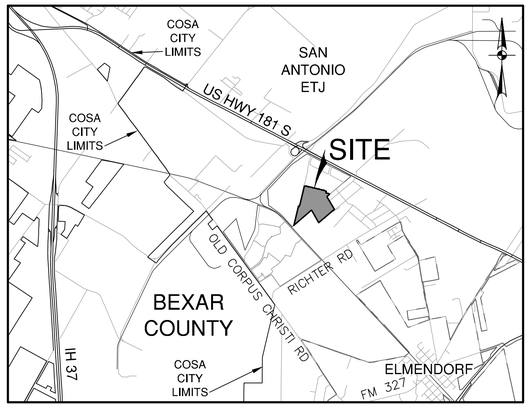
STONE GARDEN - UNIT 5A

SAN ANTONIO, TEXAS

CIVIL CONSTRUCTION PLANS

Sheet List Table

Sheet Number	Sheet Title
C0.00	COVER SHEET
C1.00	OVERALL DRAINAGE PLAN (ULTIMATE DEVELOPMENT)
C1.00A	OVERALL DRAINAGE PLAN (ULTIMATE DEVELOPMENT)
C1.00B	OVERALL DRAINAGE PLAN (ULTIMATE DEVELOPMENT)
C1.00C	OVERALL DRAINAGE PLAN (PROPOSED CONDITIONS)
C1.00D	OVERALL DRAINAGE PLAN (PROPOSED CONDITIONS)
C1.01	DRAIN C PLAN & PROFILE STA. 1+10.00 TO 2+97.34
C1.02	DRAIN D PLAN & PROFILE STA. 1+00.00 TO 1+70.49
C1.03	DRAIN E PLAN & PROFILE STA 1+05.00 TO 4+70.83
C1.04	DRAIN E1 PLAN & PROFILE STA. 1+00.00 TO 5+00.00
C1.05	DRAIN E1 PLAN & PROFILE STA. 5+00.00 TO 7+93.39
C1.06	DRAIN K2 PLAN & PROFILE STA. 1+00.00 TO 4+00.00
C1.07	DRAIN K2 PLAN & PROFILE STA. 4+00.00 TO 8+00.00
C1.08	DRAIN K2 PLAN & PROFILE STA. 8+00.00 TO 9+92.77
C1.09	DRAIN K1 PLAN & PROFILE STA. 1+00.00 TO 3+19.53
C1.10	DRAIN L PLAN & PROFILE STA. 1+08.00 TO 1+62.00
C1.11	DRAIN M1 PLAN & PROFILE STA. 1+00.00 TO 5+00.00
C1.12	DRAIN M1 PLAN & PROFILE STA. 5+00.00 TO 8+38.73
C1.13	DRAIN M1.1 PLAN & PROFILE STA. 1+00.00 TO 2+39.25
C1.14	DRAIN M2 PLAN & PROFILE STA. 1+00.00 TO 3+00.00
C1.15	DRAIN M2 PLAN & PROFILE STA. 3+00.00 TO 6+54.52
C1.20	DRAINAGE DETAILS
C1.21	DRAINAGE DETAILS
C1.22	DRAINAGE DETAILS
C1.23	DRAINAGE DETAILS
C1.24	DRAINAGE DETAILS
C2.00	GUTCHESS GARDEN PLAN & PROFILE (STA 15+70.52 TO 27+00.00)
C2.01	GUTCHESS GARDEN PLAN & PROFILE (STA 27+00.00 TO END)
C2.02	CALCITE GARDEN PLAN & PROFILE (STA 18+61.94 TO END)
C2.03	CHARNOCKITE TRAILS PLAN & PROFILE (STA 11+98.15 TO END)
C2.04	PICRITE TRAILS PLAN & PROFILE (STA 11+29.13 TO 19+50.00)
C2.05	PICRITE TRAILS PLAN & PROFILE (STA 19+50.00 TO END)
C2.06	POISONBEAN TRAIL PLAN & PROFILE (STA 10+64.82 TO END)
	POISONBEAN TRAIL PLAN & PROFILE (STA 1+00.00 TO END)
C2.07	SLATE TRAIL PLAN & PROFILE (STA 1+00.00 TO END)
C2.08	SLATE TRAIL PLAN & PROFILE (STA 9+62.97 TO END)
C2.09	SODOLITE WAY PLAN & PROFILE (STA 1+00.00 TO END)
C2.10	PICKLEWEED RIDGE PLAN & PROFILE (STA 1+00.00 TO END)
C2.11	PURPLE SAGE RIDGE PLAN & PROFILE (STA 1+00.00 TO END)
C2.12	COPPERLEAF RIDGE PLAN & PROFILE (STA 1+00.00 TO END)
C2.13	RICEGRASS CREEK PLAN & PROFILE (STA 1+00.00 TO END)
C2.14	PALM PARK BLVD PLAN & PROFILE (STA 1+00.00 TO END)
	CANYON MAPLE COVE PLAN & PROFILE (STA 1+00.00 TO END)
C2.15	TYPICAL STREET DETAILS
C2.16	TYPICAL STREET DETAILS
C2.17	TYPICAL STREET DETAILS



LOCATION MAP

NOT-TO-SCALE

PREPARED FOR:

LENNAR HOMES OF TEXAS
100 NE LOOP 410, STE. 1155
SAN ANTONIO, TX 78216

JUNE 2025

STATE OF TEXAS
JIM C. WELCH
102466
LICENSED
PROFESSIONAL ENGINEER
8/27/25

PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

Sheet List Table

Sheet Number	Sheet Title
C3.00	OVERALL SIGNAGE PLAN
C3.01	OVERALL SIGNAGE PLAN
C3.02	OVERALL SIGNAGE PLAN
C3.03	SIGNAGE DETAILS
C3.04	SIGNAGE DETAILS
C3.05	SIGNAGE DETAILS
C4.00	OVERALL WATER DISTRIBUTION PLAN
C4.01	OVERALL WATER DISTRIBUTION PLAN
C4.02	OVERALL WATER DISTRIBUTION PLAN
C4.03	OVERALL WATER DISTRIBUTION DETAILS
C4.04	OVERALL WATER DISTRIBUTION DETAILS
C4.05	OVERALL WATER DISTRIBUTION DETAILS
C5.00	OVERALL SANITARY SEWER PLAN
C5.01	OVERALL SANITARY SEWER PLAN
C5.02	OVERALL SANITARY SEWER PLAN
C5.03	SS LINE AB PLAN & PROFILE (STA 1+00.00 TO END)
	SS LINE AD PLAN & PROFILE (STA 1+00.00 TO END)
C5.04	SS LINE AE PLAN & PROFILE (STA 1+00.00 TO 6+50.00)
C5.05	SS LINE AQ PLAN & PROFILE (STA 2+50.00 TO 9+00.00)
C5.06	SS LINE AS PLAN & PROFILE (STA 1+00.00 TO 6+50.00)
C5.07	SS LINE AT PLAN & PROFILE (STA 1+00.00 TO 9+50.00)
C5.08	SS LINE AT PLAN & PROFILE (STA 9+50.00 TO END)
C5.09	SS LINE AU PLAN & PROFILE (STA 1+00.00 TO END)
C5.10	SS LINE AV PLAN & PROFILE (STA 1+00.00 TO END)
C5.11	SS LINE BD PLAN & PROFILE (STA 1+00.00 TO END)
	SS LINE BG PLAN & PROFILE (STA 1+00.00 TO END)
C5.12	SS LINE BH PLAN & PROFILE (STA 1+00.00 TO END)
C5.13	OVERALL SANITARY SEWER DETAILS
C5.14	OVERALL SANITARY SEWER NOTES
C6.00	OVERALL UTILITY PLAN
C6.01	OVERALL UTILITY PLAN
C6.02	OVERALL UTILITY PLAN
C7.00	OVERALL GRADING PLAN
C7.01	OVERALL GRADING PLAN
C7.02	OVERALL GRADING PLAN
C7.03	OVERALL GRADING PLAN
C8.00	STORM WATER POLLUTION PREVENTION PLAN
C8.01	STORM WATER POLLUTION PREVENTION PLAN
C8.02	STORM WATER POLLUTION PREVENTION PLAN
C8.03	OVERALL STORM WATER POLLUTION PREVENTION PLAN
C8.04	STORM WATER POLLUTION PREVENTION DETAILS
C8.05	STORM WATER POLLUTION PREVENTION DETAILS
C9.00	DETENTION BASIN E

LOWER (EAST SEWERSHED-SALADO CREEK WRC)

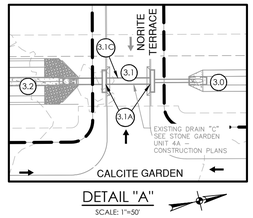
DEVELOPER'S NAME: LENNAR HOMES OF TEXAS, INC.
ADDRESS: 100 NE LOOP 410, SUITE 1155
CITY: SAN ANTONIO STATE: TEXAS ZIP: 78216
PHONE# (210) 403-6200 FAX# N/A
SAWS BLOCK MAP# 204528,206526,206528 TOTAL EDU'S 239 TOTAL ACREAGE 57.44
TOTAL LINEAR FOOTAGE OF PIPE 4145.19 LF ~ 8" PIPE PLAT NO. 25-11800200
NUMBER OF LOTS 239 SAWS JOB NO. 25-1555

SHEET C0.00

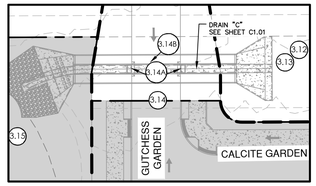
PLAT NO. 25-11800200 PD JOB NO. 12482-21 STONE GARDEN - UNIT 5A

Date: Aug 29, 2025, 1:34pm User ID: rodolfo.gallegos
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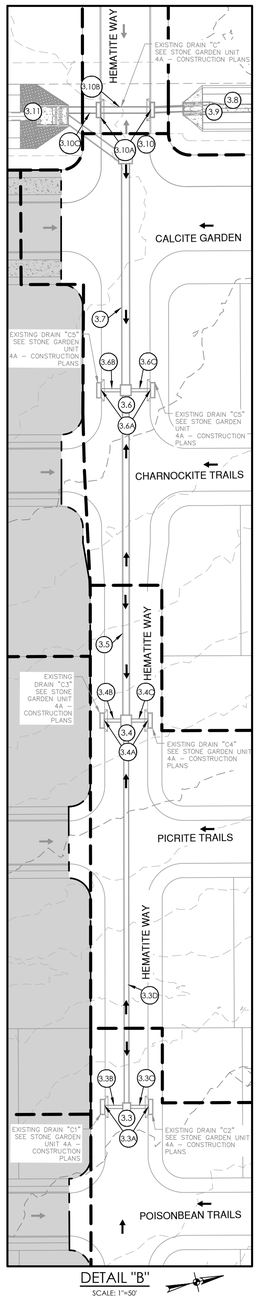
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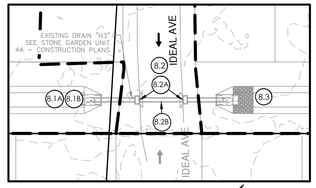
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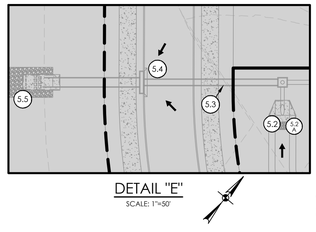
DETAIL "C"
SCALE: 1"=50'



DETAIL "B"
SCALE: 1"=50'



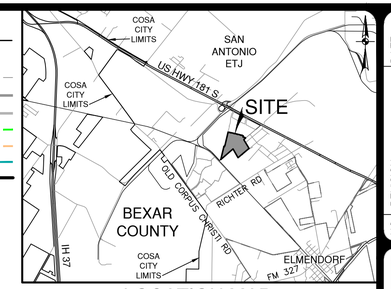
DETAIL "D"
SCALE: 1"=50'



DETAIL "E"
SCALE: 1"=50'

MASTER DRAINAGE LEGEND

PROJECT LIMITS	
EXISTING CONTOUR	690
100 YR UD/CLOMR FLOODPLAIN	
100 YR EFFECTIVE FEMA FLOODPLAIN	
OVERLAND/SHEET FLOW PATH	
SHALLOW CONCENTRATED FLOW PATH	
CHANNELIZED FLOW PATH	
DRAINAGE AREA BOUNDARY	
FHA LOT GRADING TYPE	A,B,C
PROPOSED DIRECTION OF FLOW	
EXISTING DIRECTION OF FLOW	
DRAINAGE CALCULATION POINT	0.00
DRAINAGE AREA	AREA 0.01 AC



LOCATION MAP
NOT-TO-SCALE

SCALE: 1"= 200'
0' 200' 400' 600'

NO.	REVISED STREET NAME SPELLING	DATE
1		2/10/25

STATE OF TEXAS
JIM C. WELCH
102466
LICENSED
PROFESSIONAL ENGINEER
8/27/25

PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS

OVERALL DRAINAGE PLAN
(ULTIMATE DEVELOPMENT)

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C1.00

Date: February 3, 2025, 4:30 PM – User ID: rodolfo.gallegos
File: P:\124\82\21\Design\Civil\00124822I.dwg

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Master Drainage Plan Calculations

(Ultimate Development)

Ref. Point	Structure / Description	Drainage Areas #	Area (Ac)	C	Total Flowpath (ft)	Overland/Sheet Flow (Seelye) L_O (FT)	S_O (ft/ft)	T_O* (MIN)	Shallow Concentrated Flow - 1** L_{SC} (FT)	Condition***	Slope (ft/ft)	V_{SC} (FPS)	T_{SC}** (MIN)	Shallow Concentrated Flow - 2** L_{SC} (FT)	Condition***	Slope (ft/ft)	V_{SC} (FPS)	T_{SC}** (MIN)	Channelized Flow** L_{CH} (FT)	V_{CH} (FPS)*	T_{CH}** (MIN)	$T_{C\text{-}TOT}$	Rational Method IDF Curve: CoSA Return Year	Intensity (in/hr)
1.0	DRAIN A1	A1	4.43	0.96	990	100	0.01	15	600	U	0.01	1.6	6.2				-	-	290	4.1	0.8	22	5	4.30
																						22	25	5.91
																						22	100	7.34
1.1	DRAIN A2	A2	4.74	0.96	965	100	0.01	15	600	U	0.01	1.6	6.2				-	-	265	4.0	0.7	21	5	4.40
																						21	25	6.05
																						21	100	7.52
2.0	DRAIN B	B	6.24	0.81	772	100	0.01	15	118	U	0.02	2.3	0.9				-	-	554	4.4	1.5	17	5	4.91
																						17	25	6.76
																						17	100	8.42
3.0	CALCULATION POINT	C8	1.38	0.70	505	100	0.01	15	87	U	0.01	1.6	0.9				-	-	318	1.7	0.9	16	5	5.06
																						16	25	6.99
																						16	100	8.71
3.1	CALCULATION POINT	C5	5.80	0.79	1051	100	0.01	15	130	U	0.025	2.6	0.8	821	S	0.01	2.8	4.8	-		-	20	5	4.51
																						20	25	6.21
																						20	100	7.71
3.1A	DRAIN C INLETS	C5+C7	8.54	0.78		(Reference Accumulated Flow Table)																0	5	-
																						0	25	-
																						0	100	-
3.1B	DRAIN C10	C7	2.74	0.77	520	100	0.01	15	120	U	0.02	2.3	0.9				-	-	300	2.1	0.8	16	5	5.06
																						16	25	6.99
																						16	100	8.71
3.1C	DRAIN C PIPE	C5+C7+C8	9.92	0.77		(Reference Accumulated Flow Table)																0	5	-
																						0	25	-
																						0	100	-
3.2	CALCULATION POINT	C5+C7+C8	9.92	0.77		(Reference Accumulated Flow Table)																0	5	-
																						0	25	-
																						0	100	-
3.3	CALCULATION POINT	C1	8.31	0.77	1010	100	0.01	15	120	U	0.02	2.3	0.9				-	-	790	3.8	2.2	18	5	4.76
																						18	25	6.56
																						18	100	8.16
3.3A	DRAIN C1 & DRAIN C2 INLETS	C1	8.31	0.77		(Reference Accumulated Flow Table)																0	5	-
																						0	25	-
																						0	100	-
3.3B	DRAIN C1 PIPE	C1	8.31	0.77		(Reference Accumulated Flow Table)																0	5	-
																						0	25	-
																						0	100	-
3.3C	DRAIN C2 PIPE	C1	8.31	0.77		(Reference Accumulated Flow Table)																0	5	-
																						0	25	-
																						0	100	-
3.3D	DRAIN C1 PIPE	C1	8.31	0.77		(Reference Accumulated Flow Table)																0	5	-
																						0	25	-
																						0	100	-
3.4	CALCULATION POINT	C2	4.81	0.77	1129	100	0.01	15	120	U	0.02	2.3	0.9				-	-	909	2.9	2.5	18	5	4.76
																						18	25	6.56
																						18	100	8.16
3.4A	DRAIN C3 & DRAIN C4 INLETS	C2	4.81	0.77		(Reference Accumulated Flow Table)																0	5	-
																						0	25	-
																						0	100	-
3.4B	C3 PIPE	C2	4.81	0.77		(Reference Accumulated Flow Table)																0	5	-
																						0	25	-
																						0	100	-
3.4C	C4 PIPE	C2	4.81	0.77		(Reference Accumulated Flow Table)																0	5	-
																						0	25	-
																						0	100	-
3.5	C1 PIPE	C1+C2	13.12	0.77		(Reference Accumulated Flow Table)																0	5	-
																						0	25	-
																						0	100	-
3.6	CALCULATION POINT	C3	2.30	0.79	958	100	0.01	15	68	U	0.02	2.3	0.5				-	-	790	2.2	2.2	17	5	4.91
																						17	25	6.76
																						17	100	8.42
3.6A	DRAIN C5 & DRAIN C6 INLETS	C3	2.30	0.79		(Reference Accumulated Flow Table)																0	5	-
																						0	25	-
																						0	100	-
3.6B	C5 PIPE	C3	2.30	0.79		(Reference Accumulated Flow Table)																0	5	-
																						0	25	-
																						0	100	-
3.6C	C6 PIPE	C3	2.30	0.79		(Reference Accumulated Flow Table)																0	5	-
																						0	25	-
																						0	100	-
3.7	C1 PIPE	C1+C2+C3	15.42	0.77		(Reference Accumulated Flow Table)																0	5	-
																						0	25	-
																						0	100	-
3.8	CALCULATION POINT	C9	2.87	0.70	591	100	0.02	13	163	U	0.02	2.3	1.2				-	-	328	2.7	0.9	15	5	5.24
																						15	25	7.24
																						15	100	9.03
3.9	CALCULATION POINT	C5+C7+C8+C9+P1	17.94	0.76	1275	100	0.01	15	373	U	0.01	1.6	3.9				-	-	802	2.7	2.2	21	5	4.40
																						21	25	6.05
																						21	100	7.52
3.10	CALCULATION POINT	C4	4.42	0.77	1194	100	0.01	15	-	-	-	-	-	1,094	S	0.01	3.3	5.5	-		-	20	5	4.51
																						20	25	6.21
																						20	100	7.71
3.10A	DRAIN C1 & DRAIN C INLETS	C4	4.42	0.77		(Reference Accumulated Flow Table)																0	5	-
																						0	25	-
																						0	100	-
3.10B	DRAIN C PIPE	C4+C5+C7+C8+C9+P1	22.36	0.76		(Reference Accumulated Flow Table)																0	5	-
																						0	25	-
																						0	100	-
3.10C	DRAIN C PIPE	C4+C5+C7+C8+C9+P1	22.36	0.76		(Reference Accumulated Flow Table)																0	5	-
																						0	25	-
																						0	100	-
3.11	CALCULATION POINT	C1+C2+C3+C4+C5+C7+C8+C9+P1	37.78	0.77	1194	100	0.01	15	-	-	-	-	-	1,094	S	0.01	3.3	5.5	-		-	20	5	4.51
																						20	25	6.21
																						20	100	7.71
3.12	CALCULATION POINT	C10	5.25	0.70	1191	100	0.01	13	65	U	0.01	1.6	0.7				-	-	1,026	3.2	2.9	16	5	5.06
																						16	25	6.99
																						16	100	8.71
3.13	CALCULATION POINT	C1+C2+C3+C4+C5+C7+C8+C9+C10+D+P1	48.07	0.76	1726	100	0.01	15	600	U	0.02	2.3	4.4				-	-	1,026	3.2	2.9	22	5	4.30
																						22	25	5.91
																						22	100	7.34
3.14	DRAIN C11	C6	3.66	0.82	549	100	0.01	15	17	U	0.02	2.3	0.1				-	-	432	3.2	1.2	16	5	5.06
																						16	25	6.99
																						16	100	8.71
3.14A	DRAIN C11 INLETS	C6	3.66	0.82		(Reference Accumulated Flow Table)																0	5	-
																						0	25	-
																						0	100	-
3.14B	DRAIN C 11 PIPE	C1+C2+C3+C4+C5+C6+C7+C8+C9+C10+D+P1	51.73	0.76		100	0.01	15	-	-	-	-	-	1,094	S	0.01	3.3	5.5	-		-	20	5	4.51
																						20	25	6.21
																						20	100	7.71
3.15	CALCULATION POINT	C1+C2+C3+C4+C5+C6+C7+C8+C9+C10+D+P1	51.73	0.76		(Reference Accumulated Flow Table)																0	5	-
																						0	25	-
																						0	100	-
3.16	BASIN B	C11	13.16	0.70	772	100	0.02	13	189	U	0.02	2.3	1.4				-	-	483	4.0	1.3	15	5	5.24
																						15	25	7.24
																						15	100	9.03
3.17	BASIN OUTFALL	C1+C2+C3+C4+C5+C6+C7+C8+C9+C10+C11+D+E1+E2+E3+E4+K1+K2+K3+N+P1+P3	128.27	0.76		-	-	-	-	-	-	-	-						-	-	-			0	5	SEE HE
																								0	25	SEE HE
																								0	100	SEE HE
4.0	DRAIN D	D	5.04	0.77	790	100	0.01	15	15	U	0.02	2.3	0.1	675	S	0.01	3.0	3.8	-		-	18	5	4.76
																						18	25	6.56
																						18	100	8.16
5.0	DRAIN E1	E1	8.68	0.77	1165	100	0.01	15	75	U	0.01	1.6	0.8	990	S	0.01	2.7	6.2	-		-	21	5	4.40
																						21	25	6.05
																						21	100	7.52
5.1	DRAIN E2	E2	4.92	0.77	779	100	0.01	15	15	U	0.01	1.6	0.2	664	S	0.01	3.3	3.3	-		-	18	5	4.76
																						18	25	6.56
																						18	100	8.16
5.2	DRAIN E2	E2+E3	7.14	0.75		(Reference Accumulated Flow Table)																0	5	-
																						0	25	-
																						0	100	-
5.2A	CALCULATION POINT	E3	2.22	0.70	677	100	0.01	15	115	U	0.02	2.0	1.0	-	-	-	-	-	462	3.2	1.3	17	5	4.91
																						17	25	6.76
																						17	100	8.42
5.3	DRAIN E1 PIPE	E1+E2+E3	15.82	0.76		(Reference Accumulated Flow Table)																0	5	-
																						0	25	-
																						0	100	-
5.4	DRAIN E1 INLET	E4	4.04	0.95	1531	100	0.01	15	15	U	0.01	1.6	0.2	1,416	S	0.01	3.3	7.1	-		-	22	5	4.30
																						22	25	5.91
																						22	100	7.34
5.5	CALCULATION POINT	E1+E2+E3+E4	19.86	0.80		(Reference Accumulated Flow Table)																0	5	-
																						0	25	-
																						0	100	-
6.0	CALCULATION POINT	K2	6.47	0.77		100	0.01	15	15	U	0.01	1.6	0.2	592	S	0.01	3.2	3.1	-		-	18	5	4.76
																						18	25	6.56
																						18	100	8.16
6.1	CALCULATION POINT	K3	1.51	0.77		100	0.01	15	162	U	0.01	1.6	1.7	-	-	-	-	-	102	2.1	0.3	16	5	5.06
																						16	25	6.99
																						16	100	8.71
6.2	CALCULATION POINT	K1+K2+K3	9.93	0.73		(Reference Accumulated Flow Table)																0	5	-
																						0	25	-
																						0	100	-
6.2A	CALCULATION POINT	K1	1.95	0.57		100	0.01	15	200	U	0.04	3.1	1.1	-	-	-	-	-	-		-	16	5	5.06
																						16	25	6.99
																						16	100	8.71
7.0	DRAIN G	G1	1.03	0.96	393	100	0.01	15	133	U	0.01	1.6	1.4				-	-	160	2.6	0.4	16	5	5.06
																						16	25	6.99
																						16	100	8.71
7.1	CALCULATION POINT	G2	0.77	0.96	374	100	0.01	15	172	U	0.01	1.6	1.8				-	-	102	3.1	0.3	17	5	4.91
																						17	25	6.76
																						17	100	8.42
8.0	DRAIN H1	H1	8.21	0.79	601	100	0.02	13	125	U	0.02	2.3	0.9				-	-	376	3.7	1.0	14	5	5.42
																						14	25	7.53
																						14	100	9.39
8.1	DRAIN H2	H2	4.02	0.74	640	100	0.01	15	15	U	0.02	2.3	0.1				-	-	525	3.5	1.5	16	5	5.06
																						16	25	6.99
																						16	100	8.71
8.1A	DRAIN H3	H3	1.31	0.66	286	70	0.02	13	-	-	-	-	-				-	-	216	4.3	0.6	13	5	5.61
																						13	25	7.82
																						13	100	9.76
8.1B	CALCULATION POINT	H2+H3	5.33	0.72	286	70	0.02	13	-	-	-	-	-				-	-	216	4.3	0.6	13	5	5.61
																						13	25	7.82
																						13	100	9.76
8.2	DRAIN H3	H4	0.36	0.86	193	100	0.01	15	-	-	-	-	-				-	-	93	2.0	0.3	15	5	5.24
																						15	25	7.24
																						15	100	9.03
8.2A	DRAIN H3 INLETS	H4	0.36	0.86		(Reference Accumulated Flow Table)																0	5	-
																						0	25	-
																						0	100	-
8.2B	DRAIN H3 PIPE	H2+H3+H4	5.69	0.73		(Reference Accumulated Flow Table)																0	5	-
																						0	25	-
																						0	100	-
8.3	CALCULATION POINT	H2+H3	5.33	0.72		(Reference Accumulated Flow Table)																0	5	-
																						0	25	-
																						0	100	-
8.4	CALCULATION POINT	H5	1.83	0.86	650	100	0.02	13	22	U	0.02	2.3	0.2				-	-	528	4.8	1.5	14	5	5.42
																						14	25	7.53
																						14	100	9.39
8.4A	CALCULATION POINT	H2+H3+H4+H5	7.52	0.76		(Reference Accumulated Flow Table)																0	5	-
																						0	25	-
																						0	100	-
9.0	BASIN D	I	9.20	0.89	976	100	0.02	13	491	U	0.02	2.3	3.6				-	-	385	4.0	1.1	17	5	4.91
																						17	25	6.76
																						17	100	8.42
9.1	BASIN OUTFALL	H1+H2+H3+H4+H5+I+G1	25.96	0.82		-	-	-	-	-	-	-	-				-	-	-		-	0	5	SEE HE
																								0	25	SEE HE
																								0	100	SEE HE
12.0	DRAIN L	L	5.33	0.77	788	100	0.01	15	125	U	0.01	1.6	1.3	563	S	0.01	2.4	4.0	-		-	20	5	4.51
																						20	25	6.21
																						20	100	7.71
13.0A	CALCULATION POINT	M1	1.77	0.70	776	67	0.02	12	-	-	-	-	-				-	-	709	3.1	2.0	13	5	5.61
																						13	25	7.82
																						13	100	9.76
13.1	DRAIN M1.1	M1.1	1.43	0.77	261	75	0.01	13	186	P	0.01	1.8	1.7				-	-	-		-	14	5	5.42
																						14	25	7.53
																						14	100	9.39
13.0	DRAIN M1	M1+M1.1	3.20	0.73		(Reference Accumulated Flow Table)																0	5	-
																						0	25	-
																						0	100	-
13.4	BASIN E	M2	2.55	0.70	575	100	0.01	15	63	U	0.06	4.0	0.3				-	-	412	4.0	1.1	16	5	5.06
																						16	25	6.99
																						16	100	8.71
13.2	CALCULATION POINT	M3	1.98	0.47	522	100	0.01	15	129	U	0.04	3.2	0.7				-	-	293	2.3	0.8	16	5	5.06
																						16	25	6.99
																						16	100	8.71
13.5	BASIN OUTFALL	L+M1+M1.1+M2+M3	13.06	0.70		-	-	-	-	-	-	-	-				-	-	-		-	0	5	SEE HE
																								0	25	SEE HE
																								0	100	SEE HE
15.0	BASIN C	O	15.49	0.82	1014	100	0.02	13	600	U	0.02	2.3	4.4				-	-	314	4.0	0.9	18	5	4.76
																						18	25	6.56
																						18	100	8.16
15.1	BASIN OUTFALL	A1+A2+B+O	30.90	0.86		-	-	-	-	-	-	-	-				-	-	-		-	0	5	SEE HE
																								0	25	SEE HE
																								0	100	SEE HE
16.0	DRAIN P1	P1	5.15	0.77	304	100	0.01	15	44	U	0.01	1.6	0.5	160	S	0.01	2.8	0.9	-		-	15	5	5.24
																						15	25	7.24
																						15	100	9.03
16.1	DRAIN P2	P3	0.81	0.73	355	80	0.02	11.5	-	-	-	-	-				-	-	275	6.0	0.8	12	5	5.81
																						12	25	8.12
																						12	100	10.14
16.2	DRAIN P2	P3+Q	8.84	0.77		(Reference Accumulated Flow Table)																0	5	-
																						0	25	-
																						0	100	-
16.3	DRAIN P2	P4	0.73	0.73		79	0.03	11.0	-	-	-	-	-				-	-	275	6.0	0.8	11	5	6.02
																						11	25	8.43
																						11	100	10.54
16.4	DRAIN P2	P3+Q+P4+R	16.52	0.77		(Reference Accumulated Flow Table)																0	5	-
																						0	25	-
																						0	100	-

NO.	REVISION	DATE

PAPE–DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

STATE OF TEXAS
JIM C. WELCH
102466
LICENSED
PROFESSIONAL ENGINEER
8/27/25

STONE GARDEN UNIT 5A

BEXAR COUNTY, TEXAS

OVERALL DRAINAGE PLAN
(ULTIMATE DEVELOPMENT)

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C1.00A

Date: February 3, 2025, 4:30 PM – User ID: rodolfo.gallegos
File: P:\124 82\21\design\Civil\20124822 1.dwg

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16.5	DRAIN P2	P5	0.62	0.73	324	80	0.03	11	-	-	-	-	-				-	-	244	6.0	0.7	11	5	6.02
																						11	25	8.43
																						11	100	10.54
16.6	DRAIN P2	P3+Q+P4+R+P5+R+S	22.75	0.77		(Reference Accumulated Flow Table)																0	5	-
																						0	25	-
																						0	100	-
16.7	DRAIN P2	P6	0.83	0.73	377	100	0.05	11	12	U	0.05	3.6	0.1				-	-	265	6.0	0.7	11	5	6.02
																						11	25	8.43
																						11	100	10.54
16.8	DRAIN P2	P3+Q+P4+R+P5+R+S+P6	23.58	0.76		(Reference Accumulated Flow Table)																0	5	-
																						0	25	-
																						0	100	-
16.9	DRAIN P2	P7	1.65	0.73	624	100	0.05	11	12	U	0.05	3.6	0.1				-	-	512	6.0	1.4	12	5	5.81
																						12	25	8.12
																						12	100	10.14
16.10	DRAIN P2	P3+Q+P4+R+P5+R+S+P6+P7 +T	31.12	0.76		(Reference Accumulated Flow Table)																0	5	-
																						0	25	-
																						0	100	-
17.0	DRAIN Q	Q	8.03	0.77	1009	100	0.01	15	909	S	0.02	4.0	3.8				-	-	-		-	18	5	4.76
																						18	25	6.56
																						18	100	8.16
18.0	DRAIN R	R	6.95	0.77	1085	100	0.01	15	19	U	0.01	1.6	0.2	966	S	0.02	3.8	4.3	-		-	19	5	4.63
																						19	25	6.37
																						19	100	7.93
19.0	DRAIN S	S	5.61	0.77	832	100	0.01	15	125	U	0.01	1.6	1.3	607	S	0.02	4.0	2.5			-	18	5	4.76
																						18	25	6.56
																						18	100	8.16
20.0	DRAIN T	T	5.89	0.77	1056	100	0.01	15	40	U	0.01	1.6	0.4	916	S	0.01	3.3	4.6	-		-	19	5	4.63
																						19	25	6.37
																						19	100	7.93
21.0	DRAIN U	U	6.25	0.77	1093	100	0.01	15	39	U	0.01	1.6	0.4	954	S	0.02	3.7	4.3	-		-	19	5	4.63
																						19	25	6.37
																						19	100	7.93
22.0	BASIN G	V	1.22	0.70	250	-	-	-	-	-	-	-	-				-	-	250	6.0	0.7	5	5	7.85
																						5	25	10.92
																						5	100	13.65
22.1	BASIN OUTFALL	U+AA1+V	9.49	0.76		-	-	-	-	-	-	-	-				-	-	-		-	0	5	SEE HE
																						0	25	SEE HE
																						0	100	SEE HE
23.0	DRAIN W	W	5.09	0.77	513	100	0.01	15	40	U	0.01	1.6	0.4	373	S	0.02	3.5	1.8			-	17	5	4.91
																						17	25	6.76
																						17	100	8.42
24.0	DRAIN X	X	8.46	0.77	754	100	0.01	15	36	U	0.01	1.6	0.4	618	S	0.01	2.8	3.6	-		-	19	5	4.63
																						19	25	6.37
																						19	100	7.93
25.0	INTERCEPTOR CHANNEL Y	Y	1.48	0.71	898	100	0.02	13	-	-	-	-	-				-	-	798	6.0	2.2	15	5	5.24
																						15	25	7.24
																						15	100	9.03
26.0	BASIN F	Z	1.89	0.71	150	-	-	-	-	-	-	-	-				-	-	150	6.0	0.4	5	5	7.85
																						5	25	10.92
																						5	100	13.65
26.1	BASIN OUTFALL	W+X+Y+Z+AA2	19.30	0.76		-	-	-	-	-	-	-	-				-	-	-		-	0	5	SEE HE
																						0	25	SEE HE
																						0	100	SEE HE
27.0	CALCULATION POINT	AA1	2.02	0.71	992	100	0.02	13	18	U	0.02	2.3	0.1				-	-	874	6.0	2.4	15	5	5.24
																						15	25	7.24
																						15	100	9.03
27.1	CALCULATION POINT	AA2	2.38	0.71	829	100	0.02	13	18	U	0.02	2.3	0.1				-	-	711	6.0	2.0	15	5	5.24
																						15	25	7.24
																						15	100	9.03

Rational Method Time of Concentration
*Seelye Chart or TR-55 Eqn. 3-3
**As Calculated using Mannings or TR-55 Figure 3-1 or 6 ft/s
*Listed calculated velocities using Mannings, as requested by the City of San Antonio. 6 ft/s was used to calculate time of concentration for channel flow, to produce conservative flowrates.

From TR-55 Figure 3-1**

$$v = \frac{k}{n} R^{2/3} S_o^{1/2}$$

$$k = 1.486\ ft^{1/3}/s$$

S: For Streets: n = 0.018, R = 0.2 (Adapted from Mannings)
P: For Paved: n = 0.025, R = 0.2
U: For Unpaved: n = 0.05, R = 0.4
D: For Default: v = 6 fps

Accumlated Flow Rates

Ref. Point	Desc.	Return Year	Contributing Flow: Upstream Watershed #	Contributing Flow: Upstream Watershed $Q_{WATERSHED}$ (cfs)	Contributing Flow: Upstream Pipe Flow	Contributing Flow: Upstream Pipe Flow $Q_{PIPE-UP}$ (cfs)	Reference Sub-point: T $Q_{INLET-TOTAL}$ (cfs)	Reference Sub-point: C $Q_{CAPTURED}$ (cfs)	Reference Sub-point: P Q_{PIPE} (cfs)
3.1A	**DRAIN C INLETS**	5	**1/2 3.1, 1/2 3.1B**	15.7	**N/A**	0.0	**15.7**	15.7	15.7
		25		21.6		0.0	**21.6**	21.6	21.6
		100		26.9		0.0	**26.9**	26.9	26.9
3.1C	**DRAIN C PIPE**	5	**3.1A**	15.7	**3.0**	4.9	**15.7**	15.7	20.6
		25		21.6		6.8	**21.6**	21.6	28.4
		100		26.9		8.4	**26.9**	26.9	35.3
3.2	**DRAIN C OUTFALL**	5	**3.1A**	15.7	**3.1C**	20.6	**15.7**	15.7	36.3
		25		21.6		28.4	**21.6**	21.6	50.0
		100		26.9		35.3	**26.9**	26.9	62.1
3.3A	**DRAIN C1/C2 INLETS**	5	**1/2 3.3**	16.2	**N/A**	0.0	**16.2**	16.2	16.2
		25		22.4		0.0	**22.4**	22.4	22.4
		100		27.9		0.0	**27.9**	27.9	27.9
3.3B	**DRAIN C1 PIPE**	5	**3.3A**	16.2	**N/A**	0.0	**16.2**	16.2	16.2
		25		22.4		0.0	**22.4**	22.4	22.4
		100		27.9		0.0	**27.9**	27.9	27.9
3.3C	**DRAIN C2 PIPE**	5	**3.3A**	16.2	**N/A**	0.0	**16.2**	16.2	16.2
		25		22.4		0.0	**22.4**	22.4	22.4
		100		27.9		0.0	**27.9**	27.9	27.9
3.3D	**DRAIN C1 PIPE**	5	**N/A**	0.0	**3.3B, 3.3C**	32.4	**32.4**	32.4	32.4
		25		0.0		44.7	**44.7**	44.7	44.7
		100		0.0		55.7	**55.7**	55.7	55.7
3.4A	**DRAIN C3/C4 INLETS**	5	**1/2 3.4**	9.7	**N/A**	0.0	**9.7**	9.7	9.7
		25		13.4		0.0	**13.4**	13.4	13.4
		100		16.7		0.0	**16.7**	16.7	16.7
3.4B	**DRAIN C3 PIPE**	5	**3.4A**	9.7	**N/A**	0.0	**9.7**	9.7	9.7
		25		13.4		0.0	**13.4**	13.4	13.4
		100		16.7		0.0	**16.7**	16.7	16.7
3.4C	**DRAIN C4 PIPE**	5	**3.3A**	9.7	**N/A**	0.0	**9.7**	9.7	9.7
		25		13.4		0.0	**13.4**	13.4	13.4
		100		16.7		0.0	**16.7**	16.7	16.7
3.5	**DRAIN C1 PIPE**	5	**N/A**	0.0	**3.3D, 3.4B, 3.4C**	51.8	**0.0**	-	51.8
		25		0.0		71.5	**0.0**	-	71.5
		100		0.0		89.1	**0.0**	-	89.1
3.6A	**DRAIN C5/C6 INLETS**	5	**1/2 3.6**	4.5	**N/A**	0.0	**4.5**	4.5	4.5
		25		6.2		0.0	**6.2**	6.2	6.2
		100		7.7		0.0	**7.7**	7.7	7.7
3.6B	**DRAIN C5 PIPE**	5	**3.6A**	4.5	**N/A**	0.0	**4.5**	4.5	4.5
		25		6.2		0.0	**6.2**	6.2	6.2
		100		7.7		0.0	**7.7**	7.7	7.7
3.6C	**DRAIN C6 PIPE**	5	**3.6A**	4.5	**N/A**	0.0	**4.5**	4.5	4.5
		25		6.2		0.0	**6.2**	6.2	6.2
		100		7.7		0.0	**7.7**	7.7	7.7
3.7	**DRAIN C1 PIPE**	5	**N/A**	0.0	**3.5, 3.6B, 3.6C**	60.7	**0.0**	-	60.7
		25		0.0		83.8	**0.0**	-	83.8
		100		0.0		104.4	**0.0**	-	104.4
3.10A	**DRAIN C/C1 INLETS**	5	**1/2 3.10**	7.7	**N/A**	0.0	**7.7**	7.7	7.7
		25		10.6		0.0	**10.6**	10.6	10.6
		100		13.1		0.0	**13.1**	13.1	13.1
3.10B	**DRAIN C PIPE**	5	**3.10A**	7.7	**3.9, 16.0**	80.8	**7.7**	7.7	88.5
		25		10.6		111.2	**10.6**	10.6	121.8
		100		13.1		138.3	**13.1**	13.1	151.4
3.10C	**DRAIN C PIPE**	5	**3.10A**	7.7	**3.10 B**	88.5	**7.7**	7.7	96.1
		25		10.6		121.8	**10.6**	10.6	132.3
		100		13.1		151.4	**13.1**	13.1	164.5
3.11	**DRAIN C1 OUTFALL**	5	**N/A**	0.0	**3.7, 3.10C**	156.8	**0.0**	-	156.8
		25		0.0		216.1	**0.0**	-	216.1
		100		0.0		268.9	**0.0**	-	268.9
3.14A	**DRAIN C11 INLETS**	5	**1/2 3.13**	7.6	**N/A**	0.0	**7.6**	7.6	7.6
		25		10.5		0.0	**10.5**	10.5	10.5
		100		13.1		0.0	**13.1**	13.1	13.1
3.15	**DRAIN C OUTFALL**	5	**1/2 3.13**	7.6	**3.14B**	177.3	**7.6**	7.6	184.9
		25		10.5		244.1	**10.5**	10.5	254.6
		100		13.1		303.1	**13.1**	13.1	316.2
5.2	**DRAIN E2**	5	**5.1, 5.2A**	25.6	**N/A**	0.0	**25.6**	25.6	25.6
		25		35.4		0.0	**35.4**	35.4	35.4
		100		44.0		0.0	**44.0**	44.0	44.0
5.3	**DRAIN E1 PIPE**	5	**N/A**	0.0	**5.0, 5.2**	55.0	**0.0**	-	55.0
		25		0.0		75.8	**0.0**	-	75.8
		100		0.0		94.3	**0.0**	-	94.3
5.5	**DRAIN C11 OUTFALL**	5	**5.4**	16.5	**5.3**	55.0	**16.5**	16.5	71.5
		25		22.7		75.8	**22.7**	22.7	98.5
		100		28.2		94.3	**28.2**	28.2	122.5
6.2	**DRAIN K2**	5	**6.0, 6.1, 6.2A**	35.2	**N/A**	0.0	**35.2**	35.2	35.2
		25		48.6		0.0	**48.6**	48.6	48.6
		100		60.5		0.0	**60.5**	60.5	60.5
13.0	**DRAIN M1**	5	**13.1, 13.0A**	13.0	**N/A**	0.0	**13.0**	13.0	13.0
		25		18.0		0.0	**18.0**	18.0	18.0
		100		22.4		0.0	**22.4**	22.4	22.4
3.15	**DRAIN C11 OUTFALL**	5	**3.14A**	13.0	**3.14B**	177.3	**13.0**	13.0	190.3
		25		18.0		244.1	**18.0**	18.0	262.1
		100		22.4		303.1	**22.4**	22.4	325.5
8.2A	**DRAIN H3 INLETS**	5	**1/2 8.2**	0.9	**N/A**	0.0	**0.9**	0.9	0.9
		25		1.2		0.0	**1.2**	1.2	1.2
		100		1.5		0.0	**1.5**	1.5	1.5
8.2B	**DRAIN H3 PIPE**	5	**8.2A**	0.9	**8.1B**	21.5	**0.9**	0.9	22.4
		25		1.2		30.0	**1.2**	1.2	31.2
		100		1.5		37.5	**1.5**	1.5	39.0
8.3	**DRAIN H3 OUTFALL**	5	**N/A**	0.0	**8.2A, 8.2B**	23.2	**0.0**	-	23.2
		25		0.0		32.4	**0.0**	-	32.4
		100		0.0		40.5	**0.0**	-	40.5
8.4A	**DRAIN H3 OUTFALL**	5	**8.4**	8.5	**8.3**	23.2	**8.5**	8.5	31.7
		25		11.9		32.4	**11.9**	11.9	44.3
		100		14.8		40.5	**14.8**	14.8	55.3
16.2	**DRAIN P2**	5	**16.1, 17.0**	32.8	**N/A**	0.0	**32.8**	32.8	32.8
		25		45.4		0.0	**45.4**	45.4	45.4
		100		56.5		0.0	**56.5**	56.5	56.5
16.4	**DRAIN P2**	5	**16.2,**	60.8	**N/A**	0.0	**60.8**	60.8	60.8
		25	**16.3,**	84.0		0.0	**84.0**	84.0	84.0
		100	**18.0**	104.5		0.0	**104.5**	104.5	104.5
16.6	**DRAIN P2**	5	**16.4,**	84.1	**N/A**	0.0	**84.1**	84.1	84.1
		25	**16.5,**	116.1		0.0	**116.1**	116.1	116.1
		100	**19.0**	144.5		0.0	**144.5**	144.5	144.5
16.8	**DRAIN P2**	5	**16.6, 16.7**	87.7	**N/A**	0.0	**87.7**	87.7	87.7
		25		121.2		0.0	**121.2**	121.2	121.2
		100		150.9		0.0	**150.9**	150.9	150.9
16.10	**DRAIN P2**	5	**16.8,**	115.7	**N/A**	0.0	**115.7**	115.7	115.7
		25	**16.9,**	159.9		0.0	**159.9**	159.9	159.9
		100	**20.0**	199.1		0.0	**199.1**	199.1	199.1

NO.	REVISION	DATE

PAPE–DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

STATE OF TEXAS
JIM C. WELCH
102466
LICENSED
PROFESSIONAL ENGINEER
8/27/25

STONE GARDEN UNIT 5A

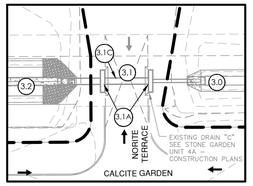
BEXAR COUNTY, TEXAS

OVERALL DRAINAGE PLAN
(ULTIMATE DEVELOPMENT)

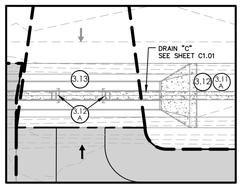
PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C1.00B

Date: February 3, 2025, 4:30 PM – User ID: rodolfo.gallegos
File: P:\124 82\21\Design\Civil\00124822 1.dwg

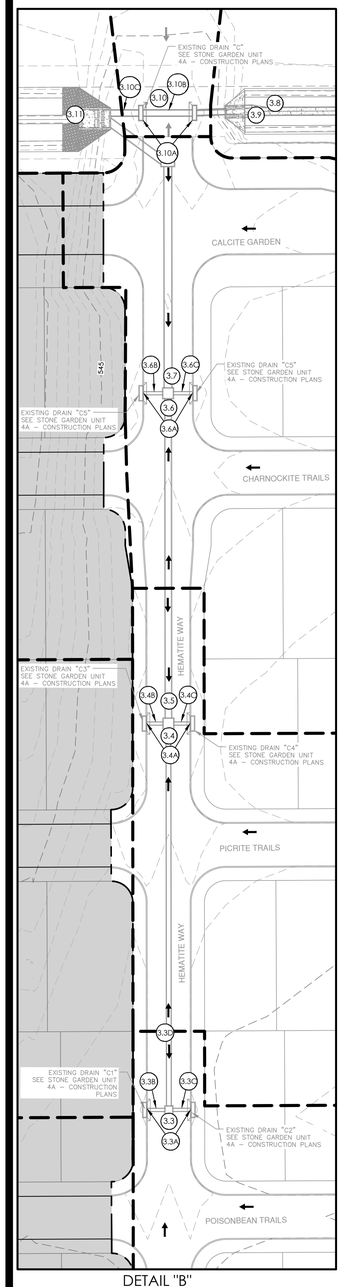
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DETAIL "A"
SCALE: 1"=50'



DETAIL "C"
SCALE: 1"=50'



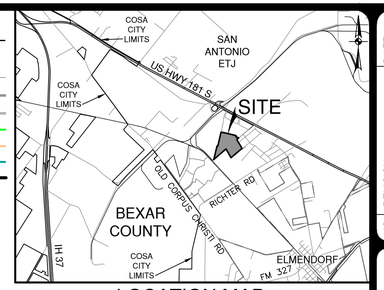
DETAIL "B"
SCALE: 1"=50'



DETAIL "D"
SCALE: 1"=50'

MASTER DRAINAGE LEGEND

PROJECT LIMITS	
EXISTING CONTOUR	690
100 YR UD/CLOMR FLOODPLAIN	
100 YR EFFECTIVE FEMA FLOODPLAIN	
OVERLAND/SHEET FLOW PATH	
SHALLOW CONCENTRATED FLOW PATH	
CHANNELIZED FLOW PATH	
DRAINAGE AREA BOUNDARY	
FHA LOT GRADING TYPE	A,B,C
PROPOSED DIRECTION OF FLOW	
EXISTING DIRECTION OF FLOW	
DRAINAGE CALCULATION POINT	0.00
DRAINAGE AREA	AREA 0.01 AC



LOCATION MAP
NOT-TO-SCALE

SCALE: 1"= 200'
0' 200' 400' 600'



PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102468
LICENSED
PROFESSIONAL ENGINEER
8/27/25

STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS

OVERALL DRAINAGE PLAN
(PROPOSED CONDITIONS)

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C1.00C

Date: February 3, 2025, 2:06 PM – User ID: rodolfo.gallegos
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Proposed Conditions Calculations

Ref. Point	Structure / Description	Drainage Areas #	Area (Ac)	C	Total Flowpath (ft)	Overland/Sheet Flow (Seelye) L_O (FT)	S_O (ft/ft)	T_O* (MIN)	Shallow Concentrated Flow - 1** L_{SC} (FT)	Condition***	Slope (ft/ft)	V_{SC} (FPS)	T_{SC}** (MIN)	Shallow Concentrated Flow - 2** L_{SC} (FT)	Condition***	Slope (ft/ft)	V_{SC} (FPS)	T_{SC}** (MIN)	Channelized Flow** L_{CH} (FT)	V_{CH} (FPS)*	T_{CH}** (MIN)	$T_{C\text{-}TOT}$	Rational Method IDF Curve: CoSA_A Return Year	Intensity (in/hr)
3.11	CALCULATION POINT	C1+C2+C3+C4+C5+C7+C8+Y1	34.61	0.67		(Reference Stone Garden Unit 4A, Plat No. 24-11800158 for Calculations)																	5	-
																							25	-
																							100	-
3.11A	CALCULATION POINT	Y2	29.76	0.47	2575	100	0.03	12	475	U	0.02	2.3	3.5	600	U	0.02	2.3	4.4	1,400	6.0	3.9	23	5	4.21
																						23	25	5.77
																						23	100	7.17
3.12	CALCULATION POINT	C1+C2+C3+C4+C5+C7+C8+D+Y1+Y2	69.41	0.59	2575	100	0.03	12	475	U	0.02	2.3	3.5	600	U	0.02	2.3	4.4	1,400	6.0	3.9	23	5	4.21
																						23	25	5.77
																						23	100	7.17
3.12A	DRAIN C INLETS	C6	4.19	0.51		(Reference Accumulated Flow Table)																	5	-
																							25	-
																							100	-
3.13	CALCULATION POINT	C6	4.19	0.51		100	0.01	15	600	U	0.02	2.3	4.4	600	U	0.02	2.4	4.2	444	3.2	1.2	24	5	4.12
																						24	25	5.65
																						24	100	7.01
3.14	CALCULATION POINT	C1+C2+C3+C4+C5+C6+C7+C8+D+Y1+Y2	73.60	0.59		100	0.03	12	475	U	0.02	2.3	3.5	600	U	0.02	2.3	4.4	1,400	6.0	3.9	23	5	4.21
																						23	25	5.77
																						23	100	7.17
4.0	DRAIN D	D	5.04	0.77	790	100	0.01	15	15	U	0.02	2.3	0.1	675	S	0.01	3.0	3.8	-		-	18	5	4.76
																						18	25	6.56
																						18	100	8.16
5.0	DRAIN E	E1	8.68	0.77	1165	100	0.01	15	75	U	0.01	1.6	0.8	990	S	0.01	2.7	6.2	-		-	21	5	4.40
																						21	25	6.05
																						21	100	7.52
5.1	DRAIN E1	E2	4.92	0.77	780	100	0.01	15	16	U	0.01	1.6	0.2	664	S	0.01	3.3	3.3			-	18	5	4.76
																						18	25	6.56
																						18	100	8.16
5.2	DRAIN E1	E2+E3	7.14	0.75		(Reference Accumulated Flow Table)																	5	-
																							25	-
																							100	-
5.2A	CALCULATION POINT	E3	2.22	0.70	677	100	0.01	15	115	U	0.02	2.0	1.0	-	-	-	-	-	462	3.2	1.3	17	5	4.91
																						17	25	6.76
																						17	100	8.42
5.3	DRAIN E PIPE	E1+E2+E3	15.82	0.76		(Reference Accumulated Flow Table)																	5	-
																							25	-
																							100	-
5.4	DRAIN E4	E4	4.04	0.95	2044	28	0.02	8	600	U	0.02	2.3	4.4	1,416	S	0.01	2.4	9.7	-		-	22	5	4.30
																						22	25	5.91
																						22	100	7.34
5.5	DRAIN E PIPE OUTFALL	E1+E2+E3+E4	19.86	0.80		(Reference Accumulated Flow Table)																	5	-
																							25	-
																							100	-
6.0	DRAIN K1	K2	6.47	0.77	707	100	0.01	15	15	U	0.01	1.6	0.2	592	S	0.01	3.2	3.1	-		-	18	5	4.76
																						18	25	6.56
																						18	100	8.16
6.1	DRAIN K2	K3	1.51	0.77	364	100	0.01	15	162	U	0.01	1.6	1.7				-	-	102	2.1	0.3	16	5	5.06
																						16	25	6.99
																						16	100	8.71
6.2	DRAIN K2	K1+K2+K3	9.93	0.73		(Reference Accumulated Flow Table)																	5	-
																							25	-
																							100	-
6.2A	CALCULATION POINT	K1	1.95	0.57	300	100	0.01	15	200	U	0.04	3.0	1.1				-	-			-	16	5	5.06
																						16	25	6.99
																						16	100	8.71
7.0	DRAIN L	L	5.33	0.77	788	100	0.01	15	125	U	0.01	1.6	1.3	563	S	0.01	2.4	4.0	-		-	20	5	4.51
																						20	25	6.21
																						20	100	7.71
7.1	DRAIN M1.1	M1.1	1.43	0.77	261	75	0.01	13	186	P	0.01	1.8	1.7				-	-	-		-	14	5	5.42
																						14	25	7.53
																						14	100	9.39
7.2	DRAIN M1	M1+M1.1	3.20	0.73		(Reference Accumulated Flow Table)																	5	-
																							25	-
																							100	-
7.2A	CALCULATION POINT	M1	1.77	0.70	776	67	0.02	12	-	-	-	-	-				-	-	709	3.1	2.0	13	5	5.61
																						13	25	7.82
																						13	100	9.76
7.3	DRAIN M2	M3	1.98	0.47	522	100	0.01	15	129	U	0.04	3.1	0.7				-	-	293	2.3	0.8	16	5	5.06
																						16	25	6.99
																						16	100	8.71
7.4A	CALCULATION POINT	M2	2.55	0.70	575	100	0.01	15	63	U	0.06	4.0	0.3				-	-	412	4.0	1.1	16	5	5.06
																						16	25	6.99
																						16	100	8.71
7.4	BASIN OUTFALL	L+M1+M1.1+M2+M3	13.06	0.70		-	-	-	-	-	-	-	-				-	-	-		-		5	SEE HE
																							25	SEE HE
																							100	SEE HE
7.5	CALCULATION POINT	P	0.15	1.00	120	13	0.02	6	107	P	0.03	3.3	0.5				-	-	-		-	6	5	7.40
																						6	25	10.36
																						6	100	12.96
8.0	CALCULATION POINT	X	19.09	0.47	700	100	0.01	15	600	U	0.02	2.3	4.4				-	-	-		-	19	5	4.63
																						19	25	6.37
																						19	100	7.93
9.0	CALCULATION POINT	Z	8.23	0.47	634	100	0.01	15	534	U	0.01	1.1	7.8				-	-	-		-	22	5	4.30
																						22	25	5.91
																						22	100	7.34
9.1	BASIN OUTFALL	C1+C2+C3+C4+C5+C6+C7+C8+D+Y1+Y2+X+Z	100.92	0.55		-	-	-	-	-	-	-	-				-	-	-		-		5	SEE HE
																							25	SEE HE
																							100	SEE HE
10.0	CALCULATION POINT	W	20.50	0.47	1266	100	0.01	15	600	U	0.01	1.7	5.9				-	-	566	6.0	1.6	22	5	4.30
																						22	25	5.91
																						22	100	7.34

Rational Method Time of Concentration
*Seelye Chart or TR-55 Eqn. 3-3
**As Calculated using Mannings or TR-55 Figure 3-1 or 6 ft/s
*Listed calculated velocities using Mannings, as requested by the City of San Antonio. 6 ft/s was used to calculate time of concentration for channel flow, to produce conservative flowrates.

From TR-55 Figure 3-1**

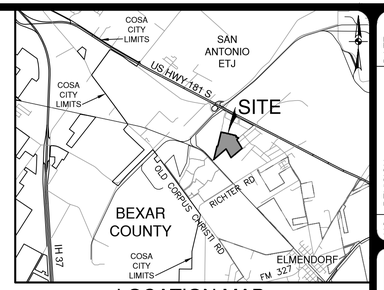
$$v = \frac{k}{n} R^{2/3} S_o^{1/2}$$

$$k = 1.486\ ft^{1/3}/s$$

S: For Streets: n = 0.018, R = 0.2 (Adapted from Mannings)
P: For Paved: n = 0.025, R = 0.2
U: For Unpaved: n = 0.05, R = 0.4
D: For Default: v = 6 fps

Accumlated Flow Rates

Ref. Point	Desc.	Contributing Flow: Upstream Watershed Return Year	Upstream Watershed #	Upstream Watershed $Q_{WATERSHED}$ (cfs)	Upstream Pipe Ref. Point	Upstream Pipe $Q_{PIPE\text{-}UP}$ (cfs)	Reference Sub-point T $Q_{INLET\text{-}TOTAL}$ (cfs)	Reference Sub-point C $Q_{CAPTURED}$ (cfs)	Reference Sub-point P Q_{PIPE} (cfs)
3.12A	DRAIN C INLETS	5	**1/2 3.13**	4.4	**N/A**		**4.4**	4.4	4.4
		25		6.1			**6.1**	6.1	6.1
		100		7.5			**7.5**	7.5	7.5
5.2	DRAIN E2	5	**5.1, 5.2A**	25.6	**N/A**		**25.6**	25.6	25.6
		25		35.4			**35.4**	35.4	35.4
		100		44.0			**44.0**	44.0	44.0
5.3	DRAIN E PIPE	5	**5.1, 5.2A**	25.6	**5.0**	29.4	**25.6**	25.6	55.0
		25		35.4		40.4	**35.4**	35.4	75.8
		100		44.0		50.3	**44.0**	44.0	94.3
5.5	DRAIN E OUTFALL	5	**5.4**	16.5	**5.3**	55.0	**16.5**	16.5	71.5
		25		22.7		75.8	**22.7**	22.7	98.5
		100		28.2		94.3	**28.2**	28.2	122.5
6.2	DRAIN K2	5	**6.0, 6.1, 6.2A**	35.2	**N/A**		**35.2**	35.2	35.2
		25		48.6			**48.6**	48.6	48.6
		100		60.5			**60.5**	60.5	60.5
7.2	DRAIN M1	5	**7.2A, 7.1**	13.0	**N/A**		**13.0**	13.0	13.0
		25		18.0			**18.0**	18.0	18.0
		100		22.4			**22.4**	22.4	22.4



LOCATION MAP
NOT-TO-SCALE

NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102466
LICENSED
PROFESSIONAL ENGINEER
8/27/25

PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

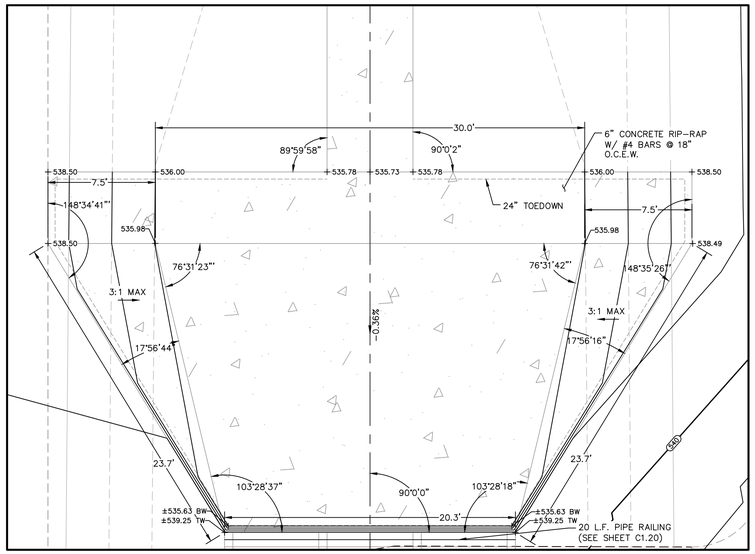
STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS

OVERALL DRAINAGE PLAN
(PROPOSED CONDITIONS)

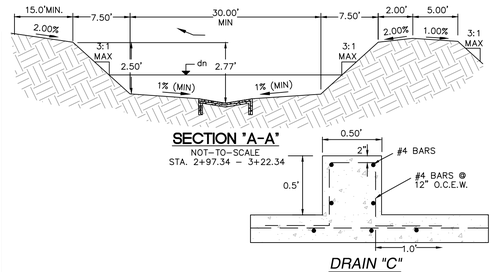
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DESIGNER LM
CHECKED DW DRAWN TC
SHEET C1.00D

Date: February 3, 2025, 2:06 PM - User ID: rodolfo.gallegos
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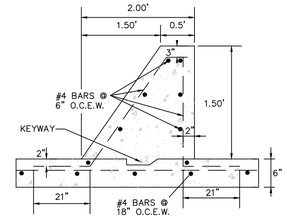


DETAIL "A"
SCALE: 1" = 5'

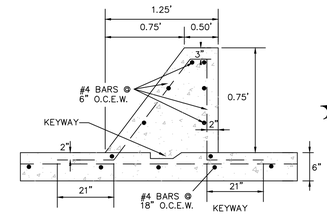


SECTION "A-A"
NOT-TO-SCALE
STA. 2+97.34 – 3+22.34

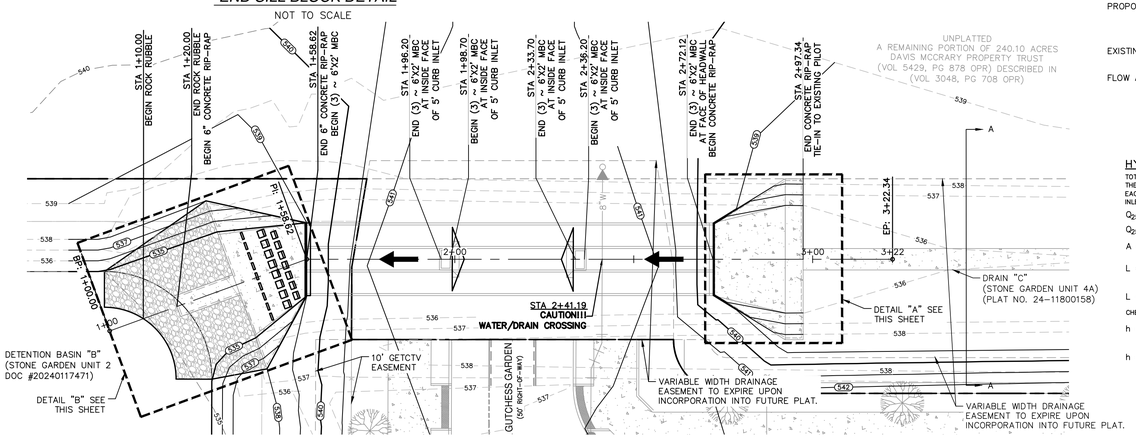
DRAIN "C" END SILL BLOCK DETAIL
NOT TO SCALE



DRAIN "C" BLOCK 2 DETAIL
NOT TO SCALE

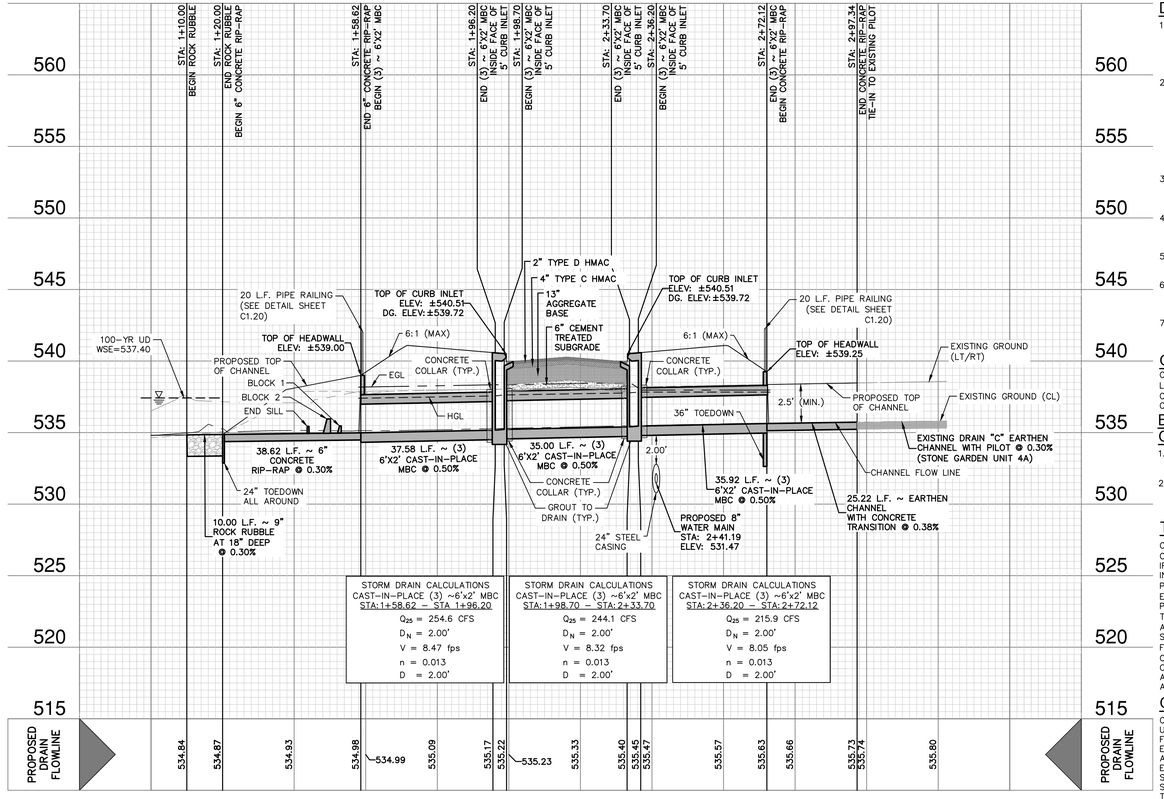


DRAIN "C" BAFFLE BLOCK 1 DETAIL
NOT TO SCALE



DRAIN "C"
STA. 1+10.00 TO 2+97.34

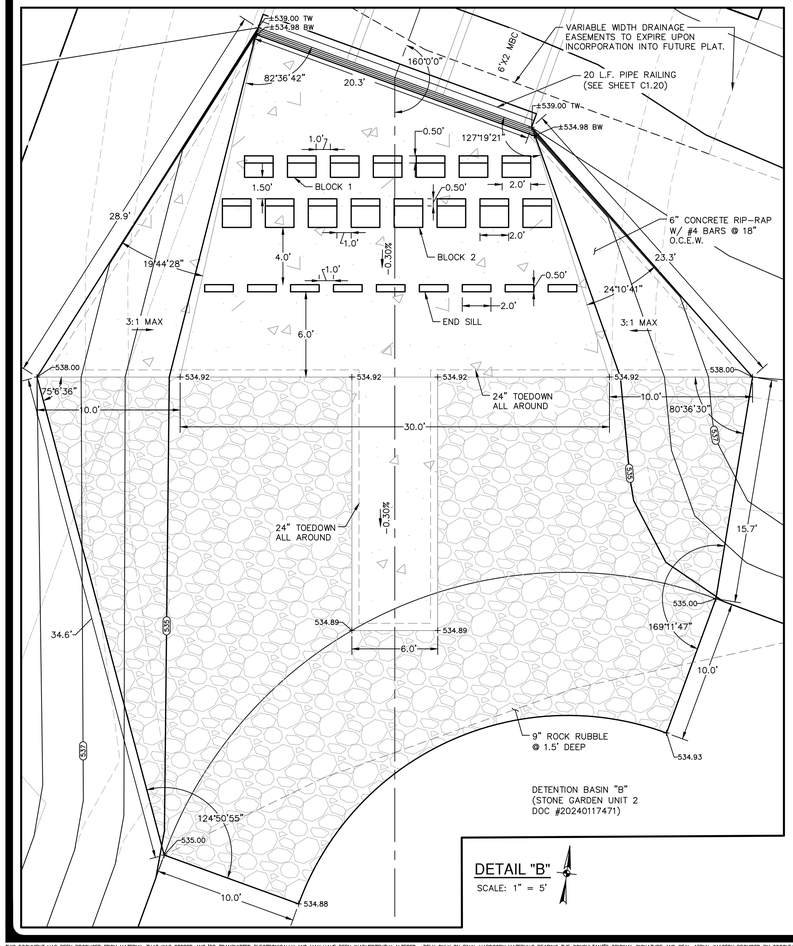
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HORIZONTAL SCALE: 1" = 20'



STORM DRAIN CALCULATIONS CAST-IN-PLACE (3) ~6'x2' MBC STA:1+58.62 – STA 1+96.20
Q_{25} = 254.6 CFS
D_N = 2.00'
V = 8.47 fps
n = 0.013
D = 2.00'

STORM DRAIN CALCULATIONS CAST-IN-PLACE (3) ~6'x2' MBC STA:1+98.70 – STA:2+33.70
Q_{25} = 244.1 CFS
D_N = 2.00'
V = 8.32 fps
n = 0.013
D = 2.00'

STORM DRAIN CALCULATIONS CAST-IN-PLACE (3) ~6'x2' MBC STA:2+36.20 – STA:2+72.12
Q_{25} = 215.9 CFS
D_N = 2.00'
V = 8.05 fps
n = 0.013
D = 2.00'



DETAIL "B"
SCALE: 1" = 5'

DETENTION BASIN "B"
(STONE GARDEN UNIT 2
DOC #20240117471)

SCALE: 1"= 20'
0' 20' 40' 60'

DRAINAGE LEGEND

- PROJECT LIMITS
- 100 YR FLOODPLAIN
- EXISTING CONTOUR — 690
- PROPOSED CONTOUR — 690
- PROPOSED WATER — W
- PROPOSED SEWER — SS
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- FLOW ARROW

HYDRAULIC CALCULATIONS–DRAIN "C" CURB INLETS

TOTAL Q25 FOR THE CURB INLETS IS EQUAL TO 21.0 CFS. TWO INLETS WILL CAPTURE THE TOTAL FLOW. AS A RESULT, TOTAL FLOW HAS BEEN DIVIDED IN HALF TO SIZE EACH INLET. ANALYSIS BELOW SHOWS CALCULATIONS FOR SIZING ONE OF THE TWO INLETS.

Q_{25} = 21.0 CFS (11.5 CFS EACH INLET)

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

A = L(0.52), h = 0.58, g = 32.2, c = 0.70

$$L = \frac{21.0 \text{ CFS}}{(0.7)\ (0.52)\sqrt{2}\ (32.2)\ (0.58)}$$

L = 9.44 FT USE 2 ~ 5 FT CURB INLET

CHECK WITH WEIR FORMULA

$$h = \left(\frac{Q}{(CL)}\right)^{2/3} = \left(\frac{21.0}{(3.087)\ (10)}\right)^{2/3} = 0.77 \text{ FT.}$$

h = 0.77 < 0.79 OK

DRAINAGE & GRADING NOTES:

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

OPEN EARTHEN CHANNEL NOTE:

CONTRACTOR SHALL REFERENCE TABLE 9.3.8.1 – "RETARDATION CLASS FOR LINING MATERIALS" PROVIDED ON SHEET C1.20 AND SUPPLIED RETARDANCE CLASS (RC) FOR CHOICE OF COVER WITHIN OPEN EARTHEN CHANNEL CROSS-SECTIONS.

BEXAR COUNTY FLOOD PLAIN GENERAL CONSTRUCTION NOTES:

1. CONTRACTOR IS TO MAINTAIN UNRESTRICTED DRAINAGE OF THE PROJECT SITE AND ADJACENT AREAS DURING CONSTRUCTION.
2. NO CONSTRUCTION MATERIAL AND/OR WASTE MATERIAL SHALL BE PLACED IN EXISTING LOWS THAT WILL BLOCK OR ALTER FLOW LIMITS OF THE EXISTING NATURAL DRAINAGE OR PLACED WITHIN THE LIMITS OF THE EXISTING FLOOD PLAIN.

TRENCH EXCAVATION SAFETY PROTECTION:

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

CAUTION!!

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

NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102468
LICENSED
PROFESSIONAL ENGINEER
8/27/25

PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

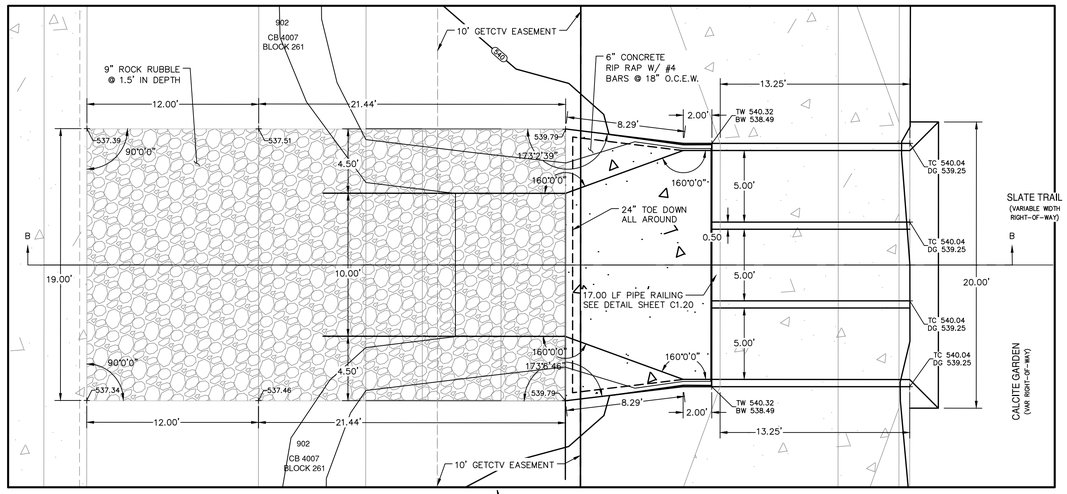
STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS

DRAIN C PLAN & PROFILE STA. 1+10.00 TO 2+97.34

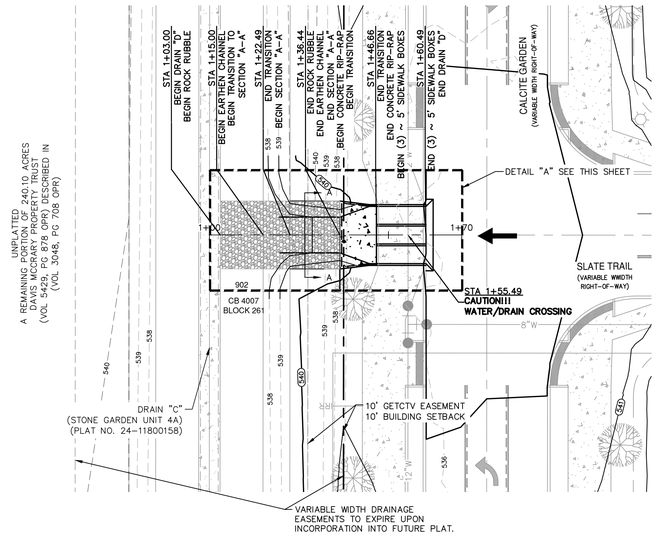
PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C1.01

Date: February 3, 2025, 2:09 PM – User ID: rodolfo.gallegos
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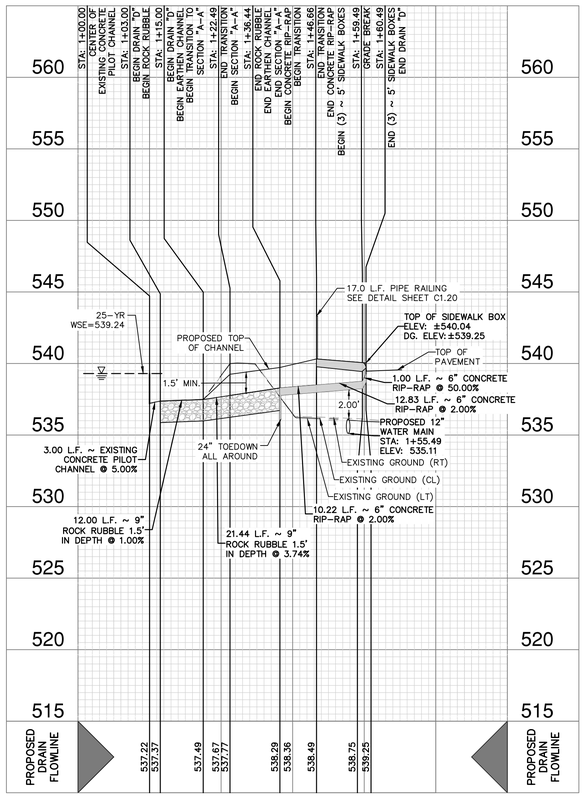


DETAIL "A"
SCALE: 1" = 5'



DRAIN "D"
STA. 1+00.00 TO 1+70.49

VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 20'



DRAINAGE LEGEND

- PROJECT LIMITS
- 100 YR FLOODPLAIN
- EXISTING CONTOUR — 690
- PROPOSED CONTOUR — 690
- PROPOSED WATER — W
- PROPOSED SEWER — SS
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- FLOW ARROW

HYDRAULIC CALCULATIONS–DRAIN "D"

Q_{25} = 25.5 CFS

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

A = L(0.44), h = 0.58, g = 32.2, c = 0.67

$$L = \frac{25.5 \text{ CFS}}{(0.67)\ (0.50)\sqrt{2}\ (32.2)\ (0.58)}$$

L = 12.45 FT USE 1 ~ 15 FT CURB INLET EACH SIDE

CHECK WITH WEIR FORMULA

$$h = \left(\frac{Q}{(CL)}\right)^{2/3} = \left(\frac{25.5}{(3.087)\ (15)}\right)^{2/3} = 0.67 \text{ FT.}$$

h = 0.67 < 0.79 OK

DRAINAGE & GRADING NOTES:

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OPEN EARTHEN CHANNEL NOTE:

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BEXAR COUNTY FLOOD PLAIN GENERAL CONSTRUCTION NOTES:

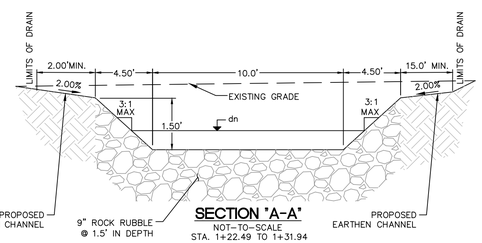
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TRENCH EXCAVATION SAFETY PROTECTION:

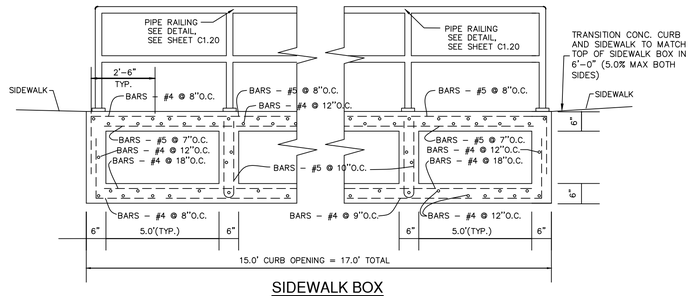
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CAUTION!!

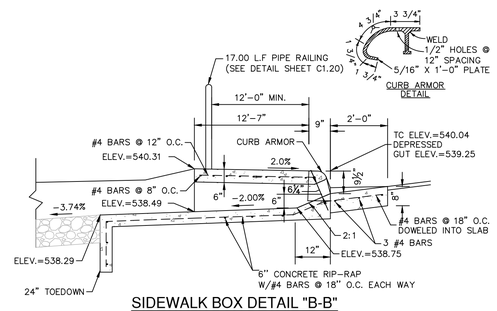
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SECTION "A-A"
NOT-TO-SCALE
STA. 1+22.49 TO 1+31.94



SIDEWALK BOX
NOT-TO-SCALE



SIDEWALK BOX DETAIL "B-B"
NOT-TO-SCALE

HYDRAULIC CALCULATIONS ROCK RUBBLE

STA. 1+22.49 TO 1+36.44

Q25	= 25.5 CFS
Bw	= 10 FT
n	= 0.038
S	= 3.74%
D	= 1.50 FT
dn	= 0.50 FT
V	= 4.43 FPS
T	= 1.02 LB/FT^2
RC	= N/A

HYDRAULIC CALCULATIONS RIP-RAP

STA. 1+36.44 TO 1+46.66

Q25	= 25.5 CFS
Bw	= 10 FT
n	= 0.013
S	= 2.00%
D	= 1.50 FT
dn	= 0.32 FT
V	= 7.17 FPS
T	= 0.37 LB/FT^2
RC	= N/A

PAPE–DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

NO. | REVISION | DATE

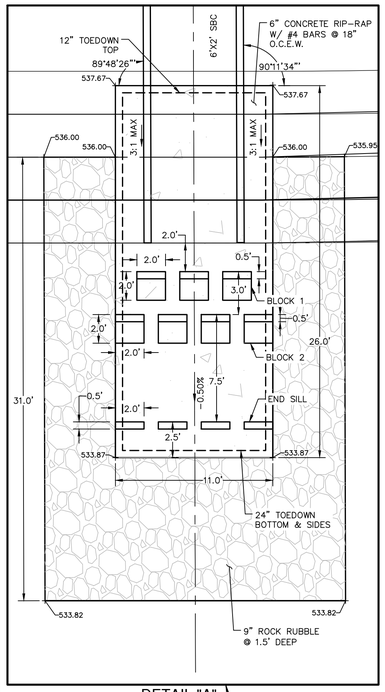
STATE OF TEXAS
JIM C. WELCH
102466
LICENSED
PROFESSIONAL ENGINEER
8/27/25

STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS
DRAIN D PLAN & PROFILE STA. 1+00.00 TO 1+70.49

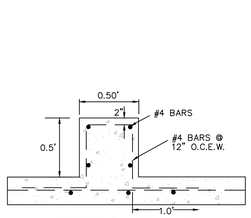
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JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C1.02

Date: February 3, 2025, 2:12 PM – User ID: rodolfo.gallegos
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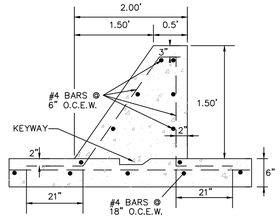
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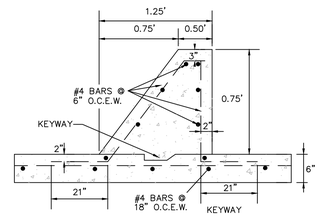
DETAIL "A"
SCALE: 1" = 5'



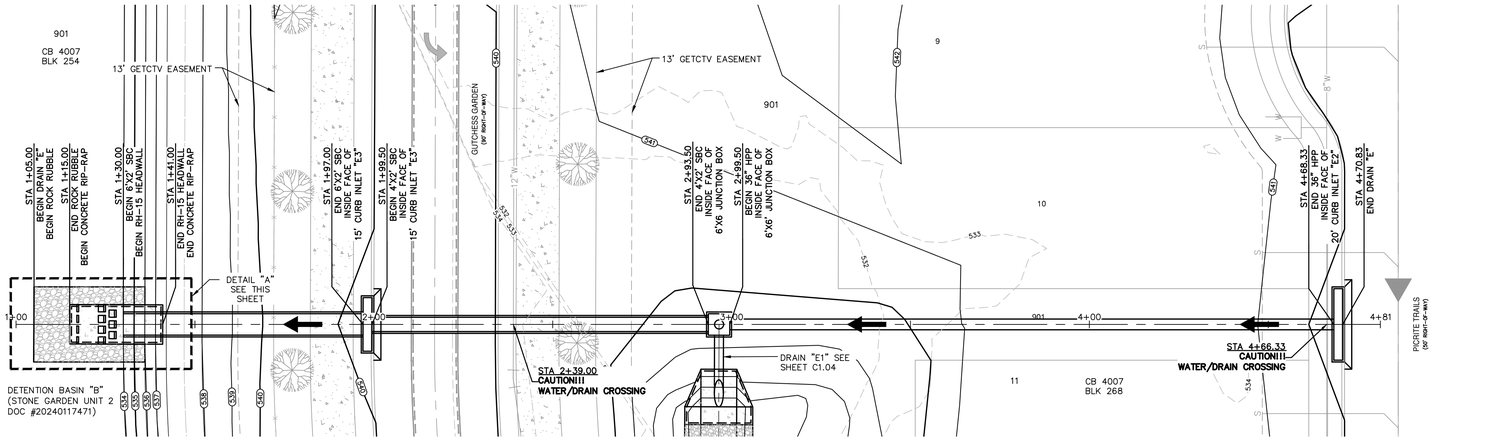
DETENTION DRAIN "E"
END SILL BLOCK DETAIL
NOT TO SCALE



DETENTION DRAIN "E"
BAFFLE BLOCK 2 DETAIL
NOT TO SCALE

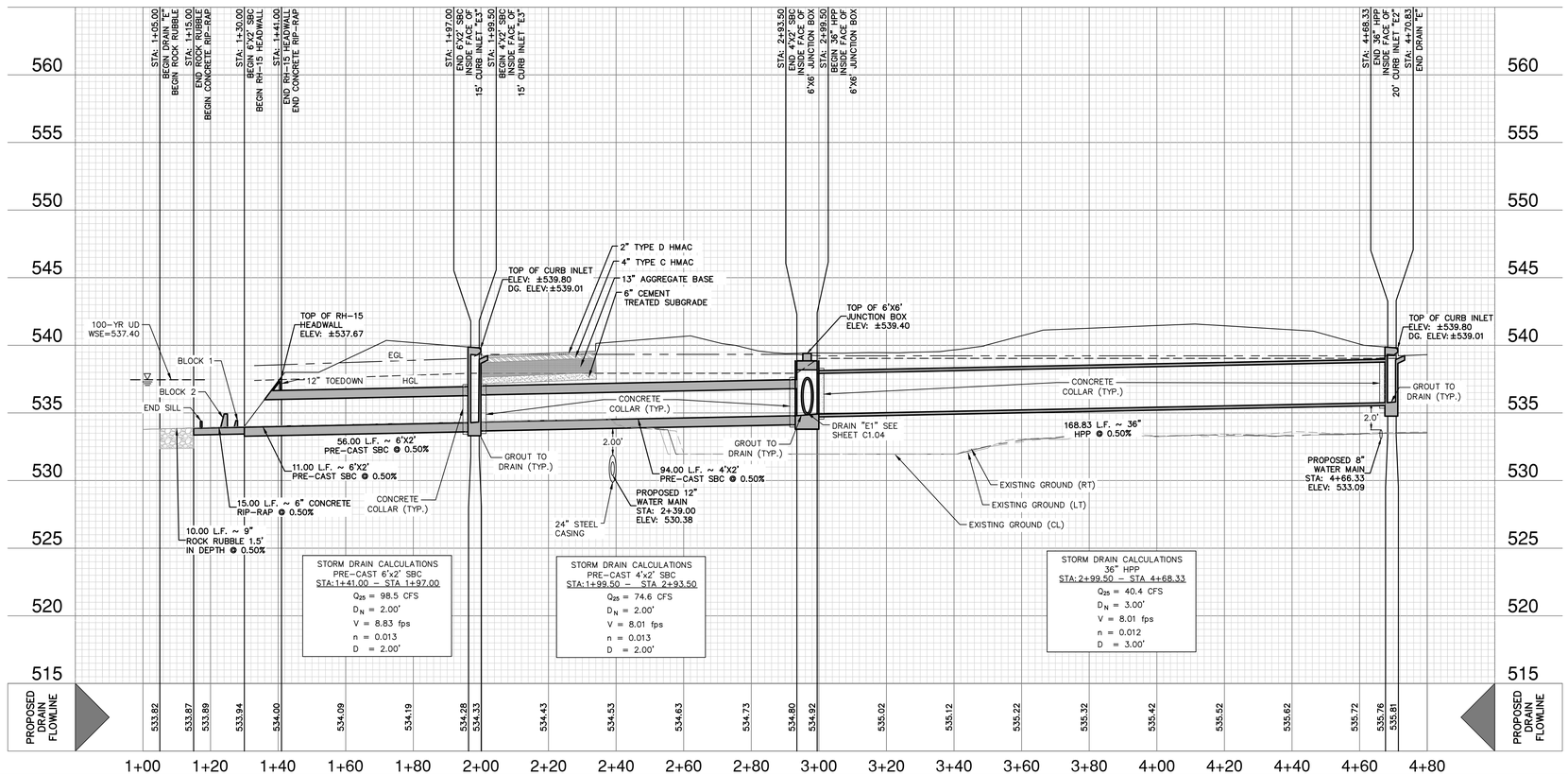


DETENTION DRAIN "E"
BAFFLE BLOCK 1 DETAIL
NOT TO SCALE



DRAIN "E"
STA. 1+05.00 TO 4+70.83

VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 20'



STORM DRAIN CALCULATIONS
PRE-CAST 6'x2' SBC
STA:1+41.00 – STA 1+97.00
Q_{25} = 98.5 CFS
D_N = 2.00'
V = 8.83 fps
n = 0.013
D = 2.00'

STORM DRAIN CALCULATIONS
PRE-CAST 4'x2' SBC
STA:1+99.50 – STA 2+93.50
Q_{25} = 74.6 CFS
D_N = 2.00'
V = 8.01 fps
n = 0.013
D = 2.00'

STORM DRAIN CALCULATIONS
36" HPP
STA:2+99.50 – STA 4+68.33
Q_{25} = 40.4 CFS
D_N = 3.00'
V = 8.01 fps
n = 0.012
D = 3.00'

SCALE: 1"= 20' (0, 20', 40', 60')

DRAINAGE LEGEND

- PROJECT LIMITS
- 100 YR FLOODPLAIN
- EXISTING CONTOUR — 690
- PROPOSED CONTOUR — 690
- PROPOSED WATER — W
- PROPOSED SEWER — SS
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- FLOW ARROW

HYDRAULIC CALCULATIONS–CURB INLET "E2"

Q_{25} = 40.4 CFS
$Q_{25} = CA\sqrt{2gh}$ (ORIFICE FLOW EQN.)
A = L(0.44), h = 0.58, g = 32.2, c = 0.67

$$L = \frac{40.4 \text{ CFS}}{(0.67)\ (0.50)\sqrt{2}\ (32.2)\ (0.58)}$$

L = 19.73 FT USE 1 ~ 20 FT CURB INLET

CHECK WITH WEIR FORMULA

$$h = \left(\frac{Q}{(CL)}\right)^{2/3} = \left(\frac{40.4}{(3.087)\ (20)}\right)^{2/3} = 0.75 \text{ FT.}$$

h = 0.75 < 0.79 OK

HYDRAULIC CALCULATIONS–CURB INLET "E3"

Q_{25} = 22.7 CFS
$Q_{25} = CA\sqrt{2gh}$ (ORIFICE FLOW EQN.)
A = L(0.44), h = 0.58, g = 32.2, c = 0.67

$$L = \frac{22.7 \text{ CFS}}{(0.67)\ (0.50)\sqrt{2}\ (32.2)\ (0.58)}$$

L = 11.09 FT USE 1 ~ 15 FT CURB INLET EACH SIDE

CHECK WITH WEIR FORMULA

$$h = \left(\frac{Q}{(CL)}\right)^{2/3} = \left(\frac{22.7}{(3.087)\ (15)}\right)^{2/3} = 0.62 \text{ FT.}$$

h = 0.62 < 0.79 OK

DRAINAGE & GRADING NOTES:

1. A BEXAR COUNTY ROW PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY ROW. CONTRACTOR SHALL COORDINATE A TRAFFIC CONTROL PLAN FOR ALL WORK WITHIN THE ROW. ADDITIONAL WARNING SIGNS MAY BE RECOMMENDED BY THE ENGINEER ONCE THE ROADWAYS ARE CONSTRUCTED.
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3. ALL CONCRETE FOR TXDOT DRAINAGE STRUCTURES SHALL MEET TXDOT SPECIFICATIONS. ALL OTHER CONCRETE SHALL BE CLASS "A" 3000 PSI CYLINDER STRENGTH IN 28 DAYS.
4. REFERENCE DRAINAGE DETAILS FOR PIPE TRENCH DETAILS, BOX CULVERT, HEADWALL, AND WINGWALL CONSTRUCTION DETAILS, AND BOX CULVERT BEDDING AND EXCAVATION LIMITS.
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CONTRACTOR SHALL REFERENCE TABLE 9.3.8.1 – "RETARDATION CLASS FOR LINING MATERIALS" PROVIDED ON SHEET C1.20 AND SUPPLIED RETARDANCE CLASS (RC) FOR CHOICE OF COVER WITHIN OPEN EARTHEN CHANNEL CROSS-SECTIONS.

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NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102466
LICENSED
PROFESSIONAL ENGINEER
8/27/25

PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

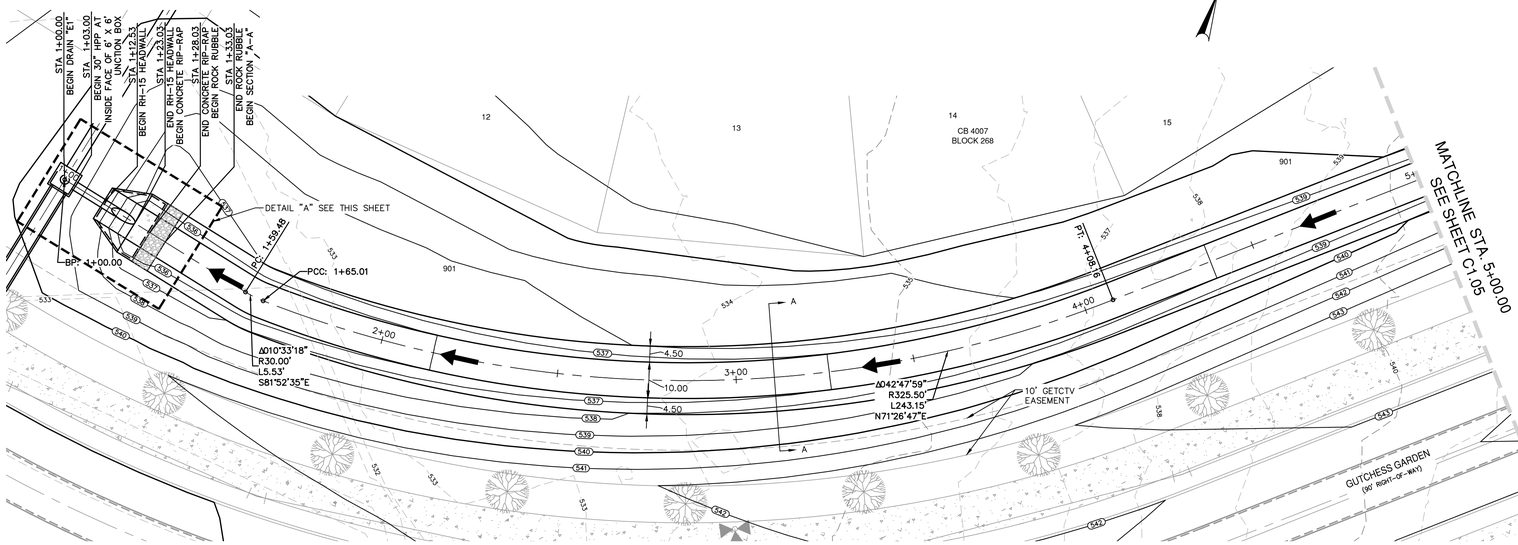
STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS

DRAIN E PLAN & PROFILE STA 1+05.00 TO 4+70.83

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C1.03

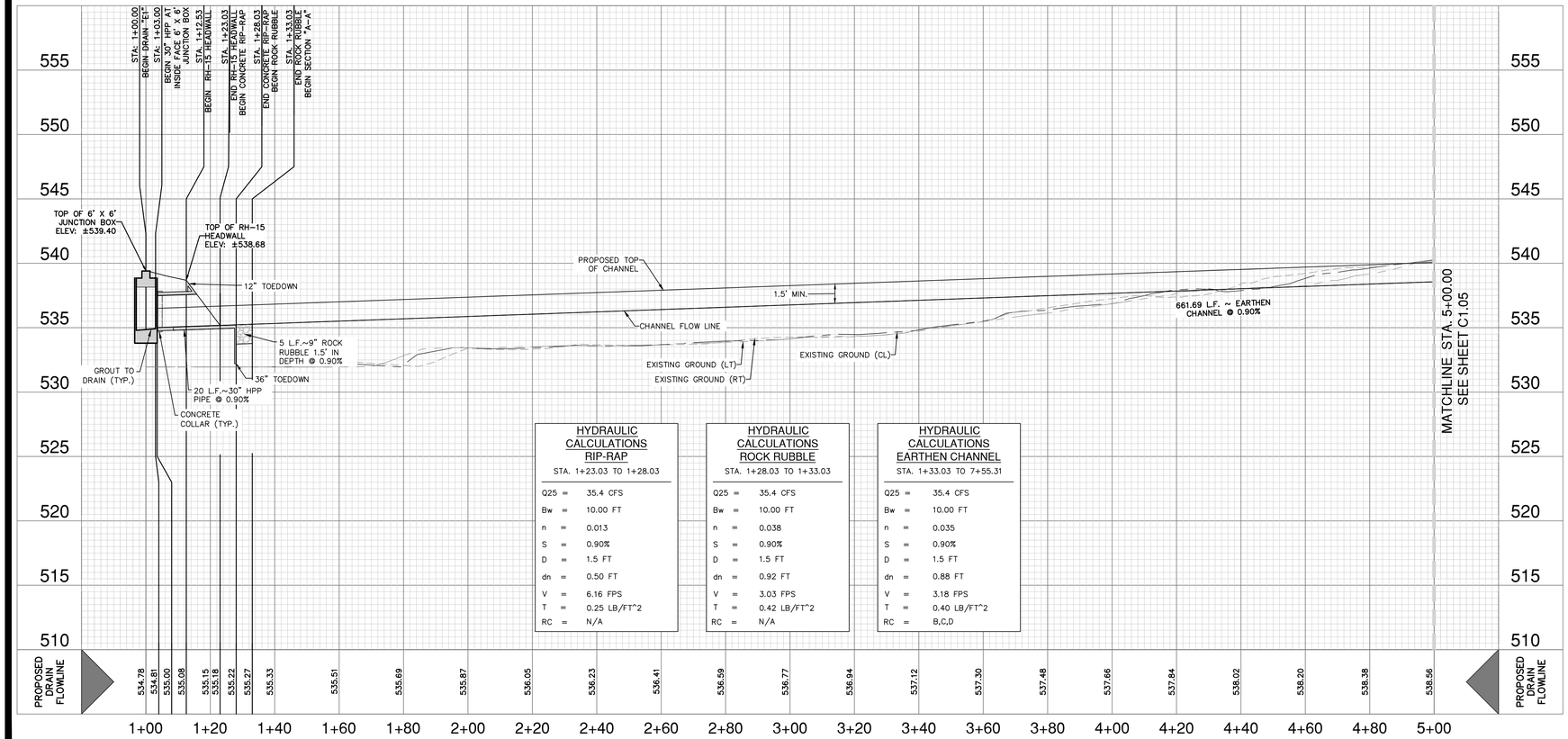
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DRAIN "E1"
STA. 1+00.00 TO 5+00.00

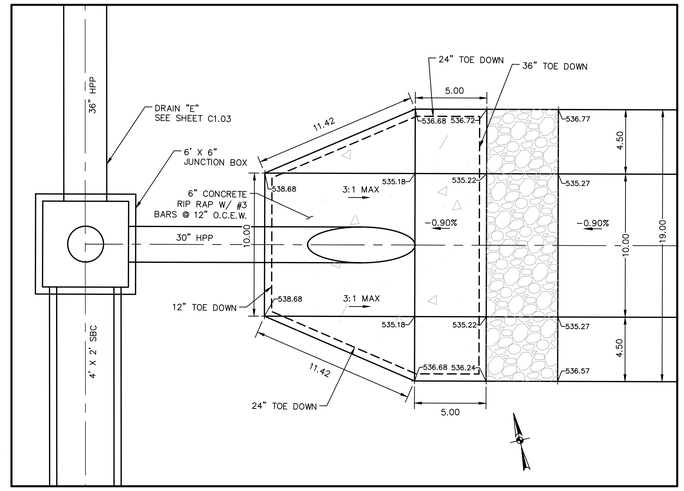
VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 20'



HYDRAULIC CALCULATIONS RIP-RAP STA. 1+23.03 TO 1+28.03		
Q25	=	35.4 CFS
Bw	=	10.00 FT
n	=	0.013
S	=	0.90%
D	=	1.5 FT
dn	=	0.50 FT
V	=	6.16 FPS
T	=	0.25 LB/FT^2
RC	=	N/A

HYDRAULIC CALCULATIONS ROCK RUBBLE STA. 1+28.03 TO 1+33.03		
Q25	=	35.4 CFS
Bw	=	10.00 FT
n	=	0.038
S	=	0.90%
D	=	1.5 FT
dn	=	0.92 FT
V	=	3.03 FPS
T	=	0.42 LB/FT^2
RC	=	N/A

HYDRAULIC CALCULATIONS EARTHEN CHANNEL STA. 1+33.03 TO 7+55.31		
Q25	=	35.4 CFS
Bw	=	10.00 FT
n	=	0.035
S	=	0.90%
D	=	1.5 FT
dn	=	0.88 FT
V	=	3.18 FPS
T	=	0.40 LB/FT^2
RC	=	B,C,D



DETAIL "A"
SCALE: 1" = 5'

DRAINAGE LEGEND

PROJECT LIMITS
100 YR FLOODPLAIN
EXISTING CONTOUR 690
PROPOSED CONTOUR 690
PROPOSED WATER W
PROPOSED SEWER SS
PROPOSED STORM DRAIN
EXISTING STORM DRAIN
FLOW ARROW

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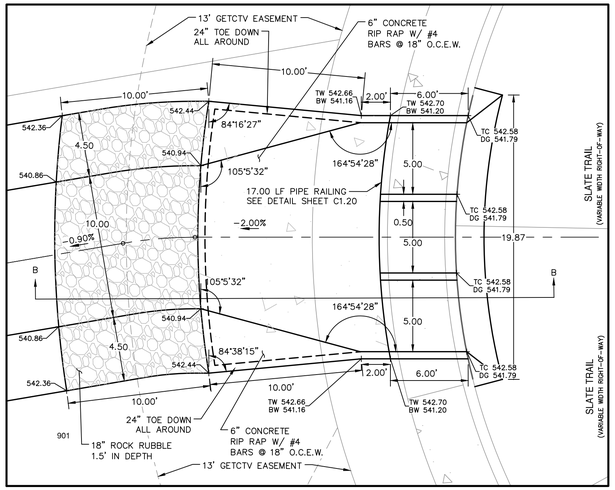
STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS

DRAIN E1 PLAN & PROFILE STA. 1+00.00 TO 5+00.00

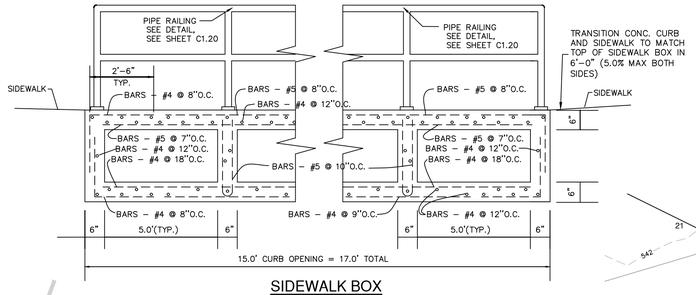
PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C1.04

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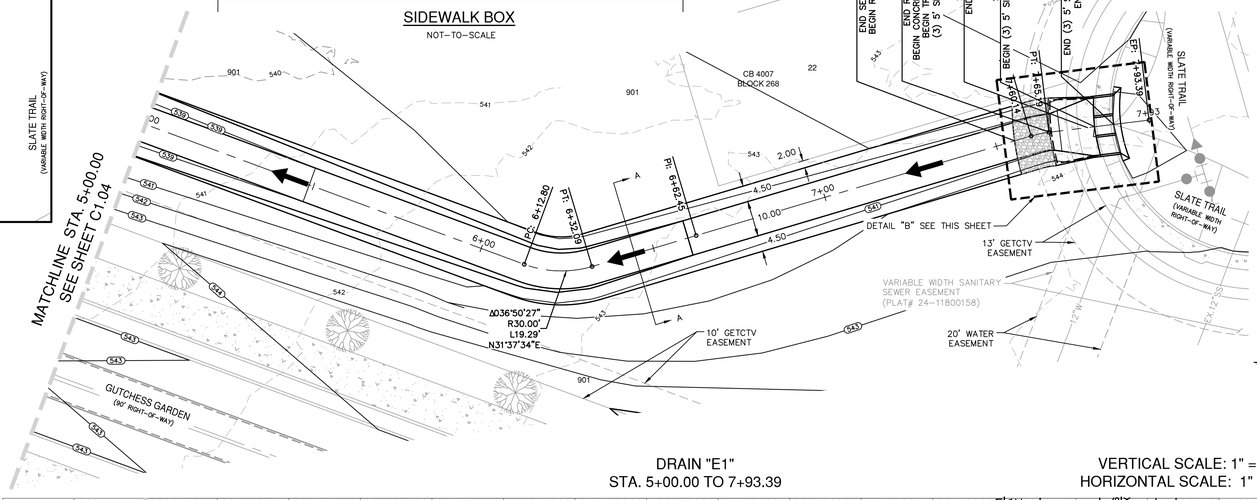
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DETAIL "B"
SCALE: 1" = 5'

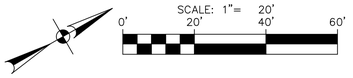


SIDEWALK BOX
NOT-TO-SCALE



DRAIN "E1"
STA. 5+00.00 TO 7+93.39

VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 20'



DRAINAGE LEGEND

- PROJECT LIMITS
- 100 YR FLOODPLAIN
- EXISTING CONTOUR — 690
- PROPOSED CONTOUR — 690
- PROPOSED WATER — W
- PROPOSED SEWER — SS
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- FLOW ARROW

HYDRAULIC CALCULATIONS–DRAIN "E1"

Q_{25} = 24.9 CFS

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

A = L(0.44), h = 0.56, g = 32.2, c = 0.67

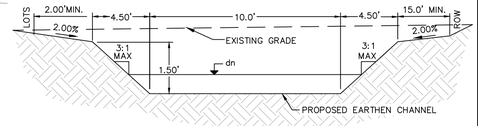
$$L = \frac{24.9\ CFS}{(0.67)\ (0.50)\sqrt{2}\ (32.2)\ (0.50)}$$

L = 13.10 FT USE 3 ~ 5 FT SIDEWALK BOXES

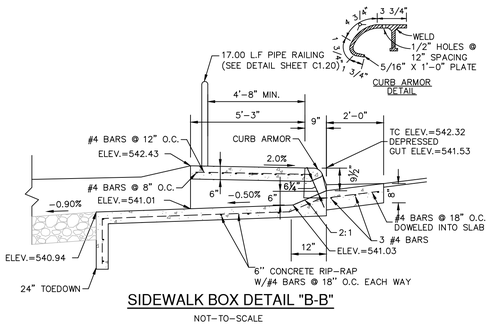
CHECK WITH WEIR FORMULA

$$h = \left(\frac{Q}{(CL)}\right)^{2/3} = \left(\frac{24.9}{(3.087)\ (15)}\right)^{2/3} = 0.66\ FT.$$

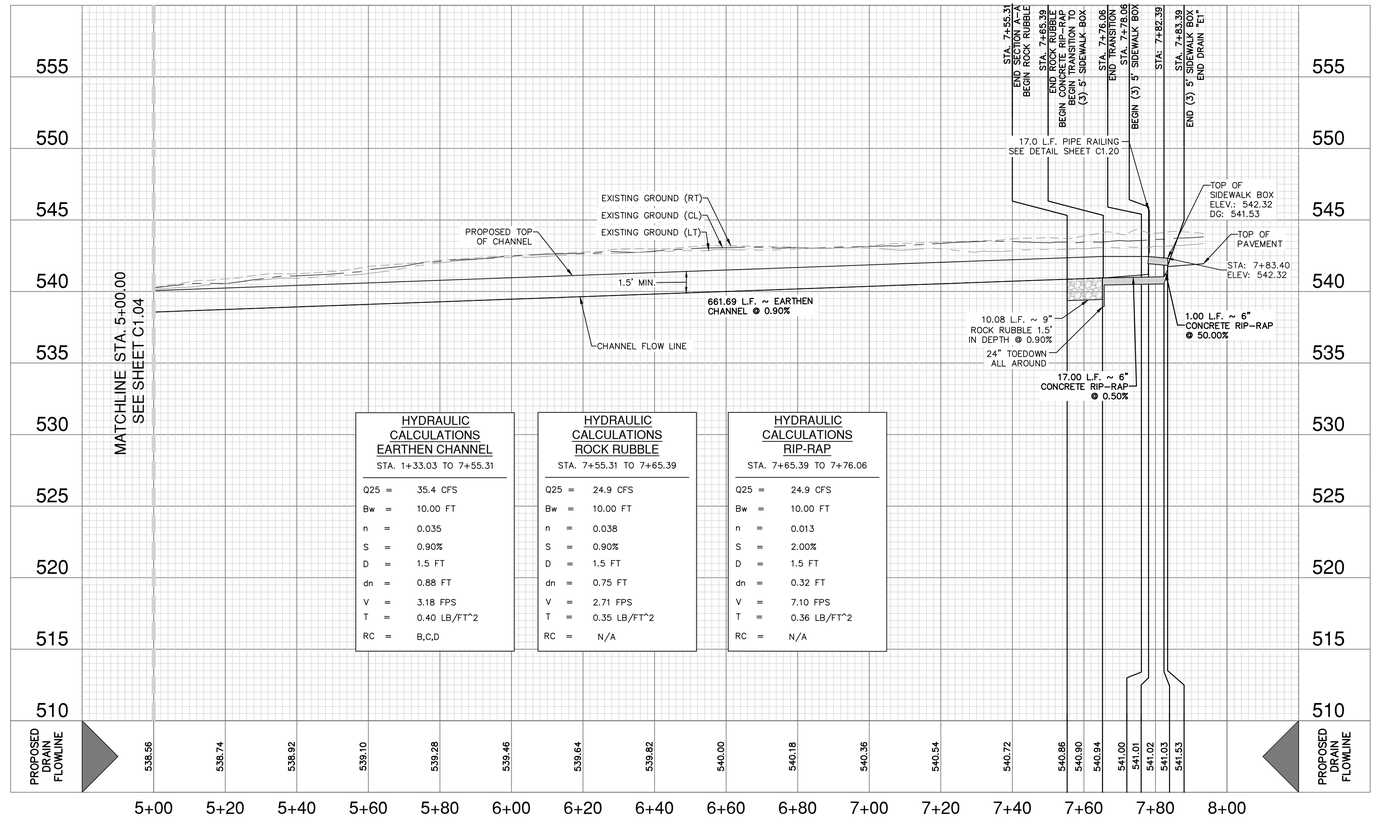
h = 0.66 < 0.79 OK



SECTION "A-A"
NOT-TO-SCALE
STA. 1+28.03 TO 7+55.31



SIDEWALK BOX DETAIL "B-B"
NOT-TO-SCALE



HYDRAULIC CALCULATIONS EARTHEN CHANNEL

STA. 1+33.03 TO 7+55.31

Q25	=	35.4 CFS
Bw	=	10.00 FT
n	=	0.035
S	=	0.90%
D	=	1.5 FT
dn	=	0.88 FT
V	=	3.18 FPS
T	=	0.40 LB/FT^2
RC	=	B,C,D

HYDRAULIC CALCULATIONS ROCK RUBBLE

STA. 7+55.31 TO 7+65.39

Q25	=	24.9 CFS
Bw	=	10.00 FT
n	=	0.038
S	=	0.90%
D	=	1.5 FT
dn	=	0.75 FT
V	=	2.71 FPS
T	=	0.35 LB/FT^2
RC	=	N/A

HYDRAULIC CALCULATIONS RIP-RAP

STA. 7+65.39 TO 7+76.06

Q25	=	24.9 CFS
Bw	=	10.00 FT
n	=	0.013
S	=	2.00%
D	=	1.5 FT
dn	=	0.32 FT
V	=	7.10 FPS
T	=	0.36 LB/FT^2
RC	=	N/A

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JIM C. WELCH
102468
LICENSED
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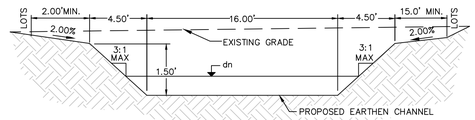
STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS

DRAIN E1 PLAN & PROFILE STA. 5+00.00 TO 7+93.39

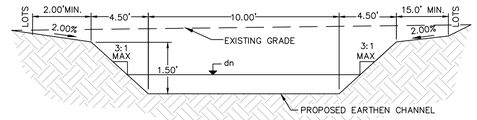
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SECTION "A-A"
NOT-TO-SCALE
STA. 1+25.00 TO 3+67.40

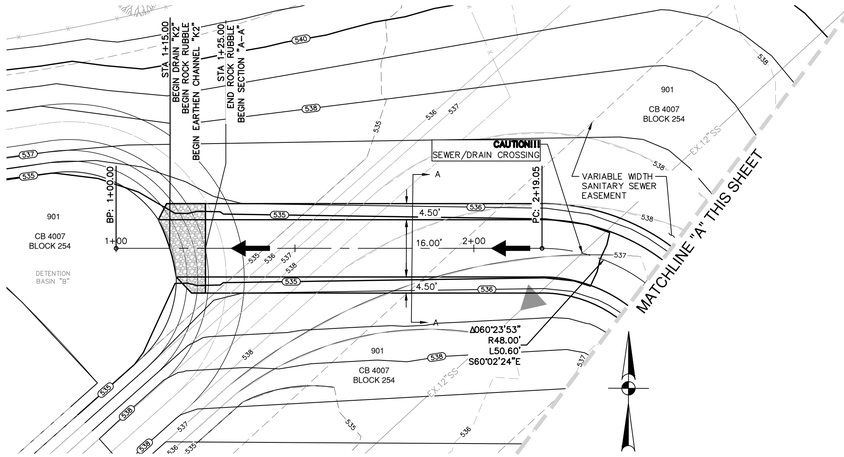


SECTION "B-B"
NOT-TO-SCALE
STA. 3+80.53 TO 9+78.27

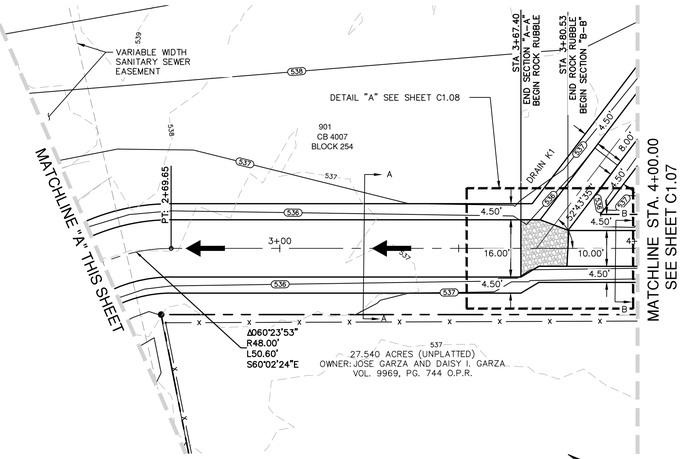
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DRAINAGE LEGEND

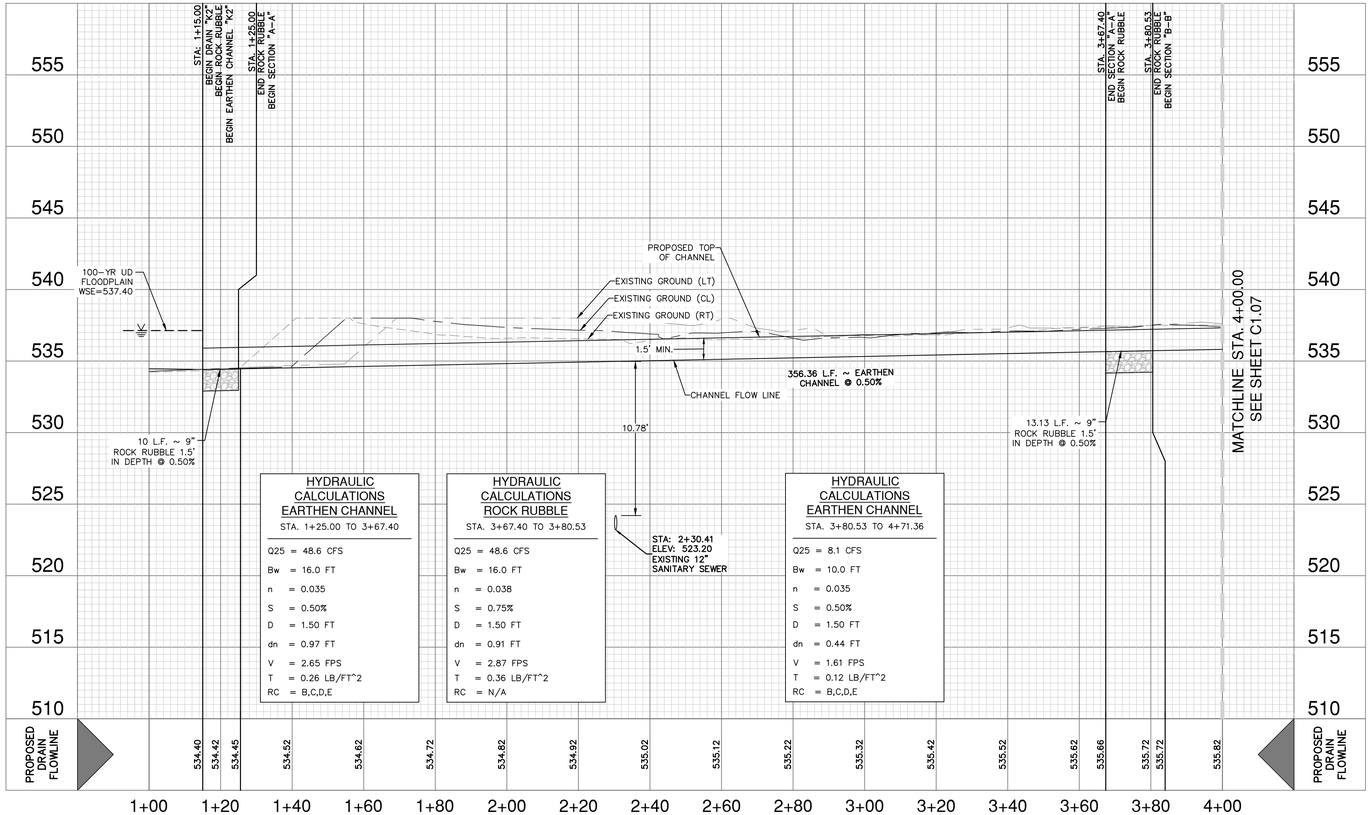
- PROJECT LIMITS
- 100 YR FLOODPLAIN
- EXISTING CONTOUR — 690
- PROPOSED CONTOUR — 690
- PROPOSED WATER — W
- PROPOSED SEWER — SS
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- FLOW ARROW



DRAIN "K2"
STA. 1+00.00 TO 4+00.00



VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 20'



HYDRAULIC CALCULATIONS EARTHEN CHANNEL
STA. 1+25.00 TO 3+67.40

Q25	= 48.6 CFS
Bw	= 16.0 FT
n	= 0.035
S	= 0.50%
D	= 1.50 FT
dn	= 0.97 FT
V	= 2.65 FPS
T	= 0.26 LB/FT^2
RC	= B,C,D,E

HYDRAULIC CALCULATIONS ROCK RUBBLE
STA. 3+67.40 TO 3+80.53

Q25	= 48.6 CFS
Bw	= 16.0 FT
n	= 0.038
S	= 0.75%
D	= 1.50 FT
dn	= 0.91 FT
V	= 2.87 FPS
T	= 0.36 LB/FT^2
RC	= N/A

HYDRAULIC CALCULATIONS EARTHEN CHANNEL
STA. 3+80.53 TO 4+71.36

Q25	= 8.1 CFS
Bw	= 10.0 FT
n	= 0.035
S	= 0.50%
D	= 1.50 FT
dn	= 0.44 FT
V	= 1.61 FPS
T	= 0.12 LB/FT^2
RC	= B,C,D,E

DRAINAGE & GRADING NOTES:

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

OPEN EARTHEN CHANNEL NOTE:

CONTRACTOR SHALL REFERENCE TABLE 9.3.8.1 – "RETARDATION CLASS FOR LINING MATERIALS" PROVIDED ON SHEET C1.20 AND SUPPLIED RETARDANCE CLASS (RC) FOR CHOICE OF COVER WITHIN OPEN EARTHEN CHANNEL CROSS-SECTIONS.

BEXAR COUNTY FLOOD PLAIN GENERAL CONSTRUCTION NOTES:

1. CONTRACTOR IS TO MAINTAIN UNRESTRICTED DRAINAGE OF THE PROJECT SITE AND ADJACENT AREAS DURING CONSTRUCTION.
2. NO CONSTRUCTION MATERIAL AND/OR WASTE MATERIAL SHALL BE PLACED IN EXISTING LOWS THAT WILL BLOCK OR ALTER FLOW LIMITS OF THE EXISTING NATURAL DRAINAGE OR PLACED WITHIN THE LIMITS OF THE EXISTING FLOOD PLAIN.

TRENCH EXCAVATION SAFETY PROTECTION:

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

CAUTION!!

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

NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102466
LICENSED
PROFESSIONAL ENGINEER
8/22/25

PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

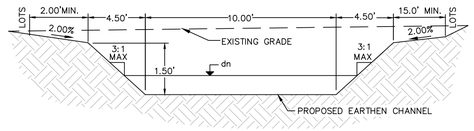
STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS

DRAIN K2 PLAN & PROFILE STA. 1+00.00 TO 4+00.00

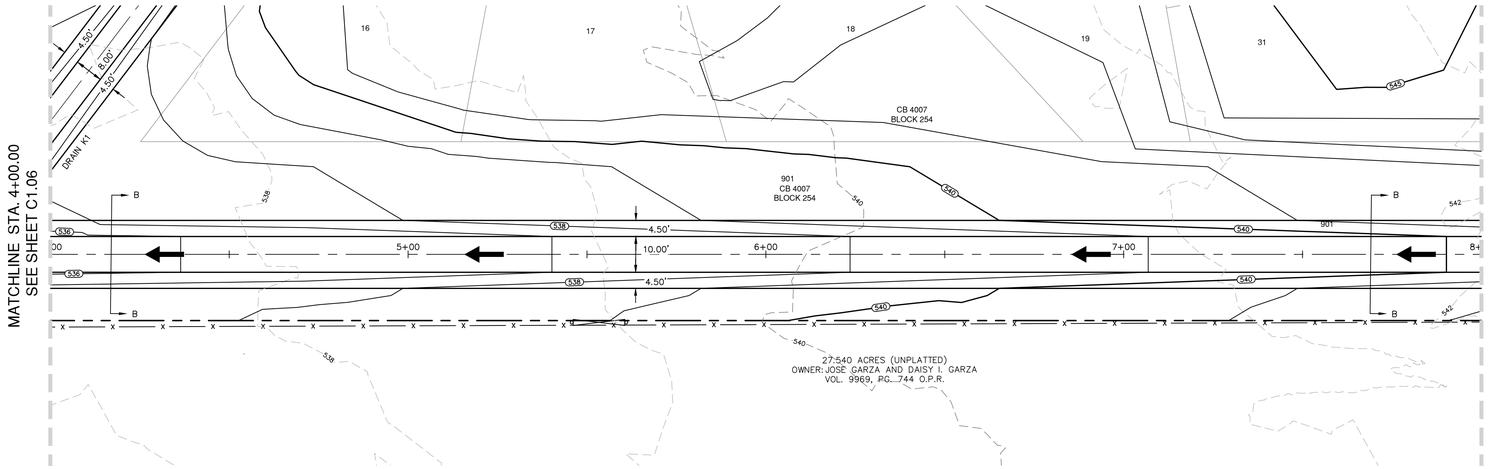
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JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C1.06

Date: February 3, 2025, 2:21 PM - User ID: rodolfo.gallegos
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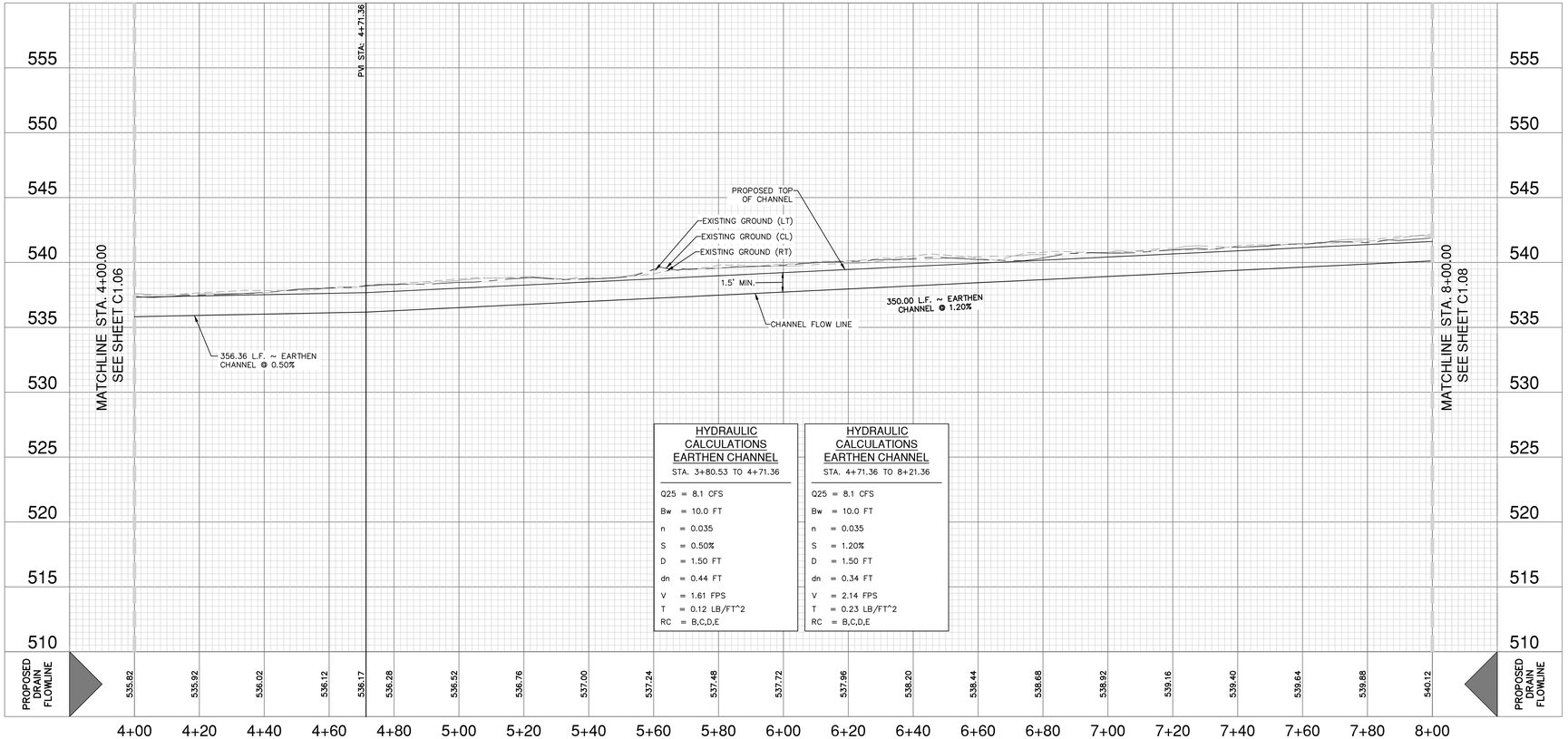


SECTION "B-B"
NOT-TO-SCALE
STA. 3+67.53 TO 9+78.27



DRAIN "K2"
STA. 4+00.00 TO 8+00.00

VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 20'



HYDRAULIC CALCULATIONS EARTHEN CHANNEL STA. 3+80.53 TO 4+71.36	
Q25	= 8.1 CFS
Bw	= 10.0 FT
n	= 0.035
S	= 0.50%
D	= 1.50 FT
dn	= 0.44 FT
V	= 1.61 FPS
T	= 0.12 LB/FT^2
RC	= B,C,D,E

HYDRAULIC CALCULATIONS EARTHEN CHANNEL STA. 4+71.36 TO 8+21.36	
Q25	= 8.1 CFS
Bw	= 10.0 FT
n	= 0.035
S	= 1.20%
D	= 1.50 FT
dn	= 0.34 FT
V	= 2.14 FPS
T	= 0.23 LB/FT^2
RC	= B,C,D,E

SCALE: 1"= 20'
0' 20' 40' 60'

DRAINAGE LEGEND

- PROJECT LIMITS
- 100 YR FLOODPLAIN
- EXISTING CONTOUR — 690
- PROPOSED CONTOUR — 690
- PROPOSED WATER — W
- PROPOSED SEWER — SS
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- FLOW ARROW

DRAINAGE & GRADING NOTES:

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NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102466
LICENSED
PROFESSIONAL ENGINEER
8/27/25

PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

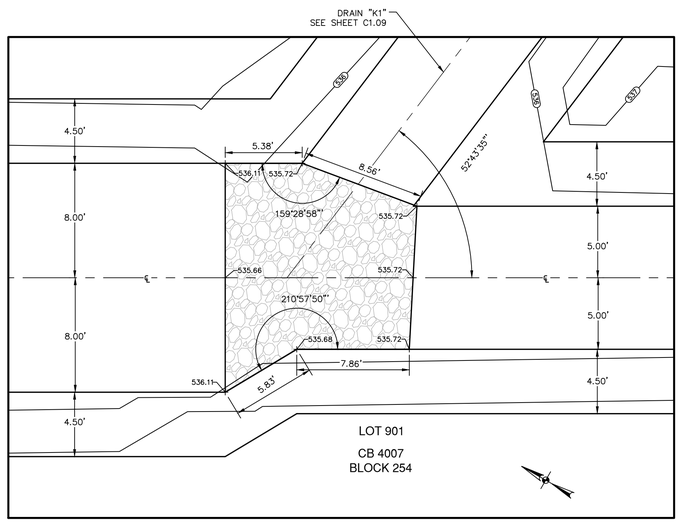
STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS

DRAIN K2 PLAN & PROFILE STA. 4+00.00 TO 8+00.00

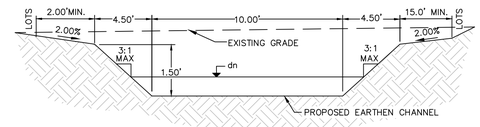
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JOB NO. 12482-21
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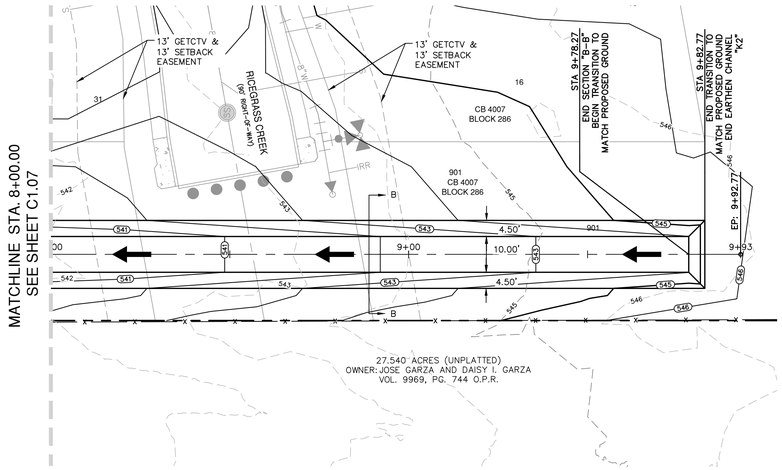
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DETAIL "A"
SCALE: 1" = 5'

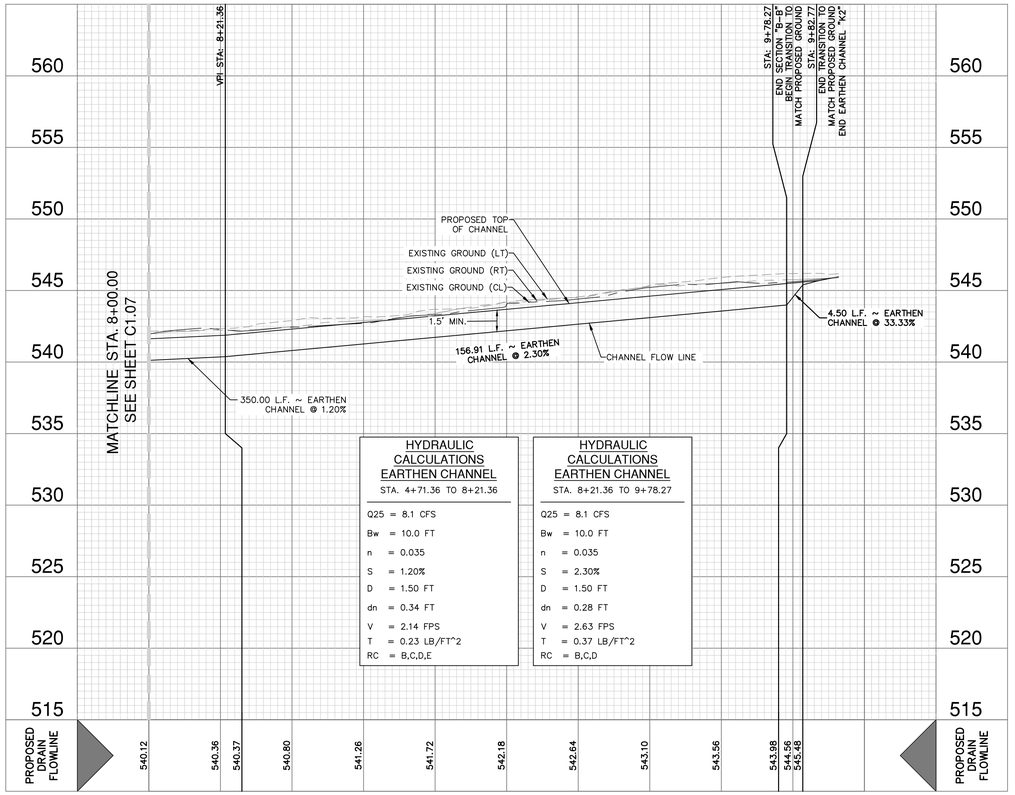


SECTION "B-B"
NOT-TO-SCALE
STA. 3+67.53 TO 9+78.27



DRAIN "K2"
STA. 8+00.00 TO 9+92.77

VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 20'

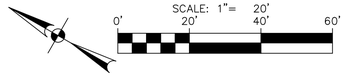


HYDRAULIC CALCULATIONS EARTHEN CHANNEL
STA. 4+71.36 TO 8+21.36

Q25	= 8.1 CFS
Bw	= 10.0 FT
n	= 0.035
S	= 1.20%
D	= 1.50 FT
dn	= 0.34 FT
V	= 2.14 FPS
T	= 0.23 LB/FT^2
RC	= B,C,D,E

HYDRAULIC CALCULATIONS EARTHEN CHANNEL
STA. 8+21.36 TO 9+78.27

Q25	= 8.1 CFS
Bw	= 10.0 FT
n	= 0.035
S	= 2.30%
D	= 1.50 FT
dn	= 0.28 FT
V	= 2.63 FPS
T	= 0.37 LB/FT^2
RC	= B,C,D



DRAINAGE LEGEND

- PROJECT LIMITS
- 100 YR FLOODPLAIN
- EXISTING CONTOUR — 690
- PROPOSED CONTOUR — 690
- PROPOSED WATER — W
- PROPOSED SEWER — SS
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- FLOW ARROW

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OPEN EARTHEN CHANNEL NOTE:

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BEXAR COUNTY FLOOD PLAIN GENERAL CONSTRUCTION NOTES:

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NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102466
LICENSED
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8/27/25

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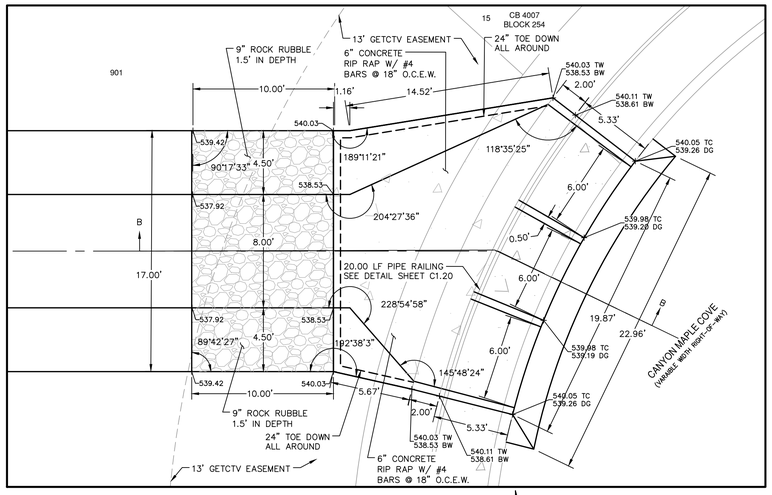
STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS

DRAIN K2 PLAN & PROFILE STA. 8+00.00 TO 9+92.77

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C1.08

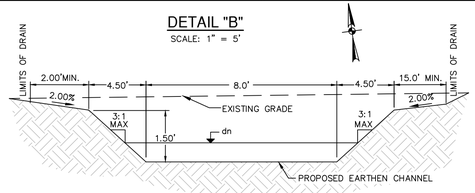
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DETAIL "B"

SCALE: 1" = 5'



SECTION "A-A"

NOT-TO-SCALE

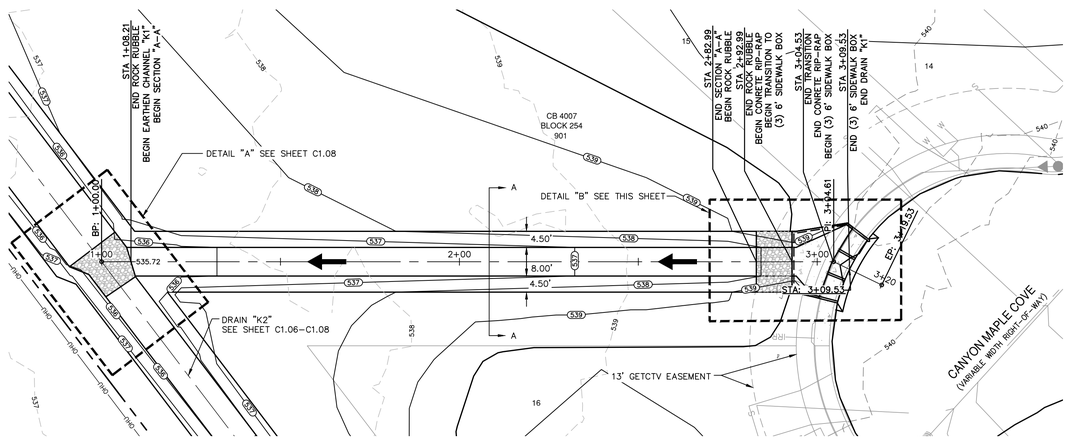
STA. 1+08.21 TO 2+83.03

HYDRAULIC CALCULATIONS EARTHEN CHANNEL STA. 1+08.21 TO 2+75.00	
Q25	= 32.7 CFS
Bw	= 8 FT.
n	= 0.035
S	= 1.00%
D	= 1.50 FT.
dn	= 0.91 FT.
V	= 3.37 FPS
T	= 0.44 LB/FT^2
RC	= B,C,D

HYDRAULIC CALCULATIONS EARTHEN CHANNEL STA. 2+75.00 TO 2+82.99	
Q25	= 32.7 CFS
Bw	= 8 FT.
n	= 0.035
S	= 6.15%
D	= 1.50 FT.
dn	= 0.54 FT.
V	= 6.25 FPS
T	= 1.76 LB/FT^2
RC	= B

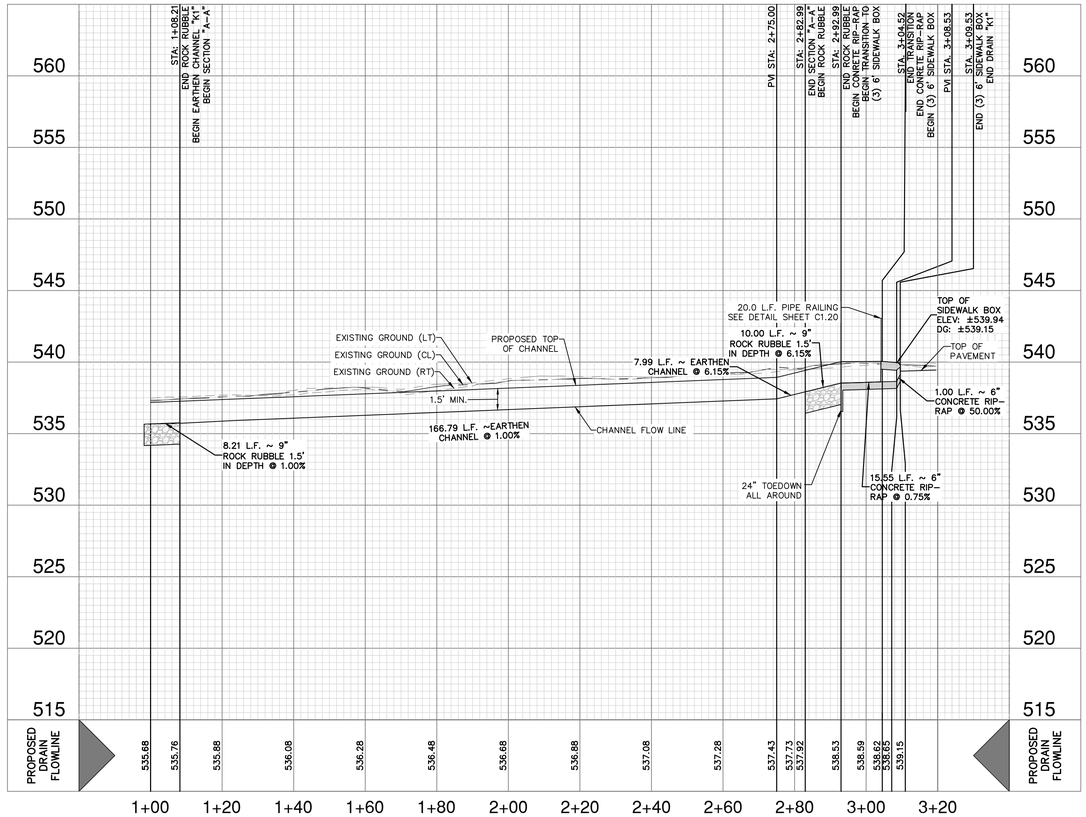
HYDRAULIC CALCULATIONS ROCK RUBBLE STA. 2+82.99 TO 2+92.99	
Q25	= 32.7 CFS
Bw	= 8 FT
n	= 0.038
S	= 6.15%
D	= 1.50 FT.
dn	= 0.57 FT.
V	= 5.92 FPS
T	= 1.83 LB/FT^2
RC	= N/A

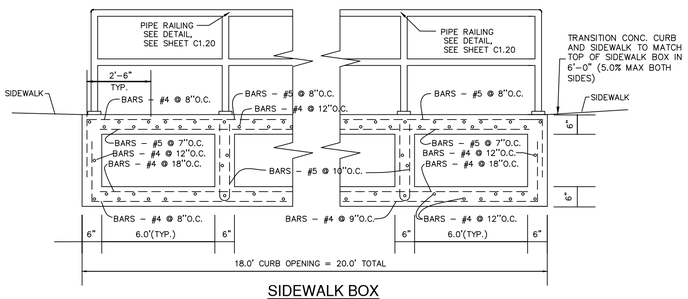
HYDRAULIC CALCULATIONS RIP-RAP STA. 2+92.99 TO 3+04.53	
Q25	= 32.7 CFS
Bw	= 8 FT
n	= 0.013
S	= 6.15%
D	= 1.50 FT.
dn	= 0.56 FT.
V	= 6.00 FPS
T	= 0.22 LB/FT^2
RC	= N/A



DRAIN "K1"
STA. 1+00.00 TO 3+19.53

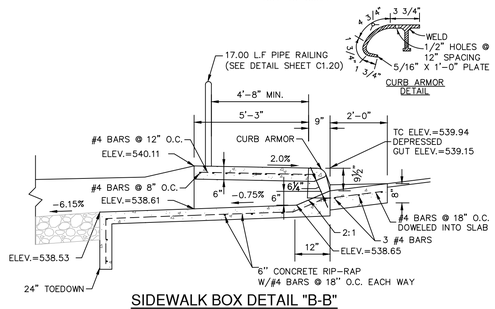
VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 20'





SIDEWALK BOX

NOT-TO-SCALE



SIDEWALK BOX DETAIL "B-B"

NOT-TO-SCALE

DRAINAGE LEGEND

- PROJECT LIMITS
- 100 YR FLOODPLAIN
- EXISTING CONTOUR — 690
- PROPOSED CONTOUR — 690
- PROPOSED WATER — W
- PROPOSED SEWER — SS
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- FLOW ARROW

HYDRAULIC CALCULATIONS–DRAIN "K1"

Q_{25} = 32.7 CFS

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

A = L(0.44), h = 0.58, g = 32.2, c = 0.67

$$L = \frac{32.7 \text{ CFS}}{(0.67)\ (0.50)\sqrt{2}\ (32.2)\ (0.58)}$$

L = 15.97 FT USE 3 ~ 6 FT SIDEWALK BOXES

CHECK WITH WEIR FORMULA

$$h = \left(\frac{Q}{(CL)}\right)^{2/3} = \left(\frac{32.7}{(3.087)\ (18)}\right)^{2/3} = 0.70 \text{ FT.}$$

h = 0.70 < 0.79 OK

DRAINAGE & GRADING NOTES:

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

OPEN EARTHEN CHANNEL NOTE:

CONTRACTOR SHALL REFERENCE TABLE 9.3.8.1 – "RETARDATION CLASS FOR LINING MATERIALS" PROVIDED ON SHEET C1.20 AND SUPPLIED RETARDANCE CLASS (RC) FOR CHOICE OF COVER WITHIN OPEN EARTHEN CHANNEL CROSS-SECTIONS.

BEXAR COUNTY FLOOD PLAIN GENERAL CONSTRUCTION NOTES:

1. CONTRACTOR IS TO MAINTAIN UNRESTRICTED DRAINAGE OF THE PROJECT SITE AND ADJACENT AREAS DURING CONSTRUCTION.
2. NO CONSTRUCTION MATERIAL AND/OR WASTE MATERIAL SHALL BE PLACED IN EXISTING LOWS THAT WILL BLOCK OR ALTER FLOW LIMITS OF THE EXISTING NATURAL DRAINAGE OR PLACED WITHIN THE LIMITS OF THE EXISTING FLOOD PLAIN.

TRENCH EXCAVATION SAFETY PROTECTION:

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

CAUTION!!

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

NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102466
LICENSED
PROFESSIONAL ENGINEER
8/27/25

PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

STONE GARDEN UNIT 5A

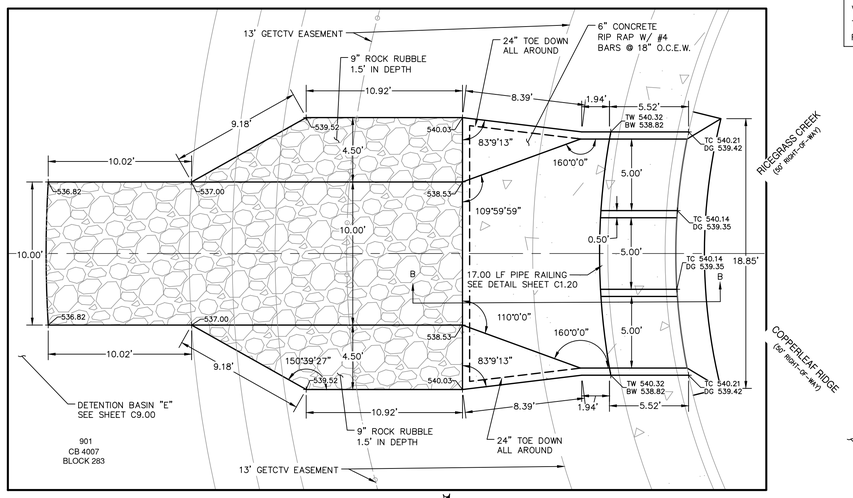
BEXAR COUNTY, TEXAS

DRAIN K1 PLAN & PROFILE STA. 1+00.00 TO 3+19.53

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C1.09

Date: February 3, 2025, 2:26 PM – User ID: rodolfo.gallegos
File: P:\12A\82\21\Design\Civil\DR124821_K1.DWG

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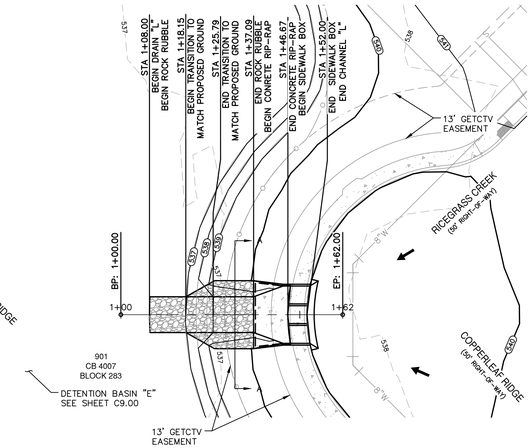
DETAIL "B"

SCALE: 1" = 5'

HYDRAULIC CALCULATIONS ROCK RUBBLE
STA. 1+25.79 TO 1+37.09
Q25 = 25.5 CFS
Bw = 10 FT.
n = 0.038
S = 4.69%
D = 1.50 FT.
dn = 0.47 FT.
V = 4.72 FPS
T = 1.22 LB/FT^2
RC = N/A

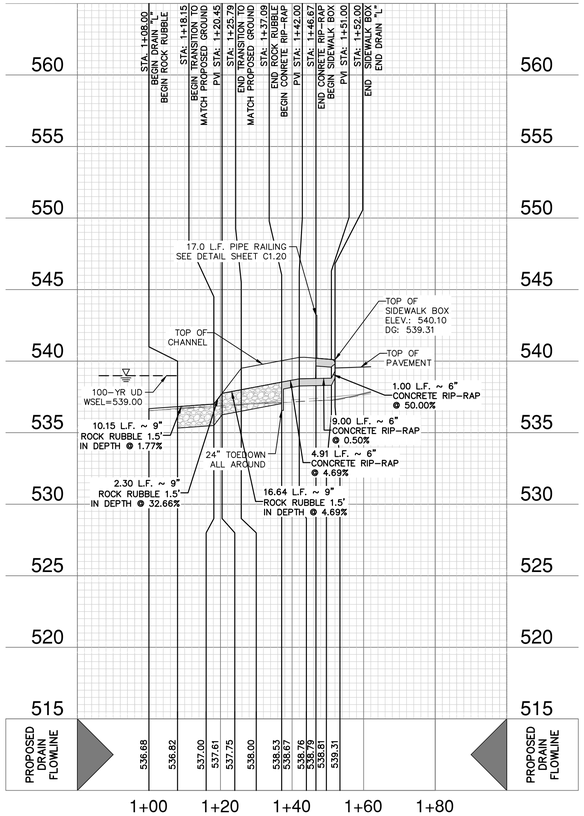
HYDRAULIC CALCULATIONS RIP-RAP
STA. 1+37.09 TO 1+42.00
Q25 = 25.5 CFS
Bw = 10 FT.
n = 0.013
S = 4.69%
D = 1.50 FT.
dn = 0.25 FT.
V = 9.40 FPS
T = 0.68 LB/FT^2
RC = N/A

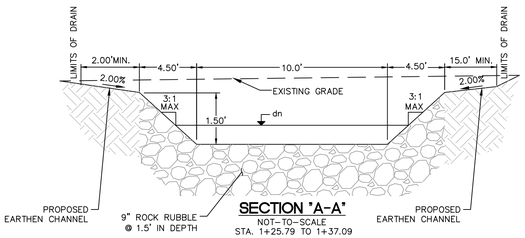
HYDRAULIC CALCULATIONS RIP-RAP
STA. 1+42.00 TO 1+46.67
Q25 = 25.5 CFS
Bw = 10 FT.
n = 0.013
S = 0.50%
D = 1.50 FT.
dn = 0.49 FT.
V = 4.58 FPS
T = 0.13 LB/FT^2
RC = N/A



DRAIN "L"
STA. 1+08.00 TO 1+62.00

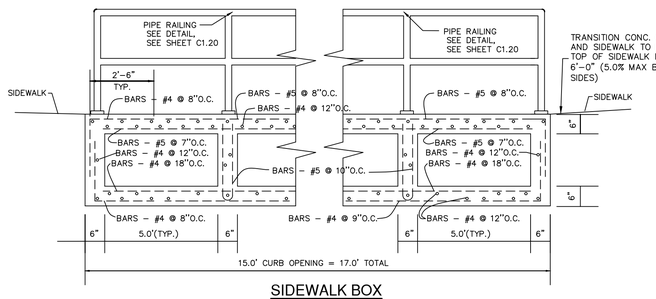
VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 20'





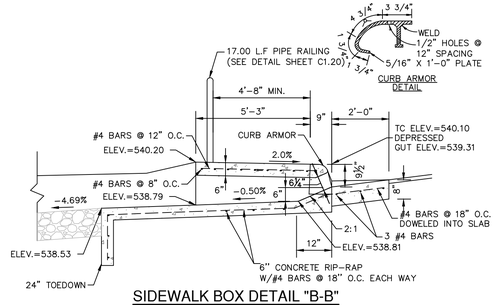
SECTION "A-A"

NOT-TO-SCALE
STA. 1+25.79 TO 1+37.09



SIDEWALK BOX

NOT-TO-SCALE



SIDEWALK BOX DETAIL "B-B"

NOT-TO-SCALE

SCALE: 1"= 20'
0' 20' 40' 60'

DRAINAGE LEGEND

- PROJECT LIMITS
- 100 YR FLOODPLAIN
- EXISTING CONTOUR — 690
- PROPOSED CONTOUR — 690
- PROPOSED WATER — W
- PROPOSED SEWER — SS
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- FLOW ARROW

HYDRAULIC CALCULATIONS–DRAIN "L"

Q_{25} = 25.5 CFS

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

A = L(0.44), h = 0.58, g = 32.2, c = 0.67

$$L = \frac{25.5 \text{ CFS}}{(0.67)\ (0.50)\sqrt{2}\ (32.2)\ (0.58)}$$

L = 12.45 FT USE 1 ~ 15 FT CURB INLET EACH SIDE

CHECK WITH WEIR FORMULA

$$h = \left(\frac{Q}{(CL)}\right)^{2/3} = \left(\frac{25.5}{(3.087)\ (15)}\right)^{2/3} = 0.67 \text{ FT.}$$

h = 0.67 < 0.79 OK

DRAINAGE & GRADING NOTES:

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3. ALL CONCRETE FOR TXDOT DRAINAGE STRUCTURES SHALL MEET TXDOT SPECIFICATIONS, ALL OTHER CONCRETE SHALL BE CLASS "A" 3000 PSI CYLINDER STRENGTH IN 28 DAYS.
4. REFERENCE DRAINAGE DETAILS FOR PIPE TRENCH DETAILS, BOX CULVERT, HEADWALL, AND WINGWALL CONSTRUCTION DETAILS, AND BOX CULVERT BEDDING AND EXCAVATION LIMITS.
5. CONTRACTOR SHALL GROUT ALL CURB INLETS AND JUNCTION BOXES TO PROVIDE FOR POSITIVE DRAINAGE.
6. EARTHEN CHANNELS WILL BE VEGETATED BY SEEDING OR SODDING. 85% OF THE CHANNEL SURFACE MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF SAN ANTONIO WILL ACCEPT.
7. CONTRACTOR SHALL MATCH TOP OF CHANNEL TO NATURAL GROUND AND MAINTAIN A MINIMUM CHANNEL DEPTH OF "D" AS SHOWN IN THE PROFILE.

OPEN EARTHEN CHANNEL NOTE:

CONTRACTOR SHALL REFERENCE TABLE 9.3.8.1 – "RETARDATION CLASS FOR LINING MATERIALS" PROVIDED ON SHEET C1.20 AND SUPPLIED RETARDANCE CLASS (RC) FOR CHOICE OF COVER WITHIN OPEN EARTHEN CHANNEL CROSS-SECTIONS.

BEXAR COUNTY FLOOD PLAIN GENERAL CONSTRUCTION NOTES:

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2. NO CONSTRUCTION MATERIAL AND/OR WASTE MATERIAL SHALL BE PLACED IN EXISTING LOWS THAT WILL BLOCK OR ALTER FLOW LIMITS OF THE EXISTING NATURAL DRAINAGE OR PLACED WITHIN THE LIMITS OF THE EXISTING FLOOD PLAIN.

TRENCH EXCAVATION SAFETY PROTECTION:

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CAUTION!!

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NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102466
LICENSED
PROFESSIONAL ENGINEER
8/27/25

PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS

DRAIN L PLAN & PROFILE STA. 1+08.00 TO 1+62.00

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C1.10

Date: February 3, 2025, 2:29 PM – User ID: rodolfo.gallegos
File: P:\12A\82\21\Design\Civil\DR12482211_L.dwg

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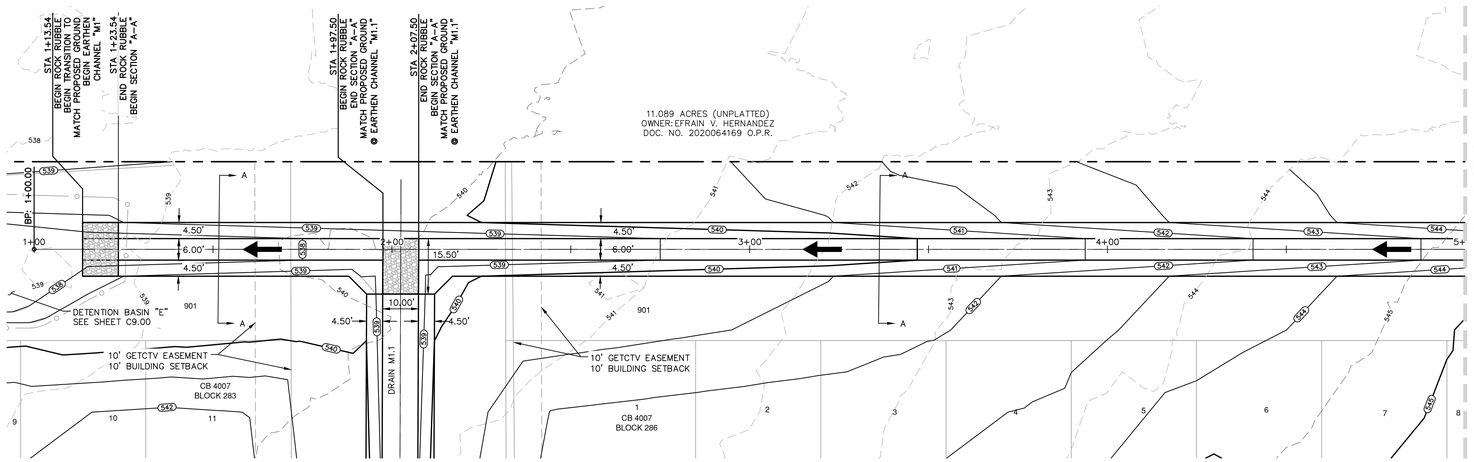
HYDRAULIC CALCULATIONS EARTHEN CHANNEL	
STA. 1+13.54 TO 1+23.54	
Q25	= 18.0 CFS
Bw	= 6 FT
n	= 0.040
S	= 1.00%
D	= 1.50 FT
dn	= 0.80 FT
V	= 2.67 FPS
T	= 0.38 LB/FT^2
RC	= N/A

HYDRAULIC CALCULATIONS EARTHEN CHANNEL	
STA. 1+23.54TO 1+97.50	
Q25	= 18.0 CFS
Bw	= 6 FT
n	= 0.035
S	= 1.00%
D	= 1.50 FT
dn	= 0.75 FT
V	= 2.93 FPS
T	= 0.36 LB/FT^2
RC	= B,C,D

HYDRAULIC CALCULATIONS EARTHEN CHANNEL	
STA. 1+97.50 TO 2+07.50	
Q25	= 18.0 CFS
Bw	= 6 FT
n	= 0.040
S	= 1.00%
D	= 1.50 FT
dn	= 0.80 FT
V	= 2.67 FPS
T	= 0.38 LB/FT^2
RC	= N/A

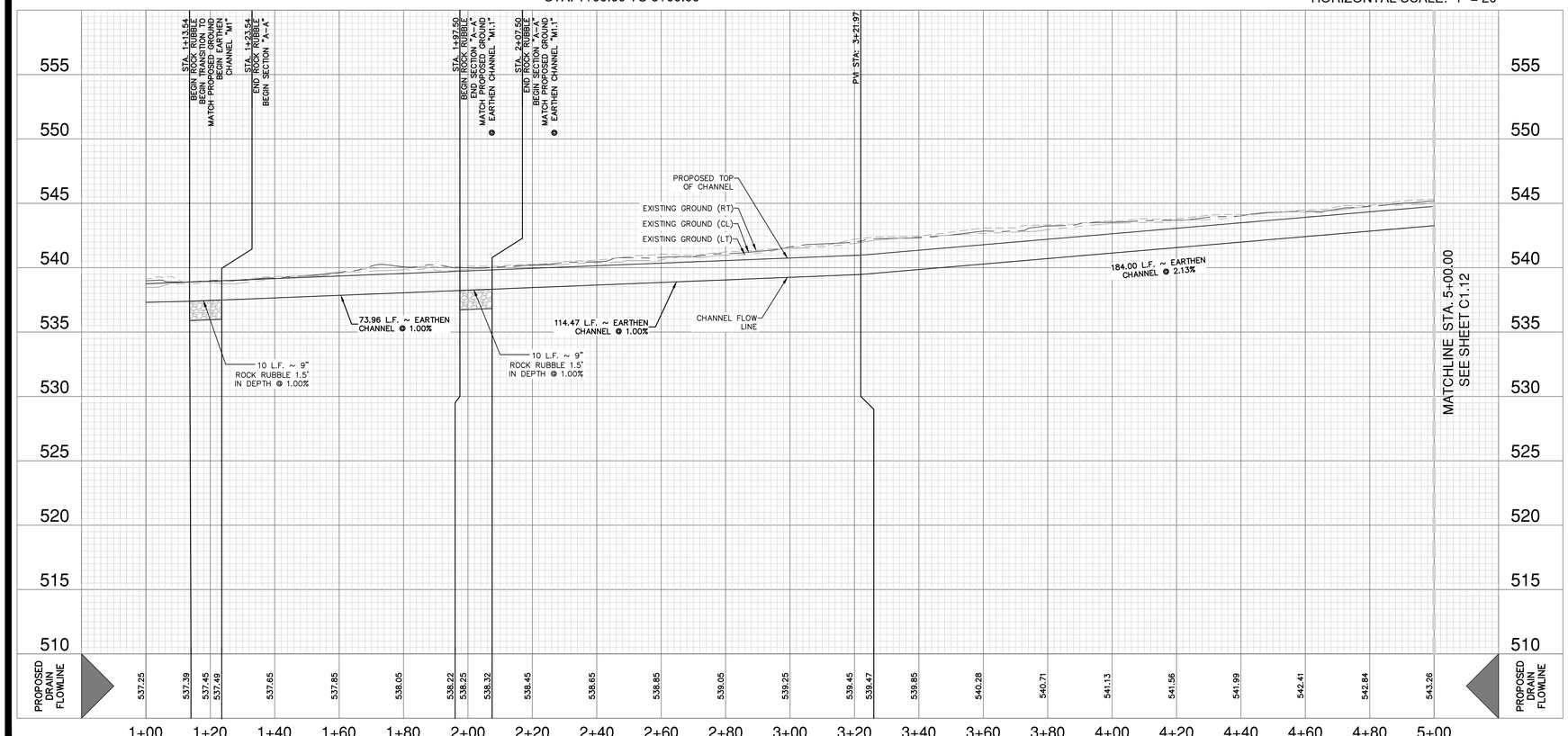
HYDRAULIC CALCULATIONS EARTHEN CHANNEL	
STA. 2+07.50 TO 3+21.97	
Q25	= 9.7 CFS
Bw	= 6 FT
n	= 0.035
S	= 1.00%
D	= 1.5 FT
dn	= 0.53 FT
V	= 2.42 FPS
T	= 0.27 LB/FT^2
RC	= B,C,D,E

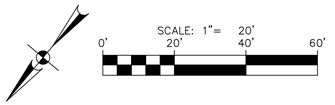
HYDRAULIC CALCULATIONS EARTHEN CHANNEL	
STA. 3+21.97 TO 5+05.97	
Q25	= 9.7 CFS
Bw	= 6 FT
n	= 0.035
S	= 2.13%
D	= 1.5 FT
dn	= 0.43 FT
V	= 3.12 FPS
T	= 0.47 LB/FT^2
RC	= B,C,D



DRAIN "M1"
STA. 1+00.00 TO 5+00.00

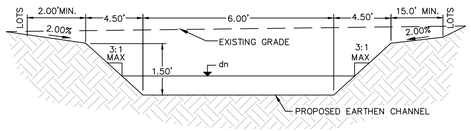
VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 20'





DRAINAGE LEGEND

PROJECT LIMITS
100 YR FLOODPLAIN
EXISTING CONTOUR 690
PROPOSED CONTOUR 690
PROPOSED WATER W
PROPOSED SEWER SS
PROPOSED STORM DRAIN
EXISTING STORM DRAIN
FLOW ARROW



SECTION "A-A"
NOT-TO-SCALE
STA. 1+13.54 TO 1+97.50
STA. 2+07.50 TO 8+24.23

DRAINAGE & GRADING NOTES:

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

OPEN EARTHEN CHANNEL NOTE:

CONTRACTOR SHALL REFERENCE TABLE 9.3.8.1 – "RETARDATION CLASS FOR LINING MATERIALS" PROVIDED ON SHEET C1.20 AND SUPPLIED RETARDANCE CLASS (RC) FOR CHOICE OF COVER WITHIN OPEN EARTHEN CHANNEL CROSS-SECTIONS.

BEXAR COUNTY FLOOD PLAIN GENERAL CONSTRUCTION NOTES:

1. CONTRACTOR IS TO MAINTAIN UNRESTRICTED DRAINAGE OF THE PROJECT SITE AND ADJACENT AREAS DURING CONSTRUCTION.
2. NO CONSTRUCTION MATERIAL AND/OR WASTE MATERIAL SHALL BE PLACED IN EXISTING LOWS THAT WILL BLOCK OR ALTER FLOW LIMITS OF THE EXISTING NATURAL DRAINAGE OR PLACED WITHIN THE LIMITS OF THE EXISTING FLOOD PLAIN.

TRENCH EXCAVATION SAFETY PROTECTION:

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

CAUTION!!

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

NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102466
LICENSED
PROFESSIONAL ENGINEER
8/27/25

PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

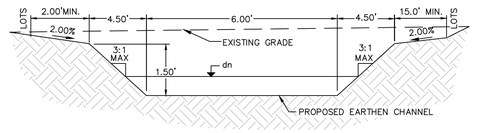
STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS

DRAIN M1 PLAN & PROFILE STA. 1+00.00 TO 5+00.00

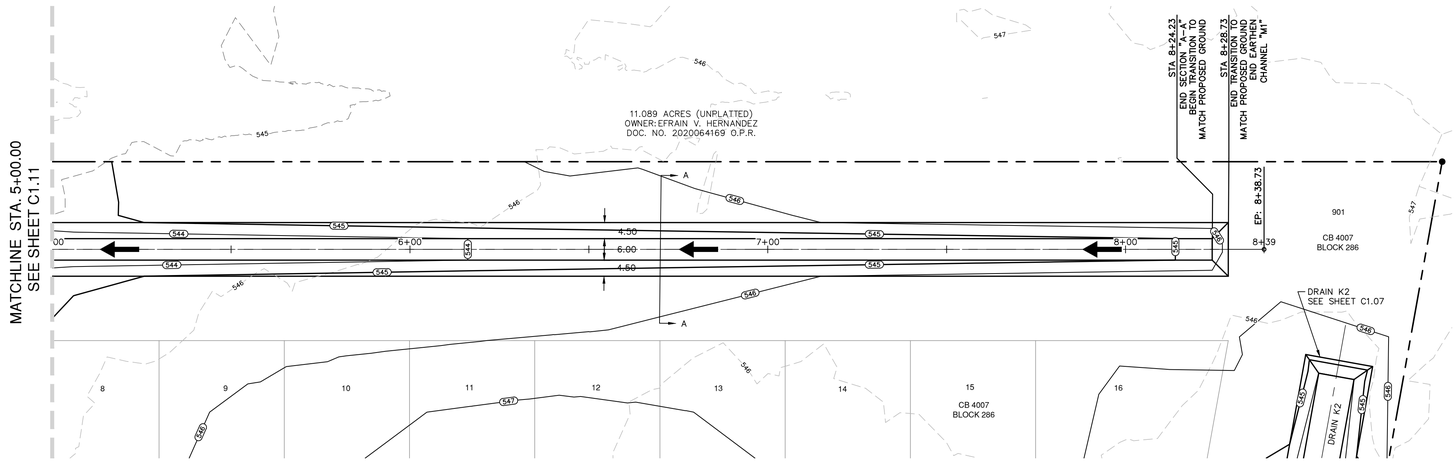
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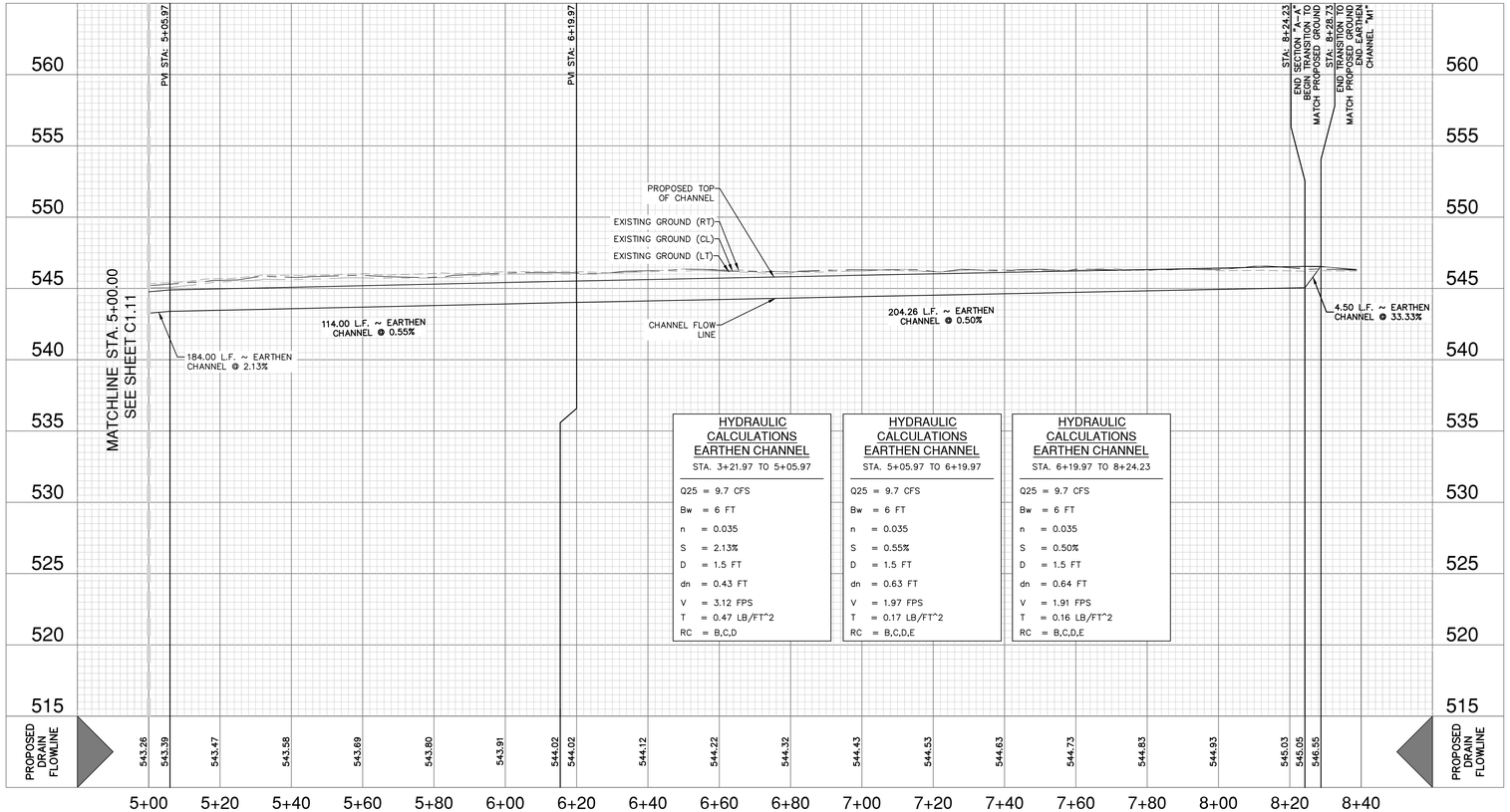


SECTION "A-A"
NOT-TO-SCALE
STA. 1+13.54 TO 1+97.50
STA. 2+07.50 TO 8+24.23

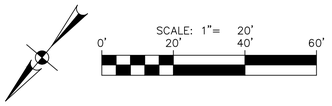


DRAIN "M1"
STA. 1+00.00 TO 8+38.73

VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 20'



HYDRAULIC CALCULATIONS EARTHEN CHANNEL STA. 3+21.97 TO 5+05.97		HYDRAULIC CALCULATIONS EARTHEN CHANNEL STA. 5+05.97 TO 6+19.97		HYDRAULIC CALCULATIONS EARTHEN CHANNEL STA. 6+19.97 TO 8+24.23	
Q25	= 9.7 CFS	Q25	= 9.7 CFS	Q25	= 9.7 CFS
Bw	= 6 FT	Bw	= 6 FT	Bw	= 6 FT
n	= 0.035	n	= 0.035	n	= 0.035
S	= 2.13%	S	= 0.55%	S	= 0.50%
D	= 1.5 FT	D	= 1.5 FT	D	= 1.5 FT
dn	= 0.43 FT	dn	= 0.63 FT	dn	= 0.64 FT
V	= 3.12 FPS	V	= 1.97 FPS	V	= 1.91 FPS
T	= 0.47 LB/FT^2	T	= 0.17 LB/FT^2	T	= 0.16 LB/FT^2
RC	= B,C,D	RC	= B,C,D,E	RC	= B,C,D,E



DRAINAGE LEGEND

- PROJECT LIMITS
- 100 YR FLOODPLAIN
- EXISTING CONTOUR — 690
- PROPOSED CONTOUR — 690
- PROPOSED WATER — W
- PROPOSED SEWER — SS
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- FLOW ARROW

DRAINAGE & GRADING NOTES:

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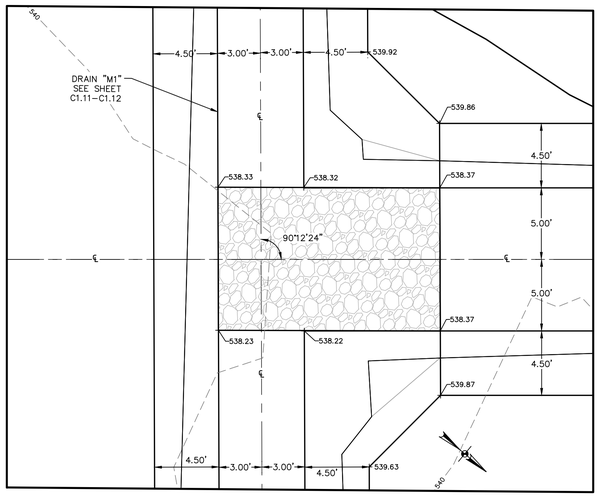
STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS

DRAIN M1 PLAN & PROFILE STA. 5+00.00 TO 8+38.73

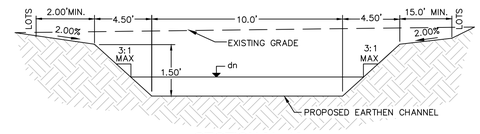
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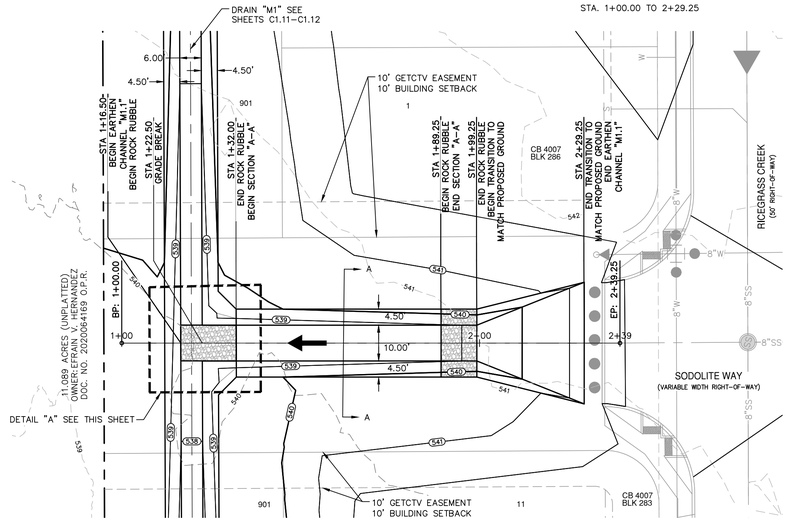
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DETAIL "A"
SCALE: 1" = 5'

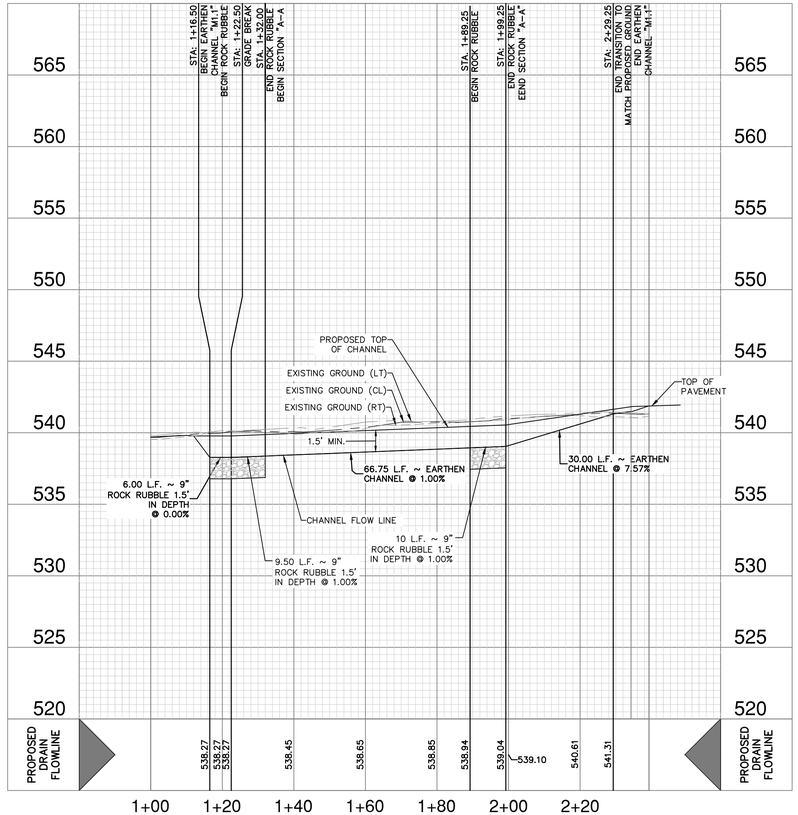


SECTION "A-A"
NOT-TO-SCALE
STA. 1+00.00 TO 2+29.25



DRAIN "M1.1"
STA. 1+00.00 TO 2+39.25

VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 20'



DRAINAGE LEGEND

- PROJECT LIMITS
- 100 YR FLOODPLAIN
- EXISTING CONTOUR — 690 —
- PROPOSED CONTOUR — 690 —
- PROPOSED WATER — W —
- PROPOSED SEWER — SS —
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- FLOW ARROW

SCALE: 1"= 20'
0' 20' 40' 60'

HYDRAULIC CALCULATIONS EARTHEN CHANNEL STA. 1+16.50 TO 1+32.00	
Q25	= 20.9 CFS
Bw	= 6.0 FT
n	= 0.040
S	= 1.00%
D	= 1.50 FT
dn	= 0.87 FT
V	= 2.79 FPS
T	= 0.40 LB/FT^2
RC	= N/A

HYDRAULIC CALCULATIONS EARTHEN CHANNEL STA. 1+32.00 TO 1+89.25	
Q25	= 8.3 CFS
Bw	= 10.0 FT
n	= 0.035
S	= 1.00%
D	= 1.50 FT
dn	= 0.37 FT
V	= 2.03 FPS
T	= 0.21 LB/FT^2
RC	= B,C,D,E

HYDRAULIC CALCULATIONS EARTHEN CHANNEL STA. 1+89.25 TO 1+99.25	
Q25	= 8.3 CFS
Bw	= 6.0 FT
n	= 0.040
S	= 1.00%
D	= 1.50 FT
dn	= 0.52 FT
V	= 2.10 FPS
T	= 0.27 LB/FT^2
RC	= B,C,D,E

DRAINAGE & GRADING NOTES:

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OPEN EARTHEN CHANNEL NOTE:

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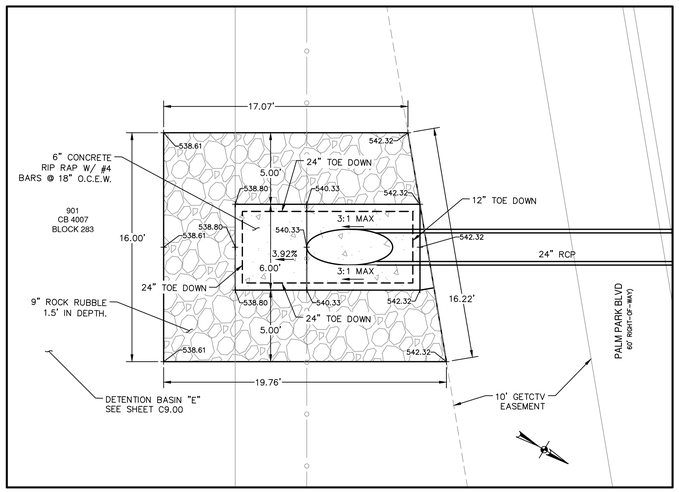
STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS

DRAIN M1.1 PLAN & PROFILE STA. 1+00.00 TO 2+39.25

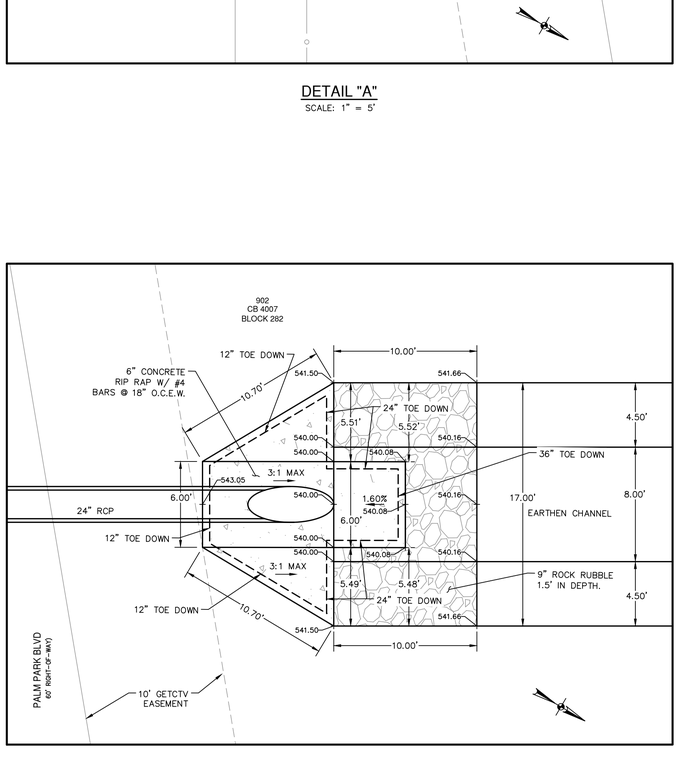
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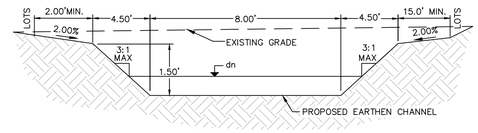
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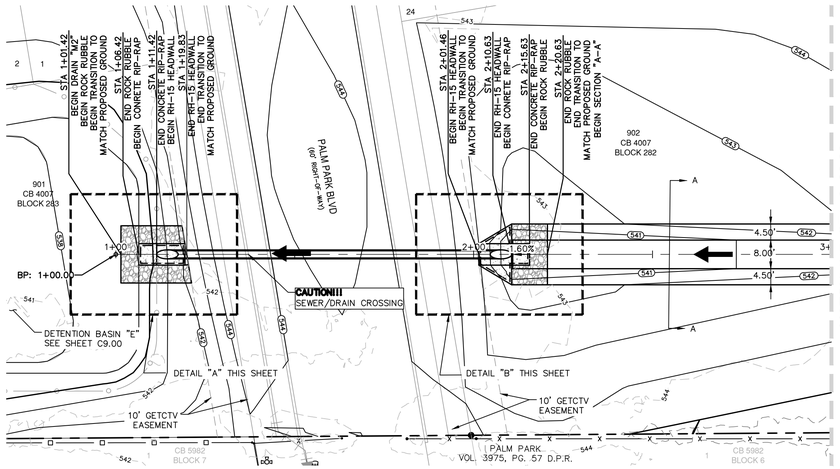
DETAIL "A"
SCALE: 1" = 5'



DETAIL "B"
SCALE: 1" = 5'

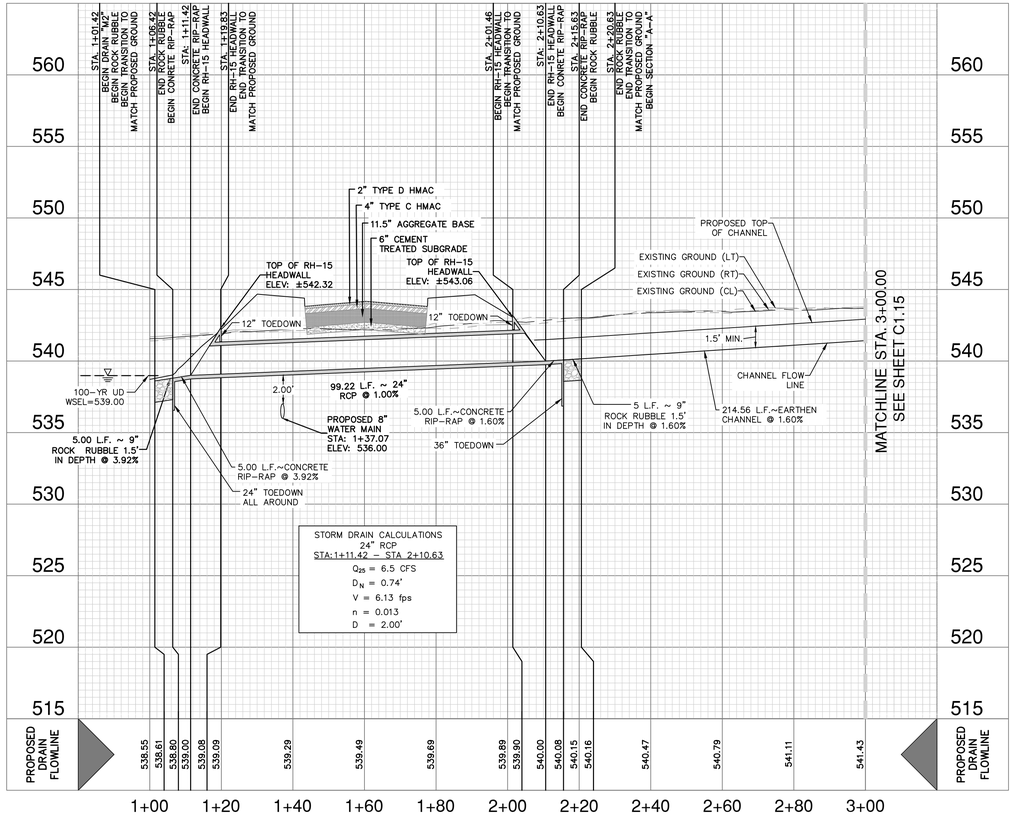


SECTION "A-A"
NOT-TO-SCALE
STA. 2+20.63 TO 6+35.01



DRAIN "M2"
STA. 1+00.00 TO 3+00.00

VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 20'





DRAINAGE LEGEND

- PROJECT LIMITS
- 100 YR FLOODPLAIN
- EXISTING CONTOUR — 690
- PROPOSED CONTOUR — 690
- PROPOSED WATER — W
- PROPOSED SEWER — SS
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- FLOW ARROW

HYDRAULIC CALCULATIONS ROCK RUBBLE STA. 2+15.63 TO 2+20.63	
Q25 = 6.5 CFS	
Bw = 8 FT	
n = 0.038	
S = 1.60%	
D = 1.5 FT	
dn = 0.33 FT	
V = 2.19 FPS	
T = 0.29 LB/FT^2	
RC = N/A	

HYDRAULIC CALCULATIONS EARTHEN CHANNEL STA. 2+20.63 TO 4+25.19	
Q25 = 6.5 CFS	
Bw = 8 FT	
n = 0.035	
S = 1.60%	
D = 1.5 FT	
dn = 0.31 FT	
V = 2.31 FPS	
T = 0.28 LB/FT^2	
RC = B,C,D,E	

DRAINAGE & GRADING NOTES:

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

OPEN EARTHEN CHANNEL NOTE:

CONTRACTOR SHALL REFERENCE TABLE 9.3.8.1 – "RETARDATION CLASS FOR LINING MATERIALS" PROVIDED ON SHEET C1.20 AND SUPPLIED RETARDANCE CLASS (RC) FOR CHOICE OF COVER WITHIN OPEN EARTHEN CHANNEL CROSS-SECTIONS.

BEXAR COUNTY FLOOD PLAIN GENERAL CONSTRUCTION NOTES:

1. CONTRACTOR IS TO MAINTAIN UNRESTRICTED DRAINAGE OF THE PROJECT SITE AND ADJACENT AREAS DURING CONSTRUCTION.
2. NO CONSTRUCTION MATERIAL AND/OR WASTE MATERIAL SHALL BE PLACED IN EXISTING LOWS THAT WILL BLOCK OR ALTER FLOW LIMITS OF THE EXISTING NATURAL DRAINAGE OR PLACED WITHIN THE LIMITS OF THE EXISTING FLOOD PLAIN.

TRENCH EXCAVATION SAFETY PROTECTION:

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

CAUTION!!

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

NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102466
LICENSED
PROFESSIONAL ENGINEER
8/27/25

PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

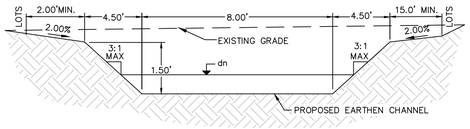
STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS

DRAIN M2 PLAN & PROFILE STA. 1+00.00 TO 3+00.00

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C1.14

Date: February 3, 2025, 2:37 PM – User ID: rodolfo.gallegos
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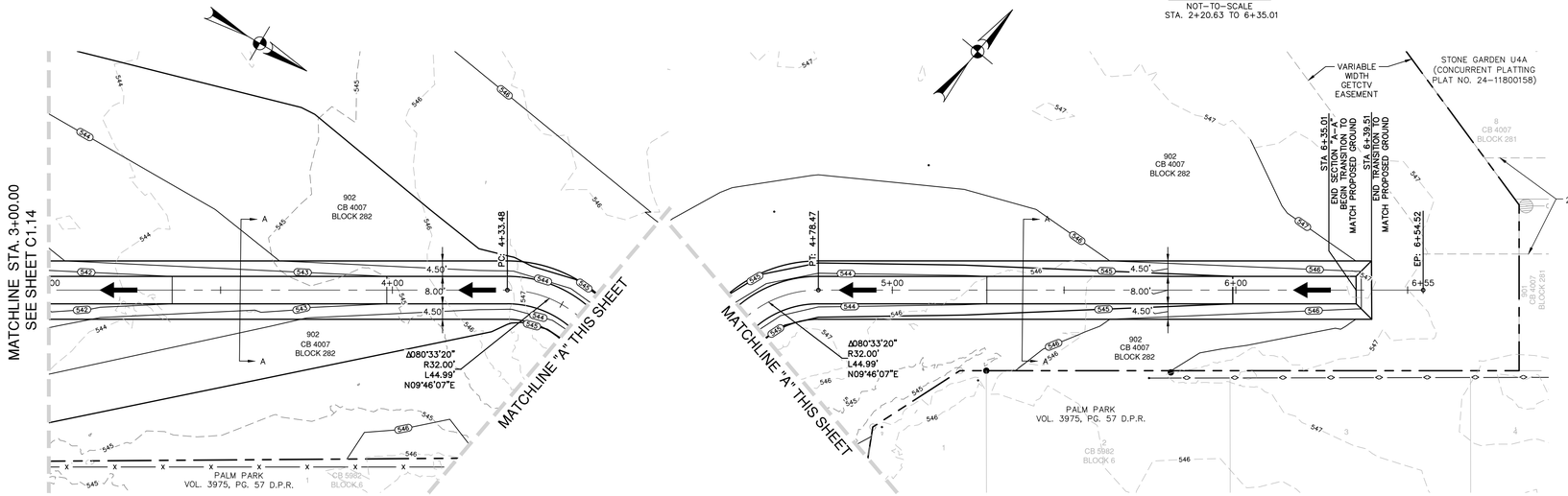


SECTION "A-A"
NOT-TO-SCALE
STA. 2+20.63 TO 6+35.01

SCALE: 1" = 20'
0' 20' 40' 60'

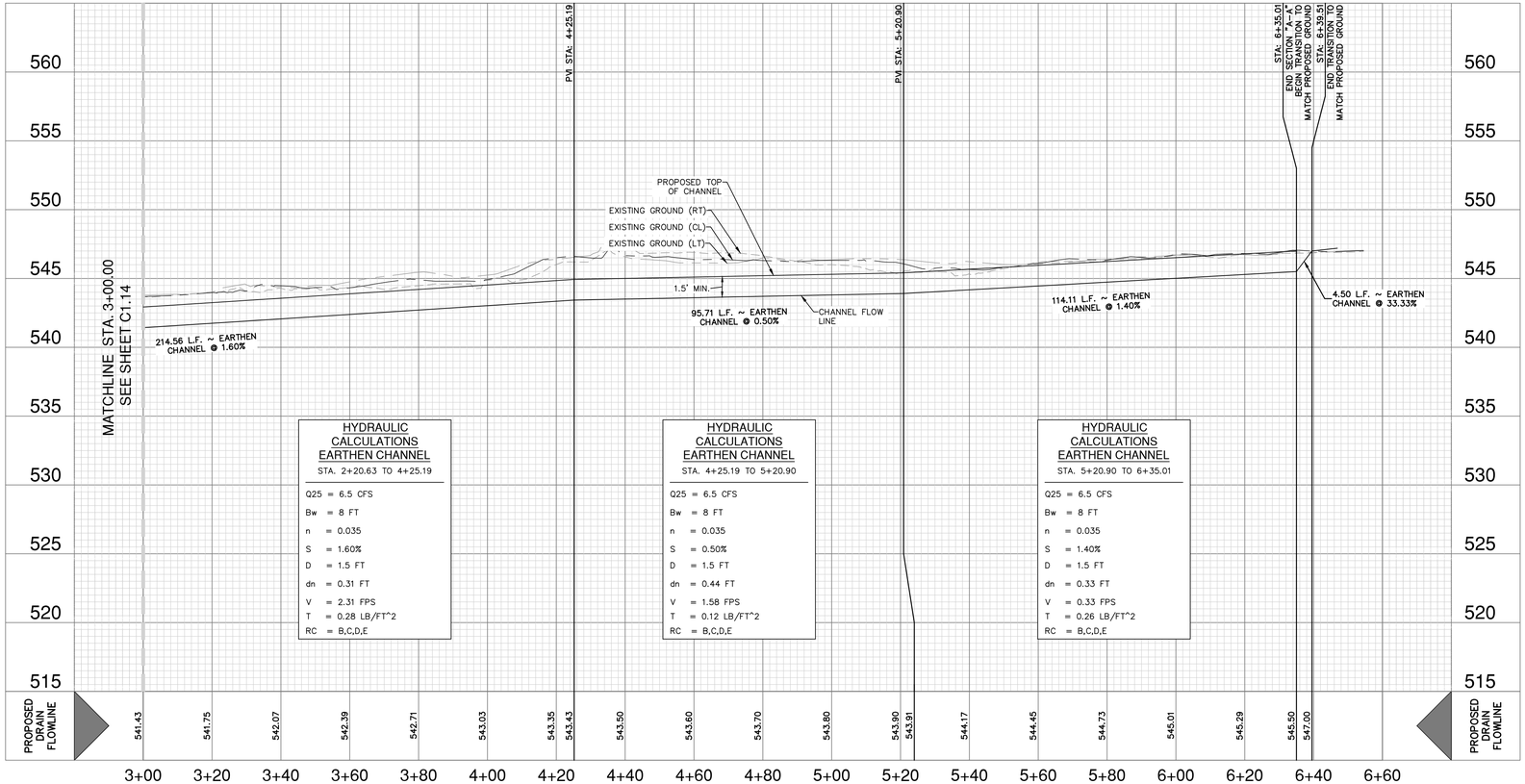
DRAINAGE LEGEND

- PROJECT LIMITS
- 100 YR FLOODPLAIN
- EXISTING CONTOUR — 690
- PROPOSED CONTOUR — 690
- PROPOSED WATER — W
- PROPOSED SEWER — SS
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- FLOW ARROW



DRAIN "M2"
STA. 3+00.00 TO 6+54.52

VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 20'



HYDRAULIC CALCULATIONS EARTHEN CHANNEL
STA. 2+20.63 TO 4+25.19

Q25	= 6.5 CFS
Bw	= 8 FT
n	= 0.035
S	= 1.60%
D	= 1.5 FT
dn	= 0.31 FT
V	= 2.31 FPS
T	= 0.28 LB/FT^2
RC	= B,C,D,E

HYDRAULIC CALCULATIONS EARTHEN CHANNEL
STA. 4+25.19 TO 5+20.90

Q25	= 6.5 CFS
Bw	= 8 FT
n	= 0.035
S	= 0.50%
D	= 1.5 FT
dn	= 0.44 FT
V	= 1.58 FPS
T	= 0.12 LB/FT^2
RC	= B,C,D,E

HYDRAULIC CALCULATIONS EARTHEN CHANNEL
STA. 5+20.90 TO 6+35.01

Q25	= 6.5 CFS
Bw	= 8 FT
n	= 0.035
S	= 1.40%
D	= 1.5 FT
dn	= 0.33 FT
V	= 0.33 FPS
T	= 0.26 LB/FT^2
RC	= B,C,D,E

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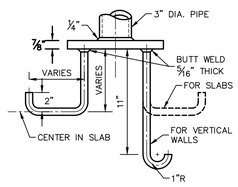
STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS

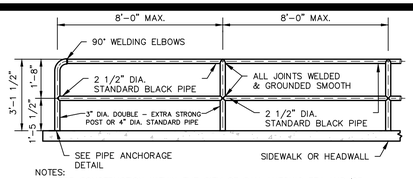
DRAIN M2 PLAN & PROFILE STA. 3+00.00 TO 6+54.52

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C1.15

Date: February 3, 2025, 2:39 PM – User ID: rodolfo.gallegos
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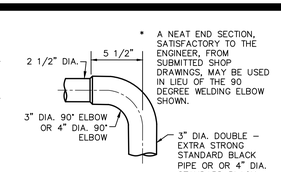




NOTES:
1. FOR CONSTRUCTION WITHIN THE CITY OF SAN ANTONIO ETJ AND/OR BEXAR COUNTY, PIPE SHALL BE STANDARD BLACK PIPE PAINTED WITH 1 COAT OF READ PRIMER AND 2 COATS OF ALUMINUM PAINT

PIPE RAILING DETAIL

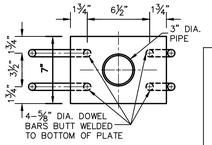
NOT-TO-SCALE



* A NEAT END SECTION, SATISFACTORY TO THE ENGINEER, FROM SUBMITTED SHOP DRAWINGS, MAY BE USED IN LIEU OF THE 90 DEGREE WELDING ELBOW SHOWN.

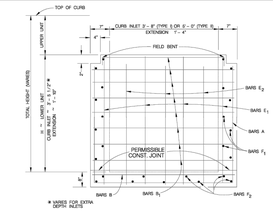
90° WELDING ELBOWS DETAIL

NOT-TO-SCALE

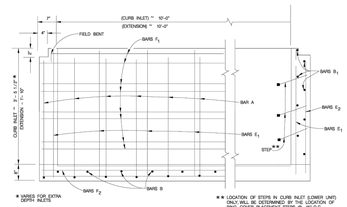


PIPE ANCHORAGE DETAIL

NOT-TO-SCALE



SECTION A–A



SECTION B–B

REINFORCING STEEL

LOWER UNIT 10' X 3'-8" (TYPE I)

BAR	NO.	SIZE	SPAC.	LENGTH
A	12	#4	12"	VARIES
B	11	#4	12"	4'-6"
S_1	VARIES	#4	12"	4'-6"
F_1	20	#4	18"±	VARIES
S_2	6	#4	18"±	VARIES
F_2	VARIES	#4	12"-0"	VARIES
S_3	9	#4	----	10'-10"

LOWER UNIT 10' X 5'-0" (TYPE II)

BAR	NO.	SIZE	SPAC.	LENGTH
A	12	#4	12"	VARIES
B	11	#4	12"	5'-10"
S_1	VARIES	#4	12"	5'-10"
F_1	22	#4	18"±	VARIES
S_2	8	#4	18"±	VARIES
F_2	VARIES	#4	12"±	10'-6"
S_3	11	#4	----	10'-10"

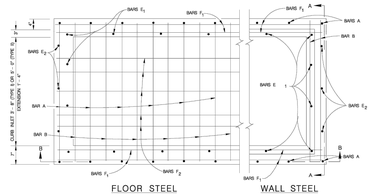
GENERAL NOTES

1. 9" INLETS AND 5' EXTENSIONS MUST BE IN ACCORDANCE WITH THE LATEST TXDOT CURB INLET TYPE "C" AND EXTENSION TYPE II, III, G.
2. TYPE C-II INLET TO BE USED ONLY WHEN STORM DRAIN PIPE IS IN-LINE WITH CURB INLET AND APPROVED BY THE ENGINEER.
3. QUANTITIES SHOWN ARE FOR CONTRACTORS INFORMATION ONLY.
4. CONCRETE FOR STRUCTURES SHALL BE CLASS "A", 3000 PSI IN 28 DAYS.
5. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS.
6. ALL REINFORCING STEEL SHALL HAVE A MINIMUM COVER OF 1 1/2".
7. ALL REINFORCING STEEL SHALL CONFORM TO A.S.T.M A-615, GRADE 60 REQUIREMENTS.
8. ALL EXPOSED CORNERS SHALL BE CHAMFERED 3 /4".
9. DEPRESSION SLAB SHALL RECEIVE A WOOD FLOAT FINISH.
10. FACE OF INLET TO CONFORM TO FACE OF CURB LINE.
11. ALL BARS INTERCEPTING MANHOLE RING & COVER SHALL BE CUT OR BENT.
12. PAYMENT FOR ALL EXCAVATION, BACK-FILLING CONCRETE, REINFORCING STEEL, RING AND COVER, CURB ARMOR AND STEPS SHALL BE INCLUDED IN THE UNIT COST OF ITEM 403 "STORM SEWER JUNCTION BOXES AND INLETS".
13. CAST IRON MANHOLE RING AND COVER TO BE PLACED NEXT TO OUTLET PIPE, EXCEPT FOR VERTICAL OUTLET PIPE IN WHICH CASE MANHOLE RING AND COVER WILL BE OFFSET.
14. GALVANIZED BOLTS, NUTS, WASHERS, PLATES AND GASKETS ARE SUBSIDIARY TO INLETS.
15. THE CONTRACTOR SHALL PROVIDE AN ADEQUATE MEANS TO LIFT AND PLACE THE INLETS, WHEN USING PRECAST UNITS.
16. ALL BARS AT PIPE BLOCKOUT LOCATIONS SHALL BE CUT OR BEND.
17. ALL LOWER UNITS SHALL RECEIVE INVERT MORTAR SHAPING.
18. PIPE BLOCKOUTS IN INLET WALLS SHOULD NOT EXCEED 3" BEYOND THE OUTER SHELL OF THE PIPE. THIS WILL ACCOUNT THE SIDE OF THE PIPE AS NECESSARY. CONSTRUCTION JOINT MAY BE RAISED A MAXIMUM OF 6".

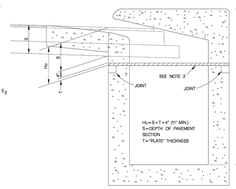
PHASE CONSTRUCTION

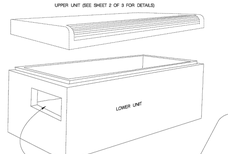
NOTES FOR PHASE CONSTRUCTION: (WHEN DIRECTED BY THE ENGINEER)

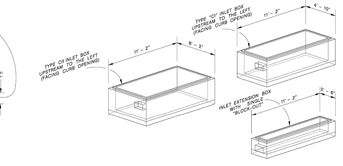
1. THE CURB INLET AND EXTENSION SHALL BE CONSTRUCTED TO A DEPTH "H-7" BELOW THE INLET AND EXTENSION GUTTER LINE ELEVATION.
2. CAP THE CURB INLET AND EXTENSION WITH A STEEL PLATE APPROVED BY THE ENGINEER AND CONSTRUCT THE ROADWAY OVER THE PLATE.
3. AFTER THE ROADWAY IS COMPLETED, BUT PRIOR TO THE FINAL ACCEPTANCE, REMOVE THE ROADWAY, REMOVE THE COVER PLATES AND COMPLETE THE UPPER PORTION OF THE CURB INLET AND /OR EXTENSION.



PLAN







CONCRETE INLET BOX CONFIGURATIONS (LOWER UNITS)





CONCRETE INLET BOX CONFIGURATIONS (LOWER UNITS)

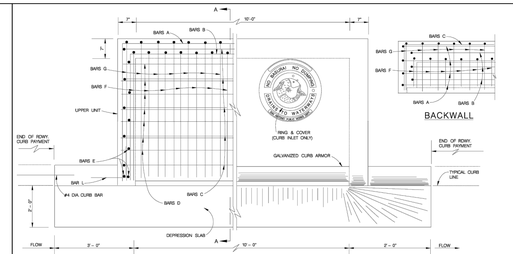
MAY 2009

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

TYPE "C" INLET (TYPE I & II) & INLET EXTENSION STANDARDS
SHEET 1 OF 3

#	SUBMITTAL	PROJECT NO.:	DATE:

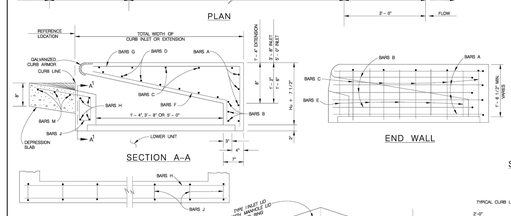
DRAWN BY: V. VASQUEZ; DESIGN BY: L.C. MALTOS, P.E.; CHKD BY: R.S. HOSSEIN, P.E.; SHEET NO.: ; OF

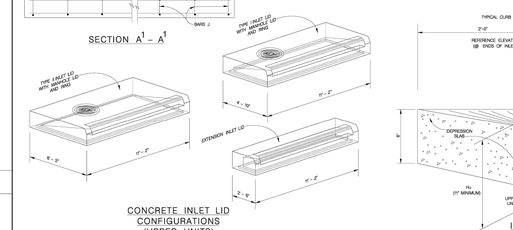


PLAN

SECTION A–A

SECTION A^1 – A^1





CONCRETE INLET LID CONFIGURATIONS (UPPER UNITS)

REINFORCING STEEL (FOR Hu = 11")

UPPER UNIT 10' X 3'-8" (TYPE I)

BAR	NO.	SIZE	SPAC.	LENGTH	WEIGHT
A	4	#4	----	19'-10"	53
B	3	#4	----	18'-10"	38
C	7	#4	12"	10'-0"	93
D	11	#4	6"	10'-10"	80
E	12	#4	12"	1'-3"	9
F	21	#6	6"	4'-8"	147
G	22	#6	6"	5'-8"	187
H	4	#4	----	10'-10"	29
J	12	#4	12"	3'-8"	28
L	4	#4	----	2'-0"	5
M	3	#4	----	14'-8"	29
TOTAL WEIGHT					620 LBS.

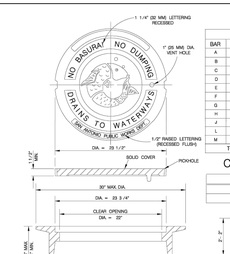
UPPER UNIT 10' X 5' (TYPE II)

BAR	NO.	SIZE	SPAC.	LENGTH	WEIGHT
A	4	#4	----	19'-10"	53
B	3	#4	----	21'-6"	43
C	7	#4	12"	10'-0"	93
D	11	#4	6"	10'-10"	80
E	16	#4	12"	1'-3"	13
F	21	#6	6"	4'-8"	179
G	22	#6	6"	5'-8"	221
H	4	#4	----	10'-10"	29
J	12	#4	12"	3'-8"	28
L	4	#4	----	2'-0"	5
M	3	#4	----	14'-8"	29
TOTAL WEIGHT					759 LBS.

CLASS "A" CONCRETE QUANTITIES (FOR Hu = 11")

DEPRESSION SLAB	C.Y.
10' INLET	0.7
10' EXTENSION	0.7

UPPER UNIT (ONLY)	C.Y.
10' X 3'-8" CURB INLET	1.9
10' X 5'-0" CURB INLET EXTENSION	2.7
	1.0

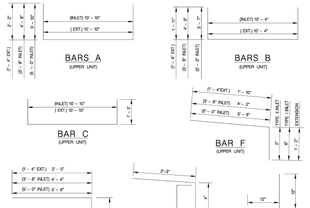


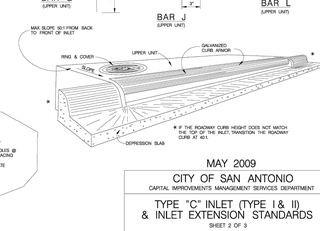
MANHOLE LID & RING DETAIL (ITEM 409)

NOTES FOR MANHOLE LID AND RING

1. FOR LID DESIGN OUTSIDE OF CITY OF SAN ANTONIO, DELETE "SAN ANTONIO PUBLIC WORKS DEPT.".
2. CASTING NUMBER AND MANUFACTURER'S I.D. ON LID AND RING.
3. LOAD BEARING CAPABILITY OF HS-20 MINIMUM.
4. THE LOAD BEARING SURFACES SHALL BE MACHINE GROUND.
5. THE COMBINED WEIGHT OF THE MANHOLE RING AND COVER MUST BE AT LEAST 280 LBS.

SEE SHEET 1 OF 3 FOR GENERAL NOTES.





SEE SHEET 1 OF 3 FOR GENERAL NOTES.

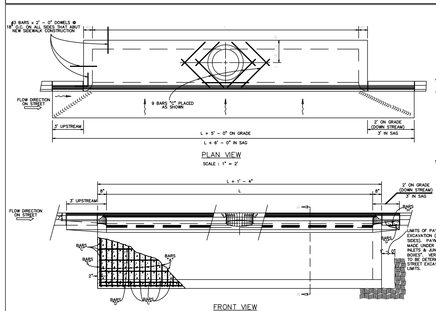
MAY 2009

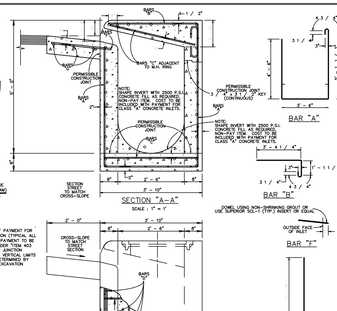
CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

TYPE "C" INLET (TYPE I & II) & INLET EXTENSION STANDARDS
SHEET 2 OF 3

#	SUBMITTAL	PROJECT NO.:	DATE:

DRAWN BY: V. VASQUEZ; DESIGN BY: L.C. MALTOS, P.E.; CHKD BY: R.S. HOSSEIN, P.E.; SHEET NO.: ; OF





INLET LENGTH	REINFORCING STEEL SCHEDULE					
	BAR	NO.	SIZE	SPACING	LENGTH	WEIGHT
L=5' – 0"	A	10	#4	12" O.C.	5' – 1 7/8"	108
	B	18	#4	12" O.C.	5' – 1 7/8"	108
	C	6	#4	18" O.C.	5' – 0"	60
	D	10	#4	18" O.C.	5' – 0"	66
	E	4	#4	12" O.C.	4' – 8"	62
	F	3	#4	12" O.C.	4' – 8"	47
	G	3	#4	12" O.C.	4' – 8"	47
	H	3	#4	12" O.C.	4' – 8"	47
	J	3	#4	12" O.C.	4' – 8"	47

* CONCRETE TOTAL=3.53 CU. YDS. M.H. CASTING=260 LBS. STEEL TOTAL=438 LBS.

INLET LENGTH	REINFORCING STEEL SCHEDULE					
	BAR	NO.	SIZE	SPACING	LENGTH	WEIGHT
L=10' – 0"	A	10	#4	12" O.C.	5' – 1 7/8"	108
	B	24	#4	12" O.C.	5' – 1 7/8"	163
	C	6	#4	18" O.C.	5' – 0"	60
	D	10	#4	18" O.C.	5' – 0"	66
	E	4	#4	12" O.C.	4' – 8"	62
	F	3	#4	12" O.C.	4' – 8"	47
	G	3	#4	12" O.C.	4' – 8"	47
	H	3	#4	12" O.C.	4' – 8"	47
	J	3	#4	12" O.C.	4' – 8"	47

* CONCRETE TOTAL=5.75 CU. YDS. M.H. CASTING=260 LBS. STEEL TOTAL=704 LBS.

INLET LENGTH	REINFORCING STEEL SCHEDULE					
	BAR	NO.	SIZE	SPACING	LENGTH	WEIGHT
L=15' – 0"	A	10	#4	12" O.C.	5' – 1 7/8"	108
	B	24	#4	12" O.C.	5' – 1 7/8"	163
	C	6	#4	18" O.C.	5' – 0"	60
	D	10	#4	18" O.C.	5' – 0"	66
	E	4	#4	12" O.C.	4' – 8"	62
	F	3	#4	12" O.C.	4' – 8"	47
	G	3	#4	12" O.C.	4' – 8"	47
	H	3	#4	12" O.C.	4' – 8"	47
	J	3	#4	12" O.C.	4' – 8"	47

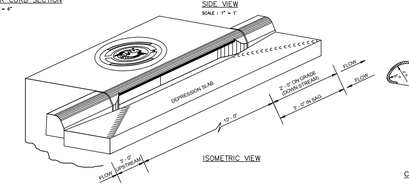
* CONCRETE TOTAL=7.97 CU. YDS. M.H. CASTING=260 LBS. STEEL TOTAL=963 LBS.

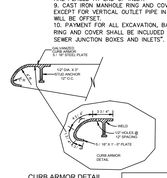
INLET LENGTH	REINFORCING STEEL SCHEDULE					
	BAR	NO.	SIZE	SPACING	LENGTH	WEIGHT
L=20' – 0"	A	10	#4	12" O.C.	5' – 1 7/8"	108
	B	30	#4	12" O.C.	5' – 1 7/8"	204
	C	6	#4	18" O.C.	5' – 0"	60
	D	10	#4	18" O.C.	5' – 0"	66
	E	4	#4	12" O.C.	4' – 8"	62
	F	3	#4	12" O.C.	4' – 8"	47
	G	3	#4	12" O.C.	4' – 8"	47
	H	3	#4	12" O.C.	4' – 8"	47
	J	3	#4	12" O.C.	4' – 8"	47

* CONCRETE TOTAL=10.19 CU. YDS. M.H. CASTING=260 LBS. STEEL TOTAL=1227 LBS.

* THESE FIGURES DO NOT EXCLUDE CONCRETE & STEEL INTERCEPTED BY MANHOLE AND REINFORCED CONC. PIPE.
* INCLUDES CONCRETE OUTSIDE FOR ON GRADE INLET. REDUCE BY .25 C.Y. FOR INLETS IN SUMP.

GENERAL NOTES:
1. ALL BARS INTERCEPTING MANHOLE RING & REINFORCING CONCRETE PIPE SHALL BE FIELD CUT.
2. CONCRETE FOR STRUCTURES SHALL BE CLASS "A", 3000 PSI IN 28 DAYS.
3. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER BARS.
4. ALL EXPOSED CORNERS SHALL BE CHAMFERED TO 3 /4".
5. CONSTRUCTION JOINT SHOWN AT FLOWLINE MAY BE RAISED A MAXIMUM OF 6" AT THE CONTRACTORS DISCRETION. ADJUST LENGTH OF VERTICAL STEEL AS REQUIRED.
6. ALL REINFORCING STEEL SHALL CONFORM TO A.S.T.M. A-615, GRADE 60 REQUIREMENTS.
7. INVERT OF DROP INLET TO BE SHAPED WITH CONCRETE FILL TO AFFECT DRAINAGE TO OUTLET PIPE.
8. DELETE 4 "C" BARS FROM SCHEDULE QUANTITIES IF MANHOLE RING AND COVER ARE PLACED AT END OF INLET.
9. CAST IRON MANHOLE RING AND COVER TO BE PLACED NEXT TO OUTLET PIPE, EXCEPT FOR VERTICAL OUTLET PIPE IN WHICH CASE MANHOLE RING AND COVER WILL BE OFFSET.
10. PAYMENT FOR ALL EXCAVATION, BACK FILLING, CONCRETE, REINFORCING STEEL, RING AND COVER SHALL BE INCLUDED IN THE UNIT COST OF ITEM 403 "STORM SEWER JUNCTION BOXES AND INLETS".





CURB ARMOR DETAIL

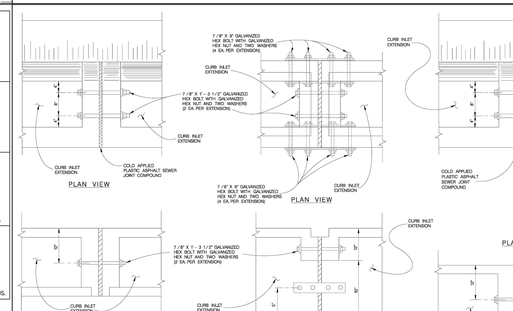
CURB INLET DETAILS

N.T.S.

STANDARD PLANS
CITY OF SAN ANTONIO, TEXAS
DEPARTMENT OF PUBLIC WORKS

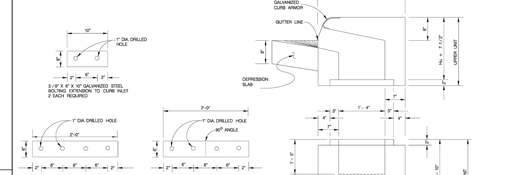
TYPE "C" INLET STANDARDS

DRAWN BY:	DATE	REVISIONS	SCALE: SEE ABOVE
V. VASQUEZ			DATE:
CHECKED BY:			
NAT HARDY, P.E.			SHEETS



INLET BOLTING DETAILS

SHOWING EXTENSION TO EXTENSION

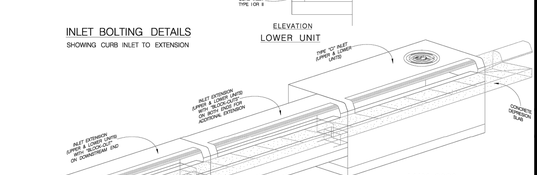


PLATES

SECTION A–A CURB INLET EXTENSION TYPE E

INLET BOLTING DETAILS

SHOWING CURB INLET TO EXTENSION



TYPE "CI" INLET WITH INLET EXTENSION BOXES

UPPER UNIT EXTENSION (FOR Hu = 11")

BAR	NO.	SIZE	SPAC.	LENGTH	WEIGHT
A	4	#4	----	19'-10"	53
B	3	#4	----	14'-2"	28
C	3	#4	12"	10'-0"	26
D	3	#4	6"	10'-10"	22
E	5	#4	12"	1'-3"	6
F	21	#6	6"	2'-9"	63
G	22	#6	6"	3'-4"	110
H	4	#4	----	10'-10"	29
J	12	#4	12"	3'-8"	28
L	4	#4	----	2'-0"	5
M	3	#4	----	14'-8"	29
REINFORCING STEEL				LBS.	387
CLASS "A" CONCRETE				C.Y.	1.0

LOWER UNIT EXTENSION

BAR	NO.	SIZE	SPAC.	LENGTH	WEIGHT
A	12	#4	12"	6' – 2"	49
B	11	#4	12"	5'-10"	16
B_1	3	#4	6"	2' – 2"	4
S_1	18	#4	18" ±	2' – 3"	27
S_2	4	#4	18" ±	2' – 1"	5
F_1	16	#4	12" ±	10' – 10"	116
F_2	3	#4	----	10' – 10"	36
REINFORCING STEEL				LBS.	254
CLASS "A" CONCRETE				C.Y.	1.4

GENERAL NOTES

1. WHEN INLET EXTENSIONS ARE REQUIRED FOR ON GRADE INLETS, THE EXTENSIONS SHALL BE PLACED ON THE UPSTREAM END OF THE INLET.
2. FOR CURB INLET EXTENSION REINFORCING STEEL NOTES & VARIOUS OTHER APPLICABLE DETAILS NOT FOUND ON THIS SHEET, REFER TO SHEETS 1 & 2.

MAY 2009

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

TYPE "C" INLET (TYPE I & II) & INLET EXTENSION STANDARDS
SHEET 3 OF 3

#	SUBMITTAL	PROJECT NO.:	DATE:

DRAWN BY: V. VASQUEZ; DESIGN BY: L.C. MALTOS, P.E.; CHKD BY: R.S. HOSSEIN, P.E.; SHEET NO.: ; OF

NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102466
LICENSED
PROFESSIONAL ENGINEER
8/27/25

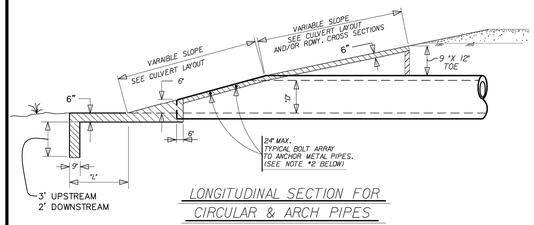
PAPE–DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS
DRAINAGE DETAILS

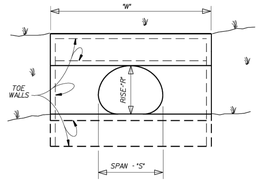
PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C1.20

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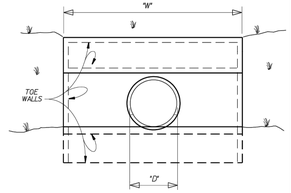
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LONGITUDINAL SECTION FOR CIRCULAR & ARCH PIPES



SINGLE C.M.P. ARCH PIPE CULVERT



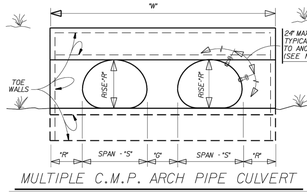
SINGLE CIRCULAR PIPE CULVERT

(CMP or RCP)

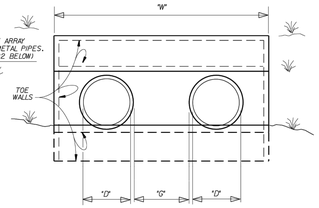
DIMENSIONS FOR CIRCULAR (CMP and RCP) PIPE CULVERTS

"D" INSIDE DIA. of PIPE	'L'	'G'		SINGLE	DOUBLE	TRIPLE	QUADRUPLE
		CGM	RCP	'W'			
18"	2'-0"	1'-2"	0'-9"	4'-6"	7'-2"	9'-10"	12'-6"
21"	2'-6"	1'-3"	0'-10"	5'-3"	8'-4"	11'-4"	13'-4"
24"	3'-0"	1'-5"	0'-11"	6'-0"	9'-5"	12'-10"	16'-3"
30"	4'-0"	1'-8"	1'-1"	7'-6"	11'-8"	15'-10"	20'-0"
36"	5'-0"	1'-11"	1'-3"	9'-0"	13'-11"	18'-10"	23'-9"
42"	6'-0"	2'-2"	1'-5"	10'-6"	16'-2"	21'-10"	27'-6"
48"	7'-0"	2'-5"	1'-7"	12'-0"	18'-5"	24'-10"	31'-3"
54"	8'-0"	2'-10"	1'-11"	13'-6"	20'-10"	28'-2"	35'-6"
60"	9'-0"	3'-2"	2'-0"	15'-0"	23'-3"	31'-6"	39'-6"

*'G' IS MEASURED BETWEEN THE OUTER SURFACES OF THE PIPES.



MULTIPLE C.M.P. ARCH PIPE CULVERT



MULTIPLE CIRCULAR PIPE CULVERT

(CMP or RCP)

DIMENSIONS FOR C.M.P. ARCH PIPE CULVERTS

DESIGN SIZE	APPROX. ARCH DIM. SPAN 'S'	APPROX. ARCH DIM. RISE 'R'	'L'	'G'	SINGLE	DOUBLE	TRIPLE	QUADRUPLE
					'W'			
1	21"	15"	2'-0"	1'-2"	4'-3"	7'-2"	10"-1"	13"-0"
2	28"	20"	3'-0"	1'-5"	5'-8"	9'-5"	13'-2"	16'-11"
4	35"	24"	4'-0"	1'-8"	6'-11"	11'-6"	16'-1"	20'-8"
5	42"	29"	5'-0"	1'-11"	8'-4"	13'-9"	19'-2"	24'-7"
6	49"	33"	6'-0"	2'-2"	9'-7"	15'-10"	22'-1"	28'-4"
7	57"	38"	7'-0"	2'-5"	11'-1"	18'-3"	25'-5"	32'-7"
8	64"	43"	8'-0"	2'-10"	12'-5"	20'-8"	28'-10"	37'-0"
9	71"	47"	9'-0"	3'-2"	13'-9"	22'-10"	31'-11"	41'-0"

BASED ON 2-2/3" X 1/2" CORRUGATION
*'G' IS MEASURED BETWEEN THE OUTER SURFACES OF THE PIPES.

NOTES:

1.) FOR RIPRAP QUANTITIES AND SLOPES, SEE CULVERT LAYOUT SHEET. CONCRETE SHALL BE CLASS B UNLESS OTHERWISE SHOWN IN THE PLANS.

2.) ALL METAL PIPES (CIRCULAR AND/OR ARCH) SHALL HAVE 5/8"X 6" GALVANIZED BOLTS WITH 2 HEX NUTS AT 24" CENTERS TO ANCHOR THE PIPE TO THE CONCRETE. THIS WORK WILL BE SUBSIDIARY TO THE RIPRAP HEADWALL.

3.) FOR CONCRETE ARCH PIPES, THE CMP ARCH PIPE CULVERT DIMENSIONS WILL HAVE TO BE ADJUSTED FOR THE PIPE WALL THICKNESS.

4.) FOR PIPES LARGER THAN SHOWN, USE THE CLEAR DISTANCE BETWEEN PIPES SHOWN IN ITEMS 460 AND/OR 464.

5.) IF THE SIDES OF THE HEADWALL IS ADJACENT TO A RIPRAP SLOPE AND IF THE TOP OF THE HEADWALL IS ADJACENT TO THE ROADWAY FOUNDATION OR RIPRAP SLOPE, THE SIDE AND TOP TOE WALLS MAY BE ELIMINATED IF APPROVED BY THE ENGINEER.

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FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
6		
STATE	DIST. / REGION	COUNTY
TEXAS	SAT	
CONT.	SECT.	JOB / HIGHWAY NO.

10/95

SAN ANTONIO DISTRICT STANDARD RIPRAP HEADWALL

TABLE OF DIMENSIONS AND REINFORCING STEEL (Wings for one structure end)

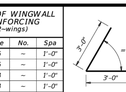
Dimensions					Variable Reinforcing				Estimated Quantities per ft of wing (2-wings) (4)		Estimated Quantities per ft of Toewall (1-toewall)	
Maximum Wingwall Height Hw	W	X	Y	Z	Bars J1		Bars J2					
					Size	Spa	Size	Spa	Reinf (Lb/Ft)	Conc (CY/Ft)	Reinf (Lb/Ft)	Conc (CY/Ft)
2'-6"	2'-10"	10"	1'-0"	7"	#4	1'-0"	#4	1'-0"	48.64	0.406	6.85	0.071
2'-9"	2'-10"	10"	1'-0"	7"	#4	1'-0"	#4	1'-0"	49.31	0.424	6.85	0.071
3'-0"	2'-10"	10"	1'-0"	7"	#4	1'-0"	#4	1'-0"	49.98	0.444	6.85	0.071
3'-3"	2'-10"	10"	1'-0"	7"	#4	1'-0"	#4	1'-0"	53.32	0.462	6.85	0.071
3'-6"	2'-10"	10"	1'-0"	7"	#4	1'-0"	#4	1'-0"	53.98	0.480	6.85	0.071
4'-0"	3'-2"	1'-2"	1'-0"	7"	#4	1'-0"	#4	1'-0"	55.77	0.532	6.85	0.071
4'-6"	3'-2"	1'-2"	1'-0"	7"	#4	1'-0"	#4	1'-0"	59.77	0.568	6.85	0.071
5'-0"	3'-9"	1'-7"	1'-2"	7"	#4	1'-0"	#4	1'-0"	63.45	0.632	6.96	0.075
5'-6"	3'-9"	1'-7"	1'-2"	7"	#4	1'-0"	#4	1'-0"	67.46	0.668	6.96	0.075
6'-0"	4'-4"	2'-0"	1'-4"	7"	#5	1'-0"	#5	1'-0"	80.67	0.730	7.07	0.078
6'-6"	4'-4"	2'-0"	1'-4"	7"	#5	1'-0"	#5	1'-0"	85.05	0.768	7.07	0.078
7'-0"	5'-0"	2'-3"	1'-9"	8"	#5	1'-0"	#5	1'-0"	92.15	0.864	8.07	0.093
7'-6"	5'-0"	2'-3"	1'-9"	8"	#5	1'-0"	#5	1'-0"	96.54	0.902	8.07	0.093
8'-0"	5'-6"	2'-8"	1'-10"	8"	#5	6"	#5	6"	139.04	0.962	8.13	0.095
8'-6"	5'-6"	2'-8"	1'-10"	8"	#5	6"	#5	6"	144.47	1.000	8.13	0.095
9'-6"	6'-0"	2'-10"	2'-2"	9"	#5	6"	#5	6"	156.93	1.136	8.41	0.110
10'-6"	6'-3"	3'-0"	2'-5"	9"	#6	6"	#5	6"	196.21	1.234	8.57	0.117
11'-6"	7'-2"	3'-6"	2'-8"	11"	#6	6"	#6	6"	230.13	1.438	9.52	0.140
12'-6"	7'-8"	3'-9"	2'-11"	1'-0"	#7	6"	#6	6"	283.41	1.592	9.74	0.157
13'-6"	8'-2"	4'-0"	3'-2"	1'-2"	#8	6"	#6	6"	348.72	1.804	10.02	0.186
14'-6"	8'-10"	4'-5"	3'-5"	1'-4"	#9	6"	#6	6"	432.94	2.046	10.30	0.218
15'-6"	9'-6"	4'-10"	3'-8"	1'-6"	#9	6"	#7	6"	489.52	2.302	11.24	0.253
16'-0"	9'-11"	5'-0"	3'-11"	1'-7"	#9	6"	#7	6"	505.72	2.448	11.47	0.279

TABLE OF WINGWALL REINFORCING (2-wings)

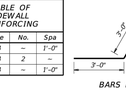
Bar	Size	No.	Spa
D1	#6	~	1'-0"
D2	#6	~	1'-0"
E1	#4	~	1'-0"
F	#4	~	1'-0"
G	#6	~	8"
M1	#4	4	~
P	#4	~	1'-0"
V	#4	~	1'-0"

TABLE OF TOEWALL REINFORCING

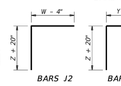
Bar	Size	No.	Spa
J3	#4	~	1'-0"
N2	#4	2	~
E2	#4	~	1'-0"



BARS D1



BARS D2



BARS J1 BARS J2 BARS J3 BARS V

WING DIMENSION FORMULAS:

(All values are in feet.)

Hw = H + T + C
Lw = (Hw) (SL) + cosine (θ) for Type PW-1
= (Hw - 1') (SL) + cosine (θ) for Type PW-2 and Hw ≥ 4'
= (Hw - 0.5') (SL) + cosine (θ) for Type PW-2 and Hw < 4'

For cast-in-place culverts:
Ltw = [(N) (S) + (N + 1) (U)] + cosine (θ)

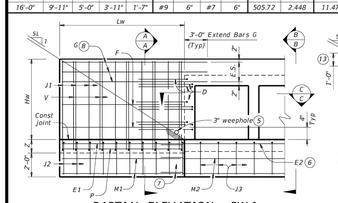
For precast culverts:
Ltw = [(N) (2 U + S) + (N - 1) (0.5')] + cosine (θ)
Total Wingwall Area (two wings ~ SF)
= (2)(Hw)(Lw) for Type PW-1
= (2)(Hw)(Lw) - 6 SF for Type PW-2 and Hw ≥ 4'
= (2)(Hw)(Lw) - 1.5 SF for Type PW-2 and Hw < 4'

Hw = Height of wingwall
Lw = Length of wingwall
Ltw = Culvert toewall length
N = Number of culvert spans
SL:1 = Channel slope ratio, (horizontal: 1 vertical, usual value is 2:1)
θ = Culvert skew

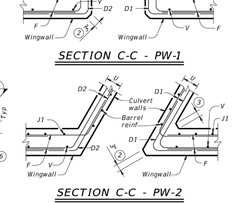
See applicable box culvert standard sheet for S, H, T, and U values.

1. Skew = 0°
2. At discharge end, chamfer may be 3/4" minimum.
3. For 15° skew ~ 1"
   For 30° skew ~ 2"
   For 45° skew ~ 3"
4. Quantities shown are for two Type PW-1 wings. Adjust concrete volume for Type PW-2 wings. To determine estimated quantities for two wings, multiply the tabulated values by Lw. Quantities shown do not include weight of Bars D.
5. Provide weepholes for Hw = 5'-0" and greater. Fill around weepholes with coarse gravel.
6. Extend Bars E2 1'-6" minimum into the wingwall footing.
7. Lap Bars M1 1'-6" minimum with Bars M2.
8. Place Bars G as shown, equally spaced at 8" maximum. Provide at least two pairs of Bars G per wing.
9. 0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail or curbs taller than 1'-0, refer to the Extended Curb Details (ECD) standard sheet. For structures with T631 or T631LS bridge rail, refer to the Mounting Details for T631 & T631LS Rails (T631-CM) standard sheet. Refer to the Box Culvert Rail Mounting Details (RAC) standard sheet for structures with bridge rail other than T631 or T631LS.
10. For vehicle safety, the following requirements must be met:
    - For structures without bridge rail, construct curbs no more than 3" above finished grade.
    - For structures with bridge rail, construct curbs flush with finished grade.

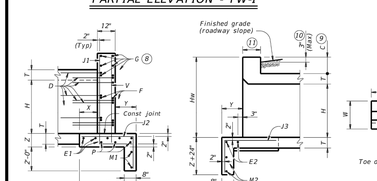
    Reduce curb heights, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.
11. 1'-0" typical. 2'-3" when the Box Culvert Rail Mounting Details (RAC) standard sheet is referred to elsewhere in the plans.
12. 3'-0" for Hw < 4'.
13. 6" for Hw < 4'.



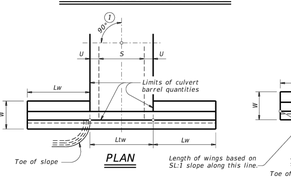
PARTIAL ELEVATION - PW-1 PARTIAL ELEVATION - PW-2



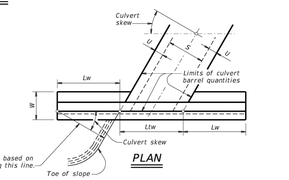
SECTION C-C - PW-1 SECTION C-C - PW-2



SECTION A-A (Showing wing reinforcement.) SECTION B-B (Showing wing reinforcement.)



PLAN DETAILS FOR NON-SKEWED BOX CULVERTS



PLAN DETAILS FOR SKEWED BOX CULVERTS (Showing 30° skew.)

DESIGNER NOTES:
Type PW-1 can be used for all applications and must be used if railing is to be mounted to the wingwall.
Type PW-2 can only be used for applications without a railing mounted to the wingwall.

MATERIAL NOTES:
Provide Class C concrete (f'c=3,600 psi).
Provide Grade 60 reinforcing steel.
Provide galvanized reinforcing steel if required elsewhere in the plans.

GENERAL NOTES:
Designed in accordance with AASHTO LRFD Bridge Design Specifications.
Depth of toewalls for wingwalls and culverts may be reduced or eliminated when founded on solid rock, when directed by the Engineer.
See Box Culvert Supplement (BCS) standard sheet for wingwall type and additional dimensions and information.
Quantities for concrete and reinforcing steel resulting from the formulas given on this sheet are for the Contractor's information only.

Cover dimensions are clear dimensions, unless noted otherwise. Reinforcing dimensions are out-to-out of bars.

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CONCRETE WINGWALLS WITH PARALLEL WINGS FOR BOX CULVERTS TYPES PW-1 AND PW-2

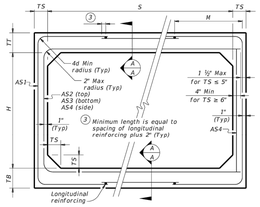
PW

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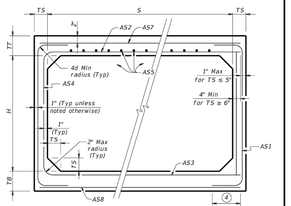
BOX DATA

SECTION DIMENSIONS S (ft.)	H (ft.)	TT (in.)	TB (in.)	TS (in.)	Fill Height (ft.)	M (Min) (in.)	REINFORCING (sq. in. / ft.) (2) AS1	AS2	AS3	AS4	AS5	AS7	AS8	(1) Lift Weight (tons)
4	2	7.5	6	5	< 2	-	0.18	0.27	0.15	0.12	0.18	0.18	0.14	4.5
4	2	5	5	5	2 < 3	38	0.18	0.19	0.17	0.12	-	-	-	3.6
4	2	5	5	5	3 - 5	38	0.13	0.13	0.13	0.12	-	-	-	3.6
4	2	5	5	5	10	38	0.12	0.12	0.12	0.12	-	-	-	3.6
4	2	5	5	5	15	38	0.14	0.16	0.16	0.12	-	-	-	3.6
4	2	5	5	5	20	38	0.18	0.20	0.21	0.12	-	-	-	3.6
4	2	5	5	5	25	38	0.23	0.25	0.25	0.12	-	-	-	3.6
4	2	5	5	5	30	38	0.28	0.30	0.30	0.12	-	-	-	3.6
4	3	7.5	6	5	< 2	-	0.18	0.31	0.18	0.12	0.18	0.18	0.14	5.0
4	3	5	5	5	2 < 3	38	0.15	0.23	0.20	0.12	-	-	-	4.1
4	3	5	5	5	3 - 5	38	0.12	0.16	0.16	0.12	-	-	-	4.1
4	3	5	5	5	10	38	0.12	0.14	0.14	0.12	-	-	-	4.1
4	3	5	5	5	15	38	0.12	0.18	0.18	0.12	-	-	-	4.1
4	3	5	5	5	20	38	0.14	0.23	0.24	0.12	-	-	-	4.1
4	3	5	5	5	25	38	0.17	0.29	0.29	0.12	-	-	-	4.1
4	3	5	5	5	30	38	0.21	0.35	0.35	0.12	-	-	-	4.1
4	4	7.5	6	5	< 2	-	0.18	0.33	0.20	0.12	0.18	0.18	0.14	5.5
4	4	5	5	5	2 < 3	38	0.12	0.26	0.23	0.12	-	-	-	4.6
4	4	5	5	5	3 - 5	38	0.12	0.18	0.18	0.12	-	-	-	4.6
4	4	5	5	5	10	38	0.12	0.15	0.15	0.12	-	-	-	4.6
4	4	5	5	5	15	38	0.12	0.19	0.20	0.12	-	-	-	4.6
4	4	5	5	5	20	38	0.12	0.25	0.25	0.12	-	-	-	4.6
4	4	5	5	5	25	38	0.14	0.31	0.31	0.12	-	-	-	4.6
4	4	5	5	5	30	38	0.17	0.37	0.37	0.12	-	-	-	4.6

(1) For box length = 8'-0"
(2) AS1 thru AS4, AS7 and AS8 are minimum required areas of reinforcement per linear foot of box length. AS5 is minimum required area of reinforcement per linear foot of box width.

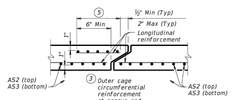


FILL HEIGHT 2 FT AND GREATER



FILL HEIGHT LESS THAN 2 FT

(4) Length is equal to spacing of longitudinal reinforcing plus 2". (10" Min) (Typ)



SECTION A-A
(Showing top and bottom slab joint reinforcement.)

MATERIAL NOTES:
Provide 0.03 sq. in./ft. minimum longitudinal reinforcement at each face in slabs and walls. This minimum requirement may be met by the transverse wires when wire mesh reinforcement is used.
Provide Class H concrete (f'c = 5,000 psi).

GENERAL NOTES:
Designs shown conform to ASTM C1577. Refer to ASTM C1577 for information or details not shown.
See Box Culverts Precast Miscellaneous Details (SCP-MD) standard sheet for details and notes not shown.
In lieu of furnishing the designs shown on this sheet, the contractor may furnish an alternate design that is equal to or exceeds the box design for the design fill height in the table. Submit shop plans for alternate designs in accordance with Item "Precast Concrete Structural Members (Fabrication)."

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SINGLE BOX CULVERTS PRECAST 4'-0" SPAN

SCP-4

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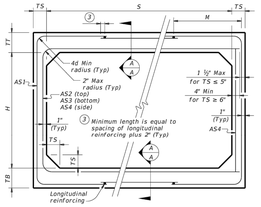
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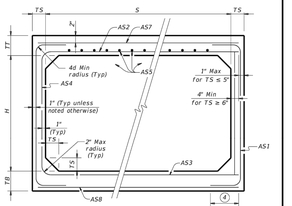
BOX DATA

SECTION DIMENSIONS S (ft.)	H (ft.)	TT (in.)	TB (in.)	TS (in.)	Fill Height (ft.)	M (Min) (in.)	REINFORCING (sq. in. / ft.) (2) AS1	AS2	AS3	AS4	AS5	AS7	AS8	(1) Lift Weight (tons)
5	2	8	7	6	< 2	-	0.19	0.27	0.18	0.14	0.19	0.19	0.17	6.0
5	2	6	6	6	2 < 3	44	0.22	0.20	0.16	0.14	-	-	-	5.1
5	2	6	6	6	3 - 5	44	0.16	0.14	0.14	0.14	-	-	-	5.1
5	2	6	6	6	10	36	0.15	0.14	0.14	0.14	-	-	-	5.1
5	2	6	6	6	15	36	0.20	0.18	0.18	0.14	-	-	-	5.1
5	2	6	6	6	20	36	0.26	0.23	0.24	0.14	-	-	-	5.1
5	2	6	6	6	25	36	0.33	0.29	0.29	0.14	-	-	-	5.1
5	2	6	6	6	30	36	0.39	0.34	0.35	0.14	-	-	-	5.1
5	3	8	7	6	< 2	-	0.19	0.31	0.21	0.14	0.19	0.19	0.17	6.6
5	3	6	6	6	2 < 3	45	0.18	0.24	0.19	0.14	-	-	-	5.7
5	3	6	6	6	3 - 5	36	0.14	0.17	0.16	0.14	-	-	-	5.7
5	3	6	6	6	10	36	0.14	0.16	0.17	0.14	-	-	-	5.7
5	3	6	6	6	15	35	0.16	0.21	0.22	0.14	-	-	-	5.7
5	3	6	6	6	20	35	0.21	0.27	0.28	0.14	-	-	-	5.7
5	3	6	6	6	25	35	0.26	0.34	0.34	0.14	-	-	-	5.7
5	3	6	6	6	30	35	0.31	0.41	0.41	0.14	-	-	-	5.7
5	4	8	7	6	< 2	-	0.19	0.33	0.24	0.14	0.19	0.19	0.17	7.2
5	4	6	6	6	2 < 3	45	0.16	0.27	0.22	0.14	-	-	-	6.3
5	4	6	6	6	3 - 5	45	0.14	0.19	0.18	0.14	-	-	-	6.3
5	4	6	6	6	10	36	0.14	0.18	0.18	0.14	-	-	-	6.3
5	4	6	6	6	15	35	0.14	0.23	0.24	0.14	-	-	-	6.3
5	4	6	6	6	20	35	0.17	0.30	0.31	0.14	-	-	-	6.3
5	4	6	6	6	25	35	0.21	0.37	0.38	0.14	-	-	-	6.3
5	4	6	6	6	30	35	0.25	0.44	0.45	0.14	-	-	-	6.3
5	5	8	7	6	< 2	-	0.19	0.35	0.26	0.14	0.19	0.19	0.17	7.8
5	5	6	6	6	2 < 3	45	0.14	0.29	0.24	0.14	-	-	-	6.9
5	5	6	6	6	3 - 5	45	0.14	0.21	0.20	0.14	-	-	-	6.9
5	5	6	6	6	10	45	0.14	0.19	0.20	0.14	-	-	-	6.9
5	5	6	6	6	15	36	0.14	0.24	0.25	0.14	-	-	-	6.9
5	5	6	6	6	20	35	0.15	0.31	0.32	0.14	-	-	-	6.9
5	5	6	6	6	25	35	0.18	0.38	0.39	0.14	-	-	-	6.9
5	5	6	6	6	30	35	0.21	0.46	0.47	0.14	-	-	-	6.9

(1) For box length = 8'-0"
(2) AS1 thru AS4, AS7 and AS8 are minimum required areas of reinforcement per linear foot of box length. AS5 is minimum required area of reinforcement per linear foot of box width.

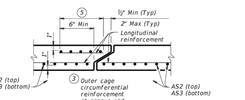


FILL HEIGHT 2 FT AND GREATER



FILL HEIGHT LESS THAN 2 FT

(4) Length is equal to spacing of longitudinal reinforcing plus 2". (10" Min) (Typ)



SECTION A-A
(Showing top and bottom slab joint reinforcement.)

MATERIAL NOTES:
Provide 0.03 sq. in./ft. minimum longitudinal reinforcement at each face in slabs and walls. This minimum requirement may be met by the transverse wires when wire mesh reinforcement is used.
Provide Class H concrete (f'c = 5,000 psi).

GENERAL NOTES:
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Texas Department of Transportation | Bridge Division Standard

SINGLE BOX CULVERTS PRECAST 5'-0" SPAN

SCP-5

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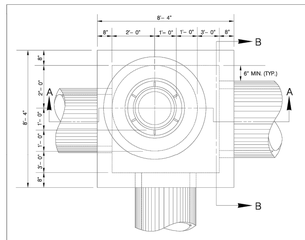
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STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS
DRAINAGE DETAILS

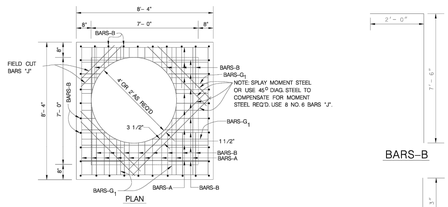
PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C1.21

Date: February 3, 2025, 2:40 PM — User ID: rodolfo.gallegos
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PLAN



PLAN

JUNCTION BOX TOP SLAB SHOWING STEEL

BARS-B



BARS-C

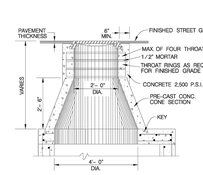
SCHEDULE FOR REINFORCING STEEL

SHAPE	BAR	NO.	SIZE	SPACING	LENGTH	WEIGHT
STRAIGHT	A	24	4	9" O.C.	8'- 1"	130
	B	48	5	8" O.C.	9'- 6"	476
	C	48	5	8" O.C.	4'- 3"	213
STRAIGHT	D	24	4	9" O.C.	8'- 1"	130
STRAIGHT	E	28	3	12" O.C.	6'- 11"	73
STRAIGHT	G	28	4	12" O.C.	9'- 6"	151
STRAIGHT	G_1	8	4	AS SHOWN	8'- 1"	43
STRAIGHT	H	32	3	12" O.C.	7'- 5"	89
STRAIGHT	J	8	6	3 1/2" O.C.	4'- 11"	59
					TOTAL	1,364 LBS.

CLASS "A" CONCRETE - 9.16 C.U. YDS.
(DOES NOT EXCLUDE MANHOLE OPENINGS OR PIPE OPENING)

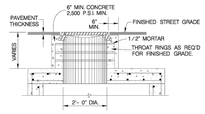
★ NOTE: BAR SIZE AND SPACING BASED ON SPANS AS SHOWN – ANY REVISIONS TO THESE SPANS SHALL INCLUDE A RE-DESIGN ON STEEL REQD.

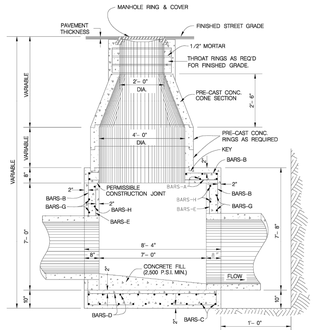
1. CONCRETE FOR STRUCTURE SHALL BE CLASS "A" 3,000 P.S.I. AT 28 DAYS.
2. ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4".
3. REINFORCING STEEL SHALL BE NEW BILLET STEEL, INTERMEDIATE GRADE, ASTM A-15. THE DEFORMATION SHALL CONFORM TO ASTM A-305.
4. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS.
5. ALL BARS INTERCEPTING MANHOLE OPENING AND REINFORCED CONCRETE PIPE SHALL BE FIELD-CUT.
6. WHERE LAPPING OF BARS IS REQUIRED, A MINIMUM LAP OF 33 DIAMETERS SHALL BE USED.
7. INVERT OF JUNCTION BOX TO BE SHAPED WITH CONCRETE FILL (2,500 P.S.I. MIN.) TO EFFECT DRAINAGE TO OUTLET PIPE COST SUBSIDIARY TO CLASS "A" CONCRETE (JUNCTION BOXES).
8. PAYMENT FOR ALL EXCAVATION, BACKFILLING, CONCRETE, REINFORCING STEEL, VERTICAL STACK, RING AND COVER SHALL BE INCLUDED IN THE UNIT COST OF ITEM 403 – "STORM SEWER JUNCTION BOXES AND INLETS".



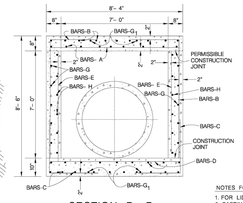
VARIATION OF VERTICAL STACK

VERTICAL STACK DESIGN SHALL BE GOVERNED BY THE DEPTH OF PIPE TOP OF THE JUNCTION BOX BELOW THE FINISHED STREET GRADE.

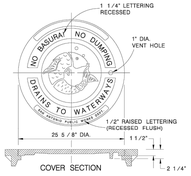




SECTION A–A



SECTION B– B



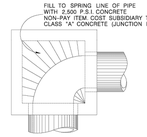
COVER SECTION

MANHOLE LID & RING DETAIL

SCALE: 1 : 16

NOTES FOR MANHOLE LID AND RING

1. FOR LID DESIGN OUTSIDE OF CITY OF SAN ANTONIO, DELETE "SAN ANTONIO PUBLIC WORKS DEPT."
2. CASTING NUMBER AND MANUFACTURER'S I.D. ON LID AND RING.
3. LOAD BEARING CAPABILITY OF HS-20 MINIMUM.
4. THE LOAD BEARING SURFACES SHALL BE MACHINE GROUND.
5. THE COMBINED WEIGHT OF THE MANHOLE RING AND COVER MUST BE AT LEAST 260 LBS.



CURVED DEFLECTOR DETAIL

JANUARY 2005

CITY OF SAN ANTONIO

CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

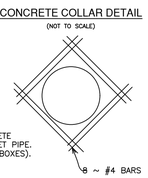
7'x7'x7' JUNCTION BOX STANDARDS

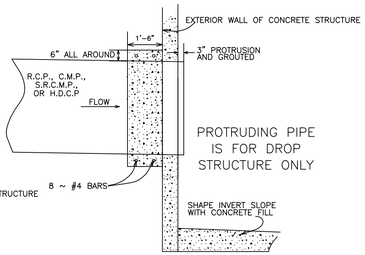
% SUBMITTAL	PROJECT NO.		DATE
DRAWN BY	DESIGN BY	CHKD. BY	SHEET NO. OF

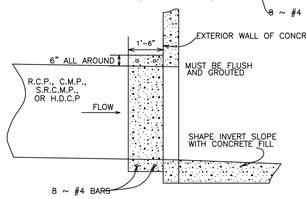
1. CONCRETE FOR STRUCTURE SHALL BE CLASS "A," 3,000 P.S.I. AT 28 DAYS.
2. ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4".
3. REINFORCING STEEL SHALL BE NEW BILLET STEEL, INTERMEDIATE GRADE, ASTM. A–15. THE DEFORMATION SHALL CONFORM TO ASTM. A–305.
4. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS.
5. ALL BARS INTERCEPTING MANHOLE OPENING AND REINFORCED CONCRETE PIPE SHALL BE FIELD–CUT.
6. WHERE LAPPING OF BARS IS REQUIRED, A MINIMUM LAP OF 33 DIAMETERS SHALL BE USED.
7. INVERT OF JUNCTION BOX TO BE SHAPED WITH CONCRETE FILL (3,000 P.S.I. MIN.) TO EFFECT DRAINAGE TO OUTLET PIPE. COST SUBSIDIARY TO CLASS "A" CONCRETE (JUNCTION BOXES).

CONCRETE COLLAR DETAIL

(NOT TO SCALE)







PIPE FLUSH WITH INVERT

JANUARY 2006

STANDARD PLANS

CITY OF SAN ANTONIO, TEXAS

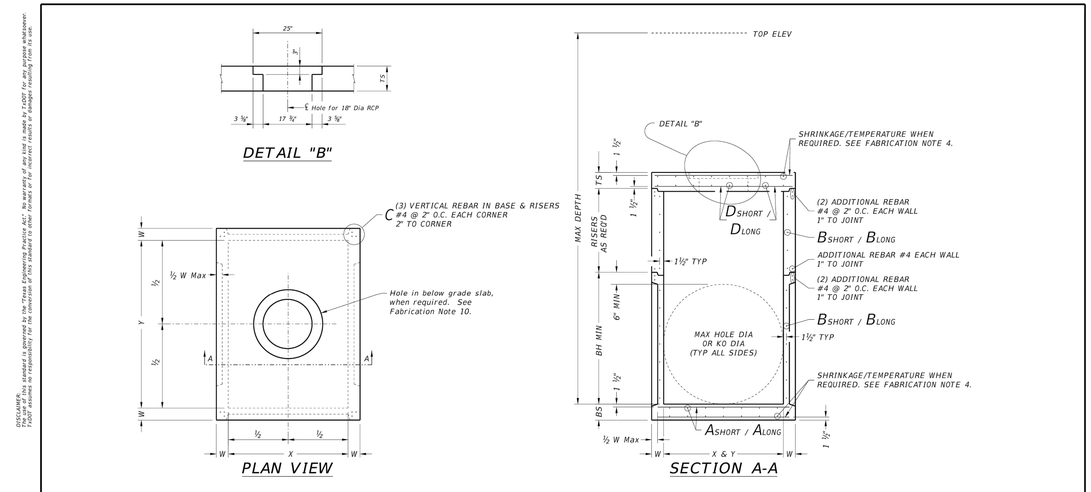
DEVELOPMENT SERVICES

CONCRETE COLLAR DETAIL

DRAWN BY:	DESIGN BY:	APPROVED BY:
CHECKED BY:	DATE:	SHEET NO.

Table 9.3.8.1 - Retardation Class for Lining Materials
(Source TXDOT - Hydraulic Design Manual, Chapter 7, Section 3 - Roadside Channel Design)

Retardance Class	Permissible Shear Stress (τ) (lb./sq.ft.)	Cover	Condition
B	2.1	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)
C	1.1	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 mm)
D	0.6	Bermuda grass	Good stand, cut to 2.5 in. or 65 mm
		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 cutting)
E	0.35	Bermuda grass	Good stand, cut to 1.5 in. or 40 mm
		Bermuda grass	Burned stubble



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DATE: FILE:

Angle of entry is less than or equal to 7°

Angle of entry is greater than 7°

PIPE CONNECTION DETAIL

Connect pipes within 7° of normal to PJB wall.
If necessary, use pipe elbow or curved approach alignment to stay within this limit.

FABRICATION NOTES:
1. Provide Class "H" concrete in accordance with Item 421 and having a minimum compressive strength of 5,000 psi.
2. Provide Grade 60 reinforcing steel or equivalent area of WWR.
3. Provide typical clear cover of 1 ½" to reinforcing steel at interior or exterior walls.
4. Walls or slabs with a thickness of 8" or greater require shrinkage and temperature reinforcing steel. Provide #4 bars @ 12" in each direction.
5. No substitution is allowed for vertical and horizontal #4 bars in corners.
6. Manufacture base and risers to nearest 3" increment.
7. Design tongue and groove joints for full closure on both shoulders. Minimum spigot depth is ½".
8. Provide lifting devices in conformance with Manufacturer's recommendations.
9. See sheet POD for sizes, dimensions, and reinforcing steel not shown.
10. Provide hole in below grade slab only when PJB is installed with inlet type POD.

INSTALLATION NOTES:
1. Inverts (benching) to be provided by Contractor. Concrete or mortar used for invert is subsidiary to junction box.
2. Seal tongue and groove joints with preformed or bulk mastic in conformance with Manufacturer's recommendations. Tongue and groove joints may be grouted no more than 1" between each section, or ½ the joint depth, whichever is greater.
3. Do not grout rubber gasket joints without Manufacturer's recommendation.
4. For rigid pipe, cut hole in thin wall panel (KO) 4" Max, 2" Min larger than pipe OD.
5. For flexible pipe, consult boot/seal Manufacturer's specification for placement tolerance and hole size. Center pipe in hole and install boot/seal per Manufacturer's specification.

GENERAL NOTES:
1. Precast Junction Box consists of base slab, base unit, risers (as required), and below grade slab. See sheet POD for sizes.
2. Designed according to ASTM C913.
3. Payment for junction box is per Item 465 "Junction Boxes, Manholes, and Inlets" by type and size.

Cover dimensions are clear dimensions, unless noted otherwise.

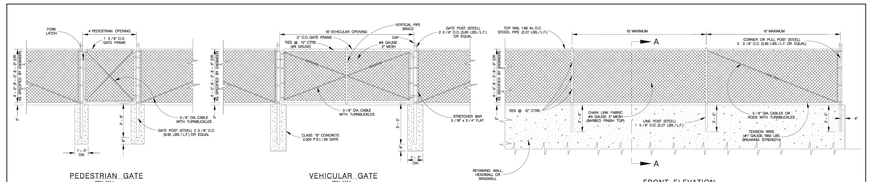
HL93 LOADING

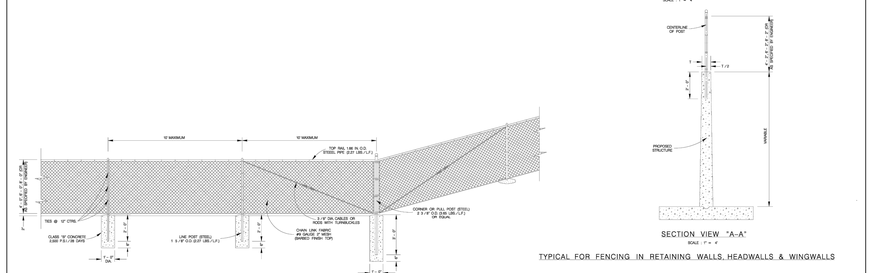
Texas Department of Transportation — Bridge Division Standard

PRECAST JUNCTION BOX

PJB

FILE: CO-PJB-20.dgn	DW: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.





TYPICAL FOR FENCING IN RETAINING WALLS, HEADWALLS & WINGWALLS

GENERAL NOTES

1. ALL FENCING PURPOSES SHALL BE ERECTED A MINIMUM OF 1' ABOVE THE ADJACENT GROUND LINE UNLESS OTHERWISE NOTED.
2. FENCING SHALL BE ERECTED ON RETAINING WALLS, HEADWALLS & WINGWALLS AT LOCATIONS SHOWN ON THE PLANS.
3. CORNER OR PULL POSTS WILL BE REQUIRED AT ALL END POINTS AND ANGLE POINTS.
4. CONCRETE FOR BARBWIRE POST FOOTINGS SHALL BE IN ACCORDANCE WITH ITEM 360-9 CLASS B CONCRETE.
5. PAYMENT SHALL BE MADE AS SPECIFIED IN ITEM NO.601 "CHAIN LINK WIRE FENCE," OF CITY OF SAN ANTONIO STANDARD SPECIFICATIONS FOR CONSTRUCTION.

MAY 2009

CITY OF SAN ANTONIO

CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

CHAIN LINK WIRE FENCE STANDARDS

% SUBMITTAL	PROJECT NO.		DATE
DRAWN BY: B.E. MENDIOLA	DESIGN BY:	CHKD. BY: A.E. HERRERA, P.E.	SHEET NO. OF

NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102461
LICENSED PROFESSIONAL ENGINEER
8/27/25

PAPE–DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS
DRAINAGE DETAILS

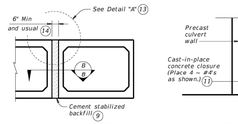
PLAT NO. 25-11800200
JOB NO. 12482–21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C1.22

Date: February 3, 2025, 2:40 PM — User ID: rodolfo.gallegos
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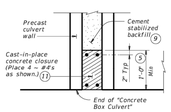
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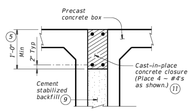
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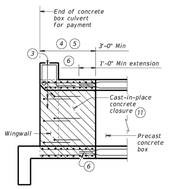
MULTIPLE UNIT PLACEMENT



SECTION B-B

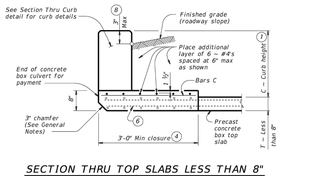


DETAIL "A"

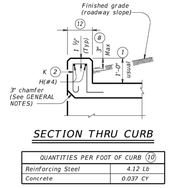


WINGWALL CONNECTION

(Also applies to safety end treatment.)

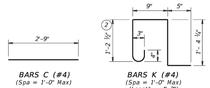


SECTION THRU TOP SLABS LESS THAN 8"



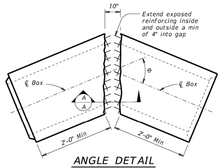
SECTION THRU CURB

QUANTITIES PER FOOT OF CURB (10)	
Reinforcing Steel	4.12 Lb
Concrete	0.037 CY

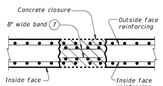


BARS C (#4)
(Spa = 1'-0" Max)

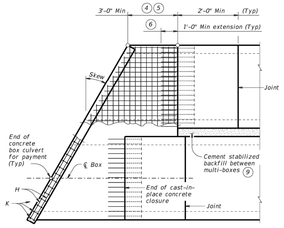
BARS K (#4)
(Spa = 1'-0" Max)
(Length = 4'-2")



ANGLE DETAIL



SECTION A-A



PLAN OF SKEWED ENDS

(Showing multi-box placement.)

1. 0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail, bicycle rail, or curbs taller than 1'-0, refer to the Extended Curb Details (ECD) standard sheet. For structures with T631 or T631LS bridge rail, refer to the Mounting Details for T631 & T631LS Rails (T631-CM) standard sheet. Refer to the Box Culvert Rail Mounting Details (RAC) standard sheet for structures with bridge rail other than T631 or T631LS.
2. For curbs less than 1'-0" high, tilt Bars K or reduce bar height as necessary to maintain cover. For curbs less than 3" high, Bars K may be omitted.
3. Extend curb, wingwall, or safety end treatment reinforcing into concrete closure. Bend or trim, as necessary, any reinforcing that does not fit into closure area.
4. Provide a 3'-0" Min cast–in–place concrete closure. Break back boxes in the field or cast boxes short. Provide bands of reinforcing in the closure that are the same size and spacing as in the precast box section. Provide #4 longitudinal reinforcement spaced at 12 inches Max within the closure. Except where shown otherwise, construct the cast–in–place closure flush with the inside and outside faces of the precast box section.
5. For multiple unit placements, adjust the length of the closure for the interior walls as necessary. Provide a 3'-0" Min cast–in–place closure in the top slab, bottom slab, and exterior wall. See Section B–B detail when interior walls are cast full length.
6. Extend precast box reinforcing a minimum of 1'-0" into concrete closure (Typ).
7. Place bands of reinforcing matching the inside and outside face reinforcing in the gaps of the top and bottom slabs. Place a band matching the outside face reinforcing of the wall in the gaps of the walls (placed in the outside face only). Tack weld the bands to the exposed reinforcing at each point of contact.
8. For vehicle safety, the following requirements must be met:
   - For structures without bridge rail, construct curbs no more than 3" above finished grade.
   - For structures with bridge rail, construct curbs flush with finished grade.

   Reduce curb heights, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.
9. Provide a 1'-0" footing as shown where required to maintain 4" minimum cover for pipes.
10. Dimensions shown are usual and maximum.
11. Quantities shown are for one structure end only (one headwall).
12. Min Length = $6' + 3' \times \left(\frac{12 \times H - 7}{12 \times L}\right)$

    Max Length = $12 \times H - 3' \times \left(\frac{12 \times H - 7}{12 \times L}\right) - 1'$
13. Lengths of wings based on SL:1 slope along this line.

MATERIAL NOTES:
Provide Grade 60 reinforcing steel.

GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications.
Refer to the Single Box Culverts Precast (SCP) standard sheets for details and notes not shown.
Chamfer the bottom edge of the top slab closure 3 inches at culvert closure ends.

Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing bars dimensions are out-to-out of bars.

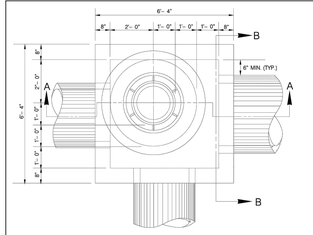
HL93 LOADING

Texas Department of Transportation | Bridge Division Standard

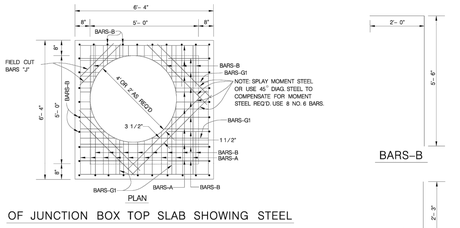
BOX CULVERTS PRECAST MISCELLANEOUS DETAILS

SCP-MD

FILE: CD-SCP-MD-20.dgn	DN: GAF	CK: LRB	DW: BWH/TxDOT	CK: GAF
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY		SHEET NO.



PLAN

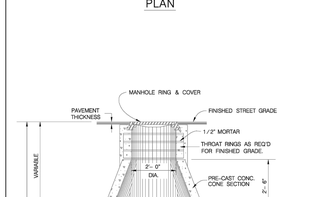


OF JUNCTION BOX TOP SLAB SHOWING STEEL

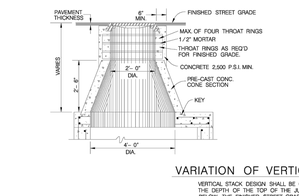
SCHEDULE FOR REINFORCING STEEL						
SHAPE	BAR	NO	SIZE	SPACING	LENGTH	WEIGHT
STRAIGHT	A	18	4	9" O.C.	6'– 1"	73
	B	36	5	8" O.C.	7'– 6"	282
	C	36	5	8" O.C.	4'– 3"	160
STRAIGHT	D	18	4	9" O.C.	6'– 1"	73
STRAIGHT	E	20	3	12" O.C.	4'– 11"	37
STRAIGHT	G	20	4	12" O.C.	6'– 1"	81
STRAIGHT	G_1	8	4	AS SHOWN	6'– 1"	33
STRAIGHT	H	24	3	12" O.C.	5'– 5"	49
STRAIGHT	J	8	6	3 1/2" O.C.	4'– 11"	59
					TOTAL	847 lbs.

CLASS "A" CONCRETE – 5.03 CU. YDS.
(DOES NOT EXCLUDE MANHOLE OPENINGS OR PIPE OPENING)

★ NOTE: BAR SIZE AND SPACING BASED ON SPANS AS SHOWN – ANY REVISIONS TO THESE SPANS SHALL INCLUDE A RE-DESIGN ON STEEL REQD.



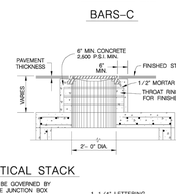
SECTION A–A

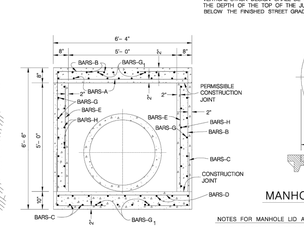


SECTION B–B

VARIATION OF VERTICAL STACK

VERTICAL STACK DESIGN SHALL BE GOVERNED BY THE DEPTH OF THE TOP OF THE JUNCTION BOX BELOW THE FINISHED STREET GRADE.





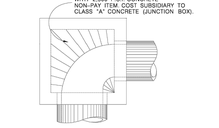
COVER SECTION

MANHOLE LID & RING DETAIL

SCALE: 1 : 16

NOTES FOR MANHOLE LID AND RING

1. FOR LID DESIGN OUTSIDE OF CITY OF SAN ANTONIO, DELETE "SAN ANTONIO PUBLIC WORKS DEPT.".
2. CASTING NUMBER AND MANUFACTURER'S I.D. ON LID AND RING.
3. LOAD BEARING CAPABILITY OF HS-20, MINIMUM.
4. THE LOAD BEARING SURFACES SHALL BE MACHINE GROUND.
5. THE COMBINED WEIGHT OF THE MANHOLE RING AND COVER MUST BE AT LEAST 260 LBS.



CURVED DEFLECTOR DETAIL

1. CONCRETE FOR STRUCTURE SHALL BE CLASS "A" 3,000 P.S.I. AT 28 DAYS.
2. ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4".
3. REINFORCING STEEL SHALL BE NEW BILLET STEEL, INTERMEDIATE GRADE, ASTM A–15. THE DEFORMATION SHALL CONFORM TO ASTM A–305.
4. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS.
5. ALL BARS INTERCEPTING MANHOLE OPENING AND REINFORCED CONCRETE PIPE SHALL BE FIELD–CUT.
6. WHERE LAPPING OF BARS IS REQUIRED, A MINIMUM LAP OF 33 DIAMETERS SHALL BE USED.
7. INVERT OF JUNCTION BOX TO BE SHAPED WITH CONCRETE FILL (2,500 P.S.I. MIN.) TO EFFECT DRAINAGE TO OUTLET PIPE. COST SUBSIDIARY TO CLASS "A" CONCRETE (JUNCTION BOXES).
8. PAYMENT FOR ALL EXCAVATION, BACKFILLING, CONCRETE, REINFORCING STEEL, VERTICAL STACK, RING AND COVER SHALL BE INCLUDED IN THE UNIT COST OF ITEM 403 – "STORM SEWER JUNCTION BOXES AND INLETS".

JANUARY 2005

CITY OF SAN ANTONIO

CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

5'x5'x5' JUNCTION BOX STANDARDS

% SUBMITTAL	PROJECT NO.	DATE
DRWN. BY:	DSGN. BY:	CHKD. BY:	SHEET NO.: OF

NO.	REVISION	DATE

PAPE–DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

STATE OF TEXAS
JIM C. WELCH
102466
LICENSED PROFESSIONAL ENGINEER
8/27/25

STONE GARDEN UNIT 5A

BEXAR COUNTY, TEXAS

DRAINAGE DETAILS

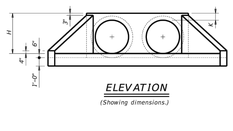
PLAT NO. 25-11800200
JOB NO. 12482–21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C1.23

DISCLAIMER:
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DATE:
FILE:

TABLE OF VARIABLE DIMENSIONS AND QUANTITIES FOR ONE HEADWALL (5)

Slope	Dia of Pipe (D)	Values for One Pipe W	X	Y	L	Reinf (Lbs)	Conc (CY) (1)	Values to be Added for Each Addt'l Pipe X and W	Reinf (Lbs)	Conc (CY) (2)
Z:1	12"	4'- 7 5/8"	2'- 6"	2'- 10"	3'- 3 5/8"	88	0.6	1'- 9"	20	0.2
	15"	5'- 5 3/8"	2'- 9 1/2"	3'- 4"	3'- 10 1/8"	103	0.7	2'- 2"	24	0.3
	18"	6'- 4 1/8"	3'- 1"	3'- 10"	4'- 5"	124	0.9	2'- 8"	32	0.3
	21"	7'- 2 3/4"	3'- 4 5/8"	4'- 4"	5'- 0"	143	1.1	3'- 1"	43	0.4
	24"	8'- 2 1/2"	3'- 9 1/2"	4'- 10"	5'- 7"	164	1.3	3'- 7"	50	0.5
	27"	9'- 1"	4'- 1"	5'- 4"	6'- 2"	179	1.5	3'- 11"	56	0.6
	30"	9'- 11 1/2"	4'- 4 1/2"	5'- 10"	6'- 8 1/2"	203	1.7	4'- 4"	65	0.8
	33"	10'- 10"	4'- 8"	6'- 4"	7'- 3 1/2"	224	2.0	4'- 8"	71	0.9
	36"	11'- 8 1/4"	4'- 11 1/2"	6'- 10"	7'- 10 3/4"	249	2.2	5'- 1"	81	1.0
	42"	13'- 5 1/4"	5'- 6 1/2"	7'- 10"	9'- 0 1/2"	298	2.8	5'- 10"	97	1.3
	48"	15'- 9"	6'- 1 1/2"	9'- 4"	10'- 9 1/2"	360	3.8	6'- 7"	117	1.7
	54"	17'- 5 3/8"	6'- 8 1/2"	10'- 4"	11'- 11 1/4"	427	4.5	7'- 6"	151	2.1
	60"	19'- 2 3/4"	7'- 3 1/2"	11'- 4"	13'- 1"	481	5.3	8'- 3"	174	2.5
	66"	20'- 11 1/2"	7'- 10 1/2"	12'- 4"	14'- 3"	544	6.2	8'- 9"	194	2.9
	72"	22'- 8 1/2"	8'- 5 1/2"	13'- 4"	15'- 4 3/4"	601	7.1	9'- 4"	213	3.3
2:1	12"	6'- 3"	2'- 6"	4'- 3"	4'- 11"	118	0.8	1'- 9"	22	0.2
	15"	7'- 5"	2'- 9 1/2"	5'- 0"	5'- 9 1/2"	137	1.1	2'- 2"	28	0.3
	18"	8'- 6 3/4"	3'- 1"	5'- 0"	5'- 7 3/4"	170	1.3	2'- 8"	37	0.5
	21"	9'- 8 3/4"	3'- 4 1/2"	6'- 6"	7'- 6"	195	1.6	3'- 1"	48	0.6
	24"	11'- 0"	3'- 9 1/2"	7'- 3"	8'- 4 1/2"	227	2.0	3'- 7"	58	0.7
	27"	12'- 2"	4'- 1"	8'- 0"	9'- 2 1/2"	251	2.3	3'- 11"	67	0.8
	30"	13'- 4"	4'- 4 1/2"	8'- 8"	10'- 0 1/2"	262	2.7	4'- 4"	77	1.0
	33"	14'- 5 3/4"	4'- 8"	9'- 6"	10'- 11 3/4"	318	3.1	4'- 8"	84	1.2
	36"	15'- 7 3/4"	4'- 11 1/2"	10'- 3"	11'- 10"	351	3.5	5'- 1"	96	1.4
	42"	17'- 11 1/2"	5'- 6 1/2"	11'- 4"	13'- 1 1/2"	432	4.5	5'- 10"	119	1.7
	48"	21'- 1 1/2"	6'- 1 1/2"	14'- 0"	16'- 2"	537	6.1	6'- 7"	146	2.3
	54"	23'- 5 1/2"	6'- 8 1/2"	15'- 6"	17'- 10 3/4"	630	7.3	7'- 6"	186	2.9
	60"	25'- 9 1/4"	7'- 3 1/2"	17'- 0"	19'- 7 1/2"	719	8.7	8'- 3"	219	3.4
	66"	28'- 1"	7'- 10 1/2"	18'- 6"	21'- 4 3/4"	811	10.1	8'- 9"	242	3.8
	72"	30'- 4 3/4"	8'- 5 1/2"	20'- 0"	23'- 1 3/4"	924	11.7	9'- 4"	272	4.4
3:1	12"	7'- 10 3/4"	2'- 6"	5'- 8"	6'- 6 1/2"	148	1.1	1'- 9"	24	0.3
	15"	9'- 4"	2'- 9 1/2"	6'- 4"	7'- 3 1/2"	181	1.5	2'- 2"	32	0.4
	18"	10'- 9 1/2"	3'- 1"	7'- 0"	8'- 0 1/2"	221	1.9	2'- 8"	42	0.5
	21"	12'- 2 3/4"	3'- 4 1/2"	8'- 8"	10'- 0"	260	2.3	3'- 1"	57	0.7
	24"	13'- 9 1/2"	3'- 9 1/2"	9'- 8"	11'- 2"	301	2.8	3'- 7"	67	0.9
	27"	15'- 3"	4'- 1"	10'- 8"	12'- 3 1/2"	334	3.3	3'- 11"	77	1.0
	30"	16'- 8 1/4"	4'- 4 1/2"	11'- 4"	13'- 5 1/2"	385	3.8	4'- 4"	89	1.3
	33"	18'- 1 3/4"	4'- 8"	12'- 8"	14'- 7 1/2"	425	4.5	4'- 8"	101	1.4
	36"	19'- 7"	4'- 11 1/2"	13'- 4"	15'- 9 1/2"	472	5.1	5'- 1"	115	1.7
	42"	22'- 5 3/4"	5'- 6 1/2"	15'- 8"	18'- 1"	583	6.5	5'- 10"	141	2.1
	48"	26'- 6 1/4"	6'- 1 1/2"	18'- 8"	21'- 6 3/4"	730	8.9	6'- 7"	175	2.8
	54"	29'- 5"	6'- 8 1/2"	20'- 8"	23'- 10 1/2"	875	10.7	7'- 6"	226	3.6
	60"	32'- 3 3/4"	7'- 3 1/2"	22'- 8"	26'- 2"	996	12.7	8'- 3"	264	4.3
	66"	35'- 2 1/2"	7'- 10 1/2"	24'- 8"	28'- 5 3/4"	1,140	14.9	8'- 9"	300	4.9
4:1	72"	38'- 1 1/2"	8'- 5 1/2"	26'- 8"	30'- 9 1/2"	1,297	17.3	9'- 4"	334	5.6
	12"	11'- 2"	2'- 6"	8'- 6"	9'- 9 1/2"	224	1.9	1'- 9"	28	0.4
	15"	13'- 2 1/2"	2'- 9 1/2"	10'- 0"	11'- 6 1/2"	268	2.5	2'- 2"	37	0.5
	18"	15'- 2 1/2"	3'- 1"	11'- 6"	13'- 3 1/2"	330	3.2	2'- 8"	50	0.7
	21"	17'- 2 3/4"	3'- 4 1/2"	13'- 0"	15'- 0 1/2"	387	3.9	3'- 1"	69	0.9
	24"	19'- 4 1/2"	3'- 9 1/2"	14'- 4"	16'- 9"	453	4.8	3'- 7"	80	1.2
	27"	21'- 4 3/4"	4'- 1"	16'- 0"	18'- 5 3/4"	512	5.7	3'- 11"	96	1.4
6:1	30"	23'- 5 1/4"	4'- 4 1/2"	17'- 6"	20'- 2 1/2"	593	6.7	4'- 4"	110	1.7
	33"	25'- 5 1/2"	4'- 8"	19'- 0"	21'- 11 1/2"	675	7.8	4'- 8"	127	2.0
	36"	27'- 5 3/4"	4'- 11 1/2"	20'- 6"	23'- 8"	735	9.0	5'- 1"	144	2.3
	42"	31'- 6 1/4"	5'- 6 1/2"	23'- 6"	27'- 1 1/2"	922	11.5	5'- 10"	179	3.0
	48"	37'- 3 1/2"	6'- 1 1/2"	28'- 0"	32'- 4"	1,191	15.9	6'- 7"	231	4.0
	54"	41'- 4 1/2"	6'- 8 1/2"	31'- 0"	35'- 9 1/2"	1,424	19.2	7'- 6"	300	5.0
	60"	45'- 4 3/4"	7'- 3 1/2"	34'- 0"	39'- 3"	1,631	22.9	8'- 3"	353	6.0



ELEVATION

(Showing dimensions.)

BARS V

BARS CL

(Length = 2'-5")

TABLE OF (5) REINFORCING STEEL

Bar	Size	Spa	No.
A	#4	1'–0"	–
B	#3	1'–6"	–
C	#4	1'–0"	–
D	#3	1'–0"	–
E	#5	–	4
F	#5	–	4
G	#3	–	2
S	#4	–	6
V	#4	1'–0"	–
W	#5	–	4

TABLE OF CONSTANT DIMENSIONS

Dia of Pipe (D)	G	K (4)	H
12"	0'–9"	1'–0"	2'–0"
15"	0'–11"	1'–0"	2'–3"
18"	1'–2"	1'–0"	2'–6"
21"	1'–4"	1'–0"	2'–9"
24"	1'–7"	1'–0"	3'–0"
27"	1'–8"	1'–0"	3'–3"
30"	1'–10"	1'–0"	3'–6"
33"	1'–11"	1'–0"	3'–9"
36"	2'–1"	1'–0"	4'–0"
42"	2'–4"	1'–0"	4'–6"
48"	2'–7"	1'–3"	5'–3"
54"	3'–0"	1'–3"	5'–9"
60"	3'–3"	1'–3"	6'–3"
66"	3'–3"	1'–3"	6'–9"
72"	3'–4"	1'–3"	7'–3"

1. Quantities shown are for concrete pipe and will increase slightly for metal pipe installations.
2. For vehicle safety, construct curbs no more than 3" above finished grade. Reduce curb heights, if necessary, to meet these requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.
3. Provide a 1'-0" footing as shown where required to maintain 4" minimum cover for pipes.
4. Dimensions shown are usual and maximum.
5. Quantities shown are for one structure end only (one headwall).
6. Min Length = $6' + 3' \times \left(\frac{12 \times H - 7}{12 \times L}\right)$

   Max Length = $12 \times H - 3' \times \left(\frac{12 \times H - 7}{12 \times L}\right) - 1'$
7. Lengths of wings based on SL:1 slope along this line.

MATERIAL NOTES:
Provide Grade 60 reinforcing steel.
Provide Class C concrete (f'_c = 3,600 psi).

GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications.
Do not mount bridge rails of any type directly to these culvert headwalls.
This standard may not be used for wall heights, H, exceeding the values shown.

Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing bars dimensions are out-to-out of bars.

Texas Department of Transportation | Bridge Division Standard

CONCRETE HEADWALLS WITH FLARED WINGS FOR 0° SKEW PIPE CULVERTS

CH-FW-0

FILE: CD-CH-FW0-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY		SHEET NO.

TABLE OF DIMENSIONS AND REINFORCING STEEL (Wings for one structure end)

Dimensions					Variable Reinforcing				Estimated Quantities (3) per ft of wing length (2–wings)	
Maximum Wingwall Height Hw	W	X	Y	Z	Bars J1 Size	Bars J1 Spa	Bars J2 Size	Bars J2 Spa	Reinf Lb/Ft)	Conc (CY/Ft)
2'-6"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	33.73	0.248
3'-0"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	37.07	0.261
3'-6"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	37.74	0.273
4'-0"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	38.41	0.285
4'-6"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	41.75	0.330
5'-0"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	45.09	0.343
5'-6"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	45.75	0.355
6'-0"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	46.42	0.367
7'-0"	3'-8"	1'-9"	1'-3"	7"	#4	1'-0"	#4	1'-0"	52.77	0.414
8'-0"	4'-2"	2'-0"	1'-6"	8"	#5	1'-0"	#4	1'-0"	60.19	0.486
9'-0"	4'-8"	2'-3"	1'-9"	8"	#4	6"	#4	6"	81.49	0.535
10'-0"	5'-2"	2'-6"	2'-0"	8"	#5	6"	#4	6"	97.25	0.584
11'-0"	5'-8"	2'-9"	2'-3"	8"	#6	6"	#5	6"	133.65	0.634
12'-0"	6'-2"	3'-0"	2'-6"	9"	#7	6"	#5	6"	162.29	0.721
13'-0"	6'-8"	3'-3"	2'-9"	11"	#7	6"	#5	6"	178.80	0.856
14'-0"	7'-2"	3'-6"	3'-0"	1'-0"	#8	6"	#5	6"	216.78	0.959
15'-0"	7'-8"	4'-0"	3'-3"	1'-1"	#9	6"	#6	6"	283.06	1.068
16'-0"	8'-2"	4'-6"	3'-0"	1'-3"	#9	6"	#6	6"	297.02	1.234

TABLE OF WINGWALL REINFORCING (2–wings)

Bar	Size	No.	Spa
D	#5	–	1'–0"
E	#4	–	1'–0"
F	#4	–	1'–0"
G	#6	4	–
H	#4	4	–
P	#4	–	1'–0"
R	#5	6	–
V	#4	–	1'–0"

TABLE OF ESTIMATED CULVERT TOEWALL QUANTITIES

Bar	Size	No.	Spa
L	#4	–	1'–0"
Q	#4	1	–
Reinf (Lb/Ft)			2.45
Conc (CY/Ft)			0.037

WING DIMENSION FORMULAS:

(All values are in feet.)

Hw = H + T + C – 0.250'
Lw = (Hw – 0.333') (SL)

For cast–in–place culverts:
Ltw = (N) (S) + (N + 1) (U)

For precast culverts:
Ltw = (N) (2U + S) + (N – 1) (0.5)

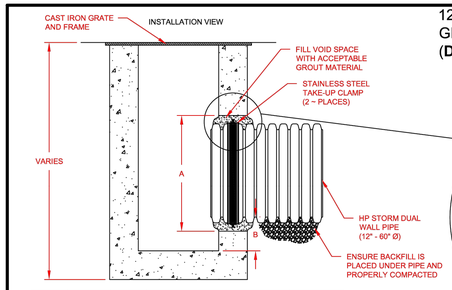
Total Wingwall Area (two wings – SF) = (Hw + 0.333) (Lw)

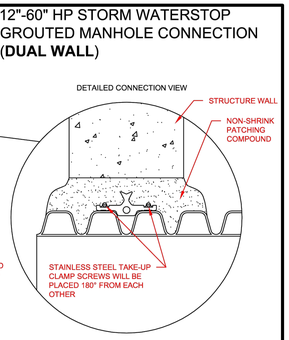
Hw = Height of wingwall
SL:1 = Side slope ratio (horizontal:1 vertical)
Lw = Length of wingwall
Ltw = Culvert toewall length
N = Number of culvert spans

See applicable box culvert standard sheet for H, S, T, and U values.

1. Extend Bars P 3'-0" minimum into bottom slab of box culvert.
2. Adjust as necessary to maintain 1 1#2" clear cover and 4" minimum between bars.
3. Quantities shown are based on an average wing height for two wings (one structure end). To determine total quantities for two wings, multiply the tabulated values by Lw.
4. Recommended values of side slope are: 2:1, 3:1, 4:1, and 6:1.
5. When shown elsewhere on the plans, construct 5" deep concrete riprap. Payment for riprap is as required by Item 432, "Riprap." Unless otherwise shown on the plans or directed by the Engineer, provide a 6" wide by 1'-6" deep reinforced concrete toewall along all edges of the riprap adjacent to natural ground; reinforce the toewall by extending typical riprap reinforcing into the toewall; and extend construction joints or grooved joints oriented in the direction of flow across the full distance of the riprap at intervals of approximately 20'. When such riprap is provided, the culvert toewall shown in SECTION B–B will not be required.
6. At Contractor's option, culvert toewall may be ended flush with wingwall toewall. Adjust reinforcing as needed.
7. 0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail or curbs taller than 1'-0, refer to the Extended Curb Details (ECD) standard sheet. For structures with T631 or T631LS bridge rail, refer to the Mounting Details for T631 & T631LS Rails (T631–CM) standard sheet. Refer to the Box Culvert Rail Mounting Details (RAC) standard sheet for structures with bridge rail other than T631 or

12"-60" HP STORM WATERSTOP GROUTED MANHOLE CONNECTION (**DUAL WALL**)





PIPE SIZE	PIPE OD	"A" MIN. HOLE Ø	"B" MIN. DISTANCE FROM PIPE INVERT TO STRUCTURE INVERT	ADS PRODUCT CODE
12" (300mm)	14.9" (368mm)	19.50" (495mm)	3.7" (94mm)	1202PS
15" (375mm)	17.6" (447mm)	23.00" (584mm)	4.0" (102mm)	1502PS
18" (450mm)	21.2" (538mm)	26.50" (673mm)	4.2" (107mm)	1802PS
21" (525mm)	24.8" (630mm)	30.25" (768mm)	4.5" (114mm)	2102PS
24" (600mm)	27.8" (706mm)	33.25" (845mm)	4.5" (114mm)	2402PS
30" (750mm)	35.1" (892mm)	40.50" (1029mm)	5.2" (132mm)	3002PS
36" (900mm)	41.1" (1044mm)	47.00" (1194mm)	5.5" (140mm)	3602PS
42" (1050mm)	47.7" (1212mm)	53.00" (1346mm)	5.7" (145mm)	4202PS
48" (1200mm)	53.6" (1361mm)	59.00" (1499mm)	5.7" (145mm)	4802PS
60" (1500mm)	66.3" (1684mm)	72.00" (1829mm)	6.4" (163mm)	6002PS

NOTES:

PERFORMANCE HIGHLY DEPENDENT ON INSTALLATION. CONTRACTOR MUST ENSURE MANHOLE GASKET IS UNIFORMLY SEATED AROUND STRUCTURE ADAPTER. EXTRA PRECAUTIONS MUST BE TAKEN TO PREVENT DIFFERENTIAL SETTLEMENT BETWEEN THE PIPE AND MANHOLE.

INSTALLATION RECOMMENDATIONS ARE ALSO SPECIFIED IN INSTALLATION GUIDE 1.05: WATERSTOP INSTALLATION

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REV.	DESCRIPTION	BY	MM/DD/YY	CHK'D
3	ADDED METRIC UNITS AND RENAMED	TJR	01/30/16	

ADVANCED DRAINAGE SYSTEMS, INC. ("ADS") HAS PREPARED THIS DETAIL BASED ON INFORMATION PROVIDED TO ADS. THIS DRAWING IS INTENDED TO DEPICT THE COMPONENTS AS REQUESTED. ADS HAS NOT PERFORMED ANY ENGINEERING OR DESIGN SERVICES FOR THIS PROJECT, NOR HAS ADS INDEPENDENTLY VERIFIED THE INFORMATION SUPPLIED. THE INSTALLATION DETAILS PROVIDED HEREIN ARE GENERAL RECOMMENDATIONS AND ARE NOT SPECIFIC FOR THIS PROJECT. THE DESIGN ENGINEER SHALL REVIEW THESE DETAILS PRIOR TO CONSTRUCTION. IT IS THE DESIGN ENGINEERS RESPONSIBILITY TO ENSURE THE DETAILS PROVIDED HEREIN MEETS OR EXCEEDS THE APPLICABLE NATIONAL, STATE, OR LOCAL REQUIREMENTS AND TO ENSURE THAT THE DETAILS PROVIDED HEREIN ARE ACCEPTABLE FOR THIS PROJECT.

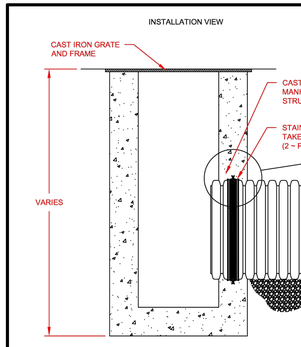
12"-60" HP STORM MH GROUTED WATERSTOP

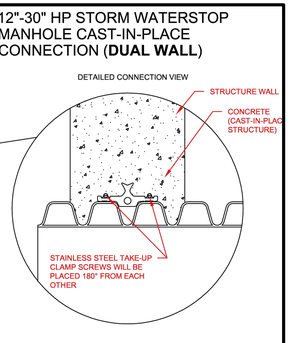
DRAWING NUMBER: STD-206A

ADS Advanced Drainage Systems, Inc. 4640 TRUEMAN BLVD HILLIARD, OHIO 43026

JAB | 4/3/09 | NTS | 1 OF 1

12"-30" HP STORM WATERSTOP MANHOLE CAST-IN-PLACE CONNECTION (**DUAL WALL**)





PIPE SIZE	PIPE OD	ADS PRODUCT CODE
12" (300mm)	14.9" (368mm)	1202PS
15" (375mm)	17.6" (447mm)	1502PS
18" (450mm)	21.2" (538mm)	1802PS
21" (525mm)	24.8" (630mm)	2102PS
24" (600mm)	27.8" (706mm)	2402PS
30" (750mm)	35.1" (892mm)	3002PS

NOTES:

PERFORMANCE HIGHLY DEPENDENT ON INSTALLATION. CONTRACTOR MUST ENSURE MANHOLE GASKET IS UNIFORMLY SEATED AROUND STRUCTURE ADAPTER. EXTRA PRECAUTIONS MUST BE TAKEN TO PREVENT DIFFERENTIAL SETTLEMENT BETWEEN THE PIPE AND MANHOLE.

INSTALLATION RECOMMENDATIONS ARE ALSO SPECIFIED IN INSTALLATION GUIDE 1.05: WATERSTOP INSTALLATION

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REV.	DESCRIPTION	BY	MM/DD/YY	CHK'D
2	ADDED METRIC UNITS AND RENAMED	TJR	02/01/16	

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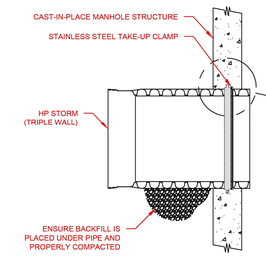
12"-30" HP STORM MH WATERSTOP CAST-IN-PLACE

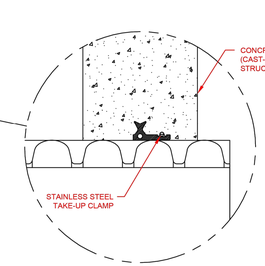
DRAWING NUMBER: STD-206B

ADS Advanced Drainage Systems, Inc. 4640 TRUEMAN BLVD HILLIARD, OHIO 43026

RJR | 10/5/11 | NTS | 1 OF 1

30" - 60" (700 mm - 1500 mm) HP STORM (**TRIPLE WALL**) WATERSTOP MANHOLE CAST-IN-PLACE CONNECTION





PIPE SIZE	ADS PRODUCT CODE
30" (750mm)	3002PSHP
36" (900mm)	3602PSHP
42" (1050mm)	4202PSHP
48" (1200mm)	4802PSHP
60" (1500mm)	6002PSHP

WS-30 WATERSTOP GROUT RING is a product of Press-Seal Gasket Corporation (www.press-seal.com)

NOTES:

PERFORMANCE HIGHLY DEPENDENT ON INSTALLATION. CONTRACTOR MUST ENSURE MANHOLE GASKET IS UNIFORMLY SEATED AROUND STRUCTURE ADAPTER. EXTRA PRECAUTIONS MUST BE TAKEN TO PREVENT DIFFERENTIAL SETTLEMENT BETWEEN THE PIPE AND MANHOLE.

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REV.	DESCRIPTION	BY	MM/DD/YY	CHK'D
3	REMOVED O.D. DIMENSIONS	JLM	03/28/17	KAP

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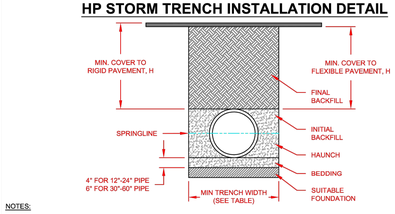
30"-60" HP STORM (TRIPLE WALL) MH WATERSTOP CAST-IN-PLACE

DRAWING NUMBER: STD-206C

ADS Advanced Drainage Systems, Inc. 4640 TRUEMAN BLVD HILLIARD, OHIO 43026

CKM | 7/23/09 | NTS | 1 OF 1

HP STORM TRENCH INSTALLATION DETAIL



NOTES:

1. ALL PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS", LATEST ADDITION, WITH THE EXCEPTION THAT THE INITIAL BACKFILL MAY EXTEND TO THE CROWN OF THE PIPE. SOIL CLASSIFICATIONS ARE PER THE LATEST VERSION OF ASTM D2321. CLASS IVB MATERIALS (MH, CH) AS DEFINED IN PREVIOUS VERSIONS OF ASTM D2321 ARE NOT APPROPRIATE BACKFILL MATERIALS.
2. MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL, WHEN REQUIRED.
3. FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE ENGINEER, AS AN ALTERNATIVE AND AT THE DISCRETION OF THE DESIGN ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A GEOTEXTILE MATERIAL.
4. BEDDING: SUITABLE MATERIAL SHALL BE CLASS I, II, III, OR IV. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. COMPACTION SHALL BE SPECIFIED BY THE ENGINEER IN ACCORDANCE WITH TABLE 3 FOR THE APPLICABLE FILL HEIGHTS LISTED. UNLESS OTHERWISE NOTED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 4" (100mm) FOR 12"-24" (300mm-600mm) DIAMETER PIPE; 6" (150mm) FOR 30"-60" (750mm-1500mm) DIAMETER PIPE. THE MIDDLE 1/3 BENEATH THE PIPE INVERT SHALL BE LOOSELY PLACED. PLEASE NOTE, CLASS IV MATERIAL HAS LIMITED APPLICATION AND CAN BE DIFFICULT TO PLACE AND COMPACT; USE ONLY WITH THE APPROVAL OF A SOIL EXPERT.
5. INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS I, II, III, OR IV IN THE PIPE ZONE EXTENDING TO THE CROWN OF THE PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION. COMPACTION SHALL BE SPECIFIED BY THE ENGINEER IN ACCORDANCE WITH TABLE 3 FOR THE APPLICABLE FILL HEIGHTS LISTED. PLEASE NOTE, CLASS IV MATERIAL HAS LIMITED APPLICATION AND CAN BE DIFFICULT TO PLACE AND COMPACT; USE ONLY WITH THE APPROVAL OF A SOIL EXPERT.
6. MINIMUM COVER: MINIMUM COVER, H, IN NON-TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" (300mm) FROM THE TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOTATION. FOR TRAFFIC APPLICATIONS; CLASS I OR II MATERIAL COMPACTED TO 90% SPD AND CLASS III COMPACTED TO 95% SPD IS REQUIRED. FOR TRAFFIC APPLICATIONS, MINIMUM COVER, H, IS 12" (300mm) UP TO 48" (1200mm) DIAMETER PIPE AND 24" (600mm) OF COVER FOR 60" (1500mm) DIAMETER PIPE, MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT.
7. FOR ADDITIONAL INFORMATION SEE TECHNICAL NOTE 2.04.

TABLE 1, RECOMMENDED MINIMUM TRENCH WIDTHS

PIPE DIAM.	MIN. TRENCH WIDTH
12" (300mm)	30" (762mm)
15" (375mm)	34" (864mm)
18" (450mm)	39" (991mm)
24" (600mm)	48" (1219mm)
30" (750mm)	56" (1422mm)
36" (900mm)	64" (1626mm)
42" (1050mm)	72" (1829mm)
48" (1200mm)	80" (2032mm)
60" (1500mm)	96" (2438mm)

TABLE 2, MINIMUM RECOMMENDED COVER BASED ON VEHICLE LOADING CONDITIONS

PIPE DIAM.	SURFACE LIVE LOADING CONDITION		
	H-25		HEAVY CONSTRUCTION (75T AXLE LOAD) *
12" - 48" (300mm - 1200mm)	12" (305mm)		48" (1219mm)
60" (1500mm)	24" (610mm)		60" (1524mm)

* VEHICLES IN EXCESS OF 75T MAY REQUIRE ADDITIONAL COVER

TABLE 3, MAXIMUM COVER FOR ADS HP STORM PIPE, ft

	CLASS I	CLASS II			CLASS III		CLASS IV
PIPE DIA	COMPACTED	95%	90%	85%	95%	90%	95%
12" (300mm)	41 (12.5m)	28 (8.5m)	21 (6.4m)	16 (4.9m)	20 (6.1m)	16 (4.9m)	16 (4.9m)
15" (375mm)	42 (12.8m)	29 (8.8m)	21 (6.4m)	16 (4.9m)	21 (6.4m)	16 (4.9m)	16 (4.9m)
18" (450mm)	44 (13.4m)	30 (9.1m)	21 (6.4m)	16 (4.9m)	22 (6.7m)	17 (5.2m)	16 (4.9m)
24" (600mm)	30 (9.1m)	21 (6.4m)	15 (4.6m)	11 (3.4m)	18 (4.9m)	11 (3.4m)	11 (3.4m)
30" (750mm)	39 (11.9m)	27 (8.2m)	19 (5.8m)	14 (4.3m)	19 (5.8m)	15 (4.6m)	14 (4.3m)
36" (900mm)	28 (8.5m)	20 (6.1m)	14 (4.3m)	10 (3.0m)	14 (4.3m)	11 (3.4m)	10 (3.0m)
42" (1050mm)	30 (9.1m)	21 (6.4m)	14 (4.3m)	10 (3.0m)	15 (4.6m)	11 (3.4m)	10 (3.0m)
48" (1200mm)	29 (8.8m)	20 (6.1m)	14 (4.3m)	9 (2.7m)	14 (4.3m)	10 (3.0m)	10 (3.0m)
60" (1500mm)	29 (8.8m)	20 (6.1m)	14 (4.3m)	9 (2.7m)	14 (4.3m)	10 (3.0m)	9 (2.7m)

FILL HEIGHT TABLE GENERATED USING AASHTO SECTION 12, LOAD RESISTANCE FACTOR DESIGN (LRFD) PROCEDURE WITH THE FOLLOWING ASSUMPTIONS:
NO HYDROSTATIC PRESSURE
UNIT WEIGHT OF SOIL (γs) = 120 PCF

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REV.	DESCRIPTION	BY	MM/DD/YY	CHK'D
6	REV. MAXIMUM COVER HEIGHTS	RWG	01/11/17	

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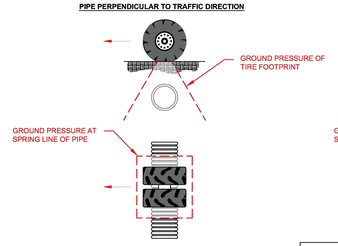
TRENCH INSTALLATION DETAIL (HP STORM)

DRAWING NUMBER: STD-101D

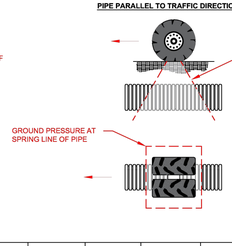
ADS Advanced Drainage Systems, Inc. 4640 TRUEMAN BLVD HILLIARD, OHIO 43026

JAB | 01/29/09 | NTS | 1 OF 1

PIPE PERPENDICULAR TO TRAFFIC DIRECTION



PIPE PARALLEL TO TRAFFIC DIRECTION



VECHICLE	VEHICLE DESCRIPTION	MINIMUM TIRE	SINGLE AXLE LOAD lbs.	PIPE DIAMETER	TEMPORY MINIMUM COVER HEIGHTS	
					CLASS I COMPACTED	CLASS II @ 95% SPD
FORD F150	PICKUP TRUCK (GWVR)	P275/55R20	7,450 (3378kg)	12"-48" * (300mm-1200mm)*	3" (76mm)	3" (76mm)
CHEVY 3500	UTILITY TRUCK (GWVR)	235/80-17	13,200 (5987kg)	12"-48" (300mm-1200mm)	6" (152mm)	6" (152mm)
				60" (1500mm)	6" (152mm)	9" (229mm)
CAT CS78B	DRUM ROLLER	84" SMOOTH DRUM ROLLER	29,626 (13438kg)	12"-48" (300mm-1200mm)	9" (229mm)	9" (229mm)
				60" (1500mm)	9" (229mm)	12" (305mm)
CAT 637G	SCRAPER	37.25-35	102,145 (46332kg)	12"-60" (300mm-1500mm)	12" (305mm)	15" (381mm)
KOMATSU WA800-3	MEDIUM LOADER	45/65-45	158,270 (71790kg)	12"-60" (300mm-1500mm)	15" (381mm)	18" (457mm)
CAT 993K	LARGE LOADER	50/65-51	276,808 (125558kg)	12"-15" (300mm-375mm)	18" (457mm)	21" (533mm)
				18"-60" (450mm-1500mm)	21" (533mm)	24" (610mm)
CAT 789D	MINING TRUCK	37.00-R57	479,050 (217293kg)	12"-18" (300mm-450mm)	24" (610mm)	30" (940mm)
				21"-60" (525mm-1500mm)	30" (686mm)	37" (762mm)

* COVER OVER 60" (1500mm) PIPE SHOULD BE NO LESS THAN 6" (152mm)

NOTES:

1. MINIMUM COVER HEIGHTS ARE BASED ON LIVE LOADING CALCULATIONS PER AASHTO LRFD SECTION 12. VEHICLE LOADS ARE BASED UPON DRIVING OVER THE PIPE WHILE NOT PERFORMING OPERATIONAL TASKS.
2. COVER HEIGHTS DO NOT TAKE INTO CONSIDERATION POTENTIAL RUTTING OF DRIVE SURFACE. BACKFILL MATERIAL IS ASSUMED FULLY COMPACTED TO SURFACE.
3. IF MINIMUM COVER CANNOT BE ACHIEVED, IT IS RECOMMENDED TO PERFORM PERIODIC DEFLECTION EVALUATIONS TO ENSURE PIPE ROUNDNESS. THE USE OF STEEL PLATES, MOUNDING, OR TEMPORARY FILL MAY BE REQUIRED TO DISTRIBUTE VEHICLE LOADING.
4. CONTACT YOUR LOCAL ADS REPRESENTATIVE WHEN VEHICLES ENCOUNTERED IN THE FIELD EXCEED THE MAXIMUM LOADINGS INCLUDED IN THE TABLE. VEHICLES LISTED IN THE TABLE ARE FOR REFERENCE AND COMPARISON PURPOSES.
5. REFER TO STANDARD STD-101D & STD-101F FOR RECOMMENDED INSTALLATION PRACTICES.

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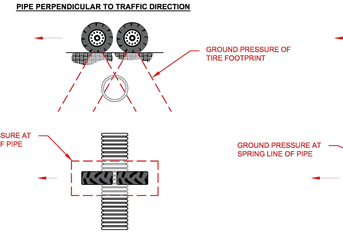
SINGLE AXLE VEHICLE TEMPORARY MINIMUM COVER (HP)

DRAWING NUMBER: STD-111D

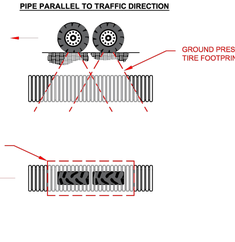
ADS Advanced Drainage Systems, Inc. 4640 TRUEMAN BLVD HILLIARD, OHIO 43026

CMF | 2/19/2016 | NTS | 1 OF 1

PIPE PERPENDICULAR TO TRAFFIC DIRECTION



PIPE PARALLEL TO TRAFFIC DIRECTION



VECHICLE	VEHICLE DESCRIPTION	MINIMUM TIRE	TANDEM AXLE LOAD lbs.	PIPE DIAMETER	TEMPORY MINIMUM COVER HEIGHTS	
					CLASS I COMPACTED	CLASS II @ 95% SPD
BOBCAT S850	SKID-STEER	14-17.5	10,237 (4643kg)	12"-48" * (300mm-1200mm)*	3" (76mm)	3" (76mm)
ECONOLINE MG0617TE	6-TON TRAILER (GVWR)	235R80-16	13,800 (6260kg)	12"-48" (300mm-1200mm)	6" (152mm)	6" (152mm)
				60" (1500mm)	6" (152mm)	9" (229mm)
KOMASTU GD655-6	GRADER	17.5-R25	30,468 (13820kg)	12"-48" (300mm-1200mm)	9" (229mm)	9" (229mm)
				60" (1500mm)	9" (229mm)	12" (305mm)
CAT 16M3	GRADER	23.5-R25	58,753 (26650kg)	12"-60" (300mm-1500mm)	12" (305mm)	15" (381mm)
CAT 730C	ARTICULATED TRUCK	23.5-R-25	74,538 (33810kg)	12"-60" (300mm-1500mm)	15" (381mm)	18" (457mm)
KOMATSU HM400-5	ARTICULATED TRUCK	29.5-R-25	115,288 (52294kg)	12"-15" (300mm-375mm)	18" (457mm)	21" (533mm)
				18"-60" (450mm-1500mm)	21" (533mm)	24" (610mm)

* COVER OVER 60" (1500mm) PIPE SHOULD BE NO LESS THAN 6" (152mm)

NOTES:

1. MINIMUM COVER HEIGHTS ARE BASED ON LIVE LOADING CALCULATIONS PER AASHTO LRFD SECTION 12. VEHICLE LOADS ARE BASED UPON DRIVING OVER THE PIPE WHILE NOT PERFORMING OPERATIONAL TASKS.
2. COVER HEIGHTS DO NOT TAKE INTO CONSIDERATION POTENTIAL RUTTING OF DRIVE SURFACE. BACKFILL MATERIAL IS ASSUMED FULLY COMPACTED TO SURFACE.
3. IF MINIMUM COVER CANNOT BE ACHIEVED, IT IS RECOMMENDED TO PERFORM PERIODIC DEFLECTION EVALUATIONS TO ENSURE PIPE ROUNDNESS. THE USE OF STEEL PLATES, MOUNDING, OR TEMPORARY FILL MAY BE REQUIRED TO DISTRIBUTE VEHICLE LOADING.
4. CONTACT YOUR LOCAL ADS REPRESENTATIVE WHEN VEHICLES ENCOUNTERED IN THE FIELD EXCEED THE MAXIMUM LOADINGS INCLUDED IN THE TABLE. VEHICLES LISTED IN THE TABLE ARE FOR REFERENCE AND COMPARISON PURPOSES.
5. REFER TO STANDARD STD-101D & STD-101F FOR RECOMMENDED INSTALLATION PRACTICES.

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TANDEM AXLE VEHICLE TEMPORARY MINIMUM COVER (HP)

DRAWING NUMBER: STD-111E

ADS Advanced Drainage Systems, Inc. 4640 TRUEMAN BLVD HILLIARD, OHIO 43026

CMF | 2/19/2016 | NTS | 1 OF 1

NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102466
LICENSED
PROFESSIONAL ENGINEER
8/27/25

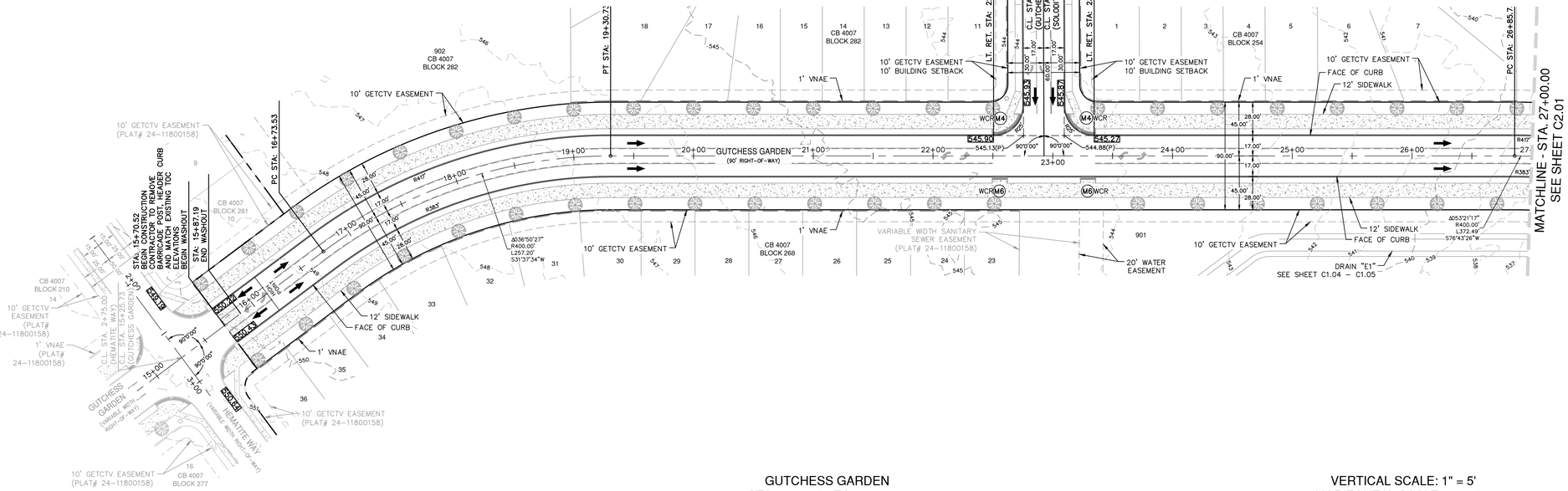
PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS
DRAINAGE DETAILS

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C1.24

Date: February 3, 2025, 2:40 PM — User ID: rodolfo.gallegos
File: P:\124\82\21\Design\Civil\RD112482121.dwg

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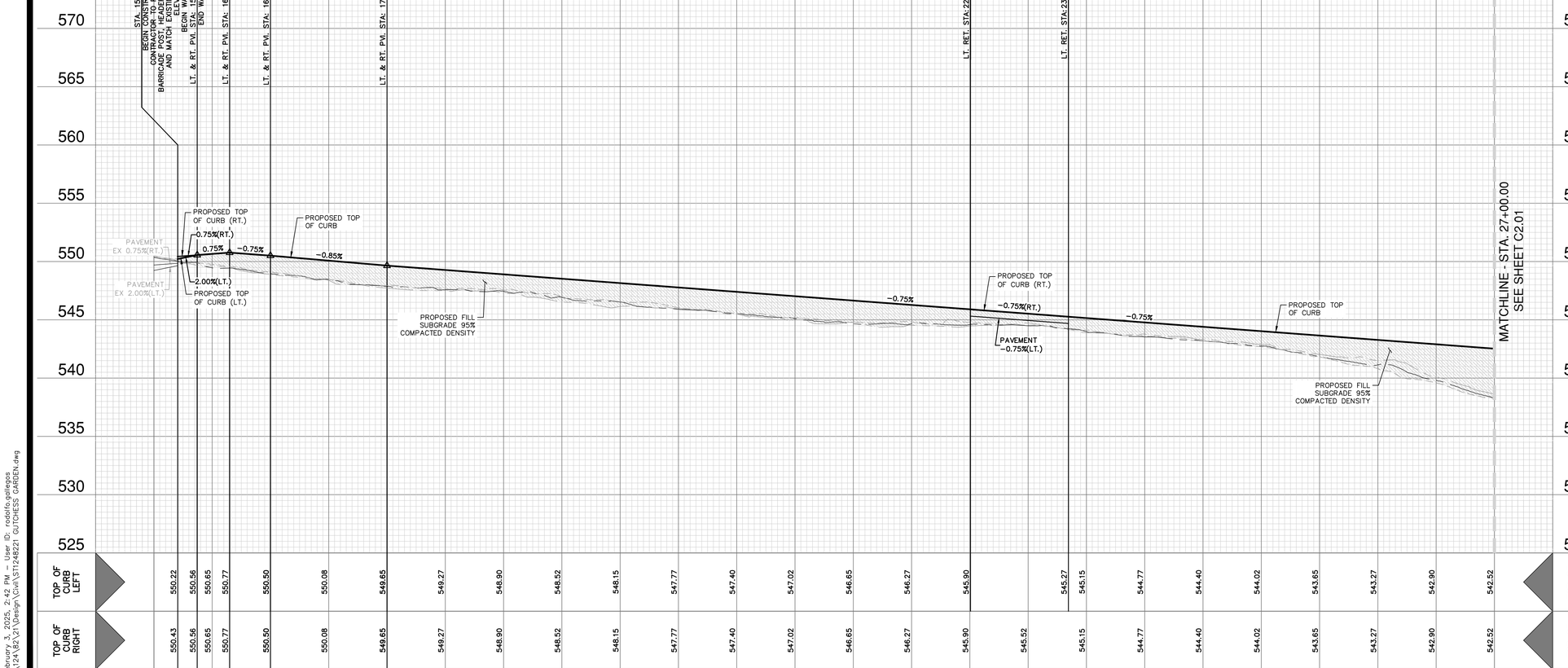
SCALE: 1"= 50'
0' 50' 100' 150'

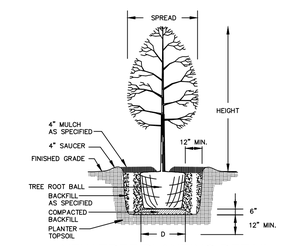
STREET LEGEND

PROJECT LIMITS	
MAINTAIN GUTTER	
EXISTING CONTOUR	970
WHEELCHAIR RAMP	
CENTERLINE	CL
RADIUS POINT	RP
POINT OF CURVATURE	PC
POINT OF TANGENCY	PT
RETURN	RET
DRAINAGE FLOW ARROW	
TOP OF CURB SPOT ELEVATION	857.30
PAVEMENT ELEVATION	857.00(P) ×
WASHOUT CROWN SECTION	
SIDEWALK (HOMEOWNER'S RESPONSIBILITY)	
SIDEWALK (DEVELOPER'S RESPONSIBILITY)	
DRIVEWAY	
VEHICULAR NON ACCESS EASEMENT	VNAE
EXISTING TREES TO REMAIN UNDISTURBED	
EXISTING TREES TO BE REMOVED	

GUTCHESS GARDEN
STA. 15+70.52 TO 27+00.00

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





NEW TREE PLANTING DETAIL

STREETSCAPE TREE PLANTING NOTES:

LARGE TREES (PER UDC) TO BE PLANTED EVERY 50 FEET PER DETAIL.

1. SPECIES OF TREES TO BE DETERMINED BY DEVELOPER'S PROJECT LANDSCAPE ARCHITECT TO CONFORM WITH THE STREETSCAPE PLANTING STANDARDS.
2. DEVELOPER TO PROVIDE IRRIGATION ON PLANTED STREET TREES FOR A MINIMUM OF 3 YEARS.
3. ALL LANDSCAPING SHALL COMPLY WITH THE CLEAR VISION AREAS DEFINED BY THE LATEST VERSION OF AASHTO'S "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS."
4. TYPES OF TREES AND SPACING ARE BASED ON UNDERGROUND ELECTRIC, IF OVERHEAD ELECTRIC IS REQUIRED BY CPS, PLANS WILL BE REVISED TO REFLECT CHANGES IN SIZE, TYPE, AND SPACING OF TREES, PER THE UDC.

STREET NOTES:

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

NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102466
LICENSED
PROFESSIONAL ENGINEER
8/27/25

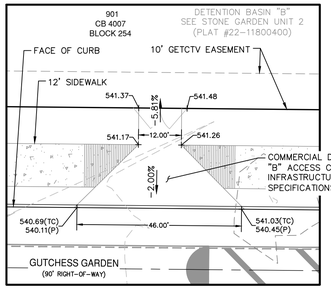
PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS
GUTCHESS GARDEN PLAN & PROFILE (STA 15+70.52 TO 27+00.00)

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C2.00

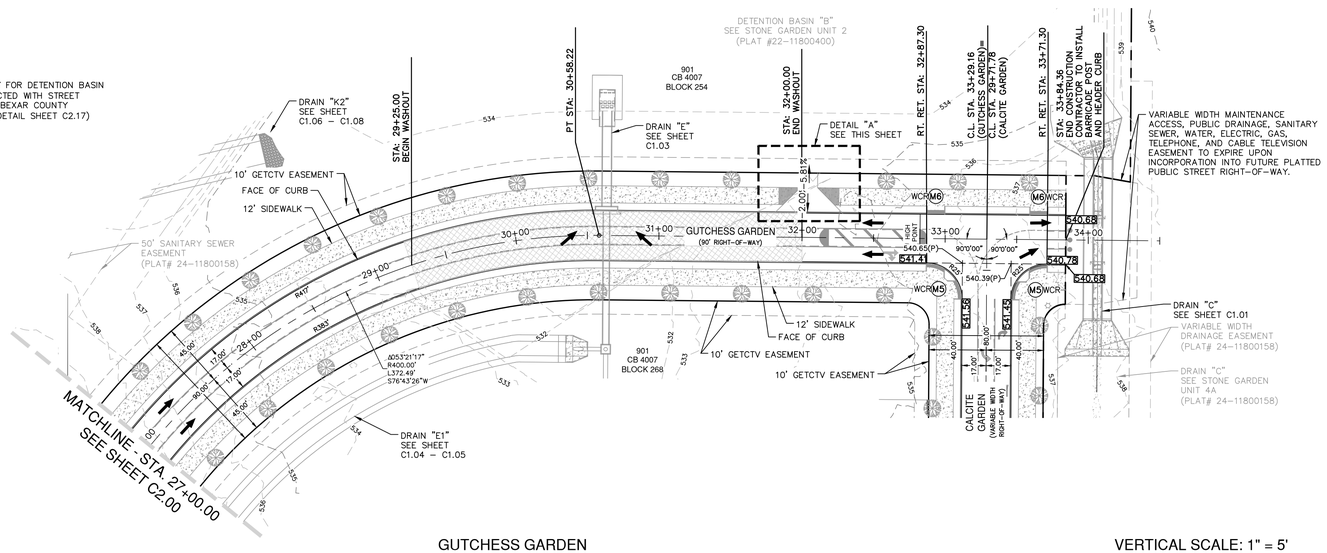
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File: P:\124\82\21\Design\Civil\11248221 GUTCHESS GARDEN.dwg

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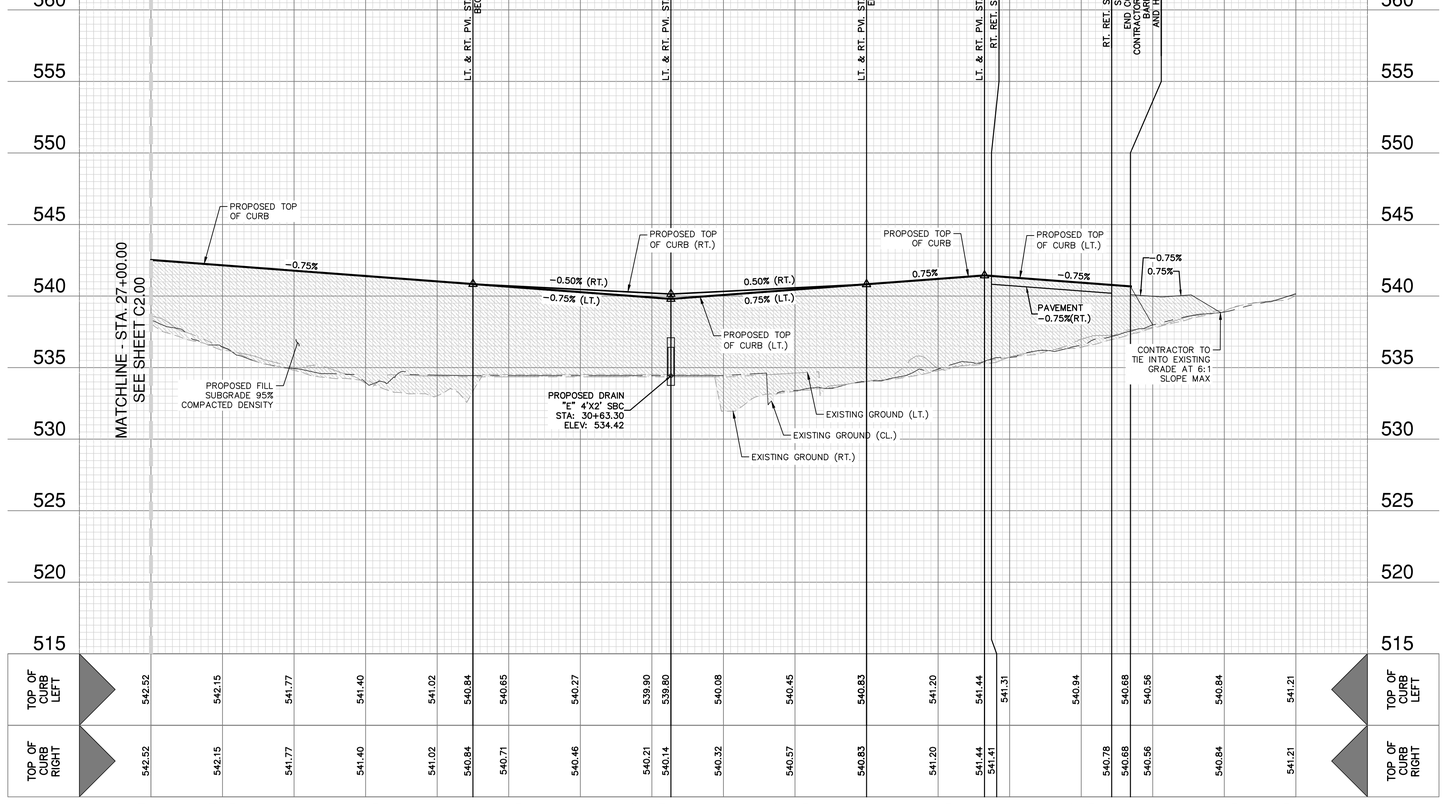
DETAIL "A"

SCALE: 1" = 20'



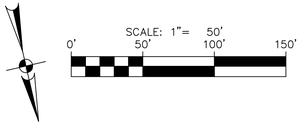
GUTCHESS GARDEN
STA. 27+00.00 TO END

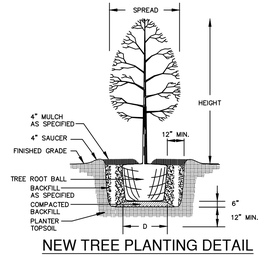
VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 50'



STREET LEGEND

PROJECT LIMITS	
MAINTAIN GUTTER	
EXISTING CONTOUR	970
WHEELCHAIR RAMP	
CENTERLINE	CL
RADIUS POINT	RP
POINT OF CURVATURE	PC
POINT OF TANGENCY	PT
RETURN	RET
DRAINAGE FLOW ARROW	
TOP OF CURB SPOT ELEVATION	857.30
PAVEMENT ELEVATION	857.00(P) ×
WASHOUT CROWN SECTION	
SIDEWALK (HOMEOWNER'S RESPONSIBILITY)	
SIDEWALK (DEVELOPER'S RESPONSIBILITY)	
DRIVEWAY	
VEHICULAR NON ACCESS EASEMENT	VNAE
EXISTING TREES TO REMAIN UNDISTURBED	
EXISTING TREES TO BE REMOVED	





NEW TREE PLANTING DETAIL

STREETSCAPE TREE PLANTING NOTES:

LARGE TREES (PER UDC) TO BE PLANTED EVERY 50 FEET PER DETAIL.

1. SPECIES OF TREES TO BE DETERMINED BY DEVELOPER'S PROJECT LANDSCAPE ARCHITECT TO CONFORM WITH THE STREETSCAPE PLANTING STANDARDS.
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3. SIDEWALKS SHALL BE CONSTRUCTED 3-FT FROM THE BACK OF CURB FOR ALL LOCATIONS WHERE THE SIDEWALK IS SHOWN OFFSET. REFER TO STREET DETAIL SHEET FOR SIDEWALK AND RAMP DETAILS.
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7. THE CONSTRUCTION OF SIDEWALKS ADJACENT TO ALL 900 SERIES LOTS WILL BE THE RESPONSIBILITY OF THE DEVELOPER AS SHOWN ON THE OVERALL SIGNAGE PLAN.
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NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
10246
LICENSED
PROFESSIONAL ENGINEER
8/27/25

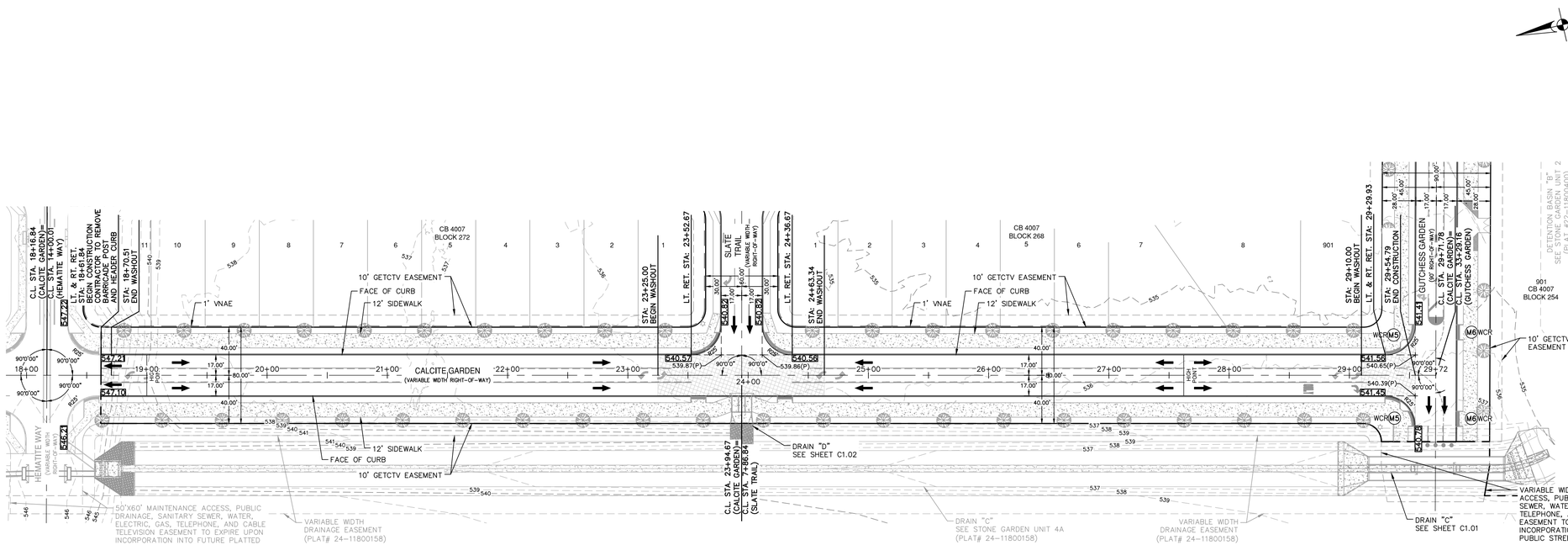
PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS
GUTCHESS GARDEN PLAN & PROFILE (STA 27+00.00 TO END)

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C2.01

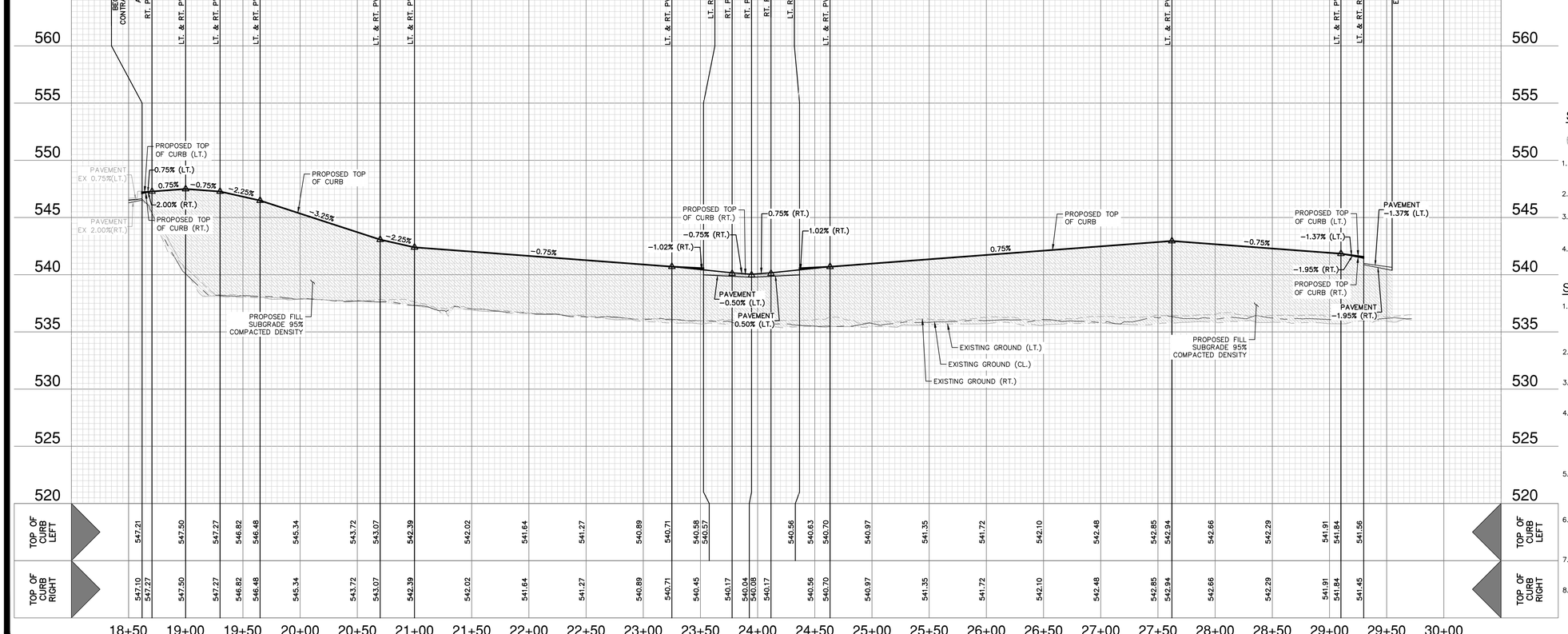
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File: P:\124\82\21\Design\Civil\S11248221 GUTCHESS GARDEN.dwg

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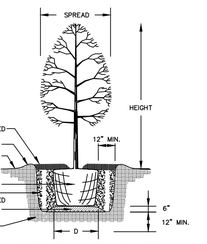
CALCITE GARDEN
STA. 18+61.84 TO END

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



STREET LEGEND

PROJECT LIMITS	
MAINTAIN GUTTER	
EXISTING CONTOUR	970
WHEELCHAIR RAMP	
CENTERLINE	CL
RADIUS POINT	RP
POINT OF CURVATURE	PC
POINT OF TANGENCY	PT
RETURN	RET
DRAINAGE FLOW ARROW	
TOP OF CURB SPOT ELEVATION	857.30
PAVEMENT ELEVATION	857.00(P) ×
WASHOUT CROWN SECTION	
SIDEWALK (HOMEOWNER'S RESPONSIBILITY)	
SIDEWALK (DEVELOPER'S RESPONSIBILITY)	
DRIVEWAY	
VEHICULAR NON ACCESS EASEMENT	VNAE
EXISTING TREES TO REMAIN UNDISTURBED	
EXISTING TREES TO BE REMOVED	



NEW TREE PLANTING DETAIL

STREETSCAPE TREE PLANTING NOTES:

LARGE TREES (PER UDC) TO BE PLANTED EVERY 50 FEET PER DETAIL.

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NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102466
LICENSED
PROFESSIONAL ENGINEER
8/27/25

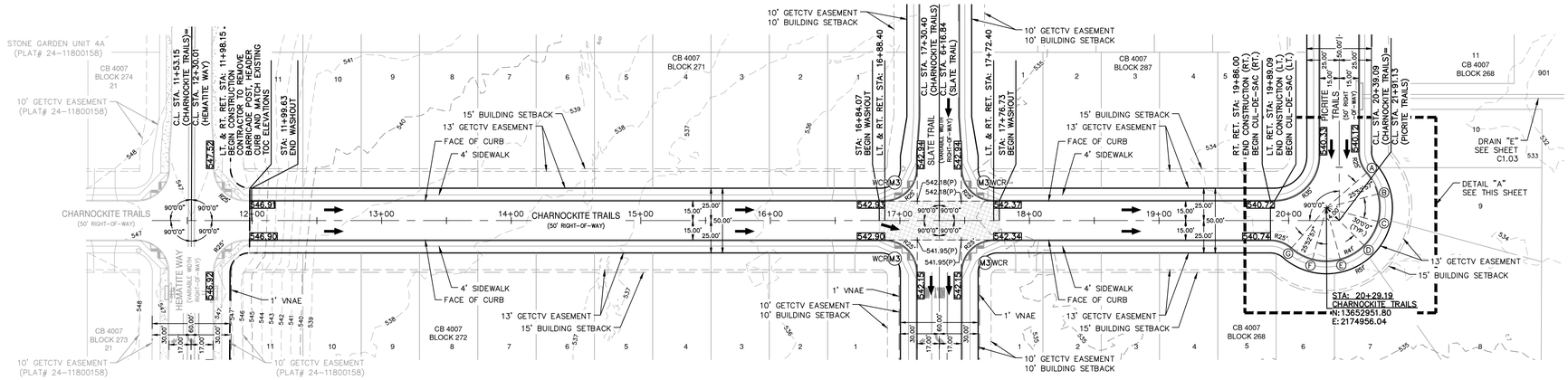
PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS
CALCITE GARDEN PLAN & PROFILE (STA 18+61.94 TO END)

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C2.02

Date: February 3, 2025, 2:45 PM – User ID: rodolfo.gallegos
File: P:\124\82\21\Design\Civil\S11248221 CALCITE GARDEN.dwg

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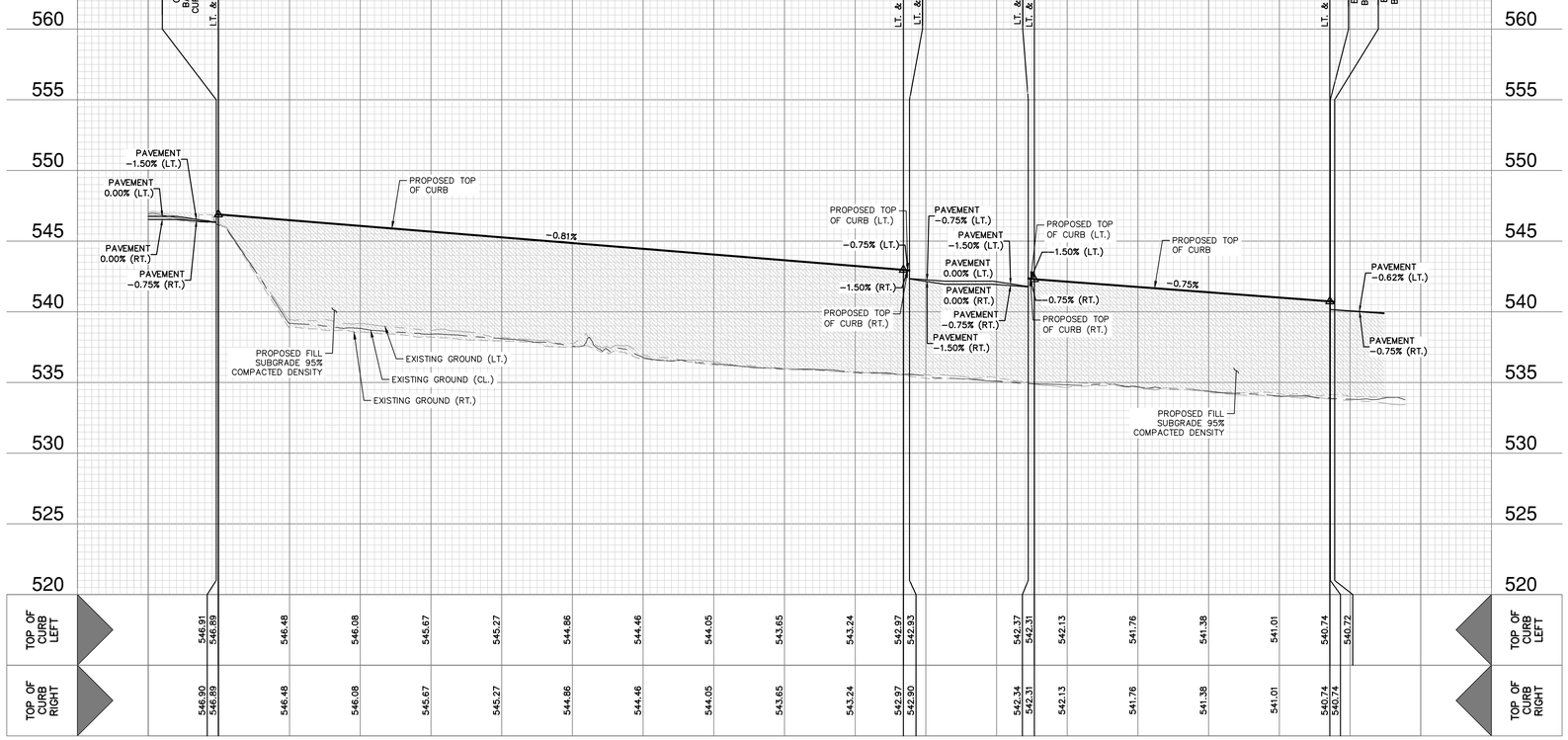


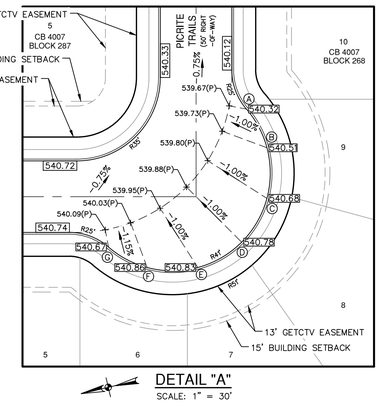
STREET LEGEND

PROJECT LIMITS	
MAINTAIN GUTTER	
EXISTING CONTOUR	970
WHEELCHAIR RAMP	
CENTERLINE	CL
RADIUS POINT	RP
POINT OF CURVATURE	PC
POINT OF TANGENCY	PT
RETURN	RET
DRAINAGE FLOW ARROW	
TOP OF CURB SPOT ELEVATION	857.30
PAVEMENT ELEVATION	857.00(P) ×
WASHOUT CROWN SECTION	
SIDEWALK (HOMEOWNER'S RESPONSIBILITY)	
SIDEWALK (DEVELOPER'S RESPONSIBILITY)	
DRIVEWAY	
VEHICULAR NON ACCESS EASEMENT	VNAE
EXISTING TREES TO REMAIN UNDISTURBED	
EXISTING TREES TO BE REMOVED	

CHARNOCKITE TRAILS
STA. 11+98.15 TO END

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





DETAIL "A"
SCALE: 1" = 30'

STREET NOTES:

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NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102466
LICENSED
PROFESSIONAL ENGINEER
8/27/25

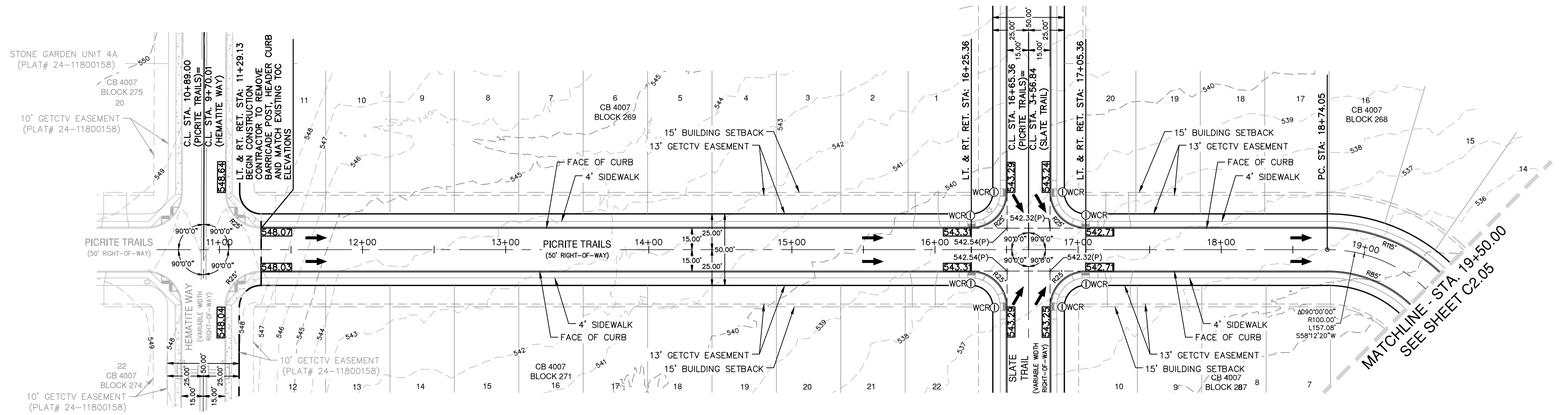
PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS
CHARNOCKITE TRAILS PLAN & PROFILE (STA 11+98.15 TO END)

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C2.03

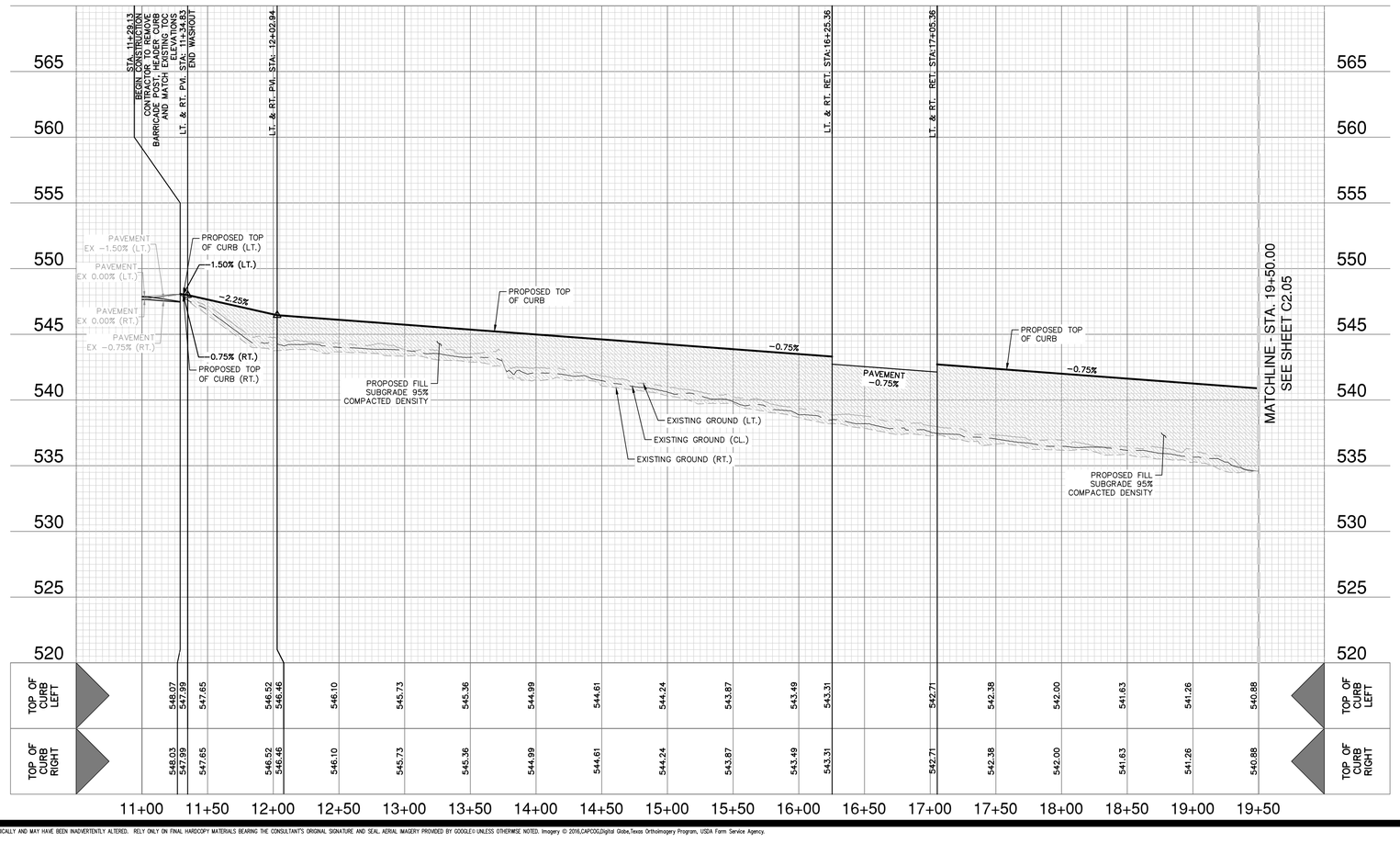
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PICRITE TRAILS
STA. 11+29.13 TO 19+50.00

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



STREET LEGEND

PROJECT LIMITS	
MAINTAIN GUTTER	
EXISTING CONTOUR	970
WHEELCHAIR RAMP	
CENTERLINE	CL
RADIUS POINT	RP
POINT OF CURVATURE	PC
POINT OF TANGENCY	PT
RETURN	RET
DRAINAGE FLOW ARROW	
TOP OF CURB SPOT ELEVATION	857.30
PAVEMENT ELEVATION	857.00(P) ×
WASHOUT CROWN SECTION	
SIDEWALK (HOMEOWNER'S RESPONSIBILITY)	
SIDEWALK (DEVELOPER'S RESPONSIBILITY)	
DRIVEWAY	
VEHICULAR NON ACCESS EASEMENT	VNAE
EXISTING TREES TO REMAIN UNDISTURBED	
EXISTING TREES TO BE REMOVED	

STREET NOTES:

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

NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102466
LICENSED
PROFESSIONAL ENGINEER
8/27/25

PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

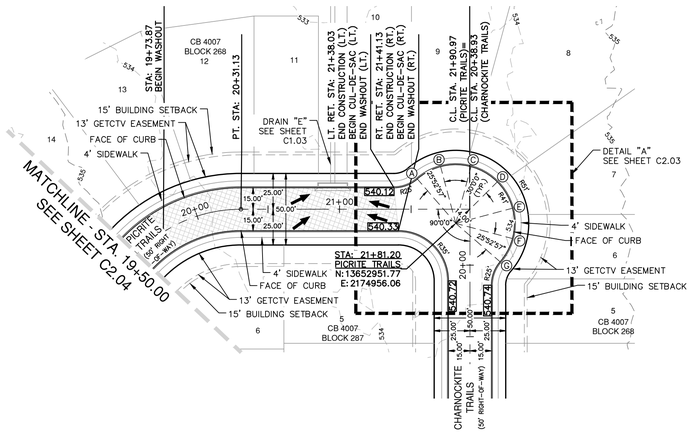
STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS

PICRITE TRAILS PLAN & PROFILE (STA 11+29.13 TO 19+50.00)

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C2.04

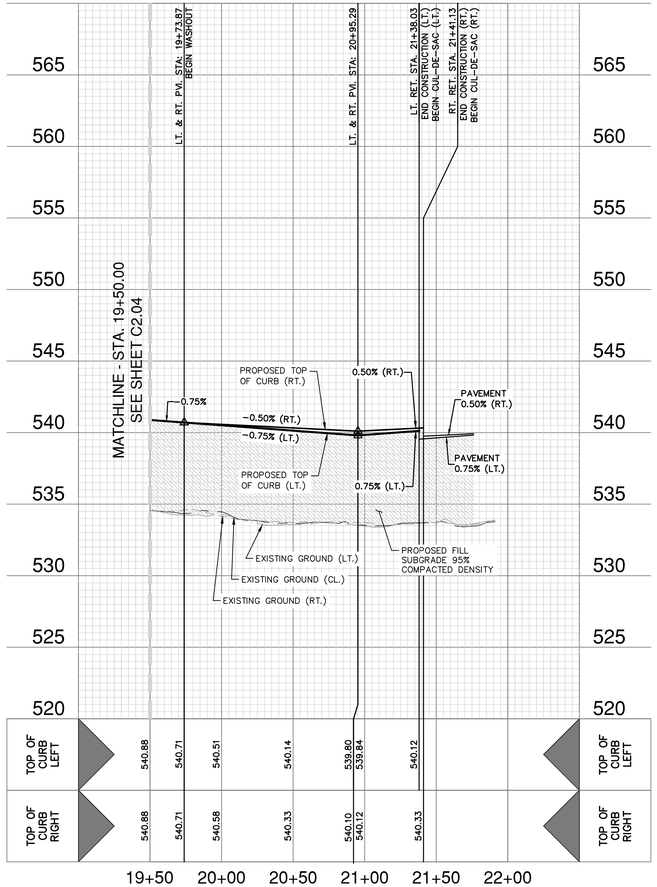
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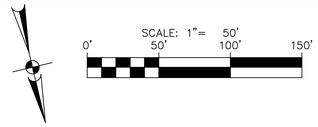
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PICRITE TRAILS
STA. 19+50.00 TO END

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





STREET LEGEND

PROJECT LIMITS	
MAINTAIN GUTTER	
EXISTING CONTOUR	970
WHEELCHAIR RAMP	
CENTERLINE	CL
RADIUS POINT	RP
POINT OF CURVATURE	PC
POINT OF TANGENCY	PT
RETURN	RET
DRAINAGE FLOW ARROW	
TOP OF CURB SPOT ELEVATION	857.30
PAVEMENT ELEVATION	857.00(P) ×
WASHOUT CROWN SECTION	
SIDEWALK (HOMEOWNER'S RESPONSIBILITY)	
SIDEWALK (DEVELOPER'S RESPONSIBILITY)	
DRIVEWAY	
VEHICULAR NON ACCESS EASEMENT	VNAE
EXISTING TREES TO REMAIN UNDISTURBED	
EXISTING TREES TO BE REMOVED	

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NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102466
LICENSED
PROFESSIONAL ENGINEER
8/27/25

PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS

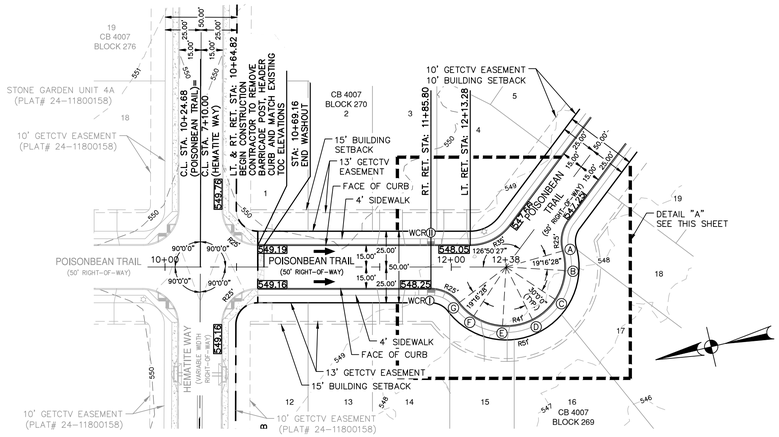
PICRITE TRAILS PLAN & PROFILE (STA 19+50.00 TO END)

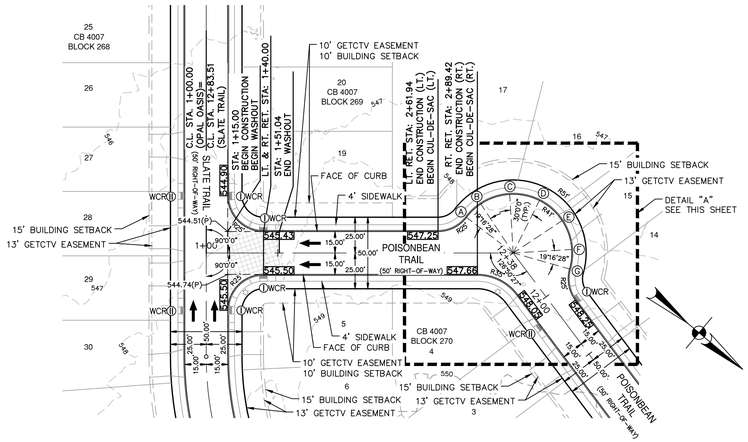
PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C2.05

Date: February 3, 2025, 2:51 PM – User ID: rodolfo.gallegos
File: P:\124\82\21\Design\Civil\ST124821 PICRITE TRAILS.dwg

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SCALE: 1"= 50'
0' 50' 100' 150'

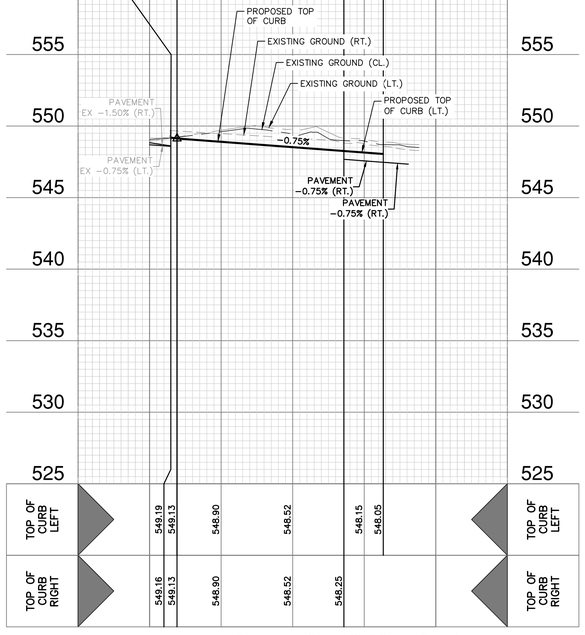




STREET LEGEND

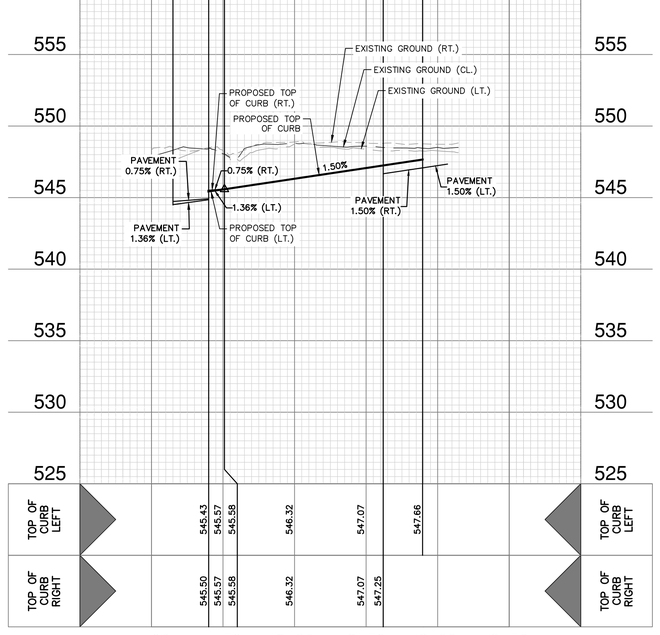
PROJECT LIMITS	
MAINTAIN GUTTER	
EXISTING CONTOUR	970
WHEELCHAIR RAMP	
CENTERLINE	CL
RADIUS POINT	RP
POINT OF CURVATURE	PC
POINT OF TANGENCY	PT
RETURN	RET
DRAINAGE FLOW ARROW	
TOP OF CURB SPOT ELEVATION	857.30
PAVEMENT ELEVATION	857.00(P) ×
WASHOUT CROWN SECTION	
SIDEWALK (HOMEOWNER'S RESPONSIBILITY)	
SIDEWALK (DEVELOPER'S RESPONSIBILITY)	
DRIVEWAY	
VEHICULAR NON ACCESS EASEMENT	VNAE
EXISTING TREES TO REMAIN UNDISTURBED	
EXISTING TREES TO BE REMOVED	

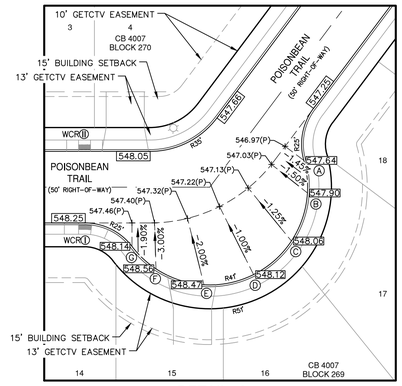
POISONBEAN TRAIL
STA. 10+64.82 TO END



POISONBEAN TRAIL
STA. 1+00.00 TO END

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





DETAIL "A"
SCALE: 1" = 30'

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NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102466
LICENSED
PROFESSIONAL ENGINEER
8/27/25

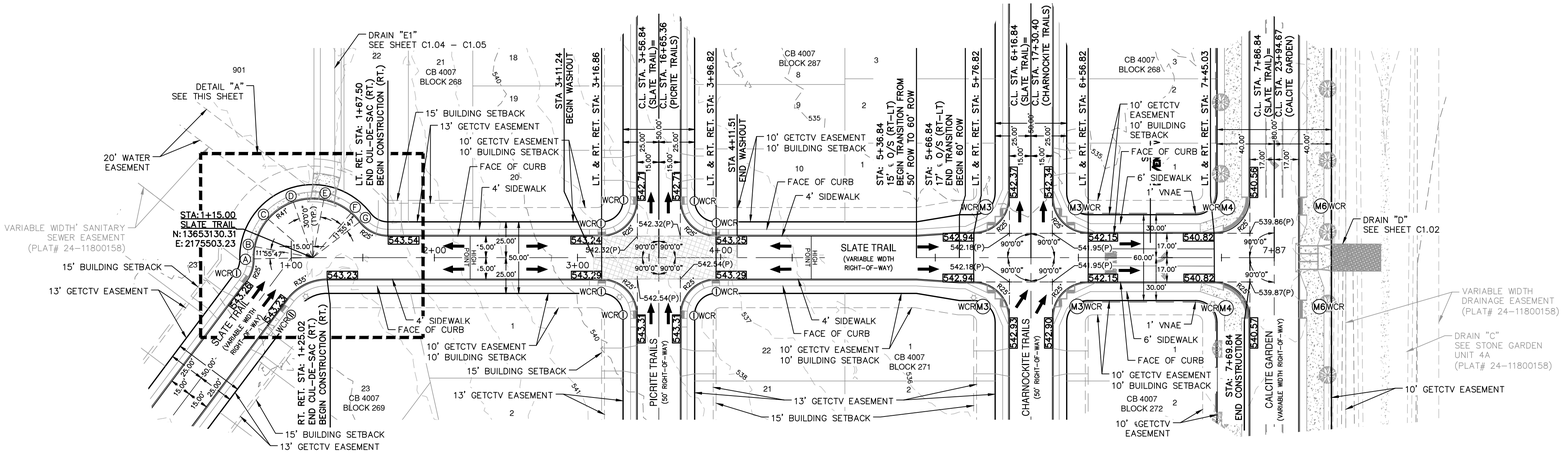
PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS

POISONBEAN TRAIL PLAN & PROFILE (STA 10+64.82 TO END)
POISONBEAN TRIAL PLAN & PROFILE (STA 1+00.00 TO END)

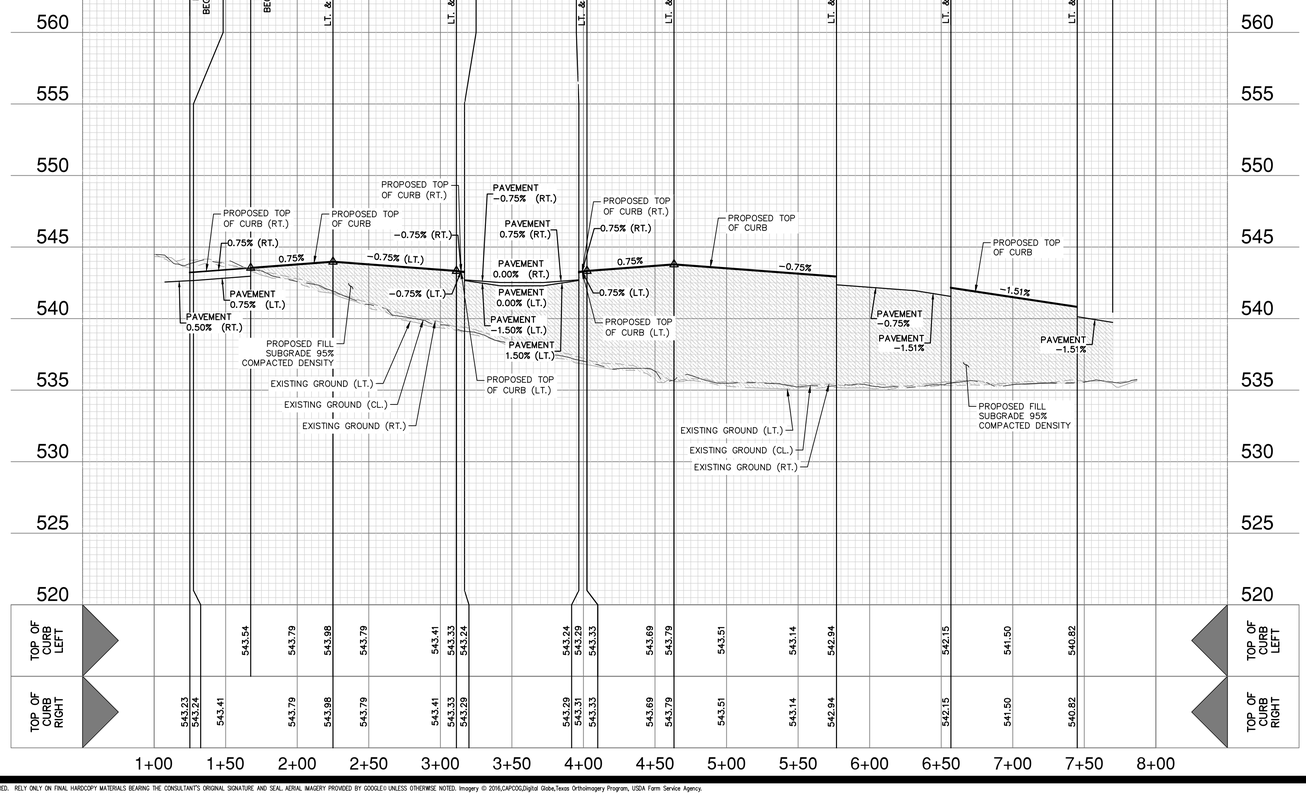
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JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C2.06

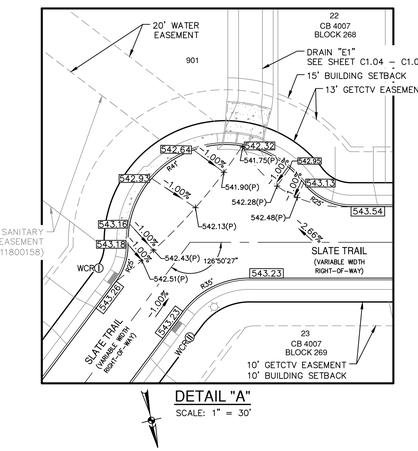
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SLATE TRAIL
STA. 1+00.00 TO END

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





DETAIL "A"
SCALE: 1" = 30'

SCALE: 1"= 50'
0' 50' 100' 150'

STREET LEGEND

PROJECT LIMITS	
MAINTAIN GUTTER	
EXISTING CONTOUR	970
WHEELCHAIR RAMP	
CENTERLINE	CL
RADIUS POINT	RP
POINT OF CURVATURE	PC
POINT OF TANGENCY	PT
RETURN	RET
DRAINAGE FLOW ARROW	
TOP OF CURB SPOT ELEVATION	857.30
PAVEMENT ELEVATION	857.00(P) ×
WASHOUT CROWN SECTION	
SIDEWALK (HOMEOWNER'S RESPONSIBILITY)	
SIDEWALK (DEVELOPER'S RESPONSIBILITY)	
DRIVEWAY	
VEHICULAR NON ACCESS EASEMENT	VNAE
EXISTING TREES TO REMAIN UNDISTURBED	
EXISTING TREES TO BE REMOVED	

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NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102466
LICENSED
PROFESSIONAL ENGINEER
8/27/25

PAPE–DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
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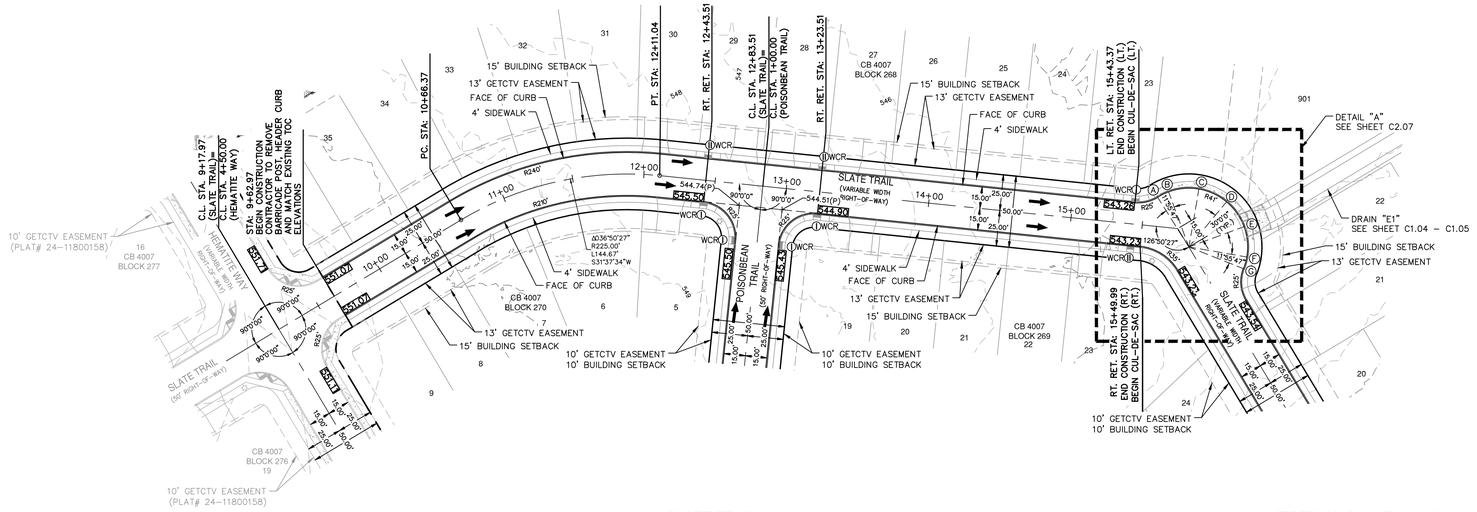
STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS

SLATE TRAIL PLAN & PROFILE (STA 1+00.00 TO END)

PLAT NO. 25-11800200
JOB NO. 12482–21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C2.07

Date: February 3, 2025, 2:58 PM – User ID: rodolfo.gallegos
File: P:\124\82\21\Design\Civil\SI124821 CROSSWINE PATCH.dwg

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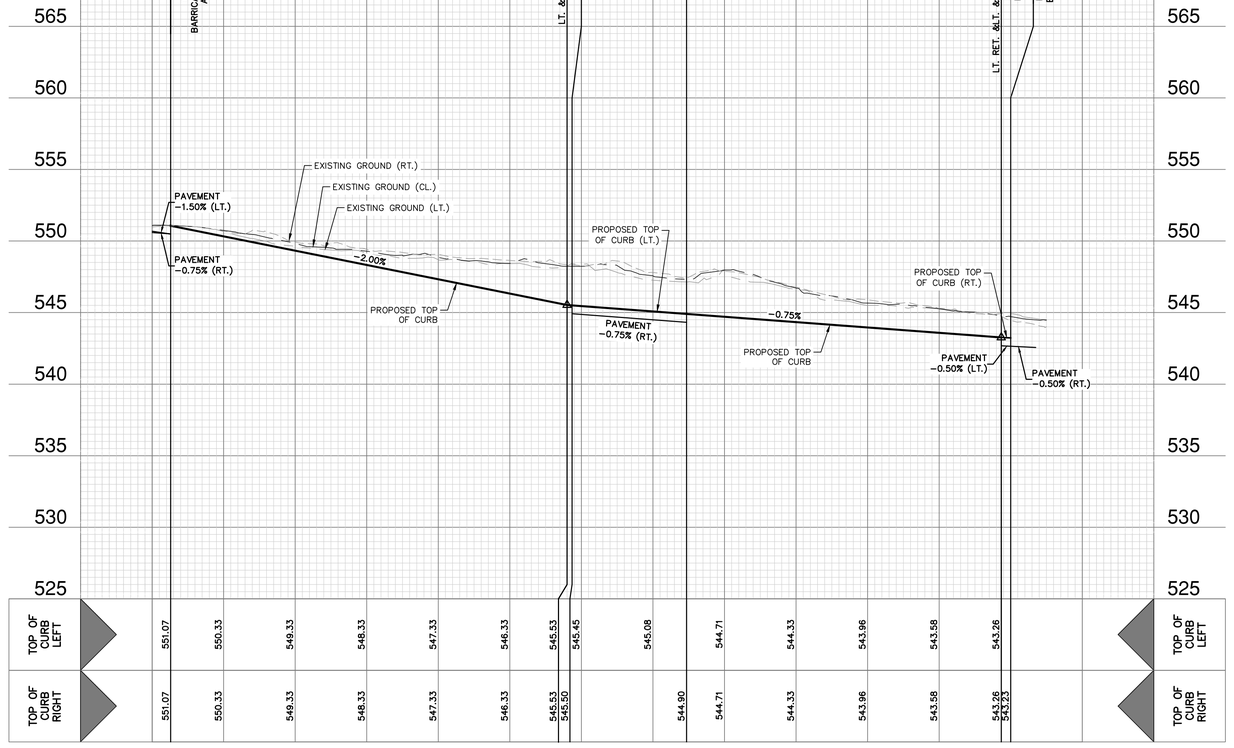


STREET LEGEND

PROJECT LIMITS	
MAINTAIN GUTTER	
EXISTING CONTOUR	970
WHEELCHAIR RAMP	
CENTERLINE	CL
RADIUS POINT	RP
POINT OF CURVATURE	PC
POINT OF TANGENCY	PT
RETURN	RET
DRAINAGE FLOW ARROW	
TOP OF CURB SPOT ELEVATION	857.30
PAVEMENT ELEVATION	857.00(P) ×
WASHOUT CROWN SECTION	
SIDEWALK (HOMEOWNER'S RESPONSIBILITY)	
SIDEWALK (DEVELOPER'S RESPONSIBILITY)	
DRIVEWAY	
VEHICULAR NON ACCESS EASEMENT	VNAE
EXISTING TREES TO REMAIN UNDISTURBED	
EXISTING TREES TO BE REMOVED	

SLATE TRAIL
STA. 9+62.97 TO END

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



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5. DRIVEWAYS SHOWN ON THIS PLAN ARE FOR THE SOLE PURPOSE OF INDICATING A POTENTIAL CONFLICT WITH CURB RAMP, DRAINAGE INFRASTRUCTURE, OR OTHER CONFLICT. DRIVEWAY LOCATION IS SUBJECT TO CHANGE BASED ON HOME SELECTION AND FINAL LOT DESIGN.
6. CHANGES IN THE SIDEWALK LOCATION FOR A MAXIMUM LINEAR DISTANCE OF TWO HUNDRED (200) FEET ARE PERMITTED TO BE APPROVED BY THE FIELD INSPECTOR WITHOUT AMENDING THE STREET PLAN OR UTILITY LAYOUT PER UDC SECTION 35–506 (Q)(6).
7. THE CONSTRUCTION OF SIDEWALKS ADJACENT TO ALL 900 SERIES LOTS WILL BE THE RESPONSIBILITY OF THE DEVELOPER AS SHOWN ON THE OVERALL SIGNAGE PLAN.
8. FILL MATERIAL SHOULD BE NATIVE ON–SITE MATERIAL, FREE OF DELETERIOUS MATERIAL WITH A MINIMUM CBR VALUE OF 4.0 AND A PI MAXIMUM OF 20. THE GRAVEL SIZE SHOULD NOT EXCEED 3 INCHES IN DIAMETER. LIME APPLICATION RATE SHOULD BE RE–EVALUATED FOR THE FILL MATERIAL. THE MATERIAL SHOULD BE PLACED AS PER APPLICABLE CITY OR COUNTY GUIDELINES.

NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102466
LICENSED
PROFESSIONAL ENGINEER
8/27/25

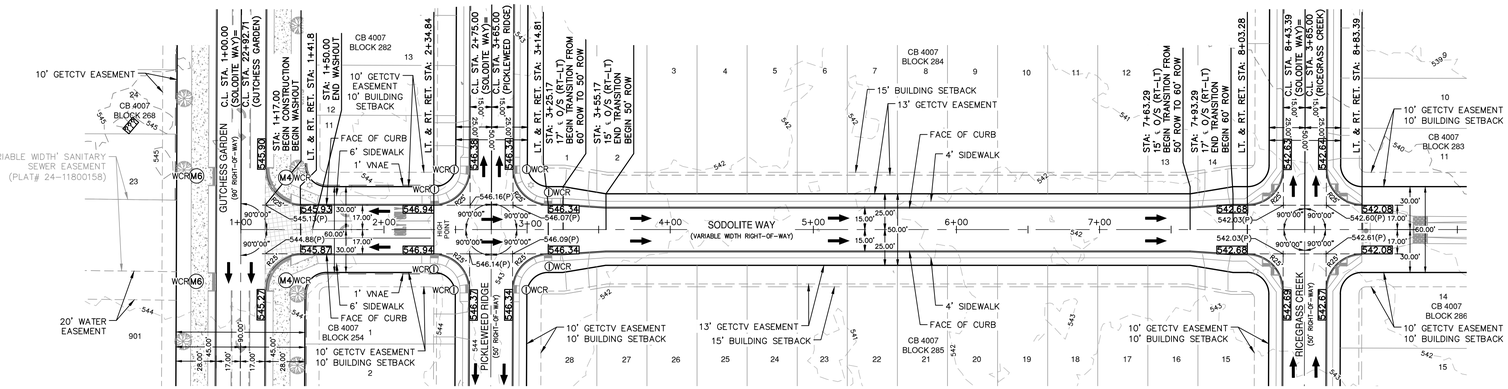
PAPE–DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS
SLATE TRAIL PLAN & PROFILE (STA 9+62.97 TO END)

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C2.08

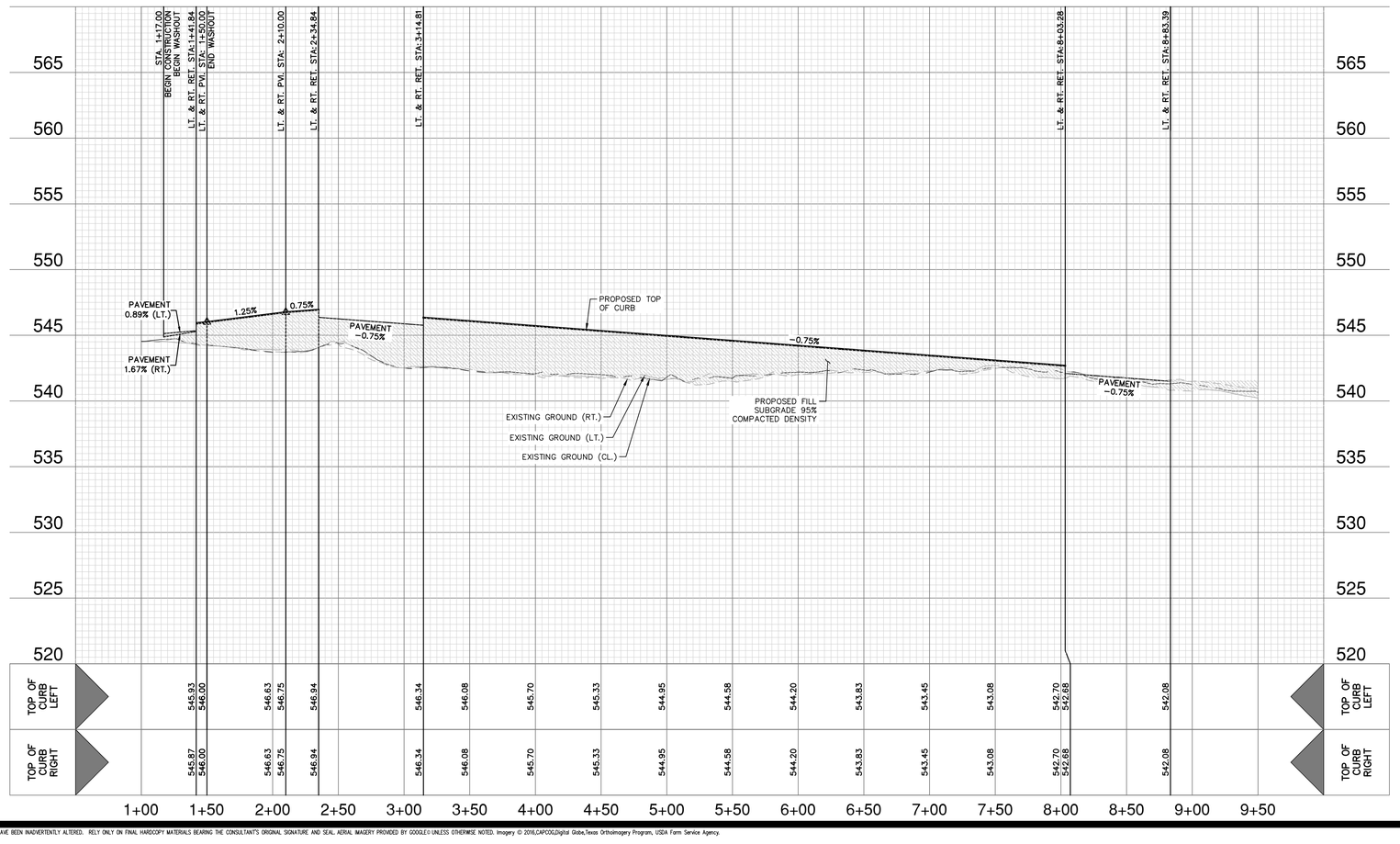
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File: P:\124\82\21\design\Civil\S11248221 SLATE TRAIL.dwg

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SODOLITE WAY
STA. 1+00.00 TO END

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



SCALE: 1"= 50'
0' 50' 100' 150'

STREET LEGEND

- PROJECT LIMITS
- MAINTAIN GUTTER
- EXISTING CONTOUR — 970
- WHEELCHAIR RAMP
- CENTERLINE — CL
- RADIUS POINT — RP
- POINT OF CURVATURE — PC
- POINT OF TANGENCY — PT
- RETURN — RET
- DRAINAGE FLOW ARROW
- TOP OF CURB SPOT ELEVATION — 857.30
- PAVEMENT ELEVATION — 857.00(P) ×
- WASHOUT CROWN SECTION
- SIDEWALK (HOMEOWNER'S RESPONSIBILITY)
- SIDEWALK (DEVELOPER'S RESPONSIBILITY)
- DRIVEWAY
- VEHICULAR NON ACCESS EASEMENT — VNAE
- EXISTING TREES TO REMAIN UNDISTURBED
- EXISTING TREES TO BE REMOVED

STREET NOTES:

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NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102466
LICENSED
PROFESSIONAL ENGINEER
8/27/25

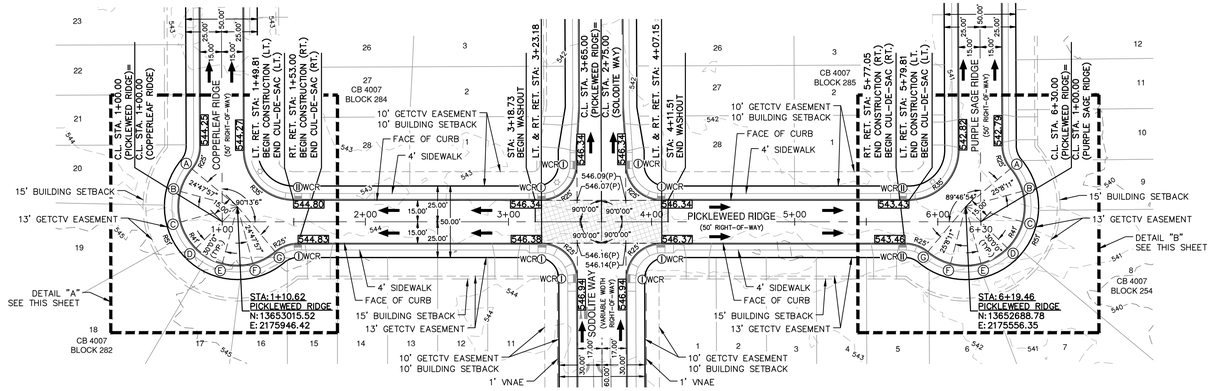
PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS
SODOLITE WAY PLAN & PROFILE (STA 1+00.00 TO END)

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C2.09

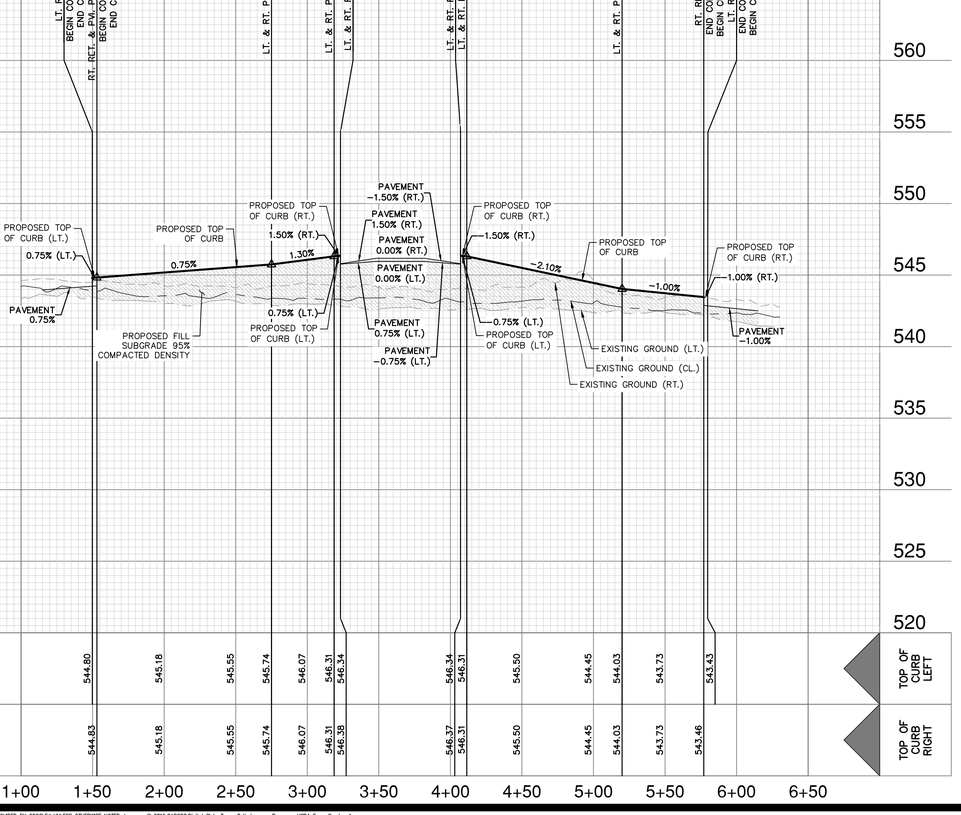
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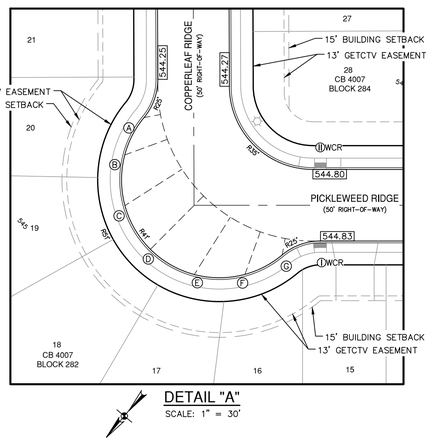
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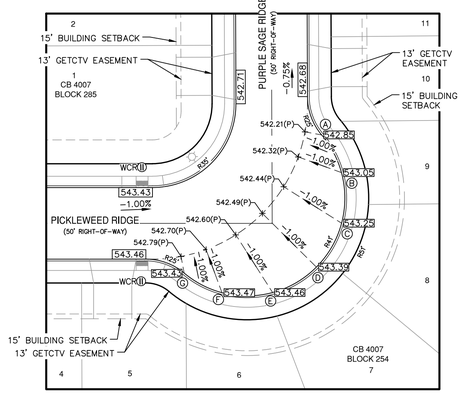
PICKLEWEED RIDGE
STA. 1+00.00 TO END

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





DETAIL "A"
SCALE: 1" = 30'



DETAIL "B"
SCALE: 1" = 30'

STREET LEGEND

PROJECT LIMITS	
MAINTAIN GUTTER	
EXISTING CONTOUR	970
WHEELCHAIR RAMP	Ⓘ
CENTERLINE	CL
RADIUS POINT	RP
POINT OF CURVATURE	PC
POINT OF TANGENCY	PT
RETURN	RET
DRAINAGE FLOW ARROW	
TOP OF CURB SPOT ELEVATION	857.30
PAVEMENT ELEVATION	857.00(P) ×
WASHOUT CROWN SECTION	
SIDEWALK (HOMEOWNER'S RESPONSIBILITY)	
SIDEWALK (DEVELOPER'S RESPONSIBILITY)	
DRIVEWAY	
VEHICULAR NON ACCESS EASEMENT	VNAE
EXISTING TREES TO REMAIN UNDISTURBED	
EXISTING TREES TO BE REMOVED	

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NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
10246
LICENSED
PROFESSIONAL ENGINEER
8/27/25

PAPE–DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

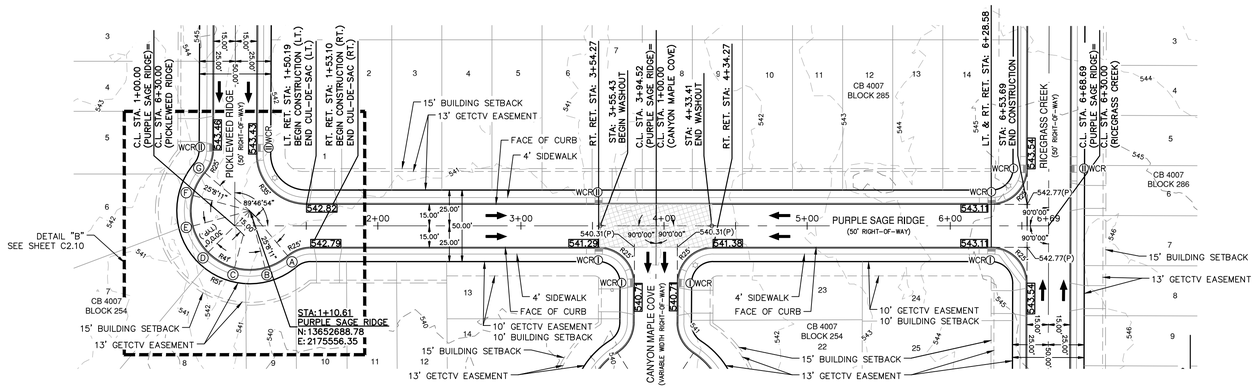
STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS

PICKLEWEED RIDGE PLAN & PROFILE (STA 1+00.00 TO END)

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C2.10

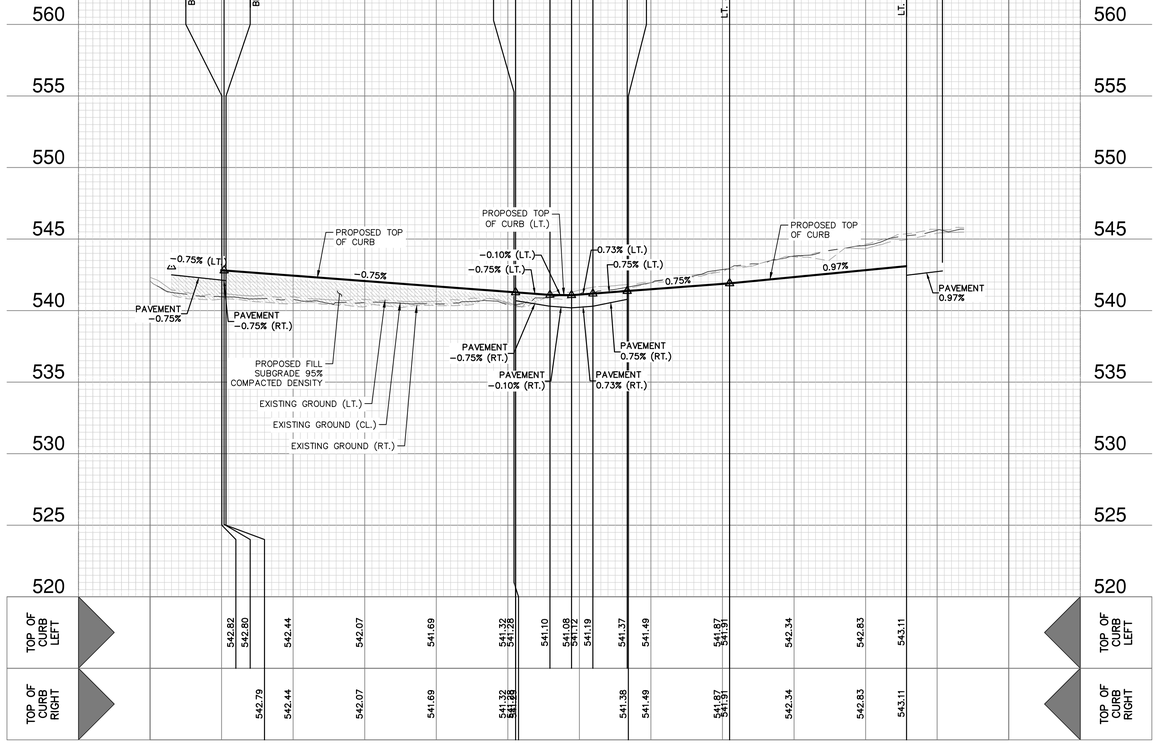
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File: P:\124\82\21\Design\Civil\ST124821 PICKLEWEED RIDGE.dwg

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PURPLE SAGE RIDGE
STA. 1+00.00 TO END

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



STREET LEGEND

PROJECT LIMITS	
MAINTAIN GUTTER	
EXISTING CONTOUR	970
WHEELCHAIR RAMP	
CENTERLINE	CL
RADIUS POINT	RP
POINT OF CURVATURE	PC
POINT OF TANGENCY	PT
RETURN	RET
DRAINAGE FLOW ARROW	
TOP OF CURB SPOT ELEVATION	857.30
PAVEMENT ELEVATION	857.00(P) ×
WASHOUT CROWN SECTION	
SIDEWALK (HOMEOWNER'S RESPONSIBILITY)	
SIDEWALK (DEVELOPER'S RESPONSIBILITY)	
DRIVEWAY	
VEHICULAR NON ACCESS EASEMENT	VNAE
EXISTING TREES TO REMAIN UNDISTURBED	
EXISTING TREES TO BE REMOVED	

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NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102466
LICENSED
PROFESSIONAL ENGINEER
8/27/25

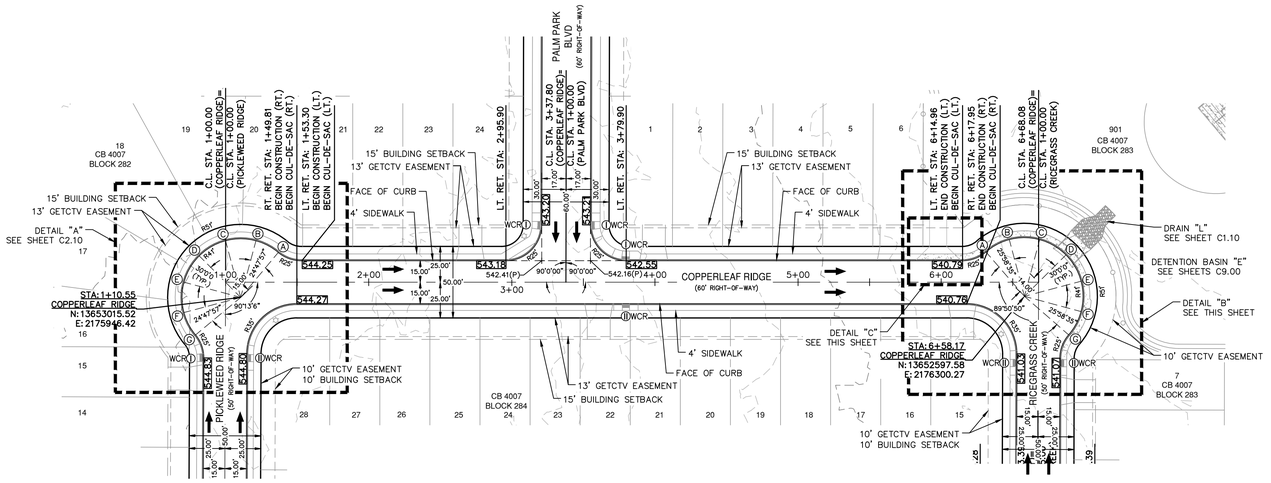
PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

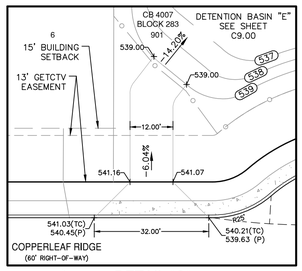
STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS
PURPLE SAGE RIDGE PLAN & PROFILE (STA 1+00.00 TO END)

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C2.11

Date: February 3, 2025, 3:09 PM - User ID: rodolfo.gallegos
File: P:\124\82\21\Design\Civil\SI1248221 PURPLE SAGE RIDGE.dwg

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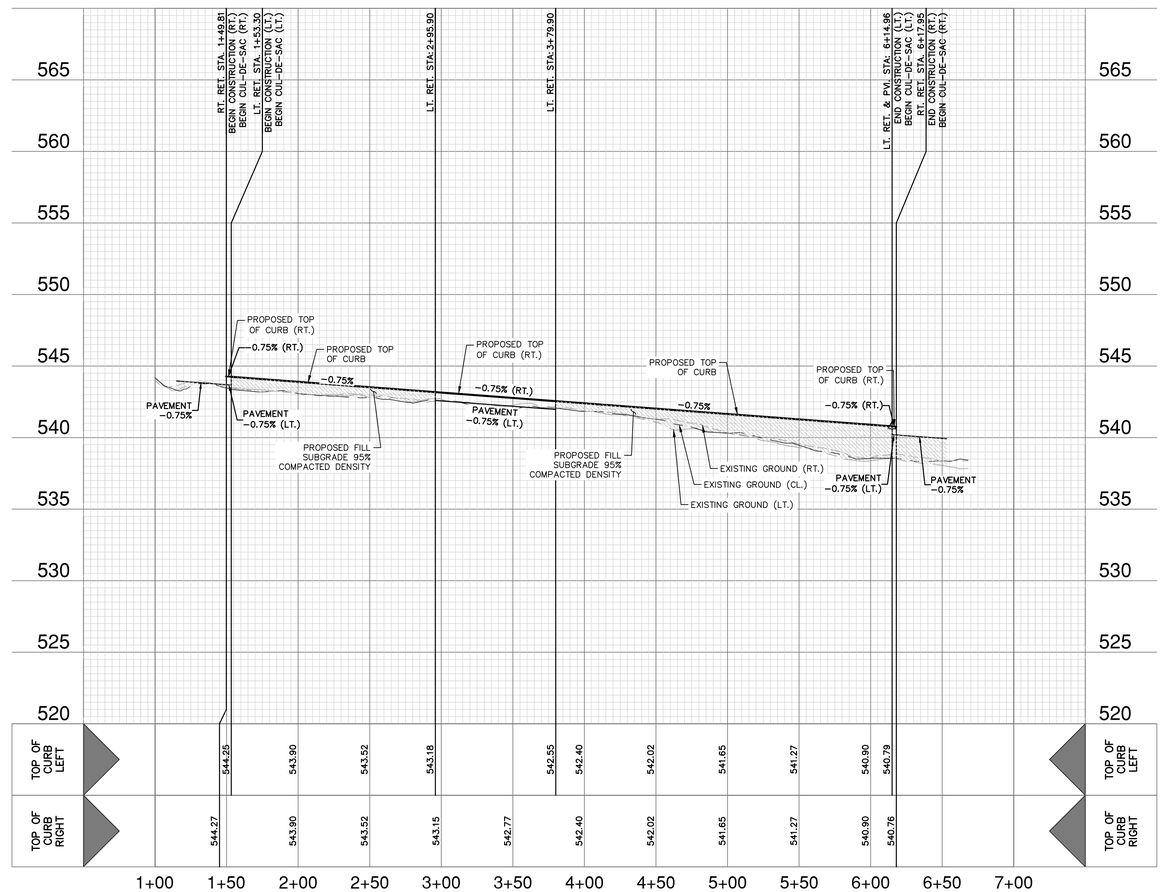


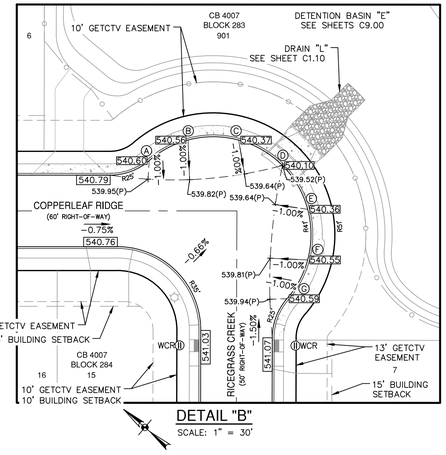


DETAIL "C"
SCALE: 1" = 30'

COPPERLEAF RIDGE
STA. 1+00.00 TO END

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





DETAIL "B"
SCALE: 1" = 30'

STREET LEGEND

PROJECT LIMITS	
MAINTAIN GUTTER	
EXISTING CONTOUR	970
WHEELCHAIR RAMP	Ⓘ
CENTERLINE	CL
RADIUS POINT	RP
POINT OF CURVATURE	PC
POINT OF TANGENCY	PT
RETURN	RET
DRAINAGE FLOW ARROW	
TOP OF CURB SPOT ELEVATION	857.30
PAVEMENT ELEVATION	857.00(P) ×
WASHOUT CROWN SECTION	
SIDEWALK (HOMEOWNER'S RESPONSIBILITY)	
SIDEWALK (DEVELOPER'S RESPONSIBILITY)	
DRIVEWAY	
VEHICULAR NON ACCESS EASEMENT	VNAE
EXISTING TREES TO REMAIN UNDISTURBED	
EXISTING TREES TO BE REMOVED	

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SCALE: 1"= 50'
0' 50' 100' 150'

NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
10246
LICENSED
PROFESSIONAL ENGINEER
8/27/25

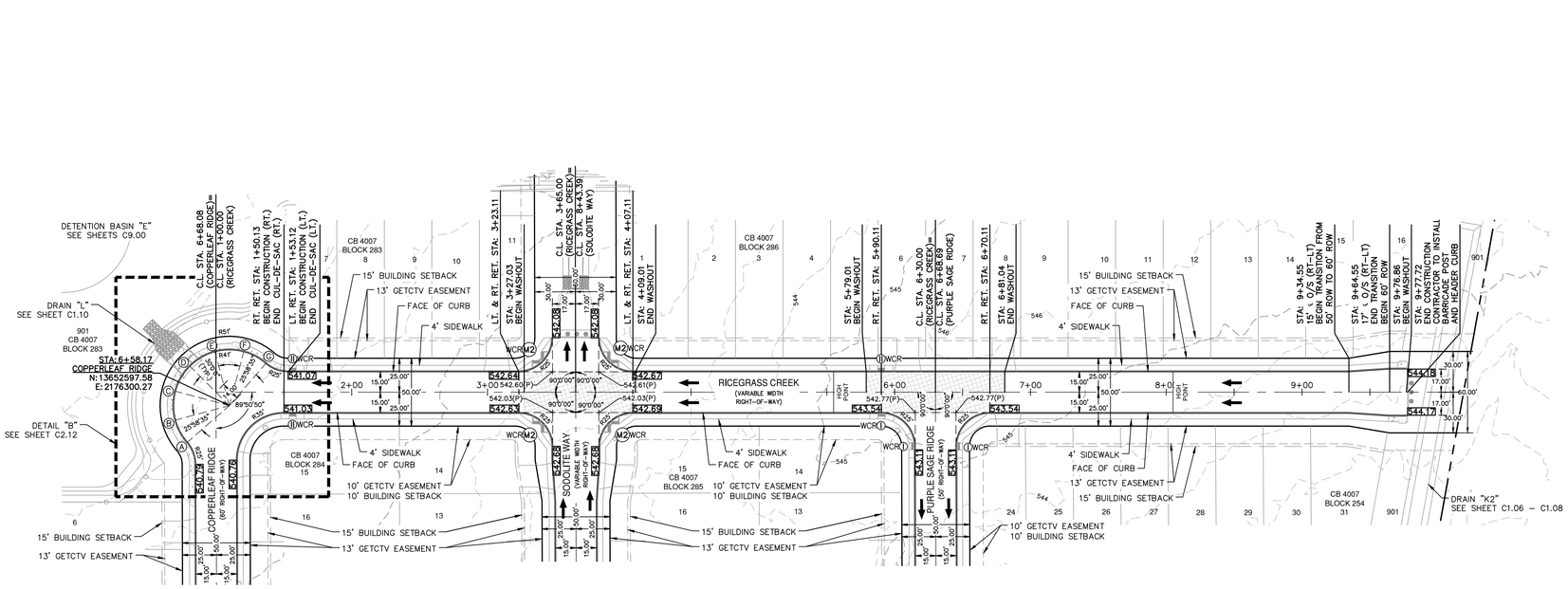
PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS
COPPERLEAF RIDGE PLAN & PROFILE (STA 1+00.00 TO END)

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C2.12

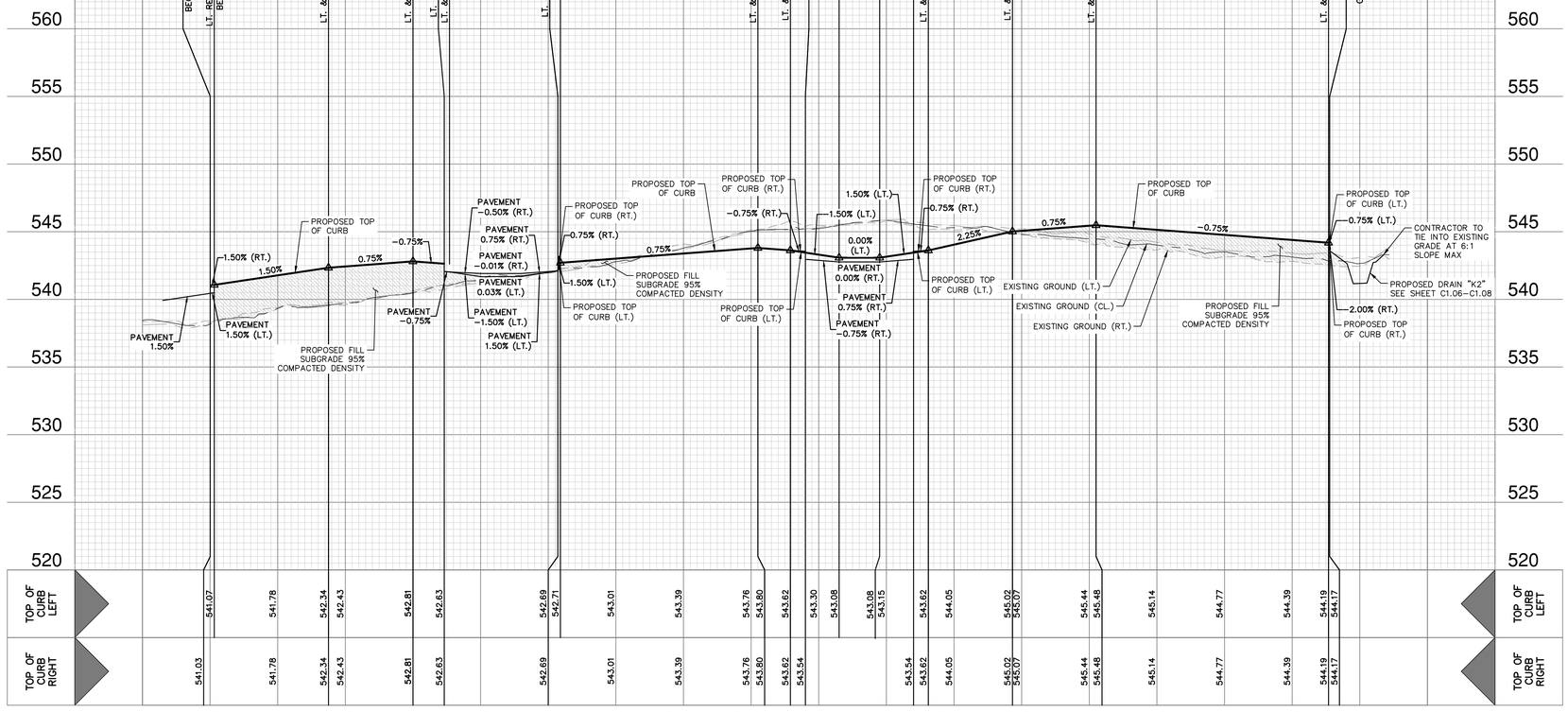
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RICEGRASS CREEK
STA. 1+00.00 TO END

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



STREET LEGEND

PROJECT LIMITS	
MAINTAIN GUTTER	
EXISTING CONTOUR	970
WHEELCHAIR RAMP	
CENTERLINE	CL
RADIUS POINT	RP
POINT OF CURVATURE	PC
POINT OF TANGENCY	PT
RETURN	RET
DRAINAGE FLOW ARROW	
TOP OF CURB SPOT ELEVATION	857.30
PAVEMENT ELEVATION	857.00(P) ×
WASHOUT CROWN SECTION	
SIDEWALK (HOMEOWNER'S RESPONSIBILITY)	
SIDEWALK (DEVELOPER'S RESPONSIBILITY)	
DRIVEWAY	
VEHICULAR NON ACCESS EASEMENT	VNAE
EXISTING TREES TO REMAIN UNDISTURBED	
EXISTING TREES TO BE REMOVED	

STREET NOTES:

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

NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102466
LICENSED
PROFESSIONAL ENGINEER
8/27/25

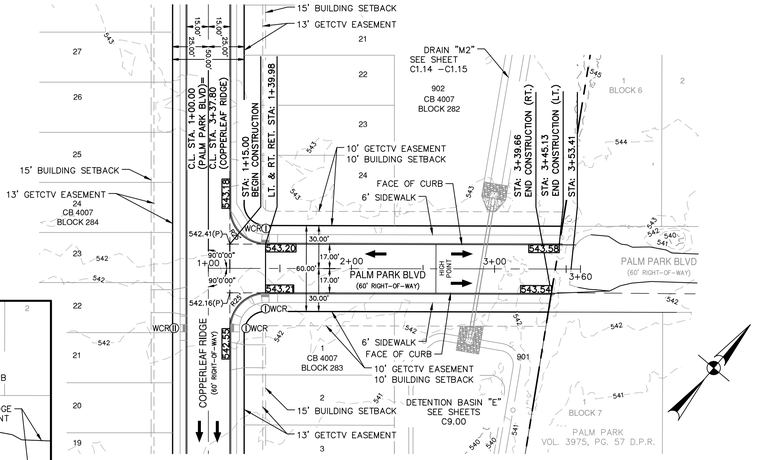
PAPE–DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

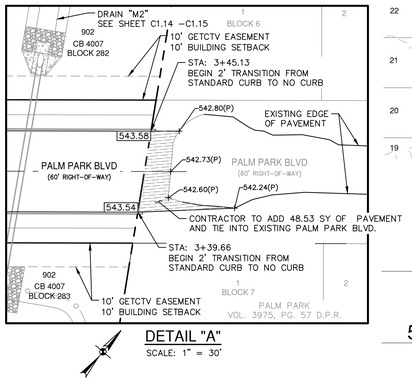
STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS
RICEGRASS CREEK PLAN & PROFILE (STA 1+00.00 TO END)

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C2.13

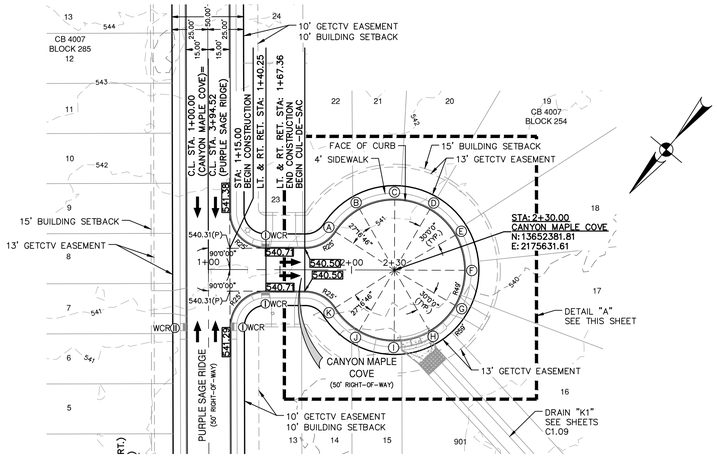
Date: February 3, 2025, 3:16 PM – User ID: rodolfo.gallegos
File: P:\124\82\21\Design\Civil\ST124821 RICEGRASS CREEK.dwg
THIS DOCUMENT HAS BEEN PRODUCED FROM MATERIAL THAT WAS STORED AND/OR TRANSMITTED ELECTRONICALLY AND MAY HAVE BEEN INADVERTENTLY ALTERED. RELY ONLY ON FINAL HARDCOPY MATERIALS BEARING THE CONSULTANT'S ORIGINAL SIGNATURE AND SEAL. AERIAL IMAGERY PROVIDED BY GOOGLE© UNLESS OTHERWISE NOTED. Imagery © 2016,CAPCOG,Digital Globe,Texas Orthoimagery Program, USDA Farm Service Agency.

SCALE: 1"= 50'
0' 50' 100' 150'





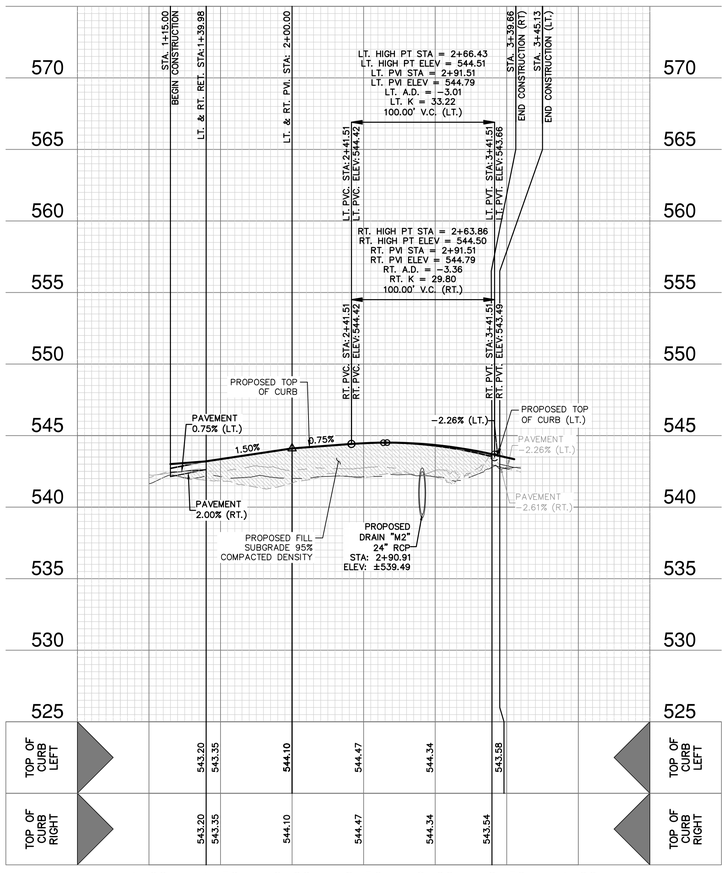
DETAIL "A"
SCALE: 1" = 30'



STREET LEGEND

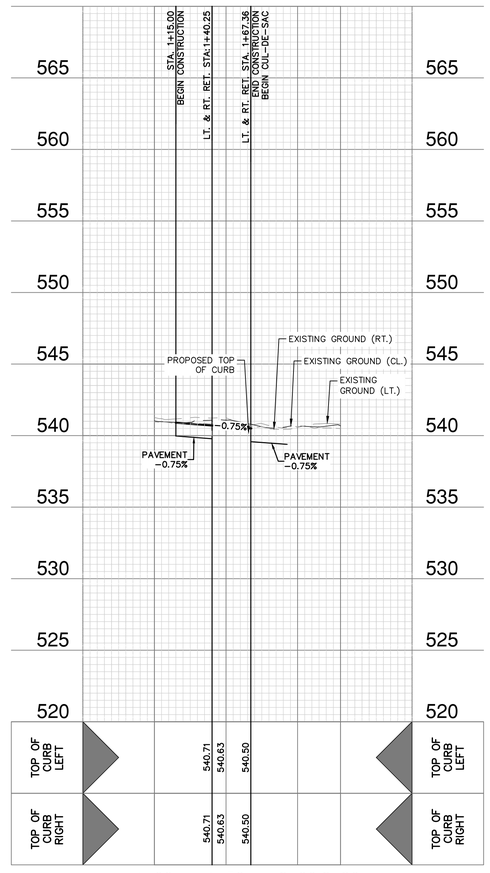
PROJECT LIMITS	
MAINTAIN GUTTER	
EXISTING CONTOUR	970
WHEELCHAIR RAMP	
CENTERLINE	CL
RADIUS POINT	RP
POINT OF CURVATURE	PC
POINT OF TANGENCY	PT
RETURN	RET
DRAINAGE FLOW ARROW	
TOP OF CURB SPOT ELEVATION	857.30
PAVEMENT ELEVATION	857.00(P) ×
WASHOUT CROWN SECTION	
SIDEWALK (HOMEOWNER'S RESPONSIBILITY)	
SIDEWALK (DEVELOPER'S RESPONSIBILITY)	
DRIVEWAY	
VEHICULAR NON ACCESS EASEMENT	VNAE
EXISTING TREES TO REMAIN UNDISTURBED	
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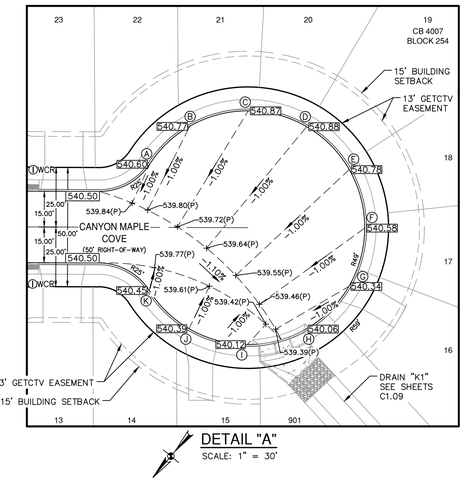
PALM PARK BLVD
STA. 1+00.00 TO END



CANYON MAPLE COVE
STA. 1+00.00 TO END

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





DETAIL "A"
SCALE: 1" = 30'

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STATE OF TEXAS
JIM C. WELCH
102466
LICENSED
PROFESSIONAL ENGINEER
8/27/25

PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS

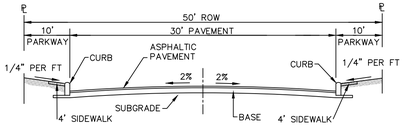
PALM PARK BLVD PLAN & PROFILE (STA 1+00.00 TO END)
PALM PARK BLVD PLAN & PROFILE (STA 1+00.00 TO END)

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C2.14

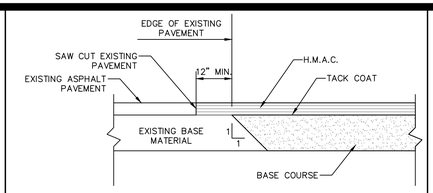
Date: February 3, 2025, 3:20 PM - User ID: rodolfo.gallegos
File: P:\124\82\21\Design\Civil\ST124821 CANYON MAPLE RIDGE - PALM PARK BLVD.dwg
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PAVEMENT SECTION DETAIL

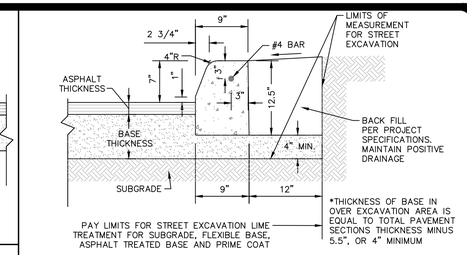
STREET NAME	STATION	TYPE "D" HMAC	TYPE "C" HMAC	TYPE "B" HMAC	GRANULAR BASE COURSE	CEMENT TREATED SUBGRADE	GEOGRID (TENSAR TRIAX TX5)	CBR	STRUCTURAL NUMBER	
CALCITE GARDEN (COLLECTOR)	18+61.62 TO END	2"	2"	–	18"	6"	NO	4.0	2.0(.44) = 0.88 2.0(.44) = 0.88 18(.14) = 2.52	4.28
GUTCHESS GARDEN (COLLECTOR)	15+70.52 TO END	2"	2"	–	18"	6"	NO	4.0	2.0(.44) = 0.88 4.0(.44) = 1.76 11.5(.14) = 1.61	4.28
SLATE TRAIL (LOCAL B)	5+36.84 TO END	2"	2"	–	16"	6"	NO	4.0	2.0(.44) = 0.88 2.0(.44) = 0.88 16.0(.14) = 2.24	4.00
SLATE TRAIL (LOCAL A)	1+00.00 TO 5+36.84	2"	–	–	10"	6"	NO	4.0	2.0(.44) = 0.88 10(.14) = 1.40	2.28
SODOLITE WAY (LOCAL B)	1+17.00 TO 3+55.17 7+63.29 TO END	2"	2"	–	16"	6"	NO	4.0	2.0(.44) = 0.88 2.0(.44) = 0.88 16.0(.14) = 2.24	4.00
SODOLITE WAY (LOCAL A)	3+55.17 TO 7+63.29	2"	–	–	10"	6"	NO	4.0	2.0(.44) = 0.88 10(.14) = 1.40	2.28
RICEGRASS CREEK (LOCAL B)	9+34.55 TO END	2"	2"	–	16"	6"	NO	4.0	2.0(.44) = 0.88 2.0(.44) = 0.88 16.0(.14) = 2.24	4.00
RICEGRASS CREEK (LOCAL A)	1+00.00 TO 9+34.55	2"	–	–	10"	6"	NO	4.0	2.0(.44) = 0.88 10(.14) = 1.40	2.28
PALM PARK BLVD (LOCAL B)	1+00.00 TO END	2"	2"	–	16"	6"	NO	4.0	2.0(.44) = 0.88 2.0(.44) = 0.88 16.0(.14) = 2.24	4.00
CHARNOCKITE TRAILS (LOCAL A)	11+98.15 TO END	2"	–	–	10"	6"	NO	4.0	2.0(.44) = 0.88 10(.14) = 1.40	2.28
PICRITE TRAILS (LOCAL A)	11+29.13 TO END	2"	–	–	10"	6"	NO	4.0	2.0(.44) = 0.88 10(.14) = 1.40	2.28
POISONBEAN TRAIL (LOCAL A)	10+64.82 TO END	2"	–	–	10"	6"	NO	4.0	2.0(.44) = 0.88 10(.14) = 1.40	2.28
POISONBEAN TRAIL (LOCAL A)	1+00.00 TO END	2"	–	–	10"	6"	NO	4.0	2.0(.44) = 0.88 10(.14) = 1.40	2.28
PICKLEWEED RIDGE (LOCAL A)	1+00.00 TO END	2"	–	–	10"	6"	NO	4.0	2.0(.44) = 0.88 10(.14) = 1.40	2.28
PURPLE SAGE RIDGE (LOCAL A)	1+00.00 TO END	2"	–	–	10"	6"	NO	4.0	2.0(.44) = 0.88 10(.14) = 1.40	2.28
CANYON MAPLE COVE (LOCAL A)	1+00.00 TO END	2"	–	–	10"	6"	NO	4.0	2.0(.44) = 0.88 10(.14) = 1.40	2.28
COPPERLEAF RIDGE (LOCAL A)	1+00.00 TO END	2"	–	–	10"	6"	NO	4.0	2.0(.44) = 0.88 10(.14) = 1.40	2.28
SLATE TRAIL (LOCAL A)	9+62.97 TO END	2"	–	–	10"	6"	NO	4.0	2.0(.44) = 0.88 10(.14) = 1.40	2.28



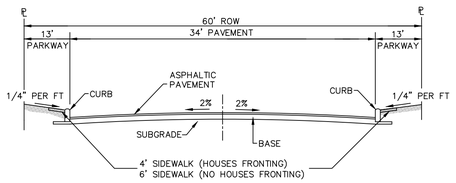
LOCAL A STREET SECTION
NOT-TO-SCALE



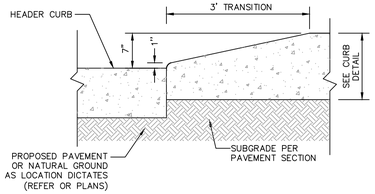
ASPHALT/ASPHALT JUNCTURE DETAIL
NOT-TO-SCALE



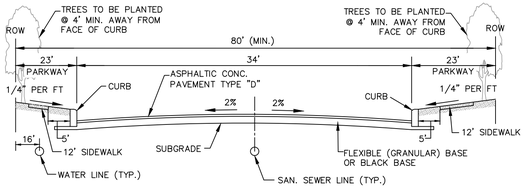
CONCRETE CURB DETAIL
NOT-TO-SCALE



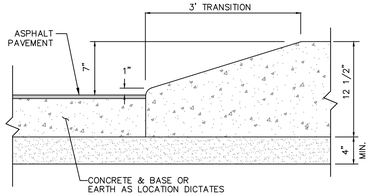
LOCAL B STREET SECTION
NOT-TO-SCALE



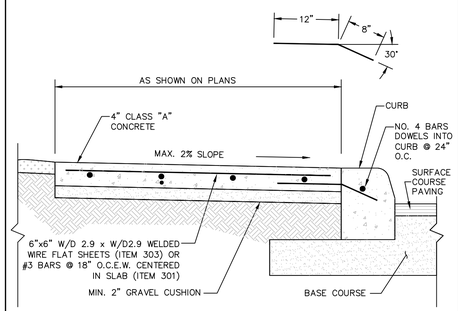
CURB TRANSITION DETAIL
(FROM HEADER CURB TO STANDARD CURB)
NOT-TO-SCALE



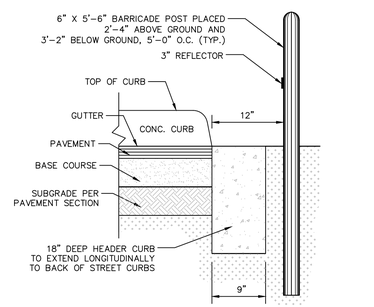
80' (COLLECTOR TYPE "B") ROW STREET SECTION
NOT-TO-SCALE



CURB TRANSITION DETAIL
(FROM PAVEMENT TO STANDARD CURB)
NOT-TO-SCALE



SIDEWALK DETAIL
NOT-TO-SCALE



HEADER CURB & BARRICADE POST DETAIL
NOT-TO-SCALE

GENERAL NOTES:

1. CONTRACTOR SHALL REFERENCE THE PROJECT PAVEMENT DESIGN REPORT PREPARED BY **TTL, INC.** DATED **MARCH 14, 2024.**
2. CONTRACTOR SHALL RETAIN A GEOTECHNICAL ENGINEER TO VERIFY THE SUB GRADE CONDITION PRIOR TO PLACING ANY BASE MATERIAL. GEOTECHNICAL ENGINEER SHALL DETERMINE THE SUB GRADE CONDITION AND IF CEMENT TREATMENT IS REQUIRED.
3. GEOTECHNICAL ENGINEER SHOULD VERIFY THE STREET SUBGRADE AT THE TIME OF CONSTRUCTION PRIOR TO PLACEMENT OF AGGREGATE BASE.
4. EARTHWORK ACTIVITIES ON THE PROJECT SHOULD BE OBSERVED AND EVALUATED BY TTL PERSONNEL. THE EVALUATION SHOULD INCLUDE OBSERVATION AND TESTING OF ALL FILL AND BACKFILL SOILS PLACED AT THE SITE.
5. THE FLEXIBLE BASE COURSE SHOULD BE CRUSHED LIMESTONE CONFORMING TO 2014 TXDOT STANDARD SPECIFICATIONS, ITEM 247, TYPE A, GRADES 1 OR 2.
6. THE MOISTURE CONTENT OF THE FILL SHOULD BE MAINTAINED WITHIN THE RANGE OF OPTIMUM WATER CONTENT TO 4 PERCENTAGE POINTS ABOVE THE OPTIMUM MOISTURE CONTENT AND COMPACTED TO 95 PERCENT OF THE MAXIMUM DR DENSITY DETERMINED IN ACCORDANCE WITH THE STANDARD COMPACTION EFFORT (ASTM D 698).
7. IN THE EVENT THAT THE CLAY FILL USED IS DIFFERENT THAN THE EXISTING SUBGRADE, THE RECOMMENDATIONS IN THE GEOTECHNICAL REPORT COULD BE INVALIDATED AND THE DESIGN ENGINEER MUST BE CONSULTED TO DETERMINE IF ADDITIONAL CBR TESTING AND THICKER PAVEMENT SECTIONS ARE REQUIRED.
8. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL MATERIAL TESTING WITH THE PROJECT GEOTECHNICAL ENGINEER. TESTING SHALL BE PAID FOR BY THE OWNER.
9. FILL MATERIAL SHOULD BE FREE OF DELETERIOUS MATERIAL WITH A MINIMUM CBR VALUE OF 4. THE GRAVEL SIZE SHOULD NOT EXCEED 3 INCHES IN DIAMETER. THE PI VALUE FOR COMPACTED FILL SHOULD BE BETWEEN 8 AND 15. LIME OR CEMENT APPLICATION RATES SHOULD BE RE-EVALUATED FOR THE FILL MATERIAL. THE MATERIAL SHOULD BE PLACED AS PER APPLICABLE CITY OR COUNTY GUIDELINES. CONTRACTOR TO REFER TO THE SECTION 4.2 OF THE GEOTECH REPORT FOR REQUIREMENTS FOR THE PLACEMENT OF ON-SITE SOILS AND SELECT FILL MATERIALS.
10. A BEXAR COUNTY PERMIT MUST BE OBTAINED BEFORE WORKING IN THE BEXAR COUNTY ROW. CONTRACTOR SHALL COORDINATE A TRAFFIC CONTROL PLAN FOR ALL WORK WITHIN THE ROW. ADDITIONAL WARNING SIGNS MAY BE RECOMMENDED BY THE ENGINEER ONCE THE ROADWAYS ARE CONSTRUCTED.

STREET SUBGRADE NOTES:

1. IF THE STREET SUBGRADE PLASTICITY INDEX VALUE IS GREATER THAN 20, SUBGRADE TREATMENT IS NEEDED AS PER BEXAR COUNTY REQUIREMENTS.
2. IF THE SUBGRADE PLASTICITY INDEX VALUE IS 20 OR LESS. SUBGRADE TREATMENT IS NOT NEEDED. THE SUBGRADE SHOULD BE MOISTURE CONDITIONED (COMPACTED TO A MINIMUM OF 95 PERCENT OF THE MAXIMUM DRY DENSITY AT A MINIMUM MOISTURE CONTENT OF OPTIMUM PLUS 2 PERCENT (TEX114E)).
3. THE SUBGRADE SHOULD BE TREATED USING 6 PERCENT CEMENT TO A DEPTH OF 6 INCHES AS NOTED ABOVE.
4. THE SUBGRADE SOILS SHOULD BE TESTED FOR SOIL SULFATE CONTENT PRIOR TO TREATMENT. IF THE SOIL SULFATE CONTENT IS HIGH, AN ALTERNATE PROCEDURE / RECOMMENDATION WILL BE NEEDED.
5. CEMENT APPLICATION RATE OF 33 LBS PER SQ YARD FOR 6 INCH DEPTH OF TREATMENT IS RECOMMENDED.
6. APPROVED FILL MATERIAL SHOULD BE USED TO RAISE THE GRADE. THE FILL SHOULD BE FREE OF DELETERIOUS MATERIAL WITH A MINIMUM CBR VALUE OF 4. THE PI VALUE FOR COMPACTED FILL SHOULD BE BETWEEN 8 AND 15. CEMENT APPLICATION RATES SHOULD BE RE-EVALUATED AND TESTED FOR SULFATE CONTENT PRIOR TO USE OF THE FILL MATERIAL. THE MATERIAL SHOULD BE PLACED AS PER APPLICABLE CITY OR COUNTY GUIDELINES. CONTRACTOR TO REFER TO THE SECTION 4.2 OF THE GEOTECH REPORT FOR REQUIREMENTS FOR THE PLACEMENT OF ON-SITE SOILS AND SELECT FILL MATERIALS.
7. THE SUBGRADE SHOULD BE PROOF ROLLED TO IDENTIFY SOFT AREAS BEFORE TREATMENT.

NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102466
LICENSED
PROFESSIONAL ENGINEER
8/27/25

PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS
TYPICAL STREET DETAILS

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C2.15

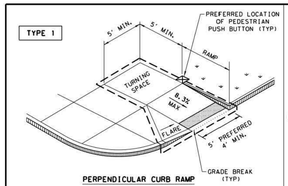
Date: February 3, 2025, 3:21 PM – User ID: rodolfo.gallegos
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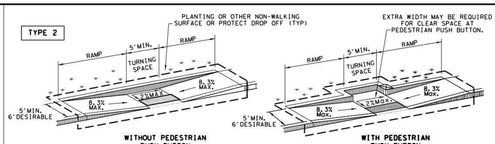
DATE:
FILE:

TYPE 1



PERPENDICULAR CURB RAMP

TYPE 2

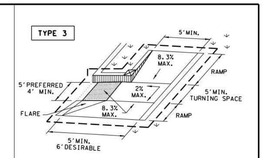


WITHOUT PEDESTRIAN PUSH BUTTON

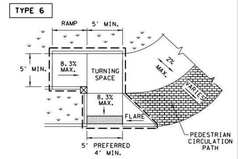
WITH PEDESTRIAN PUSH BUTTON

PARALLEL CURB RAMP

TYPE 3

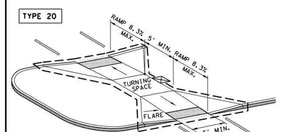


TYPE 6



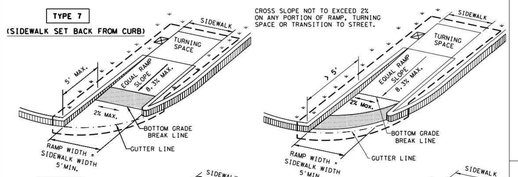
COMBINATION CURB RAMPS

TYPE 20

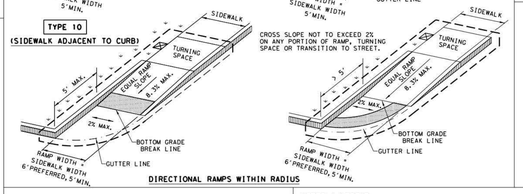


CURB RAMPS AT MEDIAN ISLANDS

TYPE 7
(SIDEWALK SET BACK FROM CURB)

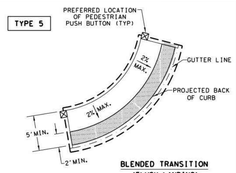


TYPE 10
(SIDEWALK ADJACENT TO CURB)



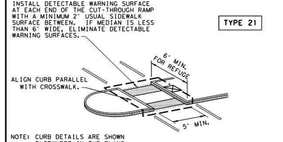
DIRECTIONAL RAMPS WITHIN RADIUS

TYPE 5



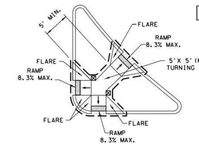
BLENDED TRANSITION (FLUSH LANDING)

TYPE 21

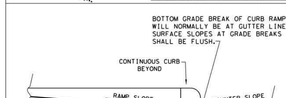


NOTE: CURB DETAILS ARE SHOWN ELSEWHERE IN THE PLANS.

TYPE 22



COMBINATION ISLAND RAMPS



TYPICAL SECTION OF PERPENDICULAR CURB RAMP AT CONNECTION TO ROADWAY

NOTES / LEGEND:

SEE GENERAL NOTES ON SHEET 2 OF 4 FOR MORE INFORMATION.

DENOTES PLANTING OR NON-WALKING SURFACE NOT PART OF PEDESTRIAN CIRCULATION PATH.

DETECTABLE WARNING SURFACE

DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON IF APPLICABLE.

GUTTER LINE

GRADE BREAK

RAMP LIMITS OF PAYMENT

SHEET 1 OF 4

Texas Department of Transportation — Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-18

FILE: ped18	DW: TxDOT	CK: VP	CK: KM	CK: PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS				
8/1/05 08:2005	DIST	COUNTY		SHEET NO.
8/1/12 08:2012				
8/1/14 01:2014				

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DATE:
FILE:

GENERAL NOTES

CURB RAMPS

1. Install a curb ramp or blended transition at each pedestrian street crossing.
2. All slopes shown are maximum allowable. Cross slopes of 1.5% and lesser running should be used. Adjust curb ramp length or grade of approach sidewalks as directed.
3. Maximum allowable cross slope on sidewalk and curb ramp surfaces is 2%.
4. The minimum sidewalk width is 5'. Where the sidewalk is adjacent to the back of curb, a 6' sidewalk width is desirable. Where a 5' sidewalk cannot be provided due to site constraints, sidewalk width may be reduced to 4' for short distances. 5'x 5' passing areas at intervals not to exceed 200' are required.
5. Turning Spaces shall be 5'x 5' minimum. Cross slope shall be maximum 2%.
6. Clear space at the bottom of curb ramps shall be a minimum of 4'x 4' wholly contained within the crosswalk and wholly outside the parallel vehicular travel path.
7. Provide flared sides where the pedestrian circulation path crosses the curb ramp. Flared sides shall be sloped at 10% maximum, measured parallel to the curb. Returned curbs may be used only where pedestrians would not normally walk across the ramp, either because the adjacent surface is planted, substantially obstructed, or otherwise protected.
8. Additional information on curb ramp location, design, light reflective value and texture may be found in the latest draft of the Proposed Guidelines for Pedestrian Facilities in the Public Right of Way (PROWAG) as published by the U.S. Architectural and Transportation Barriers Compliance Board (Access Board).
9. To serve as a pedestrian refuge area, the median should be a minimum of 6' wide, measured from back of curbs. Medians should be designed to provide accessible passage over or through them.
10. Small channelization islands, which do not provide a minimum 5'x 5' landing at the top of curb ramps, shall be cut through level with the surface of the street.
11. Crosswalk dimensions, crosswalk markings and stop bar locations shall be as shown elsewhere in the plans. At intersections where crosswalk markings are not required, curb ramps shall align with theoretical crosswalks unless otherwise directed.
12. Provide curb ramps to connect the pedestrian access route at each pedestrian street crossing. Handrails are not required on curb ramps.
13. Curb ramps and landings shall be constructed and paid for in accordance with Item 531 "Sidewalks".
14. Place concrete at a minimum depth of 5" for ramps, flares and landings, unless otherwise directed.
15. Furnish and install No. 3 reinforcing steel bars at 18" o.c. both ways, unless otherwise directed.
16. Provide a smooth transition where the curb ramps connect to the street.
17. Curbs shown on sheet 1 within the limits of payment are considered part of the curb ramp for payment, whether it is concrete curb, gutter, or combined curb and gutter.
18. Existing features that comply with applicable standards may remain in place unless otherwise shown on the plans.

DETECTABLE WARNING MATERIAL

19. Curb ramps must contain a detectable warning surface that consists of raised truncated domes complying with PROWAG. The surface must contrast visually with adjoining surfaces, including side flares. Furnish and install an approved cast-in-place dark brown or dark red detectable warning surface material adjacent to uncolored concrete, unless specified elsewhere in the plans.
20. Detectable Warning Materials must meet TxDOT Departmental Materials Specification DMS 4350 and be listed on the Material Producer List. Install products in accordance with manufacturer's specifications.
21. Detectable warning surfaces must be firm, stable and slip resistant.
22. Detectable warning surfaces shall be a minimum of 24 inches in depth in the direction of pedestrian travel, and extend the full width of the curb ramp or landing where the pedestrian access route enters the street.
23. Detectable warning surfaces shall be located so that the edge nearest the curb line is at the back of curb and neither end of that edge is greater than 5 feet from the back of curb. Detectable warning surfaces may be curved along the corner radius.
24. Shaded areas on Sheet 1 of 4 indicate the approximate location for the detectable warning surface for each curb ramp type.

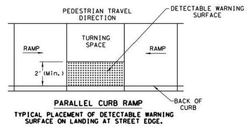
DETECTABLE WARNING PAVERS (IF USED)

25. Furnish detectable warning paver units meeting all requirements of ASTM C-936, C-33. Lay in a two by two unit basket weave pattern or as directed.
26. Lay full-size units first followed by closure units consisting of at least 25 percent (25%) of a full unit. Cut detectable warning paver units using a power saw.

SIDEWALKS

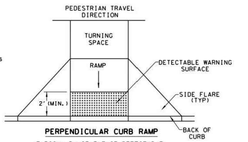
27. Provide clear ground space at operable parts, including pedestrian push buttons. Operable parts shall be placed within unobstructed reach range specified in PROWAG section R406.
28. Place traffic signal or illumination poles, ground boxes, controller boxes, signs, drainage facilities and other items so as not to obstruct the pedestrian access route or clear ground space.
29. Street grades and cross slopes shall be as shown elsewhere in the plans.
30. Changes in level greater than 1/4 inch are not permitted.
31. The least possible grade should be used to maximize accessibility. The running slope of sidewalks and crosswalks within the public right of way may follow the grade of the parallel roadway. Where a continuous grade greater than five percent (5%) must be provided, handrails may be desirable to improve accessibility. Handrails may also be needed to protect pedestrians from potentially hazardous conditions. If provided, handrails shall comply with PROWAG R409.
32. Handrail extensions shall not protrude into the usable landing area or into intersecting pedestrian routes.
33. Driveways and turnouts shall be constructed and paid for in accordance with Item "Intersections, Driveways and Turnouts". Sidewalks shall be constructed and paid for in accordance with Item, "Sidewalks".
34. Sidewalk details are shown elsewhere in the plans.

DETECTABLE WARNING SURFACE DETAILS



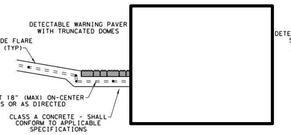
PARALLEL CURB RAMP

TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON LANDING AT STREET EDGE.

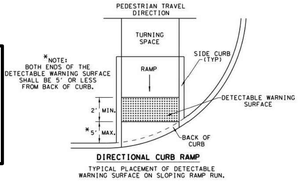


PERPENDICULAR CURB RAMP

TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.



SECTION VIEW DETAIL
CURB RAMP AT DETECTIBLE WARNINGS



DIRECTIONAL CURB RAMP

TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.

SHEET 2 OF 4

Texas Department of Transportation — Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

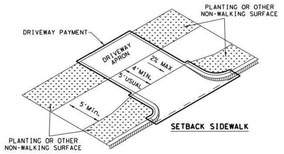
PED-18

FILE: ped18	DW: TxDOT	CK: VP	CK: KM	CK: PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS				
8/1/05 08:2005	DIST	COUNTY		SHEET NO.
8/1/12 08:2012				
8/1/14 01:2014				

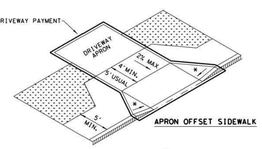
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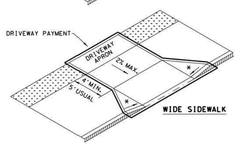
SIDEWALK TREATMENT AT DRIVEWAYS



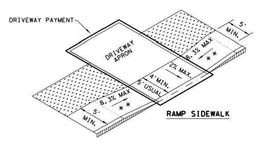
SETBACK SIDEWALK



APRON OFFSET SIDEWALK



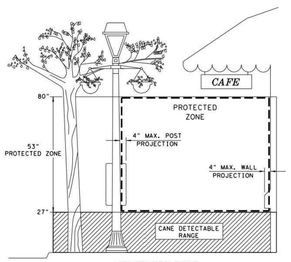
WIDE SIDEWALK



RAMP SIDEWALK

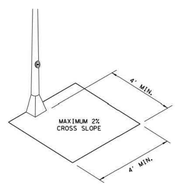
NOTES:
* WHERE DRIVEWAYS CROSS THE PEDESTRIAN ROUTE, SIDES SHALL BE FLARED AT 10% MAX SLOPE.

** IF CURB HEIGHT IS GREATER THAN 6 INCHES, USE GRADE LESS THAN OR EQUAL TO 5%, HANDRAIL AND DETECTABLE WARNING ARE NOT REQUIRED.

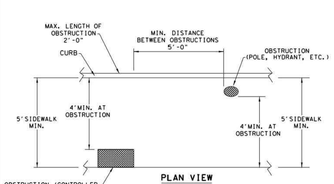


PROTECTED ZONE

NOTE: IN PEDESTRIAN CIRCULATION AREA, MAXIMUM 4" PROJECTION FOR POST OR WALL MOUNTED OBJECTS BETWEEN 27" AND 80" ABOVE THE SURFACE.



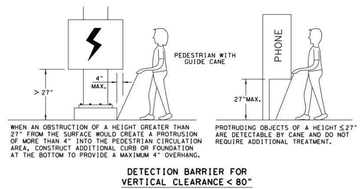
CLEAR SPACE ADJACENT TO PEDESTRIAN PUSH BUTTON



PLAN VIEW

PLACEMENT OF STREET FIXTURES

NOTE: ITEMS NOT INTENDED FOR PUBLIC USE. MINIMUM 4' X 4' CLEAR GROUND SPACE REQUIRED AT PUBLIC USE FIXTURES.



DETECTION BARRIER FOR VERTICAL CLEARANCE < 80"

SHEET 3 OF 4

Texas Department of Transportation — Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-18

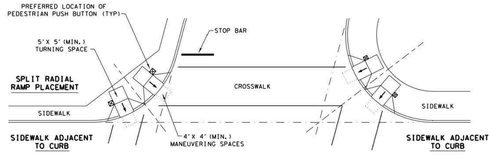
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© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS				
8/1/05 08:2005	DIST	COUNTY		SHEET NO.
8/1/12 08:2012				
8/1/14 01:2014				

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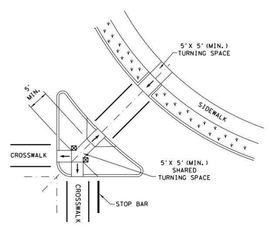
DATE:
FILE:

TYPICAL CROSSING LAYOUTS

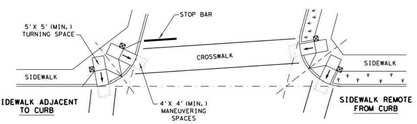
SEE SHEET 1 OF 4 FOR DETAILS AND DIMENSIONS



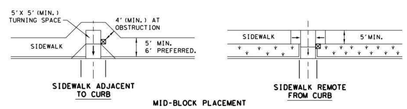
SKEWED INTERSECTION WITH "LARGE" RADIUS



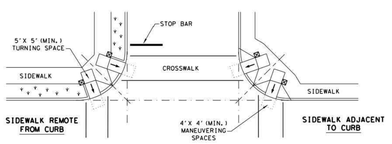
AT INTERSECTION W/FREE RIGHT TURN & ISLAND



SKEWED INTERSECTION WITH "SMALL" RADIUS



MID-BLOCK PLACEMENT PERPENDICULAR RAMPS



NORMAL INTERSECTION WITH "SMALL" RADIUS

LEGEND:

SHOWS DOWNWARD SLOPE.

DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON (IF APPLICABLE).

DENOTES PLANTING OR NON-WALKING SURFACE NOT PART OF PEDESTRIAN CIRCULATION PATH.

SHEET 4 OF 4

Texas Department of Transportation — Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-18

FILE: ped18	DW: TxDOT	CK: VP	CK: KM	CK: PK & JG
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REVISIONS				
8/1/05 08:2005	DIST	COUNTY		SHEET NO.
8/1/12 08:2012				
8/1/14 01:2014				

NO.	REVISION	DATE

STATE OF TEXAS — JIM C. WELCH — 102468 — LICENSED PROFESSIONAL ENGINEER — 8/27/25

PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

STONE GARDEN UNIT 5A

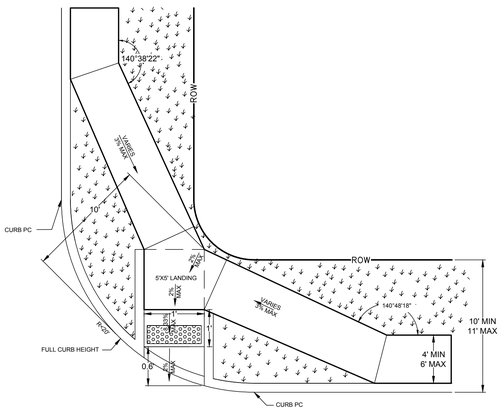
BEXAR COUNTY, TEXAS

TYPICAL STREET DETAILS

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C2.16

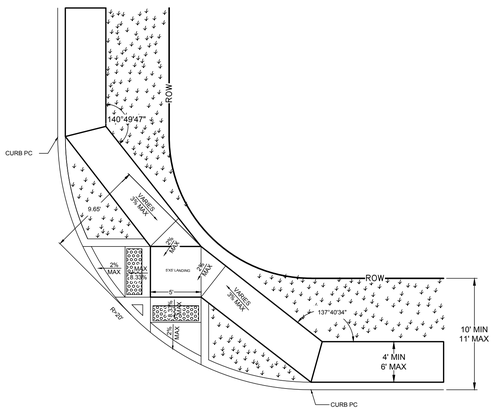
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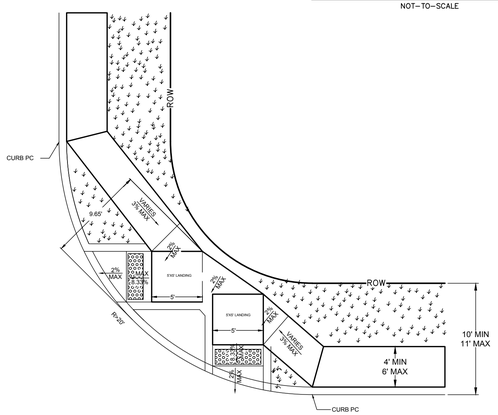
DIRECTIONAL RAMP TYPE "M1" DETAIL

NOT-TO-SCALE



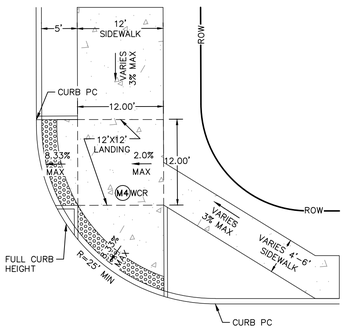
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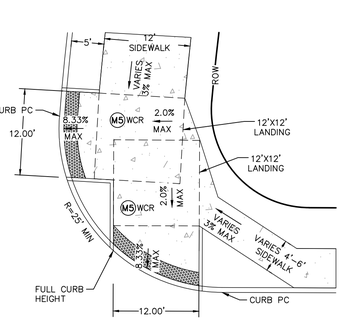
DIRECTIONAL RAMP TYPE "M3" DETAIL

NOT-TO-SCALE



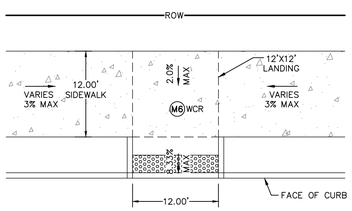
TYPICAL DIRECTIONAL RAMP TYPE "M4" DETAIL

NOT-TO-SCALE



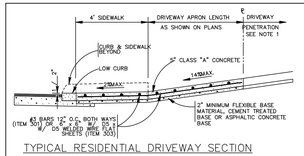
TYPICAL DIRECTIONAL RAMP TYPE "M5" DETAIL

NOT-TO-SCALE



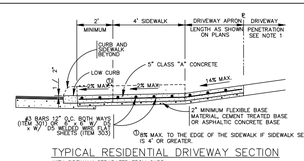
TYPICAL DIRECTIONAL RAMP TYPE "M6" DETAIL

NOT-TO-SCALE



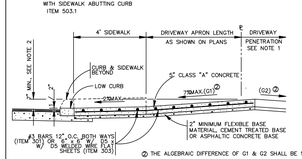
TYPICAL RESIDENTIAL DRIVEWAY SECTION

WITH SIDEWALK ABUTTING CURB
ITEM 503.1



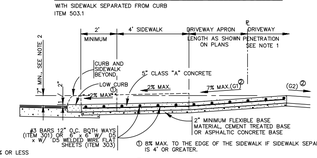
TYPICAL RESIDENTIAL DRIVEWAY SECTION

WITH SIDEWALK SEPARATED FROM CURB
ITEM 503.1



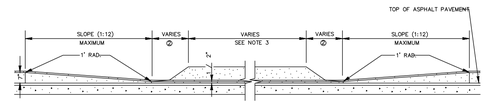
TYPICAL COMMERCIAL DRIVEWAY SECTION

WITH SIDEWALK ABUTTING CURB
ITEM 503.2



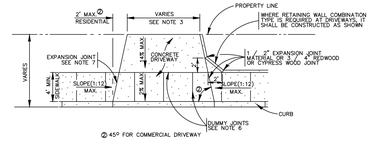
TYPICAL COMMERCIAL DRIVEWAY SECTION

WITH SIDEWALK SEPARATED FROM CURB
ITEM 503.2



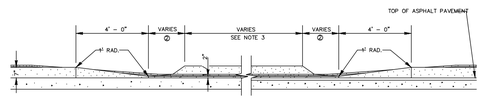
CURB PROFILE AT DRIVEWAY

WITH SIDEWALK ABUTTING CURB



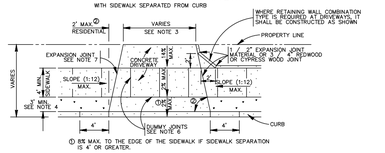
TYPICAL DRIVEWAY PLAN VIEW

WITH SIDEWALK ABUTTING CURB



CURB PROFILE AT DRIVEWAY

WITH SIDEWALK SEPARATED FROM CURB



TYPICAL DRIVEWAY PLAN VIEW

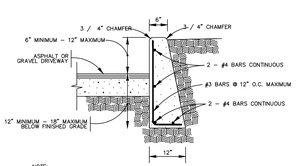
WITH SIDEWALK SEPARATED FROM CURB

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 DEPTH 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 ENGINEER, THE WIDTH SHALL BE WITHIN THE FOLLOWING VALUES:

TYPE	MINIMUM	MAXIMUM
RESIDENTIAL	10'	20'
COMMERCIAL – ONE WAY	12'	20'
COMMERCIAL – TWO WAY	24'	30'

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, 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.



NOTE:
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

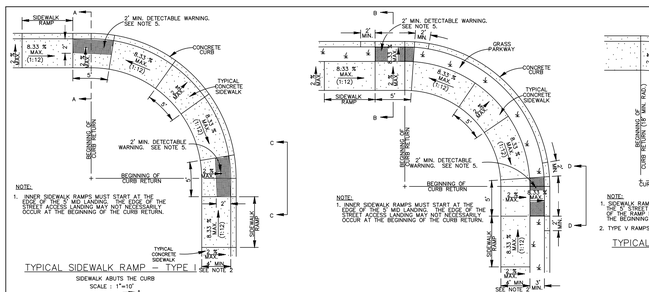
MAY 2009

CITY OF SAN ANTONIO

CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

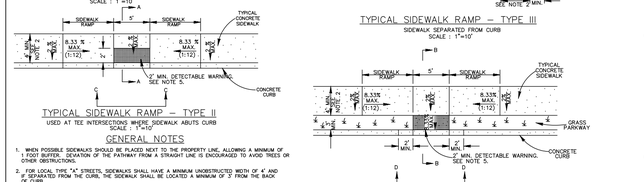
CONCRETE DRIVEWAY STANDARDS

% SUBMITTAL	PROJECT NO.		DATE
DRWN. BY: _Y_/ KRISOLKE	SIGN. BY:	CHKD. BY: R.S. HOSSEINI, P.E.	SHEET NO. ___ OF ___



TYPICAL SIDEWALK RAMP – TYPE I

SIDEWALK ABUTS THE CURB
SCALE : 1"=10'



TYPICAL SIDEWALK RAMP – TYPE II

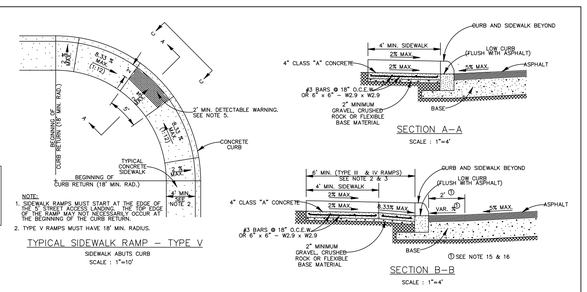
USED AT TEE INTERSECTIONS WHERE SIDEWALK ABUTS CURB
SCALE : 1"=10'

TYPICAL SIDEWALK RAMP – TYPE III

SIDEWALK SEPARATED FROM CURB
SCALE : 1"=10'

TYPICAL SIDEWALK RAMP – TYPE IV

USED AT TEE INTERSECTIONS WHERE SIDEWALK IS SEPARATED FROM CURB
SCALE : 1"=10'

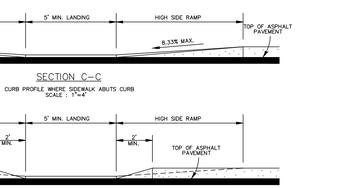


TYPICAL SIDEWALK RAMP – TYPE V

SIDEWALK ABUTS CURB
SCALE : 1"=10'

SECTION A–A

SCALE : 1"=4'

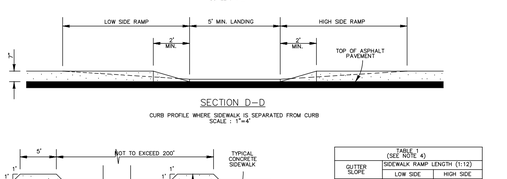


SECTION B–B

SCALE : 1"=4'

SECTION C–C

CURB PROFILE WHERE SIDEWALK ABUTS CURB
SCALE : 1"=4'

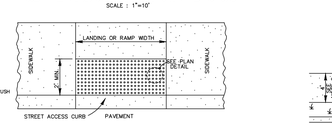


SECTION D–D

CURB PROFILE WHERE SIDEWALK IS SEPARATED FROM CURB
SCALE : 1"=4'

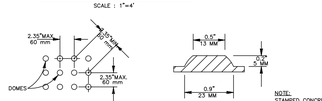
GENERAL NOTES

1. WHEN POSSIBLE SIDEWALKS SHOULD BE PLACED NEXT TO THE PROPERTY LINE, ALLOWING A MINIMUM OF 1 FOOT BUFFER. DEVIATION OF THE PATHWAY FROM A STRAIGHT LINE IS ENCOURAGED TO AVOID TREES OR OTHER OBSTRUCTIONS.
2. FOR LOCAL TYPE "A" STREETS, SIDEWALKS SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF 4' AND IF SEPARATED FROM THE CURB, THE SIDEWALK SHALL BE LOCATED A MINIMUM OF 3' FROM THE BACK OF CURB.
3. FOR OTHER THAN LOCAL TYPE "A" STREETS, SIDEWALKS SHALL HAVE A MINIMUM UNOBSTRUCTED 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.
4. SIDEWALK RAMP LENGTHS PRESENTED IN TABLE 1 ARE GUIDELINES ONLY. SIDEWALK RAMP LENGTHS SHALL BE OF SUFFICIENT LENGTH TO MAINTAIN 8.33% (1:12) MAXIMUM SLOPE.
5. ALL CURB-RAMPS OR LANDINGS ABUTTING THE CROSSWALK SHALL HAVE A DETECTABLE WARNING 24 INCHES DEEP ON THE DIRECTION OF TRAVERSING THE CURB, AND EXTENDING THE WIDTH OF THE CURB RAMP OR LANDING. DETECTABLE WARNING SHALL CONSIST OF RAISED TRUNCATED DOMES, ALIGNED IN A GRID PATTERN WITH A DIAMETER OF A NOMINAL 0.9 INCHES (23 MM), A HEIGHT OF NOMINALLY 0.2 INCHES (5 MM) AND A CENTER-TO-CENTER SPACING OF NOMINAL 2.35 INCHES (60 MM). THE DETECTABLE WARNING SURFACE SHALL BE PAVERS CONFORMING TO TXDOT STANDARD PED-18, PEDESTRIAN FACILITIES.
6. DETECTABLE WARNINGS SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES, EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT. THE MATERIAL USED TO PROVIDE CONTRAST SHALL BE AN INTEGRAL PART OF THE WALKING SURFACE.
7. SIDEWALK RAMP TYPE V SHALL BE USED ONLY WHERE THERE IS SIGNIFICANT RESTRICTION WITHIN THE PARKWAY TO CONSTRUCT TYPE I OR TYPE III RAMPS.
8. CONSTRUCTION OF ALL WHEELCHAIR RAMPS TO BE INCLUDED UNDER ITEMS "500 – CONCRETE CURB, GUTTER, AND CONCRETE CURB AND GUTTER" AND / OR "502 – CONCRETE SIDEWALKS". RAMP SURFACE SHALL BE BRUSH FINISHED.
9. THESE DETAILS ARE FOR REFERENCE ONLY. ACTUAL LOCATIONS OF WHEELCHAIR RAMPS TO BE SHOWN ON CONSTRUCTION PLANS. CITY CONSTRUCTION INSPECTOR CAN ADJUST LOCATIONS FOR SAFETY OR UTILITY CLEARANCE.
10. SIDEWALKS LESS THAN 5 FEET IN WIDTH SHALL BE PROVIDED WITH A PASSING SPACE AT A MAXIMUM SPACING OF 200 FEET.
11. WHEELCHAIR RAMP SHALL BE CONSTRUCTED WITH 4" CLASS "A" CONCRETE AND 2" MINIMUM GRAVEL, CRUSHED ROCK OR FLEXIBLE BASE MATERIAL.
12. REINFORCING STEEL SHALL BE #3 BARS AT 18" O.C.E.W. OR 6" x 6" – W2.9 x W2.9 WIRE MESH.
13. SIDEWALK GRADES SHALL NOT EXCEED THE GRADE ESTABLISHED FOR THE ADJACENT ROADWAY, ANY SIDEWALK CONSTRUCTION THAT DEVIATES FROM THE NATURAL GRADE OF THE ROADWAY TO CREATE A GRADE STEEPER THAN THE EXISTING ROADWAY WILL REQUIRE RAMPS, HANDRAILS AND RESTING PLATFORMS TO BE CONSTRUCTED IN ACCORDANCE WITH ADA AND TAS STANDARDS.
14. SIDEWALK CROSS GRADE SHALL HAVE A MAXIMUM SLOPE OF 2%. LANDINGS SHALL HAVE A MAXIMUM SLOPE OF 2% IN ANY DIRECTION.
15. THE CHANGE OF GRADE BETWEEN ADJACENT SURFACES SHALL BE LESS THAN 11%. THE CHANGE OF GRADE SHALL BE CALCULATED AS THE DIFFERENCE OF THE ADJACENT SURFACE SLOPES. IN THE CASE OF A CROSS ACCESS RAMP, THE CHANGE IN GRADE WITH A 8.33% MAXIMUM RAMP AND A 2% ADJACENT PAVEMENT CROSS SLOPE SHALL BE LESS THAN 2.67% (I.E. 8.33%–(–2.67%)=11). IN ADDITION, THE ADJACENT PAVEMENT CROSS SLOPE SHALL BE LESS THAN OR EQUAL TO 5%.
16. IF THE CHANGE OF GRADE BETWEEN ADJACENT SURFACES IS GREATER THAN OR EQUAL TO 11%, A LEVELING STRIP, 2 FEET IN LENGTH, SHALL BE PROVIDED TO TRANSITION THE ADJACENT SURFACES.
17. ADA COMPLIANCE IN ALTERATIONS INCLUDE ONLY THAT WORK WITHIN THE LIMITS, BOUNDARIES OR SCOPE



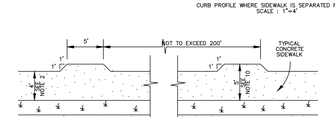
DETECTABLE WARNING SURFACE

SCALE : 1"=4'



PLAN DETAIL

DOME SECTION



SIDEWALK PASSING SPACE

SCALE : 1"=10'

GUTTER SLOPE	SIDEWALK RAMP LENGTH (1:12)	
	LOW SIDE	HIGH SIDE
1%	5'–6"	7'–3"
2%	5'–0"	8'–4"
3%	4'–6"	10'–0"
4%	4'–2"	12'–6"
5%	3'–10"	16'–8"

TABLE 1
(SEE NOTE 4)

NOTE:
STAMPED, CONCRETE TRUNCATED DOMES WILL NOT BE ALLOWED TO BE USED.
FOR DETECTABLE WARNING ON WHEELCHAIR RAMPS, CONTRACTOR MUST SUBMIT TRUNCATED DOME INFORMATION THAT IS TO BE USED ON WHEELCHAIR RAMPS TO THE PROJECT MANAGER FOR APPROVAL AT LEAST 30 DAYS PRIOR TO INSTALLATION.

MAY 2009

CITY OF SAN ANTONIO

CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

WHEELCHAIR RAMP STANDARDS

PROJECT NO.		DATE
SIGN. BY:	DSND. BY: R.S. HOSSEINI, P.E.	SHEET NO. ___ OF ___

NO.	REVISION	DATE

STATE OF TEXAS
JIM G. WELCH
102465
LICENSED
PROFESSIONAL ENGINEER
8/27/25

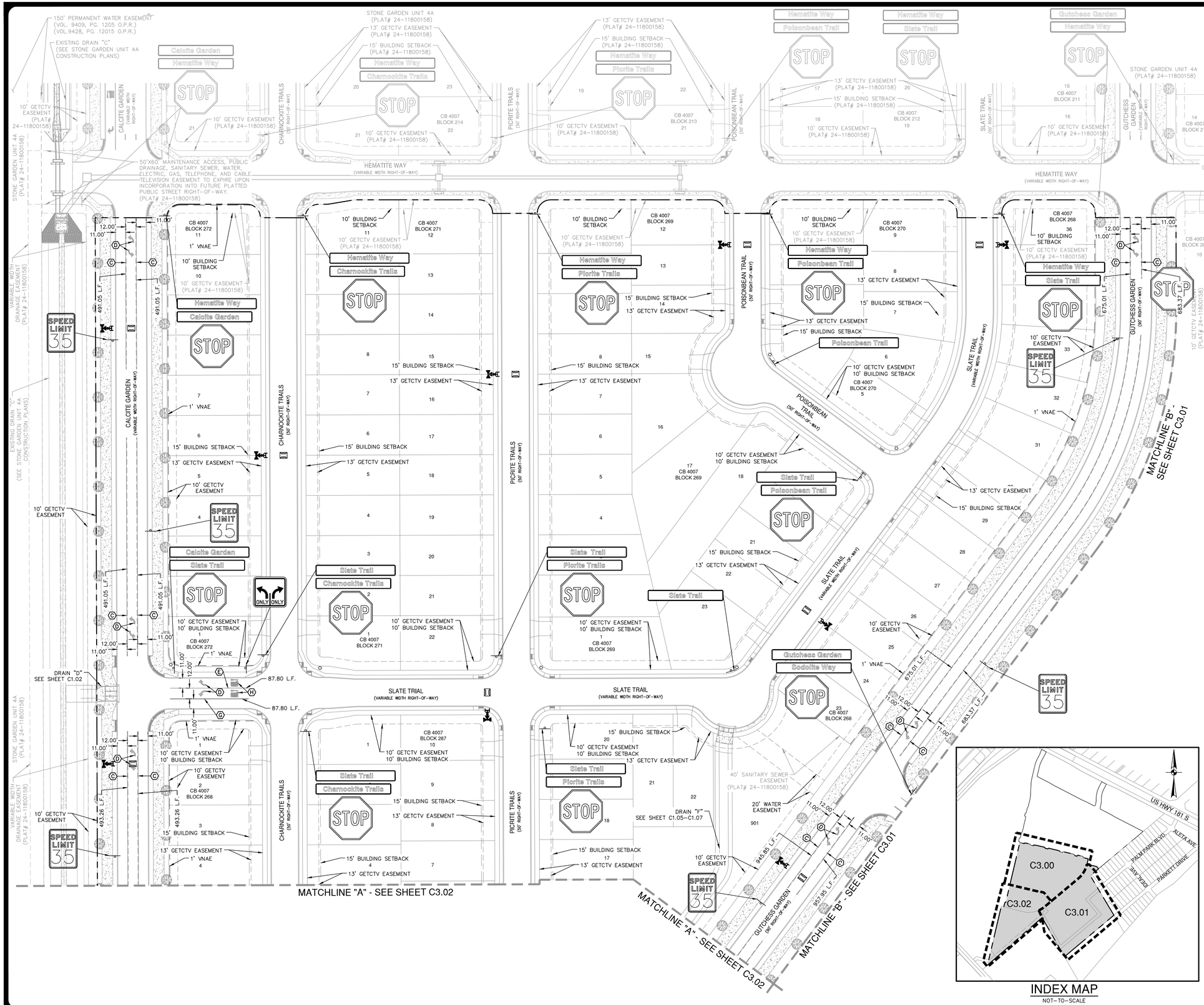
PAPE–DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS
TYPICAL STREET DETAILS

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C2.17

Date: February 5, 2025, 3:21 PM — User ID: rodolfo.gallegos
File: P:\124\82\21\Design\Civil\STD112482121.dwg

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SYMBOL		ITEM NUMBER
	UNIT BOUNDARY	
	CURB INLET	
	PROPOSED DRIVEWAY	
	SIDEWALK (HOMEBUILDER RESPONSIBILITY)	
	SIDEWALK (DEVELOPER'S RESPONSIBILITY)	
	TYPE II BLUE RAISED PAVEMENT MARKERS – NO SEPARATE PAY ITEM (N.T.S.)	
VNAE	VEHICULAR NON ACCESS EASEMENT	
	END OF ROAD MARKER OM4-3	
	HEADER CURB W/ BARRICADE POSTS	
(C)	6" WIDE YELLOW THERMOPLASTIC SOLID (REFL) & 6" WIDE YELLOW BROKEN THERMOPLASTIC (REFL) W/ TYPE II A-A @ 40' C-C REFL PVM'T MARKING	
(D)	WHITE ARROW STANDARD PAVEMENT MARKING – THERMOPLASTIC	
(E)	WHITE 8" SOLID LINE – THERMOPLASTIC WITH TYPE I-C RPMS	
(G)	YELLOW DOUBLE 6" SOLID – THERMOPLASTIC WITH TYPE II A-A @ 20' (REFL) PAVEMENT MARKERS	
(H)	WHITE "ONLY" STANDARD PAVEMENT MARKING – THERMOPLASTIC	
SPEED LIMIT 35	R2-1 30"X36"	531.57
Street Name	STREET SIGN	531.3
STOP	R1-1 (30"X30")	531.14
ONLY ONLY	R3-8	

BEXAR COUNTY ROW NOTES:

A BEXAR COUNTY ROW PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY ROW. CONTRACTOR SHALL COORDINATE A TRAFFIC CONTROL PLAN FOR ALL WORK WITHIN THE ROW. ADDITIONAL WARNING SIGNS MAY BE RECOMMENDED BY THE ENGINEER ONCE THE ROADWAYS ARE CONSTRUCTED.

DRIVEWAY NOTE:

DRIVEWAYS SHOWN ON THIS PLAN ARE FOR THE SOLE PURPOSE OF INDICATING A POTENTIAL CONFLICT WITH CURB RAMP, DRAINAGE INFRASTRUCTURE, OR OTHER CONFLICT. DRIVEWAY LOCATION IS SUBJECT TO CHANGE BASED ON HOME SELECTION AND FINAL LOT DESIGN.

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.

NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102486
LICENSED
PROFESSIONAL ENGINEER
8/27/25

PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

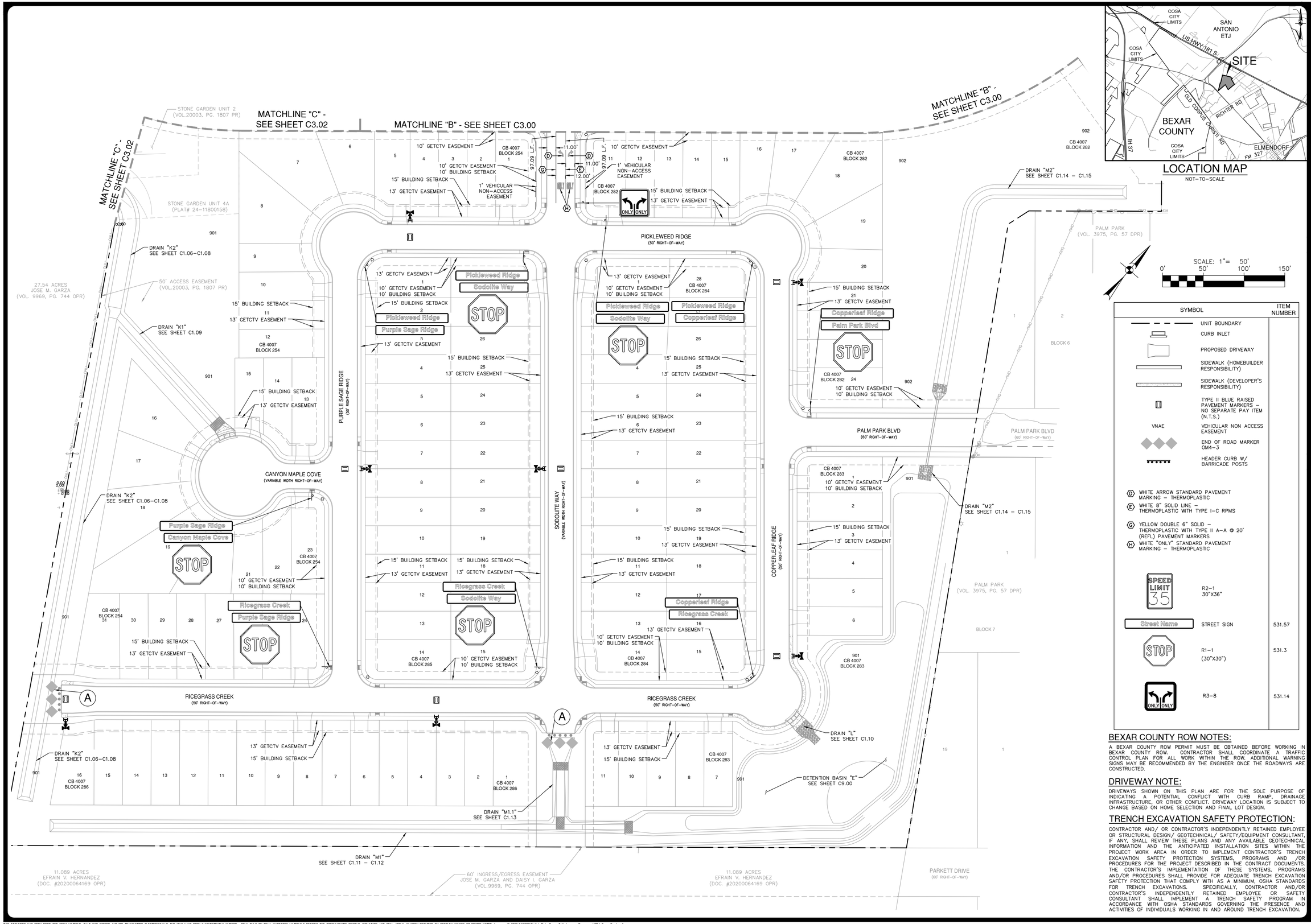
STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS

OVERALL SIGNAGE PLAN

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C3.00

Date: February 3, 2025, 3:22 PM – User ID: rodolfo.gallegos
File: P:\12A\82\21\Design\Civil\SG12482201.dwg

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LOCATION MAP
NOT-TO-SCALE

SYMBOL	ITEM	NUMBER
	UNIT BOUNDARY	
	CURB INLET	
	PROPOSED DRIVEWAY	
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SPEED LIMIT 35	R2-1 30"X36"	
Street Name	STREET SIGN	531.57
STOP	R1-1 (30"X30")	531.3
ONLY ONLY	R3-8	531.14

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DRIVEWAY NOTE:
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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.

NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102466
LICENSED PROFESSIONAL ENGINEER
8/27/25

PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS

OVERALL SIGNAGE PLAN

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C3.01

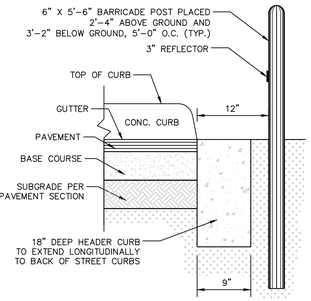
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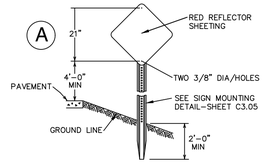
SYMBOL		ITEM NUMBER
	UNIT BOUNDARY	
	CURB INLET	
	PROPOSED DRIVEWAY	
	SIDEWALK (HOMEBUILDER RESPONSIBILITY)	
	SIDEWALK (DEVELOPER'S RESPONSIBILITY)	
	TYPE II BLUE RAISED PAVEMENT MARKERS – NO SEPARATE PAY ITEM (N.T.S.)	
VNAE	VEHICULAR NON ACCESS EASEMENT	
	END OF ROAD MARKER OM4–3	
	HEADER CURB W/ BARRICADE POSTS	

- (C) 6" WIDE YELLOW THERMOPLASTIC SOLID (REFL) & 6" WIDE YELLOW BROKEN THERMOPLASTIC (REFL) W/ TYPE II A–A @ 40' C–C REFL. PVM'T MARKING
- (D) WHITE ARROW STANDARD PAVEMENT MARKING – THERMOPLASTIC
- (F) YELLOW 24" SOLID LINE (DIAGONAL)– THERMOPLASTIC WITH TYPE II A–A @ 20' (REFL) PAVEMENT MARKERS
- (H) WHITE "ONLY" STANDARD PAVEMENT MARKING – THERMOPLASTIC
- (K) YELLOW 4" SOLID DOUBLE LINE – THERMOPLASTIC
- (L) WHITE 4" BROKEN LINE – THERMOPLASTIC

SPEED LIMIT 35	R2–1 30"X36"	
Street Name	STREET SIGN	531.57
STOP	R1–1 (30"X30")	531.3
	R3–6R 18"X30"	531.14
ONLY	R3–5R 18"X24"	



HEADER CURB & BARRICADE POST DETAIL
NOT–TO–SCALE



UNITS MOUNTED ON 0.080" THICK SHEET ALUMINUM CONFORMING WITH ASTM B–209 ALLOY 6061–T6.

TYPE 4 OM4–3
18" x 18"

OBJECT MARKER TYPE 4
NOT–TO–SCALE

BEXAR COUNTY ROW NOTES:

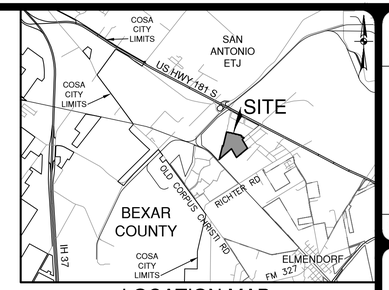
A BEXAR COUNTY ROW PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY ROW. CONTRACTOR SHALL COORDINATE A TRAFFIC CONTROL PLAN FOR ALL WORK WITHIN THE ROW. ADDITIONAL WARNING SIGNS MAY BE RECOMMENDED BY THE ENGINEER ONCE THE ROADWAYS ARE CONSTRUCTED.

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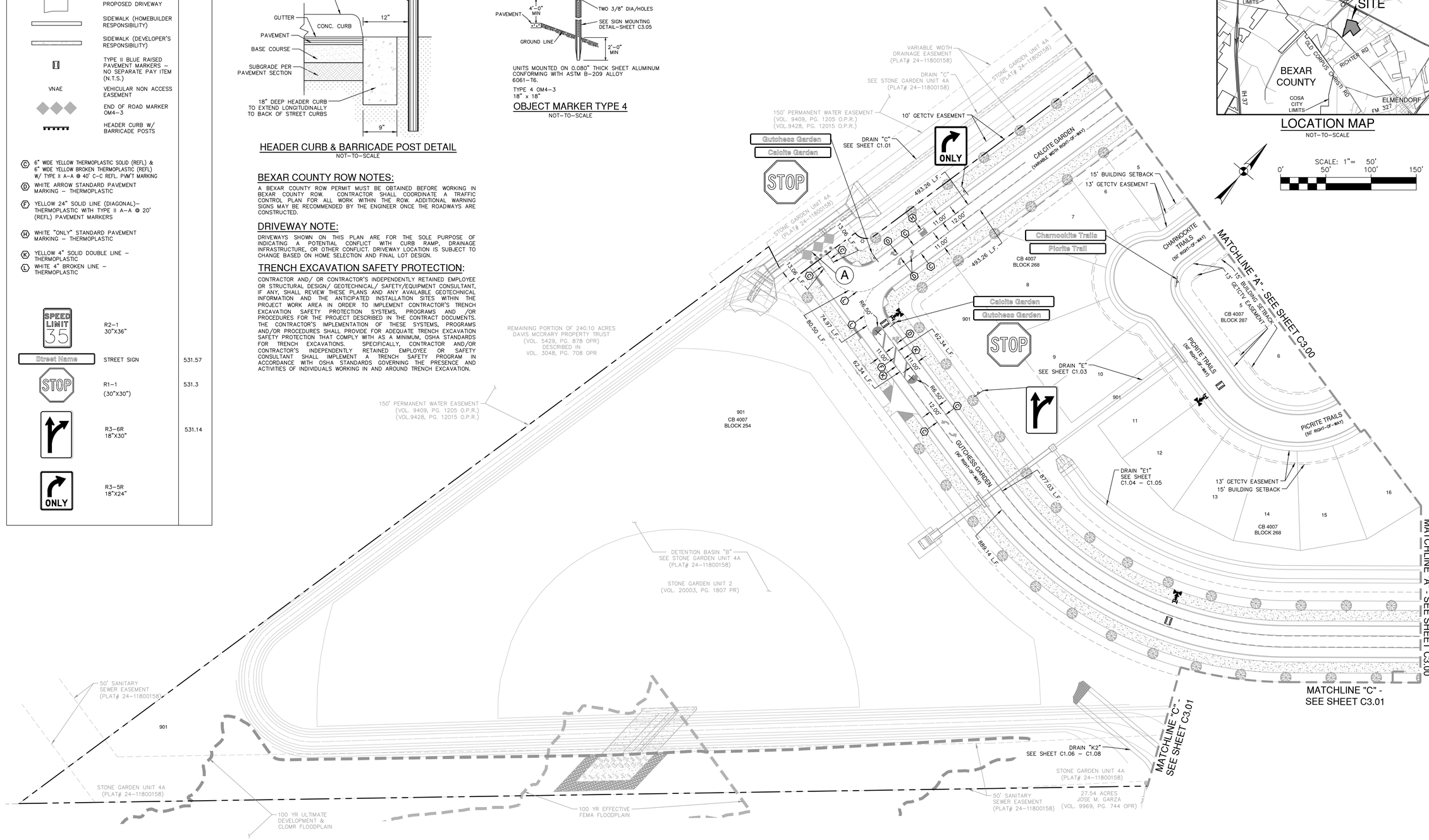
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LOCATION MAP
NOT–TO–SCALE

SCALE: 1"= 50'
0' 50' 100' 150'



NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
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STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS
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PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C3.02

Date: February 3, 2025, 3:24 PM – User ID: rodolfo.gallegos
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SIGN SUPPORT DESCRIPTIVE CODES

(Descriptive Codes correspond to project estimate and quantities sheets)

SM RD SGN ASSM TY XXXXX(X)XX(X-XXXX)

Post Type

FRP = Fiberglass Reinforced Plastic Pipe (see SMD(FRP))
TWT = Thin-Walled Tubing (see SMD(TWT))
10BWG = 10 BWG Tubing (see SMD(SLIP-1) to (SLIP-3))
SRO = Schedule 80 Pipe (see SMD(SLIP-1) to (SLIP-3))

Number of Posts (1 or 2)

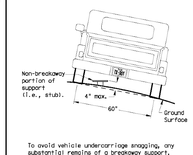
Anchor Type

UA = Universal Anchor - Concreted (see SMD(FRP) and (TWT))
UB = Universal Anchor - Bolted down (see SMD(FRP) and (TWT))
WS = Wedge Anchor Steel - (see SMD(TWT))
WP = Wedge Anchor Plastic (see SMD(TWT))
SA = Slipbase - Concreted (see SMD(SLIP-1) to (SLIP-3))
SB = Slipbase - Bolted Down (see SMD(SLIP-1) to (SLIP-3))

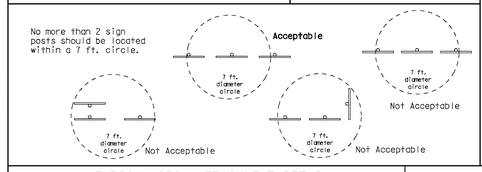
Sign Mounting Designation

P = Prefab. "Plain" (see SMD(SLIP-1) to (SLIP-3), (TWT), (FRP))
T = Prefab. "T" (see SMD(SLIP-1) to (SLIP-3), (TWT))
U = Prefab. "U" (see SMD(SLIP-1) to (SLIP-3))
IF REQUIRED:
TEXT or (EXT = Number of Extensions (see SMD(SLIP-1) to (SLIP-3), (TWT))
BW = Extruded Wind Beam (see SMD(SLIP-1) to (SLIP-3))
WC = L 1.12 #/ft Wing Channel (see SMD(SLIP-1) to (SLIP-3))
EXAL = Extruded Aluminum Sign Panels (see SMD(SLIP-3))

REQUIRED CLEARANCE FOR BREAKAWAY SUPPORT

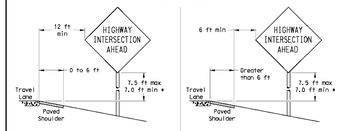


To avoid vehicle undercarriage snagging, any substantial remains of a breakaway support, when it is broken away, should not project more than 4 inches above a 60-inch chord (i.e., typical space between wheel paths).



SIGN LOCATION

PAVED SHOULDERS



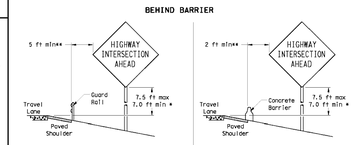
LESS THAN 6 FT. WIDE

When the shoulder is 6 ft. or less in width, the sign must be placed at least 12 ft. from the edge of the travel lane.

GREATER THAN 6 FT. WIDE

When the shoulder is greater than 6 ft in width, the sign must be placed at least 6 ft. from the edge of the shoulder.

BEHIND BARRIER

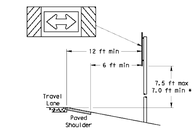


BEHIND GUARDRAIL

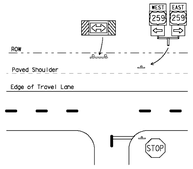
BEHIND CONCRETE BARRIER

**Sign clearance based on distance required for proper guard rail or concrete barrier performance.

T-INTERSECTION



When this sign is needed at the end of a two-lane, two way roadway, the right edge of the sign should be in line with the centerline of the roadway. Place as close to ROW as practical.



* Signs shall be mounted using the following condition that results in the greatest sign elevation:

(1) a minimum of 7 to a maximum of 7.5 feet above the edge of the travel lane or

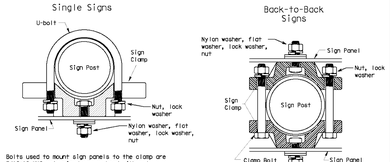
(2) a minimum of 7 to a maximum of 7.5 feet above the grade at the base of the support when sign is installed on the backslope.

The maximum values may be increased when directed by the Engineer.

See the Traffic Operations Division website for detailed drawings of sign clamps, Triangular Slipbase System components and Wedge Anchor System components.

The website address is:
http://www.txdot.gov/publications/traffic.htm

TYPICAL SIGN ATTACHMENT DETAIL



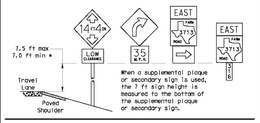
Bolts used to mount sign panels to the clamp are 5/16-18 UNC galvanized square head with nut, nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum.

When two sign clamps are used to mount signs back-to-back, use a 5/16-18 UNC galvanized hex head per ASTM A307 with nut and helical-spring lock washer. The approximate bolt lengths for various post sizes and sign clamp types are given in the table at right. The bolt length may need to be adjusted depending upon field conditions.

Sign clamps may be either the specific size clamp or the universal clamp.

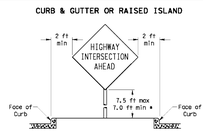
Pipe Diameter	Approximate Bolt Length	
	Specific Clamp	Universal Clamp
2" nominal	3"	3 or 3 1/2"
2 1/2" nominal	3 or 3 1/2"	3 1/2 or 4"
3" nominal	3 1/2 or 4"	4 1/2"

SIGNS WITH PLAQUES



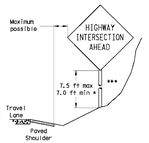
When a supplemental plaque or secondary sign is used, the 7 ft sign height is measured to the bottom of the supplemental plaque or secondary sign.

CURB & GUTTER OR RAISED ISLAND



RESTRICTED RIGHT-OF-WAY

(When 6 ft min. is not possible.)



Right-of-way restrictions may be created by rocks, water, vegetation, forest, buildings, a narrow island, or other factors.

In situations where a lateral restriction prevents the minimum horizontal clearance from the edge of the travel lane, signs should be placed as far from the travel lane as practical.

*** Post may be shorter if protected by guardrail or if Engineer determines the post could not be hit due to extreme slope.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS GENERAL NOTES & DETAILS

SMD(GEN)-08

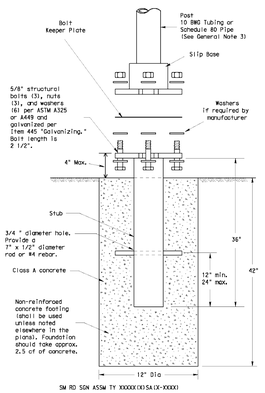
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9-08 REVISIONS		CONT	SECT	JOB	HIGHWAY
		DIST	COUNTY		SHEET No.

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DATE: FILE:

TRIANGULAR SLIPBASE INSTALLATION GENERAL REQUIREMENTS



SM RD SGN ASSM TY XXXXX(X)SA(X-XXXX)

NOTE

There are various devices approved for the Triangular Slipbase System. Please reference the Material Producer List for approved slip base systems. http://www.txdot.gov/business/producer_list.htm The devices shall be installed per manufacturers' recommendations. Installation procedures shall be provided to the Engineer by Contractor.

GENERAL NOTES:

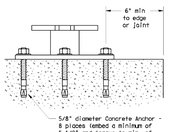
1. Slip base shall be permanently marked to indicate manufacturer. Method, design, and location of marking are subject to approval of the TxDOT Traffic Standards Engineer.
2. Material used as post with this system shall conform to the following specifications:
   10 BWG Tubing (2.875" outside diameter)
   0.134" nominal wall thickness
   Seamless or electric-resistance welded steel tubing or pipe
   Steel shall be HSLAS CF 55 per ASTM A1011 or ASTM A1008
   Other steels may be used if they meet the followings:
   55,000 PSI minimum yield strength
   70,000 PSI minimum tensile strength
   20% minimum elongation in 2"
   Wall thickness (uncoated) shall be within the range of 0.122" to 0.138"
   Outside diameter (uncoated) shall be within the range of 2.867" to 2.883"
   Galvanization per ASTM A123 or ASTM A653 G210. For precoated steel tubing (ASTM A653), recoat tube outside diameter weld seam by metallizing with zinc wire per ASTM B833.
   Schedule 80 Pipe (2.875" outside diameter)
   0.276" nominal wall thickness
   Steel tubing per ASTM A500 Gr C
   Other seamless or electric-resistance welded steel tubing or pipe with equivalent outside diameter and wall thickness may be used if they meet the followings:
   46,000 PSI minimum yield strength
   62,000 PSI minimum tensile strength
   21% minimum elongation in 2"
   Wall thickness (uncoated) shall be within the range of 0.248" to 0.304"
   Outside diameter (uncoated) shall be within the range of 2.855" to 2.895"
   Galvanization per ASTM A123
3. See the Traffic Operations Division website for detailed drawings of sign clamps and Texas Universal Triangular Slipbase System components. The website address is:
   http://www.txdot.gov/publications/traffic.htm
4. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.

ASSEMBLY PROCEDURE

Foundation
1. Prepare 12-inch diameter by 42-inch deep hole. If solid rock is encountered, the depth of the foundation may be reduced such that it is embedded a minimum of 18 inches into the solid rock.
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 less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Concrete shall be Class A.
3. Push the pipe and of the slip base stub into the center of the concrete. Rotate the stub back and forth while pushing it down into the concrete to assure good contact between the concrete and stub. Continue to work the stub into the concrete until it is between 2 to 4 inches above the ground.
4. Plumb the stub. Allow a minimum of 4 days to set, unless otherwise directed by the Engineer.
5. The triangular slipbase system is multidirectional and is designed to release when struck from any direction.

Support
1. Cut support so that the bottom of the sign will be 7 to 7.5 feet above the edge of the traveleay (i.e., edge of the closest lane) when slip plate is below the edge of pavement or 7 to 7.5 feet above slip plate when the slip plate is above the edge of the traveleay. The cut shall be plumb and straight.
2. Attach sign to support using connections shown. When multiple signs are installed on the same support, ensure the minimum clearance between each sign is maintained. See SMD(SLIP-2) for clearances based on sign types.

CONCRETE ANCHOR



SM RD SGN ASSM TY XXXXX(X)SB(X-XXXX)

Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. Heavy hex nut per ASTM A563, and hardened washer per ASTM F436. The stud bolt shall have a minimum yield and ultimate tensile strength of 50 and 75 KSI, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Adhesive type anchors shall have stud bolts installed with Type III epoxy per SMG-6100, "Epoxies and Adhesives." Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations. Top of bolt shall extend at least flush with top of the nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 5 1/2" minimum embedment, shall have a minimum allowable tension and shear of 3900 and 3100 psi, respectively.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-1)-08

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9-08 REVISIONS		CONT	SECT	JOB	HIGHWAY
		DIST	COUNTY		SHEET No.

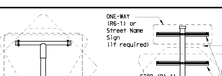
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DATE: FILE:



SM RD SGN ASSM TY XXXXX(1)XX(P)



SM RD SGN ASSM TY XXXXX(1)XX(T)

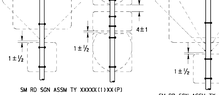
SM RD SGN ASSM TY XXXXX(1)XX(P-BM)



GENERAL NOTES:

SIGN SUPPORT	# OF POSTS	MAX. SIGN AREA
10 BWG	1	16 SF
10 BWG	2	32 SF
Sch 80	1	32 SF
Sch 80	2	64 SF

1. The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
2. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
3. Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have the following minimum thicknesses: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs 7.5 to 15 sq. ft., and 0.125 for signs greater than 15 sq. ft.
4. Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
5. Sign supports fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of greater height.
6. When two triangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. This will allow each support to act independently when impacted by an errant vehicle.
7. Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
8. Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized coating at cut support ends per Item 445, "Galvanizing."
9. Additional sign clamps required on the "T-bracket" post for 24 inch height signs. Place the clamp 3 inches above bottom of sign when possible.
10. Post open ends shall be fitted with friction Caps.
11. Sign blanks shall be the sizes and shapes shown on the plans.

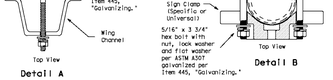


SM RD SGN ASSM TY XXXXX(1)XX(T-M)



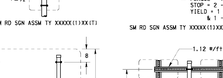
SM RD SGN ASSM TY XXXXX(1)XX(U)

SM RD SGN ASSM TY XXXXX(1)XX(U-MC)





SM RD SGN ASSM TY S80(1)XX(U-1EXT)

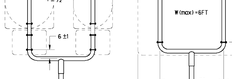


SM RD SGN ASSM TY S80(1)XX(U-2EXT)

SM RD SGN ASSM TY XXXXX(2)XX(P)

SIDE VIEW





SM RD SGN ASSM TY XXXXX(1)XX(T)
(* - See Note 12)

All dimensions are in english unless detailed otherwise.

FRICTION CAP DETAIL



Friction caps may be manufactured from hot rolled or cold rolled steel sheets. The minimum sheet metal thickness shall be 24 gauge for all cap sizes.

The rim edges shall be reasonably straight and smooth. Caps shall be sized and formed in such a manner as to produce a drive-on friction fit and have no tendency to rock when seated on the pipe. The depth shall be sufficient to give positive protection against entrance of rainwater. They shall be free of sharp creases or indentations and show no evidence of metal fracture.

Caps shall have an electrodeposited coating of zinc in accordance with the requirements of ASTM B633 Class FE/ZN 8.

REQUIRED SUPPORT

	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	48x60-inch signs	TY SB0(1)XX(T)
	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
Warning	48x60-inch signs	TY SB0(1)XX(T)
	48-inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
	48-inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

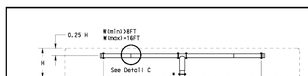
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9-08 REVISIONS		CONT	SECT	JOB	HIGHWAY
		DIST	COUNTY		SHEET No.

262

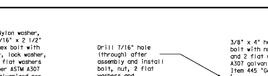
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DATE: FILE:

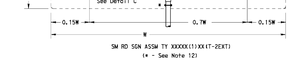


SM RD SGN ASSM TY XXXXX(1)XX(T-2EXT)
(* - See Note 12)

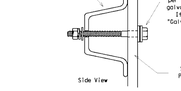




Splices shall only be allowed behind the sign substrate.



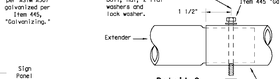
SM RD SGN ASSM TY XXXXX(1)XX(U-XX)



Typical Sign Mount

SM RD SGN ASSM TY SB0(2)XX(P-EXAL)

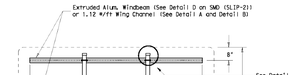
* Additional stiffener placed at approximate center of signs when sign width is greater than 10'.

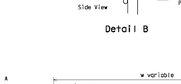


GENERAL NOTES:

SIGN SUPPORT	# OF POSTS	MAX. SIGN AREA
10 BWG	1	16 SF
10 BWG	2	32 SF
Sch 80	1	32 SF
Sch 80	2	64 SF

1. The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
2. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
3. Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have the following minimum thicknesses: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs 7.5 to 15 sq. ft., and 0.125 for signs greater than 15 sq. ft.
4. Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
5. Sign supports fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of greater height.
6. When two triangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. This will allow each support to act independently when impacted by an errant vehicle.
7. Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
8. Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized coating at cut support ends per Item 445, "Galvanizing."
9. Additional sign clamps required on the "T-bracket" post for 24 inch height signs. Place the clamp 3 inches above bottom of sign when possible.
10. Post open ends shall be fitted with friction Caps.

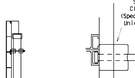




Extruded Aluminum Sign With T Bracket



EXTRUDED ALUMINUM SIGN WITH T BRACKET



Use Extruded Alum. Windbeam as stifferers See SMD (2-11) for additional details

See Detail E for clamp installation

REQUIRED SUPPORT

	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	48x60-inch signs	TY SB0(1)XX(T)
	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
Warning	48x60-inch signs	TY SB0(1)XX(T)
	48-inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
	48-inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-3)-08

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265

NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102466
LICENSED
PROFESSIONAL ENGINEER
8/27/25

PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

STONE GARDEN UNIT 5A

BEXAR COUNTY, TEXAS

SIGNAGE DETAILS

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C3.03

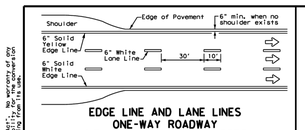
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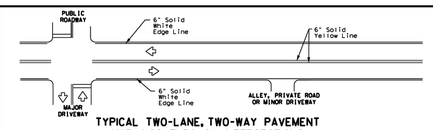
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EDGE LINE AND LANE LINES ONE-WAY ROADWAY WITH OR WITHOUT SHOULDERS



TYPICAL TWO-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS



GENERAL NOTES

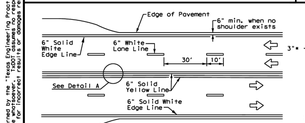
1. Edge line striping shall be as shown in the plans or as directed by the Engineer. The edge line should not be placed less than 6 inches from the edge of pavement. This distance may vary due to pavement raveling or other conditions. Edge lines are not required in curb and gutter sections of roadways.
2. The traveled way includes only that portion of the roadway used for vehicular travel. It does not include the parking lanes, sidewalks, berms and shoulders. The traveled ways shall be measured from the center of edge line to the center of edge line of a two lane roadway.

MATERIAL SPECIFICATIONS

PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.

CENTERLINE AND LANE LINES FOUR LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS

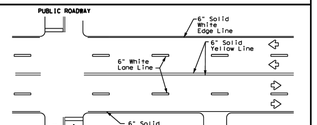


DETAIL "A"

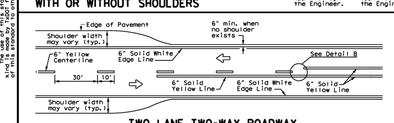
9"** min. - 10" typ. (18" max. for traveled way greater than 48" only)

* 2" minimum for restripe projects when approved by the Engineer.
** 8" minimum for restripe projects when approved by the Engineer.

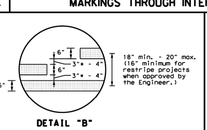
TYPICAL MULTI-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS



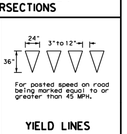
TWO LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS



DETAIL "B"

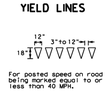


* 2" minimum for restripe projects when approved by the Engineer.

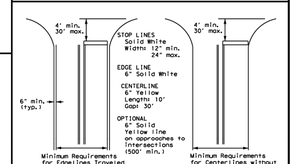


For posted speed on road being marked equal to or greater than 45 MPH.

YIELD LINES



For posted speed on road being marked equal to or less than 40 MPH.



NOTE: Traveled way is exclusive of shoulder widths. Refer to General Note 2 for additional details.

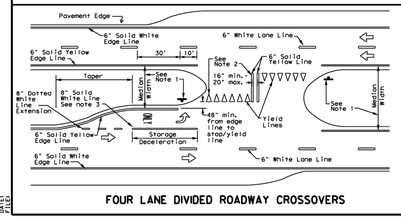
GUIDE FOR PLACEMENT OF STOP LINES, EDGE LINE & CENTERLINE

Based on Traveled Way and Pavement Widths for Undivided Roadways

NOTES

1. Where divided highways are separated by median widths at the median opening itself of 30 feet or more, median openings shall be signed as two separate intersections. Each median opening has two width measurements, with one measurement for each approach. The narrow median width will be the controlling width to determine if signs are required. Yield signs are the typical intersection control. Stop signs and stop bars are optional as determined by the Engineer.
2. Install median striping (double yellow centerlines and stop lines/yield lines) when a 50' or greater median centerline can be placed. Stop lines shall only be used with stop signs. Yield lines shall only be used with yield signs.
3. Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer.

FOUR LANE DIVIDED ROADWAY CROSSOVERS



Texas Department of Transportation — Traffic Safety Division Standard

TYPICAL STANDARD PAVEMENT MARKINGS

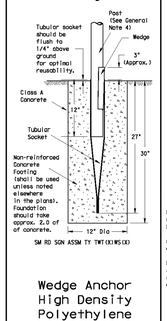
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8-95 3-03 12-22					
5-00 2-12					

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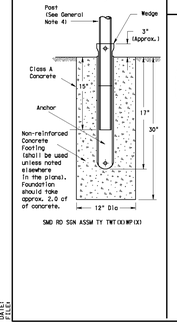
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Wedge Anchor Steel System



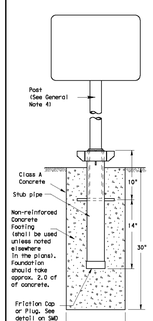
SM RD SGN ASSM TY TWT(X)WS(X)

Wedge Anchor High Density Polyethylene (HDPE) System



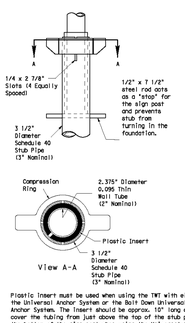
SMD RD SGN ASSM TY TWT(X)WP(X)

Universal Anchor System with Thin-Walled Tubing Post

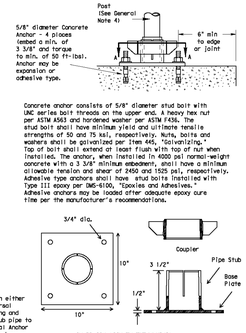


SM RD SGN ASSM TY TWT(X)UA(P)

Plastic Insert must be used when using the TWT with either the Universal Anchor System or the Bolt Down Universal Anchor System. The insert should be approx. 10" long and cover the tubing from just above the top of the stub pipe to the bottom of the slip joint when using the Universal Anchor System. The insert should be cut to approx. 4 1/2" when used with the Bolt Down Universal Anchor System.

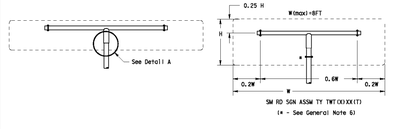


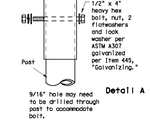
Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. A heavy hex nut per ASTM A563 and hardened washer per ASTM F436. The stud bolt shall have minimum yield and ultimate tensile strengths of 50 and 75 ksi, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Top of bolt shall extend at least flush with top of nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 3 3/8" minimum embedment, shall have a minimum allowable tension and shear of 2450 and 1525 psi, respectively. Adhesive type anchors shall have stud bolts installed with Type III epoxy per DMS-6100, "Epoxies and Adhesives." Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations.



SM RD SGN ASSM TY TWT(X)UB(P)

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





NOTE

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

GENERAL NOTES:

1. The Wedge Anchor System and the Universal Anchor System with thin wall tubing post may be used to support up to 10 square feet of sign area.
2. The tubular socket, wedge and prefabricated T-bracket shall be permanently marked to indicate manufacturer. Method, design, and location of marking are subject to the approval of the TxDOT Traffic Standards Engineer.
3. Except for posts (13 BWG tubing), clamps, nuts and bolts, all components shall be prequalified. A list of prequalified vendors may be obtained from the Material Producer List web page. The website address is: https://www.txdot.gov/business/producer-list.htm
4. Material used as post with this system shall conform to the following specifications:
   13 BWG Tubing (2.375" outside diameter) (TWT)
   0.095" nominal thickness
   Seamless or electric-resistance welded steel tubing
   Steel shall be HSLAS Gr 55 per ASTM A1011 or ASTM A1008
   Other steels may be used if they meet the following:
   55,000 PSI minimum yield strength
   70,000 PSI minimum tensile strength
   18% minimum elongation in 2"
   Wall thickness (uncoated) shall be within the range of .083" to .099"
   Outside diameter (uncoated) shall be within the range of 2.369" to 2.381"
   Galvanization per ASTM 123 or ASTM A653 G210. For preceded steel tubing (ASTM A653), recoat tube outside diameter weld seam by metallizing with zinc wire per ASTM B833.
5. Sign blanks shall be the sizes and shapes shown on the plans.
6. Additional sign clamp required on the "T-bracket" post for 24" high signs. Place clamp at least 3" above bottom of sign when possible.
7. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
8. See the Traffic Operations Division website for detailed drawings of sign clamps and Wedge Anchor System components. The website address is: http://www.txdot.gov/publications/traffic.htm

WEDGE ANCHOR SYSTEM INSTALLATION PROCEDURE

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

UNIVERSAL ANCHOR SYSTEM INSTALLATION PROCEDURE

1. Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18". When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is encountered, the socket/stub may be reduced in length as required to a minimum length of 18". Any material removed from the socket/stub shall be from the bottom and the clearance requirements given on SMD(GEN) must be followed. The inner surfaces of the socket/stub must remain free of concrete or other debris.
2. Insert base post in hole to depths shown and backfill hole with concrete.
3. Level and plumb the base post using a torpedo level and allow concrete adequate time to set. The bottom of the slots provided in the stub pipe shall remain above the top of the concrete foundation.
4. Attach the sign to the sign post.
5. Install plastic insert around bottom of post.
6. Insert sign post into base post. Lower until the post comes to rest on steel rod.
7. Seat compression ring using a hammer. Typically, the top of compression ring will be approximately level with top of stub post when optimally installed.
8. Check sign post by hand to ensure it is unable to turn. If loose, increase the tightening of the compression ring.

Texas Department of Transportation — Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS WEDGE & UNIVERSAL ANCHOR WITH THIN WALL TUBING POST

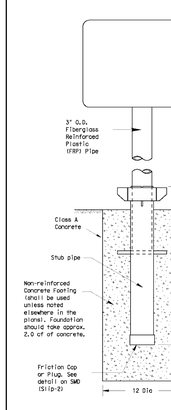
SMD (TWT)-08

©TxDOT July 2022		TWT TXDOT	DN: TXDOT	TWT TXDOT	DN: TXDOT
REVISIONS		DATE	SCT	JOB	HIGHWAY
9-08					
		SIGN		DISTRICT	SHEET NO.

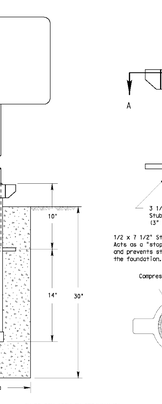
266

DATE:
FILE:

Universal Anchor System with Fiberglass Reinforced Plastic (FRP) Post

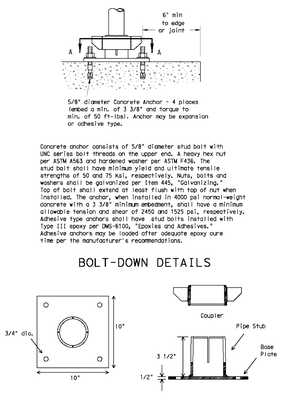


SM RD SGN ASSM TY FRP(X)UA(P)



Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. A heavy hex nut per ASTM A563 and hardened washer per ASTM F436. The stud bolt shall have minimum yield and ultimate tensile strengths of 50 and 75 ksi, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Top of bolt shall extend at least flush with top of nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 3 3/8" minimum embedment, shall have a minimum allowable tension and shear of 2450 and 1525 psi, respectively. Adhesive type anchors shall have stud bolts installed with Type III epoxy per DMS-6100, "Epoxies and Adhesives." Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations.

BOLT-DOWN DETAILS



SM RD SGN ASSM TY FRP(X)UB(P)

GENERAL NOTES:

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: https://www.txdot.gov/publications/traffic.htm

FRP POST REQUIREMENTS

1. 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.
2. 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

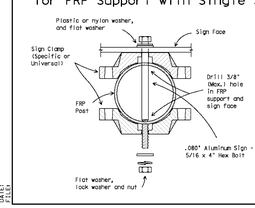
UNIVERSAL ANCHOR SYSTEM INSTALLATION PROCEDURES

1. Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18". When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is encountered, the socket/stub may be reduced in length as required to a minimum length of 18". Any material removed from the socket/stub shall be from the bottom and the clearance requirements given on SMD(GEN) must be followed. The inner surfaces of the socket/stub must remain free of concrete 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 less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Place concrete into hole until it is approximately flush with the ground. Concrete shall be Class A.
3. Insert tubular post into concrete until top of post is approximately 1/4 " above the concrete footing.
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.
5. Attach sign to FRP post.
6. Insert sign post into base post. Lower until the post comes to rest on the steel rod.
7. Use hammer to ensure the coupler is firmly seated. Top of coupler should be level with top of base post in most instances.
8. Check sign to ensure there is no twist. If loose, increase the tightening of coupler.

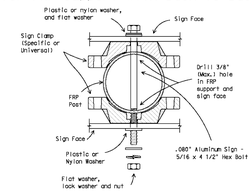
BOLT DOWN SIGN SUPPORT

1. Position base plate with coupler on existing concrete.
2. Drill holes into concrete and insert the 5/8" diameter bolts with wedge anchors, and tighten nuts.
3. Attach sign to FRP post.
4. 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 coupler.

Typical Sign Mounting Detail for FRP Support with Single Sign



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



Texas Department of Transportation — Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS UNIVERSAL ANCHOR SYSTEM WITH FRP POST

SMD (FRP)-08

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REVISIONS		DATE	SCT	JOB	HIGHWAY
9-08					
		SIGN		DISTRICT	SHEET NO.

266

PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

DATE
NO. REVISION

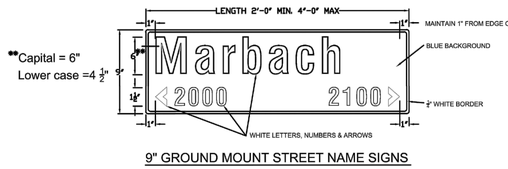
STATE OF TEXAS — JIM C. WELCH — 102466 — LICENSED PROFESSIONAL ENGINEER — 8/27/25

STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS
SIGNAGE DETAILS

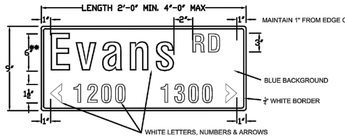
PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C3.04

Date: February 3, 2025, 3:24 PM — User ID: rodolfo.gallegos
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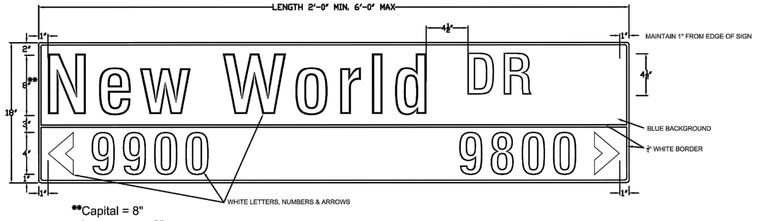
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9" GROUND MOUNT STREET NAME SIGNS



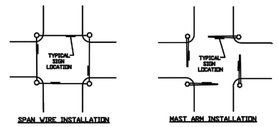
9" GROUND MOUNT STREET NAME SIGNS
WITH STREET DESIGNATION



18" OVERHEAD STREET NAME SIGNS

	18" OVERHEAD SIGN	9" GROUND MOUNT SIGNS
HEIGHT	18" (381 mm)	9" (228 mm)
LENGTH	48" (1200 mm) MIN. 72" (1800 mm) MAX. 1' (305mm) INCREMENTS OF LENGTH	24" (600 mm) MIN. 48" (1200 mm) MAX. 6" (150mm) INCREMENTS OF LENGTH
THICKNESS	0.125" (3 mm)	
SUBSTRATE	ALUMINUM ALLOY, 5052-H38 (ASTM B-209 GOLD CHROMATE FINISH	
SIGN FACE MATERIALS	BLUE FILM ✱ OVER DIAMOND GRADE - ASTM Type XI Non-Fluorescent	BLUE FILM ✱ OVER HIGH INTENSITY PRISMATIC- ASTM Type IV
LEGENDS AND SYMBOLS	SERIES D, B OR C 8" NAME OTHERWISE EXCEEDS MAXIMUM SIGN LENGTH	
COLOR	WHITE LEGEND ON BLUE BACKGROUND	
LETTER TRACKING	17% (USUAL) 10% (MIN.)	10%

✱ ACRYLIC ELECTRONIC CUTTABLE FILM



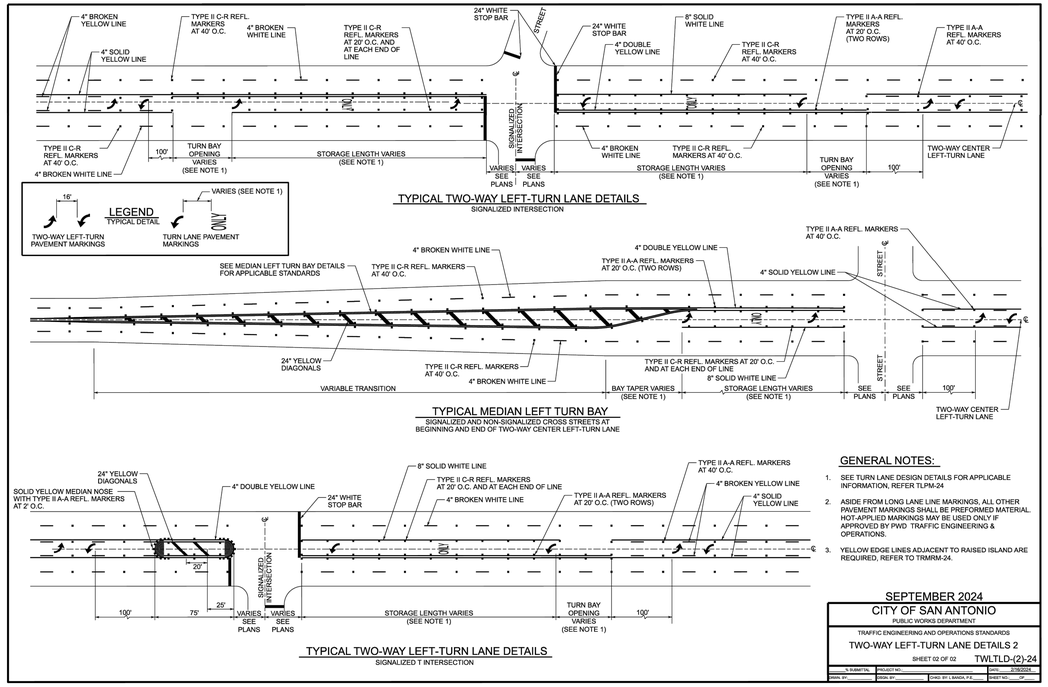
SIGN FACE MATERIALS
SHALL CONFORM TO:

1. STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS & BRIDGES ON FEDERAL HIGHWAY PROJECTS - FP-03 U.S. CUSTOMARY UNITS SECTION 718
2. GENERAL SERVICES ADMINISTRATION FEDERAL SPECIFICATIONS L-S-300C
3. ASTM D 4956 - 05e1

Bexar County Public Works

Street Name Sign Details

SHEET 1



TYPICAL TWO-WAY LEFT-TURN LANE DETAILS
SIGNALIZED INTERSECTION

TYPICAL MEDIAN LEFT TURN BAY
SIGNALIZED AND NON-SIGNALIZED CROSS STREETS AT BEGINNING AND END OF TWO-WAY CENTER LEFT-TURN LANE

TYPICAL TWO-WAY LEFT-TURN LANE DETAILS
SIGNALIZED T INTERSECTION

GENERAL NOTES:

1. SEE TURN LANE DESIGN DETAILS FOR APPLICABLE INFORMATION, REFER TLPM-24
2. ASIDE FROM LONG LANE LINE MARKINGS, ALL OTHER PAVEMENT MARKINGS SHALL BE PREFORMED MATERIAL. HOT-APPLIED MARKINGS MAY BE USED ONLY IF APPROVED BY PWD TRAFFIC ENGINEERING & OPERATIONS.
3. YELLOW EDGE LINES ADJACENT TO RAISED ISLAND ARE REQUIRED, REFER TO TRMRM-24.

SEPTEMBER 2024
CITY OF SAN ANTONIO
PUBLIC WORKS DEPARTMENT
TRAFFIC ENGINEERING AND OPERATIONS STANDARDS
TWO-WAY LEFT-TURN LANE DETAILS 2
SHEET 02 OF 02
TWLTLD-(2)-24

☐ SUBMITTAL	PROJECT NO.		DATE 2/18/2025
DESIGN BY	DRAWN BY	CHKD. BY	SHEET NO. OF

NO. REVISION DATE

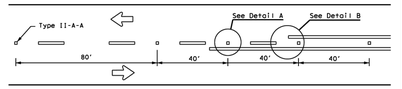


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2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

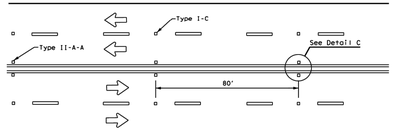
STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS
SIGNAGE DETAILS

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JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C3.05

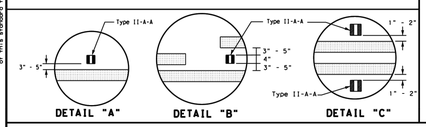
REFLECTIVE RAISED PAVEMENT MARKERS
FOR VEHICLE POSITIONING GUIDANCE

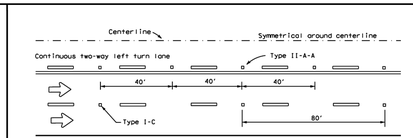


CENTERLINE FOR ALL TWO LANE TWO-WAY ROADWAYS

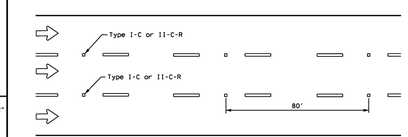


CENTERLINE & LANE LINES
FOR FOUR LANE TWO-WAY ROADWAYS



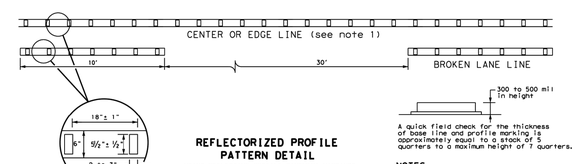


CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE



LANE LINES FOR ONE-WAY ROADWAY (NON-FREEWAY FACILITIES)

Raised pavement markers Type II-C-R shall have clear face toward normal traffic and red face toward wrong-way traffic.
See Note 3.



REFLECTORIZED PROFILE
PATTERN DETAIL
USING REFLECTIVE PROFILE PAVEMENT MARKINGS

6" EDGE LINE, 6" CENTERLINE
OR 6" LANE LINE

A quick field check for the thickness of base line and profile marking is approximately equal to a stack of 5 quarters to a maximum height of 7 quarters.

NOTES

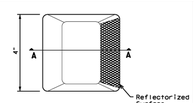
1. Edge lines should typically be 6" wide and the materials shall be specified in the plans.
2. Profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.

GENERAL NOTES

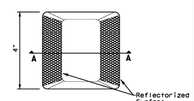
1. All raised pavement markers placed along broken lines shall be placed in line with and midway between the stripes.
2. On concrete pavements the raised pavement markers should be placed to one side of the longitudinal joints.
3. Use raised pavement marker Type I-C with undivided roadways, flush medians and two way left turn lanes. Use raised pavement marker Type II-C-R with divided highways and raised medians.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

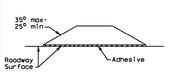
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



Type I (Top View)



Type II (Top View)



SECTION A

RAISED PAVEMENT MARKERS

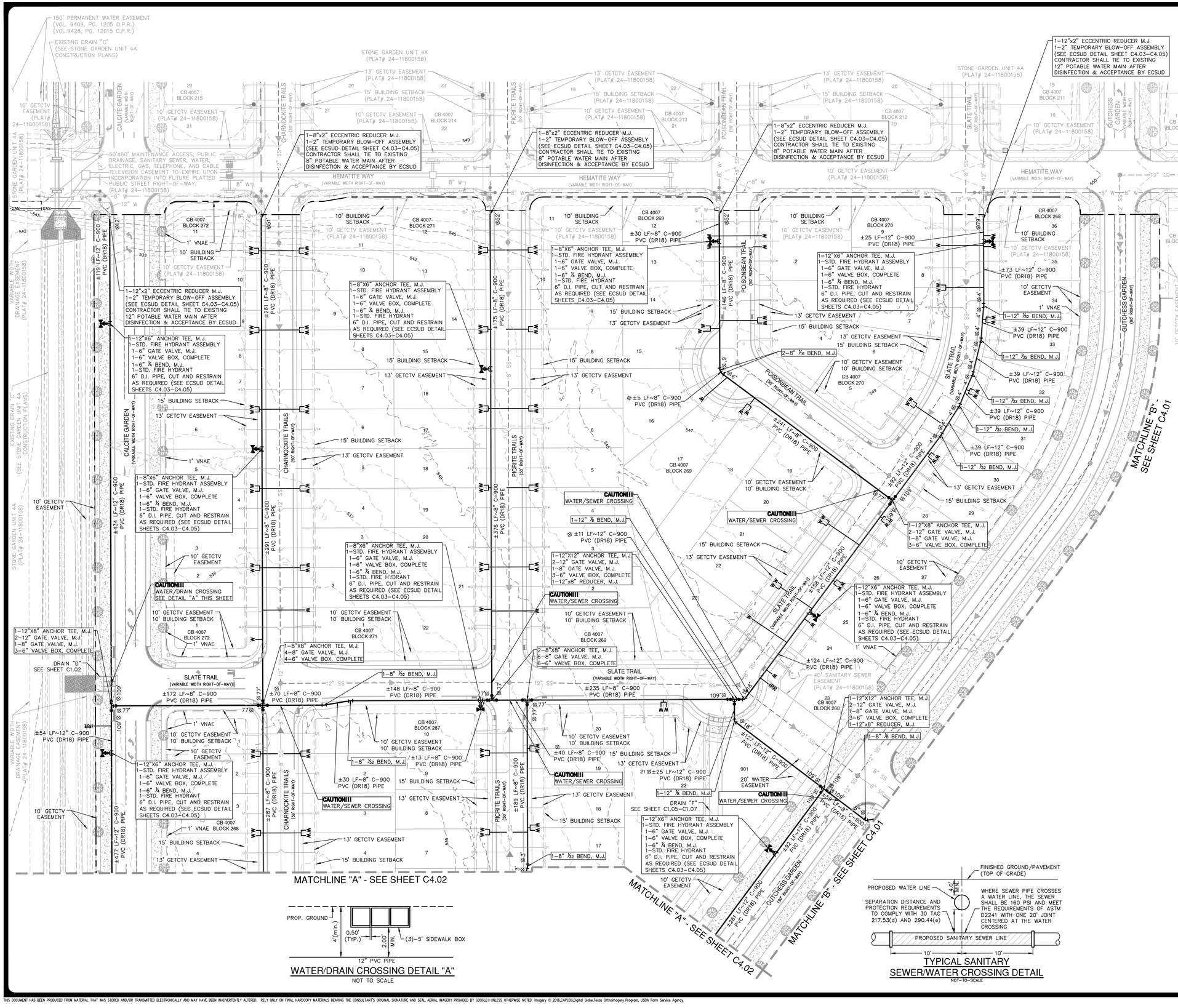
Texas Department of Transportation
Traffic Safety Division Standard

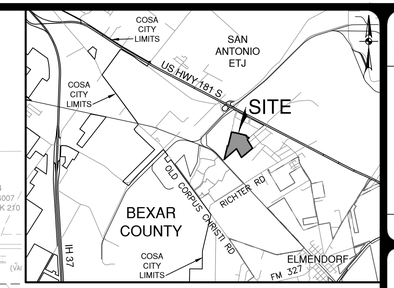
POSITION GUIDANCE USING
RAISED MARKERS
RELECTORIZED PROFILE
MARKINGS
PM(2)-22

FILE: pm2-22.dgn	DW:	CK:	DW:	CK:
©TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS				
6-22 8-00 8-05				
6-80 2-10 12-22	DIST	COUNTY		SHEET NO.
5-00 2-12				

Date: February 3, 2025, 3:24 PM – User ID: rodolfo.gallegos
File: P:\124\82\21\Design\Civil\SGD1 1248221.dwg

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LOCATION MAP
NOT-TO-SCALE

SCALE: 1"= 50'
0' 50' 100' 150'

WATER LEGEND

PROJECT LIMITS	
UNDERGROUND FIBER OPTIC	UFO
OVERHEAD ELECTRICAL	OHE
ASBESTOS CEMENT PIPE	ACP
EXISTING WATER	FIRE HYDRANT, W
EXISTING SEWER	SS, MANHOLE
PROPOSED SEWER	
PROPOSED WATER	FIRE HYDRANT, W
PROPOSED 1" SINGLE SERVICE WITH 5/8" METER	
PROPOSED 1" DUAL SERVICE WITH 5/8" METER	
1" SINGLE IRRIGATION SERVICE WITH 5/8" METER	IRR
JOINT RESTRAINT	⊠
VEHICULAR NON-ACCESS EASEMENT	VNAE
CLEAR VISION EASEMENT	CVE
EXISTING TREES TO REMAIN UNDISTURBED	
EXISTING TREES TO BE REMOVED	

FIRE FLOW NOTE:

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

GENERAL NOTES:

1. FIRE HYDRANT SHALL BE LOCATED BEHIND SIDEWALK IN ACCORDANCE WITH THE FIRE HYDRANT INSTALLATION DETAIL (SEE SHEET C4.03–C4.05)
2. CONTRACTOR TO FIELD VERIFY EXACT LOCATIONS OF ALL EXISTING UTILITIES HORIZONTALLY AND VERTICALLY PRIOR TO CONSTRUCTION.
3. ALL VALVES SHALL READ "OPEN RIGHT"
4. ALL FIRE HYDRANTS SHALL BE PAINTED APPROPRIATE ECSUD COLORS.
5. FIRE HYDRANTS AND VALVE BOXES TO BE RAISED TO THE PROPOSED TOP OF PAVEMENT OR GROUND ELEVATION.
6. ALL WATER PIPE TO BE C-900, DR-18, CLASS 150 UNLESS OTHERWISE NOTED.
7. PER TCEQ TAC 217.53(d)(7)(B), WASTEWATER MAIN ENCASEMENT AT W/WW/CULVERT CROSSING IS REQUIRED. ENCASEMENT TO FOLLOW TCEQ TAC 217.53 (d)(7)(D).
8. PER TCEQ TAC 290.44(e)(4)(B)(i), IF EXISTING WASTEWATER MAIN AT W/WW/CULVERT CROSSING IS DISTURBED OR SHOWS SIGNS OF LEAKING DURING CONSTRUCTION THE EXISTING MAIN MAY REQUIRE ENCASEMENT AND REPLACEMENT WITH PRESSURE-RATED PIPE.

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.

JOINT RESTRAINT NOTE:

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

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WATER/DRAIN CROSSING DETAIL "A"
NOT TO SCALE

TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
NOT-TO-SCALE

NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102466
LICENSED PROFESSIONAL ENGINEER
8/27/25

PAPE–DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

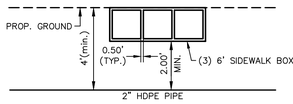
STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS

OVERALL WATER DISTRIBUTION PLAN

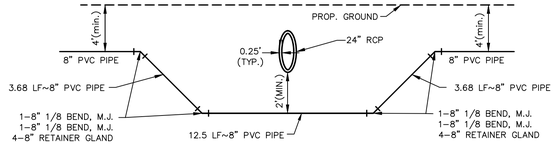
PLAT NO. 25-11800200
JOB NO. 12482–21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C4.00

Date: February 3, 2025, 4:35 PM – User ID: rodolfo.gallegos
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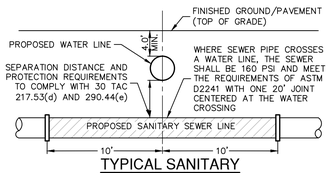


WATER/DRAIN CROSSING DETAIL "B"
NOT TO SCALE



NOTE: ALL RETAINER GLANDS SHALL BE MEG-A-LUG TYPE

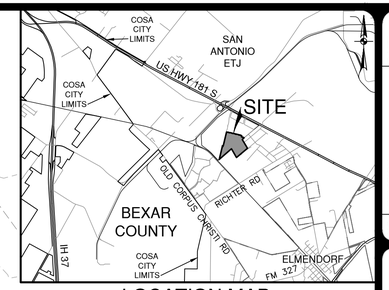
WATER/DRAIN CROSSING DETAIL "C"
NOT TO SCALE



TYPICAL SANITARY
SEWER/WATER CROSSING DETAIL
NOT-TO-SCALE

FIRE FLOW NOTE:

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



LOCATION MAP
NOT-TO-SCALE

MATCHLINE "C" - SEE SHEET C4.02

MATCHLINE "B" - SEE SHEET C4.00

MATCHLINE "B" - SEE SHEET C4.00

MATCHLINE "C" - SEE SHEET C4.02

STONE GARDEN UNIT 2 (VOL.20003, PG. 1807 PR)

STONE GARDEN UNIT 4A (PLAT# 24-11800158)

50' SANITARY SEWER EASEMENT (PLAT# 24-11800158)

27.54 ACRES JOSE M. GARZA (VOL. 9969, PG. 744 OPR)

11.089 ACRES EFRAIN V. HERNANDEZ (DOC. #20200064169 OPR)

60' INGRESS/EGRESS EASEMENT JOSE M. GARZA AND DAISY I. GARZA (VOL.9969, PG. 744 OPR)

11.089 ACRES EFRAIN V. HERNANDEZ (DOC. #20200064169 OPR)

PALM PARK (VOL. 3975, PG. 57 DPR)

PALM PARK (VOL. 3975, PG. 57 DPR)

PICKLEWEED RIDGE (50' RIGHT-OF-WAY)

PURPLE SAGE RIDGE (50' RIGHT-OF-WAY)

CANYON MAPLE COVE (VARIABLE WIDTH RIGHT-OF-WAY)

SODQUITE WAY (VARIABLE WIDTH RIGHT-OF-WAY)

COPPERLEAF RIDGE (50' RIGHT-OF-WAY)

RICEGRASS CREEK (50' RIGHT-OF-WAY)

PALM PARK BLVD (60' RIGHT-OF-WAY)

PARKETT DRIVE (60' RIGHT-OF-WAY)

CB 4007 BLOCK 254

CB 4007 BLOCK 262

CB 4007 BLOCK 282

CB 4007 BLOCK 283

CB 4007 BLOCK 284

CB 4007 BLOCK 285

CB 4007 BLOCK 286

BLOCK 6

BLOCK 7

1-8"X6" ANCHOR TEE, M.J.
1-STD. FIRE HYDRANT ASSEMBLY
1-6" GATE VALVE, M.J.
1-6" VALVE BOX, COMPLETE
1-6" ¾ BEND, M.J.
1-STD. FIRE HYDRANT
6" D.I. PIPE, CUT AND RESTRAIN AS REQUIRED (SEE ECSUD DETAIL SHEETS C4.03–C4.05)

1-8"X8" ANCHOR TEE, M.J.
3-8" GATE VALVE, M.J.
3-6" VALVE BOX, COMPLETE

1-8"X8" ANCHOR CROSS, M.J.
4-8" GATE VALVE, M.J.
4-6" VALVE BOX, COMPLETE

1-8"X2" ECCENTRIC REDUCER M.J.
1-2" PERMANENT BLOW-OFF ASSEMBLY (SEE ECSUD DETAIL SHEET C4.03–C4.05)

1-8"X2" ECCENTRIC REDUCER M.J.
1-2" TEMPORARY BLOW-OFF ASSEMBLY (SEE ECSUD DETAIL SHEET C4.03–C4.05) CONTRACTOR SHALL TIE TO EXISTING 6" POTABLE WATER MAIN AFTER DISINFECTION & ACCEPTANCE BY ECSUD

2-8" ⅛ BEND, M.J.
1-8"x6" REDUCER M.J.

CAUTION!!! WATER/SEWER CROSSING

CAUTION!!! WATER/DRAIN CROSSING SEE DETAIL "B" THIS SHEET

CAUTION!!! WATER/DRAIN CROSSING SEE DETAIL "C" THIS SHEET

DRAIN "K2" SEE SHEET C1.06–C1.08

DRAIN "K1" SEE SHEET C1.09

DRAIN "M2" SEE SHEET C1.14 – C1.15

DRAIN "M1" SEE SHEET C1.11 – C1.12

DRAIN "M1.1" SEE SHEET C1.13

DRAIN "L" SEE SHEET C1.10

DETENTION BASIN "E" SEE SHEET C9.00

R54.00' ±274 LF ~ 2" HDPE

±32 LF~2" HDPE

±9 LF~2" HDPE

±15 LF~8" C-900 PVC (DR18) PIPE

±8 LF~8" C-900 PVC (DR18) PIPE

±30 LF~8" C-900 PVC (DR18) PIPE

±5 LF~8" C-900 PVC (DR18) PIPE

±11 LF~8" C-900 PVC (DR18) PIPE

±14 LF~8" C-900 PVC (DR18) PIPE

±50 LF~8" C-900 PVC (DR18) PIPE

±160 LF~8" C-900 PVC (DR18) PIPE

±100 LF~8" C-900 PVC (DR18) PIPE

±22 LF~8" C-900 PVC (DR18) PIPE

±28 LF~8" C-900 PVC (DR18) PIPE

±290 LF~8" C-900 PVC (DR18) PIPE

±53 LF~8" C-900 PVC (DR18) PIPE

±70 LF~8" C-900 PVC (DR18) PIPE

±95 LF~8" C-900 PVC (DR18) PIPE

±285 LF~8" C-900 PVC (DR18) PIPE

±10 LF~8" C-900 PVC (DR18) PIPE

±304 LF~8" C-900 PVC (DR18) PIPE

±204 LF~8" C-900 PVC (DR18) PIPE

±205 LF~8" C-900 PVC (DR18) PIPE

±208 LF~8" C-900 PVC (DR18) PIPE

±252 LF~8" C-900 PVC (DR18) PIPE

±217 LF~8" C-900 PVC (DR18) PIPE

±9 LF~8" C-900 PVC (DR18) PIPE

±55 LF~8" C-900 PVC (DR18) PIPE

±92 LF~8" C-900 PVC (DR18) PIPE

±128 LF~8" C-900 PVC (DR18) PIPE

±325 LF~8" C-900 PVC (DR18) PIPE

±290 LF~8" C-900 PVC (DR18) PIPE

±22 LF~8" C-900 PVC (DR18) PIPE

±170 LF~8" C-900 PVC (DR18) PIPE

±30 LF~8" C-900 PVC (DR18) PIPE

1-8" ⅛ BEND, M.J.

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

1-8" 1/16 BEND, M.J.

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

1-8" 1/4 BEND, M.J.

10' GETCTV EASEMENT
10' BUILDING SETBACK

15' BUILDING SETBACK
13' GETCTV EASEMENT

1' VEHICULAR NON-ACCESS EASEMENT

EXISTING EDGE OF PAVEMENT

SCALE: 1"= 50'
0' 50' 100' 150'

WATER LEGEND

PROJECT LIMITS	
UNDERGROUND FIBER OPTIC	UFO
OVERHEAD ELECTRICAL	OHE
ASBESTOS CEMENT PIPE	ACP
EXISTING WATER	FIRE HYDRANT, W
EXISTING SEWER	SS, MANHOLE
PROPOSED SEWER	SS, FIRE HYDRANT
PROPOSED WATER	W
PROPOSED 1" SINGLE SERVICE WITH 5/8" METER	
PROPOSED 1" DUAL SERVICE WITH 5/8" METER	
1" SINGLE IRRIGATION SERVICE WITH 5/8" METER	IRR
JOINT RESTRAINT	⊠
VEHICULAR NON-ACCESS EASEMENT	VNAE
CLEAR VISION EASEMENT	CVE
EXISTING TREES TO REMAIN UNDISTURBED	
EXISTING TREES TO BE REMOVED	

GENERAL NOTES:

1. FIRE HYDRANT SHALL BE LOCATED BEHIND SIDEWALK IN ACCORDANCE WITH THE FIRE HYDRANT INSTALLATION DETAIL (SEE SHEET C4.03–C4.05)
2. CONTRACTOR TO FIELD VERIFY EXACT LOCATIONS OF ALL EXISTING UTILITIES HORIZONTALLY AND VERTICALLY PRIOR TO CONSTRUCTION.
3. ALL VALVES SHALL READ "OPEN RIGHT"
4. ALL FIRE HYDRANTS SHALL BE PAINTED APPROPRIATE ECSUD COLORS.
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6. ALL WATER PIPE TO BE C-900, DR-18, CLASS 150 UNLESS OTHERWISE NOTED.
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NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102466
LICENSED
PROFESSIONAL ENGINEER
8/27/25

PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS

OVERALL WATER DISTRIBUTION PLAN

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C4.01

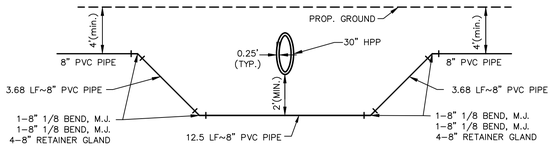
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WATER LEGEND

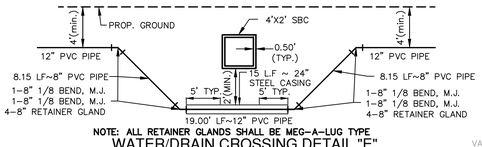
PROJECT LIMITS	
UNDERGROUND FIBER OPTIC	UFO UFO
OVERHEAD ELECTRICAL	OHE OHE
ASBESTOS CEMENT PIPE	ACP
FIRE HYDRANT	
EXISTING WATER	W
EXISTING SEWER	SS
MANHOLE	
PROPOSED SEWER	SS
FIRE HYDRANT	
PROPOSED WATER	W
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TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
NOT-TO-SCALE



NOTE: ALL RETAINER GLANDS SHALL BE MEG-A-LUG TYPE

WATER/DRAIN CROSSING DETAIL "D"
NOT TO SCALE

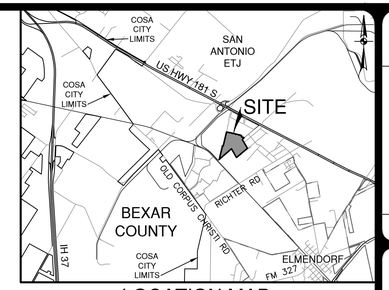


NOTE: ALL RETAINER GLANDS SHALL BE MEG-A-LUG TYPE

WATER/DRAIN CROSSING DETAIL "E"
NOT TO SCALE

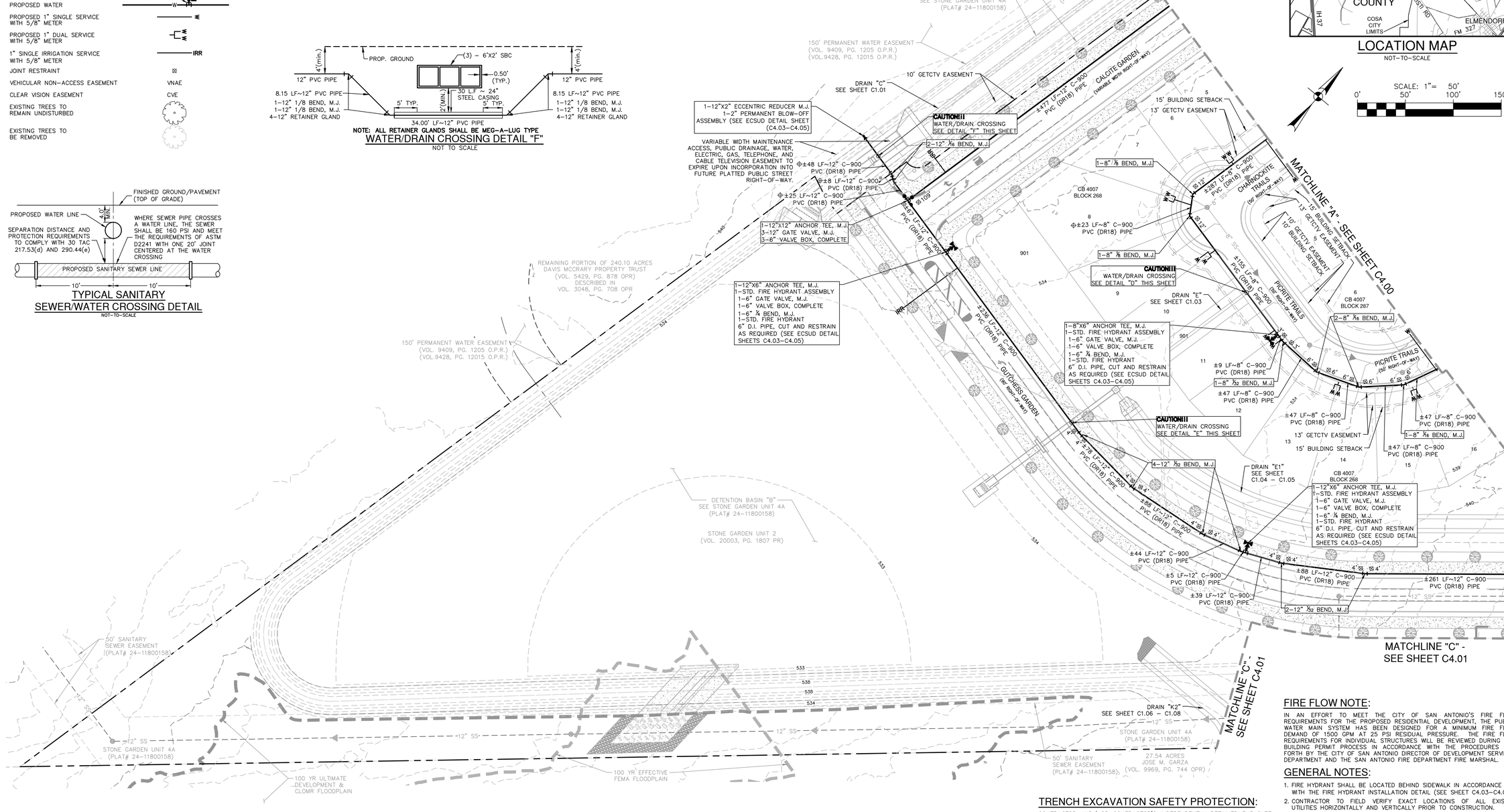
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WATER/DRAIN CROSSING DETAIL "F"
NOT TO SCALE



LOCATION MAP
NOT-TO-SCALE

SCALE: 1"= 50'
0' 50' 100' 150'



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NO.	REVISION	DATE

STATE OF TEXAS
JIM G. WELCH
102486
LICENSED
PROFESSIONAL ENGINEER
8/27/25

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2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
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STONE GARDEN UNIT 5A
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OVERALL WATER DISTRIBUTION PLAN

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DESIGNER LM
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Date: February 3, 2025, 4:37 PM - User ID: rodolfo.gallegos
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TESTING OF PRESSURE PIPELINES

1.0 DESCRIPTION

This item shall govern the furnishing of all labor, materials, tools, equipment and related items required to perform hydrostatic testing of Ductile Iron and Polyvinyl Chloride (PVC) pressure pipelines for integrity and leakage.

2.0 MATERIALS

Not applicable.

3.0 CONSTRUCTION METHODS

A. For Ductile Iron Pipe, make hydrostatic pressure and leakage tests on entire pipeline in accordance with AWWA Standard C600-99, Section 5.2.

B. For PVC Pipe, make hydrostatic pressure and leakage tests on entire pipeline in accordance with AWWA Standard C605-94, Section 7.3.

C. Furnish all labor equipment, including test pump with regulated by-pass meters and gauges required for conducting pipeline tests. Furnish equipment and necessary piping as required to transport water used in testing from source to test location.

D. Schedule time and sequence of testing, subject to observation and approval by the Owner or Owner's Representative. Provide adequate labor, tools and equipment to operate valves and to locate and repair leaks discovered during the initial filling of the pipeline prior to actual testing or during the course of the tests.

E. After the pipe has been laid and backfilled and the backfill has been jetted or otherwise consolidated, subject all newly laid pipe or valved section thereof to the hydrostatic pressure specified below for the particular type of pipe. The duration of each pressure test shall be at least four hours, unless otherwise specified or noted on the plans. Disconnect all meters, fixtures, devices or appliances which are connected to the pipeline system and which might be damaged if subjected to the specified test pressure. Cap or plug the ends of the branch lines during the testing procedures.

F. Fill each valved (capped or plugged) section of pipe slowly with water and expel all air. If permanent air vents are not located at all high points, install corporation or blow-of cocks at such points so that the air can be expelled as filling takes place. After verification that all air has been expelled, close the cocks and keep the pipe filled until tested. Examine unexposed pipe, fittings, valves, hydrants and joints while under test pressure. Visible leaks shall be stopped. Remove and replace cracked or defective pipe, fittings, valves or hydrants discovered during testing. Replacement shall be with sound material. Repeat the test until specified requirements are achieved.

G. Where any section of a pipeline is proved with concrete thrust blocking, do not make hydrostatic pressure test until at least five days have elapsed after installation of the blocking.

H. Pressure/Leakage Tests

1. The duration of the hydrostatic test shall be a minimum of four (4) hours.
2. The pipeline shall be tested so that the pressure at the highest point in the test section is not less than 200 psi.
3. The maximum allowable leakage is the number of gallons per hour as determined by the following formulas.
   a. For Ductile Iron Pipe:

$$L = \frac{SD\sqrt{P}}{133,200}$$

Where:
L = allowable leakage, in gallons per hour
S = length of pipe tested, in feet
D= nominal diameter of the pipe, in inches
P = 200, in psig

   b. For PVC Pipe:

$$L = \frac{ND\sqrt{P}}{7,400}$$

Where:
L = allowable leakage, in gallons per hour
N= number of joints in the length of pipeline tested
D= nominal diameter of the pipe, in inches
P = 200, in psig

H. Final Acceptance

1. No pipe installation will be accepted until known leaks have been repaired, whether or not leakage is within allowable limits. Locate and repair leaks at no additional cost to the Owner.
2. The Contractor will certify that all required pressure and leakage tests have been successfully completed before the pipeline is accepted.

I. Special Project Requirements

Water Source. Obtaining water for testing purposes shall be the responsibility of the Contractor. The Contractor shall provide all equipment and labor required to transport water from the source to the test point.

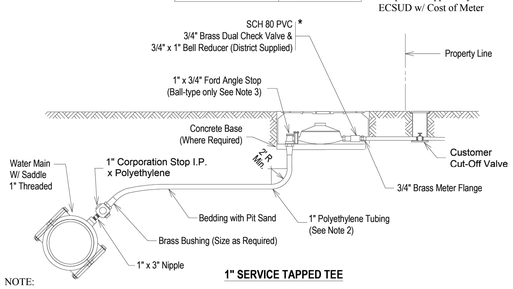
4.0 MEASUREMENT AND PAYMENT

No direct measurement or payment will be made for the work to be done or the equipment to be furnished under this item, but shall be considered subsidiary to the particular items of work for which unit prices are required in the proposal.

East Central SUD	TESTING FOR PRESSURE PIPELINES	APPROVED	REVISED
		JULY 2022	
		DET-100-Ø1	SHEET 1 OF 1

PIPE TAPPING SCHEDULE	
PIPE DIAMETER	SERVICE SIZE 1"
6" A.C.	Tap With Service Saddle
6" C.I. or D.I.	Tap With Service Saddle
8" A.C.	Tap With Service Saddle
8" C.I. or D.I.	Tap With Service Saddle
8" PVC	Tap With Service Saddle
10" A.C.	Tap With Service Saddle
10" C.I. or D.I.	Tap With Service Saddle
10" PVC	Tap With Service Saddle
12" A.C.	Tap With Service Saddle
12" C.I. or D.I.	Tap With Service Saddle
12" PVC	Tap With Service Saddle
16" A.C.	Tap With Service Saddle
16" C.I. or D.I.	Tap With Service Saddle

* Tailpieces Supplied by ECSUD w/ Cost of Meter

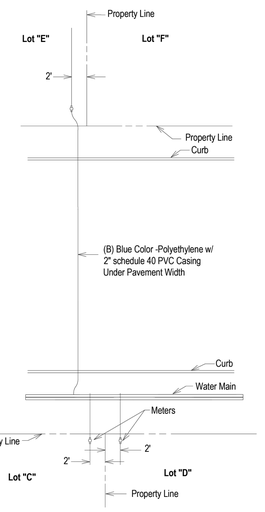


1" SERVICE TAPPED TEE

NOTE:
1. No Direct Tap to Main, Saddle Required
2. Polyethylene Shall be 250 psi Rated - Color Blue
3. FORD Angle Stop BA43-342-WNL
4. Meter Box Shall be DFW 36C
5. 2" HDPE Main Will Use FORD 2" CT's x 1" FIPT Tee (T441-774NL)

FOR PERFERED MANUFACTURERS SEE STANDARD SPECIFICATIONS

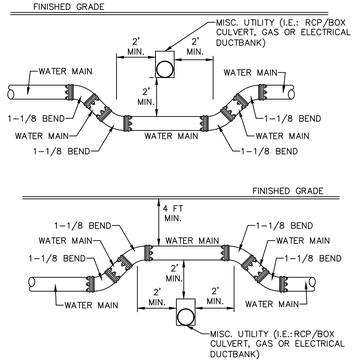
East Central SUD	1" SERVICE INSTALLATION TAPPING SCHEDULE	APPROVED	REVISED
		FEBRUARY 2025	
		DET-824-Ø1	SHEET 1 OF 1



NOTE:
1. All Services to have Tracer Wire Installed.
2. All Service to be Sand Bedded with Pit Sand.
3. Service Casing Begins 3' from the Main and Ends 3' from the Angle Stop.
4. Use Meter Box DFW 36-C for Single Services
5. 2" HDPE Main Will Use FORD 2" CT's x 1" FIPT Tee (T441-774NL)

SINGLE SERVICE LINE - SINGLE METER

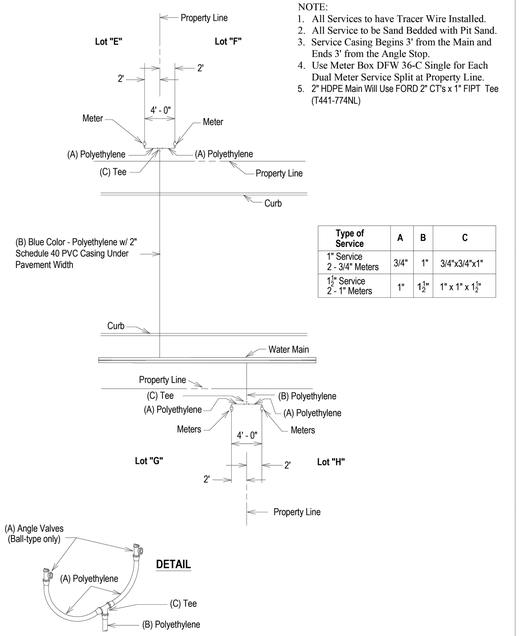
East Central SUD	TYPICAL SERVICE ARRANGEMENT	APPROVED	REVISED
		FEBRUARY 2025	
		DET-824-Ø5	SHEET 1 OF 4



ALL JOINTS ARE FULLY RESTRAINED IN ACCORDANCE WITH ECSUD SPECIFICATIONS.

TYPICAL UTILITY/WATER CROSSING DETAIL

NOT-TO-SCALE

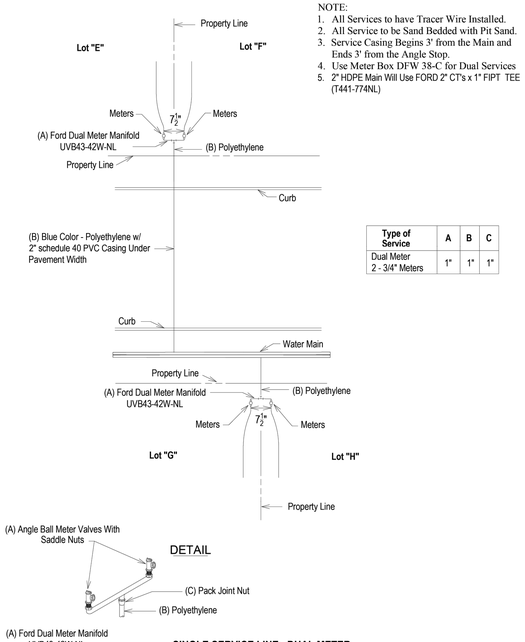


Type of Service	A	B	C
1" Service 2 - 3/4" Meters	3/4"	1"	3/4"x3/4"x1"
1½" Service 2 - 1" Meters	1"	1½"	1" x 1" x 1½"

NOTE:
1. All Services to have Tracer Wire Installed.
2. All Service to be Sand Bedded with Pit Sand.
3. Service Casing Begins 3' from the Main and Ends 3' from the Angle Stop.
4. Use Meter Box DFW 36-C Single for Each Dual Meter Service Split at Property Line.
5. 2" HDPE Main Will Use FORD 2" CT's x 1" FIPT Tee (T441-774NL)

SINGLE SERVICE LINE - DUAL METER

East Central SUD	TYPICAL RURAL SERVICE ARRANGEMENT	APPROVED	REVISED
		FEBRUARY 2025	
		DET-824-Ø5	SHEET 2 OF 4

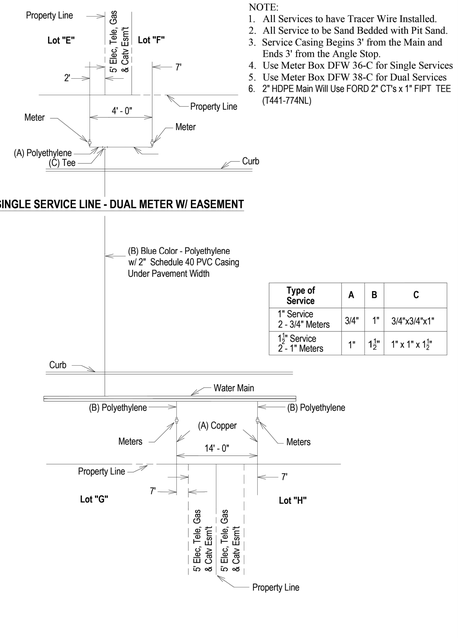


Type of Service	A	B	C
Dual Meter 2 - 3/4" Meters	1"	1"	1"

NOTE:
1. All Services to have Tracer Wire Installed.
2. All Service to be Sand Bedded with Pit Sand.
3. Service Casing Begins 3' from the Main and Ends 3' from the Angle Stop.
4. Use Meter Box DFW 38-C for Dual Services
5. 2" HDPE Main Will Use FORD 2" CT's x 1" FIPT TEE (T441-774NL)

SINGLE SERVICE LINE - DUAL METER

East Central SUD	TYPICAL HIGH DENSITY RESIDENTIAL SERVICE ARRANGEMENT	APPROVED	REVISED
		FEBRUARY 2025	
		DET-824-Ø5	SHEET 3 OF 4



NOTE:
1. All Services to have Tracer Wire Installed.
2. All Service to be Sand Bedded with Pit Sand.
3. Service Casing Begins 3' from the Main and Ends 3' from the Angle Stop.
4. Use Meter Box DFW 36-C for Single Services
5. Use Meter Box DFW 38-C for Dual Services
6. 2" HDPE Main Will Use FORD 2" CT's x 1" FIPT TEE (T441-774NL)

Type of Service	A	B	C
1" Service 2 - 3/4" Meters	3/4"	1"	3/4"x3/4"x1"
1½" Service 2 - 1" Meters	1"	1½"	1" x 1" x 1½"

SINGLE SERVICE LINE - DUAL METER W/ EASEMENT

SINGLE SERVICE LINE W/ EASEMENT

East Central SUD	TYPICAL SERVICE ARRANGEMENT	APPROVED	REVISED
		FEBRUARY 2025	
		DET-824-Ø5	SHEET 4 OF 4

NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102466
LICENSED
PROFESSIONAL ENGINEER
8/27/25

PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

STONE GARDEN UNIT 5A

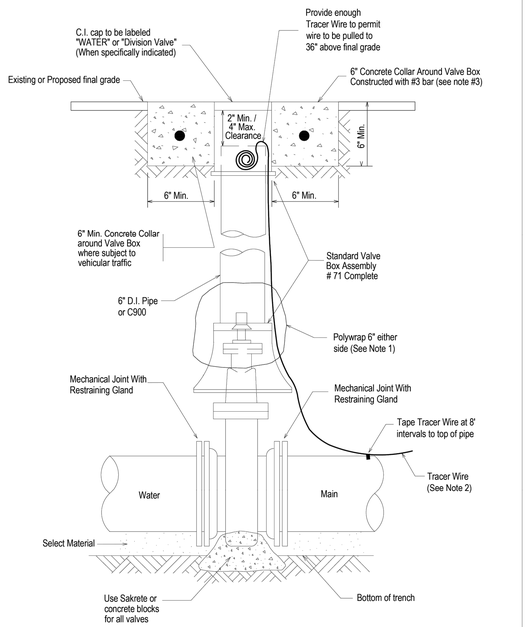
BEXAR COUNTY, TEXAS

OVERALL WATER DISTRIBUTION DETAILS

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C4.03

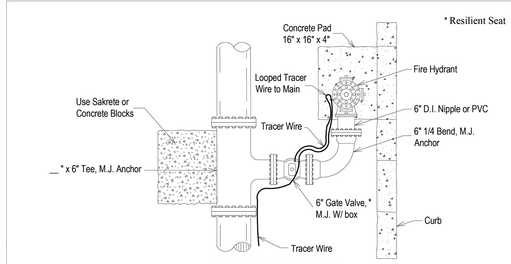
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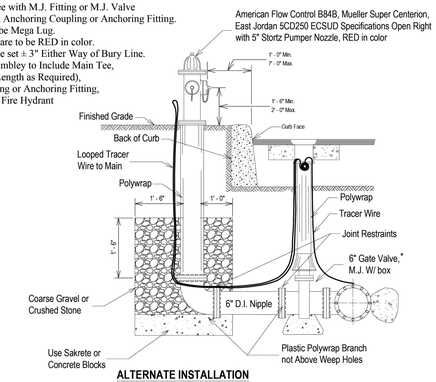
NOTE:
1. Polywrap C-900 or D.I. Pipe to Boot 6" on Either Side.
2. Tracer Wire to be Outside the Pipe Till Valve Box Top Section.
3. Min. 18" Concrete Form Tube Centered Around Valve Box for Concrete Collar W/ #3 Bar.

East Central SUD	INSTALLATION OF NON-GEARED GATE VALVE WITH VALVE BOX AND EXTENSION	APPROVED	REVISED
		JULY 2022	
		DET-828-Ø1	SHEET 1 OF 1



PREFERRED INSTALLATION
Plan shown, with Bend

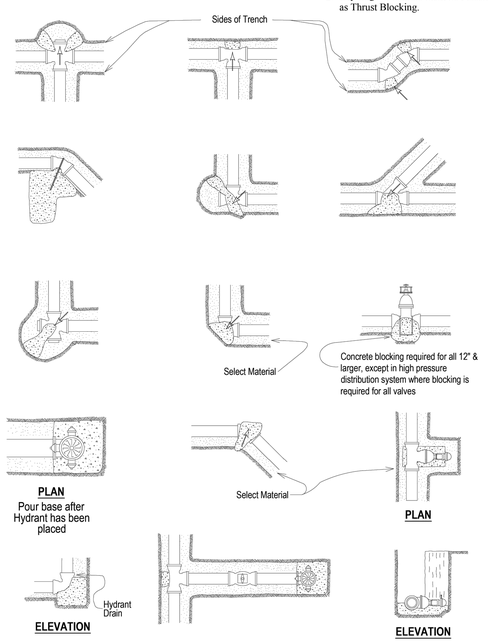
NOTE:
1. Polywrap Below Ground
2. Use Anchoring Tee with M.J. Fitting or M.J. Valve
3. Std. M.J. Tee with Anchoring Coupling or Anchoring Fitting.
4. All Fittings Shall be Mega Lug.
5. All Fire Hydrants are to be RED in color.
6. Fire Hydrants to be set ± 3" Either Way of Bury Line.
7. Fire Hydrant Assembly to Include Main Tee, 2 - D.I. Nipples (Length as Required), Anchoring Coupling or Anchoring Fitting, 6" - 90° Bend and Fire Hydrant



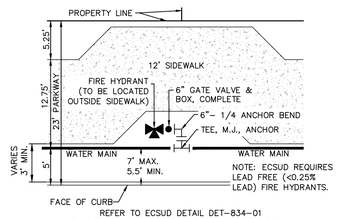
ALTERNATE INSTALLATION
Profile shown, without Horizontal Bend

East Central SUD	FIRE HYDRANT INSTALLATION	APPROVED	REVISED
		FEBRUARY 2025	
		DET-834-Ø1	SHEET 1 OF 1

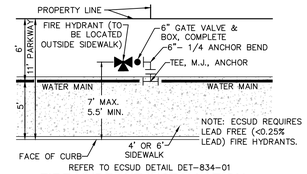
NOTE:
1. All Fittings Shall be Mega Lug
2. Dry Bags of Sakrete Shall be Placed as Thrust Blocking.



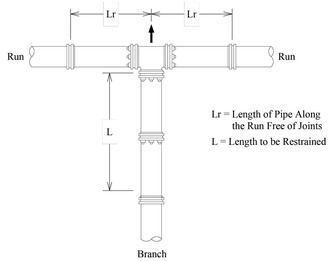
East Central SUD	THRUST BLOCKS FOR FITTINGS (WATER ONLY)	APPROVED	REVISED
		FEBRUARY 2025	
		DET-839-Ø1	SHEET 1 OF 1



FIRE HYDRANT INSTALLATION
NOT-TO-SCALE



FIRE HYDRANT INSTALLATION
NOT-TO-SCALE



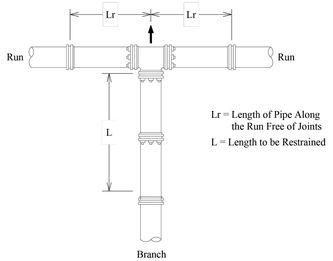
RESTRAINED LENGTH FOR TEES

PIPE SIZE (Inch)	BRANCH SIZE (Inch)	LENGTH OF RUN (Feet)	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE=200 psi
6	4	0	42
6	4	5	7
6	4	10	1
6	6	0	59
6	6	5	35
6	6	10	11
8	4	0	42
8	4	5	1
8	6	0	59
8	6	5	28
8	6	10	1
8	8	0	77
8	8	5	53
8	8	10	30
8	8	15	6

RESTRAINED LENGTH DESIGN
Restrained Length Calculations are for P.V.C. Pipe Bedded in Compacted Granular Material Extending to the Top of the Pipe. The Native Soil Material is Assumed to be Inorganic Clay of High Plasticity. Depth of Bury is Assumed to be 4 Feet Min. and 5 Feet Max.

NOTE:
1. These Calculations are Provided for Reference. The Restrained Length Shall be Designed Based Upon the Conditions Encountered During Installation.
2. All joints within the calculated length must be restrained.
3. If your distance between fittings is less than or equal to the calculated restraint length, restrain all joints between those fittings.
4. When a valve is added see DET-893-03 for restrained length from a valve.

East Central SUD	RESTRAINED LENGTHS FOR TEES INSTALLED ON 6" TO 8" MAINS	APPROVED	REVISED
		FEBRUARY 2025	
		DET-839-02	SHEET 1 OF 4



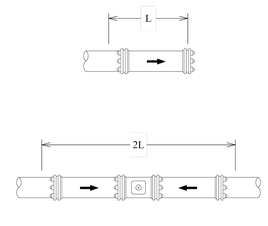
RESTRAINED LENGTH FOR TEES

PIPE SIZE (Inch)	BRANCH SIZE (Inch)	LENGTH OF RUN (Feet)	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE=200 psi
12	4	0	42
12	4	5	1
12	6	0	59
12	6	5	13
12	6	10	1
12	8	0	77
12	8	5	42
12	8	10	7
12	8	15	1
12	12	0	109
12	12	5	86
12	12	10	63
12	12	15	39

RESTRAINED LENGTH DESIGN
Restrained Length Calculations are for P.V.C. Pipe Bedded in Compacted Granular Material Extending to the Top of the Pipe. The Native Soil Material is Assumed to be Inorganic Clay of High Plasticity. Depth of Bury is Assumed to be 4 Feet Min. and 5 feet Max.

NOTE:
1. These Calculations are Provided for Reference. The Restrained Length Shall be Designed Based Upon the Conditions Encountered During Installation.
2. All joints within the calculated length must be restrained.
3. If your distance between fittings is less than or equal to the calculated restraint length, restrain all joints between those fittings.
4. When a valve is added see DET-893-03 for restrained length from a valve.

East Central SUD	RESTRAINED LENGTHS FOR TEES INSTALLED ON 12" MAINS	APPROVED	REVISED
		FEBRUARY 2025	
		DET-839-02	SHEET 2 OF 4



L = Length to be Restrained

PIPE SIZE (Inch)	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE=200 psi
6	59
8	77
10	93
12	109
16	117
20	145
24	172

RESTRAINED LENGTH DESIGN
Restrained Length Calculations are for P.V.C. Pipe Bedded in Compacted Granular Material Extending to the Top of the Pipe. The Native Soil Material is Assumed to be Inorganic Clay of High Plasticity. Depth of Bury is Assumed to be 4 Feet Min. and 5 feet Max.

NOTE:
1. These Calculations are Provided for Reference. The Restrained Length Shall be Designed Based Upon the Conditions Encountered During Installation.
2. All joints within the calculated length must be restrained.
3. If your distance between fittings is less than or equal to the calculated restraint length, restrain all joints between those fittings.

East Central SUD	RESTRAINED LENGTHS FOR DEAD ENDS / INLINE VALVES ON 6" THRU 24" MAINS	APPROVED	REVISED
		FEBRUARY 2025	
		DET-839-03	SHEET 1 OF 1

NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102466
LICENSED PROFESSIONAL ENGINEER
8/27/25

PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

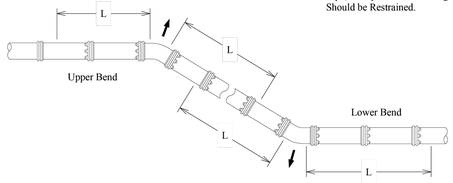
STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS
OVERALL WATER DISTRIBUTION DETAILS

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C4.04

Date: February 3, 2025, 3:28 PM — User ID: rodolfo.gallegos
File: P:\24\82\21\Design\Civil\WTD1248221.dwg

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L = Length to be Restrained on Both Sides of Fitting. When Restrained Lengths Overlap on the Diagonal Pipe, all Pipe Between Fittings Should be Restrained.



PIPE SIZE (Inch)	BEND ANGLE (deg.)	LOW SIDE DEPTH	UPPER BEND RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE=200 psi	LOWER BEND RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE=200 psi
6	45	5	24	8
6	22.5	5	12	4
6	11.25	5	6	2
6	45	10	24	5
6	22.5	10	12	2
6	11.25	10	6	1
8	45	5	32	11
8	22.5	5	15	5
8	11.25	5	8	3
8	45	10	32	7
8	22.5	10	15	3
8	11.25	10	8	2
12	45	5	45	16
12	22.5	5	22	7
12	11.25	5	11	4
12	45	10	45	10
12	22.5	10	22	5
12	11.25	10	11	2

RESTRAINED LENGTH DESIGN

Restrained Length Calculations are for P.V.C. Pipe Bedded in Compacted Granular Material Extending to the Top of the Pipe. The Native Soil Material is Assumed to be Inorganic Clay of High Plasticity. Depth of Bury is Assumed to be 4 Feet Min. and 5 feet Max.

NOTE:
1. These Calculations are Provided for Reference. The Restrained Length Shall be Designed Based Upon the Conditions Encountered During Installation.
2. All joints within the calculated length must be restrained.
3. If your distance between fittings is less than or equal to the calculated restraint length, restrain all joints between those fittings.
4. When a valve is added see DET-893-03 for restrained length from a valve.

East Central SUD — OUR QUALITY IS CLEAR

RESTRAINED LENGTHS VERTICAL OFFSETS INSTALLED ON 6" THRU 12" MAINS

APPROVED	REVISED
FEBRUARY 2025	
DET-839-04	SHEET 1 OF 2

L = Length to be Restrained

PIPE SIZE (Inch)	SMALL SIZE (Inch)	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE=200 psi
6	4	30
8	4	55
8	6	32
12	4	95
12	6	80
12	8	58
16	6	97
16	8	83
16	12	43
24	6	159
24	8	150
24	12	124
24	16	96
24	20	53

RESTRAINED LENGTH DESIGN

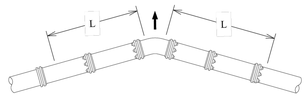
Restrained Length Calculations are for P.V.C. Pipe Bedded in Compacted Granular Material Extending to the Top of the Pipe. The Native Soil Material is Assumed to be Inorganic Clay of High Plasticity. Depth of Bury is Assumed to be 4 Feet Min. and 5 feet Max.

NOTE:
1. These Calculations are Provided for Reference. The Restrained Length Shall be Designed Based Upon the Conditions Encountered During Installation.
2. All joints within the calculated length must be restrained.
3. If your distance between fittings is less than or equal to the calculated restraint length, restrain all joints between those fittings.
4. When a valve is added see DET-893-03 for restrained length from a valve.

East Central SUD — OUR QUALITY IS CLEAR

RESTRAINED LENGTHS FOR REDUCERS ON 6" THRU 24" MAINS

APPROVED	REVISED
FEBRUARY 2025	
DET-839-05	SHEET 1 OF 1



L = Length to be Restrained on Both Sides of Fitting

PIPE SIZE (Inch)	BEND ANGLE (deg)	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE=200 psi
6	90	23
6	45	9
6	22.5	5
6	11.25	2
8	90	30
8	45	12
8	22.5	6
8	11.25	3
12	90	43
12	45	18
12	22.5	8
12	11.25	4
16	90	59
16	45	25
16	22.5	12
16	11.25	6
24	90	86
24	45	36
24	22.5	17
24	11.25	9

RESTRAINED LENGTH DESIGN

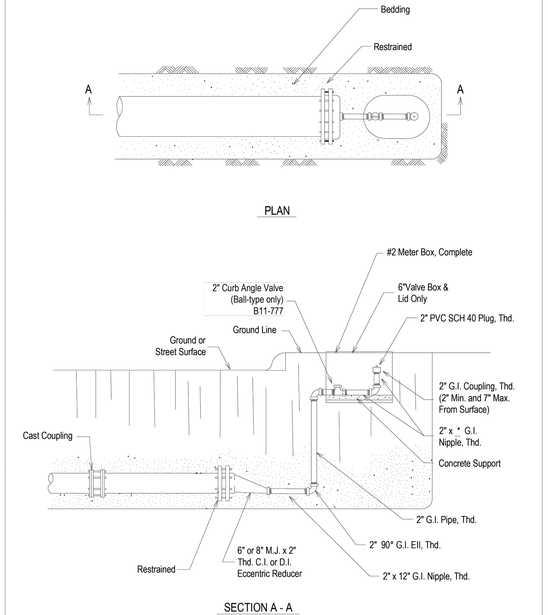
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2. All joints within the calculated length must be restrained.
3. If your distance between fittings is less than or equal to the calculated restraint length, restrain all joints between those fittings.
4. When a valve is added see DET-893-03 for restrained length from a valve.

East Central SUD — OUR QUALITY IS CLEAR

RESTRAINED LENGTHS FOR HORIZONTAL BENDS ON 6" THRU 24" MAINS

APPROVED	REVISED
FEBRUARY 2025	
DET-839-06	SHEET 1 OF 1

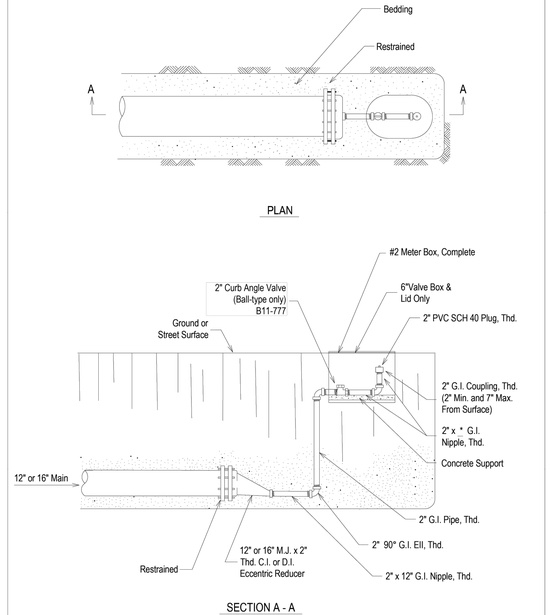


* Cut to Fit in Meter Box

East Central SUD — OUR QUALITY IS CLEAR

2" PERMANENT BLOW-OFF ASSEMBLY ON 6" AND 8" MAINS

APPROVED	REVISED
JANUARY 2025	
DET-844-02	SHEET 1 OF 2



* Cut to Fit in Meter Box

East Central SUD — OUR QUALITY IS CLEAR

2" PERMANENT BLOW-OFF ASSEMBLY ON 12" AND 16" MAINS

APPROVED	REVISED
JANUARY 2025	
DET-844-02	SHEET 2 OF 2

GENERAL NOTES

1. ALL VALVES SHALL REMAIN CLOSED UNTIL MAINS HAVE BEEN DISINFECTED, FLUSHED, AND RELEASED FOR PUBLIC USE BY THE ENGINEER.
2. EXISTING UTILITIES SHOWN ARE TAKEN FROM VARIOUS UTILITY COMPANY RECORDS. CONTRACTORS SHALL VERIFY THE EXACT LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND DRAINAGE STRUCTURES, WHETHER SHOWN ON THE PLANS OR NOT, PRIOR TO BEGINNING CONSTRUCTION. CONTRACTORS SHALL BE RESPONSIBLE FOR THE PROTECTION OF EXISTING UTILITIES AND DRAINAGE STRUCTURES DURING CONSTRUCTION.
3. ALL EXCAVATION SHALL BE UNCLASSIFIED REGARDLESS OF MATERIAL ENCOUNTERED.
4. BIDDERS ARE NOTIFIED TO MAKE SUBSURFACE INVESTIGATIONS AS THEY DEEM NECESSARY. NO ADDITIONAL PAYMENT WILL BE MADE FOR WATER, SAND, GRAVEL OR OTHER UNSTABLE CONDITIONS ENCOUNTERED IN EXCAVATIONS.
5. DETOUR OF TRAFFIC AROUND WORK ACTIVITIES, MAINTENANCE OF TRAFFIC CONTROL SIGNS, AND FLAGMEN ARE THE CONTRACTOR'S RESPONSIBILITY. NO SEPARATE PAYMENT WILL BE MADE.
6. THE CONTRACTOR SHALL PROTECT ALL OPEN EXCAVATIONS AND EQUIPMENT FROM CHILDREN, PEDESTRIANS, AND VEHICLES IN THE AREA.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE RESTORATION OF ALL FENCES IN THE WORK AREA TO THEIR ORIGINAL CONDITION PRIOR TO COMPLETION OF THE CONTRACT. THIS SHALL APPLY TO ALL FENCES IN THE WORK AREA WHETHER THEY ARE SHOWN ON THE PLANS OR NOT.
8. CONTRACTOR SHALL PRESERVE ALL CONSTRUCTION STAKES, MARKS, ETC. ANY CONSTRUCTION STAKES, MARKS, ETC., DESTROYED OR REMOVED BY THE CONTRACTOR OR HIS EMPLOYEES SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
9. THE CONTRACTOR SHALL CONFER WITH EACH INDIVIDUAL PROPERTY OWNER AS TO THE LOCATION OF EACH INDIVIDUAL METER BOX.
10. CONTRACTOR SHALL DISINFECT ALL NEW WATER MAINS BEFORE TYING INTO EXISTING WATER MAINS.
11. ALL VALVES SHALL BE PERMANENTLY MARKED BY THE USE OF A VALVE MARKER. NO SEPARATE PAY ITEM.
12. 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 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.
13. CONTRACTOR SHALL MAINTAIN FENCING FOR THE CONTAINMENT OF LIVESTOCK DURING CONSTRUCTION. ALL FENCES REMOVED FOR CONSTRUCTION SHALL BE REPLACED. ALL REQUIRED FENCING SHALL BE INCIDENTAL TO CONSTRUCTION AND NOT A SEPARATE PAY ITEM.
14. ALL DRIVEWAYS, INCLUDING DRAIN PIPES, CULVERTS AND HEADWALLS, DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED BY THE CONTRACTOR TO EQUAL OR BETTER THAN PRECONSTRUCTION CONDITION. ASPHALT DRIVES ARE NOT ALLOWED TO BE CUT WITHOUT OWNERS PERMISSION. INSTALLATION OF WATER MAINS CROSSING CONCRETE DRIVES WILL BE BORED. ALL DRAIN PIPE, CULVERT AND HEADWALL REPAIR SHALL BE INCIDENTAL TO CONSTRUCTION AND NOT A SEPARATE PAY ITEM. DRIVEWAY PAVEMENT REPAIR SHALL BE PAID FOR AS PER ITEM NO. 2260 "CONCRETE PAVEMENT REPAIR" AND PAYMENT. ASPHALT DRIVES, CONCRETE DRIVES, OR GRAVEL ROADS AND DRIVES. PAYMENT FOR BORES UNDER CONCRETE DRIVES DRIVES SHALL BE PAID FOR AS PER ITEM 02445 "BORING AND CASING PIPE UNDER HIGHWAYS, RAILROADS, OR OTHER AREAS".
15. LOCATIONS OF COMBINATION AIR VALVES WHERE SHOWN ON PLANS ARE APPROXIMATE. FINAL LOCATIONS TO BE ADJUSTED IN FIELD AT TIME OF CONSTRUCTION AT THE DIRECTION OF THE ENGINEER.
16. ALL WORK SHALL BE SCHEDULED TO TAKE PLACE ON MONDAY THROUGH FRIDAY, DURING NORMAL WORK HOURS. CONTRACTOR SHALL NOTIFY WSSC 48 HOURS PRIOR TO SERVICE SHUT OFF AFFECTING CUSTOMERS. SERVICE SHALL NOT BE SHUT OFF FOR MORE THAN EIGHT (8) HOURS AT A TIME.
17. THE CONTRACTOR SHALL IMMEDIATELY REPAIR OR REPLACE ANY PHYSICAL DAMAGE TO PROPERTY, INCLUDING, BUT NOT LIMITED TO, FENCES, PAVEMENT, DRIVEWAYS, LAWNS, CULVERTS, AND TREES, AT NO COST TO THE OWNER.
18. THE CONTRACTOR SHALL PROVIDE EROSION CONTROL AT ALL CULVERT, STREAM AND DRAINAGE SWALES CROSSINGS. EROSION CONTROL MEASURES SHALL INCLUDE AS A MINIMUM SILT FENCES. SILT FENCES SHALL BE INSTALLED PRIOR TO DISTURBANCE OF THE WORK AREAS. SILT FENCES SHALL REMAIN IN PLACE UNTIL FINAL STABILIZATION OF THE DISTURBED AREAS UPSTREAM. EROSION CONTROL SHALL BE COORDINATED WITH THE ENGINEER.
19. THE CONTRACTOR SHALL REMOVE AND REPLACE ANY MAILBOXES, TRAFFIC OR ROAD SIGNS ENCOUNTERED. NO SEPARATE PAY ITEM.
20. CONTRACTOR SHALL SUBMIT TO ENGINEER PROPOSED CONSTRUCTION SEQUENCE PRIOR TO BEGINNING CONSTRUCTION.
21. ALL FITTINGS ARE TO BE DUCTILE IRON, MECHANICAL JOINT TYPE, UNLESS OTHERWISE NOTED ON PLANS.
22. ALL THRUST BLOCKS SHALL BE INSPECTED BY OWNER AND/OR ENGINEER PRIOR TO BACKFILLING.
23. ALL EXISTING VALVES SHOWN ON PLANS TO BE ABANDONED, SHALL HAVE BOXES REMOVED AND SHALL BE BACKFILLED ACCORDING TO SPECIFICATIONS. NO SEPARATE PAY ITEM.
24. CONTRACTOR SHALL CONTAIN ALL CONSTRUCTION AND STAGING WITHIN EXISTING UTILITY EASEMENTS, UNLESS OTHER ARRANGEMENTS ARE MADE WITH OWNER AND/OR TxDOT.
25. WHERE THE NEW WATER MAIN SHOWN ON THE PLANS REQUIRES CROSSING AN EXISTING WATER MAIN OR OTHER UTILITY, THE CONTRACTOR SHALL VERTICALLY DEFLECT THE PROPOSED WATER MAIN. DEFLECTION SHALL BE IN ACCORDANCE WITH THE PIPE MANUFACTURER'S RECOMMENDATIONS. FITTINGS ARE NOT PERMISSIBLE, UNLESS OTHERWISE SHOWN ON THE PLANS. NO SEPARATE PAY ITEM.
26. WATER MAINS SHALL BE INSTALLED WITH 48" MINIMUM COVER OVER THE TOP OF THE PIPE AND A MAXIMUM DEPTH OF BURY OF 60", UNLESS OTHERWISE NOTED ON THE PLANS OR DIRECTED BY THE ENGINEER.
27. CONTRACTOR TO PROVIDE POSITIVE DRAINAGE AWAY FROM ALL CONCRETE FOUNDATIONS, VAULT BOXES AND OVERFLOW BOXES THROUGHOUT THE PROJECT SITE.
28. BUY AMERICAN STANDARDS SHALL BE ADHERED TO CONCERNING ALL STEEL OR IRON BASED MATERIALS.
29. ALL GATE VALVES SHALL "OPEN RIGHT".
30. AN AIR RELEASE VALVE SHALL BE INSTALLED AT THE HIGHEST ELEVATION POINT(S) OF THE WATER DISTRIBUTION SYSTEM LOCATED WITHIN A DEVELOPMENT. THE EXACT LOCATION SHALL BE COORDINATED IN THE FIELD AND VERIFIED AGAINST THE FINAL GRADING PLAN. INSTALLATION SHALL BE IN ACCORDANCE WITH THE ECSUD STANDARDS AND THE MANUFACTURER'S RECOMMENDATIONS. PROVIDE A VALVE BOX OR APPROVED ENCLOSURE FOR ACCESS AND MAINTENANCE.
31. A MINIMUM OF ONE (1) WATER SAMPLE STATION SHALL BE INSTALLED WITHIN A DEVELOPMENT TO ALLOW FOR ROUTINE WATER QUALITY MONITORING. THE SAMPLE STATION SHALL BE LOCATED NEAR THE SUBDIVISION ENTRANCE OFF A WATER MAIN IN A PUBLICLY ACCESSIBLE AREA, OR AT A REPRESENTATIVE LOCATION APPROVED BY ECSUD. THE STATION SHALL BE INSTALLED PER ECSUD STANDARDS, MANUFACTURER'S SPECIFICATIONS AND IN COMPLIANCE WITH ALL APPLICABLE HEALTH AND SAFETY REGULATIONS. COORDINATE FINAL LOCATION WITH ECSUD. THE STATION SHALL BE CONSTRUCTED OF MATERIALS SUITABLE FOR POTABLE WATER USE, AND THE STATION SHALL BE PROTECTED FROM FREEZING, TAMPERING, AND OTHER ENVIRONMENTAL FACTORS.
32. WHEN INSTALLING A CUT-IN TEE TO TIE INTO AN EXISTING WATER MAIN, MECHANICAL BELL JOINT RESTRAINTS SHALL BE PROVIDED ON ALL ADJACENT EXISTING PIPE JOINTS TO PREVENT SEPARATION DUE TO THRUST FORCES. RESTRAINTS SHALL BE INSTALLED ON A MINIMUM OF ONE FULL LENGTH OF PIPE ON EACH SIDE OF THE NEW TEE, OR AS REQUIRED BY ECSUD STANDARDS. ALL RESTRAINT DEVICES SHALL BE COMPATIBLE WITH THE EXISTING PIPE MATERIAL AND PRESSURE CLASS, AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. COORDINATE WITH ECSUD FOR FINAL APPROVAL OF RESTRAINT TYPE AND EXTENT.
33. ALL CONNECTIONS TO EXISTING WATER MAINS SHALL BE PERFORMED USING THE HIGH TEST HYPOCHLORITE (HTH) METHOD IN ACCORDANCE WITH AWWA C651 DISINFECTION PROCEDURES. THE HTH METHOD SHALL INVOLVE THE APPLICATION OF A CHLORINE SOLUTION DIRECTLY TO ALL INTERIOR SURFACES OF THE NEW FITTINGS, PIPE, AND APPURTENANCES IMMEDIATELY PRIOR TO INSTALLATION. YOU-TEE-INS OR SIMILAR TYPE TAPPING SLEEVES AND VALVES SHALL NOT BE USED. CONTRACTOR SHALL SUBMIT A SHOP DRAWING FOR TIE-INS. ALL WORK SHALL BE PERFORMED UNDER THE SUPERVISION OF ECSUD AND IN COMPLIANCE WITH THEIR STANDARDS. PROPER FLUSHING AND BACTERIOLOGICAL TESTING SHALL FOLLOW PRIOR TO PLACING THE MAIN INTO SERVICE.

NO.	REVISION	DATE

STATE OF TEXAS — JIM C. WELCH — 102466 — LICENSED PROFESSIONAL ENGINEER
8/27/25

PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

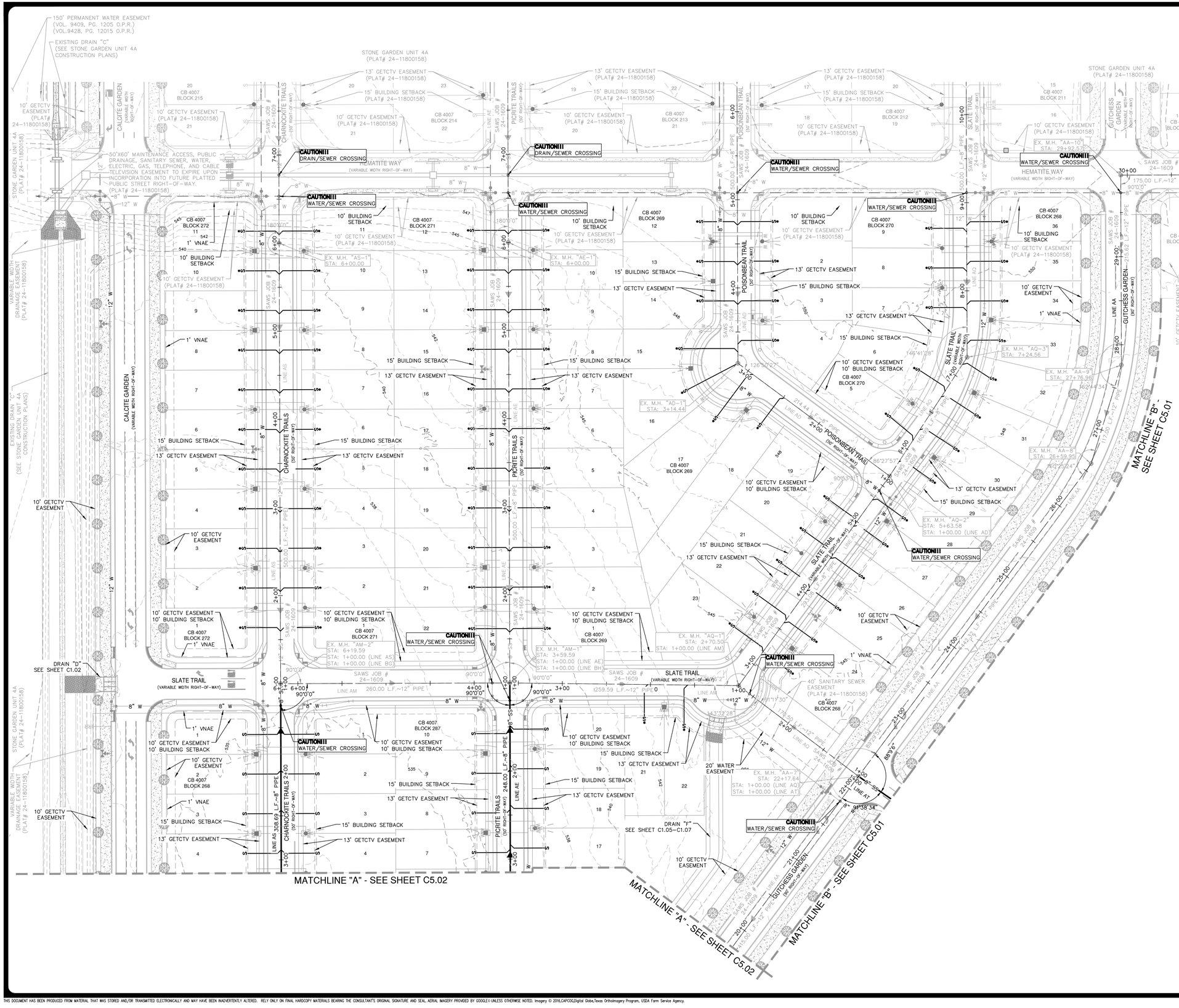
STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS

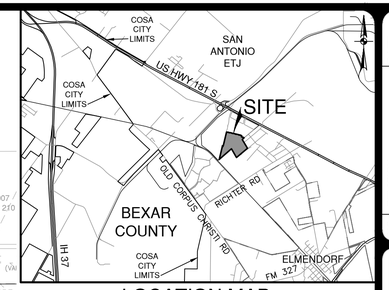
OVERALL WATER DISTRIBUTION DETAILS

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C4.05

Date: February 3, 2025, 3:29 PM — User ID: rodolfo.gallegos
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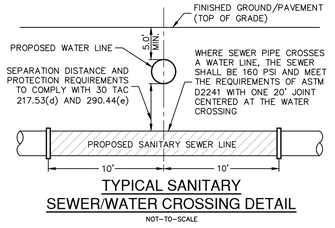


LOCATION MAP
NOT-TO-SCALE

SCALE: 1"= 50'
0' 50' 100' 150'

SEWER LEGEND

- PROJECT LIMITS
- EXISTING WATER
- EXISTING SEWER
- PROPOSED SEWER (MANHOLE)
- PROPOSED WATER (FIRE HYDRANT)
- PROPOSED SEWER LATERAL
- PROPOSED SEWER LATERAL ON EXISTING SEWER LINE
- FINISHED FLOOR ELEVATION FOR SEWER — FF = XXXX.XX



TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
NOT-TO-SCALE

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

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

ROW PERMIT NOTE:
A BEXAR COUNTY PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY RIGHTS-OF-WAY.

TRENCH EXCAVATION SAFETY PROTECTION:
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LOWER (EAST SEWERSHED-SALADO CREEK WRC)

DEVELOPER'S NAME: LENNAR HOMES OF TEXAS, INC.
ADDRESS: 100 NE LOOP 410, SUITE 1155
CITY: SAN ANTONIO STATE: TEXAS ZIP: 78216
PHONE# (210) 403-6200 FAX# N/A
SAWS BLOCK MAP# 208528 TOTAL EDU'S 239 TOTAL ACREAGE 57.44
TOTAL LINEAR FOOTAGE OF PIPE 4145.19 LF ~ 8" PIPE PLAT NO. 25-11800200
NUMBER OF LOTS 239 SAWS JOB NO. 25-1555

NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102466
LICENSED
PROFESSIONAL ENGINEER
8/27/25

PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
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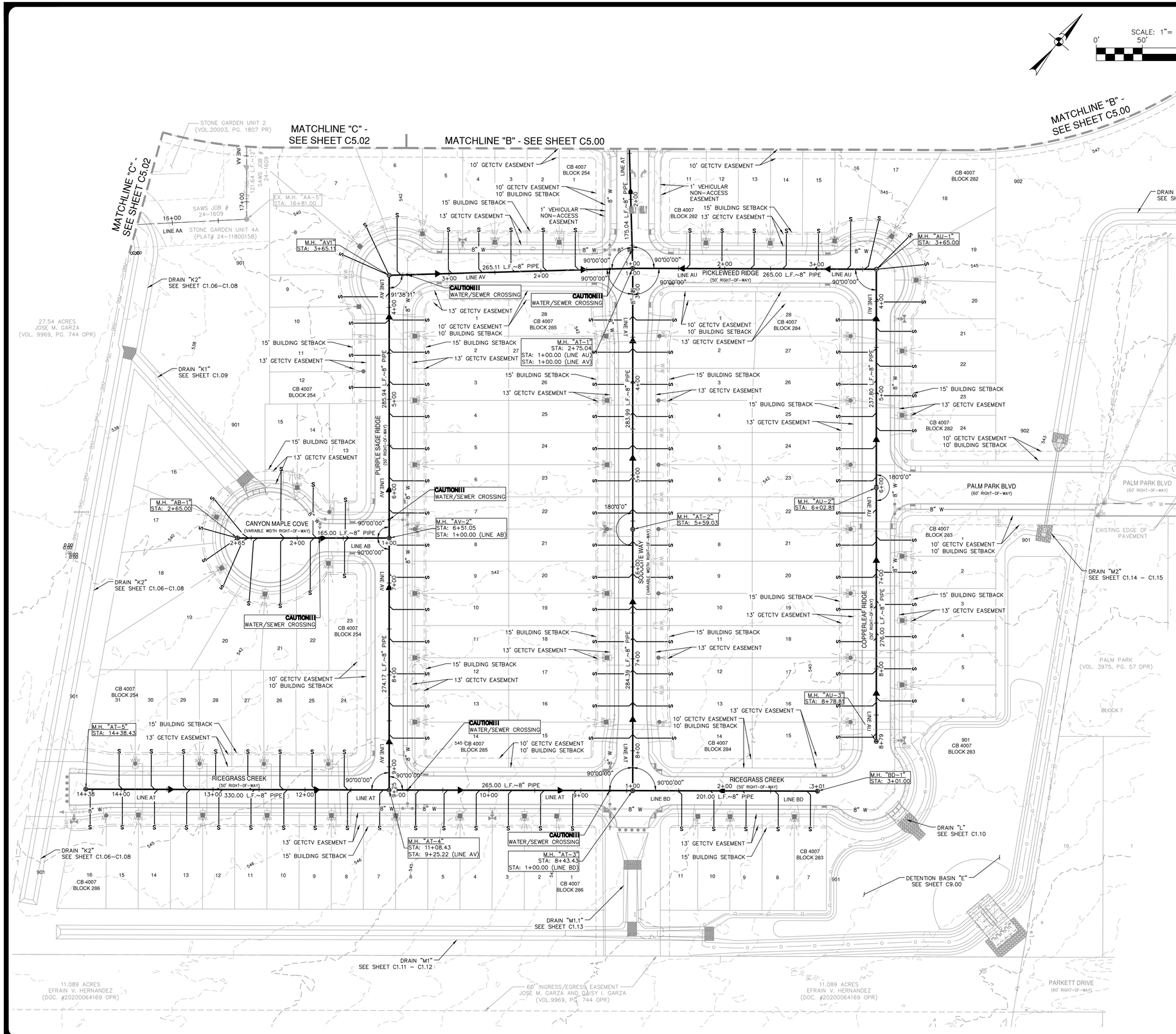
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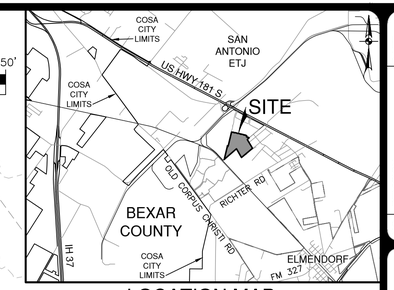
OVERALL SANITARY SEWER PLAN

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC/GP
SHEET C5.00

Date: February 3, 2025, 3:30 PM — User ID: rodolfo.gallegos
File: P:\12482\21\Design\Civil\05125482121.dwg

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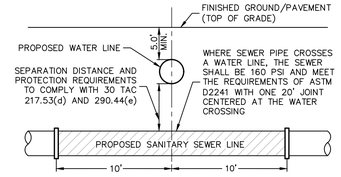




LOCATION MAP
NOT-TO-SCALE

SEWER LEGEND

PROJECT LIMITS
EXISTING WATER
EXISTING SEWER
PROPOSED SEWER
PROPOSED WATER
PROPOSED SEWER LATERAL
PROPOSED SEWER LATERAL ON EXISTING SEWER LINE
FINISHED FLOOR ELEVATION FOR SEWER — FF = XXXX.XX



TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
NOT-TO-SCALE

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204528,206528,206528

NO.	REVISION	DATE

STATE OF TEXAS — JIM C. WELCH — 102466 — LICENSED PROFESSIONAL ENGINEER — 8/27/25

PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS
OVERALL SANITARY SEWER PLAN

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC/GP
SHEET C5.01

Date: February 5, 2025, 3:31 PM – User ID: rodolfo.gallegos
File: P:\124\82\21\Design\Civil\051248221.dwg

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SEWER LEGEND

PROJECT LIMITS

EXISTING WATER — W —

EXISTING SEWER — ES — MANHOLE

PROPOSED SEWER — SS — MANHOLE

PROPOSED WATER — W — FIRE HYDRANT

PROPOSED SEWER LATERAL — S

PROPOSED SEWER LATERAL ON EXISTING SEWER LINE — S

FINISHED FLOOR ELEVATION FOR SEWER — FF = XXXX.XX

TYPICAL SANITARY SEWER/WATER CROSSING DETAIL

NOT-TO-SCALE

CAUTION!!

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

FINISHED FLOOR NOTES:

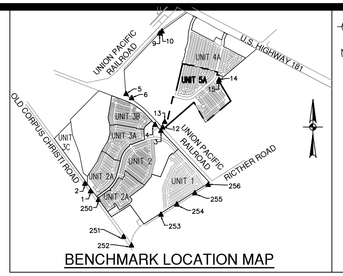
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2. THE MINIMUM SANITARY SEWER LATERAL GRADES WERE BASED UPON THE MINIMUM FINISHED FLOOR ELEVATIONS FOR THE LOTS LOCATED ON THE DOWNHILL SIDES OF THE PROPOSED ROADWAYS.

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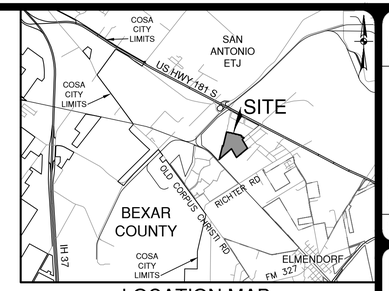
TRENCH EXCAVATION SAFETY PROTECTION:

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BENCHMARKS

NUMBER	NORTHING	EASTING	DESCRIPTION
1	13,649,523	2,171,843	SET MAG NAIL & WASHER (TRAV)
2	13,649,776	2,171,653	SET IR REDCAP (TRAV)
3	13,651,551	2,174,207	SET IR REDCAP (TRAV)
4	13,651,757	2,174,009	SET IR REDCAP (TRAV)
5	13,652,793	2,173,037	SET IR REDCAP (TRAV)
6	13,652,656	2,173,222	SET IR REDCAP (TRAV)
9	13,654,821	2,174,165	SET IR REDCAP (TRAV)
10	13,654,894	2,174,241	SET IR REDCAP (TRAV)
12	13,651,669	2,174,265	SET IR REDCAP (TRAV)
13	13,651,855	2,174,333	SET IR REDCAP (TRAV)
14	13,653,262	2,176,156	SET IR REDCAP (TRAV)
15	13,653,199	2,176,150	SET IR REDCAP (TRAV)
250	13,649,234	2,172,109	SET IR REDCAP (TRAV)
251	13,647,995	2,172,949	SET IR REDCAP (TRAV)
252	13,647,706	2,173,216	SET IR REDCAP (TRAV)
253	13,648,740	2,174,206	SET IR REDCAP (TRAV)
254	13,649,080	2,174,742	SET IR REDCAP (TRAV)
255	13,649,460	2,175,345	SET IR REDCAP (TRAV)
256	13,649,742	2,175,793	SET IR REDCAP (TRAV)

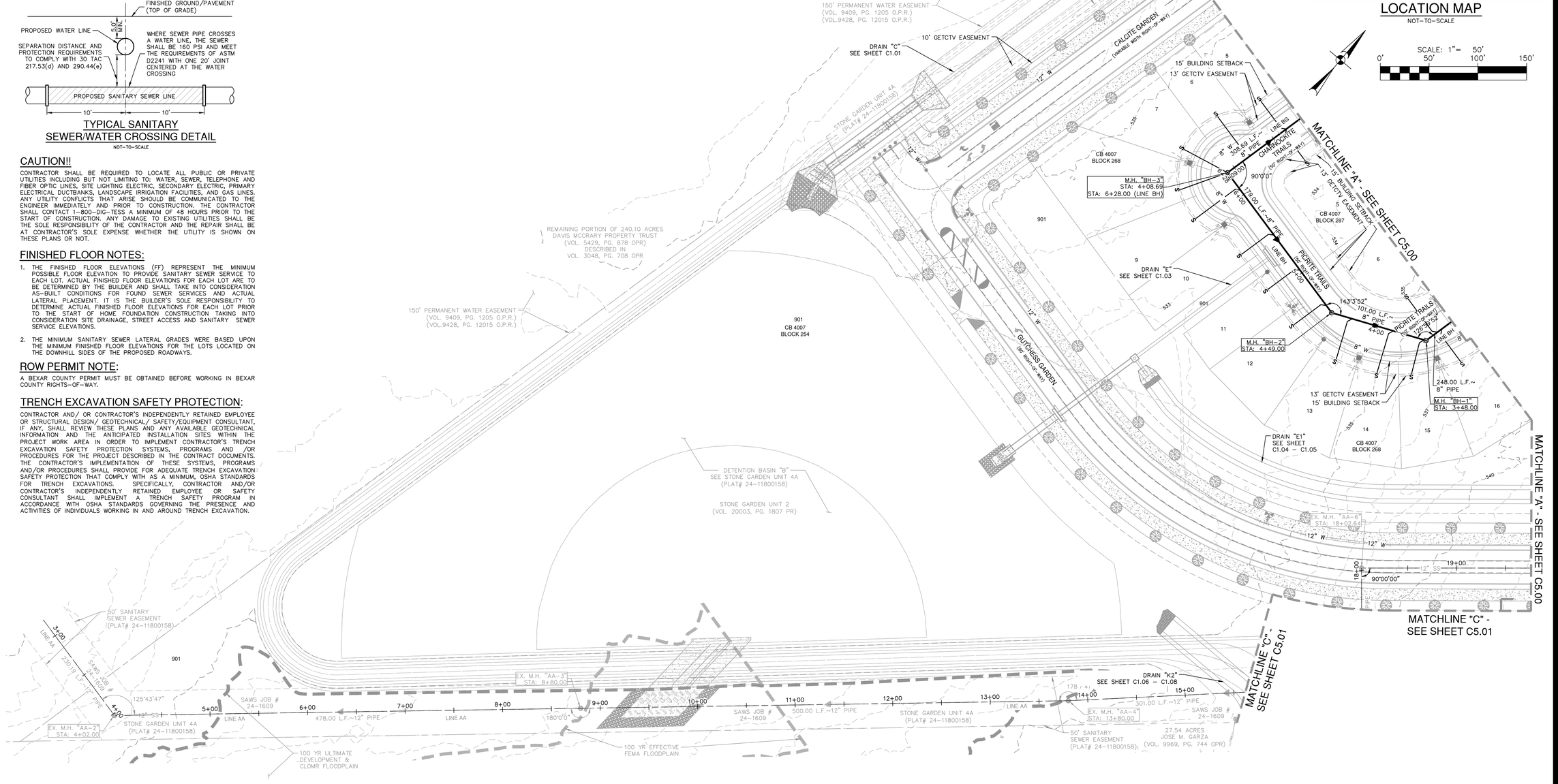


LOCATION MAP

NOT-TO-SCALE

SCALE: 1"= 50'

0' 50' 100' 150'



LOWER (EAST SEWERSHED-SALADO CREEK WRC)

DEVELOPER'S NAME: LENNAR HOMES OF TEXAS, INC.
ADDRESS: 100 NE LOOP 410, SUITE 1155
CITY: SAN ANTONIO STATE: TEXAS ZIP: 78216
PHONE# (210) 403-6200 FAX# N/A
SAWS BLOCK MAP# 208528 TOTAL EDU'S 239 TOTAL ACREAGE 57.44
TOTAL LINEAR FOOTAGE OF PIPE 4145.19 LF ~ 8" PIPE PLAT NO. 25-11800200
NUMBER OF LOTS 239 SAWS JOB NO. 25-1555

204528,206528,208528

NO.	REVISION	DATE

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STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS

OVERALL SANITARY SEWER PLAN

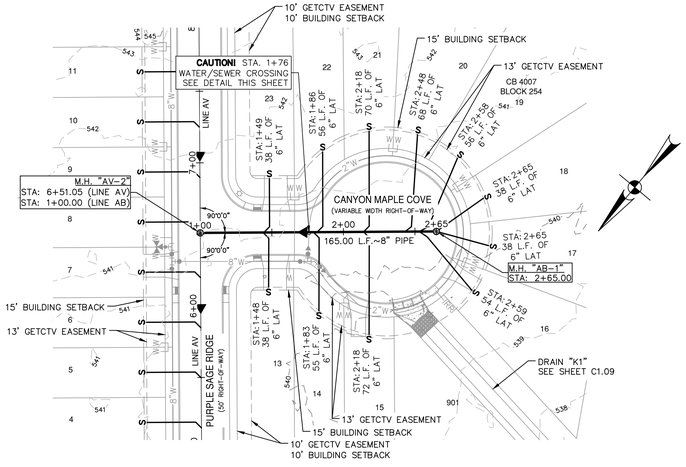
PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC/GP
SHEET C5.02

Date: February 3, 2025, 3:32 PM - User ID: rodolfo.gallegos
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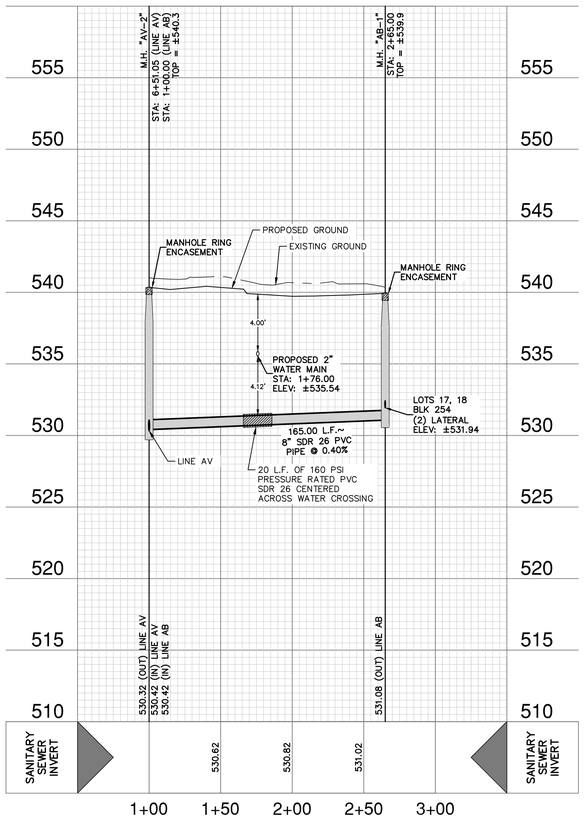
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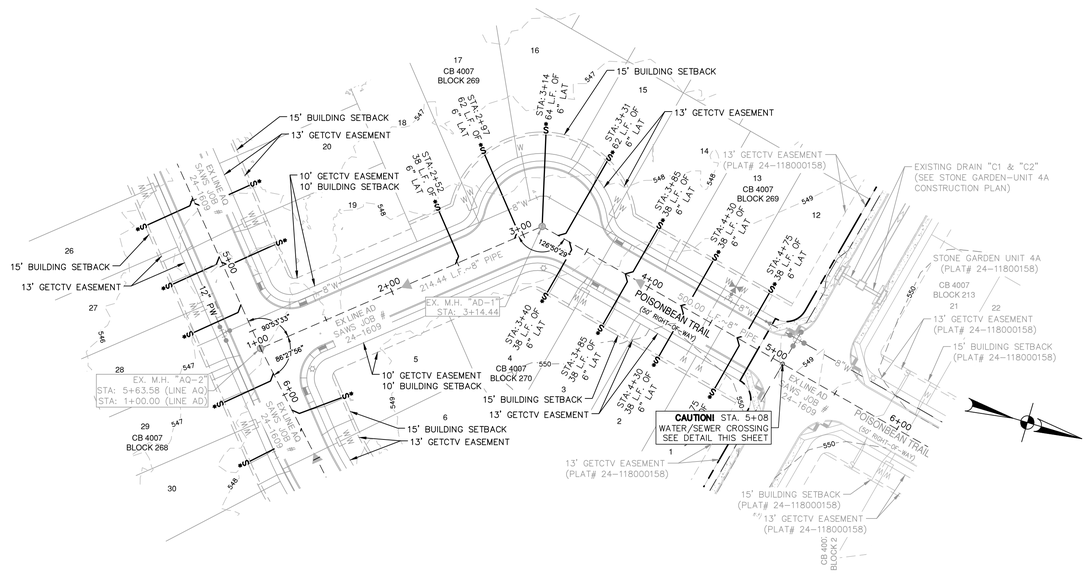
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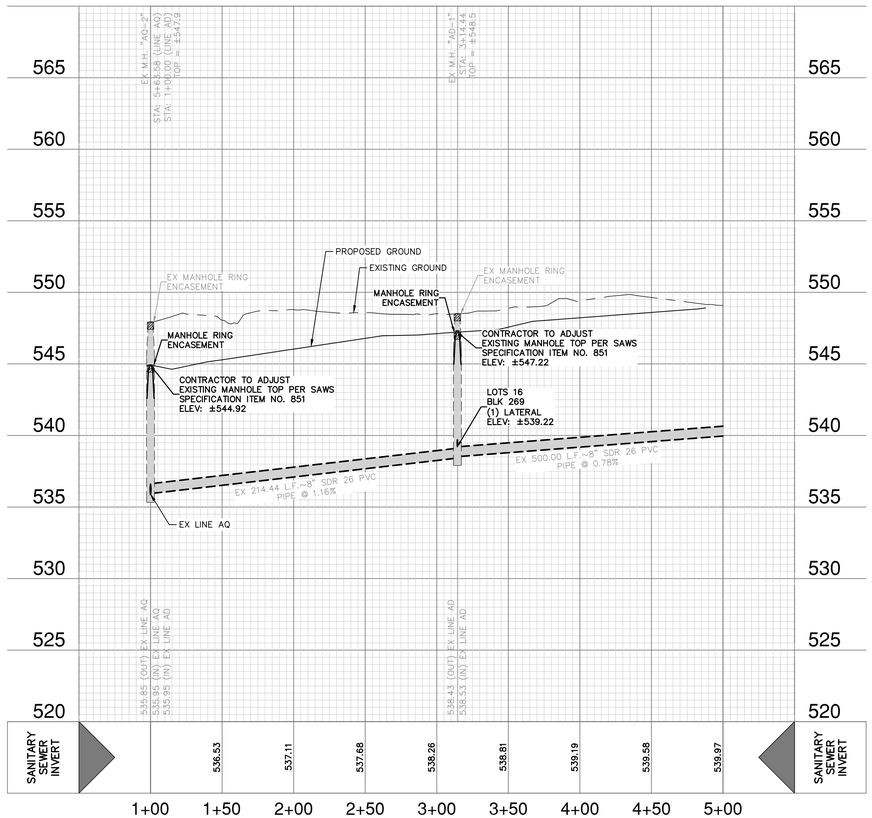


SANITARY SEWER LINE "AB"
STA. 1+00.00 TO END





EX SANITARY SEWER LINE "AD"
STA. 1+00.00 TO 5+00.00



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

SEWER LEGEND

PROJECT LIMITS

EXISTING WATER — W —

EXISTING SEWER — SS — MANHOLE

PROPOSED SEWER — SS —

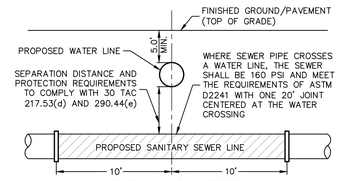
PROPOSED WATER — W —

PROPOSED SEWER LATERAL — S —

PROPOSED SEWER LATERAL ON EXISTING SEWER LINE — S —

FINISHED FLOOR ELEVATION FOR SEWER — FF = XXXX.XX

FIRE HYDRANT



TYPICAL SANITARY
SEWER/WATER CROSSING DETAIL
NOT-TO-SCALE

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NO.	REVISION	DATE

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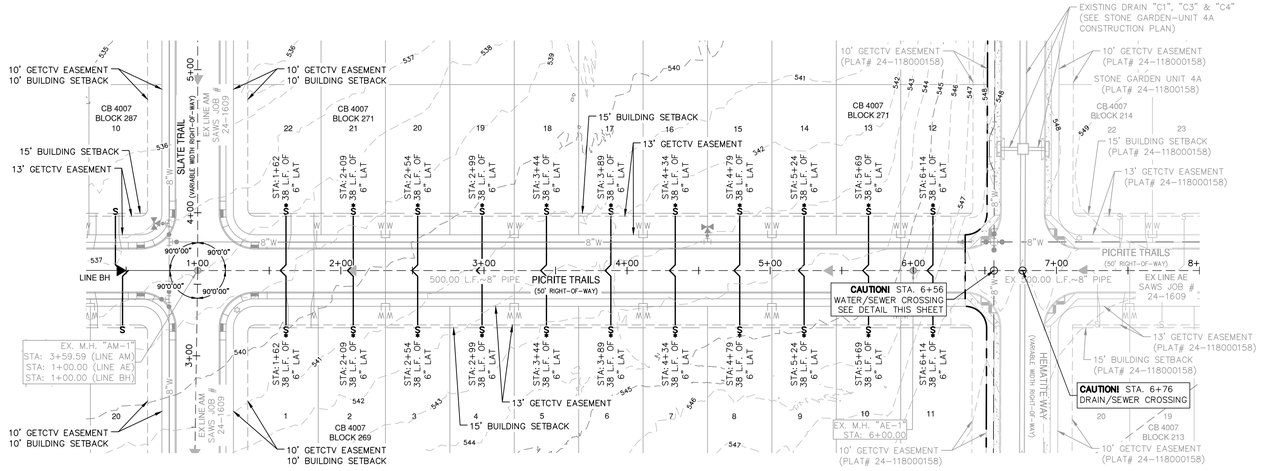
STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS

SS LINE AB PLAN & PROFILE (STA 1+00.00 TO END)
SS LINE AD PLAN & PROFILE (STA 1+00.00 TO END)

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C5.03

Date: February 3, 2025, 3:35 PM – User ID: rodolfo.gallegos
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SCALE: 1"= 50'

0' 50' 100' 150'

SEWER LEGEND

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EXISTING SEWER — SS — MANHOLE

PROPOSED SEWER — SS — MANHOLE

PROPOSED WATER — W — FIRE HYDRANT

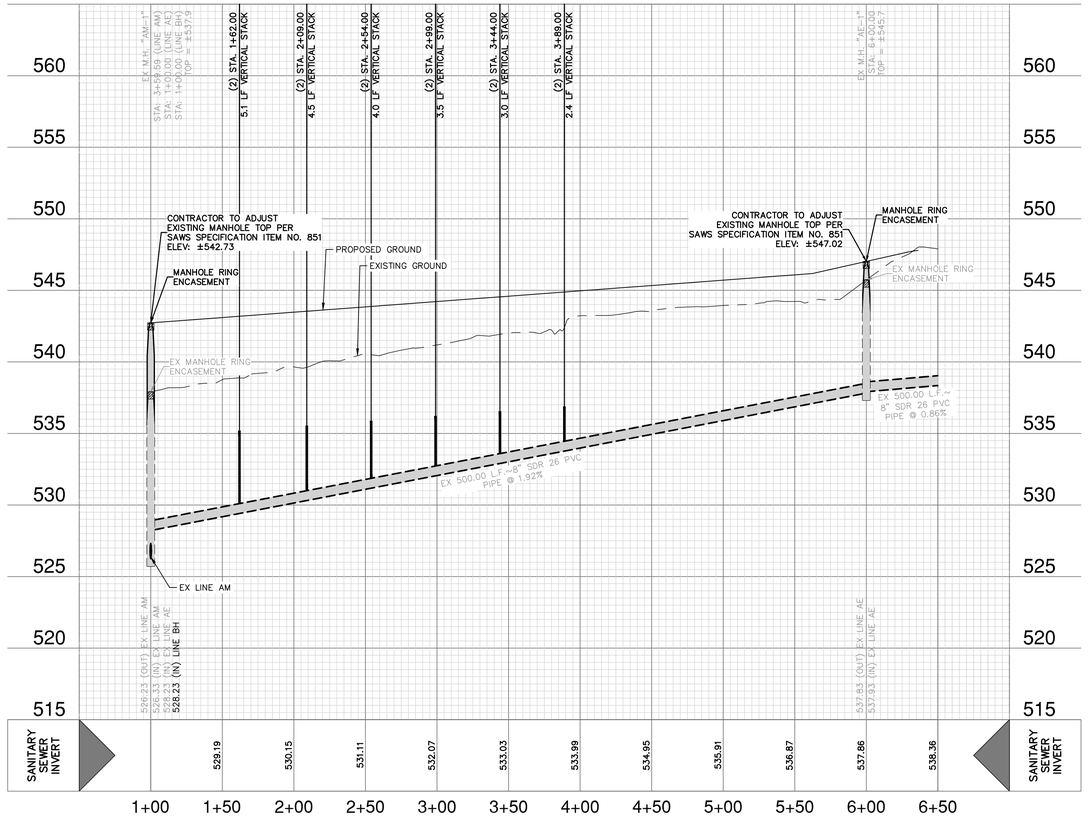
PROPOSED SEWER LATERAL — S

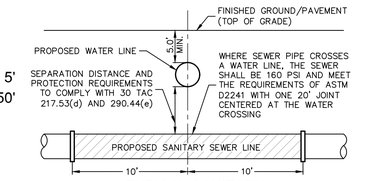
PROPOSED SEWER LATERAL ON EXISTING SEWER LINE — S

FINISHED FLOOR ELEVATION FOR SEWER — FF = XXXX.XX

EX SANITARY SEWER LINE "AE"
STA. 1+00.00 TO 6+50.00

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





TYPICAL SANITARY SEWER/WATER CROSSING DETAIL

NOT-TO-SCALE

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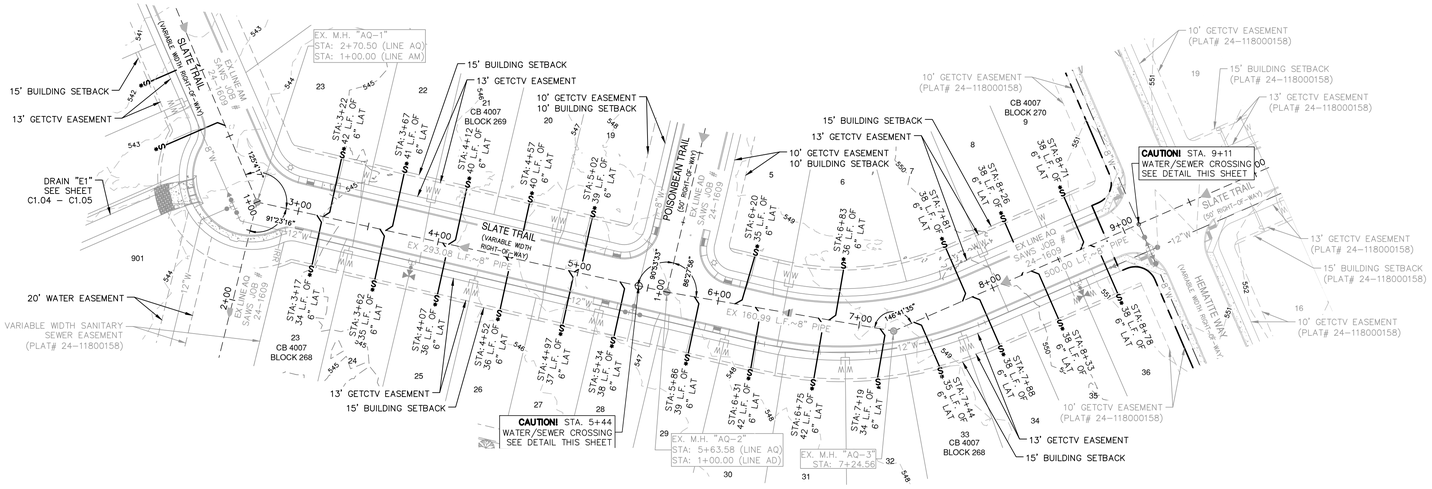
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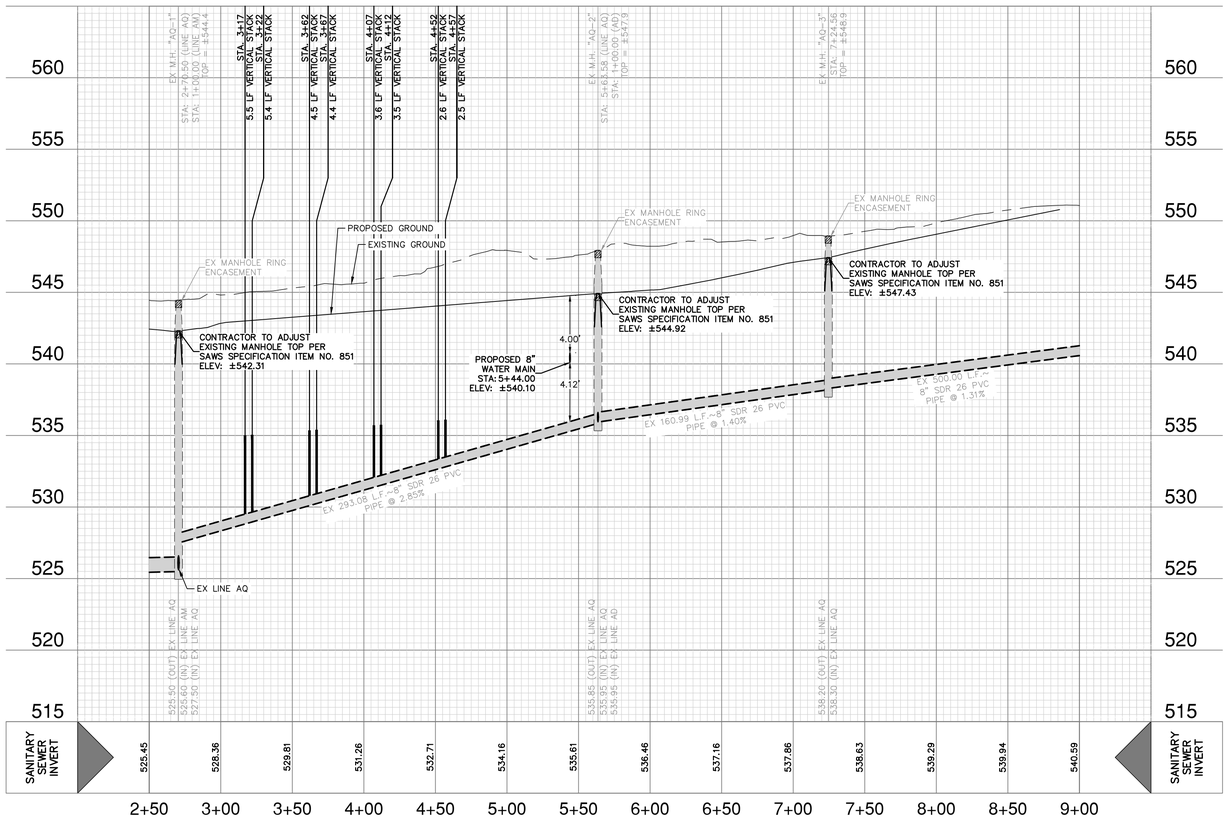
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EX SANITARY SEWER LINE "AQ"
STA. 2+50.00 TO 9+00.00

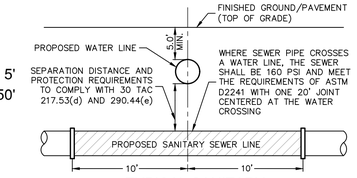


VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 50'

SEWER LEGEND

- PROJECT LIMITS
- EXISTING WATER
- EXISTING SEWER
- PROPOSED SEWER
- PROPOSED WATER
- PROPOSED SEWER LATERAL
- PROPOSED SEWER LATERAL ON EXISTING SEWER LINE
- FINISHED FLOOR ELEVATION FOR SEWER

MANHOLE
FIRE HYDRANT
FF = XXXX.XX



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NOT-TO-SCALE

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TOTAL LINEAR FOOTAGE OF PIPE 4145.19 LF ~ 8" PIPE PLAT NO. 25-11800200
NUMBER OF LOTS 239 SAWS JOB NO. 25-1555

NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102466
LICENSED
PROFESSIONAL ENGINEER
8/27/25

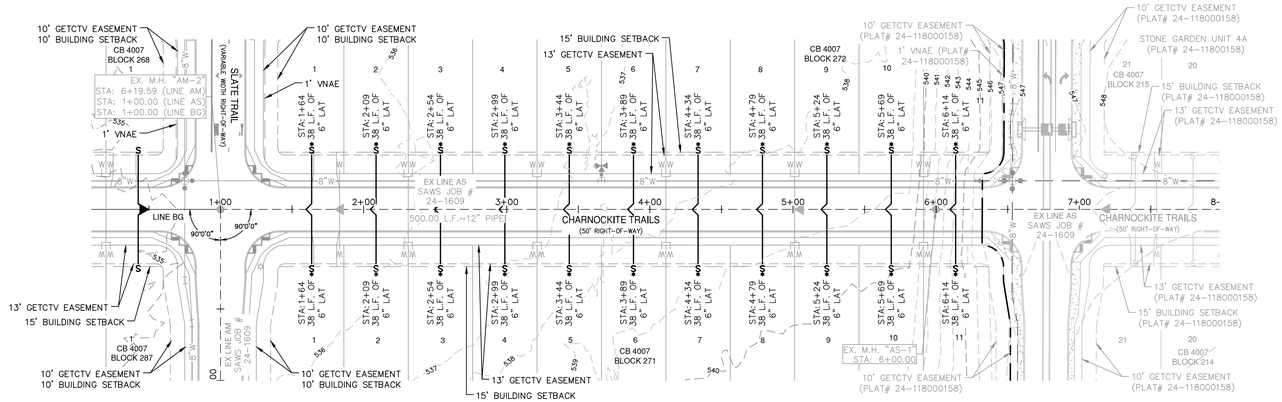
PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS
SS LINE AQ PLAN & PROFILE (STA 2+50.00 TO 9+00.00)

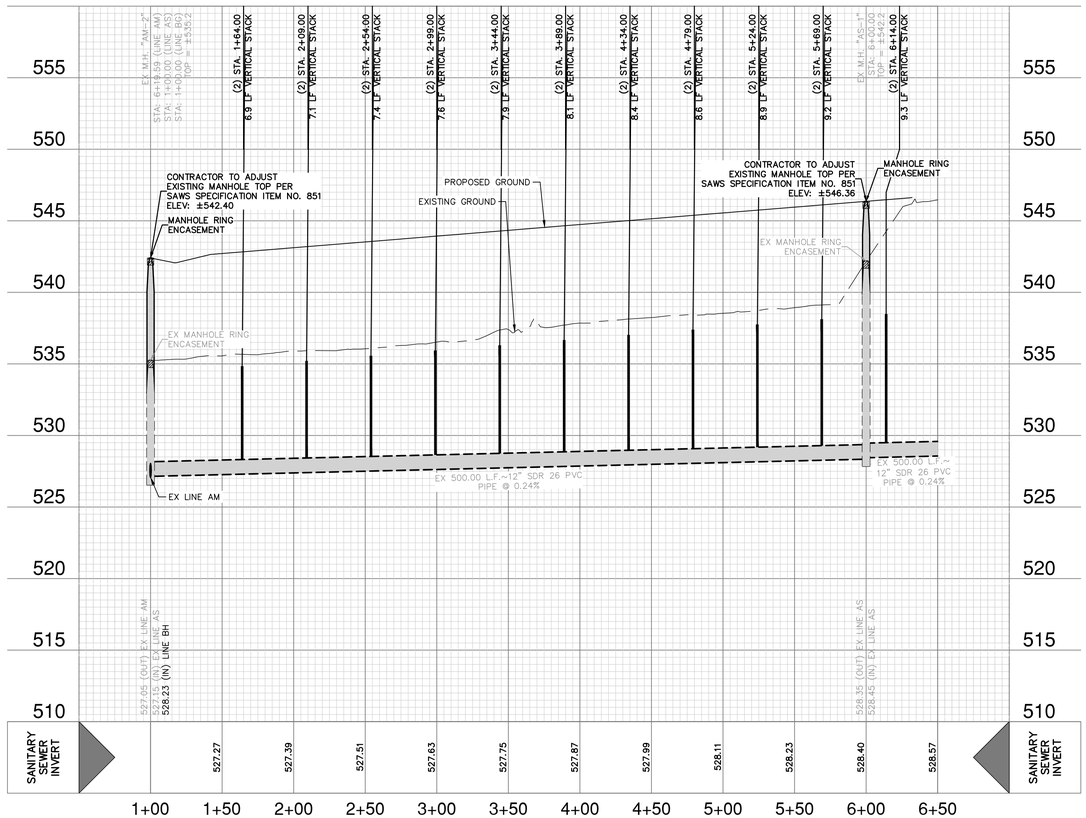
PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C5.05

Date: February 3, 2025, 3:38 PM – User ID: rodolfo.gallegos
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EX SANITARY SEWER LINE "AS"
STA. 1+00.00 TO 6+50.00



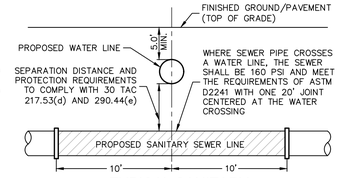
SCALE: 1"= 50'
0' 50' 100' 150'

SEWER LEGEND

PROJECT LIMITS
EXISTING WATER
EXISTING SEWER
PROPOSED SEWER
PROPOSED WATER
PROPOSED SEWER LATERAL
PROPOSED SEWER LATERAL ON EXISTING SEWER LINE
FINISHED FLOOR ELEVATION FOR SEWER

MANHOLE
FIRE HYDRANT
FF = XXXX.XX

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



TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
NOT-TO-SCALE

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NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102466
LICENSED
PROFESSIONAL ENGINEER
8/27/25

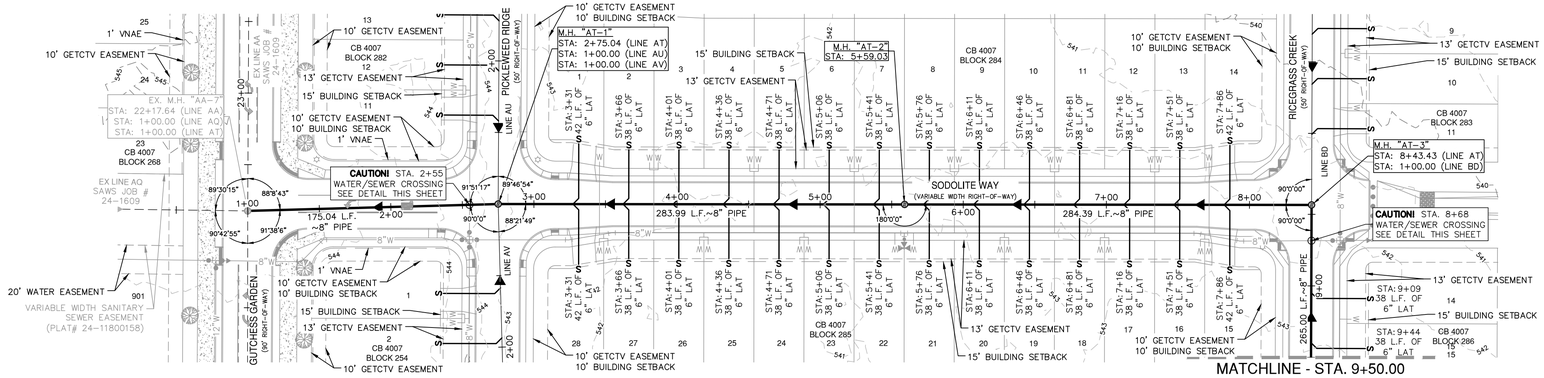
PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS
SS LINE AS PLAN & PROFILE (STA 1+00.00 TO 6+50.00)

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C5.06

Date: February 3, 2025, 3:40 PM — User ID: rodolfo.gallegos
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SCALE: 1"= 50'

0' 50' 100' 150'

SEWER LEGEND

PROJECT LIMITS

EXISTING WATER

EXISTING SEWER

PROPOSED SEWER

PROPOSED WATER

PROPOSED SEWER LATERAL

PROPOSED SEWER LATERAL ON EXISTING SEWER LINE

FINISHED FLOOR ELEVATION FOR SEWER

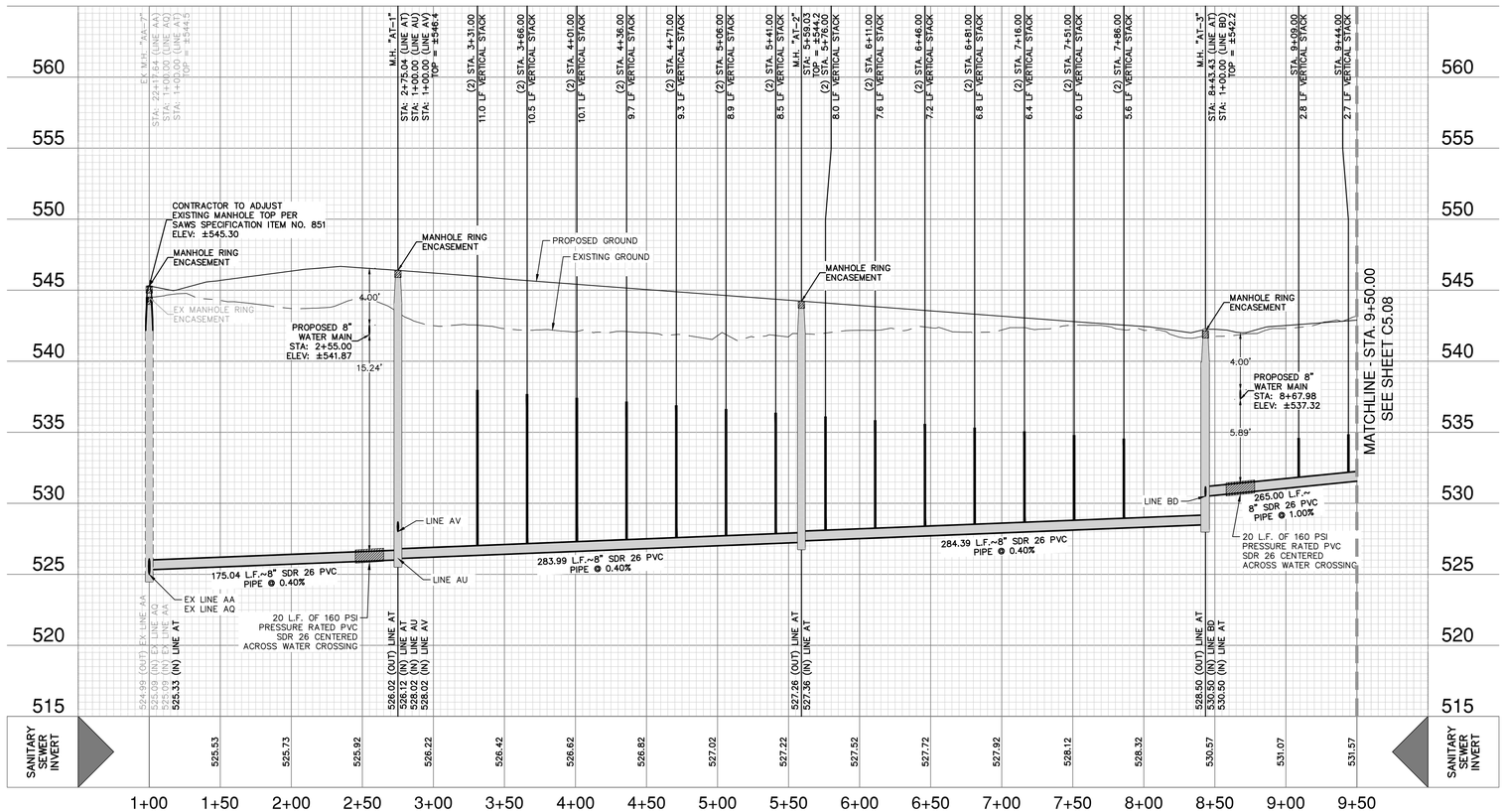
MANHOLE

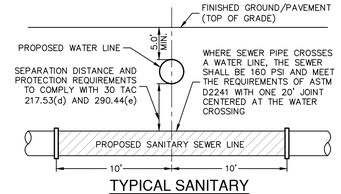
FIRE HYDRANT

FF = XXXX.XX

SANITARY SEWER LINE "AT"
STA. 1+00.00 TO 9+50.00

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





TYPICAL SANITARY SEWER/WATER CROSSING DETAIL

NOT-TO-SCALE

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NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102468
LICENSED
PROFESSIONAL ENGINEER
8/27/25

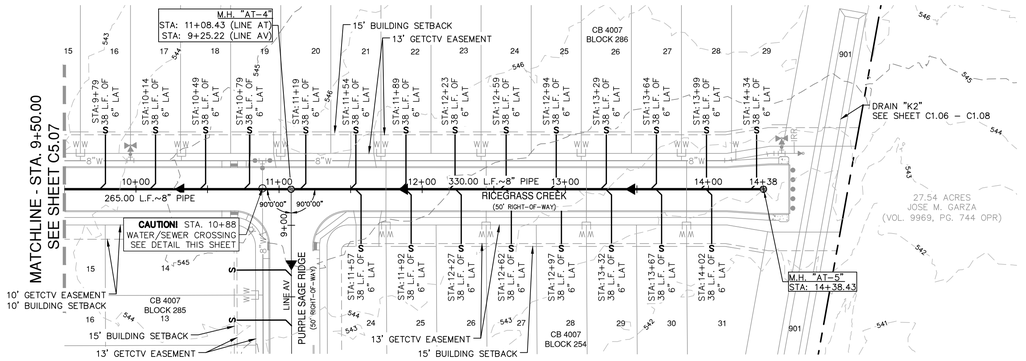
PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

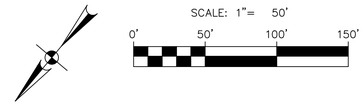
STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS
SS LINE AT PLAN & PROFILE (STA 1+00.00 TO 9+50.00)

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C5.07

Date: February 3, 2025, 3:42 PM – User ID: rodolfo.gallegos
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SEWER LEGEND

PROJECT LIMITS

EXISTING WATER

EXISTING SEWER

PROPOSED SEWER

PROPOSED WATER

PROPOSED SEWER LATERAL

PROPOSED SEWER LATERAL ON EXISTING SEWER LINE

FINISHED FLOOR ELEVATION FOR SEWER

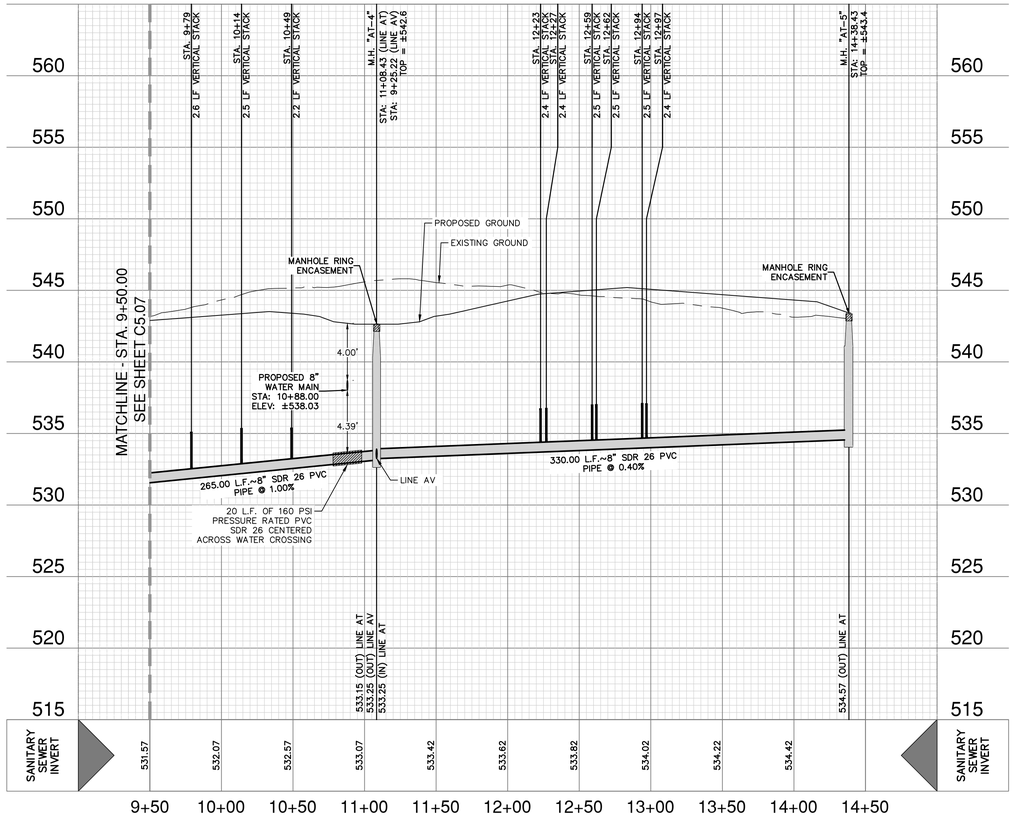
MANHOLE

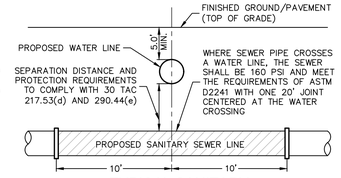
FIRE HYDRANT

FF = XXXX.XX

SANITARY SEWER LINE "AT"
STA. 9+50.00 TO END

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





TYPICAL SANITARY SEWER/WATER CROSSING DETAIL

NOT-TO-SCALE

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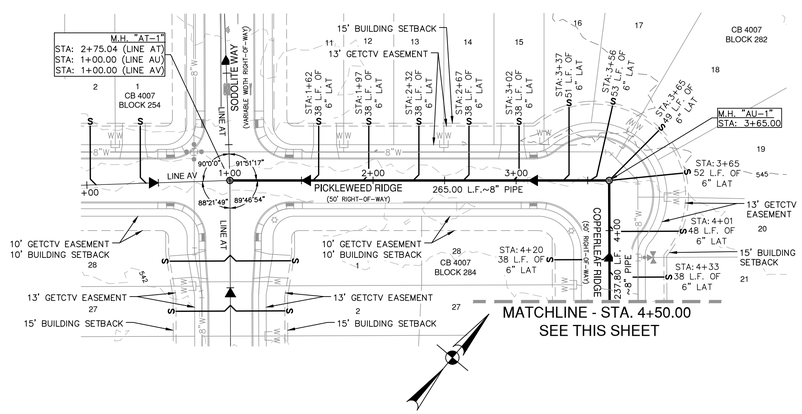
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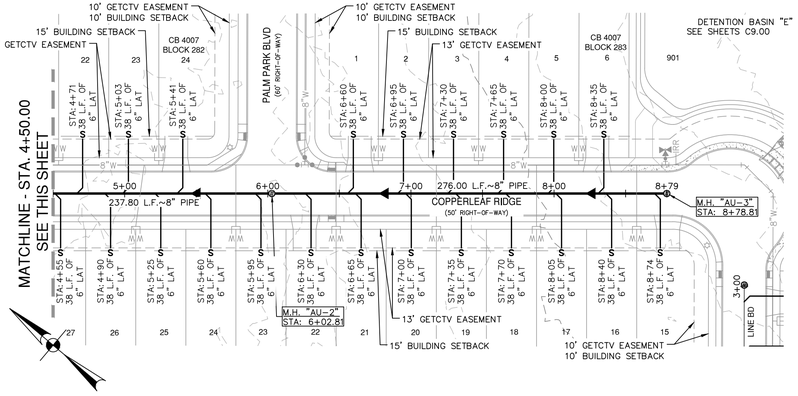
SS LINE AT PLAN & PROFILE (STA 9+50.00 TO END)

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C5.08

Date: February 3, 2025, 3:43 PM — User ID: rodolfo.gallegos
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SCALE: 1"= 50'

0' 50' 100' 150'

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EXISTING SEWER

PROPOSED SEWER

MANHOLE

PROPOSED WATER

FIRE HYDRANT

PROPOSED SEWER LATERAL

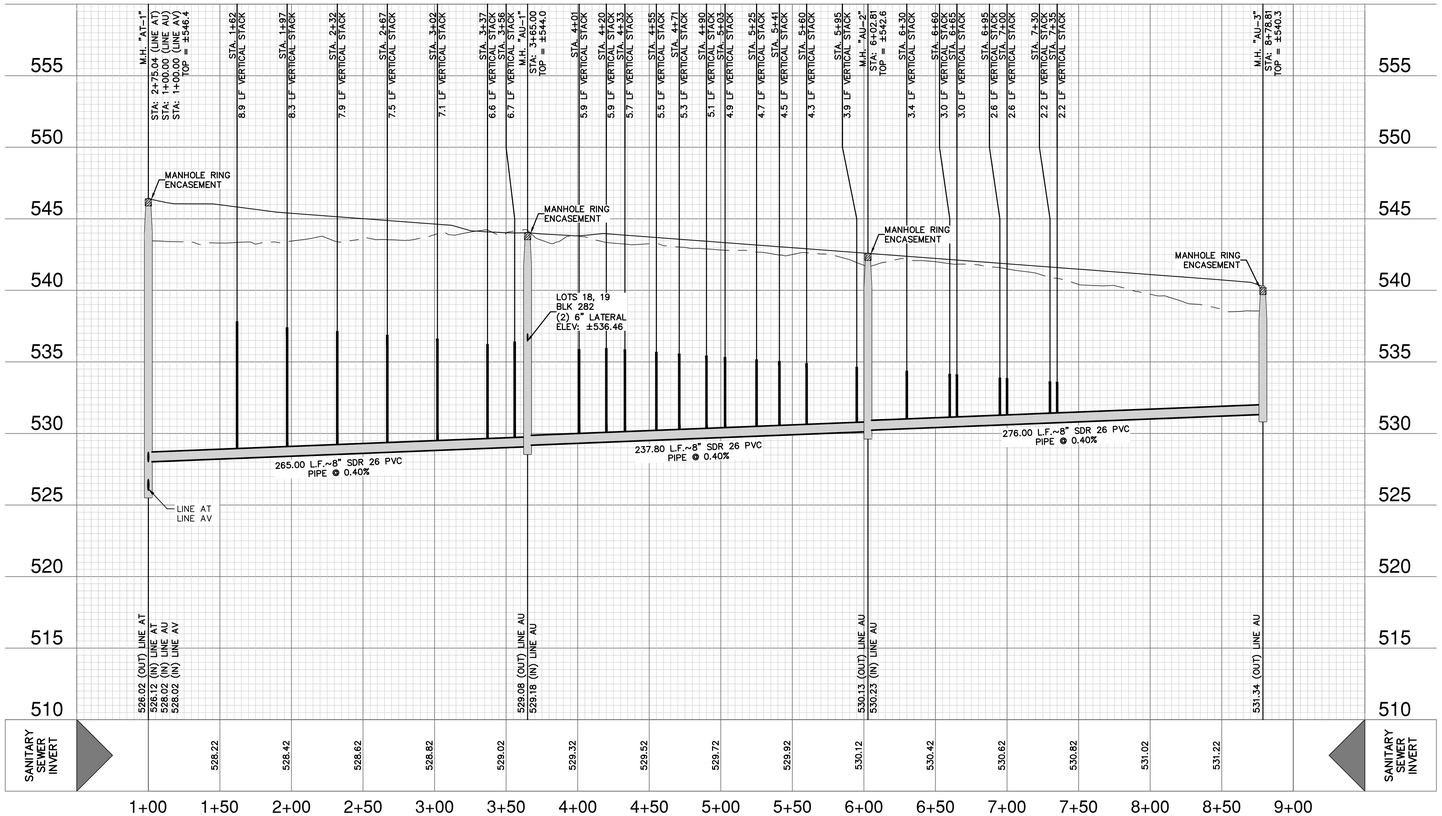
PROPOSED SEWER LATERAL ON EXISTING SEWER LINE

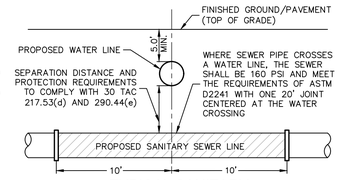
FINISHED FLOOR ELEVATION FOR SEWER

FF = XXXX.XX

SANITARY SEWER LINE "AU"
STA. 1+00.00 TO END

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





TYPICAL SANITARY SEWER/WATER CROSSING DETAIL

NOT-TO-SCALE

CAUTION!!

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CITY: SAN ANTONIO STATE: TEXAS ZIP: 78216
PHONE# (210) 403-6200 FAX# N/A
SAWS BLOCK MAP# 208528 TOTAL EDU'S 239 TOTAL ACREAGE 57.44
TOTAL LINEAR FOOTAGE OF PIPE 4145.19 LF ~ 8" PIPE PLAT NO. 25-11800200
NUMBER OF LOTS 239 SAWS JOB NO. 25-1555

NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102466
LICENSED
PROFESSIONAL ENGINEER
8/27/25

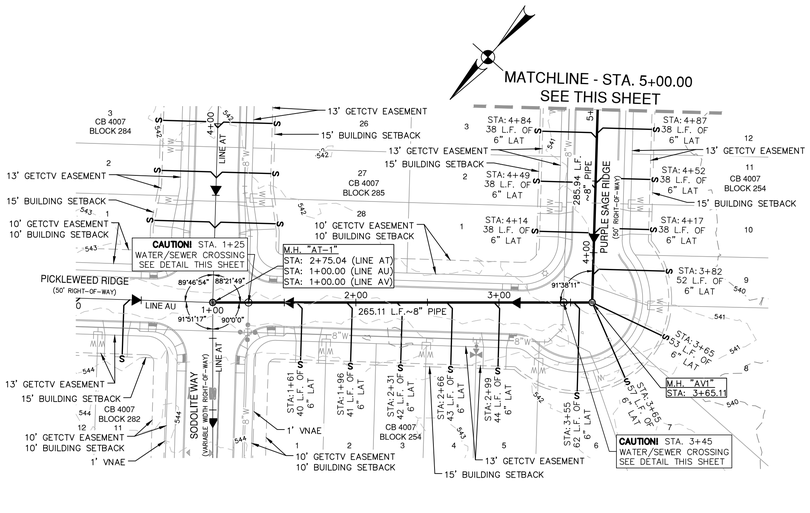
PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS
SS LINE AU PLAN & PROFILE (STA 1+00.00 TO END)

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C5.09

Date: February 3, 2025, 3:46 PM — User ID: rodolfo.gallegos
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SCALE: 1"= 50'

0' 50' 100' 150'

SEWER LEGEND

PROJECT LIMITS

EXISTING WATER

EXISTING SEWER

PROPOSED SEWER

PROPOSED WATER

PROPOSED SEWER LATERAL

PROPOSED SEWER LATERAL ON EXISTING SEWER LINE

FINISHED FLOOR ELEVATION FOR SEWER

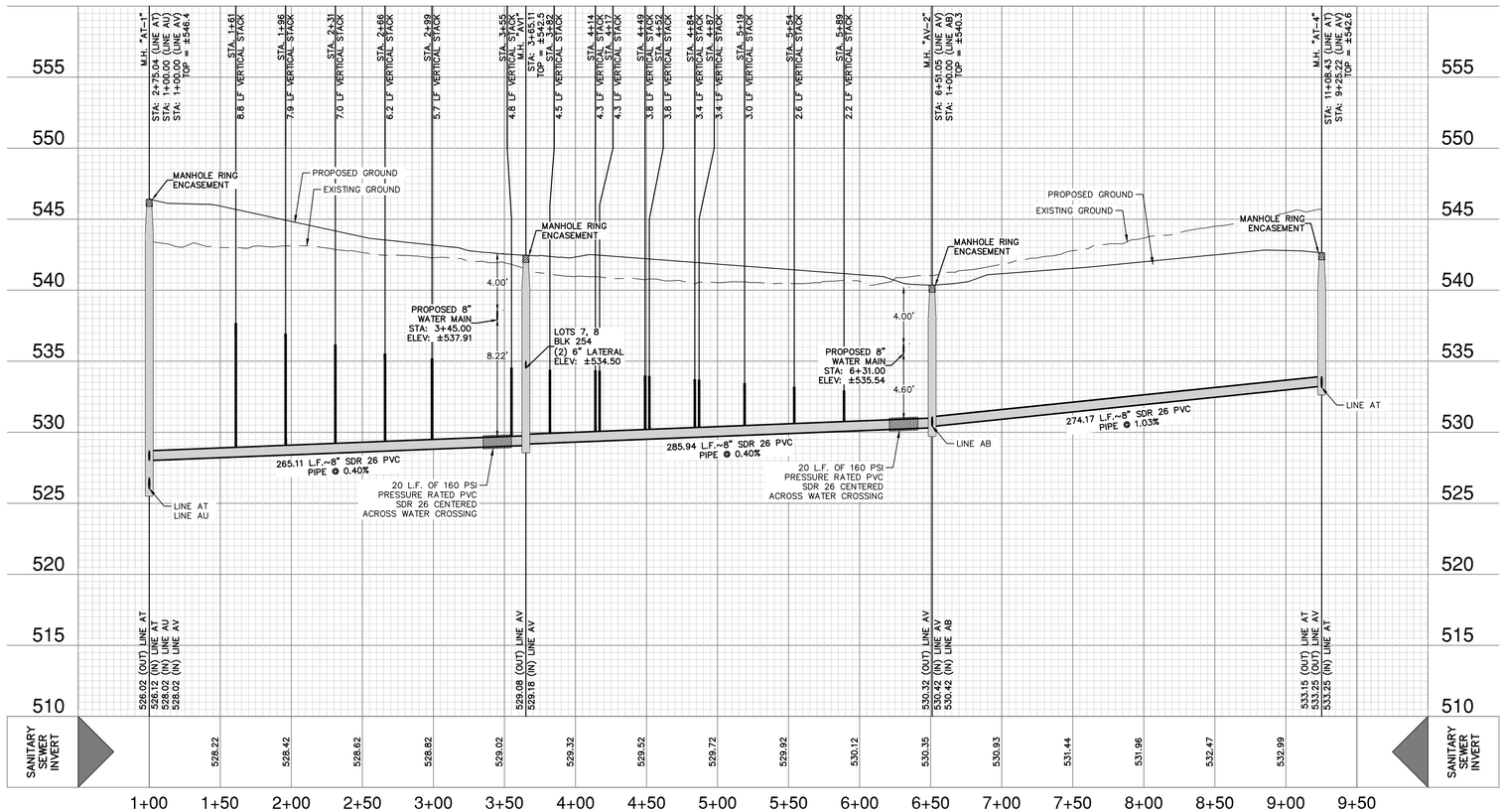
MANHOLE

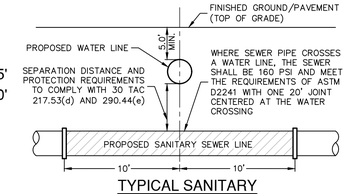
FIRE HYDRANT

FF = XXXX.XX

SANITARY SEWER LINE "AV"
STA. 1+00.00 TO END

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





TYPICAL SANITARY
SEWER/WATER CROSSING DETAIL
NOT-TO-SCALE

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JIM C. WELCH
102466
LICENSED
PROFESSIONAL ENGINEER
8/27/25

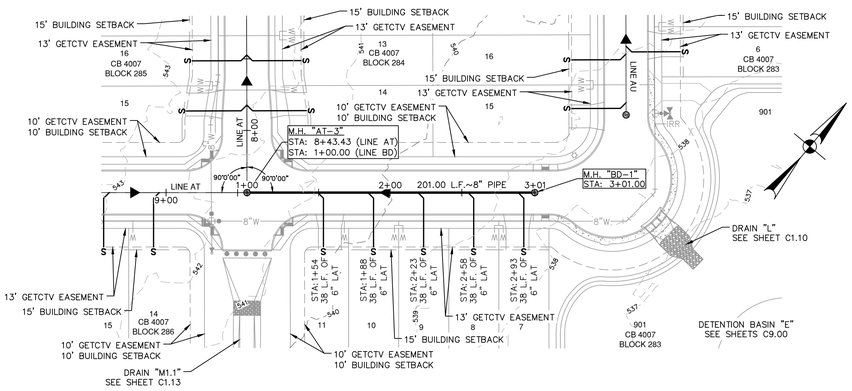
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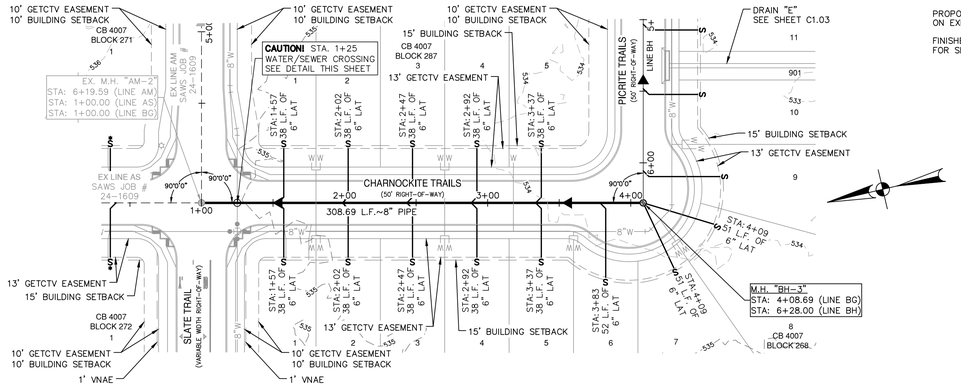
STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS
SS LINE AV PLAN & PROFILE (STA 1+00.00 TO END)

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C5.10

Date: February 3, 2025, 3:48 PM — User ID: rodolfo.gallegos
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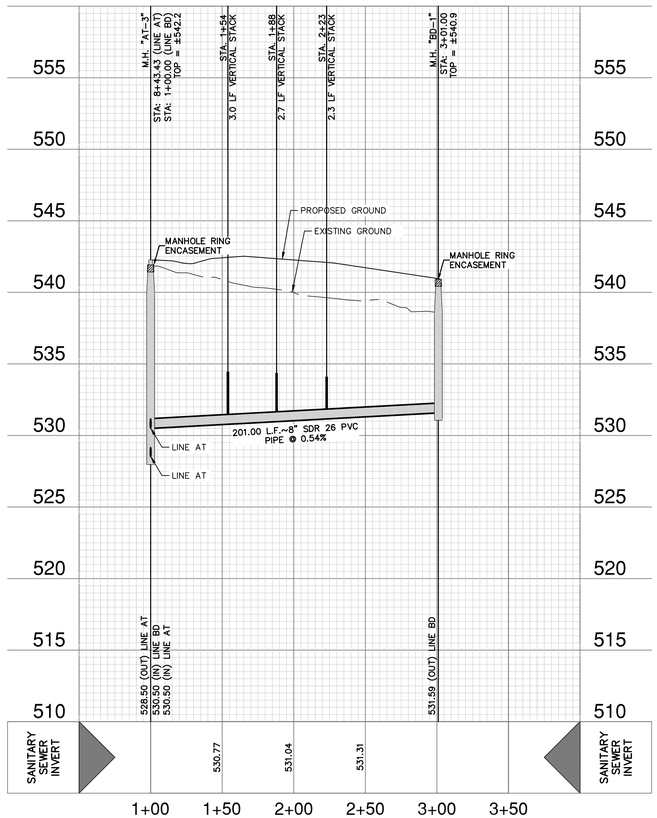
SEWER LEGEND

- PROJECT LIMITS
- EXISTING WATER
- EXISTING SEWER
- PROPOSED SEWER
- MANHOLE
- PROPOSED WATER
- FIRE HYDRANT
- PROPOSED SEWER LATERAL
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- FINISHED FLOOR ELEVATION FOR SEWER (FF = XXXX.XX)

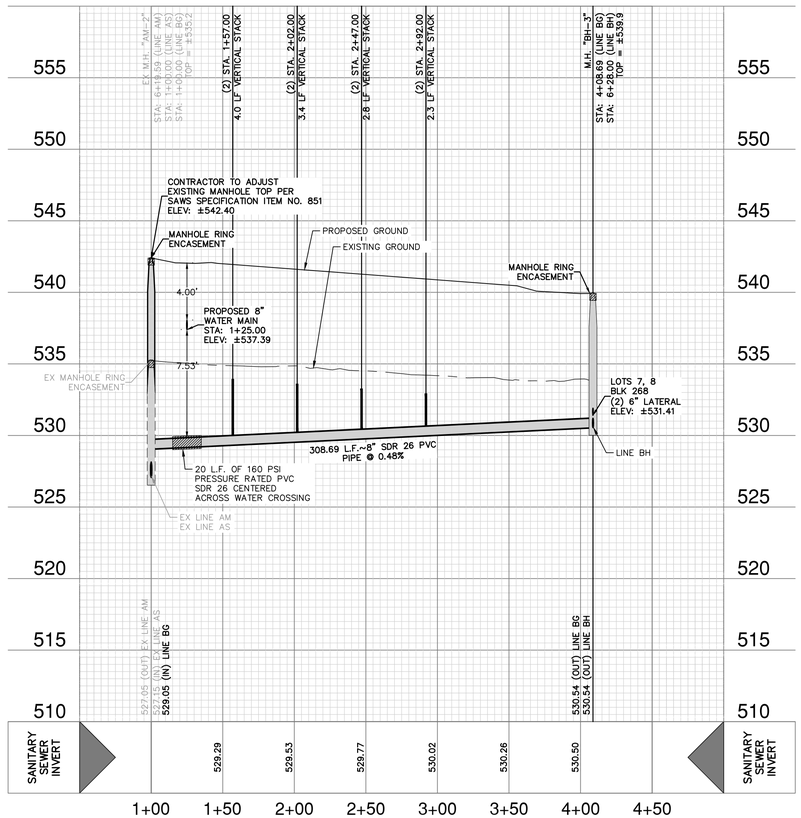
SCALE: 1"= 50'

0' 50' 100' 150'

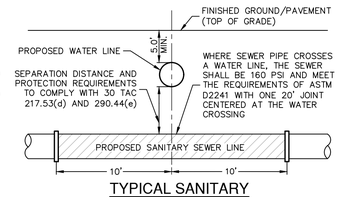
SANITARY SEWER LINE "BD"
STA. 1+00.00 TO END



SANITARY SEWER LINE "BG"
STA. 1+00.00 TO END



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NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102466
LICENSED PROFESSIONAL ENGINEER
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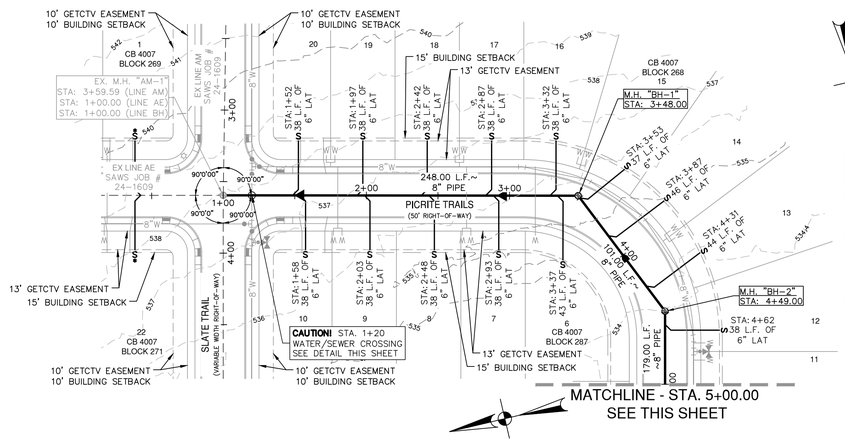
STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS

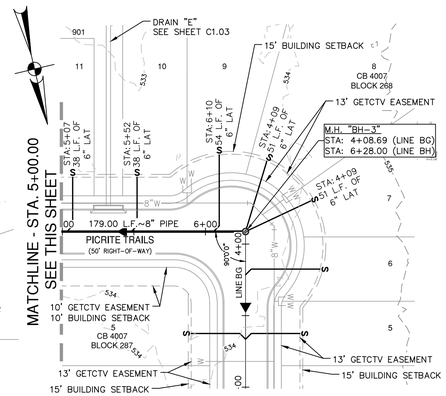
SS LINE BD PLAN & PROFILE (STA 1+00.00 TO END)
SS LINE BG PLAN & PROFILE (STA 1+00.00 TO END)

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C5.11

Date: February 3, 2025, 3:51 PM - User ID: rodolfo.gallegos
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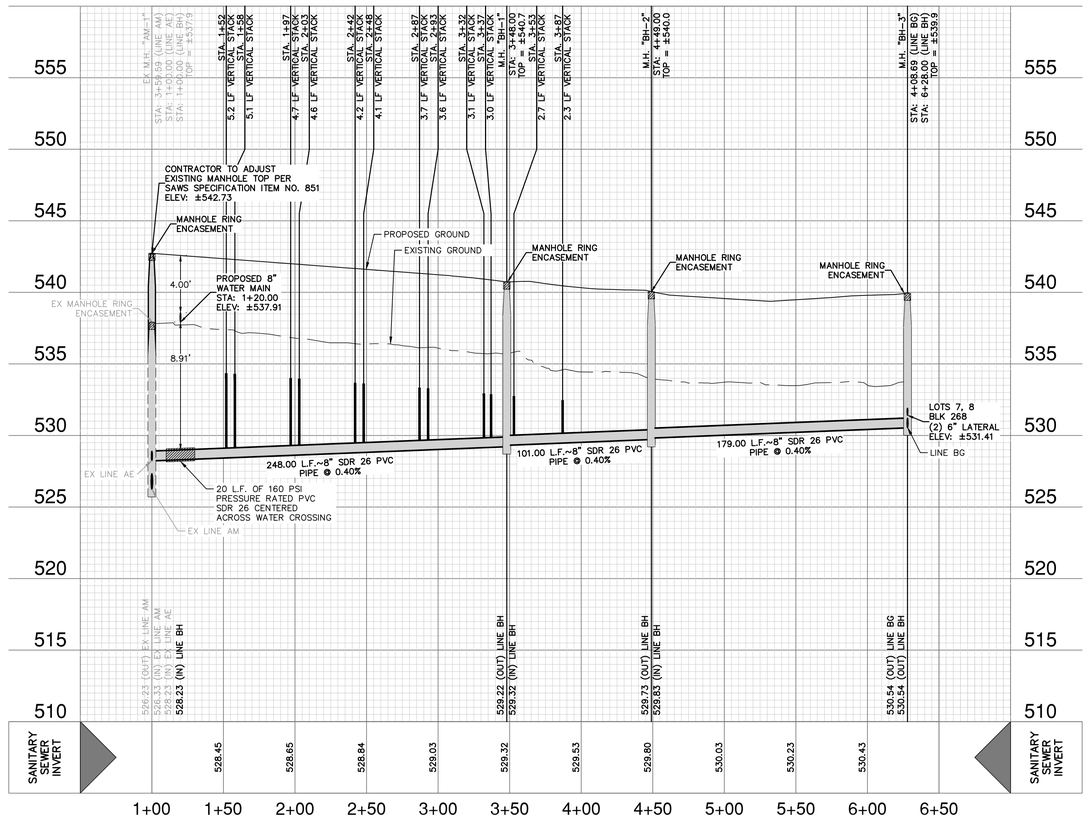
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SANITARY SEWER LINE "BH"
STA. 1+00.00 TO END

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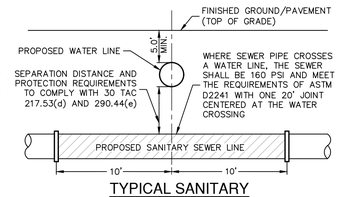


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EXISTING SEWER
PROPOSED SEWER
MANHOLE
PROPOSED WATER
FIRE HYDRANT
PROPOSED SEWER LATERAL
PROPOSED SEWER LATERAL ON EXISTING SEWER LINE
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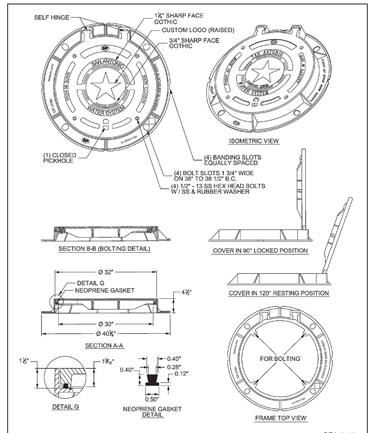
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CHECKED DW DRAWN TC
SHEET C5.12

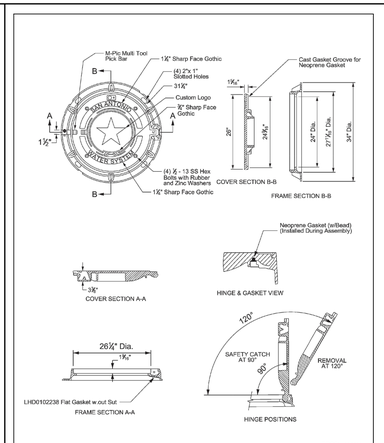
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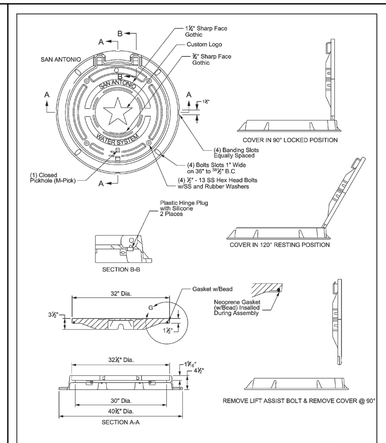
SIP Industries

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM	30" MANHOLE RING AND COVER DETAIL		AUG 2019
SAN ANTONIO, TEXAS		DD 852-07	SHEET 1 OF 5



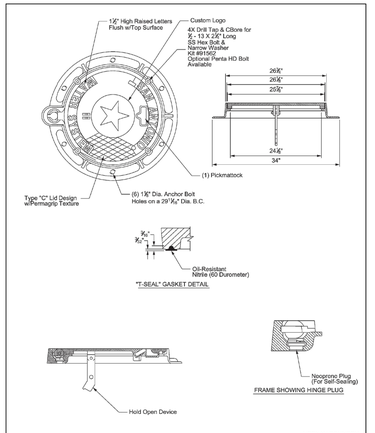
ERGO Assembly

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM	MANHOLE RING AND COVER DETAIL	MARCH 2008	AUG 2019
SAN ANTONIO, TEXAS		DD 852-07	SHEET 2 OF 5



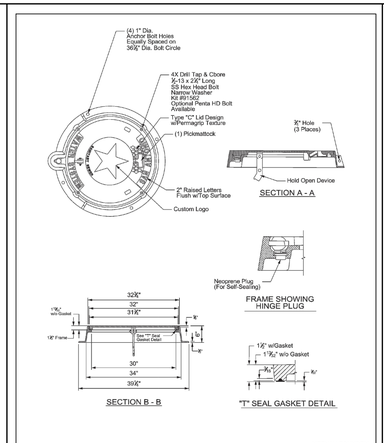
ERGO XL Assembly

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM	MANHOLE RING AND COVER DETAIL	MARCH 2008	AUG 2019
SAN ANTONIO, TEXAS		DD 852-07	SHEET 3 OF 5



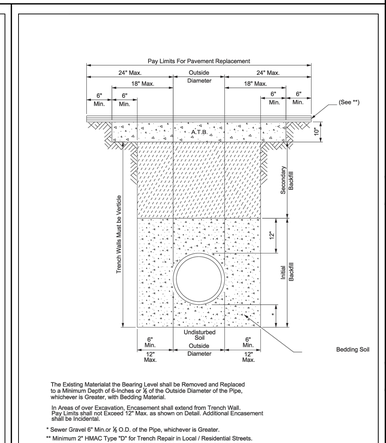
NEENAH FOUNDRY

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM	MANHOLE RING AND COVER DETAIL	MARCH 2008	AUG 2019
SAN ANTONIO, TEXAS		DD 852-07	SHEET 4 OF 5



NEENAH FOUNDRY

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM	MANHOLE RING AND COVER DETAIL	MARCH 2008	AUG 2019
SAN ANTONIO, TEXAS		DD 852-07	SHEET 5 OF 5

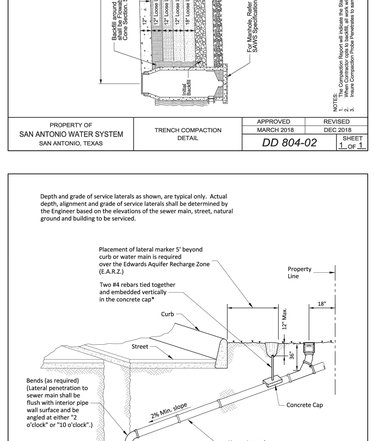


The Existing Materialat the Bearing Level shall be Removed and Replaced to a Minimum Depth of 6-inches or ⅛ of the Outside Diameter of the Pipe, whichever is Greater, with Bedding Material.

In Areas of over Excavation, Encasement shall extend from Trench Wall. Pay Limits shall not Exceed 12" Max. as shown on Detail. Additional Encasement shall be Incidental.

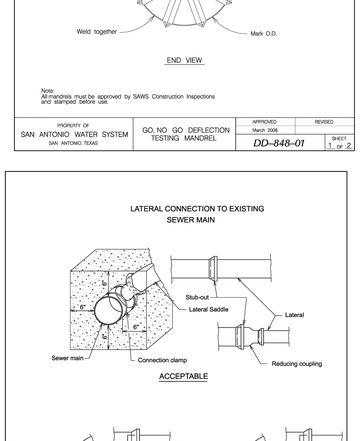
* Sewer Gravel 6" Min.or ⅛ O.D. of the Pipe, whichever is Greater.
** Minimum 2" HMAC Type "D" for Trench Repair in Local / Residential Streets.
** Minimum 3" HMAC Type "C" for Trench Repair in Collector / Arterial Streets.

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM	SANITARY SEWER PIPE LAID IN TRENCH	MARCH 2008	DEC 2018
SAN ANTONIO, TEXAS		DD-804-01	SHEET 1 OF 1



NOTES:
1. The Compaction Report will indicate the Station and the Depth of each Test Point. The Contractor will be responsible for Re-Testing any Failed Test Point.
2. Insure Compaction Probe Penetrates to same Depth as Lift.

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM	TRENCH COMPACTION DETAIL	MARCH 2018	DEC 2018
SAN ANTONIO, TEXAS		DD 804-02	SHEET 1 OF 1



Note:
All mandrels must be approved by SAWS Construction Inspections and stamped before use.

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM	GO, NO GO DEFLECTION TESTING MANDREL	March 2008	
SAN ANTONIO, TEXAS		DD-848-01	SHEET 1 OF 2

SIZE	A	B*	MANDREL O.D. PVC (SDR-26)	RING O.D. PVC (SDR-26)
6"	4.0"	4.5"	5.50	4.79
8"	5.5"	6"	7.37	6.66
10"	7.0"	7.5"	9.21	8.50
12"	8.0"	9"	10.96	10.25
15"	10.0"	11"	13.42	12.71
18"	12.0"	13.5"	——	——
21"	14.0"	16"	——	——
24"	16.0"	18"	——	——
27"	18.0"	20"	——	——

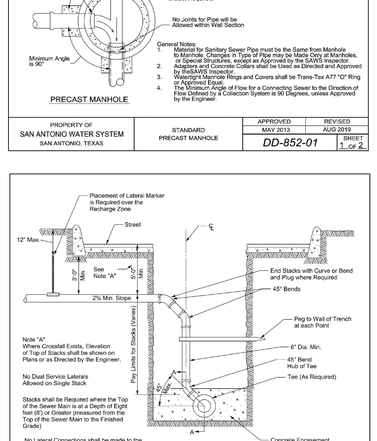
* Minimum Length

CHART

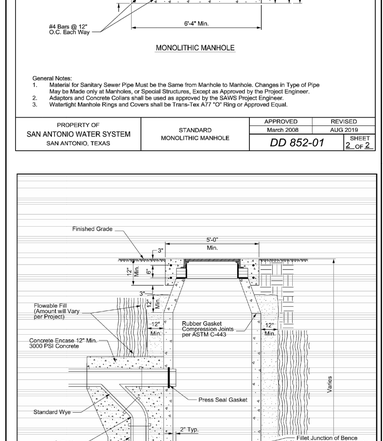
Notes:
PVC pipes and fittings 6" to 15" in diameter shall conform to ASTM D-3034-08.
PVC pipes and fittings 18" to 27" in diameter shall conform to ASTM F-679-08.

This information is provided as a reference. All deflection testing shall be done in accordance with TCEQ Chapter 217.

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM	GO, NO GO DEFLECTION TESTING MANDREL CHART	MARCH 2008	APRIL 2014
SAN ANTONIO, TEXAS		DD-848-01	SHEET 2 OF 2

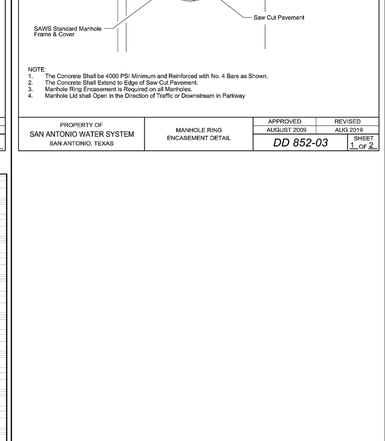


PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM	STANDARD PRICAST MANHOLE	MAY 2013	AUG 2019
SAN ANTONIO, TEXAS		DD-852-01	SHEET 1 OF 2



General Notes:
1. Material for Sanitary Sewer Pipe Must be the Same from Manhole to Manhole. Changes in Type of Pipe may Be Made only at Manholes, or Special Structures, Except as Approved by the Project Engineer.
2. Adaptors and Concrete Collars shall be used as approved by the SAWS Project Engineer.
3. Watertight Manhole Rings and Covers shall be Trans-Tex A77 "O" Ring or Approved Equal.

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM	STANDARD MONOLITHIC MANHOLE	March 2008	AUG 2019
SAN ANTONIO, TEXAS		DD 852-01	SHEET 2 OF 2



NOTE:
1. The Concrete Shall be 4000 PSI Minimum and Reinforced with No. 4 Bars as Shown.
2. The Concrete Shall Extend to Edge of Saw Cut Pavement.
3. Manhole Ring Encasement is Required on all Manholes.
4. Manhole Lid shall Open in the Direction of Traffic or Downstream in Parkway

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM	MANHOLE RING ENCASEMENT DETAIL	AUGUST 2009	AUG 2019
SAN ANTONIO, TEXAS		DD 852-03	SHEET 1 OF 2

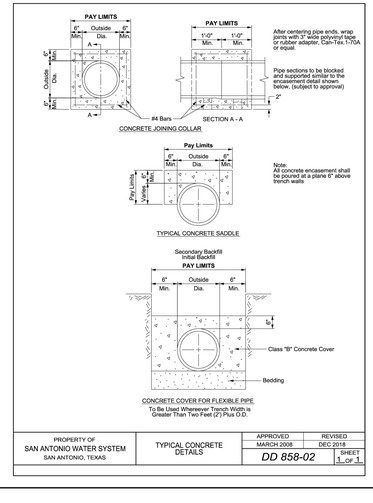
HOUSE LATERAL DETAIL

Note:
A minimum of 3' of cover to subgrade is necessary, otherwise concrete encasement will be required.

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM	HOUSE LATERAL DETAIL (IN THE E.A.R.Z.)	March 2008	December 2018
SAN ANTONIO, TEXAS		DD-854-EARZ	SHEET 1 OF 1

Note:
The saddle shall be permanently bonded to the existing main by the use of compounds or or clamps as recommended by the manufacturer.

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM	LATERAL CONNECTION	MARCH 2008	APRIL 2014
SAN ANTONIO, TEXAS		DD-854-03	SHEET 1 OF 1



PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM	TYPICAL CONCRETE DETAILS	MARCH 2008	DEC 2018
SAN ANTONIO, TEXAS		DD 858-02	SHEET 1 OF 1

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM	TYPICAL VERTICAL STACK DETAIL	MARCH 2008	AUG 2019
SAN ANTONIO, TEXAS		DD 860-01	SHEET 1 OF 1

NOTE: Price for Drop Fittings and Encasement to be Included with the Price of Manhole.

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM	DROP MANHOLE DETAIL	MARCH 2008	AUG 2019
SAN ANTONIO, TEXAS		DD-852-08	SHEET 1 OF 1

LOWER (EAST SEWERSHED-SALADO CREEK WRC)

DEVELOPER'S NAME: LENNAR HOMES OF TEXAS, INC.
ADDRESS: 100 NE LOOP 410, SUITE 1155
CITY: SAN ANTONIO STATE: TEXAS ZIP: 78216
PHONE# (210) 403-6200 FAX# N/A
SAWS BLOCK MAP# 208528 TOTAL EDU'S 239 TOTAL ACREAGE 57.44
TOTAL LINEAR FOOTAGE OF PIPE 4145.19 LF ~ 8" PIPE PLAT NO. 25-11800200
NUMBER OF LOTS 239 SAWS JOB NO. 25-1555

DATE

NO.	REVISION

PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

STATE OF TEXAS
JIM C. WELCH
103466
LICENSED
PROFESSIONAL ENGINEER
8/27/25

STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS
OVERALL SANITARY SEWER DETAILS

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C5.13

Date: February 3, 2025, 3:54 PM — User ID: rodolfo.gallegos
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SAWS CONSTRUCTION NOTES

(LAST REVISED JANUARY 2022)

SAWS GENERAL SECTION

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

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

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

3. THE CONTRACTOR SHALL OBTAIN THE SAWS STANDARD DETAILS FROM THE SAWS WEBSITE, HTTP://WWW.SAWS.ORG/BUSINESS_CENTER/SPECS. UNLESS OTHERWISE NOTED WITHIN THE DESIGN PLANS.

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

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

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

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

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

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

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

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

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

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

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

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

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

SAWS SEWER NOTES

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

   A. IDENTIFY THE SOURCE OF THE SSO AND NOTIFY SAWS EMERGENCY OPERATIONS CENTER (EOC) IMMEDIATELY AT (210) 233-2014. PROVIDE THE ADDRESS OF THE SPILL AND AN ESTIMATED VOLUME OR FLOW.
   B. ATTEMPT TO ELIMINATE THE SOURCE OF THE SSO.
   C. CONTAIN SEWAGE FROM THE SSO TO THE EXTENT OF PREVENTING A POSSIBLE CONTAMINATION OF WATERWAYS.
   D. CLEAN UP SPILL SITE (RETURN CONTAINED SEWAGE TO THE COLLECTION SYSTEM IF POSSIBLE) AND PROPERLY DISPOSE OF CONTAMINATED SOIL/MATERIALS.
   E. CLEAN THE AFFECTED SEWER MAINS AND REMOVE ANY DEBRIS.
   F. MEET ALL POST-SSO REQUIREMENTS AS PER THE EPA CONSENT DECREE, INCLUDING LINE CLEANING AND TELEVISING THE AFFECTED SEWER MAINS (AT SAWS DIRECTION) WITHIN 24 HOURS.

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

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

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

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

4. SEWER PIPE WHERE WATER LINE CROSSES SHALL BE 160 PSI AND MEET THE REQUIREMENTS OF ASTM D2241, TAC 217.53 AND TCEQ 290.44(E)(4)(B). CONTRACTOR SHALL CENTER A 20' JOINT OF 160 PSI PRESSURE RATED PVC AT THE PROPOSED WATER CROSSING.

5. ELEVATIONS POSTED FOR TOP OF MANHOLES ARE FOR REFERENCE ONLY: IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAKE ALLOWANCES AND ADJUSTMENTS FOR TOP OF MANHOLES TO MATCH THE FINISHED GRADE OF THE PROJECT'S IMPROVEMENTS. (NSPI)

6. SPILLS, OVERFLOWS, OR DISCHARGES OF WASTEWATER: ALL SPILLS, OVERFLOWS, OR DISCHARGES OF WASTEWATER, RECYCLED WATER, PETROLEUM PRODUCTS, OR CHEMICALS MUST BE REPORTED IMMEDIATELY TO THE SAWS INSPECTOR ASSIGNED TO THE COUNTER PERMIT OR GENERAL CONSTRUCTION PERMIT (GCP). THIS REQUIREMENT APPLIES TO EVERY SPILL, OVERFLOW, OR DISCHARGE REGARDLESS OF SIZE.

7. MANHOLE AND ALL PIPE TESTING (INCLUDING THE TV INSPECTION) MUST BE PERFORMED AND PASSED PRIOR TO FINAL FIELD ACCEPTANCE BY SAWS CONSTRUCTION INSPECTION DIVISION, AS PER THE SAWS SPECIFICATIONS FOR WATER AND SANITARY SEWER CONSTRUCTION.

8. ALL PVC PIPE OVER 14 FEET OF COVER SHALL BE EXTRA STRENGTH WITH MINIMUM PIPE STIFFNESS OF 115 PSI.

PROJECT SEWER NOTES

1. ALL RESIDENTIAL SEWER SERVICE LATERALS ARE 6" DIA. AND SHALL BE EXTENDED TO 10' PAST THE PROPERTY LINE AND CAPPED AND SEALED. CONTRACTOR SHALL INSTALL A 2" X 4" STAKE, FOUR (4) FEET LONG, TWO (2) FEET DEEP INTO THE GROUND AT THE END OF EACH SERVICE. NO SEPARATE PAY ITEM.
2. CONTRACTOR TO INSTALL CLEANOUTS AT THE END OF ALL SEWER LATERALS, PER LATERAL DETAIL SHEET C5.13
3. NO VERTICAL STACKS ALLOWED FOR ANY LOTS UNLESS OTHERWISE SPECIFIED BY THE ENGINEER.
4. ALL 6" SEWER LATERALS WILL BE SET AT 2% GRADE FROM THE MAIN TO THE PROPERTY LINE.
5. WHEN HORIZONTAL DISTANCE BETWEEN SEWER PIPES AND WATER MAIN IS LESS THAN 9 FOOT OF SEPARATION, SEWER MAIN SHALL BE INSTALLED WITH 150 PSI (MIN) PRESSURE PIPE AND FITTINGS IN ACCORDANCE WITH SAWS CONSTRUCTION CRITERIA FOR CONSTRUCTION OF SEWER MAINS IN THE VICINITY OF WATER MAINS.
6. CONTRACTOR SHALL ENSURE THAT MANHOLES OUTSIDE OF PAVED AREAS ARE SET WITH TOP ELEVATIONS 6" ABOVE FINISHED GRADE WITH CONCRETE RING ENCASEMENT.
7. ALL SEWER PIPES SHALL BE 8" PVC (SDR 26), UNLESS OTHERWISE NOTED.
8. CONTRACTOR IS TO VERIFY EXISTING INVERT OF EXISTING SANITARY SEWER MAINS AND ALERT ENGINEER IMMEDIATELY OF ANY DIFFERENCE FROM INVERT SHOWN ON PLANS.
9. CONTRACTOR SHALL PROTECT ALL EXISTING FENCES. ANY FENCE DAMAGED BY THE CONTRACTOR SHALL BE REPAIRED BY THE CONTRACTOR AT THEIR EXPENSE.
10. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES WHETHER SHOWN ON THE PLANS OR NOT. THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES PRIOR TO CONSTRUCTION TO VERIFY SIZE, GRADE, AND LOCATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DEVIATIONS FROM PLANS PRIOR TO BEGINNING CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR, AT HIS EXPENSE.
11. CONCRETE RING ENCASEMENT TO BE INSTALLED ON ALL MANHOLES AND, WITHIN LIMITS OF PAVEMENT, BE INSTALLED TO THE TOP OF THE BASE LAYER WITH A MINIMUM OF 2" OF ASPHALT ON TOP OF THE RING ENCASEMENT.
12. MANHOLE OPENING INCREASED TO 30" AS PER TAC CHAPTER 217.55.
13. ALL SEWER PIPE LATERALS SHALL BE SDR 26 (CLASS 160) PVC PIPE.
14. IF THE GIVEN TOP OF MANHOLE ELEVATION DOES NOT AGREE ON ACTUAL GROUND SURFACE OR FINISH PAVEMENT, THE CONTRACTOR SHALL ADJUST ELEVATIONS SUCH THAT THE TOP OF MANHOLE SHALL BE 0.5' ABOVE EXISTING GROUND, OR FLUSH TO FINISH ASPHALT PAVEMENT.
15. ALL MANHOLES CONSTRUCTED OVER THE EDWARDS AQUIFER RECHARGE ZONE SHOULD BE WATERTIGHT.

LOWER (EAST SEWERSHED-SALADO CREEK WRC)

DEVELOPER'S NAME: LENNAR HOMES OF TEXAS, INC.
ADDRESS: 100 NE LOOP 410, SUITE 1155
CITY: SAN ANTONIO STATE: TEXAS ZIP: 78216
PHONE# (210) 403-6200 FAX# N/A
SAWS BLOCK MAP# 208528 TOTAL EDU'S 239 TOTAL ACREAGE 57.44
TOTAL LINEAR FOOTAGE OF PIPE 4145.19 LF ~ 8" PIPE PLAT NO. 25-11800200
NUMBER OF LOTS 239 SAWS JOB NO. 25-1555

NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102466
LICENSED
PROFESSIONAL ENGINEER
8/27/25

PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

STONE GARDEN UNIT 5A

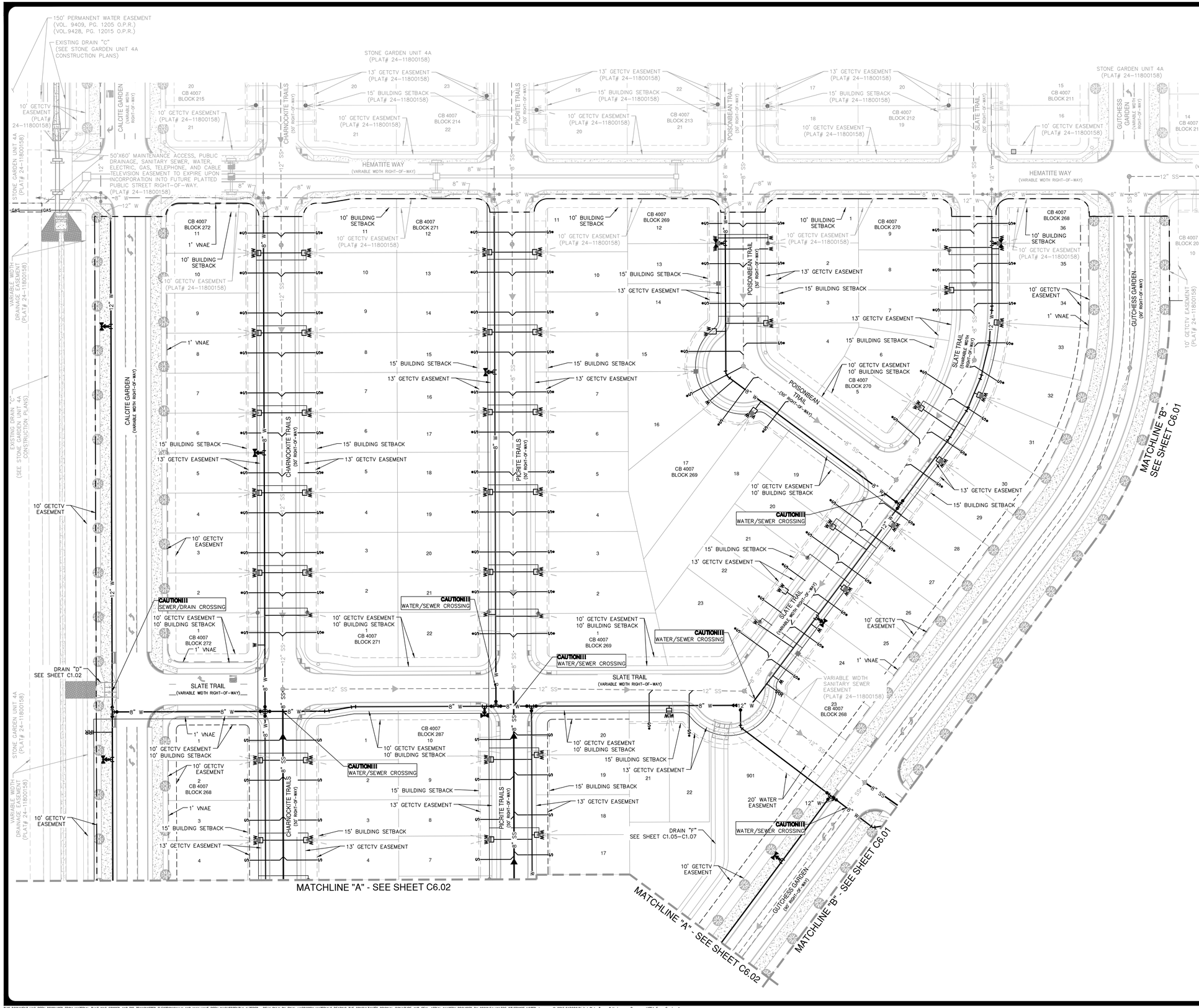
BEXAR COUNTY, TEXAS

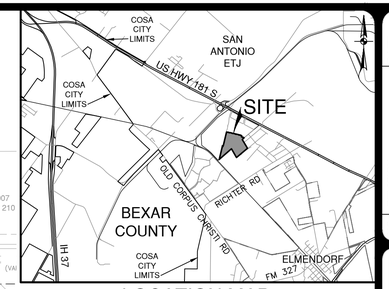
OVERALL SANITARY SEWER NOTES

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C5.14

Date: February 3, 2025, 3:54 PM — User ID: rodolfo.gallegos
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LOCATION MAP
NOT-TO-SCALE

SCALE: 1"= 50'
0' 50' 100' 150'

UTILITY LEGEND

PROJECT LIMITS	
EXISTING WATER	W
EXISTING SEWER	SS — MANHOLE
PROPOSED SEWER	SS — MANHOLE
PROPOSED WATER	W — FIRE HYDRANT
UNDERGROUND FIBER OPTIC	UFO
OVERHEAD ELECTRICAL	OHE
PROPOSED WYE & LATERAL	
SINGLE WATER SERVICE	
DUAL WATER SERVICE	
STREET LIGHTS	SL
CLEAR VISION EASEMENT	CVE
GAS, ELECTRIC, TELEPHONE & CABLE TELEVISION EASEMENT	GETCTV
VEHICULAR NON ACCESS EASEMENT	VNAE
UTILITY POLE	UP
SECONDARY PEDESTAL	
TRANSFORMER	
PULL BOX	PB
EXISTING TREES TO REMAIN UNDISTURBED	
EXISTING TREES TO BE REMOVED	

ROW PERMIT NOTE:
A BEXAR COUNTY PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY RIGHTS-OF-WAY.

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

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

CAUTION!!
CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITING TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY 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.

NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102466
LICENSED
PROFESSIONAL ENGINEER
8/27/25

PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

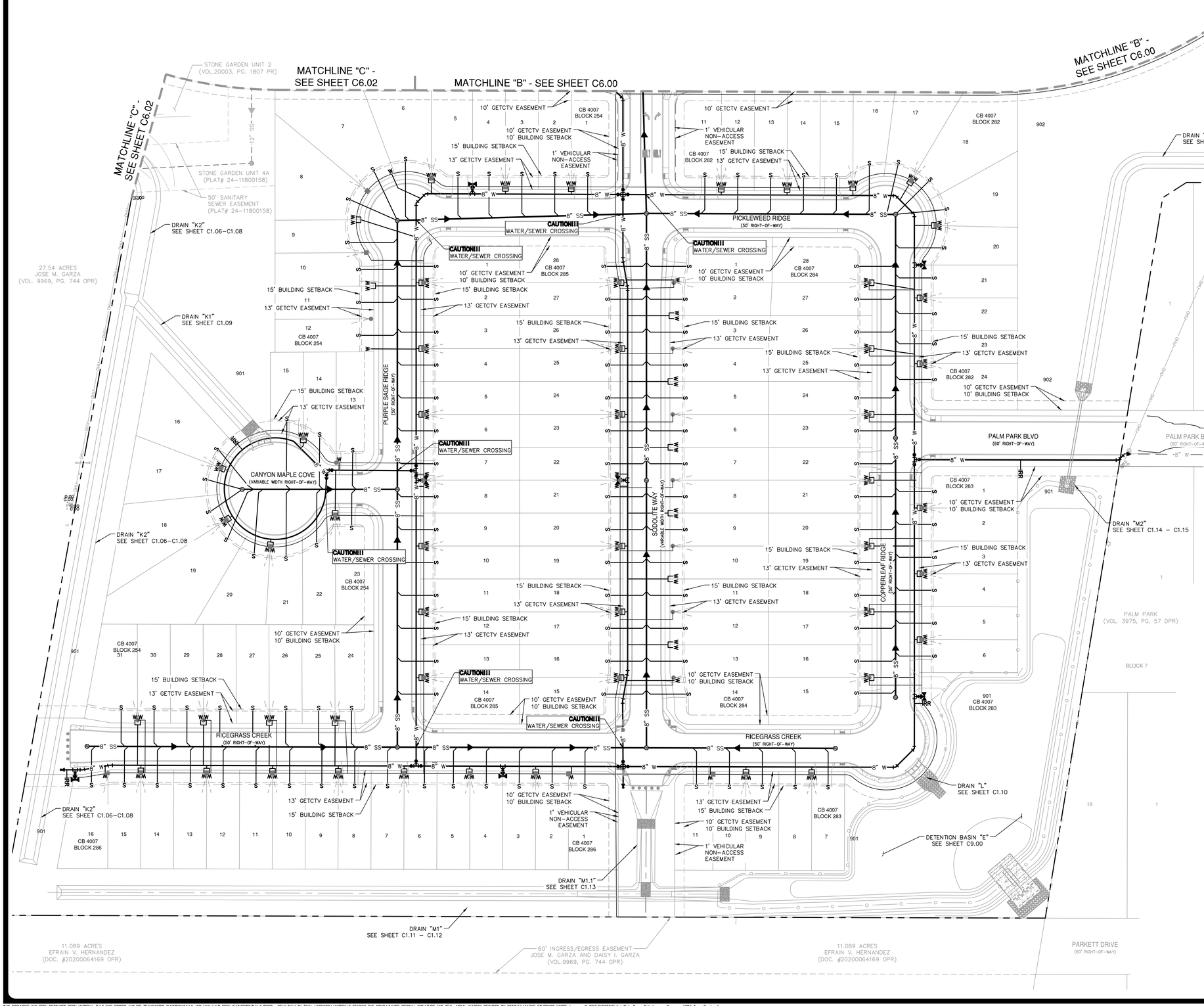
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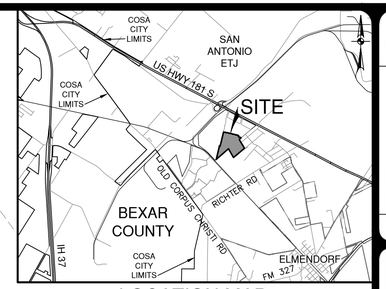
OVERALL UTILITY PLAN

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
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SHEET C6.00

Date: February 3, 2025, 4:40 PM — User ID: rodolfo.gallegos
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EXISTING SEWER	SS
PROPOSED SEWER	SS MANHOLE
PROPOSED WATER	W FIRE HYDRANT
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STATE OF TEXAS
JIM C. WELCH
102466
LICENSED PROFESSIONAL ENGINEER
8/27/25

PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS
OVERALL UTILITY PLAN

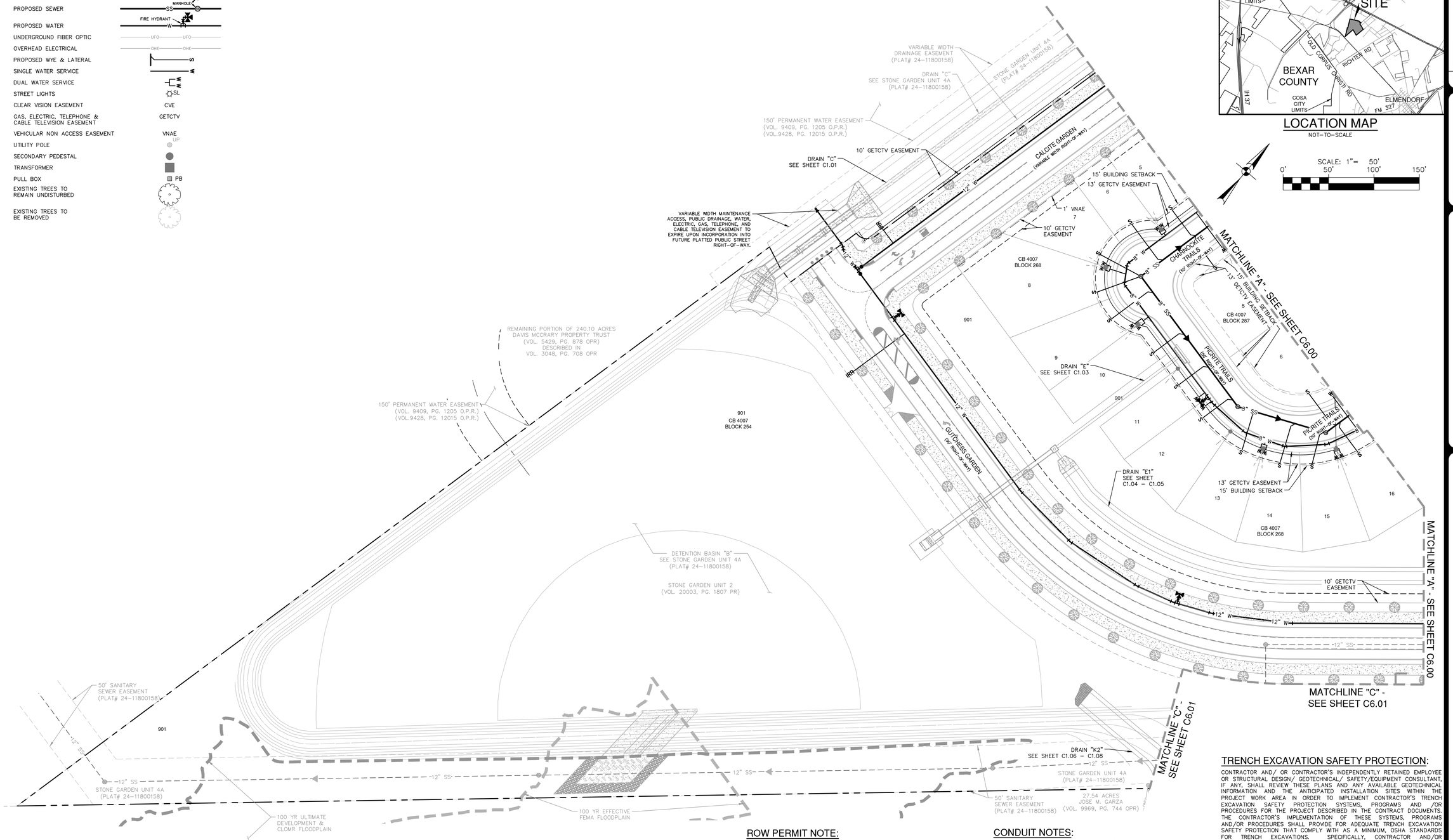
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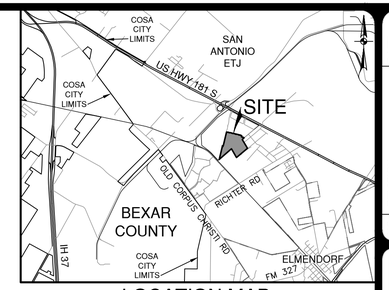
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UTILITY LEGEND

PROJECT LIMITS
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EXISTING SEWER — SS — MANHOLE
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PROPOSED WATER — FIRE HYDRANT — W
UNDERGROUND FIBER OPTIC — UFO
OVERHEAD ELECTRICAL — OHE
PROPOSED WYE & LATERAL — S
SINGLE WATER SERVICE — W
DUAL WATER SERVICE — W
STREET LIGHTS — SL
CLEAR VISION EASEMENT — CVE
GAS, ELECTRIC, TELEPHONE & CABLE TELEVISION EASEMENT — GETCTV
VEHICULAR NON ACCESS EASEMENT — VNAE
UTILITY POLE — UP
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JIM C. WELCH
102466
LICENSED
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8/27/25

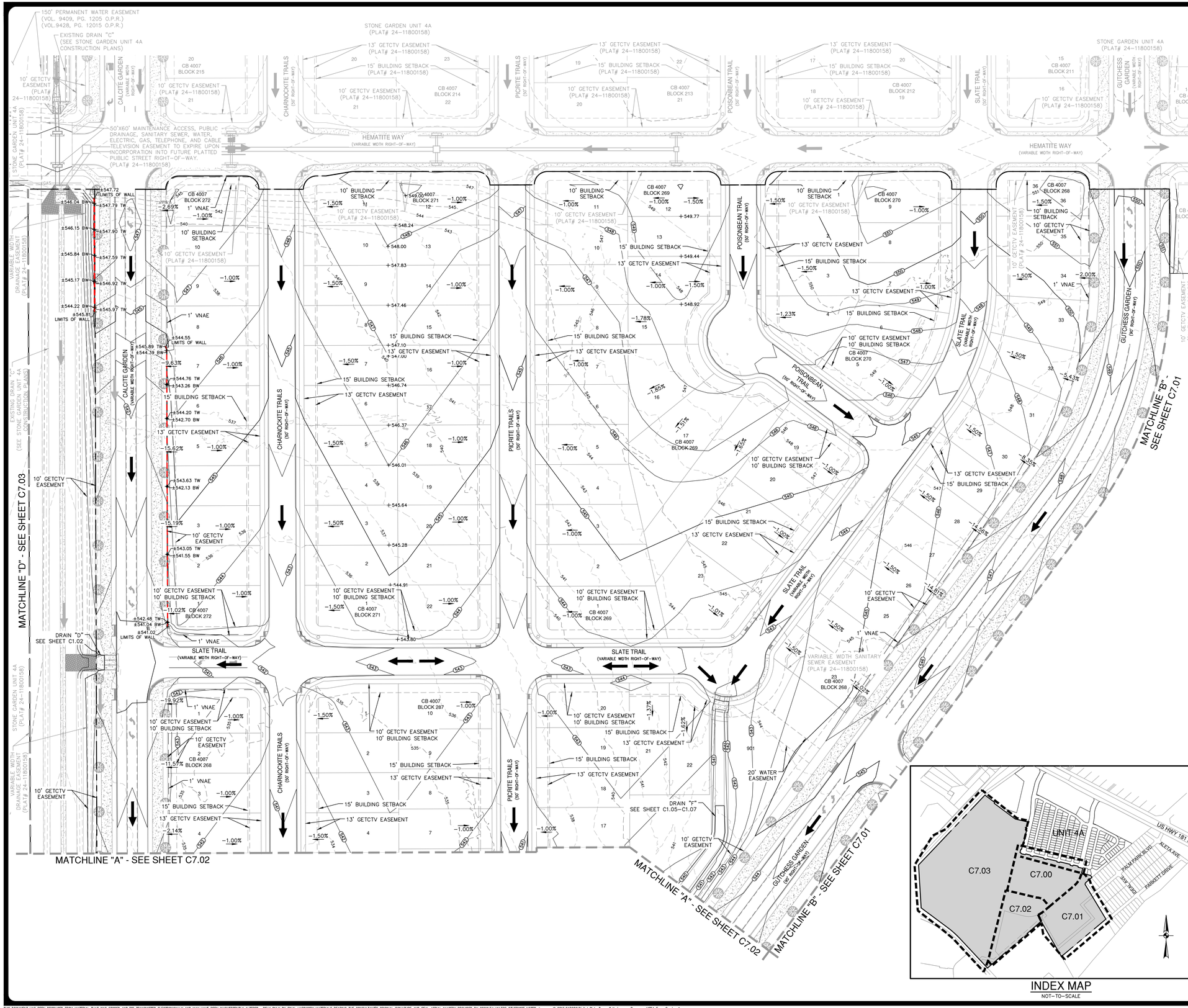
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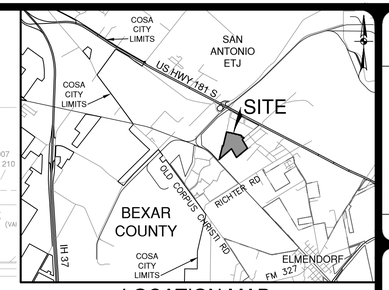
STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS
OVERALL UTILITY PLAN

PLAT NO. 25-11800200
JOB NO. 12482-21
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DESIGNER LM
CHECKED DW DRAWN TC
SHEET C6.02

Date: February 3, 2025, 4:42 PM – User ID: rodolfo.gallegos
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LOCATION MAP
NOT-TO-SCALE

SCALE: 1"= 50'
0' 50' 100' 150'

GRADING LEGEND

- PROJECT LIMITS
- 100 YR FLOODPLAIN
- EXISTING CONTOUR — 976
- PROPOSED CONTOUR — 970
- FLOW ARROW (EXISTING)
- FLOW ARROW (PROPOSED)
- MINIMUM FINISHED FLOOR ELEVATION — FF = XXXX.XX
- TREES TO REMAIN
- PROPOSED WALL

GRADING NOTES:

1. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THIS SCOPE OF WORK WHERE NOT SPECIFICALLY COVERED IN THE SPECIFICATIONS OR GEOTECHNICAL REPORT SHALL CONFORM TO ALL APPLICABLE CITY, COUNTY AND TXDOT STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (LATEST EDITION).

2. SITE PREPARATION, GRADING, EXCAVATION AND FILL SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT GEOTECHNICAL REPORT AND SPECIFICATIONS.

3. ALL SELECT FILL MATERIAL PROVIDED SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACING AND COMPACTING.

4. ALL ELEVATIONS AND PROPOSED CONTOURS SHOWN ON THIS GRADING PLAN REFLECT FINISHED GRADES. THE THICKNESS OF PAVING, BASE, GRASS, TOPSOIL, AND MULCH MUST BE SUBTRACTED TO OBTAIN SUBGRADE ELEVATIONS.

5. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY QUESTIONS THAT MAY ARISE CONCERNING THE INTENT, PLACEMENT, OR LIMITS OF DIMENSIONS OR GRADES NECESSARY FOR CONSTRUCTION OF THIS PROJECT.

6. THE CONTRACTOR SHALL VERIFY THE SUITABILITY OF ALL EXISTING AND PROPOSED SITE CONDITIONS INCLUDING GRADES AND DIMENSIONS BEFORE COMMENCEMENT OF CONSTRUCTION. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES.

7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ACQUIRING ALL PERMITS, TESTS, APPROVALS AND ACCEPTANCES REQUIRED TO COMPLETE CONSTRUCTION OF THIS PROJECT.

8. THE CONTRACTOR SHALL REMOVE TOP SOIL, GRASS, ROOTS, DEBRIS, ETC. AND DISPOSE OFF SITE THOSE MATERIALS NOT SUITABLE FOR EMBANKMENT AND TOPSOIL. CLEAN STRIPPINGS AND TOPSOIL MAY BE STOCKPILED ON SITE FOR REUSE IN A LOCATION SPECIFIED BY THE OWNER.

9. THE SITE CONTRACTOR SHALL BE RESPONSIBLE FOR SITE STABILIZATION. ALL DISTURBED AREAS SHALL BE REVEGETATED IN ACCORDANCE WITH PROJECT SPECIFICATIONS AND TPDES/SWPPP REQUIREMENTS. REFERENCE THE LANDSCAPE ARCHITECT'S PLAN, IF APPLICABLE.

10. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS (USE OF SILT FENCES, ETC.) TO KEEP DRAINAGE AND SILT FROM WASHING ONTO ADJACENT PROPERTY, STREETS, OR DRAINAGE WAYS. CONTRACTOR SHALL IMMEDIATELY REMOVE SILT/DEBRIS WHICH WASHES OFFSITE OR INTO EXISTING STORM DRAIN SYSTEMS. (SEE SWPPP PLANS & TPDES BOOK).

11. THE CONTRACTOR SHALL OBTAIN GRADES SHOWN HEREON WITHIN +/– ONE–TENTH (0.10) FOOT.

12. IN PROPOSED PAVING AREAS, STREET DESIGN PLANS SHALL CONTROL. ALL EARTHEN SLOPES SHALL BE A MAXIMUM OF 3:1 AND A MINIMUM OF 1.0% UNLESS OTHERWISE SHOWN.

13. THE CONTRACTOR SHALL PROVIDE A SMOOTH TRANSITION BETWEEN EXISTING SITE AND PROPOSED IMPROVEMENTS.

14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING TO ITS ORIGINAL, OR BETTER, CONDITION ANY DAMAGE DONE TO EXISTING TREES, BUILDINGS, UTILITIES, FENCES, PAVEMENT, CURBS, OR DRIVEWAYS (NO SEPARATE PAY ITEMS).

15. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION IN WORKING NEAR UTILITIES, GAS LINES, SEWER, OR EXISTING APPURTENANCES. PRIOR TO PERFORMING ANY EXCAVATION, CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES AND ASSURE HIMSELF THAT ALL UTILITIES HAVE BEEN ADEQUATELY LOCATED AND IDENTIFIED. THE ENGINEER SHALL BE NOTIFIED IF ANY UTILITY CONFLICTS ARE DISCOVERED.

16. UTILITIES SHOWN ON THE PLANS ARE FROM INFORMATION SOURCES AVAILABLE AT THE TIME OF DESIGN BUT MAY NOT REPRESENT ALL EXISTING UTILITIES ON SITE. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL UTILITIES WHETHER SHOWN ON THE PLANS OR NOT. THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES PRIOR TO CONSTRUCTION AND VERIFY SIZE, GRADE AND LOCATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DEVIATIONS FROM PLANS PRIOR TO BEGINNING CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, SHALL BE THE CONTRACTORS RESPONSIBILITY TO REPAIR, AT HIS OWN EXPENSE.

17. POSITIVE DRAINAGE SHALL BE MAINTAINED THROUGHOUT THE SCOPE OF THE PROJECT. DRAINAGE SHALL BE DIRECTED AWAY FROM ALL BUILDING FOUNDATIONS. CONTRACTOR SHOULD TAKE PRECAUTIONS NOT TO ALLOW ANY PONDING OF WATER.

18. FOR FILL PLACEMENT ON HILL SIDES OR STEEP SLOPE AREAS, THE CONTRACTOR SHALL REFERENCE THE PROJECT SPECIFICATIONS AND GEOTECHNICAL REPORT FOR SPECIAL INSTRUCTIONS REGARDING BENCHING.

19. NO WORK SHALL BE PERFORMED IN A PUBLIC RIGHT–OF–WAY WITHOUT A PERMIT.

INDEX MAP
NOT–TO–SCALE

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102486
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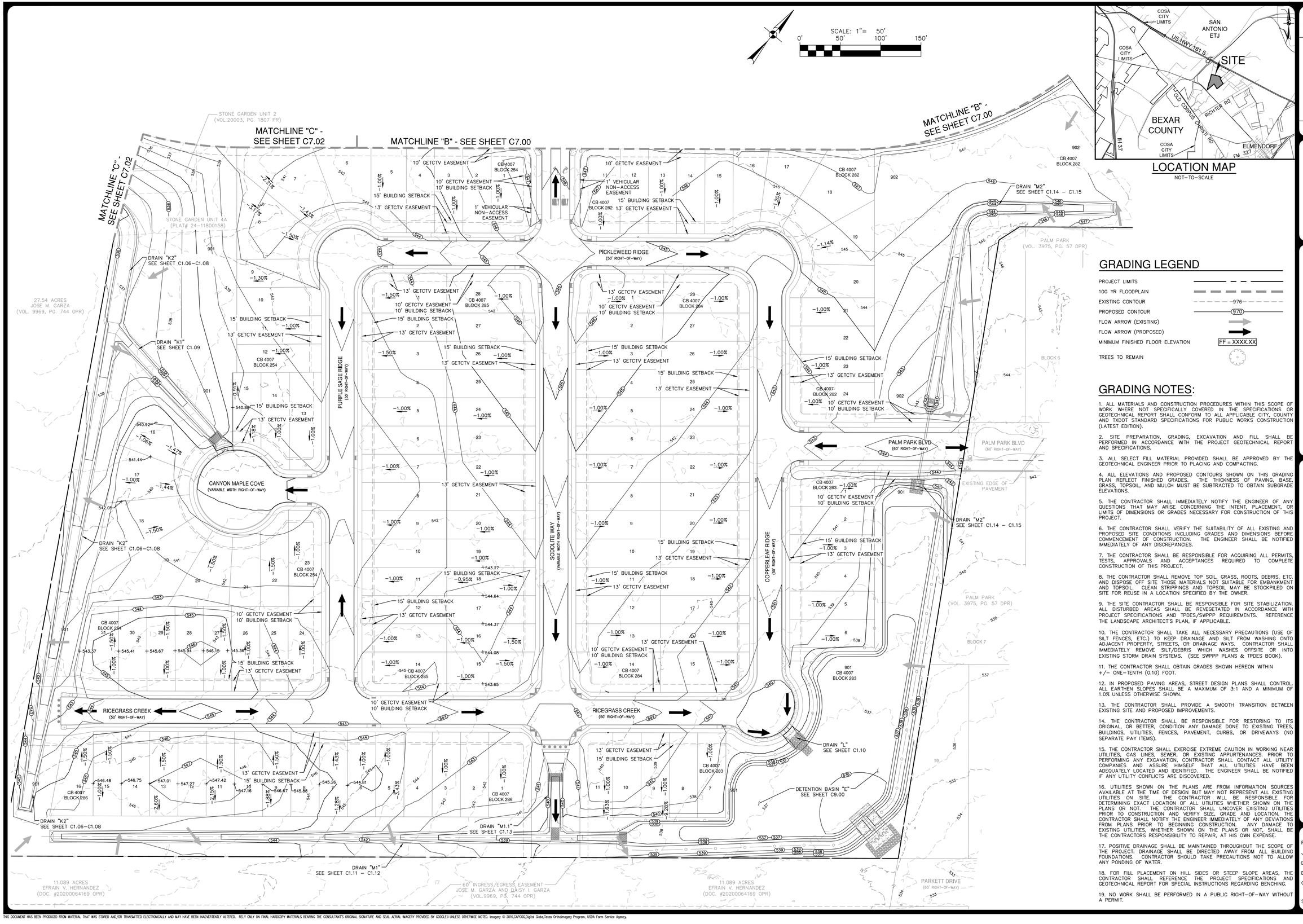
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- TREES TO REMAIN

GRADING NOTES:

1. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THIS SCOPE OF WORK WHERE NOT SPECIFICALLY COVERED IN THE SPECIFICATIONS OR GEOTECHNICAL REPORT SHALL CONFORM TO ALL APPLICABLE CITY, COUNTY AND TXDOT STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (LATEST EDITION).

2. SITE PREPARATION, GRADING, EXCAVATION AND FILL SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT GEOTECHNICAL REPORT AND SPECIFICATIONS.

3. ALL SELECT FILL MATERIAL PROVIDED SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACING AND COMPACTING.

4. ALL ELEVATIONS AND PROPOSED CONTOURS SHOWN ON THIS GRADING PLAN REFLECT FINISHED GRADES. THE THICKNESS OF PAVING, BASE, GRASS, TOPSOIL, AND MULCH MUST BE SUBTRACTED TO OBTAIN SUBGRADE ELEVATIONS.

5. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY QUESTIONS THAT MAY ARISE CONCERNING THE INTENT, PLACEMENT, OR LIMITS OF DIMENSIONS OR GRADES NECESSARY FOR CONSTRUCTION OF THIS PROJECT.

6. THE CONTRACTOR SHALL VERIFY THE SUITABILITY OF ALL EXISTING AND PROPOSED SITE CONDITIONS INCLUDING GRADES AND DIMENSIONS BEFORE COMMENCEMENT OF CONSTRUCTION. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES.

7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ACQUIRING ALL PERMITS, TESTS, APPROVALS AND ACCEPTANCES REQUIRED TO COMPLETE CONSTRUCTION OF THIS PROJECT.

8. THE CONTRACTOR SHALL REMOVE TOP SOIL, GRASS, ROOTS, DEBRIS, ETC. AND DISPOSE OFF SITE THOSE MATERIALS NOT SUITABLE FOR EMBANKMENT AND TOPSOIL. CLEAN STRIPPINGS AND TOPSOIL MAY BE STOCKPILED ON SITE FOR REUSE IN A LOCATION SPECIFIED BY THE OWNER.

9. THE SITE CONTRACTOR SHALL BE RESPONSIBLE FOR SITE STABILIZATION. ALL DISTURBED AREAS SHALL BE REVEGETATED IN ACCORDANCE WITH PROJECT SPECIFICATIONS AND TPDES/SWPPP REQUIREMENTS. REFERENCE THE LANDSCAPE ARCHITECT'S PLAN, IF APPLICABLE.

10. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS (USE OF SILT FENCES, ETC.) TO KEEP DRAINAGE AND SILT FROM WASHING ONTO ADJACENT PROPERTY, STREETS, OR DRAINAGE WAYS. CONTRACTOR SHALL IMMEDIATELY REMOVE SILT/DEBRIS WHICH WASHES OFFSITE OR INTO EXISTING STORM DRAIN SYSTEMS. (SEE SWPPP PLANS & TPDES BOOK).

11. THE CONTRACTOR SHALL OBTAIN GRADES SHOWN HEREON WITHIN +/- ONE-TENTH (0.10) FOOT.

12. IN PROPOSED PAVING AREAS, STREET DESIGN PLANS SHALL CONTROL. ALL EARTHEN SLOPES SHALL BE A MAXIMUM OF 3:1 AND A MINIMUM OF 1.0% UNLESS OTHERWISE SHOWN.

13. THE CONTRACTOR SHALL PROVIDE A SMOOTH TRANSITION BETWEEN EXISTING SITE AND PROPOSED IMPROVEMENTS.

14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING TO ITS ORIGINAL OR BETTER, CONDITION ANY DAMAGE DONE TO EXISTING TREES, BUILDINGS, UTILITIES, FENCES, PAVEMENT, CURBS, OR DRIVEWAYS (NO SEPARATE PAY ITEMS).

15. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION IN WORKING NEAR UTILITIES, GAS LINES, SEWER, OR EXISTING APPURTENANCES. PRIOR TO PERFORMING ANY EXCAVATION, CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES AND ASSURE HIMSELF THAT ALL UTILITIES HAVE BEEN ADEQUATELY LOCATED AND IDENTIFIED. THE ENGINEER SHALL BE NOTIFIED IF ANY UTILITY CONFLICTS ARE DISCOVERED.

16. UTILITIES SHOWN ON THE PLANS ARE FROM INFORMATION SOURCES AVAILABLE AT THE TIME OF DESIGN BUT MAY NOT REPRESENT ALL EXISTING UTILITIES ON SITE. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL UTILITIES WHETHER SHOWN ON THE PLANS OR NOT. THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES PRIOR TO CONSTRUCTION AND VERIFY SIZE, GRADE AND LOCATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DEVIATIONS FROM PLANS PRIOR TO BEGINNING CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, SHALL BE THE CONTRACTORS RESPONSIBILITY TO REPAIR, AT HIS OWN EXPENSE.

17. POSITIVE DRAINAGE SHALL BE MAINTAINED THROUGHOUT THE SCOPE OF THE PROJECT. DRAINAGE SHALL BE DIRECTED AWAY FROM ALL BUILDING FOUNDATIONS. CONTRACTOR SHOULD TAKE PRECAUTIONS NOT TO ALLOW ANY PONDING OF WATER.

18. FOR FILL PLACEMENT ON HILL SIDES OR STEEP SLOPE AREAS, THE CONTRACTOR SHALL REFERENCE THE PROJECT SPECIFICATIONS AND GEOTECHNICAL REPORT FOR SPECIAL INSTRUCTIONS REGARDING BENCHING.

19. NO WORK SHALL BE PERFORMED IN A PUBLIC RIGHT-OF-WAY WITHOUT A PERMIT.

NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102466
LICENSED
PROFESSIONAL ENGINEER
8/27/25

PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS

OVERALL GRADING PLAN

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C7.01

Date: February 3, 2025, 2:22 PM – User ID: LeomartinezFile: P:\12A\82\21\Design\Civil\DR124822121.dwg

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GRADING LEGEND

PROJECT LIMITS

100 YR FLOODPLAIN

EXISTING CONTOUR 976

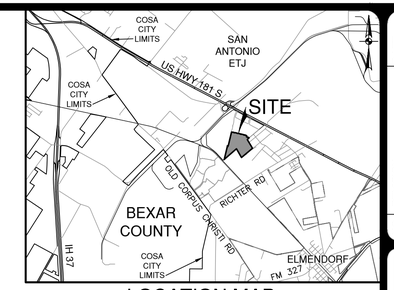
PROPOSED CONTOUR 970

FLOW ARROW (EXISTING)

FLOW ARROW (PROPOSED)

MINIMUM FINISHED FLOOR ELEVATION FF = XXXX.XX

TREES TO REMAIN

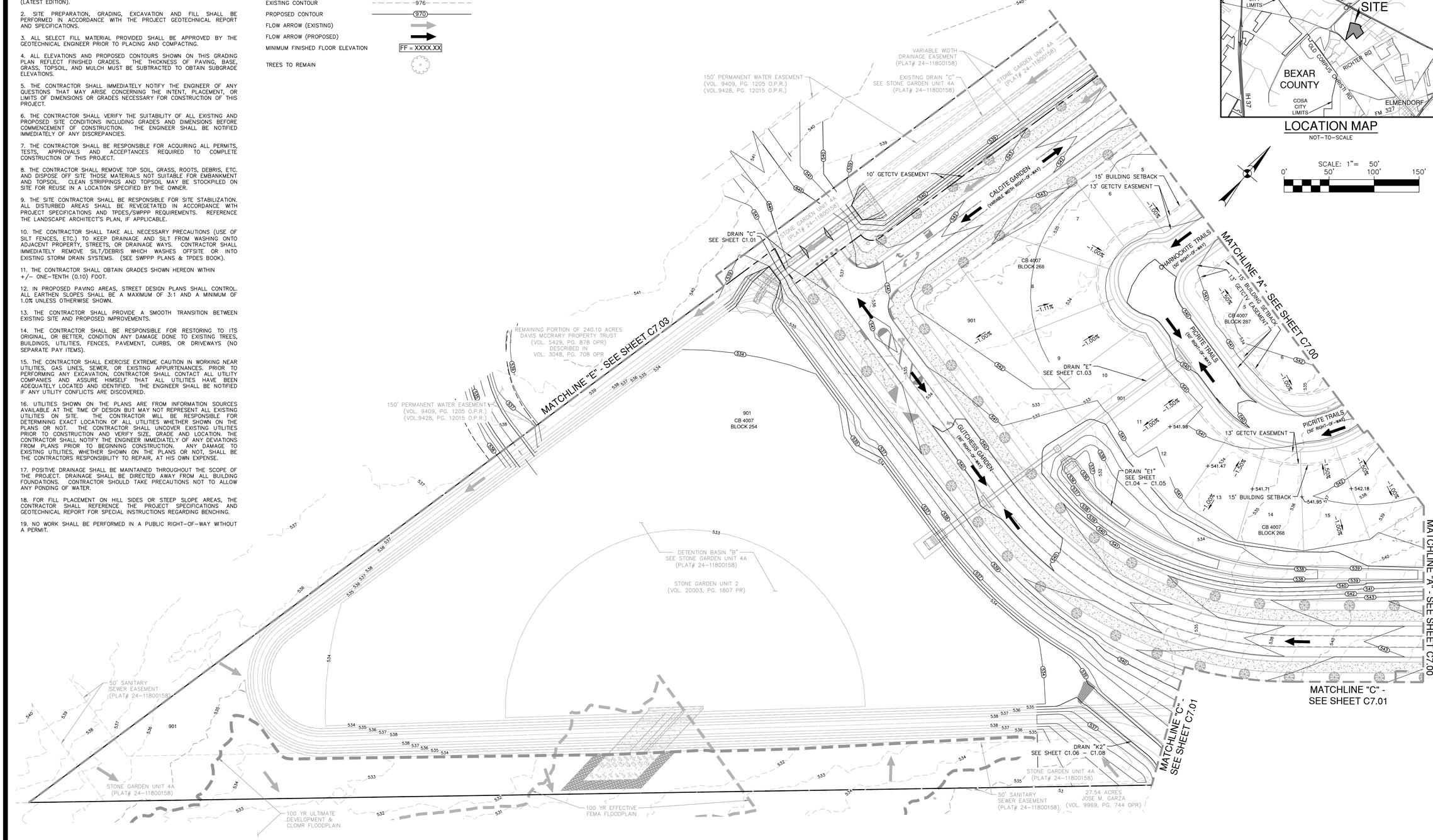


LOCATION MAP

NOT–TO–SCALE

SCALE: 1"= 50'

0' 50' 100' 150'



NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102466
LICENSED PROFESSIONAL ENGINEER
8/27/25

PAPE–DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

STONE GARDEN UNIT 5A

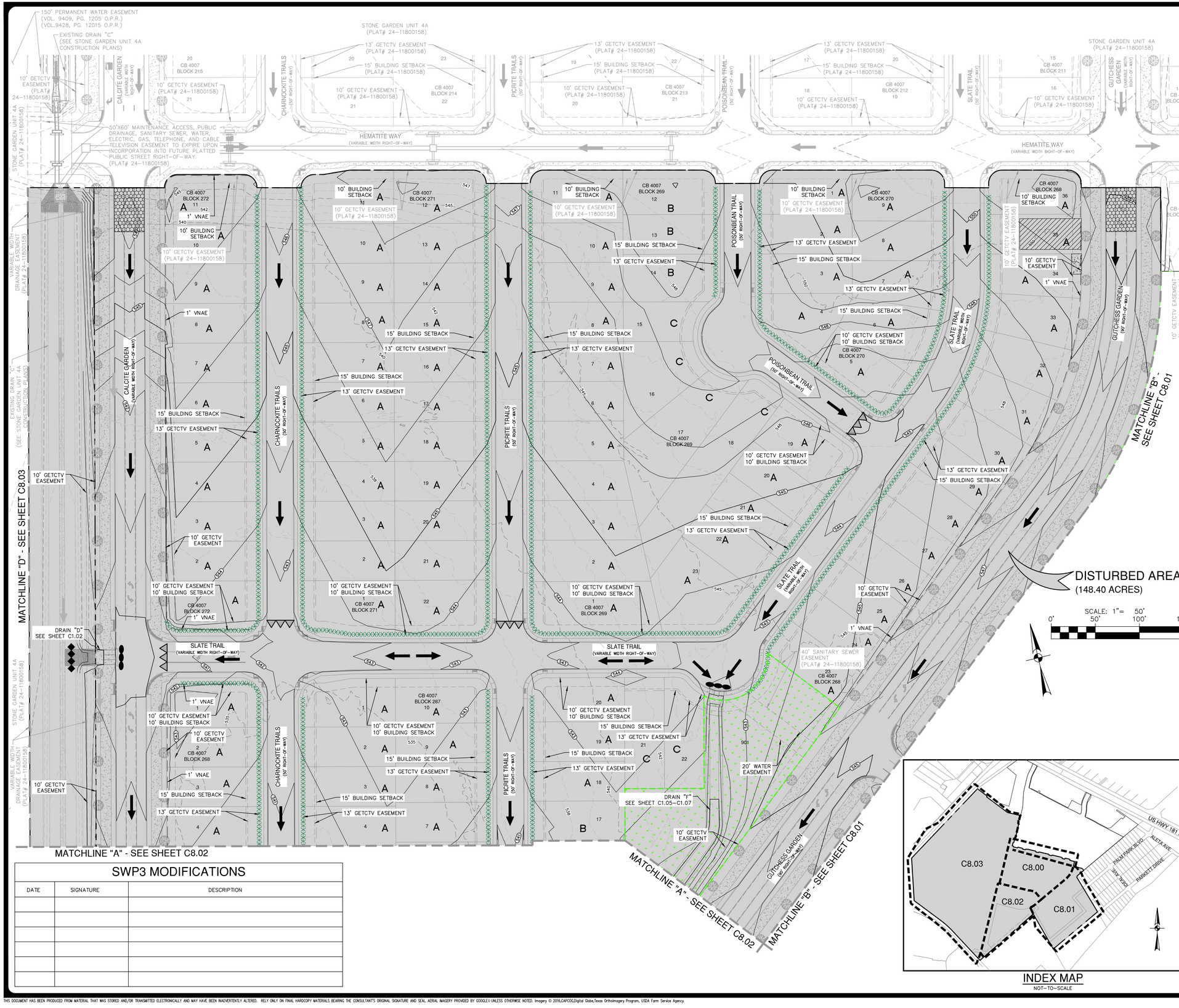
BEXAR COUNTY, TEXAS

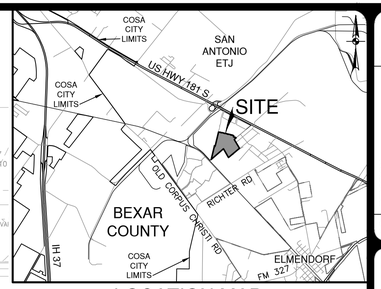
OVERALL GRADING PLAN

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C7.02

Date: February 3, 2025, 2:23 PM – User ID: Leomartinez
File: P:\124\82\21\Design\Civil\GR1248221.dwg

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LOCATION MAP
NOT-TO-SCALE

SWPPP LEGEND

- PROJECT LIMITS
- EXISTING CONTOUR — 976
- PROPOSED CONTOUR — 970
- FLOW ARROW (EXISTING)
- FLOW ARROW (PROPOSED)
- SILT FENCE
- ROCK BERM TYPE 2 (TO BE REMOVED POST CONSTRUCTION)
- GRAVEL FILTER BAGS
- GRAVEL BAG BERM (CAN BE REMOVED ONCE CHANNEL IS STABILIZED OR RIP–RAP IS IN PLACE)
- LIMITS OF DISTURBED AREA
- STABILIZED CONSTRUCTION ENTRANCE/EXIT (FIELD LOCATE)
- CONSTRUCTION EQUIPMENT, VEHICLE & MATERIALS STORAGE AREA (FIELD LOCATE)
- CONCRETE TRUCK WASH–OUT PIT (FIELD LOCATE)
- 50' NATURAL VEGETATIVE BUFFER
- EARTHEN BERM W/POLYLINER AND SPILLWAY (BERMS ARE TO SPAN ACROSS PROPOSED STREET SECTION APPROX. 30–FEET WIDE FROM CURB TO CURB)
- CREEK CENTERLINE
- SILT FENCE (PHASE II) — XXXXXXXXXXXXX
- AREA TO BE PERMANENTLY (HYDROMULCHED) STABILIZED/VEGETATED OUTSIDE OF PHASE II
- FHA LOT GRADING TYPE — A, B, C

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

14. PRIOR TO BEGINNING CONSTRUCTION, CONTRACTOR SHALL COORDINATE PLACEMENT OF TEMPORARY BEST MANAGEMENT PRACTICES WITHIN TXDOT RIGHT–OF–WAY WITH TXDOT.

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

16. A BEXAR COUNTY ROW PERMIT MUST BE OBTAINED BEFORE WORKING IN ANY BEXAR COUNTY ROW.

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

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

EXHIBIT 2A

INDEX MAP
NOT–TO–SCALE

SWP3 MODIFICATIONS

DATE	SIGNATURE	DESCRIPTION

NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102466
LICENSED PROFESSIONAL ENGINEER
8/27/25

PAPE–DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS
STORM WATER POLLUTION PREVENTION PLAN

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C8.00

Date: February 3, 2025, 4:03 PM — User ID: rodolfo.gallegos
File: P:\12482\21\Design\Civil\TPDES12482121.dwg

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SWP3 MODIFICATIONS

DATE	SIGNATURE	DESCRIPTION

SCALE: 1"= 50' (0' 50' 100' 150')

DISTURBED AREA
(148.40 ACRES)

MATCHLINE "C" - SEE SHEET C8.02

MATCHLINE "B" - SEE SHEET C8.00

STONE GARDEN UNIT 2
(VOL.20003, PG. 1807 PR)

STONE GARDEN UNIT 4A
(PLAT# 24-11800158)

27.54 ACRES
JOSE M. GARZA
(VOL. 9969, PG. 744 OPR)

11.089 ACRES
EFRAIN V. HERNANDEZ
(DOC. #20200064169 OPR)

60' INGRESS/EGRESS EASEMENT
JOSE M. GARZA AND DAISY I. GARZA
(VOL.9969, PG. 744 OPR)

PALM PARK
(VOL. 3975, PG. 57 DPR)

DRAIN "K2" SEE SHEET C1.06-C1.08

DRAIN "K1" SEE SHEET C1.09

DRAIN "M2" SEE SHEET C1.14 - C1.15

DRAIN "L" SEE SHEET C1.10

DRAIN "M1" SEE SHEET C1.11 - C1.12

DRAIN "M1.1" SEE SHEET C1.13

DETENTION BASIN "E" SEE SHEET C9.00

PICKLEWEED RIDGE (50' RIGHT-OF-WAY)

PURPLE SAGE RIDGE (50' RIGHT-OF-WAY)

CANYON MAPLE COVE (VARIABLE WIDTH RIGHT-OF-WAY)

SODOLITE WAY (VARIABLE WIDTH RIGHT-OF-WAY)

COPPERLEAF RIDGE (50' RIGHT-OF-WAY)

RICEGRASS CREEK (50' RIGHT-OF-WAY)

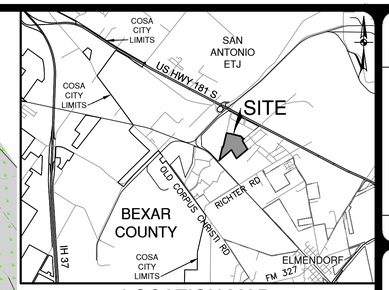
PALM PARK BLVD (60' RIGHT-OF-WAY)

PARKETT DRIVE (60' RIGHT-OF-WAY)

10' GETCTV EASEMENT
10' BUILDING SETBACK
15' BUILDING SETBACK
13' GETCTV EASEMENT
1' VEHICULAR NON-ACCESS EASEMENT

CB 4007 BLOCK 254
CB 4007 BLOCK 282
CB 4007 BLOCK 285
CB 4007 BLOCK 284
CB 4007 BLOCK 283
CB 4007 BLOCK 286

BLOCK 6
BLOCK 7



LOCATION MAP
NOT-TO-SCALE

SWPPP LEGEND

- PROJECT LIMITS
- EXISTING CONTOUR (976)
- PROPOSED CONTOUR (970)
- FLOW ARROW (EXISTING)
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16. A BEXAR COUNTY ROW PERMIT MUST BE OBTAINED BEFORE WORKING IN ANY BEXAR COUNTY ROW.

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

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

EXHIBIT 2B

NO.	REVISION	DATE

STATE OF TEXAS
JIM G. WELCH
102466
LICENSED
PROFESSIONAL ENGINEER
8/27/25

PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS

STORM WATER POLLUTION PREVENTION PLAN

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C8.01

Date: February 3, 2025, 4:04 PM - User ID: rodolfo.gallegos
File: P:\124\82\21\Design\Civil\TPDES124822 1.dwg

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SWPPP LEGEND

- PROJECT LIMITS
- EXISTING CONTOUR — 976
- PROPOSED CONTOUR — 970
- FLOW ARROW (EXISTING)
- FLOW ARROW (PROPOSED)
- SILT FENCE
- ROCK BERM TYPE 2 (TO BE REMOVED POST CONSTRUCTION)
- GRAVEL FILTER BAGS
- GRAVEL BAG BERM (CAN BE REMOVED ONCE CHANNEL IS STABILIZED OR RIP-RAP IS IN PLACE)
- LIMITS OF DISTURBED AREA
- STABILIZED CONSTRUCTION ENTRANCE/EXIT (FIELD LOCATE)
- CONSTRUCTION EQUIPMENT, VEHICLE & MATERIALS STORAGE AREA (FIELD LOCATE)
- CONCRETE TRUCK WASH-OUT PIT (FIELD LOCATE)
- 50' NATURAL VEGETATIVE BUFFER
- EARTHEN BERM W/POLYLINER AND SPILLWAY (BERMS ARE TO SPAN ACROSS PROPOSED STREET SECTION APPROX. 30-FEET WIDE FROM CURB TO CURB)
- CREEK CENTERLINE
- SILT FENCE (PHASE II) — XXXXXXXXXXXXX
- AREA TO BE PERMANENTLY (HYDROMULCHED) STABILIZED/VEGETATED OUTSIDE OF PHASE II
- FHA LOT GRADING TYPE — A, B, C

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

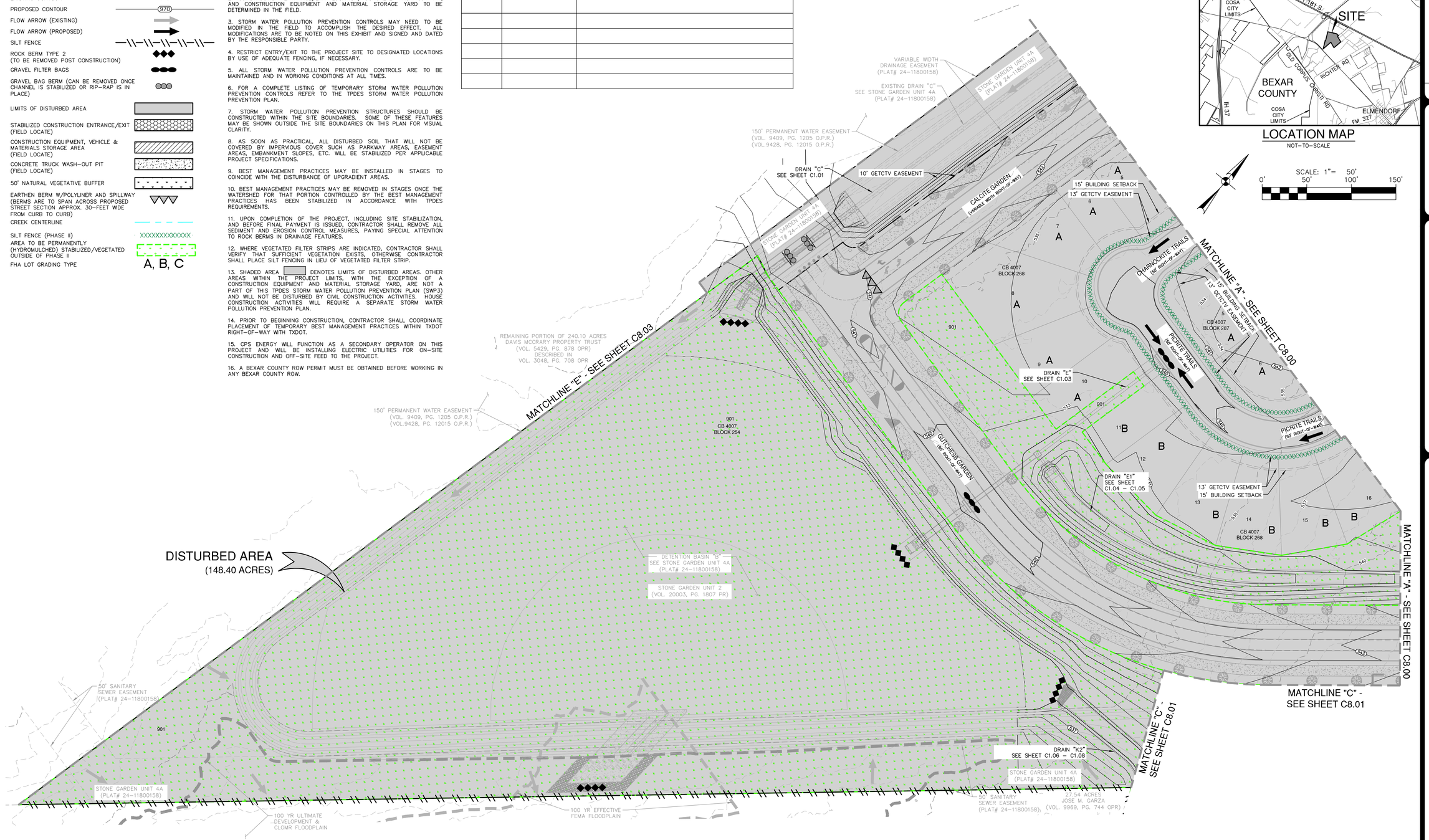
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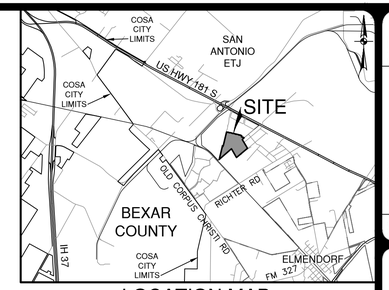
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SWP3 MODIFICATIONS

DATE	SIGNATURE	DESCRIPTION





LOCATION MAP
NOT-TO-SCALE

NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102486
LICENSED
PROFESSIONAL ENGINEER
8/27/25

PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS

STORM WATER POLLUTION PREVENTION PLAN

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

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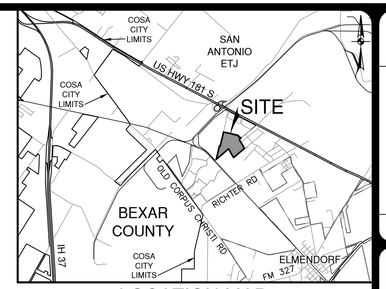
EXHIBIT 2C

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C8.02

Date: February 3, 2025, 4:05 PM - User ID: rodolfo.gallegos
File: P:\124\82\21\Design\Civil\TPDES\248221.dwg

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LOCATION MAP
NOT-TO-SCALE

SWPPP LEGEND

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EXHIBIT 2D

NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102466
LICENSED
PROFESSIONAL ENGINEER
8/27/25

PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
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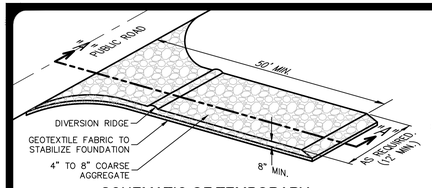
STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS

OVERALL STORM WATER POLLUTION PREVENTION PLAN

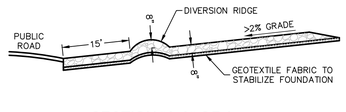
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SCHEMATIC OF TEMPORARY CONSTRUCTION ENTRANCE/EXIT



SECTION "A-A" OF A CONSTRUCTION ENTRANCE/EXIT

MATERIALS

1. THE AGGREGATE SHOULD CONSIST OF 4–INCH TO 8–INCH WASHED STONE OVER A STABLE FOUNDATION AS SPECIFIED IN THE PLAN.

2. THE AGGREGATE SHOULD BE PLACED WITH A MINIMUM THICKNESS OF 8–INCHES.

3. THE GEOTEXTILE FABRIC SHOULD BE DESIGNED SPECIFICALLY FOR USE AS A SOIL FILTRATION MEDIA WITH AN APPROXIMATE WEIGHT OF 6 OZ/YD^2, A MULLEN BURST RATING OF 140 LB/IN^2, AND AN EQUIVALENT OPENING SIZE GREATER THAN A NUMBER 50 SIEVE.

4. IF A WASHING FACILITY IS REQUIRED, A LEVEL AREA WITH A MINIMUM OF 4–INCH DIAMETER WASHED STONE OR COMMERCIAL ROCK SHOULD BE INCLUDED IN THE PLANS. DIVERT WASTEWATER TO A SEDIMENT TRAP OR BASIN.

INSTALLATION

1. AVOID CURVES ON PUBLIC ROADS AND STEEP SLOPES. REMOVE VEGETATION AND OTHER OBJECTIONABLE MATERIAL FROM THE FOUNDATION AREA. GRADE CROWN FOUNDATION FOR POSITIVE DRAINAGE.

2. THE MINIMUM WIDTH OF THE ENTRANCE/EXIT SHOULD BE 12 FEET OR THE FULL WIDTH OF EXIT ROADWAY, WHICHEVER IS GREATER.

3. THE CONSTRUCTION ENTRANCE SHOULD BE AT LEAST 50 FEET LONG.

4. IF THE SLOPE TOWARD THE ROAD EXCEEDS 2%, CONSTRUCT A RIDGE, 6–INCHES TO 8–INCHES HIGH WITH 3:1 (H:V) SIDE SLOPES, ACROSS THE FOUNDATION APPROXIMATELY 15 FEET FROM THE ENTRANCE TO DIVERT RUNOFF AWAY FROM THE PUBLIC ROAD.

5. PLACE GEOTEXTILE FABRIC AND GRADE FOUNDATION TO IMPROVE STABILITY, ESPECIALLY WHERE WET CONDITIONS ARE ANTICIPATED.

6. PLACE STONE TO DIMENSIONS AND GRADE SHOWN ON PLANS. LEAVE SURFACE SMOOTH AND SLOPE FOR DRAINAGE.

7. DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM THE STONE PAD TO A SEDIMENT TRAP OR BASIN.

8. INSTALL PIPE UNDER PAD AS NEEDED TO MAINTAIN PROPER PUBLIC ROAD DRAINAGE.

COMMON TROUBLE POINTS

1. INADEQUATE RUNOFF CONTROL–SEDIMENT WASHES ONTO PUBLIC ROAD.

2. STONE TOO SMALL OR GEOTEXTILE FABRIC ABSENT, RESULTS IN MUDDY CONDITION AS STONE IS PRESSED INTO SOIL.

3. PAD TOO SHORT FOR HEAVY CONSTRUCTION TRAFFIC–EXTEND PAD BEYOND THE MINIMUM 50–FOOT LENGTH AS NECESSARY.

4. PAD NOT FLARED SUFFICIENTLY AT ROAD SURFACE, RESULTS IN MUD BEING TRACKED ON TO ROAD AND POSSIBLE DAMAGE TO ROAD.

5. UNSTABLE FOUNDATION – USE GEOTEXTILE FABRIC UNDER PAD AND/OR IMPROVE FOUNDATION DRAINAGE.

INSPECTION AND MAINTENANCE GUIDELINES

1. THE ENTRANCE SHOULD BE MAINTAINED IN A CONDITION, WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.

2. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS–OF–WAY SHOULD BE REMOVED IMMEDIATELY BY CONTRACTOR.

3. WHEN NECESSARY, WHEELS SHOULD BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHT–OF–WAY.

4. WHEN WASHING IS REQUIRED, IT SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.

5. ALL SEDIMENT SHOULD BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATER COURSE BY USING APPROVED METHODS.

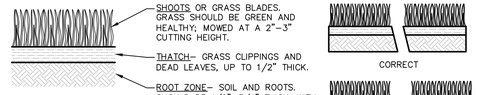
STABILIZED CONSTRUCTION ENTRANCE/EXIT DETAIL

NOT–TO–SCALE



LAY SOD IN A STAGGERED PATTERN. BUTT THE STRIPS TIGHTLY AGAINST EACH OTHER. DO NOT LEAVE SPACES AND DO NOT OVERLAP. A SHARPENED MASON'S TROWEL IS A HANDY TOOL FOR TUCKING DOWN THE ENDS AND TRIMMING PIECES.

BUTTING – ANGLED ENDS CAUSED BY THE AUTOMATIC SOD CUTTER MUST BE MATCHED CORRECTLY.



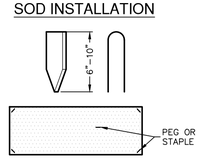
APPEARANCE OF GOOD SOD

NOTES:
1. ROLL SOD IMMEDIATELY TO ACHIEVE FIRM CONTACT WITH THE SOIL.

2. WATER TO A DEPTH OF 4" AS NEEDED. WATER WELL AS SOON AS THE SOD IS LAID.

3. MOW WHEN THE SOD IS ESTABLISHED – IN 2–3 WEEKS. SET THE MOWER HIGH (2"–3").

SOD INSTALLATION



USE PEGS OR STAPLES TO FASTEN SOD FIRMLY – AT THE ENDS OF STRIPS AND IN THE CENTER, OR EVERY 3–4 FEET IF THE STRIPS ARE LONG. WHEN READY TO MOW, DRIVE PEGS OR STAPLES FLUSH WITH THE GROUND.

MATERIALS

1. SOD SHOULD BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 3/4" INCH (± 1/4" INCH) AT THE TIME OF CUTTING. THIS THICKNESS SHOULD EXCLUDE SHOOT GROWTH AND THATCH.

2. PIECES OF SOD SHOULD BE CUT TO THE SUPPLIER'S STANDARD WIDTH AND LENGTH, WITH A MAXIMUM ALLOWABLE DEVIATION IN ANY DIMENSION OF 5%. TORN OR UNEVEN PADS SHOULD NOT BE ACCEPTABLE.

3. STANDARD SIZE SECTIONS OF SOD SHOULD BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT AND RETAIN THEIR SIZE AND SHAPE WHEN SUSPENDED FROM A FIRM GRASP ON ONE END OF THE SECTION.

4. SOD SHOULD BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS.

SITE PREPARATION

1. PRIOR TO SOIL PREPARATION, AREAS TO BE SODDED SHOULD BE BROUGHT TO FINAL GRADE IN ACCORDANCE WITH THE APPROVED PLAN.

2. THE SURFACE SHOULD BE CLEARED OF ALL TRASH, DEBRIS AND OF ALL ROOTS, BRUSH, WIRE, GRADE STAKES AND OTHER OBJECTS THAT WOULD INTERFERE WITH PLANTING, FERTILIZING OR MAINTENANCE OPERATIONS.

3. FERTILIZE ACCORDING TO SOIL TESTS. FERTILIZER NEEDS CAN BE DETERMINED BY A SOIL TESTING LABORATORY OR REGIONAL RECOMMENDATIONS CAN BE MADE BY COUNTY AGRICULTURAL EXTENSION AGENTS. FERTILIZER SHOULD BE WORKED INTO THE SOIL TO A DEPTH OF 3 INCHES WITH A DISC, SPRINGTOOTH HARROW OR OTHER SUITABLE EQUIPMENT. ON SLOPING LAND, THE FINAL HARROWING OR DISCING OPERATION SHOULD BE ON THE CONTOUR.

INSTALLATION IN CHANNELS

1. SOD STRIPS IN WATERWAYS SHOULD BE LAID PERPENDICULAR TO THE DIRECTION OF FLOW. CARE SHOULD BE TAKEN TO BUTT ENDS OF STRIPS TIGHTLY (SEE FIGURE ABOVE).

2. AFTER ROLLING OR TAMPING, SOD SHOULD BE PEGGED OR STAPLED TO RESIST WASHOUT DURING THE ESTABLISHMENT PERIOD. MESH OR OTHER NETTING MAY BE PEGGED OVER THE SOD FOR EXTRA PROTECTION IN CRITICAL AREAS.

GENERAL INSTALLATION (VA. DEPT. OF CONSERVATION, 1992)

1. SOD SHOULD NOT BE CUT OR LAID IN EXCESSIVELY WET OR DRY WEATHER. SOD ALSO SHOULD NOT BE LAID ON SOIL SURFACES THAT ARE FROZEN.

2. DURING PERIODS OF HIGH TEMPERATURE, THE SOIL SHOULD BE LIGHTLY IRRIGATED IMMEDIATELY PRIOR TO LAYING THE SOD, TO COOL THE SOIL AND REDUCE ROOT BURNING AND DIEBACK.

3. THE FIRST ROW OF SOD SHOULD BE LAID IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO AND BUTTING TIGHTLY AGAINST EACH OTHER. LATERAL JOINTS SHOULD BE STAGGERED TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH. CARE SHOULD BE EXERCISED TO ENSURE THAT SOD IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE DRYING OF THE ROOTS (SEE FIGURE ABOVE).

4. ON SLOPES 3:1 OR GREATER, OR WHEREVER EROSION MAY BE A PROBLEM, SOD SHOULD BE LAID WITH STAGGERED JOINTS AND SECURED BY STAPLING OR OTHER APPROVED METHODS. SOD SHOULD BE INSTALLED WITH THE LENGTH PERPENDICULAR TO THE SLOPE (ON CONTOUR).

5. AS SODDING OF CLEARLY DEFINED AREAS IS COMPLETED, SOD SHOULD BE ROLLED OR TAMPED TO PROVIDE FIRM CONTACT BETWEEN ROOTS AND SOIL.

6. AFTER ROLLING, SOD SHOULD BE IRRIGATED TO A DEPTH SUFFICIENT THAT THE UNDERSIDE OF THE SOD PAD AND THE SOIL 4 INCHES BELOW THE SOD IS THOROUGHLY WET.

7. UNTIL SUCH TIME A GOOD ROOT SYSTEM BECOMES DEVELOPED, IN THE ABSENCE OF ADEQUATE RAINFALL, WATERING SHOULD BE PERFORMED AS OFTEN AS NECESSARY TO MAINTAIN MOIST SOIL TO A DEPTH OF AT LEAST 4 INCHES.

8. THE FIRST MOWING SHOULD NOT BE ATTEMPTED UNTIL THE SOD IS FIRMLY ROOTED, USUALLY 2–3 WEEKS. NOT MORE THAN ONE THIRD OF THE GRASS LEAF SHOULD BE REMOVED AT ANY ONE CUTTING.

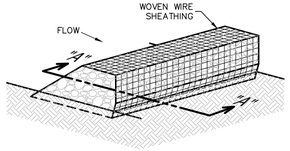
INSPECTION AND MAINTENANCE GUIDELINES

1. SOD SHOULD BE INSPECTED WEEKLY AND AFTER EACH RAIN EVENT TO LOCATE AND REPAIR ANY DAMAGE.

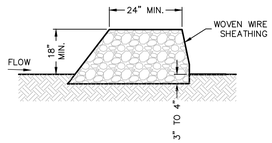
2. DAMAGE FROM STORMS OR NORMAL CONSTRUCTION ACTIVITIES SUCH AS TIRE RUTS OR DISTURBANCE OF SWALE STABILIZATION SHOULD BE REPAIRED AS SOON AS PRACTICAL.

SOD INSTALLATION DETAIL

NOT–TO–SCALE



ISOMETRIC PLAN VIEW



SECTION "A-A"

ROCK BERMS

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

INSPECTION AND MAINTENANCE GUIDELINES

1. INSPECTION SHOULD BE MADE WEEKLY BY THE RESPONSIBLE PARTY. FOR INSTALLATIONS IN STREAMBEDS, ADDITIONAL DAILY INSPECTIONS SHOULD BE MADE.

2. REMOVE SEDIMENT AND OTHER DEBRIS WHEN BUILDUP REACHES 6 INCHES AND DISPOSE OF THE ACCUMULATED SILT IN AN APPROVED MANNER THAT WILL NOT CAUSE ANY ADDITIONAL SILTATION.

3. REPAIR ANY LOOSE WIRE SHEATHING.

4. THE BERM SHOULD BE RESHAPED AS NEEDED DURING INSPECTION.

5. THE BERM SHOULD BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.

6. THE ROCK BERM SHOULD BE LEFT IN PLACE UNTIL ALL UPSTREAM AREAS ARE STABILIZED AND ACCUMULATED SILT REMOVED.

MATERIALS

1. THE BERM STRUCTURE SHOULD BE SECURED WITH A WOVEN WIRE SHEATHING HAVING MAXIMUM OPENING OF 1 INCH AND A MINIMUM WIRE DIAMETER OF 20 GAUGE GALVANIZED AND SHOULD BE SECURED WITH SHOAT RINGS.

2. CLEAN, OPEN GRADED 3–INCH TO 5–INCH DIAMETER ROCK SHOULD BE USED, EXCEPT IN AREAS WHERE HIGH VELOCITIES OR LARGE VOLUMES OF FLOW ARE EXPECTED, WHERE 5–INCH TO 8–INCH DIAMETER ROCKS MAY BE USED.

INSTALLATION

1. LAY OUT THE WOVEN WIRE SHEATHING PERPENDICULAR TO THE FLOW LINE. THE SHEATHING SHOULD BE 20 GAUGE WOVEN WIRE MESH WITH 1 INCH OPENINGS.

2. BERM SHOULD HAVE A TOP WIDTH OF 2 FEET MINIMUM WITH SIDE SLOPES BEING 2:1 (H:V) OR FLATTER.

3. PLACE THE ROCK ALONG THE SHEATHING AS SHOWN IN THE DIAGRAM TO A HEIGHT NOT LESS THAN 18".

4. WRAP THE WIRE SHEATHING AROUND THE ROCK AND SECURE WITH TIE WIRE SO THAT THE ENDS OF THE SHEATHING OVERLAP AT LEAST 2 INCHES, AND THE BERM RETAINS ITS SHAPE WHEN WALKED UPON.

5. BERM SHOULD BE BUILT ALONG THE CONTOUR AT ZERO PERCENT GRADE OR AS NEAR AS POSSIBLE.

6. THE ENDS OF THE BERM SHOULD BE TIED INTO EXISTING UPSLOPE GRADE AND THE BERM SHOULD BE BURIED IN A TRENCH APPROXIMATELY 3 TO 4 INCHES DEEP TO PREVENT FAILURE OF THE CONTROL.

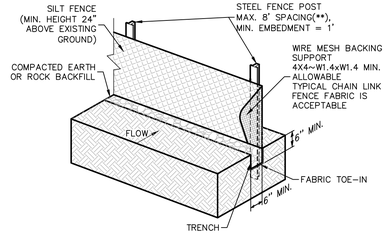
COMMON TROUBLE POINTS

1. INSUFFICIENT BERM HEIGHT OR LENGTH (RUNOFF QUICKLY ESCAPES OVER THE TOP OR AROUND THE SIDES OF BERM).

2. BERM NOT INSTALLED PERPENDICULAR TO FLOW LINE (RUNOFF ESCAPING AROUND ONE SIDE).

ROCK BERM DETAIL

NOT–TO–SCALE



**STEEL POSTS, WHICH SUPPORT THE SILT FENCE, SHOULD BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF 1–FOOT DEEP AND SPACED NOT MORE THAN 8 FEET ON CENTER. WHERE WATER CONCENTRATES, THE MAXIMUM SPACING SHOULD BE 6 FEET. (RG–348, SECTION 1.4.3)

ISOMETRIC PLAN VIEW

SILT FENCE

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

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

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

MATERIALS

1. SILT FENCE MATERIAL SHOULD BE POLYPROPYLENE, POLYETHYLENE, OR POLYAMIDE WOVEN OR NONWOVEN FABRIC. THE FABRIC SHOULD BE 36 INCHES, WITH A MINIMUM UNIT WEIGHT OF 4.5 OZ/YD_2, MULLEN BURST STRENGTH EXCEEDING 190 $LB/IN2$, ULTRAVIOLET STABILITY EXCEEDING 70%, AND MINIMUM APPARENT OPENING SIZE OF U.S. SIEVE NUMBER 30.

2. FENCE POSTS SHOULD BE MADE OF HOT ROLLED STEEL, AT LEAST 4 FEET LONG WITH TEE OR Y–BAR CROSS SECTION, SURFACE PAINTED OR GALVANIZED, MINIMUM WEIGHT 1.25 LB/FT, AND BRINDELL HARDNESS EXCEEDING 140.

3. WOVEN WIRE BACKING TO SUPPORT THE FABRIC SHOULD BE GALVANIZED 2" X 4" WELDED WIRE, 12 GAUGE MINIMUM.

INSTALLATION

1. STEEL POSTS, WHICH SUPPORT THE SILT FENCE, SHOULD BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POSTS MUST BE EMBEDDED A MINIMUM OF 1–FOOT DEEP AND SPACED NOT MORE THAN 8 FEET ON CENTER. WHERE WATER CONCENTRATES, THE MAXIMUM SPACING SHOULD BE 6 FEET.

2. LAY OUT FENCING DOWN–SLOPE OF DISTURBED AREA, FOLLOWING THE CONTOUR AS CLOSELY AS POSSIBLE. THE FENCE SHOULD BE SITED SO THAT THE MAXIMUM DRAINAGE AREA IS ¼ ACRE/100 FEET OF FENCE.

3. THE TOE OF THE SILT FENCE SHOULD BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWN–SLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. WHERE FENCE CANNOT BE TRENCHED IN (E.G., PAVEMENT OR ROCK OUTCROP), WEIGHT FABRIC FLAP WITH 3 INCHES OF PEA GRAVEL ON UPHILL SIDE TO PREVENT FLOW FROM SEEPING UNDER FENCE.

4. THE TRENCH MUST BE A MINIMUM OF 6 INCHES DEEP AND 6 INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.

5. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE, WHICH IS IN TURN ATTACHED TO THE STEEL FENCE POST. THERE SHOULD BE A 3–FOOT OVERLAP, SECURELY FASTENED WHERE ENDS OF FABRIC MEET.

6. SILT FENCE SHOULD BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

COMMON TROUBLE POINTS

1. FENCE NOT INSTALLED ALONG THE CONTOUR CAUSING WATER TO CONCENTRATE AND FLOW OVER THE FENCE.

2. FABRIC NOT SEATED SECURELY TO GROUND (RUNOFF PASSING UNDER FENCE).

3. FENCE NOT INSTALLED PERPENDICULAR TO FLOW LINE (RUNOFF ESCAPING AROUND SIDES).

4. FENCE TREATING TOO LARGE AN AREA, OR EXCESSIVE CHANNEL FLOW (RUNOFF OVERTOPS OR COLLAPSES FENCE).

INSPECTION AND MAINTENANCE GUIDELINES

1. INSPECT ALL FENCING WEEKLY.

2. REMOVE SEDIMENT WHEN BUILDUP APPROACHES 6 INCHES, BUT NOT TO EXCEED 50% OF HEIGHT.

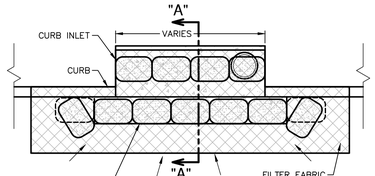
3. REPLACE TORN FABRIC OR INSTALL A SECOND LINE OF FENCING PARALLEL TO THE TORN SECTION.

4. REPLACE OR REPAIR SECTIONS CRUSHED OR COLLAPSED IN THE COURSE OF CONSTRUCTION ACTIVITY. IF A SECTION OF FENCE IS OBSTRUCTING VEHICULAR ACCESS, CONSIDER RELOCATING IT TO A SPOT WHERE IT WILL PROVIDE EQUAL PROTECTION, BUT WILL NOT OBSTRUCT VEHICLES. A TRIANGULAR FILTER DIKE MAY BE PREFERABLE TO A SILT FENCE AT COMMON VEHICLE ACCESS POINTS.

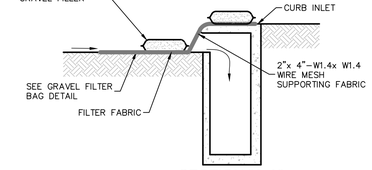
5. WHEN CONSTRUCTION IS COMPLETE, THE SEDIMENT SHOULD BE DISPOSED OF IN A MANNER THAT WILL NOT CAUSE ADDITIONAL SILTATION AND THE PRIOR LOCATION OF THE SILT FENCE SHOULD BE REVEGETATED. THE FENCE ITSELF SHOULD BE DISPOSED OF IN AN APPROVED LANDFILL.

SILT FENCE DETAIL

NOT–TO–SCALE



PLAN VIEW



SECTION "A-A"

GENERAL NOTES

1. CONTRACTOR TO INSTALL 2"x4"–W1.4xW1.4 WIRE MESH SUPPORTING FILTER FABRIC OVER THE INLET OPENING. FABRIC MUST BE SECURED TO WIRE BACKING WITH CLIPS OR WIRE TIES AT THIS LOCATION. SAND BAGS FILLED WITH WASHED PEA GRAVEL SHOULD BE PLACED ON TOP OF WIRE MESH ON TOP OF THE INLET AS SHOWN ON THIS DETAIL TO HOLD WIRE MESH IN PLACE. SANDBAGS FILLED WITH WASHED PEA GRAVEL SHOULD ALSO BE PLACED ALONG THE GUTTER AS SHOWN ON THIS DETAIL TO HOLD WIRE MESH IN PLACE. SAND BAGS TO BE STACKED TO FORM A CONTINUOUS BARRIER AROUND INLET.

2. THE BAGS SHOULD BE TIGHTLY ABUTTED AGAINST EACH OTHER TO PREVENT RUNOFF FROM FLOWING BETWEEN THE BAGS.

INSPECTION AND MAINTENANCE GUIDELINES

1. INSPECTION SHOULD BE MADE WEEKLY. REPAIR OR REPLACEMENT SHOULD BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR.

2. REMOVE SEDIMENT WHEN BUILDUP REACHES A DEPTH OF 3 INCHES. REMOVED SEDIMENT SHOULD BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.

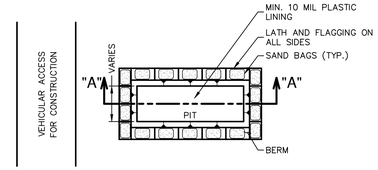
3. CHECK PLACEMENT OF DEVICE TO PREVENT GAPS BETWEEN DEVICE AND CURB.

4. INSPECT FILTER FABRIC AND PATCH OR REPLACE IF TORN OR MISSING.

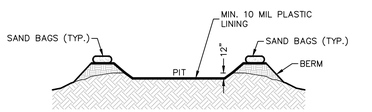
5. STRUCTURES SHOULD BE REMOVED AND THE AREA STABILIZED ONLY AFTER THE REMAINING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

BAGGED GRAVEL CURB INLET PROTECTION DETAIL

NOT–TO–SCALE



PLAN VIEW



SECTION "A-A"

GENERAL NOTES

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

2. WASHOUT PIT SHALL BE LOCATED IN AN AREA EASILY ACCESSIBLE TO CONSTRUCTION TRAFFIC.

3. WASHOUT PIT SHALL NOT BE LOCATED IN AREAS SUBJECT TO INUNDATION FROM STORM WATER RUNOFF.

4. LOCATE WASHOUT AREA AT LEAST 50 FEET FROM SENSITIVE FEATURES, STORM DRAINS, OPEN DITCHES OR WATER BODIES.

5. TEMPORARY CONCRETE WASHOUT FACILITY SHOULD BE CONSTRUCTED WITH SUFFICIENT QUANTITY AND VOLUME TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS.

MATERIALS

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

MAINTENANCE

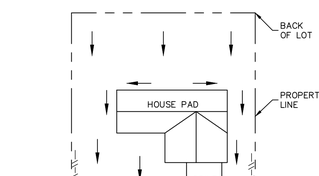
1. WHEN TEMPORARY CONCRETE WASHOUT FACILITIES ARE NO LONGER REQUIRED FOR THE WORK, THE HARDENED CONCRETE SHOULD BE REMOVED AND DISPOSED OF.

2. MATERIALS USED TO CONSTRUCT TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE REMOVED FROM THE SITE OF THE WORK AND DISPOSED OF.

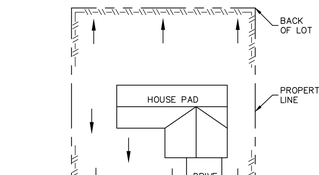
3. HOLES, DEPRESSIONS OR OTHER GROUND DISTURBANCES CAUSED BY THE REMOVAL OF THE TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE BACKFILLED AND REPAIRED.

CONCRETE TRUCK WASHOUT PIT DETAIL

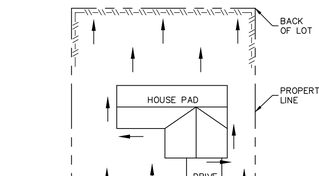
NOT–TO–SCALE



LOT TYPE-A



LOT TYPE-B



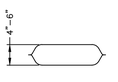
LOT TYPE-C

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

LEGEND
SILT FENCE
DRAINAGE FLOW

TYPICAL HOUSE LOT LAYOUTS

NOT–TO–SCALE



PLAN VIEW



SECTION "A-A"

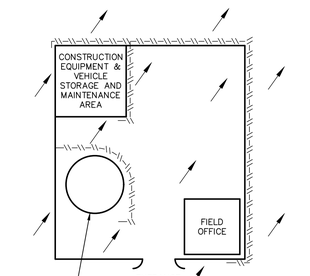
NOTES:
1. THE FILTER BAG MATERIAL SHALL BE MADE OF POLYPROPYLENE, POLYETHYLENE OR POLYAMIDE WOVEN FABRIC, MIN. UNIT WEIGHT OF 4 OUNCES/SY, HAVE A MULLEN BURST STRENGTH EXCEEDING 300 PSI AND ULTRAVIOLET STABILITY EXCEEDING 70%.

2. THE FILTER BAG SHALL BE FILLED WITH CLEAN, MEDIUM WASHED PEA GRAVEL TO COARSE GRAVEL (0.31 TO 0.75 INCH DIAMETER).

3. SAND SHALL NOT BE USED TO FILL THE FILTER BAGS.

GRAVEL FILTER BAG DETAIL

NOT–TO–SCALE



CONSTRUCTION STAGING AREA

NOT–TO–SCALE

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

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

EXHIBIT 3
1 OF 2

NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102468
LICENSED
PROFESSIONAL ENGINEER
8/27/25

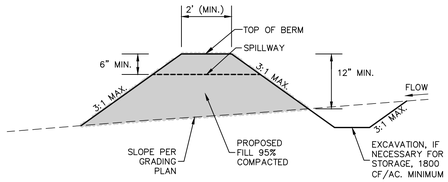
PAPE–DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS
STORM WATER POLLUTION PREVENTION DETAILS

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C8.04

Date: February 3, 2025, 4:07 PM – User ID: rodolfo.gallegos
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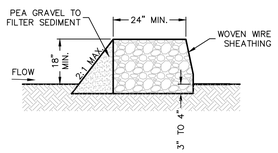
THIS DOCUMENT HAS BEEN PRODUCED FROM MATERIA



EARTHEN BERM AND SPILLWAY

NOT TO SCALE

NOTE: EARTHEN BERMS ARE TO SPAN ACROSS PROPOSED STREET SECTION (APPROX. 28-FEET WIDE) FROM CURB TO CURB



ROCK BERM W/ PEA GRAVEL

NOT TO SCALE

NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102466
LICENSED
PROFESSIONAL ENGINEER
8/27/25

PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS

STORM WATER POLLUTION PREVENTION DETAILS

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

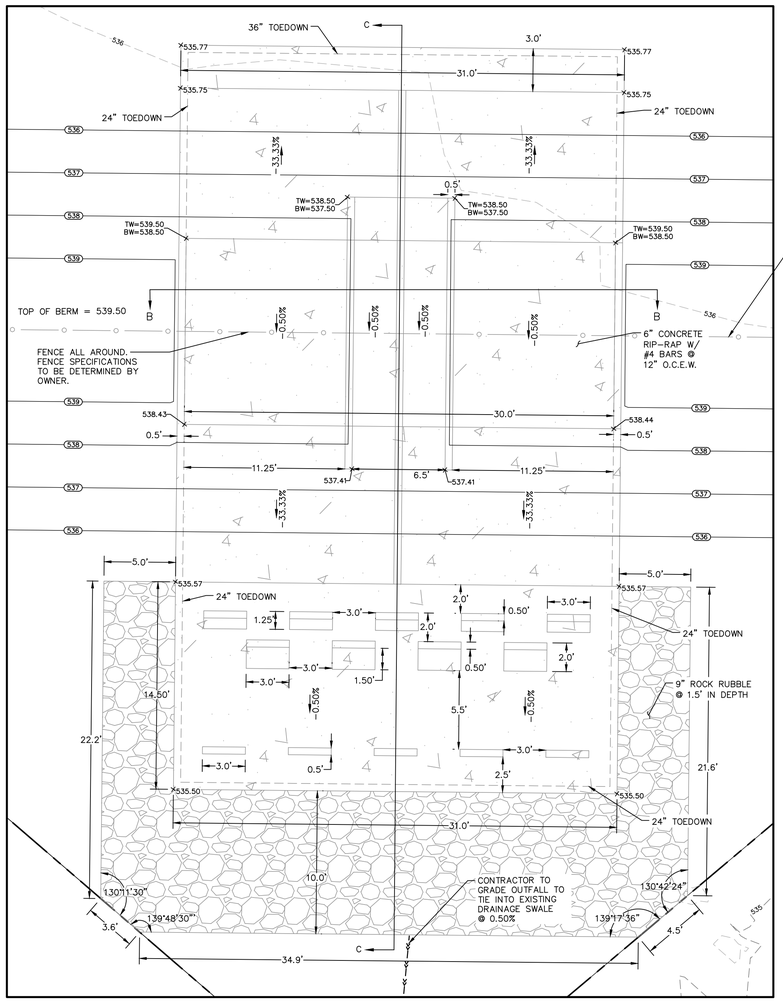
THIS SHEET HAS BEEN PREPARED FOR PURPOSES OF THE SWP3 ONLY. ALL OTHER CIVIL ENGINEERING RELATED INFORMATION SHOULD BE ACQUIRED FROM THE APPROPRIATE SHEET IN THE CIVIL IMPROVEMENT PLANS.

EXHIBIT 3
2 OF 2

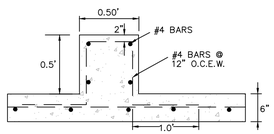
PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C8.05

Date: February 3, 2025, 4:07 PM — User ID: rodolfo.gallegos
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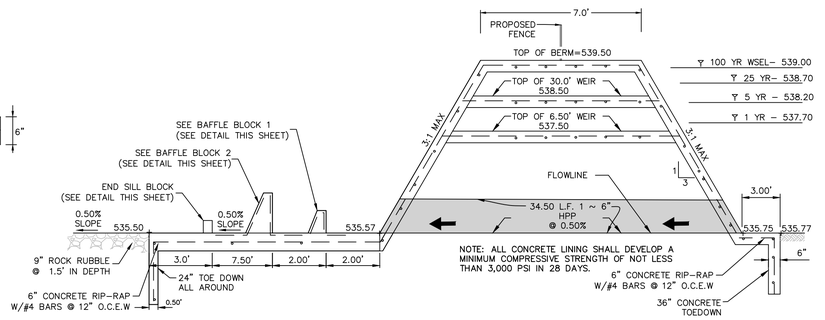


DETAIL "A"
SCALE 1" = 5'

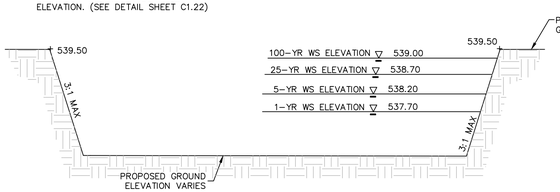


DETENTION BASIN "E"
END SILL BLOCK DETAIL
NOT TO SCALE

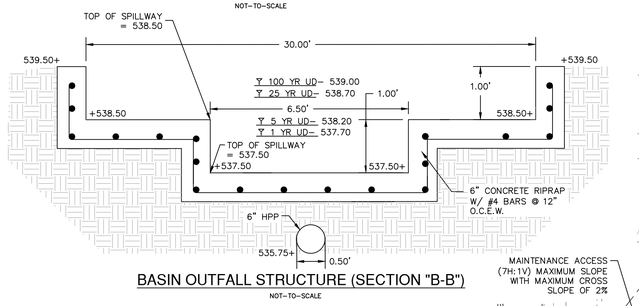
PROPOSED FENCE THAT ALLOWS STORMWATER FLOWS THROUGH (i.e. CHAIN LINK FENCE OR SIMILAR) TO BE INSTALLED THROUGH THE CHANNEL. THE FENCE BOTTOM SHOULD BE AT ELEVATION 539.00' THROUGH THE CHANNEL. FENCE NOT TO ENCROACH INTO WATER SURFACE ELEVATION HEIGHT. A DRAINAGE EASEMENT LETTER IS TO BE SUBMITTED TO BEXAR COUNTY AFTER CONSTRUCTION TO CONFIRM THE FENCE DOES NOT OBSTRUCT THE WATER SURFACE ELEVATION. (SEE DETAIL SHEET C1.22)



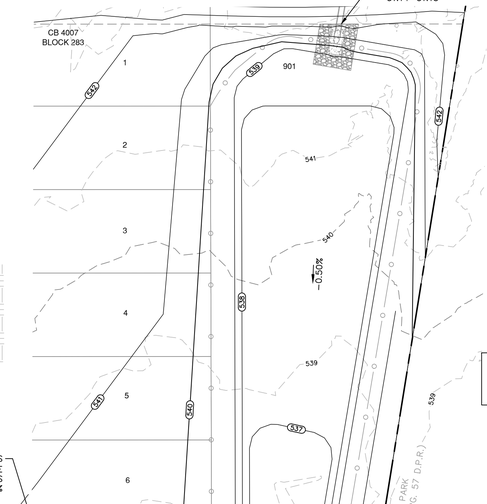
OUTFALL STRUCTURE PROFILE VIEW (SECTION C-C)
NOT-TO-SCALE

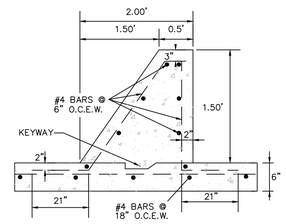


DETENTION BASIN "E" (SECTION A-A)
NOT-TO-SCALE

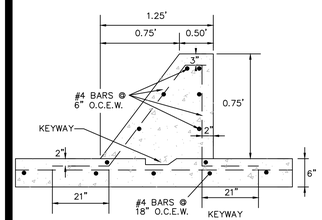


BASIN OUTFALL STRUCTURE (SECTION "B-B")
NOT-TO-SCALE

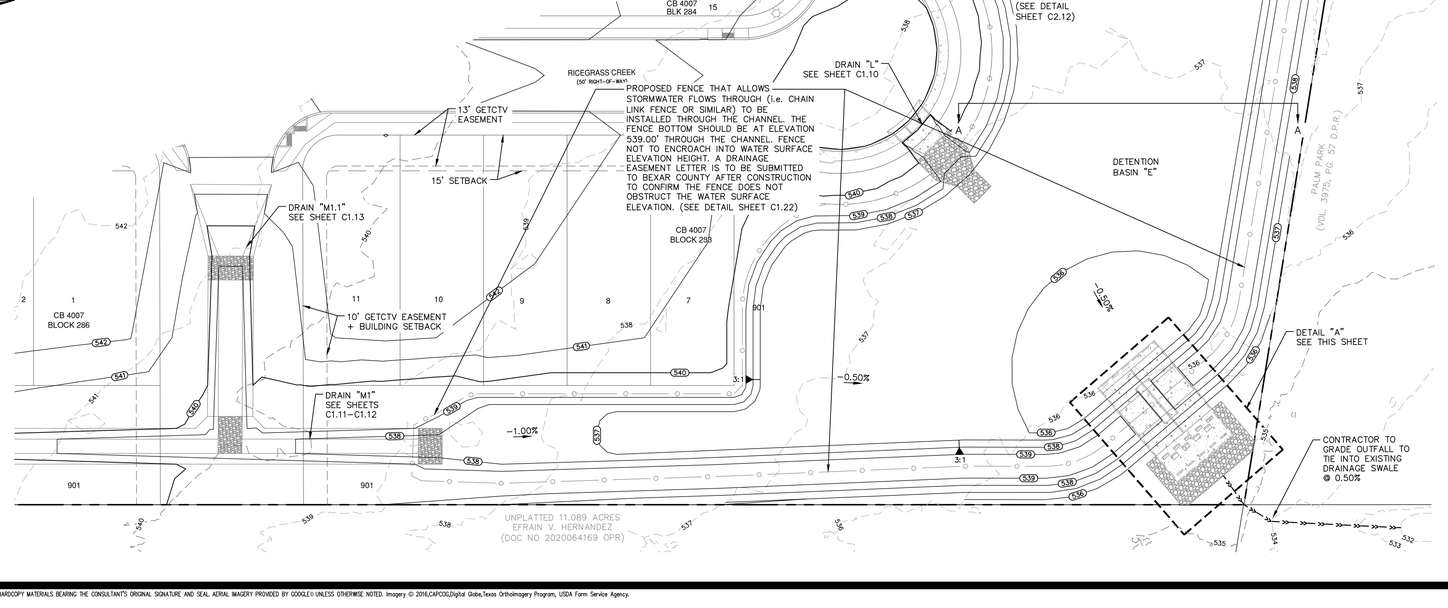


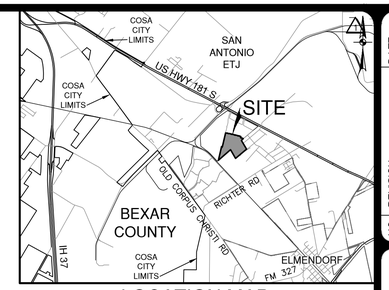


DETENTION BASIN "E"
BAFFLE BLOCK 2 DETAIL
NOT TO SCALE



DETENTION BASIN "E"
BAFFLE BLOCK 1 DETAIL
NOT TO SCALE





LOCATION MAP
NOT-TO-SCALE

SCALE: 1"= 30'
0' 30' 60' 90'

LEGEND

- 1201 — EXISTING 1' CONTOUR
- 1200 — EXISTING 5' CONTOUR
- (1201) — PROPOSED 1' CONTOUR
- (1200) — PROPOSED 5' CONTOUR
- PLAT BOUNDARY

NOTE: DETENTION BASIN/ DISTURBED AREAS WILL BE VEGETATED BY SEEDING OR SODDING. 85% OF THE DISTURBED AREA MUST HAVE ESTABLISHED VEGETATION BEFORE THE DETENTION BASIN IS ACCEPTED. CONTRACTOR SHALL INCLUDE ALL COST TO REVEGETATE DETENTION BASIN/ DISTURBED AREA IN BASE BID, NO SEPARATE PAY ITEM.

NOTES:

1. CONTRACTOR SHALL PHASE CONSTRUCTION AND/OR PROVIDE NECESSARY BMPs TO MITIGATE INTERIM CONDITIONS RUNOFF DURING CONSTRUCTION DUE TO CLEARING, GRADING, SUBGRADE PREPARATION, PAVING, BUILDINGS, ETC., AND TO PREVENT ADVERSE IMPACTS TO OTHER PROPERTY, STRUCTURES, AND INFRASTRUCTURE DURING CONSTRUCTION.
2. DETENTION POND EXCAVATION AND/OR EMBANKMENT NECESSARY FOR PROVIDING STORAGE MUST BE SUBSTANTIALLY COMPLETE PRIOR TO CITY INSPECTION OF STREET SUBGRADE, CURB, FLEX BASE, AND PAVEMENT WITHIN WATERSHED DRAINING TO THE DETENTION POND.

DRAINAGE & GRADING NOTES:

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

TRENCH EXCAVATION SAFETY PROTECTION:

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

CAUTION!!

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

NO.	REVISION	DATE

STATE OF TEXAS
JIM C. WELCH
102466
LICENSED
PROFESSIONAL ENGINEER
8/27/25

PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

STONE GARDEN UNIT 5A
BEXAR COUNTY, TEXAS
DETENTION BASIN E

PLAT NO. 25-11800200
JOB NO. 12482-21
DATE AUG 2025
DESIGNER LM
CHECKED DW DRAWN TC
SHEET C9.00

Date: February 3, 2025, 4:09 PM - User ID: rodolfo.gallegos
File: P:\124\82\21\Design\Civil\BA1248221 BASIN E.dwg

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