DHI ENGINEERING, LLC.

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DOC. # XXXXXXXXXXX

REDBIRD RANCH UNIT 2M-3

REDBIRD RANCH UNIT 2M-3

SAN ANTONIO, TEXAS

CIVIL CONSTRUCTION PLANS



LOCATION MAP
NOT-TO-SCALE

4/02/2024

APRIL 2024

PREPARED FOR:

CONTINENTAL HOMES OF TEXAS, L.P.
5419 N LOOP 1604 EAST
SAN ANTONIO, TEXAS 78247

SHEET INDEX

SHEET NO.	SHEET TITLE	DESCRIPTION
C0.00	COVER SHEET	
C1.00	EXISTING DRAINAGE AREA MAP	
C1.01	PROPOSED DRAINAGE AREA MAP	
C1.10	DRAIN A - STA. 1+00.00 - 4+60.00	PLAN & PROFILE
C1.11	DRAIN A & DRAIN A1	PLAN & PROFILE
C1.12	DRAIN B - STA. 1+00.00 - 4+00.00	PLAN & PROFILE
C1.13	DRAIN B - STA. 4+00.00 - END	PLAN & PROFILE
C1.14	DRAIN C - STA. 1+00.00 - 6+00.00	PLAN & PROFILE
C1.15	DRAIN C - STA. 6+00.00 - END	PLAN & PROFILE
C1.20	DRAINAGE DETAILS	
C1.21	DRAINAGE DETAILS	
C2.00	GREY HORNBILL - STA. 1+00.00 - 7+00.00	PLAN & PROFILE
C2.01	GREY HORNBILL - STA. 7+00.00 - 11+13.18	PLAN & PROFILE
C2.02	GOLDEN EAGLE STA. 1+00.00 - 6+50.00	PLAN & PROFILE
C2.03	GOLDEN EAGLE STA. 6+50.00 - 10+98.43	PLAN & PROFILE
C2.04	ANDEAN CONDOR STA. 1+00.00 - 4+51.64	PLAN & PROFILE
C2.05	RED TANAGER STA. 1+00.00 - 5+60.71	PLAN & PROFILE
C2.06	ROCK WREN STA. 1+00.00 - 3+15.73	PLAN & PROFILE
C2.07	WOOD STORK STA. 1+00.00 - 5+10.73	PLAN & PROFILE
C2.08	VIOLET STARLING STA. 1+00.00 - 6+54.42	PLAN & PROFILE
C2.20	TYPICAL STREET DETAILS	
C2.21	TYPICAL STREET DETAILS	
C2.22	TYPICAL STREET DETAILS	
C3.00	OVERALL SIGNAGE PLAN	
C3.01	OVERALL SIGNAGE PLAN	
C3.10	TXDOT SIGN MOUNTING DETAILS	
C3.11	TXDOT SIGN MOUNTING DETAILS	
C4.00	OVERALL UTILITY PLAN	
C4.01	OVERALL UTILITY PLAN	
C5.00	WATER DISTRIBUTION PLAN	
C5.01	WATER DISTRIBUTION PLAN	
C5.10	WATER DISTRIBUTION NOTES & DETAILS	
C5.11	WATER DISTRIBUTION DETAILS	
C6.00	OVERALL SANITARY SEWER PLAN	
C6.01	OVERALL SANITARY SEWER PLAN	
C6.02	SANITARY SEWER LINE A - STA. 1+00.00 - 6+99.85	PLAN & PROFILE
C6.03	SANITARY SEWER LINE B - STA. 1+00.00 - 8+00.00	PLAN & PROFILE
C6.04	SANITARY SEWER LINE B STA. 8+00.00 - 13+38.29	PLAN & PROFILE
C6.05	SANITARY SEWER LINE C STA. 1+00.00 - 5+23.27	PLAN & PROFILE
C6.20	SANITARY SEWER NOTES	
C6.21	SANITARY SEWER DETAILS	
C7.00	OVERALL GRADING PLAN	
C7.01	OVERALL GRADING PLAN	
C8.00	STORM WATER POLLUTION PREVENTION PLAN	
C8.01	STORM WATER POLLUTION PREVENTION PLAN	
C8.10	STORM WATER POLLUTION PREVENTION DETAILS	

STATE OF TEXAS
VANCE L. WEYNAND
99269
LICENSED
PROFESSIONAL ENGINEER

Vance Weynand

◆ BENCHMARKS				
POINT	NORTHING	EASTING	ELEVATION	FULL DESCRIPTION
24	13,710,759.16	2,030,892.83	1018.44	SET MAG NAIL (TRAV)
123	13,709,660.22	2,032,593.76	968.92	SET MAG NAIL (TRAV)
197	13,709,835.28	2,032,443.01	970.45	SET MAG NAIL & WASHER (TRAV)

DHI Engineering, LLC.
5419 N. LOOP 1604 EAST
SAN ANTONIO, TX 78247
(210) 496-2668 | dhiengineering.com
TBPE REG. NO. F-19561

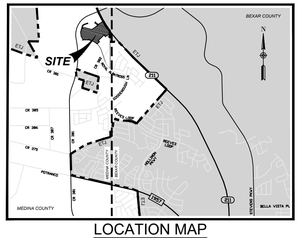
SEWER: SAWS MEDIO CREEK WRC

DEVELOPER'S NAME: *CONTINENTAL HOMES OF TEXAS, L.P.*
ADDRESS: *5419 N. LOOP 1604 EAST*
CITY: *SAN ANTONIO* STATE: *TEXAS* ZIP: *78247*
PHONE # *(210) 496-2668* FAX # *(210) 496-2668*
SAWS BLOCK MAP # *062586xx* *062588xx* TOTAL EDU'S: *123* TOTAL ACREAGE: *30.726*
TOTAL LINEAR FOOTAGE OF PIPE: *2,527 L.F. (8")* DOC. NO.: *XXXXXXXXXXX*
NUMBER OF LOTS: *123* SAWS JOB NO: *24-1535*

SHEET NO.
C0.00

Date: Apr 02, 2024, 4:56pm User ID: MMiller File: E:_PROJECT\06500\CAD\06500 - Design\CAD - Sheets\C0.00 COVER SHEET.dwg

DHI ENGINEERING, LLC.



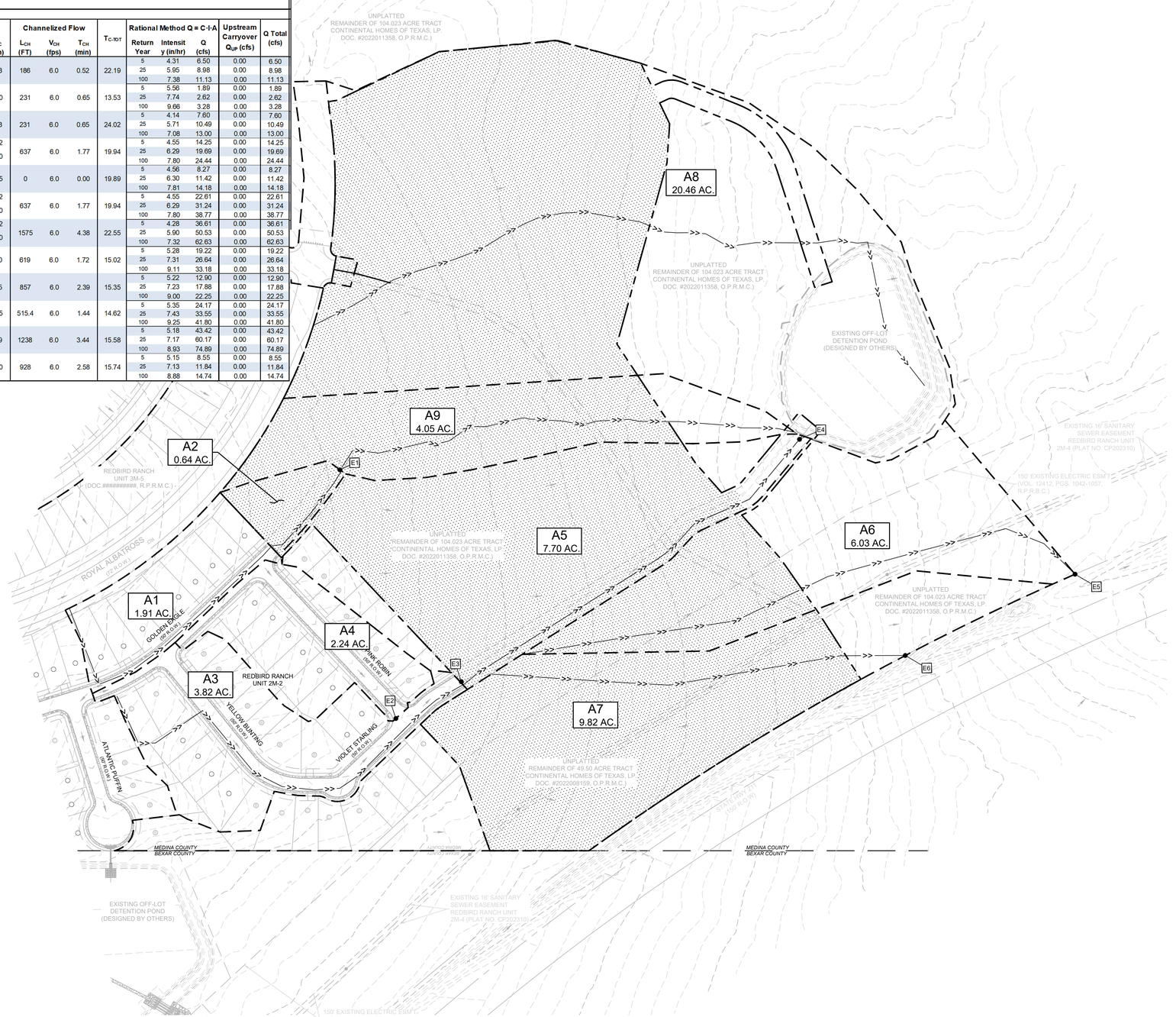
LOCATION MAP
NOT-TO-SCALE

REDBIRD RANCH UNIT 2M-3

ATLAS 14 EXISTING FLOW (Q) CALCULATIONS

Ref. Point	Structure / Description	Drainage Areas #	Area (Ac)	C	Total flowpath (ft)	Overland/Sheet Flow (TR-55) L_a (ft)	n	P_2	S_0 (ft/ft)	T_o* (min)	Shallow Concentrated Flow L_{SC} (ft)	Condition	Slope (ft/ft)	V_{SC} (fps)	T_{SC} (min)	Channelized Flow L_{CH} (FT)	V_{CH} (fps)	T_{CH} (min)	$T_{C\text{-}TOT}$	Rational Method Q = C·i·A Return Year	Intensity (in/hr)	Q (cfs)	Upstream Carryover Q_{UP} (cfs)	Q Total (cfs)
-		A1	1.91	0.79	666.00	180	0.240	4.44	2.00	19.39	300	Paved	1.16	2.189	2.28	186	6.0	0.52	22.19	5	4.31	6.50	0.00	6.50
																				25	5.95	8.98	0.00	8.98
																				100	7.38	11.13	0.00	11.13
-		A2	0.64	0.53	411.00	180	0.240	4.44	5.56	12.88	0	Paved	2.64	3.303	0.00	231	6.0	0.65	13.53	5	5.56	1.89	0.00	1.89
																				25	7.74	2.62	0.00	2.62
																				100	9.66	3.28	0.00	3.28
E1	BEGIN OF DRAIN 'C' - RUNOFF FROM EXISTING A1 + A2	A1 + A2	2.55	0.72	897.00	180	0.240	4.44	2.00	19.39	486	Paved	1.00	2.033	3.98	231	6.0	0.65	24.02	5	4.14	7.60	0.00	7.60
																				25	5.71	10.49	0.00	10.49
																				100	7.08	13.00	0.00	13.00
-		A3	3.82	0.82	1006.00	151	0.240	4.44	2.00	16.85	126	Unpaved	2.00	2.2818	0.92	637	6.0	1.77	19.94	5	4.55	14.25	0.00	14.25
											92	Paved	3.50	3.8031	0.40					25	6.29	19.69	0.00	19.69
																				100	7.80	24.44	0.00	24.44
E2	ANALYSIS POINT - RUNOFF FROM EXISTING A4	A4	2.24	0.81	584.00	157	0.240	4.44	1.90	17.74	427	Paved	2.64	3.303	2.15	0	6.0	0.00	19.89	5	4.56	8.27	0.00	8.27
																				25	6.30	11.42	0.00	11.42
																				100	7.81	14.18	0.00	14.18
E3	BEGIN OF DRAIN 'D' - RUNOFF FROM EXISTING A4 + A3	A3 + A4	6.06	0.82	1006.00	151	0.240	4.44	2.00	16.85	126	Unpaved	2.00	2.2818	0.92	637	6.0	1.77	19.94	5	4.55	22.61	0.00	22.61
											92	Paved	3.50	3.8031	0.40					25	6.29	31.24	0.00	31.24
																				100	7.80	38.77	0.00	38.77
E4	END OF DRAIN 'D' - RUNOFF FROM E3 + A5	A3 + A4 + A5	13.81	0.62	1944.00	151	0.240	4.44	2.00	16.85	126	Unpaved	2.00	2.2818	0.92	1575	6.0	4.38	22.55	5	4.28	36.61	0.00	36.61
											92	Paved	3.50	3.8031	0.40					25	5.90	50.53	0.00	50.53
																				100	7.32	62.63	0.00	62.63
-		A5	7.75	0.47	1039.00	100	0.240	4.44	2.33	11.4	320	Unpaved	3.00	2.795	1.90	619	6.0	1.72	15.02	5	5.28	19.22	0.00	19.22
																				25	7.31	26.64	0.00	26.64
																				100	9.11	33.18	0.00	33.18
E5	ANALYSIS POINT - RUNOFF FROM A6	A6	6.03	0.41	1277.00	100	0.240	4.44	2.60	10.91	320	Unpaved	2.60	2.602	2.05	857	6.0	2.39	15.35	5	5.22	12.90	0.00	12.90
																				25	7.23	17.88	0.00	17.88
																				100	9.00	22.25	0.00	22.25
E6	ANALYSIS POINT - RUNOFF FROM A7	A7	9.82	0.46	915.40	100	0.240	4.44	2.42	11.23	300	Unpaved	2.51	2.556	1.95	515.4	6.0	1.44	14.62	5	5.35	24.17	0.00	24.17
																				25	7.43	33.55	0.00	33.55
																				100	9.25	41.80	0.00	41.80
-		A8	20.46	0.41	1638.00	100	0.240	4.44	2.90	10.45	300	Unpaved	1.16	2.950	1.69	1238	6.0	3.44	15.58	5	5.18	43.42	0.00	43.42
																				25	7.17	60.17	0.00	60.17
																				100	8.93	74.89	0.00	74.89
-		A9	4.05	0.41	1328.00	100	0.240	4.44	2.35	11.36	300	Unpaved	2.94	2.766	1.80	928	6.0	2.58	15.74	5	5.15	8.55	0.00	8.55
																				25	7.13	11.84	0.00	11.84
																				100	8.88	14.74	0.00	14.74

*FOR C-VALUE CALCULATIONS SEE ASSOCIATED STORM WATER MANAGEMENT PLAN REPORT FOR REDBIRD RANCH UNIT 2M-3



LEGEND (DRAINAGE AREA MAP)

- PROJECT LIMITS
- 985 EXISTING CONTOUR
- 1002 PROPOSED CONTOUR
- FLOW ARROW
- A B C TYPICAL LOT GRADING
- >> TIME OF CONCENTRATION
- J1 ANALYSIS POINT
- A2 / 43.82 AC. DRAINAGE AREA
- DRAINAGE AREA BOUNDARY

REV	DATE	DESCRIPTION

DOC. # XXXXXXXXXX

REDBIRD RANCH UNIT 2M-3

6/10/2024

STATE OF TEXAS
VANCE L. WEYNAND
99269
LICENSED
PROFESSIONAL ENGINEER

Vance Weynand

DHI Engineering, LLC.
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TBPE REG. NO. F-19561

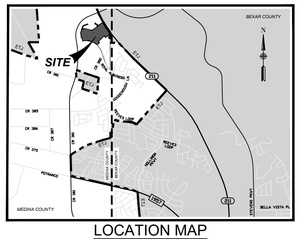
DHI

REDBIRD RANCH UNIT 2M-3
SAN ANTONIO, TX
EXISTING DRAINAGE AREA MAP

DESIGNED BY:	JWS
DRAWN BY:	AS/JWS
DATE:	6/10/2024
JOB NO.:	05000-300
SHEET NO.	C1.00

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Date: Jun 10, 2024, at 4:17pm User ID: AMSilver File: E:_PROJECTS\05000-300\WD - Design\100-Existing Drainage Area Map.dwg



LOCATION MAP

NOT-TO-SCALE

REDBIRD RANCH UNIT 2M-3

PROPOSED TIME OF CONCENTRATION - SCS TR-55 Method

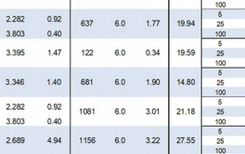
Ref. Point	Structure / Description	Drainage Areas #	Area (Ac)	C	Total flowpath (ft)	Overland/Sheet Flow (TR-55) L_O (ft)	n	P_2	S_O (ft/ft)	T_O (min)	Shallow Concentrated Flow L_{SC} (ft)	Condition	Slope (ft/ft)	V_{SC} (fps)	T_{SC} (min)	Channelized Flow L_{CH} (FT)	V_{CH} (fps)	T_{CH} (min)	T_{C-TOT} (min)
-		A1	4.49	0.80	1288.00	180	0.240	4.44	2.00	19.39	300	Paved	1.16	2.189	2.20	808	6.0	2.25	23.84
-		A2	1.45	0.85	590.00	100	0.011	4.44	2.56	5	300	Paved	2.50	3.214	1.55	190	6.0	0.53	7.08
J1	15' CURB INLETS - CARRY OVER FROMA1, A2 & A3	A1 + A2	5.94	0.81	1697.00	180	0.240	4.44	2.00	19.39	798	Paved	1.75	2.689	4.90	719	6.0	2.00	26.29
-		A3	5.36	0.81	951.00	100	0.240	4.44	2.23	11.6	300	Paved	2.60	3.278	1.52	551	6.0	1.54	14.66
-		A4	1.05	0.85	393.00	100	0.011	4.44	5.89	5	293	Paved	1.34	2.353	2.00	0	6.0	0.00	7.00
J2	10' CURB INLETS - CARRY OVER FROMJ1 & A3	J1 + A3	11.30	0.83	1877.00	180	0.240	4.44	2.00	19.39	798	Paved	1.75	2.689	4.94	899	6.0	2.50	26.83
-		A5	3.82	0.82	1006.00	151	0.240	4.44	2.00	16.85	126 92	Unpaved Paved	2.00 3.50	2.282 3.803	0.92 0.40	637	6.0	1.77	19.94
-		A6	2.24	0.81	579.00	157	0.240	4.44	1.89	17.78	300	Paved	2.79	3.395	1.47	122	6.0	0.34	19.59
-		A7	2.27	0.81	1081.00	100	0.240	4.44	2.28	11.5	300	Paved	2.71	3.346	1.40	681	6.0	1.90	14.80
J3	ANALYSIS POINT - CARRY OVER FROM EXISTING REDBIRD RANCH UNIT 2M-2 AS A5, A6 & A7	A5 + A6 + A7	8.33	0.81	1450.00	151	0.240	4.44	2.00	16.85	126 92	Unpaved Paved	2.00 3.50	2.282 3.803	0.92 0.40	1081	6.0	3.01	21.18
J4	20' SAG CURB INLET - CARRY OVER FROM J2, J3, A7 & A4	J2 + J3 + A4	20.68	0.82	2134.00	180	0.240	4.44	2.00	19.39	798	Paved	1.75	2.689	4.94	1156	6.0	3.22	27.55
-		A8	2.23	0.61	496.77	100	0.240	4.44	1.77	12.73	300	Unpaved	2.00	2.282	2.19	96.77	6.0	0.27	15.19
J5	END OF DRAIN 'B' - CARRY OVER FROM J4 & A8	J4 + A8	22.91	0.80	2956.00	180	0.240	4.44	2.00	19.39	798	Paved	1.75	2.689	4.94	1978	6.0	5.50	29.83
-		A9	4.02	0.83	906.10	100	0.240	4.44	2.05	12	300	Paved	2.01	2.882	1.73	506.1	6.0	1.41	15.14
-		A10	2.44	0.82	732.59	100	0.240	4.44	2.72	10.72	300	Paved	1.96	2.846	1.70	332.59	6.0	0.93	13.35
J6	BEGIN OF DRAIN 'C' - CARRY OVER FROMA9+A10	A9 + A10	6.46	0.83	733.00	250	0.240	4.44	2.00	20	483	Paved	1.00	2.033	3.96	0	6.0	0.00	23.96
-		A11	3.88	0.52	715.00	100	0.240	4.44	0.74	18.04	300	Unpaved	2.11	2.344	2.10	315	6.0	0.88	21.02
J7	END OF DRAIN 'C' - CARRY OVER FROMJ6 & A11	J6 + A11	10.34	0.71	1448.00	250	0.240	4.44	2.00	20	483	Paved	1.00	2.033	3.96	715	6.0	1.99	25.95
-		A12	10.08	0.52	767.00	100	0.240	4.44	1.29	14.44	300	Unpaved	2.40	2.500	2.00	367	6.0	1.02	17.46
J8	ANALYSIS POINT - CARRY OVER FROM A13	A13	5.74	0.48	1178.00	100	0.240	4.44	1.27	14.53	300	Unpaved	2.54	2.571	1.94	778	6.0	2.17	18.64
-		A14	7.66	0.46	599.00	100	0.240	4.44	1.09	15.45	300	Unpaved	2.22	2.404	2.00	199	6.0	0.56	18.01

Rational Method Q = C·I·A

Return Year	Intensity (in/hr)	Q (cfs)	Upstream Carryover Q_{UP} (cfs)	Capture Structure Q Total (cfs)	Q Intercept (cfs)	Q Bypass (cfs)
5	4.16	14.93	0.00	14.93	0.00	14.93
25	5.74	20.60	0.00	20.60	0.00	20.60
100	7.11	25.53	0.00	25.53	0.00	25.53
5	7.08	8.73	0.00	8.73	0.00	8.73
25	9.92	12.23	0.00	12.23	0.00	12.23
100	12.45	15.34	0.00	15.34	0.00	15.34
5	3.96	19.04	0.00	19.04	12.54	6.50
25	5.46	26.25	0.00	26.25	15.14	11.11
100	6.76	32.51	0.00	32.51	17.08	15.43
5	5.34	23.20	0.00	23.20	0.00	23.20
25	7.42	32.19	0.00	32.19	0.00	32.19
100	9.24	40.11	0.00	40.11	0.00	40.11
5	7.11	6.34	0.00	6.34	0.00	6.34
25	9.95	8.88	0.00	8.88	0.00	8.88
100	12.49	11.15	0.00	11.15	0.00	11.15
5	3.92	36.74	-12.54	24.20	11.72	12.48
25	5.40	50.65	-15.14	35.51	14.26	21.25
100	6.69	62.72	-17.08	45.64	16.18	29.46
5	4.55	14.25	0.00	14.25	0.00	14.25
25	6.29	19.69	0.00	19.69	0.00	19.69
100	7.80	24.44	0.00	24.44	0.00	24.44
5	4.59	8.33	0.00	8.33	0.00	8.33
25	6.35	11.52	0.00	11.52	0.00	11.52
100	7.88	14.29	0.00	14.29	0.00	14.29
5	5.32	9.78	0.00	9.78	0.00	9.78
25	7.38	13.56	0.00	13.56	0.00	13.56
100	9.19	16.89	0.00	16.89	0.00	16.89
5	4.41	29.78	0.00	29.78	17.33	12.45
25	6.09	41.12	0.00	41.12	21.11	20.01
100	7.56	51.00	0.00	51.00	23.97	27.03
5	3.86	65.54	-41.59	23.95	23.95	0.00
25	5.33	90.35	-50.51	39.84	39.84	0.00
100	6.60	111.87	-57.23	54.64	54.64	0.00
5	5.25	7.14	0.00	7.14	0.00	7.14
25	7.27	9.89	0.00	9.89	0.00	9.89
100	9.05	12.32	0.00	12.32	0.00	12.32
5	3.71	68.02	0.00	68.02	68.02	0.00
25	5.12	93.75	0.00	93.75	93.75	0.00
100	6.33	116.07	0.00	116.07	116.07	0.00
5	5.25	17.53	0.00	17.53	0.00	17.53
25	7.28	24.31	0.00	24.31	0.00	24.31
100	9.07	30.26	0.00	30.26	0.00	30.26
5	5.59	11.19	0.00	11.19	0.00	11.19
25	7.79	15.58	0.00	15.58	0.00	15.58
100	9.72	19.45	0.00	19.45	0.00	19.45
5	4.15	22.23	0.00	22.23	22.23	0.00
25	5.72	30.67	0.00	30.67	30.67	0.00
100	7.09	38.00	0.00	38.00	38.00	0.00
5	4.43	8.94	0.00	8.94	0.00	8.94
25	6.12	12.34	0.00	12.34	0.00	12.34
100	7.59	15.31	0.00	15.31	0.00	15.31
5	3.98	29.24	0.00	29.24	29.24	0.00
25	5.49	40.32	0.00	40.32	40.32	0.00
100	6.80	49.94	0.00	49.94	49.94	0.00
5	4.87	25.55	0.00	25.55	0.00	25.55
25	6.74	35.35	0.00	35.35	0.00	35.35
100	8.38	43.93	0.00	43.93	0.00	43.93
5	4.71	12.99	0.00	12.99	0.00	12.99
25	6.51	17.96	0.00	17.96	0.00	17.96
100	8.09	22.30	0.00	22.30	0.00	22.30
5	4.79	16.89	0.00	16.89	0.00	16.89
25	6.63	23.37	0.00	23.37	0.00	23.37
100	8.24	29.03	0.00	29.03	0.00	29.03

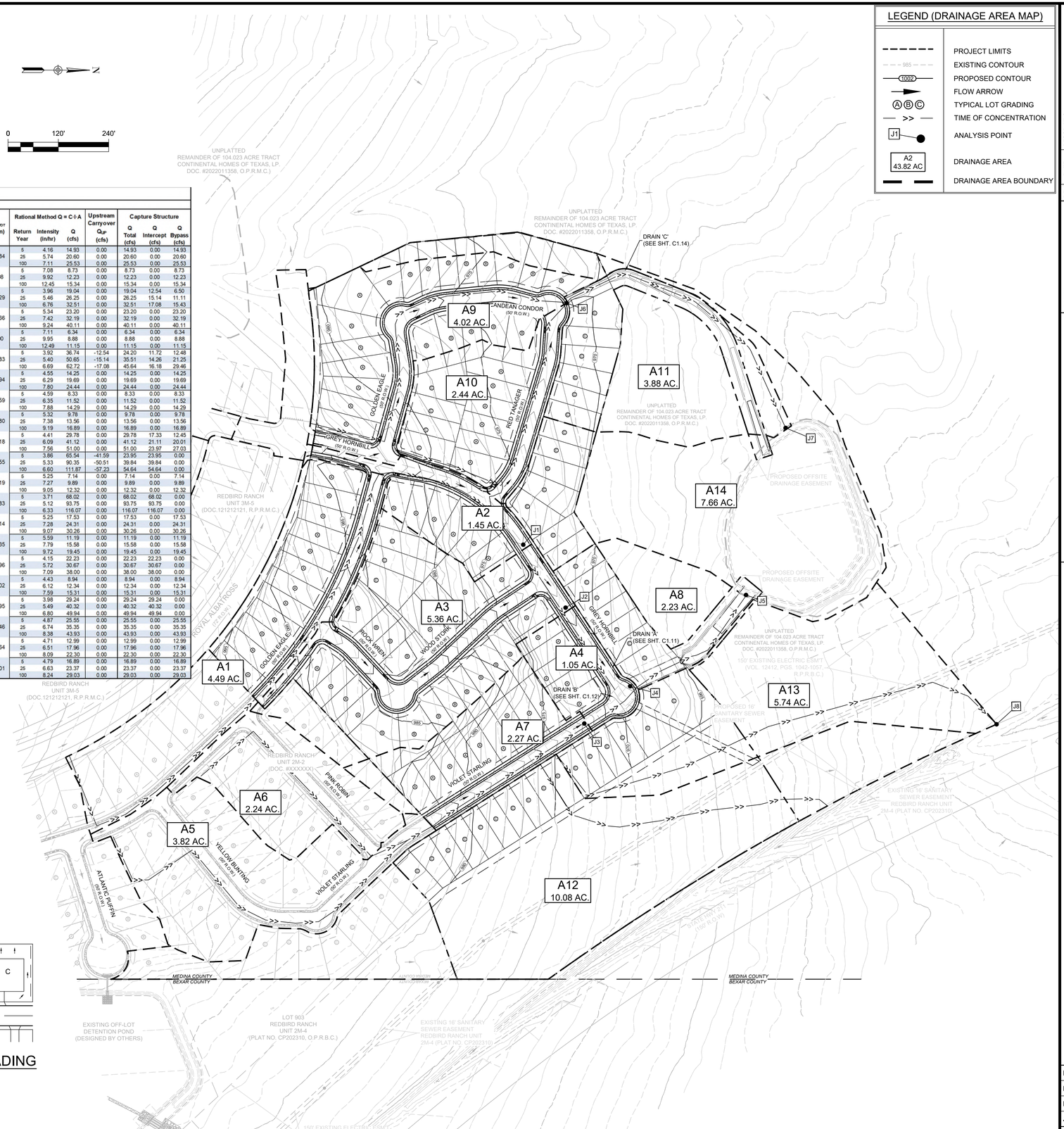
*FOR C-VALUE CALCULATIONS SEE ASSOCIATED STORM WATER MANAGEMENT PLAN REPORT FOR REDBIRD RANCH UNIT 2M-3

**FLOWS AND INLET INTERCEPTING CAPACITY BY OTHERS, REFER TO REDBIRD RANCH PHASE 2 UNIT 3M-4, SHEET C1.02 MASTER DRAINAGE PLAN - ULTIMATE CONDITIONS



TYPICAL LOT GRADING

N.T.S



REV	DESCRIPTION	DATE

DOC. # XXXXXXXXXX

REDBIRD RANCH UNIT 2M-3

4/2/2024

STATE OF TEXAS
VANCE L. WEYNAND
99269
LICENSED
PROFESSIONAL ENGINEER

Vance Weynand

DHI Engineering, LLC.
5419 N. LOOP 1604 EAST
SAN ANTONIO, TX 78247
(210) 998-6000 www.dhi.com
TBPE REG. NO. F-19561

DHI

REDBIRD RANCH UNIT 2M-3

SAN ANTONIO, TX

PROPOSED DRAINAGE AREA MAP

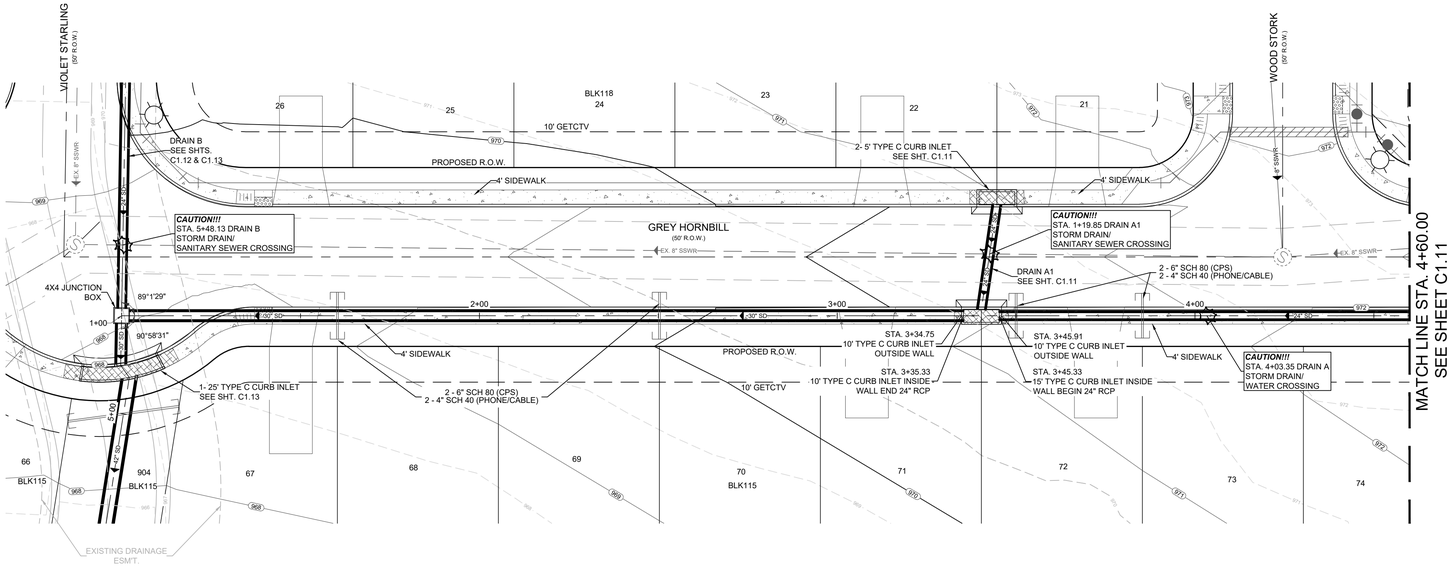
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DRAWN BY:	AS/JWS
DATE:	4/2/2024
JOB NO.:	05000-300
SHEET NO.	C1.01

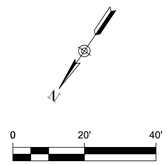
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DHI ENGINEERING, LLC.

Date: Apr 02, 2024, 4:57pm User ID: AMiller File: E:_PROJECT\05000\300\000 - Design\300 - Sheets\C1.01 PROPOSED DRAINAGE AREA MAP.dwg

DHI ENGINEERING, LLC.



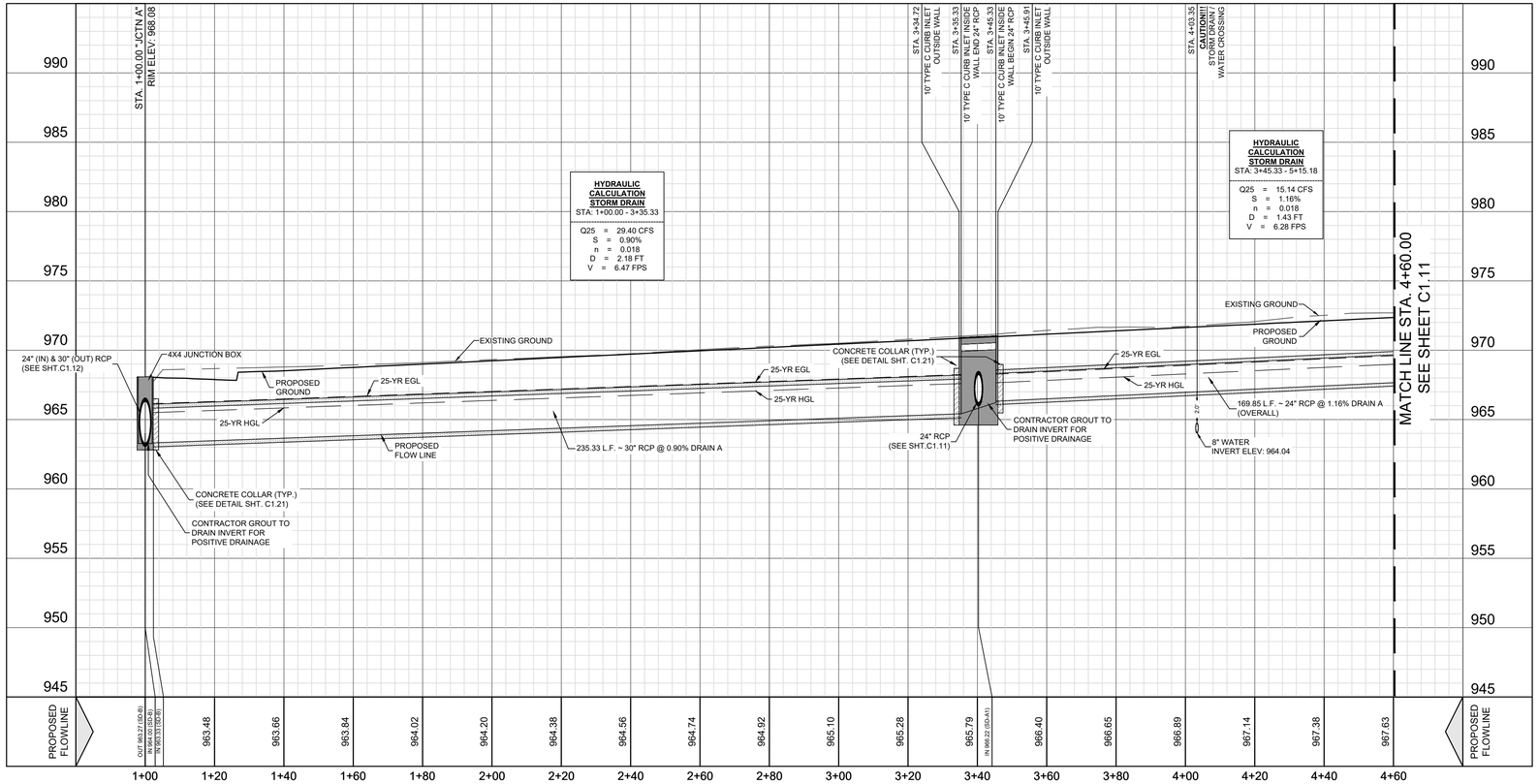


LEGEND (DRAIN)

985	EXISTING CONTOUR
1002	PROPOSED CONTOUR
	PROJECT LIMITS
	PROPOSED WATER
	PROPOSED SEWER
S	PROPOSED MANHOLE
	FIRE HYDRANTS
S	PROPOSED WYE & LATERAL
W	SINGLE WATER SERVICE
W W	DUEL WATER SERVICE
	STREET LIGHTS
GETCTV	GAS, ELECTRIC, TELOPHONE & CABLE TELEVISION EASEMENT
	DRIVEWAY
TOC	TOP OF CURB
GTTR	GUTTER
FL	FLOWLINE

DRAIN A
STA. 1+00.00 TO 4+60.00

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



TRENCH EXCAVATION PROTECTION

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

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CPS NOTES:

1. A MEDINA COUNTY ROW PERMIT MUST BE OBTAINED BEFORE WORKING IN MEDINA COUNTY ROW. CONTRACTOR SHALL COORDINATE A TRAFFIC CONTROL PLAN FOR ALL WORK WITHIN THE ROW. ADDITIONAL WORKING SIGNS MAY BE RECOMMENDED BY THE ENGINEER ONCE THE ROADWAYS ARE CONSTRUCTED.
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3. ALL CONCRETE FOR TXDOT DRAINAGE STRUCTURES SHALL MEET TXDOT SPECIFICATIONS. ALL OTHER CONCRETE SHALL BE CLASS "A" 3000 PSI CYLINDER STRENGTH IN 28 DAYS.
4. REFERENCE DRAINAGE DETAILS FOR PIPE TRENCH DETAILS, BOX CULVERT, HEADWALL WINGWALL CONSTRUCTION DETAILS, AND BOX CULVERT BEDDING AND EXCAVATION LIMITS.
5. CONTRACTOR SHALL GROUT ALL CURB INLETS AND JUNCTION BOXES TO PROVIDE FOR POSITIVE DRAINAGE.
6. EARTHEN CHANNELS WILL BE VEGETATED BY SEEDING OR SODDING 85% OF THE CHANNEL SURFACE MUST HAVE ESTABLISHED VEGETATION BEFORE BEXAR COUNTY WILL ACCEPT.
7. CONTRACTOR SHALL MATCH TOP OF CHANNEL TO NATURAL GROUND AND MAINTAIN A MINIMUM CHANNEL DEPTH OF "0" AS SHOWN IN THE PROFILE.

REV	DATE	DESCRIPTION

DOC. # XXXXXXXXXX

REDBIRD RANCH UNIT 2M-3

5/24/2024

STATE OF TEXAS
VANCE L. WEYNAND
99269
LICENSED
PROFESSIONAL ENGINEER

Vance Weynand

DHI Engineering, LLC.
5419 N. LOOP 1604 EAST
SAN ANTONIO, TX 78247
(210) 494-8100 www.dhi-tx.com
TBPE REG. NO. F-19561

DHI

REDBIRD RANCH UNIT 2M-3
SAN ANTONIO, TX

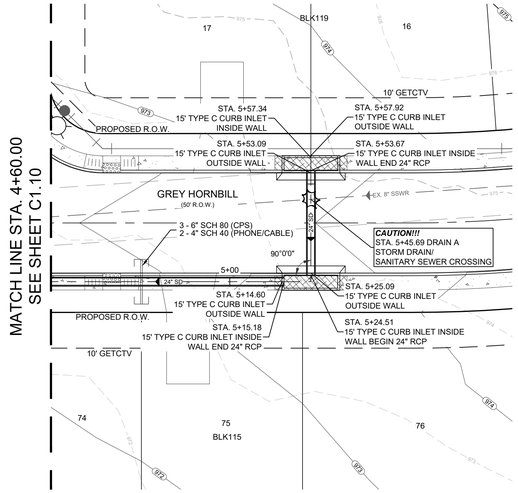
DRAIN A - STA. 1+00.00 - 4+60.00

DESIGNED BY:	JWS
DRAWN BY:	AS/JWS
DATE:	5/24/2024
JOB NO.:	05000-300
SHEET NO.	C1.10

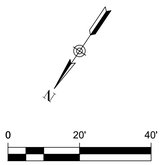
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Date: May 24, 2024, 10:57am User ID: JWSmon File: E:_PROJECT\05000\CAD\300 - Design\300 - Sheets\C1.10 DRAIN A - STA. 1+00.00 - 4+60.00.dwg

DHI ENGINEERING, LLC.



MATCH LINE STA. 4+60.00
SEE SHEET C1.10



HYDRAULIC CALCULATION
2-15' CURB INLET

$$L = \frac{Q_{25}\ (CFS)}{C(h^{3/2})}$$

$$L = \frac{26.25}{3.087(0.79^{3/2})}$$

$$L = 11.67'$$

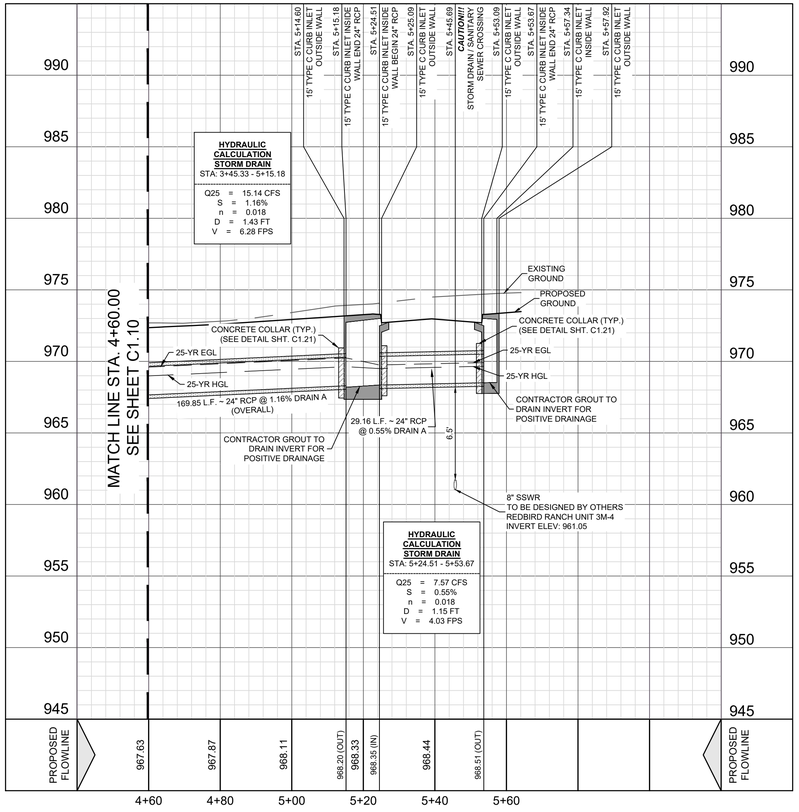
***TOTAL LENGTH OF OPENING PROVIDED: 30'**

LEGEND (DRAIN)

985	EXISTING CONTOUR
1002	PROPOSED CONTOUR
	PROJECT LIMITS
W	PROPOSED WATER
	PROPOSED SEWER
S	PROPOSED MANHOLE
	FIRE HYDRANTS
S	PROPOSED WYE & LATERAL
W	SINGLE WATER SERVICE
W W	DUEL WATER SERVICE
	STREET LIGHTS
GETCTV	GAS, ELECTRIC, TELOPHONE & CABLE TELEVISION EASEMENT
	DRIVEWAY
TOC	TOP OF CURB
GTTR	GUTTER
FL	FLOWLINE

DRAIN A
STA. 4+60.00 TO 5+60.00

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



CPS NOTES:

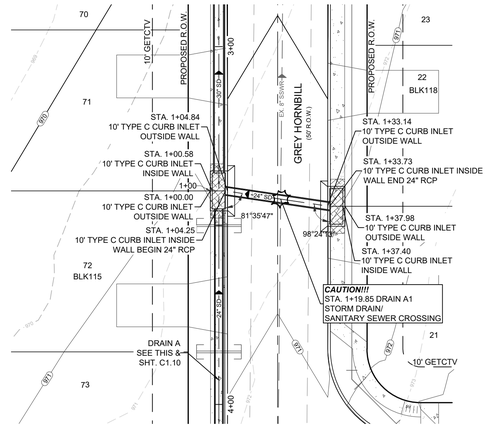
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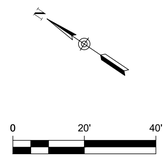
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HYDRAULIC CALCULATION
2-15' CURB INLET

$$L = \frac{Q_{25}\ (CFS)}{C(h^{3/2})}$$

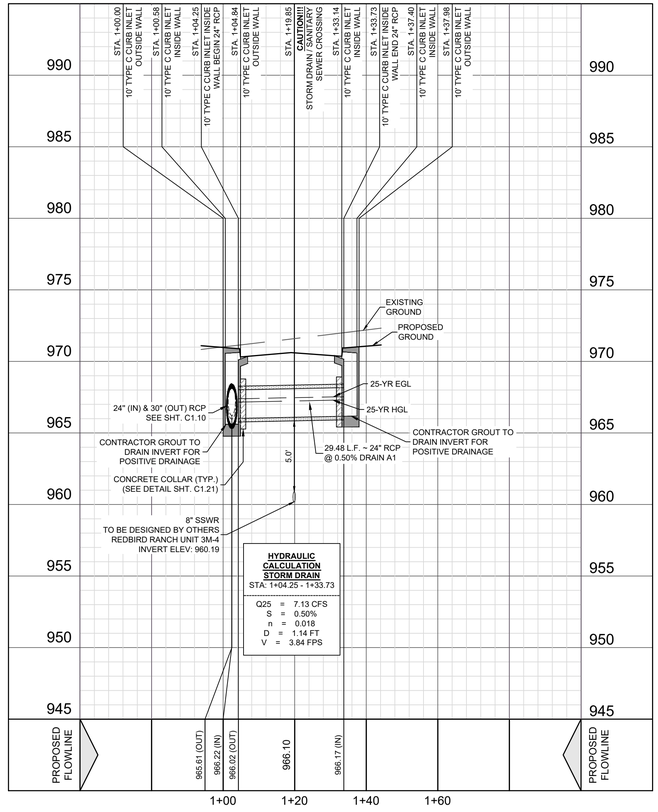
$$L = \frac{35.51}{3.087(0.79^{3/2})}$$

$$L = 16.38'$$

***TOTAL LENGTH OF OPENING PROVIDED: 20'**

DRAIN A1
STA. 1+00.00 TO 1+37.98

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



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REV	DATE	DESCRIPTION

DOC. # XXXXXXXXXXX

REDBIRD RANCH UNIT 2M-3

6/11/2024
STATE OF TEXAS
VANCE L. WEYNAND
99269
LICENSED
PROFESSIONAL ENGINEER
Vance Weynand

DHI Engineering, LLC.
5419 N. LOOP 1604 EAST
SAN ANTONIO, TX 78247
(210) 496-8900 www.dhi-tx.com
TBPE REG. NO. F-19561

DHI

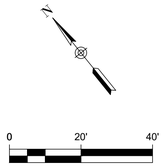
REDBIRD RANCH UNIT 2M-3
SAN ANTONIO, TX
DRAIN A & DRAIN A1

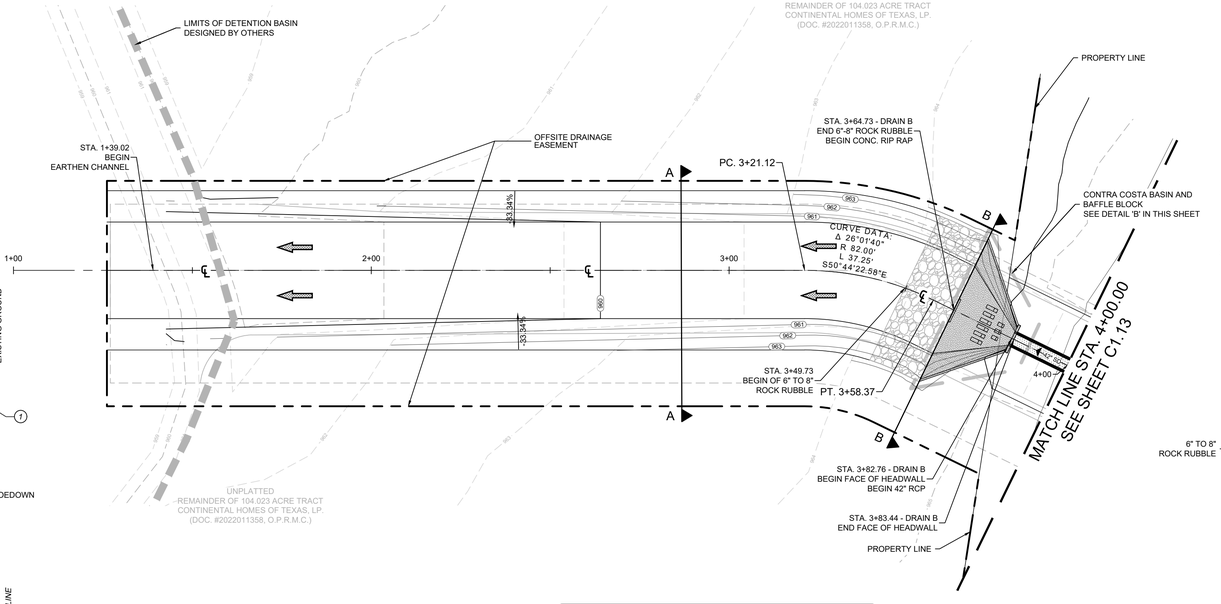
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DRAWN BY:	AS/JWS
DATE:	6/11/2024
JOB NO.:	05000-300
SHEET NO.	C1.11

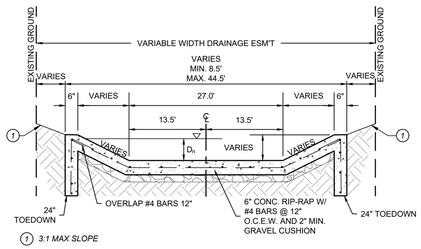
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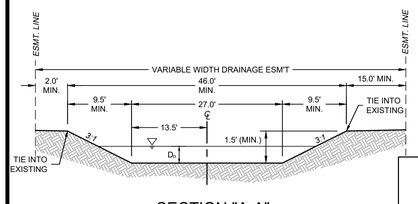
DHI ENGINEERING, LLC.



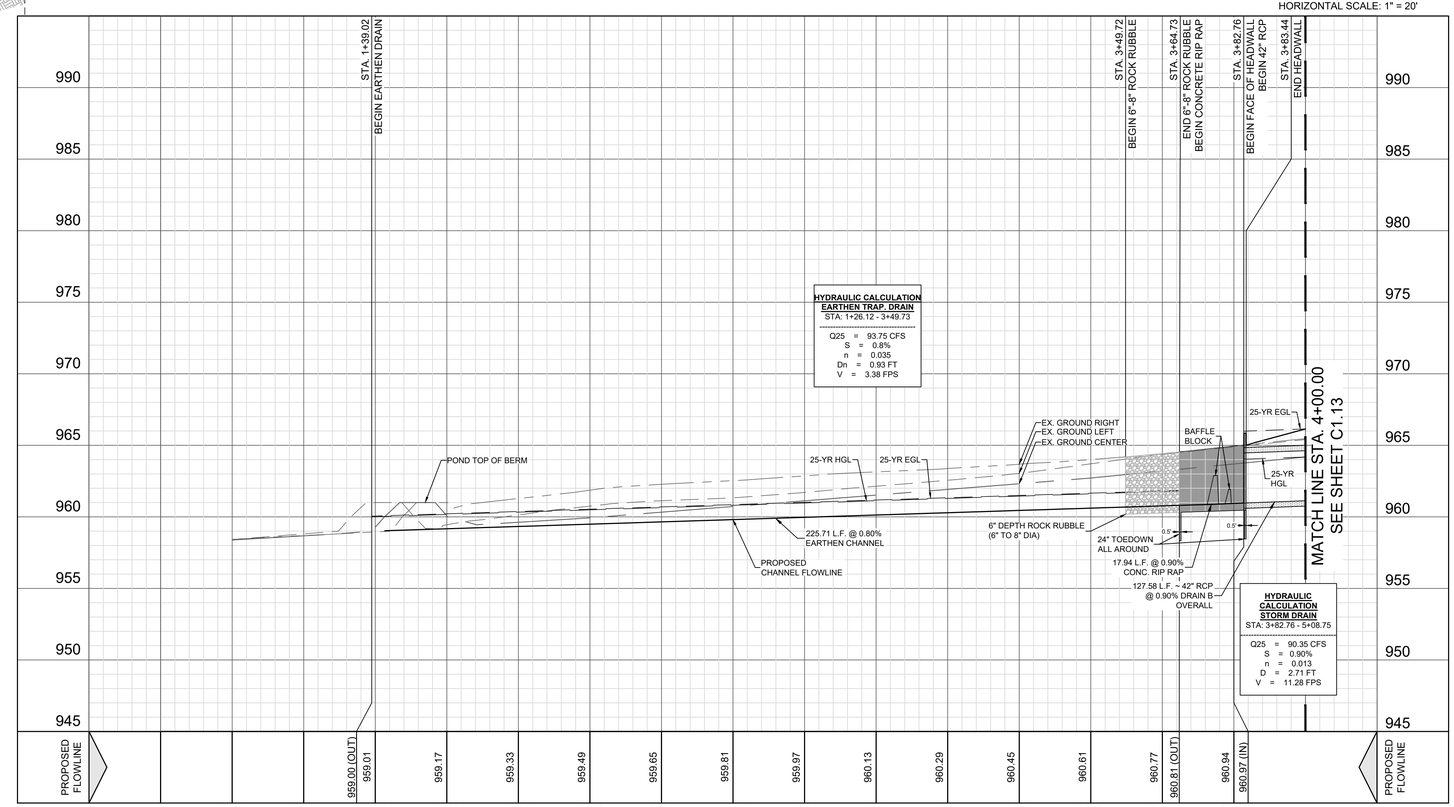




SECTION "B-B"
N.T.S.



SECTION "A-A"
STA. 1+39.02 - STA. 3+49.73
N.T.S.



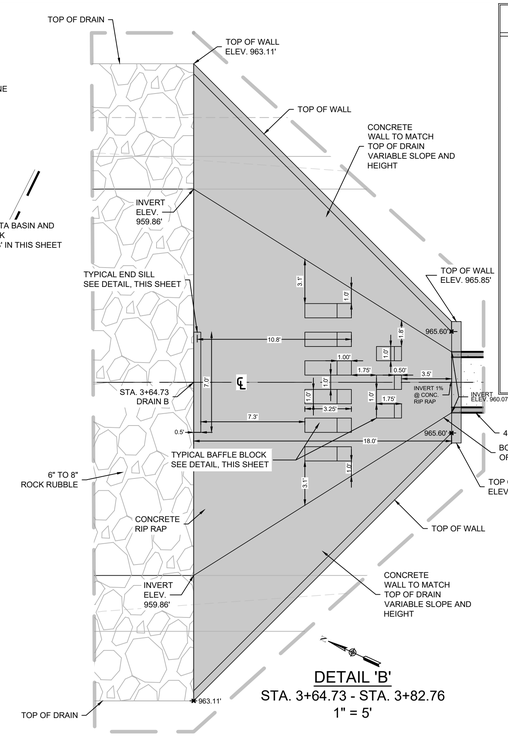
HYDRAULIC CALCULATION
EARTHEN TRAP. DRAIN
STA. 1+26.12 - 3+49.73

Q25 = 93.75 CFS
S = 0.8%
n = 0.035
Dn = 0.93 FT
V = 3.38 FPS

HYDRAULIC CALCULATION
STORM DRAIN
STA. 3+82.76 - 5+08.75

Q25 = 90.35 CFS
S = 0.90%
n = 0.013
D = 2.71 FT
V = 11.28 FPS

DRAIN B
STA. 1+00.00 TO 4+00.00

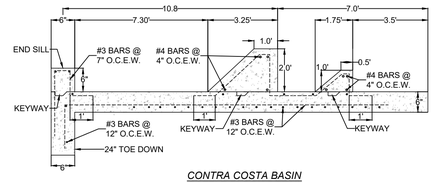


DETAIL 'B'
STA. 3+64.73 - STA. 3+82.76
1" = 5'

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

LEGEND (DRAIN)

985	EXISTING CONTOUR
1002	PROPOSED CONTOUR
	PROJECT LIMITS
W	PROPOSED WATER
	PROPOSED SEWER
S	PROPOSED MANHOLE
	FIRE HYDRANTS
S	PROPOSED WYE & LATERAL
W	SINGLE WATER SERVICE
W W	DUEL WATER SERVICE
	STREET LIGHTS
GETCTV	GAS, ELECTRIC, TELOPHONE & CABLE TELEVISION EASEMENT
	DRIVEWAY
TOC	TOP OF CURB
GTTR	GUTTER
FL	FLOWLINE



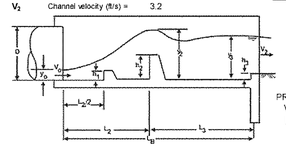
CONTRA COSTA BASIN
BAFFLE BLOCK DETAIL
N.T.S.

CONTRA COSTA BASIN
Design Sheet
*COSA - Storm Water Design Criteria Manual - Jan 2016
**For circular storm drains outfalls

******PROJECT NAME AND DRAIN NAME********

	INPUT PARAMETERS			
Q	Flow in pipe (cfs) =	101.26		
V_0	Initial velocity in pipe (ft/s) =	11.9		
D	Pipe Diameter (ft) =	3.5		
n	Mannings 'n' =	0.013		
S	Slope (ft/ft) =	0.01		
Y_1	Pipe depth of flow (ft) =	2.86		
W_B	Channel width (ft) =	10		
	RESULTS			
Y_e	Equivalent Depth (ft) =	2.05		
Fr	Froude Number =	1.24		
W	Basin Width (ft) =	3.5 to 10.5		
A	Outlet flow area (ft2) =	8.4		
θ	Flow angle (rad) =	1.8		
h_3	Pipe free board (ft) =	0.64		
R	Pipe radius (ft) =	1.75		
	L_3 / h_2 =	3.5		
L_2	Length from culvert exit to large baffle (ft) =	5.40	(MIN 2D) = 7.00 ft	7.00 ft
h_2	Height of large baffle (ft) =	1.54		2.00 ft
h_1	Height of first baffle (ft) =	0.77		1.00 ft
L_3	Length from large baffle to end sill (ft) =	9.39		10.80 ft
Y_2	Flow depth (ft) =	3.15		
h_3	Height of end sill (ft) =	0.19 to 0.50		0.50 ft
V_2	Channel velocity (ft/s) =	3.2		

PROVIDED
7.00 ft



TRENCH EXCAVATION PROTECTION

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

CAUTION!!!

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

CPS NOTES:

1. A MEDINA COUNTY ROW PERMIT MUST BE OBTAINED BEFORE WORKING IN MEDINA COUNTY ROW. CONTRACTOR SHALL COORDINATE A TRAFFIC CONTROL PLAN FOR ALL WORK WITHIN THE ROW. ADDITIONAL WORKING SIGNS MAY BE RECOMMENDED BY THE ENGINEER ONCE THE ROADWAYS ARE CONSTRUCTED.
2. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES WHETHER SHOWN ON THE PLANS OR NOT. THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES PRIOR TO CONSTRUCTION TO VERIFY SIZE, GRADE, AND LOCATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DEVIATIONS FROM PLANS PRIOR TO BEGINNING CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES, WETHER SHOWN ON THE PLANS OR NOT, SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR, AT HIS EXPANSE.
3. ALL CONCRETE FOR TXDOT DRAINAGE STRUCTURES SHALL MEET TXDOT SPECIFICATIONS. ALL OTHER CONCRETE SHALL BE CLASS "A" 3000 PSI CYLINDER STRENGTH IN 28 DAYS.
4. REFERENCE DRAINAGE DETAILS FOR PIPE TRENCH DETAILS, BOX CULVERT, HEADWALL WINGWALL CONSTRUCTION DETAILS, AND BOX CULVERT BEDDING AND EXCAVATION LIMITS.
5. CONTRACTOR SHALL GROUT ALL CURB INLETS AND JUNCTION BOXES TO PROVIDE FOR POSITIVE DRAINAGE.
6. EARTHEN CHANNELS WILL BE VEGETATED BY SEEDING OR SODDING 85% OF THE CHANNEL SURFACE MUST HAVE ESTABLISHED VEGETATION BEFORE BEXAR COUNTY WILL ACCEPT.
7. CONTRACTOR SHALL MATCH TOP OF CHANNEL TO NATURAL GROUND AND MAINTAIN A MINIMUM CHANNEL DEPTH OF "0" AS SHOWN IN THE PROFILE.

REV	DATE	DESCRIPTION

DOC. # XXXXXXXXXX

REDBIRD RANCH UNIT 2M-3

4/2/2024
STATE OF TEXAS
VANCE L. WEYNAND
99269
LICENSED
PROFESSIONAL ENGINEER
Vance Weynand

DHI Engineering, LLC.
5419 N. LOOP 1604 EAST
SAN ANTONIO, TX 78247
(210) 494-8000 (210) 494-8080
TBPE REG. NO. F-19561

DHI

REDBIRD RANCH UNIT 2M-3
SAN ANTONIO, TX

DRAIN B - STA. 1+00.00 - 4+00.00

DESIGNED BY:	JWS
DRAWN BY:	AS/JWS
DATE:	4/2/2024
JOB NO.:	05000-300
SHEET NO.	C1.12

Date: Apr 02, 2024, 4:58pm User: © Mdiller File: E:_PROJECT\05000\300\900 - Design\300 - Sheets\C1.12 DRAIN B - STA 1+00.00 - 4+00.00.dwg

DHI ENGINEERING, LLC.

HYDRAULIC CALCULATION
1-20' CURB INLET

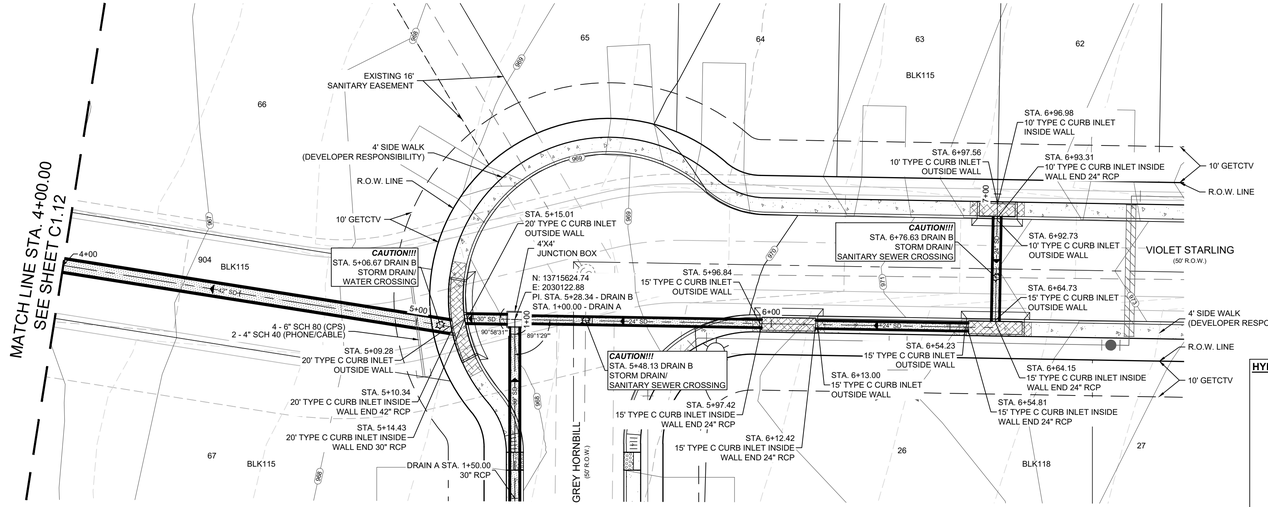
$L = \frac{Q_{25}\ (CFS)}{C(h^{3/2})}$

$L = \frac{39.84}{3.087(0.79^{3/2})}$

$L = 18.37'$

$Q_{CAPTURED}$ = 39.84 CFS
$Q_{BYPASSED}$ = 0 CFS

***TOTAL LENGTH OF 20' PROVIDED.**



DRAIN B
STA. 4+00.00 TO 7+00.00

HYDRAULIC CALCULATION
1-15' CURB INLET
STA 6+12

$L = \frac{Q_{25}\ (CFS)}{C(h^{3/2})}$

$L = \frac{12.00}{3.087(0.79^{3/2})}$

$L = 5.54'$

$Q_{CAPTURED}$ = 6.62 CFS
$Q_{BYPASSED}$ = 5.38 CFS

***TOTAL LENGTH OF 15' PROVIDED.**
****BYPASS TO BE CAPTURED DOWNSTREAM BY DRAIN 'B'.**

HYDRAULIC CALCULATION
1-15' CURB INLET
STA 6+64

$L = \frac{Q_{25}/2\ (CFS)}{C(h^{3/2})}$

$L = \frac{20.56}{3.087(0.79^{3/2})}$

$L = 9.49'$

$Q_{CAPTURED}$ = 8.56 CFS
$Q_{BYPASSED}$ = 12.00 CFS

***TOTAL LENGTH OF 15' PROVIDED.**
****BYPASS TO BE CAPTURED DOWNSTREAM BY DRAIN 'B'.**

HYDRAULIC CALCULATION
1-10' CURB INLET
STA 6+93

$L = \frac{Q_{25}/2\ (CFS)}{C(h^{3/2})}$

$L = \frac{20.56}{3.087(0.79^{3/2})}$

$L = 9.49'$

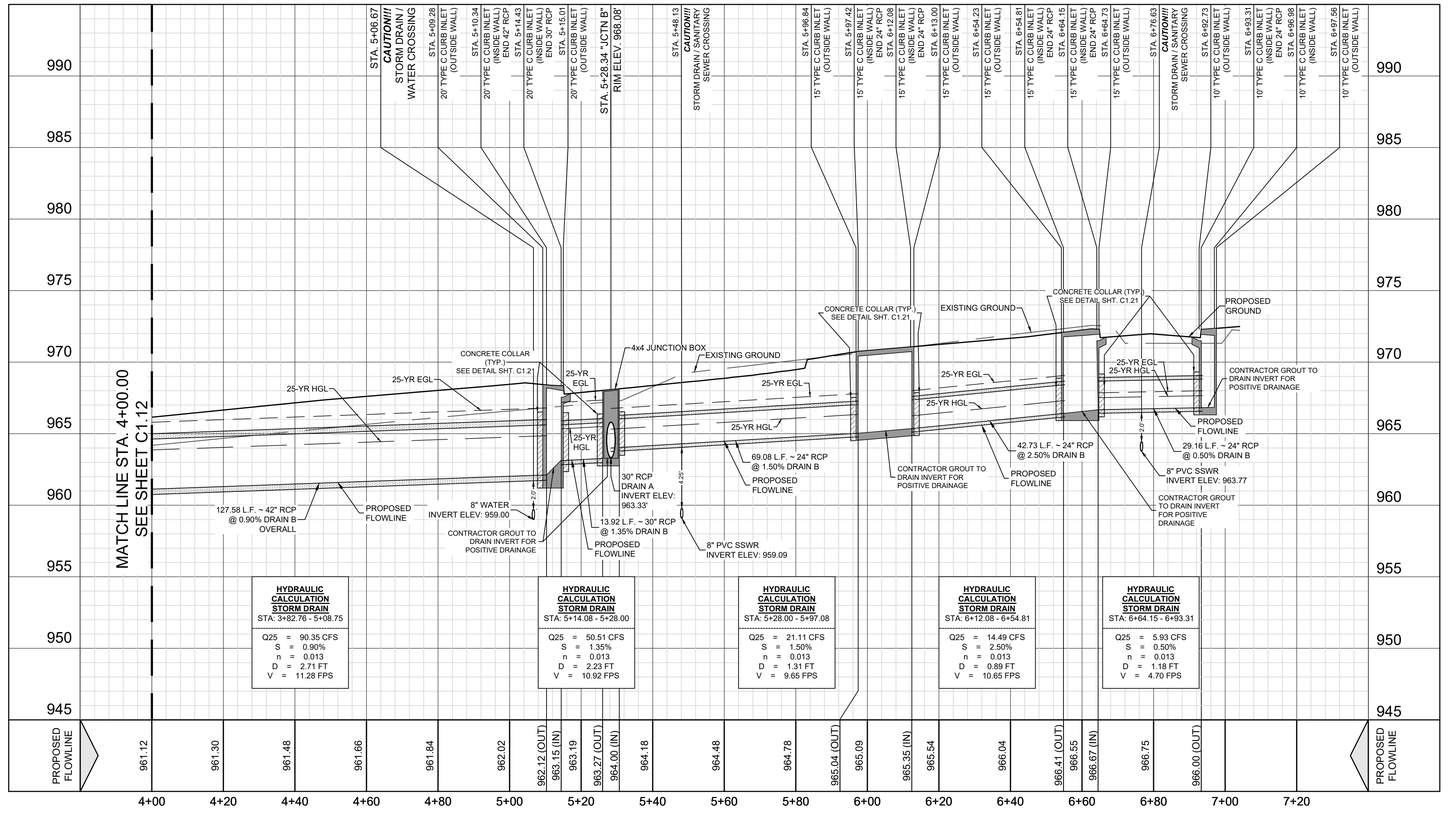
$Q_{CAPTURED}$ = 5.93 CFS
$Q_{BYPASSED}$ = 14.63 CFS

***TOTAL LENGTH OF 10' PROVIDED.**
****BYPASS TO BE CAPTURED DOWNSTREAM BY DRAIN 'B'.**

LEGEND (DRAIN)

985	EXISTING CONTOUR
1002	PROPOSED CONTOUR
	PROJECT LIMITS
W	PROPOSED WATER
	PROPOSED SEWER
S	PROPOSED MANHOLE
	FIRE HYDRANTS
S	PROPOSED WYE & LATERAL
W	SINGLE WATER SERVICE
W W	DUEL WATER SERVICE
	STREET LIGHTS
GETCTV	GAS, ELECTRIC, TELOPHONE & CABLE TELEVISION EASEMENT
	DRIVEWAY
TOC	TOP OF CURB
GTTR	GUTTER
FL	FLOWLINE

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



CPS NOTES:

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REV	DATE	DESCRIPTION

REDBIRD RANCH UNIT 2M-3
DOC. # XXXXXXXXXX

5/24/2024
STATE OF TEXAS
VANCE L. WEYNAND
99269
LICENSED
PROFESSIONAL ENGINEER
Vance Weynand

DHI Engineering, LLC.
5419 N. LOOP 1604 EAST
SAN ANTONIO, TX 78247
(210) 496-8100
TBPE REG. NO. F-19561

DHI

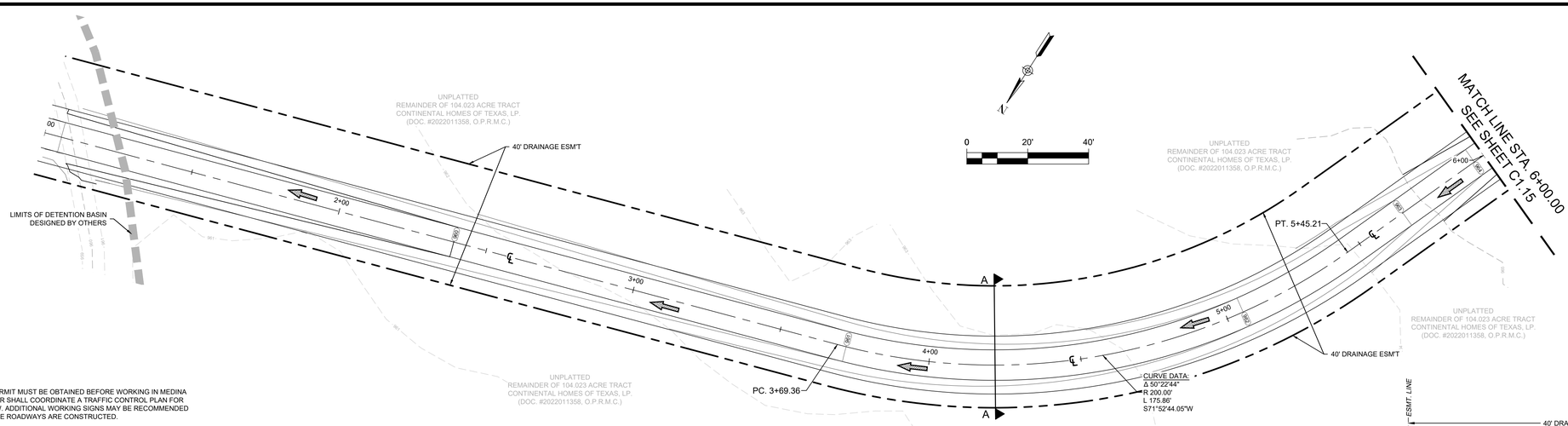
REDBIRD RANCH UNIT 2M-3
SAN ANTONIO, TX
DRAIN B - STA. 4+00.00 - END

DESIGNED BY:	JWS
DRAWN BY:	AS/JWS
DATE:	5/24/2024
JOB NO.:	05000-300
SHEET NO.	C1.13

THIS DOCUMENT HAS BEEN REPRODUCED FROM MATERIAL THAT WAS STORED AND/OR TRANSMITTED ELECTRONICALLY AND MAY HAVE BEEN INADVERTENTLY ALTERED. RELY ONLY ON FINAL HARD COPY MATERIALS BEARING THE CONSULTANT'S ORIGINAL SIGNATURE AND SEAL.

Date: May 24, 2024, 10:39am User ID: JeffersonPrac E:_PROJECT\05000\300\900 – Design\300 – Sheets\C1.13 DRAIN B – STA. 4+00.00 – END.dwg

DHI ENGINEERING, LLC.



LEGEND (DRAIN)

985	EXISTING CONTOUR
1002	PROPOSED CONTOUR
	PROJECT LIMITS
	PROPOSED WATER
	PROPOSED SEWER
S	PROPOSED MANHOLE
	FIRE HYDRANTS
S	PROPOSED WYE & LATERAL
	SINGLE WATER SERVICE
	DUEL WATER SERVICE
	STREET LIGHTS
GETCTV	GAS, ELECTRIC, TELOPHONE & CABLE TELEVISION EASEMENT
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TOC	TOP OF CURB
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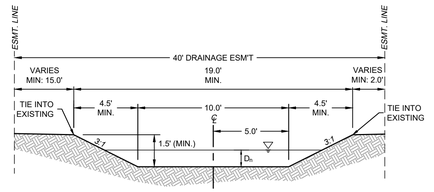
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DRAIN C
STA. 1+00.00 TO 6+00.00

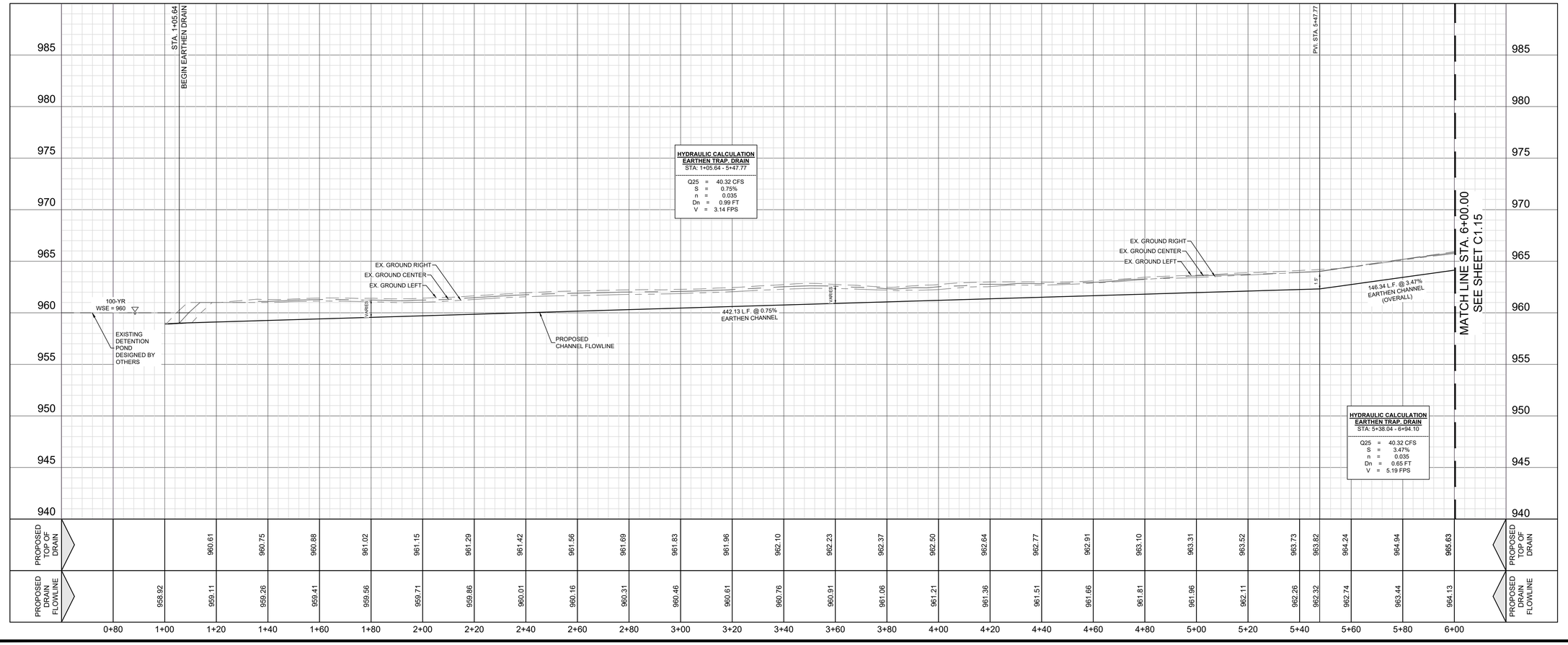
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SECTION "A-A"
STA. 1+05.64 - STA. 7+15.45
N.T.S.

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



DHI Engineering, LLC.
5419 N. LOOP 1604 EAST
SAN ANTONIO, TX 78247
(210) 496-8000 FAX 496-8000
TBPE REG. NO. F-19561

4/2/2024
STATE OF TEXAS
VANCE L. WEYNAND
99269
LICENSED
PROFESSIONAL ENGINEER
Vance Weynand

REV	DATE	DESCRIPTION

DOC. # XXXXXXXXXXX

REDBIRD RANCH UNIT 2M-3

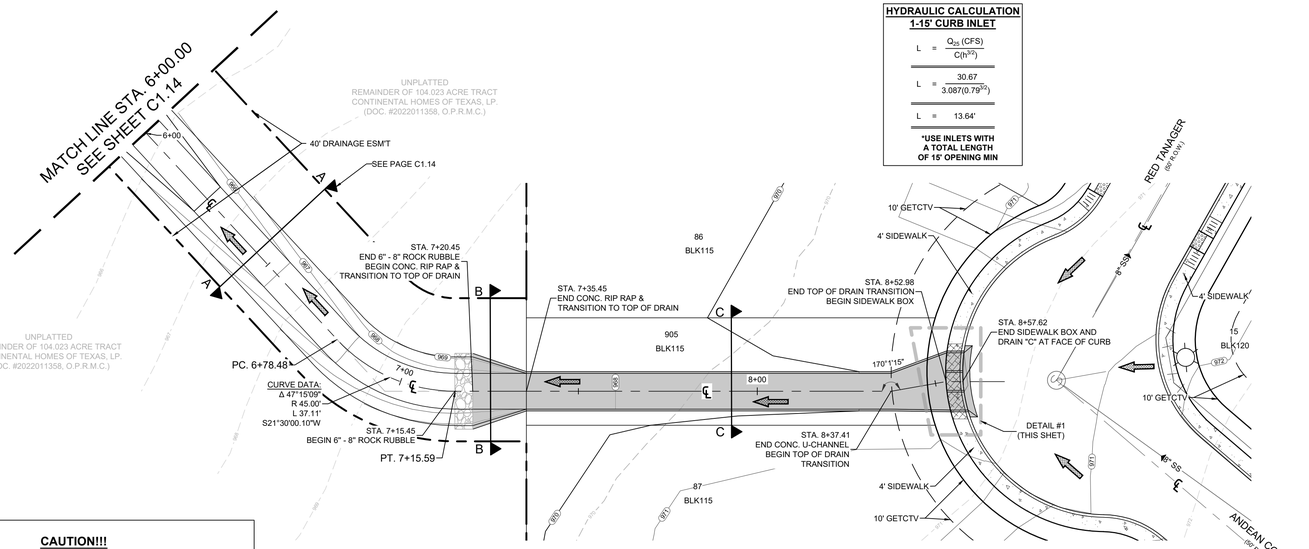
DESIGNED BY:	JWS
DRAWN BY:	AS/JWS
DATE:	4/2/2024
JOB NO.:	05000-300
SHEET NO.	C1.14

REDBIRD RANCH UNIT 2M-3
SAN ANTONIO, TX
DRAIN C - STA. 1+00.00 - 6+00.00

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Date: Apr 02, 2024, 4:39pm User ID: AMiller File: E:_PROJECTS\05000\300\900 - Design\100 - Sheets\C1.14 DRAIN C - STA. 1+00.00 - 6+00.00.dwg

DHI ENGINEERING, LLC.



HYDRAULIC CALCULATION
1-15' CURB INLET

$$L = \frac{Q_{25}\ (CFS)}{C(h^{3/2})}$$

$$L = \frac{30.67}{3.087(0.79^{3/2})}$$

$$L = 13.64'$$

***USE INLETS WITH A TOTAL LENGTH OF 15' OPENING MIN**

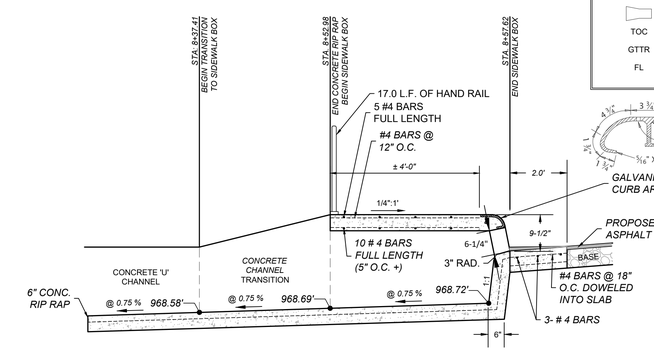
TRENCH EXCAVATION PROTECTION

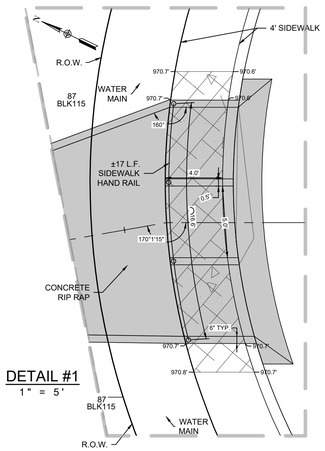
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LEGEND (DRAIN)

985	EXISTING CONTOUR
1002	PROPOSED CONTOUR
	PROJECT LIMITS
	PROPOSED WATER
	PROPOSED SEWER
S	PROPOSED MANHOLE
	FIRE HYDRANTS
S	PROPOSED WYE & LATERAL
	SINGLE WATER SERVICE
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	STREET LIGHTS
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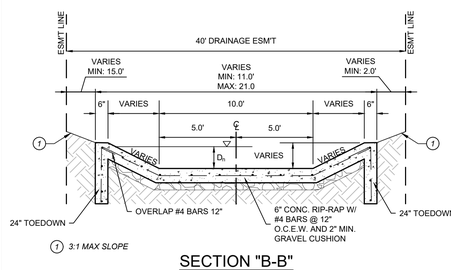
0 20' 40'



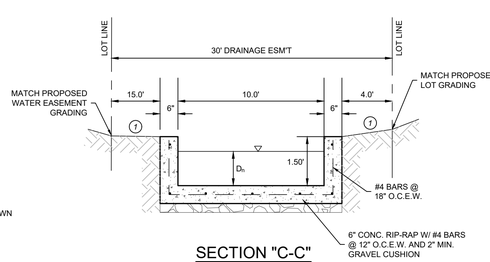


DETAIL #1
1 " = 5 '

SIDEWALK BOX DETAIL
N.T.S.



SECTION "B-B"
STA. 7+15.45 - STA. 7+35.45
N.T.S.



SECTION "C-C"
STA. 7+35.45 - STA. 8+37.41
N.T.S.

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DRAIN C
STA. 6+00.00 TO END

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99269
LICENSED
PROFESSIONAL ENGINEER
Vance Weynand

DHI Engineering, LLC.
5419 N. LOOP 1604 EAST
SAN ANTONIO, TX 78247
(210) 490-4999 (210) 490-8000
TBPE REG. NO. F-19561

DHI

REDBIRD RANCH UNIT 2M-3
SAN ANTONIO, TX

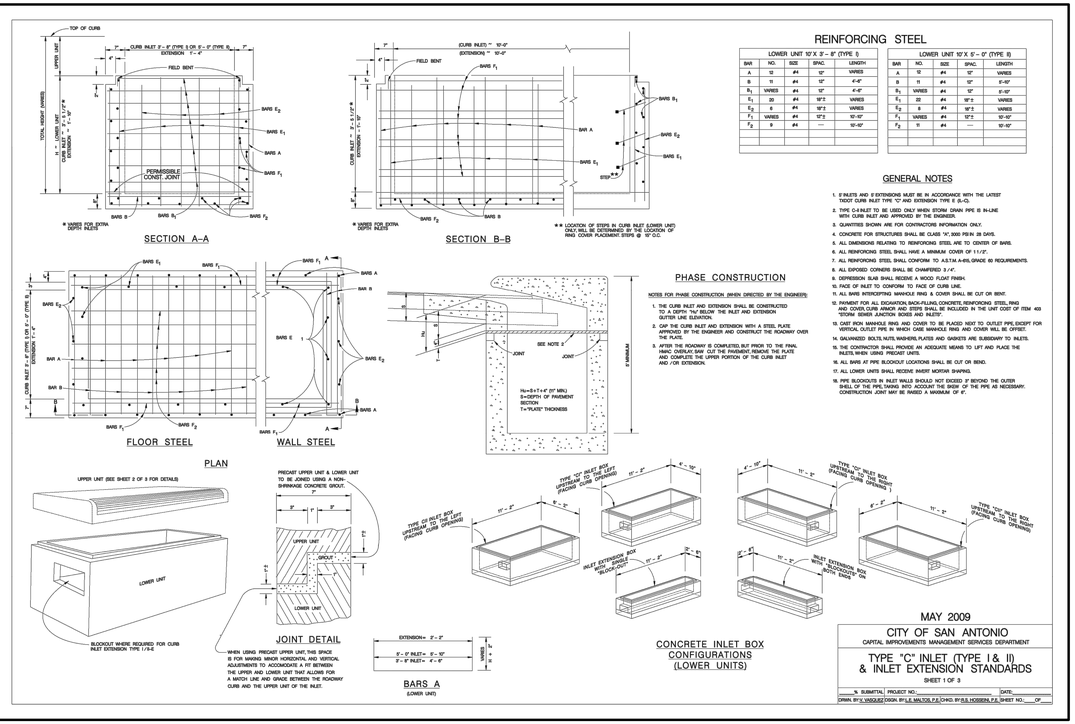
DRAIN C - STA. 6+00.00 - END

DESIGNED BY:	JWS
DRAWN BY:	AS/JWS
DATE:	5/24/2024
JOB NO.:	05000-300
SHEET NO.	C1.15

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Date: May 24, 2024, 10:48am User ID: JeffSmith File: E:_PROJECTS\05000\300\900 – Design\300 – Sheets\07-15 DRAIN C – STA. 6+00.00 – END.dwg

DHI ENGINEERING, LLC.



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'-4"
B_1	VARIES	#4	12"	4'-4"
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	6	#4	18"±	VARIES
F_1	VARIES	#4	12"±	10'-10"
F_2	11	#4	---	10'-10"

GENERAL NOTES

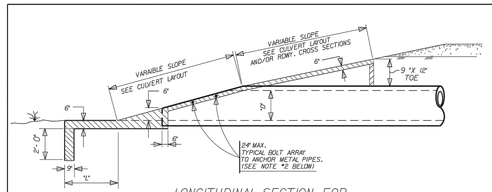
1. E-INLETS AND E-EXTENSIONS MUST BE IN ACCORDANCE WITH THE LATEST TXDOT CURB INLET TYPE "C" AND EXTENSION TYPE E (I.-C).
2. TYPE C-I-2 INLET TO BE USED ONLY WHEN STORM DRAIN PIPE IS IN-LINE WITH CURB INLET AND APPROVED BY THE ENGINEER.
3. QUANTITIES SHOWN ARE FOR CONTRACTORS INFORMATION ONLY.
4. CONCRETE FOR STRUCTURES SHALL BE CLASS "A", 3600 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 ASTM 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. PAVEMENT FOR ALL EXCAVATION, BACK-FILLING, CONCRETE, REINFORCING STEEL, RING AND COVER, CURB ARMOR AND STEPS SHALL BE INCLUDED IN THE UNIT COST OF ITEM 400 "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 BENT.
17. ALL LOWER UNITS SHALL RECEIVE INVERT MORTAR SHAPING.
18. PIPE BLOCKOUTS IN INLET WALLS SHOULD NOT EXCEED 9' BEYOND THE OUTER SHELL OF THE PIPE, TAKING INTO ACCOUNT THE SKEW OF THE PIPE AS NECESSARY. CONSTRUCTION JOINT MAY BE PLACED A MAXIMUM OF 6".

PHASE CONSTRUCTION

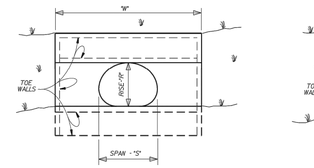
NOTES FOR PHASE CONSTRUCTION (WHEN DIRECTED BY THE ENGINEER):

1. THE CURB INLET AND EXTENSION SHALL BE CONSTRUCTED TO A DEPTH "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.

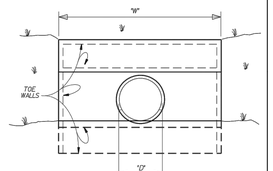
SEE NOTE 3
JOINT
JOINT
Hu=5'+1'-4" (17" MIN.)
5'=DEPTH OF PAVEMENT SECTION
T="PLATE" THICKNESS
MAY 2009
CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT
TYPE "C" INLET (TYPE I & II) & INLET EXTENSION STANDARDS
SHEET 1 OF 3
% SUBMITTAL PROJECT NO.: DATE:
DRAWN BY: V. VASQUEZ DESIGN BY: E. MALTOS, P.E. CHKD. BY: S.S. HOSSEINI, P.E. SHEET NO.: OF



LONGITUDINAL SECTION FOR CIRCULAR & ARCH PIPES



SINGLE C.M.P. ARCH PIPE CULVERT

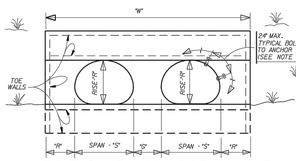


SINGLE CIRCULAR PIPE CULVERT (CMP or RCP)

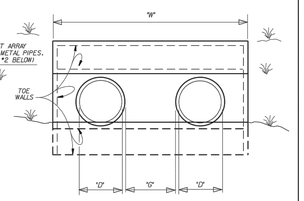
DIMENSIONS FOR CIRCULAR (CMP and RCP) PIPE CULVERTS

"D" INSIDE DIA. of PIPE	"L"	"S"		SINGLE	DOUBLE	TRIPLE	QUADRUPLE
		CGM	RCP	"H"			
18"	2'-0"	1'-2"	0'-9"	4'-6"	7'-2"	9'-10"	12'-6"
21"	2'-0"	1'-3"	0'-10"	5'-3"	8'-4"	11'-4"	13'-4"
24"	3'-0"	1'-5"	0'-11"	6'-0"	9'-5"	12'-10"	16'-3"
30"	4'-0"	1'-8"	1'-1"	7'-6"	11'-8"	15'-10"	20'-0"
36"	5'-0"	1'-11"	1'-3"	9'-0"	13'-11"	18'-10"	23'-9"
42"	6'-0"	2'-2"	1'-5"	10'-6"	16'-2"	22'-0"	27'-6"
48"	7'-0"	2'-5"	1'-7"	12'-0"	18'-5"	24'-10"	31'-3"
54"	8'-0"	2'-10"	1'-11"	13'-6"	20'-10"	28'-2"	35'-6"
60"	9'-0"	3'-2"	2'-0"	15'-0"	23'-2"	31'-4"	39'-6"

"D" IS MEASURED BETWEEN THE OUTER SURFACES OF THE PIPES.



MULTIPLE C.M.P. ARCH PIPE CULVERT



MULTIPLE CIRCULAR PIPE CULVERT (CMP or RCP)

DIMENSIONS FOR C.M.P. ARCH PIPE CULVERTS

DESIGN SIZE	APPROX. ARCH DIM.		"L"	"S"	SINGLE	DOUBLE	TRIPLE	QUADRUPLE
	"S" SPAN	"R" RISE			"H"			
2	27"	15"	2'-0"	1'-2"	4'-3"	7'-2"	10"-1"	13"-0"
3	28"	20"	3'-0"	1'-5"	5'-8"	9'-5"	13"-2"	16"-11"
4	35"	24"	4'-0"	1'-8"	6'-11"	11'-6"	16'-1"	20'-8"
5	42"	29"	5'-0"	1'-11"	8'-4"	13'-9"	19'-2"	24'-7"
6	49"	33"	6'-0"	2'-2"	9'-7"	15'-10"	22'-1"	28'-4"
7	57"	38"	7'-0"	2'-5"	11'-1"	18'-3"	25'-5"	32'-7"
8	64"	43"	8'-0"	2'-10"	12'-5"	20'-7"	28'-8"	37'-0"
9	71"	47"	9'-0"	3'-2"	13'-9"	22'-10"	31'-11"	41'-0"

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

NOTES:

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

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

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

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

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

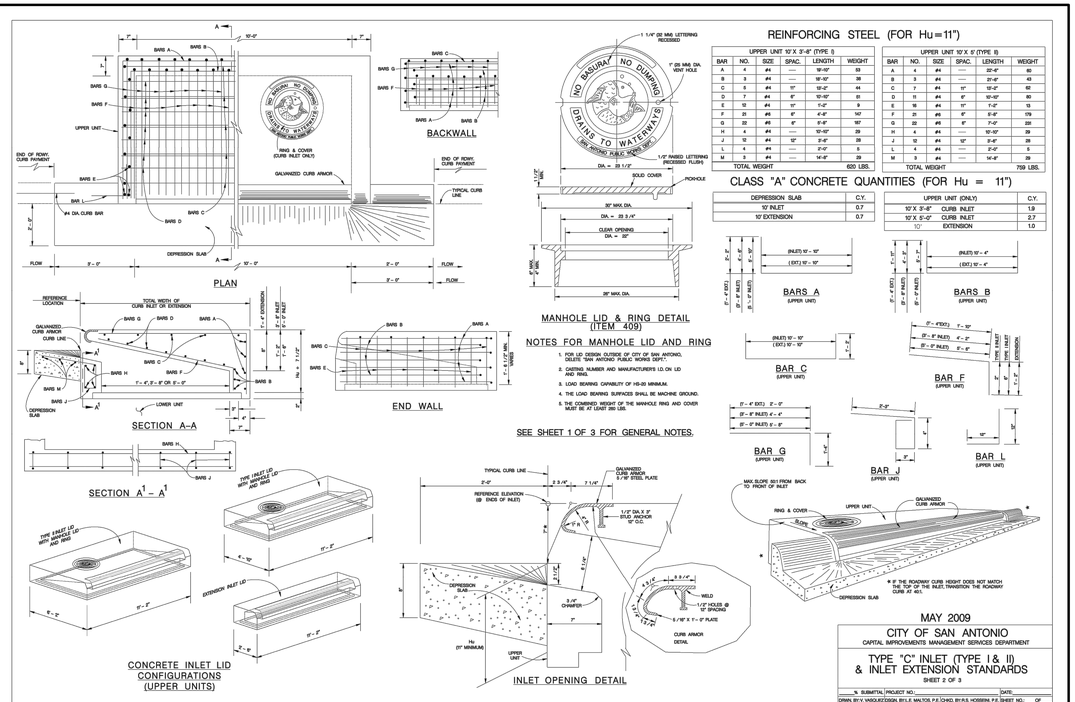
STRUCTURE DESIGN DRAWS ATTLOS STANDARD.dgn

SAN ANTONIO DISTRICT STANDARD
RIPRAP HEADWALL

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DISTRICT	COUNTY	PROJECT NO.	SHEET NO.
15			
STATE	FEDERAL AID PROJECT NO.	COUNTY	
TEXAS	SAT		
CONT.	SECT.	JOB	HIGHWAY NO.

JD/SS



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	---	10'-10"	36
C	5	#4	17"	10'-2"	44
D	7	#4	6"	10'-10"	81
E	10	#4	17"	7'-2"	51
F	21	#6	6"	6'-8"	147
G	22	#6	6"	6'-8"	197
H	4	#4	---	10'-10"	29
J	12	#4	12"	5'-6"	28
L	4	#4	---	3'-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"	10'-2"	62
D	11	#4	6"	10'-10"	80
E	16	#4	11"	7'-2"	73
F	21	#6	6"	5'-8"	179
G	22	#6	6"	7'-0"	209
H	4	#4	---	10'-10"	29
J	12	#4	12"	5'-6"	28
L	4	#4	---	3'-0"	5
M	3	#4	---	14'-8"	29
TOTAL WEIGHT					759 LBS.

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

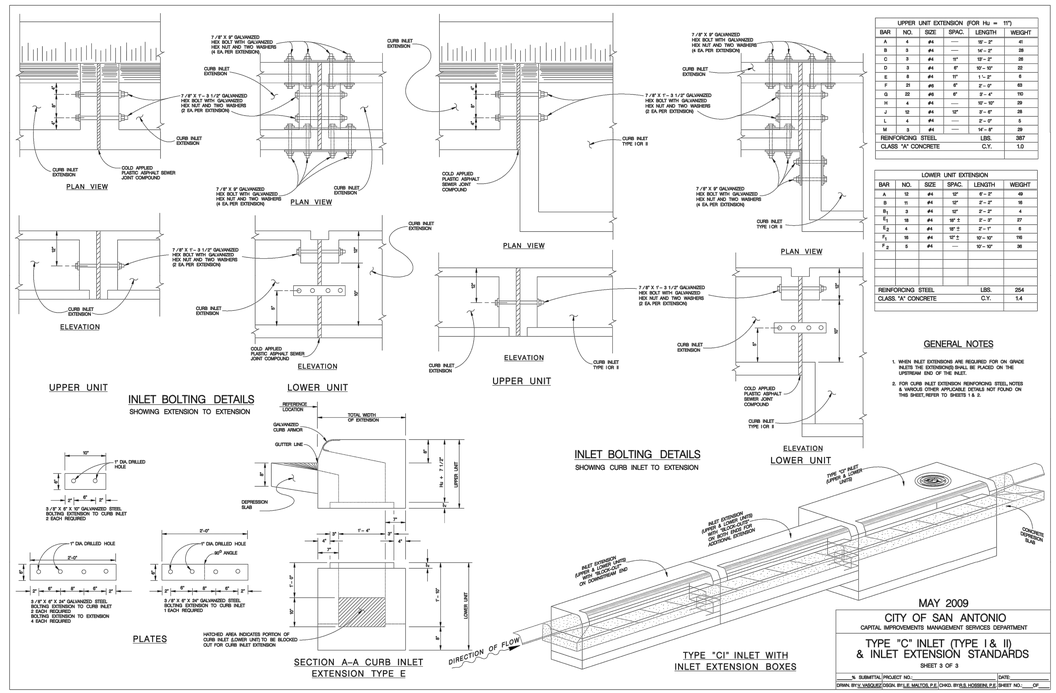
DEPRESSION SLAB	C.Y.
10' INLET	0.7
10' EXTENSION	0.7

UPPER UNIT (ONLY)	C.Y.
10' X 3'-8" CURB INLET	1.8
10' X 5'-0" CURB INLET	2.7
10' EXTENSION	1.0

GENERAL NOTES

1. WHEN INLET EXTENSIONS ARE REQUIRED FOR ON GRADE INLETS THE EXTENSION(S) SHALL BE PLACED ON THE UPSTREAM END OF THE INLET.
2. FOR CURB INLET EXTENSION REINFORCING STEEL NOTES & VARIOUS OTHER APPLICABLE DETAILS NOT FOUND ON THIS SHEET, REFER TO SHEETS 1 & 3.

MAY 2009
CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT
TYPE "C" INLET (TYPE I & II) & INLET EXTENSION STANDARDS
SHEET 2 OF 3
% SUBMITTAL PROJECT NO.: DATE:
DRAWN BY: V. VASQUEZ DESIGN BY: E. MALTOS, P.E. CHKD. BY: S.S. HOSSEINI, P.E. SHEET NO.: OF



UPPER UNIT EXTENSION (FOR Hu = 11")					
BAR	NO.	SIZE	SPAC.	LENGTH	WEIGHT
A	4	#4	---	18'-2"	41
B	3	#4	---	14'-2"	28
C	3	#4	11"	13'-2"	28
D	3	#4	6"	10'-10"	22
E	8	#4	11"	1'-1"	6
F	21	#6	6"	2'-0"	63
G	22	#6	6"	2'-4"	110
H	4	#4	---	14'-10"	39
J	12	#4	12"	2'-6"	26
L	4	#4	---	2'-0"	5
M	3	#4	---	14'-8"	29
REINFORCING STEEL				LBS.	387
CLASS "A" CONCRETE				C.Y.	1.0

LOWER UNIT EXTENSION					
BAR	NO.	SIZE	SPAC.	LENGTH	WEIGHT
A	12	#4	12"	6'-2"	49
B	11	#4	12"	4'-2"	16
B_1	3	#4	12"	2'-2"	4
E_1	18	#4	18"±	2'-3"	27
E_2	4	#4	18"±	2'-1"	5
F_1	18	#4	12"±	10'-10"	118
F_2	5	#4	---	10'-10"	36
REINFORCING STEEL				LBS.	254
CLASS "A" CONCRETE				C.Y.	1.4

GENERAL NOTES

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MAY 2009
CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT
TYPE "C" INLET (TYPE I & II) & INLET EXTENSION STANDARDS
SHEET 3 OF 3
% SUBMITTAL PROJECT NO.: DATE:
DRAWN BY: V. VASQUEZ DESIGN BY: E. MALTOS, P.E. CHKD. BY: S.S. HOSSEINI, P.E. SHEET NO.: OF

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REV	DATE	DESCRIPTION

4/2/2024
STATE OF TEXAS
VANCE L. WEYMAND
99269
LICENSED PROFESSIONAL ENGINEER
Vance Weymand

DHI Engineering, LLC.
5419 N. LOOP 1604 EAST
SAN ANTONIO, TX 78247
(210) 496-8900 (210) 496-8901
TBPE REG. NO. F-19561

DOC. # XXXXXXXXXX

REDBIRD RANCH UNIT 2M-3

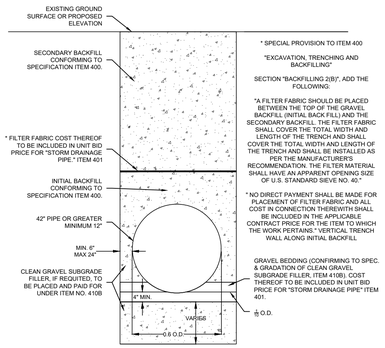
REDBIRD RANCH UNIT 2M-3
SAN ANTONIO, TX
DRAINAGE DETAILS

DESIGNED BY:	JWS
DRAWN BY:	AS/JWS
DATE:	4/2/2024
JOB NO.:	05000-300
SHEET NO.	C1.20

Date: Apr 02, 2024, 5:10pm User: © MAStier File: E:_PROJECT\05000\300\900 - Design\300 - Sheets\C1.20 DRAINAGE DETAILS.dwg

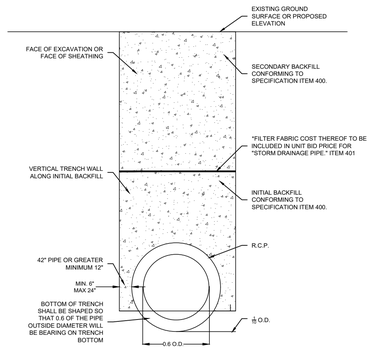
DHI ENGINEERING, LLC.

TYPICAL DETAIL FOR C.M.P. AND S.R.C.M.P.



NOTE:
SEE SPECIFICATION ITEM 400 FOR OPTIONAL BACKFILL METHOD AND OTHER REQUIREMENTS.

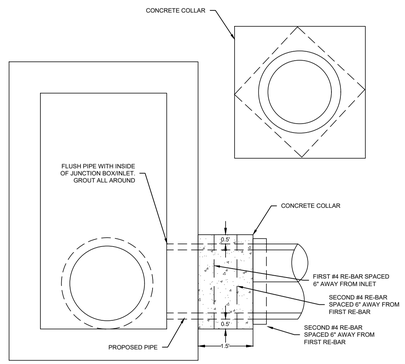
TYPICAL DETAIL



NOTE:
HYDRO FLOW PIPE HAS TO BE BRACED PRIOR TO BACKFILLING. (NO LARGE ROCKS ALLOWED)

PIPE BEDDING AND BACKFILL DETAILS

NOT TO SCALE

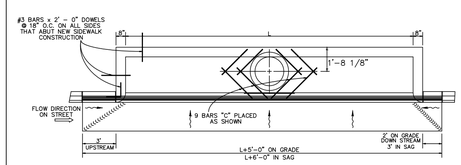


NOTE:

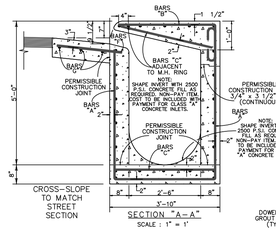
CONTRACTOR MAY SUBSTITUTE FLOWABLE FILL IN LIEU OF REINFORCED CONCRETE COLLAR ONLY WHEN APPROVED BY THE OWNER.

CONCRETE COLLAR DETAIL

NOT TO SCALE

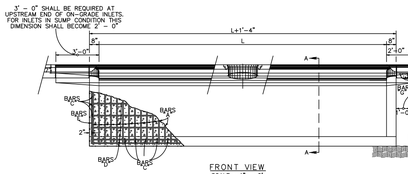


PLAN VIEW
SCALE : 1" = 2'

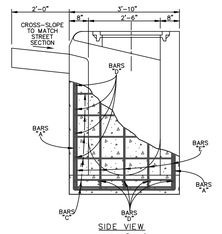


CROSS-SLOPE TO MATCH STREET SECTION

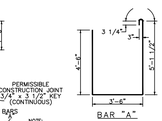
SECTION "A-A"
SCALE : 1" = 1'



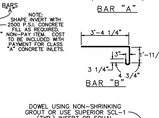
FRONT VIEW
SCALE : 1" = 2'



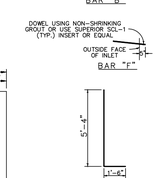
SIDE VIEW
SCALE : 1" = 1'



BAR "A"



BAR "B"



BAR "F"

BAR	NO.	SIZE	SPACING	LENGTH	WEIGHT
A	10	4	@ 12"	1'-0 1/4"	7
B	4	4	@ 12"	1'-0 1/4"	3
C	9	4	@ 12"	4'-0"	24
D	4	4	@ 12"	2'-0"	6
E	4	4	@ 12"	2'-0"	6
F	4	4	@ 12"	2'-0"	6
G	4	4	@ 12"	2'-0"	6

L = 6'-6"
CONCRETE TOTAL=0.53 CU. YDS.
M.H. CASTING=260 LBS.
STEEL TOTAL=439 LBS.

BAR	NO.	SIZE	SPACING	LENGTH	WEIGHT
A	10	4	@ 12"	1'-0 1/4"	7
B	4	4	@ 12"	1'-0 1/4"	3
C	9	4	@ 12"	4'-0"	24
D	4	4	@ 12"	2'-0"	6
E	4	4	@ 12"	2'-0"	6
F	4	4	@ 12"	2'-0"	6
G	4	4	@ 12"	2'-0"	6
H	4	4	@ 12"	2'-0"	6
I	4	4	@ 12"	2'-0"	6

L = 8'-6"
CONCRETE TOTAL=0.75 CU. YDS.
M.H. CASTING=260 LBS.
STEEL TOTAL=704 LBS.

BAR	NO.	SIZE	SPACING	LENGTH	WEIGHT
A	10	4	@ 12"	1'-0 1/4"	7
B	4	4	@ 12"	1'-0 1/4"	3
C	9	4	@ 12"	4'-0"	24
D	4	4	@ 12"	2'-0"	6
E	4	4	@ 12"	2'-0"	6
F	4	4	@ 12"	2'-0"	6
G	4	4	@ 12"	2'-0"	6
H	4	4	@ 12"	2'-0"	6
I	4	4	@ 12"	2'-0"	6
J	4	4	@ 12"	2'-0"	6
K	4	4	@ 12"	2'-0"	6

L = 10'-6"
CONCRETE TOTAL=0.97 CU. YDS.
M.H. CASTING=260 LBS.
STEEL TOTAL=963 LBS.

BAR	NO.	SIZE	SPACING	LENGTH	WEIGHT
A	10	4	@ 12"	1'-0 1/4"	7
B	4	4	@ 12"	1'-0 1/4"	3
C	9	4	@ 12"	4'-0"	24
D	4	4	@ 12"	2'-0"	6
E	4	4	@ 12"	2'-0"	6
F	4	4	@ 12"	2'-0"	6
G	4	4	@ 12"	2'-0"	6
H	4	4	@ 12"	2'-0"	6
I	4	4	@ 12"	2'-0"	6
J	4	4	@ 12"	2'-0"	6
K	4	4	@ 12"	2'-0"	6
L	4	4	@ 12"	2'-0"	6
M	4	4	@ 12"	2'-0"	6

L = 12'-6"
CONCRETE TOTAL=1.27 CU. YDS.
M.H. CASTING=260 LBS.
STEEL TOTAL=1227 LBS.

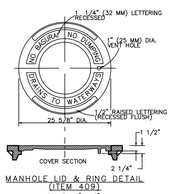
BAR	NO.	SIZE	SPACING	LENGTH	WEIGHT
A	10	4	@ 12"	1'-0 1/4"	7
B	4	4	@ 12"	1'-0 1/4"	3
C	9	4	@ 12"	4'-0"	24
D	4	4	@ 12"	2'-0"	6
E	4	4	@ 12"	2'-0"	6
F	4	4	@ 12"	2'-0"	6
G	4	4	@ 12"	2'-0"	6
H	4	4	@ 12"	2'-0"	6
I	4	4	@ 12"	2'-0"	6
J	4	4	@ 12"	2'-0"	6
K	4	4	@ 12"	2'-0"	6
L	4	4	@ 12"	2'-0"	6
M	4	4	@ 12"	2'-0"	6
N	4	4	@ 12"	2'-0"	6
O	4	4	@ 12"	2'-0"	6

L = 14'-6"
CONCRETE TOTAL=12.41 CU. YDS.
M.H. CASTING=260 LBS.
STEEL TOTAL=1489 LBS.

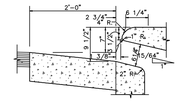
BAR	NO.	SIZE	SPACING	LENGTH	WEIGHT
A	10	4	@ 12"	1'-0 1/4"	7
B	4	4	@ 12"	1'-0 1/4"	3
C	9	4	@ 12"	4'-0"	24
D	4	4	@ 12"	2'-0"	6
E	4	4	@ 12"	2'-0"	6
F	4	4	@ 12"	2'-0"	6
G	4	4	@ 12"	2'-0"	6
H	4	4	@ 12"	2'-0"	6
I	4	4	@ 12"	2'-0"	6
J	4	4	@ 12"	2'-0"	6
K	4	4	@ 12"	2'-0"	6
L	4	4	@ 12"	2'-0"	6
M	4	4	@ 12"	2'-0"	6
N	4	4	@ 12"	2'-0"	6
O	4	4	@ 12"	2'-0"	6
P	4	4	@ 12"	2'-0"	6
Q	4	4	@ 12"	2'-0"	6

L = 16'-6"
CONCRETE TOTAL=14.63 CU. YDS.
M.H. CASTING=260 LBS.
STEEL TOTAL=1756 LBS.

* THESE FIGURES DO NOT EXCLUDE CONCRETE & STEEL INTERCEPTED BY MANHOLE AND REINFORCED CONC. PIPE.
* INCLUDES CONCRETE GUTTER FOR ON GRADE INLET. REDUCE BY .05 C.Y. FOR INLETS IN SUMP.



MANHOLE LID & RING DETAIL (ITEM 409)
SCALE : 1" = 8"



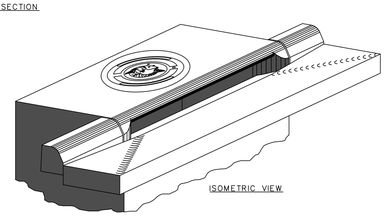
OPENING DETAIL FOR CURB SECTION
SCALE : 1" = 6"



CURB ARMOR DETAIL
N.T.S.

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.



ISOMETRIC VIEW

GENERAL NOTES

1. ALL BARS INTERCEPTING MANHOLE RING & REINFORCING CONCRETE PIPE SHALL BE FIELD CUT.
2. CONCRETE FOR STRUCTURES SHALL BE CLASS "A", 3000 PSI IN 28 DAYS.
3. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER BARS.
4. ALL EXPOSED CORNERS SHALL BE CHAMFERED TO 3 / 4".
5. CONSTRUCTION JOINT SHOWN AT FLOWLINE MAY BE RAISED A MAXIMUM OF 6" AT THE CONTRACTOR'S DISCRETION. ADJUST LENGTH OF VERTICAL STEEL AS REQUIRED.
6. ALL REINFORCING STEEL SHALL CONFORM TO A.S.T.M. A-615, GRADE 60 REQUIREMENTS.
7. INVERT OF DROP INLET TO BE SHAPED WITH CONCRETE FILL TO AFFECT DRAINAGE TO OUTLET PIPE.
8. DELETE 4 "C" BARS FROM SCHEDULE QUANTITIES IF MANHOLE RING AND COVER ARE PLACED AT END OF INLET.
9. CAST IRON MANHOLE RING AND COVER TO BE PLACED NEXT TO OUTLET PIPE, EXCEPT FOR VERTICAL OUTLET PIPE IN WHICH CASE MANHOLE RING AND COVER WILL BE OFFSET.
10. PAYMENT FOR ALL EXCAVATION, BACK FILLING, CONCRETE, REINFORCING STEEL, RING AND COVER SHALL BE INCLUDED IN THE UNIT COST OF ITEM 403 "STORM SEWER JUNCTION BOXES AND INLETS".

TYPE "C" INLET STANDARDS

REV	DATE	DESCRIPTION

DOC. # XXXXXXXXXX

REDBIRD RANCH UNIT 2M-3

4/2/2024
STATE OF TEXAS
VANCE L. WEYNAND
99269
LICENSED
PROFESSIONAL ENGINEER
Vance Weynand

DHI Engineering, LLC.
5419 N. LOOP 1604 EAST
SAN ANTONIO, TX 78247
(210) 496-8000
TBPE REG. NO. F-19561

DHI

REDBIRD RANCH UNIT 2M-3
SAN ANTONIO, TX

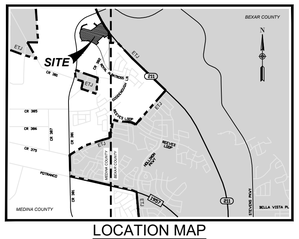
DRAINAGE DETAILS

DESIGNED BY:	JWS
DRAWN BY:	AS/JWS
DATE:	4/2/2024
JOB NO.:	05000-300
SHEET NO.	C1.21

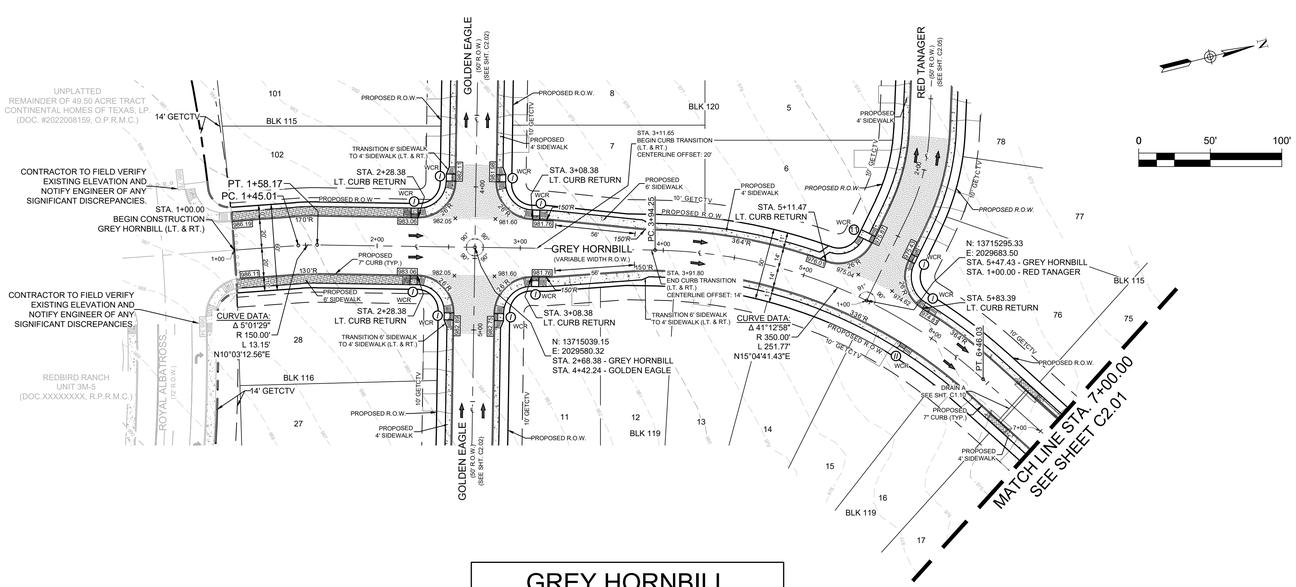
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Date: Apr 02, 2024, 5:06pm User: ID: AMSUser File: E:_PROJECT\05000\300\000 – Design\300 – Sheets\07-21 DRAINAGE DETAILS.dwg

DHI ENGINEERING, LLC.

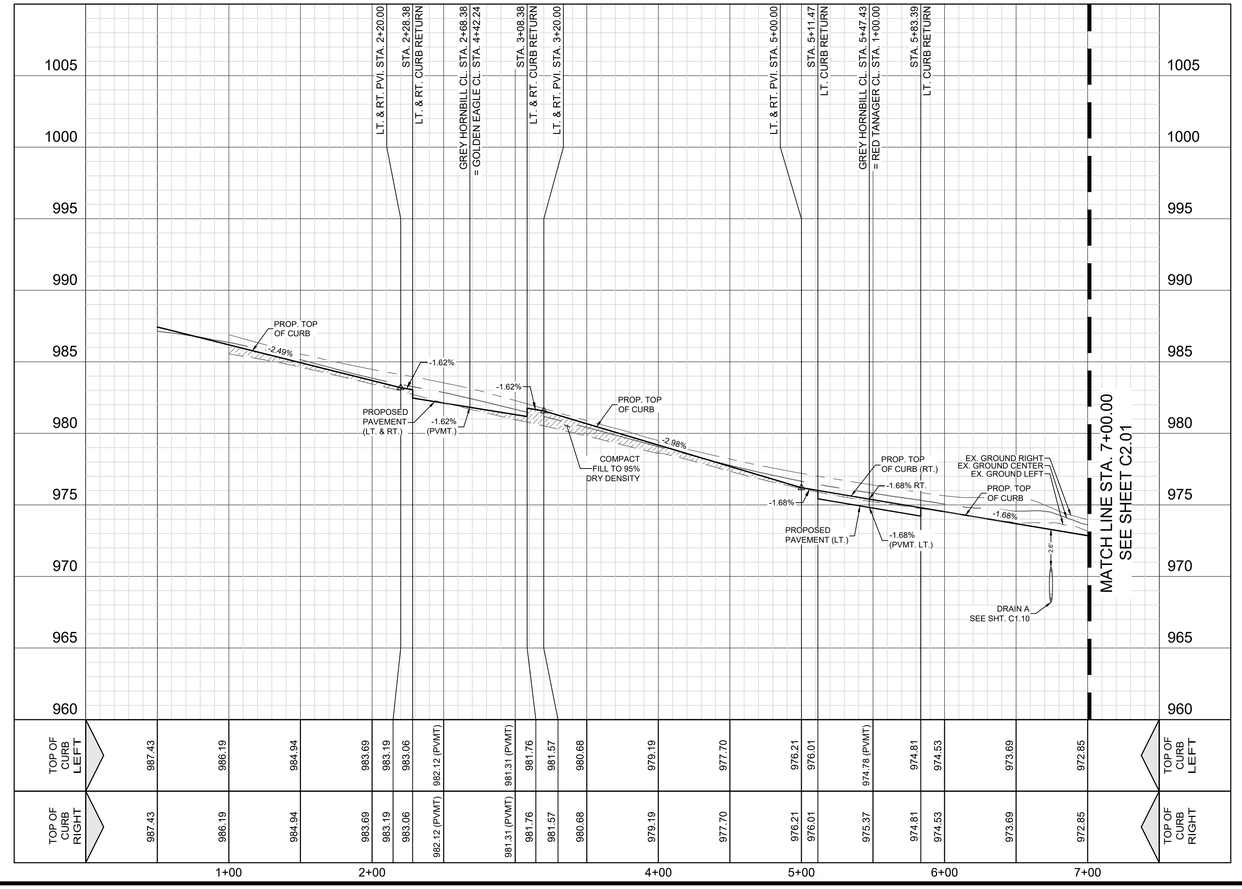


LOCATION MAP
NOT-TO-SCALE



GREY HORNBILL
STA. 1+00.00 TO 7+00.00

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



STREET NOTES:

1. A MEDINA COUNTY PERMIT MUST BE OBTAINED BEFORE WORKING IN MEDINA COUNTY ROW. CONTRACTOR SHALL COORDINATE A TRAFFIC CONTROL PLAN FOR ALL WORK WITHIN THE ROW. ADDITIONAL WARNING SIGNS MAY BE RECOMMENDED BY THE ENGINEER ONCE THE ROADWAYS ARE CONSTRUCTED.
2. CONTRACTOR SHALL MATCH EXISTING PAVEMENT AT TIE-IN. IF EXISTING PAVEMENT ELEVATION DIFFERS SIGNIFICANTLY, CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO CONTINUING WORK.
3. SIDEWALKS SHALL BE CONSTRUCTED A MINIMUM OF 3 FT. FROM THE BACK OF CURB FOR ALL LOCATIONS WHERE THE SIDEWALK IS SHOWN OFFSET. REFER TO STREET DETAIL SHEET FOR SIDEWALK AND RAMP DETAILS.
4. NO PERMANENT STRUCTURES HIGHER THAN 3 FT., AND LOWER THAN 8 FT. ABOVE THE PAVEMENT INCLUDING STRUCTURES, WALLS, FENCES, AND VEGETATION, SHALL BE CONSTRUCTED OR ALLOWED WITHIN THE CLEAR VISION EASEMENT. CONTRACTOR SHALL GRADE AREAS WITHIN CLEAR VISION EASEMENTS SUCH THAT THE ELEVATION WITHIN HE CLEAR VISION EASEMENT IS NOT HIGHER THAN 3 FT. ABOVE THE ADJACENT TOP OF PAVEMENT.
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7. ALL RAMPS AND ANY PROPOSED SIDEWALKS THAT DO NOT FRONT PROPOSED RESIDENTIAL LOTS ARE REQUIRED TO BE CONSTRUCTED WITH STREET CONSTRUCTION

LEGEND (STREET)

	PROJECT LIMITS
985	EXISTING CONTOUR
1002	PROPOSED CONTOUR
WCR	WHEELCHAIR RAMP TYPE
PC	POINT OF CURVATURE
PT	POINT OF TANGENCY
	DRAINAGE FLOW ARROW
1022.64	TOP OF CURB ELEVATION
1022.237	PAVEMENT ELEVATION
	CROWN WASHOUT
	DRIVEWAY
	SIDEWALK (DEVELOPER RESPONSIBILITY)
	SIDEWALK (HOMEBUILDER RESPONSIBILITY)

REV	DATE	DESCRIPTION

DOC. # XXXXXXXXXXX

REDBIRD RANCH UNIT 2M-3

4/3/2024

STATE OF TEXAS
VANCE L. WEYMAND
99269
LICENSED
PROFESSIONAL ENGINEER

Vance Weymand

DHI Engineering, LLC.
5419 N. LOOP 1604 EAST
SAN ANTONIO, TX 78247
(210) 494-5858 www.dhiservices.com
TBPE REG. NO. F-19561

DHI

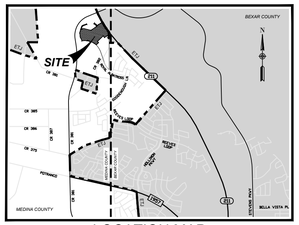
REDBIRD RANCH UNIT 2M-3
SAN ANTONIO, TX
GREY HORNBILL - STA. 1+00.00 - 7+00.00

DESIGNED BY:	JWS
DRAWN BY:	AS/JWS
DATE:	4/3/2024
JOB NO.:	05000-300
SHEET NO.	C2.00

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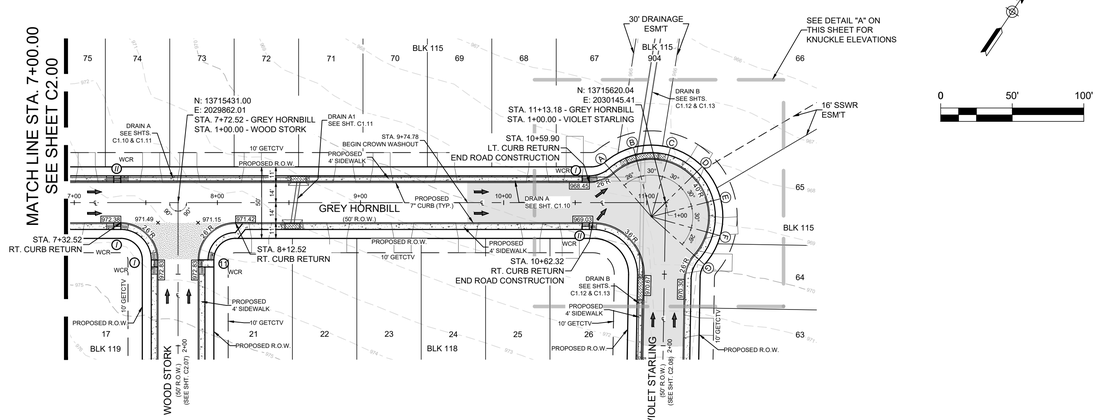
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DHI ENGINEERING, LLC.

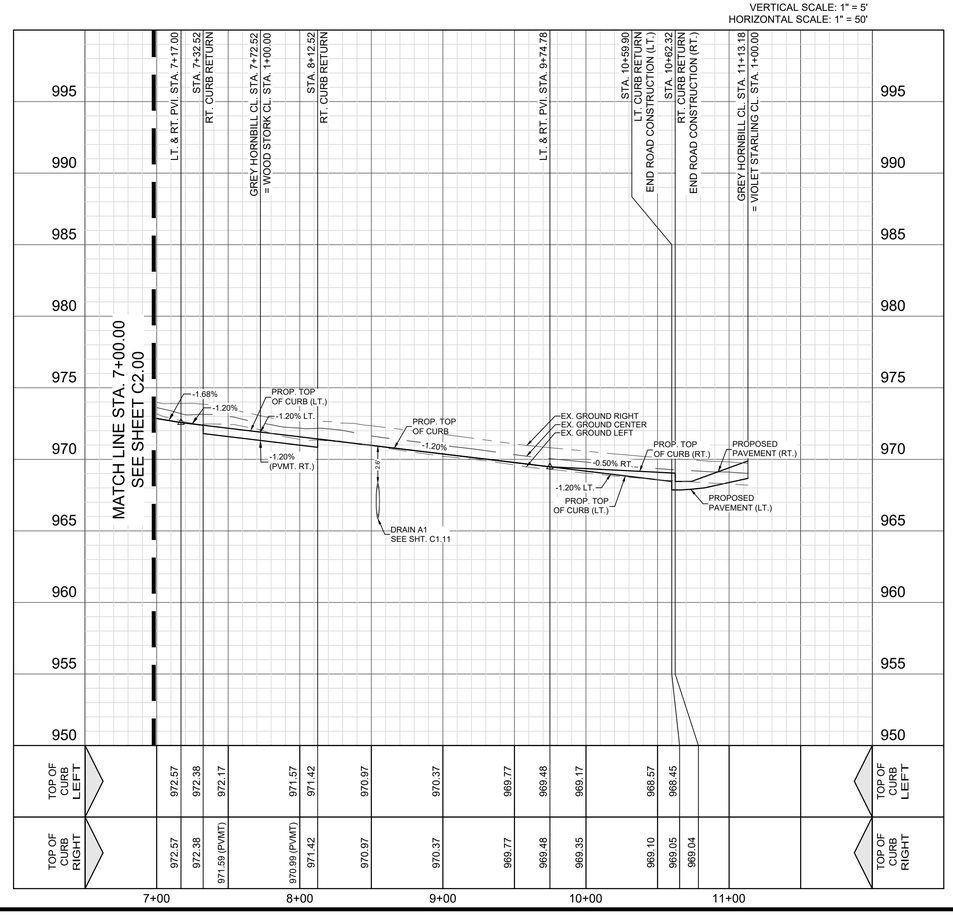


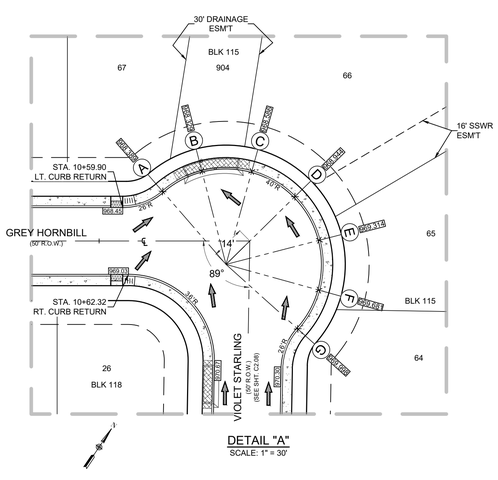
LOCATION MAP

NOT-TO-SCALE



GREY HORNBILL
STA. 7+00.00 TO 11+13.18





DETAIL "A"

SCALE: 1" = 30'

STREET NOTES:

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Point Table			
Point	Top of Curb Elevation	Northing	Easting
A	968.422	13715617.0202	2030103.4935
B	968.336	13715633.2686	2030112.4091
C	968.586	13715644.7583	2030129.9051
D	968.944	13715645.9854	2030150.8216
E	969.314	13715636.4838	2030169.4900
F	969.681	13715618.9617	2030180.9133
G	969.998	13715600.5236	2030182.5661

LEGEND (STREET)

	PROJECT LIMITS
985	EXISTING CONTOUR
1002	PROPOSED CONTOUR
WCR	WHEELCHAIR RAMP TYPE
PC	POINT OF CURVATURE
PT	POINT OF TANGENCY
	DRAINAGE FLOW ARROW
1022.84	TOP OF CURB ELEVATION
1022.237	PAVEMENT ELEVATION
	CROWN WASHOUT
	DRIVEWAY
	SIDEWALK (DEVELOPER RESPONSIBILITY)
	SIDEWALK (HOMEBUILDER RESPONSIBILITY)

REV	DATE	DESCRIPTION

DOC. # XXXXXXXXXXX

REDBIRD RANCH UNIT 2M-3

4/2/2024

STATE OF TEXAS
VANCE L. WEYMAND
99269
LICENSED
PROFESSIONAL ENGINEER

Vance Weymand

DHI Engineering, LLC.
5419 N. LOOP 1604 EAST
SAN ANTONIO, TX 78247
(210) 494-5252 (FIRM INFO)
TBPE REG. NO. F-19561

DHI

REDBIRD RANCH UNIT 2M-3
SAN ANTONIO, TX

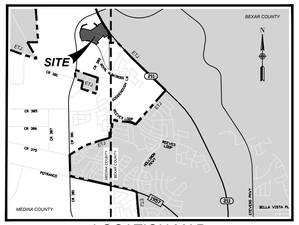
GREY HORNBILL - STA. 7+00.00 - 11+13.18

DESIGNED BY:	JWS
DRAWN BY:	AS/JWS
DATE:	4/2/2024
JOB NO.:	05000-300
SHEET NO.	C2.01

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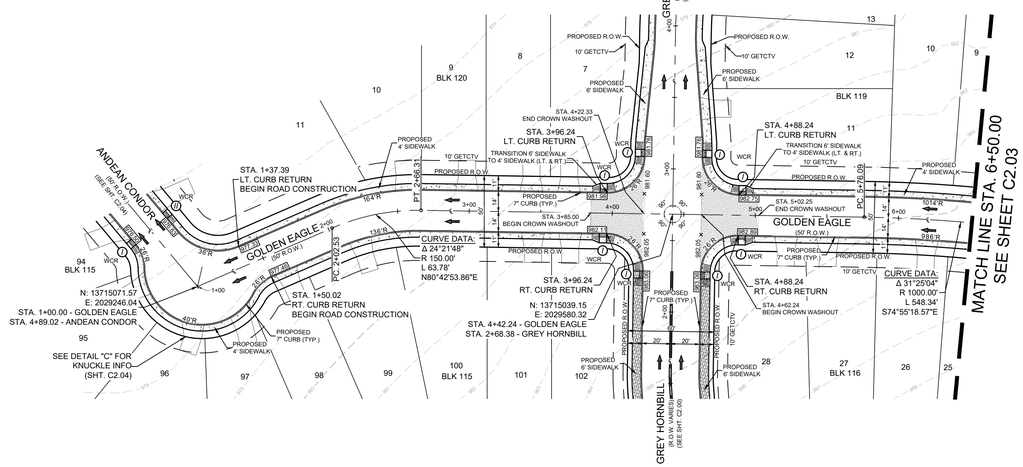
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DHI ENGINEERING, LLC.



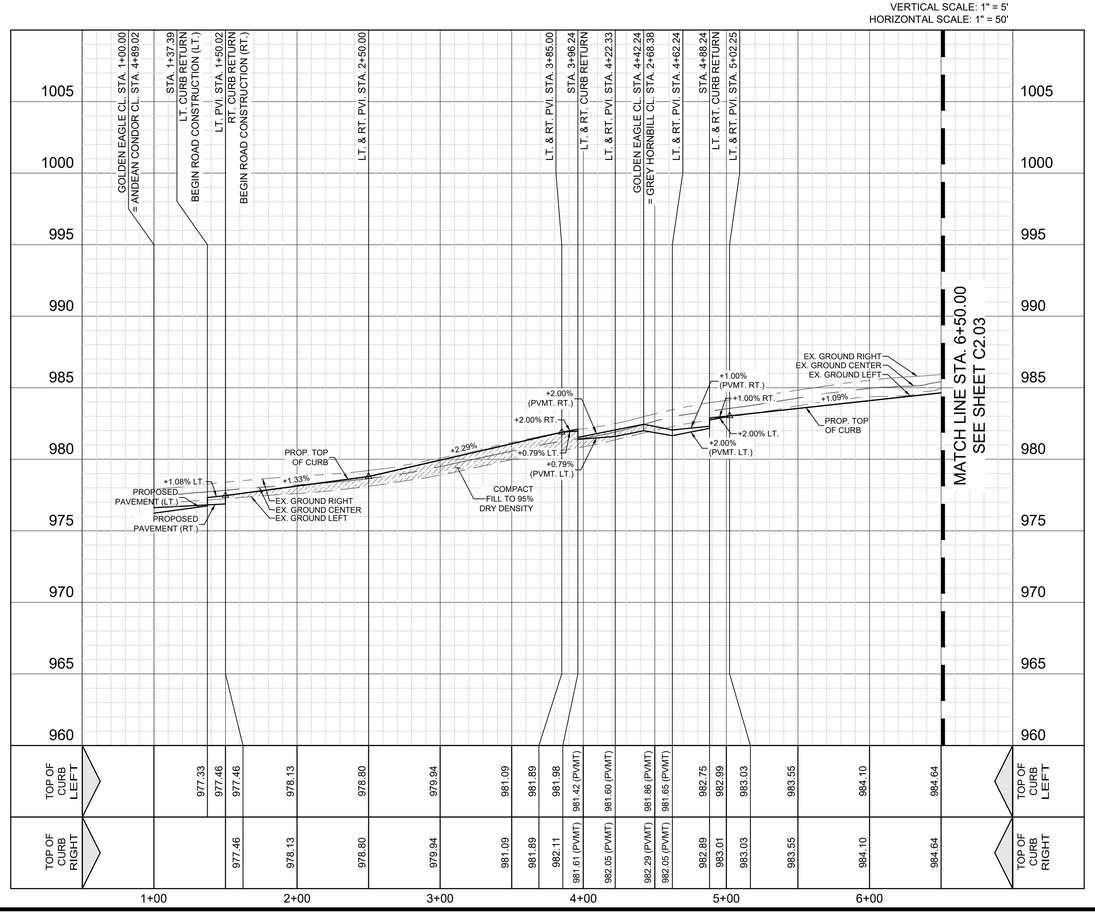
LOCATION MAP

NOT-TO-SCALE



GOLDEN EAGLE
STA. 1+00.00 TO 6+50.00

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



STREET NOTES:

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LEGEND (STREET)

	PROJECT LIMITS
985	EXISTING CONTOUR
1002	PROPOSED CONTOUR
WCR	WHEELCHAIR RAMP TYPE
PC	POINT OF CURVATURE
PT	POINT OF TANGENCY
	DRAINAGE FLOW ARROW
1022.84	TOP OF CURB ELEVATION
1022.237	PAVEMENT ELEVATION
	CROWN WASHOUT
	DRIVEWAY
	SIDEWALK (DEVELOPER RESPONSIBILITY)
	SIDEWALK (HOMEBUILDER RESPONSIBILITY)

REV:	DATE:	DESCRIPTION

DOC. # XXXXXXXXXX

REDBIRD RANCH UNIT 2M-3

4/2/2024

STATE OF TEXAS
VANCE L. WEYNAND
99269
LICENSED
PROFESSIONAL ENGINEER

Vance Weynand

DHI Engineering, LLC.
5419 N. LOOP 1604 EAST
SAN ANTONIO, TX 78247
(210) 446-8100 (WWW.DHI.COM)
TBPE REG. NO. F-19561

DHI

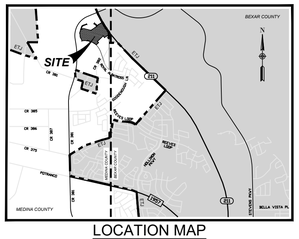
REDBIRD RANCH UNIT 2M-3
SAN ANTONIO, TX
GOLDEN EAGLE STA. 1+00.00 - 6+50.00

DESIGNED BY:	JWS
DRAWN BY:	AS/JWS
DATE:	4/2/2024
JOB NO.:	05000-300
SHEET NO.	C2.02

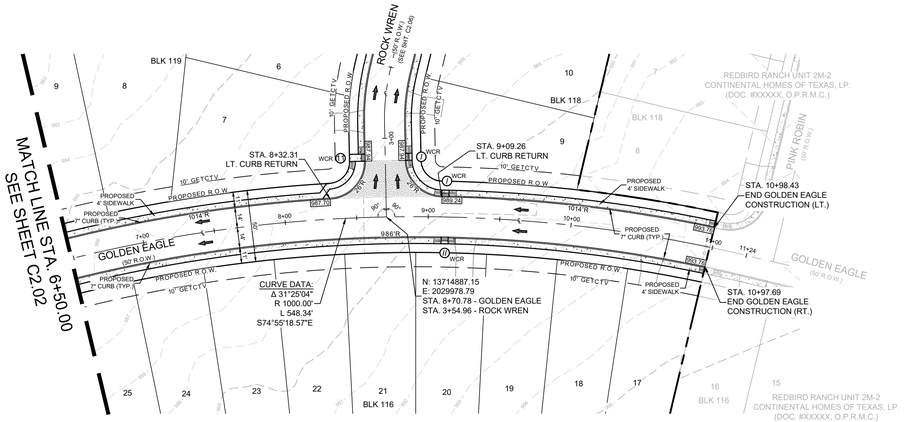
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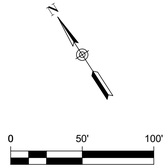
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DHI ENGINEERING, LLC.



LOCATION MAP
NOT-TO-SCALE



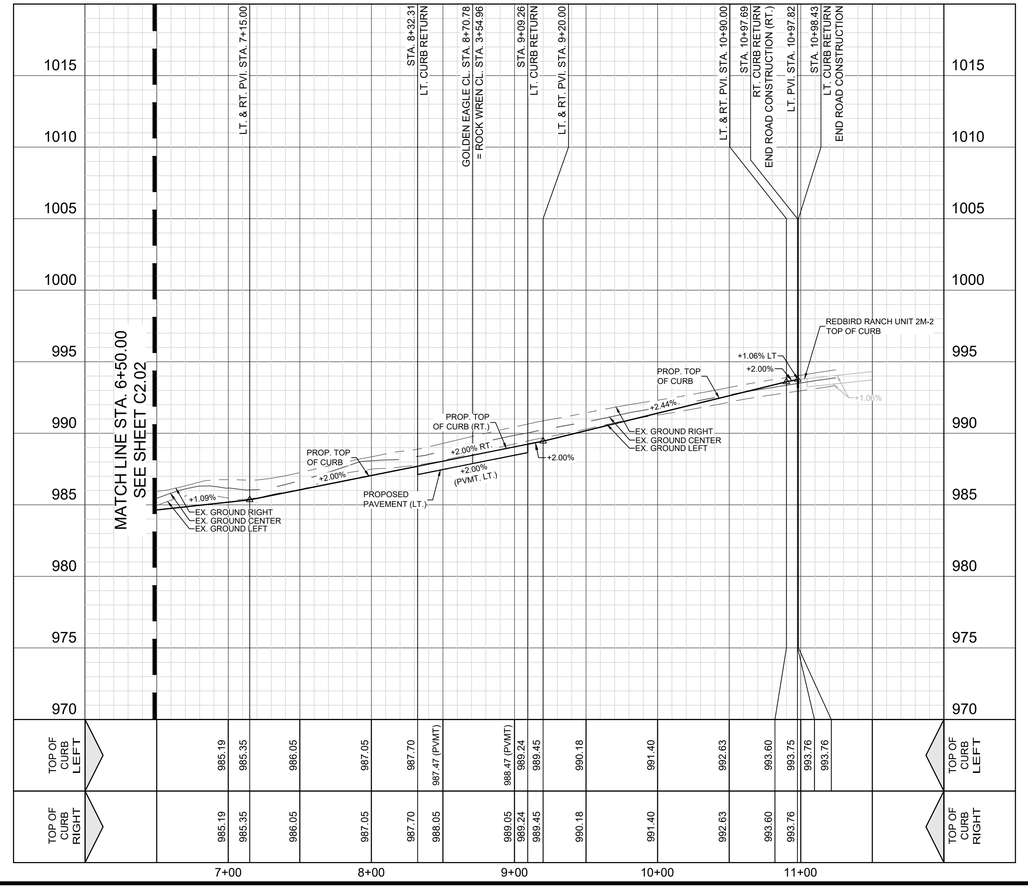


LEGEND (STREET)

	PROJECT LIMITS
985	EXISTING CONTOUR
1002	PROPOSED CONTOUR
1 WCR	WHEELCHAIR RAMP TYPE
PC	POINT OF CURVATURE
PT	POINT OF TANGENCY
	DRAINAGE FLOW ARROW
1022.84	TOP OF CURB ELEVATION
1022.237	PAVEMENT ELEVATION
	CROWN WASHOUT
	DRIVEWAY
	SIDEWALK (DEVELOPER RESPONSIBILITY)
	SIDEWALK (HOMEBUILDER RESPONSIBILITY)

GOLDEN EAGLE
STA. 6+50.00 TO 10+98.43

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



STREET NOTES:

1. A MEDINA COUNTY PERMIT MUST BE OBTAINED BEFORE WORKING IN MEDINA COUNTY ROW. CONTRACTOR SHALL COORDINATE A TRAFFIC CONTROL PLAN FOR ALL WORK WITHIN THE ROW. ADDITIONAL WARNING SIGNS MAY BE RECOMMENDED BY THE ENGINEER ONCE THE ROADWAYS ARE CONSTRUCTED.
2. CONTRACTOR SHALL MATCH EXISTING PAVEMENT AT TIE-IN. IF EXISTING PAVEMENT ELEVATION DIFFERS SIGNIFICANTLY, CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO CONTINUING WORK.
3. SIDEWALKS SHALL BE CONSTRUCTED A MINIMUM OF 3 FT. FROM THE BACK OF CURB FOR ALL LOCATIONS WHERE THE SIDEWALK IS SHOWN OFFSET. REFER TO STREET DETAIL SHEET FOR SIDEWALK AND RAMP DETAILS.
4. NO PERMANENT STRUCTURES HIGHER THAN 3 FT., AND LOWER THAN 8 FT. ABOVE THE PAVEMENT INCLUDING STRUCTURES, WALLS, FENCES, AND VEGETATION, SHALL BE CONSTRUCTED OR ALLOWED WITHIN THE CLEAR VISION EASEMENT. CONTRACTOR SHALL GRADE AREAS WITHIN CLEAR VISION EASEMENTS SUCH THAT THE ELEVATION WITHIN HE CLEAR VISION EASEMENT IS NOT HIGHER THAN 3 FT. ABOVE THE ADJACENT TOP OF PAVEMENT.
5. DRIVEWAYS SHOWN ON THIS PLAN ARE FOR THE SOLE PURPOSE OF INDICATION A POTENTIAL CONFLICT WITH CURB RAMP, DRAINAGE INFRASTRUCTURE, OR OTHER CONFLICT. DRIVEWAY LOCATION IS SUBJECT TO CHANGE BASED ON HOME SELECTION AND FINAL LOT DESIGN.
6. CHANGES IN THE SIDEWALK LOCATION FOR A MAXIMUM LINEAR DISTANCE OF TWO HUNDRED (200) FEET ARE PERMITTED TO BE APPROVED BY THE FIELD INSPECTOR WITHOUT AMENDING THE STREET PLAN OR UTILITY LAYOUT PER UDC SECTION 35-506 (Q)(5).
7. ALL RAMPS AND ANY PROPOSED SIDEWALKS THAT DO NOT FRONT PROPOSED RESIDENTIAL LOTS ARE REQUIRED TO BE CONSTRUCTED WITH STREET CONSTRUCTION

THIS DOCUMENT HAS BEEN REPRODUCED FROM MATERIAL THAT HAS STORED AND/OR TRANSMITTED ELECTRONICALLY AND MAY HAVE BEEN INADVERTENTLY ALTERED. REFER ONLY ON FINAL HARD COPY MATERIALS BEARING THE CONSULTANT'S ORIGINAL SIGNATURE AND SEAL.

REV	DATE	DESCRIPTION

REDBIRD RANCH UNIT 2M-3
DOC. # XXXXXXXXXXX

4/2/2024

STATE OF TEXAS
VANCE L. WEYNAND
99269
LICENSED
PROFESSIONAL ENGINEER

Vance Weynand

DHI Engineering, LLC.
5419 N. LOOP 1604 EAST
SAN ANTONIO, TX 78247
(210) 446-8100 www.dhiservices.com
TBPE REG. NO. F-19561

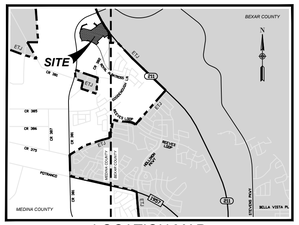
DHI

REDBIRD RANCH UNIT 2M-3
SAN ANTONIO, TX
GOLDEN EAGLE STA. 6+50.00 - 10+98.43

DESIGNED BY:	JWS
DRAWN BY:	AS/JWS
DATE:	4/2/2024
JOB NO.:	05000-300
SHEET NO.	C2.03

Date: Apr 02, 2024, 5:02pm User: ID AMSiter File: E:_PROJECT\05000\300\900 - Design\300 - Sheets\C2.03 GOLDEN EAGLE STA. 6+50.00 - 10+98.43.dwg

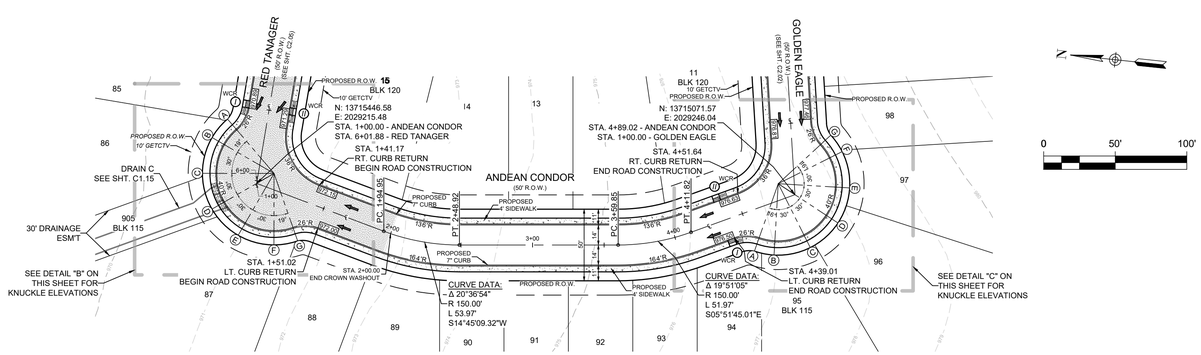
DHI ENGINEERING, LLC.



LOCATION MAP
NOT-TO-SCALE

STREET NOTES:

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LEGEND (STREET)

	PROJECT LIMITS
985	EXISTING CONTOUR
1002	PROPOSED CONTOUR
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	SIDEWALK (HOMEBUILDER RESPONSIBILITY)

REV	DATE	DESCRIPTION

DOC. # XXXXXXXXXX

REDBIRD RANCH UNIT 2M-3

4/2/2024

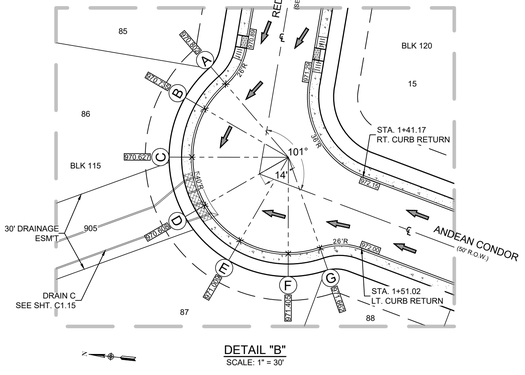
STATE OF TEXAS
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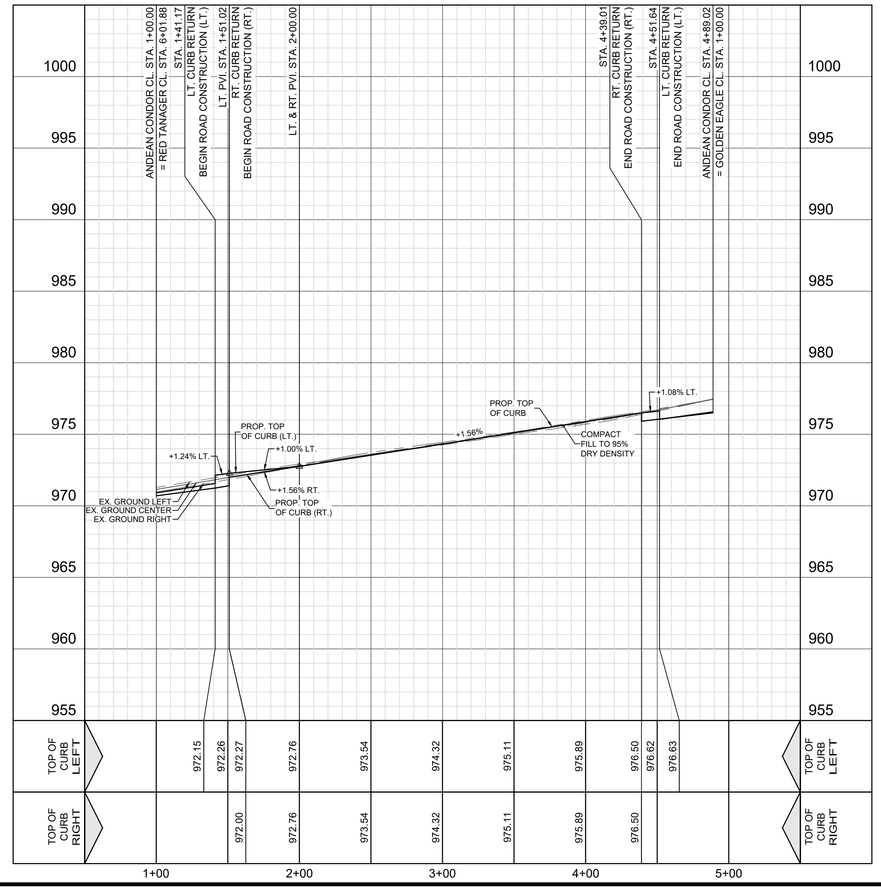
ANDEAN CONDOR
STA. 1+00.00 TO 4+51.64

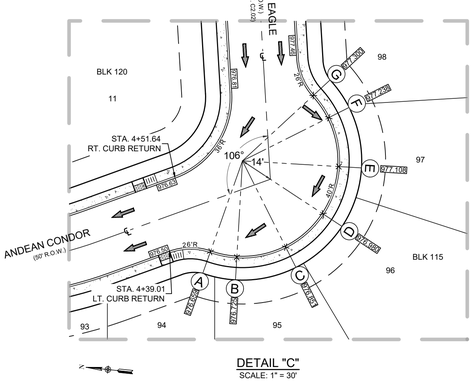


DETAIL "B"
SCALE: 1" = 30'

Point Table			
Point	Top of Curb Elevation	Northing	Easting
A	970.802	13715464.4933	2029251.5079
B	970.735	13715472.0799	2029240.2483
C	970.627	13715475.4679	2029219.5931
D	970.608	13715468.0317	2029200.0205
E	971.009	13715451.8081	2029186.7946
F	971.405	13715431.1510	2029183.4450
G	971.662	13715418.0347	2029187.0507

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





DETAIL "C"
SCALE: 1" = 30'

Point Table			
Point	Top of Curb Elevation	Northing	Easting
A	976.659	13715093.4924	2029213.2375
B	976.725	13715082.2254	2029212.0435
C	976.851	13715062.2784	2029218.4165
D	976.980	13715048.1621	2029233.8478
E	977.108	13715043.5726	2029254.2641
F	977.238	13715049.8747	2029274.2341
G	977.300	13715057.2794	2029282.7999

REDBIRD RANCH UNIT 2M-3
SAN ANTONIO, TX
ANDEAN CONDOR STA. 1+00.00 - 4+51.64

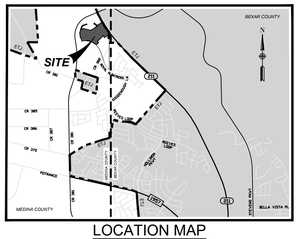
DESIGNED BY:	JWS
DRAWN BY:	AS/JWS
DATE:	4/2/2024
JOB NO.:	05000-300
SHEET NO.	C2.04

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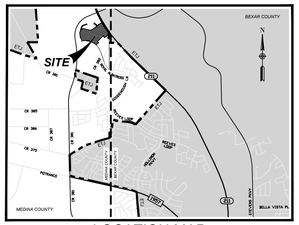
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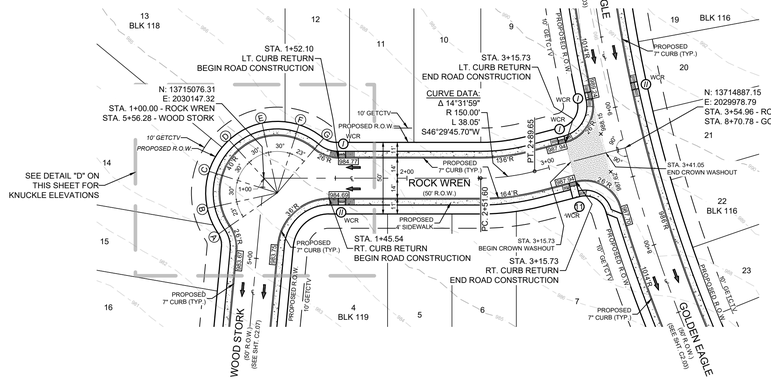
DHI ENGINEERING, LLC.



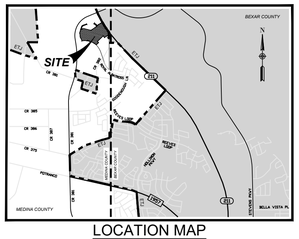
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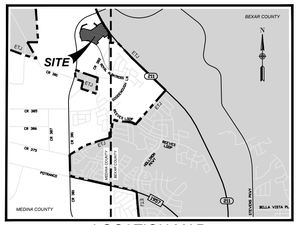
LOCATION MAP
NOT-TO-SCALE

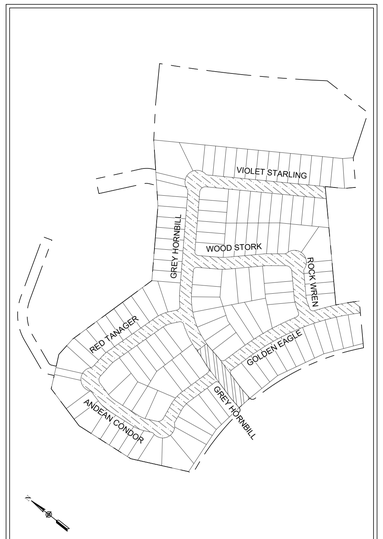

GOLDEN EAGLE
(50' R.O.W.)
(SEE SHT. C2.07)
WOOD STORK
(50' R.O.W.)
(SEE SHT. C2.07)
ROCK WREN
(50' R.O.W.)
BLK 118
BLK 116
BLK 119
STA. 1+52.10
LT. CURB RETURN
BEGIN ROAD CONSTRUCTION
STA. 3+15.73
LT. CURB RETURN
END ROAD CONSTRUCTION
CURVE DATA:
Δ 14°31'59"
R 150.00'
L 38.05'
S46°29'45.70"W
N: 13715076.31
E: 2030147.32
STA. 1+00.00 - ROCK WREN
STA. 5+56.28 - WOOD STORK
N: 13714887.15
E: 2029978.79
STA. 3+54.96 - ROCK WREN
STA. 8+70.78 - GOLDEN EAGLE
SEE DETAIL "D" ON THIS SHEET FOR KNUCKLE ELEVATIONS
STA. 1+45.54
RT. CURB RETURN
BEGIN ROAD CONSTRUCTION
STA. 3+15.73
RT. CURB RETURN
END ROAD CONSTRUCTION
STA. 3+15.73
BEGIN CROWN WASHOUT
STA. 3+41.05
END CROWN WASHOUT
PROPOSED 7" CURB (TYP.)
PROPOSED 4' SIDEWALK
PROPOSED R.O.W.
10' GETCTV
PC 2+59.85
PT 3+09.03
R=150.00'
L=38.05'
Δ=14°31'59"
R=10.00'
L=15.71'
Δ=90°00'00"
R=30.00'
L=47.12'
Δ=90°00'00

DHI ENGINEERING, LLC.


SITE
BEXAR COUNTY
MEDINA COUNTY
BULLIS
BULLIS LAKE
BULLIS LAKE ROAD
BULLIS LAKE ROAD (PRIVATE)
SCENIC RIDGE
BULLIS RANCH
BULLIS RANCH ROAD
BULLIS RANCH ROAD (PRIVATE)
BULLIS RANCH ROAD (PRIVATE)
SCENIC RIDGE
BULLIS RANCH ROAD (PRIVATE)
BULLIS RANCH ROAD (PRIVATE)
BULLIS RANCH ROAD (PRIVATE)

DHI ENGINEERING, LLC.


SITE
BEXAR COUNTY
MEDINA COUNTY
BULVERDE
BLUE WING
BELLA VISTA
SCENIC LOOP
BULVERDE CREEK
SCENIC RIDGE
1604
211
16
471
1957
1560
1957
1957
1957



STREET CLASSIFICATION SCHEMATIC N.T.S.

NOTE:
REFERENCE GEOTECHNICAL REPORT (S231193) FOR BORING INFORMATION AND CBR LOCATIONS.

LEGEND:

LOCAL "A"

LOCAL "B"

PAVEMENT SECTION DESIGN

STREET NAME	STATION	TYPE "C" HMAC	TYPE "D" HMAC	FLEXIBLE/ AGGREGATE BASE	STABILIZED LIME SUBGRADE	GEOGRID (TENSAR TRIAX TX5)	CBR	STRUCTURAL NUMBER
GREY HORNBILL (LOCAL "B")	1+00.00 TO 3+91.80	2"	2"	16"	8"	NO	2.5	4.64
GREY HORNBILL (LOCAL "A")	3+91.80 TO 11+13.18	--	2"	10"	6"	NO	2.5	2.76
GOLDEN EAGLE (LOCAL "A")	1+00.00 TO 10+98.43	--	2"	10"	6"	NO	2.5	2.76
ANDEAN CONDOR (LOCAL "A")	1+00.00 TO 4+51.64	--	2"	10"	6"	NO	2.5	2.76
RED TANAGER (LOCAL "A")	1+00.00 TO 5+60.71	--	2"	10"	6"	NO	2.5	2.76
ROCK WREN (LOCAL "A")	1+00.00 TO 3+15.73	--	2"	10"	6"	NO	2.5	2.76
WOOD STORK (LOCAL "A")	1+00.00 TO 5+10.73	--	2"	10"	6"	NO	2.5	2.76
VIOLET STARLING (LOCAL "A")	1+00.00 TO 6+54.42	--	2"	10"	6"	NO	2.5	2.76
CONTRACTOR SHALL REFERENCE GEOTECH STUDY/REPORT BY InTEC, DATED 09/13/2023, PROJECT NO. S231193.								

GENERAL NOTES:

1. CONTRACTOR SHALL REFERENCE THE PROJECT PAVEMENT DESIGN REPORT **NO.S221470** PREPARED BY **InTEC** DATED **12/24/2022**.
2. CONTRACTOR SHALL RETAIN A GEOTECHNICAL ENGINEER TO VERIFY THE SUB GRADE CONDITION PRIOR TO PLACING ANY BASE MATERIAL. GEOTECHNICAL ENGINEER SHALL DETERMINE THE SUB GRADE CONDITION AND IF LIME STABILIZATION IS REQUIRED.
3. GEOTECHNICAL ENGINEER SHOULD VERIFY THE STREET SUBGRADE AT THE TIME OF CONSTRUCTION PRIOR TO PLACEMENT OF AGGREGATE BASE.
4. THE FLEXIBLE BASE COURSE SHOULD BE CRUSHED LIMESTONE CONFORMING TO TXDOT STANDARD SPECIFICATIONS, ITEM 247, TYPE A, GRADES 1 OR 2.
5. THE MOISTURE CONTENT OF THE FILL SHOULD BE MAINTAINED WITHIN THE RANGE OF OPTIMUM WATER CONTENT TO 2 PERCENTAGE POINTS ABOVE THE OPTIMUM WATER CONTENT UNTIL PERMANENTLY COVERED.
6. IN THE EVENT THAT THE CLAY FILL USED IS DIFFERENT THAN THE EXISTING SUBGRADE, THE RECOMMENDATIONS IN THE GEOTECHNICAL REPORT COULD BE INVALIDATED AND THE DESIGN ENGINEER MUST BE CONSULTED TO DETERMINE IF ADDITIONAL CBR TESTING AND THICKER PAVEMENT SECTIONS ARE REQUIRED.
7. WHERE PAVEMENT SUBGRADE IS LOCATED WITHIN 2 FT. OF THE EXISTING GROUND SURFACE (STRATUM 1 CLAYS), MOISTURE CONDITIONED SUBGRADE WILL BE REQUIRED. GEOTECHNICAL ENGINEER SHOULD VERIFY THE STREET SUBGRADE AT THE TIME OF CONSTRUCTION PRIOR TO PLACEMENT OF AGGREGATE BASE TO DETERMINE WHERE THE MOISTURE CONDITIONED SUBGRADE IS NEEDED. REFERENCE GEOTECHNICAL ENGINEERING REPORT FOR MORE INFORMATION.
8. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL MATERIAL TESTING WITH THE PROJECT GEOTECHNICAL ENGINEER. TESTING SHALL BE PAID FOR BY THE OWNER.

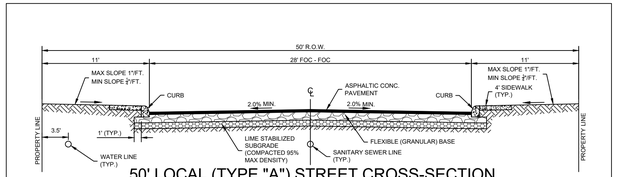
SUBGRADE NOTES:

1. THE SUBGRADE PLASTICITY INDEX VALUE IS EXPECTED TO BE LESS THAN OR EQUAL TO 20 OR GREATER THAN 20.
2. IF THE SUBGRADE PLASTICITY INDEX VALUES ARE LESS THAN OR EQUAL TO 20, AS PER CITY OF SAN ANTONIO OR BEXAR COUNTY REQUIREMENTS, SUBGRADE STABILIZATION IS NOT NEEDED.
3. IF THE FINAL STREET SUBGRADE PLASTICITY INDEX VALUES ARE GREATER THAN 20, THEN THE SUBGRADE SHOULD BE LIME STABILIZED.
4. LIME STABILIZED TO A DEPTH OF 6 OR 8 INCHES AS NOTED ABOVE BASED ON AN APPLICATION RATE OF 7% OF THE DRY WEIGHT (INITIAL RECOMMENDATIONS) OF THE SOIL TO BE STABILIZED. THE LIME APPLICATION RATE WILL BE PRESENTED AFTER THE FIELD TESTS ARE COMPLETED.
5. THE SUBGRADE SOILS SHOULD BE TESTED FOR SOIL SULFATE CONTENT PRIOR TO STABILIZATION. IF THE SOIL SULFATE CONTENT IS HIGHER THAN 3000 PPM PER PAVEMENT DESIGN REPORT NO. S221470 , AN ALTERNATIVE PROCEDURE WILL BE NEEDED.
6. LIME APPLICATION RATE OF 33 LBS. PER SQUARE YARD FOR 6 INCH DEPTH OF STABILIZATION IS RECOMMENDED.
7. LIME APPLICATION RATE OF 44 LBS. PER SQUARE YARD FOR 8 INCH DEPTH OF STABILIZATION IS RECOMMENDED.
8. THE SUBGRADE SHOULD BE PROOF ROLLED TO IDENTIFY SOFT AREAS BEFORE STABILIZATION.
9. IF FILL IS USED TO RAISE THE GRADE, APPROVED FILL MATERIAL UNDERNEATH THE PAVEMENT SHOULD BE USED. THE FILL SHOULD BE FREE OF DELETERIOUS MATERIAL, THE GRAVEL SIZE SHOULD NOT EXCEED 3 INCHES IN SIZE, WITH A MINIMUM CBR VALUE OF 2.5, AND A MAXIMUM PLASTICITY INDEX VALUE OF 45. LIME APPLICATION RATES SHOULD BE RE-EVALUATED AND SULFATE CONTENT TESTED FOR THE FILL MATERIAL. THE MATERIAL SHOULD BE PLACED AS PER APPLICABLE CITY OR COUNTY GUIDELINES

LIME NOTES:

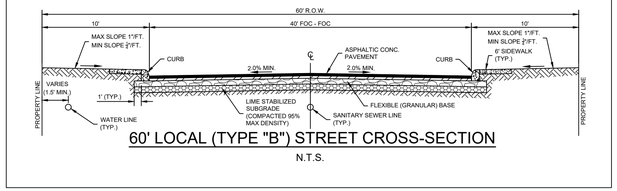
FOR LIME STABILIZATION CONSTRUCTION VERIFICATION THE FOLLOWING SHALL BE CONDUCTED ON THE FIELD:

1. AFTER INITIAL MIXING THE SOIL-LIME MIXTURE SHALL MELLOW FOR A PERIOD OF TWO TO THREE DAYS. MAINTAIN MOISTURE DURING MELLOWING.
2. AFTER MELLOWING AND FINAL MIXING, THE PULVERIZATION SHALL BE CHECKED USING THE FOLLOWING CRITERIA (REMOVE NON-SLAKING AGGREGATES RETAINED ON THE ⅜ INCH SIEVE FROM THE SAMPLE):
   - MINIMUM PASSING 1 ½" SIEVE 100
   - MINIMUM PASSING ¾ " SIEVE 85
   - MINIMUM PASSING NO.4 SIEVE 60
3. SAMPLE SOIL-LIME MIXTURE FOR DETERMINATION OF MAXIMUM DRY DENSITY (MDD). IN THE LABORATORY, MOLD SPECIMENS TO 95% OF MDD AT OPTIMUM MOISTURE CONTENT AND VERIFY UCS TO BE AT LEAST 160 PSI IN ACCORDANCE WITH PROCEDURE OUTLINED IN THE BEXAR COUNTY FLEXIBLE PAVEMENT DESIGN CRITERIA GUIDE FOR MIXTURE DESIGN.
4. COMPACT AND CHECK FIELD DENSITY (MIN. OF 95% OF MDD REQUIRED).
5. CURE FOR AN ADDITIONAL 2 TO 5 DAYS (TOTAL MELLOWING AND CURING TIME SHOULD TOTAL AT LEAST 5 DAYS).
6. VERIFY DEPTH OF LIME STABILIZED LAYER TO DEPTH AS NOTED ON PLAN TO WITHIN +/- 1.0 INCH.
7. LIME APPLICATION RATE OF 43 LBS. PER SQUARE YARD FOR 8 INCH DEPTH OF STABILIZATION IS RECOMMENDED.
8. THE SUBGRADE SHOULD BE PROOF ROLLED TO IDENTIFY SOFT AREAS BEFORE STABILIZATION.



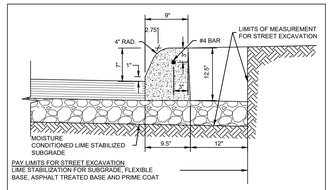
50' LOCAL (TYPE "A") STREET CROSS-SECTION

N.T.S.



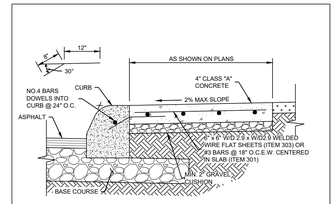
60' LOCAL (TYPE "B") STREET CROSS-SECTION

N.T.S.



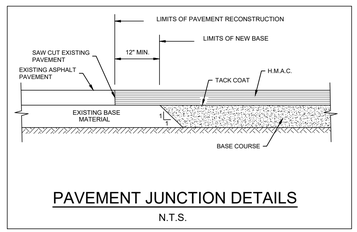
CITY OF SAN ANTONIO CONCRETE CURB DETAIL

N.T.S.



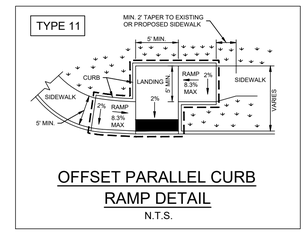
SIDEWALK DETAIL

N.T.S.



PAVEMENT JUNCTION DETAILS

N.T.S.



OFFSET PARALLEL CURB RAMP DETAIL

N.T.S.

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DOC. # XXXXXXXXXXX

REDBIRD RANCH UNIT 2M-3

REV	DATE	DESCRIPTION

4/2/2024

STATE OF TEXAS
VANCE L. WEYNAND
99269
LICENSED
PROFESSIONAL ENGINEER

Vance Weynand

DHI Engineering, LLC.
5419 N. LOOP 1604 EAST
SAN ANTONIO, TX 78247
(210) 494-9500 www.dhiservices.com
TBPE REG. NO. F-19561

DHI

REDBIRD RANCH UNIT 2M-3
SAN ANTONIO, TX

TYPICAL STREET DETAILS

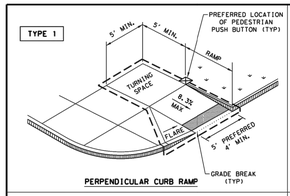
DESIGNED BY:	JWS
DRAWN BY:	AS/JWS
DATE:	4/2/2024
JOB NO.:	05000-300
SHEET NO.	C2.20

Date: Apr 02, 2024, 5:04pm User ID: AMSUser File: E:_PROJECT\05000\300\900 - Design\300 - Sheets\C2.20 TYPICAL STREET DETAILS.dwg

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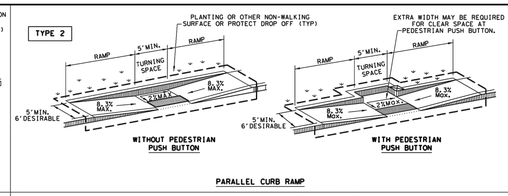
DATE:
FILE:

TYPE 1



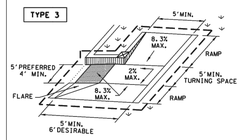
PERPENDICULAR CURB RAMP

TYPE 2

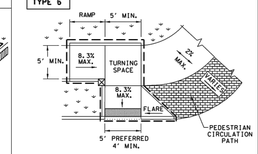


PARALLEL CURB RAMP

TYPE 3

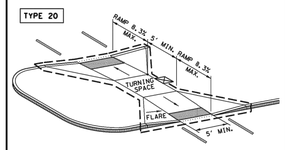


TYPE 6



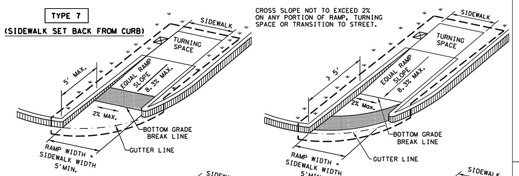
COMBINATION CURB RAMPS

TYPE 20

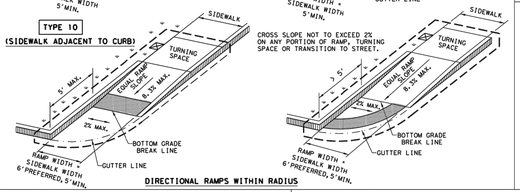


CURB RAMPS AT MEDIAN ISLANDS

TYPE 7
(SIDEWALK SET BACK FROM CURB)

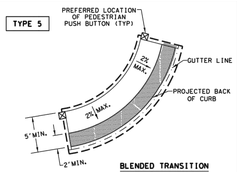


TYPE 10
(SIDEWALK ADJACENT TO CURB)



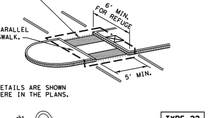
DIRECTIONAL RAMPS WITHIN RADIUS

TYPE 5



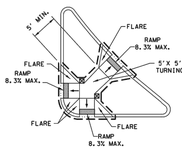
BLENDED TRANSITION
(FLUSH LANDING)

TYPE 21

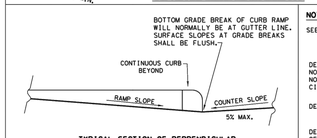


NOTE: CURB DETAILS ARE SHOWN ELSEWHERE IN THE PLANS.

TYPE 22



COMBINATION ISLAND RAMPS



TYPICAL SECTION OF PERPENDICULAR CURB RAMP AT CONNECTION TO ROADWAY

NOTES / LEGEND:

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

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

DETECTABLE WARNING SURFACE

DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON IF APPLICABLE.

GUTTER LINE

GRADE BREAK

RAMP LIMITS OF PAYMENT

SHEET 1 OF 4

Texas Department of Transportation | Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-18

FILE: ped18	Dw:TxDOT	Dw:VP	Ck:KM	Ck:PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS				
REVISED 96-2002	DIST	COUNTY		SHEET NO.
REVISED 00-2010				
REVISED 97-2014				

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FILE:

GENERAL NOTES

CURB RAMPS

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

DETECTABLE WARNING MATERIAL

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

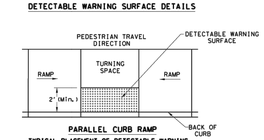
DETECTABLE WARNING PAVERS (IF USED)

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

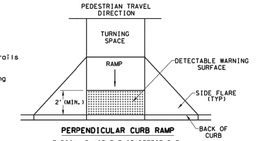
SIDEWALKS

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

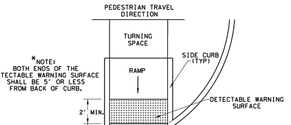
DETECTABLE WARNING SURFACE DETAILS



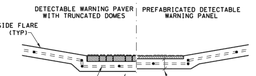
PARALLEL CURB RAMP
TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON LANDING AT STREET EDGE.



PERPENDICULAR CURB RAMP
TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.



DIRECTIONAL CURB RAMP
TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.



SECTION VIEW DETAIL
CURB RAMP AT DETECTIBLE WARNINGS

SHEET 2 OF 4

Texas Department of Transportation | Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

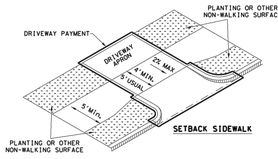
PED-18

FILE: ped18	Dw:TxDOT	Dw:VP	Ck:KM	Ck:PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS				
REVISED 96-2002	DIST	COUNTY		SHEET NO.
REVISED 00-2010				
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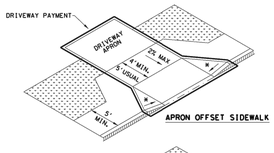
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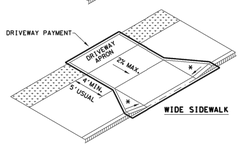
SIDEWALK TREATMENT AT DRIVEWAYS



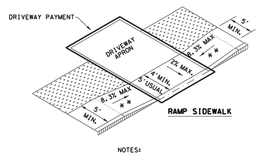
SETBACK SIDEWALK



APRON OFFSET SIDEWALK



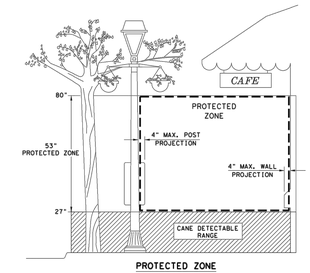
WIDE SIDEWALK



RAMP SIDEWALK

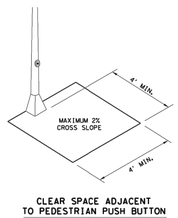
NOTES:
* WHERE DRIVEWAYS CROSS THE PEDESTRIAN ROUTE, SIDES SHALL BE FLARED AT 10% MAX SLOPE.

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

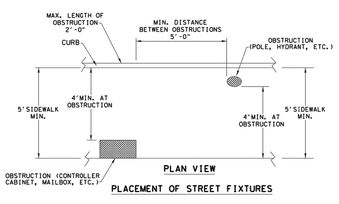


PROTECTED ZONE

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



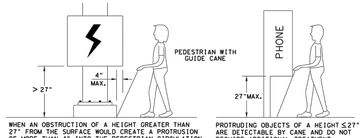
CLEAR SPACE ADJACENT TO PEDESTRIAN PUSH BUTTON



PLAN VIEW

PLACEMENT OF STREET FIXTURES

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



WHEN AN OBSTRUCTION OF A HEIGHT GREATER THAN 27" FROM THE SURFACE WOULD CREATE A PROTRUSION OF MORE THAN 4" INTO THE PEDESTRIAN CIRCULATION AREA, CONSTRUCT ADDITIONAL CURB OR FOUNDATION AT THE BOTTOM TO PROVIDE A MAXIMUM 4" OVERHANG.

PROTRUDING OBJECTS OF A HEIGHT ≤27" ARE DETECTABLE BY CANE AND DO NOT REQUIRE ADDITIONAL TREATMENT.

DETECTION BARRIER FOR VERTICAL CLEARANCE < 80"

SHEET 3 OF 4

Texas Department of Transportation | Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

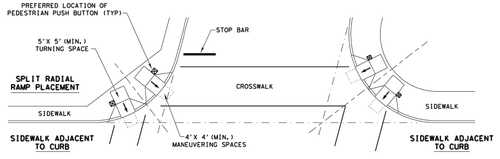
PED-18

FILE: ped18	Dw:TxDOT	Dw:VP	Ck:KM	Ck:PK & JG
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REVISIONS				
REVISED 96-2002	DIST	COUNTY		SHEET NO.
REVISED 00-2010				
REVISED 97-2014				

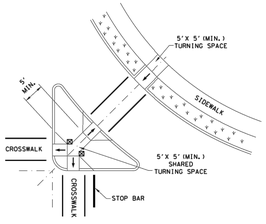
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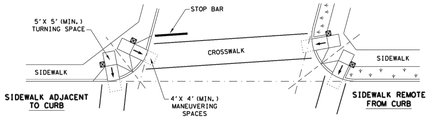
TYPICAL CROSSING LAYOUTS
SEE SHEET 1 OF 4 FOR DETAILS AND DIMENSIONS



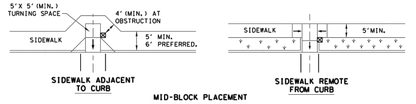
SKEWED INTERSECTION WITH "LARGE" RADIUS

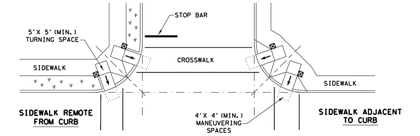


AT INTERSECTION W/FREE RIGHT TURN & ISLAND



SKEWED INTERSECTION WITH "SMALL" RADIUS





NORMAL INTERSECTION WITH "SMALL" RADIUS

LEGEND:

SHOWS DOWNWARD SLOPE.

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

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

SHEET 4 OF 4

Texas Department of Transportation | Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-18

FILE: ped18	Dw:TxDOT	Dw:VP	Ck:KM	Ck:PK & JG
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REVISED 97-2014				

REV	DATE	DESCRIPTION

4/2/2024

STATE OF TEXAS
VANCE L. WEYMAND
99269
LICENSED
PROFESSIONAL ENGINEER

Vance Weymand

DHI Engineering, LLC.
5419 N. LOOP 1604 EAST
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REDBIRD RANCH UNIT 2M-3
SAN ANTONIO, TX

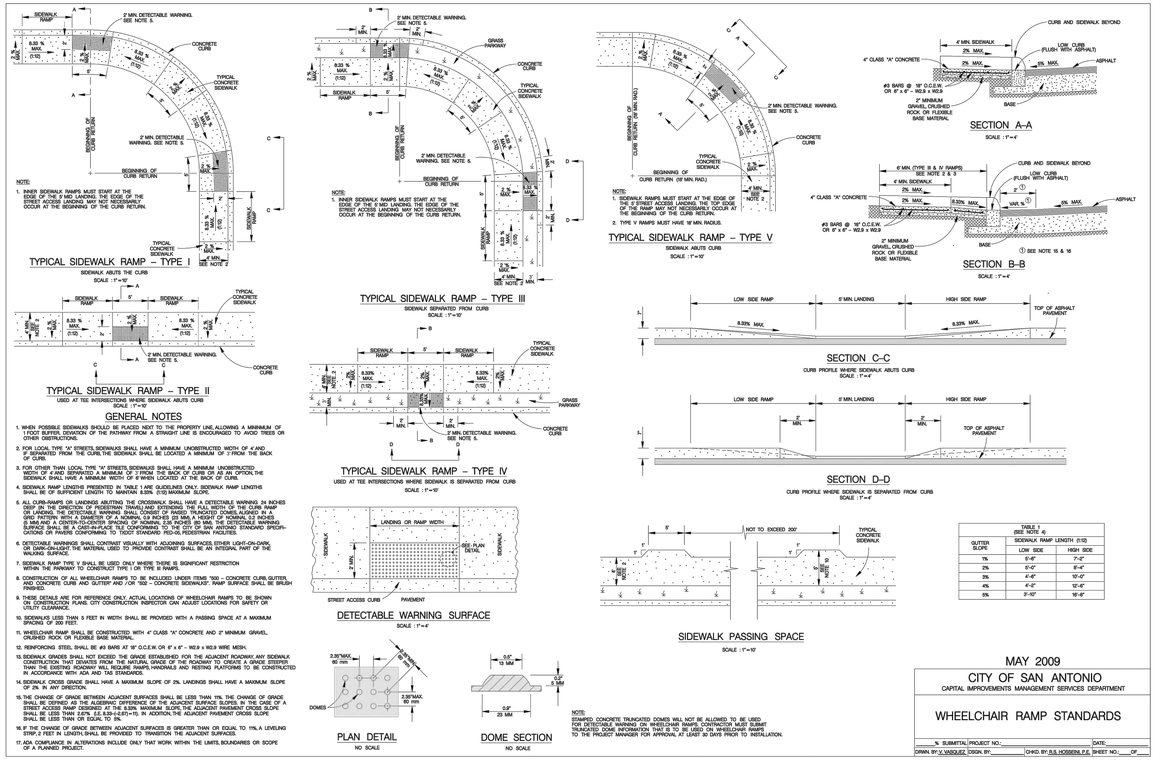
TYPICAL STREET DETAILS

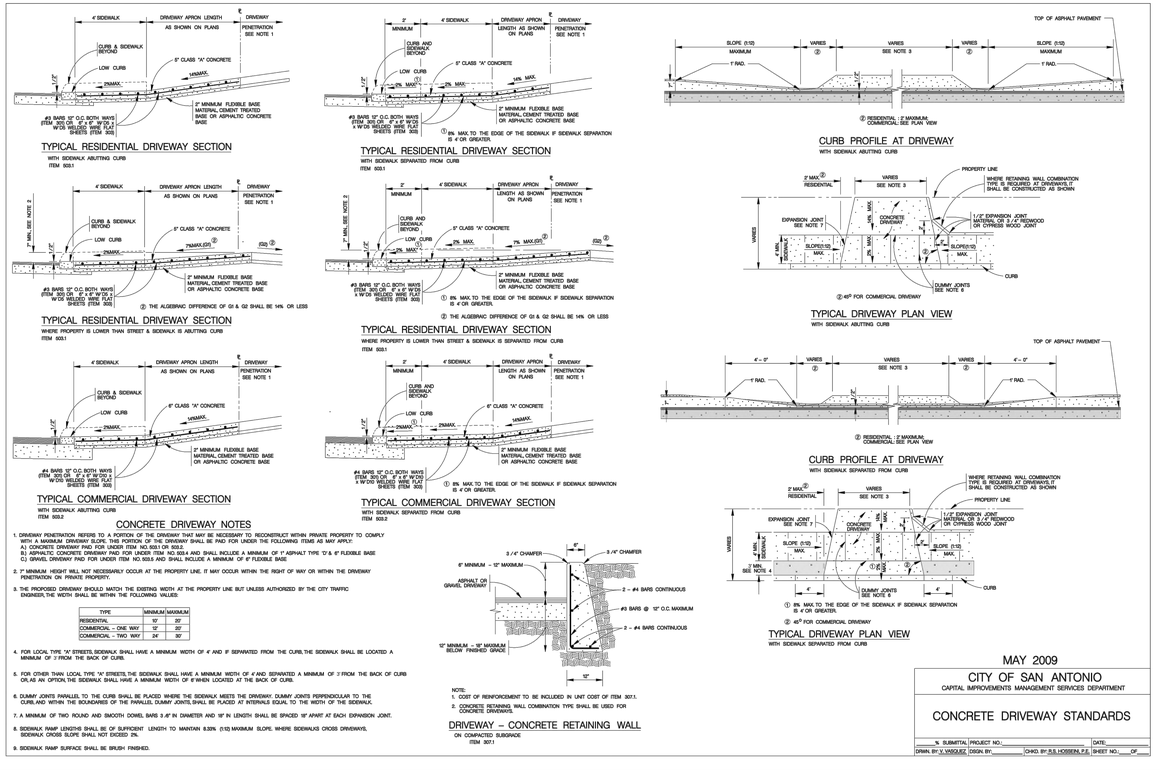
DESIGNED BY:	JWS
DRAWN BY:	AS/JWS
DATE:	4/2/2024
JOB NO.:	05000-300
SHEET NO.	C2.21

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DHI ENGINEERING, LLC.

Date: Apr 02, 2024, 1:04pm User ID: AMiller File: E:_PROJECTS\05000\300\900 - Design\100 - Sheets\C2.21 TYPICAL STREET DETAILS.dwg





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DHI ENGINEERING, LLC.

REV	DATE	DESCRIPTION

DOC. # XXXXXXXXXXX

REDBIRD RANCH UNIT 2M-3

4/2/2024
STATE OF TEXAS
VANCE L. WEYNAND
99269
LICENSED
PROFESSIONAL ENGINEER
Vance Weynand

DHI Engineering, LLC.
5419 N. LOOP 1604 EAST
SAN ANTONIO, TX 78247
(210) 496-8000
TBPE REG. NO. F-19561

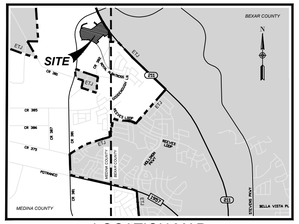
DHI

REDBIRD RANCH UNIT 2M-3
SAN ANTONIO, TX
TYPICAL STREET DETAILS

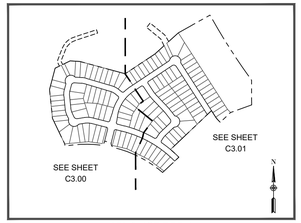
DESIGNED BY:	JWS
DRAWN BY:	AS/JWS
DATE:	4/2/2024
JOB NO.:	05000-300
SHEET NO.	C2.22

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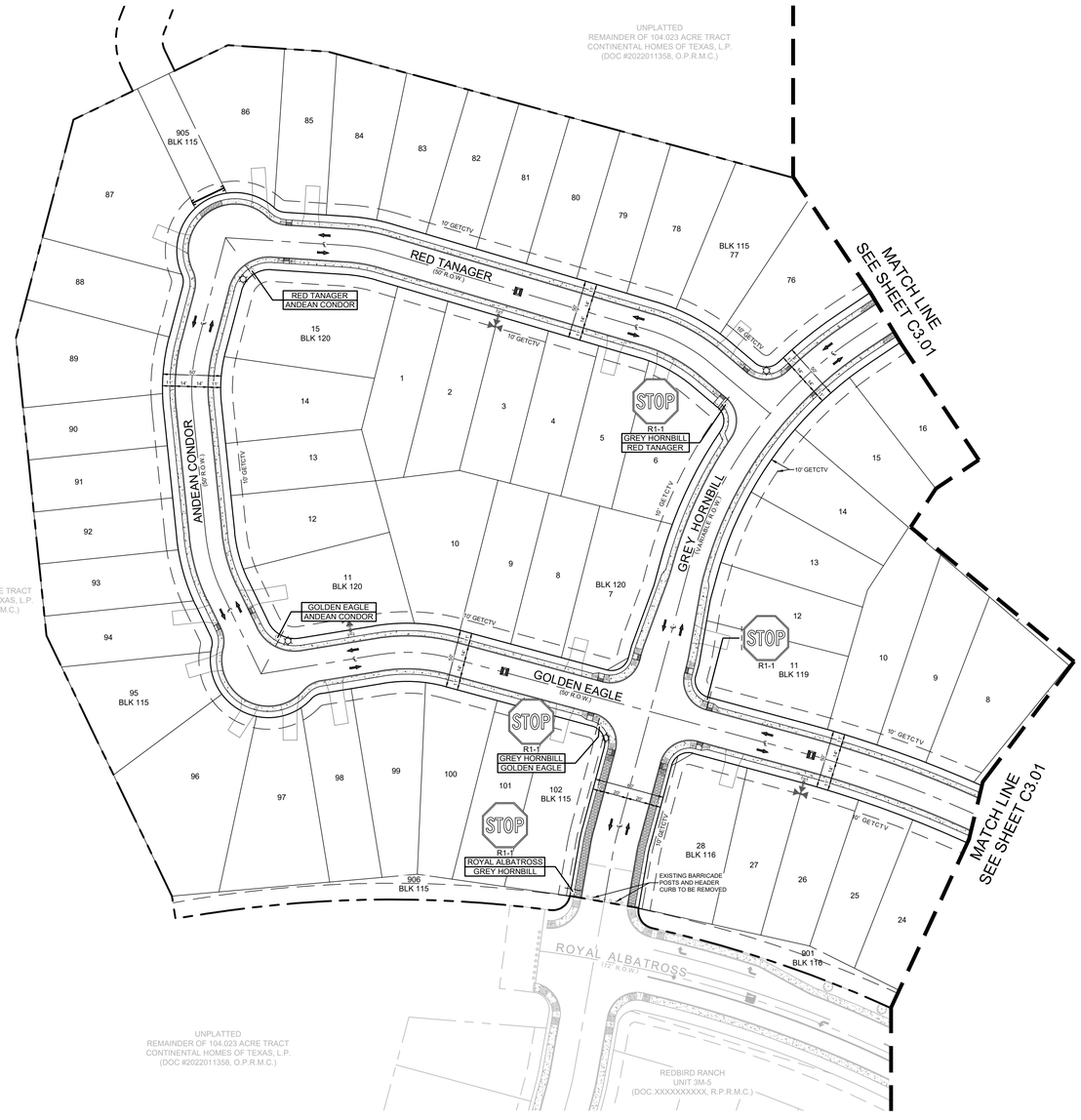
DHI ENGINEERING, LLC.

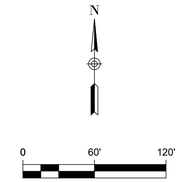


LOCATION MAP
NOT-TO-SCALE



INDEX MAP
NOT-TO-SCALE





LEGEND (SIGNS)

	PROJECT LIMITS
	CURB INLET
STREET NAME 1 / STREET NAME 2	STREET NAMES SIGN ITEM NO. 531.57
STOP R1-1	STOP SIGN (30" X 30") SIGN ITEM NO. 531.3
	TYPE II BLUE PVMT MARKER
	SIDEWALK (DEVELOPER RESPONSIBILITY)
	SIDEWALK (HOMEBUILDER RESPONSIBILITY)
	OM4-3 (531.56) END OF ROAD MARKER
DEAD END W14-1a	DEAD END STREET MARKER SIGN ITEM NO. 531.58

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

CAUTION!!!

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TRENCH EXCAVATION PROTECTION

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

REV	DATE	DESCRIPTION

DOC. # XXXXXXXXXXX

REDBIRD RANCH UNIT 2M-3

5/24/2024
STATE OF TEXAS
VANCE L. WEYNAND
99269
LICENSED
PROFESSIONAL ENGINEER
Vance Weynand

DHI Engineering, LLC.
5419 N. LOOP 1604 EAST
SAN ANTONIO, TX 78247
(210) 494-5858 www.dhiservices.com
TBPE REG. NO. F-19561

DHI

REDBIRD RANCH UNIT 2M-3
SAN ANTONIO, TX

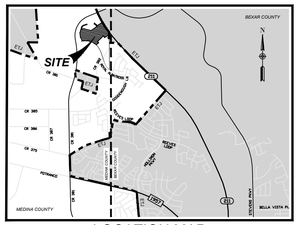
OVERALL SIGNAGE PLAN

DESIGNED BY:	JWS
DRAWN BY:	AS/JWS
DATE:	5/24/2024
JOB NO.:	05000-300
SHEET NO.	C3.00

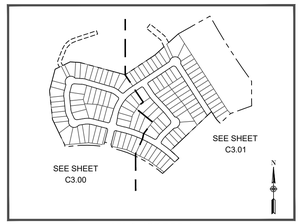
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Date: May 24, 2024, 10:53am User ID: JWilson File: E:_PROJECT\05000-300\900 - Design\930 - Sheets\C3.00 OVERALL SIGNAGE PLAN.dwg

DHI ENGINEERING, LLC.



LOCATION MAP
NOT-TO-SCALE



INDEX MAP
NOT-TO-SCALE



N

0 60' 120'

LEGEND (SIGNS)

	PROJECT LIMITS
	CURB INLET
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STOP R1-1	STOP SIGN (30" X 30") SIGN ITEM NO. 531.3
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	SIDEWALK (DEVELOPER RESPONSIBILITY)
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REV	DATE	DESCRIPTION

DOC. # XXXXXXXXXXX

REDBIRD RANCH UNIT 2M-3

5/24/2024
STATE OF TEXAS
VANCE L. WEYNAND
99269
LICENSED
PROFESSIONAL ENGINEER
Vance Weynand

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SAN ANTONIO, TX 78247
(210) 483-9980 www.dhiservices.com
TBPE REG. NO. F-19561

DHI

REDBIRD RANCH UNIT 2M-3
SAN ANTONIO, TX

OVERALL SIGNAGE PLAN

DESIGNED BY:	JWS
DRAWN BY:	AS/JWS
DATE:	5/24/2024
JOB NO.:	05000-300
SHEET NO.	C3.01

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DHI ENGINEERING, LLC.

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SIGN SUPPORT DESCRIPTIVE CODES

(Descriptive Codes correspond to project estimate and quantities sheets)

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

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

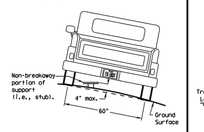
Number of Posts (1 or 2)

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

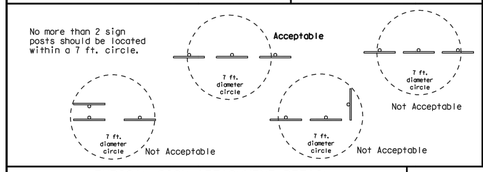
Sign Mounting Designation
- P = Prefab. "Plain" (see SMD(SLIP-1) to (SLIP-3), (TWT), (FRP))
- T = Prefab. "T" (see SMD(SLIP-1) to (SLIP-3), (TWT))
- U = Prefab. "U" (see SMD(SLIP-1) to (SLIP-3))

IF REQUIRED
- (EXT or ZEXT = Number of Extensions (see SMD(SLIP-1) to (SLIP-3), (TWT))
- BM = Extruded W/I Metal Beam (see SMD(SLIP-1) to (SLIP-3))
- W = 1.12 #/ft W/mg Channel (see SMD(SLIP-1) to (SLIP-3))
- EXAL = Extruded Aluminum Sign Panels (see SMD(SLIP-3))

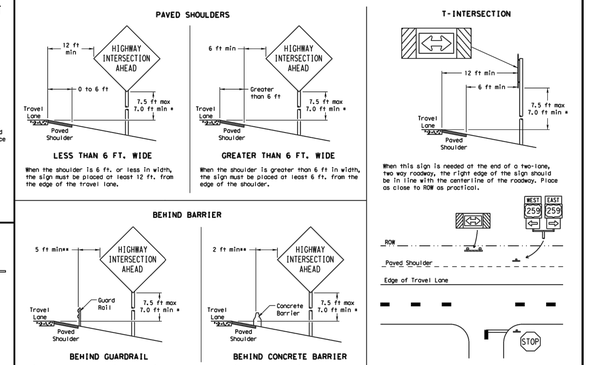
REQUIRED CLEARANCE FOR BREAKAWAY SUPPORT



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



SIGN LOCATION



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

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

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

BEHIND GUARDRAIL

BEHIND CONCRETE BARRIER

**Signs shall clear guardrail or concrete barrier by the minimum distance required for proper guard rail or concrete barrier performance.

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

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

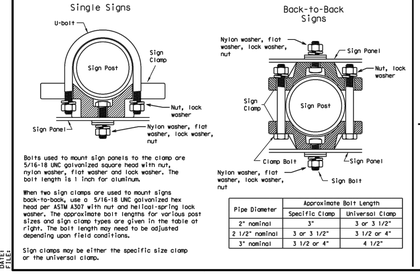
(2) a minimum of 7 to a maximum of 7.5 feet above the grade at the base of the support when sign is installed on the backslope.

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

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

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

TYPICAL SIGN ATTACHMENT DETAIL



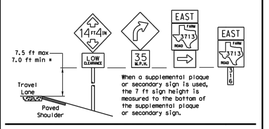
Bolts used to mount sign panels to the clamp are 5/16-18 UNC galvanized square head with nut, nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum.

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

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

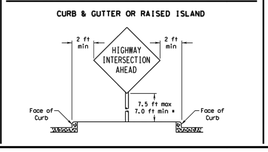
Pipe Diameter	Approximate Bolt Length	
	Specific Clamp	Universal Clamp
2" nominal	3"	3 or 3 1/2"
2 1/2" nominal	3 or 3 1/2"	3 1/2 or 4"
3" nominal	3 1/2 or 4"	4 1/2"

SIGNS WITH PLAQUES



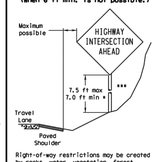
When a supplemental plaque or secondary sign is used, the 7 ft sign height is measured to the bottom of the supplemental plaque or secondary sign.

CURB & GUTTER OR RAISED ISLAND



RESTRICTED RIGHT-OF-WAY

(When 6 ft min. is not possible.)



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

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

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

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS GENERAL NOTES & DETAILS

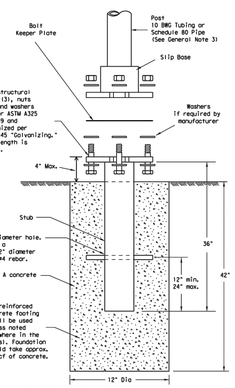
SMD(GEN)-08

©TxDOT July 2002	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
9-08 REVISIONS	CONT	SECT	JOB	HIGHWAY
	DIST	COUNTY		SHEET NO.

DATE/FILE:

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TRIANGULAR SLIPBASE INSTALLATION GENERAL REQUIREMENTS



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

NOTE

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

GENERAL NOTES:

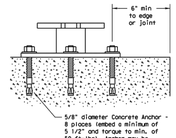
1. Slip base shall be permanently marked to indicate manufacturer. Method, design, and location of marking are subject to approval of the TxDOT Traffic Standards Engineer.
2. Material used as post with this system shall conform to the following specifications:
   10 BWG Tubing (2.875" outside diameter)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

ASSEMBLY PROCEDURE

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

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

CONCRETE ANCHOR



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

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

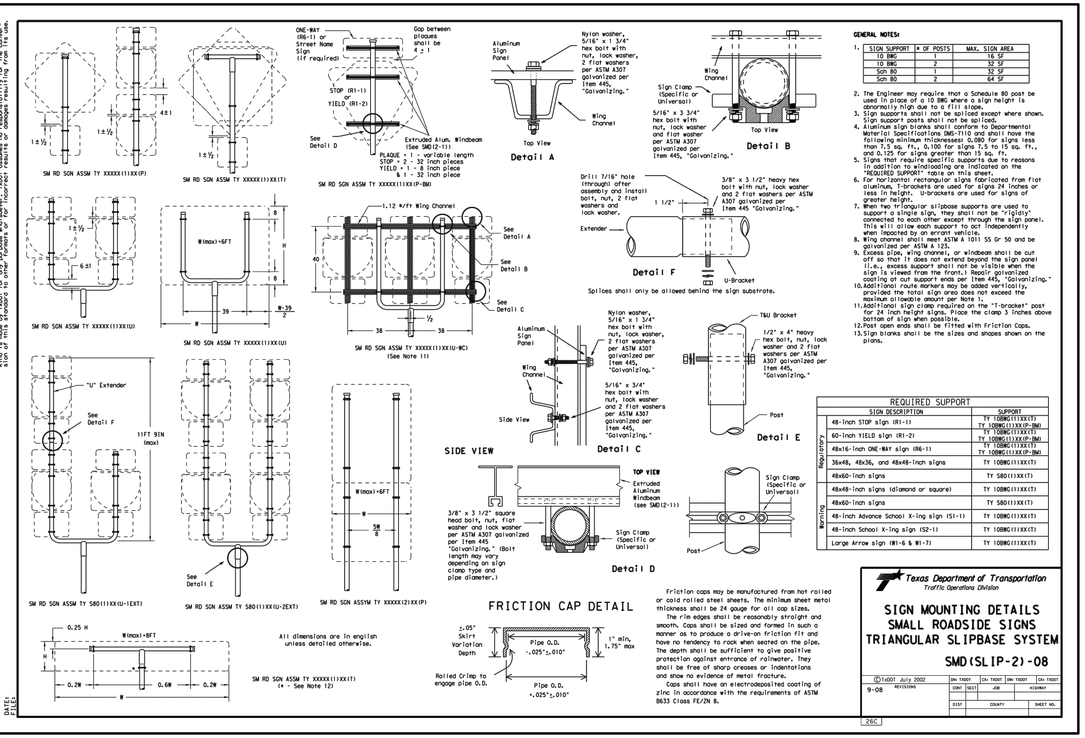
Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-1)-08

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All dimensions are in english unless detailed otherwise.

FRICTION CAP DETAIL

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

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

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

GENERAL NOTES:

1. Sign supports shall not be spliced except where shown.

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

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

	SIGN DESCRIPTION	SUPPORT
Regulatory	48-Inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-Inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-Inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-Inch signs	TY 10BWG(1)XX(T)
	48x60-Inch signs	TY S80(1)XX(T)
	48x48-Inch signs (diamond or square)	TY 10BWG(1)XX(T)
Warning	48x60-Inch signs	TY S80(1)XX(T)
	48-Inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
	48-Inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)

Texas Department of Transportation
Traffic Operations Division

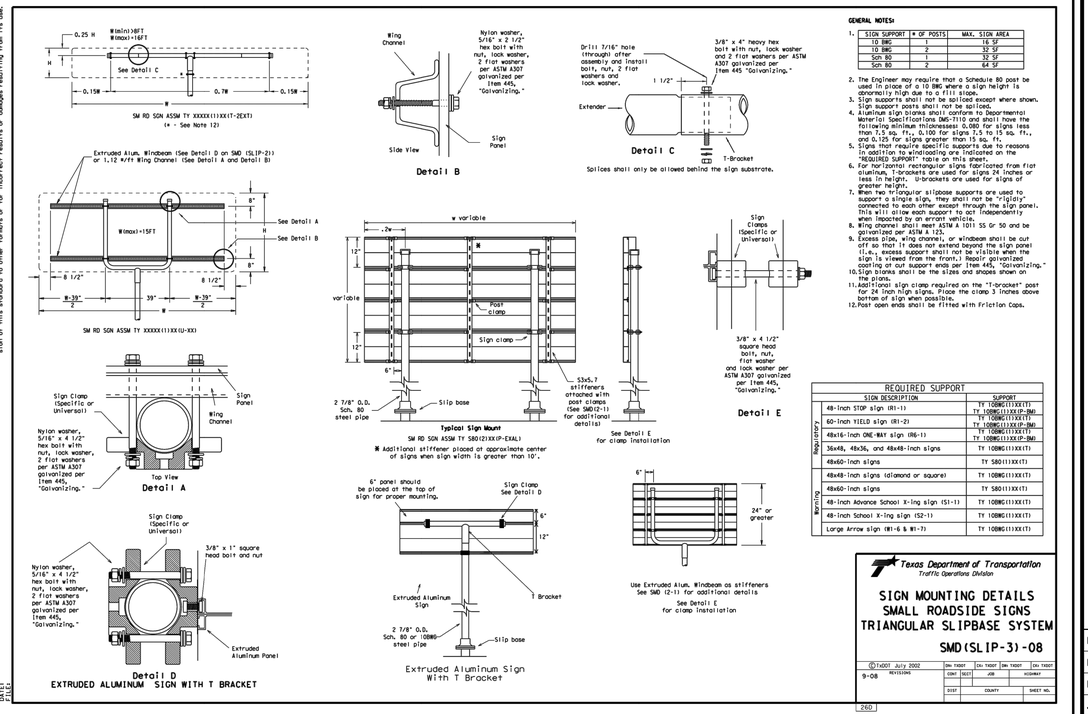
SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-2)-08

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GENERAL NOTES:

1. Sign supports shall not be spliced except where shown.

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

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

	SIGN DESCRIPTION	SUPPORT
Regulatory	48-Inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-Inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-Inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-Inch signs	TY 10BWG(1)XX(T)
	48x60-Inch signs	TY S80(1)XX(T)
	48x48-Inch signs (diamond or square)	TY 10BWG(1)XX(T)
Warning	48x60-Inch signs	TY S80(1)XX(T)
	48-Inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
	48-Inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-3)-08

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DOC. # XXXXXXXXXXX
REDBIRD RANCH UNIT 2M-3

REV	DATE	DESCRIPTION

4/2/2024

STATE OF TEXAS
VANCE L. WEYNAND
99269
LICENSED PROFESSIONAL ENGINEER

Vance Weynand

DHI Engineering, LLC.
5419 N. LOOP 1604 EAST
SAN ANTONIO, TX 78247
(210) 490-4788 www.dhiengineering.com
TBPE REG. NO. F-19561

DHI

REDBIRD RANCH UNIT 2M-3
SAN ANTONIO, TX

TXDOT SIGN MOUNTING DETAILS

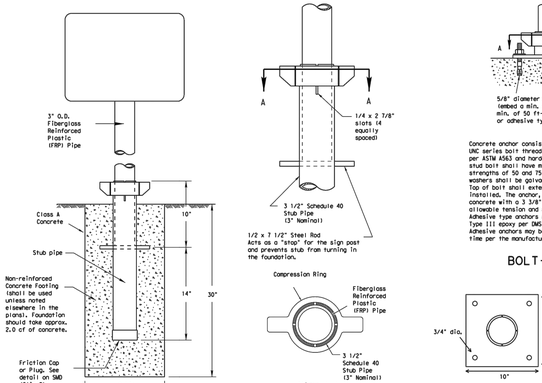
DESIGNED BY:	JWS
DRAWN BY:	AS/JWS
DATE:	4/2/2024
JOB NO.:	05000-300
SHEET NO.	C3.10

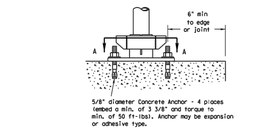
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Universal Anchor System with Fiberglass Reinforced Plastic (FRP) Post

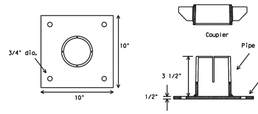




Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. A heavy hex nut per ASTM A563 and hardened washer per ASTM F436. The stud bolt shall have minimum yield and ultimate tensile strengths of 50 and 75 ksi, respectively. Nuts, bolts and washers shall be galvanized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

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

BOLT-DOWN DETAILS



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

GENERAL NOTES:

1. FRP sign supports for a single type sign support may be used for signs up to and including 16 square feet. Dual post installation may be used for signs up to and including 32 square feet.
2. All nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing."
3. See the Traffic Operations Division website for detailed drawings of sign clamps. The website address is: http://www.txdot.gov/publications/traffic.htm

FRP POST REQUIREMENTS

1. Materials shall conform to the requirements of Departmental Material Specification DMS-4410 and will be furnished in a yellow or gray color as specified elsewhere in the plans.
2. Thickness of FRP sign support is 0.125" + 0.031", - 0.0".
3. FRP sign supports are prequalified by the Traffic Operations Division.
   Prequalification procedures are obtained by writing:
   Texas Department of Transportation
   Traffic Operations Division
   125 East 11th Street
   Austin, Texas 78701-2483

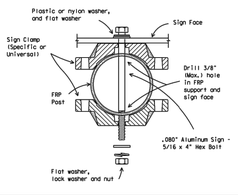
UNIVERSAL ANCHOR SYSTEM INSTALLATION PROCEDURES

1. Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18". When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is encountered, the socket/stub may be reduced in length as required to a minimum length of 18". Any material removed from the socket/stub shall be from the bottom and the clearance requirements given on SMD(GEN) must be followed. The inner surfaces of the socket/stub must remain free of concrete or other debris.
2. The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, motor driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Concrete shall be Class A.
3. Insert base post in foundation hole to depths shown and fill hole with concrete. Cut base post from bottom and ensure a minimum of 18" embedment if installed in solid rock.
4. Level and plumb the base post with coupler using a torpedo level and let concrete set a minimum of 4 days, unless otherwise directed by Engineer. Bottom of base post slots shall be above the concrete footing.
5. Attach sign to FRP post.
6. Insert sign post into base post. Lower until the post comes to rest on the steel rod.
7. Use hammer to ensure the coupler is firmly seated. Top of coupler should be level with top of base post in most instances.
8. Check sign to ensure there is no twist. If loose, increase the tightening of coupler.

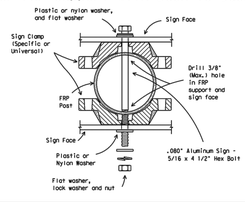
BOLT DOWN SIGN SUPPORT

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

Typical Sign Mounting Detail for FRP Support with Single Sign



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



Texas Department of Transportation
Traffic Operations Division

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

SMD (FRP)-08

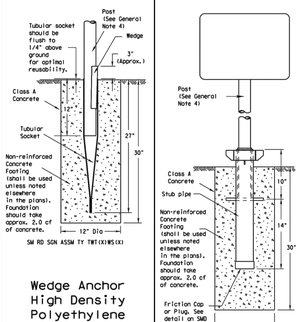
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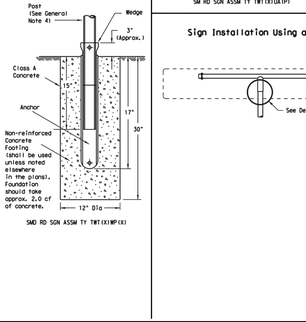
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Wedge Anchor Steel System



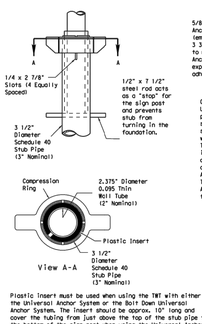
SM RD SGN ASSM TY TWT(X)S(X)

Wedge Anchor High Density Polyethylene (HDPE) System

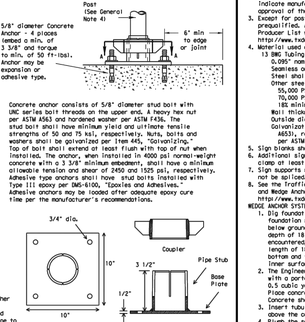


SMD RD SGN ASSM TY TWT(X)MP(X)

Universal Anchor System with Thin-Walled Tubing Post



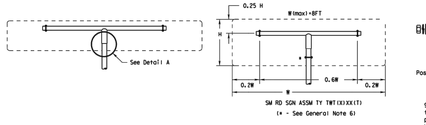
SM RD SGN ASSM TY TWT(X)UA(P)



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

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

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



SM RD SGN ASSM TY TWT(X)XX(T)
(* - See General Note 6)

NOTE

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

GENERAL NOTES:

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

WEDGE ANCHOR SYSTEM INSTALLATION PROCEDURE

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

UNIVERSAL ANCHOR SYSTEM INSTALLATION PROCEDURE

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

Texas Department of Transportation
Traffic Operations Division

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

SMD (TWT)-08

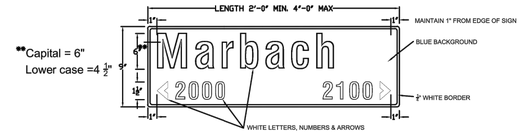
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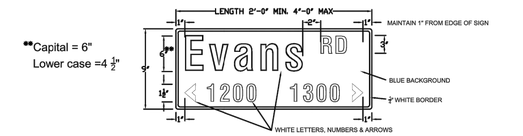
Bexar County Public Works

Street Name Sign Details



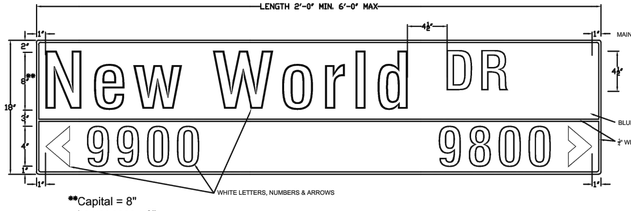
**Capital = 6"
Lower case =4 1/2"

9" GROUND MOUNT STREET NAME SIGNS



**Capital = 6"
Lower case =4 1/2"

9" GROUND MOUNT STREET NAME SIGNS
WITH STREET DESIGNATION

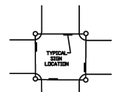


**Capital = 8"
Lower case =6"

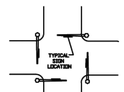
18" OVERHEAD STREET NAME SIGNS

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

✱ ACRYLIC ELECTRONIC CUTTABLE FILM



SPAN WIRE INSTALLATION



MAST ARM INSTALLATION

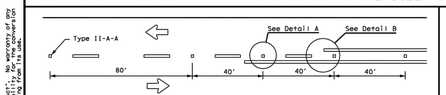
SIGN FACE MATERIALS SHALL CONFORM TO:

1. STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS & BRIDGES ON FEDERAL HIGHWAY PROJECTS - FP-03 U.S. CUSTOMARY UNITS SECTION 718
2. GENERAL SERVICES ADMINISTRATION FEDERAL SPECIFICATIONS L-S-300C
3. ASTM D 4956 - 09e1

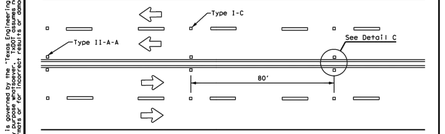
ISSUED ON: ISSUED BY:
REVISED ON: DATE:
FILE No.:

SHEET 1

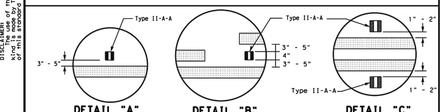
REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE

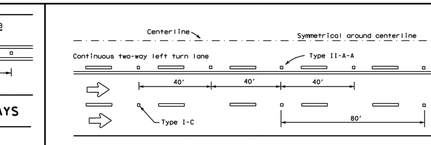


CENTERLINE FOR ALL TWO LANE TWO-WAY ROADWAYS

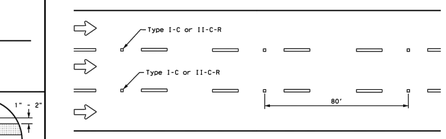


CENTERLINE & LANE LINES FOR FOUR LANE TWO-WAY ROADWAYS





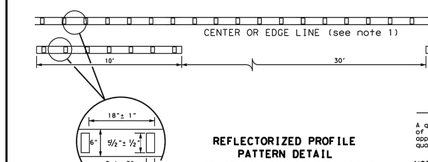
CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE



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

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

See Note 3.



REFLECTORIZED PROFILE PATTERN DETAIL

USING REFLECTIVE PROFILE PAVEMENT MARKERS

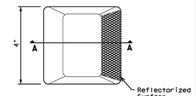
A quick field check for the thickness of base line and profile marking is approximately equal to a stack of 5 quarters to a maximum height of 7 quarters.

NOTES

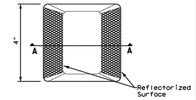
1. Edge lines should typically be 6" wide and the materials shall be specified in the plans.
2. Profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.

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

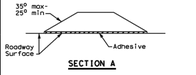
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



Type I (Top View)



Type II (Top View)



SECTION A

RAISED PAVEMENT MARKERS

GENERAL NOTES

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

Texas Department of Transportation
Traffic Safety Division Standard

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

FILE: pm2-22.dgn	DN:	CK:	DW:	CK:
©TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-17 8-00 5-10 9-08 4-92 2-10 12-22 6-00 2-12	DIST	COUNTY		SHEET NO.

DHI ENGINEERING, LLC.

DHI Engineering, LLC.
5419 N. LOOP 1604 EAST
SAN ANTONIO, TX 78247
(210) 764-7900
TBPE REG. NO. F-19561

DHI

REV	DATE	DESCRIPTION

DOC. # XXXXXXXXXX

REDBIRD RANCH UNIT 2M-3

4/2/2024

STATE OF TEXAS
VANCE L. WEYNAND
99269
LICENSED
PROFESSIONAL ENGINEER

Vance Weynand

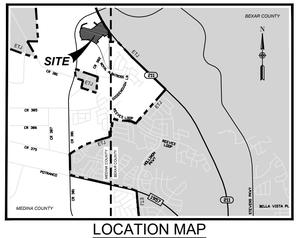
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DRAWN BY: AS/JWS
DATE: 4/2/2024
JOB NO.: 05000-300
SHEET NO.
C3.11

REDBIRD RANCH UNIT 2M-3
SAN ANTONIO, TX

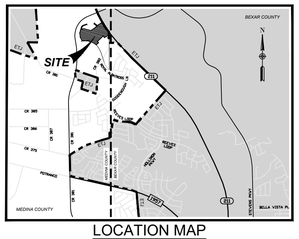
TXDOT SIGN MOUNTING DETAILS

Date: Apr 02, 2024, 4:05pm User ID: AASmar File: E:_PROJECTS\05000\300\900 - Design\300 - Sheets\2317 TXDOT SIGN MOUNTING DETAILS.dwg

DHI ENGINEERING, LLC.

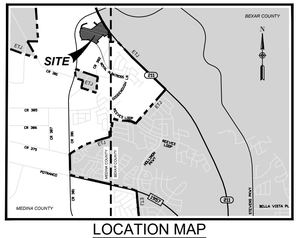

BEXAR COUNTY
MEDINA COUNTY
SITE
N
1604
281
OR 365
OR 366
OR 370
RATTMANN
BULVERDE
BULVERDE ROAD
BULVERDE ROAD
BULVERDE
BULVERDE
BULVERDE

DHI ENGINEERING, LLC.

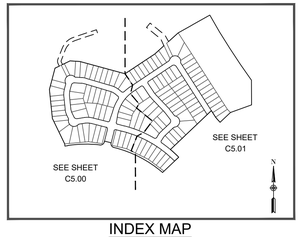

SITE
BEXAR COUNTY
MEDINA COUNTY
SOUTH SAN ANTONIO
BELLA VISTA N
SOUTH SAN ANTONIO
SOUTH SAN ANTONIO
RIVERS EDGE
SOUTH SAN ANTONIO
SOUTH SAN ANTONIO
SOUTH SAN ANTONIO

THIS DOCUMENT HAS BEEN PRODUCED FROM MATERIAL THAT WAS STORED AND/OR TRANSMITTED ELECTRONICALLY AND MAY HAVE BEEN INADVERTENTLY ALTERED. ONLY ONE FINAL HARD COPY MATERIALS BEARING THE CONSULTANT'S ORIGINAL SIGNATURE AND SEAL

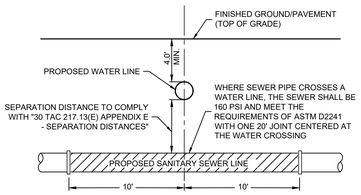
DHI ENGINEERING, LLC.



LOCATION MAP
NOT-TO-SCALE



INDEX MAP
NOT-TO-SCALE



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

TRENCH EXCAVATION PROTECTION

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

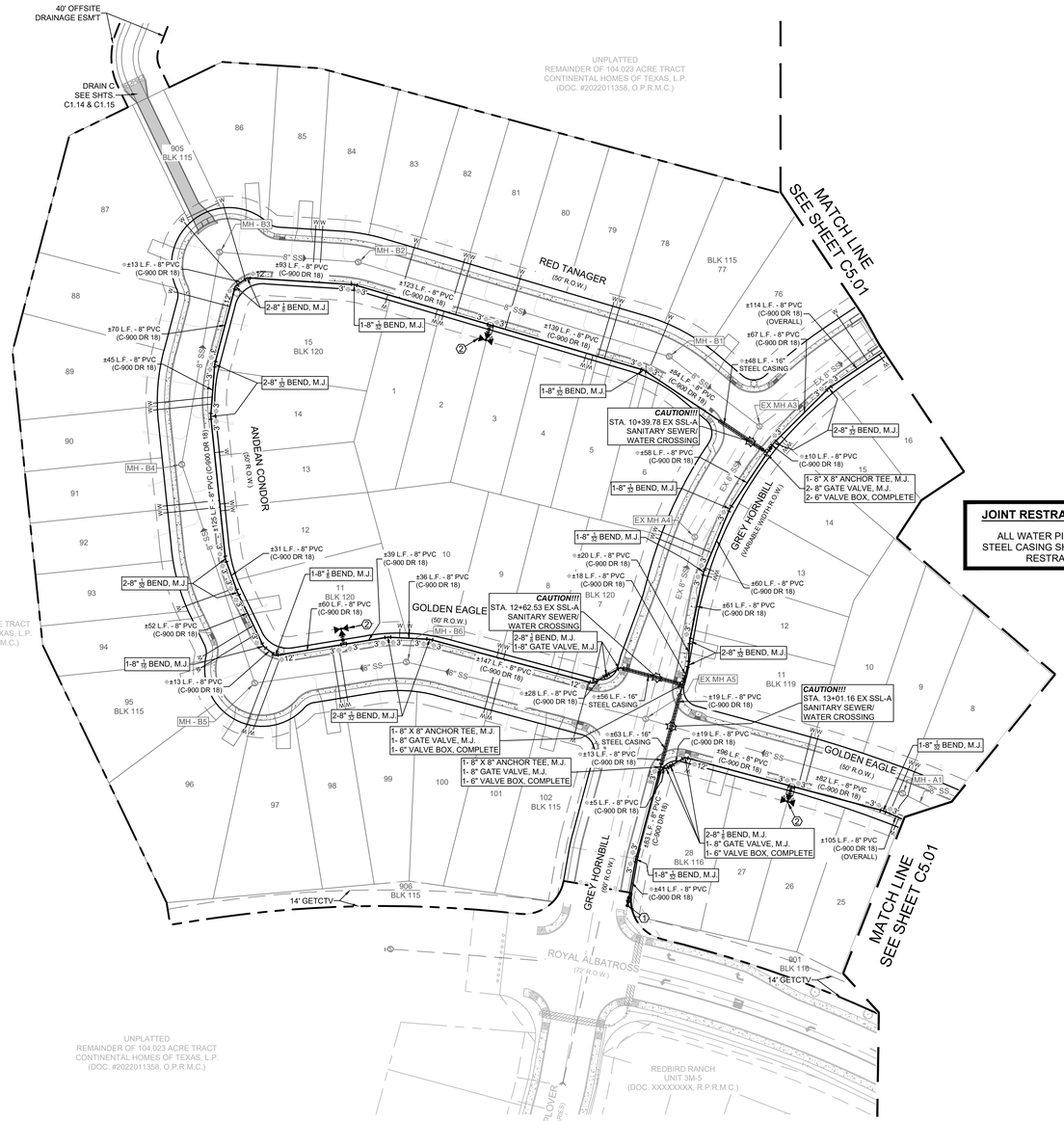
CAUTION!!!

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

N
0 60' 120'

LEGEND (WATER DISTRIBUTION)

	PROJECT LIMITS
	PROPOSED WATER
	PROPOSED SEWER
	EXISTING WATER
	EXISTING SEWER
Ⓜ	MANHOLE
	FIRE HYDRANT
	PROPOSED WYE & LATERAL
	PROPOSED ¾" SINGLE SERVICE WITH ⅝" METER
	PROPOSED 1" DUAL SERVICE WITH ⅝" METER
☼	STREET LIGHT
GETCTV	GAS, ELECTRIC, TELEPHONE & CABLE TELEVISION EASEMENT
⊕6"	JOINT RESTRAINT



JOINT RESTRAINT NOTE !!!

ALL WATER PIPES WITHIN STEEL CASING SHALL BE FULLY RESTRAINED.

ESTIMATED WATER QUANTITIES

ITEM	DESCRIPTION	UNIT	QUANTITY
1	TRENCH PROTECTION	LF	4026
2	8" PIPE, D.I. OR P.V.C. C-900	LF	4026
3	DUAL WATER SERVICE - SHORT	EA	20
4	DUAL WATER SERVICE - LONG	EA	24
5	SINGLE WATER SERVICE - SHORT	EA	13
6	SINGLE WATER SERVICE - LONG	EA	21
7	8" GATE VALVE MJ WITH BOX	EA	11
8	METER BOX	EA	123
9	STANDARD FIRE HYDRANT	EA	6
10	D.I. FITTINGS	TON	4
11	TIE-IN OR TAPPING SLEEVE & VALVE	EA	3
12	HYDROSTATIC TEST	EA	1
13	16" STEEL CASING	LF	290
14	JOINT RESTRAINTS	LS	1
15	TEST STATION	EA	6

FIRE FLOW NOTE:

IN AN EFFORT TO MEET THE CITY OF SAN ANTONIO'S FIRE FLOW REQUIREMENTS FOR THE PROPOSED RESIDENTIAL DEVELOPMENT, THE PUBLIC WATER MAIN SYSTEM HAS BEEN DESIGNED FOR A MINIMUM FIRE FLOW DEMAND OF 1000 GPM AT 25 PSI RESIDUAL PRESSURE. THE FIRE FLOW REQUIREMENTS FOR INDIVIDUAL STRUCTURES WILL BE REVIEWED DURING THE BUILDING PERMIT PROCESS IN ACCORDANCE WITH THE PROCEDURES SET FORTH BY THE CITY OF SAN ANTONIO DIRECTOR OF DEVELOPMENT SERVICES DEPARTMENT AND THE SAN ANTONIO FIRE DEPARTMENT FIRE MARSHAL.

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

PRESSURE NOTE:
CONTRACTOR TO VERIFY THAT NO PORTION OF THE TRACT IS BELOW GROUND ELEVATION OF 985 FEET WHERE THE STATIC PRESSURE WILL NORMALLY EXCEED 80 PSI. AT ALL SUCH LOCATION WHERE THE GROUND LEVEL IS BELOW 985 FEET, THE DEVELOPER OR BUILDER SHALL INSTALL AT EACH LOT, ON THE CUSTOMER'S SIDE OF THE METER, AN APPROVED TYPE PRESSURE REGULATOR IN CONFORMANCE WITH THE PLUMBING CODE OF THE CITY OF SAN ANTONIO. NO DUAL SERVICES ALLOWED FOR ANY LOT(S) IF *PRV IS/ARE REQUIRED FOR SUCH LOT(S), ONLY SINGLE SERVICE CONNECTIONS SHALL BE ALLOWED.

*NOTE: A PRESSURE REGULATOR IS ALSO KNOWN AS A PRESSURE REDUCING VALVE (PRV).

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

①	FOR CHLORINATION INJECTION • 2- 1" CORPORATION STOP, C.C.XI.P • 1- 1" COPPER TUBING, CUT AS REQUITED • 2- 1" COMP. 1 ¼ COUPLING, CORP. STOP • 2- 1 ¼ THD. SOLID CAPS, THR. UPON SUCCESSFUL HYDROSTATIC TESTING, DISINFECTION OF THE NEW MAIN AND ACCEPTANCE BY YANCEY W.S.C., THE CONSTRACTOR SHALL TIE INTO EXISTING 8" WATER MAIN. 1- 2" TEMPORARY BLOWOFF ASSEMBLY (SEE YANCEY DETAIL DWG. W-31 SHEET C5.11)
②	1- STANDARD FIRE HYDRANT 1- 8"X6" ANCHOR TEE, M.J. 6" D.I. PIPE, CUT AS REQ'D 1- 6" ⅛ ANCHOR BEND, M.J. 1- 6" GATE VALVE, M.J. 1- 6 VALVE BOX, COMPLETE (SEE YANCEY DETAIL DWG. W-20 SHEET C5.10) 1-TEST STATION
③	1- 2" PERMANENT BLOWOFF ASSEMBLY (SEE YANCEY DETAIL DWG. W-32 SHEET C5.11)

REV	DATE	DESCRIPTION

DOC. # XXXXXXXXXXX

REDBIRD RANCH UNIT 2M-3

8/5/2024
STATE OF TEXAS
VANCE L. WEYNAND
99269
LICENSED
PROFESSIONAL ENGINEER
Vance Weynand

DHI Engineering, LLC.
5419 N. LOOP 1604 EAST
SAN ANTONIO, TX 78247
(210) 496-8900 www.dhi.com
TBPE REG. NO. F-19561

DHI

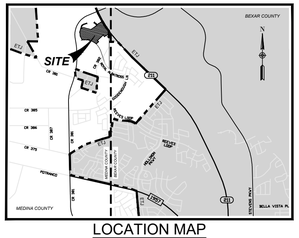
REDBIRD RANCH UNIT 2M-3
SAN ANTONIO, TX

WATER DISTRIBUTION PLAN

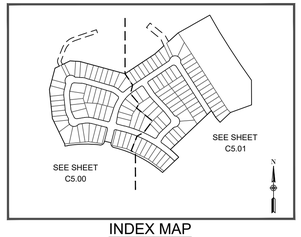
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DRAWN BY:	AS/JWS
DATE:	8/5/2024
JOB NO.:	05000-300
SHEET NO.	C5.00

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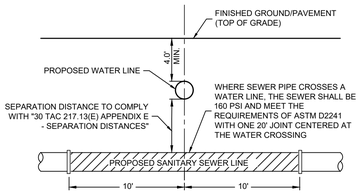
DHI ENGINEERING, LLC.



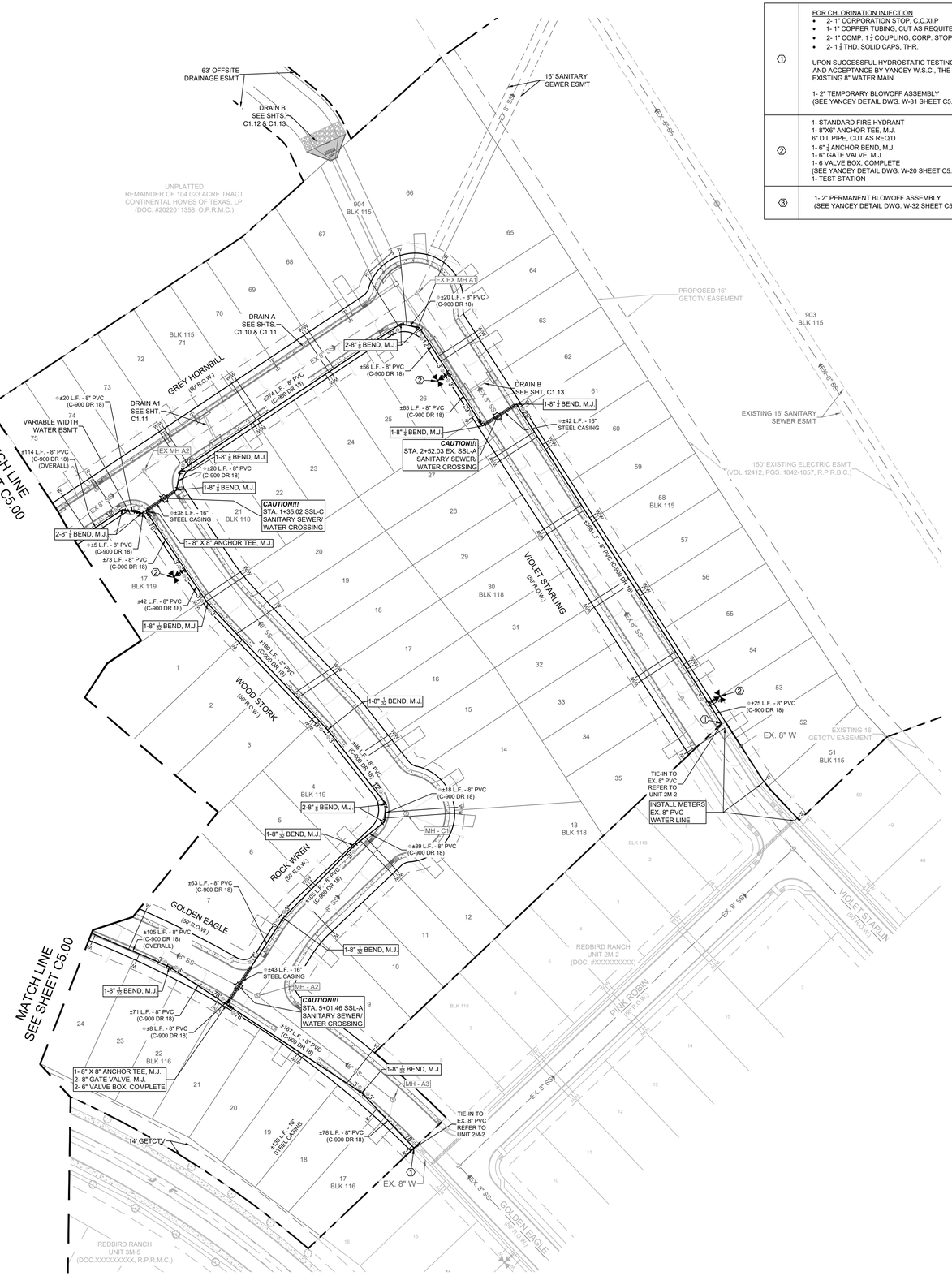
LOCATION MAP
NOT-TO-SCALE



INDEX MAP
NOT-TO-SCALE



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



①	FOR CHLORINATION INJECTION • 2- 1" CORPORATION STOP, C.C.X.I.P • 1- 1" COPPER TUBING, CUT AS REQUITED • 2- 1" COMP. 1 ¼ COUPLING, CORP. STOP • 2- 1 ¼ THD. SOLID CAPS, THR. UPON SUCCESSFUL HYDROSTATIC TESTING, DISINFECTION OF THE NEW MAIN AND ACCEPTANCE BY YANCEY W.S.C., THE CONSTRACTOR SHALL TIE INTO EXISTING 8" WATER MAIN. 1- 2" TEMPORARY BLOWOFF ASSEMBLY (SEE YANCEY DETAIL DWG. W-31 SHEET C5.11)
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③	1- 2" PERMANENT BLOWOFF ASSEMBLY (SEE YANCEY DETAIL DWG. W-32 SHEET C5.11)

N

0 60' 120'

LEGEND (WATER DISTRIBUTION)

	PROJECT LIMITS
	PROPOSED WATER
	PROPOSED SEWER
	EXISTING WATER
	EXISTING SEWER
Ⓜ	MANHOLE
	FIRE HYDRANT
	PROPOSED WYE & LATERAL
	PROPOSED ¾" SINGLE SERVICE WITH ⅝" METER
	PROPOSED 1" DUAL SERVICE WITH ⅝" METER
	STREET LIGHT
GETCTV	GAS, ELECTRIC, TELEPHONE & CABLE TELEVISION EASEMENT
⊕6'	JOINT RESTRAINT

FIRE FLOW NOTE:

IN AN EFFORT TO MEET THE CITY OF SAN ANTONIO'S FIRE FLOW REQUIREMENTS FOR THE PROPOSED RESIDENTIAL DEVELOPMENT, THE PUBLIC WATER MAIN SYSTEM HAS BEEN DESIGNED FOR A MINIMUM FIRE FLOW DEMAND OF 1000 GPM AT 25 PSI RESIDUAL PRESSURE. THE FIRE FLOW REQUIREMENTS FOR INDIVIDUAL STRUCTURES WILL BE REVIEWED DURING THE BUILDING PERMIT PROCESS IN ACCORDANCE WITH THE PROCEDURES SET FORTH BY THE CITY OF SAN ANTONIO DIRECTOR OF DEVELOPMENT SERVICES DEPARTMENT AND THE SAN ANTONIO FIRE DEPARTMENT FIRE MARSHAL.

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

PRESSURE NOTE:
CONTRACTOR TO VERIFY THAT NO PORTION OF THE TRACT IS BELOW GROUND ELEVATION OF 985 FEET WHERE THE STATIC PRESSURE WILL NORMALLY EXCEED 80 PSI. AT ALL SUCH LOCATION WHERE THE GROUND LEVEL IS BELOW 985 FEET, THE DEVELOPER OR BUILDER SHALL INSTALL AT EACH LOT, ON THE CUSTOMER'S SIDE OF THE METER, AN APPROVED TYPE PRESSURE REGULATOR IN CONFORMANCE WITH THE PLUMBING CODE OF THE CITY OF SAN ANTONIO. NO DUAL SERVICES ALLOWED FOR ANY LOT(S) IF *PRV IS/ARE REQUIRED FOR SUCH LOT(S), ONLY SINGLE SERVICE CONNECTIONS SHALL BE ALLOWED.

*NOTE: A PRESSURE REGULATOR IS ALSO KNOWN AS A PRESSURE REDUCING VALVE (PRV).

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

JOINT RESTRAINT NOTE !!!

ALL WATER PIPES WITHIN STEEL CASING SHALL BE FULLY RESTRAINED.

TRENCH EXCAVATION PROTECTION

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

CAUTION!!!

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

THIS DOCUMENT HAS BEEN REPRODUCED FROM MATERIAL THAT WAS STORED AND/OR TRANSMITTED ELECTRONICALLY AND MAY HAVE BEEN INADVERTENTLY ALTERED. RELY ONLY ON FINAL HARD COPY MATERIALS BEARING THE ENGINEER'S PERSONAL SIGNATURE AND SEAL

REV	DATE	DESCRIPTION

DOC. # XXXXXXXXXX

REDBIRD RANCH UNIT 2M-3

8/5/2024
STATE OF TEXAS
VANCE L. WEYNAND
99269
LICENSED
PROFESSIONAL ENGINEER
Vance Weynand

DHI Engineering, LLC.
5419 N. LOOP 1604 EAST
SAN ANTONIO, TX 78247
(210) 494-5585 (210) 494-8900
TBPE REG. NO. F-19561

DHI

REDBIRD RANCH UNIT 2M-3
SAN ANTONIO, TX

WATER DISTRIBUTION PLAN

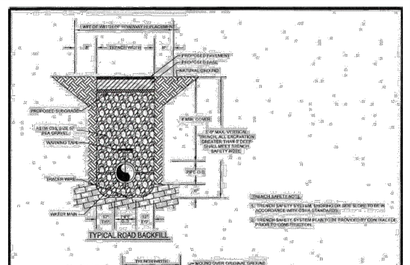
DESIGNED BY:	JWS
DRAWN BY:	AS/JWS
DATE:	8/5/2024
JOB NO.:	05000-300
SHEET NO.	C5.01

Date: Aug 05, 2024, 5:09pm User: ID: 30% File: \\dhiroton.com\dfs-san\JOBS\05000\05300\Engineering_PROJECT\05300\1900 - Design\1300 - Sheets\C5.01 WATER 2M3TB&B1BX P.ANC.dwg

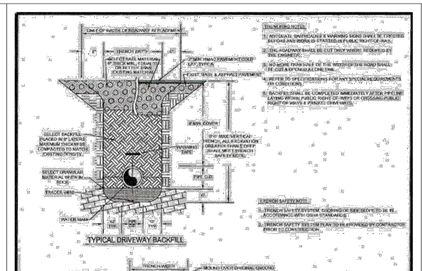
DHI ENGINEERING, LLC.

1. All stages of and longer must be joined with Mega Lug.
2. The valve on a hot tap shall be centered to the hot tap sleeve.
3. All ductile iron fittings, valves, and repair sleeve shall be thrust restrained with mechanical restraining devices.
4. The YWSC Construction Inspector is required to inspect all construction material prior to installation. The Contractor should coordinate with Inspector on construction material submittals.
5. Typically, no valves may be installed under manholes, driveways or conduits.
6. Prior to construction, the Contractor shall coordinate a Pre-Construction Conference with the YWSC Construction Inspector.
7. Typically, no existing water fittings or valves shall be installed unless a public necessity is confirmed.
8. The YWSC Construction Inspector must be present prior to and during disinfection and pressure testing.
9. The Owner will provide water for pressure testing and disinfection testing at currently established rates. Water for other construction purposes may or may not be available. The Owner has shall coordinate with the YWSC Construction Inspector to make all arrangements for water.
10. All water lines (mains and water taps) must be inspected 24-hr before finished grade is achieved. All valves must be under lines installed at or for grade will not be accepted.
11. All water distribution or transmission main fittings must be ductile iron.
12. All bolts on Mechanical Joint fittings and/or Mega Lugs must be wrapped in plastic prior to concrete being poured.
13. Adequate chlorine residuals must be recorded 24 hours before bacteriological samples may be taken.
14. Any contractor taking Yancey water for construction purposes prior to the water meter being installed must have an air gap at the entry point on the end of the fill hose as shown in the section of details.
15. A required water sample must be taken by the Contractor.
16. After final acceptance by Yancey, of the water system improvements, the improvements will become the property of Yancey.
17. Valves and hydrants or services shall maintain a minimum of 12" vertical separation, preferably 24".
18. All valves within 12" from the edge of the curb shall be flushed with or below the curb.
19. Yancey W.S.C. Construction Inspector may, at his discretion, require repair, replacement, or adjustment to comply with YWSC specifications as result in rejection of the work & delay of service until compliance is met.
20. All water lines 4" and smaller shall be ASTM D2241, ADR 21 unless otherwise approved. All water lines 6" and larger shall be AWWA C900 OR 16.
21. All encasement material for water mains, casings or transmission lines shall be steel. Any deviations to this requirement must be approved by YWSC Management.
22. Mains 4" and 6" shall be joined using water lines in a 4 hole.
23. 3"-12" valves shall be Mueller Company A-2360, Series Resilient Wedge MJ ends. No other types of valves shall be installed.
24. Fire hydrants shall be Mueller Company Centurion 250, A-423.
25. Contractor to pressure test water lines to 200 psi for first 15 minutes and 150 psi for the remaining 3 hours and 45 minutes. Maximum loss of 5% of the water used during pressure test.
26. Test Station shall be "Copperhead Brand" Line Side Acceptable Box Type.
27. Each fitting requires a minimum of two (2) joint restraint harness (except mech joint, where applicable).
28. All fittings require Mechanical Joint Restraint and Concrete Thrust Blocking.
29. Fusion Adapters are required between all fittings.
30. Valve stem risers / valve extensions are required on all valves and the extension rod shall be installed within 24" of finished grade.
31. Contractor shall install tracer wire (#14 AWG) to all services, including all water services, terminating inside the meter box.
32. All water service line shall be Municore (PEX) by Rehau.
33. Casing and joints shall meet the American Welding Society (AWS) standards.

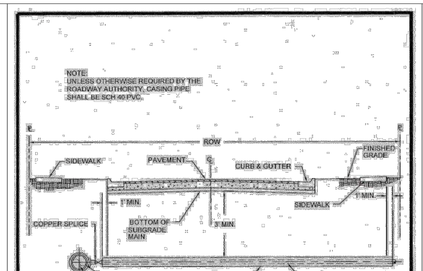
GENERAL CONSTRUCTION NOTES
SCALE : NONE | REV. DATE : 04/19
DWG. W-1
YANCEY W.S.C.
MEDINA COUNTY, TEXAS



TRENCH DETAILS
SCALE : NONE | REV. DATE : 5/12
DWG. W-2
YANCEY W.S.C.
MEDINA COUNTY, TEXAS

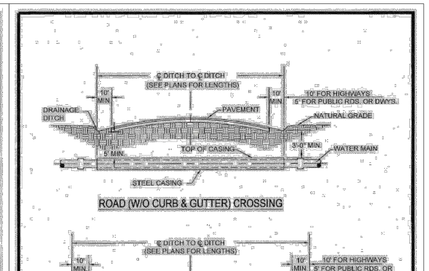


TRENCH DETAILS
SCALE : NONE | REV. DATE : 1/12
DWG. W-3
YANCEY W.S.C.
MEDINA COUNTY, TEXAS



SERVICE LINE
BORING & ENCASEMENT DETAILS-URBAN

METER SERVICE DETAIL
SCALE : NONE | REV. DATE : 08/18
DWG. W-6
YANCEY W.S.C.
MEDINA COUNTY, TEXAS

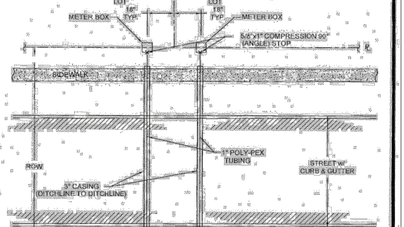


THREADED COUPLING SHALL BE STANDARD WEIGHT OR HEAVIER PIPE CONFORMING TO ASTM A 53 OR OTHER ACCEPTABLE STANDARD SPECIFICATION. STEEL CASING SHALL BE NEW OR USED IN GOOD CONDITION ACCEPTABLE TO YANCEY WATER SUPPLY CORPORATION AND TO THE ROADWAY AUTHORITY.

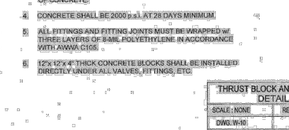
BORING & ENCASEMENT DETAILS
SCALE : NONE | REV. DATE : 2006
DWG. W-7
YANCEY W.S.C.
MEDINA COUNTY, TEXAS

PIPE SIZE	DIMENSION "B" (SQUARE)				
	90° TEES	90° BENDS	45° BENDS	22 1/2° BENDS	VALVES
4"&6"	1'-3"	1'-6"	1'-0"	9"	1'-3"
8"	1'-9"	2'-0"	1'-6"	1'-0"	1'-6"
10"	2'-0"	2'-0"	1'-6"	1'-3"	2'-0"
12"	2'-6"	3'-0"	2'-3"	1'-6"	2'-3"
16"	3'-3"	4'-0"	2'-9"	2'-0"	2'-9"

DIMENSION "A" SHALL BE A MINIMUM OF 1'-0" BUT IS TO BE INCREASED WHERE NECESSARY TO PROVIDE BEARING AGAINST UNDISTURBED TRENCH WALL.



THRUST BLOCK DIMENSIONING DETAIL
SCALE : NONE | REV. DATE : 2/06
DWG. W-8
YANCEY W.S.C.
MEDINA COUNTY, TEXAS

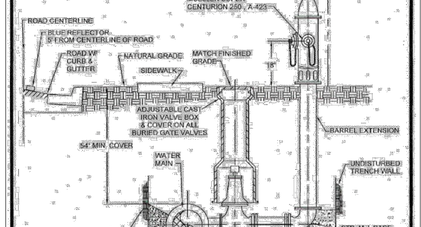


NOTES
1. THE EARTH BEARING SURFACE SHALL BE THE UNDISTURBED TRENCH WALL.
2. ALL PIPE JOINTS SHALL BE KEPT FREE FROM CONCRETE.
3. ALL THRUST BLOCKS SHALL CONTAIN A MINIMUM OF 1 1/2 CUBIC YARDS OF CONCRETE.
4. CONCRETE SHALL BE 2000 p.s.i. AT 28 DAYS MINIMUM.
5. ALL FITTINGS AND FITTING JOINTS MUST BE WRAPPED w/ THREE LAYERS OF 8-MIL POLYETHYLENE IN ACCORDANCE WITH AWWA C105.
6. 12"x 12"x 4" THICK CONCRETE BLOCKS SHALL BE INSTALLED DIRECTLY UNDER ALL VALVES, FITTINGS, ETC.

THRUST BLOCK ANCHORING DETAIL
SCALE : NONE | REV. DATE : 2/06
DWG. W-10
YANCEY W.S.C.
MEDINA COUNTY, TEXAS

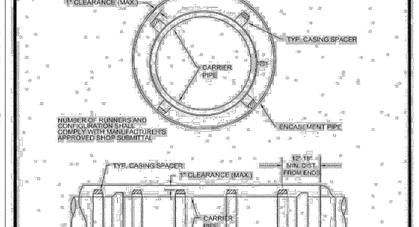
MATERIAL LIST
A. 3/4" BRASS TAP SADDLE FOR SHORT, SINGLE: FORD 202BS
B. 1" BRASS TAP SADDLE FOR LONG, SINGLE: FORD 202BS
C. 3/4" CORP. STOP FOR SHORT, SINGLE: FORD FB1100-3-G-NL
D. 1" CORP. STOP FOR LONG, SINGLE: FORD FB1000-4-GNL
E. 3/4" POLY-PEX (MUNICIPEX PEX by REHAU) TUBING FOR SHORT, SINGLE
F. 1" POLY-PEX (MUNICIPEX PEX by REHAU) TUBING FOR LONG, SINGLE
G. 3/4" ZURN PRESSURE REDUCING VALVE, 3" MODEL (WILL BE INSTALLED BY YANCEY).
H. 5/8" X 3/4" X 3/4" (5/8" X 3/4" FORD COMPRESSION 90° (ANGLE) STOP (WILL BE INSTALLED BY YANCEY).
I. 5/8" X 3/4" X 1" FIP METER (WILL BE PROVIDED BY YANCEY).
J. DUAL CHECK VALVE FORD HHCDS-323 WITH SWIVEL COUPLING NUT (WILL BE INSTALLED BY YANCEY).
K. 3/4" APOLLO BALL VALVE, FEMALE IP, FORD SV4-04-G (WILL BE INSTALLED BY YANCEY).
L. CUSTOMER SERVICE LINE METERING PLUMBING CODE REQUIREMENTS (WILL BE PROVIDED BY CUSTOMER).
M. PLASTIC METER BOX w/ LID - FORD B1400122-L (SOLID) OR (LEAD).
N. 3" SCH 40 PVC PIPE FOR LONG SERVICES.
O. 3/4" STAINLESS STEEL INSERTS, FORD SS, SHORT, SINGLE
P. STAINLESS STEEL INSERTS, FORD SS, LONG

NOTE: CONTRACTOR SHALL PROVIDE ITEMS D, G, & H FOR INSTALLATION BY YANCEY AS PART OF THE CONSTRUCTION CONTRACT.

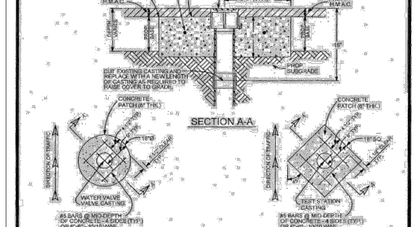


METER SERVICE

METER SERVICE DETAIL
SCALE : NONE | REV. DATE : 04/19
DWG. W-11
YANCEY W.S.C.
MEDINA COUNTY, TEXAS



METER SERVICE DETAIL
SCALE : NONE | REV. DATE : 08/18
DWG. W-13
YANCEY W.S.C.
MEDINA COUNTY, TEXAS



NOTE:
UNLESS OTHERWISE REQUIRED BY THE ROADWAY AUTHORITY, CASING PIPE SHALL BE SCH 40 PVC.

METER SERVICE DETAIL
SCALE : NONE | REV. DATE : 04/19
DWG. W-14
YANCEY W.S.C.
MEDINA COUNTY, TEXAS

NOTE
UNLESS OTHERWISE REQUIRED BY THE ROADWAY AUTHORITY, CASING PIPE SHALL BE SCH 40 PVC.

METER SERVICE DETAIL
SCALE : NONE | REV. DATE : 04/19
DWG. W-15
YANCEY W.S.C.
MEDINA COUNTY, TEXAS

NOTES:
ALL BURIED METAL PIPE & FITTINGS SHALL HAVE THREE LAYERS OF 8-MIL POLYETHYLENE WRAP, AWWA C105

FLUSH VALVE DETAIL ON 6" & LARGER MAIN (RURAL)
SCALE : NONE | REV. DATE : 04/19
DWG. W-16
YANCEY W.S.C.
MEDINA COUNTY, TEXAS

FIRE HYDRANT DETAIL (URBAN)
SCALE : NONE | REV. DATE : 3/20
DWG. W-20
YANCEY W.S.C.
MEDINA COUNTY, TEXAS

*NOTES
1. MINIMUM OF 4 SPACERS PER EVERY 20' JOINT OF PIPE.
2. CASING WELD JOINTS MUST MEET THE AMERICAN WELDING SOCIETY (AWS) STANDARDS AND IT-IE STANDARD WELDING PROCEDURES SPECIFICATIONS (SWPS).

CASING SPACER DETAIL
SCALE : NONE | REV. DATE : 06/21
DWG. W-35
YANCEY W.S.C.
MEDINA COUNTY, TEXAS

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REDBIRD RANCH UNIT 2M-3

4/2/2024
STATE OF TEXAS
VANCE L. WEYMAND
99269
LICENSED PROFESSIONAL ENGINEER
Vance Weymand

DHI Engineering, LLC.
5419 N. LOOP 1604 EAST
SAN ANTONIO, TX 78247
(210) 490-4333 www.dhi.com
TBPE REG. NO. F-19561

DHI

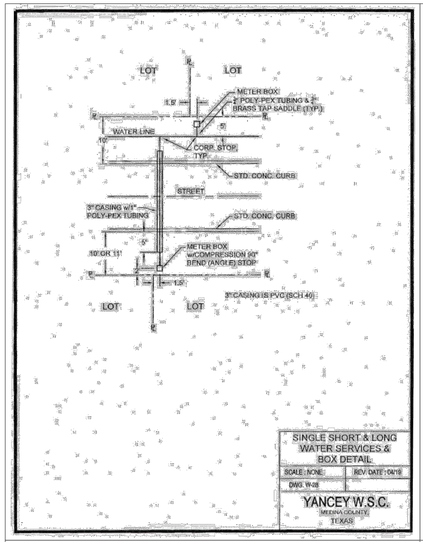
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DRAWN BY:	AS/JWS
DATE:	4/2/2024
JOB NO.:	05000-300
SHEET NO.	C5.10

REDBIRD RANCH UNIT 2M-3
SAN ANTONIO, TX

WATER DISTRIBUTION NOTES & DETAILS

Date: Apr 02, 2024 5:09pm User ID: AllDwr File: E:_PROJECTS\05000\300\900 - Design\430 - Sheets\C5.10 WATER DISTRIBUTION NOTES & DETAILS.dwg

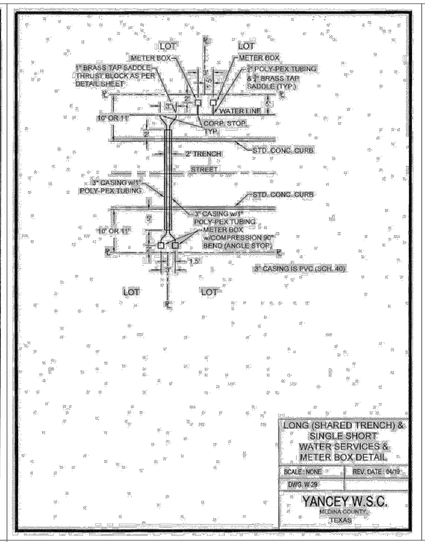
DHI ENGINEERING, LLC.



SINGLE SHORT & LONG WATER SERVICES & BOX DETAIL

SCALE : NONE	REV. DATE : 04/19
DWG. W-28	

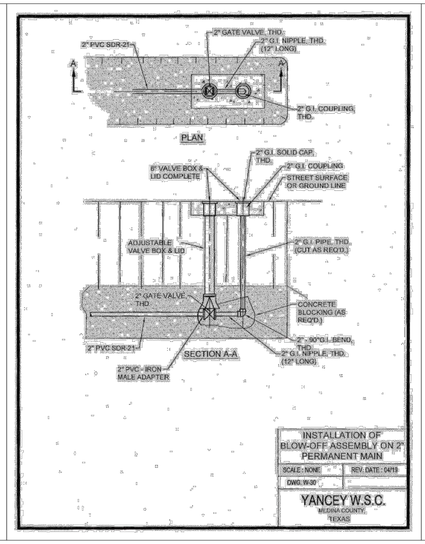
YANCEY W.S.C.
MEDINA COUNTY, TEXAS



LONG (SHARED TRENCH) & SINGLE SHORT WATER SERVICES & METER BOX DETAIL

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DWG. W-29	

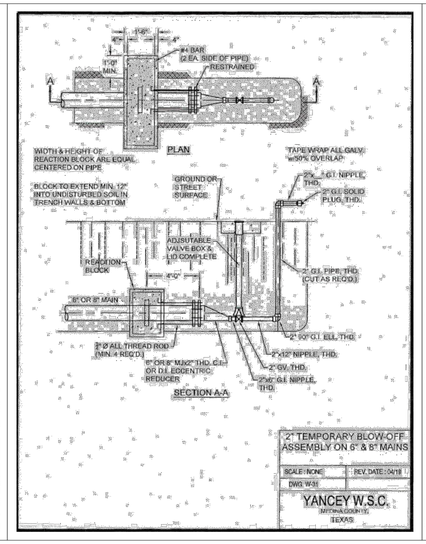
YANCEY W.S.C.
MEDINA COUNTY, TEXAS



INSTALLATION OF BLOW-OFF ASSEMBLY ON 2" PERMANENT MAIN

SCALE : NONE	REV. DATE : 04/19
DWG. W-30	

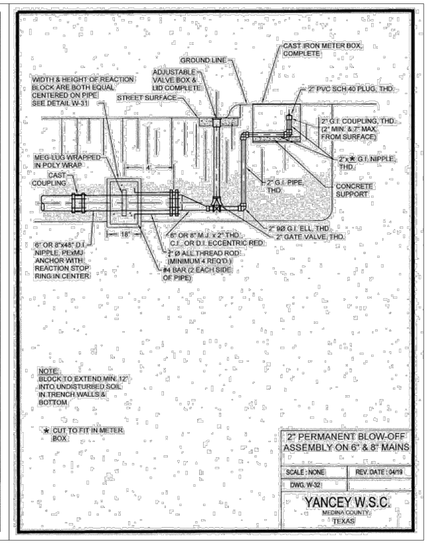
YANCEY W.S.C.
MEDINA COUNTY, TEXAS



2" TEMPORARY BLOW-OFF ASSEMBLY ON 6" & 8" MAINS

SCALE : NONE	REV. DATE : 04/19
DWG. W-31	

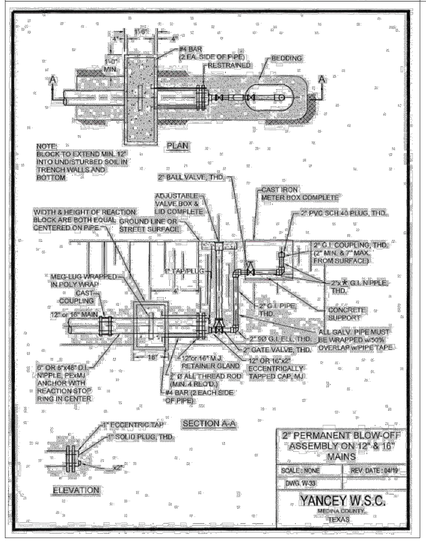
YANCEY W.S.C.
MEDINA COUNTY, TEXAS



2" PERMANENT BLOW-OFF ASSEMBLY ON 6" & 8" MAINS

SCALE : NONE	REV. DATE : 04/19
DWG. W-32	

YANCEY W.S.C.
MEDINA COUNTY, TEXAS



2" PERMANENT BLOW-OFF ASSEMBLY ON 12" & 16" MAINS

SCALE: NONE	REV. DATE : 04/19
DWG. W-33	

YANCEY W.S.C.
MEDINA COUNTY, TEXAS

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DOC. # XXXXXXXXXX

REDBIRD RANCH UNIT 2M-3

4/2/2024

STATE OF TEXAS
VANCE L. WEYNAND
99269
LICENSED PROFESSIONAL ENGINEER

Vance Weynand

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5419 N. LOOP 1604 EAST
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(210) 496-8900 FAX (210) 496-8901
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DHI

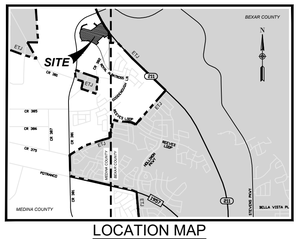
REDBIRD RANCH UNIT 2M-3
SAN ANTONIO, TX

WATER DISTRIBUTION DETAILS

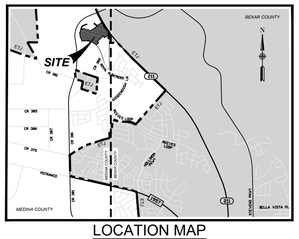
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DATE:	4/2/2024
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Date: Apr 02, 2024, 1:09pm User ID: AMSteer File: E:_PROJECT\05000\300\900 - Design\300 - Sheets\C5.11 WATER DISTRIBUTION DETAILS.dwg

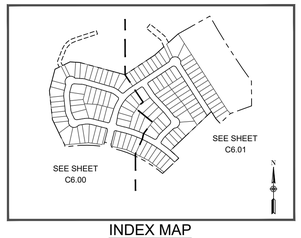
DHI ENGINEERING, LLC.



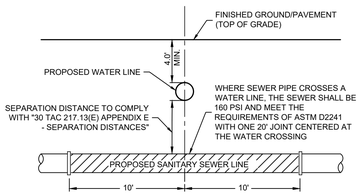
DHI ENGINEERING, LLC.



LOCATION MAP
NOT-TO-SCALE



INDEX MAP
NOT-TO-SCALE



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

SEWER NOTES

1. ALL RESIDENTIAL SEWER SERVICE LATERALS ARE 6" DIA. AND SHALL BE EXTENDED TO 10' PAST THE PROPERTY LINE AND CAPPED AND SEALED. CONTRACTOR SHALL INSTALL A 2" X 4" STAKE, FOUR FEET LONG AND 2 FEET DEEP INTO THE GROUND AT THE END OF EACH SERVICES. NO SEPARATE PAY ITEM.
2. CONTRACTOR TO INSTALL CLEANOUTS AT THE END OF ALL SEWER LATERALS, PER LATERAL DETAIL SHEET C6.21.
3. NO VERTICAL STACKS ALLOWED FOR ANY LOTS UNLESS OTHERWISE SPECIFIED BY THE ENGINEER.
4. ALL 6" SEWER LATERALS WILL BE SET AT 2% GRADE FROM THE MAIN TO THE PROPERTY LINE.
5. WHEN HORIZONTAL DISTANCE BETWEEN SEWER PIPES AND WATER MAIN IS LESS THAN 9 FOOT SEPARATION, SEWER MAIN SHALL BE INSTALLED WITH 150 PSI (MIN) PRESSURE PIPE AND FITTINGS IN ACCORDANCE WITH SAWS CONSTRUCTION CRITERIA FOR CONSTRUCTION OF SEWER MAINS IN THE VICINITY OF WATER MAINS.
6. CONTRACTOR SHALL ENSURE THAT MANHOLES OUTSIDE OF PAVED AREAS ARE SET WITH TOP ELEVATION 6" ABOVE FINISHED GRADE WITH CONCRETE RING ENCASEMENT.
7. ALL SEWER PIPES SHALL BE 8" PVC(SDR 26), UNLESS OTHERWISE NOTED.
8. CONTRACTOR IS TO VERIFY EXISTING INVERT OF EXISTING SANITARY SEWER MAINS AND ALERT ENGINEER IMMEDIATELY OF ANY DIFFERENCE FROM INVERT SHOWN ON PLANS.
9. CONTRACTOR SHALL PROTECT ALL EXISTING FENCES, ANY FENCE DAMAGE BY THE CONTRACTOR SHALL BE REPAIRED BY THE CONTRACTOR AT THEIR EXPENSE.
10. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES WHETHER SHOWN ON THE PLANS OR NOT. THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES PRIOR TO CONSTRUCTION TO VERIFY SIZE, GRADE, AND LOCATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DEVIATIONS FROM PLANS PRIOR TO BEGINNING CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR, AT HIS EXPENSE.
11. CONCRETE RING ENCASEMENT TO BE INSTALLED ON ALL MANHOLES AND, WITHIN LIMITS OF PLACEMENT, BE INSTALLED TO THE TOP OF THE BASE LAYER WITH A MINIMUM OF 2" OF ASPHALT ON TOP OF THE RING ENCASEMENT.
12. MANHOLE OPENING INCREASED TO 630" AS PER TAC CHAPTER 217.55.
13. ALL SEWER PIPE LATERALS SHALL BE SDR 26 (CLASS 160) PVC PIPE.
14. IF THE GIVEN TOP OF MANHOLE ELEVATION DOES NOT AGREE ON ACTUAL GROUND SURFACE OR FINISHED PAVEMENT, THE CONTRACTOR SHALL ADJUST ELEVATIONS SUCH THAT THE TOP OF THE MANHOLE SHALL BE 0.5' ABOVE EXISTING GROUND, OR FLUSH TO FINISH ASPHALT PAVEMENT.
15. ALL MANHOLES CONSTRUCTED OVER THE EDWARDS AQUIFER RECHARGE ZONE SHOULD BE WATERTIGHT.

FINISHED FLOOR NOTES:

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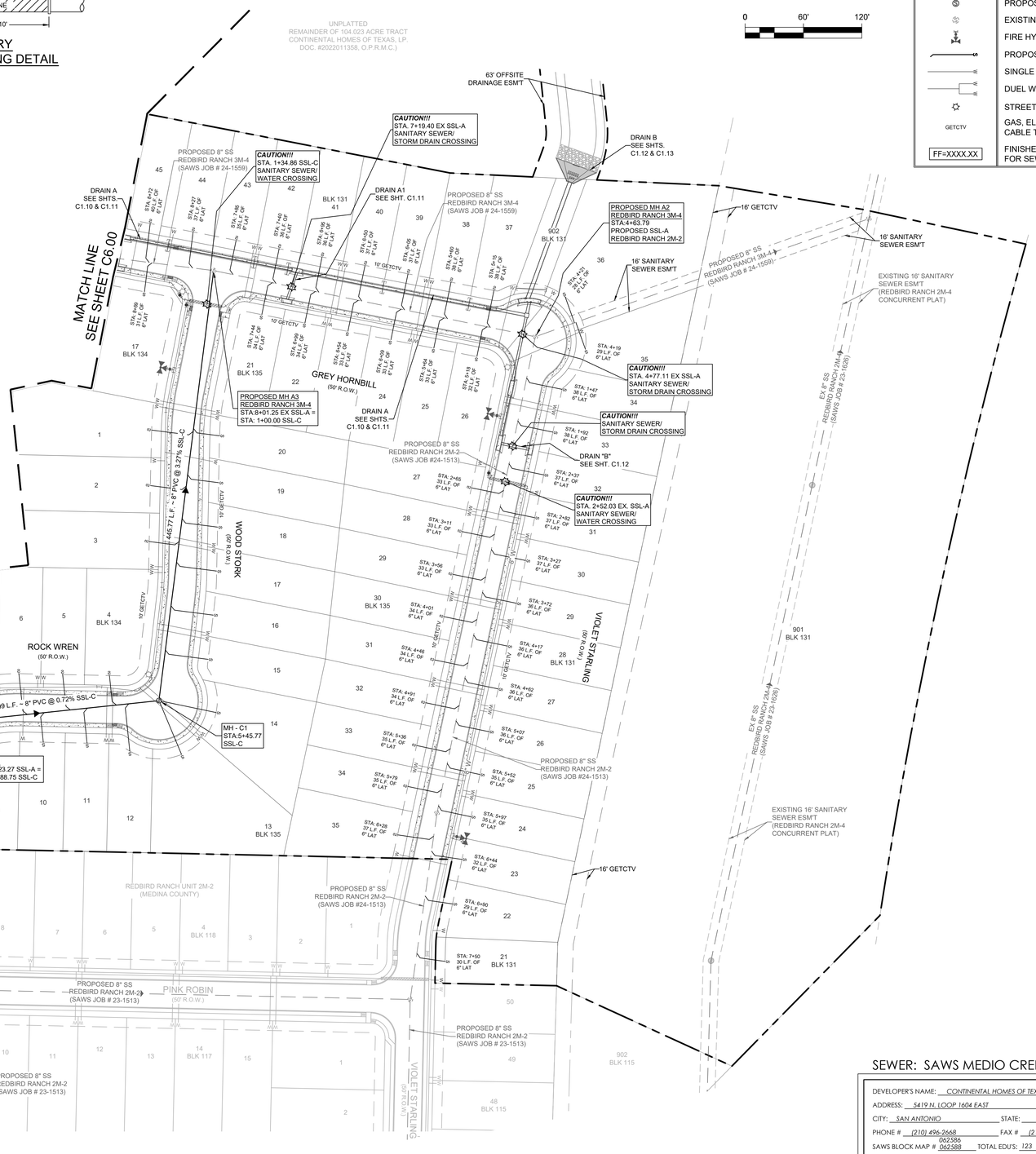
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LEGEND (SANITARY SEWER)

	PROJECT LIMITS
	OFFSITE EASEMENT
	PROPOSED WATER
	PROPOSED 2" HDPE WATER
	PROPOSED SEWER
	EXISTING WATER
- EX. 8" SSL -	EXISTING SANITARY SEWER LINE
Ⓜ	PROPOSED MANHOLE
Ⓜ	EXISTING MANHOLE
	FIRE HYDRANT
	PROPOSED WYE & LATERAL
	SINGLE WATER SERVICE
	DUEL WATER SERVICE
	STREET LIGHT
GETCTV	GAS, ELECTRIC, TELEPHONE & CABLE TELEVISION EASEMENT
FF=XXXX.XX	FINISHED FLOOR ELEVATION FOR SEWER

SEWER: SAWS MEDIO CREEK WRC

DEVELOPER'S NAME: CONTINENTAL HOMES OF TEXAS, L.P.
ADDRESS: 5419 N. LOOP 1604 EAST
CITY: SAN ANTONIO STATE: TEXAS ZIP: 78247
PHONE #: (210) 496-2668 FAX #: (210) 496-2668
SAWS BLOCK MAP # 062586 / 062588 TOTAL EDU'S: 123 TOTAL ACREAGE: 30.691
TOTAL LINEAR FOOTAGE OF PIPE: 2,527 L.F. (8") DOC. NO: (MEDINA COUNTY)
NUMBER OF LOTS: 123 SAWS JOB NO: 24-1535

REV	DATE	DESCRIPTION

REDBIRD RANCH UNIT 2M-3 DOC. # XXXXXXXXXXXX

11/15/2024

STATE OF TEXAS
VANCE L. WEYNAND
99269
LICENSED
PROFESSIONAL ENGINEER

Vance Weynand

DHI Engineering, LLC.
5419 N. LOOP 1604 EAST
SAN ANTONIO, TX 78247
(210) 496-2668 PHONE
TBPE REG. NO. F-19561

DHI

REDBIRD RANCH UNIT 2M-3
SAN ANTONIO, TX

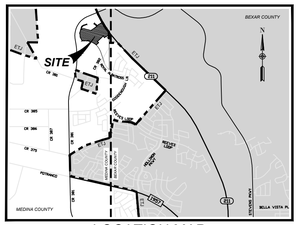
OVERALL SANITARY SEWER PLAN

DESIGNED BY:	JWS
DRAWN BY:	AS/JWS
DATE:	11/15/2024
JOB NO.:	05000-300
SHEET NO.	C6.01

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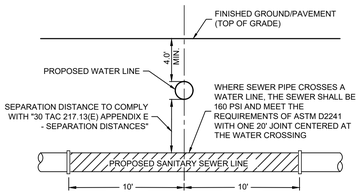
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DHI ENGINEERING, LLC.



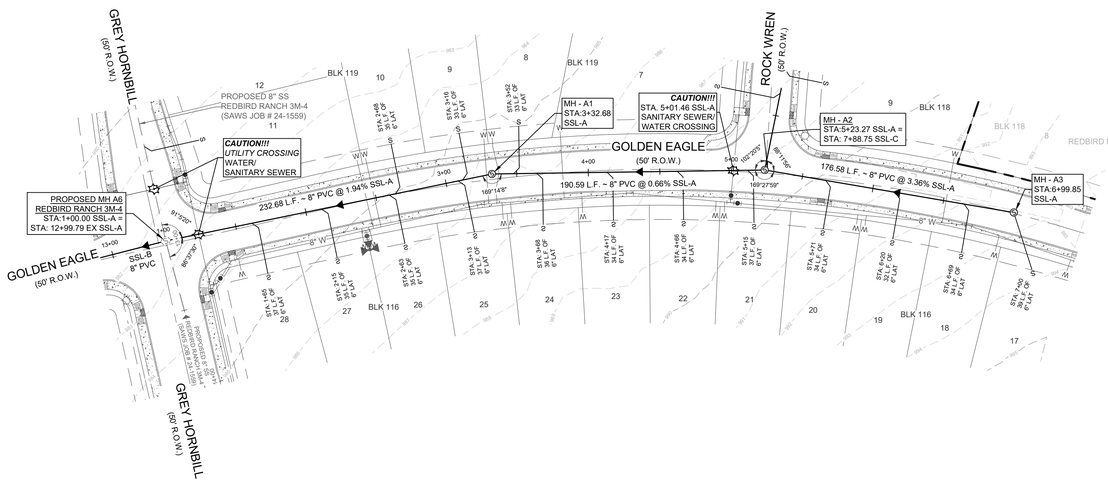
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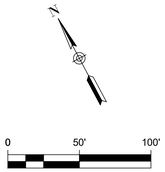
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TYPICAL SANITARY
SEWER/WATER CROSSING DETAIL

NOT-TO-SCALE



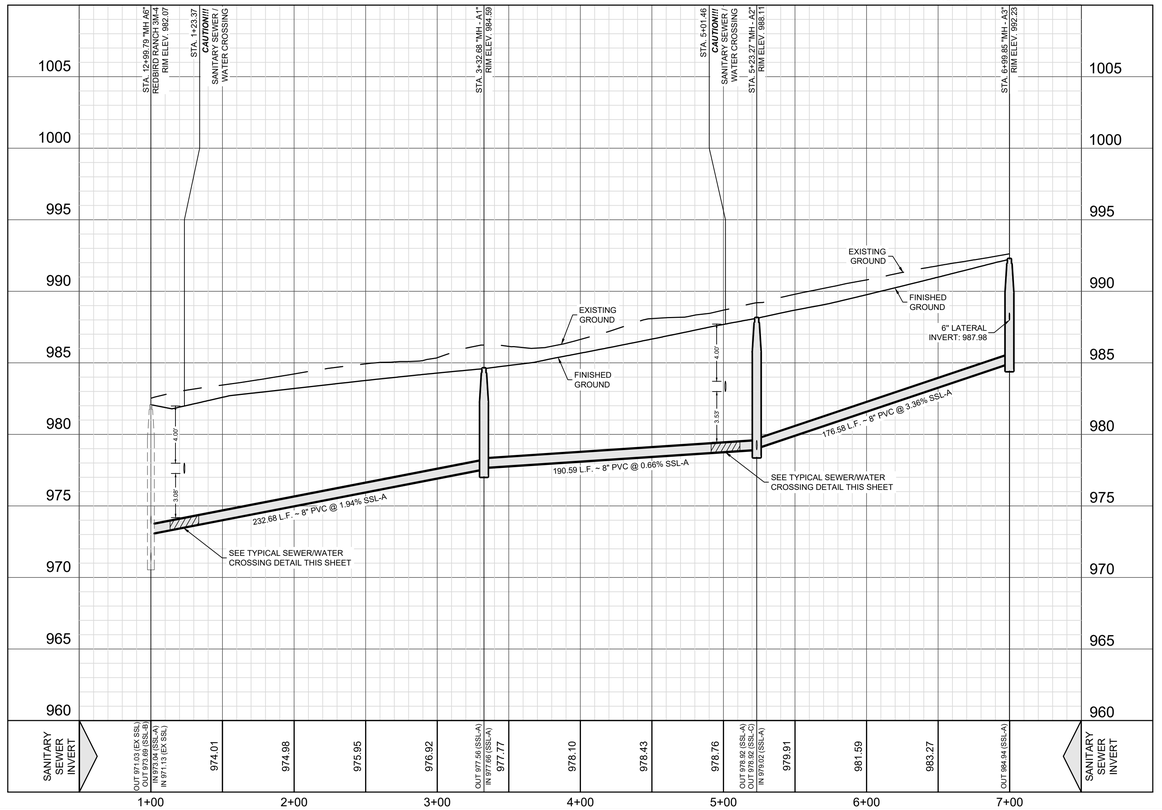


LEGEND (SANITARY SEWER)

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	OFFSITE EASEMENT
	PROPOSED WATER
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	PROPOSED SEWER
	EXISTING WATER
	EXISTING SEWER
S	PROPOSED MANHOLE
S	EXISTING MANHOLE
	FIRE HYDRANT
	DUEL WATER SERVICE
	SINGLE WATER SERVICE
	PROPOSED WYE & LATERAL
2.00'	VERTICAL STACK

SSL-A
STA. 1+00.00 TO 6+99.85

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



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SEWER: SAWS MEDIO CREEK WRC

DEVELOPER'S NAME: *CONTINENTAL HOMES OF TEXAS, L.P.*
ADDRESS: *5419 N. LOOP 1604 EAST*
CITY: *SAN ANTONIO* STATE: *TEXAS* ZIP: *78247*
PHONE # *(210) 496-2668* FAX # *(210) 496-2668*
SAWS BLOCK MAP # *062586 062588* TOTAL EDU'S: *123* TOTAL ACREAGE: *30.691*
TOTAL LINEAR FOOTAGE OF PIPE: *2,527 L.F. (8")* DOC. NO: *(MEDINA COUNTY)*
NUMBER OF LOTS: *123* SAWS JOB NO: *24-1535*

REV	DATE	DESCRIPTION

REDBIRD RANCH UNIT 2M-3 DOC. # XXXXXXXXXXXX

10/16/2024

STATE OF TEXAS
VANCE L. WEYNAND
99269
LICENSED
PROFESSIONAL ENGINEER

Vance Weynand

DHI Engineering, LLC.
5419 N. LOOP 1604 EAST
SAN ANTONIO, TX 78247
(210) 496-2668 (PHONE)
TBPE REG. NO. F-19561

DHI

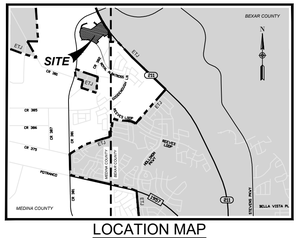
REDBIRD RANCH UNIT 2M-3
SAN ANTONIO, TX
SANITARY SEWER LINE A - STA. 1+00.00 - 6+99.85

DESIGNED BY:	JWS
DRAWN BY:	AS/JWS
DATE:	10/16/2024
JOB NO.:	05000-300
SHEET NO.	C6.02

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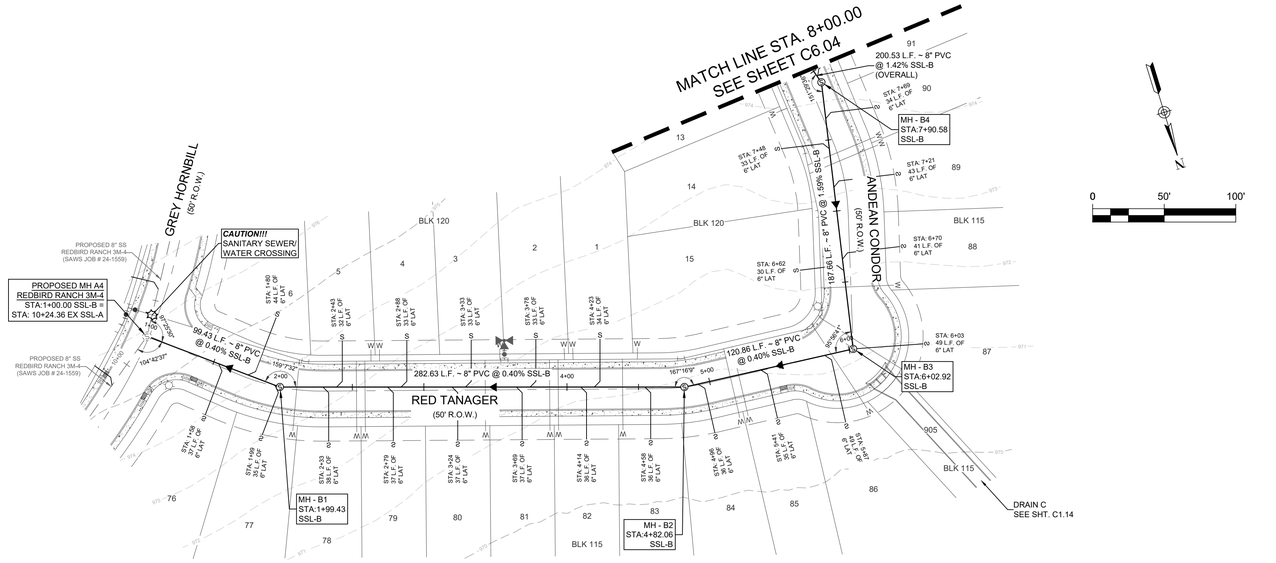
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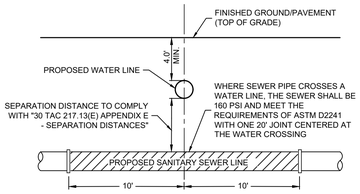
DHI ENGINEERING, LLC.



LOCATION MAP

NOT-TO-SCALE





TYPICAL SANITARY
SEWER/WATER CROSSING DETAIL

NOT-TO-SCALE

LEGEND (SANITARY SEWER)

	PROJECT LIMITS
	OFFSITE EASEMENT
	PROPOSED WATER
	PROPOSED 2" HDPE WATER
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S	PROPOSED MANHOLE
S	EXISTING MANHOLE
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	DUEL WATER SERVICE
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	PROPOSED WYE & LATERAL
2.00'	VERTICAL STACK

REV	DATE	DESCRIPTION

REDBIRD RANCH UNIT 2M-3 DOC. # XXXXXXXXXXXX

10/16/2024

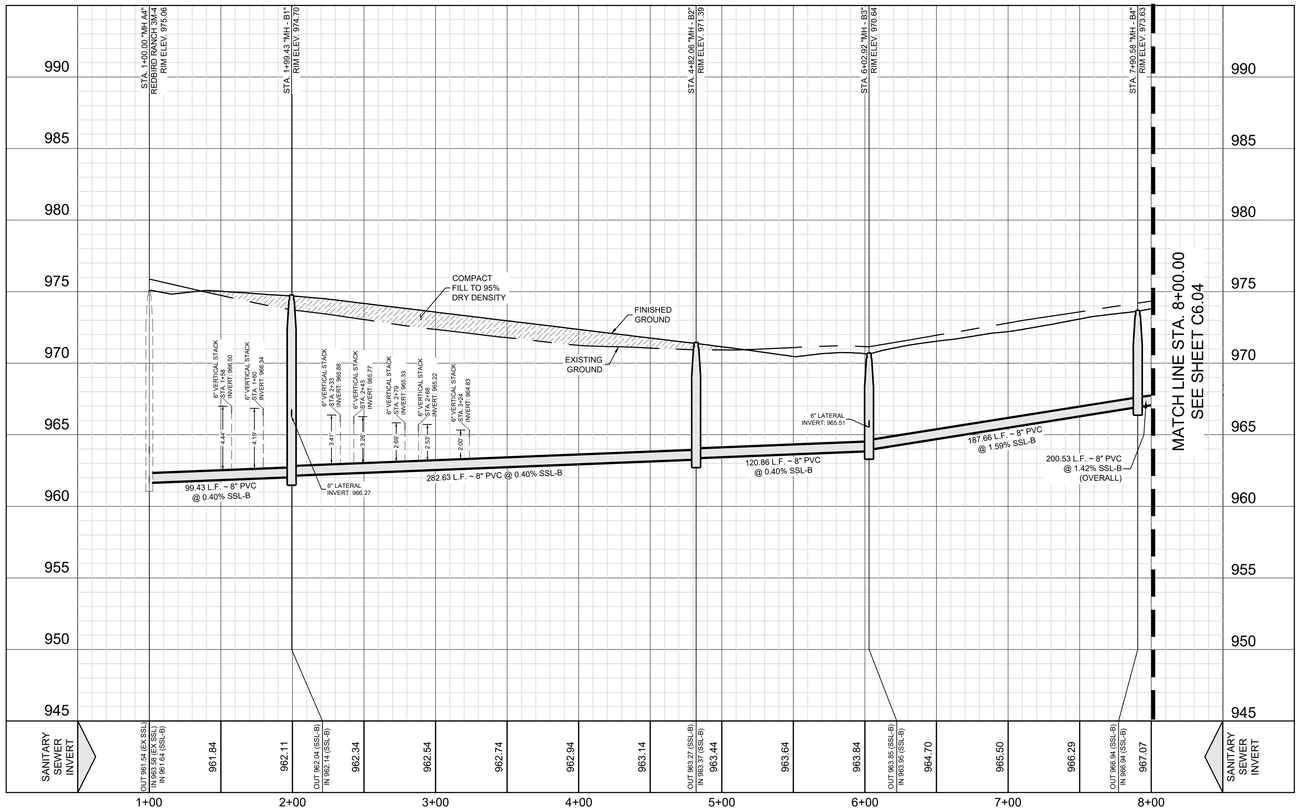
STATE OF TEXAS
VANCE L. WEYNAND
99269
LICENSED
PROFESSIONAL ENGINEER

Vance Weynand

DHI Engineering, LLC.
5419 N. LOOP 1604 EAST
SAN ANTONIO, TX 78247
(210) 496-2668
TBPE REG. NO. F-19561

DHI

SSL-B
STA. 1+00.00 TO 8+00.00



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DEVELOPER'S NAME: CONTINENTAL HOMES OF TEXAS, L.P.
ADDRESS: 5419 N. LOOP 1604 EAST
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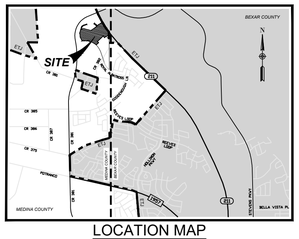
REDBIRD RANCH UNIT 2M-3
SAN ANTONIO, TX
SANITARY SEWER LINE B - STA. 1+00.00 - 8+00.00

DESIGNED BY:	JWS
DRAWN BY:	AS/JWS
DATE:	10/16/2024
JOB NO.:	05000-300
SHEET NO.	C6.03

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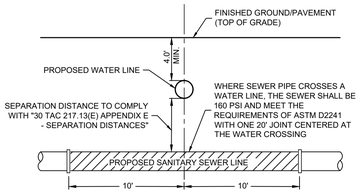
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DHI ENGINEERING, LLC.



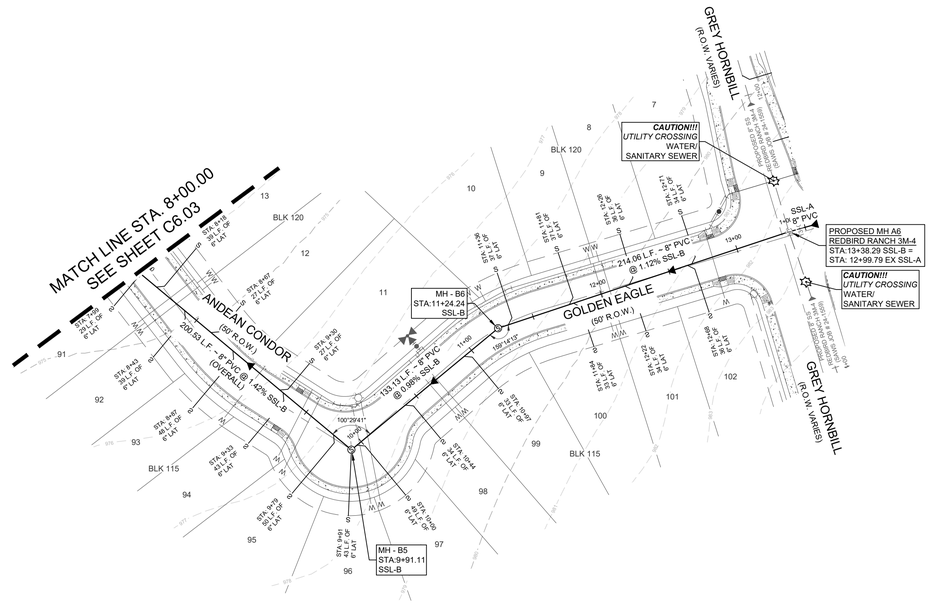
LOCATION MAP

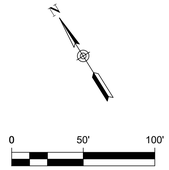
NOT-TO-SCALE



TYPICAL SANITARY
SEWER/WATER CROSSING DETAIL

NOT-TO-SCALE





LEGEND (SANITARY SEWER)

	PROJECT LIMITS
	OFFSITE EASEMENT
	PROPOSED WATER
	PROPOSED 2" HDPE WATER
	PROPOSED SEWER
	EXISTING WATER
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2.00'	VERTICAL STACK

REV	DATE	DESCRIPTION

REDBIRD RANCH UNIT 2M-3 DOC. # XXXXXXXXXXXX

10/16/2024

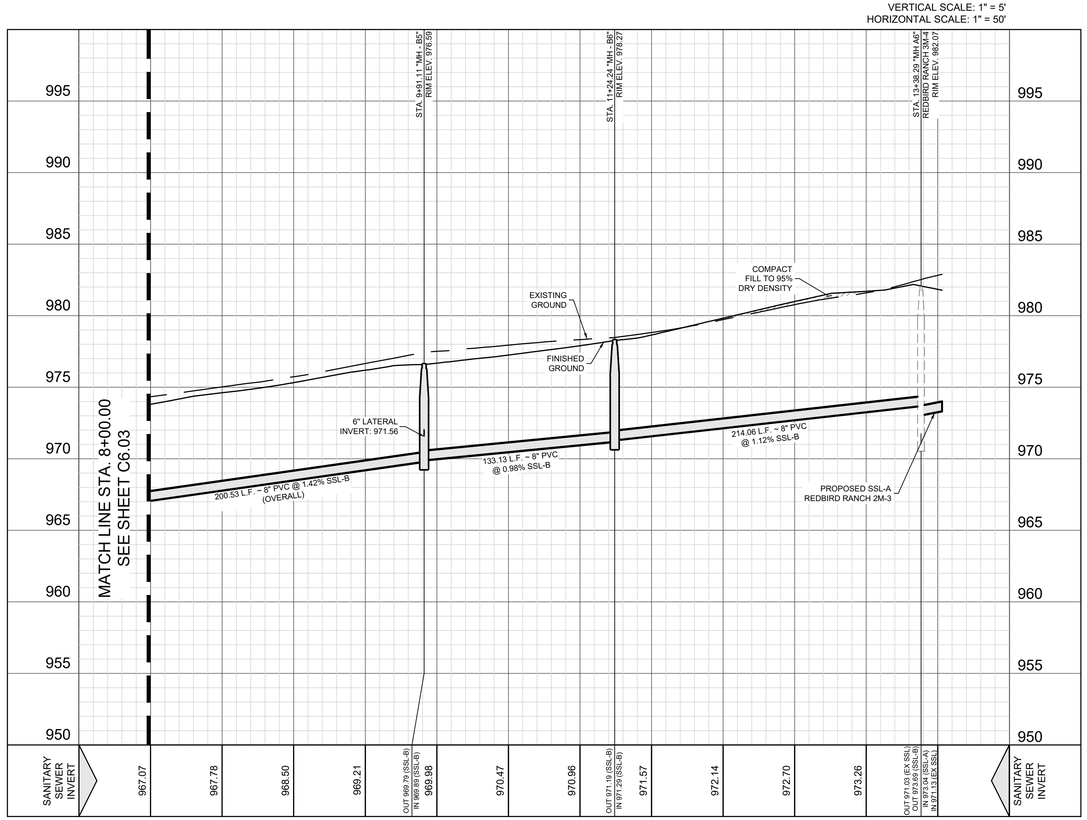
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DHI

SSL-B
STA. 8+00.00 TO 13+38.29



TRENCH EXCAVATION PROTECTION

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

CAUTION!!!

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

FINISHED FLOOR NOTES:

1. THE FINISHED FLOOR ELEVATIONS (FF) REPRESENT THE MINIMUM POSSIBLE FLOOR ELEVATION TO PROVIDE SANITARY SEWER SERVICE TO EACH LOT. ACTUAL FF FOR EACH LOT ARE TO BE DETERMINED BY THE BUILDER AND SHALL TAKE INTO CONSIDERATION AS-BUILT FOR FINAL SEWER SERVICES AND ACTUAL LATERAL PLACEMENT. IT IS THE BUILDER'S SOLE RESPONSIBILITY TO DETERMINE ACTUAL FINISHED FLOOR ELEVATIONS FOR EACH LOT PRIOR TO THE START OF THE HOME FOUNDATION CONSTRUCTION TAKING INTO CONSIDERATION SITE DRAINAGE, STREET ACCESS AND SANITARY SEWER SERVICE ELEVATION.
2. THE MINIMUM SANITARY SEWER LATERAL GRADES WERE BASED UPON THE MINIMUM FINISHED FLOOR ELEVATIONS FOR THE LOTS LOCATED ON THE DOWNHILL SIDES OF THE PROPOSED ROADWAYS.

DRIVEWAY NOTE:

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MEDINA COUNTY ROW NOTES:

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SEWER: SAWS MEDIO CREEK WRC

DEVELOPER'S NAME: *CONTINENTAL HOMES OF TEXAS, L.P.*
ADDRESS: *5419 N. LOOP 1604 EAST*
CITY: *SAN ANTONIO* STATE: *TEXAS* ZIP: *78247*
PHONE #: *(210) 496-2668* FAX #: *(210) 496-2668*
SAWS BLOCK MAP #: *062586 062588* TOTAL EDU'S: *123* TOTAL ACREAGE: *30.691*
TOTAL LINEAR FOOTAGE OF PIPE: *2,527 L.F. (8")* DOC. NO: *(MEDINA COUNTY)*
NUMBER OF LOTS: *123* SAWS JOB NO: *24-1535*

REDBIRD RANCH UNIT 2M-3
SAN ANTONIO, TX
SANITARY SEWER LINE B
STA. 8+00.00 - 13+38.29

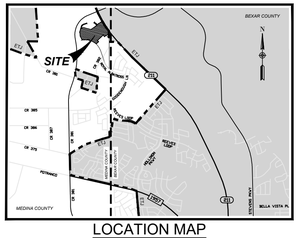
DESIGNED BY:	JWS
DRAWN BY:	AS/JWS
DATE:	10/16/2024
JOB NO.:	05000-300
SHEET NO.	C6.04

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Date: Oct 16, 2024, 7:50am User ID: jeffshon File: E:_PROJECT\05000\300\900 - Design\300 - Sheets\06.tif SANITARY SEWER LINE B STA. 8+00.00 - 13+38.29.dwg

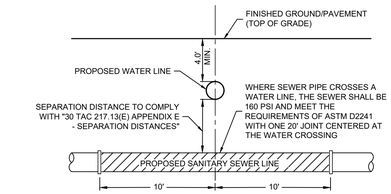
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DHI ENGINEERING, LLC.



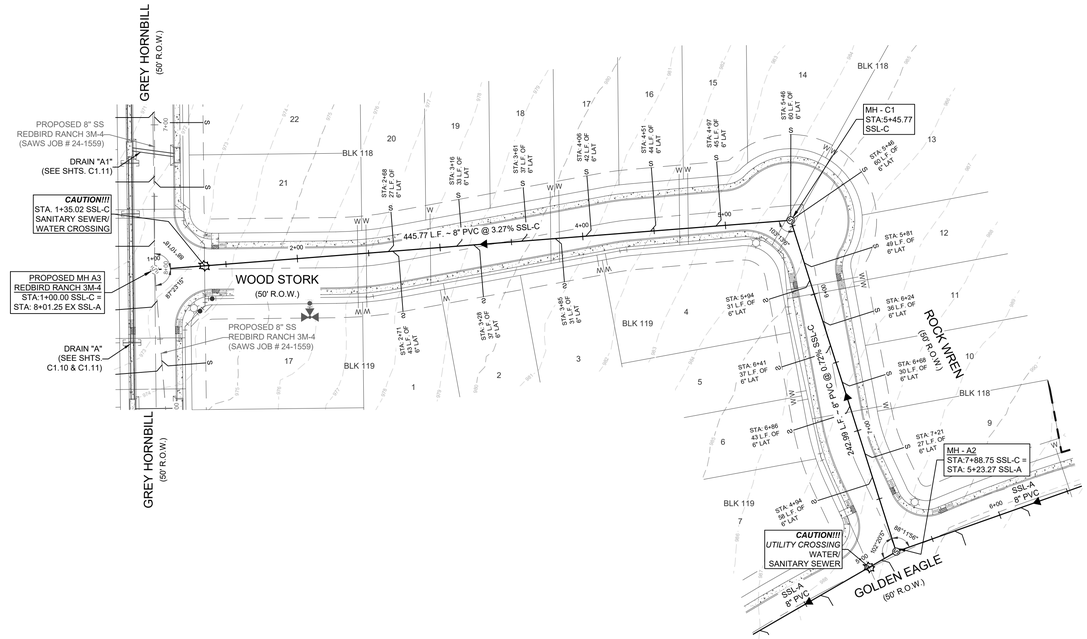
LOCATION MAP

NOT-TO-SCALE



TYPICAL SANITARY
SEWER/WATER CROSSING DETAIL

NOT-TO-SCALE

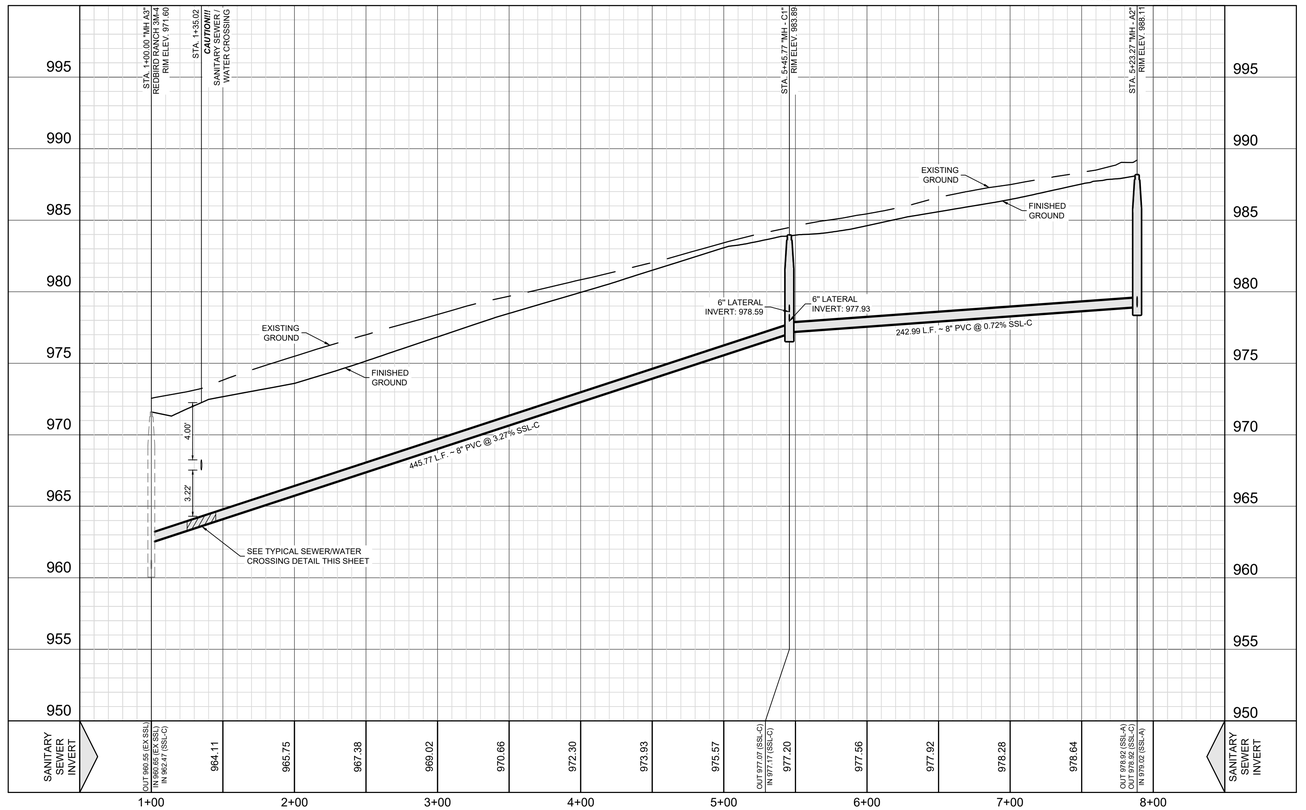


LEGEND (SANITARY SEWER)

	PROJECT LIMITS
	OFFSITE EASEMENT
	PROPOSED WATER
	PROPOSED 2" HDPE WATER
	PROPOSED SEWER
	EXISTING WATER
	EXISTING SEWER
S	PROPOSED MANHOLE
S	EXISTING MANHOLE
	FIRE HYDRANT
	DUEL WATER SERVICE
	SINGLE WATER SERVICE
	PROPOSED WYE & LATERAL
2.00'	VERTICAL STACK

SSL-C
STA. 1+00.00 TO 5+23.27

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



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REV	DATE	DESCRIPTION

REDBIRD RANCH UNIT 2M-3 DOC. # XXXXXXXXXXXX

10/16/2024

STATE OF TEXAS
VANCE L. WEYNAND
99269
LICENSED
PROFESSIONAL ENGINEER

Vance Weynand

DHI Engineering, LLC.
5419 N. LOOP 1604 EAST
SAN ANTONIO, TX 78247
(210) 496-2668
TBPE REG. NO. F-19561

DHI

REDBIRD RANCH UNIT 2M-3
SAN ANTONIO, TX

SANITARY SEWER LINE C
STA. 1+00.00 - 5+23.27

DESIGNED BY:	JWS
DRAWN BY:	AS/JWS
DATE:	10/16/2024
JOB NO.:	05000-300
SHEET NO.	C6.05

Date: Oct 16, 2024, 7:59am User ID: JeffSmith File: E:_PROJECTS\05000-300\Dgn – Sheets\C6.05 SANITARY SEWER LINE C STA. 1+00.00 - 5+23.27.dwg

SAWS CONSTRUCTION NOTES
COUNTER PERMIT AND GENERAL CONSTRUCTION PERMIT
(JANUARY 2022)

GENERAL SECTION

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

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

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

3. THE CONTRACTOR SHALL OBTAIN THE SAWS STANDARD DETAILS FROM THE SAWS WEBSITE, HTTP://WWW.SAWS.ORG/BUSINESS_CENTER/SPECS. UNLESS OTHERWISE NOTED WITHIN THE DESIGN PLANS.

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

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

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

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

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

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

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

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

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

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

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

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

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

SEWER NOTES

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

   A. IDENTIFY THE SOURCE OF THE SSO AND NOTIFY SAWS EMERGENCY OPERATIONS CENTER (EOC) IMMEDIATELY AT (210) 233-2014. PROVIDE THE ADDRESS OF THE SPILL AND AN ESTIMATED VOLUME OR FLOW.
   B. ATTEMPT TO ELIMINATE THE SOURCE OF THE SSO.
   C. CONTAIN SEWAGE FROM THE SSO TO THE EXTENT OF PREVENTING A POSSIBLE CONTAMINATION OF WATERWAYS.
   D. CLEAN UP SPILL SITE (RETURN CONTAINED SEWAGE TO THE COLLECTION SYSTEM IF POSSIBLE) AND PROPERLY DISPOSE OF CONTAMINATED SOIL/MATERIALS.
   E. CLEAN THE AFFECTED SEWER MAINS AND REMOVE ANY DEBRIS.
   F. MEET ALL POST-SSO REQUIREMENTS AS PER THE EPA CONSENT DECREE, INCLUDING LINE CLEANING AND TELEVISING THE AFFECTED SEWER MAINS (AT SAWS DIRECTION) WITHIN 24 HOURS.

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

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

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

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

4. SEWER PIPE WHERE WATER LINE CROSSES SHALL BE 160 PSI AND MEET THE REQUIREMENTS OF ASTM D2241, TAC 217.53 AND TCEQ 290.44(E)(4)(B). CONTRACTOR SHALL CENTER A 20' JOINT OF 160 PSI PRESSURE RATED PVC AT THE PROPOSED WATER CROSSING.

5. ELEVATIONS POSTED FOR TOP OF MANHOLES ARE FOR REFERENCE ONLY: IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAKE ALLOWANCES AND ADJUSTMENTS FOR TOP OF MANHOLES TO MATCH THE FINISHED GRADE OF THE PROJECT'S IMPROVEMENTS. (NSPI)

6. SPILLS, OVERFLOWS, OR DISCHARGES OF WASTEWATER: ALL SPILLS, OVERFLOWS, OR DISCHARGES OF WASTEWATER, RECYCLED WATER, PETROLEUM PRODUCTS, OR CHEMICALS MUST BE REPORTED IMMEDIATELY TO THE SAWS INSPECTOR ASSIGNED TO THE COUNTER PERMIT OR GENERAL CONSTRUCTION PERMIT (GCP). THIS REQUIREMENT APPLIES TO EVERY SPILL, OVERFLOW, OR DISCHARGE REGARDLESS OF SIZE.
7. MANHOLE AND ALL PIPE TESTING (INCLUDING THE TV INSPECTION) MUST BE PERFORMED AND PASSED PRIOR TO FINAL FIELD ACCEPTANCE BY SAWS CONSTRUCTION INSPECTION DIVISION, AS PER THE SAWS SPECIFICATIONS FOR WATER AND SANITARY SEWER CONSTRUCTION.

8. ALL PVC PIPE OVER 14 FEET OF COVER SHALL BE EXTRA STRENGTH WITH MINIMUM PIPE STIFFNESS OF 115 PSI.

SEWER: SAWS MEDIO CREEK WRC

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VANCE L. WEYNAND
99269
LICENSED
PROFESSIONAL ENGINEER

Vance Weynand

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SAN ANTONIO, TX 78247
(210) 496-2668 www.dhiengineering.com
TBPE REG. NO. F-19561

DHI

REDBIRD RANCH UNIT 2M-3
SAN ANTONIO, TX

SANITARY SEWER NOTES

DESIGNED BY:	JWS
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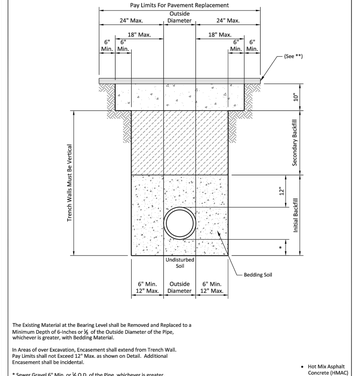
REDBIRD RANCH UNIT 2M-3 DOC. # XXXXXXXXXXXX

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Date: Nov 15, 2024, 10:53am User ID: Shiv File: E:_PROJECT\05000\300\900 – Design\300 – Sheets\05.00 SANITARY SEWER NOTES.dwg

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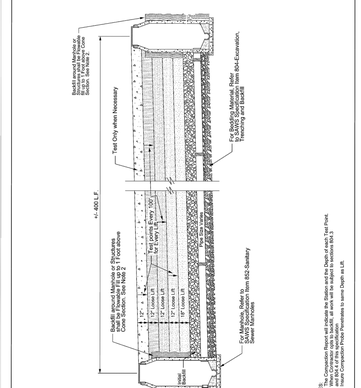
The Existing Material at the Bearing Level shall be Removed and Replaced to a Minimum Depth of 6-inches or ⅛ of the Outside Diameter of the Pipe, whichever is greater, with Bedding Material.

In Areas of over Excavation, Encasement shall extend from Trench Wall. Pay Limits shall not Exceed 12" Max. as shown on Detail. Additional Encasement shall be Incidental.

* Sewer Gravel 6" Min. or ⅛ O.D. of the Pipe, whichever is greater.
** Minimum 2" HMAC Type "D" for Trench Repair in Local/Residential Streets.
** Minimum 3" HMAC Type "C" for Trench Repair in Collector/Arterial Streets.

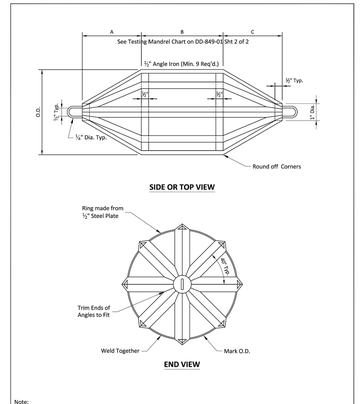
- Hot Mix Asphalt Concrete (HMAC)
- Asphalt Treated Base (A.T.B.)

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	SANITARY SEWER PIPE LAID IN TRENCH	MARCH 2008	AUG 2019
		DD-804-01	SHEET 1 OF 1



NOTES:
1. Connection Sleeve and Lubricate the Sleeve and the Depth of each Test Hole. Insert Compaction Probe Perpendicular to same Depth as LBL.
2. Where Excessive soils to backfill, all work will be subject to revisions BID 3 Hours Compaction Probe.

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	TRENCH COMPACTION DETAIL	MARCH 2018	AUG 2019
		DD 804-02	SHEET 1 OF 1



SIDE OR TOP VIEW

END VIEW

Note:
All Mandrels must be Approved by SAWS Construction Inspection Dept. and Stamped before Use.

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	GO, NO GO DEFLECTION TESTING MANDREL	MARCH 2008	December 2019
		DD-849-01	SHEET 1 OF 2

SIZE	A	B*	MANDREL O.D. PVC (SDR -26)	RING O.D. PVC (SDR -26)
6"	4.0"	4.5"	5.50	4.79
8"	5.5"	6"	7.37	6.66
10"	7.0"	7.5"	9.21	8.50
12"	8.0"	9"	10.96	10.25
15"	10.0"	11"	13.42	12.71
18"	12.0"	13.5"	———	———
21"	14.0"	16"	———	———
24"	16.0"	18"	———	———
27"	18.0"	20"	———	———

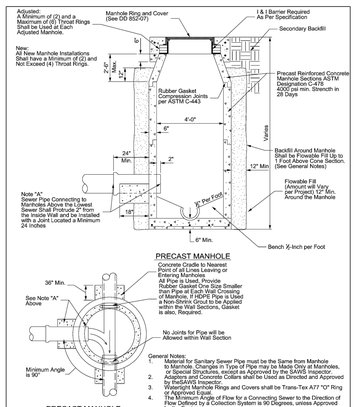
*Minimum Length

CHART

Notes:
PVC Pipes and Fittings 6" to 15" in Diameter shall Conform to ASTM D-2241
PVC Pipes and Fittings 18" to 27" in Diameter shall Conform to ASTM F-679

This information is provided as a reference. All deflection testing shall be done in accordance with TCEQ Capter 217.

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	GO, NO GO DEFLECTION TESTING MANDREL CHART	March 2008	December 2019
		DD-849-01	SHEET 2 OF 2



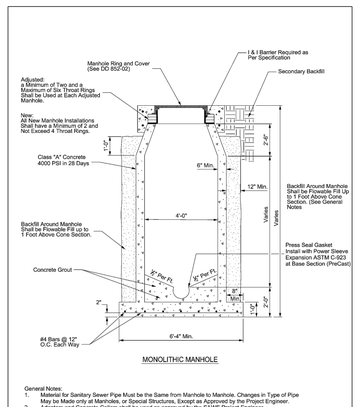
PRECAST MANHOLE

Concrete Cradle to Nearest Point of all Lines Leaving or Entering Manhole.
All Pipe is Used, Provide Rubber Gasket One Size Smaller than Pipe at Each Wall Crossing or Manhole. If HDPE Pipe is Used a Non-Shrink Grout is to be Applied within the Wall Sections, Gasket is also, Required.

No Joints for Pipe will be Allowed within Wall Section

General Notes:
1. Material for Sanitary Sewer Pipe must be the Same from Manhole to Manhole. Changes in Type of Pipe may be Made at Manholes, or Special Structures, Except as Approved by the SAWS Inspector.
2. Adaptors and Concrete Collars shall be Used as Directed and Approved by theSAWS Inspector.
3. Manhole Manhole Rings and Covers shall be Trans-Tex A77 "O" Ring or Approved Equal.
4. The Minimum Angle of Flow for a Connecting Sewer to the Direction of Flow Defined by a Collection System is 90 Degrees, unless Approved by the Engineer.

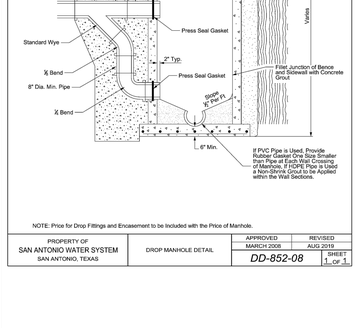
PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	STANDARD PRECAST MANHOLE	MAY 2013	AUG 2019
		DD-852-01	SHEET 1 OF 2



MONOLITHIC MANHOLE

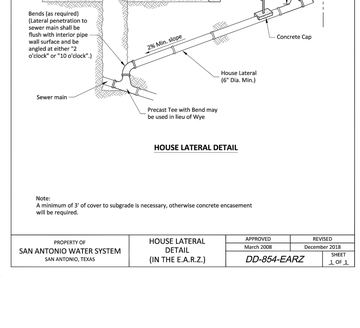
General Notes:
1. Material for Sanitary Sewer Pipe Must be the Same from Manhole to Manhole. Changes in Type of Pipe may be Made at Manholes, or Special Structures, Except as Approved by the Project Engineer.
2. Adaptors and Concrete Collars shall be Used as Approved by the SAWS Project Engineer.
3. Manhole Manhole Rings and Covers shall be Trans-Tex A77 "O" Ring or Approved Equal.

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	STANDARD MONOLITHIC MANHOLE	March 2008	AUG 2019
		DD 852-01	SHEET 2 OF 2



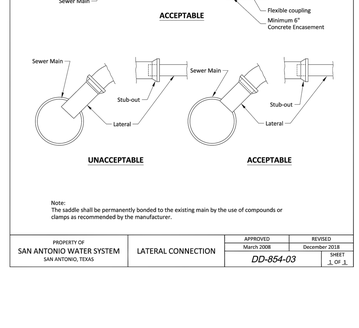
NOTE:
1. The Concrete Shall be 4000 PSI Minimum and Reinforced with No. 4 Bars as Shown.
2. The Concrete Shall Extend to Edge of Saw Cut Pavement.
3. Manhole Ring Encasement is Required on all Manholes.
4. Manhole Lid shall Open in the Direction of Traffic or Downstream in Parkway

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	MANHOLE RING ENCASEMENT DETAIL	AUGUST 2009	AUG 2019
		DD 852-03	SHEET 1 OF 2



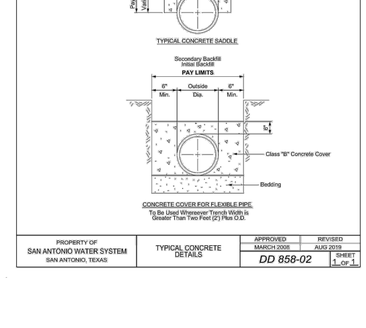
SIP Industries

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	30" MANHOLE RING AND COVER DETAIL	March 2008	December 2018
		DD 852-07	SHEET 1 OF 5



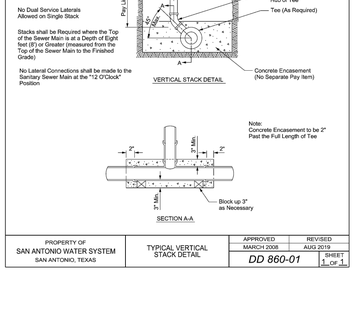
ERGO Assembly

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	MANHOLE RING AND COVER DETAIL	March 2008	AUG 2019
		DD 852-07	SHEET 2 OF 5



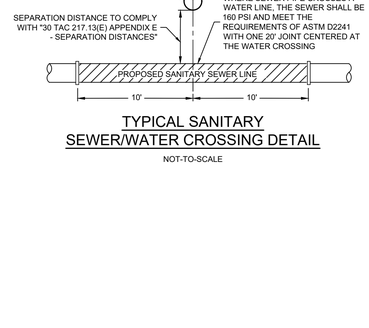
ERGO XL Assembly

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	MANHOLE RING AND COVER DETAIL	MARCH 2008	AUG 2019
		DD 852-07	SHEET 3 OF 5



NEENAH FOUNDRY

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	MANHOLE RING AND COVER DETAIL	MARCH 2008	AUG 2019
		DD 852-07	SHEET 4 OF 5



NEENAH FOUNDRY

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	MANHOLE RING AND COVER DETAIL	MARCH 2008	AUG 2019
		DD 852-07	SHEET 5 OF 5

NOTE: Price for Drop Fittings and Encasement to be Included with the Price of Manhole.

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	DROP MANHOLE DETAIL	MARCH 2008	AUG 2019
		DD-852-08	SHEET 1 OF 1

Depth and grade of service laterals as shown, are typical only. Actual depth, alignment and grade of service laterals shall be determined by the Engineer based on the elevations of the sewer main, street, natural ground and building to be serviced.

HOUSE LATERAL DETAIL

Note:
A minimum of 3' of cover to subgrade is necessary, otherwise concrete encasement will be required.

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	HOUSE LATERAL DETAIL (IN THE E.A.R.Z.)	March 2008	December 2018
		DD-854-EARZ	SHEET 1 OF 1

LATERAL CONNECTION TO EXISTING SEWER MAIN

Note:
The saddle shall be permanently bonded to the existing main by the use of compounds or clamps as recommended by the manufacturer.

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	LATERAL CONNECTION	MARCH 2008	AUG 2019
		DD-854-03	SHEET 1 OF 1

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	TYPICAL CONCRETE DETAILS	MARCH 2008	AUG 2019
		DD 858-02	SHEET 1 OF 1

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	TYPICAL VERTICAL STACK DETAIL	MARCH 2008	AUG 2019
		DD 860-01	SHEET 1 OF 1

TYPICAL SANITARY SEWER/WATER CROSSING DETAIL

NOT-TO-SCALE

SEWER: SAWS MEDIO CREEK WRC

DEVELOPER'S NAME: CONTINENTAL HOMES OF TEXAS, L.P.
ADDRESS: 5419 N. LOOP 1604 EAST
CITY: SAN ANTONIO STATE: TEXAS ZIP: 78247
PHONE #: (210) 496-2668 FAX #: (210) 496-2668
SAWS BLOCK MAP #: 062586 062588 TOTAL EDU'S: 123 TOTAL ACREAGE: 30.691
TOTAL LINEAR FOOTAGE OF PIPE: 2,527 L.F. (8") DOC. NO: (MEDINA COUNTY)
NUMBER OF LOTS: 123 SAWS JOB NO: 24-1535

REV	DATE	DESCRIPTION

11/15/2024

STATE OF TEXAS
VANCE L. WEYNAND
99269
LICENSED
PROFESSIONAL ENGINEER

Vance Weynand

DHI Engineering, LLC.
5419 N. LOOP 1604 EAST
SAN ANTONIO, TX 78247
(210) 496-2668 (210) 496-2669
TBPE REG. NO. F-19561

DHI

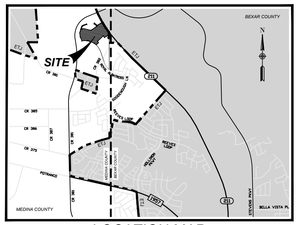
REDBIRD RANCH UNIT 2M-3 DOC. # XXXXXXXXXXXX

REDBIRD RANCH UNIT 2M-3
SAN ANTONIO, TX
SANITARY SEWER DETAILS

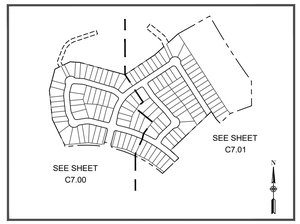
DESIGNED BY:	JWS
DRAWN BY:	AS/JWS
DATE:	11/15/2024
JOB NO.:	05000-300
SHEET NO.	C6.21

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Date: Nov 15, 2024, 11:11am User ID: SDN File: E:_PROJECTS\05000\300\300 - Design\300 - Sheets\C6.21 SANITARY SEWER DETAILS.dwg



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NOT-TO-SCALE



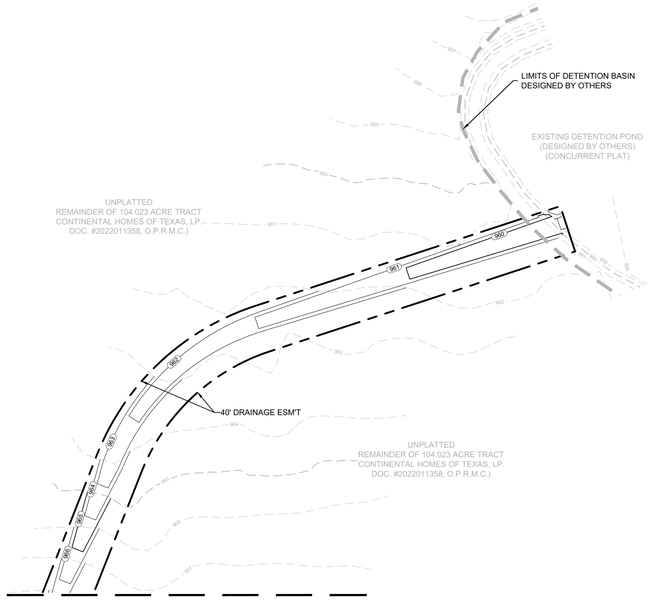
INDEX MAP
NOT-TO-SCALE

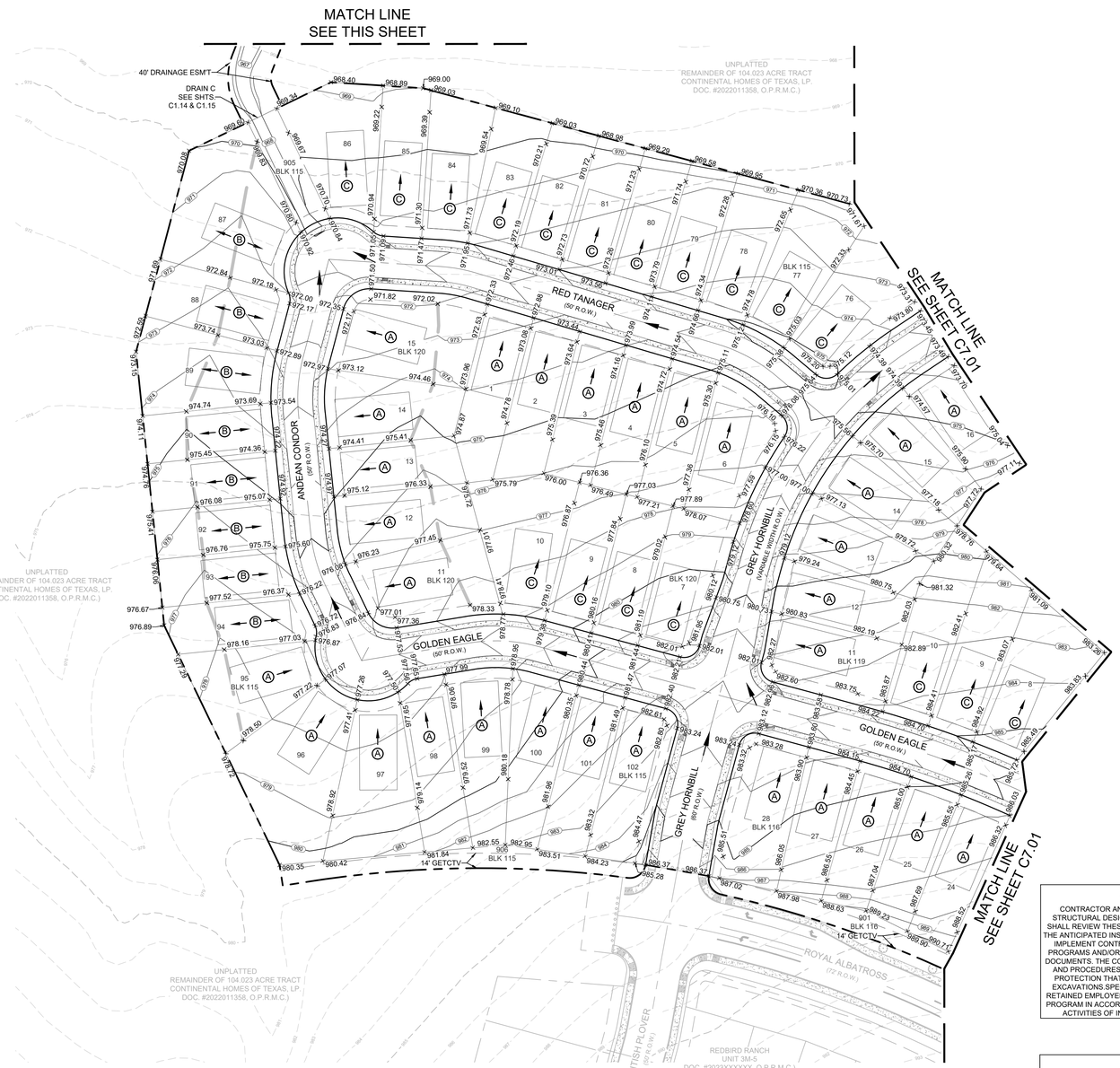
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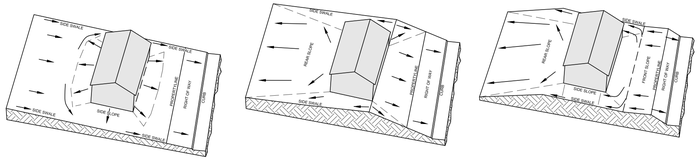
1. ALL CONSTRUCTION PROCEDURES AND MATERIALS WITHIN THE SCOPE OF THE PROJECT THAT IS NOT SPECIFICALLY COVERED IN THE PLANS OF GEOTECHNICAL REPORT SHALL BE CONFORMED TO ALL APPLICABLE CITY, COUNTY AND TXDOT STANDARD REQUIREMENTS FOR PUBLICS WORKS CONSTRUCTION.
2. SITE PREPARATION AND GRADING SHALL BE COMPLETED IN ACCORDANCE WITH THE PROJECTS GEOTECHNICAL REPORT AND SPECIFICATIONS.
3. ALL SELECT FILL MATERIALS PROVIDED SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACING AND COMPACTING.
4. ALL ELEVATIONS AND PROPOSED CONTOURS SHOWN ON THIS PLAN REFLECTS FINISHED GRADES. THE THICKNESS OF PAVEMENT, BASE, GRASS, AND TOP SOIL MUST BE SUBTRACTED TO OBTAINED SUBGRADE ELEVATIONS.
5. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY QUESTIONS THEY HAVE REGARDING THE INTENT, PLACEMENT, OR LIMITS OF DIMENSIONS OR GRADES NECESSARY FOR CONSTRUCTION OF THIS PROJECT.
6. THE CONTRACTOR SHALL VERIFY THE SUITABILITY OF ALL EXISTING AND PROPOSED SITE CONDITIONS INCLUDING GRADES AND DIMENSIONS BEFORE THE START OF CONSTRUCTION. IF THERE ARE ANY DISCREPANCIES, CONTACT THE ENGINEER.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ACQUIRING ALL PERMITS, TEST, APPROVALS AND ACCEPTANCES REQUITED TO COMPLETE CONSTRUCTION OF THIS PROJECT.
8. THE CONTRACTOR SHALL REMOVE TOP SOIL, GRASS, ROOTS, DEBRIS, ETC. AND DISPOSE OF THOSE ITEMS THAT ARE NOT SUITABLE FOR EMBANKMENT AND TOPSOIL. CLEAN STRIPPING AND TOPSOIL MAY BE STOCKPILED ON SITE FOR REUSE IN A LOCATION SPECIFIED BY THE OWNER.
9. THE CONTRACTOR IS RESPONSIBLE FOR REVEGETATE ALL DISTURBED AREAS IN ACCORDANCE WITH PROJECT SPECIFICATION AND TPDES/SWPPP REQUIREMENTS. REFER TO THE LANDSCAPE ARCHITECT'S PLAN IF APPLICABLE.
10. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO KEEP DRAINAGE AND SILT FROM WASHING ONTO ADJACENT PROPERTY, STREETS, OR DRAINAGE WAY. CONTRACTOR SHALL IMMEDIATELY REMOVE SILT/DEBRIS THAT WASHES OFFSITE OR INTO EXISTING STORM DRAIN SYSTEMS. REFER TO THE SWPPP PLAN.
11. THE CONTRACTOR SHALL OBTAIN GRADES SHOWN HERON WITHIN ± ONE TENTH OF A FOOT.
12. IN PROPOSED PAVED AREAS AND STREET DESIGN PLANS SHALL CONTROL. ALL EARTHEN SLOPES SHALL BE A MAXIMUM OF 3:1 AND A MINIMUM OF 1.0% UNLESS OTHERWISE STATED.
13. THE CONTRACTOR SHALL PROVIDE A SMOOTH TRANSITION BETWEEN EXISTING AND PROPOSED SITE CONDITIONS.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING ANY DAMAGE DONE TO EXISTING TREES, BUILDINGS, UTILITIES, FENCES, PAVEMENT, CURBS, OR DRIVEWAYS BACK TO EXISTING CONDITIONS OR BETTER. (NO SEPARATE PAY ITEMS.)
15. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION IN WORKING NEAR UTILITIES, GAS LINES, SEWER, OR EXITING APPURTENANCES PRIOR TO PERFORMING ANY EXCAVATION. CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES AND ASSURE HIMSELF THAT ALL UTILITIES HAVE BEEN ADEQUATELY LOCATED AND IDENTIFIED. THE ENGINEER SHALL BE NOTIFIED IF ANY UTILITY CONFLICTS ARE IDENTIFIED.
16. UTILITIES SHOWN ON THE PLANS ARE FROM INFORMATION SOURCES AVAILABLE AT THE TIME OF DESIGN BUT MAY NOT REPRESENT ALL EXISTING UTILITIES ON SITE. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING EXACT LOCATIONS OF ALL UTILITIES, WEATHER SHOWN ON THE PLANS OR NOT. THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES BEFORE CONSTRUCTION TO CONFIRM SIZE, GRADE AND LOCATION AND WILL CONTACT THE ENGINEER OF ANY DEVIATIONS FROM THE PLANS PRIOR TO BEGINNING CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES WHETHER SHOWN ON THE PLANS OR NOT SHALL BE THE CONTRACTORS RESPONSIBILITY TO REPAIR AND THEIR OWN EXPENSE.
17. POSITIVE DRAINAGE SHALL BE MAINTAINED THROUGHOUT THE SCOPE OF THE PROJECT. DRAINAGE SHALL BE DIRECTED AWAY FROM ALL BUILDING FOUNDATIONS. CONTRACTOR SHALL TAKE PRECAUTIONS NOT TO ALLOW ANY PONDING OF WATER.
18. FILL PLACED ON HILL SIDES OR STEEP SLOPED AREAS, THE CONTRACTOR SHALL REFER TO THE PROJECT'S SPECIFICATIONS AND GEOTECHNICAL REPORT FOR SPECIAL INSTRUCTION REGARDING BENCHING.
19. NO WORK SHALL BE PERFORMED IN A PUBLIC RIGHT-OF-WAY WITHOUT A PERMIT.

LEGEND (GRADING)

	PROJECT LIMITS
	OFFSITE EASEMENT
955	EXISTING CONTOUR
1002	PROPOSED CONTOUR
	FLOW ARROW
A B C	TYPICAL LOT GRADING
1022.23	PROPOSED ELEVATION
	GRADE BREAK







TYPE 'A' LOT GRADING

TYPE 'B' LOT GRADING

TYPE 'C' LOT GRADING

NOTE: THIS IS THE TYPICAL LOT GRADING PLAN BASED ON THE TYPE OF LOT BEING PROPOSED.

- **TYPE A** LOTS IS GRADED SO THE OVERLAND FLOW OF RUNOFF WILL DRAIN TOWARDS THE STREET.
- **TYPE B** LOTS IS GRADED SO THE OVERLAND FLOW OF RUNOFF WILL DRAIN TOWARDS THE STREET AND THE BACK OF THE LOT. (AWAY FROM THE HOUSE)
- **TYPE C** LOTS IS GRADED SO THE OVERLAND FLOW OF RUNOFF WILL DRAIN TOWARDS THE BACK OF THE LOT.

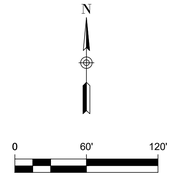
TYPICAL LOT GRADING
NOT TO SCALE

TRENCH EXCAVATION PROTECTION

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

CAUTION!!!

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



REV	DATE	DESCRIPTION

DOC. # XXXXXXXXXX

REDBIRD RANCH UNIT 2M-3

4/2/2024
STATE OF TEXAS
VANCE L. WEYNAND
99269
LICENSED
PROFESSIONAL ENGINEER
Vance Weynand

DHI Engineering, LLC.
5419 N. LOOP 1604 EAST
SAN ANTONIO, TX 78247
(210) 446-8788 (PHONE)
TBPE REG. NO. F-19561

DHI

REDBIRD RANCH UNIT 2M-3
SAN ANTONIO, TX

OVERALL GRADING PLAN

DESIGNED BY:	JWS
DRAWN BY:	AS/JWS
DATE:	4/2/2024
JOB NO.:	05000-300
SHEET NO.	C7.00

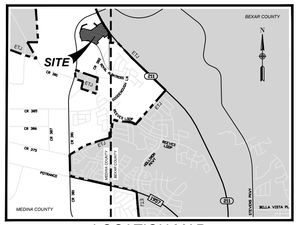
DHI ENGINEERING, LLC.

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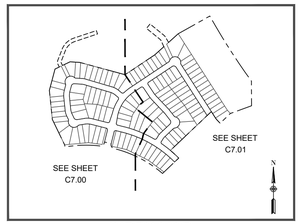
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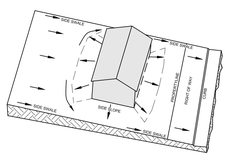
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NOT-TO-SCALE



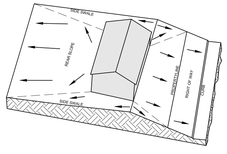
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NOT-TO-SCALE

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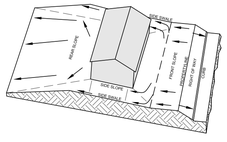
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8. THE CONTRACTOR SHALL REMOVE TOP SOIL, GRASS, ROOTS, DEBRIS, ETC. AND DISPOSE OF THOSE ITEMS THAT ARE NOT SUITABLE FOR EMBANKMENT AND TOPSOIL. CLEAN STRIPPING AND TOPSOIL MAY BE STOCKPILED ON SITE FOR REUSE IN A LOCATION SPECIFIED BY THE OWNER.
9. THE CONTRACTOR IS RESPONSIBLE FOR REVEGETATE ALL DISTURBED AREAS IN ACCORDANCE WITH PROJECT SPECIFICATION AND TPDES/SWPPP REQUIREMENTS. REFER TO THE LANDSCAPE ARCHITECT'S PLAN IF APPLICABLE.
10. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO KEEP DRAINAGE AND SILT FROM WASHING ONTO ADJACENT PROPERTY, STREETS, OR DRAINAGE WAY. CONTRACTOR SHALL IMMEDIATELY REMOVE SILT/DEBRIS THAT WASHES OFFSITE OR INTO EXISTING STORM DRAIN SYSTEMS. REFER TO THE SWPPP PLAN.
11. THE CONTRACTOR SHALL OBTAIN GRADES SHOWN HERON WITHIN ± ONE TENTH OF A FOOT.
12. IN PROPOSED PAVED AREAS AND STREET DESIGN PLANS SHALL CONTROL. ALL EARTHEN SLOPES SHALL BE A MAXIMUM OF 3:1 AND A MINIMUM OF 1.0% UNLESS OTHERWISE STATED.
13. THE CONTRACTOR SHALL PROVIDE A SMOOTH TRANSITION BETWEEN EXISTING AND PROPOSED SITE CONDITIONS.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING ANY DAMAGE DONE TO EXISTING TREES, BUILDINGS, UTILITIES, FENCES, PAVEMENT, CURBS, OR DRIVEWAYS BACK TO EXISTING CONDITIONS OR BETTER. (NO SEPARATE PAY ITEMS.)
15. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION IN WORKING NEAR UTILITIES, GAS LINES, SEWER, OR EXITING APPURTENANCES PRIOR TO PERFORMING ANY EXCAVATION. CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES AND ASSURE HIMSELF THAT ALL UTILITIES HAVE BEEN ADEQUATELY LOCATED AND IDENTIFIED. THE ENGINEER SHALL BE NOTIFIED IF ANY UTILITY CONFLICTS ARE IDENTIFIED.
16. UTILITIES SHOWN ON THE PLANS ARE FROM INFORMATION SOURCES AVAILABLE AT THE TIME OF DESIGN BUT MAY NOT REPRESENT ALL EXISTING UTILITIES ON SITE. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING EXACT LOCATIONS OF ALL UTILITIES, WEATHER SHOWN ON THE PLANS OR NOT. THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES BEFORE CONSTRUCTION TO CONFIRM SIZE, GRADE AND LOCATION AND WILL CONTACT THE ENGINEER OF ANY DEVIATIONS FROM THE PLANS PRIOR TO BEGINNING CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES WHETHER SHOWN ON THE PLANS OR NOT SHALL BE THE CONTRACTORS RESPONSIBILITY TO REPAIR AND THEIR OWN EXPENSE.
17. POSITIVE DRAINAGE SHALL BE MAINTAINED THROUGHOUT THE SCOPE OF THE PROJECT. DRAINAGE SHALL BE DIRECTED AWAY FROM ALL BUILDING FOUNDATIONS. CONTRACTOR SHALL TAKE PRECAUTIONS NOT TO ALLOW ANY PONDING OF WATER.
18. FILL PLACED ON HILL SIDES OR STEEP SLOPED AREAS, THE CONTRACTOR SHALL REFER TO THE PROJECT'S SPECIFICATIONS AND GEOTECHNICAL REPORT FOR SPECIAL INSTRUCTION REGARDING BENCHING.
19. NO WORK SHALL BE PERFORMED IN A PUBLIC RIGHT-OF-WAY WITHOUT A PERMIT.



TYPE 'A' LOT GRADING



TYPE 'B' LOT GRADING



TYPE 'C' LOT GRADING

NOTE: THIS IS THE TYPICAL LOT GRADING PLAN BASED ON THE TYPE OF LOT BEING PROPOSED.

- **TYPE A** LOTS IS GRADED SO THE OVERLAND FLOW OF RUNOFF WILL DRAIN TOWARDS THE STREET.
- **TYPE B** LOTS IS GRADED SO THE OVERLAND FLOW OF RUNOFF WILL DRAIN TOWARDS THE STREET AND THE BACK OF THE LOT. (AWAY FROM THE HOUSE)
- **TYPE C** LOTS IS GRADED SO THE OVERLAND FLOW OF RUNOFF WILL DRAIN TOWARDS THE BACK OF THE LOT.

TYPICAL LOT GRADING
NOT TO SCALE



LEGEND (GRADING)

	PROJECT LIMITS
	OFFSITE EASEMENT
955	EXISTING CONTOUR
1002	PROPOSED CONTOUR
	FLOW ARROW
A B C	TYPICAL LOT GRADING
1022.23	PROPOSED ELEVATION
	GRADE BREAK

N

0 60' 120'

TRENCH EXCAVATION PROTECTION

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

CAUTION!!!

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

REV	DATE	DESCRIPTION

DOC. # XXXXXXXXXX

REDBIRD RANCH UNIT 2M-3

4/2/2024
STATE OF TEXAS
VANCE L. WEYNAND
99269
LICENSED
PROFESSIONAL ENGINEER
Vance Weynand

DHI Engineering, LLC.
5419 N. LOOP 1604 EAST
SAN ANTONIO, TX 78247
(210) 998-8000 www.dhi.com
TBPE REG. NO. F-19561
DHI

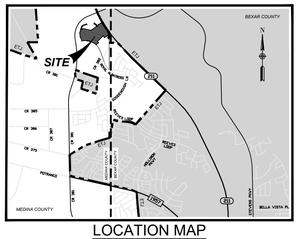
REDBIRD RANCH UNIT 2M-3
SAN ANTONIO, TX

OVERALL GRADING PLAN

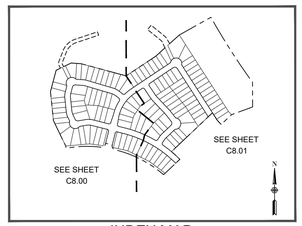
DESIGNED BY:	JWS
DRAWN BY:	AS/JWS
DATE:	4/2/2024
JOB NO.:	05000-300
SHEET NO.	C7.01

Date: Apr 02, 2024, 3:14pm User ID: AMcAfee File: E:_PROJECT\05000\300\WD - Design\300 - Sheets\C7.01 OVERALL GRADING PLAN.dwg

DHI ENGINEERING, LLC.



LOCATION MAP
NOT-TO-SCALE



INDEX MAP
NOT-TO-SCALE



LEGEND (SW3P)

	PROJECT LIMITS
	OFFSITE EASEMENTS
985	EXISTING CONTOUR
1002	PROPOSED CONTOUR
	FLOW ARROW (EXISTING)
	FLOW ARROW (PROPOSED)
SF	SILT FENCE
	ROCK BERM
	GRAVEL FILTER BAGS
	LIMITS OF DISTURBED AREA
	STABILIZED CONSTRUCTION ENTRANCE/EXIT (FIELD LOCATE)
	CONSTRUCTION EQUIPMENT, VEHICLE & MATERIALS STORAGE AREA (FIELD LOCATE)
	CONCRETE TRUCK WASH-OUTPIT (FIELD LOCATE)

SW3P MODIFICATIONS

DATE	SIGNATURE	DESCRIPTION

GENERAL NOTES:

1. DO NOT DISTURB VEGETATED AREAS (TREES, GRASS, WEEDS, BRUSH, ETC.) ANY MORE THAN NECESSARY FOR CONSTRUCTION.
2. CONSTRUCTION ENTRANCE/EXIT LOCATION, CONCRETE WASH-OUT PIT, AND CONSTRUCTION EQUIPMENT AND MATERIAL STORAGE YARD TO BE DETERMINED IN THE FIELD.
3. STORM WATER POLLUTION PREVENTION CONTROLS MAY NEED TO BE MODIFIED IN THE FIELD TO ACCOMPLISH THE DESIRED EFFECT. ALL MODIFICATIONS ARE TO BE NOTED ON THIS EXHIBIT AND SIGNED AND DATED BY THE RESPONSIBLE PARTY.
4. RESTRICT ENTRY/EXIT TO PROJECT SITE TO DESIGNATED LOCATIONS BY USE OF ADEQUATE FENCING IF NECESSARY.
5. ALL STORM WATER POLLUTION PREVENTION CONTROLS ARE TO BE MAINTAINED AND IN WORKING CONDITIONS AT ALL TIMES.
6. FOR A COMPLETE LISTING OF TEMPORARY STORM WATER POLLUTION PREVENTION CONTROLS REFER TO THE TPDES STORM WATER POLLUTION PREVENTION PLAN
7. STORM WATER POLLUTION PREVENTION STRUCTURES SHOULD BE CONSTRUCTED WITHIN THE SITE BOUNDARIES. SOME OF THESE FEATURES MAY BE SHOWN OUTSIDE THE SITE BOUNDARIES ON THIS PLAN FOR VISUAL CLARITY.
8. AS SOON AS POSSIBLE, ALL DISTURBED SOIL THAT WILL NOT BE COVERED BY IMPERVIOUS COVER SUCH AS PARKWAY AREAS, EASEMENTS AREAS, EMBANKMENT SLOPES, ETC. WILL BE STABILIZED PER APPLICABLE PROJECT SPECIFICATIONS.
9. BEST MANAGEMENT PRACTICES MAY BE INSTALLED IN STAGES TO COINCIDE WITH THE DISTURBANCE OF UNGRADIENT AREAS.
10. BEST MANAGEMENT PRACTICES MAY BE REMOVED IN STAGES ONCE THE WATERSHED FOR THAT PORTION CONTROLLED BY THE BEST MANAGEMENT PRACTICE HAS BEEN STABILIZED IN ACCORDANCE WITH TPDES REQUIREMENTS.
11. UPON COMPLETION OF THE PROJECT, INCLUDING SITE STABILIZATION, AND BEFORE FINAL PAYMENT IS ISSUED, CONTRACTOR SHALL REMOVE ALL SEDIMENT AND EROSION CONTROL MEASURES, PAYING SPECIAL ATTENTION TO ROCK BERMS IN DRAINAGE FEATURES.
12. WHERE VEGETATED FILTER STRIPS ARE INDICATED, CONTRACTOR SHALL VERIFY THAT SUFFICIENT VEGETATION EXISTS, OTHERWISE CONTRACTOR SHALL PLACE SILT FENCING IN LIEU OF VEGETATED FILTER STRIP.
13. SHADED AREA DENOTING LIMITS OF DISTURBED AREAS, OTHER AREAS WITHIN THE PROJECT LIMITS, WITH THE EXPECTATION OF A CONSTRUCTION EQUIPMENT AND MATERIALS STORAGE YARD, ARE NOT A PART OF THIS TPDES STORM WATER POLLUTION PREVENTION PLAN (SW3P) AND WILL NOT BE DISTURBED BY CIVIL CONSTRUCTION ACTIVITIES/ HOUSE CONSTRUCTION ACTIVITIES WILL REQUIRE A SEPARATE STORM WATER POLLUTION PREVENTION PLAN.
14. PRIOR TO BEGINNING CONSTRUCTION, CONTRACTOR SHALL COORDINATE PLACEMENT OF TEMPORARY BEST MANAGEMENT PRACTICES WITHIN TXDOT RIGHT-OF-WAY WITH TXDOT.
15. CPS ENERGY WILL FUNCTION AS A SECONDARY OPERATOR ON THIS PROJECT AND WILL ABE INSTALLING ELECTRIC UTILITIES FOR ON-SITE CONSTRUCTION AND OFF-SITE FEED TO THE PROJECT.
16. THE ENGINEERING SEAL HAS BEEN AFFIXED TO THIS SHEET ONLY FOR THE PURPOSE OF DEMONSTRATING COMPLIANCE WITH THE TPDES-STORM WATER POLLUTION PREVENTION PLAN (SW3P) REGULATIONS.
17. THIS SHEET HAS BEEN PREPARED FOR PURPOSES OF THE SW3P ONLY. ALL OTHER CIVIL ENGINEERING RELATED INFORMATION SHOULD BE ACQUIRED FROM THE APPROPRIATE SHEET IN THE CIVIL IMPROVEMENTS PLANS.

CAUTION!!!

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

TRENCH EXCAVATION PROTECTION

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

REV	DATE	DESCRIPTION

DOC. # XXXXXXXXXXX

REDBIRD RANCH UNIT 2M-3

4/2/2024

STATE OF TEXAS
VANCE L. WEYNAND
99269
LICENSED
PROFESSIONAL ENGINEER

Vance Weynand

DHI Engineering, LLC.
5419 N. LOOP 1604 EAST
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(210) 494-9500 WWW.DHIGROUP.COM
TBPE REG. NO. F-19561

DHI

REDBIRD RANCH UNIT 2M-3
SAN ANTONIO, TX

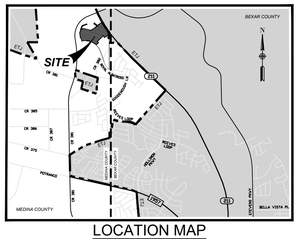
STORM WATER POLLUTION PREVENTION PLAN

DESIGNED BY:	JWS
DRAWN BY:	AS/JWS
DATE:	4/2/2024
JOB NO.:	05000-300
SHEET NO.	C8.00

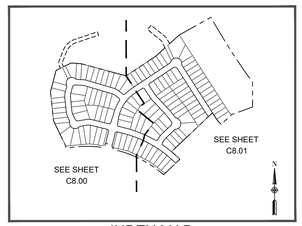
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Date: Apr 02, 2024, 5:14pm User ID: MASter File: E:_PROJECT\05000\300\100 - Design\300 - Sheets\C8.00 STORM WATER POLLUTION PREVENTION PLAN.dwg

DHI ENGINEERING, LLC.



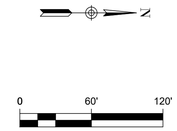
LOCATION MAP
NOT-TO-SCALE

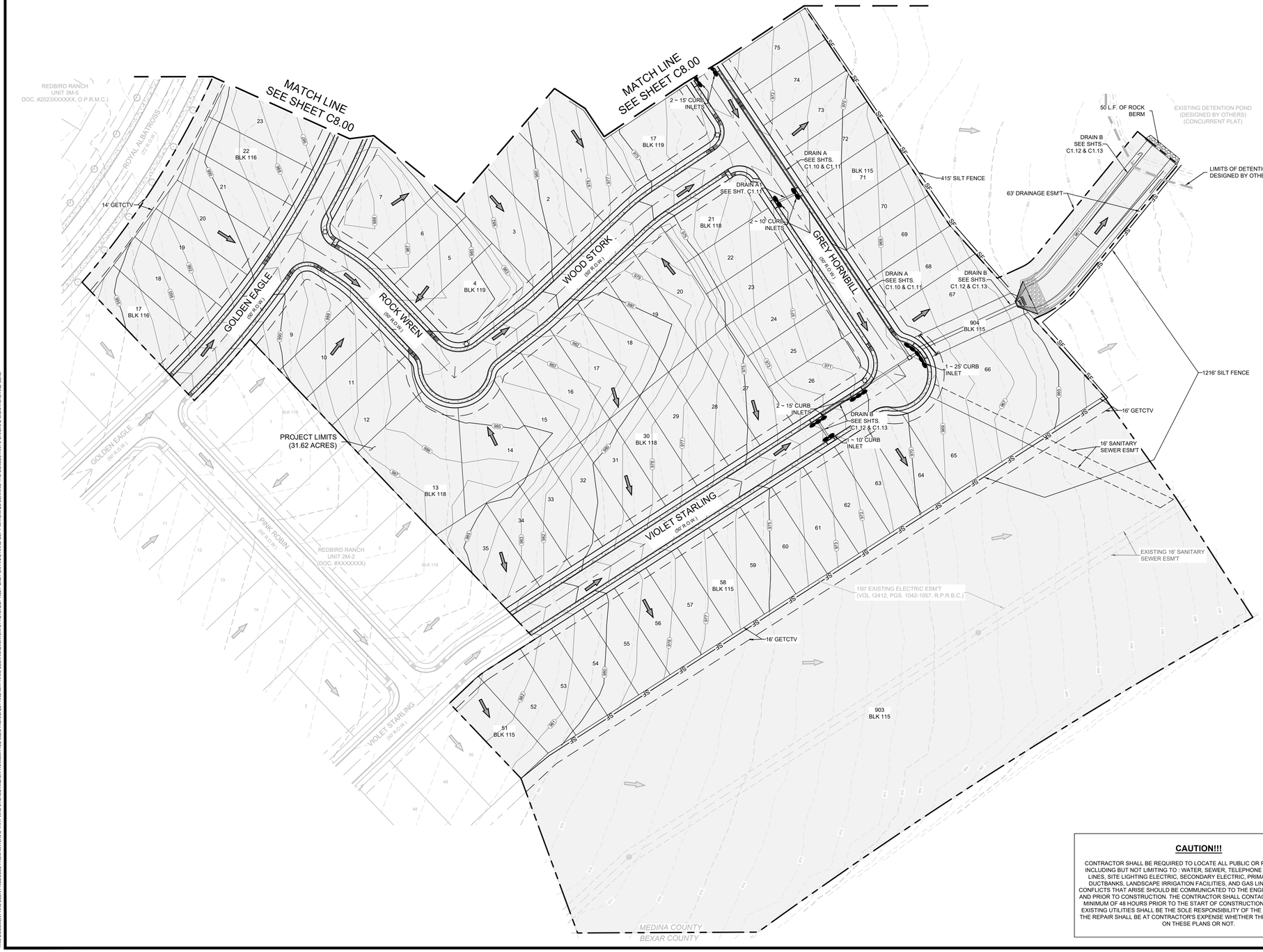


INDEX MAP
NOT-TO-SCALE

SW3P MODIFICATIONS

DATE	SIGNATURE	DESCRIPTION





LEGEND (SW3P)

	PROJECT LIMITS
	OFFSITE EASEMENTS
985	EXISTING CONTOUR
(1002)	PROPOSED CONTOUR
	FLOW ARROW (EXISTING)
	FLOW ARROW (PROPOSED)
SF	SILT FENCE
	ROCK BERM
	GRAVEL FILTER BAGS
	LIMITS OF DISTURBED AREA
	STABILIZED CONSTRUCTION ENTRANCE/EXIT (FIELD LOCATE)
	CONSTRUCTION EQUIPMENT, VEHICLE & MATERIALS STORAGE AREA (FIELD LOCATE)
	CONCRETE TRUCK WASH-OUTPIT (FIELD LOCATE)

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REV	DATE	DESCRIPTION

DOC. # XXXXXXXXXXX

REDBIRD RANCH UNIT 2M-3

4/2/2024
STATE OF TEXAS
VANCE L. WEYNAND
99269
LICENSED
PROFESSIONAL ENGINEER
Vance Weynand

DHI Engineering, LLC.
5419 N. LOOP 1604 EAST
SAN ANTONIO, TX 78247
(210) 494-8888 FIRM
TBPE REG. NO. F-19561

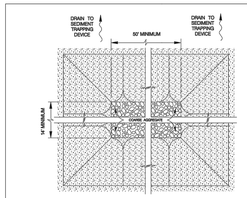
DHI

REDBIRD RANCH UNIT 2M-3
SAN ANTONIO, TX
STORM WATER POLLUTION PREVENTION PLAN

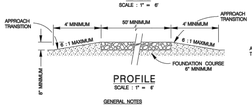
DESIGNED BY:	JWS
DRAWN BY:	AS/JWS
DATE:	4/2/2024
JOB NO.:	05000-300
SHEET NO.	C8.01

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Date: Apr 02, 2024, 5:15pm User ID: JWSilver File: E:_PROJECT\05000\300\300 - Design\300 - Sheets\C8.01 STORM WATER POLLUTION PREVENTION PLAN.dwg



PLAN
SCALE : 1" = 6'

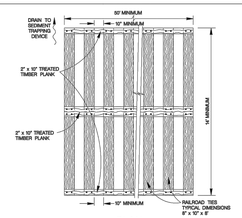


PROFILE
SCALE : 1" = 6'

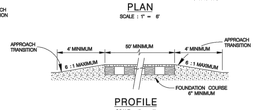
GENERAL NOTES

1. THE LENGTH OF THE TYPE 1 CONSTRUCTION EXIT SHALL BE AS INDICATED ON THE PLANS, BUT NOT LESS THAN 50'.
2. THE COARSE AGGREGATE SHOULD BE OPEN GRADED WITH A SIZE OF 4" TO 8".
3. THE APPROACH TRANSITIONS SHOULD BE NO STEEPER THAN 6 :1 AND CONSTRUCTED AS DIRECTED BY THE ENGINEER.
4. THE CONSTRUCTION EXIT FOUNDATION COURSE SHALL BE FLEXIBLE BASE, BITUMINOUS CONCRETE, PORTLAND CEMENT CONCRETE OR OTHER MATERIAL AS APPROVED BY THE ENGINEER.
5. THE CONSTRUCTION EXIT SHALL BE GRADED TO ALLOW DRAINAGE TO A SEDIMENT TRAPPING DEVICE.
6. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.

CONSTRUCTION EXIT – TYPE 1



PLAN
SCALE : 1" = 6'

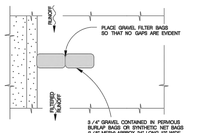


PROFILE
SCALE : 1" = 6'

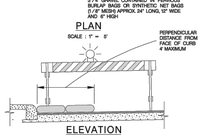
GENERAL NOTES

1. THE LENGTH OF THE TYPE 2 CONSTRUCTION EXIT SHALL BE AS INDICATED ON THE PLANS, BUT NOT LESS THAN 50'.
2. THE TREATED TIMBER PLANKS SHALL BE ATTACHED TO THE RAILROAD TIES WITH 1/2" x 6" MIN LAG BOLTS. OTHER FASTENERS MAY BE USED AS APPROVED BY THE ENGINEER.
3. THE TREATED TIMBER PLANKS SHALL BE #2 GRADE MIN., AND SHOULD BE FREE FROM LARGE AND LOOSE KNOTS.
4. THE APPROACH TRANSITIONS SHOULD BE NO STEEPER THAN 6 :1 AND CONSTRUCTED AS DIRECTED BY THE ENGINEER.
5. THE CONSTRUCTION EXIT FOUNDATION COURSE SHALL BE FLEXIBLE BASE, BITUMINOUS CONCRETE, PORTLAND CEMENT CONCRETE OR OTHER MATERIAL AS APPROVED BY THE ENGINEER.
6. THE CONSTRUCTION EXIT SHOULD BE GRADED TO ALLOW DRAINAGE TO A SEDIMENT TRAPPING DEVICE.
7. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.

CONSTRUCTION EXIT – TYPE 2



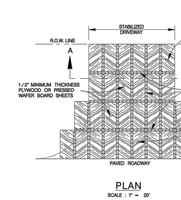
PLAN
SCALE : 1" = 5'



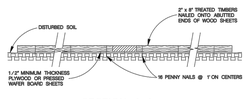
ELEVATION
SCALE : 1" = 5'

NOTE:
STRADDLE GRAVEL FILTER BAGS WITH TYPE II BARRICADES MOUNTED WITH TYPE A OR C WARNING LIGHTS AT EACH END OF CONSTRUCTION SIGN DETAILS. PLACE FLASHING LIGHTS AWAY FROM GUTTER, FLUSH WITH OUTSIDE EDGE OF BAG CONFIGURATION.

GRAVEL FILTER BAGS



PLAN
SCALE : 1" = 20'

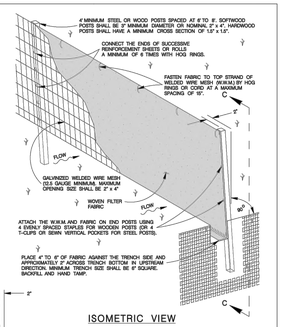


SECTION A–A
SCALE : 1" = 2'

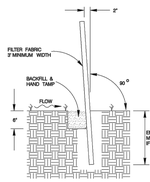
GENERAL NOTES

1. THE LENGTH OF THE TYPE 3 CONSTRUCTION EXIT SHALL BE AS INDICATED ON THE PLANS,OR AS DIRECTED BY THE ENGINEER.
2. THE TYPE 3 CONSTRUCTION EXIT MAY BE CONSTRUCTED FROM OPEN GRADED CRUSHED STONE WITH A SIZE OF 3 TO 4 INCHES SPREAD A MINIMUM OF 4 INCHES THICK TO THE LIMITS SHOWN ON THE PLANS.
3. THE TREATED TIMBER PLANKS SHALL BE #2 GRADE MIN.,AND SHOULD BE FREE FROM LARGE AND LOOSE KNOTS.
4. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.

CONSTRUCTION EXIT – TYPE 3



ISOMETRIC VIEW
SCALE : 1" = 2'



SECTION C–C
SCALE : 1" = 2'

SEDIMENT CONTROL FENCE USAGE GUIDELINES

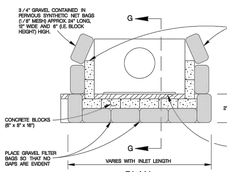
A SEDIMENT CONTROL FENCE MAY BE CONSTRUCTED NEAR THE DOWNSTREAM PERIMETER OF A DISTURBED AREA ALONG A CONTOUR TO INTERCEPT SEDIMENT FROM OVERLAND RUN-OFF. A 2 YEAR STORM FREQUENCY MAY BE USED TO CALCULATE THE FLOW RATE TO BE FILTERED.

SEDIMENT CONTROL FENCE SHOULD BE SIZED TO FILTER A MAXIMUM FLOW THRU RATE OF 0.5 GPM / FT SQUARED. SEDIMENT CONTROL FENCE IS NOT RECOMMENDED TO CONTROL EROSION FROM A DRAINAGE AREA LARGER THAN 2 ACRES.

GENERAL NOTES

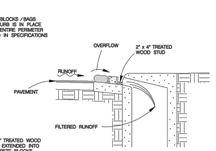
1. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.

TEMPORARY SEDIMENT CONTROL FENCE



PLAN
SCALE : 1" = 5'

NOTE:
GRAVEL FILTERS CAN BE USED ON PAVEMENT OR BARE GROUND.



SECTION G–G
SCALE : 1" = 5'

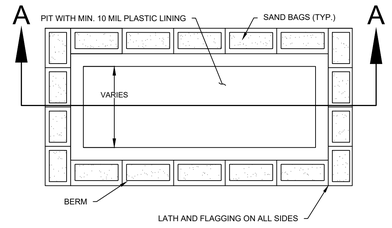
CURB INLET GRAVEL FILTER

JANUARY 2005

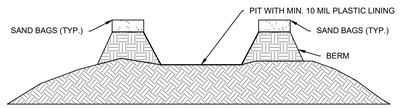
CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

TEMPORARY EROSION, SEDIMENT & WATER POLLUTION CONTROL MEASURES STANDARDS 1

% SUBMITTAL | PROJECT NO.: | DATE:
DRAWN BY: V. VASQUEZ | DSGN. BY: | CHKD. BY: | SHEET NO.: OF



PLAN VIEW



SECTION "A-A"

MATERIALS:
A IMPERMEABLE POLYETHYLENE LINING SHEET (MIN. 10 MIL) SHOULD BE INSTALLED WITH NO DEFECTS IN ORDER TO PREVENT LEAKS.

GENERAL NOTES:
1. DETAIL ABOVE ILLUSTRATES MINIMUM DIMENSIONS AND CAN BE RESIZED DEPENDING ON EXPECTED FREQUENCY OF USE.

2. WASHOUT PIT SHALL BE LOCATED AS DESIGNATED ON PLANS UNLESS A MORE SUITABLE LOCATION IS FOUND ONSITE.

3. WASHOUT PIT SHALL BE LOCATED IN AN AREA EASILY ACCESSIBLE TO CONSTRUCTION TRAFFIC; BUT OUT OF THE WAY OF STORM WATER RUNOFF

4. WASHOUT PIT SHALL BE LOCATED 50 FEET WAY FROM ANY SITE SENSITIVE FEATURES, RECEIVING BODIES OF WATER, OR DRAINAGE STRICTURES.

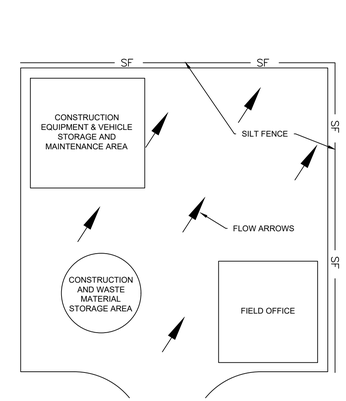
5. WASHOUT PIT SHALL BE SIZED TO CONTAIN THE QUANTITY AND VOLUME TO REQUIRED TO CONTAIN THE WASTE GENERATED BY WASHOUT OPERATIONS.

MAINTENANCE:
1. REMOVE AND DISPOSE HARDENED CONCRETE LEFT IN THE WASHOUT PIT ONCE THE PROJECT IS COMPLETED.

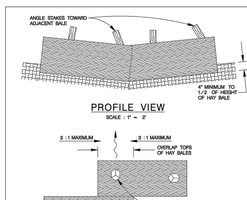
2. DECONSTRUCT THE WASHOUT PIT AND DISPOSED OF THE MATERIALS USED ONCE THE PROJECT IS COMPLETED.

3. BACKFILL AND REPAIR ANY GROUND DISTURBANCES CAUSED BY THE REMOVAL OF THE WASHOUT PIT.

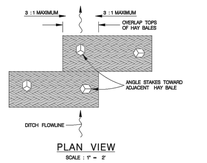
CONCRETE TRUCK WASHOUT PIT DETAIL
NOT TO SCALE



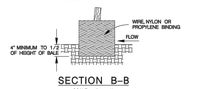
CONSTRUCTION STAGING AREA
NOT TO SCALE



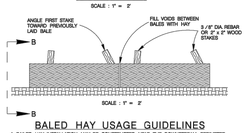
PROFILE VIEW
SCALE : 1" = 2'



PLAN VIEW
SCALE : 1" = 2'



SECTION B–B
SCALE : 1" = 2'



SCALE : 1" = 2'

BALED HAY USAGE GUIDELINES

A BALED HAY INSTALLATION MAY BE CONSTRUCTED NEAR THE DOWNSTREAM PERIMETER OF A DISTURBED AREA ALONG A CONTOUR TO INTERCEPT SEDIMENT FROM OVERLAND RUNOFF. A TWO YEAR STORM FREQUENCY MAY BE USED TO CALCULATE THE FLOW RATE TO BE FILTERED. BALED HAY SHOULD BE SIZED TO FILTER A MAXIMUM FLOW THRU RATE OF 0.5 GPM / FT SQUARED OF CROSS SECTIONAL AREA. BALED HAY MAY BE USED AT THE FOLLOWING LOCATIONS:

1. WHERE THE RUNOFF APPROACHING THE BALED HAY FLOWS OVER DISTURBED SOIL FOR LESS THAN 100 FEET AND WHERE THE DISTURBED SOIL EXCEEDS 1/4 ACRE. THE LENGTH OF SLOPE UPSTREAM OF THE BALED HAY SHOULD BE LESS THAN 50'.
2. WHERE THE INSTALLATION WILL BE REQUIRED FOR LESS THAN 3 MONTHS.
3. WHERE THE CONTRIBUTING DRAINAGE AREA IS LESS THAN 1/2 ACRE.

FOR BALED HAY INSTALLATIONS IN SMALL DITCHES,THE FOLLOWING ADDITIONAL CONDITIONAL CONSIDERATIONS APPLY:

1. THE DITCH SIDESLOPES SHOULD BE GRADED AS FLAT AS POSSIBLE TO MAXIMIZE THE DRAINAGE FLOW RATE THRU THE HAY.
2. THE DITCH SHOULD BE GRADED LARGE ENOUGH TO CONTAIN THE OVERTOPPING DRAINAGE WHEN SEDIMENT HAS FILLED TO THE TOP OF THE BALED HAY.

BALES SHOULD BE REPLACED USUALLY EVERY 2 MONTHS OR MORE OFTEN DURING WET WEATHER WHEN LOSS OF STRUCTURAL INTEGRITY IS ACCELERATED.

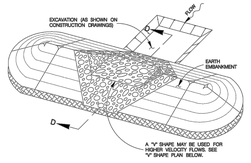
GENERAL NOTES

1. HAY BALES SHALL BE A MINIMUM OF 30" IN LENGTH AND WEIGH A MINIMUM OF 50 LBS.
2. HAY BALES SHALL BE BOUND BY EITHER WIRE OR NYLON OR POLYPROPYLENE STRING. THE BALES SHALL BE COMPOSED ENTIRELY OF VEGETABLE MATTER.
3. HAY BALES SHALL BE EMBEDDED IN THE SOIL A MINIMUM OF 4" AND, WHERE POSSIBLE, ONE-HALF THE HEIGHT OF THE BALE.
4. HAY BALES SHALL BE PLACED IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES. THE BALES SHALL BE PLACED WITH BINDINGS PARALLEL TO THE GROUND.
5. HAY BALES SHALL BE SECURELY ANCHORED IN PLACE WITH 2 1/4" DIA REBAR OR 2" x 2" WOOD STAKES DRIVEN THROUGH THE BALES. THE FIRST STAKE SHALL BE ANGLED TOWARDS THE PREVIOUSLY LAID BALE TO FORCE THE BALES TOGETHER.
6. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.

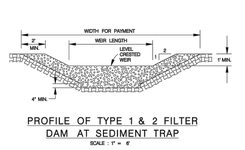
BALED HAY FOR EROSION CONTROL



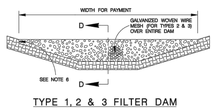
TYPE 1 FILTER DAM AT TOE OF SLOPE
SCALE : 1" = 10'



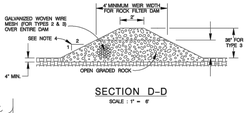
TYPE 1 & 2 FILTER DAM AT SEDIMENT TRAP
SCALE : 1" = 10'



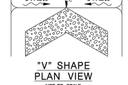
PROFILE OF TYPE 1 & 2 FILTER DAM AT SEDIMENT TRAP
SCALE : 1" = 6'



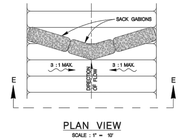
TYPE 1, 2 & 3 FILTER DAM AT CHANNEL SECTIONS
SCALE : 1" = 6'



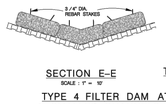
SECTION D–D
SCALE : 1" = 6'



"V" SHAPE PLAN VIEW
NOT TO SCALE



PLAN VIEW
SCALE : 1" = 10'



SECTION E–E
SCALE : 1" = 10'



TYPE 4 SACK GABION DETAIL
SCALE : 1" = 6'



SECTION F–F
SCALE : 1" = 6'

TYPE 4 FILTER DAM AT DITCHES & SMALLER CHANNELS PLAN VIEW

ROCK FILTER DAMS

ROCK FILTER DAM USAGE GUIDELINES

ROCK FILTER DAMS SHOULD BE CONSTRUCTED DOWNSTREAM FROM DISTURBED AREAS TO INTERCEPT SEDIMENT FROM OVERLAND RUNOFF AND / OR CONCENTRATED FLOW. THE DAMS SHOULD BE SIZED TO FILTER A MAXIMUM FLOW THRU RATE OF 60 GPM / FT SQUARED OF CROSS SECTIONAL AREA. A 2 YEAR STORM FREQUENCY MAY BE USED TO CALCULATE THE FLOW RATE.

TYPE 1 (36" HIGH WITH NO WIRE MESH) :

TYPE 1 MAY BE USED AT THE TOE OF SLOPES AROUND INLETS, IN SMALL DITCHES AND AT END OF SMALL OUTLETS. THIS TYPE OF DAM IS RECOMMENDED TO CONTROL EROSION FROM A DRAINAGE AREA OF 5 ACRES OR LESS. TYPE 1 DAMS ARE NOT RECOMMENDED TO WITHSTAND HIGH VELOCITY FLOWS (APPROXIMATELY 8 FT./SEC. OR MORE) IN WHICH AGGREGATE WASH OUT MAY OCCUR. SANDBAGS MAY BE USED AT THE EMBEDDED FOUNDATION (4" DEEP MIN) FOR BETTER FILTERING EFFICIENCY OF LOW FLOWS IF CALLED FOR ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

TYPE 2 (36" HIGH WITH WIRE MESH) :

TYPE 2 MAY BE USED IN DITCHES AND AT END OR SMALL OUTLETS.

TYPE 3 (36" HIGH WITH WIRE MESH) :

TYPE 3 MAY BE USED IN STREAM FLOW AND SHOULD BE SECURED TO THE STREAM BED.

TYPE 4 (SACK GABIONS) :

TYPE 4 MAY BE USED IN DITCHES AND SMALLER CHANNELS TO FORM AN EROSION CONTROL DAM.

GENERAL NOTES

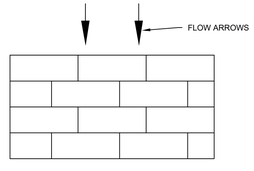
1. IF SHOWN ON THE PLANS OR DIRECTED BY THE ENGINEER,FILTER DAMS SHOULD BE PLACED NEAR THE TOE OF SLOPES WHERE EROSION IS ANTICIPATED,UPSTREAM AND / OR DOWNSTREAM AT DRAINAGE STRUCTURES,AND IN ROADWAY DITCHES AND CHANNELS TO COLLECT SEDIMENT.
2. MATERIALS (AGGREGATE,WIRE MESH, SANDBAGS, ETC.) SHALL BE AS INDICATED BY THE SPECIFICATION FOR ROCK FILTER DAMS FOR EROSION AND SEDIMENTATION CONTROL.
3. THE ROCK FILTER DAM DIMENSIONS SHALL BE AS INDICATED ON THE STORM WATER POLLUTION PREVENTION PLANS.
4. SIDE SLOPES SHOULD BE 2 :1 OR FLATTER, DAMS WITHIN THE SAFETY ZONE SHALL HAVE SIDE SLOPES OF 6 :1 OR FLATTER.
5. MAINTAIN A MINIMUM OF 1' BETWEEN TOP OF ROCK FILTER DAM WEIR AND TOP OF EMBANKMENT FOR FILTER DAMS AT SEDIMENT TRAPS.
6. FILTER DAMS SHOULD BE EMBEDDED A MINIMUM OF 4" INTO THE EXISTING GROUND.
7. THE SEDIMENT TRAP FOR PONDING OF SEDIMENT LADEN RUNOFF SHALL BE OF THE DIMENSIONS SHOWN ON THE PLANS.
8. ROCK FILTER DAM TYPES 2 & 3 SHALL BE SECURED WITH 20 GAUGE GALVANIZED WOVEN WIRE MESH WITH 1" MAXIMUM OPENINGS. WIRE MESH FOR TYPE 2 DAMS SHALL BE PLACED ON THE MESH TO THE HEIGHT AND SLOPES SPECIFIED. THE MESH SHALL BE FOLDED AT THE UPSTREAM SIDE OVER THE AGGREGATE AND TIGHTLY SECURED TO ITSELF ON THE DOWNSTREAM SIDE USING WIRE TIES OR HOG RINGS. IN STREAM USE,THE MESH SHOULD BE SECURED OR STAKED TO THE STREAM BED PRIOR TO AGGREGATE PLACEMENT.
9. SACK GABIONS SHOULD BE STAKED DOWN WITH 3/4" DIA REBAR STAKES.
10. FLOW OUTLET SHOULD BE ONTO A STABILIZED AREA (VEGETATION, ROCK, ETC.).
11. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.

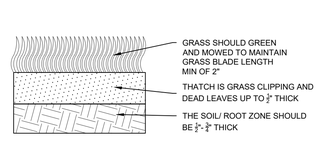
JANUARY 2005

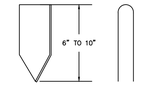
CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

TEMPORARY EROSION, SEDIMENT & WATER POLLUTION CONTROL MEASURES STANDARDS 2

% SUBMITTAL | PROJECT NO.: | DATE:
DRAWN BY: V. VASQUEZ | DSGN. BY: | CHKD. BY: | SHEET NO.: OF







GENERAL NOTE:

1. PLACE SOD IN A STAGGERED PATTERED, TIGHTLY AGAINST EACH OTHER WITH NO OVERLAP.
2. LAY SOD PERPENDICULAR TO THE DIRECTION OF SURFACE FLOW. IN AREAS WHERE EROSION IS A CONCERN, APPLY ADDITIONAL ANCHORING METHODS TO SECURE SOD.

TYPICAL SOD DETAIL NOTES:

1. ROLL OUT SOD ONCE RECEIVED AND WATER TO A DEPTH OF 4" ONCE LAID.
2. ONLY MOW SOD ONCE WELL ESTABLISHED (AFTER 2 TO 3 WEEK)

PEG OR STAPLE:

1. USE PEGS OR STAPLES TO FASTEN SOD IN AREAS THAT HAVE HIGH EROSION.
2. USE FASTENER AT THE FOUR CORNERS AND CENTER OF EACH STRIP; OR EVERY 3 TO 4 FEET IF THE STRIPS ARE LONG.
3. MAKE SURE THE PEGS AND STAPLES ARE LUSH WITH THE GROUND BEFORE MOWING.

GENERAL NOTES:

1. SOD SHOULD NOT BE PLACE ON EXCESSIVELY WET, DRY, OR FROZEN SOIL.

2. DURING HIGH TEMPERATURE, SOIL MUST BE LIGHTLY IRRIGATED, PRIOR TO INSTALLING SOD FOR BETTER ACCLIMATION.

3. THE FIRST ROW AND SUBSEQUENT ROWS OF SOD SHALL BE PLACED PARALLEL AND TIGHTLY AGAINST EACH OTHER TO PREVENT VOIDS, PERPENDICULAR TO THE FLOW OF RUNOFF. SOD SHOULD BE INSTALLED WITH LATERAL JOINTS SHOULD BE STAGGERED ON IMPROVE GROWTH AND STABILITY.

4. SOD SHOULD BE INSTALLED WITH LATERAL JOINTS AND ADDITIONAL APPROVED ANCHORING METHODS (MESH OR NETTING) AS NEEDED WHEN INSTALLED ON SLOPES EQUAL TO OR GRATER THAN 3:1 OR WHERE EROSION IS FORESEEN TO BE A CONCERN (CHANNELS).

5. SOD SHOULD BE ROLLED OR TAMPED TO PROMOTE GROWTH AND ROOT ESTABLISHMENT. THE SOD SHOULD THEN BE IRRIGATED TO WET THE FIRST 4 INCH AT A MIN. THIS WILL NEED TO BE MAINTAINED, IN THE ABSENCE OF RAINFALL, UNTIL A GOOD ROOT SYSTEM IS ESTABLISHED.

6. NO MOWING OF THE SOD SHOULD BE DONE UNTIL ROOT SYSTEM IS ESTABLISHED AND THEN ONLY MAX 1/3 OF THE GRASS SHALL BE REMOVED. THIS USUALLY TAKES 2-3 WEEKS.

INSPECTION MAINTENANCE:

1. INSPECT SOD WEEKLY AND AFTER EACH RAINFALL EVENT TO REPAIR.

2. DAMAGE DUE TO ENVIRONMENTAL CIRCUMSTANCES OR CONSTRUCTION ACTIVITIES SHOULD BE REPAIRED AS SOON AS POSSIBLE.

MATERIALS:

1. SOD SHOULD BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 3/4" (±1/4") AT THE TIME OF CUTTING, EXCLUDING SHOOT GROWTH AND THATCH.

2. PIECES OF SOD SHOULD BE CUT TO THE SUPPLIER'S STANDARD WIDTH AND LENGTH, WITH A MAXIMUM ALLOWABLE DEVIATION IN ANY DIMENSION OF 5%. TORN OR UNEVEN PADS SHOULD NOT BE ACCEPTED.

3. STANDARD SIZE SECTIONS OF SOD SHOULD BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT AND RETAIN THEIR SIZE AND SHAPE WHEN SUSPENDED FROM A FIRM GRASP ON ONE END OF THE SECTION.

4. SOD SHOULD BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS.

SITE PREPARATION:

1. AREA TO BE SIDED SHOULD BE BROUGHT TO FINAL GRADE BEFORE INSTALLATION ACCORDING TO THE ENGINEERING PLANS.

2. THE SITE SHOULD BE CLEARED OF ALL DEBRIS AND OBJECTS THAT WOULD HINDER THE PLANTING, FERTILIZING AND MAINTENANCE OF THE SOD INSTALLED.

3. FERTILIZE THE SOIL BASED ON SOIL TESTS OR REGIONAL RECOMMENDATIONS FROM THE COUNTY AGRICULTURAL EXTENSION AGENTS. FERTILIZATION NEEDS TO BE WORKED INTO THE SOIL AT A MINIMUM DEPTH OF 3".

SOD INSTALLATION DETAIL
NOT TO SCALE

REV	DATE	DESCRIPTION

4/2/2024
STATE OF TEXAS
VANCE L. WEYNAND
99269
LICENSED
PROFESSIONAL ENGINEER
Vance Weynand

DHI Engineering, LLC.
5419 N. LOOP 1604 EAST
SAN ANTONIO, TX 78247
(210) 496-8900
TBPE REG. NO. F-19561

DHI

DOC. # XXXXXXXXXX

REDBIRD RANCH UNIT 2M-3
SAN ANTONIO, TX

STORM WATER POLLUTION PREVENTION DETAILS

DESIGNED BY:	JWS
DRAWN BY:	AS/JWS
DATE:	4/2/2024
JOB NO.:	05000-300
SHEET NO.	C8.10

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DHI ENGINEERING, LLC.

Date: Apr 02, 2024, 5:15pm User ID: AMSher File: E:_PROJECTS\05000\300\900 - Design\100 - Sheets\C8.10 STORM WATER POLLUTION PREVENTION DETAILS.dwg