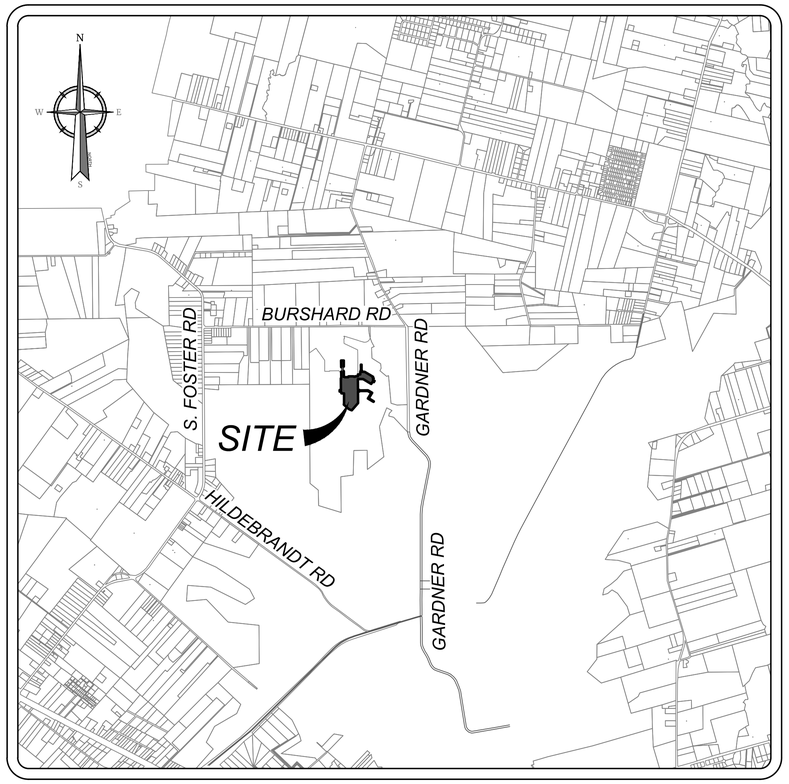
NORTHLAKE PHASE 3

BEXAR COUNTY, TEXAS

UTILITY, DRAINAGE, STREET, SANITARY SEWER AND WATER IMPROVEMENTS



LOCATION MAP

SCALE: NOT-TO-SCALE

OWNER/DEVELOPER:
LENNAR HOMES OF TEXAS LAND AND CONSTRUCTION, LTD
100 NE LOOP 410, SUITE 1155
SAN ANTONIO, TEXAS 78216
(210) 403-6200

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STATE OF TEXAS
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125560
LICENSED
PROFESSIONAL ENGINEER

NORTHLAKE PHASE 3
PLAT 25-11800055

BEXAR COUNTY
TEXAS

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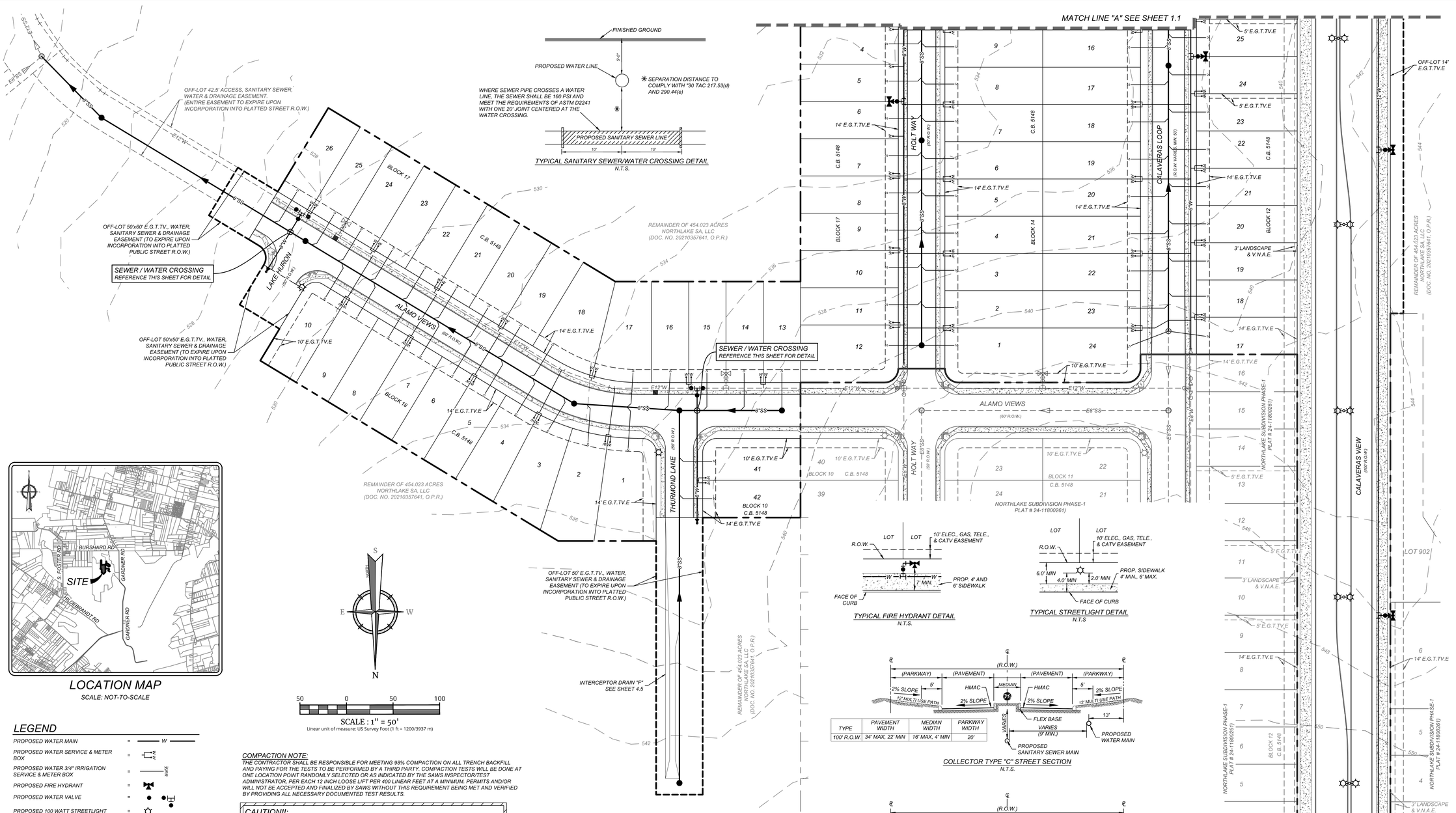
PROJECT NUMBER: 314-65-04
DRAWING NAME: CV3146504

SHEET TITLE: COVER SHEET

SHEET NUMBER: 0.0

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

M:\CV3146504.dwg\0.0 By: RODELIO.BERBONES



LOCATION MAP
SCALE: NOT-TO-SCALE

50 0 50 100

SCALE : 1" = 50'
Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

LEGEND

PROPOSED WATER MAIN	=	W
PROPOSED WATER SERVICE & METER BOX	=	W
PROPOSED WATER 3/4" IRRIGATION SERVICE & METER BOX	=	W
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED 100 WATT STREETLIGHT	=	
PROPOSED 250 WATT STREETLIGHT	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	
PROPOSED SANITARY SEWER LATERAL	=	
PROPOSED ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E.G.T.TV.E
VEHICULAR NON-ACCESS EASEMENT	=	V.N.A.E.
EXISTING WATER MAIN	=	E.W
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	E.SS
EXISTING SANITARY SEWER MANHOLE	=	
EXISTING 100 WATT STREET LIGHT	=	
EXISTING 250 WATT STREET LIGHT	=	

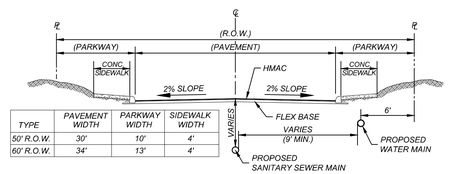
TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.

TYPICAL FIRE HYDRANT DETAIL
N.T.S.

TYPICAL STREETLIGHT DETAIL
N.T.S

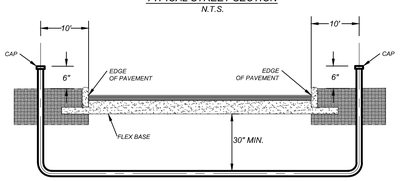
TYPE	PAVEMENT WIDTH	MEDIAN WIDTH	PARKWAY WIDTH
100' R.O.W.	34' MAX, 22' MIN	16' MAX, 4' MIN	20'

COLLECTOR TYPE "C" STREET SECTION
N.T.S.



TYPE	PAVEMENT WIDTH	PARKWAY WIDTH	SIDEWALK WIDTH
50' R.O.W.	30'	10'	4'
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TYPICAL STREET SECTION
N.T.S.



TYPICAL CONDUIT DETAIL
N.T.S.

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

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

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

DRY UTILITY CONDUIT NOTE:
CONDUIT LOCATIONS SHOWN ON PLAN ARE FOR GEOGRAPHICAL PURPOSES ONLY AND ARE APPROXIMATE. CONTRACTOR TO INSTALL PROPOSED CONDUITS IN ACCORDANCE WITH DRY UTILITY PURVEYOR'S SPECIFICATIONS. CONTRACTOR TO VERIFY THE CONDUIT LOCATIONS AND SIZES BASED ON THE DRY UTILITY PURVEYOR'S PLAN.

CONDUIT NOTES:
1. CONTRACTOR SHALL INSTALL PERMANENT MARKERS IN PROPOSED CURB WHERE CONDUITS CROSS THE ROADWAY (BOTH SIDES).
2. CONDUITS SHALL BE PVC WITH MINIMUM BURY OF 36 INCHES BELOW PROPOSED FINISHED GRADE. SCHEDULE 80 TO BE USED FOR CPS CONDUITS, ALL OTHER CONDUITS ARE SCHEDULE 40.
3. ALL CONDUITS SHALL BE EXTENDED BEHIND CURBS OR PROPOSED SIDEWALKS A MINIMUM OF 3 FEET AND CAPPED FOR FUTURE USE.
4. ALL CONDUIT SLEEVES TO BE USED FOR ELECTRIC, GAS, OR TELECOMMUNICATION UTILITY CROSSINGS SHALL BE INSTALLED TO MEET OR EXCEED DESIGN REQUIREMENTS FOR THE UTILITY AGENCY WHICH THEY ARE SERVING, INCLUDING BUT NOT LIMITED TO THE DEPTH, TRENCH PLACEMENT, AND PROXIMITY TO OTHER UTILITIES. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR VERIFYING AND INSTALLING THE CONDUIT SLEEVES TO MEET THESE SPECIFICATIONS INCLUDING COORDINATING WITH THE UTILITY AGENCY FOR ANY REQUIRED INSPECTIONS

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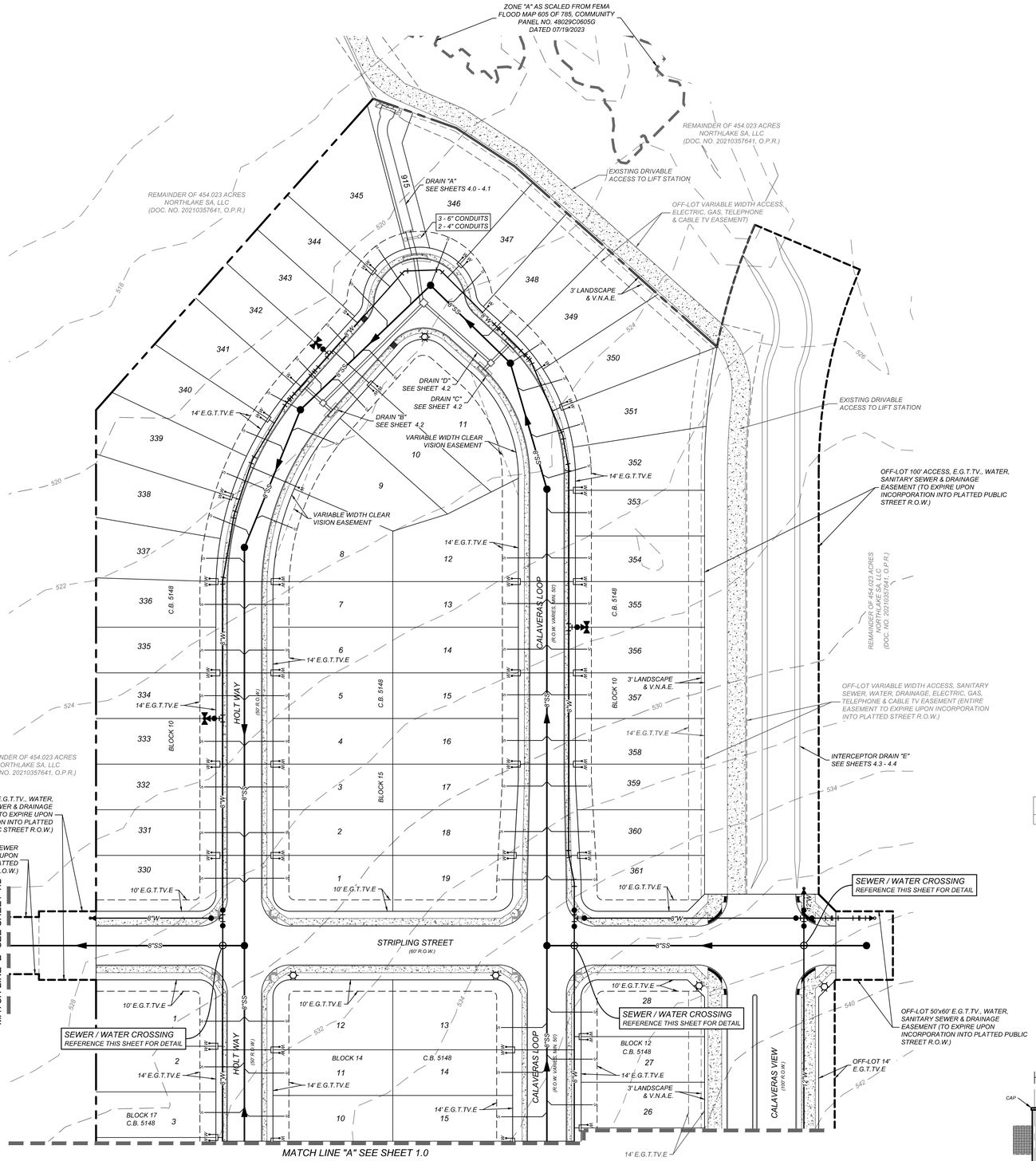
PROJECT NUMBER: 314-65-04
DRAWING NAME: OU3146504

SHEET TITLE:
OVERALL UTILITY PLAN (1 OF 3)

SHEET NUMBER:
1.0

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

By: ABEL MONTALVO
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TRENCH EXCAVATION SAFETY PROTECTION

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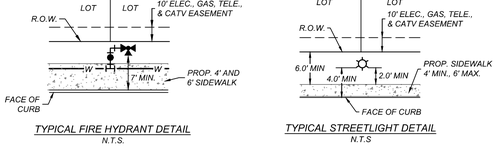
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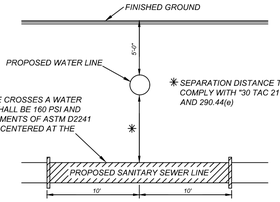
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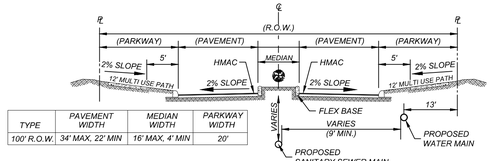


TYPICAL FIRE HYDRANT DETAIL
N.T.S.

TYPICAL STREETLIGHT DETAIL
N.T.S

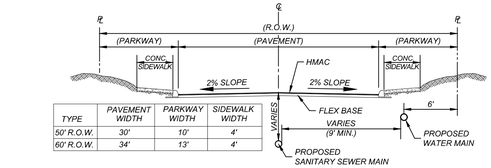


TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.



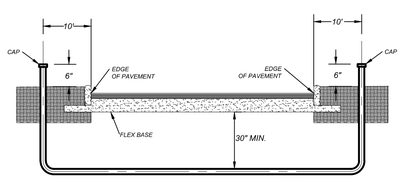
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100' R.O.W.	34' MAX, 22' MIN	16' MAX, 4' MIN	20'

COLLECTOR TYPE "C" STREET SECTION
N.T.S.



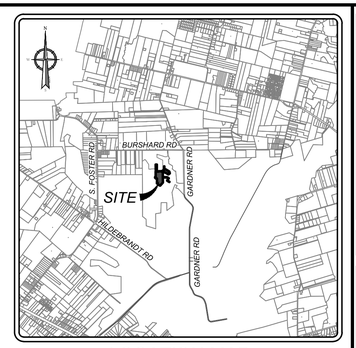
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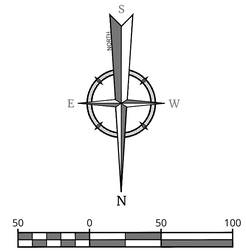
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LOCATION MAP

SCALE: NOT-TO-SCALE



SCALE : 1" = 50'

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

LEGEND

PROPOSED WATER MAIN	=	W
PROPOSED WATER SERVICE & METER BOX	=	W M
PROPOSED WATER 3/4" IRRIGATION SERVICE & METER BOX	=	IRR W
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED 100 WATT STREETLIGHT	=	
PROPOSED 250 WATT STREETLIGHT	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	
PROPOSED SANITARY SEWER LATERAL	=	
PROPOSED ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E.G.T.TV.E
VEHICULAR NON-ACCESS EASEMENT	=	V.N.A.E.
EXISTING WATER MAIN	=	E.W
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	E.SS
EXISTING SANITARY SEWER MANHOLE	=	
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EXISTING 250 WATT STREET LIGHT	=	

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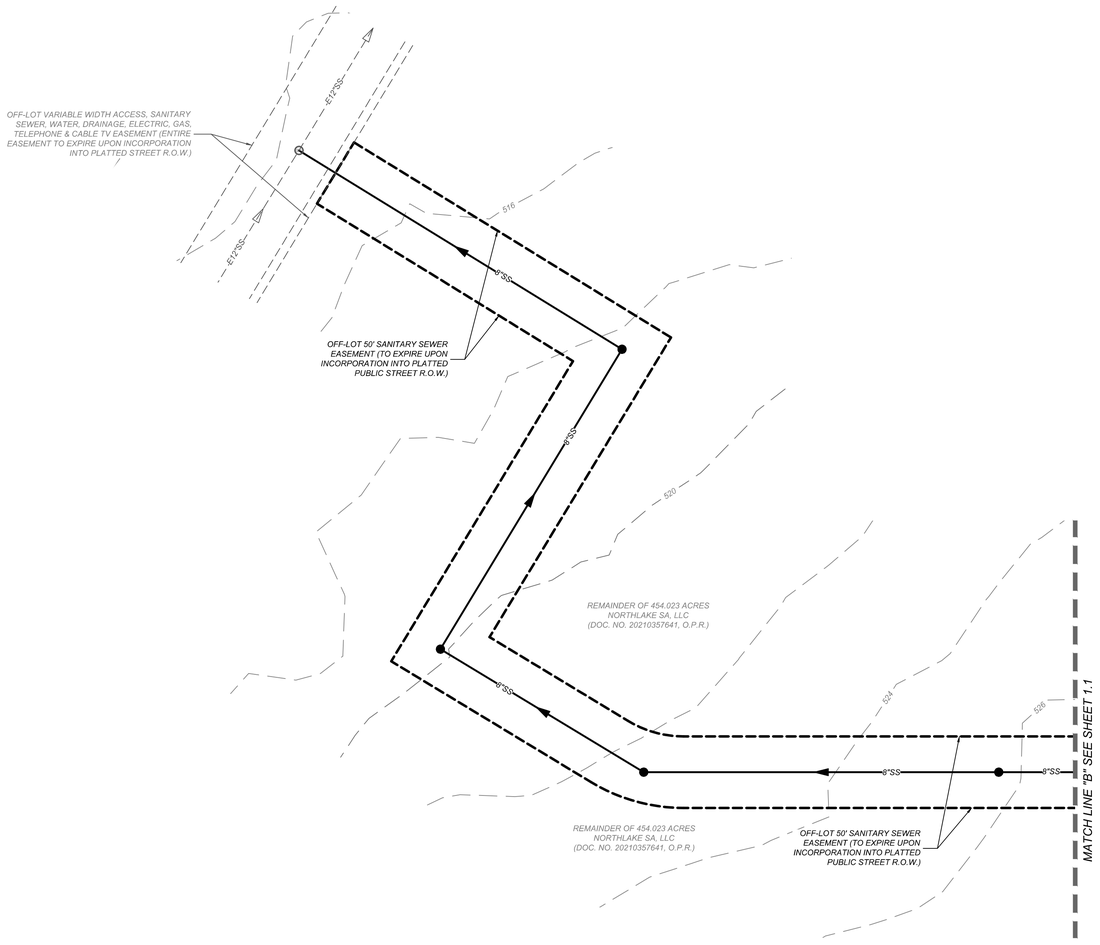
PROJECT NUMBER:	DRAWING NAME:
314-65-04	OU3146504

SHEET TITLE:
OVERALL UTILITY PLAN (2 OF 3)

SHEET NUMBER:
1.1

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\\RO\31465\04.dwg\1.1 By: ABEL.MONTALVO



TRENCH EXCAVATION SAFETY PROTECTION

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

DRY UTILITY CONDUIT NOTE:

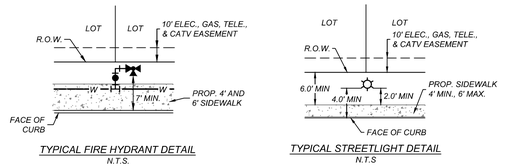
CONDUIT LOCATIONS SHOWN ON PLAN ARE FOR GEOGRAPHICAL PURPOSES ONLY AND ARE APPROXIMATE. CONTRACTOR TO INSTALL PROPOSED CONDUITS IN ACCORDANCE WITH DRY UTILITY PURVEYOR'S SPECIFICATIONS. CONTRACTOR TO VERIFY THE CONDUIT LOCATIONS AND SIZES BASED ON THE DRY UTILITY PURVEYOR'S PLAN.

COMPACTION NOTE:

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

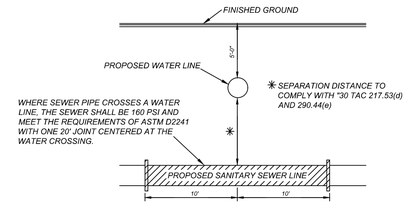
CAUTION!!:

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

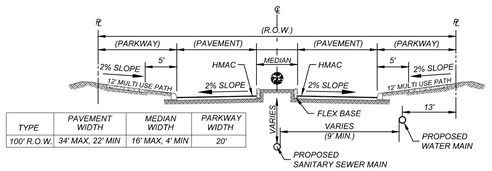


TYPICAL FIRE HYDRANT DETAIL
N.T.S.

TYPICAL STREETLIGHT DETAIL
N.T.S

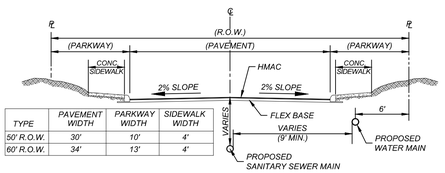


TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.



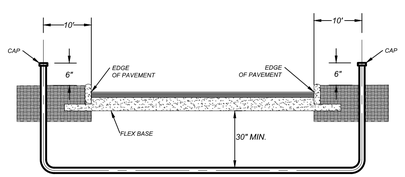
TYPE	PAVEMENT WIDTH	MEDIAN WIDTH	PARKWAY WIDTH
100' R.O.W.	34' MAX, 22' MIN	16' MAX, 4' MIN	20'

COLLECTOR TYPE "C" STREET SECTION
N.T.S.



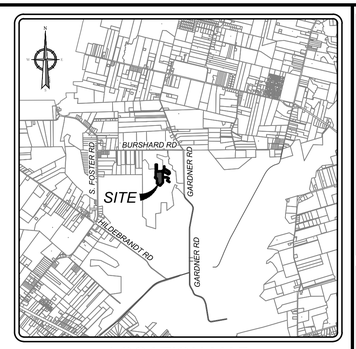
TYPE	PAVEMENT WIDTH	PARKWAY WIDTH	SIDEWALK WIDTH
50' R.O.W.	30'	10'	4'
60' R.O.W.	34'	13'	4'

TYPICAL STREET SECTION
N.T.S.



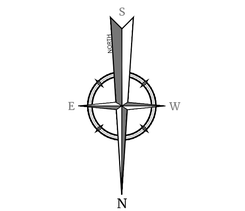
TYPICAL CONDUIT DETAIL
N.T.S.

NOTE: CONTRACTOR SHALL BE RESPONSIBLE FOR PLACING CONDUIT SLEEVES FOR EACH CPS FACILITY AT ALL STREETS AND DRAIN CROSSING IF BUILT AHEAD OF CPS CONSTRUCTION. SLEEVES MUST ALSO BE LOCATED FOR CPS CREWS DURING CONSTRUCTION. (SEPERATE ITEM) SEE THIS SHEET FOR CONDUIT CROSSING DETAIL AND SCHEDULE.



LOCATION MAP

SCALE: NOT-TO-SCALE



50 0 50 100

SCALE : 1" = 50'

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

LEGEND

PROPOSED WATER MAIN	=	W
PROPOSED WATER SERVICE & METER BOX	=	W
PROPOSED WATER 3/4" IRRIGATION SERVICE & METER BOX	=	W
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED 100 WATT STREETLIGHT	=	
PROPOSED 250 WATT STREETLIGHT	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	
PROPOSED SANITARY SEWER LATERAL	=	
PROPOSED ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E.G.T.TV.E
VEHICULAR NON-ACCESS EASEMENT	=	V.N.A.E.
EXISTING WATER MAIN	=	E.W
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	E.SS
EXISTING SANITARY SEWER MANHOLE	=	
EXISTING 100 WATT STREET LIGHT	=	
EXISTING 250 WATT STREET LIGHT	=	

CONDUIT NOTES:

1. CONTRACTOR SHALL INSTALL PERMANENT MARKERS IN PROPOSED CURB WHERE CONDUITS CROSS THE ROADWAY (BOTH SIDES).

2. CONDUITS SHALL BE PVC WITH MINIMUM BURY OF 36 INCHES BELOW PROPOSED FINISHED GRADE. SCHEDULE 80 TO BE USED FOR CPS CONDUITS, ALL OTHER CONDUITS ARE SCHEDULE 40.

3. ALL CONDUITS SHALL BE EXTENDED BEHIND CURBS OR PROPOSED SIDEWALKS A MINIMUM OF 3 FEET AND CAPPED FOR FUTURE USE.

4. ALL CONDUIT SLEEVES TO BE USED FOR ELECTRIC, GAS, OR TELECOMMUNICATION UTILITY CROSSINGS SHALL BE INSTALLED TO MEET OR EXCEED DESIGN REQUIREMENTS FOR THE UTILITY AGENCY WHICH THEY ARE SERVING, INCLUDING BUT NOT LIMITED TO THE DEPTH, TRENCH PLACEMENT, AND PROXIMITY TO OTHER UTILITIES. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR VERIFYING AND INSTALLING THE CONDUIT SLEEVES TO MEET THESE SPECIFICATIONS INCLUDING COORDINATING WITH THE UTILITY AGENCY FOR ANY REQUIRED INSPECTIONS

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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
OMAR A. ESPINOSA
125560
LICENSED PROFESSIONAL ENGINEER

NORTHLAKE PHASE 3
PLAT 25-11800055

BEXAR COUNTY
TEXAS

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

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	JANUARY 2025	SJ	SC

PROJECT NUMBER: 314-65-04
DRAWING NAME: OU3146504

SHEET TITLE:
OVERALL UTILITY PLAN (3 OF 3)

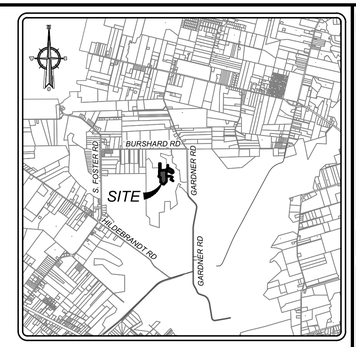
SHEET NUMBER:
1.2

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

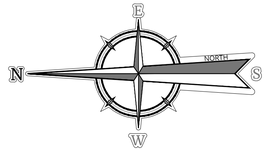
W:\OU3146504.dwg\1.2 By: ABEL.MONTALVO

LEGEND

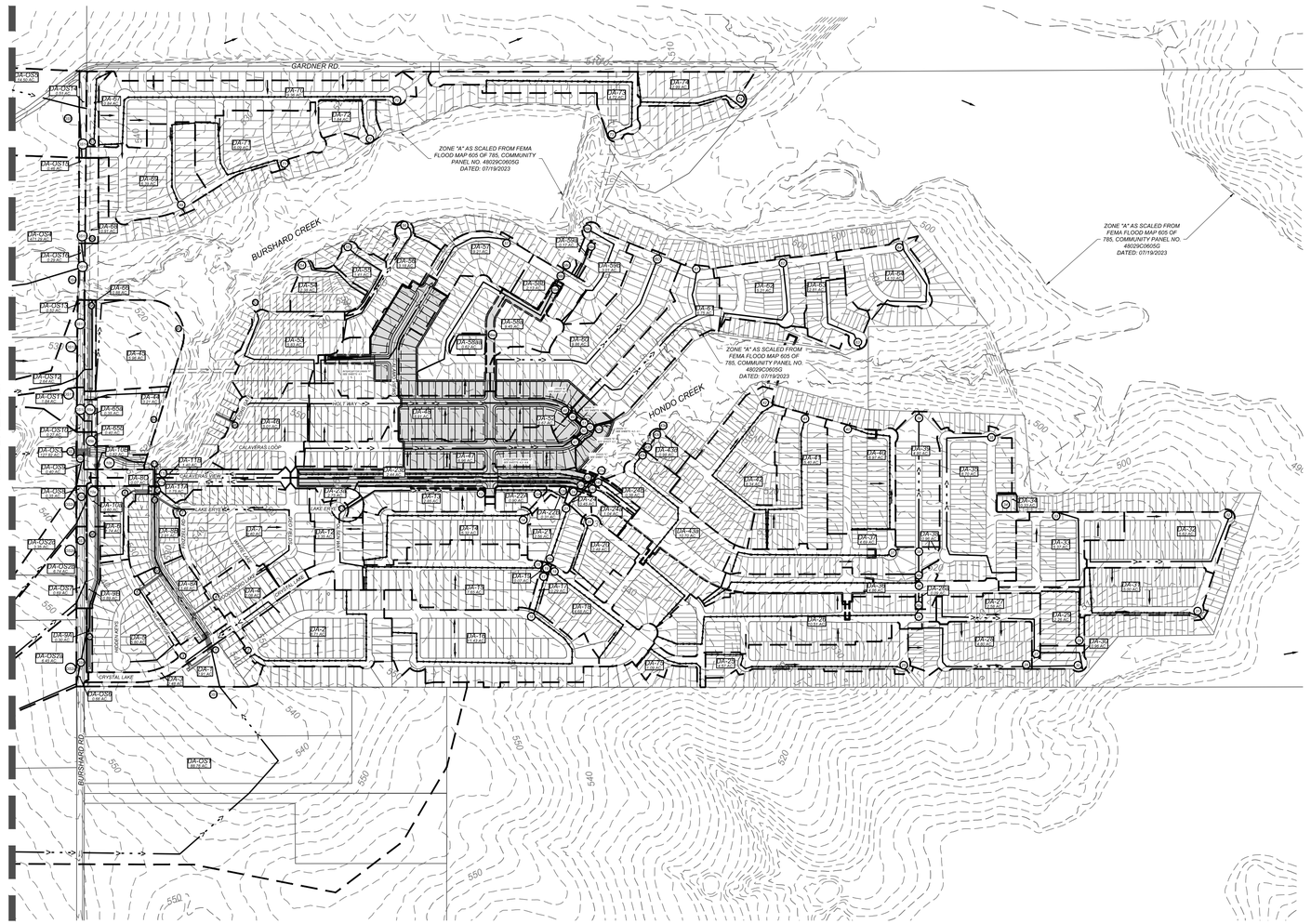
- = MDP BOUNDARY
- 980 = LIDAR CONTOURS
- = 100 YEAR FEMA FLOODPLAIN BOUNDARY
- = FLOW ARROW
- = DRAINAGE AREA
- = FLOW PATH
- (1) = STUDY POINT



LOCATION MAP
SCALE: NOT-TO-SCALE



400 0 400 800
SCALE : 1" = 400'
SELECT LINEAR UNIT OF MEASURE



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125560
LICENSED PROFESSIONAL ENGINEER

NORTHLAKE PHASE 3
PLAT 25-11800055

BEXAR COUNTY
TEXAS

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

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	JANUARY 2025	SJ	SC

PROJECT NUMBER: 314-65-04
DRAWING NAME: MD3146504

SHEET TITLE: MASTER DRAINAGE PLAN (1 OF 3)

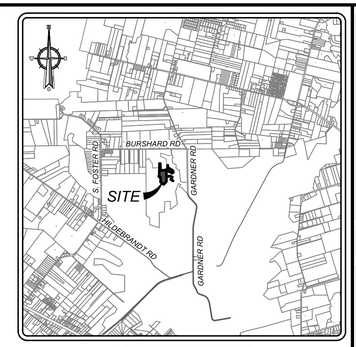
SHEET NUMBER: 2.0

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

MD3146504.dwg(2.0 By: ABEL.MONTALVO

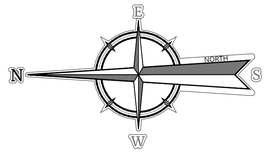
LEGEND

- = MDP BOUNDARY
- 980 = LIDAR CONTOURS
- = 100 YEAR FEMA FLOODPLAIN BOUNDARY
- = FLOW ARROW
- = DRAINAGE AREA
- = FLOW PATH
- 1 = STUDY POINT



LOCATION MAP

SCALE: NOT-TO-SCALE



400 0 400 800

SCALE : 1" = 400'

SELECT LINEAR UNIT OF MEASURE



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TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	JANUARY 2025	SJ	SC

PROJECT NUMBER: 314-65-04

DRAWING NAME: MD31466504

SHEET TITLE: MASTER DRAINAGE PLAN (2 OF 3)

SHEET NUMBER: 2.1

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

By: ABEL.MONTALVO
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ULTIMATE CONDITIONS

STUDY POINT	AREA	(Acres)	C		Tovrl (min)	Tsc (min)	Tch (min)	Ttot (min)	I5 (in/hr)	I25 (in/hr)	I100 (in/hr)	Q5 (ft3/s)	Q25 (ft3/s)	Q100 (ft3/s)
OS1	DA-OS1	85.72	0.70		12	17	51	80	2.41	3.35	4.19	144.61	201.01	251.42
OS2A	DA-OS2A	6.45	0.70		11	14	3	28	3.81	5.22	6.48	17.20	23.57	29.26
OS2B	DA-OS2B	6.74	0.70		11	15	6	32	3.56	4.87	6.04	16.80	22.98	28.50
OS2C	DA-OS2C	3.35	0.70		11	15	9	35	3.39	4.65	5.77	7.95	10.90	13.53
OS3	DA-OS3	127.82	0.70		12	17	49	78	2.41	3.35	4.19	215.63	299.74	374.90
OS4	DA-OS4	471.29	0.70		SEE FLOOD STUDY NORTHLAKE PHASE 1									
OS5	DA-OS5	14.50	0.70		11	8	3	22	4.30	5.91	7.34	43.65	59.99	74.50
	DA-OS6	0.66	0.96											
OS6	PT.OS2A + DA-OS6	7.11	0.72		28	0	3	31	3.62	4.96	6.14	18.53	25.39	31.43
	DA-OS7	0.69	0.96											
OS7	PT.OS2B + DAOS7	7.43	0.72		32	0	1	33	3.50	4.80	5.95	18.83	25.83	32.01
	DA-OS8	0.35	0.96											
OS8	PT.OS2C + DA-OS8	3.70	0.72		35	0	1	36	3.34	4.58	5.68	8.95	12.28	15.23
OS9	DA-OS9	0.40	0.96		7	1	0	8	6.75	9.48	11.85	2.59	3.64	4.55
	DA-OS10	0.27	0.96											
OS10	PT.OS11 + DA-OS10	2.11	0.73		26	0	1	27	3.88	5.32	6.60	6.00	8.23	10.21
OS11	DA-OS11	1.84	0.70		9	15	2	26	3.96	5.42	6.73	5.10	6.98	8.67
OS12	DA-OS12	2.64	0.70		9	15	2	26	3.96	5.42	6.73	7.32	10.02	12.44
	DA-OS13	0.52	0.96											
OS13	PT.OS12 + DA-OS13	3.16	0.74		26	0	1	27	3.88	5.32	6.60	9.11	12.49	15.49
OS14	DA-OS14	0.51	0.96	CARRYOVER PT. OS5	22	0	3	25	4.04	5.53	6.86	1.98	2.71	3.36
OS15	DA-OS15	0.46	0.96	CARRYOVER PT. OS14	25	0	5	30	3.68	5.04	6.25	1.63	2.23	2.76
OS16	DA-OS16	0.29	0.96	CARRYOVER PT.OS15	30	0	2	32	3.56	4.87	6.04	0.99	1.36	1.68
	DA-1	2.91	0.67											
1	PT.OS1 +PT.2 + PT.3 + DA-1	99.82	0.70	CARRYOVER PT.OS1	80	0	10	90	2.41	3.35	4.19	169.11	235.07	294.01
2	DA-2	8.71	0.67		10	0	12	22	4.30	5.91	7.34	25.09	34.49	42.83
3	DA-3	2.48	0.96		7	0	3	10	6.24	8.76	10.95	14.86	20.86	26.07
4	DA-4	2.08	0.67		10	0	1	11	6.02	8.43	10.54	8.39	11.75	14.69
5	DA-5	5.80	0.67		10	2	3	15	5.24	7.24	9.03	20.36	28.13	35.09
6	DA-6	1.74	0.67		10	0	2	12	5.81	8.12	10.14	6.77	9.47	11.82
7	DA-7	9.40	0.67		10	0	5	15	5.24	7.24	9.03	33.00	45.60	56.87
	DA-8A	3.48	0.67											
8A	PT.1 + PT.4 + PT. 5 + DA-8A	111.18	0.70	CARRYOVER PT. 1	90	0	4	94	2.41	3.35	4.19	187.45	260.57	325.90
	DA-8B	2.91	0.67											
8B	PT.7 + PT.8A + DA-8B	123.49	0.70	CARRYOVER PT.8A	94	0	1	95	2.41	3.35	4.19	207.33	288.20	360.46
	DA-8C	0.07	0.67											
8C	PT.6 + PT.8B + DA-8C	125.30	0.70	CARRYOVER PT.8B	95	0	2	97	2.41	3.35	4.19	210.25	292.26	365.54
	DA-9A	0.30	0.67											
9A	PT.OS6 + DA-9A	7.41	0.72		31	0	2	33	3.50	4.80	5.95	18.62	25.54	31.66
	DA-9B	0.89	0.67											
9B	PT.OS7 + PT.9A + DA-9B	15.73	0.72		33	0	3	36	3.34	4.58	5.68	37.73	51.74	64.17
	DA-10A	0.60	0.67											
10a	PT.OS8 + PT. 9B + DA-10A	20.03	0.72		36	0	3	39	3.20	4.39	5.44	46.02	63.13	78.23
	DA-10B	0.82												
10B	PT.OS3 + PT.OS9 + PT.10A + PT.65B + DA-10B	151.93	0.67		39	0	5	44	2.98	4.10	5.09	303.34	417.35	518.13
11a	DA-11a	1.75	0.96		7	0	3	10	6.24	8.76	10.95	10.48	14.72	18.40
11b	DA-11b	1.40	0.96		5	0	3	8	6.75	9.48	11.85	9.07	12.74	15.93
11	PT. 8C + DA-11a + 11b	128.45	0.70	CARRYOVER PT.8C	97	0	5	102	2.41	3.35	4.19	217.54	302.39	378.21
12	DA-12	3.35	0.67		10	1	3	14	5.42	7.53	9.39	12.17	16.90	21.08
	DA-13	2.85	0.77											
13	PT.12 + DA13	6.20	0.72	CARRYOVER PT.12	14	0	5	19	4.63	6.37	7.93	20.55	28.28	35.20
14	DA-14	5.32	0.77		10	0	8	18	4.76	6.56	8.16	19.50	26.87	33.43
15	DA-15	7.65	0.77		10	1	9	20	4.51	6.21	7.71	26.57	36.58	45.42
16	DA-16	11.43	0.77		10	0	13	23	4.21	5.77	7.17	37.05	50.78	63.10
	DA-17	0.29	0.77											
17	PT.16 + DA-17	11.72	0.77	CARRYOVER PT.16	23	0	2	25	4.04	5.53	6.86	36.46	49.90	61.91
18	DA-18	4.68	0.77		10	1	5	16	5.06	6.99	8.71	18.23	25.19	31.39
	DA-19	0.07	0.96											
19	PT.15 + PT.18 + DA-19	12.40	0.77	CARRYOVER PT.18	20	0	0	20	4.51	6.21	7.71	43.12	59.38	73.72
19A	PT. 17 + PT. 19	24.12	0.77	CARRYOVER PT.19	25	0	2	27	3.88	5.32	6.60	72.11	98.88	122.67
20	DA-20	2.48	0.80		10	1	2	13	5.61	7.82	9.76	11.15	15.54	19.40
	DA-21	2.56	0.77											
21	PT.19A + DA-21	26.68	0.77	CARRYOVER PT.19a	27	0	4	31	3.62	4.96	6.14	74.42	101.96	126.22
21A	PT. 23a + PT.23b + PT.24 + PT.24a + PT.24b	48.95	0.79	CARRYOVER PT.24	32	0	2	34	3.45	4.72	5.86	132.75	181.62	225.49
	DA-22A	0.90	0.71											
22A	PT.13 + DA-22A	7.10	0.72	CARRYOVER PT.13	19	0	3	22	4.30	5.91	7.34	21.84	30.01	37.27
	DA-22B	0.31	0.71											
22B	PT. 14 + PT.22A + DA-22B	12.73	0.74	CARRYOVER PT.22A	22	0	1	23	4.21	5.77	7.17	39.55	54.21	67.36
23a	DA-23a	2.75	0.96		6	0	9	15	5.24	7.24	9.03	13.83	19.11	23.84
23b	DA-23b	2.44	0.96		6	0	12	18	4.76	6.56	8.16	11.15	15.37	19.11
	DA-24	0.45	0.71											
24	PT. 20 + PT.21 + PT.22b + DA-24	42.34	0.76	CARRYOVER PT.21	31	0	1	32	3.56	4.87	6.04	114.84	157.10	194.84

24a	DA-24a	1.04	0.84	CARRYOVER PT.23	6	0	2	8	6.75	9.48	11.85	5.90	8.28	10.35
24b	DA-24b	0.38	0.96		5	0	2	7	7.05	9.89	12.37	2.57	3.61	4.51
25	DA-25	4.57	0.80		10	1	7	18	4.76	6.56	8.16	17.42	24.00	29.86
26	DA-26	10.51	0.80		10	2	12	24	4.12	5.65	7.01	34.65	47.52	58.96
	DA-26a	0.09	0.77											
26a	PT.26 + DA-26a	10.60	0.77	CARRYOVER PT.26	24	0	1	25	4.04	5.53	6.86	32.98	45.15	56.01
27	DA-27	2.58	0.77		10	0	5	15	5.24	7.24	9.03	10.41	14.38	17.94
28	DA-28	4.80	0.77		10	1	6	17	4.91	6.76	8.42	18.15	24.98	31.12
29	DA-29	2.26	0.77		10	1	1	12	5.81	8.12	10.14	10.11	14.13	17.65
	DA-30	0.96	0.81											
30	PT.27 + PT. 28 + PT.29 + DA-30	10.60	0.77	CARRYOVER PT.28	17	0	2	19	4.63	6.37	7.93	37.97	52.24	65.03
31	DA-31	5.00	0.77		10	1	6	17	4.91	6.76	8.42	18.90	26.03	32.42
32	DA-32	5.62	0.77		10	0	9	19	4.63	6.37	7.93	20.04	27.57	34.32
33	DA-33	5.37	0.77		10	0	3	13	5.61	7.82	9.76	23.20	32.33	40.36
34	DA-34	0.33	0.77		10	1	0	11	6.02	8.43	10.54	1.53	2.14	2.68
35	DA-35	8.70	0.77		10	0	5	15	5.24	7.24	9.03	35.10	48.50	60.49
36	DA-36	4.86	0.77		10	1	8	19	4.63	6.37	7.93	17.33	23.85	29.69
36a	PT.26a + PT. 36	15.46	0.77		25	0	2	27	3.88	5.32	6.60	46.20	63.35	78.59
37	DA-37	4.69	0.77		10	0	7	17	4.91	6.76	8.42	17.73	24.41	30.41
	DA-38	0.96	0.77											
38	PT.36A + PT.37 + DA-38	21.11	0.77	CARRYOVER PT. 36A	27	0	2	29	3.74	5.13	6.36	60.81	83.40	103.40
	DA-39	4.80	0.77											
39	PT.38 + PT. 40 + DA-39	25.91	0.77	CARRYOVER PT.38	29	0	8	37	3.29	4.51	5.60	65.65	89.99	111.74
40	DA-40	6.97	0.77		10	1	7	18	4.76	6.56	8.16	25.55	35.21	43.79
41	DA-41	5.40	0.77		10	1	5	16	5.06	6.99	8.71	21.04	29.06	36.22
42	DA-42	8.34	0.77		10	1	6	17	4.91	6.76	8.42	31.53	43.41	54.07
43a	DA-43a	10.70	0.80		10	1	10	21	4.40	6.05	7.52	37.67	51.79	64.38
43b	PT.43b	4.12	0.96		RUNOFF CAPTURED FROM 2-10' CURB INLET							16.64	19.96	22.16
43c	PT.43c	6.58	0.77		REMAINING RUNOFF FROM CURB INLETS ON GRADE							21.03	31.83	42.22
	DA-43d	0.98	0.77											
43d	PT.43c + DA-43d	7.56	0.77	CARRYOVER PT.43a	21	0	1	22	4.30	5.91	7.34	25.03	34.40	42.73
43e	PT43d + PT.43b	11.68	0.84	CARRYOVER PT.43d	22	0	0	22	4.30	5.91	7.34	42.04	57.79	71.77
44	DA-44	3.21	0.77		10	2	0	12	5.81	8.12	10.14	14.37	20.08	25.07
45	DA-45	5.96	0.77		10	4	0	14	5.42	7.53	9.39	24.87	34.56	43.09
46	DA-46	5.01	0.77		10	1	3	14	5.42	7.53	9.39	20.91	29.05	36.22
47	DA-47	6.96	0.77		10	0	11	21	4.40	6.05	7.52	23.58	32.42	40.30
48	DA-48	8.91	0.77		10	1	13	24	4.12	5.65	7.01	28.27	38.76	48.09
49	PT. 48	4.05	0.77		RUNOFF CAPTURED FROM 2-10' CURB INLET							15.06	17.64	19.62
49a	PT. 49a	4.86	0.77		REMAINING RUNOFF FROM CURB INLETS ON GRADE							13.21	21.12	28.47
50	PT. 47	3.44	0.77		RUNOFF CAPTURED FROM 2-10' CURB INLET							13.64	16.06	17.90
50a	PT. 50a	3.52	0.77		REMAINING RUNOFF FROM CURB INLETS ON GRADE							9.94	16.36	22.40
51	PT. 49a + PT. 50a	8.38	0.77		CAPTURED RUNOFF JUNCTION							25.00	33.70	37.52
	DA-52	0.67	0.77											
52	PT.49a + PT.50a + DA-52	9.05	0.77	CARRYOVER PT.48	24	0	2	26	3.96	5.42	6.73	27.60	37.77	46.90
52a	PT. 52 + PT. 51	17.43	0.77	CARRYOVER PT. 52	26	0	0	26	3.96	5.42	6.73	53.15	72.74	90.32
53	DA-53	5.83	0.77		10	0	4	14	5.42	7.53	9.39	24.33	33.80	42.15
54	DA-54a	2.38	0.77		5	0	2	7	7.05	9.89	12.37	12.92	18.12	22.67
55	DA-54b	1.41	0.77		6	1	2	9	6.48	9.11	11.38	7.04	9.89	12.36
56	DA-56	3.18	0.77		10	0	7	17	4.91	6.76	8.42	12.02	16.55	20.62
57	DA-57	9.21	0.77		10	0	9	19	4.63	6.37	7.93	32.83	45.17	56.24
	DA-58a	9.45	0.77											
58aa	DA-58aa	0.62	0.77		10	0	2	12	5.81	8.12	10.14	2.77	3.88	4.84
58a	DA-58a + DA-58aa	10.07	0.77		10	2	6	18	4.76	6.56	8.16	36.91	50.87	63.27
				CAPTURED RUNOFF FROM 2 ~ 10' CURB INLET ON GRADE								17.52	20.84	23.40
	DA-58a-1	5.94	0.77	REMAINING RUNOFF FROM 2 ~ 10' CURB INLET ON GRADE								19.39	30.03	39.87
	DA-58b	2.13	0.77											
58b	DA-58a-1 + DA-58b	8.07	0.77		18	0	0	18	4.76	6.56	8.16	29.58	40.76	50.71
58c	DA-58a + DA-58b	12.20	0.77		18	0	0	18	4.76	6.56	8.16	44.72	61.62	76.66
59a	DA-59a	0.17	0.77		7	0	1	8	6.75	9.48	11.85	0.88	1.24	1.55
	DA-59b	3.01	0.77											
59b	DA-59a + DA-59b	3.18	0.77		10	1	5	16	5.06	6.99	8.71	12.39	17.12	21.33
60	DA-60	9.86	0.77		10	1	8	19	4.63	6.37	7.93	35.15	48.36	60.21
61	DA-61	6.75	0.77		10	1	8	19	4.63	6.37	7.93	24.06	33.11	41.22
62	DA-62	5.21	0.77		10	0	6	16	5.06	6.99	8.71	20.30	28.04	34.94
63	DA-63	2.81	0.77		10	0	4	14	5.42	7.53	9.39	11.73	16.29	20.32
64	DA-64	4.10	0.77		10	0	5	15	5.24	7.24	9.03	16.54	22.86	28.51
65A	DA-65a	0.35	0.67		27	0	1	28	3.81	5.22	6.48	0.89	1.22	1.52
	DA-65b	0.40	0.67											
65B	PT.OS10 + DA65a + DA65b	2.86	0.72		28	0	2	30	3.68	5.04	6.25	7.54	10.33	12.81
	DA-66	0.88	0.67											
66	PT.OS13 + DA66	4.04	0.73		27	0	5	32	3.56	4.87	6.04	10.46	14.30	17.74
67	DA-67	0.84	0.41		10	3	0	13	5.61	7.82	9.76	1.93	2.69	3.36
68	DA-68	0.91	0.41		13	4	6	23	4.21	5.77	7.17	1.57	2.15	2.68
69	DA-69	6.39	0.67		10	0	3	13	5.61	7.82	9.76	24.02	33.48	41.79
70	DA-70	9.36	0.67		10	0	14	24	4.12	5.65	7.01	25.84	35.43	43.96
71	DA-71	6.09	0.67		10	0	4	14	5.42	7.53	9.39	22.12	30.72	38.31
72	DA-72	1.84	0.67		10	1	1	12	5.81	8.12	10.14	7.16	10.01	12.50
73	DA-73	4.72	0.77		8	9	2	19	4.63	6.37	7.93	16.83	23.15	28.82
74	DA-74	2.99	0.77		10	1	4	15	5.24	7.24	9.03	12.06	16.67	20.79

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125560
LICENSED
PROFESSIONAL ENGINEER

NORTHLAKE PHASE 3
PLAT 25-11800055

BEXAR COUNTY
TEXAS

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

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	JANUARY 2025	SJ	SC

PROJECT NUMBER: 314-65-04
DRAWING NAME: MD31146504

SHEET TITLE: MASTER DRAINAGE PLAN (3 OF 3)

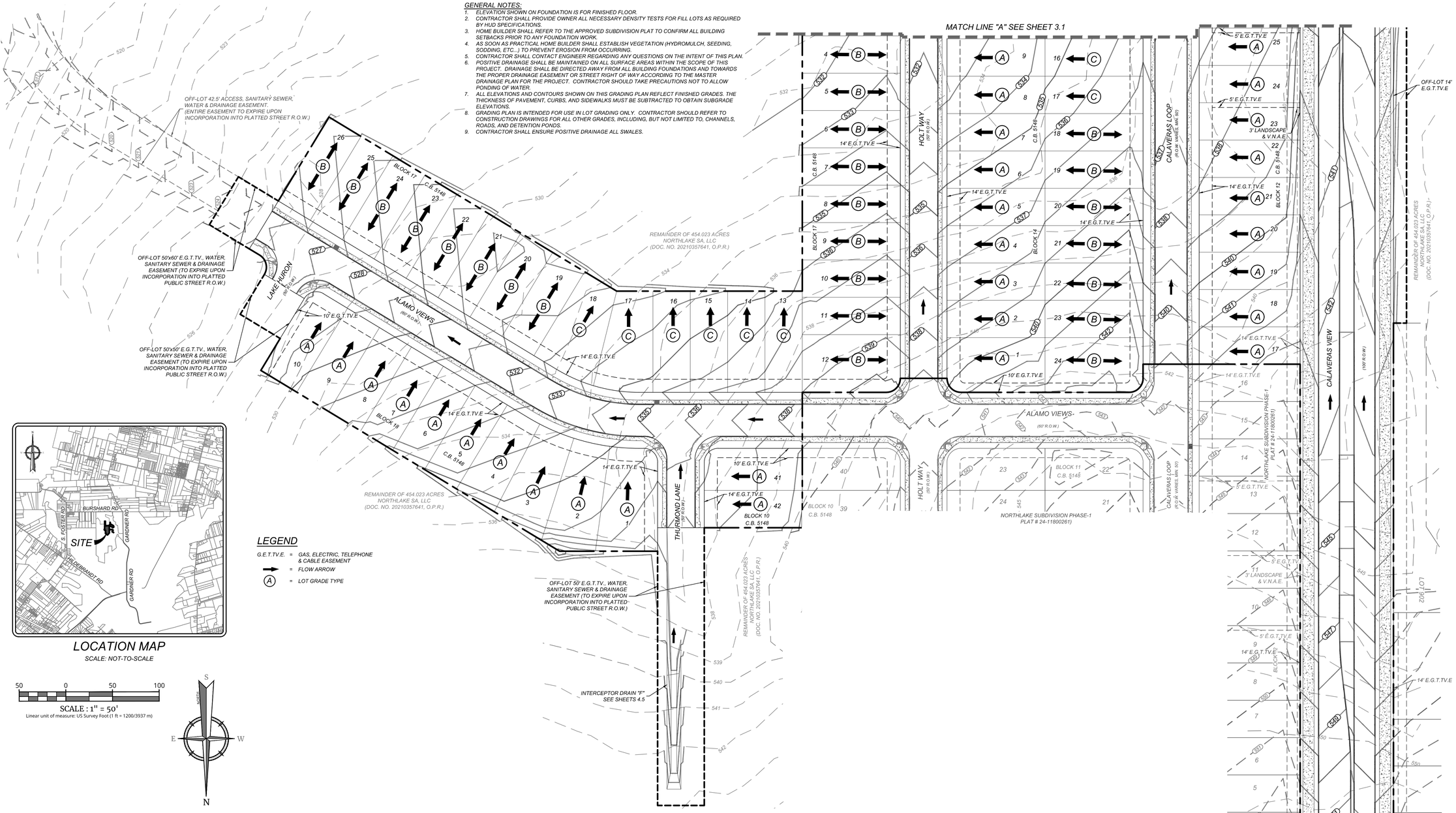
SHEET NUMBER: 2.2

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

By: ABEL MONTALVO
n:\MD\314\65\04.dwg\V2.2

GENERAL NOTES:

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



LOCATION MAP

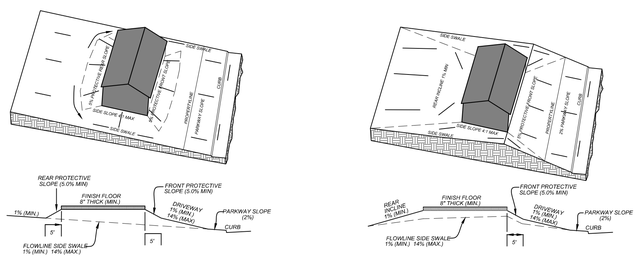
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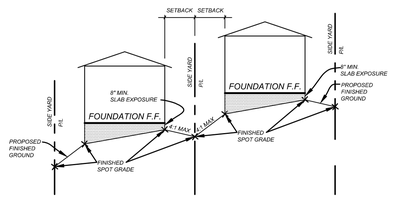
LEGEND

G.E.T.TV.E. = GAS, ELECTRIC, TELEPHONE & CABLE EASEMENT
= FLOW ARROW
(A) = LOT GRADE TYPE

SCALE : 1" = 50'

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





By: ABEL.MONTALVO
n:\#GR3146504.dwg\3.0

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PLAT 25-11800055

BEXAR COUNTY
TEXAS

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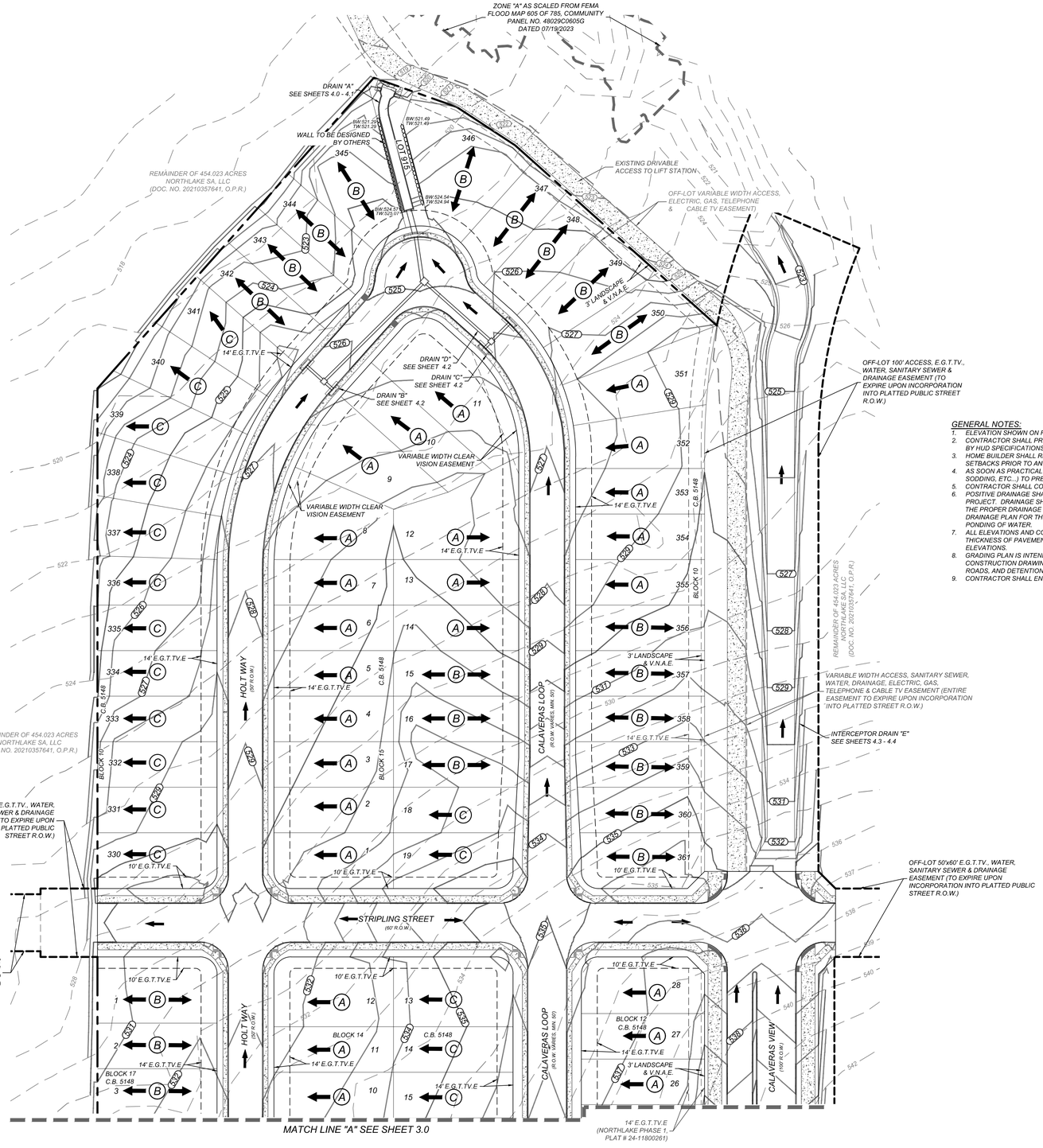
SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	JANUARY 2025	SJ	SC

PROJECT NUMBER: 314-65-04
DRAWING NAME: GR3146504

SHEET TITLE:
OVERALL GRADING PLAN (1 OF 2)

SHEET NUMBER:
3.0

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

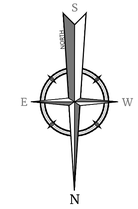


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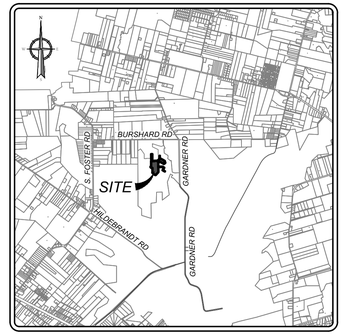
= FLOW ARROW

(A) = LOT GRADE TYPE



SCALE : 1" = 50'

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

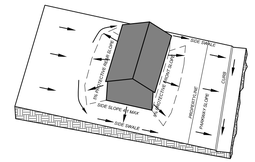


LOCATION MAP

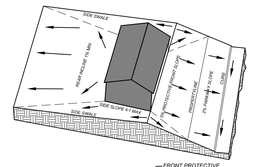
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GENERAL NOTES:

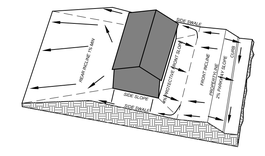
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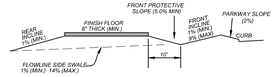


TYPE 'A' LOT GRADING

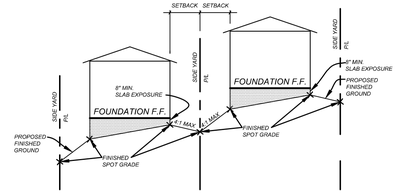


TYPE 'B' LOT GRADING





TYPE 'C' LOT GRADING



TYPICAL SIDE YARD GRADING
N.T.S.

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PROJECT NUMBER: 314-65-04
DRAWING NAME: GR3146504

SHEET TITLE: OVERALL GRADING PLAN (2 OF 2)

SHEET NUMBER: 3.1

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

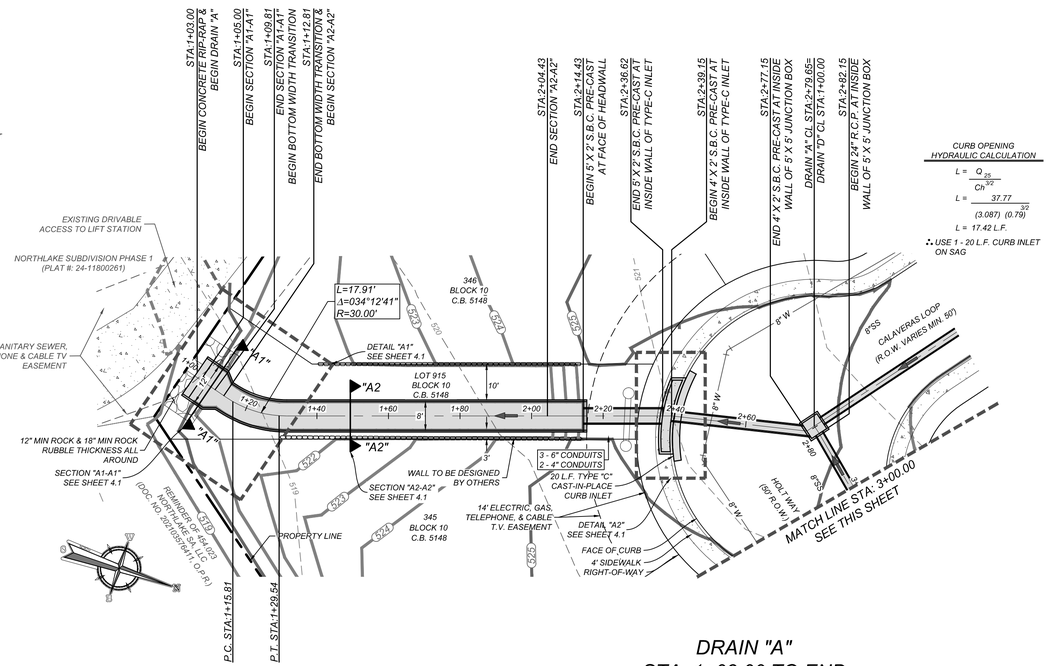
By: ABEL.MONTALVO
I:\EGR\3146504.dwg(3.1

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TRENCH EXCAVATION SAFETY PROTECTION

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CURB OPENING HYDRAULIC CALCULATION

$$L = \frac{Q_{25}}{Ch^{3/2}}$$

$$L = \frac{37.77}{(3.087)\ (0.79)^{3/2}}$$

L = 17.42 L.F.

∴ USE 1 - 20 L.F. CURB INLET ON SAG

BEXAR COUNTY FLOODPLAIN GENERAL CONSTRUCTION NOTES:

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

BEXAR COUNTY R.O.W. NOTE

A BEXAR COUNTY PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY R.O.W.

CHANNEL LINING:

PLEASE SEE SHEET 4.9 FOR TABLE 9.3.8.1 - RETARDATION CLASS FOR LINING MATERIALS AND TABLE 9.3.8.2 - PERMISSIBLE SHEAR STRESSES FOR VARIOUS LININGS

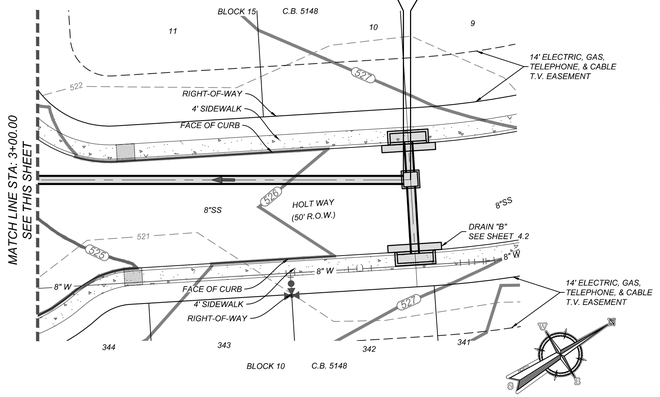
AREA'S EXCEEDING CITY OF SAN ANTONIO PERMISSIBLE SHEAR STRESS WILL BE REINFORCED WITH PROPOSED TURF REINFORCEMENT MAT (TRM) AS APPROVED BY CITY OF SAN ANTONIO STANDARD SPECIFICATIONS UNDER CONSTRUCTION ITEM 554.

NOTE:

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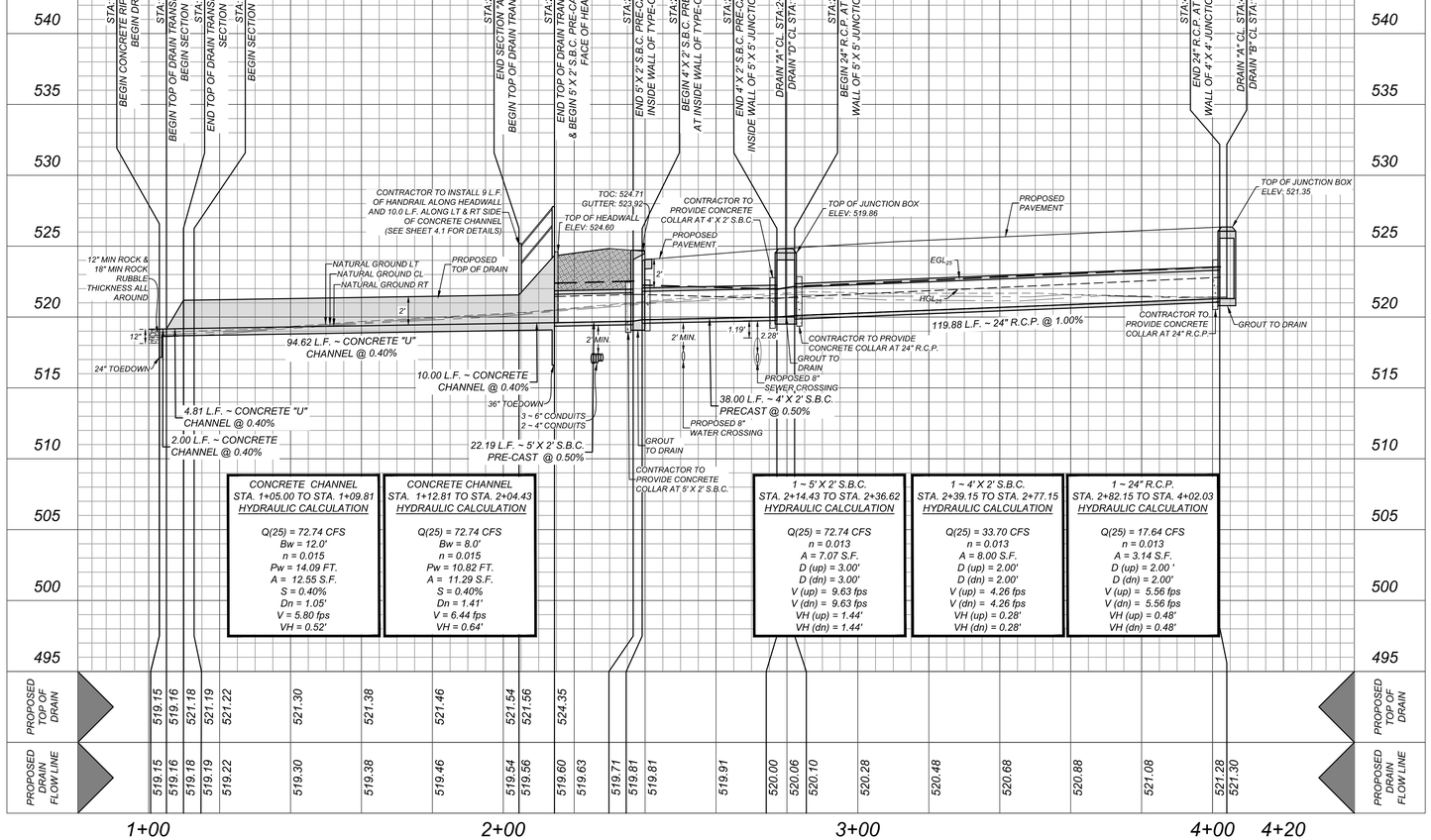
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DRAIN "A"
STA. 1+03.00 TO END

HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'



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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
OMAR A. ESPINOSA
125560
LICENSED
PROFESSIONAL ENGINEER

NORTHLAKE PHASE 3
PLAT 25-11800055

BEXAR COUNTY
TEXAS

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

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	JANUARY 2025	SJ	SC

PROJECT NUMBER: 314-65-04
DRAWING NAME: DR3146504 - A

SHEET TITLE:
DRAIN "A" PLAN & PROFILE (1 OF 2)

SHEET NUMBER: 4.0

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

H:\Drawings\3\3146504 - A.dwg\4.0 By: ABEL.MONTALVO

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TRENCH EXCAVATION SAFETY PROTECTION

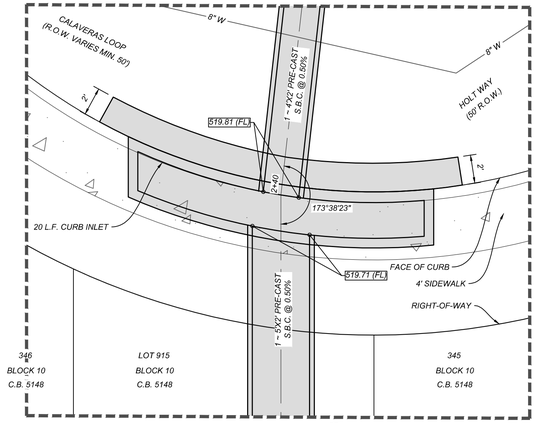
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BEXAR COUNTY R.O.W. NOTE

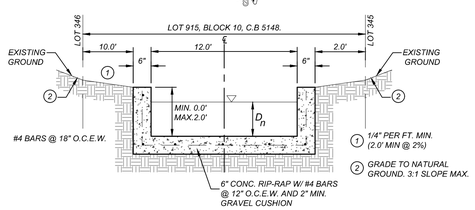
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BEXAR COUNTY FLOODPLAIN GENERAL CONSTRUCTION NOTES:

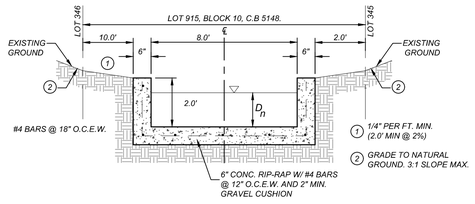
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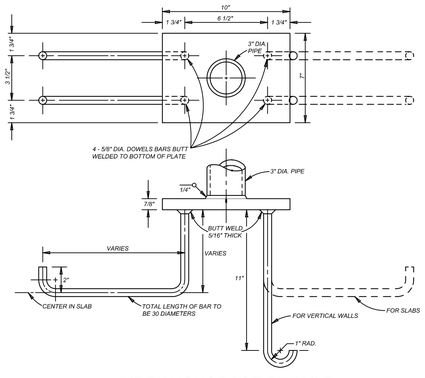
DETAIL "A2"
SCALE: 1" = 5'



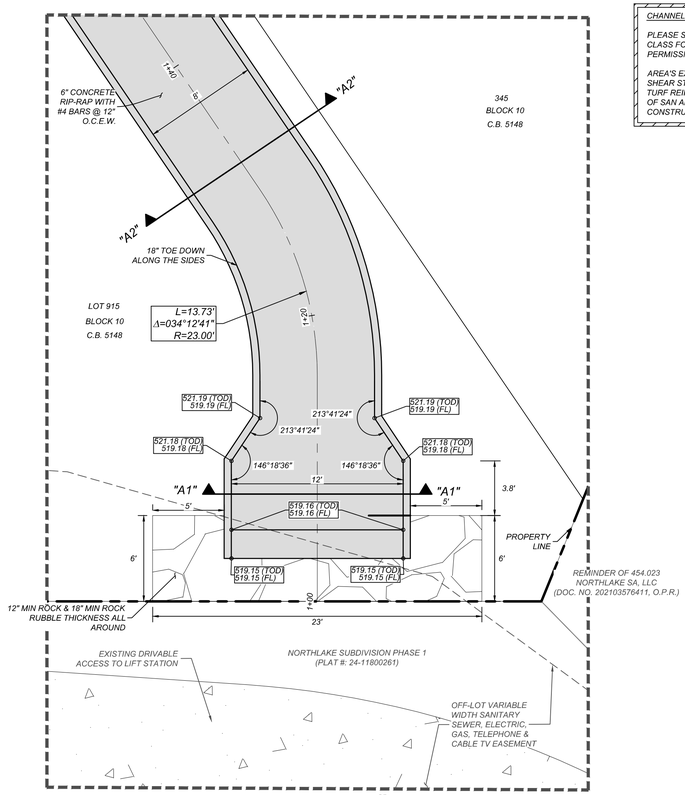
SECTION "A1-A1"
STA. 1+05.00 - STA. 1+09.81



SECTION "A2-A2"
NOTE: STA. 1+12.81 - STA. 2+04.56



PIPE ANCHORAGE DETAILS
N.T.S.



DETAIL "A1"
SCALE: 1" = 5'

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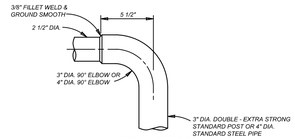
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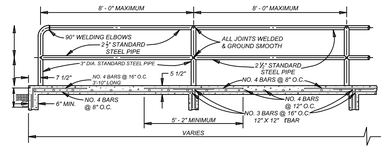
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DETAIL OF 90° WELDING ELBOWS
N.T.S.

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



TYPICAL SIDEWALK BRIDGE & SIDEWALK PIPE RAILING SECTION
N.T.S.

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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	JANUARY 2025	SJ	SC

PROJECT NUMBER:	DRAWING NAME:
314-65-04	DR3146504 - A

SHEET TITLE:
DRAIN "A" PLAN & PROFILE (2 OF 2)

SHEET NUMBER:
4.1

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

By: ABELMONTALVO
n:\ffd\cmn\DR\3146504 - A.dwg\A4.1

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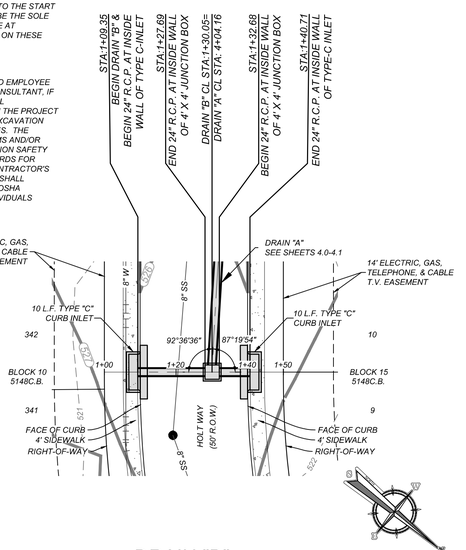
CURB OPENING HYDRAULIC CALCULATION

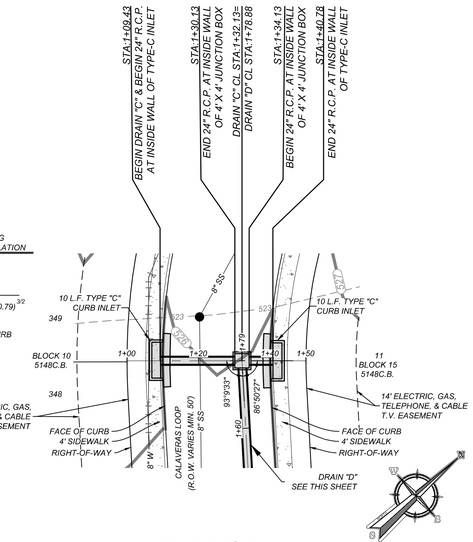
$$L = \frac{Q_{25}}{Ch^{3/2}}$$

$$L = \frac{38.89}{(3.087)\ (0.79)^{3/2}}$$

$L = 17.94$ L.F.

∴ *USE 2 - 10.0 L.F. CURB INLET ON GRADE*





CURB OPENING HYDRAULIC CALCULATION

$$L = \frac{Q_{25}}{Ch^{3/2}}$$

$$L = \frac{32.19}{(3.087)\ (0.79)^{3/2}}$$

$L = 14.85$ L.F.

∴ *USE 2 - 10.0 L.F. CURB INLET ON GRADE*

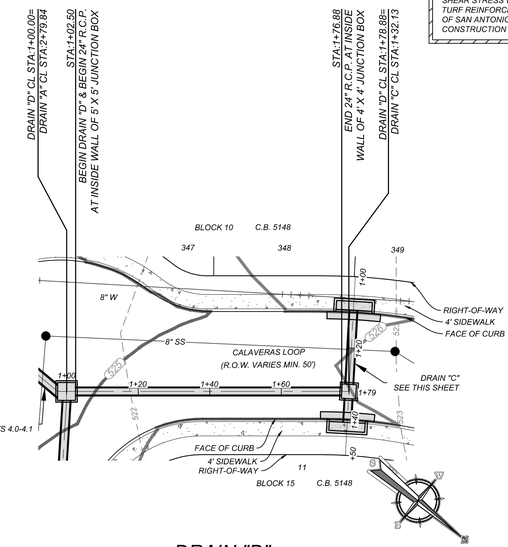
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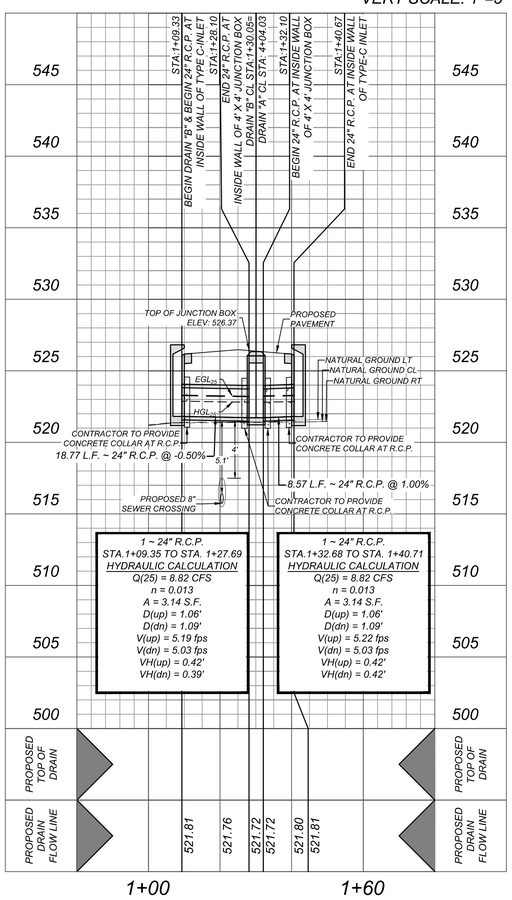
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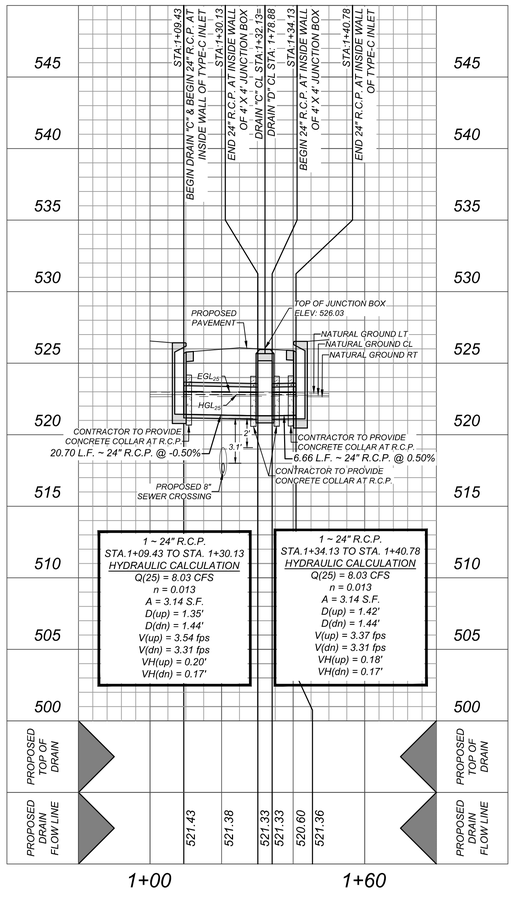
DRAIN "B"
STA. 1+00.00 TO END

HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'



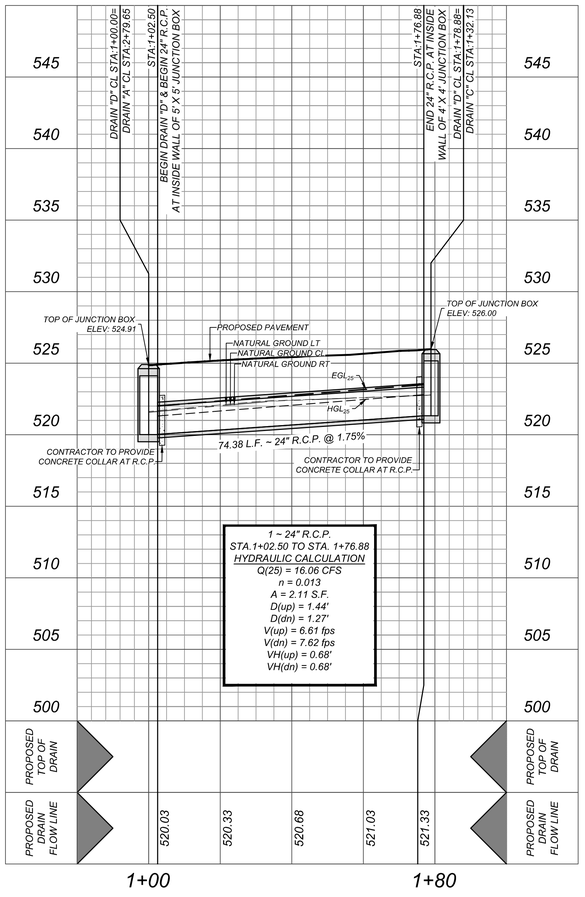
DRAIN "C"
STA. 1+00.00 TO END

HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'



DRAIN "D"
STA. 1+00.00 TO END

HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'



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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	JANUARY 2025	SJ	SC

PROJECT NUMBER: 314-65-04
DRAWING NAME: DR3146504 - BCD

SHEET TITLE:
DRAIN "B" - "C" - "D"
PLAN & PROFILE

SHEET NUMBER: 4.2

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

I:\R\Drains\3146504 - BCD.dwg\4.2 - By: ABEL.MONTALVO

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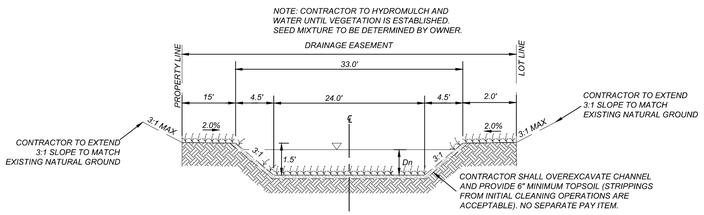
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BEXAR COUNTY FLOODPLAIN GENERAL CONSTRUCTION NOTES:

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



SECTION "E1-E1"
STA. 1+40.71 - STA. 6+67.22

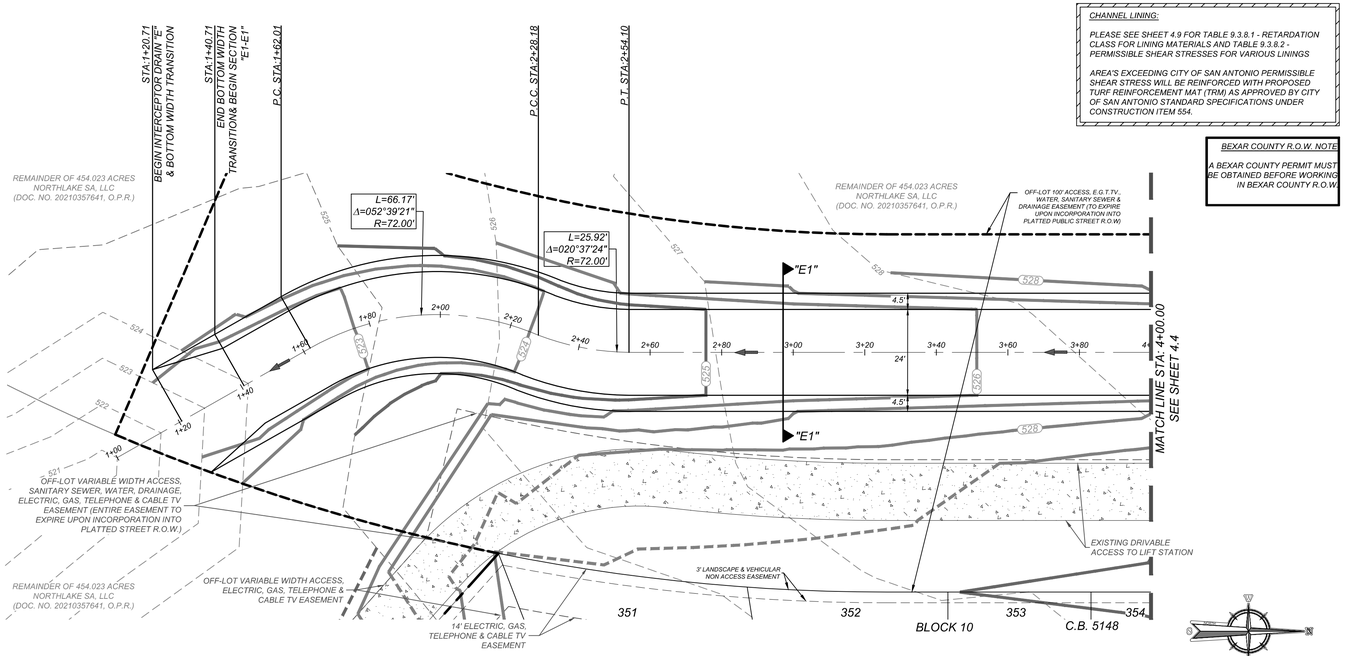
CHANNEL LINING:

PLEASE SEE SHEET 4.9 FOR TABLE 9.3.8.1 - RETARDATION CLASS FOR LINING MATERIALS AND TABLE 9.3.8.2 - PERMISSIBLE SHEAR STRESSES FOR VARIOUS LININGS

AREA'S EXCEEDING CITY OF SAN ANTONIO PERMISSIBLE SHEAR STRESS WILL BE REINFORCED WITH PROPOSED TURF REINFORCEMENT MAT (TRM) AS APPROVED BY CITY OF SAN ANTONIO STANDARD SPECIFICATIONS UNDER CONSTRUCTION ITEM 554.

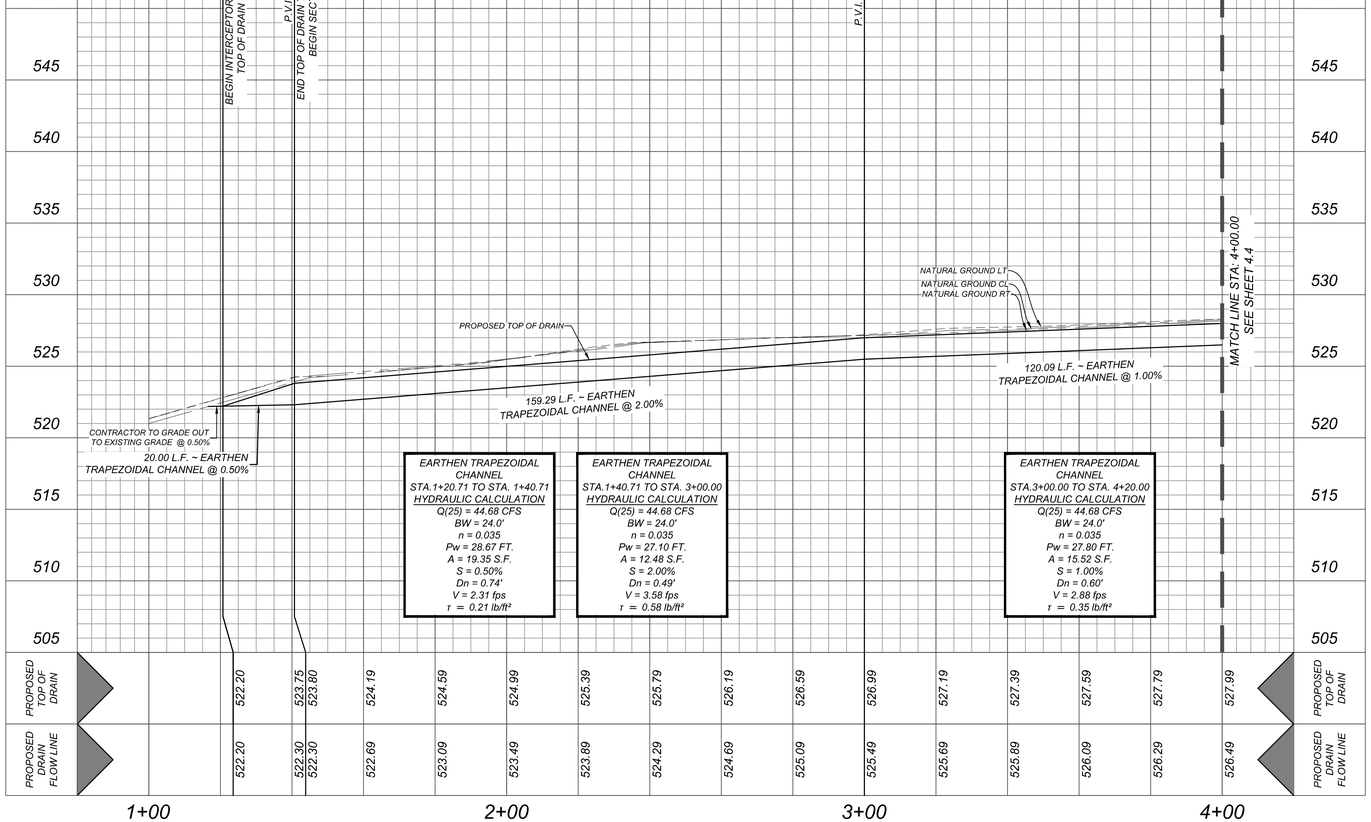
BEXAR COUNTY R.O.W. NOTE

A BEXAR COUNTY PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY R.O.W.



INTERCEPTOR DRAIN "E"
STA. 1+00.00 TO 4+00.00

HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'



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OMAR A. ESPINOSA
125560
LICENSED PROFESSIONAL ENGINEER

NORTHLAKE PHASE 3
PLAT 25-11800055

BEXAR COUNTY
TEXAS

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TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	JANUARY 2025	SJ	SC

PROJECT NUMBER:	DRAWING NAME:
314-65-04	DR3146504 - EF

SHEET TITLE:
INTERCEPTOR DRAIN "E" PLAN & PROFILE (1 OF 2)

SHEET NUMBER:
4.3

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

\\KFDrains\2023\314-65-04 - EF.dwg By: ABEL.MONTALVO

TRENCH EXCAVATION SAFETY PROTECTION

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

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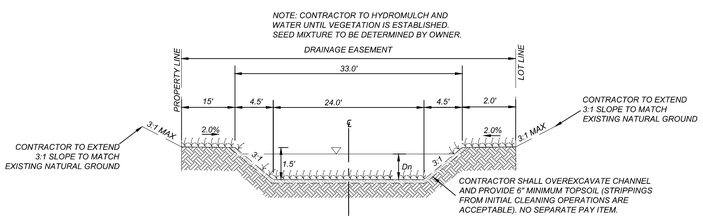
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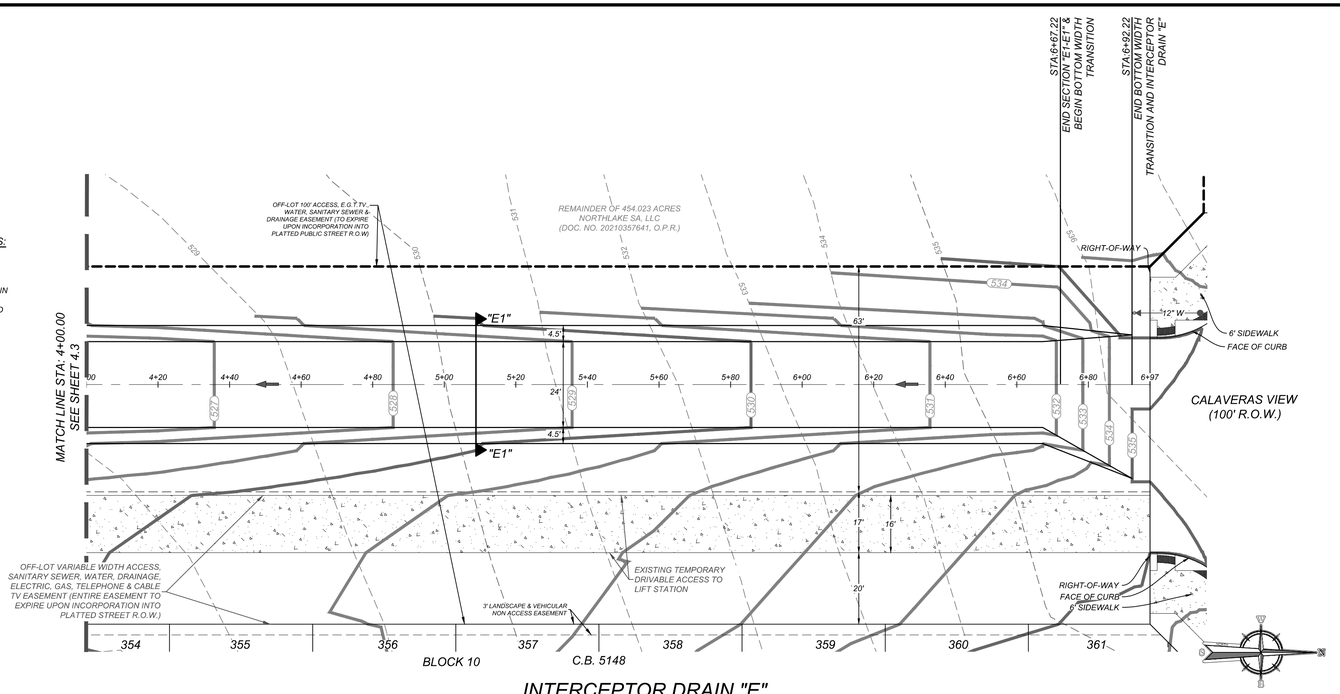
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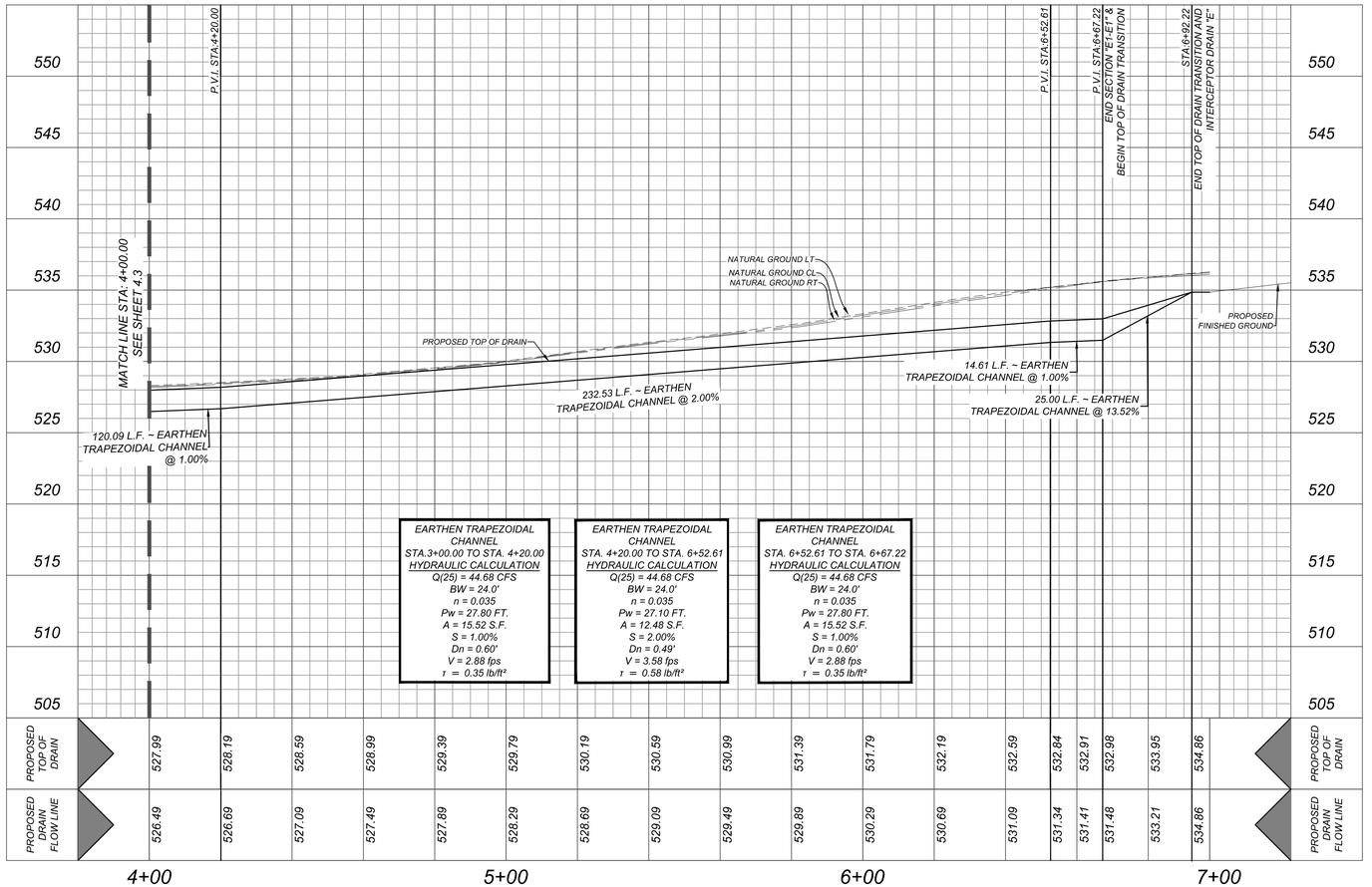


SECTION "E1-E1"
STA. 1+40.71 - STA. 6+67.22



INTERCEPTOR DRAIN "E"
STA. 4+00.00 TO END

HORZ SCALE: 1"=20'
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REV	DATE	DRAWN BY	DESCRIPTION

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OMAR A. ESPINOSA
125560
LICENSED
PROFESSIONAL ENGINEER

NORTHLAKE PHASE 3
PLAT 25-11800055

BEXAR COUNTY
TEXAS

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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	JANUARY 2025	SJ	SC

PROJECT NUMBER: 314-65-04
DRAWING NAME: DR3146504 - EF

SHEET TITLE:
INTERCEPTOR DRAIN "E" PLAN & PROFILE (2 OF 2)

SHEET NUMBER: 4.4

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

w:\ROrders\DR3146504-1T-Eng\4.4 By: ABEL.MONTALVO

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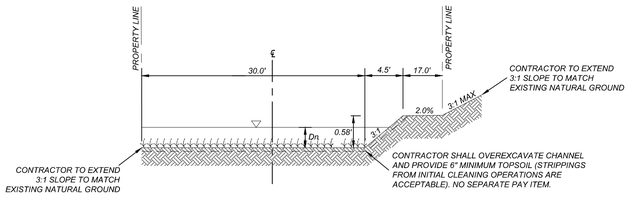
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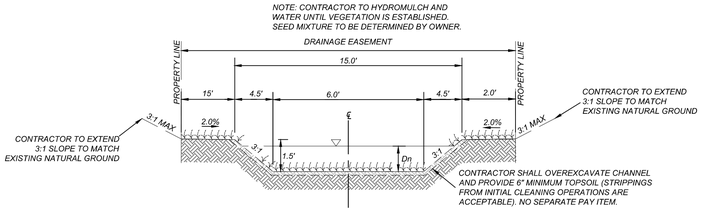
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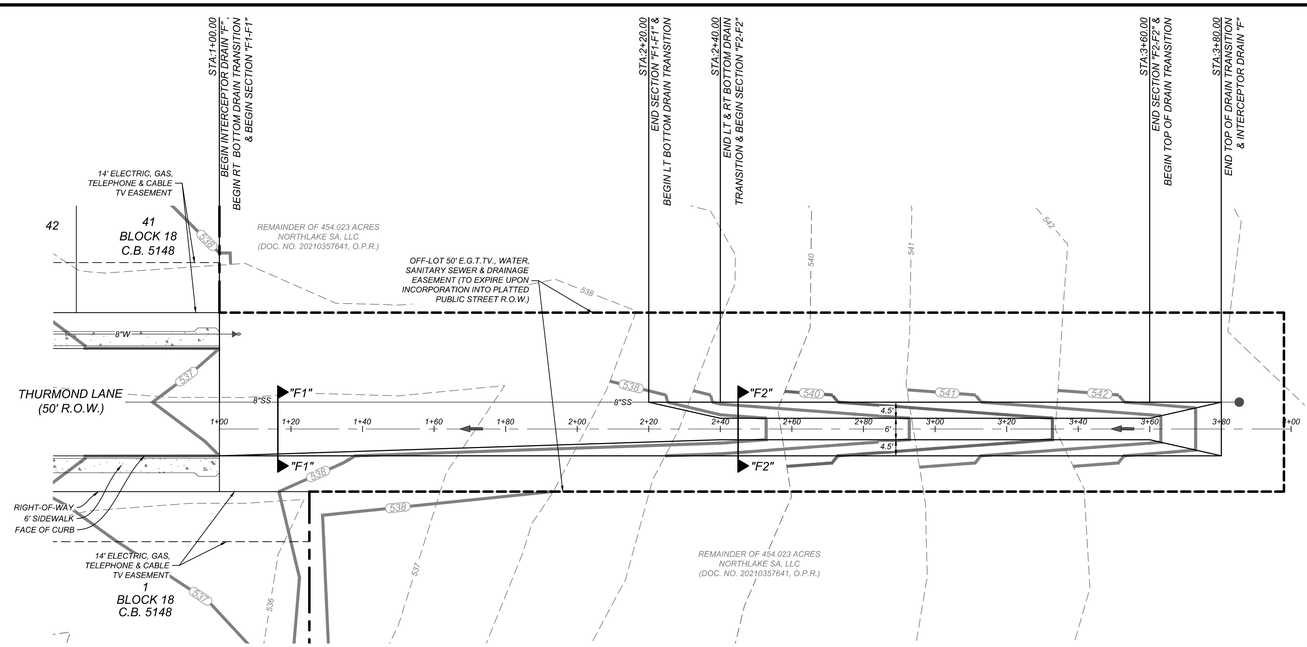
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SECTION "F1-F1"
STA. 1+00.00 - STA. 2+20.00

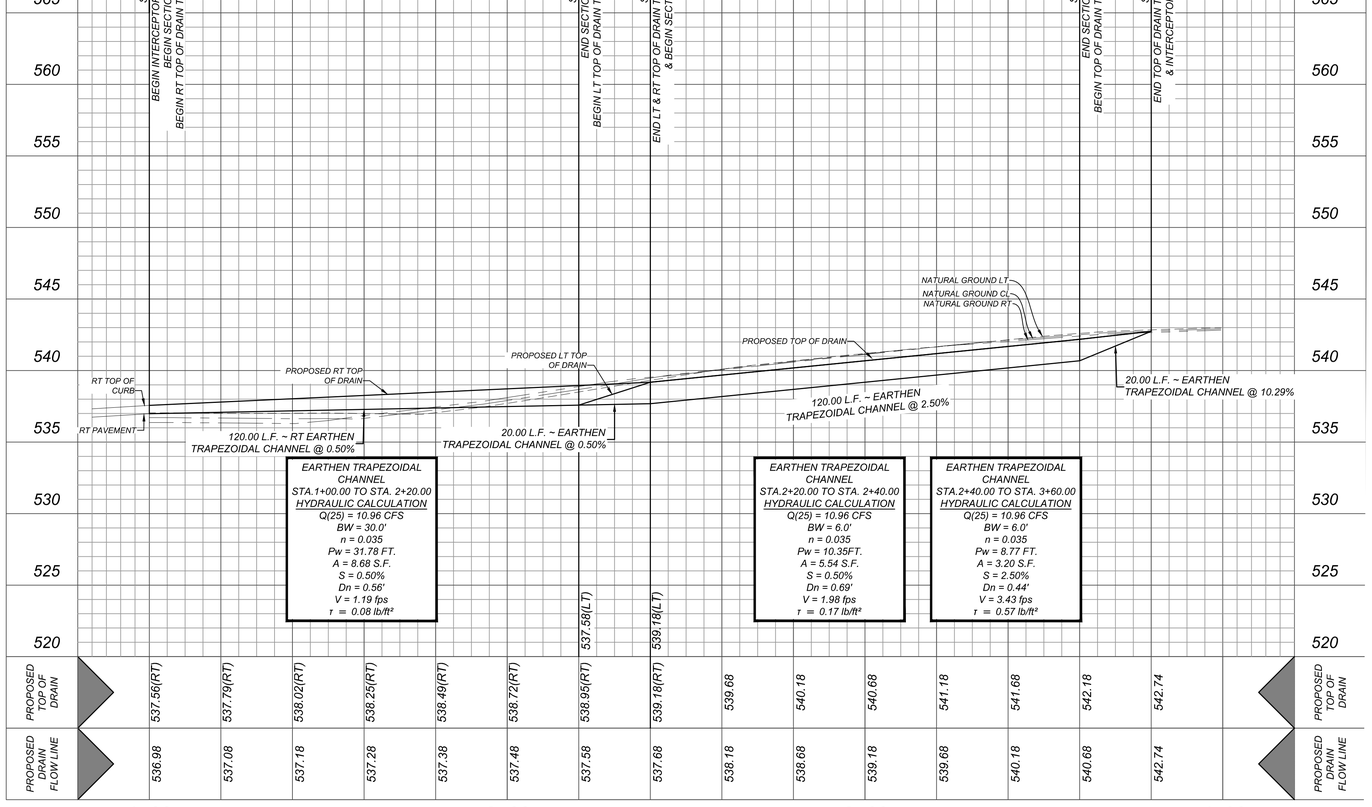


SECTION "F2-F2"
STA. 2+40.00 - STA. 3+60.00



INTERCEPTOR DRAIN "F"
STA. 1+00.00 TO END

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STATE OF TEXAS
OMAR A. ESPINOSA
125560
LICENSED
PROFESSIONAL ENGINEER

NORTHLAKE PHASE 3
PLAT 25-11800055

BEXAR COUNTY
TEXAS

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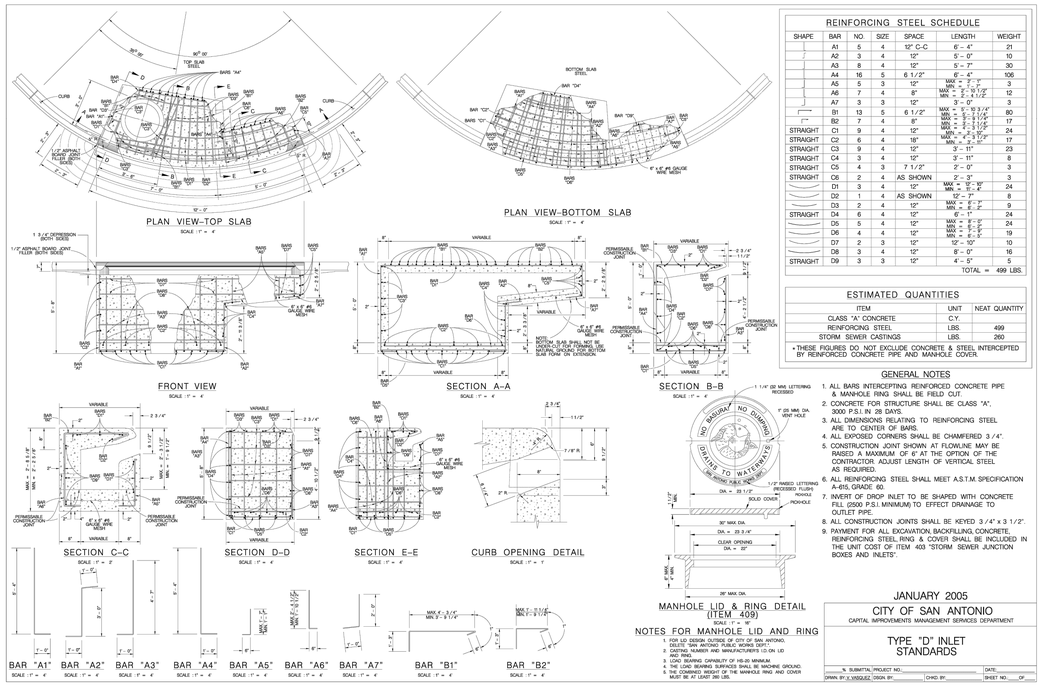
PROJECT NUMBER: 314-65-04
DRAWING NAME: DR3146504 - EF

SHEET TITLE:
INTERCEPTOR DRAIN "F" PLAN & PROFILE

SHEET NUMBER:
4.5

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

By: ABEL MONTALVO
n:\fb2\dsm\DR3146504-1F.dwg/4.5



REINFORCING STEEL SCHEDULE						
SHAPE	BAR	NO.	SIZE	SPACE	LENGTH	WEIGHT
	A1	5	4	12" C-C	6' – 4"	21
	A2	3	4	12"	5' – 0"	10
	A3	8	4	12"	5' – 7"	30
	A4	16	5	6 1/2"	6' – 4"	106
	A5	5	3	12"	MAX = 3' – 1" MIN = 2' – 5 1/2"	3
	A6	7	4	8"	MAX = 3' – 1 1/2" MIN = 2' – 11 1/2"	12
	A7	3	3	12"	3' – 0"	3
	B1	13	5	6 1/2"	MAX = 5' - 10 3/4" MIN = 5' – 3 1/4"	80
	B2	7	4	8"	MAX = 3' – 1 1/2" MIN = 2' – 11 1/2"	17
STRAIGHT	C1	9	4	12"	MAX = 3' – 1 1/2" MIN = 2' – 11 1/2"	24
STRAIGHT	C2	6	4	18"	MAX = 4' – 7 1/2" MIN = 4' – 0"	17
STRAIGHT	C3	9	4	12"	3' - 11"	23
STRAIGHT	C4	3	4	12"	3' – 11"	8
STRAIGHT	C5	4	3	7 1/2"	2' – 0"	3
STRAIGHT	C6	2	4	AS SHOWN	2' – 3"	3
	D1	3	4	12"	MAX = 12' – 10" MIN = 11' – 4"	24
	D2	1	4	AS SHOWN	12' – 7"	8
	D3	2	4	12"	MAX = 8' – 7" MIN = 7' – 6"	9
STRAIGHT	D4	6	4	12"	8' – 11"	24
	D5	5	4	12"	MAX = 8' – 0" MIN = 7' – 5"	24
	D6	4	4	12"	MAX = 8' – 0" MIN = 6' – 5"	19
	D7	2	3	12"	12' – 10"	10
	D8	3	4	12"	8' – 0"	16
STRAIGHT	D9	3	3	12"	4' – 5"	5
					TOTAL =	499 LBS.

ESTIMATED QUANTITIES		
ITEM	UNIT	NEAT QUANTITY
CLASS "A" CONCRETE	C.Y.	
REINFORCING STEEL	LBS.	499
STORM SEWER CASTINGS	LBS.	260

* THESE FIGURES DO NOT EXCLUDE CONCRETE & STEEL INTERCEPTED BY REINFORCED CONCRETE PIPE AND MANHOLE COVER.

GENERAL NOTES

1. ALL BARS INTERCEPTING REINFORCED CONCRETE PIPE & MANHOLE RING SHALL BE FIELD CUT.
2. CONCRETE FOR STRUCTURE SHALL BE CLASS "A", 3000 P.S.I. IN 28 DAYS.
3. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS.
4. ALL EXPOSED CORNERS SHALL BE CHAMFERED 3 /4".
5. CONSTRUCTION JOINT SHOWN AT FLOWLINE MAY BE RAISED A MAXIMUM OF 4" AT THE OPTION OF THE CONTRACTOR. ADJUST LENGTH OF VERTICAL STEEL AS REQUIRED.
6. ALL REINFORCING STEEL SHALL MEET A.S.T.M. SPECIFICATION A-615, GRADE 60.
7. INVERT OF DROP INLET TO BE SHAPED WITH CONCRETE FILL (2500 P.S.I. MINIMUM) TO EFFECT DRAINAGE TO OUTLET PIPE.
8. ALL CONSTRUCTION JOINTS SHALL BE KEYED 3 /4" x 3 1/2".
9. PAYMENT FOR ALL EXCAVATION, BACKFILLING, CONCRETE, REINFORCING STEEL, RING & COVER SHALL BE INCLUDED IN THE UNIT COST OF ITEM 403 "STORM SEWER JUNCTION BOXES AND INLETS".

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

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 140-LB MINIMUM
4. THE LOAD BEARING SURFACES SHALL BE MACHINE GROUND
5. THE COMBINED WEIGHT OF THE MANHOLE RING AND COVER MUST BE AT LEAST 280 LBS.

JANUARY 2005

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

TYPE "D" INLET STANDARDS

% SUBMITTAL PROJECT NO.:		DATE:
DRAWN BY: J. VASQUEZ	DESIGN BY:	CHKD BY:	SHEET NO. ___ OF ___

TABLE 9.3.8.2 - PERMISSIBLE SHEAR STRESSES FOR VARIOUS LININGS

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

TABLE 9.3.8.1 - RETARDATION CLASS FOR LINING MATERIALS

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

NOTE: CONTRACTOR TO HYDROMULCH AND WATER UNTIL VEGETATION IS ESTABLISHED. SEED MIXTURE TO BE DETERMINED BY OWNER.

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REV	DESCRIPTION	DRAWN BY	DATE

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125560
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PROFESSIONAL ENGINEER

NORTHLAKE PHASE 3
PLAT 25-11800055

BEXAR COUNTY
TEXAS

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

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	JANUARY 2025	SJ	SC

PROJECT NUMBER:	DRAWING NAME:
314-65-04	DRDT3146504

SHEET TITLE:
DRAIN DETAILS (4 OF 4)

SHEET NUMBER:
4.9

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

By: ABEL.MONTALVO
n:\fb2\sinn\0507314\4504.dwg\d4.9

TRENCH EXCAVATION SAFETY PROTECTION

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

CAUTION!!:

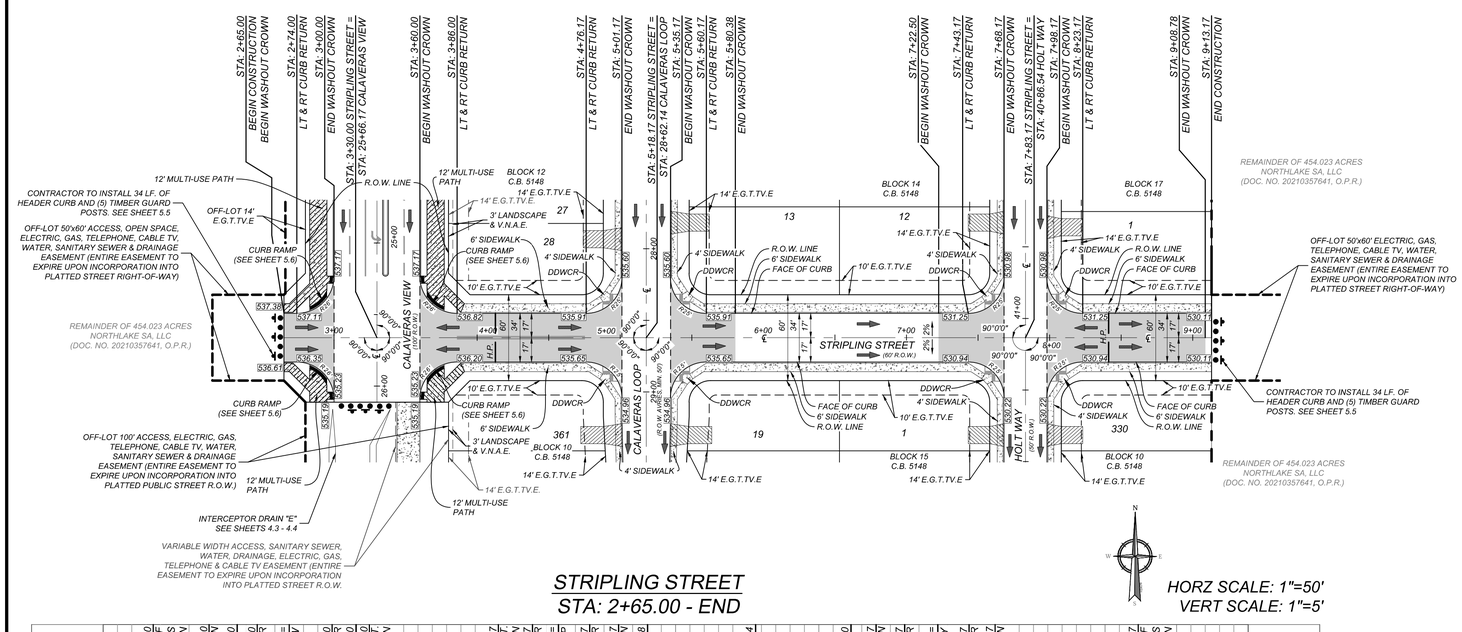
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BEXAR COUNTY R.O.W. NOTE

A BEXAR COUNTY PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY R.O.W.

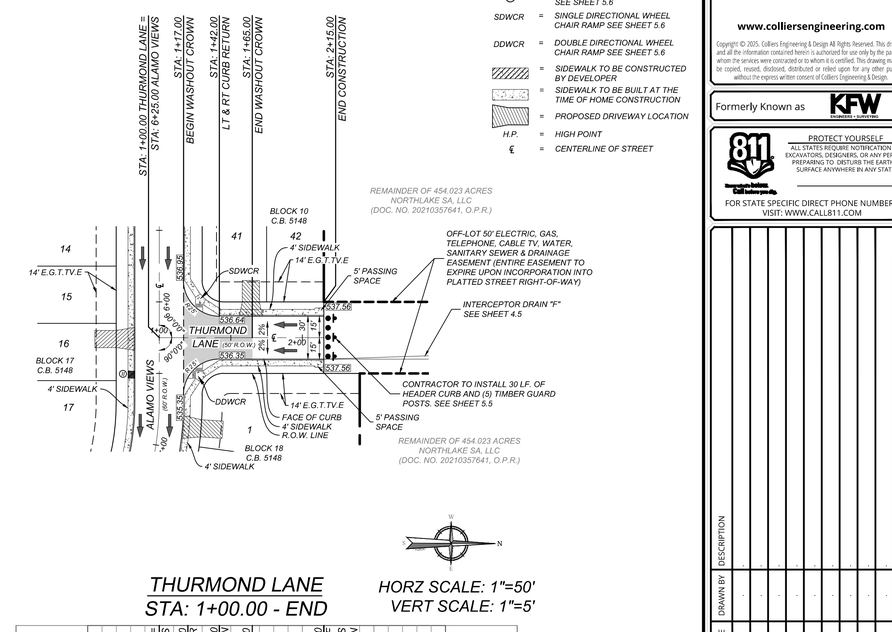
LEGEND

R.O.W.	=	RIGHT OF WAY
E.G.T.TV.E.	=	ELECTRIC, GAS, TELEPHONE & CABLE EASEMENT
	=	FLOW ARROW
	=	WASHOUT CROWN
Ⓘ	=	WHEELCHAIR RAMP TYPE I SEE SHEET 5.6
Ⓘ	=	WHEELCHAIR RAMP TYPE II SEE SHEET 5.6
SDWCR	=	SINGLE DIRECTIONAL WHEEL CHAIR RAMP SEE SHEET 5.6
DDWCR	=	DOUBLE DIRECTIONAL WHEEL CHAIR RAMP SEE SHEET 5.6
	=	SIDEWALK TO BE CONSTRUCTED BY DEVELOPER
	=	SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION
	=	PROPOSED DRIVEWAY LOCATION
H.P.	=	HIGH POINT
℄	=	CENTERLINE OF STREET



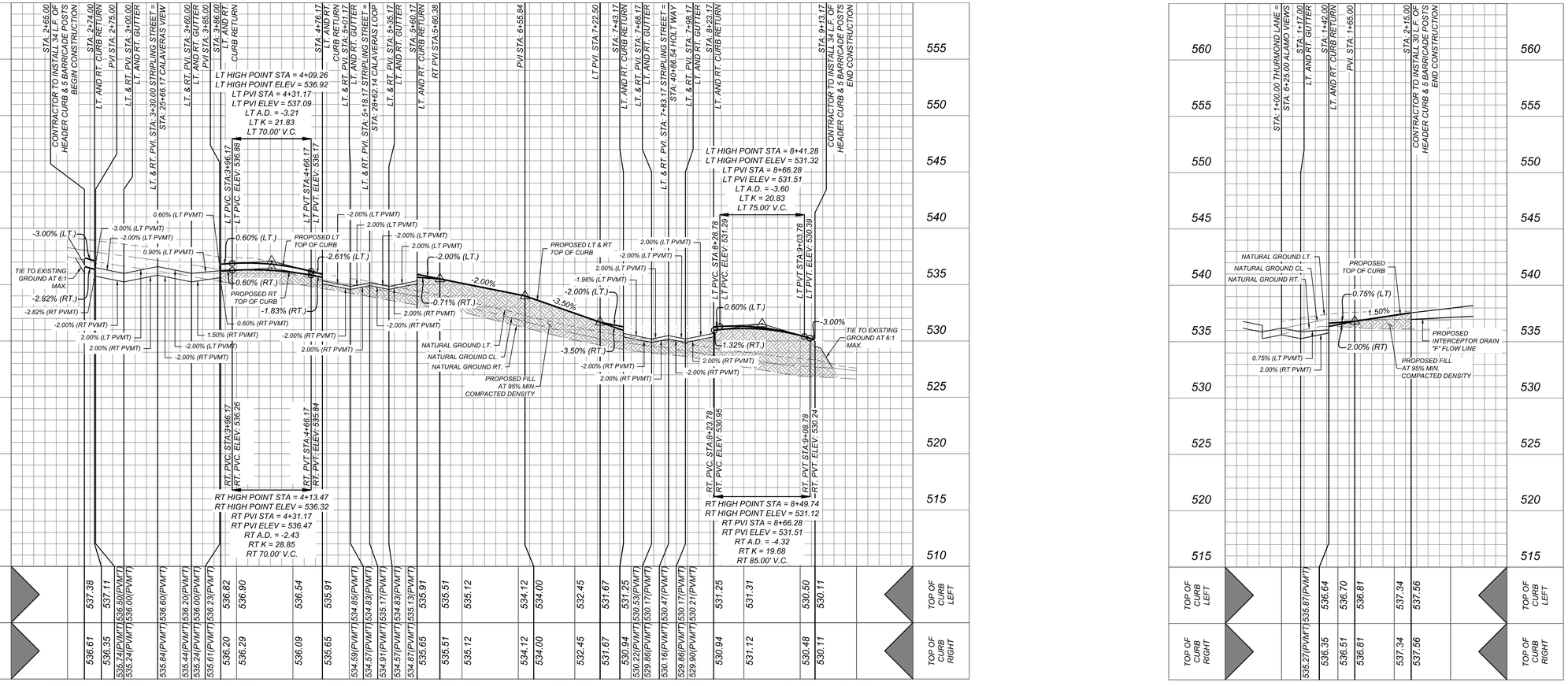
STRIPLING STREET
STA: 2+65.00 - END

HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



THURMOND LANE
STA: 1+00.00 - END

HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



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TEXAS

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San Antonio, TX 78231
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COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14309
TBPLS Firm#: 10194350

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	JANUARY 2025	SJ	SC

PROJECT NUMBER: 314-65-04
DRAWING NAME: STPP3146504

SHEET TITLE: STRIPLING STREET & THURMOND LANE PLAN AND PROFILES

SHEET NUMBER: 5.0

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

By: ABEL.MONTALVO

TRENCH EXCAVATION SAFETY PROTECTION

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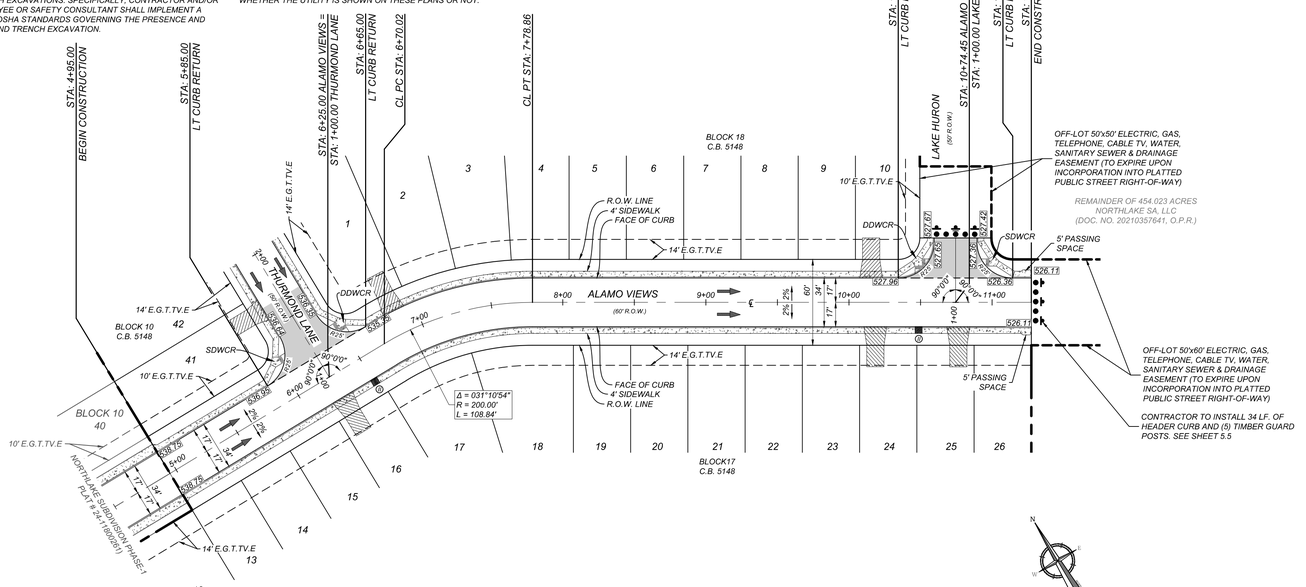
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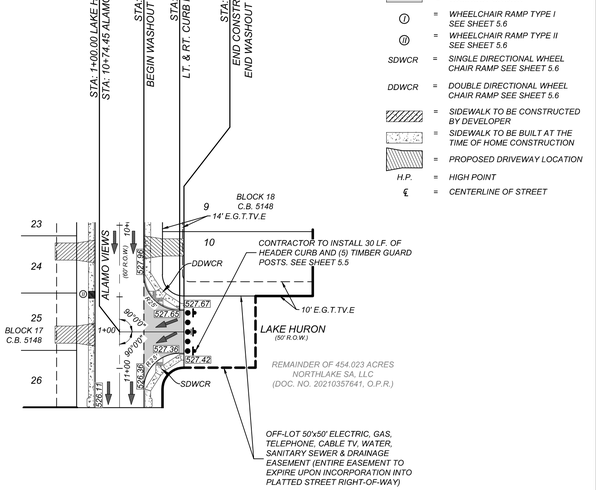
BEXAR COUNTY R.O.W. NOTE:

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LEGEND

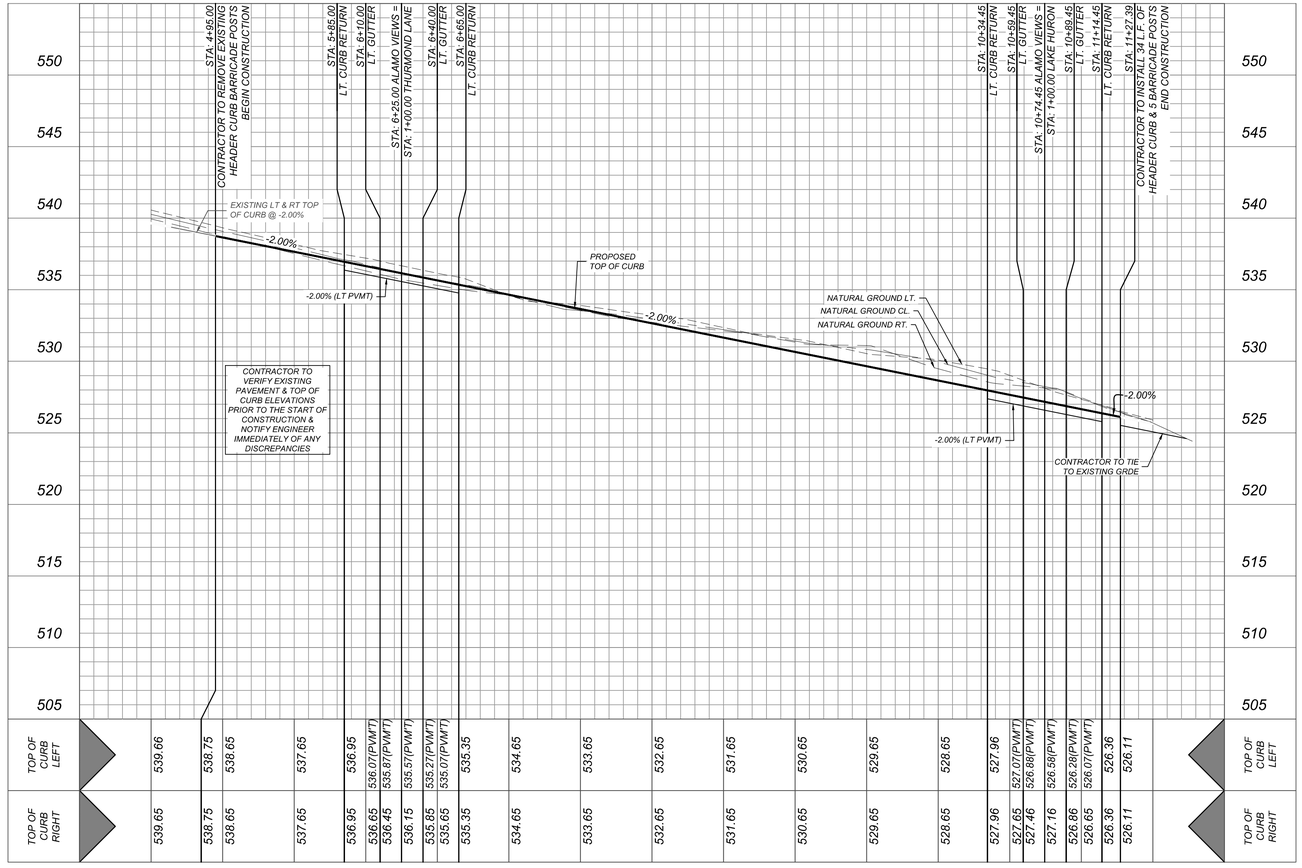
R.O.W.	=	RIGHT OF WAY
E.G.T.TV.E.	=	ELECTRIC, GAS, TELEPHONE & CABLE EASEMENT
	=	FLOW ARROW
	=	WASHOUT CROWN
I	=	WHEELCHAIR RAMP TYPE I SEE SHEET 5.6
II	=	WHEELCHAIR RAMP TYPE II SEE SHEET 5.6
SDWCR	=	SINGLE DIRECTIONAL WHEEL CHAIR RAMP SEE SHEET 5.6
DDWCR	=	DOUBLE DIRECTIONAL WHEEL CHAIR RAMP SEE SHEET 5.6
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	=	PROPOSED DRIVEWAY LOCATION
H.P.	=	HIGH POINT
℄	=	CENTERLINE OF STREET





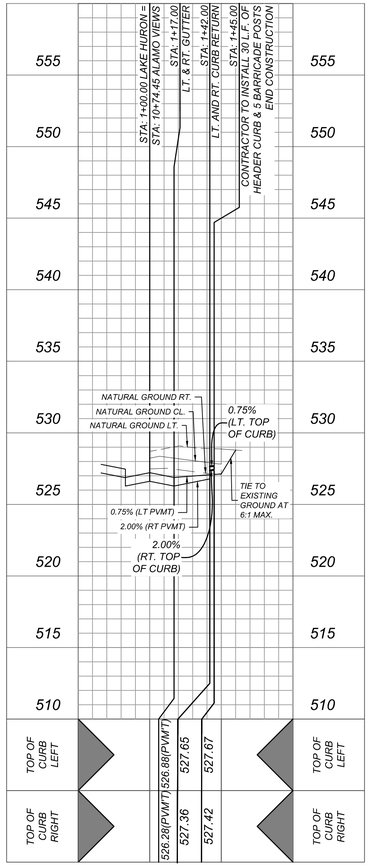
ALAMO VIEWS
STA: 4+95.00 - END

HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



LAKE HURON
STA: 1+00.00 - END

HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	JANUARY 2025	SJ	SC

PROJECT NUMBER: 314-65-04
DRAWING NAME: STPP3146504

SHEET TITLE: ALAMO VIEWS & LAKE HURON PLAN AND PROFILES

SHEET NUMBER: 5.1

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

In:\STREETS\STPP3146504.dwg\S.1 By: ABEL.MONTALVO

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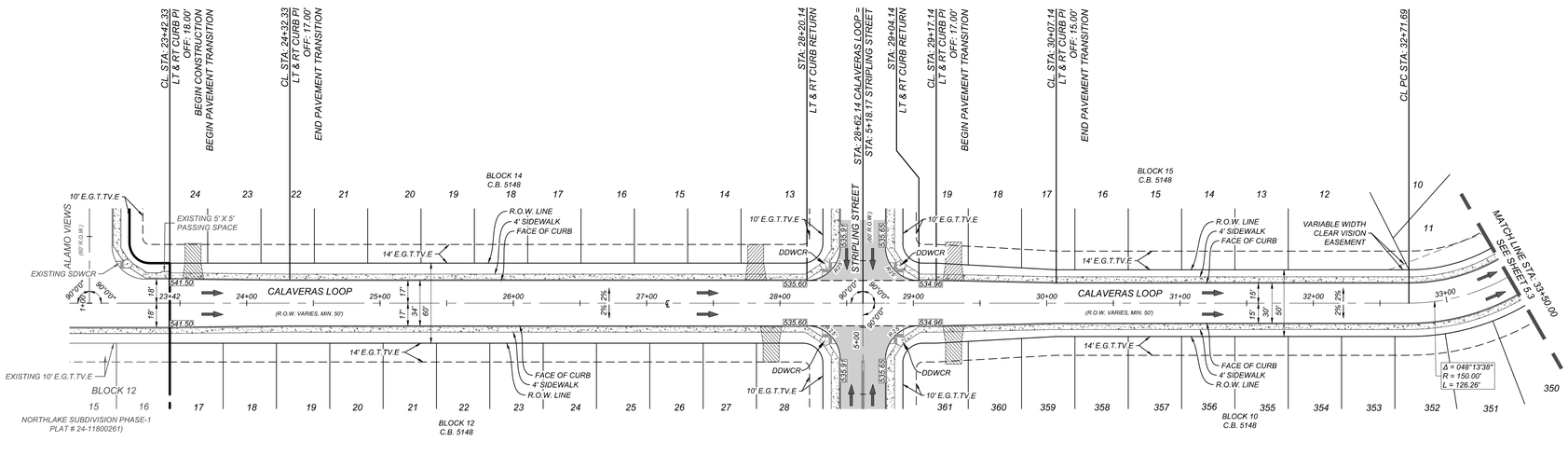
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BEXAR COUNTY R.O.W. NOTE

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LEGEND

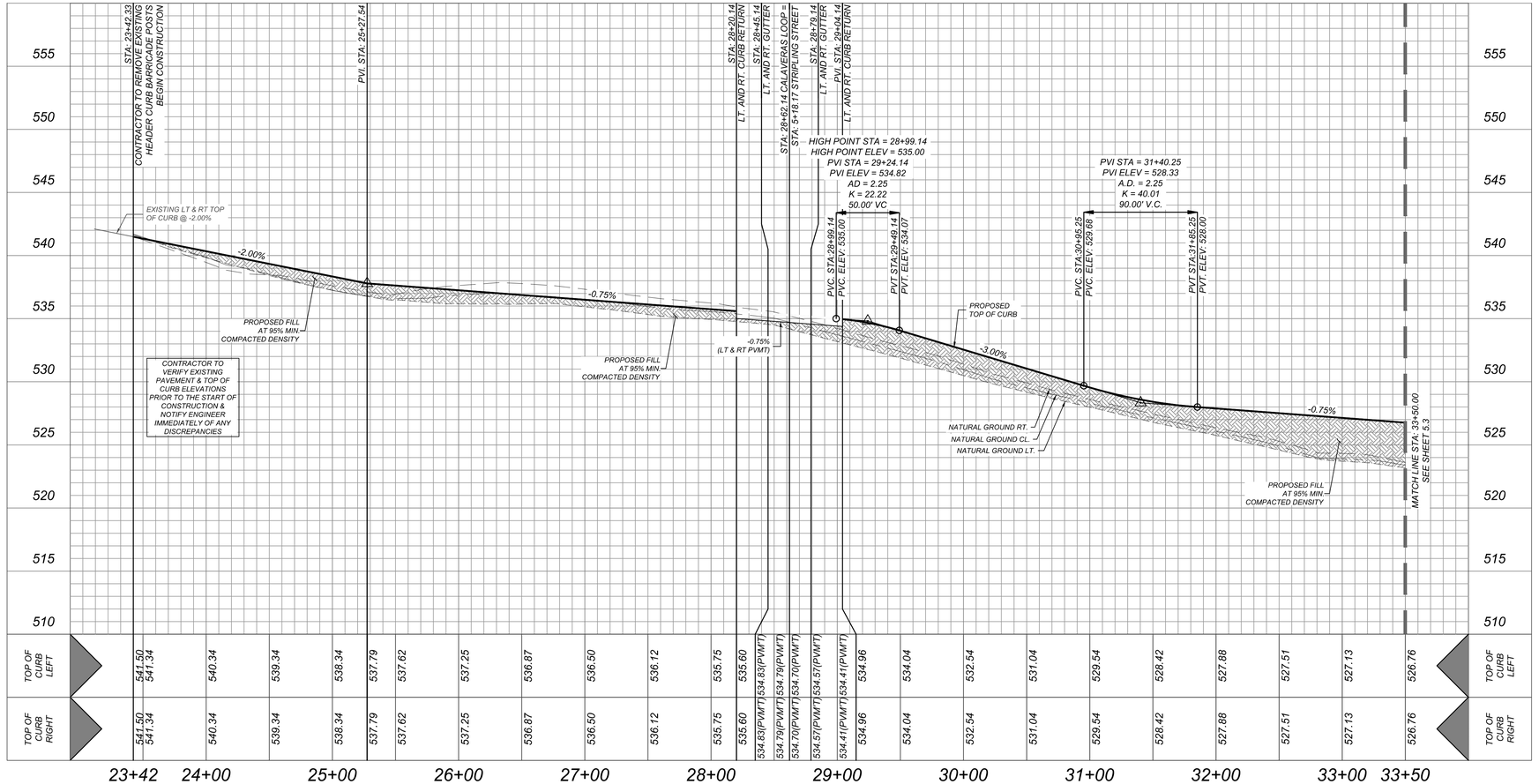
R.O.W.	=	RIGHT OF WAY
E.G.T.TV.E.	=	ELECTRIC, GAS, TELEPHONE & CABLE EASEMENT
	=	FLOW ARROW
	=	WASHOUT CROWN
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	=	SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION
	=	PROPOSED DRIVEWAY LOCATION
H.P.	=	HIGH POINT
℄	=	CENTERLINE OF STREET





CALAVERAS LOOP
STA: 23+42.33 - 33+50.00

HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



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San Antonio, TX 78231
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COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14309
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	JANUARY 2025	SJ	SC

PROJECT NUMBER: 314-65-04
DRAWING NAME: STP9346504

SHEET TITLE:
CALAVERAS LOOP PLAN AND PROFILES

SHEET NUMBER:
5.2

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

I:\ASTREETS\STP9314650\4.0wg\5.2 By: ABEL.MONTALVO

TRENCH EXCAVATION SAFETY PROTECTION

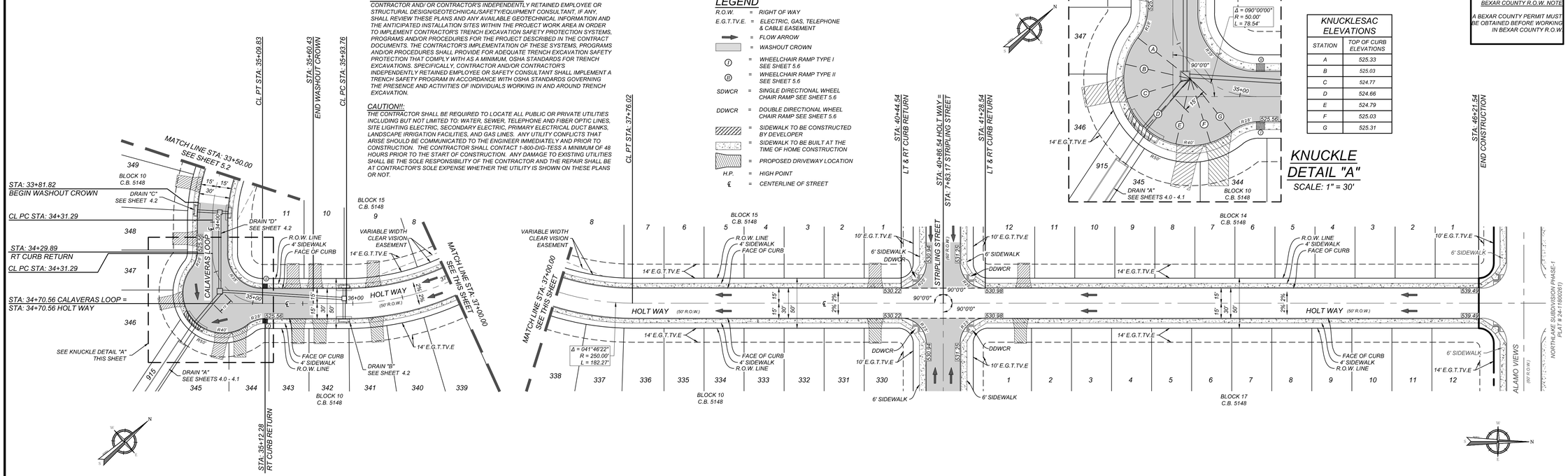
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LEGEND

R.O.W.	=	RIGHT OF WAY
E.G.T.TV.E.	=	ELECTRIC, GAS, TELEPHONE & CABLE EASEMENT
	=	FLOW ARROW
	=	WASHOUT CROWN
(I)	=	WHEELCHAIR RAMP TYPE I SEE SHEET 5.6
(II)	=	WHEELCHAIR RAMP TYPE II SEE SHEET 5.6
SDWCR	=	SINGLE DIRECTIONAL WHEEL CHAIR RAMP SEE SHEET 5.6
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	=	PROPOSED DRIVEWAY LOCATION
H.P.	=	HIGH POINT
℄	=	CENTERLINE OF STREET



KNUCKLESAC ELEVATIONS

STATION	TOP OF CURB ELEVATIONS
A	525.33
B	525.03
C	524.77
D	524.66
E	524.79
F	525.03
G	525.31

KNUCKLE DETAIL "A"

SCALE: 1" = 30'

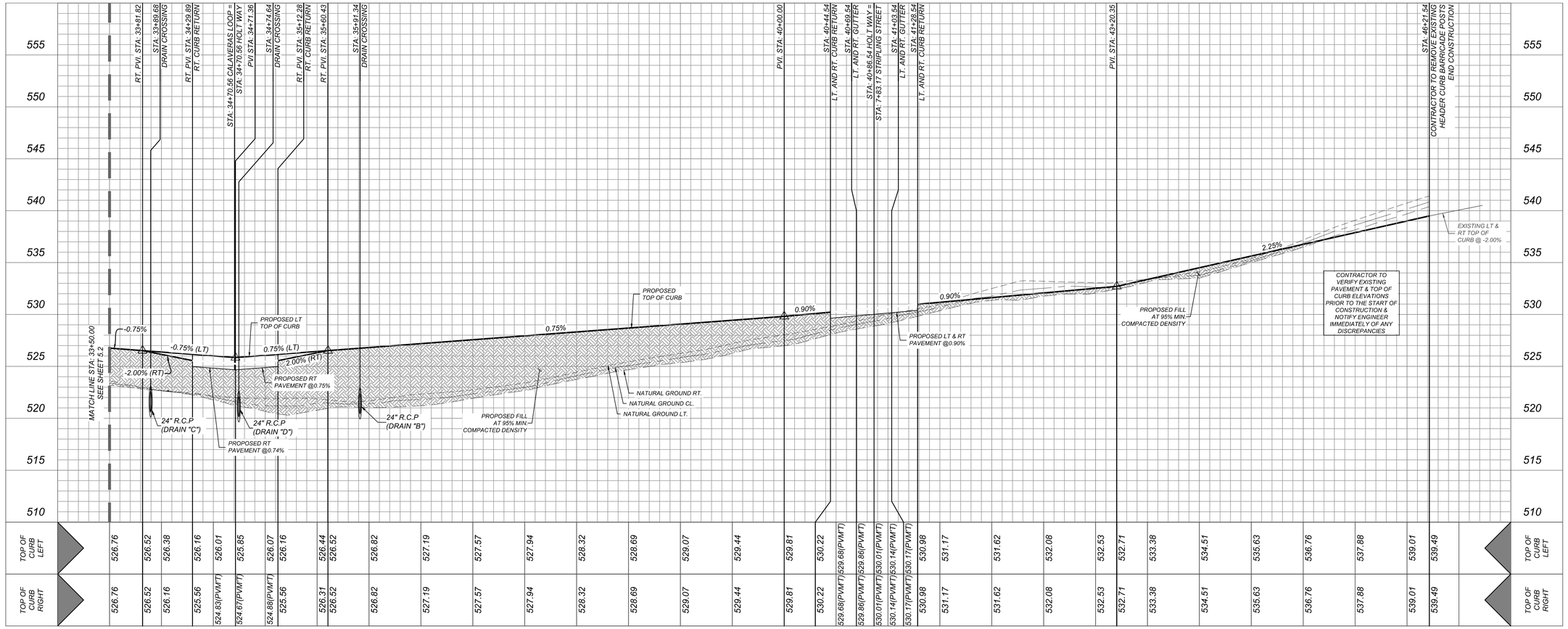
BEXAR COUNTY R.O.W. NOTE

A BEXAR COUNTY PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY R.O.W.

CALAVERAS LOOP & HOLT WAY

STA: 33+50.00 - END

HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



| | | |

TRENCH EXCAVATION SAFETY PROTECTION

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CAUTION!!:

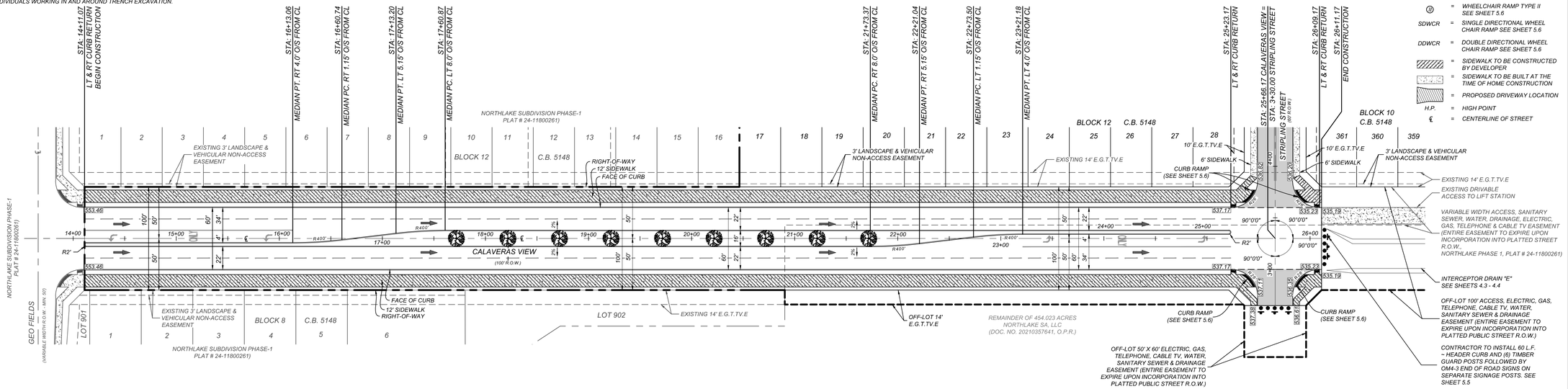
THE CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITED TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCT BANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT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

BEXAR COUNTY R.O.W. NOTE

A BEXAR COUNTY PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY R.O.W.

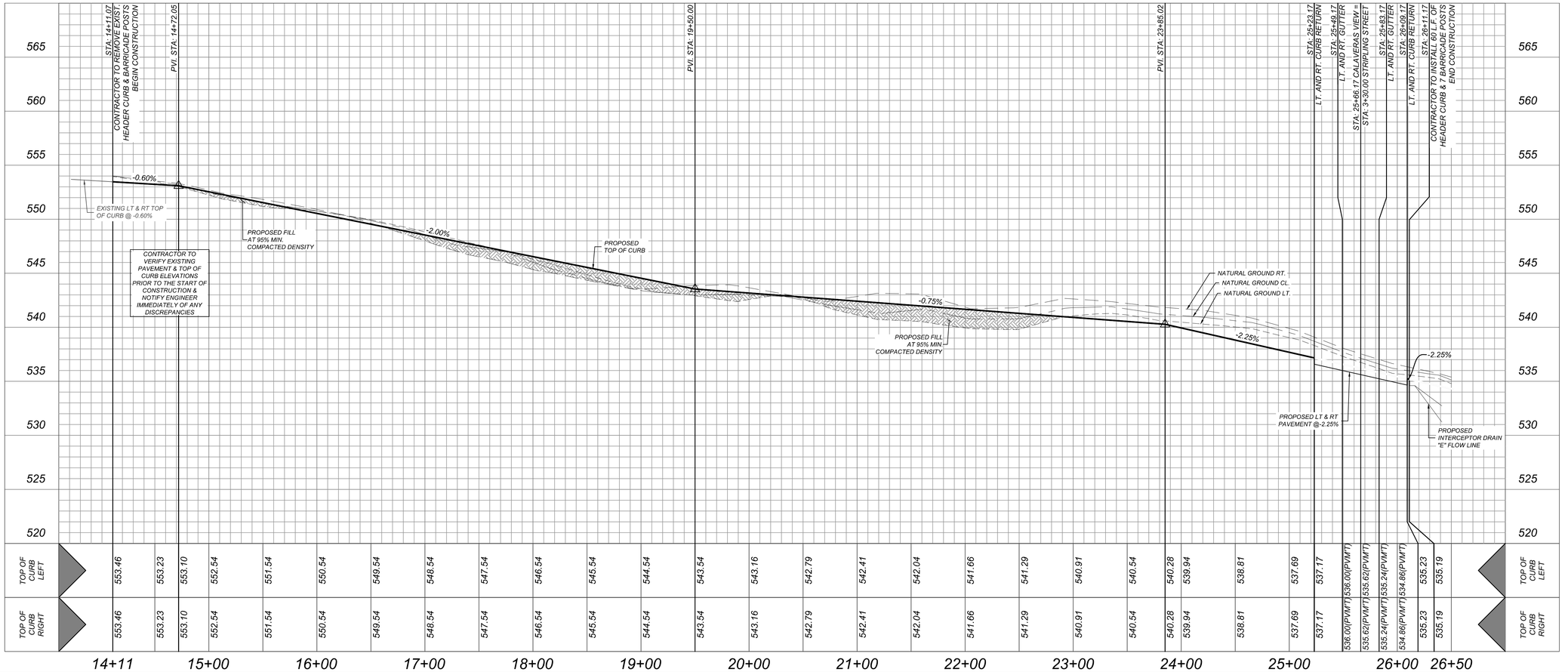
LEGEND

R.O.W.	=	RIGHT OF WAY
E.G.T.TV.E.	=	ELECTRIC, GAS, TELEPHONE & CABLE EASEMENT
	=	FLOW ARROW
	=	WASHOUT CROWN
(1)	=	WHEELCHAIR RAMP TYPE I SEE SHEET 5.6
(II)	=	WHEELCHAIR RAMP TYPE II SEE SHEET 5.6
SDWCR	=	SINGLE DIRECTIONAL WHEEL CHAIR RAMP SEE SHEET 5.6
DDWCR	=	DOUBLE DIRECTIONAL WHEEL CHAIR RAMP SEE SHEET 5.6
	=	SIDEWALK TO BE CONSTRUCTED BY DEVELOPER
	=	SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION
	=	PROPOSED DRIVEWAY LOCATION
H.P.	=	HIGH POINT
℄	=	CENTERLINE OF STREET



CALAVERAS VIEW
STA: 14+11.07 - END

HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



	14+11	15+00	16+00	17+00	18+00	19+00	20+00	21+00	22+00	23+00	24+00	25+00	26+00	26+50
TOP OF CURB LEFT	553.46	553.23	553.10	552.54	551.54	550.54	549.54	548.54	547.54	546.54	545.54	544.54	543.54	543.16	542.79	542.41	542.04	541.66	541.29	540.91	540.54	540.28	539.94	538.81	537.69	537.17	536.00(PVMT)	535.62(PVMT)	535.24(PVMT)	534.86(PVMT)	535.23	535.19
TOP OF CURB RIGHT	553.46	553.23	553.10	552.54	551.54	550.54	549.54	548.54	547.54	546.54	545.54	544.54	543.54	543.16	542.79	542.41	542.04	541.66	541.29	540.91	540.54	540.28	539.94	538.81	537.69	537.17	536.00(PVMT)	535.62(PVMT)	535.24(PVMT)	534.86(PVMT)	535.23	535.19

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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
OMAR A. ESPINOSA
125560
LICENSED
PROFESSIONAL ENGINEER

NORTHLAKE PHASE 3
PLAT 25-11800055

BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14309
TBPLS Firm#: 10194350

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	JANUARY 2025	SJ	SC

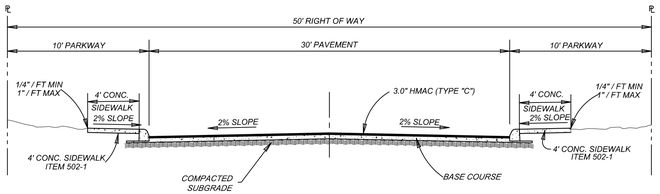
PROJECT NUMBER: 314-65-04
DRAWING NAME: STPP3146504

SHEET TITLE: CALAVERAS VIEW PLAN AND PROFILES

SHEET NUMBER: 5.4

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

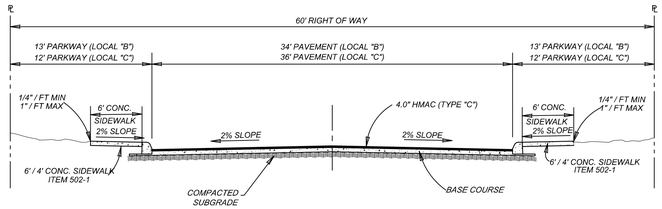
w:\STREETS\STPP3146504.dwg\5.4 By: ABEL MONTALVO



TYPICAL LOCAL "A" STREET SECTION

NOT TO SCALE

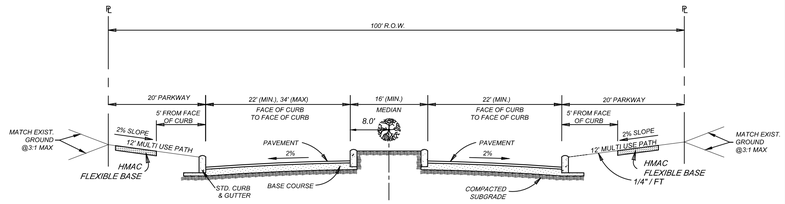
CALAVERAS LOOP / HOLT WAY: STA: 30+07.14 - 46+21.54
THURMOND LANE: STA: 1+42.00 - 2+15.00
LAKE HURON: STA: - 1+42.00 - 1+45.00



TYPICAL LOCAL "B"/ LOCAL "C" STREET SECTION

NOT TO SCALE

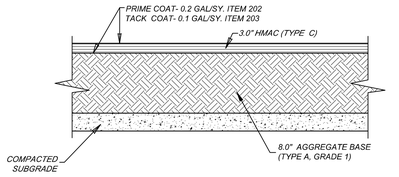
CALAVERAS LOOP: STA: 23+42.33 - 30+07.14
ALAMO VIEWS: STA: 4+95.00 - 11+27.39
STRIPLING STREET: STA: 2+65.00 - 9+13.17



R.O.W. STREET SECTION - COLLECTOR

NOT TO SCALE

CALAVERAS VIEW: STA: 14+11.07 - 26+11.17



ASPHALT PAVEMENT DETAIL

NOT-TO-SCALE

DETAIL FOR ALL LOCAL TYPE A

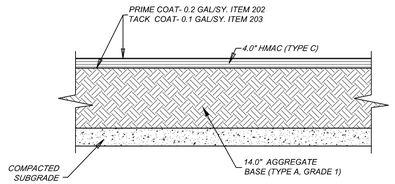
Pavement Section
3.0" HMAC (TYPE "C")
8.0" FLEXBASE COURSE (TYPE "A" GRADE 1)
8.0" COMPACTED SUBGRADE
Total: 19.0"
Structural No: 4.2
C.B.R = 6.6

NOTES:
1. PAVEMENT DESIGN THICKNESS BASED ON GEOTECHNICAL REPORT BY PROFESSIONAL SERVICE INDUSTRIES, INC. PROJECT NO. 0312-3143-R5 DATED 11/14/2024.

2. REFERENCE PROJECT GEOTECHNICAL REPORT AND PROJECT SPECIFICATION FOR ADDITIONAL REQUIREMENTS AND ALTERNATE PAVEMENT SECTIONS.

3. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING MATERIAL TESTING. TESTING TO BE PAID BY OWNER.

4. CONTRACTOR MAY LEAVE VERTICAL CUT BANKS AT R.O.W. LINE AND MEDIANS PROVIDED PROJECT GEOTECHNICAL ENGINEER DETERMINES ROCK IS COMPETENT TO STAND ON ITS OWN.



ASPHALT PAVEMENT DETAIL

NOT-TO-SCALE

DETAIL FOR ALL LOCAL TYPE B / TYPE C

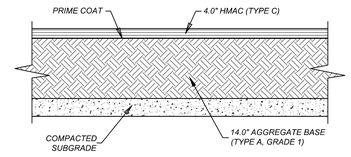
Pavement Section
4.0" HMAC (TYPE "C")
14" FLEXBASE COURSE (TYPE "A" GRADE 1)
8.0" COMPACTED SUBGRADE
Total: 26.0"
Structural No: 4.2
C.B.R = 6.6

NOTES:
1. PAVEMENT DESIGN THICKNESS BASED ON GEOTECHNICAL REPORT BY PROFESSIONAL SERVICE INDUSTRIES, INC. PROJECT NO. 0312-3143-R5 DATED 11/14/2024.

2. REFERENCE PROJECT GEOTECHNICAL REPORT AND PROJECT SPECIFICATION FOR ADDITIONAL REQUIREMENTS AND ALTERNATE PAVEMENT SECTIONS.

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ASPHALT PAVEMENT DETAIL

NOT-TO-SCALE

DETAIL FOR MODIFIED ARTERIAL

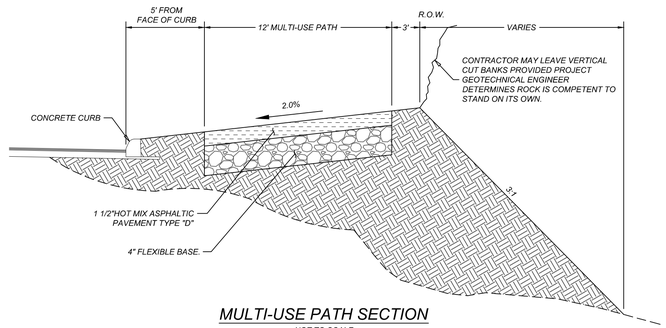
Pavement Section
4.0" HMAC TYPE "C"
14.0" AGGREGATED BASE (TYPE A, GRADE 1)
8.0" COMPACTED SUBGRADE
Total: 26.0"
Structural No: 4.2
CBR: 6.6

NOTES:
1. PAVEMENT DESIGN THICKNESS BASED ON GEOTECHNICAL REPORT BY PROFESSIONAL SERVICE INDUSTRIES, INC. PROJECT NO. 0312-3143-R5 DATED 11/14/2024.

2. REFERENCE PROJECT GEOTECHNICAL REPORT AND PROJECT SPECIFICATION FOR ADDITIONAL REQUIREMENTS AND ALTERNATE PAVEMENT SECTIONS.

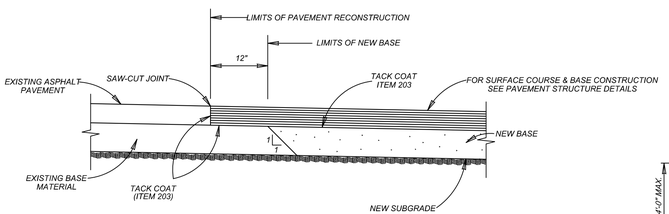
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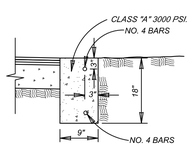
MULTI-USE PATH SECTION

NOT TO SCALE



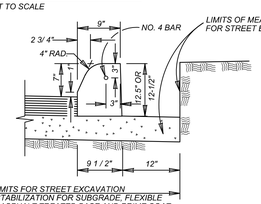
PAVEMENT JUNCTION DETAILS

NOT TO SCALE



HEADER CURB

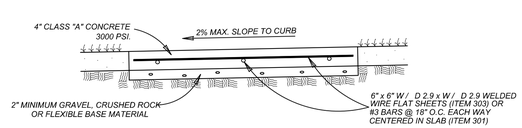
ITEM 500 ON SAND OR GRAVEL
NOT TO SCALE



PAY LIMITS FOR STREET EXCAVATION
LIME STABILIZATION FOR SUBGRADE, FLEXIBLE BASE, ASPHALT TREATED BASE AND PRIME COAT

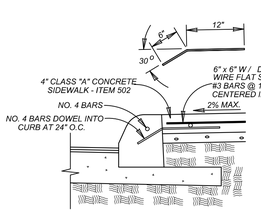
CONCRETE CURB

ITEM 500 ON FLEXIBLE BASE MATERIAL
NOT TO SCALE



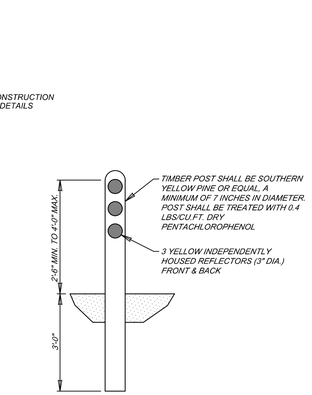
CONCRETE SIDEWALK SECTION

ITEM 502
NOT TO SCALE



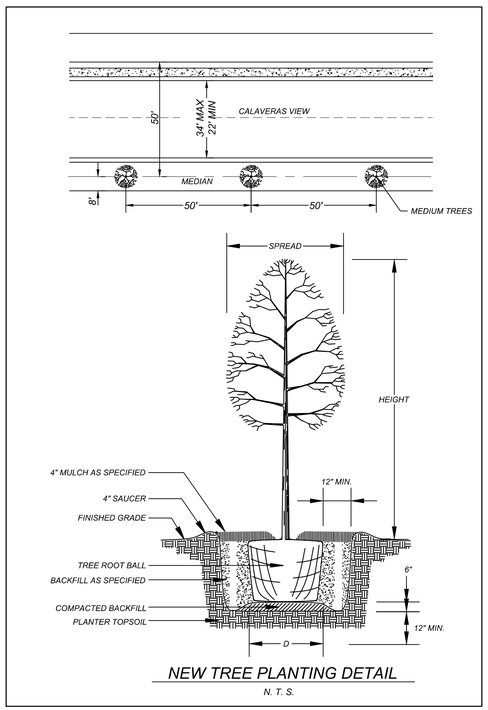
CONCRETE SIDEWALK ABUTTING CURB SECTION

ITEM 502
NOT TO SCALE



TIMBER GUARD POST DETAIL

NOT-TO-SCALE



NEW TREE PLANTING DETAIL

N. T. S.

STREETSCAPE TREE PLANTING NOTES

MEDIUM TREES (PER UDC) TO BE PLANTED EVERY 50 FEET ALONG CALAVERAS VIEW. MEDIAN PER "NEW TREE PLANTING DETAIL" ON THIS SHEET

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

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STATE OF TEXAS
OMAR A. ESPINOSA
125560
LICENSED
PROFESSIONAL ENGINEER

NORTHLAKE PHASE 3
PLAT 25-11800055

BEXAR COUNTY
TEXAS

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

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	JANUARY 2025	SJ	SC

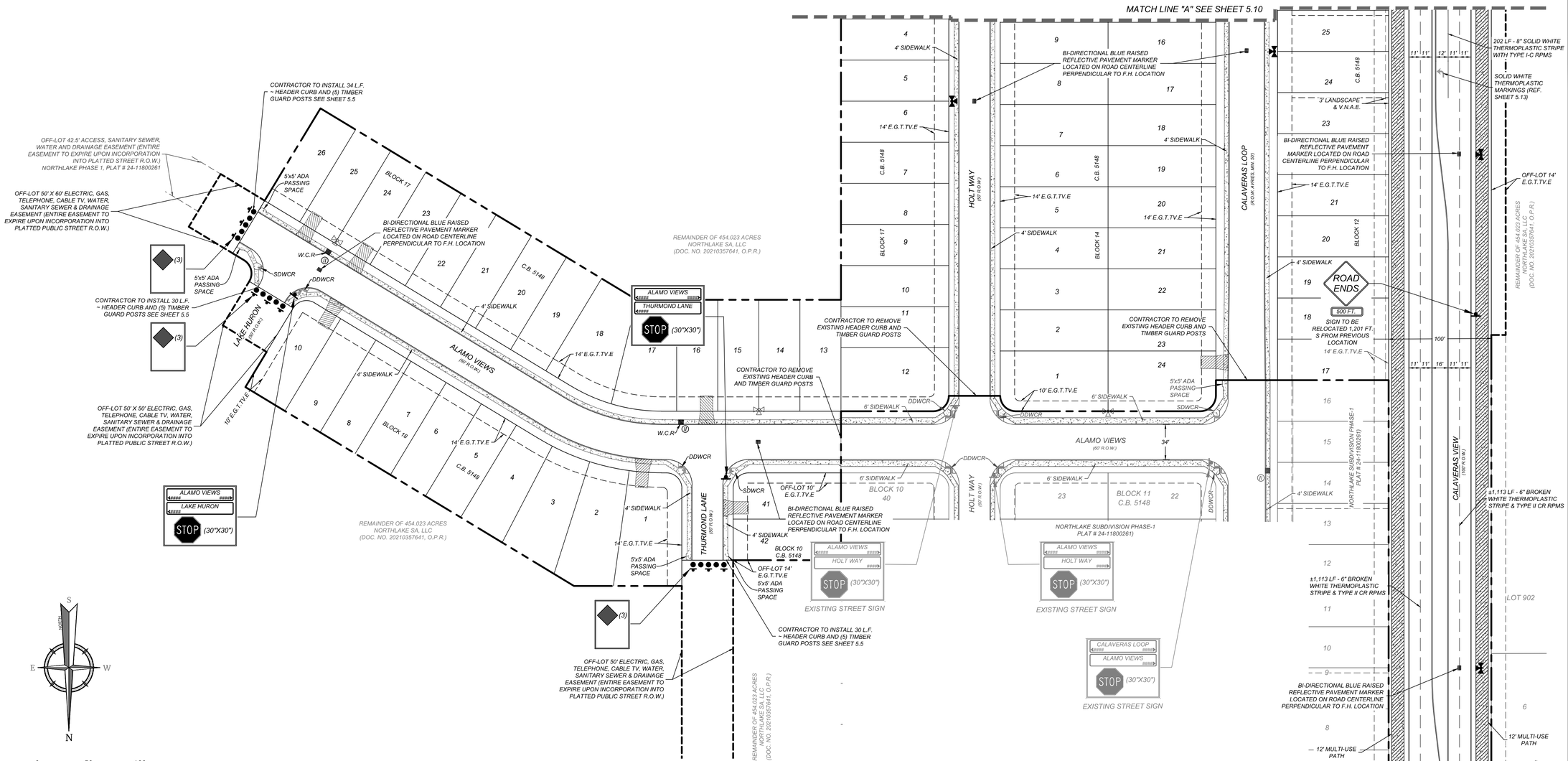
PROJECT NUMBER: 314-65-04
DRAWING NAME: STDT3146504

SHEET TITLE: STREET DETAIL SHEET

SHEET NUMBER: 5.5

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

W:\STREETS\STDT3146504.dwg/5.5 By: ABEL.MONTALVO



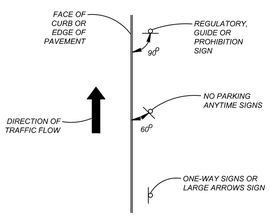
LEGEND

- WASHOUT CROWN
- E.G.T.TV.E. = ELECTRIC, GAS, TELEPHONE & CABLE EASEMENT
- V.N.A.E. = VEHICULAR NON-ACCESS EASEMENT
- W.C.R. = WHEELCHAIR RAMPS SEE SHEET 5.6
- (I) = WHEELCHAIR RAMP TYPE I SEE SHEET 5.6
- (II) = WHEELCHAIR RAMP TYPE II SEE SHEET 5.6
- S.D.W.C.R. = SINGLE DIRECTIONAL WHEEL CHAIR RAMP SEE SHEET 5.6
- D.D.W.C.R. = DOUBLE DIRECTIONAL WHEEL CHAIR RAMP SEE SHEET 5.6
- SIDEWALK TO BE CONSTRUCTED BY DEVELOPER.
- SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION
- PROPOSED DRIVEWAY LOCATIONS
- PROPOSED FIRE HYDRANRT
- EXISTING FIRE HYDRANRT

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

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

STREET SIGN SYMBOL	DESCRIPTION	ITEM NUMBER
STOP	R1-1 30" X 30" (SINGLE LANE) 36" X 36" (MULTI LANE)	531.3
STREET NAME	STANDARD BEXAR COUNTY STREET NAME SIGN STD X 9"	531.57
	OM4-3 END-OF-ROADWAY MARKER 18" X 18"	531.56
	TYPE II BLUE PAVEMENT MARKER	537.8
ROAD ENDS	W14 - 1T 30" X 30"	531.53
500 FT.	XXX FT W16-2 30" X 18"	531.63



TYPICAL GROUND MOUNTED SIGN PLACEMENT

TRENCH EXCAVATION SAFETY PROTECTION

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

BEXAR COUNTY R.O.W. NOTE:

A BEXAR COUNY PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY R.O.W.

By: ROGELIO.BERRONES
\\ROSTRE\TS\13314\46504.dwg\5.9

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REV	DATE	DRAWN BY	DESCRIPTION

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125560
LICENSED
PROFESSIONAL ENGINEER

NORTHLAKE PHASE 3 PLAT 25-11800055

BEXAR COUNTY TEXAS

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TBPE Firm#:F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	JANUARY 2025	SJ	SC

PROJECT NUMBER:	DRAWING NAME:
314-65-04	TS3146504

SHEET TITLE:
TRAFFIC SIGNAGE & SIDEWALK PLAN (1 OF 2)

SHEET NUMBER:
5.9

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

TRENCH EXCAVATION SAFETY PROTECTION

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

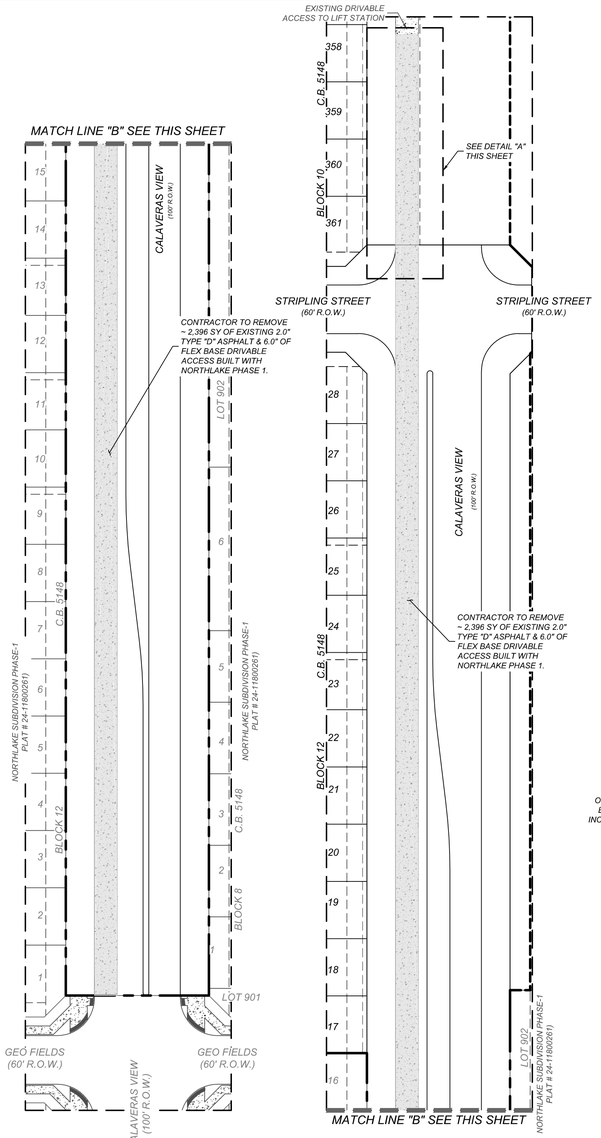
BEXAR COUNTY R.O.W. NOTE:

A BEXAR COUNY PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY R.O.W.

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

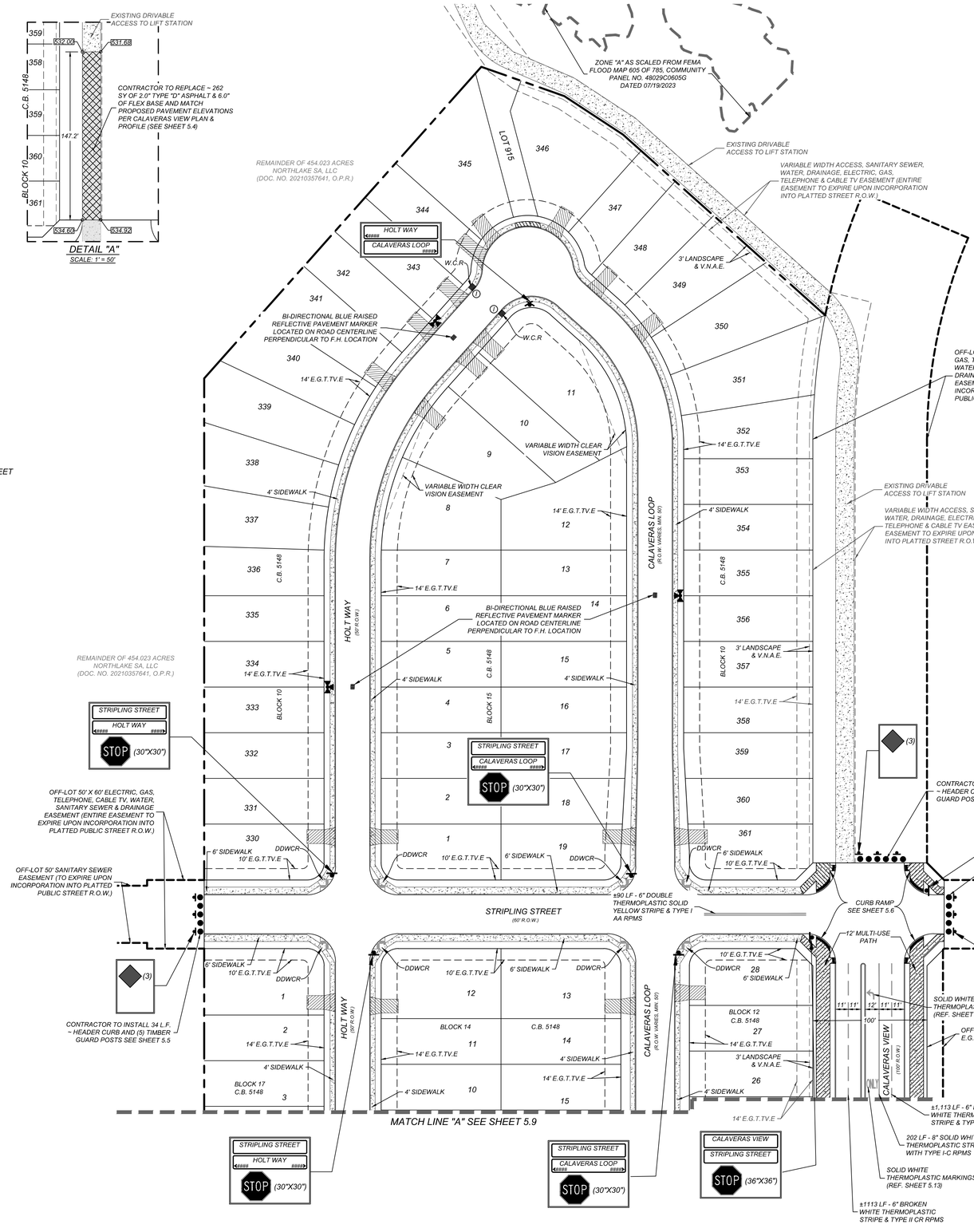
2) REGULATORY AND WARNING TRAFFIC SIGNS SHALL BE INSTALLED WITHIN AND ABUTTING THE SUBDIVISION IN ACCORDANCE WITH THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD)," AS REQUIRED BY THE CITY'S DEVELOPMENT SERVICES DEPARTMENT OR COUNTY'S DEPARTMENT OF PUBLIC WORKS. SUCH SIGNS SHALL BE MANUFACTURED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

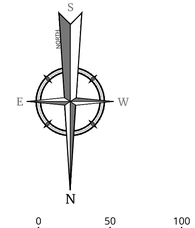
DETAIL "A"
SCALE: 1" = 50'



DEMOLITION DETAIL
SCALE: 1" = 50'

MATERIAL	UNITS	QUANTITIES
2.0" TYPE "D" ASPHALT & 6.0" FLEX BASE	S.Y.	2,396

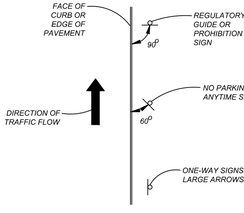




LEGEND

	=	WASHOUT CROWN
E.G.T.TV.E.	=	ELECTRIC, GAS, TELEPHONE & CABLE EASEMENT
V.N.A.E.	=	VEHICULAR NON-ACCESS EASEMENT
W.C.R.	=	WHEELCHAIR RAMPS SEE SHEET 5.6
(I)	=	WHEELCHAIR RAMP TYPE I SEE SHEET 5.6
(II)	=	WHEELCHAIR RAMP TYPE II SEE SHEET 5.6
S.D.W.C.R.	=	SINGLE DIRECTIONAL WHEEL CHAIR RAMP SEE SHEET 5.6
D.D.W.C.R.	=	DOUBLE DIRECTIONAL WHEEL CHAIR RAMP SEE SHEET 5.6
	=	SIDEWALK TO BE CONSTRUCTED BY DEVELOPER.
	=	SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION
	=	PROPOSED DRIVEWAY LOCATIONS
	=	PROPOSED FIRE HYDRANRT
	=	EXISTING FIRE HYDRANRT

REFER SHEET 5.9 FOR STREET SIGN SYMBOL AND ITEM NUMBER LEGEND



TYPICAL GROUND MOUNTED SIGN PLACEMENT

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FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
OMAR A. ESPINOSA
125560
LICENSED PROFESSIONAL ENGINEER

NORTHLAKE PHASE 3
PLAT 25-11800055

BEXAR COUNTY
TEXAS

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

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	JANUARY 2025	SJ	SC

PROJECT NUMBER: 314-65-04
DRAWING NAME: TS3146504

SHEET TITLE: TRAFFIC SIGNAGE & SIDEWALK PLAN (2 OF 2)

SHEET NUMBER: 5.10

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

M:\BSTREET\TS3146504\Civil\TS3146504_Civil\TS3146504_Civil\TS3146504_

TRENCH EXCAVATION SAFETY PROTECTION

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

COMPACTION NOTE:

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

NOTES:

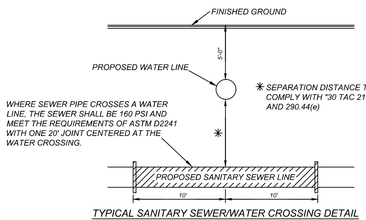
1. *SEWER PIPE WHERE WATER LINE CROSSES SHALL BE MEET THE REQUIREMENTS OF ASTM D2241. CONTRACTOR SHALL CENTER A 20 FOOT JOINT OF 160 P.S.I. PRESSURE RATED P.V.C. AT THE PROPOSED WATER CROSSING (NO SEPARATE PAY ITEM). REFERENCE SHEET 6.0, SANITARY SEWER GENERAL NOTES, S.A.W.S. CRITERIA FOR SEWER MAIN CONSTRUCTION IN THE VICINITY OF WATER MAINS.*
2. *REF. SHEET 6.3 FOR BENCHMARK INFORMATION.*
3. *PIPE TYPE DESIGNATIONS ARE SDR 26.*
4. *REF. THIS SHEET FOR TYPICAL SANITARY SEWER / WATER CROSSING DETAIL.*
5. *ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT, SHALL BE IN ACCORDANCE WITH THE SAN ANTONIO WATER SYSTEM (SAWS) STANDARD SPECIFICATIONS.*

CAUTION!!:

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

MANHOLE NOTE:

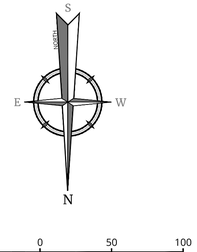
ALL MANHOLES MUST BE WATERTIGHT, WITH WATERTIGHT RINGS AND COVERS. THESE MANHOLES MUST BE VENTED PER SAWS STANDARD SPECIFICATIONS.

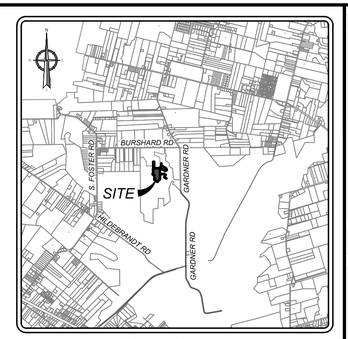


TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.

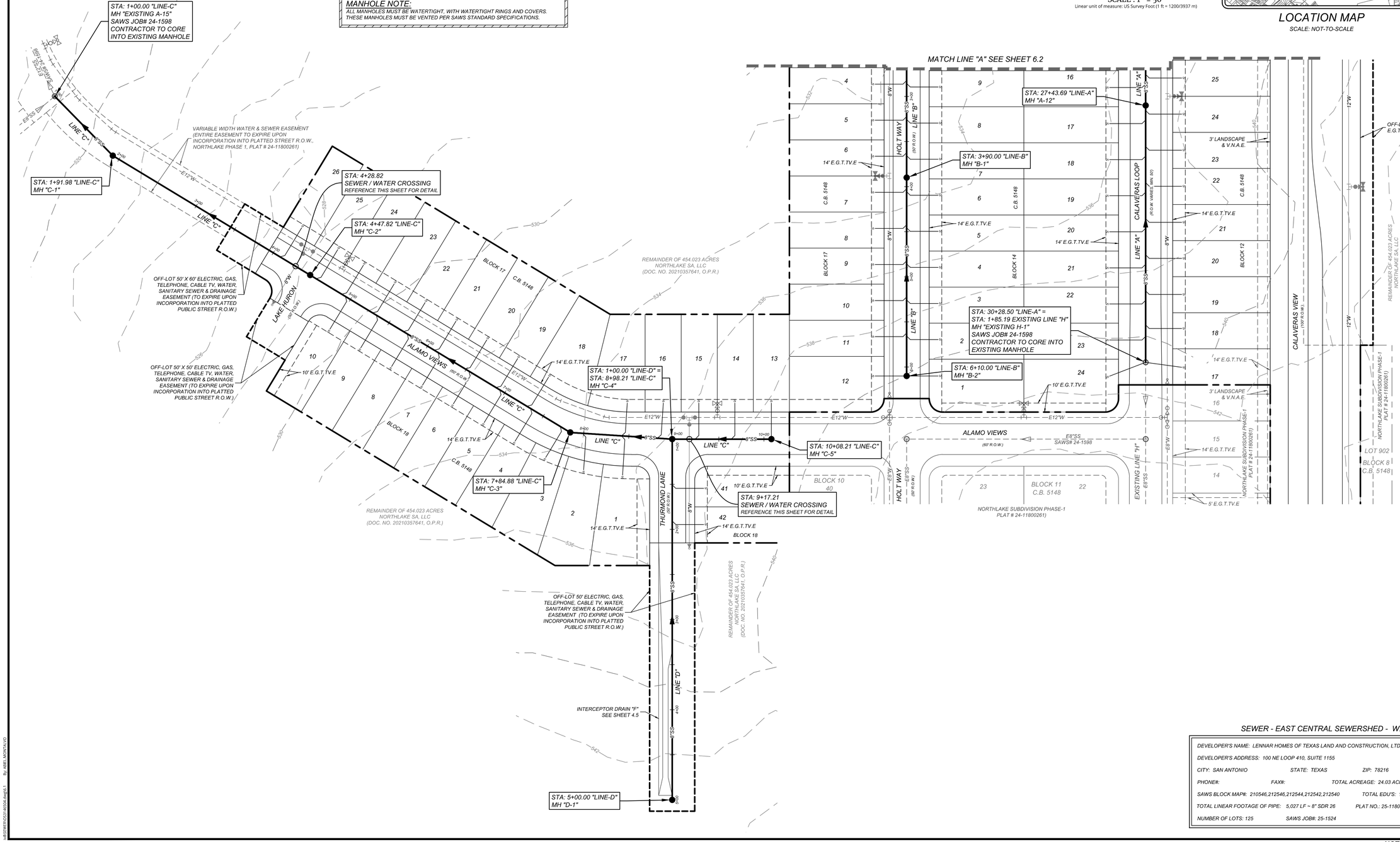
LEGEND

PROPOSED WATER MAIN	=	W
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	SS
PROPOSED SANITARY SEWER LATERAL	=	S
ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT (PLAT NUMBER	=	*E.G.T.TV.E*
EXISTING WATER MAIN	=	EW
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	ESS
EXISTING SANITARY SEWER MANHOLE	=	ESS





LOCATION MAP
SCALE: NOT-TO-SCALE



SEWER - EAST CENTRAL SEWERSHED - W.S.C.

DEVELOPER'S NAME: LENNAR HOMES OF TEXAS LAND AND CONSTRUCTION, LTD.			
DEVELOPER'S ADDRESS: 100 NE LOOP 410, SUITE 1155			
CITY: SAN ANTONIO	*STATE: TEXAS*	*ZIP: 78216*	
PHONE#:	*FAX#:*	*TOTAL ACREAGE: 24.03 ACRES*	
SAWS BLOCK MAP#: 210546,212546,212544,212542,212540		*TOTAL EDU'S: 125*	
TOTAL LINEAR FOOTAGE OF PIPE: 5,027 LF ~ 8" SDR 26		*PLAT NO.: 25-11800055*	
NUMBER OF LOTS: 125	*SAWS JOB#: 25-1524*		

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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
OMAR A. ESPINOSA
125560
LICENSED
PROFESSIONAL ENGINEER

NORTHLAKE PHASE 3
PLAT 25-11800055

BEXAR COUNTY
TEXAS

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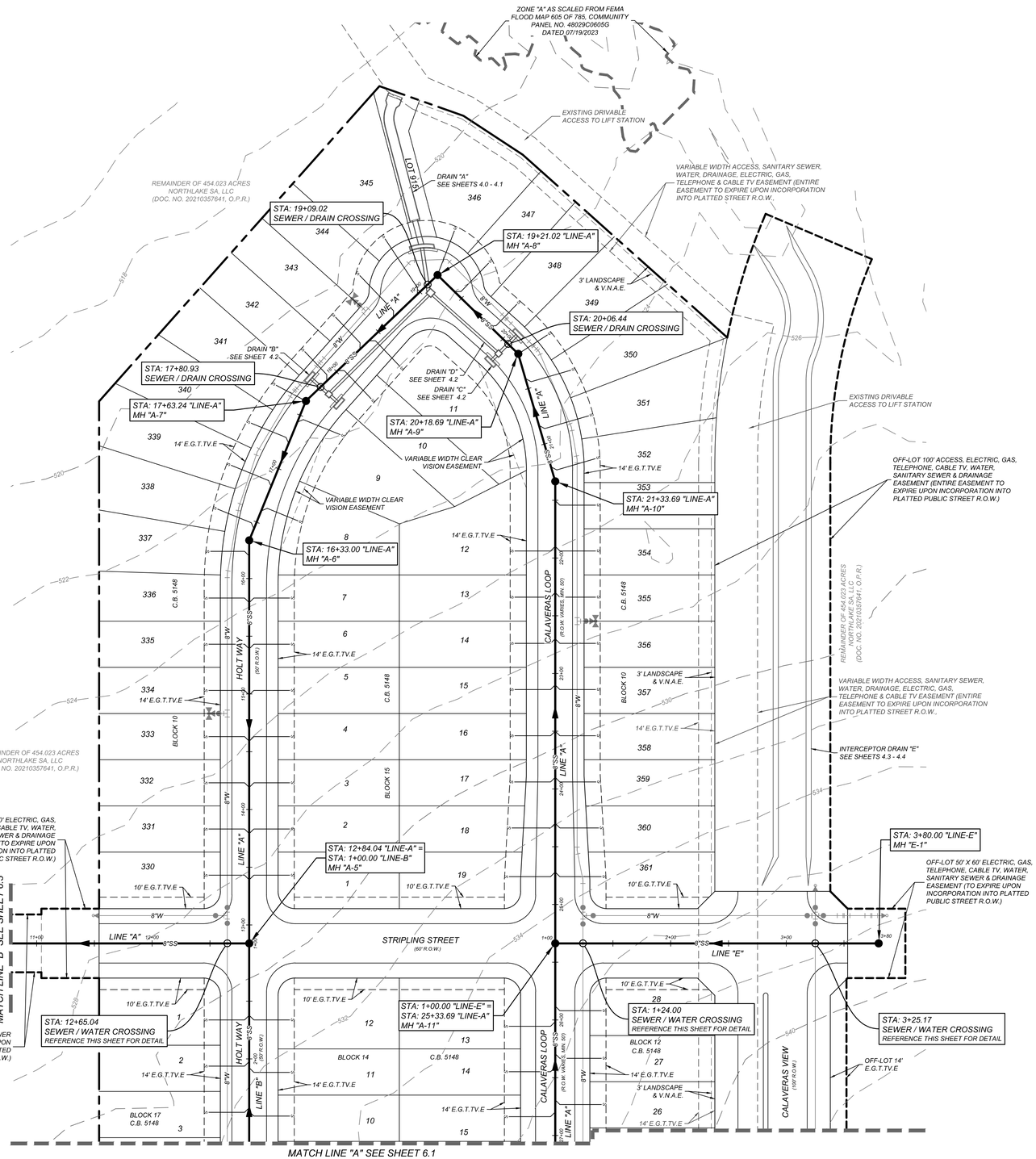
PROJECT NUMBER: 314-65-04
DRAWING NAME: 053146504

SHEET TITLE:
OVERALL SANITARY SEWER PLAN (1 OF 3)

SHEET NUMBER: 6.1

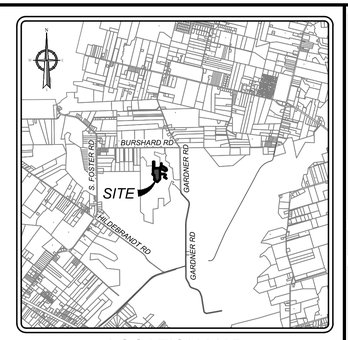
NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

I:\KFW\SITE\053146504.dwg[sh1] By: ABEL.MONTALVO



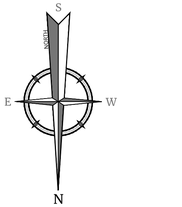
LEGEND

PROPOSED WATER MAIN	=	W
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	SS
PROPOSED SANITARY SEWER LATERAL	=	ss
ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT (PLAT NUMBER	=	E.G.T.TV.E
EXISTING WATER MAIN	=	EW
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	ESS
EXISTING SANITARY SEWER MANHOLE	=	ESS



LOCATION MAP

SCALE: NOT-TO-SCALE



50 0 50 100

SCALE : 1" = 50'

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

TRENCH EXCAVATION SAFETY PROTECTION

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COMPACTION NOTE:

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

CAUTION!!:

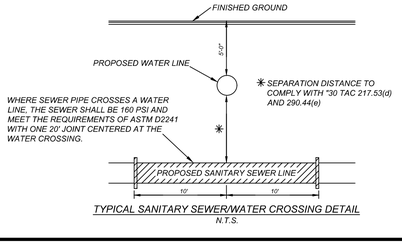
THE CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITED TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT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

MANHOLE NOTE:

ALL MANHOLES MUST BE WATERTIGHT, WITH WATERTIGHT RINGS AND COVERS. THESE MANHOLES MUST BE VENTED PER SAWS STANDARD SPECIFICATIONS.

NOTES:

1. *SEWER PIPE WHERE WATER LINE CROSSES SHALL BE MEET THE REQUIREMENTS OF ASTM D2241. CONTRACTOR SHALL CENTER A 20 FOOT JOINT OF 160 P.S.I. PRESSURE RATED P.V.C. AT THE PROPOSED WATER CROSSING (NO SEPARATE PAY ITEM). REFERENCE SHEET 6.0, SANITARY SEWER GENERAL NOTES, S.A.W.S. CRITERIA FOR SEWER MAIN CONSTRUCTION IN THE VICINITY OF WATER MAINS.*
2. *REF. SHEET 6.3 FOR BENCHMARK INFORMATION.*
3. *PIPE TYPE DESIGNATIONS ARE SDR 26.*
4. *REF. THIS SHEET FOR TYPICAL SANITARY SEWER / WATER CROSSING DETAIL.*
5. *ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL BE IN ACCORDANCE WITH THE SAN ANTONIO WATER SYSTEM (SAWS) STANDARD SPECIFICATIONS.*



WHERE SEWER PIPE CROSSES A WATER LINE, THE SEWER SHALL BE 160 PSI AND MEET THE REQUIREMENTS OF ASTM D2241 WITH ONE 20' JOINT CENTERED AT THE WATER CROSSING.

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

SEWER - EAST CENTRAL SEWERSHED - W.S.C.

DEVELOPER'S NAME: LENNAR HOMES OF TEXAS LAND AND CONSTRUCTION, LTD.			
DEVELOPER'S ADDRESS: 100 NE LOOP 410, SUITE 1155			
CITY: SAN ANTONIO	STATE: TEXAS	ZIP: 78216	
PHONE#:	FAX#:	TOTAL ACREAGE: 24.03 ACRES	
SAWS BLOCK MAP#: 210546,212546,212544,212542,212540		TOTAL EDU'S: 125	
TOTAL LINEAR FOOTAGE OF PIPE: 5,027 LF ~ 8" SDR 26		PLAT NO.: 25-11800055	
NUMBER OF LOTS: 125	SAWS JOB#: 25-1524		

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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
OMAR A. ESPINOSA
125560
LICENSED
PROFESSIONAL ENGINEER

NORTHLAKE PHASE 3
PLAT 25-11800055

BEXAR COUNTY
TEXAS

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SAN ANTONIO (KFW)
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TBPE Firm#: F-14909
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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	JANUARY 2025	SJ	SC

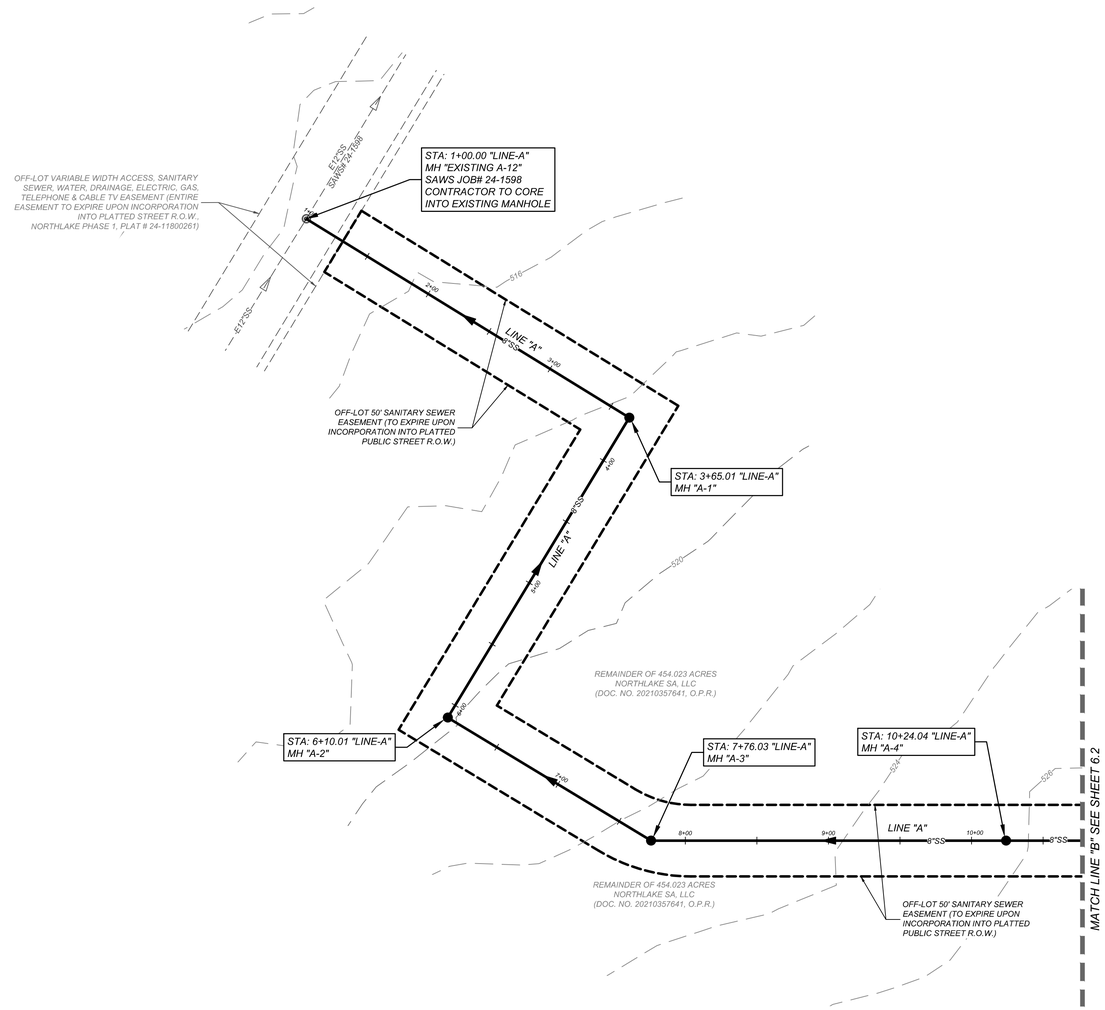
PROJECT NUMBER: 314-65-04
DRAWING NAME: 053146504

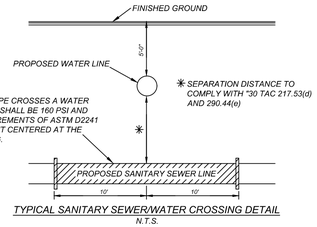
SHEET TITLE:
OVERALL SANITARY SEWER PLAN (2 OF 3)

SHEET NUMBER: 6.2

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

By: ABEL.MONTALVO
n:\#SEWER\053146504.dwg\6.2

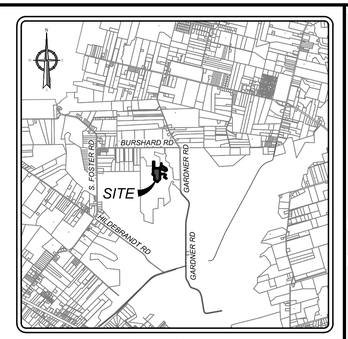




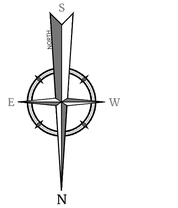
TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.

LEGEND

PROPOSED WATER MAIN	=	W
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	SS
PROPOSED SANITARY SEWER LATERAL	=	S
ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT (PLAT NUMBER	=	E.G.T.TV.E
EXISTING WATER MAIN	=	EW
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	ESS
EXISTING SANITARY SEWER MANHOLE	=	ESS



LOCATION MAP
SCALE: NOT-TO-SCALE





SCALE : 1" = 50'
Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

BENCHMARKS

BM # 2
DESC: SIR 4' IR ORANGE CAP
N:13671923.18
E:2180267.19
ELEV: 559.02

BM # 3
DESC: SIR 4' IR ORANGE CAP
N:13669534.66
E:2180226.14
ELEV: 540.02

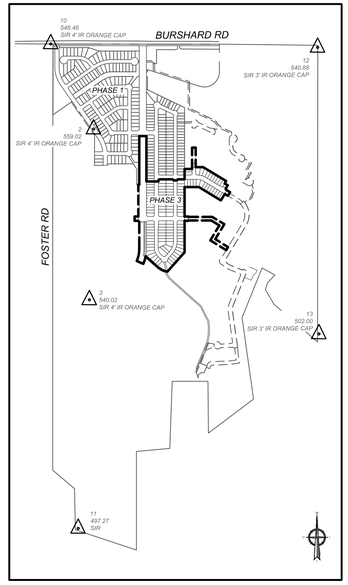
BM # 10
DESC: SIR 4' IR ORANGE CAP
N:13673108.57
E:2179660.24
ELEV: 548.46

BM # 11
DESC: SIR
N:13666339.65
E:2180093.31
ELEV: 497.27

BM # 12
DESC: SIR 3' IR ORANGE CAP
N:13673087.91
E:2183389.95
ELEV: 540.88

BM # 13
DESC: SIR 3' IR ORANGE CAP
N:13669082.81
E:2183437.35
ELEV: 502.00

★ CONTRACTOR TO RUN LEVEL LOOP THROUGH BM'S PROVIDED TO CONFIRM BEFORE CONSTRUCTION. CONTACT ENGINEER/SURVEYOR IMMEDIATELY IF ELEVATIONS DO NOT MATCH THOSE SHOWN.



BENCHMARK MAP
SCALE: NOT-TO-SCALE

TRENCH EXCAVATION SAFETY PROTECTION

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2. REF: THIS SHEET FOR BENCHMARK INFORMATION.
3. PIPE TYPE DESIGNATIONS ARE SDR 26.
4. REF: THIS SHEET FOR TYPICAL SANITARY SEWER / WATER CROSSING DETAIL.
5. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL BE IN ACCORDANCE WITH THE SAN ANTONIO WATER SYSTEM (SAWS) STANDARD SPECIFICATIONS.

SEWER - EAST CENTRAL SEWERSHED - W.S.C.

DEVELOPER'S NAME: LENNAR HOMES OF TEXAS LAND AND CONSTRUCTION, LTD.			
DEVELOPER'S ADDRESS: 100 NE LOOP 410, SUITE 1155			
CITY: SAN ANTONIO	STATE: TEXAS	ZIP: 78216	
PHONE#:	FAX#:	TOTAL ACREAGE: 24.03 ACRES	
SAWS BLOCK MAP#: 210546,212546,212544,212542,212540		TOTAL EDU'S: 125	
TOTAL LINEAR FOOTAGE OF PIPE: 5,027 LF ~ 8" SDR 26		PLAT NO.: 25-11800055	
NUMBER OF LOTS: 125	SAWS JOB#: 25-1524		

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Texas One Call System, Inc.
FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
OMAR A. ESPINOSA
125560
LICENSED
PROFESSIONAL ENGINEER

NORTHLAKE PHASE 3
PLAT 25-11800055

BEXAR COUNTY
TEXAS

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

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	JANUARY 2025	SJ	SC

PROJECT NUMBER:	DRAWING NAME:
314-65-04	053146504

SHEET TITLE:
OVERALL SANITARY SEWER PLAN (3 OF 3)

SHEET NUMBER:
6.3

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

By: ABEL.MONTALVO
I:\RTSEWER\053146504.dwg\6.3

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CAUTION!!:

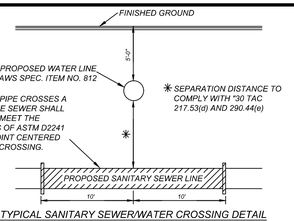
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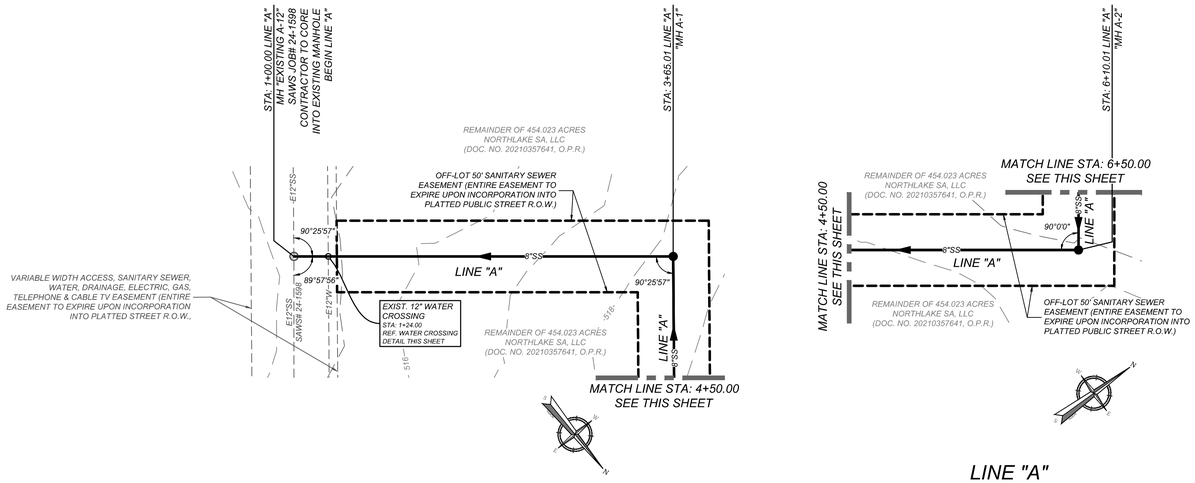
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N.T.S.

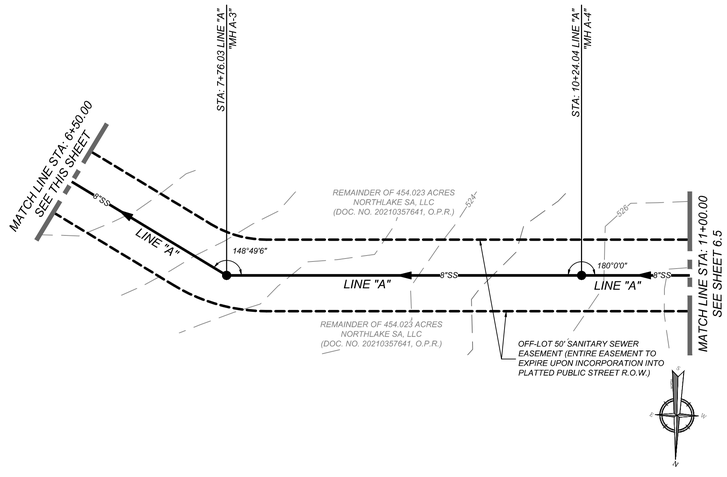
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LEGEND

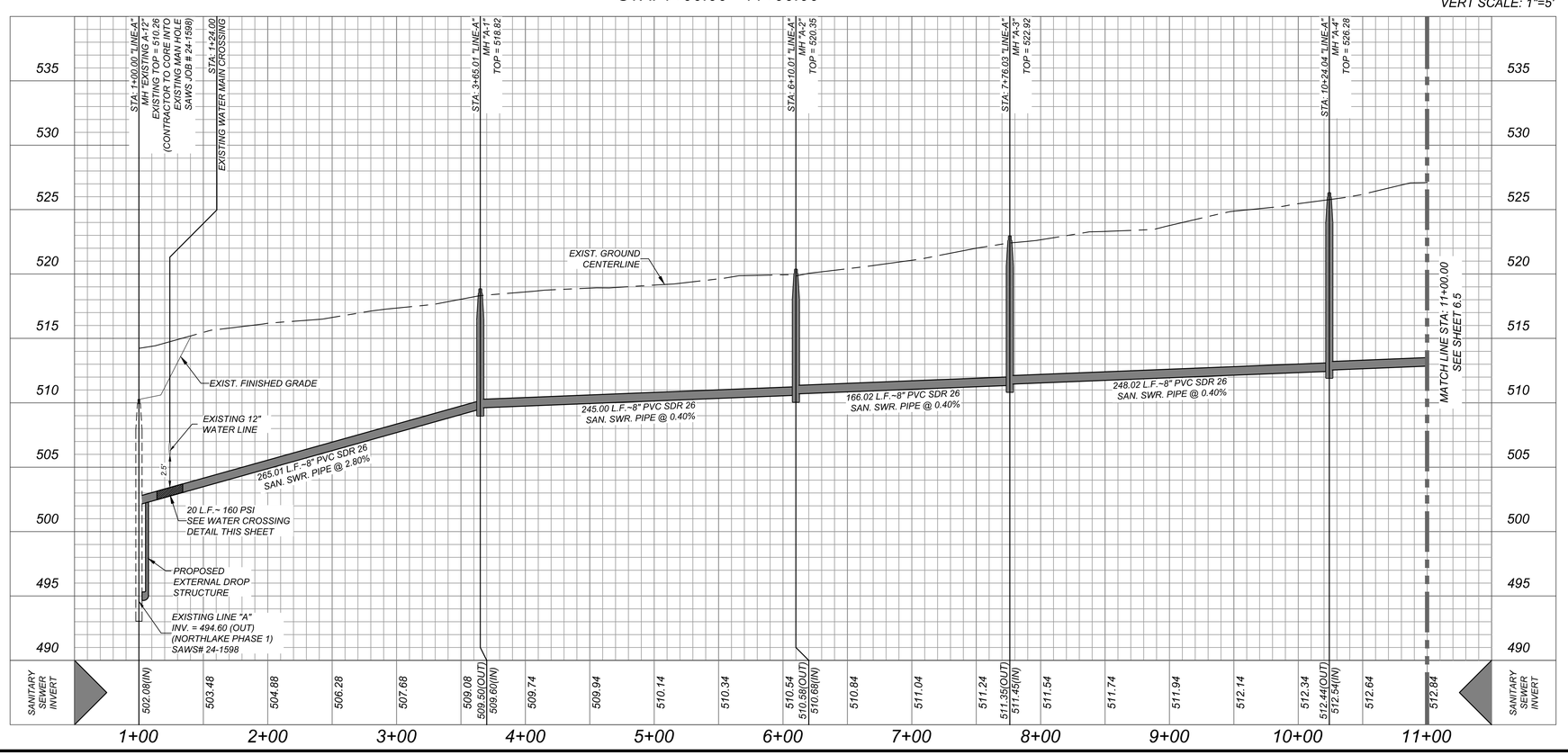
RIGHT OF WAY	=	R.O.W.
COUNTY BLOCK	=	C.B.
EXISTING SANITARY SEWER	=	ESS
PROPOSED SANITARY SEWER	=	SS
EXISTING WATER	=	EW
PROPOSED WATER	=	W
ELECTRIC, GAS, TELEPHONE & CABLE TV EASEMENT	=	E.G.T.TV.E
LINEAR FEET	=	LF
LATERAL	=	LAT
VERTICAL STACK	=	VS





HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'

LINE "A"
STA: 1+00.00 - 11+00.00



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LICENSED
PROFESSIONAL ENGINEER

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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	JANUARY 2025	SJ	SC

PROJECT NUMBER: 314-65-04
DRAWING NAME: SSPP3146504

SHEET TITLE: LINE 'A' PLAN AND PROFILES (1 OF 3)

SHEET NUMBER: 6.4

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

I:\KSTWER\SSPP3146504.dwg[6.4 By: ABEL.MONTALVO

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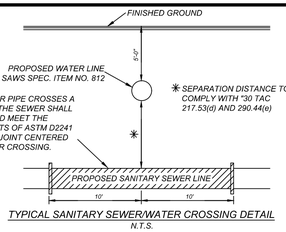
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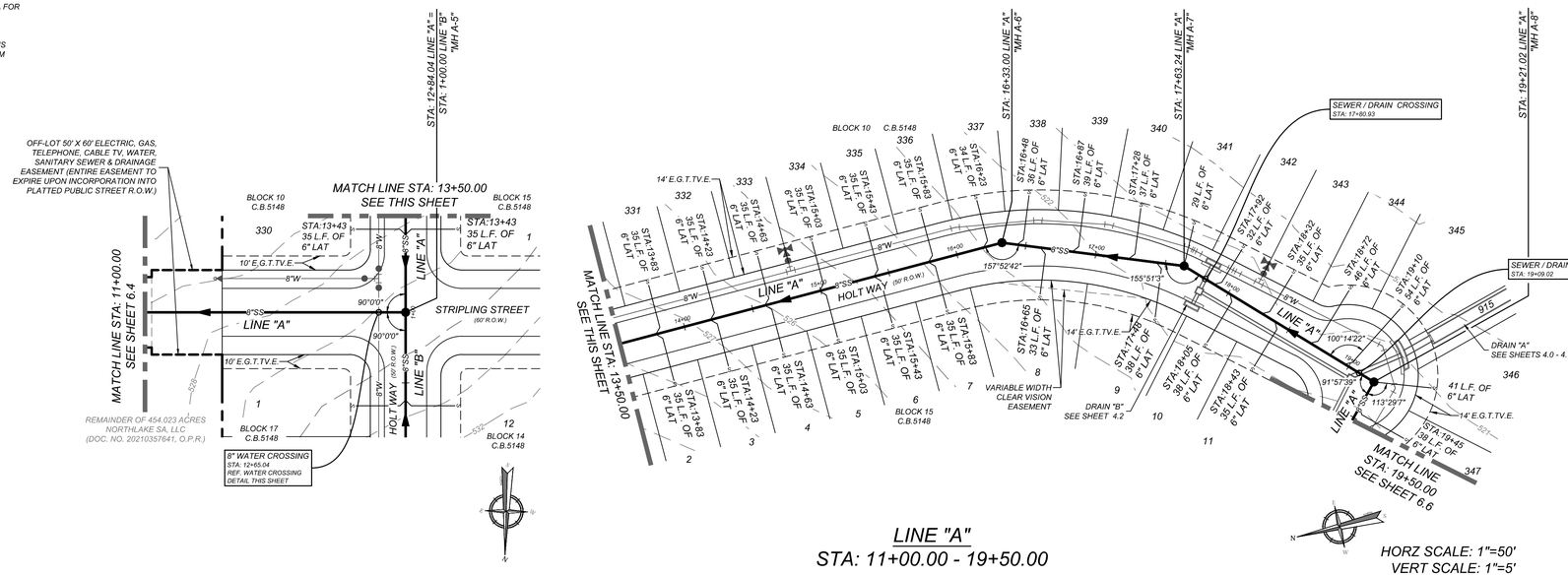
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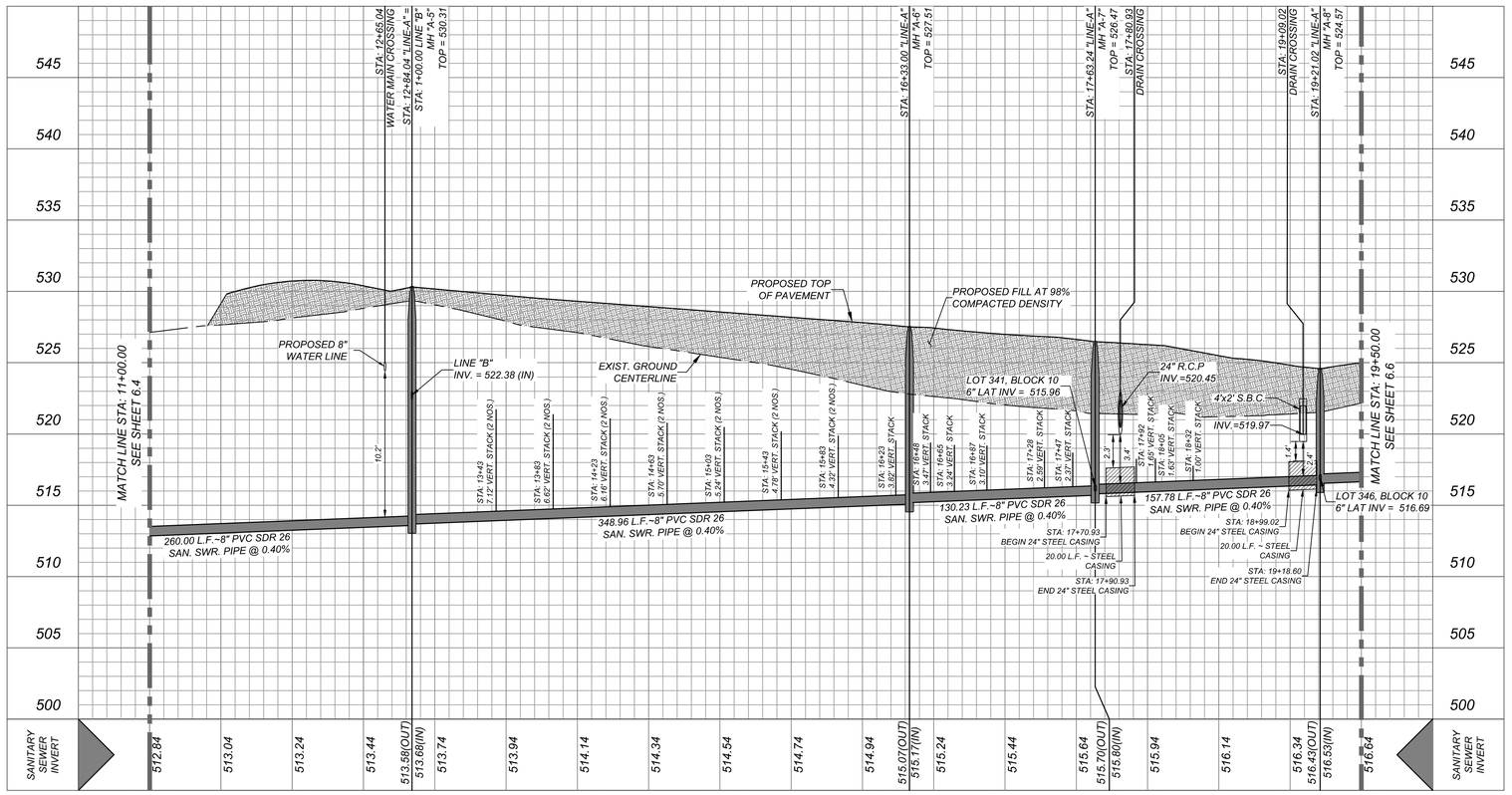
LEGEND

RIGHT OF WAY	=	R.O.W.
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ELECTRIC, GAS, TELEPHONE & CABLE TV EASEMENT	=	E.G.T.TV.E
LINEAR FEET	=	LF
LATERAL	=	LAT
VERTICAL STACK	=	VS



LINE "A"
STA: 11+00.00 - 19+50.00

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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	JANUARY 2025	SJ	SC

PROJECT NUMBER: 314-65-04
DRAWING NAME: SSPP3146504

SHEET TITLE: LINE 'A' PLAN AND PROFILES (2 OF 3)

SHEET NUMBER: 6.5

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I:\RSTWER\SSPP3146504.dwg[6.5 By: ABEL.MONTALVO

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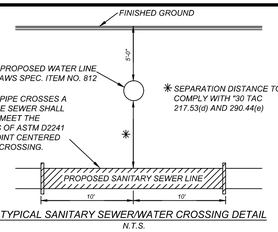
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NOTE:

M.H. EXCEEDING 20 FT DEPTH WILL BE SUBJECTED TO GET REVISED WITH FUTURE DEVELOPMENT TO ENSURE SAWS DEPTH CRITERIA IS MET.

MANHOLE NOTE:

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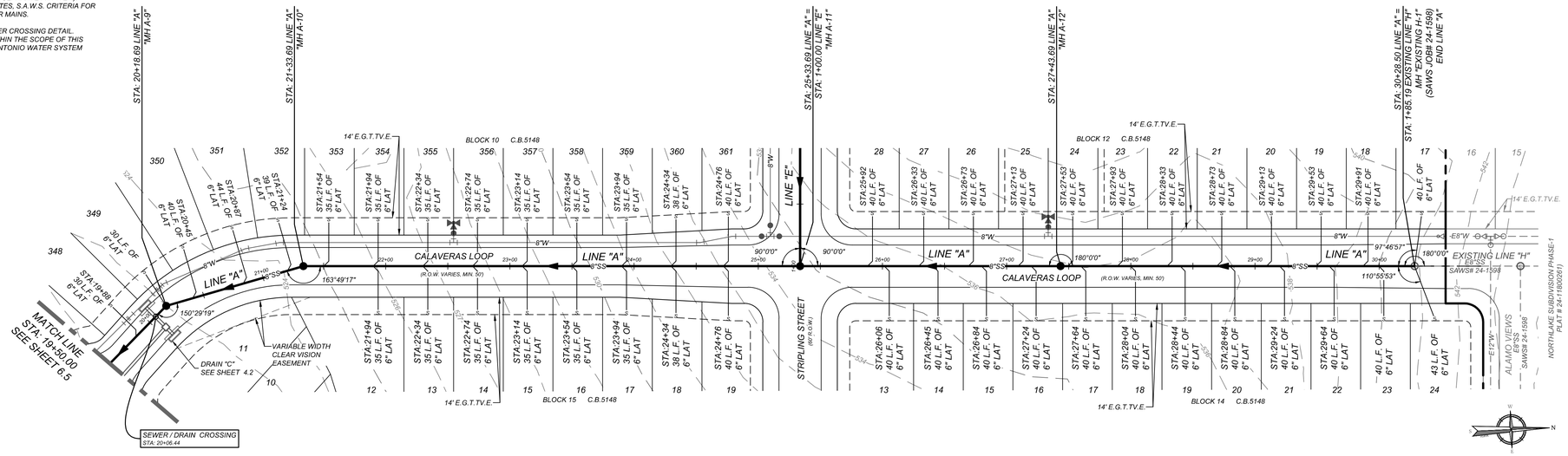
TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.

SEWER - EAST CENTRAL SEWERSHED - W.S.C.

DEVELOPER'S NAME: LENNAR HOMES OF TEXAS LAND AND CONSTRUCTION, LTD.			
DEVELOPER'S ADDRESS: 100 NE LOOP 410, SUITE 1155			
CITY: SAN ANTONIO	STATE: TEXAS	ZIP: 78216	
PHONE#:	FAX#:	TOTAL ACREAGE: 24.03 ACRES	
SAWS BLOCK MAP#: 210546,212546,212544,212542,212540		TOTAL EDU'S: 125	
TOTAL LINEAR FOOTAGE OF PIPE: 5,027 LF ~ 8" SDR 26		PLAT NO.: 25-11800055	
NUMBER OF LOTS: 125	SAWS JOB#: 25-1524		

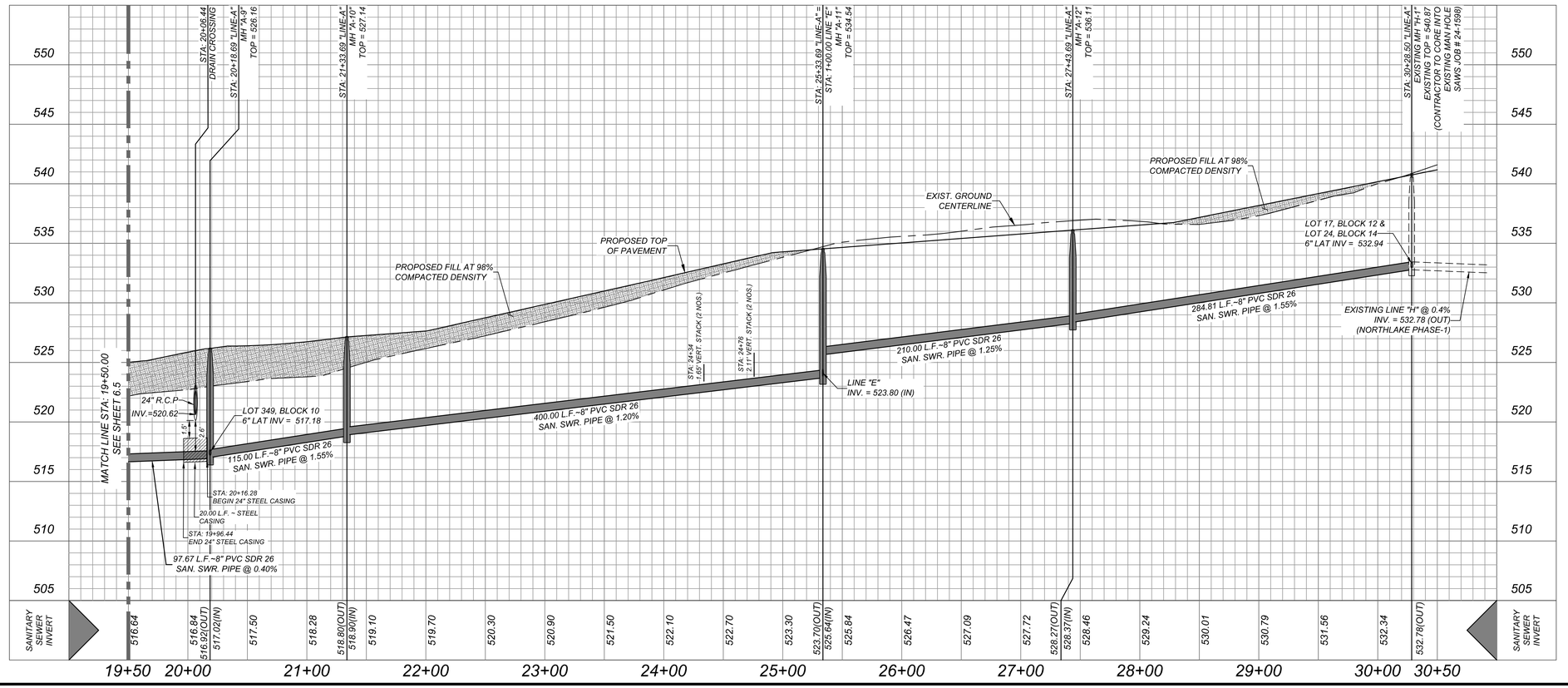
LEGEND

RIGHT OF WAY	=	R.O.W.
COUNTY BLOCK	=	C.B.
EXISTING SANITARY SEWER	=	ESS
PROPOSED SANITARY SEWER	=	SS
EXISTING WATER	=	EW
PROPOSED WATER	=	W
ELECTRIC, GAS, TELEPHONE & CABLE TV EASEMENT	=	E.G.T.TV.E
LINEAR FEET	=	LF
LATERAL	=	LAT
VERTICAL STACK	=	VS



LINE "A"
STA: 19+50.00 - END

HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
OMAR A. ESPINOSA
125560
LICENSED
PROFESSIONAL ENGINEER

NORTHLAKE PHASE 3
PLAT 25-11800055

BEXAR COUNTY
TEXAS

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

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	JANUARY 2025	SJ	SC

PROJECT NUMBER: 314-65-04
DRAWING NAME: SSPP3146504

SHEET TITLE:
LINE 'A' PLAN AND PROFILES (3 OF 3)

SHEET NUMBER:
6.6

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

I:\KSTWEN\SSPP3146504.dwg[6.6 By: ABEL.MONTALVO

TRENCH EXCAVATION SAFETY PROTECTION

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NOTES:

1. *SEWER PIPE WHERE WATER LINE CROSSES SHALL BE MEET THE REQUIREMENTS OF ASTM D2241. CONTRACTOR SHALL CENTER A 20 FOOT JOINT OF 160 P.S.I. PRESSURE RATED P.V.C. AT THE PROPOSED WATER CROSSING (NO SEPARATE PAY ITEM). REFERENCE SHEET 6.0, SANITARY SEWER GENERAL NOTES, S.A.W.S. CRITERIA FOR SEWER MAIN CONSTRUCTION IN THE VICINITY OF WATER MAINS.*
2. *PIPE TYPE DESIGNATIONS ARE SDR 26.*
3. *REF. THIS SHEET FOR TYPICAL SANITARY SEWER / WATER CROSSING DETAIL.*
4. *ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL BE IN ACCORDANCE WITH THE SAN ANTONIO WATER SYSTEM (SAWS) STANDARD SPECIFICATIONS.*

CAUTION!!:

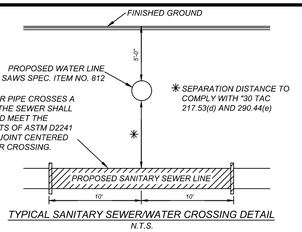
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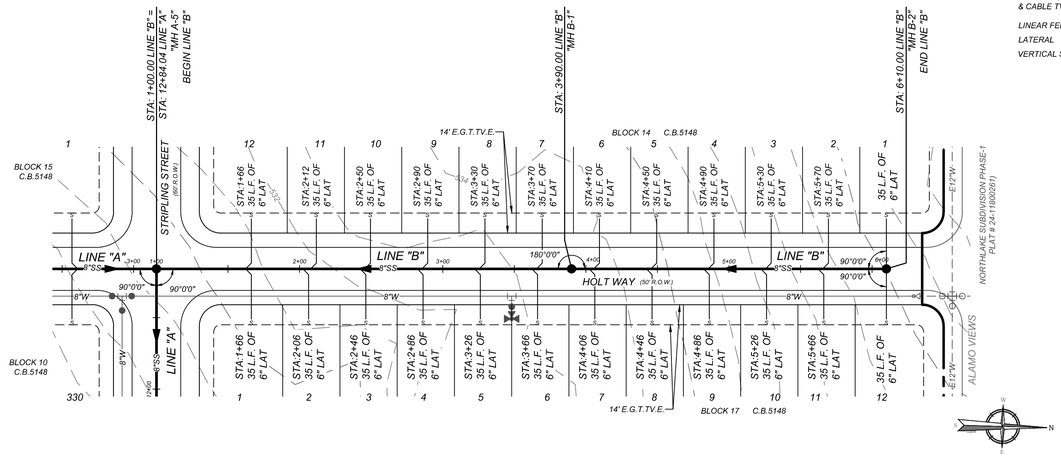
TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.

SEWER - EAST CENTRAL SEWERSHED - W.S.C.

DEVELOPER'S NAME: LENNAR HOMES OF TEXAS LAND AND CONSTRUCTION, LTD.			
DEVELOPER'S ADDRESS: 100 NE LOOP 410, SUITE 1155			
CITY: SAN ANTONIO	STATE: TEXAS	ZIP: 78216	
PHONE#:	FAX#:	TOTAL ACREAGE: 24.03 ACRES	
SAWS BLOCK MAP#: 210546,212546,212544,212542,212540		TOTAL EDU'S: 125	
TOTAL LINEAR FOOTAGE OF PIPE: 5,027 LF – 8" SDR 26		PLAT NO.: 25-11800055	
NUMBER OF LOTS: 125	SAWS JOB#: 25-1524		

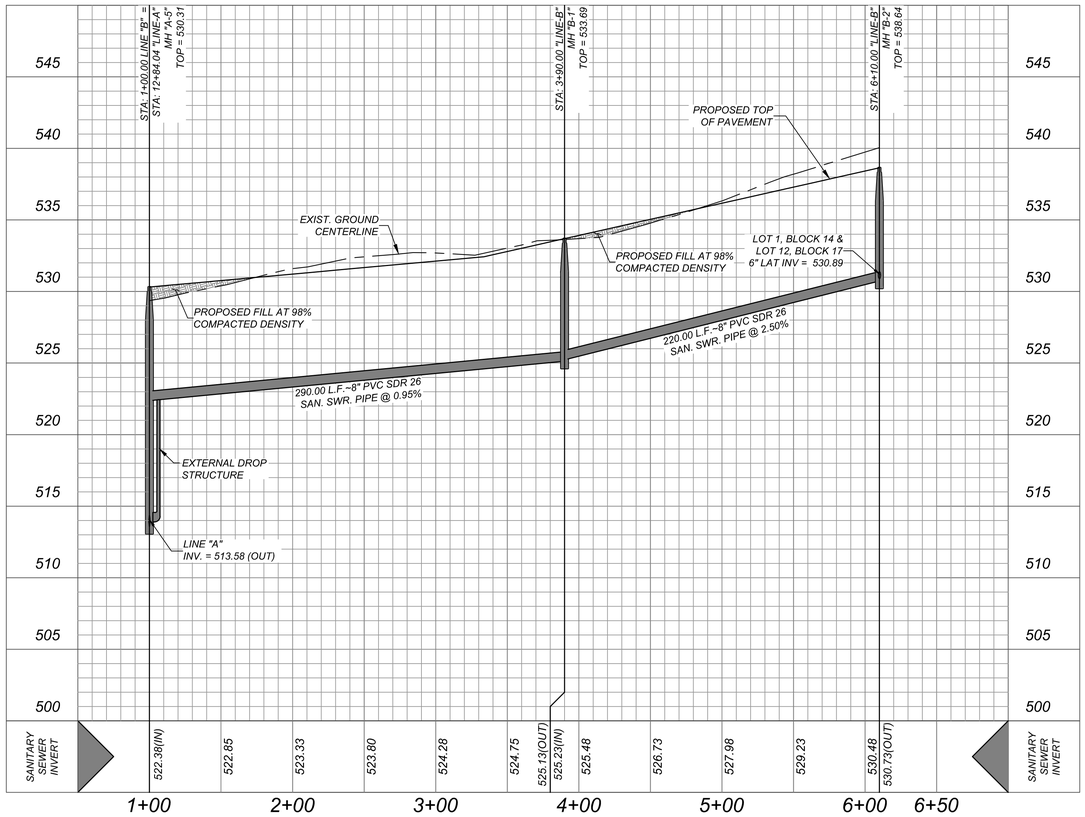
LEGEND

RIGHT OF WAY	=	R.O.W.
COUNTY BLOCK	=	C.B.
EXISTING SANITARY SEWER	=	ESS
PROPOSED SANITARY SEWER	=	SS
EXISTING WATER	=	EW
PROPOSED WATER	=	W
ELECTRIC, GAS, TELEPHONE & CABLE TV EASEMENT	=	E.G.T.TV.E
LINEAR FEET	=	LF
LATERAL	=	LAT
VERTICAL STACK	=	VS



LINE "B"
STA: 1+00.00 - END

HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



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REV	DESCRIPTION	DRAWN BY	DATE

STATE OF TEXAS
OMAR A. ESPINOSA
125560
LICENSED
PROFESSIONAL ENGINEER

NORTHLAKE PHASE 3
PLAT 25-11800055

BEXAR COUNTY
TEXAS

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

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	JANUARY 2025	SJ	SC

PROJECT NUMBER: 314-65-04
DRAWING NAME: SSPP3146504

SHEET TITLE: LINE 'B' PLAN AND PROFILES

SHEET NUMBER: 6.7

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

TRENCH EXCAVATION SAFETY PROTECTION

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2. *PIPE TYPE DESIGNATIONS ARE SDR 26.*
3. *REF. THIS SHEET FOR TYPICAL SANITARY SEWER / WATER CROSSING DETAIL.*
4. *ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL BE IN ACCORDANCE WITH THE SAN ANTONIO WATER SYSTEM (SAWS) STANDARD SPECIFICATIONS.*

CAUTION!!:

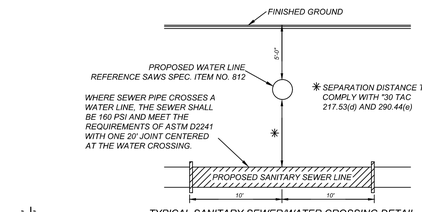
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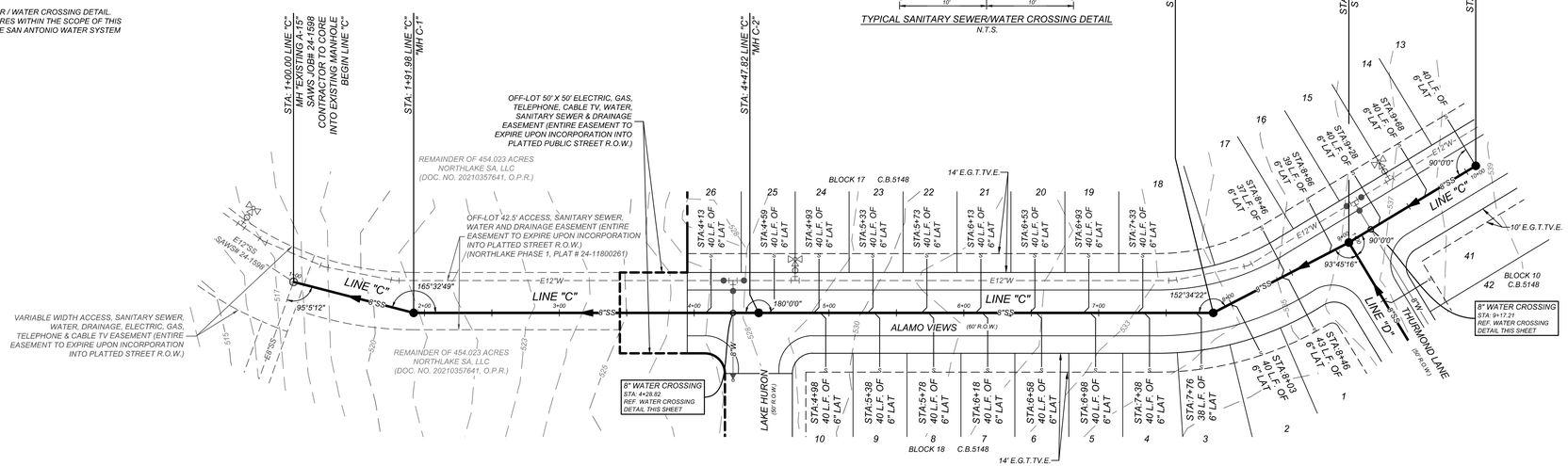
TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.

SEWER - EAST CENTRAL SEWERSHED - W.S.C.

DEVELOPER'S NAME:	*LENNAR HOMES OF TEXAS LAND AND CONSTRUCTION, LTD.*		
DEVELOPER'S ADDRESS:	*100 NE LOOP 410, SUITE 1155*		
CITY:	*SAN ANTONIO*	*STATE:* *TEXAS*	*ZIP:* *78216*
PHONE#:		*FAX#:*	*TOTAL ACREAGE:* *24.03 ACRES*
SAWS BLOCK MAP#:	*210546,212546,212544,212542,212540*		*TOTAL EDU'S:* *125*
TOTAL LINEAR FOOTAGE OF PIPE:	*5,027 LF ~ 8" SDR 26*		*PLAT NO.:* *25-11800055*
NUMBER OF LOTS: *125*		*SAWS JOB#:* *25-1524*	

LEGEND

RIGHT OF WAY	=	*R.O.W.*
COUNTY BLOCK	=	*C.B.*
EXISTING SANITARY SEWER	=	*ESS*
PROPOSED SANITARY SEWER	=	*SS*
EXISTING WATER	=	*EW*
PROPOSED WATER	=	*W*
ELECTRIC, GAS, TELEPHONE & CABLE TV EASEMENT	=	*E.G.T.TV.E*
LINEAR FEET	=	*LF*
LATERAL	=	*LAT*
VERTICAL STACK	=	*VS*

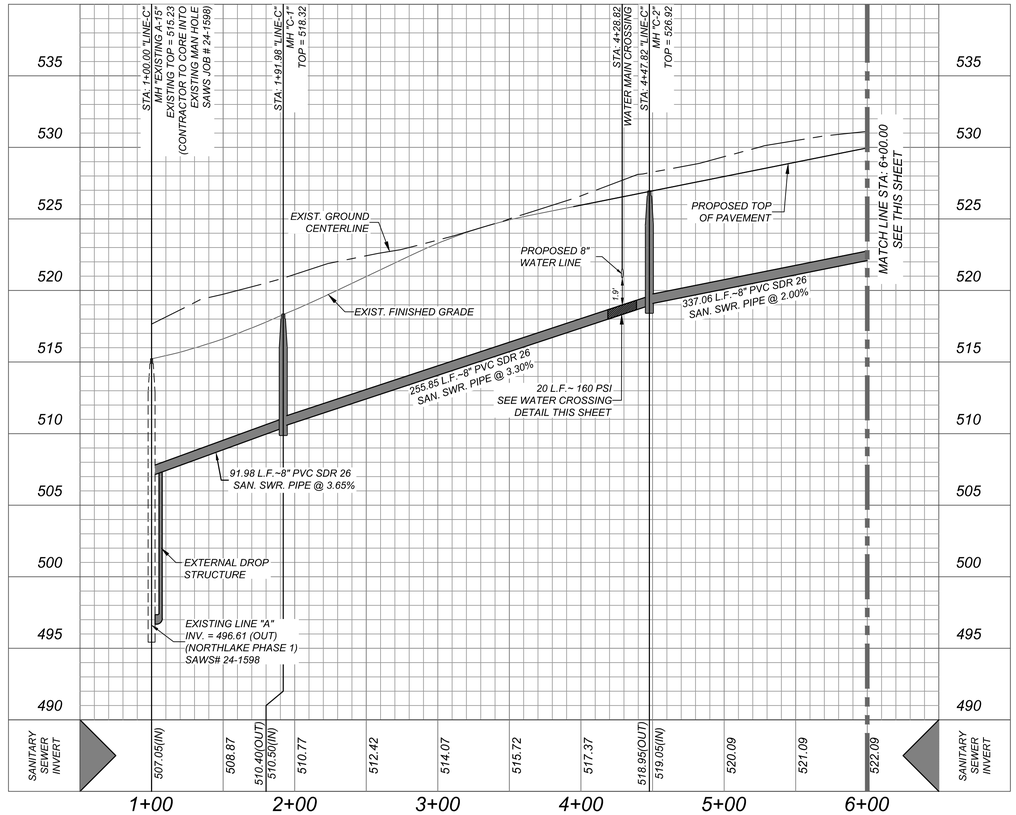


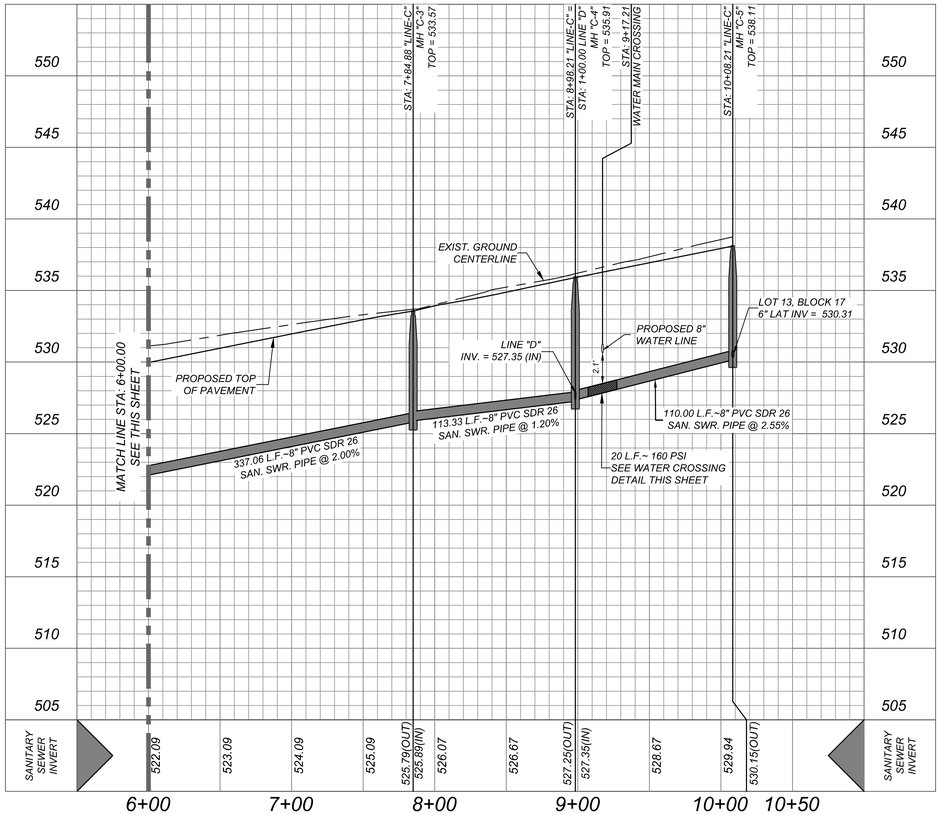
LINE "C"
STA: 1+00.00 - END

HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'





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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
OMAR A. ESPINOSA
125560
LICENSED PROFESSIONAL ENGINEER

NORTHLAKE PHASE 3
PLAT 25-11800055

BEXAR COUNTY
TEXAS

Colliers Engineering & Design
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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	JANUARY 2025	SJ	SC

PROJECT NUMBER: 314-65-04
DRAWING NAME: SSPP3146504

SHEET TITLE: LINE 'C' PLAN AND PROFILES

SHEET NUMBER: 6.8

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

I:\KSTWEN\SSPP3146504.dwg[6.8 By: ABEL.MONTALVO

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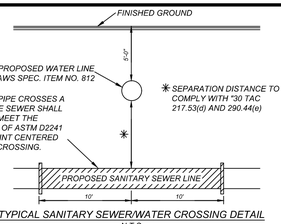
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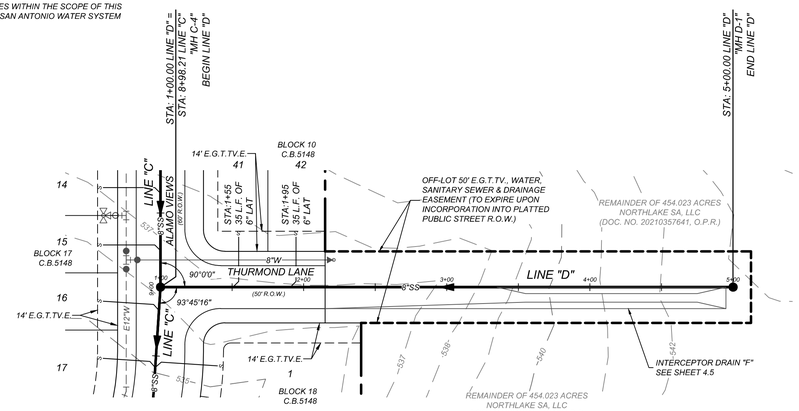
TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
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SEWER - EAST CENTRAL SEWERSHED - W.S.C.

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DEVELOPER'S ADDRESS: 100 NE LOOP 410, SUITE 1155		
CITY: SAN ANTONIO	STATE: TEXAS	ZIP: 78216
PHONE#:	FAX#:	TOTAL ACREAGE: 24.03 ACRES
SAWS BLOCK MAP#: 210546,212546,212544,212542,212540		TOTAL EDU'S: 125
TOTAL LINEAR FOOTAGE OF PIPE: 5,027 LF ~ 8" SDR 26		PLAT NO.: 25-11800055
NUMBER OF LOTS: 125	SAWS JOB#: 25-1524	

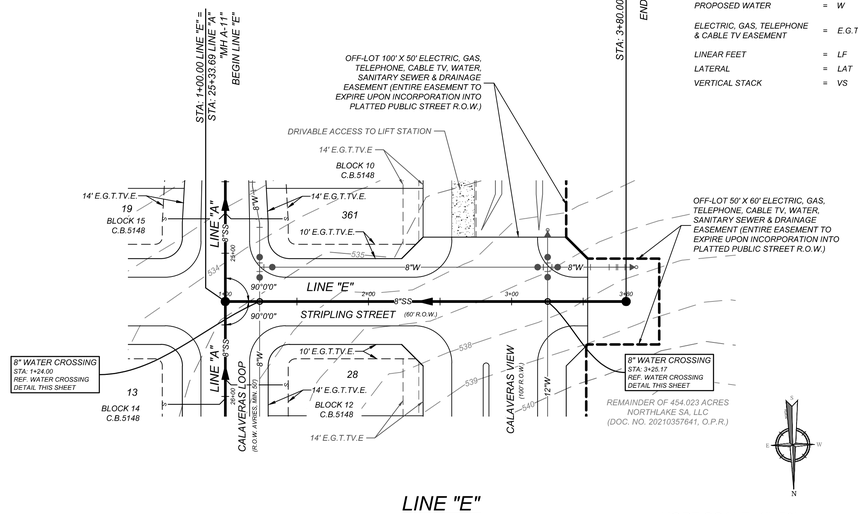
LEGEND

RIGHT OF WAY	=	R.O.W.
COUNTY BLOCK	=	C.B.
EXISTING SANITARY SEWER	=	ESS
PROPOSED SANITARY SEWER	=	SS
EXISTING WATER	=	EW
PROPOSED WATER	=	W
ELECTRIC, GAS, TELEPHONE & CABLE TV EASEMENT	=	E.G.T.TV.E
LINEAR FEET	=	LF
LATERAL	=	LAT
VERTICAL STACK	=	VS



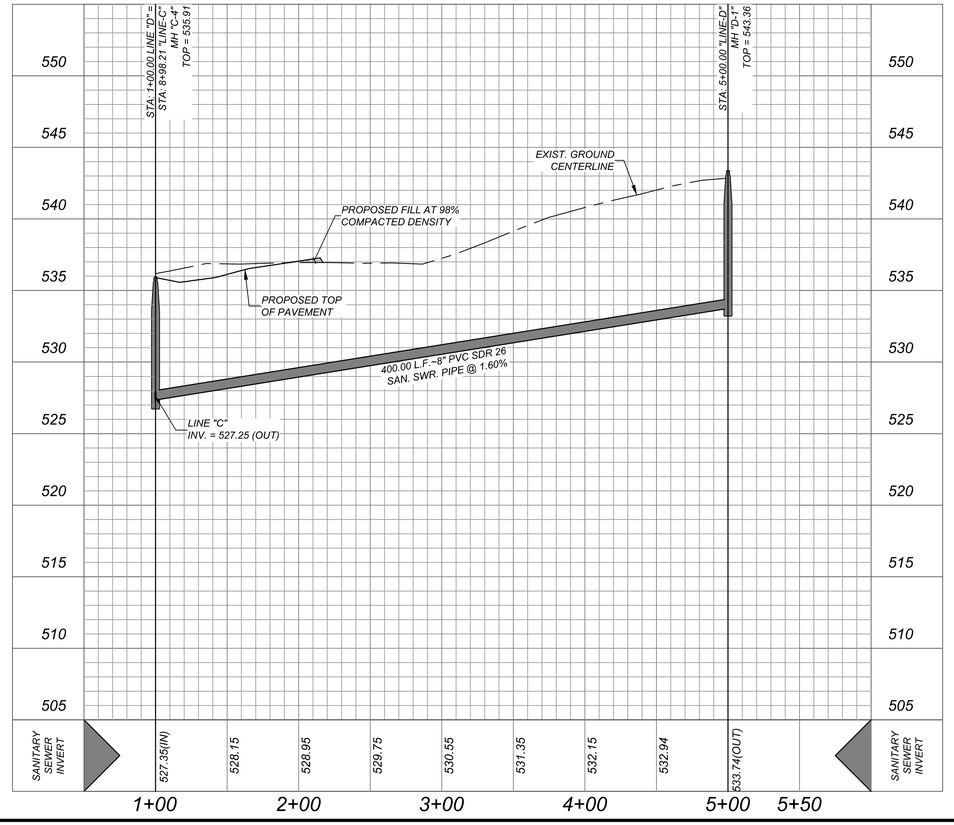
LINE "D"
STA: 1+00.00 - END

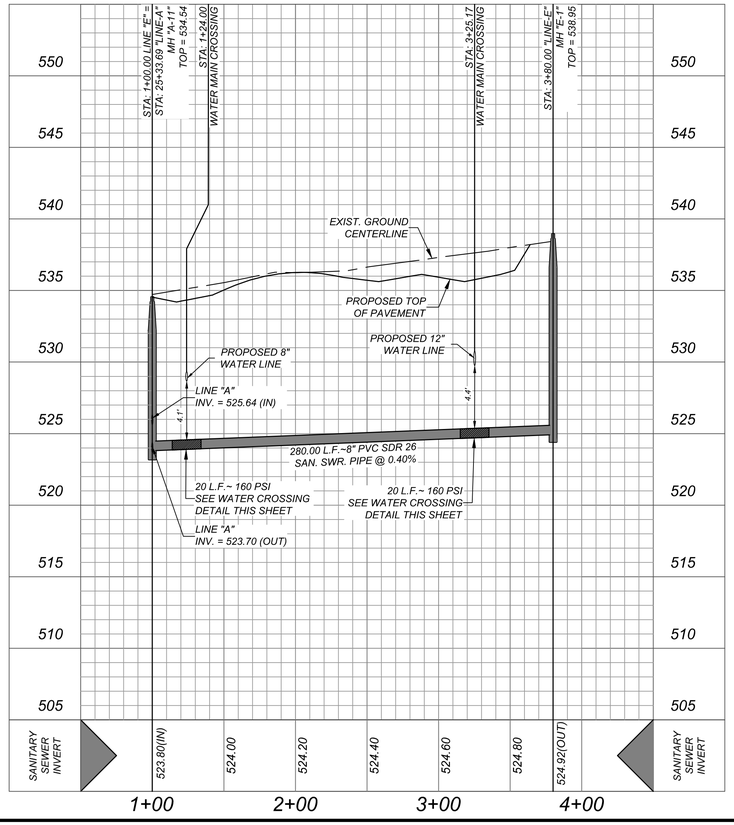
HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



LINE "E"
STA: 1+00.00 - END

HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'





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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
OMAR A. ESPINOSA
125560
LICENSED
PROFESSIONAL ENGINEER

NORTHLAKE PHASE 3
PLAT 25-11800055

BEXAR COUNTY
TEXAS

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

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	JANUARY 2025	SJ	SC

PROJECT NUMBER: 314-65-04
DRAWING NAME: SSPP3146504

SHEET TITLE: LINE 'D' & 'E' PLAN AND PROFILES

SHEET NUMBER: 6.9

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

I:\KSTWER\SSPP3146504.dwg[6.9 By: ABEL.MONTALVO

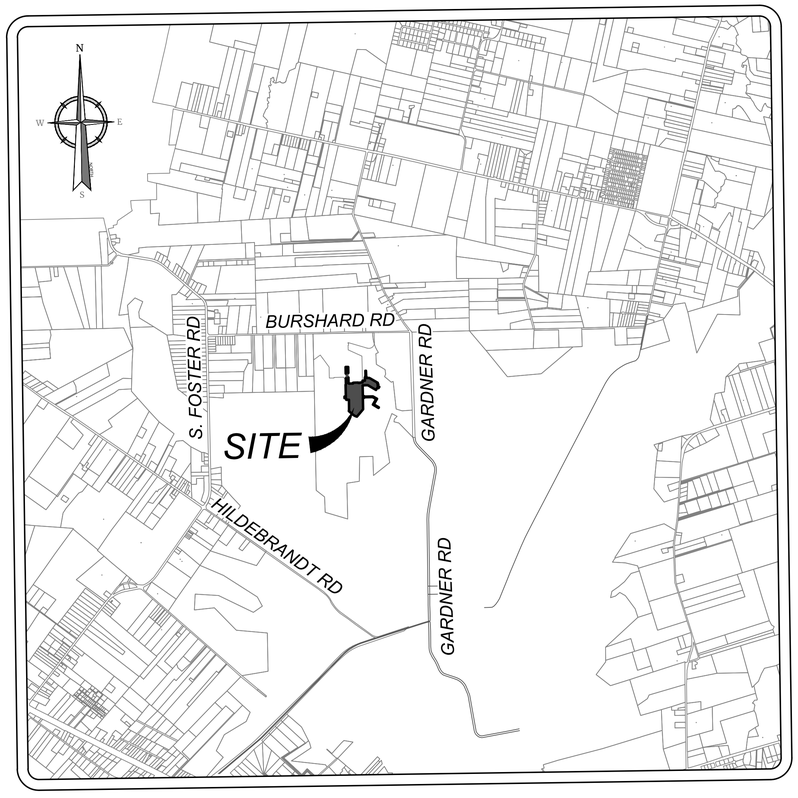
NORTHLAKE PHASE 3

BEXAR COUNTY, TEXAS

WATER IMPROVEMENTS

GENERAL NOTES

1. ALL VALVES SHALL REMAIN CLOSED UNTIL MAINS HAVE BEEN DISINFECTED, FLUSHED, AND RELEASED FOR PUBLIC USE BY THE ENGINEER.
2. EXISTING UTILITIES SHOWN ARE TAKEN FROM VARIOUS UTILITY COMPANY RECORDS. CONTRACTORS SHALL VERIFY THE EXACT LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND DRAINAGE STRUCTURES, WHETHER SHOWN ON THE PLANS OR NOT, PRIOR TO BEGINNING CONSTRUCTION. CONTRACTORS SHALL BE RESPONSIBLE FOR THE PROTECTION OF EXISTING UTILITIES AND DRAINAGE STRUCTURES DURING CONSTRUCTION.
3. ALL EXCAVATION SHALL BE UNCLASSIFIED REGARDLESS OF MATERIAL ENCOUNTERED.
4. BIDDERS ARE NOTIFIED TO MAKE SUBSURFACE INVESTIGATIONS AS THEY DEEM NECESSARY. NO ADDITIONAL PAYMENT WILL BE MADE FOR WATER, SAND, GRAVEL OR OTHER UNSTABLE CONDITIONS ENCOUNTERED IN EXCAVATIONS.
5. DETOUR OF TRAFFIC AROUND WORK ACTIVITIES, MAINTENANCE OF TRAFFIC CONTROL SIGNS, AND FLAGMEN ARE THE CONTRACTOR'S RESPONSIBILITY. NO SEPARATE PAYMENT WILL BE MADE.
6. THE CONTRACTOR SHALL PROTECT ALL OPEN EXCAVATIONS AND EQUIPMENT FROM CHILDREN, PEDESTRIANS, AND VEHICLES IN THE AREA.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE RESTORATION OF ALL FENCES IN THE WORK AREA TO THEIR ORIGINAL CONDITION PRIOR TO COMPLETION OF THE CONTRACT. THIS SHALL APPLY TO ALL FENCES IN THE WORK AREA WHETHER THEY ARE SHOWN ON THE PLANS OR NOT.
8. CONTRACTOR SHALL PRESERVE ALL CONSTRUCTION STAKES, MARKS, ETC. ANY CONSTRUCTION STAKES, MARKS, ETC., DESTROYED OR REMOVED BY THE CONTRACTOR OR HIS EMPLOYEES SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
9. THE CONTRACTOR SHALL CONFER WITH EACH INDIVIDUAL PROPERTY OWNER AS TO THE LOCATION OF EACH INDIVIDUAL METER BOX.
10. CONTRACTOR SHALL DISINFECT ALL NEW WATER MAINS BEFORE TYING INTO EXISTING WATER MAINS.
11. ALL VALVES SHALL BE PERMANENTLY MARKED BY THE USE OF A VALVE MARKER. NO SEPARATE PAY ITEM.
12. CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES(S) WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.
13. CONTRACTOR SHALL MAINTAIN FENCING FOR THE CONTAINMENT OF LIVESTOCK DURING CONSTRUCTION. ALL FENCES REMOVED FOR CONSTRUCTION SHALL BE REPLACED. ALL REQUIRED FENCING SHALL BE INCIDENTAL TO CONSTRUCTION AND NOT A SEPARATE PAY ITEM.
14. ALL DRIVEWAYS, INCLUDING DRAIN PIPES, CULVERTS AND HEADWALLS, DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED BY THE CONTRACTOR TO EQUAL OR BETTER THAN PRECONSTRUCTION CONDITION. ASPHALT DRIVES ARE NOT ALLOWED TO BE CUT WITHOUT OWNERS PERMISSION. INSTALLATION OF WATER MAINS CROSSING CONCRETE DRIVES WILL BE BORED. ALL DRAIN PIPE, CULVERT AND HEADWALL REPAIR SHALL BE INCIDENTAL TO CONSTRUCTION AND NOT A SEPARATE PAY ITEM. DRIVEWAY PAVEMENT REPAIR SHALL BE PAID FOR AS PER ITEM NO. 02950, "CUTTING AND PATCHING ASPHALT PAVEMENT, ASPHALT DRIVES, CONCRETE DRIVES, OR GRAVEL ROADS AND DRIVES". PAYMENT FOR BORES UNDER CONCRETE DRIVES DRIVES SHALL BE PAID FOR AS PER ITEM 02445 "BORING AND CASING PIPE UNDER HIGHWAYS, RAILROADS, OR OTHER AREAS".
15. LOCATIONS OF COMBINATION AIR VALVES WHERE SHOWN ON PLANS ARE APPROXIMATE. FINAL LOCATIONS TO BE ADJUSTED IN FIELD AT TIME OF CONSTRUCTION AT THE DIRECTION OF THE ENGINEER.
16. ALL WORK SHALL BE SCHEDULED TO TAKE PLACE ON MONDAY THROUGH FRIDAY, DURING NORMAL WORK HOURS. CONTRACTOR SHALL NOTIFY MWSC 48 HOURS PRIOR TO SERVICE SHUT OFF AFFECTING CUSTOMERS. SERVICE SHALL NOT BE SHUT OFF FOR MORE THAN EIGHT (8) HOURS AT A TIME.
17. THE CONTRACTOR SHALL IMMEDIATELY REPAIR OR REPLACE ANY PHYSICAL DAMAGE TO PROPERTY, INCLUDING, BUT NOT LIMITED TO, FENCES, PAVEMENT, DRIVEWAYS, LAWNS, CULVERTS, AND TREES, AT NO COST TO THE OWNER.
18. THE CONTRACTOR SHALL PROVIDE EROSION CONTROL AT ALL CULVERT, STREAM AND DRAINAGE SWALES CROSSINGS. EROSION CONTROL MEASURES SHALL INCLUDE AS A MINIMUM SILT FENCES. SILT FENCES SHALL BE INSTALLED PRIOR TO DISTURBANCE OF THE WORK AREAS AND SHALL REMAIN IN PLACE UNTIL FINAL STABILIZATION OF THE DISTURBED AREAS UPSTREAM. EROSION CONTROL SHALL BE COORDINATED WITH THE ENGINEER.
19. THE CONTRACTOR SHALL REMOVE AND REPLACE ANY MAILBOXES, TRAFFIC OR ROAD SIGNS ENCOUNTERED. NO SEPARATE PAY ITEM.
20. CONTRACTOR SHALL SUBMIT TO ENGINEER PROPOSED CONSTRUCTION SEQUENCE PRIOR TO BEGINNING CONSTRUCTION.
21. ALL FITTINGS ARE TO BE DUCTILE IRON, MECHANICAL JOINT TYPE, UNLESS OTHERWISE NOTED ON PLANS.
22. ALL THRUST BLOCKS SHALL BE INSPECTED BY OWNER AND/OR ENGINEER PRIOR TO BACKFILLING.
23. ALL EXISTING VALVES SHOWN ON PLANS TO BE ABANDONED, SHALL HAVE BOXES REMOVED AND SHALL BE BACKFILLED ACCORDING TO SPECIFICATIONS. NO SEPARATE PAY ITEM.
24. CONTRACTOR SHALL CONTAIN ALL CONSTRUCTION AND STAGING WITHIN EXISTING UTILITY EASEMENTS, UNLESS OTHER ARRANGEMENTS ARE MADE WITH OWNER AND/OR TxDOT.
25. WHERE THE NEW WATER MAIN SHOWN ON THE PLANS REQUIRES CROSSING AN EXISTING WATER MAIN OR OTHER UTILITY, THE CONTRACTOR SHALL VERTICALLY DEFLECT THE PROPOSED WATER MAIN. DEFLECTION SHALL BE IN ACCORDANCE WITH THE PIPE MANUFACTURE'S RECOMMENDATIONS. FITTINGS ARE NOT PERMISSIBLE, UNLESS OTHERWISE SHOWN ON THE PLANS. NO SEPARATE PAY ITEM.
26. WATER MAINS SHALL BE INSTALLED WITH 36" MINIMUM COVER OVER THE TOP OF THE PIPE, UNLESS OTHERWISE NOTED ON THE PLANS OR DIRECTED BY THE ENGINEER.
27. CONTRACTOR TO PROVIDE POSITIVE DRAINAGE AWAY FROM ALL CONCRETE FOUNDATIONS, VAULT BOXES AND OVERFLOW BOXES THROUGHOUT THE PROJECT SITE.
28. BUY AMERICAN STANDARDS SHALL BE ADHERED TO CONCERNING ALL STEEL OR IRON BASED MATERIALS.
29. ALL GATE VALVES SHALL "OPEN RIGHT".
30. AN AIR RELEASE VALVE SHALL BE INSTALLED AT THE HIGHEST ELEVATION POINT(S) OF THE WATER DISTRIBUTION SYSTEM LOCATED WITHIN A DEVELOPMENT. THE EXACT LOCATION SHALL BE COORDINATED IN THE FIELD AND VERIFIED AGAINST THE FINAL GRADING PLAN. INSTALLATION SHALL BE IN ACCORDANCE WITH THE ECSUD STANDARDS AND THE MANUFACTURER'S RECOMMENDATIONS. PROVIDE A VALVE BOX OR APPROVED ENCLOSURE FOR ACCESS AND MAINTENANCE.
31. A MINIMUM OF ONE (1) WATER SAMPLE STATION SHALL BE INSTALLED WITHIN A DEVELOPMENT TO ALLOW FOR ROUTINE WATER QUALITY MONITORING. THE SAMPLE STATION SHALL BE LOCATED IN A PUBLICLY ACCESSIBLE AREA, NEAR THE END OF THE WATERLINE OR AT A REPRESENTATIVE LOCATION APPROVED BY ECSUD. THE STATION SHALL BE INSTALLED PER ECSUD STANDARDS, MANUFACTURER'S SPECIFICATIONS AND IN COMPLIANCE WITH ALL APPLICABLE HEALTH AND SAFETY REGULATIONS. COORDINATE FINAL LOCATION WITH ECSUD PRIOR TO INSTALLATION. ALL COMPONENTS SHALL BE SUITABLE FOR POTABLE WATER USE, AND THE STATION SHALL BE PROTECTED FROM FREEZING, TAMPERING, AND OTHER ENVIRONMENTAL FACTORS.
32. WHEN INSTALLING A CUT-IN TEE TO TIE INTO AN EXISTING WATER MAIN, MECHANICAL BELL JOINT RESTRAINTS SHALL BE PROVIDED ON ALL ADJACENT EXISTING PIPE JOINTS TO PREVENT SEPARATION DUE TO THRUST FORCES. RESTRAINTS SHALL BE INSTALLED ON A MINIMUM OF ONE FULL LENGTH OF PIPE ON EACH SIDE OF THE NEW TEE, OR AS REQUIRED BY ECSUD STANDARDS. ALL RESTRAINT DEVICES SHALL BE COMPATIBLE WITH THE EXISTING PIPE MATERIAL AND PRESSURE CLASS, AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. COORDINATE WITH ECSUD FOR FINAL APPROVAL OF RESTRAINT TYPE AND EXTENT.
33. ALL CONNECTIONS TO EXISTING WATER MAINS SHALL BE PERFORMED USING THE HIGH TEST HYPOCHLORITE (HTH) METHOD IN ACCORDANCE WITH AWWA C651 DISINFECTION PROCEDURES. THE HTH METHOD SHALL INVOLVE THE APPLICATION OF A CHLORINE SOLUTION DIRECTLY TO ALL INTERIOR SURFACES OF THE NEW FITTINGS, PIPE, AND APPURTENANCES IMMEDIATELY PRIOR TO INSTALLATION. THIS INCLUDES SWABBING OR SPRAYING WITH A MINIMUM 1% CHLORINE SOLUTION. NO OTHER DISINFECTION METHOD WILL BE ACCEPTED FOR TIE-INS. ALL WORK SHALL BE PERFORMED UNDER THE SUPERVISION OF ECSUD AND IN COMPLIANCE WITH THEIR STANDARDS. PROPER FLUSHING AND BACTERIOLOGICAL TESTING SHALL FOLLOW PRIOR TO PLACING THE MAIN INTO SERVICE.



LOCATION MAP

SCALE: NOT-TO-SCALE

OWNER/DEVELOPER:
LENNAR HOMES OF TEXAS LAND AND CONSTRUCTION, LTD
100 NE LOOP 410, SUITE 1155
SAN ANTONIO, TEXAS 78216
(210) 403-6200

SHEET INDEX

SHEET TITLE	SHEET NUMBER
WATER DISTRIBUTION COVER SHEET	7.0
OVERALL WATER PLAN (1 OF 2)	7.1
OVERALL WATER PLAN (2 OF 2)	7.2
WATER DETAILS (1 OF 3)	7.3
WATER DETAILS (2 OF 3)	7.4
WATER DETAILS (3 OF 3)	7.5

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STATE OF TEXAS
OMAR A. ESPINOSA
125560
LICENSED
PROFESSIONAL ENGINEER

NORTHLAKE PHASE 3
PLAT 25-11800055

BEXAR COUNTY
TEXAS

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3421 Paesanos Parkway
San Antonio, TX 78231
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AS SHOWN	JANUARY 2025	SJ	SC

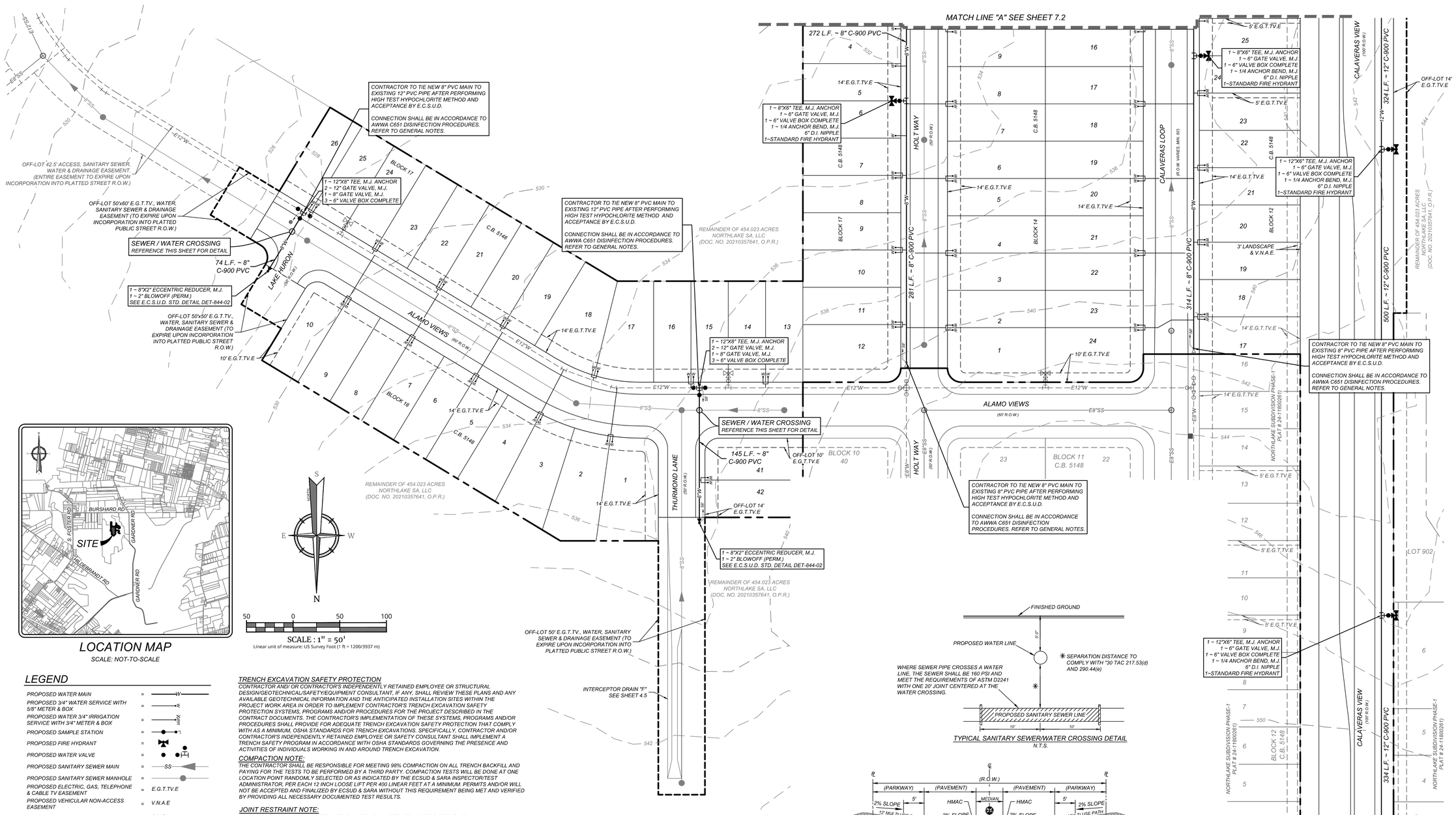
PROJECT NUMBER: 314-65-04
DRAWING NAME: CVOW3146504

SHEET TITLE: WATER DISTRIBUTION COVER SHEET

SHEET NUMBER: 7.0

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

By: ABEL MONTALVO
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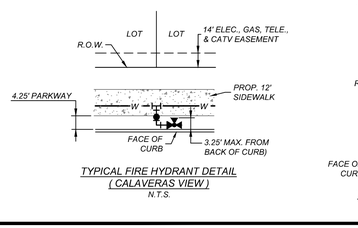


LOCATION MAP

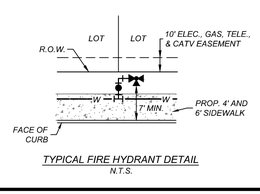
SCALE: NOT-TO-SCALE

LEGEND

PROPOSED WATER MAIN	=	W
PROPOSED 3/4" WATER SERVICE WITH 5/8" METER & BOX	=	W
PROPOSED WATER 3/4" IRRIGATION SERVICE WITH 3/4" METER & BOX	=	IRRR
PROPOSED SAMPLE STATION	=	S
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	
PROPOSED ELECTRIC, GAS, TELEPHONE & CABLE TV EASEMENT	=	E.G.T.TV.E
PROPOSED VEHICULAR NON-ACCESS EASEMENT	=	V.N.A.E
PROPOSED CLEAR VISION EASEMENT	=	C.V.E
EXISTING WATER MAIN	=	EW
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	ESS
EXISTING SANITARY SEWER MANHOLE	=	
RESTRAINED LENGTH (TOTAL)	=	



TYPICAL FIRE HYDRANT DETAIL (CALAVERAS VIEW)
N.T.S.



TYPICAL FIRE HYDRANT DETAIL
N.T.S.

TRENCH EXCAVATION SAFETY PROTECTION

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

COMPACTION NOTE:

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

JOINT RESTRAINT NOTE:

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

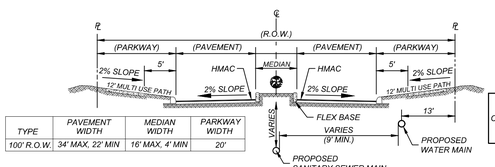
FIRE FLOW NOTE:

IN AN EFFORT TO MEET THE CITY OF SAN ANTONIO'S FIRE FLOW REQUIREMENTS FOR THE PROPOSED RESIDENTIAL DEVELOPMENT, THE PUBLIC WATER MAIN SYSTEM HAS BEEN DESIGNED FOR A MINIMUM FIRE FLOW DEMAND OF 1,500 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.

WATER PLAN NOTES:

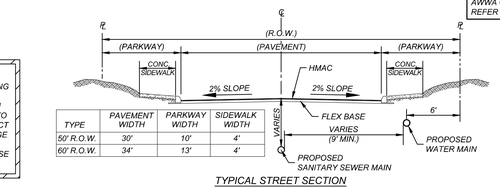
1. ALL VALVES SHALL READ "OPEN RIGHT"
2. ALL PVC PIPE SHALL BE C-900 CLASS 150.
3. LONG WATER SERVICES REQUIRE 2" PVC CASING

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



TYPE	PAVEMENT WIDTH	MEDIAN WIDTH	PARKWAY WIDTH
100' R.O.W.	34' MAX, 22' MIN	16' MAX, 4' MIN	20'

COLLECTOR TYPE "C" STREET SECTION
N.T.S.



TYPE	PAVEMENT WIDTH	PARKWAY WIDTH	SIDEWALK WIDTH
50' R.O.W.	30'	10'	4'
60' R.O.W.	34'	13'	4'

TYPICAL STREET SECTION
N.T.S.

1 ~ SAMPLE STATION ASSEMBLY

CONTRACTOR TO REFERENCE E.C.S.U.D. DETAILS 824-03 & 824-04 FOR SAMPLE STATION INSTALLATION & ASEEMBLY

NOTE:
PRESSURE REDUCING VALVES TO BE THE RESPONSIBILITY OF THE HOME BUILDER WHERE REQUIRED

NOTE:
CONTRACTOR SHALL COORDINATE WITH EAST CENTRAL WATER DISTRICT TO VERIFY THE LOCATION OF ISOLATION VALVES. OPERATION OF ISOLATION VALVES SHALL ONLY BE MADE WITH THE APPROVAL AND PRESENCE OF EAST CENTRAL WATER DISTRICT PERSONNEL

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

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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
OMAR A. ESPINOSA
125560
LICENSED PROFESSIONAL ENGINEER

NORTHLAKE PHASE 3 PLAT 25-11800055

BEXAR COUNTY TEXAS

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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	JANUARY 2025	SJ	SC

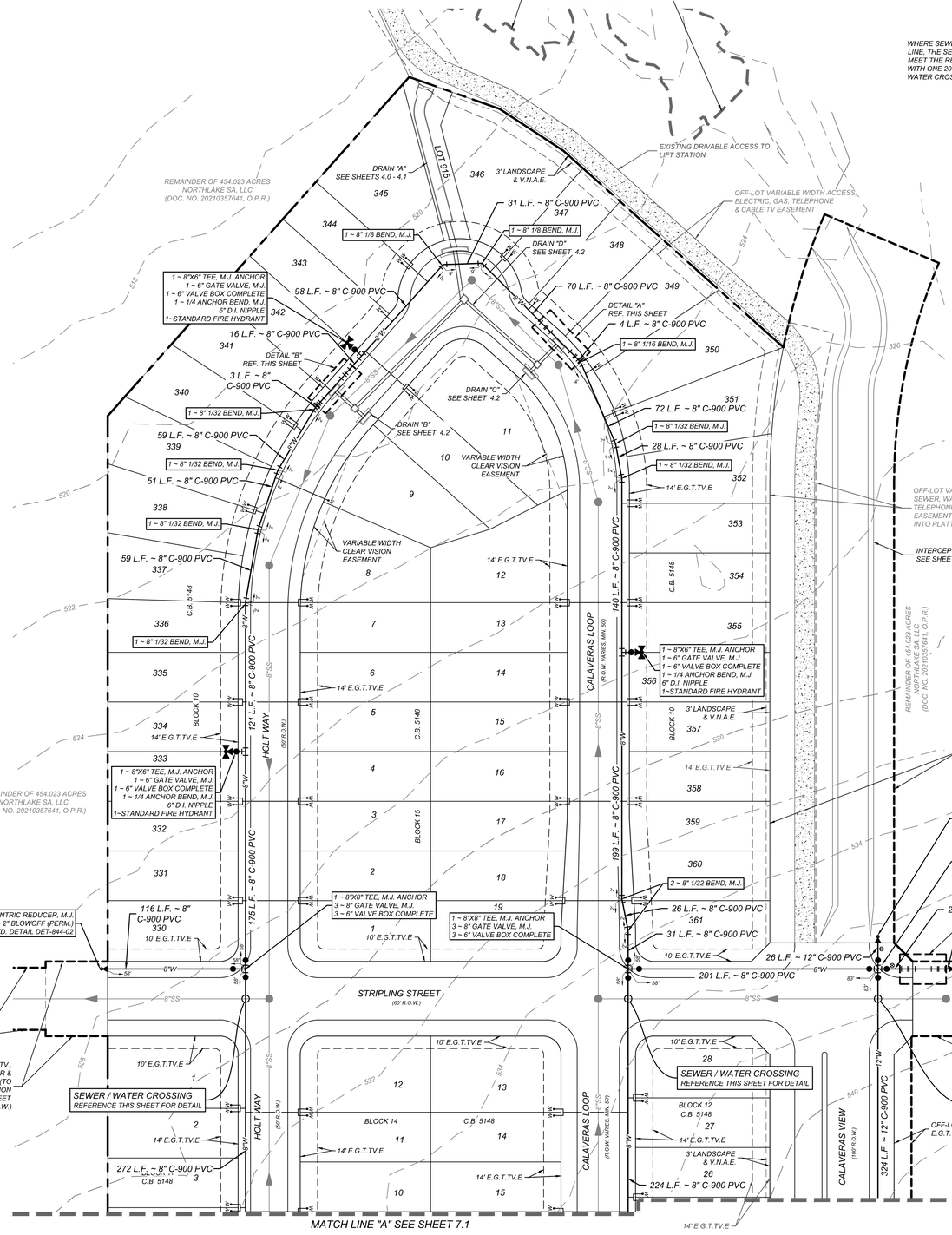
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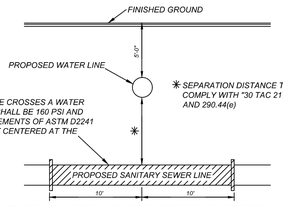
SHEET TITLE:
OVERALL WATER PLAN (1 OF 2)

SHEET NUMBER:
7.1

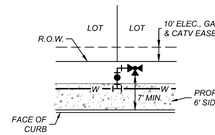
NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

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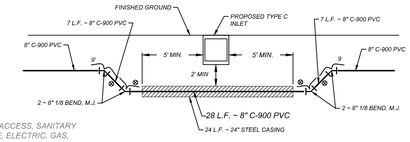




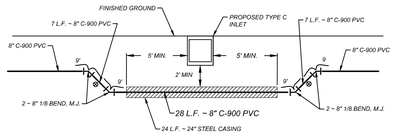
TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.



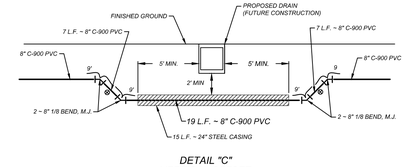
TYPICAL FIRE HYDRANT DETAIL
N.T.S.



DETAIL "A"
VERTICAL OFFSET
N.T.S.



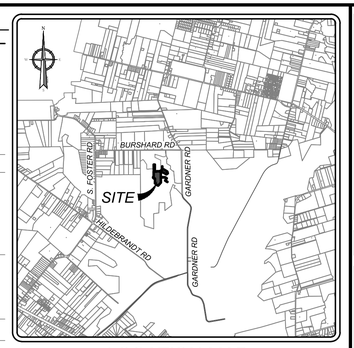
DETAIL "B"
VERTICAL OFFSET
N.T.S.



DETAIL "C"
VERTICAL OFFSET
N.T.S.

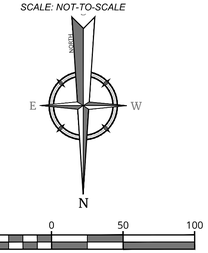
LEGEND

PROPOSED WATER MAIN	=	W
PROPOSED 3/4" WATER SERVICE WITH 5/8" METER & BOX	=	W
PROPOSED WATER 3/4" IRRIGATION SERVICE WITH 3/4" METER & BOX	=	IRRIG
PROPOSED SAMPLE STATION	=	S
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	
PROPOSED ELECTRIC, GAS, TELEPHONE & CABLE TV EASEMENT	=	E.G.T.TV.E
PROPOSED VEHICULAR NON-ACCESS EASEMENT	=	V.N.A.E
PROPOSED CLEAR VISION EASEMENT	=	C.V.E
EXISTING WATER MAIN	=	EW
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	ESS
EXISTING SANITARY SEWER MANHOLE	=	
RESTRAINED LENGTH (TOTAL)	=	



LOCATION MAP

SCALE: NOT-TO-SCALE



50 0 50 100

SCALE : 1" = 50'

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

TRENCH EXCAVATION SAFETY PROTECTION

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

COMPACTION NOTE:

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

JOINT RESTRAINT NOTE:

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

FIRE FLOW NOTE:

IN AN EFFORT TO MEET THE CITY OF SAN ANTONIO'S FIRE FLOW REQUIREMENTS FOR THE PROPOSED RESIDENTIAL DEVELOPMENT, THE PUBLIC WATER MAIN SYSTEM HAS BEEN DESIGNED FOR A MINIMUM FIRE FLOW DEMAND OF 1,500 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.

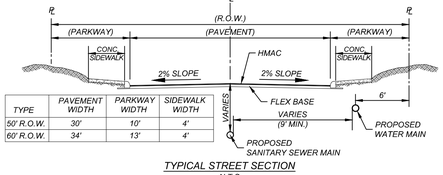
WATER PLAN NOTES:

1. ALL VALVES SHALL READ "OPEN RIGHT"
2. ALL PVC PIPE SHALL BE C-900 CLASS 150.
3. LONG WATER SERVICES REQUIRE 2" PVC CASING

NOTE:
PRESSURE REDUCING VALVES TO BE THE RESPONSIBILITY OF THE HOME BUILDER WHERE REQUIRED

NOTE:
CONTRACTOR SHALL COORDINATE WITH EAST CENTRAL WATER DISTRICT TO VERIFY THE LOCATION OF ISOLATION VALVES. OPERATION OF ISOLATION VALVES SHALL ONLY BE MADE WITH THE APPROVAL AND PRESENCE OF EAST CENTRAL WATER DISTRICT PERSONNEL

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



TYPE	PAVEMENT WIDTH	PARKWAY WIDTH	SIDEWALK WIDTH
50' R.O.W.	30'	10'	4'
60' R.O.W.	34'	13'	4'

TYPICAL STREET SECTION
N.T.S.

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REV	DESCRIPTION	DRAWN BY	DATE



NORTHLAKE PHASE 3
PLAT 25-11800055

BEXAR COUNTY
TEXAS

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

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	JANUARY 2025	SJ	SC

PROJECT NUMBER: 314-65-04
DRAWING NAME: OW3146504

SHEET TITLE:
OVERALL WATER PLAN (2 OF 2)

SHEET NUMBER: 7.2

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

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TESTING OF PRESSURE PIPELINES

1.0 DESCRIPTION

This item shall govern the furnishing of all labor, materials, tools, equipment and related items required to perform hydrostatic testing of Ductile Iron and Polyvinyl Chloride (PVC) pressure pipelines for integrity and leakage.

2.0 MATERIALS

Not applicable.

3.0 CONSTRUCTION METHODS

A. For Ductile Iron Pipe, make hydrostatic pressure and leakage tests on entire pipeline in accordance with AWWA Standard C600-99, Section 5.2.

B. For PVC Pipe, make hydrostatic pressure and leakage tests on entire pipeline in accordance with AWWA Standard C605-94, Section 7.3.

C. Furnish all labor equipment, including test pump with regulated by-pass meters and gauges required for conducting pipeline tests. Furnish equipment and necessary piping as required to transport water used in testing from source to test location.

D. Schedule time and sequence of testing, subject to observation and approval by the Owner or Owner's Representative. Provide adequate labor, tools and equipment to operate valves and to locate and repair leaks discovered during the initial filling of the pipeline prior to actual testing or during the course of the tests.

E. After the pipe has been laid and backfilled and the backfill has been jetted or otherwise consolidated, subject all newly laid pipe or valved section thereof to the hydrostatic pressure specified below for the particular type of pipe. The duration of each pressure test shall be at least four hours, unless otherwise specified or noted on the plans. Disconnect all meters, fixtures, devices or appliances which are connected to the pipeline system and which might be damaged if subjected to the specified test pressure. Cap or plug the ends of the branch lines during the testing procedures.

F. Fill each valved (capped or plugged) section of pipe slowly with water and expel all air. If permanent air vents are not located at all high points, install corporation or blow-of cocks at such points so that the air can be expelled as filling takes place. After verification that all air has been expelled, close the cocks and keep the pipe filled until tested. Examine uncovered pipe, fittings, valves, hydrants and joints while under test pressure. Visible leaks shall be stopped. Remove and replace cracked or defective pipe, fittings, valves or hydrants discovered during testing. Replacement shall be with sound material. Repeat the test until specified requirements are achieved.

G. Where any section of a pipeline is proved with concrete thrust blocking, do not make hydrostatic pressure test until at least five days have elapsed after installation of the blocking.

H. Pressure/Leakage Tests

1. The duration of the hydrostatic test shall be a minimum of four (4) hours.
2. The pipeline shall be tested so that the pressure at the highest point in the test section is not less than 200 psi.
3. The maximum allowable leakage is the number of gallons per hour as determined by the following formulas.
   a. For Ductile Iron Pipe:

$$L = \frac{NDP^{\frac{1}{2}}}{133{,}200}$$

Where:
L = allowable leakage, in gallons per hour
N = length of pipe tested, in feet
D = nominal diameter of the pipe, in inches
P = 200, in psig

   b. For PVC Pipe:

$$L = \frac{NDP^{\frac{1}{2}}}{7{,}400}$$

Where:
L = allowable leakage, in gallons per hour
N= number of joints in the length of pipeline tested
D= nominal diameter of the pipe, in inches
P = 200, in psig

H. Final Acceptance

1. No pipe installation will be accepted until known leaks have been repaired, whether or not leakage is within allowable limits. Locate and repair leaks at no additional cost to the Owner.
2. The Contractor will certify that all required pressure and leakage tests have been successfully completed before the pipeline is accepted.

I. Special Project Requirements

Water Source. Obtaining water for testing purposes shall be the responsibility of the Contractor. The Contractor shall provide all equipment and labor required to transport water from the source to the test point.

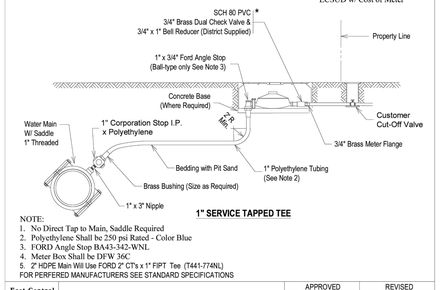
4.0 MEASUREMENT AND PAYMENT

No direct measurement or payment will be made for the work to be done or the equipment to be furnished under this item, but shall be considered subsidiary to the particular items of work for which unit prices are required in the proposal.

East Central Stone	TESTING FOR PRESSURE PIPELINES	APPROVED	REVISED
		JULY 2022	
		DET-100-Ø1	SHEET 1 OF 1

PIPE TAPPING SCHEDULE	
PIPE DIAMETER	SERVICE SIZE
6" A.C.	Tap With Service Saddle
6" C.I. or D.I.	Tap With Service Saddle
8" A.C.	Tap With Service Saddle
8" C.I. or D.I.	Tap With Service Saddle
8" PVC	Tap With Service Saddle
10" A.C.	Tap With Service Saddle
10" C.I. or D.I.	Tap With Service Saddle
10" PVC	Tap With Service Saddle
12" A.C.	Tap With Service Saddle
12" C.I. or D.I.	Tap With Service Saddle
12" PVC	Tap With Service Saddle
16" A.C.	Tap With Service Saddle
16" C.I. or D.I.	Tap With Service Saddle

* Tailpieces Supplied by ECSUD w/ Cost of Meter

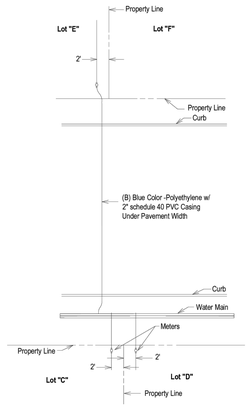


1" SERVICE TAPPED TEE

NOTE:
1. No Direct Tap to Main, Saddle Required
2. Polyethylene Shall be 250 psi Rated - Color Blue
3. FORD Angle Stop BA43-342-WNL
4. Meter Box Shall be DFW 36C
5. 2" HDPE Main Will Use FORD 2" CT's x 1" FIPT Tee (T441-774NL)

FOR PERFERED MANUFACTURERS SEE STANDARD SPECIFICATIONS

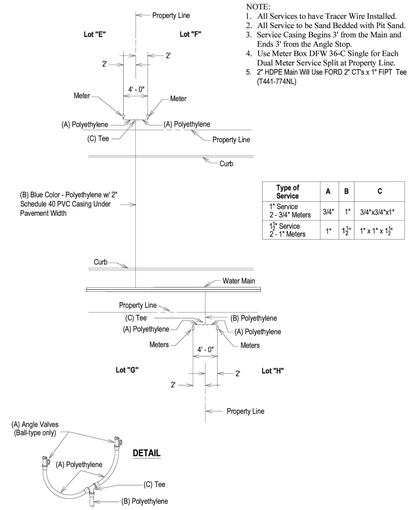
East Central Stone	1" SERVICE INSTALLATION TAPPING SCHEDULE	APPROVED	REVISED
		FEBRUARY 2025	
		DET-824-Ø1	SHEET 1 OF 1



NOTE:
1. All Services to have Tracer Wire Installed.
2. All Service to be Sand Bedded with Pit Sand.
3. Service Casing Begins 3' from the Main and Ends 3' from the Angle Stop.
4. Use Meter Box DFW 36-C for Single Services
5. 2" HDPE Main Will Use FORD 2" CT's x 1" FIPT Tee (T441-774NL)

SINGLE SERVICE LINE - SINGLE METER

East Central Stone	TYPICAL SERVICE ARRANGEMENT	APPROVED	REVISED
		FEBRUARY 2025	
		DET-824-Ø5	SHEET 1 OF 4

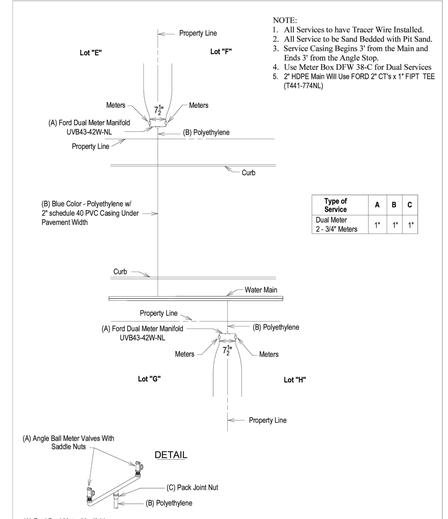


Type of Service	A	B	C
1" Service 2 - 3/4" Meters	3/4"	1"	3/4"x3/4"x1"
1½" Service 2 - 1" Meters	1"	1½"	1" x 1" x 1½"

NOTE:
1. All Services to have Tracer Wire Installed.
2. All Service to be Sand Bedded with Pit Sand.
3. Service Casing Begins 3' from the Main and Ends 3' from the Angle Stop.
4. Use Meter Box DFW 36-C Single for Each Dual Meter Service Split at Property Line.
5. 2" HDPE Main Will Use FORD 2" CT's x 1" FIPT Tee (T441-774NL)

SINGLE SERVICE LINE - DUAL METER

East Central Stone	TYPICAL RURAL SERVICE ARRANGEMENT	APPROVED	REVISED
		FEBRUARY 2025	
		DET-824-Ø5	SHEET 2 OF 4

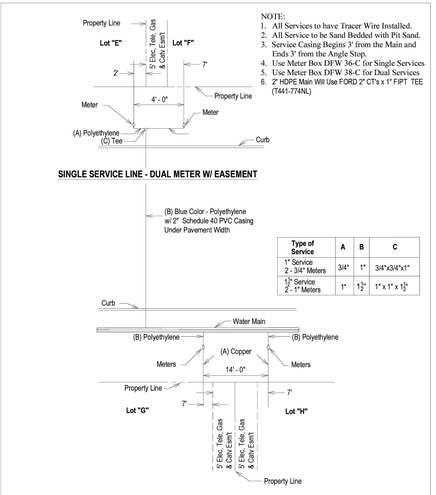


Type of Service	A	B	C
Dual Meter 2 - 3/4" Meters	1"	1"	1"

NOTE:
1. All Services to have Tracer Wire Installed.
2. All Service to be Sand Bedded with Pit Sand.
3. Service Casing Begins 3' from the Main and Ends 3' from the Angle Stop.
4. Use Meter Box DFW 38-C for Dual Services
5. 2" HDPE Main Will Use FORD 2" CT's x 1" FIPT TEE (T441-774NL)

SINGLE SERVICE LINE - DUAL METER

East Central Stone	TYPICAL HIGH DENSITY RESIDENTIAL SERVICE ARRANGEMENT	APPROVED	REVISED
		FEBRUARY 2025	
		DET-824-Ø5	SHEET 3 OF 4



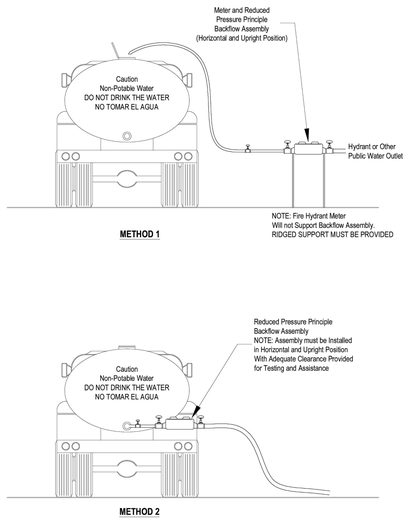
NOTE:
1. 2" HDPE Main Will Use FORD 2" CT's x 1" FIPT Tee (T441-774NL)
2. 2" HDPE Main Will Use FORD 2" CT's Tee w/ FIPT Branch (T771-777-AWTNL) for Blow-Off

SINGLE SERVICE LINE - DUAL METER W/ EASEMENT

Type of Service	A	B	C
1" Service 2 - 3/4" Meters	3/4"	1"	3/4"x3/4"x1"
1½" Service 2 - 1" Meters	1"	1½"	1" x 1" x 1½"

SINGLE SERVICE LINE W/ EASEMENT

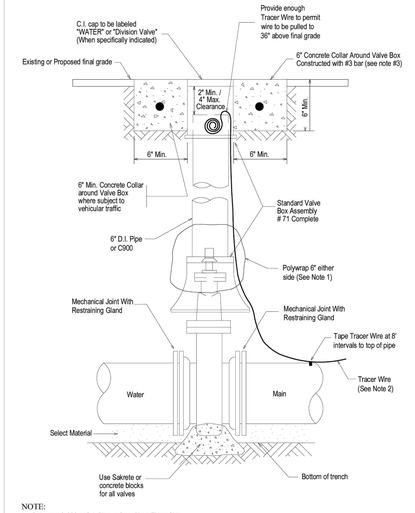
East Central Stone	TYPICAL SERVICE ARRANGEMENT	APPROVED	REVISED
		FEBRUARY 2025	
		DET-824-Ø5	SHEET 4 OF 4



METHOD 1

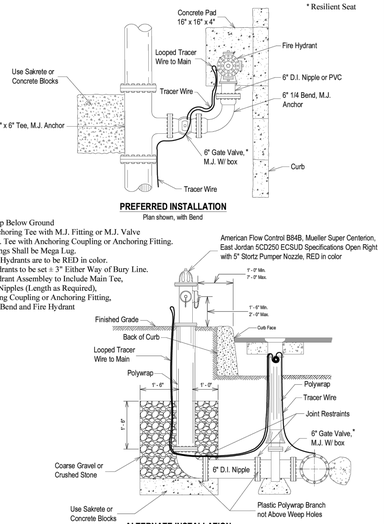
METHOD 2

East Central Stone	BACKFLOW PREVENTION PREVENTION FOR WATER HAULING EQUIPMENT AND/OR MIXING TANKS	APPROVED	REVISED
		FEBRUARY 2025	
		DET-826-Ø1	SHEET 1 OF 1



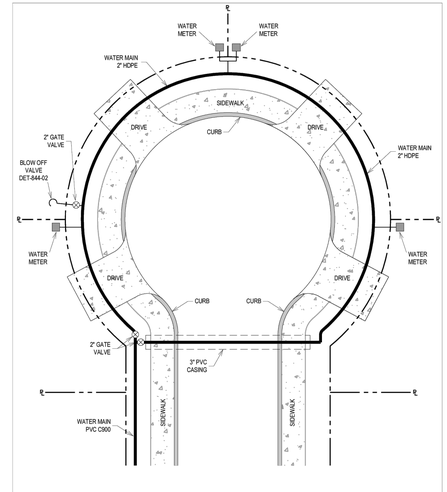
NOTE:
1. Polywrap C-900 or D.I. Pipe to Boot 6" on Either Side.
2. Tracer Wire to be Outside the Pipe Till Valve Box Top Section.
3. Min. 18" Concrete Form Tube Centered Around Valve Box for Concrete Collar W/ #3 Bar.

East Central Stone	INSTALLATION OF NON-GEARED GATE VALVE WITH VALVE BOX AND EXTENSION	APPROVED	REVISED
		JULY 2022	
		DET-828-Ø1	SHEET 1 OF 1



NOTE:
1. Polywrap Below Ground
2. Use Anchoring Tee with M.J. Fitting or M.J. Valve
3. Std. M.J. Tee with Anchoring Coupling or Anchoring Fitting.
4. All Fittings Shall be Mega Lug.
5. All Fire Hydrants are to be RED in color.
6. Fire Hydrants to be set ± 3" Either Way of Bury Line.
7. Fire Hydrant Assembley to Include Main Tee, 2 - D.I. Nipples (Length as Required), Anchoring Coupling or Anchoring Fitting, 6" - 90° Bend and Fire Hydrant

East Central Stone	FIRE HYDRANT INSTALLATION	APPROVED	REVISED
		FEBRUARY 2025	
		DET-834-Ø1	SHEET 1 OF 1



2" HDPE LINE - FOR CUL-DE-SAC'S

East Central Stone	TYPICAL CUL-DE-SAC LAYOUT WITH 2" HDPE WATER LINE	APPROVED	REVISED
		JUNE 2025	
		DET-835-Ø1	SHEET 1 OF 1

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125560
LICENSED
PROFESSIONAL ENGINEER

NORTHLAKE PHASE 3
PLAT 25-11800055

BEXAR COUNTY
TEXAS

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

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	JANUARY 2025	SJ	SC

PROJECT NUMBER: 314-65-04
DRAWING NAME: DTOW3146504

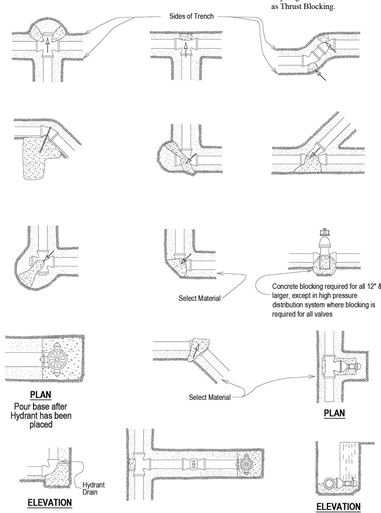
SHEET TITLE: WATER DETAILS (1 OF 3)

SHEET NUMBER: 7.3

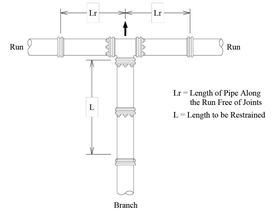
NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

By: ABEL.MONTALVO
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NOTE:
1. All Fittings Shall be Mega Lug
2. Dry Bags of Sakrete Shall be Placed as Thrust Blocking.



East Central	THRUST BLOCKS FOR FITTINGS (WATER ONLY)	APPROVED	REVISED
		FEBRUARY 2025	
		DET-839-Ø1	SHEET 1 OF 1



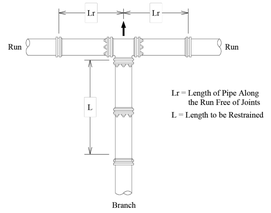
RESTRAINED LENGTH FOR TEES			
PIPE SIZE (Inch)	BRANCH SIZE (Inch)	LENGTH OF RUN (Feet)	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE=200 psi
6	4	0	42
6	4	5	7
6	4	10	1
6	6	0	59
6	6	5	35
6	6	10	11
8	4	0	42
8	4	5	1
8	6	0	59
8	6	5	28
8	6	10	1
8	8	0	77
8	8	5	53
8	8	10	30
8	8	15	6

RESTRAINED LENGTH DESIGN

Restrained Length Calculations are for P.V.C. Pipe Bedded in Compacted Granular Material Extending to the Top of the Pipe. The Native Soil Material is Assumed to be Inorganic Clay of High Plasticity. Depth of Bury is Assumed to be 4 Feet Min. and 5 Feet Max.

NOTE:
1. These Calculations are Provided for Reference. The Restrained Length Shall be Designed Based Upon the Conditions Encountered During Installation.
2. All joints within the calculated length must be restrained.
3. If your distance between fittings is less than or equal to the calculated restraint length, restrain all joints between those fittings.
4. When a valve is added see DET-893-03 for restrained length from a valve.

East Central	RESTRAINED LENGTHS FOR TEES INSTALLED ON 6" TO 8" MAINS	APPROVED	REVISED
		FEBRUARY 2025	
		DET-839-02	SHEET 1 OF 4



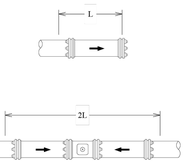
RESTRAINED LENGTH FOR TEES			
PIPE SIZE (Inch)	BRANCH SIZE (Inch)	LENGTH OF RUN (Feet)	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE=200 psi
12	4	0	42
12	4	5	1
12	6	0	59
12	6	5	13
12	6	10	1
12	8	0	77
12	8	5	42
12	8	10	7
12	8	15	1
12	12	0	109
12	12	5	86
12	12	10	63
12	12	15	39

RESTRAINED LENGTH DESIGN

Restrained Length Calculations are for P.V.C. Pipe Bedded in Compacted Granular Material Extending to the Top of the Pipe. The Native Soil Material is Assumed to be Inorganic Clay of High Plasticity. Depth of Bury is Assumed to be 4 Feet Min. and 5 Feet Max.

NOTE:
1. These Calculations are Provided for Reference. The Restrained Length Shall be Designed Based Upon the Conditions Encountered During Installation.
2. All joints within the calculated length must be restrained.
3. If your distance between fittings is less than or equal to the calculated restraint length, restrain all joints between those fittings.
4. When a valve is added see DET-893-03 for restrained length from a valve.

East Central	RESTRAINED LENGTHS FOR TEES INSTALLED ON 12" MAINS	APPROVED	REVISED
		FEBRUARY 2025	
		DET-839-02	SHEET 2 OF 4



L = Length to be Restrained

PIPE SIZE (Inch)	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE=200 psi
6	59
8	77
10	93
12	109
16	117
20	145
24	172

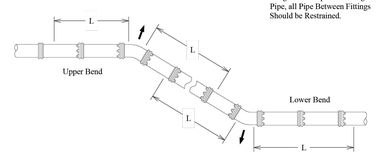
RESTRAINED LENGTH DESIGN

Restrained Length Calculations are for P.V.C. Pipe Bedded in Compacted Granular Material Extending to the Top of the Pipe. The Native Soil Material is Assumed to be Inorganic Clay of High Plasticity. Depth of Bury is Assumed to be 4 Feet Min. and 5 feet Max.

NOTE:
1. These Calculations are Provided for Reference. The Restrained Length Shall be Designed Based Upon the Conditions Encountered During Installation.
2. All joints within the calculated length must be restrained.
3. If your distance between fittings is less than or equal to the calculated restraint length, restrain all joints between those fittings.

East Central	RESTRAINED LENGTHS FOR DEAD ENDS / INLINE VALVES ON 6" THRU 24" MAINS	APPROVED	REVISED
		FEBRUARY 2025	
		DET-839-03	SHEET 1 OF 1

L = Length to be Restrained on Both Sides of Fitting. When Restrained Lengths Overlap on the Diagonal Pipe, all Pipe Between Fittings Should be Restrained.



PIPE SIZE (Inch)	BEND ANGLE (deg.)	LOW SIDE DEPTH	UPPER BEND RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE=200 psi	LOWER BEND RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE=200 psi
6	45	5	24	8
6	22.5	5	12	4
6	11.25	5	6	2
6	45	10	24	5
6	22.5	10	12	2
6	11.25	10	6	1
8	45	5	32	11
8	22.5	5	15	5
8	11.25	5	8	3
8	45	10	32	7
8	22.5	10	15	3
8	11.25	10	8	2
12	45	5	45	16
12	22.5	5	22	7
12	11.25	5	11	4
12	45	10	45	10
12	22.5	10	22	5
12	11.25	10	11	2

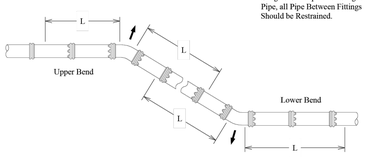
RESTRAINED LENGTH DESIGN

Restrained Length Calculations are for P.V.C. Pipe Bedded in Compacted Granular Material Extending to the Top of the Pipe. The Native Soil Material is Assumed to be Inorganic Clay of High Plasticity. Depth of Bury is Assumed to be 4 Feet Min. and 5 feet Max.

NOTE:
1. These Calculations are Provided for Reference. The Restrained Length Shall be Designed Based Upon the Conditions Encountered During Installation.
2. All joints within the calculated length must be restrained.
3. If your distance between fittings is less than or equal to the calculated restraint length, restrain all joints between those fittings.
4. When a valve is added see DET-893-03 for restrained length from a valve.

East Central	RESTRAINED LENGTHS VERTICAL OFFSETS INSTALLED ON 6" THRU 12" MAINS	APPROVED	REVISED
		FEBRUARY 2025	
		DET-839-04	SHEET 1 OF 2

L = Length to be Restrained on Both Sides of Fitting. When Restrained Lengths Overlap on the Diagonal Pipe, all Pipe Between Fittings Should be Restrained.



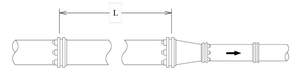
PIPE SIZE (Inch)	BEND ANGLE (deg.)	LOW SIDE DEPTH	UPPER BEND RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE=200 psi	LOWER BEND RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE=200 psi
16	45	5	70	22
16	22.5	5	34	11
16	11.25	5	17	6
16	45	10	70	14
16	22.5	10	34	7
16	11.25	10	17	4
24	45	5	102	32
24	22.5	5	49	16
24	11.25	5	25	8
24	45	10	102	21
24	22.5	10	49	10
24	11.25	10	25	5

RESTRAINED LENGTH DESIGN

Restrained Length Calculations are for P.V.C. Pipe Bedded in Compacted Granular Material Extending to the Top of the Pipe. The Native Soil Material is Assumed to be Inorganic Clay of High Plasticity. Depth of Bury is Assumed to be 4 Feet Min. and 5 feet Max.

NOTE:
1. These Calculations are Provided for Reference. The Restrained Length Shall be Designed Based Upon the Conditions Encountered During Installation.
2. All joints within the calculated length must be restrained.
3. If your distance between fittings is less than or equal to the calculated restraint length, restrain all joints between those fittings.
4. When a valve is added see DET-893-03 for restrained length from a valve.

East Central	RESTRAINED LENGTHS VERTICAL OFFSETS INSTALLED ON 16" THRU 24" MAINS	APPROVED	REVISED
		FEBRUARY 2025	
		DET-839-04	SHEET 2 OF 2



L = Length to be Restrained

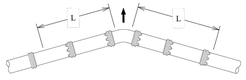
PIPE SIZE (Inch)	SMALL SIZE (Inch)	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE=200 psi
6	4	30
8	4	55
8	6	32
12	4	95
12	6	80
12	8	58
16	6	97
16	8	83
16	12	43
24	6	159
24	8	150
24	12	124
24	16	96
24	20	53

RESTRAINED LENGTH DESIGN

Restrained Length Calculations are for P.V.C. Pipe Bedded in Compacted Granular Material Extending to the Top of the Pipe. The Native Soil Material is Assumed to be Inorganic Clay of High Plasticity. Depth of Bury is Assumed to be 4 Feet Min. and 5 feet Max.

NOTE:
1. These Calculations are Provided for Reference. The Restrained Length Shall be Designed Based Upon the Conditions Encountered During Installation.
2. All joints within the calculated length must be restrained.
3. If your distance between fittings is less than or equal to the calculated restraint length, restrain all joints between those fittings.
4. When a valve is added see DET-893-03 for restrained length from a valve.

East Central	RESTRAINED LENGTHS FOR REDUCERS ON 6" THRU 24" MAINS	APPROVED	REVISED
		FEBRUARY 2025	
		DET-839-05	SHEET 1 OF 1



L = Length to be Restrained on Both Sides of Fitting

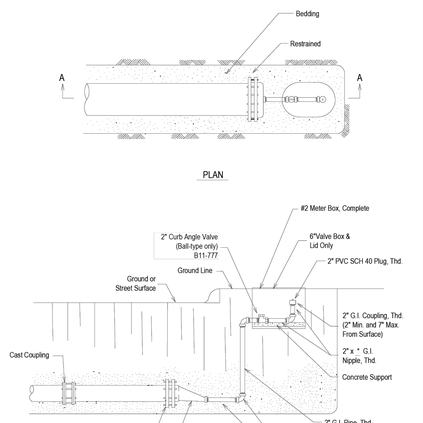
PIPE SIZE (Inch)	BEND ANGLE (deg)	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE=200 psi
6	90	23
6	45	9
6	22.5	5
6	11.25	2
8	90	30
8	45	12
8	22.5	6
8	11.25	3
12	90	43
12	45	18
12	22.5	8
12	11.25	4
16	90	59
16	45	25
16	22.5	12
16	11.25	6
24	90	86
24	45	36
24	22.5	17
24	11.25	9

RESTRAINED LENGTH DESIGN

Restrained Length Calculations are for P.V.C. Pipe Bedded in Compacted Granular Material Extending to the Top of the Pipe. The Native Soil Material is Assumed to be Inorganic Clay of High Plasticity. Depth of Bury is Assumed to be 4 Feet Min. and 5 feet Max.

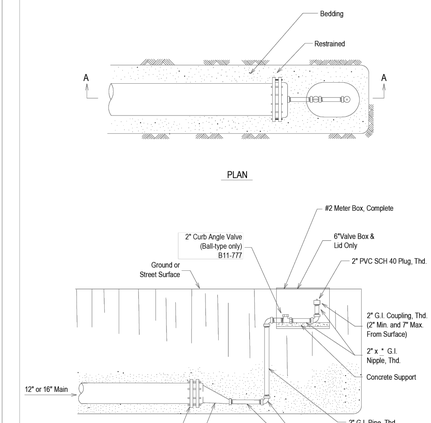
NOTE:
1. These Calculations are Provided for Reference. The Restrained Length Shall be Designed Based Upon the Conditions Encountered During Installation.
2. All joints within the calculated length must be restrained.
3. If your distance between fittings is less than or equal to the calculated restraint length, restrain all joints between those fittings.
4. When a valve is added see DET-893-03 for restrained length from a valve.

East Central	RESTRAINED LENGTHS FOR HORIZONTAL BENDS ON 6" THRU 24" MAINS	APPROVED	REVISED
		FEBRUARY 2025	
		DET-839-06	SHEET 1 OF 1



* Cut to Fit in Meter Box

East Central	2" PERMANENT BLOW-OFF ASSEMBLY ON 6" AND 8" MAINS	APPROVED	REVISED
		JANUARY 2025	
		DET-844-02	SHEET 1 OF 2



* Cut to Fit in Meter Box

East Central	2" PERMANENT BLOW-OFF ASSEMBLY ON 12" AND 16" MAINS	APPROVED	REVISED
		JANUARY 2025	
		DET-844-02	SHEET 2 OF 2

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TEXAS

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

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AS SHOWN	JANUARY 2025	SJ	SC

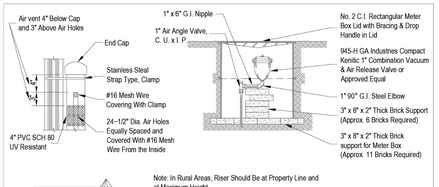
PROJECT NUMBER: 314-65-04
DRAWING NAME: DTOW3146504

SHEET TITLE: WATER DETAILS (2 OF 3)

SHEET NUMBER: 7.4

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

By: ABEL MONTALVO
I:\WATER\DTOW3146504.dwg7.4



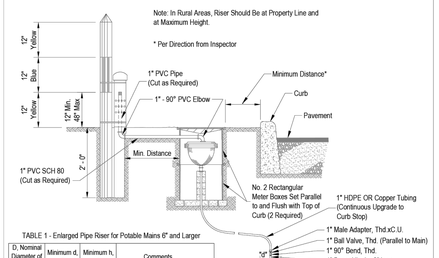


TABLE 1 - Enlarged Pipe Riser for Potable Mains 6" and Larger

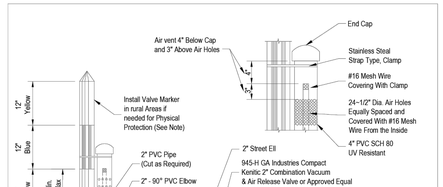
D, Nominal Diameter of Main, In.	Minimum d, In.	Minimum h, In.	Comments
6	6.0	6.0	6" MJ x 6" MJ x 6" FLG DI TEE
8	8.0	8.0	8" MJ x 8" MJ x 8" FLG DI TEE
12	12.0	12.0	12" MJ x 12" MJ x 12" FLG DI TEE
16	12.0	9.6	16" MJ x 16" MJ x 12" FLG DI TEE
24	18.0	14.4	24" MJ x 24" MJ x 18" FLG DI TEE
30	18.0	18.0	30" MJ x 30" MJ x 18" FLG DI TEE
36	24.0	21.6	36" MJ x 36" MJ x 24" FLG DI TEE
42	24.0	25.2	42" MJ x 42" MJ x 24" FLG DI TEE
48	24.0	28.8	48" MJ x 48" MJ x 24" FLG DI TEE
54	30.0	32.4	Welded-on FLG Outlet
60	36.0	36.0	Welded-on FLG Outlet
66	24.0	23.1	Welded-on FLG Outlet
72	24.0	25.2	Welded-on FLG Outlet

Air Collection Traps in Air Valve Piping Notes:
1. Dimensions Derived from AWWA Manual 2nd Edition: Chapter 6 M51 Air Valves: Air-Release, Air/Vacuum & Combination

East Central Utility Services — OUR QUALITY IS CLEAR

INSTALLATION OF 1" AIR RELEASE VALVE

APPROVED	REVISED
FEBRUARY 2025	
DET-846-Ø1	SHEET 1 OF 1



Note: In Rural Areas, Riser Should Be at Property Line and at Maximum Height.

* Per Direction from Inspector

TABLE 1 - Enlarged Pipe Riser for Potable Mains 6" and Larger

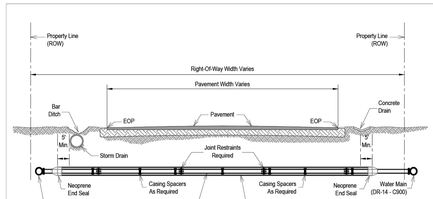
D, Nominal Diameter of Main, In.	Minimum d, In.	Minimum h, In.	Comments
6	6.0	6.0	6" MJ x 6" MJ x 6" FLG DI TEE
8	8.0	8.0	8" MJ x 8" MJ x 8" FLG DI TEE
12	12.0	12.0	12" MJ x 12" MJ x 12" FLG DI TEE
16	12.0	9.6	16" MJ x 16" MJ x 12" FLG DI TEE
24	18.0	14.4	24" MJ x 24" MJ x 18" FLG DI TEE
30	18.0	18.0	30" MJ x 30" MJ x 18" FLG DI TEE
36	24.0	21.6	36" MJ x 36" MJ x 24" FLG DI TEE
42	24.0	25.2	42" MJ x 42" MJ x 24" FLG DI TEE
48	24.0	28.8	48" MJ x 48" MJ x 24" FLG DI TEE
54	30.0	32.4	Welded-on FLG Outlet
60	36.0	36.0	Welded-on FLG Outlet
66	24.0	23.1	Welded-on FLG Outlet
72	24.0	25.2	Welded-on FLG Outlet

Air Collection Traps in Air Valve Piping Notes:
1. Dimensions Derived from AWWA Manual 2nd Edition: Chapter 6 M51 Air Valves: Air-Release, Air/Vacuum & Combination

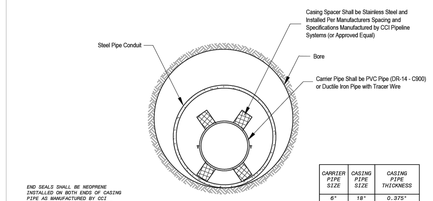
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INSTALLATION OF 2" AIR RELEASE VALVE

APPROVED	REVISED
FEBRUARY 2025	
DET-846-Ø2	SHEET 1 OF 1



BORE DEPTH SHALL MEET CITY, COUNTY OR STATE PERMIT REQUIREMENTS FOR THE APPROPRIATE MUNICIPALITY FOR THE PROJECT.



END SEALS SHALL BE NEOPRENE INSTALLED ON BOTH ENDS OF CASING PIPE AS MANUFACTURED BY CCI PIPELINE SYSTEMS (OR APPROVED EQUAL) SIZE AND SPACING SHALL BE DETERMINED BY MANUFACTURER

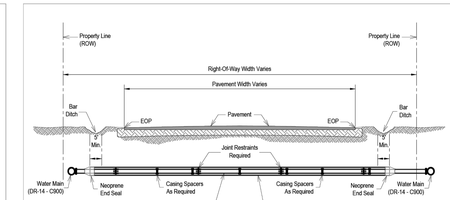
SECTION THROUGH PIPE IN CONDUIT

CARRIER PIPE SIZE	CASING PIPE SIZE	CASING PIPE THICKNESS
6"	18"	0.375"
8"	20"	0.375"
12"	24"	0.375"
16"	30"	0.375"
20"	36"	0.438"
24"	42"	0.438"
30"	48"	1/2"
36"	54"	9/16"

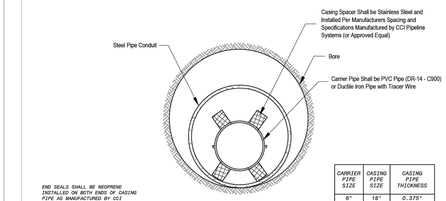
East Central Utility Services — OUR QUALITY IS CLEAR

TYPICAL BORE CROSSING UNDER ROAD

APPROVED	REVISED
FEBRUARY 2025	
DET-847-Ø1	SHEET 1 OF 3



BORE DEPTH SHALL MEET CITY, COUNTY OR STATE PERMIT REQUIREMENTS FOR THE APPROPRIATE MUNICIPALITY FOR THE PROJECT.



END SEALS SHALL BE NEOPRENE INSTALLED ON BOTH ENDS OF CASING PIPE AS MANUFACTURED BY CCI PIPELINE SYSTEMS (OR APPROVED EQUAL) SIZE AND SPACING SHALL BE DETERMINED BY MANUFACTURER

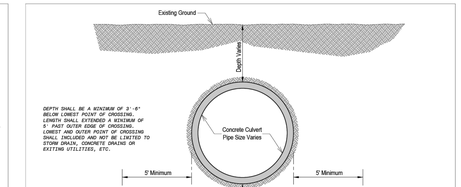
SECTION THROUGH PIPE IN CONDUIT

CARRIER PIPE SIZE	CASING PIPE SIZE	CASING PIPE THICKNESS
6"	18"	0.375"
8"	20"	0.375"
12"	24"	0.375"
16"	30"	0.375"
20"	36"	0.438"
24"	42"	0.438"
30"	48"	1/2"
36"	54"	9/16"

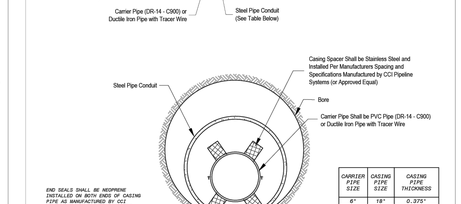
East Central Utility Services — OUR QUALITY IS CLEAR

TYPICAL ROAD BORE DETAIL

APPROVED	REVISED
FEBRUARY 2025	
DET-847-Ø1	SHEET 2 OF 3



DEPTH SHALL BE A MINIMUM OF 3'-6" BELOW LOWEST POINT OF CROSSING. LENGTH SHALL EXTENDED A MINIMUM OF 5' PAST OUTER EDGE OF CROSSING. LOWEST AND OUTER POINT OF CROSSING SHALL INCLUDED AND NOT BE LIMITED TO STORM DRAIN, CONCRETE DRAINS OR EXITING UTILITIES, ETC.



END SEALS SHALL BE NEOPRENE INSTALLED ON BOTH ENDS OF CASING PIPE AS MANUFACTURED BY CCI PIPELINE SYSTEMS (OR APPROVED EQUAL) SIZE AND SPACING SHALL BE DETERMINED BY MANUFACTURER

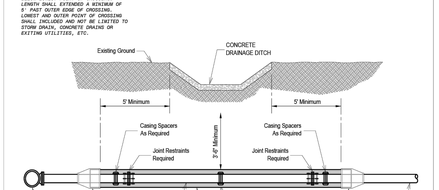
SECTION THROUGH PIPE IN CONDUIT

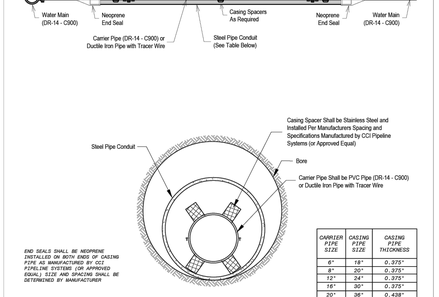
CARRIER PIPE SIZE	CASING PIPE SIZE	CASING PIPE THICKNESS
6"	18"	0.375"
8"	20"	0.375"
12"	24"	0.375"
16"	30"	0.375"
20"	36"	0.438"
24"	42"	0.438"
30"	48"	1/2"
36"	54"	9/16"

East Central Utility Services — OUR QUALITY IS CLEAR

TYPICAL BORE CROSSING UNDER CONCRETE CULVERT / STORM SEWER

APPROVED	REVISED
FEBRUARY 2025	
DET-847-Ø1	SHEET 2 OF 3





END SEALS SHALL BE NEOPRENE INSTALLED ON BOTH ENDS OF CASING PIPE AS MANUFACTURED BY CCI PIPELINE SYSTEMS (OR APPROVED EQUAL) SIZE AND SPACING SHALL BE DETERMINED BY MANUFACTURER

SECTION THROUGH PIPE IN CONDUIT

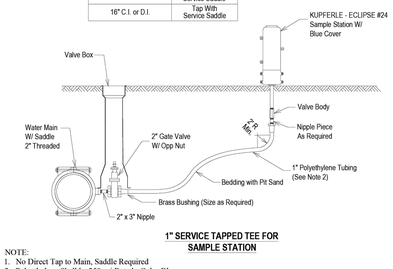
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20"	36"	0.438"
24"	42"	0.438"
30"	48"	1/2"
36"	54"	9/16"

East Central Utility Services — OUR QUALITY IS CLEAR

TYPICAL BORE CROSSING UNDER DITCH WITH CONCRETE BOTTOM

APPROVED	REVISED
FEBRUARY 2025	
DET-847-Ø1	SHEET 3 OF 3

PIPE TAPPING SCHEDULE	
PIPE DIAMETER	SERVICE SIZE
6" A.C.	1" Tap With Service Saddle
6" C.I. or D.I.	Tap With Service Saddle
8" A.C.	Tap With Service Saddle
8" C.I. or D.I.	Tap With Service Saddle
8" PVC	Tap With Service Saddle
10" A.C.	Tap With Service Saddle
10" C.I. or D.I.	Tap With Service Saddle
10" PVC	Tap With Service Saddle
12" A.C.	Tap With Service Saddle
12" C.I. or D.I.	Tap With Service Saddle
12" PVC	Tap With Service Saddle
16" A.C.	Tap With Service Saddle
16" C.I. or D.I.	Tap With Service Saddle



1" SERVICE TAPPED TEE FOR SAMPLE STATION

NOTE:
1. No Direct Tap to Main, Saddle Required
2. Polyethylene Shall be 250 psi Rated - Color Blue
3. 2" HDPE Main Will Use FORD 2" CT's x 1" FIPT Tee (T441-77-NL)

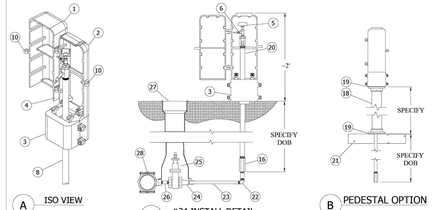
FOR PERFERED MANUFACTURERS SEE STANDARD SPECIFICATIONS

5. Tracer wire to be Installed and Taped in 8' Intervals from Main to Sample Station. See DET-828-01

East Central Utility Services — OUR QUALITY IS CLEAR

1" SERVICE INSTALLATION TAPPING SCHEDULE FOR SAMPLE STATIONS ONLY

APPROVED	REVISED
FEBRUARY 2025	
DET-824-Ø3	SHEET 1 OF 1



GENERAL SPECIFICATIONS	
MAXIMUM OPERATING PRESSURE:	
STATION MATERIALS:	303, 304, 316, & 18-8 STAINLESS STEEL, BUNA-N
ENCLOSURE MATERIAL: ENCLOSURE COLOR:	CAST 319 ALUMINUM BLUE
WETTED MATERIALS:	BUNA-N RUBBER, 303, 304, 316 & 18-8 STAINLESS STEEL
DEPTH OF BURY: WEIGHT:	SPECIFY ~35 LBS @ 3' DOB
ADDITIONAL PEDESTAL WEIGHT:	~38 LBS FOR 3' PEDESTAL
CUSTOM LOGO: NSF CERT.	

ITEM	DESCRIPTION	NOTES
1	88 FRONT DOOR (COVER A)	
2	88 REAR DOOR (COVER B)	
3	88 BASE	2 PIECES
4	1/2" UNTHREADED NOZZLE	
5	OPERATING HANDLE	
6	DRAIN HOSE BARB	
7	DRAIN CAP	
8	1" S.S. BARREL	
9	S.S. OPERATING ROD	NOT SHOWN
10	LOCKING HOLE	
11	VALVE CORE	NOTE 5
12	VALVE SEAT CARRIER	NOTE 5
13	OPERATING SCREW	NOTE 5
14	SEAT O-RING	NOTE 5

ITEM	DESCRIPTION	NOTES
15	WATER PATH	
16	VALVE BODY	
17	INLET HOLES	
18	PEDESTAL	
19	PEDESTAL GASKET	
20	PACKING NUT	
21	CONCRETE	
22	3/4" S.S. ELBOW	
23	3/4" S.S. PIPE	AS REQ
24	BRASS BUSHING	2" x [illegible]
25	2" GATE VALVE W/ OPP NUT	
26	2" x 3" NIPPLE	BRASS
27	VALVE BOX	
28	SADDLE CLAMP	2" THREAD

Sampling Station shall be ____ ' bury, with a 1" FIP inlet, and 1/2" unthreaded blow off and sampling bibb.

Station shall be enclosed in a lockable, cast aluminum box with hinged openings.

When open, the station shall require no key for operation, and all water flow shall pass thru an all stainless steel waterway. All operational components shall be of stainless steel and serviceable / replaceable from above ground with no digging or excavation needed.

The operating screw shall be located underground and inside of the valve body. The operating screw, when turned via the handle, shall raise and lower a valve seat carrier, for controlling the flow of water through the hydrant. The station shall utilize an o-ring for sealing of the valve core to valve seat carrier to shut off the flow of water. The operating rod shall be supported on both ends, via the packing nut and the valve seat carrier to prevent the station from vibrating/pulsing under high pressures and to ensure a smooth sample stream.

When open, the water shall flow through the 6 openings of the valve seat carrier, up and around the valve core, up the stand pipe and out through the nozzle.

The operating rod shall be hollow. A secondary drain port shall be located on the hollow operating rod, underneath the handle and when open shall allow for evacuation of any water remaining inside the station, via pump or compressed air blow off, to prevent freezing.

The station shall be model #24 as manufactured by Kupferle Water Solutions, St. Louis MO. 63102 or approved equal.

Notes:
1.) The color shall be blue, check with the manufacturer for color options, and specify accordingly.
2.) When installed on or with concrete, Kupferle recommends the use of a gasket or barrier between the enclosure/pedestal and the concrete surface, when purchasing the station, if concrete install is specified on the order Kupferle will provide said gasket. the enclosure clamp on the bottom of the enclosure base will fit inside a 4" pvc pipe.
3.) Prolonged exposure to strong chlorides which can be present in concrete, cleaning agents, and sometime even potable water can lead to possible enclosure corrosion. regular maintenance and drying the station after use are the best methods for optimal station longevity.
4.) In corrosive solids the buried pipe should be prepped for additional resistance to corrosion. Kupferle recommends spraying all underground piping and fittings with bituminous spray tar, allowing proper time to dry, and then wrapping the parts.

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#24 SAMPLING STATION SPEC SHEET

APPROVED	REVISED
FEBRUARY 2025	
DET-824-Ø4	SHEET 1 OF 1

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FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS — OMAR A. ESPINOSA — 125560 — LICENSED PROFESSIONAL ENGINEER

NORTHLAKE PHASE 3
PLAT 25-11800055

BEXAR COUNTY
TEXAS

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

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	JANUARY 2025	SJ	SC

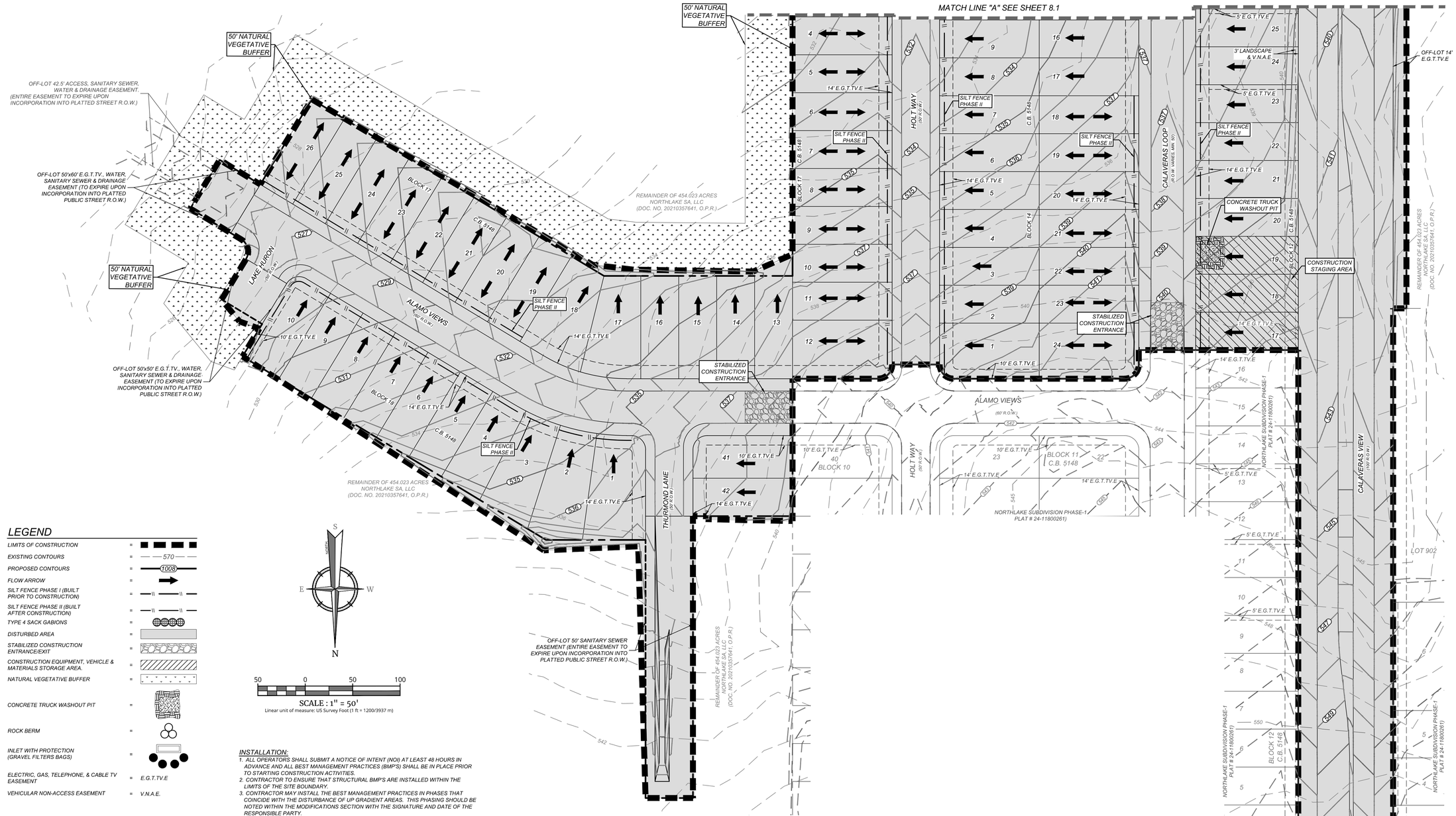
PROJECT NUMBER: 314-65-04
DRAWING NAME: DTOW3146504

SHEET TITLE: WATER DETAILS (3 OF 3)

SHEET NUMBER: 7.5

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

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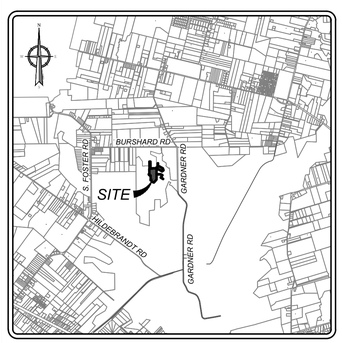
LEGEND

LIMITS OF CONSTRUCTION	=	
EXISTING CONTOURS	=	570
PROPOSED CONTOURS	=	1008
FLOW ARROW	=	
SILT FENCE PHASE I (BUILT PRIOR TO CONSTRUCTION)	=	
SILT FENCE PHASE II (BUILT AFTER CONSTRUCTION)	=	
TYPE 4 SACK GABIONS	=	
DISTURBED AREA	=	
STABILIZED CONSTRUCTION ENTRANCE/EXIT	=	
CONSTRUCTION EQUIPMENT, VEHICLE & MATERIALS STORAGE AREA.	=	
NATURAL VEGETATIVE BUFFER	=	
CONCRETE TRUCK WASHOUT PIT	=	
ROCK BERM	=	
INLET WITH PROTECTION (GRAVEL FILTERS BAGS)	=	
ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E.G.T.TV.E
VEHICULAR NON-ACCESS EASEMENT	=	V.N.A.E.

50 0 50 100

SCALE : 1" = 50'

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



LOCATION MAP

SCALE: NOT-TO-SCALE

INSTALLATION:

1. ALL OPERATORS SHALL SUBMIT A NOTICE OF INTENT (NOI) AT LEAST 48 HOURS IN ADVANCE AND ALL BEST MANAGEMENT PRACTICES (BMP'S) SHALL BE IN PLACE PRIOR TO STARTING CONSTRUCTION ACTIVITIES.
2. CONTRACTOR TO ENSURE THAT STRUCTURAL BMP'S ARE INSTALLED WITHIN THE LIMITS OF THE SITE BOUNDARY.
3. CONTRACTOR MAY INSTALL THE BEST MANAGEMENT PRACTICES IN PHASES THAT COINCIDE WITH THE DISTURBANCE OF UP GRADIENT AREAS. THIS PHASING SHOULD BE NOTED WITHIN THE MODIFICATIONS SECTION WITH THE SIGNATURE AND DATE OF THE RESPONSIBLE PARTY.
4. CONTRACTOR TO VERIFY SUFFICIENT VEGETATION IN AREAS DENOTED AS VEGETATED FILTER STRIP. IF INSUFFICIENT VEGETATION EXISTS, CONTRACTOR SHALL IMPLEMENT A DIFFERENT BEST MANAGEMENT PRACTICE AND WILL SHOW IT ON THIS PLAN WITH NOTATION IN THE MODIFICATIONS SECTION WITH THE SIGNATURE AND DATE OF THE RESPONSIBLE PARTY.

MAINTENANCE AND INSPECTION:

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3. LOCATION OF CONSTRUCTION ENTRANCE/EXIT, CONCRETE WASHOUT PIT, AND EQUIPMENT AND STORAGE ARE TO BE FIELD DETERMINED. LOCATIONS SHALL BE UPDATED ON THIS PLAN.

GENERAL:

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COORDINATION NOTE:

1. CONTACT TIME WARNER TO COORDINATE CABLE TV SERVICE. (210) 344-0500
2. CONDUIT FOR ELECTRICAL SERVICE. CONFIRM REQUIREMENTS AND COORDINATE WITH CPS FOR INSPECTION. (210) 353-2246.
3. CONTACT AT&T TO COORDINATE TELEPHONE SERVICE. 1-800-449-7928.
4. CONTRACTOR TO COORDINATE WITH CPS PRIOR TO CONSTRUCTION TO PLAN ELECTRIC SERVICE.
5. CONTRACTOR TO COORDINATE WITH SAWS TO PLAN WATER AND SANITARY SEWER SERVICES (210) 704-7297.
6. CONTRACTOR SHALL CONTACT 1-800-DIG-TESS A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION.

SW3P MODIFICATIONS

DATE	SIGNATURE	DESCRIPTION

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125560
LICENSED
PROFESSIONAL ENGINEER

NORTHLAKE PHASE 3
PLAT 25-11800055

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AS SHOWN	JANUARY 2025	SJ	SC

PROJECT NUMBER: 314-65-04

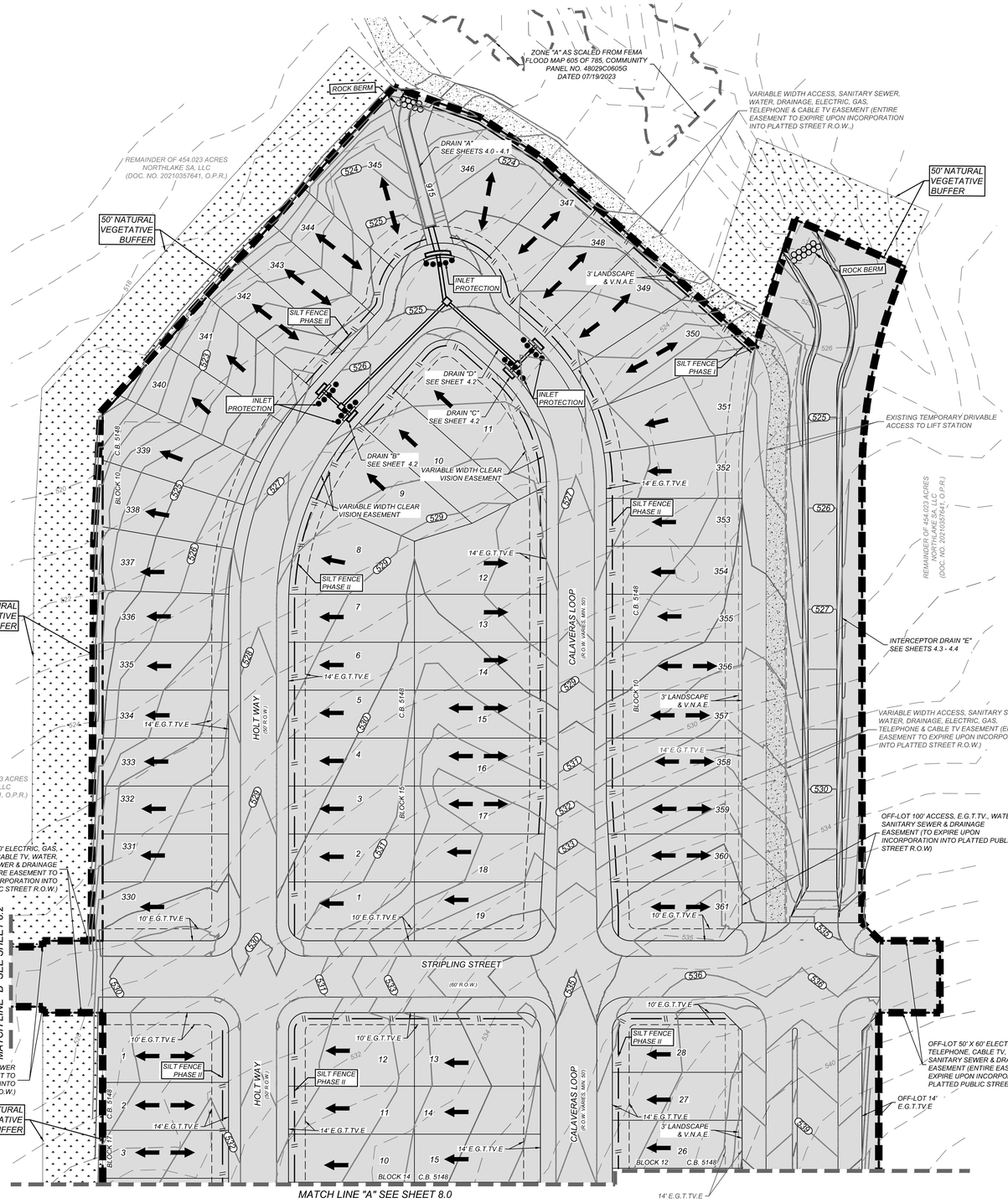
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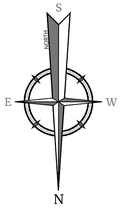
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SHEET NUMBER: 8.0

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

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50 0 50 100

SCALE : 1" = 50'

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



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LEGEND

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TYPE 4 SACK GABIONS	=	
DISTURBED AREA	=	
STABILIZED CONSTRUCTION ENTRANCE/EXIT	=	
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SW3P MODIFICATIONS

DATE	SIGNATURE	DESCRIPTION

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STATE OF TEXAS
OMAR A. ESPINOSA
125560
LICENSED PROFESSIONAL ENGINEER

NORTHLAKE PHASE 3
PLAT 25-11800055

BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
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Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194500

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	JANUARY 2025	SJ	SC

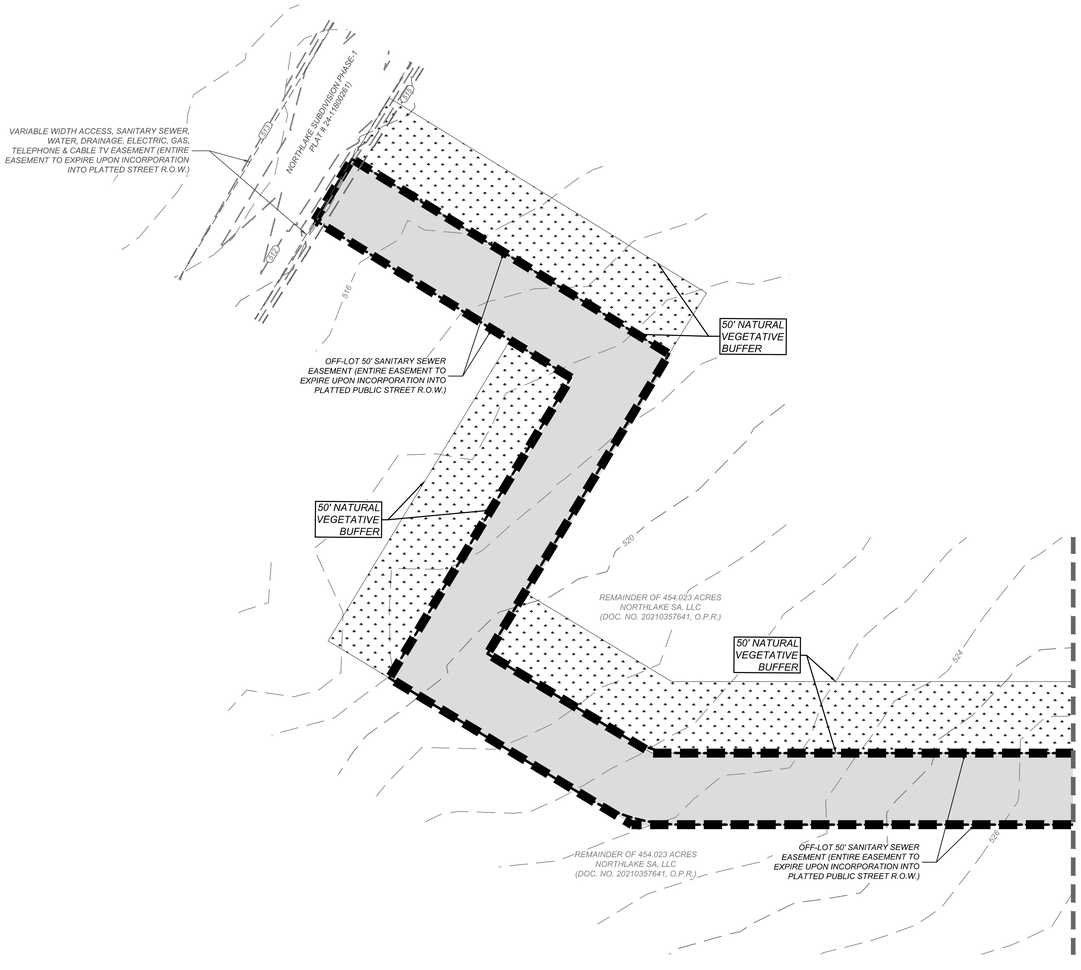
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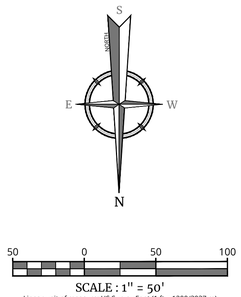
SHEET TITLE:
STORMWATER POLLUTION PREVENTION PLAN (2 OF 3)

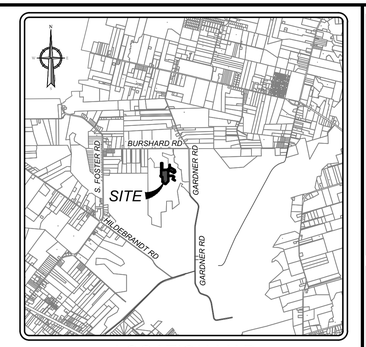
SHEET NUMBER:
8.1

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

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LOCATION MAP

SCALE: NOT-TO-SCALE

LEGEND

LIMITS OF CONSTRUCTION	=	
EXISTING CONTOURS	=	570
PROPOSED CONTOURS	=	1008
FLOW ARROW	=	
SILT FENCE PHASE I (BUILT PRIOR TO CONSTRUCTION)	=	
SILT FENCE PHASE II (BUILT AFTER CONSTRUCTION)	=	
TYPE 4 SACK GABIONS	=	
DISTURBED AREA	=	
STABILIZED CONSTRUCTION ENTRANCE/EXIT	=	
CONSTRUCTION EQUIPMENT, VEHICLE & MATERIALS STORAGE AREA.	=	
NATURAL VEGETATIVE BUFFER	=	
CONCRETE TRUCK WASHOUT PIT	=	
ROCK BERM	=	
INLET WITH PROTECTION (GRAVEL FILTERS BAGS)	=	
ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E.G.T.TV.E

INSTALLATION:

1. ALL OPERATORS SHALL SUBMIT A NOTICE OF INTENT (NOI) AT LEAST 48 HOURS IN ADVANCE AND ALL BEST MANAGEMENT PRACTICES (BMP'S) SHALL BE IN PLACE PRIOR TO STARTING CONSTRUCTION ACTIVITIES.
2. CONTRACTOR TO ENSURE THAT STRUCTURAL BMP'S ARE INSTALLED WITHIN THE LIMITS OF THE SITE BOUNDARY.
3. CONTRACTOR MAY INSTALL THE BEST MANAGEMENT PRACTICES IN PHASES THAT COINCIDE WITH THE DISTURBANCE OF UP GRADIENT AREAS. THIS PHASING SHOULD BE NOTED WITHIN THE MODIFICATIONS SECTION WITH THE SIGNATURE AND DATE OF THE RESPONSIBLE PARTY.
4. CONTRACTOR TO VERIFY SUFFICIENT VEGETATION IN AREAS DENOTED AS VEGETATED FILTER STRIP. IF INSUFFICIENT VEGETATION EXISTS, CONTRACTOR SHALL IMPLEMENT A DIFFERENT BEST MANAGEMENT PRACTICE AND WILL SHOW IT ON THIS PLAN WITH NOTATION IN THE MODIFICATIONS SECTION WITH THE SIGNATURE AND DATE OF THE RESPONSIBLE PARTY.

MAINTENANCE AND INSPECTION:

1. CONTRACTOR SHOULD LIMIT CONSTRUCTION ACTIVITIES TO ONLY THOSE AREAS SHOWN TO BE DISTURBED ON THIS PLAN. IF ADDITIONAL VEGETATED AREAS ARE DISTURBED, THEY SHOULD BE PROTECTED WITH APPROPRIATE BEST MANAGEMENT PRACTICES UNTIL THE AREAS HAVE BEEN STABILIZED AS PER THE SPECIFICATIONS OF THE SWPPP. THE AREAS OF THIS ADDITIONAL SOIL DISTURBANCE AND THE MEASURES USED SHOULD BE SHOWN ON THE SITE PLAN AND NOTED WITHIN THE MODIFICATIONS SECTION WITH THE SIGNATURE AND DATE OF THE RESPONSIBLE PARTY.
2. CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE AND INSPECTION OF BMP'S AS PER THE SPECIFICATIONS OF THE SWPPP. THE CONTRACTOR MAY MODIFY THE CONTROLS AS NECESSARY TO PREVENT SEDMENT RUNOFF. THESE MODIFICATIONS SHOULD BE SHOWN AND THE SITE PLAN AND NOTED WITHIN THE MODIFICATIONS SECTION WITH THE SIGNATURE AND DATE OF THE RESPONSIBLE PARTY.
3. LOCATION OF CONSTRUCTION ENTRANCE/EXIT, CONCRETE WASHOUT PIT, AND EQUIPMENT AND STORAGE ARE TO BE FIELD DETERMINED. LOCATIONS SHALL BE UPDATED ON THIS PLAN.

GENERAL:

1. THIS EXHIBIT IS TO BE USED FOR THE PURPOSES OF STORMWATER POLLUTION PREVENTION ONLY. ALL OTHER CIVIL ENGINEERING INFORMATION SHOULD BE OBTAINED FROM THE APPROPRIATE CONSTRUCTION DOCUMENTS.
2. THE PURPOSE OF THE SIGNATURE AND SEAL OF THE ENGINEER ON THIS DOCUMENT IS TO DEMONSTRATE COMPLIANCE WITH THE TPDES STORMWATER POLLUTION PREVENTION PLAN REGULATIONS ONLY.
3. ALL OWNERS/OPERATORS ARE RESPONSIBLE FOR FAMILIARIZING THEMSELVES WITH THE STORMWATER POLLUTION PREVENTION PLAN AND COMPLYING WITH THE REGULATIONS CONTAINED WITHIN IT.

PROJECT COMPLETION:

1. ALL DISTURBED AREAS ARES NOT COVERED BY IMPERVIOUS COVER ARE TO BE STABILIZED PER THE SWPPP AND PROJECT SPECIFICATIONS PRIOR TO REMOVAL OF ANY BMP'S AND/OR PRIOR TO FILING A NOTICE OF TERMINATION (NOT).
2. BEST MANAGEMENT PRACTICES MAY BE REMOVED IN PHASES IF ALL UPGRADIENT AREAS HAVE BEEN STABILIZED PER SWPPP AND PROJECT SPECIFICATIONS. THIS PHASING SHOULD BE NOTED WITHIN THE MODIFICATIONS SECTION WITH THE SIGNATURE AND DATE OF THE RESPONSIBLE PARTY.
3. CONTRACTOR TO ENSURE THEY HAVE MET ALL REQUIREMENTS OF THE SWPPP BEFORE FILING A NOTICE OF TERMINATION (NOT).

COORDINATION NOTE:

1. CONTACT TIME WARNER TO COORDINATE CABLE TV SERVICE. (210) 244-0500
2. CONDUIT FOR ELECTRICAL SERVICE. CONFIRM REQUIREMENTS AND COORDINATE WITH CPS FOR INSPECTION. (210) 353-2246.
3. CONTACT AT&T TO COORDINATE TELEPHONE SERVICE. 1-800-449-7928.
4. CONTRACTOR TO COORDINATE WITH CPS PRIOR TO CONSTRUCTION TO PLAN ELECTRIC SERVICE.
5. CONTRACTOR TO COORDINATE WITH SAWS TO PLAN WATER AND SANITARY SEWER SERVICES (210) 704-7297
6. CONTRACTOR SHALL CONTACT 1-800-DIG-TESS A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION.

SW3P MODIFICATIONS

DATE	SIGNATURE	DESCRIPTION

Colliers Engineering & Design

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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
OMAR A. ESPINOSA
125560
LICENSED PROFESSIONAL ENGINEER

NORTHLAKE PHASE 3
PLAT 25-11800055

BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
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COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	JANUARY 2025	SJ	SC

PROJECT NUMBER: 314-65-04
DRAWING NAME: SW3P3146504

SHEET TITLE: STORMWATER POLLUTION PREVENTION PLAN (3 OF 3)

SHEET NUMBER: 8.2

M:\SW3P\314650\4.dwg\8.2 By: ABEL MONTALVO

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.