HUNTER'S RIDGE SUBDIVISION, UNIT 5A

BEXAR COUNTY, TEXAS

STREET, DRAINAGE, WATER, SANITARY SEWER, AND UTILITY IMPROVEMENTS

GENERAL NOTES

1. ALL CONSTRUCTION SHALL CONFORM TO THE CITY OF SAN ANTONIO STANDARD SPECIFICATIONS FOR CONSTRUCTION JUNE 2008, OR LATEST.
2. NO EXTRA PAYMENT SHALL BE ALLOWED FOR WORK CALLED FOR ON THE PLANS, BUT NOT INCLUDED IN THE BID PROPOSAL. THIS INCIDENTAL WORK WILL BE REQUIRED AND SHALL BE INCLUDED IN THE PAY ITEM TO WHICH IT RELATES.
3. THE CONTRACTOR SHALL PROVIDE ACCESS FOR THE DELIVERY OF MAIL BY THE U.S. POSTAL SERVICE. 4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING TO ITS ORIGINAL OR BETTER CONDITION ANY DAMAGE DONE TO EXISTING FENCES, CONCRETE ISLANDS, STREET PAVING, CURBS, SHRUBS, BUSHES OR DRIVEWAYS. (NO SEPARATE PAY ITEM).
4. IT IS THE CONTRACTOR'S RESPONSIBILITY TO SEE THAT ALL SIGNS AND BARRICADES ARE PROPERLY INSTALLED AND MAINTAINED. ALL LOCATIONS AND DISTANCES WILL BE DECIDED UPON IN THE FIELD BY THE CONTRACTOR, USING THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES". THE CITY'S CONSTRUCTION INSPECTOR AND TRAFFIC ENGINEERING REPRESENTATIVE WILL ONLY BE RESPONSIBLE TO INSPECT BARRICADES AND SIGNS. IF, IN THE OPINION OF THE TRAFFIC ENGINEERING REPRESENTATIVE AND THE CONSTRUCTION INSPECTOR, THE BARRICADES AND SIGNS DO NOT CONFORM TO ESTABLISHED STANDARDS OR ARE INCORRECTLY PLACED OR ARE INSUFFICIENT IN QUANTITY TO PROTECT THE GENERAL PUBLIC, THE CONSTRUCTION INSPECTOR SHALL HAVE THE OPTION TO STOP OPERATIONS UNTIL SUCH TIME AS THE CONDITIONS ARE CORRECTED.
5. IF THE NEED ARISES, ADDITIONAL BARRICADES AND DIRECTIONAL DEVICES MAY BE ORDERED BY THE TRAFFIC ENGINEERING REPRESENTATIVE AT THE CONTRACTOR'S EXPENSE.
6. DUE TO FEDERAL REGULATIONS TITLE 49, PART 192.171 C.P.S. MUST MAINTAIN ACCESS TO GAS VALVES AT ALL TIMES. THE CONTRACTOR MUST PROTECT AND WORK AROUND ANY GAS VALVES THAT ARE IN THE PROJECT AREA.
7. CONTRACTOR SHALL NOTIFY THE CITY INSPECTOR TWENTY FOUR (24) HOURS PRIOR TO BACKFILL OF ANY UTILITY TRENCHES TO SCHEDULE FOR DENSITY TEST AS REQUIRED.
8. CONTRACTOR SHALL PRESERVE ALL CONSTRUCTION STAKES, MARKS, ETC. IF ANY ARE DESTROYED OR REMOVED BY THE CONTRACTOR OR HIS EMPLOYEES, THEY SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
9. CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES PRIOR TO CONSTRUCTION TO DETERMINE THE LOCATION OF EXISTING UTILITIES. CONTRACTOR SHALL NOTIFY THE FOLLOWING AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO EXCAVATION OPERATION:

SAN ANTONIO WATER SYSTEM (SAWS)	233-2010
BEXAR METROPOLITAN WATER DISTRICT (BEXAR MET)	354-6538 / 357-5741
COSA DRAINAGE	207-8048
COSA SIGNAL OPERATIONS	207-7720 / 207-7765
TEXAS STATE WIDE ONE CALL LOCATOR	1-800-344-8377
CITY PUBLIC SERVICE ENERGY - TIME WARNER - AT&T - MCI	

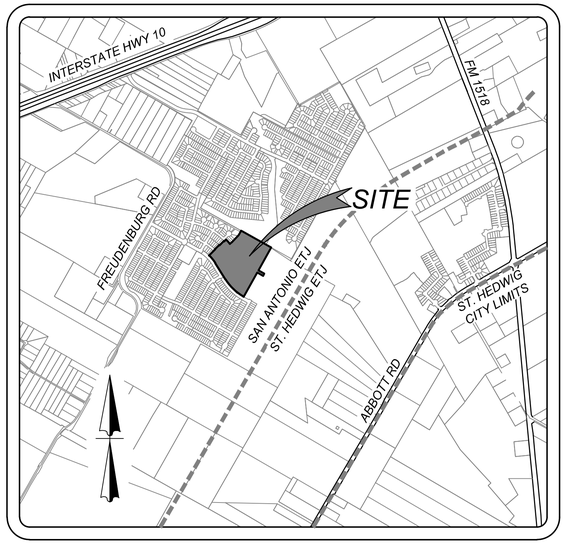
10. THE EXISTENCE AND LOCATION OF UNDERGROUND UTILITIES INDICATED ON THE PLANS ARE TAKEN FROM AVAILABLE RECORDS AND ARE NOT GUARANTEED, BUT SHALL BE INVESTIGATED AND VERIFIED BY THE CONTRACTOR BEFORE STARTING WORK. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY DAMAGE TO AND FOR THE MAINTENANCE AND PROTECTION OF THE EXISTING UTILITIES EVEN IF THEY ARE NOT SHOWN ON THE PLANS. LOCATION AND DEPTH OF EXISTING UTILITIES SHOWN HERE ARE APPROXIMATE ONLY. ACTUAL LOCATIONS AND DEPTHS MUST BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION AND HE SHALL BE RESPONSIBLE FOR PROTECTION OF SAME DURING CONSTRUCTION.
11. ALL WASTE MATERIAL SHALL BECOME PROPERTY OF THE CONTRACTOR AND SHALL BE HIS SOLE RESPONSIBILITY TO DISPOSE OF THIS MATERIAL OFF THE LIMITS OF THE PROJECT. NO WASTE MATE- RIAL SHALL BE PLACED IN EXISTING LOWS THAT WILL BLOCK OR ALTER FLOW LIMITS OF EXISTING ARTIFICIAL OR NATURAL DRAINAGE.
12. THE CONTRACTOR SHALL NOT PLACE ANY WASTE MATERIAL IN THE 100-YEAR FLOOD PLAIN WITHOUT FIRST OBTAINING AN APPROVED FLOOD PLAIN DEVELOPMENT PERMIT.
13. THE CONTRACTOR SHALL MAINTAIN ALL ADJOINING STREETS AND TRAVELED ROUTES FREE FROM SPILLED AND / OR TRACKED CONSTRUCTION MATERIALS AND / OR DEBRIS.
14. IF THE CONTRACTOR ENCOUNTERS ANY ARCHAEOLOGICAL DEPOSITS DURING CONSTRUCTION OPERATIONS, THE CONTRACTOR MUST STOP EXCAVATION IMMEDIATELY, CONTACT THE CITY INSPECTOR, AND CALL THE CITY HISTORIC PRESERVATION OFFICE AT 207-7306 OR 207-3327 FOR AN ARCHAEOLOGICAL INVESTIGATION. THE CONTRACTOR CANNOT BEGIN EXCAVATION AGAIN WITHOUT WRITTEN PERMISSION FROM THE CITY. IF MORE THAN THREE (3) DAYS ARE REQUIRED FOR INVESTIGATION (NOT INCLUDING HOLIDAY AND WEEKENDS) AND IF THE CONTRACTOR IS UNABLE TO WORK IN OTHER AREAS, THEN THE CONTRACTOR WILL BE ALLOWED TO NEGOTIATE FOR ADDITIONAL CONSTRUCTION TIME UPON WRITTEN REQUEST WITHIN TEN (10) DAYS AFTER THE FIRST NOTICE TO THE CITY OF ARCHAEOLOGICAL INVESTIGATION FOR EACH EVENT. IF THE TIME REQUIRED FOR INVESTIGATION IS LESS THAN OR EQUAL TO THREE (3) DAYS FOR EACH EVENT, CONTRACT DURATION WILL NOT BE EXTENDED.
15. IF SUSPECTED CONTAMINATION IS ENCOUNTERED DURING CONSTRUCTION OPERATIONS, C.O.S.A. SHALL BE NOTIFIED IMMEDIATELY WHEN CONTAMINATED SOILS AND / OR GROUNDWATER ARE ENCOUNTERED AT LOCATIONS NOT IDENTIFIED IN THE PLANS. THE NOTIFICATION SHOULD INCLUDE THE STATION NUMBER, TYPE OF CONTAMINATED MEDIA, EVIDENCE OF CONTAMINATION AND MEASURES TAKEN TO CONTAIN THE CONTAMINATED MEDIA AND PREVENT PUBLIC ACCESS. THE CONTAMINATED SOIL AND / OR GROUNDWATER SHALL NOT BE REMOVED FROM THE LOCATION WITHOUT PRIOR C.O.S.A. APPROVAL. THE CONTRACTOR MUST STOP THE EXCAVATION IMMEDIATELY AND CONTACT THE C.O.S.A. INSPECTOR. THE CONTRACTOR CANNOT BEGIN EXCAVATION ACTIVITIES WITHOUT WRITTEN PERMISSION FROM THE CITY.
16. CONTRACTOR IS TO INCLUDE A MAILBOX POST BLOCKOUT FOR VACANT LOTS AND ALL RESIDENCES WHICH DO NOT HAVE MAILBOXES AT THE CURB. BLOCKOUTS ARE PROVIDED FOR FUTURE USE BY THE POST OFFICE.
17. CONTRACTOR SHALL NOT REMOVE OR ADJUST ANY VIA FACILITIES. THE CONTRACTOR MUST CONTACT VIA FOURTEEN DAYS PRIOR, FOR THE REMOVAL OF BENCHES, STOP POLES OR ANY OTHER VIA FACILITIES THAT MAY BE PRESENT. PLEASE PROVIDE THIRTY DAYS PRIOR NOTICE FOR SHELTER REMOVAL (TELEPHONE NOS: (210) 362-2155 OR (210) 362-2096). THE CONTRACT- OR WILL BE LIABLE FOR ANY DAMAGES TO VIA FACILITIES NOT REMOVED BY VIA. THE CON- TRACTOR IS REQUIRED TO REPLACE ALL FLATWORK REMOVED OR DAMAGED IN THE COURSE OF EXECUTING THE CONTRACT UNLESS OTHERWISE NOTED BY VIA. THE CONTRACTOR WILL BE RESPONSIBLE FOR PROTECTING VIA FACILITIES IF ADJACENT TO WORK AREA.

TREE PROTECTION AND PRESERVATION GENERAL NOTES

1. NO UTILITY OR STREET EXCAVATION WORK SHALL BEGIN IN AREAS WHERE TREE PRESERVATION AND TREATMENT MEASURES HAVE NOT BEEN COMPLETED AND APPROVED.
2. TREE PROTECTION FENCING SHALL BE REQUIRED. TREE PROTECTION FENCING SHALL BE INSTALLED, MAINTAINED AND REPAIRED BY THE CONTRACTOR DURING SITE CONSTRUCTION. DURING CONSTRUCTION ACTIVITY, AT LEAST A SIX-INCH LAYER OF COARSE MULCH SHALL BE PLACED AND MAINTAINED OVER THE ROOT PROTECTION ZONE (NO SEPARATE PAY ITEM).
3. THE CONTRACTOR SHALL AVOID CUTTING ROOTS LARGER THAN ONE INCH IN DIAMETER WHEN EXCAVATING NEAR EXISTING TREES. EXCAVATION IN THE VICINITY OF TREES SHALL PROCEED WITH CAUTION. THE CONTRACTOR SHALL CONTACT THE CITY INSPECTOR FOR GUIDANCE.
4. ROOTS WILL BE CUT WITH A ROCK SAW OR BY HAND, NOT BY AN EXCAVATOR OR OTHER ROAD CONSTRUCTION EQUIPMENT.
5. ALL CURB AND SIDEWALK WORK SHALL USE ALTERNATIVE CONSTRUCTION METHODS TO MINIMIZE EXTENSIVE ROOT DAMAGE TO TREES (REFER TO DETAILS).
6. EXPOSED ROOTS SHALL BE COVERED AT THE END OF THE DAY USING TECHNIQUES SUCH AS COVERING WITH SOIL, MULCH, OR WET BURLAP.
7. NO EQUIPMENT, VEHICLES OR MATERIALS SHALL OPERATE OR BE STORED WITHIN THE ROOT PROTECTION ZONE OF ANY TREE NEAR THE PROJECT. ROOT PROTECTION ZONE IS 1 FOOT OF RADIUS PER INCH OF TREE'S DIAMETER. A 10-INCH DIAMETER TREE WOULD HAVE A 10 FOOT RADIUS ROOT PROTECTION ZONE AROUND THE TREE. ROOTS OR BRANCHES IN CONFLICT WITH THE CONSTRUCTION SHALL BE CUT CLEANLY ACCORDING TO PROPER PRUNING METHODS. OAK WOUNDS SHALL BE PAINTED OVER WITHIN 30 MINUTES TO PREVENT OAK WILT.
8. SAPLINGS, SHRUBS OR BUSHES TO BE CLEARED FROM THE PROTECTED ROOT ZONE AREA OF A LARGE TREE SHALL BE REMOVED BY HAND AS DESIGNATED BY THE INSPECTOR.
9. NO WIRES, NAILS OR OTHER MATERIAL MAY BE ATTACHED TO PROTECTED TREES.
10. TREES, TREE LIMBS, BUSHES AND SHRUBS LOCATED IN THE CITY STREET OR ALLEY RIGHT-OF-WAY OR PERMANENT EASEMENTS WHICH INTERFERE WITH PROPOSED CONSTRUCTION ACTIVITIES SHALL BE PROPERLY PRUNED FOLLOWING THE ANSI A-300 STANDARDS FOR PRUNING. ALL TREE PRUNING SHALL BE COMPLETED BY A CITY OF SAN ANTONIO TREE MAINTENANCE LICENSED CONTRACTOR (ARTICLE 21-171, CITY CODE) ONLY AFTER APPROVAL FROM THE CAPITAL PROJECTS MANAGEMENT THROUGH THE INSPECTOR.
11. NO EXCESSIVE TREE TRIMMING WILL BE PERMITTED.
12. ALL DEBRIS GENERATED BY THE PRUNING AND TRIMMING OF THE TREES AND / OR BUSHES SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF PROPERLY (NO SEPARATE PAY ITEM).
13. TREES MUST BE MAINTAINED IN GOOD HEALTH THROUGHOUT THE CONSTRUCTION PROCESS. MAINTENANCE MAY INCLUDE, BUT NOT LIMITED TO: WATERING THE ROOT PROTECTION ZONE, WASHING FOLIAGE, FERTILIZATION, PRUNING, ADDITIONAL MULCH APPLICATIONS AND OTHER MAINTENANCE AS NEEDED ON THE PROJECT.
14. ANY TREE REMOVAL SHALL BE APPROVED BY THE CITY ARBORIST. (207-0278).
15. TREES WHICH ARE DAMAGED OR LOST DUE TO THE CONTRACTOR'S NEGLIGENCE DURING CONSTRUCTION SHALL BE MITIGATED TO THE CITY'S SATISFACTION.
16. TREE PLANTING FOR MITIGATION OR ENHANCEMENT: ALL PLANTED TREES SHALL BE MAINTAINED IN A HEALTHY CONDITION AT ALL TIMES. THIS INCLUDES IRRIGATION, FERTILIZING, PRUNING AND OTHER MAINTENANCE AS NEEDED ON THE PROJECT. TREES THAT DIE WITHIN TWELVE (12) MONTHS SHALL BE REPLACED WITH A TREE OF EQUAL SIZE AND SPECIES.

ACCESSIBILITY REQUIREMENTS

1. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN VEHICULAR AND PEDESTRIAN ACCESS AT ALL TIMES TO LOCAL RESIDENCES AND BUSINESSES.
2. WHEN THE WORK REQUIRES THE EXCAVATION OF THE STREET AND THE REMOVAL OF THE EXISTING DRIVEWAY APPROACHES AND SIDEWALKS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING TEMPORARY ALL-WEATHER ACCESS TO THE BUSINESSES AND RESIDENCES. THE TEMPORARY DRIVEWAY APPROACHES SHALL BE CONSTRUCTED WITH FLEXIBLE BASE OR GRAVEL MATERIAL AT NO SEPARATE COST TO THE CITY.
3. PRIOR TO INITIATING THE CONSTRUCTION OF NEW DRIVEWAY APPROACHES, THE CONTRACTOR SHALL GIVE ADVANCE WARNING IN PERSON, OR IN WRITING, OF AT LEAST 48 HOURS TO EACH RESIDENCE THAT WILL BE IMMEDIATELY AFFECTED, SO THAT ALTERNATE PLANS MAY BE MADE BY THE RESIDENTS.
4. FOR BUSINESSES WITH MORE THAN ONE DRIVEWAY, AT LEAST ONE DRIVEWAY SHALL REMAIN OPEN WHILE THE OTHER NEW DRIVEWAY APPROACHES ARE CONSTRUCTED. FOR BUSINESSES WITH ONLY ONE DRIVEWAY, THE NEW DRIVEWAY APPROACH SHALL BE CONSTRUCTED IN HALF WIDTHS, UNLESS A TEMPORARY ASPHALT DRIVEWAY IS FIRST INSTALLED AT NO SEPARATE COST TO THE CITY.



LOCATION MAP
N.T.S

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DECEMBER 2009

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

CITY OF SAN ANTONIO
GENERAL NOTES

% SUBMITTAL PROJECT NO.:
DRAWN BY:_____ DSGN. BY:_____

OWNER/DEVELOPER:
FORESTAR (USA) REAL ESTATE GROUP, INC.
16500 SAN PEDRO AVE. STE. 400
SAN ANTONIO, TX 78232
PHONE: (512) 433-5231

STATE OF TEXAS
JEFFREY W. MARTIN
139094
LICENSED
PROFESSIONAL ENGINEER
8/13/24

KFW
ENGINEERS + SURVEYING
HAS JOINED COLLIERS ENGINEERING & DESIGN
3421 Paesanos Pkwy Suite 200, San Antonio, TX 78231
Phone #: (210) 979-8444 • Fax #: (210) 979-8441
TBPE Firm #: 9513 • TBPLS Firm #: 10122300

JOB NO. - 873-02-08

PLAT NO. : 22-11800743

SHEET 0.0

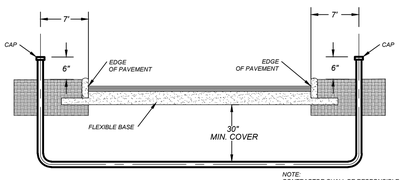
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DRY UTILITY CONDUIT NOTE:
CONDUIT LOCATIONS SHOWN ON PLAN ARE FOR GEOGRAPHICAL PURPOSES ONLY AND ARE APPROXIMATE. CONTRACTOR TO INSTALL PROPOSED CONDUITS IN ACCORDANCE WITH DRY UTILITY PURVEYOR'S SPECIFICATIONS. CONTRACTOR TO VERIFY THE CONDUIT LOCATIONS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

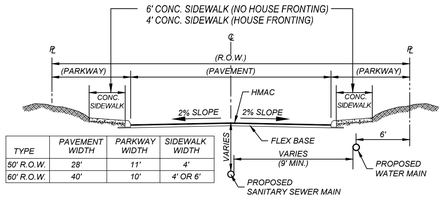
COMPACTION NOTE:
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TRENCH EXCAVATION SAFETY PROTECTION
CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION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



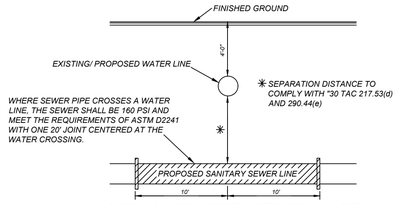
TYPICAL CONDUIT DETAIL
NOT-TO-SCALE

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. (SEPARATE ITEM) SEE THIS SHEET FOR CONDUIT CROSSING DETAIL AND SCHEDULE.



TYPE	PAVEMENT WIDTH	PARKWAY WIDTH	SIDEWALK WIDTH
50' R.O.W.	28'	11'	4'
60' R.O.W.	40'	10'	4' OR 6'

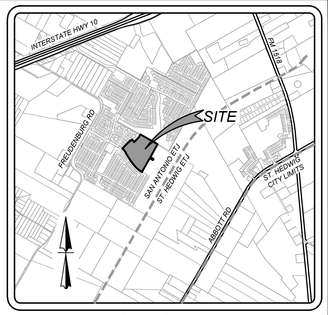
TYPICAL STREET SECTION
N.T.S.



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

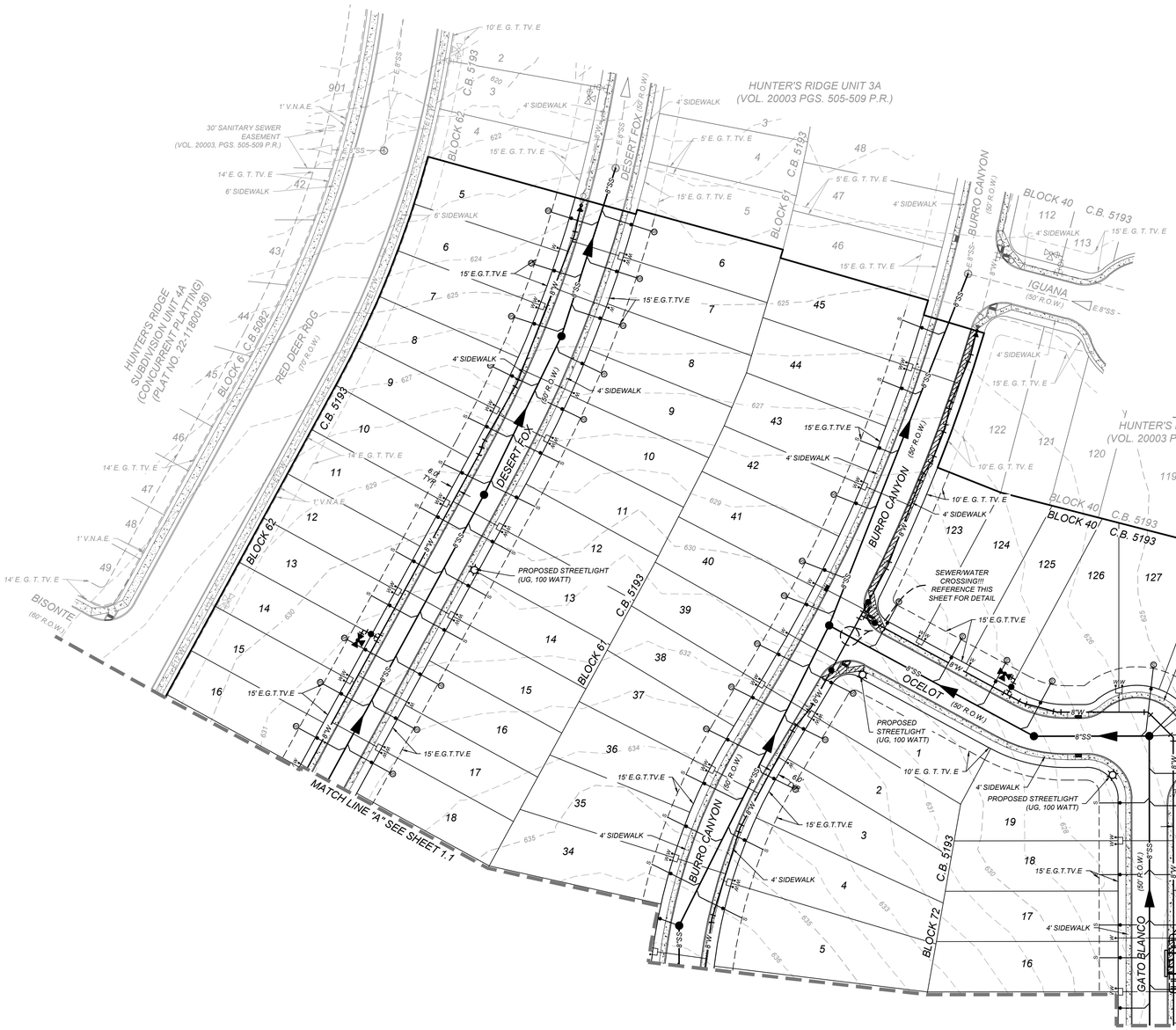
BEXAR COUNTY R.O.W. NOTE

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



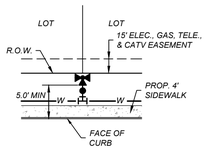
LOCATION MAP
N.T.S





LEGEND

PROPOSED WATER MAIN	=	W
PROPOSED WATER SERVICE & METER BOX	=	
PROPOSED WATER SERVICE & METER BOX WITH PRESSURE REDUCING VALVE	=	
PROPOSED WATER 3/4" IRRIGATION SERVICE & 5/8" METER BOX	=	WIRR
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED 100W STREETLIGHT	=	
PROPOSED 250W STREETLIGHT	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	
PROPOSED SANITARY SEWER LATERAL	=	
PROPOSED SANITARY SEWER LATERAL WITH VERTICAL STACK	=	
PROPOSED ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E. G. T. TV. E
PROPOSED 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 OVERHEAD ELECTRIC W/POWER POLE	=	OHE
EXISTING GUY WIRE/OVERHEAD ELECTRIC	=	OHE



TYPICAL FIRE HYDRANT DETAIL
NOT-TO-SCALE

KFW
ENGINEERS + SURVEYING
3421 Paesanos Pkwy, Suite 200, San Antonio, TX 78231
Phone: 210-979-8444 Fax: 210-979-8441
TBPE Firm # 3513 - TBPLS Firm # 10122300

ISSUE DATE

REVISIONS

STATE OF TEXAS
JEFFREY W. MARTIN
139094
LICENSED PROFESSIONAL ENGINEER
6/21/24

HUNTERS RIDGE SUBDIVISION, UNIT 5A
BEXAR COUNTY, TEXAS

OVERALL UTILITY PLAN (1 OF 2)

PLAT NO. 22-11800743

JOB NO. 873-02-08
DATE: APRIL 2023
DRAWN: RS CHECKED: TE

SHEET NUMBER:
1.0

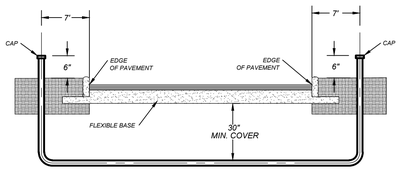
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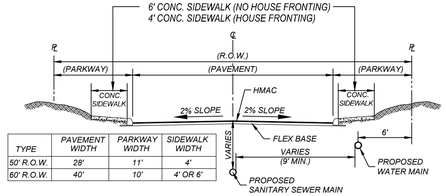
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THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING 98% COMPACTION ON ALL TRENCH BACKFILL AND PAYING FOR THE TESTS TO BE PERFORMED BY A THIRD PARTY. COMPACTION TESTS WILL BE DONE AT ONE LOCATION POINT RANDOMLY SELECTED OR AS INDICATED BY THE SAWS INSPECTOR/TEST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

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.



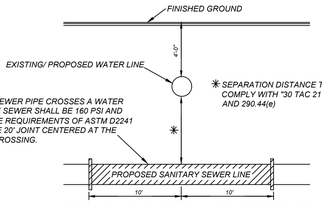
TYPICAL CONDUIT DETAIL
NOT-TO-SCALE

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. (SEPARATE ITEM) SEE THIS SHEET FOR CONDUIT CROSSING DETAIL AND SCHEDULE.



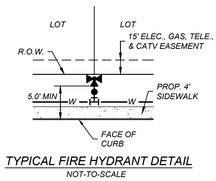
TYPE	PAVEMENT WIDTH	PARKWAY WIDTH	SIDEWALK WIDTH
50' R.O.W.	28'	11'	4'
60' R.O.W.	40'	10'	4' OR 6'

TYPICAL STREET SECTION
N.T.S.

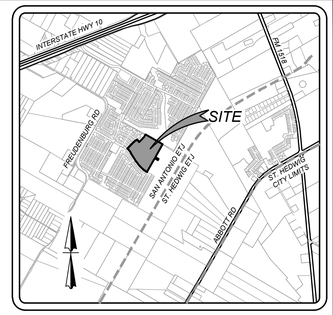


TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.

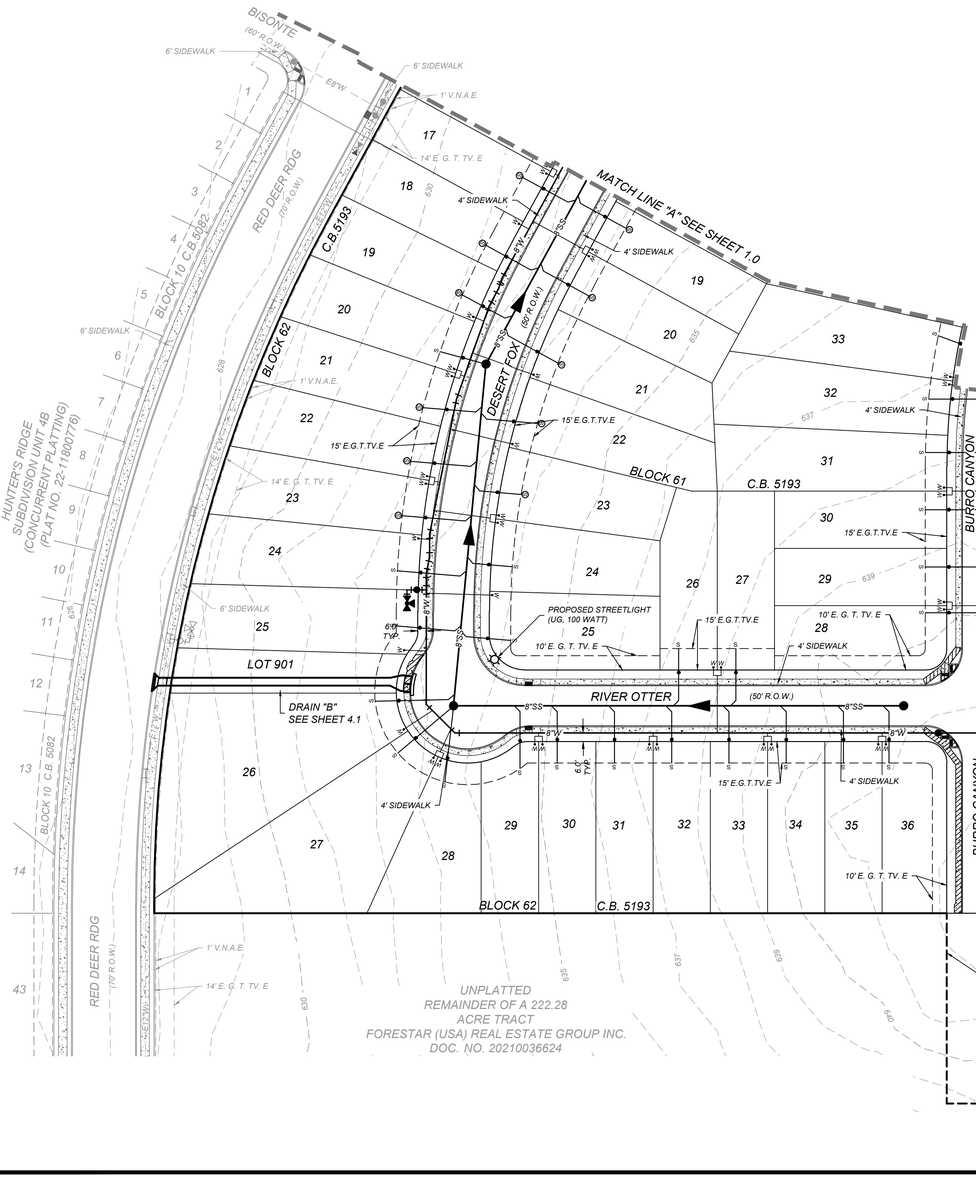
BEXAR COUNTY R.O.W. NOTE
A BEXAR COUNTY PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY R.O.W.



TYPICAL FIRE HYDRANT DETAIL
NOT-TO-SCALE



LOCATION MAP
N.T.S





LEGEND

PROPOSED WATER MAIN	=	W
PROPOSED WATER SERVICE & METER BOX	=	W
PROPOSED WATER SERVICE & METER BOX WITH PRESSURE REDUCING VALVE	=	W ✳
PROPOSED WATER 3/4" IRRIGATION SERVICE & 5/8" METER BOX	=	W/IR
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED 100W STREETLIGHT	=	
PROPOSED 250W STREETLIGHT	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	
PROPOSED SANITARY SEWER LATERAL	=	SS
PROPOSED SANITARY SEWER LATERAL WITH VERTICAL STACK	=	SS
PROPOSED ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E. G. T. TV. E
PROPOSED 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 OVERHEAD ELECTRIC W/POWER POLE	=	OHE
EXISTING GUY WIRE/OVERHEAD ELECTRIC	=	OHE

KFW
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3421 Paesanos Pkwy, Suite 200, San Antonio, TX 78231
Phone: 210-979-8444 Fax: 210-979-8441
TBPE Firm # 3513 - TBPLS Firm # 10122300

ISSUE DATE

REVISIONS

STATE OF TEXAS
JEFFREY W. MARTIN
139094
LICENSED
PROFESSIONAL ENGINEER
6/21/24

HUNTERS RIDGE SUBDIVISION, UNIT 5A
BEXAR COUNTY, TEXAS

OVERALL UTILITY PLAN (2 OF 2)

PLAT NO. 22-11800743

JOB NO. 873-02-08
DATE: APRIL 2023
DRAWN: RS CHECKED: TE

SHEET NUMBER:
1.1

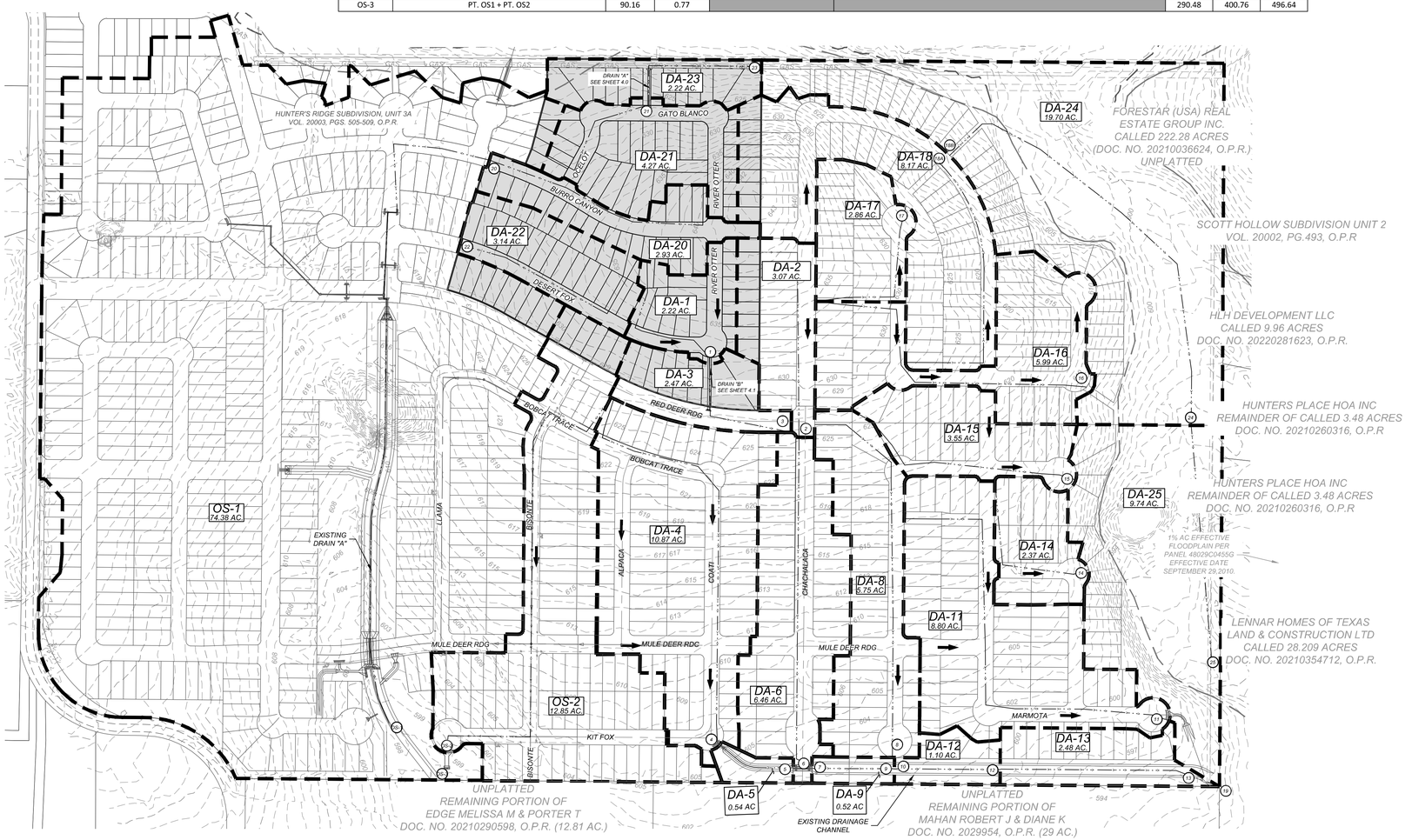
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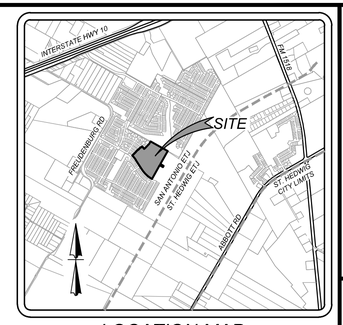
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ULTIMATE CONDITIONS

HYDROLOGY SUMMARY - RATIONAL METHOD

Study Point	Drainage Area	(Acres)	C	Tcarryover (min)	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)
1	DA-1	2.22	0.77		12.00	3.00	0.00	15.00	5.28	7.32	9.12	9.03	12.51	15.58
	DA-2	3.07	0.81											
2	PT.3 + DA2	7.76	0.77	CARRY OVER DA-3	0.00	16.00	0.00	16.00	5.10	7.07	8.79	30.56	42.33	52.67
	DA-3	2.47	0.77											
3	DA-1 + DA3	4.69	0.76	CARRY OVER DA-1	0.00	15.00	1.00	16.00	5.10	7.07	8.79	18.10	25.06	31.18
4	DA-4	10.87	0.73		17.00	3.00	2.00	22.00	4.33	5.98	7.41	34.54	47.67	59.11
	DA-5	0.54	0.70											
5	PT.4+ DA5	11.41	0.73	CARRY OVER DA-4	0.00	22.00	1.00	23.00	4.23	5.84	7.24	35.26	48.65	60.30
	DA-6	6.46	0.83											
6	PT.2 + DA6	14.22	0.79	CARRY OVER DA-2	0.00	16.00	3.00	19.00	4.66	6.45	8.00	52.59	72.70	90.26
7	PT.5 + PT.6	25.63	0.76	CARRY OVER DA-6	0.00	19.00	0.00	19.00	4.66	6.45	8.00	91.06	125.86	156.27
8	DA-8	5.75	0.77		12.00	4.00	1.00	17.00	4.94	6.84	8.50	21.88	30.28	37.64
	DA-9	0.52	0.76											
9	PT.7 + DA9	26.15	0.76	CARRY OVER DA-7	0.00	19.00	1.00	20.00	4.54	6.28	7.79	90.29	124.74	154.80
10	PT.8+PT.9	31.90	0.75	CARRY OVER DA-9	0.00	20.00	0.00	20.00	4.54	6.28	7.79	108.92	150.48	186.73
11	DA-11	8.80	0.77		12.00	4.00	2.00	18.00	4.80	6.63	8.24	32.50	44.95	55.84
	DA-12	1.10	0.77											
12	PT.10 + DA12	33.00	0.77	CARRY OVER DA-10	0.00	20.00	1.00	21.00	4.43	6.12	7.59	112.62	155.51	192.89
	DA-13	2.48	0.77											
13	PT.12 + DA13	35.48	0.77	CARRY OVER DA-12	0.00	21.00	2.00	23.00	4.23	5.84	7.24	115.64	159.56	197.77
14	DA-14	2.37	0.77		12.00	3.00	0.00	15.00	5.28	7.32	9.12	9.64	13.36	16.63
15	DA-15	3.55	0.77		12.00	2.00	1.00	15.00	5.28	7.32	9.12	14.43	20.01	24.92
16	DA-16	5.99	0.77		14.00	4.00	1.00	19.00	4.66	6.45	8.00	21.51	29.74	36.92
17	DA-17	2.86	0.77		14.00	3.00	0.00	17.00	4.94	6.84	8.50	10.88	15.06	18.72
18A	DA-18	8.17	0.77		14.00	7.00	0.00	21.00	4.43	6.12	7.59	27.88	38.50	47.75
18B	PT.17 PT-18A	11.03	0.77	CARRY OVER DA-18	0.00	21.00	1.00	22.00	4.33	5.98	7.41	36.77	50.75	62.92
19	PT.11 + PT.13 + PT.14 + PT.15 + PT.16 + PT.18B	67.22	0.74	CARRY OVER DA-13	0.00	23.00	0.00	23.00	4.23	5.84	7.24	209.42	288.96	358.15
20	DA-20	2.93	0.77		14.00	3.00	1.00	18.00	4.80	6.63	8.24	10.82	14.97	18.59
21	DA-21	4.27	0.77		17.00	0	0	17.00	4.94	6.84	8.50	16.25	22.48	27.95
22	DA-22	3.14	0.77		11.00	4	0	15.00	5.28	7.32	9.12	12.77	17.70	22.04
	DA-23	2.22	0.77											
23	DA-23 + PT.21	6.49	0.77	CARRY OVER DA-21	0.00	20	1	21.00	4.43	6.12	7.59	22.15	30.58	37.93
	DA-24	19.70	0.50											
24	DA-24 + PT.23	26.19	0.56	CARRY OVER DA-23	0.00	21	4	25.00	4.06	5.60	6.93	59.93	82.65	102.39
	DA-25	9.74	0.48											
25	DA-25 + PT.24	35.93	0.54	CARRY OVER DA-24	0.00	25	2	27.00	3.90	5.38	6.66	76.02	104.81	129.78
	OS-1	74.38	0.77											
OS-1	PT. 20 + OS-1	77.31	0.77		0.00	18	6	24.000	4.14	5.72	7.08	246.63	340.21	421.54
OS-2	OS-2	12.85	0.77		14.00	3	4	21.000	4.43	6.12	7.59	43.85	60.55	75.11
OS-3	PT. OS1 + PT. OS2	90.16	0.77									290.48	400.76	496.64





LOCATION MAP
N.T.S

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

LEGEND

= BOUNDARY

= PROPOSED DRAINAGE AREAS

= 1' CONTOURS

= PROPOSED FLOW PATH

= CURRENT UNIT OF PLATTING

KFW ENGINEERS + SURVEYING
3421 Paesanos Pkwy, Suite 200, San Antonio, TX 78231
Phone: 210.979.8444 Fax: 210.979.8441
TBPE Firm # 8513 • TBPLS Firm # 10122300

ISSUE DATE

REVISIONS

JEFFREY W. MARTIN
139094
LICENSED PROFESSIONAL ENGINEER
8/13/24

HUNTERS RIDGE SUBDIVISION, UNIT 5A
BEXAR COUNTY, TEXAS

MASTER DRAINAGE PLAN

PLAT NO.
22-11800743

JOB NO. 873-02-08
DATE: APRIL 2023
DRAWN: RS CHECKED: TE

SHEET NUMBER:
2.0

Date: Aug 09, 2024, 10:12am User ID: joshcocorias
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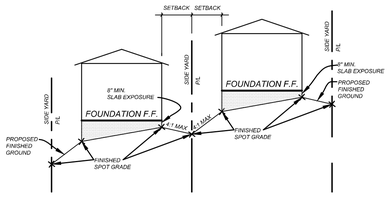
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COUNTY FINISHED FLOOR ELEVATION - RELATIVE TO FLOOD PLAIN:
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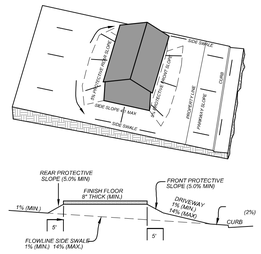
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GENERAL NOTES:

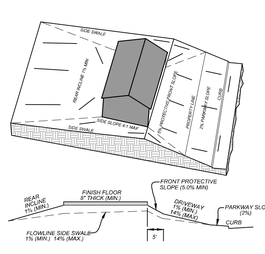
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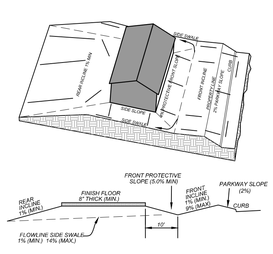
TYPICAL SIDE YARD GRADING
N.T.S.



TYPE 'A' LOT GRADING



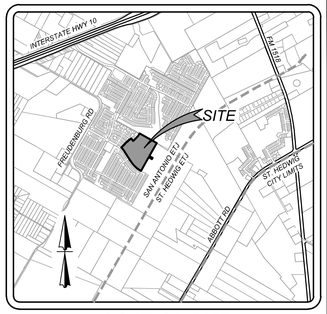
TYPE 'B' LOT GRADING



TYPE 'C' LOT GRADING

BEXAR COUNTY R.O.W. NOTE

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



LOCATION MAP
N.T.S



LEGEND

ELEC.,GAS, TELE. & CATV EASEMENT	=	*ELECTRIC, GAS, TELEPHONE, CABLE T.V. EASEMENT*
→	=	*FLOW ARROW*
(A)	=	*LOT GRADE TYPE*
H.P.	=	*HIGH POINT*
F.F. MIN= 598.0'	=	*FINISHED FLOOR MINIMUM ELEVATION AS REQUIRED PER FLOODPLAIN (SEE NOTE THIS SHEET)*
735	=	*EXISTING CONTOUR*
735	=	*PROPOSED CONTOUR*
735	=	*EXISTING CONTOUR*
+ 731.69	=	*SPOT ELEVATION*
	=	*RETAINING WALL (RETAINING WALL TO BE DESIGNED BY OTHERS)*



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PROFESSIONAL ENGINEER
8/13/24

HUNTERS RIDGE SUBDIVISION, UNIT 5A
BEXAR COUNTY, TEXAS

OVERALL GRADING PLAN

PLAT NO. 22-11800743

JOB NO. 873-02-08
DATE: APRIL 2023
DRAWN: RS CHECKED: TE

SHEET NUMBER:
3.0

Date: Aug 09, 2024, 2:59pm User ID: sophia.nissen
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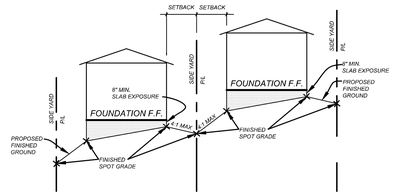
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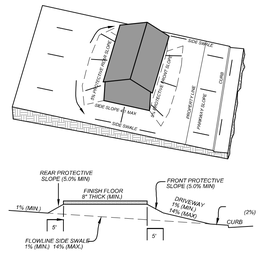
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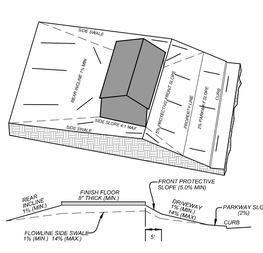
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9. *CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE ALL SWALES.*



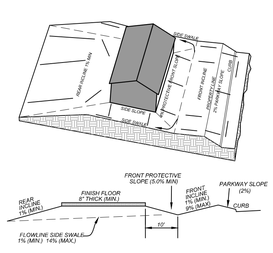
TYPICAL SIDE YARD GRADING
N.T.S.



TYPE 'A' LOT GRADING



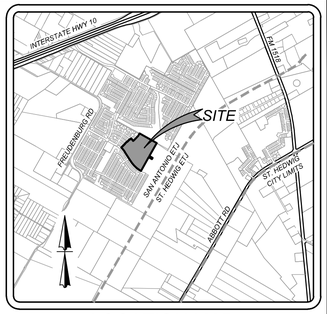
TYPE 'B' LOT GRADING



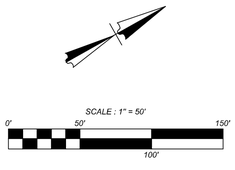
TYPE 'C' LOT GRADING

BEXAR COUNTY R.O.W. NOTE

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

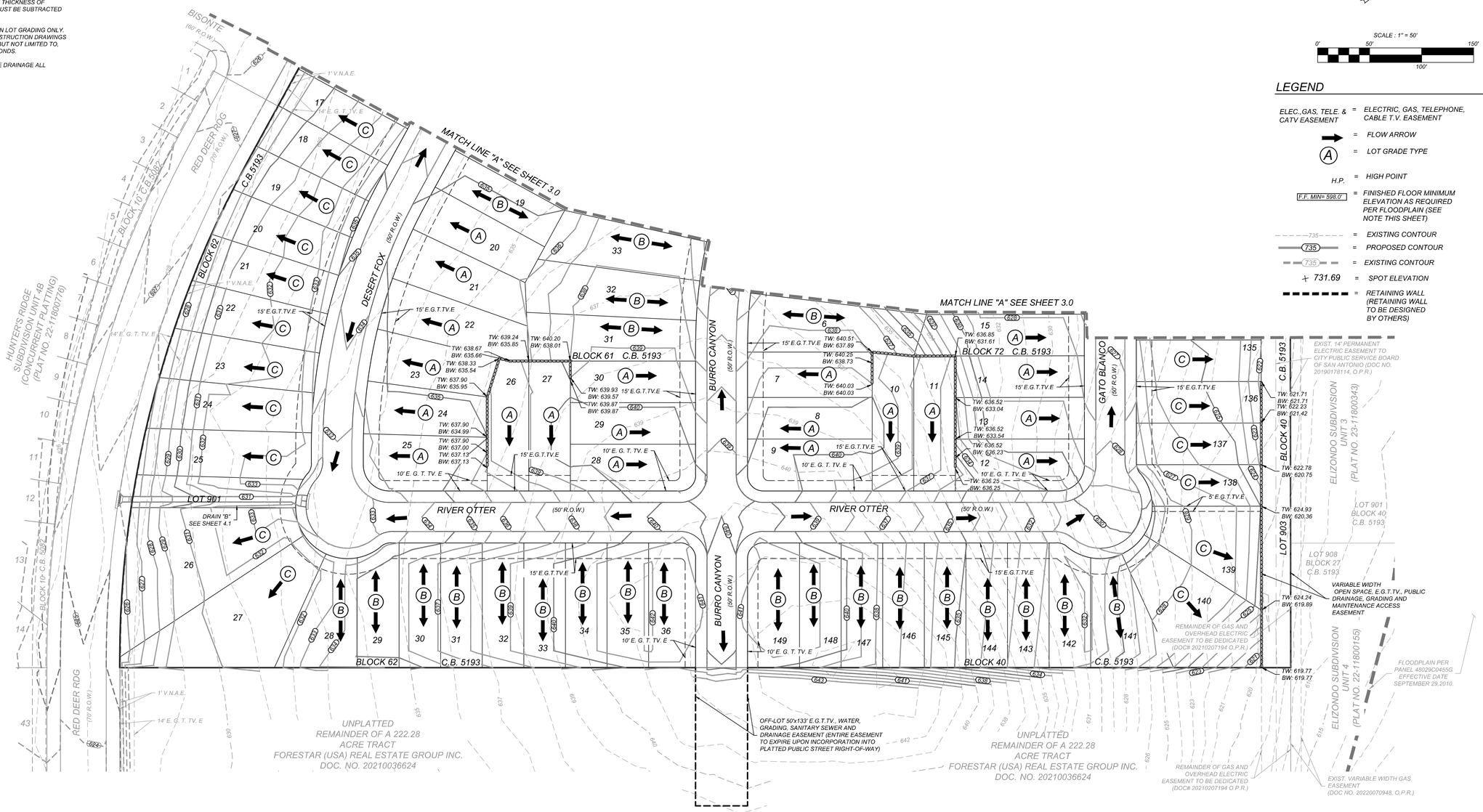


LOCATION MAP
N.T.S



LEGEND

ELEC, GAS, TELE & CATV EASEMENT	=	ELECTRIC, GAS, TELEPHONE, CABLE T.V. EASEMENT
→	=	FLOW ARROW
(A)	=	LOT GRADE TYPE
H.P.	=	HIGH POINT
F.F. MIN= 598.0'	=	FINISHED FLOOR MINIMUM ELEVATION AS REQUIRED PER FLOODPLAIN (SEE NOTE THIS SHEET)
735	=	EXISTING CONTOUR
735	=	PROPOSED CONTOUR
735	=	EXISTING CONTOUR
+ 731.69	=	SPOT ELEVATION
	=	RETAINING WALL (RETAINING WALL TO BE DESIGNED BY OTHERS)



KFW
ENGINEERS + SURVEYING
3421 Paesanos Pkwy, Suite 200, San Antonio, TX 78231
Phone: 210.979.8444 Fax: 210.979.8441
TBPE Firm # 8513 • TBPLS Firm # 10122300

ISSUE DATE

REVISIONS

STATE OF TEXAS
JEFFREY W. MARTIN
139094
LICENSED PROFESSIONAL ENGINEER
8/13/24

HUNTERS RIDGE SUBDIVISION, UNIT 5A
BEXAR COUNTY, TEXAS

OVERALL GRADING PLAN

PLAT NO. 22-11800743

JOB NO. 873-02-08
DATE: APRIL 2023
DRAWN: RS CHECKED: TE

SHEET NUMBER:
3.1

Date: Aug 12, 2024, 3:45pm User ID: sophia.nilssen
File: L:\873\02\08\Design\Civil\GRB\873080802.dwg

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

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.

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.

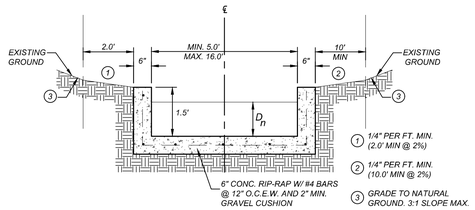
NOTE:

1. ALL CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 3000 PSI IN 28 DAYS.

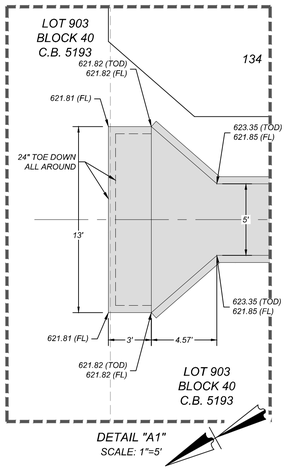
2. ANY DISTURBED AREAS WILL BE VEGETATED BY SEEDING OR SODDING. EIGHTY-FIVE PERCENT OF THE DISTURBED SURFACE AREA MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF SAN ANTONIO WILL ACCEPT.

BEXAR COUNTY R.O.W. NOTE:

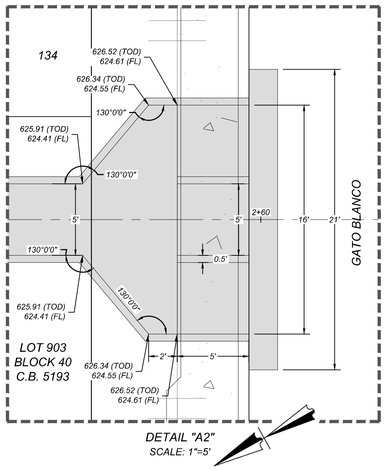
A BEXAR COUNTY PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY R.O.W.



SECTION "A1-A1"
STA. 1+31.00 - STA. 2+54.17
N.T.S.



DETAIL "A1"
SCALE: 1"=5'



DETAIL "A2"
SCALE: 1"=5'

CHANNEL LINING:

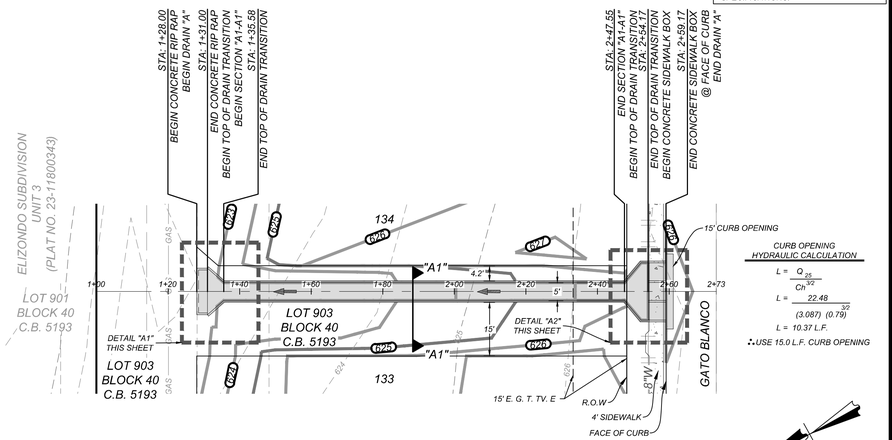
AREA'S EXCEEDING CITY OF SAN ANTONIO PERMISSIBLE SHEAR STRESS WILL BE REINFORCED WITH PROPOSED TURF REINFORCEMENT MAT (TRM) AS APPROVED BY CITY OF SAN ANTONIO STANDARD SPECIFICATIONS UNDER CONSTRUCTION ITEM 554.

NOTE:

1. ALL CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 3000 PSI IN 28 DAYS.

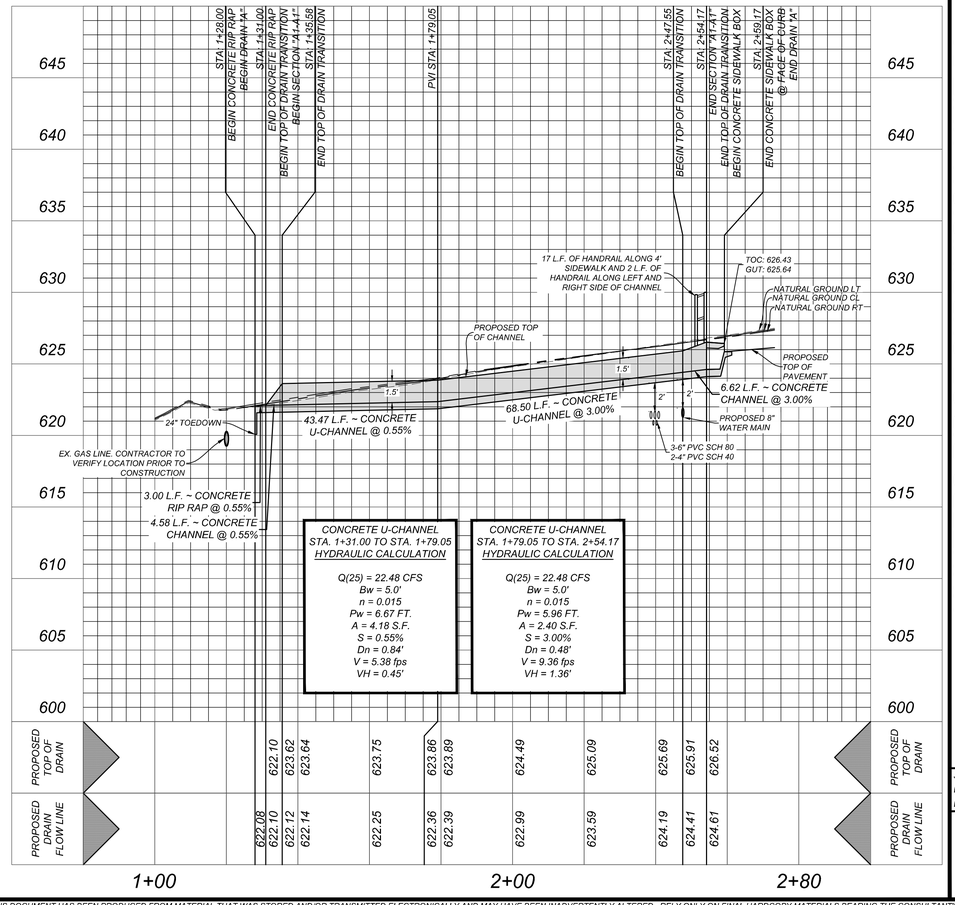
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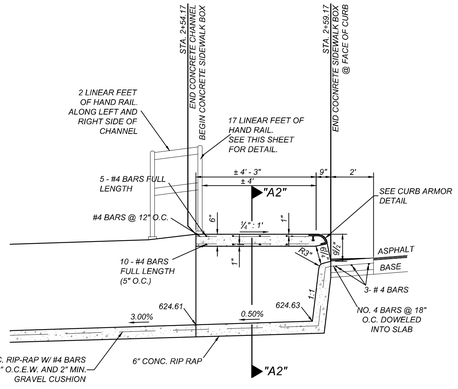
3. AT THE PRE-FINAL INSPECTION: THE ENGINEER MUST ISSUE CERTIFICATION TO THE CITY INSPECTOR THAT THE TURF REINFORCEMENT MAT (TRM) WAS INSTALLED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. THE CERTIFICATION MUST ALSO NOTE THAT THE MATERIAL AND INSTALLATION HAS MET CITY AND MANUFACTURER SPECIFICATIONS.



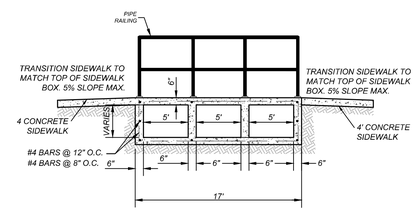
DRAIN "A"
STA. 1+28.00 TO END

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

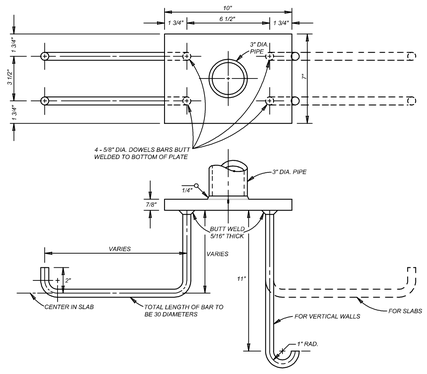




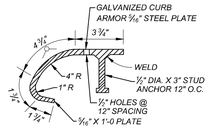
SIDEWALK BOX DETAIL
N.T.S.



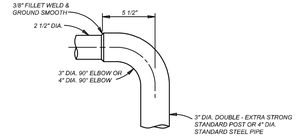
SECTION "A2-A2"
N.T.S.



PIPE ANCHORAGE DETAILS
N.T.S.

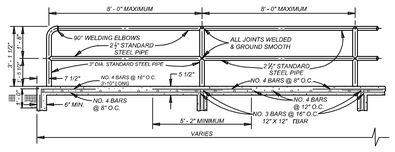


CURB ARMOR DETAIL
N.T.S.



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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KFW ENGINEERS + SURVEYING
9421 Pleasanta Pkwy, Suite 200, San Antonio, TX 78231
Phone: (210) 979-8444 • Fax: (210) 979-8441
TBPE Firm # 9513 • TBPLS Firm # 10122300

ISSUE DATE

REVISIONS

STATE OF TEXAS
JEFFREY W. MARTIN
139094
LICENSED PROFESSIONAL ENGINEER
10/3/24

HUNTERS RIDGE SUBDIVISION, UNIT 5A
BEXAR COUNTY, TEXAS
DRAIN "A" PLAN & PROFILE

PLAT NO. 22-11800743

JOB NO. 873-02-08
DATE: APRIL 2023
DRAWN: RS CHECKED: TE

SHEET NUMBER: 4.0

Date: Oct 03, 2024, 3:52pm User ID: joshcorcoran
File: L:\873\002\06\Design\Civil\Drains\[sht#873002806.dwg

TRENCH EXCAVATION SAFETY PROTECTION

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NOTE:

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BEXAR COUNTY R.O.W. NOTE:

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CHANNEL LINING:

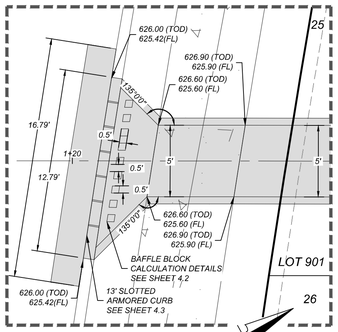
AREA'S EXCEEDING CITY OF SAN ANTONIO PERMISSIBLE SHEAR STRESS WILL BE REINFORCED WITH PROPOSED TURF REINFORCEMENT MAT (TRM) AS APPROVED BY CITY OF SAN ANTONIO STANDARD SPECIFICATIONS UNDER CONSTRUCTION ITEM 554.

NOTE:

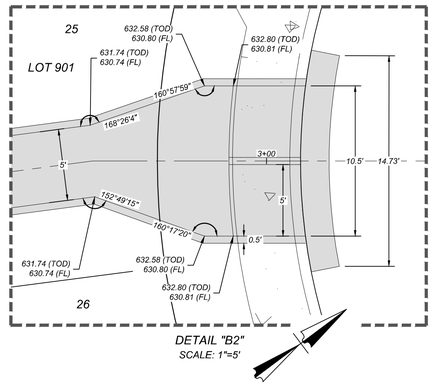
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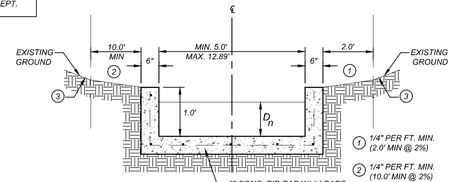
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DETAIL "B1"
SCALE: 1"=5'

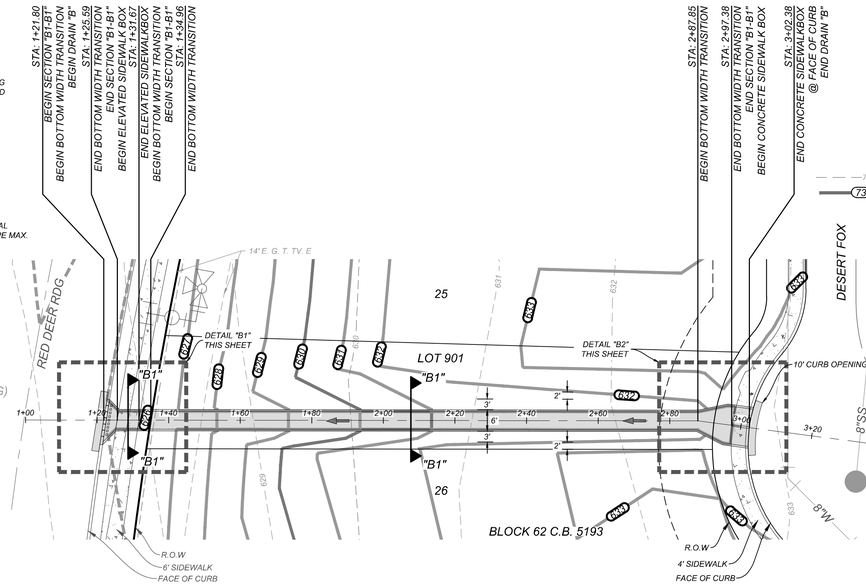


DETAIL "B2"
SCALE: 1"=5'



SECTION "B1-B1"
STA. 1+21.80 - STA. 1+25.59 &
STA. 1+31.67 - STA. 2+97.38
N.T.S.

HUNTER'S RIDGE
SUBDIVISION UNIT 4B
(CONCURRENT PLATTING)
(PLAT NO. 22-11800776)



LEGEND

735 = EXISTING CONTOUR
735 = PROPOSED CONTOUR
= FLOW ARROW

UPSTREAM CURB OPENING HYDRAULIC CALCULATION

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

$L = \frac{11.70}{(3.087)\ (0.79)^{3/2}}$

$L = 5.40$ L.F.

∴ USE 10.0 L.F. CURB OPENING

DOWNSTREAM CURB OPENING HYDRAULIC CALCULATION

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

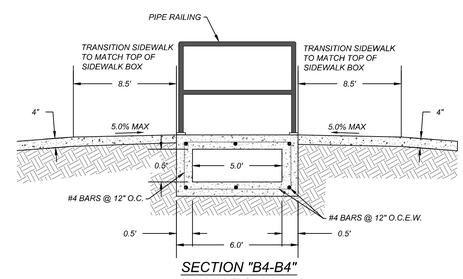
$L = \frac{11.70}{(3.087)\ (1.0)^{3/2}}$

$L = 3.79$ L.F.

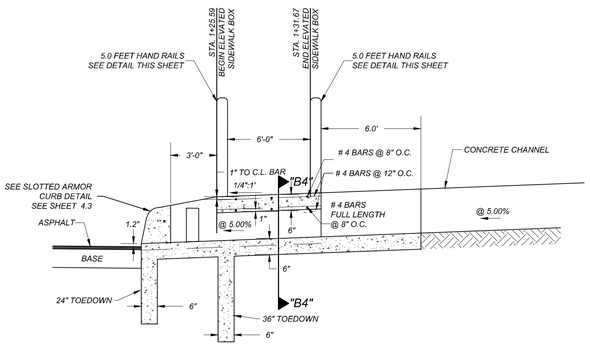
∴ USE 5.0 L.F. CURB OPENING

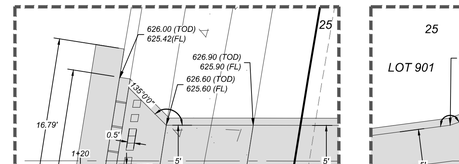
DRAIN "B"
STA. 1+00.00 TO END

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



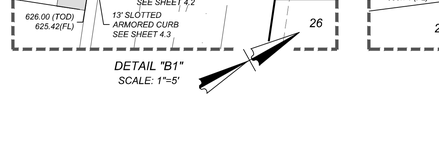
SECTION "B4-B4"
N.T.S.

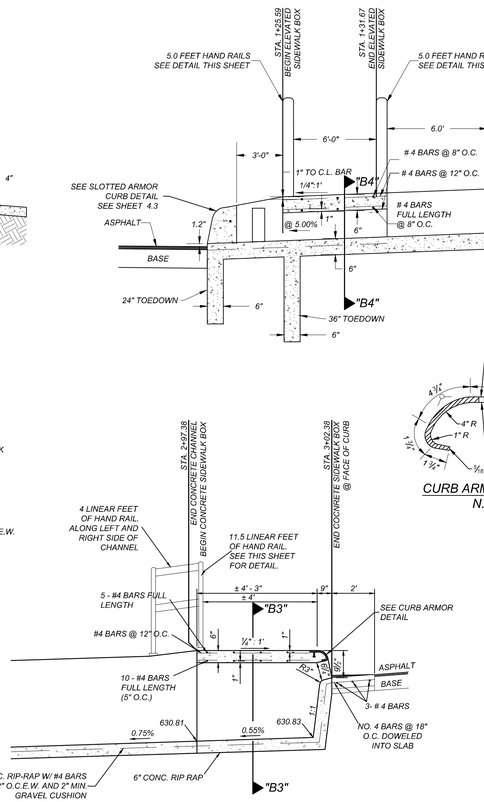




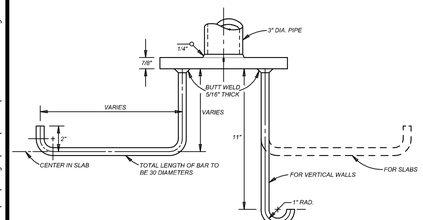
SECTION "B3-B3"
N.T.S.

CURB ARMOR DETAIL
N.T.S.

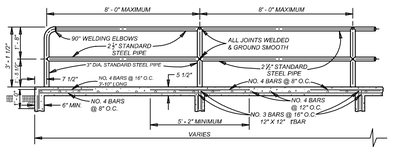




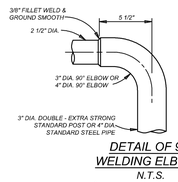
SIDEWALK BOX DETAIL
N.T.S.



PIPE ANCHORAGE DETAILS
N.T.S.

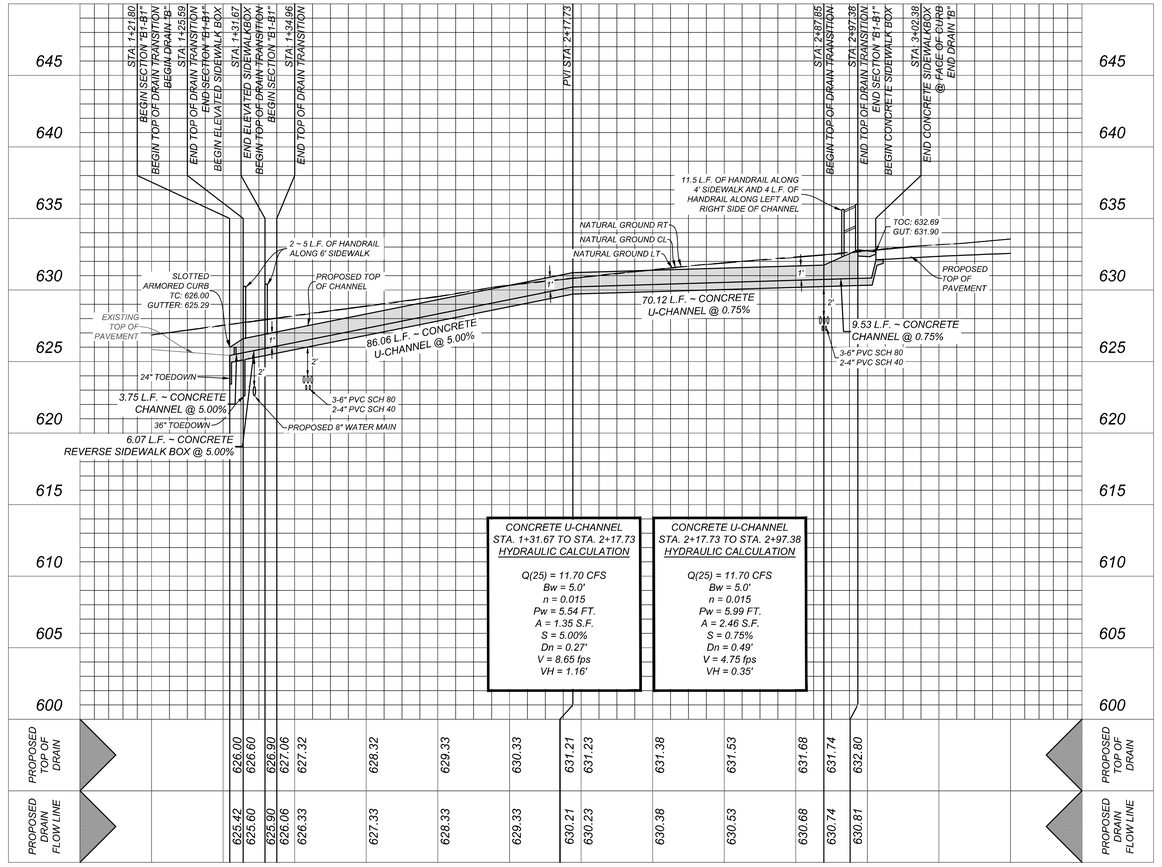


TYPICAL SIDEWALK BRIDGE & SIDEWALK PIPE RAILING SECTION
N.T.S.



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.



CONCRETE U-CHANNEL STA. 1+31.67 TO STA. 2+17.73 HYDRAULIC CALCULATION

Q(25) = 11.70 CFS
Bw = 5.0'
n = 0.015
Pw = 5.54 FT.
A = 1.35 S.F.
S = 5.00%
Dn = 0.27'
V = 8.65 fps
VH = 1.16'

CONCRETE U-CHANNEL STA. 2+17.73 TO STA. 2+97.38 HYDRAULIC CALCULATION

Q(25) = 11.70 CFS
Bw = 5.0'
n = 0.015
Pw = 5.99 FT.
A = 2.46 S.F.
S = 0.75%
Dn = 0.49'
V = 4.75 fps
VH = 0.35'

KFW ENGINEERS + SURVEYING
3421 Paesanos Pkwy, Suite 200, San Antonio, TX 78231
Ph: 210-979-8444 Fax: 210-979-8441
TBPE Firm #: 8513 - TBPLS Firm #: 10122300

ISSUE DATE

REVISIONS

STATE OF TEXAS
JEFFREY W. MARTIN
139094
LICENSED PROFESSIONAL ENGINEER
9/5/24

HUNTERS RIDGE SUBDIVISION, UNIT 5A
BEXAR COUNTY, TEXAS

DRAIN "B" PLAN & PROFILE

PLAT NO. 22-11800743

JOB NO. 873-02-08
DATE: APRIL 2023
DRAWN: RS CHECKED: TE

SHEET NUMBER: 4.1

Date: Sep 05, 2024, 5:36pm User ID: JmarVin
File: L:\873\02\08\Design Civil\Drains\[plat#873020843.dwg

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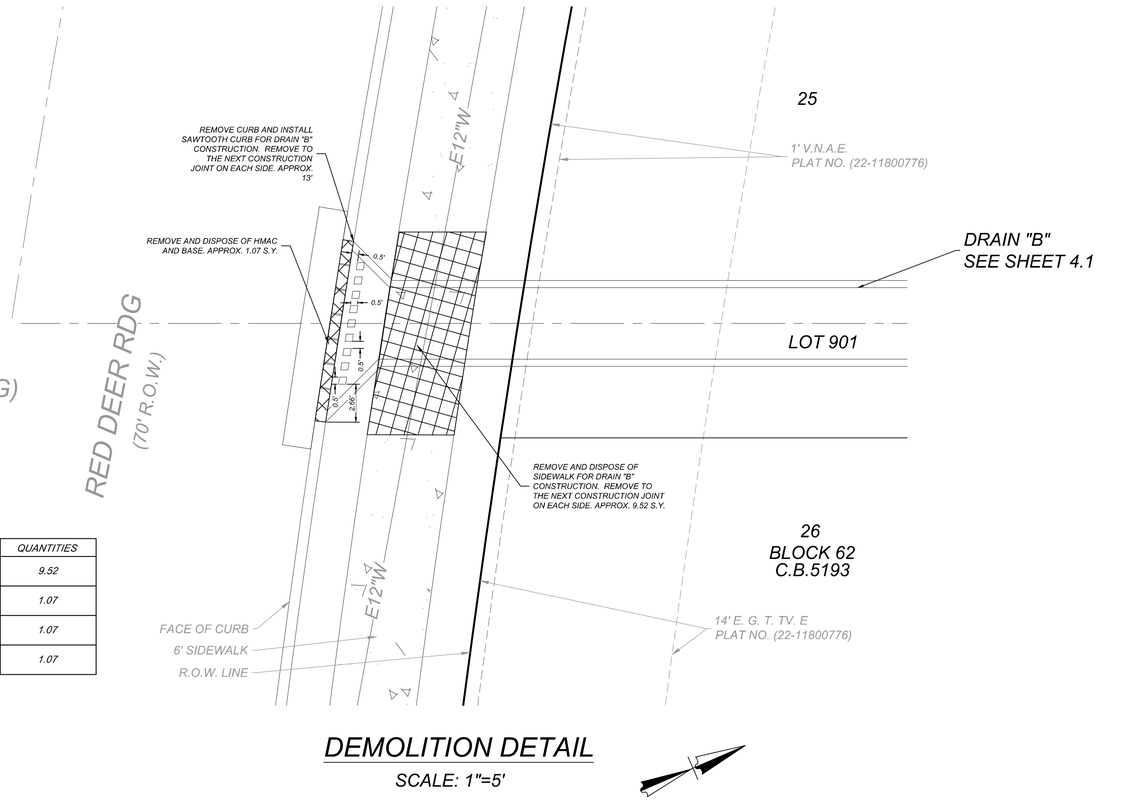
TRENCH EXCAVATION SAFETY PROTECTION

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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.



DEMOLITION DETAIL

SCALE: 1"=5'

MATERIAL	*UNITS*	*QUANTITIES*
6' SIDEWALK	*S.Y.*	*9.52*
1.5" HMAC TYPE "D"	*S.Y.*	*1.07*
2.5" HMAC TYPE "C"	*S.Y.*	*1.07*
21" FLEXBASE TYPE A	*S.Y.*	*1.07*

BAFFLE BLOCK CALCULATIONS
(ST. ANTHONY FALLS METHOD

Q25 = 11.70 CFS
BOTTOM WIDTH UPSTREAM = 5 FT
BOTTOM WIDTH DOWNSTREAM = 10.31 FT
Y1 = 0.27' (DEPTH BEFORE JUMP)
Y2 = 0.65' (DEPTH AFTER JUMP)

WIDTH OF BLOCKS = 0.75(Y1) = 0.20 FT. (USE 0.5 FT.)
SPACE BETWEEN BLOCKS = 0.75(Y1) = 0.20 FT. (USE 0.5 FT.)
HEIGHT OF BLOCKS = Y1 = 0.27 FT. (USE 0.5 FT.)
 # OF BLOCKS ACROSS BOTTOM = 2

*% OF FLOOR COVERED WITH BLOCKS = [9 (0.5 FT) / 10.31] * 100 = 43.65%*
(% MUST BE BETWEEN 40% AND 55%)

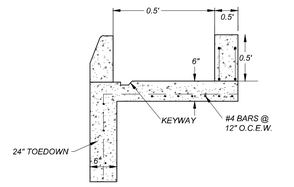
DEPTH OF TAILWATER (Y2)
FROUDE NUMBER BEFORE JUMP = F1 = 2.95
FROUDE NUMBER AFTER JUMP = F2 = 0.31

LENGTH OF BASIN = LB = 4.5(Y2)/F1^0.76 = 1.29 FT. (USE 3.8 FT.)

DISTANCE TO FLOOR BLOCKS = LB/3 = 0.43 FT (USE 0.5 FT.)

HEIGHT OF MAX TAILWATER DEPTH:
Z = Y2/3 = 0.22 FT.
*Y2' = 0.85 * Y2 = 0.55'*
H = Z + Y2' = 0.77 FT.

VELOCITY AFTER JUMP:
V = Q/A
*A = Y2 * BOTTOM WIDTH*
*A = 0.65 * 12.85 = 8.35 SQ. FT.*
V = 11.70 / 8.350 = 1.40 F.P.S.



TYPICAL BAFFLE BLOCK DETAIL
DRAIN "B"
N.T.S.

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3421 Paesanos Pkwy, Suite 200, San Antonio, TX 78231
Phone: 210.979.8444 Fax: 210.979.8441
TBPE Firm # 8513 • TBPLS Firm # 10122300

ISSUE DATE

REVISIONS

STATE OF TEXAS
JEFFREY W. MARTIN
139094
LICENSED
PROFESSIONAL ENGINEER
8/13/24

HUNTERS RIDGE SUBDIVISION, UNIT 5A
BEXAR COUNTY, TEXAS

DEMOLITION & DRAIN DETAILS

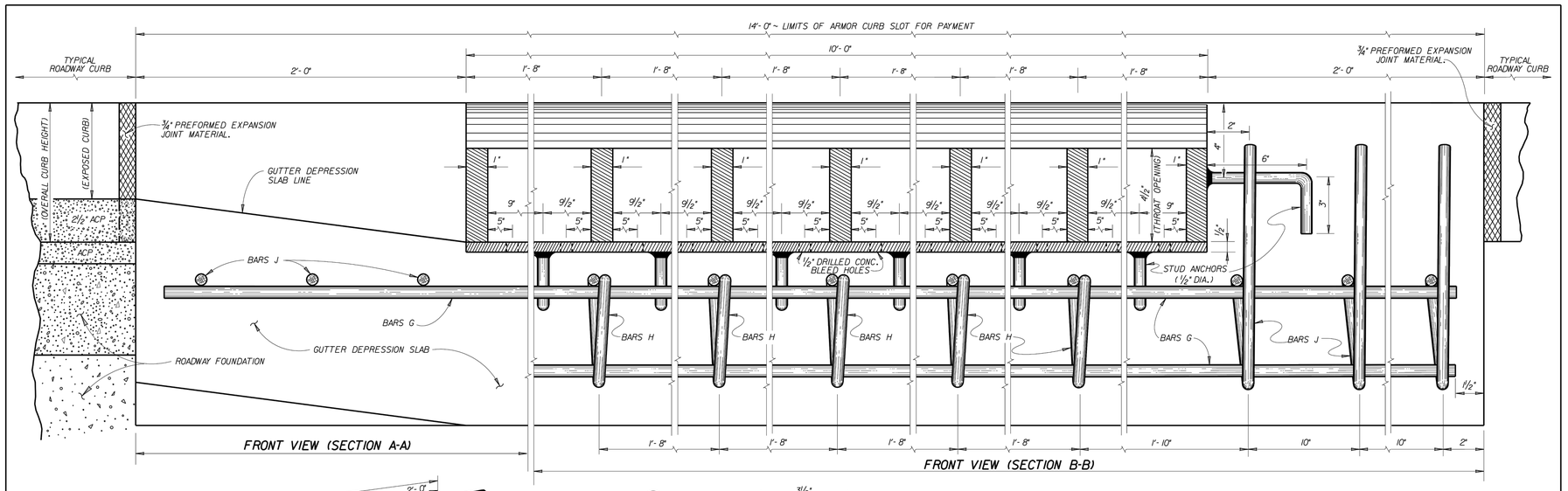
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JOB NO. 873-02-08
DATE: APRIL 2023
DRAWN: RS CHECKED: TE

SHEET NUMBER:
4.2

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ESTIMATED QUANTITIES
FOR REINFORCING STEEL & CONCRETE

BAR	NO.	SIZE	SPAC.	LENGTH	WEIGHT
G	7	#4	SHOWN	13'-9"	64
H	5	#4	1'-8"	4'-6"	15
J	6	#4	8"	5'-0"	20
TOTAL WEIGHT *				LBS.	99
CONCRETE FOR FOUNDATION *				C.Y.	0.47
CONCRETE FOR GUTTER DEPRESSION *				C.Y.	0.78

STRUCTURAL STEEL FOR ARMOR CURB SLOT		
STUD ANCHORS (½"DIA.)	LBS.	3.5
STEEL PLATE	LBS.	451
TOTAL WEIGHT *	LBS.	454.5

* FOR CONTRACTORS INFO ONLY.

GENERAL NOTES:

ALL CONCRETE SHALL BE CL."A".

ALL STEEL SHALL BE ASTM A36.

ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS.

ALL SIDES OF ARMOR CURB SLOT AND STUD ANCHORS SHALL BE ¼" FILLET WELDS.

ALL EXPOSED STRUCTURAL STEEL (ARMOR) SHALL BE GALVANIZED UNDER ITEM 445.

ALL EXPOSED EDGES ON ARMOR CURB SHALL RECEIVE A ⅛" BEVEL.

THE SHAPE OF THE TYPICAL ROADWAY CURB SHALL TRANSITION TO THE ARMOR CURB AS APPROVED BY THE ENGINEER.

ARMOR CURB SLOT
WITH CONCRETE FOUNDATION
SAN ANTONIO DISTRICT STANDARDS

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10/95
REV.07/01
REV.12/04

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

STRUCTURE DESIGN
/BRIDGE/STDS/ARMORCURB.DGN

KFW ENGINEERS + SURVEYING
3421 Paesanos Pkwy, Suite 200, San Antonio, TX 78231
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TBPE Firm #: 3513 • TBPLS Firm #: 10122300

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6/21/24

HUNTERS RIDGE SUBDIVISION, UNIT 5A
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SLOTTED ARMORED CURB DETAILS

PLAT NO. 22-11800743

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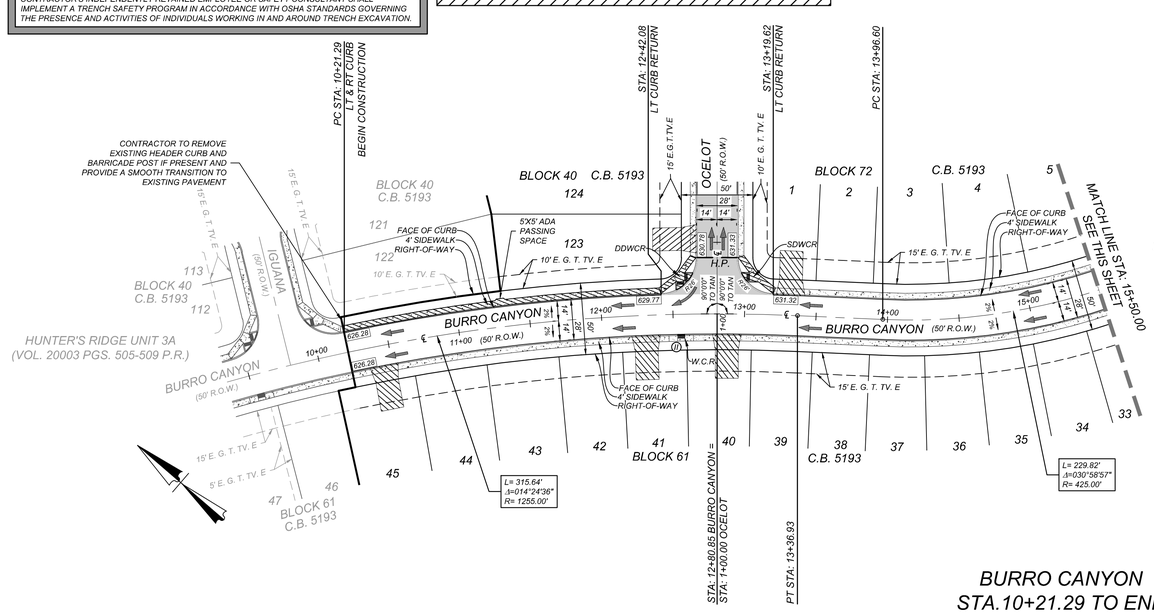
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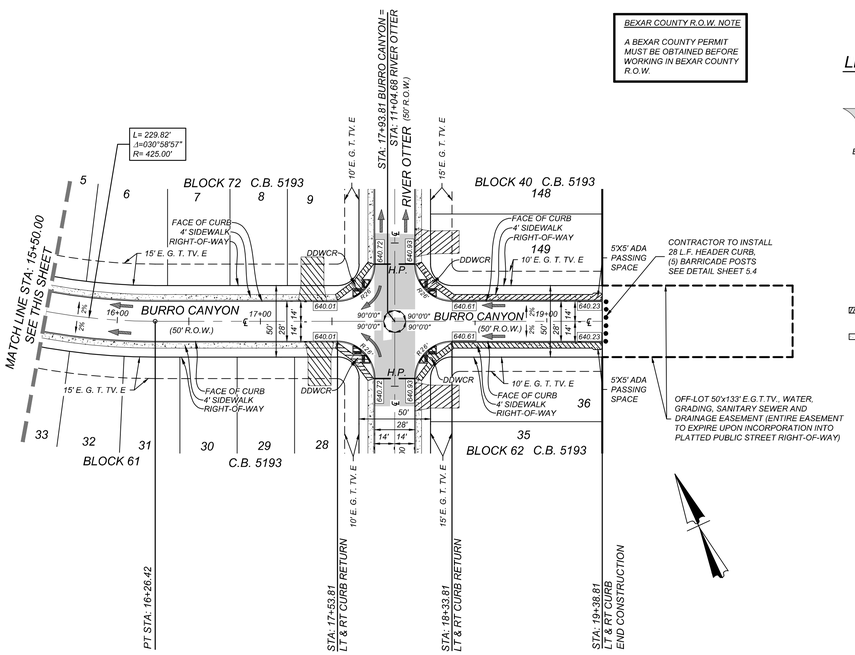
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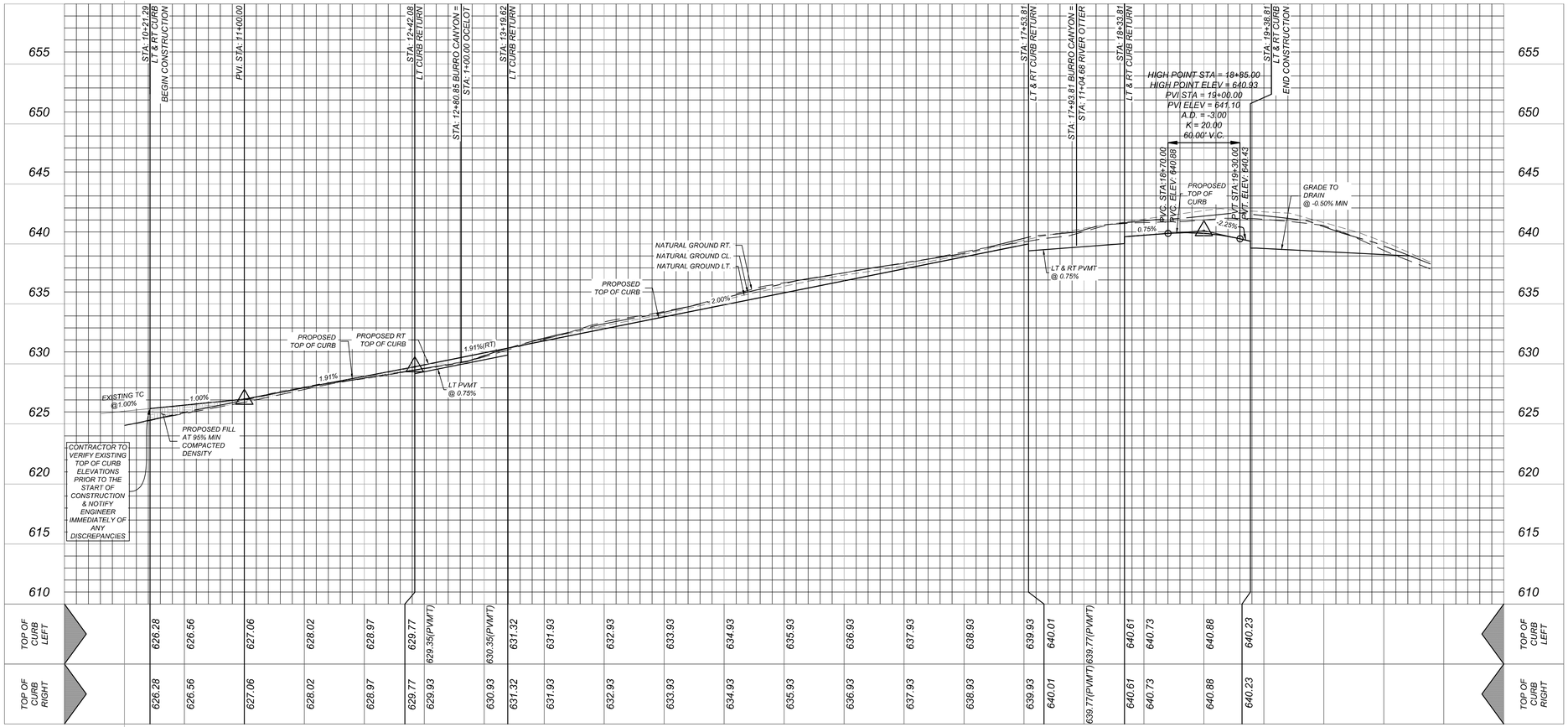
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- = WASHOUT CROWN
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BURRO CANYON
STA.10+21.29 TO END

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



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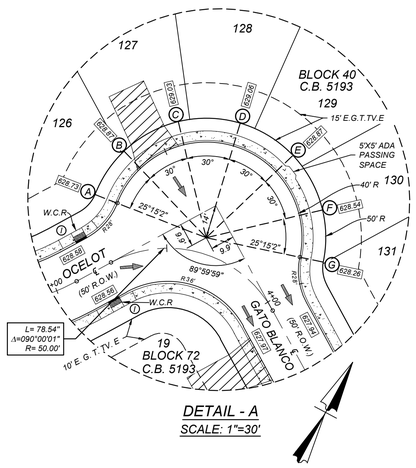
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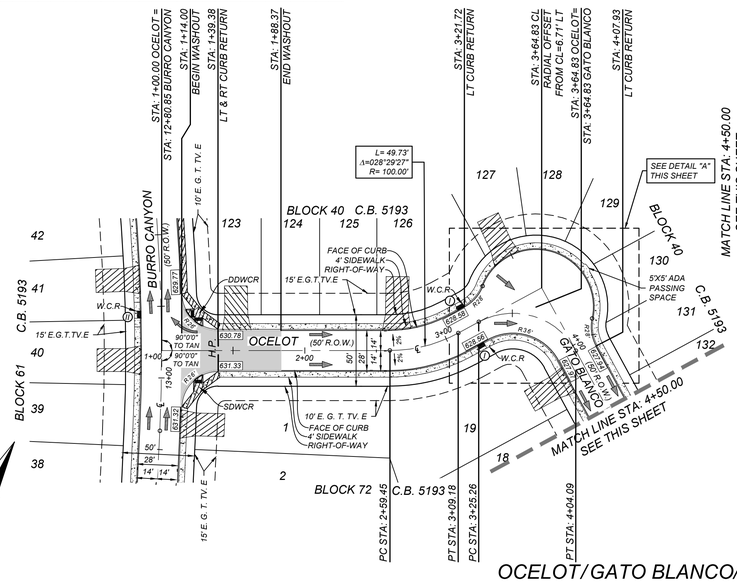
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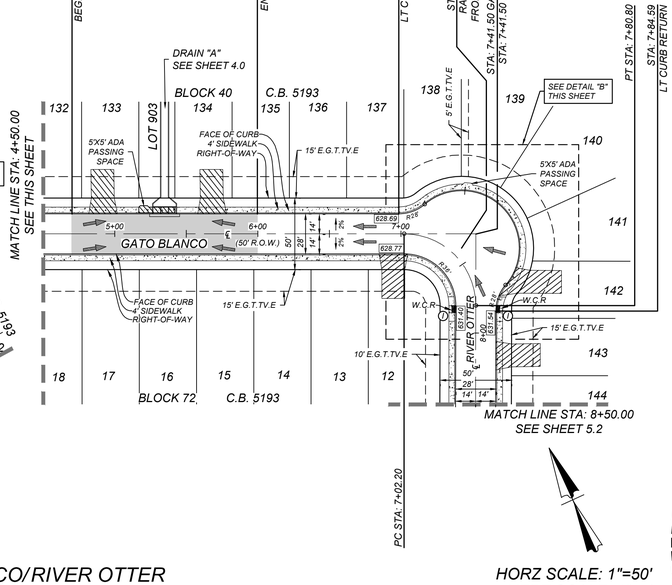
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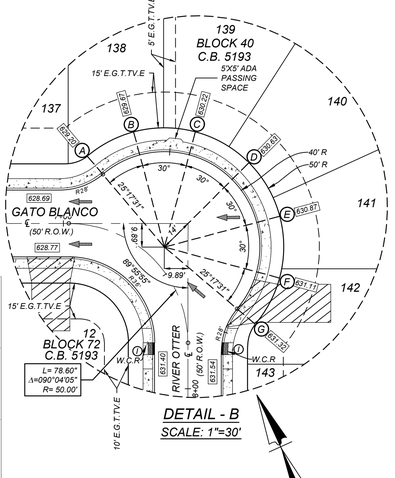
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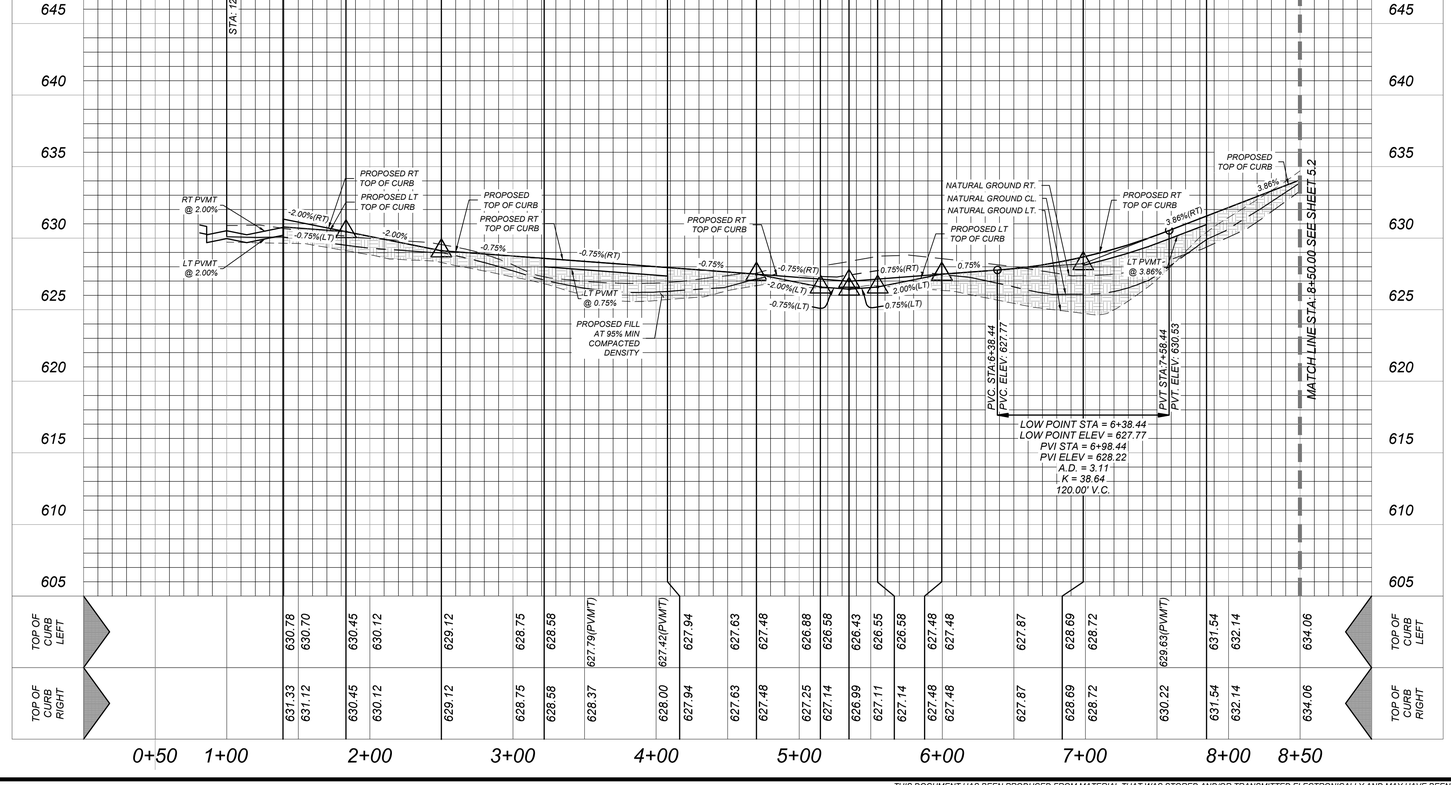


HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'

OCELOT/GATO BLANCO/RIVER OTTER
STA.1+00.00 TO 8+50.00



DETAIL - B
SCALE: 1"=30'



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OCELOT, GATO BLANCO & RIVER OTTER PLAN & PROFILE

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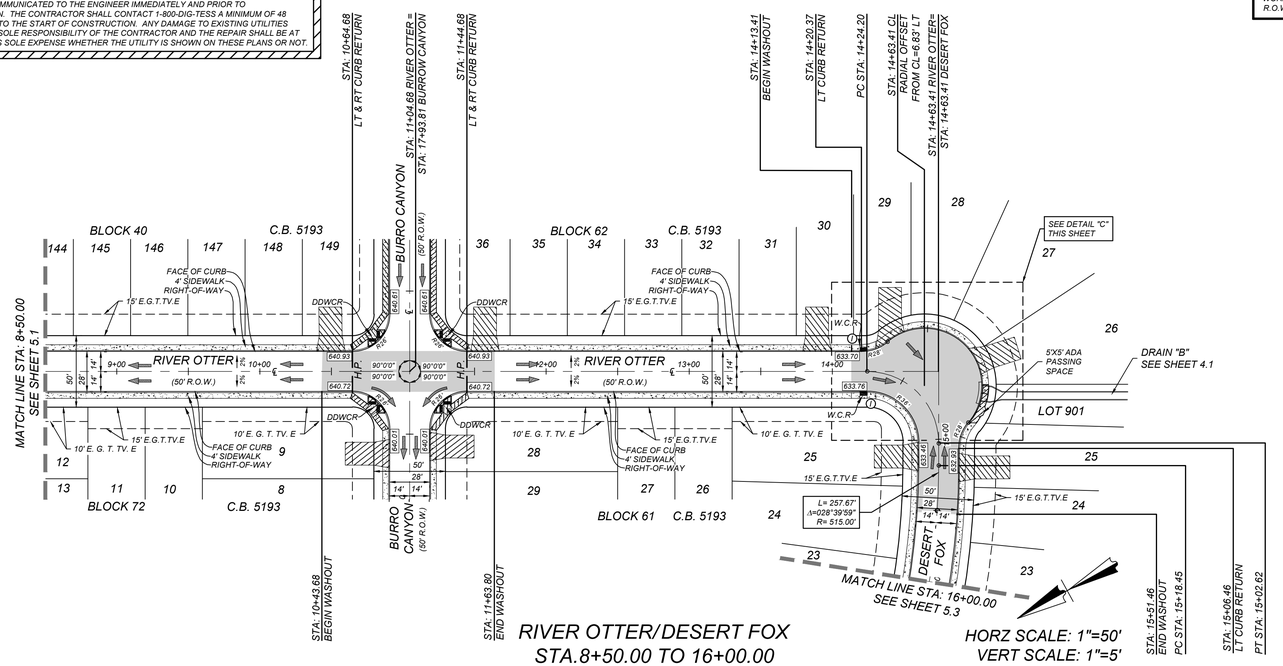
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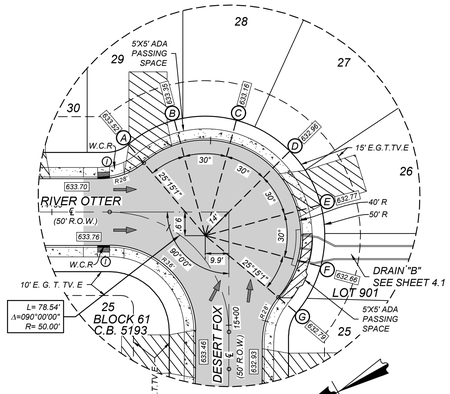
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RIVER OTTER/DESERT FOX STA.8+50.00 TO 16+00.00

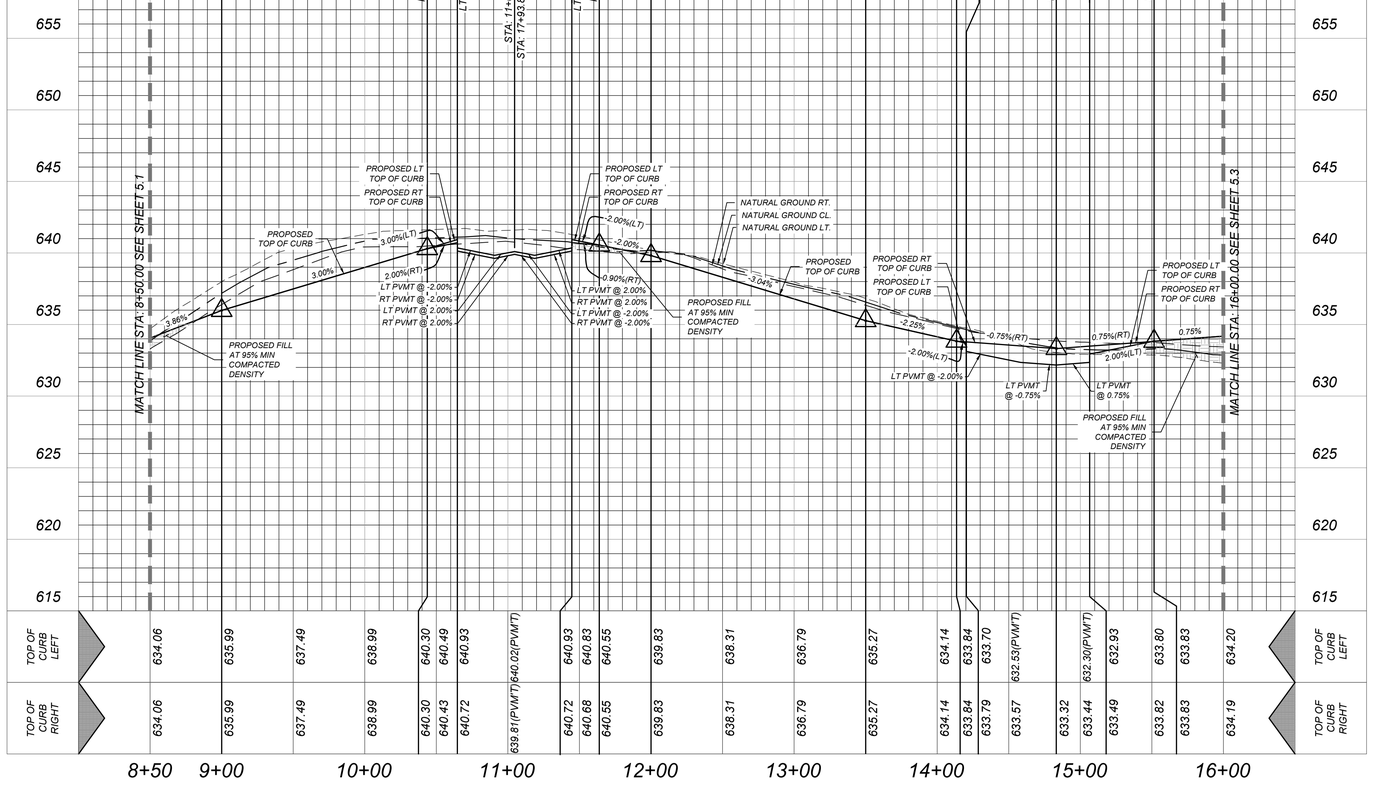
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DETAIL - C
SCALE: 1"=30'

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LICENSED PROFESSIONAL ENGINEER
6/21/24

HUNTERS RIDGE SUBDIVISION, UNIT 5A
BEXAR COUNTY, TEXAS

RIVER OTTER & DESERT FOX PLAN & PROFILE

PLAT NO. 22-11800743

JOB NO. 873-02-08
DATE: APRIL 2023
DRAWN: RS CHECKED: TE

SHEET NUMBER: 5.2

Date: Jun 20, 2024, 9:44am User ID: LMartinez
File: L:\873\02\08 Design\Civil\STREETS\STP-2_873020B.dwg

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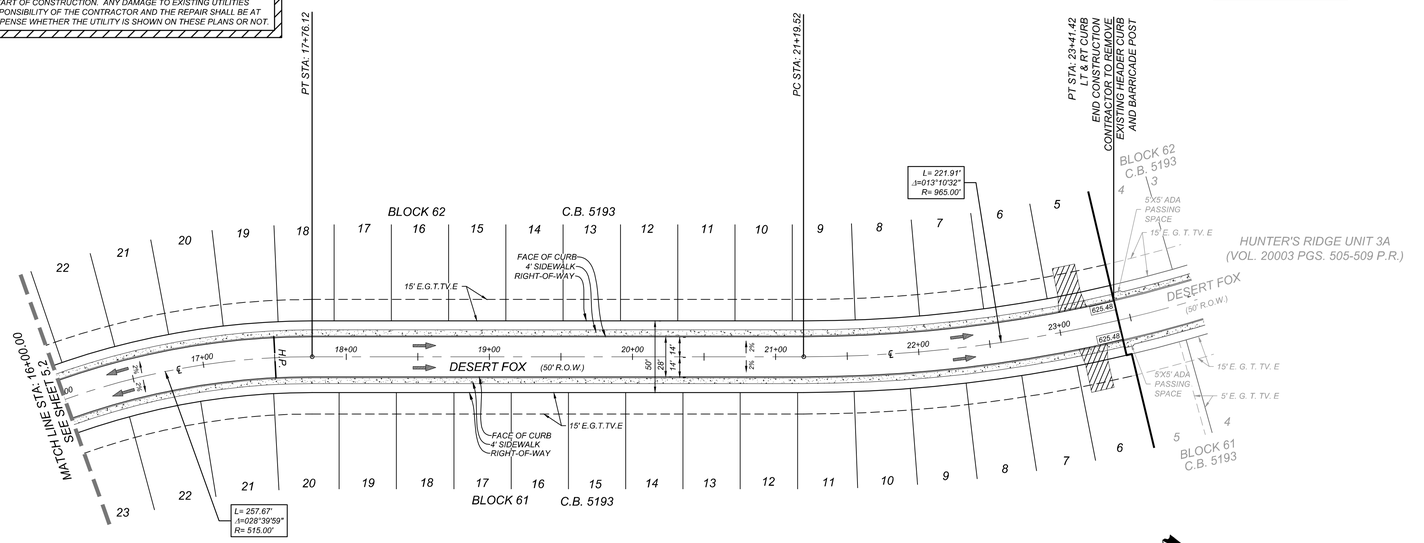
TRENCH EXCAVATION SAFETY PROTECTION

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

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.

BEXAR COUNTY R.O.W. NOTE

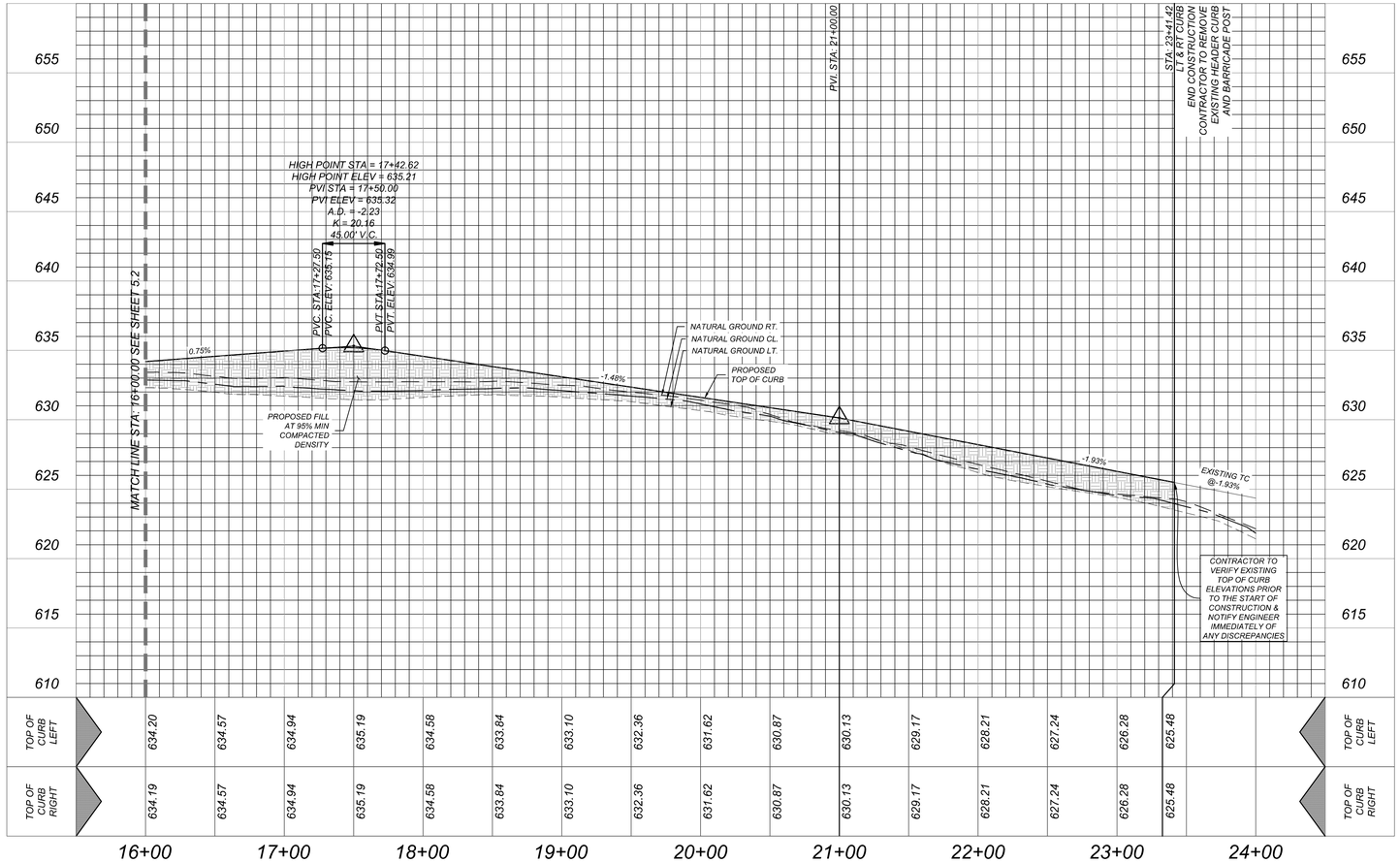
A BEXAR COUNTY PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY R.O.W.





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

DESERT FOX
STA.16+00.00 TO END



LEGEND

- = *FLOW ARROW*
- = *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 5.5*
- (II) = *WHEELCHAIR RAMP TYPE II SEE SHEET 5.5*
- *S.D.W.C.R.* = *SINGLE DIRECTIONAL WHEEL CHAIR RAMP SEE SHEET 5.5*
- *D.D.W.C.R.* = *DOUBLE DIRECTIONAL WHEEL CHAIR RAMP SEE SHEET 5.5*
- = *SIDEWALK TO BE CONSTRUCTED BY DEVELOPER.*
- = *SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION*
- *732.87* = *TOP OF CURB ELEVATIONS*
- = *PROPOSED DRIVEWAY LOCATIONS*

KFW
ENGINEERS + SURVEYING
3421 Paesanos Pkwy, Suite 200, San Antonio, TX 78231
Phone: 210.979.8444 • Fax: 210.979.8441
TBPE Firm # 8513 • TBPLS Firm # 10122300

ISSUE DATE

REVISIONS

STATE OF TEXAS
JEFFREY W. MARTIN
139094
LICENSED PROFESSIONAL ENGINEER
9/5/24

HUNTERS RIDGE SUBDIVISION, UNIT 5A
BEXAR COUNTY, TEXAS

DESERT FOX PLAN & PROFILE

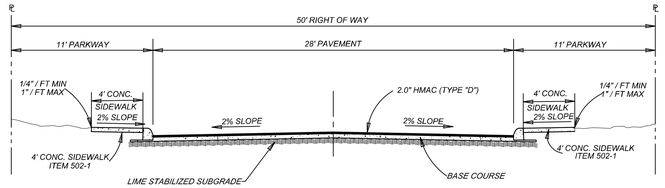
PLAT NO. 22-11800743

JOB NO. 873-02-08
DATE: APRIL 2023
DRAWN: RS CHECKED: TE

SHEET NUMBER:
5.3

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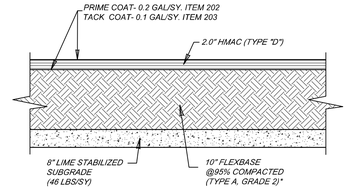
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TYPICAL LOCAL "A" STREET SECTION

NOT TO SCALE

BURRO CANYON: STA. 10+21.29 - STA. 19+38.81
DESERT FOX: STA. 14+63.41 - STA. 23+41.42
RIVER OTTER: STA. 7+41.50 - 14+63.41
GATO BLANCO: STA. 3+64.83 - 7+41.50
OCELOT: STA. 1+00.00 - 3+64.83



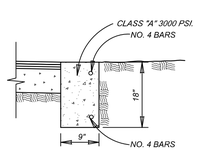
ASPHALT PAVEMENT DETAIL

NOT-TO-SCALE

DETAIL FOR ALL LOCAL TYPE A

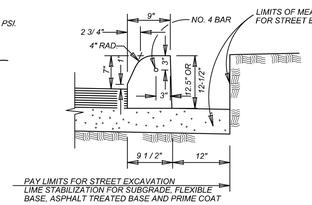
FLEXIBLE PAVEMENT SYSTEM (DARK BROWN CLAY SUBGRADE)

Pavement Section
2.0" HMAC (TYPE "D")
10" FLEXBASE COURSE (TYPE "A" GRADE 2)
8.0" LIME STABILIZED SUBGRADE (46 LBS/SY)
Total: 20"
Structural No: 2.92
C.B.R = 2.0



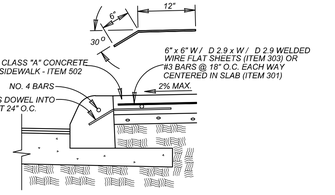
HEADER CURB

ITEM 500 ON SAND OR GRAVEL
NOT TO SCALE



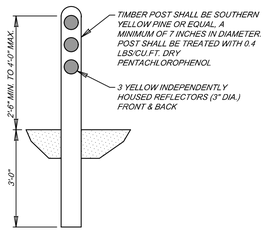
CONCRETE CURB

ITEM 500 ON FLEXIBLE BASE MATERIAL
NOT TO SCALE



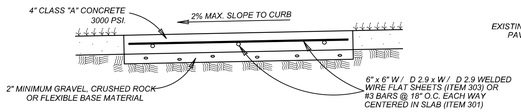
CONCRETE SIDEWALK ABUTTING CURB SECTION

ITEM 502
NOT TO SCALE



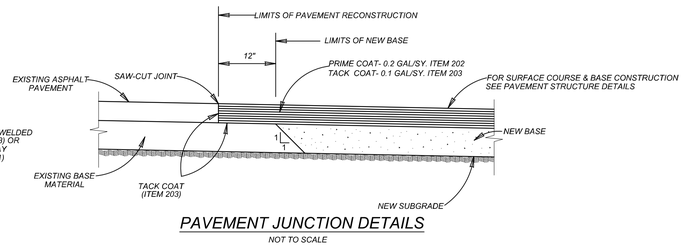
TIMBER GUARD POST DETAIL

NOT-TO-SCALE



CONCRETE SIDEWALK SECTION

ITEM 502
NOT TO SCALE



PAVEMENT JUNCTION DETAILS

NOT TO SCALE

**NOTE: CONTRACTOR TO REFERENCE GEOTECH REPORT PREPARED BY inTEC PROJECT NO. S241094 DATED APRIL 26, 2024*

DESIGN NOTES:

- THE RESULTS OF OUR LABORATORY TESTING AND ENGINEERING EVALUATION INDICATE THAT THE UNDERLYING SHALLOW CLAYS ARE MODERATELY PLASTIC TO HIGHLY PLASTIC IN CHARACTER. POTENTIAL VERTICAL MOVEMENT ON THE ORDER OF 4 TO 5 INCHES IS ESTIMATED AT EXISTING GRADE ELEVATION.
- IF 18 INCHES OF SOILS BELOW THE BOTTOM OF THE STABILIZED SUBGRADE IS MOISTURE CONDITIONED, THEN ANTICIPATED POTENTIAL VERTICAL MOVEMENT OF 3 INCHES IS ANTICIPATED; COMPACTED TO A MINIMUM OF 92 PERCENT OF THE MAXIMUM DRY DENSITY AT A MOISTURE CONTENT BETWEEN OPTIMUM PLUS 2 AND OPTIMUM PLUS 6 PERCENT OF THE OPTIMUM MOISTURE CONTENT (TEX 114E).
- FINAL SUBGRADE PLASTICITY INDEX VALUES GREATER THAN 20 ARE ANTICIPATED.
- PAVEMENT SECTION RECOMMENDATIONS ARE BASED ON THE DESIGN CBR VALUE OF 2.0 AND THE INPUT PARAMETERS. THE PAVEMENT CAN EXPERIENCE CRACKING AND DEFORMATION DUE TO SHRINKAGE AND SWELLING CHARACTERISTICS OF THE SOILS AS DESCRIBED IN THE "VERTICAL MOVEMENTS" SECTION OF THIS REPORT.
- CUT AND FILL INFORMATION IS NOT AVAILABLE AT THIS TIME. ANTICIPATED POTENTIAL VERTICAL MOVEMENTS AND RECOMMENDED PAVEMENT SECTIONS SHOULD BE RE-EVALUATED AFTER CUT AND FILL INFORMATION IS MADE AVAILABLE.
- RECOMMEND STABILIZING 8 INCHES OF SUBGRADE SOILS.
- LOCAL TYPE STREET RECOMMENDATIONS ARE PRESENTED.
- INPUT PARAMETERS ARE SHOWN IN TALE NO. 3 (SUMMARY TABLE A). PLEASE CALL US TO PROVIDE PAVEMENT RECOMMENDATIONS, IF NEEDED, FOR DIFFERENT INPUT VALUES.
- IF REPETITIVE TRUCK OR HEAVY TRUCK TRAFFIC IS ANTICIPATED, PLEASE CONTACT US FOR REVISED PAVEMENT RECOMMENDATIONS.

SUBGRADE NOTES:

BASED ON THE THICKNESS OF THE CLAYS ENCOUNTERED IN THE BORINGS, WE ANTICIPATE THE FINAL PAVEMENT SUBGRADE PLASTICITY INDEX VALUE TO BE GREATER THAN 20. AS PER BEXAR COUNTY / CITY OF SAN ANTONIO REQUIREMENTS, SUBGRADE STABILIZATION IS NEEDED WHEN THE PLASTICITY INDEX VALUES ARE GREATER THAN 20.

- THE SUBGRADE SOILS SHOULD BE TESTED FOR SOIL SULFATE CONTENT PRIOR TO STABILIZATION. IF THE SOIL SULFATE CONTENT IS HIGHER THAN 3000 PPM AN ALTERNATE / MODIFIED PROCEDURE WILL BE NEEDED.
- LIME OR CEMENT MAY BE USED TO STABILIZE THE SUBGRADE.
  - AN APPLICATION RATE OF 8 PERCENT LIME CONTENT. APPLICATION RATE OF CEMENT, IF NEEDED, SHOULD BE DETERMINED AT THE TIME CONSTRUCTION.
  - LIME APPLICATION RATE OF 46.0 LBS PER SQ YARD FOR 8-INCH DEPTH OF STABILIZATION IS RECOMMENDED.
  - FIELD MIXED SUBGRADE SOILS SHOULD MEET A MINIMUM UNCONFINED COMPRESSIVE STRENGTH VALUE OF 160 PSI.
- FILL USED TO RAISE THE GRADE:
  - APPROVED FILL MATERIAL FREE SHOULD HAVE A MINIMUM CBR VALUE OF 2.0 AND A MAXIMUM PLASTICITY INDEX VALUE OF 60. LIME APPLICATION RATES SHOULD BE RE-EVALUATED AND TESTED FOR SULFATE CONTENT PRIOR TO USE OF THE FILL MATERIAL.
  - THE FILL MATERIAL SHOULD BE APPROVED BY THE GEOTECHNICAL ENGINEER, FREE OF DELETERIOUS MATERIAL, AND THE GRAVEL SIZE SHOULD NOT EXCEED 3 INCHES IN SIZE. THE MATERIAL SHOULD BE PLACED AND COMPACTED AS PER APPLICABLE CITY / COUNTY GUIDELINES.
  - THE SUBGRADE, PRIOR TO PLACEMENT OF FILL, SHOULD BE PROOF ROLLED TO IDENTIFY WEAK AREAS. ANY IDENTIFIED WEAK AREAS SHOULD BE RECOMPACTED.

GENERAL NOTES:

- SIGNIFICANT PAVEMENT DISTRESS HAS BEEN OBSERVED DURING CONSTRUCTION PHASE WITH THE COMBINATION OF CONSTRUCTION TRAFFIC AND IRRIGATION WATER / RAIN WATER GETTING UNDERNEATH THE ASPHALT.
- IF WATER IS ALLOWED TO GET UNDERNEATH THE ASPHALT OR IF MOISTURE CONTENT OF THE BASE OR SUBGRADE SOIL CHANGES SIGNIFICANTLY, THEN PAVEMENT DISTRESS WILL OCCUR.
  - MINIMIZING MOISTURE PENETRATION UNDERNEATH THE ASPHALT WILL LOWER THE CHANCES OF PAVEMENT DISTRESS.
  - SIGNIFICANT PAVEMENT DISTRESS, MORE OFTEN CAUSED BY WATER GETTING UNDERNEATH THE ASPHALT, IS NOTED DURING HOME CONSTRUCTION.
  - AGGREGATE BASE EXTENDING BEYOND THE BACK OF THE CURB INCREASES THE LIKELIHOOD OF WATER GETTING UNDERNEATH THE ASPHALT. MOISTURE PENETRATION MAY BE REDUCED BY USING A DEEPER CURB, SUCH AS CURB EXTENDING A MINIMUM OF 6 INCHES INTO SUBGRADE OR COMPACTED CLAYS BACKFILLED AGAINST THE CURBS.
  - IN ADDITION, WATER SHOULD NOT BE ALLOWED TO GET UNDERNEATH THE PAVEMENT SECTION AT THE TIME OF HOME CONSTRUCTION.

AGGREGATE BASE:

TXDOT ITEM 247 A1-2 AGGREGATE BASE IS RECOMMENDED. THE LIFT THICKNESS AND THE COMPACTION SHOULD FOLLOW ALL APPLICABLE CITY / COUNTY GUIDELINES.

ASPHALT:

THE ASPHALT MATERIAL AND INSTALLATION SHOULD FOLLOW ALL APPLICABLE CITY / COUNTY GUIDELINES.

SUBGRADE VERIFICATION:

AT THE TIME OF CONSTRUCTION, THE FINAL PAVEMENT SUBGRADE SHOULD BE OBSERVED / VERIFIED BY A REPRESENTATIVE OF INTEC.

1. THE SUBGRADE SOILS SHOULD BE TESTED FOR SOLUBLE SULPHATE CONTENT PRIOR TO INSTALLATION OF THE LIME OR CEMENT

FOR CONSTRUCTION VERIFICATION THE FOLLOWING SHALL BE CONDUCTED IN THE FIELD:

- *AFTER INITIAL MIXING THE SOIL-LIME MIXTURE SHALL MELLOW FOR A PERIOD OF TWO TO THREE (2-3) DAYS. MAINTAIN MOISTURE DURING MELLOWING.*
- *AFTER MELLOWING AND FINAL MIXING, THE PULVERIZATION SHALL BE CHECKED USING THE FOLLOWING CRITERIA (REMOVE NON-SLAKING AGGREGATES RETAINED ON THE ¾ INCH SIEVE FROM THE SAMPLE):*
  - *MINIMUM PASSING 1 ¾" SIEVE 100*
  - *MINIMUM PASSING ¾" SIEVE 85*
  - *MINIMUM PASSING NO. 4 SIEVE 60*
- *SAMPLE SOIL-LIME MIXTURE FOR DETERMINATION OF MAXIMUM DRY DENSITY (MDD). IN THE LABORATORY, MOLD SPECIMENS TO 95% OF MDD AT OPTIMUM MOISTURE CONTENT AND VERIFY UCS TO BE AT LEAST 160 PSI IN ACCORDANCE WITH PROCEDURE OUTLINED ABOVE FOR MIXTURE DESIGN.*
- *COMPACT AND CHECK FIELD DENSITY (MINIMUM OF 95% OF MDD REQUIRED).*
- *CURE FOR AN ADDITIONAL 2 TO 5 DAYS (TOTAL MELLOWING AND CURING TIME SHOULD TOTAL AT LEAST 5 DAYS).*
- *VERIFY DEPTH OF LIME STABILIZED LAYER TO DEPTH AS NOTED ON PLAN TO WITHIN +/- 1.0 INCH.*

KFW ENGINEERS + SURVEYING
9421 Paesanos Pkwy, Suite 200, San Antonio, TX 78231
Phone: 210.979.8444 • Fax: 210.979.8441
TBPE Firm # 8513 • TBPLS Firm # 10122300

ISSUE DATE

REVISIONS

STATE OF TEXAS
JEFFREY W. MARTIN
139094
LICENSED
PROFESSIONAL ENGINEER
8/13/24

HUNTERS RIDGE SUBDIVISION, UNIT 5A
BEXAR COUNTY, TEXAS

STREET DETAIL SHEET

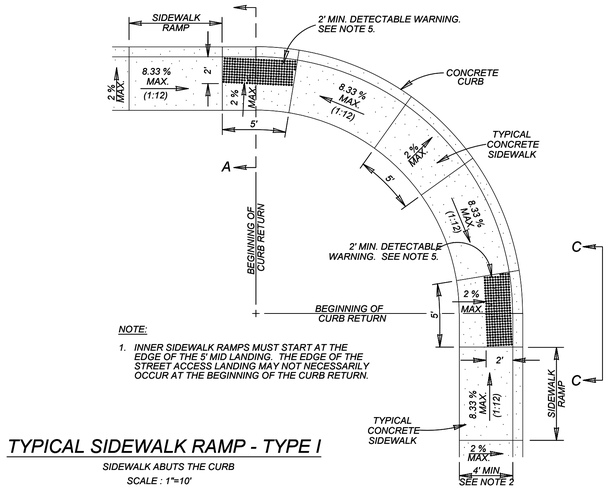
PLAT NO. 22-11800743

JOB NO. 873-02-08
DATE: APRIL 2023
DRAWN: RS CHECKED: TE

SHEET NUMBER: 5.4

Date: Aug. 09, 2024, 2:06pm User ID: sophia.ahlsen
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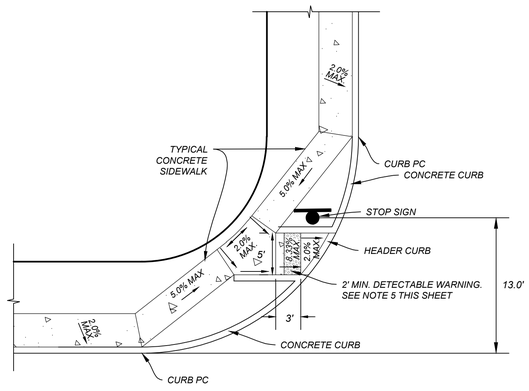


NOTE:

1. INNER SIDEWALK RAMPS MUST START AT THE EDGE OF THE 5' MID LANDING. THE EDGE OF THE STREET ACCESS LANDING MAY NOT NECESSARILY OCCUR AT THE BEGINNING OF THE CURB RETURN.

TYPICAL SIDEWALK RAMP - TYPE I

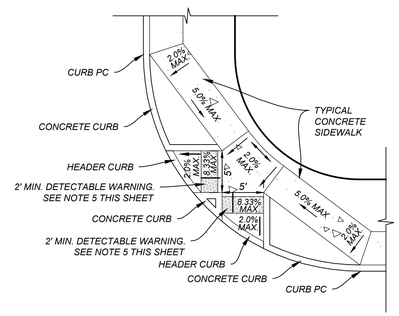
SIDEWALK ABUTS THE CURB
SCALE : 1"=10'



SINGLE DIRECTIONAL WHEEL CHAIR RAMP (SDWCR)

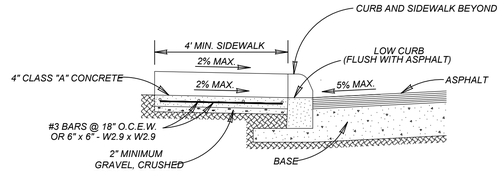
NOT TO SCALE

* *REFERENCE TxDOT PEDESTRIAN DETAILS. SEE SHEET 5.6*



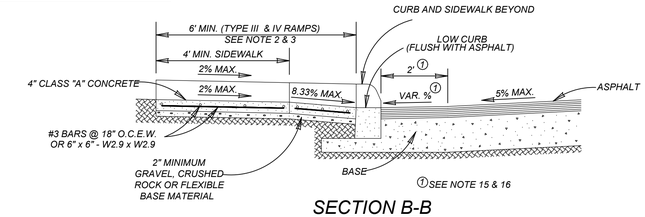
DOUBLE DIRECTIONAL WHEEL CHAIR RAMP (DDWCR)

NOT TO SCALE



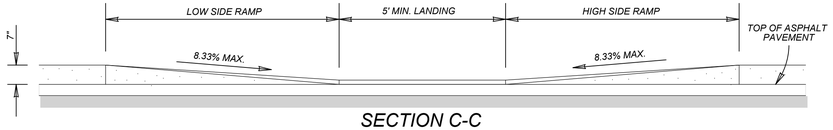
SECTION A-A

SCALE : 1"=4'



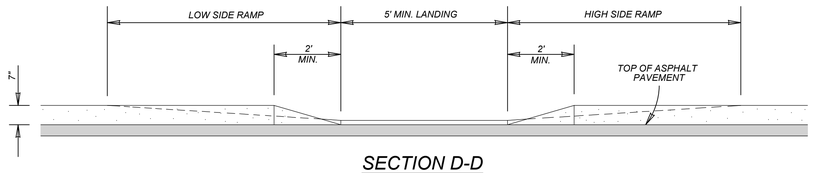
SECTION B-B

SCALE : 1"=4'



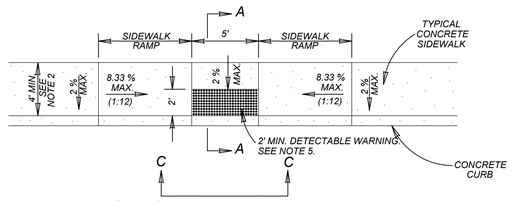
SECTION C-C

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



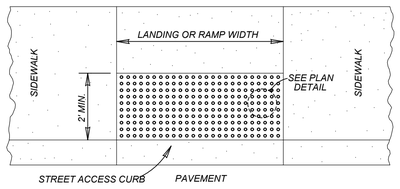
SECTION D-D

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



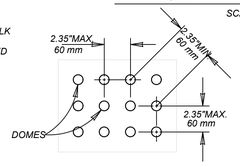
TYPICAL SIDEWALK RAMP - TYPE II

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



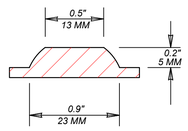
DETECTABLE WARNING SURFACE

SCALE : 1"=4'



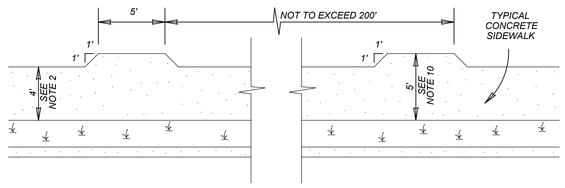
PLAN DETAIL

NO SCALE



DOME SECTION

NO SCALE



SIDEWALK PASSING SPACE

SCALE : 1"=10'

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

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

GENERAL NOTES

1. WHEN POSSIBLE SIDEWALKS SHOULD BE PLACED NEXT TO THE PROPERTY LINE, ALLOWING A MINIMUM OF 1 FOOT BUFFER. DEVIATION OF THE PATHWAY FROM A STRAIGHT LINE IS ENCOURAGED TO AVOID TREES OR OTHER OBSTRUCTIONS.
2. FOR LOCAL TYPE "A" STREETS, SIDEWALKS SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF 4' AND IF SEPARATED FROM THE CURB, THE SIDEWALK SHALL BE LOCATED A MINIMUM OF 3' FROM THE BACK OF CURB.
3. FOR OTHER THAN LOCAL TYPE "A" STREETS, SIDEWALKS SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF 4' AND SEPARATED A MINIMUM OF 3' FROM THE BACK OF CURB OR AS AN OPTION, THE SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 6' WHEN LOCATED AT THE BACK OF CURB.
4. SIDEWALK RAMP LENGTHS PRESENTED IN TABLE 1 ARE GUIDELINES ONLY. SIDEWALK RAMP LENGTHS SHALL BE OF SUFFICIENT LENGTH TO MAINTAIN 8.33% (1:12) MAXIMUM SLOPE.
5. ALL CURB-RAMPS OR LANDINGS ABUTTING THE CROSSWALK SHALL HAVE A DETECTABLE WARNING 24 INCHES DEEP (IN THE DIRECTION OF PEDESTRIAN TRAVEL) AND EXTENDING THE FULL WIDTH OF THE CURB RAMP OR LANDING. THE DETECTABLE WARNING SHALL CONSIST OF RAISED TRUNCATED DOMES, ALIGNED IN A GRID PATTERN WITH A DIAMETER OF A NOMINAL 0.9 INCHES (23 MM), A HEIGHT OF NOMINAL 0.2 INCHES (5 MM) AND A CENTER-TO-CENTER SPACING OF NOMINAL 2.35 INCHES (60 MM). THE DETECTABLE WARNING SURFACE SHALL BE PAVERS CONFORMING TO TXDOT STANDARD PED-05, PEDESTRIAN FACILITIES.
6. DETECTABLE WARNINGS SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES, EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT. THE MATERIAL USED TO PROVIDE CONTRAST SHALL BE AN INTEGRAL PART OF THE WALKING SURFACE.
7. SIDEWALK RAMP TYPE V SHALL BE USED ONLY WHERE THERE IS SIGNIFICANT RESTRICTION WITHIN THE PARKWAY TO CONSTRUCT TYPE I OR TYPE III RAMPS.
8. CONSTRUCTION OF ALL WHEELCHAIR RAMPS TO BE INCLUDED UNDER ITEMS "500 - CONCRETE CURB, GUTTER, AND CONCRETE CURB AND GUTTER" AND / OR "502 - CONCRETE SIDEWALKS". RAMP SURFACE SHALL BE BRUSH FINISHED.
9. THESE DETAILS ARE FOR REFERENCE ONLY. ACTUAL LOCATIONS OF WHEELCHAIR RAMPS TO BE SHOWN ON CONSTRUCTION PLANS. CITY CONSTRUCTION INSPECTOR CAN ADJUST LOCATIONS FOR SAFETY OR UTILITY CLEARANCE.
10. SIDEWALKS LESS THAN 5 FEET IN WIDTH SHALL BE PROVIDED WITH A PASSING SPACE AT A MAXIMUM SPACING OF 200 FEET.
11. WHEELCHAIR RAMP SHALL BE CONSTRUCTED WITH 4" CLASS "A" CONCRETE AND 2" MINIMUM GRAVEL, CRUSHED ROCK OR FLEXIBLE BASE MATERIAL.
12. REINFORCING STEEL SHALL BE #3 BARS AT 18" O.C.E.W. OR 6" x 6" - W2.9 x W2.9 WIRE MESH.
13. SIDEWALK GRADES SHALL NOT EXCEED THE GRADE ESTABLISHED FOR THE ADJACENT ROADWAY, ANY SIDEWALK CONSTRUCTION THAT DEVIATES FROM THE NATURAL GRADE OF THE ROADWAY TO CREATE A GRADE STEEPER THAN THE EXISTING ROADWAY WILL REQUIRE RAMPS, HANDRAILS AND RESTING PLATFORMS TO BE CONSTRUCTED IN ACCORDANCE WITH ADA AND TAS STANDARDS.
14. SIDEWALK CROSS GRADE SHALL HAVE A MAXIMUM SLOPE OF 2%. LANDINGS SHALL HAVE A MAXIMUM SLOPE OF 2% IN ANY DIRECTION.
15. THE CHANGE OF GRADE BETWEEN ADJACENT SURFACES SHALL BE LESS THAN 11%. THE CHANGE OF GRADE SHALL BE DEFINED AS THE ALGEBRAIC DIFFERENCE OF THE ADJACENT SURFACE SLOPES. IN THE CASE OF A STREET ACCESS RAMP DESIGNED AT THE 8.33% MAXIMUM SLOPE, THE ADJACENT PAVEMENT CROSS SLOPE SHALL BE LESS THAN 2.67% (I.E. 8.33-(-2.67)=11). IN ADDITION, THE ADJACENT PAVEMENT CROSS SLOPE SHALL BE LESS THAN OR EQUAL TO 5%.
16. IF THE CHANGE OF GRADE BETWEEN ADJACENT SURFACES IS GREATER THAN OR EQUAL TO 11%, A LEVELING STRIP, 2 FEET IN LENGTH, SHALL BE PROVIDED TO TRANSITION THE ADJACENT SURFACES.
17. ADA COMPLIANCE IN ALTERATIONS INCLUDE ONLY THAT WORK WITHIN THE LIMITS, BOUNDARIES OR SCOPE OF A PLANNED PROJECT.

WHEELCHAIR RAMP STANDARDS

KFW ENGINEERS + SURVEYING
9421 Pasadena Pkwy, Suite 200, San Antonio, TX 78231
Phone: (210) 979-8444 • Fax: (210) 979-8441
TBPE Firm # 3513 • TBPLS Firm # 10122300

ISSUE DATE

REVISIONS

STATE OF TEXAS
JEFFREY W. MARTIN
139094
LICENSED PROFESSIONAL ENGINEER
6/21/24

HUNTERS RIDGE SUBDIVISION, UNIT 5A
BEXAR COUNTY, TEXAS

WHEELCHAIR RAMP DETAIL SHEET

PLAT NO. 22-11800743

JOB NO. 873-02-08
DATE: APRIL 2023
DRAWN: RS CHECKED: TE

SHEET NUMBER: 5.5

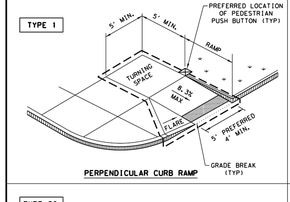
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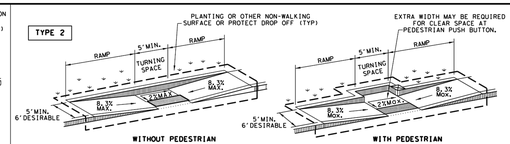
DATE:
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TYPE 1



PERPENDICULAR CURB RAMP

TYPE 2

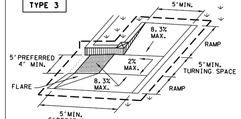


WITHOUT PEDESTRIAN PUSH BUTTON

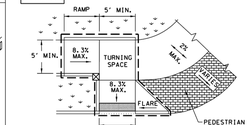
WITH PEDESTRIAN PUSH BUTTON

PARALLEL CURB RAMP

TYPE 3

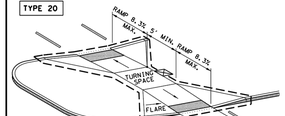


TYPE 6



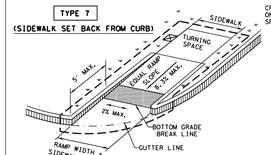
COMBINATION CURB RAMPS

TYPE 20

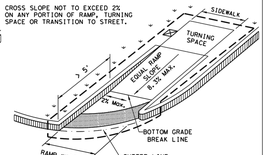


CURB RAMPS AT MEDIAN ISLANDS

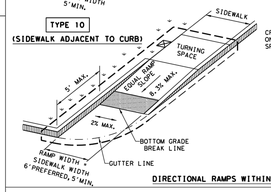
TYPE 7
(SIDEWALK SET BACK FROM CURB)



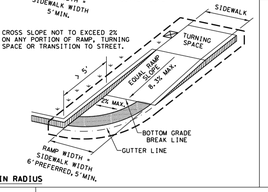
CROSS SLOPE NOT TO EXCEED 2% ON ANY PORTION OF RAMP, TURNING SPACE OR TRANSITION TO STREET.



TYPE 10
(SIDEWALK ADJACENT TO CURB)

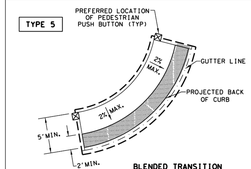


CROSS SLOPE NOT TO EXCEED 2% ON ANY PORTION OF RAMP, TURNING SPACE OR TRANSITION TO STREET.



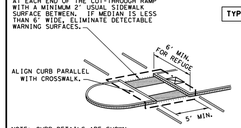
DIRECTIONAL RAMPS WITHIN RADIUS

TYPE 5



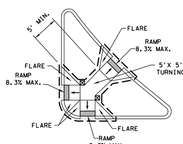
BLENDED TRANSITION
(FLUSH LANDING)

TYPE 21

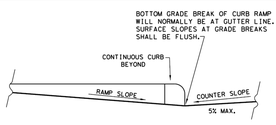


NOTE: CURB DETAILS ARE SHOWN ELSEWHERE IN THE PLANS.

TYPE 22



COMBINATION ISLAND RAMPS



TYPICAL SECTION OF PERPENDICULAR CURB RAMP AT CONNECTION TO ROADWAY

NOTES / LEGEND:

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

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

DETECTABLE WARNING SURFACE

DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON IF APPLICABLE.

GUTTER LINE

GRADE BREAK

RAMP LIMITS OF PAYMENT

SHEET 1 OF 4

Texas Department of Transportation — Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-18

FILE: ped18	DN: TxDOT	CK: VP	CK: KM	CK: PK & JG
©TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS				
REVISED 08.2005	DIST	COUNTY		SHEET NO.
REVISED 05.2010				
REVISED 7.2014				

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DATE:
FILE:

GENERAL NOTES

CURB RAMPS

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

DETECTABLE WARNING MATERIAL

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

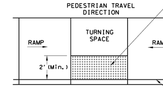
DETECTABLE WARNING PAVERS (IF USED)

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

SIDEWALKS

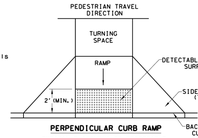
27. Provide clear ground space at operable parts, including pedestrian push buttons. Operable parts shall be placed within unobstructed reach range specified in PROWAG section R406.
28. Place traffic signal or illumination poles, ground boxes, controller boxes, signs, drainage facilities and other items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

DETECTABLE WARNING SURFACE DETAILS



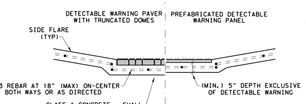
PARALLEL CURB RAMP

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

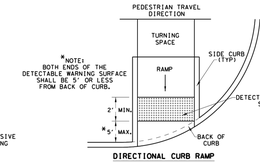


PERPENDICULAR CURB RAMP

TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.



SECTION VIEW DETAIL
CURB RAMP AT DETECTIBLE WARNINGS



DIRECTIONAL CURB RAMP

TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.

SHEET 2 OF 4

Texas Department of Transportation — Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-18

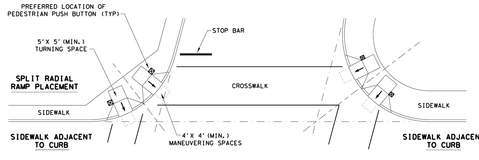
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REVISIONS				
REVISED 08.2005	DIST	COUNTY		SHEET NO.
REVISED 05.2010				
REVISED 7.2014				

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TYPICAL CROSSING LAYOUTS

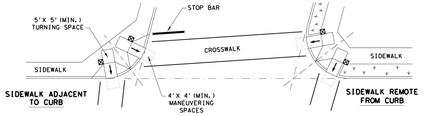
SEE SHEET 1 OF 4 FOR DETAILS AND DIMENSIONS



SPLIT RADIAL RAMP PLACEMENT

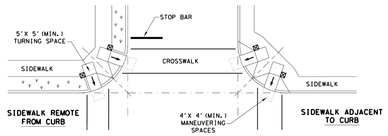
SIDEWALK ADJACENT TO CURB — SIDEWALK ADJACENT TO CURB

SKEWED INTERSECTION WITH "LARGE" RADIUS



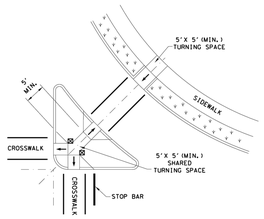
SIDEWALK ADJACENT TO CURB — SIDEWALK REMOTE FROM CURB

SKEWED INTERSECTION WITH "SMALL" RADIUS



SIDEWALK REMOTE FROM CURB — SIDEWALK ADJACENT TO CURB

NORMAL INTERSECTION WITH "SMALL" RADIUS



AT INTERSECTION W/FREE RIGHT TURN & ISLAND



SIDEWALK ADJACENT TO CURB — SIDEWALK REMOTE FROM CURB

MID-BLOCK PLACEMENT PERPENDICULAR RAMPS

LEGEND:

SHOWS DOWNWARD SLOPE.

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

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

SHEET 4 OF 4

Texas Department of Transportation — Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

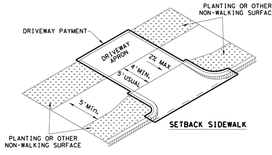
PED-18

FILE: ped18	DN: TxDOT	CK: VP	CK: KM	CK: PK & JG
©TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
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REVISED 08.2005	DIST	COUNTY		SHEET NO.
REVISED 05.2010				
REVISED 7.2014				

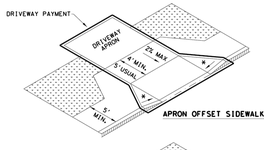
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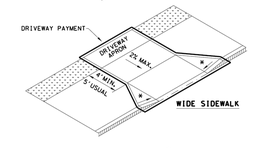
SIDEWALK TREATMENT AT DRIVEWAYS



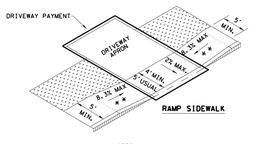
SETBACK SIDEWALK



APRON OFFSET SIDEWALK



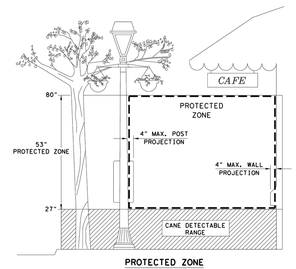
WIDE SIDEWALK



RAMP SIDEWALK

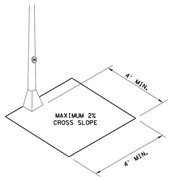
NOTES:
* WHERE DRIVEWAYS CROSS THE PEDESTRIAN ROUTE, SIDES SHALL BE FLARED AT 10% MAX SLOPE.

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

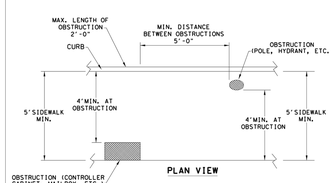


PROTECTED ZONE

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



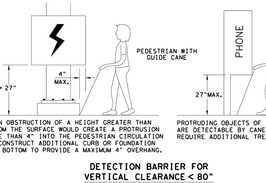
CLEAR SPACE ADJACENT TO PEDESTRIAN PUSH BUTTON



PLAN VIEW

PLACEMENT OF STREET FIXTURES

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



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

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

DETECTION BARRIER FOR VERTICAL CLEARANCE < 80"

SHEET 3 OF 4

Texas Department of Transportation — Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-18

FILE: ped18	DN: TxDOT	CK: VP	CK: KM	CK: PK & JG
©TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS				
REVISED 08.2005	DIST	COUNTY		SHEET NO.
REVISED 05.2010				
REVISED 7.2014				

KFW
ENGINEERS + SURVEYING
3421 Paesanos Pkwy, Suite 200, San Antonio, TX 78231
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TBPE Firm # 9513 • TBPLS Firm # 10122300

NO.	ISSUE DATE	REVISIONS

STATE OF TEXAS
JEFFREY W. MARTIN
139094
LICENSED
PROFESSIONAL ENGINEER
4/16/24

HUNTERS RIDGE SUBDIVISION, UNIT 5A
BEXAR COUNTY, TEXAS

MISCELLANEOUS DETAIL SHEET

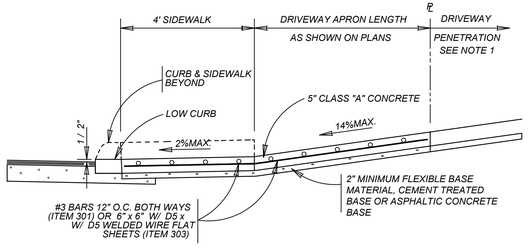
PLAT NO. 22-11800743

JOB NO. 873-02-08
DATE: APRIL 2023
DRAWN: RS CHECKED: TE

SHEET NUMBER:
5.6

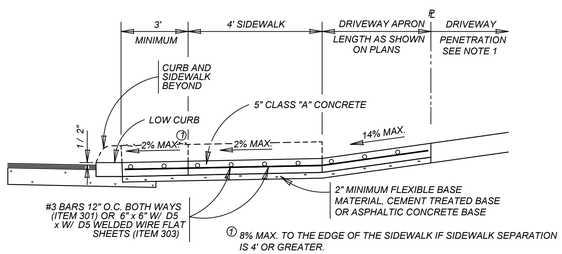
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Date: Apr 09, 2024, 7:52am User ID: dhelmontalvo
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TYPICAL RESIDENTIAL DRIVEWAY SECTION

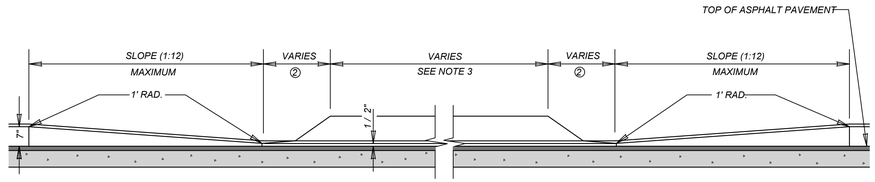
WITH SIDEWALK ABUTTING CURB
ITEM 503.1



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

TYPICAL RESIDENTIAL DRIVEWAY SECTION

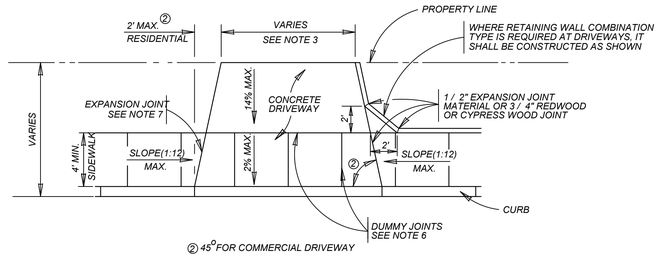
WITH SIDEWALK SEPARATED FROM CURB
ITEM 503.1



② RESIDENTIAL : 2' MAXIMUM;
COMMERCIAL: SEE PLAN VIEW

CURB PROFILE AT DRIVEWAY

WITH SIDEWALK ABUTTING CURB



② 45° FOR COMMERCIAL DRIVEWAY

TYPICAL DRIVEWAY PLAN VIEW

WITH SIDEWALK ABUTTING CURB

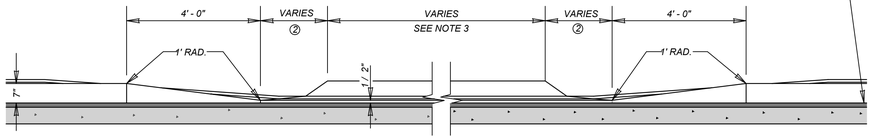
TYPICAL COMMERCIAL DRIVEWAY SECTION

WITH SIDEWALK ABUTTING CURB
ITEM 503.2

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

TYPICAL COMMERCIAL DRIVEWAY SECTION

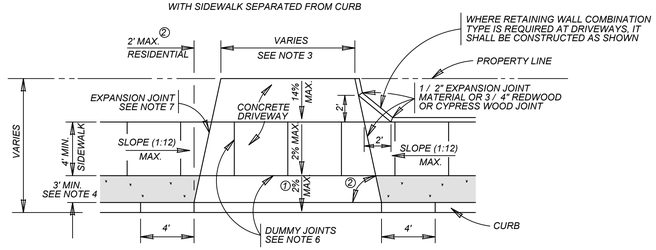
WITH SIDEWALK SEPARATED FROM CURB
ITEM 503.2



② RESIDENTIAL : 2' MAXIMUM;
COMMERCIAL: SEE PLAN VIEW

CURB PROFILE AT DRIVEWAY

WITH SIDEWALK SEPARATED FROM CURB



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

② 45° FOR COMMERCIAL DRIVEWAY

TYPICAL DRIVEWAY PLAN VIEW

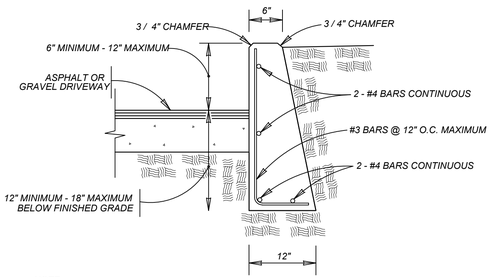
WITH SIDEWALK SEPARATED FROM CURB

CONCRETE DRIVEWAY NOTES

1. DRIVEWAY PENETRATION REFERS TO A PORTION OF THE DRIVEWAY THAT MAY BE NECESSARY TO RECONSTRUCT WITHIN PRIVATE PROPERTY TO COMPLY WITH A MAXIMUM DRIVEWAY SLOPE. THIS PORTION OF THE DRIVEWAY SHALL BE PAID FOR UNDER THE FOLLOWING ITEMS AS MAY APPLY:
   A.) CONCRETE DRIVEWAY PAID FOR UNDER ITEM NO. 503.1 OR 503.2.
   B.) ASPHALTIC CONCRETE DRIVEWAY PAID FOR UNDER ITEM NO. 503.4 AND SHALL INCLUDE A MINIMUM OF 1" ASPHALT TYPE 'D' & 6" FLEXIBLE BASE
   C.) GRAVEL DRIVEWAY PAID FOR UNDER ITEM NO. 503.5 AND SHALL INCLUDE A MINIMUM OF 6" FLEXIBLE BASE
2. 7" MINIMUM HEIGHT WILL NOT NECESSARILY OCCUR AT THE PROPERTY LINE. IT MAY OCCUR WITHIN THE RIGHT OF WAY OR WITHIN THE DRIVEWAY PENETRATION ON PRIVATE PROPERTY.
3. THE PROPOSED DRIVEWAY SHOULD MATCH THE EXISTING WIDTH AT THE PROPERTY LINE BUT UNLESS AUTHORIZED BY THE CITY TRAFFIC ENGINEER, THE WIDTH SHALL BE WITHIN THE FOLLOWING VALUES:

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

4. FOR LOCAL TYPE "A" STREETS, SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 4' AND IF SEPARATED FROM THE CURB, THE SIDEWALK SHALL BE LOCATED A MINIMUM OF 3' FROM THE BACK OF CURB.
5. FOR OTHER THAN LOCAL TYPE "A" STREETS, THE SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 4' AND SEPARATED A MINIMUM OF 3' FROM THE BACK OF CURB OR, AS AN OPTION, THE SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 6' WHEN LOCATED AT THE BACK OF CURB.
6. DUMMY JOINTS PARALLEL TO THE CURB SHALL BE PLACED WHERE THE SIDEWALK MEETS THE DRIVEWAY. DUMMY JOINTS PERPENDICULAR TO THE CURB, AND WITHIN THE BOUNDARIES OF THE PARALLEL DUMMY JOINTS, SHALL BE PLACED AT INTERVALS EQUAL TO THE WIDTH OF THE SIDEWALK.
7. A MINIMUM OF TWO ROUND AND SMOOTH DOWEL BARS 3 /8" IN DIAMETER AND 18" IN LENGTH SHALL BE SPACED 18" APART AT EACH EXPANSION JOINT.
8. SIDEWALK RAMP LENGTHS SHALL BE OF SUFFICIENT LENGTH TO MAINTAIN 8.33% (1:12) MAXIMUM SLOPE. WHERE SIDEWALKS CROSS DRIVEWAYS, SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%.
9. SIDEWALK RAMP SURFACE SHALL BE BRUSH FINISHED.



NOTE:
1. COST OF REINFORCEMENT TO BE INCLUDED IN UNIT COST OF ITEM 307.1.
2. CONCRETE RETAINING WALL COMBINATION TYPE SHALL BE USED FOR CONCRETE DRIVEWAYS.

DRIVEWAY - CONCRETE RETAINING WALL

ON COMPACTED SUBGRADE
ITEM 307.1

MAY 2009

CITY OF SAN ANTONIO

CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

CONCRETE DRIVEWAY STANDARDS

_____% SUBMITTAL	PROJECT NO.:_____	DATE:_____
DRWN. BY: V. VASQUEZ	DSGN. BY:_____ CHKD. BY: R.S. HOSSEINI, P.E.	SHEET NO.:____OF____

KFW
ENGINEERS + SURVEYING
3421 Paesanos Pkwy, Suite 200, San Antonio, TX 78231
Phone: 210.979.8444 • Fax: 210.979.8441
TBPE Firm # 8513 • TBPLS Firm # 10122300

ISSUE DATE

REVISIONS

STATE OF TEXAS
JEFFREY W. MARTIN
139094
LICENSED
PROFESSIONAL ENGINEER
6/21/24

HUNTERS RIDGE SUBDIVISION, UNIT 5A
BEXAR COUNTY, TEXAS

MISCELLANEOUS DETAIL SHEET

PLAT NO.
22-11800743

JOB NO. 873-02-08
DATE: APRIL 2023
DRAWN: RS CHECKED: TE

SHEET NUMBER:
5.7

Date: May 14, 2024, 3:51pm User ID: sophia.nilsen
File: L:\873\02\08\Design\Civil\SHEETS\STD DET\202208.dwg

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TRENCH EXCAVATION SAFETY PROTECTION

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

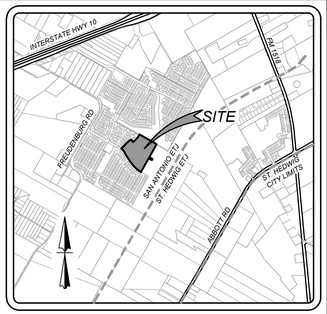
CAUTION!!

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SYMBOL		ITEM NUMBER
STOP	R1-1 30" X 30"	531.3
STREET NAME #####	STANDARD BEXAR COUNTY STREET NAME SIGN STD X 9"	531.57
	OM4-3 END-OF-ROADWAY MARKER	531.56
	TYPE II BLUE PAVEMENT MARKER	537.8

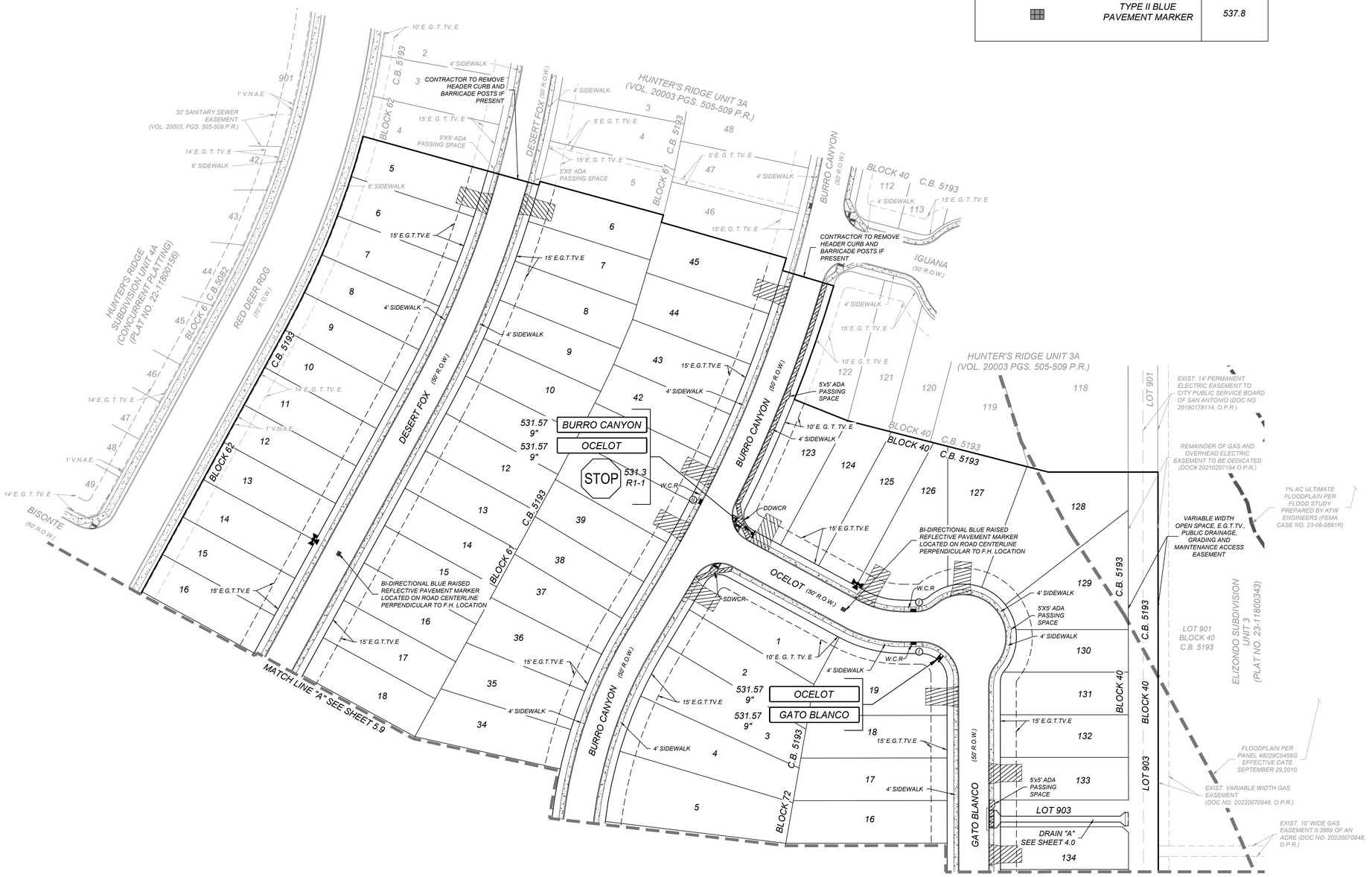
BEXAR COUNTY R.O.W. NOTE

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



LOCATION MAP
N.T.S

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



LEGEND

- = FLOW ARROW
- = 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 5.5
- = WHEELCHAIR RAMP TYPE II SEE SHEET 5.5
- S.D.W.C.R. = SINGLE DIRECTIONAL WHEEL CHAIR RAMP SEE SHEET 5.5
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- = SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION
- 732.97 = TOP OF CURB ELEVATIONS
- = PROPOSED DRIVEWAY LOCATIONS

KFW ENGINEERS + SURVEYING
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Phone: (210) 979-8444 Fax: (210) 979-8441
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ISSUE DATE

REVISIONS

STATE OF TEXAS
JEFFREY W. MARTIN
139094
LICENSED
PROFESSIONAL ENGINEER
6/21/24

HUNTERS RIDGE SUBDIVISION, UNIT 5A
BEXAR COUNTY, TEXAS

TRAFFIC SIGNAGE & SIDEWALK PLAN

PLAT NO. 22-11800743

JOB NO. 873-02-08
DATE: APRIL 2023
DRAWN: RS CHECKED: TE

SHEET NUMBER:
5.8

Date: Jun 20, 2024, 10:01am User ID: LMartinez
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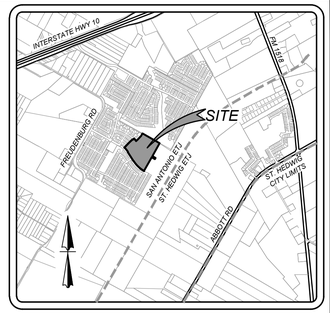
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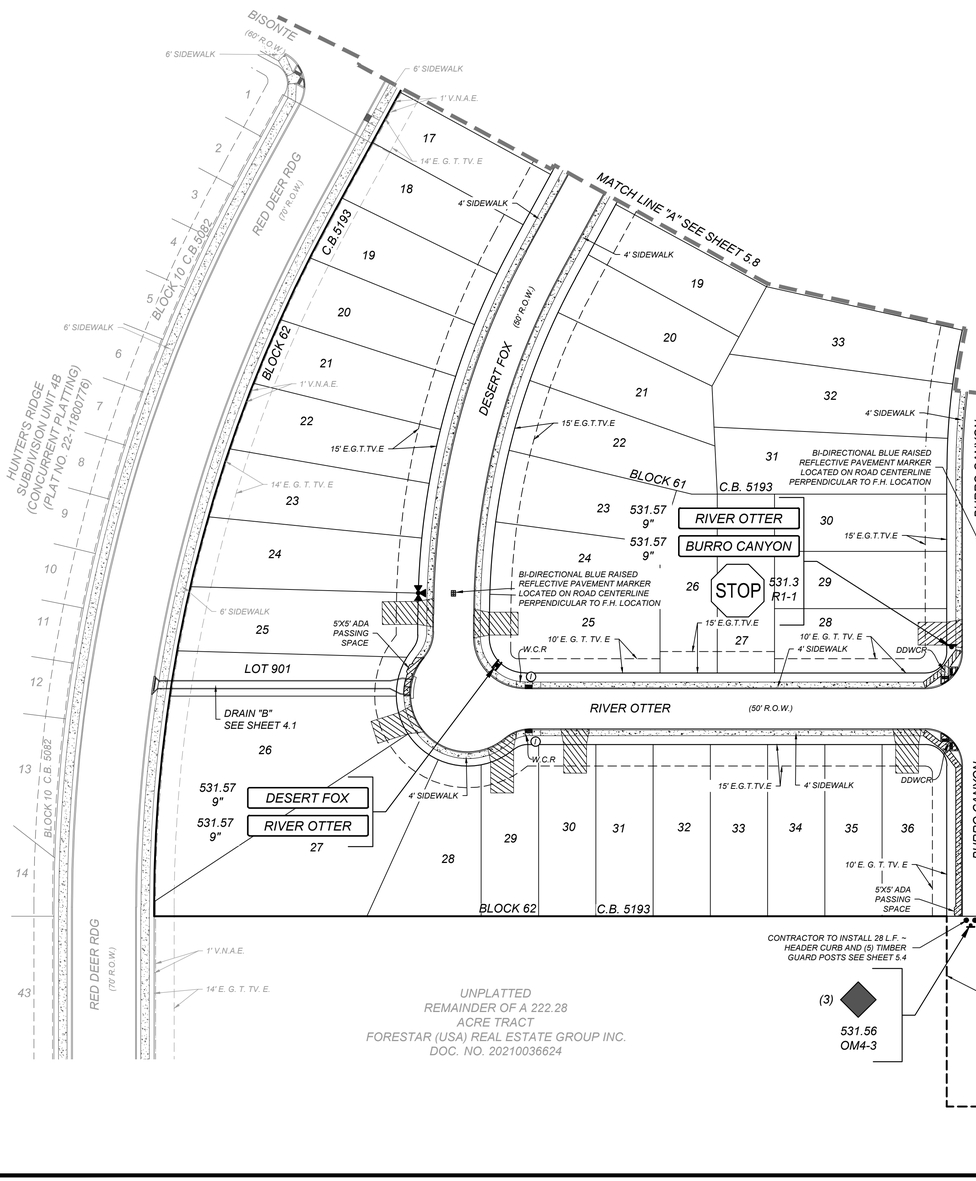
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N.T.S



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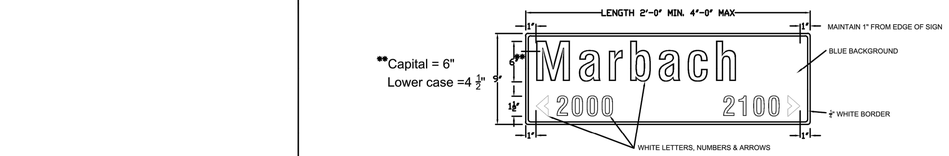
PLAT NO. 22-11800743

JOB NO. 873-02-08
DATE: APRIL 2023
DRAWN: RS CHECKED: TE

SHEET NUMBER: 5.9

Date: Jun 20, 2024, 9:59am User ID: LMartinez
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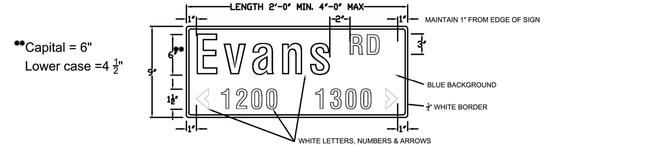
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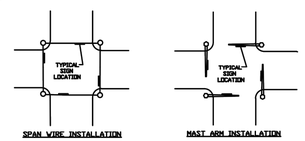
9" GROUND MOUNT STREET NAME SIGNS

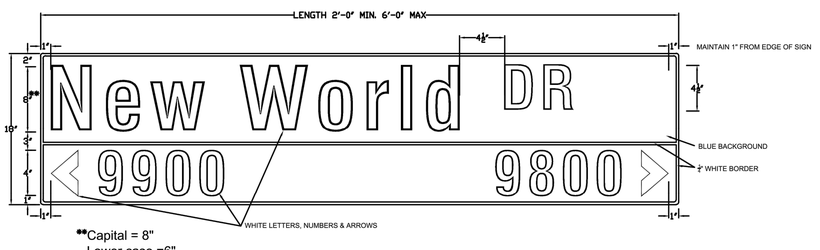
	18" OVERHEAD SIGN	9" GROUND MOUNT SIGNS
HEIGHT	18" (381 mm)	9" (228 mm)
LENGTH	48" (1200 mm) MIN. 72" (1800 mm) MAX. 1' (300mm) INCREMENTS OF LENGTH	24" (600 mm) MIN. 48" (1200 mm) MAX. 6" (150mm) INCREMENTS OF LENGTH
THICKNESS	0.125" (3 mm)	
SUBSTRATE	ALUMINUM ALLOY, 5052-H38 (ASTM B-209 GOLD CHROMATE FINISH	
SIGN FACE MATERIALS	BLUE FILM ✱ OVER DIAMOND GRADE - ASTM Type XI Non-Fluorescent	BLUE FILM ✱ OVER HIGH INTENSITY PRISMATIC- ASTM Type IV
LEGENDS AND SYMBOLS	SERIES D, B OR C IF NAME OTHERWISE EXCEEDS MAXIMUM SIGN LENGTH	
COLOR	WHITE LEGEND ON BLUE BACKGROUND	
LETTER TRACKING	17% (USUAL) 10% (MIN.)	10%

✱ ACRYLIC ELECTRONIC CUTTABLE FILM



9" GROUND MOUNT STREET NAME SIGNS
WITH STREET DESIGNATION





18" OVERHEAD STREET NAME SIGNS

SIGN FACE MATERIALS
SHALL CONFORM TO:

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

Bexar County Public Works

Street Name Sign Details

SHEET 1

KFW
ENGINEERS + SURVEYING
3421 Paesanos Pkwy, Suite 200, San Antonio, TX, 78231
Phone: 210.979.8444 • Fax: 210.979.8441
TBPE Firm # 9513 • TBPLS Firm # 10122300

REVISIONS ISSUE DATE

STATE OF TEXAS
JEFFREY W. MARTIN
139094
LICENSED
PROFESSIONAL ENGINEER
4/16/24

HUNTERS RIDGE SUBDIVISION, UNIT 5A
BEXAR COUNTY, TEXAS

TRAFFIC SIGNAGE DETAIL SHEET

PLAT NO.
22-11800743

JOB NO. 873-02-08
DATE: APRIL 2023
DRAWN: RS CHECKED: TE

SHEET NUMBER:
5.10

Date: Mar 28, 2024, 6:57pm User ID: sdurenti
File: L:\873.02\08 Design\Civil\STREETS\1509787302028.dwg

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SIGN SUPPORT DESCRIPTIVE CODES

Descriptive Codes corresponds to project estimate and quantities sheets.

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

Post Type
- FBP = Fiberglass Reinforced Plastic Pile (see SMD(FRP))
- TWT = Thin Wall Tubing (see SMD(TWT))
- 10WG = 10 BWG Tubing (see SMD(SLIP-1) no (SLIP-3))
- SBS = Schedule 80 Pile (see SMD(SLIP-1) no (SLIP-3))

Number of Posts (1 or 2)

Anchor Type
- UA = Universal Anchor - Concreted (see SMD(FRP) and (TWT))
- RS = Roadside Anchor - Surface Mounted (see SMD(FRP) and (TWT))
- WS = Wedge Anchor Steel - (see SMD(TWT))
- WP = Wedge Anchor Plastic (see SMD(TWT))
- SI = Slipbase - Direct Burial (see SMD(SLIP-1) no (SLIP-3))
- SB = Slipbase - Bolted Down (see SMD(SLIP-1) no (SLIP-3))

Sign Mounting Designation
- P = Posted, "Flats" (see SMD(SLIP-1) no (SLIP-3), (TWT), (FRP))
- T = Posted, "T" (see SMD(SLIP-1) no (SLIP-3), (TWT))
- U = Posted, "U" (see SMD(SLIP-1) no (SLIP-3))
- OT BOLDORED
- EXT = Extruded (EXT = Number of Extensions (see SMD(SLIP-1) no (SLIP-3), (TWT))
- EW = Extruded Wind Base (see SMD(SLIP-1) no (SLIP-3))
- WC = 1.12 #/ft Wing Channel (see SMD(SLIP-1) no (SLIP-3))
- EXAL = Extruded Aluminum Sign Panels (see SMD(SLIP-3))

REQUIRED CLEARANCE FOR BREAKAWAY SUPPORT

Non-breakaway portion of support

11 in., studs.

60" min.

Ground Surface

To avoid vehicle undercarriage snagging, any substantial remains of a breakaway support, when it is broken away, should not project above the ground surface more than 4 in., typical for space between posts.

SIGN LOCATION

PAVED SHOULDERS

12 ft min

HIGHWAY INTERSECTION AHEAD

6 to 6 ft

Greater than 6 ft

6 ft min

7.5 ft max 1.0 ft min +

Travel Lane

Paved Shoulder

LESS THAN 6 FT. WIDE

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

GREATER THAN 6 FT. WIDE

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

BEHIND BARRIER

5 ft/sec

2 ft/sec

Guard Rail

Concrete Barrier

BEHIND GUARDRAIL

+clip clearance based on distance required for proper guard rail or concrete barrier performance.

BEHIND CONCRETE BARRIER

T-INTERSECTION

12 ft min

6 ft min

7.5 ft max 1.0 ft min +

Travel Lane

Paved Shoulder

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

ROW

Paved Shoulder

Edge of Travel Lane

STOP

- Signs shall be mounted using the following condition that results in the greatest sign elevation:
  (1) a minimum of 7 ft a maximum of 7.5 feet above the edge of the travel lane or
  (2) a minimum of 7 ft a maximum of 7.5 feet above the ground line at the location of the support when sign is installed on the backslope.

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

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

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

TYPICAL SIGN ATTACHMENT DETAIL

Single Signs

Back-to-Back Signs

Grade

Sign Post

Sign Clamp

Sign Panel

Nylon washer, flat washer, lock washer, nut

Nut, lock washer

Sign Panel

Sign Post

Sign Clamp

Nylon washer, flat washer, lock washer, nut

Clamp Bolt

Sign Bolt

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

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

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

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

SIGNS WITH PLAQUES

7.5 ft min 10.0 ft max

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

CURB & GUTTER OR RAISED ISLAND

2 ft min

7 ft min

7.5 ft max 1.0 ft min +

Face of Curb

RESTRICTED RIGHT-OF-WAY (Use when 6 ft min. is not possible.)

Minimum possible

HIGHWAY INTERSECTION AHEAD

7.5 ft max 1.0 ft min +

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

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

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

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS GENERAL NOTES & DETAILS SMD(GEN)-08

ED\ROAD\ July 2002	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
9-08 REVISIONS	CONT	SECT	JOB	HIGHWAY
	DIST	COUNTY		SHEET NO.

254

TRIANGULAR SLIPBASE INSTALLATION GENERAL REQUIREMENTS

Bolt Square Plate Washer

10 BWG Tubing or Schedule 80 Pipe (See General Note 3)

Slip Base

5/8" structural bolts (3) - nuts, lock washers (6) per ASTM A325 or A449 and hardened washers (two 445, "Galvanizing," Bolt length: 1 1/2".

Washers if required by manufacturer

4" Min.

Stub

3/4 " Diameter hole, 4" deep, for 1" x 1/2" diameter rod or #4 rebar.

Cross A concrete

Non-reinforced concrete footing (shall be used unless noted elsewhere in the plans). Foundation should take approx. 2.5 cf of concrete.

36"

42"

12" min. diameter

12" Dia

SM RD SGN ASSM TY XXXXX(1)SLB-(1-XXXX)

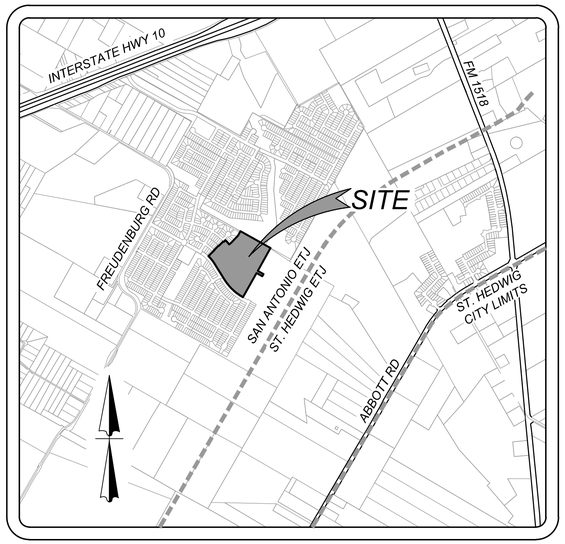
NOTE

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

GENERAL NOTES:
1. Slip base shall be permanently marked to indicate manufacturer, Method, design, and location of marking are subject to approval of the TxDOT Traffic Standards Engineer.
2. Slip base tubing and Schedule 80 pipe shall conform to the following specifications:
   10 BWG Tubing (0.135" outside diameter)
   0.134" nominal wall thickness
   Seamless or electric-resistance welded steel tubing or pipe
   Steel conforming to ASTM A500 Gr B/API Gr 5L/ASTM A1085
   Minimum mechanical properties, must meet the following:
   70,000 PSI minimum yield strength
   75,000 PSI minimum tensile strength
   21% minimum elongation in 2"
   Wall thickness (uncoated) shall be within the range of 0.122" to 0.136"
   Outside diameter (uncoated) shall be within the range of 2.627" to 2.691"
   Schedule 80 Pipe (2.875" outside diameter)
   Tube outside diameter and wall thickness may be used if they meet the following (ASTM A53/A53M, except that the weight tolerance shall be within ASTM A6/A6M, except that the weight tolerance shall be within the range of ASTM A53, except that the weight tolerance shall be within the range of ASTM A53, except that the weight tolerance shall be within the range of ASTM A53

HUNTER'S RIDGE SUBDIVISION, UNIT 5A

BEXAR COUNTY, TEXAS
SANITARY SEWER IMPROVEMENTS



LOCATION MAP
N.T.S

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OWNER/DEVELOPER:
FORESTAR (USA) REAL ESTATE GROUP INC.
16500 SAN PEDRO AVE, SUITE 400
SAN ANTONIO, TEXAS 78232
PHONE: (512) 433-5200

STATE OF TEXAS
JEFFREY W. MARTIN
139094
LICENSED PROFESSIONAL ENGINEER
8/13/24

KFW
ENGINEERS + SURVEYING
HAS JOINED COLLIERS ENGINEERING & DESIGN
3421 Paesanos Pkwy Suite 200, San Antonio, TX 78231
Phone #: (210) 979-8444 • Fax #: (210) 979-8441
TBPE Firm #: 9513 • TBPLS Firm #: 10122300

SAN ANTONIO RIVER AUTHORITY
Water Brings Us Together

SAN ANTONIO RIVER AUTHORITY
100 E. GUENTHER STREET
P.O. BOX 839980
SAN ANTONIO, TEXAS 78283-9980

JOB NO. - 873-02-08

PLAT NO. : 22-11800743

SHEET 6.0

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GENERAL NOTES:

1. SAN ANTONIO RIVER AUTHORITY (RIVER AUTHORITY) STANDARD SPECIFICATIONS AND STANDARD DETAILS ARE PROVIDED FOR DESIGN AND CONSTRUCTION OF SEWER COLLECTION SYSTEMS MANAGED BY THE RIVER AUTHORITY.

2. AT ANY TIME, THESE STANDARD SPECIFICATIONS AND DETAILS MAY BE ALTERED OR SUPERSEDED BY THE GENERAL CONDITIONS, SUPPLEMENTAL CONDITIONS, PLANS OR PROJECT SPECIFICATIONS WITHIN THE CONTRACT DOCUMENT PER DIRECTION FROM THE RIVER AUTHORITY.

3. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL BE APPROVED BY RIVER AUTHORITY AND COMPLY WITH THE CONTRACT DOCUMENTS AND THE FOLLOWING AS APPLICABLE:

   3.1. CURRENT TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) "DESIGN CRITERIA FOR DOMESTIC WASTEWATER SYSTEM", TEXAS ADMINISTRATIVE CODE (TAC) TITLE 30, PART 1, CHAPTER 217.

   3.2. CURRENT TEXAS DEPARTMENT OF TRANSPORTATION (TXDOT), "STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS AND DRAINAGE".

   3.3. CURRENT RIVER AUTHORITY "STANDARD SPECIFICATIONS FOR SANITARY SEWER CONSTRUCTION".

   3.4. CURRENT CITY OF SAN ANTONIO "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION". CURRENT CITY OF SAN ANTONIO "UTILITY EXCAVATION CRITERIA MANUAL".

4. THE CONTRACTOR IS TO NOTIFY AND MAKE ARRANGEMENTS WITH THE RIVER AUTHORITY INSPECTIONS DIVISION AT (210) 302-4200 FORTY EIGHT (48) HOURS PRIOR TO ANY EXCAVATION. CONTRACTOR SHALL ALSO PROVIDE PROCEDURES THAT WILL BE USED TO NOTIFY AFFECTED RESIDENTS AND/OR PROPERTY OWNERS 48 HOURS PRIOR TO ANY EXCAVATION OR CONSTRUCTION. A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD BEFORE START OF PROJECT.

5. WORK SHALL NOT BE PERFORMED ON SATURDAYS, SUNDAYS, FEDERAL HOLIDAYS, RIVER AUTHORITY HOLIDAYS, BEFORE 7:30 AM, OR AFTER 4:30 PM, UNLESS PRIOR APPROVAL IS GRANTED BY THE RIVER AUTHORITY ENGINEER. REQUEST TO PERFORM WORK DURING THESE TIMES MUST BE EMAILED 48 HOURS IN ADVANCE TO UTILITIESDEVELOPMENT@SARIVERAUTHORITY.ORG.

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

7. WORK COMPLETED BY CONTRACTOR WHICH HAS NOT RECEIVED A WORK ORDER OR THE CONSENT OF RIVER AUTHORITY WILL BE SUBJECT TO REMOVAL AND REPLACEMENT AT THE EXPENSE OF THE CONTRACTOR.

8. LOCATIONS AND DEPTHS OF EXISTING UTILITIES AND SERVICE LATERALS SHOWN ON THE PLANS ARE UNDERSTOOD TO BE APPROXIMATE. ACTUAL LOCATIONS AND DEPTHS MUST BE FIELD VERIFIED BY THE CONTRACTOR AT LEAST 48 HOURS PRIOR TO CONSTRUCTION REGARDLESS OF ILLUSTRATION ON THE PLANS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE UTILITY SERVICE LINES AS REQUIRED FOR CONSTRUCTION AND TO PROTECT THEM DURING CONSTRUCTION AT NO COST TO RIVER AUTHORITY. CONTRACTOR WILL BE RESPONSIBLE FOR ANY DAMAGES TO EXISTING UTILITIES AND REPAIRS WILL BE AT CONTRACTOR'S EXPENSE.

9. CERTAIN PORTIONS OF THE PROJECT MAY PARALLEL AND/OR CROSS EXISTING UTILITIES, AND CONTRACTOR IS REQUIRED TO PROTECT THESE UTILITIES. ADDITIONAL SUPPORTIVE SHORING MAY BE REQUIRED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROTECT ALL PERSONNEL ON SITE, EXISTING UTILITIES, AND FINISHED WORK THROUGHOUT THE PROJECT. CONTRACTOR WILL BE RESPONSIBLE FOR ANY DAMAGES, AND REPAIRS WILL BE AT CONTRACTOR'S FULL EXPENSE.

10. WHERE WATER LINES AND NEW SEWER LINES ARE INSTALLED WITH A SEPARATION DISTANCE LESS THAN 9 FEET (I.E. WATER LINES CROSSING WASTEWATER LINES, WATER LINES PARALLELING WASTEWATER LINES OR WATER LINES NEXT TO MANHOLES), THE INSTALLATION MUST MEET THE REQUIREMENTS OF 30 TAC 217 AND 30 TAC 290.

11. DUE TO FEDERAL REGULATIONS TITLE 49, PART 192.161, CPS MUST MAINTAIN ACCESS TO GAS VALVES AT ALL TIMES. THE CONTRACTOR MUST PROTECT AND WORK AROUND VALVES THAT ARE IN THE PROJECT AREAS.

12. A SAFE OVERHEAD CLEARANCE MUST BE MAINTAINED BETWEEN ALL OVERHEAD EQUIPMENT AND PERSONNEL. THE CONTRACTOR SHALL NOTIFY CPS AT LEAST 48 HOURS PRIOR TO ANY CONSTRUCTION IN THE VICINITY OF CPS OVERHEAD LINES. CONTRACTOR SHALL MAINTAIN CPS RECOMMENDED CLEARANCE REQUIREMENTS.

13. ALL WORK IN THE TEXAS DEPARTMENT OF TRANSPORTATION (TXDOT) RIGHT-OF-WAY SHALL PROCEED DURING WORKING HOURS AGREED UPON BY RIVER AUTHORITY AND TXDOT INSPECTORS.

14. BEFORE THE START OF ANY CONSTRUCTION, CONTRACTOR SHALL FULLY DOCUMENT THE SITE WITH PHOTOS AND DIGITAL VIDEO WITH ONE COPY SUBMITTED TO RIVER AUTHORITY PRIOR TO STARTING WORK. THE PRE-CON SITE VIDEO SHALL PROVIDE ACCURATE DOCUMENTATION OF EXISTING CONDITIONS.

15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING EXISTING FENCES, CURBS, STREETS, DRIVEWAYS, SIDEWALKS, LANDSCAPING AND STRUCTURES TO ORIGINAL OR BETTER CONDITION AS A RESULT OF DAMAGE DONE DURING THE PROJECT CONSTRUCTION.

16. ANY AND ALL FENCING, INCLUDING ELECTRIC FENCE, WHETHER OR NOT IDENTIFIED ON THE PLANS, MUST BE MAINTAINED AT ALL TIMES. ANY AND ALL DAMAGES DIRECTLY ATTRIBUTED TO THE CONTRACTOR MUST BE REPLACED TO EQUAL OR BETTER CONDITIONS AT THE CONTRACTOR'S EXPENSE AND AS APPROVED BY THE RIVER AUTHORITY INSPECTOR. GATES, OR GAPS IN THE FENCING IF APPROVED, MUST BE PROVIDED AT ALL LOCATIONS WHERE THE SEWER LINE EASEMENT CROSSES FENCING. FENCING REQUIRED TO MAINTAIN LIVESTOCK MUST BE MAINTAINED AT ALL TIMES. ALL GATES SHALL BE APPROVED PRIOR TO INSTALLATION.

17. CONTRACTOR MUST AVOID DAMAGE TO ADJACENT LAND OUTSIDE THE IDENTIFIED CONSTRUCTION LIMITS OR EASEMENTS. ANY CLAIMS DIRECTLY ATTRIBUTED TO THE CONTRACTOR RESULTING FROM STRAYING BEYOND THE CONSTRUCTION LIMITS MUST BE SETTLED BY THE CONTRACTOR TO THE SATISFACTION OF RIVER AUTHORITY AND THE APPROPRIATE LANDOWNER.

18. CONTRACTOR MUST MAINTAIN ACCESS FOR PRIVATE INDIVIDUALS AND BUSINESSES AT ALL TIMES. IF NORMAL ACCESS IS DAMAGED DURING CONSTRUCTION, THE CONTRACTOR MUST REPLACE THE ACCESS TO EQUAL OR BETTER CONDITION AT THE CONTRACTOR'S EXPENSE AND AS APPROVED BY RIVER AUTHORITY.

19. CONTRACTOR MUST COMPLY WITH TEXAS GOVERNMENT CODE SECTION 2166.303 UNIFORM TRENCH SAFETY CONDITIONS.

20. CONTRACTOR SHALL NOT BACKFILL ANY TRENCHES UNTIL INSPECTION CAN BE CONDUCTED BY THE RIVER AUTHORITY. NO OPEN TRENCHES SHALL BE PERMITTED OVERNIGHT. ALL ENDS OF OPEN PIPE SHALL BE PLUGGED OVERNIGHT.

21. CONTRACTOR SHALL HAVE THE LATEST APPROVED COPY OF PLANS AND SPECIFICATIONS ON SITE AT ALL TIMES FOR REFERENCE.

22. NO TREES SHALL BE REMOVED AS PART OF THIS PROJECT UNLESS OTHERWISE SPECIFIED IN THE PLANS.

23. FOR PORTIONS OF THE CONSTRUCTION THAT ARE WITHIN THE LIMITS OF THE 100-YEAR FLOODPLAIN, THE CONTRACTOR IS REQUIRED TO KEEP THE CHANNEL CLEAR OF POTENTIAL OBSTRUCTIONS TO FLOOD FLOWS. POTENTIAL OBSTRUCTIONS INCLUDE HEAVY CONSTRUCTION EQUIPMENT, TEMPORARY ROADS ACROSS CHANNEL, EXCAVATED MATERIAL, STOCKPILED DEBRIS, AND ALL OTHER ITEMS DEEMED UNACCEPTABLE BY RIVER AUTHORITY. UNDER THREATENING WEATHER CONDITIONS AND WHERE FLOODING IS LIKELY, OBSTRUCTIONS SHALL BE IMMEDIATELY REMOVED BY THE CONTRACTOR AT NO ADDITIONAL COST TO RIVER AUTHORITY. THE CONTRACTOR ASSUMES ALL RISK FOR UNFINISHED WORK. NO EQUIPMENT OR MATERIALS SHALL BE STOCKPILED IN THE 100-YEAR FLOODPLAIN OVERNIGHT.

24. NO WASTE MATERIAL SHALL BE PLACED IN EXISTING DRAINAGE AREAS THAT WILL BLOCK OR ALTER FLOW LIMITS OR NATURAL DRAINAGE.

25. IF A THREATENED OR ENDANGERED PLANT OR ANIMAL SPECIES AND/OR CULTURAL/ARCHAEOLOGICAL RESOURCES ARE ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL STOP WORK IMMEDIATELY AND NOTIFY THE APPROPRIATE PERSONNEL.

SEWER NOTES:

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

   26.1. IDENTIFY THE SOURCE OF THE SSO AND ATTEMPT TO ELIMINATE ANY ADDITIONAL SPILLAGE.
   26.2. NOTIFY RIVER AUTHORITY CONSTRUCTION INSPECTIONS DIVISION AT (210) 302-4200 AND ATTEMPT TO ELIMINATE THE SOURCE OF THE SSO.
   26.3. CONTAIN SEWAGE FROM THE SSO TO PREVENT CONTAMINATION OF WATERWAYS.
   26.4. CLEAN UP THE SPILL AREA AND REMOVE CONTAMINATED MATERIALS.
   26.5. DISINFECT THE AREA OF THE SPILL THE PROPER MIXTURE OF HTH CHLORINE AND WATER.
   26.6. CLEAN THE AFFECTED SEWER LINE AND REMOVE ANY DEBRIS.
   26.7. IDENTIFY AND TRAIN PERSONNEL RESPONSIBLE FOR SPILLAGE PREVENTION AND CONTROL.
   26.8. NO SEPARATE MEASUREMENT OR PAYMENT SHALL BE MADE FOR THIS WORK. ALL WORK SHALL BE DONE ACCORDING TO GUIDELINES SET BY THE TCEQ AND RIVER AUTHORITY.

27. THE CONTRACTOR SHALL PROVIDE BYPASS PUMPING OF SEWAGE AROUND EACH SEGMENT OF PIPE TO BE REPLACED. CONTRACTOR SHALL HAVE STANDBY PUMPS AVAILABLE TO BYPASS FLOW IN CASE PRIMARY PUMP FAILS. THE CONTRACTOR SHALL PROVIDE A SEQUENCE OF BYPASS PUMPING FOR REVIEW AND APPROVAL BY RIVER AUTHORITY. THE CONTRACTOR SHALL ALSO PROVIDE A DETAILED SKETCH SHOWING THE LOCATION OF BYPASS PUMPING; SPECIFICATIONS FOR THE PUMPING EQUIPMENT; AND TYPE, SIZE, CAPACITY AND NUMBER OF PUMPS REQUIRED TO HANDLE THE PEAK WET WEATHER FLOW.

28. CONTRACTOR WILL MAINTAIN SERVICE TO ALL EXISTING SANITARY SEWERS AT ALL TIMES DURING CONSTRUCTION. CONTRACTOR WILL CLEAN ALL DEBRIS, GRAVEL, DIRT, ETC. OUT OF MANHOLES AND FIX ANY STOPPAGES CAUSED BY DEBRIS DURING CONSTRUCTION AT CONTRACTOR'S EXPENSE. ANY DAMAGE TO EXISTING MANHOLES OR SEWER MAIN WILL BE CORRECTED AT CONTRACTOR'S EXPENSE. CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO PREVENT DAMAGE TO EXISTING OR NEW RINGS, COVERS, OR CONES FROM EQUIPMENT AND MATERIALS USED OR TAKEN THROUGH THE WORK AREA. IF AN EXISTING OR NEW MANHOLE COVER, RING, OR CONE IS DAMAGED BY THE CONTRACTOR, IT SHALL BE REPLACED AS DIRECTED BY THE RIVER AUTHORITY INSPECTOR. MANHOLES WILL NEED TO BE RESEALED WITH RIVER AUTHORITY APPROVED SEALANT. IF SEAL COATING IS COMPROMISED, CONTRACTOR WILL HAVE MANHOLE RECOATED AND RESEAL ALL LEAKS AT CONTRACTOR EXPENSE.

29. CONTRACTOR TO ENSURE ALL PLUGS USED TO PLUG SEWER LINES WHILE TESTING THE PROJECT ARE LABELED, MARKED OR TAGGED. THE CONTRACTOR SHALL RECORD HOW MANY PLUGS ARE BEING USED, AS WELL AS THE LOCATION AND IDENTIFICATION OF EACH PLUG. CONTRACTOR WILL REPORT TO PROJECT INSPECTOR OF ANY LOST OR UNRESTRAINED PLUGS. CONTRACTOR SHALL ONLY BE ALLOWED TO USE SCREW TYPE PLUG ON PROJECT.

30. CONTRACTOR WILL BE HELD LIABLE FOR ANY DAMAGE TO SEWER COLLECTION SYSTEM, WASTEWATER TREATMENT EQUIPMENT, STOPPAGES, OVER-FLOWS, OR BACKUPS INTO HOMES CAUSED BY LOST OR RUNAWAY SEWER PLUGS.

31. RIVER AUTHORITY IS NOT RESPONSIBLE FOR ANY ABNORMALITIES ON STUB OUT, INVERT, GRADE OR SLOPE FOR ANY EXISTING MANHOLE TIE-IN OR SERVICE LATERALS. CONTRACTOR SHALL BE RESPONSIBLE FOR RE-CONSTRUCTION, IF NECESSARY.

MANHOLE NOTES:

32. ALL MANHOLES SHALL BE CONSTRUCTED PER LATEST DETAILED DRAWINGS AND SPECIFICATIONS, UNLESS AN EXCEPTION IS NOTED.

33. PENETRATION INTO THE MANHOLE WILL BE CORE DRILLED. ANY DAMAGE TO EXISTING MANHOLE WILL BE REPAIRED AT CONTRACTOR'S EXPENSE. IF EXISTING SEWER MANHOLE SEAL COATING IS COMPROMISED, ALL OF THE MANHOLE WILL BE RESEALED AND RECOATED PER CURRENT SPECIFICATIONS AND APPROVED PRODUCT LIST.

34. IF ANY EXISTING MANHOLES CONNECTED WITH THIS PROJECT ARE FOUND TO HAVE INFILTRATION, THE MANHOLES SHALL BE SEALED AND TESTED AT CONTRACTORS EXPENSE.

35. UPON REQUEST FROM THE RIVER AUTHORITY, CONTRACTOR SHALL PROVIDE SAMPLE VERIFYING PROPER INSTALLATION OF FLOWABLE BACKFILL, INCLUDING, BUT NOT LIMITED TO CORE SAMPLES.

SANITARY SEWER PIPING:

36. THE TYPE AND DESCRIPTION OF THE PIPE IS SHOWN ON THE PLANS. REFER TO RIVER AUTHORITY SPECIFICATIONS AND APPROVED PRODUCT LIST FOR MATERIALS, STIFFNESS, AND TYPE.

37. SIZES AND GRADES FOR SANITARY SEWER SHALL BE AS REQUIRED BY THE RIVER AUTHORITY ENGINEER.

38. NO SANITARY SEWERS, OTHER THAN LATERALS AND FORCE MAINS, SHALL BE LESS THAN EIGHT (8) INCH IN DIAMETER.

SEWER SERVICE LATERALS:

39. WHEN SEWER LATERALS ARE TO BE CONNECTED TO EXISTING SEWER MAINS AND NO STUB-OUT HAS BEEN PROVIDED, THE CONNECTION MUST BE CONDUCTED PER THE LATEST RIVER AUTHORITY STANDARD DETAILS AND APPROVED PRODUCT LIST. REFER TO THE RIVER AUTHORITY APPROVED PRODUCTS LIST FOR ACCEPTABLE FITTINGS AND CONNECTIONS.

40. ALL RESIDENTIAL SERVICE LATERALS SHALL BE SDR 26 PVC WITH RATING OF 115 PSI OR 160 PSI, DETERMINED BY RIVER AUTHORITY SPECIFICATION. LINE SHALL BE EXTENDED TO THE PROPERTY LINE AND CAPPED AND SEALED. ATTACH SEWER BURIAL TAPE TO THE END OF ALL SEWER LATERALS AND BRING UP TO THE GROUND LEVEL FOR MARKER (GREEN). (SEE HOUSE LATERALS DETAILS).

41. UPON REQUEST FROM THE SAN ANTONIO RIVER AUTHORITY, CONTRACTOR SHALL PROVIDE SAMPLE VERIFYING PROPER INSTALLATION OF FLOWABLE BACKFILL, INCLUDING, BUT NOT LIMITED TO CORE SAMPLES.

SANITARY SEWER PIPING:

42. THE TYPE AND DESCRIPTION OF THE PIPE IS SHOWN ON THE PLANS. REFER TO LATEST RIVER AUTHORITY SPECIFICATIONS AND APPROVED PRODUCT LIST FOR MATERIALS, STIFFNESS, AND TYPE.

43. SIZES AND GRADES FOR SANITARY SEWER SHALL BE AS REQUIRED BY THE RIVER AUTHORITY ENGINEER.

44. NO SANITARY SEWERS, OTHER THAN LATERALS AND FORCE MAINS, SHALL BE LESS THAN EIGHT (8) INCH IN DIAMETER.

SANITARY SEWER TESTING:

45. TESTING SHALL NOT BE CONDUCTED UNTIL ALL OTHER UTILITIES WITHIN THE VICINITY OF SANITARY SEWER ARE FULLY INSTALLED.

46. TESTING SHALL BE CONDUCTED PER LATEST RIVER AUTHORITY SPECIFICATIONS AND SHALL NOT BEGIN WITHOUT 48 HOURS NOTICE TO RIVER AUTHORITY INSPECTOR.

47. A COPY OF ALL TESTING REPORTS, INCLUDING BACKFILL COMPACTION, SHALL BE FORWARDED TO THE RIVER AUTHORITY IMMEDIATELY.

48. DENSITY TESTING WILL BE REQUIRED ON ALL SANITARY SEWER TRENCHES INCLUDING SERVICE LATERALS. TESTING FOR SERVICE LATERALS TO BE IDENTIFIED BY RIVER AUTHORITY INSPECTOR AT RANDOM. DENSITY TESTING FOR SERVICE LATERALS SHALL NOT EXCEED 25% OF TOTAL NUMBER OF LATERALS.

EXCAVATION:

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

50. IF A SAFETY VIOLATION IS NOTED BY A RIVER AUTHORITY INSPECTOR, THE RIVER AUTHORITY RESERVES THE RIGHT TO STOP WORK.

51. CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF ALL WASTE MATERIALS UPON PROJECT COMPLETION.

52. CONTRACTOR IS RESPONSIBLE FOR UPDATING AND MAINTAINING ALL FIELD UTILITY MARKINGS.

SAN ANTONIO RIVER AUTHORITY
100 E. GUENTHER STREET
SAN ANTONIO, TEXAS 78283

DESIGNED BY:
DRAWN BY:
CHECKED BY:
APPROVED BY:
DATE:
FILE:

NO.	REVISION	DATE	BY

REVISED 3/31/2024

GENERAL NOTES

SHEET 1 OF 1

KFW ENGINEERS + SURVEYING
3421 Paesanos Pkwy, Suite 200, San Antonio, TX 78231
Phone: 210.979.8444 Fax: 210.979.8441
TBPE Firm #: 8513 - TBPLS Firm #: 10122300

ISSUE DATE

REVISIONS

STATE OF TEXAS
JEFFREY W. MARTIN
139094
LICENSED
PROFESSIONAL ENGINEER
8/13/24

HUNTERS RIDGE SUBDIVISION, UNIT 5A
BEXAR COUNTY, TEXAS

SANITARY SEWER GENERAL NOTES

PLAT NO. 22-11800743

JOB NO. 873-02-08
DATE: APRIL 2023
DRAWN: RS CHECKED: TE

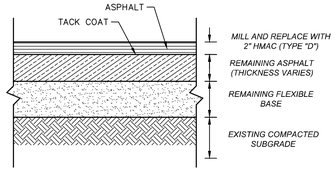
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Date: Jul 08, 2024, 4:39pm User ID: carlos.barrera
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DRY UTILITY CONDUIT NOTE:
CONDUIT LOCATIONS SHOWN ON PLAN ARE FOR GEOGRAPHICAL PURPOSES ONLY AND ARE APPROXIMATE. CONTRACTOR TO INSTALL PROPOSED 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:
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2" MILL & OVERLAY DETAIL
NOT-TO-SCALE

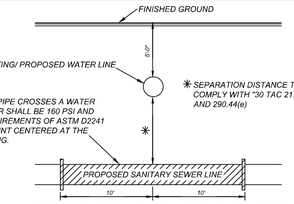
TRENCH EXCAVATION SAFETY PROTECTION

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MANHOLE NOTE:
ALL MANHOLES MUST BE WATERTIGHT, WITH WATERTIGHT RINGS AND COVERS. EVERY 3RD MANHOLE IN SEQUENCE MUST BE VENTED PER S.A.R.A DETAIL SHEET.

CAUTION!!:
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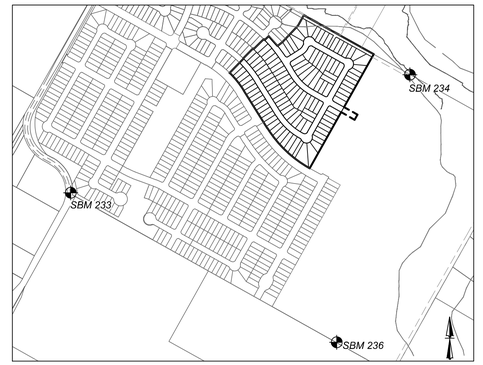
SEWER LATERAL NOTE:
SANITARY SEWER LATERALS MUST ALL BE CLASS 160 SDR 26. NO 6" SANITARY SEWER LATERAL CLEANOUTS ALLOWED IN DRIVEWAYS OR SIDEWALKS. REFER TO SARA SPECS.

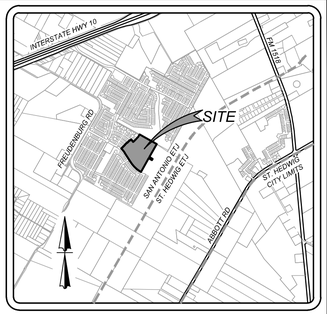


TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.

NOTE:
1. *SEWER PIPE WHERE WATER LINE CROSSES SHALL 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 SHEETS 6.1, SANITARY SEWER GENERAL NOTES.*
2. *SEE THIS SHEET FOR BENCHMARK INFORMATION.*
3. *PIPE TYPE DESIGNATIONS ARE SDR 26.*
4. *ALL MANHOLES SHALL HAVE CONCRETE RING ENCASEMENT AND A WATER TIGHT RING AND COVER. SEE STANDARD SPECIFICATIONS.*
5. *SEE THIS SHEET FOR TYPICAL SANITARY SEWER/WATER CROSSING DETAIL.*
6. *MANHOLES WILL NEED TO BE RESEALED WITH THE SARA APPROVED SEALING. IF SEAL COATING IS BROKEN, CONTRACTOR WILL HAVE MANHOLE RECOATED. RESEAL ALL LEAKS AT CONTRACTOR EXPENSE.*

NOTE:
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LOCATION MAP
N.T.S

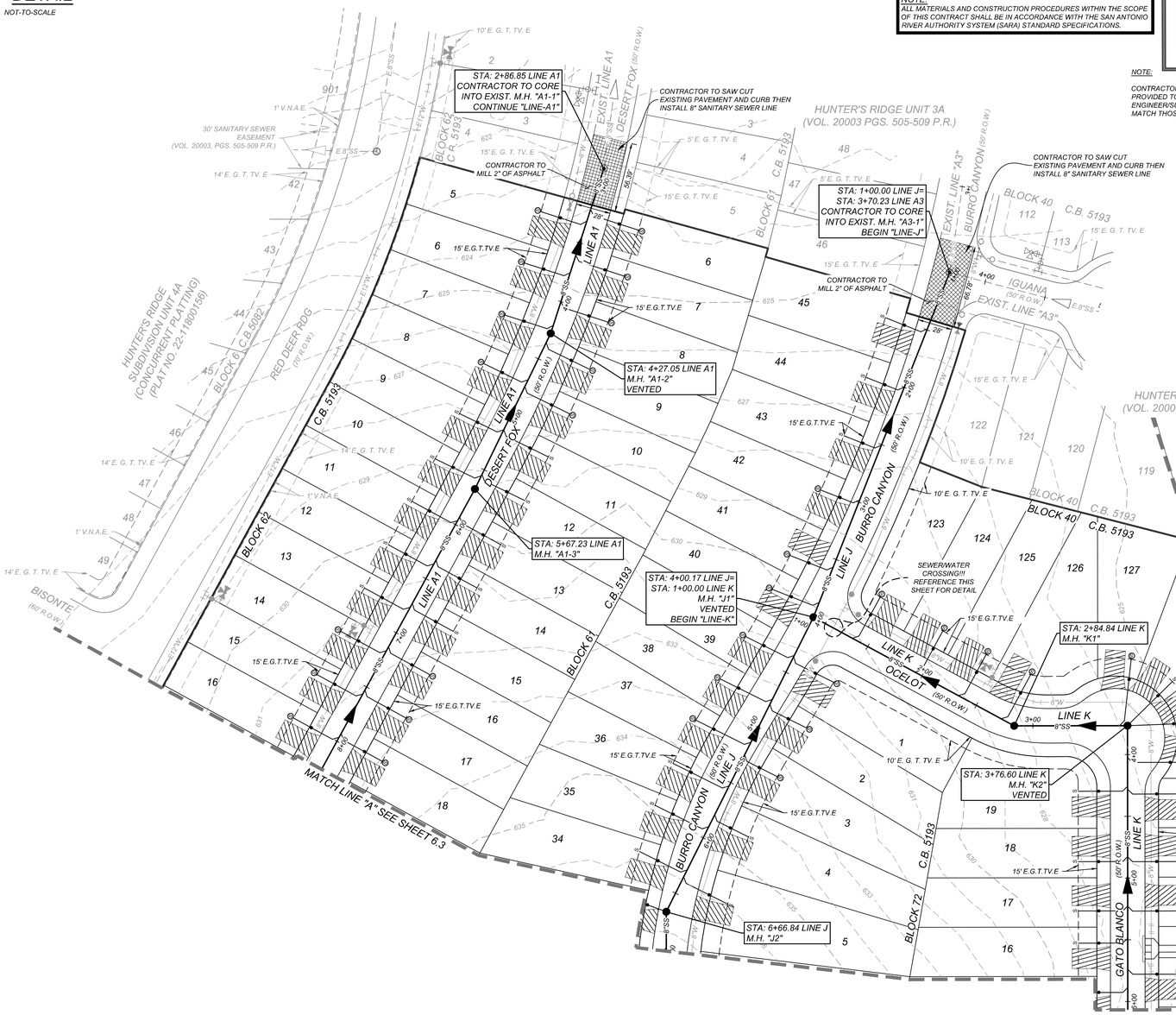
BENCHMARKS

SBM 233	SBM 234	SBM 236
CHISLED SQUARE X IN CONCRETE	CHISLED SQUARE X IN CONCRETE	CHISLED SQUARE X IN CONCRETE
ELEVATION 614.64	ELEVATION 612.07	ELEVATION 596.44
NORTHING: 13721052.35	NORTHING: 13722067.41	NORTHING: 13719764.65
EASTING: 2210371.1780	EASTING: 2213289.91	EASTING: 2212659.255

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



LEGEND

PROPOSED WATER MAIN	=	W
PROPOSED WATER SERVICE & METER BOX	=	W
PROPOSED WATER SERVICE & METER BOX WITH PRESSURE REDUCING VALVE	=	W
PROPOSED WATER 3/4" IRRIGATION SERVICE & 5/8" METER BOX	=	W
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED 100W STREETLIGHT	=	
PROPOSED 250W STREETLIGHT	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	
PROPOSED SANITARY SEWER LATERAL	=	SS
PROPOSED SANITARY SEWER LATERAL WITH VERTICAL STACK	=	SS
PROPOSED ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E. G. T. TV. E
PROPOSED 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 OVERHEAD ELECTRIC W/POWER POLE	=	OHE
EXISTING GUY WIRE/OVERHEAD ELECTRIC	=	OHE
PROPOSED DRIVEWAY LOCATIONS	=	

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ISSUE DATE
REVISIONS

STATE OF TEXAS
JEFFREY W. MARTIN
139094
LICENSED PROFESSIONAL ENGINEER
8/13/24

HUNTERS RIDGE SUBDIVISION, UNIT 5A
BEXAR COUNTY, TEXAS

OVERALL SANITARY SEWER PLAN

PLAT NO. 22-11800743

JOB NO. 873-02-08
DATE: APRIL 2023
DRAWN: RS CHECKED: TE

SHEET NUMBER:
6.2

Date: Jul 03, 2024, 2:24pm User ID: carlos.barrera
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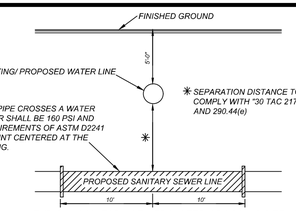
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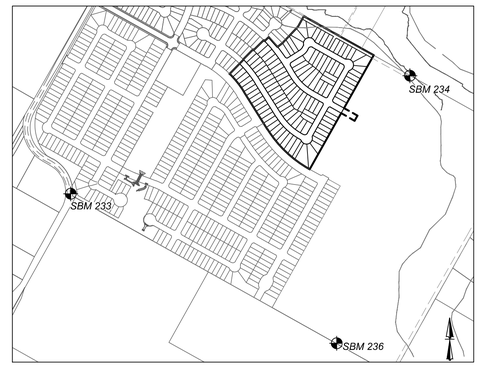
WHERE SEWER PIPE CROSSES A WATER LINE, THE SEWER SHALL BE 160 PSI AND MEET THE REQUIREMENTS OF ASTM D2241 WITH ONE 20' JOINT CENTERED AT THE WATER CROSSING.

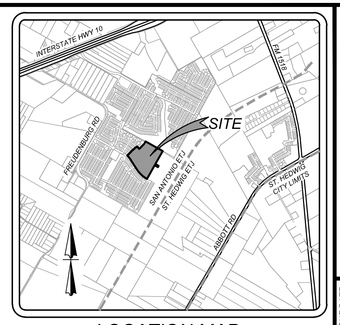
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LOCATION MAP
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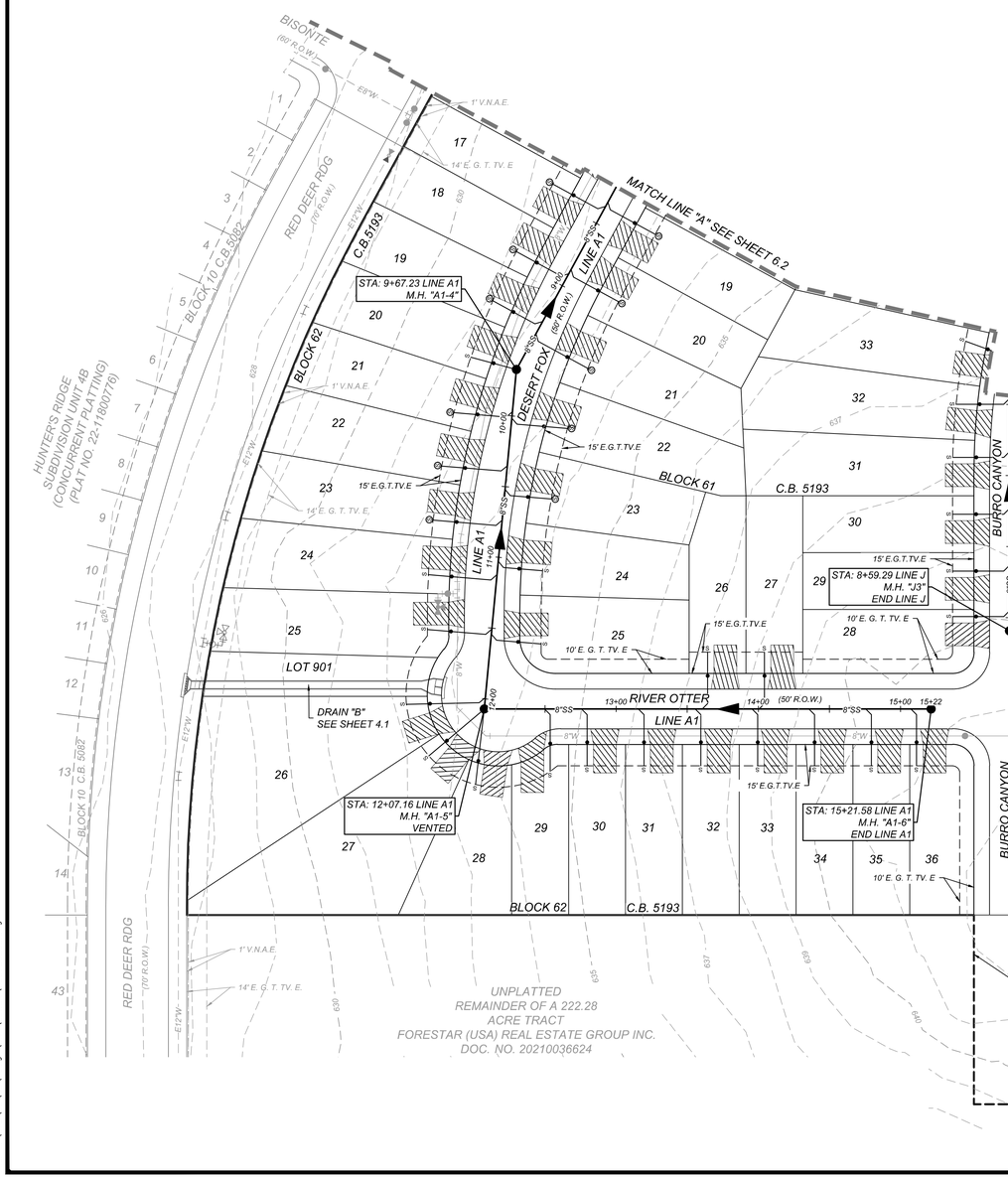
BENCHMARKS

SBM 233	SBM 234	SBM 236
CHISLED SQUARE X IN CONCRETE	CHISLED SQUARE X IN CONCRETE	CHISLED SQUARE X IN CONCRETE
ELEVATION 614.64	ELEVATION 612.07	ELEVATION 596.44
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SCALE : 1" = 50'
0' 50' 150'
100'



LEGEND

PROPOSED WATER MAIN	W
PROPOSED WATER SERVICE & METER BOX	W
PROPOSED WATER SERVICE & METER BOX WITH PRESSURE REDUCING VALVE	W
PROPOSED WATER 3/4" IRRIGATION SERVICE & 5/8" METER BOX	W
PROPOSED FIRE HYDRANT	
PROPOSED WATER VALVE	
PROPOSED 100W STREETLIGHT	
PROPOSED 250W STREETLIGHT	
PROPOSED SANITARY SEWER MAIN	SS
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HUNTERS RIDGE SUBDIVISION, UNIT 5A

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PLAT NO. 22-11800743

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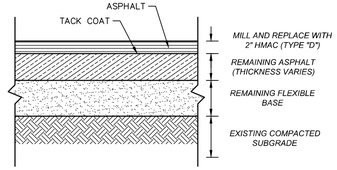
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2" MILL & OVERLAY DETAIL

NOT-TO-SCALE

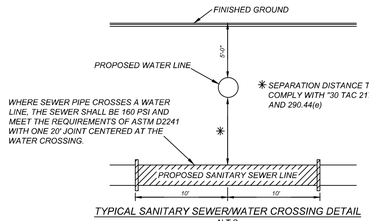
NOTE:

1. SEWER PIPE WHERE WATER LINE CROSSES SHALL BE MEET THE REQUIREMENTS OF ASTM D2241.
2. 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 6.1, SANITARY SEWER GENERAL NOTES, SARA CRITERIA FOR SEWER MAIN CONSTRUCTION IN THE VICINITY OF WATER MAINS.
3. SEE THIS SHEET FOR BENCHMARK INFORMATION.
4. PIPE TYPE DESIGNATIONS ARE SDR 26.
5. SEE THIS SHEET FOR TYPICAL SANITARY SEWER / WATER CROSSING DETAIL.
6. ALL MANHOLES SHALL HAVE CONCRETE RING ENCASEMENT AND A WATER TIGHT RING AND COVER.
7. NO 6" CLEANOUTS SHALL BE LOCATED UNDER DRIVEWAYS OR SIDEWALKS.
8. LATERAL CONNECTIONS MADE TO EXISTING INFRASTRUCTURE WILL NEED TO BE COMPLETED USING AN INSERTA TEE OR APPROVED EQUAL.
9. MANHOLES WILL NEED TO BE RESEALED WITH SARA APPROVED SEALING. IF SEAL COATING IS BROKEN, CONTRACTOR WILL HAVE MANHOLE RECOATED. RESEAL ALL LEAKS AT CONTRACTOR EXPENSE.
10. WASTEWATER PIPING (INCLUDING MAINS, SERVICES, AND LATERALS) SHALL BE SLEEVED WITH STEEL CASING WITH SARA APPROVED CASING WHEN LOCATED UNDER BOX CULVERTS OR MULTIPLE BARREL STORM SEWER CROSSINGS REGARDLESS OF SIZE AND SINGLE BARRELS 30" OR LARGER.

CAUTION!!!
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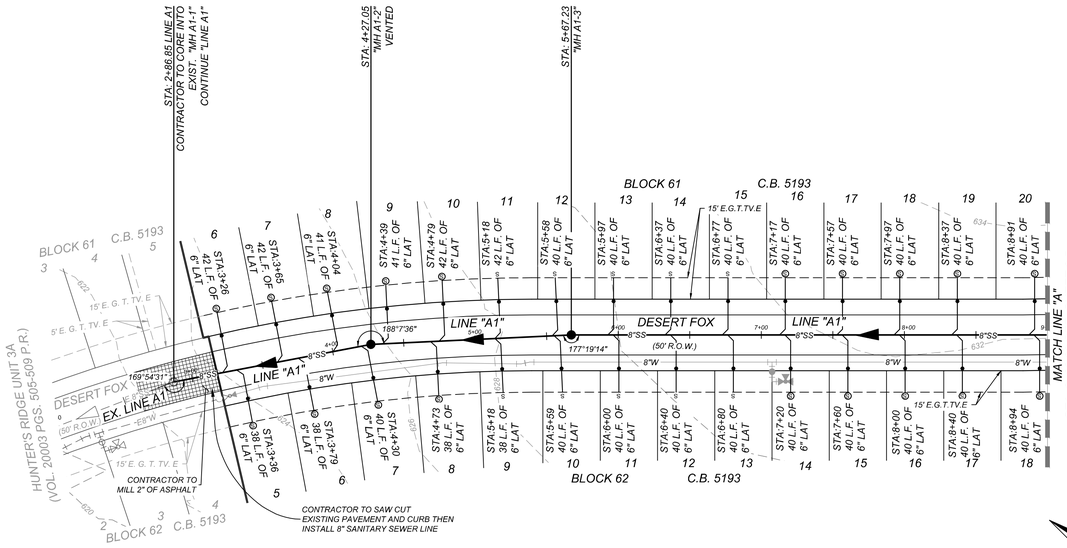
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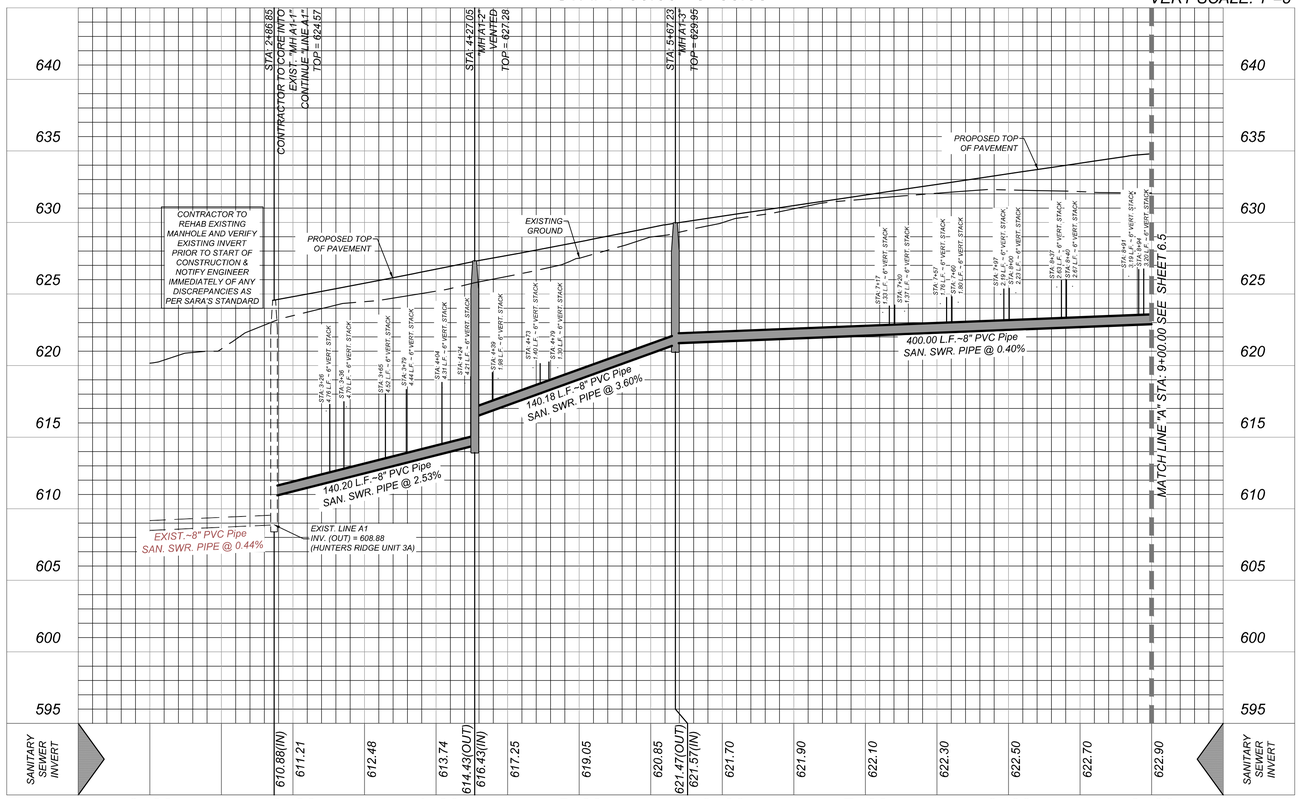
TYPICAL SANITARY SEWER/WATER CROSSING DETAIL

N.T.S.



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

LINE A1
STA. 1+00.00 - 9+00.00



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ISSUE DATE

REVISIONS

JEFFREY W. MARTIN
139094
LICENSED PROFESSIONAL ENGINEER
8/13/24

HUNTERS RIDGE SUBDIVISION, UNIT 5A
BEXAR COUNTY, TEXAS

LINE "A1" PLAN & PROFILE (1 OF 2)

PLAT NO. 22-11800743

JOB NO. 873-02-08
DATE: APRIL 2023
DRAWN: RS CHECKED: TE

SHEET NUMBER: 6.4

Date: Jul 09, 2024, 1:54pm User ID: carlos.barrera
File: L:\873\CAD\Civil Design\Civil SEWER\SSP1873SS20208.dwg

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TRENCH EXCAVATION SAFETY PROTECTION

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NOTE:

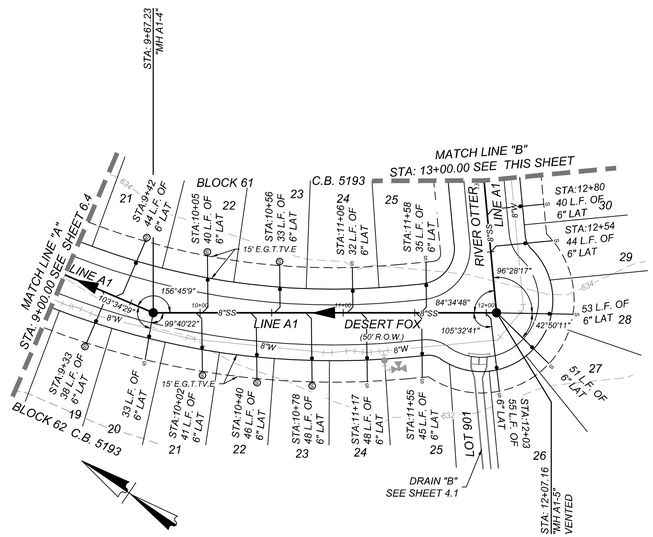
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2. *SEE THIS SHEET FOR BENCHMARK INFORMATION.*
3. *PIPE TYPE DESIGNATIONS ARE SDR 26.*
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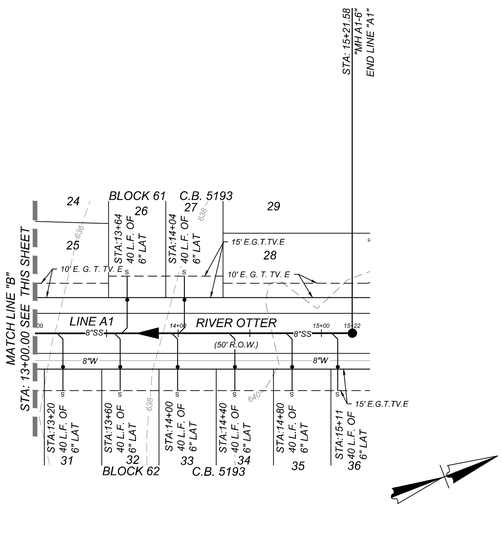
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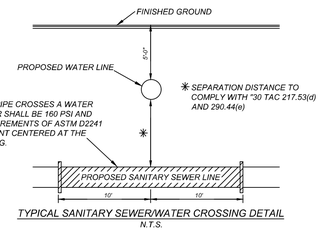
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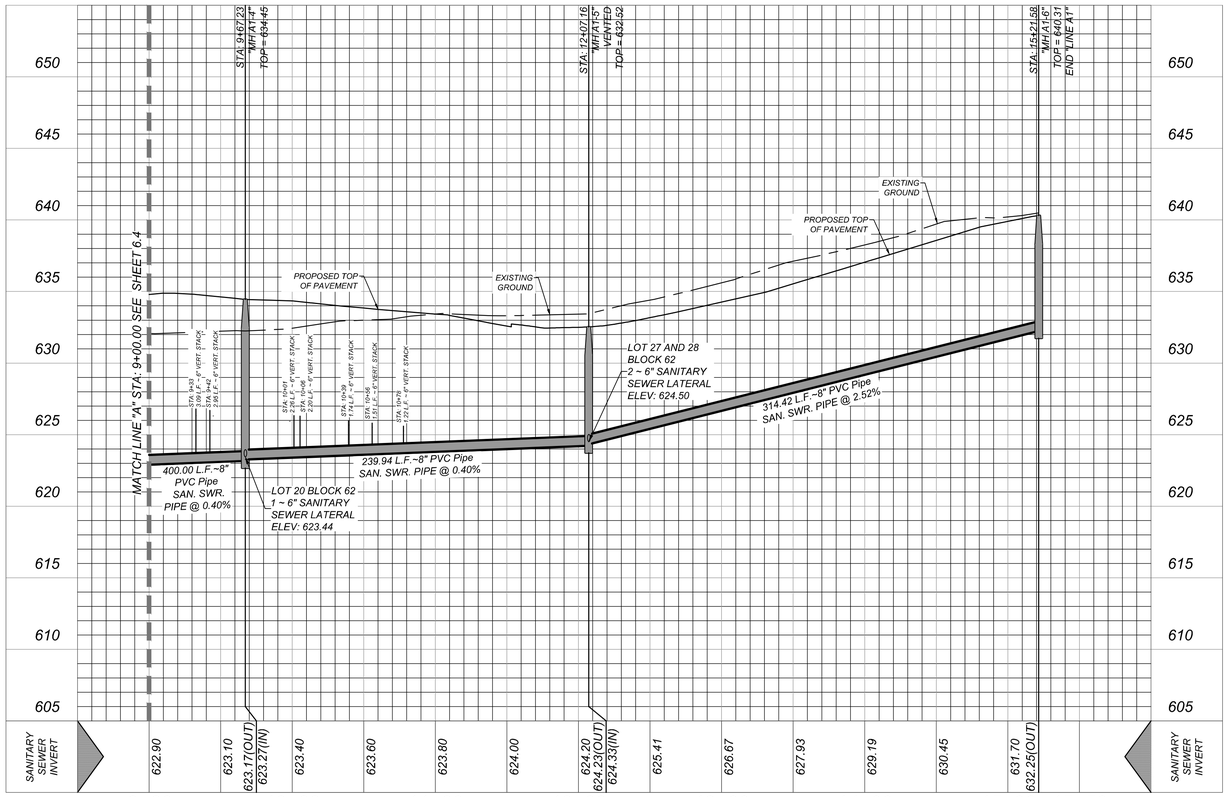




TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.

LINE A1
STA. 9+00.00 - END

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



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ISSUE DATE

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JEFFREY W. MARTIN
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LICENSED PROFESSIONAL ENGINEER
8/13/24

HUNTERS RIDGE SUBDIVISION, UNIT 5A
BEXAR COUNTY, TEXAS

LINE "A1" PLAN & PROFILE (2 OF 2)

PLAT NO. 22-11800743

JOB NO. 873-02-08
DATE: APRIL 2023
DRAWN: RS CHECKED: TE

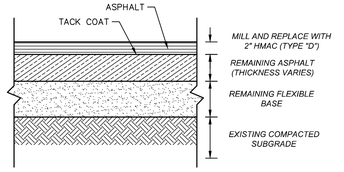
SHEET NUMBER:
6.5

Date: Jul 09, 2024, 1:54pm User: ID: carlos.barrera
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2" MILL & OVERLAY DETAIL

NOT-TO-SCALE

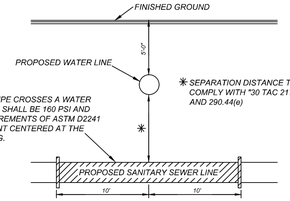
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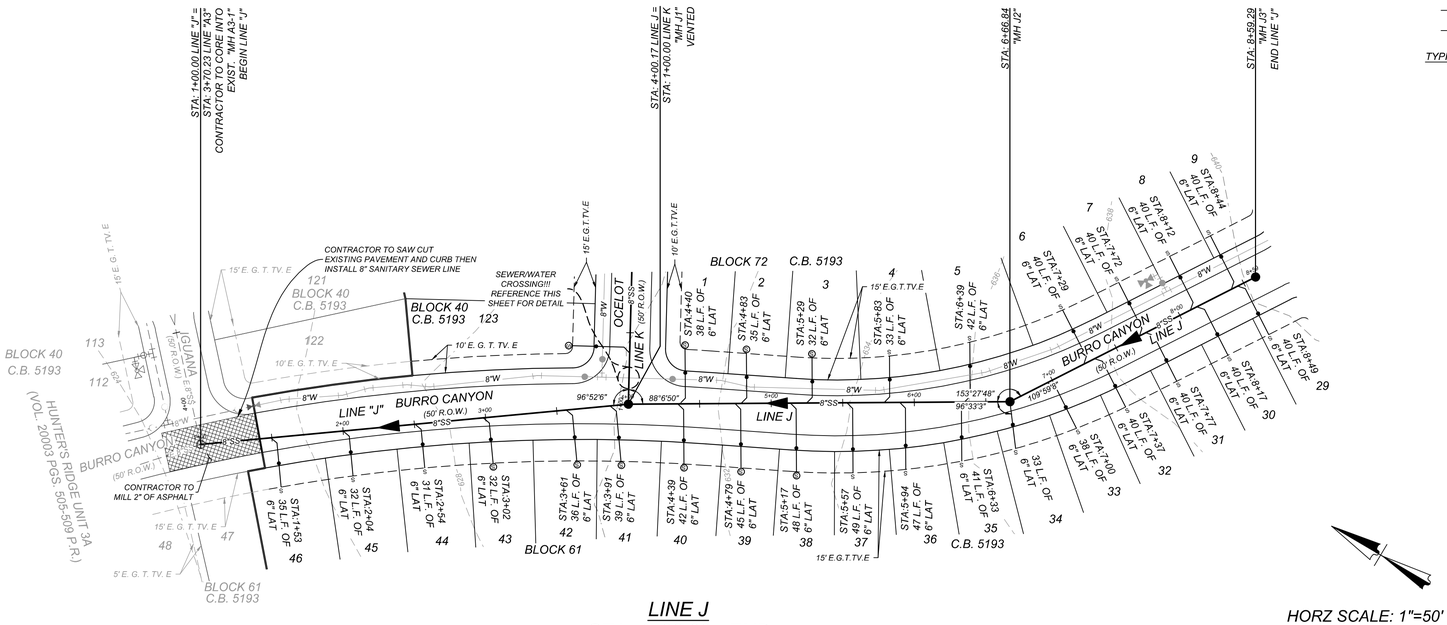
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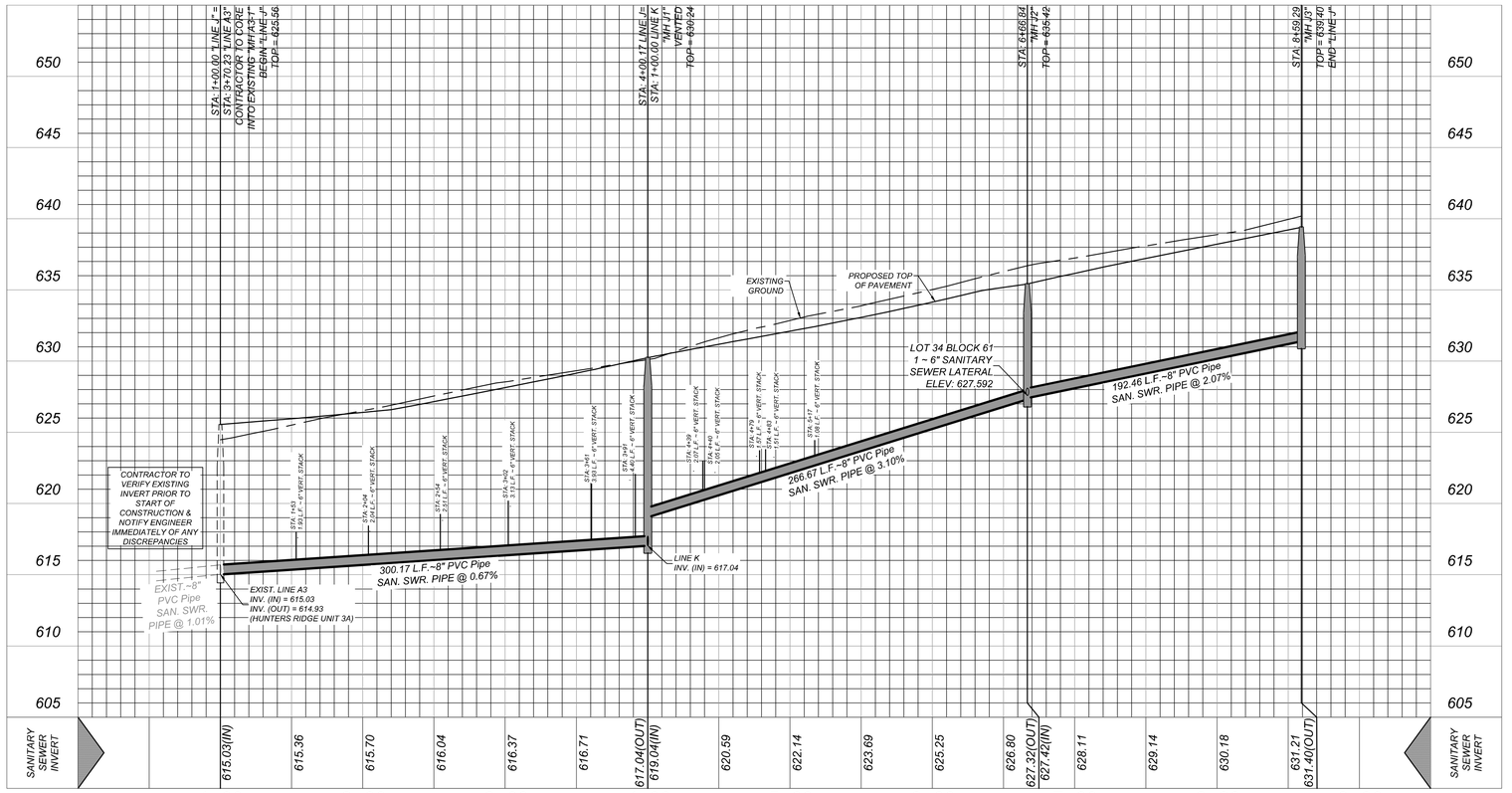


TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.



LINE J
STA. 1+00.00 - END

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



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Phone: 210.979.8444 Fax: 210.979.8441
TBPE Firm # 8513 • TBPLS Firm # 10122300

ISSUE DATE

REVISIONS

STATE OF TEXAS
JEFFREY W. MARTIN
139094
LICENSED PROFESSIONAL ENGINEER
8/13/24

HUNTERS RIDGE SUBDIVISION, UNIT 5A
BEXAR COUNTY, TEXAS

LINE "J" PLAN & PROFILE

PLAT NO. 22-11800743

JOB NO. 873-02-08
DATE: APRIL 2023
DRAWN: RS CHECKED: TE

SHEET NUMBER: 6.6

Date: Jul 09, 2024, 1:55pm User ID: carlosbarrera
File: L:\873\02\Civil\Plan Sheets\Unit 5\SHEET\5873-02-08.dwg

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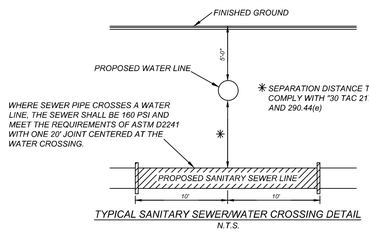
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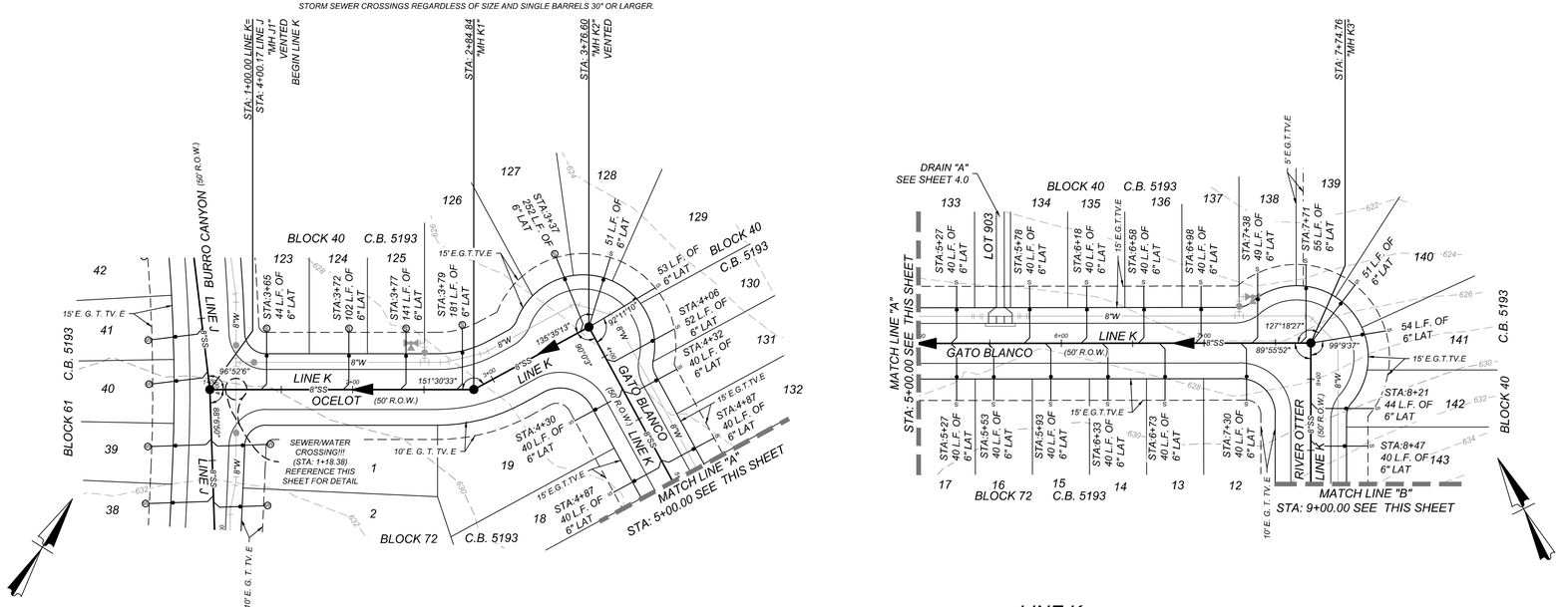
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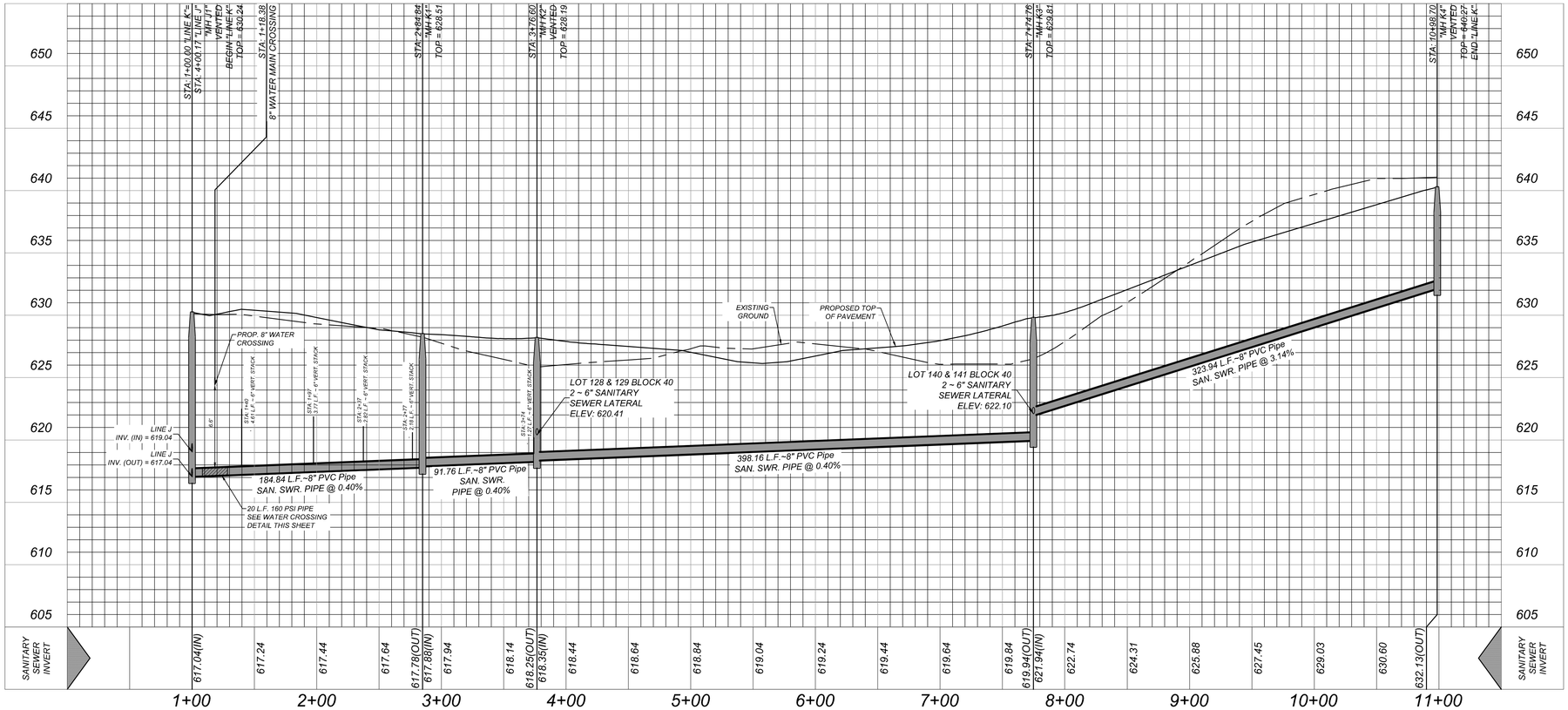


TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.



LINE K
STA. 1+00.00 - END

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



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8/13/24

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BEXAR COUNTY, TEXAS

LINE "K" PLAN & PROFILE

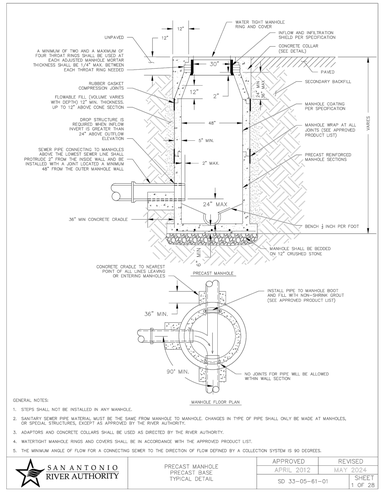
PLAT NO.
22-11800743

JOB NO. 873-02-08
DATE: APRIL 2023
DRAWN: RS CHECKED: TE

SHEET NUMBER:
6.7

Date: Jul 09, 2024, 1:55pm User ID: carlos.barrera
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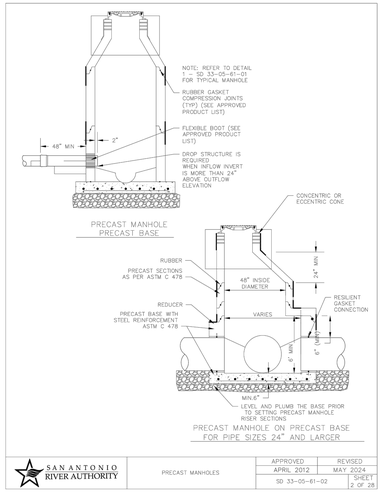
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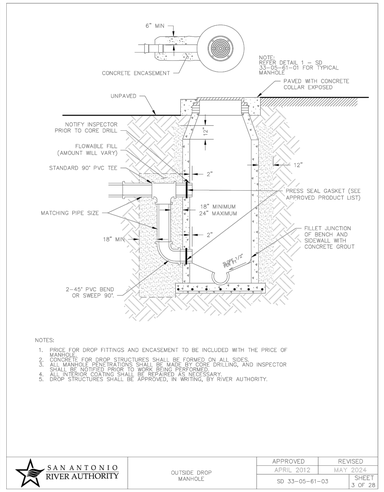
GENERAL NOTES:

1. STEPS SHALL NOT BE INSTALLED IN ANY MANHOLE.
2. SANITARY SEWER PIPE MATERIAL MUST BE THE SAME FROM MANHOLE TO MANHOLE. CHANGES IN TYPE OF PIPE SHALL ONLY BE MADE AT MANHOLES, OR SPECIAL STRUCTURES, EXCEPT AS APPROVED BY THE RIVER AUTHORITY.
3. ADAPTORS AND CONCRETE COLLARS SHALL BE USED AS DIRECTED BY THE RIVER AUTHORITY.
4. WATERTIGHT MANHOLE RINGS AND COVERS SHALL BE IN ACCORDANCE WITH THE APPROVED PRODUCT LIST.
5. THE MINIMUM ANGLE OF FLOW FOR A CONNECTING SEWER TO THE DIRECTION OF FLOW DEFINED BY A COLLECTION SYSTEM IS 90 DEGREES.

SAN ANTONIO RIVER AUTHORITY	PRECAST MANHOLE PRECAST BASE TYPICAL DETAIL	APPROVED	REVISED
		APRIL 2012	MAY 2024
		SD 33-05-61-01	SHEET 1 OF 28



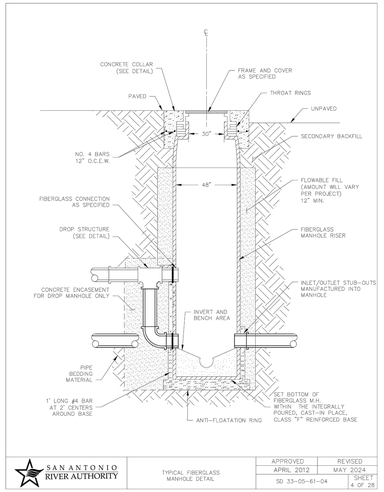
SAN ANTONIO RIVER AUTHORITY	PRECAST MANHOLES	APPROVED	REVISED
		APRIL 2012	MAY 2024
		SD 33-05-61-02	SHEET 2 OF 28



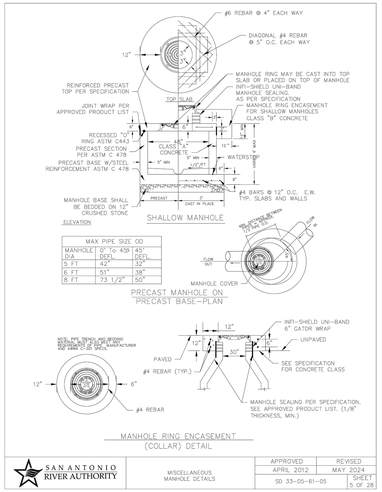
NOTES:

1. PRICE FOR DROP FITTINGS AND ENCASEMENT TO BE INCLUDED WITH THE PRICE OF MANHOLE.
2. CONCRETE FOR DROP STRUCTURES SHALL BE FORMED ON ALL SIDES.
3. ALL MANHOLE CONNECTIONS SHALL BE CORE DRILLED, AND INSPECTOR NOTIFIED PRIOR TO CORE DRILLING.
4. ALL INTERIOR COATING SHALL BE REPAIRED AS NECESSARY.
5. DROP STRUCTURES SHALL BE APPROVED, IN WRITING, BY RIVER AUTHORITY.

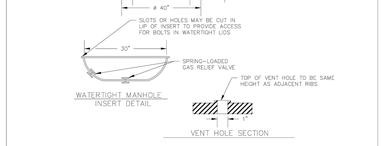
SAN ANTONIO RIVER AUTHORITY	OUTSIDE DROP MANHOLE	APPROVED	REVISED
		APRIL 2012	MAY 2024
		SD 33-05-61-03	SHEET 3 OF 28



SAN ANTONIO RIVER AUTHORITY	TYPICAL FIBERGLASS MANHOLE DETAIL	APPROVED	REVISED
		APRIL 2012	MAY 2024
		SD 33-05-61-04	SHEET 4 OF 28

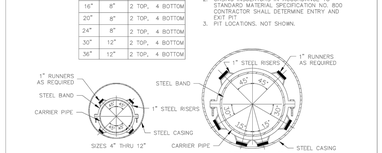


SAN ANTONIO RIVER AUTHORITY	MISCELLANEOUS MANHOLE DETAILS	APPROVED	REVISED
		APRIL 2012	MAY 2024
		SD 33-05-61-05	SHEET 5 OF 28



NOTE:
1. MANHOLE RING ENCASEMENT (COLLAR) REQUIRED ON ALL MANHOLES. SEE DETAIL.

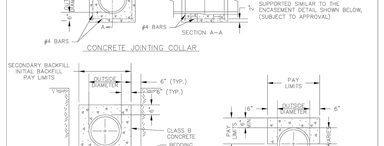
SAN ANTONIO RIVER AUTHORITY	VENTED MANHOLE RING AND COVER	APPROVED	REVISED
		APRIL 2012	MAY 2024
		SD 33-51-61-06	SHEET 6 OF 28



SIZE	BAND WIDTH	NO.RUNNERS PER TIE
8"	8"	2 TOP, 2 BOTTOM
12"	8"	2 TOP, 2 BOTTOM
16"	8"	2 TOP, 4 BOTTOM
20"	8"	2 TOP, 4 BOTTOM
24"	8"	2 TOP, 4 BOTTOM
30"	12"	2 TOP, 4 BOTTOM
36"	12"	2 TOP, 4 BOTTOM

NOTES:
1. FITTINGS SHALL BE PAID FOR BY SEPARATE ITEM JOINT RESTRAINTS SHALL BE APPROVED AS SPECIFIED IN STANDARD MATERIAL SPECIFICATION ITEM NO. 800.
2. CASING INSULATORS IN ACCORDANCE TO STANDARD MATERIAL SPECIFICATION NO. 800 THE CONTRACTOR SHALL DETERMINE ENTRY AND EXIT PIT.
3. PIT LOCATIONS. NOT SHOWN.

SAN ANTONIO RIVER AUTHORITY	INSTALLATION OF PIPE IN BORE	APPROVED	REVISED
		APRIL 2012	MAY 2024
		SD 33-05-07-01	SHEET 7 OF 28



NOTES:
1) ALL CONCRETE ENCASEMENT SHALL BE POURED AT A PLANE 6" ABOVE THE PIPE BETWEEN EXCAVATED TRENCH WALLS.
2) ALL SEWER PIPE WITH LESS THAN 3' OF COVER TO SUBGRADE SHALL BE CONCRETE ENCASED.
3) ALL FORCE MAINS SHALL BE PROVIDED WITH THRUST BLOCKS, WHERE CHANGES IN DIRECTION OCCUR, AT TEES, BENDS, CROSSES, CHANGES IN SIZE, STOPS, OR AS DIRECTED BY SARA.

TO BE USED WHEREVER TRENCH WIDTH IS GREATER THAN TWO FEET (2') PLUS O.D.

SAN ANTONIO RIVER AUTHORITY	TYPICAL CONCRETE DETAILS	APPROVED	REVISED
		APRIL 2012	MAY 2024
		SD 33-06-08-01	SHEET 8 OF 28



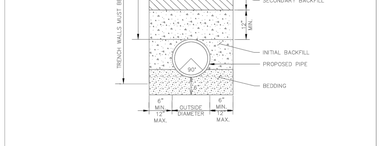
* SEWER GRAVEL 1/2" MIN. OR #8 ROCK, AS SPECIFIED, MODIFIED OR CREATED AS DIRECTED BY THE RIVER AUTHORITY

1) RIGID PIPE - UNSTABLE OR UNYIELDING TRENCH CONDITIONS EXCEPT - ALL CONDITIONS

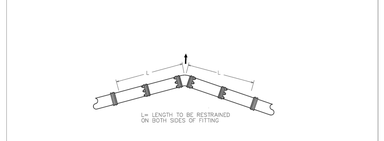
* IN AREAS OF OVER EXCAVATION, ENCASEMENT SHALL EXTEND FROM TRENCH WALL TO TRENCH WALL. PAY LIMITS SHALL NOT EXCEED 12" MAX. AS SHOWN ON DETAIL. ADDITIONAL ENCASEMENT SHALL BE INCIDENTAL.

2) RIGID PIPE – EXISTING STABLE BEDDING CONDITIONS

SAN ANTONIO RIVER AUTHORITY	SANITARY SEWER TRENCH DETAIL	APPROVED	REVISED
		APRIL 2012	MAY 2024
		SD 33-05-05-01	SHEET 9 OF 28



SAN ANTONIO RIVER AUTHORITY	TYPICAL UTILITY TRENCH DETAIL	APPROVED	REVISED
		APRIL 2012	MAY 2024
		SD 33-05-05-02	SHEET 10 OF 28

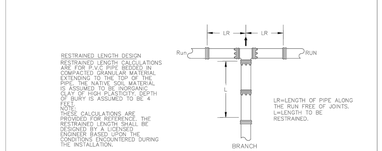


PIPE SIZE (INCH)	BEND ANGLE (DEG)	RESTRAINED LENGTH IN FEET WHEN TEST PRESSURE = 200 psi	RESTRAINED LENGTH IN FEET WHEN TEST PRESSURE = 150 psi
4	45	24	17
4	22.5	9	7
4	11.25	4	2
6	45	50	35
6	22.5	19	14
6	11.25	9	6
8	45	87	62
8	22.5	33	23
8	11.25	15	11
10	45	133	94
10	22.5	51	36
10	11.25	23	16
12	45	187	132
12	22.5	71	50
12	11.25	32	23

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.

NOTE:
THESE CALCULATIONS ARE PROVIDED FOR REFERENCE. THE RESTRAINED LENGTH SHALL BE DESIGNED BY A LICENSED ENGINEER BASED UPON THE CONDITIONS ENCOUNTERED DURING THE INSTALLATION.

SAN ANTONIO RIVER AUTHORITY	RESTRAINED LENGTHS FOR HORIZONTAL BENDS	APPROVED	REVISED
		APRIL 2012	MAY 2024
		SD 33-31-00-01	SHEET 11 OF 28



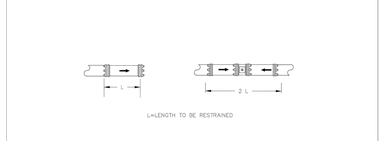
RESTRAINED LENGTH FOR TEES

PIPE SIZE (Inch)	BRANCH SIZE (Inch)	LENGTH OF RUN (Ft.)	RESTRAINED LENGTH IN FEET WHEN TEST PRESSURE = 200 psi	RESTRAINED LENGTH IN FEET WHEN TEST PRESSURE = 150 psi
4	4	0	42	31
4	4	5	10	7
6	6	0	59	44
6	6	5	20	20
8	6	10	11	8
8	4	0	42	31
8	4	5	10	7
8	6	0	59	44
8	6	5	28	13
8	6	10	27	20
8	8	0	77	58
8	8	5	63	34
8	8	10	50	11
8	8	15	37	27

RESTRAINED LENGTH FOR TEES (CONT'D)

PIPE SIZE (Inch)	BRANCH SIZE (Inch)	LENGTH OF RUN (Ft.)	RESTRAINED LENGTH IN FEET WHEN TEST PRESSURE = 200 psi	RESTRAINED LENGTH IN FEET WHEN TEST PRESSURE = 150 psi
12	4	0	42	31
12	4	5	10	7
12	6	0	59	44
12	6	5	13	11
12	6	10	1	1
12	8	0	77	58
12	8	5	42	23
12	8	10	7	1
12	8	15	1	1
12	12	0	109	82
12	12	5	86	59
12	12	10	63	35
12	12	15	39	12

SAN ANTONIO RIVER AUTHORITY	RESTRAINED LENGTHS FOR TEES	APPROVED	REVISED
		APRIL 2012	MAY 2024
		SD 33-31-00-02	SHEET 12 OF 28

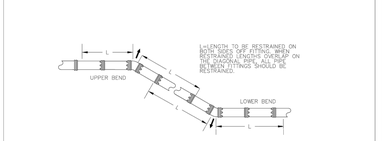


PIPE SIZE (Inch)	RESTRAINED LENGTH IN FEET WHEN TEST PRESSURE = 200 psi	RESTRAINED LENGTH IN FEET WHEN TEST PRESSURE = 150 psi
6	59	44
8	77	58
12	109	82
16	109	82

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.

NOTE: THESE CALCULATIONS ARE PROVIDED FOR REFERENCE. THE RESTRAINED LENGTH SHALL BE DESIGNED BY A LICENSED ENGINEER BASED UPON THE CONDITIONS ENCOUNTERED DURING THE INSTALLATION.

SAN ANTONIO RIVER AUTHORITY	RESTRAINED LENGTHS FOR DEAD END/ INLINE VALVES	APPROVED	REVISED
		APRIL 2012	MAY 2024
		SD 33-31-00-04	SHEET 13 OF 28

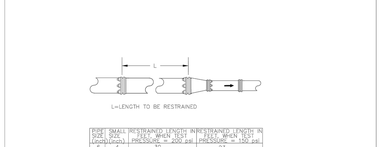


PIPE SIZE (INCH)	BEND ANGLE (DEG)	LOW SIDE DEPTH	UPPER BEND RESTRAINED LENGTH IN FEET WHEN TEST PRESSURE = 200 psi	LOWER BEND RESTRAINED LENGTH IN FEET WHEN TEST PRESSURE = 200 psi	UPPER BEND RESTRAINED LENGTH IN FEET WHEN TEST PRESSURE = 150 psi	LOWER BEND RESTRAINED LENGTH IN FEET WHEN TEST PRESSURE = 150 psi
6	45	5	50	24	8	6
6	22.5	5	19	9	4	3
6	11.25	5	9	4	2	1
6	45	10	50	12	6	4
6	22.5	10	19	5	3	2
6	11.25	10	9	2	1	1
8	45	5	87	11	24	8
8	22.5	5	33	5	11	4
8	11.25	5	15	2	5	2
8	45	10	87	23	24	6
8	22.5	10	33	9	11	3
8	11.25	10	15	3	5	1
12	45	5	187	24	132	17
12	22.5	5	71	10	50	7
12	11.25	5	32	4	23	3
12	45	10	187	50	132	35
12	22.5	10	71	19	50	13
12	11.25	10	32	9	23	6
12	45	15	187	76	132	54
12	22.5	15	71	29	50	20
12	11.25	15	32	13	23	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.

NOTE: THESE CALCULATIONS ARE PROVIDED FOR REFERENCE. THE RESTRAINED LENGTH SHALL BE DESIGNED BY A LICENSED ENGINEER BASED UPON THE CONDITIONS ENCOUNTERED DURING THE INSTALLATION.

SAN ANTONIO RIVER AUTHORITY	RESTRAINED LENGTHS FOR VERTICAL OFFSETS	APPROVED	REVISED
		APRIL 2012	MAY 2024
		SD 33-31-00-04	SHEET 14 OF 28



PIPE SIZE (Inch)	SMALL BEND ANGLE (Inch)	RESTRAINED LENGTH IN FEET WHEN TEST PRESSURE = 200 psi	RESTRAINED LENGTH IN FEET WHEN TEST PRESSURE = 150 psi
6	4	55	23
8	4	55	42
12	4	55	24
12	6	80	60
12	8	106	43

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.

NOTE: THESE CALCULATIONS ARE PROVIDED FOR REFERENCE. THE RESTRAINED LENGTH SHALL BE DESIGNED BY A LICENSED ENGINEER BASED UPON THE CONDITIONS ENCOUNTERED DURING THE INSTALLATION.

SAN ANTONIO RIVER AUTHORITY	RESTRAINED LENGTHS FOR REDUCERS	APPROVED	REVISED
		APRIL 2012	MAY 2024
		SD 33-31-00-05	SHEET 15 OF 28

KFW
ENGINEERS + SURVEYING
9421 Paesanos Pkwy, Suite 200, San Antonio, TX 78231
Phone: 210.979.8444 • Fax: 210.979.8441
TBPE Firm # 9513 • TBPLS Firm # 10122300

ISSUE DATE

REVISIONS

STATE OF TEXAS
JEFFREY W. MARTIN
139094
LICENSED PROFESSIONAL ENGINEER
8/13/24

HUNTERS RIDGE SUBDIVISION, UNIT 5A

BEXAR COUNTY, TEXAS

SANITARY SEWER DETAIL SHEET (1 OF 2)

PLAT NO. 22-11800743

JOB NO. 873-02-08
DATE: APRIL 2023
DRAWN: RS CHECKED: TE

SHEET NUMBER:
6.8

Date: Jul 08, 2024, 4:31pm User ID: cerlick.barrera
File: L:\873\02\08\Design\Civil\SEWER\SSD_01_8_792028.dwg

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SAN ANTONIO RIVER AUTHORITY | JOINT RESTRAINTS FOR FITTINGS

APPROVED	REVISED
APRIL 2012	MAY 2024
SD 33-31-00-06	SHEET 16 OF 28

SAN ANTONIO RIVER AUTHORITY | RESTRAINED LENGTHS FOR VERTICAL OFFSETS

APPROVED	REVISED
APRIL 2012	MAY 2024
SD 33-31-00-04	SHEET 17 OF 28

THRUST BLOCKING DESIGN

ON BASIS OF 200 PSI WATER PRESSURE USED FOR TESTS, THE BLOCKING REQUIRED FOR TWO TYPES OF SOILS ARE NOTED BELOW. IN ONE CASE, A SOIL PRESSURE OF 5000 PSI IS USED FOR ROCK EXCAVATION AND FOR SOILS OTHER THAN ROCK A 3000 PSI BEARING SOIL PRESSURE IS USED. THE DISTRIBUTION ON SYSTEM IS DESIGNED TO OPERATE WITH A MAXIMUM WATER PRESSURE OF 175 PSI. ALL CALCULATIONS APPLY TO A.C. PIPE CLASS 150 AND DUCTILE IRON PIPE CLASS 2 . PVC PIPE CLASS 200 (SDR 13.5)

SQUARE FEET OF BLOCKING REQUIRED FOR ROCK EXCAVATION

SIZE	TEES & PLUGS	90 BENDS	45° BENDS	22.5° BENDS
6"	2	2	1	1
8"	3	4	2	1
12"	6	9	5	2
16"	11	15	8	4

SQUARE FEET OF BLOCKING REQUIRED FOR OTHER THAN ROCK EXCAVATION

SIZE	TEES & PLUGS	90° BENDS	45° BENDS	22.5° BENDS
6"	3	4	2	1
8"	4	6	4	2
12"	10	14	8	4
16"	18	25	14	7

ANCHORAGE AND BLOCKING SHALL BE PROVIDED IN A MANNER AS INDICATED BY DD-839-01 AND DD-839-02 IN ACCORDANCE WITH SECTION 5.4 ANCHORING BLOCKING STANDARD SPECIFICATIONS FOR WATER WORKS CONSTRUCTION EXCEPT THAT 2500 PSI WILL BE REQUIRED.

TRANSIT 2500 PSI CONCRETE MIX SHALL BE USED HOWEVER FOR SMALL VOLUME REQUIREMENTS CONCRETE MIXED AT JOB SITE WILL BE ACCEPTABLE ONLY IF A CONCRETE MIXER IS USED, ALL AGGREGATE SHALL BE CLEAN AND THE FIELD MIX SHALL BE IN THE RATIO OF 1:3:4 AND CONTAIN NOT LESS THAN 4 SACKS OF CEMENT PER cu. YD.

NOTE:
ALL NEW PRESSURIZED PIPELINES SHALL USE RESTRAINED JOINTS ONLY. THIS DETAIL IS TO ACCOMODATE EXISTING PRESSURED PIPELINES AS DIRECTED.

SAN ANTONIO RIVER AUTHORITY | THRUST BLOCKS FOR HIGH PRESSURE SYSTEM

APPROVED	REVISED
APRIL 2012	MAY 2024
SD 33-31-00-08	SHEET 18 OF 28

SAN ANTONIO RIVER AUTHORITY | THRUST BLOCKS FOR HIGH PRESSURE SYSTEM

APPROVED	REVISED
APRIL 2012	MAY 2024
SD 33-31-00-09	SHEET 19 OF 28

SAN ANTONIO RIVER AUTHORITY | NON-GEARED GATE VALVE WITH VALVE BOX AND EXTENSION

APPROVED	REVISED
APRIL 2012	MAY 2024
SD 33-31-00-10	SHEET 20 OF 28

SAN ANTONIO RIVER AUTHORITY | INSTALLATION OF 1" AIR RELEASE VALVE

APPROVED	REVISED
APRIL 2012	MAY 2024
SD 33-31-00-11	SHEET 21 OF 28

SAN ANTONIO RIVER AUTHORITY | INSTALLATION OF 2" AIR RELEASE VALVE

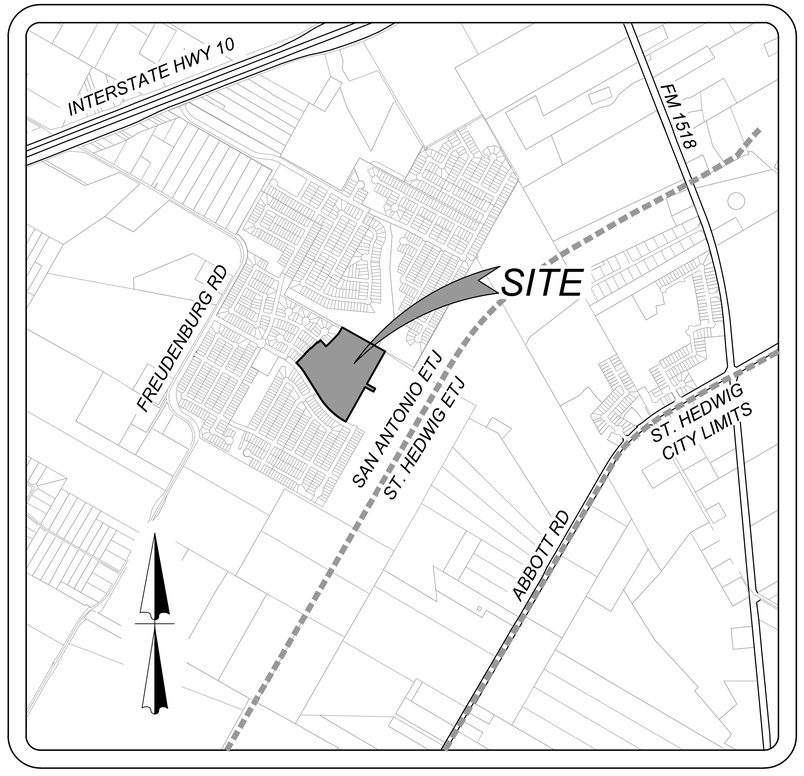
APPROVED	REVISED
APRIL 2012	MAY 2024
SD 33-31-00-12	SHEET 22 OF 28

1' – 0"
A
A
FORCE MAIN OR WATER MAIN
VALVE MARKER
VALVE
PROPERTY LINE
VALVE MEASUREMENTS FROM MARKER
VALVE MARKER
TOP CLOSED AND WELDED
3'
MIN.
GRADE
MIN.
5'
MIN.
MIN.
MIN.

HUNTERS RIDGE SUBDIVISION, UNIT 5A

BEXAR COUNTY, TEXAS

WATER IMPROVEMENTS



LOCATION MAP

N.T.S

INDEX

DESCRIPTION	SHEET NO.
WATER COVER SHEET	7.0
OVERALL WATER PLAN	7.1
OVERALL WATER PLAN	7.2
WATER DETAIL SHEET	7.3
WATER DETAIL SHEET	7.4
WATER DETAIL SHEET	7.5

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 ECSUD 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 SWALE 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 MANUFACTURER'S RECOMMENDATIONS. FITTINGS ARE NOT PERMISSIBLE, UNLESS OTHERWISE SHOWN ON THE PLANS. NO SEPARATE PAY ITEM.
26. WATER MAINS SHALL BE INSTALLED WITH 48" MINIMUM COVER OVER THE TOP OF THE PIPE, 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. CONTRACTOR TO INSTALL DIRECT BURIAL ELECTRICALLY CONTINUOUS TRACER WIRE WITH ACCESS POINTS, ADJACENT TO ALL WATER MAINS. N.S.P.I.

STATE OF TEXAS
JEFFREY W. MARTIN
139094
LICENSED
PROFESSIONAL ENGINEER
6/21/24

OWNER/DEVELOPER:
FORESTAR (USA) REAL ESTATE GROUP, INC.
16500 SAN PEDRO AVE. SUITE 400
SAN ANTONIO, TX 78232
PHONE: (512) 433-5231

KFW
ENGINEERS + SURVEYING
3421 Paesanos Pkwy Suite 200, San Antonio, TX 78231
Phone #: (210) 979-8444 • Fax #: (210) 979-8441
TBPE Firm #: 9513 • TBPLS Firm #: 10122300

JOB NO. - 873-02-08

PLAT NO. : 22-11800743

SHEET 7.0

Date: Jun 03, 2024, 9:44am User ID: JMartinez
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NOTE:
PRESSURE REDUCING VALVES TO BE THE RESPONSIBILITY OF THE HOME BUILDER WHERE REQUIRED

NOTE:
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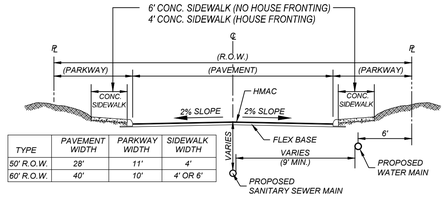
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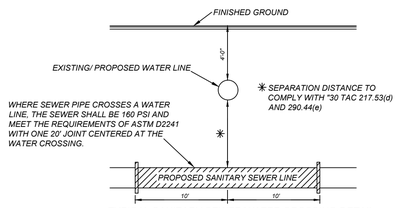
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TYPE	PAVEMENT WIDTH	PARKWAY WIDTH	SIDEWALK WIDTH
50' R.O.W.	28'	11'	4'
60' R.O.W.	40'	10'	4' OR 6'

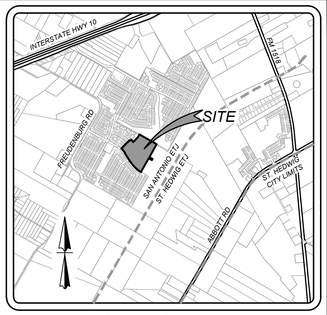
TYPICAL STREET SECTION
N.T.S.



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

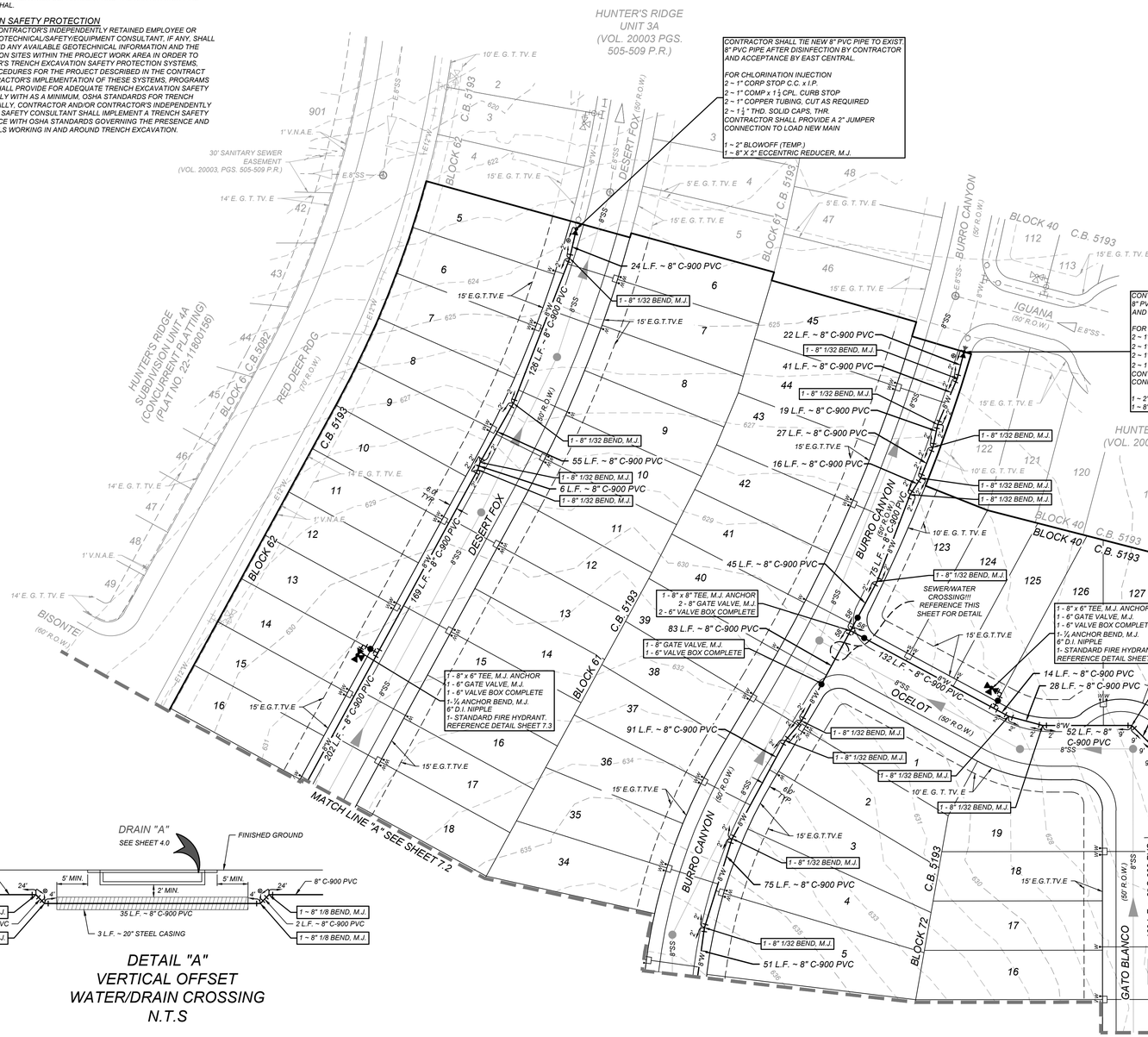
BEXAR COUNTY R.O.W. NOTE

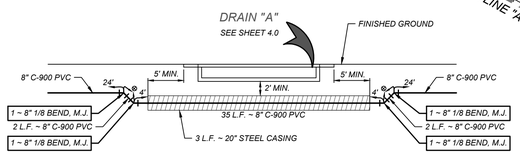
A BEXAR COUNTY PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY R.O.W.



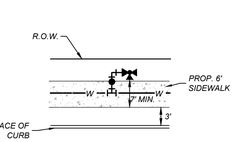
LOCATION MAP
N.T.S



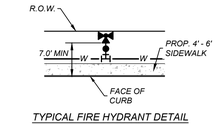




DETAIL "A"
VERTICAL OFFSET
WATER/DRAIN CROSSING
N.T.S



TYPICAL FIRE HYDRANT DETAIL
(ALONG 70' R.O.W.)
NOT-TO-SCALE



TYPICAL FIRE HYDRANT DETAIL
NOT-TO-SCALE

LEGEND

PROPOSED WATER MAIN	=	W
PROPOSED WATER SERVICE & METER BOX	=	W
PROPOSED WATER SERVICE & METER BOX WITH PRESSURE REDUCING VALVE	=	W
PROPOSED WATER 3/4" IRRIGATION SERVICE & 5/8" METER BOX	=	W IRR
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED 100W STREETLIGHT	=	
PROPOSED 250W STREETLIGHT	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	
PROPOSED SANITARY SEWER LATERAL	=	SS
PROPOSED SANITARY SEWER LATERAL WITH VERTICAL STACK	=	SS
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ISSUE DATE

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6/21/24

HUNTERS RIDGE SUBDIVISION, UNIT 5A
BEXAR COUNTY, TEXAS

OVERALL WATER PLAN

PLAT NO. 22-11800743

JOB NO. 873-02-08
DATE: APRIL 2023
DRAWN: RS CHECKED: TE

SHEET NUMBER:
7.1

Date: Jun 18, 2024, 1:32pm User ID: kmartinez
File: L:\873\02\08\Design Civil\WATER\0873020808.dwg

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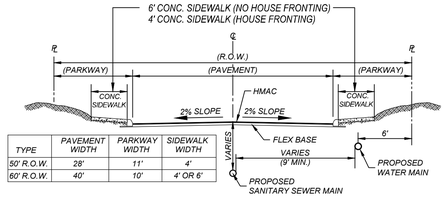
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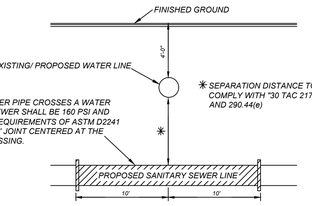
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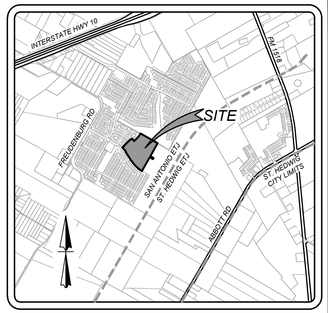
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N.T.S.

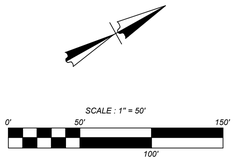


TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
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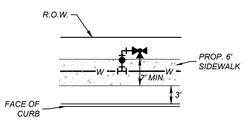


LOCATION MAP
N.T.S

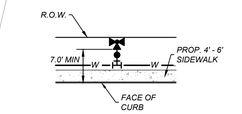


LEGEND

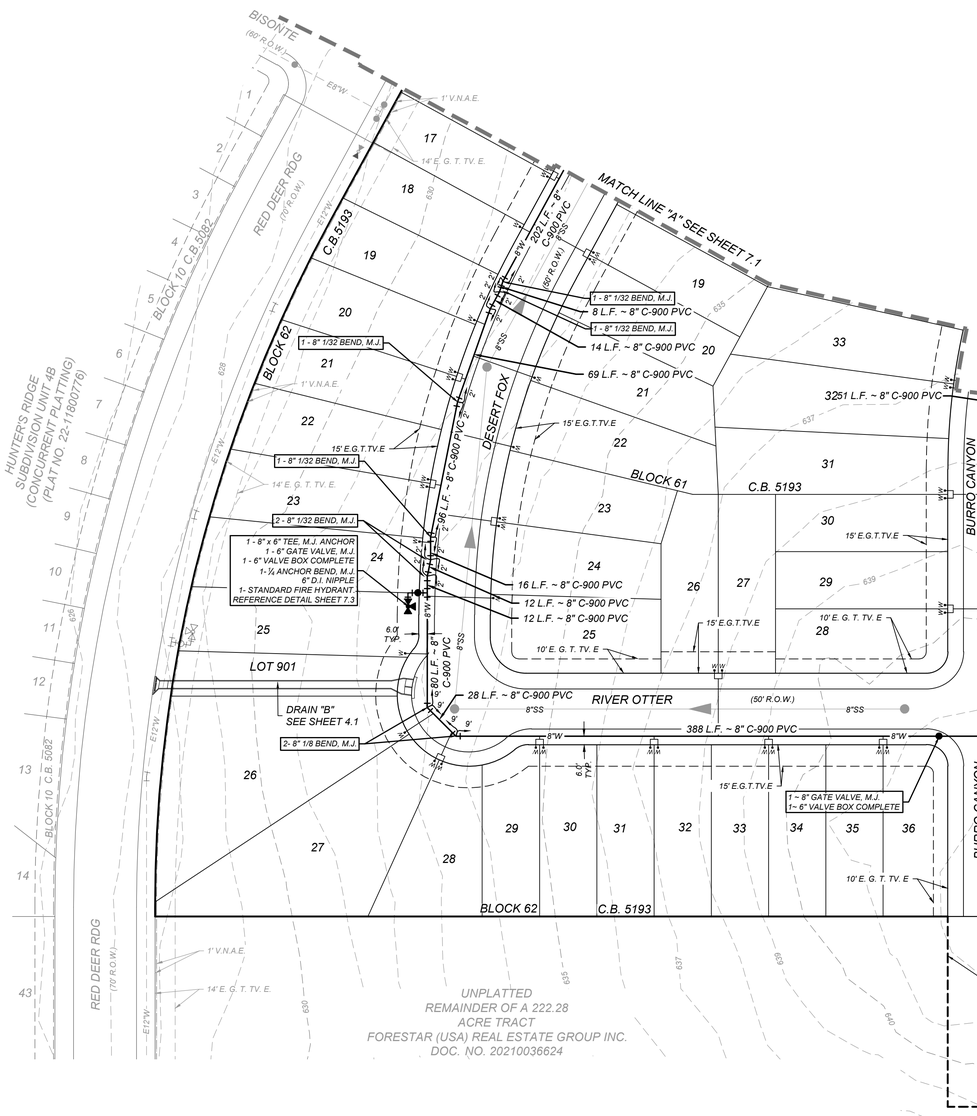
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PROPOSED WATER VALVE	=	
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(ALONG 70' R.O.W.)
NOT-TO-SCALE



TYPICAL FIRE HYDRANT DETAIL
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OVERALL WATER PLAN

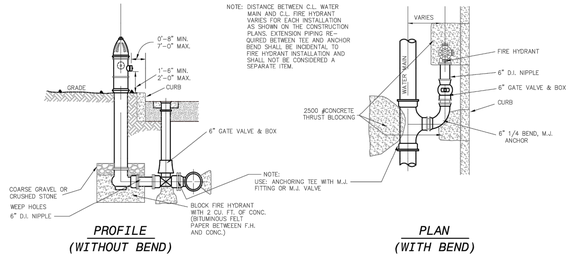
PLAT NO. 22-11800743

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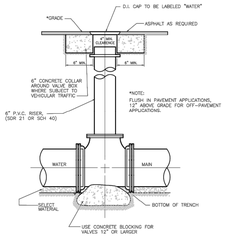
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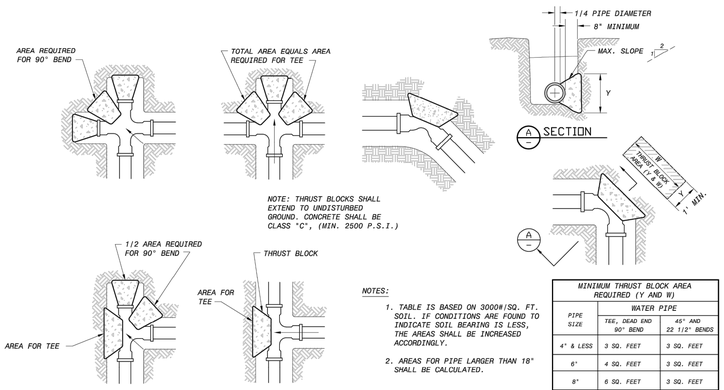
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FIRE HYDRANT INSTALLATION N.T.S.



GATE VALVE W/ VALVE BOX N.T.S.

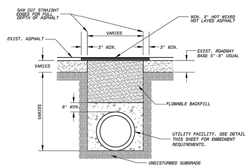


NOTES:

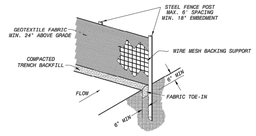
1. TABLE IS BASED ON 3000#/SQ. FT. SOIL. IF CONDITIONS ARE FOUND TO INDICATE SOIL BEARING IS LESS, THE AREAS SHALL BE INCREASED ACCORDINGLY.
2. AREAS FOR PIPE LARGER THAN 18" SHALL BE CALCULATED.

MINIMUM THRUST BLOCK AREA REQUIRED (Y AND W)		
PIPE SIZE	WATER PIPE	
	TEE, DEAD END 90° BEND	45° AND 22 1/2° BENDS
4" & LESS	3 SQ. FEET	3 SQ. FEET
6"	4 SQ. FEET	3 SQ. FEET
8"	6 SQ. FEET	3 SQ. FEET
10"	9 SQ. FEET	5 SQ. FEET
12"	13 SQ. FEET	7 SQ. FEET
16"	23 SQ. FEET	12 SQ. FEET
18"	29 SQ. FEET	15 SQ. FEET

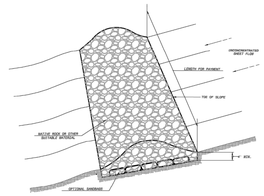
THRUST BLOCK DETAILS N.T.S.



BACKFILL AND PATCH PAVEMENT N.T.S.



TEMPORARY SILT FENCE N.T.S.



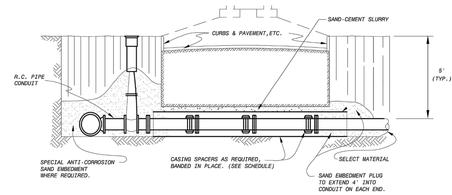
TEMPORARY ROCK BERM N.T.S.

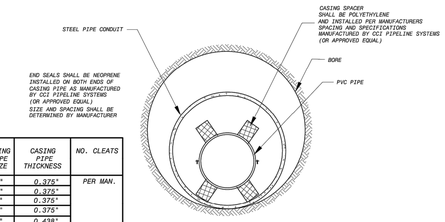
EMBEDMENT FOR WATER CONDUITS						
TYPE OF PIPE	IN EARTH			IN ROCK		
	0'-8'	8'-16'	>16'	0'-8'	8'-16'	>16'
ALL PVC WATER PIPE	C+	B+	B+	C+	B+	B+
16" AND SMALLER DUCTILE IRON WATER PIPE	D+	C	B	C	C	B
18" AND LARGER DUCTILE IRON WATER PIPE	B	B	B	B	B	B

EMBEDMENT DIMENSIONS			
PIPE DIAMETER (INCHES)	KIND OF PIPE	EXTERNAL DIAMETER Bc (INCHES)	TRENCH WIDTH Bd (INCHES)
6"	PVC	6.90	24
6"	DI	6.90	24
8"	PVC	9.05	25
8"	DI	9.05	25
10"	PVC	11.10	27
10"	DI	11.10	27
12"	PVC	13.20	29
12"	DI	13.20	29
16"	DI	17.40	33
18"	DI	19.50	36
20"	DI	21.60	38

EMBEDMENT DETAILS N.T.S.

NOTE: ALINGNMENT AND GRADE OF CONDUIT WILL BE SPECIFIED ON THE CONSTRUCTION PLANS.





CARRIER PIPE SIZE	CASING PIPE SIZE	CASING PIPE THICKNESS	NO. CLEATS
6"	18"	0.375"	PER MAN.
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"	

SECTION THROUGH PIPE IN CONDUIT

INSTALLATION OF PIPE IN CONDUIT N.T.S.

KFW
ENGINEERS + SURVEYING
3421 Paesanos Pkwy, Suite 200, San Antonio, TX 78231
Phone: 210.979.8444 Fax: 210.979.8441
TBPE Firm # 9513 • TBPLS Firm # 10122300

ISSUE DATE

REVISIONS

STATE OF TEXAS
JEFFREY W. MARTIN
139094
LICENSED
PROFESSIONAL ENGINEER
4/16/24

HUNTERS RIDGE SUBDIVISION, UNIT 5A
BEXAR COUNTY, TEXAS

WATER DETAIL SHEET

PLAT NO. 22-11800743

JOB NO. 873-02-08
DATE: APRIL 2023
DRAWN: RS CHECKED: TE

SHEET NUMBER: 7.3

Date: Mar 28, 2024, 8:56pm User ID: sduewall
File: L:\873\020\Dwg\Design\Civil\WATER\07DWG\20108.dwg

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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-off 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 exposed pipe, fittings, valves, hydrants and joints while under test pressure. Visible leaks shall be stopped. Remove and replace cracked or defective pipe, fittings, valves or hydrants discovered during testing. Replacement shall be with sound material. Repeat the test until specified requirements are achieved.

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

H. Pressure/Leakage Tests

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

a. For Ductile Iron Pipe:

$$L = \frac{SD\sqrt{P}}{133{,}200}$$

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

b. For PVC Pipe:

$$L = \frac{ND\sqrt{P}}{7{,}400}$$

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

H. Final Acceptance

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

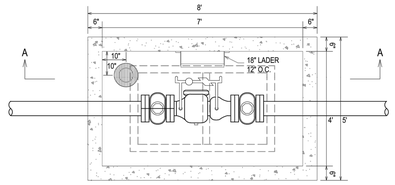
I. Special Project Requirements

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

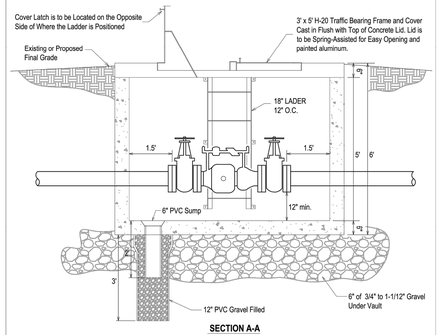
4.0 MEASUREMENT AND PAYMENT

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

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



PLAN



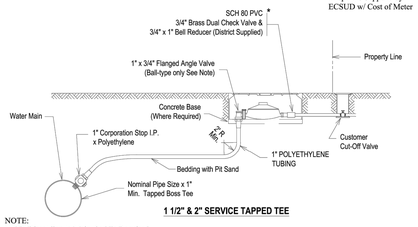
SECTION A-A

East Central SCD	6" DOUBLE CHECK DETECTOR ASSEMBLY WITH 5'x8' CONCRETE VAULT BOX	APPROVED	REVISED
		JULY 2022	
		DET-808-Ø1	SHEET 1 OF 1

PIPE TAPPING SCHEDULE

PIPE DIAMETER	SERVICE SIZE		
	1"	1 1/2"	2"
6" A.C.	Tap With Service Saddle	Tap With Service Saddle	Tap With Service Saddle
6" C.I. or D.I.	Tap With Service Saddle	Tap With Service Saddle	Tap With Service Saddle
8" A.C.	Tap With Service Saddle	Tap With Service Saddle	Tap With Service Saddle
8" C.I. or D.I.	Tap With Service Saddle	Tap With Service Saddle	Tap With Service Saddle
8" PVC	Tap With Service Saddle	Tap With Service Saddle	Tap With Service Saddle
10" A.C.	Tap With Service Saddle	Tap With Service Saddle	Tap With Service Saddle
10" C.I. or D.I.	Tap With Service Saddle	Tap With Service Saddle	Tap With Service Saddle
10" PVC	Tap With Service Saddle	Tap With Service Saddle	Tap With Service Saddle
12" A.C.	Tap With Service Saddle	Tap With Service Saddle	Tap With Service Saddle
12" C.I. or D.I.	Tap With Service Saddle	Tap With Service Saddle	Tap With Service Saddle
12" PVC	Tap With Service Saddle	Tap With Service Saddle	Tap With Service Saddle
16" A.C.	Tap With Service Saddle	Tap With Service Saddle	Tap With Service Saddle
16" C.I. or D.I.	Tap With Service Saddle	Tap With Service Saddle	Tap With Service Saddle

* Tailpieces Supplied by ECSUD w/ Cost of Meter

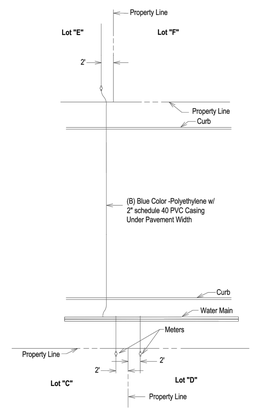


1 1/2" & 2" SERVICE TAPPED TEE

NOTE:
1. No Direct Tap to Main, Saddle Required
2. Anything Under 1 1/2" will use a angle valve with meter
3. Anything Greater Than 1 1/2" Will Use a Angle x Flange

FOR PERFERED MANUFACTURERS SEE STANDARD SPECIFICATIONS

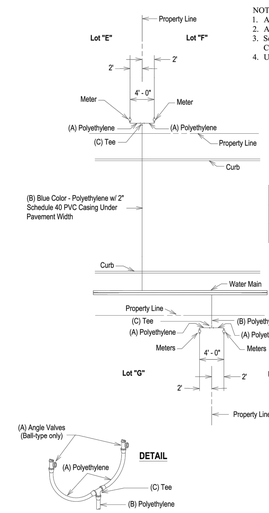
East Central SCD	SERVICE INSTALLATION TAPPING SCHEDULE	APPROVED	REVISED
		JULY 2022	
		DET-824-Ø1	SHEET 1 OF 1



NOTE:
1. All Services to have Tracer Wire Installed.
2. All Service to be Sand Bedded with Pit Sand.
3. Service Casing Pipe Shall Extend Outside the Curb and End 3' Prior to Main.

SINGLE SERVICE LINE - SINGLE METER

East Central SCD	TYPICAL SERVICE ARRANGEMENT	APPROVED	REVISED
		JULY 2022	
		DET-824-Ø5	SHEET 1 OF 4



DETAIL

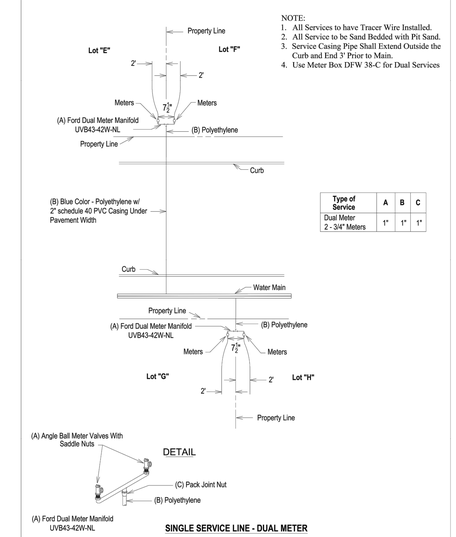
NOTE:
1. All Services to have Tracer Wire Installed.
2. All Service to be Sand Bedded with Pit Sand.
3. Service Casing Pipe Shall Extend Outside the Curb and End 3' Prior to Main.
4. Use Meter Box DFW 1324-C for Dual Services

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"

(B) Blue Color - Polyethylene w/ 2" schedule 40 PVC Casing Under Pavement Width

SINGLE SERVICE LINE - DUAL METER

East Central SCD	TYPICAL RURAL SERVICE ARRANGEMENT	APPROVED	REVISED
		JULY 2022	
		DET-824-Ø5	SHEET 2 OF 4



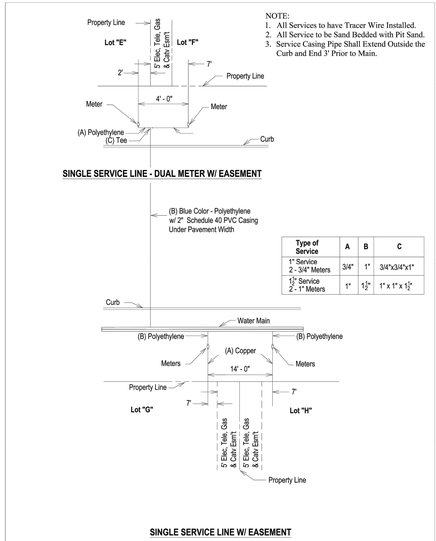
DETAIL

NOTE:
1. All Services to have Tracer Wire Installed.
2. All Service to be Sand Bedded with Pit Sand.
3. Service Casing Pipe Shall Extend Outside the Curb and End 3' Prior to Main.
4. Use Meter Box DFW 38-C for Dual Services

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

SINGLE SERVICE LINE - DUAL METER

East Central SCD	TYPICAL HIGH DENSITY RESIDENTIAL SERVICE ARRANGEMENT	APPROVED	REVISED
		JULY 2022	
		DET-824-Ø5	SHEET 3 OF 4

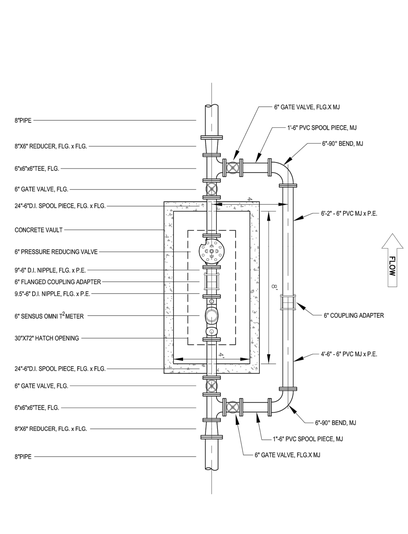


SINGLE SERVICE LINE - DUAL METER W/ EASEMENT

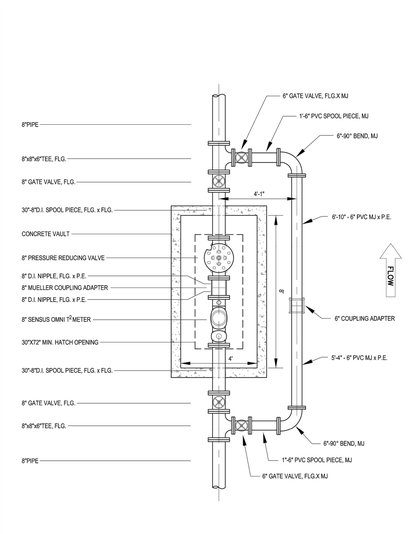
Type of Service	A	B	C
1" Service 2 - 3/4" Meters	3/4"	1"	3/4"x3/4"x1"
1½" Service 2 - 1" Meters	1"	1½"	1" x 1" x 1½"

SINGLE SERVICE LINE W/ EASEMENT

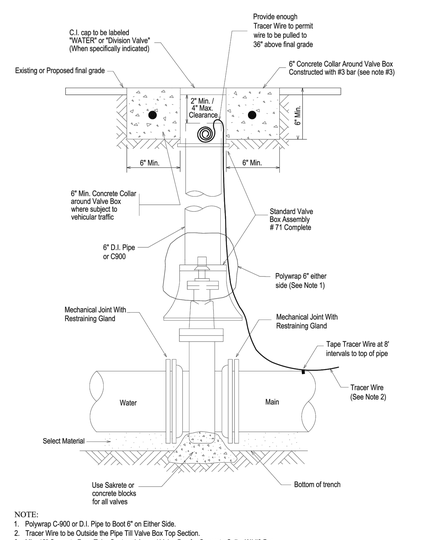
East Central SCD	TYPICAL SERVICE ARRANGEMENT	APPROVED	REVISED
		JULY 2022	
		DET-824-Ø5	SHEET 4 OF 4



East Central SCD	6" TURBO METER DETAIL WITH 4'x8' CONCRETE VAULT BOX	APPROVED	REVISED
		JULY 2022	
		DET-825-Ø1	SHEET 1 OF 1



East Central SCD	8" TURBO METER DETAIL WITH 4'x8' CONCRETE VAULT BOX	APPROVED	REVISED
		JULY 2022	
		DET-825-Ø2	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 SCD	INSTALLATION OF NON-GEARED GATE VALVE WITH VALVE BOX AND EXTENSION	APPROVED	REVISED
		JULY 2022	
		DET-828-Ø1	SHEET 1 OF 1

KFW ENGINEERS + SURVEYING
3421 Paesanos Pkwy, Suite 200, San Antonio, TX 78231
Phone: 210.979.8444 Fax: 210.979.8441
TBPE Firm # 9513 • TBPLS Firm # 10122300

ISSUE DATE

REVISIONS

STATE OF TEXAS
JEFFREY W. MARTIN
139094
LICENSED PROFESSIONAL ENGINEER
4/16/24

HUNTERS RIDGE SUBDIVISION, UNIT 5A

BEXAR COUNTY, TEXAS

WATER DETAIL SHEET

PLAT NO. 22-11800743

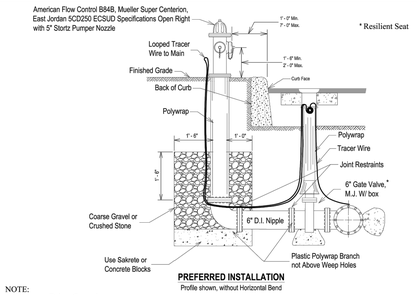
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DATE: APRIL 2023
DRAWN: RS CHECKED: TE

SHEET NUMBER:

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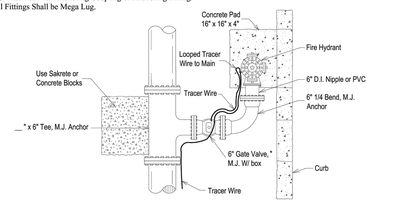
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PREFERRED INSTALLATION
Profile shown, without Horizontal Bend

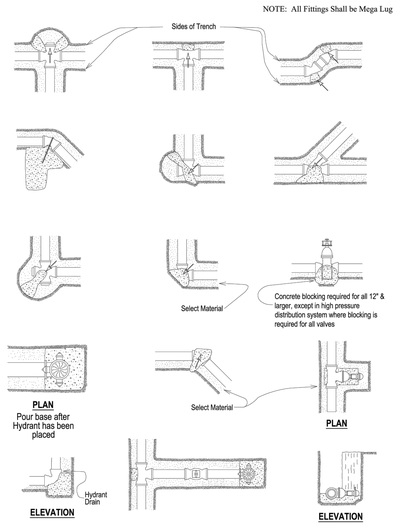
NOTE:
1. Polywrap Below Ground
2. Use Anchoring Tee with M.J. Fitting or M.J. Valve
3. Std. M.J. Tee with Anchoring Coupling or Anchoring Fitting.
4. All Fittings Shall be Mega Lug.



ALTERNATE INSTALLATION
Plan shown, with Bend

East Central	FIRE HYDRANT INSTALLATION	APPROVED	REVISED
		JULY 2022	
		DET-834-Ø1	SHEET 1 OF 1

NOTE: All Fittings Shall be Mega Lug



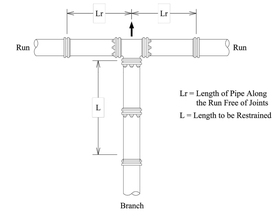
PLAN
Pour base after Hydrant has been placed

PLAN

ELEVATION

ELEVATION

East Central	THRUST BLOCKS FOR FITTINGS (WATER ONLY)	APPROVED	REVISED
		JULY 2022	
		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	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE=150 psi
6	4	0	42	31
6	4	5	7	1
6	4	10	1	1
6	6	0	59	44
6	6	5	35	20
6	6	10	11	1
8	4	0	42	31
8	4	5	1	1
8	6	0	59	44
8	6	5	28	13
8	6	10	1	1
8	8	0	77	58
8	8	5	53	34
8	8	10	30	11
8	8	15	6	1

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.

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.

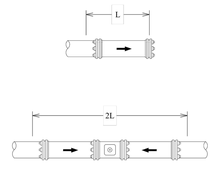
East Central	RESTRAINED LENGTHS FOR TEES	APPROVED	REVISED
		MARCH 2020	
		DET-839-04	SHEET 1 OF 2

RESTRAINED LENGTH FOR TEES				
PIPE SIZE (Inch)	BRANCH SIZE (Inch)	LENGTH OF RUN (Feet)	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE=200 psi	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE=150 psi
12	4	0	42	31
12	4	5	1	1
12	6	0	59	44
12	6	5	13	1
12	6	10	1	1
12	8	0	77	58
12	8	5	42	23
12	8	10	7	1
12	8	15	1	1
12	12	0	109	82
12	12	5	86	59
12	12	10	63	35
12	12	15	39	12

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.

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 TEES	APPROVED	REVISED
		MARCH 2020	
		DET-839-04	SHEET 2 OF 2



L = Length to be Restrained

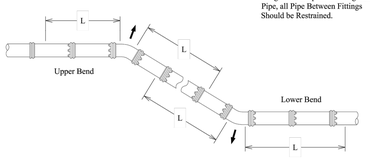
PIPE SIZE (Inch)	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE=200 psi	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE=150 psi
6	59	44
8	77	58
10	93	69
12	109	82

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.

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	APPROVED	REVISED
		JULY 2022	
		DET-839-05	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.

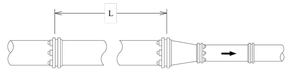


PIPE SIZE (Inch)	BEND ANGLE (deg.)	LOW SIDE DEPTH	UPPER BEND RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE<200 psi	LOWER BEND RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE<200 psi	UPPER BEND RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE=150 psi	LOWER BEND RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE=150 psi
6	45	5	24	8	18	6
6	22.5	5	12	4	9	3
6	11.25	5	6	2	4	1
6	45	10	24	5	18	4
6	22.5	10	12	2	9	2
6	11.25	10	6	1	4	1
8	45	5	32	11	24	8
8	22.5	5	15	5	11	4
8	11.25	5	8	3	6	2
8	45	10	32	7	24	5
8	22.5	10	15	3	11	2
8	11.25	10	8	2	6	1
12	45	5	45	16	34	12
12	22.5	5	22	7	16	6
12	11.25	5	11	4	8	3
12	45	10	45	10	34	7
12	22.5	10	22	5	16	3
12	11.25	10	11	2	8	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.

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 VERTICAL OFFSETS	APPROVED	REVISED
		JULY 2022	
		DET-839-06	SHEET 1 OF 1



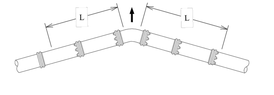
L = Length to be Restrained

PIPE SIZE (Inch)	SMALL SIZE (Inch)	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE=200 psi	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE=150 psi
6	4	30	23
8	4	55	42
8	6	32	24
12	4	95	71
12	6	80	60
12	8	58	43

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.

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 REDUCERS	APPROVED	REVISED
		JULY 2022	
		DET-839-07	SHEET 1 OF 1



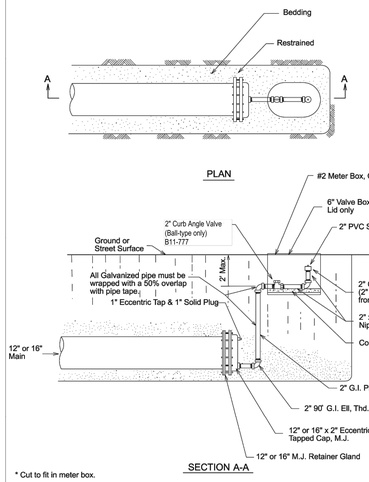
L = Length to be Restrained on Both Sides of Fitting

PIPE SIZE (Inch)	BEND ANGLE (deg)	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE<200 psi	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE=150 psi
6	90	23	17
6	45	9	7
6	22.5	5	3
6	11.25	2	2
8	90	30	22
8	45	12	9
8	22.5	6	4
8	11.25	3	2
12	90	43	32
12	45	18	13
12	22.5	8	6
12	11.25	4	3

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.

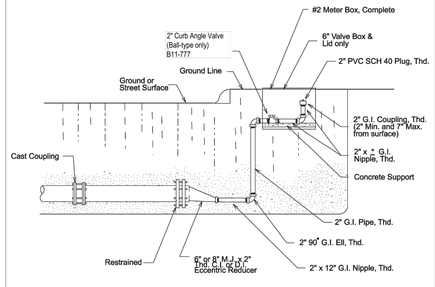
NOTE:
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2. All joints within the calculated length must be restrained.
3. If your distance between fittings is less than or equal to the calculated restraint length, restrain all joints between those fittings.

East Central	RESTRAINED LENGTHS FOR HORIZONTAL BENDS	APPROVED	REVISED
		JULY 2022	
		DET-839-08	SHEET 1 OF 1



* Cut to fit in meter box.

East Central	2" PERMANENT BLOW-OFF ASSEMBLY ON 12" & 16" MAINS	APPROVED	REVISED
		JULY 2022	
		DET-844-02	SHEET 1 OF 2



* Cut to fit in meter box.

East Central	2" PERMANENT BLOW-OFF ASSEMBLY ON 6" & 8" MAINS	APPROVED	REVISED
		JULY 2022	
		DET-844-02	SHEET 2 OF 2

KFW
ENGINEERS + SURVEYING
3421 Paesanos Pkwy, Suite 200, San Antonio, TX, 78231
Phone: 210.979.8444 • Fax: 210.979.8441
TBPE Firm #: 2712 • TBPLS Firm #: 10122300

ISSUE DATE

REVISIONS

STATE OF TEXAS
JEFFREY W. MARTIN
139094
LICENSED
PROFESSIONAL ENGINEER
4/16/24

HUNTERS RIDGE SUBDIVISION, UNIT 5A
BEXAR COUNTY, TEXAS

WATER DETAIL SHEET

PLAT NO. 22-11800743

JOB NO. 873-02-08
DATE: APRIL 2023
DRAWN: RS CHECKED: TE

SHEET NUMBER:
7.5

Date: Mar 28, 2024, 6:56pm User ID: sduewall
File: L:\873\020\06\Design\Civil\WATER\07\0873020608.dwg

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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 SEDIMENT 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.

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).
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COORDINATION NOTE:

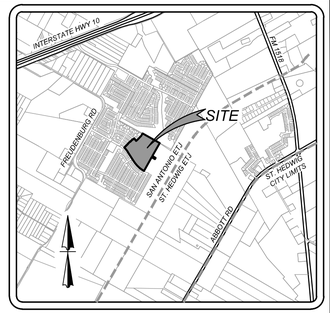
1. CONTACT TIME WARNER TO COORDINATE CABLE TV SERVICE. (210) 244-0500
2. CONDUIT FOR ELECTRICAL SERVICE. CONFIRM REQUIREMENTS AND COORDINATE WITH CPS FOR INSPECTION. (210) 353-2246.
3. CONTACT AT&T TO COORDINATE TELEPHONE SERVICE. 1-800-449-7928.
4. CONTRACTOR TO COORDINATE WITH CPS PRIOR TO CONSTRUCTION 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

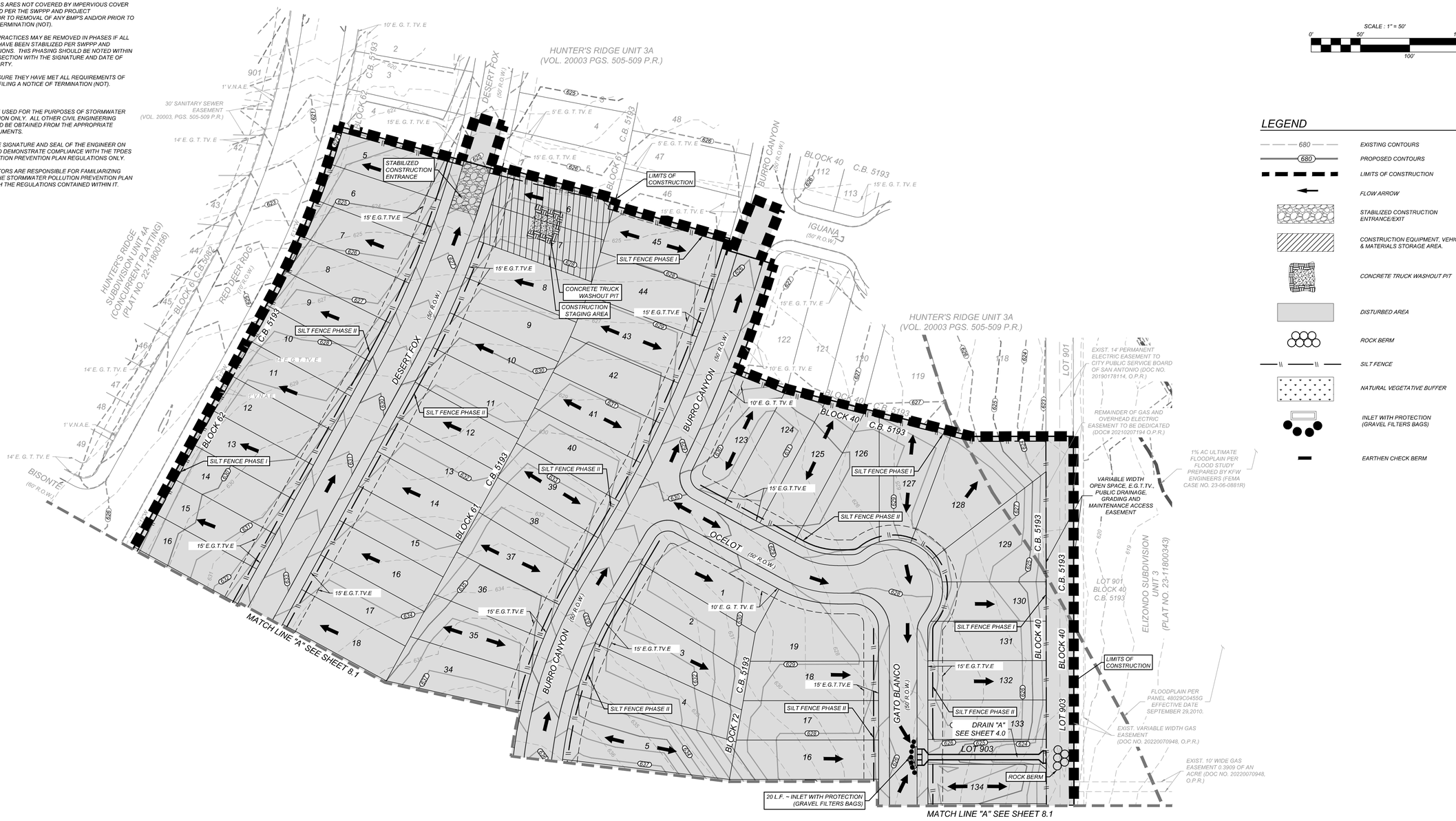
BEXAR COUNTY R.O.W. NOTE

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



LOCATION MAP
N.T.S

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



LEGEND

- 680 — EXISTING CONTOURS
- 680 — PROPOSED CONTOURS
- LIMITS OF CONSTRUCTION
- FLOW ARROW
- STABILIZED CONSTRUCTION ENTRANCE/EXIT
- CONSTRUCTION EQUIPMENT, VEHICLE & MATERIALS STORAGE AREA.
- CONCRETE TRUCK WASHOUT PIT
- DISTURBED AREA
- ROCK BERM
- SILT FENCE
- NATURAL VEGETATIVE BUFFER
- INLET WITH PROTECTION (GRAVEL FILTERS BAGS)
- EARTHEN CHECK BERM

KFW ENGINEERS + SURVEYING
9421 Paesanos Pkwy, Suite 200, San Antonio, TX 78231
Phone: 210.979.8444 Fax: 210.979.8441
TBPE Firm # 8513 • TBPLS Firm # 10122300

ISSUE DATE

REVISIONS

STATE OF TEXAS
JEFFREY W. MARTIN
139094
LICENSED PROFESSIONAL ENGINEER
11/12/24

HUNTERS RIDGE SUBDIVISION, UNIT 5A
BEXAR COUNTY, TEXAS

STORMWATER POLLUTION PREVENTION PLAN (1 OF 2)

PLAT NO. 22-11800743

JOB NO. 873-02-08
DATE: APRIL 2023
DRAWN: RS CHECKED: TE

SHEET NUMBER:
8.0

Date: Nov 11, 2024, 1:54pm User ID: rlueb
File: L:\KFW\02\08\Design\Civil\SWPPP\230208.dwg

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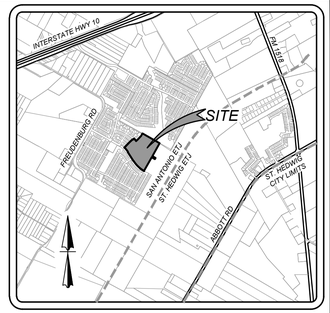
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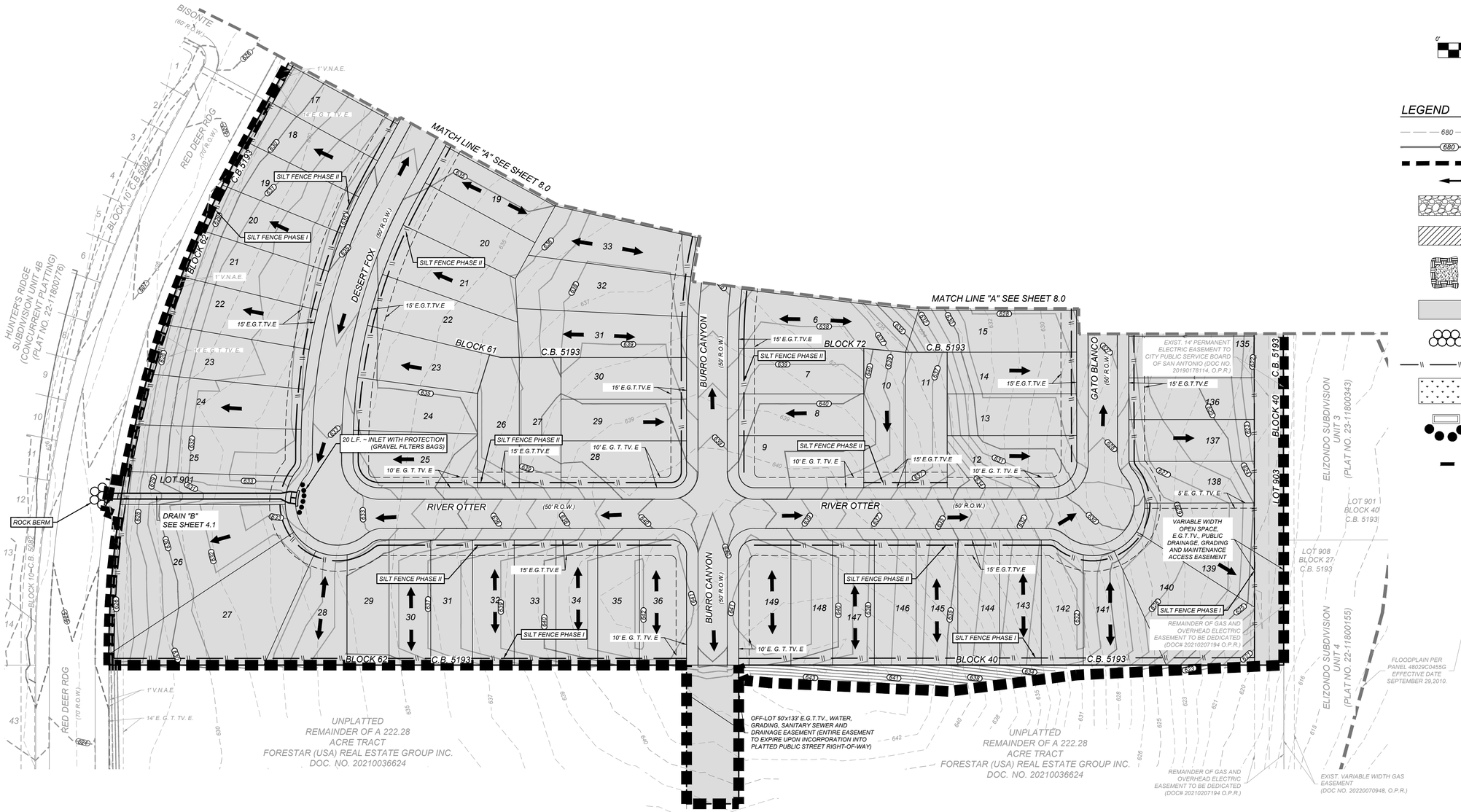
SW3P MODIFICATIONS

DATE	SIGNATURE	DESCRIPTION



LOCATION MAP
N.T.S

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



LEGEND

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ISSUE DATE

REVISIONS

STATE OF TEXAS
JEFFREY W. MARTIN
139094
LICENSED PROFESSIONAL ENGINEER
6/21/24

HUNTERS RIDGE SUBDIVISION, UNIT 5A
BEXAR COUNTY, TEXAS

STORMWATER POLLUTION PREVENTION PLAN (2 OF 2)

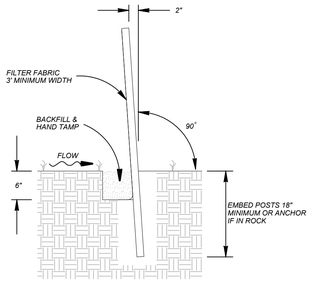
PLAT NO. 22-11800743

JOB NO. 873-02-08
DATE: APRIL 2023
DRAWN: RS CHECKED: TE

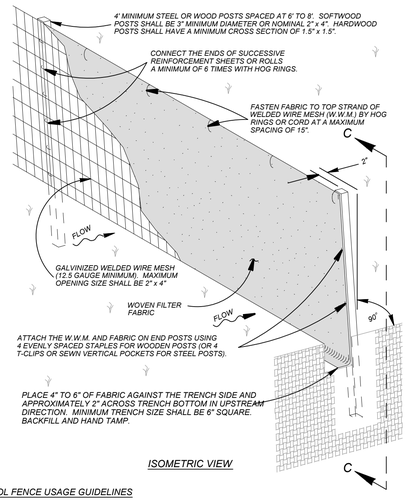
SHEET NUMBER: 8.1

Date: Jun 21, 2024, 9:29am User ID: LMartinez
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SECTION C-C



ISOMETRIC VIEW

SEDIMENT CONTROL FENCE USAGE GUIDELINES

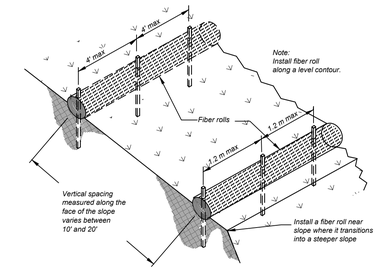
A SEDIMENT CONTROL FENCE MAY BE CONSTRUCTED NEAR THE DOWNSTREAM PERIMETER OF A DISTURBED AREA ALONG A CONTOUR TO INTERCEPT SEDIMENT FROM OVERLAND RUN-OFF. A 2 YEAR STORM FREQUENCY MAY BE USED TO CALCULATE THE FLOW RATE TO BE FILTERED.

SEDIMENT CONTROL FENCE SHOULD BE SIZED TO FILTER A MAXIMUM FLOW THRU RATE OF 100 GPM / FT SQUARED. SEDIMENT CONTROL FENCE IS NOT RECOMMENDED TO CONTROL EROSION FROM A DRAINAGE AREA LARGER THAN 2 ACRES.

GENERAL NOTES

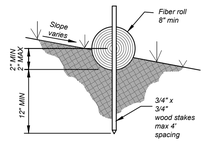
1. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.

TEMPORARY SEDIMENT CONTROL FENCE



TYPICAL FIBER ROLL INSTALLATION

N.T.S.



ENTRENCHMENT DETAIL

N.T.S.

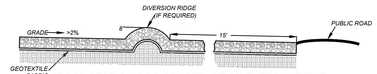
THE MATERIAL, INSTALLATION, INSPECTION, AND MAINTENANCE OF FIBER ROLLS WILL BE PER THE MANUFACTURE'S SPECIFICATIONS AND SHALL ALSO COMPLY WITH THE TEXAS COMMISSION OF ENVIRONMENTAL QUALITY CURRENT "TECHNICAL GUIDANCE ON BEST MANAGEMENT PRACTICES" AS NOTED BELOW.

Material:
(1) Core material: Core material should be biodegradable or recyclable. Material may be compost, mulch, aspen wood fibers, chipped site vegetation, agricultural rice or wheat straw, coconut fiber, 100% recyclable fibers, or similar materials.
(2) Containment Mesh: Containment mesh should be 100% biodegradable, photodegradable or recyclable such as burlap, twine, UV photodegradable plastic, polyester, or similar material. When the fiber role will remain in place as part of a vegetative system use biodegradable or photodegradable mesh. For temporary installation recyclable mesh is recommended.

Implementation:
(1) Locate fiber rolls on level contours spaced as follows:
Slope inclination of 4:1 (H:V) or flatter: Fiber rolls should be placed at a maximum interval of 20 ft.
Slope inclination between 4:1 and 2:1 (H:V): Fiber Rolls should be placed at a maximum interval of 15 ft. (a closer spacing is more effective).
Slope inclination 2:1 (H:V) or greater: Fiber Rolls should be placed at a maximum interval of 10 ft. (a closer spacing is more effective).
(2) Turn the ends of the fiber roll up slope to prevent runoff from going around the roll.
(3) Stake fiber rolls into a 2 to 4 in. deep trench with a width equal to the diameter of the fiber roll.
(4) Drive stakes at the end of each fiber roll and spaced 4 ft maximum on center.
(5) Use wood stakes with a nominal classification of 0.75 by 0.75 in. and minimum length of 24 in.
(6) If more than one fiber roll is placed in a row, the rolls should be overlapped, not abutted.

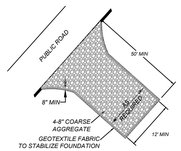
Inspection and Maintenance Guidelines:
(1) Inspect prior to forecast rain, daily during extended rain events, after rain events, and weekly.
(2) Repair or replace split, torn, unraveling, or stumping fiber rolls.
(3) If the fiber roll is used as a sediment capture device, or as an erosion control device to maintain sheet flows, sediment that accumulates behind the role must be periodically removed in order to maintain its effectiveness. Sediment should be removed when the accumulation reaches one-half the designated sediment storage depth, usually one-half the distance between the top of the fiber roll and the adjacent ground surface. Sediment removed during maintenance may be incorporated into earthwork on the site or disposed of at an appropriate location.

FIBER ROLL



CROSS-SECTION OF A CONSTRUCTION ENTRANCE/EXIT

Materials:
(1) The aggregate should consist of 4 to 8 inch washed stone over a stable foundation as specified in the plan.
(2) The aggregate should be placed with a minimum thickness of 8 inches.
(3) The geotextile fabric should be designed specifically for use as a soil filtration media with an approximate weight of 6 oz/yd2, a mullen burst rating of 140 lb/in2, and an equivalent opening size greater than a number 50 sieve.
(4) If a washing facility is required, a level area with a minimum of 4 inch diameter washed stone or commercial rack should be included in the plans. Divert wastewater to a sediment trap or basin.

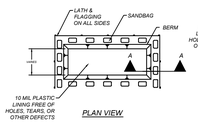


TEMPORARY
CONSTRUCTION ENTRANCE/EXIT

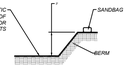
Installation: (North Carolina, 1993)
(1) Avoid curves on public roads and steep slopes. Remove vegetation and other objectionable material from the foundation area. Grade crown foundation for positive drainage.
(2) The minimum width of the entrance/exit should be 12 feet or the full width of exit roadway, whichever is greater.
(3) The construction entrance should be at least 50 feet long.
(4) If the slope toward the road exceeds 2%, construct a ridge, 6 to 8 inches high with 3:1 (H:V) side slopes, across the foundation approximately 15 feet from the entrance to divert runoff away from the public road.
(5) Place geotextile fabric and grade foundation to improve stability, especially where wet conditions are anticipated.
(6) Place stone to dimensions and grade shown on plans. Leave surface smooth and slope for drainage.
(7) Divert all surface runoff and drainage from the stone pad to a sediment trap or basin.
(8) Install pipe under pad as needed to maintain proper public road drainage.

Inspection and Maintenance Guidelines:
(1) The entrance should be maintained in a condition, which will prevent tracking or flowing of sediment onto public rights-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or cleanout of any measures used to trap sediment.
(2) All sediment spilled, dropped, washed or tracked onto public rights-of-way should be removed immediately by contractor.
(3) When necessary, wheels should be cleaned to remove sediment prior to entrance onto public right-of-way.
(4) When washing is required, it should be done on an area stabilized with crushed stone that drains into an approved sediment trap or sediment basin.
(5) All sediment should be prevented from entering any storm drain, ditch or water course by using approved methods.

STABILIZED CONSTRUCTION ENTRANCE / EXIT

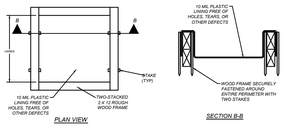


PLAN VIEW



SECTION A-A

TYPE "BELOW GRADE"



PLAN VIEW

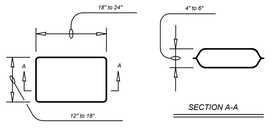
SECTION B-B

TYPE "ABOVE GRADE"

GENERAL NOTES:

- DETAIL ABOVE ILLUSTRATES MINIMUM DIMENSIONS. PIT CAN BE INCREASED IN SIZE DEPENDING ON EXPECTED FREQUENCY OF USE.
- WASHOUT PIT SHALL BE LOCATED IN AN AREA EASILY ACCESSIBLE TO CONSTRUCTION TRAFFIC.
- WASHOUT PIT SHALL NOT BE LOCATED IN AREAS SUBJECT TO INUNDATION FROM STORM WATER RUNOFF AND AT LEAST 50 FEET FROM SENSITIVE FEATURES, STORM DRAINS, OPEN DITCHES, STREETS, OR STREAMS.

CONCRETE TRUCK WASHOUT PIT

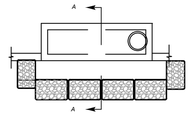


SECTION A-A

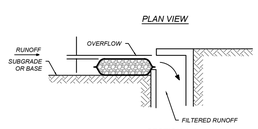
GENERAL NOTES:

- THE FILTER BAG MATERIAL SHALL BE MADE OF POLYPROPYLENE, POLYETHYLENE OR POLYAMIDE WOVEN FABRIC, MIN UNIT WEIGHT OF 4 OUNCES/SY, MULLEN BURST STRENGTH EXCEEDING 300 PSI AND ULTRA VIOLET STABILITY EXCEEDING 70%.
- THE FILTER BAG SHALL BE FILLED WITH CLEAN, MEDIUM TO COARSE GRAVEL (0.31 TO 0.75 INCH DIAMETER).

GRAVEL FILTER BAG DETAIL



PLAN VIEW

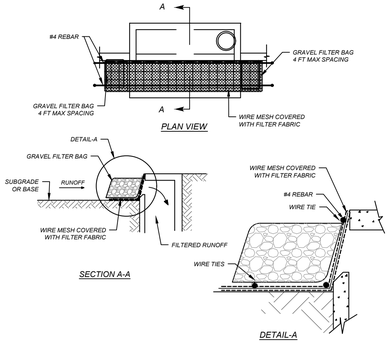


SECTION A-A

GENERAL NOTES:

- ALL STORM DRAINAGE SYSTEMS INLETS SHOULD FILTER RUNOFF BEFORE THE WATER IS DISCHARGED INTO STREAMS OR ONTO ADJACENT PROPERTIES, UNLESS TREATMENT IS PROVIDED ELSEWHERE.
- IF NO ADDITIONAL DOWNSTREAM TREATMENT EXISTS, THE MAXIMUM DRAINAGE AREA TRIBUTARY TO AN AREA DRAIN INSTALLED WITH A GRAVEL FILTER SHOULD BE ONE ACRE.
- ALL CURB INLET GRAVEL FILTERS SHOULD BE INSPECTED AND REPAIRED AFTER EACH RUNOFF EVENT. SEDIMENT SHOULD BE REMOVED WHEN MATERIAL IS WITHIN THREE INCHES OF THE TOP OF THE CONCRETE BLOCKS. PERIODICALLY, THE GRAVEL SHOULD BE RAKED TO INCREASE INFILTRATION AND FILTERING OF RUNOFF WATERS.

CURB INLET PROTECTION GRAVEL FILTER BAGS

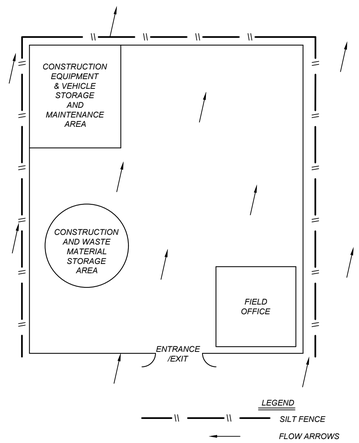


PLAN VIEW

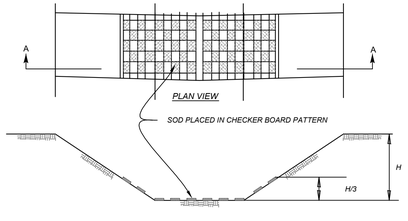
SECTION A-A

DETAIL-A

CURB INLET PROTECTION (ALTERNATE)



TYPICAL CONSTRUCTION STAGING AREA

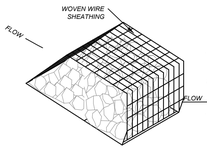


PLAN VIEW

SECTION A-A

- CHANNEL TO BE STABILIZED WITH SOD PLACED IN A CHECKER BOARD PATTERN TON THE CHANNEL BOTTOM AND ON THE SIDES UP TO 1/3 THE DEPTH OF CHANNEL.

CHANNEL LINING



ISOMETRIC PLAN VIEW

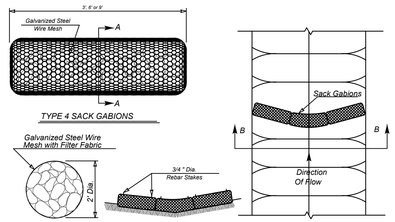
CROSS SECTION

Materials:
(1) The berm structure should be. secured with a woven wire sheathing having maximum opening of 1 inch and a minimum wire diameter of 20 gauge galvanized and should be secured with shoat rings.
(2) Clean, open graded 3- to 5-inch diameter rock should be used, except in areas where high velocities or large volumes of flow are expected, where 5- to 8-inch diameter rocks may be used.

Installation:
(1) Lay out the woven wire sheathing perpendicular to the flow line. The sheathing should be 20 gauge woven wire mesh with 1 inch openings.
(2) Berm should have a top width of 2 feet minimum with side slopes being 2:1 (H:V) or flatter.
(3) Place the rock along the sheathing as shown in the diagram Figure 1-28), to a height not less than 18".
(4) Wrap the wire sheathing around the rock and secure with tie wire so that the ends of the sheathing overlap at least 2 inches, airl the berm retains its shape when walked upon.
(5) Berm should be built along the contour at zero percent grade or as near as possible.
(6) The ends of the berm should be tied into existing upslope grade and the berm should be buried in a trench approximately 3 to 4 inches deep to prevent failure of the control.

Inspection and Maintenance Guidelines:
(1) Inspection should be made weekly and after each rainfall by the responsible party. For installations in streambeds, additional daily inspections should be made.
(2) Remove sediment and other debris when buildup reaches 6 inches and dispose of the accumulated silt in an approved manner that will not cause any additional siltation.
(3) Repair any loose wire sheathing.
(4) The berm should be reshaped as needed during inspection.
(5) The berm should be replaced when the structure ceases to function as intended due to silt accumulation among the rocks, washout, construction traffic damage, etc.
(6) The rock berm should be left in place until all upstream areas are stabilized and accumulated silt removed.

ROCK BERM



TYPE 4 SACK GABIONS

SECTION A-A

SECTION B-B

PLAN VIEW

- THE TOP OF THE SACK GABIONS SHOULD BE LEVEL AND ORIENTED PERPENDICULAR TO THE DIRECTION OF FLOW.
- FILTER FABRIC MATERIAL SHALL BE FASTENED TO WOVEN WIRE SUPPORT.
- FILTER FABRIC MATERIAL SHOULD MEET THE FOLLOWING SPECIFICATIONS: RESISTANT TO ULTRAVIOLET LIGHT, FABRIC SHOULD BE NON-WOVEN GEOTEXTILE WITH MINIMUM WEIGHT OF 3.5 OUNCES PER SQUARE YARD, MINIMUM MULLEN BURST STRENGTH OF 200 POUNDS PER SQUARE INCH AND A FLOW THRU RATE OF 120 GALLONS PER MINUTE PER SQUARE FOOT OF FRONTAL AREA.
- STONE SIZE: ±4"-8" OPEN GRADED CRUSHED LIMESTONE.
- INSPECT WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACE AS NEEDED.
- WHEN SILT REACHES A DEPTH OF 6 INCHES OR MORE ABOVE NATURAL GROUND, SILT SHALL BE REMOVED AND DISPOSED IN AN APPROVED MANNER THAT WILL NOT CONTRIBUTE TO RESILTATION. CONTAMINATED SEDIMENT MUST BE REMOVED AND DISPOSED OF OFF-SITE IN ACCORDANCE WITH APPLICABLE REGULATIONS.

TYPE 4 SACK GABIONS

KFW
ENGINEERS + SURVEYING
3421 Paesanos Pkwy, Suite 200, San Antonio, TX, 78231
Phone: 210.979.8444 Fax: 210.979.8441
TBPE Firm #: 9513 • TBPLS Firm #: 10122300

ISSUE DATE

REVISIONS

STATE OF TEXAS
JEFFREY W. MARTIN
139094
LICENSED
PROFESSIONAL ENGINEER
4/16/24

HUNTERS RIDGE SUBDIVISION, UNIT 5A
BEXAR COUNTY, TEXAS
STORMWATER POLLUTION PREVENTION PLAN DETAILS

PLAT NO. 22-11800743

JOB NO. 873-02-08
DATE: APRIL 2023
DRAWN: RS CHECKED: TE

SHEET NUMBER: 8.2

Date: Apr 10, 2024, 1:32pm User ID: Jachocarras
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