STREET AND DRAINAGE CONSTRUCTION PLANS

- C1 - ULTIMATE MASTER DRAINAGE PLAN
- C2 - ULTIMATE MASTER DRAINAGE PLAN
- C3 - STREET PLAN & PROFILE - JACARANDA LANE
- C4 - STREET PLAN & PROFILE - JACARANDA LANE
- C5 - STREET PLAN & PROFILE - RUSTIC GROVE
- C6 - STREET PLAN & PROFILE - MILKHOUSE LANE
- C7 - STREET PLAN & PROFILE - WILD YONDER LANE
- C8 - STREET PLAN & PROFILE - HOLSTEIN LN
- C9 - STREET PLAN & PROFILE - QUAKING LEAF
- C10 - TRAFFIC SIGNAGE PLAN
- C11 - CITY OF BOERNE STANDARD STREET DETAILS
- C12 - TXDOT PAVEMENT MARKING DETAILS
- C13 - DRAIN PLAN & PROFILE - DRAIN '5-A'
- C14 - DRAIN PLAN & PROFILE - DRAIN '5-A'
- C15 - DRAIN PLAN & PROFILE - DRAIN '5-A'
- C16 - DRAIN PLAN & PROFILE - DRAIN '5-B'
- C17 - DRAIN PLAN & PROFILE - DRAIN '5-C'
- C18 - SINGLE BOX CULVERTS CAST-IN-PLACE DETAIL
- C19 - TXDOT CONCRETE HEADWALLS NON-SKEWED DETAIL
- C20 - TXDOT FLARED WING DETAIL
- C21 - TXDOT PARALLEL WING DETAIL
- C22 - TXDOT PRECAST 3',4'&5' CULVERT BOXES & CONC. RIP-RAP DETAIL
- C23 - TXDOT SAFETY END TREATMENT DETAILS
- C24 - TXDOT SAFETY END TREATMENT PARALLEL DRAINAGE 12''-72''
- C25 - CURB INLET DETAILS

SANITARY SEWER CONSTRUCTION PLANS

- C26 - OVERALL SANITARY SEWER PLAN
- C27 - SANITARY SEWER LINE 'A-A' - PLAN & PROFILE
- C28 - SANITARY SEWER LINE 'A-A' - PLAN & PROFILE
- C29 - SANITARY SEWER LINE 'A-B' AND 'Z' PLAN & PROFILE
- C30 - SANITARY SEWER LINE 'Y' - PLAN & PROFILE
- C31 - SANITARY SEWER GENERAL NOTES
- C32 - SANITARY SEWER STANDARD DETAILS

WATER DISTRIBUTION CONSTRUCTION PLANS

- C33 - WATER DISTRIBUTION PLAN
- C34 - WATER DISTRIBUTION PLAN
- C35 - WATER DISTRIBUTION STANDARD DETAILS

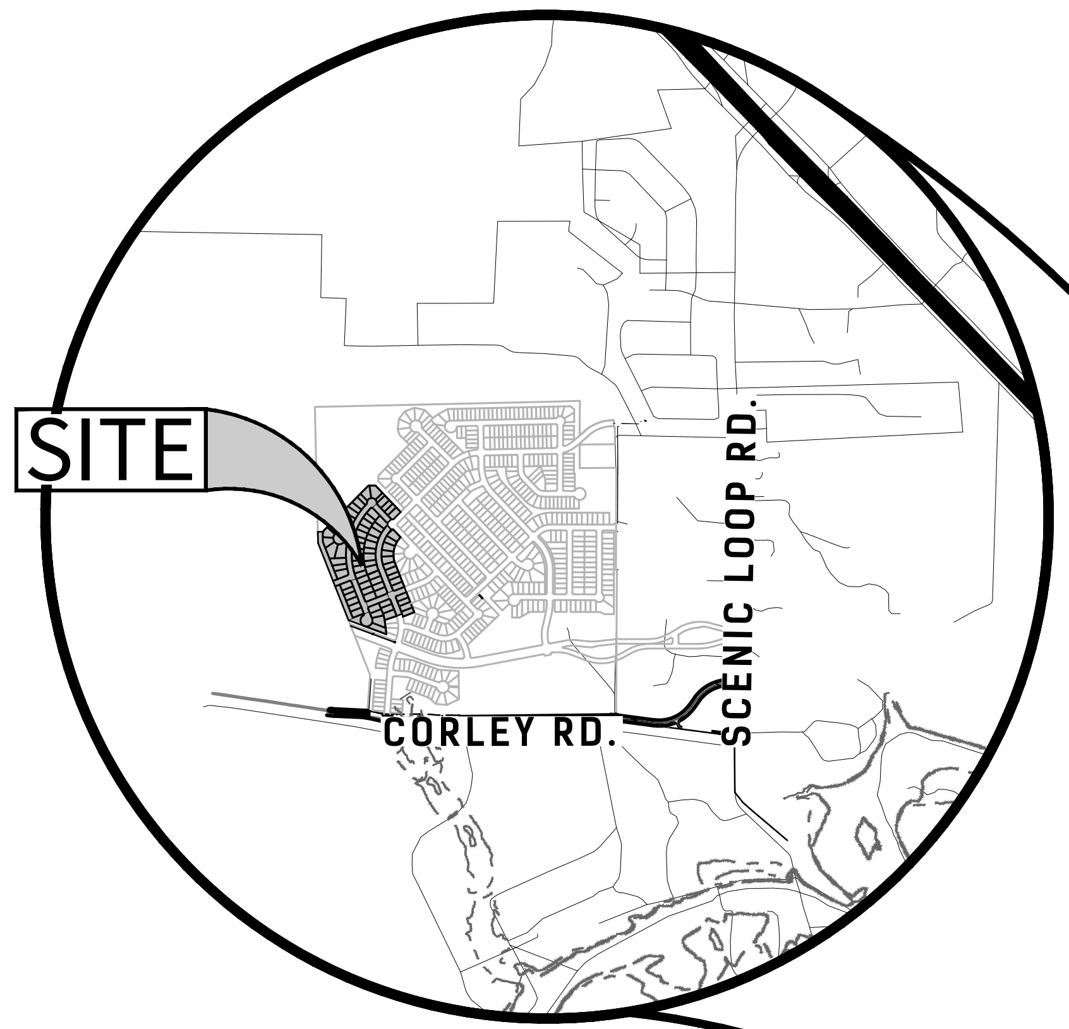
GAS DISTRIBUTION CONSTRUCTION PLANS

- C36 - NATURAL GAS DISTRIBUTION PLAN
- C37 - NATURAL GAS DISTRIBUTION STANDARD DETAILS

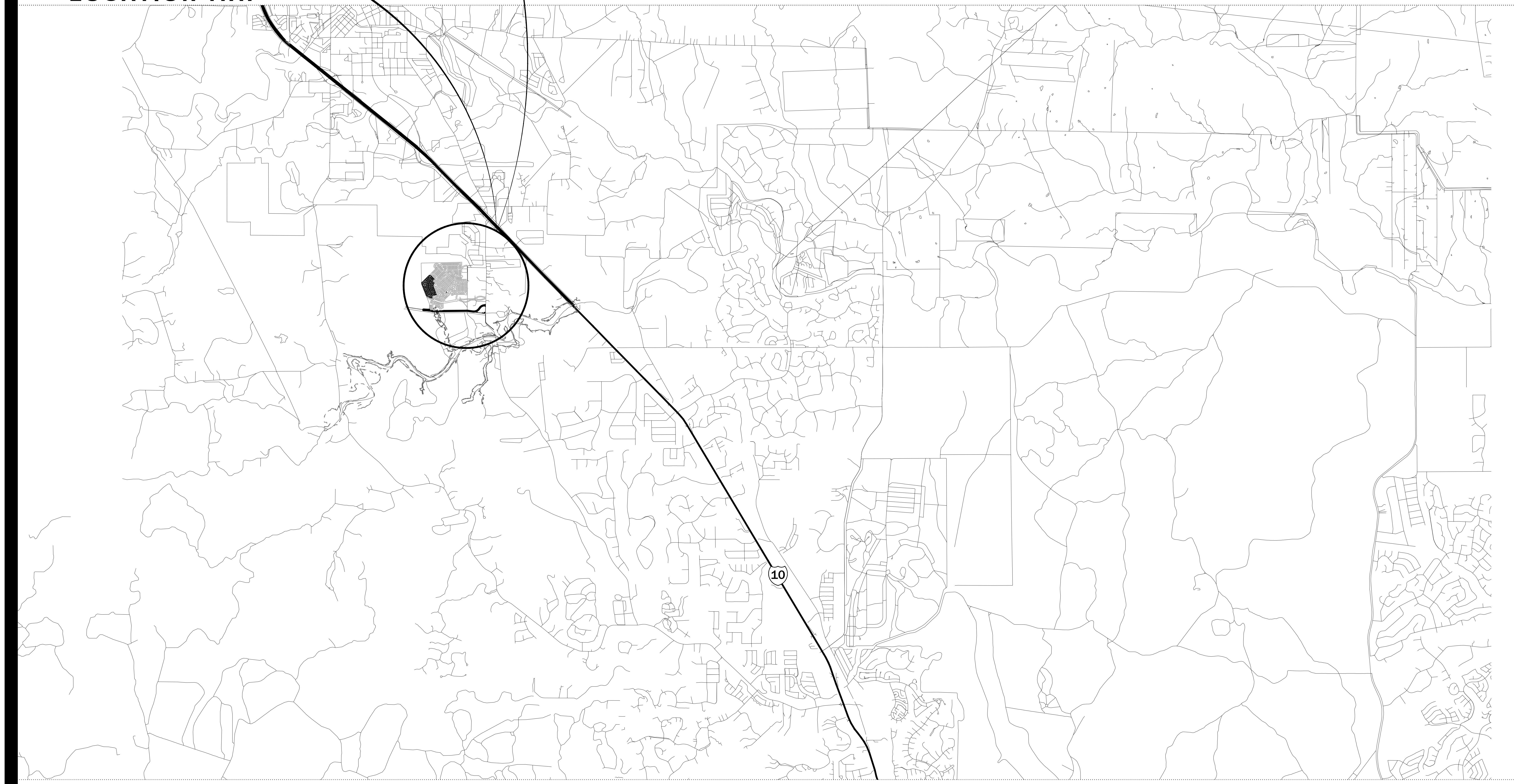
MISCELLANOUS CONSTRUCTION PLANS

- C38 - UTILITY LAYOUT PLAN
- C39 - STORM WATER POLLUTION PREVENTION PLAN
- C40 - OVERALL GRADING PLAN

CORLEY FARMS SUBDIVISION IS VESTED TO THE SUBDIVISION ORDINANCE NO. 2007-56 OF THE CITY OF BOERNE, TEXAS (REVISED 10.08.2019) PER THE DEVELOPMENT AGREEMENT EXECUTED BETWEEN BOERNEBAK, LLC., AND THE CITY OF BOERNE, TEXAS EFFECTIVE NOVEMBER 26, 2019.



LOCATION MAP



VICINITY MAP

EST. 1980
CUDE
ENGINEERS

CORLEY FARMS
UNIT 5
CONSTRUCTION PLANS

KENDALL COUNTY WATER CONTROL &
IMPROVEMENT DISTRICT NO 3A
1330 POST OAK BLVD, SUITE 2650
HOUSTON, TEXAS 77056

PRESSURE ZONE 12

Developer's Name PULTE HOMES OF TEXAS, L.P.
Developer's Address 927 E. SONTERRA BLVD., SUITE 316
City SAN ANTONIO State TEXAS Zip 78258
Phone # (210) 496-1985 Fax # (210) 496-0449
SAWS Block Map # N/A Total EDU's 75 Total Acreage 19.78
Total Linear Footage of Pipe 8" W - 3,027 L.F./2" W - 702 L.F. Plat No. N/A (CORLEY FARMS UNIT 5 PLAT)
Number of Lots XXXX SAWS Job No. XX-XXXX

Pulte Homes

DEVELOPER:

PULTE HOMES OF TEXAS, L.P.
CONTACT PERSON: TREY ROGERS
927 E. SONTERRA BLVD., SUITE 316
SAN ANTONIO, TEXAS 78258
TEL: (210) 496-1985
FAX: (210) 496-0449

4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

DRAWN BY	DATE	
C3	04/09/2025	
CHECKED BY	**PROJECT NO.**	**SAWS JOB NO.**
AL	03481.012	XX-XXXX

ANDREW R. LOWRY
123410
6/2/25

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

REVIEWED
City of Boerne
FIRE MARSHAL
Robert Lee
06/10/2025

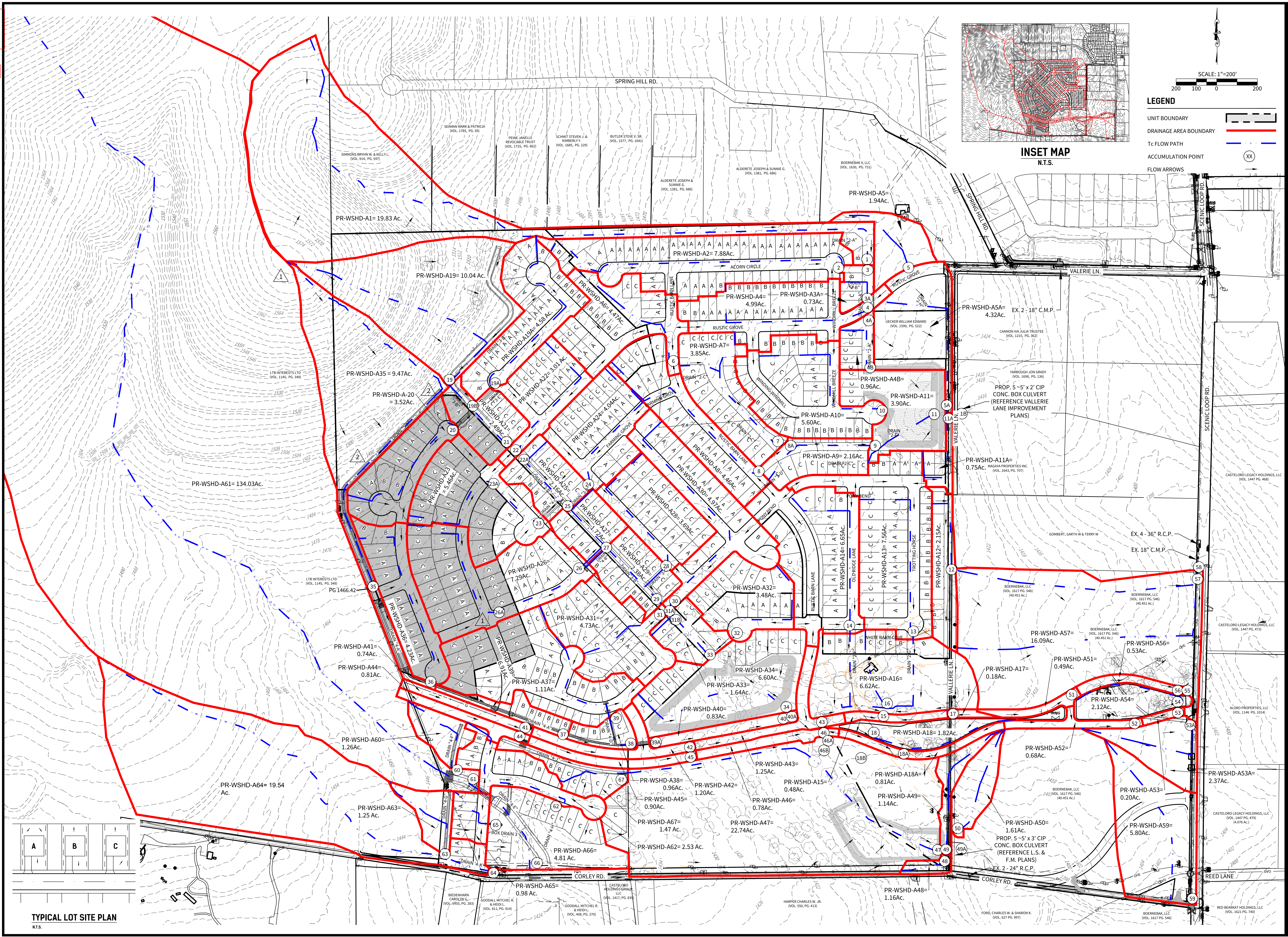
No Additional Comments

Boerne Utilities
06/11/2025 1:55:25 PM

No
Comments

REVIEWED
CITY OF BOERNE
DEVELOPMENT ENGINEERING
BY ______ DATE 06/24/2025
Freeland Turk Engineering Group
NO COMMENTS

REVIEWED
CITY OF BOERNE
Engineering & Mobility
6/25/25
NOT REVIEWED - FIO



SPRING HILL RD.
VALERIE LN.
SCENIC LOOP RD.
CORLEY RD.
REED LANE
ACORN CIRCLE
RUSTIC GROVE
RUSTIC BARN LANE
WINDMILL BREEZE
WINDING WINDMILL
FARMING GROVE
OLD RIDGE LANE
TROTTING HORSE
WHITE BARN COVE
PR-WSHD-A1= 19.83 Ac.
PR-WSHD-A2= 7.88Ac.
PR-WSHD-A3= 0.73Ac.
PR-WSHD-A4= 4.99Ac.
PR-WSHD-A5= 1.94Ac.
PR-WSHD-A5A= 4.32Ac.
PR-WSHD-A6= 4.47Ac.
PR-WSHD-A7= 3.85Ac.
PR-WSHD-A8= 4.46Ac.
PR-WSHD-A9= 2.16Ac.
PR-WSHD-A10= 5.60Ac.
PR-WSHD-A11= 3.90Ac.
PR-WSHD-A11A= 0.75Ac.
PR-WSHD-A12= 2.15Ac.
PR-WSHD-A13= 7.56Ac.
PR-WSHD-A14= 6.65Ac.
PR-WSHD-A15= 0.48Ac.
PR-WSHD-A16= 6.62Ac.
PR-WSHD-A17= 0.18Ac.
PR-WSHD-A18= 1.82Ac.
PR-WSHD-A18A= 0.81Ac.
PR-WSHD-A19= 10.04 Ac.
PR-WSHD-A19A= 4.58 Ac.
PR-WSHD-A-20 = 3.52Ac.
PR-WSHD-A21= 1.49Ac.
PR-WSHD-A22= 3.01 Ac.
PR-WSHD-A23= 5.46Ac.
PR-WSHD-A24= 4.04Ac.
PR-WSHD-A25= 2.16Ac.
PR-WSHD-A26= 7.29Ac.
PR-WSHD-A27= 1.72Ac.
PR-WSHD-A28= 3.69Ac.
PR-WSHD-A29= 2.35Ac.
PR-WSHD-A30= 4.97Ac.
PR-WSHD-A31= 4.73Ac.
PR-WSHD-A32= 3.48Ac.
PR-WSHD-A33= 1.64Ac.
PR-WSHD-A34= 6.60Ac.
PR-WSHD-A35 = 9.47Ac.
PR-WSHD-A36= 4.23Ac.
PR-WSHD-A37= 1.11Ac.
PR-WSHD-A38= 0.96Ac.
PR-WSHD-A39= 6.91Ac.
PR-WSHD-A40= 0.83Ac.
PR-WSHD-A41= 0.74Ac.
PR-WSHD-A42= 1.20Ac.
PR-WSHD-A43= 1.25Ac.
PR-WSHD-A44= 0.81Ac.
PR-WSHD-A45= 0.90Ac.
PR-WSHD-A46= 0.78Ac.
PR-WSHD-A47= 22.74Ac.
PR-WSHD-A48= 1.16Ac.
PR-WSHD-A49= 1.14Ac.
PR-WSHD-A4B= 0.96Ac.
PR-WSHD-A50= 1.61Ac.
PR-WSHD-A51= 0.49Ac.
PR-WSHD-A52= 0.68Ac.
PR-WSHD-A53= 0.20Ac.
PR-WSHD-A53A= 2.37Ac.
PR-WSHD-A54= 2.12Ac.
PR-WSHD-A56= 0.53Ac.
PR-WSHD-A57= 16.09Ac.
PR-WSHD-A59= 5.80Ac.
PR-WSHD-A60= 1.26Ac.
PR-WSHD-A61= 134.03Ac.
PR-WSHD-A62= 2.53 Ac.
PR-WSHD-A63= 1.25 Ac.
PR-WSHD-A64= 19.54 Ac.
PR-WSHD-A65= 0.98 Ac.
PR-WSHD-A66= 4.81 Ac.
PR-WSHD-A67= 1.47 Ac.
EX. 2 - 18" C.M.P.
PROP. 5 ~5' x 2' CIP CONC. BOX CULVERT (REFERENCE VALLERIE LANE IMPROVEMENT PLANS)
EX. 4 - 36" R.C.P.
EX. 18" C.M.P.
PROP. 5 ~5' x 3' CIP CONC. BOX CULVERT (REFERENCE L.S. & F.M. PLANS)
EX. 2 - 24" R.C.P.
PG 1466.42
INSET MAP
N.T.S.
TYPICAL LOT SITE PLAN
N.T.S.
A
B
C

SCALE: 1"=200'
200 100 0 200

LEGEND

UNIT BOUNDARY	▨
DRAINAGE AREA BOUNDARY	🟥
Tc FLOW PATH	— > —
ACCUMULATION POINT	(XX)
FLOW ARROWS	→

CUDEENGINEERS.COM

EST. 1980
CUDE
ENGINEERS

4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

CORLEY FARMS
UNIT 5

ULTIMATE MASTER DRAINAGE PLAN

DATE
06/02/2025

PROJECT NO.
03481.012

DRAWN BY
C3

CHECKED BY
XV/AL

REVISIONS

#	DATE	REVISIONS
1.	11/12/24	PERMITTING COMMENTS
2.	5/27/25	GRADING REVISION
3.		
4.		
5.		
6.		
7.		
8.		
9.		

ANDREW R. LOWRY
123410
6/2/25

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C1

CUDEENGINEERS.COM

P:\03481\012\2-Drawings\C7.00 ULTIMATE MASTER DRAINAGE PLAN.dwg 2025/06/02 1:47pm kmartinez

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Project Name: Corley Farms
Calculation Summary for Time of Concentrations & Ultimate Flow, "U"
Precipitation Area Atlas 14 = PA1

HYDROLOGY							Sheet Flow Tc Compuations				Shallow Conc. Tc Compuations				Concentrated Tc Computations			Overall	INTENSITY			Q FLOW				
Drainage Shed/ Computation point	Area (Ac.)	AREA OF ACCUMULATION (Ac.)	Rational Shed Area (Ac.)	C	25 Year Cf = 1.1 C*Cf	100 Year Cf = 1.25 C*Cf	Length < 300'	Manning's Roughness Coeffcient (n)	Slope	Time of Concentration	Length	Manning's Roughness Coeffcient (n)	Slope	Time of Concentration	Length	Velocity (fps)	Time of Concentration	Time of Concentration (min)	I5	I25	I100	Q5	Q25	Q100	Drainage Shed/ Computation Point	
A1/1	19.83	A1	19.83	0.66	0.73	0.83	300.00	0.2	2.57%	8.91	253.00	0.2	2.57%	5.26	3145.00	6	8.74	22.91	4.33	6.06	7.65	56.67	87.24	125.15	A1/1	
A2/2	7.88	A2	7.88	0.66	0.73	0.83	300.00	0.3	2.83%	12.74	50.00	0.2	2.50%	1.05	1255.00	6	3.49	17.28	4.99	7.00	8.84	25.95	40.05	57.47	A2/2	
-/3	0.00	A1:A2	27.71	0.66	0.73	0.83	300.00	0.2	2.57%	8.91	253.00	0.2	2.57%	5.26	3145.00	6	8.74	22.91	4.33	6.06	7.65	79.19	121.91	174.88	-/3	
A3A/-	0.73	A3A	0.73	0.66	0.73	0.83	120.00	0.3	2.68%	5.24	0.00		0.00%		95.00	6	0.26	5.50	7.75	10.93	13.90	3.73	5.79	8.37	A3A/-	
-/3A	0.00	A1:A3A	28.44	0.66	0.73	0.83	300.00	0.2	2.57%	8.91	253.00	0.2	2.57%	5.26	3145.00	6	8.74	22.91	4.33	6.06	7.65	81.28	125.12	179.49	-/3A	
A4/4	4.99	A4	4.99	0.66	0.73	0.83	192.00	0.3	1.00%	13.71					701.00	6	1.95	15.66	5.23	7.33	9.25	17.22	26.55	38.08	A4/4	
-/4A	0.00	A1:A4	33.43	0.66	0.73	0.83	300.00	0.2	2.57%	8.91	253.00	0.2	2.57%	5.26	3145.00	6	8.74	22.91	4.33	6.06	7.65	95.54	147.08	210.99	-/4A	
A4B/-	0.96	A4B	0.96	0.66	0.73	0.83	120.00	0.3	2.08%	5.94					195.00	6	0.54	6.48	7.40	10.42	13.24	4.69	7.26	10.49	A4B/-	
-/4B	0.00	A1:A4B	34.39	0.66	0.73	0.83	300.00	0.2	2.57%	8.91	253.00	0.2	2.57%	5.26	3145.00	6	8.74	22.91	4.33	6.06	7.65	98.28	151.30	217.04	-/4B	
A5/5	1.94	A5	1.94	0.66	0.73	0.83	300.00	0.2	2.61%	8.84	126.00	0.15	2.23%	2.11				10.95	6.12	8.61	10.89	7.84	12.13	17.43	A5/5	
A5A/-	4.32	A5A	4.32	0.66	0.73	0.83	300.00	0.3	2.00%	15.15					515.00	6	1.43	16.58	5.09	7.15	9.02	14.51	22.42	32.15	A5A/-	
-/5A	0.00	A5:A5A	6.26	0.66	0.73	0.83	300.00	0.3	2.00%	15.15					515.00	6	1.43	16.58	5.09	7.15	9.02	21.03	32.50	46.58	-/5A	
A6/6	4.47	A6	4.47	0.66	0.73	0.83	300.00	0.3	4.51%	10.09	252.00	0.2	3.90%	4.25	250.00	6	0.69	15.04	5.31	7.43	9.39	15.67	24.11	34.63	A6/6	
A7/-	3.85	A7	3.85	0.66	0.73	0.83	255.00	0.3	2.00%	12.88					527.00	6	1.46	14.34	5.44	7.63	9.64	13.82	21.33	30.62	A7/-	
-/7	0.00	A6:A7	8.32	0.66	0.73	0.83	300.00	0.3	4.51%	10.09	252.00	0.2	3.90%	4.25	250.00	6	0.69	15.04	5.31	7.43	9.39	29.16	44.88	64.45	-/7	
A8/8	4.46	A8	4.46	0.66	0.73	0.83	278.00	0.3	3.20%	11.10					765.00	6	2.13	13.23	5.65	7.93	10.03	16.63	25.68	36.91	A8/8	
-/8A	0.00	A6:A8	12.78	0.66	0.73	0.83	300.00	0.3	4.51%	10.09	252.00	0.2	3.90%	4.25	250.00	6	0.69	15.04	5.31	7.43	9.39	44.79	68.94	99.00	-/8A	
A9/-	2.16	A9	2.16	0.66	0.73	0.83	209.00	0.3	2.00%	10.56					376.00	6	1.04	11.60	5.98	8.40	10.63	8.53	13.17	18.94	A9/-	
-/9	0.00	A6:A9	14.94	0.66	0.73	0.83	300.00	0.3	4.51%	10.09	252.00	0.2	3.90%	4.25	250.00	6	0.69	15.04	5.31	7.43	9.39	52.36	80.59	115.74	-/9	
A10/10	5.60	A10	5.60	0.66	0.73	0.83	300.00	0.2	2.32%	9.38	50.00	0.3	2.84%	1.48	510.00	6	1.42	12.28	5.83	8.20	10.37	21.55	33.34	47.91	A10/10	
A11/-	3.90	A11	3.90	0.66	0.73	0.83	121.00	0.3	2.50%	5.47	280.00	0.1	0.50%	6.60				12.07	5.88	8.26	10.45	15.14	23.39	33.62	A11/-	
-/11	0.00	A1:A4B, A6:A11	58.83	0.66	0.73	0.83	300.00	0.2	2.57%	8.91	253.00	0.2	2.57%	5.26	3145.00	6	8.74	22.91	4.33	6.06	7.65	168.12	258.83	371.29	-/11	
A11A/11A	0.75	A11A	0.75	0.66	0.73	0.83	131.00	0.3	1.50%	7.64					425.00	6	1.18	8.82	6.65	9.36	11.87	3.29	5.10	7.34	A11A/11A	
-/11B	0.00	A1:A11A	59.58	0.66	0.73	0.83	300.00	0.2	2.57%	8.91	253.00	0.2	2.57%	5.26	3145.00	6	8.74	22.91	4.33	6.06	7.65	170.27	262.13	376.02	-/11B	
A12/12	2.15	A12	2.15	0.66	0.73	0.83	87.00	0.3	1.00%	6.21								6.21	7.49	10.56	13.42	10.63	16.48	23.80	A12/12	
A13/13	7.56	A13	7.56	0.66	0.73	0.83	251.00	0.3	1.20%	16.37					660.00	6	1.83	18.20	4.86	6.82	8.61	24.25	37.43	53.70	A13/13	
A14/14	6.65	A14	6.65	0.66	0.73	0.83	300.00	0.2	1.50%	11.66					590.00	6	1.64	13.30	5.64	7.91	10.00	24.75	38.19	54.86	A14/14	
A15/15	0.48	A15	0.48	0.66	0.73	0.83	36.00	0.2	2.00%	1.21					286.00	6	0.79	2.01	9.01	12.71	16.24	2.85	4.43	6.43	A15/15	
A16/-	6.62	A16	6.62	0.66	0.73	0.83	300.00	0.3	1.59%	16.99	103.00	0.2	1.59%	2.72				19.72	4.67	6.56	8.27	20.40	31.53	45.17	A16/-	
-/16	0.00	A13:A16	21.31	0.66	0.73	0.83	251.00	0.3	1.20%	16.37					660.00	6	1.83	18.20	4.86	6.82	8.61	68.35	105.51	151.37	-/16	
A17/17	0.18	A17	0.18	0.66	0.73	0.83	36.00	0.2	2.00%	1.21								1.21	9.29	13.11	16.77	1.10	1.71	2.49	A17/17	
A18/-	1.82	A18	1.82	0.66	0.73	0.83	180.00	0.2	1.07%	8.29					260.00	6	0.72	9.01	6.60	9.29	11.77	7.93	12.28	17.67	A18/-	
-/18	0.00	A17:A18	2.00	0.66	0.73	0.83	180.00	0.2	1.07%	8.29					260.00	6	0.72	9.01	6.60	9.29	11.77	8.71	13.49	19.42	-/18	
A18A/18A	0.81	A18A	0.81	0.66	0.73	0.83	35.00	0.2	2.00%	1.18					150.00	6	0.42	1.60	9.16	12.92	16.51	4.90	7.60	11.03	A18A/18A	
-/18B	0.00	A13:A18A	24.12	0.66	0.73	0.83	251.00	0.3	1.20%	16.37					660.00	6	1.83	18.20	4.86	6.82	8.61	77.37	119.43	171.33	-/18B	
A19/19	10.04	A19	10.04	0.44	0.48	0.55	200.00	0.2	2.83%	5.66	871.00	0.2	9.74%	9.30	290.00	6	0.81	15.77	5.21	7.31	9.23	23.02	35.52	50.97	A19/19	
A19A/19A	4.58	A19A	4.58	0.66	0.73	0.83	137.00	0.3	2.38%	6.34					913.00	6	2.54	8.88	6.64	9.34	11.83	20.07	31.06	44.70	A19A/19A	
-/19B	0.00	A19+A19A	20.00	0.51	0.56	0.64	200.00	0.2	2.83%	5.66	871.00	0.2	9.74%	9.30	290.00	6	0.81	15.77	5.21	7.31	9.23	53.14	82.02	117.68	-/19B	
A20/20	3.52	A20	3.52	0.66	0.73	0.83	126.00	0.3	2.50%	5.69					801.00	6	2.23	7.92	6.92	9.74	12.35	16.08	24.89	35.86	A20/20	
A21/-	2.49	A21	2.49	0.66	0.73	0.83	135.00	0.3	3.12%	5.46					274.00	6	0.76	6.22	7.49	10.56	13.41	12.31	19.09	27.55	A21/-	
-/21	0.00	A19:A21	26.01	0.55	0.61	0.69	200.00	0.2	2.83%	5.66	871.00	0.2	9.74%	9.30	417.00	6	1.16	16.12	5.16	7.24	9.15	73.82	113.93	163.62	-/21	
A22/22	3.01	A22	3.01	0.66	0.73	0.83	252.00	0.3	5.40%	7.75					487.00	6	1.35	9.10	6.58	9.26	11.73	13.07	20.24	29.13	A22/22	
-/22A	9.79	A19:A22	29.02	0.57	0.63	0.71	200.00	0.2	2.83%	5.66	871.00	0.2	9.74%	9.30	475.00	6	1.32	16.28	5.14	7.21	9.10	85.02	131.19	188.16	-/22A	
A23/23	5.46	A23	5.46	0.66	0.73	0.83	255.00	0.3	3.92%	9.20					612.00	6	1.70	10.90	6.14	8.63	10.91	22.13	34.21	49.14	A23/23	
A23A	2.93	A23A	2.93	0.66	0.73	0.83	255.00	0.3	3.70%	9.47					301.55	6	0.84	10.31	6.28	8.87	11.23	12.16	18.89	27.17	A23A	1
A24/24	4.04	A24	4.04	0.66	0.73	0.83	258.00	0.2	3.02%	7.07					513.00	6	1.43	8.49	6.75	9.50	12.04	18.00	27.86	40.13	A24/24	
A25/-	2.16	A25	2.16	0.66	0.73	0.83	138.00	0.3	1.70%	7.56					320.00	6	0.89	8.45	6.76	9.52	12.06	9.64	14.93	21.49	A25/-	
-/25	0.00	A19:A25	40.68	0.60	0.66	0.75	200.00	0.2	2.83%	5.66	871.00	0.2	9.74%	9.30	795.00	6	2.21	17.17	5.01	7.03	8.87	122.28	188.75	270.62	-/25	
A26/26	7.29	A26	7.29	0.66	0.73	0.83	269.00	0.3	3.79%	9.87					965.00	6	2.68	12.55	5.78	8.12	10.27	27.81	42.98	61.77	A26/26	
A26A	3.27	A26A	3.27	0.66	0.73	0.83	269.00	0.3	3.37%	10.47					474.30	6	1.32	11.78	5.94	8.35	10.55	12.84	19.85	28.50	A26A	1
A27/-	1.72	A27	1.72	0.66	0.73	0.83	149.00	0.3	2.09%	7.36					250.00	6	0.69	8.06	6.87	9.68	12.27	7.80	12.09	17.41	A27/-	
-/27	0.00	A19:A27	49.69	0.61	0.67	0.76	200.00	0.2	2.83%	5.66	871.00	0.2	9.74%	9.30	1050.00	6	2.92	17.88	4.91	6.88	8.69	148.83	229.39	329.25	-/27	
A28/28	3.69	A28	3.69	0.66	0.73	0.83	251.00	0.3	3.70%	9.32					495.00	6	1.38	10.70	6.19	8.71	11.02	15.08	23.33	33.55	A28/28	
A29/-	2.38	A29	2.38	0.66	0.73	0.83	140.00	0.3	2.50%	6.32					392.00	6	1.09	7.41	7.08	9.97	12.65	11.12	17.23	24.84	A29/-	
-/29	0.00	A19:A29	55.76	0.62	0.68	0.78	200.00	0.2	2.83%	5.66	871.00	0.2	9.74%	9.30	1437.00	6	3.99	18.96	4.77	6.69	8.44	164.90	254.41	364.73	-/29	
A30/30	4.97	A30	4.97	0.66	0.73	0.83	131.00	0.3	1.50%	7.64					1133.00	6	3.15	10.79	6.16	8.68	10.97	20.21	31.32	44.98	A30/30	
A31/31	4.73	A31	4.73	0.66	0.73	0.83	267.00	0.2	2.80%	7.60					215.00	6	0.60	8.20	6.83	9.62	12.20	21.32	33.03	47.61	A31/31	
-/31A	0.00	A30+A31	9.70	0.66	0.73	0.83	131.00	0.3	1.50%	7.64					1133.00	6	3.15	10.79	6.16	8.68	10.97	39.44	61.13	87.79	-/31A	
-/31B	0.00	A19:A31	65.46	0.62	0.68	0.78	200.00	0.2	2.83%	5.66	871.00	0.2	9.74%	9.30	1495.00	6	4.15	19.12	4.75	6.66	8.40	192.78	297.33	426.14	-/31B	
A32/32	3.48	A32	3.48	0.66	0.73	0.83	294.00	0.3	1.70%	16.11					343.00	6	0.95	17.06	5.02	7.05	8.90	11.53	17.81	25.55	A32/32	
A33/-	1.64	A33	1.64	0.66	0.73	0.83	129.00	0.3	2.00%	6.52					290.00	6	0.81	7.32	7.11	10.01	12.70	7.70	11.92	17.18	A33/-	
-/33	0.00	A19:A33	70.58	0.63	0.69	0.79	200.00	0.2	2.83%	5.66	871.00	0.2	9.74%	9.30	1791.00	6	4.98	19.94	4.65	6.52	8.22	206.76	318.91	456.88	-/33	
A34/-	6.60	A34	6.60	0.66	0.73	0.83	135.00	0.3	2.00%	6.82					633.00	6	1.76	8.58	6.72	9.46	11.99	29.27	45.33	65.29	A34/-	
-/34	0.00	A19:A34	77.18	0.63	0.69	0.79	200.00	0.2	2.83%	5.66	871.00	0.2	9.74%	9.30	2263.00	6	6.29	21.25	4.50	6.31	7.96	218.81	337.50	483.80	-/34	
A35/35	9.47	A35	9.47	0.44	0.48	0.55	300.00	0.3	4.64%	9.95	738.30	0.3	10.55%	11.37	1198.82	6	3.33	24.64	4.16	5.84	7.36	17.33	26.77	38.33	A35/35	1
A36/-	4.23	A36	4.23	0.66	0.73	0.83	173.00	0.3	2.53%	7.77					779.00	6	2.16	9.93	6.38	9.02	11.42	17.81	27.70	39.85	A36/-	
-/36	0.00	A35:A36	13.70	0.51	0.56	0.64	200.00	0.2	4.36%	4.56	828.00	0.2	9.67%	8.88	827.00	6	2.30	15.73	5.22	7.32	9.24	36.47	56.26	80.70	-/36	
A37/-	1.11	A37	1.11	0.66	0.73	0.83	45.00	0.2	1.74%	1.62					422.00	6	1.17	5.00	7.93	11.18	14.23	5.81	9.01	13.03	A37/-	
-/37	0.00	A35:A37+A41	15.55	0.51	0.56	0.64	200.00	0.2	4.36%	4.56	828.00	0.2	9.67%	8.88	827.00	6	2.30	15.73	5.22	7.32	9.24	41.40	63.86	91.60	-/37	
A38/-	0.96	A38	0.96	0.66	0.73	0.83	140.00	0.3	1.74%	7.58					131.00	6	0.36	7.94	6.91	9.73	12.33	4.38	6.78	9.77	A38/-	
-/38	0.00	A35:A38+41	16.51	0.52	0.57	0.65	200.00	0.2	4.36%	4.56	828.00	0.2	9.67%	8.88	827.00	6	2.30	15.73	5.22	7.32	9.24	44.81	69.13	99.16	-/38	
A39/39	6.91	A39	6.91	0.66	0.73	0.83	260.00	0.2	1.52%	10.04					748.00	6	2.08	12.12	5.87	8.25	10.43	26.77	41.39	59.46	A39/39	
-/39A	0.00	A35:A39+A41	23.42	0.57	0.63	0.71	200.00	0.2	4.36%	4.56	828.00	0.2	9.67%	8.88	827.00	6	2.30	15.73	5.22	7.32	9.24	69.68	107.49	154.19	-/39A	
A40/-	0.83	A40	0.83	0.66	0.73	0.83	58.00	0.2	2.00%	1.95					628.00	6	1.74	5.00	7.93	11.18	14.23	4.34	6.74	9.74	A40/-	
-/40	0.00	A35:A40	24.25	0.57	0.63	0.71	200.00	0.2	4.36%	4.56	828.00	0.2	9.67%	8.88	827.00	6	2.30	15.73	5.22	7.32	9.24	72.15	111.30	159.65	-/40	
-/40A	0.00	A19:A40	101.43	0.61	0.67	0.76	200.00	0.2	2.83%	5.66	871.00	0.2	9.74%	9.30	2353.00	6	6.54	21.50	4.47	6.27	7.91	276.57	426.73	611.76	-/40A	
A41/41	0.74	A41	0.74	0.66	0.73	0.83	39.00	0.2	2.12%	1.28					579.00	6	1.61	5.00	7.93	11.18	14.23	3.87	6.01	8.69	A41/41	
A42/42	1.20	A42	1.20	0.66	0.73	0.83	43.00	0.2	3.13%	1.16					420.00	6	1.17	5.00	7.93	11.18	14.23	6.28	9.74	14.09	A42/42	
A43/43	1.25	A43	1.25	0.66	0.73	0.83	37.00	0.2	1.37%	1.51					360.00	6	1.00	5.00	7.93	11.18	14.23	6.54	10.15	14.67	A43/43	
A44/44	0.81	A44	0.81	0.66	0.73	0.83	52.00	0.2	2.83%	1.47					421.00	6	1.17	5.00	7.93	11.18	14.23	4.24	6.57	9.51	A44/44	
A45/45	0.90	A45	0.90	0.66	0.73	0.83	77.00	0.2	3.00%	2.12					230.00	6	0.64	5.00	7.93	11.18	14.23	4.71	7.31	10.57	A45/45	
A46/46	0.78	A46	0.78	0.66	0.73	0.83	10.00	0.2	2.00%	0.34					352.00	6	0.98	5.00	7.93	11.18	14.23	4.08	6.33	9.16	A46/46	
-/46A	0.00	A43+A46	2.03	0.66	0.73	0.83												5.00	7.93	11.18	14.23	10.62	16.48	23.83	-/46A	
-/46B	0.00	A19:A40+A43+A46	103.46	0.62	0.68	0.78	294.00	0.3	1.70%	16.11					3048.00	6	8.47	24.57	4.17	5.85	7.37	267.49	412.77	590.94	-/46B	
A47/-	22.74	A47	22.74	0.74	0.81	0.93	300.00	0.3	2.00%	15.15	1070.00	0.2	2.27%	23.67	880.00	6	2.44	41.27	3.11	4.34	5.48	52.33	80.33	115.27	A47/-	
-/47	0.00	A19:A40+A43+A46:A47	126.20	0.62	0.68	0.78	300.00	0.3	2.00%	15.15	1070.00	0.2	2.27%	23.67	880.00	6	2.44	41.27	3.11	4.34	5.48	243.34	373.54	535.97	-/47	
A48/48	1.16	A48	1.16	0.74	0.81	0.93	200.00	0.2	4.88%	4.31	238.00	0.2	2.44%	5.08				9.39	6.51	9.18	11.63	5.59	8.67	12.48	A48/48	
A49/-	1.14	A49	1.14	0.66	0.73	0.83	300.00	0.2	2.46%	9.11					290.00	6	0.81	9.91	6.38	9.02	11.43	4.80	7.47	10.75	A49/-	
-/49	0.00	A19:A40+A43+A46:A49	128.50	0.62	0.68	0.78	300.00	0.3	2.00%	15.15	1070.00	0.2	2.27%	23.67	880.00	6	2.44	41.27	3.11	4.34	5.48	247.77	380.34	545.74	-/49	
A50/50	1.61	A50	1.61	0.66	0.73	0.83	167.00	0.2	3.04%	4.56	141.00	0.2	3.03%	2.70	271.00	6	0.75	8.01	6.89	9.69	12.29	7.32	11.33	16.32	A50/50	
A51/51	0.44	A51	0.44	0.66	0.73	0.83												5.00	7.93	11.18	14.23	2.30	3.57	5.17	A51/51	
A52/52	0.51	A52	0.51	0.66	0.73	0.83												5.00	7.93	11.18	14.23	2.67	4.14	5.99	A52/52	
A53/53	0.20	A53	0.20	0.66	0.73	0.83												5.00	7.93	11.18	14.23	1.05	1.62	2.35	A53/53	
A53A/53A	2.37	A53A	2.37	0.77	0.85	0.96	300.00	0.2	1.41%	12.03	257.00	0.2	1.53%	6.93	148.00	7	0.35	19.31	4.72	6.63	8.36	8.61	13.31	19.07	A53A/53A	
A54/54	2.12	A54	2.12	0.44	0.48	0.55	300.00	0.2	1.70%	10.96	160.00	0.2	1.00%	5.33	90.00	6	0.25	16.54	5.10	7.16	9.03	4.76	7.35	10.53	A54/54	
-/55	0.00	A52:A54	2.83	0.66	0.73	0.83	300.00	0.2	1.70%	10.96	160.00	0.2	1.00%	5.33	90.00	6	0.25	16.54	5.10	7.16	9.03	9.53	14.71	21.08	-/55	
A56/56	0.53	A56	0.53	0.66	0.73	0.83												5.00	7.93	11.18	14.23	2.77	4.30	6.22	A56/56	
A57/57	16.09	A57	16.09	0.77	0.85	0.96	300.00	0.2	1.65%	11.12	862.00	0.2	2.51%	18.14	320.00	6	0.89	30.15	3.73	5.19	6.53	46.21	70.73	101.13	A57/57	
-/58	0.00	A52:A54+A56:A57	19.45	0.77	0.85	0.96	300.00	0.2	1.65%	11.12	862.00	0.2	2.51%	18.14	320.00	6	0.89	30.15	3.73	5.19	6.53	55.86	85.50	122.25	-/58	
A59/59	5.80	A59	5.80	0.77	0.85	0.96	300.00	0.2	1.80%	10.65	603.00	0.2	2.00%	14.21				24.86	4.14	5.81	7.32	18.49	28.54	40.86	A59/59	
A60	1.26	A60	1.26	0.63	0.69	0.79	292.00	0.2	2.45%	8.88					176.00	6	0.49	9.37	6.51	9.18	11.63	5.17	8.02	11.54	A60	
A61/-	134.03	A61	134.03	0.44	0.48	0.55	300.00	0.2	14.33%	3.77	1241.00	0.2	9.16%	13.67	4209.00	6	11.69	29.13	3.80	5.31	6.70	224.10	344.46	493.90	A61/-	
-/61	0.00	A60 + A61	135.29	0.44	0.48	0.55	300.00	0.2	14.33%	3.77	1241.00	0.2	9.16%	13.67	4209.00	6	11.69	29.13	3.80	5.31	6.70	226.20	347.70	498.54	-/61	
A62	2.53	A62	2.53	0.66	0.73	0.83	122.18	0.2	1.93%	4.19					653.44	6	1.82	6.00	7.57	10.67	13.56	12.64	19.60	28.30	A62	
A63	1.29	A63	1.29	0.60	0.66	0.75	300.00	0.2	2.92%	8.36	55.00	0.2	2.65%	1.13	151.00	6	0.42	9.91	6.38	9.03	11.43	4.94	7.69	11.06	A63	
A64	18.80	A64	18.80	0.45	0.50	0.56	300.00	0.2	3.73%	7.40	916.00	0.2	2.61%	18.90	937.00	6	2.60	28.90	3.82	5.34	6.73	32.32	49.69	71.17	A64	
-/A64	0.00	A63 + A64	20.09	0.46	0.51	0.58	300.00	0.2	3.73%	7.40	916.00	0.2	2.61%	18.90	937.00	6	2.60	28.90	3.82	5.34	6.73	35.30	54.28	77.74	-/A64	
A65	0.98	A65	0.98	0.66	0.73	0.83	150.00	0.2	2.62%	4.41					93.00	6	0.26	4.67	8.05	11.35	14.45	5.21	8.08	11.68	A65	
A66	4.81	A66	4.81	0.46	0.51	0.58									497.31	6	1.38	1.38	9.23	13.03	16.65	20.42	31.71	46.05	A66	
-/A66	0.00	A61 : A66	163.70	0.46	0.51	0.58	300.00	0.2	14.33%	3.77	1241.00	0.2	9.16%	13.67	4706.31	6	13.07	30.51	3.70	5.16	6.50	278.62	427.41	611.83	-/A66	
A67	1.47	A67	1.47	0.66	0.73	0.83	147.00	0.2	1.97%	4.99					209.00	6	0.58	5.57	7.73	10.89	13.85	7.50	11.62	16.80	A67	
-/A67	0.00	A44+A67	2.67	0.66	0.73	0.83	147.00	0.2	1.97%	4.99					209.00	6	0.58	5.57	7.73	10.89	13.85	13.62	21.11	30.51	-/A67	

*REFERENCE STORMWATER REPORT FOR DETENTION POND INFLOW AND OUTFLOW RATES (& SCS HYDROLOGY)

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San Antonio, Texas 78231
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CORLEY FARMS UNIT 5

ULTIMATE MASTER DRAINAGE PLAN - RATIONAL METHOD CALCULATIONS

DATE
01/28/2025

PROJECT NO.
03481.012

DRAWN BY
C3

CHECKED BY
XV/AL

#	DATE	REVISIONS
1.	11/12/24	PERMITTING COMMENTS
2.		
3.		
4.		
5.		
6.		
7.		
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9.		

ANDREW R. LOWRY
123410
02/10/2025

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

SAWS JOB NO.
22-1190

C2

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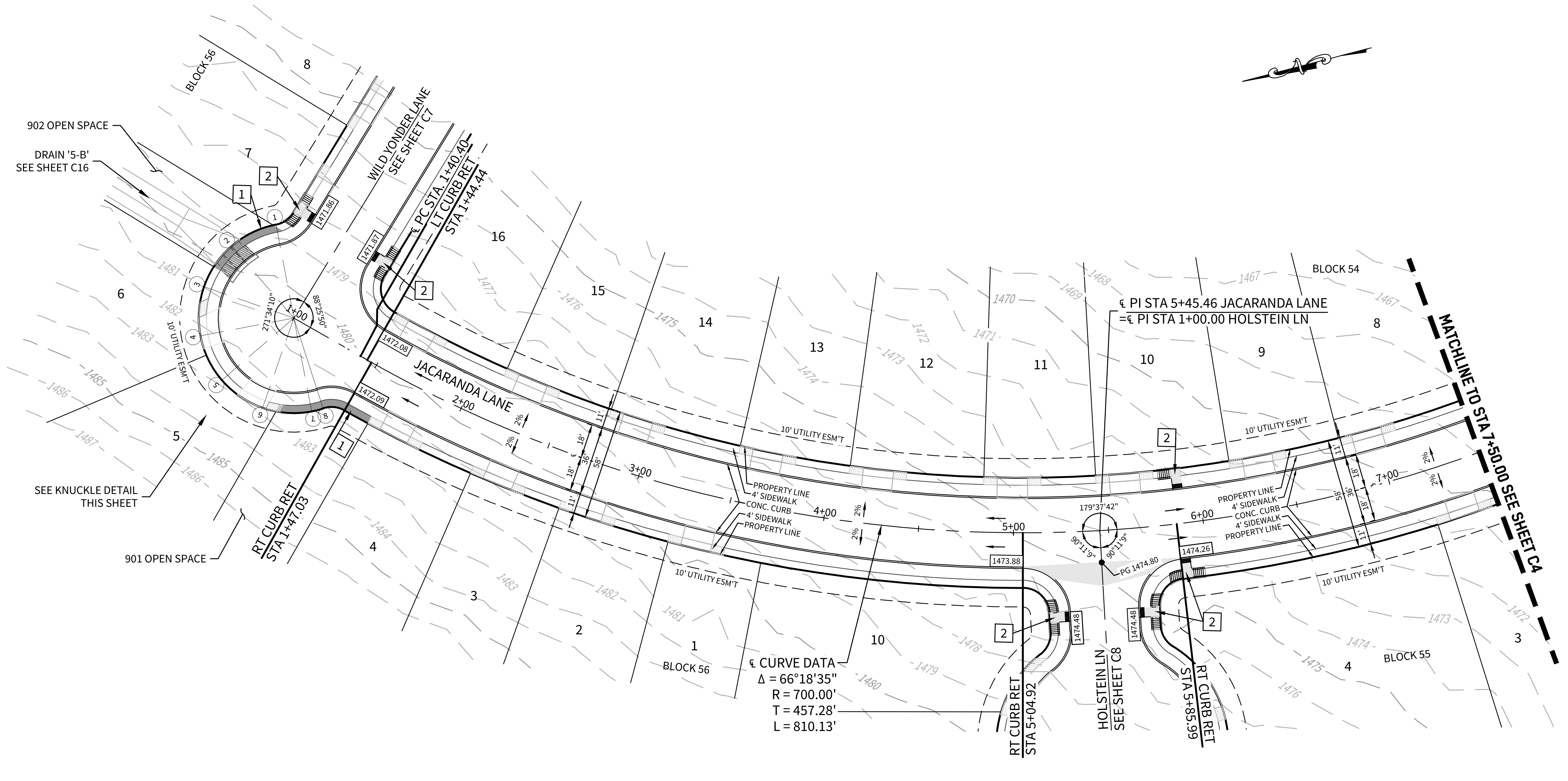
KEYNOTES:

1. SIDEWALK TO BE CONSTRUCTED WITH INFRASTRUCTURE
2. CONTRACTOR TO CONSTRUCT ADA RAMP AT THE TIME OF HOMEBUILDING

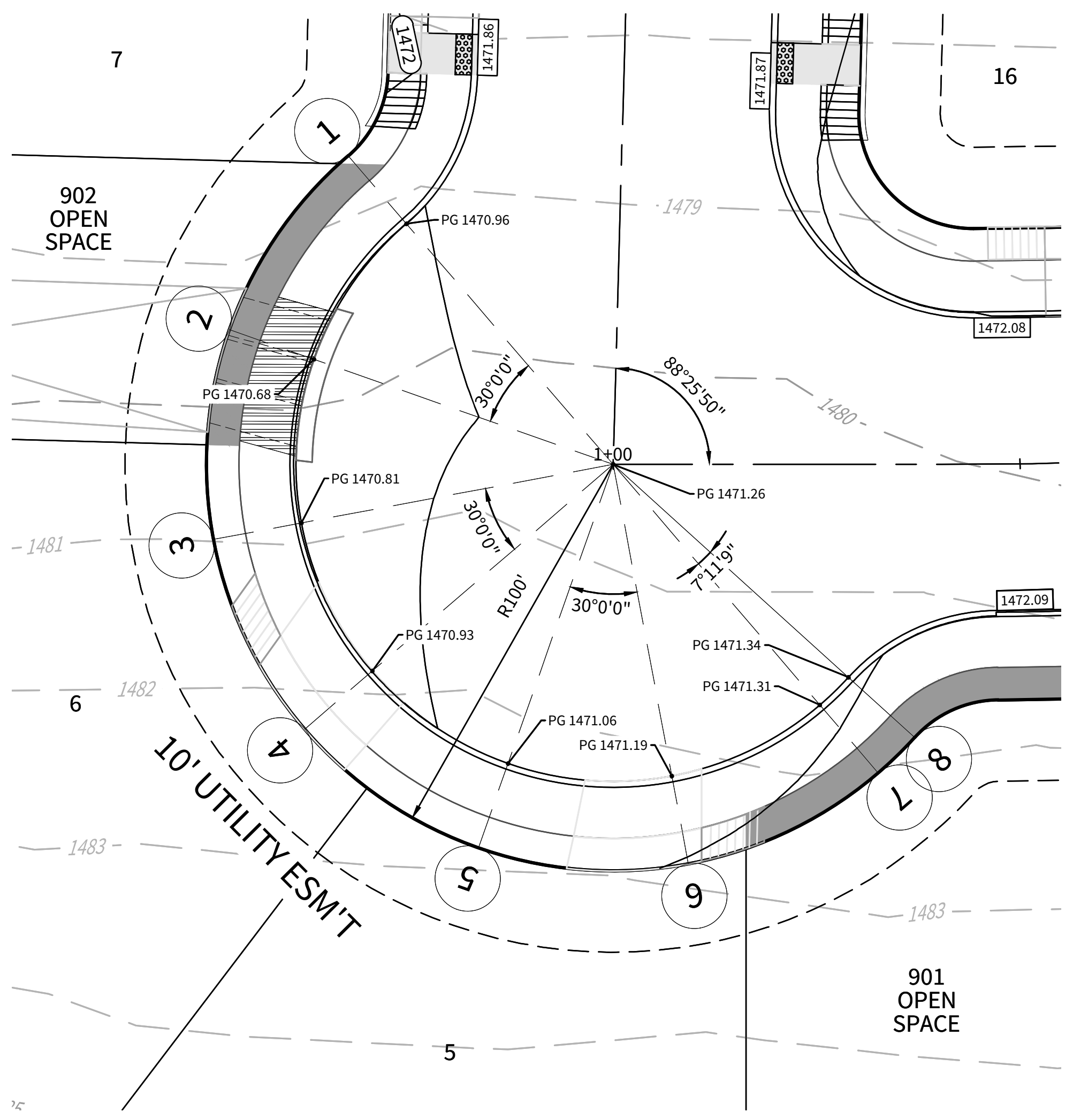

BLOCK 56
902 OPEN SPACE
DRAIN '5-B' SEE SHEET C16
WILD YONDER LANE SEE SHEET C7
PC STA. 1+40.40
LT CURB RET STA 1+44.44
JACARANDA LANE
2+00
3+00
4+00
5+00
6+00
7+00
10' UTILITY ESM'T
PROPERTY LINE
4' SIDEWALK
CONC. CURB
SEE KNUCKLE DETAIL THIS SHEET
901 OPEN SPACE
RT CURB RET STA 1+47.03
℄ PI STA 5+45.46 JACARANDA LANE = ℄ PI STA 1+00.00 HOLSTEIN LN
BLOCK 54
MATCHLINE TO STA 7+50.00 SEE SHEET C4
℄ CURVE DATA
Δ = 66°18'35"
R = 700.00'
T = 457.28'
L = 810.13'
RT CURB RET STA 5+04.92
HOLSTEIN LN SEE SHEET C8
RT CURB RET STA 5+85.99
BLOCK 55

ELEVATIONS:

- xxxx.xx PROPOSED TOP OF CONCRETE CURB ELEVATION
- xxxx.xx PROPOSED ASPHALT PAVEMENT ELEVATION

▨	TEMPORARY TURNAROUND PAVEMENT
■	PROPOSED 4' SIDEWALK - TO BE CONSTRUCTED WITH INFRASTRUCTURE
☐	DRIVEWAY TO BE BUILT WITH HOMEBUILDING
▒	STREET WASHOUT
■	ADA SIDEWALK CURB RAMP - SEE DETAIL SHEET C11

ALL ADA RAMPS TO BE BUILT WITH INFRASTRUCTURE


7
16
902 OPEN SPACE
1
2
3
4
5
6
7
8
9
1+00
R100'
30°0'0"
10' UTILITY ESM'T
901 OPEN SPACE
5
6

KNUCKLE DETAIL

SCALE: 1"= 20'

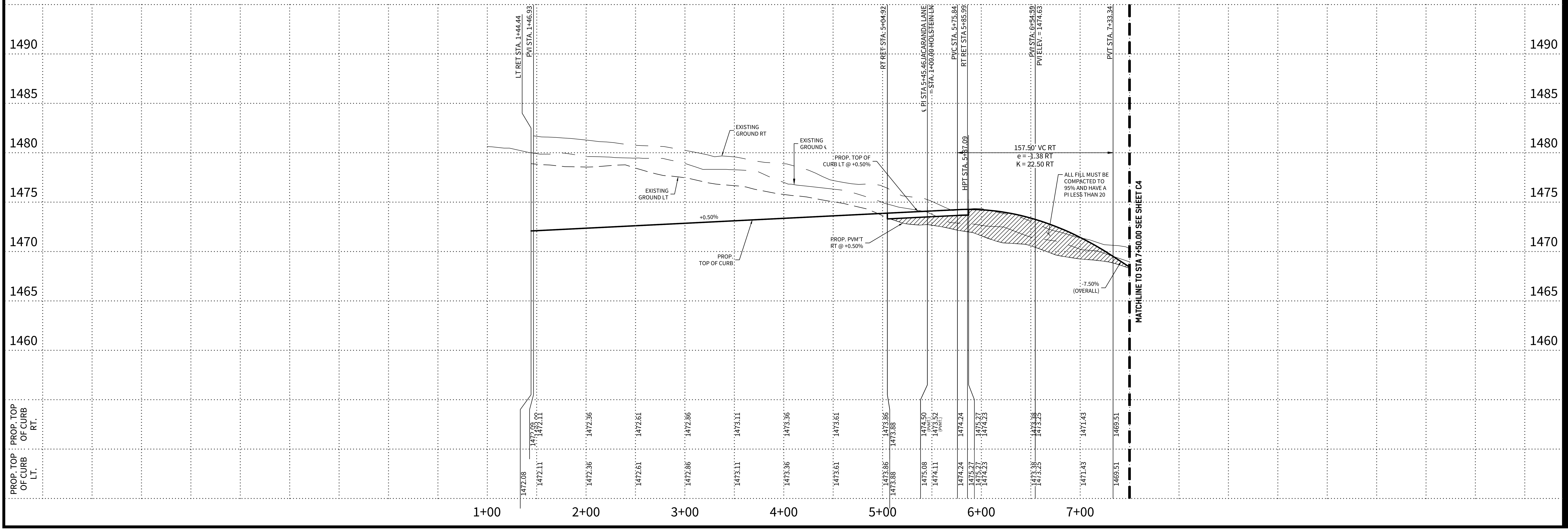
CUL-DE-SAC BACK OF CURB ELEVATIONS	
NUMBER	TOC ELEV.
1	1471.58
2	1471.31
3	1471.43
4	1471.56
5	1471.69
6	1471.81
7	1471.94
8	1471.97

2

JACARANDA LANE

STA. 1+00.00 TO STA. 7+50.00

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


1490
1485
1480
1475
1470
1465
1460
LT RET STA. 1+44.44
PVI STA. 1+46.93
RT RET STA. 5+04.92
℄ PI STA 5+45.46 JACARANDA LANE = STA. 1+00.00 HOLSTEIN LN
PVC STA. 5+75.84
RT RET STA 5+85.99
HPT STA. 5+87.09
PVI STA. 6+54.59
PVI ELEV. = 1474.63
PVT STA. 7+33.34
157.50' VC RT
e = -1.38 RT
K = 22.50 RT
EXISTING GROUND RT
EXISTING GROUND ℄
EXISTING GROUND LT
PROP. TOP OF CURB LT @ +0.50%
+0.50%
PROP. PVM'T RT @ +0.50%
PROP. TOP OF CURB
ALL FILL MUST BE COMPACTED TO 95% AND HAVE A PI LESS THAN 20
-7.50% (OVERALL)
MATCHLINE TO STA 7+50.00 SEE SHEET C4
PROP. TOP OF CURB RT.
1472.09
1472.11
1472.36
1472.61
1472.86
1473.11
1473.36
1473.61
1473.86
1473.88
1474.50 (PVMT.)
1473.52 (PVMT.)
1474.24
1475.27
1474.23
1473.38
1473.25
1471.43
1469.51
PROP. TOP OF CURB LT.
1472.08
1472.11
1472.36
1472.61
1472.86
1473.11
1473.36
1473.61
1473.86
1473.88
1475.08
1474.11
1474.24
1475.27
1475.27
1474.23
1473.38
1473.25
1471.43
1469.51
1+00
2+00
3+00
4+00
5+00
6+00
7+00

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CORLEY FARMS UNIT 5

STREET PLAN & PROFILE - JACARANDA LANE

DATE
06/02/2025

PROJECT NO.
03481.012

DRAWN BY
C3

CHECKED BY
XV/AL

#	DATE	REVISIONS
1.	11/7/24	PERMITTING COMMENTS
2.	5/27/25	GRADING REVISION
3.		
4.		
5.		
6.		
7.		
8.		
9.		

ANDREW R. LOWRY
123410
6/2/25

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

SAWS JOB NO.
22-1190

C3

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P:\03481\012\2-Drawings\C8.00-8.01 STREET PLAN & PROFILE - JACARANDA LANE.dwg 2025/06/02 1:42pm kmartinez

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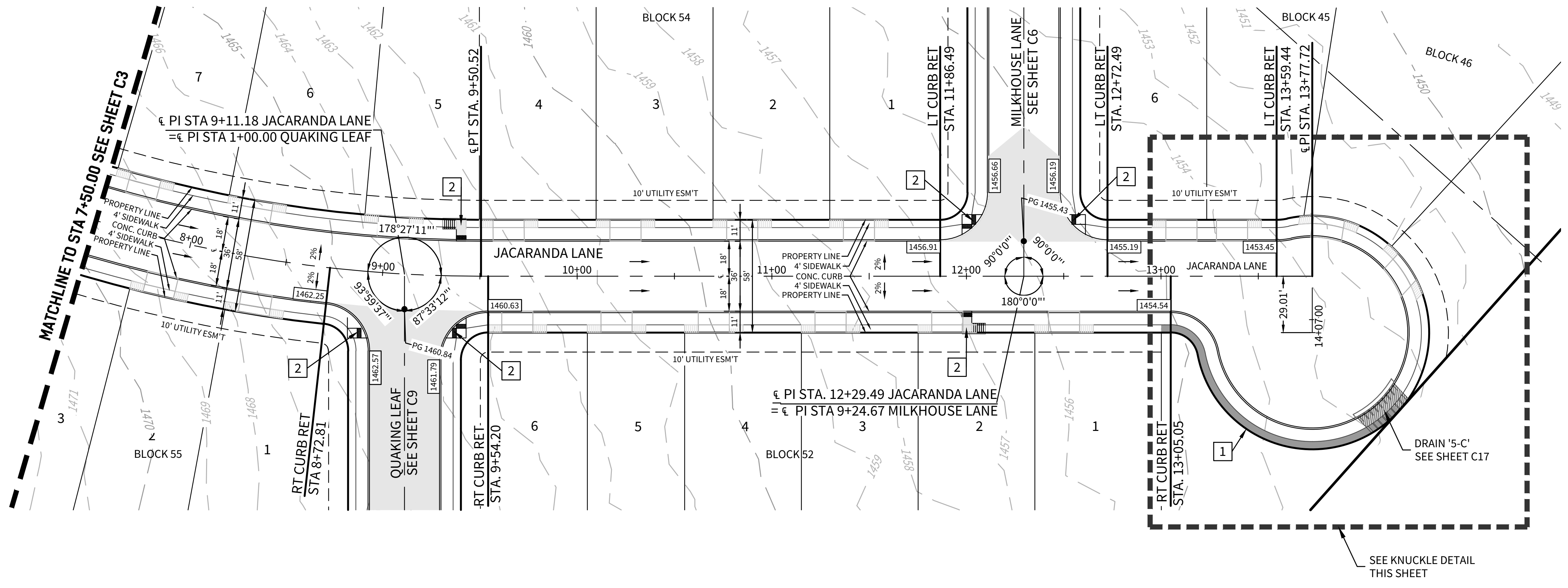
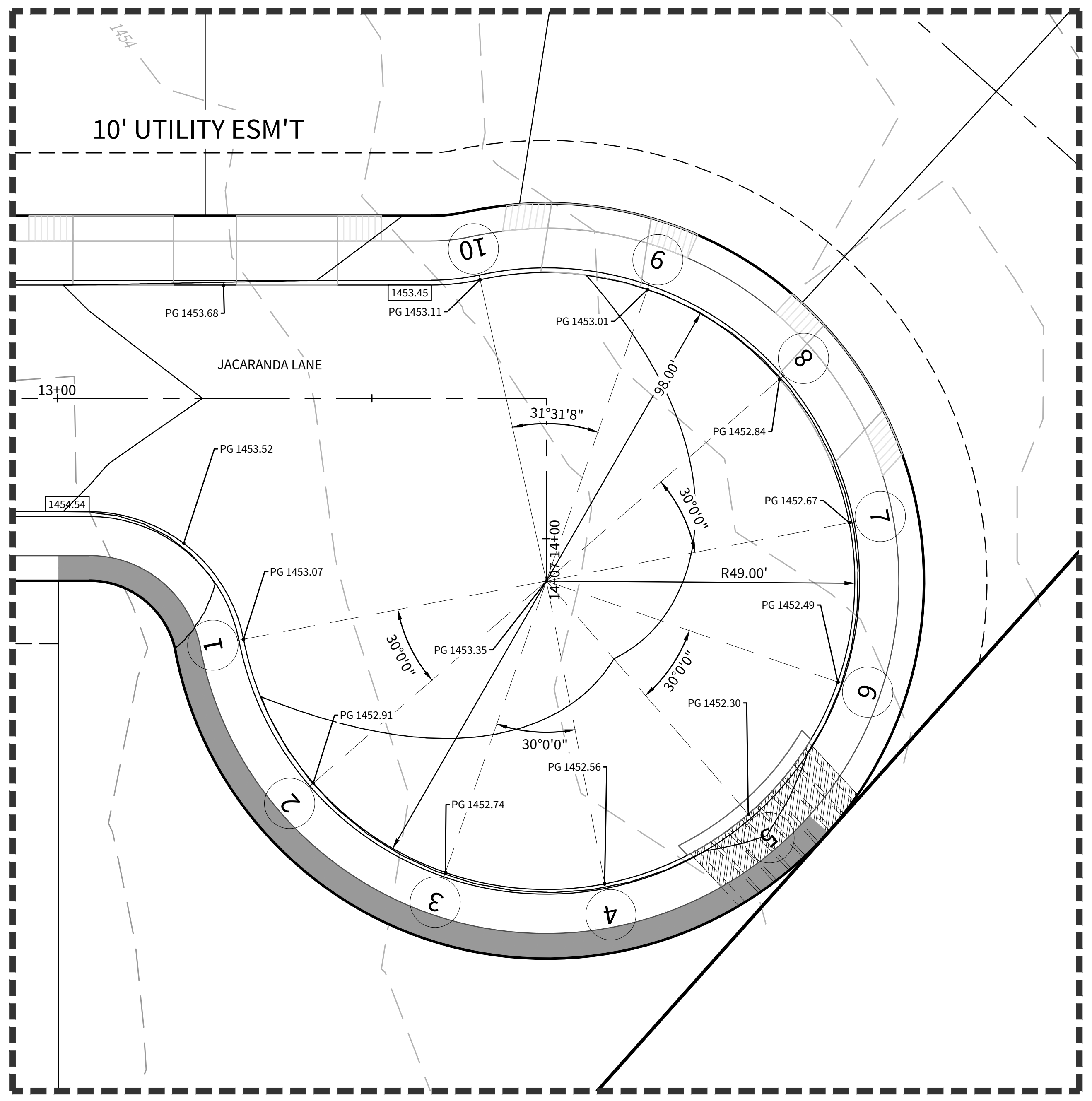
KEYNOTES:

1 SIDEWALK TO BE CONSTRUCTED WITH INFRASTRUCTURE

2 CONTRACTOR TO CONSTRUCT ADA RAMP AT THE TIME OF HOMEBUILDING


MATCHLINE TO STA 7+50.00 SEE SHEET C3
BLOCK 54
BLOCK 45
BLOCK 46
BLOCK 55
BLOCK 52
℄ PI STA 9+11.18 JACARANDA LANE
= ℄ PI STA 1+00.00 QUAKING LEAF
℄ PT STA. 9+50.52
LT CURB RET STA. 11+86.49
MILKHOUSE LANE SEE SHEET C6
LT CURB RET STA. 12+72.49
LT CURB RET STA. 13+59.44
℄ PI STA. 13+77.72
10' UTILITY ESM'T
JACARANDA LANE
10+00
12+00
13+00
PROPERTY LINE
4' SIDEWALK
CONC. CURB
178°27'11"
93°59'37"
87°33'12"
90°0'0"
180°0'0"
29.01'
14+07.00
℄ PI STA. 12+29.49 JACARANDA LANE
= ℄ PI STA 9+24.67 MILKHOUSE LANE
RT CURB RET STA 8+72.81
QUAKING LEAF SEE SHEET C9
RT CURB RET STA. 9+54.20
RT CURB RET STA. 13+05.05
DRAIN '5-C' SEE SHEET C17
SEE KNUCKLE DETAIL THIS SHEET


10' UTILITY ESM'T
JACARANDA LANE
13+00
R49.00'
31°31'8"
30°0'0"
14+07.00

KNUCKLE DETAIL

SCALE: 1"= 20'

CUL-DE-SAC BACK OF CURB ELEVATIONS	
NUMBER	TOC ELEV.
1	1453.78
2	1453.56
3	1453.35
4	1453.00
5	1452.92
6	1453.07
7	1453.21
8	1453.36
9	1453.50
10	1453.65

2

ELEVATIONS:

XXXX.XX PROPOSED TOP OF CONCRETE CURB ELEVATION

XXXX.XX PROPOSED ASPHALT PAVEMENT ELEVATION

▨ TEMPORARY TURNAROUND PAVEMENT

■ PROPOSED 4' SIDEWALK - TO BE CONSTRUCTED WITH INFRASTRUCTURE

DRIVEWAY TO BE BUILT WITH HOMEBUILDING

STREET WASHOUT

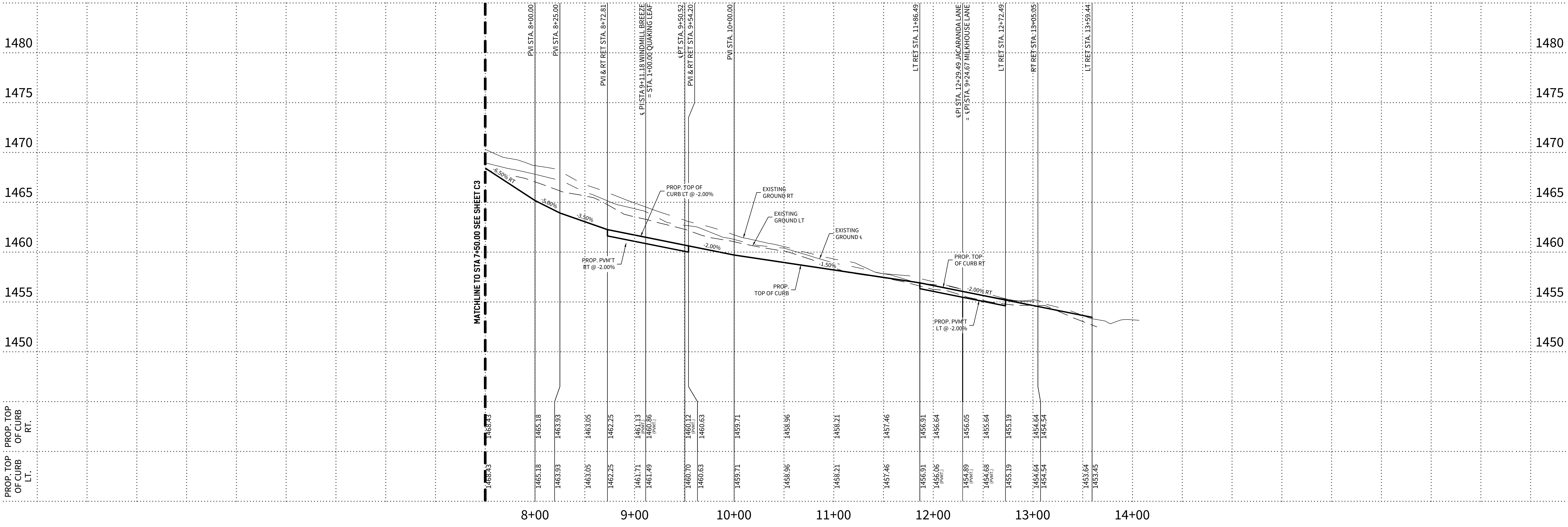
ADA SIDEWALK CURB RAMP - SEE DETAIL SHEET C11

ALL ADA RAMPS TO BE BUILT WITH INFRASTRUCTURE

JACARANDA LANE

STA. 7+50.00 TO END

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



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CORLEY FARMS UNIT 5

STREET PLAN & PROFILE - JACARANDA LANE

DATE
06/02/2025

PROJECT NO.
03481.012

DRAWN BY
C3

CHECKED BY
XV/AL

#	DATE	REVISIONS
1.	11/7/24	PERMITTING COMMENTS
2.	5/28/25	GRADING REVISION
3.		
4.		
5.		
6.		
7.		
8.		
9.		

ANDREW R. LOWRY
123410
6/2/25

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

SAWS JOB NO.
22-1190

C4

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P:\03481\012\2-Drawings\C8.00-8.01 STREET PLAN & PROFILE - JACARANDA LANE.dwg 2025/06/02 11:35am kmartinez

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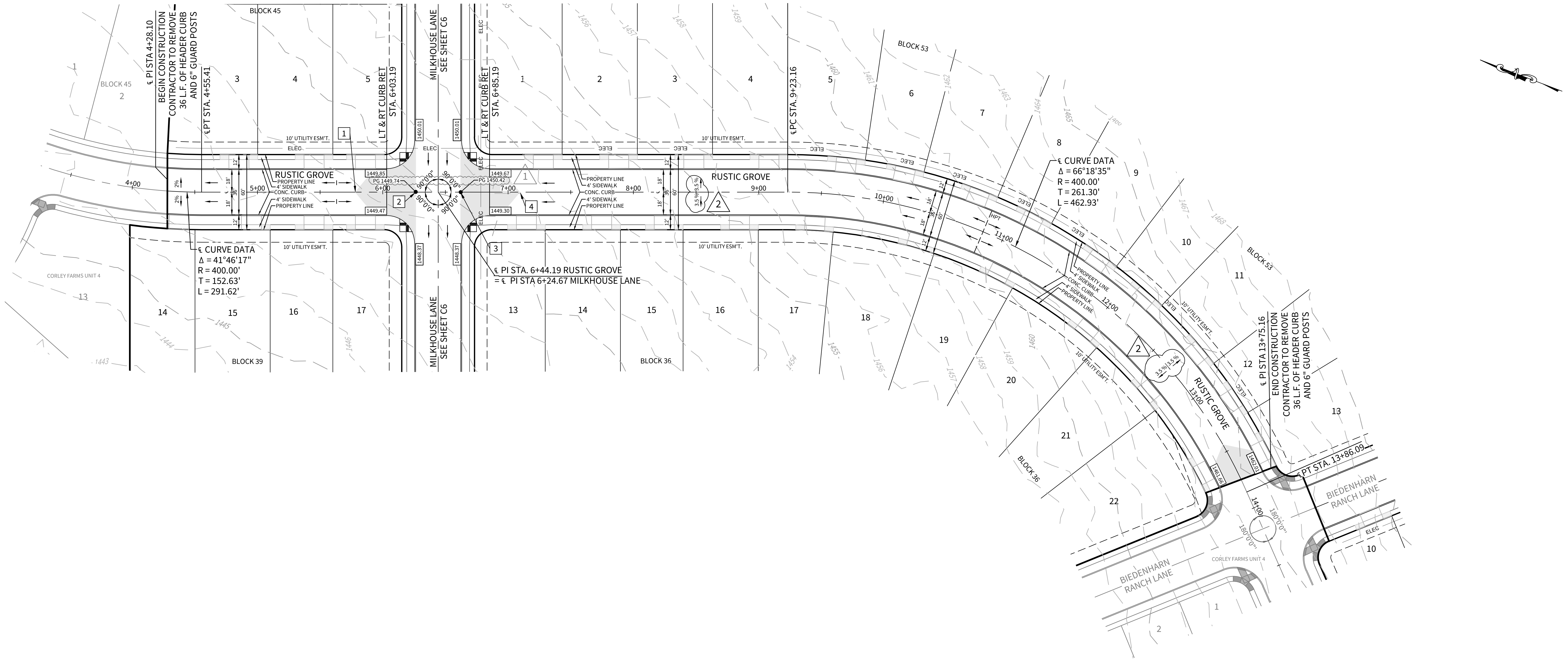

BLOCK 45
BLOCK 53
BLOCK 39
BLOCK 36
℄ PI STA 4+28.10
BEGIN CONSTRUCTION
CONTRACTOR TO REMOVE
36 L.F. OF HEADER CURB
AND 6" GUARD POSTS
℄ PT STA. 4+55.41
LT & RT CURB RET
STA. 6+03.19
MILKHOUSE LANE
SEE SHEET C6
LT & RT CURB RET
STA. 6+85.19
℄ PC STA. 9+23.16
RUSTIC GROVE
10' UTILITY ESM'T.
ELEC.
PROPERTY LINE
4' SIDEWALK
CONC. CURB
℄ CURVE DATA
Δ = 41°46'17"
R = 400.00'
T = 152.63'
L = 291.62'
℄ PI STA. 6+44.19 RUSTIC GROVE
= ℄ PI STA 6+24.67 MILKHOUSE LANE
℄ CURVE DATA
Δ = 66°18'35"
R = 400.00'
T = 261.30'
L = 462.93'
℄ PI STA 13+75.16
END CONSTRUCTION
CONTRACTOR TO REMOVE
36 L.F. OF HEADER CURB
AND 6" GUARD POSTS
℄ PT STA. 13+86.09
BIEDENHARN RANCH LANE
CORLEY FARMS UNIT 4
4+00
5+00
6+00
7+00
8+00
9+00
10+00
11+00
12+00
13+00
14+00

KEYNOTES:

1 BEGIN WASHOUT STA. 5 + 78.19
2 END WASHOUT STA. 6 + 26.19
3 BEGIN WASHOUT STA. 6 + 62.19
4 END WASHOUT STA. 7 + 09.19

△1

ELEVATIONS:

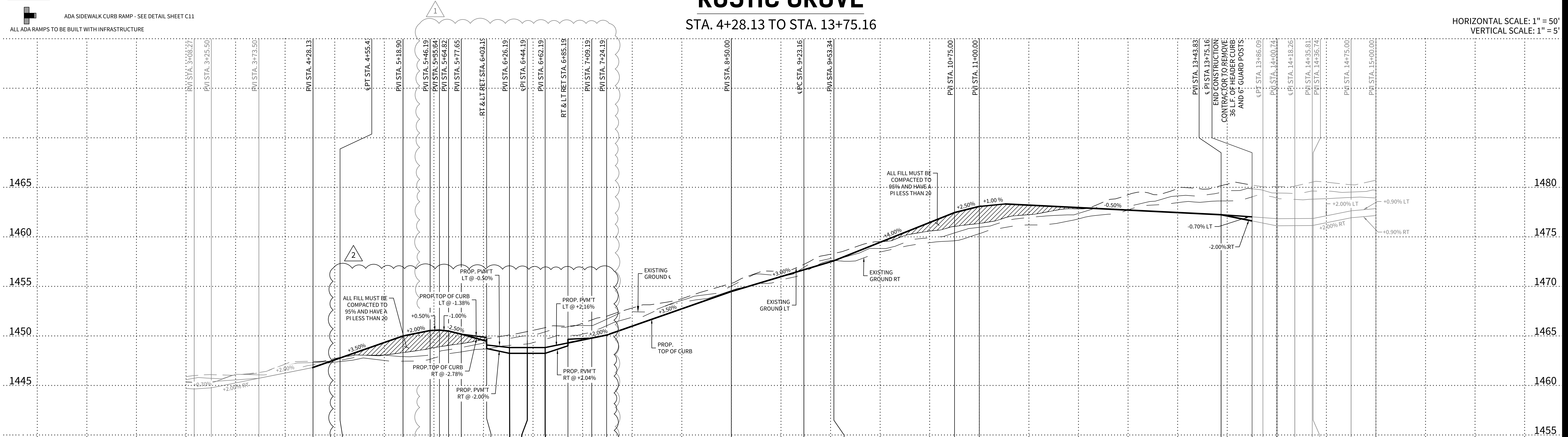
XXXX.XX	PROPOSED TOP OF CONCRETE CURB ELEVATION
XXXX.XX	PROPOSED ASPHALT PAVEMENT ELEVATION
▨	TEMPORARY TURNAROUND PAVEMENT
■	PROPOSED 4' SIDEWALK - TO BE CONSTRUCTED WITH INFRASTRUCTURE
☐	DRIVEWAY TO BE BUILT WITH HOMEBUILDING
▢	STREET WASHOUT
▮	ADA SIDEWALK CURB RAMP - SEE DETAIL SHEET C11

ALL ADA RAMPS TO BE BUILT WITH INFRASTRUCTURE

RUSTIC GROVE

STA. 4+28.13 TO STA. 13+75.16

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


PVI STA. 3+08.27
PVI STA. 3+25.50
PVI STA. 3+73.50
PVI STA. 4+28.13
℄ PT STA. 4+55.41
PVI STA. 5+18.90
PVI STA. 5+46.19
PVI STA. 5+55.84
PVI STA. 5+64.82
PVI STA. 5+77.65
RT & LT RET STA. 6+03.19
PVI STA. 6+26.19
℄ PI STA. 6+44.19
PVI STA. 6+62.19
RT & LT RET STA. 6+85.19
PVI STA. 7+09.19
PVI STA. 7+24.19
PVI STA. 8+50.00
℄ PC STA. 9+23.16
PVI STA. 9+53.34
PVI STA. 10+75.00
PVI STA. 11+00.00
PVI STA. 13+43.83
℄ PI STA. 13+75.16
END CONSTRUCTION
CONTRACTOR TO REMOVE
36 L.F. OF HEADER CURB
AND 6" GUARD POSTS
℄ PT STA. 13+86.09
PVI STA. 14+00.74
PVI STA. 14+18.26
PVI STA. 14+35.81
PVI STA. 14+36.74
PVI STA. 14+75.00
PVI STA. 15+00.00
1
2
ALL FILL MUST BE
COMPACTED TO
95% AND HAVE A
PI LESS THAN 20
PROP. TOP OF CURB
LT @ -1.38%
PROP. PVM'T
LT @ -0.50%
PROP. TOP OF CURB
RT @ -2.78%
PROP. PVM'T
RT @ -2.00%
PROP. PVM'T
LT @ +2.16%
PROP. PVM'T
RT @ +2.04%
EXISTING
GROUND ℄
EXISTING
GROUND LT
EXISTING
GROUND RT
PROP.
TOP OF CURB
+0.70%
+2.00% RT
+2.00%
+3.50%
+0.50%
-1.00%
-2.50%
+3.00%
+4.00%
+2.50%
+1.00%
-0.50%
-0.70% LT
-2.00% RT
+2.00% LT
+0.90% LT
+0.90% RT
1465
1460
1455
1450
1445
1480
1475
1470
1465
1460
1455

PROP. TOP OF CURB RT.	PROP. TOP OF CURB LT.
1444.71	1445.33
1444.65	1445.27
1444.77	
1445.26	1445.57
1445.73	1445.73
1446.26	1446.26
1446.82	1446.82
1447.59	1447.59
1447.78	1447.78
1449.34	1449.34
1450.00	1450.00
1450.55	1450.55
[illegible]	[illegible]
1450.59	1450.59
1450.50	1450.50
1450.18	1450.18
1449.56	1449.89
1449.47	1449.85
1447.66 (PVMT.)	1448.25 (PVMT.)
1447.66 (PVMT.)	1448.25 (PVMT.)
1447.66 (PVMT.)	1448.25 (PVMT.)
1447.66 (PVMT.)	1448.25 (PVMT.)
1449.30	1449.67
1449.60	1449.74
1449.79	1449.79
1450.09	1450.09
1450.99	1450.99
1452.74	1452.74
1454.49	1454.49
1455.99	1455.99
1456.69	1456.69
1457.49	1457.49
1457.59	1457.59
1459.46	1459.46
1461.46	1461.46
1462.46	1462.46
1463.08	1463.08
1463.21	1463.21
1462.96	1462.96
1462.71	1462.71
1462.46	1462.46
1462.24	1462.24
1462.12	1462.20
1461.61	1462.02
1461.39	1461.94
1461.12	1461.84
1461.13	1461.85
1461.15	1461.87
1461.43	1462.13
1461.93	1462.63
1462.15	1462.86

4+00 5+00 6+00 7+00 8+00 9+00 10+00 11+00 12+00 13+00 14+00 15+00

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CORLEY FARMS
UNIT 5

STREET PLAN & PROFILE - RUSTIC GROVE

DATE
04/10/2025

PROJECT NO.
03481.012

DRAWN BY
C3

CHECKED BY
XV/AL

△	DATE	REVISIONS
1.	11/7/24	PERMITTING COMMENTS
2.	04/7/25	REVISED STREET PROFILE
3.		
4.		
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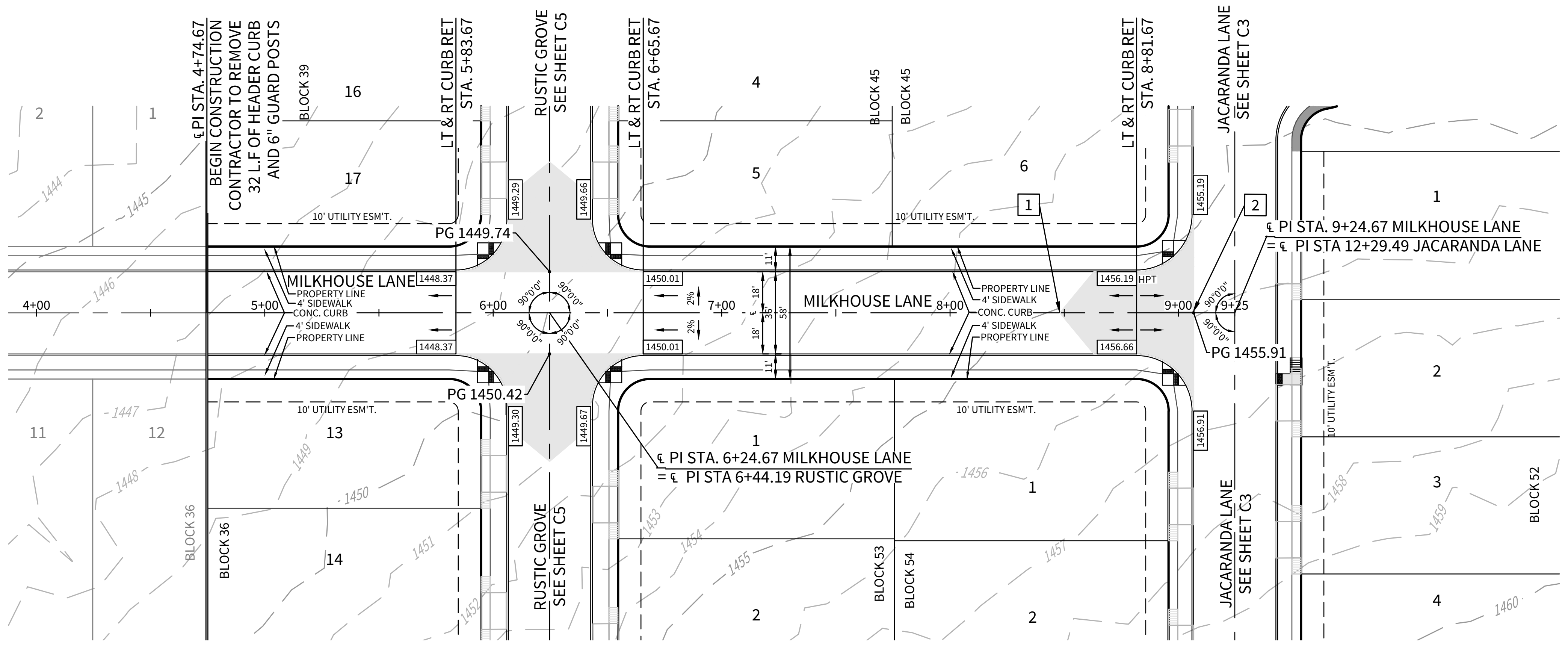
ANDREW R. LOWRY
123410
4/11/25

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

SAWS JOB NO.
22-1190

C5

P:\03481\012\2-Drawings\C8.02 STREET PLAN & PROFILE - RUSTIC GROVE.dwg 2025/04/10 4:29pm mlopez


℄ PI STA. 4+74.67
BEGIN CONSTRUCTION
CONTRACTOR TO REMOVE
32 L.F OF HEADER CURB
AND 6" GUARD POSTS
LT & RT CURB RET
STA. 5+83.67
RUSTIC GROVE
SEE SHEET C5
LT & RT CURB RET
STA. 6+65.67
LT & RT CURB RET
STA. 8+81.67
JACARANDA LANE
SEE SHEET C3
BLOCK 39
BLOCK 45
BLOCK 36
BLOCK 53
BLOCK 54
BLOCK 52
MILKHOUSE LANE
PG 1449.74
PG 1450.42
PG 1455.91
10' UTILITY ESM'T.
PROPERTY LINE
4' SIDEWALK
CONC. CURB
4+00
5+00
6+00
7+00
8+00
9+00
℄ PI STA. 9+24.67 MILKHOUSE LANE
= ℄ PI STA 12+29.49 JACARANDA LANE
℄ PI STA. 6+24.67 MILKHOUSE LANE
= ℄ PI STA 6+44.19 RUSTIC GROVE
1
2

KEYNOTES:

1	END WASHOUT STA 8+48.10
2	BEGIN WASHOUT STA 8+81.67

ELEVATIONS:

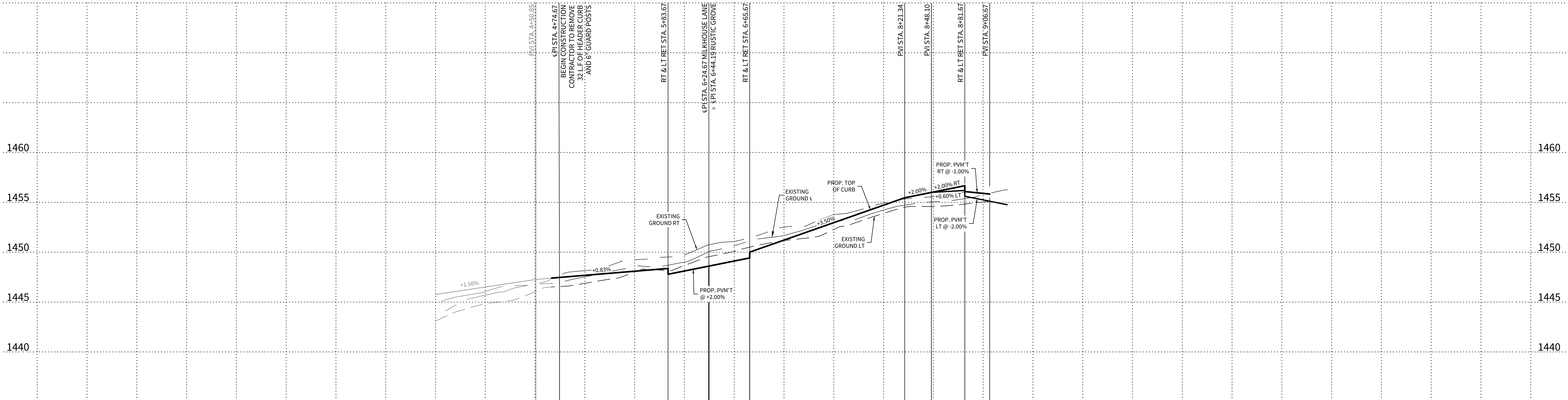
XXXX.XX (boxed)	PROPOSED TOP OF CONCRETE CURB ELEVATION
XXXX.XX	PROPOSED ASPHALT PAVEMENT ELEVATION
▨	TEMPORARY TURNAROUND PAVEMENT
▩	PROPOSED 4' SIDEWALK - TO BE CONSTRUCTED WITH INFRASTRUCTURE
☐	DRIVEWAY TO BE BUILT WITH HOMEBUILDING
░	STREET WASHOUT
■	ADA SIDEWALK CURB RAMP - SEE DETAIL SHEET C11

ALL ADA RAMPS TO BE BUILT WITH INFRASTRUCTURE

MILKHOUSE LANE

STA. 4+74.67 TO END

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


PVI STA. 4+50.85
℄ PI STA. 4+74.67
BEGIN CONSTRUCTION
CONTRACTOR TO REMOVE
32 L.F OF HEADER CURB
AND 6" GUARD POSTS
RT & LT RET STA. 5+83.67
℄ PI STA. 6+24.67 MILKHOUSE LANE
= ℄ PI STA. 6+44.19 RUSTIC GROVE
RT & LT RET STA. 6+65.67
PVI STA. 8+21.34
PVI STA. 8+48.10
RT & LT RET STA. 8+81.67
PVI STA. 9+06.67
1460
1455
1450
1445
1440
+1.50%
+0.83%
EXISTING GROUND RT
PROP. PVM'T @ +2.00%
EXISTING GROUND ℄
+3.50%
PROP. TOP OF CURB
EXISTING GROUND LT
+2.00%
PROP. PVM'T RT @ -1.00%
+2.00% RT
+0.60% LT
PROP. PVM'T LT @ -2.00%

PROP. TOP OF CURB RT.	PROP. TOP OF CURB LT.
1445.76	1445.76
1446.51	1446.51
1447.26	1447.26
1447.47	1447.47
1447.68	1447.68
1448.09	1448.09
1448.37	1448.37
1447.53 (PVMT.)	1447.53 (PVMT.)
1448.02 (PVMT.)	1448.02 (PVMT.)
1448.53 (PVMT.)	1448.53 (PVMT.)
1450.01	1450.01
1451.21	1451.21
1452.96	1452.96
1454.71	1454.71
1455.46	1455.46
1455.99	1455.99
1456.66	1456.19
1456.48	1455.83
1455.83 (PVMT.)	1455.11 (PVMT.)

4+00 5+00 6+00 7+00 8+00 9+00

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CORLEY FARMS UNIT 5

STREET PLAN & PROFILE - MILKHOUSE LANE

DATE	01/28/2025
PROJECT NO.	03481.012
DRAWN BY	C3
CHECKED BY	XV/AL

#	DATE	REVISIONS
1.		
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ANDREW R. LOWRY
123410
02/10/2025

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

SAWS JOB NO.
22-1190

C6

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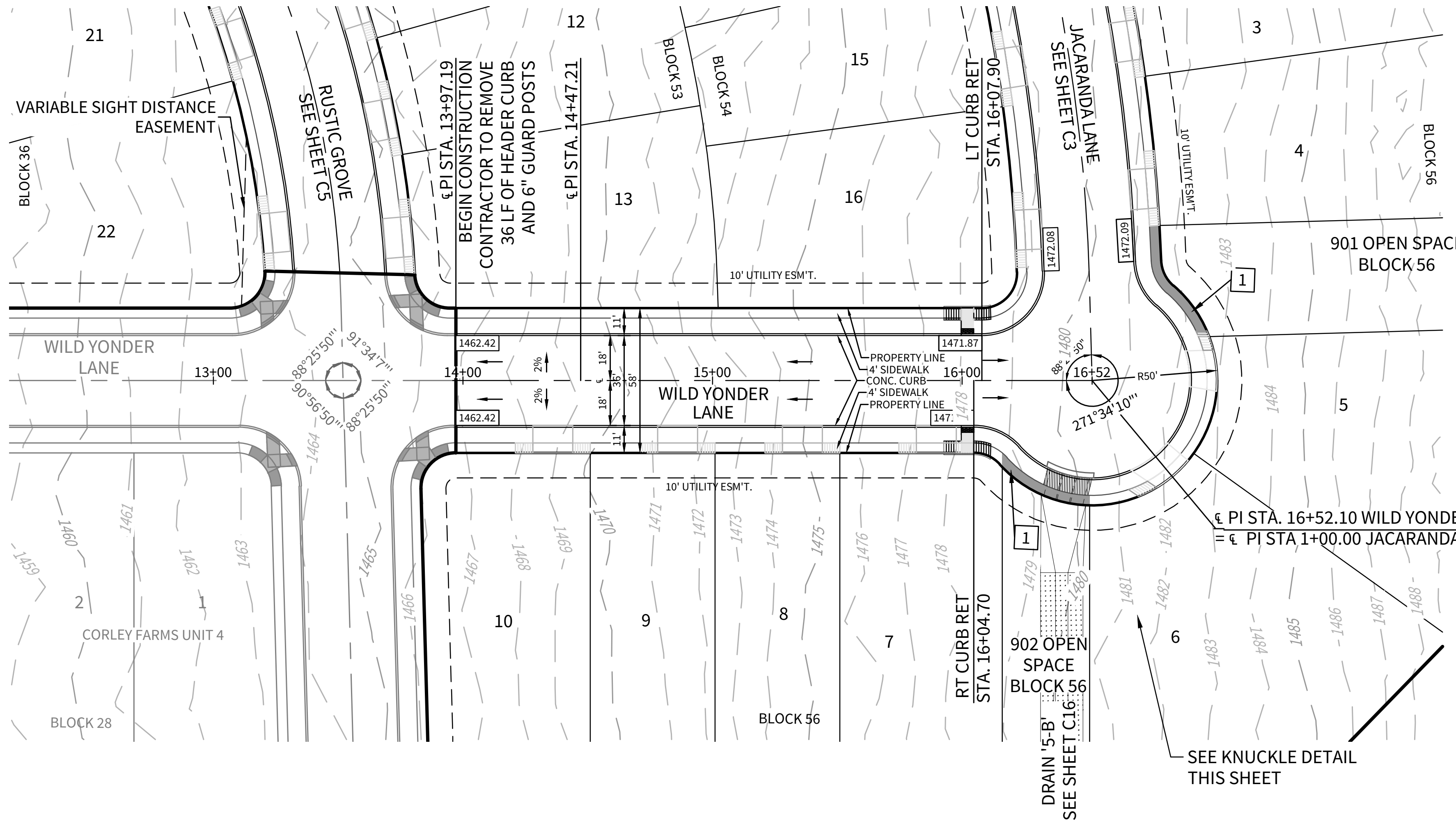
P:\03481\012\2-Drawings\C8.03 STREET PLAN & PROFILE - MILKHOUSE LANE.dwg 2025/01/28 12:09pm mlopez


21
22
12
13
15
16
3
4
5
6
7
8
9
10
1
2
BLOCK 36
BLOCK 53
BLOCK 54
BLOCK 56
BLOCK 28
CORLEY FARMS UNIT 4
VARIABLE SIGHT DISTANCE EASEMENT
RUSTIC GROVE SEE SHEET C5
℄ PI STA. 13+97.19
BEGIN CONSTRUCTION CONTRACTOR TO REMOVE 36 LF OF HEADER CURB AND 6" GUARD POSTS
℄ PI STA. 14+47.21
LT CURB RET STA. 16+07.90
RT CURB RET STA. 16+04.70
JACARANDA LANE SEE SHEET C3
10' UTILITY ESM'T.
WILD YONDER LANE
13+00
14+00
15+00
16+00
16+52
88°25'50"
91°34'7"
90°56'50"
88°25'50"
1462.42
1462.42
1471.87
1472.08
1472.09
2%
2%
11'
18'
18'
11'
36'
58'
PROPERTY LINE
4' SIDEWALK
CONC. CURB
4' SIDEWALK
PROPERTY LINE
R50'
271°34'10"
1
901 OPEN SPACE BLOCK 56
902 OPEN SPACE BLOCK 56
DRAIN '5-B' SEE SHEET C16
℄ PI STA. 16+52.10 WILD YONDER LANE = ℄ PI STA 1+00.00 JACARANDA LANE
SEE KNUCKLE DETAIL THIS SHEET
1459
1460
1461
1462
1463
1464
1465
1466
1467
1468
1469
1470
1471
1472
1473
1474
1475
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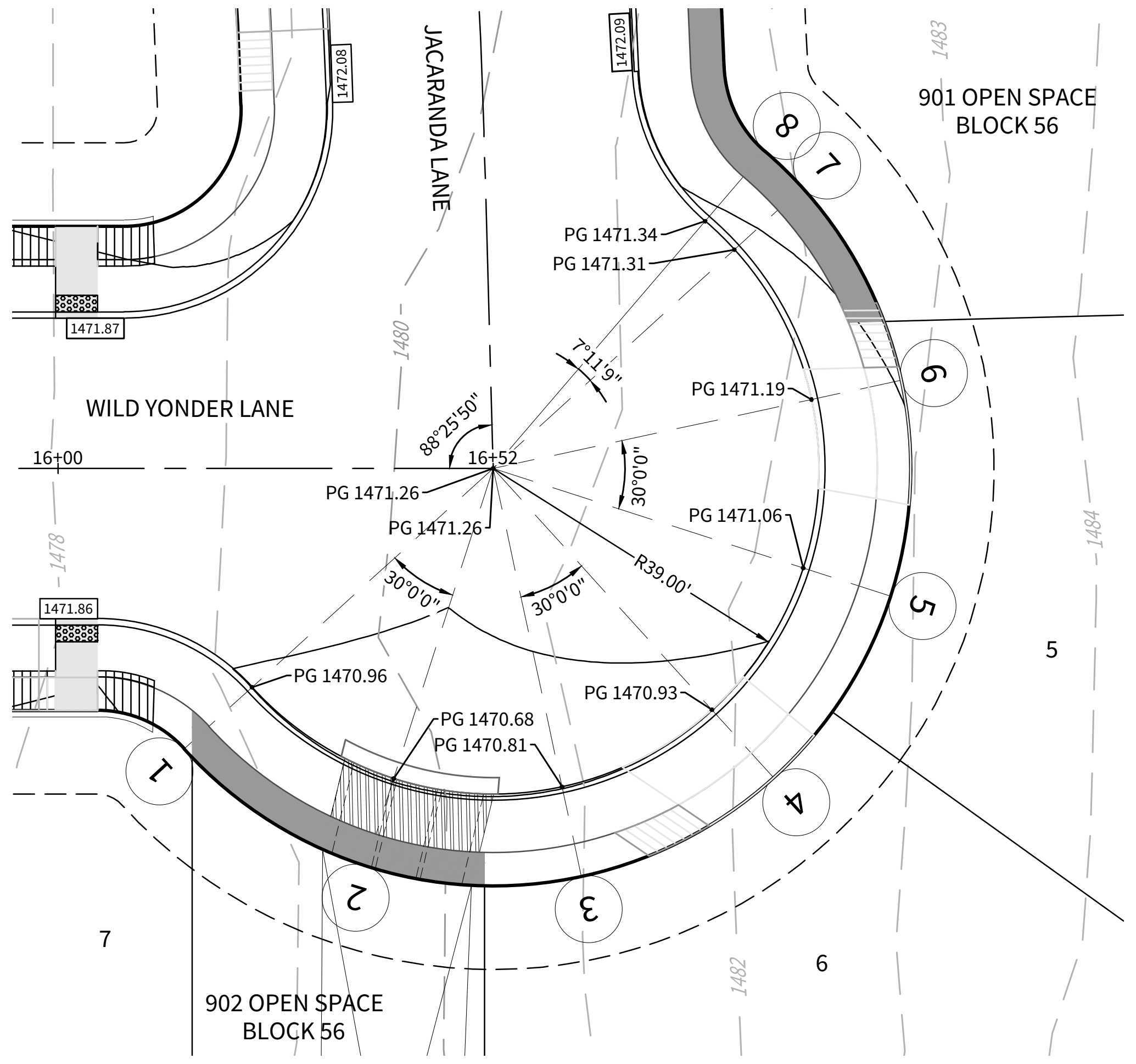
1487
1488


JACARANDA LANE
WILD YONDER LANE
16+00
16+52
1472.08
1472.09
1471.87
1471.86
901 OPEN SPACE BLOCK 56
902 OPEN SPACE BLOCK 56
PG 1471.34
PG 1471.31
PG 1471.19
PG 1471.06
PG 1471.26
PG 1471.26
PG 1470.96
PG 1470.68
PG 1470.81
PG 1470.93
7°11'9"
88°25'50"
30°0'0"
30°0'0"
30°0'0"
R39.00'
1
2
3
4
5
6
7
8
5
6
7
1478
1480
1482
1483
1484

KNUCKLE DETAIL

SCALE: 1"= 20'

CUL-DE-SAC BACK OF CURB ELEVATIONS	
NUMBER	TOC ELEV.
1	1471.58
2	1471.30
3	1471.43
4	1471.56
5	1471.69
6	1471.81
7	1471.94
8	1471.97

△2

KEYNOTES:

1 SIDEWALK TO BE CONSTRUCTED WITH INFRASTRUCTURE

ELEVATIONS:

xxxx.xx PROPOSED TOP OF CONCRETE CURB ELEVATION

xxxx.xx PROPOSED ASPHALT PAVEMENT ELEVATION

▨ TEMPORARY TURNAROUND PAVEMENT

■ PROPOSED 4' SIDEWALK - TO BE CONSTRUCTED WITH INFRASTRUCTURE

DRIVEWAY TO BE BUILT WITH HOMEBUILDING

□ STREET WASHOUT

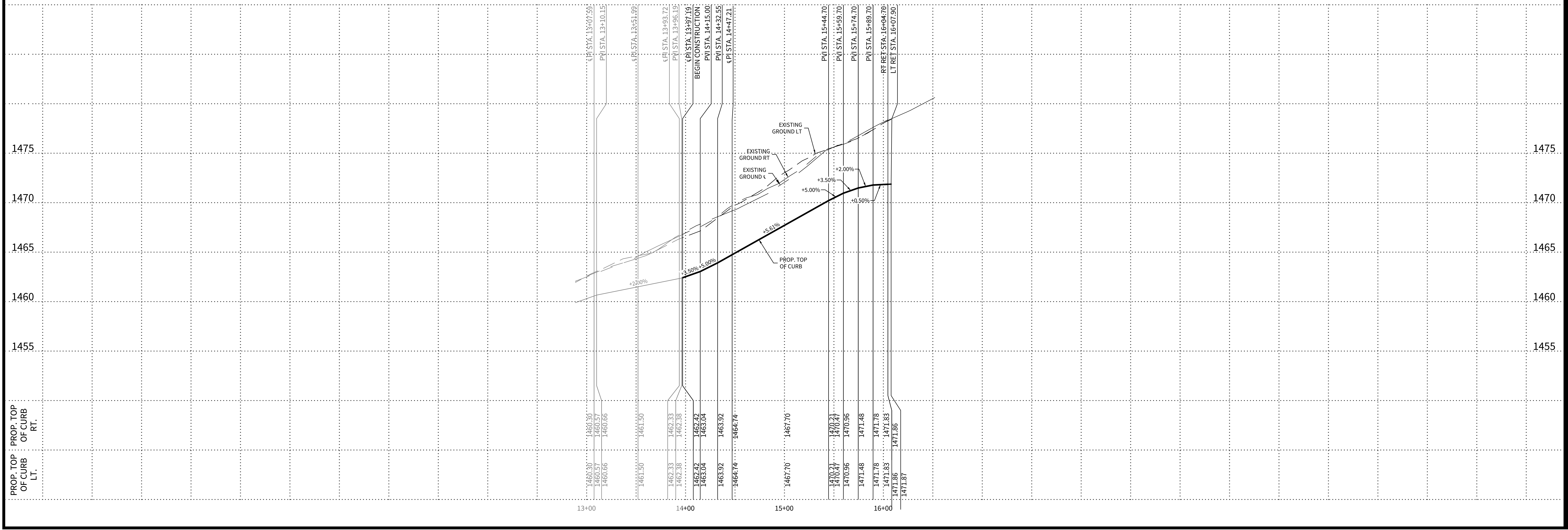
ADA SIDEWALK CURB RAMP - SEE DETAIL SHEET C11

ALL ADA RAMPS TO BE BUILT WITH INFRASTRUCTURE

WILD YONDER LANE

STA. 13+97.19 TO END

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



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San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

CORLEY FARMS UNIT 5

STREET PLAN & PROFILE - WILD YONDER LANE

DATE
06/09/2025

PROJECT NO.
03481.012

DRAWN BY
C3

CHECKED BY
XV/AL

#	DATE	REVISIONS
1.	11/7/24	PERMITTING COMMENTS
2.	5/27/25	GRADING REVISION
3.		
4.		
5.		
6.		
7.		
8.		
9.		

ANDREW R. LOWRY
123410
6/2/25

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

SAWS JOB NO.
22-1190

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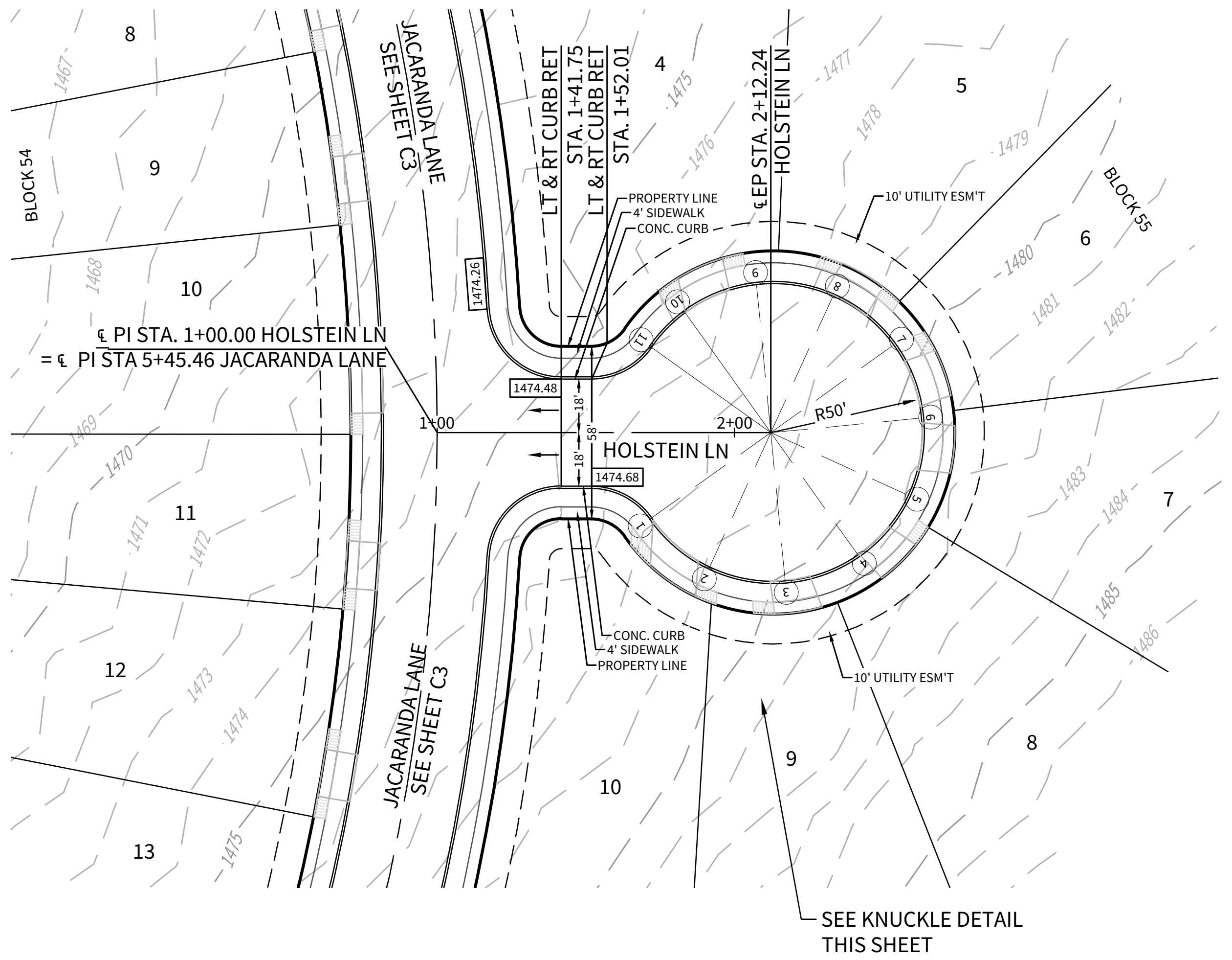
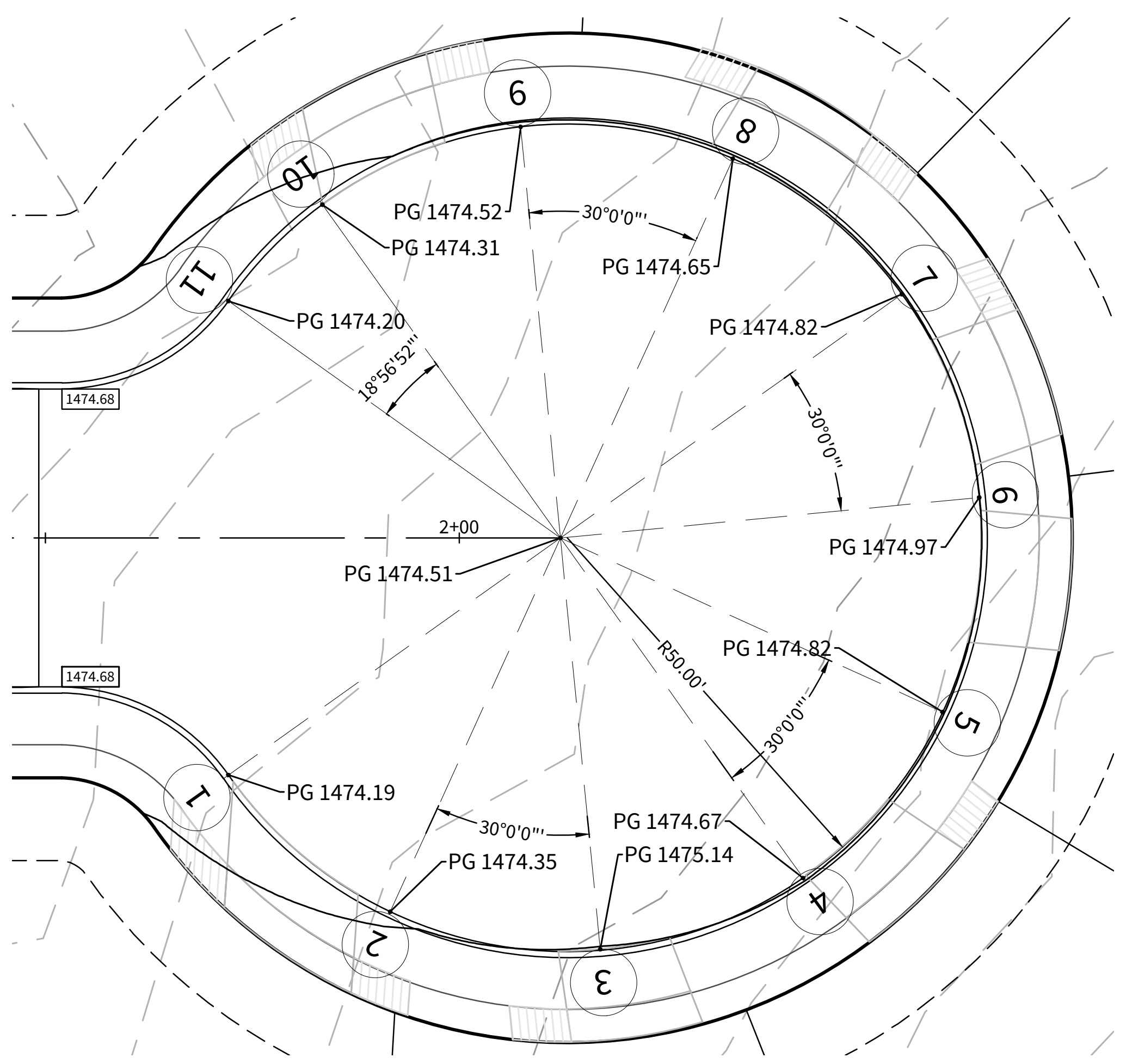

8
9
10
11
12
13
BLOCK 54
BLOCK 55
4
5
6
7
8
9
10
JACARANDA LANE
SEE SHEET C3
℄ PI STA. 1+00.00 HOLSTEIN LN
= ℄ PI STA 5+45.46 JACARANDA LANE
LT & RT CURB RET
STA. 1+41.75
LT & RT CURB RET
STA. 1+52.01
℄ EP STA. 2+12.24
HOLSTEIN LN
PROPERTY LINE
4' SIDEWALK
CONC. CURB
10' UTILITY ESM'T
1474.48
1474.68
1+00
2+00
HOLSTEIN LN
R50'
SEE KNUCKLE DETAIL
THIS SHEET


PG 1474.52
PG 1474.31
PG 1474.65
PG 1474.20
PG 1474.82
PG 1474.97
PG 1474.51
PG 1474.82
PG 1474.19
PG 1474.67
PG 1475.14
PG 1474.35
30°0'0"
18°56'52"
R50.00'
2+00
1474.68
1
2
3
4
5
6
7
8
9
10
11

KNUCKLE DETAIL

SCALE: 1"= 20'

CUL-DE-SAC BACK OF CURB ELEVATIONS	
NUMBER	TOC ELEV.
1	1474.77
2	1474.98
3	1475.16
4	1475.29
5	1475.45
6	1475.58
7	1475.45
8	1475.27
9	1475.10
10	1474.93
11	1474.83

2

ELEVATIONS:

xxxx.xx PROPOSED TOP OF CONCRETE CURB ELEVATION

xxxx.xx PROPOSED ASPHALT PAVEMENT ELEVATION

▨ TEMPORARY TURNAROUND PAVEMENT

▩ PROPOSED 4' SIDEWALK - TO BE CONSTRUCTED WITH INFRASTRUCTURE

▭ DRIVEWAY TO BE BUILT WITH HOMEBUILDING

▢ STREET WASHOUT

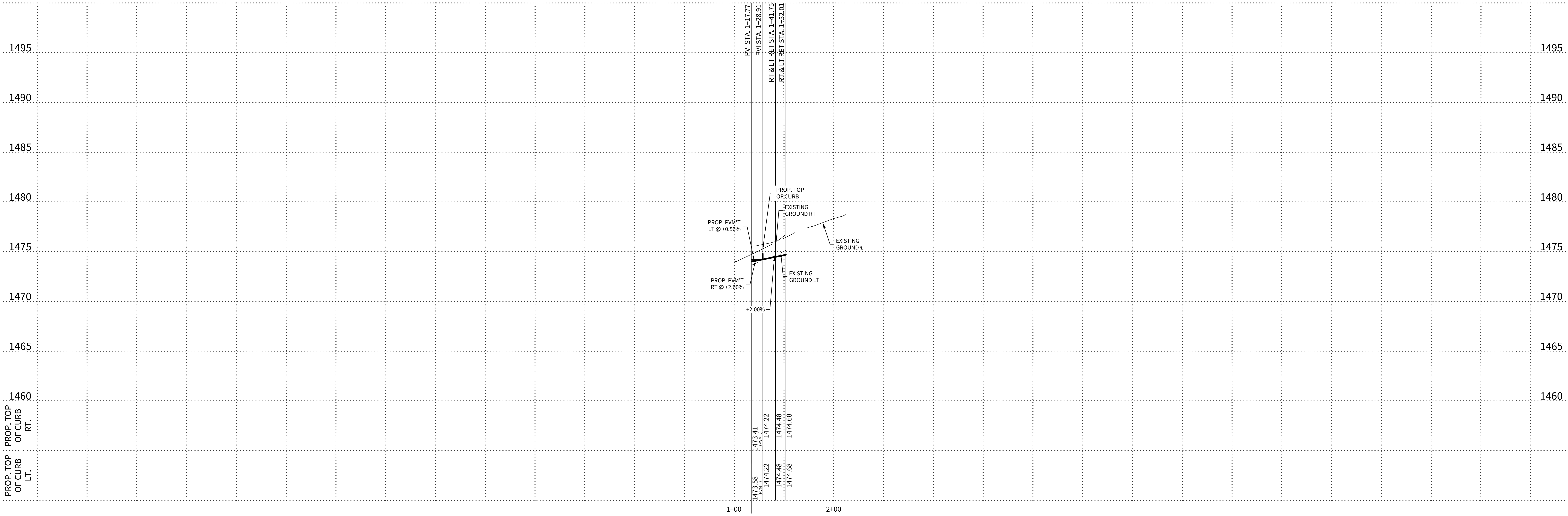
▮ ADA SIDEWALK CURB RAMP - SEE DETAIL SHEET C11

ALL ADA RAMPS TO BE BUILT WITH INFRASTRUCTURE

HOLSTEIN LN

STA. 1+00.00 TO END

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



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CORLEY FARMS
UNIT 5

STREET PLAN & PROFILE - HOLSTEIN LN

DATE
06/02/2025

PROJECT NO.
03481.012

DRAWN BY
C3

CHECKED BY
XV/AL

#	DATE	REVISIONS
1.	11/7/24	PERMITTING COMMENTS
2.	5/27/25	GRADING REVISION
3.		
4.		
5.		
6.		
7.		
8.		
9.		

ANDREW R. LOWRY
123410
6/2/25

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TBPLS No. 10048500

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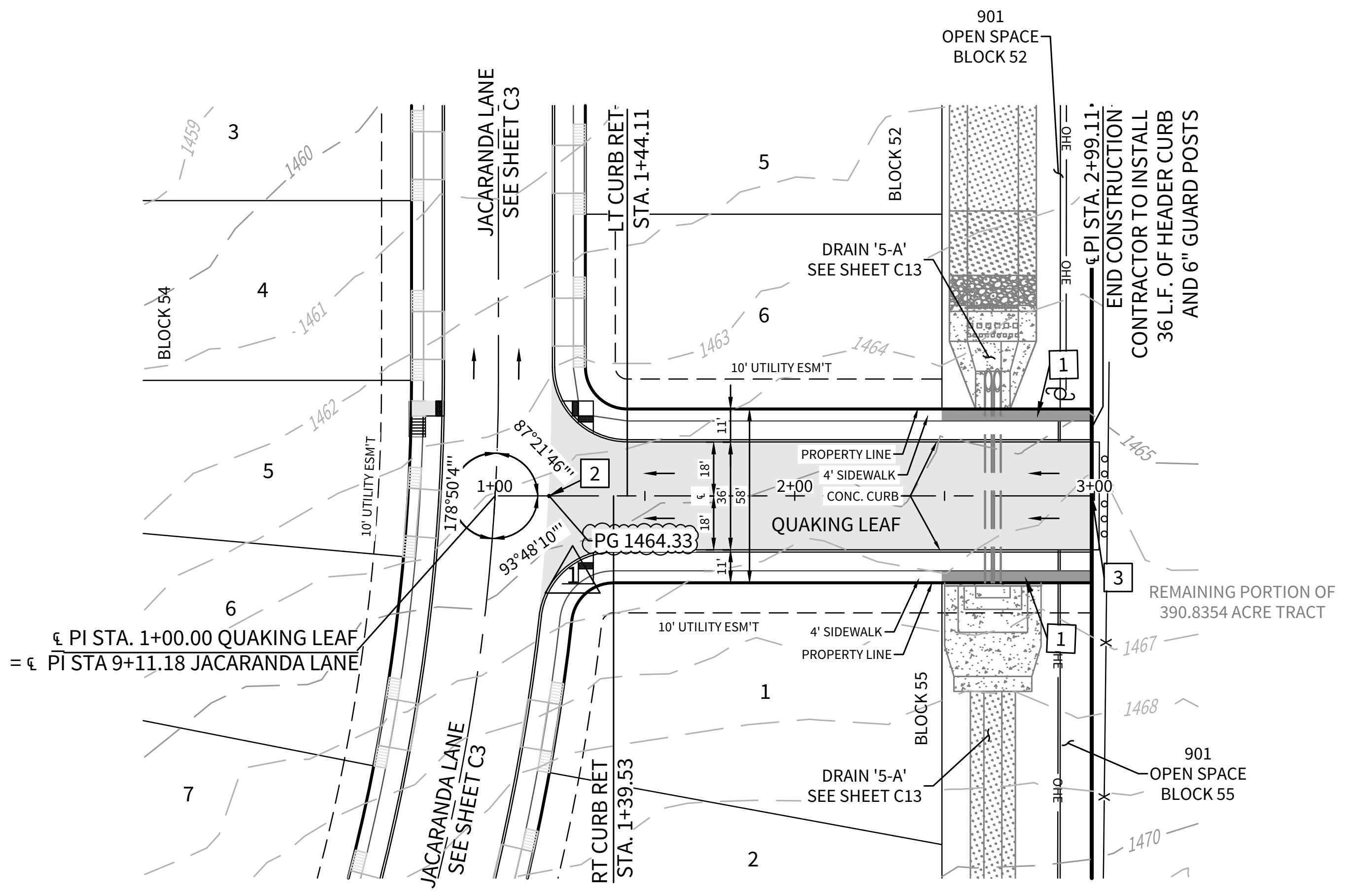
KEYNOTES:

1	SIDEWALK TO BE CONSTRUCTED WITH INFRASTRUCTURE
2	BEGIN WASHOUT STA. 1 + 18.78
3	END WASHOUT STA. 2 + 89.11


901
OPEN SPACE
BLOCK 52
3
4
5
6
7
BLOCK 54
1459
1460
1461
1462
1463
1464
1465
1467
1468
1470
JACARANDA LANE
SEE SHEET C3
LT CURB RET
STA. 1+44.11
BLOCK 52
DRAIN '5-A'
SEE SHEET C13
℄ PI STA. 2+99.11
END CONSTRUCTION
CONTRACTOR TO INSTALL
36 L.F. OF HEADER CURB
AND 6" GUARD POSTS
OHE
10' UTILITY ESM'T
87°21'46"
178°50'4"
93°48'10"
1+00
2
PG 1464.33
11'
18'
℄
36'
58'
PROPERTY LINE
4' SIDEWALK
CONC. CURB
2+00
3+00
QUAKING LEAF
1
3
REMAINING PORTION OF
390.8354 ACRE TRACT
℄ PI STA. 1+00.00 QUAKING LEAF
= ℄ PI STA 9+11.18 JACARANDA LANE
4' SIDEWALK
PROPERTY LINE
BLOCK 55
DRAIN '5-A'
SEE SHEET C13
901
OPEN SPACE
BLOCK 55
JACARANDA LANE
SEE SHEET C3
RT CURB RET
STA. 1+39.53
2

ELEVATIONS:

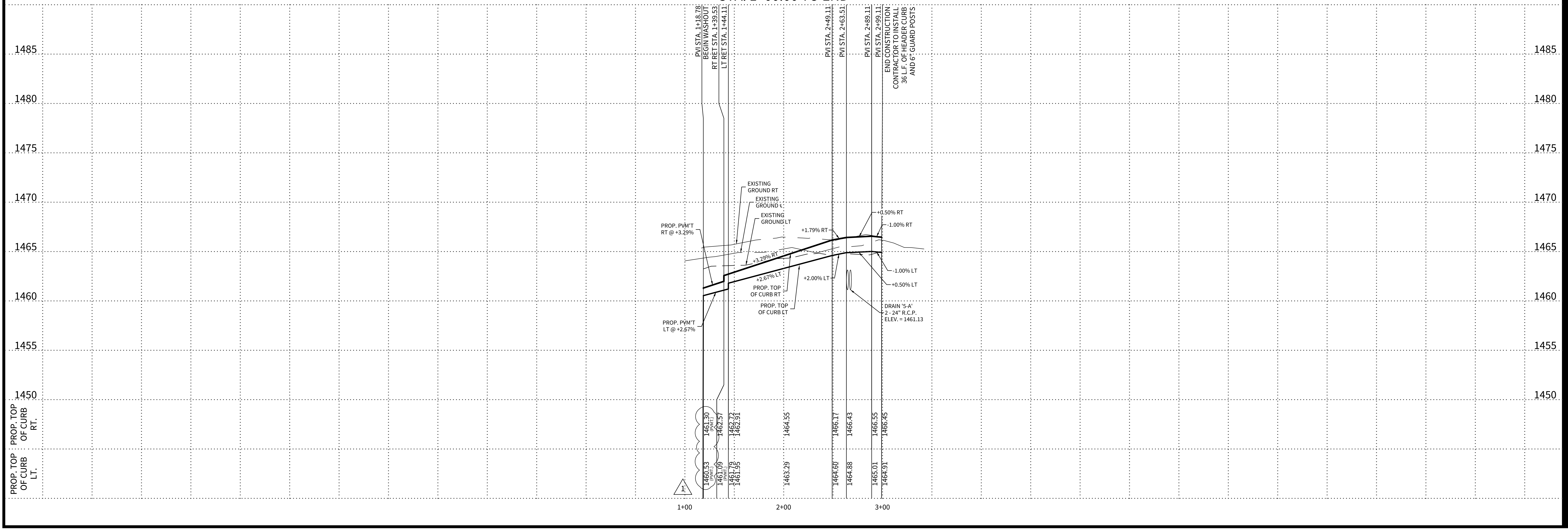
XXXX.XX	PROPOSED TOP OF CONCRETE CURB ELEVATION
XXXX.XX	PROPOSED ASPHALT PAVEMENT ELEVATION
▨	TEMPORARY TURNAROUND PAVEMENT
■	PROPOSED 4' SIDEWALK - TO BE CONSTRUCTED WITH INFRASTRUCTURE
▭	DRIVEWAY TO BE BUILT WITH HOMEBUILDING
□	STREET WASHOUT
┣	ADA SIDEWALK CURB RAMP - SEE DETAIL SHEET C11

ALL ADA RAMPS TO BE BUILT WITH INFRASTRUCTURE

QUAKING LEAF

STA. 1+00.00 TO END

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


1485
1480
1475
1470
1465
1460
1455
1450
PVI STA. 1+18.78
BEGIN WASHOUT
RT RET STA. 1+39.53
LT RET STA. 1+44.11
PVI STA. 2+49.11
PVI STA. 2+63.51
PVI STA. 2+89.11
PVI STA. 2+99.11
END CONSTRUCTION
CONTRACTOR TO INSTALL
36 L.F. OF HEADER CURB
AND 6" GUARD POSTS
EXISTING
GROUND RT
EXISTING
GROUND ℄
EXISTING
GROUND LT
PROP. PVM'T
RT @ +3.29%
+3.29% RT
+1.79% RT
+0.50% RT
-1.00% RT
+2.67% LT
+2.00% LT
-1.00% LT
+0.50% LT
PROP. TOP
OF CURB RT
PROP. TOP
OF CURB LT
PROP. PVM'T
LT @ +2.67%
DRAIN '5-A'
2 - 24" R.C.P.
ELEV. = 1461.13
PROP. TOP OF CURB RT.
1461.30 (PVMT.)
1462.57
1462.72
1462.91
1464.55
1466.17
1466.43
1466.55
1466.45
PROP. TOP OF CURB LT.
1460.53 (PVMT.)
1461.09 (PVMT.)
1461.79
1461.95
1463.29
1464.60
1464.88
1465.01
1464.91
1
1+00
2+00
3+00

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**CORLEY FARMS
UNIT 5**

STREET PLAN & PROFILE - QUAKING LEAF

DATE	01/28/2025
PROJECT NO.	03481.012
DRAWN BY	C3
CHECKED BY	XV/AL

#	DATE	REVISIONS
1.	11/7/24	PERMITTING COMMENTS
2.		
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ANDREW R. LOWRY
123410
02/10/2025

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

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22-1190

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P:\03481\012\2-Drawings\C8.06 STREET PLAN & PROFILE - TROTTING HORSE.dwg 2025/01/28 12:10pm mlopez

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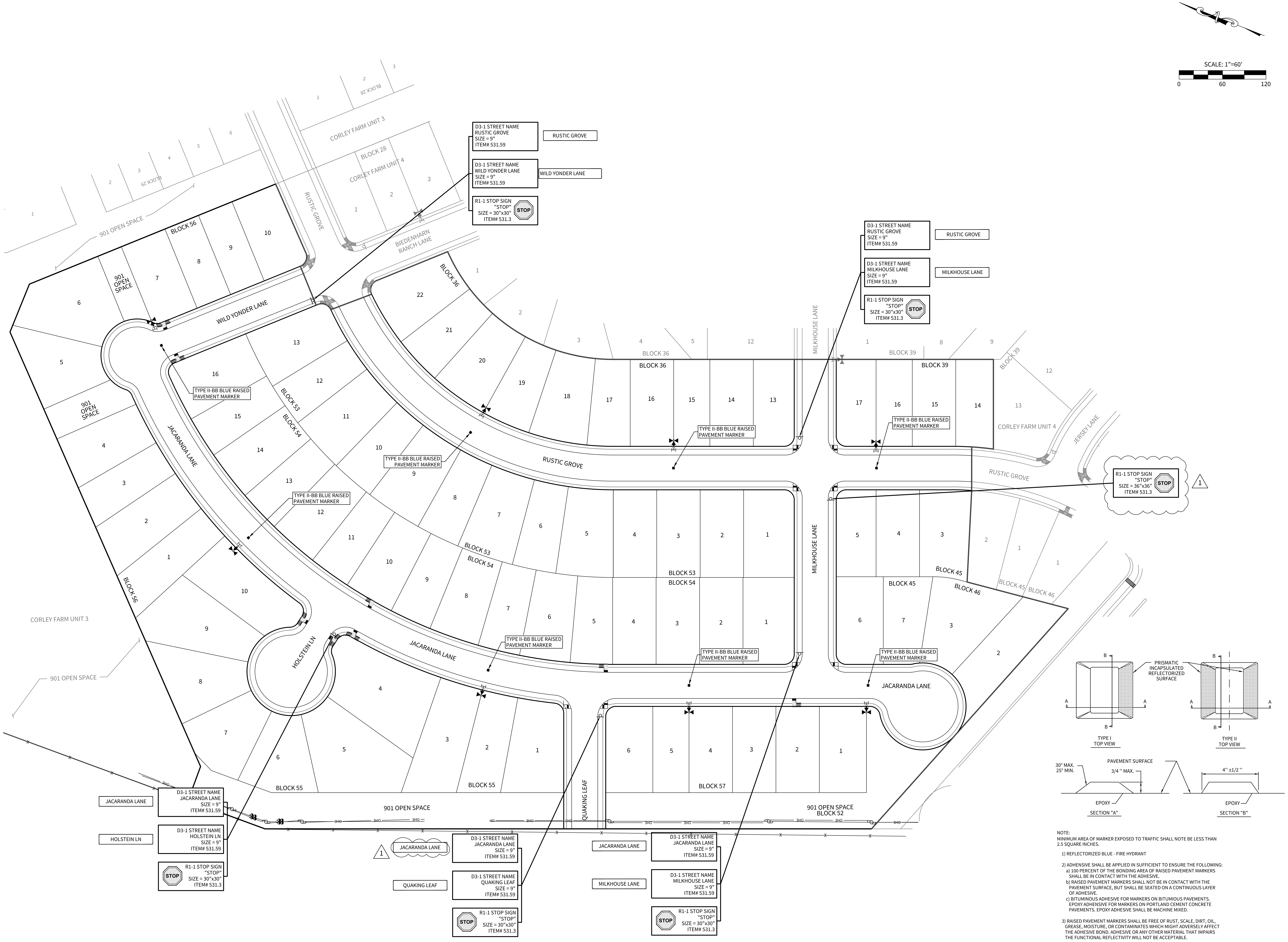
SCALE: 1"=60'
0
60
120
D3-1 STREET NAME
RUSTIC GROVE
SIZE = 9"
ITEM# 531.59
RUSTIC GROVE
D3-1 STREET NAME
WILD YONDER LANE
SIZE = 9"
ITEM# 531.59
WILD YONDER LANE
R1-1 STOP SIGN
"STOP"
SIZE = 30"x30"
ITEM# 531.3
STOP
D3-1 STREET NAME
MILKHOUSE LANE
SIZE = 9"
ITEM# 531.59
MILKHOUSE LANE
R1-1 STOP SIGN
"STOP"
SIZE = 36"x36"
ITEM# 531.3
1
TYPE II-BB BLUE RAISED
PAVEMENT MARKER
CORLEY FARM UNIT 3
CORLEY FARM UNIT 4
BLOCK 28
BLOCK 29
BLOCK 36
BLOCK 39
BLOCK 45
BLOCK 46
BLOCK 52
BLOCK 53
BLOCK 54
BLOCK 55
BLOCK 56
BLOCK 57
901 OPEN SPACE
901 OPEN SPACE BLOCK 52
RUSTIC GROVE
BIEDENHARN RANCH LANE
WILD YONDER LANE
JACARANDA LANE
HOLSTEIN LN
QUAKING LEAF
MILKHOUSE LANE
JERSEY LANE
D3-1 STREET NAME
JACARANDA LANE
SIZE = 9"
ITEM# 531.59
JACARANDA LANE
D3-1 STREET NAME
HOLSTEIN LN
SIZE = 9"
ITEM# 531.59
HOLSTEIN LN
D3-1 STREET NAME
QUAKING LEAF
SIZE = 9"
ITEM# 531.59
QUAKING LEAF
TYPE I
TOP VIEW
TYPE II
TOP VIEW
PRISMATIC INCAPSULATED REFLECTORIZED SURFACE
PAVEMENT SURFACE
30" MAX.
25" MIN.
3/4 " MAX.
4" ±1/2 "
EPOXY
SECTION "A"
SECTION "B"

NOTE:
MINIMUM AREA OF MARKER EXPOSED TO TRAFFIC SHALL NOTE BE LESS THAN 2.5 SQUARE INCHES.

1) REFLECTORIZED BLUE - FIRE HYDRANT

2) ADHENSIVE SHALL BE APPLIED IN SUFFICIENT TO ENSURE THE FOLLOWING:
   a) 100 PERCENT OF THE BONDING AREA OF RAISED PAVEMENT MARKERS SHALL BE IN CONTACT WITH THE ADHESIVE.
   b) RAISED PAVEMENT MARKERS SHALL NOT BE IN CONTACT WITH THE PAVEMENT SURFACE, BUT SHALL BE SEATED ON A CONTINUOUS LAYER OF ADHESIVE.
   c) BITUMINOUS ADHESIVE FOR MARKERS ON BITUMIOUS PAVEMENTS. EPOXY ADHENSIVE FOR MARKERS ON PORTLAND CEMENT CONCRETE PAVEMENTS. EPOXY ADHESIVE SHALL BE MACHINE MIXED.

3) RAISED PAVEMENT MARKERS SHALL BE FREE OF RUST, SCALE, DIRT, OIL, GREASE, MOISTURE, OR CONTAMINATES WHICH MIGHT ADVERSELY AFFECT THE ADHESIVE BOND. ADHESIVE OR ANY OTHER MATERIAL THAT IMPAIRS THE FUNCTIONAL REFLECTIVITY WILL NOT BE ACCEPTABLE.

4) PLACEMENT OF RAISED PAVEMENT MARKERS SHALL BE 4 FEET OFF STREET CENTELINE TOWARD ITEM MARKED.

PAVEMENT REFLECTORS DETAIL

N.T.S.

CUDEENGINEERS.COM

4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
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CORLEY FARMS
UNIT 5

TRAFFIC SIGNAGE PLAN

DATE
01/28/2025

PROJECT NO.
03481.012

DRAWN BY
C3

CHECKED BY
XV/AL

#	DATE	REVISIONS
1.	11/7/24	PERMITTING COMMENTS
2.		
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ANDREW R. LOWRY
123410
02/10/2025

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

SAWS JOB NO.
22-1190

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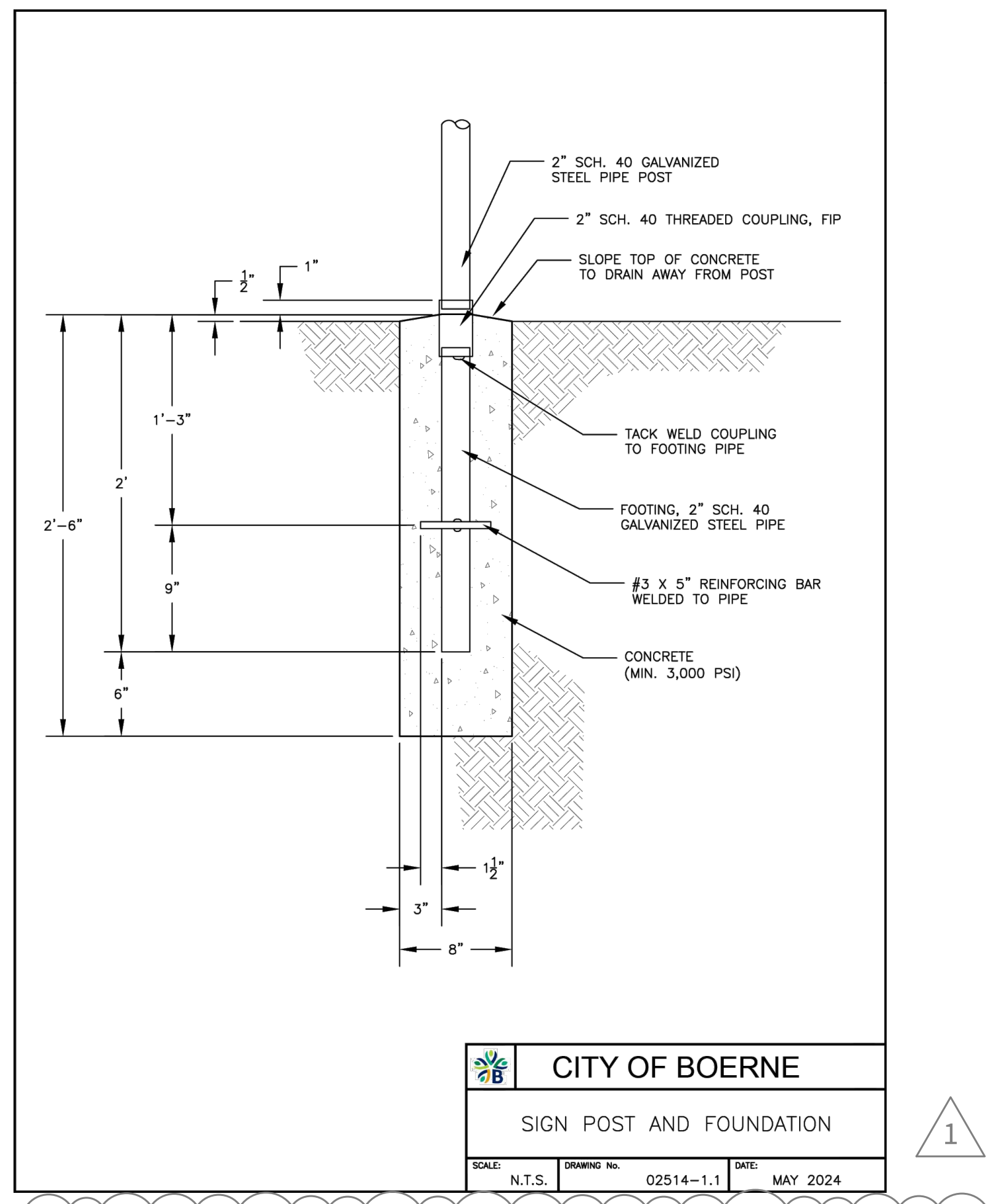
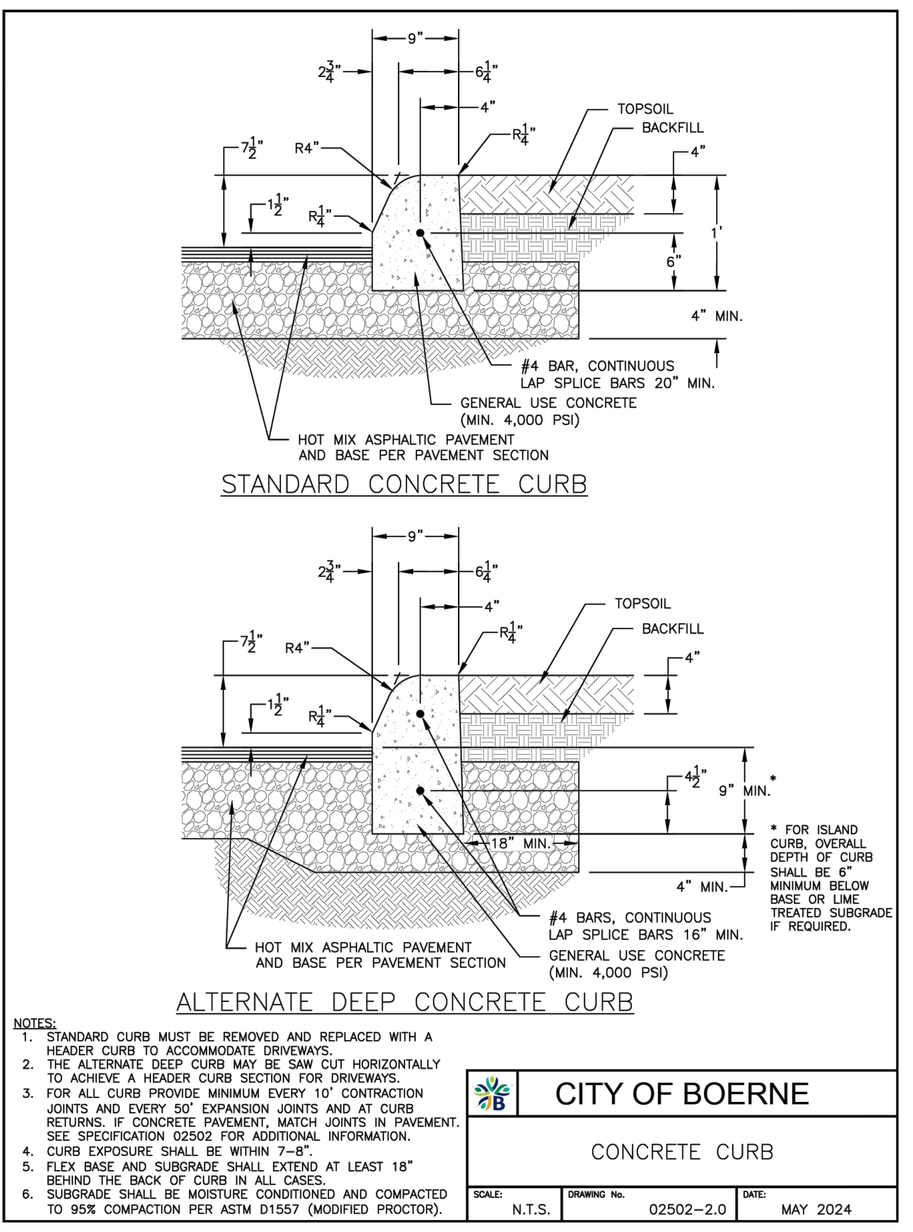
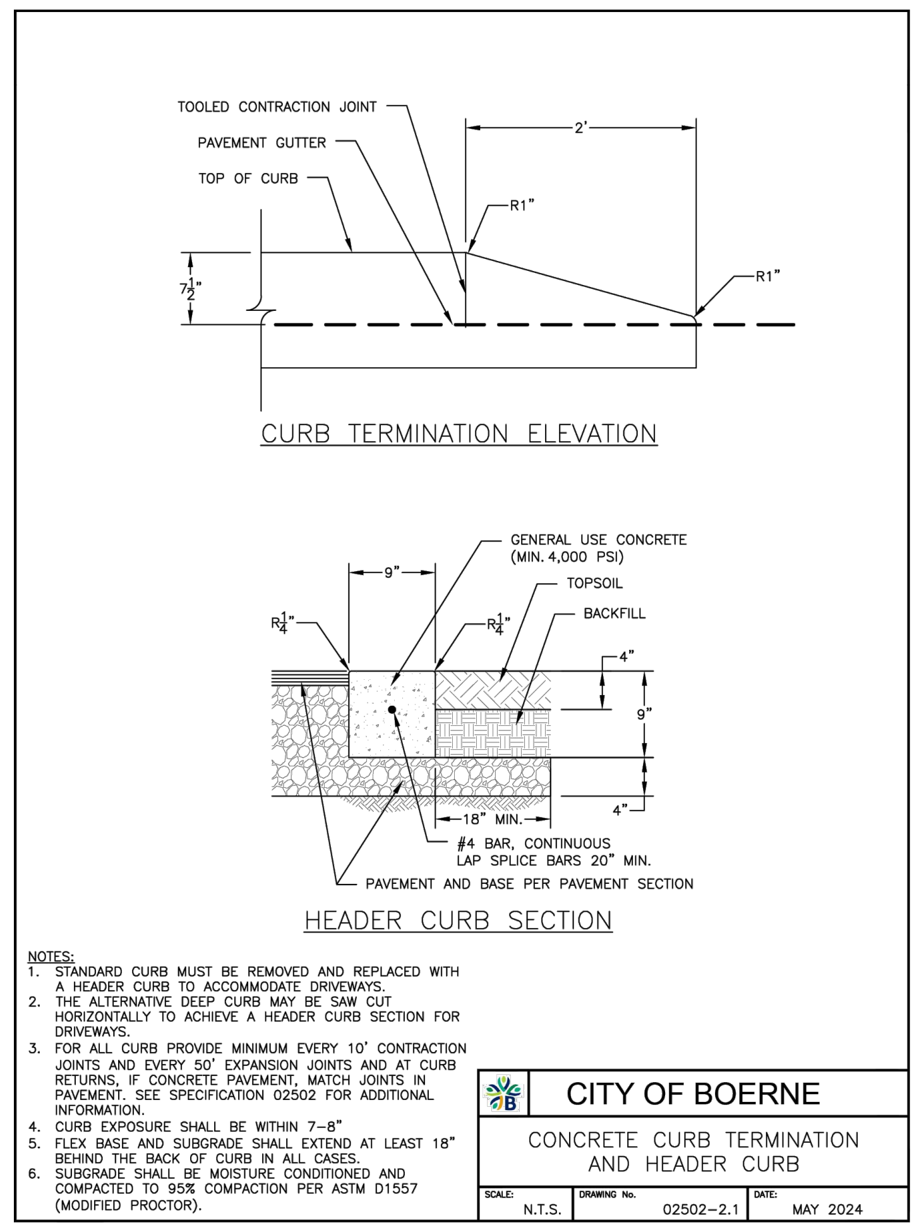
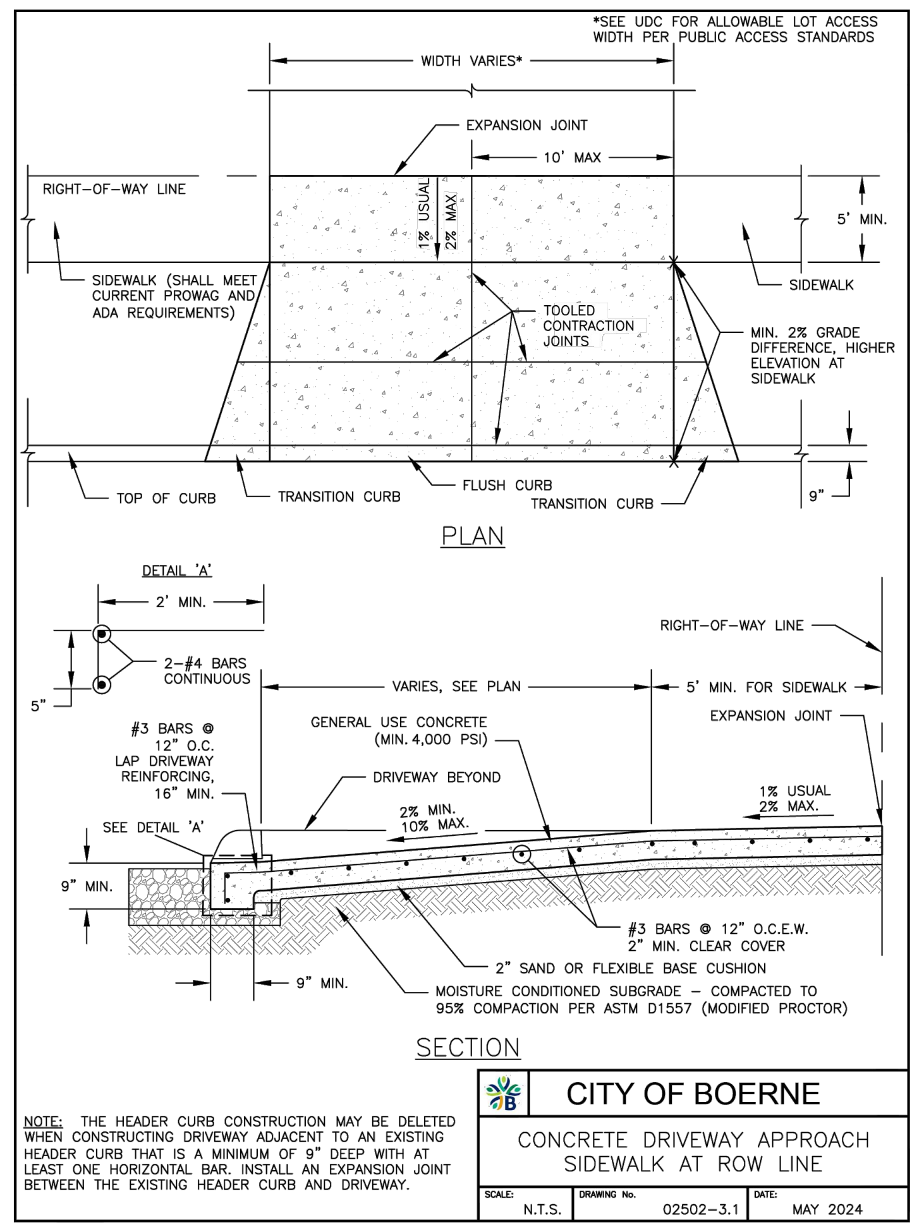
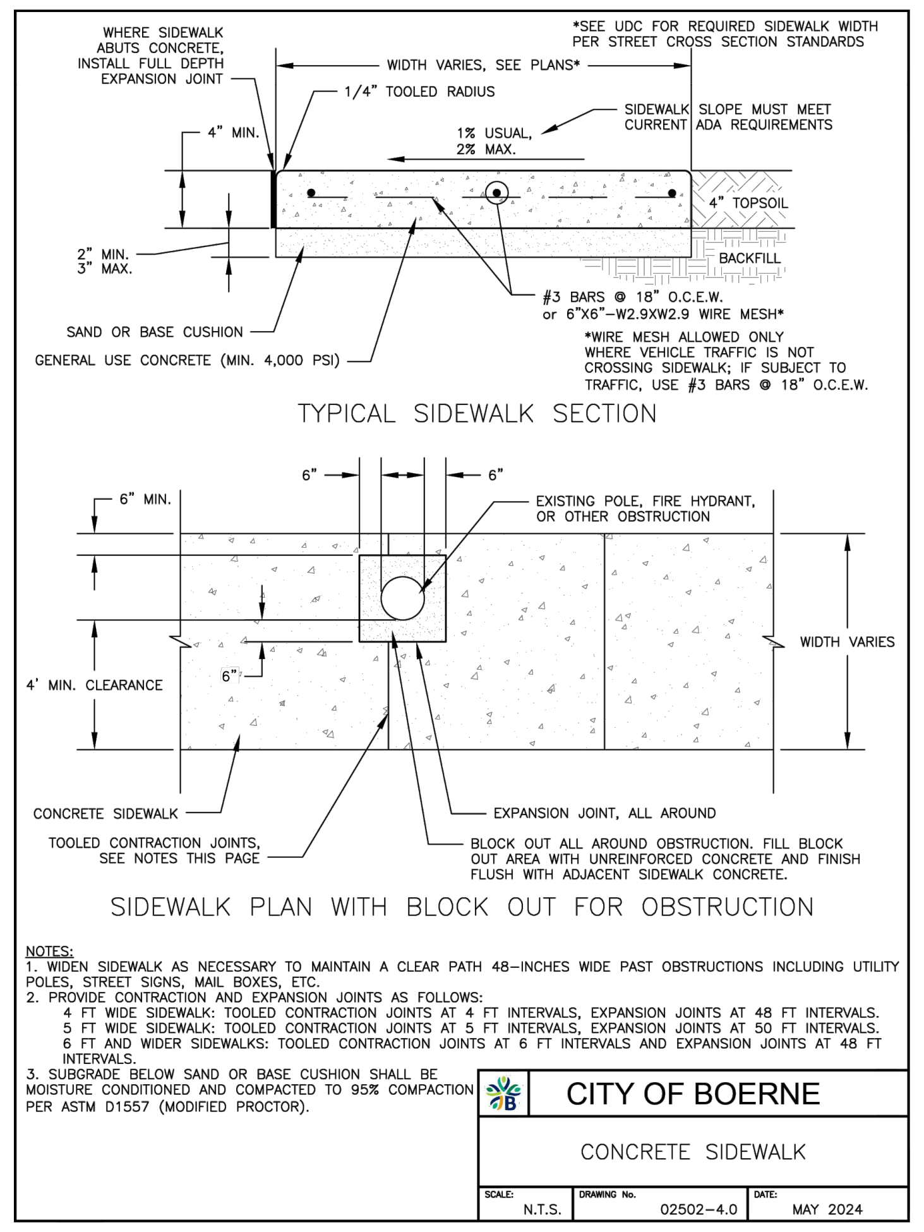
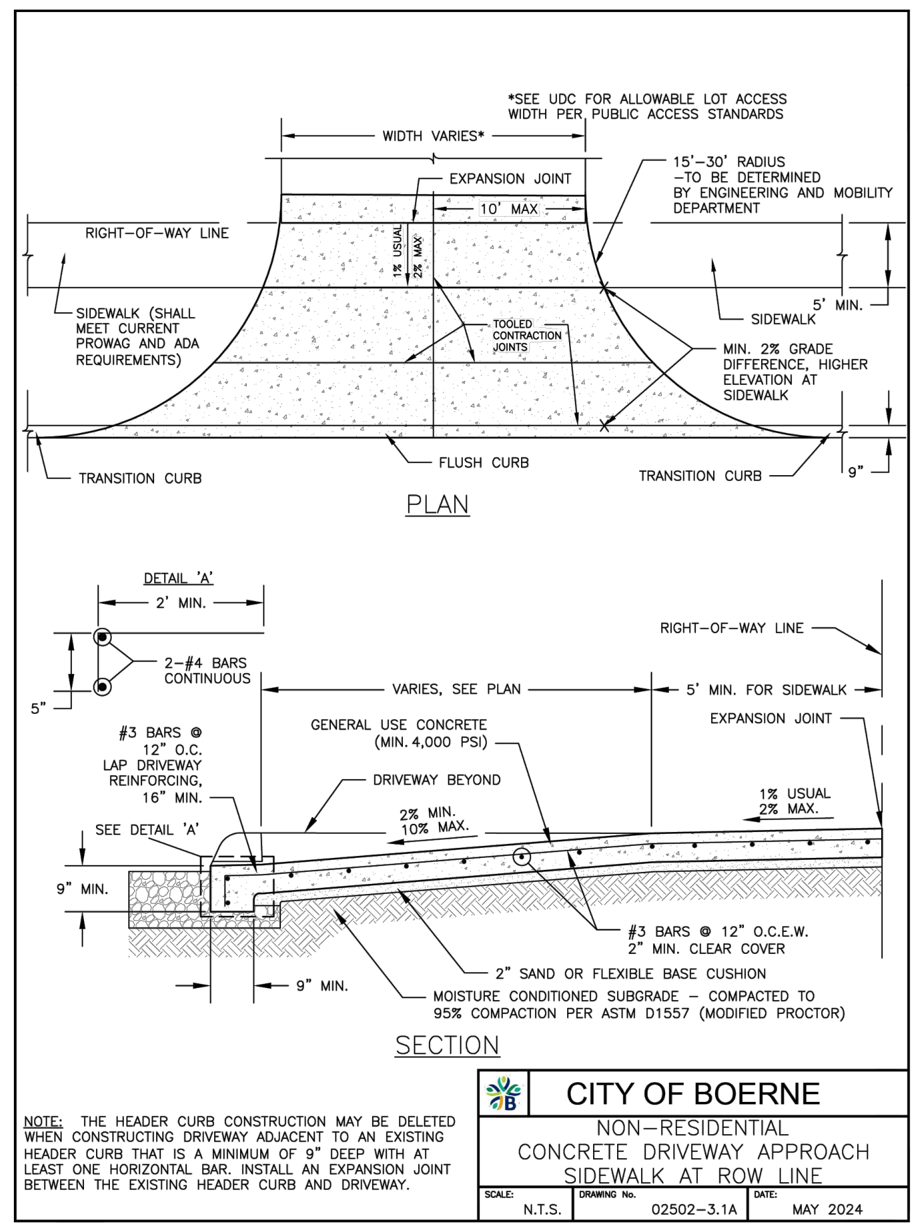

2" SCH. 40 GALVANIZED STEEL PIPE POST
2" SCH. 40 THREADED COUPLING, FIP
SLOPE TOP OF CONCRETE TO DRAIN AWAY FROM POST
TACK WELD COUPLING TO FOOTING PIPE
FOOTING, 2" SCH. 40 GALVANIZED STEEL PIPE
#3 X 5" REINFORCING BAR WELDED TO PIPE
CONCRETE (MIN. 3,000 PSI)
CITY OF BOERNE
SIGN POST AND FOUNDATION
N.T.S.
02514-1.1
MAY 2024

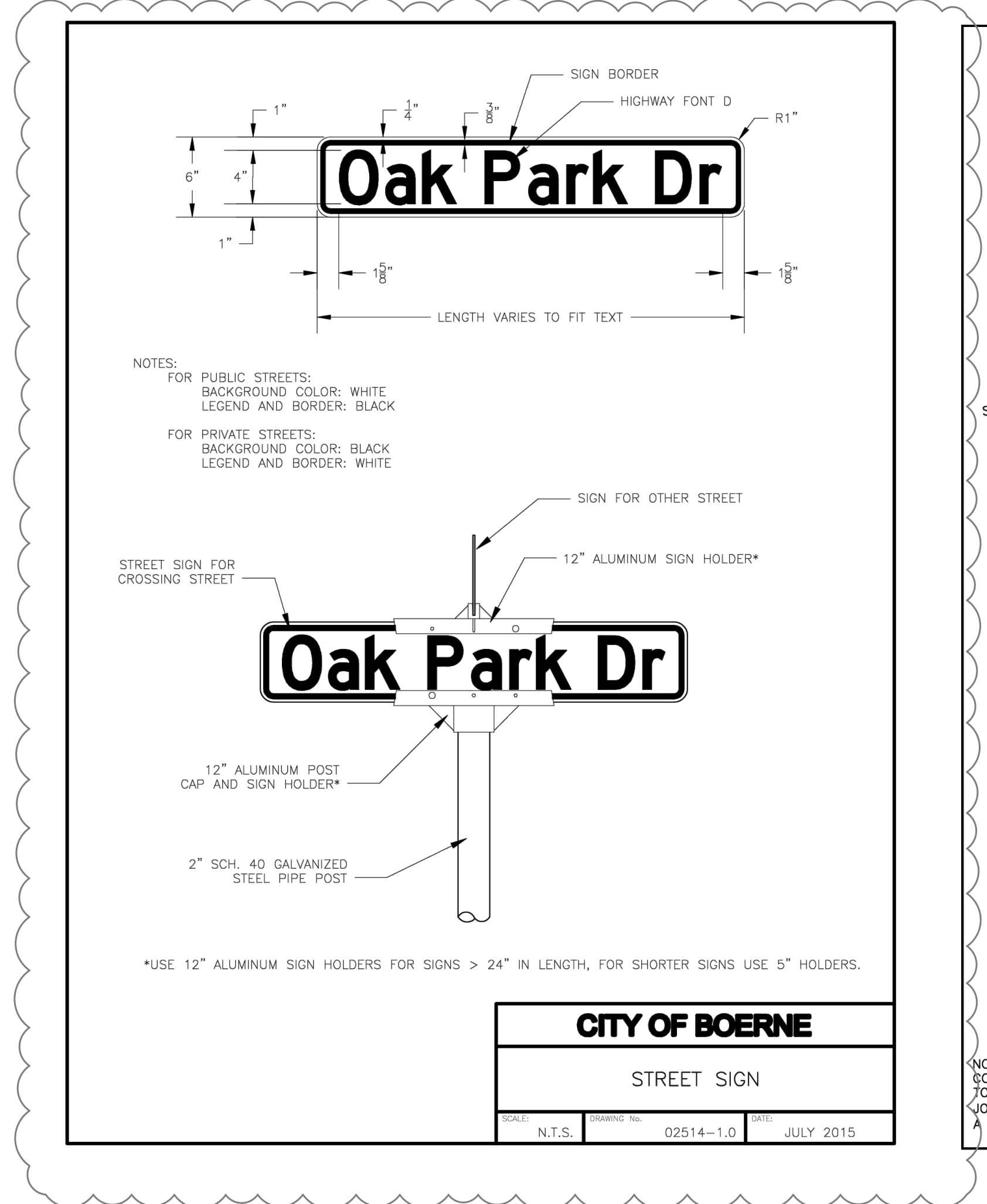

STANDARD CONCRETE CURB
ALTERNATE DEEP CONCRETE CURB
CITY OF BOERNE
CONCRETE CURB
N.T.S.
02502-2.0
MAY 2024

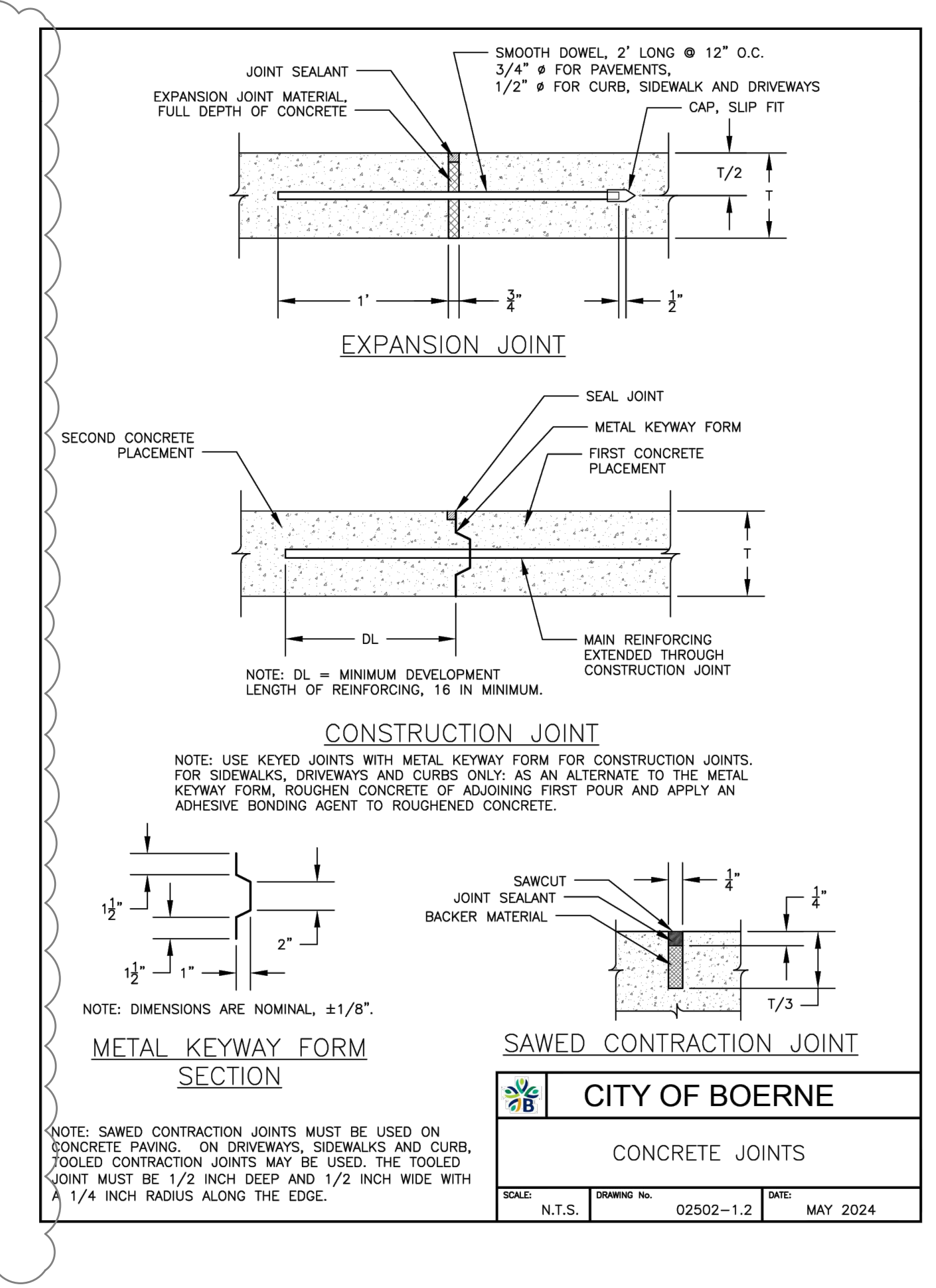

CURB TERMINATION ELEVATION
HEADER CURB SECTION
CITY OF BOERNE
CONCRETE CURB TERMINATION AND HEADER CURB
N.T.S.
02502-2.1
MAY 2024

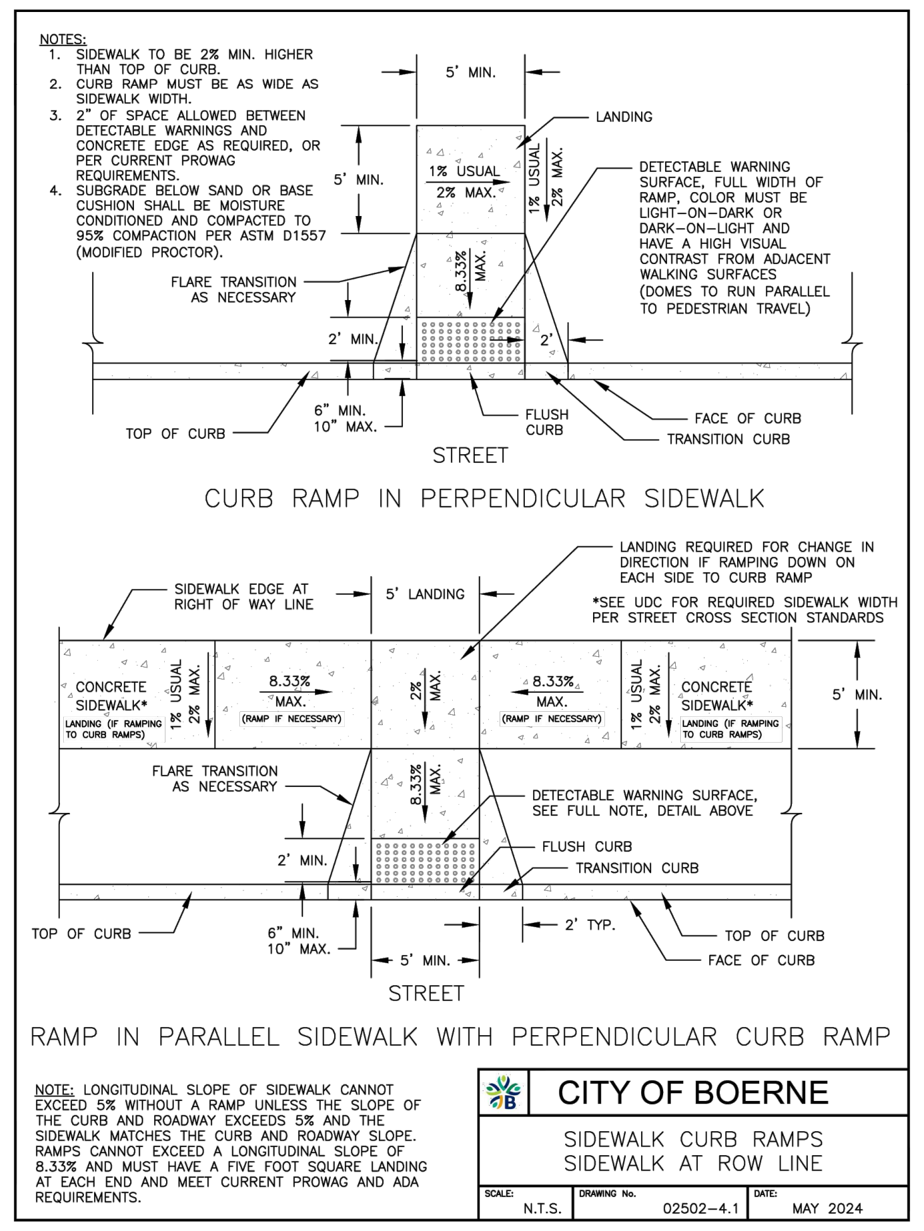

PLAN
SECTION
CITY OF BOERNE
CONCRETE DRIVEWAY APPROACH SIDEWALK AT ROW LINE
N.T.S.
02502-3.1
MAY 2024

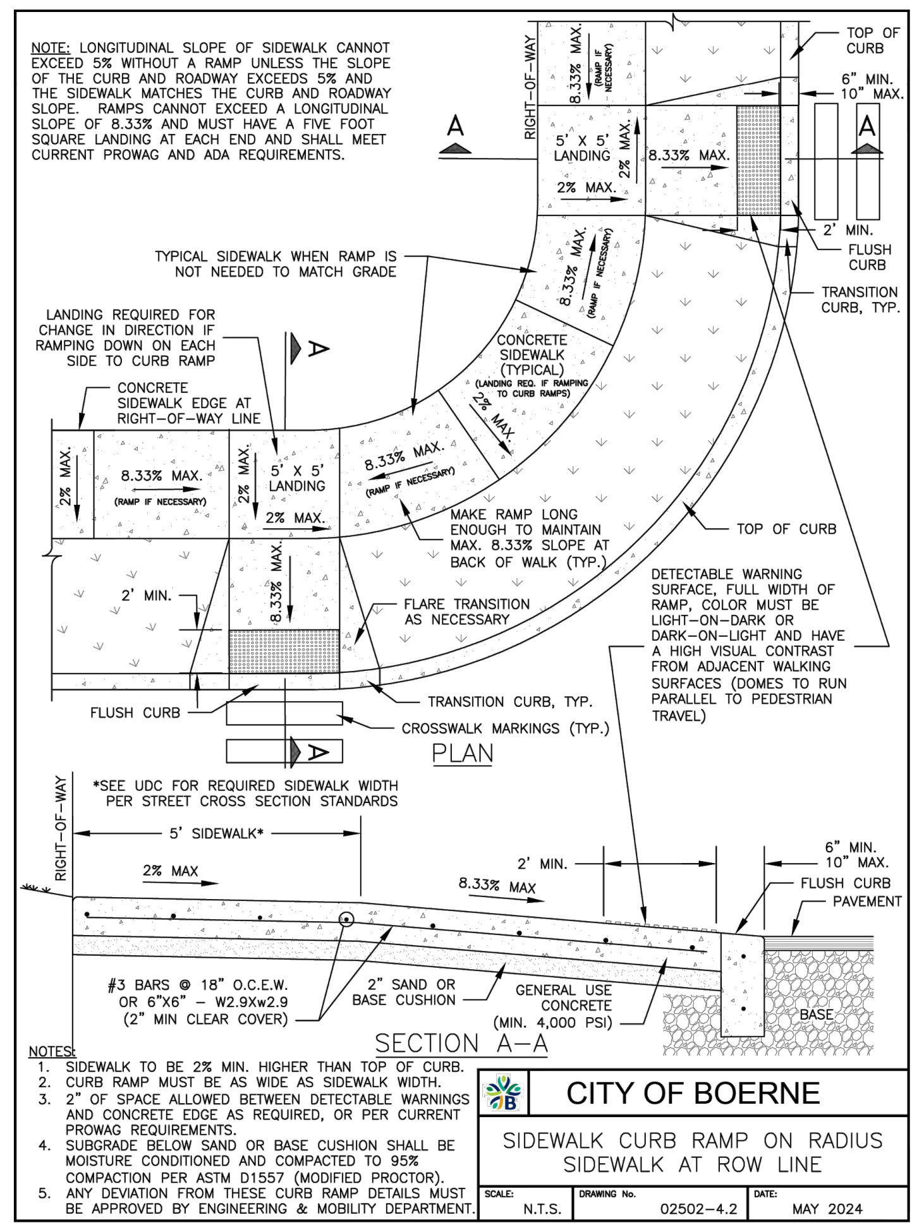

TYPICAL SIDEWALK SECTION
SIDEWALK PLAN WITH BLOCK OUT FOR OBSTRUCTION
CITY OF BOERNE
CONCRETE SIDEWALK
N.T.S.
02502-4.0
MAY 2024

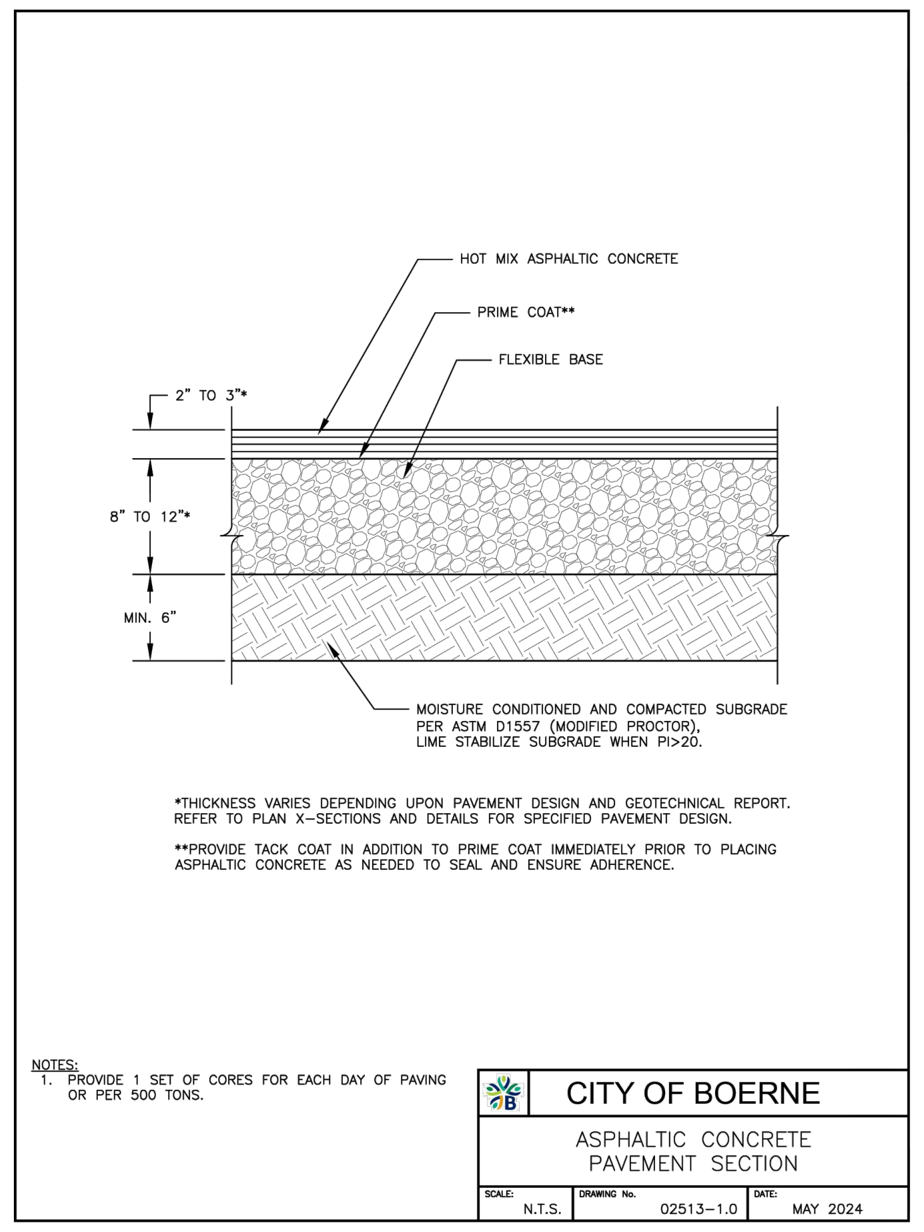

PLAN
SECTION
CITY OF BOERNE
NON-RESIDENTIAL CONCRETE DRIVEWAY APPROACH SIDEWALK AT ROW LINE
N.T.S.
02502-3.1A
MAY 2024

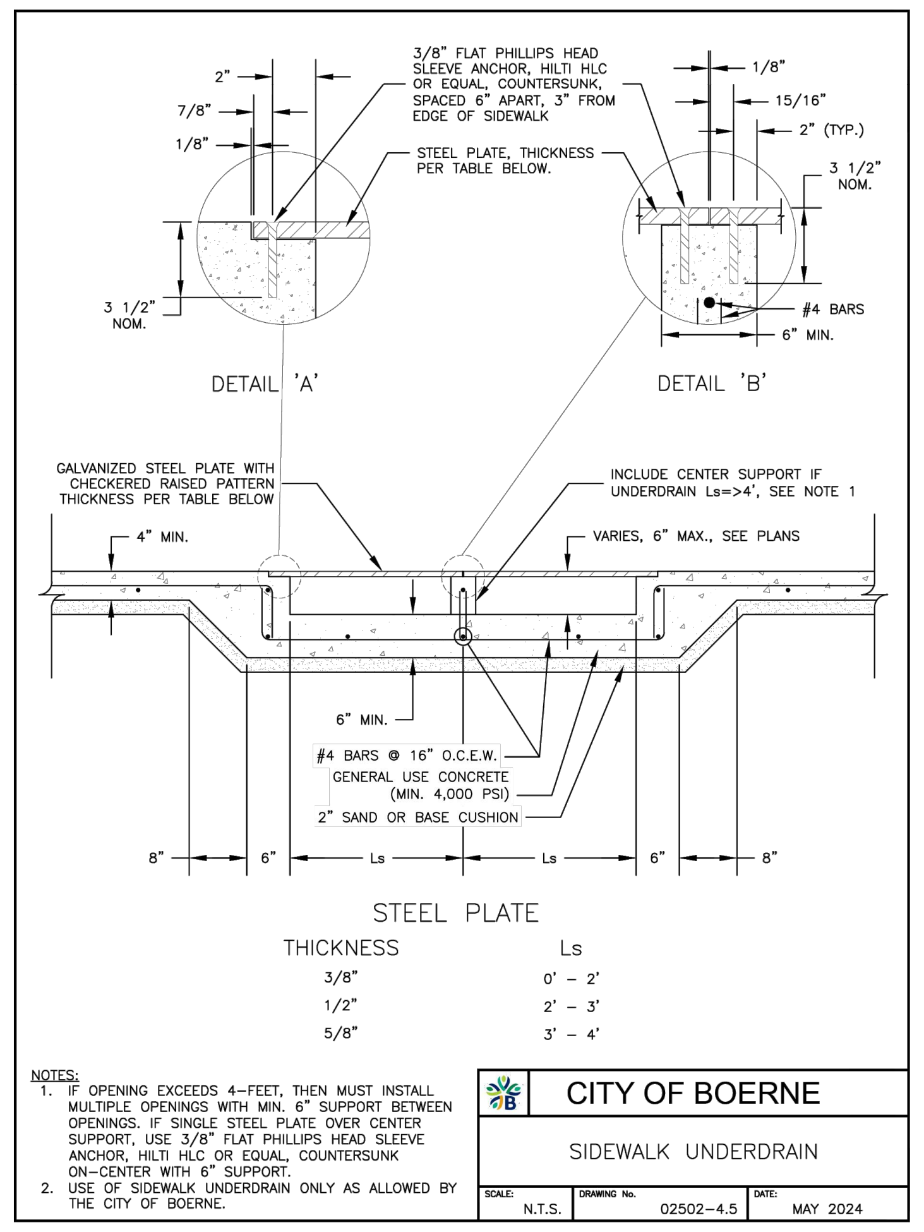

Oak Park Dr
Oak Park Dr
CITY OF BOERNE
STREET SIGN
N.T.S.
02514-1.0
JULY 2015

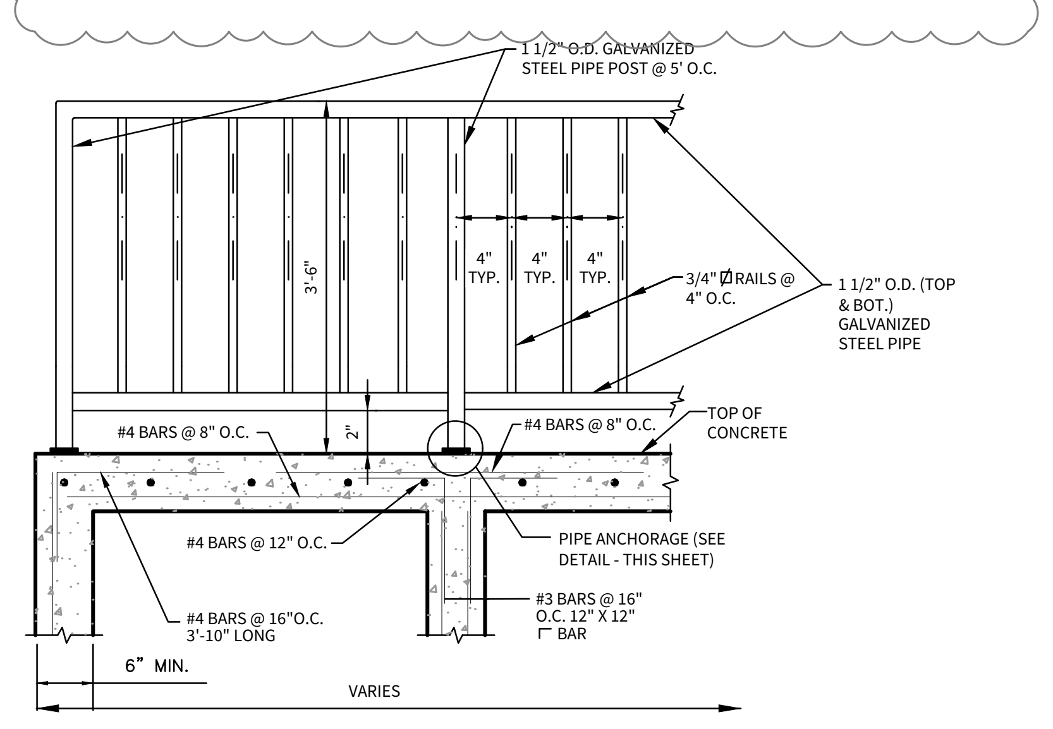

EXPANSION JOINT
CONSTRUCTION JOINT
METAL KEYWAY FORM SECTION
SAWED CONTRACTION JOINT
CITY OF BOERNE
CONCRETE JOINTS
N.T.S.
02502-1.2
MAY 2024


CURB RAMP IN PERPENDICULAR SIDEWALK
RAMP IN PARALLEL SIDEWALK WITH PERPENDICULAR CURB RAMP
CITY OF BOERNE
SIDEWALK CURB RAMPS SIDEWALK AT ROW LINE
N.T.S.
02502-4.1
MAY 2024


PLAN
SECTION A-A
CITY OF BOERNE
SIDEWALK CURB RAMP ON RADIUS SIDEWALK AT ROW LINE
N.T.S.
02502-4.2
MAY 2024

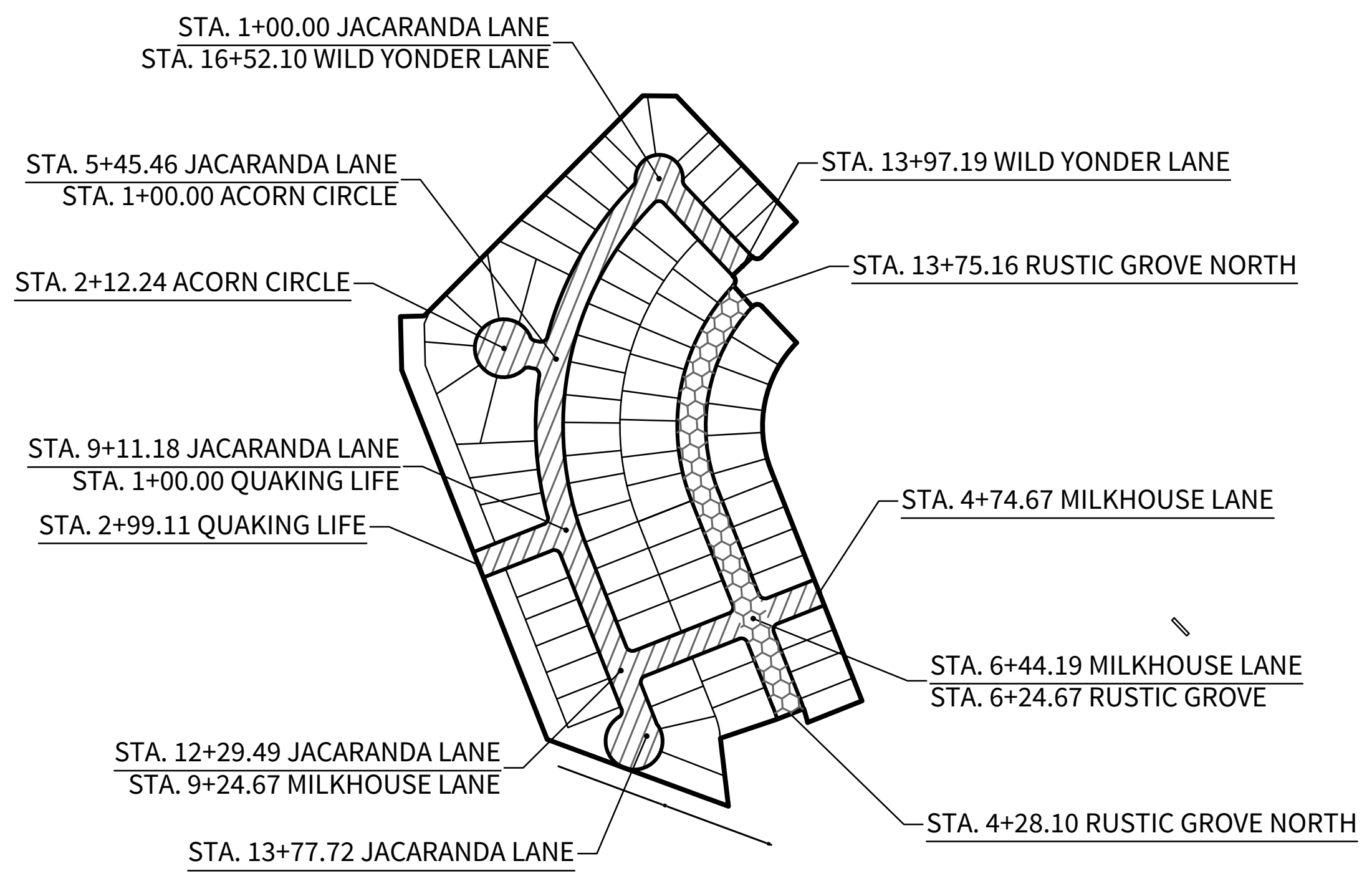

HOT MIX ASPHALTIC CONCRETE
PRIME COAT**
FLEXIBLE BASE
CITY OF BOERNE
ASPHALTIC CONCRETE PAVEMENT SECTION
N.T.S.
02513-1.0
MAY 2024

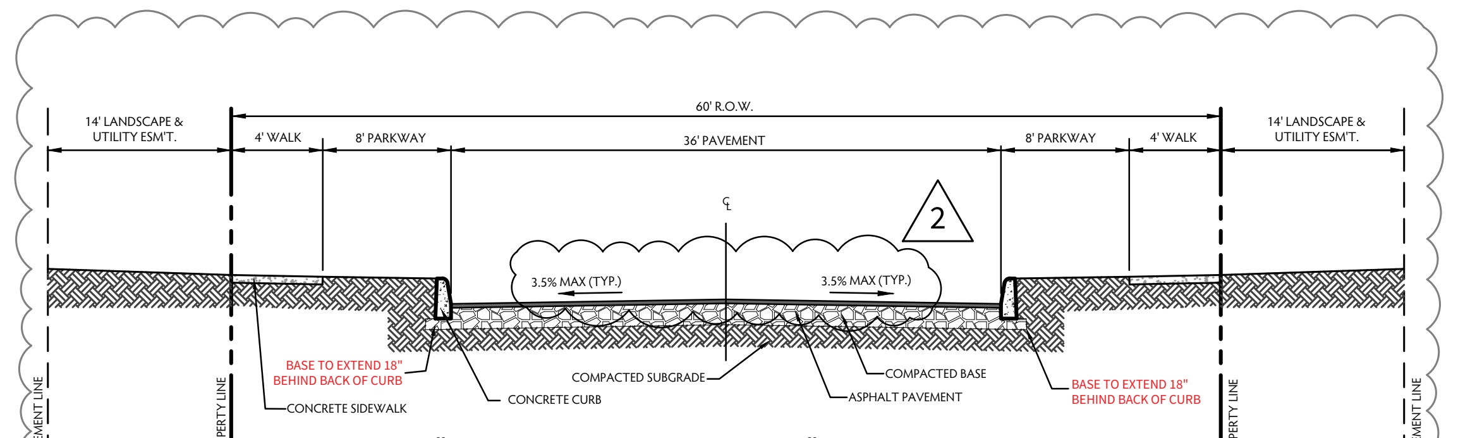

DETAIL 'A'
DETAIL 'B'
STEEL PLATE
CITY OF BOERNE
SIDEWALK UNDERDRAIN
N.T.S.
02502-4.5
MAY 2024


1 1/2" O.D. GALVANIZED STEEL PIPE POST @ 5' O.C.
3/4" Ø RAILS @ 4" O.C.
1 1/2" O.D. (TOP & BOT.) GALVANIZED STEEL PIPE
TOP OF CONCRETE
#4 BARS @ 8" O.C.
#4 BARS @ 12" O.C.
PIPE ANCHORAGE (SEE DETAIL - THIS SHEET)
#3 BARS @ 16" O.C. 12" X 12" 7" BAR
#4 BARS @ 16" O.C. 3'-10" LONG
6" MIN.
VARIES

TYPICAL SIDEWALK BRIDGE SECTION AND SIDEWALK PIPE RAILING

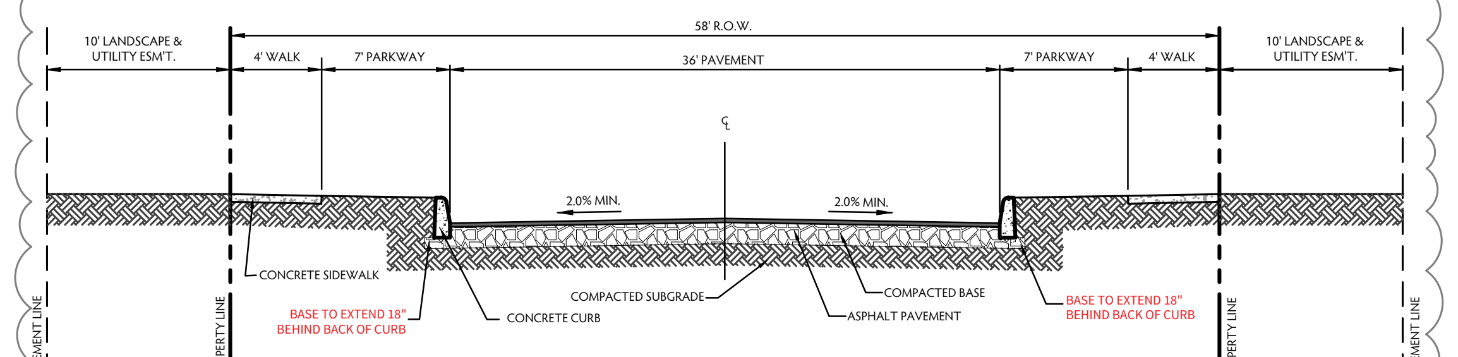
N.T.S.


STA. 1+00.00 JACARANDA LANE
STA. 16+52.10 WILD YONDER LANE
STA. 5+45.46 JACARANDA LANE
STA. 1+00.00 ACORN CIRCLE
STA. 2+12.24 ACORN CIRCLE
STA. 9+11.18 JACARANDA LANE
STA. 1+00.00 QUAKING LIFE
STA. 2+99.11 QUAKING LIFE
STA. 12+29.49 JACARANDA LANE
STA. 9+24.67 MILKHOUSE LANE
STA. 13+77.72 JACARANDA LANE
STA. 13+97.19 WILD YONDER LANE
STA. 13+75.16 RUSTIC GROVE NORTH
STA. 4+74.67 MILKHOUSE LANE
STA. 6+44.19 MILKHOUSE LANE
STA. 6+24.67 RUSTIC GROVE
STA. 4+28.10 RUSTIC GROVE NORTH


60' R.O.W.
14' LANDSCAPE & UTILITY ESMT.
4' WALK
8' PARKWAY
36' PAVEMENT
3.5% MAX (TYP.)
COMPACTED SUBGRADE
COMPACTED BASE
ASPHALT PAVEMENT
CONCRETE CURB
BASE TO EXTEND 18" BEHIND BACK OF CURB
PROPERTY LINE
EASEMENT LINE

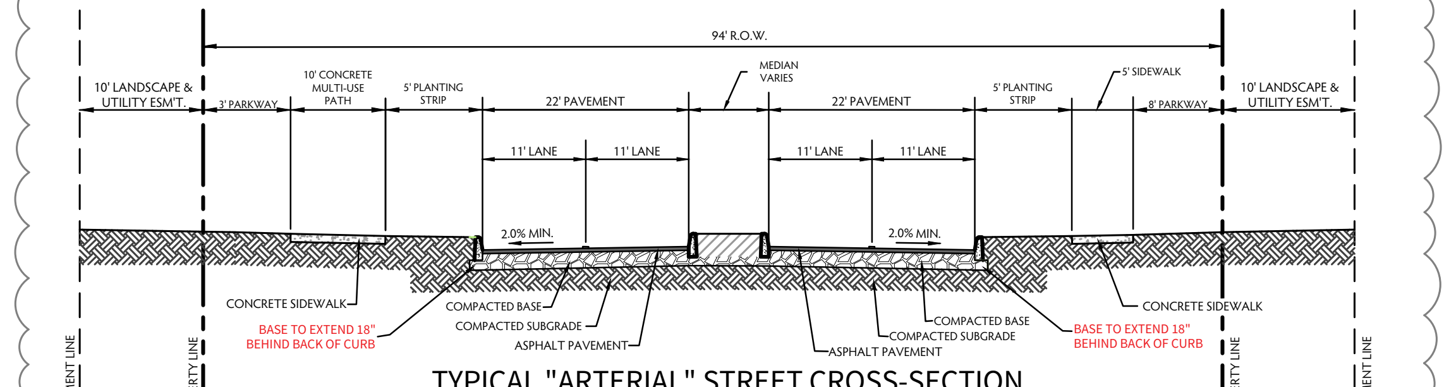
TYPICAL "NEIGHBORHOOD COLLECTOR" STREET CROSS-SECTION

N.T.S.


58' R.O.W.
10' LANDSCAPE & UTILITY ESMT.
4' WALK
7' PARKWAY
36' PAVEMENT
2.0% MIN.
CONCRETE SIDEWALK
COMPACTED SUBGRADE
COMPACTED BASE
ASPHALT PAVEMENT
CONCRETE CURB
BASE TO EXTEND 18" BEHIND BACK OF CURB
PROPERTY LINE
EASEMENT LINE

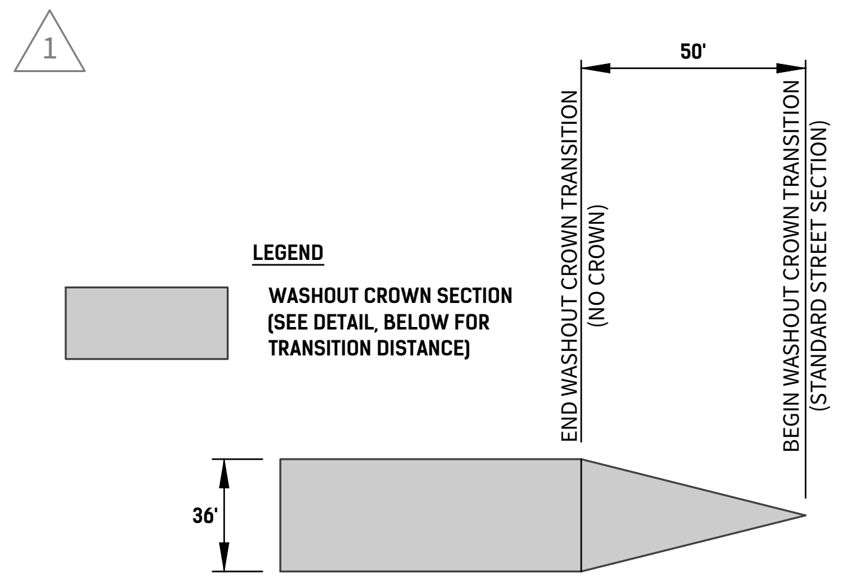
TYPICAL "RESIDENTIAL LOCAL" STREET CROSS-SECTION

N.T.S.


94' R.O.W.
10' LANDSCAPE & UTILITY ESMT.
MEDIAN VARIES
22' PAVEMENT
11' LANE
2.0% MIN.
CONCRETE SIDEWALK
COMPACTED SUBGRADE
COMPACTED BASE
ASPHALT PAVEMENT
BASE TO EXTEND 18" BEHIND BACK OF CURB
PROPERTY LINE
EASEMENT LINE

TYPICAL "ARTERIAL" STREET CROSS-SECTION

N.T.S.


50'
LEGEND
WASHOUT CROWN SECTION (SEE DETAIL, BELOW FOR TRANSITION DISTANCE)
END WASHOUT CROWN TRANSITION (NO CROWN)
BEGIN WASHOUT CROWN TRANSITION (STANDARD STREET SECTION)
36'

WASHOUT CROWN TRANSITION DETAIL

NOTES:

1. PAVEMENT DESIGN THICKNESS BASED ON GEOTECHNICAL REPORT. SEE TABLE FOR STRUCTURAL NUMBER CALCULATION. REFERENCE PROJECT GEOTECHNICAL REPORT AND PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS AND ALTERNATE PAVEMENT SECTIONS.
2. ANY AREAS OF CLAY ENCOUNTERED DURING CONSTRUCTION SHALL BE REMOVED DOWN TO THE WEATHERED/FRIABLE MARLSTONE/LIMESTONE AND PROPERLY BACKFILLED WITH MARLSTONE/LIMESTONE MILLINGS HAVING A CBR VALUE DETERMINED BY THE GEOTECHNICAL ENGINEER.
3. A GEOTECHNICAL ENGINEERING REPRESENTATIVE SHALL BE RETAINED TO: (1) OBSERVE THE SITE PREPARATION AND SUBGRADE OPERATIONS. (2) EVALUATE THE ACTUAL SUBGRADE MATERIAL CLASSIFICATION; AND (3) VERIFY THAT RECOMMENDATIONS ARE FOLLOWED. THE ACTUAL SUBGRADE CONDITION AT A PARTICULAR LOCATION WILL NEED TO BE EVALUATED DURING CONSTRUCTION ONCE THE SUBGRADE IS CUT/FILLED TO THE PROPER GRADE.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING MATERIAL TESTING. TESTING TO BE PAID BY OWNER.
5. CONTRACTOR MAY LEAVE VERTICAL CUT BANKS AT R.O.W. LINE AND MEDIANS PROVIDED PROJECT GEOTECHNICAL ENGINEER DETERMINES ROCK IS COMPETENT TO STAND ON ITS OWN.
6. IF ALTERNATE PAVEMENT SECTION CHOSEN, CITY OF BOERNE SHALL BE PROVIDED WITH REVISED CONSTRUCTION PLANS INDICATING SELECTED PAVEMENT DESIGN PRIOR TO CONSTRUCTION.
7. PAVEMENT SECTIONS ARE SUBJECT TO CHANGE DUE TO RETESTING OF SOIL AFTER STREET EXCAVATION HAS BEEN DONE TO TOP OF CURB.
8. CONTRACTOR SHALL CONTACT ENGINEER 48 HRS IN ADVANCE FOR FIELD OBSERVATION DURING STREET CONSTRUCTION. CONTRACTOR WILL BE REQUIRED TO CONTACT ENGINEER FOR INSPECTION OF THE SUBGRADE, BASE, ASPHALT, AND CURB.
9. GENERAL FILL MATERIALS SHOULD CONSIST OF ONSITE SOILS OR CLEAN IMPORTED FILL SOILS WITH EQUAL OR BETTER CBR CHARACTERISTICS TO THE ONSITE SOILS. GENERAL FILL MATERIAL SHOULD BE CLEAN AND FREE OF ANY VEGETATION ROOTS, ORGANIC MATERIALS, TRASH OR GARBAGE, CONSTRUCTION DEBRIS, OR OTHER DELETERIOUS MATERIALS AND SHOULD CONTAIN NO LARGER THAT THREE (3) INCHES IN MAXIMUM DIMENSION.

PAVEMENT DESIGN SCHEMATIC

NOTE:

1. REFERENCE GEOTECHNICAL REPORT (InTEC PROJECT NO. S201216-P, DATED SEPTEMBER 23, 2020) FOR BORING INFORMATION AND CBR LOCATIONS.

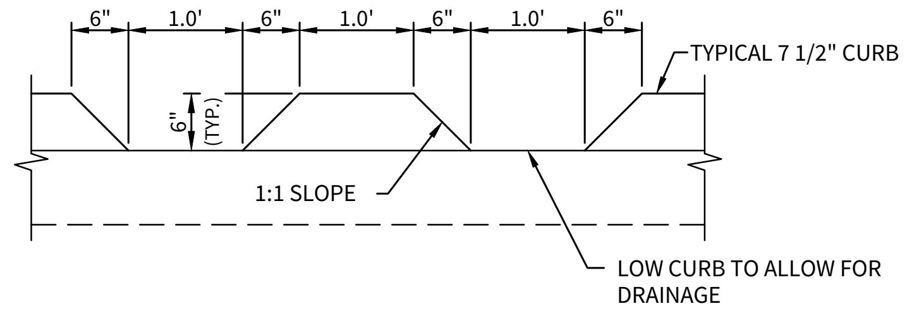
LEGEND:

⬡ TYPICAL "NEIGHBORHOOD COLLECTOR"

RUSTIC GROVE NORTH	STA. 4+28.10 – 13+75.16

▨ TYPICAL "RESIDENTIAL LOCAL"

MILKHOUSE LANE	STA. 4+74.67 – 9+24.67
WILD YONDER LANE	STA. 13+97.19 – 16+52.10
JACARANDA LANE	STA. 1+00.00 – 13+77.72
ACORN CIRCLE	STA. 1+00.00 – 2+12.24
QUAKING LIFE	STA. 1+00.00 – 2+99.11


6"
1.0'
TYPICAL 7 1/2" CURB
6" (TYP.)
1:1 SLOPE
LOW CURB TO ALLOW FOR DRAINAGE

SAWTOOTH CURB DETAIL

(NOT TO SCALE)

STREET PAVEMENT DESIGN OPTIONS

1. SUBGRADE – GEOTECH ENGINEER WILL BE PRESENT TO DETERMINE IF NATIVE MARL/ROCK SUBGRADE IS SUFFICIENT FOR PAVEMENT SECTION LISTED ABOVE.
2. CONTRACTOR SHALL APPLY CLAY SUBGRADE PAVEMENT SECTION (SEE GEOTECH REPORT BY InTEC, PROJECT NO. S201216-P, DATED 09/23/20) IF GEOTECH ENGINEER DETERMINES NATIVE MARL/ROCK IS NOT SUFFICIENT. IF LIME TREATMENT IS REPLACED BY NATIVE MARL/ROCK, CITY OF BOERNE PUBLIC WORKS WILL BE INFORMED OF ALL CHANGES. REVISIONS WILL BE SUBMITTED INDICATING WHERE LIME TREATMENT WAS USED, ALONG WITH STATIONING. CONTRACTOR TO REVIEW GEOTECH RECOMMENDATIONS PRIOR TO FINAL SUBGRADE PREPARATION.
3. FILL MATERIAL – CONTRACTOR SHALL OVER-EXCAVATE STREET SUBGRADE AREAS CONTAINING SOILS HAVING A PLASTICITY INDEX GREATER THAN 20 AND REPLACE A MINIMUM OF 8" OF SUBGRADE WITH ON-SITE LIMESTONE MILLINGS THAT HAVE A PLASTICITY INDEX OF LESS THAN 20 OR USE FILL MATERIAL FROM AREAS OF SIMILAR SUBGRADE MATERIAL FOR ROADWAY EMBANKMENTS. GEOTECHNICAL ENGINEER WILL BE PRESENT AT THE TIME OF SUBGRADE PREPARATION TO DETERMINE THE EXTENTS OF APPLICABLE PAVEMENT SECTIONS BASED ON FINAL SUBGRADE.

STREET TYPE	HMAC TYPE "D"	HMAC TYPE "C"	HMAC TYPE "B"	FLEX BASE (TY A GR 2)	LIME TREATED SUBGRADE (42 LB/SY)	BASE UNDER CURB	STRUCTURAL NUMBER
RESIDENTIAL LOCAL STREET	2.0"	---	---	9.5"	8.0"	5.5"	2.85
NEIGHBOORHOOD COLLECTOR STREET	3.0"	---	---	16.0"	8.0"	5.5"	4.20
94' R.O.W. ARTERIAL (OPTION 1)	2.0"	2.0"	---	22.5"	8.0"	5.5"	5.55

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San Antonio, Texas 78231
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CORLEY FARMS UNIT 5

CITY OF BOERNE STANDARD STREET DETAILS

DATE
04/09/2025

PROJECT NO.
03481.012

DRAWN BY
C3

CHECKED BY
XV/AL

#	DATE	REVISIONS
1.	11/7/24	PERMITTING COMMENTS
2.	04/7/25	PERMITTING COMMENTS
3.		
4.		
5.		
6.		
7.		
8.		
9.		

ANDREW R. LOWRY
123410
4/11/25

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

SAWS JOB NO.
22-1190

C11

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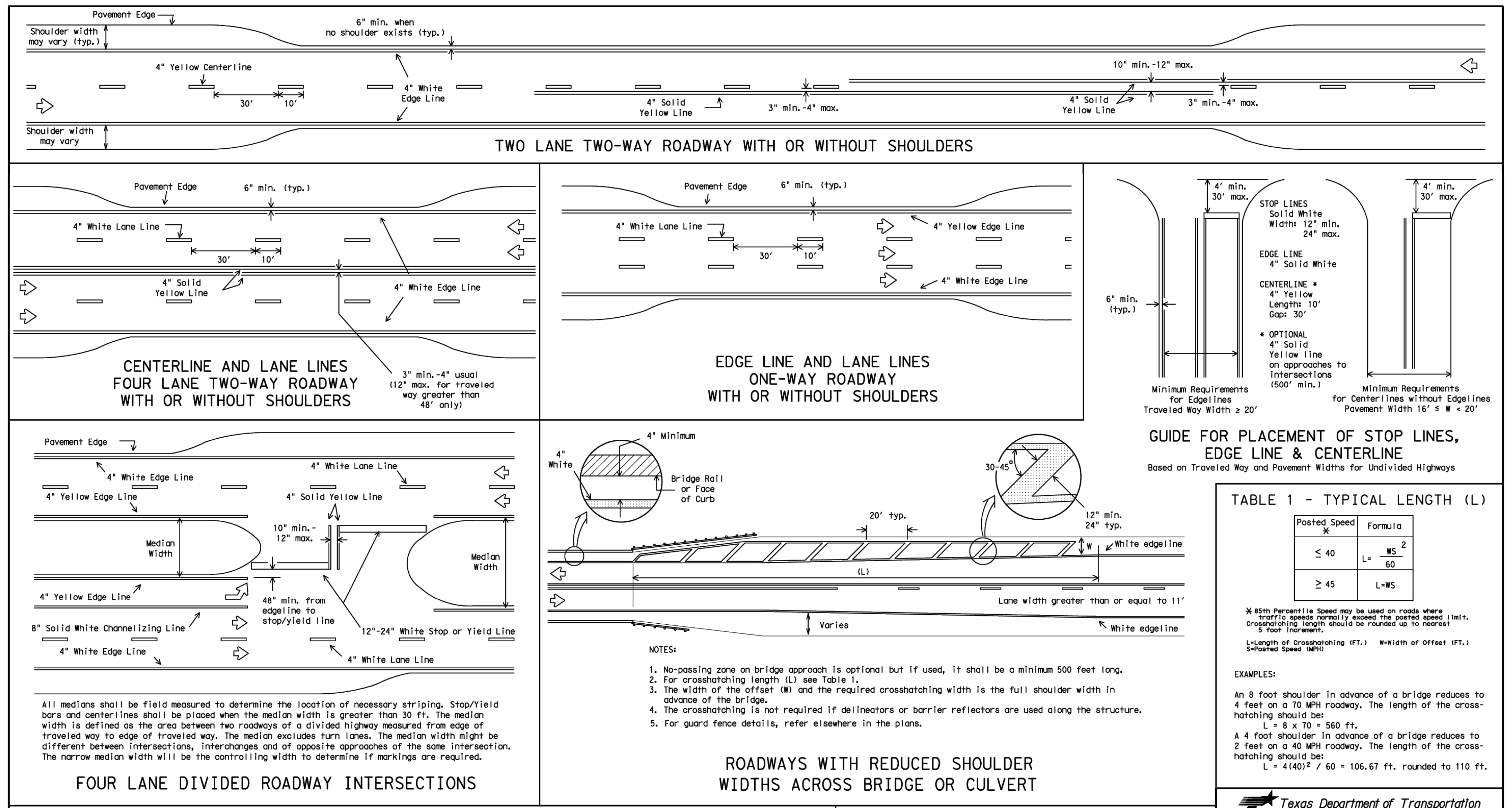
P:\03481\012\2-Drawings\C8.D1 CITY OF BOERNE STANDARD STREET DETAILS.dwg 2025/04/09 10:34pm mlopez


Pavement Edge
Shoulder width may vary (typ.)
6" min. when no shoulder exists (typ.)
4" Yellow Centerline
4" White Edge Line
4" Solid Yellow Line
3" min.-4" max.
10" min.-12" max.
Shoulder width may vary
30'
10'
TWO LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS
4" White Lane Line
4" Solid Yellow Line
4" White Edge Line
3" min.-4" usual (12" max. for traveled way greater than 48' only)
CENTERLINE AND LANE LINES FOUR LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS
4" Yellow Edge Line
EDGE LINE AND LANE LINES ONE-WAY ROADWAY WITH OR WITHOUT SHOULDERS
4" min. 30" max.
STOP LINES Solid White Width 12" min. 24" max.
EDGE LINE 4" Solid White
CENTERLINE * 4" Yellow Length 10' Gap 30'
* OPTIONAL 4" Solid Yellow line on approaches to intersections (500' min.)
6" min. (typ.)
Minimum Requirements for Edgelines Traveled Way Width ≥ 20'
Minimum Requirements for Centerlines without Edgelines Pavement Width 16' ≤ W < 20'
GUIDE FOR PLACEMENT OF STOP LINES, EDGE LINE & CENTERLINE
Based on Traveled Way and Pavement Widths for Undivided Highways
4" White Edge Line
4" Solid Yellow Line
Median Width
10' min.-12' max.
48" min. from edgeline to stop/yield line
8" Solid White Channelizing Line
12"-24" White Stop or Yield Line
4" White Lane Line
4" Minimum
Bridge Rail or Face of Curb
20' typ.
30-45°
12" min. 24" typ.
White edgeline
(L)
Lane width greater than or equal to 11'
Varies

All medians shall be field measured to determine the location of necessary striping. Stop/Yield bars and centerlines shall be placed when the median width is greater than 30 ft. The median width is defined as the area between two roadways of a divided highway measured from edge of traveled way to edge of traveled way. The median excludes turn lanes. The median width might be different between intersections, interchanges and of opposite approaches of the same intersection. The narrow median width will be the controlling width to determine if markings are required.

FOUR LANE DIVIDED ROADWAY INTERSECTIONS

NOTES:

1. No-passing zone on bridge approach is optional but if used, it shall be a minimum 500 feet long.
2. For crosshatching length (L) see Table 1.
3. The width of the offset (W) and the required crosshatching width is the full shoulder width in advance of the bridge.
4. The crosshatching is not required if delineators or barrier reflectors are used along the structure.
5. For guard fence details, refer elsewhere in the plans.

ROADWAYS WITH REDUCED SHOULDER WIDTHS ACROSS BRIDGE OR CULVERT

TABLE 1 - TYPICAL LENGTH (L)

Posted Speed *	Formula
≤ 40	$L = \frac{WS^2}{60}$
≥ 45	L=WS

* 85th Percentile Speed may be used on roads where traffic speeds normally exceed the posted speed limit. Crosshatching length should be rounded up to nearest 5 foot increment.

L=Length of Crosshatching (FT.) W=Width of Offset (FT.)
S=Posted Speed (MPH)

EXAMPLES:

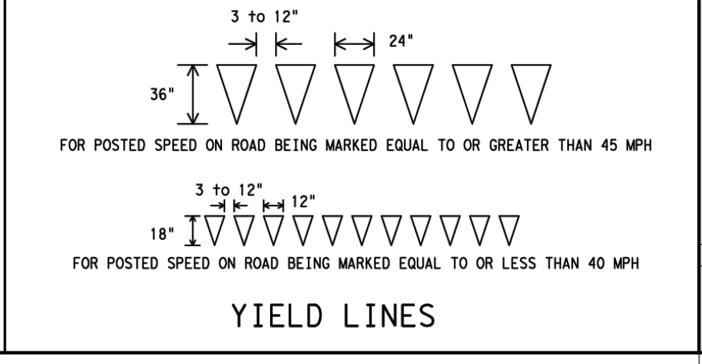
An 8 foot shoulder in advance of a bridge reduces to 4 feet on a 70 MPH roadway. The length of the crosshatching should be:
$L = 8 \times 70 = 560$ ft.
A 4 foot shoulder in advance of a bridge reduces to 2 feet on a 40 MPH roadway. The length of the crosshatching should be:
$L = 4(40)^2 / 60 = 106.67$ ft. rounded to 110 ft.

GENERAL NOTES

1. Edgeline striping shall be as shown in the plans or as directed by the Engineer. The edgeline should typically be placed a minimum of 6 inches from the edge of pavement. This distance may vary due to pavement raveling or other conditions. Edgelines 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 and not the parking lanes, sidewalks, berms and shoulders. The traveled ways shall be measured from the inside of edgeline to inside of edgeline 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.


3 to 12"
24"
36"
FOR POSTED SPEED ON ROAD BEING MARKED EQUAL TO OR GREATER THAN 45 MPH
3 to 12"
12"
18"
FOR POSTED SPEED ON ROAD BEING MARKED EQUAL TO OR LESS THAN 40 MPH

YIELD LINES

Texas Department of Transportation
Traffic Operations Division

TYPICAL STANDARD PAVEMENT MARKINGS

PM(1)-12

©TxDOT November 1978	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
REVISIONS 8-95 2-12 5-00 8-00 3-03	CONT	SECT	JOB	HIGHWAY
	DIST	COUNTY		SHEET NO.

22A

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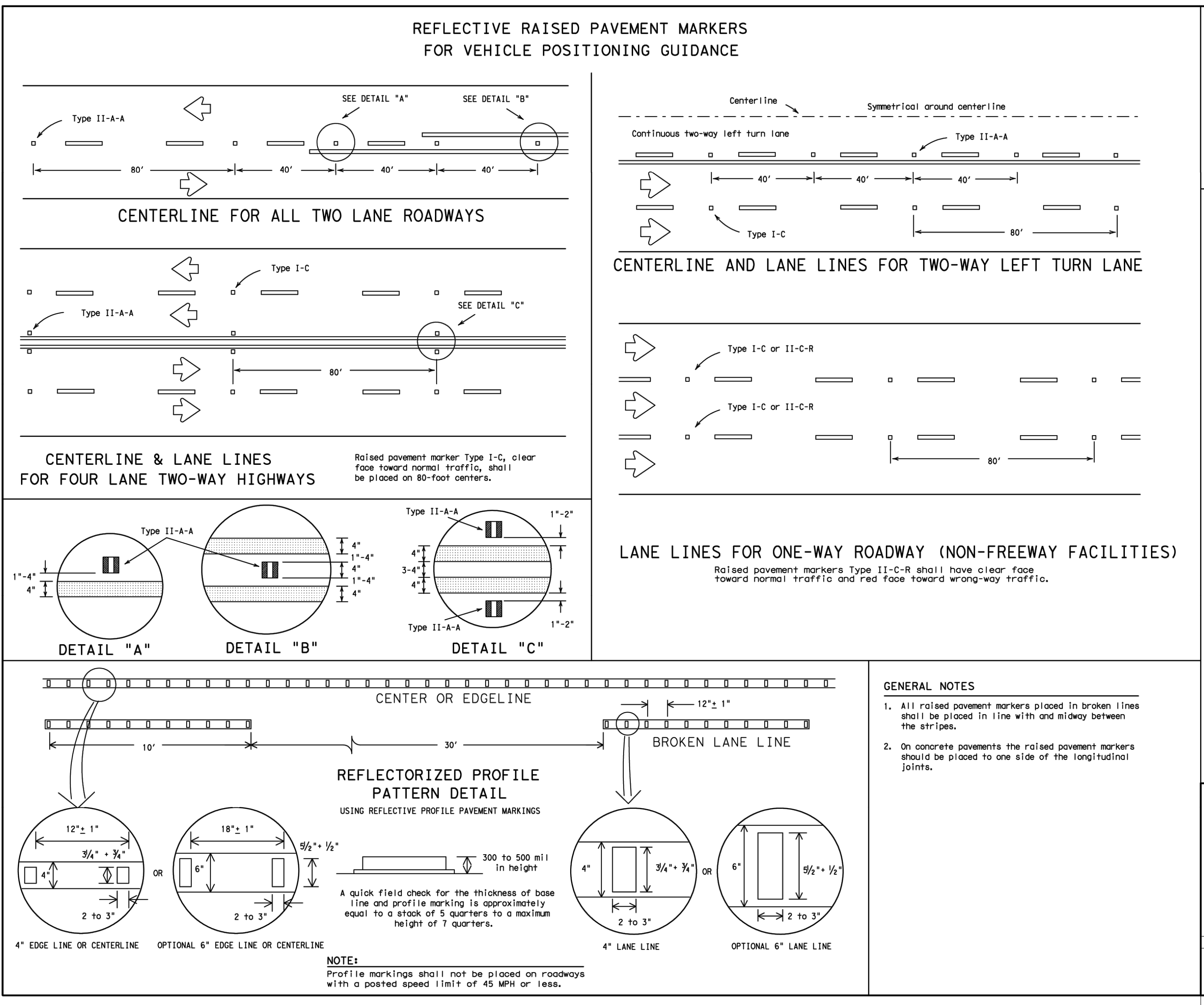
DATE:
FILE:

REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE


Type II-A-A
SEE DETAIL "A"
SEE DETAIL "B"
80'
40'
CENTERLINE FOR ALL TWO LANE ROADWAYS
Centerline
Symmetrical around centerline
Continuous two-way left turn lane
Type II-A-A
Type I-C
CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE
SEE DETAIL "C"
CENTERLINE & LANE LINES FOR FOUR LANE TWO-WAY HIGHWAYS
Type I-C or II-C-R
LANE LINES FOR ONE-WAY ROADWAY (NON-FREEWAY FACILITIES)
4"
1"-4"
1"-2"
3-4"
DETAIL "A"
DETAIL "B"
DETAIL "C"
CENTER OR EDGELINE
12"± 1"
BROKEN LANE LINE
30'
10'
5½"+ ½"
3¼"+ ¾"
2 to 3"
300 to 500 mil in height
OR
4" EDGE LINE OR CENTERLINE
OPTIONAL 6" EDGE LINE OR CENTERLINE
4" LANE LINE
OPTIONAL 6" LANE LINE

Raised pavement marker Type I-C, clear face toward normal traffic, shall be placed on 80-foot centers.

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

REFLECTORIZED PROFILE PATTERN DETAIL

USING REFLECTIVE PROFILE PAVEMENT MARKINGS

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.

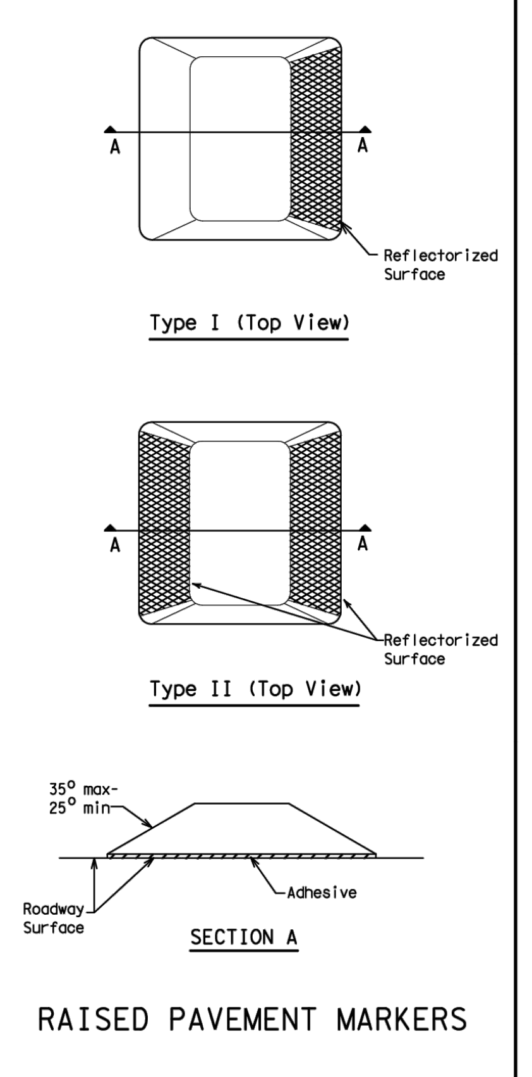
NOTE:
Profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.

GENERAL NOTES

1. All raised pavement markers placed in 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.

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.


A
Reflectorized Surface
Type I (Top View)
Type II (Top View)
35° max-
25° min
Adhesive
Roadway Surface
SECTION A

RAISED PAVEMENT MARKERS

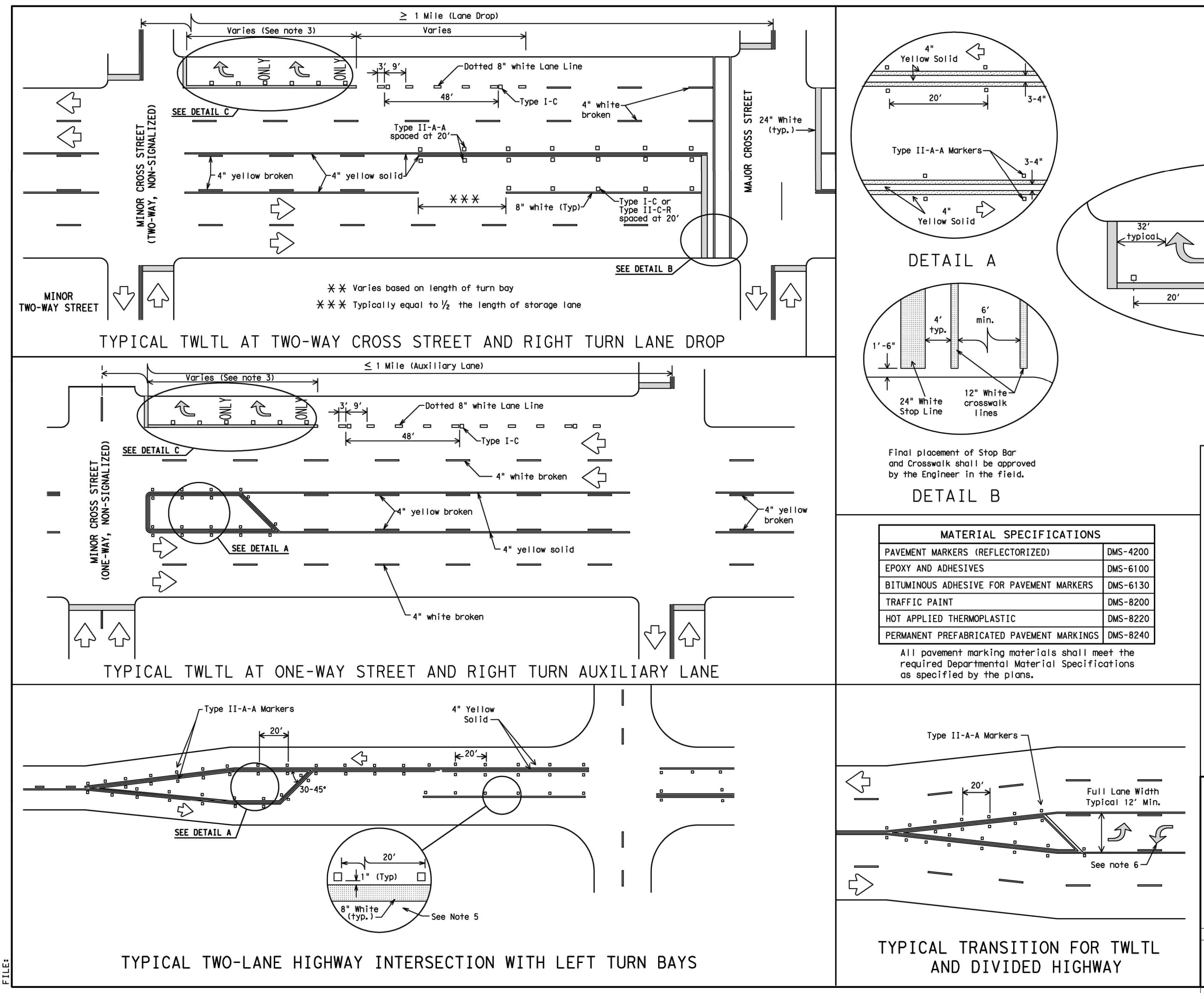
Texas Department of Transportation
Traffic Operations Division

POSITION GUIDANCE USING RAISED MARKERS REFLECTORIZED PROFILE MARKINGS

PM(2)-12

©TxDOT April 1977	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
REVISIONS 4-92 2-10 5-00 2-12 8-00 2-08	CONT	SECT	JOB	HIGHWAY
	DIST	COUNTY		SHEET NO.

22B


≥ 1 Mile (Lane Drop)
Varies (See note 3)
Varies
Dotted 8" white Lane Line
SEE DETAIL C
48'
Type I-C
4" white broken
Type II-A-A spaced at 20'
24" White (typ.)
MAJOR CROSS STREET
MINOR CROSS STREET (TWO-WAY, NON-SIGNALIZED)
4" yellow broken
4" yellow solid
8" white (Typ)
Type I-C or Type II-C-R spaced at 20'
SEE DETAIL B
MINOR TWO-WAY STREET
✱✱ Varies based on length of turn bay
✱✱✱ Typically equal to ½ the length of storage lane
TYPICAL TWLTL AT TWO-WAY CROSS STREET AND RIGHT TURN LANE DROP
≤ 1 Mile (Auxiliary Lane)
MINOR CROSS STREET (ONE-WAY, NON-SIGNALIZED)
SEE DETAIL A
4" yellow solid
4" yellow
4" white broken
TYPICAL TWLTL AT ONE-WAY STREET AND RIGHT TURN AUXILIARY LANE
Type II-A-A Markers
4" Yellow Solid
20'
30-45°
SEE DETAIL A
1" (Typ)
8" White (Typ)
See Note 5
TYPICAL TWO-LANE HIGHWAY INTERSECTION WITH LEFT TURN BAYS
4" Yellow Solid
3-4"
Type II-A-A Markers
DETAIL A
6' min.
1'-6"
4' typ.
24" White Stop Line
12" White crosswalk lines
Final placement of Stop Bar and Crosswalk shall be approved by the Engineer in the field.
DETAIL B
32' typical
32'
ONLY
Type I-C
6" white solid
DETAIL C
Full Lane Width Typical 12' Min.
See note 6
TYPICAL TRANSITION FOR TWLTL AND DIVIDED HIGHWAY

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.

GENERAL NOTES

1. Refer elsewhere in plans for additional RPM placement and details.
2. Lane use word and arrow markings shall be used where through lanes approaching an intersection become mandatory turn lanes. Lane use word and arrow markings should be used in auxiliary lanes of substantial length. Lane use arrow markings or word and arrow markings may be used in other lanes and turn bays for emphasis. Details for words and arrows as shown in the Standard Highway Sign Designs for Texas.
3. When lane used word and arrow markings are used, two sets of arrows should be used if the length of the bay is greater than 180 feet. When a single lane use arrow or word and arrow marking is used for a short turn lane, it should be located at or near the upstream end of the full-width turn lane.
4. Other crosswalk paterns as shown in the "Texas Manual on Uniform Traffic Control Devices" may be used.
5. Raised pavement marker Type I-C with undivided highways, flush medians and two way left turn lanes. Raised pavement marker Type II-C-R with divided highways and raised medians.
6. A two-way left-turn (TWLT) lane-use arrow pavement marking should be used at or just downstream from the beginning of a two-way left-turn lane within a corridor. Repeating the marking after each intersection or dedicated turn bay is not required unless stated elsewhere in the plans.

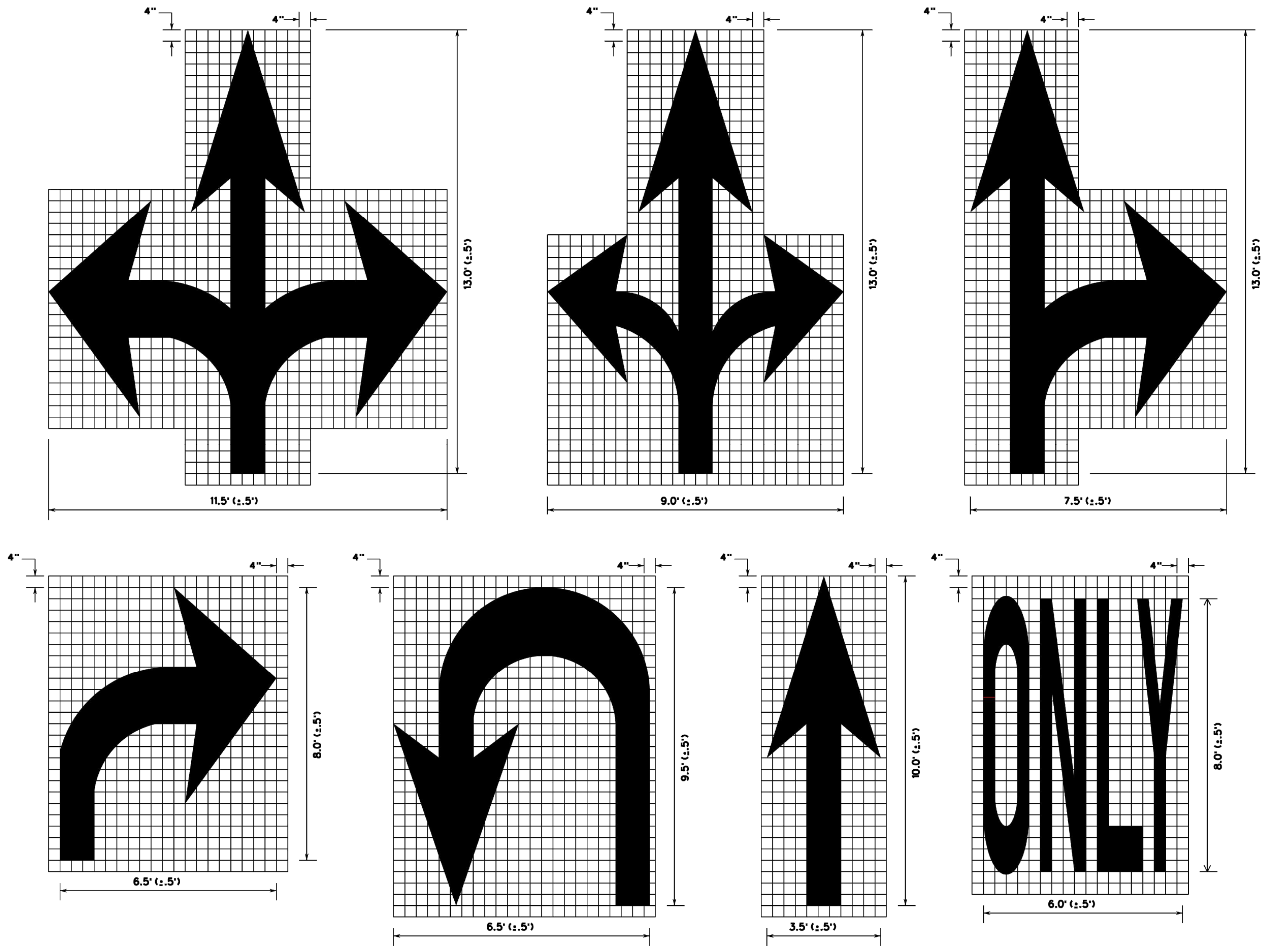
Texas Department of Transportation
Traffic Operations Division

PAVEMENT MARKINGS FOR TWO-WAY LEFT TURN LANES DIVIDED HIGHWAYS AND RURAL LEFT TURN BAYS

PM(3)-12

©TxDOT April 1998	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
REVISIONS 5-00 2-12 8-00 3-03 2-10	CONT	SECT	JOB	HIGHWAY
	DIST	COUNTY		SHEET NO.

22C


4"
13.0' (±.5')
11.5' (±.5')
9.0' (±.5')
7.5' (±.5')
8.0' (±.5')
9.5' (±.5')
10.0' (±.5')
6.5' (±.5')
3.5' (±.5')
6.0' (±.5')
ONLY

NOTES:

1. MINIMUM 8 FOOT WHITE MARKINGS SHALL BE USED, UNLESS OTHERWISE NOTED. IF MESSAGE CONSISTS OF MORE THAN ONE WORD, IT SHOULD BE PLACED WITH FIRST WORD NEAREST THE DRIVER.
2. THESE DETAILS ARE STANDARD SIZE FOR NORMAL INSTALLATION; SIZES MAY BE REDUCED APPROXIMATELY ONE-THIRD DEPENDING ON CONDITIONS.
3. THE LONGITUDINAL SPACE BETWEEN MARKINGS SHOULD BE 30 FEET.
4. MARKINGS CONSIDERED APPROPRIATE FOR USE WHEN WARRANTED INCLUDE THE FOLLOWING:
   - A. REGULATORY
     - STOP
     - RIGHT (LEFT) TURN ONLY
     - 25 MPH
     - SYMBOL ARROWS
   - B. WARNING
     - STOP AHEAD
     - SIGNAL AHEAD
     - SCHOOL
     - SCHOOL X-ING
     - PED X-ING
     - R X R (SEE RCPM DETAIL)
     - OTHER WORDS OR SYMBOLS MAY BE NECESSARY UNDER CERTAIN CONDITIONS
5. UNCONTROLLED USE OF PAVEMENT MARKINGS CAN RESULT IN DRIVER CONFUSION. WORD AND SYMBOL MARKINGS SHOULD BE NO MORE THAN THREE LINES.
6. THE WORD "STOP" SHALL NOT BE USED ON THE PAVEMENT UNLESS ACCOMPANIED BY A STOP LINE AND STOP SIGN. THE WORD "STOP" SHALL NOT BE PLACED ON THE PAVEMENT IN ADVANCE TO A STOP LINE, UNLESS EVERY VEHICLE IS REQUIRED TO STOP AT ALL TIMES.
7. PAVEMENT MARKINGS SHOULD GENERALLY BE NO MORE THAN ONE LANE IN WIDTH, WITH SCHOOL MESSAGES BEING THE EXCEPTION. FOR DETAILS OF SCHOOL AND SCHOOL CROSSING PAVEMENT MARKINGS, REFER TO PART VII OF THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".
8. SPACING BETWEEN LETTERS SHOULD BE APPROXIMATELY 4 INCHES. THE WIDTH OF LETTERS MAY VARY DEPENDING ON THE WIDTH OF THE TRAVEL LANES.
9. LANE-USE ARROW MARKINGS MAY BE USED TO CONVEY EITHER GUIDANCE OR MANDATORY MESSAGES. ARROWS USED TO CONVEY A MANDATORY MOVEMENT MUST BE ACCOMPANIED BY STANDARD SIGNS AND THE PAVEMENT MARKING WORD "ONLY".
10. PAVEMENT MARKINGS ARE TO BE LOCATED AS SPECIFIED ELSEWHERE IN THE PLANS.

SEPTEMBER 2009

CITY OF SAN ANTONIO
DEPARTMENT OF PUBLIC WORKS

TRAFFIC ENGINEERING STANDARDS
STANDARD PAVEMENT MARKINGS (ARROWS)
SHEET 3 OF 16

___% SUBMITTAL	PROJECT NO.:		DATE:
DRWN. BY: LAN	DSGN. BY: C.R.V.	CHKD. BY: M.E.	SHEET NO.: ___ OF ___

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4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

CORLEY FARMS UNIT 5

TXDOT PAVEMENT MARKING DETAILS

DATE
01/28/2025

PROJECT NO.
03481.012

DRAWN BY
C3

CHECKED BY
XV/AL

#	DATE	REVISIONS
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		

ANDREW R. LOWRY
123410
02/10/2025

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

SAWS JOB NO.
22-1190

C12

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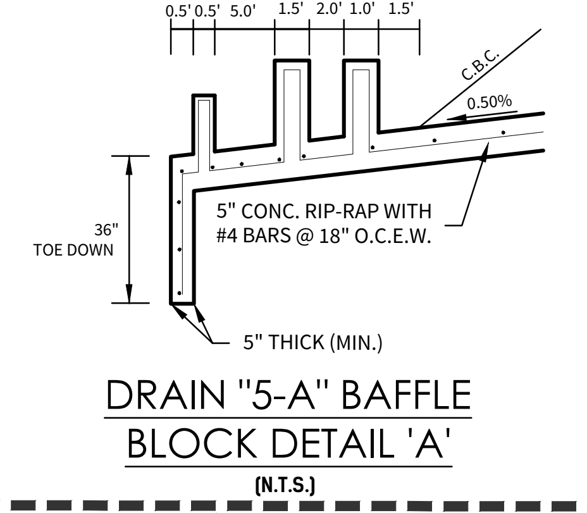
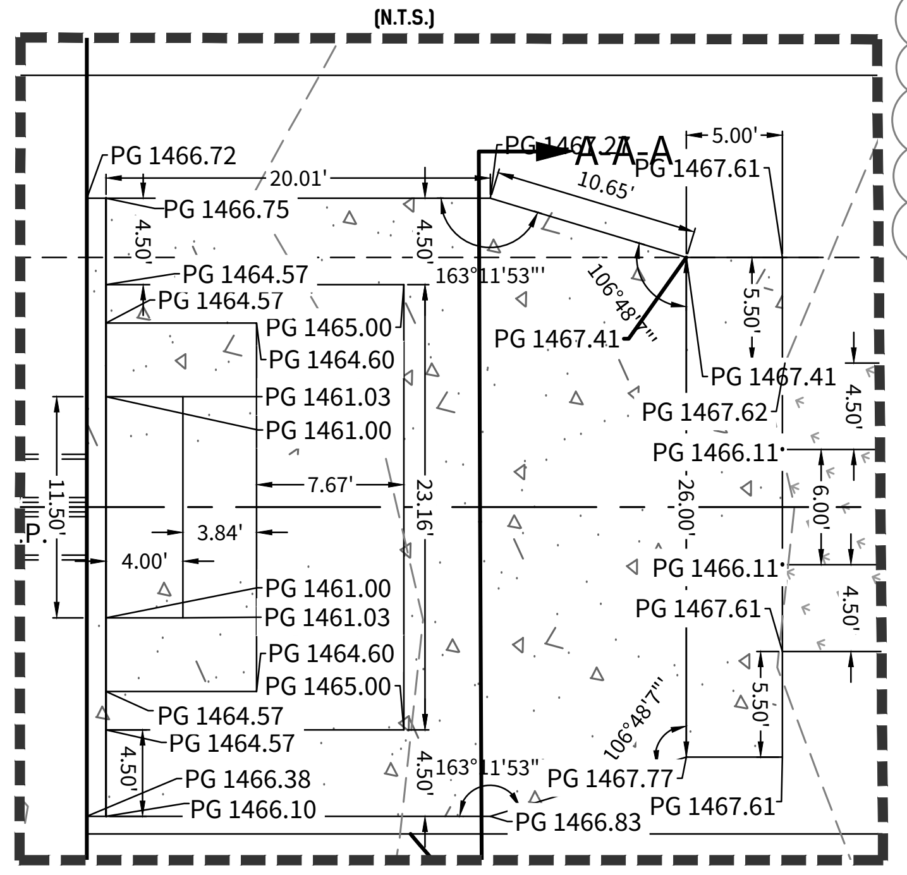
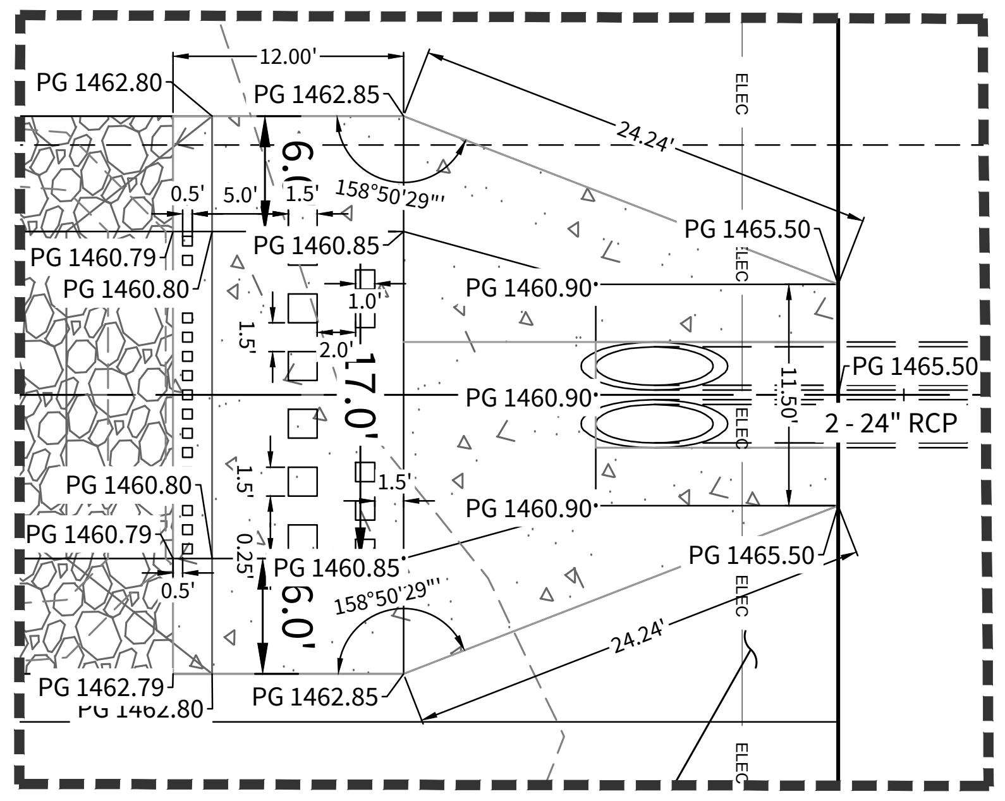

0.5' 0.5' 5.0' 1.5' 2.0' 1.0' 1.5'
C.B.C.
0.50%
36" TOE DOWN
5" CONC. RIP-RAP WITH #4 BARS @ 18" O.C.E.W.
5" THICK (MIN.)

DRAIN "5-A" BAFFLE BLOCK DETAIL 'A'
[N.T.S.]


PG 1466.72
20.01'
PG 1466.75
4.50'
PG 1464.57
PG 1464.57
PG 1465.00
PG 1464.60
PG 1461.03
PG 1461.00
7.67'
3.84'
4.00'
11.50'
PG 1461.00
PG 1461.03
PG 1464.60
PG 1465.00
PG 1464.57
PG 1464.57
PG 1466.38
PG 1466.10
4.50'
PG 1467.27
A-A
5.00'
PG 1467.61
10.65'
163°11'53"
106°48'
5.50'
PG 1467.41
PG 1467.41
PG 1467.62
PG 1466.11
23.16'
20.00'
PG 1466.11
PG 1467.61
106°48'7"
163°11'53"
PG 1467.77
PG 1466.83
PG 1467.61
4.50'
6.00'
4.50'
5.50'

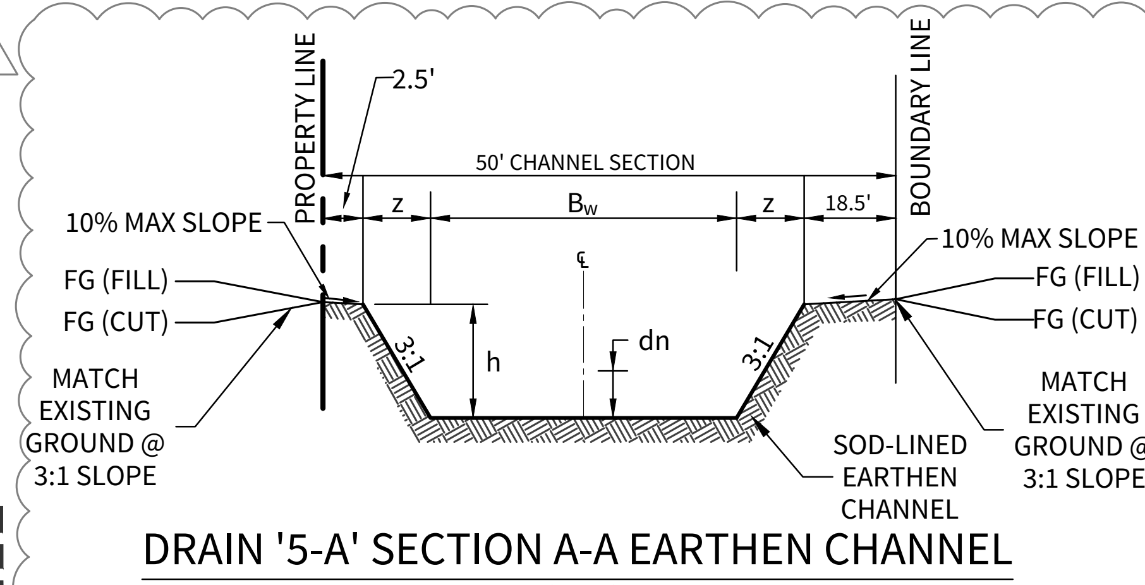
INSET 'A'

SCALE: 1"=10'


PG 1462.80
12.00'
PG 1462.85
24.24'
0.5'
5.0'
1.5'
158°50'29"
6.0'
PG 1465.50
PG 1460.79
PG 1460.85
PG 1460.80
1.0'
PG 1460.90
17.0'
2.0'
PG 1460.90
PG 1465.50
2 - 24" RCP
1.5'
PG 1460.80
PG 1460.79
PG 1460.85
PG 1460.90
PG 1465.50
6.0'
158°50'29"
0.5'
24.24'
PG 1462.79
PG 1462.80
PG 1462.85
ELEC

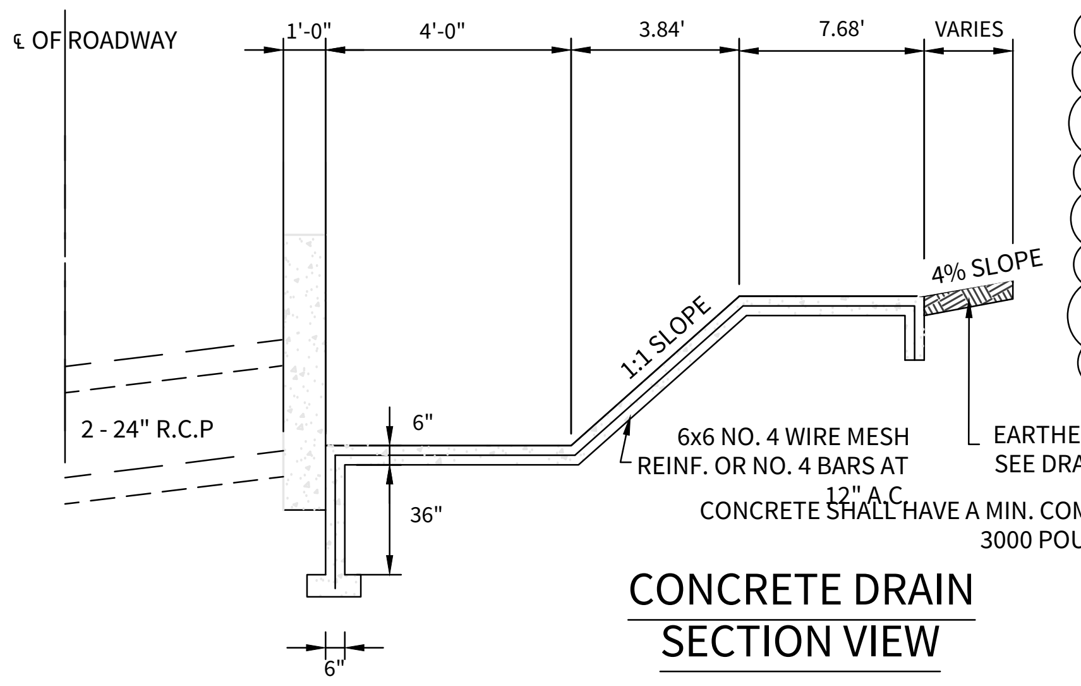
INSET 'B'

SCALE: 1"=10'


1
PROPERTY LINE
2.5'
BOUNDARY LINE
50' CHANNEL SECTION
z
Bw
z
18.5'
10% MAX SLOPE
FG (FILL)
FG (CUT)
MATCH EXISTING GROUND @ 3:1 SLOPE
3:1
h
dn
3:1
10% MAX SLOPE
FG (FILL)
FG (CUT)
MATCH EXISTING GROUND @ 3:1 SLOPE
SOD-LINED EARTHEN CHANNEL

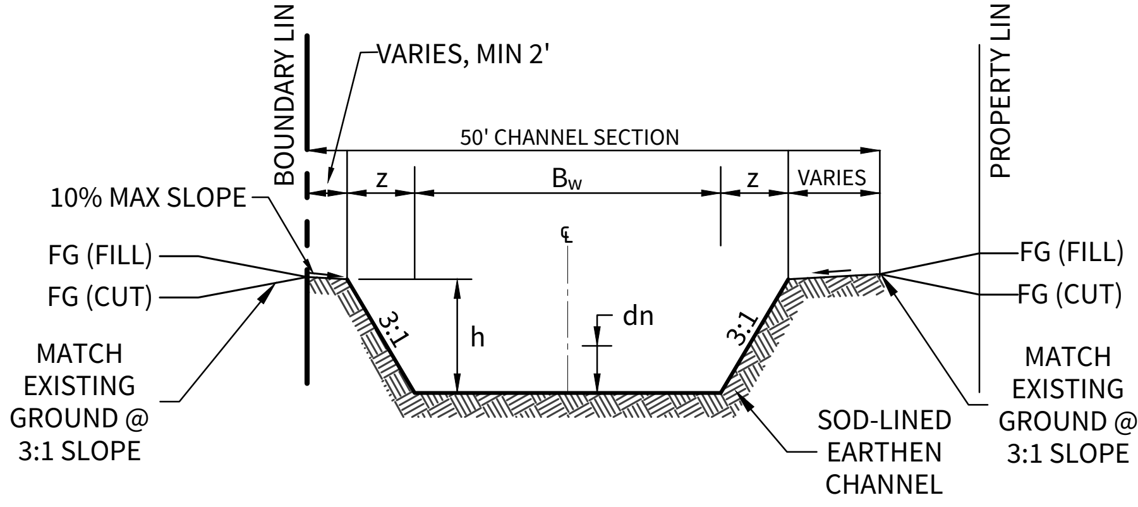
	"A-A"
BEGIN STA.	1+80.50
END STA.	2+01.97
Q_{100} (cfs)	49.25
B_w (ft)	17.00'
z (ft)	6.00'
n	0.035
h (ft)	2.00'
S (%)	0.50
d_n (ft)	0.95'
V (fps)	2.61
Fr	0.472

DRAIN '5-A' SECTION A-A EARTHEN CHANNEL
(N.T.S.)
"A-A" STA. 1+80.50 TO STA. 2+01.97


℄ OF ROADWAY
1'-0"
4'-0"
3.84'
7.68'
VARIES
4% SLOPE
1:1 SLOPE
2 - 24" R.C.P
6"
36"
6"
6x6 NO. 4 WIRE MESH REINF. OR NO. 4 BARS AT 12" A.C
EARTHEN CHANNEL SEE DRAIN SECTION B-B DETAIL
CONCRETE SHALL HAVE A MIN. COMPRESSIVE STRENGTH 3000 POUNDS P.S.I. AT 28 DAYS

	"A-A-A"
BEGIN STA.	3+04.58
END STA.	3+40.79
Q_{100} (cfs)	30.87
B_w (ft)	8.00'
z (ft)	0.00'
n	0.035
h (ft)	5.38'
S (%)	0.50
d_n (ft)	1.31'
V (fps)	2.95
Fr	0.454

CONCRETE DRAIN SECTION VIEW


BOUNDARY LINE
VARIES, MIN 2'
PROPERTY LINE
50' CHANNEL SECTION
z
Bw
z
VARIES
10% MAX SLOPE
FG (FILL)
FG (CUT)
MATCH EXISTING GROUND @ 3:1 SLOPE
3:1
h
dn
3:1
FG (FILL)
FG (CUT)
MATCH EXISTING GROUND @ 3:1 SLOPE
SOD-LINED EARTHEN CHANNEL

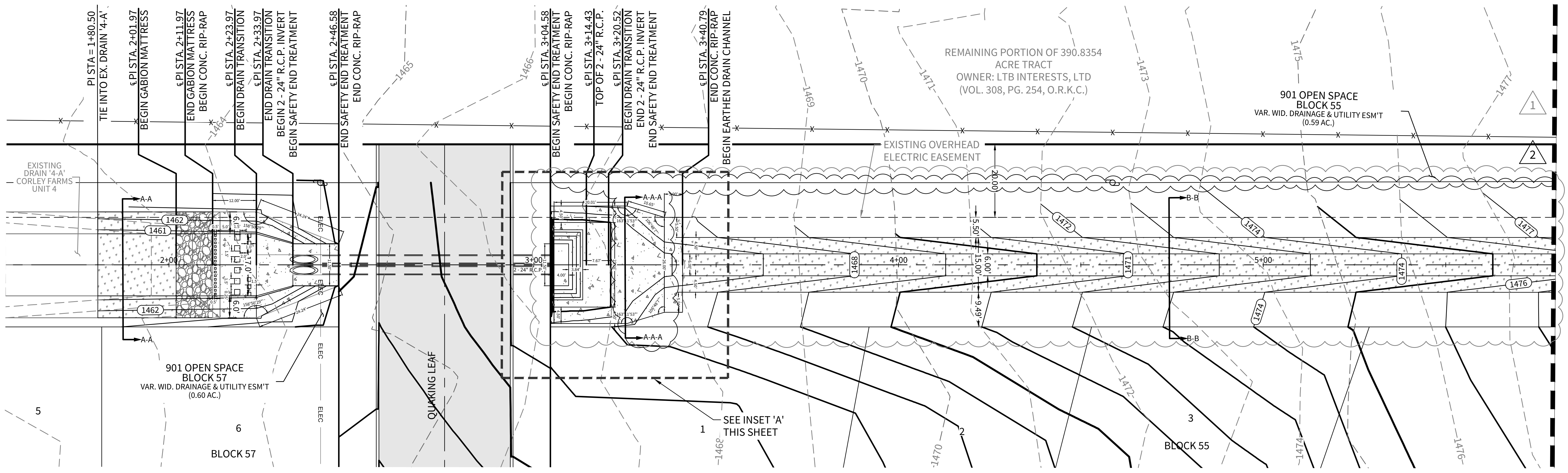
	"B-B"
BEGIN STA.	3+40.79
END STA.	8+47.61
Q_{100} (cfs)	30.87
B_w (ft)	6.00'
z (ft)	4.50
n	0.035
h (ft)	1.50'
S (%)	4.00
d_n (ft)	0.69'
V (fps)	5.54
Fr	1.176

DRAIN '5-A' SECTION B-B EARTHEN CHANNEL
(N.T.S.)
"B-B" STA. 3+40.79 TO STA. 8+47.61

SCALE: 1"=20'
0 20 40

LEGEND

OVERALL UNIT BOUNDARY	— — — —
PROPOSED RIGHT OF WAY	———
EXISTING 1' CONTOUR	— — 499 — —
EXISTING 5' CONTOUR	— — 500 — —
PROPOSED 1' CONTOUR	—(499)—
PROPOSED 5' CONTOUR	—(500)—
PROPOSED GAS MAIN	—— G ——
PROPOSED CULVERT	▨
CONCRETE RIP RAP	▨
ROCK RUBBLE	▨
SOD LINED	▨


PI STA. 1+80.50
TIE INTO EX. DRAIN '4-A'
℄PI STA. 2+01.97
BEGIN GABION MATTRESS
℄PI STA. 2+11.97
END GABION MATTRESS
BEGIN CONC. RIP-RAP
℄PI STA. 2+23.97
BEGIN DRAIN TRANSITION
℄PI STA. 2+33.97
END DRAIN TRANSITION
BEGIN 2 - 24" R.C.P. INVERT
BEGIN SAFETY END TREATMENT
℄PI STA. 2+46.58
END SAFETY END TREATMENT
END CONC. RIP-RAP
℄PI STA. 3+04.58
BEGIN SAFETY END TREATMENT
BEGIN CONC. RIP-RAP
℄PI STA. 3+14.43
TOP OF 2 - 24" R.C.P.
℄PI STA. 3+20.52
BEGIN DRAIN TRANSITION
END 2 - 24" R.C.P. INVERT
END SAFETY END TREATMENT
℄PI STA. 3+40.79
END CONC. RIP-RAP
BEGIN EARTHEN DRAIN CHANNEL
REMAINING PORTION OF 390.8354 ACRE TRACT
OWNER: LTB INTERESTS, LTD
(VOL. 308, PG. 254, O.R.K.C.)
901 OPEN SPACE
BLOCK 55
VAR. WID. DRAINAGE & UTILITY ESM'T
(0.59 AC.)
EXISTING OVERHEAD ELECTRIC EASEMENT
EXISTING DRAIN '4-A' CORLEY FARMS UNIT 4
901 OPEN SPACE
BLOCK 57
VAR. WID. DRAINAGE & UTILITY ESM'T
(0.60 AC.)
QUAKING LEAF
SEE INSET 'A' THIS SHEET
BLOCK 57
BLOCK 55
A-A
A-A-A
B-B
2+00
3+00
4+00
5+00
MATCHLINE STA 5+80.00 - SEE SHEET C14
1
2
1465
1466
1469
1470
1471
1472
1473
1474
1475
1476
1477
1462
1461
1468
1470
5
6
1
2
3

NOTES:

1. ALL CONCRETE LINING SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 4,000 PSI IN 28 DAYS
2. 85% OF CHANNEL SURFACE MUST HAVE ESTABLISHED VEGETATION PRIOR TO ACCEPTANCE OF THE CHANNEL BY THE CITY OF BOERNE. HYDROMULCH PAY ITEM TO INCLUDE SOIL, SEEDING, OR SODDING & WATERING FOR THE TIME PERIOD NEEDED TO ACHIEVE 85% VEGETATION.
3. REFERENCE CITY OF BOERNE CONCRETE RIP-RAP TYPICAL SECTION DETAIL ON THIS SHEET
4. PER THE CITY OF BOERNE DEVELOPMENT AGREEMENT, EARTHEN CHANNELS MUST BE SOD LINED WHERE VELOCITIES OF STORM WATER RUNOFF ARE 3 - 6 FPS.

DRAIN '5-A'

STA. 1+80.50 TO STA. 5+80.00

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

DRAIN "5-A" CULVERT SUMMARY

(STA. 2+33.97 - STA. 3+04.58)

Q_{100} = 30.87 FT³/S

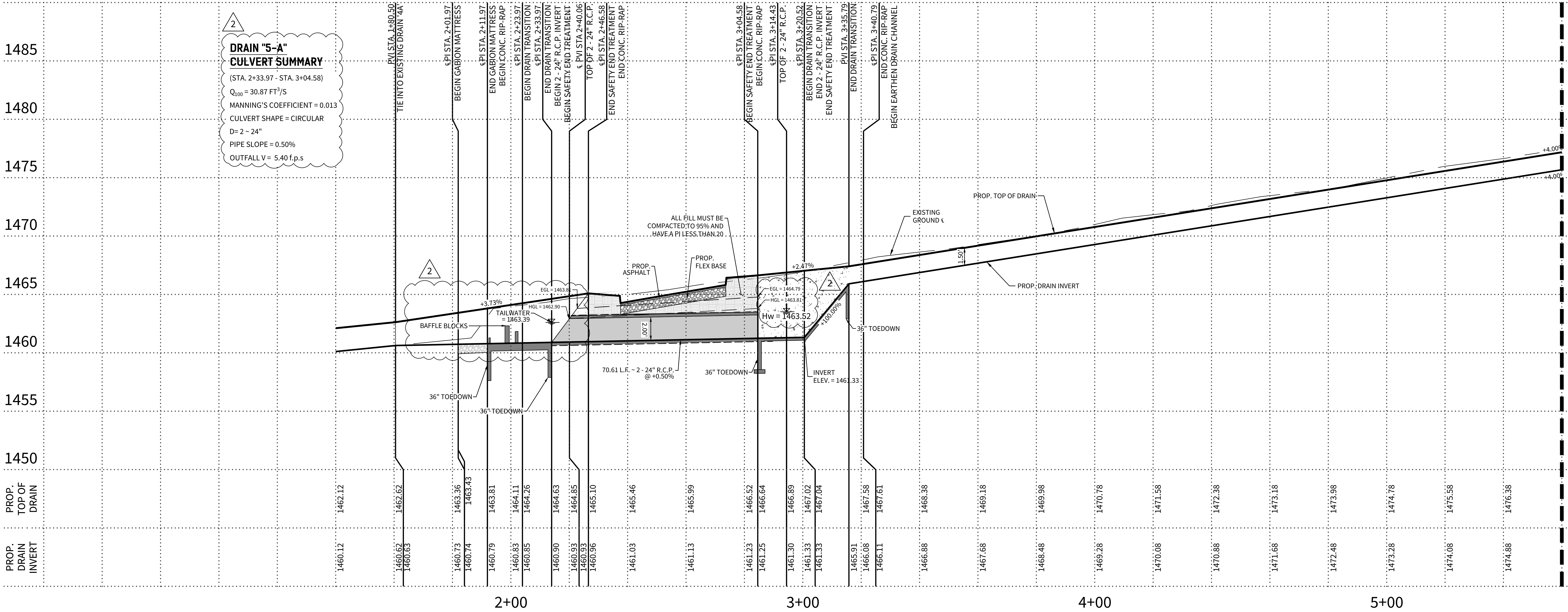
MANNING'S COEFFICIENT = 0.013

CULVERT SHAPE = CIRCULAR

D= 2 ~ 24"

PIPE SLOPE = 0.50%

OUTFALL V = 5.40 f.p.s


1485
1480
1475
1470
1465
1460
1455
1450
PVI STA. 1+80.50
TIE INTO EXISTING DRAIN '4A'
℄PI STA. 2+01.97
BEGIN GABION MATTRESS
℄PI STA. 2+11.97
END GABION MATTRESS
BEGIN CONC. RIP-RAP
℄PI STA. 2+23.97
BEGIN DRAIN TRANSITION
℄PI STA. 2+33.97
END DRAIN TRANSITION
BEGIN 2 - 24" R.C.P. INVERT
BEGIN SAFETY END TREATMENT
℄ PVI STA. 2+40.06
TOP OF 2 - 24" R.C.P.
℄PI STA. 2+46.58
END SAFETY END TREATMENT
END CONC. RIP-RAP
℄PI STA. 3+04.58
BEGIN SAFETY END TREATMENT
BEGIN CONC. RIP-RAP
℄PI STA. 3+14.43
TOP OF 2 - 24" R.C.P.
℄PI STA. 3+20.52
BEGIN DRAIN TRANSITION
END 2 - 24" R.C.P. INVERT
END SAFETY END TREATMENT
PVI STA. 3+35.79
END DRAIN TRANSITION
℄PI STA. 3+40.79
END CONC. RIP-RAP
BEGIN EARTHEN DRAIN CHANNEL
MATCHLINE STA 5+80.00 - SEE SHEET C14
+4.00%
+4.00%
PROP. TOP OF DRAIN
EXISTING GROUND ℄
ALL FILL MUST BE COMPACTED TO 95% AND HAVE A PI LESS THAN 20
PROP. ASPHALT
PROP. FLEX BASE
+2.47%
+3.73%
EGL = 1463.83
HGL = 1462.90
TAILWATER = 1463.39
EGL = 1464.79
HGL = 1463.83
Hw = 1463.52
+100.00%
2.00'
1.50'
BAFFLE BLOCKS
36" TOEDOWN
36" TOEDOWN
36" TOEDOWN
36" TOEDOWN
70.61 L.F. ~ 2 - 24" R.C.P. @ +0.50%
INVERT ELEV. = 1461.33
PROP. DRAIN INVERT
PROP. TOP OF DRAIN
1462.12
1462.62
1463.36
1463.43
1463.81
1464.11
1464.26
1464.63
1464.85
1465.10
1465.46
1465.99
1466.52
1466.64
1466.89
1467.02
1467.04
1467.58
1467.61
1468.38
1469.18
1469.98
1470.78
1471.58
1472.38
1473.18
1473.98
1474.78
1475.58
1476.38
PROP. DRAIN INVERT
1460.12
1460.62
1460.63
1460.73
1460.74
1460.79
1460.83
1460.85
1460.90
1460.93
1460.93
1460.96
1461.03
1461.13
1461.23
1461.25
1461.30
1461.33
1461.33
1465.91
1466.08
1466.11
1466.88
1467.68
1468.48
1469.28
1470.08
1470.88
1471.68
1472.48
1473.28
1474.08
1474.88
2+00
3+00
4+00
5+00

CUDEENGINEERS.COM

CUDE
EST. 1980
ENGINEERS

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CORLEY FARMS UNIT 5

DRAIN PLAN & PROFILE - DRAIN '5-A'

DATE
04/10/2025

PROJECT NO.
03481.012

DRAWN BY
C3

CHECKED BY
XV/AL

#	DATE	REVISIONS
1.	11/7/24	PERMITTING COMMENTS
2.	04/7/25	PERMITTING COMMENTS
3.		
4.		
5.		
6.		
7.		
8.		
9.		

ANDREW R. LOWRY
123410
4/11/25

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

SAWS JOB NO.
22-1190

C13

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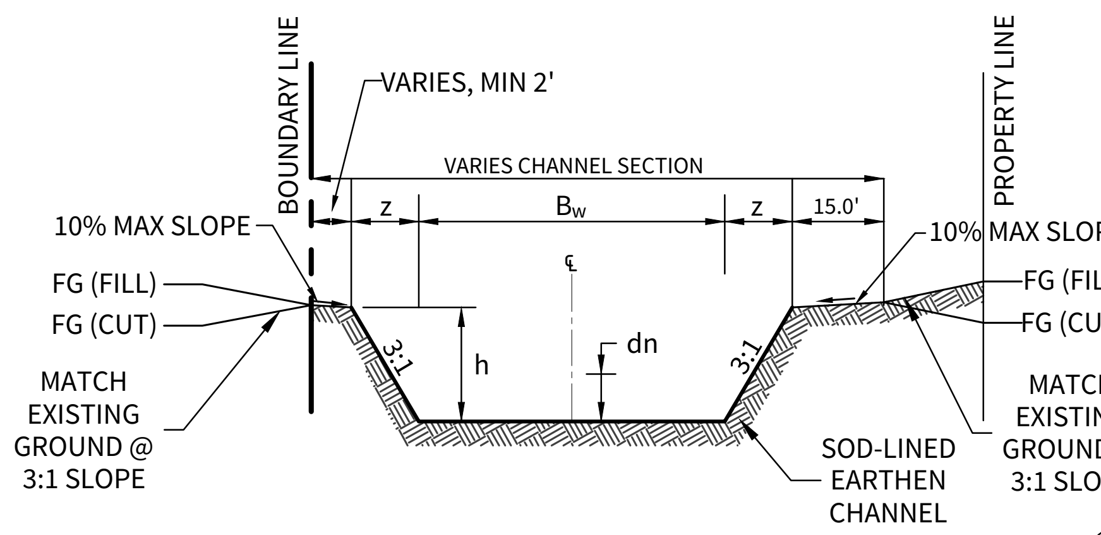
P:\03481\012\2-Drawings\C7.02-7.04 DRAIN PLAN & PROFILE - DRAIN '5-A'.dwg 2025/04/10 4:55pm mlopez

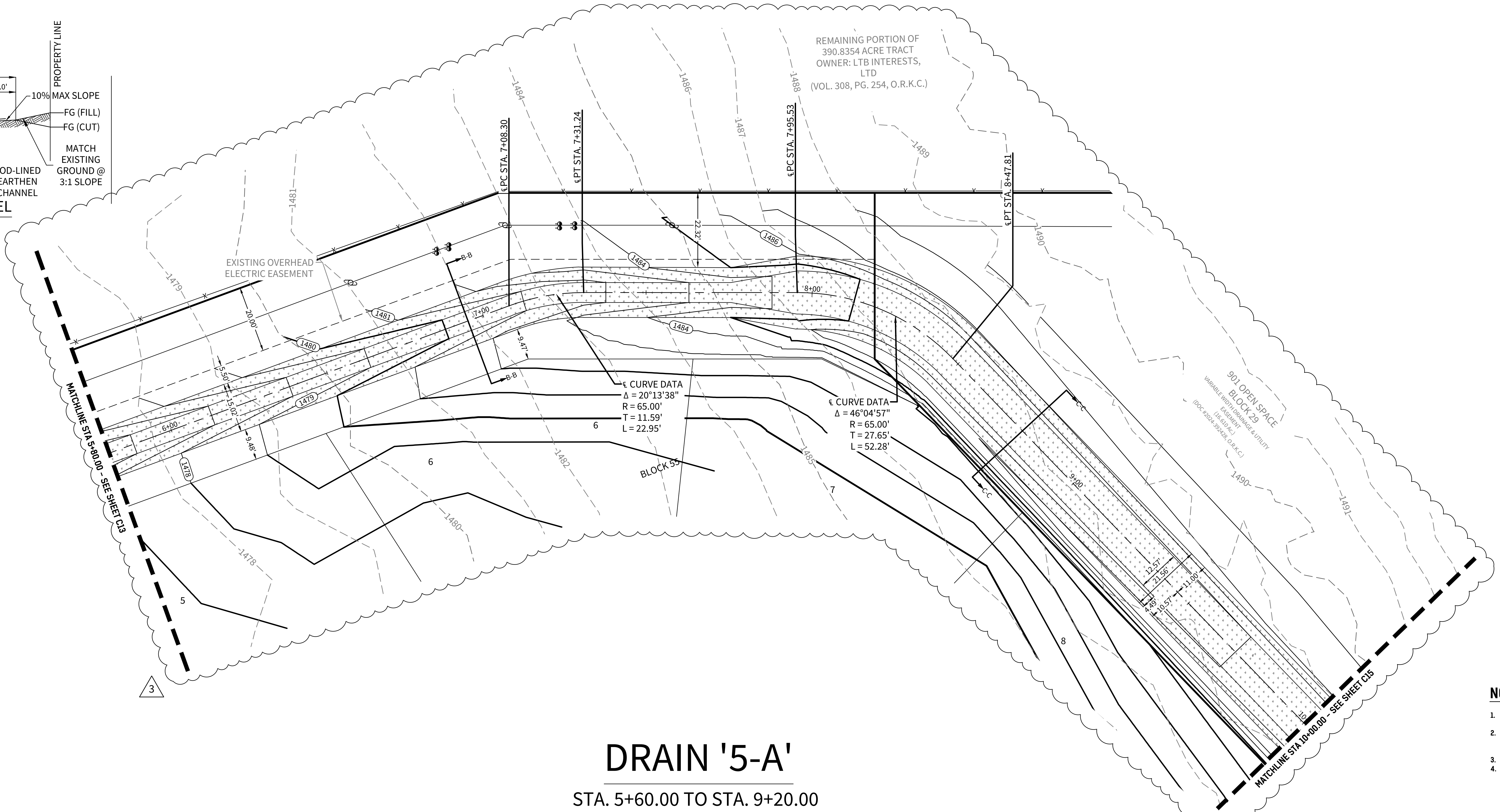

BOUNDARY LINE
VARIES, MIN 2'
VARIES CHANNEL SECTION
PROPERTY LINE
10% MAX SLOPE
z
Bw
z
15.0'
10% MAX SLOPE
FG (FILL)
FG (CUT)
FG (FILL)
FG (CUT)
℄
dn
h
3:1
3:1
MATCH EXISTING GROUND @ 3:1 SLOPE
SOD-LINED EARTHEN CHANNEL
MATCH EXISTING GROUND @ 3:1 SLOPE

DRAIN '5-A' EARTHEN CHANNEL

(N.T.S.)

"B-B" STA. 3+40.79 TO STA. 7+75.54
"C-C" STA. 7+95+53 TO STA. 14+97.07

	"B-B"	"C-C"
BEGIN STA.	3+40.79	7+95.53
END STA.	7+75.54	14+97.07
Q_{100} (cfs)	30.87	30.87
B_w (ft)	6.00'	13.00'
z (ft)	4.50'	6.00'
n	0.035	0.035
h (ft)	1.50'	1.50'
S (%)	4.00	0.50
d_n (ft)	0.69'	0.84'
V (fps)	5.54	2.37
Fr	1.176	0.456


REMAINING PORTION OF 390.8354 ACRE TRACT OWNER: LTB INTERESTS, LTD (VOL. 308, PG. 254, O.R.K.C.)
EXISTING OVERHEAD ELECTRIC EASEMENT
℄ PC STA. 7+08.30
℄ PT STA. 7+31.24
℄ PC STA. 7+95.53
℄ PT STA. 8+47.81
℄ CURVE DATA
Δ = 20°13'38"
R = 65.00'
T = 11.59'
L = 22.95'
℄ CURVE DATA
Δ = 46°04'57"
R = 65.00'
T = 27.65'
L = 52.28'
BLOCK 55
901 OPEN SPACE BLOCK 29
MATCHLINE STA 5+60.00 - SEE SHEET C13
MATCHLINE STA 10+00.00 - SEE SHEET C15
B-B
C-C
20.00'
6
6
7
8
5
3
1478
1479
1480
1481
1482
1483
1484
1485
1486
1487
1488
1489
1490
1491

SCALE: 1"=20'
0 20 40

LEGEND

OVERALL UNIT BOUNDARY	— — — —
PROPOSED RIGHT OF WAY	———
EXISTING 1' CONTOUR	— — 499 — —
EXISTING 5' CONTOUR	— — 500 — —
PROPOSED 1' CONTOUR	—(499)—
PROPOSED 5' CONTOUR	—(500)—
PROPOSED GAS MAIN	——— G ———
PROPOSED CULVERT	▨
CONCRETE RIP RAP	▨
ROCK RUBBLE	▨
SOD LINED	▨

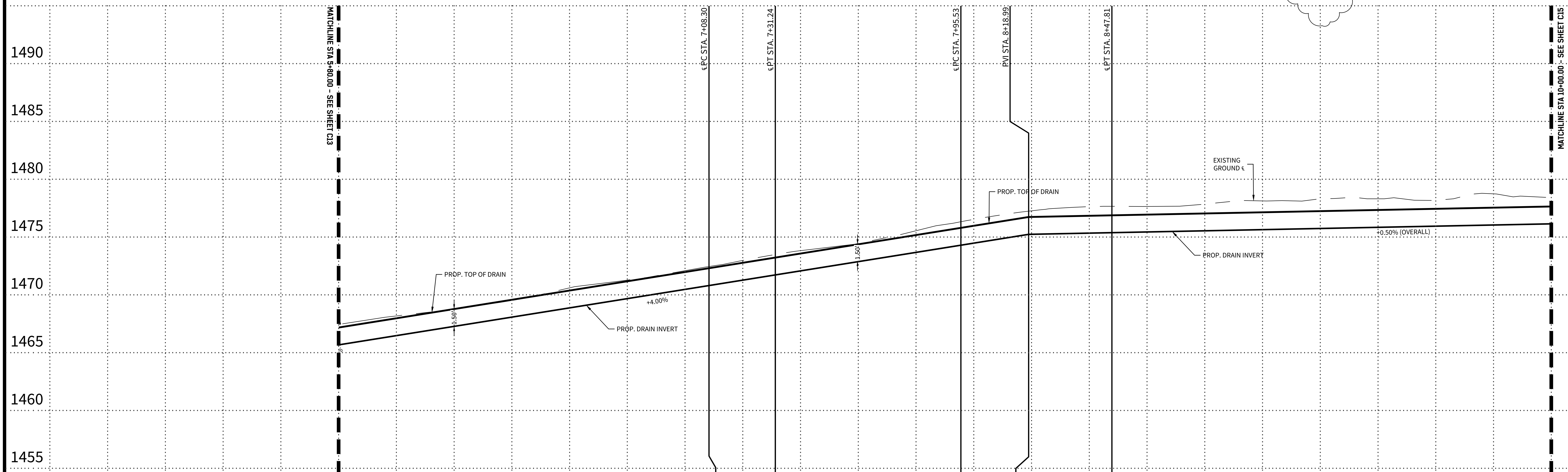
NOTES:

1. ALL CONCRETE LINING SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 4,000 PSI IN 28 DAYS
2. 85% OF CHANNEL SURFACE MUST HAVE ESTABLISHED VEGETATION PRIOR TO ACCEPTANCE OF THE CHANNEL BY THE CITY OF BOERNE. HYDROMULCH PAY ITEM TO INCLUDE SOIL, SEEDING, OR SODDING & WATERING FOR THE TIME PERIOD NEEDED TO ACHIEVE 85% VEGETATION.
3. REFERENCE CITY OF BOERNE CONCRETE RIP-RAP TYPICAL SECTION DETAIL ON THIS SHEET
4. PER THE CITY OF BOERNE DEVELOPMENT AGREEMENT, EARTHEN CHANNELS MUST BE SOD LINED WHERE VELOCITIES OF STORM WATER RUNOFF ARE 3 - 6 FPS.

DRAIN '5-A'

STA. 5+60.00 TO STA. 9+20.00

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


1490
1485
1480
1475
1470
1465
1460
1455
MATCHLINE STA 5+60.00 - SEE SHEET C13
℄ PC STA. 7+08.30
℄ PT STA. 7+31.24
℄ PC STA. 7+95.53
PVI STA. 8+18.99
℄ PT STA. 8+47.81
MATCHLINE STA 10+00.00 - SEE SHEET C15
EXISTING GROUND ℄
PROP. TOP OF DRAIN
PROP. TOP OF DRAIN
PROP. DRAIN INVERT
PROP. DRAIN INVERT
+4.00%
+0.50% (OVERALL)
1.50'
1.50'

PROP. TOP OF DRAIN	PROP. DRAIN INVERT
1477.18	1475.68
1477.98	1476.48
1478.78	1477.28
1479.58	1478.08
1480.38	1478.88
1481.18	1479.68
1481.98	1480.48
1482.31	1480.82
1482.78	1481.28
1483.23	1481.73
1483.58	1482.08
1484.38	1482.88
1485.18	1483.68
1484.30	1485.80
1485.98	1484.48
1486.74	1485.24
1486.75	1485.25
1486.85	1485.35
1485.39	1486.89
1486.95	1485.45
1487.05	1485.55
1487.15	1485.65
1487.25	1485.75
1487.35	1485.85
1487.45	1485.95
1487.55	1486.05

6+00 7+00 8+00 9+00 10+

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San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

CORLEY FARMS
UNIT 5

DRAIN PLAN & PROFILE - DRAIN '5-A'

DATE
06/02/2025

PROJECT NO.
03481.012

DRAWN BY
C3

CHECKED BY
XV/AL

#	DATE	REVISIONS
1.	11/7/24	PERMITTING COMMENTS
2.	04/7/25	PERMITTING COMMENTS
3.	06/2/25	CHANNEL GRADING CHANGED
4.		
5.		
6.		
7.		
8.		
9.		

ANDREW R. LOWRY
123410
6/2/25

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

SAWS JOB NO.
22-1190

C14

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4 DRAIN PLAN & PROFILE - DRAIN '5-A'.dwg 2025/06/02 12:29pm kmartinez

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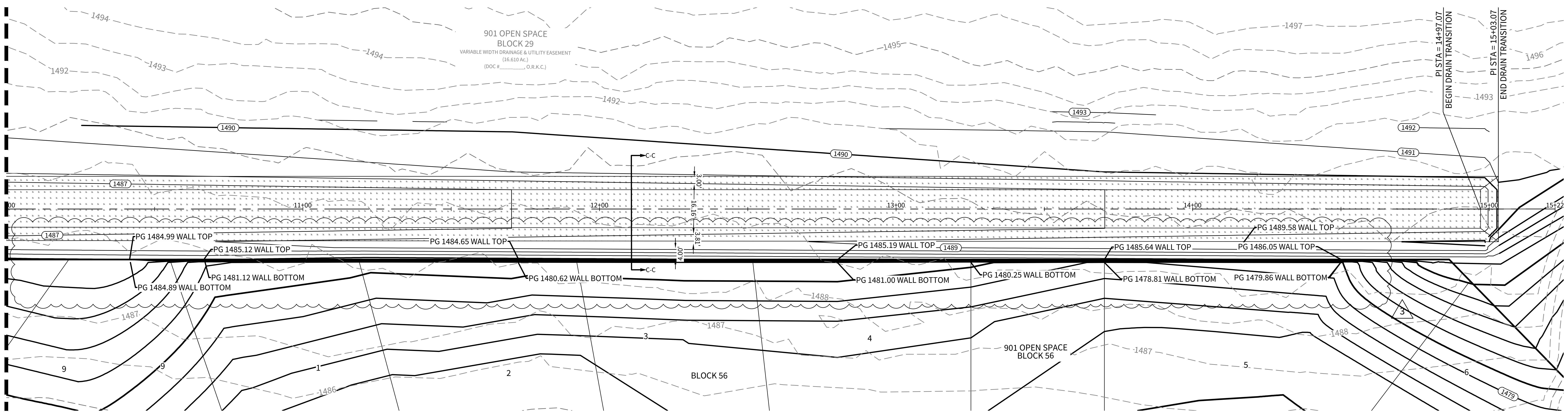
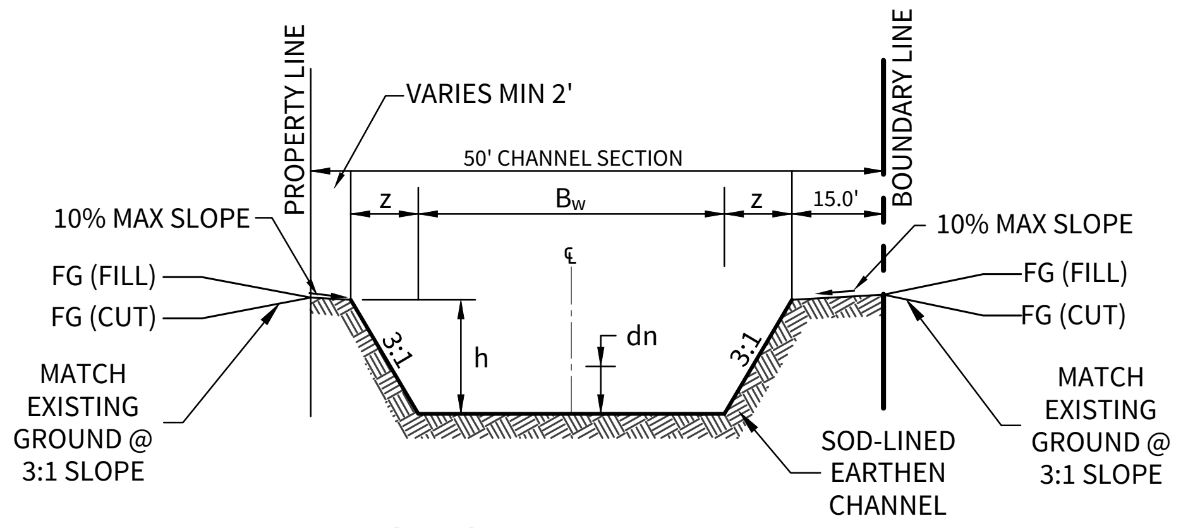

MATCHLINE STA 10+00.00 - SEE SHEET C15
901 OPEN SPACE
BLOCK 29
VARIABLE WIDTH DRAINAGE & UTILITY EASEMENT
(16.610 Ac.)
(DOC #________ O.R.K.C.)
1492
1493
1494
1495
1496
1497
1490
1491
1487
1489
1488
1486
11+00
12+00
13+00
14+00
15+00
15+22
C-C
3.00'
16.16'
3.81'
4.00'
PG 1484.99 WALL TOP
PG 1485.12 WALL TOP
PG 1484.65 WALL TOP
PG 1485.19 WALL TOP
PG 1485.64 WALL TOP
PG 1486.05 WALL TOP
PG 1489.58 WALL TOP
PG 1481.12 WALL BOTTOM
PG 1484.89 WALL BOTTOM
PG 1480.62 WALL BOTTOM
PG 1481.00 WALL BOTTOM
PG 1480.25 WALL BOTTOM
PG 1478.81 WALL BOTTOM
PG 1479.86 WALL BOTTOM
PI STA = 14+97.07
BEGIN DRAIN TRANSITION
PI STA = 15+03.07
END DRAIN TRANSITION
901 OPEN SPACE
BLOCK 56
BLOCK 56
9
1
2
3
4
5
6
1479

SCALE: 1"=20'
0 20 40

LEGEND

OVERALL UNIT BOUNDARY	— — —
PROPOSED RIGHT OF WAY	———
EXISTING 1' CONTOUR	- - 499 - -
EXISTING 5' CONTOUR	- - 500 - -
PROPOSED 1' CONTOUR	—(499)—
PROPOSED 5' CONTOUR	—(500)—
PROPOSED GAS MAIN	—— G ——
PROPOSED CULVERT	▨
CONCRETE RIP RAP	▨
ROCK RUBBLE	▨
SOD LINED	▨


PROPERTY LINE
VARIES MIN 2'
50' CHANNEL SECTION
BOUNDARY LINE
z
Bw
z
15.0'
10% MAX SLOPE
FG (FILL)
FG (CUT)
MATCH EXISTING GROUND @ 3:1 SLOPE
3:1
h
dn
3:1
10% MAX SLOPE
FG (FILL)
FG (CUT)
MATCH EXISTING GROUND @ 3:1 SLOPE
SOD-LINED EARTHEN CHANNEL

DRAIN '5-A' EARTHEN CHANNEL
(N.T.S.)
"C-C" STA. 7+95.53 TO STA. 14+97.07

	"C-C"
BEGIN STA.	7+95.53
END STA.	14+97.07
Q_{100} (cfs)	30.87
B_w (ft)	13.00'
z (ft)	6.00'
n	0.035
h (ft)	1.50'
S (%)	0.50
d_n (ft)	0.84'
V (fps)	2.37
Fr	0.456

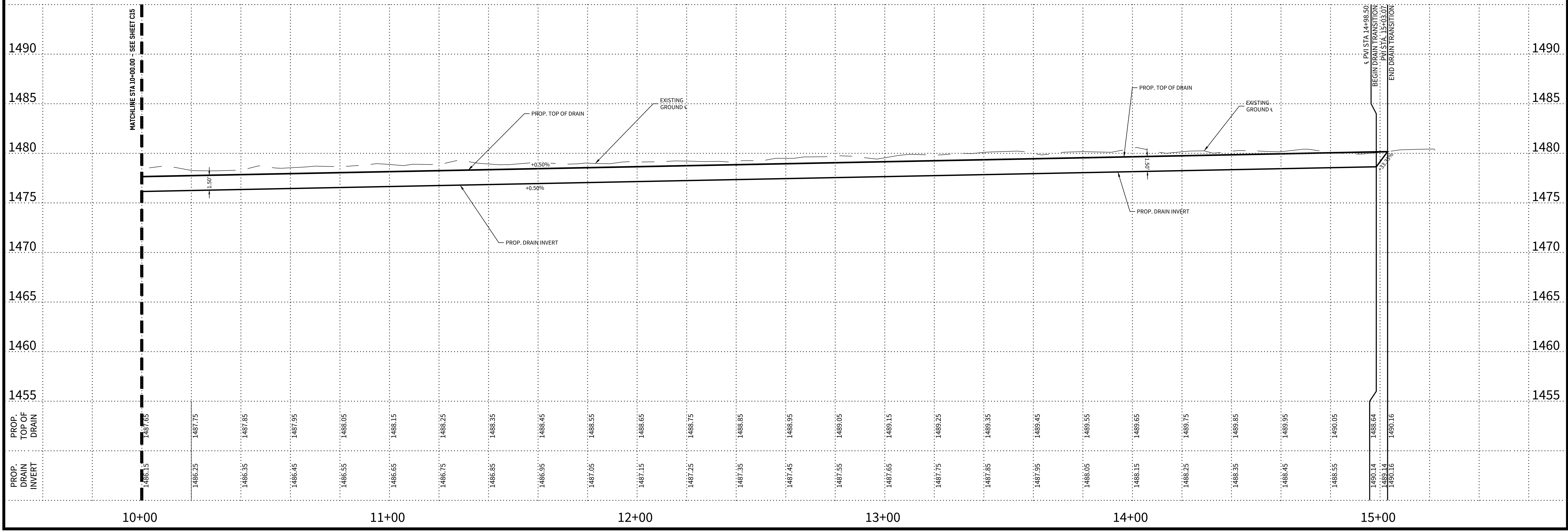
DRAIN '5-A'

STA. 9+20.00 TO END

NOTES:

1. ALL CONCRETE LINING SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 4,000 PSI IN 28 DAYS
2. 85% OF CHANNEL SURFACE MUST HAVE ESTABLISHED VEGETATION PRIOR TO ACCEPTANCE OF THE CHANNEL BY THE CITY OF BOERNE. HYDROMULCH PAY ITEM TO INCLUDE SOIL, SEEDING, OR SODDING & WATERING FOR THE TIME PERIOD NEEDED TO ACHIEVE 85% VEGETATION.
3. REFERENCE CITY OF BOERNE CONCRETE RIP-RAP TYPICAL SECTION DETAIL ON THIS SHEET
4. PER THE CITY OF BOERNE DEVELOPMENT AGREEMENT, EARTHEN CHANNELS MUST BE SOD LINED WHERE VELOCITIES OF STORM WATER RUNOFF ARE 3 - 6 FPS.

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


MATCHLINE STA 10+00.00 - SEE SHEET C15
1490
1485
1480
1475
1470
1465
1460
1455
PROP. TOP OF DRAIN
EXISTING GROUND ℄
PROP. DRAIN INVERT
PROP. TOP OF DRAIN
EXISTING GROUND ℄
PROP. DRAIN INVERT
+0.50%
+0.50%
1.50'
1.50'
+33.33%
℄ PVI STA 14+98.50
BEGIN DRAIN TRANSITION
PVI STA. 15+03.07
END DRAIN TRANSITION
10+00
11+00
12+00
13+00
14+00
15+00

PROP. TOP OF DRAIN	PROP. DRAIN INVERT
1487.65	1486.15
1487.75	1486.25
1487.85	1486.35
1487.95	1486.45
1488.05	1486.55
1488.15	1486.65
1488.25	1486.75
1488.35	1486.85
1488.45	1486.95
1488.55	1487.05
1488.65	1487.15
1488.75	1487.25
1488.85	1487.35
1488.95	1487.45
1489.05	1487.55
1489.15	1487.65
1489.25	1487.75
1489.35	1487.85
1489.45	1487.95
1489.55	1488.05
1489.65	1488.15
1489.75	1488.25
1489.85	1488.35
1489.95	1488.45
1490.05	1488.55
1488.64	1490.14
	1489.14
1490.16	1490.16

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CORLEY FARMS
UNIT 5

DRAIN PLAN & PROFILE - DRAIN '5-A'

DATE
06/02/2025
PROJECT NO.
03481.012
DRAWN BY
C3
CHECKED BY
XV/AL

#	DATE	REVISIONS
1.	11/7/24	PERMITTING COMMENTS
2.	04/7/25	PERMITTING COMMENTS
3.	5/27/25	GRADING REVISION
4.		
5.		
6.		
7.		
8.		
9.		

ANDREW R. LOWRY
123410
6/2/25

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

SAWS JOB NO.
22-1190

C15

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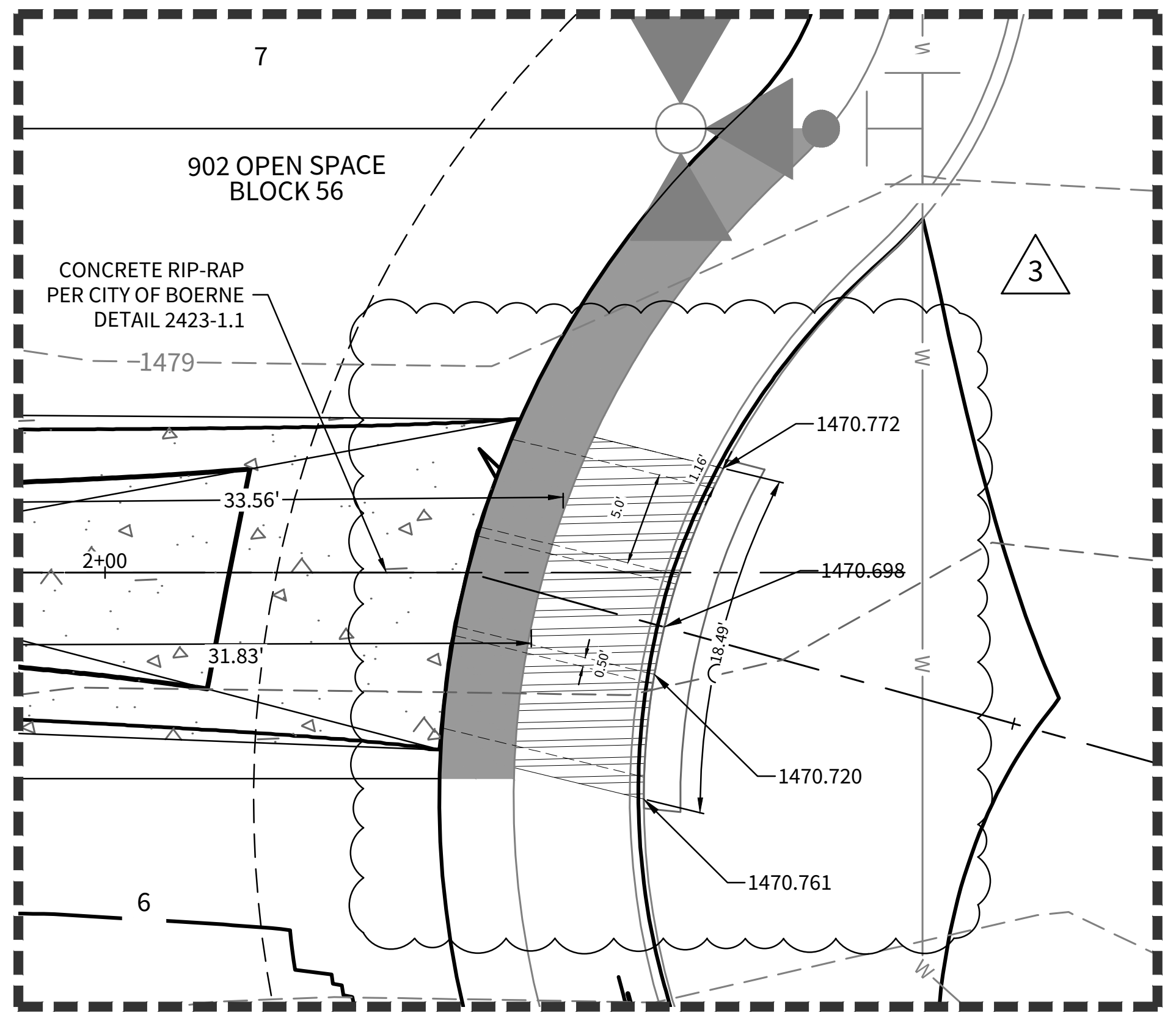
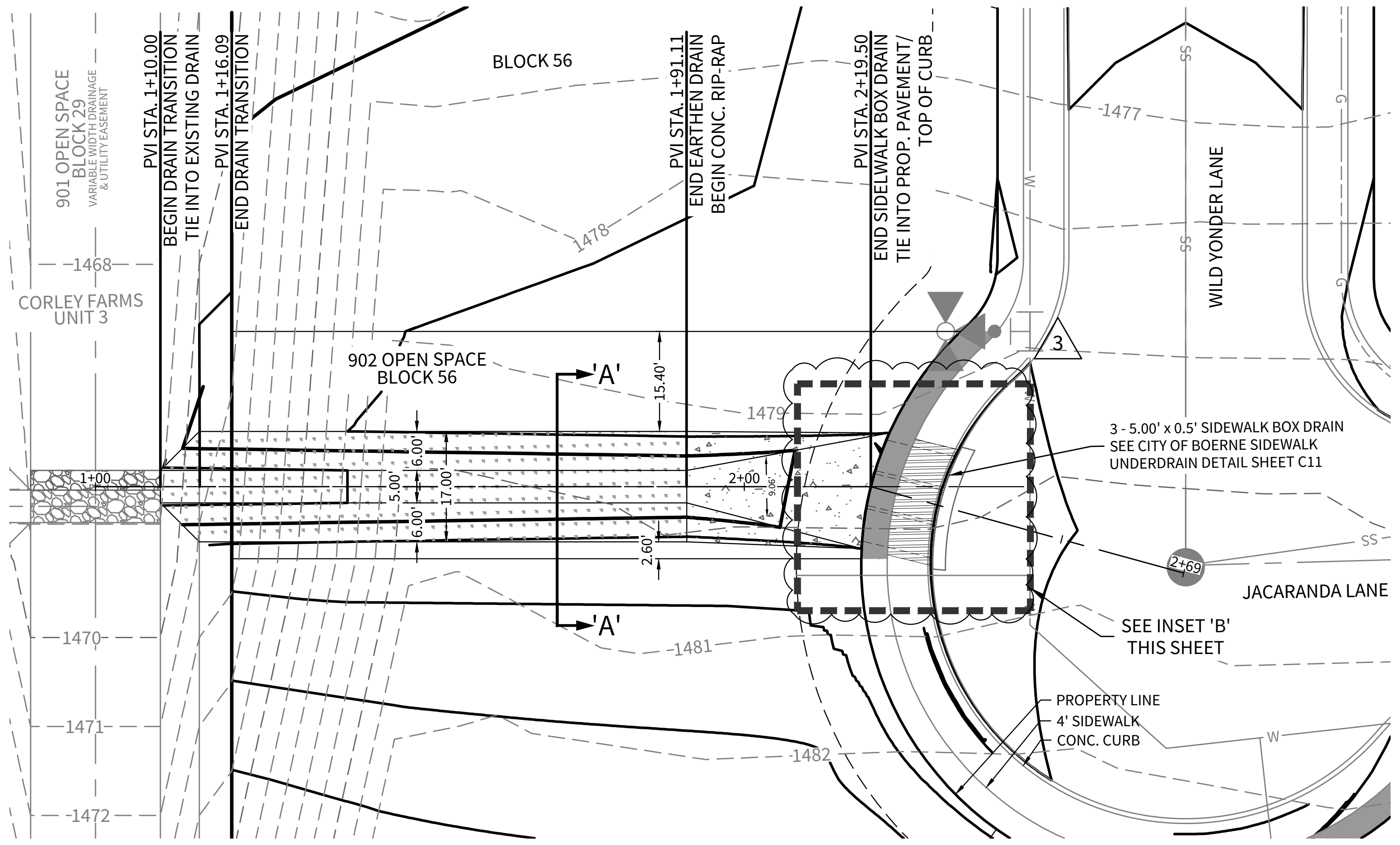
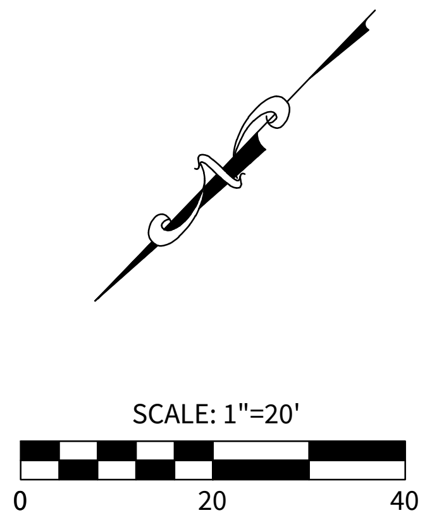
P:\03481\012\2-Drawings\C7.02-7.04 DRAIN PLAN & PROFILE - DRAIN '5-A'.dwg 2025/06/02 12:31pm kmartinez


7
902 OPEN SPACE
BLOCK 56
CONCRETE RIP-RAP
PER CITY OF BOERNE
DETAIL 2423-1.1
1479
1470.772
33.56'
2+00
1470.698
31.83'
1470.720
1470.761
6
3

INSET 'B'

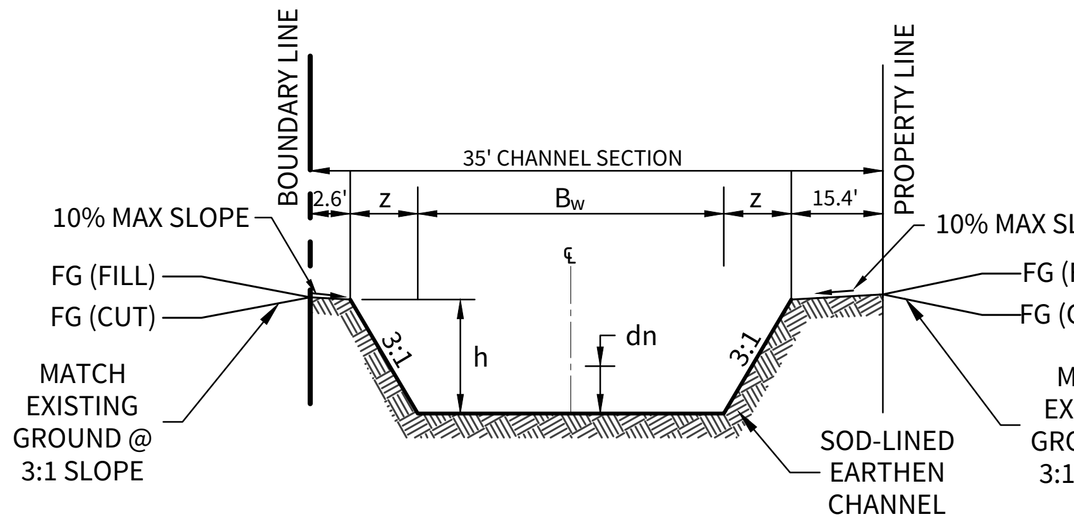
SCALE: 1"=10'


901 OPEN SPACE
BLOCK 29
VARIABLE WIDTH DRAINAGE & UTILITY EASEMENT
CORLEY FARMS
UNIT 3
PVI STA. 1+10.00
BEGIN DRAIN TRANSITION
TIE INTO EXISTING DRAIN
PVI STA. 1+16.09
END DRAIN TRANSITION
BLOCK 56
PVI STA. 1+91.11
END EARTHEN DRAIN
BEGIN CONC. RIP-RAP
PVI STA. 2+19.50
END SIDEWALK BOX DRAIN
TIE INTO PROP. PAVEMENT/
TOP OF CURB
WILD YONDER LANE
1477
1478
1468
902 OPEN SPACE
BLOCK 56
'A'
15.40'
1479
6.00'
17.00'
5.00'
6.00'
2.60'
1+00
2+00
3
3 - 5.00' x 0.5' SIDEWALK BOX DRAIN
SEE CITY OF BOERNE SIDEWALK
UNDERDRAIN DETAIL SHEET C11
JACARANDA LANE
'A'
1470
1481
SEE INSET 'B'
THIS SHEET
PROPERTY LINE
4' SIDEWALK
CONC. CURB
1471
1482
1472


SCALE: 1"=20'
0
20
40

LEGEND

OVERALL UNIT BOUNDARY	— — —
PROPOSED RIGHT OF WAY	——
EXISTING 1' CONTOUR	- - 499 - -
EXISTING 5' CONTOUR	- - 500 - -
PROPOSED 1' CONTOUR	—499—
PROPOSED 5' CONTOUR	—500—
PROPOSED GAS MAIN	— G —
PROPOSED CULVERT	▭
CONCRETE RIP RAP	▨
ROCK RUBBLE	▨
SOD LINED	▨


BOUNDARY LINE
PROPERTY LINE
35' CHANNEL SECTION
5.6'
z
Bw
z
15.4'
10% MAX SLOPE
FG (FILL)
FG (CUT)
MATCH
EXISTING
GROUND @
3:1 SLOPE
3:1
h
dn
3:1
10% MAX SLOPE
FG (FILL)
FG (CUT)
SOD-LINED
EARTHEN
CHANNEL
MATCH
EXISTING
GROUND @
3:1 SLOPE

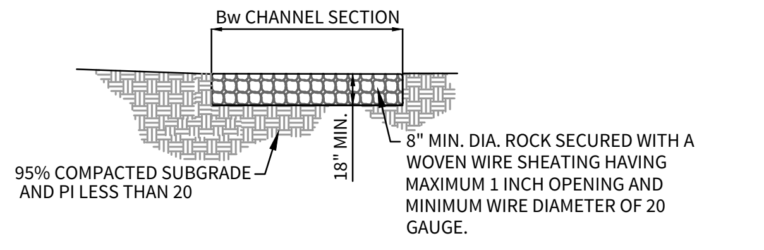
DRAIN '5-B' EARTHEN CHANNEL

(N.T.S.)

"A-A" STA. 1+16.09 TO STA. 2+09.50

	"A-A"
BEGIN STA.	1+16.09
END STA.	2+09.50
Q_{100} (cfs)	35.86
B_w (ft)	5.00'
z (ft)	6.00'
n	0.035
h (ft)	2.00'
S (%)	0.50
d_n (ft)	1.36'
V (fps)	2.81
Fr	0.425

NOTE:
EARTHEN CHANNELS TO BE SOD LINED WHEN VELOCITIES ARE 3 - 6 FPS


Bw CHANNEL SECTION
18" MIN.
95% COMPACTED SUBGRADE
AND PI LESS THAN 20
8" MIN. DIA. ROCK SECURED WITH A
WOVEN WIRE SHEATING HAVING
MAXIMUM 1 INCH OPENING AND
MINIMUM WIRE DIAMETER OF 20
GAUGE.

GABION STYLE ROCK EROSION CONTROL MATRESS DETAIL

NOTE: GABION MATTRESS TO BE FREE OF GEO-TEXTILE FABRIC LINING.

(N.T.S.)

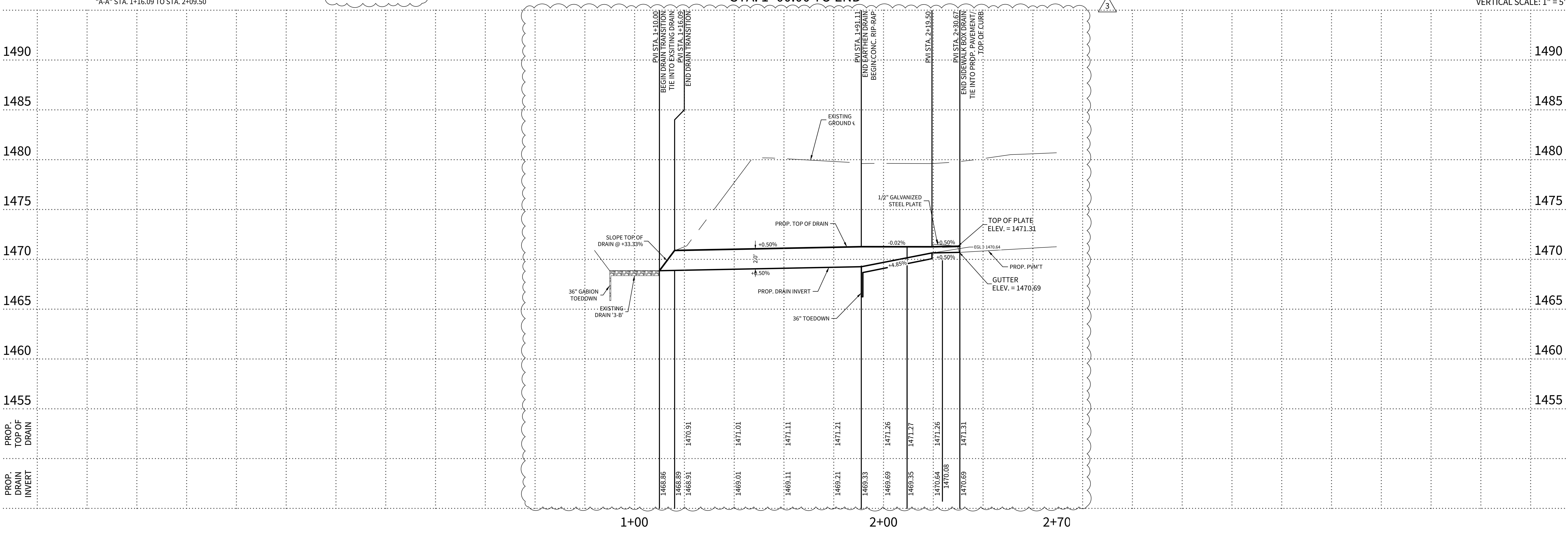
NOTES:

1. ALL CONCRETE LINING SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 4,000 PSI IN 28 DAYS
2. 85% OF CHANNEL SURFACE MUST HAVE ESTABLISHED VEGETATION PRIOR TO ACCEPTANCE OF THE CHANNEL BY THE CITY OF BOERNE. HYDROMULCH PAY ITEM TO INCLUDE SOIL, SEEDING, OR SODDING & WATERING FOR THE TIME PERIOD NEEDED TO ACHIEVE 85% VEGETATION.
3. REFERENCE CITY OF BOERNE CONCRETE RIP-RAP TYPICAL SECTION DETAIL ON THIS SHEET
4. PER THE CITY OF BOERNE DEVELOPMENT AGREEMENT, EARTHEN CHANNELS MUST BE SOD LINED WHERE VELOCITIES OF STORM WATER RUNOFF ARE 3 - 6 FPS.

DRAIN '5-B'

STA. 1+00.00 TO END

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


3
1490
1485
1480
1475
1470
1465
1460
1455
PVI STA. 1+10.00
BEGIN DRAIN TRANSITION
TIE INTO EXSITING DRAIN
PVI STA. 1+16.09
END DRAIN TRANSITION
PVI STA. 1+91.11
END EARTHEN DRAIN
BEGIN CONC. RIP-RAP
PVI STA. 2+19.50
PVI STA. 2+30.67
END SIDEWALK BOX DRAIN
TIE INTO PROP. PAVEMENT/
TOP OF CURB
EXISTING
GROUND
1/2" GALVANIZED
STEEL PLATE
TOP OF PLATE
ELEV. = 1471.31
PROP. TOP OF DRAIN
SLOPE TOP OF
DRAIN @ +33.33%
+0.50%
-0.02%
+0.50%
EGL = 1470.64
2.0'
+0.50%
+4.85%
+0.50%
PROP. PVM'T
GUTTER
ELEV. = 1470.69
36" GABION
TOEDOWN
EXISTING
DRAIN '3-B'
PROP. DRAIN INVERT
36" TOEDOWN
PROP. TOP OF DRAIN
1470.91
1471.01
1471.11
1471.21
1471.26
1471.27
1471.26
1471.31
PROP. DRAIN INVERT
1468.86
1468.89
1468.91
1469.01
1469.11
1469.21
1469.33
1469.69
1469.35
1470.64
1470.08
1470.69
1+00
2+00
2+70

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EST. 1980
ENGINEERS

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San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

**CORLEY FARMS
UNIT 5**

DRAIN PLAN & PROFILE - DRAIN '5-B'

DATE
06/02/2025

PROJECT NO.
03481.012

DRAWN BY
C3

CHECKED BY
XV/AL

#	DATE	REVISIONS
1.	11/7/24	PERMITTING COMMENTS
2.	11/7/24	PERMITTING COMMENTS
3.	5/27/25	GRADING REVISION
4.		
5.		
6.		
7.		
8.		
9.		

ANDREW R. LOWRY
123410
6/2/25

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C16

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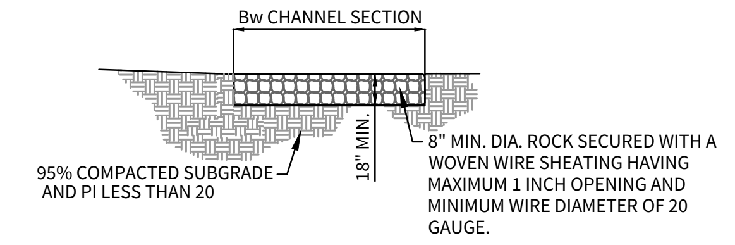
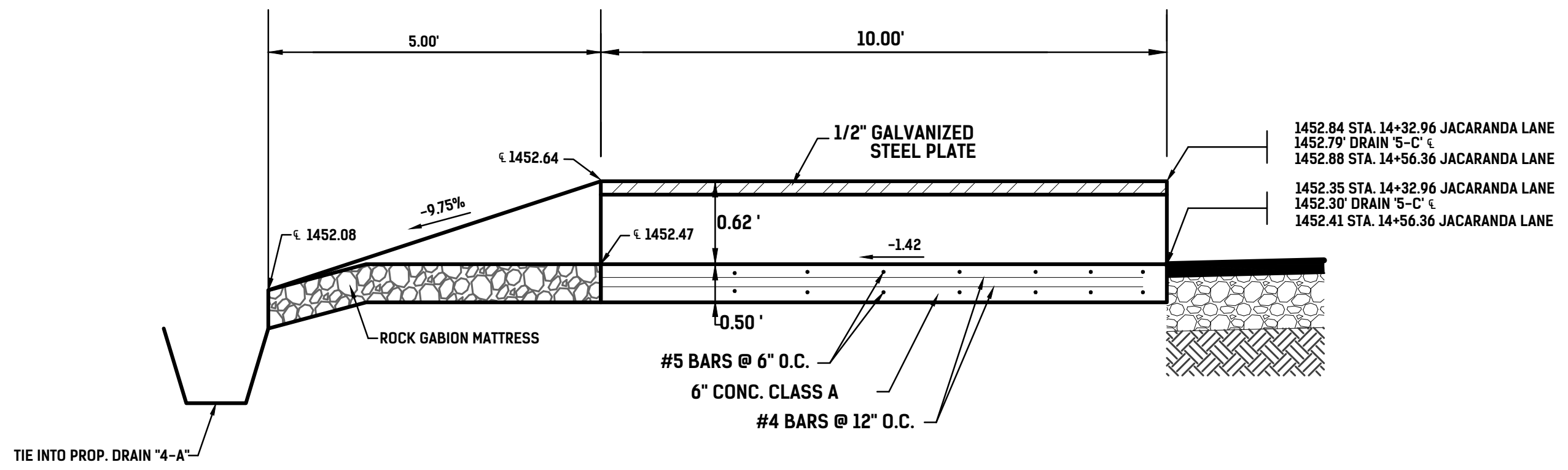

Bw CHANNEL SECTION
18" MIN.
95% COMPACTED SUBGRADE AND PI LESS THAN 20
8" MIN. DIA. ROCK SECURED WITH A WOVEN WIRE SHEATING HAVING MAXIMUM 1 INCH OPENING AND MINIMUM WIRE DIAMETER OF 20 GAUGE.

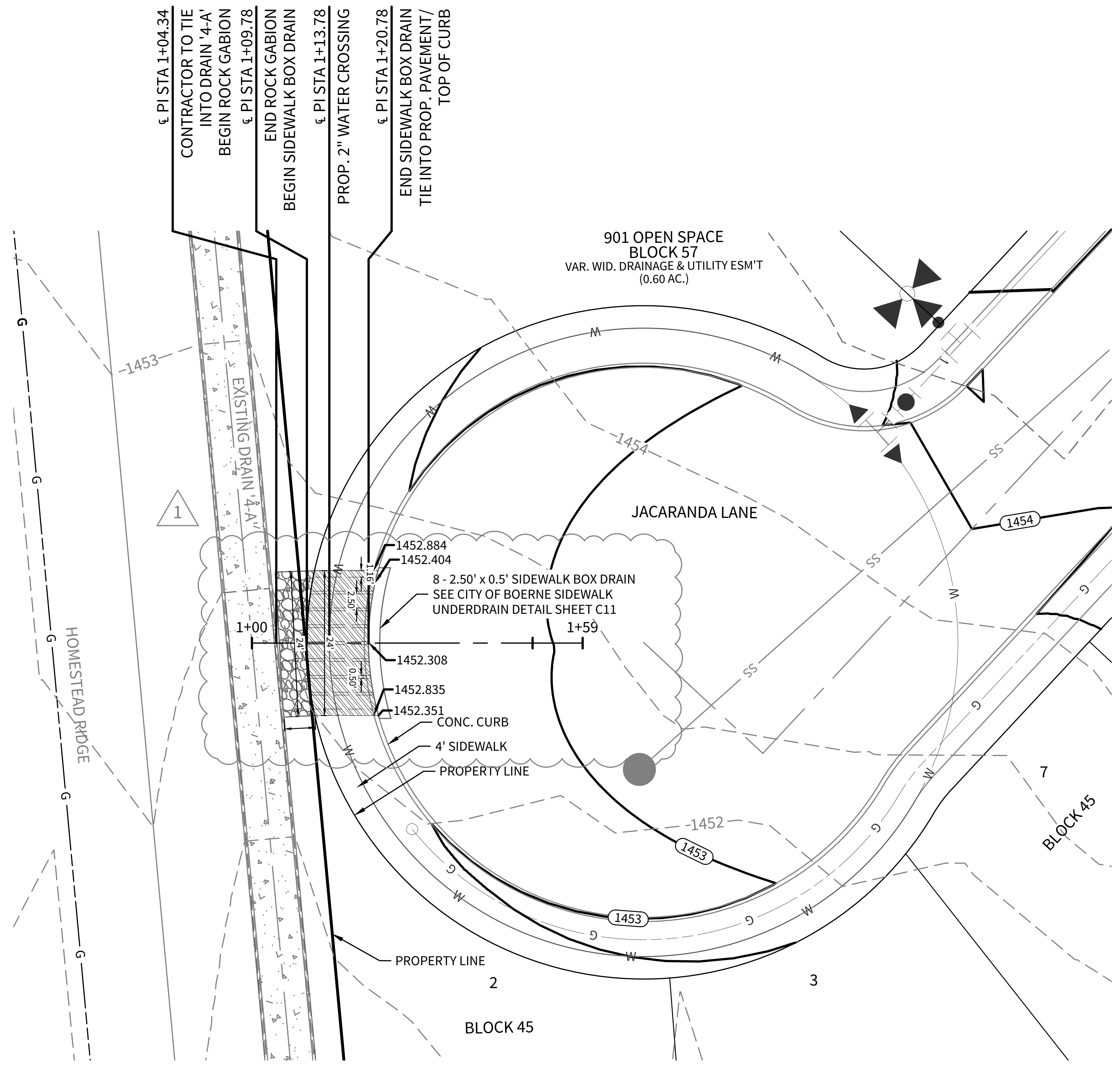
GABION STYLE ROCK EROSION CONTROL MATRESS DETAIL

NOTE: GABION MATTRESS TO BE FREE OF GEO-TEXTILE FABRIC LINING.
(N.T.S.)


5.00'
10.00'
1/2" GALVANIZED STEEL PLATE
℄ 1452.64
-9.75%
℄ 1452.08
℄ 1452.47
0.62 '
-1.42
0.50 '
ROCK GABION MATTRESS
#5 BARS @ 6" O.C.
6" CONC. CLASS A
#4 BARS @ 12" O.C.
TIE INTO PROP. DRAIN "4-A"
1452.84 STA. 14+32.96 JACARANDA LANE
1452.79' DRAIN '5-C' ℄
1452.88 STA. 14+56.36 JACARANDA LANE
1452.35 STA. 14+32.96 JACARANDA LANE
1452.30' DRAIN '5-C' ℄
1452.41 STA. 14+56.36 JACARANDA LANE

BOX DRAIN "5-C" INLET SECTION

(N.T.S)


℄ PI STA 1+04.34
CONTRACTOR TO TIE INTO DRAIN '4-A' BEGIN ROCK GABION
℄ PI STA 1+09.78
END ROCK GABION BEGIN SIDEWALK BOX DRAIN
℄ PI STA 1+13.78
PROP. 2" WATER CROSSING
℄ PI STA 1+20.78
END SIDEWALK BOX DRAIN TIE INTO PROP. PAVEMENT/ TOP OF CURB
901 OPEN SPACE
BLOCK 57
VAR. WID. DRAINAGE & UTILITY ESM'T
(0.60 AC.)
1453
EXISTING DRAIN '4-A'
1
1454
JACARANDA LANE
1452.884
1452.404
8 - 2.50' x 0.5' SIDEWALK BOX DRAIN SEE CITY OF BOERNE SIDEWALK UNDERDRAIN DETAIL SHEET C11
1+00
1+59
1452.308
1452.835
1452.351
1.16'
2.50'
0.50'
24'
HOMESTEAD RIDGE
CONC. CURB
4' SIDEWALK
PROPERTY LINE
1452
1453
7
BLOCK 45
PROPERTY LINE
2
3
BLOCK 45
SS
W
G

SCALE: 1"=20'
0 20 40

LEGEND

OVERALL UNIT BOUNDARY	— — —
PROPOSED RIGHT OF WAY	———
EXISTING 1' CONTOUR	- - 499 - -
EXISTING 5' CONTOUR	- - 500 - -
PROPOSED 1' CONTOUR	—(499)—
PROPOSED 5' CONTOUR	—(500)—
PROPOSED GAS MAIN	— G —
PROPOSED CULVERT	▭
CONCRETE RIP RAP	▨
ROCK RUBBLE	▨

NOTES:

1. ALL CONCRETE LINING SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 4,000 PSI IN 28 DAYS
2. 85% OF CHANNEL SURFACE MUST HAVE ESTABLISHED VEGETATION PRIOR TO ACCEPTANCE OF THE CHANNEL BY THE CITY OF BOERNE. HYDROMULCH PAY ITEM TO INCLUDE SOIL, SEEDING, OR SODDING & WATERING FOR THE TIME PERIOD NEEDED TO ACHIEVE 85% VEGETATION.
3. REFERENCE CITY OF BOERNE CONCRETE RIP-RAP TYPICAL SECTION DETAIL ON THIS SHEET
4. PER THE CITY OF BOERNE DEVELOPMENT AGREEMENT, EARTHEN CHANNELS MUST BE SOD LINED WHERE VELOCITIES OF STORM WATER RUNOFF ARE 3 - 6 FPS.

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

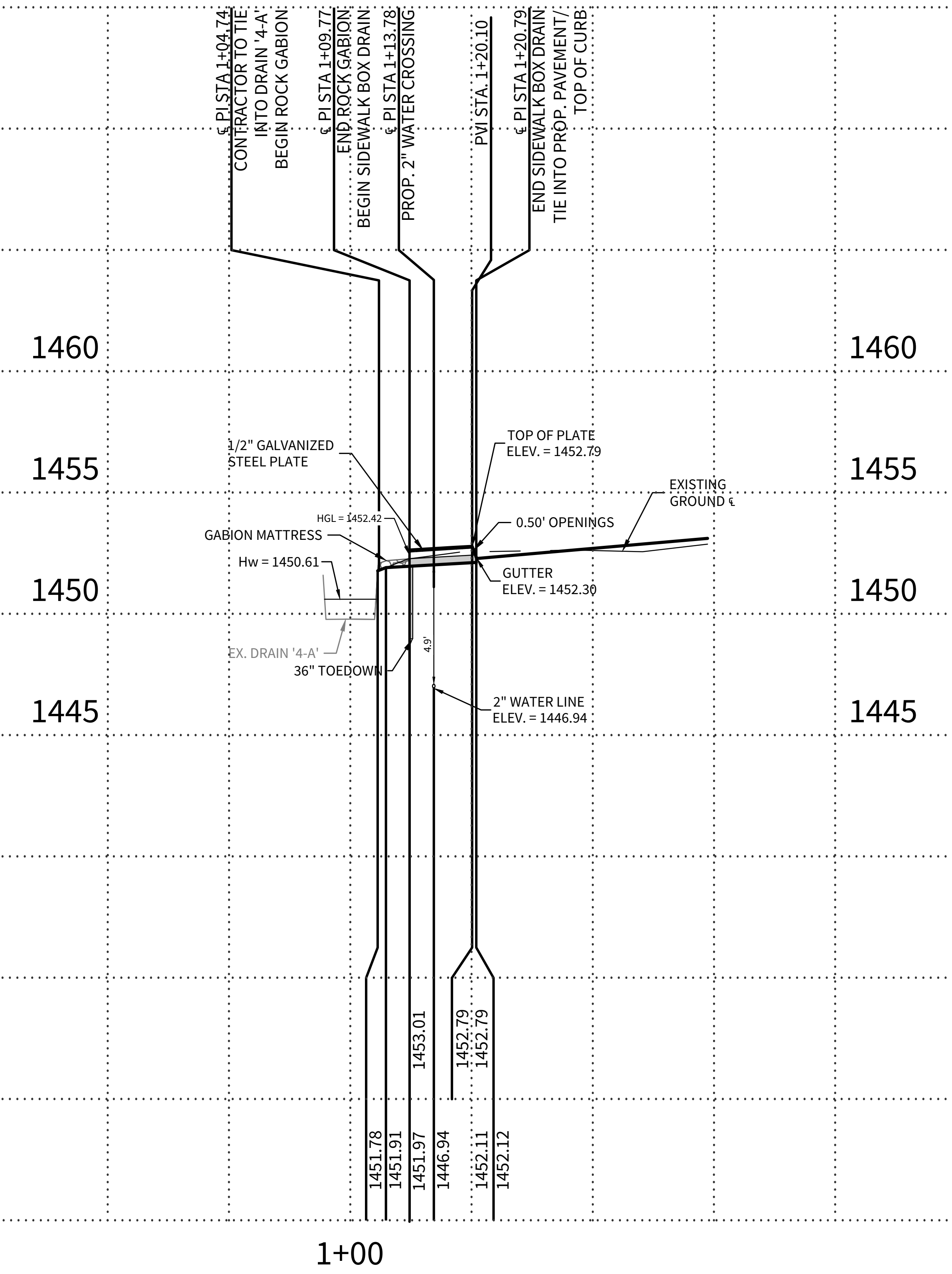
DRAIN '5-C'

STA. 1+00.00 TO END

2

SIDEWALK DRAIN '5-C' INLET OPENING

8 - 2.50' X 0.50' S.B.C.
ALLOWABLE Hw = 1452.42
COMPUTED Hw = 1452.30
SLOPE = 0.50%
MANNING'S COEFFICIENT = 0.013
Q_{100} = 19.77 c.f.s.
V = 3.17 f.p.s.


℄ PI STA 1+04.74
CONTRACTOR TO TIE INTO DRAIN '4-A' BEGIN ROCK GABION
℄ PI STA 1+09.77
END ROCK GABION BEGIN SIDEWALK BOX DRAIN
℄ PI STA 1+13.78
PROP. 2" WATER CROSSING
PVI STA. 1+20.10
℄ PI STA 1+20.79
END SIDEWALK BOX DRAIN TIE INTO PROP. PAVEMENT/ TOP OF CURB
1460
1455
1450
1445
1/2" GALVANIZED STEEL PLATE
TOP OF PLATE ELEV. = 1452.79
EXISTING GROUND ℄
HGL = 1452.42
0.50' OPENINGS
GABION MATTRESS
Hw = 1450.61
GUTTER ELEV. = 1452.30
EX. DRAIN '4-A'
36" TOEDOWN
4.9'
2" WATER LINE ELEV. = 1446.94
1453.01
1452.79
1452.79
1451.78
1451.91
1451.97
1446.94
1452.11
1452.12

PROP. TOP OF DRAIN

PROP. DRAIN INVERT

1+00

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EST. 1980
CUDE
ENGINEERS

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San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

CORLEY FARMS
UNIT 5

DRAIN PLAN & PROFILE - DRAIN '5-C'

DATE
04/09/2025

PROJECT NO.
03481.012

DRAWN BY
C3

CHECKED BY
XV/AL

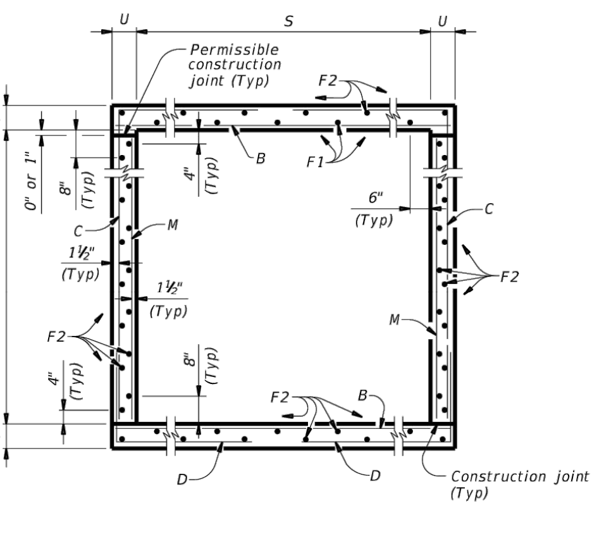
#	DATE	REVISIONS
1.	11/7/24	PERMITTING COMMENTS
2.	04/7/25	PERMITTING COMMENTS
3.		
4.		
5.		
6.		
7.		
8.		
9.		

ANDREW R. LOWRY
123410
4/11/25

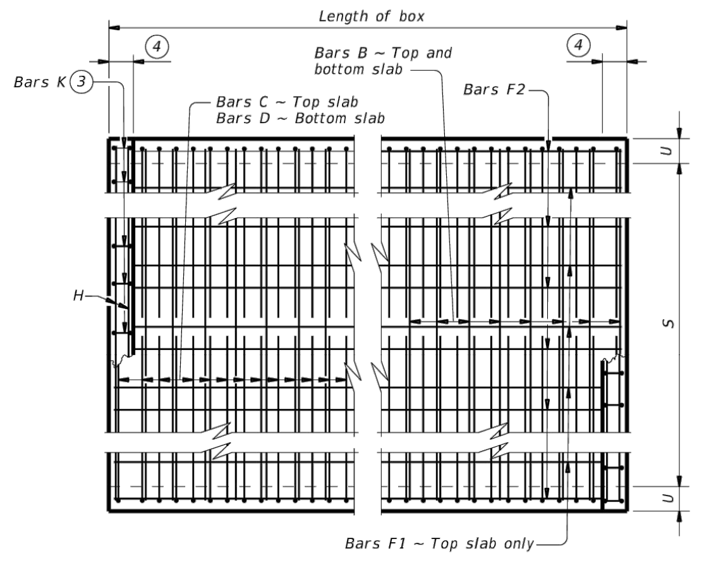
CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C17

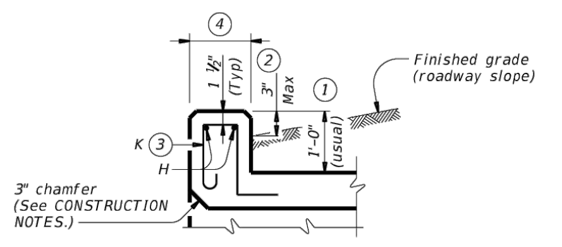
P:\03481\012\2-Drawings\C17 DRAIN PLAN & PROFILE - DRAIN '5-C'.dwg 2025/04/09 10:36pm mlopez



TYPICAL SECTION



PLAN OF REINF STEEL


④
1½" (Typ)
②
3" Max
①
Finished grade (roadway slope)
K
H
3" chamfer (See CONSTRUCTION NOTES.)

SECTION THRU CURB

① 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 Rail Anchorage Curb (RAC) standard sheet for structures with bridge rail other than T631 or T631LS.

② 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.

③ 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.

④ 1'–0" typical. 2'–3" when the Rail Anchorage Curb (RAC) standard sheet is referred to elsewhere in the plans.

The Contractor may replace Bars B, C, D, E, F1, F2, M, Y, and/or Z with deformed welded wire reinforcement (WWR) meeting the requirements of ASTM A1064. The area of required reinforcement may be reduced by the ratio of 60 ksi / 70 ksi. Spacing of WWR is limited to 4" Min and 18" Max. When required, provide lap splices in the WWR of the same length required for the equivalent bar size, rounded up for wire sizes between conventional bar sizes. The lap length required for WWR is never less than the lap length required for uncoated #4 bars.

Example conversion: Replacing No. 6 Gr 60 at 6" Spacing with WWR.
Required WWR = (0.44 sq. in. per 0.5 ft.) x (60 ksi / 70 ksi) = 0.755 sq. in. per ft.
If D30.6 wire is used to meet the 0.755 sq. in. per ft. requirement in this example, the required spacing = (0.306 sq. in.) / (0.755 sq. in. per ft.) x (12 in. per ft.) = 4.86" Max spacing. Required lap length for the provided D30.6 wire is 2'–1" (the same minimum lap length required for uncoated #5 bars, as listed under MATERIAL NOTES).

CONSTRUCTION NOTES:

Do not use permanent forms.

Chamfer the bottom edge of the top slab 3" at the entrance.

Optionally, raise construction joints shown at the flow line by a maximum of 6". If this option is taken, Bars M may be cut off or raised, Bars C and D may be reversed.

MATERIAL NOTES:

Provide Grade 60 reinforcing steel.

Provide galvanized reinforcing steel if required elsewhere in the plans.

Provide Class C concrete (f'c = 4,000 psi) for culvert barrel and curb, with the following exceptions: provide Class S concrete (f'c = 4,000 psi) for top slabs of:
- culverts with overlay,
- culverts with 1–to–2 course surface treatment, or
- culverts with the top slab as the final riding surface.

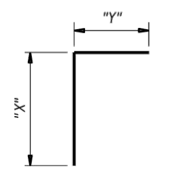
Provide bar laps, where required, as follows:
- Uncoated or galvanized ~ #4 = 1'–8" Min
- Uncoated or galvanized ~ #5 = 2'–1" Min

GENERAL NOTES:

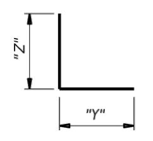
Designed according to AASHTO LRFD Bridge Design Specifications for the range of fill heights shown.

See the Single Box Culverts Cast–In–Place Miscellaneous Detail (SCC–MD) standard sheet for details pertaining to skewed ends, angle sections, and lengthening.

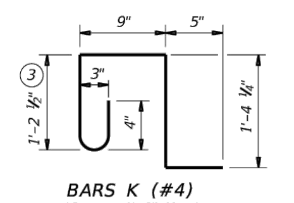
Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing bar dimensions shown are out–to–out of bar.



BARS C



BARS D



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

HL93 LOADING SHEET 1 OF 2

Texas Department of Transportation | Bridge Division Standard

SINGLE BOX CULVERTS CAST-IN-PLACE
0' TO 30' FILL

SCC-3 & 4

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SECTION DIMENSIONS				FILL HEIGHT ⑤	BILLS OF REINFORCING STEEL (For Box Length = 40 feet)																																		QUANTITIES					
					Bars B					Bars C							Bars D							Bars M ~ #4				Bars F1 ~ #4 at 18" Spa			Bars F2 ~ #4 at 18" Spa			Bars H 4 ~ #4		Bars K		Per Foot of Barrel		Curb		Total	
S	H	T	U		No.	Size	Spa	Length	Weight	No.	Size	Spa	Length	Weight	" X "	" Y "	No.	Size	Spa	Length	Weight	" Y "	" Z "	No.	Spa	Length	Weight	No.	Length	Wt	No.	Length	Weight	Length	Wt	No.	Wt	Conc (CY)	Reinf (Lb)	Conc (CY)	Reinf (Lb)	Conc (CY)	Reinf (Lb)
3' - 0"	2' - 0"	8"	7"	30'	108	#5	9"	3' - 11"	441	108	#4	9"	5' - 5"	391	2' - 7"	2' - 10"	108	#4	9"	5' - 1"	367	2' - 10"	2' - 3"	108	9"	2' - 0"	144	3	39' - 9"	80	19	39' - 9"	505	3' - 11"	10	10	28	0.292	48.2	0.3	38	12.0	1,966
3' - 0"	3' - 0"	8"	7"	30'	108	#5	9"	3' - 11"	441	108	#4	9"	6' - 5"	463	3' - 7"	2' - 10"	108	#4	9"	5' - 1"	367	2' - 10"	2' - 3"	108	9"	3' - 0"	216	3	39' - 9"	80	23	39' - 9"	611	3' - 11"	10	10	28	0.335	54.5	0.3	38	13.7	2,216
4' - 0"	2' - 0"	8"	7"	30'	108	#5	9"	4' - 11"	554	162	#4	6"	5' - 9"	622	2' - 7"	3' - 2"	162	#4	6"	5' - 5"	586	3' - 2"	2' - 3"	108	9"	2' - 0"	144	3	39' - 9"	80	21	39' - 9"	558	4' - 11"	13	12	33	0.342	63.6	0.4	46	14.1	2,590
4' - 0"	3' - 0"	8"	7"	30'	108	#5	9"	4' - 11"	554	162	#4	6"	6' - 9"	730	3' - 7"	3' - 2"	162	#4	6"	5' - 5"	586	3' - 2"	2' - 3"	108	9"	3' - 0"	216	3	39' - 9"	80	25	39' - 9"	664	4' - 11"	13	12	33	0.385	70.8	0.4	46	15.8	2,876
4' - 0"	4' - 0"	8"	7"	30'	108	#5	9"	4' - 11"	554	162	#4	6"	7' - 9"	839	4' - 7"	3' - 2"	162	#4	6"	5' - 5"	586	3' - 2"	2' - 3"	108	9"	4' - 0"	289	3	39' - 9"	80	25	39' - 9"	664	4' - 11"	13	12	33	0.428	75.3	0.4	46	17.5	3,058

⑤ For direct traffic culverts (fill height ≤ 2 ft.), identify the required box size and select the option with the minimum fill height.

HL93 LOADING SHEET 2 OF 2

Texas Department of Transportation | Bridge Division Standard

SINGLE BOX CULVERTS CAST-IN-PLACE
0' TO 30' FILL

SCC-3 & 4

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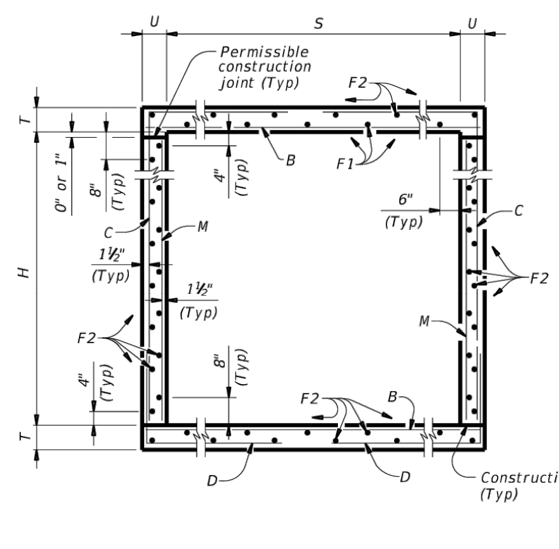
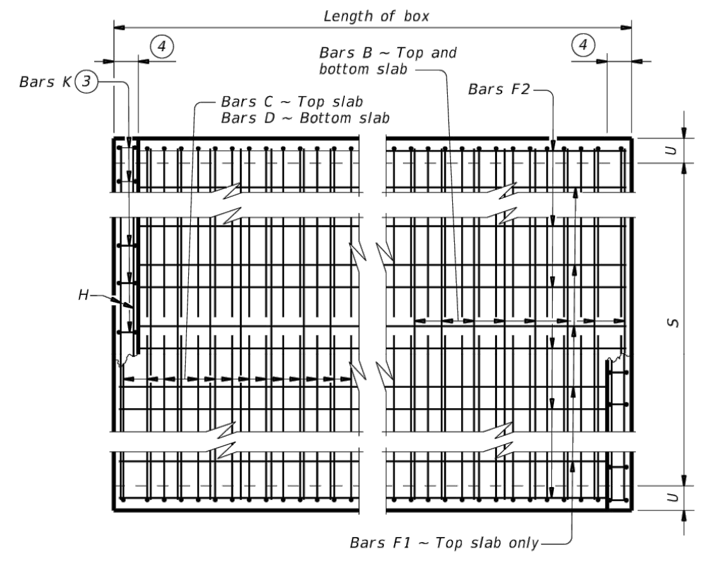
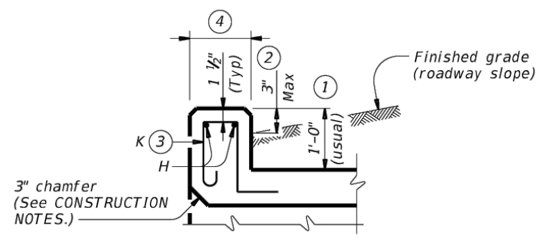


TYPICAL SECTION



PLAN OF REINF STEEL


④
1½" (Typ)
②
3" Max
①
Finished grade (roadway slope)
K
H
3" chamfer (See CONSTRUCTION NOTES.)

SECTION THRU CURB

① 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 Rail Anchorage Curb (RAC) standard sheet for structures with bridge rail other than T631 or T631LS.

② For vehicle safety, the following requirements must be met:
- For structures without bridge rail, construct curbs no more than 3" above finished grade.
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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.

③ 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.

④ 1'–0" typical. 2'–3" when the Rail Anchorage Curb (RAC) standard sheet is referred to elsewhere in the plans.

The Contractor may replace Bars B, C, D, E, F1, F2, M, Y, and/or Z with deformed welded wire reinforcement (WWR) meeting the requirements of ASTM A1064. The area of required reinforcement may be reduced by the ratio of 60 ksi / 70 ksi. Spacing of WWR is limited to 4" Min and 18" Max. When required, provide lap splices in the WWR of the same length required for the equivalent bar size, rounded up for wire sizes between conventional bar sizes. The lap length required for WWR is never less than the lap length required for uncoated #4 bars.

Example conversion: Replacing No. 6 Gr 60 at 6" Spacing with WWR.
Required WWR = (0.44 sq. in. per 0.5 ft.) x (60 ksi / 70 ksi) = 0.755 sq. in. per ft.
If D30.6 wire is used to meet the 0.755 sq. in. per ft. requirement in this example, the required spacing = (0.306 sq. in.) / (0.755 sq. in. per ft.) x (12 in. per ft.) = 4.86" Max spacing. Required lap length for the provided D30.6 wire is 2'–1" (the same minimum lap length required for uncoated #5 bars, as listed under MATERIAL NOTES).

CONSTRUCTION NOTES:

Do not use permanent forms.

Chamfer the bottom edge of the top slab 3" at the entrance.

Optionally, raise construction joints shown at the flow line by a maximum of 6". If this option is taken, Bars M may be cut off or raised, Bars C and D may be reversed.

MATERIAL NOTES:

Provide Grade 60 reinforcing steel.

Provide galvanized reinforcing steel if required elsewhere in the plans.

Provide Class C concrete (f'c = 4,000 psi) for culvert barrel and curb, with the following exceptions: provide Class S concrete (f'c = 4,000 psi) for top slabs of:
- culverts with overlay,
- culverts with 1–to–2 course surface treatment, or
- culverts with the top slab as the final riding surface.

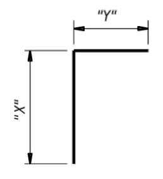
Provide bar laps, where required, as follows:
- Uncoated or galvanized ~ #4 = 1'–8" Min
- Uncoated or galvanized ~ #5 = 2'–1" Min
- Uncoated or galvanized ~ #6 = 2'–6" Min

GENERAL NOTES:

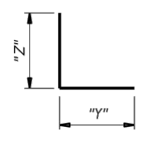
Designed according to AASHTO LRFD Bridge Design Specifications for the range of fill heights shown.

See the Single Box Culverts Cast–In–Place Miscellaneous Detail (SCC–MD) standard sheet for details pertaining to skewed ends, angle sections, and lengthening.

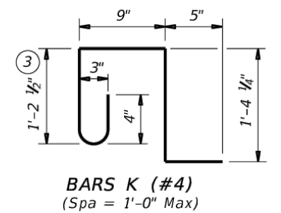
Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing bar dimensions shown are out–to–out of bar.



BARS C



BARS D



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

HL93 LOADING SHEET 1 OF 2

Texas Department of Transportation | Bridge Division Standard

SINGLE BOX CULVERTS CAST-IN-PLACE
0' TO 30' FILL

SCC-5 & 6

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REVISIONS | DIST | COUNTY | SHEET NO.

SECTION DIMENSIONS				FILL HEIGHT ⑤	BILLS OF REINFORCING STEEL (For Box Length = 40 feet)																																		QUANTITIES					
					Bars B					Bars C							Bars D							Bars M ~ #4				Bars F1 ~ #4 at 18" Spa			Bars F2 ~ #4 at 18" Spa			Bars H 4 ~ #4		Bars K		Per Foot of Barrel		Curb		Total	
S	H	T	U		No.	Size	Spa	Length	Weight	No.	Size	Spa	Length	Weight	" X "	" Y "	No.	Size	Spa	Length	Weight	" Y "	" Z "	No.	Spa	Length	Weight	No.	Length	Wt	No.	Length	Weight	Length	Wt	No.	Wt	Conc (CY)	Reinf (Lb)	Conc (CY)	Reinf (Lb)	Conc (CY)	Reinf (Lb)
5' - 0"	2' - 0"	8"	7"	26'	108	#6	9"	5' - 11"	960	108	#5	9"	6' - 4"	713	2' - 7"	3' - 9"	108	#5	9"	6' - 5"	723	3' - 9"	2' - 8"	108	9"	2' - 0"	144	4	39' - 9"	106	22	39' - 9"	584	5' - 11"	16	14	39	0.391	80.8	0.5	55	16.1	3,285
5' - 0"	2' - 0"	9"	7"	30'	108	#6	9"	5' - 11"	960	108	#5	9"	6' - 5"	723	2' - 8"	3' - 9"	108	#5	9"	6' - 6"	732	3' - 9"	2' - 9"	108	9"	2' - 0"	144	4	39' - 9"	106	22	39' - 9"	584	5' - 11"	16	14	39	0.429	81.2	0.5	55	17.6	3,304
5' - 0"	3' - 0"	8"	7"	26'	108	#6	9"	5' - 11"	960	108	#5	9"	7' - 4"	826	3' - 7"	3' - 9"	108	#5	9"	6' - 5"	723	3' - 9"	2' - 8"	108	9"	3' - 0"	216	4	39' - 9"	106	26	39' - 9"	690	5' - 11"	16	14	39	0.434	88.0	0.5	55	17.8	3,576
5' - 0"	3' - 0"	9"	7"	30'	108	#6	9"	5' - 11"	960	108	#5	9"	7' - 5"	835	3' - 8"	3' - 9"	108	#5	9"	6' - 6"	732	3' - 9"	2' - 9"	108	9"	3' - 0"	216	4	39' - 9"	106	26	39' - 9"	690	5' - 11"	16	14	39	0.472	88.5	0.5	55	19.3	3,594
5' - 0"	4' - 0"	8"	7"	26'	108	#6	9"	5' - 11"	960	108	#5	9"	8' - 4"	939	4' - 7"	3' - 9"	108	#5	9"	6' - 5"	723	3' - 9"	2' - 8"	108	9"	4' - 0"	289	4	39' - 9"	106	26	39' - 9"	690	5' - 11"	16	14	39	0.477	92.7	0.5	55	19.5	3,762
5' - 0"	4' - 0"	9"	7"	30'	108	#6	9"	5' - 11"	960	108	#5	9"	8' - 5"	948	4' - 8"	3' - 9"	108	#5	9"	6' - 6"	732	3' - 9"	2' - 9"	108	9"	4' - 0"	289	4	39' - 9"	106	26	39' - 9"	690	5' - 11"	16	14	39	0.515	93.1	0.5	55	21.1	3,780
5' - 0"	5' - 0"	8"	7"	26'	108	#6	9"	5' - 11"	960	108	#5	9"	9' - 4"	1,051	5' - 7"	3' - 9"	108	#5	9"	6' - 5"	723	3' - 9"	2' - 8"	108	9"	5' - 0"	361	4	39' - 9"	106	30	39' - 9"	797	5' - 11"	16	14	39	0.521	100.0	0.5	55	21.3	4,053
5' - 0"	5' - 0"	9"	7"	30'	108	#6	9"	5' - 11"	960	108	#5	9"	9' - 5"	1,061	5' - 8"	3' - 9"	108	#5	9"	6' - 6"	732	3' - 9"	2' - 9"	108	9"	5' - 0"	361	4	39' - 9"	106	30	39' - 9"	797	5' - 11"	16	14	39	0.559	100.4	0.5	55	22.8	4,072
6' - 0"	2' - 0"	8"	7"	20'	108	#6	9"	6' - 11"	1,122	108	#5	9"	6' - 8"	751	2' - 7"	4' - 1"	108	#5	9"	6' - 9"	760	4' - 1"	2' - 8"	108	9"	2' - 0"	144	5	39' - 9"	133	25	39' - 9"	664	6' - 11"	18	16	45	0.440	89.4	0.5	63	18.1	3,637
6' - 0"	2' - 0"	9"	7"	26'	108	#6	9"	6' - 11"	1,122	162	#5	6"	6' - 9"	1,141	2' - 8"	4' - 1"	162	#5	6"	6' - 10"	1,155	4' - 1"	2' - 9"	108	9"	2' - 0"	144	5	39' - 9"	133	25	39' - 9"	664	6' - 11"	18	16	45	0.485	109.0	0.5	63	19.9	4,422
6' - 0"	2' - 0"	10"	8"	30'	108	#6	9"	7' - 1"	1,149	162	#5	6"	6' - 11"	1,169	2' - 9"	4' - 2"	162	#5	6"	7' - 0"	1,183	4' - 2"	2' - 10"	82	12"	2' - 0"	110	5	39' - 9"	133	25	39' - 9"	664	7' - 1"	19	18	50	0.551	110.2	0.5	69	22.6	4,477
6' - 0"	3' - 0"	8"	7"	20'	108	#6	9"	6' - 11"	1,122	108	#5	9"	7' - 8"	864	3' - 7"	4' - 1"	108	#5	9"	6' - 9"	760	4' - 1"	2' - 8"	108	9"	3' - 0"	216	5	39' - 9"	133	29	39' - 9"	770	6' - 11"	18	16	45	0.484	96.6	0.5	63	19.9	3,928
6' - 0"	3' - 0"	9"	7"	26'	108	#6	9"	6' - 11"	1,122	162	#5	6"	7' - 9"	1,309	3' - 8"	4' - 1"	162	#5	6"	6' - 10"	1,155	4' - 1"	2' - 9"	108	9"	3' - 0"	216	5	39' - 9"	133	29	39' - 9"	770	6' - 11"	18	16	45	0.528	117.6	0.5	63	21.6	4,768
6' - 0"	3' - 0"	10"	8"	30'	108	#6	9"	7' - 1"	1,149	162	#5	6"	7' - 11"	1,338	3' - 9"	4' - 2"	162	#5	6"	7' - 0"	1,183	4' - 2"	2' - 10"	82	12"	3' - 0"	164	5	39' - 9"	133	29	39' - 9"	770	7' - 1"	19	18	50	0.601	118.4	0.5	69	24.6	4,806
6' - 0"	4' - 0"	8"	7"	20'	108	#6	9"	6' - 11"	1,122	108	#5	9"	8' - 8"	976	4' - 7"	4' - 1"	108	#5	9"	6' - 9"	760	4' - 1"	2' - 8"	108	9"	4' - 0"	289	5	39' - 9"	133	29	39' - 9"	770	6' - 11"	18	16	45	0.527	101.3	0.5	63	21.6	4,113
6' - 0"	4' - 0"	9"	7"	26'	108	#6	9"	6' - 11"	1,122	162	#5	6"	8' - 9"	1,478	4' - 8"	4' - 1"	162	#5	6"	6' - 10"	1,155	4' - 1"	2' - 9"	108	9"	4' - 0"	289	5	39' - 9"	133	29	39' - 9"	770	6' - 11"	18	16	45	0.571	123.7	0.5	63	23.4	5,010
6' - 0"	4' - 0"	10"	8"	30'	108	#6	9"	7' - 1"	1,149	162	#5	6"	8' - 11"	1,507	4' - 9"	4' - 2"	162	#5	6"	7' - 0"	1,183	4' - 2"	2' - 10"	82	12"	4' - 0"	219	5	39' - 9"	133	29	39' - 9"	770	7' - 1"	19	18	50	0.650	124.0	0.5	69	26.5	5,030
6' - 0"	5' - 0"	8"	7"	20'	108	#6	9"	6' - 11"	1,122	108	#5	9"	9' - 8"	1,089	5' - 7"	4' - 1"	108	#5	9"	6' - 9"	760	4' - 1"	2' - 8"	108	9"	5' - 0"	361	5	39' - 9"	133	33	39' - 9"	876	6' - 11"	18	16	45	0.570	108.5	0.5	63	23.3	4,404
6' - 0"	5' - 0"	9"	7"	26'	108	#6	9"	6' - 11"	1,122	162	#5	6"	9' - 9"	1,647	5' - 8"	4' - 1"	162	#5	6"	6' - 10"	1,155	4' - 1"	2' - 9"	108	9"	5' - 0"	361	5	39' - 9"	133	33	39' - 9"	876	6' - 11"	18	16	45	0.614	132.4	0.5	63	25.1	5,357
6' - 0"	5' - 0"	10"	8"	30'	108	#6	9"	7' - 1"	1,149	162	#5	6"	9' - 11"	1,676	5' - 9"	4' - 2"	162	#5	6"	7' - 0"	1,183	4' - 2"	2' - 10"	82	12"	5' - 0"	274	5	39' - 9"	133	33	39' - 9"	876	7' - 1"	19	18	50	0.700	132.3	0.5	69	28.5	5,360
6' - 0"	6' - 0"	8"	7"	20'	108	#6	9"	6' - 11"	1,122	108	#5	9"	10' - 8"	1,202	6' - 7"	4' - 1"	108	#5	9"	6' - 9"	760	4' - 1"	2' - 8"	108	9"	6' - 0"	433	5	39' - 9"	133	37	39' - 9"	982	6' - 11"	18	16	45	0.613	115.8	0.5	63	25.0	4,695
6' - 0"	6' - 0"	9"	7"	26'	108	#6	9"	6' - 11"	1,122	162	#5	6"	10' - 9"	1,816	6' - 8"	4' - 1"	162	#5	6"	6' - 10"	1,155	4' - 1"	2' - 9"	108	9"	6' - 0"	433	5	39' - 9"	133	37	39' - 9"	982	6' - 11"	18	16	45	0.657	141.0	0.5	63	26.8	5,704
6' - 0"	6' - 0"	10"	8"	30'	108	#6	9"	7' - 1"	1,149	162	#5	6"	10' - 11"	1,845	6' - 9"	4' - 2"	162	#5	6"	7' - 0"	1,183	4' - 2"	2' - 10"	82	12"	6' - 0"	329	5	39' - 9"	133	37	39' - 9"	982	7' - 1"	19	18	50	0.749	140.5	0.5	69	30.5	5,690

⑤ For direct traffic culverts (fill height ≤ 2 ft.), identify the required box size and select the option with the minimum fill height.

HL93 LOADING SHEET 2 OF 2

Texas Department of Transportation | Bridge Division Standard

SINGLE BOX CULVERTS CAST-IN-PLACE
0' TO 30' FILL

SCC-5 & 6

FILE: scc56ste-20.dgn | DN: TBE | CK: BMP | DW: TxDOT | CK: TxDOT
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REVISIONS | DIST | COUNTY | SHEET NO.

CUDEENGINEERS.COM

4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

CORLEY FARMS UNIT 5

SINGLE BOX CULVERTS CAST-IN-PLACE DETAIL

DATE
01/28/2025

PROJECT NO.
03481.012

DRAWN BY
C3

CHECKED BY
XV/AL

REVISIONS

#	DATE
1.	
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ANDREW R. LOWRY
123410
02/10/2025

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

SAWS JOB NO.
22-1190

C18

2-Drawings\C7.D1 SINGLE BOX CULVERTS CAST-IN-PLACE DETAIL.dwg 2025/01/28 12:18pm mlopez

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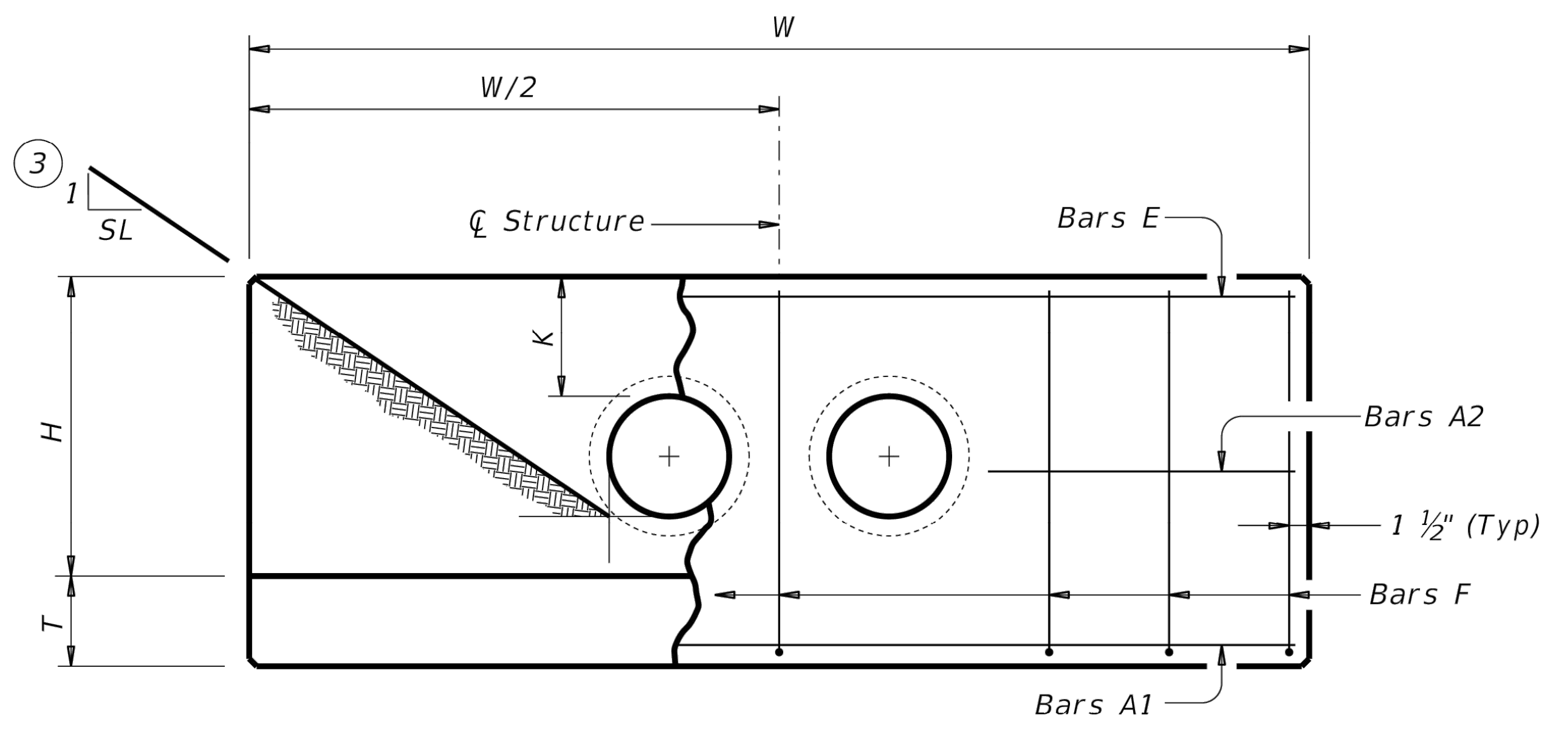
TABLE OF VARIABLE DIMENSIONS AND QUANTITIES FOR ONE HEADWALL ⑤

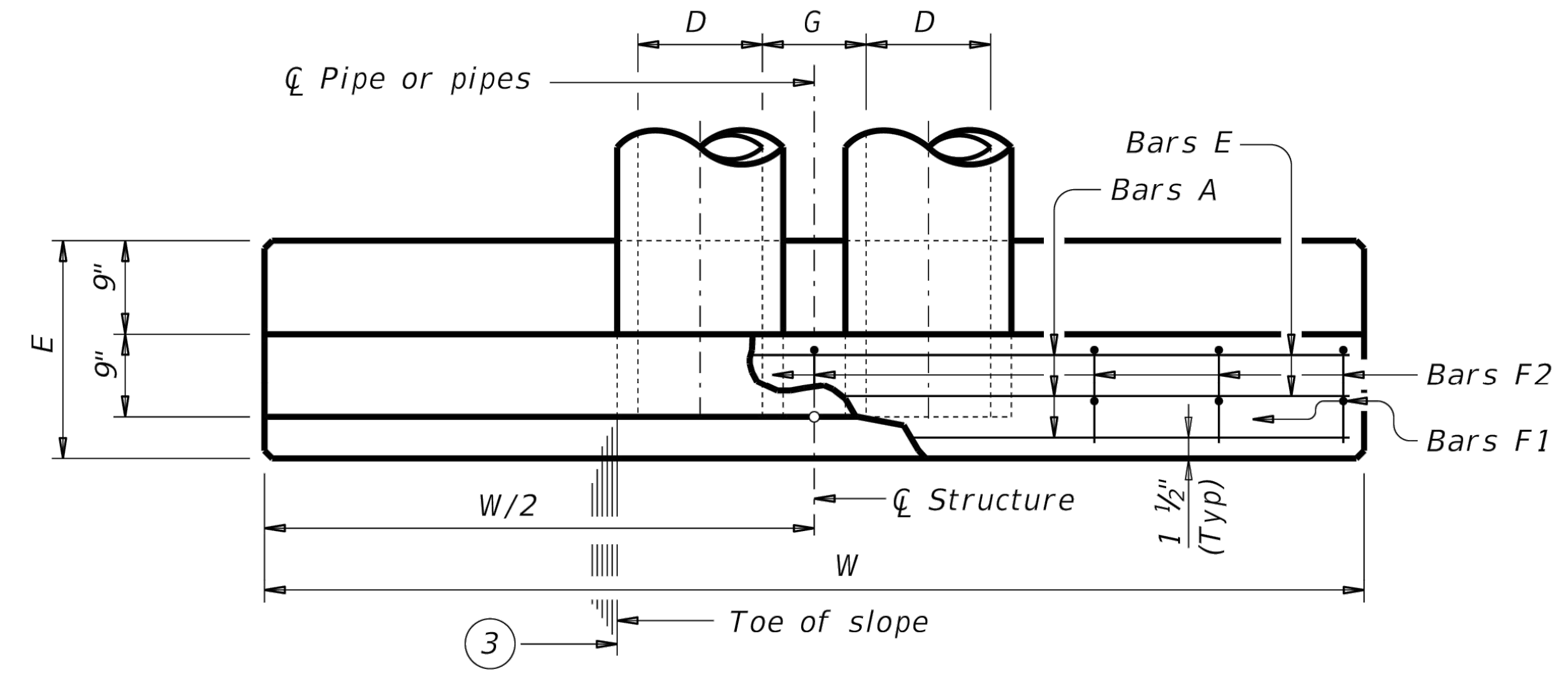
Slope	Dia of Pipe (D)	Values for One Pipe			Values To Be Added for Each Addt'l Pipe		
		W	Reinf (Lbs) ①	Conc (CY) ②	W	Reinf (Lbs) ①	Conc (CY) ②
2:1	12"	9' – 0"	122	1.1	1' – 9"	15	0.2
	15"	10' – 3"	136	1.3	2' – 2"	16	0.2
	18"	11' – 6"	163	1.5	2' – 8"	19	0.3
	21"	12' – 9"	200	1.8	3' – 1"	31	0.4
	24"	14' – 0"	217	2.1	3' – 7"	34	0.4
	27"	15' – 3"	254	2.4	3' – 11"	37	0.5
	30"	16' – 6"	272	2.7	4' – 4"	40	0.6
	33"	17' – 9"	314	3.1	4' – 8"	43	0.6
	36"	19' – 0"	371	3.9	5' – 1"	46	0.8
	42"	21' – 6"	442	4.9	5' – 10"	52	1.0
	48"	25' – 0"	569	6.4	6' – 7"	59	1.3
	54"	27' – 6"	701	7.5	7' – 6"	82	1.6
	60"	30' – 0"	794	8.8	8' – 3"	90	1.8
	66"	32' – 6"	894	10.2	8' – 9"	96	2.0
	72"	35' – 0"	1,055	11.7	9' – 4"	103	2.3
3:1	12"	13' – 0"	175	1.6	1' – 9"	14	0.2
	15"	14' – 9"	193	1.9	2' – 2"	17	0.2
	18"	16' – 6"	228	2.2	2' – 8"	19	0.3
	21"	18' – 3"	299	2.6	3' – 1"	31	0.4
	24"	20' – 0"	323	3.0	3' – 7"	33	0.4
	27"	21' – 9"	371	3.5	3' – 11"	37	0.5
	30"	23' – 6"	415	4.0	4' – 4"	40	0.5
	33"	25' – 3"	469	4.6	4' – 8"	43	0.6
	36"	27' – 0"	556	5.7	5' – 1"	46	0.8
	42"	30' – 6"	675	7.1	5' – 10"	52	1.0
	48"	35' – 6"	837	9.2	6' – 7"	59	1.3
	54"	39' – 0"	1,015	11.0	7' – 6"	84	1.6
	60"	42' – 6"	1,171	12.9	8' – 3"	91	1.8
	66"	46' – 0"	1,298	14.9	8' – 9"	98	2.0
	72"	49' – 6"	1,561	17.1	9' – 4"	103	2.3
4:1	12"	17' – 0"	229	2.0	1' – 9"	15	0.2
	15"	19' – 3"	266	2.4	2' – 2"	17	0.2
	18"	21' – 6"	308	2.9	2' – 8"	19	0.3
	21"	23' – 9"	382	3.5	3' – 1"	31	0.3
	24"	26' – 0"	430	3.9	3' – 7"	34	0.4
	27"	28' – 3"	486	4.7	3' – 11"	37	0.5
	30"	30' – 6"	539	5.2	4' – 4"	40	0.6
	33"	32' – 9"	603	6.0	4' – 8"	42	0.6
	36"	35' – 0"	738	7.5	5' – 1"	47	0.8
	42"	39' – 6"	881	9.3	5' – 10"	52	1.0
	48"	46' – 0"	1,102	12.1	6' – 7"	61	1.3
	54"	50' – 6"	1,364	14.4	7' – 6"	84	1.6
	60"	55' – 0"	1,547	16.9	8' – 3"	91	1.8
	66"	59' – 6"	1,741	19.5	8' – 9"	98	2.0
	72"	64' – 0"	2,077	22.4	9' – 4"	102	2.3
6:1	12"	25' – 0"	336	3.0	1' – 9"	14	0.2
	15"	28' – 3"	384	3.6	2' – 2"	17	0.2
	18"	31' – 6"	452	4.2	2' – 8"	19	0.3
	21"	34' – 9"	581	5.1	3' – 1"	31	0.4
	24"	38' – 0"	644	5.8	3' – 7"	34	0.4
	27"	41' – 3"	737	6.9	3' – 11"	37	0.5
	30"	44' – 6"	807	7.7	4' – 4"	39	0.6
	33"	47' – 9"	912	8.9	4' – 8"	44	0.6
	36"	51' – 0"	1,108	11.0	5' – 1"	48	0.8
	42"	57' – 6"	1,318	13.7	5' – 10"	54	1.0
	48"	67' – 0"	1,682	17.9	6' – 7"	59	1.3
	54"	73' – 6"	2,072	21.3	7' – 6"	83	1.6
	60"	80' – 0"	2,351	24.9	8' – 3"	89	1.8
	66"	86' – 6"	2,643	28.9	8' – 9"	96	2.0
	72"	93' – 0"	3,121	33.1	9' – 4"	101	2.3

DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

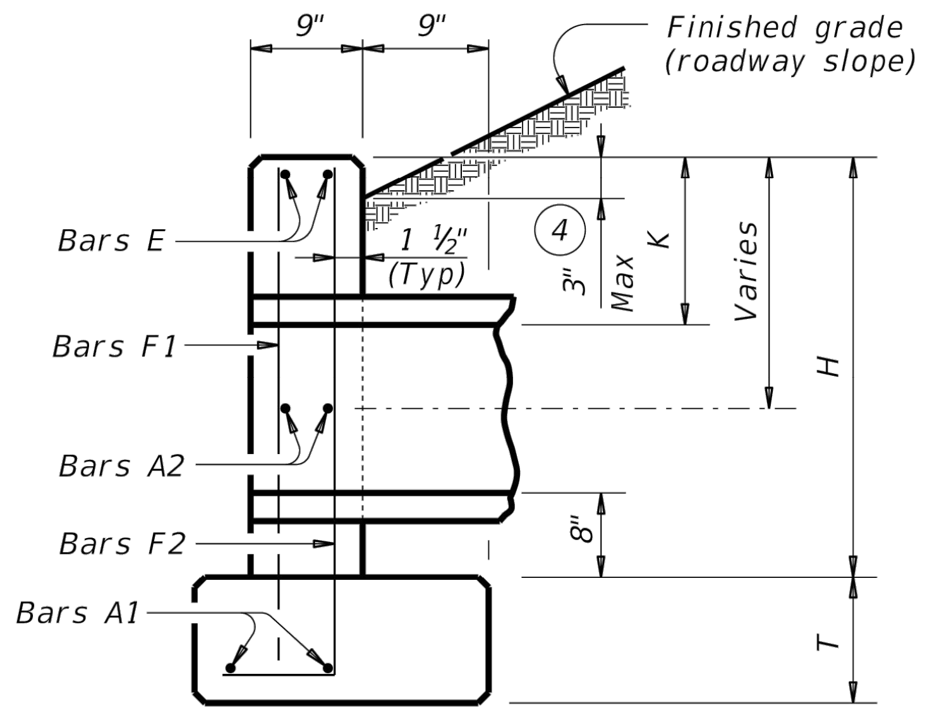
DATE:
FILE:



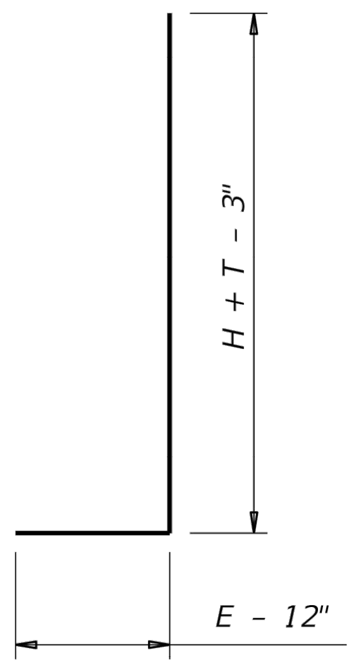
ELEVATION



PLAN OF NON-SKEWED PIPES



SECTION AT CENTER OF PIPE



BARS F2

① Total quantities include one 3'–1" lap for bars over 60' in length.

② Quantities shown are for concrete pipe and will increase slightly for metal pipe installations.

③ Indicated slope is perpendicular to centerline pipe or pipes.

④ 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.

⑤ Dimensions shown are usual and maximum.

⑥ Quantities shown are for one structure end only (one headwall).

TABLE OF CONSTANT DIMENSIONS

Dia of Pipe (D)	G	K ⑤	H	T	E
12"	0' – 9"	1' – 0"	2' – 8"	0' – 9"	1' – 9"
15"	0' – 11"	1' – 0"	2' – 11"	0' – 9"	1' – 9"
18"	1' – 2"	1' – 0"	3' – 2"	0' – 9"	1' – 9"
21"	1' – 4"	1' – 0"	3' – 5"	0' – 9"	2' – 0"
24"	1' – 7"	1' – 0"	3' – 8"	0' – 9"	2' – 0"
27"	1' – 8"	1' – 0"	3' – 11"	0' – 9"	2' – 3"
30"	1' – 10"	1' – 0"	4' – 2"	0' – 9"	2' – 3"
33"	1' – 11"	1' – 0"	4' – 5"	0' – 9"	2' – 6"
36"	2' – 1"	1' – 0"	4' – 8"	1' – 0"	2' – 6"
42"	2' – 4"	1' – 0"	5' – 2"	1' – 0"	2' – 9"
48"	2' – 7"	1' – 3"	5' – 11"	1' – 0"	3' – 0"
54"	3' – 0"	1' – 3"	6' – 5"	1' – 0"	3' – 3"
60"	3' – 3"	1' – 3"	6' – 11"	1' – 0"	3' – 6"
66"	3' – 3"	1' – 3"	7' – 5"	1' – 0"	3' – 9"
72"	3' – 4"	1' – 3"	7' – 11"	1' – 0"	4' – 0"

TABLE OF REINFORCING STEEL ⑥

Bar	Size	Spa	No.
A1	#5	~	2
A2	#5	1' – 6"	~
E	#5	~	2
F	#5	1' – 0"	~

MATERIAL NOTES:

Provide Grade 60 reinforcing steel.
Provide Class C concrete (f'c = 4,000 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 dimensions are out-to-out of bars.

Texas Department of Transportation
Bridge Division Standard

CONCRETE HEADWALLS
WITH PARALLEL WINGS FOR NON-SKEWED PIPE CULVERTS

CH-PW-0

FILE: chpw0ste-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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CORLEY FARMS UNIT 5

TXDOT CONCRETE HEADWALLS NON-SKEWED DETAIL

DATE
01/28/2025

PROJECT NO.
03481.012

DRAWN BY
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DATE
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ANDREW R. LOWRY
123410
02/10/2025

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TBPE No. 455
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2-Drawings\C7.D2 TXDOT CONCRETE HEADWALLS NON-SKEWED DETAIL.dwg 2025/01/28 12:19pm mlopez

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TABLE OF VARIABLE DIMENSIONS AND QUANTITIES FOR ONE HEADWALL ④

SLOPE	DIA OF PIPE, D	Values for one Pipe						Values to be added for each addt'l Pipe		
		W	X	Y	L	Reinf (Lbs)	Conc (CY) ①	X and W	Reinf (Lbs)	Conc (CY) ①
2:1	12"	3'- 3 1/2"	2'- 8 3/4"	2'-10"	3'- 3 1/4"	81	0.5	1'- 9 3/4"	20	0.2
	15"	3'-10 1/2"	3'- 0 1/4"	3'- 4"	3'-10 1/4"	93	0.6	2'- 3"	25	0.3
	18"	4'- 5 1/2"	3'- 4"	3'-10"	4'- 5"	115	0.8	2'- 9 1/4"	32	0.4
	21"	5'- 0 3/4"	3'- 7 1/2"	4'- 4"	5'- 0"	128	0.9	3'- 2 1/4"	43	0.5
	24"	5'- 9 1/4"	4'- 0 3/4"	4'-10"	5'- 7"	148	1.1	3'- 8 1/2"	51	0.6
	27"	6'- 4 1/2"	4'- 4 1/2"	5'- 4"	6'- 2"	158	1.3	4'- 0 3/4"	57	0.7
	30"	6'-11 1/2"	4'- 8"	5'-10"	6'- 8 3/4"	181	1.5	4'- 5 3/4"	67	0.8
	33"	7'- 6 1/2"	4'-11 3/4"	6'- 4"	7'- 3 3/4"	197	1.7	4'-10"	73	0.9
	36"	8'- 1 3/4"	5'- 3 1/4"	6'-10"	7'-10 3/4"	223	1.9	5'- 3 1/4"	82	1.1
	42"	9'- 3 3/4"	5'-10 1/2"	7'-10"	9'- 0 1/2"	263	2.4	6'- 0 1/2"	100	1.4
	48"	10'- 9 1/2"	6'- 5 3/4"	9'- 4"	10'- 9 1/4"	315	3.2	6'- 9 3/4"	121	1.8
	54"	11'-11 3/4"	7'- 1"	10'- 4"	11'-11 1/4"	372	3.8	7'- 9 1/4"	154	2.2
	60"	13'- 1 3/4"	7'- 8 1/4"	11'- 4"	13'- 1"	419	4.5	8'- 6 1/2"	178	2.6
	66"	14'- 4"	8'- 3 1/2"	12'- 4"	14'- 3"	475	5.3	9'- 0 3/4"	198	3.0
	72"	15'- 6 1/4"	8'-10 3/4"	13'- 4"	15'- 4 3/4"	523	6.1	9'- 8"	220	3.3
3:1	12"	4'- 1 1/4"	2'- 8 3/4"	4'- 3"	4'-11"	104	0.7	1'- 9 3/4"	23	0.2
	15"	4'-10"	3'- 0 1/4"	5'- 0"	5'- 9 1/4"	123	0.9	2'- 3"	29	0.3
	18"	5'- 7"	3'- 4"	5'- 9"	6'- 7 3/4"	152	1.1	2'- 9 1/4"	37	0.5
	21"	6'- 3 3/4"	3'- 7 1/2"	6'- 6"	7'- 6"	171	1.3	3'- 2 1/4"	49	0.6
	24"	7'- 2"	4'- 0 3/4"	7'- 3"	8'- 4 1/2"	198	1.6	3'- 8 1/2"	59	0.7
	27"	7'-11"	4'- 4 1/2"	8'- 0"	9'- 2 3/4"	219	1.9	4'- 0 3/4"	68	0.9
	30"	8'- 7 3/4"	4'- 8"	8'- 9"	10'- 1 1/4"	254	2.2	4'- 5 3/4"	79	1.0
	33"	9'- 4 1/2"	4'-11 3/4"	9'- 6"	10'-11 3/4"	274	2.5	4'-10"	86	1.2
	36"	10'- 1 1/4"	5'- 3 1/4"	10'- 3"	11'-10"	305	2.9	5'- 3 1/4"	97	1.4
	42"	11'- 7"	5'-10 1/2"	11'- 9"	13'- 6 3/4"	371	3.7	6'- 0 1/2"	122	1.8
	48"	13'- 5 3/4"	6'- 5 3/4"	14'- 0"	16'- 2"	455	4.9	6'- 9 3/4"	152	2.4
	54"	14'-11 1/2"	7'- 1"	15'- 6"	17'-10 3/4"	532	5.9	7'- 9 1/4"	190	3.0
	60"	16'- 5"	7'- 8 1/4"	17'- 0"	19'- 7 1/2"	604	7.0	8'- 6 1/2"	224	3.5
	66"	17'-10 3/4"	8'- 3 1/2"	18'- 6"	21'- 4 1/4"	687	8.1	9'- 0 3/4"	248	4.0
	72"	19'- 4 1/4"	8'-10 3/4"	20'- 0"	23'- 1 1/4"	772	9.4	9'- 8"	281	4.6
4:1	12"	4'-11"	2'- 8 3/4"	5'- 8"	6'- 6 1/2"	132	0.9	1'- 9 3/4"	26	0.3
	15"	5'- 9 1/2"	3'- 0 1/4"	6'- 8"	7'- 8 1/2"	158	1.2	2'- 3"	33	0.4
	18"	6'- 8 1/4"	3'- 4"	7'- 8"	8'-10 1/4"	194	1.5	2'- 9 1/4"	43	0.6
	21"	7'- 6 3/4"	3'- 7 1/2"	8'- 8"	10'- 0"	226	1.8	3'- 2 1/4"	57	0.7
	24"	8'- 6 3/4"	4'- 0 3/4"	9'- 8"	11'- 2"	258	2.2	3'- 8 1/2"	68	0.9
	27"	9'- 5 1/4"	4'- 4 1/2"	10'- 8"	12'- 3 3/4"	286	2.6	4'- 0 3/4"	79	1.1
	30"	10'- 4"	4'- 8"	11'- 8"	13'- 5 3/4"	327	3.0	4'- 5 3/4"	91	1.3
	33"	11'- 2 1/2"	4'-11 3/4"	12'- 8"	14'- 7 1/2"	360	3.5	4'-10"	104	1.5
	36"	12'- 1"	5'- 3 1/4"	13'- 8"	15'- 9 1/4"	403	4.0	5'- 3 1/4"	115	1.7
	42"	13'-10"	5'-10 1/2"	15'- 8"	18'- 1"	487	5.1	6'- 0 1/2"	144	2.2
	48"	16'- 2 1/4"	6'- 5 3/4"	18'- 8"	21'- 6 3/4"	602	6.8	6'- 9 3/4"	183	3.0
	54"	17'-11 1/4"	7'- 1"	20'- 8"	23'-10 1/4"	717	8.2	7'- 9 1/4"	231	3.7
	60"	19'- 8 1/4"	7'- 8 1/4"	22'- 8"	26'- 2"	812	9.8	8'- 6 1/2"	270	4.4
	66"	21'- 5 1/2"	8'- 3 1/2"	24'- 8"	28'- 5 3/4"	933	11.4	9'- 0 3/4"	305	5.0
	72"	23'- 2 1/2"	8'-10 3/4"	26'- 8"	30'- 9 1/2"	1046	13.2	9'- 8"	342	5.7
6:1	12"	6'- 6 3/4"	2'- 8 3/4"	8'- 6"	9'- 9 3/4"	188	1.4	1'- 9 3/4"	30	0.4
	15"	7'- 8 3/4"	3'- 0 1/4"	10'- 0"	11'- 6 1/2"	226	1.9	2'- 3"	40	0.5
	18"	8'-10 3/4"	3'- 4"	11'- 6"	13'- 3 1/4"	277	2.4	2'- 9 1/4"	51	0.7
	21"	10'- 0 3/4"	3'- 7 1/2"	13'- 0"	15'- 0 1/4"	328	2.9	3'- 2 1/4"	69	1.0
	24"	11'- 4 1/4"	4'- 0 3/4"	14'- 6"	16'- 9"	371	3.5	3'- 8 1/2"	83	1.3
	27"	12'- 6 1/4"	4'- 4 1/2"	16'- 0"	18'- 5 3/4"	422	4.2	4'- 0 3/4"	98	1.5
	30"	13'- 8 1/4"	4'- 8"	17'- 6"	20'- 2 1/2"	482	4.9	4'- 5 3/4"	113	1.8
	33"	14'-10 1/4"	4'-11 3/4"	19'- 0"	21'-11 1/4"	543	5.7	4'-10"	130	2.0
	36"	16'- 0 1/4"	5'- 3 1/4"	20'- 6"	23'- 8"	598	6.5	5'- 3 1/4"	145	2.4
	42"	18'- 4 1/2"	5'-10 1/2"	23'- 6"	27'- 1 1/2"	732	8.4	6'- 0 1/2"	184	3.1
	48"	21'- 6 3/4"	6'- 5 3/4"	28'- 0"	32'- 4"	936	11.4	6'- 9 3/4"	240	4.1
	54"	23'-10 3/4"	7'- 1"	31'- 0"	35'- 9 1/2"	1112	13.8	7'- 9 1/4"	303	5.2
	60"	26'- 2 3/4"	7'- 8 1/4"	34'- 0"	39'- 3"	1266	16.4	8'- 6 1/2"	358	6.2

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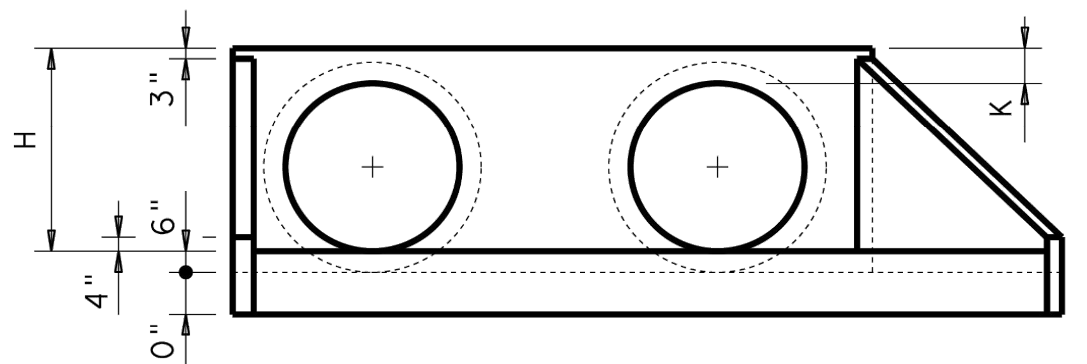


ELEVATION

Showing dimensions

① Quantities shown are for concrete pipe and will increase slightly for metal pipe installations.

② For vehicle safety, curbs shall project no more than 3" above finished grade. Curb heights shall be reduced, if necessary, to meet these requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.

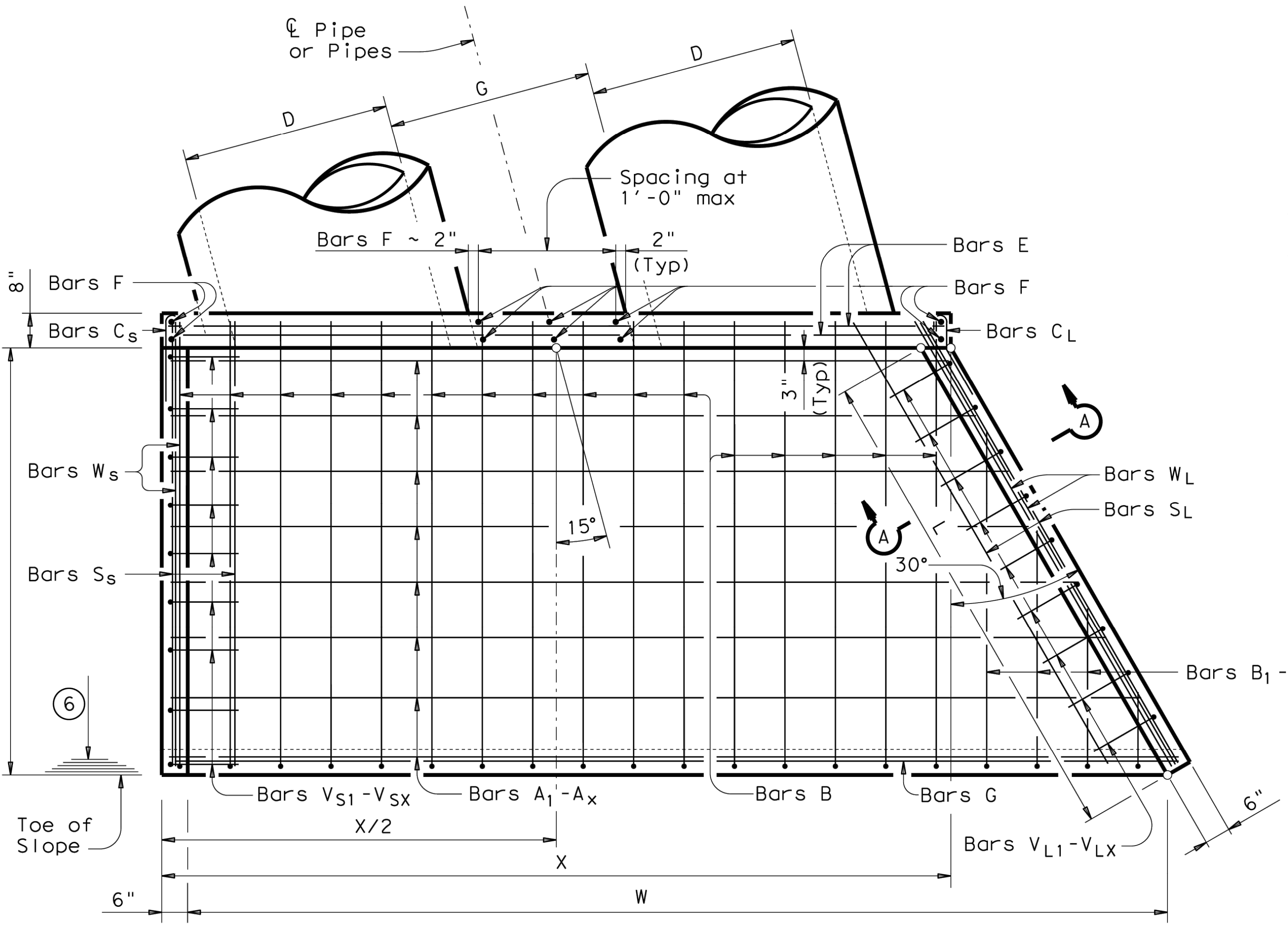
③ Provide a 1'-0" footing as shown where required to maintain 4" Min cover for pipes.

④ Quantities shown are for one structure end only (one headwall).

⑤ Min Length = 6" + 3" × $\left(\frac{12 \times H - 7}{12 \times L}\right)$

Max Length = 12 × H − 3" × $\left(\frac{12 \times H - 7}{12 \times L}\right)$ − 1"

⑥ Lengths of wings based on SL:1 Slope along this line.



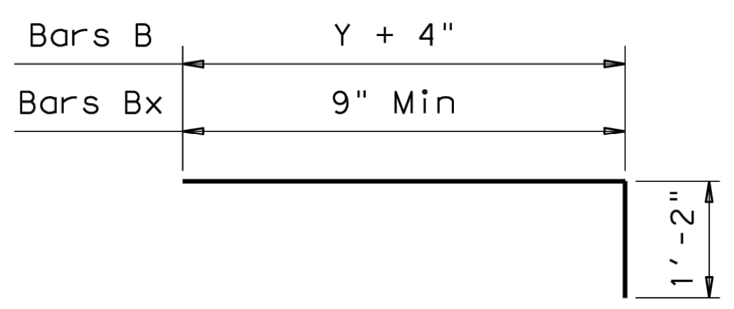
PLAN

TABLE OF REINFORCING STEEL ④

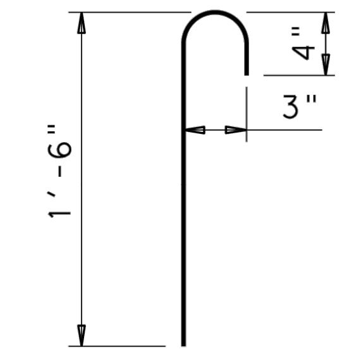
Bar	Size	Spa	No.
A	# 4	1'-0"	~
B	# 3	1'-6"	~
CL	# 4	1'-0"	~
CS	# 4	1'-0"	~
D	# 3	1'-0"	~
E	# 5	~	4
F	# 5	~	~
G	# 3	~	2
SL	# 4	~	3
SS	# 4	~	3
V	# 4	1'-0"	~
WL	# 5	~	2
WS	# 5	~	2

TABLE OF CONSTANT DIMENSIONS

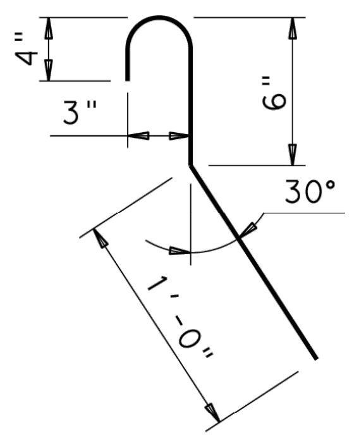
DIA OF PIPE, D	G	K	H
12"	9"	1'- 0"	2'- 0"
15"	11"	1'- 0"	2'- 3"
18"	1'- 2"	1'- 0"	2'- 6"
21"	1'- 4"	1'- 0"	2'- 9"
24"	1'- 7"	1'- 0"	3'- 0"
27"	1'- 8"	1'- 0"	3'- 3"
30"	1'-10"	1'- 0"	3'- 6"
33"	1'-11"	1'- 0"	3'- 9"
36"	2'- 1"	1'- 0"	4'- 0"
42"	2'- 4"	1'- 0"	4'- 6"
48"	2'- 7"	1'- 3"	5'- 3"
54"	3'- 0"	1'- 3"	5'- 9"
60"	3'- 3"	1'- 3"	6'- 3"
66"	3'- 3"	1'- 3"	6'- 9"
72"	3'- 4"	1'- 3"	7'- 3"



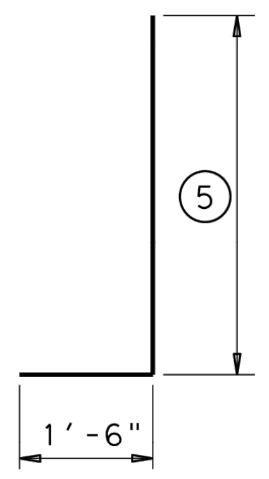
BARS B & B1-Bx



BARS C_S
(2'-0" long)



BARS C_L
(2'-0" long)



BARS V_S & V_L

GENERAL NOTES:

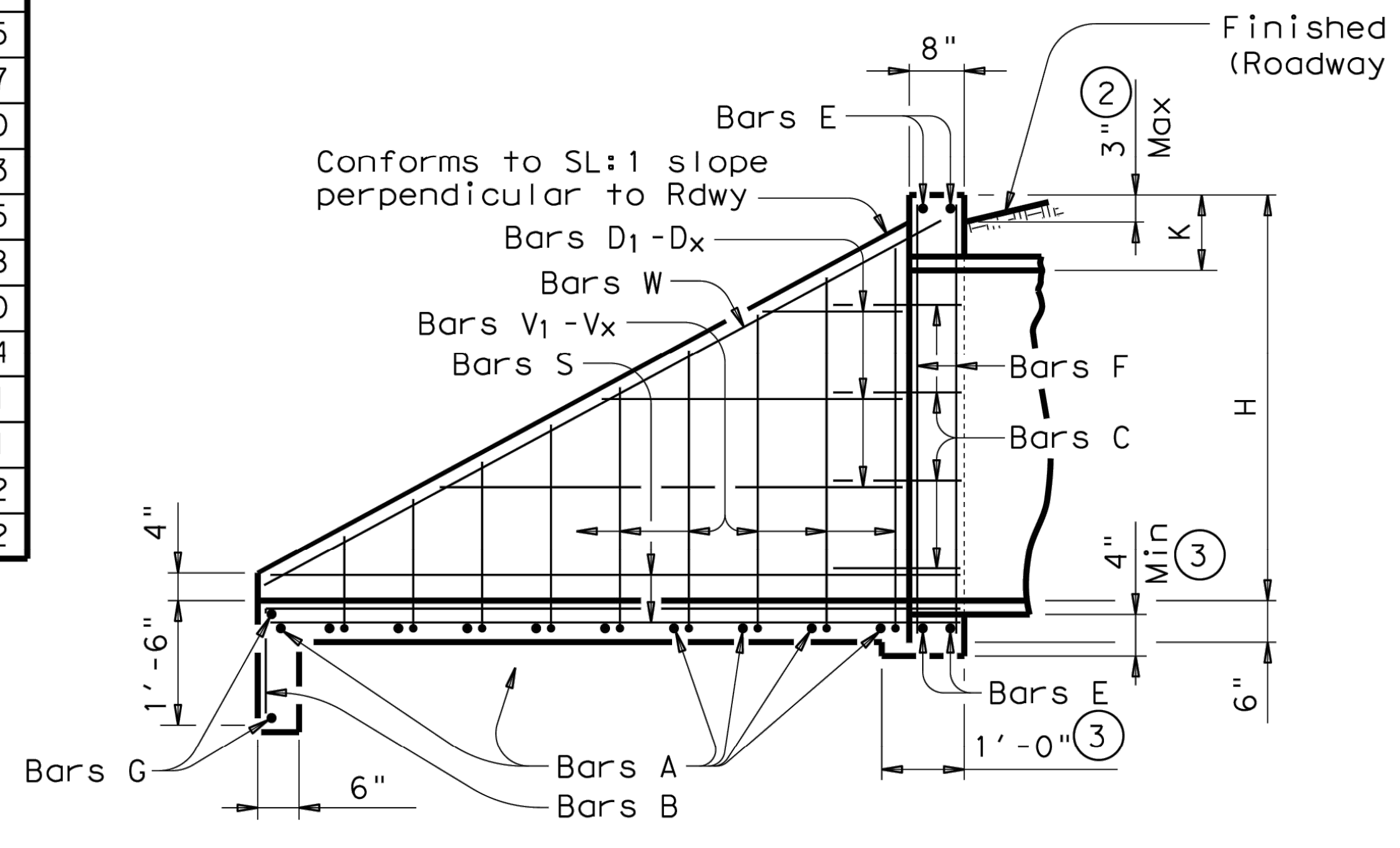
Designed according to AASHTO LRFD Specifications.

Reinforcing steel shall be placed with the center of the outside layer of bars 2" from the surface of the concrete.

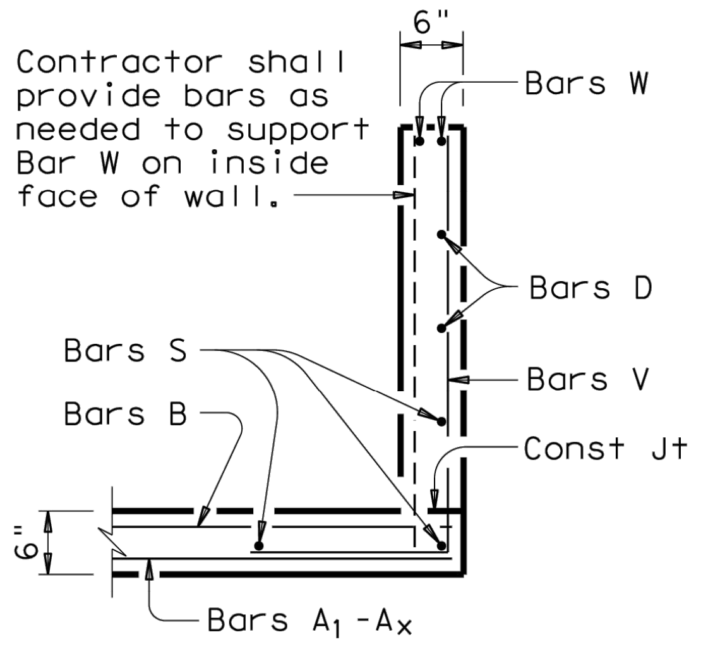
All reinforcing steel shall be Grade 60.

All concrete shall be Class "C" and shall have a minimum compressive strength of 4,000 psi.

No bridge rails of any type may be mounted directly to these culvert headwalls.



TYPICAL WING ELEVATION



SECTION A-A

Texas Department of Transportation

Bridge Division Standard

CONCRETE HEADWALLS
WITH FLARED WINGS FOR
15° SKEW PIPE CULVERTS

CH-FW-15

FILE: chfw15se.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: GAF
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**CORLEY FARMS
UNIT 5**

TXDOT FLARED WING DETAIL

DATE
01/28/2025

PROJECT NO.
03481.012

DRAWN BY
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#	DATE	REVISIONS
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ANDREW R. LOWRY
123410
02/10/2025

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

SAWS JOB NO.
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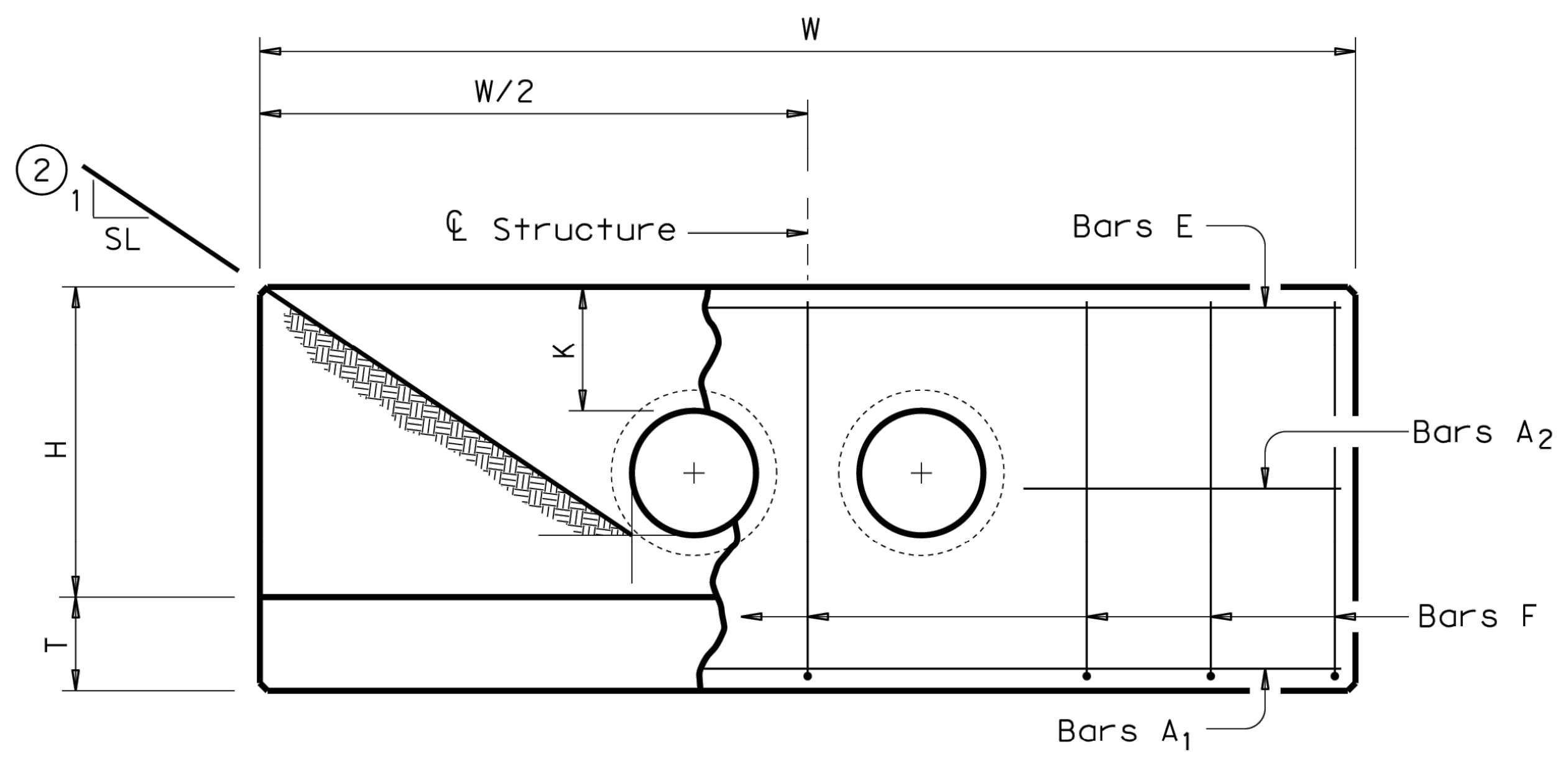
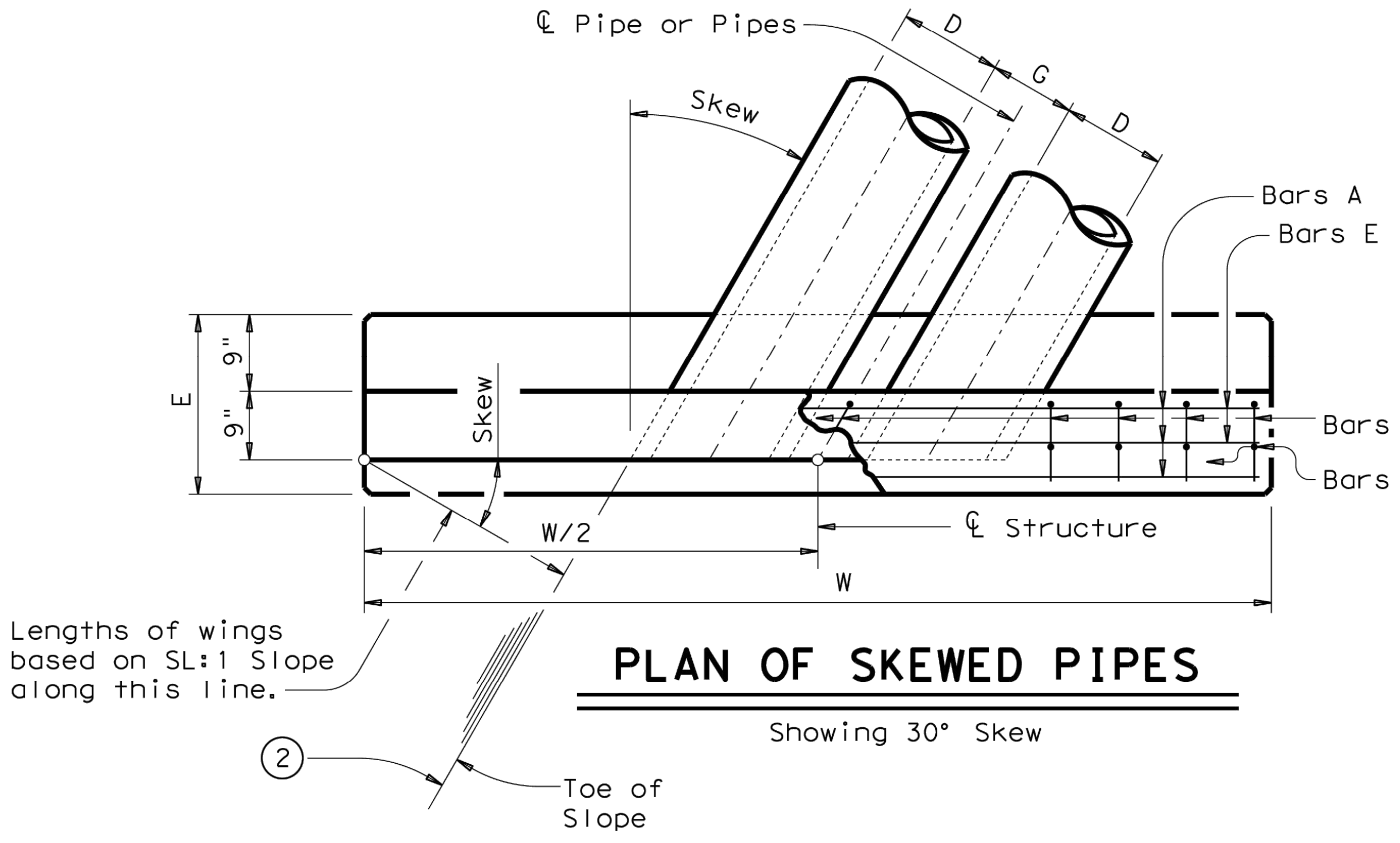
TABLE OF VARIABLE DIMENSIONS AND QUANTITIES FOR ONE HEADWALL ④

SLOPE	DIA OF PIPE, D	15 Degrees						30 Degrees						45 Degrees					
		Values for one Pipe			Values to be added for each addt'l Pipe			Values for one Pipe			Values to be added for each addt'l Pipe			Values for one Pipe			Values to be added for each addt'l Pipe		
		W	Reinf (Lbs)	Conc (CY) ①	W	Reinf (Lbs)	Conc (CY) ①	W	Reinf (Lbs)	Conc (CY) ①	W	Reinf (Lbs)	Conc (CY) ①	W	Reinf (Lbs)	Conc (CY) ①	W	Reinf (Lbs)	Conc (CY) ①
2:1	12"	9'- 4"	124	1.1	1'- 9 ¾"	15	0.2	10'- 5"	130	1.2	2'- 0"	16	0.2	12'- 9"	159	1.5	2'- 5 ¾"	17	0.3
	15"	10'- 7"	136	1.3	2'- 3"	17	0.2	11'-10"	159	1.5	2'- 6"	18	0.2	14'- 6"	191	1.8	3'- 0 ¾"	20	0.3
	18"	11'-11"	165	1.5	2'- 9"	19	0.3	13'- 3"	174	1.7	3'- 1"	29	0.3	16'- 3"	207	2.1	3'- 9 ¼"	33	0.4
	21"	13'- 2"	203	1.9	3'- 2 ¼"	31	0.4	14'- 9"	233	2.1	3'- 6 ¾"	33	0.4	18'- 0"	276	2.6	4'- 4 ¼"	36	0.5
	24"	14'- 6"	240	2.1	3'- 8 ¼"	34	0.4	16'- 2"	251	2.4	4'- 1 ¾"	36	0.5	19'-10"	318	2.9	5'- 0 ¾"	39	0.6
	27"	15'- 9"	258	2.5	4'- 0 ¾"	38	0.5	17'- 7"	292	2.8	4'- 6 ¼"	39	0.6	21'- 7"	342	3.4	5'- 6 ¼"	44	0.7
	30"	17'- 1"	297	2.8	4'- 5 ¾"	40	0.6	19'- 1"	311	3.1	5'- 0"	42	0.6	23'- 4"	388	3.8	6'- 1 ¾"	47	0.8
	33"	18'- 5"	320	3.3	4'- 9 ¾"	43	0.6	20'- 6"	358	3.6	5'- 4 ¾"	46	0.7	25'- 1"	439	4.4	6'- 7 ¼"	51	0.9
	36"	19'- 8"	401	4.0	5'- 3"	47	0.9	21'-11"	422	4.5	5'-10 ¾"	50	0.9	26'-10"	517	5.5	7'- 2 ¼"	55	1.2
	42"	22'- 3"	476	5.0	6'- 0 ¾"	53	1.1	24'-10"	528	5.6	6'- 8 ¾"	56	1.2	30'- 5"	634	6.9	8'- 3"	76	1.4
	48"	25'-11"	577	6.6	6'- 9 ¾"	60	1.3	28'-10"	637	7.3	7'- 7 ¼"	79	1.5	35'- 4"	791	9.0	9'- 3 ¾"	88	1.8
	54"	28'- 6"	711	7.8	7'- 9"	83	1.6	31'- 9"	781	8.7	8'- 8"	87	1.8	38'-11"	958	10.7	10'- 7 ¼"	97	2.2
	60"	31'- 1"	805	9.2	8'- 6 ¼"	91	1.9	34'- 8"	881	10.2	9'- 6 ¼"	97	2.1	42'- 5"	1113	12.5	11'- 8"	124	2.6
	66"	33'- 8"	907	10.6	9'- 0 ¾"	98	2.1	37'- 6"	1028	11.8	10'- 1 ¼"	102	2.4	46'- 0"	1235	14.5	12'- 4 ¼"	132	2.9
	72"	36'- 3"	1071	12.1	9'- 8"	105	2.4	40'- 5"	1207	13.5	10'- 9 ¼"	110	2.6	49'- 6"	1446	16.6	13'- 2 ¼"	141	3.2
3:1	12"	13'- 6"	178	1.6	1'- 9 ¾"	15	0.2	15'- 0"	189	1.8	2'- 0"	15	0.2	18'- 5"	237	2.2	2'- 5 ¾"	17	0.2
	15"	15'- 3"	212	1.9	2'- 3"	17	0.2	17'- 0"	223	2.1	2'- 6"	17	0.3	20'-10"	276	2.6	3'- 0 ¾"	20	0.3
	18"	17'- 1"	231	2.3	2'- 9"	19	0.3	19'- 1"	259	2.5	3'- 1"	29	0.3	23'- 4"	318	3.1	3'- 9 ¼"	32	0.4
	21"	18'-11"	306	2.7	3'- 2 ¼"	31	0.4	21'- 1"	339	3.0	3'- 6 ¾"	33	0.4	25'-10"	413	3.7	4'- 4 ¼"	36	0.5
	24"	20'- 8"	345	3.1	3'- 8 ¾"	35	0.4	23'- 1"	384	3.5	4'- 1 ¾"	36	0.5	28'- 3"	462	4.2	5'- 0 ¾"	40	0.6
	27"	22'- 6"	376	3.7	4'- 0 ¾"	38	0.5	25'- 1"	438	4.1	4'- 6 ¼"	39	0.6	30'- 9"	522	5.0	5'- 6 ¼"	44	0.7
	30"	24'- 4"	422	4.1	4'- 5 ¾"	40	0.6	27'- 2"	466	4.6	5'- 0"	42	0.6	33'- 3"	578	5.6	6'- 1 ¾"	47	0.8
	33"	26'- 2"	476	4.8	4'-10"	43	0.6	29'- 2"	522	5.3	5'- 4 ¾"	46	0.7	35'- 9"	644	6.5	6'- 7 ¼"	51	0.9
	36"	27'-11"	590	5.9	5'- 3 ¼"	47	0.8	31'- 2"	645	6.6	5'-10 ¾"	50	0.9	38'- 2"	787	8.0	7'- 2 ¼"	56	1.2
	42"	31'- 7"	684	7.3	6'- 0 ¼"	53	1.1	35'- 3"	776	8.2	6'- 8 ¾"	56	1.2	43'- 2"	933	10.0	8'- 3"	79	1.4
	48"	36'- 9"	880	9.6	6'- 9 ¾"	61	1.3	41'- 0"	953	10.7	7'- 7 ¼"	81	1.5	50'- 2"	1166	13.1	9'- 3 ¾"	88	1.8
	54"	40'- 5"	1065	11.4	7'- 9"	85	1.6	45'- 0"	1185	12.7	8'- 8"	89	1.8	55'- 2"	1435	15.5	10'- 7 ¼"	97	2.2
	60"	44'- 0"	1224	13.3	8'- 6 ¼"	93	1.9	49'- 1"	1356	14.8	9'- 6 ¼"	96	2.1	60'- 1"	1627	18.2	11'- 8"	124	2.6
	66"	47'- 7"	1357	15.4	9'- 1"	98	2.1	53'- 1"	1497	17.2	10'- 1 ¼"	103	2.3	65'- 1"	1834	21.1	12'- 4 ¼"	130	2.9
	72"	51'- 3"	1624	17.7	9'- 8"	105	2.3	57'- 2"	1787	19.7	10'- 9 ¼"	109	2.6	70'- 0"	2210	24.1	13'- 2 ¼"	139	3.2
4:1	12"	17'- 7"	232	2.1	1'- 9 ¾"	15	0.2	19'- 8"	259	2.4	2'- 0"	16	0.2	24'- 0"	314	2.9	2'- 5 ¾"	18	0.2
	15"	19'-11"	272	2.5	2'- 3"	17	0.2	22'- 3"	301	2.8	2'- 6"	18	0.3	27'- 3"	361	3.5	3'- 0 ¾"	21	0.3
	18"	22'- 3"	313	3.0	2'- 9"	19	0.3	24'-10"	344	3.3	3'- 1"	29	0.3	30'- 5"	427	4.0	3'- 9 ¼"	32	0.4
	21"	24'- 7"	407	3.6	3'- 2 ¼"	31	0.4	27'- 5"	446	4.0	3'- 6 ¾"	33	0.4	33'- 7"	549	4.9	4'- 4 ¼"	36	0.5
	24"	26'-11"	455	4.1	3'- 8 ¾"	35	0.4	30'- 0"	499	4.5	4'- 1 ¾"	36	0.5	36'- 9"	609	5.6	5'- 0 ¾"	40	0.6
	27"	29'- 3"	514	4.8	4'- 0 ¾"	38	0.5	32'- 7"	562	5.4	4'- 6 ¼"	40	0.6	39'-11"	703	6.6	5'- 6 ¼"	43	0.7
	30"	31'- 7"	568	5.4	4'- 5 ¾"	40	0.6	35'- 3"	620	6.0	5'- 0"	42	0.6	43'- 2"	768	7.4	6'- 1 ¾"	49	0.8
	33"	33'-11"	634	6.2	4'-10"	43	0.7	37'-10"	710	7.0	5'- 4 ¾"	46	0.7	46'- 4"	848	8.5	6'- 7 ¼"	52	0.9
	36"	36'- 3"	776	7.7	5'- 3"	48	0.9	40'- 5"	868	8.6	5'-10 ¾"	49	0.9	49'- 6"	1058	10.6	7'- 2 ¼"	56	1.1
	42"	40'-11"	921	9.6	6'- 0 ¼"	53	1.0	45'- 7"	1022	10.7	6'- 8 ¾"	57	1.2	55'-10"	1262	13.1	8'- 3"	78	1.4
	48"	47'- 7"	1152	12.6	6'-10"	61	1.3	53'- 1"	1268	14.0	7'- 7 ¼"	80	1.5	65'- 1"	1579	17.2	9'- 3 ¾"	86	1.8
	54"	52'- 3"	1416	14.9	7'- 9 ¼"	86	1.6	58'- 4"	1589	16.6	8'- 8"	89	1.8	71'- 5"	1916	20.4	10'- 7 ¼"	95	2.2
	60"	56'-11"	1606	17.5	8'- 6 ¾"	92	1.9	63'- 6"	1798	19.5	9'- 6 ¼"	95	2.1	77'- 9"	2184	23.9	11'- 8"	122	2.6
	66"	61'- 7"	1811	20.2	9'- 0 ¾"	97	2.1	68'- 8"	2011	22.5	10'- 1 ¼"	101	2.4	84'- 2"	2464	27.6	12'- 4 ¼"	131	2.9
	72"	66'- 3"	2142	23.2	9'- 8"	104	2.4	73'-11"	2371	25.9	10'- 9 ¼"	108	2.6	90'- 6"	2929	31.7	13'- 2 ¼"	138	3.2
6:1	12"	25'-11"	342	3.1	1'- 9 ¾"	15	0.2	28'-10"	374	3.5	2'- 0"	16	0.2	35'- 4"	456	4.3	2'- 5 ¾"	17	0.2
	15"	29'- 3"	390	3.7	2'- 3"	17	0.2	32'- 7"	442	4.2	2'- 6"	18	0.2	39'-11"	549	5.1	3'- 0 ¾"	20	0.3
	18"	32'- 7"	459	4.4	2'- 9"	20	0.3	36'- 4"	515	4.9	3'- 1"	29	0.3	44'- 7"	629	6.0	3'- 9 ¼"	33	0.4
	21"	36'- 0"	608	5.3	3'- 2 ¼"	31	0.4	40'- 2"	660	5.9	3'- 6 ¾"	33	0.4	49'- 2"	823	7.2	4'- 4 ¼"	38	0.5
	24"	39'- 4"	672	6.0	3'- 8 ¾"	35	0.4	43'-11"	748	6.7	4'- 1 ¾"	36	0.5	53'- 9"	920	8.2	5'- 0 ¾"	42	0.6
	27"	42'- 8"	770	7.1	4'- 0 ¾"	38	0.5	47'- 8"	852	8.0	4'- 6 ¼"	41	0.5	58'- 4"	1039	9.7	5'- 6 ¼"	45	0.7
	30"	46'- 1"	839	8.0	4'- 5 ¾"	40	0.6	51'- 5"	949	8.9	5'- 0"	44	0.6	62'-11"	1154	10.9	6'- 1 ¾"	48	0.8
	33"	49'- 5"	947	9.2	4'-10"	45	0.7	55'- 2"	1040	10.3	5'- 4 ¾"	48	0.7	67'- 6"	1284	12.6	6'- 7 ¼"	50	0.9
	36"	52'-10"	1151	11.4	5'- 3"	49	0.8	58'-11"	1287	12.7	5'-10 ¾"	51	1.0	72'- 1"	1575	15.6	7'- 2 ¼"	55	1.1
	42"	59'- 6"	1365	14.2	6'- 0 ¼"	55	1.0	66'- 5"	1522	15.8	6'- 8 ¾"	57	1.2	81'- 4"	1867	19.4	8'- 3"	76	1.4
	48"	69'- 4"	1729	18.5	6'-10"	59	1.3	77'- 4"	1934	20.7	7'- 7 ¼"	79	1.5	94'- 9"	2360	25.3	9'- 3 ¾"	86	1.8
	54"	76'- 1"	2130	22.0	7'- 9 ¼"	83	1.6	84'-10"	2370	24.6	8'- 8"	87	1.8	103'-11"	2904	30.1	10'- 7 ¼"	95	2.2
	60"	82'-10"	2414	25.8	8'- 6 ¾"	90	1.9	92'- 5"	2673	28.8	9'- 6 ¼"	94	2.1	113'-2"	3286	35.3	11'- 8"	122	2.6
	66"	89'- 7"	2712	29.9	9'- 0 ¾"	96	2.1	99'-11"	3030	33.3	10'- 1 ¼"	101	2.4	122'-4"	3689	40.8	12'- 4 ¼"	130	2.9
	72"	96'- 3"	3210	34.2	9'- 8"	102	2.4	107'-5"	3572	38.2	10'- 9 ¼"	108	2.6	131'-6"	4364	46.8	13'- 2 ¼"	139	3.2

DATE:
FILE:

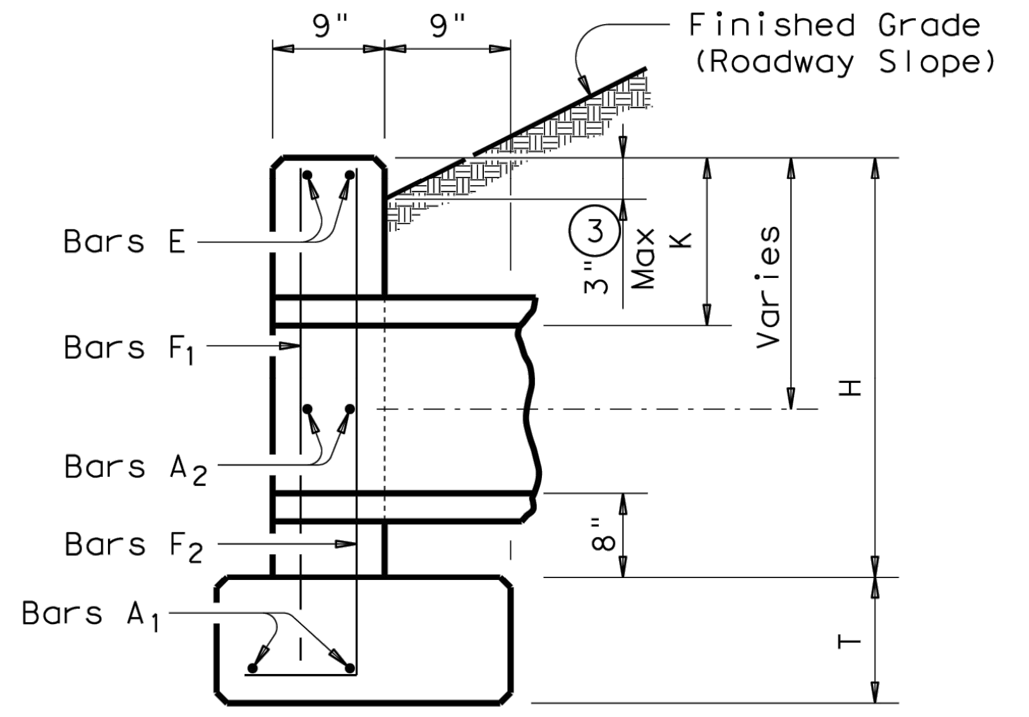


ELEVATION



PLAN OF SKEWED PIPES

Showing 30° Skew



℄ SECTION

① Quantities shown are for concrete pipe and will increase slightly for metal pipe installations.

② Indicated slope is perpendicular to centerline Pipe or Pipes.

③ For vehicle safety, curbs shall project no more than 3" above finished grade. Curb heights shall be reduced, if necessary, to meet these requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.

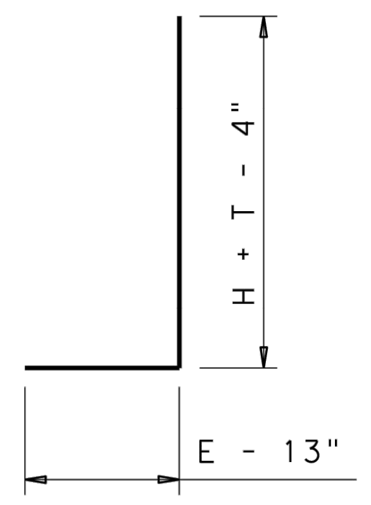
④ Quantities shown are for one structure end only (one headwall).

TABLE OF CONSTANT DIMENSIONS

DIA OF PIPE, D	G	K	H	T	E
12"	9"	1'- 0"	2'- 8"	9"	1'- 9"
15"	11"	1'- 0"	2'-11"	9"	1'- 9"
18"	1'- 2"	1'- 0"	3'- 2"	9"	1'- 9"
21"	1'- 4"	1'- 0"	3'- 5"	9"	2'- 0"
24"	1'- 7"	1'- 0"	3'- 8"	9"	2'- 0"
27"	1'- 8"	1'- 0"	3'-11"	9"	2'- 3"
30"	1'-10"	1'- 0"	4'- 2"	9"	2'- 3"
33"	1'-11"	1'- 0"	4'- 5"	9"	2'- 6"
36"	2'- 1"	1'- 0"	4'- 8"	1'- 0"	2'- 6"
42"	2'- 4"	1'- 0"	5'- 2"	1'- 0"	2'- 9"
48"	2'- 7"	1'- 3"	5'-11"	1'- 0"	3'- 0"
54"	3'- 0"	1'- 3"	6'- 5"	1'- 0"	3'- 3"
60"	3'- 3"	1'- 3"	6'-11"	1'- 0"	3'- 6"
66"	3'- 3"	1'- 3"	7'- 5"	1'- 0"	3'- 9"
72"	3'- 4"	1'- 3"	7'-11"	1'- 0"	4'- 0"

TABLE OF REINFORCING STEEL ④

Bar	Size	Spa	No.
A1	# 5	~	2
A2	# 5	1'-6"	~
E	# 5	~	2
F	# 5	1'-0"	~



BARS F2

GENERAL NOTES:

Designed according to AASHTO LRFD Specifications.

Reinforcing steel shall be placed with the center of the outside layer of bars 2" from the surface of the concrete.

All reinforcing steel shall be Grade 60.

All concrete shall be Class "C" and shall have a minimum compressive strength of 4,000 psi.

No bridge rails of any type may be mounted directly to these culvert headwalls.

Texas Department of Transportation

Bridge
Division
Standard

CONCRETE HEADWALLS
WITH PARALLEL WINGS FOR
SKEWED PIPE CULVERTS

CH-PW-S

FILE: chpwsste.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: GAF
©TxDOT February 2010	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.

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4122 Pond Hill Road, Suite 101
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CORLEY FARMS
UNIT 5

TXDOT PARALLEL WING DETAIL

DATE
01/28/2025

PROJECT NO.
03481.012

DRAWN BY
C3

CHECKED BY
XV/AL

#	DATE	REVISIONS
1.		
2.		
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ANDREW R. LOWRY
123410
02/10/2025

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TBPE No. 455
TBPLS No. 10048500

SAWS JOB NO.
22-1190

C21

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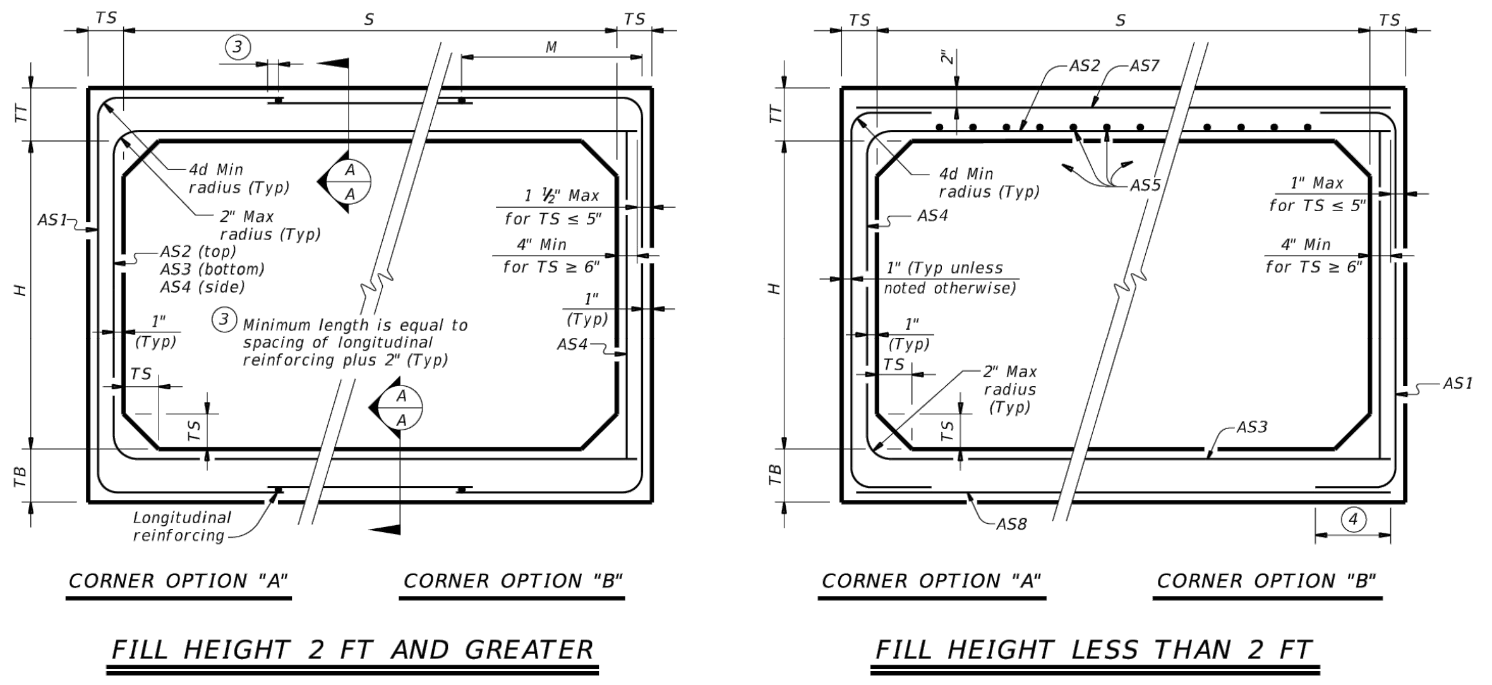
P:\03481\012\2-Drawings\C7.04 TXDOT PARALLEL WING DETAIL.dwg 2025/01/28 12:19pm mlopez

BOX DATA

SECTION DIMENSIONS					Fill Height	M (Min)	REINFORCING (sq. in. / ft.) ②							① Lift Weight
S (ft.)	H (ft.)	TT (in.)	TB (in.)	TS (in.)	(ft.)	(in.)	AS1	AS2	AS3	AS4	AS5	AS7	AS8	(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

DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.


TS
S
TS
M
TT
H
TB
4d Min radius (Typ)
2" Max radius (Typ)
AS1
AS2 (top)
AS3 (bottom)
AS4 (side)
1 ½" Max for TS ≤ 5"
4" Min for TS ≥ 6"
1" (Typ)
AS4
Longitudinal reinforcing
A
2"
AS2
AS7
AS5
AS4
1" (Typ unless noted otherwise)
1" Max for TS ≤ 5"
4" Min for TS ≥ 6"
AS3
AS8
④

CORNER OPTION "A" CORNER OPTION "B"

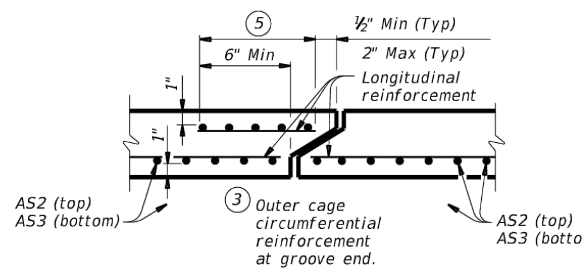
FILL HEIGHT 2 FT AND GREATER

③ Minimum length is equal to spacing of longitudinal reinforcing plus 2" (Typ)

CORNER OPTION "A" CORNER OPTION "B"

FILL HEIGHT LESS THAN 2 FT

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


⑤
6" Min
½" Min (Typ)
2" Max (Typ)
Longitudinal reinforcement
1"
AS2 (top)
AS3 (bottom)

③ Outer cage circumferential reinforcement at groove end.

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)".

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.

DATE:
FILE:

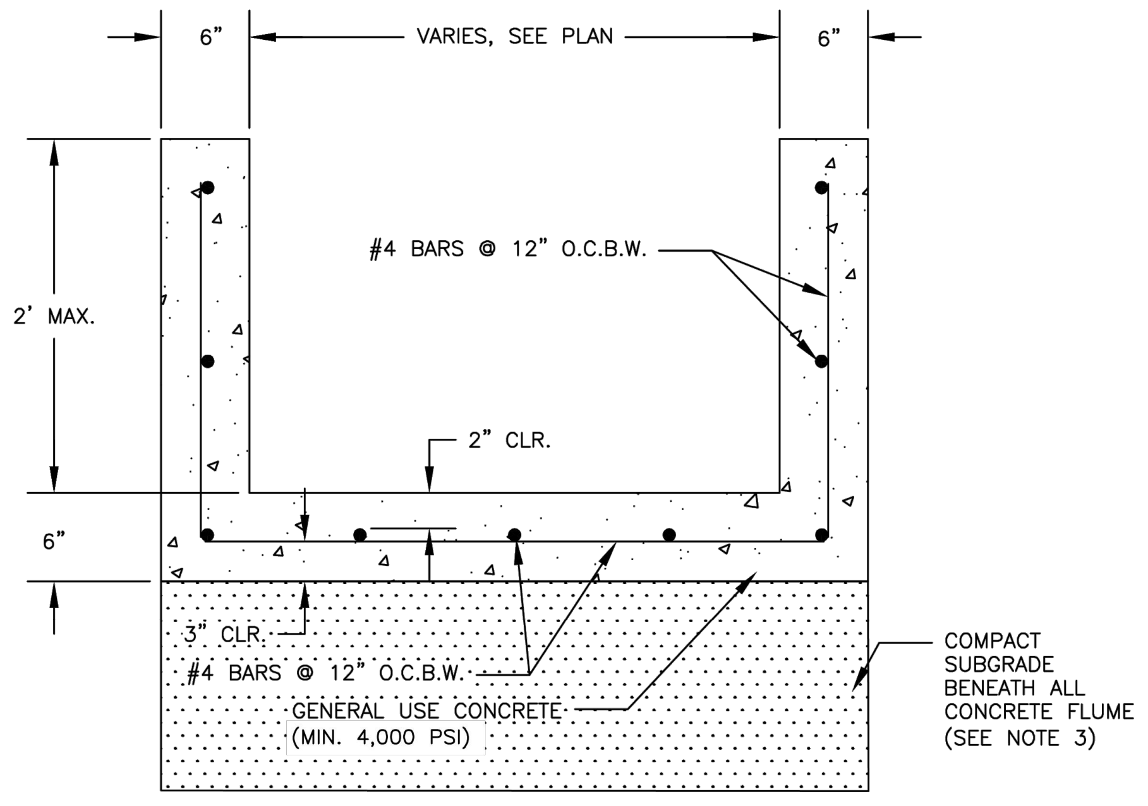
HL93 LOADING

Texas Department of Transportation | Bridge Division Standard

SINGLE BOX CULVERTS
PRECAST
4'-0" SPAN

SCP-4

FILE: scp04sts-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY		SHEET NO.

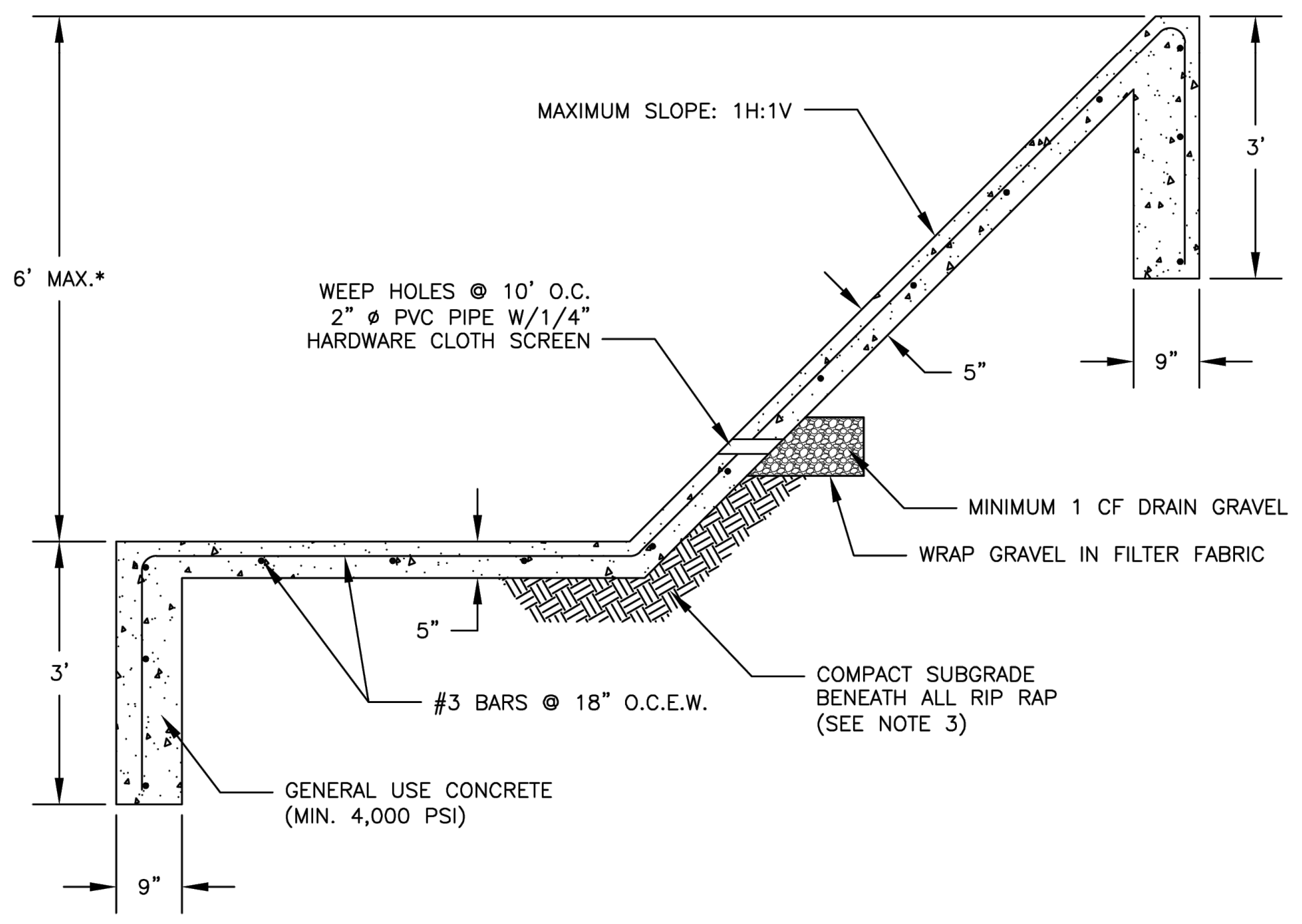

6"
VARIES, SEE PLAN
6"
2' MAX.
#4 BARS @ 12" O.C.B.W.
2" CLR.
6"
3" CLR.
#4 BARS @ 12" O.C.B.W.
GENERAL USE CONCRETE (MIN. 4,000 PSI)
COMPACT SUBGRADE BENEATH ALL CONCRETE FLUME (SEE NOTE 3)

NOTES:
1. PROVIDE EXPANSION JOINTS AT A MINIMUM 40' SPACING AND CONTRACTION JOINTS MINIMUM 10' SPACING.
2. JOINT PLAN TO BE PROVIDED BY ENGINEER FOR REVIEW AND APPROVAL BY THE CITY PRIOR TO INSTALLATION.
3. COMPACT SUBGRADE TO 95% OF THE OPTIMUM DENSITY PER ASTM D1557 (MODIFIED PROCTOR) AND SPECIFICATION 02221.

CITY OF BOERNE

CONCRETE FLUME

SCALE:	DRAWING No.	DATE:
N.T.S.	02423–1.0	MAY 2024


MAXIMUM SLOPE: 1H:1V
3'
6' MAX.*
WEEP HOLES @ 10' O.C. 2" ø PVC PIPE W/1/4" HARDWARE CLOTH SCREEN
5"
9"
MINIMUM 1 CF DRAIN GRAVEL
WRAP GRAVEL IN FILTER FABRIC
5"
3'
#3 BARS @ 18" O.C.E.W.
COMPACT SUBGRADE BENEATH ALL RIP RAP (SEE NOTE 3)
GENERAL USE CONCRETE (MIN. 4,000 PSI)
9"

*MAXIMUM HEIGHT MAY BE EXCEEDED IF DESIGN MODIFIED BASED UPON GEOTECHNICAL SLOPE STABILITY ANALYSIS AND APPROPRIATE STRUCTURAL DESIGN.

NOTES:
1. PROVIDE EXPANSION JOINTS AT A MINIMUM 40' SPACING AND CONTRACTION JOINTS MINIMUM 10' SPACING.
2. JOINT PLAN TO BE PROVIDED BY ENGINEER FOR REVIEW AND APPROVAL BY THE CITY PRIOR TO INSTALLATION.
3. COMPACT SUBGRADE TO 95% OF THE OPTIMUM DENSITY PER ASTM D1557 (MODIFIED PROCTOR) AND SPECIFICATION 02221.

CITY OF BOERNE

CONCRETE RIP–RAP
TYPICAL SECTION

SCALE:	DRAWING No.	DATE:
N.T.S.	02423–1.1	MAY 2024

BOX DATA

SECTION DIMENSIONS					Fill Height	M (Min)	REINFORCING (sq. in. / ft.) ②							① Lift Weight
S (ft.)	H (ft.)	TT (in.)	TB (in.)	TS (in.)	(ft.)	(in.)	AS1	AS2	AS3	AS4	AS5	AS7	AS8	(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

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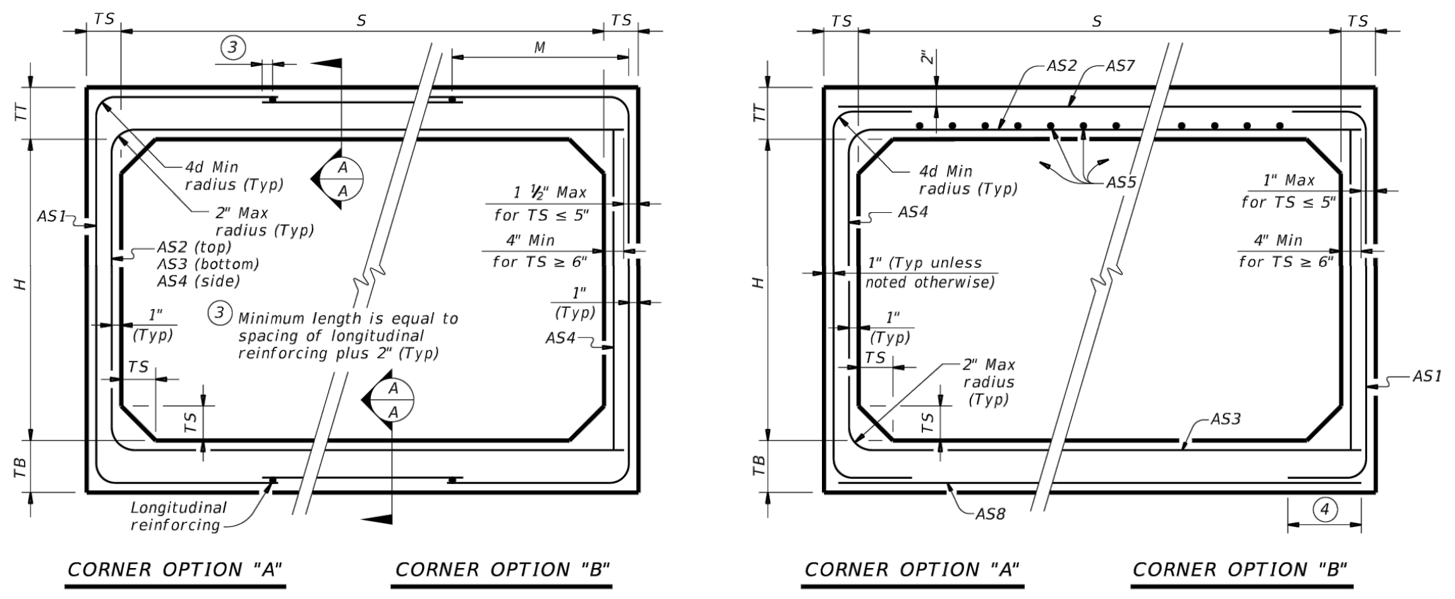

TS
S
TS
M
TT
H
TB
4d Min radius (Typ)
2" Max radius (Typ)
AS1
AS2 (top)
AS3 (bottom)
AS4 (side)
1 ½" Max for TS ≤ 5"
4" Min for TS ≥ 6"
1" (Typ)
AS4
Longitudinal reinforcing
A
AS2
AS7
AS5
AS4
1" (Typ unless noted otherwise)
1" Max for TS ≤ 5"
4" Min for TS ≥ 6"
AS1
AS3
AS8
④

CORNER OPTION "A" CORNER OPTION "B"

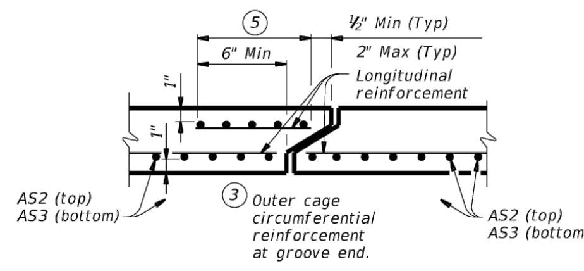
FILL HEIGHT 2 FT AND GREATER

③ Minimum length is equal to spacing of longitudinal reinforcing plus 2" (Typ)

CORNER OPTION "A" CORNER OPTION "B"

FILL HEIGHT LESS THAN 2 FT

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


⑤
6" Min
½" Min (Typ)
2" Max (Typ)
Longitudinal reinforcement
AS2 (top)
AS3 (bottom)

③ Outer cage circumferential reinforcement at groove end.

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)".

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.

DATE:
FILE:

HL93 LOADING

Texas Department of Transportation | Bridge Division Standard

SINGLE BOX CULVERTS
PRECAST
5'-0" SPAN

SCP-5

FILE: scp05sts-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY		SHEET NO.

BOX DATA

SECTION DIMENSIONS					Fill Height	M (Min)	REINFORCING (sq. in. / ft.) ②							① Lift Weight
S (ft.)	H (ft.)	TT (in.)	TB (in.)	TS (in.)	(ft.)	(in.)	AS1	AS2	AS3	AS4	AS5	AS7	AS8	(tons)
3	2	7	6	4	< 2	–	0.17	0.25	0.16	0.10	0.17	0.17	0.14	3.3
3	2	4	4	4	2 < 3	31	0.13	0.19	0.18	0.10	–	–	–	2.4
3	2	4	4	4	3 – 5	31	0.10	0.11	0.12	0.10	–	–	–	2.4
3	2	4	4	4	10	31	0.10	0.10	0.10	0.10	–	–	–	2.4
3	2	4	4	4	15	31	0.10	0.13	0.13	0.10	–	–	–	2.4
3	2	4	4	4	20	31	0.11	0.17	0.17	0.10	–	–	–	2.4
3	2	4	4	4	25	31	0.14	0.21	0.21	0.10	–	–	–	2.4
3	2	4	4	4	30	31	0.17	0.25	0.25	0.10	–	–	–	2.4
3	2	4	4	4	35	31	0.20	0.29	0.30	0.10	–	–	–	2.4
3	3	7	6	4	< 2	–	0.17	0.27	0.17	0.10	0.17	0.17	0.14	3.7
3	3	4	4	4	2 < 3	31	0.10	0.22	0.21	0.10	–	–	–	2.8
3	3	4	4	4	3 – 5	31	0.10	0.14	0.14	0.10	–	–	–	2.8
3	3	4	4	4	10	31	0.10	0.11	0.11	0.10	–	–	–	2.8
3	3	4	4	4	15	31	0.10	0.14	0.15	0.10	–	–	–	2.8
3	3	4	4	4	20	31	0.10	0.18	0.19	0.10	–	–	–	2.8
3	3	4	4	4	25	31	0.10	0.23	0.23	0.10	–	–	–	2.8
3	3	4	4	4	30	31	0.12	0.27	0.28	0.10	–	–	–	2.8
3	3	4	4	4	35	31	0.14	0.32	0.32	0.10	–	–	–	2.8

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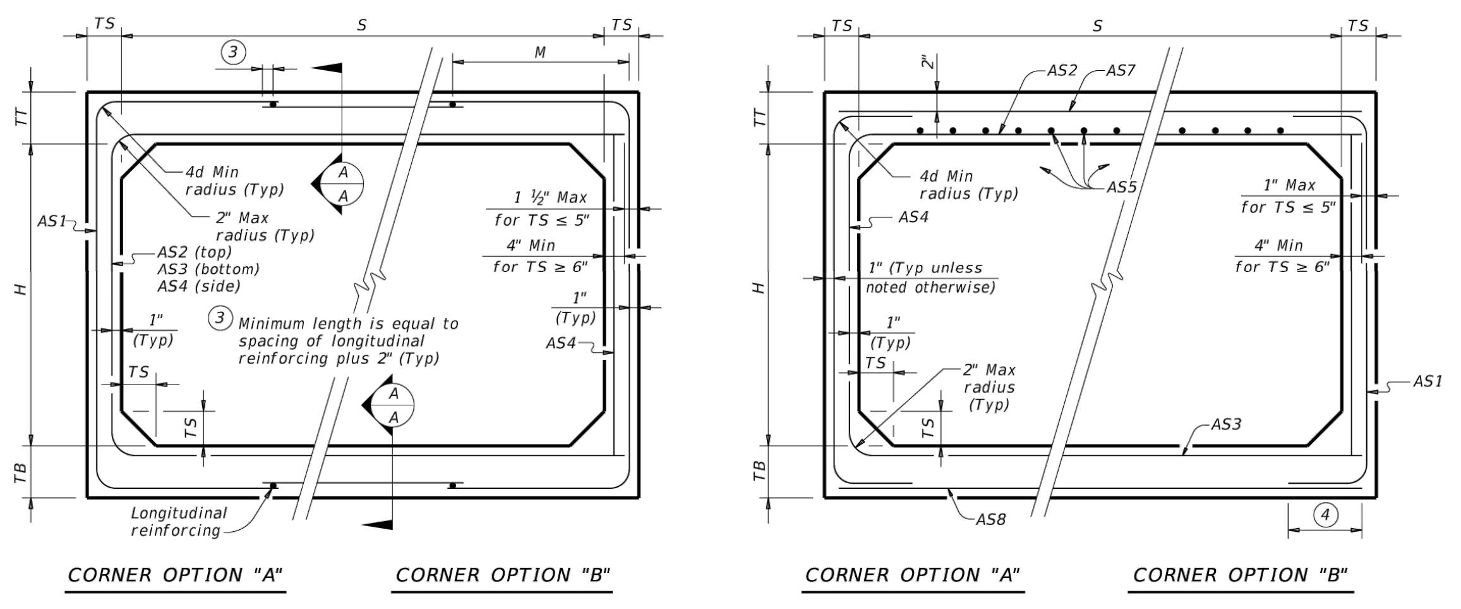

TS
S
TS
M
TT
H
TB
4d Min radius (Typ)
2" Max radius (Typ)
AS1
AS2 (top)
AS3 (bottom)
AS4 (side)
1 ½" Max for TS ≤ 5"
4" Min for TS ≥ 6"
1" (Typ)
AS4
Longitudinal reinforcing
A
AS2
AS7
AS5
AS4
1" (Typ unless noted otherwise)
1" Max for TS ≤ 5"
4" Min for TS ≥ 6"
AS1
AS3
AS8
④

CORNER OPTION "A" CORNER OPTION "B"

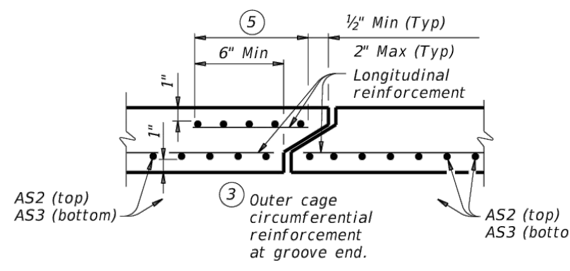
FILL HEIGHT 2 FT AND GREATER

③ Minimum length is equal to spacing of longitudinal reinforcing plus 2" (Typ)

CORNER OPTION "A" CORNER OPTION "B"

FILL HEIGHT LESS THAN 2 FT

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


⑤
6" Min
½" Min (Typ)
2" Max (Typ)
Longitudinal reinforcement
AS2 (top)
AS3 (bottom)

③ Outer cage circumferential reinforcement at groove end.

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)."

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.

DATE:
FILE:

HL93 LOADING

Texas Department of Transportation | Bridge Division Standard

SINGLE BOX CULVERTS
PRECAST
3'-0" SPAN

SCP-3

FILE: CD-SCP03-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS	DIST	COUNTY		SHEET NO.

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**CORLEY FARMS
UNIT 5**

TXDOT PRECAST 3',4'&5' CULVERT BOXES &
CONC. RIP-RAP DETAIL

DATE
01/28/2025

PROJECT NO.
03481.012

DRAWN BY
C3

CHECKED BY
XV/AL

REVISIONS

DATE

#	
1.	
2.	
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ANDREW R. LOWRY
123410
02/10/2025

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

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P:\03481\012\2-Drawings\C7.05 TXDOT PRECAST 3',4'&5' CULVERT BOXES & CONC. RIP-RAP DETAILS.dwg 2025/01/28 12:19pm mlopez

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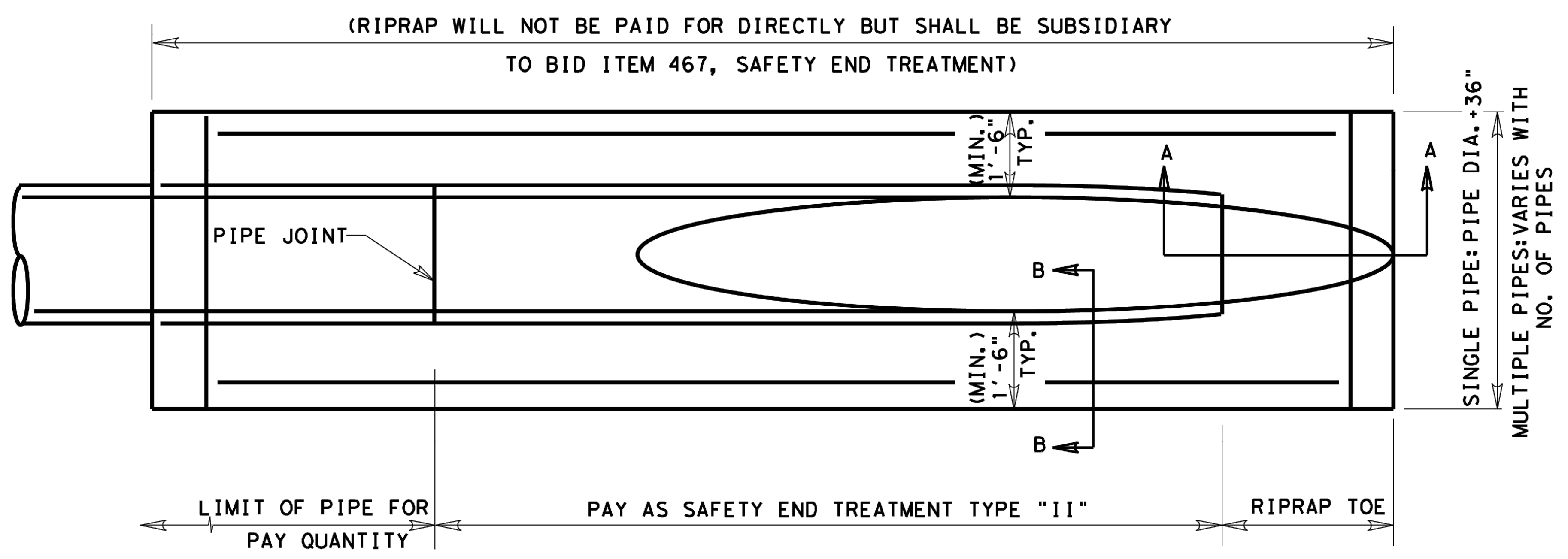
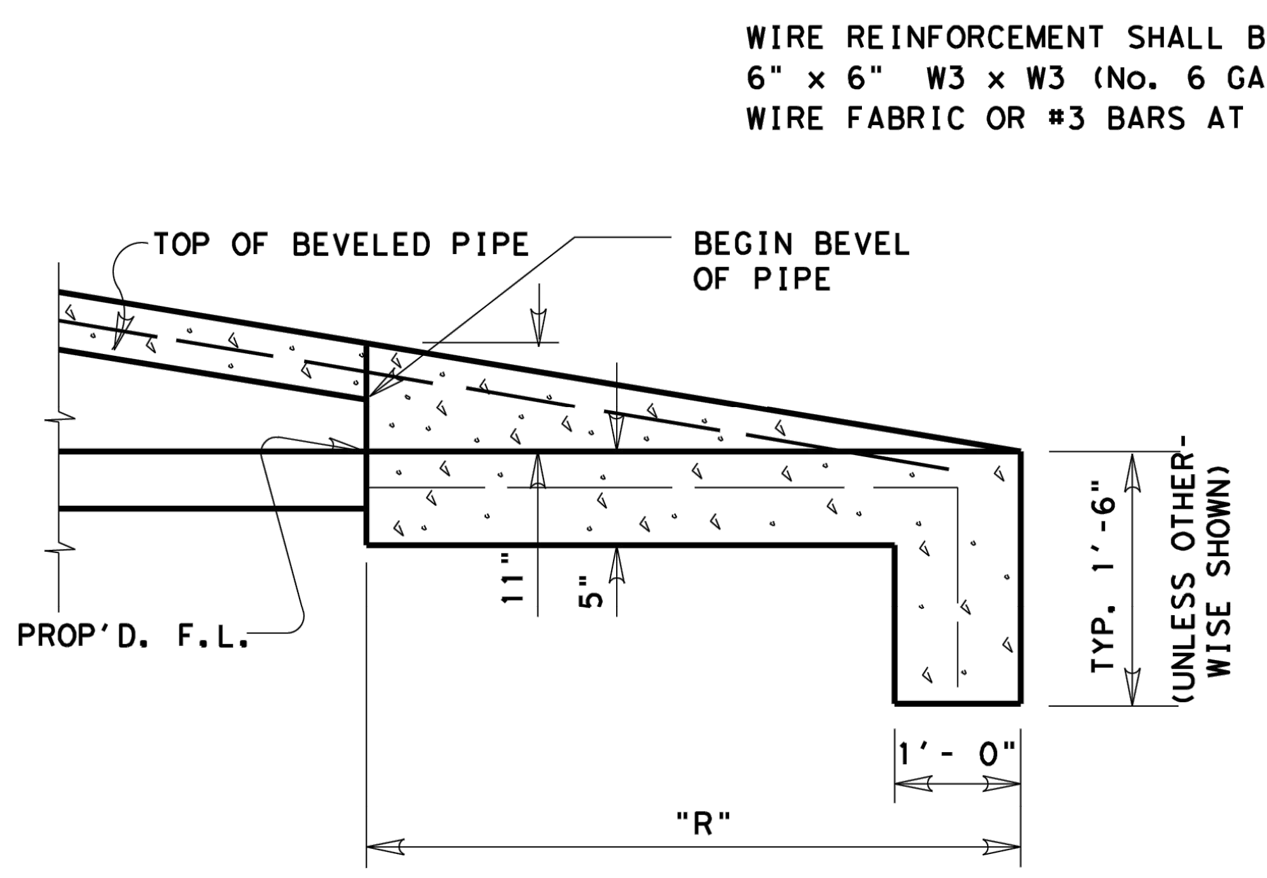
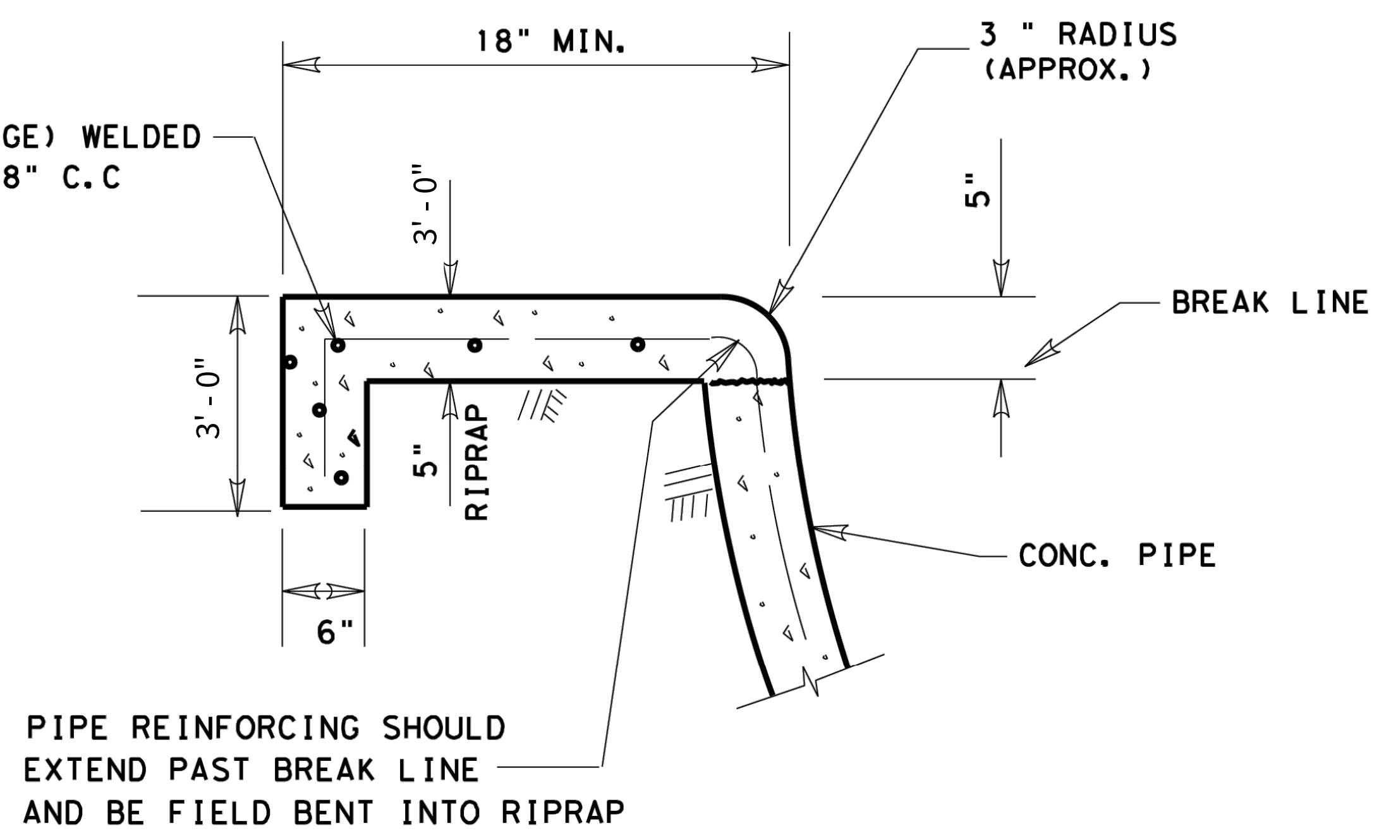

(RIPRAP WILL NOT BE PAID FOR DIRECTLY BUT SHALL BE SUBSIDIARY
TO BID ITEM 467, SAFETY END TREATMENT)
PIPE JOINT
(MIN.) 1'-6" TYP.
A
A
B
B
SINGLE PIPE: PIPE DIA.+36"
MULTIPLE PIPES: VARIES WITH NO. OF PIPES
LIMIT OF PIPE FOR PAY QUANTITY
PAY AS SAFETY END TREATMENT TYPE "II"
RIPRAP TOE

PLAN VIEW


TOP OF BEVELED PIPE
BEGIN BEVEL OF PIPE
PROP'D. F.L.
11"
5"
TYP. 1'-6"
(UNLESS OTHER-WISE SHOWN)
1'- 0"
"R"

SEC. A-A


WIRE REINFORCEMENT SHALL BE
6" x 6" W3 x W3 (No. 6 GAUGE) WELDED
WIRE FABRIC OR #3 BARS AT 18" C.C
18" MIN.
3 " RADIUS (APPROX.)
3'-0"
5"
3'-0"
5"
RIPRAP
BREAK LINE
CONC. PIPE
6"
PIPE REINFORCING SHOULD
EXTEND PAST BREAK LINE
AND BE FIELD BENT INTO RIPRAP

SEC. B-B

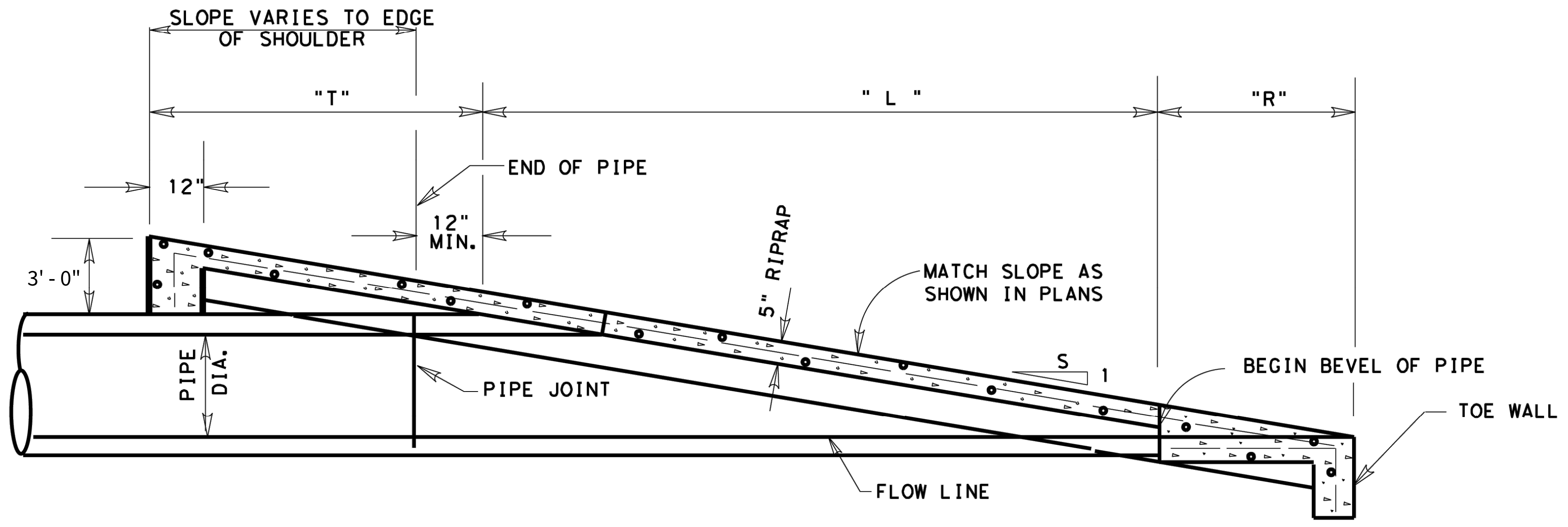
SAFETY END TREATMENT PIPE LENGTHS

PIPE DIA. (IN.)	"L"			
	3:1	4:1	5:1	6:1
12	2'-0"	2'-8"	3'-4"	4'-0"
15	2'-9"	3'-8"	4'-7"	5'-6"
18	3'-6"	4'-8"	5'-10"	7'-0"
24	5'-1½"	6'-10"	8'-6½"	10'-3"
30	6'-9"	9-0"	11'-3"	13'-6"
36	8'-6"	11'-4"	14'-2"	17'-0"
42	10'-1½"	13'-6"	16'-10½"	20'-3"
48	11'-9"	15'-8"	19'-7"	23'-6"

⊗ DRIVEWAYS & TURNOUTS ARE 6:1 ONLY

RIPRAP TOE LENGTHS

SLOPE	" R "	"T"
3:1	2'-9"	1'-9"
4:1	3'-8"	2'-4"
5:1	4'-7"	2'-11"
6:1	5'-6"	3'-6"

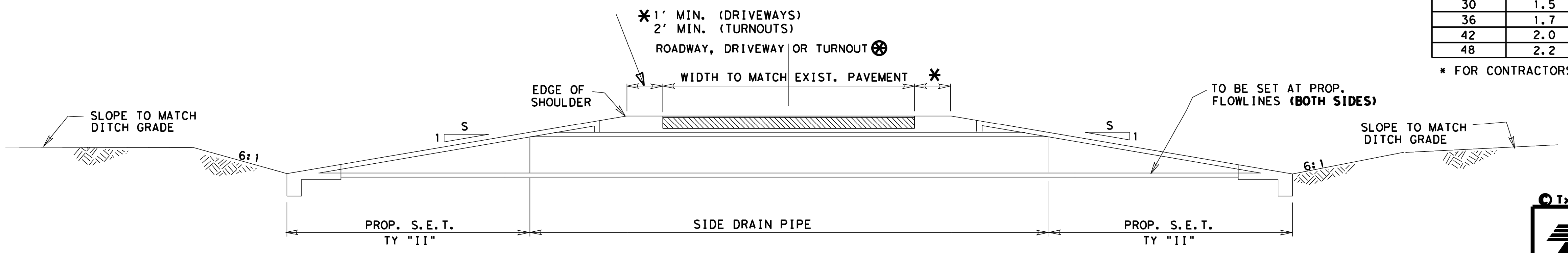

SLOPE VARIES TO EDGE OF SHOULDER
"T"
" L "
"R"
12"
END OF PIPE
12" MIN.
3'-0"
5" RIPRAP
MATCH SLOPE AS SHOWN IN PLANS
S
1
BEGIN BEVEL OF PIPE
TOE WALL
PIPE DIA.
PIPE JOINT
FLOW LINE

ELEVATION
SAFETY END TREATMENT

ESTIMATED RIPRAP VOLUME (CY)

PIPE DIA. (IN.)				
	3:1	4:1	5:1	6:1
12	.9	1.1	1.3	1.6
15	1.0	1.2	1.5	1.8
18	1.1	1.4	1.6	1.9
24	1.3	1.6	2.0	2.3
30	1.5	1.9	2.3	2.7
36	1.7	2.2	2.7	3.2
42	2.0	2.5	3.1	3.6
48	2.2	2.8	3.4	4.1

* FOR CONTRACTORS INFORMATION ONLY (SINGLE PIPE)


* 1' MIN. (DRIVEWAYS)
2' MIN. (TURNOUTS)
ROADWAY, DRIVEWAY OR TURNOUT ⊗
WIDTH TO MATCH EXIST. PAVEMENT
*
EDGE OF SHOULDER
SLOPE TO MATCH DITCH GRADE
6:1
1
S
S
1
TO BE SET AT PROP. FLOWLINES (BOTH SIDES)
SLOPE TO MATCH DITCH GRADE
6:1
PROP. S.E.T. TY "II"
SIDE DRAIN PIPE
PROP. S.E.T. TY "II"

TYPICAL SIDEDRAIN SECTION

NOTE:

ALL EXCAVATION AND BACKFILL REQUIRED AT ALL PIPE SIDE DRAIN CONNECTIONS, ADJUSTMENTS AND/OR EXTENSIONS WILL NOT BE PAID FOR DIRECTLY BUT SHALL BE SUBSIDIARY TO THE BID ITEMS INVOLVED AND IN ACCORDANCE WITH ITEM 400 "STRUCTURAL EXCAVATION".

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PHARR DISTRICT STANDARDS

TEXAS DEPARTMENT OF TRANSPORTATION

SAFETY END TREATMENT DETAILS

REV. 9/16 **SET.DGN**

FED. RD. DIV. NO.	STATE AID PROJECT NO.		FILE NO.			SHEET NO.
6						
STATE	STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
TEXAS	21					

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CORLEY FARMS
UNIT 5

TXDOT SAFETY END TREATMENT DETAILS

DATE
01/28/2025

PROJECT NO.
03481.012

DRAWN BY
C3

CHECKED BY
XV/AL

#	DATE	REVISIONS
1.		
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9.		

ANDREW R. LOWRY
123410
02/10/2025

CUDE ENGINEERS
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TBPLS No. 10048500

SAWS JOB NO.
22-1190

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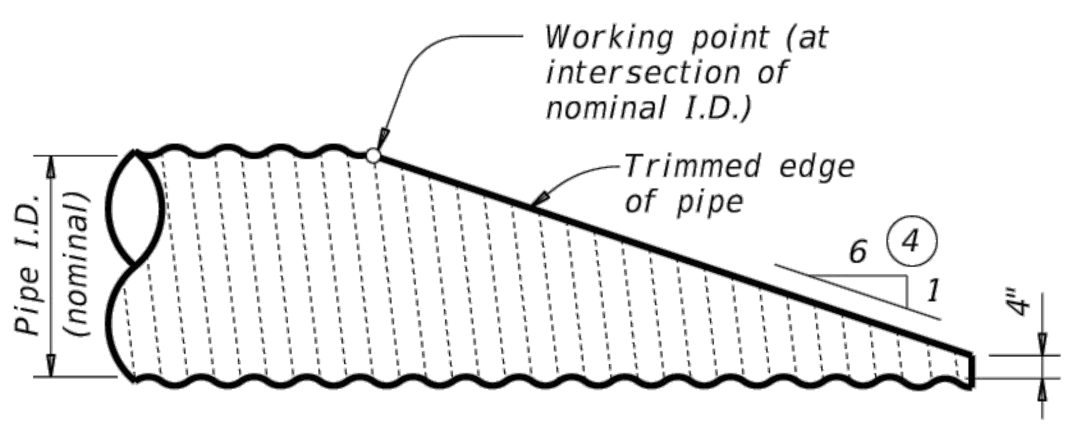
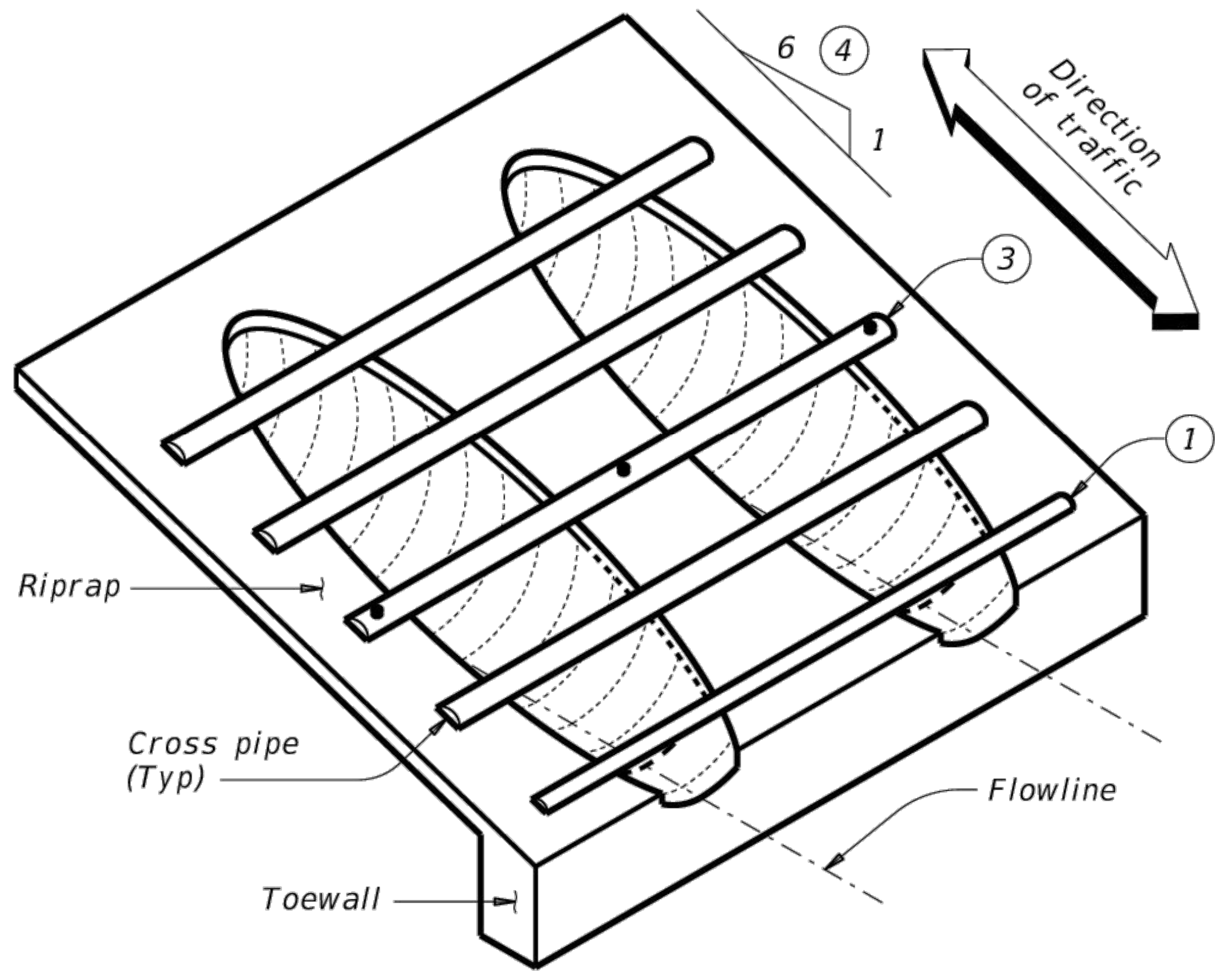


Working point (at intersection of nominal I.D.)
Trimmed edge of pipe
6 ④
1
4"
Pipe I.D. (nominal)

NOTE: All cross pipes, calculations, and dimensions are based on the pipe culverts mitered as shown in this detail. Alternate styles of mitered ends will require that appropriate adjustments be made to the values presented on this standard.

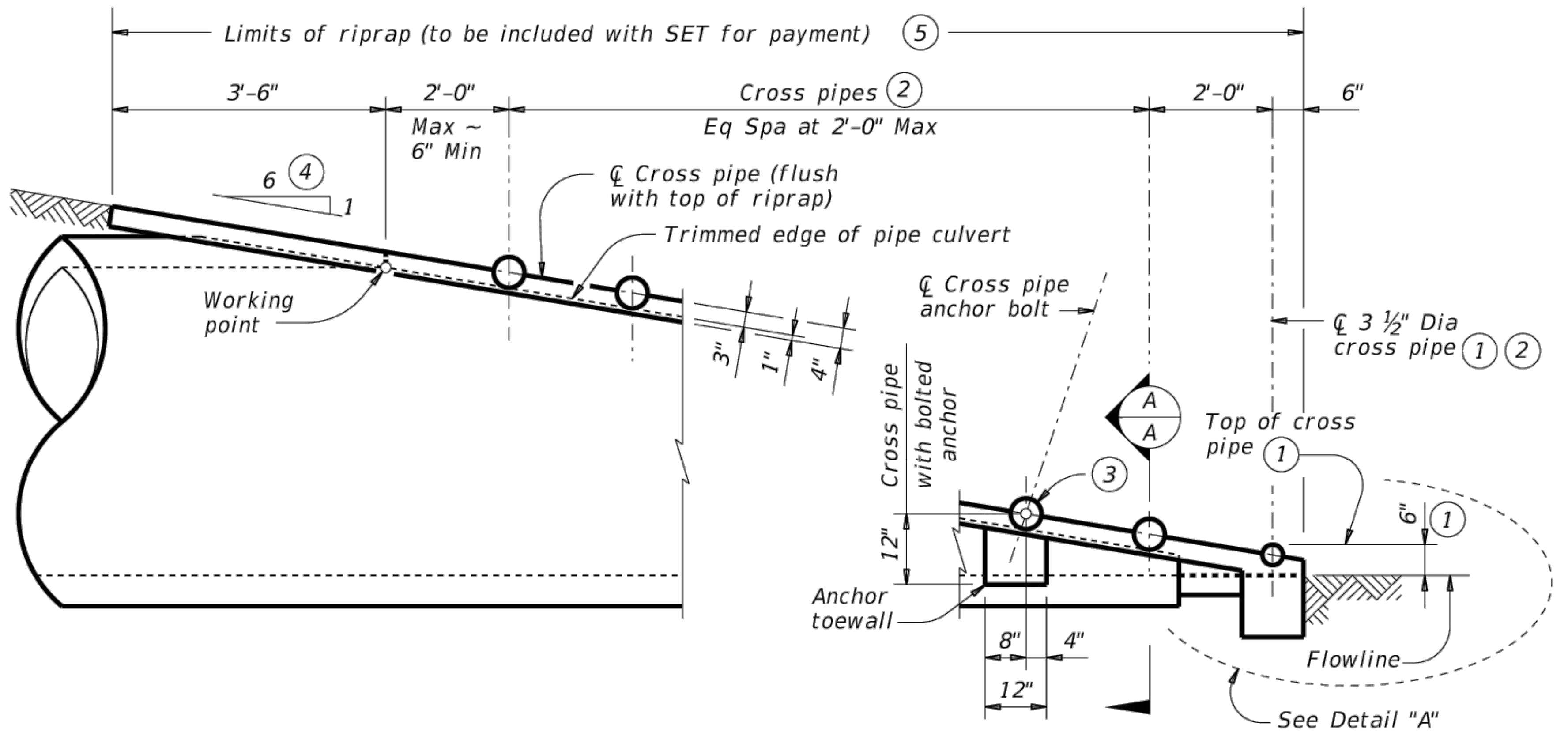
SIDE ELEVATION OF TYPICAL PIPE CULVERT MITER

(Showing corrugated metal pipe (CMP) culvert Details at reinforced concrete pipe (RCP) culvert are similar.)



6 ④
1
Direction of traffic
③
① ②
Riprap
Cross pipe (Typ)
Flowline
Toewall

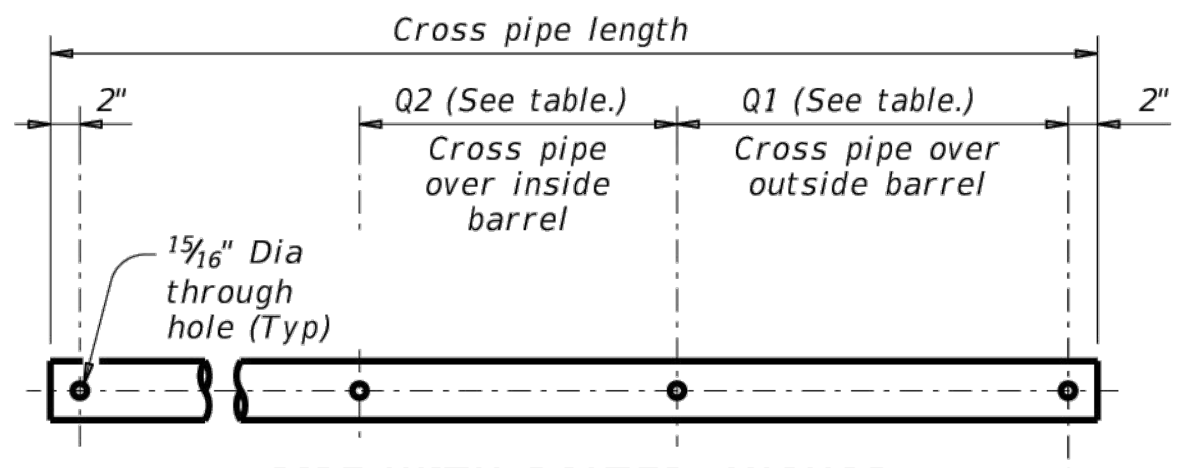
ISOMETRIC VIEW OF TYPICAL INSTALLATION



Limits of riprap (to be included with SET for payment) ⑤
3'-6"
2'-0"
Max ~ 6" Min
Cross pipes ②
Eq Spa at 2'-0" Max
2'-0"
6"
6 ④
1
℄ Cross pipe (flush with top of riprap)
Trimmed edge of pipe culvert
Working point
3"
1"
4"
℄ Cross pipe anchor bolt
℄ 3 ½" Dia cross pipe ① ②
Cross pipe with bolted anchor
A
A
Top of cross pipe ①
③
6" ①
12"
Anchor toewall
8"
4"
12"
Flowline
See Detail "A"

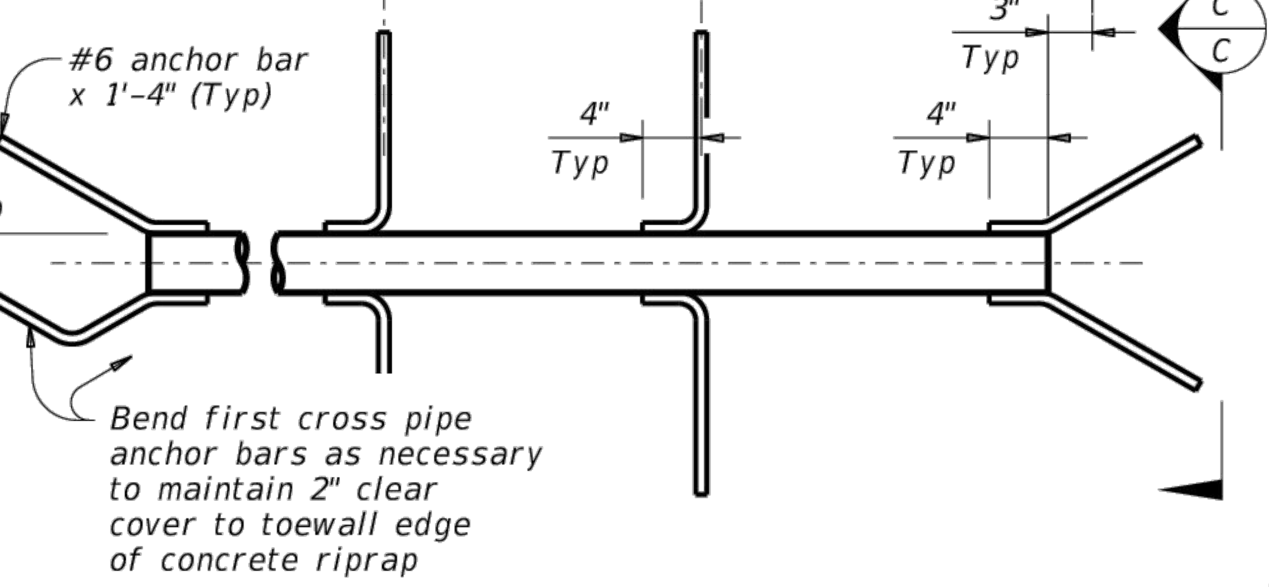
SIDE ELEVATION OF CAST-IN-PLACE CONCRETE

(Showing reinforced concrete pipe (RCP) culvert. Details at corrugated metal pipe (CMP) culvert are similar.)



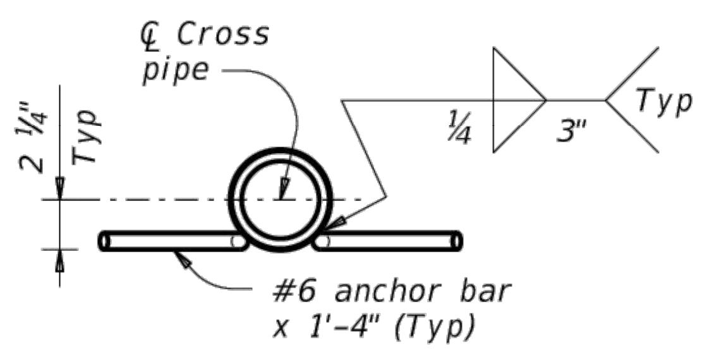
Cross pipe length
2"
Q2 (See table.)
Cross pipe over inside barrel
Q1 (See table.)
Cross pipe over outside barrel
2"
$1^3/_{16}$" Dia through hole (Typ)

PIPE WITH BOLTED ANCHOR



#6 anchor bar x 1'-4" (Typ)
30° Typ
4" Typ
4" Typ
3" Typ
C
C
Bend first cross pipe anchor bars as necessary to maintain 2" clear cover to toewall edge of concrete riprap

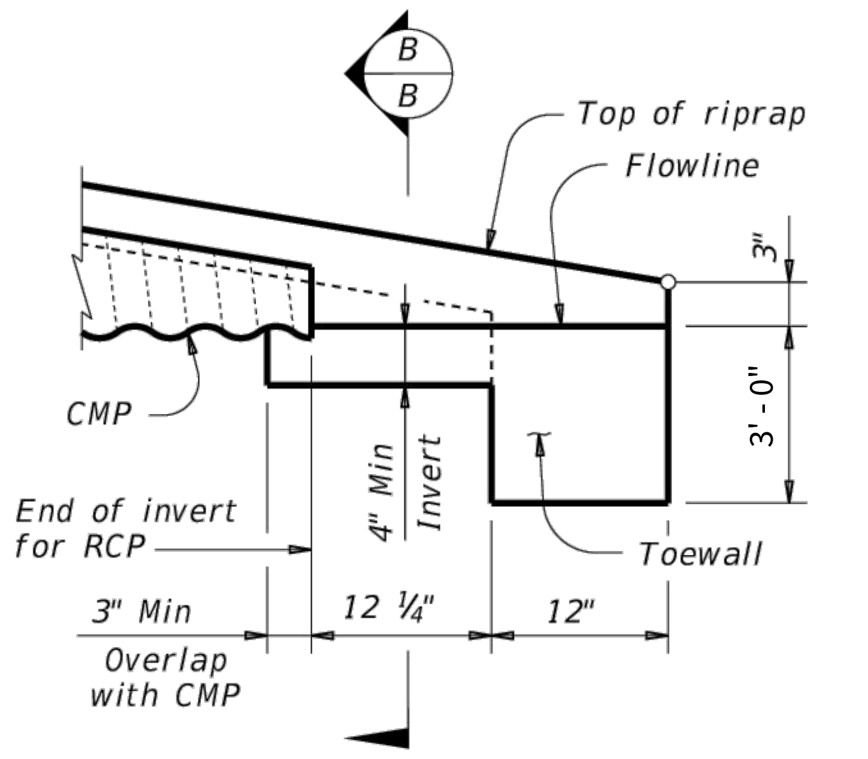
PIPE WITH ANCHOR BARS



℄ Cross pipe
2 ¼" Typ
¼
3"
Typ
#6 anchor bar x 1'-4" (Typ)

SECTION C-C

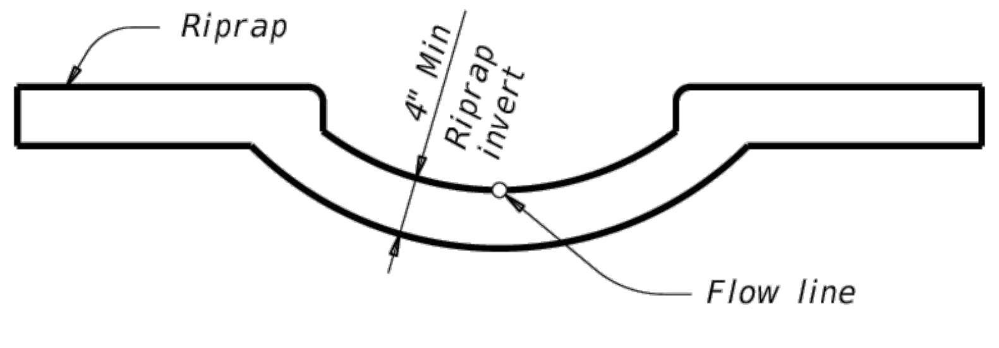
CROSS PIPE DETAILS



B
B
Top of riprap
Flowline
3"
3' - 0"
CMP
4" Min Invert
End of invert for RCP
Toewall
3" Min
Overlap with CMP
12 ¼"
12"

DETAIL "A"

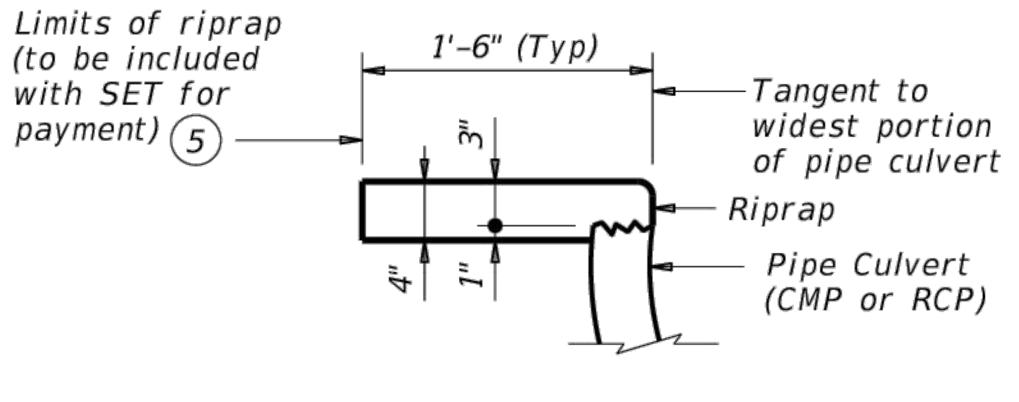
(Showing invert with corrugated metal pipe (CMP) culvert. Reinforced concrete pipe (RCP) culvert details are similar. Cross pipes not shown for clarity.)



Riprap
4" Min Riprap invert
Flow line

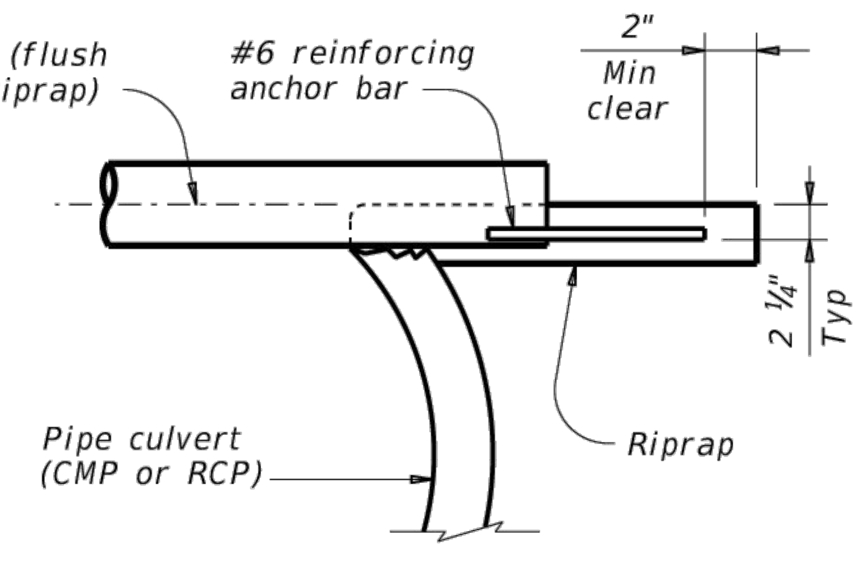
SECTION B-B

(Cross pipes not shown for clarity.)



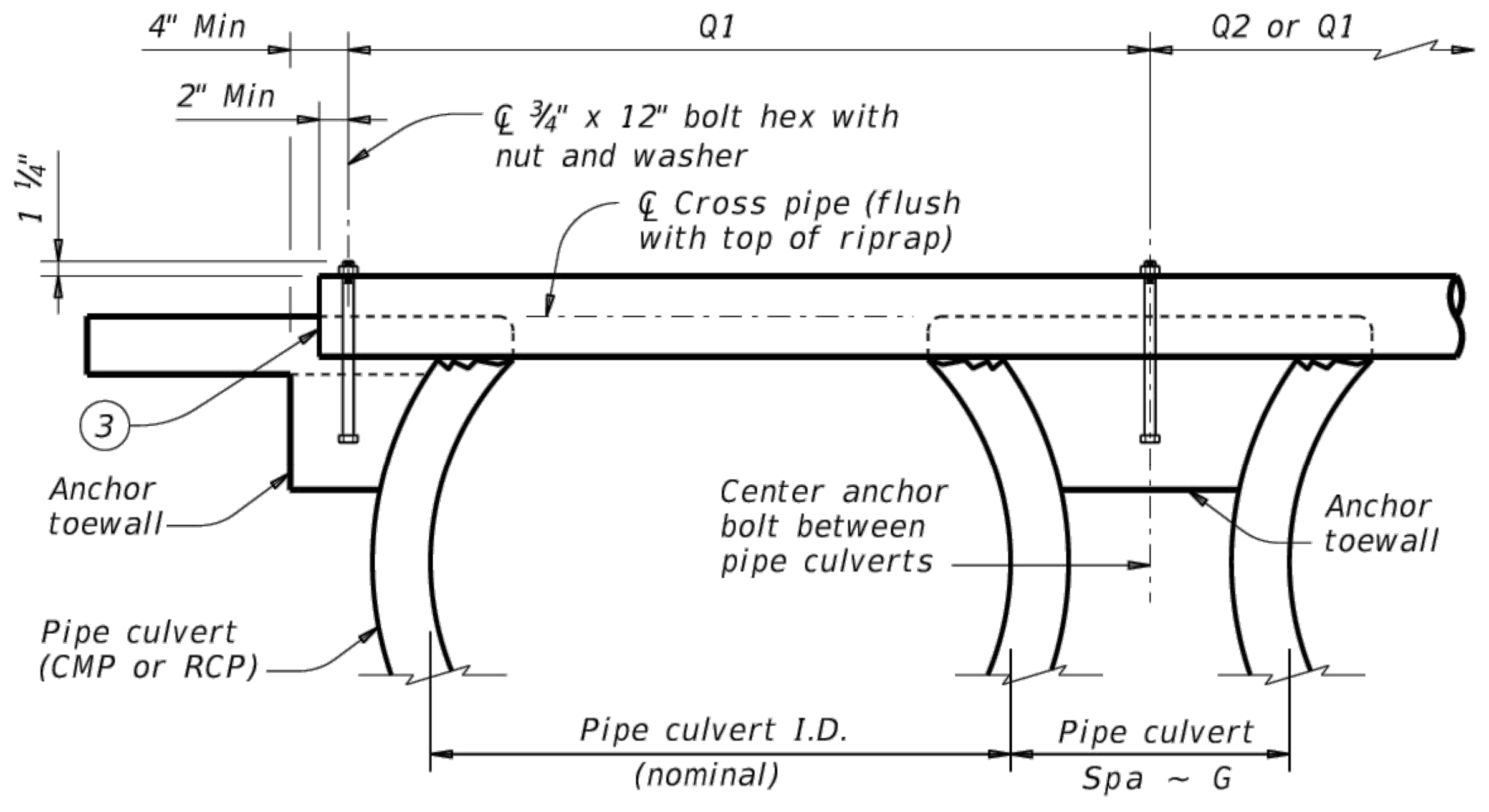
Limits of riprap (to be included with SET for payment) ⑤
1'-6" (Typ)
Tangent to widest portion of pipe culvert
3"
Riprap
Pipe Culvert (CMP or RCP)
4"
1"

SHOWING TYPICAL PIPE CULVERT AND RIPRAP



℄ Cross pipe (flush with top of riprap)
#6 reinforcing anchor bar
2" Min clear
2 ¼" Typ
Pipe culvert (CMP or RCP)
Riprap

SHOWING CROSS PIPE WITH ANCHOR BAR



4" Min
Q1
Q2 or Q1
2" Min
℄ ¾" x 12" bolt hex with nut and washer
1 ¼"
℄ Cross pipe (flush with top of riprap)
③
Anchor toewall
Center anchor bolt between pipe culverts
Anchor toewall
Pipe culvert (CMP or RCP)
Pipe culvert I.D. (nominal)
Pipe culvert Spa ~ G

SHOWING CROSS PIPE WITH BOLTED ANCHOR

SECTION A-A

CROSS PIPE LENGTHS, REQUIRED PIPE SIZES, AND RIPRAP QUANTITIES ②

Nominal Culvert I.D.	Conc Riprap (CY) ⑥	Pipe Culvert Spa ~ G	Single Barrel ~ Q1	Multi-Barrel ~ Q1	Q2	Conditions for Use of Cross Pipes	Cross Pipe Sizes
12"	0.6	0' - 9"	N/A	2' - 1"	1' - 9"	3 or more pipe culverts	3" Std (3.500" O.D.)
15"	0.7	0' - 11"	N/A	2' - 5"	2' - 2"		
18"	0.8	1' - 2"	N/A	2' - 10"	2' - 8"		
21"	0.9	1' - 4"	N/A	3' - 2"	3' - 1"		
24"	0.9	1' - 7"	N/A	3' - 6"	3' - 7"		
27"	1.0	1' - 8"	N/A	3' - 10"	3' - 11"	3 or more pipe culverts	3 ½" Std (4.000" O.D.)
30"	1.1	1' - 10"	N/A	4' - 2"	4' - 4"	2 or more pipe culverts	
33"	1.2	1' - 11"	4' - 2"	4' - 5"	4' - 8"	All pipe culverts	
36"	1.3	2' - 1"	4' - 5"	4' - 9"	5' - 1"	All pipe culverts	4" Std (4.500" O.D.)
42"	1.5	2' - 4"	4' - 11"	5' - 5"	5' - 10"		
48"	1.7	2' - 7"	5' - 5"	6' - 0"	6' - 7"	All pipe culverts	5" Std (5.563" O.D.)
54"	2.0	3' - 0"	5' - 11"	6' - 9"	7' - 6"		
60"	2.2	3' - 3"	6' - 5"	7' - 4"	8' - 3"		
66"	2.4	3' - 3"	6' - 11"	7' - 10"	8' - 9"		
72"	2.7	3' - 4"	7' - 5"	8' - 5"	9' - 4"		

① The proper installation of the first cross pipe is critical for vehicle safety. Place the top of the first cross pipe no more than 6" above the flow line.

② Provide cross pipes, except the first bottom pipe, of the size shown in the table. Provide a 3 1#2" standard pipe (4" O.D.) for the first bottom pipe.

③ Install the third cross pipe from the bottom of the culvert using a bolted connection. Ensure that riprap concrete does not flow into the cross pipe so as to permit disassembly of the bolted connection to allow cleanout access. At the Contractor's option, install all other cross pipes using the bolted connection details.

④ Match cross slope as shown elsewhere in the plans. Cross slope of 6:1 or flatter is required for vehicle safety.

⑤ Riprap placed beyond the limits shown will be paid for as concrete riprap in accordance with Item 432, "Riprap".

⑥ Quantities shown are for one end of one reinforced concrete pipe (RCP) culvert. For multiple pipe culverts or for corrugated metal pipe (CMP) culverts, quantities will need to be adjusted. Riprap quantities are for contractor's information only.

MATERIAL NOTES:

Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.

Provide cross pipes that meet the requirements of ASTM A53 (Type E or S, Gr B), ASTM A500 (Gr B), or API 5LX52.

Provide ASTM A307 bolts and nuts.

Galvanize all steel components, except concrete reinforcing, after fabrication. Repair galvanizing damaged during transport or construction in accordance with the specifications.

GENERAL NOTES:

Cross pipes are designed for a traversing load of 10,000 pounds at yield as recommended by Research Report 280-2F, "Safety Treatment of Roadside Parallel-Drainage Structures", Texas Transportation Institute, March 1981.

Safety end treatments (SET) shown herein are intended for use in those installations where out of control vehicles are likely to traverse the openings approximately perpendicular to the cross pipes.

Construct concrete riprap and all necessary inverts in accordance with the requirements of Item 432, "Riprap".

Payment for riprap and toewall is included in the Price Bid for each Safety End Treatment.

Texas Department of Transportation
Bridge Division Standard

SAFETY END TREATMENT
FOR 12" DIA TO 72" DIA PIPE CULVERTS TYPE II ~ PARALLEL DRAINAGE

SETP-PD

FILE:	setppdse-20.dgn	DN: GAF		CK: CAT	DW: JRP		CK: GAF	
©TxDOT	February 2020	CONT	SECT	JOB		HIGHWAY		
REVISIONS								
		DIST	COUNTY				SHEET NO.	

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DATE:
FILE:

CUDEENGINEERS.COM

4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

CORLEY FARMS UNIT 5

TXDOT SAFETY END TREATMENT PARALLEL DRAINAGE 12"-72"

DATE
08/12/2024

PROJECT NO.
03481.012

DRAWN BY
C3

CHECKED BY
XV/AL

REVISIONS

#	DATE	REVISIONS
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		

ANDREW R. LOWRY
123410
08/13/2024

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

SAWS JOB NO.
22-1190

C24

CUDEENGINEERS.COM

P:\03481\012\2-Drawings\C7.D7 TXDOT SAFETY END TREATMENT PARALLEL DRAINAGE 12'' TO 72''.dwg 2024/08/12 2:35pm mlopez

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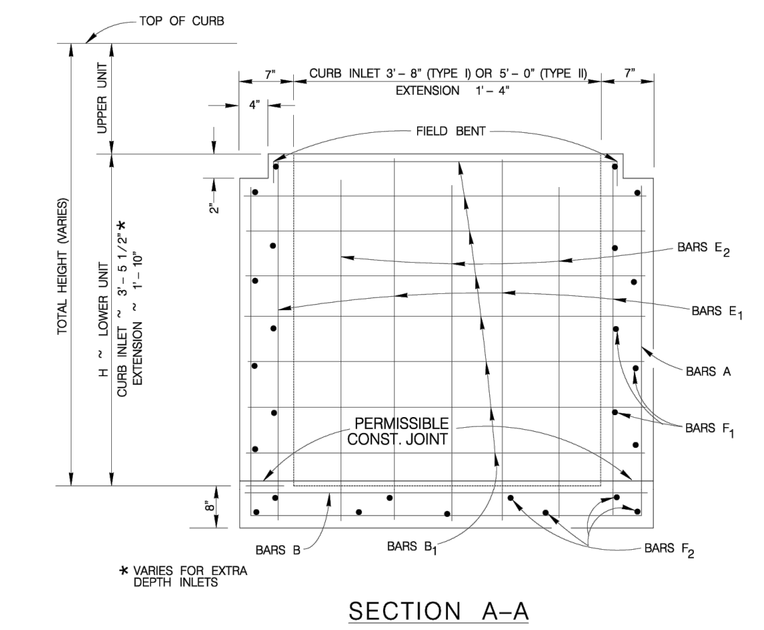
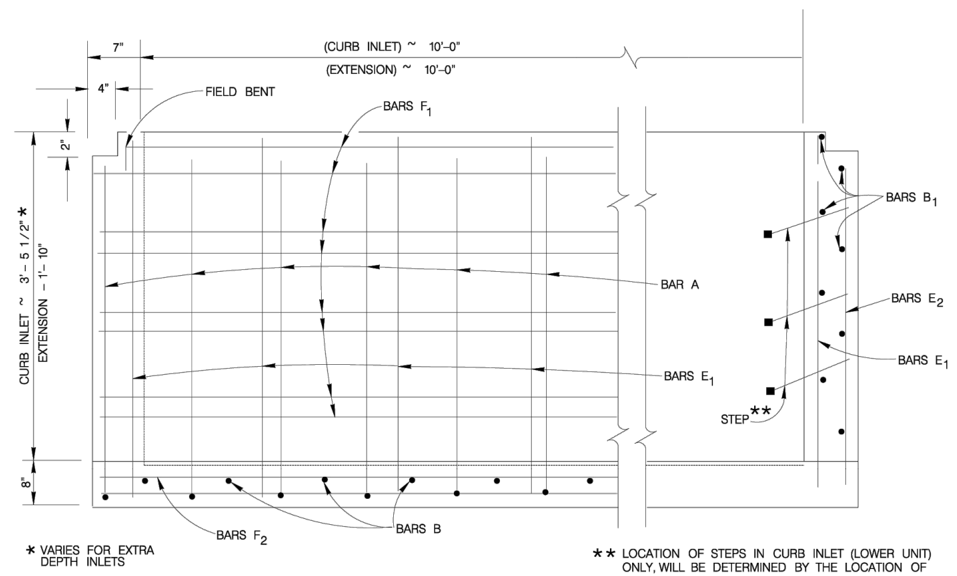

TOP OF CURB
CURB INLET 3'-8" (TYPE I) OR 5'-0" (TYPE II)
FIELD BENT
BARS E2
BARS E1
BARS A
BARS F1
PERMISSIBLE CONST. JOINT
BARS B
BARS F2
* VARIES FOR EXTRA DEPTH INLETS

SECTION A-A


(CURB INLET) 10'-0"
(EXTENSION) 10'-0"
FIELD BENT
BARS F1
BARS B1
BAR A
BARS E2
BARS E1
STEP
* VARIES FOR EXTRA DEPTH INLETS

SECTION B-B

** LOCATION OF STEPS IN CURB INLET (LOWER UNIT) ONLY, WILL BE DETERMINED BY THE LOCATION OF RING COVER PLACEMENT. STEPS @ 15" O.C.

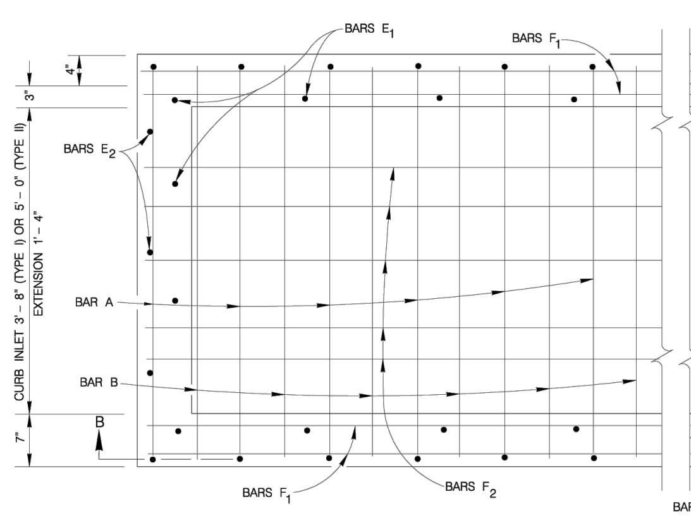
REINFORCING STEEL

LOWER UNIT 10' X 3' – 8" (TYPE I)				
BAR	NO.	SIZE	SPAC.	LENGTH
A	12	#4	12"	VARIES
B	11	#4	12"	4'–6"
B_1	VARIES	#4	12"	4'–6"
E_1	20	#4	18"±	VARIES
E_2	6	#4	18"±	VARIES
F_1	VARIES	#4	12"±	10'–10"
F_2	9	#4	—	10'–10"

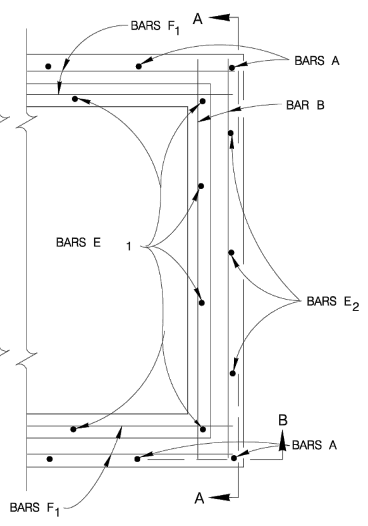
LOWER UNIT 10' X 5' – 0" (TYPE II)				
BAR	NO.	SIZE	SPAC.	LENGTH
A	12	#4	12"	VARIES
B	11	#4	12"	5'–10"
B_1	VARIES	#4	12"	5'–10"
E_1	22	#4	18"±	VARIES
E_2	8	#4	18"±	VARIES
F_1	VARIES	#4	12"±	10'–10"
F_2	11	#4	—	10'–10"

GENERAL NOTES

1. 5' INLETS AND 5' EXTENSIONS MUST BE IN ACCORDANCE WITH THE LATEST TXDOT CURB INLET TYPE "C" AND EXTENSION TYPE E (IL–C).
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" 4,000 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, TAKING INTO ACCOUNT THE SKEW OF THE PIPE AS NECESSARY. CONSTRUCTION JOINT MAY BE RAISED A MAXIMUM OF 6".

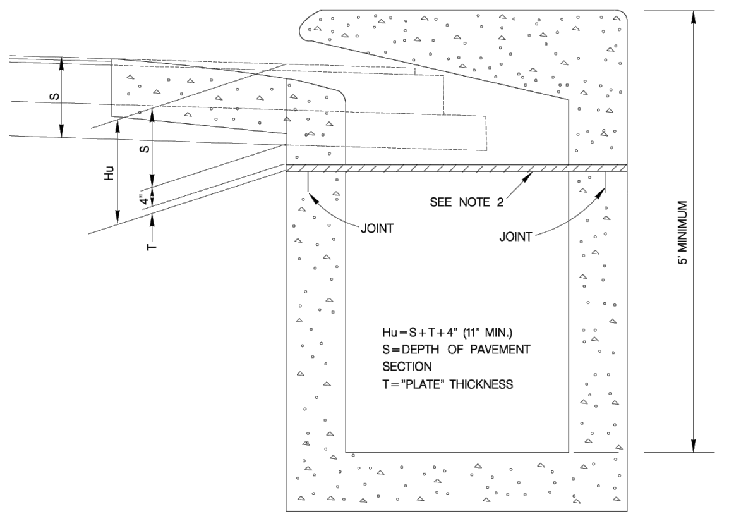

BARS E1
BARS F1
BARS E2
BAR A
BAR B
BARS F1
BARS F2

FLOOR STEEL


BARS F1
BARS B
BARS E
BARS E2
BARS A

WALL STEEL

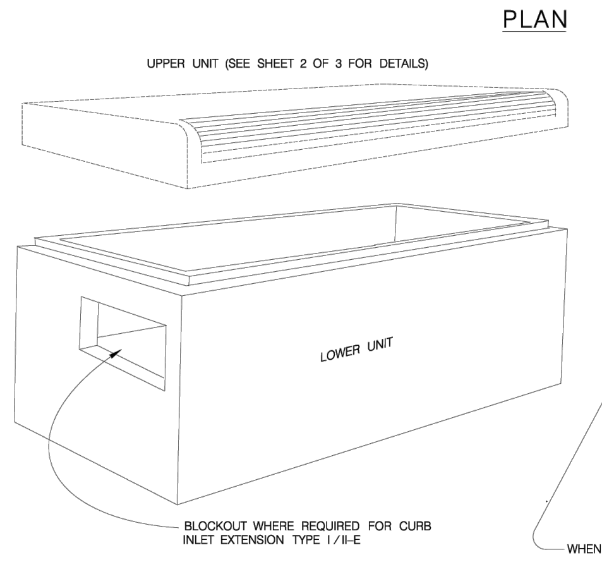
PLAN

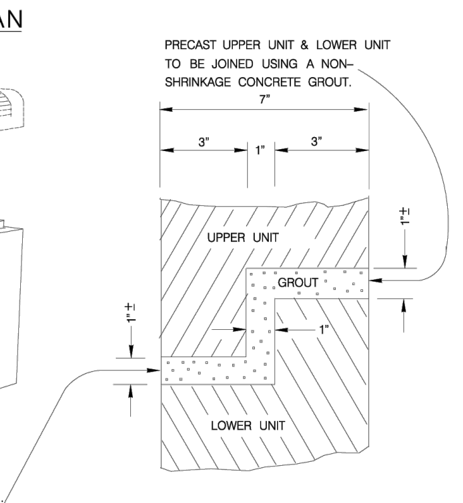

SEE NOTE 2
JOINT
5' MINIMUM

PHASE CONSTRUCTION

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

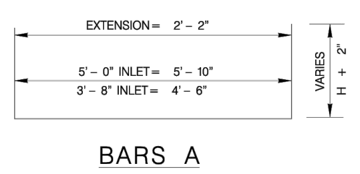
1. THE CURB INLET AND EXTENSION SHALL BE CONSTRUCTED TO A DEPTH "Hu" BELOW THE INLET AND EXTENSION GUTTER LINE ELEVATION.
2. CAP THE CURB INLET AND EXTENSION WITH A STEEL PLATE APPROVED BY THE ENGINEER AND CONSTRUCT THE ROADWAY OVER THE PLATE.
3. AFTER THE ROADWAY IS COMPLETED, BUT PRIOR TO THE FINAL HMAC OVERLAY, SAW CUT THE PAVEMENT, REMOVE THE PLATE AND COMPLETE THE UPPER PORTION OF THE CURB INLET AND /OR EXTENSION.


UPPER UNIT (SEE SHEET 2 OF 3 FOR DETAILS)
LOWER UNIT
BLOCKOUT WHERE REQUIRED FOR CURB INLET EXTENSION TYPE 1 (I-II)


PRECAST UPPER UNIT & LOWER UNIT TO BE JOINED USING A NON-SHRINKAGE CONCRETE GROUT.
UPPER UNIT
GROUT
LOWER UNIT

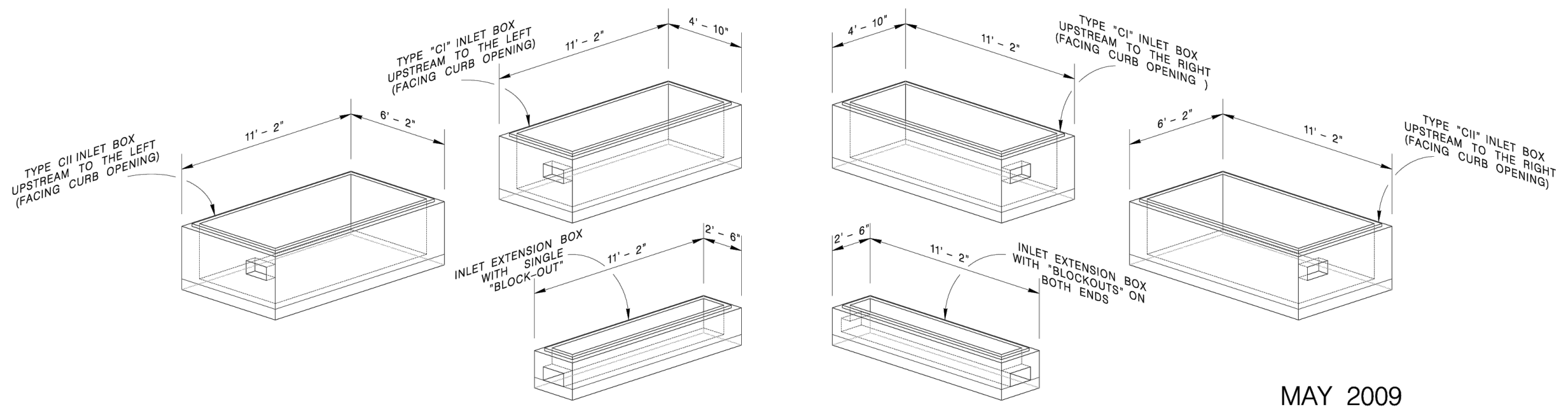
JOINT DETAIL

WHEN USING PRECAST UPPER UNIT, THIS SPACE IS FOR MAKING MINOR HORIZONTAL AND VERTICAL ADJUSTMENTS TO ACCOMODATE A FIT BETWEEN THE UPPER AND LOWER UNIT THAT ALLOWS FOR A MATCH LINE AND GRADE BETWEEN THE ROADWAY CURB AND THE UPPER UNIT OF THE INLET.


EXTENSION = 3' – 2"
5' – 0" INLET = 5' – 10"
3' – 8" INLET = 4' – 6"
VARIES

BARS A

(LOWER UNIT)

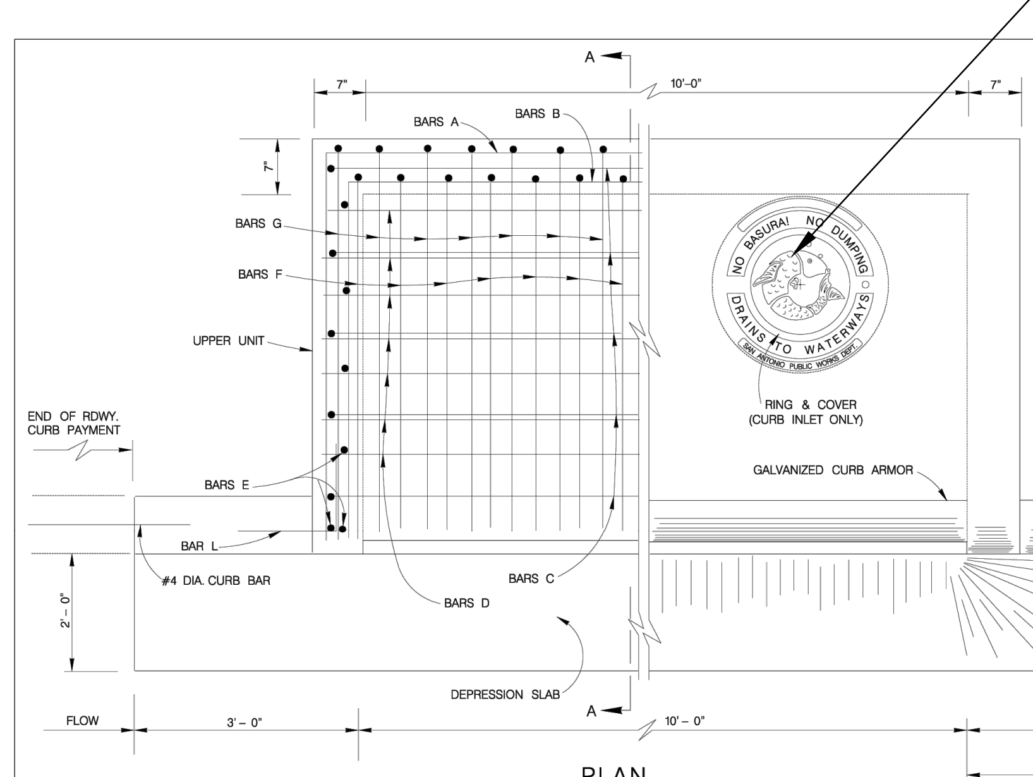

TYPE "CI" INLET BOX UPSTREAM TO THE LEFT (FACING CURB OPENING)
TYPE "CI" INLET BOX UPSTREAM TO THE LEFT (FACING CURB OPENING)
INLET EXTENSION BOX WITH SINGLE "BLOCK-OUT"
TYPE "CI" INLET BOX UPSTREAM TO THE RIGHT (FACING CURB OPENING)
TYPE "CI" INLET BOX UPSTREAM TO THE RIGHT (FACING CURB OPENING)
INLET EXTENSION BOX WITH "BLOCKOUTS" ON BOTH ENDS
11' – 2"

CONCRETE INLET BOX CONFIGURATIONS (LOWER UNITS)

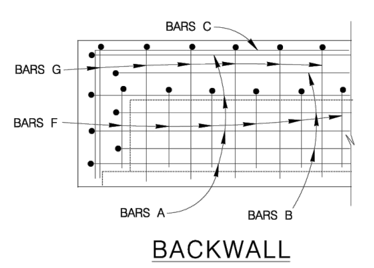
MAY 2009

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:______
DRWN. BY: V. VASQUEZ	DSGN. BY: L.E. MALTOS, P.E.	CHKD. BY: R.S. HOSSEINI, P.E.	SHEET NO.:____OF____

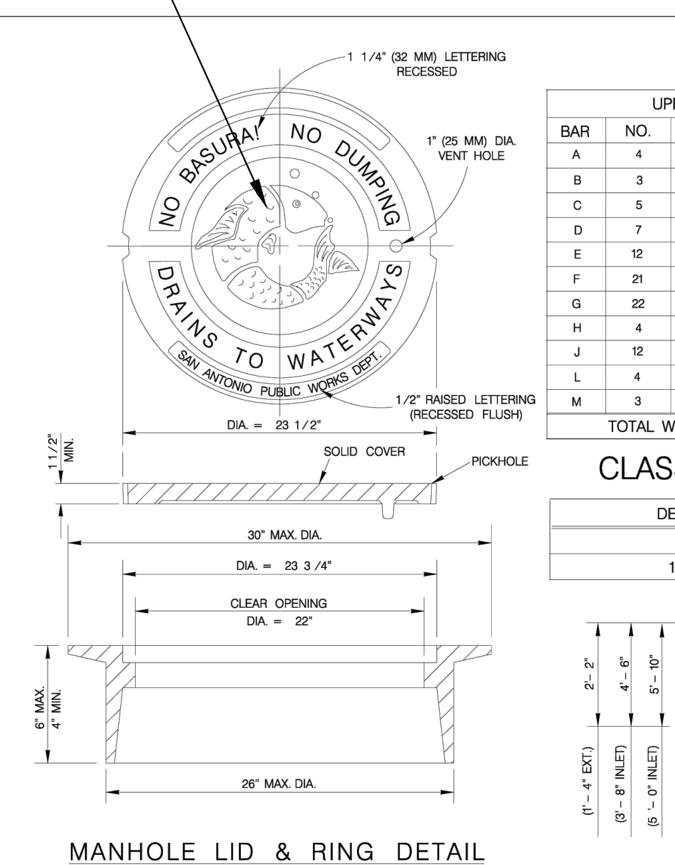
CONTRACTOR TO USE CITY OF BOERNE APPROVED MANHOLE LID COVER


A
10'-0"
BARS A
BARS B
BARS G
BARS F
UPPER UNIT
END OF RDWY. CURB PAYMENT
BARS E
RING & COVER (CURB INLET ONLY)
GALVANIZED CURB ARMOR
BAR L
#4 DIA. CURB BAR
BARS C
BARS D
DEPRESSION SLAB
FLOW
END OF RDWY. CURB PAYMENT
TYPICAL CURB LINE
FLOW

PLAN


BARS C
BARS G
BARS F
BARS A
BARS B

BACKWALL


NO BASURA
NO DUMPING
DRAINS TO WATERWAYS
SAN ANTONIO PUBLIC WORKS DEPT.
1 1/4" (32 MM) LETTERING RECESSED
1" (25 MM) DIA. VENT HOLE
1/2" RAISED LETTERING (RECESSED FLUSH)
DIA. = 25 1/2"
SOLID COVER
PICKHOLE
30" MAX. DIA.
DIA. = 23 3/4"
CLEAR OPENING DIA. = 22"
6" MAX.
4" MIN.
26" MAX. DIA.

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 260 LBS.

SEE SHEET 1 OF 3 FOR GENERAL NOTES.

REINFORCING STEEL (FOR Hu=11")

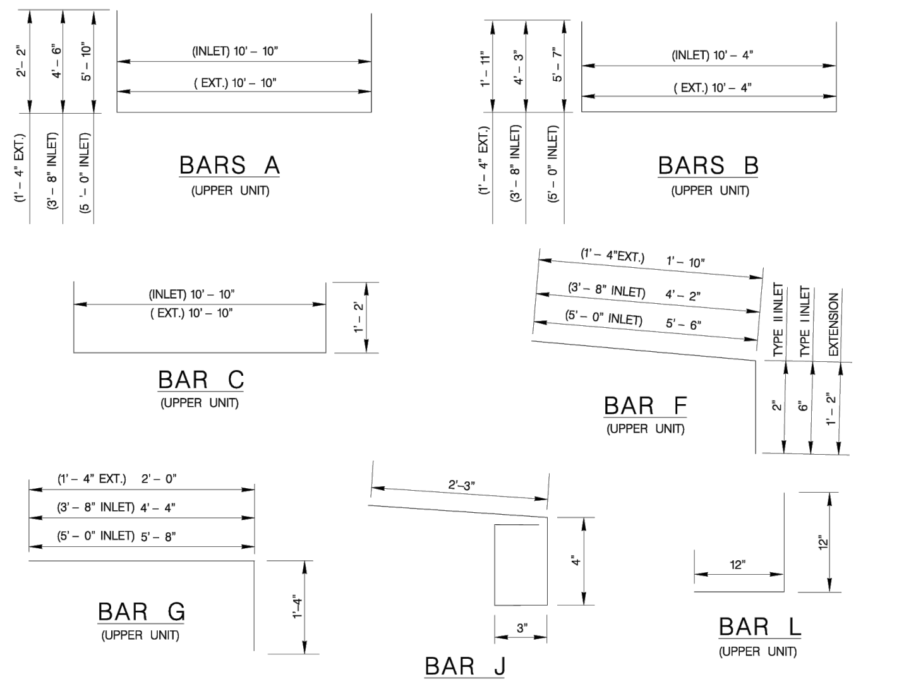
UPPER UNIT 10' X 3'–8" (TYPE I)					
BAR	NO.	SIZE	SPAC.	LENGTH	WEIGHT
A	4	#4	—	19'–10"	53
B	3	#4	—	18'–10"	38
C	5	#4	11"	13'–2"	44
D	7	#4	6"	10'–10"	51
E	12	#4	11"	1'–2"	9
F	21	#6	6"	4'–8"	147
G	22	#6	6"	5'–8"	187
H	4	#4	—	10'–10"	29
J	12	#4	12"	3'–6"	28
L	4	#4	—	2'–0"	5
M	3	#4	—	14'–8"	29
TOTAL WEIGHT					620 LBS.

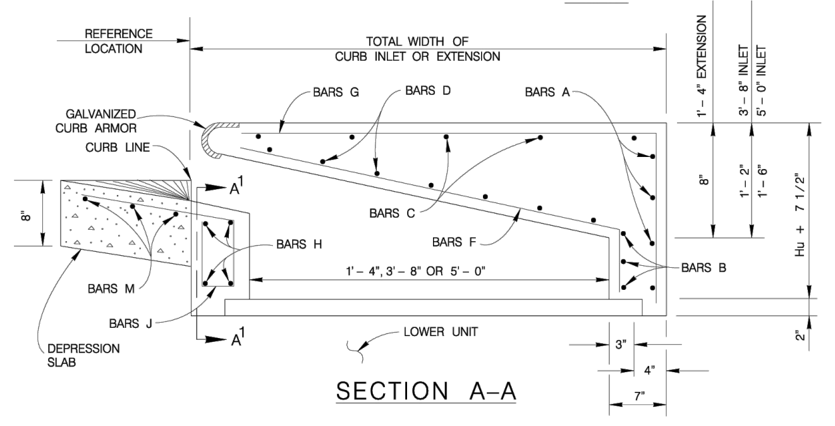
UPPER UNIT 10' X 5' (TYPE II)					
BAR	NO.	SIZE	SPAC.	LENGTH	WEIGHT
A	4	#4	—	22'–6"	60
B	3	#4	—	21'–6"	43
C	7	#4	11"	13'–2"	62
D	11	#4	6"	10'–10"	80
E	16	#4	11"	1'–2"	13
F	21	#6	6"	5'–8"	179
G	22	#6	6"	7'–0"	231
H	4	#4	—	10'–10"	29
J	12	#4	12"	3'–6"	28
L	4	#4	—	2'–0"	5
M	3	#4	—	14'–8"	29
TOTAL WEIGHT					759 LBS.

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

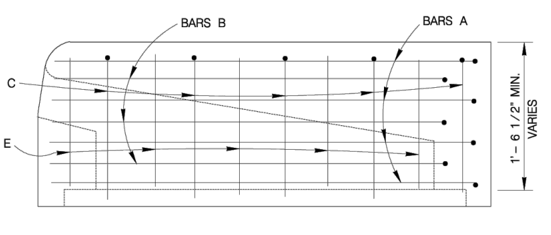
DEPRESSION SLAB	C.Y.
10' INLET	0.7
10' EXTENSION	0.7

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

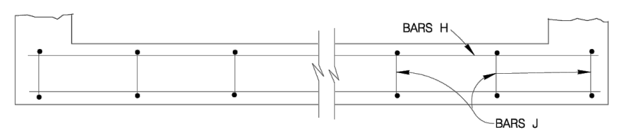

2'– 2"
4' – 6"
5' – 10"
(1' – 4" EXT.)
(3' – 8" INLET)
(5 '– 0" INLET)
(INLET) 10' – 10"
(EXT.) 10' – 10"
BARS A
(UPPER UNIT)
1' – 11"
4' – 3"
5' – 7"
(INLET) 10' – 4"
(EXT.) 10' – 4"
BARS B
(UPPER UNIT)
(INLET) 10' – 10"
(EXT.) 10' – 10"
BAR C
(UPPER UNIT)
BAR F
(UPPER UNIT)
(1' – 4" EXT.)
(3' – 8" INLET)
(5' – 0" INLET)
BAR G
(UPPER UNIT)
BAR J
(UPPER UNIT)
BAR L
(UPPER UNIT)


REFERENCE LOCATION
TOTAL WIDTH OF CURB INLET OR EXTENSION
GALVANIZED CURB ARMOR
CURB LINE
BARS G
BARS D
BARS A
BARS C
BARS F
BARS H
BARS M
BARS J
BARS B
DEPRESSION SLAB
LOWER UNIT

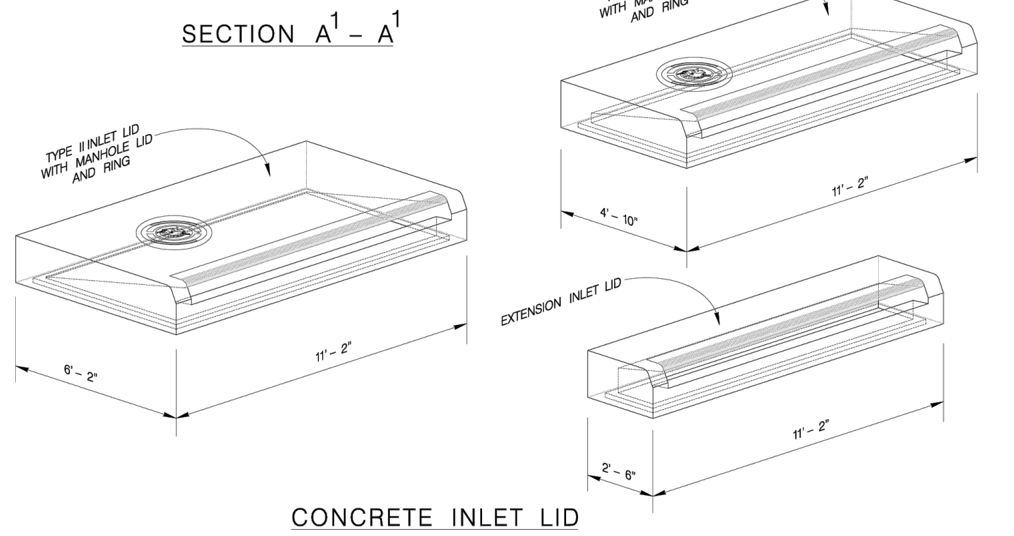
SECTION A–A


BARS B
BARS A
BARS C
BARS E

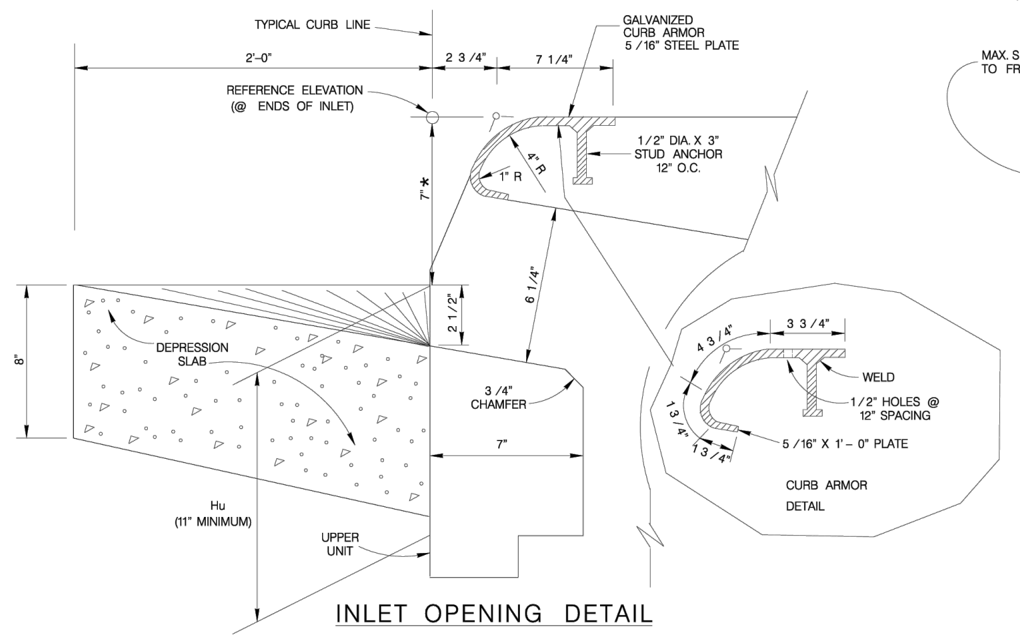
END WALL


BARS H
BARS J

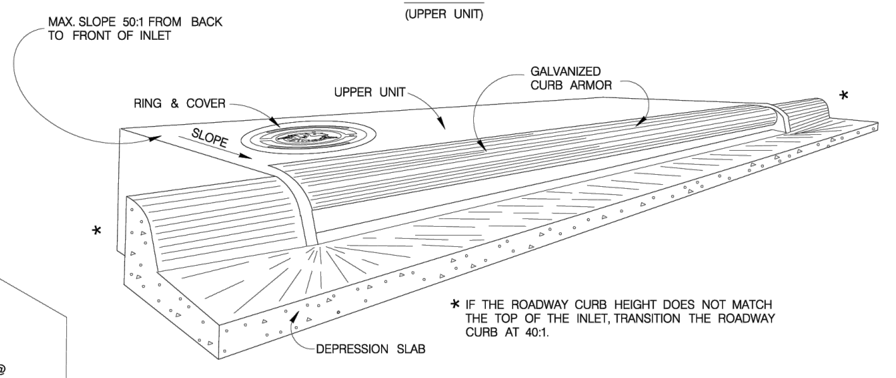
SECTION A^1 – A^1


TYPE I INLET LID WITH MANHOLE LID AND RING
TYPE II INLET LID WITH MANHOLE LID AND RING
EXTENSION INLET LID

CONCRETE INLET LID CONFIGURATIONS (UPPER UNITS)


TYPICAL CURB LINE
2'–0"
2 3/4"
7 1/4"
GALVANIZED CURB ARMOR 5/16" STEEL PLATE
REFERENCE ELEVATION (@ ENDS OF INLET)
1/2" DIA. X 3" STUD ANCHOR 12" O.C.
4" R
DEPRESSION SLAB
3/4" CHAMFER
UPPER UNIT
WELD
1/2" HOLES @ 10" SPACING
5/16" X 7 – 0" PLATE
CURB ARMOR DETAIL

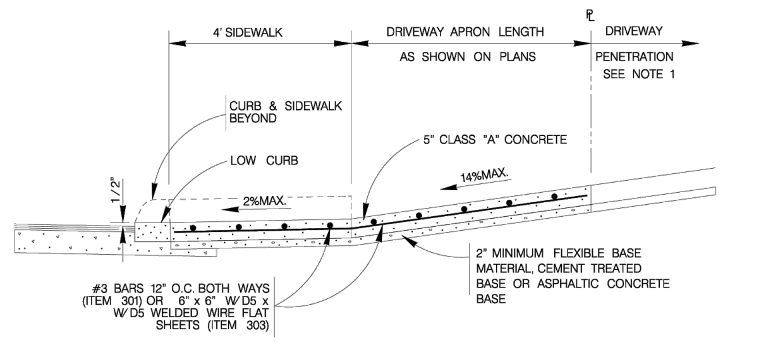
INLET OPENING DETAIL


MAX. SLOPE 50:1 FROM BACK TO FRONT OF INLET
RING & COVER
UPPER UNIT
GALVANIZED CURB ARMOR
DEPRESSION SLAB

* IF THE ROADWAY CURB HEIGHT DOES NOT MATCH THE TOP OF THE INLET, TRANSITION THE ROADWAY CURB AT 40:1.

MAY 2009

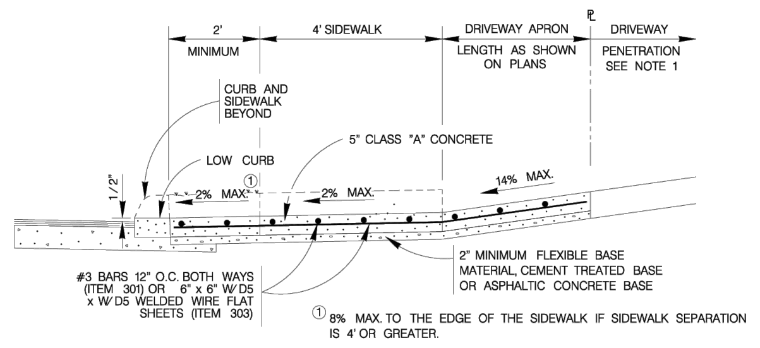
CITY OF SAN ANTONIO CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT			
TYPE "C" INLET (TYPE I & II) & INLET EXTENSION STANDARDS SHEET 2 OF 3			
______% SUBMITTAL	PROJECT NO.:______		DATE:______
DRWN. BY: V, VASQUEZ	DSGN. BY: L.E. MALTOS, P.E.	CHKD. BY: R.S. HOSSEINI, P.E.	SHEET NO.:____OF____


4' SIDEWALK
DRIVEWAY APRON LENGTH AS SHOWN ON PLANS
DRIVEWAY PENETRATION SEE NOTE 1
CURB & SIDEWALK BEYOND
LOW CURB
5" CLASS "A" CONCRETE
2" MINIMUM FLEXIBLE BASE MATERIAL, CEMENT TREATED BASE OR ASPHALTIC CONCRETE BASE

TYPICAL RESIDENTIAL DRIVEWAY SECTION

WITH SIDEWALK ABUTTING CURB

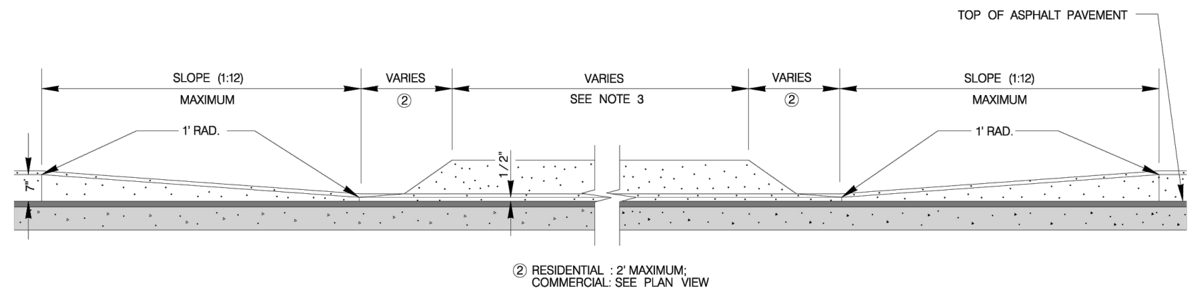
ITEM 503.1


4' SIDEWALK
DRIVEWAY APRON LENGTH AS SHOWN ON PLANS
DRIVEWAY PENETRATION SEE NOTE 1
CURB AND SIDEWALK BEYOND
LOW CURB
5" CLASS "A" CONCRETE
2" MINIMUM FLEXIBLE BASE MATERIAL, CEMENT TREATED BASE OR ASPHALTIC CONCRETE BASE
① 8% MAX. TO THE EDGE OF THE SIDEWALK IF SIDEWALK SEPARATION IS 4' OR GREATER.

TYPICAL RESIDENTIAL DRIVEWAY SECTION

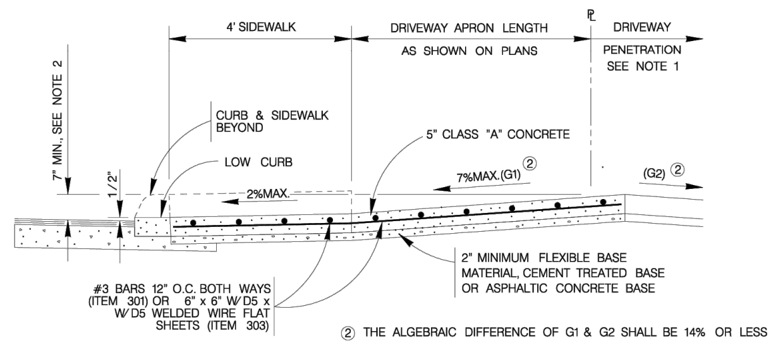
WITH SIDEWALK SEPARATED FROM CURB

ITEM 503.1


TOP OF ASPHALT PAVEMENT
SLOPE (1:12) MAXIMUM
VARIES
SEE NOTE 3
1' RAD.
② RESIDENTIAL - 2' MAXIMUM; COMMERCIAL SEE PLAN VIEW

CURB PROFILE AT DRIVEWAY

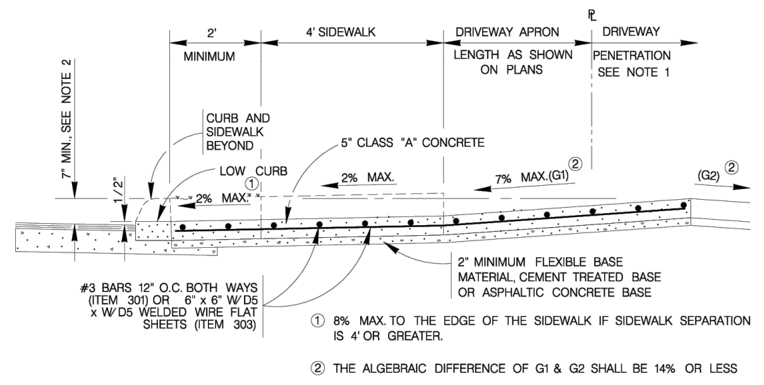
WITH SIDEWALK ABUTTING CURB


4' SIDEWALK
DRIVEWAY APRON LENGTH AS SHOWN ON PLANS
DRIVEWAY PENETRATION SEE NOTE 1
7" MIN., SEE NOTE 2
CURB & SIDEWALK BEYOND
LOW CURB
5" CLASS "A" CONCRETE
2" MINIMUM FLEXIBLE BASE MATERIAL, CEMENT TREATED BASE OR ASPHALTIC CONCRETE BASE
② THE ALGEBRAIC DIFFERENCE OF G1 & G2 SHALL BE 14% OR LESS

TYPICAL RESIDENTIAL DRIVEWAY SECTION

WHERE PROPERTY IS LOWER THAN STREET & SIDEWALK IS ABUTTING CURB

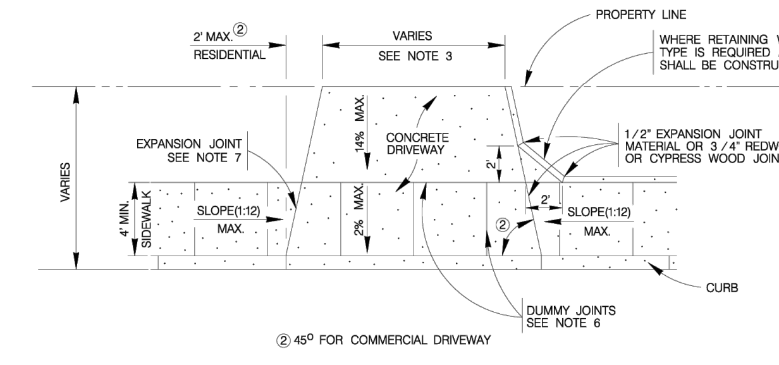
ITEM 503.1


4' SIDEWALK
DRIVEWAY APRON LENGTH AS SHOWN ON PLANS
DRIVEWAY PENETRATION SEE NOTE 1
CURB AND SIDEWALK BEYOND
LOW CURB
5" CLASS "A" CONCRETE
2" MINIMUM FLEXIBLE BASE MATERIAL, CEMENT TREATED BASE OR ASPHALTIC CONCRETE BASE
① 8% MAX. TO THE EDGE OF THE SIDEWALK IF SIDEWALK SEPARATION IS 4' OR GREATER.
② THE ALGEBRAIC DIFFERENCE OF G1 & G2 SHALL BE 14% OR LESS

TYPICAL RESIDENTIAL DRIVEWAY SECTION

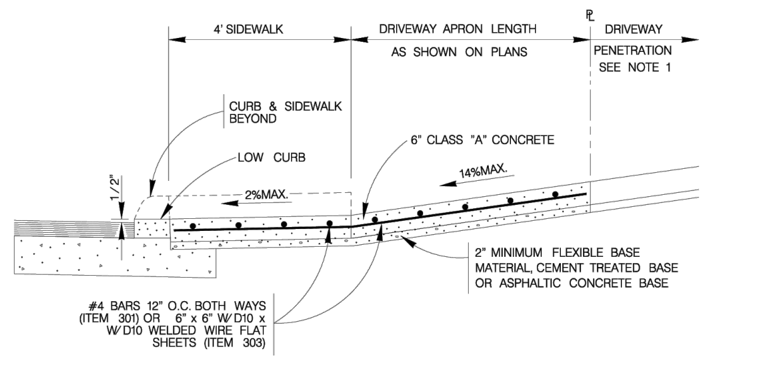
WHERE PROPERTY IS LOWER THAN STREET & SIDEWALK IS SEPARATED FROM CURB

ITEM 503.1


PROPERTY LINE
WHERE RETAINING WALL COMBINATION TYPE IS REQUIRED AT DRIVEWAYS, IT SHALL BE CONSTRUCTED AS SHOWN
EXPANSION JOINT SEE NOTE 7
CONCRETE DRIVEWAY
1/2" EXPANSION JOINT MATERIAL OR 3/4" REDWOOD OR CYPRESS WOOD JOINT
DUMMY JOINTS SEE NOTE 6
CURB
② 45° FOR COMMERCIAL DRIVEWAY

TYPICAL DRIVEWAY PLAN VIEW

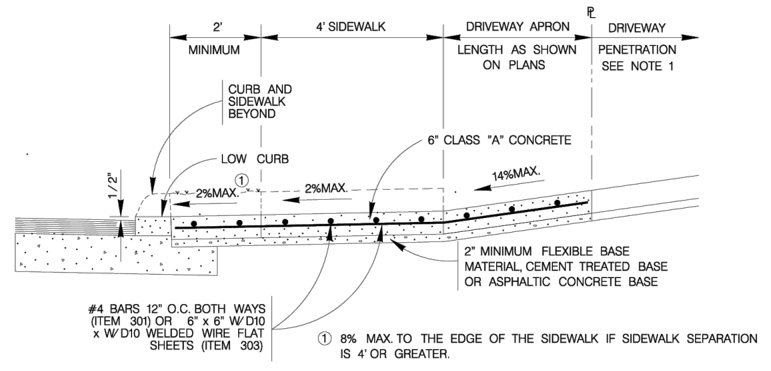
WITH SIDEWALK ABUTTING CURB


4' SIDEWALK
DRIVEWAY APRON LENGTH AS SHOWN ON PLANS
DRIVEWAY PENETRATION SEE NOTE 1
CURB & SIDEWALK BEYOND
LOW CURB
6" CLASS "A" CONCRETE
2%MAX.
2" MINIMUM FLEXIBLE BASE MATERIAL, CEMENT TREATED BASE OR ASPHALTIC CONCRETE BASE
#4 BARS 12" O.C. BOTH WAYS (ITEM 301) OR 6" x 6" W/D10 x W/D10 WELDED WIRE FLAT SHEETS (ITEM 303)

TYPICAL COMMERCIAL DRIVEWAY SECTION

WITH SIDEWALK ABUTTING CURB

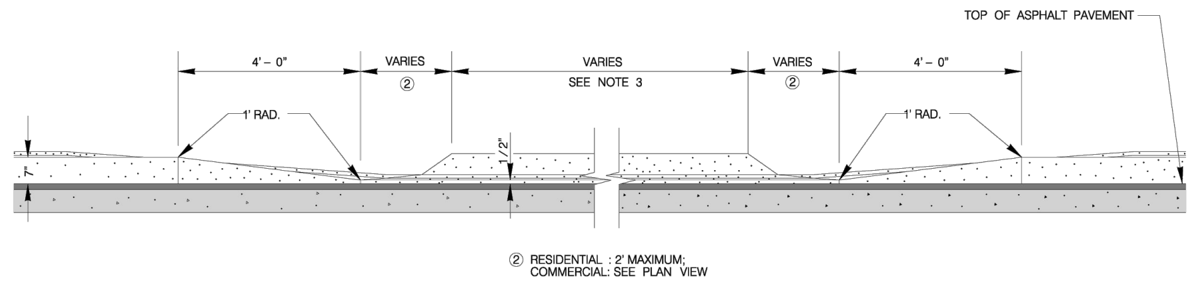
ITEM 503.2


4' SIDEWALK
DRIVEWAY APRON LENGTH AS SHOWN ON PLANS
DRIVEWAY PENETRATION SEE NOTE 1
CURB AND SIDEWALK BEYOND
LOW CURB
6" CLASS "A" CONCRETE
2%MAX.
2" MINIMUM FLEXIBLE BASE MATERIAL, CEMENT TREATED BASE OR ASPHALTIC CONCRETE BASE
#4 BARS 12" O.C. BOTH WAYS (ITEM 301) OR 6" x 6" W/D10 x W/D10 WELDED WIRE FLAT SHEETS (ITEM 303)
① 8% MAX. TO THE EDGE OF THE SIDEWALK IF SIDEWALK SEPARATION IS 4' OR GREATER.

TYPICAL COMMERCIAL DRIVEWAY SECTION

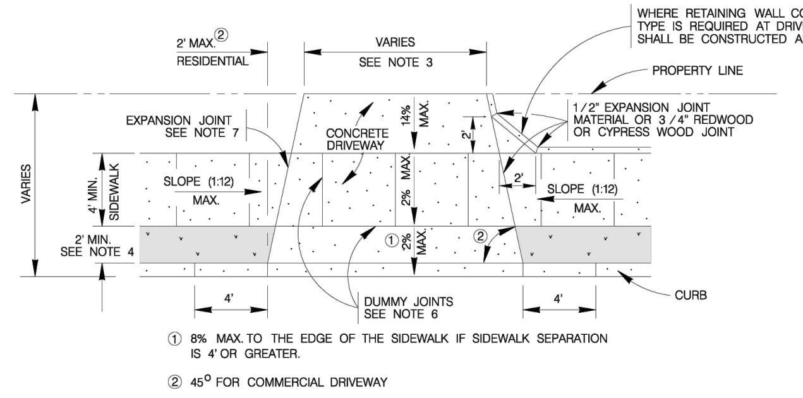
WITH SIDEWALK SEPARATED FROM CURB

ITEM 503.2


TOP OF ASPHALT PAVEMENT
4' – 0"
VARIES
SEE NOTE 3
1' RAD.
② RESIDENTIAL - 2' MAXIMUM; COMMERCIAL SEE PLAN VIEW

CURB PROFILE AT DRIVEWAY

WITH SIDEWALK SEPARATED FROM CURB


WHERE RETAINING WALL COMBINATION TYPE IS REQUIRED AT DRIVEWAYS, IT SHALL BE CONSTRUCTED AS SHOWN
PROPERTY LINE
EXPANSION JOINT SEE NOTE 7
CONCRETE DRIVEWAY
1/2" EXPANSION JOINT MATERIAL OR 3/4" REDWOOD OR CYPRESS WOOD JOINT
2' MIN. SEE NOTE 4
4'
DUMMY JOINTS SEE NOTE 6
CURB

① 8% MAX. TO THE EDGE OF THE SIDEWALK IF SIDEWALK SEPARATION IS 4' OR GREATER.

② 45° FOR COMMERCIAL DRIVEWAY

TYPICAL DRIVEWAY PLAN VIEW

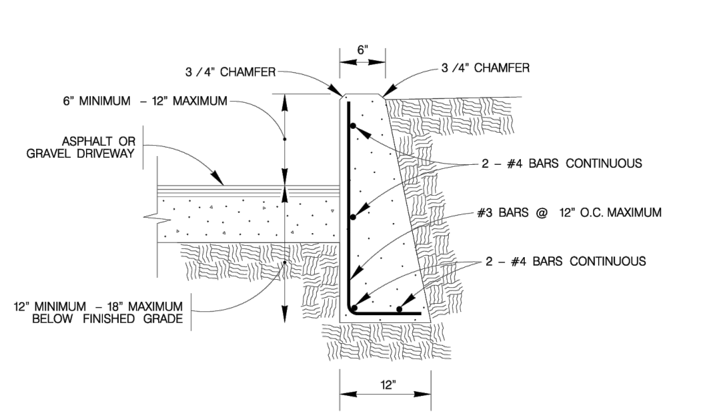
WITH SIDEWALK SEPARATED FROM CURB

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 HEIGHT WILL NOT NECESSARILY OCCUR AT THE PROPERTY LINE. IT MAY OCCUR WITHIN THE RIGHT OF WAY OR WITHIN THE DRIVEWAY PENETRATION ON PRIVATE PROPERTY.
3. THE PROPOSED DRIVEWAY SHOULD MATCH THE EXISTING WIDTH AT THE PROPERTY LINE BUT UNLESS AUTHORIZED BY THE CITY TRAFFIC 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 2' FROM THE BACK OF CURB.
5. FOR OTHER THAN LOCAL TYPE "A" STREETS, THE SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 4' AND SEPARATED A MINIMUM OF 2' 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.


3/4" CHAMFER
3/4" CHAMFER
8" MINIMUM – 10" MAXIMUM
6" MINIMUM – 12" MAXIMUM
ASPHALT OR GRAVEL DRIVEWAY
2 – #4 BARS CONTINUOUS
#3 BARS @ 12" O.C. MAXIMUM
2 – #4 BARS CONTINUOUS
12" MINIMUM – 18" MAXIMUM BELOW FINISHED GRADE
12"

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: V. VASQUEZ	DSGN. BY:______	CHKD. BY: R.S. HOSSEINI, P.E.	SHEET NO.:____OF____

CUDEENGINEERS.COM

EST. 1980
CUDE
ENGINEERS

4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

CORLEY FARMS UNIT 5

CURB INLET DETAILS

DATE
08/13/2024

PROJECT NO.
03481.012

DRAWN BY
C3

CHECKED BY
XV/AL

REVISIONS

#	DATE
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	

ANDREW R. LOWRY
123410
08/13/2024

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

SAWS JOB NO.
22-1190

C25

CUDEENGINEERS.COM

P:\03481\012\2-Drawings\C7.D8 CURB INLET DETAILS.dwg 2024/08/13 11:06am jguerrero

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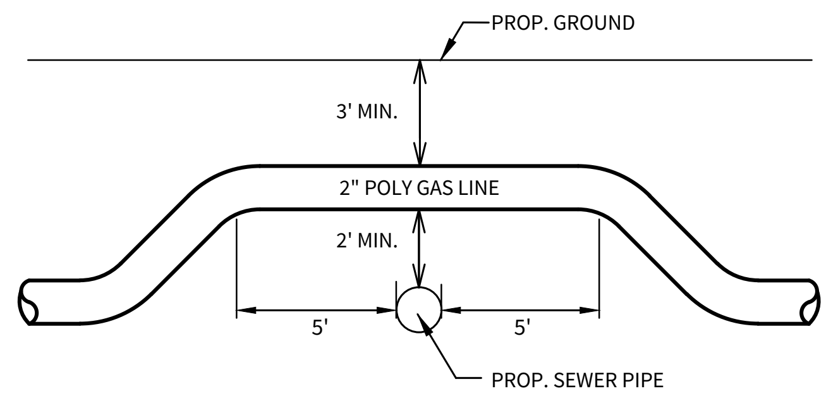
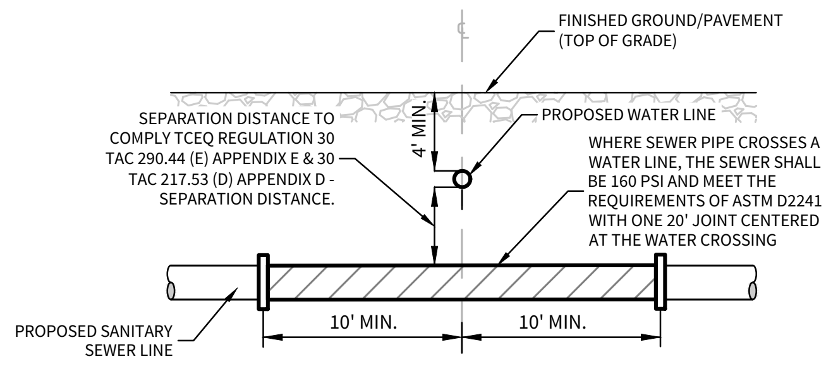
LEGEND

PROPERTY LINE	━━━━
PROPOSED SEWER LINE	━━ XX"SS ━━
PROPOSED MANHOLE	●
PROPOSED WATER LINE	—— XX" W ——
PROPOSED GAS LINE	—— XX" G ——
EXISTING OVERHEAD ELECTRIC	—— OHE —— OHE ——
EXISTING SANITARY SEWER FORCE MAIN	—— —— —— SFM ——
EXISTING MANHOLE	


PROP. GROUND
3' MIN.
2" POLY GAS LINE
2' MIN.
5'
5'
PROP. SEWER PIPE

SEWER / GAS CROSSINGS DETAIL

SIDE VIEW (THIS DETAIL IS VERTICAL ONLY, NOT HORIZONTAL.)
(N.T.S.)
NOTE: VERTICAL BEND IS NOT NEEDED WHEN SEWER IS DEEPER THAN 7'


FINISHED GROUND/PAVEMENT
(TOP OF GRADE)
PROPOSED WATER LINE
4' MIN.
SEPARATION DISTANCE TO COMPLY TCEQ REGULATION 30 TAC 290.44 (E) APPENDIX E & 30 TAC 217.53 (D) APPENDIX D - SEPARATION DISTANCE.
WHERE SEWER PIPE CROSSES A WATER LINE, THE SEWER SHALL BE 160 PSI AND MEET THE REQUIREMENTS OF ASTM D2241 WITH ONE 20' JOINT CENTERED AT THE WATER CROSSING
PROPOSED SANITARY SEWER LINE
10' MIN.
10' MIN.

TYPICAL SANITARY SEWER/ WATER CROSSING DETAIL

N.T.S.

BENCHMARK BM-1

BENCHMARK TO BE SET BY ENGINEER PRIOR TO CONSTRUCTION.

SEWER/WATER LINE CROSSINGS	
LINE	STATION
"Y"	3+84.07
"A-A"	2+41.90
"A-B"	1+17.23
"A-B"	1+51.11

SEWER/GAS LINE CROSSINGS	
"Y"	4+32.10
"Z"	3+76.05
"Z"	1+25.02
"A-A"	1+69.18
"A-A"	9+70.27

CAUTION!!

EXISTING UTILITIES ARE WITHIN THE LIMITS OF CONSTRUCTION. CONTRACTORS SHALL EXERCISE EXTRA CARE IN DIGGING ANY TRENCH FOR PROPOSED UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE, VERIFY THE EXACT LOCATION & IDENTIFY AREA OF CONFLICTS WITH EXISTING UTILITIES AND SHALL NOTIFY THE ENGINEER IF CONFLICT IS FOUND.

CAUTION!!

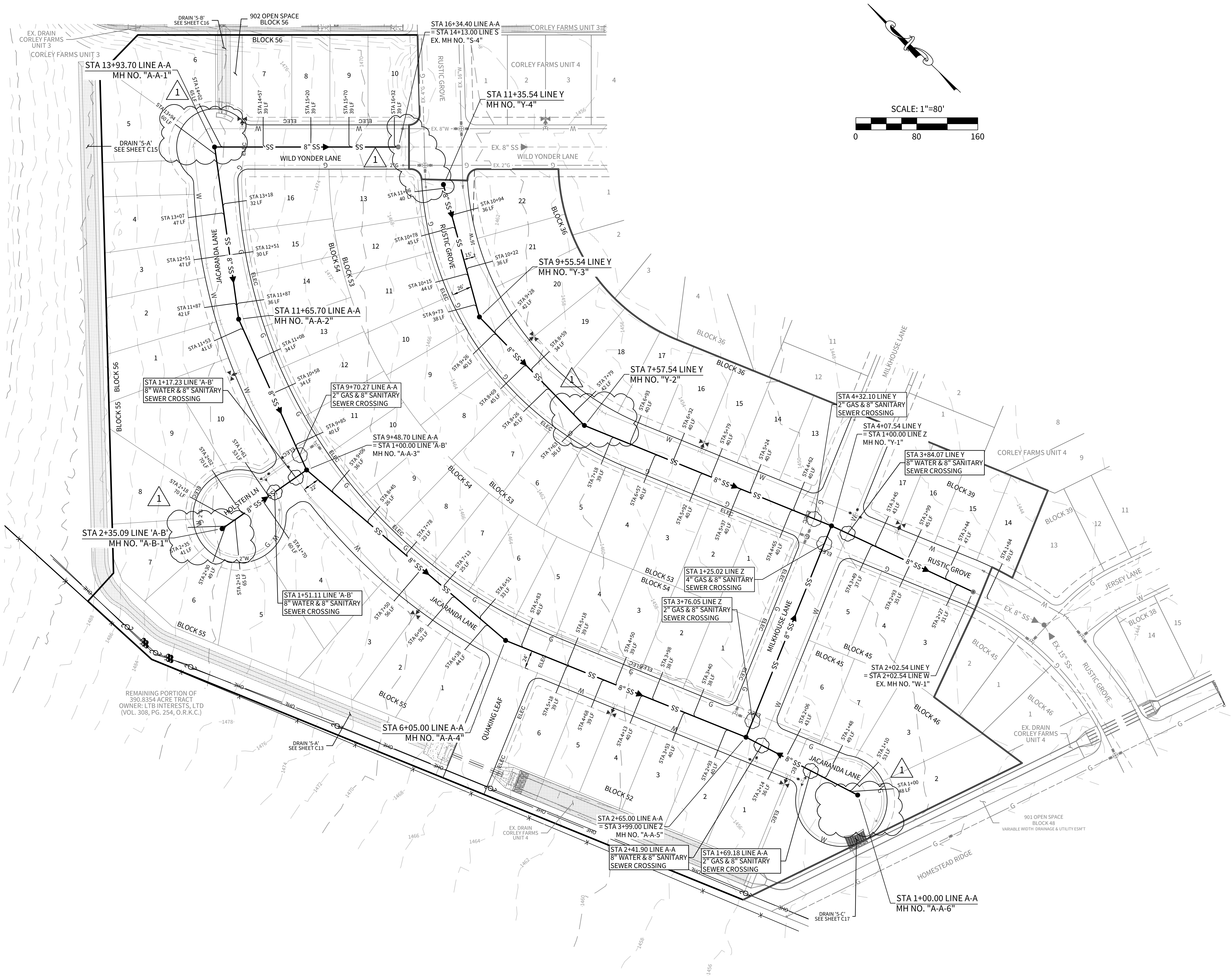
THE CONTRACTOR SHALL BE AWARE THAT OVERHEAD ELECTRIC LINES EXIST WITHIN THE VICINITY OF THE SITE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE THESE UTILITIES LOCATED PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING IN THIS AREA. ANY DAMAGE DONE TO THESE EXISTING FACILITIES WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR.

TRENCH EXCAVATION PROTECTION

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION 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.

NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING 98% COMPACTION ON ALL TRENCH BACKFILL AND PAYING FOR THE TESTS TO BE PERFORMED BY A THIRD PARTY. COMPACTION TEST WILL BE DONE AT ONE LOCATION POINT RANDOMLY SELECTED OR AS INDICATED BY THE INSPECTOR/TEST ADMINISTER, PER EACH 12-INCH LOOSE LIFT PER 400 LINEAR FEET AT A MINIMUM. THIS PROJECT WILL NOT BE ACCEPTED AND FINALIZED WITHOUT THIS REQUIREMENT BEING MET AND VERIFIED BY PROVIDING ALL NECESSARY DOCUMENTED TEST RESULTS.
2. ALL 18" SANITARY SEWER PIPE SHALL BE SDR-26 PS115 ASTM F679.
3. MANHOLE OPENING INCREASED TO 30" AS PER TAC CHAPTER 217.55.
4. REFERENCE STREET DETAIL SHEET AND GEOTECHNICAL ENGINEERING REPORT FOR PAVEMENT DESIGN INFORMATION.
5. ALL EXCAVATED MATERIAL SHALL BE PLACED ON THE UPGRADIENT SIDE OF THE SEWER TRENCH THUS ALLOWING THE TRENCH TO INTERCEPT ANY SILT CONTAMINATED RUNOFF.
6. ALL LATERALS SHALL BE INSTALLED AT A MINIMUM 2.0% SLOPE UNLESS OTHERWISE NOTED.
7. BENCHMARK TO BE SET BY ENGINEER PRIOR TO THE START OF CONSTRUCTION.
8. ALL SEWER LATERALS TO BE INSTALLED WITH A MINIMUM 150 PSI PRESSURE RATED PIPE AND EMBEDDED IN CEMENT STABILIZED SAND AT ALL WATER MAIN AND LATERAL SERVICE CROSSINGS PER 30 TAC CHAPTER 290.44(e)


SCALE: 1"=80'
0
80
160
DRAIN 'S-B' SEE SHEET C16
902 OPEN SPACE BLOCK 56
BLOCK 56
EX. DRAIN CORLEY FARMS UNIT 3
CORLEY FARMS UNIT 3
STA 13+93.70 LINE A-A MH NO. "A-A-1"
STA 16+34.40 LINE A-A = STA 14+13.00 LINE S EX. MH NO. "S-4"
CORLEY FARMS UNIT 3
CORLEY FARMS UNIT 4
RUSTIC GROVE
STA 11+35.54 LINE Y MH NO. "Y-4"
EX. 8" SS
WILD YONDER LANE
WILD YONDER LANE
DRAIN 'S-A' SEE SHEET C15
8" SS
JACARANDA LANE
BLOCK 54
BLOCK 53
BLOCK 36
STA 9+55.54 LINE Y MH NO. "Y-3"
STA 11+65.70 LINE A-A MH NO. "A-A-2"
STA 7+57.54 LINE Y MH NO. "Y-2"
STA 1+17.23 LINE 'A-B' 8" WATER & 8" SANITARY SEWER CROSSING
STA 9+70.27 LINE A-A 2" GAS & 8" SANITARY SEWER CROSSING
STA 9+48.70 LINE A-A = STA 1+00.00 LINE 'A-B' MH NO. "A-A-3"
STA 4+32.10 LINE Y 2" GAS & 8" SANITARY SEWER CROSSING
STA 4+07.54 LINE Y = STA 1+00.00 LINE Z MH NO. "Y-1"
STA 3+84.07 LINE Y 8" WATER & 8" SANITARY SEWER CROSSING
BLOCK 39
MILKHOUSE LANE
CORLEY FARMS UNIT 4
BLOCK 55
HOLSTEIN LN
STA 2+35.09 LINE 'A-B' MH NO. "A-B-1"
STA 1+51.11 LINE 'A-B' 8" WATER & 8" SANITARY SEWER CROSSING
STA 1+25.02 LINE Z 4" GAS & 8" SANITARY SEWER CROSSING
STA 3+76.05 LINE Z 2" GAS & 8" SANITARY SEWER CROSSING
RUSTIC GROVE
JERSEY LANE
BLOCK 38
EX. 8" SS
EX. 15" SS
BLOCK 45
BLOCK 46
STA 2+02.54 LINE Y = STA 2+02.54 LINE W EX. MH NO. "W-1"
BLOCK 55
REMAINING PORTION OF 390.8354 ACRE TRACT OWNER: LTB INTERESTS, LTD (VOL. 306, PG. 254, O.R.K.C.)
DRAIN 'S-A' SEE SHEET C13
STA 6+05.00 LINE A-A MH NO. "A-A-4"
QUAKING LEAF
BLOCK 52
EX. DRAIN CORLEY FARMS UNIT 4
EX. DRAIN CORLEY FARMS UNIT 4
STA 2+65.00 LINE A-A = STA 3+99.00 LINE Z MH NO. "A-A-5"
STA 2+41.90 LINE A-A 8" WATER & 8" SANITARY SEWER CROSSING
STA 1+69.18 LINE A-A 2" GAS & 8" SANITARY SEWER CROSSING
901 OPEN SPACE BLOCK 48
HOMESTEAD RIDGE
DRAIN 'S-C' SEE SHEET C17
STA 1+00.00 LINE A-A MH NO. "A-A-6"

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EST. 1980
CUDE
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4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

CORLEY FARMS
UNIT 5

OVERALL SANITARY SEWER PLAN

DATE
01/28/2025

PROJECT NO.
03481.012

DRAWN BY
C3

CHECKED BY
XV/AL

#	DATE	REVISIONS
1.	11/7/24	PERMITTING COMMENTS
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		

ANDREW R. LOWRY
123410
02/10/2025

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C26

CUDEENGINEERS.COM

P:\03481\012\2-Drawings\C4.00 OVERALL SANITARY SEWER PLAN.dwg 2025/01/28 12:20pm mlopez

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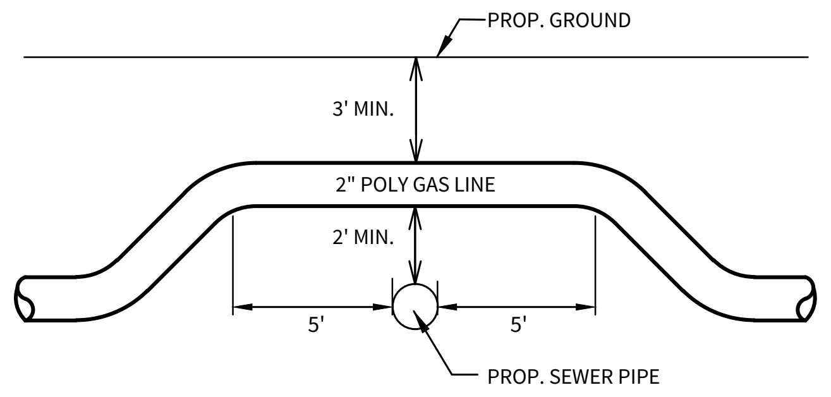
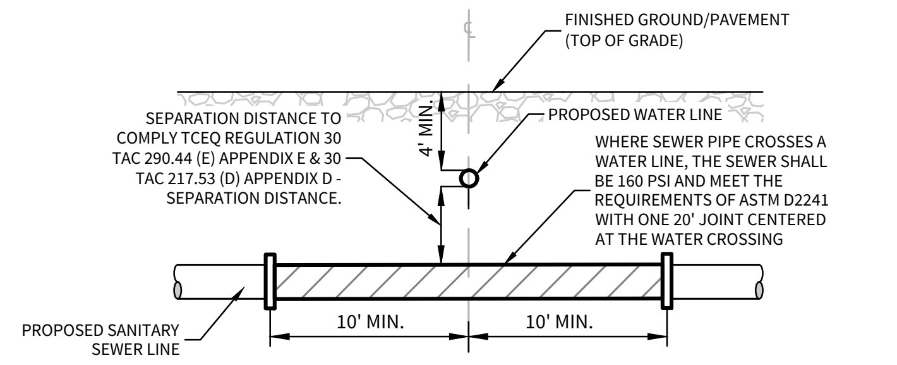

PROP. GROUND
3' MIN.
2" POLY GAS LINE
2' MIN.
5'
5'
PROP. SEWER PIPE

SEWER / GAS CROSSINGS DETAIL

SIDE VIEW (THIS DETAIL IS VERTICAL ONLY, NOT HORIZONTAL.)
(N.T.S.)
NOTE: VERTICAL BEND IS NOT NEEDED WHEN SEWER IS DEEPER THAN 7'


FINISHED GROUND/PAVEMENT (TOP OF GRADE)
SEPARATION DISTANCE TO COMPLY TCEQ REGULATION 30 TAC 290.44 (E) APPENDIX E & 30 TAC 217.53 (D) APPENDIX D - SEPARATION DISTANCE.
4' MIN.
PROPOSED WATER LINE
WHERE SEWER PIPE CROSSES A WATER LINE, THE SEWER SHALL BE 160 PSI AND MEET THE REQUIREMENTS OF ASTM D2241 WITH ONE 20' JOINT CENTERED AT THE WATER CROSSING
PROPOSED SANITARY SEWER LINE
10' MIN.
10' MIN.

TYPICAL SANITARY SEWER/ WATER CROSSING DETAIL

N.T.S.

NOTES:

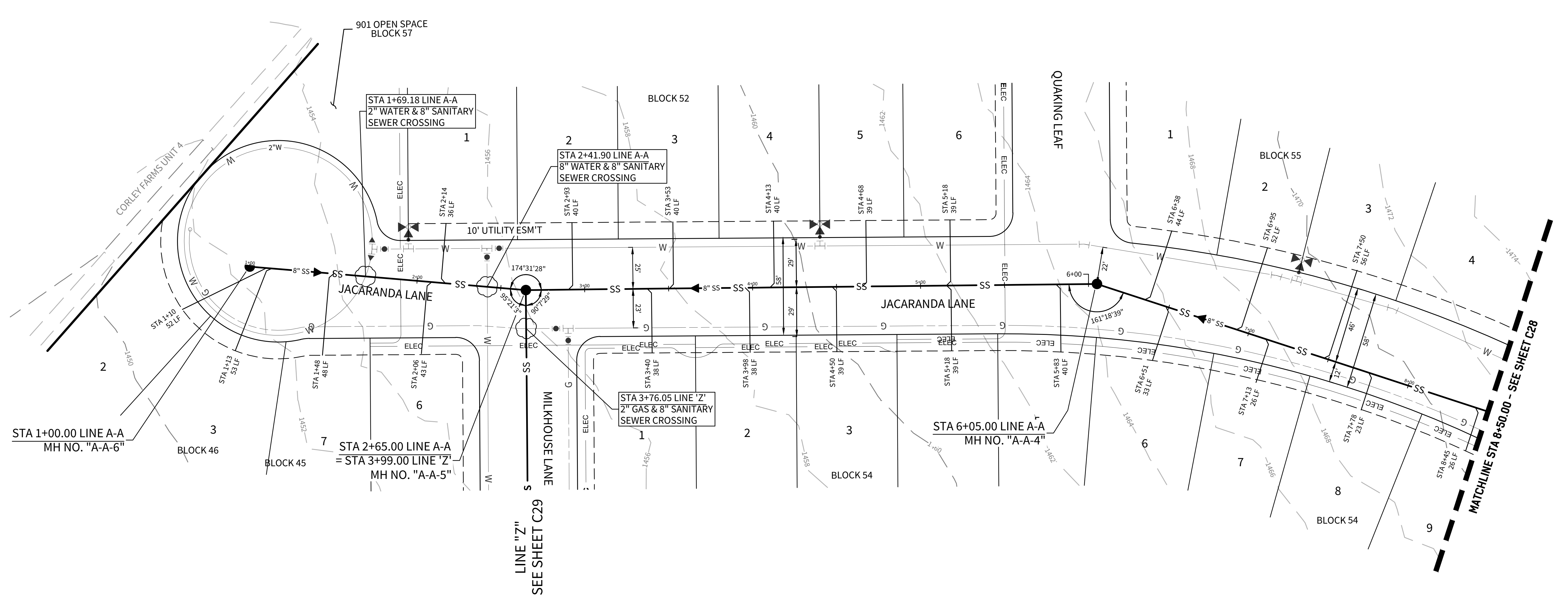
1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING 98% COMPACTION ON ALL TRENCH BACKFILL. COMPACTION TEST WILL BE DONE AT ONE LOCATION POINT RANDOMLY SELECTED OR AS INDICATED BY THE DISTRICT INSPECTOR. PER EACH 12-INCH LOOSE LIFT PER 400 LINEAR FEET AT A MINIMUM. THIS PROJECT WILL NOT BE ACCEPTED AND FINALIZED BY THE DISTRICT WITHOUT THIS REQUIREMENT BEING MET AND VERIFIED BY PROVIDING ALL NECESSARY DOCUMENTED TEST RESULTS.
2. ALL SANITARY SEWER PIPE SHALL BE SDR-26 PVC PIPE MEETING ASTM SPECIFICATION D-3034.
3. MANHOLE OPENING INCREASED TO 30" AS PER TAC CHAPTER 217.55.
4. REFERENCE STREET DETAIL SHEET AND GEOTECHNICAL ENGINEERING REPORT FOR PAVEMENT DESIGN INFORMATION.
5. ALL EXCAVATED MATERIAL SHALL BE PLACED ON THE UPGRADIENT SIDE OF THE SEWER TRENCH THUS ALLOWING THE TRENCH TO INTERCEPT ANY SILT CONTAMINATED RUNOFF.
6. ALL LATERALS SHALL BE INSTALLED AT A MINIMUM 2.0% SLOPE UNLESS OTHERWISE NOTED.
7. BENCHMARK TO BE SET BY ENGINEER PRIOR TO THE START OF CONSTRUCTION.
8. ALL SEWER LATERALS TO BE INSTALLED WITH A MINIMUM 150 PSI PRESSURE RATED PIPE AND EMBEDDED IN CEMENT STABILIZED SAND AT ALL WATER MAIN AND LATERAL SERVICE CROSSINGS PER 30 TAC CHAPTER 290.44(e)
9. CONTRACTOR TO INSTALL A 2" X 4" LUMBER ON EACH SEWER LATERAL LOCATION AND PAINT IT IN GREEN.

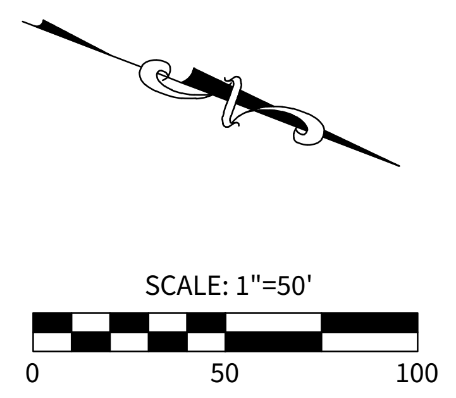
CAUTION!!

EXISTING UTILITIES ARE WITHIN THE LIMITS OF CONSTRUCTION. CONTRACTORS SHALL EXERCISE EXTRA CARE IN DIGGING ANY TRENCH FOR PROPOSED UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE, VERIFY THE EXACT LOCATION & IDENTIFY AREA OF CONFLICTS WITH EXISTING UTILITIES AND SHALL NOTIFY THE ENGINEER IF CONFLICT IS FOUND.

TRENCH EXCAVATION PROTECTION

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION 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.

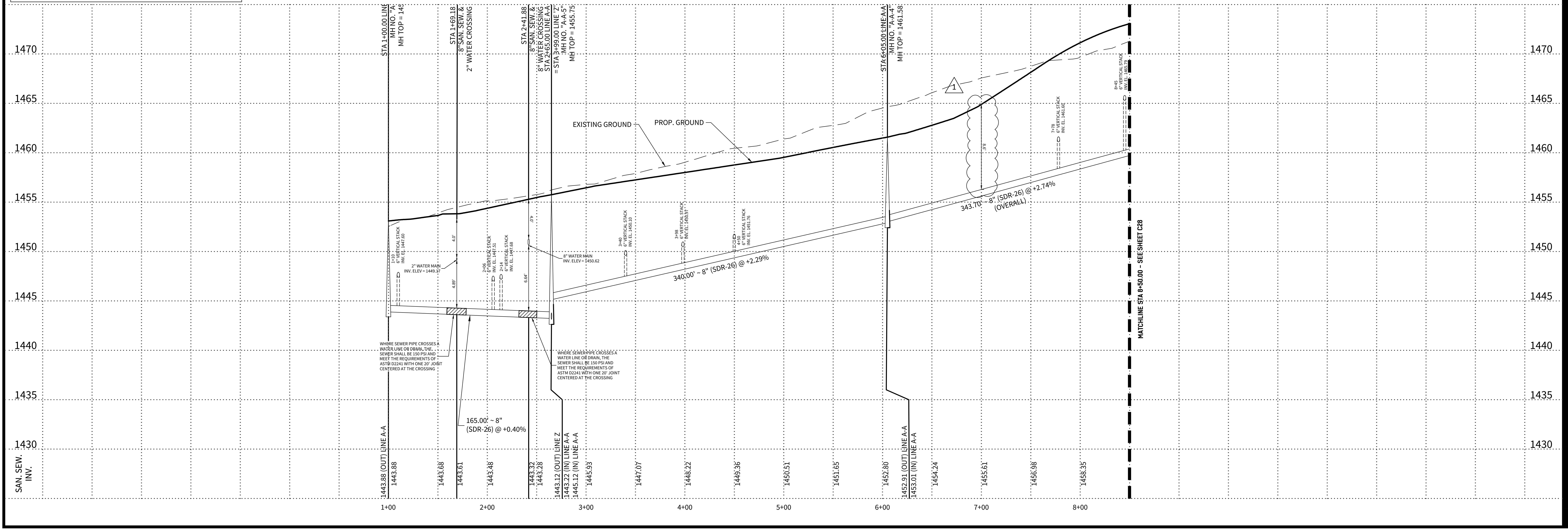

901 OPEN SPACE BLOCK 57
CORLEY FARMS UNIT 4
STA 1+69.18 LINE A-A 2" WATER & 8" SANITARY SEWER CROSSING
STA 2+41.90 LINE A-A 8" WATER & 8" SANITARY SEWER CROSSING
BLOCK 52
10' UTILITY ESM'T
2"W
8" SS
SS
JACARANDA LANE
174°31'28"
95°21'3"
90°7'29"
ELEC
W
G
STA 1+10 52 LF
STA 1+13 53 LF
STA 1+48 48 LF
STA 2+06 43 LF
STA 2+14 36 LF
STA 2+93 40 LF
STA 3+40 38 LF
STA 3+53 40 LF
STA 3+98 38 LF
STA 4+13 40 LF
STA 4+50 39 LF
STA 4+68 39 LF
STA 5+18 39 LF
STA 5+83 40 LF
STA 6+38 44 LF
STA 6+51 33 LF
STA 6+95 52 LF
STA 7+13 26 LF
STA 7+50 56 LF
STA 7+78 23 LF
STA 8+45 26 LF
25'
23'
29'
58'
22'
46'
12'
161°18'39"
STA 1+00.00 LINE A-A MH NO. "A-A-6"
BLOCK 46
BLOCK 45
STA 2+65.00 LINE A-A = STA 3+99.00 LINE 'Z' MH NO. "A-A-5"
STA 3+76.05 LINE 'Z' 2" GAS & 8" SANITARY SEWER CROSSING
MILKHOUSE LANE
LINE "Z" SEE SHEET C29
QUAKING LEAF
BLOCK 54
BLOCK 55
STA 6+05.00 LINE A-A MH NO. "A-A-4"
MATCHLINE STA 8+50.00 – SEE SHEET C28
1450
1452
1454
1456
1458
1460
1462
1464
1466
1468
1470
1472
1474


SCALE: 1"=50'
0
50
100

LINE "A-A"

STA. 1+00.00 TO STA. 8+50.00

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


STA 1+00.00 LINE A-A MH NO. "A MH TOP = 145
STA 1+69.18 8" SAN. SEW. & 2" WATER CROSSING
STA 2+41.88 8" SAN. SEW. & 8" WATER CROSSING
STA 2+65.00 LINE A-A = STA 3+99.00 LINE 'Z' MH NO. "A-A-5" MH TOP = 1455.75
STA 6+05.00 LINE A-A MH NO. "A-A-4" MH TOP = 1461.58
EXISTING GROUND
PROP. GROUND
1
1+10 6" VERTICAL STACK INV. EL. 1447.60
2" WATER MAIN INV. ELEV = 1449.17
4.0'
4.89'
2+06 6" VERTICAL STACK INV. EL. 1447.51
2+14 6" VERTICAL STACK INV. EL. 1447.68
4.0'
6.64'
8" WATER MAIN INV. ELEV = 1450.62
3+40 6" VERTICAL STACK INV. EL. 1450.10
3+98 6" VERTICAL STACK INV. EL. 1450.97
4+50 6" VERTICAL STACK INV. EL. 1451.76
340.00' ~ 8" (SDR-26) @ +2.29%
8.6'
343.70' ~ 8" (SDR-26) @ +2.74% (OVERALL)
7+78 6" VERTICAL STACK INV. EL. 1461.60
8+45 6" VERTICAL STACK INV. EL. 1465.79
WHERE SEWER PIPE CROSSES A WATER LINE OR DRAIN, THE SEWER SHALL BE 150 PSI AND MEET THE REQUIREMENTS OF ASTM D2241 WITH ONE 20' JOINT CENTERED AT THE CROSSING
WHERE SEWER PIPE CROSSES A WATER LINE OR DRAIN, THE SEWER SHALL BE 150 PSI AND MEET THE REQUIREMENTS OF ASTM D2241 WITH ONE 20' JOINT CENTERED AT THE CROSSING
165.00' ~ 8" (SDR-26) @ +0.40%
MATCHLINE STA 8+50.00 – SEE SHEET C28
1470
1465
1460
1455
1450
1445
1440
1435
1430
SAN. SEW. INV.
1443.88 (OUT) LINE A-A
1443.88
1443.68
1443.61
1443.48
1443.32
1443.28
1443.12 (OUT) LINE Z
1443.22 (IN) LINE A-A
1445.12 (IN) LINE A-A
1445.93
1447.07
1448.22
1449.36
1450.51
1451.65
1452.80
1452.91 (OUT) LINE A-A
1453.01 (IN) LINE A-A
1454.24
1455.61
1456.98
1458.35
1+00
2+00
3+00
4+00
5+00
6+00
7+00
8+00

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4122 Pond Hill Road, Suite 101
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CORLEY FARMS
UNIT 5

SANITARY SEWER LINE 'A-A' - PLAN & PROFILE

DATE
06/02/2025

PROJECT NO.
03481.012

DRAWN BY
C3

CHECKED BY
XV/AL

#	DATE	REVISIONS
1.	5/27/25	GRADING REVISION
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		

ANDREW R. LOWRY
123410
6/2/25

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C27

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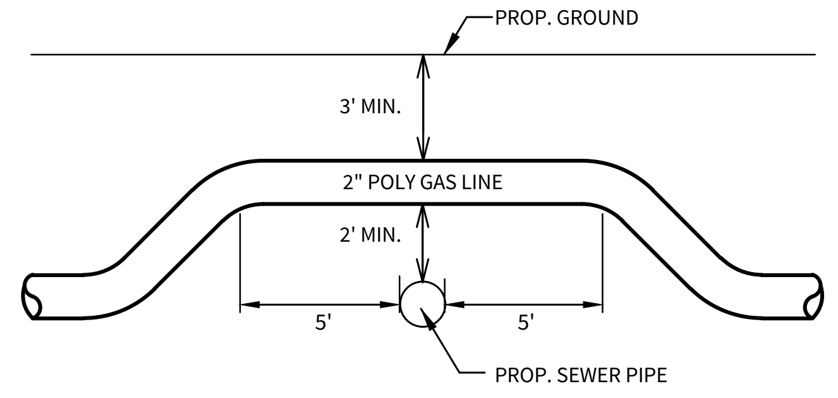
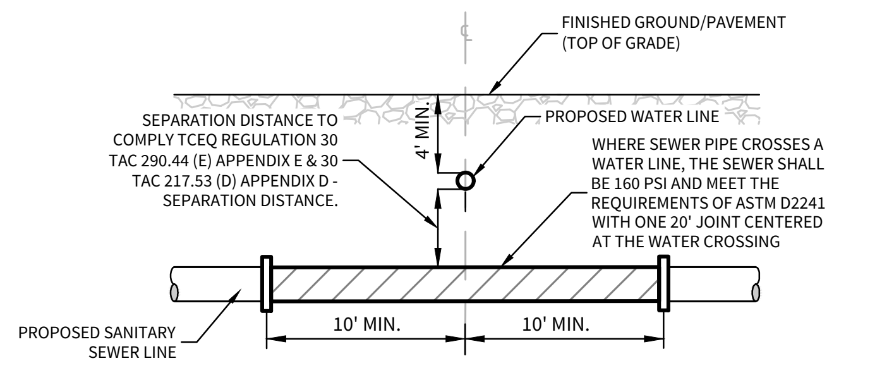
P:\03481\012\2-Drawings\C4.01-4.02 SANITARY SEWER LINE 'A-A' - PLAN & PROFILE.dwg 2025/06/02 12:35pm kmartinez


PROP. GROUND
3' MIN.
2" POLY GAS LINE
2' MIN.
5'
5'
PROP. SEWER PIPE

SEWER / GAS CROSSINGS DETAIL

SIDE VIEW (THIS DETAIL IS VERTICAL ONLY, NOT HORIZONTAL.)
(N.T.S.)
NOTE: VERTICAL BEND IS NOT NEEDED WHEN SEWER IS DEEPER THAN 7'


FINISHED GROUND/PAVEMENT (TOP OF GRADE)
SEPARATION DISTANCE TO COMPLY TCEQ REGULATION 30 TAC 290.44 (E) APPENDIX E & 30 TAC 217.53 (D) APPENDIX D - SEPARATION DISTANCE.
4' MIN.
PROPOSED WATER LINE
WHERE SEWER PIPE CROSSES A WATER LINE, THE SEWER SHALL BE 160 PSI AND MEET THE REQUIREMENTS OF ASTM D2241 WITH ONE 20' JOINT CENTERED AT THE WATER CROSSING
PROPOSED SANITARY SEWER LINE
10' MIN.
10' MIN.

TYPICAL SANITARY SEWER/ WATER CROSSING DETAIL

N.T.S.

NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING 98% COMPACTION ON ALL TRENCH BACKFILL. COMPACTION TEST WILL BE DONE AT ONE LOCATION POINT RANDOMLY SELECTED OR AS INDICATED BY THE DISTRICT INSPECTOR. PER EACH 12-INCH LOOSE LIFT PER 400 LINEAR FEET AT A MINIMUM. THIS PROJECT WILL NOT BE ACCEPTED AND FINALIZED BY THE DISTRICT WITHOUT THIS REQUIREMENT BEING MET AND VERIFIED BY PROVIDING ALL NECESSARY DOCUMENTED TEST RESULTS.
2. ALL SANITARY SEWER PIPE SHALL BE SDR-26 PVC PIPE MEETING ASTM SPECIFICATION D-3034.
3. MANHOLE OPENING INCREASED TO 30" AS PER TAC CHAPTER 217.55.
4. REFERENCE STREET DETAIL SHEET AND GEOTECHNICAL ENGINEERING REPORT FOR PAVEMENT DESIGN INFORMATION.
5. ALL EXCAVATED MATERIAL SHALL BE PLACED ON THE UPGRADIENT SIDE OF THE SEWER TRENCH THUS ALLOWING THE TRENCH TO INTERCEPT ANY SILT CONTAMINATED RUNOFF.
6. ALL LATERALS SHALL BE INSTALLED AT A MINIMUM 2.0% SLOPE UNLESS OTHERWISE NOTED.
7. BENCHMARK TO BE SET BY ENGINEER PRIOR TO THE START OF CONSTRUCTION.
8. ALL SEWER LATERALS TO BE INSTALLED WITH A MINIMUM 150 PSI PRESSURE RATED PIPE AND EMBEDDED IN CEMENT STABILIZED SAND AT ALL WATER MAIN AND LATERAL SERVICE CROSSINGS PER 30 TAC CHAPTER 290.44(e)
9. CONTRACTOR TO INSTALL A 2" X 4" LUMBER ON EACH SEWER LATERAL LOCATION AND PAINT IT IN GREEN.

CAUTION!!

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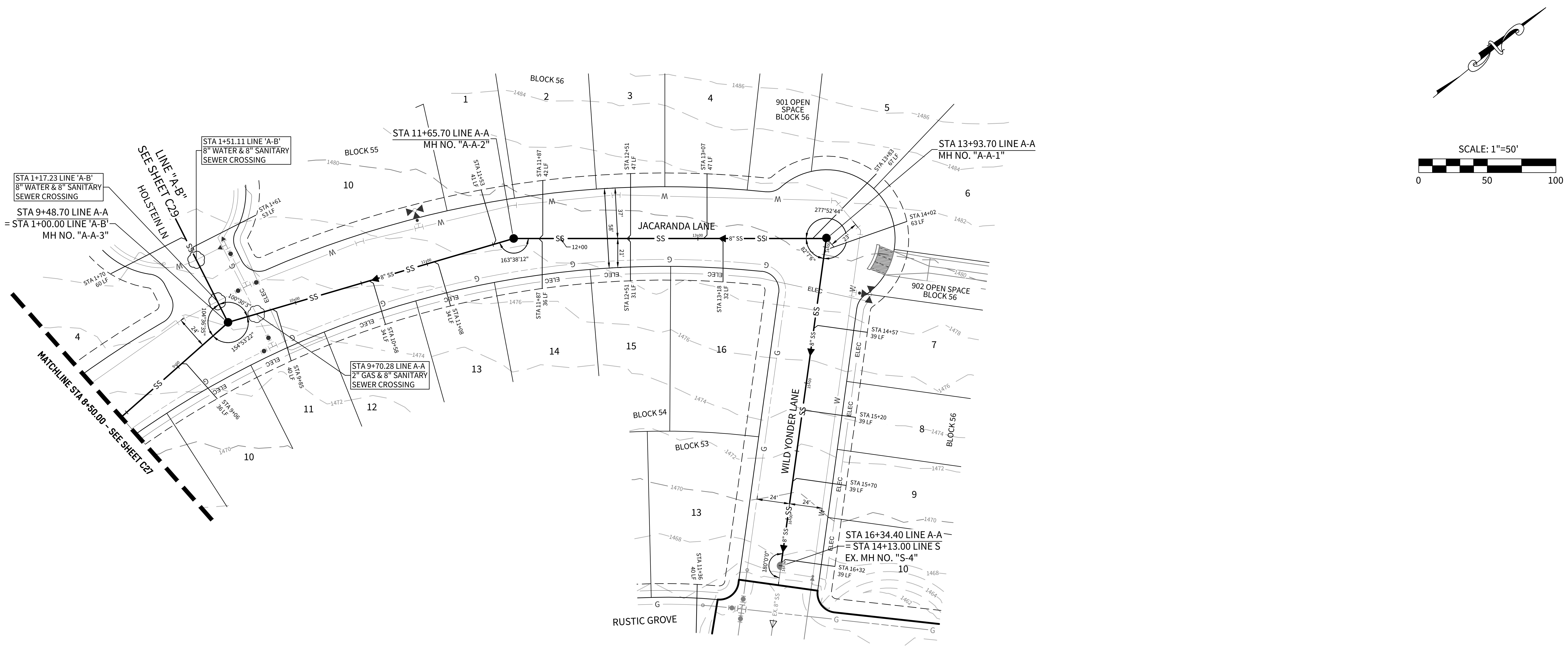
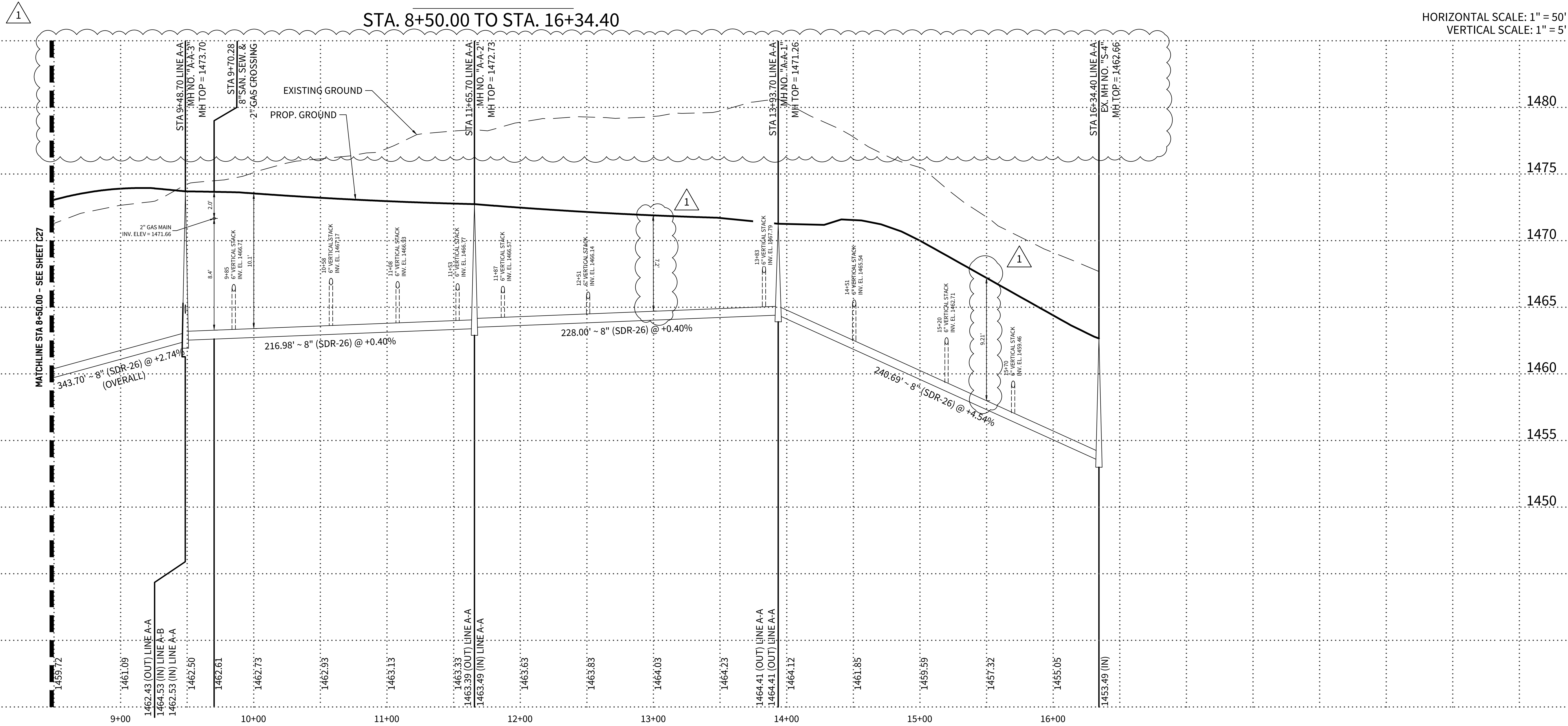

SCALE: 1"=50'
0
50
100
LINE "A-B"
SEE SHEET C29
HOLSTEIN LN
STA 1+17.23 LINE 'A-B'
8" WATER & 8" SANITARY SEWER CROSSING
STA 1+51.11 LINE 'A-B'
8" WATER & 8" SANITARY SEWER CROSSING
STA 9+48.70 LINE A-A
= STA 1+00.00 LINE 'A-B'
MH NO. "A-A-3"
STA 9+70.28 LINE A-A
2" GAS & 8" SANITARY SEWER CROSSING
STA 11+65.70 LINE A-A
MH NO. "A-A-2"
STA 13+93.70 LINE A-A
MH NO. "A-A-1"
STA 16+34.40 LINE A-A
= STA 14+13.00 LINE S
EX. MH NO. "S-4"
MATCHLINE STA 8+50.00 - SEE SHEET C27
STA 1+61 53 LF
STA 1+70 60 LF
100°30'3"
104°36'35"
154°53'22"
163°38'12"
277°52'44"
82°7'6"
180°0'0"
24'
STA 9+06 36 LF
STA 9+85 40 LF
STA 10+58 34 LF
STA 11+08 34 LF
STA 11+53 41 LF
STA 11+87 42 LF
STA 11+87 36 LF
STA 12+51 47 LF
STA 12+51 31 LF
STA 13+07 47 LF
STA 13+18 32 LF
STA 13+83 67 LF
STA 14+02 63 LF
STA 14+57 39 LF
STA 15+20 39 LF
STA 15+70 39 LF
STA 16+32 39 LF
STA 11+36 40 LF
8" SS
SS
EX. 8" SS
JACARANDA LANE
WILD YONDER LANE
RUSTIC GROVE
37'
58'
21'
23'
24'
BLOCK 53
BLOCK 54
BLOCK 55
BLOCK 56
901 OPEN SPACE BLOCK 56
902 OPEN SPACE BLOCK 56
ELEC
G
W
9+00
10+00
11+00
12+00
13+00
14+00
15+00
16+00
16+34
1470
1472
1474
1476
1478
1480
1482
1484
1486
1468
1464
1462

LINE "A-A"

STA. 8+50.00 TO STA. 16+34.40

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


1
MATCHLINE STA 8+50.00 - SEE SHEET C27
STA 9+48.70 LINE A-A
MH NO. "A-A-3"
MH TOP = 1473.70
STA 9+70.28
8"SAN. SEW. &
2" GAS CROSSING
EXISTING GROUND
PROP. GROUND
STA 11+65.70 LINE A-A
MH NO. "A-A-2"
MH TOP = 1472.73
STA 13+93.70 LINE A-A
MH NO. "A-A-1"
MH TOP = 1471.26
STA 16+34.40 LINE A-A
EX. MH NO. "S-4"
MH TOP = 1462.66
2" GAS MAIN
INV. ELEV = 1471.66
2.0'
8.4'
10.1'
7.2'
9.21'
9+85 6" VERTICAL STACK INV. EL. 1466.71
10+58 6" VERTICAL STACK INV. EL. 1467.17
11+08 6" VERTICAL STACK INV. EL. 1466.93
11+53 6" VERTICAL STACK INV. EL. 1466.77
11+87 6" VERTICAL STACK INV. EL. 1466.57
12+51 6" VERTICAL STACK INV. EL. 1466.14
13+83 6" VERTICAL STACK INV. EL. 1467.79
14+51 6" VERTICAL STACK INV. EL. 1465.54
15+20 6" VERTICAL STACK INV. EL. 1462.71
15+70 6" VERTICAL STACK INV. EL. 1459.46
343.70' ~ 8" (SDR-26) @ +2.74% (OVERALL)
216.98' ~ 8" (SDR-26) @ +0.40%
228.00' ~ 8" (SDR-26) @ +0.40%
240.69' ~ 8" (SDR-26) @ +4.54%
1480
1475
1470
1465
1460
1455
1450
SAN. SEW. INV.
1459.72
1461.09
1462.43 (OUT) LINE A-A
1464.53 (IN) LINE A-B
1462.53 (IN) LINE A-A
1462.50
1462.61
1462.73
1462.93
1463.13
1463.33
1463.39 (OUT) LINE A-A
1463.49 (IN) LINE A-A
1463.63
1463.83
1464.03
1464.23
1464.41 (OUT) LINE A-A
1464.41 (OUT) LINE A-A
1464.12
1461.85
1459.59
1457.32
1455.05
1453.49 (IN)
9+00
10+00
11+00
12+00
13+00
14+00
15+00
16+00

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4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

CORLEY FARMS
UNIT 5

SANITARY SEWER LINE 'A-A' - PLAN & PROFILE

DATE
06/02/2025

PROJECT NO.
03481.012

DRAWN BY
C3

CHECKED BY
XV/AL

#	DATE	REVISIONS
1.	5/27/25	GRADING REVISION
2.		
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9.		

ANDREW R. LOWRY
123410
6/2/25

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C28

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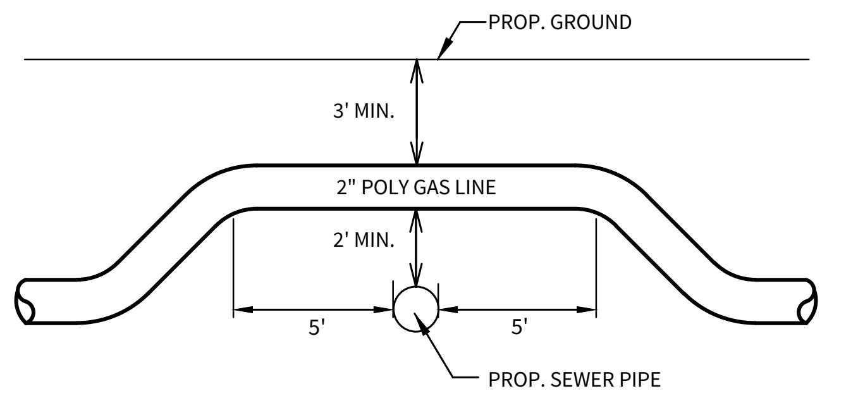
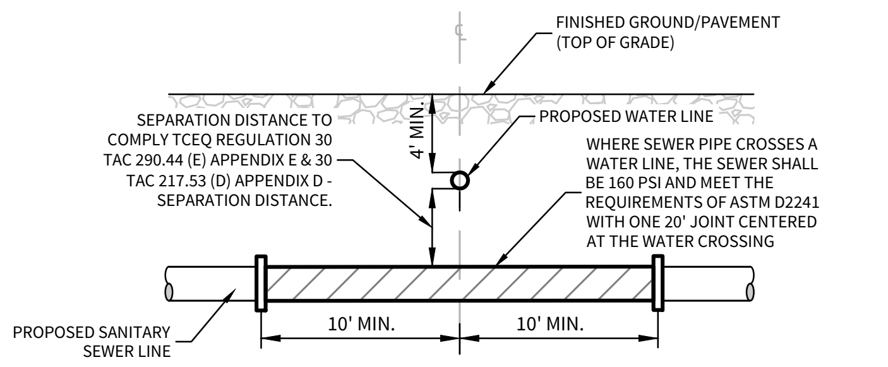
P:\03481\012\2-Drawings\C4.01-4.02 SANITARY SEWER LINE 'A-A' - PLAN & PROFILE.dwg 2025/06/02 12:36pm kmartinez


PROP. GROUND
3' MIN.
2" POLY GAS LINE
2' MIN.
5'
5'
PROP. SEWER PIPE

SEWER / GAS CROSSINGS DETAIL

SIDE VIEW (THIS DETAIL IS VERTICAL ONLY, NOT HORIZONTAL.)
(N.T.S.)
NOTE: VERTICAL BEND IS NOT NEEDED WHEN SEWER IS DEEPER THAN 7'


FINISHED GROUND/PAVEMENT
(TOP OF GRADE)
SEPARATION DISTANCE TO COMPLY TCEQ REGULATION 30 TAC 290.44 (E) APPENDIX E & 30 TAC 217.53 (D) APPENDIX D - SEPARATION DISTANCE.
4' MIN.
PROPOSED WATER LINE
WHERE SEWER PIPE CROSSES A WATER LINE, THE SEWER SHALL BE 160 PSI AND MEET THE REQUIREMENTS OF ASTM D2241 WITH ONE 20' JOINT CENTERED AT THE WATER CROSSING
PROPOSED SANITARY SEWER LINE
10' MIN.
10' MIN.

TYPICAL SANITARY SEWER/ WATER CROSSING DETAIL

N.T.S.

NOTES:

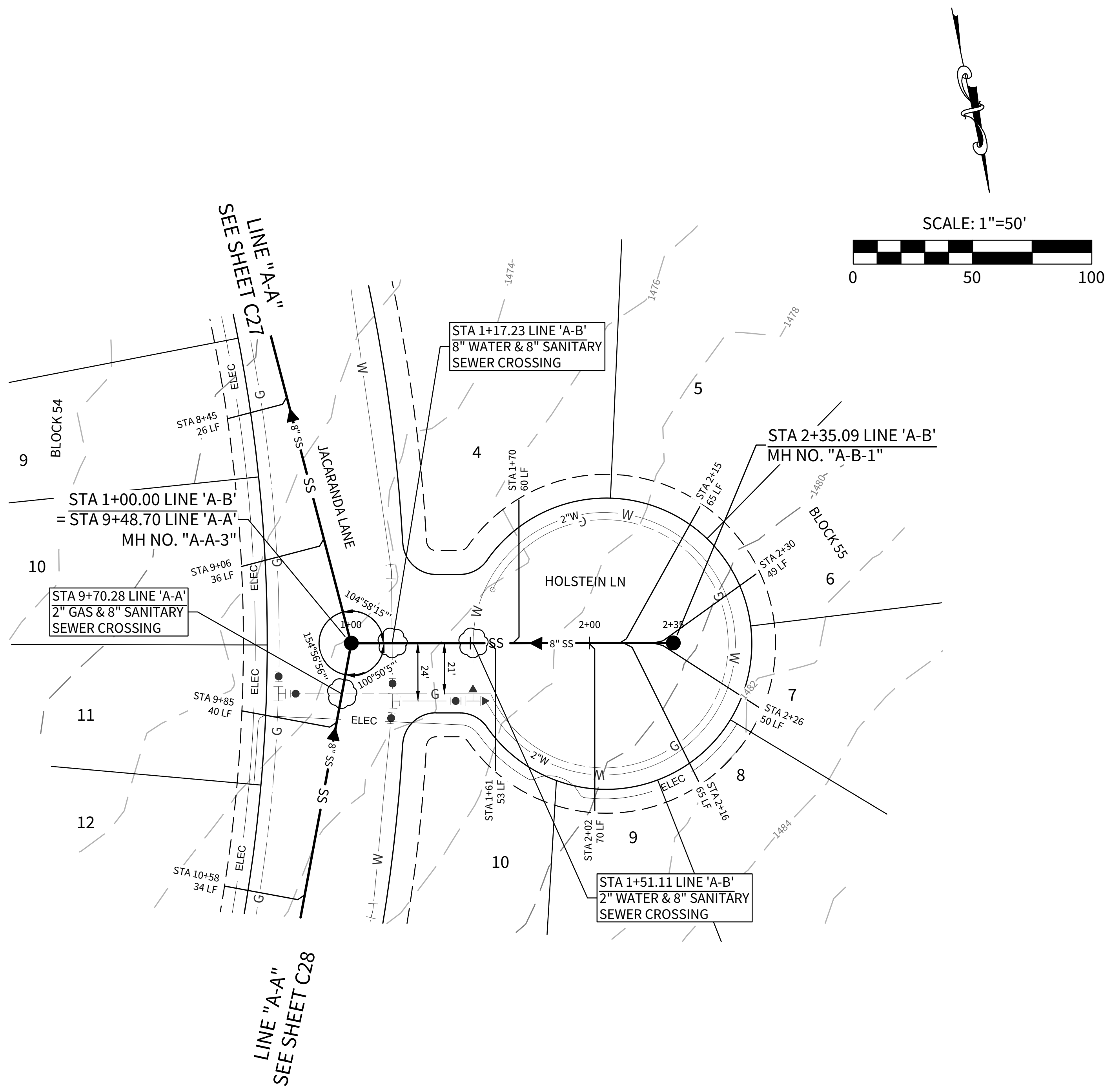
1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING 98% COMPACTION ON ALL TRENCH BACKFILL. COMPACTION TEST WILL BE DONE AT ONE LOCATION POINT RANDOMLY SELECTED OR AS INDICATED BY THE DISTRICT INSPECTOR. PER EACH 12-INCH LOOSE LIFT PER 400 LINEAR FEET AT A MINIMUM. THIS PROJECT WILL NOT BE ACCEPTED AND FINALIZED BY THE DISTRICT WITHOUT THIS REQUIREMENT BEING MET AND VERIFIED BY PROVIDING ALL NECESSARY DOCUMENTED TEST RESULTS.
2. ALL SANITARY SEWER PIPE SHALL BE SDR-26 PVC PIPE MEETING ASTM SPECIFICATION D-3034.
3. MANHOLE OPENING INCREASED TO 30" AS PER TAC CHAPTER 217.55.
4. REFERENCE STREET DETAIL SHEET AND GEOTECHNICAL ENGINEERING REPORT FOR PAVEMENT DESIGN INFORMATION.
5. ALL EXCAVATED MATERIAL SHALL BE PLACED ON THE UPGRADIENT SIDE OF THE SEWER TRENCH THUS ALLOWING THE TRENCH TO INTERCEPT ANY SILT CONTAMINATED RUNOFF.
6. ALL LATERALS SHALL BE INSTALLED AT A MINIMUM 2.0% SLOPE UNLESS OTHERWISE NOTED.
7. BENCHMARK TO BE SET BY ENGINEER PRIOR TO THE START OF CONSTRUCTION.
8. ALL SEWER LATERALS TO BE INSTALLED WITH A MINIMUM 150 PSI PRESSURE RATED PIPE AND EMBEDDED IN CEMENT STABILIZED SAND AT ALL WATER MAIN AND LATERAL SERVICE CROSSINGS PER 30 TAC CHAPTER 290.44(e)
9. CONTRACTOR TO INSTALL A 2" X 4" LUMBER ON EACH SEWER LATERAL LOCATION AND PAINT IT IN GREEN.

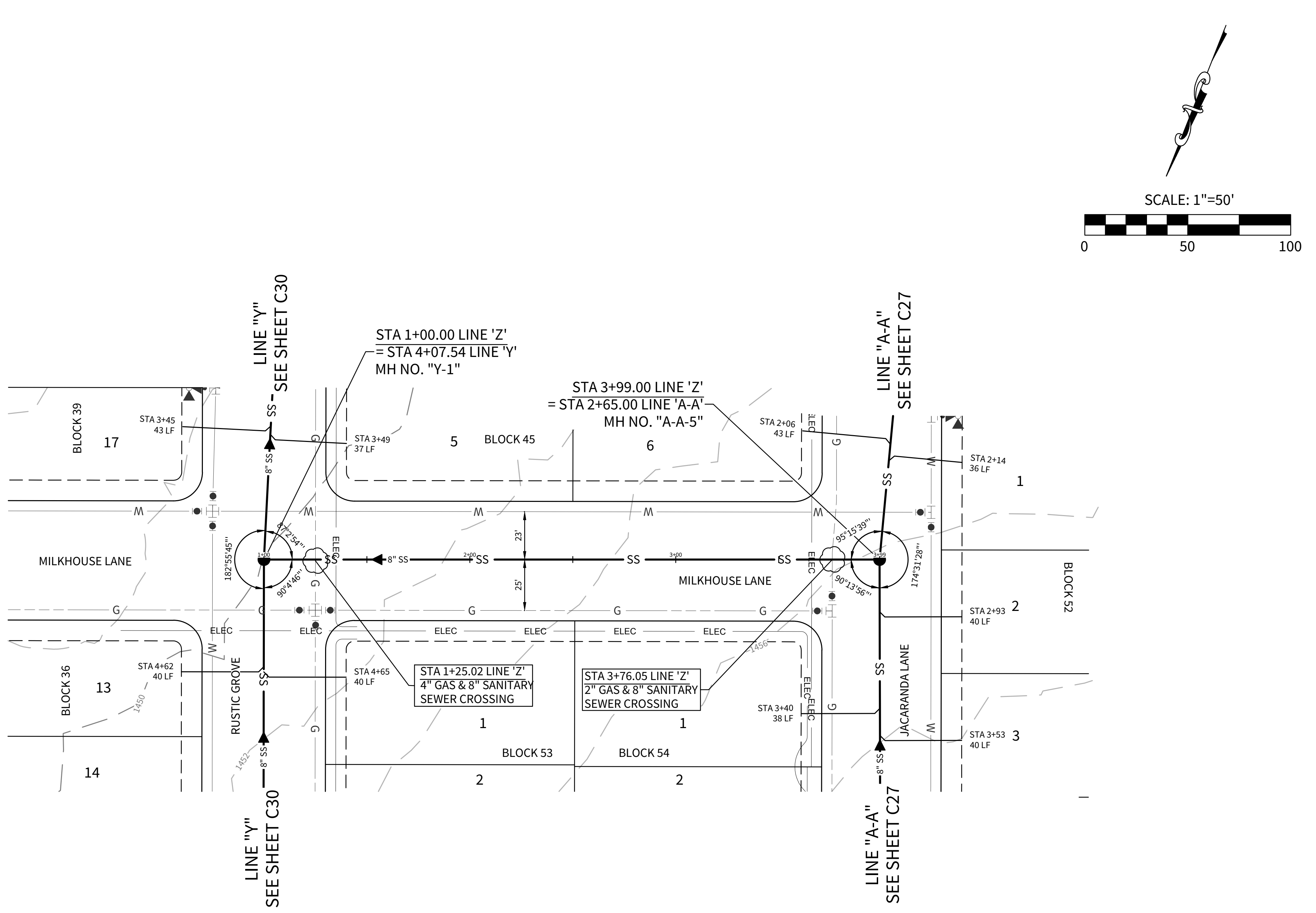
CAUTION!!

EXISTING UTILITIES ARE WITHIN THE LIMITS OF CONSTRUCTION. CONTRACTORS SHALL EXERCISE EXTRA CARE IN DIGGING ANY TRENCH FOR PROPOSED UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE, VERIFY THE EXACT LOCATION & IDENTIFY AREA OF CONFLICTS WITH EXISTING UTILITIES AND SHALL NOTIFY THE ENGINEER IF CONFLICT IS FOUND.

TRENCH EXCAVATION PROTECTION

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION 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.


SCALE: 1"=50'
0
50
100
LINE "A-A" SEE SHEET C27
STA 1+17.23 LINE 'A-B' 8" WATER & 8" SANITARY SEWER CROSSING
5
STA 2+35.09 LINE 'A-B' MH NO. "A-B-1"
BLOCK 54
9
STA 8+45 26 LF
8" SS
SS
JACARANDA LANE
4
STA 1+70 60 LF
STA 2+15 65 LF
BLOCK 55
STA 1+00.00 LINE 'A-B' = STA 9+48.70 LINE 'A-A' MH NO. "A-A-3"
10
STA 9+06 36 LF
ELEC
G
W
2"W
HOLSTEIN LN
STA 2+30 49 LF
6
STA 9+70.28 LINE 'A-A' 2" GAS & 8" SANITARY SEWER CROSSING
104°58'15"
1+00
154°56'56"
100°50'5"
24'
21'
8" SS
2+00
2+35
7
STA 9+85 40 LF
11
ELEC
STA 2+26 50 LF
12
8
STA 1+61 53 LF
STA 2+02 70 LF
9
STA 2+16 65 LF
10
STA 10+58 34 LF
STA 1+51.11 LINE 'A-B' 2" WATER & 8" SANITARY SEWER CROSSING
LINE "A-A" SEE SHEET C28
1474
1476
1478
1480
1482
1484


SCALE: 1"=50'
0
50
100
LINE "Y" SEE SHEET C30
STA 1+00.00 LINE 'Z' = STA 4+07.54 LINE 'Y' MH NO. "Y-1"
STA 3+99.00 LINE 'Z' = STA 2+65.00 LINE 'A-A' MH NO. "A-A-5"
LINE "A-A" SEE SHEET C27
BLOCK 39
17
STA 3+45 43 LF
STA 3+49 37 LF
5
BLOCK 45
6
STA 2+06 43 LF
STA 2+14 36 LF
1
M
MILKHOUSE LANE
182°55'45"
87°2'54"
90°4'46"
1+00
8" SS
2+00
SS
3+00
23'
25'
95°15'39"
3+99
174°31'28"
90°13'56"
MILKHOUSE LANE
BLOCK 52
G
ELEC
STA 2+93 40 LF
2
BLOCK 36
13
STA 4+62 40 LF
RUSTIC GROVE
STA 4+65 40 LF
STA 1+25.02 LINE 'Z' 4" GAS & 8" SANITARY SEWER CROSSING
STA 3+76.05 LINE 'Z' 2" GAS & 8" SANITARY SEWER CROSSING
STA 3+40 38 LF
JACARANDA LANE
STA 3+53 40 LF
3
1
1
14
BLOCK 53
BLOCK 54
2
2
1450
1452
1456
LINE "Y" SEE SHEET C30
LINE "A-A" SEE SHEET C27

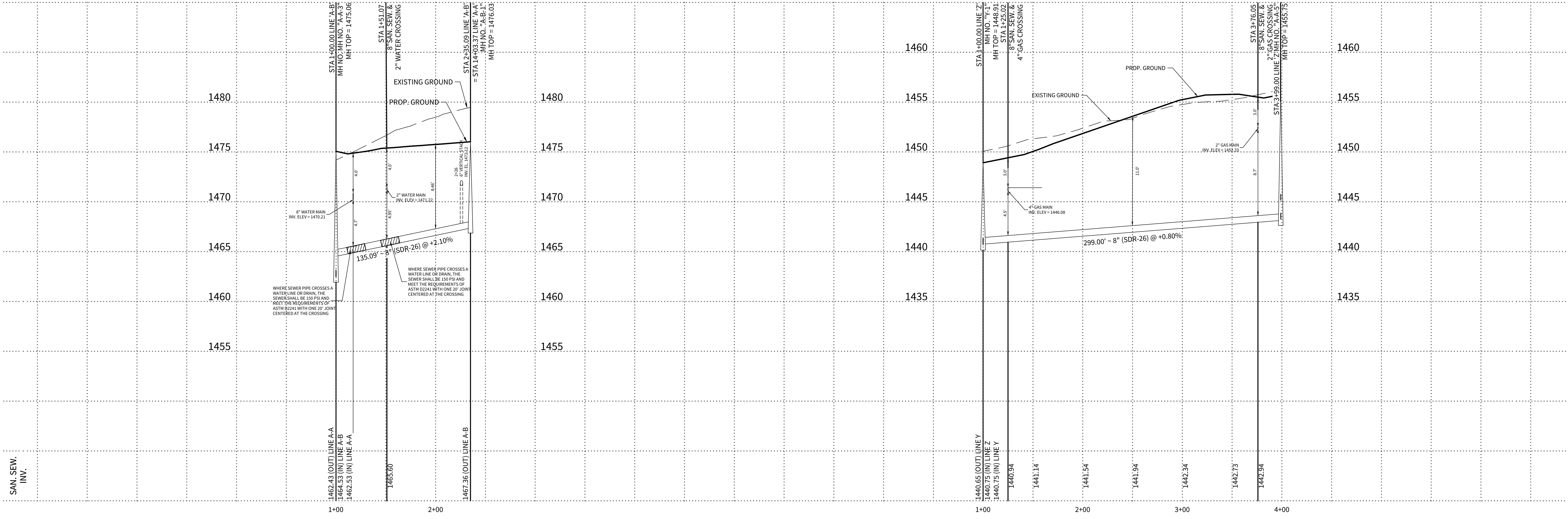
LINE "A-B"

STA. 1+00.00 TO STA. 2+35.09

LINE "Z"

STA. 1+00.00 TO STA. 3+99.00

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


STA 1+00.00 LINE 'A-B'
MH NO. MH NO. "A-A-3"
MH TOP = 1475.06
STA 1+51.07
8" SAN. SEW. &
2" WATER CROSSING
STA 2+35.09 LINE 'A-B'
= STA 14+03.37 LINE 'A-A'
MH NO. "A-B-1"
MH TOP = 1476.03
EXISTING GROUND
PROP. GROUND
1480
1475
1470
1465
1460
1455
4.0'
4.0'
8.46'
2+26
6" VERTICAL STACK
INV. EL. 1472.12
2" WATER MAIN
INV. ELEV = 1471.22
8" WATER MAIN
INV. ELEV = 1470.21
4.7'
4.95'
135.09' ~ 8" (SDR-26) @ +2.10%
WHERE SEWER PIPE CROSSES A WATER LINE OR DRAIN, THE SEWER SHALL BE 150 PSI AND MEET THE REQUIREMENTS OF ASTM D2241 WITH ONE 20' JOINT CENTERED AT THE CROSSING
WHERE SEWER PIPE CROSSES A WATER LINE OR DRAIN, THE SEWER SHALL BE 150 PSI AND MEET THE REQUIREMENTS OF ASTM D2241 WITH ONE 20' JOINT CENTERED AT THE CROSSING
STA 1+00.00 LINE 'Z'
MH NO. "Y-1"
MH TOP = 1448.91
STA 1+25.02
8" SAN. SEW. &
4" GAS CROSSING
STA 3+76.05
8" SAN. SEW. &
2" GAS CROSSING
STA 3+99.00 LINE 'Z' MH NO. "A-A-5"
MH TOP = 1455.75
PROP. GROUND
EXISTING GROUND
1460
1455
1450
1445
1440
1435
3.0'
4.5'
4" GAS MAIN
INV. ELEV = 1446.08
11.0'
3.0'
8.7'
2" GAS MAIN
INV. ELEV = 1452.33
299.00' ~ 8" (SDR-26) @ +0.80%
SAN. SEW. INV.
1462.43 (OUT) LINE A-A
1464.53 (IN) LINE A-B
1462.53 (IN) LINE A-A
1465.60
1467.36 (OUT) LINE A-B
1440.65 (OUT) LINE Y
1440.75 (IN) LINE Z
1440.75 (IN) LINE Y
1440.94
1441.14
1441.54
1441.94
1442.34
1442.73
1442.94
1+00
2+00
1+00
2+00
3+00
4+00

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CORLEY FARMS
UNIT 5

SANITARY SEWER LINE 'A-B' AND 'Z' PLAN & PROFILE

DATE
01/28/2025

PROJECT NO.
03481.012

DRAWN BY
C3

CHECKED BY
XV/AL

#	DATE	REVISIONS
1.		
2.		
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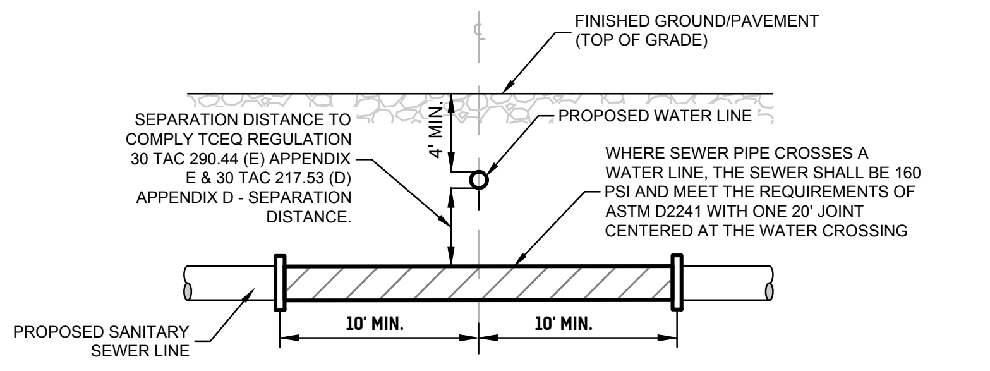
ANDREW R. LOWRY
123410
02/10/2025

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

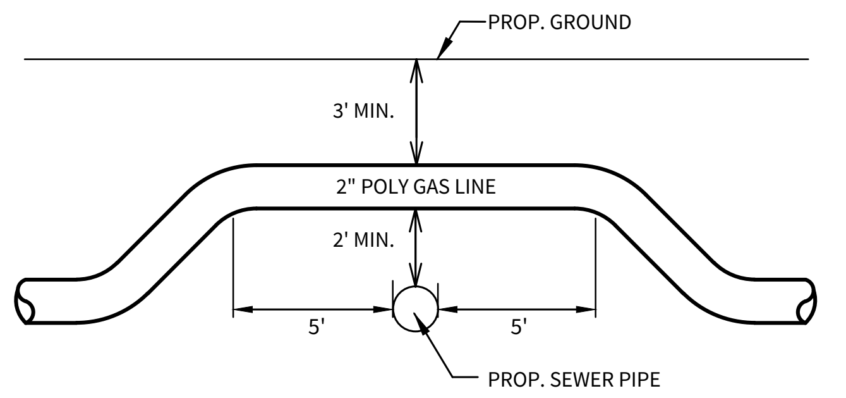
C29

P:\03481\012\2-Drawings\C4.03 SANITARY SEWER LINE 'A-B' and 'Z' PLAN & PROFILE.dwg 2025/01/28 12:22pm mlopez


FINISHED GROUND/PAVEMENT (TOP OF GRADE)
4' MIN.
PROPOSED WATER LINE
SEPARATION DISTANCE TO COMPLY TCEQ REGULATION 30 TAC 290.44 (E) APPENDIX E & 30 TAC 217.53 (D) APPENDIX D - SEPARATION DISTANCE.
WHERE SEWER PIPE CROSSES A WATER LINE, THE SEWER SHALL BE 160 PSI AND MEET THE REQUIREMENTS OF ASTM D2241 WITH ONE 20' JOINT CENTERED AT THE WATER CROSSING
PROPOSED SANITARY SEWER LINE
10' MIN.
10' MIN.

TYPICAL SANITARY SEWER/ WATER CROSSING DETAIL

N.T.S.


PROP. GROUND
3' MIN.
2" POLY GAS LINE
2' MIN.
5'
5'
PROP. SEWER PIPE

SEWER / GAS CROSSINGS DETAIL

SIDE VIEW (THIS DETAIL IS VERTICAL ONLY, NOT HORIZONTAL.)

(N.T.S.)

NOTE: VERTICAL BEND IS NOT NEEDED WHEN SEWER IS DEEPER THAN 7'

NOTES:

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2. ALL SANITARY SEWER PIPE SHALL BE SDR-26 PVC PIPE MEETING ASTM SPECIFICATION D-3034.
3. MANHOLE OPENING INCREASED TO 30" AS PER TAC CHAPTER 217.55.
4. REFERENCE STREET DETAIL SHEET AND GEOTECHNICAL ENGINEERING REPORT FOR PAVEMENT DESIGN INFORMATION.
5. ALL EXCAVATED MATERIAL SHALL BE PLACED ON THE UPGRADIENT SIDE OF THE SEWER TRENCH THUS ALLOWING THE TRENCH TO INTERCEPT ANY SILT CONTAMINATED RUNOFF.
6. ALL LATERALS SHALL BE INSTALLED AT A MINIMUM 2.0% SLOPE UNLESS OTHERWISE NOTED.
7. BENCHMARK TO BE SET BY ENGINEER PRIOR TO THE START OF CONSTRUCTION.
8. ALL SEWER LATERALS TO BE INSTALLED WITH A MINIMUM 150 PSI PRESSURE RATED PIPE AND EMBEDDED IN CEMENT STABILIZED SAND AT ALL WATER MAIN AND LATERAL SERVICE CROSSINGS PER 30 TAC CHAPTER 290.44(e)
9. CONTRACTOR TO INSTALL A 2" X 4" LUMBER ON EACH SEWER LATERAL LOCATION AND PAINT IT IN GREEN.

CAUTION!!

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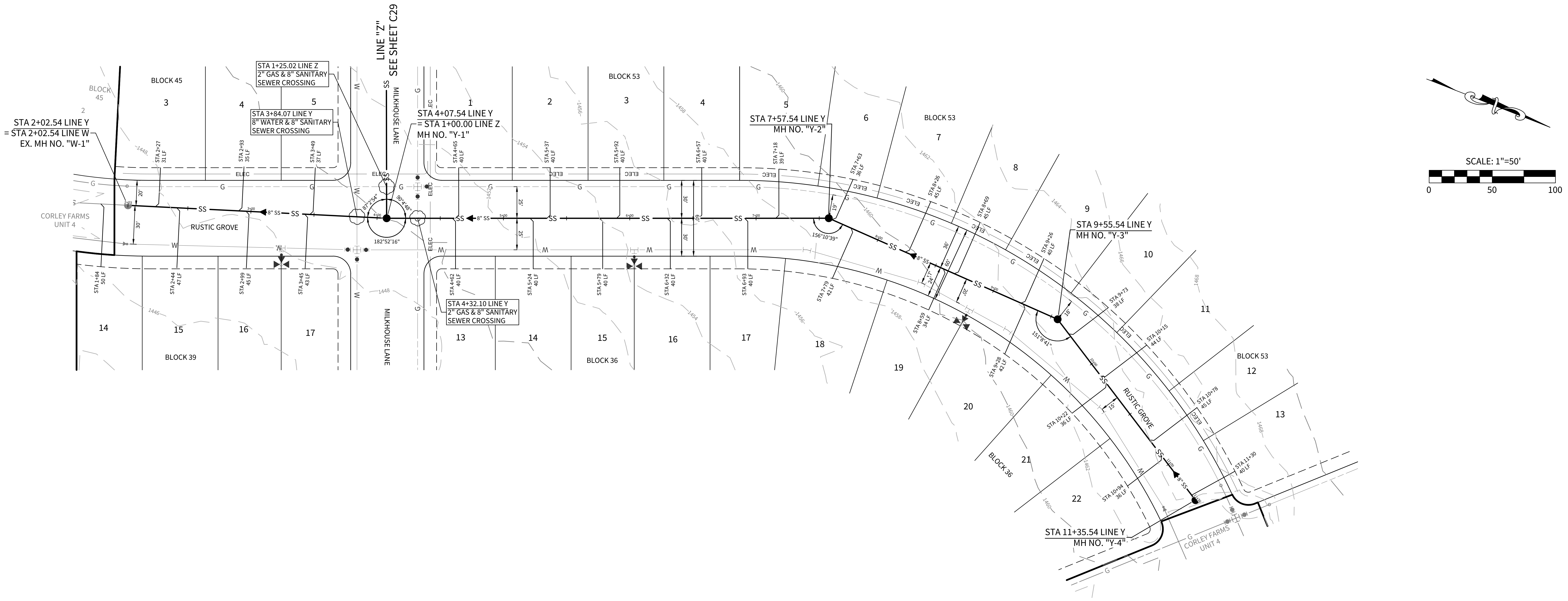
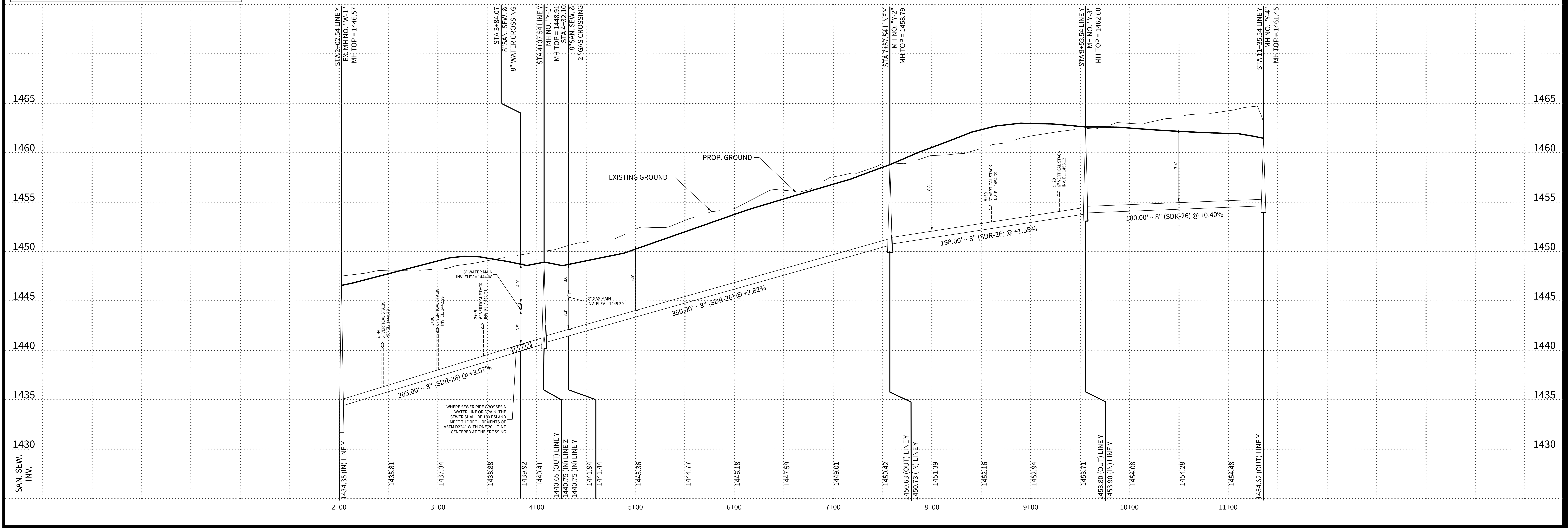

LINE "Z"
SEE SHEET C29
STA 2+02.54 LINE Y
= STA 2+02.54 LINE W
EX. MH NO. "W-1"
STA 1+25.02 LINE Z
2" GAS & 8" SANITARY SEWER CROSSING
STA 3+84.07 LINE Y
8" WATER & 8" SANITARY SEWER CROSSING
STA 4+07.54 LINE Y
= STA 1+00.00 LINE Z
MH NO. "Y-1"
STA 4+32.10 LINE Y
2" GAS & 8" SANITARY SEWER CROSSING
STA 7+57.54 LINE Y
MH NO. "Y-2"
STA 9+55.54 LINE Y
MH NO. "Y-3"
STA 11+35.54 LINE Y
MH NO. "Y-4"
BLOCK 45
BLOCK 53
BLOCK 39
BLOCK 36
MILKHOUSE LANE
RUSTIC GROVE
CORLEY FARMS UNIT 4
SCALE: 1"=50'
0
50
100

LINE "Y"

STA. 2+02.54 TO END

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


STA 2+02.54 LINE Y
EX. MH NO. "W-1"
MH TOP = 1446.57
STA 3+84.07
8"SAN. SEW. &
8" WATER CROSSING
STA 4+07.54 LINE Y
MH NO. "Y-1"
MH TOP = 1448.91
STA 4+32.10
8"SAN. SEW. &
2" GAS CROSSING
STA 7+57.54 LINE Y
MH NO. "Y-2"
MH TOP = 1458.79
STA 9+55.54 LINE Y
MH NO. "Y-3"
MH TOP = 1462.60
STA 11+35.54 LINE Y
MH NO. "Y-4"
MH TOP = 1461.45
1465
1460
1455
1450
1445
1440
1435
1430
PROP. GROUND
EXISTING GROUND
8" WATER MAIN
INV. ELEV = 1444.08
2" GAS MAIN
INV. ELEV = 1445.39
2+44
6" VERTICAL STACK
INV. EL. 1440.78
3+00
6" VERTICAL STACK
INV. EL. 1442.29
3+45
6" VERTICAL STACK
INV. EL. 1442.71
4.0'
3.5'
3.0'
3.3'
6.5'
8.8'
7.4'
205.00' ~ 8" (SDR-26) @ +3.07%
350.00' ~ 8" (SDR-26) @ +2.82%
198.00' ~ 8" (SDR-26) @ +1.55%
180.00' ~ 8" (SDR-26) @ +0.40%
WHERE SEWER PIPE CROSSES A WATER LINE OR DRAIN, THE SEWER SHALL BE 150 PSI AND MEET THE REQUIREMENTS OF ASTM D2241 WITH ONE 20' JOINT CENTERED AT THE CROSSING
SAN. SEW. INV.
1434.35 (IN) LINE Y
1435.81
1437.34
1438.88
1439.92
1440.41
1440.65 (OUT) LINE Y
1440.75 (IN) LINE Z
1440.75 (IN) LINE Y
1441.94
1441.44
1443.36
1444.77
1446.18
1447.59
1449.01
1450.42
1450.63 (OUT) LINE Y
1450.73 (IN) LINE Y
1451.39
1452.16
1452.94
1453.71
1453.80 (OUT) LINE Y
1453.90 (IN) LINE Y
1454.08
1454.28
1454.48
1454.62 (OUT) LINE Y
2+00
3+00
4+00
5+00
6+00
7+00
8+00
9+00
10+00
11+00

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CORLEY FARMS UNIT 5

SANITARY SEWER LINE 'Y' - PLAN & PROFILE

DATE
01/28/2025

PROJECT NO.
03481.012

DRAWN BY
C3

CHECKED BY
XV/AL

#	DATE	REVISIONS
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9.		

ANDREW R. LOWRY
123410
02/10/2025

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C30

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P:\03481\012\2-Drawings\C4.04 SANITARY SEWER LINE 'Y' - PLAN & PROFILE.dwg 2025/01/28 12:22pm mlopez

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CRITERIA FOR SEWER MAIN CONSTRUCTION IN THE VICINITY OF WATER MAINS

I. WHERE A SEWER MAIN CROSSES OVER A WATER MAIN AND THE SEPARATION DISTANCE IS LESS THAN NINE (9) FEET, ALL PORTIONS OF THE SEWER MAIN WITHIN NINE (9) FEET OF THE WATER LINE SHALL BE CONSTRUCTED USING 150 PSI PRESSURE RATED PIPE AT LEAST EIGHTEEN (18) FEET IN LENGTH MAY BE CENTERED ON THE WATER MAIN IN LIEU OF PIPE CONNECTION REQUIREMENTS (NO SEPARATE PAY ITEM)

II. WHERE SEMI-RIGID OR RIGID SEWER MAIN CROSSES UNDER A WATER MAIN AND THE SEPARATION DISTANCE IS LESS THAN NINE FEET BUT GREATER THAN TWO FEET, THE INITIAL BACKFILL SHALL BE CEMENT STABILIZED SAND (TWO OR MORE BAGS OF CEMENT PER CUBIC YARD OF SAND) FOR ALL SECTIONS OF THE SEWER WITHIN NINE FEET OF THE WATER MAIN.

III. WHERE A SEWER MAIN CROSSES UNDER A WATER MAIN AND THE SEPARATION DISTANCE IS LESS THAN TWO FEET, THE SEWER MAIN SHALL BE CONSTRUCTED OF CAST IRON, DUCTILE IRON, OR PVC WITH A MINIMUM PRESSURE RATING OF 150 PSI WITHIN NINE FEET OF THE WATER MAIN, SHALL BE PLACED NO CLOSER THAN SIX (6") INCHES BETWEEN OUTER DIAMETERS, AND SHALL BE JOINED WITH PRESSURE RING GASKET CONNECTIONS OR CORROSION PROTECTED MECHANICAL COUPLING DEVISES OR A CAST IRON OR DUCTILE IRON MATERIAL. A SECTION OF PSI PRESSURE RATE PIPE OF A LENGTH GREATER THAN EIGHTEEN (18) FEET MAY BE CENTERED ON THE WATER MAIN IN LIEU OF PIPE CONNECTION REQUIREMENTS. (NO SEPARATE PAY ITEM).

IV. WHERE A SEWER MAIN PARALLELS A WATER MAIN AND THE SEPARATION DISTANCE IS LESS THAN NINE FEET, THE SEWER MAIN SHALL BE BELOW THE WATER MAIN, SHALL BE CONSTRUCTED OF CAST IRON, DUCTILE IRON OR PVC WITH A MINIMUM PRESSURE RATING OF 150 PSI FOR BOTH PIPE AND JOINTS FOR A DISTANCE OF NINE FEET BEYOND THE POINT OF CONFLICT, SHALL MAINTAIN A MINIMUM SEPARATION DISTANCE BETWEEN OUTER DIAMETERS OF TWO FEET VERTICALLY AND FOUR FEET HORIZONTALLY, AND SHALL BE JOINED WITH PRESSURE RING GASKET CONNECTIONS OR CORROSION PROTECTED MECHANICAL COUPLING DEVICES OF A CAST IRON OF DUCTILE IRON MATERIALS.

V. SANITARY SEWER MANHOLES SHALL NOT BE INSTALLED ANY CLOSER THAN NINE FEET TO WATER MAINS.

VI. PLAN AND PROFILE MUST SHOW TYPE OF CROSSING AND MATERIAL TO USE.

NON-EDWARDS AQUIFER RECHARGE ZONE
SANITARY SEWER SYSTEM GENERAL NOTES

1. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS PROJECT SHALL BE APPROVED BY THE CITY OF BOERNE AND COMPLY WITH:
   A. CURRENT "CITY OF BOERNE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (JANUARY, 2011)
   B. TEXAS NATURAL RESOURCE CONSERVATION COMMISSION'S DESIGN CRITERIA FOR SEWERAGE SYSTEMS [30 TAC 217]

2. THE CONTRACTOR IS TO NOTIFY AND MAKE ARRANGEMENTS WITH THE CITY OF BOERNE PUBLIC WORKS DEPARTMENT AT 1-830-248-8511, 48 HOURS PRIOR TO EXCAVATION.

3. CONTRACTOR TO CONTACT 1-800-344-8377, 48 HOURS PRIOR TO COMMENCING WORK FOR MARKING UNDERGROUND UTILITIES

4. THE CONTRACTOR SHALL MAINTAIN SERVICE TO EXISTING SANITARY SEWERS AT ALL TIMES DURING CONSTRUCTION.

5. ALL WORK IN TEXAS DEPARTMENT OF TRANSPORTATION AND KENDALL COUNTY RIGHT-OF-WAY SHALL BE DONE IN ACCORDANCE WITH RESPECTIVE CONSTRUCTION SPECIFICATIONS AND PERMIT.

6. ALL WORK IN PUBLIC STREETS SHALL BE COORDINATED WITH AND APPROVED BY CITY OF BOERNE PUBLIC WORKS DEPARTMENT AND SHALL BE DONE IN ACCORDANCE WITH CITY OF BOERNE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.

7. DUE TO FEDERAL REGULATIONS TITLE 49, PART 192.181, THE CITY OF BOERNE MUST MAINTAIN ACCESS TO GAS VALVES AT ALL TIMES. THE CONTRACTOR MUST PROJECT AND WORK AROUND GAS VALVES THAT ARE IN THE PROJECT AREAS.

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

   THE FOLLOWING SEQUENCE WILL BE STRICTLY ADHERED TO:
   1. PULL MANDREL.
   2. PERFORM AIR TEST.
   3. PULL WIPER (AFTER STREET HAS BEEN ASPHALTED IN NEW SUBDIVISIONS).

MANHOLES:

9. ALL MANHOLES SHALL BE CONSTRUCTED SO THAT TOP OF THE RING IS AT LEAST FOUR (4) INCHES ABOVE THE FINISHED GRADE OF THE SURROUNDING GROUND EXCEPT WHEN LOCATED IN TXDOT R.O.W. IN TXDOT ROW AREAS, THE MANHOLE RING SHALL BE FLUSH WITH NATURAL GROUND.

10. ALL MANHOLES IN THE STREET AND 100 YEAR FLOODPLAIN AREAS SHALL HAVE WATERTIGHT RINGS AND COVERS IN ACCORDANCE WITH THE MOST CURRENT CITY OF BOERNE STANDARD SPECIFICATIONS FOR CONSTRUCTION.

11. ON ANY MANHOLES TO BE ABANDONED, THE RINGS AND COVER SHALL BE SALVAGED IN ACCORDANCE WITH THE MOST CURRENT CITY OF BOERNE STANDARD SPECIFICATIONS FOR CONSTRUCTION: PREPARATION OF RIGHT-OF-WAY. THE HOLE SHOULD BE BACKFILL TO THE SATISFACTION OF THE INSPECTOR. ALL PUBLIC MANHOLES WILL BE VACUUM TESTED AS PER 02515 3.2.

PIPING:

12. THE KIND AND DESCRIPTION OF THE PIPE CONDUIT IS SHOWN ON THE PLANS, (IF PVC, "SDR" AND ASTW/ANSI DESIGNATIONS, CLASS).

13. THE USE OF ASBESTOS CEMENT PIPE WILL BE PROHIBITED UNDER THIS CONTRACT. ALL DUCTILE IRON PIPE USED IN THIS SYSTEM SHALL BE CORROSION PROTECTED ON BOTH THE INTERIOR AND EXTERIOR SURFACES. ALL CORROSION PROTECTION SHALL BE APPLIED AND INSTALLED IN SUCH A MANNER AS TO MAINTAIN A CONTINUOUSLY PROTECTED SURFACE AFTER FINAL PIPE INSTALLATION.

14. ALL PVC SEWER PIPE WITH OVER 14 FEET OF COVER SHALL BE EXTRA STRENGTH, SDR 26 MINIMUM PIPE STIFFNESS OF 115 PSI.

15. ALL SEWER PIPES SHALL BE GOVERNED BY THE CITY OF BOERNE STANDARD SPECIFICATIONS FOR CONSTRUCTION (JANUARY 2011)

16. SEWER PIPE CONNECTIONS TO PRE-CAST MANHOLES WILL BE COMPRESSION JOINTS AS APPROVED BY CITY OF BOERNE MECHANICAL JOINT "BOOT TYPE" CONNECTIONS ALONE WILL NOT BE ALLOWED. "BOOT TYPE" JOINTS MAY BE USED IN CONJUNCTION WITH COMPRESSION JOINTS AS APPROVED BY CITY OF BOERNE. SEWER PIPE CONNECTIONS TO MONOLITHIC MANHOLES SHALL BE REVIEWED AND APPROVED BY CITY OF BOERNE. CITY OF BOERNE MUST APPROVE ANY CHANGES FROM THESE METHODS.

17. ALL PIPE TRENCHING, BEDDING AND BACKFILL SHALL BE DONE IN ACCORDANCE WITH APPROPRIATE ASTM/ANSI SPECIFICATIONS (REFERENCE 30 TAC 217.54; ASTM C12, (ANSI A106.2) OR ASTM D-2321 (ANSI K65.171).

18. WHEN SEWER LATERALS ARE TO BE CONNECTED TO EXISTING SEWER MAINS AND NO STUB-OUT HAS BEEN EARLIER PROVIDED, THE CONNECTION MUST BE MADE WITH AN APPROVED SERVICE SADDLE AS PER CITY OF BOERNE STANDARD SPECIFICATIONS FOR CONSTRUCTION.

19. ALL RESIDENTIAL SEWER SERVICE LATERALS SHALL BE EXTENDED TO AT LEAST THE PROPERTY LINE AND CAPPED AND SEALED.

20. WHERE REQUIRED, CONCRETE ENCASEMENT SHALL BE PLACED FOR FULL WIDTH OF THE TRENCH TO A PLANE 8" ABOVE THE TOP OF THE PIPE, WITH PAY LIMITS AS SHOWN ON THE STANDARD DETAIL SHEET.

21. A MINIMUM OF 3 FEET OF COVER IS TO BE MAINTAINED OVER THE SANITARY SEWER MAIN AND LATERALS AT SUBGRADE, OTHERWISE CONCRETE ENCASEMENT WILL BE REQUIRED.

BLASTING:

22. NO BLASTING WILL BE ALLOWED.

TESTING:

23. ALL SEWER LINES MUST BE TESTED IN ACCORDANCE WITH THE FOLLOWING;

A. 30 TAC 217.54 (b)(1) OR THE CITY OF BOERNE STANDARD SPECIFICATIONS FOR CONSTRUCTION 3.09 & 3.10 OF SECTION 025.30: DEFLECTION TEST FOR FLEXIBLE AND SEMI-RIGID PIPE CONDUCTED AFTER FINAL BACKFILL HAS BEEN IN PLACE AT LEAST 30 DAYS.
B. 30 TAC 217.57 (a)(1) & 217.57 (a)(2) OR THE CITY OF BOERNE STANDARD SPECIFICATIONS INFILTRATION AND/OR EXFILTRATION AND/OR LOW-PRESSURE AIR TEST.
C. 30 TAC 217.58 OR THE CITY OF BOERNE STANDARD SPECIFICATIONS. ALL MANHOLES AND WET WELLS MUST BE TESTED SEPARATELY AND INDEPENDENTLY OF THE COLLECTION LINES.

24. SEWER LINES SHALL BE TESTED FROM MANHOLE TO MANHOLE.

25. SANITARY SEWER MAIN CONNECTIONS MADE DIRECTLY TO EXISTING MANHOLES WILL REQUIRE SUCCESSFUL TESTING OF THE MANHOLE IN ACCORDANCE WITH THE CITY OF BOERNE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.

26. AFTER CONSTRUCTION, TESTING WILL BE DONE BY TV CAMERA BY THE CITY OF BOERNE FORCES AND OBSERVED BY INSPECTOR, WASTEWATER ENGINEERING PERSONNEL, AND CONTRACTOR AS CAMERA IS RUN THROUGH THE LINES. ANY ABNORMALITIES, SUCH AS BROKEN PIPE OR MISALIGNED JOINTS, MUST BE REPLACED BY THE CONTRACTOR AT HIS EXPENSE.

27. A COPY OF ALL TESTING REPORTS SHALL BE FORWARDED TO THE CITY OF BOERNE PUBLIC WORKS DEPARTMENT.

28. 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 SHALL PROVIDE FOR ADEQUATE TRENCH EVACUATION SAFETY PROTECTION THAT COMPLIES WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATION. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTORS 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.

29. CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF ALL WASTE MATERIALS UPON PROJECT COMPLETION. THE CONTRACTOR SHALL NO PERMANENTLY PLACE ANY WASTE MATERIALS IN THE 100-YER FLOOD PLAIN WITHOUT FIRST OBTAINING AN APPROVED FLOOD PLAIN DEVELOPMENT PERMIT. WASTE MATERIALS SHALL BE REMOVED FROM TXDOT NOW DAILY.

30. WATER JETTING THE BACKFILL WILL NOT BE PERMITTED. SANITARY SEWER TRENCHES SUBJECT TO TRAFFIC SHALL CONFORM TO THE CITY OF BOERNE STANDARD SPECIFICATIONS FOR CONSTRUCTION.

31. WHERE THE MINIMUM 9-FOOT SEPARATION DISTANCE BETWEEN SEWER LINE AND WATER LINE/MAINS CANNOT BE MAINTAINED, THE INSTALLATION OF SEWER LINES SHALL BE IN STRICT ACCORDANCE WITH TEXAS NATURAL RESOURCE CONSERVATION COMMISSION'S RULES (30 TAC 217.53 (d) & 30 TAC 290.44 (e)).

32. THE TEXAS NATURAL RESOURCE CONSERVATION COMMISSION AND ENVIRONMENTAL PROTECTION AGENCY (EPA) REQUIRE EROSION AND SEDIMENTATION CONTROL FOR CONSTRUCTION OF SEWER COLLECTION SYSTEMS. DEVELOPER OR AUTHORIZED REPRESENTATIVE SHALL PROVIDE EROSION AND SEDIMENTATION CONTROL AS NOTES ON THE PROJECTS PLAN AND PROFILE SHEETS.

33. ALL TEMPORARY EROSION AND SEDIMENTATION CONTROLS SHALL BE REMOVED BY THE CONTRACTOR AFTER FINAL ACCEPTANCE OF THE PROJECT BY THE CITY OF BOERNE PUBLIC WORKS AND TXDOT.

34. NO EXTRA PAYMENT SHALL BE ALLOWED FOR WORK CALLED FOR ON PLANS BUT NOT INCLUDED ON THE BID SCHEDULE. THIS INCIDENTAL WORK WILL BE REQUIRED AND SHALL BE INCLUDED UNDER THE PAY ITEM TO WHICH IT RELATES.

35. THE DEVELOPER DEDICATES THE SANITARY SEWER MAINS UPON COMPLETION BY THE DEVELOPER AND ACCEPTANCE BY THE CITY OF BOERNE. THE CITY OF BOERNE WILL OWN AND MAINTAIN SAID WORK COMPLETED BY THE CONTRACTOR, WHICH HAS NOT RECEIVED A WORK ORDER OR THE CONSENT OF THE CITY OF BOERNE CONSTRUCTION INSPECTION DIVISION WILL BE SUBJECT TO REMOVAL AND REPLACEMENT BY AND AT THE EXPENSE OF THE CONTRACTOR.

36. OWNER PAYS DIRECTLY FOR ALL INITIAL (PASSING) DENSITY TEXT.

SEWER GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN STRICT CONFORMANCE WITH CITY OF BOERNE REQUIREMENTS.

2. ALL PIPE TRENCHING, BEDDING AND BACKFILL SHALL BE DONE IN ACCORDANCE WITH SPECIFICATIONS SECTION 30 TAC 217.54.

3. MANHOLE RINGS AND COVERS SHALL BE NEENAH FOUNDRY, DEETER FOUNDRY, ALAMO IRON WORKS, EAST JORDAN IRON WORKS, OR EQUAL. WHEN WATER TIGHT MANHOLE RINGS AND COVERS ARE SPECIFIED, THEY SHALL PROVIDE A-77 O.R. WATER TIGHT OR EQUAL AND MEET THE REQUIREMENTS OF SECTION 02515 1.2 OR THE CITY OF BOERNE STANDARD SPECIFICATIONS.

4. ALL MANHOLES SHALL BE PRECAST, INCLUDING BASES, "CHARLOTTES CONCRETE" OR APPROVED EQUAL WITH GASKETS ACCORDING TO ASTM C891.

5. 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 DIRECTED BY THE ENGINEER AND WHERE APPLICABLE APPROVED BY THE DIRECTOR OF PUBLIC WORKS.

6. ALL SEWER PIPE WITH LESS THAN THREE FEET (3) OF COVER SHALL BE CONCRETE ENCASED.

7. CONES, RISERS AND BASE MUST CONFORM TO ASTM C-478.

8. JOINTS BETWEEN MANHOLE SECTIONS MUST HAVE RUBBER GASKETS PER ASTM C-443.

9. SEWER PIPE WHERE WATER LINE CROSSES SHALL BE 150 PSI AND MEET THE REQUIREMENTS OF ASTM D2241 WITH ONE 20' JOINT CENTERED AT WATER MAIN.

10. PIPE TYPE DESIGNATIONS ARE SDR 26 AND SHALL BE FROM THE FOLLOWING MANUFACTURERS OR APPROVED EQUALS: J-M MANUFACTURING, CERTAINTEED CORPORATION, NORTH AMERICAN PIPE CORPORATION, I PEX INC., DIAMOND PLASTIC CORPORATION, FREEDOM PLASTICS, NATURAL PIPE AND PLASTICS, OR NORTHERN PIPE PRODUCTS. GASKET JOINTS AND ELECTROMETRIC SEALS SHALL CONFORM TO ASTM D3034 AND ASTM F477, RESPECTIVELY.

11. IN ORDER TO MINIMIZE EROSION AND SEDIMENTATION RESULTING FROM THE PROPOSED UTILITY INSTALLATION, THE PROJECT WILL BE RE-VEGETATED IN ACCORDANCE WITH TXDOT. THE OWNER AND CONTRACTOR WILL BE PROVIDED WITH A COPY OF TXDOT'S SPECIAL PROVISION FOR UTILITY PERMIT DATED 6/2001 AND TXDOT'S SPECIAL SPECIFICATION 10327 FURNISHING AND PLACING COMPOST, AT THE TIME OF BIDDING.

12. CONTRACTOR TO NOTIFY TXDOT INSPECTOR FOR THIS AREA 48 HOURS PRIOR TO STARTING CONSTRUCTION. (TXDOT BOERNE MAINTENANCE OFFICE 830-816-2430).

13. USE BEDDING AND INITIAL BACKFILL MATERIALS AS APPROVED BY THE CITY OF BOERNE AND CONFORM TO ASTM C33 GRADING AS SHOWN IN SECTION 02221 2.1C OF THE CITY OF BOERNE STANDARD SPECIFICATIONS.

14. COMPACT SECONDARY BACKFILL TO 98% MAX DRY DENSITY. CONTRACTOR TO PERFORM DENSITY TESTING AT INTERVALS OF 500' PER 6" LIFT OF SECONDARY BACKFILL FOR UTILITIES IN TXDOT ROW (TXDOT REQUIREMENT) AND PER 8' LIFT OF SECONDARY BACKFILL FOR UTILITIES IN ALL OTHER AREAS (CITY OF BOERNE REQUIREMENT). REPORTS TO BE PROVIDED TO CITY OF BOERNE PUBLIC WORKS DEPARTMENT. REPORTS OF TEST RESULTS TO BE PROVIDED TO TXDOT FOR WORK WITHIN TXDOT ROW.

15. CONTRACTOR TO CONTACT 1-800-344-8377 48 HOURS PRIOR TO COMMENCING WORK FOR MARKING UNDERGROUND CONDUITS.

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P:(210) 681.2951 F: (210) 523.7112

CORLEY FARMS
UNIT 5

SANITARY SEWER GENERAL NOTES

DATE
01/28/2025

PROJECT NO.
03481.012

DRAWN BY
C3

CHECKED BY
XV/AL

#	DATE	REVISIONS
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ANDREW R. LOWRY
123410
02/10/2025

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TBPLS No. 10048500

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C31

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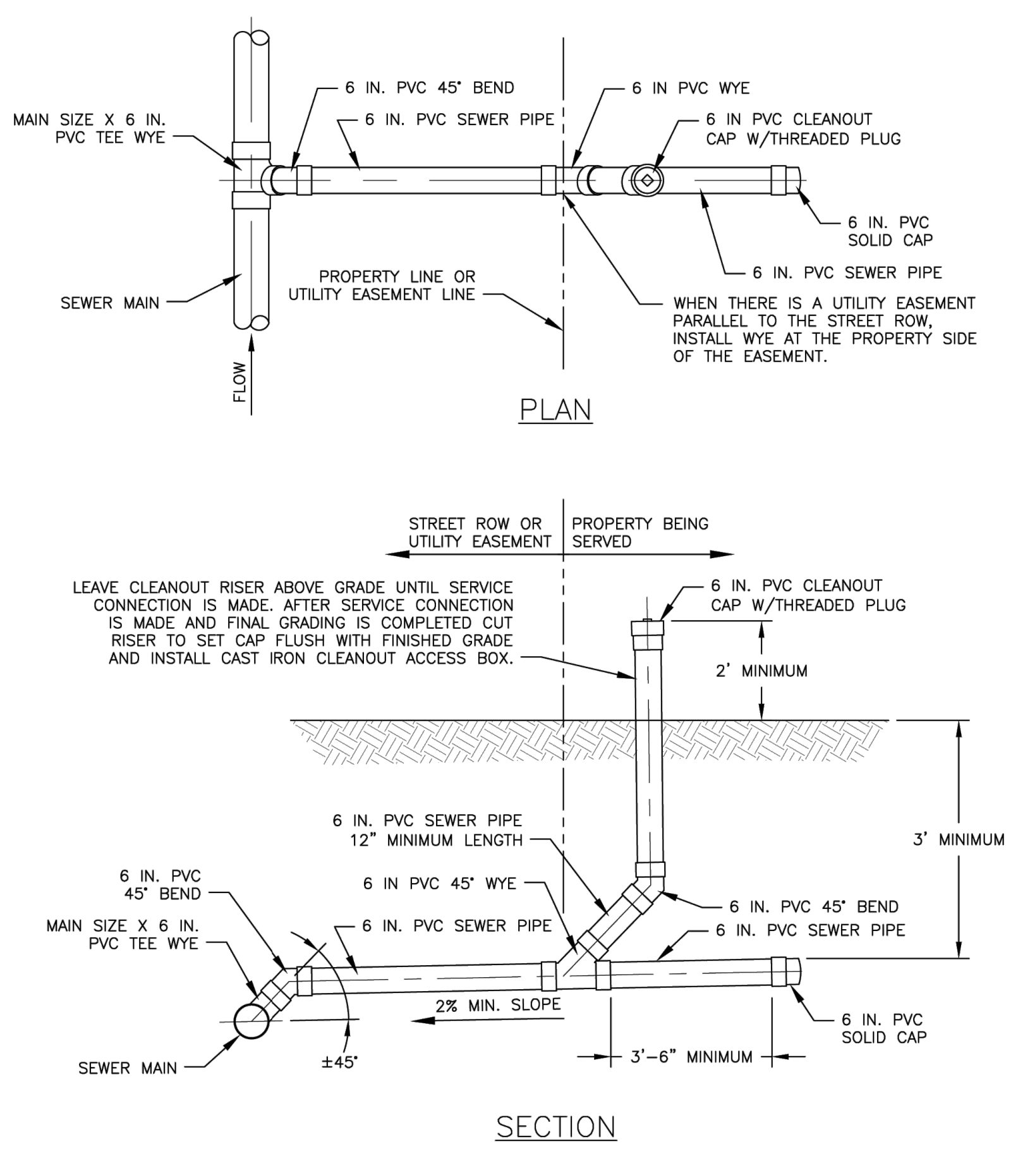
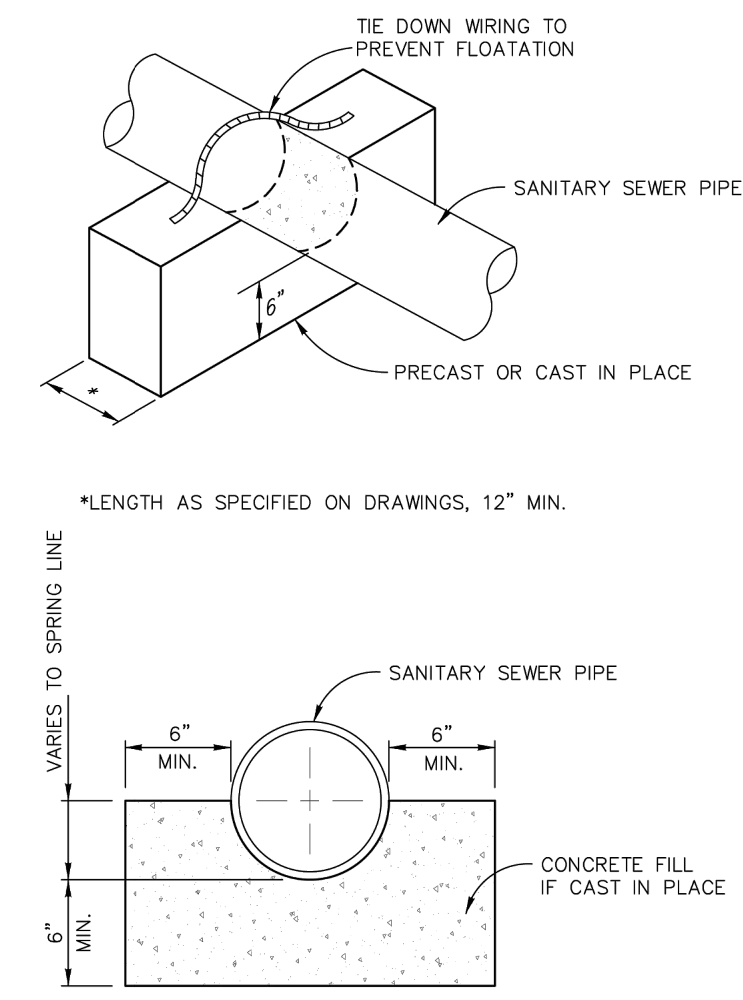

6 IN. PVC 45° BEND
6 IN PVC WYE
MAIN SIZE X 6 IN. PVC TEE WYE
6 IN. PVC SEWER PIPE
6 IN PVC CLEANOUT CAP W/THREADED PLUG
6 IN. PVC SOLID CAP
6 IN. PVC SEWER PIPE
SEWER MAIN
PROPERTY LINE OR UTILITY EASEMENT LINE
WHEN THERE IS A UTILITY EASEMENT PARALLEL TO THE STREET ROW, INSTALL WYE AT THE PROPERTY SIDE OF THE EASEMENT.
FLOW
PLAN
STREET ROW OR UTILITY EASEMENT
PROPERTY BEING SERVED
LEAVE CLEANOUT RISER ABOVE GRADE UNTIL SERVICE CONNECTION IS MADE. AFTER SERVICE CONNECTION IS MADE AND FINAL GRADING IS COMPLETED CUT RISER TO SET CAP FLUSH WITH FINISHED GRADE AND INSTALL CAST IRON CLEANOUT ACCESS BOX.
6 IN. PVC CLEANOUT CAP W/THREADED PLUG
2' MINIMUM
6 IN. PVC SEWER PIPE 12" MINIMUM LENGTH
3' MINIMUM
6 IN. PVC 45° BEND
6 IN PVC 45° WYE
6 IN. PVC 45° BEND
MAIN SIZE X 6 IN. PVC TEE WYE
6 IN. PVC SEWER PIPE
6 IN. PVC SEWER PIPE
2% MIN. SLOPE
6 IN. PVC SOLID CAP
SEWER MAIN
±45°
3'-6" MINIMUM
SECTION

NOTES:
1. NO ADDITIONAL BENDS ALLOWED BEYOND THE SINGLE 45-DEGREE BEND AFTER CONNECTION TO SEWER MAIN FOR SEWER SERVICE WITHIN ROW.

CITY OF BOERNE

STANDARD SANITARY SEWER SERVICE LATERAL

SCALE:	DRAWING No.	DATE:
N.T.S.	02530-1.0	MAY 2024

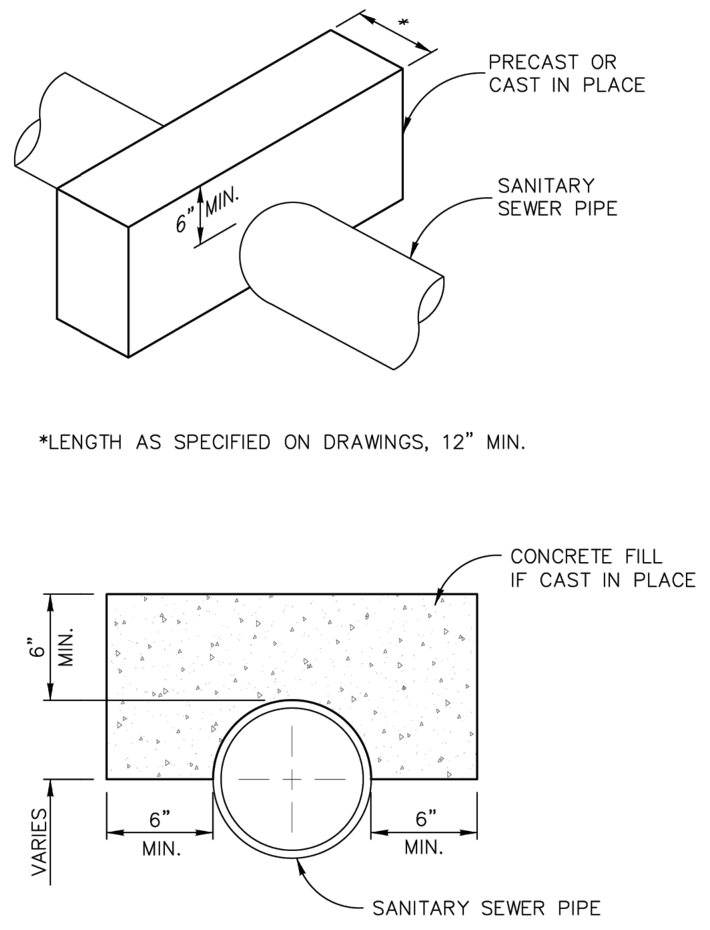

TIE DOWN WIRING TO PREVENT FLOATATION
SANITARY SEWER PIPE
6"
PRECAST OR CAST IN PLACE
*
VARIES TO SPRING LINE
SANITARY SEWER PIPE
6" MIN.
6" MIN.
6" MIN.
CONCRETE FILL IF CAST IN PLACE

*LENGTH AS SPECIFIED ON DRAWINGS, 12" MIN.

CITY OF BOERNE

SANITARY SEWER CONCRETE CRADLE

SCALE:	DRAWING No.	DATE:
N.T.S.	02530-4.1	MAY 2024

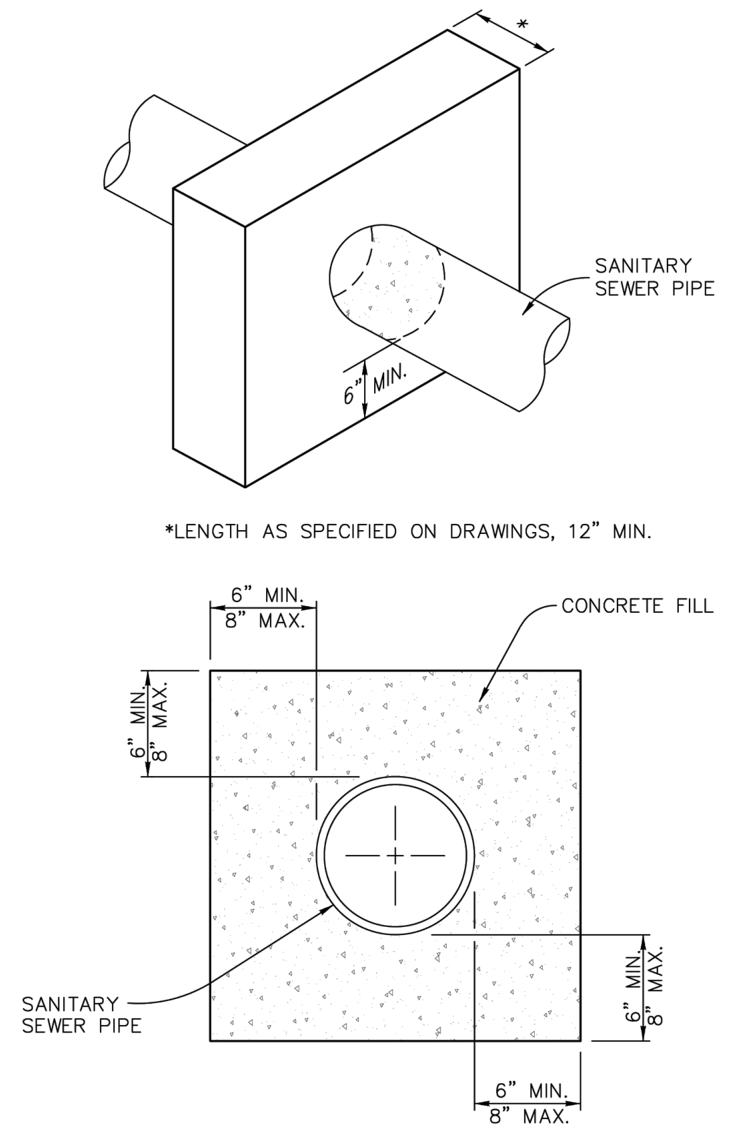

*
PRECAST OR CAST IN PLACE
SANITARY SEWER PIPE
6" MIN.
CONCRETE FILL IF CAST IN PLACE
6" MIN.
VARIES
6" MIN.
6" MIN.
SANITARY SEWER PIPE

*LENGTH AS SPECIFIED ON DRAWINGS, 12" MIN.

CITY OF BOERNE

SANITARY SEWER CONCRETE SADDLE

SCALE:	DRAWING No.	DATE:
N.T.S.	02530-4.2	MAY 2024


*
SANITARY SEWER PIPE
6" MIN.
6" MIN. 8" MAX.
CONCRETE FILL
6" MIN. 8" MAX.
SANITARY SEWER PIPE
6" MIN. 8" MAX.
6" MIN. 8" MAX.

*LENGTH AS SPECIFIED ON DRAWINGS, 12" MIN.

CITY OF BOERNE

SANITARY SEWER CONCRETE ENCASEMENT

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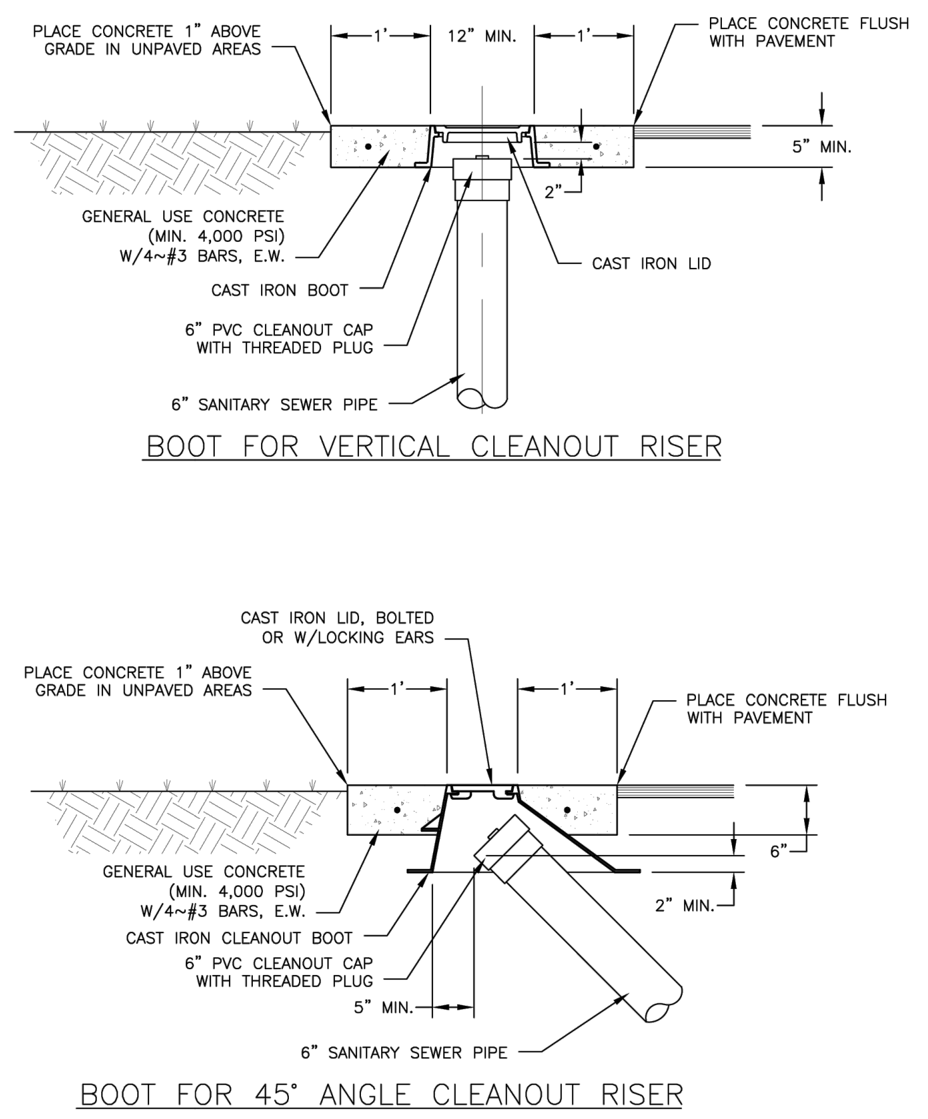
PLACE CONCRETE 1" ABOVE GRADE IN UNPAVED AREAS
1'
12" MIN.
1'
PLACE CONCRETE FLUSH WITH PAVEMENT
5" MIN.
2"
GENERAL USE CONCRETE (MIN. 4,000 PSI) W/4~#3 BARS, E.W.
CAST IRON LID
CAST IRON BOOT
6" PVC CLEANOUT CAP WITH THREADED PLUG
6" SANITARY SEWER PIPE
BOOT FOR VERTICAL CLEANOUT RISER
CAST IRON LID, BOLTED OR W/LOCKING EARS
PLACE CONCRETE 1" ABOVE GRADE IN UNPAVED AREAS
1'
1'
PLACE CONCRETE FLUSH WITH PAVEMENT
6"
2" MIN.
GENERAL USE CONCRETE (MIN. 4,000 PSI) W/4~#3 BARS, E.W.
CAST IRON CLEANOUT BOOT
6" PVC CLEANOUT CAP WITH THREADED PLUG
5" MIN.
6" SANITARY SEWER PIPE
BOOT FOR 45° ANGLE CLEANOUT RISER

CITY OF BOERNE

CAST IRON CLEANOUT BOOT

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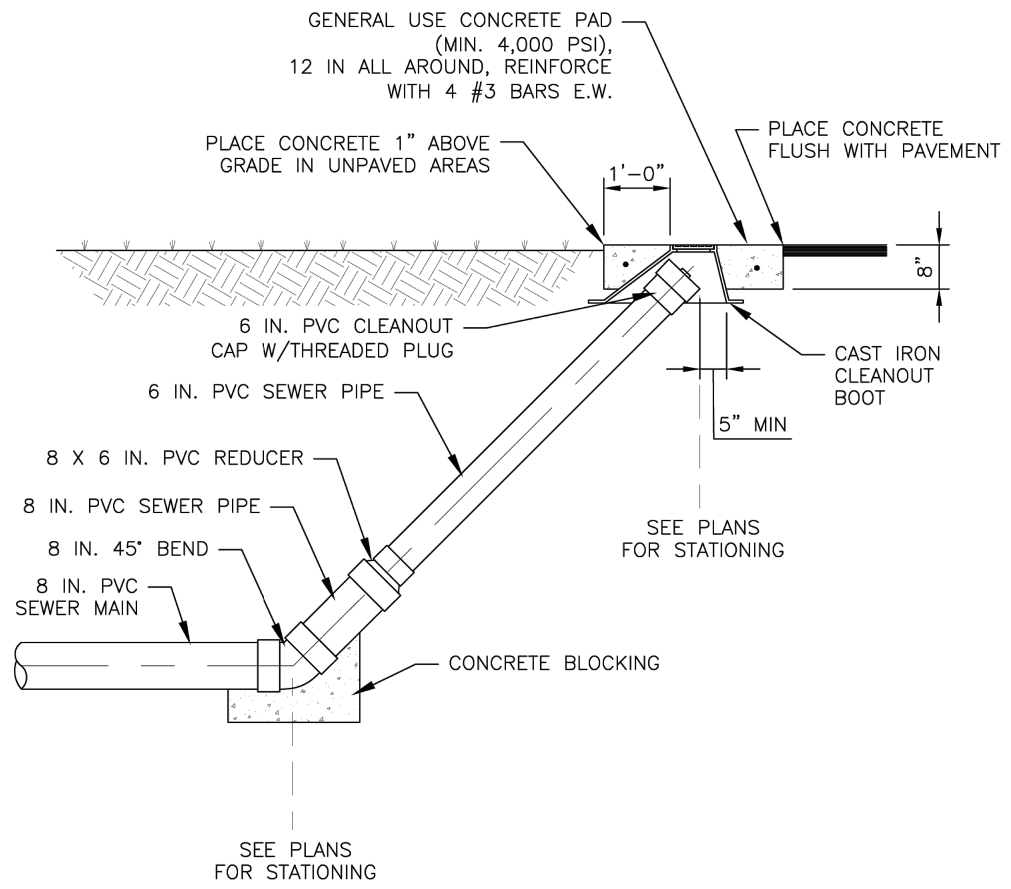
GENERAL USE CONCRETE PAD (MIN. 4,000 PSI), 12 IN ALL AROUND, REINFORCE WITH 4 #3 BARS E.W.
PLACE CONCRETE 1" ABOVE GRADE IN UNPAVED AREAS
1'-0"
PLACE CONCRETE FLUSH WITH PAVEMENT
8"
6 IN. PVC CLEANOUT CAP W/THREADED PLUG
CAST IRON CLEANOUT BOOT
6 IN. PVC SEWER PIPE
5" MIN
8 X 6 IN. PVC REDUCER
8 IN. PVC SEWER PIPE
SEE PLANS FOR STATIONING
8 IN. 45° BEND
8 IN. PVC SEWER MAIN
CONCRETE BLOCKING
SEE PLANS FOR STATIONING

CITY OF BOERNE

END OF SEWER CLEANOUT

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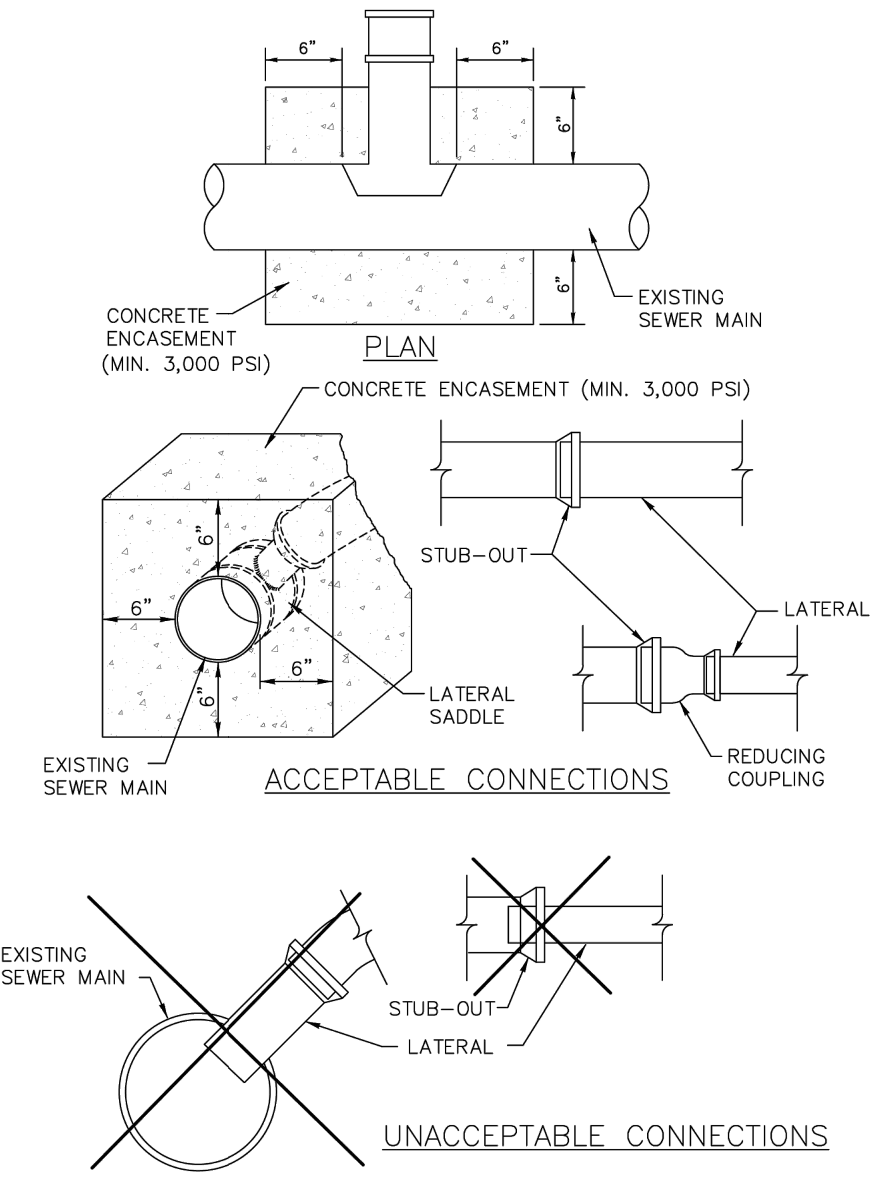
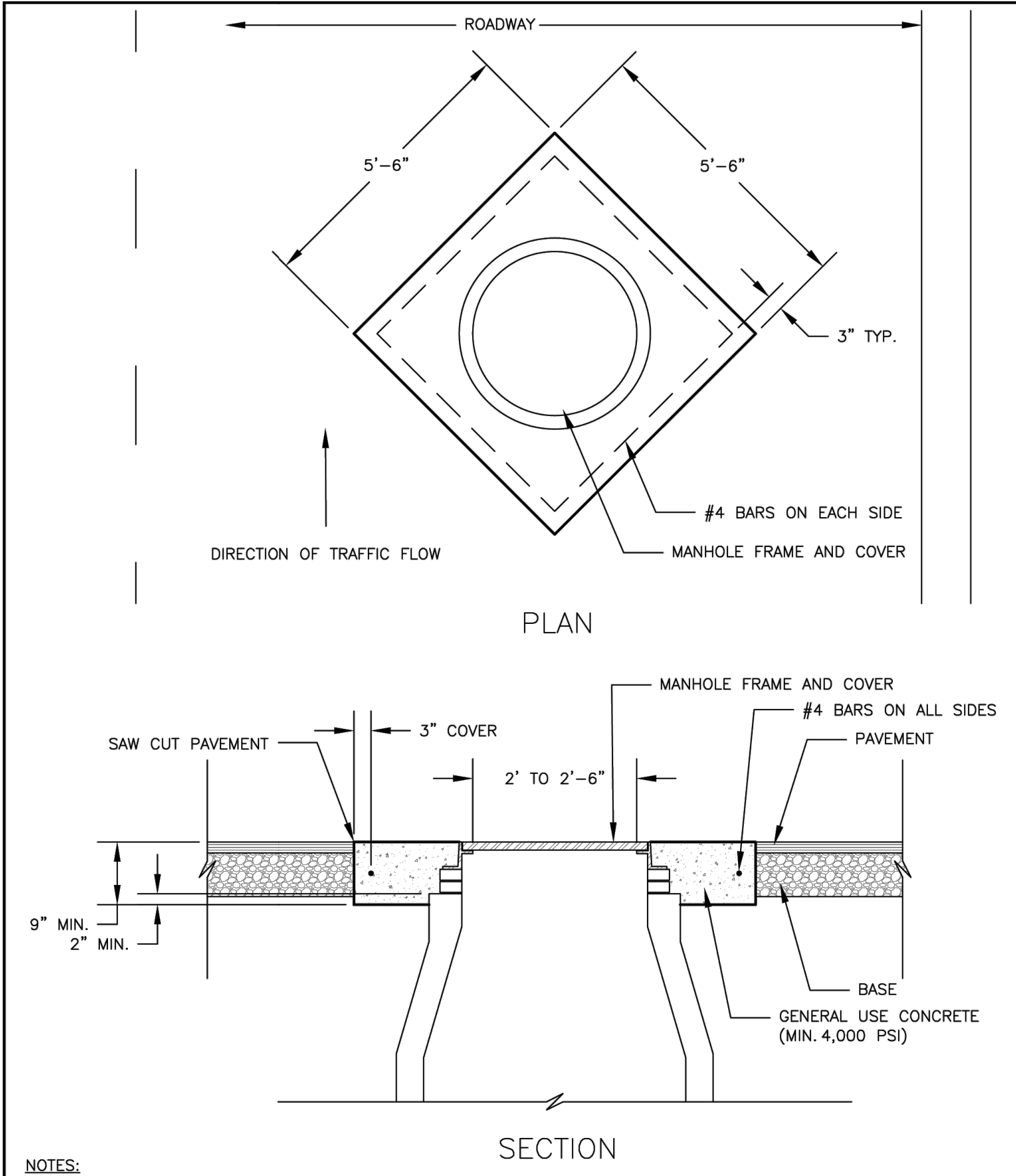

6"
6"
6"
6"
CONCRETE ENCASEMENT (MIN. 3,000 PSI)
EXISTING SEWER MAIN
PLAN
CONCRETE ENCASEMENT (MIN. 3,000 PSI)
6"
6"
6"
6"
STUB-OUT
LATERAL
LATERAL SADDLE
REDUCING COUPLING
EXISTING SEWER MAIN
ACCEPTABLE CONNECTIONS
EXISTING SEWER MAIN
STUB-OUT
LATERAL
UNACCEPTABLE CONNECTIONS

NOTE:
CONNECT THE SADDLE TO THE EXISTING MAIN PERMANENTLY USING CLAMPS AS RECOMMENDED BY THE MANUFACTURER.

CITY OF BOERNE

SANITARY SEWER SERVICE SADDLE CONNECTION

SCALE:	DRAWING No.	DATE:
N.T.S.	02530-1.2	MAY 2024

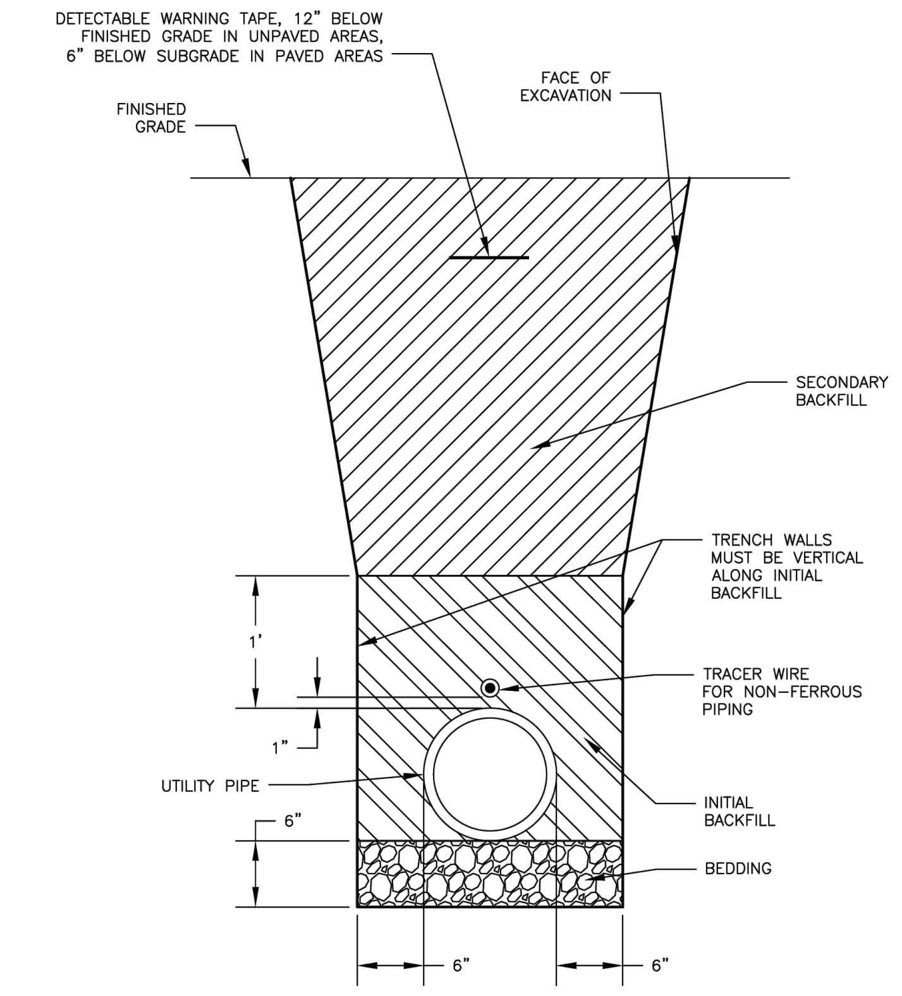

ROADWAY
5'-6"
5'-6"
3" TYP.
#4 BARS ON EACH SIDE
DIRECTION OF TRAFFIC FLOW
MANHOLE FRAME AND COVER
PLAN
MANHOLE FRAME AND COVER
#4 BARS ON ALL SIDES
SAW CUT PAVEMENT
3" COVER
PAVEMENT
2' TO 2'-6"
9" MIN.
2" MIN.
BASE
GENERAL USE CONCRETE (MIN. 4,000 PSI)
SECTION

NOTES:
1. IN PAVED AREAS, SET TOP OF FRAME TO MATCH PAVEMENT GRADES AND FINISH CONCRETE FLUSH WITH TOP OF FRAME.
2. IN UNPAVED AREAS, SET TOP OF FRAME 1" TO 2" ABOVE FINISHED GRADE AND FINISH CONCRETE FLUSH WITH FINISHED GRADE.
3. CONSTRUCT CONCRETE RING ENCASEMENT ON ALL MANHOLES.
4. IF MANHOLE IS LOCATED OFF-SITE, ENSURE MANHOLE IS AT LEAST 6" EXPOSED ABOVE GRADE.

CITY OF BOERNE

MANHOLE RING ENCASEMENT

SCALE:	DRAWING No.	DATE:
N.T.S.	02530-2.2	MAY 2024

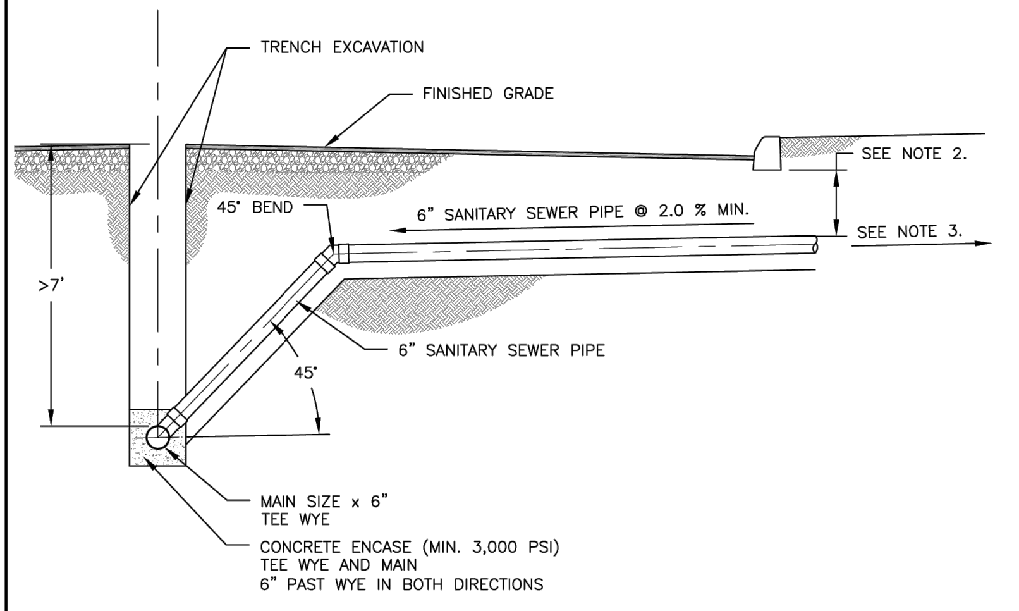

DETECTABLE WARNING TAPE, 12" BELOW FINISHED GRADE IN UNPAVED AREAS, 6" BELOW SUBGRADE IN PAVED AREAS
FACE OF EXCAVATION
FINISHED GRADE
SECONDARY BACKFILL
TRENCH WALLS MUST BE VERTICAL ALONG INITIAL BACKFILL
1'
TRACER WIRE FOR NON-FERROUS PIPING
1"
UTILITY PIPE
INITIAL BACKFILL
6"
BEDDING
6"
6"

NOTES:
1. TYPICAL BEDDING PER APPLICABLE UTILITY BACKFILL STANDARD SPECIFICATIONS.
2. SECONDARY BACKFILL TO BE COMPACTED IN LIFTS PER ASTM D1557 (MODIFIED PROCTOR) AND SPECIFICATION 02221.

CITY OF BOERNE

UTILITY PIPE TRENCH

SCALE:	DRAWING No.	DATE:
N.T.S.	02221-1.0	MAY 2024

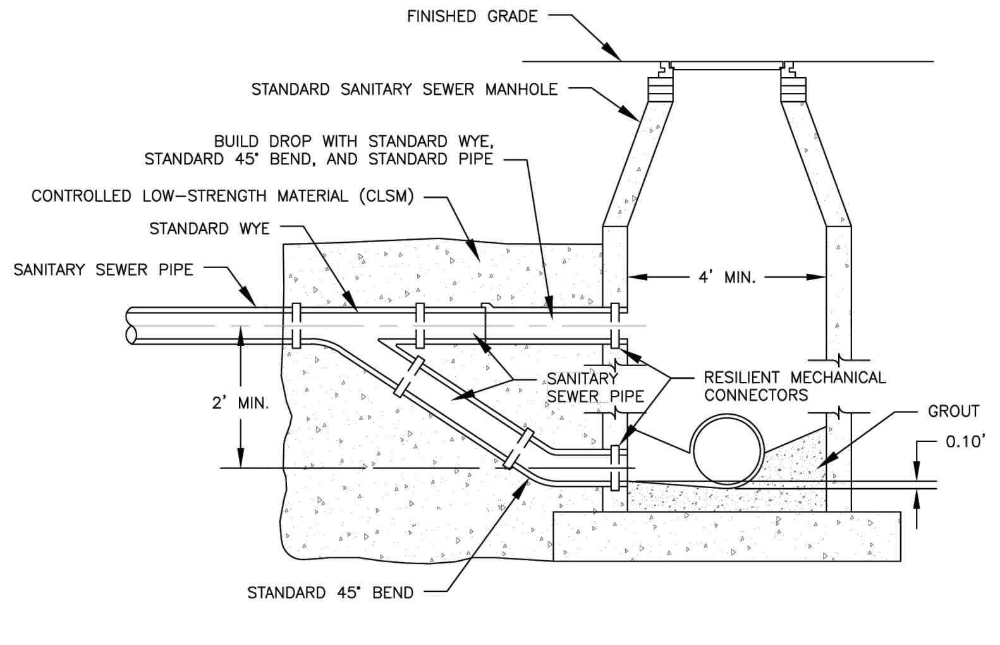

TRENCH EXCAVATION
FINISHED GRADE
SEE NOTE 2.
45° BEND
6" SANITARY SEWER PIPE @ 2.0 % MIN.
SEE NOTE 3.
>7'
6" SANITARY SEWER PIPE
45°
MAIN SIZE x 6" TEE WYE
CONCRETE ENCASE (MIN. 3,000 PSI) TEE WYE AND MAIN 6" PAST WYE IN BOTH DIRECTIONS

NOTES:
1. USE DEEP SANITARY SEWER SERVICE LATERAL WHEN THE MAIN DEPTH IS GREATER THAN 7' BELOW FINISHED GRADE.
2. INSTALL SERVICE LATERAL 2' MINIMUM BELOW CURB, OR 3' MINIMUM BELOW FINISHED GRADE WHEN NOT IN STREET. INSTALL SERVICE DEEPER WHEN LOT BEING SERVED SLOPES AWAY FROM SEWER MAIN. LATERAL DEPTH AT CURB OR PROPERTY LINE SHOULD NOT EXCEED 7'.
3. COMPLETE DEEP SANITARY SEWER SERVICE LATERAL AS PER THE STANDARD SANITARY SEWER SERVICE LATERAL DETAIL 02530-1.0.
4. NO ADDITIONAL BENDS ALLOWED BEYOND THE SINGLE 45-DEGREE BEND AFTER CONNECTION TO SEWER MAIN FOR SEWER SERVICE WITHIN ROW.

CITY OF BOERNE

DEEP SANITARY SEWER SERVICE LATERAL

SCALE:	DRAWING No.	DATE:
N.T.S.	02530-1.1	MAY 2024

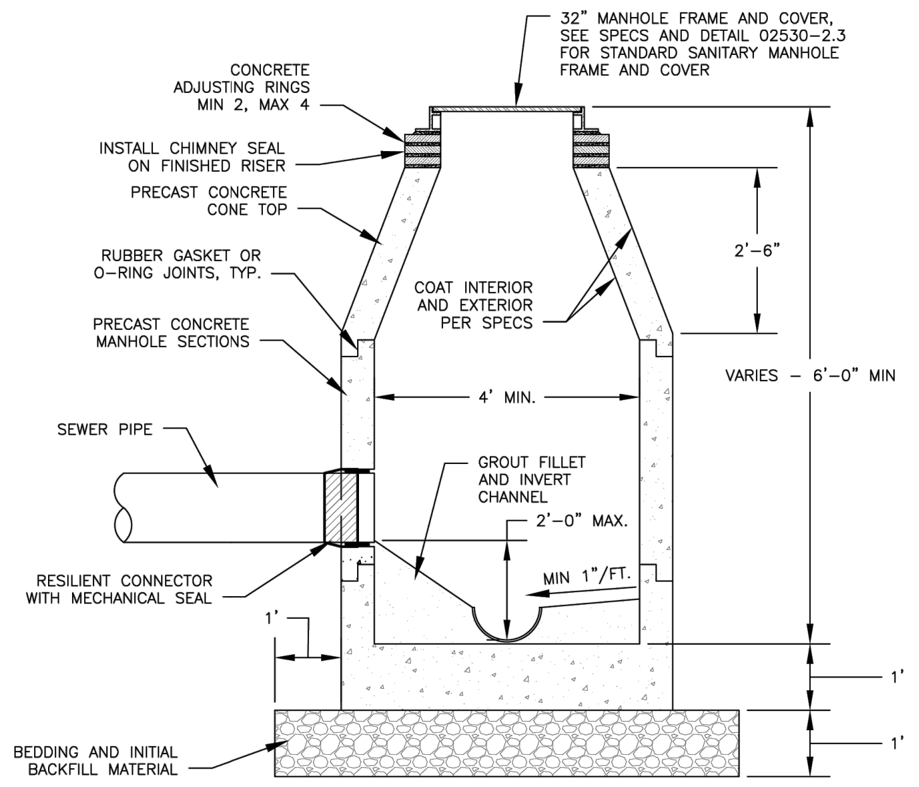

FINISHED GRADE
STANDARD SANITARY SEWER MANHOLE
BUILD DROP WITH STANDARD WYE, STANDARD 45° BEND, AND STANDARD PIPE
CONTROLLED LOW-STRENGTH MATERIAL (CLSM)
STANDARD WYE
SANITARY SEWER PIPE
4' MIN.
SANITARY SEWER PIPE
RESILIENT MECHANICAL CONNECTORS
2' MIN.
GROUT
0.10'
STANDARD 45° BEND

NOTES:
1. CONTROLLED LOW-STRENGTH MATERIAL (CLSM) STRENGTH SHALL BE BETWEEN 75 PSI AND 750 PSI AT 7 DAYS AND SHALL BE TESTED PER SPECIFICATION 02221.
2. ALL BACKFILL SHALL BE MOISTURE CONDITIONED AND COMPACTED TO 95% COMPACTION PER ASTM D1557 (MODIFIED PROCTOR).

CITY OF BOERNE

SANITARY SEWER DROP MANHOLE

SCALE:	DRAWING No.	DATE:
N.T.S.	02530-2.1	MAY 2024


32" MANHOLE FRAME AND COVER, SEE SPECS AND DETAIL 02530-2.3 FOR STANDARD SANITARY MANHOLE FRAME AND COVER
CONCRETE ADJUSTING RINGS MIN 2, MAX 4
INSTALL CHIMNEY SEAL ON FINISHED RISER
PRECAST CONCRETE CONE TOP
2'-6"
RUBBER GASKET OR O-RING JOINTS, TYP.
COAT INTERIOR AND EXTERIOR PER SPECS
PRECAST CONCRETE MANHOLE SECTIONS
VARIES - 6'-0" MIN
4' MIN.
SEWER PIPE
GROUT FILLET AND INVERT CHANNEL
2'-0" MAX.
MIN 1"/FT.
RESILIENT CONNECTOR WITH MECHANICAL SEAL
1'
1'
1'
BEDDING AND INITIAL BACKFILL MATERIAL

NOTES:
1. IF WATERTIGHT MANHOLE IS USED, COVER MUST BE VENTED PER THE TCEQ REQUIREMENTS.
2. SANITARY SEWER MANHOLE MUST PASS VACUUM TESTING PER SPECIFICATION 02530.
3. ALL BACKFILL SHALL BE MOISTURE CONDITIONED AND COMPACTED TO 95% COMPACTION PER ASTM D1557 (MODIFIED PROCTOR).

CITY OF BOERNE

STANDARD SANITARY SEWER MANHOLE

SCALE:	DRAWING No.	DATE:
N.T.S.	02530-2.0	MAY 2024

CUDEENGINEERS.COM

CUDE ENGINEERS EST. 1980

4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

CORLEY FARMS UNIT 5

SANITARY SEWER STANDARD DETAILS

DATE
01/28/2025

PROJECT NO.
03481.012

DRAWN BY
C3

CHECKED BY
XV/AL

#	DATE	REVISIONS
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		

ANDREW R. LOWRY
123410
02/10/2025

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

SAWS JOB NO.
22-1190

# C32

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P:\03481\012\2-Drawings\C4-D2 SANITARY SEWER STANDARD DETAILS.dwg 2025/01/28 12:23pm mlopez

LEGEND

- = 3/4" PROPOSED WATER SERVICE WITH 5/8" METER
- = 3/4" EXISTING WATER SERVICE WITH 5/8" METER
- 3/4" IRRIG. = 3/4" IRRIGATION SERVICE WITH 3/4" METER
- XXX L.F. - XX" PVC C-900 = PROPOSED WATER MAIN
- = EXISTING WATER MAIN
- = EXISTING SANITARY SEWER
- X' X' = JOINT RESTRAINT
- =JOINT RESTRAINT ENTIRE LENGTH
- = PROPOSED SEWER LINE AND MANHOLE

THRUST BLOCKING NOTE

ANCHORAGE/ THRUST BLOCKING AND JOINT RESTRAINTS SHALL BE DONE IN ACCORDANCE WITH SAWS STANDARDS AND SPECIFICATIONS FOR CONSTRUCTION (ITEM NO. 839)

TRENCH EXCAVATION PROTECTION

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION 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.

PRESSURE ZONE 12

Developer's Name	PULTE HOMES OF TEXAS, L.P.				
Developer's Address	927 E. SONTERRA BLVD., SUITE 316				
City	SAN ANTONIO	**State**	TEXAS	**Zip**	78258
Phone #	(210) 496-1985	**Fax #**	(210) 496-0449		
SAWS Block Map #	N/A	**Total EDU's**	75	**Total Acreage**	19.78
Total Linear Footage of Pipe	8" W - 3,027 L.F./2" W - 702 L.F.	**Plat No.**	N/A (CORLEY FARMS UNIT 5 PLAT)		
Number of Lots	XXXX	**SAWS Job No.**	XX-XXXX		

SAWS CONSTRUCTION NOTES
COUNTER PERMIT AND GENERAL CONSTRUCTION PERMIT *REVISED JULY 2022*

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.

WATER SECTION

1. PRIOR TO TIE-INS, ANY SHUTDOWNS OF EXISTING MAINS OF ANY SIZE MUST BE COORDINATED WITH THE SAWS CONSTRUCTION INSPECTION DIVISION 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.
   - FOR WATER MAINS 12” OR HIGHER: SAWS EMERGENCY OPERATIONS CENTER (210) 233-2014
2. ASBESTOS CEMENT (AC) PIPE, ALSO KNOWN AS TRANSITE PIPE WHICH IS KNOWN TO CONTAIN ASBESTOS- CONTAINING MATERIAL (ACM), MAY BE LOCATED WITHIN THE PROJECT LIMITS. SPECIAL WASTE MANAGEMENT PROCEDURES AND HEALTH AND SAFETY REQUIREMENTS WILL BE APPLICABLE WHEN REMOVAL AND/OR DISTURBANCE OF THIS PIPE OCCURS. SUCH WORK IS TO BE MADE UNDER SPECIAL SPECIFICATION ITEM NO. 3000, “SPECIAL SPECIFICATION FOR HANDLING ASBESTOS CEMENT PIPE”.
3. VALVE REMOVAL: WHERE THE CONTRACTOR IS TO ABANDON A WATER MAIN, THE CONTROL VALVE LOCATED ON THE ABANDONING BRANCH WILL BE REMOVED AND REPLACED WITH A CAP/PLUG. (NSPI)
4. SUITABLE ANCHORAGE/THRUST BLOCKING OR JOINT RESTRAINT SHALL BE PROVIDED AT ALL OF THE FOLLOWING MAIN LOCATIONS: DEAD ENDS, PLUGS, CAPS, TEES, CROSSES, VALVES, AND BENDS, IN ACCORDANCE WITH THE STANDARD DRAWINGS DD-839 SERIES AND ITEM NO. 839, IN THE SAWS STANDARD SPECIFICATIONS FOR CONSTRUCTION.
5. ALL VALVES SHALL READ "OPEN RIGHT".
6. PRVS REQUIRED: CONTRACTOR TO VERIFY THAT NO PORTION OF THE TRACT IS BELOW GROUND ELEVATION OF 1425 FEET WHERE THE STATIC PRESSURE WILL NORMALLY EXCEED 80 PSI. AT ALL SUCH LOCATIONS WHERE THE GROUND LEVEL IS BELOW 1425 FEET, THE DEVELOPER OR BUILDER SHALL INSTALL AT EACH LOT, ON THE CUSTOMER'S SIDE OF THE METER, AN APPROVED TYPE PRESSURE REGULATOR IN CONFORMANCE WITH THE PLUMBING CODE OF THE CITY OF SAN ANTONIO. NO DUAL SERVICES ALLOWED FOR ANY LOT(S) IF *PRV IS/ARE REQUIRED FOR SUCH LOT(S), ONLY SINGLE SERVICE CONNECTIONS SHALL BE ALLOWED. *NOTE: A PRESSURE REGULATOR IS ALSO KNOWN AS A PRESSURE REDUCING VALVE (PRV).
7. PIPE DISINFECTION WITH DRY HTH FOR PROJECTS LESS THAN 800 LINEAR FEET. (ITEM NO. 847.3): MAINS SHALL BE DISINFECTED WITH DRY HTH WHERE SHOWN IN THE CONTRACT DOCUMENTS OR AS DIRECTED BY THE INSPECTOR, AND SHALL NOT EXCEED A TOTAL LENGTH OF 800 FEET. THIS METHOD OF DISINFECTION WILL ALSO BE FOLLOWED FOR MAIN REPAIRS. THE CONTRACTOR SHALL UTILIZE ALL APPROPRIATE SAFETY MEASURE TO PROTECT HIS PERSONNEL DURING DISINFECTION OPERATIONS.
8. BACKFLOW PREVENTION DEVICES:
   - ALL IRRIGATION SERVICES WITHIN RESIDENTIAL AREAS ARE REQUIRED TO HAVE BACKFLOW PREVENTION DEVICES.
   - ALL COMMERCIAL BACKFLOW PREVENTION DEVICES MUST BE APPROVED BY SAWS PRIOR TO INSTALLATION.
9. FINAL CONNECTION TO THE EXISTING WATER MAIN SHALL NOT BE MADE UNTIL THE WATER MAIN HAS BEEN PRESSURE TESTED, CHLORINATED, AND SAWS HAS RELEASED THE MAIN FOR TIE-IN AND USE.
10. DIVISION VALVES: DIVISION VALVES SHOWN ON PLANS OR NOT SHOWN ON PLANS BUT FOUND IN THE FIELD SHALL ONLY BE OPERATED BY SAWS DISTRIBUTION AND COLLECTION STAFF AND ONLY WITH PRIOR WRITTEN APPROVAL OF THE SAWS DIRECTOR OF PRODUCTION AND OPERATIONS AND PROPER COORDINATION WITH ALL SAWS DEPARTMENTS. CONTRACTOR SHALL PROVIDE WRITTEN NOTIFICATION TO THE INSPECTOR A MINIMUM OF TWO WEEKS IN ADVANCE TO START THE COORDINATION PROCESS AND WILL BE INFORMED BY THE INSPECTOR WHEN THE DIVISION VALVE WILL BE OPERATED BY THE SAWS DISTRIBUTION AND COLLECTION STAFF. THE DIVISION VALVE CAN ONLY BE OPERATED BY SAWS DISTRIBUTION AND COLLECTION STAFF MEMBER NOT THE INSPECTOR OR THE CONTRACTOR. OPERATION OF A DIVISION VALVE WITHOUT THE EXPRESS PRIOR WRITTEN APPROVAL OF THE SAWS DISTRIBUTION AND COLLECTION STAFF WILL CONSTITUTE A MATERIAL BREACH OF ANY WRITTEN SAWS CONTRACT OR PERMIT IN ADDITION TO SUBJECTING THE CONTRACTOR TO LIABILITY FOR ANY AND ALL FINES, FEES, OR OTHER DAMAGES, DIRECT OR CONSEQUENTIAL, THAT MAY ARISE FROM OR BE CAUSED BY THE OPERATION OF THE VALVE WITHOUT PRIOR WRITTEN PERMISSION. PLEASE BE INFORMED THAT THE APPROVAL OF THE OPERATION OR OPENING OR CLOSING OF A DIVISION VALVE CAN TAKE SEVERAL WEEKS FOR APPROVAL. DIVISION VALVES WILL ALSO HAVE A VALVE LID LABELED DIVISION VALVE AND A LOCKING MECHANISM INSTALLED WITH A KEY. THE LOCK AND KEY MECHANISM WILL BE PAID FOR BY THE CONTRACTOR BUT WILL BE INSTALLED BY SAWS DISTRIBUTION AND COLLECTION STAFF.
11. ALL METERS SHALL BE 5/8", UNLESS OTHERWISE NOTED.
12. ALL PIPES SHALL BE C-900, CLASS 235 DR 18, UNLESS OTHERWISE NOTED.

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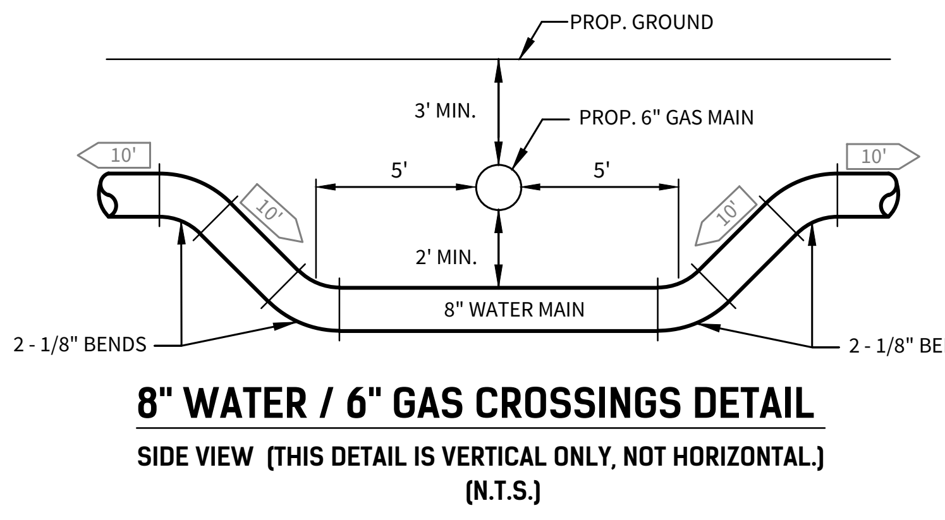
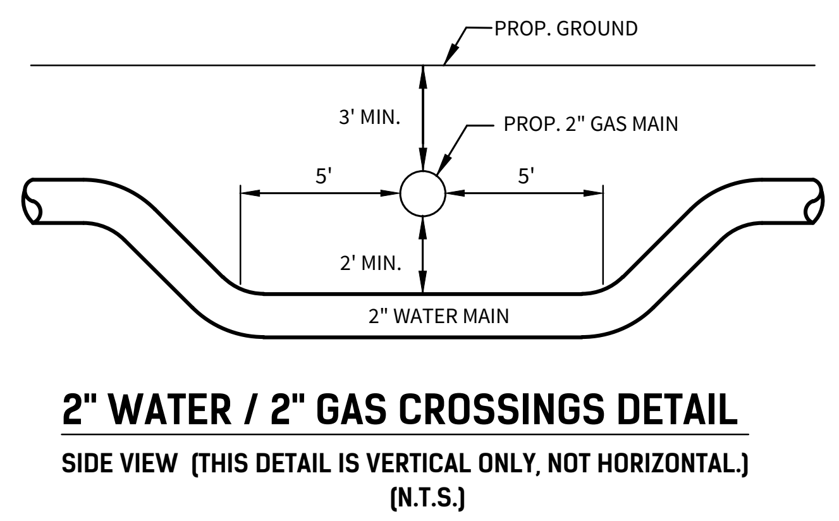

PROP. GROUND
3' MIN.
PROP. 6" GAS MAIN
5'
5'
2' MIN.
10'
10'
10'
10'
8" WATER MAIN
2 - 1/8" BENDS
2 - 1/8" BENDS

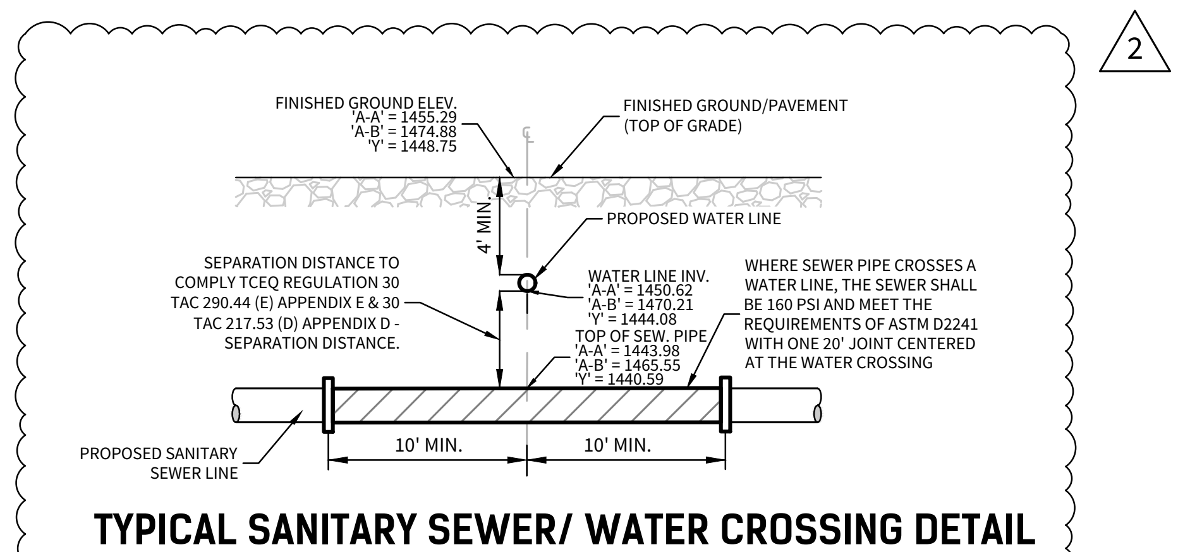
8" WATER / 6" GAS CROSSINGS DETAIL

SIDE VIEW (THIS DETAIL IS VERTICAL ONLY, NOT HORIZONTAL.)
(N.T.S.)


PROP. GROUND
3' MIN.
PROP. 2" GAS MAIN
5'
5'
2' MIN.
2" WATER MAIN

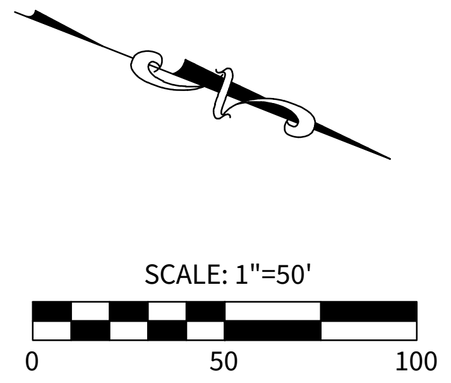
2" WATER / 2" GAS CROSSINGS DETAIL

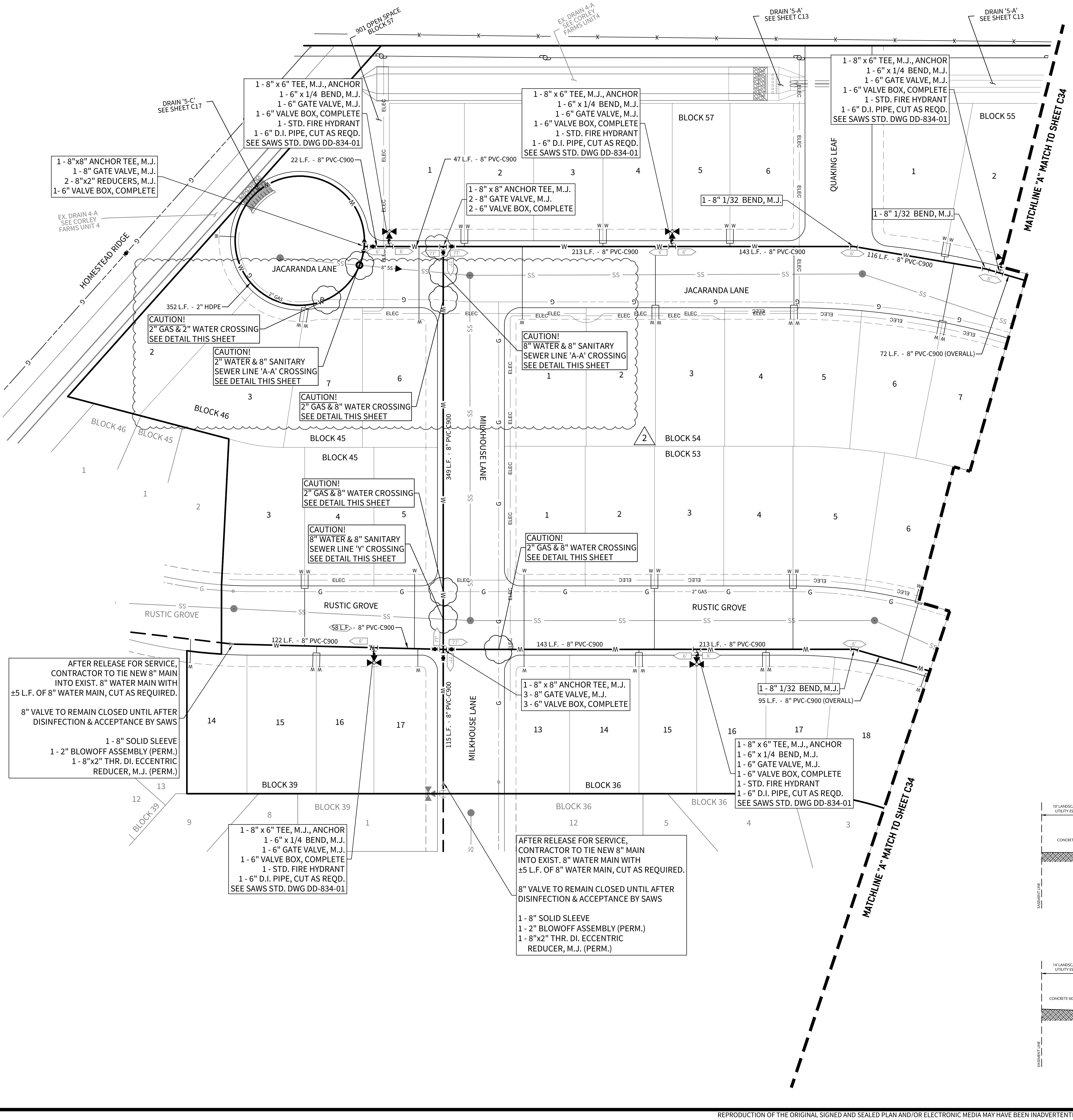
SIDE VIEW (THIS DETAIL IS VERTICAL ONLY, NOT HORIZONTAL.)
(N.T.S.)

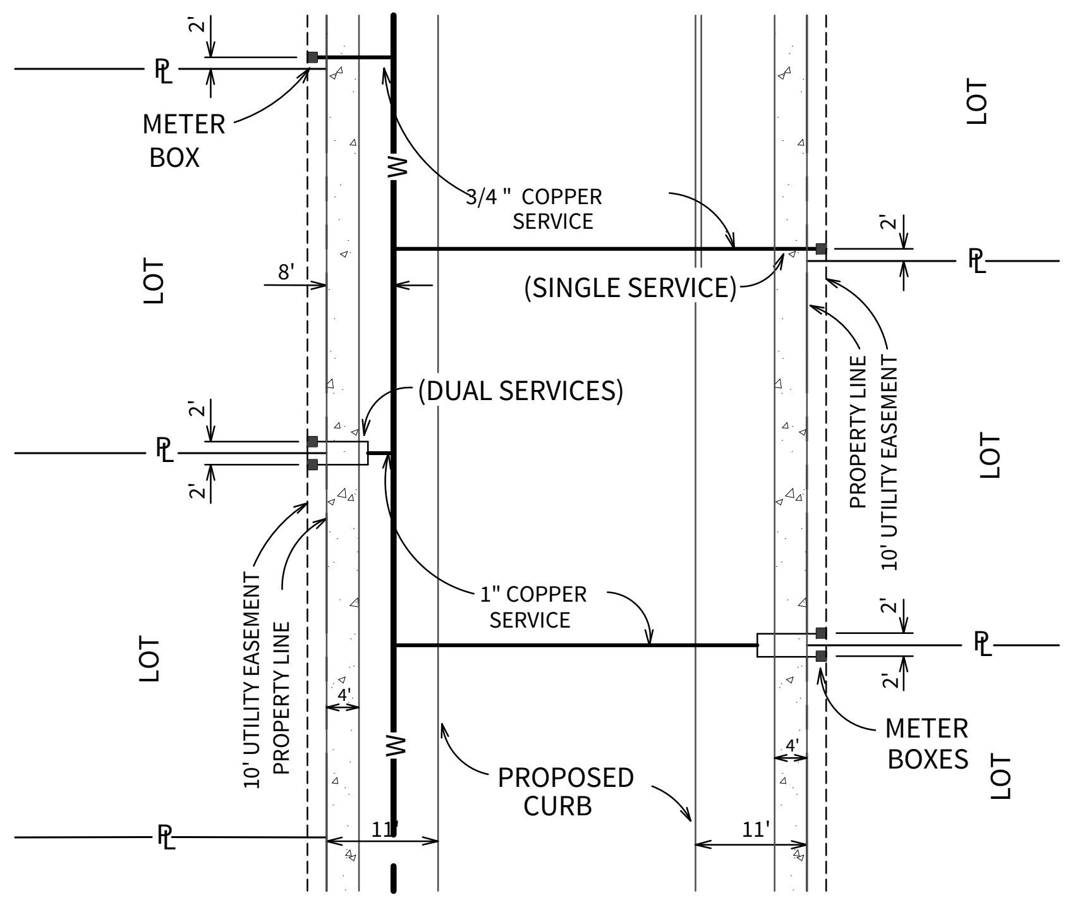

2
FINISHED GROUND ELEV.
'A-A' = 1455.29
'A-B' = 1474.88
'Y' = 1448.75
FINISHED GROUND/PAVEMENT (TOP OF GRADE)
4' MIN.
PROPOSED WATER LINE
SEPARATION DISTANCE TO COMPLY TCEQ REGULATION 30 TAC 290.44 (E) APPENDIX E & 30 TAC 217.53 (D) APPENDIX D - SEPARATION DISTANCE.
WATER LINE INV.
'A-A' = 1450.62
'A-B' = 1470.21
'Y' = 1444.08
TOP OF SEW. PIPE
'A-A' = 1443.98
'A-B' = 1465.55
'Y' = 1440.59
WHERE SEWER PIPE CROSSES A WATER LINE, THE SEWER SHALL BE 160 PSI AND MEET THE REQUIREMENTS OF ASTM D2241 WITH ONE 20' JOINT CENTERED AT THE WATER CROSSING
PROPOSED SANITARY SEWER LINE
10' MIN.
10' MIN.

TYPICAL SANITARY SEWER/ WATER CROSSING DETAIL

N.T.S.

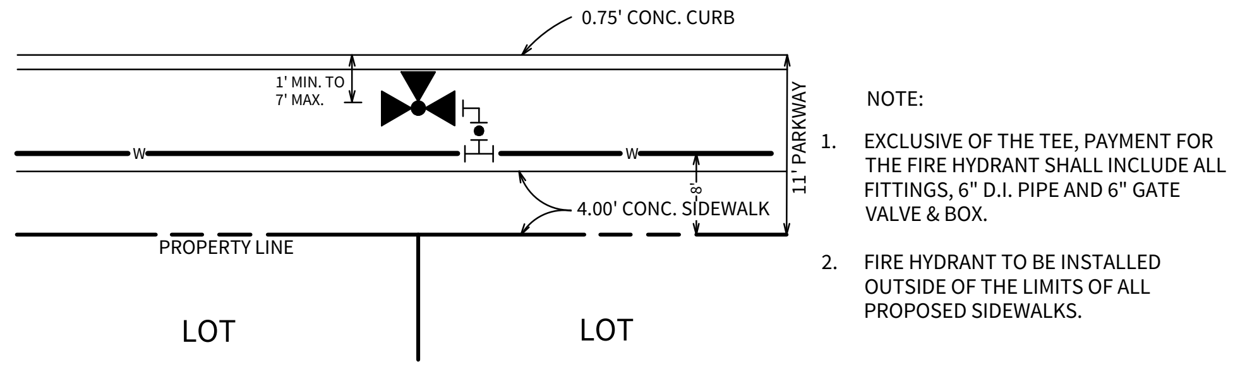

SCALE: 1"=50'
0
50
100


901 OPEN SPACE BLOCK 57
EX. DRAIN 4-A SEE CORLEY FARMS UNIT4
DRAIN '5-A' SEE SHEET C13
DRAIN '5-A' SEE SHEET C13
DRAIN '5-C' SEE SHEET C17
EX. DRAIN 4-A SEE CORLEY FARMS UNIT 4
HOMESTEAD RIDGE
1 - 8" x 6" TEE, M.J., ANCHOR
1 - 6" x 1/4 BEND, M.J.
1 - 6" GATE VALVE, M.J.
1 - 6" VALVE BOX, COMPLETE
1 - STD. FIRE HYDRANT
1 - 6" D.I. PIPE, CUT AS REQD.
SEE SAWS STD. DWG DD-834-01
1 - 8"x8" ANCHOR TEE, M.J.
1 - 8" GATE VALVE, M.J.
2 - 8"x2" REDUCERS, M.J.
1- 6" VALVE BOX, COMPLETE
22 L.F. - 8" PVC-C900
47 L.F. - 8" PVC-C900
1 - 8" x 8" ANCHOR TEE, M.J.
2 - 8" GATE VALVE, M.J.
2 - 6" VALVE BOX, COMPLETE
1 - 8" x 6" TEE, M.J., ANCHOR
1 - 6" x 1/4 BEND, M.J.
1 - 6" GATE VALVE, M.J.
1 - 6" VALVE BOX, COMPLETE
1 - STD. FIRE HYDRANT
1 - 6" D.I. PIPE, CUT AS REQD.
SEE SAWS STD. DWG DD-834-01
1 - 8" x 6" TEE, M.J., ANCHOR
1 - 6" x 1/4 BEND, M.J.
1 - 6" GATE VALVE, M.J.
1 - 6" VALVE BOX, COMPLETE
1 - STD. FIRE HYDRANT
1 - 6" D.I. PIPE, CUT AS REQD.
SEE SAWS STD. DWG DD-834-01
BLOCK 57
BLOCK 55
QUAKING LEAF
1 - 8" 1/32 BEND, M.J.
1 - 8" 1/32 BEND, M.J.
213 L.F. - 8" PVC-C900
143 L.F. - 8" PVC-C900
116 L.F. - 8" PVC-C900
JACARANDA LANE
JACARANDA LANE
352 L.F. - 2" HDPE
2" GAS
8" SS
CAUTION!
2" GAS & 2" WATER CROSSING
SEE DETAIL THIS SHEET
CAUTION!
2" WATER & 8" SANITARY
SEWER LINE 'A-A' CROSSING
SEE DETAIL THIS SHEET
CAUTION!
2" GAS & 8" WATER CROSSING
SEE DETAIL THIS SHEET
CAUTION!
8" WATER & 8" SANITARY
SEWER LINE 'A-A' CROSSING
SEE DETAIL THIS SHEET
72 L.F. - 8" PVC-C900 (OVERALL)
BLOCK 46
BLOCK 46
BLOCK 45
BLOCK 45
BLOCK 45
2
BLOCK 54
BLOCK 53
349 L.F. - 8" PVC-C900
MILKHOUSE LANE
CAUTION!
2" GAS & 8" WATER CROSSING
SEE DETAIL THIS SHEET
CAUTION!
8" WATER & 8" SANITARY
SEWER LINE 'Y' CROSSING
SEE DETAIL THIS SHEET
CAUTION!
2" GAS & 8" WATER CROSSING
SEE DETAIL THIS SHEET
RUSTIC GROVE
RUSTIC GROVE
RUSTIC GROVE
122 L.F. - 8" PVC-C900
58 L.F. - 8" PVC-C900
143 L.F. - 8" PVC-C900
213 L.F. - 8" PVC-C900
AFTER RELEASE FOR SERVICE,
CONTRACTOR TO TIE TO NEW 8" MAIN
INTO EXIST. 8" WATER MAIN WITH
±5 L.F. OF 8" WATER MAIN, CUT AS REQUIRED.
8" VALVE TO REMAIN CLOSED UNTIL AFTER
DISINFECTION & ACCEPTANCE BY SAWS
1 - 8" SOLID SLEEVE
1 - 2" BLOWOFF ASSEMBLY (PERM.)
1 - 8"x2" THR. DI. ECCENTRIC
REDUCER, M.J. (PERM.)
1 - 8" x 8" ANCHOR TEE, M.J.
3 - 8" GATE VALVE, M.J.
3 - 6" VALVE BOX, COMPLETE
1 - 8" 1/32 BEND, M.J.
95 L.F. - 8" PVC-C900 (OVERALL)
115 L.F. - 8" PVC-C900
MILKHOUSE LANE
1 - 8" x 6" TEE, M.J., ANCHOR
1 - 6" x 1/4 BEND, M.J.
1 - 6" GATE VALVE, M.J.
1 - 6" VALVE BOX, COMPLETE
1 - STD. FIRE HYDRANT
1 - 6" D.I. PIPE, CUT AS REQD.
SEE SAWS STD. DWG DD-834-01
BLOCK 39
BLOCK 39
BLOCK 39
BLOCK 36
BLOCK 36
BLOCK 36
1 - 8" x 6" TEE, M.J., ANCHOR
1 - 6" x 1/4 BEND, M.J.
1 - 6" GATE VALVE, M.J.
1 - 6" VALVE BOX, COMPLETE
1 - STD. FIRE HYDRANT
1 - 6" D.I. PIPE, CUT AS REQD.
SEE SAWS STD. DWG DD-834-01
AFTER RELEASE FOR SERVICE,
CONTRACTOR TO TIE TO NEW 8" MAIN
INTO EXIST. 8" WATER MAIN WITH
±5 L.F. OF 8" WATER MAIN, CUT AS REQUIRED.
8" VALVE TO REMAIN CLOSED UNTIL AFTER
DISINFECTION & ACCEPTANCE BY SAWS
1 - 8" SOLID SLEEVE
1 - 2" BLOWOFF ASSEMBLY (PERM.)
1 - 8"x2" THR. DI. ECCENTRIC
REDUCER, M.J. (PERM.)
MATCHLINE "A" MATCH TO SHEET C34
MATCHLINE "A" MATCH TO SHEET C34
ELEC
SS
W
G


METER BOX
LOT
LOT
LOT
LOT
LOT
LOT
2'
8'
3/4 " COPPER SERVICE
(SINGLE SERVICE)
(DUAL SERVICES)
1" COPPER SERVICE
10' UTILITY EASEMENT
PROPERTY LINE
PROPERTY LINE
10' UTILITY EASEMENT
4'
11'
PROPOSED CURB
METER BOXES
℄
W

WATER METER BOX LOCATION

N.T.S.

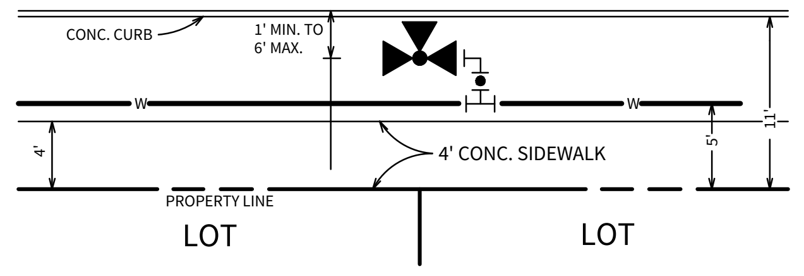

0.75' CONC. CURB
1' MIN. TO 7' MAX.
11' PARKWAY
8'
4.00' CONC. SIDEWALK
PROPERTY LINE
LOT
LOT
W

NOTE:

1. EXCLUSIVE OF THE TEE, PAYMENT FOR THE FIRE HYDRANT SHALL INCLUDE ALL FITTINGS, 6" D.I. PIPE AND 6" GATE VALVE & BOX.
2. FIRE HYDRANT TO BE INSTALLED OUTSIDE OF THE LIMITS OF ALL PROPOSED SIDEWALKS.

TYPICAL FIRE HYDRANT DETAIL (4' SIDEWALK / 60' R.O.W.)

N.T.S.

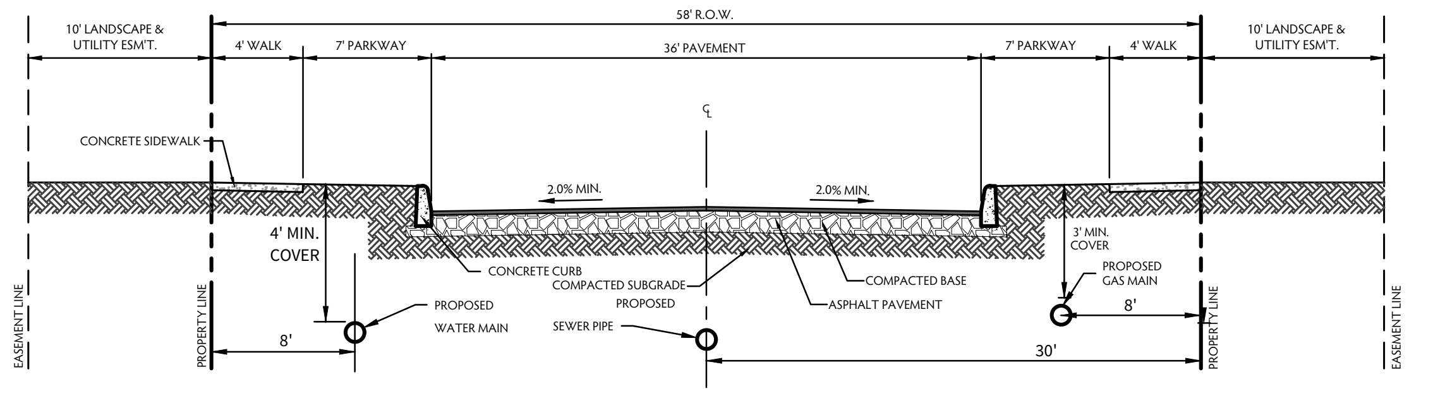

CONC. CURB
1' MIN. TO 6' MAX.
4'
5'
11'
4' CONC. SIDEWALK
PROPERTY LINE
LOT
LOT
W

NOTE:

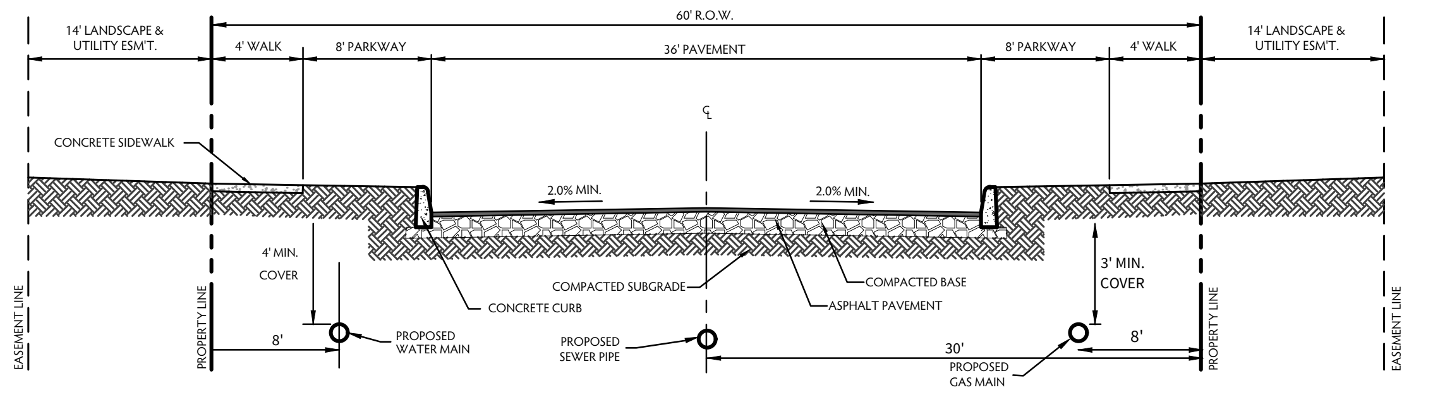
1. EXCLUSIVE OF THE TEE, PAYMENT FOR THE FIRE HYDRANT SHALL INCLUDE ALL FITTINGS, 6" D.I. PIPE AND 6" GATE VALVE & BOX.
2. FIRE HYDRANT TO BE INSTALLED OUTSIDE OF THE LIMITS OF ALL PROPOSED SIDEWALKS.

TYPICAL FIRE HYDRANT DETAIL (4' SIDEWALK / 58' ROW)

N.T.S.


58' R.O.W.
4' WALK
7' PARKWAY
34' PAVEMENT
7' PARKWAY
4' WALK
CONCRETE SIDEWALK
COMPACTED BASE
ASPHALT PAVEMENT
PROPOSED WATER MAIN
PROPOSED SEWER PIPE
PROPOSED GAS MAIN
EASEMENT LINE
PROPERTY LINE

TYPICAL "NEIGHBORHOOD RESIDENTIAL" STREET CROSS-SECTION
N.T.S.


60' R.O.W.
4' WALK
8' PARKWAY
34' PAVEMENT
8' PARKWAY
4' WALK
CONCRETE SIDEWALK
COMPACTED BASE
ASPHALT PAVEMENT
PROPOSED WATER MAIN
PROPOSED SEWER PIPE
PROPOSED GAS MAIN
EASEMENT LINE
PROPERTY LINE

TYPICAL "NEIGHBORHOOD COLLECTOR" STREET CROSS-SECTION
N.T.S.

CUDEENGINEERS.COM

CUDE ENGINEERS EST. 1980

4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

CORLEY FARMS UNIT 5

WATER DISTRIBUTION PLAN

DATE
06/02/2025

PROJECT NO.
03481.012

DRAWN BY
C3

CHECKED BY
XV/AL

#	DATE	REVISIONS
1.	11/7/24	PERMITTING COMMENTS
2.	5/27/25	GRADING REVISION
3.		
4.		
5.		
6.		
7.		
8.		
9.		

ANDREW R. LOWRY
123410
6/2/25

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C33

CUDEENGINEERS.COM

P:\03481\012\2-Drawings\C5.00-5.01 WATER DISTRIBUTION PLAN.dwg 2025/06/02 12:37pm kmartinez

LEGEND

- = 3/4" PROPOSED WATER SERVICE WITH 5/8" METER
- = 3/4" EXISTING WATER SERVICE WITH 5/8" METER
- 3/4" IRRIG. = 3/4" IRRIGATION SERVICE WITH 3/4" METER
- XXX L.F. - XX" PVC C-900 = PROPOSED WATER MAIN
- = EXISTING WATER MAIN
- = EXISTING SANITARY SEWER
- X' X' = JOINT RESTRAINT
- =JOINT RESTRAINT ENTIRE LENGTH
- = PROPOSED SEWER LINE AND MANHOLE

THRUST BLOCKING NOTE

ANCHORAGE/ THRUST BLOCKING AND JOINT RESTRAINTS SHALL BE DONE IN ACCORDANCE WITH SAWS STANDARDS AND SPECIFICATIONS FOR CONSTRUCTION (ITEM NO. 839)

TRENCH EXCAVATION PROTECTION

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION 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.

PRESSURE ZONE 12

Developer's Name	PULTE HOMES OF TEXAS, L.P.				
Developer's Address	927 E. SONTERRA BLVD., SUITE 316				
City	SAN ANTONIO	**State**	TEXAS	**Zip**	78258
Phone #	(210) 496-1985	**Fax #**	(210) 496-0449		
SAWS Block Map #	N/A	**Total EDU's**	75	**Total Acreage**	19.78
Total Linear Footage of Pipe	8" W - 3,027 L.F./2" W - 702 L.F.	**Plat No.**	N/A (CORLEY FARMS UNIT 5 PLAT)		
Number of Lots	XXXX	**SAWS Job No.**	XX-XXXX		

SAWS CONSTRUCTION NOTES
COUNTER PERMIT AND GENERAL CONSTRUCTION PERMIT *REVISED JULY 2022*

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.

WATER SECTION

1. PRIOR TO TIE-INS, ANY SHUTDOWNS OF EXISTING MAINS OF ANY SIZE MUST BE COORDINATED WITH THE SAWS CONSTRUCTION INSPECTION DIVISION 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.
   - FOR WATER MAINS 12" OR HIGHER: SAWS EMERGENCY OPERATIONS CENTER (210) 233-2014
2. ASBESTOS CEMENT (AC) PIPE, ALSO KNOWN AS TRANSITE PIPE WHICH IS KNOWN TO CONTAIN ASBESTOS- CONTAINING MATERIAL (ACM), MAY BE LOCATED WITHIN THE PROJECT LIMITS. SPECIAL WASTE MANAGEMENT PROCEDURES AND HEALTH AND SAFETY REQUIREMENTS WILL BE APPLICABLE WHEN REMOVAL AND/OR DISTURBANCE OF THIS PIPE OCCURS. SUCH WORK IS TO BE MADE UNDER SPECIAL SPECIFICATION ITEM NO. 3000, "SPECIAL SPECIFICATION FOR HANDLING ASBESTOS CEMENT PIPE".
3. VALVE REMOVAL: WHERE THE CONTRACTOR IS TO ABANDON A WATER MAIN, THE CONTROL VALVE LOCATED ON THE ABANDONING BRANCH WILL BE REMOVED AND REPLACED WITH A CAP/PLUG. (NSPI)
4. SUITABLE ANCHORAGE/THRUST BLOCKING OR JOINT RESTRAINT SHALL BE PROVIDED AT ALL OF THE FOLLOWING MAIN LOCATIONS: DEAD ENDS, PLUGS, CAPS, TEES, CROSSES, VALVES, AND BENDS, IN ACCORDANCE WITH THE STANDARD DRAWINGS DD-839 SERIES AND ITEM NO. 839, IN THE SAWS STANDARD SPECIFICATIONS FOR CONSTRUCTION.
5. ALL VALVES SHALL READ "OPEN RIGHT".
6. PRVS REQUIRED: CONTRACTOR TO VERIFY THAT NO PORTION OF THE TRACT IS BELOW GROUND ELEVATION OF

   1425 FEET WHERE THE STATIC PRESSURE WILL NORMALLY EXCEED 80 PSI. AT ALL SUCH LOCATIONS WHERE THE GROUND LEVEL IS BELOW 1425 FEET, THE DEVELOPER OR BUILDER SHALL INSTALL AT EACH LOT, ON THE CUSTOMER'S SIDE OF THE METER, AN APPROVED TYPE PRESSURE REGULATOR IN CONFORMANCE WITH THE PLUMBING CODE OF THE CITY OF SAN ANTONIO. NO DUAL SERVICES ALLOWED FOR ANY LOT(S) IF *PRV IS/ARE REQUIRED FOR SUCH LOT(S), ONLY SINGLE SERVICE CONNECTIONS SHALL BE ALLOWED. *NOTE: A PRESSURE REGULATOR IS ALSO KNOWN AS A PRESSURE REDUCING VALVE (PRV).
7. PIPE DISINFECTION WITH DRY HTH FOR PROJECTS LESS THAN 800 LINEAR FEET. (ITEM NO. 847.3): MAINS SHALL BE DISINFECTED WITH DRY HTH WHERE SHOWN IN THE CONTRACT DOCUMENTS OR AS DIRECTED BY THE INSPECTOR, AND SHALL NOT EXCEED A TOTAL LENGTH OF 800 FEET. THIS METHOD OF DISINFECTION WILL ALSO BE FOLLOWED FOR MAIN REPAIRS. THE CONTRACTOR SHALL UTILIZE ALL APPROPRIATE SAFETY MEASURE TO PROTECT HIS PERSONNEL DURING DISINFECTION OPERATIONS.
8. BACKFLOW PREVENTION DEVICES:
   - ALL IRRIGATION SERVICES WITHIN RESIDENTIAL AREAS ARE REQUIRED TO HAVE BACKFLOW PREVENTION DEVICES.
   - ALL COMMERCIAL BACKFLOW PREVENTION DEVICES MUST BE APPROVED BY SAWS PRIOR TO INSTALLATION.
9. FINAL CONNECTION TO THE EXISTING WATER MAIN SHALL NOT BE MADE UNTIL THE WATER MAIN HAS BEEN PRESSURE TESTED, CHLORINATED, AND SAWS HAS RELEASED THE MAIN FOR TIE-IN AND USE.
10. DIVISION VALVES: DIVISION VALVES SHOWN ON PLANS OR NOT SHOWN ON PLANS BUT FOUND IN THE FIELD SHALL ONLY BE OPERATED BY SAWS DISTRIBUTION AND COLLECTION STAFF AND ONLY WITH PRIOR WRITTEN APPROVAL OF THE SAWS DIRECTOR OF PRODUCTION AND OPERATIONS AND PROPER COORDINATION WITH ALL SAWS DEPARTMENTS. CONTRACTOR SHALL PROVIDE WRITTEN NOTIFICATION TO THE INSPECTOR A MINIMUM OF TWO WEEKS IN ADVANCE TO START THE COORDINATION PROCESS AND WILL BE INFORMED BY THE INSPECTOR WHEN THE DIVISION VALVE WILL BE OPERATED BY THE SAWS DISTRIBUTION AND COLLECTION STAFF. THE DIVISION VALVE CAN ONLY BE OPERATED BY SAWS DISTRIBUTION AND COLLECTION STAFF MEMBER NOT THE INSPECTOR OR THE CONTRACTOR. OPERATION OF A DIVISION VALVE WITHOUT THE EXPRESS PRIOR WRITTEN APPROVAL OF THE SAWS DISTRIBUTION AND COLLECTION STAFF WILL CONSTITUTE A MATERIAL BREACH OF ANY WRITTEN SAWS CONTRACT OR PERMIT IN ADDITION TO SUBJECTING THE CONTRACTOR TO LIABILITY FOR ANY AND ALL FINES, FEES, OR OTHER DAMAGES, DIRECT OR CONSEQUENTIAL, THAT MAY ARISE FROM OR BE CAUSED BY THE OPERATION OF THE VALVE WITHOUT PRIOR WRITTEN PERMISSION. PLEASE BE INFORMED THAT THE APPROVAL OF THE OPERATION OR OPENING OR CLOSING OF A DIVISION VALVE CAN TAKE SEVERAL WEEKS FOR APPROVAL. DIVISION VALVES WILL ALSO HAVE A VALVE LID LABELED DIVISION VALVE AND A LOCKING MECHANISM INSTALLED WITH A KEY. THE LOCK AND KEY MECHANISM WILL BE PAID FOR BY THE CONTRACTOR BUT WILL BE INSTALLED BY SAWS DISTRIBUTION AND COLLECTION STAFF.
11. ALL METERS SHALL BE 5/8", UNLESS OTHERWISE NOTED.
12. ALL PIPES SHALL BE C-900, CLASS 235 DR 18, UNLESS OTHERWISE NOTED.

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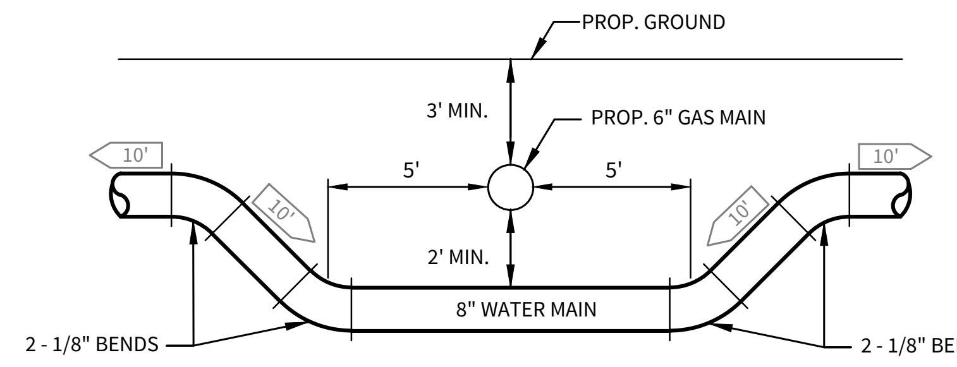
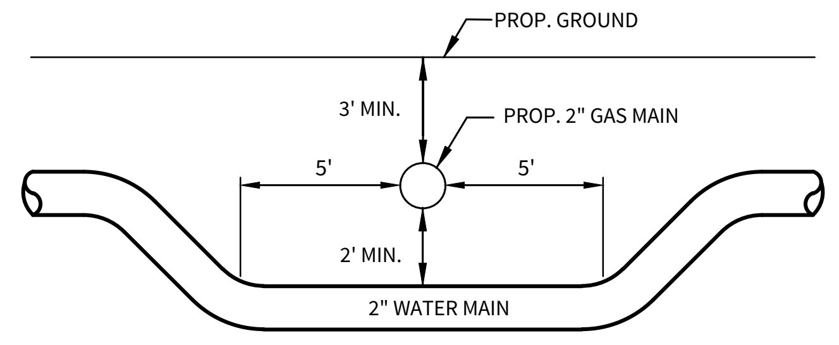

PROP. GROUND
3' MIN.
PROP. 6" GAS MAIN
5'
5'
2' MIN.
8" WATER MAIN
10'
10'
10'
10'
2 - 1/8" BENDS
2 - 1/8" BENDS

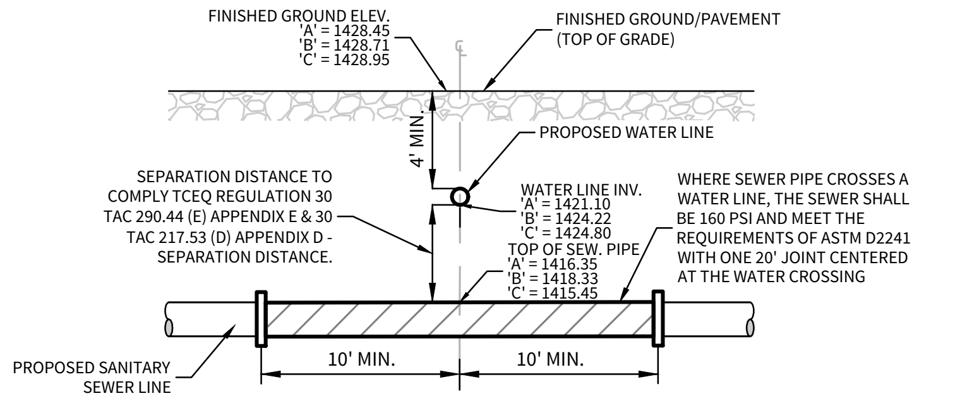
8" WATER / 6" GAS CROSSINGS DETAIL

SIDE VIEW (THIS DETAIL IS VERTICAL ONLY, NOT HORIZONTAL.)
(N.T.S.)


PROP. GROUND
3' MIN.
PROP. 2" GAS MAIN
5'
5'
2' MIN.
2" WATER MAIN

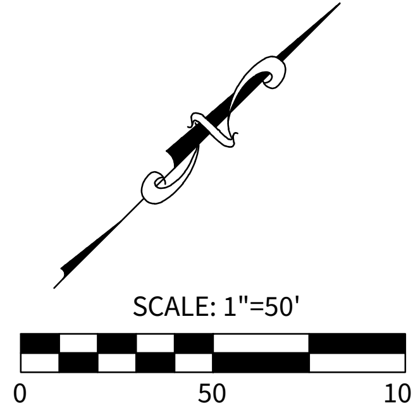
2" WATER / 2" GAS CROSSINGS DETAIL

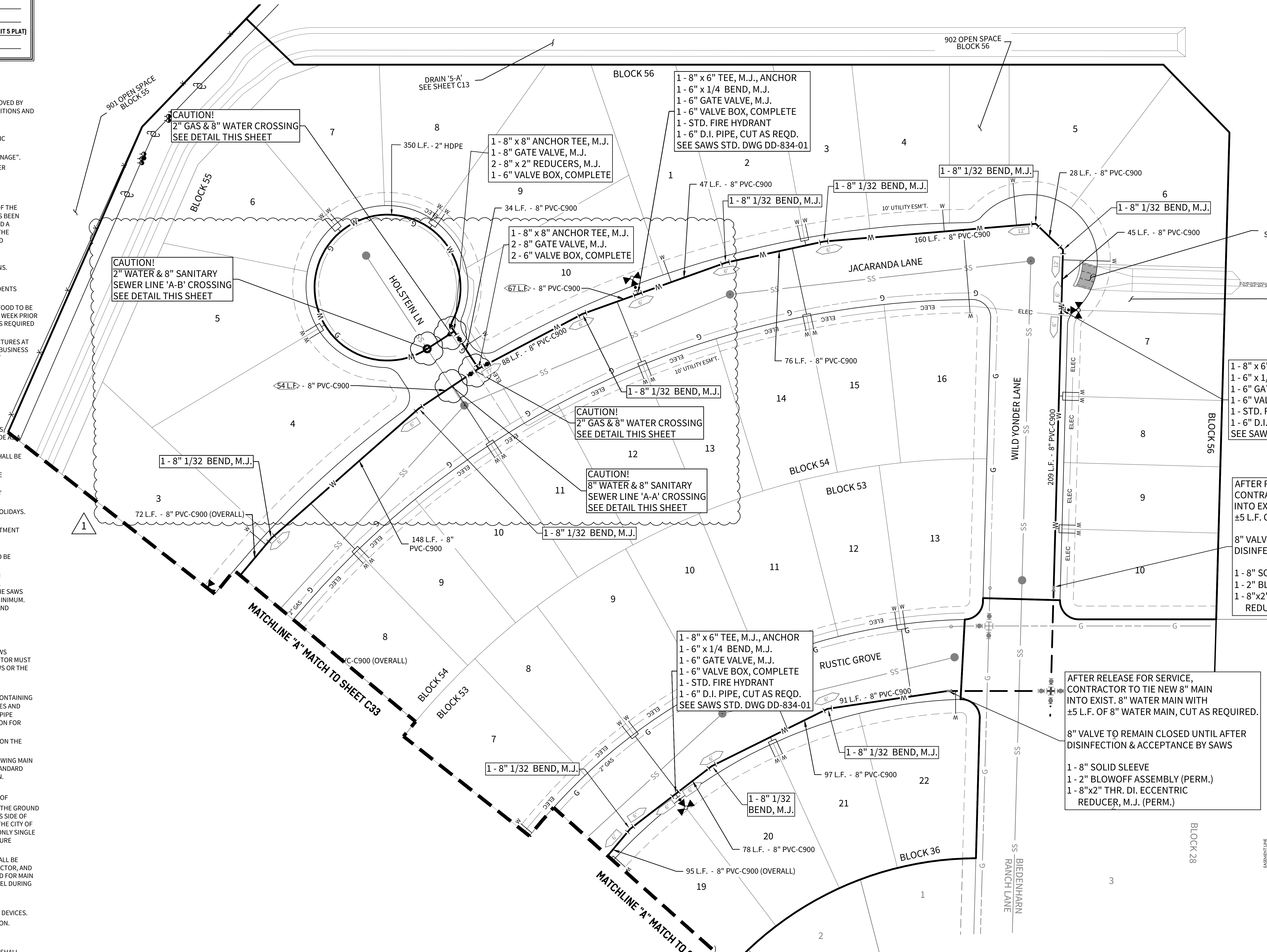
SIDE VIEW (THIS DETAIL IS VERTICAL ONLY, NOT HORIZONTAL.)
(N.T.S.)

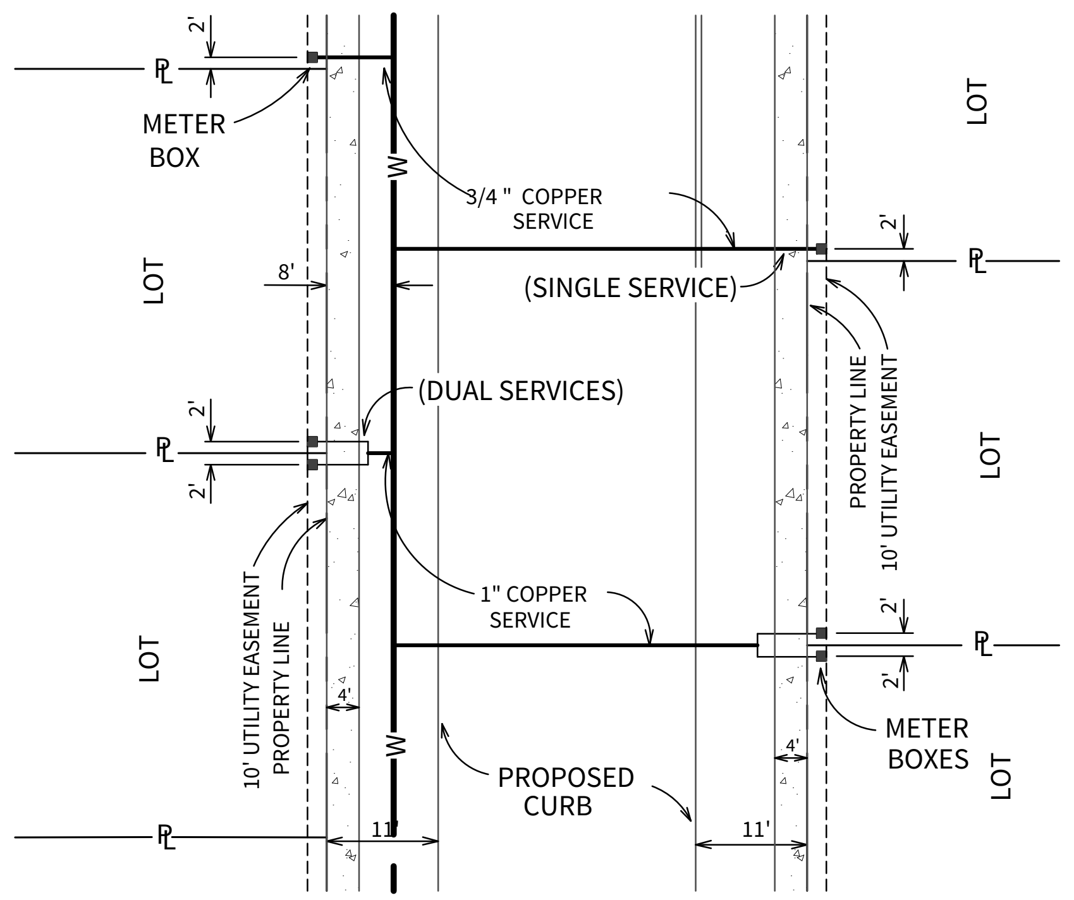

FINISHED GROUND ELEV.
'A' = 1428.45
'B' = 1428.71
'C' = 1428.95
FINISHED GROUND/PAVEMENT (TOP OF GRADE)
4' MIN.
PROPOSED WATER LINE
SEPARATION DISTANCE TO COMPLY TCEQ REGULATION 30 TAC 290.44 (E) APPENDIX E & 30 TAC 217.53 (D) APPENDIX D - SEPARATION DISTANCE.
WATER LINE INV.
'A' = 1421.10
'B' = 1424.22
'C' = 1424.80
TOP OF SEW. PIPE
'A' = 1416.35
'B' = 1418.33
'C' = 1415.45
WHERE SEWER PIPE CROSSES A WATER LINE, THE SEWER SHALL BE 160 PSI AND MEET THE REQUIREMENTS OF ASTM D2241 WITH ONE 20' JOINT CENTERED AT THE WATER CROSSING
PROPOSED SANITARY SEWER LINE
10' MIN.
10' MIN.

TYPICAL SANITARY SEWER/ WATER CROSSING DETAIL

N.T.S.

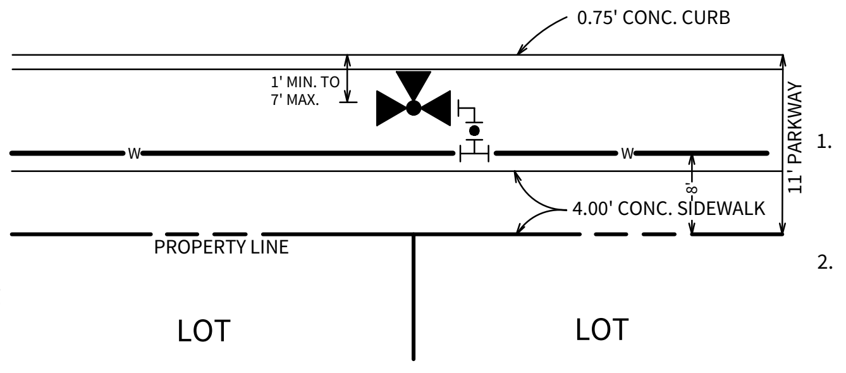

SCALE: 1"=50'
0
50
100


901 OPEN SPACE BLOCK 55
DRAIN '5-A' SEE SHEET C13
BLOCK 56
902 OPEN SPACE BLOCK 56
BLOCK 55
CAUTION!
2" GAS & 8" WATER CROSSING
SEE DETAIL THIS SHEET
350 L.F. - 2" HDPE
1 - 8" x 8" ANCHOR TEE, M.J.
1 - 8" GATE VALVE, M.J.
2 - 8" x 2" REDUCERS, M.J.
1 - 6" VALVE BOX, COMPLETE
1 - 8" x 6" TEE, M.J., ANCHOR
1 - 6" x 1/4 BEND, M.J.
1 - 6" GATE VALVE, M.J.
1 - 6" VALVE BOX, COMPLETE
1 - STD. FIRE HYDRANT
1 - 6" D.I. PIPE, CUT AS REQD.
SEE SAWS STD. DWG DD-834-01
34 L.F. - 8" PVC-C900
47 L.F. - 8" PVC-C900
1 - 8" 1/32 BEND, M.J.
1 - 8" 1/32 BEND, M.J.
1 - 8" 1/32 BEND, M.J.
28 L.F. - 8" PVC-C900
1 - 8" 1/32 BEND, M.J.
45 L.F. - 8" PVC-C900
10' UTILITY ESM'T.
160 L.F. - 8" PVC-C900
JACARANDA LANE
DRAIN '5-B' SEE SHEET C16
902 OPEN SPACE BLOCK 56
1 - 8" x 8" ANCHOR TEE, M.J.
2 - 8" GATE VALVE, M.J.
2 - 6" VALVE BOX, COMPLETE
CAUTION!
2" WATER & 8" SANITARY
SEWER LINE 'A-B' CROSSING
SEE DETAIL THIS SHEET
HOLSTEIN LN
67 L.F. - 8" PVC-C900
88 L.F. - 8" PVC-C900
54 L.F. - 8" PVC-C900
76 L.F. - 8" PVC-C900
1 - 8" 1/32 BEND, M.J.
CAUTION!
2" GAS & 8" WATER CROSSING
SEE DETAIL THIS SHEET
CAUTION!
8" WATER & 8" SANITARY
SEWER LINE 'A-A' CROSSING
SEE DETAIL THIS SHEET
1 - 8" 1/32 BEND, M.J.
72 L.F. - 8" PVC-C900 (OVERALL)
148 L.F. - 8" PVC-C900
1 - 8" 1/32 BEND, M.J.
1
BLOCK 54
BLOCK 53
WILD YONDER LANE
209 L.F. - 8" PVC-C900
BLOCK 56
1 - 8" x 6" TEE, M.J., ANCHOR
1 - 6" x 1/4 BEND, M.J.
1 - 6" GATE VALVE, M.J.
1 - 6" VALVE BOX, COMPLETE
1 - STD. FIRE HYDRANT
1 - 6" D.I. PIPE, CUT AS REQD.
SEE SAWS STD. DWG DD-834-01
AFTER RELEASE FOR SERVICE,
CONTRACTOR TO TIE NEW 8" MAIN
INTO EXIST. 8" WATER MAIN WITH
±5 L.F. OF 8" WATER MAIN, CUT AS REQUIRED.
8" VALVE TO REMAIN CLOSED UNTIL AFTER
DISINFECTION & ACCEPTANCE BY SAWS
1 - 8" SOLID SLEEVE
1 - 2" BLOWOFF ASSEMBLY (PERM.)
1 - 8"x2" THR. DI. ECCENTRIC
REDUCER, M.J. (PERM.)
MATCHLINE "A" MATCH TO SHEET C33
C-C900 (OVERALL)
BLOCK 54
BLOCK 53
RUSTIC GROVE
1 - 8" x 6" TEE, M.J., ANCHOR
1 - 6" x 1/4 BEND, M.J.
1 - 6" GATE VALVE, M.J.
1 - 6" VALVE BOX, COMPLETE
1 - STD. FIRE HYDRANT
1 - 6" D.I. PIPE, CUT AS REQD.
SEE SAWS STD. DWG DD-834-01
91 L.F. - 8" PVC-C900
1 - 8" 1/32 BEND, M.J.
97 L.F. - 8" PVC-C900
1 - 8" 1/32 BEND, M.J.
1 - 8" 1/32 BEND, M.J.
78 L.F. - 8" PVC-C900
95 L.F. - 8" PVC-C900 (OVERALL)
BLOCK 36
2" GAS
AFTER RELEASE FOR SERVICE,
CONTRACTOR TO TIE NEW 8" MAIN
INTO EXIST. 8" WATER MAIN WITH
±5 L.F. OF 8" WATER MAIN, CUT AS REQUIRED.
8" VALVE TO REMAIN CLOSED UNTIL AFTER
DISINFECTION & ACCEPTANCE BY SAWS
1 - 8" SOLID SLEEVE
1 - 2" BLOWOFF ASSEMBLY (PERM.)
1 - 8"x2" THR. DI. ECCENTRIC
REDUCER, M.J. (PERM.)
BIEDENHARN RANCH LANE
BLOCK 28
MATCHLINE "A" MATCH TO SHEET C33


METER BOX
3/4" COPPER SERVICE
(SINGLE SERVICE)
(DUAL SERVICES)
1" COPPER SERVICE
PROPERTY LINE
10' UTILITY EASEMENT
METER BOXES
PROPOSED CURB
LOT
8'
4'
11'
2'

WATER METER BOX LOCATION

N.T.S.

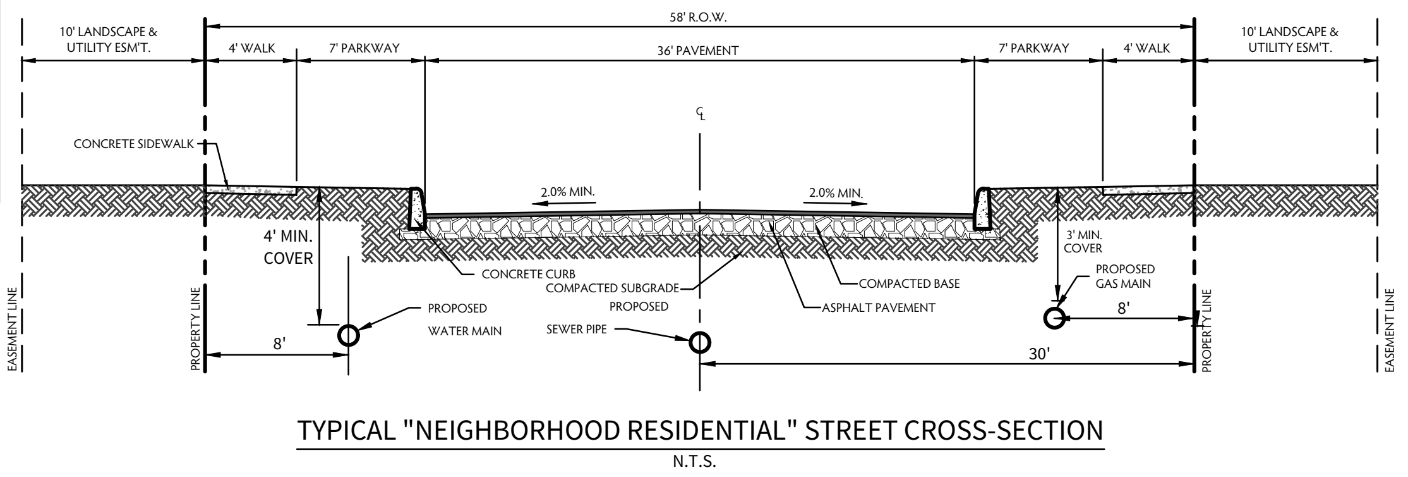

0.75' CONC. CURB
1' MIN. TO 7' MAX.
11' PARKWAY
8'
4.00' CONC. SIDEWALK
PROPERTY LINE
LOT
LOT

NOTE:

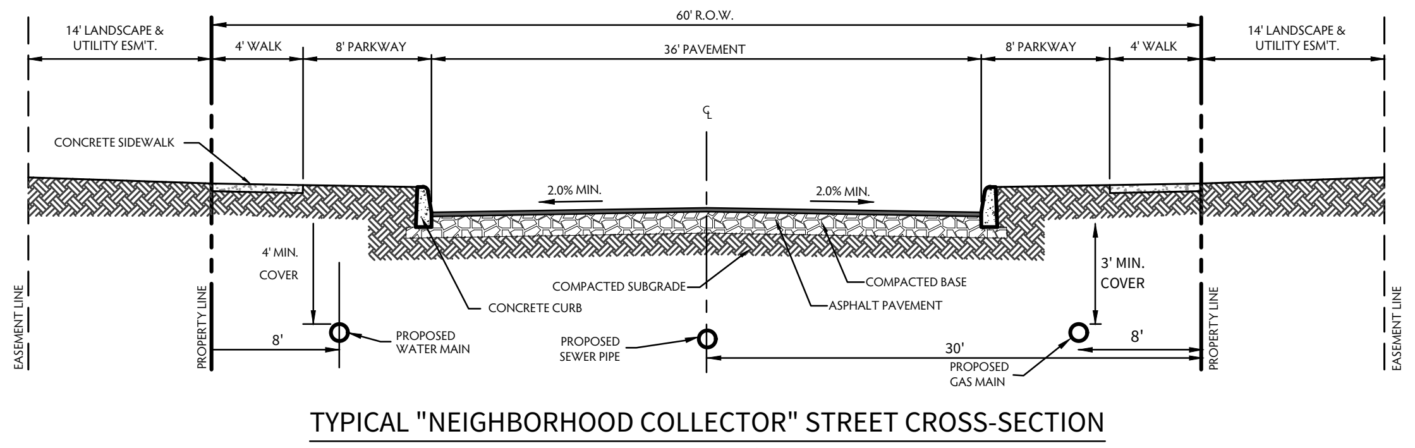
1. EXCLUSIVE OF THE TEE, PAYMENT FOR THE FIRE HYDRANT SHALL INCLUDE ALL FITTINGS, 6" D.I. PIPE AND 6" GATE VALVE & BOX.
2. FIRE HYDRANT TO BE INSTALLED OUTSIDE OF THE LIMITS OF ALL PROPOSED SIDEWALKS.

TYPICAL FIRE HYDRANT DETAIL (4' SIDEWALK / 60' R.O.W.)

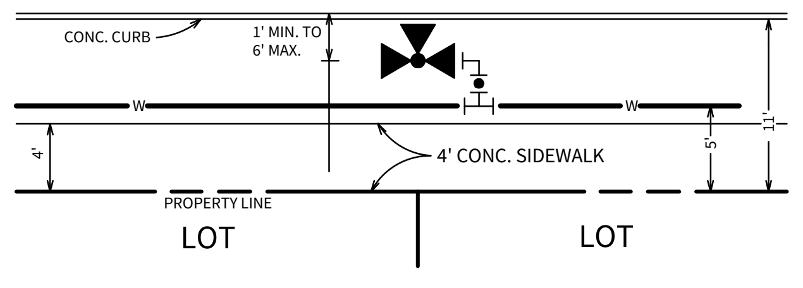
N.T.S.


10' LANDSCAPE & UTILITY ESM'T.
4' WALK
7' PARKWAY
CONCRETE SIDEWALK
2.0% MIN.
4' MIN. COVER
CONCRETE CURB
COMPACTED SUBGRADE
PROPOSED WATER MAIN
PROPOSED SEWER PIPE
PROPOSED GAS MAIN
EASEMENT LINE
PROPERTY LINE
8'

TYPICAL "NEIGHBORHOOD RESIDENTIAL" STREET CROSS-SECTION
N.T.S.


14' LANDSCAPE & UTILITY ESM'T.
4' WALK
8' PARKWAY
60' R.O.W.
CONCRETE SIDEWALK
2.0% MIN.
4' MIN. COVER
3' MIN. COVER
COMPACTED SUBGRADE
PROPOSED WATER MAIN
PROPOSED SEWER PIPE
PROPOSED GAS MAIN
EASEMENT LINE
PROPERTY LINE
8'

TYPICAL "NEIGHBORHOOD COLLECTOR" STREET CROSS-SECTION
N.T.S.


CONC. CURB
1' MIN. TO 6' MAX.
4' CONC. SIDEWALK
PROPERTY LINE
4'
5'
11'
LOT
LOT

NOTE:

1. EXCLUSIVE OF THE TEE, PAYMENT FOR THE FIRE HYDRANT SHALL INCLUDE ALL FITTINGS, 6" D.I. PIPE AND 6" GATE VALVE & BOX.
2. FIRE HYDRANT TO BE INSTALLED OUTSIDE OF THE LIMITS OF ALL PROPOSED SIDEWALKS.

TYPICAL FIRE HYDRANT DETAIL (4' SIDEWALK / 58' ROW)

N.T.S.

CUDEENGINEERS.COM

CUDE ENGINEERS EST. 1980

4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

CORLEY FARMS UNIT 5

WATER DISTRIBUTION PLAN

DATE	06/02/2025
PROJECT NO.	03481.012
DRAWN BY	C3
CHECKED BY	XV/AL

#	DATE	REVISIONS
1.	5/27/25	GRADING REVISION
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		

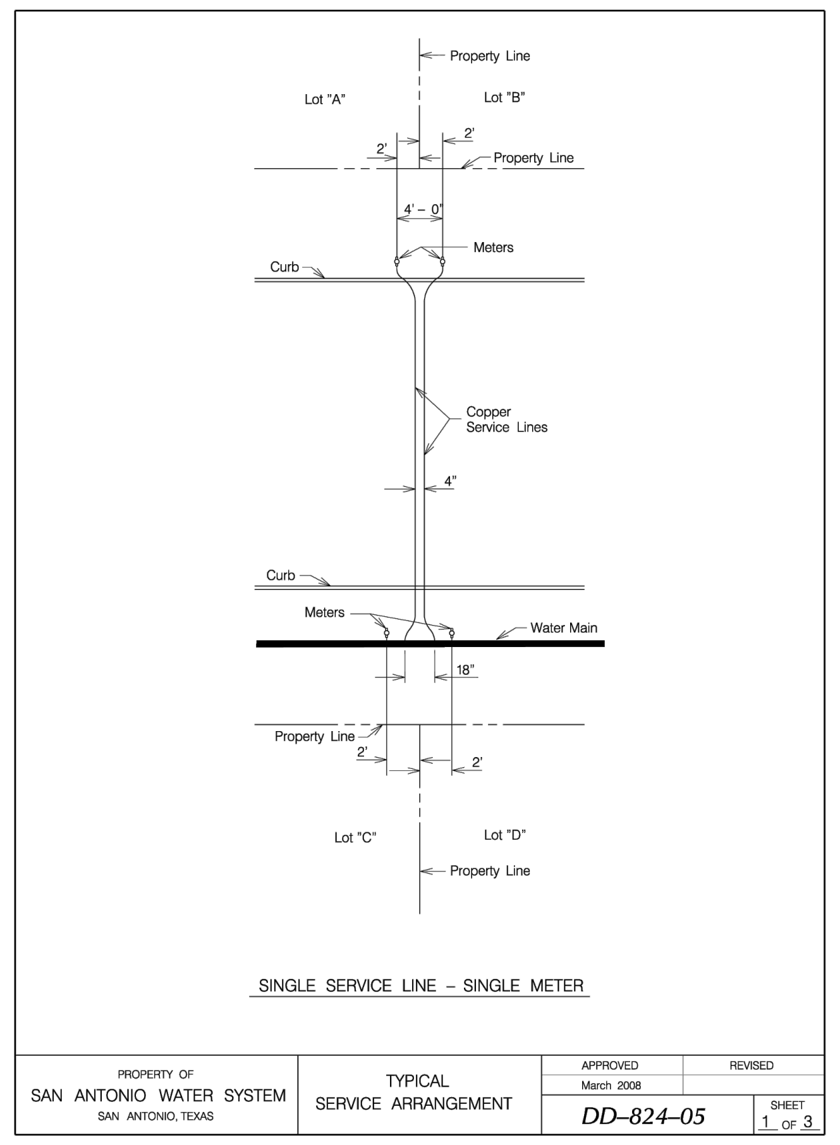
ANDREW R. LOWRY
123410
6/2/25
CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

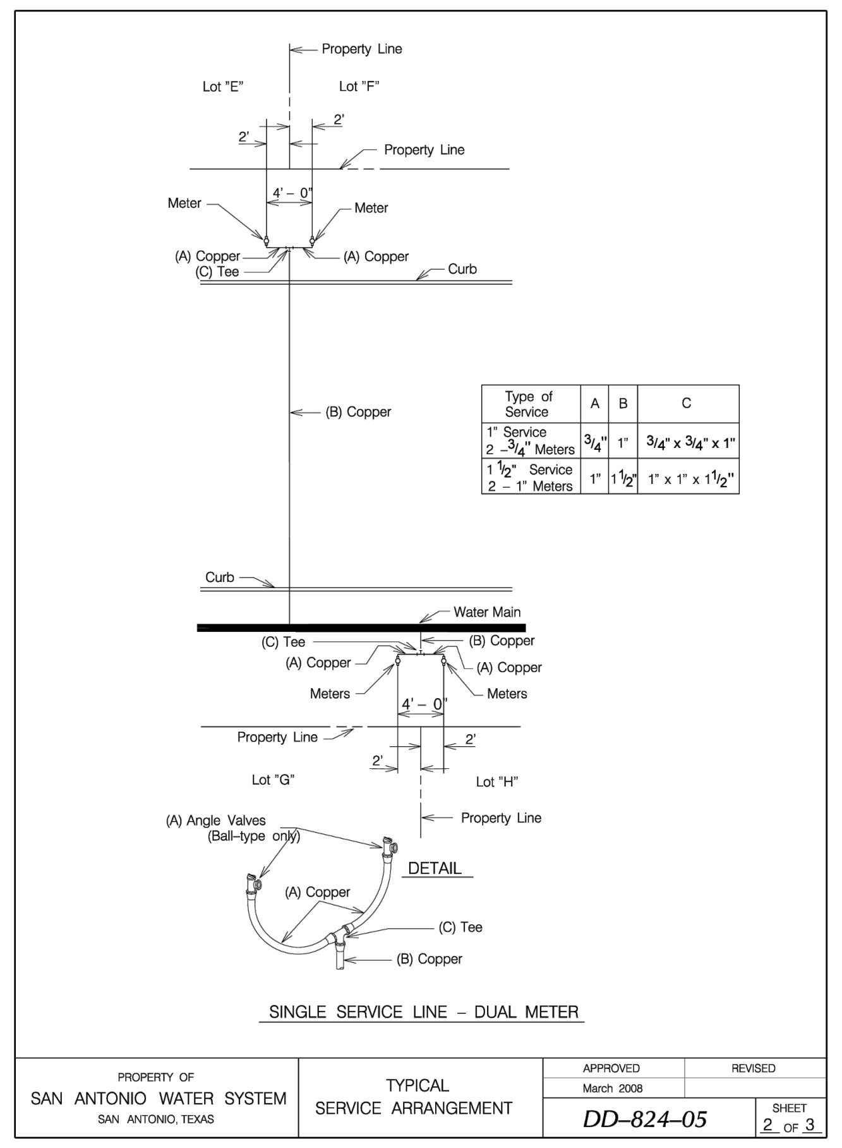
C34

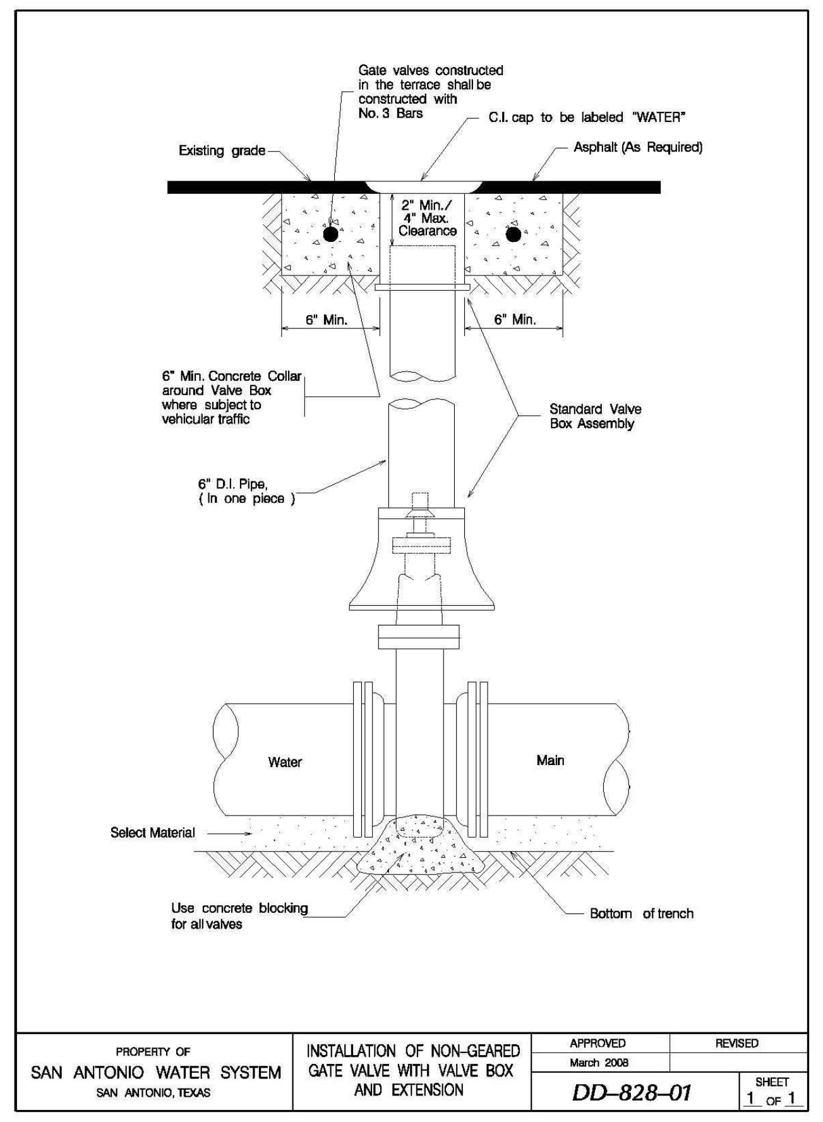
CUDEENGINEERS.COM

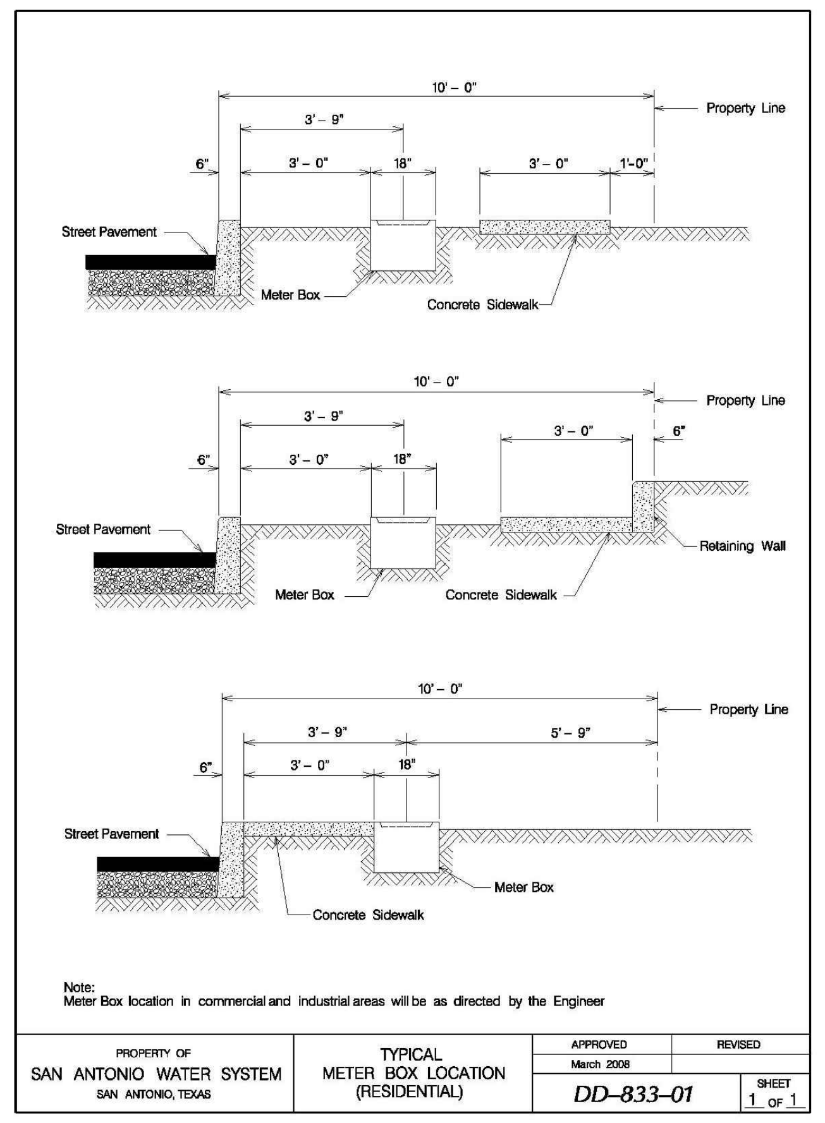
P:\03481\012\2-Drawings\C5.00-5.01 WATER DISTRIBUTION PLAN.dwg 2025/06/02 12:38pm kmartinez

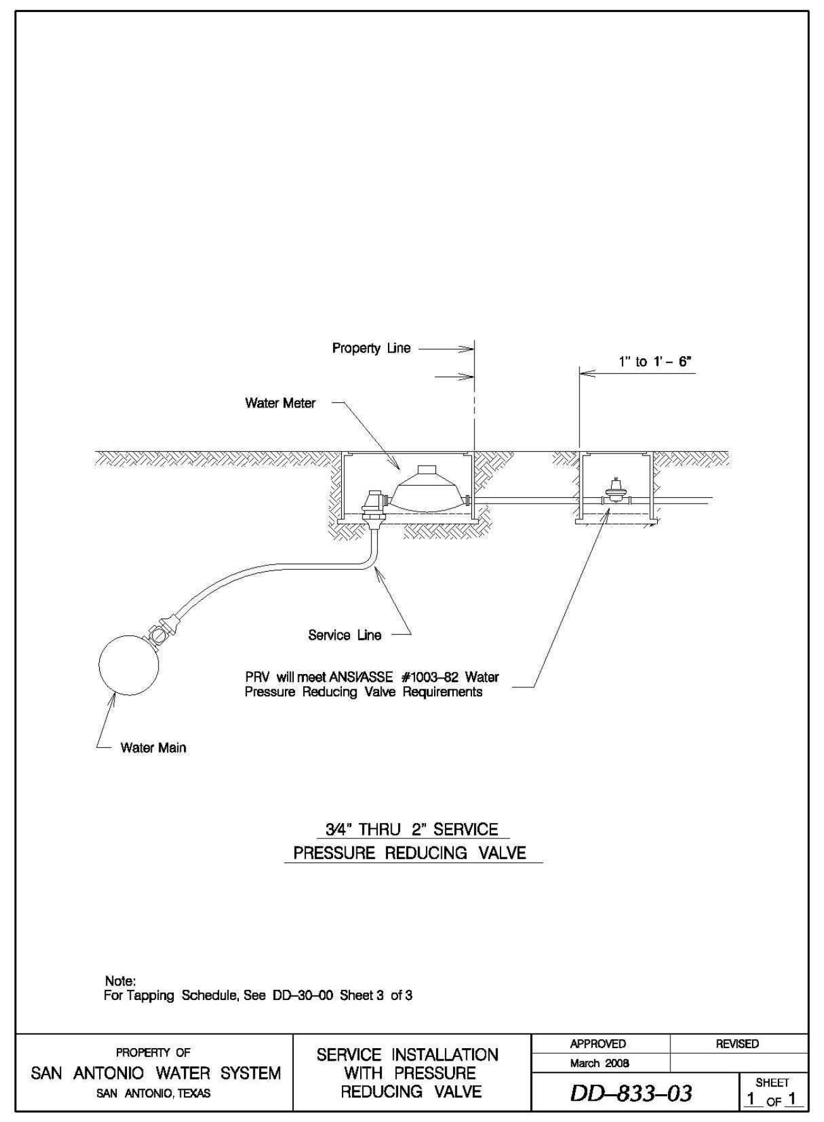
REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.

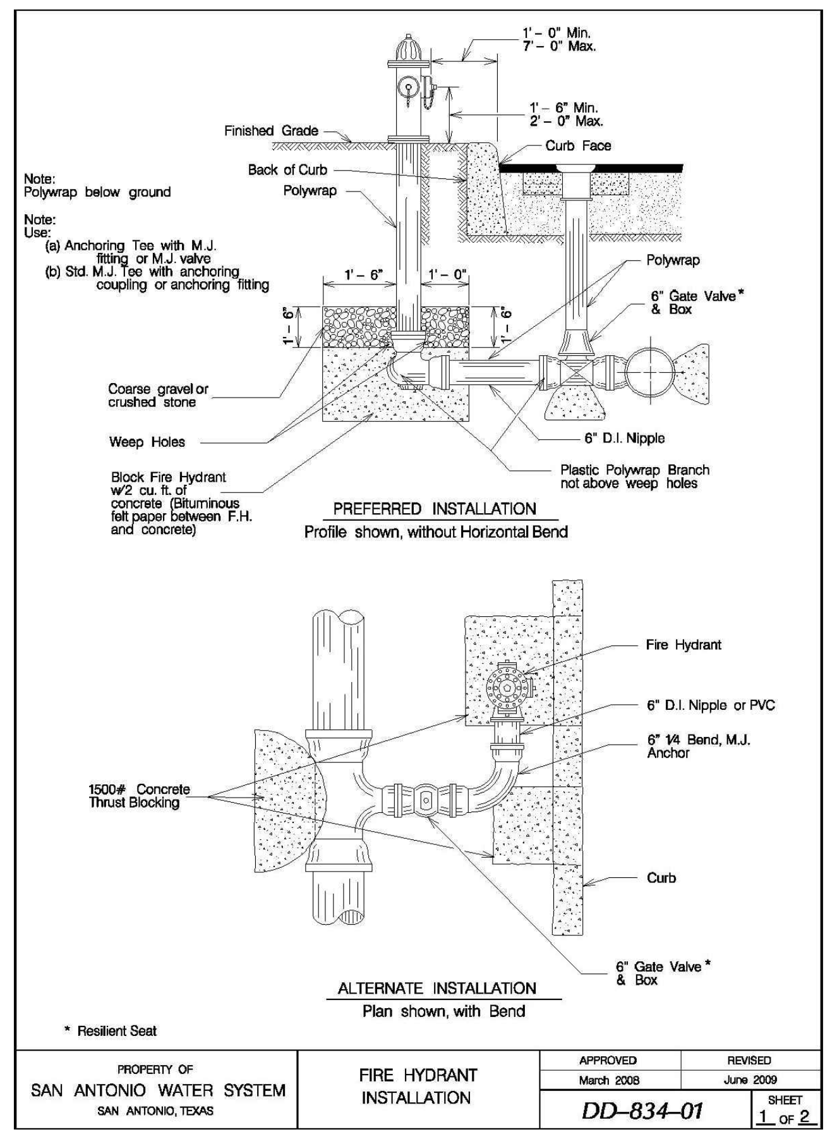

SINGLE SERVICE LINE – SINGLE METER
SAN ANTONIO WATER SYSTEM
TYPICAL SERVICE ARRANGEMENT
DD-824-05
SHEET 1 OF 3

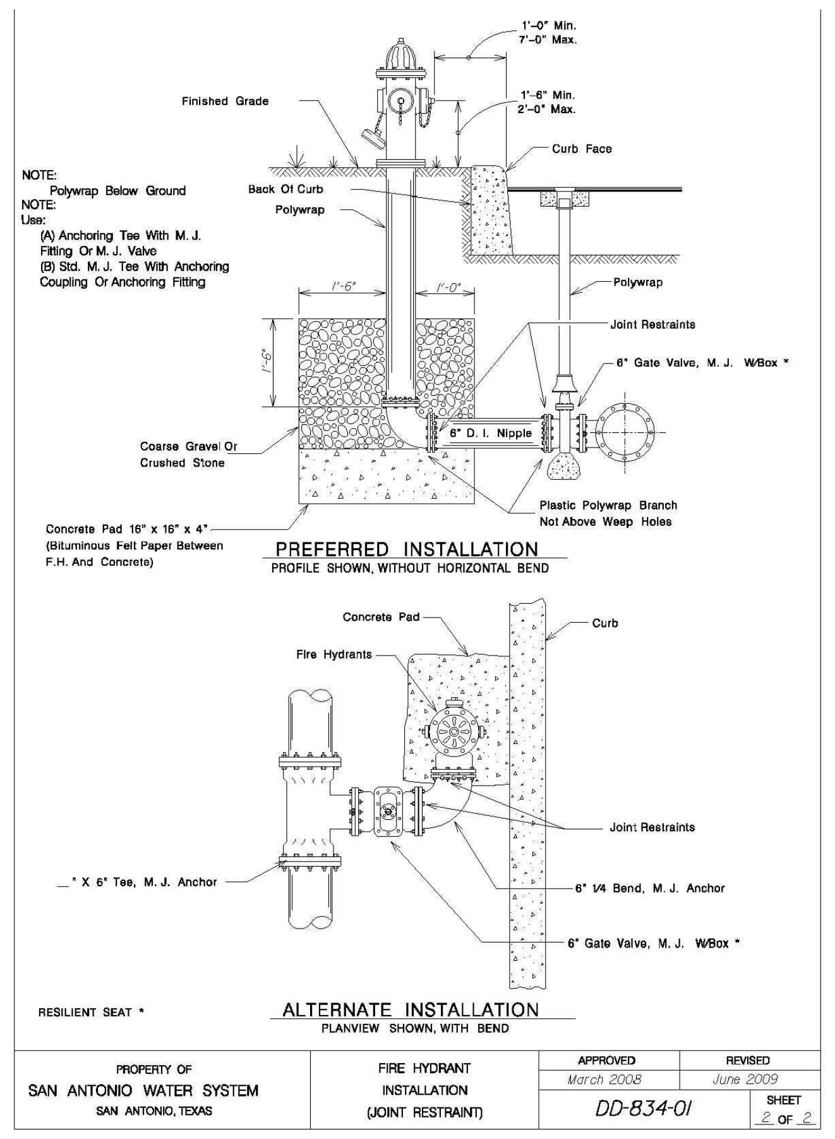

SINGLE SERVICE LINE – DUAL METER
SAN ANTONIO WATER SYSTEM
TYPICAL SERVICE ARRANGEMENT
DD-824-05
SHEET 2 OF 3

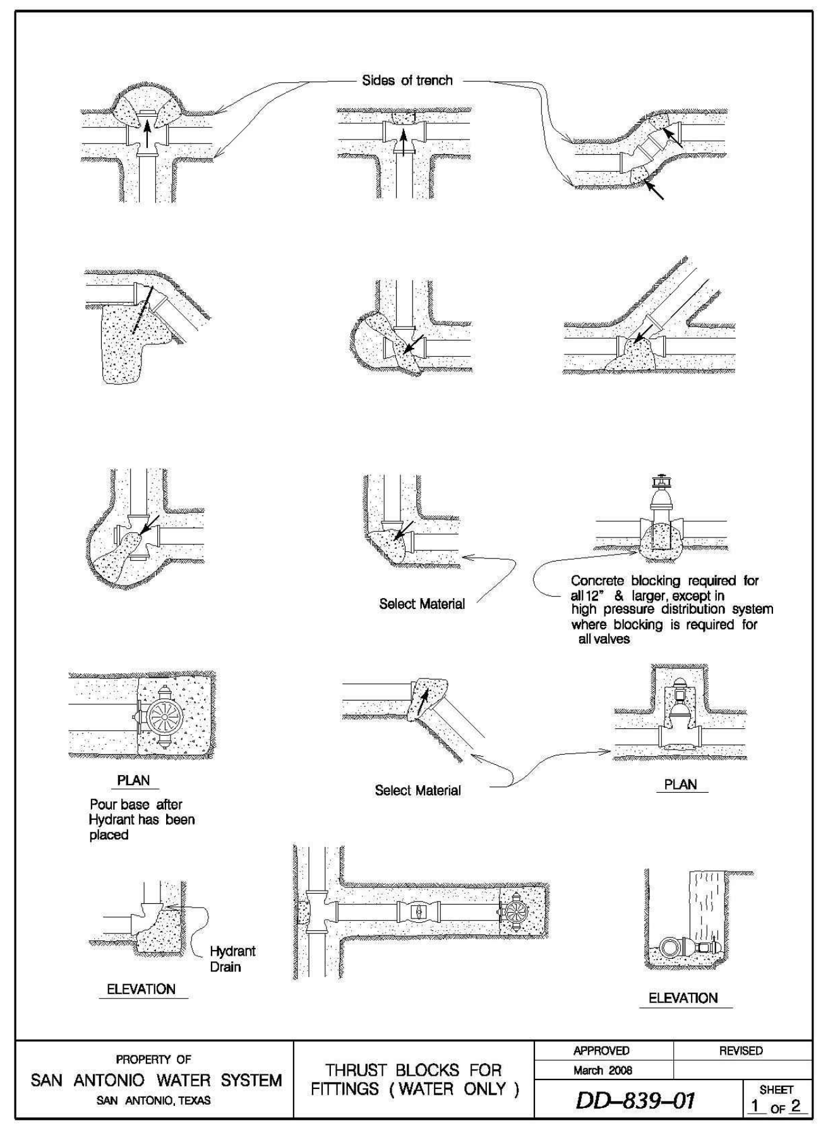

SAN ANTONIO WATER SYSTEM
INSTALLATION OF NON-GEARED GATE VALVE WITH VALVE BOX AND EXTENSION
DD-828-01

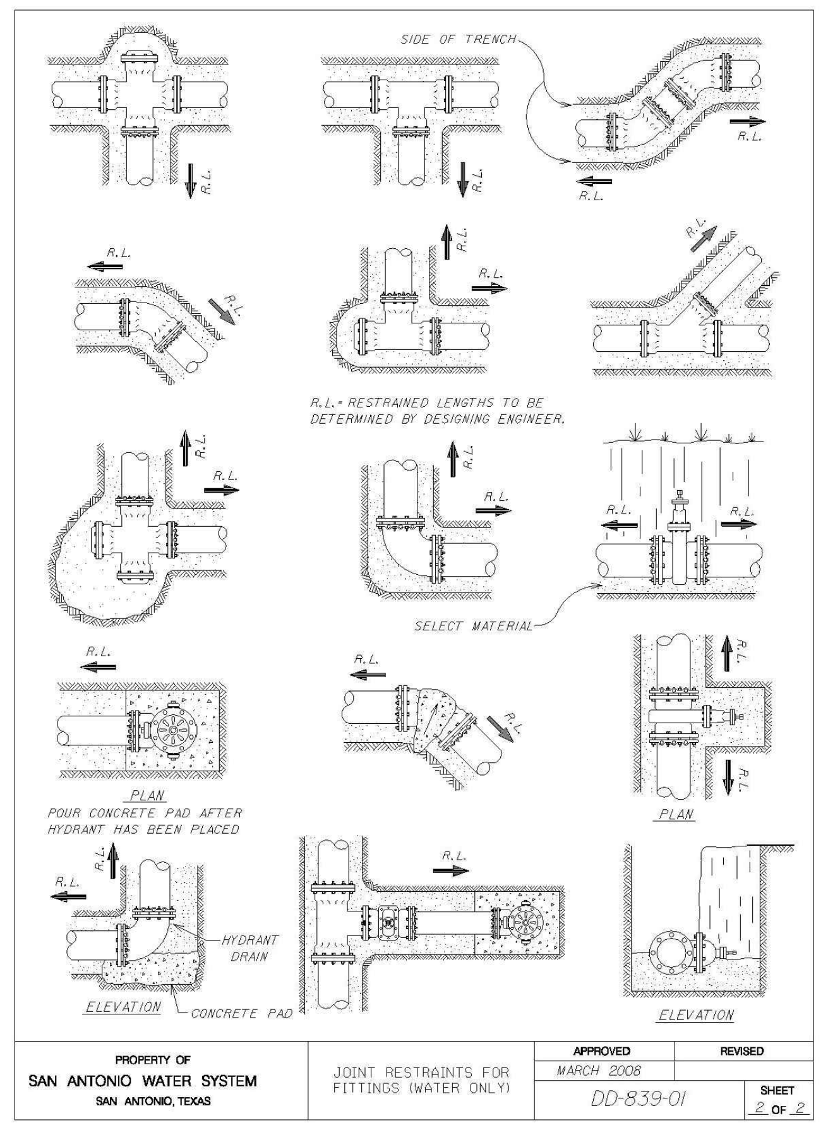

SAN ANTONIO WATER SYSTEM
TYPICAL METER BOX LOCATION (RESIDENTIAL)
DD-833-01

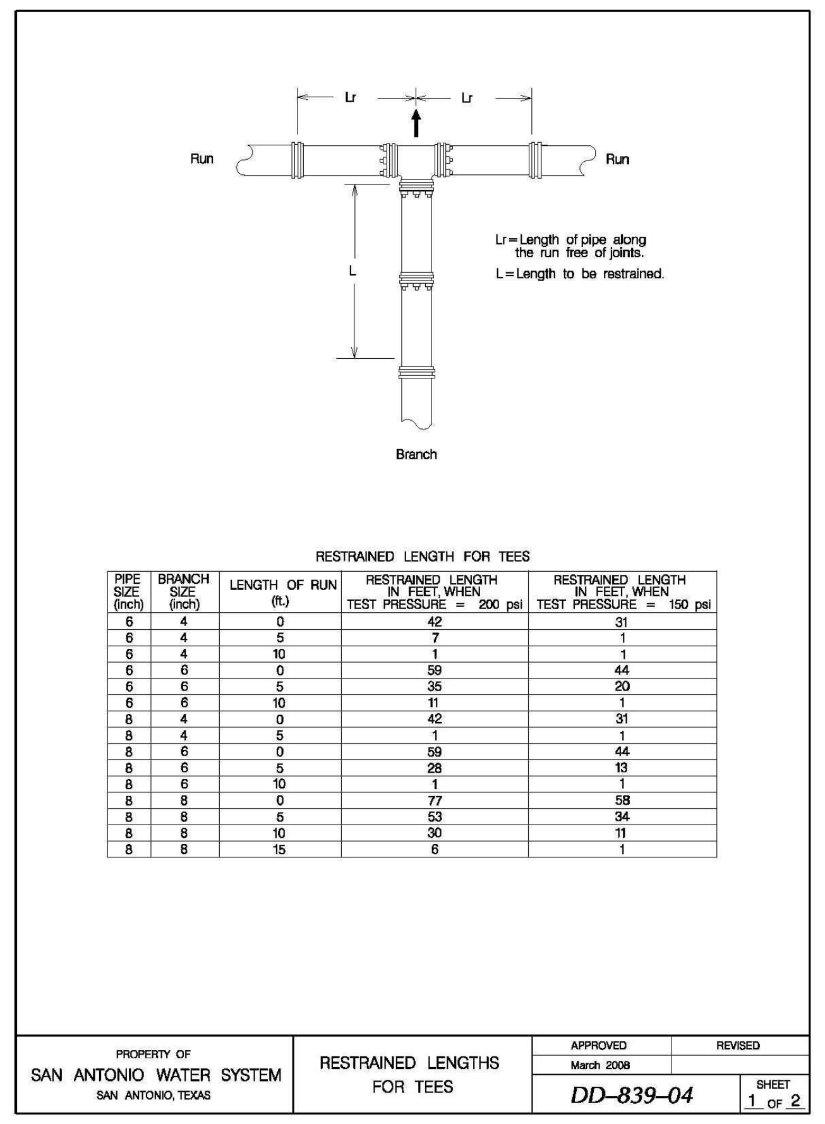

3/4" THRU 2" SERVICE PRESSURE REDUCING VALVE
SAN ANTONIO WATER SYSTEM
SERVICE INSTALLATION WITH PRESSURE REDUCING VALVE
DD-833-03

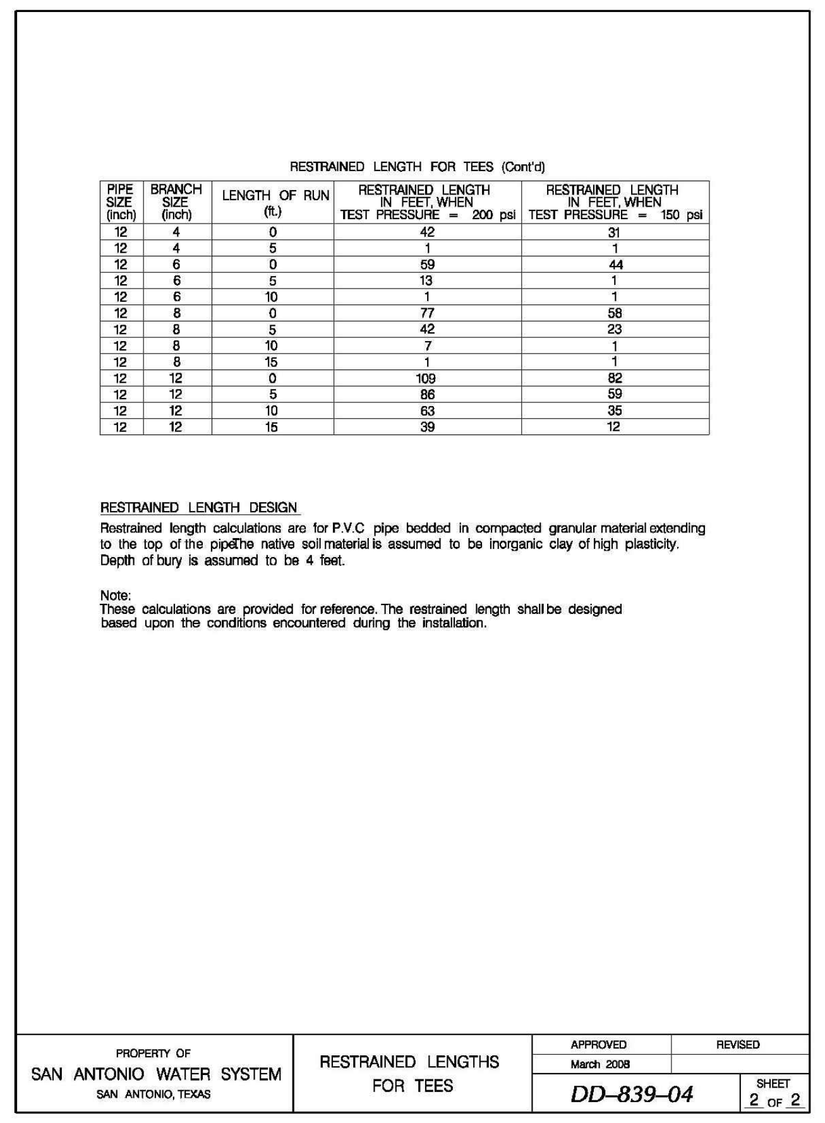

PREFERRED INSTALLATION
ALTERNATE INSTALLATION
SAN ANTONIO WATER SYSTEM
FIRE HYDRANT INSTALLATION
DD-834-01
SHEET 1 OF 2

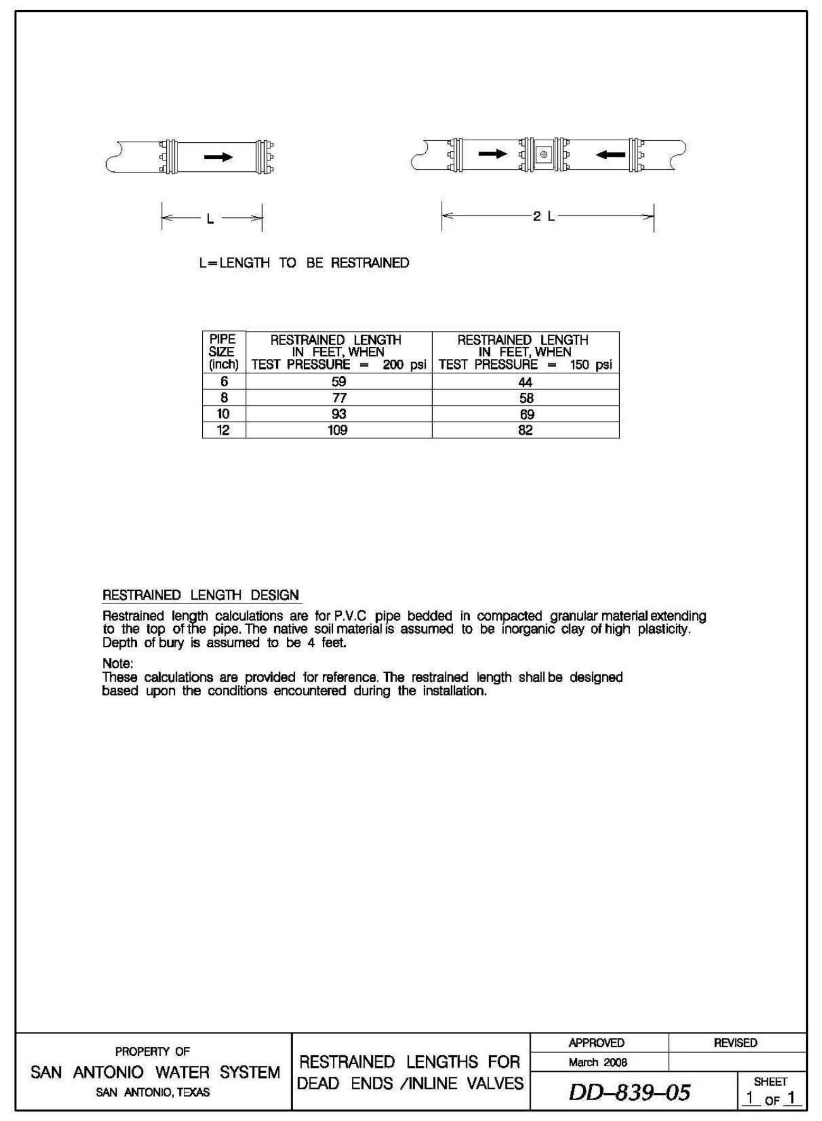

PREFERRED INSTALLATION
ALTERNATE INSTALLATION
SAN ANTONIO WATER SYSTEM
FIRE HYDRANT INSTALLATION (JOINT RESTRAINT)
DD-834-01
SHEET 2 OF 2

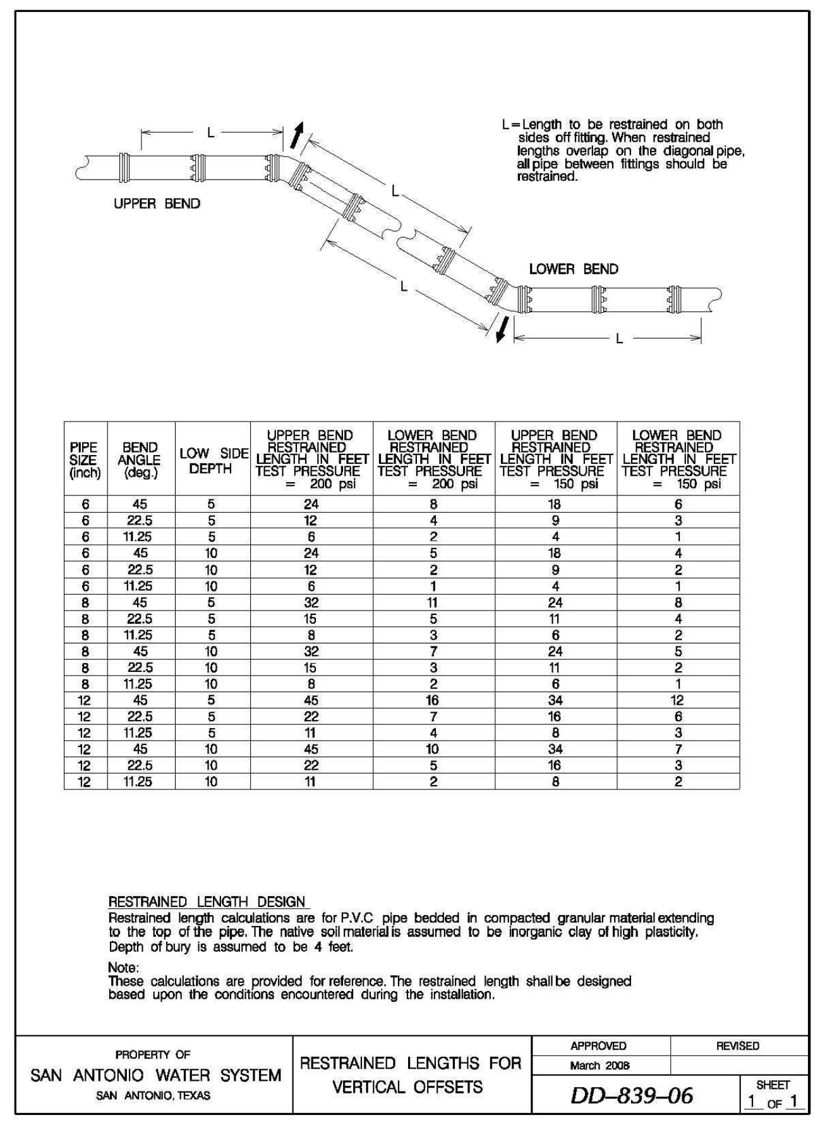

SAN ANTONIO WATER SYSTEM
THRUST BLOCKS FOR FITTINGS (WATER ONLY)
DD-839-01
SHEET 1 OF 2

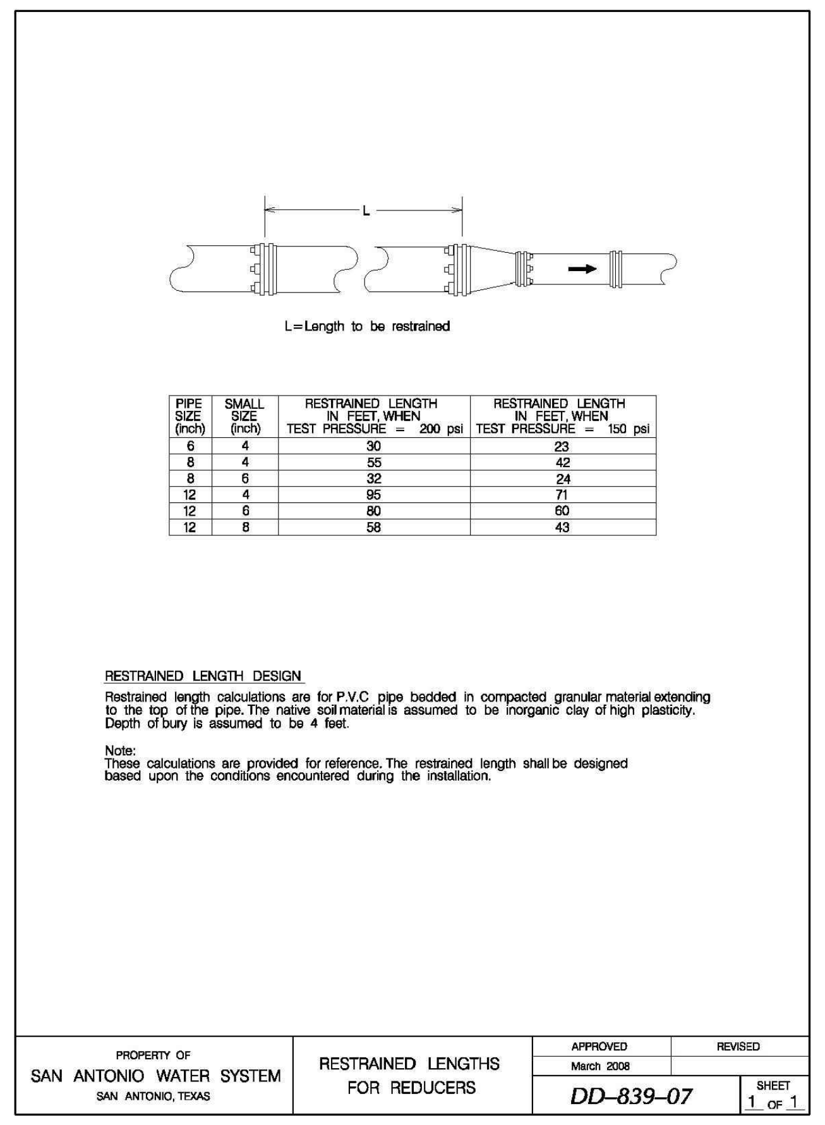

SAN ANTONIO WATER SYSTEM
JOINT RESTRAINTS FOR FITTINGS (WATER ONLY)
DD-839-01
SHEET 2 OF 2

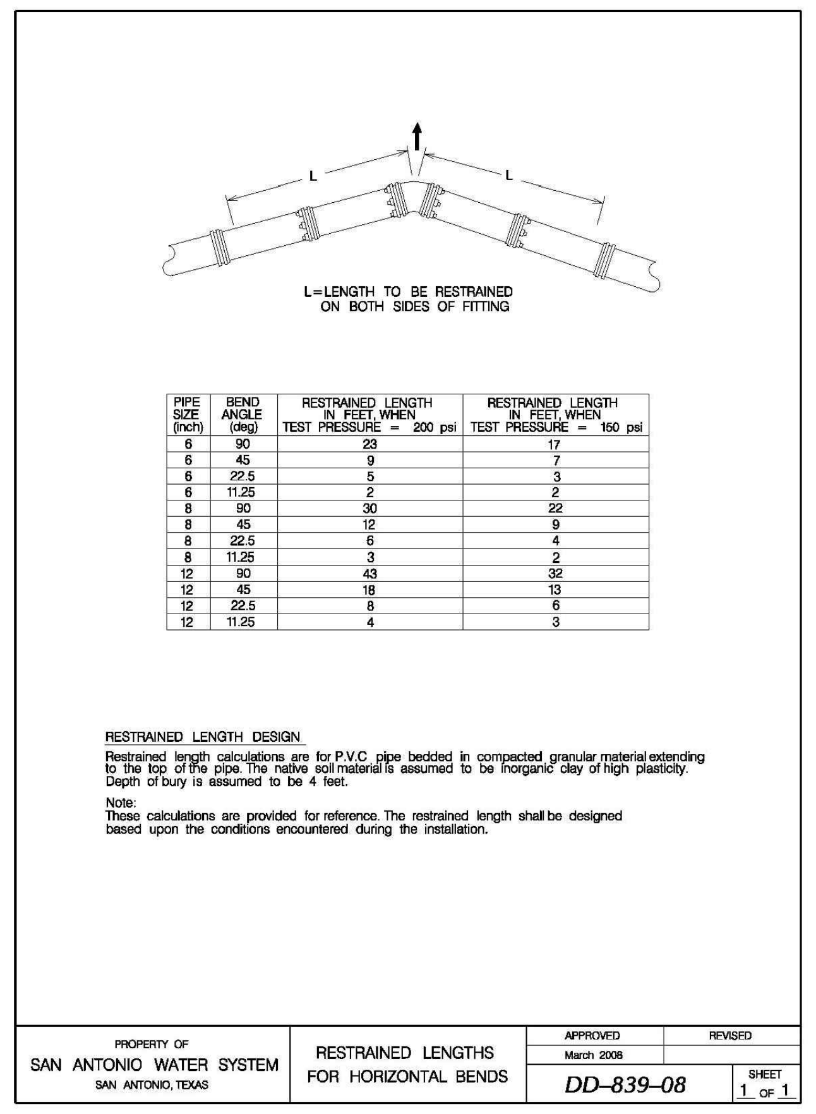

RESTRAINED LENGTH FOR TEES
SAN ANTONIO WATER SYSTEM
RESTRAINED LENGTHS FOR TEES
DD-839-04
SHEET 1 OF 2

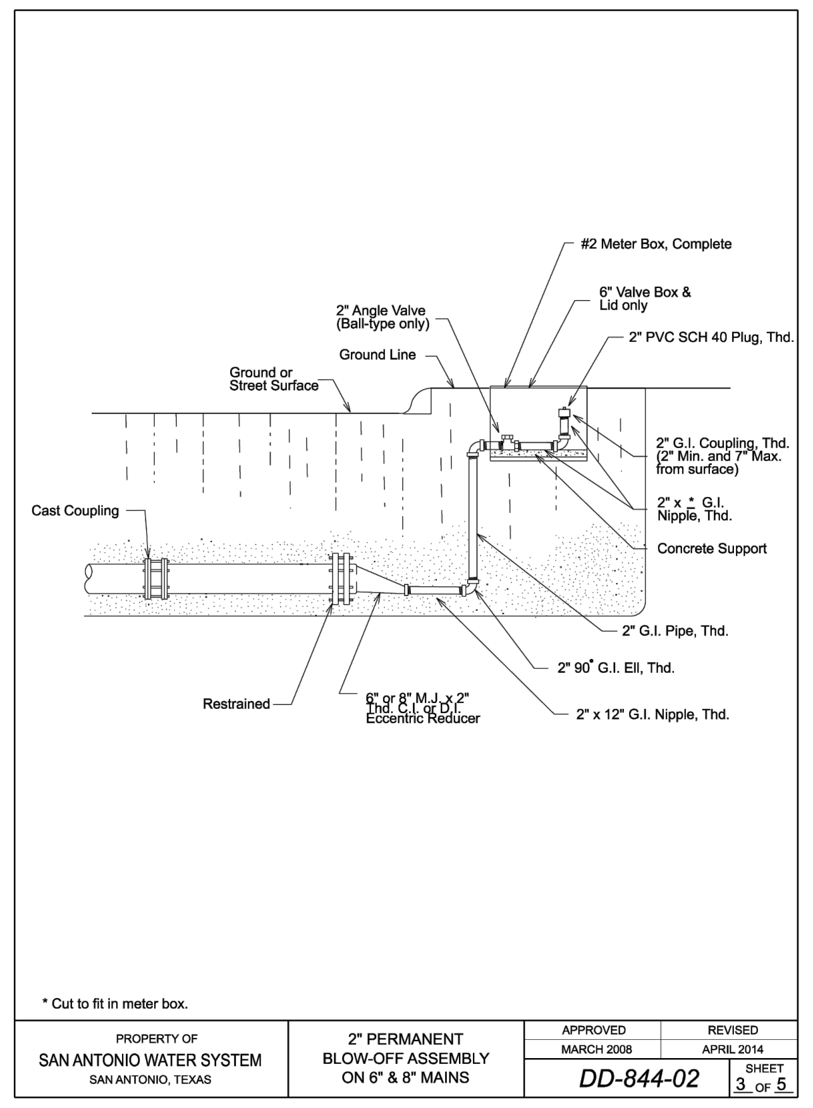

RESTRAINED LENGTH FOR TEES (Cont'd)
SAN ANTONIO WATER SYSTEM
RESTRAINED LENGTHS FOR TEES
DD-839-04
SHEET 2 OF 2

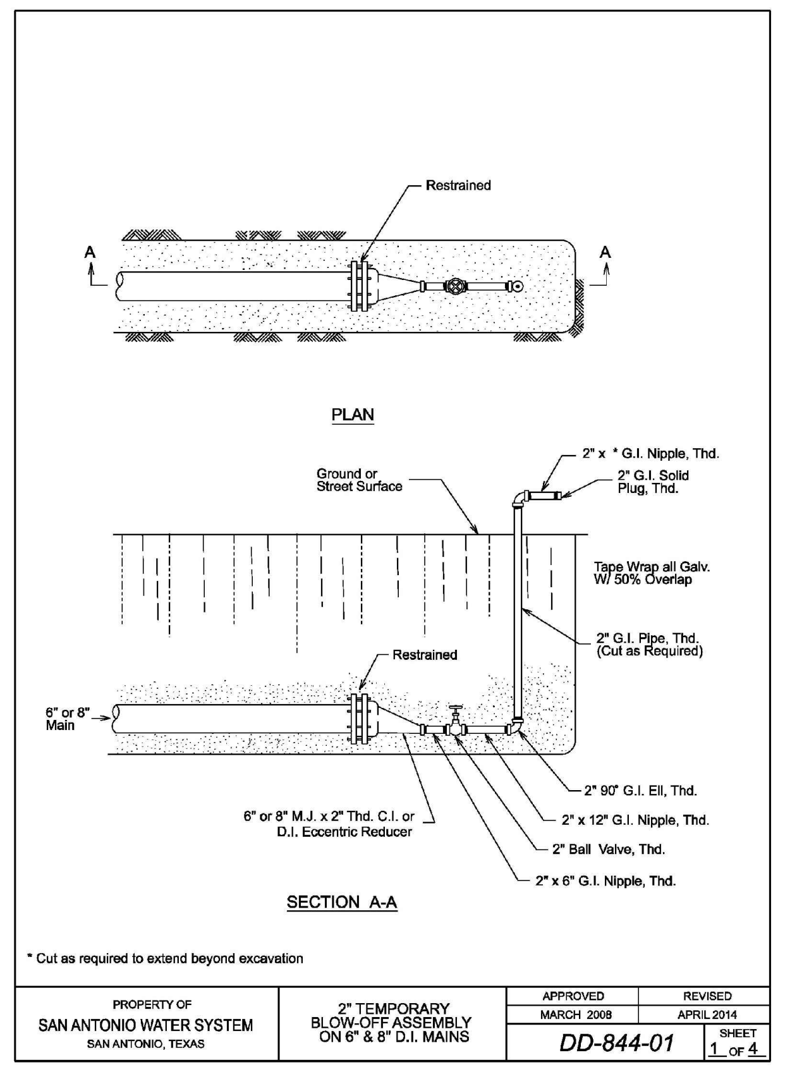

SAN ANTONIO WATER SYSTEM
RESTRAINED LENGTHS FOR DEAD ENDS /INLINE VALVES
DD-839-05

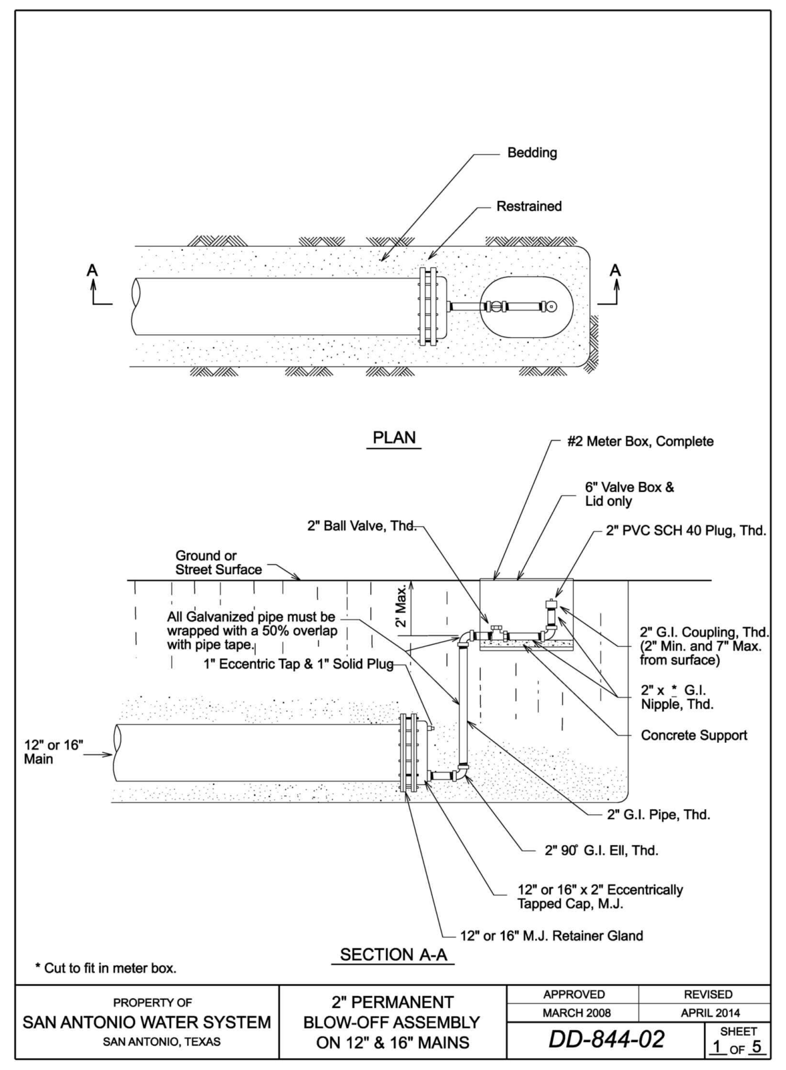

SAN ANTONIO WATER SYSTEM
RESTRAINED LENGTHS FOR VERTICAL OFFSETS
DD-839-06

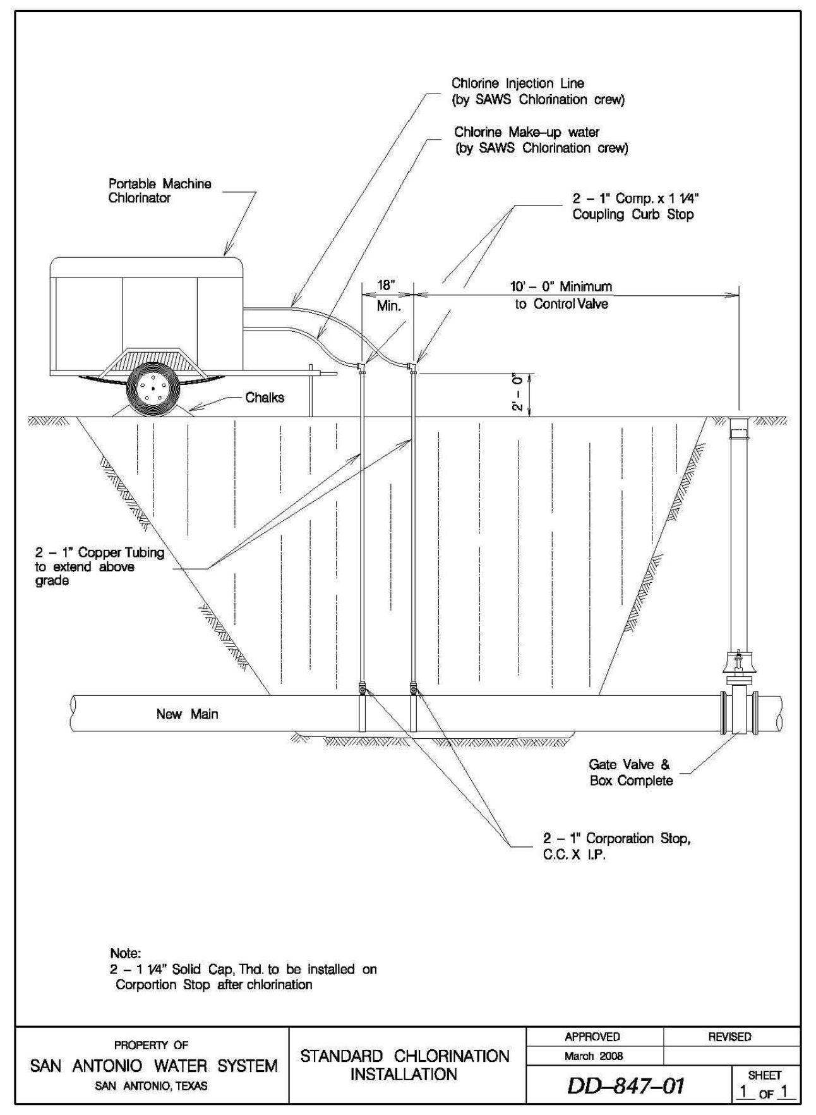

SAN ANTONIO WATER SYSTEM
RESTRAINED LENGTHS FOR REDUCERS
DD-839-07

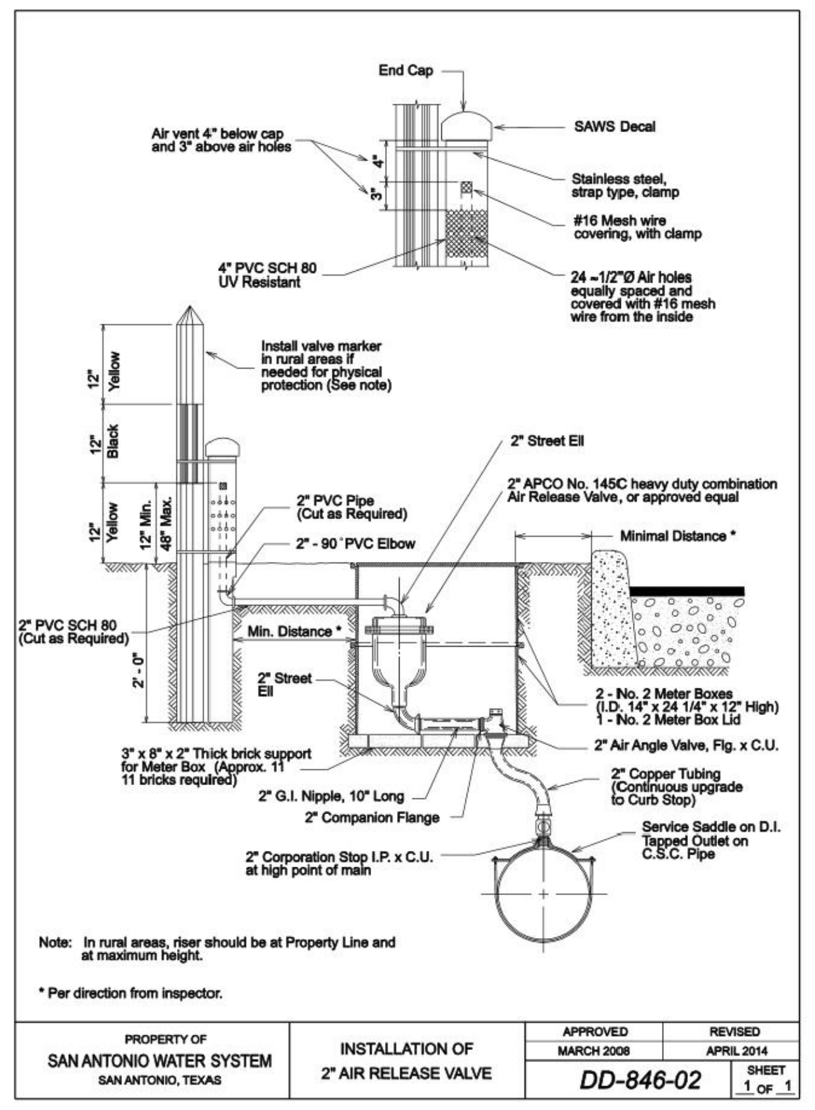

SAN ANTONIO WATER SYSTEM
RESTRAINED LENGTHS FOR HORIZONTAL BENDS
DD-839-08

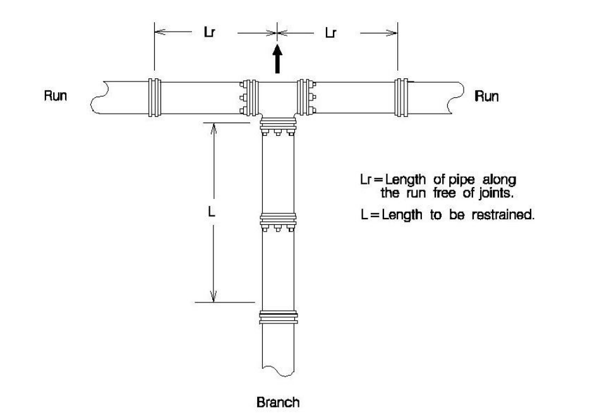

SAN ANTONIO WATER SYSTEM
2" PERMANENT BLOW-OFF ASSEMBLY ON 6" & 8" MAINS
DD-844-02


PLAN
SECTION A-A
SAN ANTONIO WATER SYSTEM
2" TEMPORARY BLOW-OFF ASSEMBLY ON 6" & 8" D.I. MAINS
DD-844-01

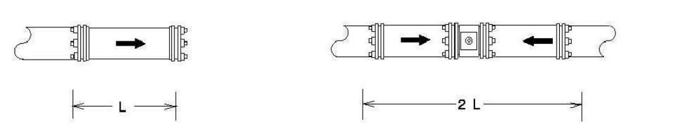

PLAN
SECTION A-A
SAN ANTONIO WATER SYSTEM
2" PERMANENT BLOW-OFF ASSEMBLY ON 12" & 16" MAINS
DD-844-02


SAN ANTONIO WATER SYSTEM
STANDARD CHLORINATION INSTALLATION
DD-847-01


SAN ANTONIO WATER SYSTEM
INSTALLATION OF 2" AIR RELEASE VALVE
DD-846-02
REVISED APRIL 2014
SHEET 1 OF 1

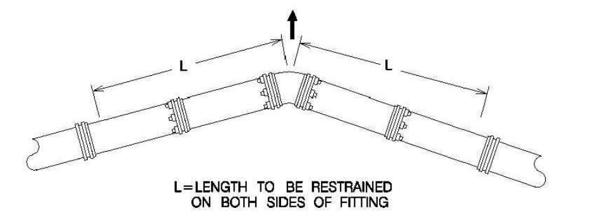

Lr
Lr
Run
Run
L
Branch
Lr = Length of pipe along the run free of joints.
L = Length to be restrained.

RESTRAINED LENGTH FOR TEES			
PIPE SIZE (IN.)	BRANCH SIZE (IN.)	LENGTH OF RUN (FT.)	RESTRAINED LENGTH IN FEET WHEN TEST PRESSURE = 150 PSI
16"	16"	9	60
16"	8"	9	1
16"	6"	9	1



L=LENGTH TO BE RESTRAINED

RESTRAINED LENGTH FOR DEAD ENDS/INLINE VALVES	
PIPE SIZE (IN.)	RESTRAINED LENGTH IN FEET WHEN TEST PRESSURE = 150 PSI
16"	135



L=LENGTH TO BE RESTRAINED ON BOTH SIDES OF FITTING

RESTRAINED LENGTH FOR HORIZONTAL BENDS		
PIPE SIZE (IN.)	BEND ANGLE (DEG.)	RESTRAINED LENGTH IN FEET WHEN TEST PRESSURE = 150 PSI
16"	45	15
16"	22.5	8
16"	11.25	4

NOTE:
1. RESTRAINED LENGTH CALCULATIONS ARE DUCTILE IRON PIPE BEDDED IN COMPACTED GRANULAR MATERIAL EXTENDING TO THE TOP OF THE PIPE. THE NATIVE SOIL MATERIALS IS ASSUMED TO BE ORGANIC CLAY OF HIGH PLASTICITY. DEPTH OF BURY IS ASSUMED TO BE 5 FT.
2. THESE CALCULATIONS ARE PROVIDED FOR REFERENCE. THE RESTRAINED LENGTH SHALL BE DESIGNED BASED UPON THE CONDITIONS ENCOUNTERED DURING THE INSTALLATION.

1
SCALE: NONE

JOINT RESTRAINT TABLES (16" WATER MAIN)

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 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.

CAUTION NOTE:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING 98% COMPACTION ON ALL TRENCH BACKFILL AND PAYING FOR THE TESTS TO BE PERFORMED BY A THIRD PARTY. COMPACTION TEST WILL BE DONE AT ONE LOCATION POINT RANDOMLY SELECTED OR AS INDICATED BY THE SAWS INSPECTOR/TEST ADMINISTER, 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.

NOTE: SAWS PRESSURE ZONE 12

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San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

CORLEY FARMS
UNIT 5

WATER DISTRIBUTION STANDARD DETAILS

DATE
04/09/2025

PROJECT NO.
03481.012

DRAWN BY
C3

CHECKED BY
XV/AL

#	DATE	REVISIONS
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		

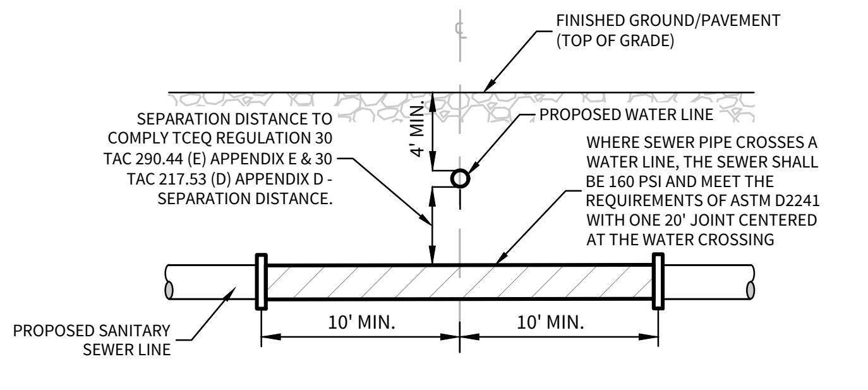
ANDREW R. LOWRY
123410
4/11/25

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

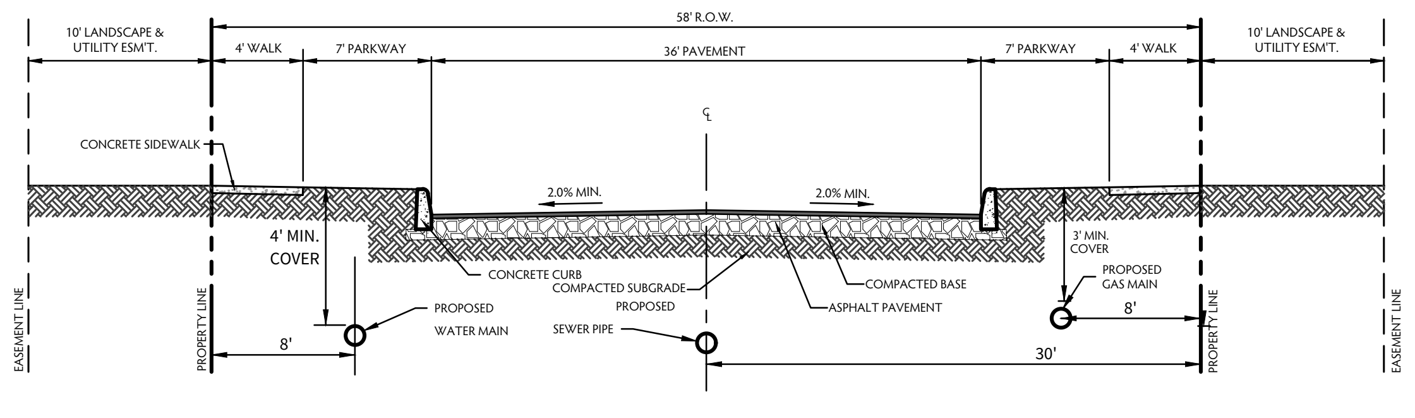
C35

CUDEENGINEERS.COM

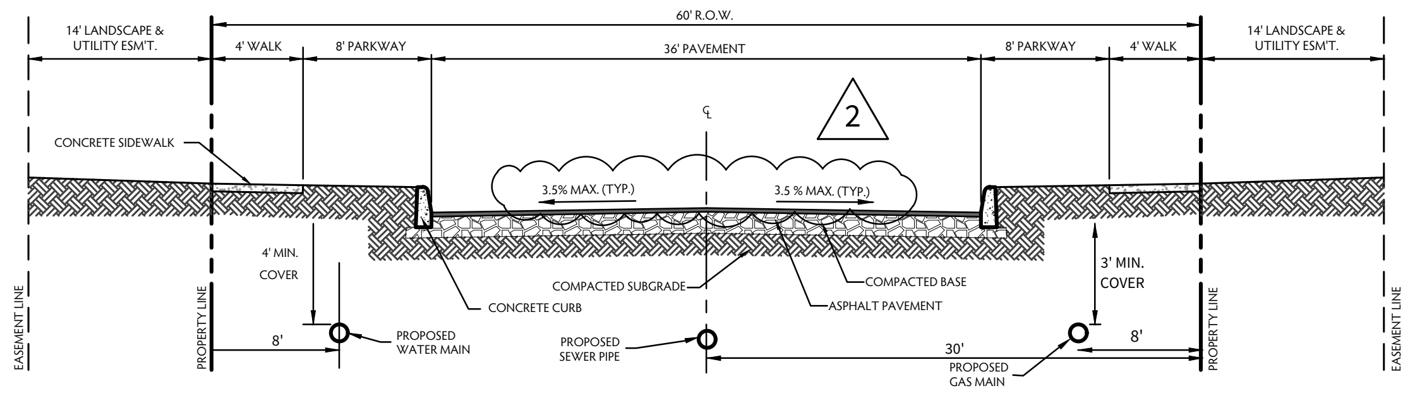
P:\03481\012\2-Drawings\C5.D1 WATER DISTRIBUTION STANDARD DETAILS.dwg 2025/04/09 10:41pm mlopez


FINISHED GROUND/PAVEMENT (TOP OF GRADE)
PROPOSED WATER LINE
4' MIN.
SEPARATION DISTANCE TO COMPLY TCEQ REGULATION 30 TAC 290.44 (E) APPENDIX E & 30 TAC 217.53 (D) APPENDIX D - SEPARATION DISTANCE.
WHERE SEWER PIPE CROSSES A WATER LINE, THE SEWER SHALL BE 160 PSI AND MEET THE REQUIREMENTS OF ASTM D2241 WITH ONE 20' JOINT CENTERED AT THE WATER CROSSING
PROPOSED SANITARY SEWER LINE
10' MIN.
10' MIN.

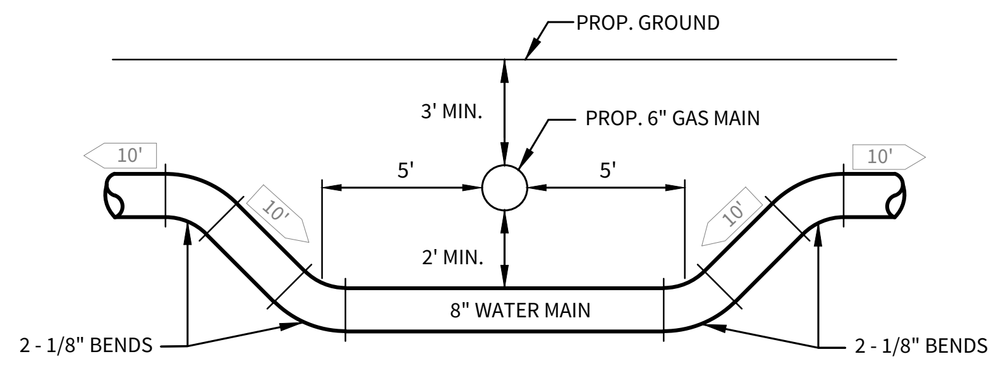
TYPICAL SANITARY SEWER/ WATER CROSSING DETAIL
N.T.S.


58' R.O.W.
10' LANDSCAPE & UTILITY ESM'T.
4' WALK
7' PARKWAY
36' PAVEMENT
7' PARKWAY
4' WALK
10' LANDSCAPE & UTILITY ESM'T.
CONCRETE SIDEWALK
2.0% MIN.
2.0% MIN.
4' MIN. COVER
3' MIN. COVER
CONCRETE CURB
COMPACTED SUBGRADE
COMPACTED BASE
ASPHALT PAVEMENT
PROPOSED WATER MAIN
PROPOSED SEWER PIPE
PROPOSED GAS MAIN
8'
30'
8'
EASEMENT LINE
PROPERTY LINE

TYPICAL "NEIGHBORHOOD RESIDENTIAL" STREET CROSS-SECTION
N.T.S.

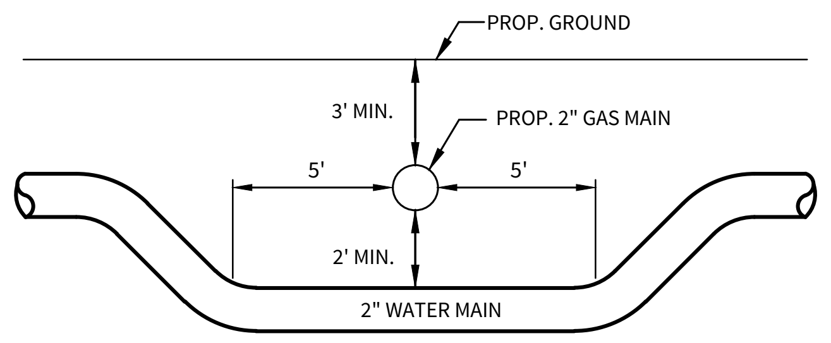

60' R.O.W.
14' LANDSCAPE & UTILITY ESM'T.
4' WALK
8' PARKWAY
36' PAVEMENT
8' PARKWAY
4' WALK
14' LANDSCAPE & UTILITY ESM'T.
2
CONCRETE SIDEWALK
3.5% MAX. (TYP.)
3.5 % MAX. (TYP.)
4' MIN. COVER
3' MIN. COVER
COMPACTED SUBGRADE
CONCRETE CURB
COMPACTED BASE
ASPHALT PAVEMENT
PROPOSED WATER MAIN
PROPOSED SEWER PIPE
PROPOSED GAS MAIN
8'
30'
8'
EASEMENT LINE
PROPERTY LINE

TYPICAL "NEIGHBORHOOD COLLECTOR" STREET CROSS-SECTION
N.T.S.


PROP. GROUND
3' MIN.
PROP. 6" GAS MAIN
10'
10'
10'
10'
5'
5'
2' MIN.
8" WATER MAIN
2 - 1/8" BENDS
2 - 1/8" BENDS

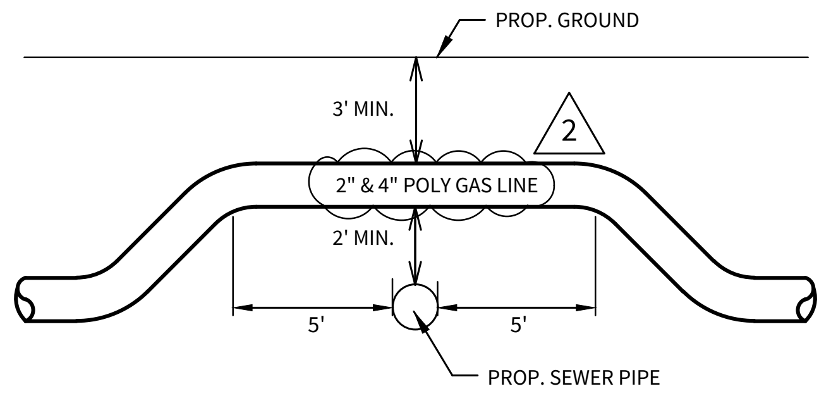
8" WATER / 6" GAS CROSSINGS DETAIL

SIDE VIEW (THIS DETAIL IS VERTICAL ONLY, NOT HORIZONTAL.)
(N.T.S.)


PROP. GROUND
3' MIN.
PROP. 2" GAS MAIN
5'
5'
2' MIN.
2" WATER MAIN

2" WATER / 2" GAS CROSSINGS DETAIL

SIDE VIEW (THIS DETAIL IS VERTICAL ONLY, NOT HORIZONTAL.)
(N.T.S.)


PROP. GROUND
3' MIN.
2
2" & 4" POLY GAS LINE
2' MIN.
5'
5'
PROP. SEWER PIPE

SEWER / GAS CROSSINGS DETAIL

SIDE VIEW (THIS DETAIL IS VERTICAL ONLY, NOT HORIZONTAL.)
(N.T.S.)
NOTE: VERTICAL BEND IS NOT NEEDED WHEN SEWER IS DEEPER THAN 7'

THRUST BLOCKING NOTE

ANCHORAGE/ THRUST BLOCKING AND JOINT RESTRAINTS SHALL BE DONE IN ACCORDANCE WITH SAWS STANDARDS AND SPECIFICATIONS FOR CONSTRUCTION (ITEM NO. 839)

TRENCH EXCAVATION PROTECTION

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION 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.

SAWS CONSTRUCTION NOTES
COUNTER PERMIT AND GENERAL CONSTRUCTION PERMIT *REVISED JULY 2017*

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 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. Water Section

WATER SECTION

1. Prior to tie-ins, any shutdowns of existing mains of any size must be coordinated with the SAWS Construction Inspection Division 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. For water mains 12" or higher: SAWS Emergency Operations Center (210) 233-2014

2. Asbestos Cement (AC) pipe, also known as transite pipe which is known to contain asbestoscontaining material (ACM), may be located within the project limits. Special waste management procedures and health and safety requirements will be applicable when removal and/or disturbance of this pipe occurs. Such work is to be made under Special Specification Item No. 3000, "Special Specification for Handling Asbestos Cement Pipe".

3. Valve removal: Where the contractor is to abandon a water main, the control valve located on the abandoning branch will be removed and replaced with a cap/plug. (NSPI)

4. Suitable anchorage/thrust blocking or joint restraint shall be provided at all of the following main locations: dead ends, plugs, caps, tees, crosses, valves, and bends, in accordance with the Standard Drawings DD-839 Series and Item No. 839, in the SAWS Standard Specifications for Construction.

5. All valves shall read "open right".

6. PRVs Required: Contractor to verify that no portion of the tract is below ground elevation of XXXX feet where the static pressure will normally exceed 80 PSI. At all such locations where the ground level is below XXXX feet, the Developer or Builder shall install at each lot, on the customer's side of the meter, an approved type pressure regulator in conformance with the Plumbing Code of the City of San Antonio. No dual services allowed for any lot(s) if *PRV is/are required for such lot(s), only single service connections shall be allowed. *Note: A pressure regulator is also known as a pressure reducing valve (PRV).

7. Pipe Disinfection with Dry HTH for Projects less than 800 linear feet. (Item No. 847.3): Mains shall be disinfected with dry HTH where shown in the contract documents or as directed by the Inspector, and shall not exceed a total length of 800 feet. This method of disinfection will also be followed for main repairs. The Contractor shall utilize all appropriate safety measure to protect his personnel during disinfection operations.

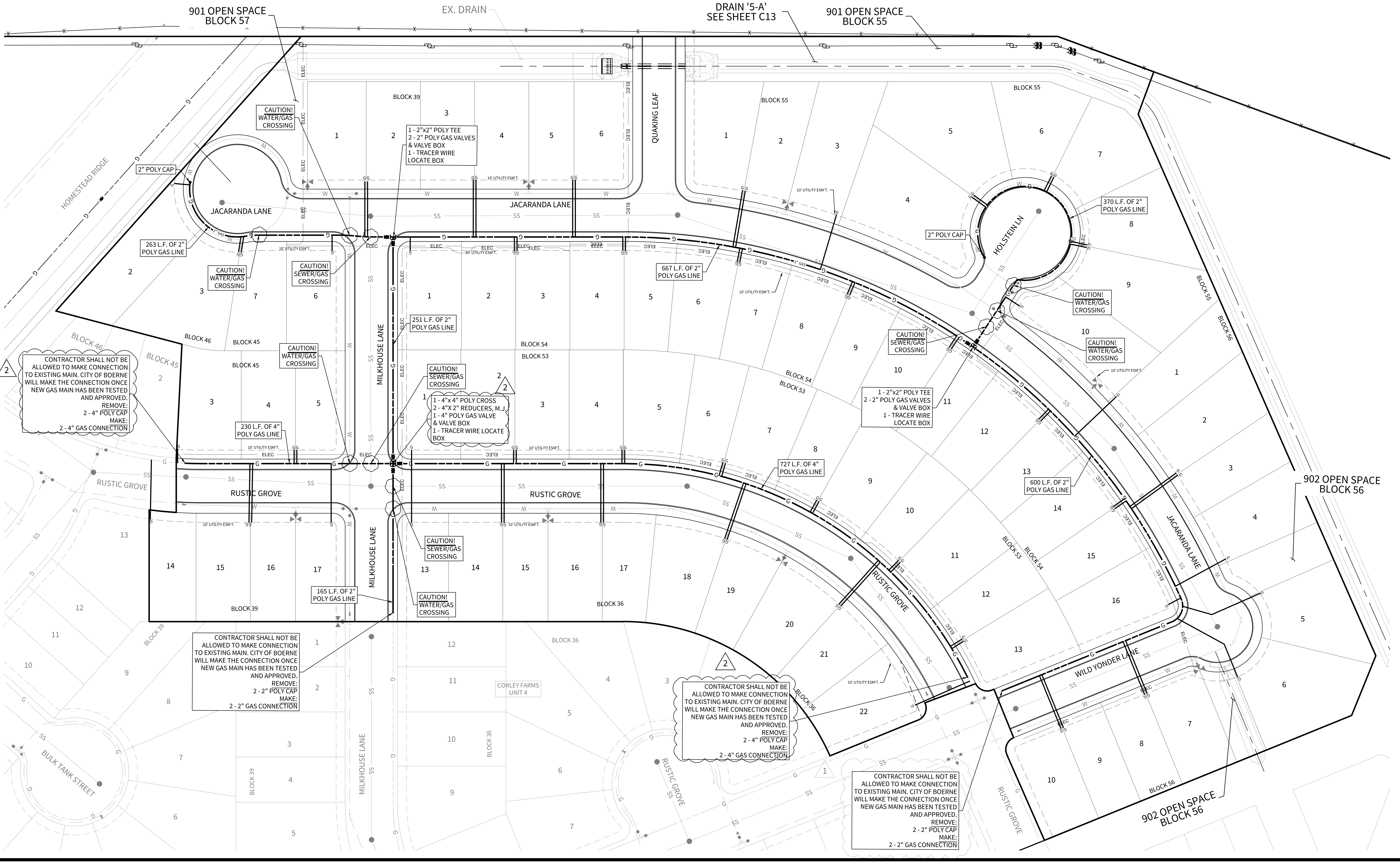
8. Backflow Prevention Devices:

- ☐ All irrigation services within residential areas are required to have backflow prevention devices.
- ☐ All commercial backflow prevention devices must be approved by SAWS prior to installation.

9. Final connection to the existing water main shall not be made until the water main has been pressure tested, chlorinated, and SAWS has released the main for tie-in and use.

10. All meters shall be 5/8", unless otherwise noted.

11. All pipes shall be C-900, CLASS 235 DR 18, unless otherwise noted.


901 OPEN SPACE BLOCK 57
EX. DRAIN
DRAIN '5-A' SEE SHEET C13
901 OPEN SPACE BLOCK 55
HOMESTEAD RIDGE
JACARANDA LANE
QUAKING LEAF
HOLSTEIN LN
MILKHOUSE LANE
RUSTIC GROVE
WILD YONDER LANE
BULK TANK STREET
BLOCK 39
BLOCK 45
BLOCK 46
BLOCK 53
BLOCK 54
BLOCK 55
BLOCK 56
BLOCK 36
CORLEY FARMS UNIT 4
902 OPEN SPACE BLOCK 56
10' UTILITY ESM'T.
ELEC
CAUTION! WATER/GAS CROSSING
CAUTION! SEWER/GAS CROSSING
2" POLY CAP
263 L.F. OF 2" POLY GAS LINE
1 - 2"x2" POLY TEE
2 - 2" POLY GAS VALVES & VALVE BOX
1 - TRACER WIRE LOCATE BOX
251 L.F. OF 2" POLY GAS LINE
230 L.F. OF 4" POLY GAS LINE
1 - 4"x 4" POLY CROSS
2 - 4"X 2" REDUCERS, M.J.
1 - 4" POLY GAS VALVE & VALVE BOX
1 - TRACER WIRE LOCATE BOX
165 L.F. OF 2" POLY GAS LINE
667 L.F. OF 2" POLY GAS LINE
370 L.F. OF 2" POLY GAS LINE
727 L.F. OF 4" POLY GAS LINE
600 L.F. OF 2" POLY GAS LINE
CONTRACTOR SHALL NOT BE ALLOWED TO MAKE CONNECTION TO EXISTING MAIN. CITY OF BOERNE WILL MAKE THE CONNECTION ONCE NEW GAS MAIN HAS BEEN TESTED AND APPROVED. REMOVE: 2 - 4" POLY CAP MAKE: 2 - 4" GAS CONNECTION
CONTRACTOR SHALL NOT BE ALLOWED TO MAKE CONNECTION TO EXISTING MAIN. CITY OF BOERNE WILL MAKE THE CONNECTION ONCE NEW GAS MAIN HAS BEEN TESTED AND APPROVED. REMOVE: 2 - 2" POLY CAP MAKE: 2 - 2" GAS CONNECTION
2
1

SCALE: 1"=60'
60 30 0 60

LEGEND

OVERALL UNIT BOUNDARY	— — — —
PROPOSED LOT LINE	——
PROPOSED RIGHT OF WAY	——
E.G.T.CA. EASEMENT	— — — —
EXISTING WATER LINE	—— Wx ——
EXISTING SEWER MAIN	—— SSx ——
EXISTING GAS MAIN	—— Gx ——
EXISTING SEWER MANHOLE	●
PROPOSED SEWER MANHOLE	●
PROPOSED WATER LINE	—— W ——
PROPOSED SEWER MAIN	—— SS ——
PROPOSED GAS MAIN	—— G ——
PROPOSED SEWER LATERAL	——

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CORLEY FARMS
UNIT 5

NATURAL GAS DISTRIBUTION PLAN

DATE
04/10/2025

PROJECT NO.
03481.012

DRAWN BY
C3

CHECKED BY
XV/AL

#	DATE	REVISIONS
1.	11/7/24	PERMITTING COMMENTS
2.	04/7/25	PERMITTING COMMENTS
3.		
4.		
5.		
6.		
7.		
8.		
9.		

ANDREW R. LOWRY
123410
4/11/25

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C36

CUDEENGINEERS.COM

P:\03481\012\2-Drawings\C6.00 NATURAL GAS DISTRIBUTION PLAN.dwg 2025/04/10 3:44pm rchaires

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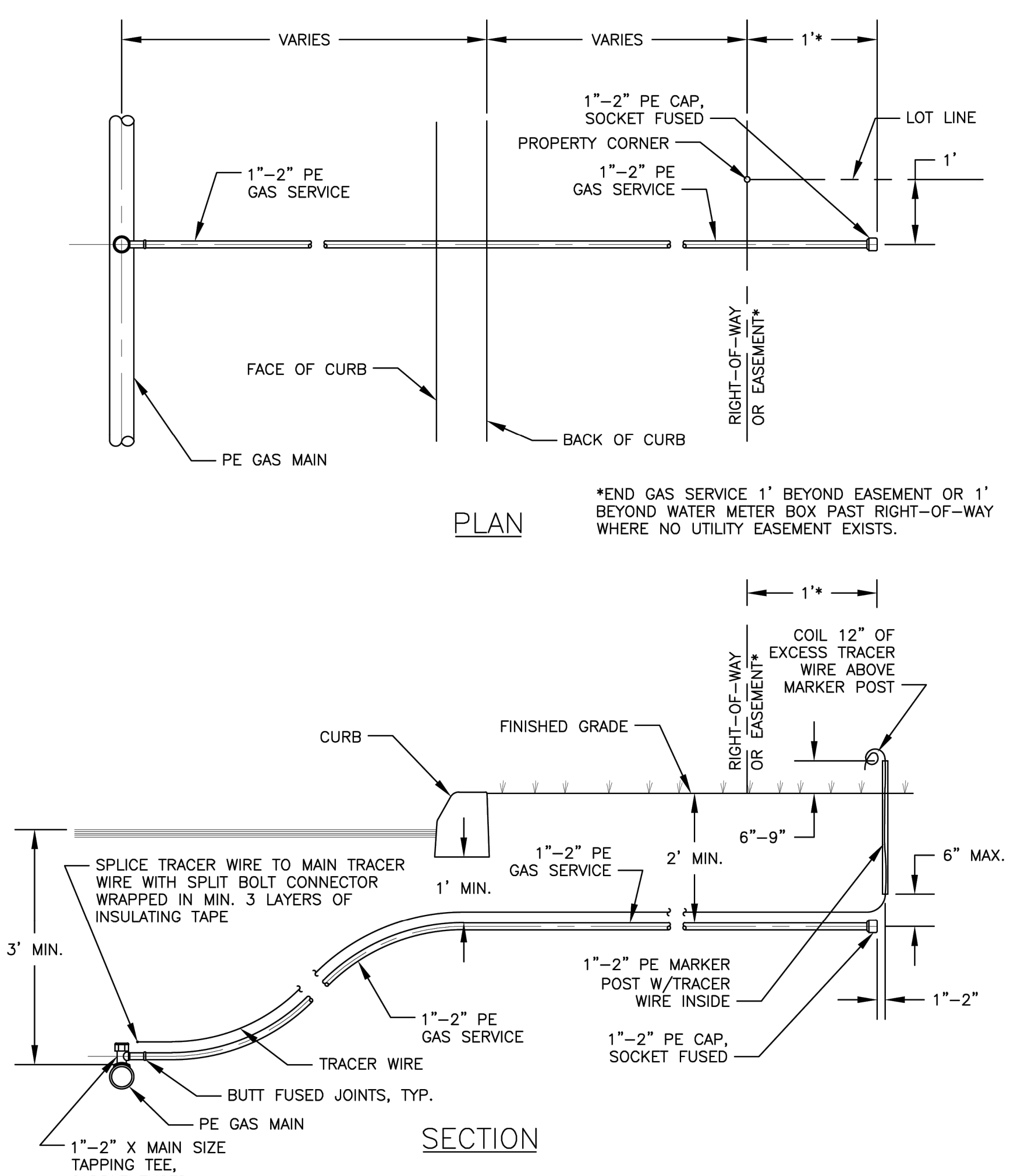
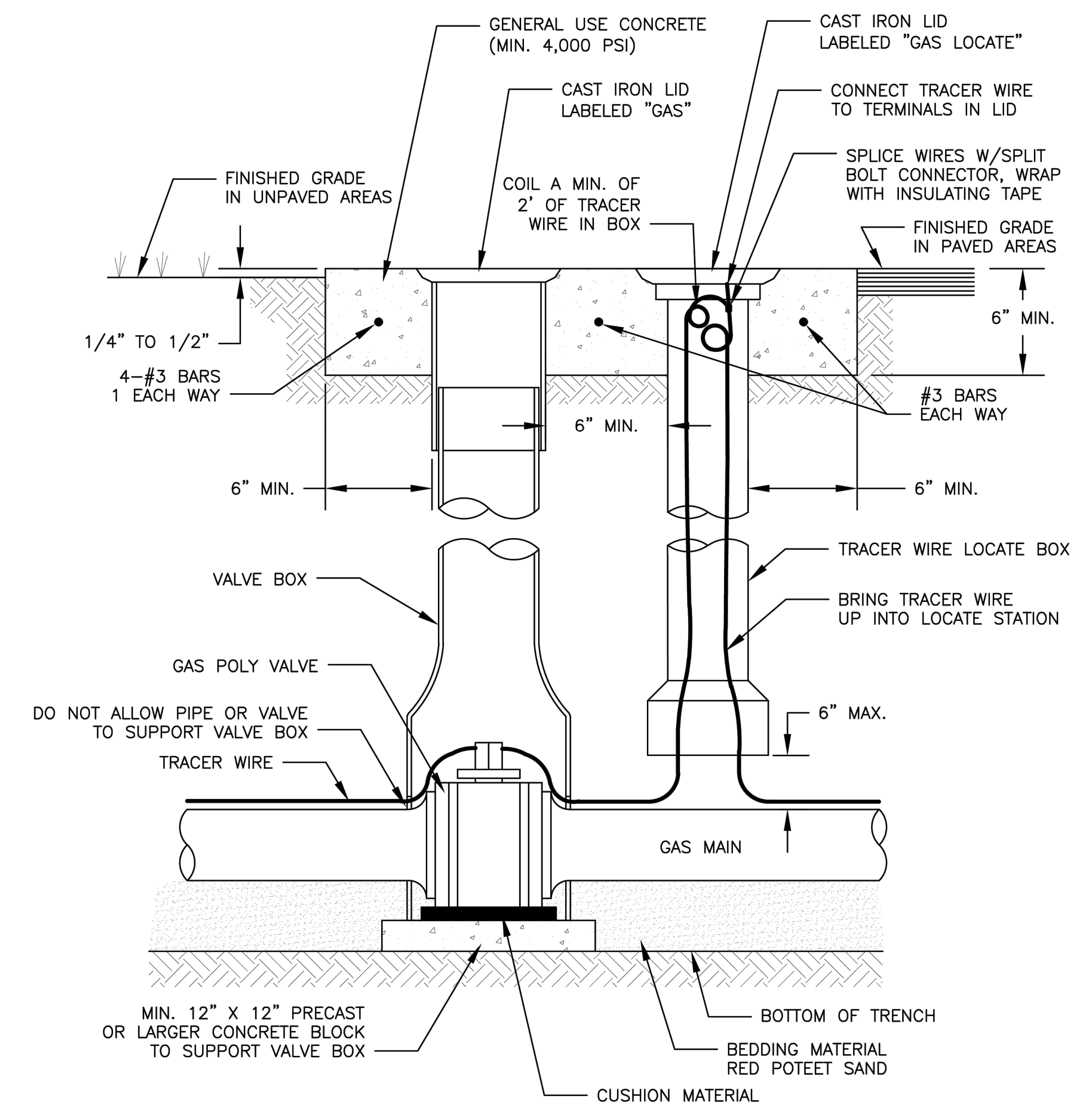

VARIES
VARIES
1'*
1"–2" PE CAP, SOCKET FUSED
LOT LINE
PROPERTY CORNER
1'
1"–2" PE GAS SERVICE
1"–2" PE GAS SERVICE
FACE OF CURB
BACK OF CURB
RIGHT–OF–WAY OR EASEMENT*
PE GAS MAIN
PLAN
*END GAS SERVICE 1' BEYOND EASEMENT OR 1' BEYOND WATER METER BOX PAST RIGHT–OF–WAY WHERE NO UTILITY EASEMENT EXISTS.
1'*
COIL 12" OF EXCESS TRACER WIRE ABOVE MARKER POST
RIGHT–OF–WAY OR EASEMENT*
CURB
FINISHED GRADE
6"–9"
6" MAX.
SPLICE TRACER WIRE TO MAIN TRACER WIRE WITH SPLIT BOLT CONNECTOR WRAPPED IN MIN. 3 LAYERS OF INSULATING TAPE
1"–2" PE GAS SERVICE
2' MIN.
1' MIN.
3' MIN.
1"–2" PE MARKER POST W/TRACER WIRE INSIDE
1"–2"
1"–2" PE GAS SERVICE
1"–2" PE CAP, SOCKET FUSED
TRACER WIRE
BUTT FUSED JOINTS, TYP.
PE GAS MAIN
1"–2" X MAIN SIZE TAPPING TEE, SADDLE FUSED
SECTION

NOTES:
1. EXCESS FLOW VALVE (EFV) TO BE INSTALLED BY THE CITY OF BOERNE UTILITIES DEPARTMENT.
2. GAS SERVICE SIZE TO BE DETERMINED BY CITY OF BOERNE UTILITIES DEPARTMENT.

CITY OF BOERNE

1"–2" SINGLE GAS SERVICE

SCALE: N.T.S.
DRAWING No. 02560–1.3
DATE: MAY 2024

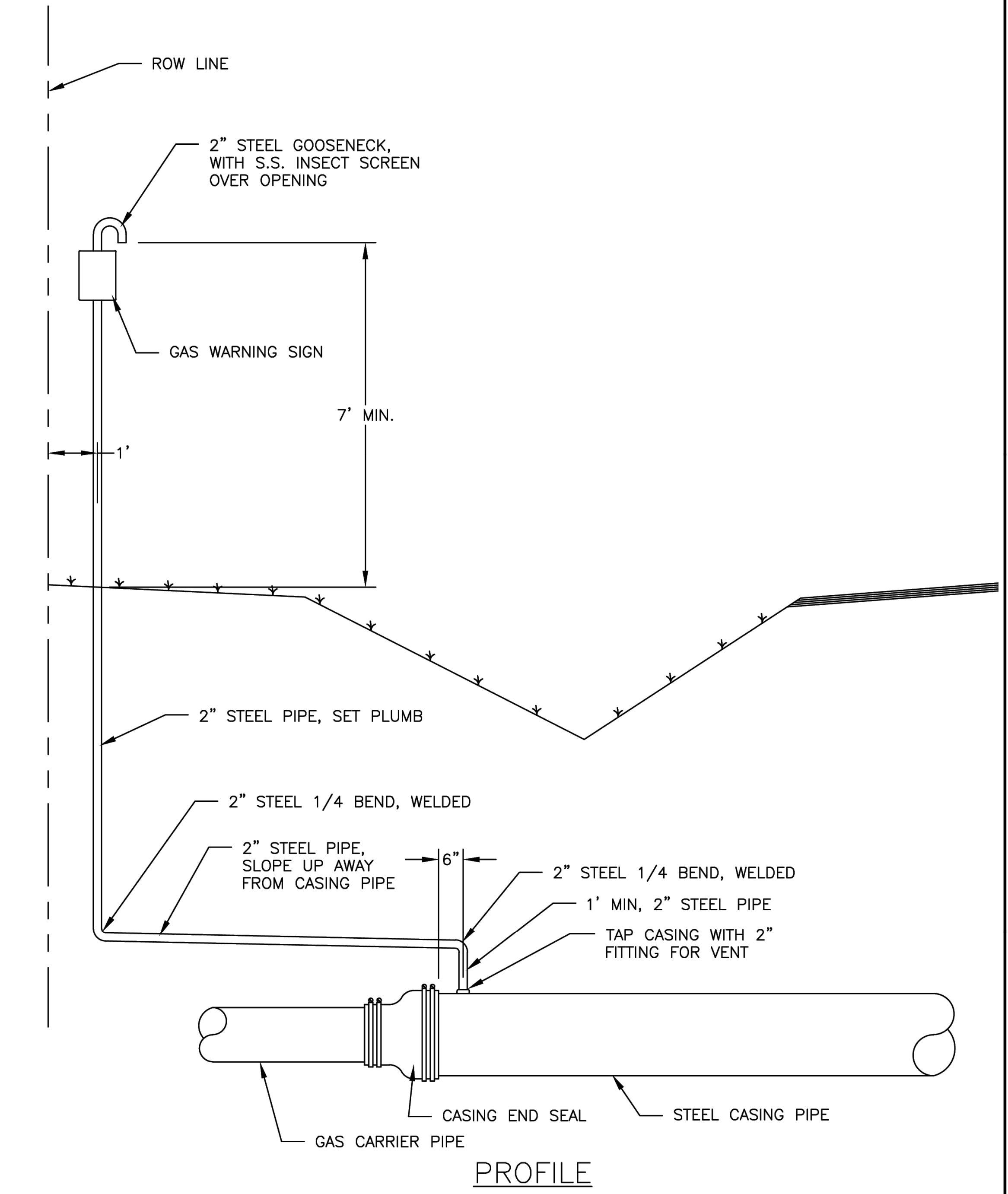

GENERAL USE CONCRETE (MIN. 4,000 PSI)
CAST IRON LID LABELED "GAS LOCATE"
CAST IRON LID LABELED "GAS"
CONNECT TRACER WIRE TO TERMINALS IN LID
SPLICE WIRES W/SPLIT BOLT CONNECTOR, WRAP WITH INSULATING TAPE
FINISHED GRADE IN UNPAVED AREAS
COIL A MIN. OF 2' OF TRACER WIRE IN BOX
FINISHED GRADE IN PAVED AREAS
1/4" TO 1/2"
4–#3 BARS 1 EACH WAY
6" MIN.
#3 BARS EACH WAY
6" MIN.
6" MIN.
6" MIN.
TRACER WIRE LOCATE BOX
VALVE BOX
BRING TRACER WIRE UP INTO LOCATE STATION
GAS POLY VALVE
DO NOT ALLOW PIPE OR VALVE TO SUPPORT VALVE BOX
6" MAX.
TRACER WIRE
GAS MAIN
MIN. 12" X 12" PRECAST OR LARGER CONCRETE BLOCK TO SUPPORT VALVE BOX
BOTTOM OF TRENCH
BEDDING MATERIAL RED POTEET SAND
CUSHION MATERIAL

NOTES:
1. WHERE MULTIPLE VALVES ARE PROPOSED WITHIN 10–FEET OF EACH OTHER, MAY ROUTE TO A SINGLE TRACER WIRE LOCATE BOX; OTHERWISE A LOCATE BOX IS REQUIRED FOR EACH INDIVIDUAL VALVE OR EVERY 500–FEET.
2. ALL BACKFILL SHALL BE MOISTURE CONDITIONED AND COMPACTED TO 95% COMPACTION PER ASTM D1557 (MODIFIED PROCTOR).

CITY OF BOERNE

GAS VALVE AND VALVE BOX

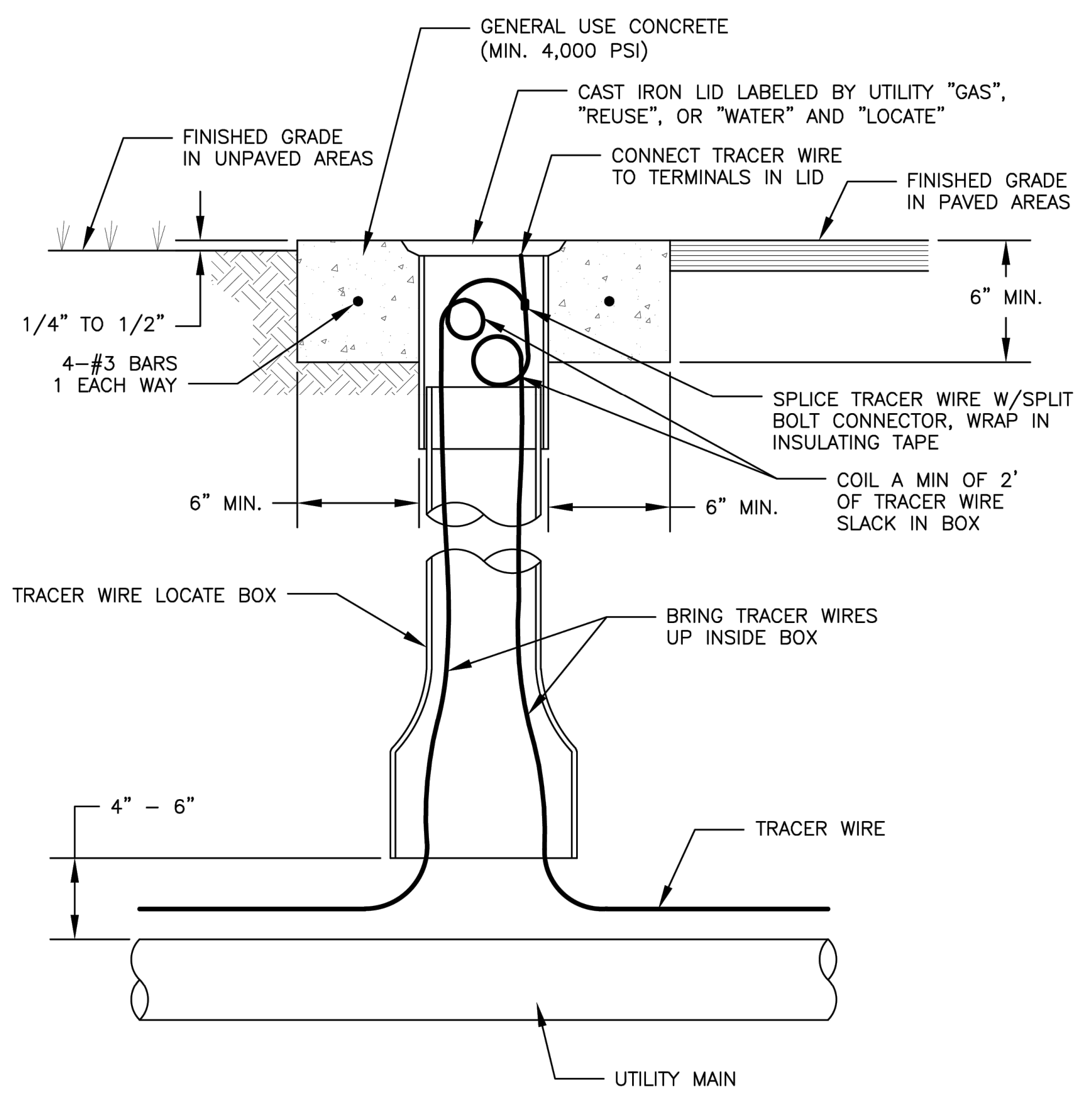
SCALE: N.T.S.
DRAWING No. 02560–1.0
DATE: MAY 2024


ROW LINE
2" STEEL GOOSENECK, WITH S.S. INSECT SCREEN OVER OPENING
GAS WARNING SIGN
7' MIN.
1'
2" STEEL PIPE, SET PLUMB
2" STEEL 1/4 BEND, WELDED
2" STEEL PIPE, SLOPE UP AWAY FROM CASING PIPE
6"
2" STEEL 1/4 BEND, WELDED
1' MIN, 2" STEEL PIPE
TAP CASING WITH 2" FITTING FOR VENT
CASING END SEAL
STEEL CASING PIPE
GAS CARRIER PIPE
PROFILE

CITY OF BOERNE

CASING VENT FOR
GAS MAIN UNDERCROSSING

SCALE: N.T.S.
DRAWING No. 02224–1.1
DATE: MAY 2024

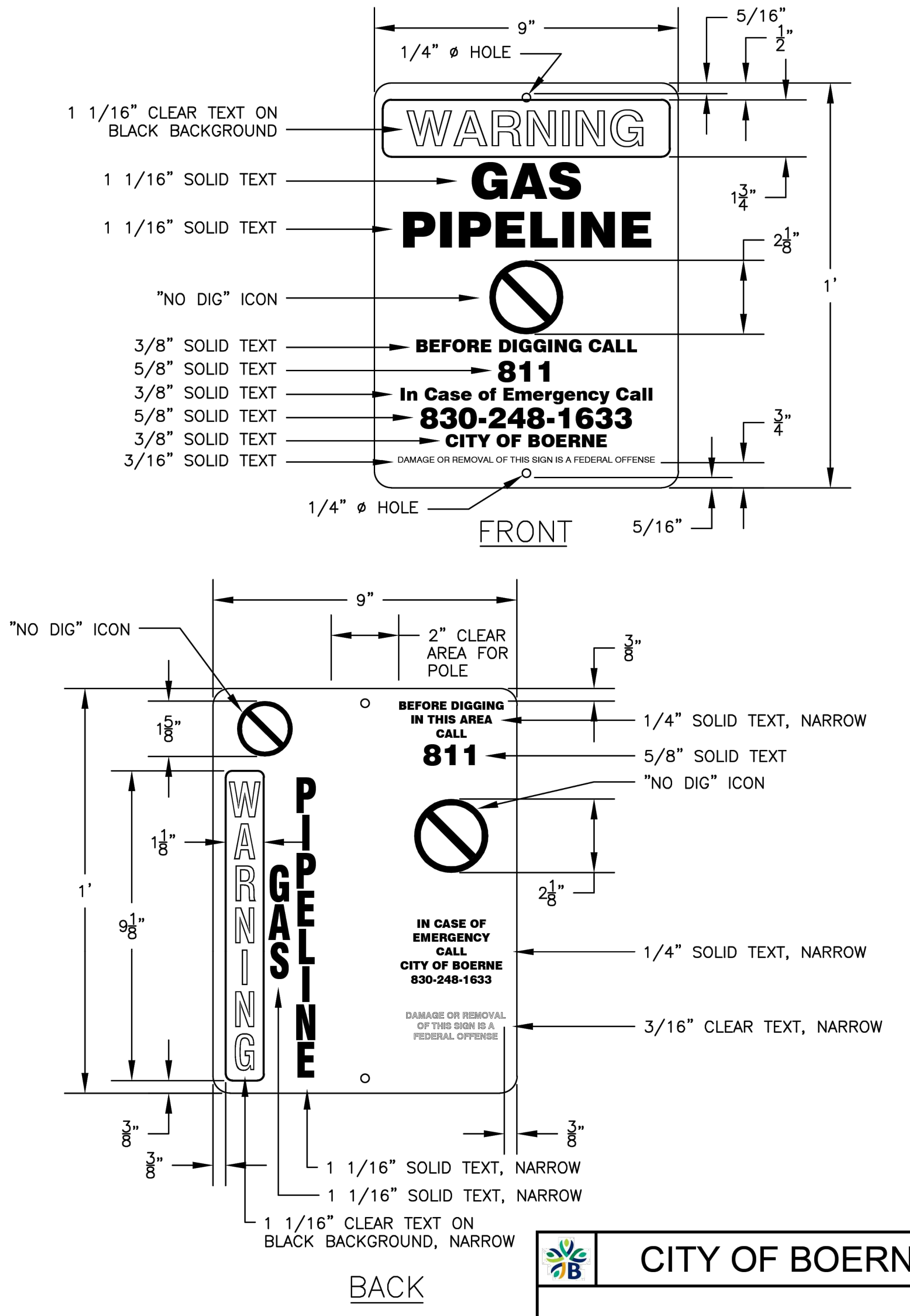

GENERAL USE CONCRETE (MIN. 4,000 PSI)
CAST IRON LID LABELED BY UTILITY "GAS", "REUSE", OR "WATER" AND "LOCATE"
FINISHED GRADE IN UNPAVED AREAS
CONNECT TRACER WIRE TO TERMINALS IN LID
FINISHED GRADE IN PAVED AREAS
6" MIN.
1/4" TO 1/2"
4–#3 BARS 1 EACH WAY
SPLICE TRACER WIRE W/SPLIT BOLT CONNECTOR, WRAP IN INSULATING TAPE
COIL A MIN OF 2' OF TRACER WIRE SLACK IN BOX
6" MIN.
6" MIN.
TRACER WIRE LOCATE BOX
BRING TRACER WIRES UP INSIDE BOX
4" – 6"
TRACER WIRE
UTILITY MAIN

NOTES:
1. INSTALL LOCATE BOX WITH EVERY VALVE OR GROUP OF VALVES WITHIN 10–FEET OR EACH OTHER.
2. FOR GAS MAINS, LOCATE BOX REQUIRED EVERY 500–FEET.
3. BOX TO BE LOCATED WITHIN 5' OF PROPERTY PIN SO NOT IN STREET OR DRIVEWAY

CITY OF BOERNE

TRACER WIRE LOCATE BOX

SCALE: N.T.S.
DRAWING No. 02560–1.2
DATE: MAY 2024


9"
5/16"
1/2"
1/4" ø HOLE
1 1/16" CLEAR TEXT ON BLACK BACKGROUND
WARNING
1 1/16" SOLID TEXT
GAS
1 3/4"
1 1/16" SOLID TEXT
PIPELINE
2 1/8"
"NO DIG" ICON
1'
3/8" SOLID TEXT
BEFORE DIGGING CALL
5/8" SOLID TEXT
811
3/8" SOLID TEXT
In Case of Emergency Call
5/8" SOLID TEXT
830-248-1633
3/8" SOLID TEXT
CITY OF BOERNE
3/4"
3/16" SOLID TEXT
DAMAGE OR REMOVAL OF THIS SIGN IS A FEDERAL OFFENSE
1/4" ø HOLE
5/16"
FRONT
9"
"NO DIG" ICON
2" CLEAR AREA FOR POLE
3/8"
BEFORE DIGGING IN THIS AREA CALL
1/4" SOLID TEXT, NARROW
1 5/8"
811
5/8" SOLID TEXT
"NO DIG" ICON
1 1/8"
WARNING
GAS
PIPELINE
1'
9 1/8"
2 1/8"
IN CASE OF EMERGENCY CALL CITY OF BOERNE 830-248-1633
1/4" SOLID TEXT, NARROW
DAMAGE OR REMOVAL OF THIS SIGN IS A FEDERAL OFFENSE
3/16" CLEAR TEXT, NARROW
3/8"
3/8"
3/8"
1 1/16" SOLID TEXT, NARROW
1 1/16" SOLID TEXT, NARROW
1 1/16" CLEAR TEXT ON BLACK BACKGROUND, NARROW
BACK

NOTE: MOUNT SIGN ON STEEL POST, 5'–6" ABOVE FINISHED GRADE.

CITY OF BOERNE

GAS WARNING SIGN

SCALE: N.T.S.
DRAWING No. 02560–1.1
DATE: MAY 2024

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San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

CORLEY FARMS
UNIT 5

NATURAL GAS DISTRIBUTION STANDARD DETAILS

DATE
04/09/2025

PROJECT NO.
03481.012

DRAWN BY
C3

CHECKED BY
XV/AL

#	DATE	REVISIONS
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		

ANDREW R. LOWRY
123410
4/11/25

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

# C37

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P:\03481\012\2-Drawings\C6.D1 NATURAL GAS DISTRIBUTION STANDARD DETAILS.dwg 2025/04/09 10:42pm mlopez

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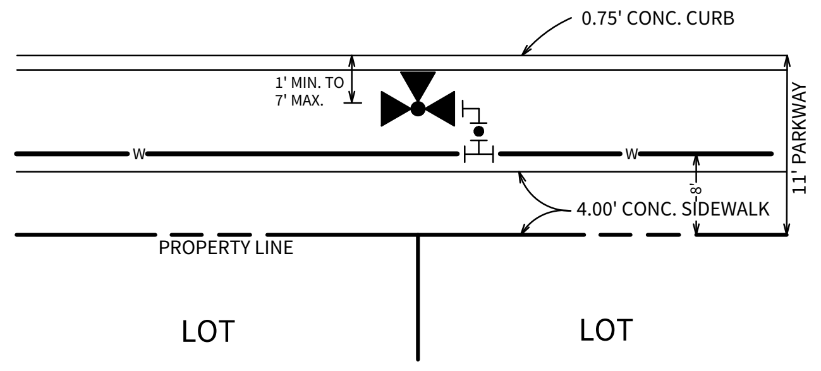
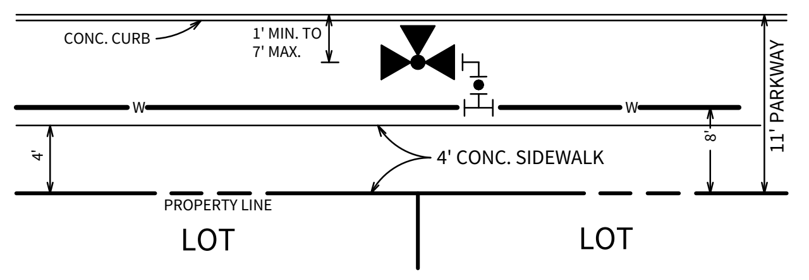

0.75' CONC. CURB
1' MIN. TO 7' MAX.
W
11' PARKWAY
8'
4.00' CONC. SIDEWALK
PROPERTY LINE
LOT
LOT

NOTE:

1. EXCLUSIVE OF THE TEE, PAYMENT FOR THE FIRE HYDRANT SHALL INCLUDE ALL FITTINGS, 6" D.I. PIPE AND 6" GATE VALVE & BOX.
2. FIRE HYDRANT TO BE INSTALLED OUTSIDE OF THE LIMITS OF ALL PROPOSED SIDEWALKS.

TYPICAL FIRE HYDRANT DETAIL (4' SIDEWALK / 60' R.O.W.)

N.T.S.

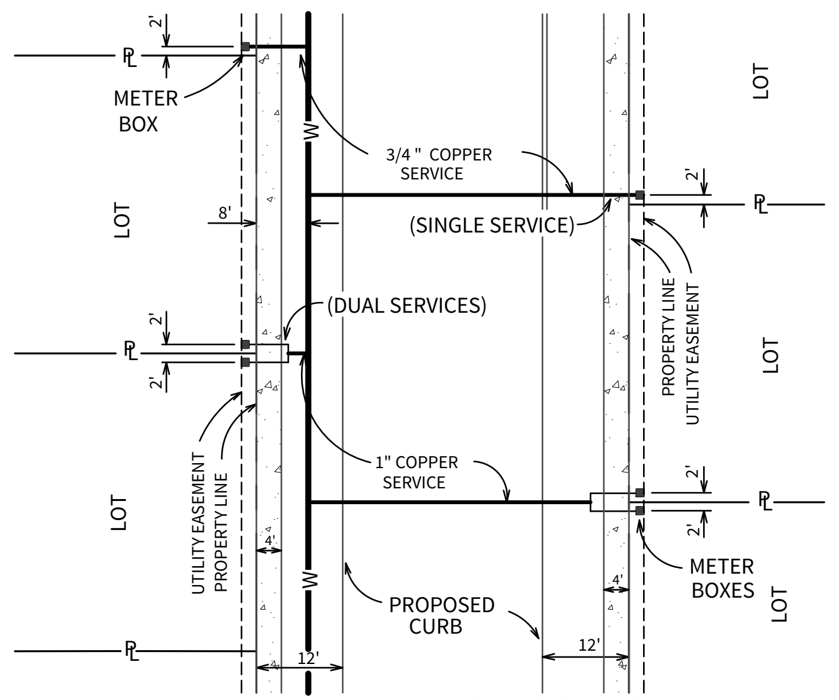

CONC. CURB
1' MIN. TO 7' MAX.
W
11' PARKWAY
8'
4'
4' CONC. SIDEWALK
PROPERTY LINE
LOT
LOT

NOTE:

1. EXCLUSIVE OF THE TEE, PAYMENT FOR THE FIRE HYDRANT SHALL INCLUDE ALL FITTINGS, 6" D.I. PIPE AND 6" GATE VALVE & BOX.
2. FIRE HYDRANT TO BE INSTALLED OUTSIDE OF THE LIMITS OF ALL PROPOSED SIDEWALKS.

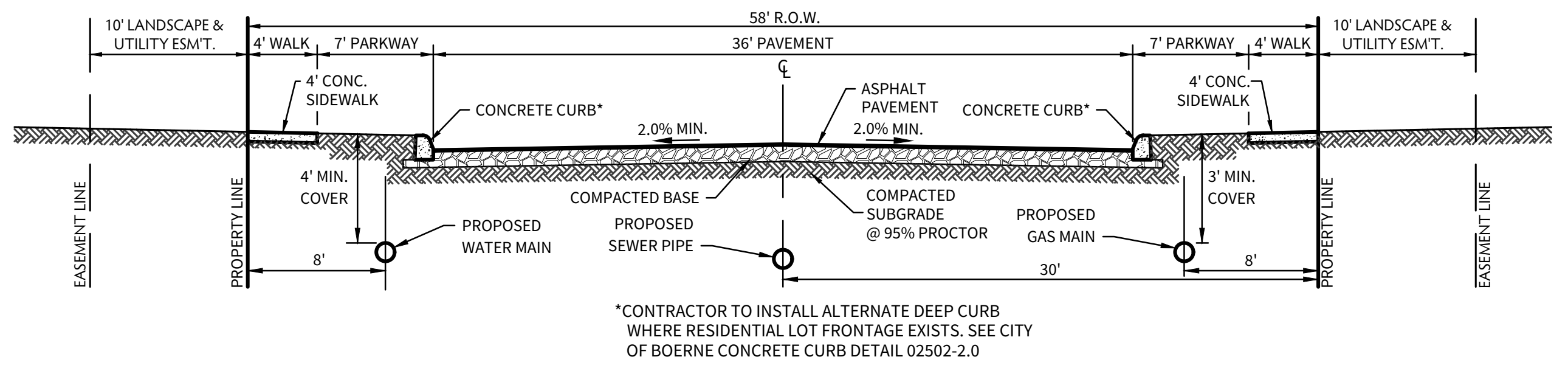
TYPICAL FIRE HYDRANT DETAIL (4' SIDEWALK / 58' ROW)

N.T.S.


METER BOX
LOT
LOT
LOT
LOT
LOT
3/4" COPPER SERVICE
(SINGLE SERVICE)
(DUAL SERVICES)
1" COPPER SERVICE
PROPOSED CURB
UTILITY EASEMENT
PROPERTY LINE
METER BOXES
12'
2'

WATER METER BOX LOCATION

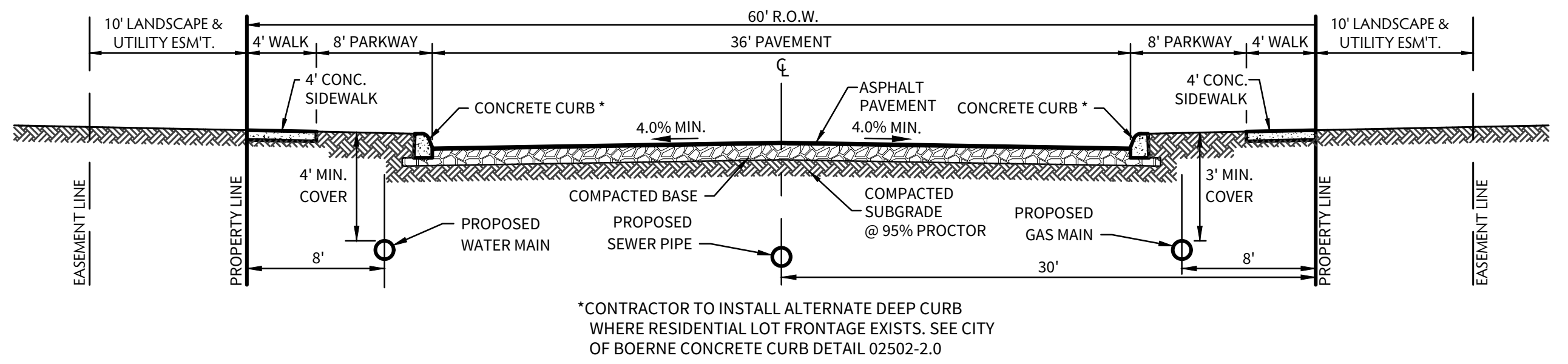
N.T.S.


10' LANDSCAPE & UTILITY ESM'T.
58' R.O.W.
4' WALK
7' PARKWAY
36' PAVEMENT
7' PARKWAY
4' WALK
10' LANDSCAPE & UTILITY ESM'T.
4' CONC. SIDEWALK
CONCRETE CURB*
ASPHALT PAVEMENT
2.0% MIN.
2.0% MIN.
CONCRETE CURB*
4' CONC. SIDEWALK
4' MIN. COVER
COMPACTED BASE
COMPACTED SUBGRADE @ 95% PROCTOR
3' MIN. COVER
PROPOSED WATER MAIN
PROPOSED SEWER PIPE
PROPOSED GAS MAIN
8'
30'
8'
EASEMENT LINE
PROPERTY LINE
PROPERTY LINE
EASEMENT LINE

*CONTRACTOR TO INSTALL ALTERNATE DEEP CURB WHERE RESIDENTIAL LOT FRONTAGE EXISTS. SEE CITY OF BOERNE CONCRETE CURB DETAIL 02502-2.0

TYPICAL "RESIDENTIAL LOCAL" STREET CROSS SECTION

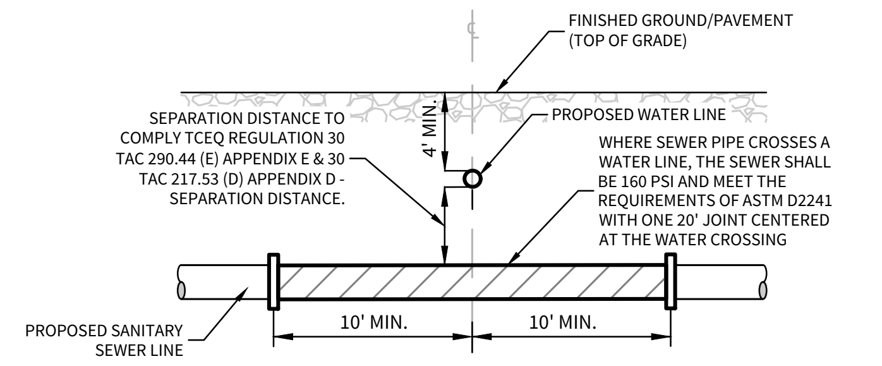
N.T.S.


10' LANDSCAPE & UTILITY ESM'T.
60' R.O.W.
4' WALK
8' PARKWAY
36' PAVEMENT
8' PARKWAY
4' WALK
10' LANDSCAPE & UTILITY ESM'T.
4' CONC. SIDEWALK
CONCRETE CURB *
ASPHALT PAVEMENT
4.0% MIN.
4.0% MIN.
CONCRETE CURB *
4' CONC. SIDEWALK
4' MIN. COVER
COMPACTED BASE
COMPACTED SUBGRADE @ 95% PROCTOR
3' MIN. COVER
PROPOSED WATER MAIN
PROPOSED SEWER PIPE
PROPOSED GAS MAIN
8'
30'
8'
EASEMENT LINE
PROPERTY LINE
PROPERTY LINE
EASEMENT LINE

*CONTRACTOR TO INSTALL ALTERNATE DEEP CURB WHERE RESIDENTIAL LOT FRONTAGE EXISTS. SEE CITY OF BOERNE CONCRETE CURB DETAIL 02502-2.0

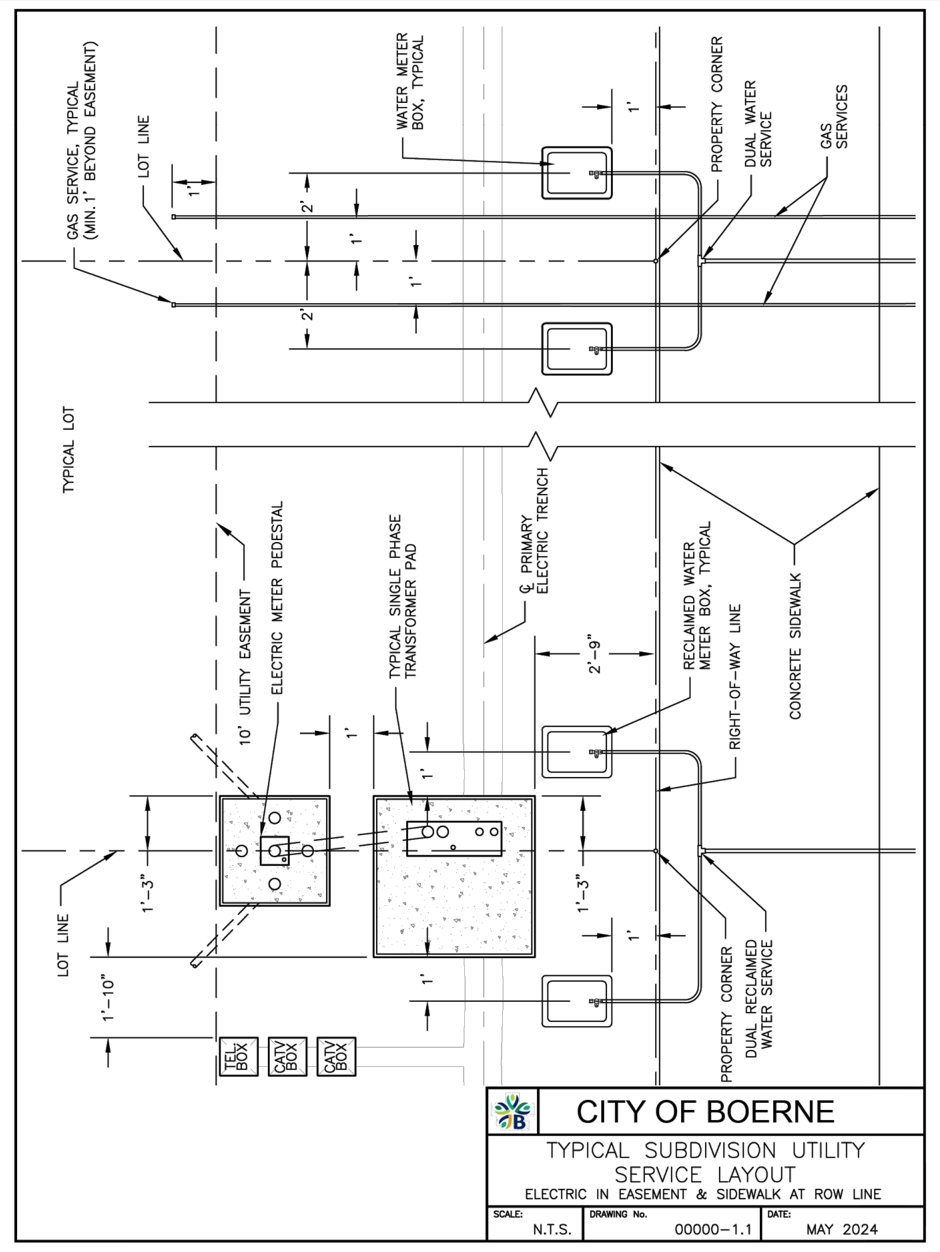
TYPICAL "RESIDENTIAL COLLECTOR" STREET CROSS SECTION

N.T.S.


FINISHED GROUND/PAVEMENT (TOP OF GRADE)
4' MIN.
PROPOSED WATER LINE
SEPARATION DISTANCE TO COMPLY TCEQ REGULATION 30 TAC 290.44 (E) APPENDIX E & 30 TAC 217.53 (D) APPENDIX D - SEPARATION DISTANCE.
WHERE SEWER PIPE CROSSES A WATER LINE, THE SEWER SHALL BE 160 PSI AND MEET THE REQUIREMENTS OF ASTM D2241 WITH ONE 20' JOINT CENTERED AT THE WATER CROSSING
PROPOSED SANITARY SEWER LINE
10' MIN.
10' MIN.

TYPICAL SANITARY SEWER/ WATER CROSSING DETAIL

N.T.S.


GAS SERVICE, TYPICAL (MIN. 1' BEYOND EASEMENT)
LOT LINE
WATER METER BOX, TYPICAL
PROPERTY CORNER
DUAL WATER SERVICE
GAS SERVICES
TYPICAL LOT
10' UTILITY EASEMENT
ELECTRIC METER PEDESTAL
TYPICAL SINGLE PHASE TRANSFORMER PAD
PRIMARY ELECTRIC TRENCH
RECLAIMED WATER METER BOX, TYPICAL
RIGHT-OF-WAY LINE
CONCRETE SIDEWALK
PROPERTY CORNER
DUAL RECLAIMED WATER SERVICE
LOT LINE
1'-10"
1'-3"
2'-9"
CITY OF BOERNE
TYPICAL SUBDIVISION UTILITY SERVICE LAYOUT
ELECTRIC IN EASEMENT & SIDEWALK AT ROW LINE
SCALE: N.T.S.
DRAWING No. 00000-1.1
DATE: MAY 2024

CITY OF BOERNE TYPICAL UTILITY SERVICE LAYOUT

N.T.S.

SCALE: 1"=60'

0 60 120

LEGEND

OVERALL UNIT BOUNDARY	— — — —
PROPOSED LOT LINE	——
PROPOSED RIGHT OF WAY	——
E.G.T.CA. EASEMENT	– – – –
EXISTING WATER LINE	— Wx —
EXISTING SEWER MAIN	— SSx —
EXISTING GAS MAIN	— Gx —
EXISTING SEWER MANHOLE	●
EXISTING FIRE HYDRANT	⧓
PROPOSED SEWER MANHOLE	●
PROPOSED WATER LINE	— W —
PROPOSED SEWER MAIN	— SS —
PROPOSED GAS MAIN	— G —
PROPOSED SEWER LATERAL	S——
PROPOSED GAS SERVICE	G——
PROPOSED SINGLE 3/4" WATER SERVICE WITH 5/8" METER	W——
PROPOSED DUAL 3/4" WATER SERVICE WITH 5/8" METER	W W ⊐——
PROPOSED FIRE HYDRANT	⧓
PROPOSED LIGHT POLE	◉

BENCHMARK BM-1

BENCHMARK TO BE SET BY ENGINEER PRIOR TO CONSTRUCTION.

NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING 98% COMPACTION ON ALL TRENCH BACKFILL. COMPACTION TEST WILL BE DONE AT ONE LOCATION POINT RANDOMLY SELECTED OR AS INDICATED BY THE DISTRICT INSPECTOR. PER EACH 12-INCH LOOSE LIFT PER 400 LINEAR FEET AT A MINIMUM. THIS PROJECT WILL NOT BE ACCEPTED AND FINALIZED BY THE DISTRICT WITHOUT THIS REQUIREMENT BEING MET AND VERIFIED BY PROVIDING ALL NECESSARY DOCUMENTED TEST RESULTS..
2. CONTRACTOR TO MAINTAIN A MINIMUM 1' VERTICAL SEPARATION DISTANCE BETWEEN OF THE BOTTOM PROPOSED WATER MAIN AND TOP OF PROPOSED SANITARY SEWER MAIN AT WATER AND SANITARY SEWER CROSSINGS.
3. ALL LATERALS SHALL BE INSTALLED AT A MINIMUM 2.0% SLOPE UNLESS OTHERWISE NOTED.
4. CONTRACTOR TO REFERENCE SANITARY SEWER, WATER, AND GAS PLANS FOR ALL UTILITY CROSSINGS CALLED OUT ON THIS SHEET.

CAUTION!!

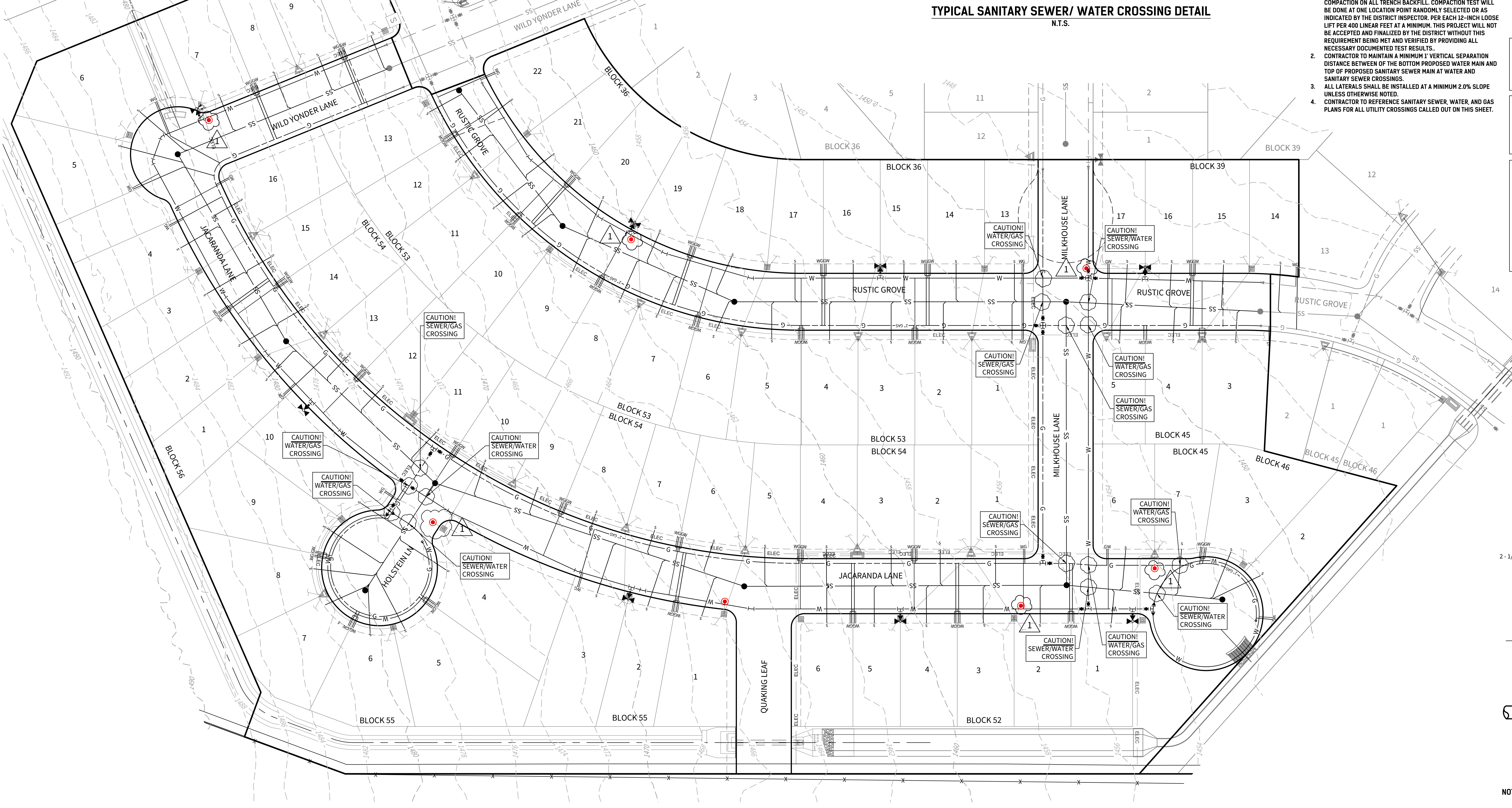
EXISTING UTILITIES ARE WITHIN THE LIMITS OF CONSTRUCTION. CONTRACTORS SHALL EXERCISE EXTRA CARE IN DIGGING ANY TRENCH FOR PROPOSED UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE, VERIFY THE EXACT LOCATION & IDENTIFY AREA OF CONFLICTS WITH EXISTING UTILITIES AND SHALL NOTIFY THE ENGINEER IF CONFLICT IS FOUND.

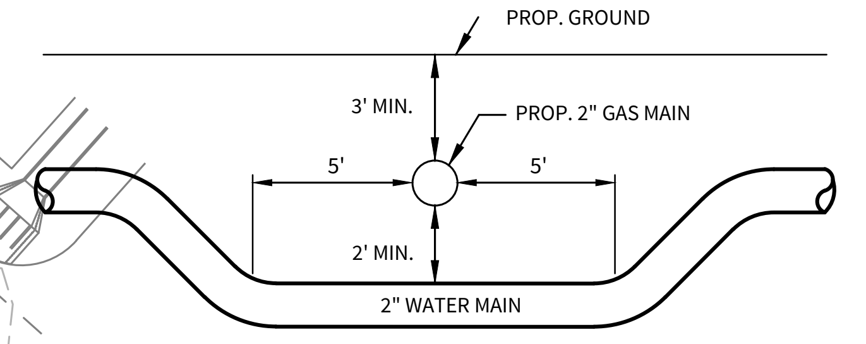
CAUTION!!

THE CONTRACTOR SHALL BE AWARE THAT OVERHEAD ELECTRIC LINES EXIST WITHIN THE VICINITY OF THE SITE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE THESE UTILITIES LOCATED PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING IN THIS AREA. ANY DAMAGE DONE TO THESE EXISTING FACILITIES WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR.

TRENCH EXCAVATION PROTECTION

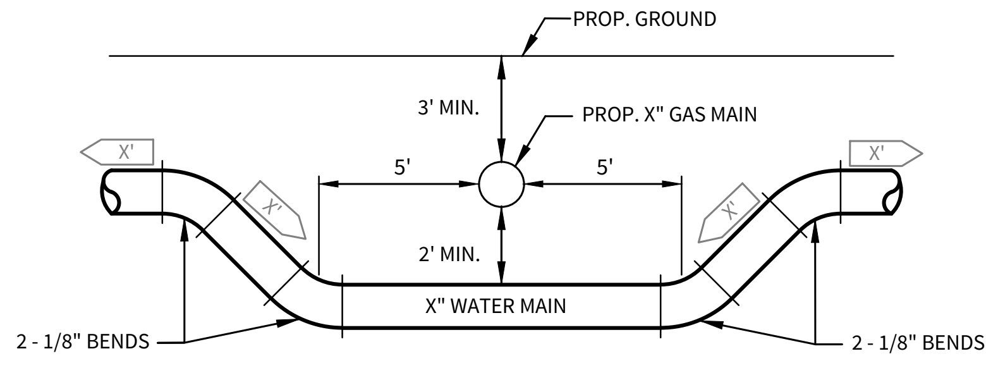
CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S 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.


BLOCK 28
901 OPEN SPACE BLOCK 27 VARIABLE WIDTH DRAINAGE & UTILITY EASEMENT
RUSTIC GROVE
WILD YONDER LANE
BLOCK 56
BLOCK 36
BLOCK 39
BLOCK 54
BLOCK 53
BLOCK 45
BLOCK 46
BLOCK 55
BLOCK 52
JACARANDA LANE
MILKHOUSE LANE
HOLSTEIN LN
QUAKING LEAF
CAUTION! WATER/GAS CROSSING
CAUTION! SEWER/GAS CROSSING
CAUTION! SEWER/WATER CROSSING
W
SS
G
ELEC
WGSW
1


PROP. GROUND
3' MIN.
PROP. 2" GAS MAIN
5'
5'
2' MIN.
2" WATER MAIN

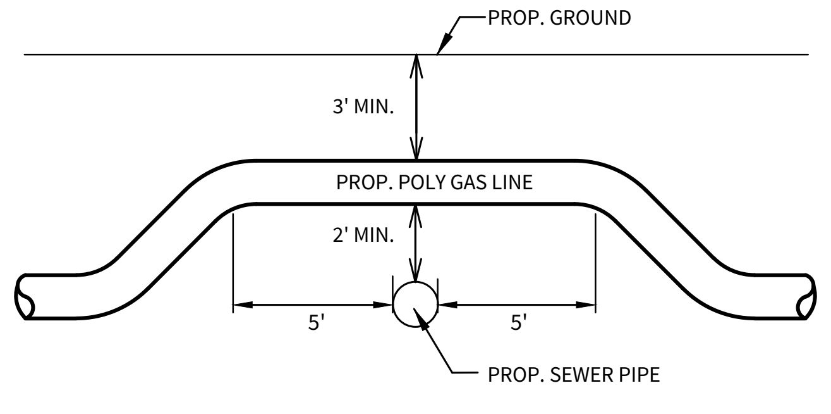
2" WATER / 2" GAS CROSSINGS DETAIL

SIDE VIEW (THIS DETAIL IS VERTICAL ONLY, NOT HORIZONTAL.)
(N.T.S.)


PROP. GROUND
3' MIN.
PROP. X" GAS MAIN
X'
X'
X'
X'
5'
5'
2' MIN.
X" WATER MAIN
2 - 1/8" BENDS
2 - 1/8" BENDS

WATER / GAS CROSSINGS DETAIL

SIDE VIEW (THIS DETAIL IS VERTICAL ONLY, NOT HORIZONTAL.)
(N.T.S.)


PROP. GROUND
3' MIN.
PROP. POLY GAS LINE
2' MIN.
5'
5'
PROP. SEWER PIPE

SEWER / GAS CROSSINGS DETAIL

SIDE VIEW (THIS DETAIL IS VERTICAL ONLY, NOT HORIZONTAL.)
(N.T.S.)
NOTE: VERTICAL BEND IS NOT NEEDED WHEN SEWER IS DEEPER THAN 7'

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CORLEY FARMS
UNIT 5

UTILITY LAYOUT PLAN

DATE
04/09/2025

PROJECT NO.
03481.012

DRAWN BY
C3

CHECKED BY
XV/AL

#	DATE	REVISIONS
1.	11/7/24	PERMITTING COMMENTS
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		

ANDREW R. LOWRY
123410
4/11/25

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C38

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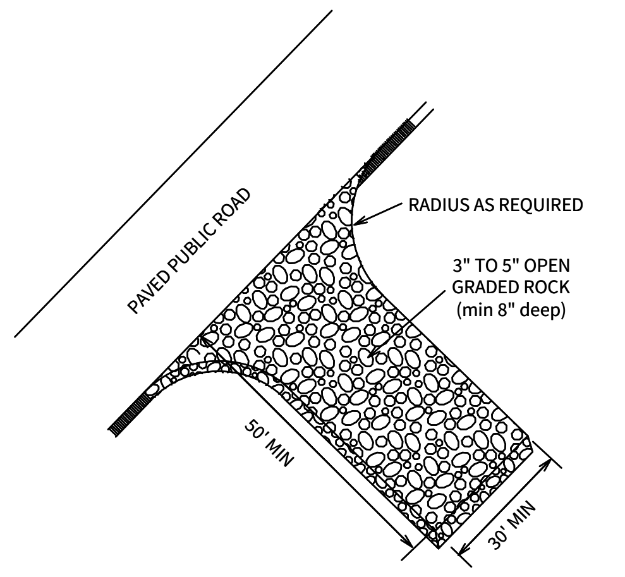
P:\03481\012\2-Drawings\C3.01 UTILITY LAYOUT PLAN.dwg 2025/04/09 10:42pm mlopez

REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.

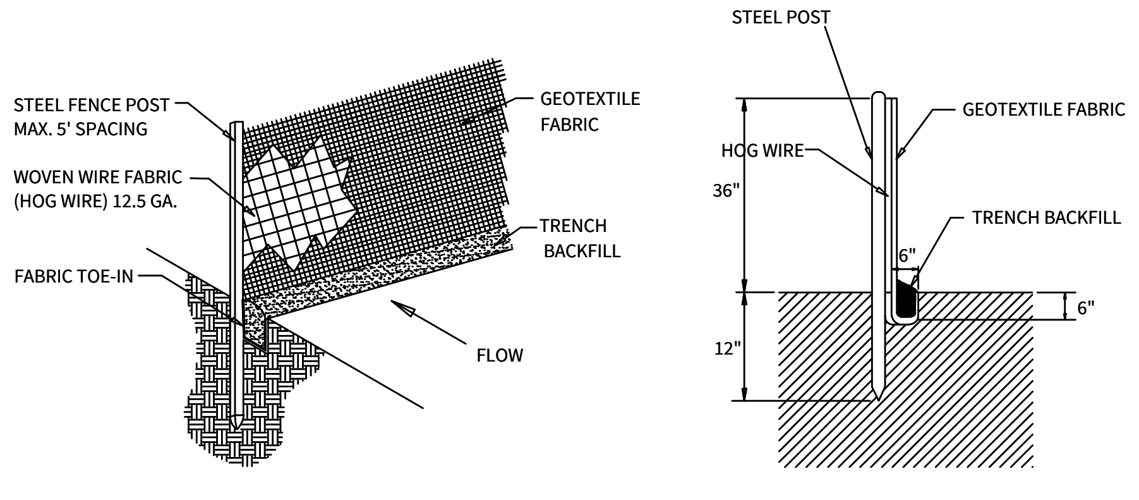

PAVED PUBLIC ROAD
RADIUS AS REQUIRED
3" TO 5" OPEN GRADED ROCK (min 8" deep)
50' MIN
30' MIN

STABILIZED CONSTRUCTION EXIT NOTES:

1. WHEN NECESSARY, WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ON PUBLIC ROADWAY.
2. THE EXIT SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC ROADWAYS. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND, AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PUBLIC ROADWAYS MUST BE REMOVED IMMEDIATELY.

1 TEMPORARY CONSTRUCTION ENTRANCE/EXIT

N.T.S.

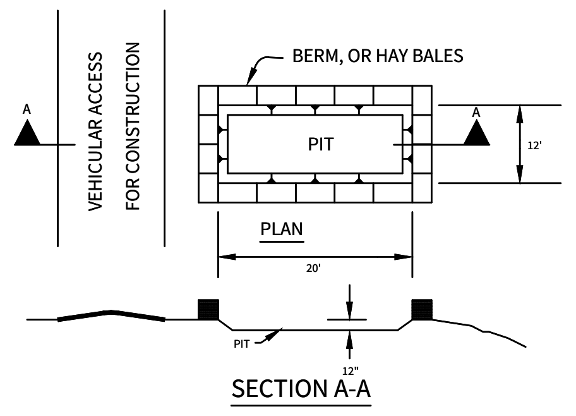

STEEL FENCE POST MAX. 5' SPACING
WOVEN WIRE FABRIC (HOG WIRE) 12.5 GA.
FABRIC TOE-IN
GEOTEXTILE FABRIC
TRENCH BACKFILL
FLOW
STEEL POST
HOG WIRE
GEOTEXTILE FABRIC
TRENCH BACKFILL
36"
12"
6"
6"

SILT FENCE DETAIL

SECTION DETAIL

2 STANDARD SILT FENCE

N.T.S.


A
A
VEHICULAR ACCESS FOR CONSTRUCTION
BERM, OR HAY BALES
PIT
12'
PLAN
20'
PIT
12"

SECTION A-A

GENERAL NOTES:

- Detail above illustrates minimum dimensions. Pit can be increased in size depending on expected frequency of use. construction traffic.
- If hay bales are used, they shall be placed in accordance with details shown on Exhibit for hay bales.

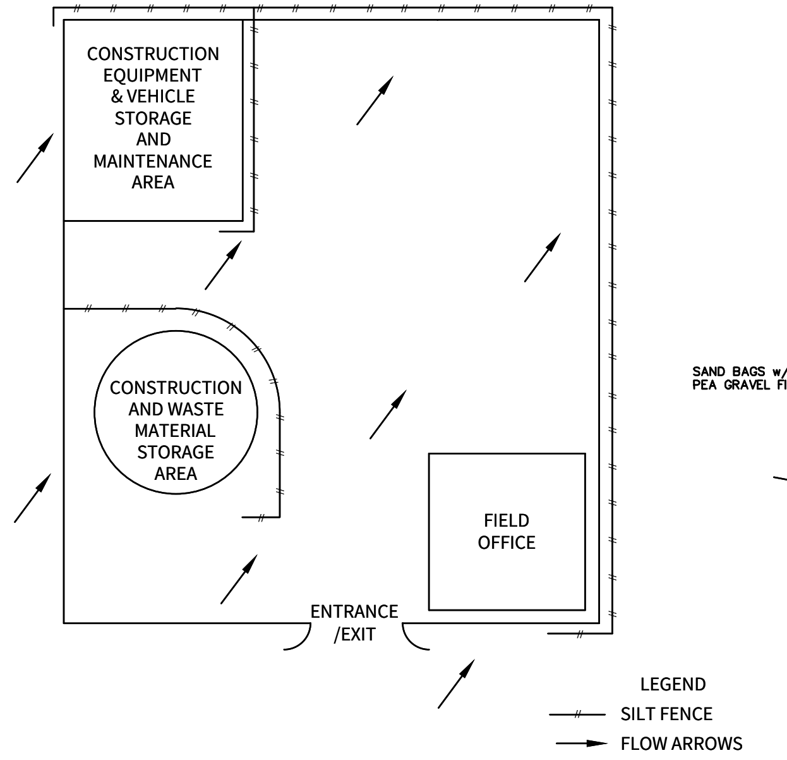
Washout pit shall be located in an area easily accessible to

Washout pit shall not be located in areas subject to inundation from storm water runoff.

- Washout pit shall be lined with a 10-mil thick polyethylene sheeting free of holes, tears and other defects.

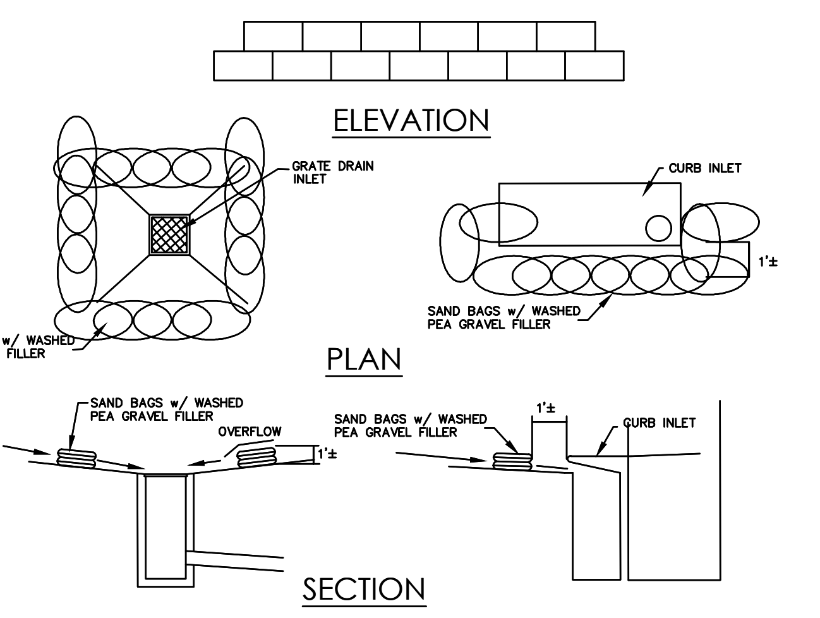
3 CONCRETE TRUCK WASHOUT PIT

N.T.S.


CONSTRUCTION EQUIPMENT & VEHICLE STORAGE AND MAINTENANCE AREA
CONSTRUCTION AND WASTE MATERIAL STORAGE AREA
FIELD OFFICE
ENTRANCE /EXIT
LEGEND
SILT FENCE
FLOW ARROWS

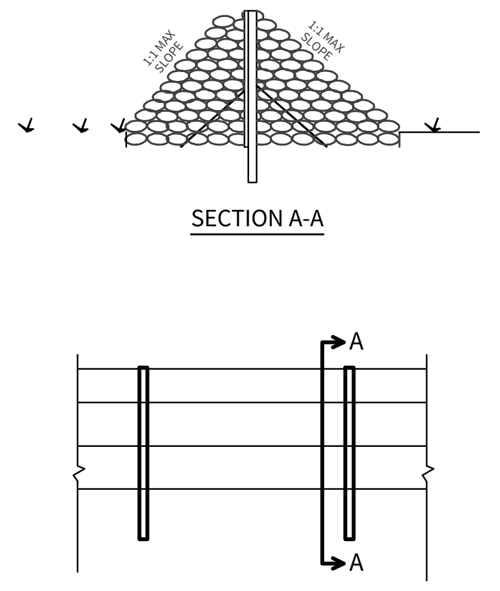
4 TYP. CONSTRUCTION STAGING AREA

N.T.S.


ELEVATION
GRATE DRAIN INLET
CURB INLET
SAND BAGS w/ WASHED PEA GRAVEL FILLER
SAND BAGS w/ WASHED PEA GRAVEL FILLER
1'±
PLAN
SAND BAGS w/ WASHED PEA GRAVEL FILLER
OVERFLOW
1'±
SAND BAGS w/ WASHED PEA GRAVEL FILLER
1'±
CURB INLET
SECTION

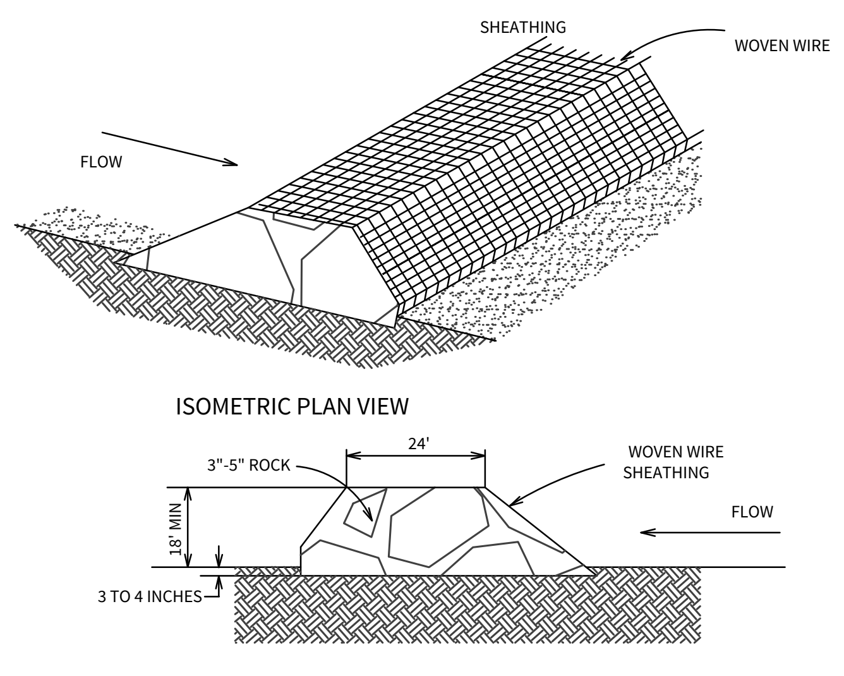
6 BAGGED GRAVEL INLET FILTER NOTES

N.T.S.


1:1 MAX SLOPE
1:1 MAX SLOPE
SECTION A-A
A
A
PLAN

5 ROCK BERM W/ SILT FENCE DETAIL

N.T.S.


SHEATHING
WOVEN WIRE
FLOW
ISOMETRIC PLAN VIEW
24'
3"-5" ROCK
WOVEN WIRE SHEATHING
FLOW
18' MIN
3 TO 4 INCHES

SECTION DETAIL

ROCK BERM

N.T.S.

INSPECTIONS:

DESIGNATED AND QUALIFIED PERSON(S) SHALL INSPECT POLLUTION CONTROL MEASURES EVERY SEVEN DAYS AND WITHIN 24 HOURS AFTER A STORM EVENT GREATER THAN 0.5 INCHES OF RAINFALL, AN INSPECTION REPORT THAT SUMMARIZES THE SCOPE OF THE INSPECTION, NAMES AND QUALIFICATIONS OF PERSONNEL CONDUCTING THE INSPECTION, DATE OF THE INSPECTION, MAJOR OBSERVATIONS, AND ACTIONS TAKEN AS A RESULT OF THE INSPECTION SHALL BE RECORDED AND MAINTAINED AS PART OF STORM WATER TPDES DATA FOR A PERIOD OF THREE YEARS AFTER THE DATE OF THE INSPECTION. COPY OF THE INSPECTION REPORT FORM IS PROVIDED IN THIS STORM WATER POLLUTION PREVENTION PLAN.

AS A MINIMUM, THE INSPECTOR SHALL OBSERVE: (1) SIGNIFICANT DISTURBED AREAS FOR EVIDENCE OF EROSION, (2) STORAGE AREAS FOR EVIDENCE OF LEAKAGE FROM THE EXPOSED STORED MATERIALS, (3) STRUCTURAL CONTROLS (ROCK BERM OUTLETS. SILT FENCES, DRAINAGE SWALES, ETC.) FOR EVIDENCE OF FAILURE OR EXCESS SILTATION (OVER 6 INCHES DEEP). (4) VEHICLE EXIT POINT FOR EVIDENCE OF OFF-SITE SEDIMENT TRACKING, (5) VEHICLE STORAGE AREAS FOR SIGNS OF LEAKING EQUIPMENT OR SPILLS, AND (6) CONCRETE TRUCK RINSE-OUT PIT FOR SIGNS OF POTENTIAL FAILURE. DEFICIENCIES NOTED DURING THE INSPECTION WILL BE CORRECTED AND DOCUMENTED WITHIN SEVEN (7) CALENDAR DAYS FOLLOWING THE INSPECTION OR BEFORE THE NEXT ANTICIPATED STORM EVENT IF PRACTICABLE.

BAGGED GRAVEL INLET FILTER NOTES

1. THE GRAVEL BAG MATERIAL SHOULD BE POLYPROPYLENE, POLYETHYLENE, POLYAMIDE OR COTTON BURLAP WOVEN FABRIC, MINIMUM UNIT WEIGHT 4 OZ/YD 2 , MULLEN BURST STRENGTH EXCEEDING 300 PSI AND ULTRAVIOLET STABILITY EXCEEDING 70 PERCENT.
2. THE BAG LENGTH SHOULD BE 24 INCHES, WIDTH SHOULD BE 18 INCHES AND THICKNESS SHOULD BE 6 INCHES.
3. THE GRAVEL BAGS SHOULD BE FILLED WITH ¾" GRAVEL .
4. WHEN A GRAVEL BAG IS FILLED WITH GRAVEL, THE OPEN END OF THE GRAVEL BAG SHOULD BE STAPLED OR TIED WITH NYLON OR POLY CORD.
5. THE GRAVEL BAGS SHOULD BE PLACED AS SHOWN ON THE DETAIL. THE GRAVEL BAGS SHALL BE STACKED TO FORM A CONTINUOUS BARRIER AROUND THE INLETS. THE BAGS SHOULD BE TIGHTLY ABUTTED AGAINST EACH OTHER TO PREVENT RUNOFF FROM FLOWING BETWEEN THE BAGS.
6. INSPECTION SHOULD BE MADE WEEKLY AND AFTER EACH RAINFALL. REPAIR OR REPLACEMENT SHOULD BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR.
7. CHECK PLACEMENT OF DEVICE TO PREVENT GAPS BETWEEN DEVICE AND CURB.
8. 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.
9. STRUCTURES SHOULD BE REMOVED AND THE AREA STABILIZED ONLY AFTER THE REMAINING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

SCALE: 1"=60'

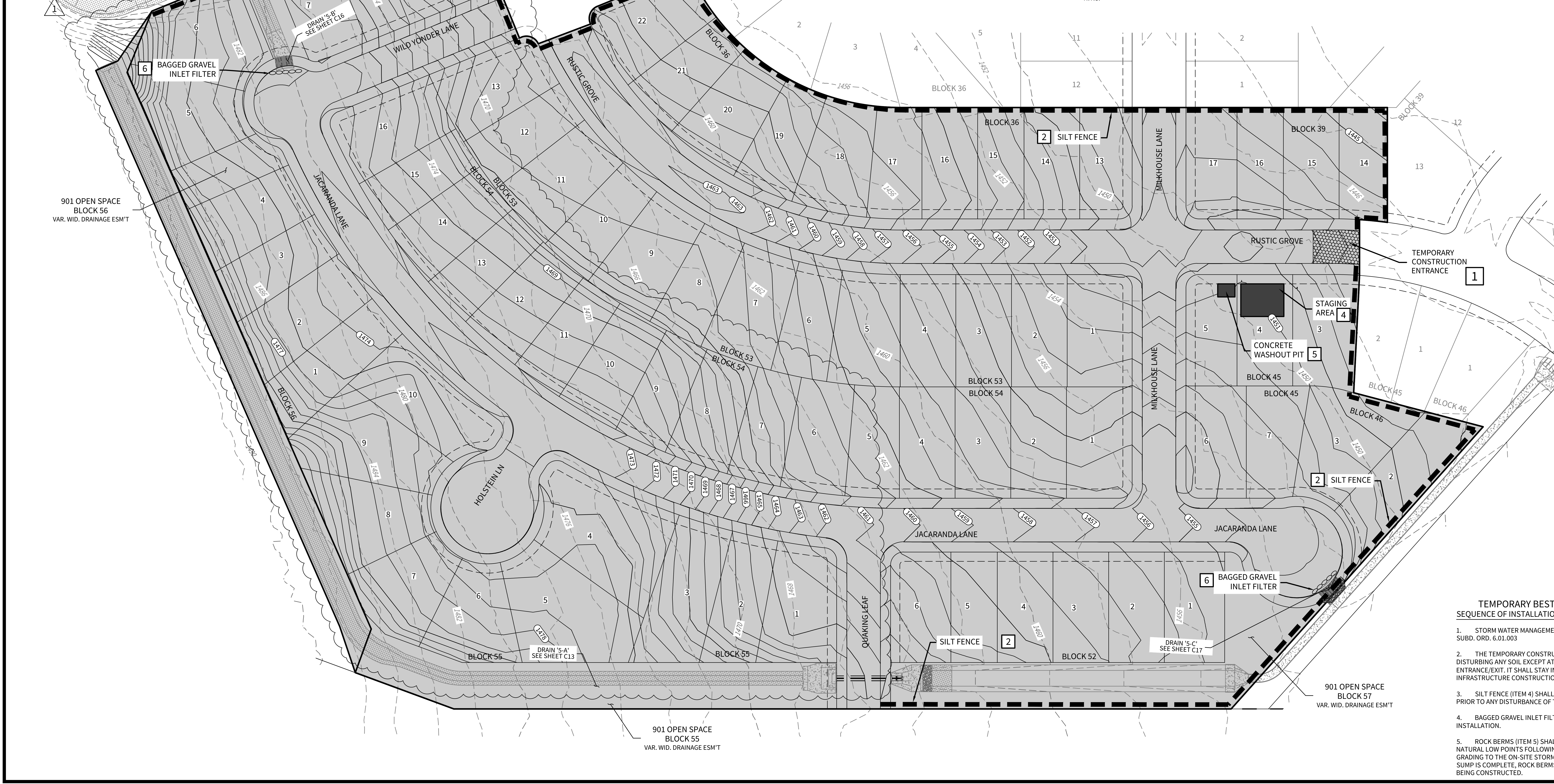
0 60 120

LEGEND

OVERALL UNIT BOUNDARY	▬ ‒ ‒ ▬
EXISTING COUNTOURS	— 930 —
BMP ITEM NUMBER	1
TEMPORARY CONSTRUCTION ENTRANCE/EXIT	▨
ROCK BERM	▨
SILT FENCE	▬ ▬ ▬
FLOW ARROW	→
STAGING AREA	■
CONCRETE WASHOUT PIT	■
DISTURBED AREA	▒

NOTE:

1. ALL SILT FENCES AND/OR ROCK BERMS AND TEMPORARY CONSTRUCTION ENTRANCES/EXITS SHALL BE PLACED AT THE MOST DOWN-GRADIENT POINT OF CONSTRUCTION AS SHOWN ON THIS SITE PLAN. CONTRACTOR SHALL TAKE INTO CONSIDERATION ANY PROPOSED CONSTRUCTION THAT MAY TAKE PLACE AT THESE LOCATIONS. ANY RELOCATION OF THE SILT FENCE, ROCK BERMS AND/OR TEMPORARY CONSTRUCTION ENTRANCES/EXITS SHALL BE AT THE CONTRACTOR'S EXPENSE.
2. AREA OF SOIL DISTURBANCES INCLUDE STREET RIGHT-OF-WAYS, EASEMENTS AND LOTS.
3. THERE WILL BE NO STORMWATER DISCHARGES INTO THE FEMA FLOOD PLAIN.
4. THE CONTRACTOR IS REQUIRED TO MAINTAIN EROSION CONTROLS THROUGHOUT THE DURATION OF THE PROJECT.
5. THE CITY AND/OR COUNTY INSPECTOR HAS THE AUTHORITY TO HAVE THE CONTRACTOR MODIFY THE EROSION CONTROLS AT THE DEVELOPER'S EXPENSE. THE DEVELOPER SHALL BE NOTIFIED OF THESE MODIFICATIONS PRIOR TO COMMENCEMENT OF MODIFICATIONS.


902 OPEN SPACE BLOCK 56 VAR. WID. DRAINAGE ESM'T
2 SILT FENCE
CORLEY FARMS UNIT 3
CORLEY FARMS UNIT 4
BLOCK 28
2 SILT FENCE
DRAIN '5-B' SEE SHEET C16
6 BAGGED GRAVEL INLET FILTER
WILD YONDER LANE
RUSTIC GROVE
BLOCK 56
BLOCK 36
BLOCK 54
BLOCK 53
JACARANDA LANE
901 OPEN SPACE BLOCK 56 VAR. WID. DRAINAGE ESM'T
2 SILT FENCE
BLOCK 39
MILKHOUSE LANE
RUSTIC GROVE
TEMPORARY CONSTRUCTION ENTRANCE 1
STAGING AREA 4
CONCRETE WASHOUT PIT 5
BLOCK 45
BLOCK 46
BLOCK 53
BLOCK 54
HOLSTEIN LN
QUAKING LEAF
JACARANDA LANE
2 SILT FENCE
6 BAGGED GRAVEL INLET FILTER
SILT FENCE 2
DRAIN '5-A' SEE SHEET C13
DRAIN '5-C' SEE SHEET C17
BLOCK 55
BLOCK 52
901 OPEN SPACE BLOCK 57 VAR. WID. DRAINAGE ESM'T
901 OPEN SPACE BLOCK 55 VAR. WID. DRAINAGE ESM'T

TEMPORARY BEST MANAGEMENT PRACTICES AND MEASURES
SEQUENCE OF INSTALLATION DURING CONSTRUCTION PROCESS:

1. STORM WATER MANAGEMENT FACILITIES MUST BE INSTALLED PRIOR TO SITE CONSTRUCTION. SUBD. ORD. 6.01.003
2. THE TEMPORARY CONSTRUCTION ENTRANCE/EXIT (ITEM 2) SHALL BE INSTALLED PRIOR TO DISTURBING ANY SOIL EXCEPT AT THE LOCATION OF THE TEMPORARY CONSTRUCTION ENTRANCE/EXIT. IT SHALL STAY IN PLACE AND BE MAINTAINED UNTIL THE END OF THE INFRASTRUCTURE CONSTRUCTION
3. SILT FENCE (ITEM 4) SHALL BE INSTALLED ALONG THE DOWN-GRADIENT BOUNDARY OF THE SITE PRIOR TO ANY DISTURBANCE OF THE SITE AS SHOWN ON THE SITE PLAN.
4. BAGGED GRAVEL INLET FILTERS (ITEM 6) SHALL BE PLACED AROUND ALL INLETS FOLLOWING INSTALLATION.
5. ROCK BERMS (ITEM 5) SHALL BE INSTALLED AROUND THE PERIMETER OF THE PROJECT AT NATURAL LOW POINTS FOLLOWING ROUGH GRADING OF THE SITE AND SHALL BE REMOVED ONCE GRADING TO THE ON-SITE STORMWATER DRAINAGE SYSTEM WITH BAGGED GRAVEL INLET FILTERS IN SUMP IS COMPLETE, ROCK BERMS WILL ALSO BE UTILIZED AT THE OUTLET OF THE POND WHILE IT IS BEING CONSTRUCTED.

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CORLEY FARMS
UNIT 5

STORM WATER POLLUTION PREVENTION PLAN

DATE
06/02/2025

PROJECT NO.
03481.012

DRAWN BY
C3

CHECKED BY
XV/AL

#	DATE	REVISIONS
1.	5/27/2025	GRADING REVISION
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		

ANDREW R. LOWRY
123410
6/2/25

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

# C39

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P:\03481\012\2-Drawings\C1.00 STORM WATER POLLUTION PREVENTION PLAN.dwg 2025/06/02 12:40pm kmartinez

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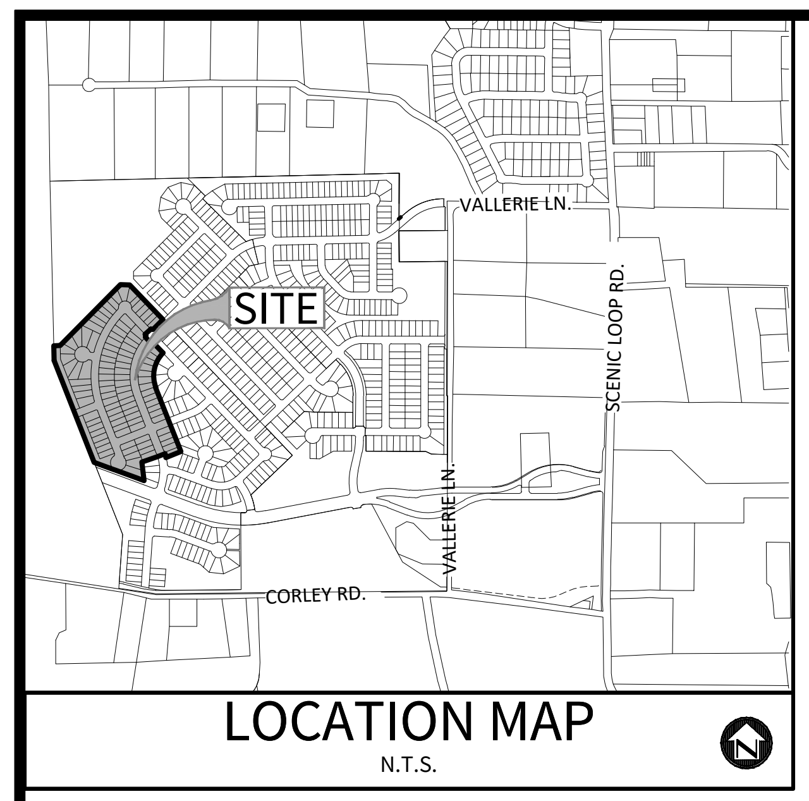
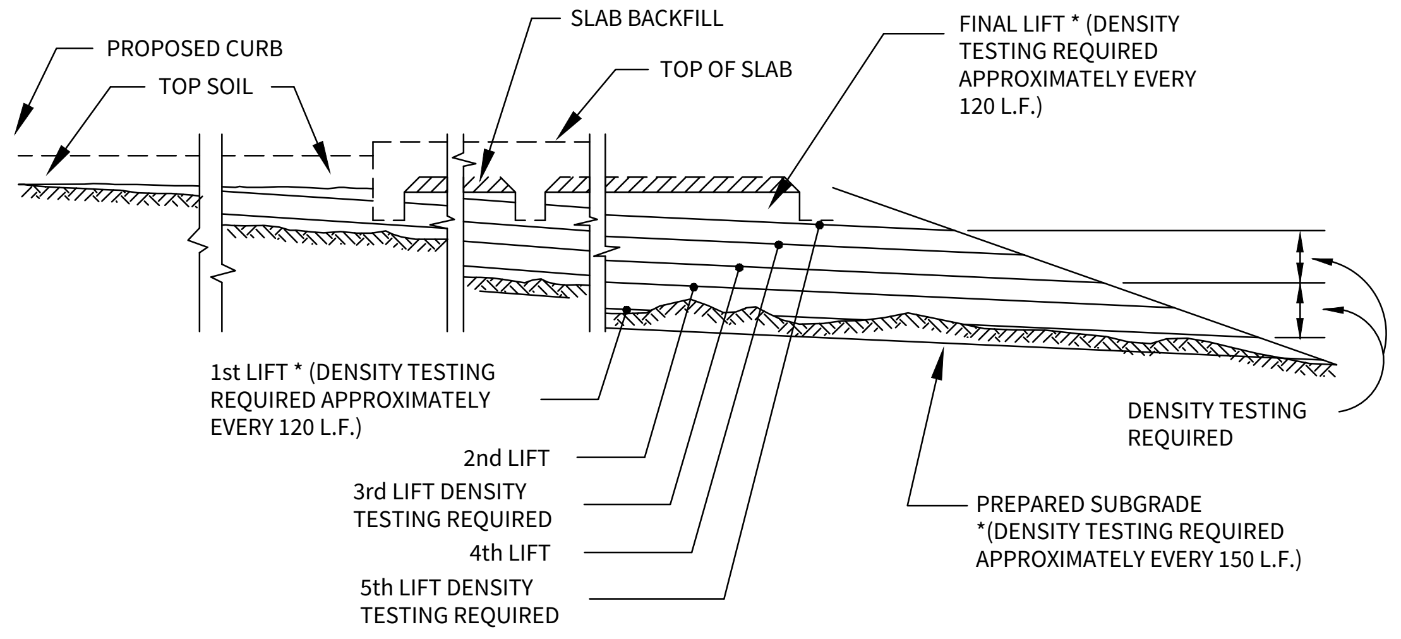


LOCATION MAP

N.T.S.


PROPOSED CURB
TOP SOIL
SLAB BACKFILL
TOP OF SLAB
FINAL LIFT * (DENSITY TESTING REQUIRED APPROXIMATELY EVERY 120 L.F.)
1st LIFT * (DENSITY TESTING REQUIRED APPROXIMATELY EVERY 120 L.F.)
2nd LIFT
3rd LIFT DENSITY TESTING REQUIRED
4th LIFT
5th LIFT DENSITY TESTING REQUIRED
DENSITY TESTING REQUIRED
PREPARED SUBGRADE *(DENSITY TESTING REQUIRED APPROXIMATELY EVERY 150 L.F.)

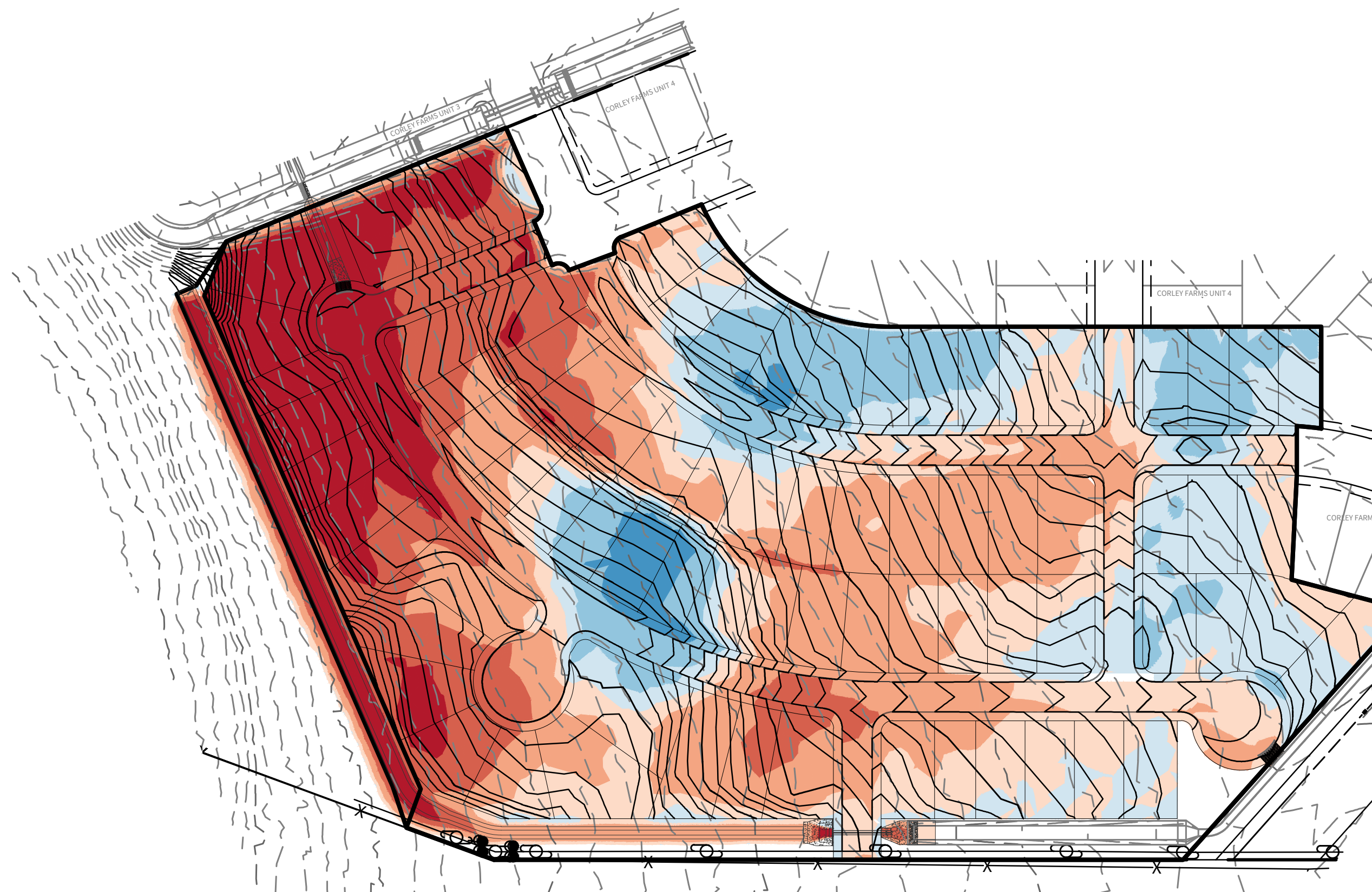
DENSITY TEST FREQUENCY

NOT TO SCALE

* DENSITY TEST REQUIRED ON ALL LIFTS PER CITY OF BOERNE SPECIFICATIONS SECTION 02200(3.7)

Elevations Table

Number	Minimum Elevation	Maximum Elevation	Color
1	-9999.000	-5.000	🟥
2	-5.000	-3.000	🟥
3	-3.000	-1.000	🟧
4	-1.000	0.000	🟧
5	0.000	1.000	🟦
6	1.000	3.000	🟦
7	3.000	5.000	🟦
8	5.000	999999.000	🟦



CUT & FILL HEAT MAP

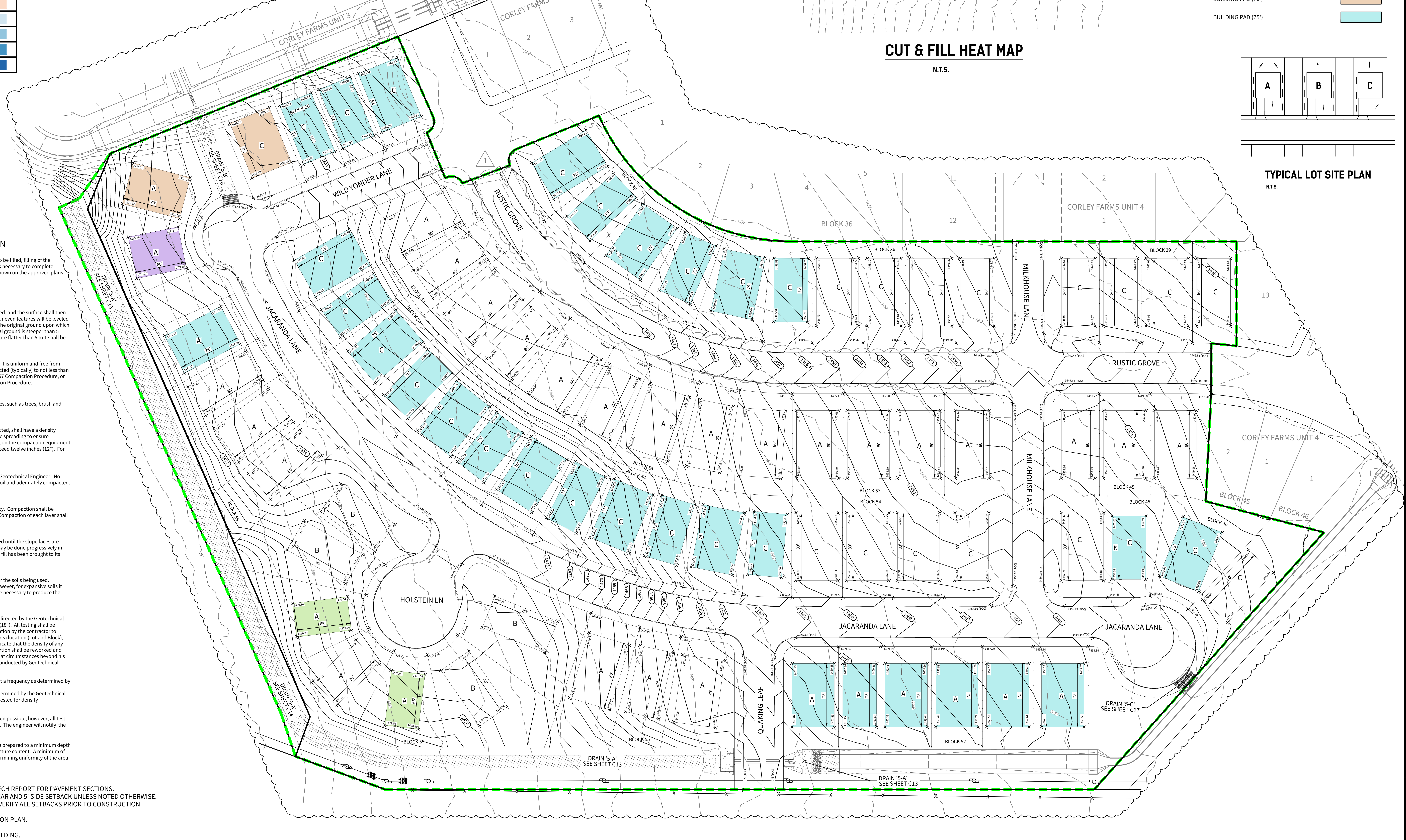
N.T.S.

SCALE: 1"=60'

0 60 120

LEGEND

PROPOSED CONTOUR	(1000)
EXISTING CONTOUR	— — 1000 — —
PROPOSED ELEVATION	× 1000.00
TYPE OF LOT GRADING	A, B, OR C
SWALE FLOW LINE (ONLY LOT FOR PRIVATE LOT GRADING)	· · · · · ·
BLOCK RETAINING WALL	▬ ▬ ▬
LIMITS OF GRADING	🟩
GRADE BREAK	▨
BUILDING PAD (60')	🟪
BUILDING PAD (65')	🟩
BUILDING PAD (70')	🟧
BUILDING PAD (75')	🟦



NOTE:

LOT GRADING BASE ON SLABS BEING 20' BEHIND FRONT PROPERTY LINE.

MINIMUM SLAB EXPOSURE IS 1.0'

TYPICAL PADS SIZES ARE 30' X 80' UNLESS NOTED OTHERWISE ON PLAN.

CONTOURS SHOWN ON STREET ARE TO STREET SUBGRADE ELEVATIONS.

GENERAL SPECIFICATIONS FOR SITE PREPARATION

1. General Description

This item shall consist of all clearing and grubbing, demolition, preparation of land to be filled, filling of the land, spreading, compaction testing and inspection of the fill, and all subsidiary work necessary to complete the grading of the cut and fill areas to conform with the lines, grades and slopes as shown on the approved plans.

2. Clearing the Area to be Filled

All timber, logs, trees, brush and rubbish shall be removed from the site.

3. Scarifying the Area to be Filled

All organic matter shall be removed from the surface upon which the fill is to be placed, and the surface shall then be disked or scarified to a minimum depth of six inches (6"), all surface ruts or other uneven features will be leveled prior to field density testing. Where fills are made on hillsides or slopes, the slope of the original ground upon which the fill is to be placed shall be disked or scarified. Where the slope ratio of the original ground is steeper than 5 horizontal to 1 vertical, the bank shall be stepped or benched. Ground slopes which are flatter than 5 to 1 shall be benched when considered necessary by the Geotechnical Engineer.

4. Compacting the Area to be Filled

Following the clearing and disking or scarifying of the fill area, it shall be bladed until it is uniform and free from large clods. The area shall be brought to the adequate moisture content and compacted (typically) to not less than ninety percent (90%) of maximum density in accordance with the current ASTM D 1557 Compaction Procedure, or 95% of maximum density in accordance with the current THD--TEX--113--E Compaction Procedure.

5. Fill Materials

The materials used shall be free from organic matter and other deleterious substances, such as trees, brush and rubbish.

6. Depth and Mixing of Fill Layers

The selected fill material shall be placed in level, uniform layers which, when compacted, shall have a density conforming to that stipulated above. Each layer shall be thoroughly mixed during the spreading to ensure uniformity of material in each layer. Compacted layer thickness may vary depending on the compaction equipment of demonstrated capability. The maximum loose depth for any material shall not exceed twelve inches (12"). For testing requirements of fill material, see density testing.

7. Rock

When fill material includes rock, the maximum rock size shall be as approved by the Geotechnical Engineer. No large rocks shall be allowed to nest and all voids must be filled with small stones or soil and adequately compacted. No large rocks will be permitted within eighteen inches (18") of the finished grade.

8. Compaction of Fill Layer

Compaction equipment shall be capable of compacting the fill to the specified density. Compaction shall be accomplished while the fill material is at or near the appropriate moisture content. Compaction of each layer shall be continuous over the entire structural area (beneath proposed structures).

9. Compaction of Slopes

The faces of fill slopes shall be compacted. Compacting operations shall be continued until the slope faces are stable but not too dense for planting on the slopes. Compaction of the slope faces may be done progressively in increments of three to five feet (3' to 5') in fill height as this fill progresses or after the fill has been brought to its total height.

10. Moisture Content

The fill material shall be compacted at the appropriate moisture content specified for the soils being used. Appropriate moisture content is defined, typically, as optimum moisture content; however, for expansive soils it may be greater than optimum moisture content, and other moisture contents may be necessary to produce the desired results with certain soils.

11. Density Tests

Field density tests shall be performed on layers of fill when the fill is being placed as directed by the Geotechnical Engineer. The maximum fill height between density testing shall be eighteen inches (18"). All testing shall be requested by the contractor to meet the contractor's construction schedule. Notification by the contractor to conduct tests shall be at least the day before. This notification shall include the fill area location (Lot and Block), the lift or height of fill and approximate desired time of testing. When these tests indicate that the density of any layer of fill or portion thereof is below the required density, the particular layer or portion shall be reworked and retested at the expense of the contractor unless the contractor can show evidence that circumstances beyond his control required the retesting. Generally, the specific testing will be as follows and conducted by Geotechnical Engineer.

A. The land to be filled (prepared subgrade) shall be prepared and tested at a frequency as determined by the Geotechnical Engineer.

B. The first lift of compacted fill (generally 8 to 12-in.) shall be tested as determined by the Geotechnical Engineer. Any areas supporting the proposed structures requiring fill shall be tested for density compliance.

C. Fills shall be tested a maximum of each eighteen inches (18") of fill.

D. Test results will be provided by the field technician to the contractor when possible; however, all test results are to be reviewed by the Geotechnical Engineer for compliance. The engineer will notify the contractor of all test results.

12. Cut/Fill Lots

Areas involving cut on one portion and fill on another portion of a specific lot shall be prepared to a minimum depth of 6-in. and will be the same material classification at the same compaction and moisture content. A minimum of two (2) field density tests shall be required on each cut/fill lot for the purpose of determining uniformity of the area supporting the proposed structures.

NOTES:

1. STREET PAVEMENT CONTOURS SHOWN. REFERENCE GEOTECH REPORT FOR PAVEMENT SECTIONS.
2. HOUSE PADS SHALL HAVE A MINIMUM 20' FRONTAGE, 15' REAR AND 5' SIDE SETBACK UNLESS NOTED OTHERWISE. CONTRACTOR SHALL REFER TO THE SUBDIVISION PLAT TO VERIFY ALL SETBACKS PRIOR TO CONSTRUCTION.
3. MINIMUM SLAB EXPOSURE IS 1.0'.
4. TYPICAL PAD SIZES IS 40' X 80' UNLESS NOTED OTHERWISE ON PLAN.
5. MAXIMUM REAR SETBACK SLOPE = 15%
6. HOUSE PAD SWALES TO BE CONSTRUCTED WITH HOME BUILDING.
7. CONTRACTOR SHALL ENSURE THAT POSITIVE DRAINAGE IS MAINTAINED AWAY FROM ALL HOUSE PADS. NO WATER PONDING SHALL BE ALLOWED.

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CORLEY FARMS UNIT 5

OVERALL GRADING PLAN

DATE
06/02/2025

PROJECT NO.
03481.012

DRAWN BY
C3

CHECKED BY
XV/AL

#	DATE	REVISIONS
1.	4/7/25	RUSTIC GROVE PVM'T SLOPE
2.	5/28/25	GRADING REVISIONS
3.		
4.		
5.		
6.		
7.		
8.		
9.		

ANDREW R. LOWRY
123410
6/2/25

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TBPLS No. 10048500

C40

P:\03481\012\2-Drawings\C40 OVERALL GRADING PLAN.dwg 2025/06/02 1:49pm kmartinez