

CONSTRUCTION PLANS

STREET AND DRAINAGE CONSTRUCTION PLANS

- C0 - CITY OF BOERNE GENERAL NOTES
- C1 - ULTIMATE MASTER DRAINAGE PLAN
- C2 - ULTIMATE MASTER DRAINAGE PLAN - RATIONAL METHOD CALCULATIONS
- C3 - STREET PLAN & PROFILE - RUSTIC BARN LANE
- C4 - STREET PLAN & PROFILE - RUSTIC BARN LANE
- C5 - STREET PLAN & PROFILE - WHITE BARN COVE
- C6 - STREET PLAN & PROFILE - TROTTING HORSE
- C7 - STREET PLAN & PROFILE - OLD RIDGE LANE
- C8 - STREET PLAN & PROFILE - PONY BEND
- C9 - STREET PLAN & PROFILE - RUSTIC GROVE
- C10 - STREET PLAN & PROFILE - RUSTIC GROVE
- C11 - STREET PLAN & PROFILE - ACORN CIRCLE
- C12 - STREET PLAN & PROFILE - ACORN CIRCLE
- C13 - STREET PLAN & PROFILE - WINDMILL BREEZE
- C14 - STREET PLAN & PROFILE - WINDING WINDMILL
- C15 - STREET PLAN & PROFILE - WINDING WINDMILL
- C16 - STREET PLAN & PROFILE - FARMING GROVE
- C17 - TRAFFIC SIGNAGE PLAN
- * C18 - CITY OF BOERNE STANDARD STREET DETAILS
- C19 - DRAIN PLAN & PROFILE - DRAIN '2-A'
- C20 - DRAIN PLAN & PROFILE - DRAIN '2-A'
- C21 - DRAIN PLAN & PROFILE - DRAIN '2-B' & '2-H'
- C22 - DRAIN PLAN & PROFILE - DRAIN '2-C'
- C23 - DRAIN PLAN & PROFILE - DRAIN '2-C'
- C24 - DRAIN PLAN & PROFILE - DRAIN '2-C'
- C25 - DRAIN PLAN & PROFILE - DRAIN '2-D' & '2-E'
- C26 - DRAIN PLAN & PROFILE - DRAIN '2-F' & '2-G'
- C27 - DRAIN PLAN & PROFILE - DRAIN '2-I'
- C27A - DRAIN PLAN & PROFILE - DRAIN '2-J'
- C27B - DRAIN PLAN & PROFILE - DRAIN '2-J' & '2-K'
- * C28 - CURB INLET DETAILS
- * C29 - SAFETY END TREATMENT DETAILS
- * C29A - TXDOT JUNCTION BOX DETAILS
- C30 - DRAINAGE DETAILS
- C31 - BATCH DETENTION POND PLAN - NORTHEAST POND
- C32 - BATCH DETENTION POND PLAN - NORTHEAST POND
- C33 - BATCH DETENTION POND PLAN - NORTHEAST POND

SANITARY SEWER CONSTRUCTION PLANS

- C34 - OVERALL SANITARY SEWER PLAN
- C35 - OVERALL SANITARY SEWER PLAN
- C36 - SANITARY SEWER GENERAL NOTES
- C37 - SANITARY SEWER PLAN & PROFILE LINE "A"
- C38 - SANITARY SEWER PLAN & PROFILE LINE "A"
- C39 - SANITARY SEWER PLAN & PROFILE LINE "A"
- C40 - SANITARY SEWER PLAN & PROFILE LINE "E"
- C41 - SANITARY SEWER PLAN & PROFILE LINE "F"
- C42 - SANITARY SEWER PLAN & PROFILE LINE "G"
- C43 - SANITARY SEWER PLAN & PROFILE LINE "I"
- C44 - SANITARY SEWER PLAN & PROFILE LINE "I"
- C45 - SANITARY SEWER PLAN & PROFILE LINE "H" & "J" & "K"
- * C46 - SANITARY SEWER STANDARD DETAILS

WATER DISTRIBUTION CONSTRUCTION PLANS

- C47 - WATER DISTRIBUTION PLAN
- C48 - WATER DISTRIBUTION PLAN
- C49 - WATER DISTRIBUTION PLAN
- C50 - 16" OVERSIZE WATER PLAN & PROFILE
- C51 - 16" OVERSIZE WATER PLAN & PROFILE
- * C52 - WATER DISTRIBUTION STANDARD DETAILS

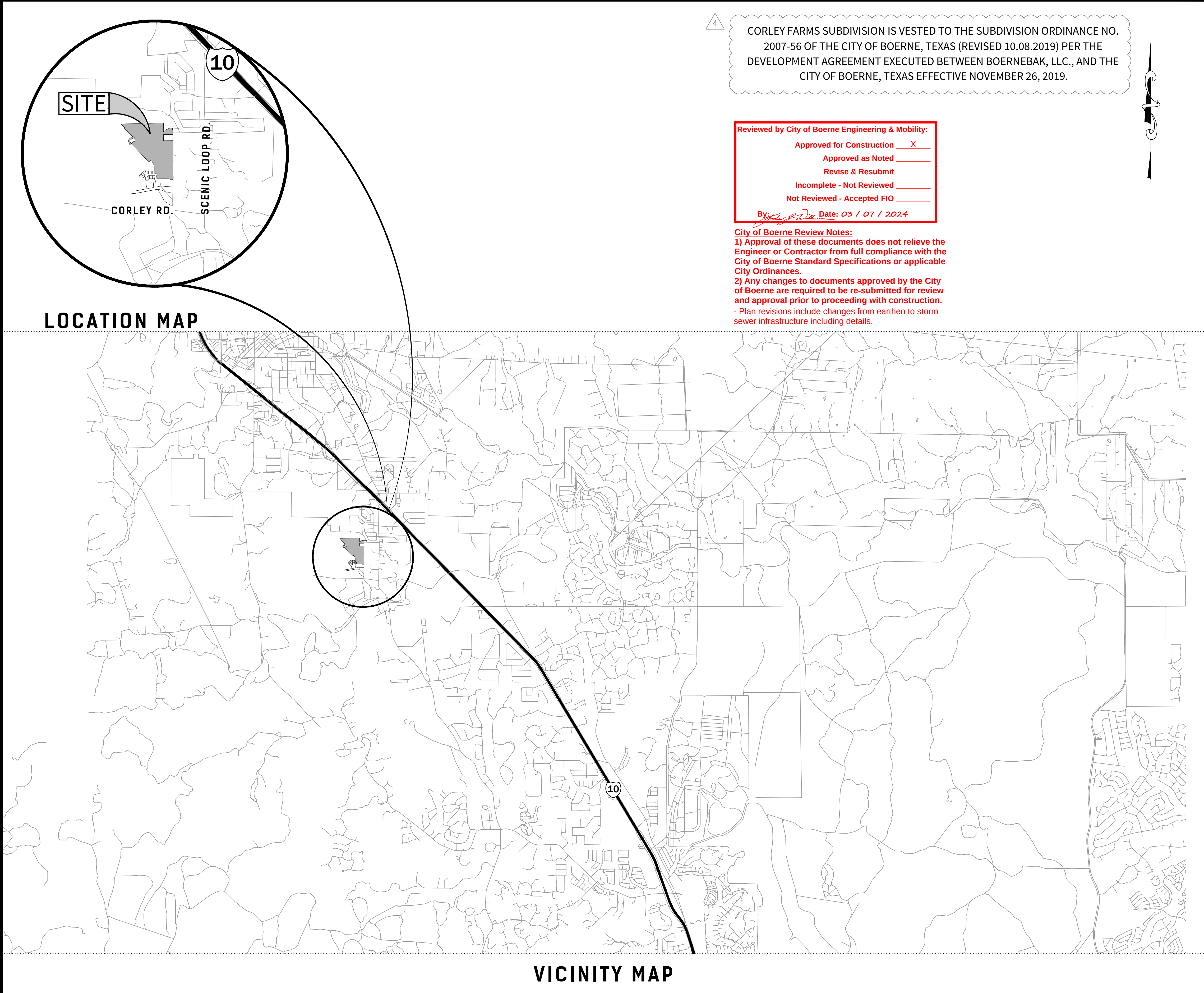
GAS DISTRIBUTION CONSTRUCTION PLANS

- C53 - NATURAL GAS DISTRIBUTION PLAN
- C54 - NATURAL GAS DISTRIBUTION PLAN
- * C55 - NATURAL GAS DISTRIBUTION PLAN DETAILS

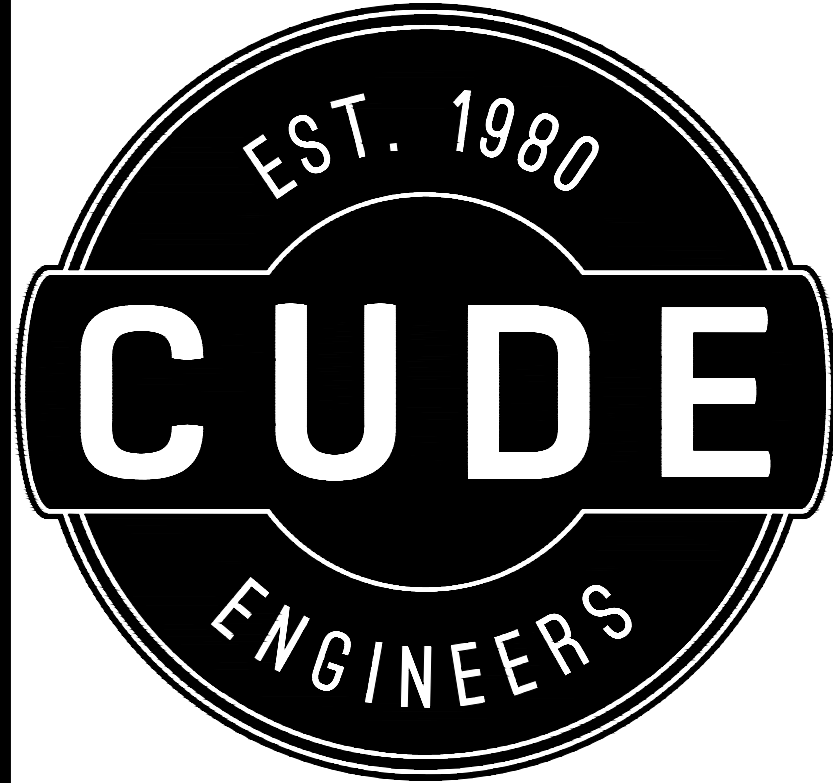
MISCELLANEOUS CONSTRUCTION PLANS

- C56 - UTILITY LAYOUT PLAN
- C57 - UTILITY LAYOUT PLAN
- C58 - UTILITY LAYOUT PLAN
- C59 - STORM WATER POLLUTION PREVENTION PLAN
- C60 - STORM WATER POLLUTION PREVENTION PLAN

* STANDARD DETAILS ADOPTED FOR THIS CONSTRUCTION SET.



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CORLEY FARMS
UNIT 2
CONSTRUCTION PLANS

PRESSURE ZONE 12

Developer's Name	PULTE HOMES OF TEXAS, L.P.		
Developer's Address	1718 DRY CREEKWAY, SUITE 120		
City	SAN ANTONIO	State	TEXAS
Zip	78259		
Phone #	(210) 496-1985	Fax #	(210) 496-0449
SAWS Block Map #	XXX-XXX	Total EDU's	235
Total Linear Footage of Pipe	10' W - 1777 L.F. / 18' W - 7491 L.F. / 2' W - 782 L.F.	Total Acreage	55.166
Number of Lots	225	Plat No.	N/A (CORLEY FARMS UNIT 2 PLAT)
SAWS Job No.	21-XXXX		

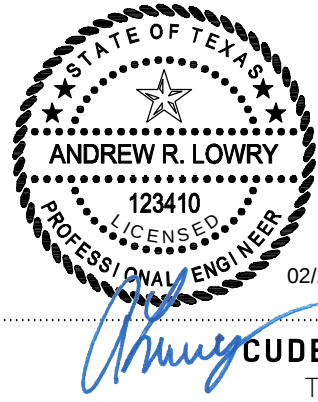


DEVELOPER:

PULTE HOMES OF TEXAS, L.P.
CONTACT PERSON: FELIPE GONZALEZ
1718 DRY CREEK WAY, SUITE 120
SAN ANTONIO, TX 78259
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	02/20/2024
CHECKED BY	PROJECT NO.
JC/DDC	03481.005

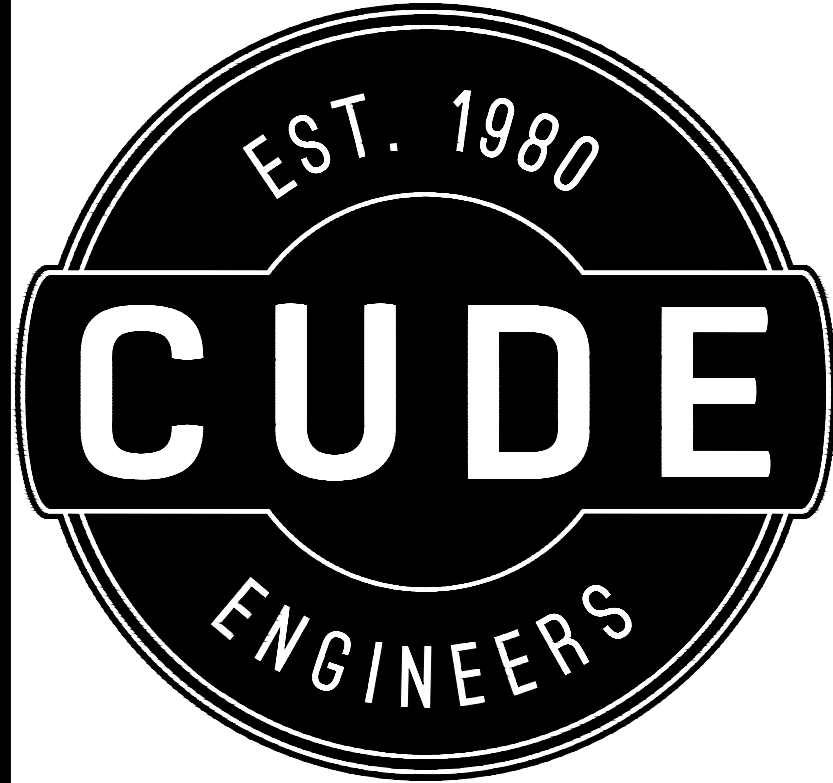
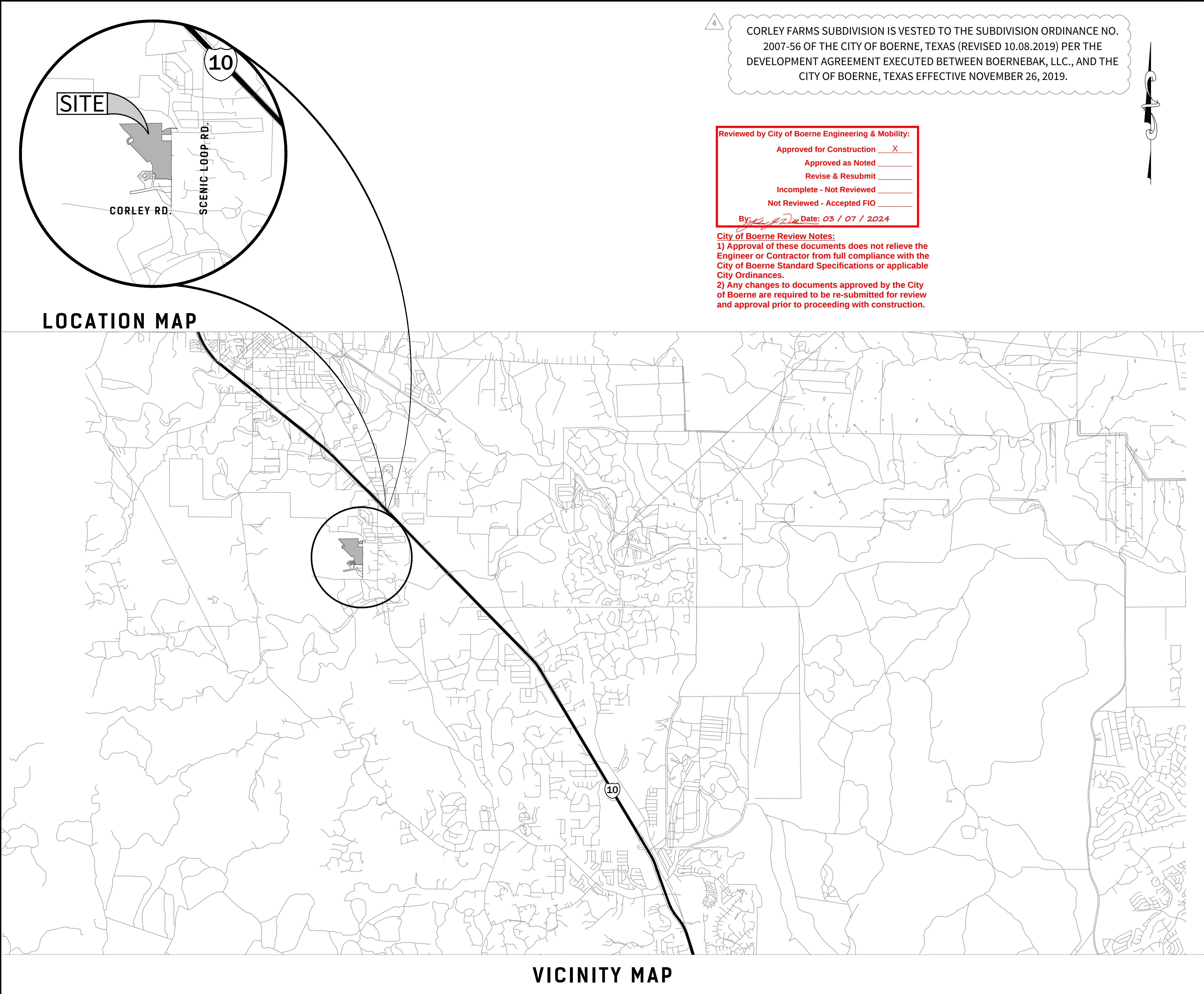


CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

STREET AND DRAINAGE CONSTRUCTION PLANS

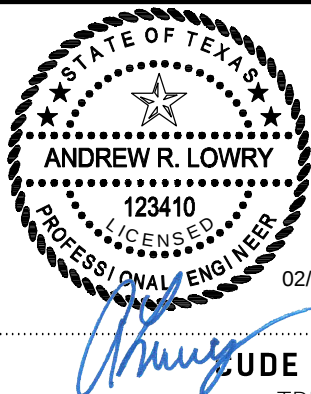
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* STANDARD DETAILS ADOPTED FOR THIS CONSTRUCTION SET.



CORLEY FARMS
UNIT 2

STREET AND DRAINAGE
CONSTRUCTION PLANS



02/20/2024

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500



DEVELOPER:

PULTE HOMES OF TEXAS, L.P.
CONTACT PERSON: FELIPE GONZALEZ
1718 DRY CREEK WAY, SUITE 120
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TEL: (210) 496-1985
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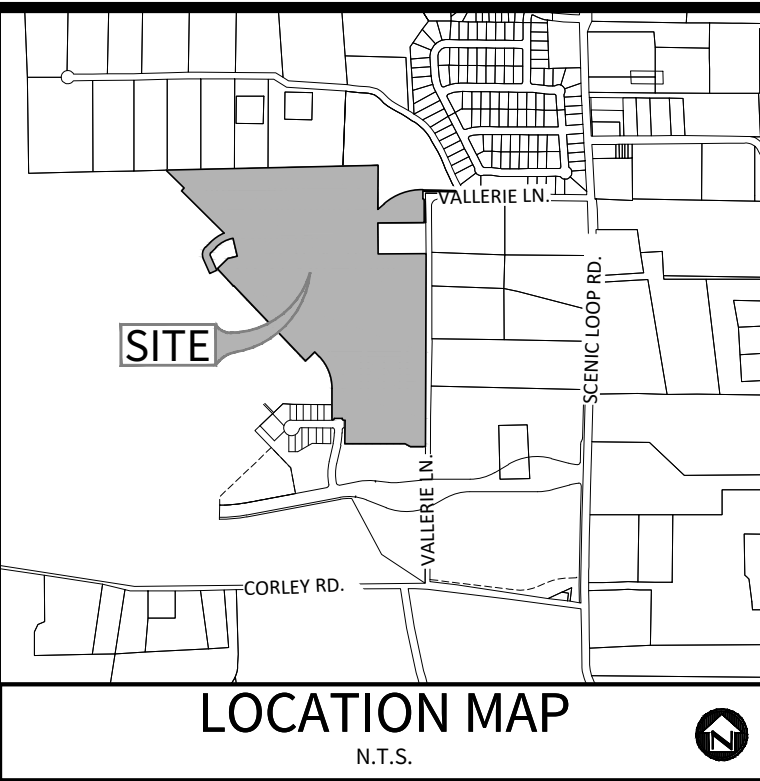
DRAWN BY
C3

DATE
02/20/2024

CHECKED BY
JC/DDC

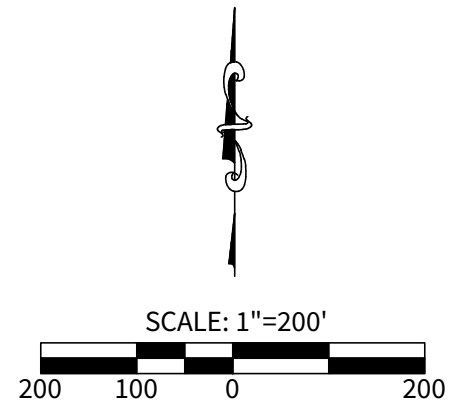
PROJECT NO.
03481.005

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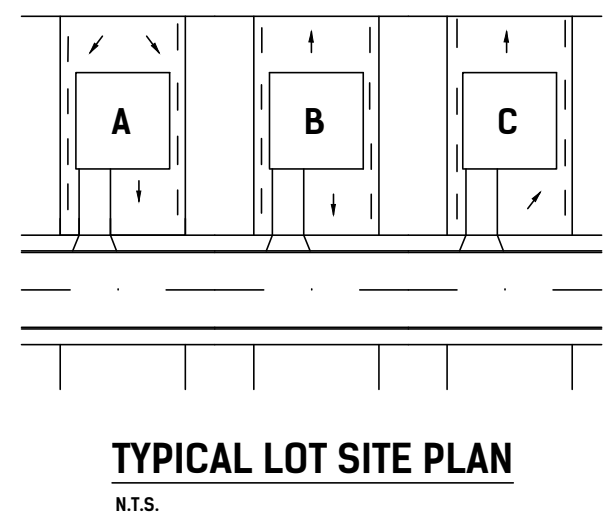
OWNER/DEVELOPER:
PULTE HOMES OF TEXAS, L.P.
CONTACT PERSON: FELIPE GONZALEZ
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SAN ANTONIO, TX 78259
TEL: (210) 496-1985
FAX: (210) 496-0449

CIVIL ENGINEER:
M.W. CUDE ENGINEERS, L.L.C.
CONTACT PERSON: DAVID D. CUPIT II, P.E.
4122 POND HILL ROAD, SUITE 101
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LEGEND

- UNIT BOUNDARY
- DRAINAGE AREA BOUNDARY
- Tc FLOW PATH
- ACCUMULATION POINT
- FLOW ARROWS

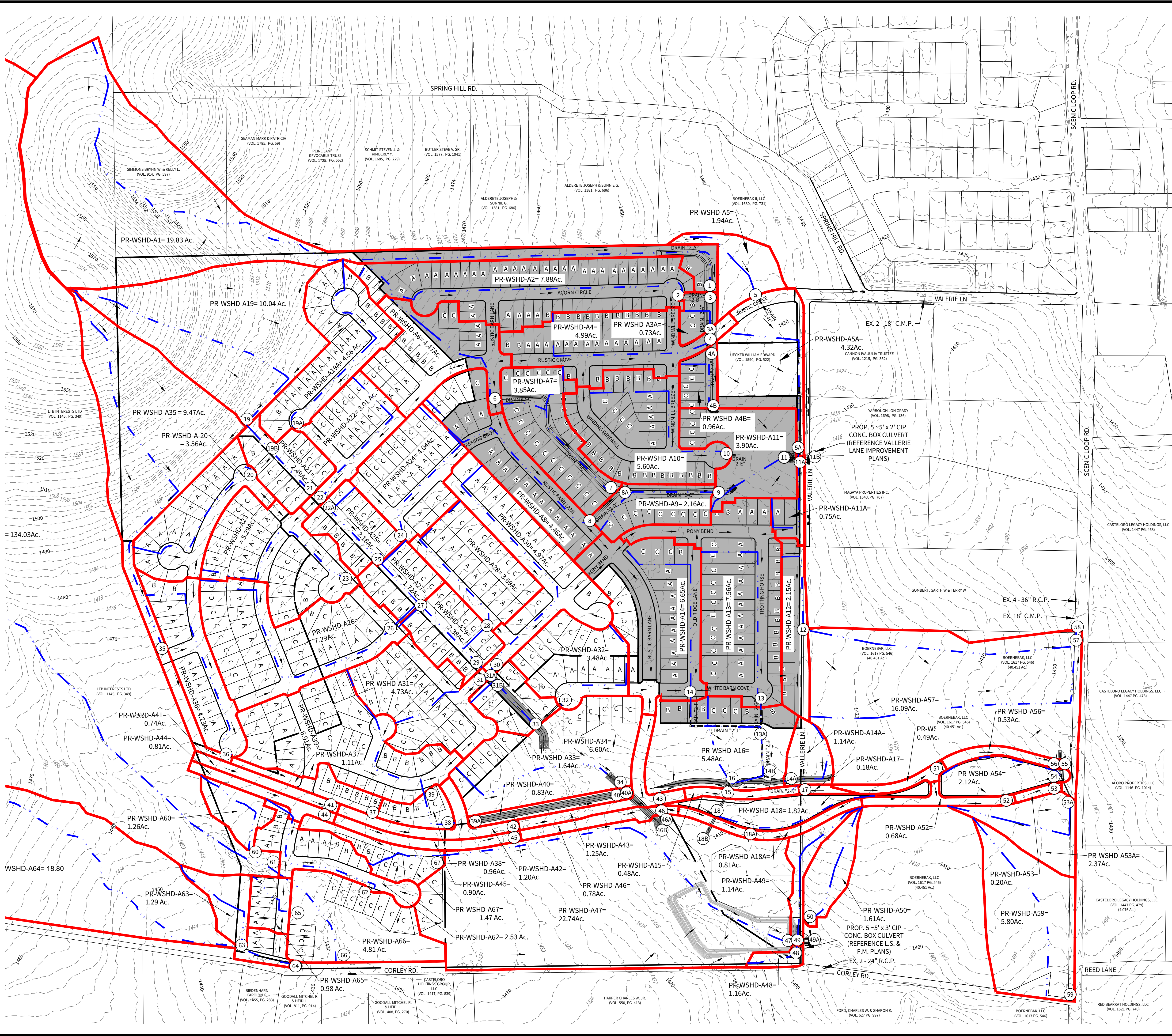


Reviewed by City of Boerne Engineering & Mobility:

Approved for Construction	X
Approved as Noted	
Revise & Resubmit	
Incomplete - Not Reviewed	
Not Reviewed - Accepted FIO	

By: *[Signature]* Date: 03 / 07 / 2024

City of Boerne Review Notes:
1) Approval of these documents does not relieve the Engineer or Contractor from full compliance with the City of Boerne Standard Specifications or applicable City Ordinances.
2) Any changes to documents approved by the City of Boerne are required to be re-submitted for review and approval prior to proceeding with construction.



CUDEENGINEERS.COM

CUDE ENGINEERS

4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
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CORLEY FARMS UNIT 2

ULTIMATE MASTER DRAINAGE PLAN

DATE
02/20/2024

PROJECT NO.
03481.005

DRAWN BY
C3

CHECKED BY
XV/JC/DDC

REVISIONS

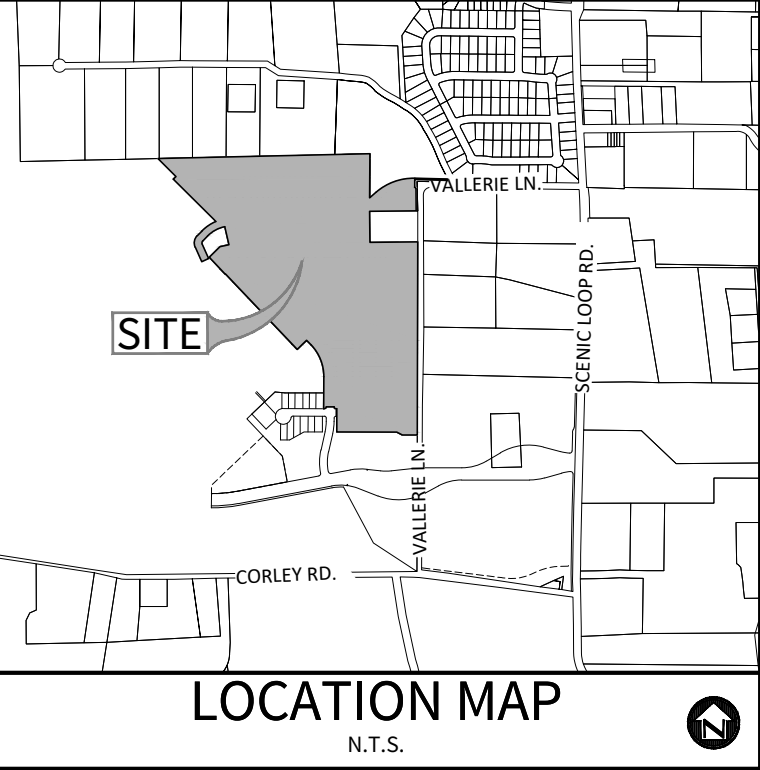
1.	
2.	
3.	
4.	2021-11-12 - ADDED STREET NAMES
5.	
6.	
7.	
8.	
9.	

STATE OF TEXAS
ANDREW R. LOWRY
123410
LICENSED PROFESSIONAL ENGINEER
02/20/2024

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C1

1 OF 33

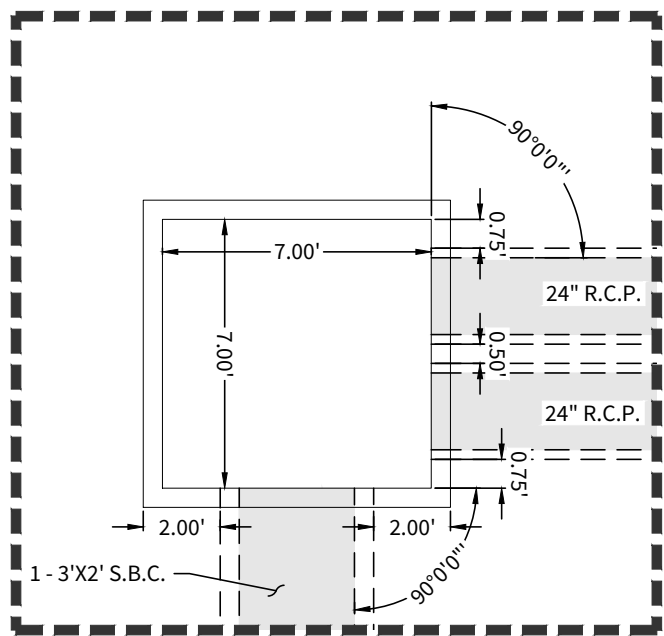


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Project Name: Corley Farms															Precipitation Area Atlas 14 = PA1																											
Calculation Summary for Time of Concentrations & Ultimate Flow, "U"																																										
HYDROLOGY															SHEET FLOW Tc COMPUTATIONS										SHALLOW CONC. Tc COMPUTATIONS					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 Coefficient (n)	Slope	Time of Concentration	Length	Manning's Roughness Coefficient (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	7.15	10.93	13.90	3.73	5.79	7.37	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	178.49	-/3A																	
A4/4	4.99	A4	4.99	0.66	0.73	0.83	190.00	0.3	1.00%	13.71	10.00				15.66	6	1.95	15.66	9.23	7.33	5.48	23.62	36.55	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	12.03	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	37.02	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																	
-/13A	0.00	A13+A14	14.21	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	45.58	70.36	100.94	-/13A																	
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																	
A14A/14A	1.14	A14A	1.14	0.66	0.73	0.83	263.00	0.3	1.40%	15.88					171.78	6	0.48	16.35	5.13	7.20	9.08	3.86	5.96	8.54	A14A/14A																	
-/14B	0.00	A13+A14A	15.35	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	49.24	76.00	109.03	-/14B																	
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/-	5.57	A16	5.48	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	16.92	26.37	37.79	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	1.18	A17	1.18	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	11.13	17.03	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	14.62	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	38.85	59.96	86.03	-/19B																	
A20/20	3.56	A20	3.56	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	16.26	25.17	36.27	A20/20																	
A21/-	2>&																																									

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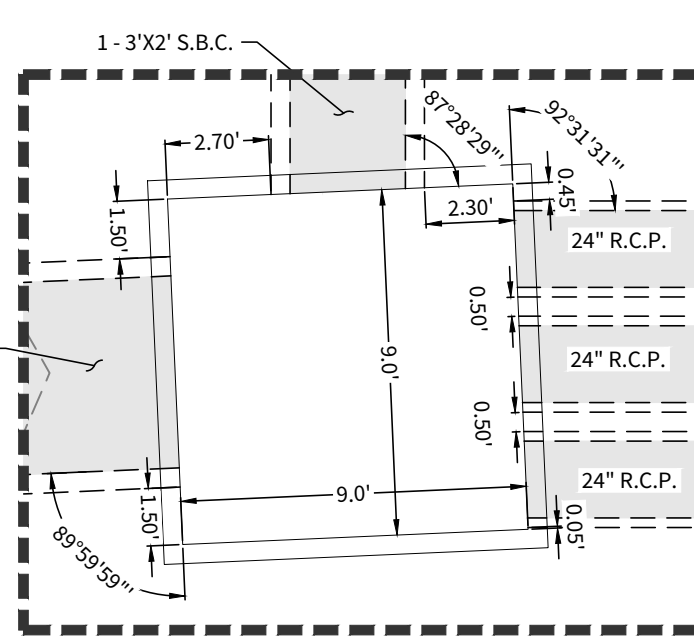
DETAIL "A" - JUNCTION BOX
(N.T.S.)

CURB INLET OPENING

$Q_{100} = 54.86$ c.f.s. / $2.06 = 26.63'$ REQ.
USED 30" INLET
 $A = 16.00$ s.f. (1 - 8' x 2')
 $V = 2.89$ f.p.s.
 $H_v = 0.18'$
 $1.5H_v = 0.27'$
 $H_w = z + y + 1.5H_v$
 $H_w = 1424.10' + 2.00' + 0.27'$
 $H_w = 1426.35$
GUTTER = 1427.28

24" R.C.P. DRAIN '2-F'

PIPE SLOPE = 1.50%
 $Q_{25} = 54.86$ c.f.s.
DEPTH OF FLOW = 1.63 ft
FLOW AREA = 5.49 ft²
WETTED PERIMETER = 9.02 ft
% FULL = 81.50%
VELOCITY₂₅ = 9.99 ft/s
 $n = 0.013$



DETAIL "B" - JUNCTION BOX
(N.T.S.)

CURB INLET OPENING

$Q_{100} = 53.70$ c.f.s. / $2.06 = 26.07'$ REQ.
USED 30" INLET
 $A = 16.00$ s.f. (1 - 8' x 2')
 $V = 3.14$ f.p.s.
 $H_v = 0.17'$
 $1.5H_v = 0.26'$
 $H_w = z + y + 1.5H_v$
 $H_w = 1420.35' + 2.00' + 0.26'$
 $H_w = 1422.60$
GUTTER = 1422.97

24" R.C.P. DRAIN '2-G'

PIPE SLOPE = 1.50%
 $Q_{25} = 53.70$ c.f.s.
DEPTH OF FLOW = 1.17 ft
FLOW AREA = 5.748 ft²
WETTED PERIMETER = 10.47 ft
% FULL = 58.50%
VELOCITY₂₅ = 9.34 ft/s
 $n = 0.013$

LEGEND

OVERALL UNIT BOUNDARY	---
PROPOSED LOT LINE	---
PROPOSED RIGHT OF WAY	---
E.G.T.CA. EASEMENT	---
EXISTING 1' CONTOUR	---
EXISTING 5' CONTOUR	---
PROPOSED 1' CONTOUR	---
PROPOSED 5' CONTOUR	---
PROPOSED WATER LINE	W
PROPOSED SEWER MAIN	SS
PROPOSED GAS MAIN	G

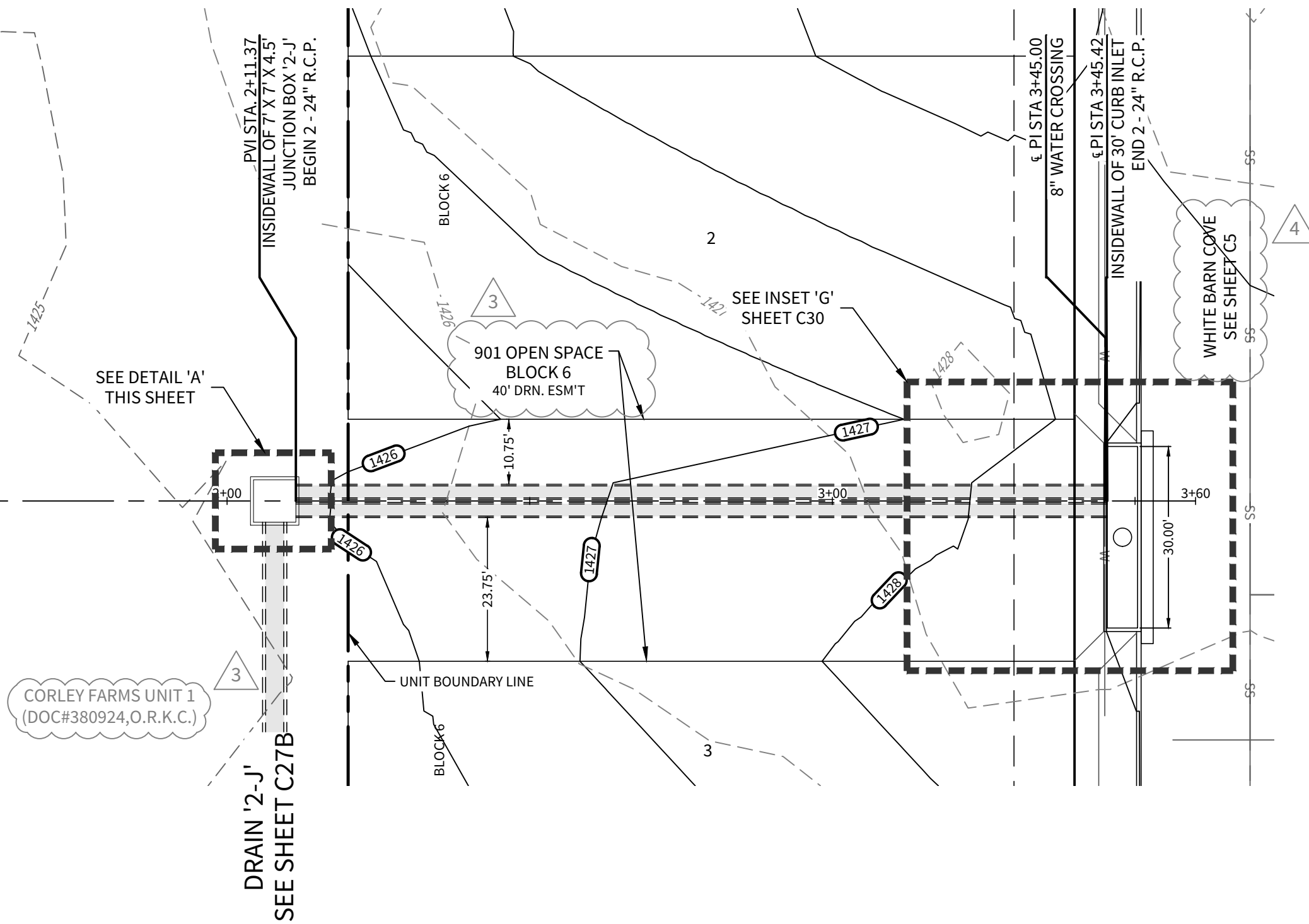
Reviewed by City of Boerne Engineering & Mobility:

Approved for Construction ☒ X
Approved as Noted _____
Revise & Resubmit _____
Incomplete - Not Reviewed _____
Not Reviewed - Accepted FIO _____

By: *[Signature]* Date: 03 / 07 / 2024

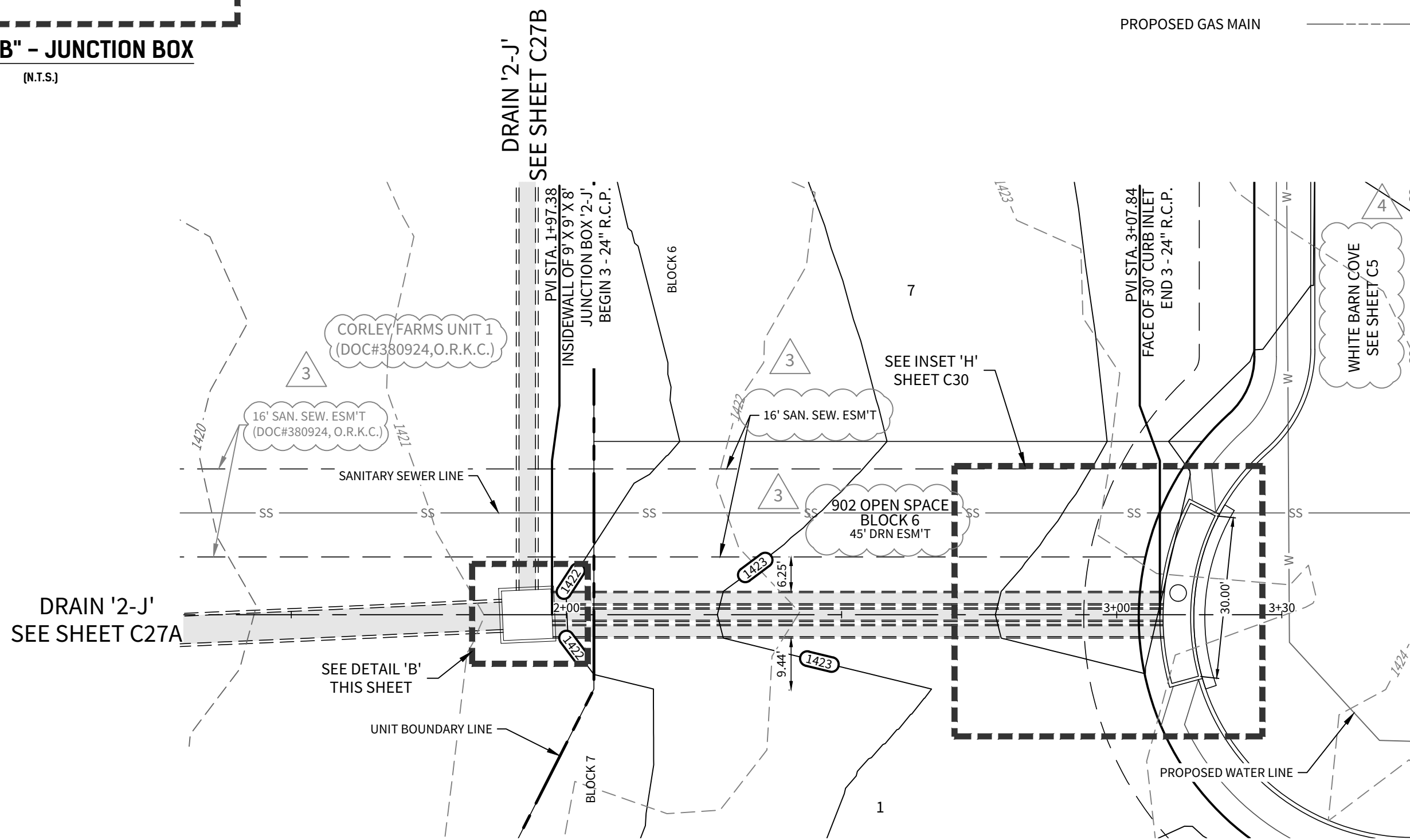
City of Boerne Review Notes:

- 1) Approval of these documents does not relieve the Engineer or Contractor from full compliance with the City of Boerne Standard Specifications or applicable City Ordinances.
- 2) Any changes to documents approved by the City of Boerne are required to be re-submitted for review and approval prior to proceeding with construction.



DRAIN '2-F'

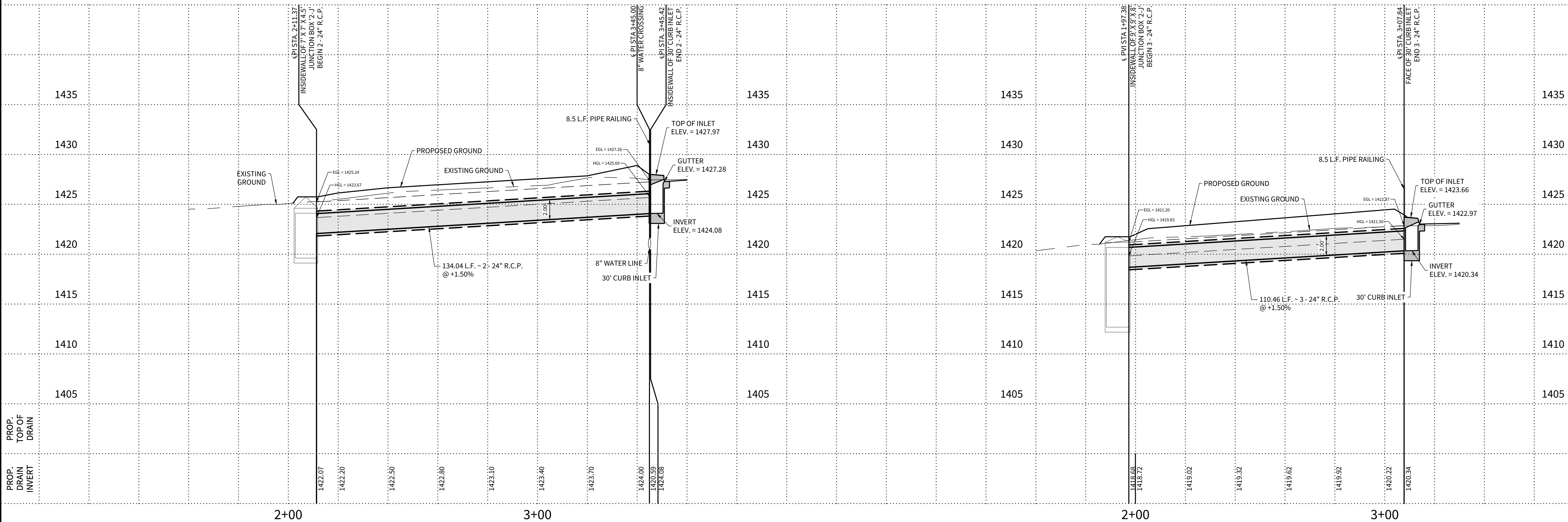
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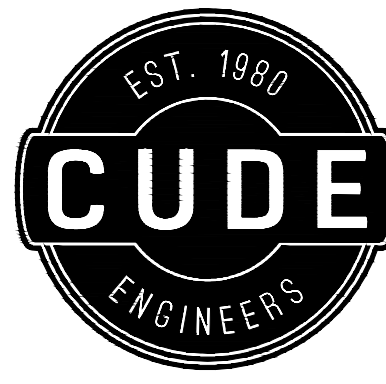
DRAIN '2-G'

STA. 1+00.00 TO END

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



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CORLEY FARMS
UNIT 2

DRAIN PLAN & PROFILE - DRAIN '2-F' & '2-G'

DATE

02/02/2024

PROJECT NO.

03481.005

DRAWN BY

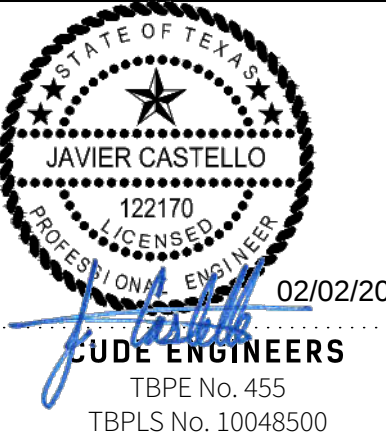
C3

CHECKED BY

XV/JC/DDC

REVISIONS

1. 2021-06-23 - REVISED DRAIN CROSS SECTION & CURB INLET VELOCITIES
- 2.
3. 2021-10-07 - CITY OF BOERNE COMMENTS
4. 2021-11-12 - CITY OF BOERNE COMMENTS
- 5.
- 6.
- 7.
- 8.
- 9.



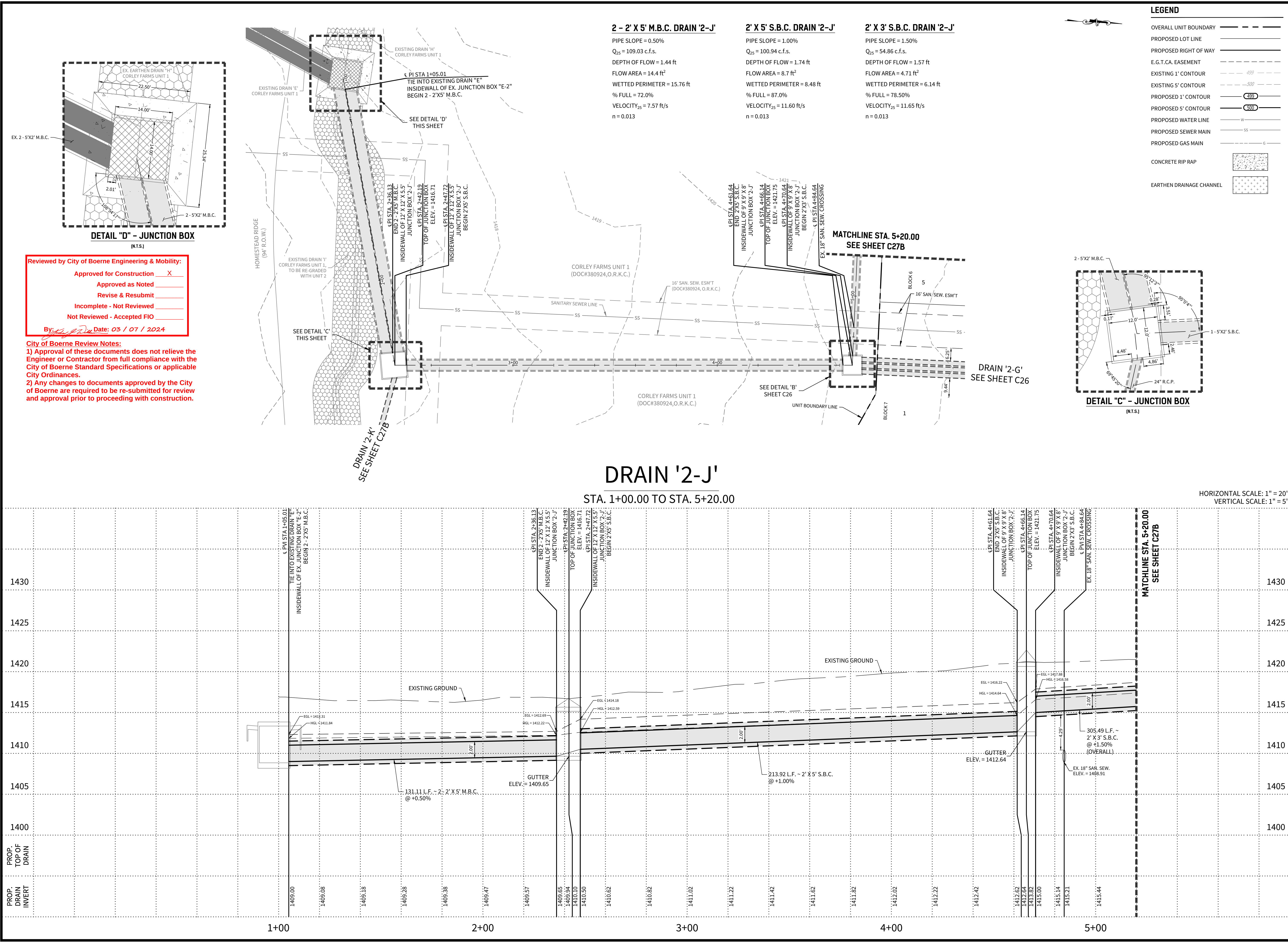
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TBPE No. 455
TBPLS No. 10048500

C26

26 OF 33

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San Antonio, Texas 78231
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CORLEY FARMS
UNIT 2

DRAIN PLAN & PROFILE - DRAIN '2-J'

DATE
02/02/2024

PROJECT NO.
03481.005

DRAWN BY
C3

CHECKED BY
XV/JC/DDC

REVISIONS

1.

2021-06-23 - REVISED DRAIN CROSS SECTION & CURB
WILEY VELOCITIES

2.

3.

2021-10-07 - CITY OF BOERNE COMMENTS

4.

2021-11-12 - CITY OF BOERNE COMMENTS

5.

6.

7.

8.

9.

STATE OF TEXAS

JAVIER CASTELLO

PROFESSIONAL ENGINEER

122170

02/02/2024

CUDE ENGINEERS

TBPE No. 455

TBPLS No. 10048500

C27A

27A OF 33

\\fs048500\Drawings\C27A\Drawn Plan & Profile - Drain '2-J'. Drawn: J. P. Aug. 2024 02:02:23 1238pm EST/MSD

2' X 3' S.B.C. DRAIN '2-J'

PIPE SLOPE = 1.50%
Q₁₀₀ = 54.86 c.f.s.
DEPTH OF FLOW = 1.57 ft
FLOW AREA = 4.71 ft²
WETTED PERIMETER = 6.14 ft
% FULL = 78.50%
VELOCITY₁₀₀ = 11.65 ft/s
n = 0.013

Reviewed by City of Boerne Engineering & Mobility:

Approved for Construction ☒

Approved as Noted ☐

Revise & Resubmit ☐

Incomplete - Not Reviewed ☐

Not Reviewed - Accepted FIO ☐

By: *[Signature]* Date: 03 / 07 / 2024

Revision #6 Only

City of Boerne Review Notes:
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24" R.C.P. DRAIN '2-K'

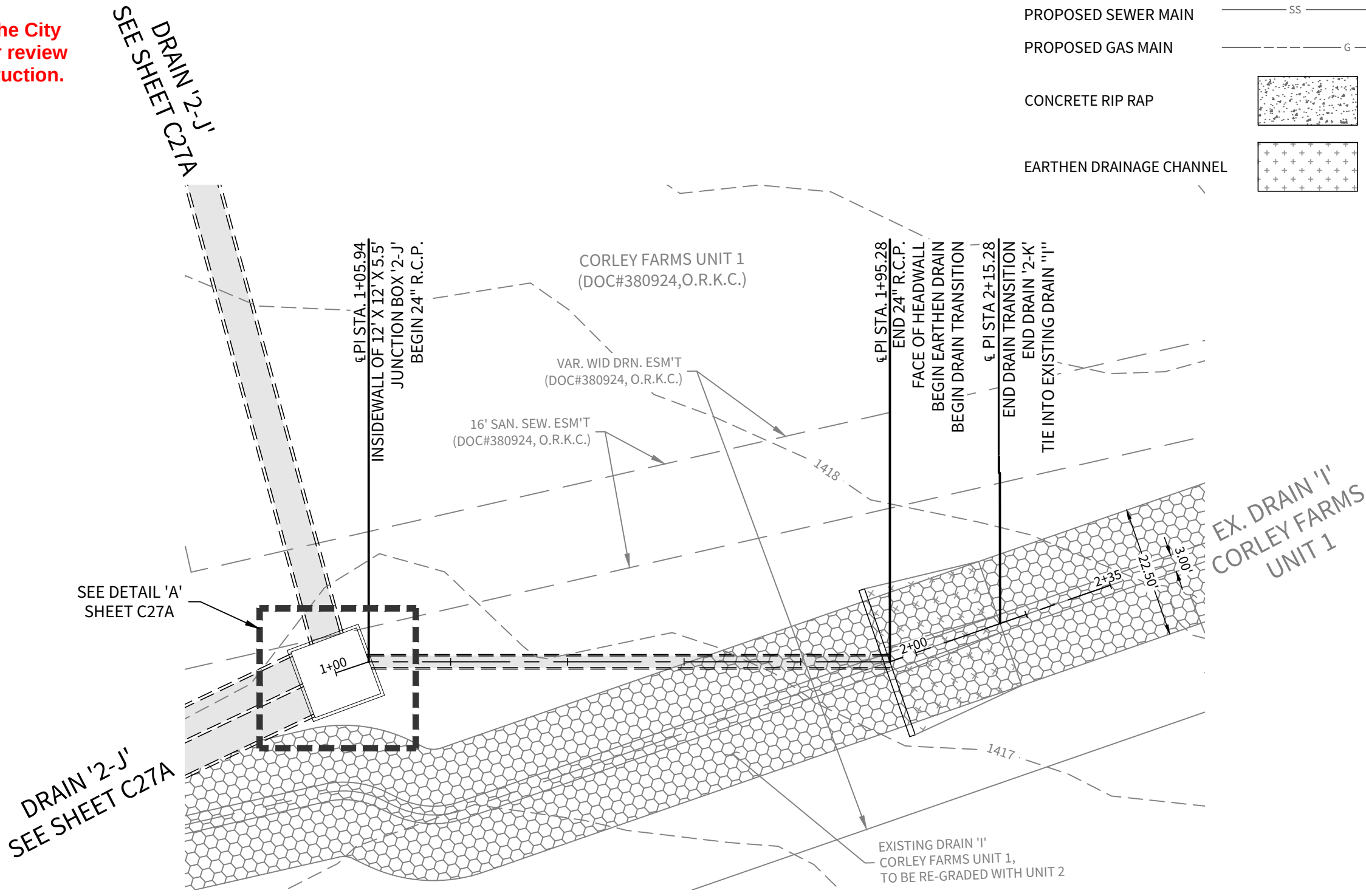
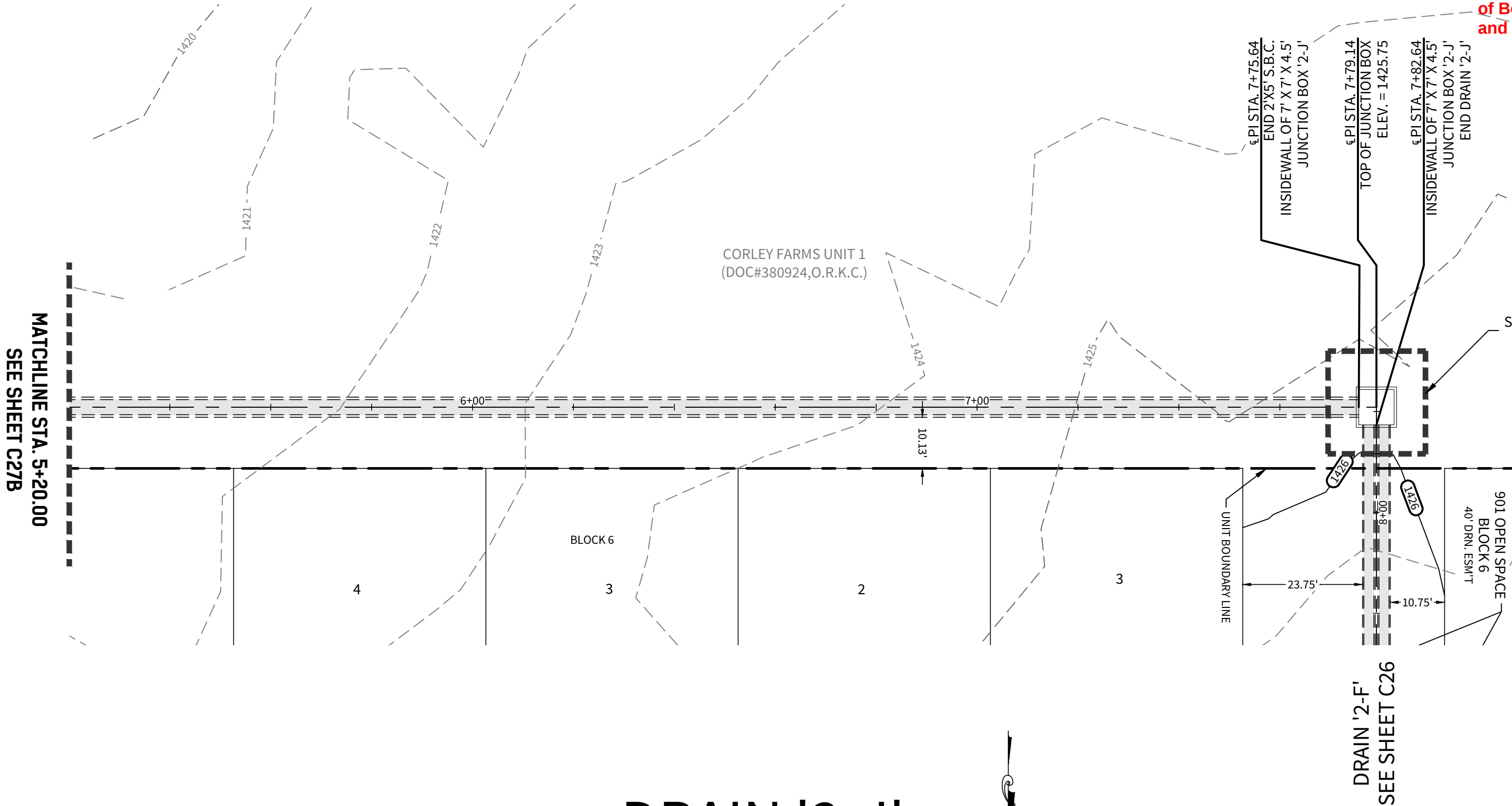
PIPE SLOPE = 2.89%
Q₁₀₀ = 8.54 c.f.s.
DEPTH OF FLOW = 0.64 ft
FLOW AREA = 0.87 ft²
WETTED PERIMETER = 2.41 ft
% FULL = 32.0%
VELOCITY₁₀₀ = 9.81 ft/s
n = 0.013

HEADWALL OPENING

Q₁₀₀ = 8.54 c.f.s.
A = 3.14 s.f. (1 - 24" R.C.P.)
Q = C_d x A x (2 g x h)^{0.5}
Hw = (Q / (C_d x A))² / (2 x g)
Hw = (8.54 / (0.7 x 3.14))² / (2 x 32.2)
Hw = 0.23 ft

LEGEND

- OVERALL UNIT BOUNDARY
- PROPOSED LOT LINE
- PROPOSED RIGHT OF WAY
- E.G.T.CA. EASEMENT
- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR
- PROPOSED 1' CONTOUR
- PROPOSED 5' CONTOUR
- PROPOSED WATER LINE
- PROPOSED SEWER MAIN
- PROPOSED GAS MAIN
- CONCRETE RIP RAP
- EARTHEN DRAINAGE CHANNEL



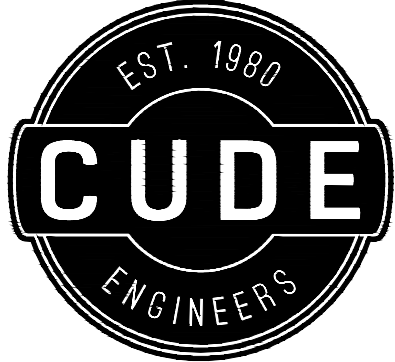
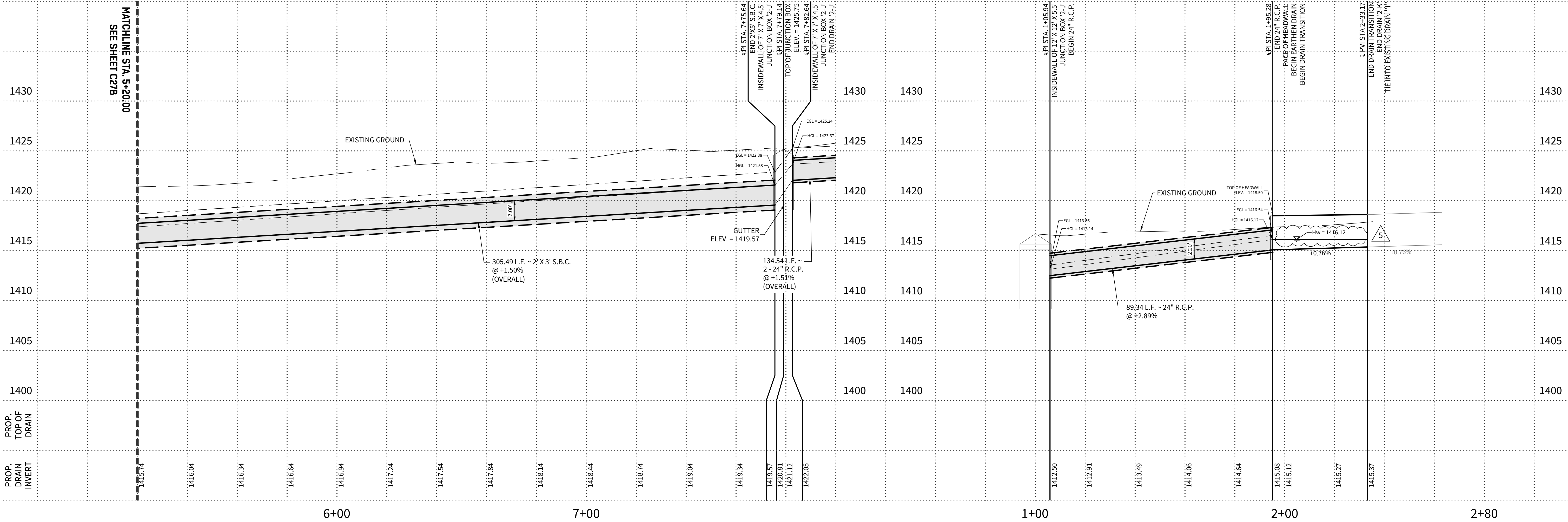
DRAIN '2-J'

STA. 5+20.00 TO END

DRAIN '2-K'

STA. 1+00.00 TO END

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



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CORLEY FARMS
UNIT 2

DRAIN PLAN & PROFILE - DRAIN '2-J' & '2-K'

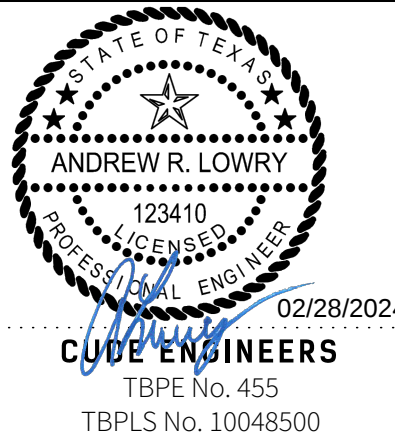
DATE
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REVISIONS

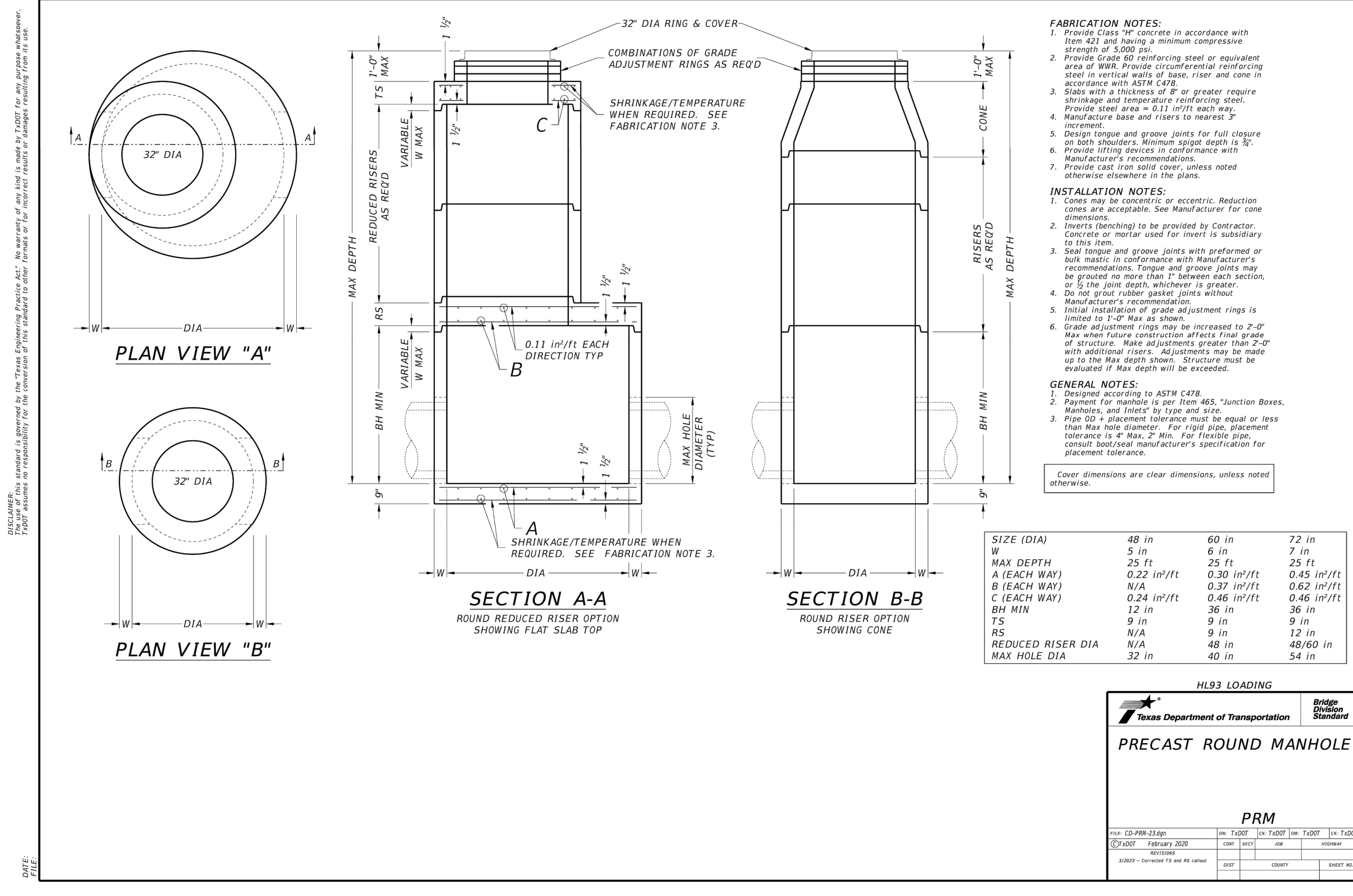
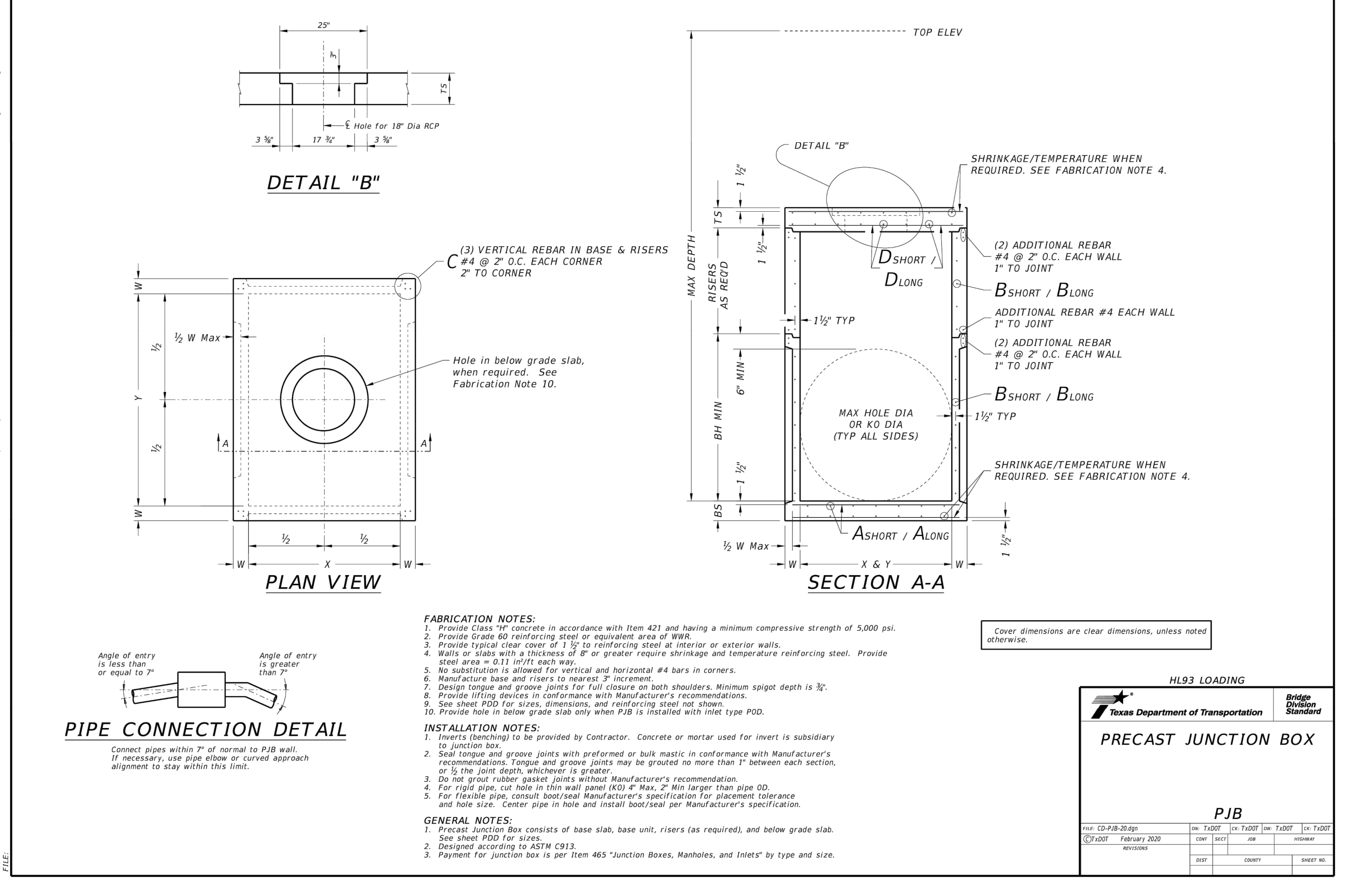
- 2021-06-23 - REVISED DRAIN CROSS SECTION & CURB INLET VELOCITIES
-
- 2021-10-07 - CITY OF BOERNE COMMENTS
- 2021-11-12 - CITY OF BOERNE COMMENTS
- 2024-02-20 - ADDED HEADWATER
- 2024-02-28 - ADDED HEADWATER CALCULATIONS
-
-
-
-



C27B

27B of 33

DATE: FILE: TITLE: PRECAST ROUND MANHOLE



		MAX DEPTH = 15 ft. to top of BASE SLAB												MAX DEPTH = 25 ft. to top of BASE SLAB																	
	Size	Base Slab			Base Unit or Riser Walls			Below Grade Slab (w/PJB) Reducing Slab (w/PJB)			Base Slab			Base Unit or Riser Walls			Below Grade Slab (w/PJB) Reducing Slab (w/PJB)														
	X x Y	Short Span Rein Steel Area	Long Span Rein Steel Area	Thickness	Short Span Rein Steel Area	Long Span Rein Steel Area	Thickness	Reduced Riser Size	Short Span Rein Steel Area	Long Span Rein Steel Area	Thickness	Short Span Rein Steel Area	Long Span Rein Steel Area	Thickness	Short Span Rein Steel Area	Long Span Rein Steel Area	Thickness	Reduced Riser Size	Short Span Rein Steel Area	Long Span Rein Steel Area	Thickness	Short Span Rein Steel Area	Long Span Rein Steel Area	Thickness	Reduced Riser Size	Short Span Rein Steel Area	Long Span Rein Steel Area	Thickness	Min Height (See Note 3)	Max HOLE DIA (See Note 2)	Max KO DIA (See Note 2)
	ft.	in ² /ft	in ² /ft	in.	in ² /ft	in ² /ft	in.	ft. **	in ² /ft	in ² /ft	in.	in ² /ft	in ² /ft	in.	in ² /ft	in ² /ft	in.	ft. **	in ² /ft	in ² /ft	in.	in ² /ft	in ² /ft	in.	ft.	in.	in.	BH MIN	HOLE DIA	KO DIA	
Precast Junction Box (PJB)	3x3	0.23	0.23	6	0.19	0.19	6	N/A	0.37	0.37	9	0.29	0.29	6	0.24	0.24	6	N/A	0.37	0.37	9	3.5	36	36							
	4x4	0.29	0.29	6	0.24	0.24	6	N/A	0.41	0.41	9	0.47	0.47	6	0.38	0.38	6	N/A	0.41	0.41	9	4.5	48	48							
	3x5	0.29	0.18	6	0.19	0.35	6	N/A	0.48	0.48	9	0.39	0.18	6	0.23	0.59	6	N/A	0.48	0.48	9	3.5	36/60	36/60							
	4x5	0.36	0.18	6	0.22	0.34	6	N/A	0.42	0.42	9	0.53	0.26	6	0.39	0.59	6	N/A	0.42	0.42	9	4.5	48/60	48/60							
	5x5	0.36	0.36	6	0.34	0.34	6	N/A	0.43	0.43	9	0.62	0.62	6	0.59	0.59	6	N/A	0.43	0.43	9	5.5	60	60							
	5x6	0.27	0.27	9	0.34	0.45	6	N/A	0.48	0.48	9	0.47	0.45	9	0.38	0.54	8	N/A	0.48	0.48	9	5.5	60/72	60/72							
	6x6	0.27	0.27	9	0.45	0.45	6	N/A	0.56	0.56	9	0.52	0.52	9	0.54	0.54	8	N/A	0.56	0.56	9	6.5	72	72							
	8x8	0.46	0.46	9	0.51	0.51	8	N/A	0.45	0.45	12	0.87	0.87	9	0.59	0.59	10	N/A	0.45	0.45	12	8.5	96	96							
Precast Base (PB)	3x3	0.23	0.23	6	0.19	0.19	6	N/A	N/A	N/A	N/A	0.29	0.29	6	0.24	0.24	6	N/A	N/A	N/A	N/A	3.5	36	36							
	4x4	0.29	0.29	6	0.24	0.24	6	N/A	N/A	N/A	N/A	0.47	0.47	6	0.38	0.38	6	N/A	N/A	N/A	N/A	4.5	48	48							
	3x5	0.29	0.18	6	0.19	0.35	6	3x3	0.30	0.34	9	0.39	0.18	6	0.23	0.59	6	3x3	0.40	0.40	9	3.5	36/60	36/60							
	4x5	0.36	0.18	6	0.22	0.34	6	3x3	0.30	0.30	9	0.53	0.26	6	0.39	0.59	6	3x3	0.46	0.37	9	4.5	48/60	48/60							
	4x5	0.36	0.18	6	0.22	0.34	6	4x4	0.30	0.30	9	0.53	0.26	6	0.39	0.59	6	4x4	0.39	0.39	9	4.5	48/60	48/60							
	4x5	0.36	0.18	6	0.22	0.34	6	48"	0.39	0.39	9	0.53	0.26	6	0.39	0.59	6	48"	0.47	0.47	9	4.5	48/60	48/60							
	4x5	0.36	0.18	6	0.22	0.34	6	3x5	0.33	0.40	9	0.53	0.26	6	0.39	0.59	6	3x5	0.48	0.48	9	4.5	48/60	48/60							
	5x5	0.36	0.36	6	0.34	0.34	6	3x3	0.34	0.34	9	0.62	0.62	6	0.59	0.59	6	3x3	0.53	0.53	9	5.5	60	60							
	5x5	0.36	0.36	6	0.34	0.34	6	4x4	0.36	0.36	9	0.62	0.62	6	0.59	0.59	6	4x4	0.64	0.64	9	5.5	60	60							
	5x5	0.38	0.38	6	0.34	0.34	6	48"	0.36	0.36	9	0.62	0.62	6	0.59	0.59	6	48"	0.64	0.64	9	5.5	60	60							
	5x5	0.36	0.36	6	0.34	0.34	6	3x5	0.34	0.40	9	0.62	0.62	6	0.59	0.59	6	3x5	0.53	0.53	9	5.5	60	60							
	5x6	0.31	0.31	9	0.34	0.45	6	3x3	0.34	0.34	9	0.47	0.45	9	0.38	0.54	8	3x3	0.61	0.50	9	5.5	60/72	60/72							
	5x6	0.27	0.27	9	0.34	0.45	6	4x4	0.36	0.45	9	0.47	0.45	9	0.38	0.54	8	4x4	0.74	0.57	9	5.5	60/72	60/72							
	5x6	0.29	0.29	9	0.34	0.45	6	48"	0.36	0.45	9	0.47	0.45	9	0.38	0.54	8	48"	0.74	0.57	9	5.5	60/72	60/72							
	5x6	0.29	0.29	9	0.34	0.45	6	3x5	0.45	0.45	9	0.47	0.45	9	0.38	0.54	8	3x5	0.61	0.61	9	5.5	60/72	60/72							
	6x6	0.29	0.29	9	0.45	0.45	6	3x3	0.41	0.41	9	0.52	0.52	9	0.54	0.54	8	3x3	0.74	0.74	9	6.5	72	72							
	6x6	0.27	0.27	9	0.45	0.45	6	4x4	0.45	0.45	9	0.52	0.52	9	0.54	0.54	8	4x4	0.87	0.87	9	6.5	72	72							
	6x6	0.29	0.29	9	0.45	0.45	6	48"	0.45	0.45	9	0.52	0.52	9	0.54	0.54	8	48"	0.87	0.87	9	6.5	72	72							
	6x6	0.29	0.29	9	0.45	0.45	6	3x5	0.45	0.45	9	0.52	0.52	9	0.54	0.54	8	3x5	0.87	0.87	9	6.5	72	72							
	8x8	0.52	0.52	9	0.51	0.51	8	3x3	0.61	0.61	12	0.91	0.91	9	0.70	0.70	10	3x3	0.85	0.85	12	8.5	96	96							
8x8	0.52	0.52	9	0.51	0.51	8	4x4	0.70	0.70	12	0.87	0.87	9	0.70	0.70	10	4x4	1.01	1.01	12	8.5	96	96								
8x8	0.52	0.52	9	0.51	0.51	8	48"	0.70	0.70	12	0.87	0.87	9	0.70	0.70	10	48"	1.01	1.01	12	8.5	96	96								
8x8	0.52	0.52	9	0.51	0.51	8	3x5	0.70	0.85	12	0.87	0.87	9	0.70	0.70	10	3x5	1.01	1.01	12	8.5	96	96								

** Unless otherwise indicated.

FABRICATION NOTES:

- Maximum spacing of reinforcement is 8".
- At manufacturer's option, provide cast or cored holes or thin wall panels (KO) to the maximum diameter shown for each. When no penetration is required, it is acceptable to provide a wall with no sectional reduction.

GENERAL NOTES:

- Precast Junction Box consists of base slab, base unit, risers (as required), and below grade slab. See sheet PJB for details.
- Precast Base consists of base slab, base unit, risers (as required), reducing slab (as required), and reduced risers (as required). See sheet PB for details.
- Min Height shown is for stock base units. Use stock base units whenever practical. Smaller height base units can be used in special installation circumstances, when noted elsewhere in the plans. Absolute minimum height of base units is 2'-6".

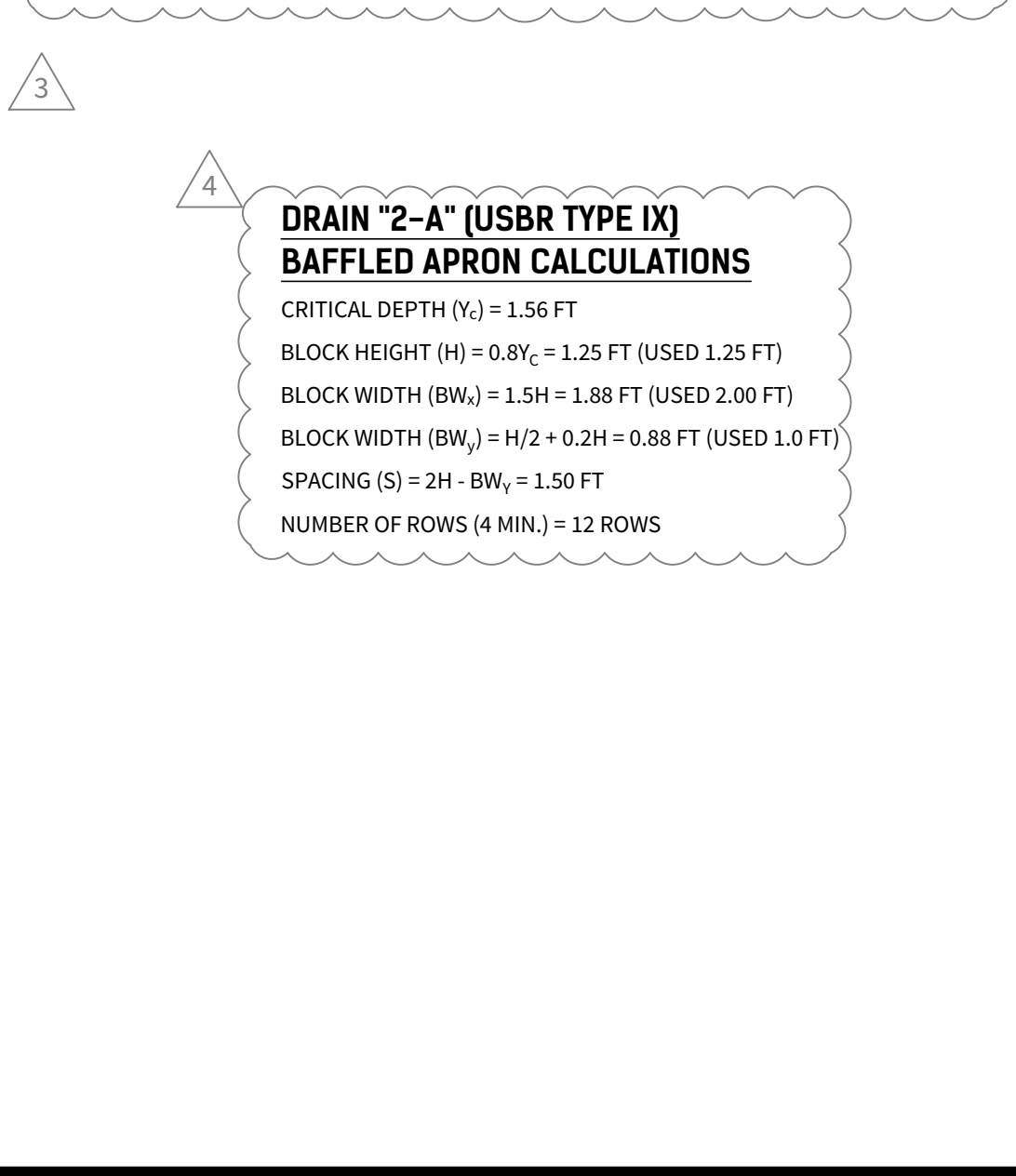
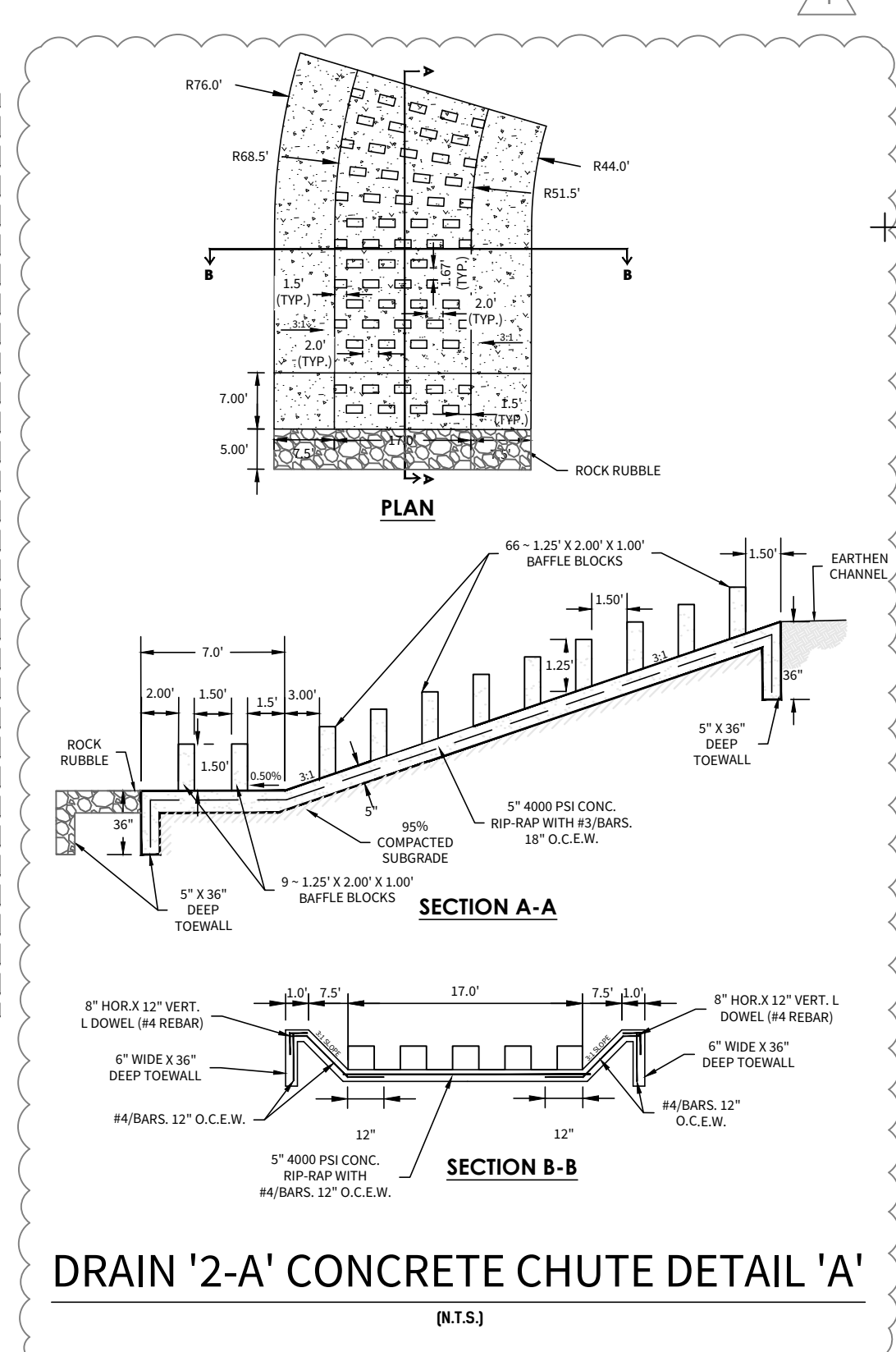
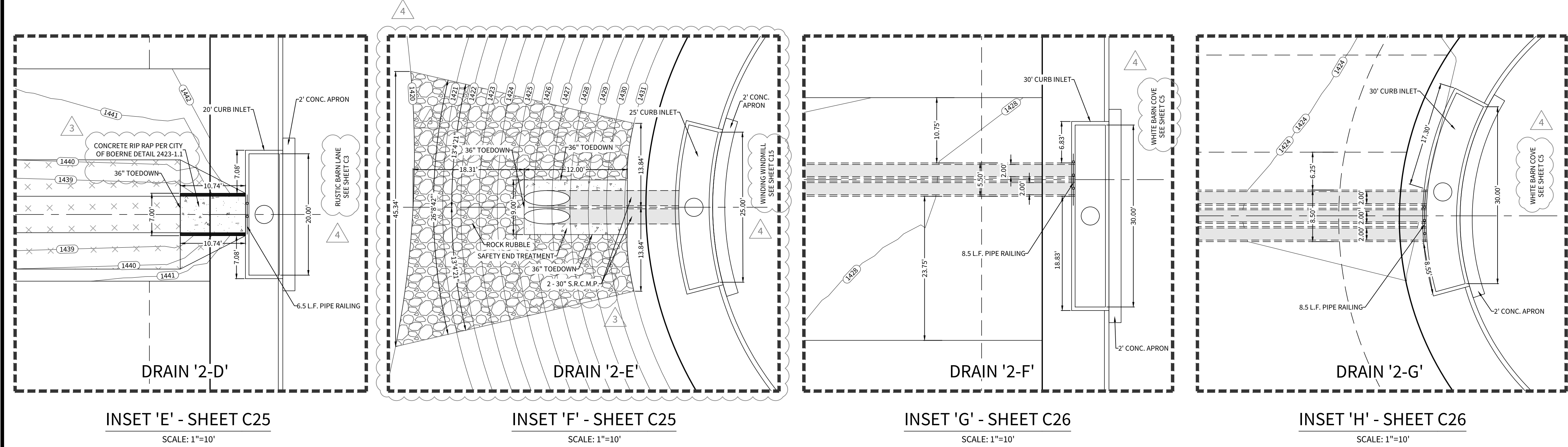
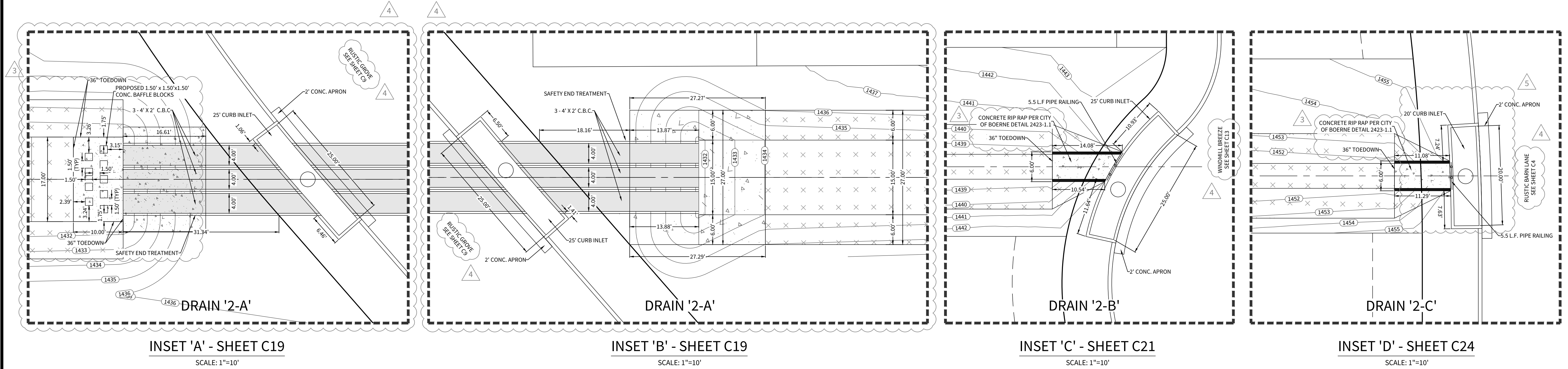
HL93 LOADING

DESIGN DATA FOR
PRECAST BASE AND
JUNCTION BOX

PDD

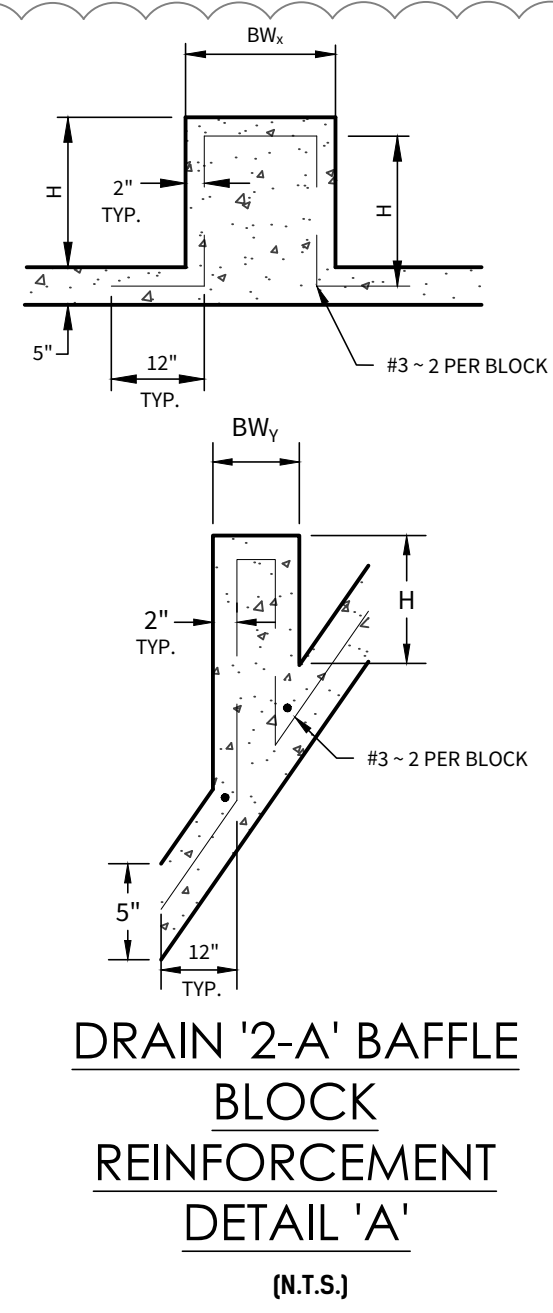
FILE: CD-PDD-20.spp	DATE: 1/20/20	BY: JAD	CHK: JAD	APP: JAD
1/20/20	February 2020	DESIGN	DESIGN	DESIGN
BY: JAD	DATE: 1/20/20	BY: JAD	CHK: JAD	APP: JAD
DESIGN	DESIGN	DESIGN	DESIGN	DESIGN

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Reviewed by City of Boerne Engineering & Mobility:
Approved for Construction ☒ X
Approved as Noted _____
Revise & Resubmit _____
Incomplete - Not Reviewed _____
Not Reviewed - Accepted FIO _____
By: *[Signature]* Date: 03 / 07 / 2024

City of Boerne Review Notes: Revision #5 Only
1) Approval of these documents does not relieve the Engineer or Contractor from full compliance with the City of Boerne Standard Specifications or applicable City Ordinances.
2) Any changes to documents approved by the City of Boerne are required to be re-submitted for review and approval prior to proceeding with construction.



DRAIN "2-A" (USBR TYPE IX) BAFFLED APRON CALCULATIONS
CRITICAL DEPTH (V_c) = 1.56 FT
BLOCK HEIGHT (H) = $0.8V_c = 1.25$ FT (USED 1.25 FT)
BLOCK WIDTH (BW_b) = $1.5H = 1.88$ FT (USED 2.00 FT)
BLOCK WIDTH (BW_s) = $H/2 + 0.2H = 0.88$ FT (USED 1.0 FT)
SPACING (S) = $2H - BW_b = 1.50$ FT
NUMBER OF ROWS (4 MIN.) = 12 ROWS

DATE
02/02/2024
PROJECT NO.
03481.005
DRAWN BY
C3
CHECKED BY
XV/JC/DDC

REVISIONS	
1.	
2.	
3.	2021-10-07 - CITY OF BOERNE COMMENTS
4.	2021-11-12 - CITY OF BOERNE COMMENTS
5.	2022-03-04 - REVISED INLET SIZE
6.	
7.	
8.	
9.	

STATE OF TEXAS
JAVIER CASTELLO
122170
PROFESSIONAL ENGINEER
02/02/2024
CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500