERTY TO COMPLY WITH A MAXIMUM DRIVEWAY SLOPE. THIS PORTION OF THE DRIVEWAY SHALL BE PAID FOR UNDER THE FOLLOWING ITEMS AS MAY APPLY:
- A.) CONCRETE DRIVEWAY PAID FOR UNDER ITEM NO. 503.1 OR 503.2. B.) ASPHALTIC CONCRETE DRIVEWAY PAID FOR UNDER ITEM NO. 503.4 AND SHALL INCLUDE A MINIMUM OF 1" ASPHALT TYPE 'D' & 6" FLEXIBLE BASE
- C.) GRAVEL DRIVEWAY PAID FOR UNDER ITEM NO. 503.5 AND SHALL INCLUDE A MINIMUM OF 6" FLEXIBLE BASE
- 2. 7" MINIMUM HEIGHT WILL NOT NECESSARILY OCCUR AT THE PROPERTY LINE. IT MAY OCCUR WITHIN THE RIGHT OF WAY OR WITHIN THE DRIVEWAY
- PENETRATION ON PRIVATE PROPERTY. 3. THE PROPOSED DRIVEWAY SHOULD MATCH THE EXISTING WIDTH AT THE PROPERTY LINE BUT UNLESS AUTHORIZED BY THE CITY TRAFFIC

TYPE	MINIMUM	MAXIMUM
RESIDENTIAL	10'	20'
COMMERCIAL - ONE WAY	12'	20'

COMMERCIAL - TWO WAY 24' 30'

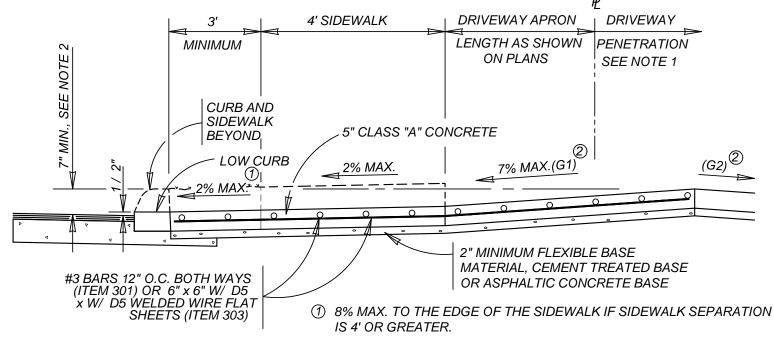
ENGINEER, THE WIDTH SHALL BE WITHIN THE FOLLOWING VALUES:

- 4. FOR LOCAL TYPE "A" STREETS, SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 4' AND IF SEPARATED FROM THE CURB, THE SIDEWALK SHALL BE LOCATED A MINIMUM OF 3' FROM THE BACK OF CURB.
- 5. FOR OTHER THAN LOCAL TYPE "A" STREETS, THE SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 4' AND SEPARATED A MINIMUM OF 3' FROM THE BACK OF CURB OR, AS AN OPTION, THE SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 6' WHEN LOCATED AT THE BACK OF CURB.
- 6. DUMMY JOINTS PARALLEL TO THE CURB SHALL BE PLACED WHERE THE SIDEWALK MEETS THE DRIVEWAY. DUMMY JOINTS PERPENDICULAR TO THE CURB, AND WITHIN THE BOUNDARIES OF THE PARALLEL DUMMY JOINTS, SHALL BE PLACED AT INTERVALS EQUAL TO THE WIDTH OF THE SIDEWALK.
- 7. A MINIMUM OF TWO ROUND AND SMOOTH DOWEL BARS 3/8" IN DIAMETER AND 18" IN LENGTH SHALL BE SPACED 18" APART AT EACH EXPANSION JOINT.
- 8. SIDEWALK RAMP LENGTHS SHALL BE OF SUFFICIENT LENGTH TO MAINTAIN 8.33% (1:12) MAXIMUM SLOPE. WHERE SIDEWALKS CROSS DRIVEWAYS, SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%.
- 9. SIDEWALK RAMP SURFACE SHALL BE BRUSH FINISHED.



TYPICAL RESIDENTIAL DRIVEWAY SECTION

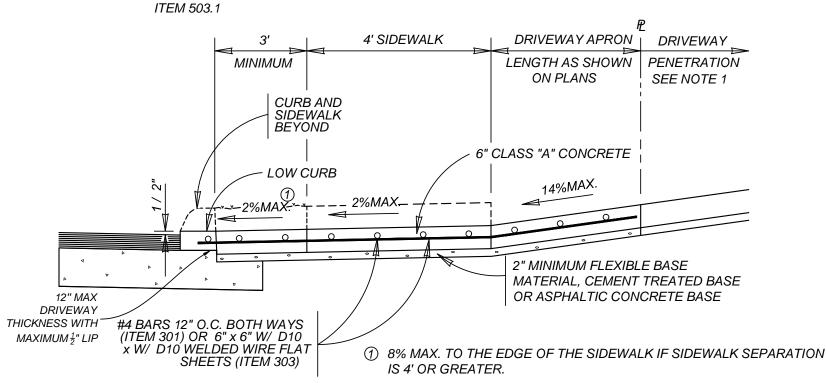
WITH SIDEWALK SEPARATED FROM CURB ITEM 503.1



② THE ALGEBRAIC DIFFERENCE OF G1 & G2 SHALL BE 14% OR LESS

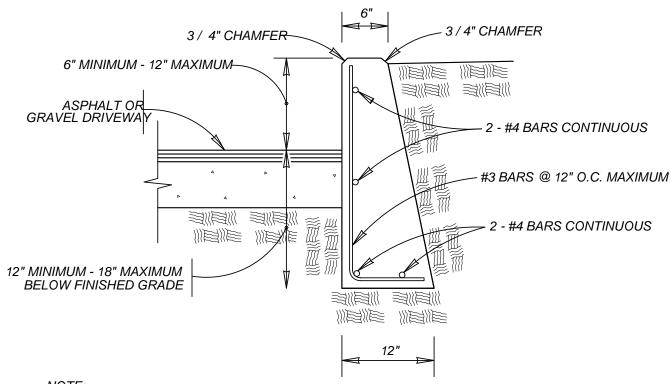
TYPICAL RESIDENTIAL DRIVEWAY SECTION

WHERE PROPERTY IS LOWER THAN STREET & SIDEWALK IS SEPARATED FROM CURB



TYPICAL COMMERCIAL DRIVEWAY SECTION

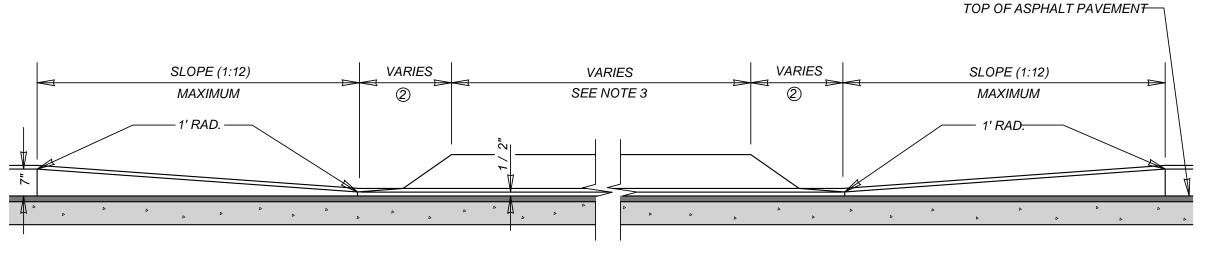
WITH SIDEWALK SEPARATED FROM CURB ITEM 503.2



1. COST OF REINFORCEMENT TO BE INCLUDED IN UNIT COST OF ITEM 307.1 2. CONCRETE RETAINING WALL COMBINATION TYPE SHALL BE USED FOR CONCRETE DRIVEWAYS.

DRIVEWAY - CONCRETE RETAINING WALL

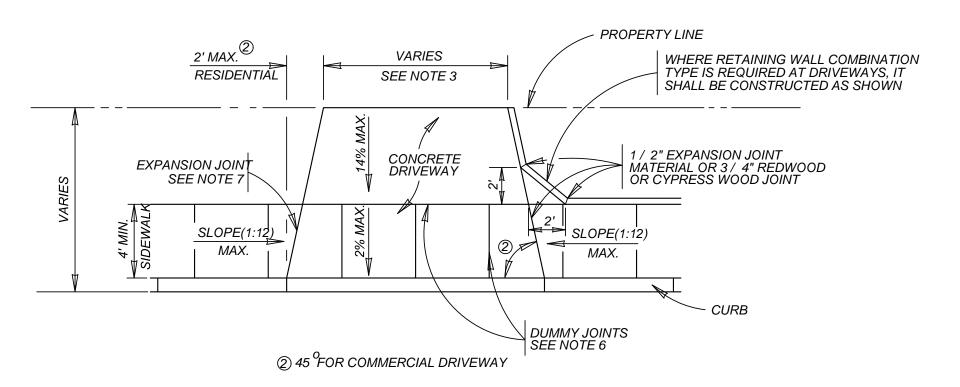
ON COMPACTED SUBGRADE ITEM 307.1



② RESIDENTIAL : 2' MAXIMUM; COMMERCIAL: SEE PLAN VIEW

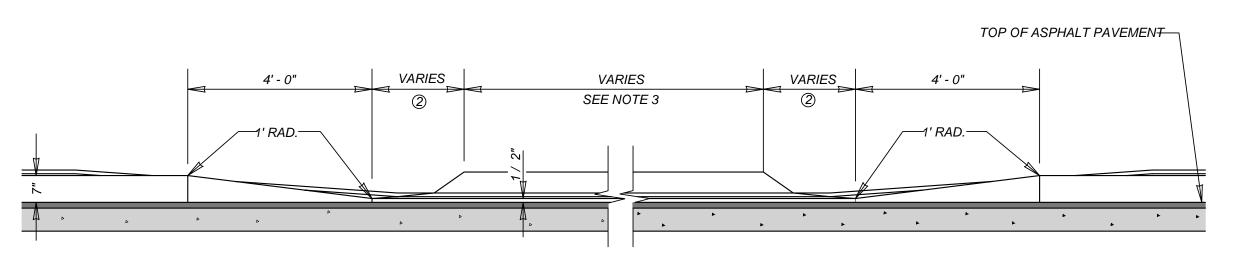
CURB PROFILE AT DRIVEWAY

WITH SIDEWALK ABUTTING CURB



TYPICAL DRIVEWAY PLAN VIEW

WITH SIDEWALK ABUTTING CURB



② RESIDENTIAL : 2' MAXIMUM; COMMERCIAL: SEE PLAN VIEW

CURB PROFILE AT DRIVEWAY

WITH SIDEWALK SEPARATED FROM CURB WHERE RETAINING WALL COMBINATION TYPE IS REQUIRED AT DRIVEWAYS, IT SHALL BE CONSTRUCTED AS SHOWN 2' MAX. **VARIES** RESIDENTIAL SEE NOTE 3 PROPERTY LINE 1 / 2" EXPANSION JOINT MATERIAL OR 3 / 4" REDWOOD OR CYPRESS WOOD JOINT EXPANSION JOINT CONCRETE DRIVEWAY SLOPE (1:12) \$\frac{\psi^2 \rightarrow \text{SLOPE} (1:12)}{\text{SLOPE} (1:12)} MAX. SEE NOTE 4 ① 8% MAX. TO THE EDGE OF THE SIDEWALK IF SIDEWALK SEPARATION IS 4' OR GREATER.

> (2) 45 OFOR COMMERCIAL DRIVEWAY TYPICAL DRIVEWAY PLAN VIEW

WITH SIDEWALK SEPARATED FROM CURB

MAY 2009

CITY OF SAN ANTONIO

CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

CONCRETE DRIVEWAY STANDARDS

% SUBMITTAL PROJECT NO.: DRWN. BY: V. VASQUEZ DSGN. BY: CHKD. BY: R.S. HOSSEINI, P.E. SHEET NO.: OF

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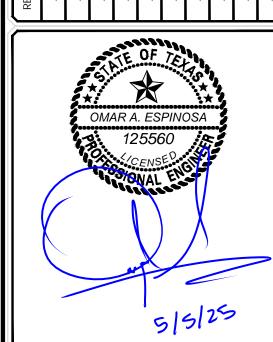
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CLEARWATER CREEK PHASE 5 PLAT# 24-11800362

BEXAR COUNTY

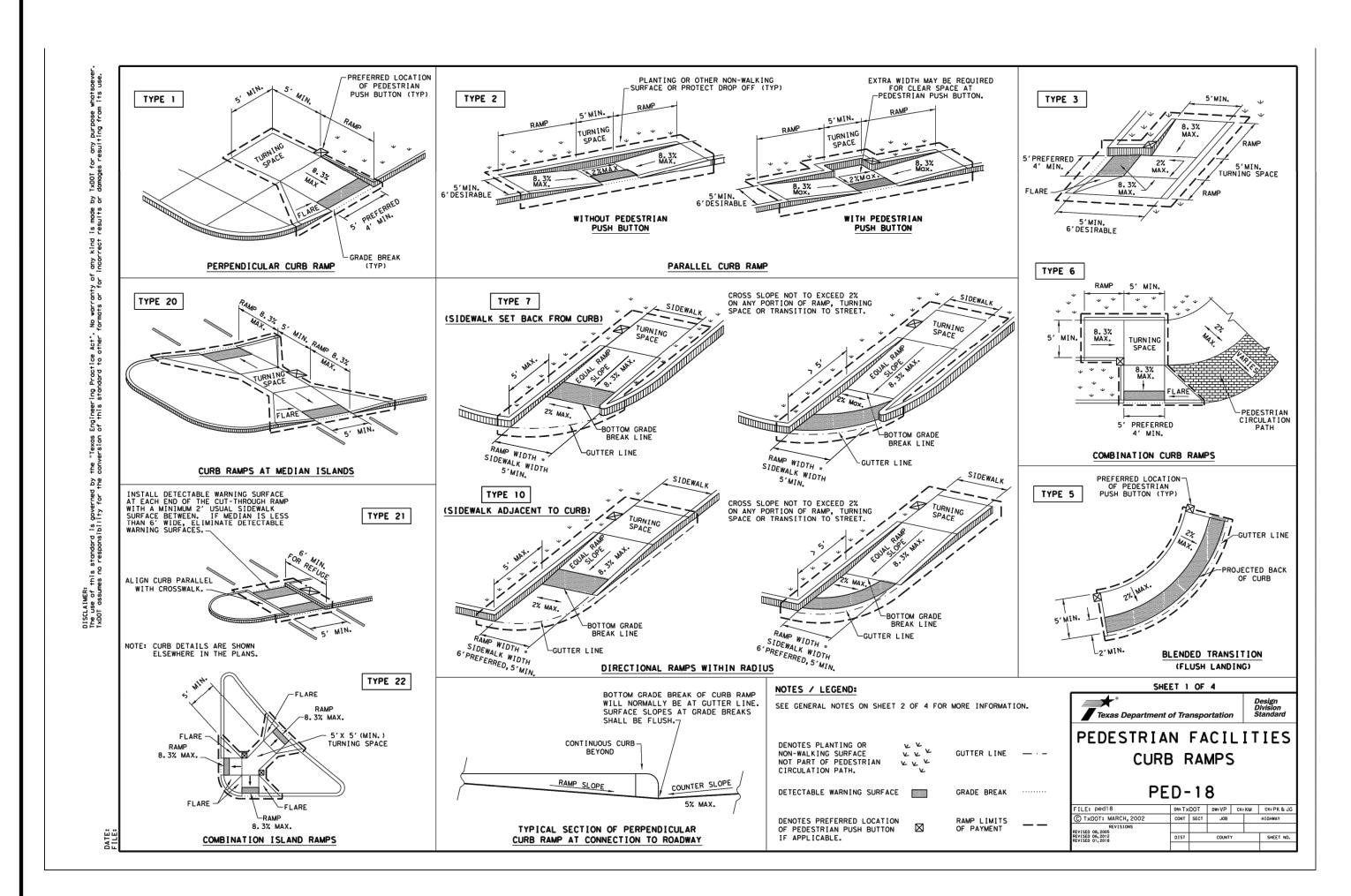
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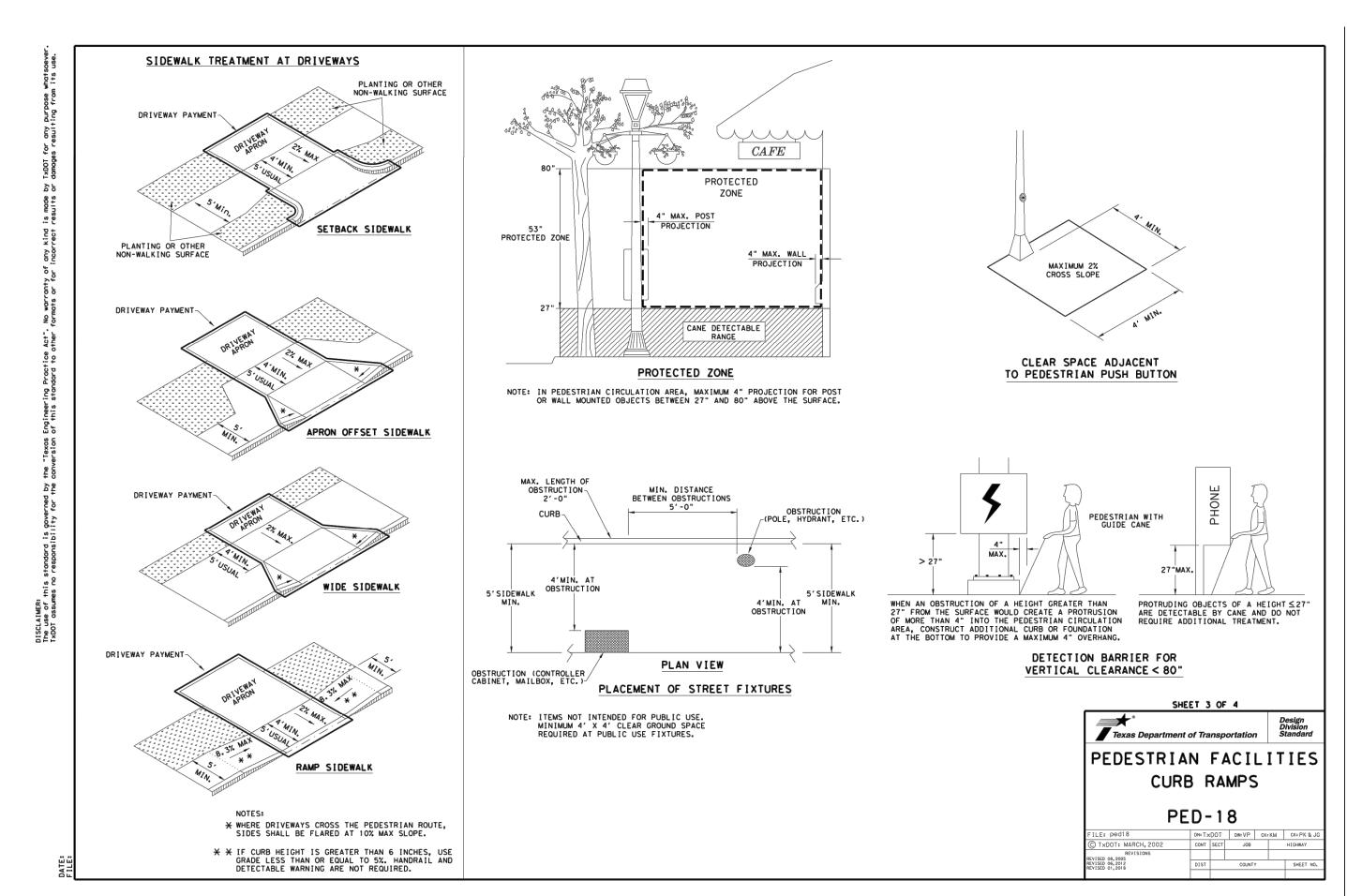
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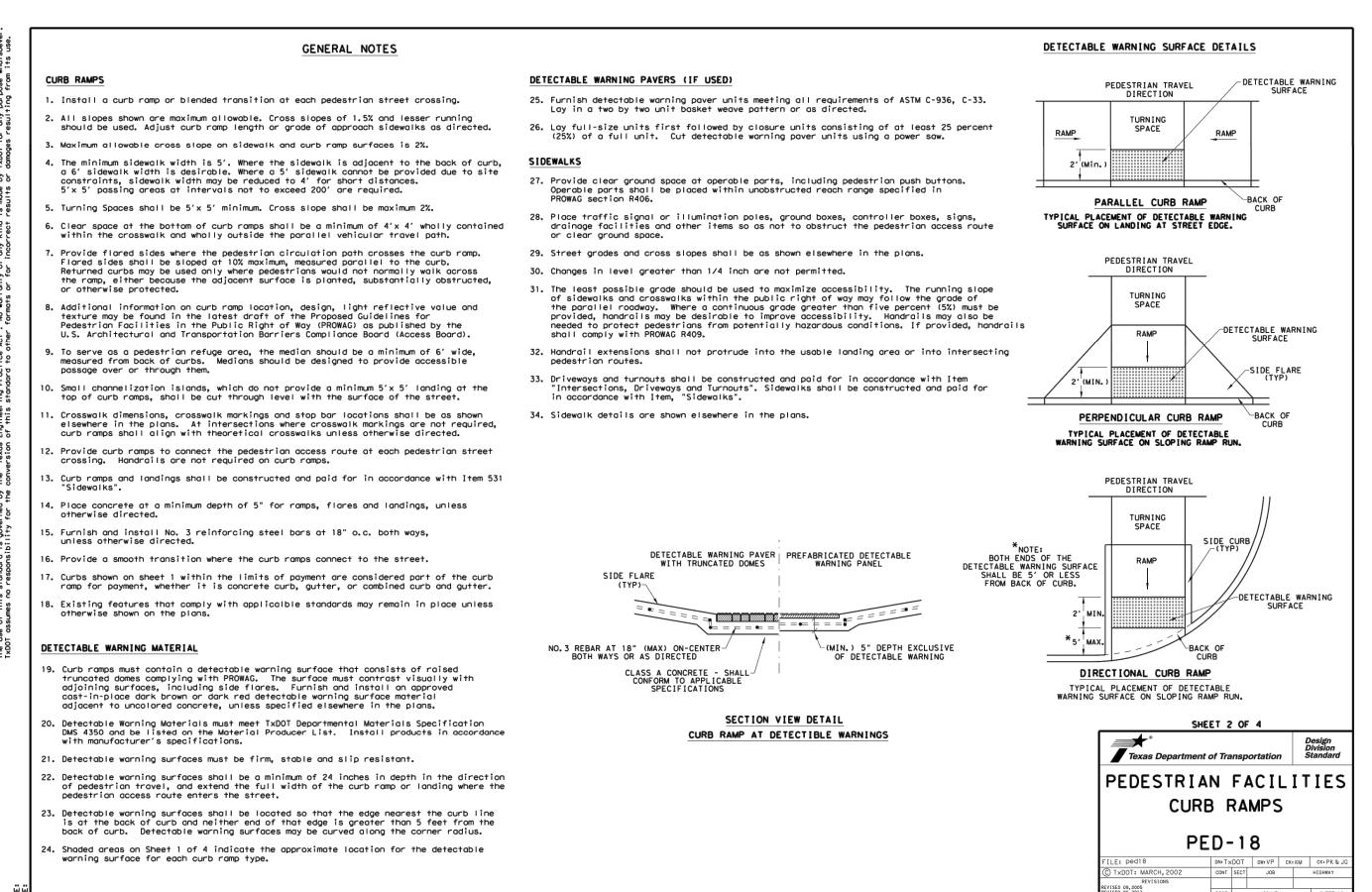
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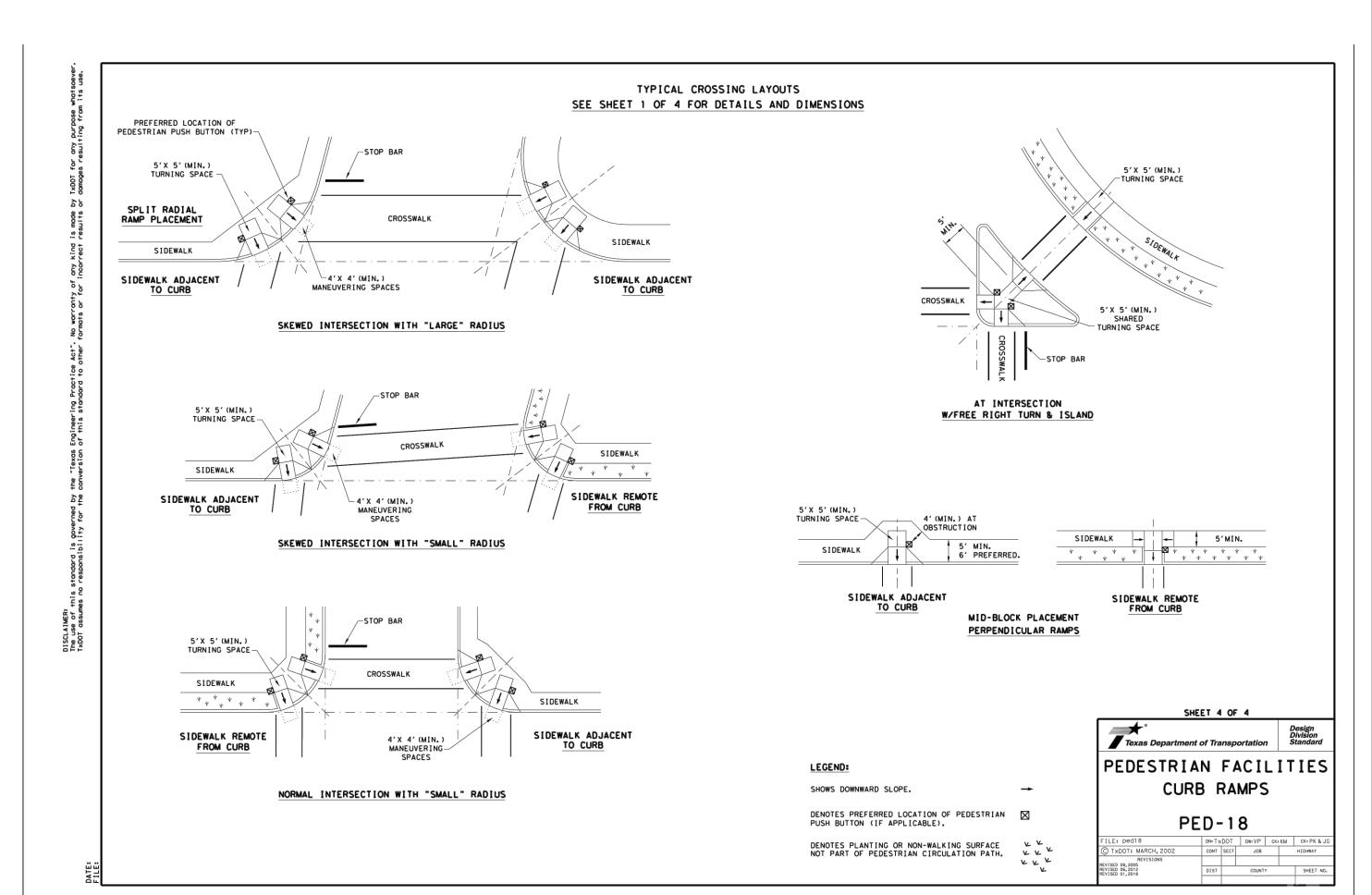
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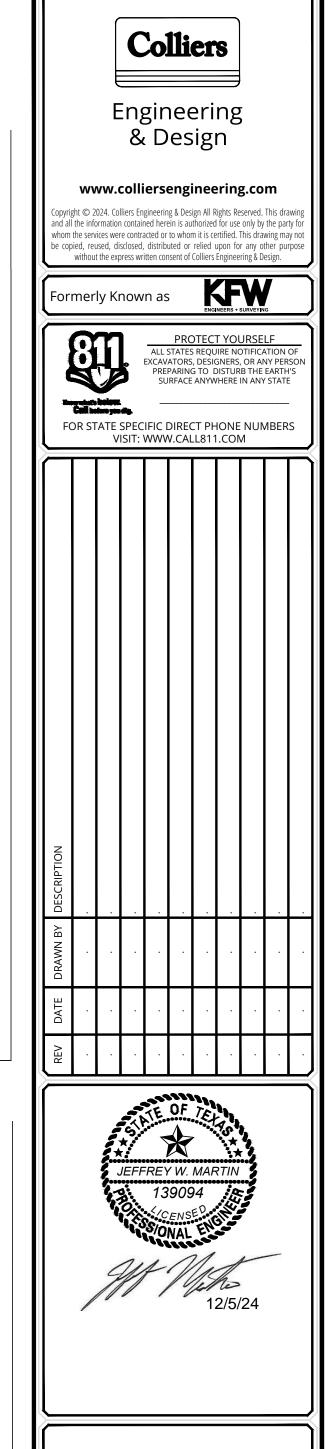
CONCRETE DRIVEWAY DETAILS











FOR **CLEARWATER CREEK** PHASE 5 PLAT# 24-11800362

> **BEXAR COUNTY** TEXAS

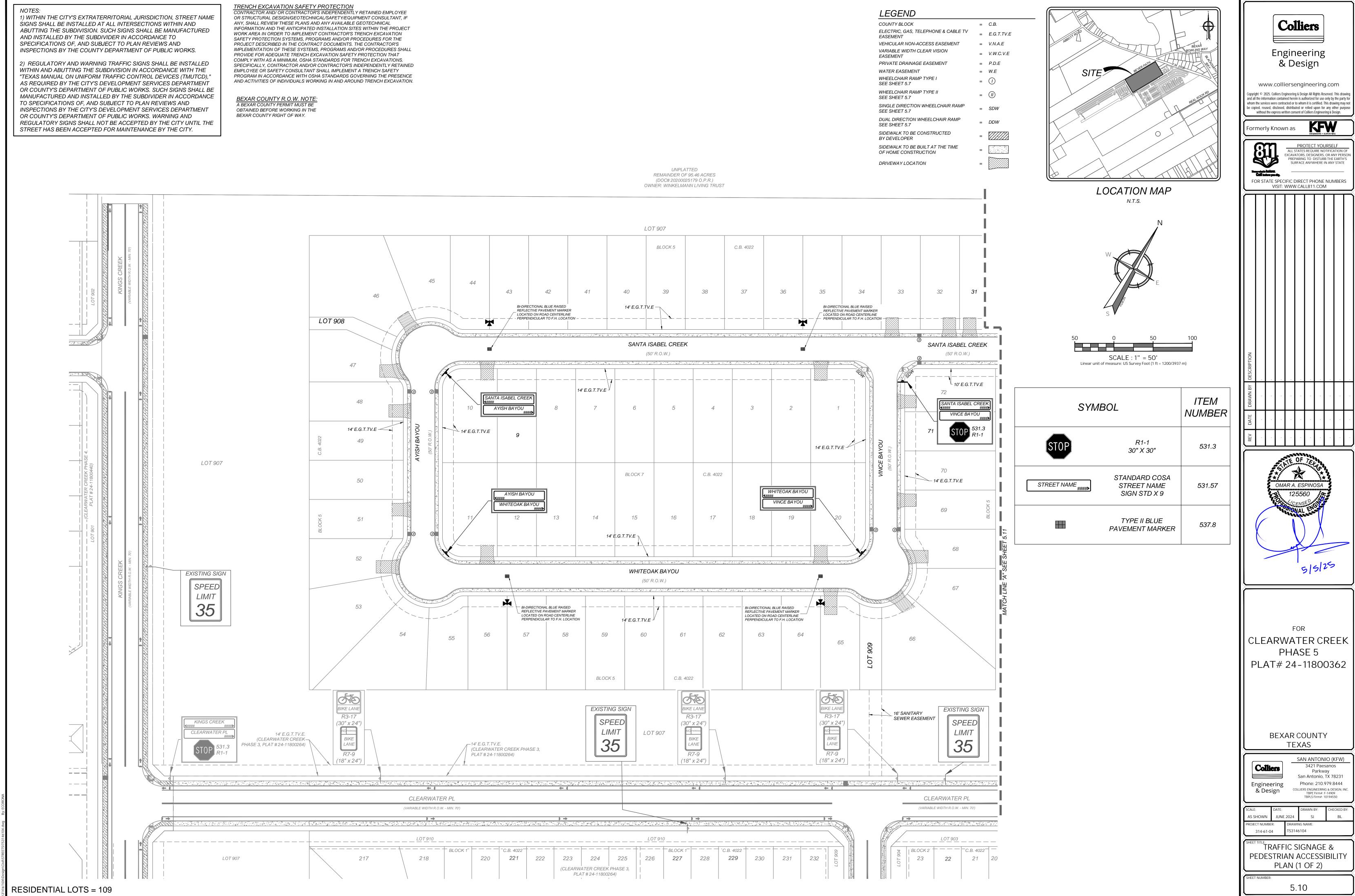


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AS SHOWN JUNE 2024 STDT3146104 314-61-04

TXDOT PEDESTRIAN CURB RAMP DETAIL

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION



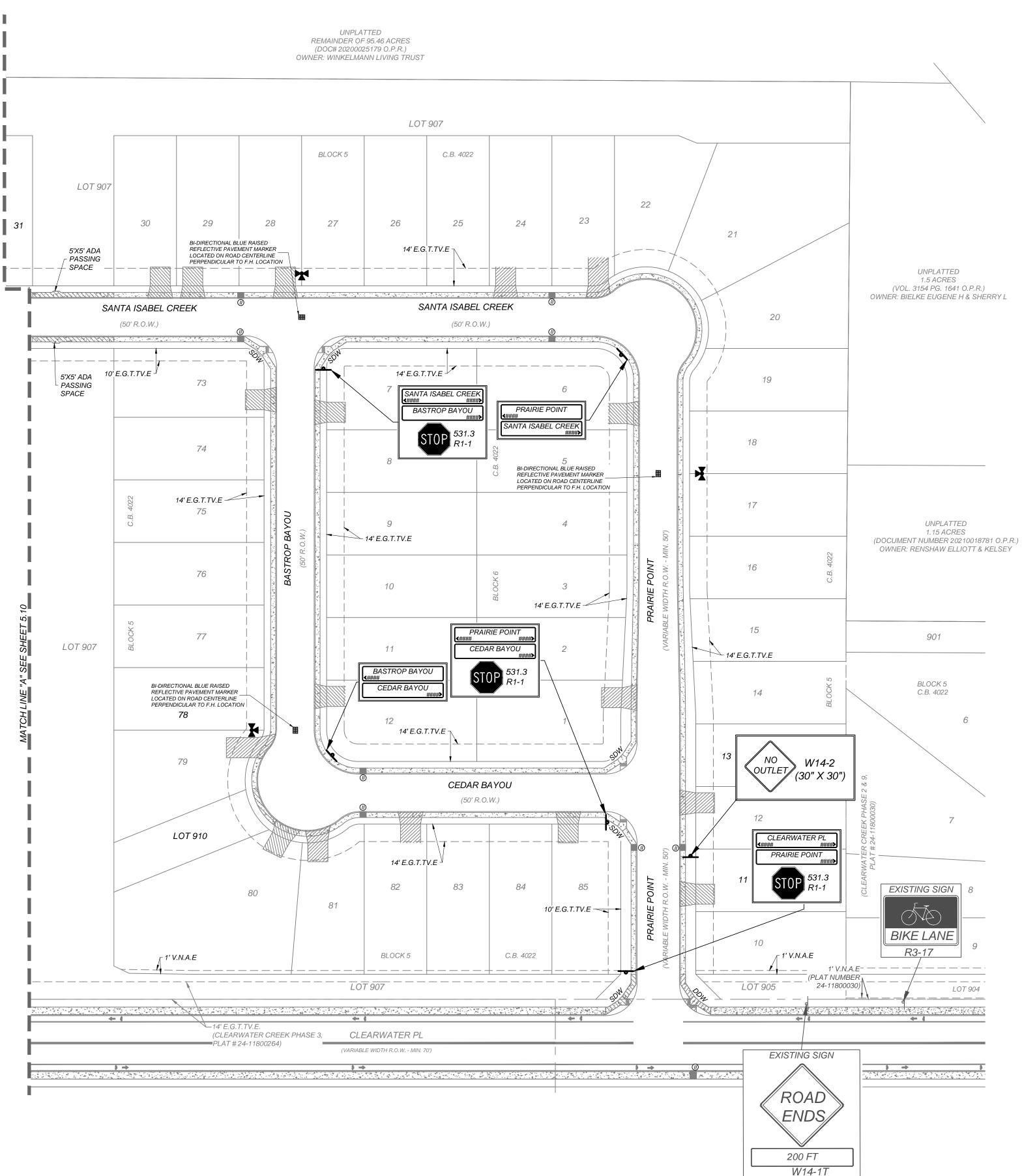
NOTES: 1) WITHIN THE CITY'S EXTRATERRITORIAL JURISDICTION, STREET NAME SIGNS SHALL BE INSTALLED AT ALL INTERSECTIONS WITHIN AND ABUTTING THE SUBDIVISION. SUCH SIGNS SHALL BE MANUFACTURED AND INSTALLED BY THE SUBDIVIDER IN ACCORDANCE TO SPECIFICATIONS OF, AND SUBJECT TO PLAN REVIEWS AND INSPECTIONS BY THE COUNTY DEPARTMENT OF PUBLIC WORKS.

2) REGULATORY AND WARNING TRAFFIC SIGNS SHALL BE INSTALLED WITHIN AND ABUTTING THE SUBDIVISION IN ACCORDANCE WITH THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD)," AS REQUIRED BY THE CITY'S DEVELOPMENT SERVICES DEPARTMENT OR COUNTY'S DEPARTMENT OF PUBLIC WORKS. SUCH SIGNS SHALL BE MANUFACTURED AND INSTALLED BY THE SUBDIVIDER IN ACCORDANCE TO SPECIFICATIONS OF, AND SUBJECT TO PLAN REVIEWS AND INSPECTIONS BY THE CITY'S DEVELOPMENT SERVICES DEPARTMENT OR COUNTY'S DEPARTMENT OF PUBLIC WORKS. WARNING AND REGULATORY SIGNS SHALL NOT BE ACCEPTED BY THE CITY UNTIL THE STREET HAS BEEN ACCEPTED FOR MAINTENANCE BY THE CITY.

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.

BEXAR COUNTY R.O.W. NOTE: A BEXAR COUNTY PERMIT MUST BE

OBTAINED BEFORE WORKING IN THE BEXAR COUNTY RIGHT OF WAY.

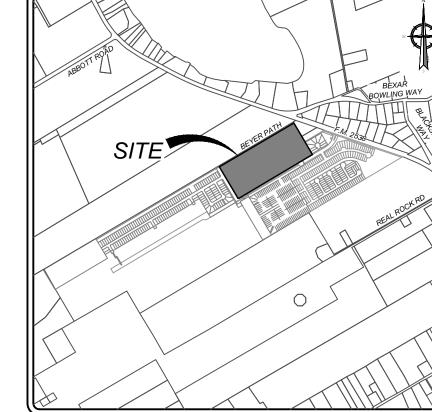


LEGEND

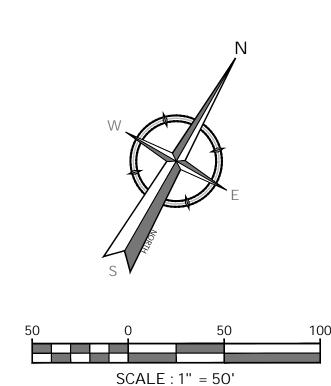
COUNTY BLOCK = *C.B.* ELECTRIC, GAS, TELEPHONE & CABLE TV = E.G.T.TV.E **EASEMENT** VEHICULAR NON-ACCESS EASEMENT = V.N.A.EVARIABLE WIDTH CLEAR VISION = *V.W.C.V.E* **EASEMENT** PRIVATE DRAINAGE EASEMENT = *P.D.E* WATER EASEMENT = *W.E* WHEELCHAIR RAMP TYPE I = (1) SEE SHEET 5.7 WHEELCHAIR RAMP TYPE II = (1) SEE SHEET 5.7 SINGLE DIRECTION WHEELCHAIR RAMP = SDW SEE SHEET 5.7

DUAL DIRECTION WHEELCHAIR RAMP = DDWSEE SHEET 5.7

SIDEWALK TO BE CONSTRUCTED BY DEVELOPER SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION DRIVEWAY LOCATION

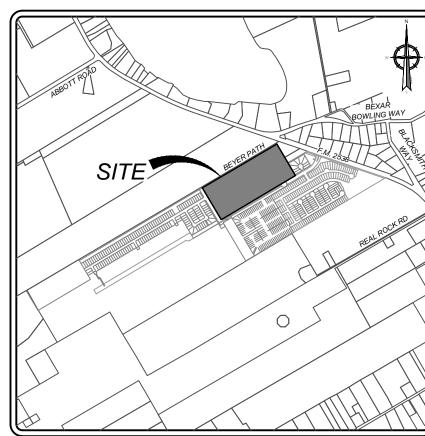




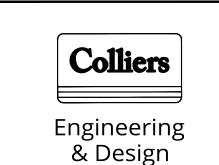


Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

SYM	SYMBOL		
STOP	R1-1 30" X 30"	531.3	
STREET NAME	STANDARD COSA STREET NAME SIGN STD X 9	531.57	
	TYPE II BLUE PAVEMENT MARKER	537.8	



SYM	BOL	ITEM NUMBER
STOP	R1-1 30" X 30"	531.3
STREET NAME ####	STANDARD COSA STREET NAME SIGN STD X 9	531.57
	TYPE II BLUE PAVEMENT MARKER	537.8



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> **BEXAR COUNTY** TEXAS

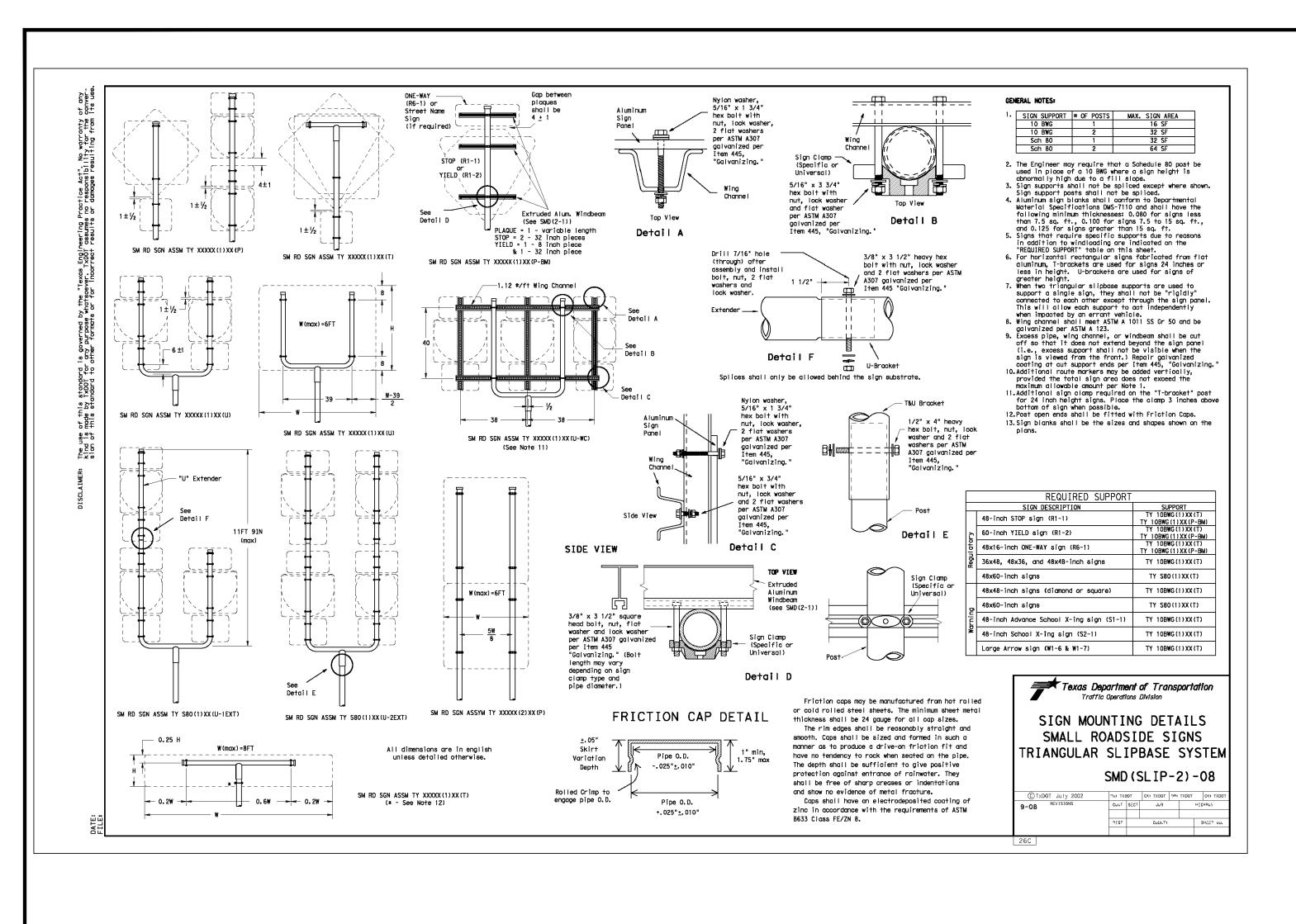
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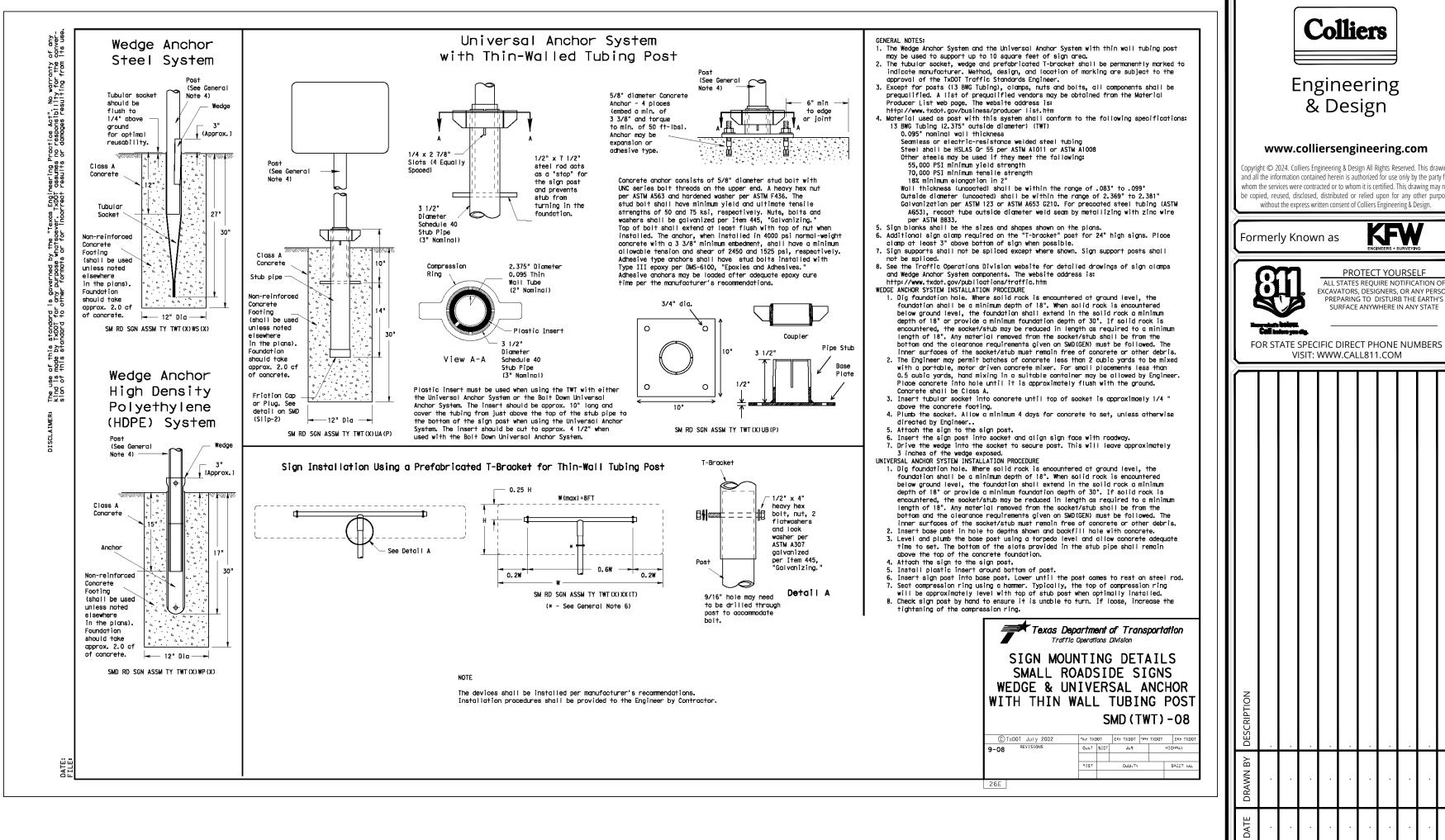
SAN ANTONIO (KFW) 3421 Paesanos San Antonio, TX 78231 Phone: 210.979.8444 COLLIERS ENGINEERING & DESIGN, INC TBPE Firm#: F-14909 TBPLS Firm#: 10194550

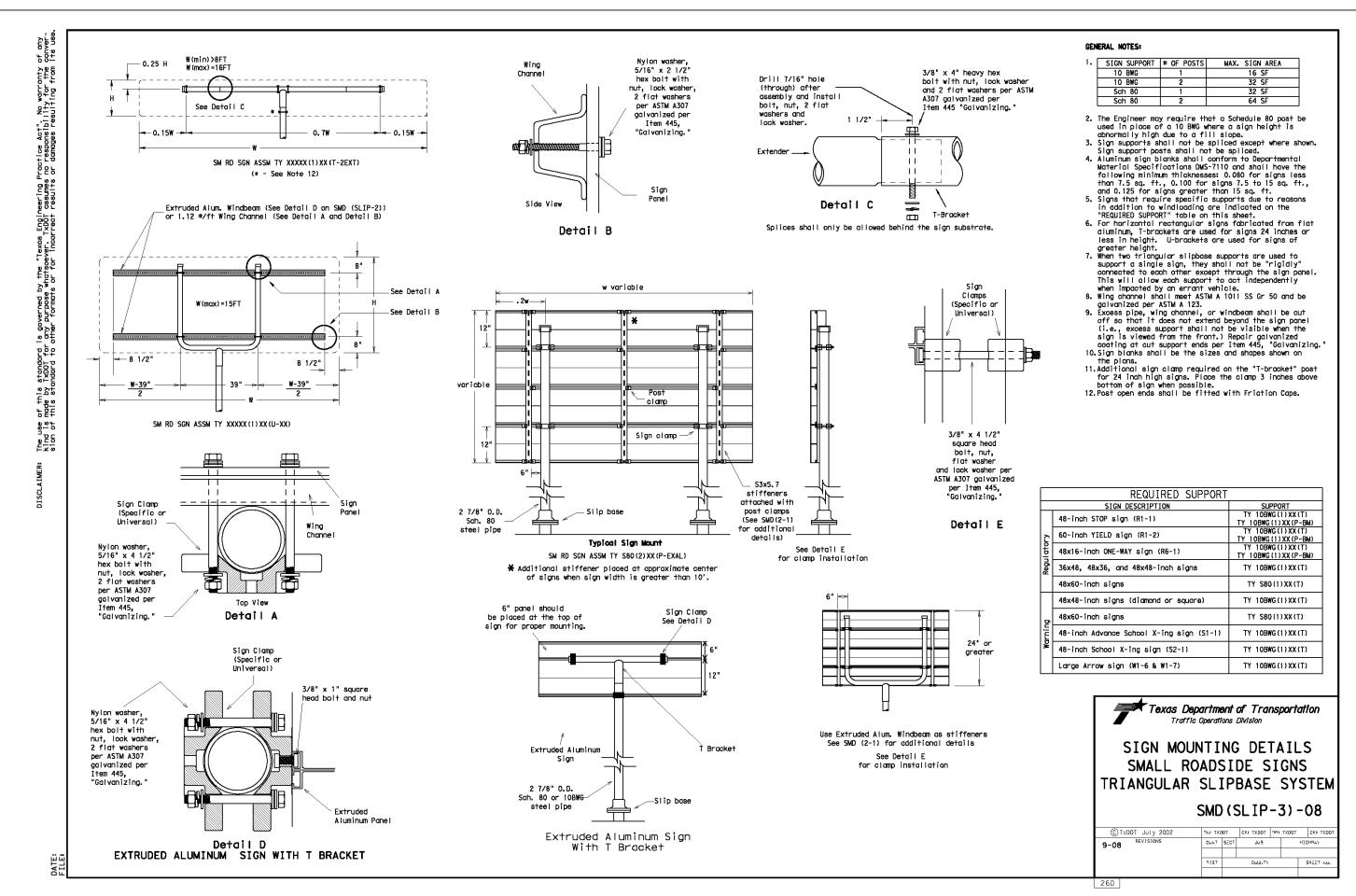
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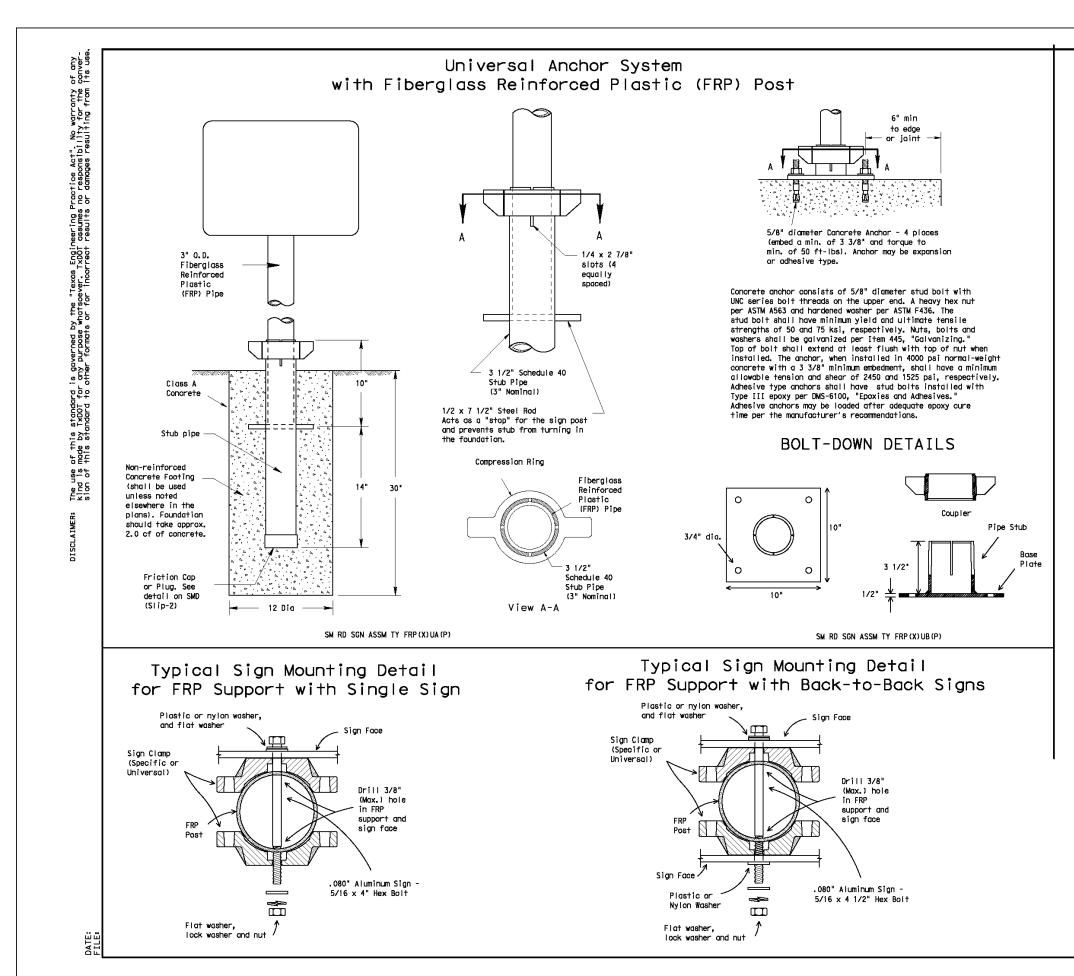
TRAFFIC SIGNAGE & PEDESTRIAN ACCESSIBILITY

PLAN (2 OF 2)











- 1. FRP sign supports for a single type sign support may be used for signs up to
- and including 16 square feet. Dual post installation may be used for signs up to and including 32 square feet.

 2. All nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." 3. See the Traffic Operations Division website for detailed drawings of sign clamps. The website address is: http://www.txdot.gov/publications/traffic.htm
- FRP POST REQUIREMENTS
- Materials shall conform to the requirements of Departmental Material Specification DMS-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", 0.0". 3. 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 78701-2483 UNIVERSAL ANCHOR SYSTEM INSTALLATION PROCEDURES

- 1. Dia foundation hole. Where solid rock is encountered at around level, the bully round the small 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(GEN) must be
- or other debris. 2. 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

followed. The inner surfaces of the socket/stub must remain free of concrete

- less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Concrete shall be Class A.

 Insert base post in foundation hale to depths shown and fill hale with
- concrete. Cut base post from bottom and ensure a minimum of 18" embedment if installed in solid rook.

 4. Level and plumb the base post with coupler using a torpedo level and let
- concrete set a minimum of 4 days, unless otherwise directed by Engineer.
- Bottom of base post slots shall be above the concrete footing. Attach sign to FRP post. 6. Insert sign post into base post. Lower until the post comes to rest on the
- 7. Use hammer to ensure the coupler is firmly seated. Top of coupler should be
- level with top of base past in most instances.

 8. Check sign to ensure there is no twist. If loose, increase the tightening of
- Position 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.
- 5. Use hammer to ensure the coupler is firmly seated. Top of coupler should be
- level with top of base post in most instances.

 6. Check sign to ensure there is no twist. If loose, increase the tightening of

BEXAR COUNTY **Texas Department of Transportation SIGN MOUNTING DETAILS **Colliers** SMALL ROADSIDE SIGNS UNIVERSAL ANCHOR SYSTEM WITH FRP POST Engineering

AS SHOWN JUNE 2024 AWING NAME 53146104 314-61-04

& Design

TRAFFIC SIGNAGE DETAILS (1 OF 2)

Colliers

Engineering

& Design

www.colliersengineering.com

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without the express written consent of Colliers Engineering & Design.

VISIT: WWW CALL811 COM

JEFFREY W. MARTIN

FOR

CLEARWATER CREEK

PHASE 5

PLAT# 24-11800362

TEXAS

SAN ANTONIO (KFW)

3421 Paesanos

San Antonio, TX 78231

Phone: 210.979.8444

COLLIERS ENGINEERING & DESIGN, IN

TBPE Firm#: F-14909

TBPLS Firm#: 10194550

12/5/24

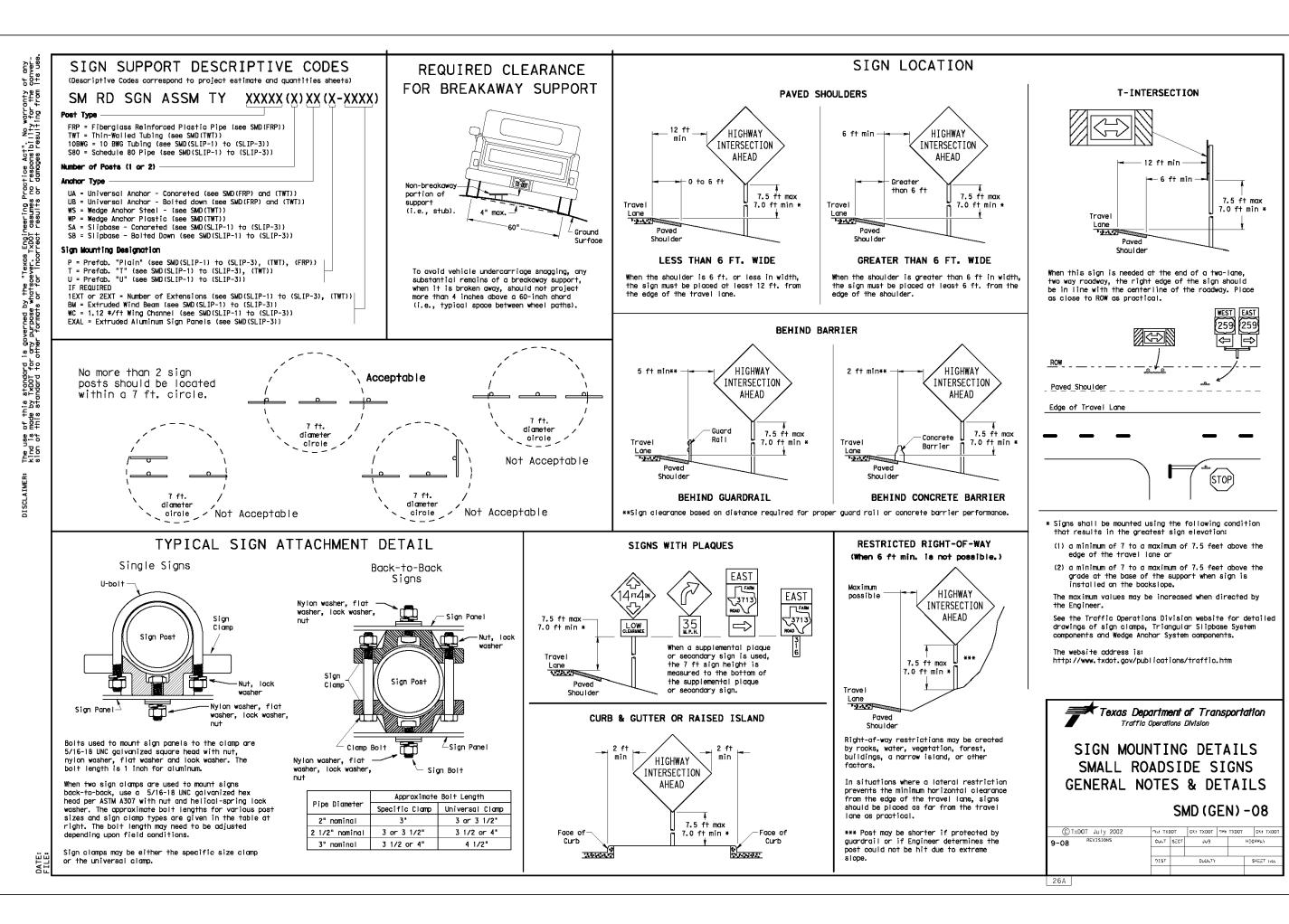
PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSONNELS.

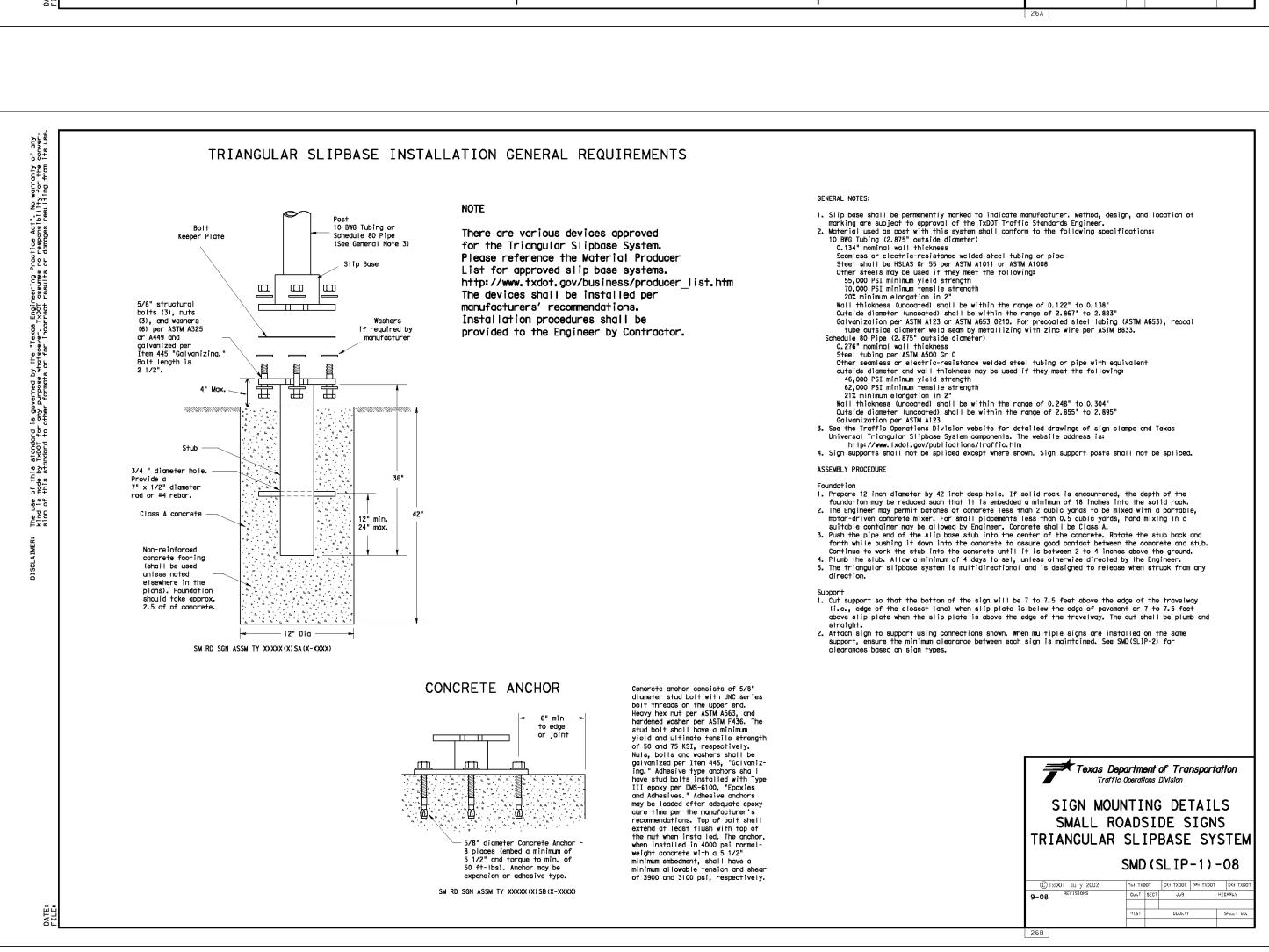
PREPARING TO DISTURB THE EARTH'

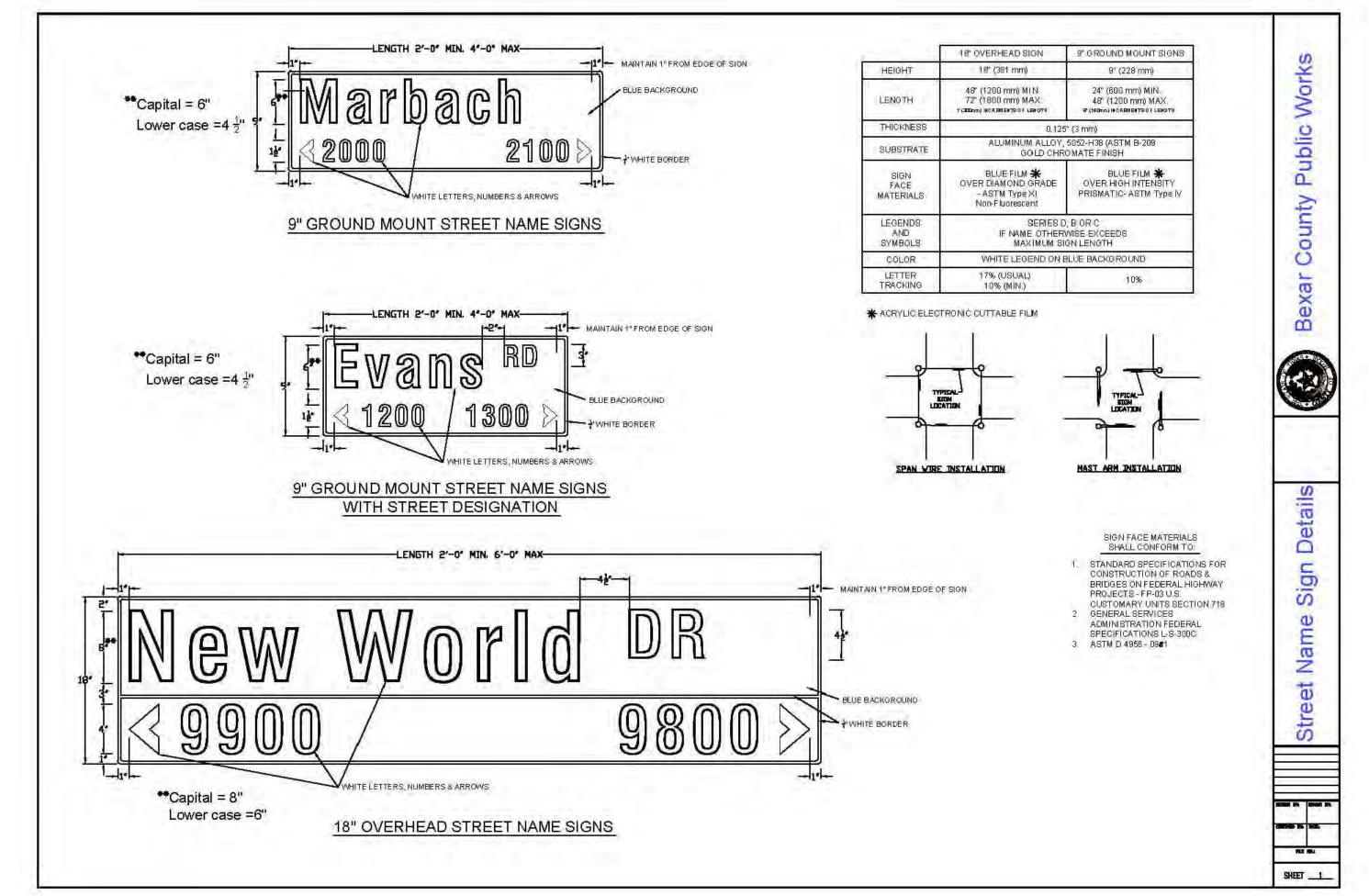
SURFACE ANYWHERE IN ANY STATE

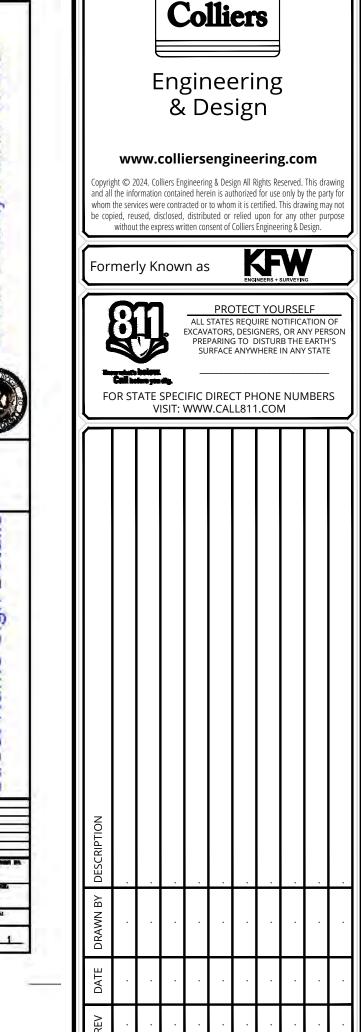
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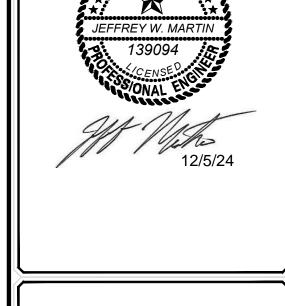
RESIDENTIAL LOTS = 109











FOR
CLEARWATER CREEK
PHASE 5
PLAT# 24-11800362

BEXAR COUNTY TEXAS



SAN ANTONIO (KFW)

3421 Paesanos
Parkway
San Antonio, TX 78231
Phone: 210.979.8444

COLLIERS ENGINEERING & DESIGN, INC
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

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AS SHOWN JUNE 2024 SJ E
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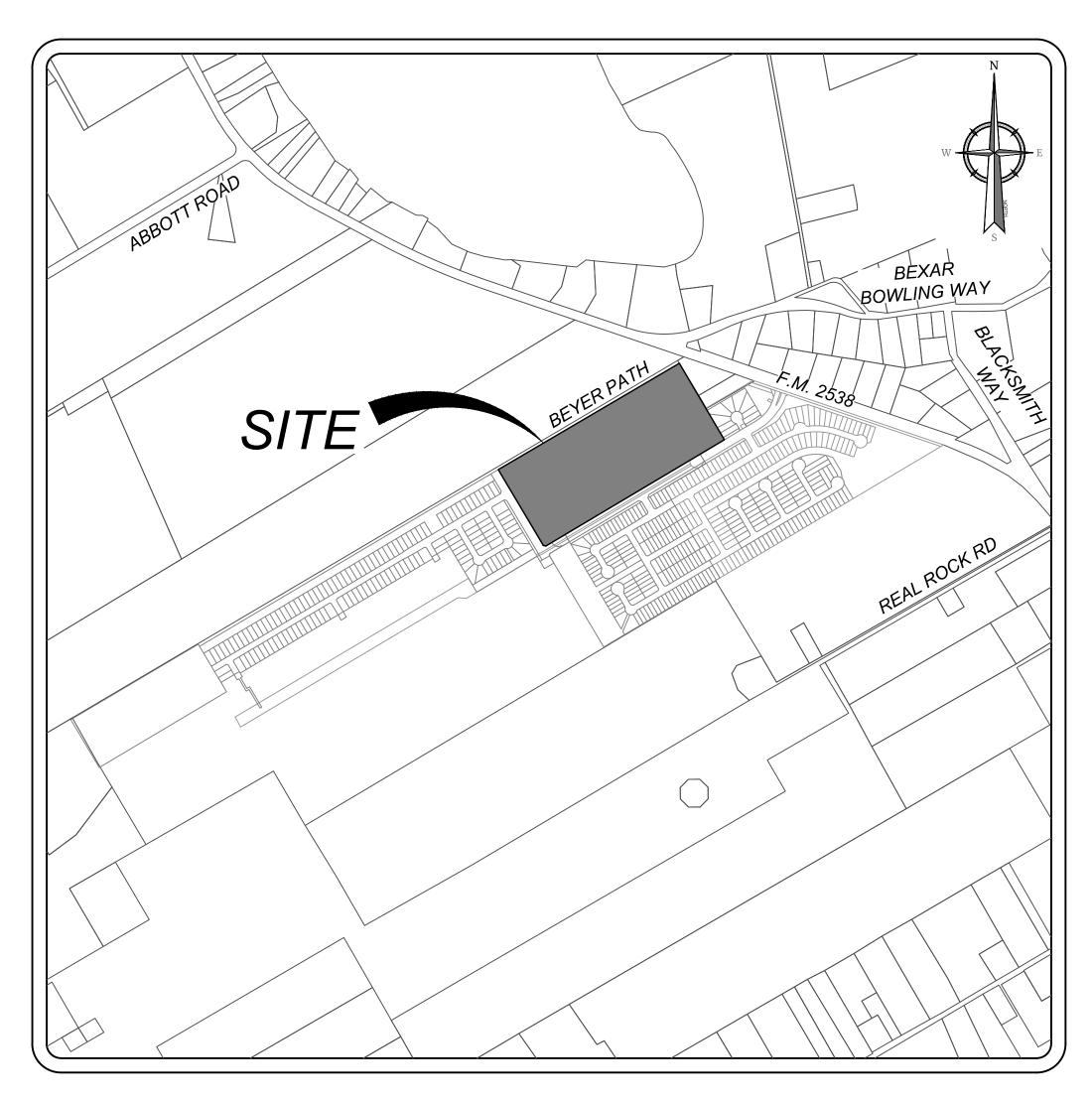
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TRAFFIC SIGNAGE DETAILS

(2 OF 2)

CLEARWATER CREEK PHASE 5

BEXAR COUNTY, TEXAS
SANITARY SEWER IMPROVEMENTS



LOCATION MAP

N.T.S.

OWNER/DEVELOPER:
LENNAR HOMES OF TEXAS LAND &
CONSTRUCTION, LTD.
100 NE LOOP 410, SUITE 1155
SAN ANTONIO, TEXAS 78216
PHONE: (210) 403-6282

SA KOSTA BROWNE LTD & FAIR OAKS MOSAIC 6812 WEST AVE STE 100 SAN ANTONIO, TX 78213-1855 PHONE: (726) 223-4825 Engineering & Design

Www.colliersengineering.com

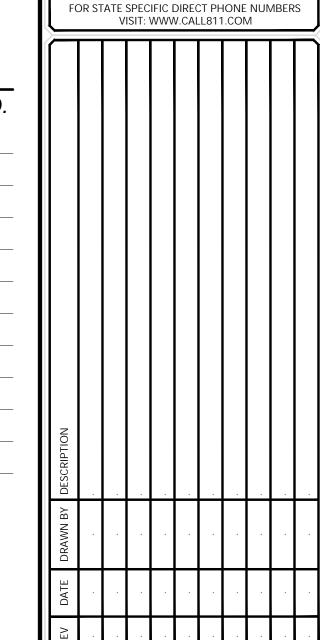
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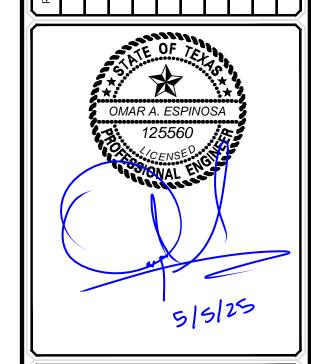
Formerly Known as

PROTECT YOURSELF

INDEX

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FOR
CLEARWATER CREEK
PHASE 5
PLAT# 24-11800362

BEXAR COUNTY TEXAS

Engineering & Design

SCALE: DATE:
AS SHOWN JUNE 2
PROJECT NUMBER:

UNIT OF MEASURE

EACH

EACH

EACH

EACH EACH

6 6" VERTICAL STACKS

24" STEEL CASING

TIE-IN TO EXISTING STUB-OUT

TIE-IN TO EXISTING MANHOLE

4000

118

3581 3581 Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, II
TBPE Firm#: 10194550

DATE: DRAWN BY: CHECKED B

SAN ANTONIO (KFW)

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 JUNE 2024
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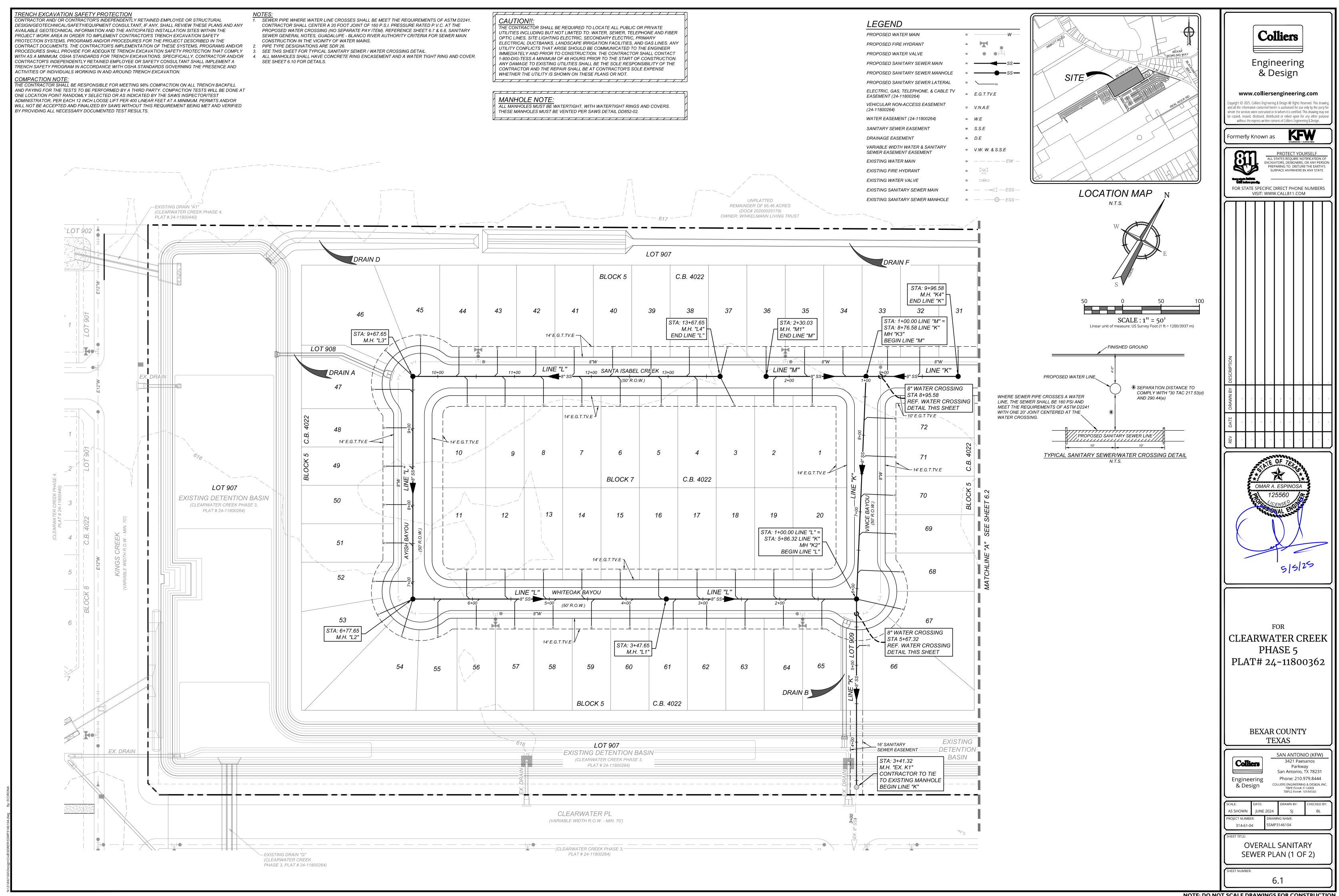
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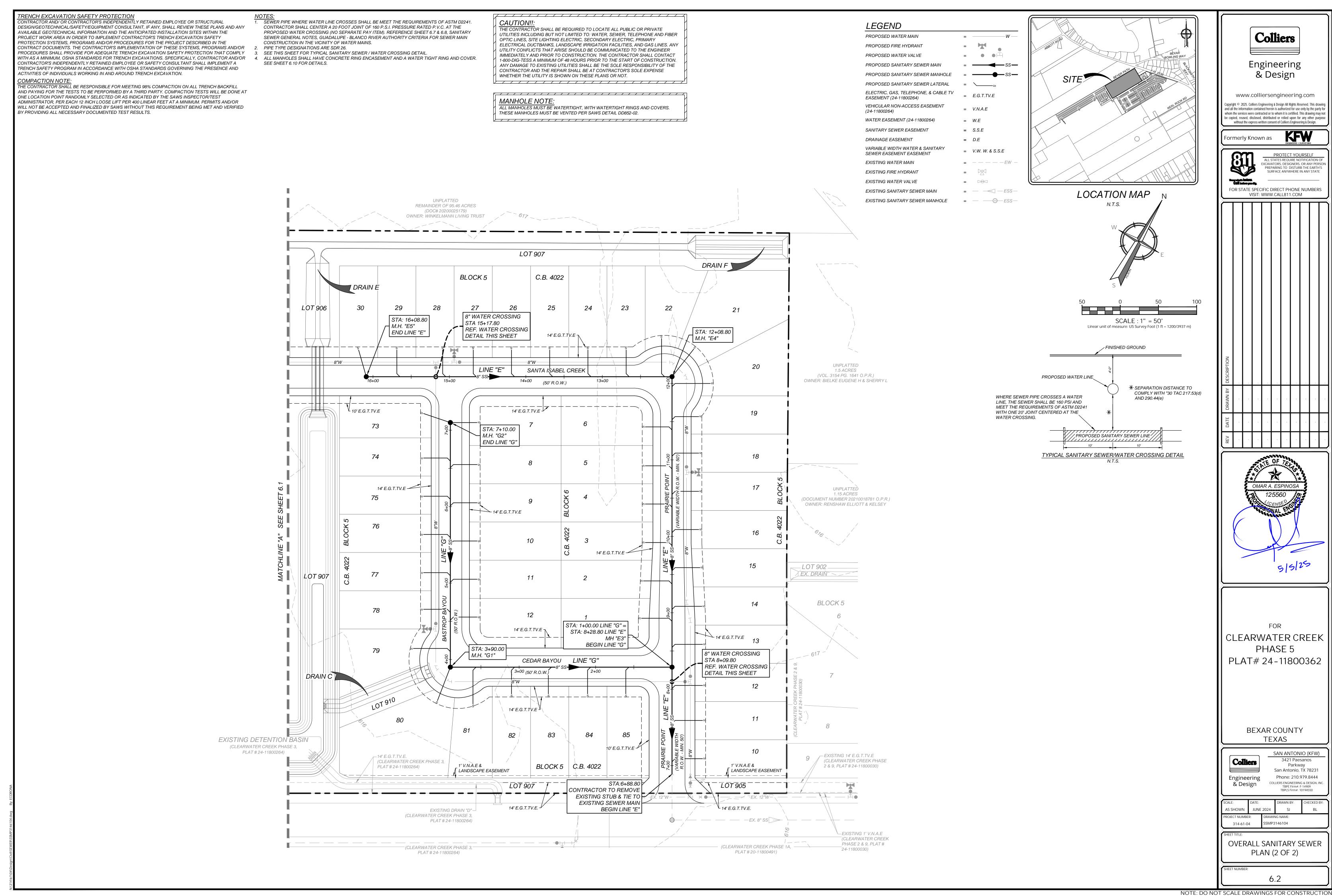
SANITARY SEWER COVER SHEET

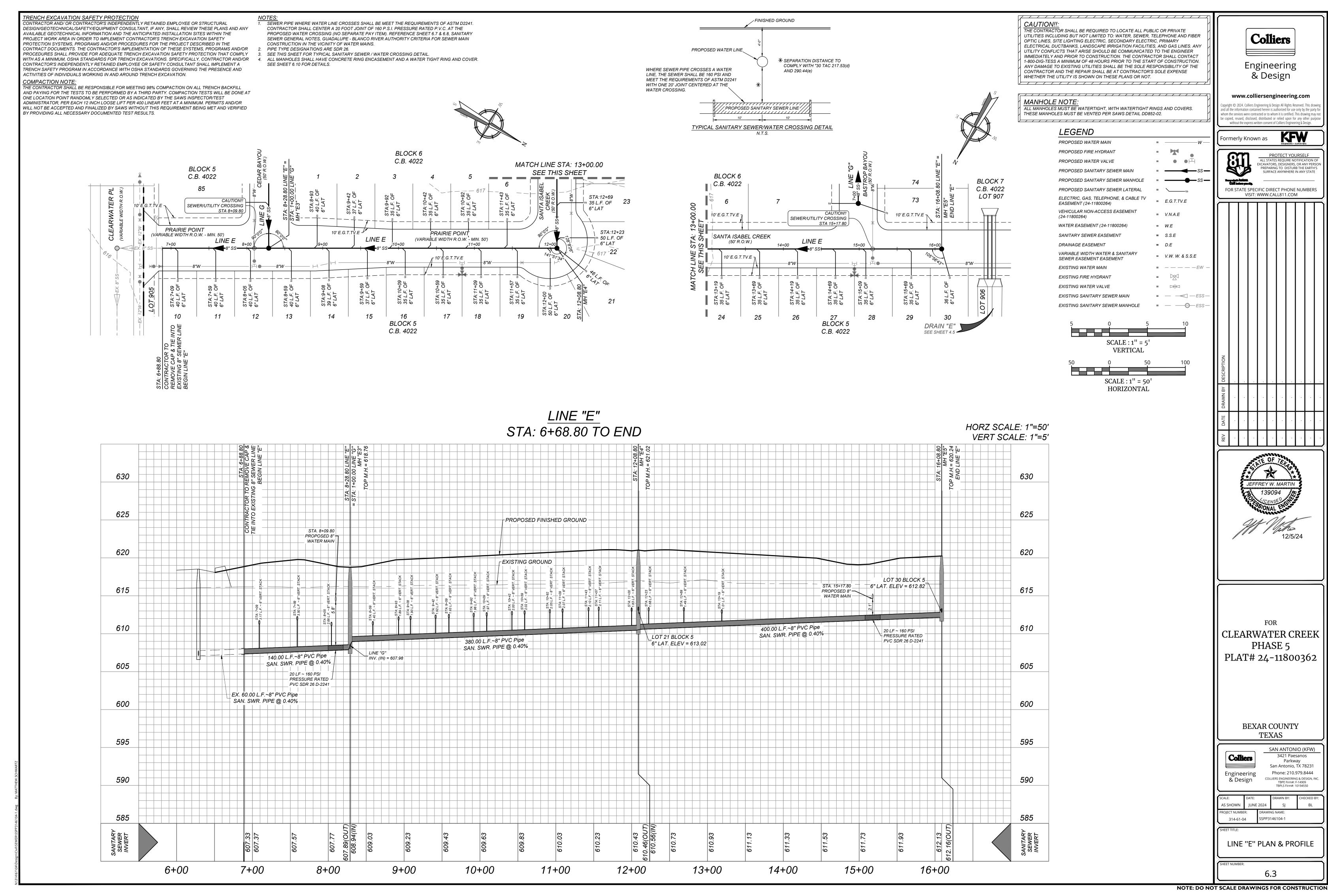
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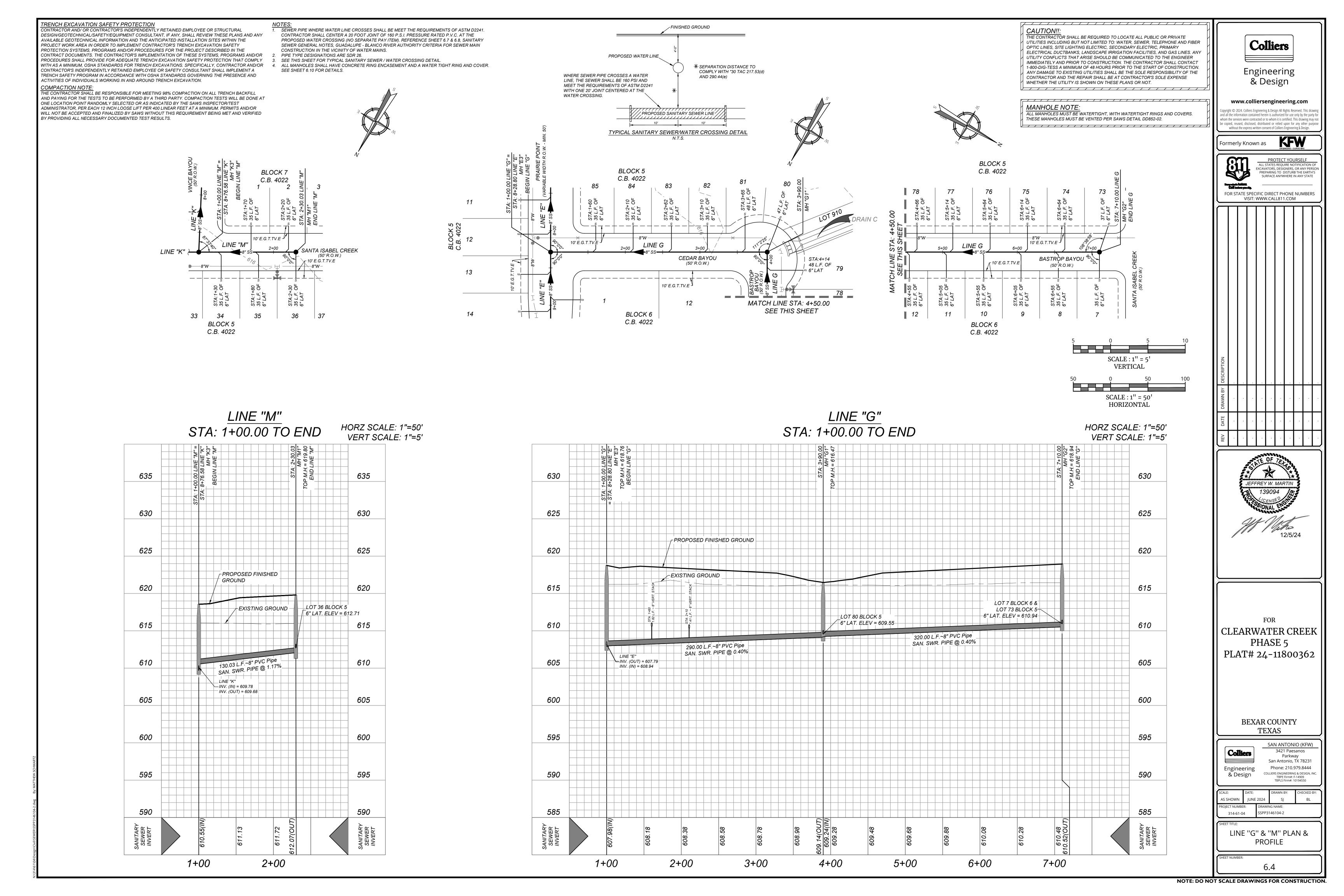
RESIDENTIAL LOTS = 109

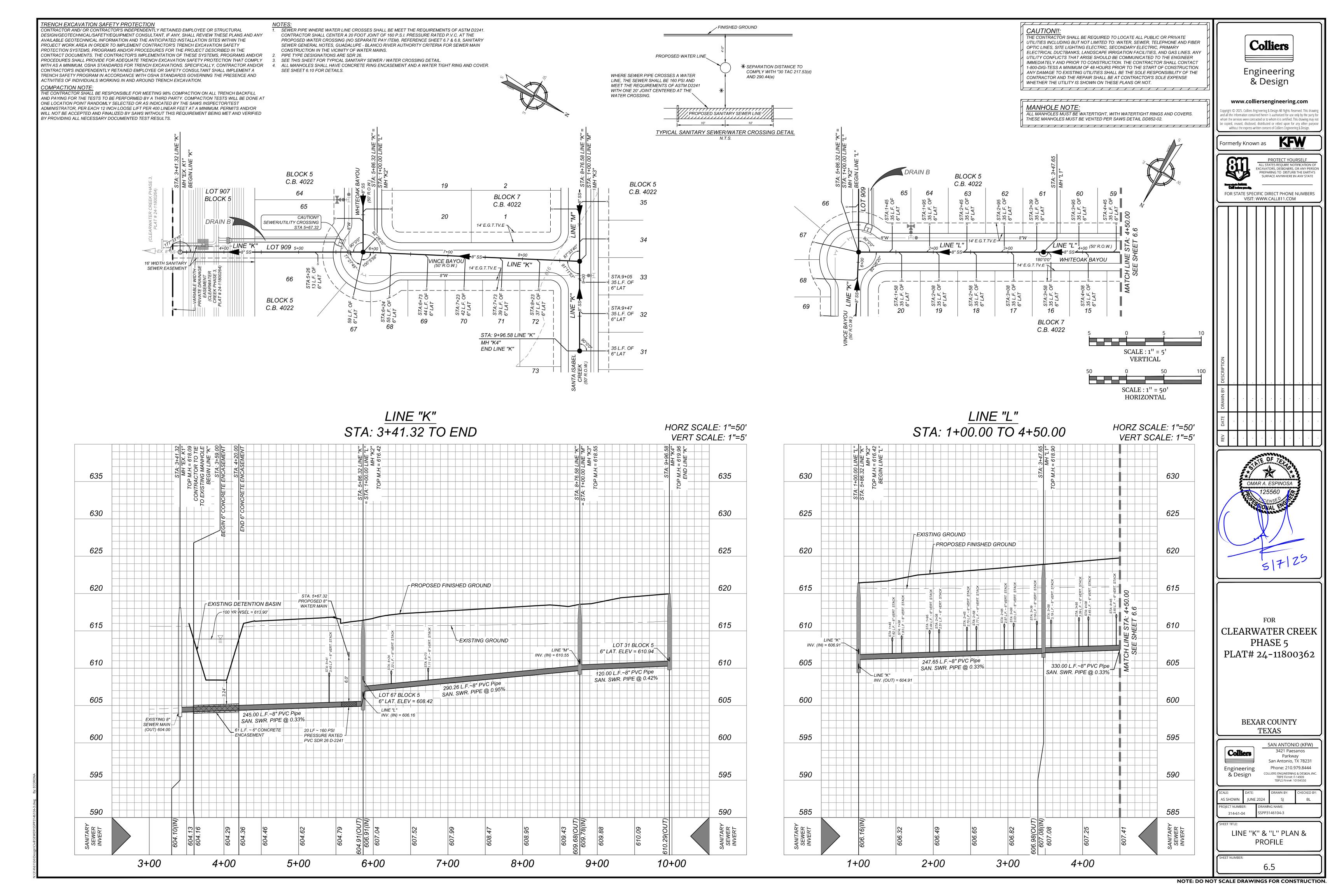
NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION

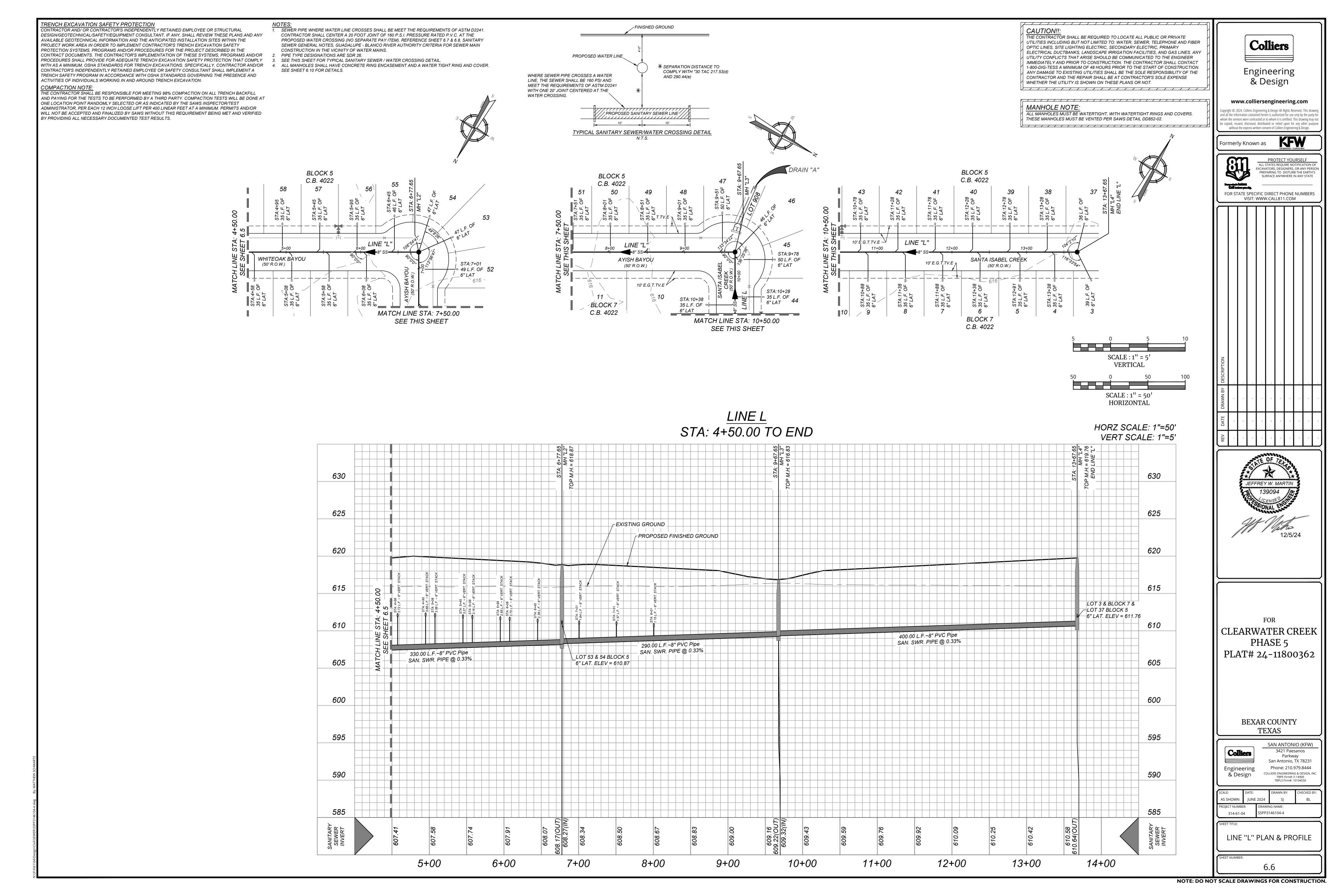












GREEN VALLEY SPECIAL UTILITY DISTRICT SANITARY SEWER SYSTEM GENERAL NOTES:

THE STANDARD SPECIFICATIONS AND DRAWING (DD) ARE PROVIDED AS A TECHNICAL RESOURCE FOR ENGINEERING PROFESSIONALS FOR USE IN DESIGN AND CONSTRUCTION OF SEWER COLLECTION SYSTEMS PROJECTS MANAGED AND CONTRACTED BY THE GREEN VALLEY SPECIAL UTILITY DISTRICT (GVSUD)

GENERAL: THE OWNER, DEVELOPER, ENGINEERING FIRM SHALL SUBMIT TO THE GREEN VALLEY SPECIAL UTILITY DISTRICT (GVSUD) ENGINEER, FOR APPROVAL, TWO (2) COPIES OF ALL PLATES, PLANS AND PROFILES, PLUMBING LAYOUT, WHICH HAVE BEEN DESIGNED AND THE DRAWINGS SEALED BY A REGISTERED PROFESSIONAL ENGINEER. WHEN APPROVED, ONE (1) COPY WILL BE RETURNED TO THE OWNER, DEVELOPER, ENGINEERING FIRM, SO MARKED. THE OWNER WILL BE REQUIRED TO MAKE ALL CHANGES INDICATED BY THE GVSUD ENGINEER, AND RETURN WITH ALL CHANGES, CORRECTIONS, BACK TO GVSUD FOR APPROVAL.

- 1. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL BE APPROVED BY THE GVSUD AND COMPLY WITH:
 - A. CURRENT GVSUD TECHNICAL SPECIFICATIONS FOR UTILITIES CONSTRUCTION.
 - B. TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ), FORMERLY TEXAS NATURAL RESOURCE CONSERVATION COMMISSION (TNRCC), DESIGN CRITERIA FOR SEWAGE SYSTEMS 31 TAC 317.1, 31 TAC 317.2 AND 31 TAC 317.3, 30 TAC & 213 40 TAC &217.
- 2. THE CONTRACTOR IS TO NOTIFY AND MAKE ARRANGEMENTS WITH THE GVSUD INSPECTIONS DIVISION AT (830)914-2330 OR (210)372-2228 48 HOURS PRIOR TO ANY EXCAVATION. A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD BEFORE ANY EXCAVATION OR START OF PROJECT.
- 3. WORK SHALL NOT BE PERFORMED ON SATURDAYS, SUNDAYS OR HOLIDAYS BEFORE 7:30 A.M. OR AFTER 4:30 P.M., UNLESS PRIOR APPROVAL IS GRANTED BY THE GVSUD ENGINEER.
 - A. THE LOCATIONS AND DEPTHS OF EXISTING UTILITIES TO INCLUDE SURFACE LATERALS, SHOWN IN THESE PLANS ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO LOCATION (POT HOLE, VERIFY LOCATION, ELEVATIONS OF ALL) UTILITY SERVICE LINES 48 HOURS PRIOR TO EXCAVATION AND TO PROTECT THE SAME DURING CONSTRUCTION. CONTRACTOR WILL BE RESPONSIBLE FOR ANY DAMAGES OF EXISTING UTILITIES AND REPAIRS WILL BE AT THE CONTRACTORS EXPENSE.

EXISTING MANHOLES/SEWER

- 4. CONTRACTOR WILL MAINTAIN SERVICE TO ALL EXISTING SANITARY SEWERS AT ALL TIMES DURING CONSTRUCTION. CONTRACTOR WILL MARK, CLEAN ALL DEBRIS, GRAVEL, DIRT, ETC. OUT OF MANHOLES AND ANY STOPPAGES CAUSED BY DEBRIS DURING CONSTRUCTION. CONTRACTOR WILL UNPLUG STOPPAGE AT CONTRACTORS EXPENSE. ANY DAMAGE TO EXISTING MANHOLES OR SEWER MAIN WILL BE CORRECTED AT THE CONTRACTORS EXPENSE. CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO PREVENT DAMAGE TO EXISTING OR NEW RINGS, COVERS, OR CONES FROM EQUIPMENT AND MATERIALS USED OR TAKEN THROUGH THE WORK AREA. IF AN EXISTING OR NEW MANHOLE COVER, RING, OR CONE IS DAMAGED BY THE CONTRACTOR IT SHALL BE REPLACED AS DIRECTED BY THE GVSUD INSPECTOR. MANHOLES WILL NEED TO BE RESEALED WITH THE GVSUD APPROVED SEALING. IF SEAL COATING IS BROKEN, CONTRACTOR WILL HAVE MANHOLE RECOATED. RESEAL ALL LEAKS AT CONTRACTORS EXPENSE.
 - A. CONTRACTOR TO ENSURE ALL PLUGS USED TO PLUG SEWER LINES, WHILE TESTING THE PROJECT (SUCH AS AIR PLUGS, SCREW TYPE PLUGS, ETC.) ARE LABELED, MARKED OR TAGGED. PROJECT INSPECTOR WILL RECORD HOW MANY PLUGS ARE BEING USED, LOCATION AND I.D., WITHIN COLLECTION SYSTEM. CONTRACTOR WILL REPORT TO PROJECT INSPECTOR OF ANY LOST OR UNRESTRAINED PLUGS INTO SEWER COLLECTION SYSTEM.
 - B. CONTRACTOR WILL BE HELD LIABLE FOR ANY DAMAGES TO SEWER COLLECTION SYSTEM STOPPAGES, OVER-FLOWS, BACKUP INTO HOMES CAUSED BY LOST RUN-AWAY SEWER PLUGS THAT WERE USED ON THAT PROJECT OR OUTFALL LINE WASTEWATER TREATMENT PLANTS.
 - C. CONTRACTOR WILL ALSO BE RESPONSIBLE FOR ANY DAMAGE TO WASTEWATER TREATMENT APPARATUS, SUCH AS SCREW PUMPS, ETC. CAUSED BY LOST OF RUN-AWAY SEWER PLUGS. CONTRACTOR WILL BE HELD LIABLE FOR DAMAGES. AS WELL AS COST OF REPAIRS.
- 5. ALL WORK IN THE TEXAS HIGHWAY DEPARTMENT, BEXAR COUNTY, GUADALUPE COUNTY, AND CITY OF CIBOLO RIGHT OF WAY SHALL BE DONE IN ACCORDANCE WITH RESPECTIVE CONSTRUCTION SPECIFICATIONS AND PERMIT.
- 6. ALL WORK IN PUBLIC STREETS SHALL BE COORDINATED WITH AND APPROVED BY THE BEXAR COUNTY
- 7. DUE TO FEDERAL REGULATIONS TITLE 49, PART 192.161, CITY PUBLIC SERVICE MUST MAINTAIN ACCESS TO GAS VALVES AT ALL TIMES. THE CONTRACTOR MUST PROTECT AND WORK AROUND VALVES THAT ARE IN THE PROTECTED AREAS.

OR GUADALUPE COUNTY PUBLIC WORKS DEPARTMENT TRAFFIC DIVISION AND STREET ENGINEER.

8. NO TESTING WILL BE PERFORMED PRIOR TO 30 DAYS FROM THE COMPLETE INSTALLATION OF THE SANITARY SEWER LINES.

THE FOLLOWING SEQUENCE WILL BE STRICTLY ADHERED TO:

- A. PULL MANDREL AFTER 30 DAYS OF INSTALLATION
- B. PERFORM AIR TEST
- C. PULL WIPER (AFTER STREET HAS BE ASPHALTED IN NEW SUBDIVISIONS)
- D. VACUUM TEST ALL MANHOLES WITHIN THE PROJECT
- E. CCTV-ALL NEW LINE-PAN (TILL ALL SERVICE LATERALS TO 6"X6" CLEAN OUT. FLOOD ALL LINES BEFORE CCTV, SUMMIT DVD)
- 9. CONTRACTOR SHALL SUBMIT FIELD COPY PLANS AND PROFILES SHOWING AS-BUILT WORK AT END OF PROJECT, CCTV DVD AND COMPACTION DENSITY REPORTS FOR MAIN SEWER LINE AND ALL SERVICE LATERALS TRENCHES. WARRANTY LETTERS ON MATERIALS, WORKMANSHIP FOR 24 MONTHS AFTER FINAL ACCEPTANCE.
- 10. ALL MANHOLES SHALL BE CONSTRUCTED SO THAT THE TOP OF THE RING IS AT LEAST TWELVE (12) INCHES ABOVE THE FINISHED GRADE OF THE SURROUNDING GROUND EXCEPT WHEN LOCATED IN PAVED AREAS. IN PAVED AREAS THE MANHOLE RING SHALL BE FLUSH WITH THE PAVEMENT. ALL NEW INSTALLED MANHOLES WILL BE WITH A 30" INCH OPENING, MINIMUM, WITH THE GVSUD LOGO ON THE COVER. EVERY THIRD MANHOLE COVER WILL HAVE A 1" HOLE FOR A VENT.
- 11. ALL MANHOLES SHALL BE WITH A 30" INCH OPENING, HAVE WATERTIGHT RING AND COVERS, WITH THE GVSUD LOGO. ON PRIVATE PROPERTY, MANHOLE RING AND COVER SHALL BE TYPICAL MANHOLE COVER WATER TIGHT.
 - A. BEFORE BACK FILLING/COMPACTION/CONCRETE ENCASEMENT
 - ALL MANHOLE JOINT SECTION RISERS, CONE SECTIONS AND GRADE RING SHALL BE WRAPPED WITH GATOR WRAP SEALING SYSTEMS, BUTYL ADHESIVE SEALANT WITH A MINIMUM THICKNESS OF 30 MILS. INFI-SHIELD WRAPPED WITH RISER-WRAP SEALING SYSTEM, GATOR WRAP MATERIAL: RUBBER MEETS ASTM C923/MASTIC MEETS ASTM C 990 OR APPROVE BY THE GVSUD ENGINEER SUBSTITUTION ON OUTSIDE FOR I/I, GROUND WATER TABLE.

- 12. IF CONCRETE THROAT RINGS ARE TO BE INSTALLED, A MINIMUM OF TWO AND A MAXIMUM OF FOUR THROAT RINGS WILL BE USED AT EACH MANHOLE FOR ADJUSTMENT.
- 13. INFILTRATION DISHES WILL BE REQUIRED IN MANHOLES <u>WHERE APPLICABLE</u> (I.E., SUCH AS LOW DRAINAGE AREAS) AND EVERY THIRD MANHOLE SHALL BE VENTED. 30" INCH MANHOLE COVER WITH 1" INCH HOLE CENTER OF COVER WHERE APPLICABLE.

<u>Note:</u> Manhole cover inserts shall be FRW Industries, inc., "Inflow Protector-Cover" "Preco Industries Ltd.", "Sewer Guard", or approved equal, and shall be installed in strict accordance with the manufacturer's recommendations. The contractor shall be responsible for making the necessary field measurements for the manufacturer prior to construction.

- A. ALL MANHOLES MUST HAVE 350-400 FEET SPACING BETWEEN MANHOLES TO PROVIDE ACCESS TO SEWER LINES FOR CLEANING, ON THE GVSUD PUBLIC SEWER EASEMENT. A 16 FOOT GATE WITH LOCK WILL BE PROVIDED BY THE CONTRACTOR FOR ACCESS TO CLEANING AND MAINTAINING SEWER LINES.
- B. DROP MANHOLES SHALL BE REQUIRED WHEN THE INFLOW ELEVATION IS MORE THAN TWENTY-FOUR (24) INCHES ABOVE THE OUTFLOW ELEVATION. DROP SHALL BE LOCATED OUTSIDE THE MANHOLE WITH ITS FLOW LINE ELEVATION LOCATED BETWEEN THE CENTER LINE AND TOP OF SEWER LINE.
- 14. ALL MANHOLES WILL BE CONCRETE ENCASEMENT 1 FOOT AROUND RING, 28-INCH DEEP AFTER GATOR WRAP SEALING SYSTEM HAS BEEN APPLIED.
- 15. NEW MANHOLE PROTECTIVE COATING, LINER IS FOR THE PURPOSE OF INFILTRATION BECAUSE OF HIGH WATER TABLE. APPLICATION PROCEDURES ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION AND PER THE FOLLOWING SPECIFICATIONS:
- A. MANHOLE PROTECTIVE COATING: CONTRACTOR WILL BE RESPONSIBLE FOR MANHOLES ON PROJECT SAFETY ASSESSMENT; CONFINED SPACE ENTRY SET BY OCCUPATIONAL SAFETY AND HEALTH STANDARDS, 29 CFR 1910.146 APP E.
- B. THE CONTRACTOR, SHALL NOTIFY THE GVSUD UTILITIES INSPECTIONS DEPARTMENT WITH A MINIMUM OF 2 DAYS ADVANCE NOTICE OF THE START OF ANY FIELD SURFACE PREPARATION WORK OF COATING APPLICATION WORK OF MANHOLES.
- C. ALL NEW MANHOLES IN NEW DEVELOPMENTS SHALL BE 30" INCH OPENING, WATERTIGHT AND THE INTERIOR WALL COATED WITH A GVSUD APPROVED SEWER STRUCTURE FOR ALL MANHOLES, SEWPERCOAT 2000 HR REGULAR, WITH THE REQUIRED ONE-INCH THICK APPLICATION.

APPROVED MATERIALS ARE AS FOLLOWS:

CEMENTITIOUS COATING WITH REQUIRED HALF-INCH THICK APPLICATION

- SEWPERCOAT 2000 HR REGULAR
- REFRATTA HAC 100
- MAXIMUM CA PLUS

EPOXY COATING: WITH SPECIFIED THICKNESS APPLICATION

- AROMATIC POLYUREA SCP DROPLINER REQUIRED THICKNESS <u>125 MILS</u>
- D. WARRANTY LETTER ON MANHOLE PROTECTIVE COATING FOR 10 YEARS AFTER FINAL ACCEPTANCE OF PROTECTIVE COATINGS CONTRACTOR IS NOT RELIEVED OF ITS RESPONSIBILITIES UNDER THE CONTRACT DOCUMENTS.
 - i. ANY CONNECTIONS TO EXISTING MANHOLES WILL REQUIRE A 36-INCH CRADLE TO SUPPORT INCOMING PIPE. A RUBBER GASKET WILL ALSO BE REQUIRED (CENTERED AT MANHOLE WALL) WITH GROUTING AT INTERIOR AND EXTERIOR PENETRATIONS.
 PENETRATION INTO MANHOLE WILL BE CORE DRILLED. ANY DAMAGE EXITING THE MANHOLE WILL BE REPLACED AT CONTRACTOR'S EXPENSE. IF COATING SEAL IS BROKEN, THE MANHOLE WILL BE RECOATED WITH THE SAME MATERIALS. IF EXISTING SEWER MANHOLE SEAL COATING IS BROKEN, ALL OF MANHOLE WILL BE RELEASED WITH SAME MATERIALS AND ONE-INCH THICKNESS.
 - ii. ANY AND ALL EXISTING MANHOLES WITHIN CONSTRUCTION PROJECT THAT TIE IN, ARE DONE BY CONTRACTOR TO STUB-OUT ADJUSTMENT, RECONSTRUCTION, OR LEAKING. MANHOLE WILL BE COAT SEALED AT CONTRACTOR'S EXPENSE.
 - iii. MANHOLES WITH STUB-OUTS (8") INCH OR LARGER MUST BE LOCATED AT THE END OF ALL SEWER LINES THAT MAY BE EXTENDED IN THE FUTURE. MANHOLES PLACED AT THE END OF THE WASTEWATER COLLECTION SYSTEM PIPES THAT MAY BE EXTENDED IN THE FUTURE MUST INCLUDE STUB-OUTS WITH PLUGS.

PIPING

- 16. THE KIND AND DESCRIPTION OF THE PIPE CONDUIT IS SHOWN ON THE PLANS (IF PVC, SDR AND ASTM/ANSI DESIGNATION CLASS). AS SDR 26 PVC, ASTM D-3034 WITH A MINIMUM STIFFNESS OF 115 PSI TEXAS ADMINISTRATIVE CODE (TAC) RULES TO INCLUDE30 TAC & 213, OR ANY REVISIONS THERE TO APPLICABLE TECQ, 30 TAC 7 217, FOR ALL NEW DEVELOPMENT.
- 17. THE USE OF ASBESTOS CEMENT PIPE WILL BE PROHIBITED UNDER THIS CONTRACT. ALL DUCTILE IRON PIPE USED IN THIS SYSTEM SHALL BE CORROSION PROTECTED ON BOTH THE INTERIOR AND EXTERIOR SURFACES. ALL CORROSION PROTECTION SHALL BE APPLIED AND INSTALLED IN SUCH A MANNER AS TO MAINTAIN A CONTINUOUSLY PROTECTED SURFACE AFTER FINAL PIPE INSTALLATION.
- 18. ALL PVC SEWER PIPE WITH OVER 14 FEET OF COVER SHALL BE EXTRA STRENGTH; MINIMUM PIPE STIFFNESS OF 150 PSI.
- 19. ALL SEWER PIPES SHALL HAVE COMPRESSION OR MECHANICAL JOINTS.
- 20. SEWER PIPE CONNECTIONS TO PRECAST MANHOLES SHALL BE APPROVED BY THE GVSUD. THIS CONNECTION SHALL USE FLEXIBLE "BOOT" TYPE CONNECTOR SUCH AS THE PSX POSITIVE SEAL SYSTEM OR ENGINEER APPROVED EQUAL AND COMPLY WITH ASTM C-923. SEWER PIPE CONNECTIONS TO MONOLITHIC MANHOLES WILL BE AS SHOWN ON THE STANDARD DETAIL SHEET. ANY CHANGES IN THESE METHODS MUST BE APPROVED BY GVSUD ENGINEER.
- 21. ALL PIPE TRENCHING, BEDDING AND BACKFILL SHALL BE DONE IN ACCORDANCE WITH APPROPRIATE ASTM/ANSI SPECIFICATIONS [REFERENCE 31 TAC 317.2(A)(5)(A); ASTMC-12 (ANSI A106.2) OR ASTM D-2321 (ANSI K65.171)]. ALL COMPACTION @ 98% DENSITY TESTS ACROSS THE BOARD, 1 RANDOM DENSITY TEST PER LIFT FOR EVERY 400 FEET.
 - A. SAND MIGRATION, SEEPAGE PREVENTION COLLAR WHEN CHANGING THE INITIAL BACKFILL FROM SELECT INITIAL BACKFILL TO OPTIONAL SELECT INITIAL BACKFILL. A TWO (2) FOOT LONG CLASS D CONCRETE ENCASEMENT, EVERY 180 FEET ALONG PIPE AND 20 FEET FROM WALL OF MANHOLE IN EACH DIRECTION. NO EXTRA PAY ITEM.

- B. BEDDING SHALL CONSIST OF TXDOT-GRADE 4 (1 1/2"-1 5/8") COMMONLY KNOWN AS SEWER GRAVEL.
 - i. THE BEDDING SHALL MEET THE FOLLOWING GRADATION:

a. 2" 100.0% b. 1 ³/₄" 100.0% c. 1 ¹/₂" 100.0% d. 1" 52.6% e. ³/₄" 10.7% f. ³/₈" 1.3%

- C. SEWER LINE LOCATION
 - SEWER LINES SHALL BE SIZED AND EXTENDED THROUGH THE LIMITS OF A DEVELOPMENT TO SERVE ADJACENT PROPERTY, WITH MANHOLE AND STUB-OUT AT END OF SEWER LINE.
 - a. IN PHASED CONSTRUCTION OF THOROUGHFARES, THE SEWER LINE SHALL BE EXTENDED THE ENTIRE LENGTH OF THE THOROUGHFARE BEING CONSTRUCTED.
 - ii. NO PUBLIC SEWER LINE SHALL BE LOCATED NEARER THAN FIVE (5) FEET FROM ANY TREE.
 - iii. SIZES AND GRADES FOR SANITARY SEWER SHALL BE AS REQUIRED BY THE GVSUD ENGINEER AND CONSIDERATION SHALL BE GIVE AS TO POSSIBLE EXTENSIONS FOR FUTURE DEVELOPMENT. NO SANITARY SEWERS, OTHER THAN LATERALS AND FORCE MAINS, SHALL BE LESS THAN EIGHT (8) INCH IN DIAMETER.
- 22. WHEN SEWER LATERALS ARE TO BE CONNECTED TO EXISTING SEWER MAINS AND NO STUB-OUT HAS BEEN EARLIER PROVIDED, THE CONNECTION MUST BE MADE WITH AN APPROVED SERVICE SADDLE AS PER 31 TAC 313.5(C) (7). NEW INVERT TO BE BUILT, SMOOTH CHANNEL FOR NEW PIPE/SLOPE AT 2% FLOW.
- 23. ALL RESIDENTIAL SERVICE LATERALS SHALL BE SDR 26 WITH RATING OF 115 PSI, BE EXTENDED TO THE PROPERTY LINE AT (6 X 6) CAPPED AND SEALED. ATTACH SEWER BURIAL TAPE TO THE END OF ALL SEWER LATERALS AND BRING UP TO THE GROUND LEVEL FOR MARKER (GREEN). (SEE HOUSE LATERALS DETAILS)
 - AA. SEWER SERVICE LATERALS. THE SIZES AND LOCATIONS OF LATERALS SHALL BE DESIGNATED AS FOLLOWS UNLESS OTHERWISE DIRECTED BY THE GVSUD ENGINEER:
 - i. IN GENERAL FOR SINGLE FAMILY DWELLING, THE LATERAL SIZE SHALL BE FOUR (4) INCH MINIMUM. HOUSE LATERALS SHALL BE IN STALL CENTER OF THE LOT AND SHALL HAVE A TEN(10) FOOT SEPARATION FROM THE WATER SERVICE. THE SERVICE SHALL THEN BE EXTENDED AT A FORTY-FIVE (45) DEGREE ANGLE TO FOUR (4) FEET ABOVE THE FINISHED GRADE AND CAPPED. USE SEWER BURIAL TAPE TO MARK ALL SEWER SERVICE LATERALS.
 - ii. MULTIPLE UNITS, APARTMENTS, LOCAL RETAIL AND COMMERCIAL SIX (6) INCH MINIMUM, MANUFACTURING AND INDUSTRIAL EIGHT (8) INCH MINIMUM, OR LARGER AS REQUIRED.

TRAPS AND INTERCEPTORS (FOG - TECQ)

UNIFORM PLUMBING CODE, CITY OF SAN ANTONIO BUILDING INSPECTIONS DEPARTMENT. ALL COMMERCIAL BUILDINGS WILL HAVE TRAPS (FOG-TECQ).

OIL SEPARATORS

WHICH INCLUDE OIL SEPARATOR-GASOLINE SERVICE STATIONS, CAR WASHES, GARAGES, DRY CLEANERS, CHEMICAL PLANTS, GAS PLANTS, HIDE PROCESSORS, TESTING LABORATORIES, OR ANY PLACE WHERE OIL OR SOLVENTS MAY BE INTRODUCED IN TO THE SANITARY SEWER SYSTEM. THE SIZING CRITERIA FOR OIL SEPARATORS SHALL BE BASED ON THE G.P.M. RATE OF ALL FIXTURES, APPLIANCE OR APPURTENANCE, DRAINING INTO SEWER SYSTEM.

SAND INTERCEPTORS

SAND INTERCEPTORS SHALL BE INSTALLED IN THE SEWER SYSTEM OF THE FOLLOWING ESTABLISHMENTS, GARAGES, CAR WASHES, SERVICE STATIONS, OR ANY PLACE OF BUSINESS WHERE HEAVY SOLIDS MAY BE INTRODUCED INTO THE SANITARY SEWER SYSTEM. THE SIZING CRITERIA FOR A SAND INTERCEPTOR SHALL BE BASED ON THE REQUIRED G.P.M. X 12 MINUTE RETENTION TIMES TO OBTAIN THE TANK SIZE IN GALLONS CAPACITY.

AUTOMATIC CAR WASHES

WITH HIGH PRESSURE SPRAYS AND/OR BRUSHES INSTALL A 50 G.P.M. INTERCEPTOR. MINIMUM, FOR A 4-BAY VEHICLE WASH, THE SIZE OF THE INTERCEPTOR SHALL INCREASE 10 G.P.M. FOR EACH ADDITIONAL WASH BAY OVER 4. SINGLE BAY OR PORTABLE WASHER TYPE VEHICLE WASHES SHALL INSTALL A 20 G.P.M. INTERCEPTOR MINIMUM.

NEUTRALIZING DEVICES

IN NO CASE SHALL CORROSIVE LIQUIDS, SPENT ACIDS, OR OTHER HARMFUL CHEMICALS WHICH MIGHT DESTROY OR INJURE A DRAIN, SEWER, SOIL, OR WASTE PIPE, OR WHICH MIGHT CREATE NOXIOUS OR TOXIC FUMES, DISCHARGE INTO THE SANITARY SEWER SYSTEM WITH OUT BEING THOROUGHLY NEUTRALIZED BY PASSING THOROUGHLY CONSTRUCTED AND ACCEPTABLE NEUTRALIZING DEVICE. SUCH DEVICE SHALL BE PROVIDED WITH A SUFFICIENT INTAKE OF NEUTRALIZING MEDIUM, CONSISTING OF LIMESTONE OR MARBLE CHIPS, SO AS THE MAKE ITS CONTENTS NON-INJURIOUS BEFORE BEING DISCHARGED INTO THE SANITARY SEWER SYSTEM.

LINT TRAPS

PUBLIC AND PRIVATE WASHATERIAS AND COMMERCIAL LAUNDRIES SHALL INSTALL A LINT TRAP EQUIPPED WITH A CONVENIENTLY LOCATED AND EASILY REMOVABLE WIRE BASKET OR OTHER SIMILAR DEVICE THAT WILL PREVENT THE STRINGS, RAGS, BUTTONS, OR OTHER PROHIBITED MATERIAL FROM ENTERING THE SANITARY SEWER SYSTEM. THE BASKET OR OTHER SIMILAR DEVICE SHALL PREVENT PASSAGE TO THE SANITARY SEWER SYSTEM OF SOLIDS GREATER THAN 1/2" INCH DIAMETER. THE LINT TRAP SIZE SHALL BE BASED ON THE TOTAL G.P.M. OF ALL FIXTURES, APPLIANCES AND APPURTENANCES DRAINING TO IT IN LIEU OF A LINT TRAP, A LINT INTERCEPTOR MAY BE INSTALL. THE INTERCEPTOR SHALL BE SIZED AND DESIGNED BY A TEXAS REGISTERED ENGINEER WITH HIS SEAL AND SIGNATURE ON THE DRAWINGS.

CREENVIALLEY	GREEN VALLEY SPECIAL UTILITY DISTRICT STANDARD DETAILS		SANITARY SEWER SYSTEM GENERAL NOTES (1 OF 2)		
SPECIAL UTILITY DISTRICT	REVISED:		THE ARCHITECT/ENGINEER ASSUMES	DETAIL NO.	
		OCTOBER 2021	RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	G-1	



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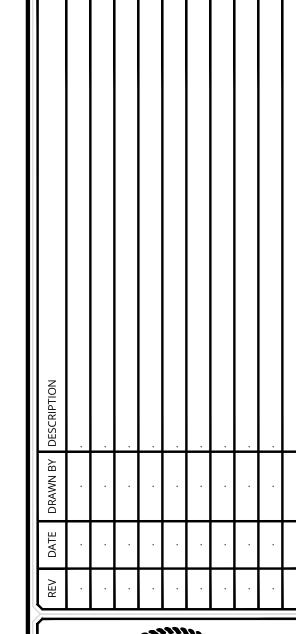
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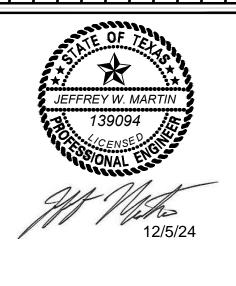
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OJECT NUMBER: DRAWING NAME:
314-61-04 SSMP3146104
HEET TITLE:

SANITARY SEWER NOTES (1 OF 2)

JUNE 2024

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SILVER RECOVERY UNITS

SILVER RECOVERY UNITS SHALL BE INSTALLED IN WASTE LINES(S) LEADING FROM X-RAY PROCESSING, PHOTOGRAPHIC PROCESSING, AND/OR ANY PROCEDURES IN ESTABLISHMENT SUCH AS MEDICAL LABS, DENTAL LABS, PHOTO FINISHERS, PRINTERS, GRAPHIC ARTS PRODUCTION FACILITIES, HOSPITAL FACILITIES, VETERINARY HOSPITALS, OR OTHER ESTABLISHMENTS WHERE SILVER MAY BE INTRODUCED INTO THE SANITARY SEWER SYSTEM.

SOLID INTERCEPTORS

SOLIDS INTERCEPTORS SHALL BE INSTALLED WHEN PRE-TREATMENT OF WASTE STREAMS IS NECESSARY TO PREVENT SOLIDS GREATER THAN $\frac{1}{2}$ " IN DIAMETER, WHICH MAY CAUSE LINE STOPPAGE FROM ENTERING THE SANITARY SEWER SYSTEM.

INTERCEPTORS

- a. INTERCEPTORS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DESIGN APPROVED BY THE GVSUD CONSISTING OF A MINIMUM OF TWO COMPARTMENTS WITH FITTINGS DESIGNED FOR GREASE RETENTION AND PROVIDE FOR A MINIMUM OF TWELVE (12) MINUTES RETENTION
- b. THERE SHALL BE AN ADEQUATE NUMBER OF MANHOLES TO PROVIDE ACCESS FOR CLEANING ALL AREAS OF AN INTERCEPTOR, ONE MANHOLE PER TRAP COMPARTMENT. MANHOLE COVERS SHALL BE GAS TIGHT IN CONSTRUCTION HAVING A MINIMUM OPENING DIMENSION OF 20 INCHES (0.5 M).
- c. IN AREAS WHERE TRAFFIC MAY EXIST THE INTERCEPTOR SHALL BE DESIGNED TO HAVE ADEQUATE REINFORCEMENT AND COVER.
- d. ALL INTERCEPTORS SHALL HAVE THE SIZE OF THE INTERCEPTOR (IN GALLON PER MINUTE OR GALLON CAPACITY) PERMANENTLY AFFIXED TO THE DEVICE.
- e. ALL CONCRETE UTILIZED IN THE CONSTRUCTION OF INTERCEPTOR SHALL HAVE A MINIMUM STRENGTH OF 3000 PSI.
- f. AN EFFLUENT SAMPLING WELL ON ALL INTERCEPTORS SHALL BE REQUIRED. THE SAMPLE WELL SHALL HAVE A RISER A MINIMUM OF 6" INCHES IN DIAMETER AND SHALL BE INSTALLED AFTER THE CONFLUENCE OF ALL WASTE STREAMS FROM THE FACILITY AND PRIOR TO DISCHARGING INTO SANITARY SEWER COLLECTION SYSTEM. THE WELL SHALL BE PERPENDICULAR TO THE EFFLUENT LATERAL TO ALLOW VISUAL OBSERVATION OF THE FLOW STREAM AND PROVIDE FOR SAMPLING OF WASTEWATER.

WATERTIGHT TESTING (24 HOURS)

- g. ALL INTERCEPTORS SHALL BE WATER TESTED OUT AT JOB SITE AFTER BEING INSTALLED (PLUG BOTH ENDS AND FILL TO TOP OF INTERCEPTOR). INTERCEPTOR SHALL SHOW NO LEAKAGE FROM SECTION SEAMS, PINHOLES, OR OTHER IMPERFECTIONS. ANY LEAKAGE IS CAUSE FOR REJECTION. WHEN LEAKAGE OCCURS, ADDITIONAL WATER TESTING SHALL BE MADE. AFTER CORRECTING MEASURE TEST, REPORTS SHALL SHOW TOTAL NUMBER OF INTERCEPTORS TESTED. WHEN LEAKAGE OCCURS, CORRECTIVE MEASURES TAKEN SHALL BE REPORTED BY GVSUD INSPECTORS. GVSUD INSPECTORS SHALL RECORD IN DAILY LOG WITH PROJECT NAME. DATE IT WAS TESTED AND COMPLETED.
- B. MANHOLES WILL BE REQUIRED ON SIX (6) INCH AND LARGER LATERALS WHERE THEY CONNECT TO THE MAIN.
 - a. LATERALS WILL NOT BE ATTACHED TO SEWER MAINS THAT ARE DEEPER THAN TWELVE (12) FEET.
 - b. FITTINGS ARE NOT PERMITTED ON LATERALS BETWEEN THE WYE AND THE PROPERTY LINE.
 - c. DEEP CUT OR DROP CONNECTIONS SHALL NOT BE PERMITTED.
 - d. A MINIMUM OF ONE (1) LATERAL PER BUILDING SHALL BE REQUIRED. ALSO, A MINIMUM OF ONE (1) LATERAL PER RESIDENTIAL LOT SHALL BE REQUIRED. DUPLEXES SHALL HAVE TWO (2) LATERALS THAT SHALL BE INDEPENDENTLY ATTACHED TO THE MAIN.
 - e. ALL SEWER LATERAL CROSSING WATER MAINS SHALL CONFORM TO THE REQUIREMENTS OF THE TCEQ CHAPTER 317 (DESIGN CRITERIA FOR SEWERAGE SYSTEMS) LATEST REVISION, SDR 26 150 PSI, OR DUCTILE IRON PIPE, CONCRETE ENCASEMENT.
- 24. WHERE REQUIRED CONCRETE ENCASEMENT SHALL BE PLACED FOR FULL WIDTH OF THE TRENCH TO A PLAIN SIX (6) INCHES ABOVE THE TOP OF THE PIPE WITH PAY UNITS AS SHOWN ON THE STANDARD DETAILS SHEET.
- 25. A MINIMUM OF FOUR (4) FEET OF COVER IS TO BE MAINTAINED OVER THE SANITARY SEWER MAIN AND LATERALS AT GRADE, OTHERWISE CONCRETE ENCASEMENT IS REQUIRED.
- 26. WHERE POROUS MATERIAL, INCLUDING "SUBGRADE FILLER" IS USED FOR BACKFILL IN THE BEDDING AND INITIAL BACKFILL ZONES, SEEPAGE RETAINERS ARE REQUIRED AT AN APPROXIMATE OF 180 FEET. RETAINERS SHALL CONSIST OF CLASS "D" CONCRETE ENCASEMENT. THE RETAINERS SHALL EXTEND FROM THE BOTTOM OF THE TRENCH TO THE TOP OF THE GRANULAR MATERIAL FOR THE ENTIRE TRENCH WIDTH. ENCASEMENT SHALL BE 24 INCHES LONG. NO EXTRA PAY ITEM

BLASTING

- 27. WHEN ALLOWABLE, BLASTING SHALL BE PREFORMED IN ACCORDANCE WITH THE ABOVE CRITERIA ESTABLISHED BY THE NATIONAL FIRE PROTECTION ASSOCIATION 312 TAC 313.5(C) (6).
- 28. BLASTING SEWER LINE EXCAVATION MUST BE DONE IN SUCH A MANNER AS TO MINIMIZE THE FRACTURING OF ROCK BEYOND THE REQUIRED EXCAVATION. THE CONTRACTOR SHALL CONSIDER THE ELEVATION OF THE EXISTING SANITARY SEWER MAIN IN RELATION TO THE BLASTING CHARGE AND RELATIVE DIRECTION OF EXISTING AND PROPOSED TRENCHES. BLASTING WITHIN SUCH AREAS SHALL BE ACCOMPLISHED ONLY BY QUALIFIED BLASTING CONTRACTORS WHO HOLD BLASTING LICENSES FROM A QUALIFIED AGENCY SUCH AS THE SAN ANTONIO FIRE DEPARTMENT IN BEXAR COUNTY. ANY DAMAGE TO EXISTING SANITARY SEWERS RESULTING FROM BLASTING SHALL BE REPAIRED AND RESTORED BY THE CONTRACTOR AT HIS OWN EXPENSE.
- 29. NO BLASTING SHALL BE PERFORMED WITHIN 75 FEET OF EXISTING UTILITIES.

TESTING

- 30. ALL SEWER LINES MUST BE TESTED IN ACCORDANCE WITH THE FOLLOWING:
 - A. 317.2(A)(5)(B); DEFLECTION TEST FOR FLEXIBLE AND SEMI-RIGID PIPE CONDUCTED AFTER FINAL BACKFILL AS BEEN IN PLACE AT LEAST 30 DAYS.
 - B. 317.2(A)(4)(A) & (B) OR GVSUD SPECIFICATIONS INFILTRATION AND OR EXFILTRATION AND OR LOW-PRESSURE AIR TEST
 - C. 313.5(C)(10)(C) OR GVSUD SPECIFICATIONS: ALL MANHOLES AND WET WELLS MUST BE TESTED SEPARATELY AND INDEPENDENTLY OF THE COLLECTION LINES.
 - D. IN THE EVENT THAT TESTING REQUIREMENTS CONFLICT, THE LATEST TCEQ DESIGN CRITERIA SHALL BE USED.
- 31. SEWER LINES SHALL BE TESTED FROM MANHOLE TO MANHOLE
- 32. SANITARY SEWER CONNECTIONS MADE DIRECTLY TO EXISTING MANHOLES WHICH REQUIRE PENETRATION INTO MANHOLE WILL BE CORE DRILLED. ANY DAMAGE TO EXISTING MANHOLE WILL BE REPLACED AT CONTRACTORS EXPENSE AND WILL REQUIRE SUCCESSFUL TESTING OF THE EXISTING MANHOLE IN ACCORDANCE WITH THE GVSUD SPECIFICATIONS. HANG A GOLF BALL IN FRONT OF CAMERA, PIPE GRADE IS OUT OF TOLERANCE IF GOLF BALL BECOMES 50% SUBMERGED.
- 33. AFTER CONSTRUCTION, TESTING WILL BE DONE BY PAN/TILT TV CAMERA BY THE CONTRACTOR AND OBSERVED BY INSPECTOR, WASTEWATER ENGINEERING PERSONNEL AND CONTRACTOR AS CAMERA IS RUN THROUGH THE LINES. PAN/TILT ALL 6" SERVICE LATERALS TO 6"X6" STUB-OUT. VIDEOS MUST INCLUDE SUBDIVISION NAME, MANHOLE NUMBER, SERVICE LATERAL STATION NUMBER, FLOW DIRECTION, LOCATION ANY ABNORMALITIES, SUCH AS BROKEN PIPE OR MISALIGNED, JOINT, GRAVEL, DIRT, MUST BE CLEANED OUT, REPLACE AT CONTRACTOR'S EXPENSE. NEW SEWER SYSTEM WILL BE FLOODED WITH H20 BEFORE BEING TV. ALL SEWER LINES MUST BE PRESSURE CLEANED TO INCLUDE SERVICE LATERALS 6" INCH TO STUB-OUT. ALL VIDEOS SHALL BE SUBMITTED IN DVD FORMAT WITH WRITTEN REPORTS.
- 34. A COPY OF ALL TESTING REPORTS INCLUDING BACKFILL COMPACTION TESTS SHALL BE FORWARDED TO GVSUD.
 - A. DENSITY TEST WILL BE REQUIRED ON ALL SANITARY SEWER TRENCHES INCLUDING SERVICE LATERALS. SERVICE LATERALS TO BE CHOSEN RANDOMLY BY FIELD INSPECTOR. DENSITIES ON SERVICE LATERAL SHALL NOT EXCEED 25% OF TOTAL NUMBER OF SERVICES.

EXCAVATION

- 35. CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTORS TRENCH EXCAVATION SAFETY SYSTEMS, PROGRAMS AND/OR PROCEDURES. THE CONTRACTORS IMPLEMENTATION OF THE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLIES WITH AS A MINIMUM OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITHIN OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.
- 36. CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF ALL WASTE MATERIALS UPON PROJECT COMPLETION. THE CONTRACTOR SHALL NOT PERMANENTLY PLACE ANY WASTE MATERIALS IN THE 100 YEAR FLOODPLAIN WITHOUT AN APPROVED FLOODPLAIN PERMIT.
- WATER JETTING THE BACKFILL WITHIN A STREET WILL NOT BE PERMITTED. SANITARY SEWER TRENCHES SUBJECT TO TRAFFIC SHALL CONFORM TO GVSUD SPECIFICATIONS.

WATERLINE CROSSING

38. WHERE THE MINIMUM 9 FOOT SEPARATION DISTANCE BETWEEN SEWER LINES AND WATERLINES CANNOT BE MAINTAINED, THE INSTALLATION OF SEWER LINES SHALL BE IN STRICT ACCORDANCE WITH TCEQ RULES (31 TAC 317.3 APPENDIX E), SDR 26 ASTM 150 PSI OR CONCRETE ENCASEMENT DUCT IRON.

EROSION AND SEDIMENTATION

- 39. THE TCEQ AND THE ENVIRONMENTAL PROTECTION AGENCY (EPA) REQUIRE EROSION AND SEDIMENTATION CONTROL FOR CONSTRUCTION OF SEWER COLLECTION SYSTEMS. DEVELOPER OR AUTHORIZED REPRESENTATIVE SHALL PROVIDE EROSION AND SEDIMENTATION CONTROL AS NOTED ON THE PROJECT PLAN AND PROFILE SHEETS.
- 40. ALL TEMPORARY EROSION AND SEDIMENTATION CONTROLS SHALL BE REMOVED BY THE CONTRACTOR AT FINAL ACCEPTANCE OF THE PROJECT BY GVSUD.

SUPPLEMENTING

- 41. NO EXTRA PAYMENT SHALL BE ALLOWED FOR WORK CALLED FOR ON THE PLANS BUT NOT INCLUDED ON THE BID SCHEDULE. THIS INCIDENTAL WORK WILL BE REQUIRED AND SHALL BE INCLUDED UNDER PAY ITEM 10 WHICH IT RELATES TO.
- 42. UNLESS THE DEVELOPMENT IS PRIVATELY OWNED, THE DEVELOPERS DEDICATES THE SANITARY SEWER MAIN AND MANHOLES TO THE GVSUD. UPON COMPLETION BY THE DEVELOPER AND FINAL ACCEPTANCE BY THE GVSUD. GVSUD WILL OWN AND MAINTAIN THE SANITARY SEWER MAINS AND MANHOLES WHICH ARE LOCATED WITHIN THIS PARTICULAR SUBDIVISION.
- 43. WORK COMPLETED BY CONTRACTOR WHICH HAS NOT RECEIVED A WORK ORDER OR THE CONSENT OF THE GVSUD CONSTRUCTION INSPECTION DIVISION WILL BE SUBJECT TO REMOVAL AND REPLACEMENT BY AND AT THE EXPENSE OF THE CONTRACTOR.
- 44. GVSUD IS NOT TO BE RESPONSIBLE FOR ANY ABNORMALITIES ON STUB-OUT, INVERT, GRADE OR SLOPE FOR ANY EXISTING MANHOLE TIE IN OR SERVICE LATERAL TIE IN.
- 45. ENGINEER, DEVELOPER, AND BUILDER, WILL HAVE PLUMBER AND CONTRACTOR WITH BID PRICE ON NEW INSTALLATION OF ALL 4" INCH SEWER SERVICE LATERALS TO COMPLY WITH TRENCH SAFETY (OSHA) SHORING PROTECTION ON ALL NEW INSTALLATION OF 4" INCH SEWER SERVICE LATERALS. GVSUD WILL NOT BE HELD RESPONSIBLE FOR ANY INJURIES OR DEATH CAUSED BY TRENCH FAILURE OR A WRONG OR DAMAGE DONE TO A PERSON OR TO HIS PROPERTY, OSHA GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.
- 46. ALL 4" INCH SEWER SERVICE LATERALS WILL BE HYDRAULIC TESTED AND OR LOW AIR PRESSURE TESTED. ALL 4" INCH SEWER SERVICE LATERALS WILL BE TELEVISED (TV) FROM 4" INCH CLEAN OUT AT OUTSIDE EACH RESIDENCE TO 6"X6" CLEAN OUT. CONTRACTOR AND PLUMBER WILL SUBMIT REPORTS AND/OR VIDEOS TO GVSUD, WITH THE FOLLOWING INFORMATION: SUBDIVISION NAME, LOT NUMBER, BLOCK

NUMBER, STATION NUMBER, STREET NAME AND ADDRESS OF EACH SEWER SERVICE LATERAL

PLUMBER WILL BE PROVIDED PLAN/PROFILE BY ENGINEER/BUILDER. PLUMBER WILL WORK CLOSELY WITH THE GVSUD INSPECTOR ON DAILY TESTING AND TELEVISION BY MAKING ARRANGEMENTS 48 HOURS IN ADVANCE. SEWER SERVICE LATERALS THAT HAVE NOT BEEN INSPECTED OR APPROVED AND/OR COVERED UP, WILL HAVE TO BE RE-DUG AT CONTRACTOR/PLUMBER EXPENSE AND RE-INSPECTED.

- A. A PROPERTY LINE CLEAN OUT (6"X6") SHALL BE INSTALLED FOR RESIDENTIAL SERVICES. CLEAN OUTS IN THE SIDEWALK OR DRIVEWAY SHALL HAVE A CAST IRON BOOT. CLEAN OUT NOT LOCATED IN A SIDEWALK OR DRIVEWAY SHALL BE LOCATED ON REINFORCED CONCRETE PAD A MINIMUM OF TWELVE (12") INCHES BY TWELVE (12") INCHES BY SIX (6") INCHES THICK. ALL PROPERTY LINE CLEAN OUTS SHALL INCLUDE A LID WITH SEWER IN GREEN COLOR.
- 47. N1 FENCING: ANY AND ALL FENCING, INCLUDING ELECTRIC FENCE, WHETHER OR NOTE IDENTIFIED ON THE PLANS, MUST BE MAINTAINED AT ALL TIMES. ANY AND ALL DAMAGES DIRECTLY ATTRIBUTED TO THE CONTRACTOR MUST BE REPLACED TO EQUAL OR BETTER CONDITIONS AT THE CONTRACTOR'S EXPENSE AND AS APPROVED BY THE PROJECT MANAGER. GAPS IN THE FENCING MUST BE PROVIDED AT ALL LOCATIONS WHERE THE SEWER LINE EASEMENT CROSSES FENCING. FENCING REQUIRED TO MAINTAIN LIVESTOCK MUST BE MAINTAINED AT ALL TIMES.
- 48. N2 DAMAGE TO ADJACENT LAND: THE CONTRACTOR MUST AVOID DAMAGE TO ADJACENT LAND OUTSIDE THE IDENTIFIED CONSTRUCTION LIMITS. ANY AND ALL CLAIMS DIRECTORY ATTRIBUTED TO THE CONTRACTOR RESULTING FROM HIS STRAYING BEYOND THE CONSTRUCTION LIMITS MUST BE SETTLED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER WITH THE APPROPRIATE LANDOWNER.
- 49. N3 PROPERTY OWNER ACCESS: THE CONTRACTOR MUST MAINTAIN ACCESS FOR PRIVATE INDIVIDUALS AT ALL TIMES. IF NORMAL ACCESS IS DAMAGED DURING CONSTRUCTION THE CONTRACTOR MUST REPLACE THE ACCESS TO EQUAL OR BETTER CONDITIONS AT THE CONTRACTOR'S EXPENSE, AS APPROVED BY THE ENGINEER.
- 50. N4 CONTRACTOR IS RESPONSIBLE FOR LOCATION AND PROTECTION ALL UTILITIES WHETHER OR NOT SHOWN ON THE PLANS. SHOULD THE CONTRACTOR DAMAGE ANY UTILITIES THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL COSTS TO REPAIR THE UTILITIES TO THEIR ORIGINAL CONDITION. CONTRACTOR IS SOLELY RESPONSIBLE FOR LOST REVENUE, LOSSES, ETC CLAIMED BY UTILITY COMPANIES DUE TO CONTRACTORS WORK. CONTRACTOR SHALL NOTIFY GVSUD AND IMPACTED UTILITY COMPANIES 48 HRS. PRIOR TO BEGINNING WORK. CONTRACTOR SHALL VERIFY THE LOCATION OF UTILITIES AND REPORT ANY DISCREPANCIES TO THE ENGINEER.
- 51. N5 CLEARING PERMANENT EASEMENTS: THE LIMITS OF BOTH THE EXISTING AND PARALLEL SEWER LINES PERMANENT EASEMENTS, AS DELINEATED IN THESE PLANS, MUST BE CLEARED IN ACCORDANCE WITH THE SPECIFICATION. THE CONTRACTOR MAY BE DIRECTED BY THE ENGINEER TO PROTECT AND AVOID CERTAIN TRESS WITHIN THE LIMITS OF THE PERMANENT CONSTRUCTION EASEMENTS. ALL BRUSH MUST BE REMOVED FROM SITE. NO BRUSH PILES TO REMAIN AFTER CONSTRUCTION. BURNING OF BRUSH OR TRASH WILL NOT BE ACCEPTABLE.
- 52. N7 CONTRACTOR SHALL PROVIDE APPROPRIATE SAFE ACCESS AND BARRICADE WORK AT ALL TIMES TO PROTECT THE PUBLIC. THIS INCLUDES SUBSTANTIAL BARRICADES AROUND ALL TRENCHES, BORE PITS, OPEN EXCAVATIONS, EQUIPMENT, ETC. THE SITE MUST BE LEFT IN SECURE SAFE CONDITION AT NIGHT. IT IS THE CONTRACTORS RESPONSIBILITY TO TAKE NECESSARY PRECAUTIONS TO PROTECT THE PUBLIC THROUGHOUT THE DURATION OF THE PROJECT.
- 53. N14 SHOULD CONTRACTOR SELECT A TRENCH EXCAVATION PROCEDURE THAT EXTENDS THE LIMITS OF SEEDING OR PAVING AND FINAL SITE PREPARATION (I.E. SLOPE BACK PROTECTION SYSTEM) HE WILL BE RESPONSIBLE FOR MEETING PLAN AND SPECIFICATION REQUIREMENTS TO THE NEW LIMITS AT NO ADDITIONAL COST TO GVSUD.
- 54. N16 WARNING: NOTE THAT CERTAIN PORTIONS OF THE PROJECT MAY PARALLEL AND/OR CROSS EXISTING UTILITIES. THE CONTRACTORS WILL BE REQUIRED TO PROTECT EXISTING UTILITIES. ADDITIONAL SUPPORTIVE SHORING MAY BE REQUIRED. IT IS SPECIFICALLY THE CONTRACTORS RESPONSIBILITY TO PROTECT HIS WORKERS, EXISTING UTILITIES, AND FINISHED WORK THROUGHOUT THE JOB.
- 55. N17 OVERHEAD ELECTRIC, CITY PUBLIC SERVICE (CPS) AN APPROPRIATELY SAFE OVERHEAD CLEARANCE MUST BE MAINTAINED BETWEEN ALL EQUIPMENT AND PERSONNEL. THE CONTRACTOR SHALL NOTIFY CITY PUBLIC SERVICE AT 353-2700 AT LEAST 48 HOURS PRIOR TO ANY CONSTRUCTION IN THE VICINITY OF THE CPS OVERHEAD ELECTRIC LINE CONTRACTOR SHALL MAINTAIN CPS RECOMMENDED CLEARANCE REQUIREMENTS.
- 56. N23 BYPASS PUMPING: THE CONTRACTOR IS RESPONSIBLE FOR ALL BYPASS PUMPING REQUIRED TO COMPLETE THE WORK. BYPASS PUMPS SHALL BE ADEQUATE TO HANDLE PEAK FLOW EVENTS DURING STORM EVENTS. CONTRACTOR SHALL HAVE STANDBY PUMPS AVAILABLE TO BYPASS FLOW IN CASE PRIMARY PUMP FAILS. CONTRACTOR WILL BE SOLELY RESPONSIBLE FOR ALL COSTS FOR CLEANUP OF AN
- UNAUTHORIZED DISCHARGE AND ANY ASSOCIATED FINES.

 57. N26 CONTRACTOR SHALL BACKFILL ALL OPEN TRENCHES AT THE END OF THE DAY. CONTRACTOR SHALL NO INSTALL MORE PIPE THAN CAN BE COVERED. NO OPEN TRENCHES WILL BE PERMITTED OVERNIGHT ALL END OF OPEN PIPE WILL BE PLUGGED OVERNIGHT.
- 58. N33 THE PROJECT AREA MAY BE SUBJECT TO ARCHEOLOGICAL MONITORING, SHOULD THE CONTRACTOR ENCOUNTER ANY ARCHEOLOGICAL DEPOSITS DURING CONSTRUCTION OPERATIONS, THE CONTRACTOR SHALL STOP ALL WORK IN THE AREA OF THE DEPOSITS AND IMMEDIATELY CALL THE PROJECT MANAGER.
- 59. N37 CONTRACTOR TO NOTE THAT PORTIONS OF THE CONSTRUCTION ARE WITHIN THE LIMITS OF THE 100 YEAR FLOODPLAIN. THE CONTRACTOR IS REQUIRED TO KEEP THE CHANNEL CLEAR OF POTENTIAL OBSTRUCTIONS TO FLOOD FLOWS. POTENTIAL OBSTRUCTIONS INCLUDE HEAVY CONSTRUCTION EQUIPMENT, TEMPORARY ROADS ACROSS CHANNEL, EXCAVATED MATERIAL, STOCKPILED DEBRIS, ETC. UNDER THREATENING WEATHER CONDITIONS WHERE FLOODING IS LIKELY, OBSTRUCTIONS SHALL BE IMMEDIATELY REMOVED BY THE CONTRACTOR AT NO ADDITIONAL COST TO GVSUD. THE CONTRACTOR ASSUMES ALL RISK FOR UNFINISHED WORK.

GREEN VALLEY SPECIAL UTILITY DISTRICT
STANDARD DETAILS

GREEN VALLEY SPECIAL UTILITY DISTRICT
STANDARD DETAILS

SANITARY SEWER SYSTEM
GENERAL NOTES (2 OF 2)

THE ARCHITECT/ENGINEER ASSUMES
RESPONSIBILITY FOR APPROPRIATE
USE OF THIS STANDARD.

G-2

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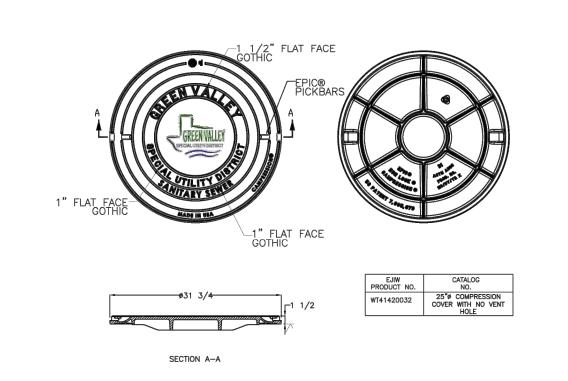
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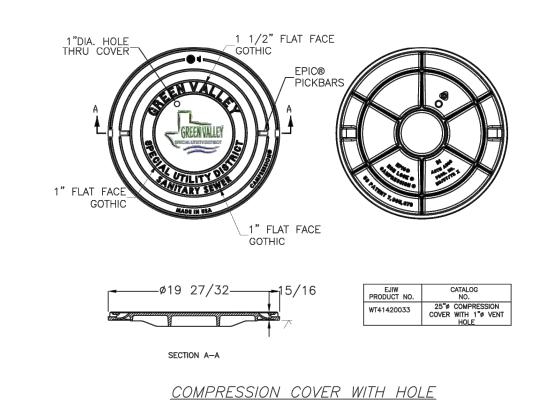
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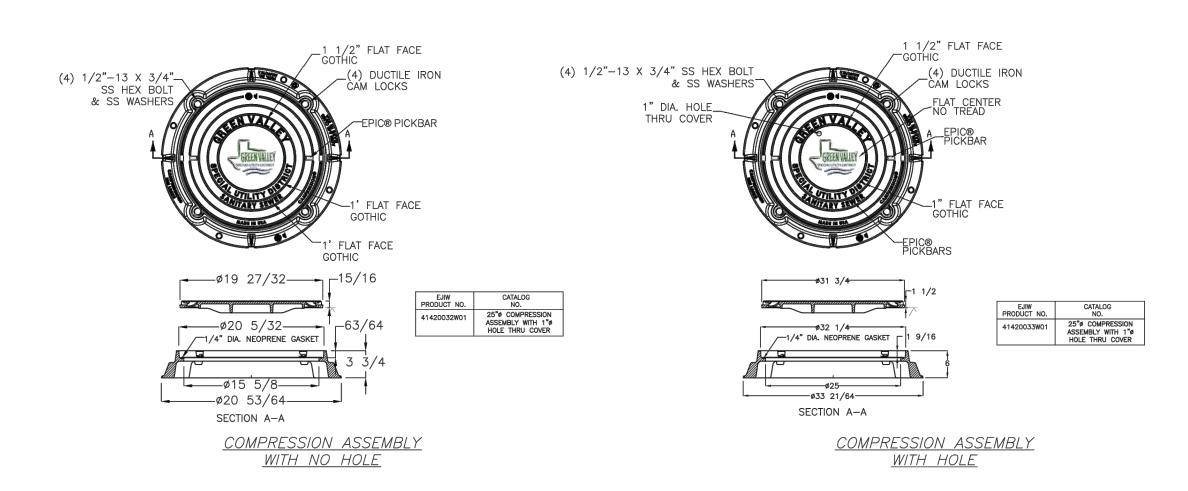
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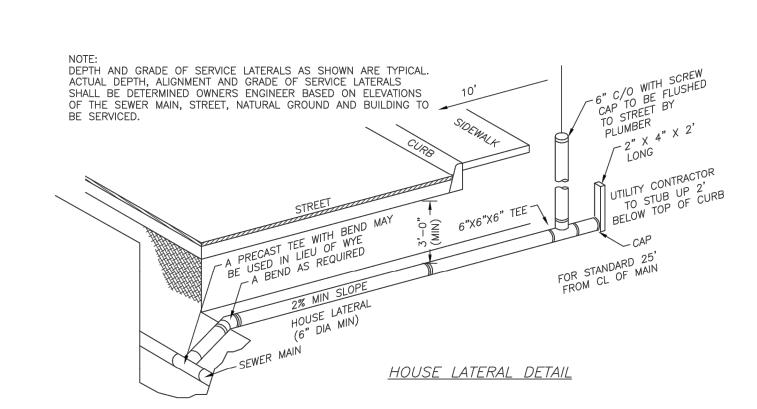
NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION

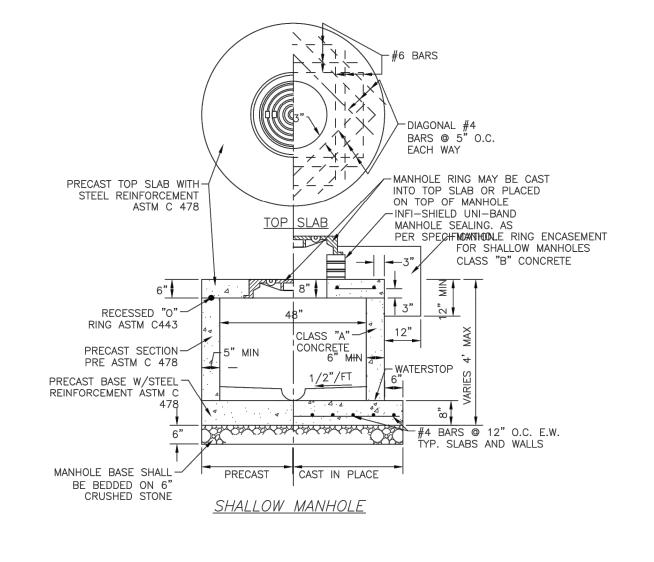


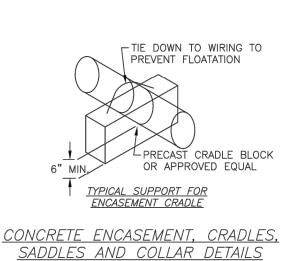
COMPRESSION COVER WITH NO HOLE

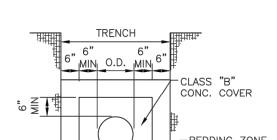












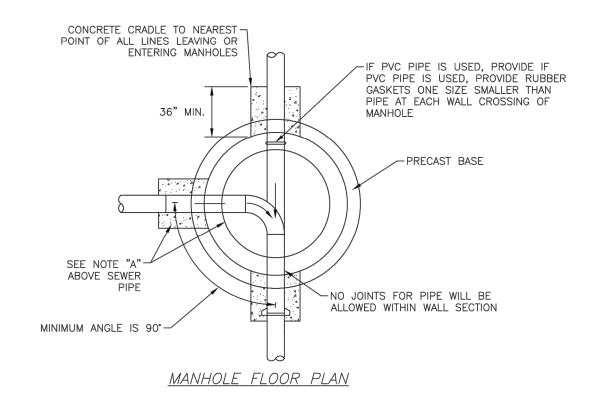
BEDDING ZONE

CONCRETE COVER FOR FLEXIBLE BASE

TO BE USED WHEREVER TRENCH WIDTH

IS GREATER THAN 2' PLUS O.D.

STREET		/	
3'-0"		DESCRIPTION	PART NO.
H406 H406	_ [45° BEND SXG	H406
2% MIN. SLOPE	3 [DEEP SOCKET 45° BEND	H5066
H5066 —		CONTROLLED	L6306
SDR26	-	SETTLEMENT JOINT GAS 45° BEND GXG	H506
CUT TO	ŀ	VERTICAL RISER	H986
LENGTH PEG TO WALL OF		ADAPTER SXS	
TRENCH AT EACH JOINT	L	45° BEND GXGXG	H308-6
H986A H406 H506 H506 CONC. ENCASEMENT AS PER ITEM NO. 407 BLOCK	6" MI	6	-6" MIN ▼ MIN ↑
NECES <u>TYPICAL STACK DETAIL</u> CONCRE	SSARY	WITH SECTION 4 4	



SANITARY SEWER GENERAL NOTES

ALL NEW EXISTING SANITARY SEWER MAINS AND MANHOLES IN THIS PROJECT ARE TO REMAIN ACTIVE AND SHALL BE PROTECTED BY THE CONTRACTOR. ALL LINES AND MANHOLES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED OR RECONSTRUCTED BY THE CONTRACTOR AT NO ADDITIONAL COST. NOTIFY GVSUD'S UTILITY INSPECTORS AT (210)372—2223 PRIOR TO ENCASING.

THE EXISTING CONDITIONS OF SEWER MAINS AND MANHOLES HAVE BEEN DOCUMENTED BY GVSUD. A PRE—PRECONSTRUCTION VIDEO OF THE LINES AND PHYSICAL SURVEY OF THE MANHOLES WILL BE USED TO DETERMINE THE PRE—EXISTING CONDITION OF THE SEWER SYSTEM. IF POST CONSTRUCTION INSPECTION WORK SHOWS PORTIONS OF SANITARY SEWER MAINS OR MANHOLES DAMAGED BY THE CONTRACTOR, THE CONTRACTOR SHALL REPAIR OR REPLACE THE SEWER MAIN AT THEIR EXPENSE, TO THE APPROVAL OF GVSUD'S INSPECTORS OR ENGINEER.

GDEENVALLEY	GREEN VALLEY SPECIAL UTILITY DISTRICT STANDARD DETAILS		SANITARY SEWER SYSTEM STANDARD DETAILS (2 OF 2)	
SPECIAL UTILITY DISTRICT	REVISED:		THE ARCHITECT/ENGINEER ASSUMES	DETAIL NO.
		OCTOBER 2021	RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	S-2

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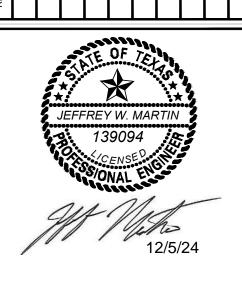
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FOR
CLEARWATER CREEK
PHASE 5
PLAT# 24-11800362

BEXAR COUNTY TEXAS

Colliers

Engineering
& Design

SAN ANTONIO (KFW)

3421 Paesanos
Parkway
San Antonio, TX 78231
Phone: 210.979.8444

COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

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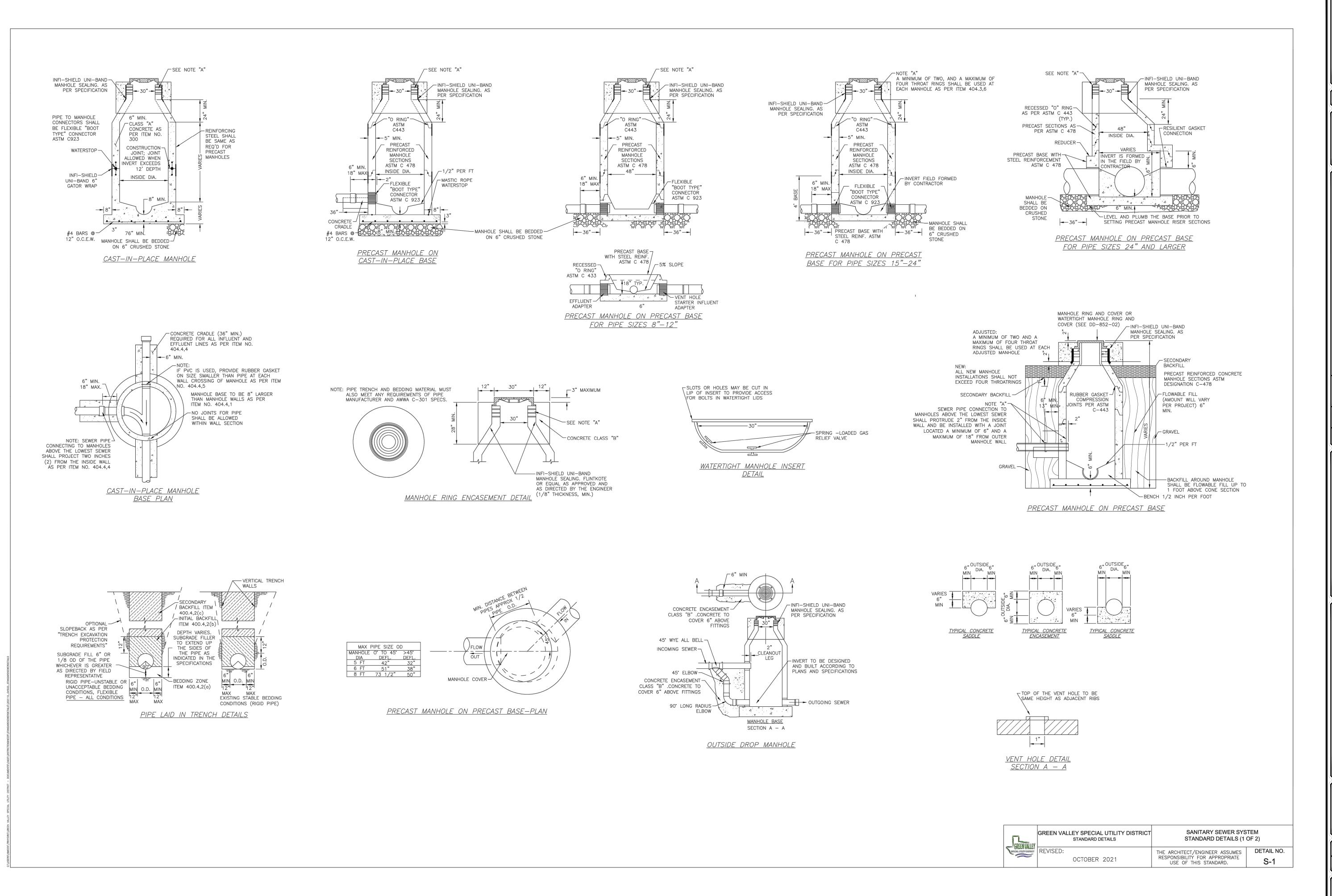
 AS SHOWN
 JUNE 2024
 SJ
 BL

 PROJECT NUMBER:
 DRAWING NAME:
 314-61-04
 SSMP3146104

SANITARY SEWER DETAILS (1 OF 2)

HEET NUMBER:

6.9



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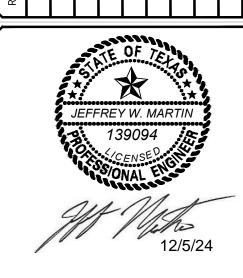
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FOR
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PHASE 5
PLAT# 24-11800362

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COLLIERS ENGINEERING & DESIGN, INC
TBPE Firm#: F-14909
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 CALE:
 DATE:
 DRAWN BY:
 CHECK

 AS SHOWN
 JUNE 2024
 SJ
 E

 ROJECT NUMBER:
 DRAWING NAME:
 314-61-04
 SSMP3146104

SANITARY SEWER DETAILS (2 OF 2)

HEET NUMBER:

6.10

CLEARWATER CREEK PHASE 5

BEXAR COUNTY, TEXAS WATER IMPROVEMENTS

LOCATION MAP

N.T.S.

OWNER/DEVELOPER:
LENNAR HOMES OF TEXAS LAND &
CONSTRUCTION, LTD.
100 NE LOOP 410, SUITE 1155
SAN ANTONIO, TEXAS 78216
PHONE: (210) 403-6282

SA KOSTA BROWNE LTD & FAIR OAKS MOSAIC 6812 WEST AVE STE 100 SAN ANTONIO, TX 78213-1855 PHONE: (726) 223-4825

INDEX

114027	
DESCRIPTION	SHEET NO
WATER DISTRIBUTION COVER SHEET	7.0
OVERALL WATER DISTRIBUTION PLAN (1 OF 2)	
OVERALL WATER DISTRIBUTION PLAN (2 OF 2)	7.2
TYPICAL WATER NOTES & DETAILS (1 OF 2)	7.3
TYPICAL WATER NOTES & DETAILS (2 OF 2)	7.4

DESCRIPTION

TRENCH EXCAVATION PROTECTION

HYDROSTATIC TESTING

MACHINE CHLORINATION

8" GATE VALVE & BOXES, M.J.

1" SHORT DUAL SERVICE W/ 5/8" METERS

LONG DUAL SERVICE W/ 5/8" METERS

3/4" SHORT SINGLE SERVICE W/ 5/8" METER

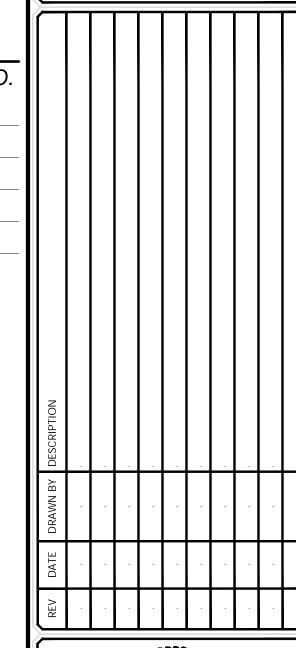
3/4" LONG SINGLE SERVICE W/ 5/8" METER

3/4" IRRIGATION SERVICE W/ 3/4" METER

8" C-909 PVC PIPE

8" WATER TIE IN

CAST IRON METER BOXES



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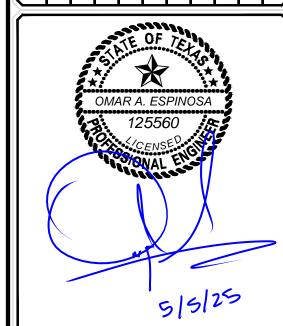
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FOR
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PHASE 5
PLAT# 24-11800362

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E: DATE: DRAWN BY: CHECKED BY
SHOWN JUNE 2024 SJ BL

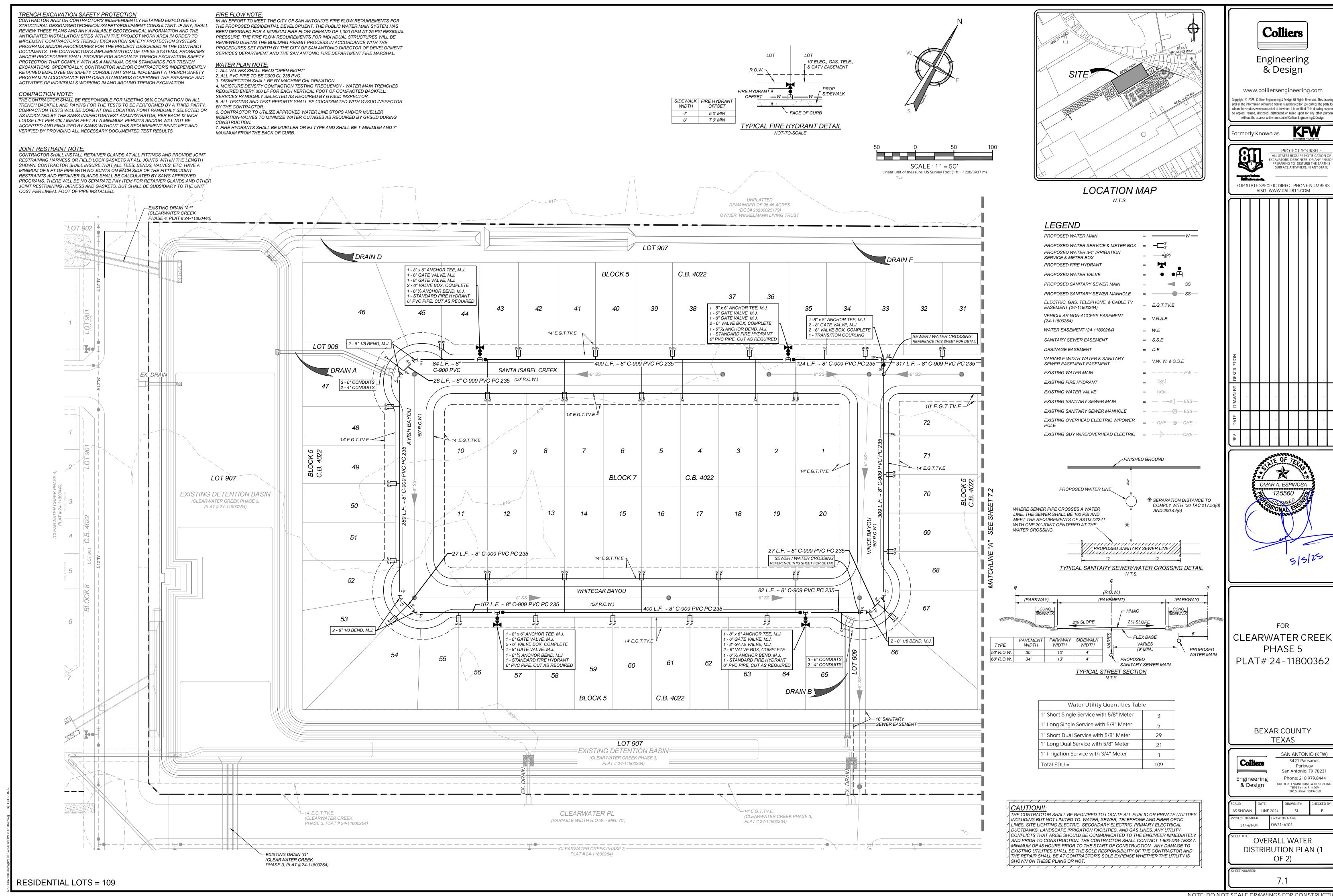
JECT NUMBER: DRAWING NAME:
314-61-04 CVOW3146104

WATER
DISTRIBUTION
COVER SHEET

7.0

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION

	N W
ABBOTT ROAD	BEXAR BOWLING WAY
SITE	PLACKSMITH WENGER
	REAL ROCK RD



TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR 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.

COMPACTION NOTE:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING 98% COMPACTION ON ALL TRENCH BACKFILL AND PAYING FOR THE TESTS TO BE PERFORMED BY A THIRD PARTY. COMPACTION TESTS WILL BE DONE AT ONE LOCATION POINT RANDOMLY SELECTED OR AS INDICATED BY THE SAWS INSPECTOR/TEST ADMINISTRATOR, PER EACH 12 INCH LOOSE LIFT PER 400 LINEAR FEET AT A MINIMUM. PERMITS AND/OR WILL NOT BE ACCEPTED AND FINALIZED BY SAWS WITHOUT THIS REQUIREMENT BEING MET AND VERIFIED BY PROVIDING ALL NECESSARY DOCUMENTED TEST RESULTS.

JOINT RESTRAINT NOTE:

CONTRACTOR SHALL INSTALL RETAINER GLANDS AT ALL FITTINGS AND PROVIDE JOINT RESTRAINING HARNESS 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 GLANDS SHALL BE CALCULATED BY SAWS APPROVED PROGRAMS. THERE WILL BE NO SEPARATE PAY ITEM FOR RETAINER GLANDS AND OTHER JOINT RESTRAINING HARNESS AND GASKETS, BUT SHALL BE SUBSIDIARY TO THE UNIT COST PER LINEAL FOOT OF PIPE INSTALLED.

FIRE FLOW NOTE

IN AN EFFORT TO MEET THE CITY OF SAN ANTONIO'S FIRE FLOW REQUIREMENTS FOR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL THE PROPOSED RESIDENTIAL DEVELOPMENT, THE PUBLIC WATER MAIN SYSTEM HAS BEEN DESIGNED FOR A MINIMUM FIRE FLOW DEMAND OF 1,000 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.

1. ALL VALVES SHALL READ "OPEN RIGHT" 2. ALL PVC PIPE TO BE C909 CL 235 PVC.

- 3. DISINFECTION SHALL BE BY MACHINE CHLORINATION
- 4. MOISTURE DENSITY COMPACTION TESTING FREQUENCY WATER MAIN TRENCHES REQUIRED EVERY 300 LF FOR EACH VERTICAL FOOT OF COMPACTED BACKFILL. SERVICES RANDOMLY SELECTED AS REQUIRED BY GVSUD INSPECTOR. 5. ALL TESTING AND TEST REPORTS SHALL BE COORDINATED WITH GVSUD INSPECTOR BY THE CONTRACTOR.
- 6. CONTRACTOR TO UTILIZE APPROVED WATER LINE STOPS AND/OR MUELLER INSERTION-VALVES TO MINIMIZE WATER OUTAGES AS REQUIRED BY GVSUD DURING
- 7. FIRE HYDRANTS SHALL BE MUELLER OR EJ TYPE AND SHALL BE 1' MINIMUM AND 7' MAXIMUM FROM THE BACK OF CURB.

LOT 906

LOT 907

- 8" x 6" ANCHOR TEE, M.J. - 6" GATE VALVE, M.J.

- STANDARD FIRE HYDRANT

6" PVC PIPE, CUT AS REQUIRED

- TRANSITION COUPLING

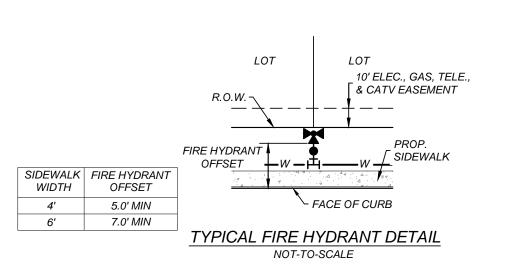
DRAIN C

EXISTING DETENTION BASIN

PLAT # 24-11800264)

(CLEARWATER CREEK PHASE 3,

- 8" GATE VALVE, M.J. - 6" VALVE BOX, COMPLETE - 6" ¼ ANCHOR BEND, M.J.



DRAIN F

2 - 8" 1/8 BEND, M.J.

19

1 - 8" x 6" ANCHOR TEE, M.J.

1 - 6" GATE VALVE, M.J.

1 - 8" GATE VALVE, M.J. 2 - 6" VALVE BOX, COMPLETE

17

15

2 - 8" 1/32 BEND, M.J.

←80 L.F. ~ 8" C-909 PVC PC 235

1 -8" x 8" ANCHOR TEE, M.J. 2 - 8" GATE VALVE, M.J. 2 - 6" VALVE BOX, COMPLETE - TRANSITION COUPLING

10

- IRRIGATION SERVICE

LANDSCAPE EASEMENT

¹ 14′ E.G.T.TV.E.

(CLEARWATER CREEK PHASE 1A.

PLAT # 20-11800491)

WITH 3/4" METER

1' V.N.A.E &

🕪 ●− *── EX.* 12"W 🥕

(FOR PRIVATE USE)

2 - 4" CONDUITS

14' E.G.T.TV.E

1 - 6" ¼ ANCHOR BEND, M.J. 1 - STANDARD FIRE HYDRANT 6" PVC PIPE, CUT AS REQUIRED

UNPLATTED REMAINDER OF 95.46 ACRES (DOC# 20200025179) OWNER: WINKELMANN LIVING TRUS

BLOCK 5

1 - 8" x 6" ANCHOR TEE, M.J.

- 6" VALVE BOX, COMPLETE

- $6"\frac{1}{4}$ ANCHOR BEND, M.J.

- STANDARD FIRE HYDRANT

6" PVC PIPE, CUT AS REQUIRED

14' E.G.T.TV.E

11

∠-25 L.F. ~ 8" C-909 PVC PC 235

CEDAR BAYOU

315 L.F. ~ 8" C-909 PVC PC 235-

CONTRACTOR TO REMOVE EXISTING

CHLORINATION AND ACCEPTANCE BY

- 2" BLOWOFF (TEMP.) ASSEMBLY

 $2 - 1.1 \frac{1}{4}$ " THD. SOLID CAPS, THR.

CONNECTION TO LOAD NEW MAIN

- 1" CORPORATION STOP, C.C. x I.P.

2 - 1" COPPER TUBING, CUT AS REQUIRED

- 1" COMP. x 1 1/4" COUPLING, CURB STOP

CONTRACTOR SHALL PROVIDE A 2" JUMPER

EXISTING 8" WATER MAIN AFTER

1 - 8" SOLID SLEEVE, MJ

BLOWOFF AND TIE NEW 8" WATER MAIN TO

GREEN VALLEY SPECIAL UTILITY DISTRICT. 👖

INSTALL FOR CHLORINATION INJECTION

(50' R.O.W.)

14' E.G.T.TV.E

LOT 907

83

BLOCK 5

C.B. 4022

- 6" GATE VALVE, M.J.

- 8" GATE VALVE, M.J.

-24 L.F. ~ 8" C-909 PVC PC 235

29

1 -8" x 8" ANCHOR TEE, M.J.

2 - 6" VALVE BOX, COMPLETE

- TRANSITION COUPLING

2 - 8" GATE VALVE. M.J.

SEWER / WATER CROSSING REFERENCE THIS SHEET FOR DETAIL

3 - 6" CONDUITS

2 - 4" CONDUITS

├ 317 L.F. ~ 8" C-909 PVC PC 235 ⁻

^{V_} 10' E.G.T.TV.E

74

77

51 L.F. ~ 8" C-909 PVC PC 235**-**

3 - 6" CONDUITS

2 - 4" CONDUITS

2 - 8" 1/8 BEND, M.J.

-14' E.G.T.TV.E.

PLAT # 24-11800264)

(CLEARWATER CREEK PHASE 3,

LANDSCAPE EASEMENT

EXISTING DRAIN "D" -

(CLEARWATER CREEK

PHASE 3, PLAT # 24-11800264)

(CLEARWATER CREEK PHASE 3,-

PLAT # 24-11800264)

14' E.G.T.TV.E —

SANTA ISABEL CREEK

(50' R.O.W.)

28

-LOT 907

C.B. 4022

25

14' E.G.T.TV.E ¬\

⁻285 L.F. ~ 8" C-909 PVC PC 235⁻

14' E.G.T.TV.E 27 L.F. ~ 8" C-909 PVC PC 235-

24

23

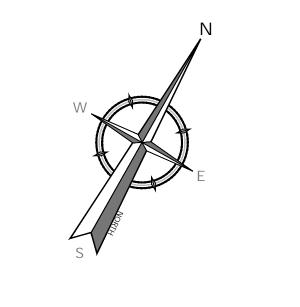
14' E.G.T.TV.E —

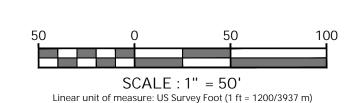
24 L.F. ~ 8" C-909 PVC PC 235—

SEWER / WATER CROSSING

REFERENCE THIS SHEET FOR DETAIL

10' E.G.T.TV.E





UNPLATTED

1.5 ACRES

(VOL. 3154 PG. 1641 O.P.R.)

OWNER: BIELKE EUGENE H & SHERRY L

UNPLATTED

1.15 ACRES (DOCUMENT NUMBER 20210018781 O.P.R.)

OWNER: RENSHAW ELLIOTT & KELSEY

LOT 902 -

EX. DRAIN

BLOCK 5

_EXISTING 14' E.G.T.TV.E

(CLEARWATER CREEK

∟EXISTING 1' V.N.A.E

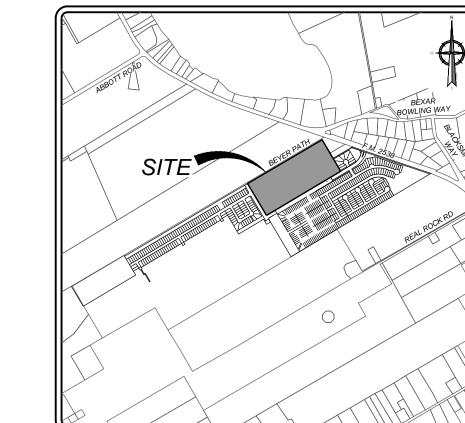
24-11800030)

(CLEARWATER CREEK

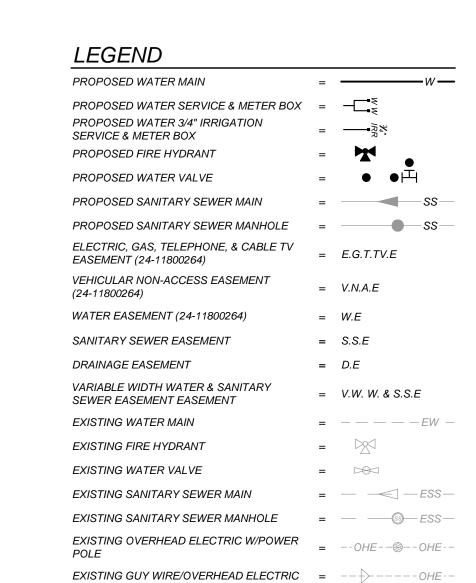
PHASE 2 & 9, PLAT#

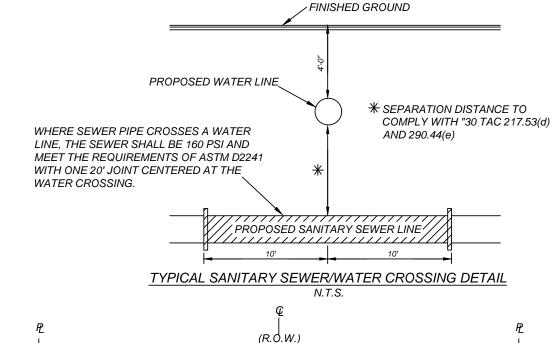
PHASE 2 & 9, PLAT#

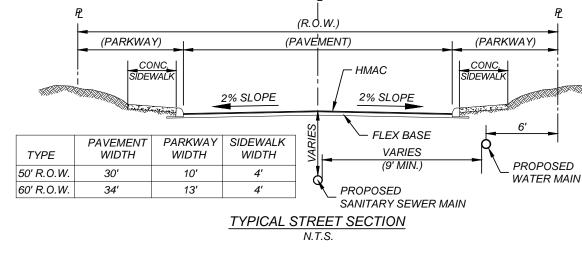
24-11800030)



LOCATION MAP



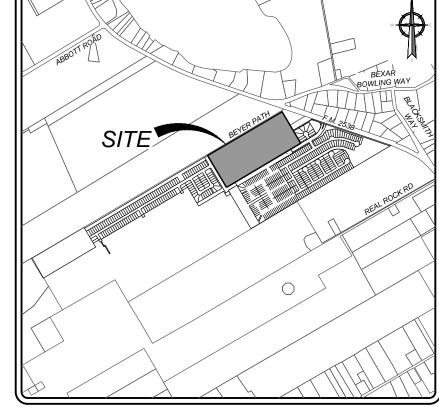


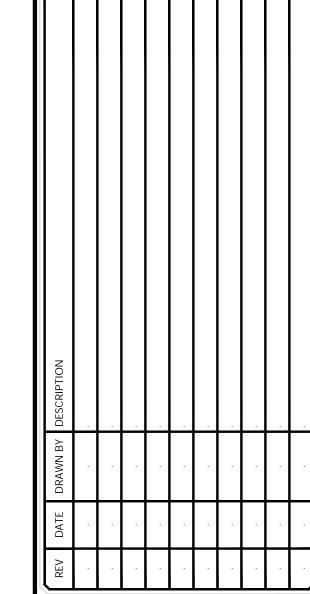


Water Utility Quantities Tab	le
1" Short Single Service with 5/8" Meter	3
1" Long Single Service with 5/8" Meter	5
1" Short Dual Service with 5/8" Meter	29
1" Long Dual Service with 5/8" Meter	21
1" Irrigation Service with 3/4" Meter	1
Total EDU =	109

THE CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITED 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.





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Formerly Known as



CLEARWATER CREEK PHASE 5 PLAT# 24-11800362

> **BEXAR COUNTY** TEXAS

SAN ANTONIO (KFW) Engineering & Design

AS SHOWN

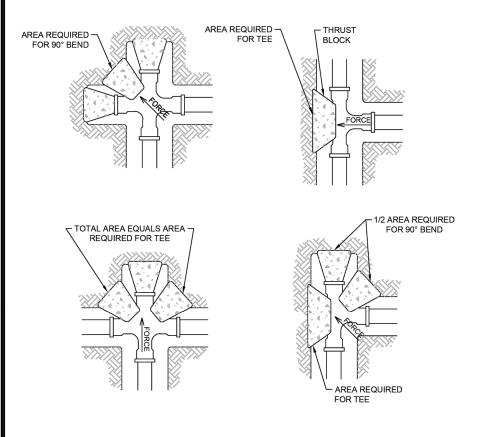
3421 Paesanos San Antonio, TX 78231 Phone: 210.979.8444 COLLIERS ENGINEERING & DESIGN, INC TBPLS Firm#: 10194550

AWING NAME DW3146104 314-61-04 OVERALL WATER

DISTRIBUTION PLAN (2 OF 2

RESIDENTIAL LOTS = 109

JUNE 2024



MINIMUM THRUST BLOCK AREA REQUIRED (Y AND W)				SE: TABLE IS BASED ON SOILS WITH A MINIMUM BEARING CAPACITY
	WATER	PIPE		,000 PSF. IF CONDITIONS ARE FOUND TO INDICATE SOIL BEARIN ESS, THE AREAS SHALL BE INCREASED ACCORDINGLY.
PIPE SIZE	TEE, DEAD END,	45° AND 22.5°	2. A	AREAS FOR PIPE LARGER THAN 18 INCHES SHALL BE RESTRAINE
	90° BEND	BENDS		THRUST BLOCKS SHALL EXTEND TO UNDISTURBED GROUND.
4" & LESS	3 SQ. FEET	3 SQ. FEET		CONCRETE SHALL BE CLASS "C" (MIN. 2,500 PSI).
6"	4 SQ. FEET	3 SQ. FEET		ITTINGS SHALL BE DUCTILE IRON MECHANICAL JOINT WITH A MINIMUM PRESSURE RATING OF 250 PSI AND SHALL CONFORM TO
8"	6 SQ. FEET	3 SQ. FEET	T	THE REQUIREMENTS OF ANSI/AWWA A21.10/C110 OR A21.53/C153
10"	9 SQ. FEET	5 SQ. FEET		
12"	13 SQ. FEET	7 SQ. FEET		
16"	23 SQ. FEET	12 SQ. FEET		
18"	29 SQ. FEET	15 SQ. FEET		

GREEN VALLEY	GREEN VALLEY SPECIAL UTILITY DISTRICT STANDARD DETAILS	CONCRETE THRUST BLOCKING (1 OF 2)		
SPECIAL UTILITY DISTRICT	REVISED: JANUARY 2024	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	DETAIL NO. W-4	

GROUND ELEVATION

RESTRAIN JOINTS

5' (TYP., BOTH SIDES)

4' TYP.

COVER

PVC PIPE -/

DUCTILE IRON -

NOTES:

- GREEN VALLEY

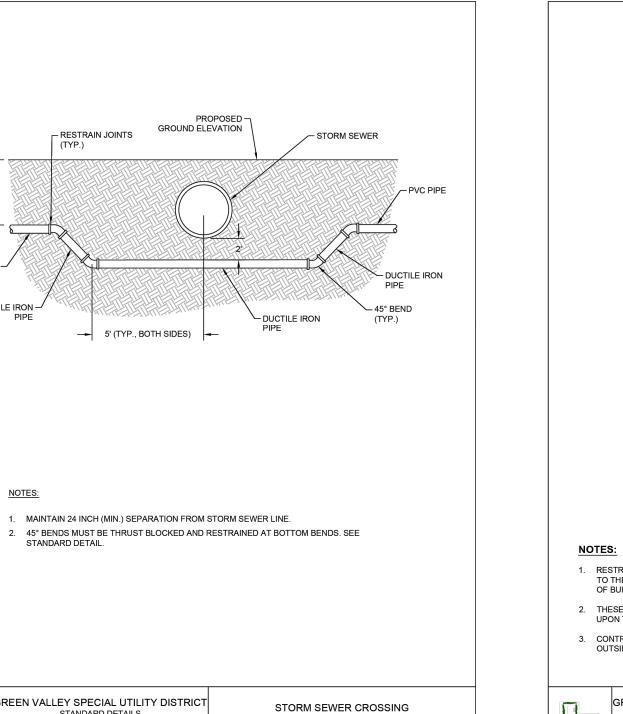
PECIAL UTILITY DISTRICT

STANDARD DETAIL.

GREEN VALLEY SPECIAL UTILITY DISTRICT

STANDARD DETAILS

JANUARY 2024

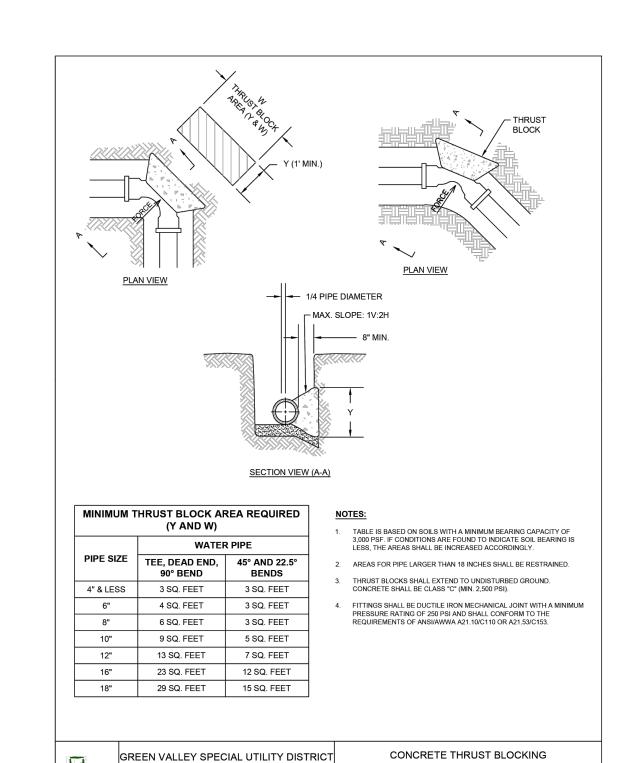


DETAIL NO.

W-17

THE ARCHITECT/ENGINEER ASSUMES

RESPONSIBILITY FOR APPROPRIATE
USE OF THIS STANDARD.



(2 OF 2)

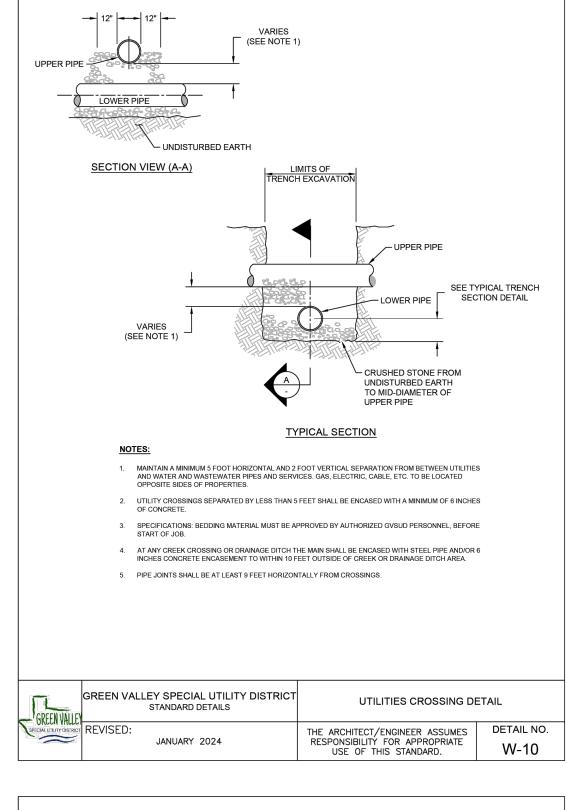
DETAIL NO.

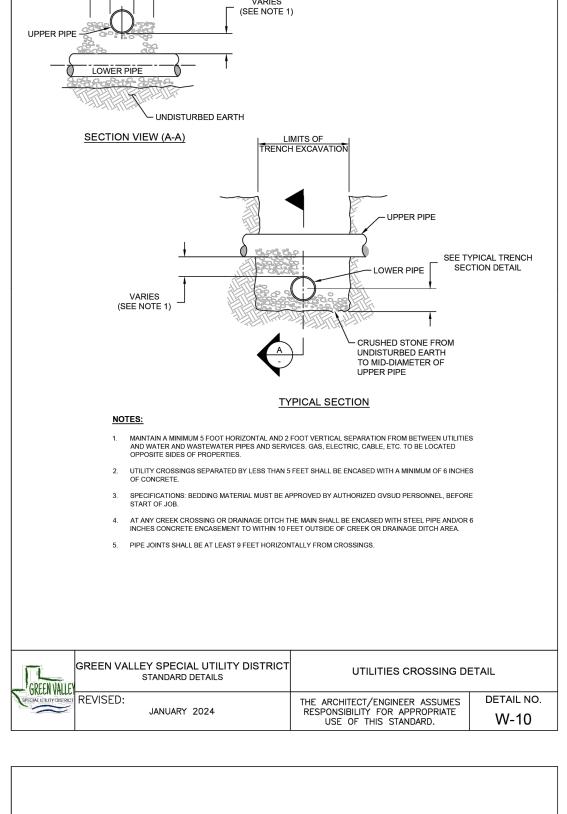
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE

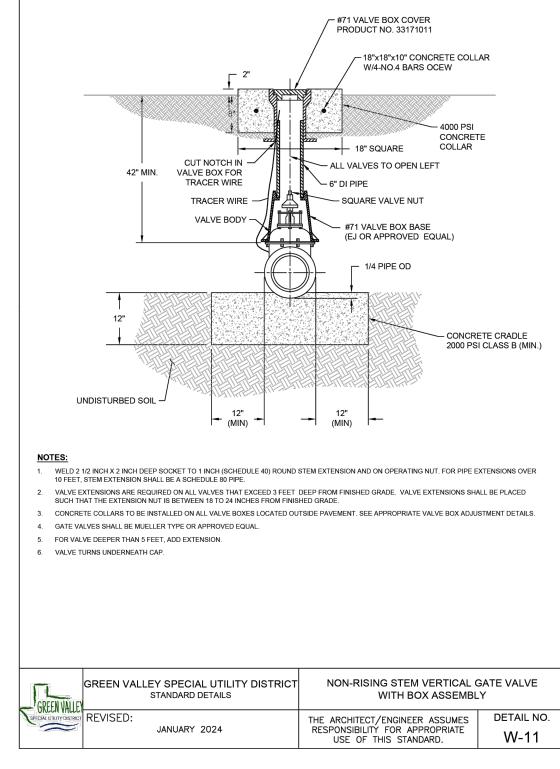
STANDARD DETAILS

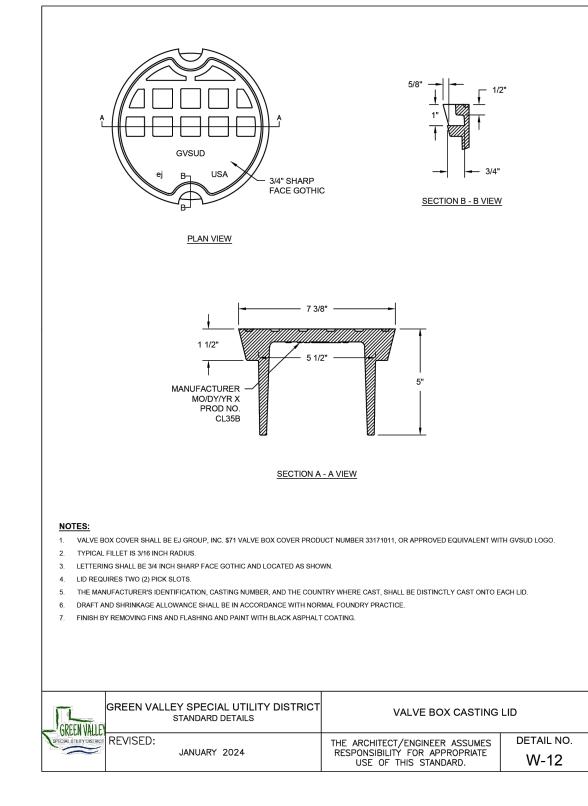
JANUARY 2024

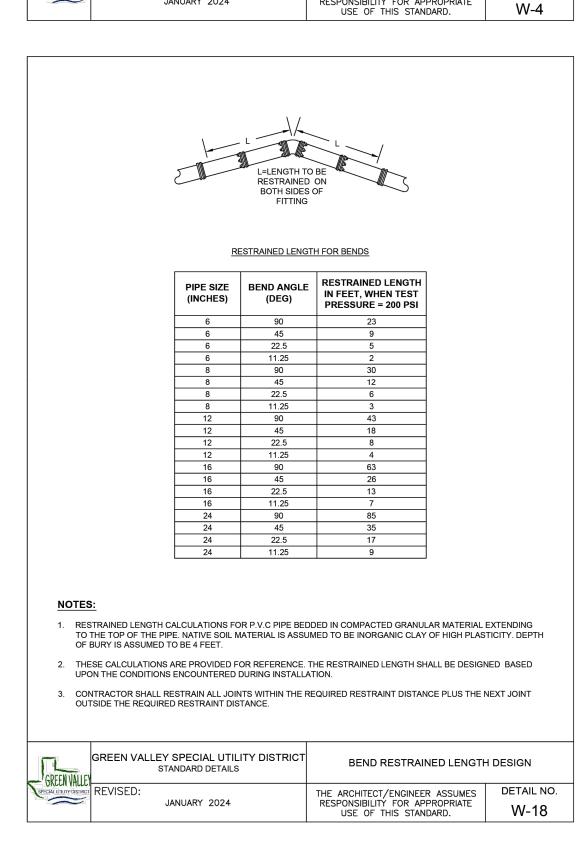
GREEN VALLEY

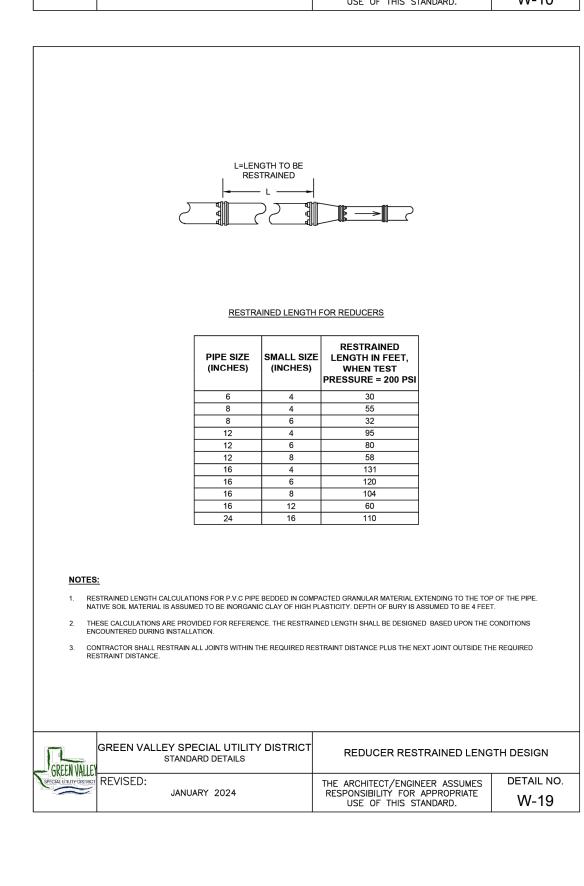


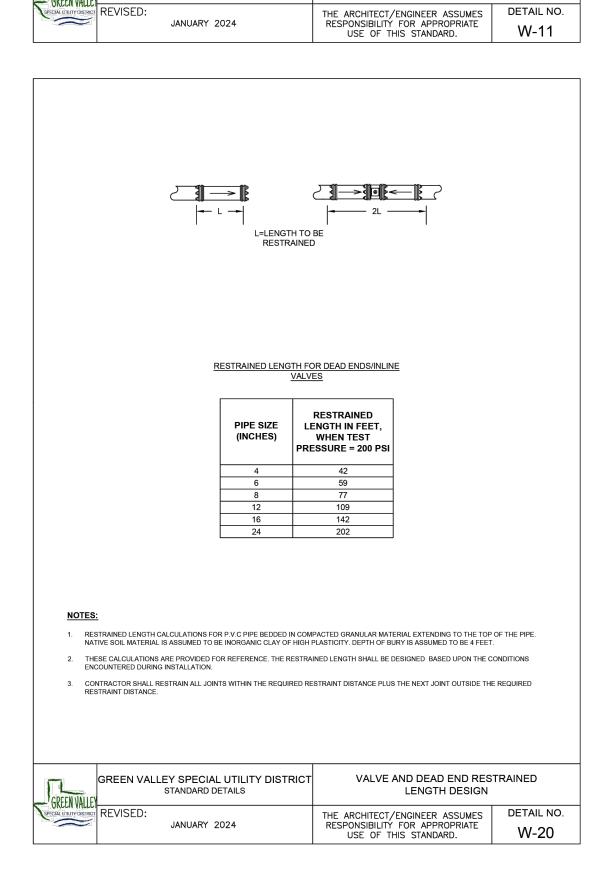


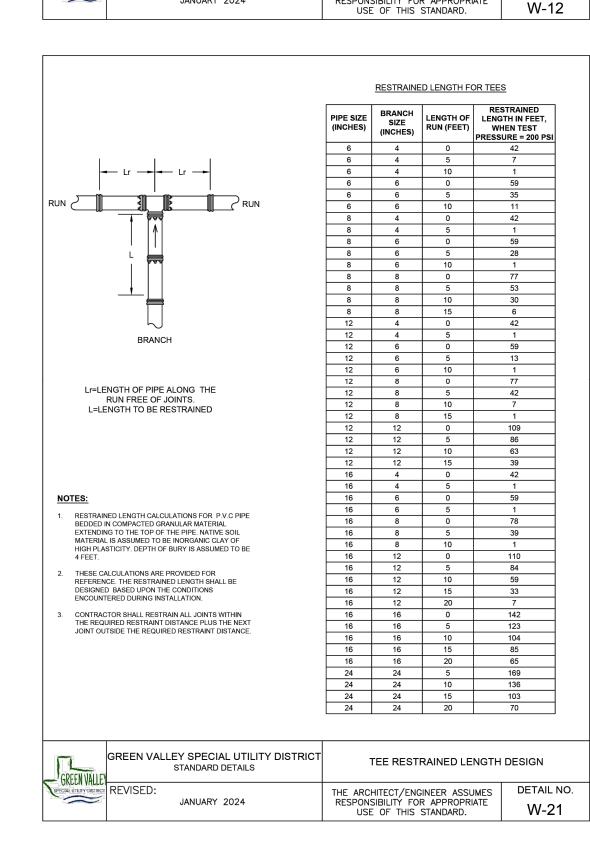


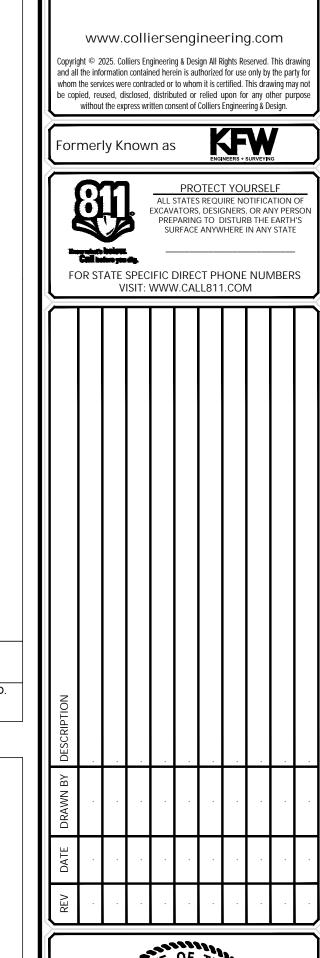












Colliers

Engineering & Design

FOR **CLEARWATER CREEK** PHASE 5 PLAT# 24-11800362

OMAR A. ESPINOSA

BEXAR COUNTY TEXAS



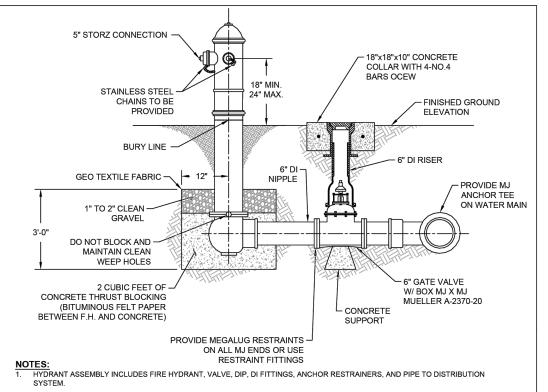
SAN ANTONIO (KFW) 3421 Paesanos San Antonio, TX 78231 Phone: 210.979.8444 COLLIERS ENGINEERING & DESIGN, INC TBPE Firm#: F-14909 TBPLS Firm#: 10194550

AS SHOWN JUNE 2024 RAWING NAME: WDET3146104 314-61-04

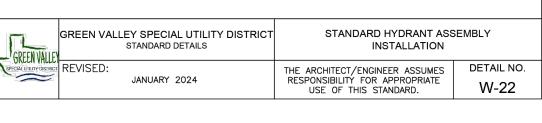
TYPICAL WATER NOTES & DETAILS (1 OF 2)

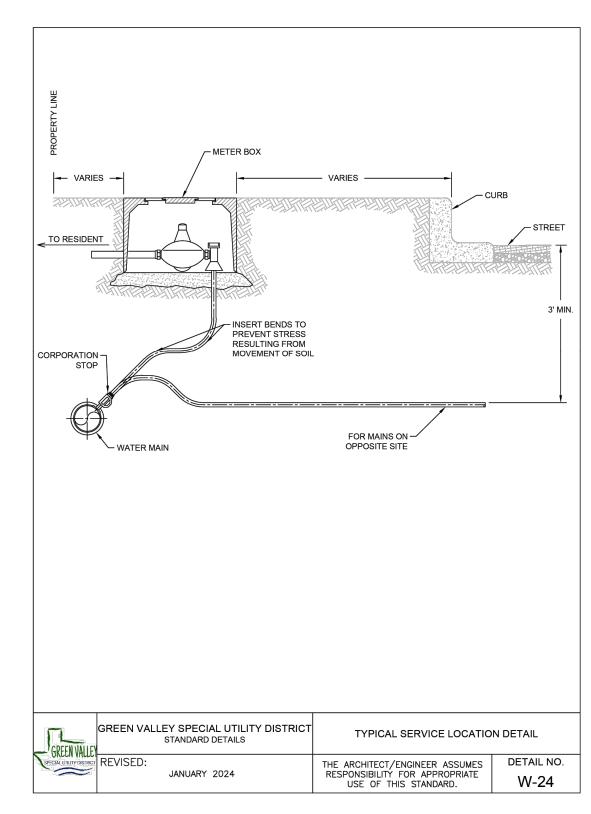
RESIDENTIAL LOTS = 109

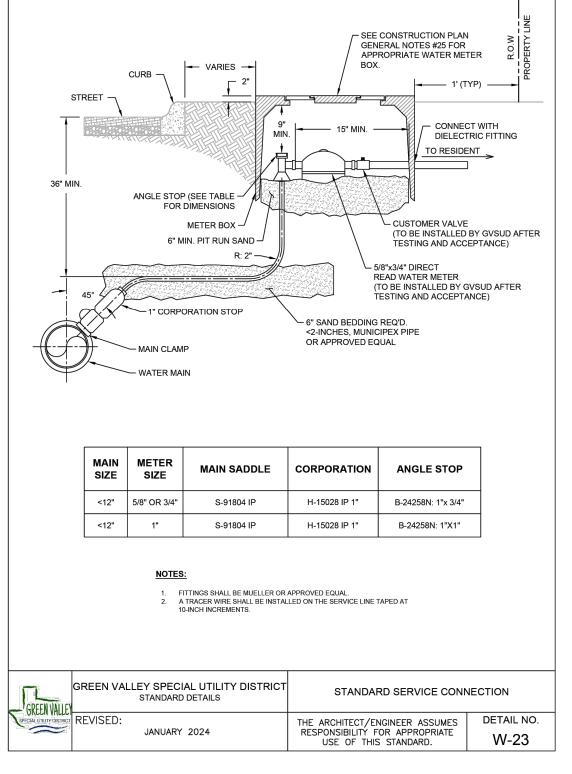
NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.



- 2. FIRE HYDRANTS SHALL HAVE A MINIMUM OF 3 FEET OF CLEARANCE SURROUNDING HYDRANT.
- HYDRANTS SHALL BE A MINIMUM DISTANCE OF 3 FEET BEHIND THE CURB OR 3 FEET FROM THE R.O.W. UNDER NO CIRCUMSTANCES RANTS BE PLACED IN A CURB OR SIDEWALK. IN AREAS WITHOUT CURBS OR SIDEWALKS, HYDRANT SHALL BE PLACED 3-6 FEET FROM THE DISTRIBUTION SYSTEM.
- 4. FOR BURY DEPTHS GREATER THAN 5 FEET, ONE BARREL EXTENSION NOT EXCEEDING 3 FEET IN LENGTH SHALL BE INSTALLED
- 5. 1 CU FOOT (MIN) OF CRUSHED STONE OR GRAVEL SHALL BE PLACED AROUND WEEP HOLE FOR A RADIUS OF 12 INCHES AND EXTEND 12 INCHES ABOVE THE OUTLET. 6. VALVE, DUCTILE IRON PIPE, AND STANDARD FIRE HYDRANT SYSTEM SHALL BE RESTRAINT JOINT CONTINUOUSLY TOGETHER.
- 7. FIRE HYDRANT SHALL BE 6 INCH (3) WAY HYDRANT WITH BREAK AWAY BOLTS (SHOE TYPES) PROVIDED WITH STORZ CONNECTION DEPTH OF BURY SHALL BE 42 INCHES MINIMUM. FIRE HYDRANTS MUST BE SET PLUMB. HOSE CONNECTION MUST FACE ROADWAY
- 9. IN THE CITY OF CIBOLO'S CITY LIMITS, FIRE HYDRANTS SHALL BE MUELLER TYPE AND SHALL BE 1 FOOT MINIMUM AND 7 FEET
- 10. HYDRANTS UPPER BARREL SHALL BE FACTORY PAINTED RED WITH BONNET AND CAPS COATED PER CURRENT NFPA 291 STANDARDS. 11. HYDRANTS LOCATED IN RURAL AREAS SHALL HAVE 6' TALL POLLARD WATER FLEXIFLAG #PP68802.



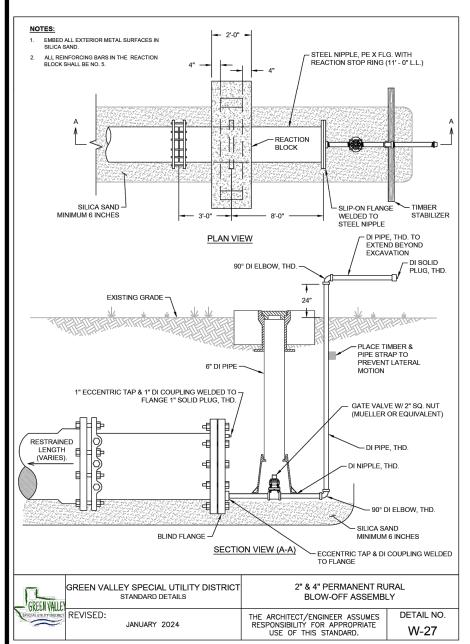


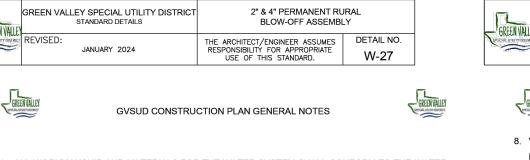


APPROVED BY GVSUD)

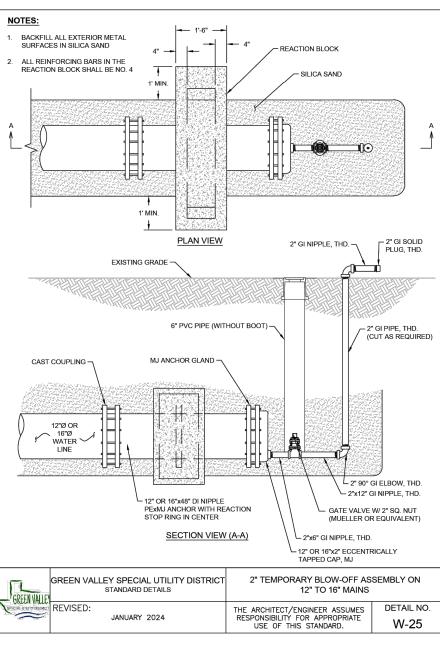
NCASEMENT PIPE TO COMPLETELY F

ENTIRE LENGTH OF BORE





- 1. ALL WORKMANSHIP AND MATERIALS FOR THE WATER SYSTEM SHALL CONFORM TO THE WATER STANDARDS AND DESIGN CRITERIA OF GREEN VALLEY SPECIAL UTILITY DISTRICT (GVSUD). 2. PVC MAINS 12-INCHES AND BELOW SHALL CONFORM TO AWWA C-909 PRESSURE CLASS 235 OR ABOVE DEPENDING ON SYSTEM PRESSURES. PVC MAIN GREATER THAN 12 INCHES SHALL CONFORM TO AWWA C-900 DR 18 OR ABOVE DEPENDING ON SYSTEM PRESSURES. WATER MAINS SHALL HAVE AN ABSOLUTE MINIMUM DEPTH OF 5-FEET BELOW ROADWAY LEVEL AND 42-
- 3. ALL WATER MAIN DUCTILE IRON FITTINGS SHALL BE MECHANICAL JOINT AND CONFORM TO ANSI/AWWA C-153 OR C-110. ALL BOLTS SHALL HAVE KOPR KOTE OR APPROVED EQUAL ANTI-SEIZE CORROSION RESISTANT COATING. VALVES SHALL BE ATTACHED TO TEES BY FOSTER ADAPTOR OR ANCHOR NIPPLE. FOSTER ADAPTER, ANCHOR NIPPLE, OR FORD UNI-FLANGE
- RETAINER GLANDS AND THRUST BLOCKS SHALL BE USED ON ALL FITTINGS AND VALVES. 4. TRACER WIRE SHALL BE INSTALLED ON ALL PIPELINES INCLUDING SERVICE LINES AND BROUGHT INTO VALVE AND METER BOXES FOR LOCATING PURPOSES. INSULATED WATER PROOF CONNECTORS SHALL BE USED TO SPLICE WIRES TOGETHER. A 12-INCH-WIDE DETECTABLE METAL TAPE SHALL BE PLACED ABOVE BEDDING INITIAL BACKFILL.
- 5. EXCEEDING MAXIMUM DEFLECTION IS PROHIBITED. THE ANGULAR DEFLECTION AT BELL-SPIGOT JOINTS SHOULD NOT EXCEED ONE (1) DEGREE. THIS WILL PRODUCE A 4-INCH OFFSET FOR EVERY 20-FOOT SECTION OF PIPE. JOINT DEFLECTION IS ACHIEVED AFTER THE JOINT IS ASSEMBLED IN STRAIGHT ALIGNMENT AND DEFLECTED TO THE REFERENCE MARK. THE BELL SHOULD BE BRACED TO ALLOW THE FREE END TO MOVE LATERALLY UNDER STEADY PRESSURE USING A PRY BAR OR OTHER SUITABLE MEANS. CARE SHOULD BE TAKEN NOT TO EXCEED THE MAXIMUM DEFLECTION ALLOWED OR TO DAMAGE THE PIPE WITH MACHINERY.
- ABRUPT CHANGES IN DIRECTION SHALL BE ACCOMPLISHED WITH FITTINGS. 6. OVER STRESSING THE BELL BY OVER INSERTING THE JOINTS, OVERBELLING, AND PASSING THE INSERTION REFERENCE MARK IS PROHIBITED AND WILL REQUIRE REMOVAL AND REINSTALLATION.
- 7. STANDARD FIRE HYDRANT SHALL INCLUDE HYDRANT, 6-INCH RESILIENT GATE VALVE AND BOX, ANCHOR FITTINGS, DUCTILE IRON PIPE, AND ALL APPURTENANCES. HYDRANTS SHALL BE LIMITED TO THOSE MANUFACTURED BY MUELLER, AVK, AMERICAN FLOW, CLOW, OR EAST JORDAN. ONLY MUELLER HYDRANTS AND EJ SHALL BE USED IN CITY OF CIBOLO'S JURISDICTION. HYDRANT UPPER BARREL SHALL BE FACTORY PAINTED RED. HYDRANTS SHALL HAVE A STORTZ CONNECTION ON STEAMER NOZZLE. FITTINGS FOR PLUG SHALL BE FULLY RESTRAINED AND TIED TO VALVE.



WITH CTS 200 PSI PLASTIC INSERT. SMALL SERVICE TAPS TO BE MADE WITH SINGLE BRASS

STRAP TAPPING SADDLE WITH IRON PIPE THREADS. EXCEPTION: IF LOCATED WITHIN CITY OF

12. CASING REQUIRED FOR ALL LONG SMALL SERVICES. 1 INCH SERVICE REQUIRES 3 INCH CASING

SHALL BE DFW38C 17" X 15". 1-INCH METER BOXES SHALL BE DFW65C-14-1A 15 1/4" X 30 3/8". ALL

AND 2 INCH SERVICE REQUIRES 4 INCH CASING. CASING SHALL BE PVC SCHEDULE 40 OR

13. SINGLE 5/8" & 3/4" METER BOXES SHALL BE DFW36C 16" X 11". DUAL 5/8" & 3/4" METER BOXES

14. THE FORD U BRANCH IS TO BE USED ON ALL DUAL SERVICES (U48-43Q) WITH THE 5/8" X 3/4"

FEMALE THREAD ANGLE HEAD. ALL OTHER ANGLE HEADS WILL BE THE FORD Q NUT. ALL

TO ATMOSPHERE THROUGH AN APPROPRIATE OUTLET AND/OR BE ABLE TO RETAIN THE

16. ALL WATER MAIN, PIPE, CASINGS, FITTINGS, AND VALVES SHALL BE LAID IN MANUFACTURED

SAND EMBEDMENT PER DETAILS. THE SAND SHALL FULLY ENCASE ALL PIPES, INCLUDING

RECEIVE THRUST BLOCKING, FOSTER ADAPTER, ANCHOR NIPPLE, FORD UNI-FLANGE RETAINER

GLAND JOINT RESTRAINTS, AND BELL JOINT RESTRAINTS WHEN SPECIFIED BY GVSUD OR THE

FITTINGS AND VALVES, BY A MINIMUM OF 12-INCHES. ALL FITTINGS AND VALVES ARE TO

18. PRIOR TO CONSTRUCTION OF THE SEWER AND WATER MAINS, ALL R.O.W. ROADWAYS AND

PARKWAY SHALL HAVE REFERENCE SURVEY STAKING AND BE EXCAVATED OR PROPERLY

METER BOXES SHALL BE PLASTIC WITH LIDS HAVING REBAR, ARM, AND KNOCKOUT.

PSI PRESSURE RATING. "CC" THREADED CORPORATION STOPS PROHIBITED.

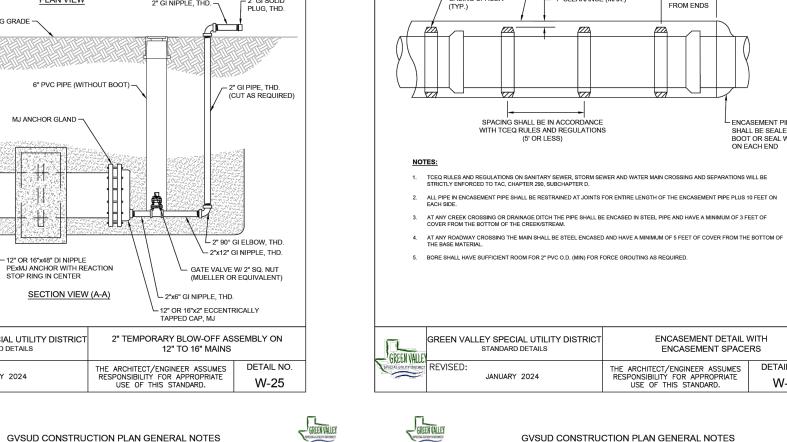
17. CONTRACTOR TO CURB CUT V'S FOR VALVES AND X'S FOR METERS.

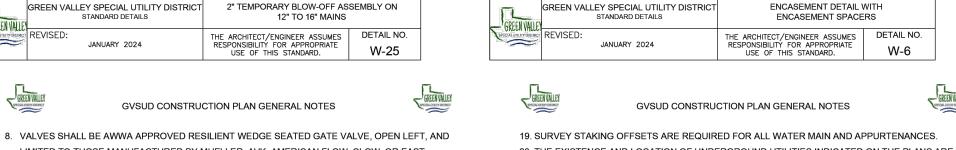
CIBOLO- SERVICE TAPS TO BE MADE WITH DOUBLE STAINLESS STRAP EPOXY COATING

SADDLES WITH IRON PIPE THREADS.

APPROVED EQUAL.

DISTRICT'S ENGINEER.





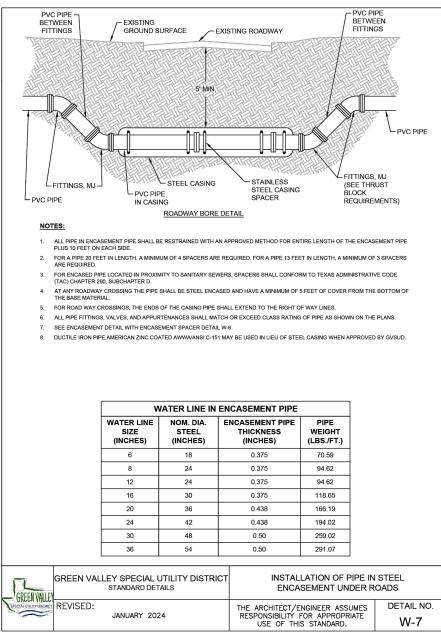
- LIMITED TO THOSE MANUFACTURED BY MUELLER, AVK, AMERICAN FLOW, CLOW, OR EAST 20. THE EXISTENCE AND LOCATION OF UNDERGROUND UTILITIES INDICATED ON THE PLANS ARE TAKEN FROM AVAILABLE RECORDS AND ARE NOT GUARANTEED. CONTRACTOR SHALL 9. VALVES ARE PROHIBITED IN ADA RAMPS, CURBS, AND ROADWAYS. VALVES ARE PROHIBITED IN INVESTIGATE AND FIELD VERIFY UTILITY LOCATIONS A MINIMUM OF 300 LF AHEAD OF CROSSING SIDEWALKS IN CITY OF NEW BRAUNFELS. AND TIE-IN LOCATIONS. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY DAMAGE TO 10. METER BOXES ARE PROHIBITED IN ANY SIDEWALKS, DRIVEWAYS, OR ROADWAYS. AND FOR MAINTENANCE PROTECTION OF THE EXISTING UTILITIES, WHETHER THEY ARE SHOWN 11. SMALL SERVICE TAPS SHALL BE EITHER 1-INCH OR 2 INCH AND SHALL BE REHAU MUNICIPEX ON THE PLANS OR NOT
 - 21. ALL WASTEWATER PIPES CROSSING THE POTABLE WATER DISTRIBUTION SYSTEM WILL BE HELD IN STRICT ACCORDANCE WITH TCEQ RULES AND REGULATIONS. PROPOSED SUB-GRADE LIMITS AND DIMENSIONS MUST BE SHOWN ON THE PLANS, AND CONSTRUCTION PROCEDURES WILL BE INSPECTED TO VERIFY COMPLIANCE WITH TCEQ 290.44(E).
 - 22. OTHER UTILITIES SHALL NOT BE LOCATED CLOSER THAN 3-FEET TO WATER MAINS. 23. THE GREEN VALLEY INSPECTOR SHALL BE NOTIFIED AT LEAST FORTY-EIGHT HOURS PRIOR TO BACK FILLING OR TESTING.
 - 24. A FIELD PRE-CONSTRUCTION MEETING SHALL BE HELD BEFORE CONSTRUCTION BEGINS AND MATERIAL SHALL BE AVAILABLE ON-SITE FOR INSPECTION. 25. CONTRACTOR SHALL CHLORINATE NEW MAINS PER TCEQ AND ANSI/AWWA C651 AND DECHLORINATE DURING FLUSHING PER ANSI/AWWA C655; THE CONTRACTOR SHALL
- COORDINATE WITH THE GVSUD INSPECTOR TO WITNESS CHLORINATING AND PRESSURE CORPORATION STOPS WILL BE IPS X Q NUT. ALL BRASS VALVES TO BE 'BALL' TYPE MINIMUM 200 TESTING OF NEW MAINS. ALL TEST RESULTS MUST BE PROVIDED TO GVSUD. 26. OPERATION OF EXISITING VALVES IN THE GVSUD WATER DISTRIBUTION SYSTEM SHALL ONLY BE AS APPROVED BY GVSUD AND IN THE PRESENCE OF GVSUD PERSONNEL. THE CONTRACTOR 15. TAPPING MACHINES UTILIZED FOR INSTALLING ANY TYPE OF TAP 1-INCH TO 2-INCHES WILL BE OF THE PURGE TYPE, WHICH AT THE TIME OF TAPPING SHALL EXPEL ALL CHIPS AND RESIDUE SHALL NOTIFY GVSUD WHEN A VALVE NEEDS TO BE OPERATED AND MAY ONLY OPERATE A

MOVEMENT UNDER PRESSURE

VALVE IN THE PRESENCE OF THE GVSUD INSPECTOR. 27. NEW WATER MAINS AND APPURTENANCES SHALL PASS PRESSURE TESTING AND PASS THE MINIMUM PUBLIC HEALTH STANDARDS FOR BACTERIOLOGICAL QUALITY TESTING PRIOR TO ANY TIE IN TO THE EXISTING GVSUD WATER SYSTEM AS REQUIRED BY TCEQ AND ANSI/AWWA. 28. HYDROSTATIC PRESSURE TESTING SHALL BE EVERY 200 LF (MAX) OF LINE OR AS APPROVED BY THE ENGINEER. ALL ERRORS OF WORKMANSHIP SHALL BE CORRECTED IMMEDIATELY. ALL

PARTS OF THE PIPELINE SHALL BE BACKFILLED AND BRACED SUFFICIENTLY TO PREVENT

29. CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH AND CONFINED SPACE ENTRY SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION AND ALL RELATED WORK. ANY



GVSUD CONSTRUCTION PLAN GENERAL NOTES

TRENCH PROTECTION SAFETY VIOLATION WILL BE DOCUMENTED AND WILL RESULT IN AN

IMMEDIATE WORK STOPPAGE BY THE GVSUD INSPECTOR AT MINUMUM UNTIL THE NEXT

31. NO TREES MAY BE PLANTED IN THE AREAS DESIGNATED AS WATER OR UTILITY EASEMENTS, OR

32. ALL GARBAGE OR SPOIL MATERIAL FROM THE WORK SHALL BE REMOVED FROM THE SITE BY

FOR THE GVSUD INSPECTOR AND ENGINEER. THE PLANS SHALL LIST MATERIAL

MANUFACTURERS, LINE LENGTH FROM FITTING TO FITTING, AND TAP LOCATIONS.

34. GPS FILES SHALL BE PROVIDED BY THE CONTRACTOR TO THE ENGINEER AND GVSUD

INSPECTOR FOR THE PLAN OF RECORD. CONTRACTOR SHALL PROVIDE AN ASCII COMMA

DELIMITED OR EXCEL FILE CONTAINING THREE-DIMENSIONAL GPS SURVEY POINTS WITH FOUR

(4) DECIMAL PLACES OF PRECISION, LESS THAN FOUR (4) INCHES OF HORIZONTAL POSITION

ACCURACY, AND LESS THAN EIGHT (8) INCHES OF VERTICAL POSITION ACCURACY. POINTS

APPURTENANCES, ENCASEMENTS, VAULTS, AND TANKS. THE ENGINEER SHALL FURNISH PLAN

OF RECORD DRAWINGS TO GVSUD FOR APPROVAL HAVING FINAL MEASUREMENTS AND THAT

35. THE CONTRACTOR SHALL PROVIDE THE ENGINEER WITH ALL THE INFORMATION AS REQUIRED

SO THAT THE ENGINEER CAN SUPPLY GVSUD THE GIS PACKAGE FOR APPROVAL.

36. A FINAL WALK THRU FOR FINAL FIELD ACCPETANCE WILL BE SCHEDULED WITH THE

CONTRACTOR AFTER THE PRELIMINARY WALK THRU PUNCH LIST ITEMS HAVE BEEN

COMPLETED AND AFTER THE GIS PACKAGE IS APPROVED AND ACCEPTED BY GVSUD.

SHALL BE PROVIDED FOR A MINIMUM OF THREE (3) CONTROL POINTS AND ALL FITTINGS,

AREAS WHERE WATER MAINS AND WATER SERVICE CROSSINGS EXIST OR ARE PLANNED TO BE

33. CONTRACTOR SHALL PROVIDE "AS-BUILT" WATER LINE PLANS AT THE PRELIMINARY WALK THRU

30. CONTRACTOR MUST PROTECT ALL UNATTENDED TRENCHES AND EXCAVATIONS WITH

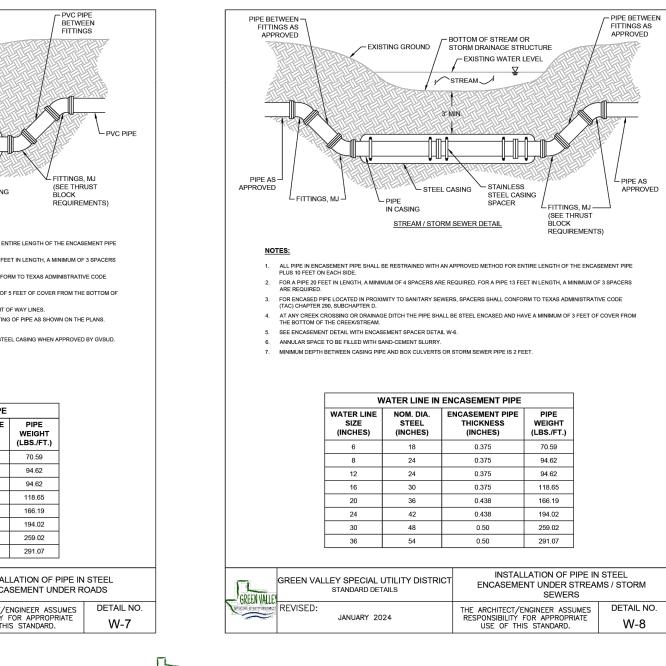
TEMPORARY FENCING.

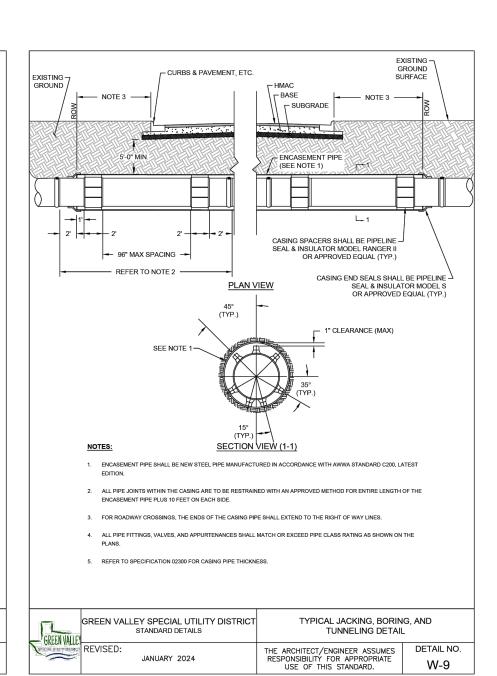
THE CONTRACTOR AT CONTRACTOR'S EXPENSE.

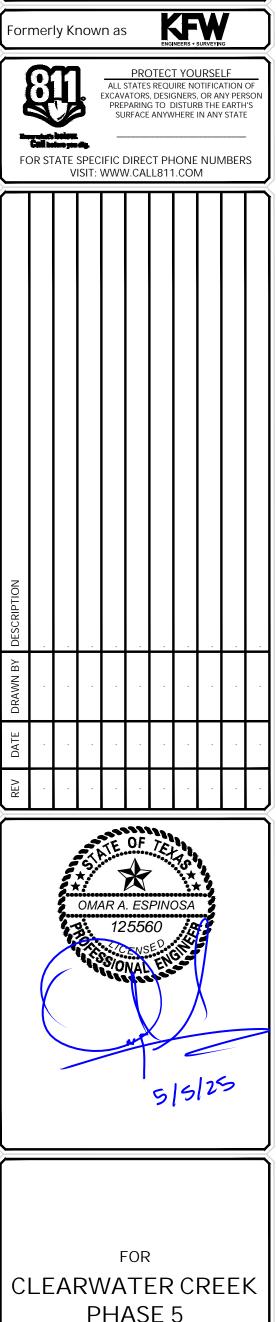
MATCH THE GPS 'X', 'Y', AND 'Z' COORDINATES.

37. GVSUD CONTACT NUMBER: 830-914-2330

CONSTRUCTED.







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PHASE 5 PLAT# 24-11800362

> **BEXAR COUNTY** TEXAS

SAN ANTONIO (KFW) 3421 Paesanos San Antonio, TX 78231 Phone: 210.979.8444 Engineering COLLIERS ENGINEERING & DESIGN, INC & Design TBPLS Firm#: 10194550

AS SHOWN JUNE 2024 RAWING NAME: WDET3146104 314-61-04

TYPICAL WATER NOTES & DETAILS (2 OF 2)

RESIDENTIAL LOTS = 109

INSTALLATION:

- 1. ALL OPERATORS SHALL SUBMIT A NOTICE OF INTENT (NOI) AT LEAST 48 HOURS IN ADVANCE AND ALL BEST MANAGEMENT PRACTICES (BMP'S) SHALL BE IN PLACE PRIOR TO STARTING CONSTRUCTION ACTIVITIES.
- 2. CONTRACTOR TO ENSURE THAT STRUCTURAL BMP'S ARE INSTALLED WITHIN THE LIMITS OF THE SITE BOUNDARY.
- 3. CONTRACTOR MAY INSTALL THE BEST MANAGEMENT PRACTICES IN PHASES THAT COINCIDE WITH THE DISTURBANCE OF UP GRADIENT AREAS. THIS PHASING SHOULD BE SECTION WITH THE SIGNATURE AND DATE OF THE RESPONSIBLE PARTY. NOTED WITHIN THE MODIFICATIONS SECTION WITH THE SIGNATURE AND DATE OF THE 2. CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE AND INSPECTION OF BMP'S AS PER 3. CONTRACTOR TO ENSURE THEY HAVE MET ALL REQUIREMENTS OF THE SWPPP
- RESPONSIBLE PARTY. 4. CONTRACTOR TO VERIFY SUFFICIENT VEGETATION IN AREAS DENOTED AS VEGETATED AS NECESSARY TO PREVENT SEDIMENT RUNOFF. THESE MODIFICATIONS SHOULD BE FILTER STRIP. IF INSUFFICIENT VEGETATION EXISTS, CONTRACTOR SHALL IMPLEMENT SHOWN AND THE SITE PLAN AND NOTED WITHIN THE MODIFICATIONS SECTION WITH A DIFFERENT BEST MANAGEMENT PRACTICE AND WILL SHOW IT ON THIS PLAN WITH NOTATION IN THE MODIFICATIONS SECTION WITH THE SIGNATURE AND DATE OF THE 3. LOCATION OF CONSTRUCTION ENTRANCE/EXIT, CONCRETE WASHOUT PIT, AND RESPONSIBLE PARTY.
- MAINTENANCE AND INSPECTION:
 - . CONTRACTOR SHOULD LIMIT CONSTRUCTION ACTIVITIES TO ONLY THOSE AREAS SHOWN TO BE DISTURBED ON THIS PLAN. IF ADDITIONAL VEGETATED AREAS ARE DISTURBED, THEY SHOULD BE PROTECTED WITH APPROPRIATE BEST MANAGEMENT PRACTICES UNTIL THE AREAS HAVE BEEN STABILIZED AS PER THE SPECIFICATIONS OF 2. BEST MANAGEMENT PRACTICES MAY BE REMOVED IN PHASES IF ALL UPGRADIENT THE SWPPP. THE AREAS OF THIS ADDITIONAL SOIL DISTURBANCE AND THE MEASURES USED SHOULD BE SHOWN ON THE SITE PLAN AND NOTED WITHIN THE MODIFICATIONS
 - THE SPECIFICATIONS OF THE SWPPP. THE CONTRACTOR MAY MODIFY THE CONTROLS BEFORE FILING A NOTICE OF TERMINATION (NOT). THE SIGNATURE AND DATE OF THE RESPONSIBLE PARTY.
 - EQUIPMENT AND STORAGE ARE TO BE FIELD DETERMINED. LOCATIONS SHALL BE UPDATED ON THIS PLAN.

PROJECT COMPLETION:

- 1. ALL DISTURBED AREAS ARES NOT COVERED BY IMPERVIOUS COVER ARE TO BE STABILIZED PER THE SWPPP AND PROJECT SPECIFICATIONS PRIOR TO REMOVAL OF ANY BMP'S AND/OR PRIOR TO FILING A NOTICE OF TERMINATION (NOT).
- PHASING SHOULD BE NOTED WITHIN THE MODIFICATIONS SECTION WITH THE SIGNATURE AND DATE OF THE RESPONSIBLE PARTY.

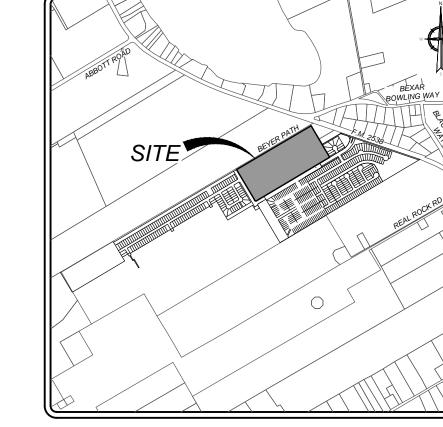
AREAS HAVE BEEN STABILIZED PER SWPPP AND PROJECT SPECIFICATIONS. THIS

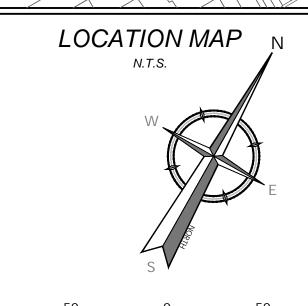
- GENERAL:

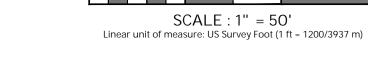
 1. THIS EXHIBIT IS TO BE USED FOR THE PURPOSES OF STORMWATER POLLUTION PREVENTION ONLY. ALL OTHER CIVIL ENGINEERING INFORMATION SHOULD BE
- OBTAINED FROM THE APPROPRIATE CONSTRUCTION DOCUMENTS. 2. THE PURPOSE OF THE SIGNATURE AND SEAL OF THE ENGINEER ON THIS DOCUMENT IS 3. CONTACT AT&T TO COORDINATE TELEPHONE SERVICE. 1-800-449-7928. TO DEMONSTRATE COMPLIANCE WITH THE TPDES STORMWATER POLLUTION
- PREVENTION PLAN REGULATIONS ONLY. THE STORMWATER POLLUTION PREVENTION PLAN AND COMPLYING WITH THE REGULATIONS CONTAINED WITHIN IT.

COORDINATION NOTE:

- 1. CONTACT TIME WARNER TO COORDINATE CABLE TV SERVICE. (210) 244-0500 2. CONDUIT FOR ELECTRICAL SERVICE. CONFIRM REQUIREMENTS AND COORDINATE WITH CPS FOR INSPECTION. (210) 353-2246.
- 4. CONTRACTOR TO COORDINATE WITH CPS PRIOR TO CONSTRUCTION TO PLAN
- ELECTRIC SERVICE. 3. ALL OWNERS/OPERATORS ARE RESPONSIBLE FOR FAMILIARIZING THEMSELVES WITH 5. CONTRACTOR TO COORDINATE WITH SAWS TO PLAN WATER AND SANITARY SEWER SERVICES (210) 704-7297
 - 6. CONTRACTOR SHALL CONTACT 1-800-DIG-TESS A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION.







LEGEND

LIMITS OF CONSTRUCTION EXISTING CONTOURS PROPOSED CONTOURS FLOW ARROW

PRE-CONSTRUCTION SILT FENCE POST-CONSTRUCTION SILT FENCE

TYPE 4 SACK GABIONS DISTURBED AREA STABILIZED CONSTRUCTION ENTRANCE/EXIT

CONCRETE TRUCK WASHOUT PIT

ROCK BERM

(GRAVEL FILTERS BAGS) EASEMENT (24-11800264)

WATER EASEMENT (24-11800264) SANITARY SEWER EASEMENT DRAINAGE EASEMENT VARIABLE WIDTH WATER & SANITARY

SEWER EASEMENT EASEMENT



= V.W. W. & S.S.E

= -0----= -- || ----- || ---

CONSTRUCTION EQUIPMENT, VEHICLE & MATERIALS STORAGE AREA. NATURAL VEGETATIVE BUFFER

INLET WITH PROTECTION

ELECTRIC, GAS, TELEPHONE, & CABLE TV = E.G.T.TV.E VEHICULAR NON-ACCESS EASEMENT = V.N.A.E (24-11800264) = *W.E* = S.S.E = *D.E*



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Formerly Known as

FOR **CLEARWATER CREEK** PHASE 5 PLAT# 24-11800362

> **BEXAR COUNTY** TEXAS

Engineering & Design

3421 Paesanos San Antonio, TX 78231 Phone: 210.979.8444 COLLIERS ENGINEERING & DESIGN, INC TBPE Firm#: F-14909 TBPLS Firm#: 10194550

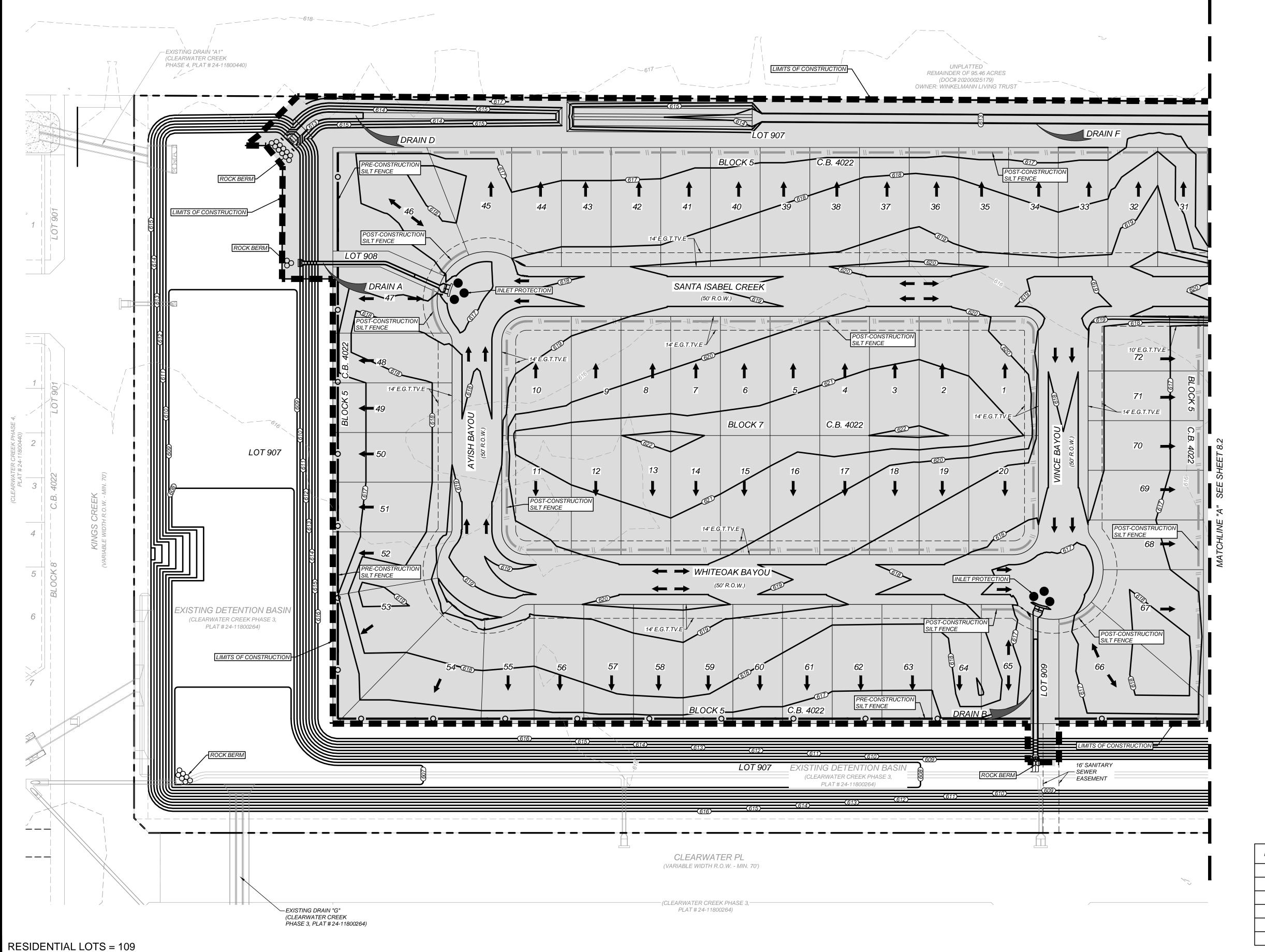
SAN ANTONIO (KFW)

AS SHOWN SW3P3146104 STORM WATER POLLUTION

PREVENTION PLAN (1 OF 2)

SW3P MODIFICATIONS

DATE SIGNATURE DESCRIPTION



<u>INSTALLA</u>TION:

1. ALL OPERATORS SHALL SUBMIT A NOTICE OF INTENT (NOI) AT LEAST 48 HOURS IN ADVANCE AND ALL BEST MANAGEMENT PRACTICES (BMP'S) SHALL BE IN PLACE PRIOR TO STARTING CONSTRUCTION ACTIVITIES.

2. CONTRACTOR TO ENSURE THAT STRUCTURAL BMP'S ARE INSTALLED WITHIN THE LIMITS OF THE SITE BOUNDARY.

3. CONTRACTOR MAY INSTALL THE BEST MANAGEMENT PRACTICES IN PHASES THAT COINCIDE WITH THE DISTURBANCE OF UP GRADIENT AREAS. THIS PHASING SHOULD BE SECTION WITH THE SIGNATURE AND DATE OF THE RESPONSIBLE PARTY. NOTED WITHIN THE MODIFICATIONS SECTION WITH THE SIGNATURE AND DATE OF THE 2. CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE AND INSPECTION OF BMP'S AS PER 3. CONTRACTOR TO ENSURE THEY HAVE MET ALL REQUIREMENTS OF THE SWPPP RESPONSIBLE PARTY.

FILTER STRIP. IF INSUFFICIENT VEGETATION EXISTS, CONTRACTOR SHALL IMPLEMENT SHOWN AND THE SITE PLAN AND NOTED WITHIN THE MODIFICATIONS SECTION WITH A DIFFERENT BEST MANAGEMENT PRACTICE AND WILL SHOW IT ON THIS PLAN WITH NOTATION IN THE MODIFICATIONS SECTION WITH THE SIGNATURE AND DATE OF THE 3. LOCATION OF CONSTRUCTION ENTRANCE/EXIT, CONCRETE WASHOUT PIT, AND RESPONSIBLE PARTY.

MAINTENANCE AND INSPECTION:

1. CONTRACTOR SHOULD LIMIT CONSTRUCTION ACTIVITIES TO ONLY THOSE AREAS SHOWN TO BE DISTURBED ON THIS PLAN. IF ADDITIONAL VEGETATED AREAS ARE DISTURBED, THEY SHOULD BE PROTECTED WITH APPROPRIATE BEST MANAGEMENT PRACTICES UNTIL THE AREAS HAVE BEEN STABILIZED AS PER THE SPECIFICATIONS OF 2. BEST MANAGEMENT PRACTICES MAY BE REMOVED IN PHASES IF ALL UPGRADIENT THE SWPPP. THE AREAS OF THIS ADDITIONAL SOIL DISTURBANCE AND THE MEASURES USED SHOULD BE SHOWN ON THE SITE PLAN AND NOTED WITHIN THE MODIFICATIONS

THE SPECIFICATIONS OF THE SWPPP. THE CONTRACTOR MAY MODIFY THE CONTROLS BEFORE FILING A NOTICE OF TERMINATION (NOT). 4. CONTRACTOR TO VERIFY SUFFICIENT VEGETATION IN AREAS DENOTED AS VEGETATED AS NECESSARY TO PREVENT SEDIMENT RUNOFF. THESE MODIFICATIONS SHOULD BE

THE SIGNATURE AND DATE OF THE RESPONSIBLE PARTY. EQUIPMENT AND STORAGE ARE TO BE FIELD DETERMINED. LOCATIONS SHALL BE UPDATED ON THIS PLAN.

PROJECT COMPLETION:

1. ALL DISTURBED AREAS ARES NOT COVERED BY IMPERVIOUS COVER ARE TO BE STABILIZED PER THE SWPPP AND PROJECT SPECIFICATIONS PRIOR TO REMOVAL OF ANY BMP'S AND/OR PRIOR TO FILING A NOTICE OF TERMINATION (NOT).

AREAS HAVE BEEN STABILIZED PER SWPPP AND PROJECT SPECIFICATIONS. THIS

PHASING SHOULD BE NOTED WITHIN THE MODIFICATIONS SECTION WITH THE SIGNATURE AND DATE OF THE RESPONSIBLE PARTY.

GENERAL:

1. THIS EXHIBIT IS TO BE USED FOR THE PURPOSES OF STORMWATER POLLUTION PREVENTION ONLY. ALL OTHER CIVIL ENGINEERING INFORMATION SHOULD BE

OBTAINED FROM THE APPROPRIATE CONSTRUCTION DOCUMENTS. 2. THE PURPOSE OF THE SIGNATURE AND SEAL OF THE ENGINEER ON THIS DOCUMENT IS 3. CONTACT AT&T TO COORDINATE TELEPHONE SERVICE. 1-800-449-7928. TO DEMONSTRATE COMPLIANCE WITH THE TPDES STORMWATER POLLUTION PREVENTION PLAN REGULATIONS ONLY.

THE STORMWATER POLLUTION PREVENTION PLAN AND COMPLYING WITH THE REGULATIONS CONTAINED WITHIN IT.

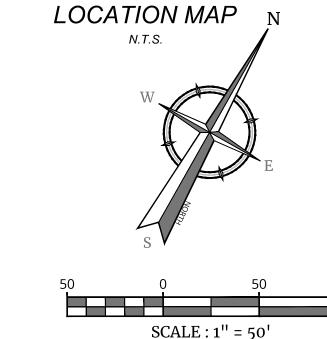
COORDINATION NOTE:

1. CONTACT TIME WARNER TO COORDINATE CABLE TV SERVICE. (210) 244-0500 2. CONDUIT FOR ELECTRICAL SERVICE. CONFIRM REQUIREMENTS AND COORDINATE WITH CPS FOR INSPECTION. (210) 353-2246.

4. CONTRACTOR TO COORDINATE WITH CPS PRIOR TO CONSTRUCTION TO PLAN ELECTRIC SERVICE.

3. ALL OWNERS/OPERATORS ARE RESPONSIBLE FOR FAMILIARIZING THEMSELVES WITH 5. CONTRACTOR TO COORDINATE WITH SAWS TO PLAN WATER AND SANITARY SEWER SERVICES (210) 704-7297

6. CONTRACTOR SHALL CONTACT 1-800-DIG-TESS A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION.



LIMITS OF CONSTRUCTION EXISTING CONTOURS PROPOSED CONTOURS FLOW ARROW

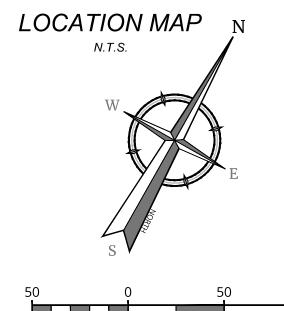
PRE-CONSTRUCTION SILT FENCE POST-CONSTRUCTION SILT FENCE TYPE 4 SACK GABIONS

ENTRANCE/EXIT CONSTRUCTION EQUIPMENT, VEHICLE & MATERIALS STORAGE AREA. NATURAL VEGETATIVE BUFFER

ROCK BERM

EASEMENT (24-11800264) VEHICULAR NON-ACCESS EASEMENT (24-11800264)

= *W.E* = S.S.E = D.E



=

= --- 570 --- ---

= —o—

= E.G.T.TV.E

= V.W. W. & S.S.E

= *V.N.A.E*

= --- // ----- // ---

LEGEND

DISTURBED AREA STABILIZED CONSTRUCTION

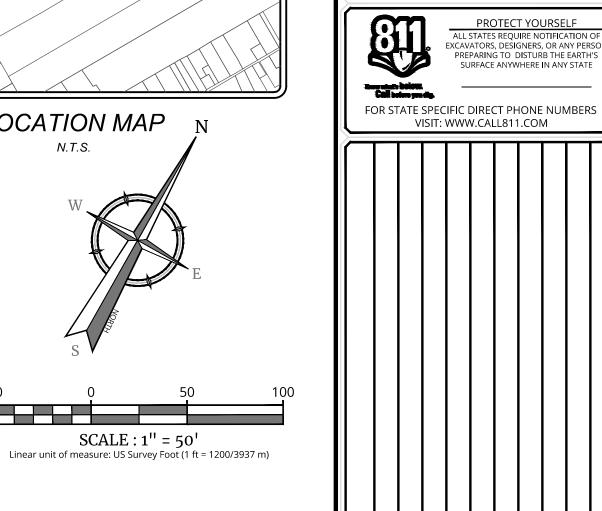
CONCRETE TRUCK WASHOUT PIT

INLET WITH PROTECTION (GRAVEL FILTERS BAGS)

ELECTRIC, GAS, TELEPHONE, & CABLE TV WATER EASEMENT (24-11800264)

SANITARY SEWER EASEMENT DRAINAGE EASEMENT VARIABLE WIDTH WATER & SANITARY

SEWER EASEMENT EASEMENT



Colliers

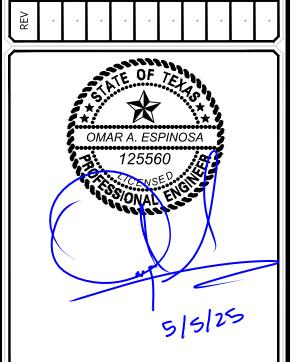
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Formerly Known as



CLEARWATER CREEK PHASE 5 PLAT# 24-11800362

> **BEXAR COUNTY** TEXAS

Engineering & Design

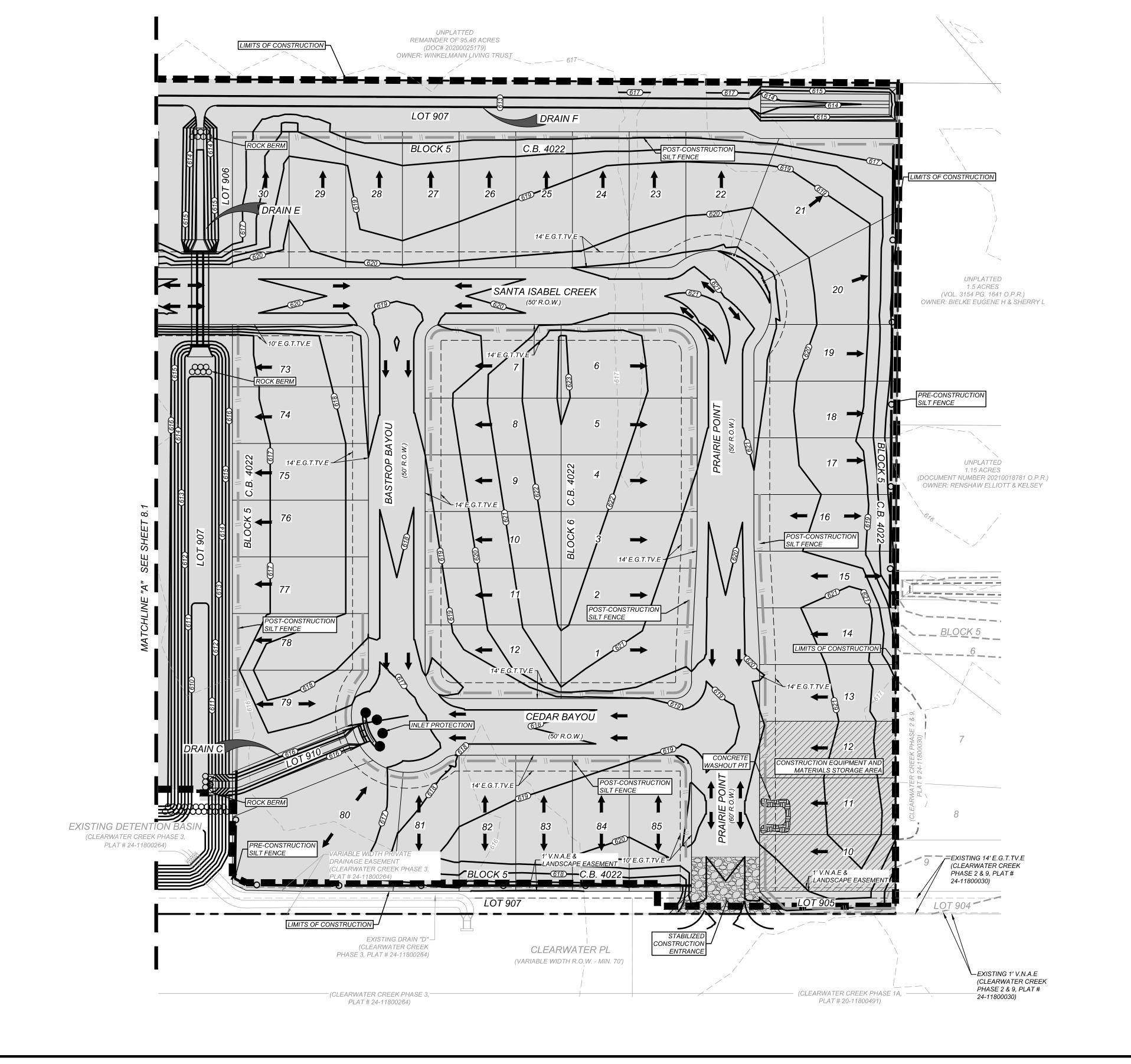
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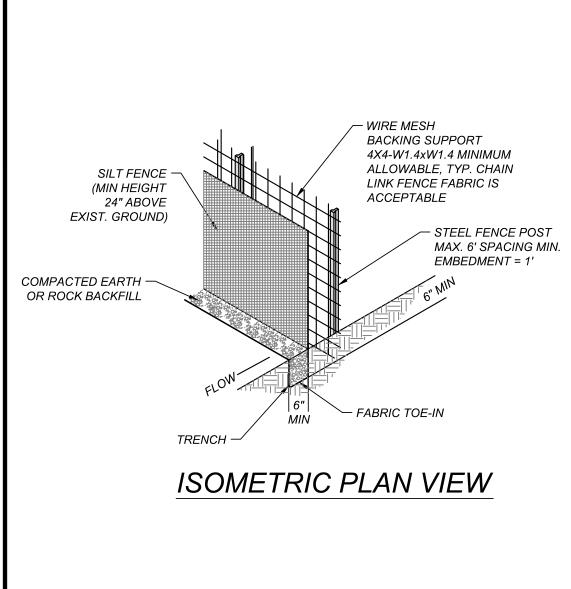
SAN ANTONIO (KFW)

AS SHOWN JUNE 2024 SW3P3146104 314-61-04

STORM WATER POLLUTION PREVENTION PLAN (2 OF 2)

SW3P MODIFICATIONS DESCRIPTION SIGNATURE





GENERAL NOTES:

CONSTRUCTION TRAFFIC.

GENERAL NOTES:

SILT FENCE

SECTION B-B

SECTION A-A

DETAIL ABOVE ILLUSTRATES MINIMUM DIMENSIONS. PIT CAN BE INCREASED IN SIZE DEPENDING ON EXPECTED FREQUENCY OF USE.

WASHOUT PIT SHALL BE LOCATED IN AN AREA EASILY ACCESSIBLE TO

WASHOUT PIT SHALL NOT BE LOCATED IN AREAS SUBJECT TO INUNDATION

FROM STORM WATER RUNOFF AND AT LEAST 50 FEET FROM SENSITIVE FEATURES, STORM DRAINS, OPEN DITCHES, STREETS, OR STREAMS.

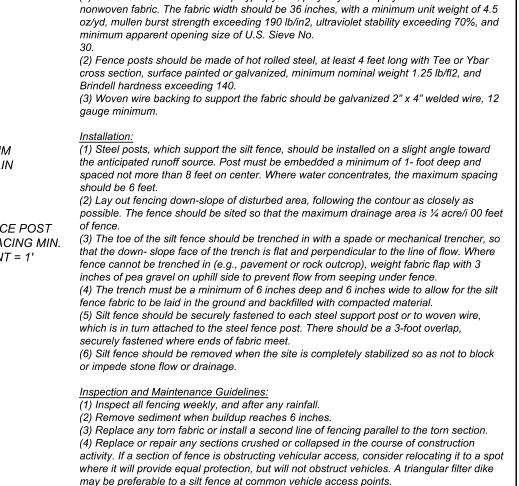
CONCRETE TRUCK WASHOUT PIT

THE FILTER BAG MATERIAL SHALL BE MADE OF POLYPROPYLENE.

GRAVEL FILTER BAG DETAIL

POLYETHYLENE OR POLYAMIDE WOVEN FABRIC, MIN UNIT WEIGHT OF 4 OUNCES/SY, MULLEN BURST STRENGTH EXCEEDING 300 PSI AND ULTRAVIOLET

THE FILTER BAG SHALL BE FILLED WITH CLEAN, MEDIUM TO COARSE GRAVEL (0.31



(5) When construction is complete, the sediment should be disposed of in a manner that will not cause additional siltation and the prior location of the silt fence should be

└ FILTERED RUNOFF

 WIRE MESH COVERED WITH FILTER FABRIC

> WIRE MESH COVERED WITH FILTER FABRIC

> > <u>DETAIL-A</u>

#4 REBAR -

SECTION A-A

ALL STORM DRAINAGE SYSTEMS INLETS SHOULD FILTER RUNOFF BEFORE

IF NO ADDITIONAL DOWNSTREAM TREATMENT EXISTS, THE MAXIMUM DRAINAGE AREA TRIBUTARY TO AN AREA DRAIN INSTALLED WITH A GRAVEL

ALL CURB INLET GRAVEL FILTERS SHOULD BE INSPECTED AND REPAIRED

<u>PLAN VIEW</u>

CURB INLET PROTECTION (ALTERNATE)

AFTER EACH RUNOFF EVENT. SEDIMENT SHOULD BE REMOVED WHEN MATERIAL IS WITHIN THREE INCHES OF THE TOP OF THE CONCRETE BLOCKS.

PERIODICALLY, THE GRAVEL SHOULD BE RAKED TO INCREASE INFILTRATION AND

CURB INLET PROTECTION GRAVEL FILTER BAGS

INLESS TREATMENT IS PROVIDED ELSEWHERE.

THE WATER IS DISCHARGED INTO STREAMS OR ONTO ADJACENT PROPERTIES,

GENERAL NOTES:

4 FT MAX SPACING

GRAVEL FILTER BAG -

WIRE MESH COVERED -

WITH FILTER FABRIC

SECTION A-A

DETAIL-A -

FILTER SHOULD BE ONE ACRE.

revegetated. The fence itself should be disposed of in an approved landfill.

(1) Silt fence material should be polypropylene, polyethylene or polyamide woven or

FABRIC CROSS-SECTION OF A CONSTRUCTION ENTRANCE/EXIT (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.

GEOTEXTILE FABRIC/ TO STABILIZE FOUNDATION

TEMPORARY

CONSTRUCTION ENTRANCE/EXIT

(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/yd2, a mullen burst rating of 140 lb/in2, and an equivalent opening size greater than a number (4) If a washing facility is required, a level area with a minimum of 4 inch diameter washed stone or commercial rack should be included in the plans. Divert wastewater to a sediment trap or basin.

Materials:

(1) The aggregate should consist of 4 to 8 inch washed stone over a

stable foundation as specified in the plan.

Installation: (North Carolina, 1993)

(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 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.

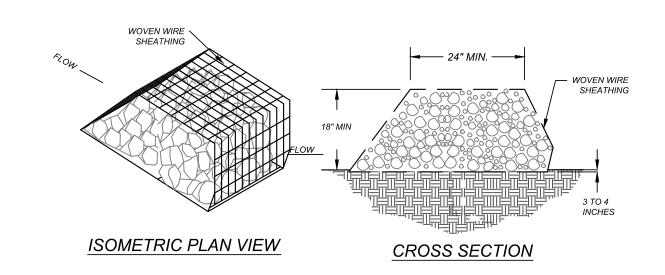
nspection and Maintenance Guidelines:

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 andlor 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

(5) All sediment should be prevented from entering any storm drain, ditch or water course by using approved methods.

STABILIZED CONSTRUCTION ENTRANCE / EXIT



(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 shoat rings. (2) Clean, open graded 3- to 5-inch diameter rock should be used, except in areas where high velocities or large volumes of flow are expected, where 5- to 8-inch diameter rocks may be used

(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 Figure 1-28), to a height not less than

(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, airl 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.

Inspection and Maintenance Guidelines:

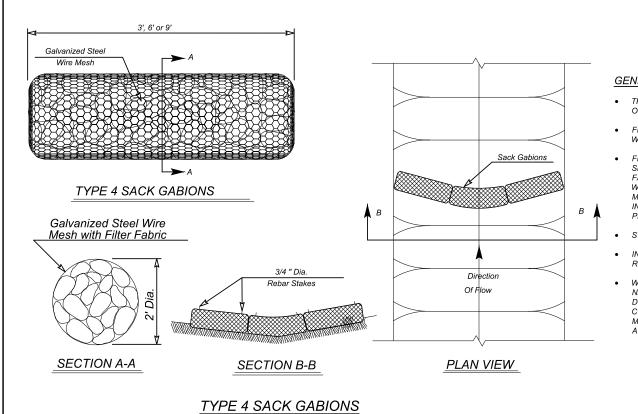
(1) Inspection should be made weekly and after each rainfall by the responsible party. For installations in streambeds, additional daily inspections should be made. (2) Remove sediment and other debris when buildup reaches 6 inches and dispose of the accumulated silt in an approved manner that will not 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

ROCK BERM



FILTER FABRIC MATERIAL SHALL BE FASTENED TO WOVEN

FILTER FABRIC MATERIAL SHOULD MEET THE FOLLOWING SPECIFICATIONS: RESISTANT TO ULTRAVIOLET LIGHT,

INSPECT WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACE AS NEEDED. WHEN SILT REACHES A DEPTH OF 50% OR MORE ABOVE NATURAL GROUND, SILT SHALL BE REMOVED AND

MUST BE REMOVED AND DISPOSED OF OFF-SITE IN CCORDANCE WITH APPLICABLE REGULATIONS.

> JUNE 2024 AWING NAME: SW3P3146104 314-61-04

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FOR STATE SPECIFIC DIRECT PHONE NUMBERS

VISIT: WWW.CALL811.COM

JEFFREY W. MARTIN

CLEARWATER CREEK

PHASE 5

PLAT# 24-11800362

BEXAR COUNTY

TEXAS

SAN ANTONIO (KFW)

12/5/24

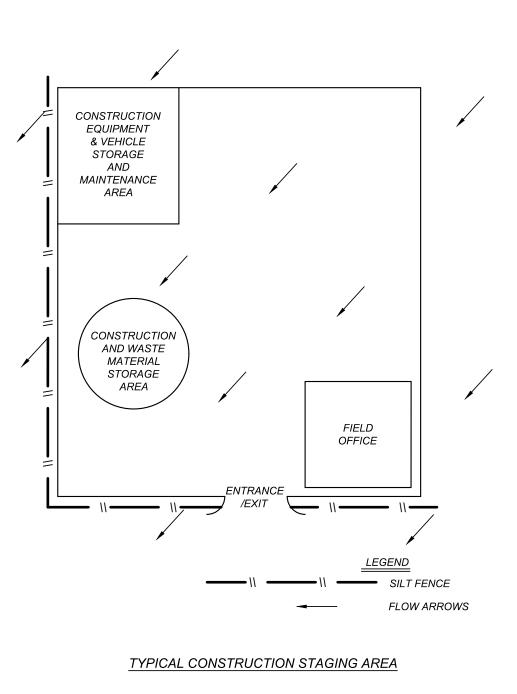
PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON

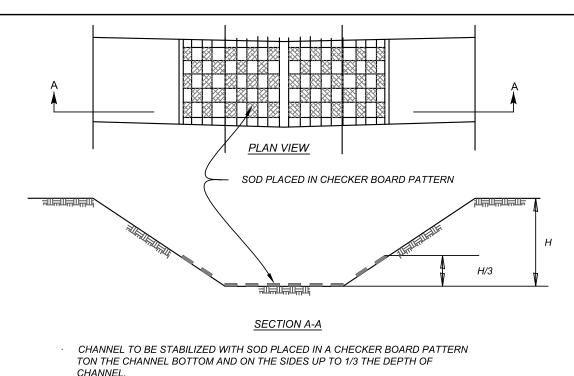
PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE

Formerly Known as

STORM WATER POLLUTION PREVENTION PLAN DETAILS

RESIDENTIAL LOTS = 109





CHANNEL LINING

GENERAL NOTES:

THE TOP OF THE SACK GABIONS SHOULD BE LEVEL AND ORIENTED PERPENDICULAR TO THE DIRECTION OF FLOW.

FABRIC SHOULD BE NON-WOVEN GEOTEXTILE WITH MINIMUM WEIGHT OF 3.5 OUNCES PER SQUARE YARD, MINIMUM MULLEN BURST STRENGTH OF 200 POUNDS PER SQUARE INCH AND A FLOW THRU RATE OF 120 GALLONS PER MINUTE PER SQUARE FOOT OF FRONTAL AREA.

STONE SIZE: ±4"-8" OPEN GRADED CRUSHED LIMESTONE.

DISPOSED IN AN APPROVED MANNER THAT WILL NOT CONTRIBUTE TO RESILTATION. CONTAMINATED SEDIMEN

3421 Paesanos San Antonio, TX 78231 Phone: 210.979.8444 Engineering COLLIERS ENGINEERING & DESIGN, IN & Design TBPE Firm#: F-14909 TBPLS Firm#: 10194550

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.