WINDRIDGE SUBDIVISION - UNIT 2

KERRVILLE, TEXAS

STREET, DRAINAGE, WATER, SANITARY SEWER & UTILITY IMPROVEMENTS

COK PROJECT #25-010



LOCATION MAP
NOT-TO-SCALE

OWNER/DEVELOPER:
LENNAR HOMES OF TEXAS
100 NE LOOP 410, STE. 1155
SAN ANTONIO, TEXAS 78216
PHONE: (210) 403-6282

KNOW ALL MEN BY THESE PRESENTS:

I, THE UNDERSIGNED, DENIS A. AVENDANO, A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF TEXAS, HEREBY CERTIFY THAT PROPER ENGINEERING CONSIDERATION HAS BEEN GIVEN TO THESE PLANS AND ALL ENGINEERING ASPECTS ARE IN COMPLIANCE WITH CITY AND STATE ENGINEERING REGULATIONS AND LAWS.

REGISTERED PROFESSIONAL ENGINEER
P.E. REGISTRATION NO. 137588

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____
DATE

THIS APPROVAL WILL BECOME VOID AFTER ONE YEAR OF THE INDICATED APPROVAL DATE. EXCEPTIONS TO THIS APPROVAL ARE AS FOLLOWS:

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BY APPROVING THESE PLANS, THE CITY OF KERRVILLE DOES NOT ASSUME ANY LIABILITY FOR ENGINEERING DESIGN, NOR DOES APPROVAL RELEASE THE DESIGN ENGINEER FROM LIABILITY FOR CORRECTION ERRORS OR OMISSIONS IN THE DESIGN BOTH DURING AND AFTER CONSTRUCTION.

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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER

11/03/2025

P.E.

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194050

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER:	DRAWING NAME:
314-47-05	CS_3144705

SHEET TITLE: COVER SHEET

SHEET NUMBER: 0.0

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Oct 23, 2025, 3:09pm User ID: logan.haney
File: J:\Projects\2025\314705\Design\CS_3144705.dwg
Xref: C:\Users\LOGAN.HANEY\Desktop\COVERS_3144705.dwg
By LOGAN.HANEY

GENERAL NOTES:

1. ALL MATERIALS, CONSTRUCTION, TESTING AND WORKMANSHIP SHALL COMPLY WITH THE CITY OF KERRVILLE'S STANDARD SPECIFICATION DATED JANUARY, 2005, UNLESS SPECIFIED OTHERWISE IN THESE PLANS OR APPROVED BY THE CITY OF KERRVILLE'S ENGINEERING DEPARTMENT IN WRITING.

2. DURING THE CONSTRUCTION OF THIS PROJECT, ANY INTERPRETATION OF THE STANDARD SPECIFICATIONS OR ANY MATTER WHICH REQUIRES THE APPROVAL OF THE OWNER, MUST BE APPROVED BY CITY'S ENGINEERING DEPARTMENT BEFORE ANY CONSTRUCTION INVOLVING THAT DECISION COMMENCES. ASSUMPTIONS ABOUT WHAT THOSE DECISIONS MIGHT BE, WHICH ARE MADE DURING THE BIDDING PHASE, WILL HAVE NO BEARING ON THE DECISION.

3. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COMPLY WITH ALL FEDERAL, STATE AND LOCAL REQUIREMENTS BEFORE AND DURING CONSTRUCTION.

4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND NOTIFYING ALL AUTHORIZED INSPECTORS AND PERSONS IN CHARGE OF PRIVATE OR PUBLIC UTILITIES AFFECTED BY THIS PROJECT PRIOR TO CONSTRUCTION COMMENCEMENT.

5. THE SIZE AND LOCATION OF ALL EXISTING UNDERGROUND UTILITIES IDENTIFIED IN THESE CONSTRUCTION PLANS (INCLUDING SERVICE LATERALS) ARE APPROXIMATE AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE EXACT LOCATION (BOTH HORIZONTALLY AND VERTICALLY) PRIOR TO CONSTRUCTION COMMENCEMENT AND PROTECT THE SAME DURING CONSTRUCTION. IT SHALL BE THE DUTY OF THE CONTRACTOR TO ASCERTAIN WHETHER ANY ADDITIONAL FACILITIES OTHER THAN THOSE SHOWN ON THE PLANS MAY BE PRESENT, THE CITY DOES NOT ASSUME RESPONSIBILITY FOR UTILITIES NOT SHOWN OR NOT IN THE LOCATION SHOWN.

6. THE CONTRACTOR SHALL PROVIDE TRENCH SAFETY IN ACCORDANCE WITH OSHA SPECIFICATIONS AND PROVIDE A TRENCH SAFETY PLAN SIGNED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE STATE OF TEXAS AND PROVIDE DAILY INSPECTIONS TO ENSURE THAT THOSE REQUIREMENTS ARE BEING MET. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THE SAFETY OF THOSE PERSONS WORKING IN AND AROUND THE TRENCH.

7. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT ALL PUBLIC UTILITIES DURING CONSTRUCTION OF THIS PROJECT. ALL MANHOLES, CLEANOUTS, VALVE BOXES, FIRE HYDRANTS, ETC. MUST BE ADJUSTED TO PROPER LINE AND GRADE BY THE CONTRACTOR PRIOR TO FINAL ACCEPTANCE. ALL REPAIRS AND REPLACEMENTS BY THE CONTRACTOR SHALL BE AT HIS EXPENSE, SAID EXISTING IMPROVEMENTS SHALL ALSO INCLUDE, BUT NOT LIMITED TO, BERMS, DITCHES, FENCES, VEGETATION, ETC.

8. CONTRACTOR SHALL REPORT ANY DIFFERENCES BETWEEN THE INFORMATION IDENTIFIED IN THESE PLANS AND THE CONDITIONS IN THE FIELD IMMEDIATELY TO THE ENGINEER.

9. TEXAS LAW ARTICLE 1436c, PROHIBITS ALL ACTIVITIES IN WHICH PERSONS OR EQUIPMENT MAY COME WITHIN SIX FEET OF ENERGIZED OVERHEAD POWER LINES, AND FEDERAL REGULATION, TITLE 29, PART 1910.180(1) AND PART 1926.550(A)(15) REQUIRE A MINIMUM CLEARANCE OF TEN FEET FROM THESE FACILITIES. THE ABOVE LAWS CARRY BOTH CRIMINAL AND CIVIL LIABILITIES. WITH CONTRACTORS AND OWNERS BEING LEGALLY RESPONSIBLE FOR THE SAFETY OF WORKERS UNDER THESE LAWS, CONTRACTORS SHALL COORDINATE WITH APPROPRIATE ELECTRIC COMPANY WHEN WORKING NEAR OVERHEAD POWER LINES TO BE DE-ENERGIZED AND/OR MOVED AT CONTRACTOR'S EXPENSE. CONTRACTOR SHALL ALSO SHORE EXISTING POWER POLES WHEN PERFORMING EARTHWORK OPERATIONS OR TRENCHING WITHIN CLOSE PROXIMITY OF EXISTING POWER POLES (NO SEPARATE PAY ITEM).

10. WHERE TRENCHING IS UTILIZED DURING CONSTRUCTION, NO MORE THAN 100 FT OF TRENCH SHALL BE OPEN AT ANY GIVEN TIME, NO EXCAVATIONS SHALL BE LEFT OPEN OVERNIGHT UNLESS PRIOR APPROVAL IS GRANTED BY OWNER. WHERE TRENCH IS LEFT OPEN DURING NON-WORKING HOURS, ORANGE SAFETY FENCING SHALL BE INSTALLED AT LEAST 5-FEET AROUND THE TRENCH PERIMETER, ALL EXCAVATIONS IN PAVED AREAS WHICH CANNOT BE COMPLETELY BACKFILLED PRIOR TO BEING SUBJECTED TO TRAFFIC SHALL BE COVERED WITH STEEL SHEETING AND ANCHORED TO PAVEMENT,

11. PAVEMENT PRESERVATION TECHNIQUES SHALL BE UTILIZED BY THE CONTRACTOR AT ALL TIMES DURING CONSTRUCTION. NO TRACK EQUIPMENT IS ALLOWED ON ANY CITY STREET, CURB, OR PRIVATE PAVING. UNLESS PRIOR APPROVAL IS GIVEN BY THE CITY.

12. CONTRACTOR SHALL NOT CLOSE A STREET TO TRAFFIC OR INTERFERE WITH TRAFFIC MOVEMENT ON A STREET WITHOUT NOTIFYING THE CITY ENGINEER AND SECURING PERMISSION TO DO SO. WHEN ANY STREET, SECTION OF A STREET, OR STREET SHOULDER IS CLOSED, OR TRAFFIC FLOW IS RESTRICTED, THE CONTRACTOR SHALL FURNISH A TRAFFIC CONTROL PLAN IN ACCORDANCE WITH TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD) FOR REVIEW AND APPROVAL BY THE CITY ENGINEER OR HIS DESIGNEE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND MAINTAINING BARRICADES, WARNING AND DIRECTING SIGNS, LIGHTS,
TRAFFIC CONTROL DEVICES, FLAGS AND PROVIDE FLAGMEN ALONG THE ENTIRE STREET WITHIN THE LIMITS OF THE PROJECT IN ACCORDANCE WITH THE APPROVED TRAFFIC CONTROL PLAN AND TMUTCD STANDARDS. ALL BARRICADES SHALL BE EQUIPPED WITH FLASHERS AND BE KEPT BURNING BETWEEN THE HOURS OF SUNSET AND SUNRISE.

13. THE CONTRACTOR SHALL AT ALL TIMES KEEP THEIR CONSTRUCTION SITE FREE FROM ACCUMULATION OF WASTE MATERIAL, DEBRIS, OR RUBBISH GENERATED DURING CONSTRUCTION. AT THE COMPLETION OF CONSTRUCTION AND PRIOR TO THE CITY SCHEDULED WALK-THRU, THE CONTRACTOR SHALL REMOVE FROM THE SITE ALL TOOLS, SURPLUS MATERIALS, DEBRIS AND SHALL LEAVE THE SITE IN A "BROOM CLEAN" CONDITION, UNLESS SPECIAL PERMISSION HAS BEEN GRANTED BY THE CITY IN WRITING.

14. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN SANITARY CONVENIENCE FACILITIES AT THE PROJECT SITE FOR USE BY ALL LABORERS. THEY SHALL BE WELL VENTILATED, BUT PROVIDE CONCEALMENT, AND SHALL BE KEPT CLEAN AT ALL TIMES BY THE CONTRACTOR. THE FACILITIES SHALL BE REMOVED AND THE SITE RESTORED TO ITS ORIGINAL CONDITION OR BETTER UPON COMPLETION OF THE PROJECT. ALL SUCH FACILITIES SHALL CONFORM TO THE REQUIREMENTS OF THE STATE AND LOCAL HEALTH AUTHORITIES.

15. CONTRACTOR SHALL PROTECT ALL EXISTING TREES AT THE PROJECT SITE. NO EXISTING TREE SHALL BE TRIMMED OR REMOVED WITHOUT AUTHORIZATION FROM THE CITY ENGINEER UNLESS NOTED OTHERWISE ON THE PLANS.

16. CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING, TO THE ORIGINAL CONDITION OR BETTER, ANY DAMAGES TO EXISTING PAVEMENTS, SIDEWALKS, DRIVEWAYS, FENCES, OR OTHER STRUCTURES AT HIS EXPENSE, EXCEPT AS NOTED IN THE PLANS.

17. CONTRACTOR SHALL BE RESPONSIBLE FOR SAFEGUARDING AND PROTECTING ALL MATERIAL AND EQUIPMENT STORED ON THE JOB SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STORAGE OF MATERIALS IN A SAFE AND WORKMANLIKE MANNER TO PREVENT INJURIES DURING AND AFTER WORK HOURS.

18. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING MATERIALS TESTING FOR THE SCOPE OF THIS PROJECT IN ACCORDANCE WITH THE CITY OF KERRVILLE'S SPECIFICATIONS. ALL MATERIAL TESTING SHALL BE PERFORMED BY AN INDEPENDENT MATERIALS TESTING LAB APPROVED BY THE CITY OF KERRVILLE. SAID LAB SHALL BE CONTRACTED AND PAID BY THE CONTRACTOR AND HAVE A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE STATE OF TEXAS ON STAFF.

19. CONTRACTOR SHALL MAINTAIN ACCESS TO RESIDENTIAL AND COMMERCIAL PROPERTIES ADJACENT TO WORK AREAS AT ALL TIMES. CONTRACTOR SHALL PROVIDE ACCESS AROUND CONSTRUCTION WITH PROPER TRAFFIC CONTROL DEVICES.

20. NO SEPARATE PAY ITEMS COVERED IN THE PLANS, SPECIFICATIONS, OR NOTES UNLESS SPECIFICALLY ESTABLISHED IN THE UNIT COST BREAKDOWN OR BID FORM. ALL ITEMS NOT SPECIFICALLY CALLED FOR ON THE PLANS, OR IN THE SPECIFICATIONS, BUT NECESSARY TO REASONABLY CONSTRUCT THE FACILITIES OR IMPROVEMENTS, SHALL BE CONSIDERED INCIDENTAL TO THE OVERALL PROJECT AND NO SEPARATE PAYMENTS WILL BE MADE FOR THESE ITEMS. INCLUDE COST OF SAME IN THE CONTRACT TO UNIT PRICE BID FOR ITEMS WHICH WORK IS COMPONENT PART OR AS INCIDENTAL TO WORK.

21. PROJECT IS LOCATED WITHIN A RESIDENTIAL AND COMMERCIAL AREA, WORK CANNOT BEGIN BEFORE 7:00 AM AND END NO LATER THAN 6:00 PM. NOISE IS TO BE MITIGATED, AS MUCH AS PRACTICAL, AT ALL TIMES.

CONFLICT WITH OTHER UTILITIES:

1. THE PROPOSED UTILITY ALIGNMENTS MAY CROSS EXISTING WATER, WASTEWATER, GAS, ELECTRIC, OR TELEPHONE UTILITIES, INCLUDING FIBER OPTIC CABLE.

2. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE LOCATION AND DEPTH OF THESE FACILITIES PRIOR TO CONSTRUCTION.

3. THERE WILL BE NO SEPARATE PAYMENT FOR POTHOLING OR OTHER FIELD RECONNAISSANCE TO VERIFY LOCATION AND DEPTH OF EXISTING UTILITIES.

4. PAYMENT FOR EXTRA PIPELINE DEPTH AND/OR FITTINGS TO AVOID EXISTING UTILITIES WHICH MAY BE IN CONFLICT WITH LINES AND GRADES SHOWN ON THE PLANS SHALL BE SUBSIDIARY TO THE LINEAL FOOT PRICE FOR THE GRAVITY MAIN, AND WATERLINE.

PAVEMENT NOTES:

1. ALL PAVEMENT TO BE REMOVED, INCLUDING CURB AND GUTTERS, DRIVEWAYS, AND SIDEWALKS, SHALL BE SAW-CUT, REMOVED AND REPLACED, UNLESS SPECIFIED OTHERWISE IN PLANS.

2. CONTRACTOR SHALL STAGE THE CONSTRUCTION WORK OF SIDEWALKS, ALL NECESSARY BARRICADES, TEMPORARY BYPASSES, AND DIVERSIONS WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE SUBSIDIARY TO THE TRAFFIC CONTROL.

CONSTRUCTION STAKING AND BENCHMARKS:

1. BASELINES, STATIONS, AND ELEVATIONS ON THESE PLANS HAVE BEEN ESTABLISHED BASED ON INFORMATION PROVIDED BY COLLIERS ENGINEERING & DESIGN. CONTRACTOR SHALL ESTABLISH BASELINES PRIOR TO COMMENCING WITH CONSTRUCTION ACTIVITIES AND NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES OR PROBLEMS ASSOCIATED WITH DOING SO.
2. STATION VALUES SHOWN ON PLANS ARE MEASURED ALONG THE CENTERLINE OF THE BASELINE.
3. BENCHMARK MUST BE TIED TO A CITY OF KERVILLE MONUMENT AND KERVILLE COORDINATE SYSTEM.

EXCAVATION, TRENCHING AND BACKFILLING:

1. THE WORK INCLUDES THE EXCAVATION, TRENCHING, FURNISHING MATERIAL, PLACING AND COMPACTING PIPE BEDDING, PLACING AND COMPACTING PIPE BACKFILL, DISPOSAL OF EXCESS MATERIAL, CLEANUP, DEWATERING OF THE TRENCH, LABOR, MATERIALS AND ALL OTHER INCIDENTAL WORK TO PLACE UTILITY MAINS TO THE GRADE AND LOCATION DESIGNATED ON THE PLANS. THE EXCAVATION, TRENCHING AND BACKFILLING SHALL MEET ALL REQUIREMENTS OF THE CONTRACT PLANS AND SPECIFICATIONS, VARIABLE TRENCHING CONDITIONS WILL BE EXPERIENCED IN THIS PROJECT, INCLUDING CLAY, SAND, ROCK, FRACTURED ROCK AND UNYIELDING ROCK, THE CONTRACTOR MUST INSPECT THE SITE TO DETERMINE THE TRENCHING CONDITIONS. THERE SHALL BE NO ADDITIONAL COMPENSATION FOR ROCK EXCAVATION OR TRENCH DEWATERING. THIS APPLIES TO ANY AND ALL CONSTRUCTION ASSOCIATED WITH THIS PROJECT.
2. THE CITY RESERVES THE RIGHT TO CLAIM ANY LARGE ROCK OR BOULDER EXCAVATED DURING THIS PROJECT. ANY ROCK OR BOULDER NOT CLAIMED BY THE CITY STAFF WILL BECOME THE PROPERTY OF THE CONTRACTOR IN ACCORDANCE WITH ITEM 632 OF THE SPECIFICATIONS.

TRAFFIC CONTROL:

1. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN SAFE TRAFFIC CONTROL DURING ALL CONSTRUCTION OPERATIONS IN ACCORDANCE WITH TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD) LATEST REVISION.
2. THE CONTRACTOR MAY BE REQUIRED TO PROVIDE A TRAFFIC CONTROL PLAN DRAWING OR DRAWINGS ILLUSTRATING PLACEMENT OF SIGNS AND CONSTRUCTION PHASING AT ALL, OR PART OF, THE CONSTRUCTION LIMITS. THIS TRAFFIC CONTROL PLAN, IF REQUIRED, WILL BE SUBJECT TO TXDOT AND/OR CITY APPROVAL. A SEPARATE PAY ITEM IS INCLUDED IN THE BID FORM FOR TRAFFIC CONTROL PLAN.

MISCELLANEOUS PIPELINE NOTES:

1. CONTRACTOR SHALL INSTALL METAL PLATES WITH H-20 RATINGS AT DRIVEWAY CROSSINGS WHICH ARE NOT BROUGHT BACK TO SERVICE BY THE END OF THE WORKING DAY.
2. WATER JETTING BACKFILL WILL NOT BE PERMITTED. ALL SEWER MAINS SHALL BE BEDDED AND BACKFILL AS DETAILED IN THE CONSTRUCTION PLANS AND SPECIFICATIONS.
3. SANITARY SEWER LINES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE RULES AND REGULATIONS FOR SEWAGE COLLECTION SYSTEMS AS PUBLISHED BY TCEQ.
4. CONCRETE ENCASE ALL WATER AND SEWER MAIN CROSSINGS WHEN VERTICAL CLEARANCE IS UNDER 6 INCHES.
5. SEWER MAIN SHALL BE POLYVINYL CHLORIDE PVC SDR-26 WITH PRESSURE TIGHT GASKETS RATED AT 160 PSI WORKING PRESSURE.
6. ALL MAINS SHALL RECEIVE BEDDING AND BACKFILL IN ACCORDANCE WITH THE DETAILS CONTAINED IN THE PLANS.
7. MANHOLES FOR AIR/VACUUM VALVES SHALL BE 4' IN DIAMETER WITH 32" RING AND COVERS. CONCRETE BOTTOM SECTIONS ARE NOT REQUIRED, UNLESS IN THE WATER TABLE.
8. ALL FITTINGS SHALL BE DUCTILE IRON FITTINGS, TAPPING TEES, TAPPING VALVES, AND FITTINGS SHALL MEET THE REQUIREMENTS SET FORTH IN THE CONSTRUCTION SPECIFICATIONS

PAVEMENT NOTES:

EXISTING WATER, SANITARY SEWER, GAS, ELECTRIC, TELEPHONE, CABLE TELEVISION AND FIBER OPTICS ARE IN CLOSE PROXIMITY TO PROPOSED CONSTRUCTION AREA THROUGHOUT THE CONTRACT LIMITS. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING THESE FACILITIES PRIOR TO CONSTRUCTION COMMENCEMENT AND PROTECT THE SAME DURING CONSTRUCTION. CONTRACTOR TO CONTACT TEXAS 811 FOR UTILITY LOCATES.

CITY OF KERRVILLE-PUBLIC WORKS 800-DIG-TESS
TEXAS STATE WIDE ONE CALL LOCATOR 800-DIG-TESS
ELECTRIC (KPUB) 800-DIG TESS
TELEPHONE (WINDSTREAM / SPECTRUM / HCTC) 800-DIG-TESS
CABLE TELEVISION (SPECTRUM) 800-DIG-TESS
GAS (ATMOS) 800-DIG-TESS
TXDOT 830-257-8444

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____
DATE

THIS APPROVAL WILL BECOME VOID AFTER ONE YEAR OF THE INDICATED APPROVAL DATE. EXCEPTIONS TO THIS APPROVAL ARE AS FOLLOWS:

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Formerly Known as KFW ENGINEERS & SURVEYING

811 Know what's below. Call before you dig.

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ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE

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

REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER

11/03/2025

P.E.

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
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640 North Walnut Ave.
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Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14809
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

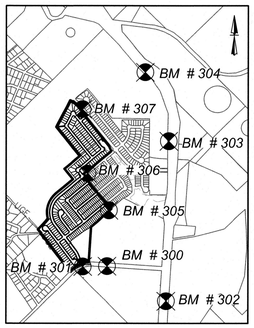
PROJECT NUMBER: 314-47-05
DRAWING NAME: GN_3144705

SHEET TITLE: GENERAL NOTES

SHEET NUMBER: 0.1

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Oct 29, 2025, 8:46am User ID: logan.haney
File: U:\Projects\314\47\05\Design\Civil\GENERAL NOTES\GN_3144705.dwg
Plotted on ANSI full bleed D (34.00 x 22.00) By: LOGAN.HANEY

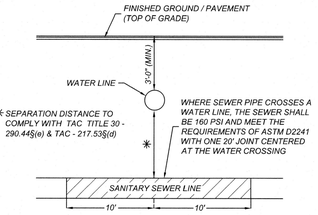


BENCH MARK LOCATION
NOT-TO-SCALE

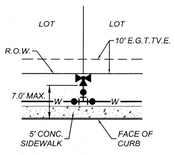
BENCHMARKS

BM # 300 SET PK NAIL WITH WASHER ELEV: 1714.85' N: 13927381.82 E: 1932667.65	BM # 304 SET PK NAIL WITH WASHER ELEV:1804.22' N: 13931204.55 E: 1933417.23
BM # 301 SET PK NAIL WITH WASHER ELEV: 1737.34' N: 13927374.29 E: 1932187.62	BM # 305 SET PK NAIL WITH WASHER ELEV: 1714.85' N: 13928492.78 E: 1932703.05
BM # 302 SET PK NAIL WITH WASHER ELEV: 1671.69' N: 13926694.57 E: 1933826.53	BM # 306 SET PK NAIL WITH WASHER ELEV: 1737.34' N: 13929209.06 E: 1932278.67
BM # 303 SET PK NAIL WITH WASHER ELEV: 1784.55' N: 13929844.48 E: 1933878.99	BM # 307 SET PK NAIL WITH WASHER ELEV: 1671.69' N: 13930469.70 E: 1932179.96

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



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

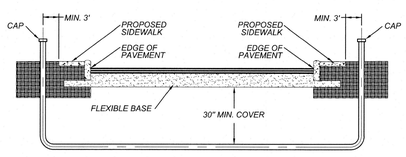


TYPICAL FIRE HYDRANT DETAIL
NOT-TO-SCALE

JOINT RESTRAINT NOTE:
CONTRACTOR SHALL INSTALL RETAINER GLANDS AT ALL FITTINGS AND PROVIDE JOINT RESTRAINING HARNESS OR FIELD LOCK GASKETS AT ALL JOINTS WITHIN THE LENGTH SHOWN. CONTRACTOR SHALL ENSURE THAT ALL TEES, BENDS, VALVES, ETC. HAVE A MINIMUM OF 5 FT OF PIPE WITH NO JOINTS ON EACH SIDE OF THE FITTING. JOINT RESTRAINTS AND RETAINER GLANDS SHALL BE CALCULATED USING EBAA IRON'S RESTRAINT LENGTH CALCULATOR. THERE WILL BE NO SEPARATE PAY ITEM FOR RETAINER GLANDS AND/OR OTHER JOINT RESTRAINING HARNESS AND GASKETS, BUT SHALL BE SUBSIDIARY TO THE UNIT COST PER LINEAL FOOT OF PIPE INSTALLED.

GENERAL NOTE:

1. THIS PROJECT INCLUDES UTILITY INSTALLATIONS GREATER THAN 5-FEET IN DEPTH LOCATED IN PUBLIC RIGHT-OF-WAY OR EASEMENTS. DEEP TRENCHES POSE COMPACTION TESTING AND CONSTRUCTION CHALLENGES AND CITY METHODS FOR TESTING AND COMPACTION MAY NOT BE ACHIEVABLE. A UTILITY COMPACTION PLAN WILL BE REQUIRED AND MUST BE SUBMITTED FOR APPROVAL TO CITY PRIOR TO UTILITY INSTALLATION.



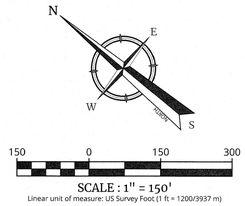
CONDUIT DETAIL
NOT TO SCALE
(NOT FOR CURB DETAIL REFERENCE)

*SEE PLAN SHEETS FOR PRIVATE CONDUIT SIZE, LOCATION AND NUMBER OF CONDUITS

NOTE:
- CONTRACTOR SHALL BE RESPONSIBLE FOR PLACING CONDUIT SLEEVES FOR EACH KPUB FACILITY AT ALL STREETS AND DRAIN CROSSING. CONSTRUCTION SLEEVES MUST ALSO BE LOCATED FOR KPUB CREWS DURING CONSTRUCTION. (SEPARATE ITEM) SEE FINAL ELECTRIC PROVIDER'S DESIGN AND SPECIFICATION.
- CONTRACTOR TO CONTACT ENGINEER FOR APPROPRIATE NUMBER AND SIZE OF CONDUITS FOR TELECOMMUNICATIONS
- CONTRACTOR TO CONTACT ENGINEER FOR ELECTRICAL PLANS
- CONTRACTOR SHALL INSTALL PERMANENT MARKERS IN PROPOSED CURB WHERE CONDUITS CROSS THE ROADWAY (BOTH SIDES).
- CONDUITS SHALL BE PVC WITH 30 INCHES OF MINIMUM COVER FROM STREET SUBGRADE. SCHEDULE 40 TO BE USED FOR KPUB CONDUITS.
- ALL CONDUITS SHALL BE EXTENDED BEHIND CURBS OR PROPOSED SIDEWALKS A MINIMUM OF 3 FEET AND CAPPED FOR FUTURE USE.
- ALL CONDUIT SLEEVES TO BE USED FOR ELECTRIC, GAS, OR TELECOMMUNICATION UTILITY CROSSINGS SHALL BE INSTALLED TO MEET OR EXCEED DESIGN REQUIREMENTS FOR THE UTILITY AGENCY WHICH THEY ARE SERVING, INCLUDING BUT NOT LIMITED TO THE DEPTH, TRENCH PLACEMENT, AND PROXIMITY TO OTHER UTILITIES. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR VERIFYING AND INSTALLING THE CONDUIT SLEEVES TO MEET THESE SPECIFICATION INCLUDING COORDINATING WITH THE UTILITY AGENCY FOR ANY REQUIRED INSPECTIONS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND INSTALLING CONDUIT SLEEVES FOR EACH DRAIN CROSSING PRIOR TO THE INSTALLATION OF EACH DRAIN.



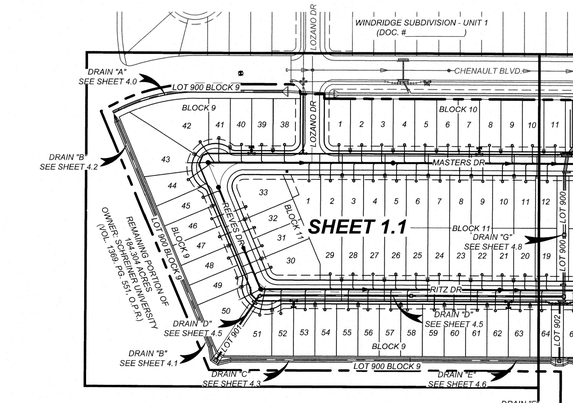
LOCATION MAP
NOT-TO-SCALE



150 0 150 300
SCALE : 1" = 150'
Linear unit of measure: US Survey Foot (1 ft = 1200/9937 m)

LEGEND

PROPOSED 8" WATER MAIN	=	8"W
PROPOSED DUAL WATER SERVICES W/ METERS & METER BOXES (SEE DETAIL SHEET 7.6)	=	DW
PROPOSED SINGLE WATER SERVICE W/ METER & METER BOX (SEE DETAIL SHEET 7.6)	=	W
PROPOSED IRRIGATION SERVICE W/ METER & METER BOX	=	X" IRR
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED CONDUIT	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	
PROPOSED SANITARY SEWER LATERAL WITH DEEP SEWER SERVICE	=	
PROPOSED SANITARY SEWER LATERAL	=	SN
RIGHT-OF-WAY	=	R.O.W.
PROPOSED ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E. G. T, TV. E
PROPOSED VARIABLE WIDTH CLEAR VISION EASEMENT	=	V.W.C.V.E.
PROPOSED SIDEWALK TO BE CONSTRUCTED BY DEVELOPER	=	
PROPOSED SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION	=	
EXISTING WATER MAIN	=	E8" W
EXISTING RECYCLED WATER MAIN	=	RCW
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	E8" SS
EXISTING SANITARY SEWER MANHOLE	=	
EXISTING OVERHEAD ELECTRIC W/POWER POLE	=	OHE OHE
EXISTING GUY WIRE/OVERHEAD ELECTRIC	=	OHE
EXISTING FIBER OPTIC	=	FO FO
EXISTING GAS	=	G G
EXISTING UNDERGROUND ELECTRIC	=	UG UG
EXISTING LIGHT POLE	=	
EXISTING MARKER POST	=	



TYPICAL 60' STREET SECTION
NOT-TO-SCALE

TYPICAL 50' STREET SECTION
NOT-TO-SCALE

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.

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.

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____
DATE

THIS APPROVAL WILL BECOME VOID AFTER ONE YEAR OF THE INDICATED APPROVAL DATE. EXCEPTIONS TO THIS APPROVAL ARE AS FOLLOWS:

BY APPROVING THESE PLANS, THE CITY OF KERRVILLE DOES NOT ASSUME ANY LIABILITY FOR ENGINEERING DESIGN, NOR DOES APPROVAL RELEASE THE DESIGN ENGINEER FROM LIABILITY FOR CORRECTION ERRORS OR OMISSIONS IN THE DESIGN BOTH DURING AND AFTER CONSTRUCTION.

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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER
01/07/2026
P.E.

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm# F-14909
TBPLS Firm# 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA
PROJECT NUMBER: 314-47-05	DRAWING NAME: OU_3144705		

SHEET TITLE:
OVERALL UTILITY PLAN MAP

SHEET NUMBER:
1.0

Date: Dec 31, 2025, 2:49pm User ID: malachi.flores
File: U:\Projects\314\47\05\design\Civil\UTILITIES\OU_3144705.dwg
Plotted by: malachi.flores

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

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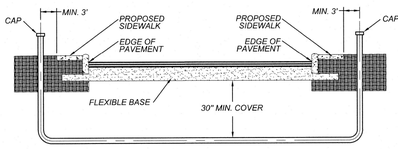

CONDUIT DETAIL
NOT TO SCALE
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*SEE PLAN SHEETS FOR PRIVATE CONDUIT SIZE, LOCATION AND NUMBER OF CONDUITS

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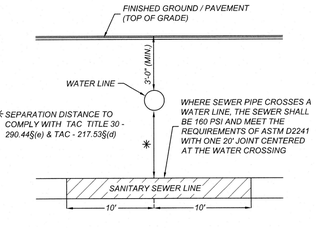
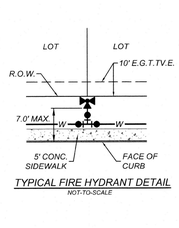
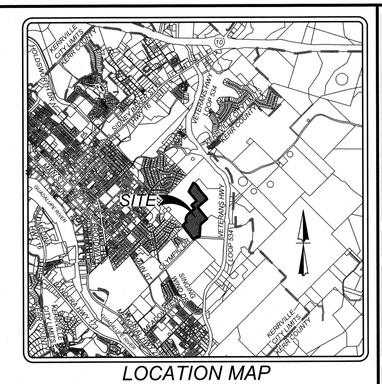


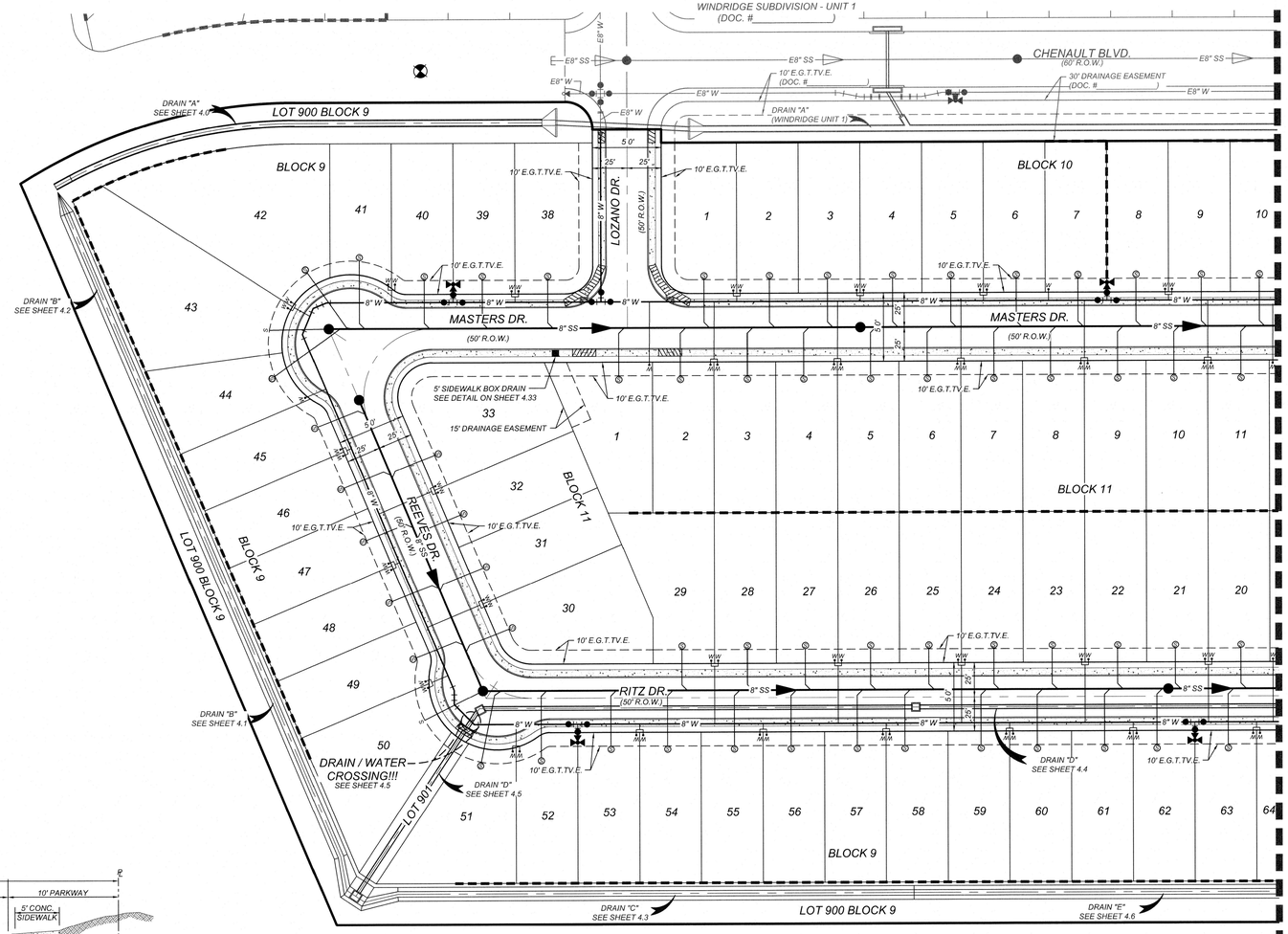
TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
NOT-TO-SCALE



TYPICAL FIRE HYDRANT DETAIL
NOT-TO-SCALE



LOCATION MAP
NOT-TO-SCALE



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REMAINING PORTION OF
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OWNER: SCHREINER UNIVERSITY
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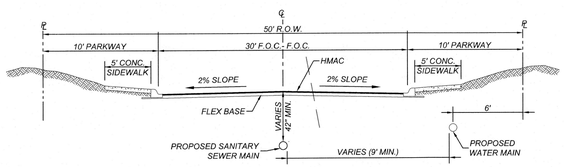
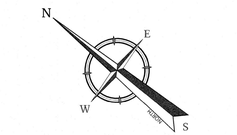


TYPICAL 50' STREET SECTION
NOT-TO-SCALE



50 0 50 100

SCALE : 1" = 50'

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

LEGEND

PROPOSED 8" WATER MAIN	=	8"W
PROPOSED DUAL WATER SERVICES W/ METERS & METER BOXES (SEE DETAIL SHEET 7.6)	=	
PROPOSED SINGLE WATER SERVICE W/ METER & METER BOX (SEE DETAIL SHEET 7.6)	=	
PROPOSED IRRIGATION SERVICE W/ METER & METER BOX	=	X"IRR
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED CONDUIT	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	
PROPOSED SANITARY SEWER LATERAL WITH DEEP SEWER SERVICE	=	
PROPOSED SANITARY SEWER LATERAL	=	
RIGHT-OF-WAY	=	R.O.W.
PROPOSED ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E. G. T. TV. E
PROPOSED VARIABLE WIDTH CLEAR VISION EASEMENT	=	V.W.C.V.E.
PROPOSED SIDEWALK TO BE CONSTRUCTED BY DEVELOPER	=	
PROPOSED SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION	=	
PROPOSED RETAINING WALL (DESIGNED BY OTHERS)	=	
EXISTING WATER MAIN	=	E8" W
EXISTING RECYCLED WATER MAIN	=	RCW
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	E8" SS
EXISTING SANITARY SEWER MANHOLE	=	
EXISTING OVERHEAD ELECTRIC W/POWER POLE	=	OHE
EXISTING GUY WIRE/OVERHEAD ELECTRIC	=	OHE
EXISTING FIBER OPTIC	=	FO
EXISTING GAS	=	G
EXISTING UNDERGROUND ELECTRIC	=	FO
EXISTING LIGHT POLE	=	
EXISTING MARKER POST	=	

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____
DATE

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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER
01/07/2026

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194500

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: OU_3144705

SHEET TITLE: OVERALL UTILITY PLAN

SHEET NUMBER: 1.1

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Dec 31, 2025, 2:54pm User ID: mdicchi.flores
File: U:\Projects\314\47\05\Design\Civil\UTILITIES\OU_3144705.dwg
Design\CIVIL\UTILITIES\OU_3144705.dwg\1.1 OVERALL UTILITY PLAN By: MDICCHI.FLORES

TRENCH EXCAVATION SAFETY PROTECTION

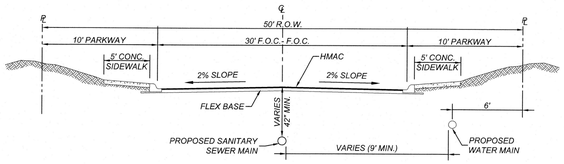
CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S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

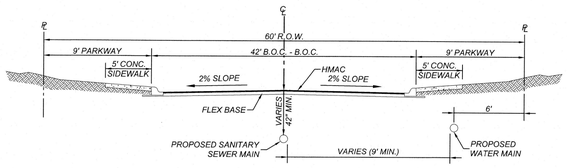
THE CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITED TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT 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.

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.



TYPICAL 50' STREET SECTION
NOT-TO-SCALE



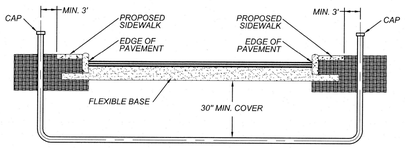
TYPICAL 60' STREET SECTION
NOT-TO-SCALE

JOINT RESTRAINT NOTE:

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

GENERAL NOTE:

1. THIS PROJECT INCLUDES UTILITY INSTALLATIONS GREATER THAN 5-FEET IN DEPTH LOCATED IN PUBLIC RIGHT-OF-WAY OR EASEMENTS. DEEP TRENCHES POSE COMPACTION TESTING AND CONSTRUCTION CHALLENGES AND CITY METHODS FOR TESTING AND COMPACTION MAY NOT BE ACHIEVABLE. A UTILITY COMPACTION PLAN WILL BE REQUIRED AND MUST BE SUBMITTED FOR APPROVAL TO CITY PRIOR TO UTILITY INSTALLATION.

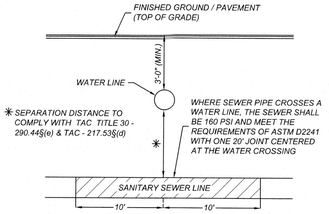


CONDUIT DETAIL
NOT TO SCALE
(NOT FOR CURB DETAIL REFERENCE)

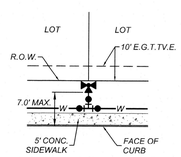
*SEE PLAN SHEETS FOR PRIVATE CONDUIT SIZE, LOCATION AND NUMBER OF CONDUITS

NOTE:

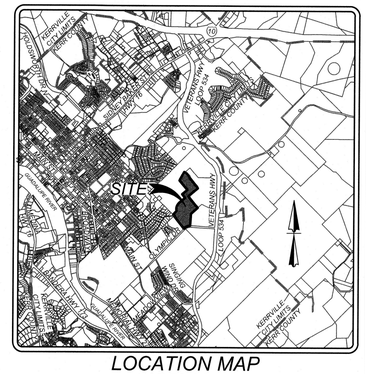
- CONTRACTOR SHALL BE RESPONSIBLE FOR PLACING CONDUIT SLEEVES FOR EACH KPUB FACILITY AT ALL STREETS AND DRAIN CROSSING. CONSTRUCTION SLEEVES MUST ALSO BE LOCATED FOR KPUB CREWS DURING CONSTRUCTION. (SEPARATE ITEM) SEE FINAL ELECTRIC PROVIDER'S DESIGN AND SPECIFICATION.
- CONTRACTOR TO CONTACT ENGINEER FOR APPROPRIATE NUMBER AND SIZE OF CONDUITS FOR TELECOMMUNICATIONS
- CONTRACTOR TO CONTACT ENGINEER FOR ELECTRICAL PLANS
- CONTRACTOR SHALL INSTALL PERMANENT MARKERS IN PROPOSED CURB WHERE CONDUITS CROSS THE ROADWAY (BOTH SIDES).
- CONDUITS SHALL BE PVC WITH 30 INCHES OF MINIMUM COVER FROM STREET SUBGRADE. SCHEDULE 40 TO BE USED FOR KPUB CONDUITS.
- ALL CONDUITS SHALL BE EXTENDED BEHIND CURBS OR PROPOSED SIDEWALKS A MINIMUM OF 3 FEET AND CAPPED FOR FUTURE USE.
- ALL CONDUIT SLEEVES TO BE USED FOR ELECTRIC, GAS, OR TELECOMMUNICATION UTILITY CROSSINGS SHALL BE INSTALLED TO MEET OR EXCEED DESIGN REQUIREMENTS FOR THE UTILITY AGENCY WHICH THEY ARE SERVING, INCLUDING BUT NOT LIMITED TO THE DEPTH, TRENCH PLACEMENT, AND PROXIMITY TO OTHER UTILITIES. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR VERIFYING AND INSTALLING THE CONDUIT SLEEVES TO MEET THESE SPECIFICATION INCLUDING COORDINATING WITH THE UTILITY AGENCY FOR ANY REQUIRED INSPECTIONS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND INSTALLING CONDUIT SLEEVES FOR EACH DRAIN CROSSING PRIOR TO THE INSTALLATION OF EACH DRAIN.



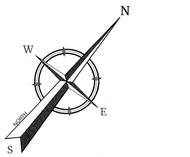
TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
NOT-TO-SCALE



TYPICAL FIRE HYDRANT DETAIL
NOT-TO-SCALE



LOCATION MAP
NOT-TO-SCALE

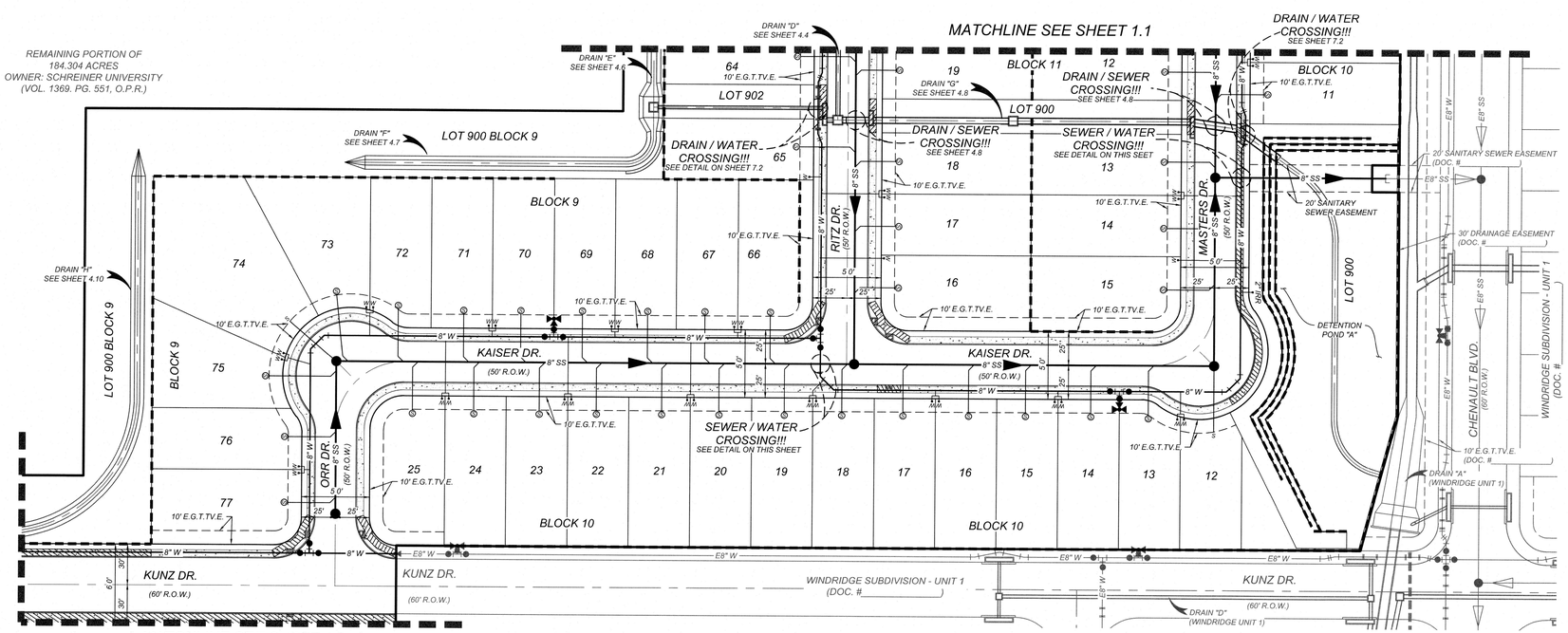


50 0 50 100

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

LEGEND

PROPOSED 8" WATER MAIN	=	8"W
PROPOSED DUAL WATER SERVICES W/ METERS & METER BOXES (SEE DETAIL SHEET 7.6)	=	W W
PROPOSED SINGLE WATER SERVICE W/ METER & METER BOX (SEE DETAIL SHEET 7.6)	=	W
PROPOSED IRRIGATION SERVICE W/ METER & METER BOX	=	X IRR
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED CONDUIT	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	
PROPOSED SANITARY SEWER LATERAL WITH DEEP SEWER SERVICE	=	
PROPOSED SANITARY SEWER LATERAL	=	6"
RIGHT-OF-WAY	=	R.O.W.
PROPOSED ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E. G. T. TV. E
PROPOSED VARIABLE WIDTH CLEAR VISION EASEMENT	=	V.W.C.V.E.
PROPOSED SIDEWALK TO BE CONSTRUCTED BY DEVELOPER	=	
PROPOSED SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION	=	
PROPOSED RETAINING WALL (DESIGNED BY OTHERS)	=	
EXISTING WATER MAIN	=	E8" W
EXISTING RECYCLED WATER MAIN	=	RCW
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	E8" SS
EXISTING SANITARY SEWER MANHOLE	=	
EXISTING OVERHEAD ELECTRIC W/POWER POLE	=	OHE OHE
EXISTING GUY WIRE/OVERHEAD ELECTRIC	=	OHE
EXISTING FIBER OPTIC	=	FO FO
EXISTING GAS	=	G G
EXISTING UNDERGROUND ELECTRIC	=	FO FO
EXISTING LIGHT POLE	=	
EXISTING MARKER POST	=	



CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____
DATE

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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER
01/07/2026
P.E.

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194050

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: OU_3144705

SHEET TITLE: OVERALL UTILITY PLAN

SHEET NUMBER: 1.2

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Dec 31, 2025, 2:55pm User ID: mdiechi.flores
File: U:\Projects\314\47\05\Design\Civil\UTILITIES\OU_3144705.dwg
Design\Civil\UTILITIES\OU_3144705.dwg>12 OVERALL UTILITY PLAN By:MAGDALI FLORES

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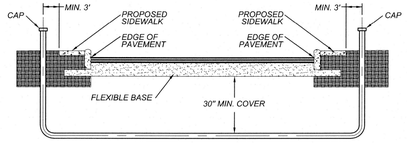

CONDUIT DETAIL
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**SEE PLAN SHEETS FOR PRIVATE CONDUIT SIZE, LOCATION AND NUMBER OF CONDUITS*

NOTE:

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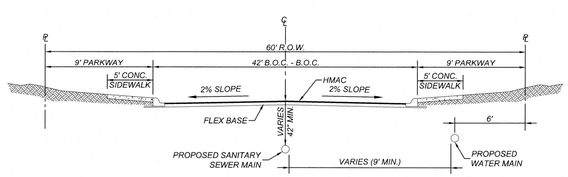
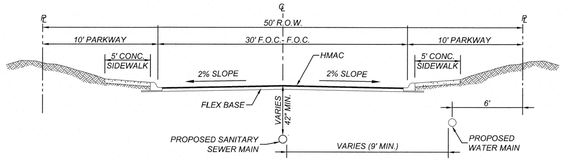


TYPICAL 60' STREET SECTION
NOT-TO-SCALE



TYPICAL 50' STREET SECTION
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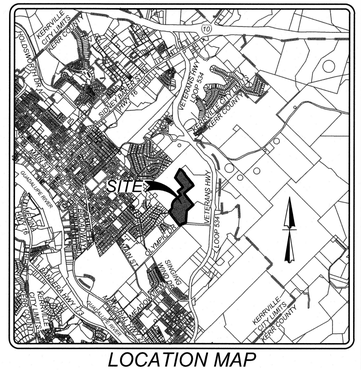
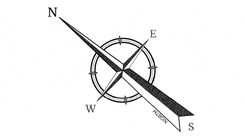


LOCATION MAP
NOT-TO-SCALE



50 0 50 100

SCALE : 1" = 50'

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

LEGEND

PROPOSED 8" WATER MAIN	=	8"W
PROPOSED DUAL WATER SERVICES W/ METERS & METER BOXES (SEE DETAIL SHEET 7.6)	=	DW
PROPOSED SINGLE WATER SERVICE W/ METER & METER BOX (SEE DETAIL SHEET 7.6)	=	SW
PROPOSED IRRIGATION SERVICE W/ METER & METER BOX	=	IRR
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED CONDUIT	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	
PROPOSED SANITARY SEWER LATERAL WITH DEEP SEWER SERVICE	=	
PROPOSED SANITARY SEWER LATERAL	=	
RIGHT-OF-WAY	=	R.O.W.
PROPOSED ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E. G. T. TV. E
PROPOSED VARIABLE WIDTH CLEAR VISION EASEMENT	=	V.W.C.V.E.
PROPOSED SIDEWALK TO BE CONSTRUCTED BY DEVELOPER	=	
PROPOSED SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION	=	
PROPOSED RETAINING WALL (DESIGNED BY OTHERS)	=	
EXISTING WATER MAIN	=	E8" W
EXISTING RECYCLED WATER MAIN	=	RCW
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	E8" SS
EXISTING SANITARY SEWER MANHOLE	=	
EXISTING OVERHEAD ELECTRIC W/POWER POLE	=	OHE
EXISTING GUY WIRE/OVERHEAD ELECTRIC	=	OHE
EXISTING FIBER OPTIC	=	FO
EXISTING GAS	=	G
EXISTING UNDERGROUND ELECTRIC	=	P
EXISTING LIGHT POLE	=	
EXISTING MARKER POST	=	

CITY APPROVAL

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_____ ON _____
DATE

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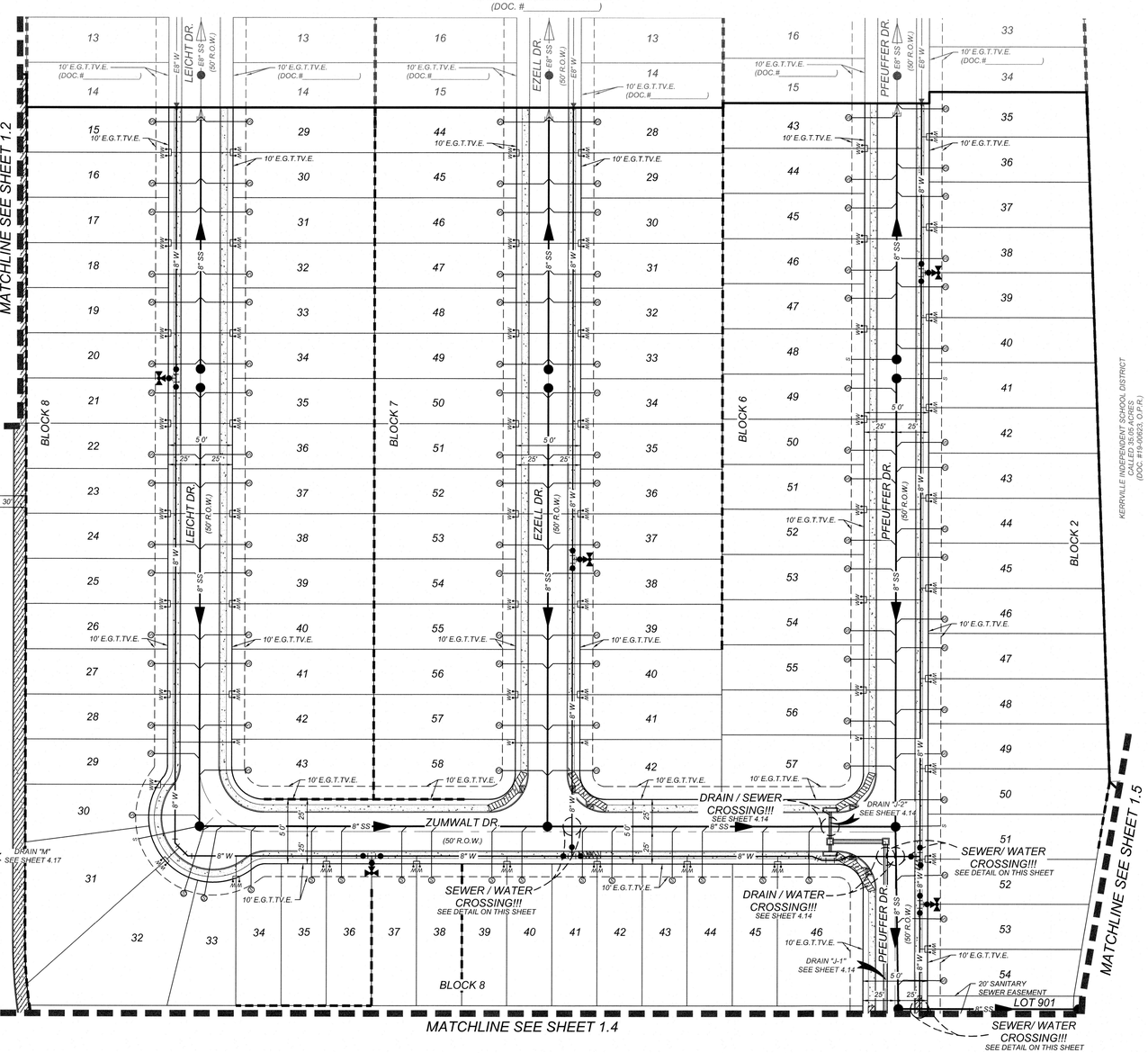
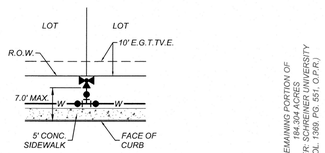
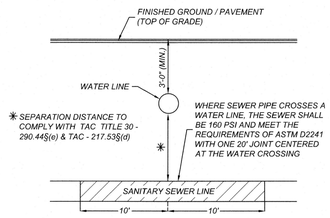




TYPICAL FIRE HYDRANT DETAIL
NOT-TO-SCALE



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

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XREF: XUTILITIES_SURROUNDING_SHEETS.dwg XCOVER.dwg XLEGEND.dwg

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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER
01/07/2026
P.E.

WINDRIDGE SUBDIVISION – UNIT 2

FOR

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CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER:	DRAWING NAME:
314-47-05	OU_3144705

SHEET TITLE:
OVERALL UTILITY PLAN

SHEET NUMBER:
1.3

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

TRENCH EXCAVATION SAFETY PROTECTION

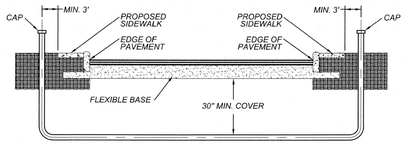
CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S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

DRY UTILITY CONDUIT NOTE:

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



CONDUIT DETAIL
NOT TO SCALE
(NOT FOR CURB DETAIL REFERENCE)

*SEE PLAN SHEETS FOR PRIVATE CONDUIT SIZE, LOCATION AND NUMBER OF CONDUITS

NOTE:

- CONTRACTOR SHALL BE RESPONSIBLE FOR PLACING CONDUIT SLEEVES FOR EACH KPUB FACILITY AT ALL STREETS AND DRAIN CROSSING. CONSTRUCTION SLEEVES MUST ALSO BE LOCATED FOR KPUB CREWS DURING CONSTRUCTION. (SEPARATE ITEM) SEE FINAL ELECTRIC PROVIDER'S DESIGN AND SPECIFICATION.
- CONTRACTOR TO CONTACT ENGINEER FOR APPROPRIATE NUMBER AND SIZE OF CONDUITS FOR TELECOMMUNICATIONS
- CONTRACTOR TO CONTACT ENGINEER FOR ELECTRICAL PLANS
- CONTRACTOR SHALL INSTALL PERMANENT MARKERS IN PROPOSED CURB WHERE CONDUITS CROSS THE ROADWAY (BOTH SIDES).
- CONDUITS SHALL BE PVC WITH 30 INCHES OF MINIMUM COVER FROM STREET SUBGRADE. SCHEDULE 40 TO BE USED FOR KPUB CONDUITS.
- ALL CONDUITS SHALL BE EXTENDED BEHIND CURBS OR PROPOSED SIDEWALKS A MINIMUM OF 3 FEET AND CAPPED FOR FUTURE USE.
- ALL CONDUIT SLEEVES TO BE USED FOR ELECTRIC, GAS, OR TELECOMMUNICATION UTILITY CROSSINGS SHALL BE INSTALLED TO MEET OR EXCEED DESIGN REQUIREMENTS FOR THE UTILITY AGENCY WHICH THEY ARE SERVING, INCLUDING BUT NOT LIMITED TO THE DEPTH, TRENCH PLACEMENT, AND PROXIMITY TO OTHER UTILITIES. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR VERIFYING AND INSTALLING THE CONDUIT SLEEVES TO MEET THESE SPECIFICATION INCLUDING COORDINATING WITH THE UTILITY AGENCY FOR ANY REQUIRED INSPECTIONS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND INSTALLING CONDUIT SLEEVES FOR EACH DRAIN CROSSING PRIOR TO THE INSTALLATION OF EACH DRAIN.

JOINT RESTRAINT NOTE:

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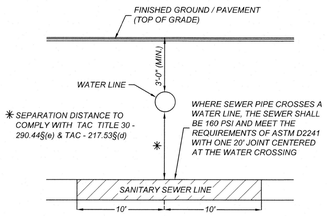
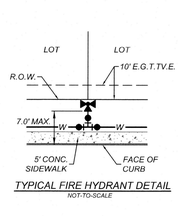
GENERAL NOTE:

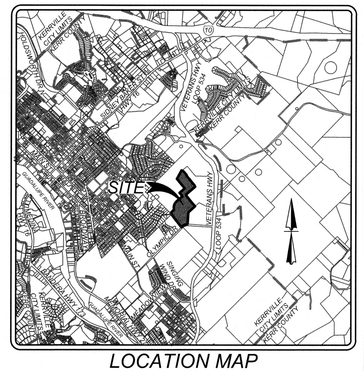
1. THIS PROJECT INCLUDES UTILITY INSTALLATIONS GREATER THAN 5-FEET IN DEPTH LOCATED IN PUBLIC RIGHT-OF-WAY OR EASEMENTS. DEEP TRENCHES POSE COMPACTION TESTING AND CONSTRUCTION CHALLENGES AND CITY METHODS FOR TESTING AND COMPACTION MAY NOT BE ACHIEVABLE. A UTILITY COMPACTION PLAN WILL BE REQUIRED AND MUST BE SUBMITTED FOR APPROVAL TO CITY PRIOR TO UTILITY INSTALLATION.



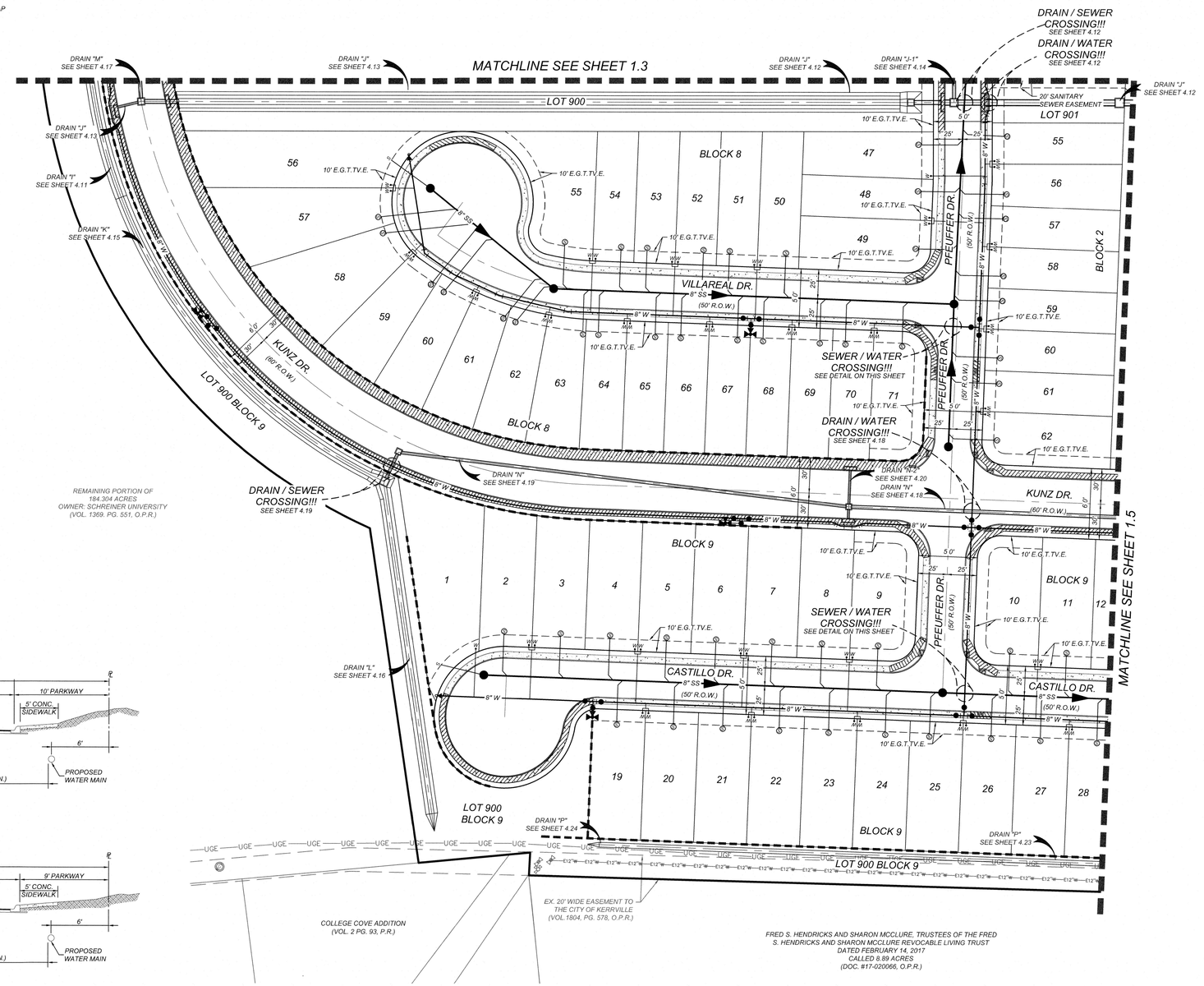
TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
NOT-TO-SCALE

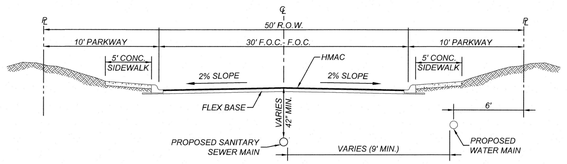


TYPICAL FIRE HYDRANT DETAIL
NOT-TO-SCALE

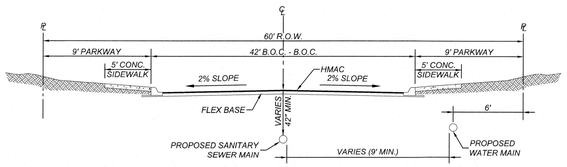


LOCATION MAP
NOT-TO-SCALE

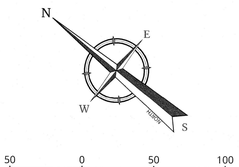




TYPICAL 50' STREET SECTION
NOT-TO-SCALE



TYPICAL 60' STREET SECTION
NOT-TO-SCALE



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

LEGEND

PROPOSED 8" WATER MAIN	=	8"W
PROPOSED DUAL WATER SERVICES W/ METERS & METER BOXES (SEE DETAIL SHEET 7.6)	=	
PROPOSED SINGLE WATER SERVICE W/ METER & METER BOX (SEE DETAIL SHEET 7.6)	=	
PROPOSED IRRIGATION SERVICE W/ METER & METER BOX	=	8"W_X"
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED CONDUIT	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	
PROPOSED SANITARY SEWER LATERAL WITH DEEP SEWER SERVICE	=	
PROPOSED SANITARY SEWER LATERAL	=	
RIGHT-OF-WAY	=	R.O.W.
PROPOSED ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E. G. T. TV. E
PROPOSED VARIABLE WIDTH CLEAR VISION EASEMENT	=	V.W.C.V.E.
PROPOSED SIDEWALK TO BE CONSTRUCTED BY DEVELOPER	=	
PROPOSED SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION	=	
PROPOSED RETAINING WALL (DESIGNED BY OTHERS)	=	
EXISTING WATER MAIN	=	E8" W
EXISTING RECYCLED WATER MAIN	=	RCW
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	E8" SS
EXISTING SANITARY SEWER MANHOLE	=	
EXISTING OVERHEAD ELECTRIC W/POWER POLE	=	OHE
EXISTING GUY WIRE/OVERHEAD ELECTRIC	=	OHE
EXISTING FIBER OPTIC	=	FO
EXISTING GAS	=	G
EXISTING UNDERGROUND ELECTRIC	=	FO
EXISTING LIGHT POLE	=	
EXISTING MARKER POST	=	

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____ DATE

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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER
01/07/2026
P.E.

WINDRIDGE SUBDIVISION – UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm# F-14905
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: OU_3144705

SHEET TITLE: OVERALL UTILITY PLAN

SHEET NUMBER: 1.4

Date: Dec 31, 2025, 3:01pm User ID: mdiachi.flores
File: U:\Projects\314\47\05\Design\Civil\UTILITIES\OU_3144705.dwg
Xrefs: XREF-PROFILE SHEET-MAP-ALIGNMENT-TITLE-PLAN-XS-MASS-ELEVATIONS

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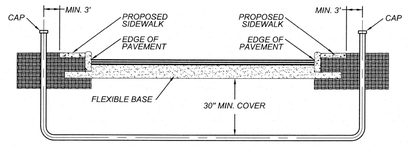

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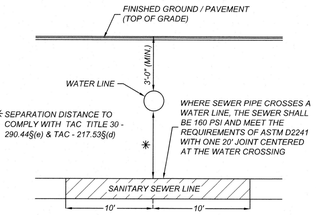
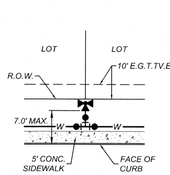


TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
NOT-TO-SCALE



TYPICAL FIRE HYDRANT DETAIL
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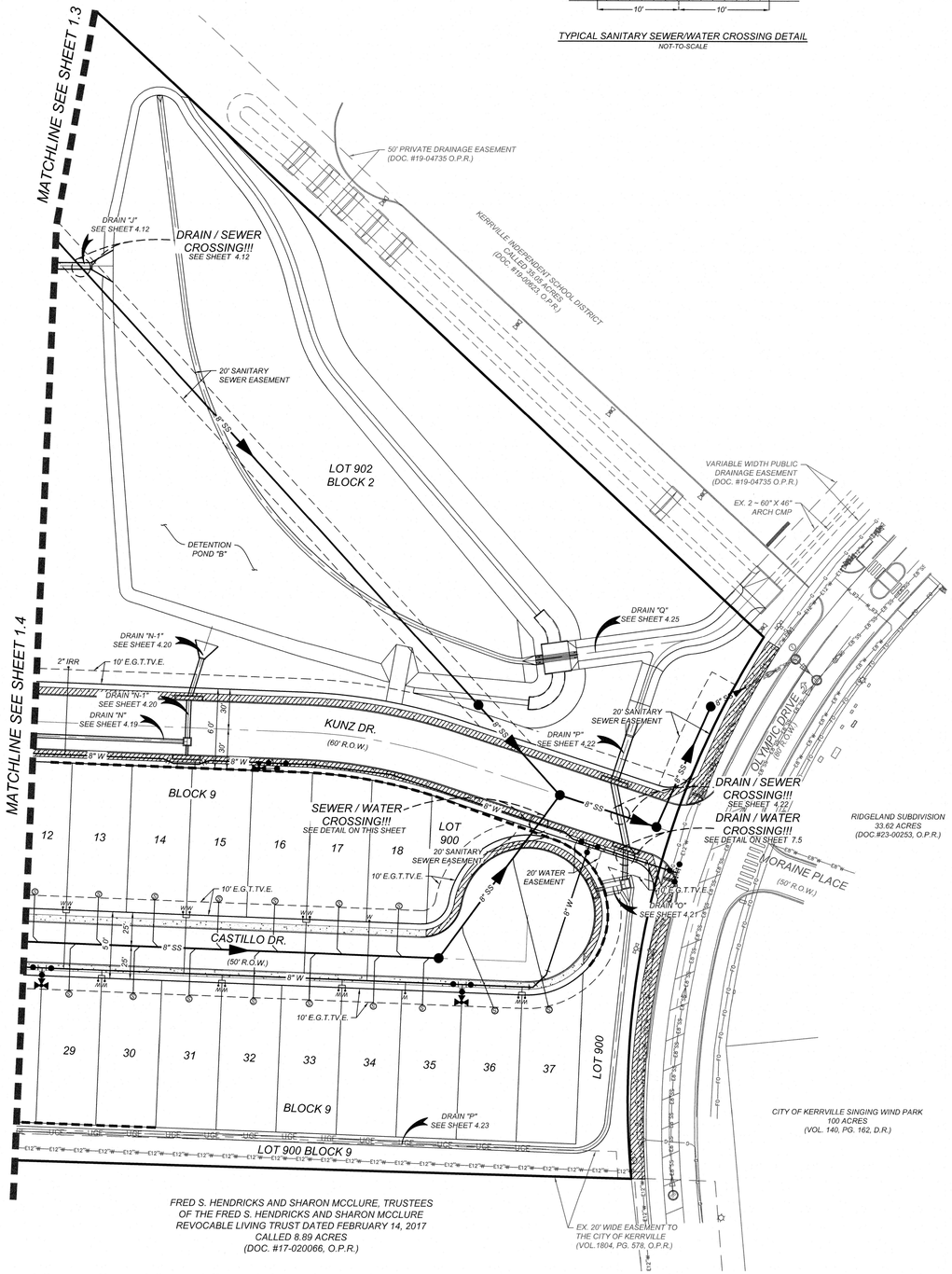
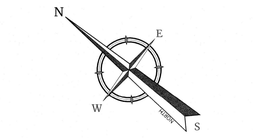




LOCATION MAP
NOT-TO-SCALE

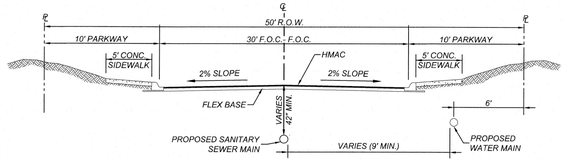


50 0 50 100

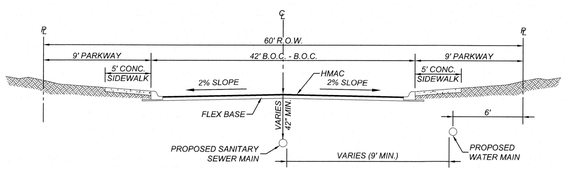
SCALE : 1" = 50'
Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

LEGEND

PROPOSED 8" WATER MAIN	=	8"W
PROPOSED DUAL WATER SERVICES W/ METERS & METER BOXES (SEE DETAIL SHEET 7.6)	=	DUAL
PROPOSED SINGLE WATER SERVICE W/ METER & METER BOX (SEE DETAIL SHEET 7.6)	=	S
PROPOSED IRRIGATION SERVICE W/ METER & METER BOX	=	2" IRR
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED CONDUIT	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	
PROPOSED SANITARY SEWER LATERAL WITH DEEP SEWER SERVICE	=	
PROPOSED SANITARY SEWER LATERAL	=	6"
RIGHT-OF-WAY	=	R.O.W.
PROPOSED ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E. G. T. TV. E
PROPOSED VARIABLE WIDTH CLEAR VISION EASEMENT	=	V.W.C.V.E.
PROPOSED SIDEWALK TO BE CONSTRUCTED BY DEVELOPER	=	
PROPOSED SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION	=	
PROPOSED RETAINING WALL (DESIGNED BY OTHERS)	=	
EXISTING WATER MAIN	=	E8" W
EXISTING RECYCLED WATER MAIN	=	RCW
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	E8" SS
EXISTING SANITARY SEWER MANHOLE	=	
EXISTING OVERHEAD ELECTRIC W/POWER POLE	=	OHE
EXISTING GUY WIRE/OVERHEAD ELECTRIC	=	OHE
EXISTING FIBER OPTIC	=	FO
EXISTING GAS	=	G
EXISTING UNDERGROUND ELECTRIC	=	UGE
EXISTING LIGHT POLE	=	
EXISTING MARKER POST	=	



TYPICAL 50' STREET SECTION
NOT-TO-SCALE



TYPICAL 60' STREET SECTION
NOT-TO-SCALE

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____
DATE

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_____

_____

_____

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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER
01/07/2026
P.E.

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194500

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: OU_3144705

SHEET TITLE:
OVERALL UTILITY PLAN

SHEET NUMBER:
1.5

Date: Dec 31, 2025, 3:04pm User ID: mdelchi.flores
File: U:\Projects\314705 - Windridge Subdivision Unit 2 (KFW)\Design\Civil\TBPE\OU_3144705.dwg
By:MAJCH FLORES

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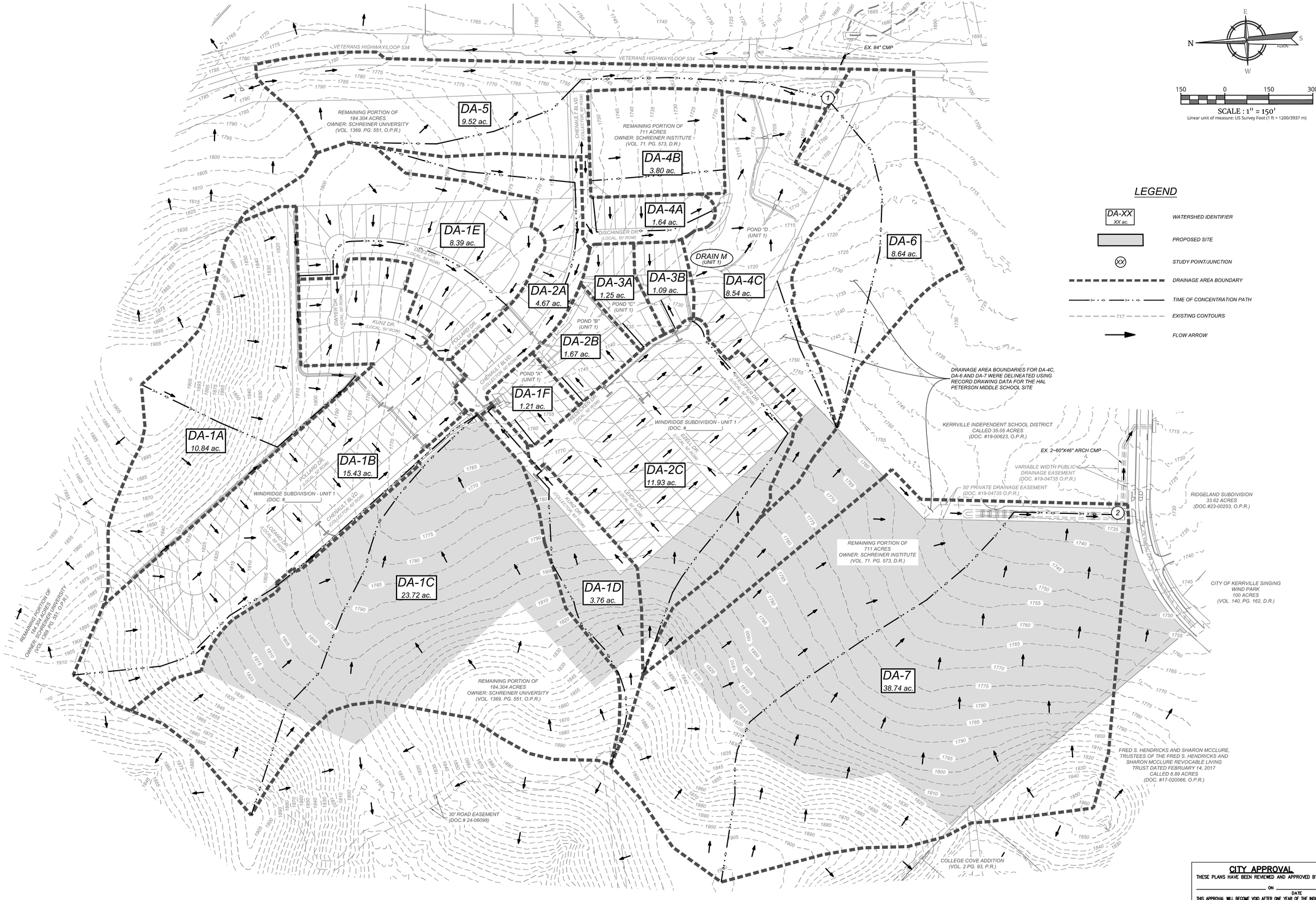

N E S W

150 0 150 300

SCALE : 1" = 150'

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

LEGEND

- DA-XX / XX ac. — WATERSHED IDENTIFIER
- PROPOSED SITE
- XX — STUDY POINT/JUNCTION
- DRAINAGE AREA BOUNDARY
- TIME OF CONCENTRATION PATH
- 717 — EXISTING CONTOURS
- FLOW ARROW

CITY APPROVAL

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DATE

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FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

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NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
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TBPE Firm#:F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05

DRAWING NAME: EXISTING OVERALL DRAINAGE AREA MAP

SHEET TITLE: EXISTING OVERALL DRAINAGE AREA MAP

SHEET NUMBER: 2.0A

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: May 23, 2025, 10:04am User ID: logan.haney
File: U:\Projects\314-47-05\Design\Civil\Drainage\EXISTING OVERALL DRAINAGE AREA MAP.dwg
'Design'CivilDrainage'EXISTING OVERALL DRAINAGE AREA MAP.dwg'EXISTING OVERALL DRAINAGE AREA MAP
By: LOGAN HANEY

EXISTING RUNOFF

HYDROLOGY SUMMARY - SCS METHOD

Study Pt./Junction	Drainage Area	Area (ac)	Curve Number	$T_{carry\ over}$ (min)	$T_{ov\ rt}$ (min)	T_{sc} (min)	T_{ch} (min)	T_{tot} (min)	T_{lag} (min)	Q2 (ft³/s)	Q5 (ft³/s)	Q25 (ft³/s)	Q100 (ft³/s)
	DA-1A	10.84	75.60		20.0	0.4	0.5	20.9	12.5	14.1	26.2	50.8	73.2
	DA-1B	15.43	86.62		18.8	1.5	2.5	22.8	13.7	32.2	50.3	82.9	111.3
	DA-1C	23.72	73.21		11.8	5.5	0.0	17.3	10.4	29.3	57.1	115.1	168.6
	DA-1D	3.76	79.32		20.0	2.4	0.9	23.3	14.0	5.7	9.9	18.1	25.3
	DA-1F	1.21	90.00		6.6	0.0	0.0	6.6	4.0	4.4	6.6	10.4	13.7
DETENTION POND A (UNIT 1) DISCHARGE	REFERENCE HEC-HMS MODEL									77.2	145.6	264.3	368.7
	DA-1E	8.39	85.44		9.4	2.7	0.0	12.1	7.3	21.6	34.2	57.3	77.4
	DA-2A	4.67	84.32		20.0	3.1	0.1	23.2	13.9	8.8	14.3	24.2	33.0
	DA-2B	1.67	90.00		6.6	0.0	0.0	6.6	4.0	6.1	9.0	14.2	18.7
DETENTION POND B (UNIT 1) DISCHARGE	REFERENCE HEC-HMS MODEL									86.6	180.8	319.1	427.9
	DA-3A	1.25	90.00		6.6	0.0	0.0	6.6	4.0	4.7	6.9	10.9	14.4
DETENTION POND C (UNIT 1) DISCHARGE	REFERENCE HEC-HMS MODEL									83.6	178.0	311.2	411.4
	DA-2C	11.93	86.2		20.0	4.5	0.0	24.5	14.7	23.6	37.1	61.7	83.1
	DA-3B	1.09	90.00		6.6	0.0	0.0	6.6	4.0	4.0	5.9	9.3	12.2
DRAIN M (UNIT 1)	REFERENCE HEC-HMS MODEL									101.3	215.6	371.2	486.0
	DA-4A	1.64	90.00		11.5	1.4	0.0	12.9	7.7	5.0	7.4	11.7	15.4
	DA-4B	3.80	73.00		20.0	0.6	0.0	20.6	12.4	4.2	8.3	16.8	24.7
	DA-4C	8.54	89.41		20.0	0.9	0.0	20.9	12.5	20.5	30.9	49.3	65.3
DETENTION POND D (UNIT 1) DISCHARGE	REFERENCE HEC-HMS MODEL									83.3	142.5	315.1	461.6
	DA-5	9.52	84.27		20.0	2.1	2.4	24.5	14.7	17.5	28.2	48.2	65.5
	DA-6	8.64	93.85		20.0	3.5	0.0	23.5	14.1	22.6	32.2	49.1	64.0
JUNCTION-1	REFERENCE HEC-HMS MODEL									98.5	177.1	373.7	539.0
	DA-7	38.74	74.63		20.0	4.7	1.0	25.7	15.4	43.3	82.3	161.9	234.5
JUNCTION-2	REFERENCE HEC-HMS MODEL									43.3	82.3	161.9	234.5

CITY APPROVAL

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WINDRIDGE SUBDIVISION - UNIT 2

FOR

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CITY OF KERRVILLE
KERR COUNTY
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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05

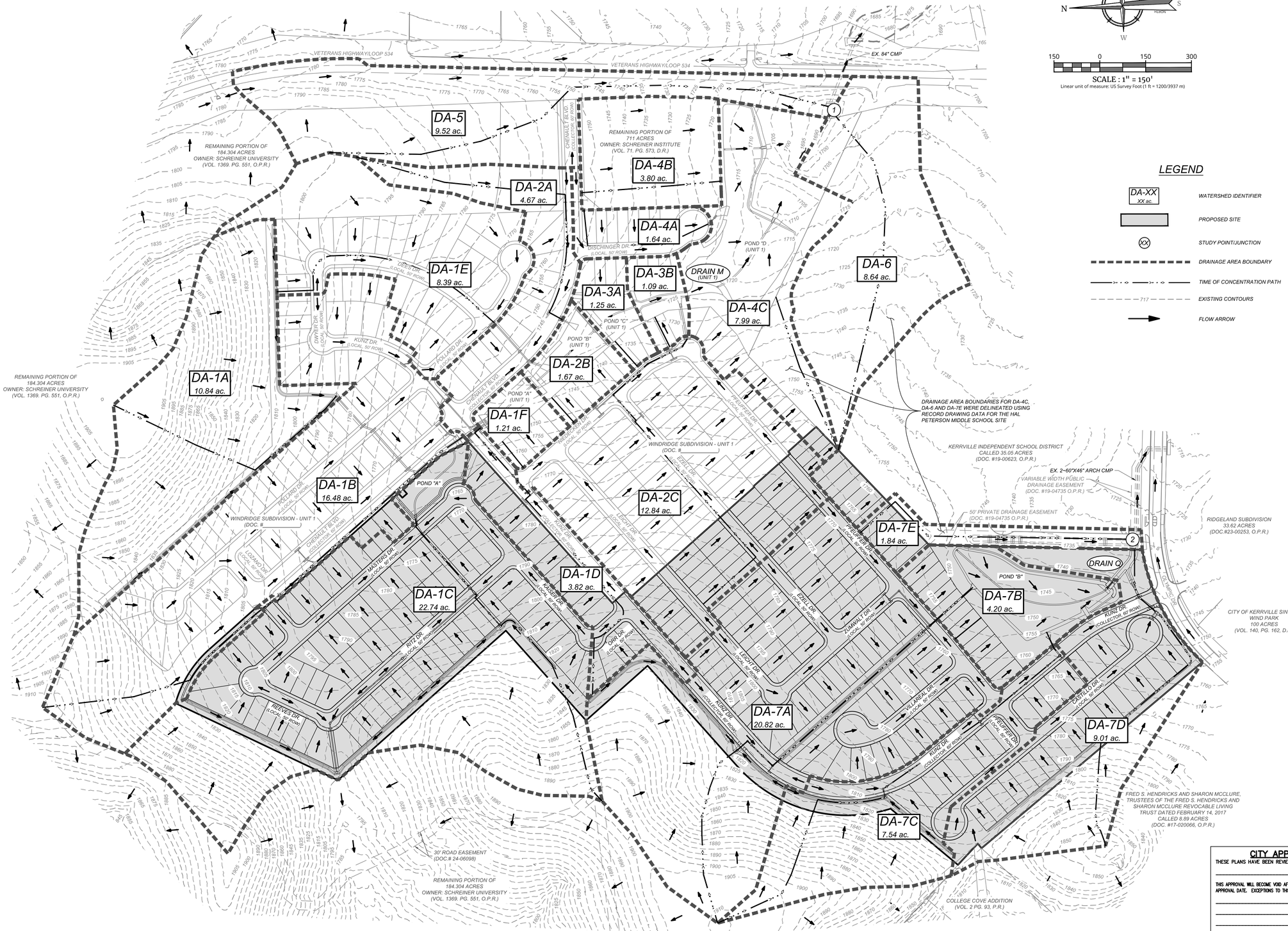
DRAWING NAME: EXISTING OVERALL DRAINAGE AREA MAP

SHEET TITLE: EXISTING OVERALL DRAINAGE CALCULATIONS

SHEET NUMBER: 2.0B

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: May 23, 2025, 10:07am User ID: logan.honey
File: J:\Projects\314\47-05\Design\Civil\Design\EXISTING OVERALL DRAINAGE AREA MAP.dwg
Design\Civil\Design\EXISTING OVERALL DRAINAGE AREA MAP.dwg\EXISTING OVERALL DRAINAGE CALCULATIONS By: LOGAN.HONEY



E
N
S
W

150 0 150 300

SCALE : 1" = 150'

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

LEGEND

- DA-XX / XX ac. — WATERSHED IDENTIFIER
- PROPOSED SITE
- XX — STUDY POINT/JUNCTION
- DRAINAGE AREA BOUNDARY
- TIME OF CONCENTRATION PATH
- 717 — EXISTING CONTOURS
- FLOW ARROW

Date: May 23, 2025, 11:01am User ID: logan.haney
File: U:\Projects\314-47-05 Windridge Unit 2\Civil\Design\2.1 PROPOSED OVERALL DRAINAGE AREA MAP.dwg
\Design\Civil\Drainage\2.1 PROPOSED OVERALL DRAINAGE AREA MAP.dwg/PROPOSED OVERALL DRAINAGE AREA MAP By: LOGAN HANEY

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KERR COUNTY
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TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: 2.1 PROPOSED OVERALL DRAINAGE AREA MAP

SHEET TITLE:
PROPOSED OVERALL DRAINAGE AREA MAP

SHEET NUMBER:
2.1A

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DATE

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PROPOSED RUNOFF

HYDROLOGY SUMMARY - SCS METHOD

Study Pt./Junction	Drainage Area	Area (ac)	Curve Number	$T_{carryover}$ (min)	T_{ov-l} (min)	T_{sc} (min)	T_{ch} (min)	T_{tot} (min)	T_{lag} (min)	Q2 (ft^3/s)	Q5 (ft^3/s)	Q25 (ft^3/s)	Q100 (ft^3/s)
	DA-1A	10.84	75.60		20.0	0.4	0.5	20.9	12.5	14.1	26.2	50.8	73.2
	DA-1B	16.48	86.62		18.8	0.5	3.3	22.6	13.6	34.6	54.0	89.0	119.4
	DA-1C	22.74	84.33		20.0	0.4	1.9	22.3	13.4	43.7	70.4	119.6	162.4
DETENTION POND A (UNIT 2) DISCHARGE	REFERENCE HEC-HMS MODEL									8.7	44.9	111.2	154.5
	DA-1D	3.82	90.00		10.9	2.1	0.9	13.9	8.3	11.2	16.7	26.5	35.0
	DA-1F	1.21	90.00		6.6	0.0	0.0	6.6	4.0	4.4	6.6	10.4	13.7
DETENTION POND A (UNIT 1) DISCHARGE	REFERENCE HEC-HMS MODEL									62.9	111.3	264.7	364.2
	DA-1E	8.39	85.44		9.4	2.7	0.0	12.1	7.3	21.6	34.2	57.3	77.4
	DA-2A	4.67	84.32		20.0	3.1	0.1	23.2	13.9	8.8	14.3	24.2	33.0
	DA-2B	1.67	90.00		6.6	0.0	0.0	6.6	4.0	6.1	9.0	14.2	18.7
DETENTION POND B (UNIT 1) DISCHARGE	REFERENCE HEC-HMS MODEL									77.4	139.7	313.2	421.6
	DA-3A	1.25	90.00		6.6	0.0	0.0	6.6	4.0	4.7	6.9	10.9	14.4
DETENTION POND C (UNIT 1) DISCHARGE	REFERENCE HEC-HMS MODEL									75.6	139.5	306.7	407.9
	DA-2C	12.84	90.00		10.7	2.1	1.2	14.0	8.4	37.5	55.8	88.4	116.6
	DA-3B	1.09	90.00		6.6	0.0	0.0	6.6	4.0	4.0	5.9	9.3	12.2
DRAIN M (UNIT 1)	REFERENCE HEC-HMS MODEL									96.5	167.4	350.8	459.9
	DA-4A	1.64	90.00		11.5	1.4	0.0	12.9	7.7	5.0	7.4	11.7	15.4
	DA-4B	3.80	73.00		20.0	0.6	0.0	20.6	12.4	4.3	8.3	16.9	24.8
	DA-4C	7.99	90.84		20.0	0.9	0.0	20.9	12.5	20.2	29.9	47.0	61.8
DETENTION POND D (UNIT 1) DISCHARGE	REFERENCE HEC-HMS MODEL									80.2	134.3	311.6	455.8
	DA-5	9.52	84.27		20.0	2.1	2.4	24.5	14.7	17.5	28.2	48.2	65.5
	DA-6	8.64	93.85		20.0	3.5	0.0	23.5	14.1	22.6	32.2	49.1	64.0
JUNCTION-1	REFERENCE HEC-HMS MODEL									102.3	165.6	366.2	533.0
	DA-7A	20.82	84.51		20.0	0.8	2.9	23.7	14.2	39.1	63.1	107.2	145.6
	DA-7B	4.20	90.00		6.6	0.0	0.0	6.6	4.0	15.4	22.8	36.0	47.4
	DA-7C	7.54	82.22		20.0	0.5	3.0	23.5	14.1	12.9	21.6	37.8	52.0
DETENTION POND B (UNIT 2) DISCHARGE	REFERENCE HEC-HMS MODEL									27.8	59.0	123.8	177.3
	DA-7D	9.01	90.00		11.6	0.2	2.3	14.1	8.5	26.2	39.0	61.7	81.6
DRAIN Q	REFERENCE HEC-HMS MODEL									36.9	73.8	155.1	222.3
	DA-7E	1.84	92.63		8.5	0.0	2.3	10.8	6.5	6.4	9.3	14.3	18.7
JUNCTION 2	REFERENCE HEC-HMS MODEL									43.0	76.8	161.6	231.9

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DENIS A. AVENDANO
137588
LICENSED
PROFESSIONAL ENGINEER

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

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

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05

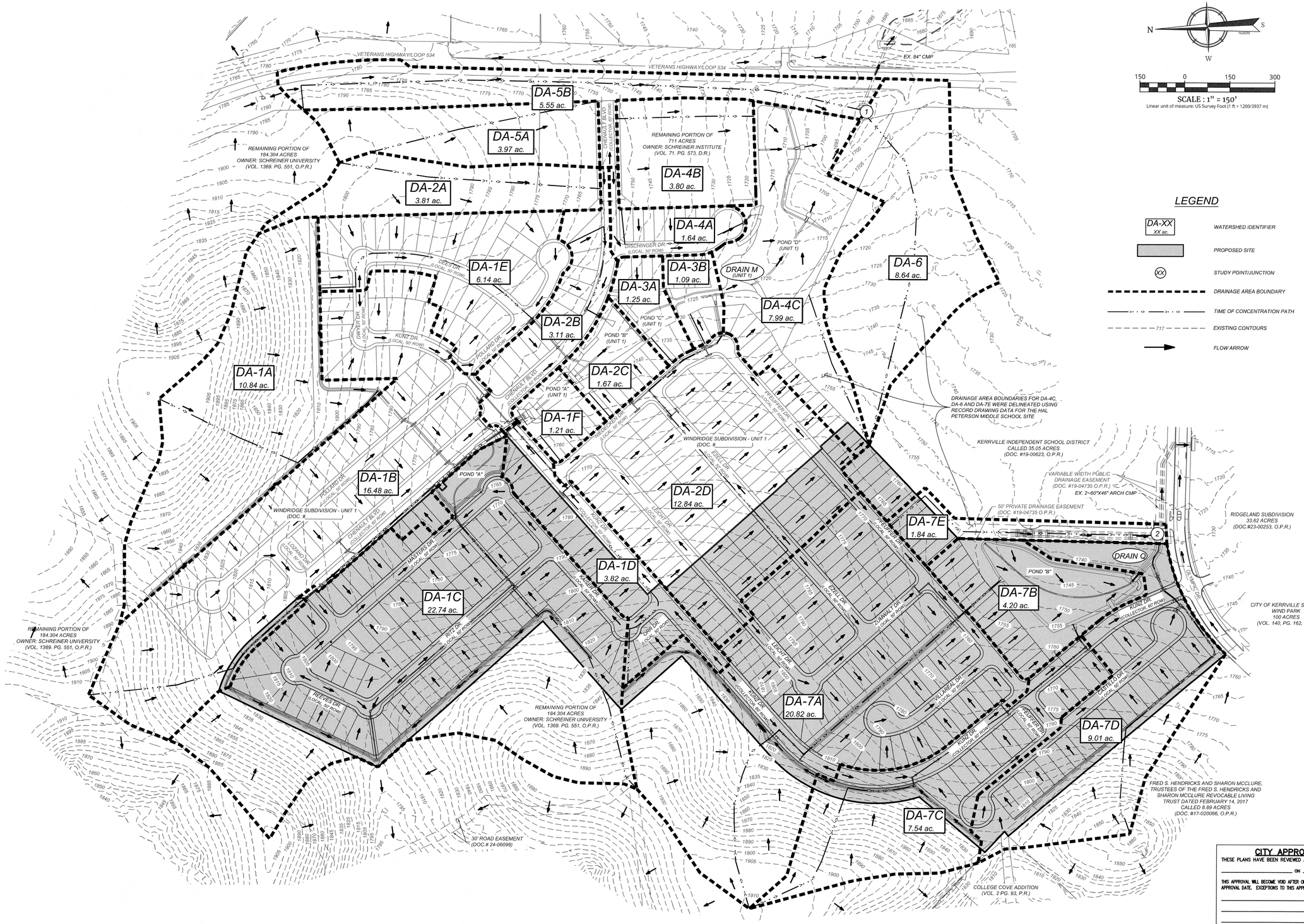
DRAWING NAME: 2.1 PROPOSED OVERALL DRAINAGE AREA MAP

SHEET TITLE: PROPOSED OVERALL DRAINAGE CALCULATIONS

SHEET NUMBER: 2.1B

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Jun 11, 2025, 4:30pm User ID: logan.haney
File: J:\Projects\314\314.47-05\Design\Civil\Drainage\2.1 PROPOSED OVERALL DRAINAGE AREA MAP.dwg
Design\Civil\Drainage\2.1 PROPOSED OVERALL DRAINAGE AREA MAP.dwg\PROPOSED OVERALL DRAINAGE CALCULATIONS By: LOGAN.HANEY



LEGEND

- DA-XX / XX ac. — WATERSHED IDENTIFIER
- PROPOSED SITE
- XX — STUDY POINT/JUNCTION
- DRAINAGE AREA BOUNDARY
- TIME OF CONCENTRATION PATH
- 717 — EXISTING CONTOURS
- FLOW ARROW

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137588
LICENSED PROFESSIONAL ENGINEER
11/03/2025
P.E.

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CITY OF KERRVILLE
KERR COUNTY
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Colliers Engineering & Design

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AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05

DRAWING NAME: 2.2 ULTIMATE OVERALL DRAINAGE AREA MAP

SHEET TITLE:

ULTIMATE OVERALL DRAINAGE AREA MAP

SHEET NUMBER:

2.2A

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Oct 29, 2025, 9:36am User ID: logan.haney
File: U:\Projects\314\47\05\Design\Civil\Drawings\2.2 ULTIMATE OVERALL DRAINAGE AREA MAP.dwg
\Design\Civil\Drawings\2.2 ULTIMATE OVERALL DRAINAGE AREA MAP.dwg\ULTIMATE OVERALL DRAINAGE AREA MAP By: LOGAN.HANEY

ULTIMATE RUNOFF

HYDROLOGY SUMMARY - SCS METHOD

Study Pt./Junction	Drainage Area	Area (ac)	Curve Number	$T_{carry\ over}$ (min)	$T_{ov\ rl}$ (min)	T_{sc} (min)	T_{ch} (min)	T_{tot} (min)	T_{lag} (min)	Q2 (ft³/s)	Q5 (ft³/s)	Q25 (ft³/s)	Q100 (ft³/s)
	DA-1A	10.84	75.60		20.0	0.4	0.5	20.9	12.5	14.1	26.2	50.8	73.2
	DA-1B	16.48	86.62		18.8	0.5	3.3	22.6	13.6	34.6	54.0	89.0	119.0
	DA-1C	22.74	84.33		20.0	0.4	1.9	22.3	13.4	43.7	70.4	119.6	162.4
DETENTION POND A (UNIT 2) DISCHARGE	REFERENCE HEC-HMS MODEL									8.7	44.9	111.2	154.5
	DA-1D	3.82	90.00		10.9	2.1	0.9	13.9	8.3	11.2	16.7	26.5	35.0
	DA-1F	1.21	90.00		6.6	0.0	0.0	6.6	4.0	4.4	6.6	10.4	13.7
DETENTION POND A (UNIT 1) DISCHARGE	REFERENCE HEC-HMS MODEL									62.9	111.3	264.7	384.2
	DA-1E	6.14	90.00		9.4	2.7	0.0	12.1	7.3	18.7	27.9	44.2	58.4
	DA-2A	3.81	94.00		5.0	1.9	0.0	6.9	4.1	15.6	22.1	33.6	43.7
FUTURE DA-2A POND DISCHARGE	REFERENCE HEC-HMS MODEL									3.9	7.9	16.5	24.4
	DA-2B	3.11	90.00		7.9	1.4	0.1	9.4	5.6	10.4	15.4	24.4	32.2
	DA-2C	1.67	90.00		6.6	0.0	0.0	6.6	4.0	6.1	9.0	14.2	18.7
DETENTION POND B (UNIT 1) DISCHARGE	REFERENCE HEC-HMS MODEL									77.2	137.1	310.5	418.2
	DA-3A	1.25	90.00		6.6	0.0	0.0	6.6	4.0	4.7	6.9	10.9	14.4
DETENTION POND C (UNIT 1) DISCHARGE	REFERENCE HEC-HMS MODEL									75.6	136.8	304.4	405.9
	DA-2D	12.84	90.00		10.7	2.1	1.2	14.0	8.4	37.5	55.8	88.4	116.6
	DA-3B	1.09	90.00		6.6	0.0	0.0	6.6	4.0	4.0	5.9	9.3	12.2
DRAIN M (UNIT 1)	REFERENCE HEC-HMS MODEL									98.4	165.0	349.9	459.9
	DA-4A	1.64	90.00		11.5	1.4	0.0	12.9	7.7	5.0	7.4	11.7	15.4
	DA-4B	3.80	94.00		5.0	0.5	0.0	6.0	3.6	15.6	22.2	33.9	44.1
	DA-4C	7.99	90.84		20.0	0.9	0.0	20.9	12.5	20.2	29.9	47.0	61.8
DETENTION POND D (UNIT 1) DISCHARGE	REFERENCE HEC-HMS MODEL									83.1	137.3	313.0	454.7
	DA-5A	3.97	94.00		5.0	1.5	0.0	6.5	3.9	16.2	22.9	34.9	45.3
FUTURE DA-5A POND DISCHARGE	REFERENCE HEC-HMS MODEL									4.2	8.3	17.3	25.6
	DA-5B	5.55	92.34		5.0	0.0	5.2	10.2	6.1	19.5	28.2	43.5	56.8
	DA-6	8.64	93.85		20.0	3.5	0.0	23.5	14.1	22.6	32.2	49.1	64.0
JUNCTION-1	REFERENCE HEC-HMS MODEL									102.2	164.9	360.3	519.8
	DA-7A	20.82	84.51		20.0	0.8	2.9	23.7	14.2	39.1	63.1	107.2	145.6
	DA-7B	4.20	90.00		6.6	0.0	0.0	6.6	4.0	15.4	22.8	36.0	47.4
	DA-7C	7.54	82.22		20.0	0.5	3.0	23.5	14.1	12.9	21.6	37.8	52.0
DETENTION POND B (UNIT 2) DISCHARGE	REFERENCE HEC-HMS MODEL									27.8	59.0	123.8	177.3
	DA-7D	9.01	90.00		11.6	0.2	2.3	14.1	8.5	26.2	39.0	61.7	81.5
DRAIN Q	REFERENCE HEC-HMS MODEL									36.9	73.8	155.1	222.3
	DA-7E	1.84	92.63		8.5	0.0	2.3	10.8	6.5	6.4	9.3	14.3	18.7
JUNCTION-2	REFERENCE HEC-HMS MODEL									43.0	76.8	161.6	231.9

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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER

11/03/2025

Dennis A. Avendano, P.E.

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design

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

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05

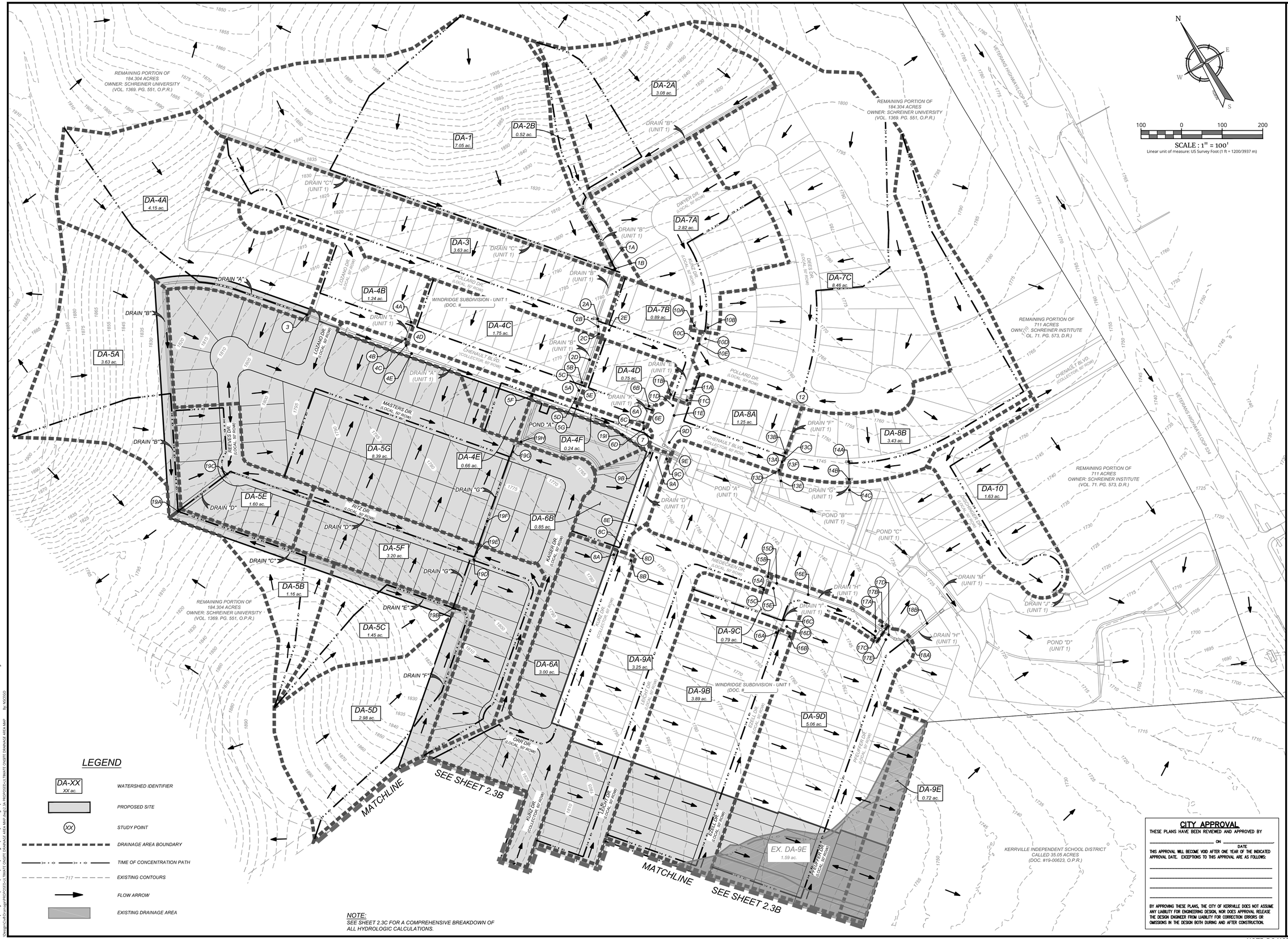
DRAWING NAME: 2.2 ULTIMATE OVERALL DRAINAGE AREA MAP

SHEET TITLE: ULTIMATE OVERALL DRAINAGE CALCULATIONS

SHEET NUMBER: 2.2B

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Oct 29, 2025, 9:40am User ID: logan.haney
File: U:\Projects\314\47\05\design\Civil\Drainage\2.2 ULTIMATE OVERALL DRAINAGE AREA MAP.dwg
Plotted on Image 22 ULTIMATE OVERALL DRAINAGE AREA MAP by WINDRIDGE CALCULATIONS



LEGEND

- DA-XX / XX ac. — WATERSHED IDENTIFIER
- PROPOSED SITE
- (XX) — STUDY POINT
- DRAINAGE AREA BOUNDARY
- TIME OF CONCENTRATION PATH
- 717 — EXISTING CONTOURS
- FLOW ARROW
- EXISTING DRAINAGE AREA

NOTE:
SEE SHEET 2.3C FOR A COMPREHENSIVE BREAKDOWN OF ALL HYDROLOGIC CALCULATIONS.

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06/19/2025
STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

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

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

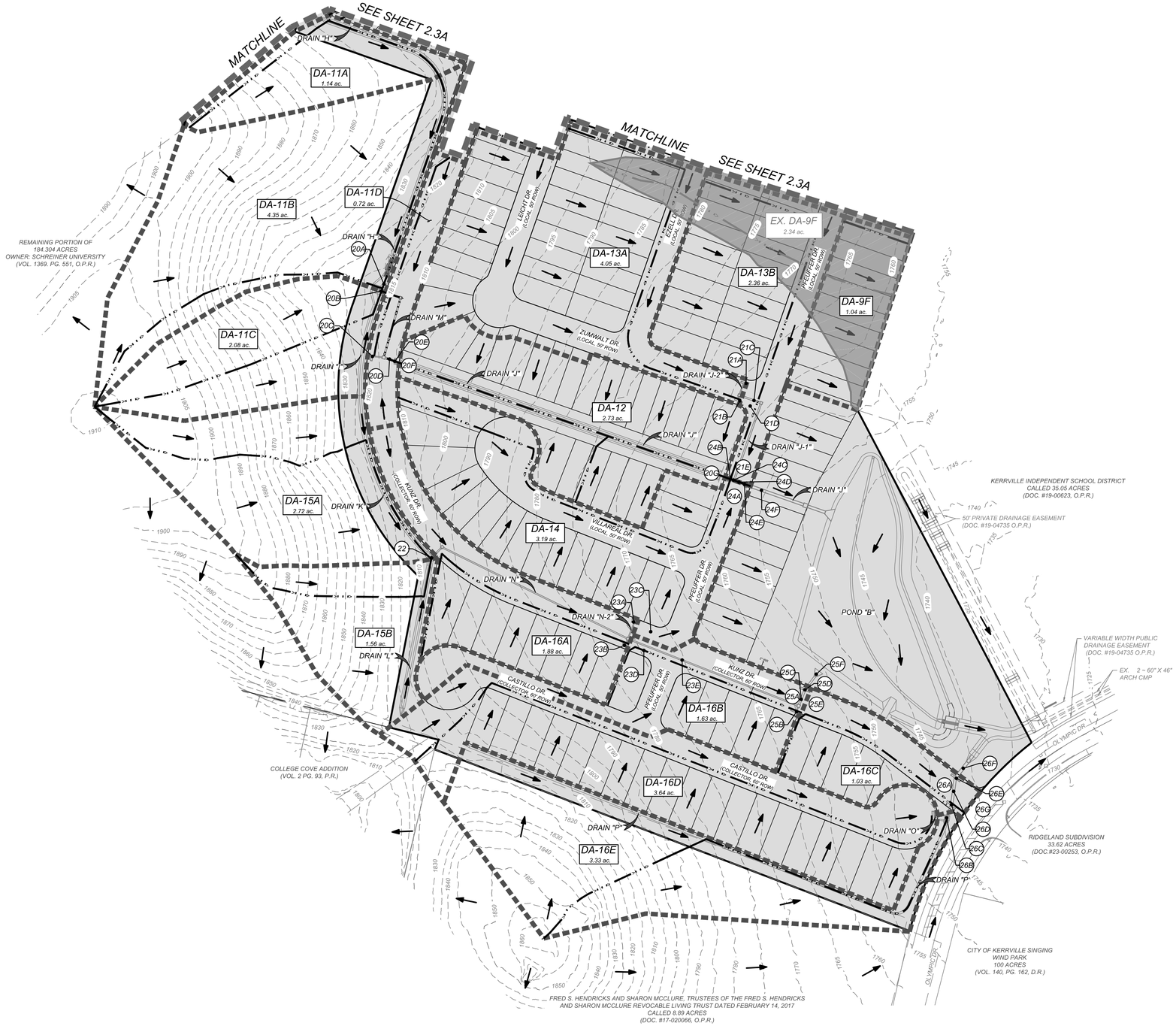
PROJECT NUMBER:	DRAWING NAME:
314-47-05	PROPOSED-ULTIMATE ONSITE DRAINAGE AREA MAP

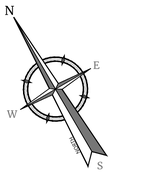
SHEET TITLE:
PROPOSED-ULTIMATE ONSITE DRAINAGE AREA MAP

SHEET NUMBER:
2.3A

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Jun 10, 2025, 2:44pm User ID: nscego
File: L:\Projects\314\47\05\Design\Drainage\PROPOSED-ULTIMATE ONSITE DRAINAGE AREA MAP.dwg
Xrefs: L:\Projects\314\47\05\Design\Drainage\PROPOSED-ULTIMATE ONSITE DRAINAGE AREA MAP-Sheet 2.3A PROPOSED-ULTIMATE ONSITE DRAINAGE AREA MAP
By: NSCEGO





100 0 100 200

SCALE : 1" = 100'

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

LEGEND

- DA-XX (XX ac.) — WATERSHED IDENTIFIER
- PROPOSED SITE
- (XX) — STUDY POINT
- DRAINAGE AREA BOUNDARY
- TIME OF CONCENTRATION PATH
- 717 — EXISTING CONTOURS
- FLOW ARROW
- EXISTING DRAINAGE AREA

NOTE:
SEE SHEET 2.3C FOR A COMPREHENSIVE BREAKDOWN OF ALL HYDROLOGIC CALCULATIONS.

Date: Jun 10, 2025, 2:46pm User ID: rescapo
File: U:\Projects\23-04-0133-A-KERR-WINDRIDGE SUBDIVISION UNIT 2\Design\CivilDesign\PROPOSED-ULTIMATE ONSITE DRAINAGE AREA MAP.dwg
\Design\CivilDesign\PROPOSED-ULTIMATE ONSITE DRAINAGE AREA MAP.dwg\2.3B PROPOSED-ULTIMATE ONSITE DRAINAGE AREA MAP - By: NSCTGO

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06/19/2025

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED
PROFESSIONAL ENGINEER

WINDRIDGE SUBDIVISION – UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
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TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05

DRAWING NAME: PROPOSED-ULTIMATE ONSITE DRAINAGE AREA MAP

SHEET TITLE: PROPOSED-ULTIMATE ONSITE DRAINAGE AREA MAP

SHEET NUMBER: 2.3B

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PROPOSED - ULTIMATE ONSITE RUNOFF CALCULATIONS - RATIONAL METHOD

Study Point	Drainage Area(s)	(Acres)	C	$T_{carryover}$ (min)	T_{ovrl} (min)	T_{sc} (min)	T_{ch} (min)	T_{tot} (min)	I_2 (in/hr)	I_5 (in/hr)	I_{25} (in/hr)	I_{100} (in/hr)	Q_2 (ft^3/s)	Q_5 (ft^3/s)	Q_{25} (ft^3/s)	Q_{100} (ft^3/s)
	DA-1	7.05	0.52		20.0	0.4	2.1	22.5	3.47	4.31	6.11	7.86	12.70	15.80	22.38	28.80
	DA-2A	3.08	0.52		17.7	0.2	0.4	18.3	3.82	4.75	6.74	8.68	6.11	7.61	10.79	13.91
	DA-2B	0.52	0.51		16.2	0.1	0.5	16.8	3.93	4.90	6.94	8.95	1.04	1.30	1.84	2.37
SP-1A	DA-2A + DA-2B	3.60	0.52	DA-2A 18.3			0.5	18.8	3.78	4.70	6.66	8.59	7.05	8.77	12.44	16.03
SP-1B	DA-1 + SP-1A	10.65	0.52	DA-1 22.5				22.5	3.47	4.31	6.11	7.86	19.17	23.85	33.78	43.46
	DA-3	3.63	0.70		11.3	3.1	0.0	14.4	4.18	5.20	7.39	9.54	10.61	13.23	18.78	24.24
SP-2A	DA-3 CAPTURED (SINGLE ON-GRADE INLET)	FLOW CAPTURED BY SINGLE ON-GRADE INLET											4.48	5.13	6.25	7.17
SP-2B	SP-1B + SP-2A	SIMPLY SUMMED											23.65	28.98	40.03	50.63
SP-2C	DA-3 CAPTURED (SINGLE ON-GRADE INLET)	FLOW CAPTURED BY SINGLE ON-GRADE INLET											4.48	5.13	6.25	7.17
SP-2D	SP-2B + SP-2C	SIMPLY SUMMED											28.13	34.11	46.28	57.80
SP-2E	DA-3 BYPASS	FLOW BYPASSING ON-GRADE INLETS											1.72	3.04	6.36	9.98
	DA-4A	4.15	0.55		18.8	0.6	0.8	20.2	3.65	4.55	6.44	8.30	8.34	10.38	14.71	18.94
SP-3	DA-4A	4.15	0.55	DA-4A 20.2				20.2	3.65	4.55	6.44	8.30	8.34	10.38	14.71	18.94
	DA-4B	1.24	0.80		7.7	1.0	0.0	8.7	5.23	6.55	9.34	12.08	5.19	6.49	9.26	11.99
SP-4A	DA-4B CAPTURED (SINGLE ON-GRADE INLET)	FLOW CAPTURED BY SINGLE ON-GRADE INLET											2.59	3.12	4.01	4.70
SP-4B	DA-4B CAPTURED (SINGLE ON-GRADE INLET)	FLOW CAPTURED BY SINGLE ON-GRADE INLET											2.59	3.12	4.01	4.70
SP-4C	SP-4A + SP-4B	SIMPLY SUMMED											5.18	6.24	8.02	9.40
SP-4D	SP-4A BYPASS	FLOW BYPASSING ON-GRADE INLETS											0.02	0.26	1.24	2.58
SP-4E	SP-3 + SP-4C	SIMPLY SUMMED											13.52	16.62	22.73	28.34
	DA-4C	1.75	0.73		7.9	1.7	0.0	9.6	5.01	6.27	8.95	11.58	6.40	8.01	11.43	14.79
SP-5A	DA-4C + SP-4D	SIMPLY SUMMED											6.42	8.27	12.67	17.37
SP-5B	SP-5A CAPTURED (SINGLE ON-GRADE INLET)	FLOW CAPTURED BY SINGLE ON-GRADE INLET											3.18	3.90	5.20	6.27
SP-5C	SP-5B + SP-2D	SIMPLY SUMMED											31.31	38.01	51.48	64.07
SP-5D	SP-5A CAPTURED (SINGLE ON-GRADE INLET)	FLOW CAPTURED BY SINGLE ON-GRADE INLET											3.18	3.90	5.20	6.27
SP-5E	SP-5A BYPASS	FLOW BYPASSING ON-GRADE INLETS											0.06	0.48	2.28	4.82
SP-5F	DA-4E + SP-4E	SIMPLY SUMMED											15.50	19.09	26.26	32.91
SP-5G	SP-5C + SP-5D	SIMPLY SUMMED											34.49	41.91	56.68	70.34
	DA-4D	0.75	0.72		6.6	1.0	0.0	7.6	5.51	6.88	9.82	12.70	2.97	3.72	5.30	6.86
SP-6A	DA-4D + SP-5E	SIMPLY SUMMED											3.03	4.20	7.58	11.68
SP-6B	SP-6A CAPTURED (SINGLE ON-GRADE INLET)	FLOW CAPTURED BY SINGLE ON-GRADE INLET											1.52	2.10	3.79	5.74
SP-6C	SP-6A CAPTURED (SINGLE ON-GRADE INLET)	FLOW CAPTURED BY SINGLE ON-GRADE INLET											1.52	2.10	3.79	5.74
SP-6D	SP-6B + SP-6C	SIMPLY SUMMED											3.03	4.20	7.58	11.48
SP-6E	SP-6A BYPASS	FLOW BYPASSING ON-GRADE INLETS											0.00	0.00	0.00	0.20
	DA-4E	0.66	0.57		8.4	0.0	0.2	8.6	5.26	6.58	9.38	12.14	1.98	2.47	3.53	4.57
	DA-4F	0.24	0.49		5.0	0.0	0.9	5.9	5.90	7.37	10.51	13.60	0.69	0.87	1.24	1.60
	DA-5A	3.63	0.52		12.0	0.2	0.8	13.0	4.40	5.50	7.82	10.10	8.31	10.37	14.76	19.06
	DA-5B	1.16	0.51		20.0	0.1	0.9	21.0	3.59	4.46	6.33	8.14	2.12	2.64	3.74	4.82
SP-19A	DA-5A + DA-5B	4.79	0.52	DA-5B 21.0				21.0	3.59	4.46	6.33	8.14	8.90	11.07	15.68	20.19
	DA-5C	1.45	0.52		20.0	0.2	0.5	20.7	3.61	4.49	6.37	8.20	2.72	3.39	4.80	6.18
	DA-5D	2.98	0.52		20.0	0.5	0.7	21.2	3.57	4.44	6.30	8.11	5.53	6.89	9.76	12.56
SP-19B	DA-5C + DA-5D	4.43	0.52	DA-5D 21.2				21.2	3.57	4.44	6.30	8.11	8.23	10.24	14.50	18.67
	DA-5E	1.60	0.70		8.8	1.4	0.0	10.2	4.86	6.08	8.67	11.22	5.44	6.81	9.71	12.57
SP-19C	SP-19A + DA-5E	6.39	0.56	SP-19A 21.0			0.4	21.4	3.56	4.42	6.27	8.07	12.80	15.92	22.56	29.03
	DA-5F	3.20	0.72		9.9	1.9	0.0	11.8	4.60	5.75	8.18	10.58	10.59	13.24	18.85	24.38
SP-19D	SP-19B + 1/2 DA-5F	6.03	0.57	SP-19B 21.2			0.4	21.6	3.55	4.41	6.25	8.05	12.26	15.25	21.61	27.81
SP-19E	SP-19C + SP-19D	12.42	0.57	SP-19D 21.6			1.8	23.4	3.39	4.22	5.97	7.68	23.92	29.75	42.13	54.19
SP-19F	SP-19E + 1/2 DA-5F	14.02	0.59	SP-19E 23.4			0.1	23.5	3.38	4.21	5.96	7.66	27.76	34.53	48.89	62.88
	DA-5G	8.39	0.70		12.4	2.0	0.0	14.4	4.18	5.20	7.39	9.54	24.53	30.57	43.42	56.03
SP-19G	SP-19F + 1/2 DA-5G	18.22	0.61	SP-19F 23.5			0.7	24.2	3.33	4.14	5.85	7.53	37.06	46.08	65.24	83.88
SP-19H	SP-19G + 1/2 DA-5G	22.41	0.63	SP-19G 24.2			0.1	24.3	3.32	4.13	5.84	7.51	46.71	58.08	82.22	105.71
SP-19I	POND OUTFALL	SEE HEC-HMS MODEL											8.70	44.90	111.20	154.50
SP-7	DA-4F + SP-5F + SP-5G + SP-6D + SP-19I	SIMPLY SUMMED											62.41	110.96	202.95	270.83
	DA-6A	3.00	0.76		10.9	2.1	0.0	13.0	4.40	5.50	7.82	10.10	10.04	12.53	17.83	23.03
SP-8A	DA-6A CAPTURED (SINGLE ON-GRADE INLET)	FLOW CAPTURED BY SINGLE ON-GRADE INLET											4.34	4.98	6.11	7.02
SP-8B	DA-6A CAPTURED (SINGLE ON-GRADE INLET)	FLOW CAPTURED BY SINGLE ON-GRADE INLET											4.34	4.98	6.11	7.02
SP-8C	DA-6A BYPASS (SINGLE ON-GRADE INLET)	FLOW BYPASSING SINGLE ON-GRADE INLET											0.68	1.28	2.81	4.49
SP-8D	DA-6A BYPASS (SINGLE ON-GRADE INLET)	FLOW BYPASSING SINGLE ON-GRADE INLET											0.68	1.28	2.81	4.49
SP-8E	SP-8A + SP-8B	SIMPLY SUMMED											8.68	9.96	12.22	14.04
	DA-6B	0.85	0.74		9.3	1.0	0.0	10.3	4.84	6.06	8.64	11.18	3.05	3.81	5.43	7.03
SP-9A	DA-6B + SP-8C	SIMPLY SUMMED											3.73	5.09	8.24	11.52
SP-9B	SP-9A CAPTURED (SINGLE ON-GRADE INLET)	FLOW CAPTURED BY SINGLE ON-GRADE INLET											1.87	2.55	4.10	5.37
SP-9C	SP-9A CAPTURED (SINGLE ON-GRADE INLET)	FLOW CAPTURED BY SINGLE ON-GRADE INLET											1.87	2.55	4.10	5.37
SP-9D	SP-9A BYPASS	FLOW BYPASSING ON-GRADE INLETS											0.00	0.00	0.04	0.78
SP-9E	SP-9B + SP-9C + SP-8E + SP-7 + SP-11E	SIMPLY SUMMED											88.20	143.92	249.97	329.81
	DA-7A	2.82	0.69		13.6	0.7	0.0	14.3	4.21	5.25	7.45	9.62	8.19	10.21	14.50	18.72
SP-10A	DA-7A CAPTURED (SINGLE ON-GRADE INLET)	FLOW CAPTURED BY SINGLE ON-GRADE INLET											3.76	4.36	5.39	6.23
SP-10B	DA-7A CAPTURED (SINGLE ON-GRADE INLET)	FLOW CAPTURED BY SINGLE ON-GRADE INLET											3.76	4.36	5.39	6.23
SP-10C	DA-7A BYPASS (SINGLE ON-GRADE INLET)	FLOW BYPASSING SINGLE ON-GRADE INLET											0.34	0.75	1.86	3.13
SP-10D	DA-7A BYPASS (SINGLE ON-GRADE INLET)	FLOW BYPASSING SINGLE ON-GRADE INLET											0.34	0.75	1.86	3.13
SP-10E	SP-10A + SP-10B	SIMPLY SUMMED											8.20	10.22	14.50	18.72
	DA-7B	0.89	0.75		9.9	1.4	0.0	11.3	4.68	5.85	8.33	10.78	3.12	3.90	5.56	7.20
SP-11A	DA-7B + SP-2E + SP-10C	SIMPLY SUMMED											5.18	7.69	13.78	20.31
SP-11B	SP-11A CAPTURED (SINGLE ON-GRADE INLET)	FLOW CAPTURED BY SINGLE ON-GRADE INLET											2.59	3.85	6.05	7.74
SP-11C	SP-11A CAPTURED (SINGLE ON-GRADE INLET)	FLOW CAPTURED BY SINGLE ON-GRADE INLET											2.59	3.85	6.05	7.74
SP-11D	SP-11A BYPASS	FLOW BYPASSING ON-GRADE INLETS											0.00	0.00	1.68	4.84
SP-11E	SP-10E + SP-11B + SP-11C	SIMPLY SUMMED											13.38	17.91	26.60	34.20
	DA-7C	8.46	0.65		20.0	2.1	0.0	22.1	3.50	4.35	6.16	7.93	19.23	23.93	33.90	43.62
SP-12	DA-7C + SP-10D	SIMPLY SUMMED											19.57	24.68	35.76	46.75
	DA-8A	1.25	0.76		7.9	1.0	0.0	8.9	5.19	6.48	9.25	11.97	4.93	6.16	8.79	11.37
SP-13A	DA-8A + SP-11D + SP-6E + SP-9D	SIMPLY SUMMED											4.93	6.16	10.51	17.19
SP-13B	SP-13A CAPTURED (SINGLE ON-GRADE INLET)	FLOW CAPTURED BY SINGLE ON-GRADE INLET											1.86	2.11	2.78	3.53
SP-13C	SP-13B + SP-12	SIMPLY SUMMED											21.43	26.79	38.54	50.28
SP-13D	SP-13A CAPTURED (SINGLE ON-GRADE INLET)	FLOW CAPTURED BY SINGLE ON-GRADE INLET											1.86	2.11	2.78	3.53
SP-13E	SP-13C + SP-13D	SIMPLY SUMMED											23.29	28.90	41.32	53.81
SP-13F	SP-13A BYPASS	FLOW BYPASSING ON-GRADE INLETS											1.20	1.94	4.96	10.14
	DA-8B	3.43	0.64		20.0	3.7	0.0	23.7	3.37	4.19	5.93	7.62	7.39	9.19	13.01	16.74
SP-14A	1/2 (DA-8B + SP-13F)	SIMPLY SUMMED											4.30	5.57	8.99	13.44
SP-14B	1/2 (DA-8B + SP-13F)	SIMPLY SUMMED											4.30	5.57	8.99	13.44
SP-14C	SP-14A + SP-14B	SIMPLY SUMMED											8.59	11.13	17.97	26.88
	DA-9A	3.25	0.74		9.2	3.4	0.0	12.6	4.47	5.58	7.94	10.26	10.75	13.42	19.09	24.68
SP-15A	SP-8D + DA-9A	SIMPLY SUMMED											11.43	14.70	21.90	29.17
SP-15B	SP-15A CAPTURED (SINGLE ON-GRADE INLET)	FLOW CAPTURED BY SINGLE ON-GRADE INLET											3.88	4.44	5.44	6.27
SP-15C	SP-15A CAPTURED (SINGLE ON-GRADE INLET)	FLOW CAPTURED BY SINGLE ON-GRADE INLET											4.73	5.51	6.88	8.01
SP-15D	SP-15B + SP-15C	SIMPLY SUMMED											8.61	9.95	12.32	14.28
SP-15E	SP-15A BYPASS	FLOW BYPASSING ON-GRADE INLETS											2.82	4.75	9.58	14.89
	DA-9B	3.89	0.70		12.3	2.2	0.0	14.5	4.16	5.18	7.36	9.50	11.33	14.12	20.05	25.87
SP-16A	DA-9B CAPTURED (SINGLE ON-GRADE INLET)	FLOW CAPTURED BY SINGLE ON-GRADE INLET											5.00	5.77	7.11	8.20
SP-16B	DA-9B CAPTURED (SINGLE ON-GRADE INLET)	FLOW CAPTURED BY SINGLE ON-GRADE INLET											4.17	4.71	5.69	6.49
SP-16C	SP-16A + SP-16B	SIMPLY SUMMED											9.17	10.48	12.80	14.69
SP-16D	DA-9B BYPASS	FLOW BYPASSING ON-GRADE INLETS											2.16	3.64	7.25	11.18
SP-16E	SP-16C + SP-15D	SIMPLY SUMMED											17.78	20.43	25.12	28.97
	DA-9C	0.79	0.78			10.6	1.3	0.0	11.9	4.58	5.72	8.15	10.54	2.82	3.53	5.02	6.49
SP-17A	DA-9C + SP-15E + SP-16D	SIMPLY SUMMED												7.80	11.91	21.85	32.56
SP-17B	SP-17A CAPTURED (SINGLE ON-GRADE INLET)	FLOW CAPTURED BY SINGLE ON-GRADE INLET												3.88	5.41	7.96	9.99
SP-17C	SP-17A CAPTURED (SINGLE ON-GRADE INLET)	FLOW CAPTURED BY SINGLE ON-GRADE INLET												3.88	5.41	7.96	9.99
SP-17D	SP-16E + SP-17B + SP-17C	SIMPLY SUMMED												25.54	31.25	41.04	48.95
SP-17E	SP-17A BYPASS	FLOW BYPASSING ON-GRADE INLETS												0.04	1.08	5.94	12.58
	DA-9D	5.06	0.69			12.6	2.8	0.0	15.4	4.06	5.05	7.17	9.24	14.16	17.63	25.02	32.27
SP-18A	SP-17E + DA-9D	SIMPLY SUMMED												14.20	18.71	30.96	44.85
SP-18B	SP-17D + SP-18A	SIMPLY SUMMED												39.74	49.96	72.00	93.80
	DA-9E	0.72	0.66			5.0	0.0	0.0	5.0	6.12	7.64	10.90	14.10	2.91	3.63	5.18	6.70
	DA-9F	1.04	0.66			5.0	0.0	0.0	5.0	6.12	7.64	10.90	14.10	4.20	5.24	7.48	9.68
	DA-10	1.63	0.77			8.8	1.8	0.0	10.6	4.79	6.00	8.55	11.06	6.02	7.52	10.73	13.88
	DA-11A	1.14	0.51			20.0	0.1	0.7	20.8	3.60	4.48	6.36	8.18	2.10	2.61	3.70	4.76
	DA-11B	4.35	0.52			20.0	0.8	0.0	20.8	3.60	4.48	6.36	8.18	8.15	10.14	14.38	18.51
SP-20A	DA-11A + DA-11B	5.49	0.52	DA-11A 20.80				1.2	22.0	3.51	4.36	6.18	7.95	9.97	12.40	17.57	22.61
	DA-11C	2.08	0.52			20.0	0.5	0.1	20.6	3.62	4.51	6.38	8.22	3.92	4.87	6.91	8.89
SP-20B	SP-20A + DA-11C	7.57	0.52	SP-20A 22.00					22.0	3.51	4.36	6.18	7.95	13.76	17.12	24.25	31.21
	DA-11D	0.72	0.89			5.0	1.5	0.0	6.5	5.78	7.21	10.29	13.32	3.70	4.62	6.60	8.53
SP-20C	1/2 DA-11D	SIMPLY SUMMED												1.85	2.31	3.30	4.27
SP-20D	SP-20B + SP-20C	SIMPLY SUMMED												15.61	19.43	27.55	35.48
SP-20E	1/2 DA-11D	SIMPLY SUMMED												1.85	2.31	3.30	4.27
SP-20F	SP-20D + SP-20E	SIMPLY SUMMED												17.46	21.74	30.85	39.74
	DA-12	2.73	0.61			7.9	0.1	0.8	8.8	5.21	6.52	9.29	12.03	8.68	10.85	15.48	20.03
SP-20G	SP-20F + DA-12	SIMPLY SUMMED												26.14	32.59	46.32	59.77
	DA-13A	4.05	0.72			9.5	3.0	0.0	12.5	4.49	5.60	7.97	10.30	13.08	16.33	23.24	30.03
SP-21A	DA-13A CAPTURED (SINGLE ON-GRADE INLET)	FLOW CAPTURED BY SINGLE ON-GRADE INLET												6.13	7.15	8.94	10.38
SP-21B	DA-13A CAPTURED (SINGLE ON-GRADE INLET)	FLOW CAPTURED BY SINGLE ON-GRADE INLET												6.13	7.15	8.94	10.38
SP-21C	SP-21A + SP-21B	SIMPLY SUMMED												12.26	14.30	17.88	20.76
SP-21D	DA-13A BYPASS	FLOW BYPASSING ON-GRADE INLETS												0.82	2.03	5.36	9.27
	DA-13B	2.36	0.72			11.1	2.1	1.1	14.3	4.21	5.25	7.45	9.62	7.15	8.91	12.66	16.35
SP-21E	DA-13B + SP-21D	SIMPLY SUMMED												7.97	10.94	18.02	25.62
	DA-14	3.19	0.74			8.5	2.6	0.0	11.1	4.71	5.89	8.40	10.86	11.12	13.91	19.82	25.64
	DA-15A	2.72	0.52			20.0	0.4	0.8	21.2	3.57	4.44	6.30	8.11	5.05	6.28	8.91	11.46
	DA-15B	1.56	0.52			17.9	0.2	0.2	18.3	3.82	4.75	6.74	8.68	3.10	3.85	5.47	7.04
SP-22	DA-15A + DA-15B	4.28	0.52	DA-15A 21.20					21.2	3.57	4.44	6.30	8.11	7.95	9.89	14.01	18.04
	DA-16A	1.88	0.77			11.0	1.3	0.0	12.3	4.52	5.64	8.03	10.38	6.54	8.17	11.63	15.03
SP-23A	DA-16A CAPTURED (SINGLE ON-GRADE INLET)	FLOW CAPTURED BY SINGLE ON-GRADE INLET												2.63	3.00	3.64	4.16
SP-23B	DA-16A CAPTURED (SINGLE ON-GRADE INLET)	FLOW CAPTURED BY SINGLE ON-GRADE INLET												2.63	3.00	3.64	4.16
SP-23C	DA-16A BYPASS (SINGLE ON-GRADE INLET)	FLOW BYPASSING SINGLE ON-GRADE INLET												0.64	1.08	2.18	3.36
SP-23D	DA-16A BYPASS (SINGLE ON-GRADE INLET)	FLOW BYPASSING SINGLE ON-GRADE INLET												0.64	1.08	2.18	3.36
SP-23E	SP-22 + SP-23A + SP-23B	SIMPLY SUMMED												13.21	15.89	21.29	26.36
SP-24A	DA-14 + SP-23C	SIMPLY SUMMED												11.76	14.99	22.00	29.00
SP-24B	1/2 (SP-21E + SP-24A)	SIMPLY SUMMED												9.87	12.97	20.01	27.31
SP-24C	SP-20G + SP-24B	SIMPLY SUMMED												36.00	45.56	66.34	87.08
SP-24D	SP-21C + SP-24C	SIMPLY SUMMED												48.26	59.86	84.22	107.84
SP-24E	1/2 (SP-21E + SP-24A)	SIMPLY SUMMED												9.87	12.97	20.01	27.31
SP-24F	SP-24D + SP-24E	SIMPLY SUMMED												58.13	72.82	104.23	135.15
	DA-16B	1.63	0.77			7.2	1.2	0.0	8.4	5.31	6.64	9.47	12.25	6.66	8.33	11.88	15.38
SP-25A	DA-16B + SP-23D	SIMPLY SUMMED												7.30	9.41	14.06	18.74
SP-25B	SP-25A CAPTURED (SINGLE ON-GRADE INLET)	FLOW CAPTURED BY SINGLE ON-GRADE INLET												3.50	4.20	5.40	6.35
SP-25C	SP-23E + SP-25B	SIMPLY SUMMED												16.71	20.09	26.69	32.71
SP-25D	SP-25A CAPTURED (SINGLE ON-GRADE INLET)	FLOW CAPTURED BY SINGLE ON-GRADE INLET												3.50	4.20	5.40	6.35
SP-25E	SP-25A BYPASS	FLOW BYPASSING ON-GRADE INLETS												0.30	1.02	3.26	6.04
SP-25F	SP-25C + SP-25D	SIMPLY SUMMED												20.21	24.29	32.09	39.06
	DA-16C	1.03	0.74			5.4	1.3	0.0	6.7	5.73	7.15	10.21	13.20	4.36	5.45	7.78	10.06
SP-26A	DA-16C + SP-25E	SIMPLY SUMMED												4.66	6.47	11.04	16.10
	DA-16D	3.64	0.71			7.8	3.5	0.0	11.3	4.68	5.85	8.33	10.78	12.09	15.12	21.54	27.86
	DA-16E	3.33	0.51			17.4	0.1	1.7	19.2	3.74	4.65	6.59	8.49	6.34	7.90	11.19	14.42
SP-26B	DA-16D + DA-16E	6.97	0.61	DA-16E 19.20					19.2	3.74	4.65	6.59	8.49	16.00	19.91	28.23	36.36
SP-26C	SP-26A CAPTURED (SINGLE ON-GRADE INLET)	FLOW CAPTURED BY SINGLE ON-GRADE INLET												2.33	3.24	5.52	7.99
SP-26D	SP-26B + SP-26C	SIMPLY SUMMED												18.33	23.15	33.75	44.35
SP-26E	SP-26A CAPTURED (SINGLE ON-GRADE INLET)	FLOW CAPTURED BY SINGLE ON-GRADE INLET												2.33	3.24	5.14	6.61
SP-26F	SP-26D + SP-26E	SIMPLY SUMMED												20.66	26.38	38.89	50.96
SP-26G	SP-26A BYPASS	FLOW BYPASSING ON-GRADE INLETS												0.00	0.00	0.38	1.50

EXISTING RUNOFF CALCULATIONS - RATIONAL METHOD

Study Point	Drainage Area(s)	(Acres)	C	$T_{carryover}$ (min)	T_{ovrl} (min)	T_{sc} (min)	T_{ch} (min)	T_{tot} (min)	I_2 (in/hr)	I_5 (in/hr)	I_{25} (in/hr)	I_{100} (in/hr)	Q_2 (ft^3/s)	Q_5 (ft^3/s)	Q_{25} (ft^3/s)	Q_{100} (ft^3/s)
	EX-DA-9E	1.59	0.52		20.00	1.00	0.00	21.00	3.59	4.46	6.33	8.14	2.97	3.69	5.23	6.73
	EX-DA-9F	2.34	0.52		20.00	1.60	0.00	21.60	3.54	4.40	6.24	8.03	4.31	5.36	7.59	9.77

NOTES:

1. *EXISTING DRAINAGE AREA EX-DA-9E IS DIRECTLY COMPARED TO ULTIMATE DRAINAGE AREA DA-9E.*
2. *EXISTING DRAINAGE AREA EX-DA-9F IS DIRECTLY COMPARED TO ULTIMATE DRAINAGE AREA DA-9F.*

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____

DATE

THIS APPROVAL WILL BECOME VOID AFTER ONE YEAR OF THE INDICATED APPROVAL DATE. EXCEPTIONS TO THIS APPROVAL ARE AS FOLLOWS:

BY APPROVING THESE PLANS, THE CITY OF KERRVILLE DOES NOT ASSUME ANY LIABILITY FOR ENGINEERING DESIGN, NOR DOES APPROVAL RELEASE THE DESIGN ENGINEER FROM LIABILITY FOR CORRECTION ERRORS OR OMISSIONS IN THE DESIGN BOTH DURING AND AFTER CONSTRUCTION.

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REV	DATE	DRAWN BY	DESCRIPTION

06/17/2025

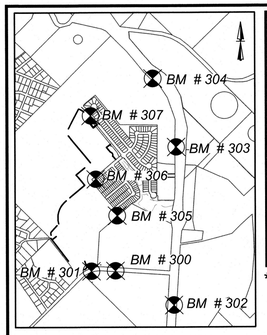
STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED
PROFESSIONAL ENGINEER

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KER

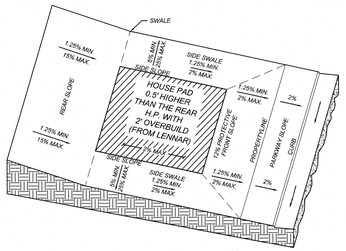


BENCH MARK LOCATION
NOT-TO-SCALE

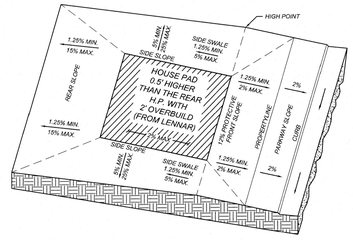
BENCHMARKS

BM # 300 SET PK NAIL WITH WASHER ELEV: 1714.85' N: 13927381.82 E: 1932667.65	BM # 304 SET PK NAIL WITH WASHER ELEV:1804.22' N: 13931204.55 E: 1933417.23
BM # 301 SET PK NAIL WITH WASHER ELEV: 1737.34' N: 13927374.29 E: 1932187.62	BM # 305 SET PK NAIL WITH WASHER ELEV: 1714.85' N: 13928482.78 E: 1932703.05
BM # 302 SET PK NAIL WITH WASHER ELEV: 1671.69' N: 13926694.57 E: 1933826.53	BM # 306 SET PK NAIL WITH WASHER ELEV: 1737.34' N: 13929209.06 E: 1932278.67
BM # 303 SET PK NAIL WITH WASHER ELEV: 1784.55' N: 13929844.48 E: 1933878.99	BM # 307 SET PK NAIL WITH WASHER ELEV: 1671.69' N: 13930469.70 E: 1932179.96

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



TYPE 'A' LOT GRADING



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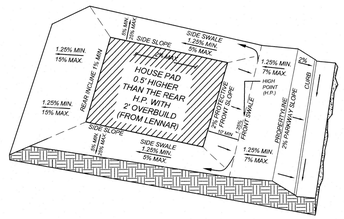
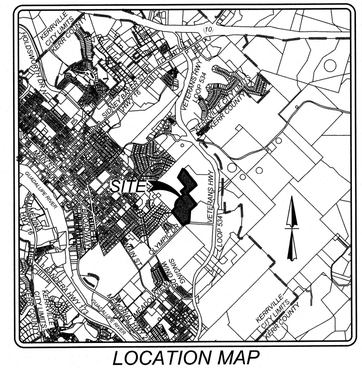
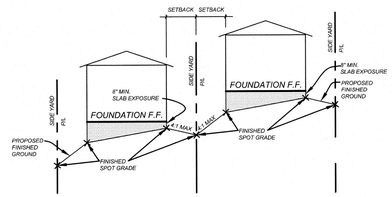


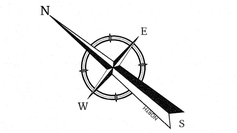
TYPE 'C' LOT GRADING



LOCATION MAP
NOT-TO-SCALE



TYPICAL SIDE YARD GRADING
N.T.S.



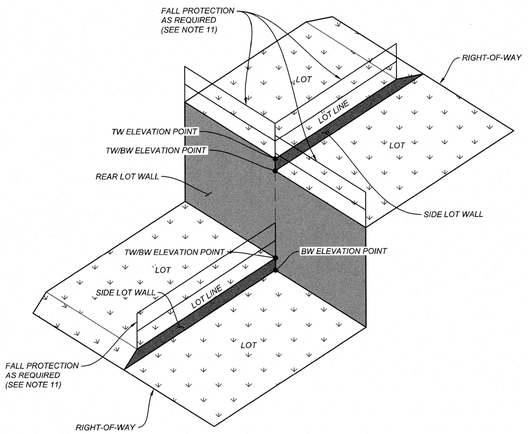
150 0 150 300

SCALE : 1" = 150'

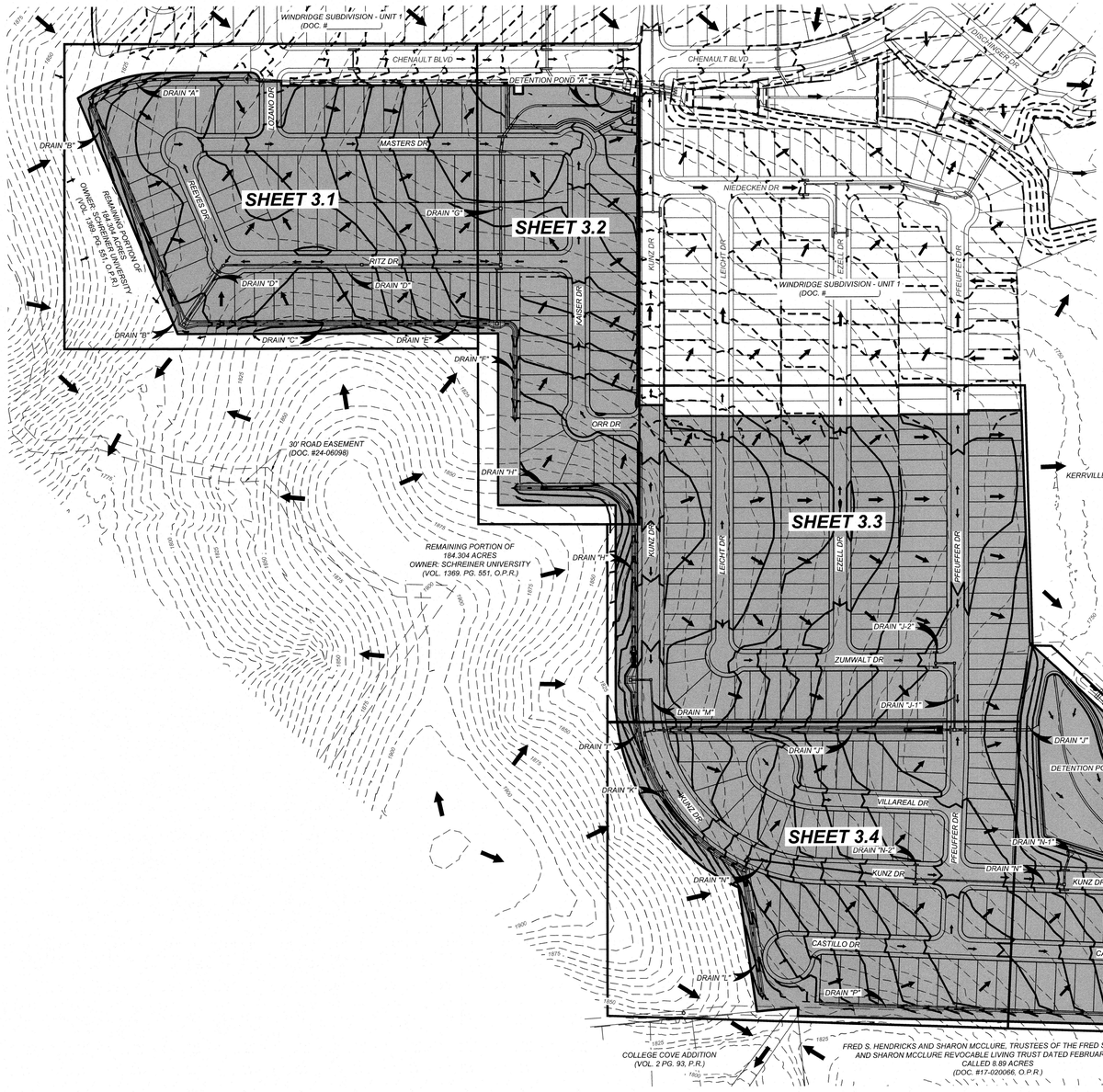
Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

LEGEND

EXISTING CONTOURS	=	555
PROPOSED CONTOURS	=	555
PROPOSED CONTOURS (WINDRIDGE UNIT 1)	=	555
FLOW ARROW	=	
VERTICAL WALL (DESIGNED BY OTHERS)	=	
WINDRIDGE UNIT 2 SITE	=	



TOP OF WALL/BOTTOM OF WALL DETAIL
N.T.S.



TRENCH EXCAVATION SAFETY PROTECTION

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

GENERAL NOTES:

1. CONTRACTOR SHALL PROVIDE OWNER ALL NECESSARY DENSITY TESTS AND 7DG LETTERS FOR FILL LOTS AS REQUIRED BY HUD SPECIFICATIONS.
2. HOME BUILDER SHALL REFER TO THE APPROVED SUBDIVISION PLAT TO CONFIRM ALL BUILDING SETBACKS PRIOR TO ANY FOUNDATION WORK.
3. AS SOON AS PRACTICAL HOME BUILDER SHALL ESTABLISH VEGETATION (HYDROMULCH, SEEDING, SODDING, ETC...) TO PREVENT EROSION FROM OCCURRING.
4. CONTRACTOR SHALL CONTACT ENGINEER REGARDING ANY QUESTIONS ON THE INTENT OF THIS PLAN.
5. POSITIVE DRAINAGE SHALL BE MAINTAINED ON ALL SURFACE AREAS WITHIN THE SCOPE OF THIS PROJECT. DRAINAGE SHALL BE DIRECTED AWAY FROM ALL BUILDING FOUNDATIONS AND TOWARDS THE PROPER DRAINAGE EASEMENT OR STREET RIGHT OF WAY ACCORDING TO THE MASTER DRAINAGE PLAN FOR THE PROJECT. CONTRACTOR SHOULD TAKE PRECAUTIONS NOT TO ALLOW PONDING OF WATER.
6. ALL ELEVATIONS AND CONTOURS SHOWN ON THIS GRADING PLAN REFLECT FINISHED GRADES. THE THICKNESS OF PAVEMENT, CURBS, AND SIDEWALKS MUST BE SUBTRACTED TO OBTAIN SUBGRADE ELEVATIONS.
7. GRADING PLAN IS INTENDED FOR USE IN LOT GRADING ONLY. CONTRACTOR SHOULD REFER TO CONSTRUCTION DRAWINGS FOR ALL OTHER GRADES, INCLUDING, BUT NOT LIMITED TO, CHANNELS, ROADS, AND DETENTION PONDS.
8. CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE WITHIN ALL SWALES.
9. STRIPPING OF VEGETATION FROM PROJECT SITES SHALL BE PHASED SO AS TO EXPOSE THE MINIMUM AMOUNT OF AREA TO SOIL EROSION FOR THE SHORTEST POSSIBLE PERIOD OF TIME.
10. DRIVEWAYS SERVING LOTS DOWNHILL OF STREET SHALL FOLLOW DRIVEWAY DETAIL ON SHEET 5.15 TO ENSURE FLOW IS CONTAINED WITHIN THE RIGHT OF WAY.
11. FALL PROTECTION (FENCING) OF AT LEAST 4' HEIGHT IS REQUIRED ON ALL WALLS WHERE THE WALL HEIGHT EXCEEDS 30". FENCING TYPE SHALL BE SPECIFIED BY THE OWNER AND SHALL BE IN COMPLIANCE WITH SEC. 60-50(B) OF THE CITY OF KERRVILLE CODE OF ORDINANCES. PLACEMENT AND INSTALLATION METHOD OF THE PROPOSED FENCING TO BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____
DATE

THIS APPROVAL WILL BECOME VOID AFTER ONE YEAR OF THE INDICATED APPROVAL DATE. EXCEPTIONS TO THIS APPROVAL ARE AS FOLLOWS:

_____

_____

_____

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NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Oct 28, 2025, 11:29am User ID: logan.honey
File: U:\Projects\314\47\05\Design\Civil\GRADING\GP_3144705.dwg
Design/Civil/GRADING/GP_3144705.dwg LAYOUT: OVERALL GRADING PLAN MAP By: LOGAN.HANEY

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Know what's below. Call before you dig.
FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER
11/03/2025
P.E.

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm# F-14909
TBPLS Firm# 10194050

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: GP_3144705

SHEET TITLE: OVERALL GRADING PLAN MAP

SHEET NUMBER: 3.0

TRENCH EXCAVATION SAFETY PROTECTION

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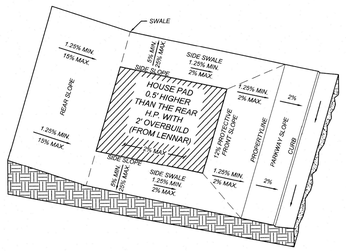
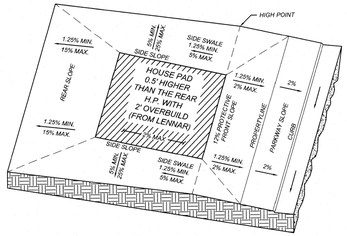
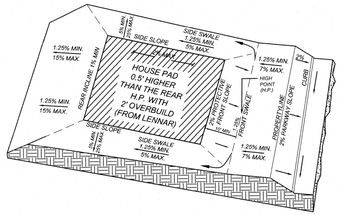


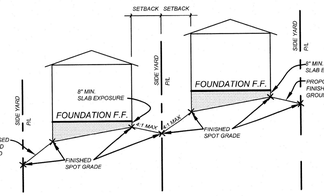
TYPE 'A' LOT GRADING



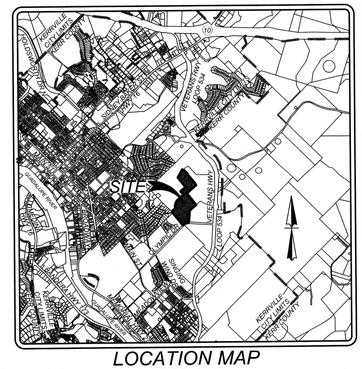
TYPE 'B' LOT GRADING



TYPE 'C' LOT GRADING

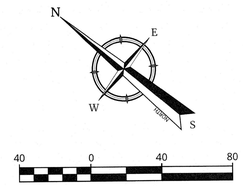


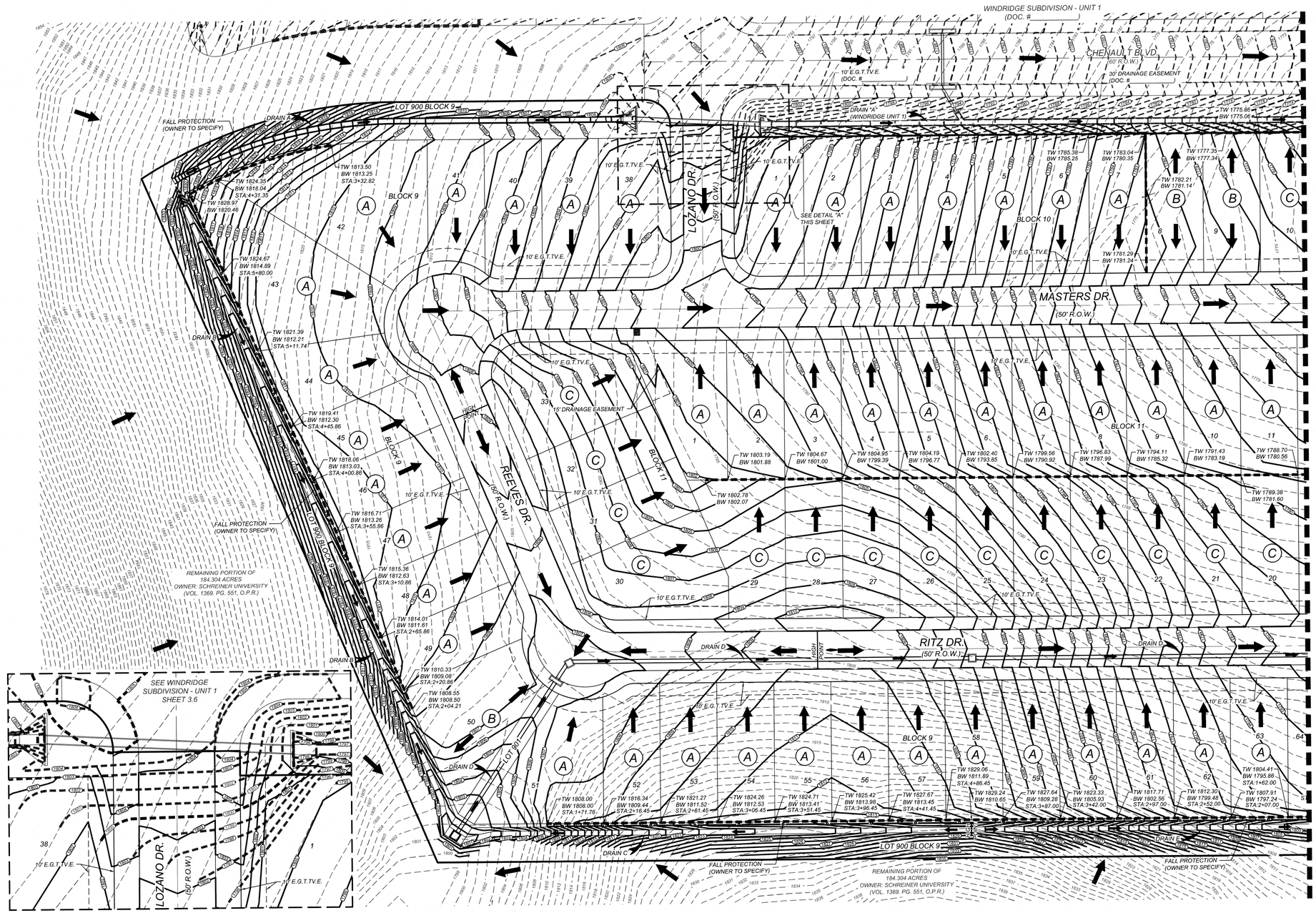
TYPICAL SIDE YARD GRADING
N.T.S.



LOCATION MAP
NOT-TO-SCALE

**SEE SHEET 3.0 FOR SITE BENCHMARK TABLE AND MAP*





DETAIL "A"
SCALE: 1"=20'

LEGEND

LOT GRADE TYPE	=	A
EXISTING CONTOURS	=	555
PROPOSED CONTOURS	=	555
PROPOSED CONTOURS (WINDRIDGE UNIT 1)	=	555
FLOW ARROW	=	
SPOT ELEVATION	=	+ 555.00
BOTTOM OF WALL	=	BW
TOP OF WALL	=	TW
BOTTOM OF WALL/TOP OF WALL (SEE SHEET 3.0 FOR DETAIL)	=	BW/TW
VERTICAL WALL (DESIGNED BY OTHERS)	=	
FALL PROTECTION (OWNER TO SPECIFY)	=	
PROPOSED ELECTRIC, GAS, TELEPHONE & CABLE TV EASEMENT	=	E.G.T.V.E.

GENERAL NOTES:

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CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____
DATE

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

NO.	DESCRIPTION	DRAWN BY	DATE

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER
11/03/2025
P.E.

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave, Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194000

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER:	DRAWING NAME:
314-47-05	GP_3144705

SHEET TITLE:
OVERALL GRADING PLAN

SHEET NUMBER:
3.1

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Oct 28, 2025, 11:51am User ID: logan.honey
File: U:\Projects\314\47\05\Design\Civil\GRADING\GP_3144705.dwg

TRENCH EXCAVATION SAFETY PROTECTION

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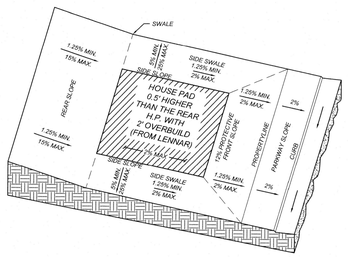
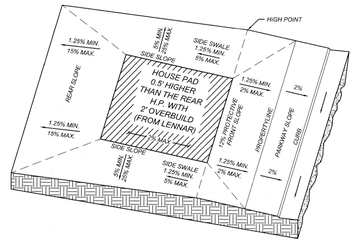
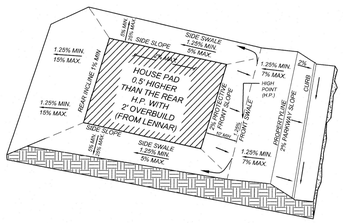


TYPE 'A' LOT GRADING



TYPE 'B' LOT GRADING



TYPE 'C' LOT GRADING

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____

DATE

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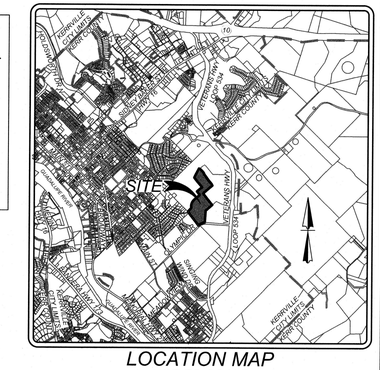

LOCATION MAP
NOT-TO-SCALE

*SEE SHEET 3.0 FOR SITE BENCHMARK TABLE AND MAP

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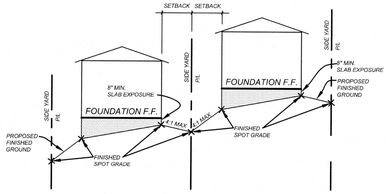
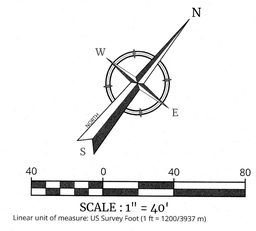


TYPICAL SIDE YARD GRADING
N.T.S.

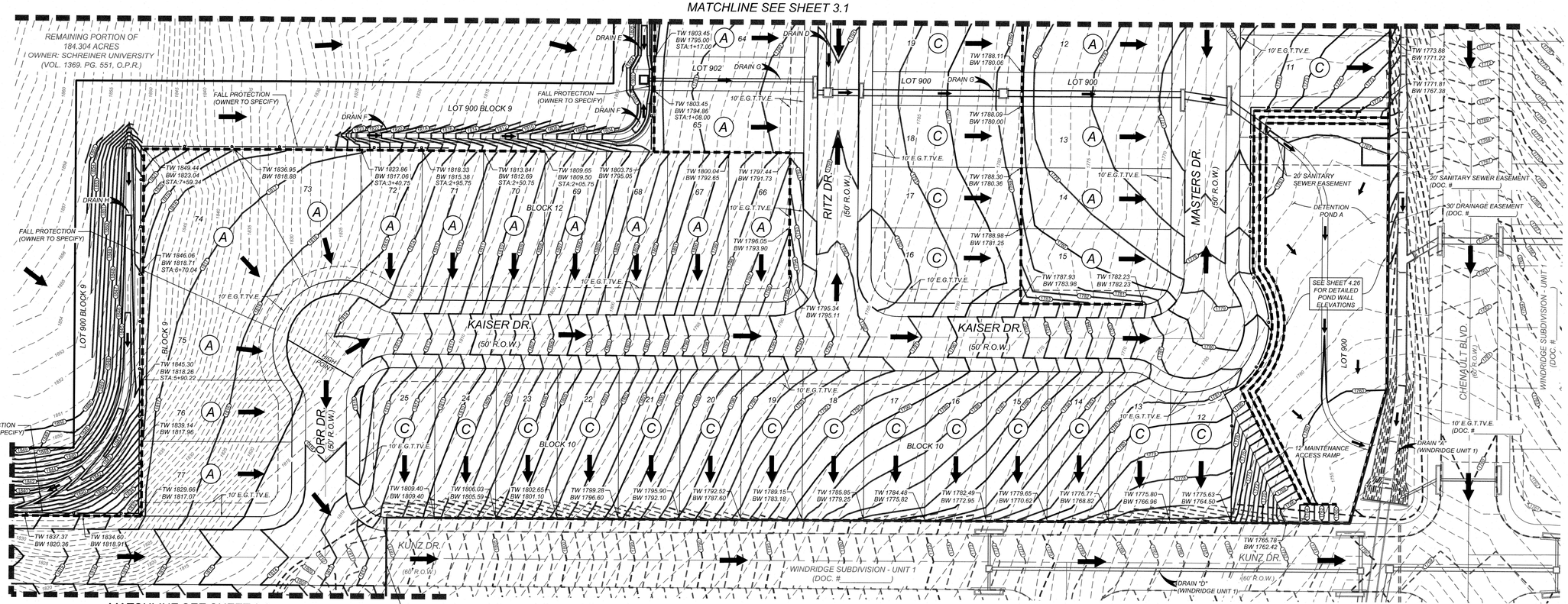
LEGEND

LOT GRADE TYPE	=	A
EXISTING CONTOURS	=	555
PROPOSED CONTOURS	=	555
PROPOSED CONTOURS (WINDRIDGE UNIT 1)	=	555
FLOW ARROW	=	
SPOT ELEVATION	=	+ 555.00
BOTTOM OF WALL	=	BW
TOP OF WALL	=	TW
BOTTOM OF WALL/TOP OF WALL (SEE SHEET 3.0 FOR DETAIL)	=	BW/TW
VERTICAL WALL (DESIGNED BY OTHERS)	=	
FALL PROTECTION (OWNER TO SPECIFY)	=	
PROPOSED ELECTRIC, GAS, TELEPHONE & CABLE TV EASEMENT	=	E.G.T.TV.E.



SCALE : 1" = 40'
Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

MATCHLINE SEE SHEET 3.1



MATCHLINE SEE SHEET 3.3

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

REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER
11/03/2025
P.E.

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14309
TBPLS Firm#: 10194650

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER:	DRAWING NAME:
314-47-05	GP_3144705

SHEET TITLE:
OVERALL GRADING PLAN

SHEET NUMBER:
3.2

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Oct 29, 2025, 8:36am User ID: logan.haney
File: U:\Projects\314\47\05\Design\Civil\GRADING\GP_3144705.dwg
Design/Civil/DRAWINGS/_3144705.dwg3 OVERALL GRADING PLAN By: LOGAN HANEY

GENERAL NOTES:

1. CONTRACTOR SHALL PROVIDE OWNER ALL NECESSARY DENSITY TESTS AND 79G LETTERS FOR FILL LOTS AS REQUIRED BY HUD SPECIFICATIONS.

2. HOME BUILDER SHALL REFER TO THE APPROVED SUBDIVISION PLAT TO CONFIRM ALL BUILDING SETBACKS PRIOR TO ANY FOUNDATION WORK.

3. AS SOON AS PRACTICAL HOME BUILDER SHALL ESTABLISH VEGETATION (HYDROMULCH, SEEDING, SODDING, ETC...) TO PREVENT EROSION FROM OCCURRING.

4. CONTRACTOR SHALL CONTACT ENGINEER REGARDING ANY QUESTIONS ON THE INTENT OF THIS PLAN.

5. POSITIVE DRAINAGE SHALL BE MAINTAINED ON ALL SURFACE AREAS WITHIN THE SCOPE OF THIS PROJECT. DRAINAGE SHALL BE DIRECTED AWAY FROM ALL BUILDING FOUNDATIONS AND TOWARDS THE PROPER DRAINAGE EASEMENT OR STREET RIGHT OF WAY ACCORDING TO THE MASTER DRAINAGE PLAN FOR THE PROJECT. CONTRACTOR SHOULD TAKE PRECAUTIONS NOT TO ALLOW PONDING OF WATER.

6. ALL ELEVATIONS AND CONTOURS SHOWN ON THIS GRADING PLAN REFLECT FINISHED GRADES. THE THICKNESS OF PAVEMENT, CURBS, AND SIDEWALKS MUST BE SUBTRACTED TO OBTAIN SUBGRADE ELEVATIONS.

7. GRADING PLAN IS INTENDED FOR USE IN LOT GRADING ONLY. CONTRACTOR SHOULD REFER TO CONSTRUCTION DRAWINGS FOR ALL OTHER GRADES, INCLUDING, BUT NOT LIMITED TO, CHANNELS, ROADS, AND DETENTION PONDS.

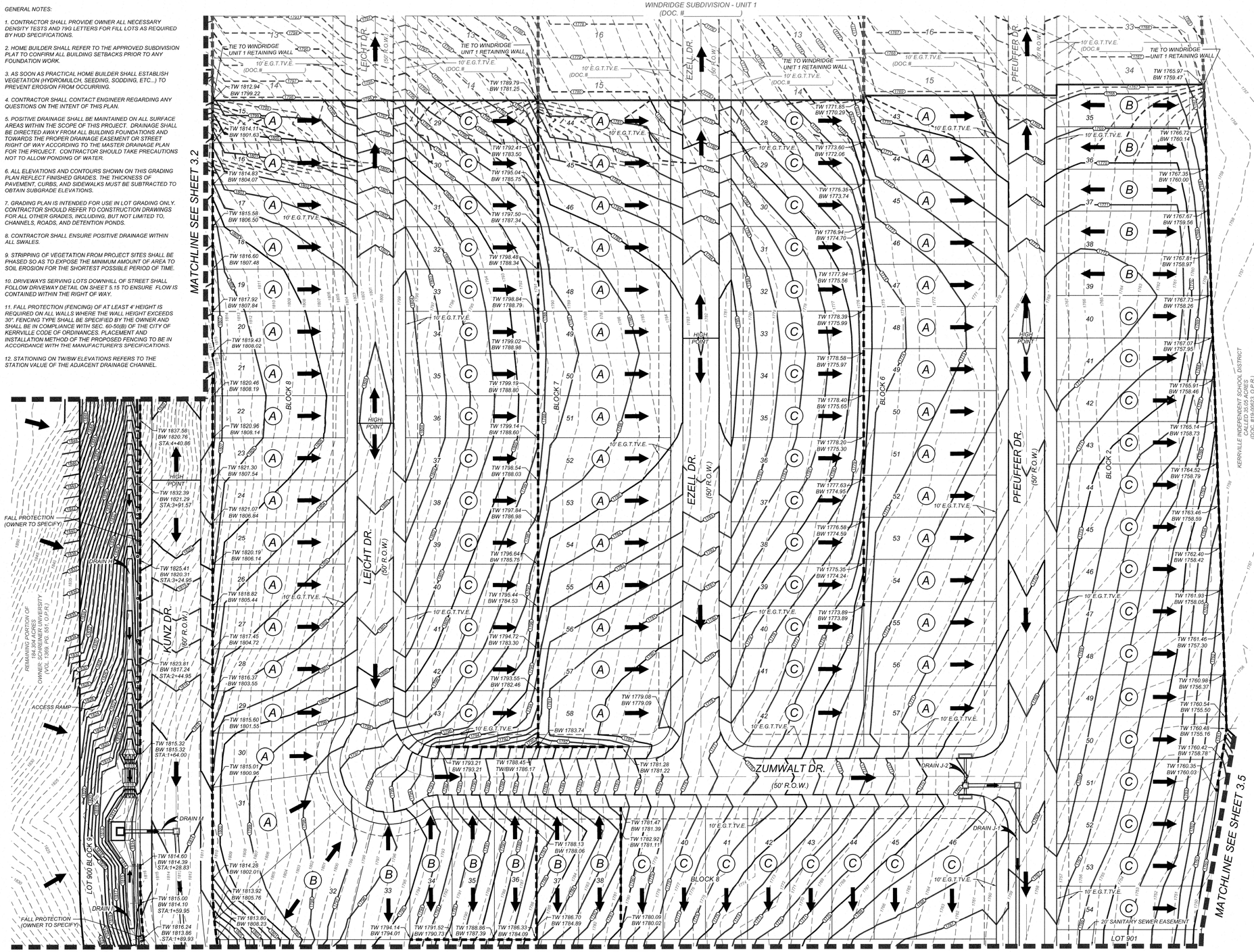
8. CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE WITHIN ALL SWALES.

9. STRIPPING OF VEGETATION FROM PROJECT SITES SHALL BE PHASED SO AS TO EXPOSE THE MINIMUM AMOUNT OF AREA TO SOIL EROSION FOR THE SHORTEST POSSIBLE PERIOD OF TIME.

10. DRIVEWAYS SERVING LOTS DOWNHILL OF STREET SHALL FOLLOW DRIVEWAY DETAIL ON SHEET 5.15 TO ENSURE FLOW IS CONTAINED WITHIN THE RIGHT OF WAY.

11. FALL PROTECTION (FENCING) OF AT LEAST 4' HEIGHT IS REQUIRED ON ALL WALLS WHERE THE WALL HEIGHT EXCEEDS 30". FENCING TYPE SHALL BE SPECIFIED BY THE OWNER AND SHALL BE IN COMPLIANCE WITH SEC. 60-50(B) OF THE CITY OF KERRVILLE CODE OF ORDINANCES. PLACEMENT AND INSTALLATION METHOD OF THE PROPOSED FENCING TO BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

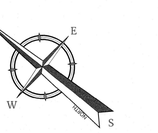
12. STATIONING ON TW/BW ELEVATIONS REFERS TO THE STATION VALUE OF THE ADJACENT DRAINAGE CHANNEL.





LOCATION MAP
NOT-TO-SCALE

*SEE SHEET 3.0 FOR SITE BENCHMARK TABLE AND MAP



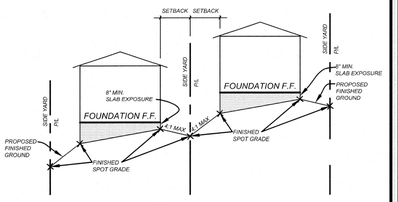
40 0 40 80

SCALE : 1" = 40'

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

LEGEND

LOT GRADE TYPE	=	A
EXISTING CONTOURS	=	555
PROPOSED CONTOURS	=	555
PROPOSED CONTOURS (WINDRIDGE UNIT 1)	=	555
FLOW ARROW	=	
SPOT ELEVATION	=	+ 555.00
BOTTOM OF WALL	=	BW
TOP OF WALL	=	TW
BOTTOM OF WALL/TOP OF WALL (SEE SHEET 3.0 FOR DETAIL)	=	BW/TW
VERTICAL WALL (DESIGNED BY OTHERS)	=	
FALL PROTECTION (OWNER TO SPECIFY)	=	
PROPOSED ELECTRIC, GAS, TELEPHONE & CABLE TV EASEMENT	=	E.G.T.TV.E.



TYPICAL SIDE YARD GRADING
N.T.S.

TRENCH EXCAVATION SAFETY PROTECTION

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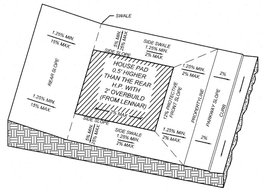
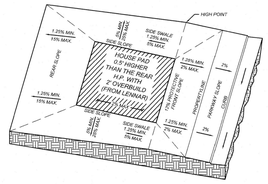


TYPE 'A' LOT GRADING



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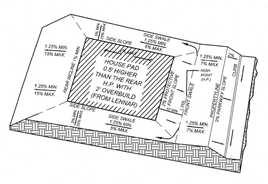

TYPE 'C' LOT GRADING

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____ DATE

THIS APPROVAL WILL BECOME VOID AFTER ONE YEAR OF THE INDICATED APPROVAL DATE. EXCEPTIONS TO THIS APPROVAL ARE AS FOLLOWS:

BY APPROVING THESE PLANS, THE CITY OF KERRVILLE DOES NOT ASSUME ANY LIABILITY FOR ENGINEERING DESIGN, NOR DOES APPROVAL RELEASE THE DESIGN ENGINEER FROM LIABILITY FOR CORRECTION ERRORS OR OMISSIONS IN THE DESIGN BOTH DURING AND AFTER CONSTRUCTION.

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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA
PROJECT NUMBER:	DRAWING NAME:		
314-47-05	GP_3144705		

SHEET TITLE:

OVERALL GRADING PLAN

SHEET NUMBER:

3.3

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

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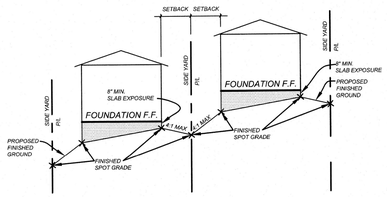
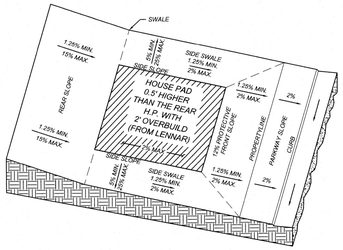
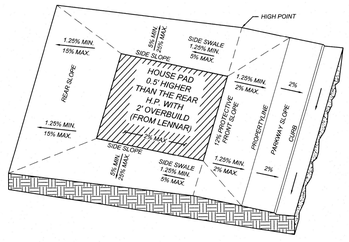
File: U:\Projects\314\47\05\Design\Civil\GRADING\GP_3144705.dwg



TYPICAL SIDE YARD GRADING
N.T.S.



TYPE 'A' LOT GRADING



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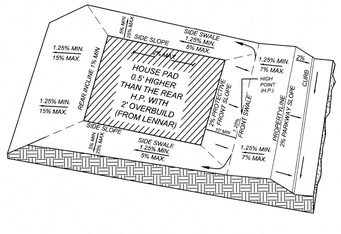
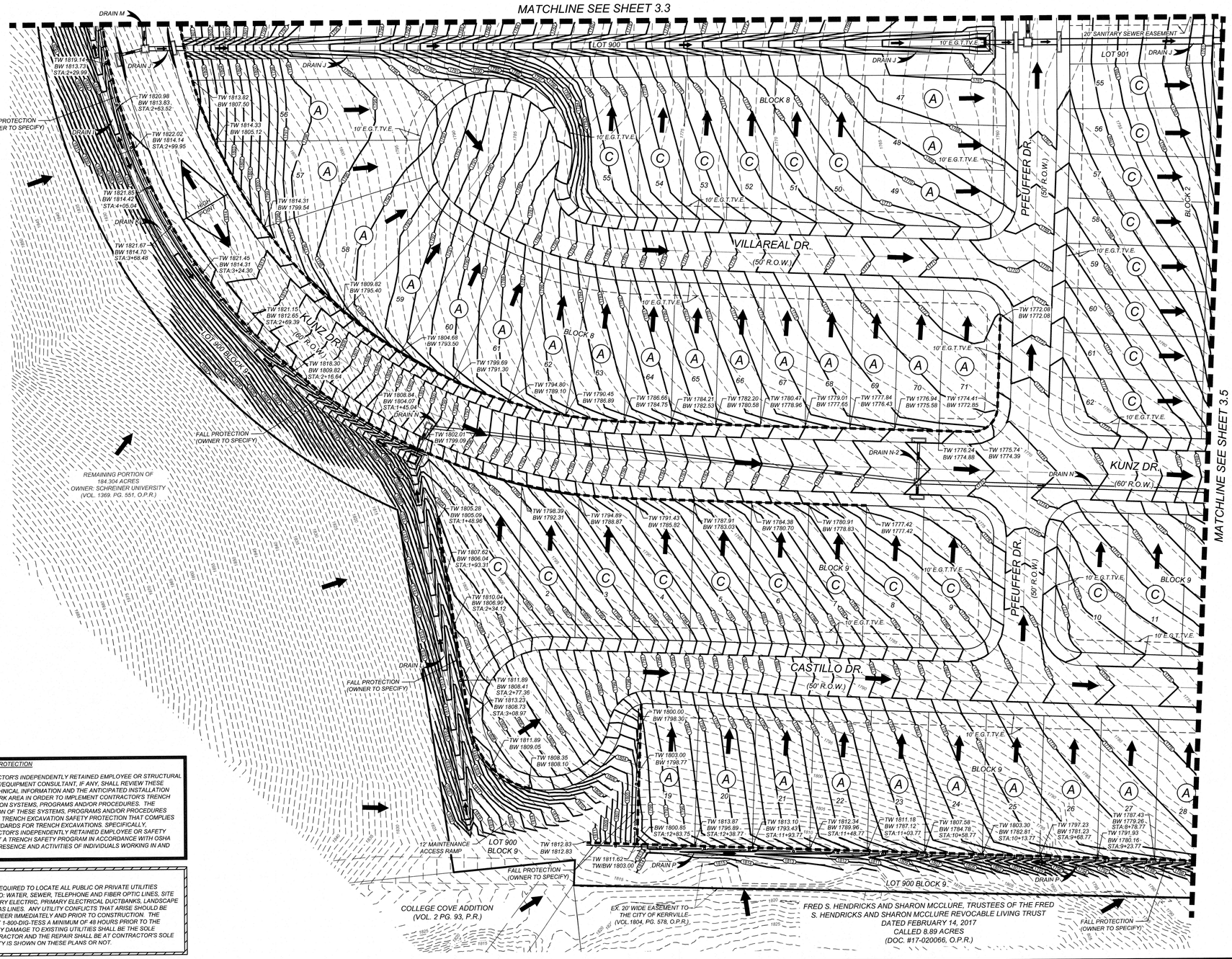
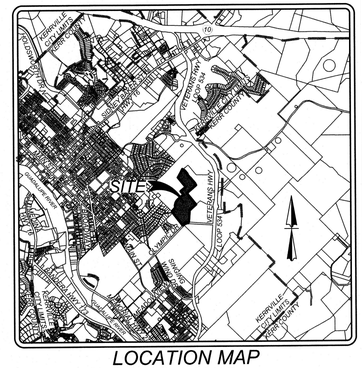


TYPE 'C' LOT GRADING





LOCATION MAP
NOT-TO-SCALE

*SEE SHEET 3.0 FOR SITE BENCHMARK TABLE AND MAP

N E S W

40 0 40 80

SCALE : 1" = 40'
Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

LEGEND

LOT GRADE TYPE	=	A
EXISTING CONTOURS	=	555
PROPOSED CONTOURS	=	555
PROPOSED CONTOURS (WINDRIDGE UNIT 1)	=	555
FLOW ARROW	=	
SPOT ELEVATION	=	+ 555.00
BOTTOM OF WALL	=	BW
TOP OF WALL	=	TW
BOTTOM OF WALL/TOP OF WALL (SEE SHEET 3.0 FOR DETAIL)	=	BW/TW
VERTICAL WALL (DESIGNED BY OTHERS)	=	
FALL PROTECTION (OWNER TO SPECIFY)	=	
PROPOSED ELECTRIC, GAS, TELEPHONE & CABLE TV EASEMENT	=	E.G.T.T.V.E.

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CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____ DATE.

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_____

_____

_____

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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
DENIS A. AVENDANO
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11/03/2025
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WINDRIDGE SUBDIVISION - UNIT 2
FOR
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KERR COUNTY
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NEW BRAUNFELS (KPW)
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COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER:	DRAWING NAME:
314-47-05	GP_3144705

SHEET TITLE:
OVERALL GRADING PLAN

SHEET NUMBER:
3.4

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Oct 28, 2025, 1:20pm User ID: Logan.Haney
File: L:\Projects\314\47\05\Design\Civil\Plan Sheets\GP_3144705.dwg
Plotted By: LOGAN HANEY

TRENCH EXCAVATION SAFETY PROTECTION

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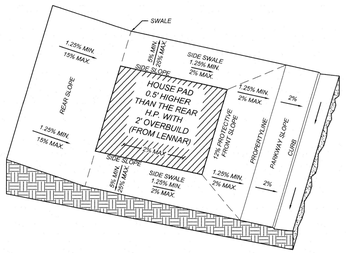
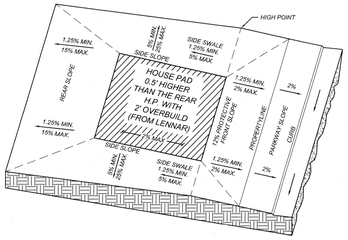


TYPE 'A' LOT GRADING



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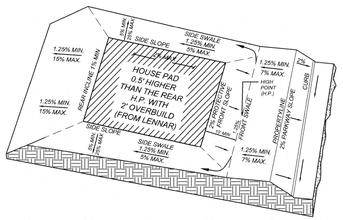
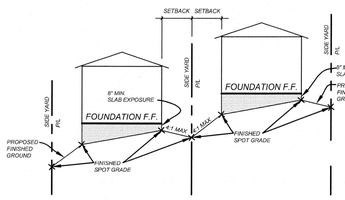
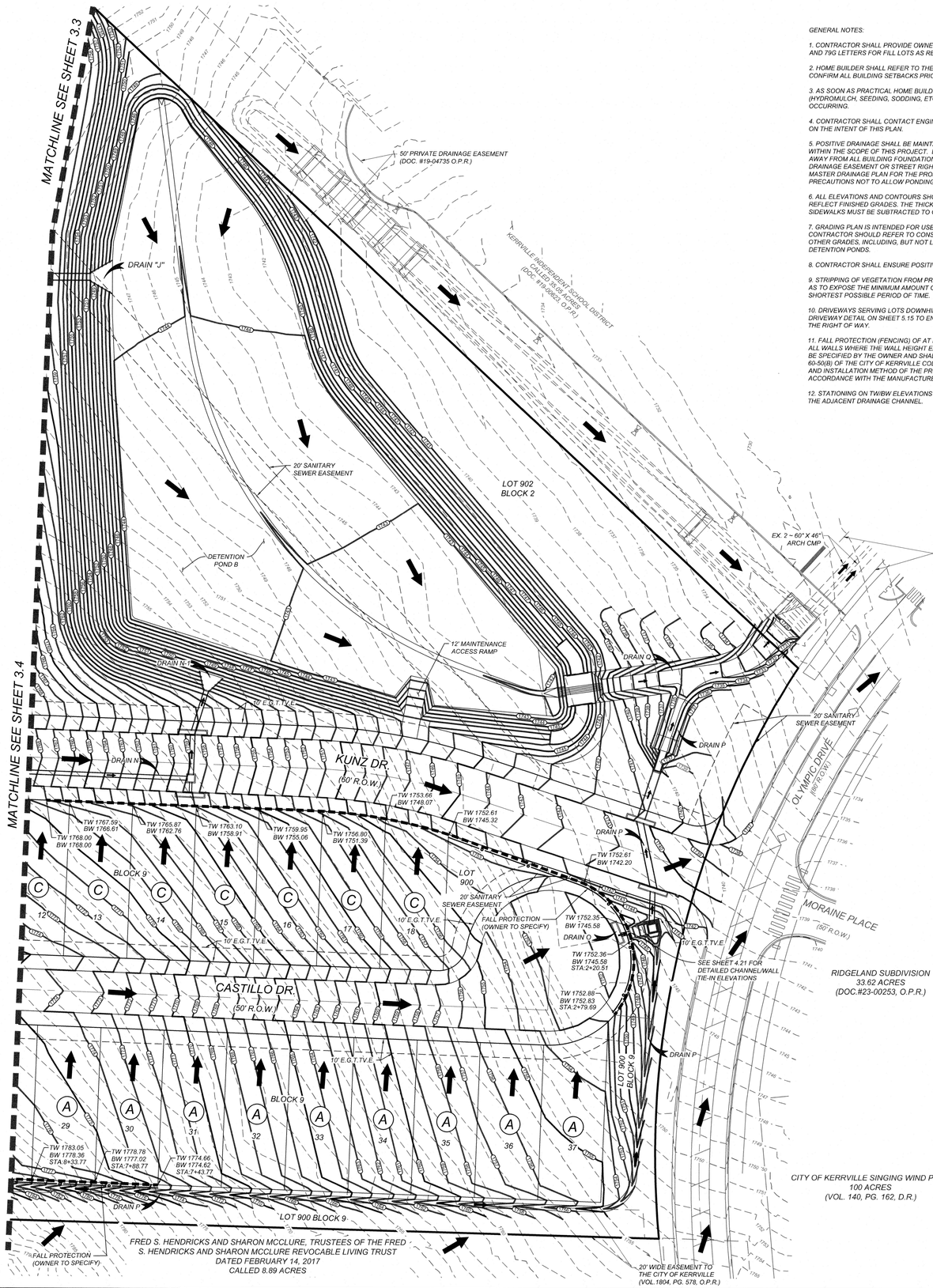


TYPE 'C' LOT GRADING

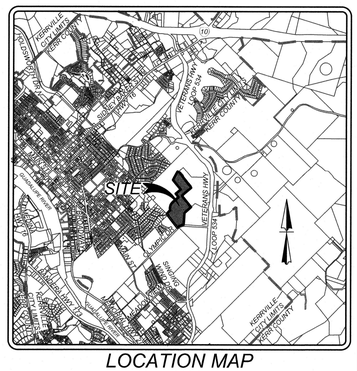


TYPICAL SIDE YARD GRADING
N.T.S.



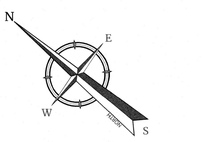
GENERAL NOTES:

1. *CONTRACTOR SHALL PROVIDE OWNER ALL NECESSARY DENSITY TESTS AND 79G LETTERS FOR FILL LOTS AS REQUIRED BY HUD SPECIFICATIONS.*
2. *HOME BUILDER SHALL REFER TO THE APPROVED SUBDIVISION PLAT TO CONFIRM ALL BUILDING SETBACKS PRIOR TO ANY FOUNDATION WORK.*
3. *AS SOON AS PRACTICAL HOME BUILDER SHALL ESTABLISH VEGETATION (HYDROMULCH, SEEDING, SODDING, ETC...) TO PREVENT EROSION FROM OCCURRING.*
4. *CONTRACTOR SHALL CONTACT ENGINEER REGARDING ANY QUESTIONS ON THE INTENT OF THIS PLAN.*
5. *POSITIVE DRAINAGE SHALL BE MAINTAINED ON ALL SURFACE AREAS WITHIN THE SCOPE OF THIS PROJECT. DRAINAGE SHALL BE DIRECTED AWAY FROM ALL BUILDING FOUNDATIONS AND TOWARDS THE PROPER DRAINAGE EASEMENT OR STREET RIGHT OF WAY ACCORDING TO THE MASTER DRAINAGE PLAN FOR THE PROJECT. CONTRACTOR SHOULD TAKE PRECAUTIONS NOT TO ALLOW PONDING OF WATER.*
6. *ALL ELEVATIONS AND CONTOURS SHOWN ON THIS GRADING PLAN REFLECT FINISHED GRADES. THE THICKNESS OF PAVEMENT, CURBS, AND SIDEWALKS MUST BE SUBTRACTED TO OBTAIN SUBGRADE ELEVATIONS.*
7. *GRADING PLAN IS INTENDED FOR USE IN LOT GRADING ONLY. CONTRACTOR SHOULD REFER TO CONSTRUCTION DRAWINGS FOR ALL OTHER GRADES, INCLUDING, BUT NOT LIMITED TO, CHANNELS, ROADS, AND DETENTION PONDS.*
8. *CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE WITHIN ALL SWALES.*
9. *STRIPPING OF VEGETATION FROM PROJECT SITES SHALL BE PHASED SO AS TO EXPOSE THE MINIMUM AMOUNT OF AREA TO SOIL EROSION FOR THE SHORTEST POSSIBLE PERIOD OF TIME.*
10. *DRIVEWAYS SERVING LOTS DOWNHILL OF STREET SHALL FOLLOW DRIVEWAY DETAIL ON SHEET 5.15 TO ENSURE FLOW IS CONTAINED WITHIN THE RIGHT OF WAY.*
11. *FALL PROTECTION (FENCING) OF AT LEAST 4' HEIGHT IS REQUIRED ON ALL WALLS WHERE THE WALL HEIGHT EXCEEDS 30". FENCING TYPE SHALL BE SPECIFIED BY THE OWNER AND SHALL BE IN COMPLIANCE WITH SEC. 60-50(B) OF THE CITY OF KERRVILLE CODE OF ORDINANCES. PLACEMENT AND INSTALLATION METHOD OF THE PROPOSED FENCING TO BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.*
12. *STATIONING ON TW/BW ELEVATIONS REFERS TO THE STATION VALUE OF THE ADJACENT DRAINAGE CHANNEL.*



LOCATION MAP
NOT-TO-SCALE

**SEE SHEET 3.0 FOR SITE BENCHMARK TABLE AND MAP*



40 0 40 80

SCALE : 1" = 40'
Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

LEGEND

LOT GRADE TYPE	=	A
EXISTING CONTOURS	=	555
PROPOSED CONTOURS	=	555
PROPOSED CONTOURS (WINDRIDGE UNIT 1)	=	555
FLOW ARROW	=	
SPOT ELEVATION	=	+ 555.00
BOTTOM OF WALL	=	*BW*
TOP OF WALL	=	*TW*
BOTTOM OF WALL/TOP OF WALL (SEE SHEET 3.0 FOR DETAIL)	=	*BW/TW*
VERTICAL WALL (DESIGNED BY OTHERS)	=	
FALL PROTECTION (OWNER TO SPECIFY)	=	
PROPOSED ELECTRIC, GAS, TELEPHONE & CABLE TV EASEMENT	=	*E.G.T.TV.E.*

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____
DATE

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

REV	DATE	DESCRIPTION	DRAWN BY

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER
11/03/2025

WINDRIDGE SUBDIVISION – UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: GP_3144705

SHEET TITLE: OVERALL GRADING PLAN

SHEET NUMBER: 3.5

Date: Oct 28, 2025, 1:23pm User ID: logan.haney
File: U:\Projects\314\47\05\Design\Civil\Grading\GP_3144705.dwg
\\engfil\Civil\GRADING\GP_3144705.dwg\3.5 OVERALL GRADING PLAN By: LOGAN.HANEY

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

TRENCH EXCAVATION SAFETY PROTECTION

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CAUTION!!!

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NOTE:

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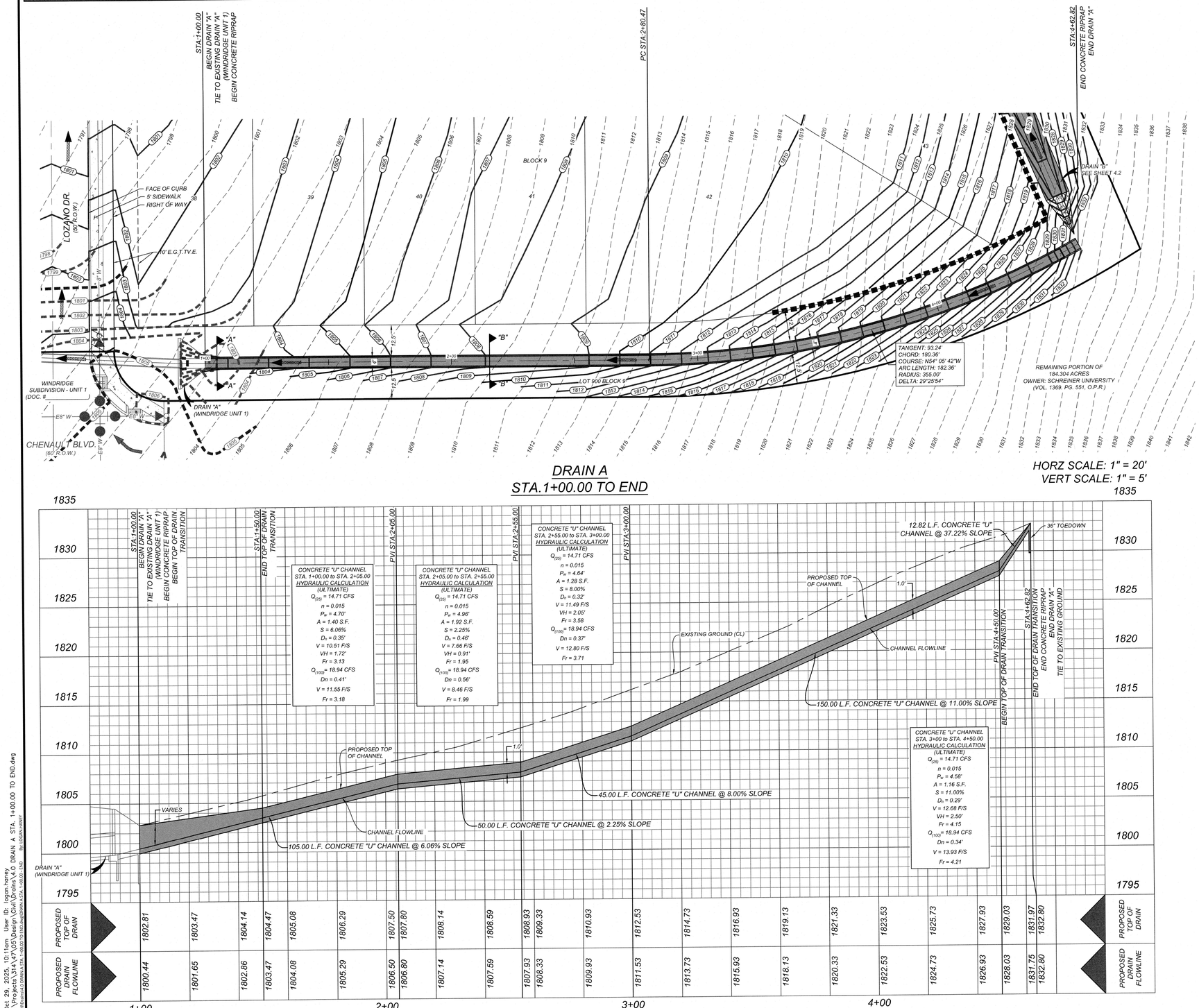
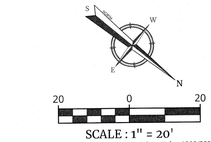
2. ANY DISTURBED AREAS WILL BE VEGETATED BY SEEDING OR SODDING. EIGHTY-FIVE PERCENT OF THE DISTURBED SURFACE AREA MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF KERRVILLE WILL ACCEPT.
3. ALL DRAINAGE EASEMENTS WILL BE OWNED AND MAINTAINED BY THE DEVELOPER.
4. ALL EARTHEN CHANNELS MUST NOT EXCEED 3:1 SIDE SLOPES (MAX).
5. TOP OF WALL (TW) AND BOTTOM OF WALL (BW) ELEVATIONS ARE FINISHED GRADE.



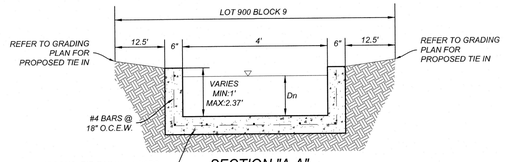
DRAIN A
STA.1+00.00 TO END

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

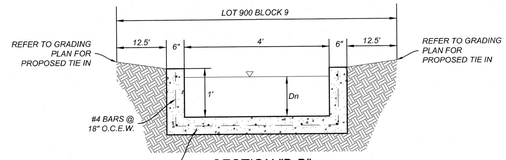


LEGEND

- EXISTING CONTOURS = 600
- PROPOSED CONTOURS = 600
- PROPOSED CONTOURS (WINDRIDGE UNIT 1) = 600
- BULL ROCK
- FLOW ARROW
- CONCRETE RIP-RAP
- VERTICAL WALL (DESIGNED BY OTHERS)
- SIDEWALK TO BE CONSTRUCTED BY DEVELOPER
- PROPOSED ELECTRIC, GAS, TELEPHONE AND CABLE TELEVISION EASEMENT = E.G.T.TV.E.



SECTION "A-A"
STA. 1+00.00 TO STA. 1+50.00
N.T.S.



SECTION "B-B"
STA. 1+50.00 TO STA. 4+50.00
N.T.S.

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____
DATE:

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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER
11/03/2025
P.E.

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: 4.0 DRAIN A STA. 1+00.00 TO END

SHEET TITLE: DRAIN A STA. 1+00.00 - END

SHEET NUMBER: 4.0

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Oct 29, 2025, 10:17am User ID: logan.haney
File: U:\Projects\314-47-05\Design\Drainage\DRAIN A STA. 1+00.00 TO END.dwg
Plotted by: Plotted by LOGAN.HANEY at 1"=20.00 TO 1"=20.00 By: LOGAN.HANEY

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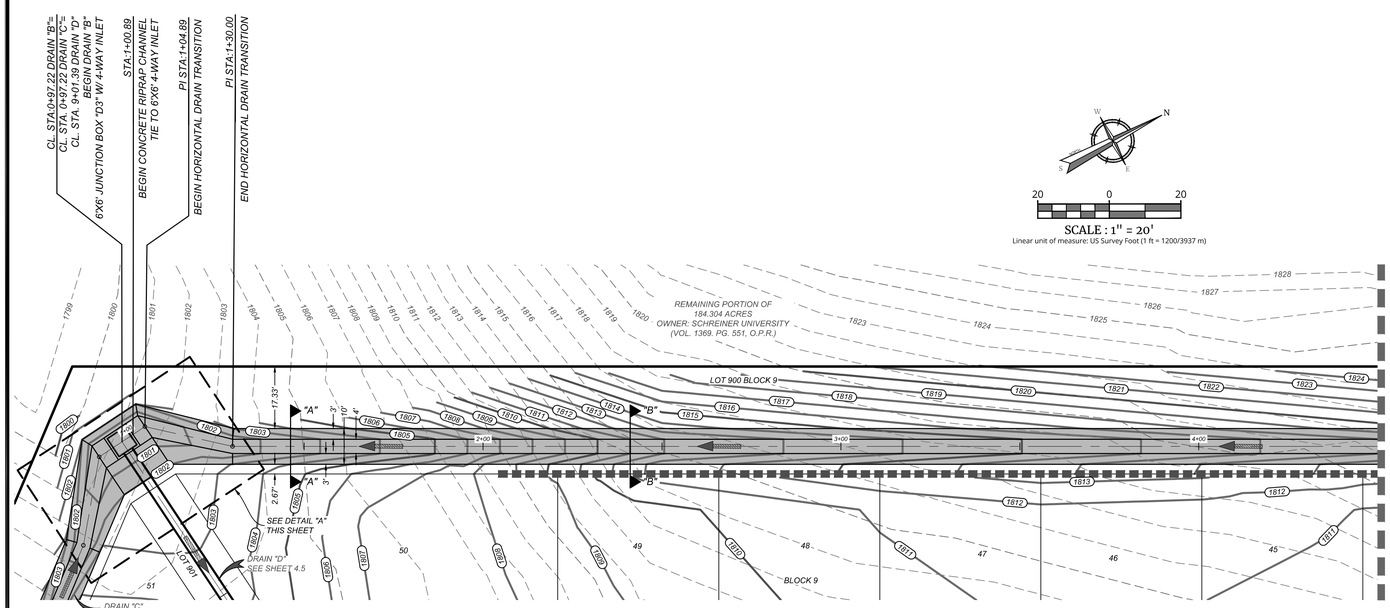
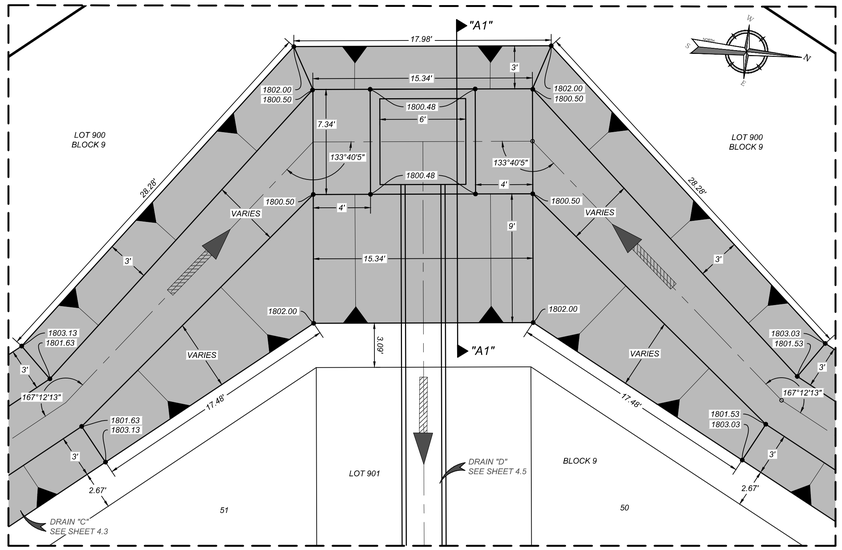
LEGEND

- EXISTING CONTOURS = 600
- PROPOSED CONTOURS = 600
- PROPOSED CONTOURS (WINDRIDGE UNIT 1) = 600
- BULL ROCK
- FLOW ARROW
- CONCRETE RIP-RAP
- VERTICAL WALL (BY OTHERS)
- SIDEWALK TO BE CONSTRUCTED BY DEVELOPER
- PROPOSED ELECTRIC, GAS, TELEPHONE AND CABLE TELEVISION EASEMENT = E.G.T.T.V.E.

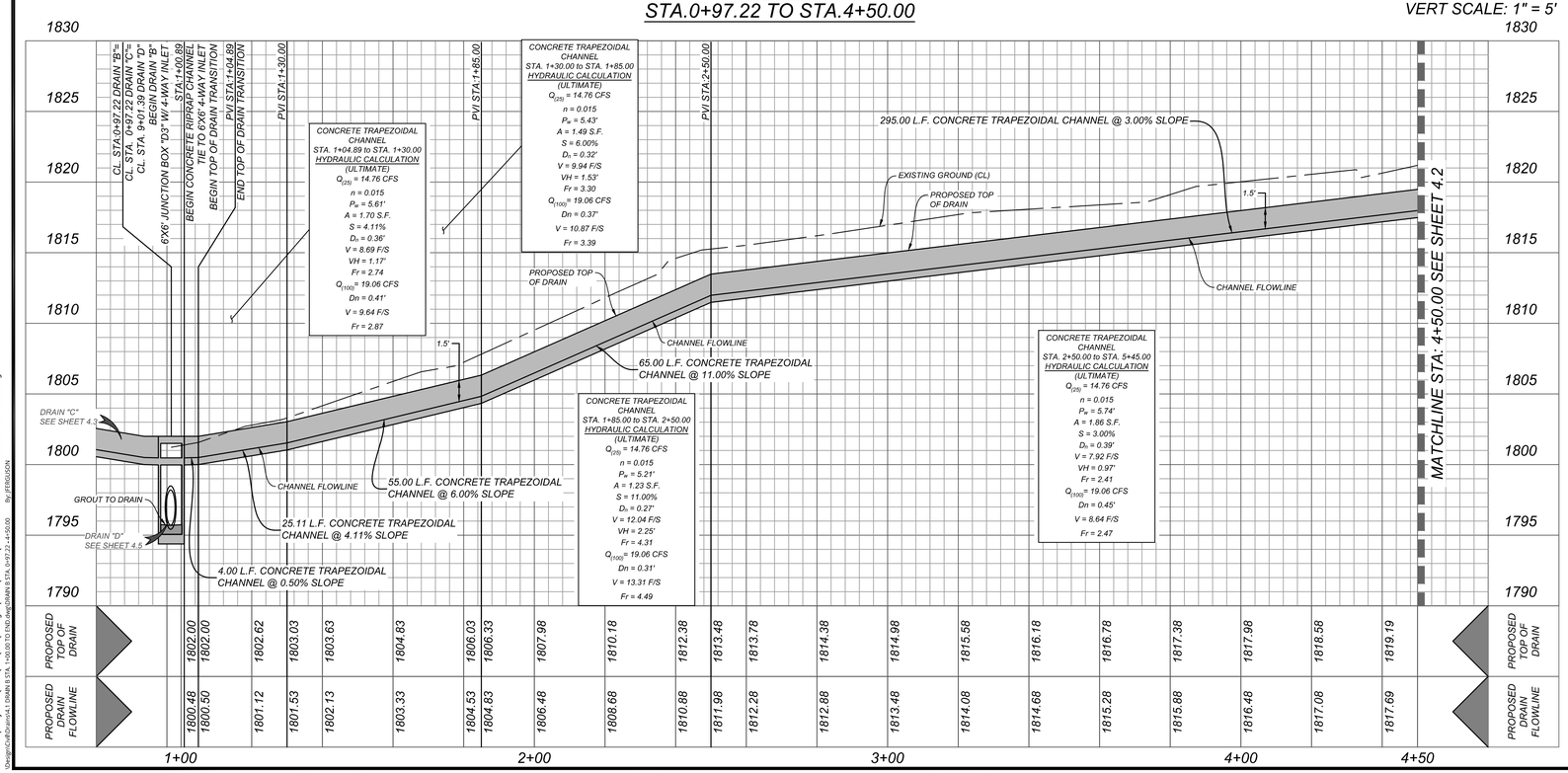


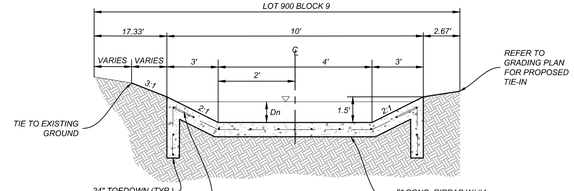


DETAIL "A"
SCALE: 1"=5'

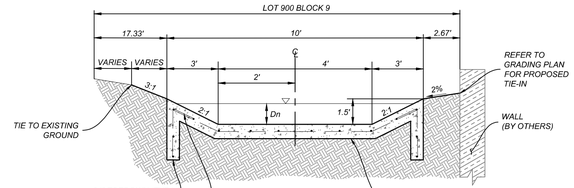
DRAIN B
STA.0+97.22 TO STA.4+50.00

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

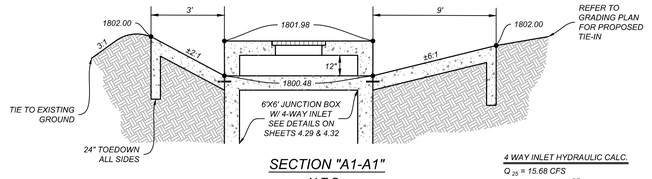




SECTION "A-A"
STA. 1+30.00 TO STA. 2+05.00
N.T.S.



SECTION "B-B"
STA. 2+05.00 TO STA. 6+40.00
N.T.S.



SECTION "A1-A1"
N.T.S.

4 WAY INLET HYDRAULIC CALC.

Q_{25} = 15.68 CFS

$L_{REQ} = Q_{25} / (C^*H^{3/2})$

L_{REQ} = 15.68 CFS / (2.60 * 1.00 $FT^{3/2}$)

L_{REQ} = 6.03 FT.

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REV	DATE	DRAWN BY	DESCRIPTION

06/17/2025

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER

WINDRIDGE SUBDIVISION – UNIT 2

FOR

LENNAR HOMES OF TEXAS

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TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05

DRAWING NAME: 4.1 DRAIN B STA. 1+00.00 TO END

SHEET TITLE: DRAIN B STA. 0+97.22 - 4+50.00

SHEET NUMBER: 4.1

Date: Jun 13, 2025, 12:54pm User ID: fergusonk
File: U:\Projects\314-47-05\Design\Civil Design\4.1 DRAIN B STA. 1+00.00 TO END.dwg
\Design\Civil Design\4.1 DRAIN B STA. 1+00.00 TO END.dwg DRAIN B STA. 0+97.22 - 4+50.00 By: JEFFERSON

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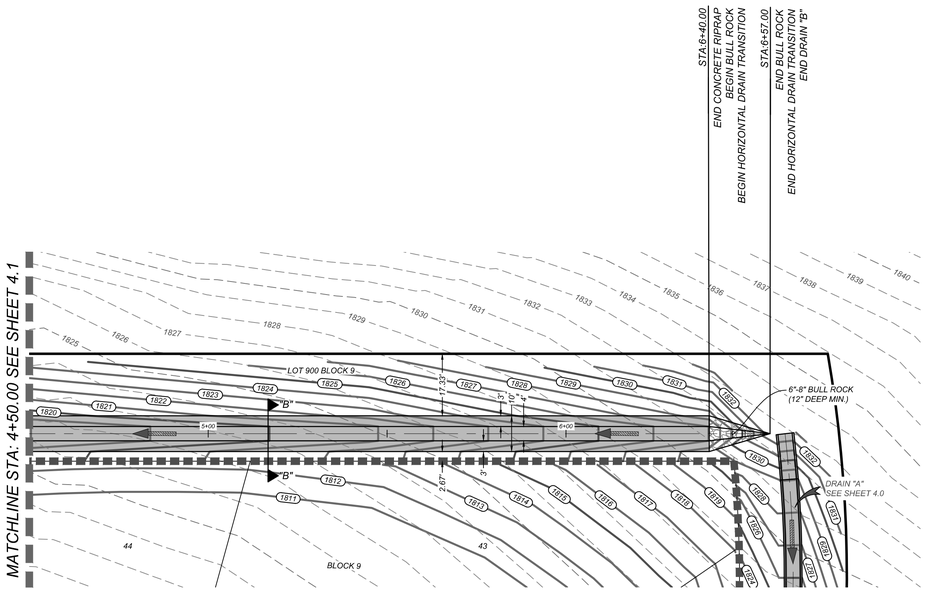
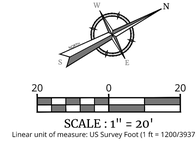
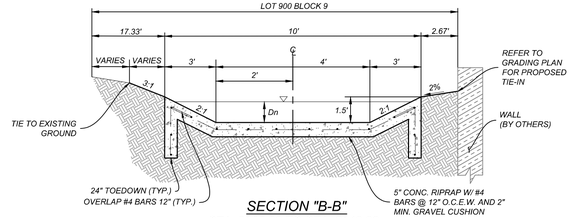




LEGEND

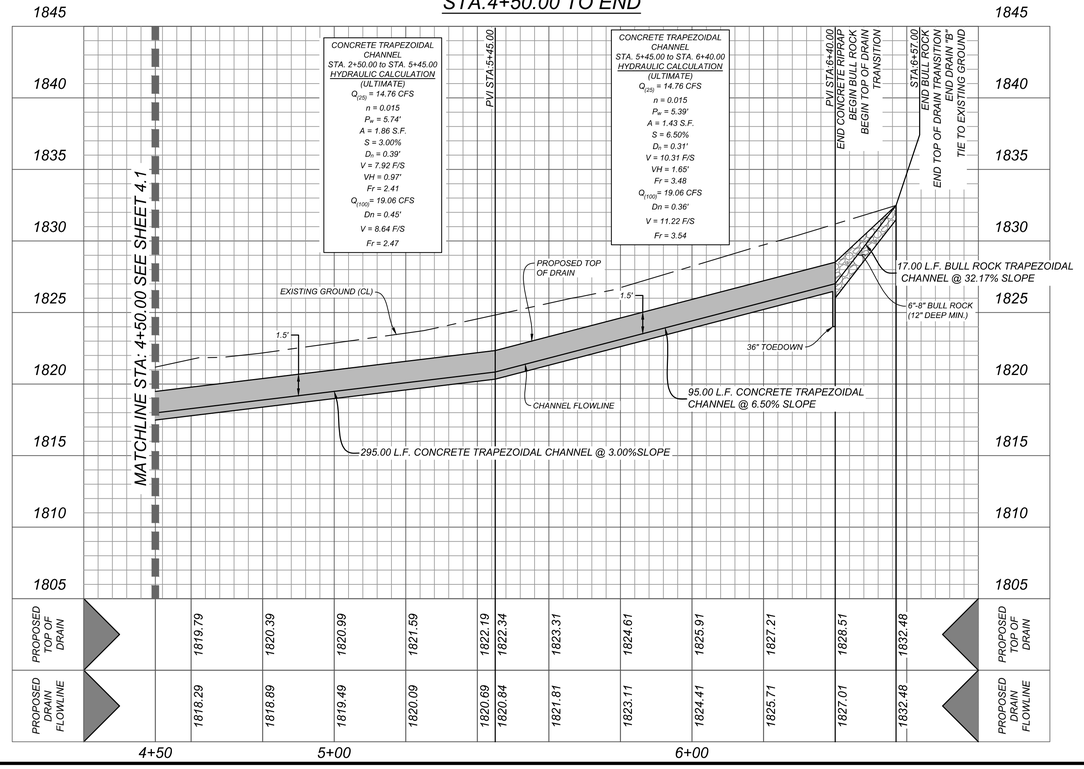
EXISTING CONTOURS	=	600
PROPOSED CONTOURS	=	600
PROPOSED CONTOURS (WINDRIDGE UNIT 1)	=	600
BULL ROCK	=	
FLOW ARROW	=	
CONCRETE RIP-RAP	=	
VERTICAL WALL (BY OTHERS)	=	
SIDEWALK TO BE CONSTRUCTED BY DEVELOPER	=	
PROPOSED ELECTRIC, GAS, TELEPHONE AND CABLE TELEVISION EASEMENT	=	E.G.T.TV.E.



SECTION "B-B"
STA. 2+05.00 TO STA. 6+40.00
N.T.S.

DRAIN B
STA.4+50.00 TO END

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



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

REV	DATE	DRAWN BY	DESCRIPTION

06/17/2025

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER

WINDRIDGE SUBDIVISION – UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05

DRAWING NAME: 4.1 DRAIN B STA. 1+00.00 TO END.

SHEET TITLE: DRAIN B STA. 4+50.00 - END

SHEET NUMBER: 4.2

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____ DATE

THIS APPROVAL WILL BECOME VOID AFTER ONE YEAR OF THE INDICATED APPROVAL DATE. EXCEPTIONS TO THIS APPROVAL ARE AS FOLLOWS:

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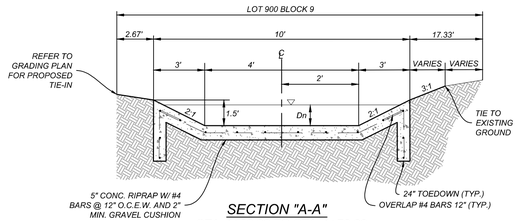
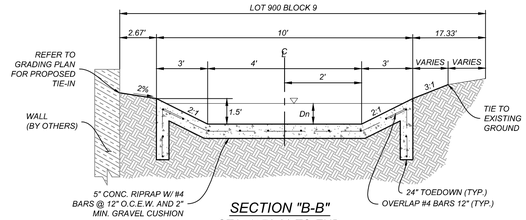
NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

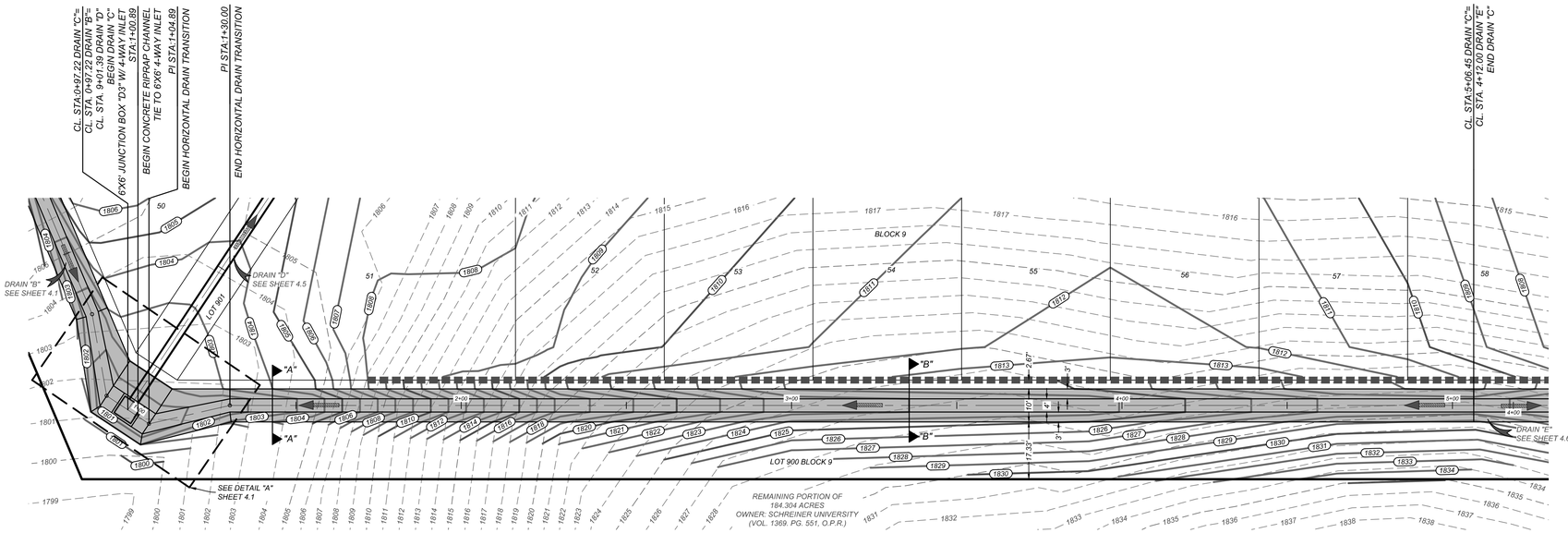
Date: Jun 13, 2025, 12:55pm User ID: kferguson
File: L:\Projects\314-47-05\Design\Civil\Drains\4.1 DRAIN B STA. 1+00.00 TO END.dwg
Xrefs: L:\Projects\314-47-05\Design\Civil\Drains\DRAIN B STA. 4+50.00 - END.dwg By:JFERGUSON



SECTION "A-A"
STA. 1+30.00 TO STA. 1+70.00
N.T.S.

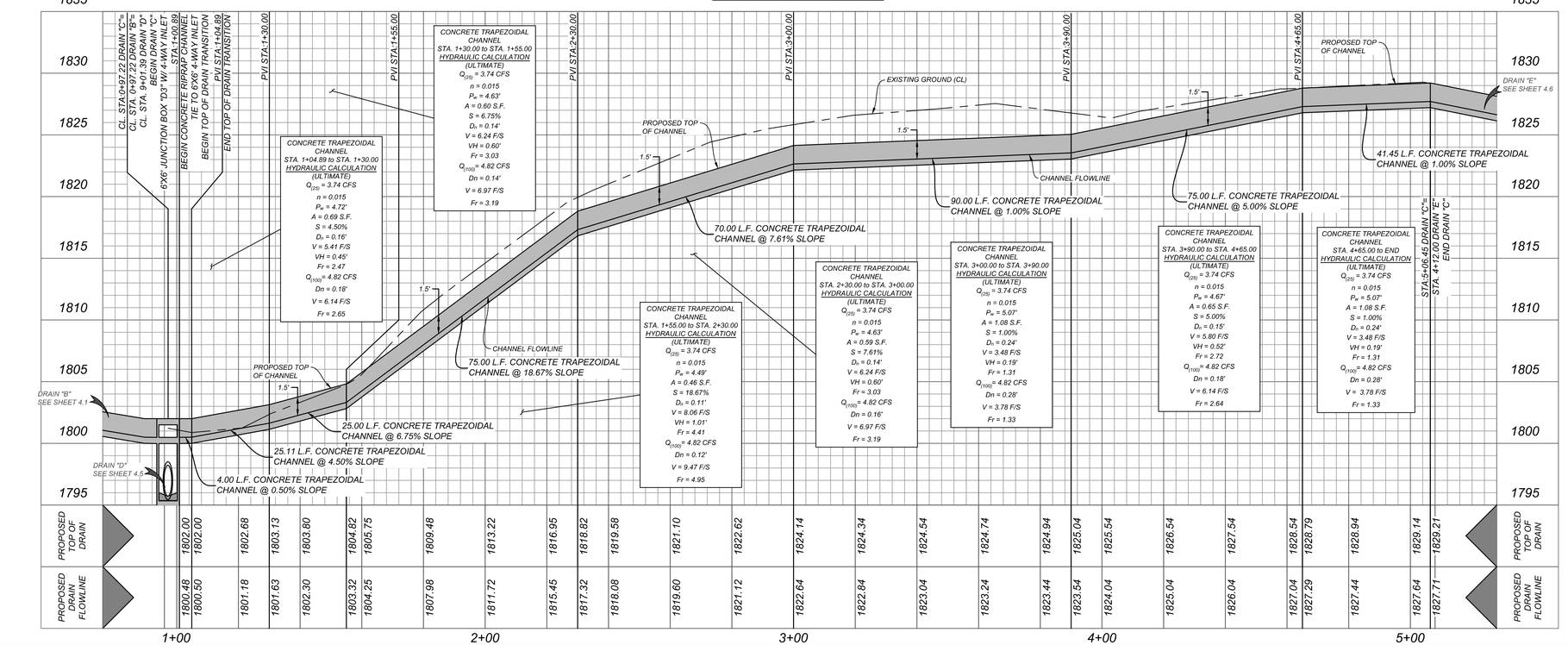


SECTION "B-B"
STA. 1+70.00 TO END
N.T.S.

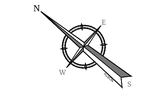


DRAIN C
STA.0+97.22 TO END

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



	PROPOSED TOP OF DRAIN	PROPOSED DRAIN FLOWLINE
1+00	1802.00	1800.48
	1802.00	1800.50
	1802.68	1801.18
	1803.13	1801.63
	1803.80	1802.30
	1804.82	1803.32
	1805.75	1804.25
2+00	1809.48	1807.98
	1813.22	1811.72
	1816.95	1815.45
	1818.82	1817.32
	1819.58	1818.08
	1821.10	1819.60
	1822.62	1821.12
3+00	1824.14	1822.64
	1824.34	1822.84
	1824.54	1823.04
	1824.74	1823.24
	1824.94	1823.44
	1825.04	1823.54
	1825.54	1824.04
4+00	1826.54	1825.04
	1827.54	1826.04
	1828.54	1827.04
	1828.79	1827.29
	1828.94	1827.44
	1829.14	1827.64
5+00	1829.21	1827.71



LEGEND

EXISTING CONTOURS	=	600
PROPOSED CONTOURS	=	600
PROPOSED CONTOURS (WINDRIDGE UNIT 1)	=	600
BULL ROCK	=	
FLOW ARROW	=	
CONCRETE RIP-RAP	=	
VERTICAL WALL (BY OTHERS)	=	
SIDEWALK TO BE CONSTRUCTED BY DEVELOPER	=	
PROPOSED ELECTRIC, GAS, TELEPHONE AND CABLE TELEVISION EASEMENT	=	E.G.T.T.V.E.

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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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 KERRVILLE WILL ACCEPT.
3. ALL DRAINAGE EASEMENTS WILL BE OWNED AND MAINTAINED BY THE DEVELOPER.
4. ALL EARTHEN CHANNELS MUST NOT EXCEED 3:1 SIDE SLOPES (MAX).

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____

DATE

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REV	DATE	DRAWN BY	DESCRIPTION

06/17/2025
STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER

WINDRIDGE SUBDIVISION - UNIT 2
FOR
LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
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Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#:F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: 4.3 DRAIN C STA. 1+00.00 TO END

SHEET TITLE: DRAIN C STA. 0+97.22 - END

SHEET NUMBER: 4.3

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Jun 11, 2025, 4:34pm User ID: mdoehl.flores
File: L:\Projects\314-47-05\Drawings\Civil\Construction\4.3 DRAIN C STA. 1+00.00 TO END.dwg
\Design\Civil\Sheets\4.3 DRAIN C STA. 1+00.00 TO END.dwg By:MMJC/14.FLORES

TRENCH EXCAVATION SAFETY PROTECTION

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CAUTION!!:

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3. ALL DRAINAGE EASEMENTS WILL BE OWNED AND MAINTAINED BY THE DEVELOPER.
4. ALL EARTHEN CHANNELS MUST NOT EXCEED 3:1 SIDE SLOPES (MAX).
5. TOP OF WALL (TW) AND BOTTOM OF WALL (BW) ELEVATIONS ARE FINISHED GRADE.

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____ DATE

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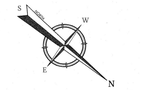
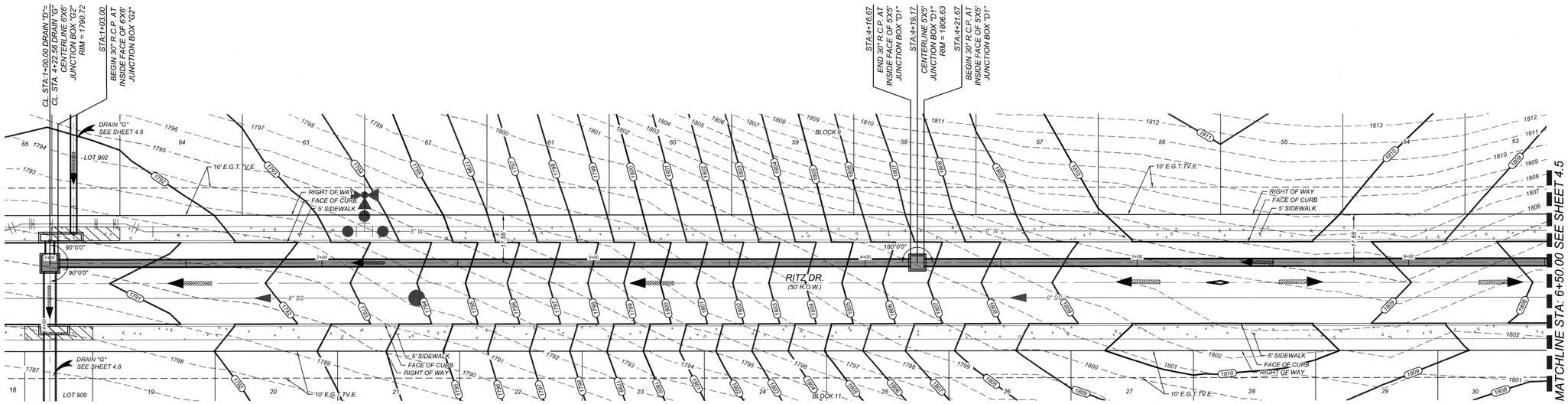


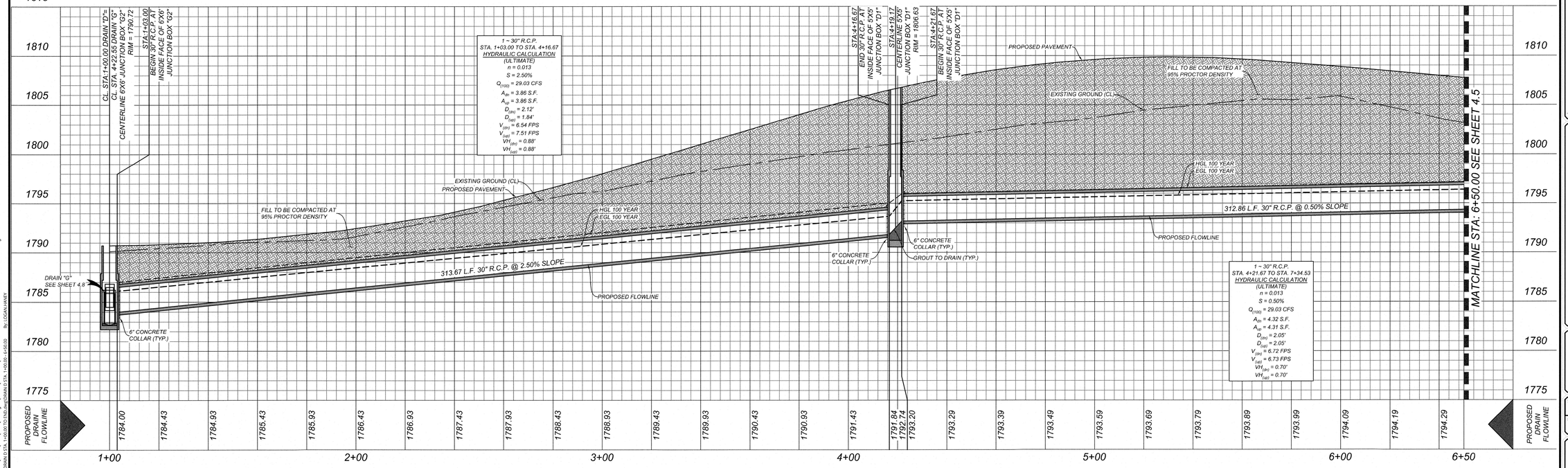
LEGEND

- EXISTING CONTOURS = 600
- PROPOSED CONTOURS = 600
- PROPOSED CONTOURS (WINDRIDGE UNIT 1) = 600
- BULL ROCK
- FLOW ARROW
- CONCRETE RIP-RAP
- VERTICAL WALL (DESIGNED BY OTHERS)
- SIDEWALK TO BE CONSTRUCTED BY DEVELOPER
- PROPOSED ELECTRIC, GAS, TELEPHONE AND CABLE TELEVISION EASEMENT = E.G.T.T.V.E.



DRAIN D
STA.1+00.00 TO STA.6+50.00

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



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

REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER
11/03/2025
P.E.

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER:	DRAWING NAME:
314-47-05	4.4 DRAIN D STA. 1+00.00 TO END

SHEET TITLE: DRAIN D STA. 1+00.00 - 6+50.00

SHEET NUMBER: 4.4

Date: Oct 29, 2025, 10:46am User ID: logan.haney
File: U:\Projects\314\47\05\Design\Civil\Drains\4.4 DRAIN D STA. 1+00.00 TO END.dwg
Design Software: Autodesk Civil 3D 2024, Version 13.0.0 (Build 64.0.0.0) By: LOGAN.HANEY

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

TRENCH EXCAVATION SAFETY PROTECTION

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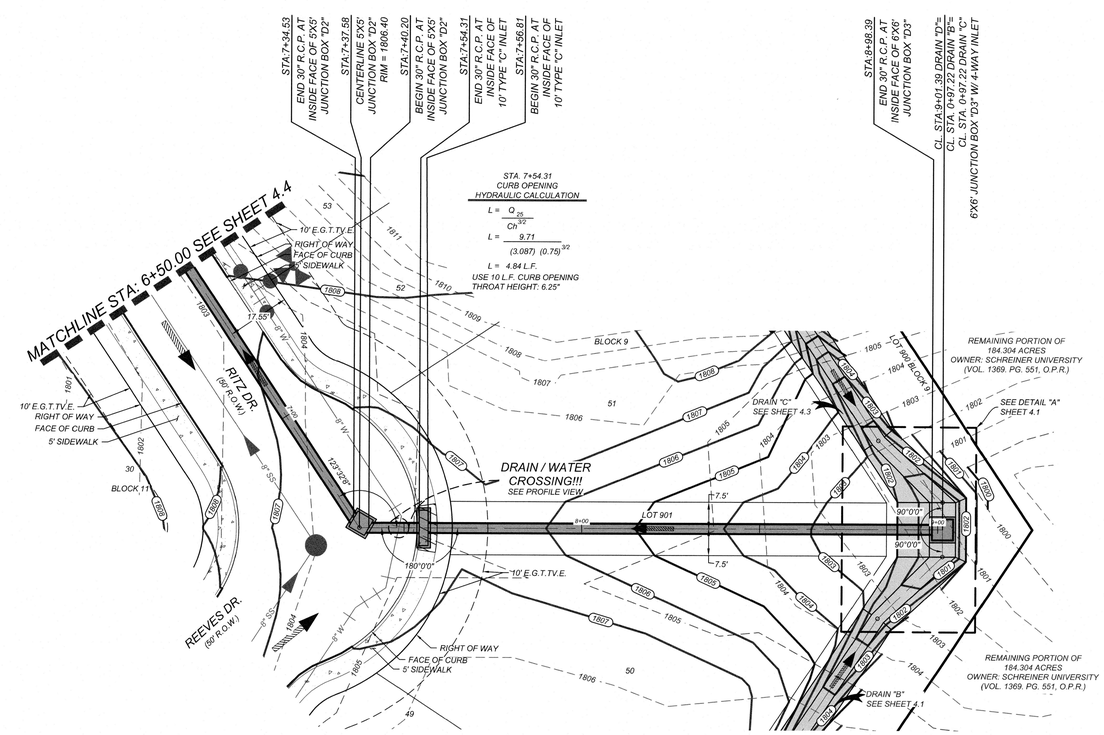
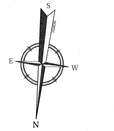
NOTE:

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 KERRVILLE WILL ACCEPT.*
3. *ALL DRAINAGE EASEMENTS WILL BE OWNED AND MAINTAINED BY THE DEVELOPER.*
4. *ALL EARTHEN CHANNELS MUST NOT EXCEED 3:1 SIDE SLOPES (MAX).*
5. *TOP OF WALL (TW) AND BOTTOM OF WALL (BW) ELEVATIONS ARE FINISHED GRADE.*





SCALE : 1" = 20'

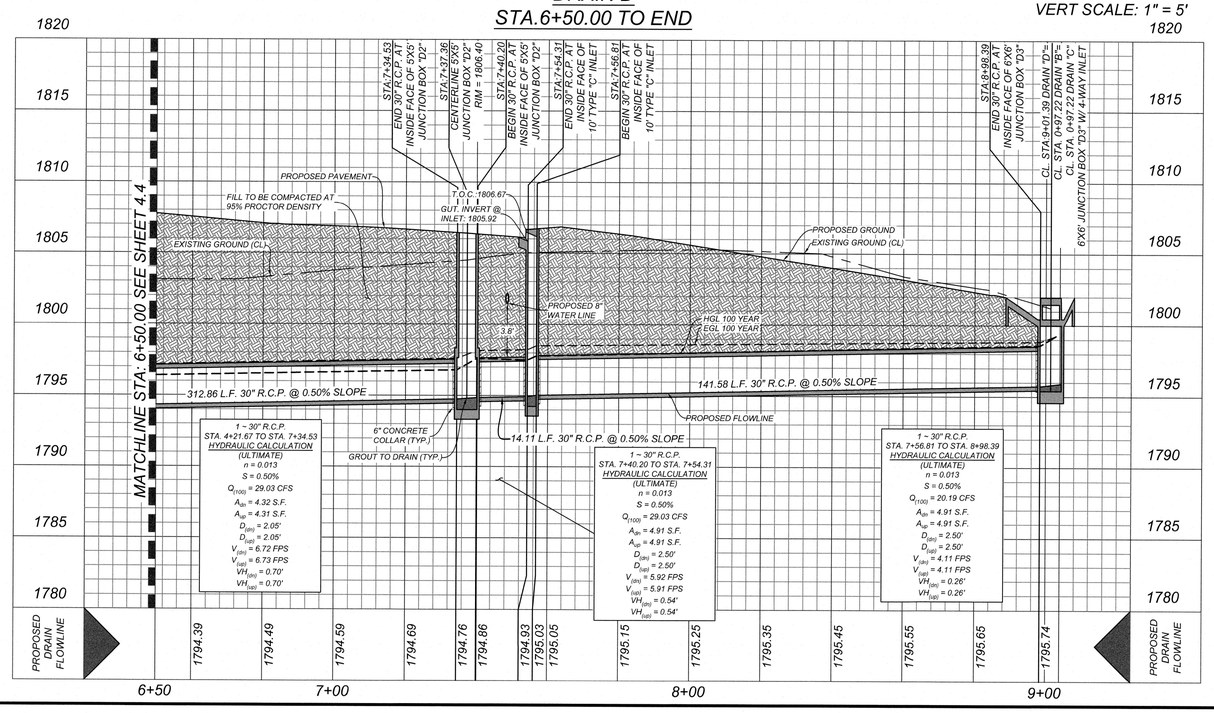
Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

LEGEND

- EXISTING CONTOURS = 600
- PROPOSED CONTOURS = 600
- PROPOSED CONTOURS (WINDRIDGE UNIT 1) = 600
- BULL ROCK
- FLOW ARROW
- CONCRETE RIP-RAP
- VERTICAL WALL (DESIGNED BY OTHERS)
- SIDEWALK TO BE CONSTRUCTED BY DEVELOPER
- PROPOSED ELECTRIC, GAS, TELEPHONE AND CABLE TELEVISION EASEMENT = E.G.T.T.V.E.

DRAIN D
STA.6+50.00 TO END

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



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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER
11/03/2025
P.E.

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: 4.4 DRAIN D STA. 1+00.00 TO END

SHEET TITLE: DRAIN D STA. 6+50.00 - END

SHEET NUMBER: 4.5

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____
DATE

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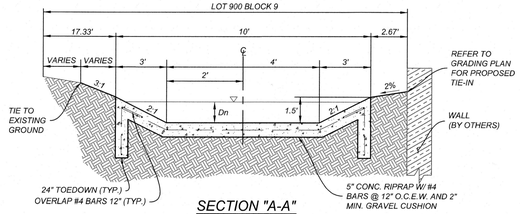
NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Oct. 29, 2025, 10:34am User ID: logan.honey
File: U:\Projects\314\47\05\Design\Civil\Drains\4.4 DRAIN D STA. 1+00.00 TO END.dwg
Design\Civil\Drains\4.4 DRAIN D STA. 1+00.00 TO END.dwg DRAIN D STA. 6+50.00 - END By: LOGAN HANEY



SECTION "A-A"
STA. 1+17.67 TO END
N.T.S.

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____

DATE

THIS APPROVAL WILL BECOME VOID AFTER ONE YEAR OF THE INDICATED APPROVAL DATE. EXCEPTIONS TO THIS APPROVAL ARE AS FOLLOWS:

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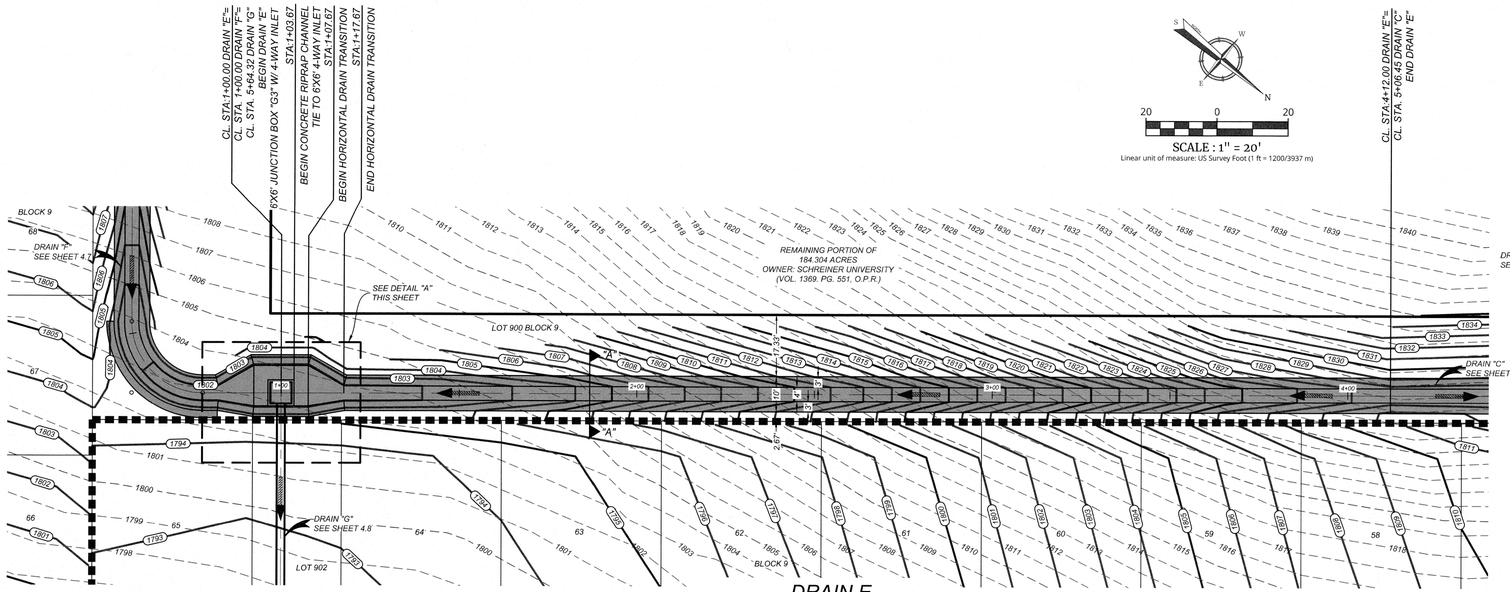
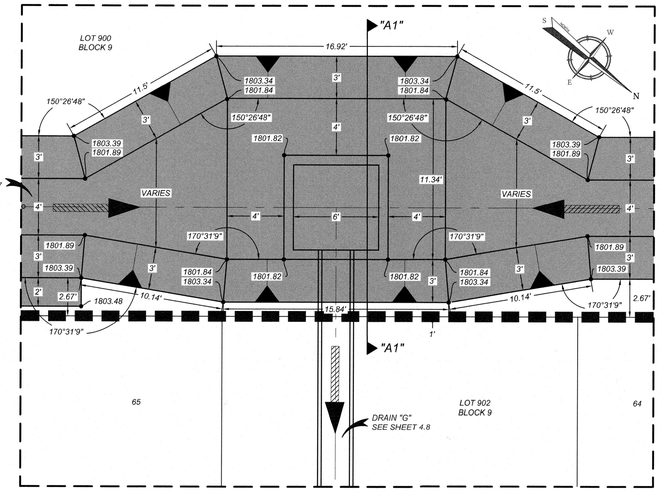
LEGEND

EXISTING CONTOURS	=	600
PROPOSED CONTOURS	=	600
PROPOSED CONTOURS (WINDRIDGE UNIT 1)	=	600
BULL ROCK	=	
FLOW ARROW	=	
CONCRETE RIP-RAP	=	
VERTICAL WALL (DESIGNED BY OTHERS)	=	
SIDEWALK TO BE CONSTRUCTED BY DEVELOPER	=	
PROPOSED ELECTRIC, GAS, TELEPHONE AND CABLE TELEVISION EASEMENT	=	E.G.T.T.V.E.

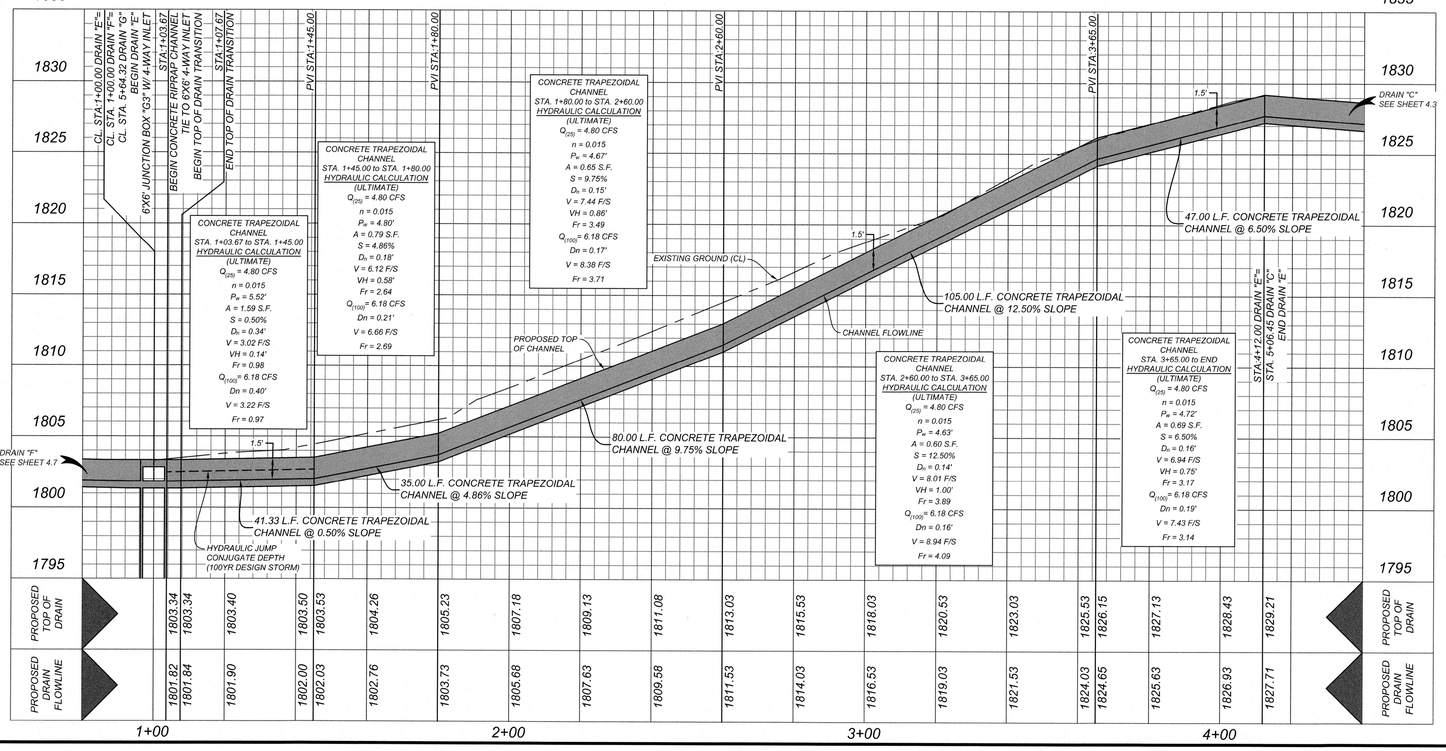


DRAIN E
STA.1+00.00 TO END

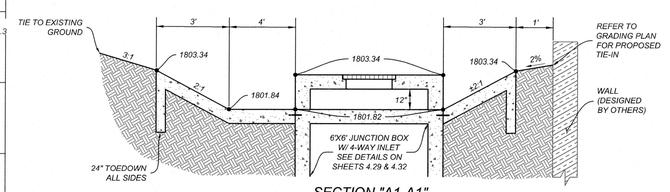
HORZ SCALE: 1" = 20'
VERT SCALE: 1" = 5'



DETAIL "A"
SCALE: 1"=5'



SECTION "A1-A1"
N.T.S.



4 WAY INLET HYDRAULIC CALC.

Q_{25} = 14.50 CFS

$L_{REQ} = Q_{PEAK} / (C*H^{3/2})$

L_{REQ} = 14.50 CFS / (2.60 * 1.00 FT $^{3/2}$)

L_{REQ} = 5.58 FT.

CAUTION!!:
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NOTE:
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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 KERRVILLE WILL ACCEPT.*
3. *ALL DRAINAGE EASEMENTS WILL BE OWNED AND MAINTAINED BY THE DEVELOPER.*
4. *ALL EARTHEN CHANNELS MUST NOT EXCEED 3:1 SIDE SLOPES (MAX).*
5. *TOP OF WALL (TW) AND BOTTOM OF WALL (BW) ELEVATIONS ARE FINISHED GRADE.*

TRENCH EXCAVATION SAFETY PROTECTION

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

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Formerly Known as KFW Engineers

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PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE
FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER
11/03/2025

WINDRIDGE SUBDIVISION - UNIT 2
FOR
LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

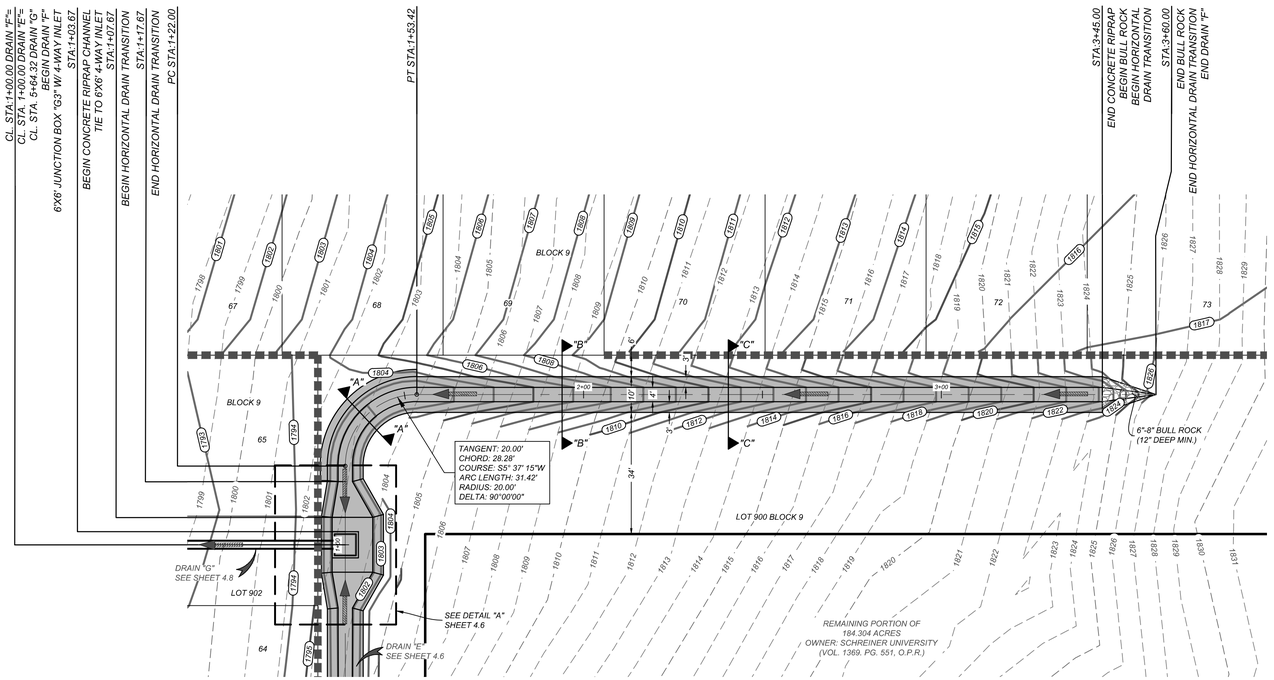
PROJECT NUMBER: 314-47-05
DRAWING NAME: 4.6 DRAIN E STA. 1+00.00 TO END

SHEET TITLE: DRAIN E STA. 1+00.00 - END

SHEET NUMBER: 4.6

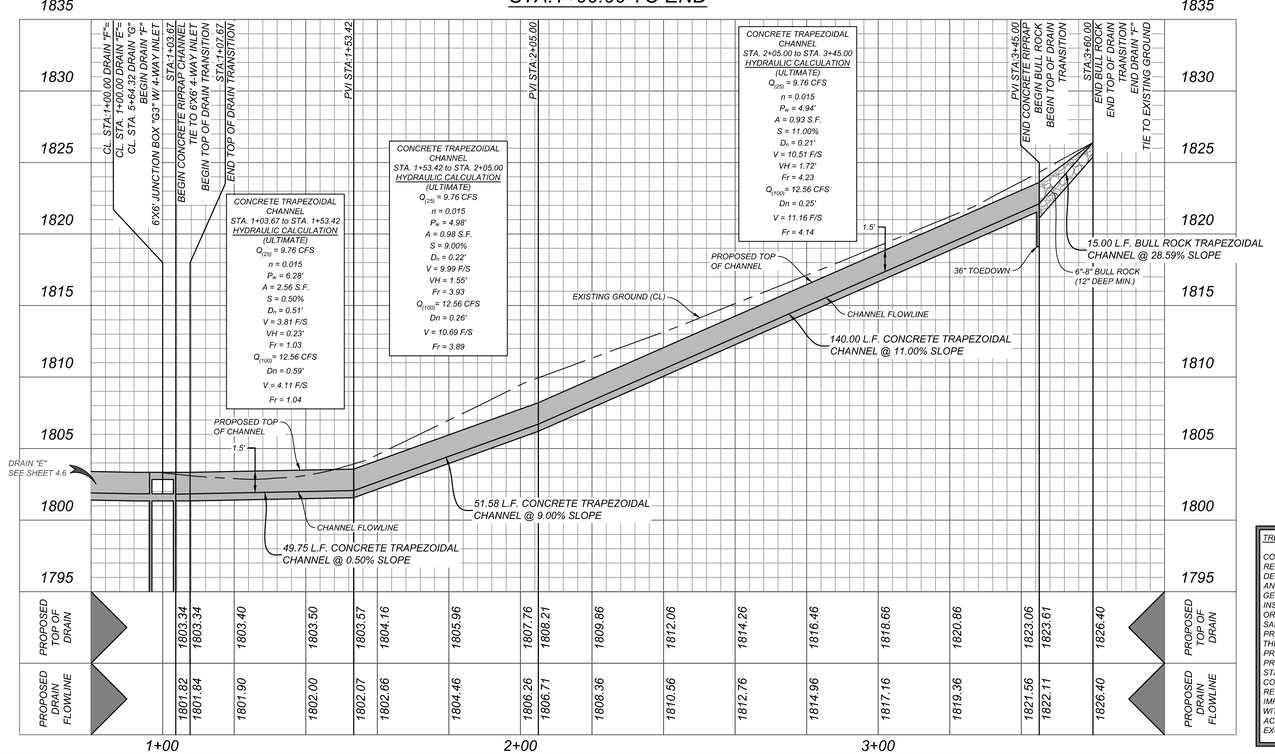
Date: Oct. 29, 2025, 11:00am User ID: logan.haney
File: U:\Projects\314\47\05\Design\Civil\Grading\4.6 DRAIN E STA. 1+00.00 TO END.dwg
Design/Civil/Drainage/4.6 DRAIN E STA. 1+00.00 TO END.dwg DRAIN E STA. 1+00.00 - END By: LOGAN HANEY

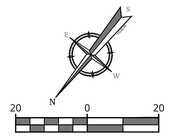
NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.



DRAIN F
STA.1+00.00 TO END

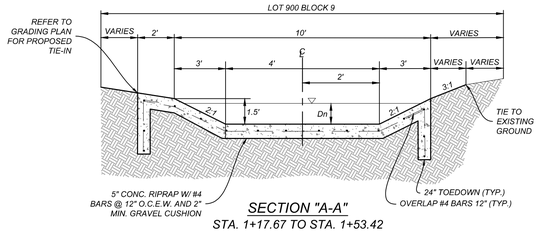
HORZ SCALE: 1" = 20'
VERT SCALE: 1" = 5'



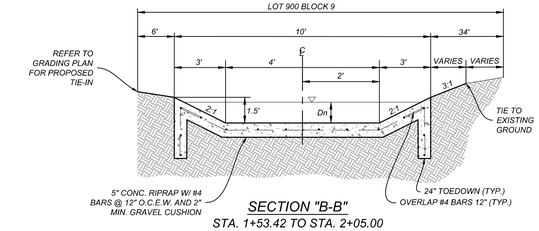


LEGEND

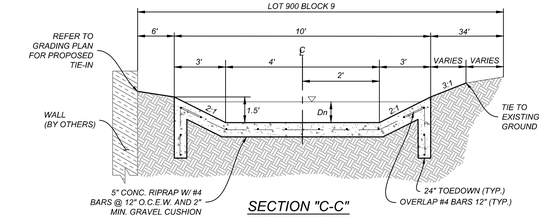
EXISTING CONTOURS	=	600
PROPOSED CONTOURS	=	600
PROPOSED CONTOURS (WINDRIDGE UNIT 1)	=	600
BULL ROCK	=	
FLOW ARROW	=	
CONCRETE RIP-RAP	=	
VERTICAL WALL (BY OTHERS)	=	
SIDEWALK TO BE CONSTRUCTED BY DEVELOPER	=	
PROPOSED ELECTRIC, GAS, TELEPHONE AND CABLE TELEVISION EASEMENT	=	E.G.T.T.V.E.



SECTION "A-A"
STA. 1+17.67 TO STA. 1+53.42
N.T.S.



SECTION "B-B"
STA. 1+53.42 TO STA. 2+05.00
N.T.S.



SECTION "C-C"
STA. 2+05.00 TO STA. 3+45.00
N.T.S.

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CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____
DATE

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_____

_____

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

REV	DATE	DRAWN BY	DESCRIPTION

06/17/2025
STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER

WINDRIDGE SUBDIVISION - UNIT 2
FOR
LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: 4.7 DRAIN F STA. 1+00.00 TO END

SHEET TITLE: DRAIN F STA. 1+00.00 - END

SHEET NUMBER: 4.7

Date: Jun 12, 2025, 10:51am User ID: logan.haney
File: U:\Projects\314-47-05\Civil\Drawings\Sheets\4.7 DRAIN F STA. 1+00.00 TO END.dwg
Xref: XP-Plan-20133A (XA-20133A).dwg, XP-Plan-20133A-Overall.dwg

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

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LEGEND

- EXISTING CONTOURS = – – – 600 – – –
- PROPOSED CONTOURS = 600
- PROPOSED CONTOURS (WINDRIDGE UNIT 1) = – – – 600 – – –
- BULL ROCK =
- FLOW ARROW =
- CONCRETE RIP-RAP =
- VERTICAL WALL (DESIGNED BY OTHERS) =
- SIDEWALK TO BE CONSTRUCTED BY DEVELOPER =
- PROPOSED ELECTRIC, GAS, TELEPHONE AND CABLE TELEVISION EASEMENT = E.G.T.T.V.E.

N

20 0 20

SCALE : 1" = 20'

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

STA. 1+28.98
CURB OPENING
HYDRAULIC CALCULATION

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

$L = \frac{21.71}{(3.087)\ (0.75)^{3/2}}$

L = 10.83 L.F.
USE 20 L.F. CURB OPENING
THROAT HEIGHT: 6.25"

STA. 1+60.66
CURB OPENING
HYDRAULIC CALCULATION

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

$L = \frac{21.71}{(3.087)\ (0.75)^{3/2}}$

L = 10.83 L.F.
USE 15 L.F. CURB OPENING
THROAT HEIGHT: 6.25"

STA. 3+99.38
CURB OPENING
HYDRAULIC CALCULATION

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

$L = \frac{9.43}{(3.087)\ (0.75)^{3/2}}$

L = 4.70 L.F.
USE 10 L.F. CURB OPENING
THROAT HEIGHT: 6.25"

STA. 4+30.72
CURB OPENING
HYDRAULIC CALCULATION

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

$L = \frac{7.43}{(3.087)\ (0.75)^{3/2}}$

L = 4.70 L.F.
USE 15 L.F. CURB OPENING
THROAT HEIGHT: 6.25"

STA:0+91.41 BEGIN 5'X3' S.B.C. AT FACE OF HEADWALL
STA:1+25.91 END 5'X3' S.B.C. AT INSIDE FACE OF 20' TYPE "C" INLET
STA:1+28.98 BEGIN 5'X3' S.B.C. AT INSIDE FACE OF 20' TYPE "C" INLET
STA:1+60.66 END 5'X3' S.B.C. AT INSIDE FACE OF 15' TYPE "C" INLET
STA:1+63.22 BEGIN 4'X3' S.B.C. AT INSIDE FACE OF 15' TYPE "C" INLET
STA:2+90.73 END 4'X3' S.B.C. AT INSIDE FACE OF 6'X6' JUNCTION BOX "G1"
STA:2+93.73 CENTERLINE 6'X6' JUNCTION BOX "G1"
STA:2+96.73 BEGIN 4'X3' S.B.C. AT INSIDE FACE OF 6'X6' JUNCTION BOX "G1"
STA:3+96.88 END 4'X3' S.B.C. AT INSIDE FACE OF 10' TYPE "C" INLET
STA:3+99.38 BEGIN 4'X3' S.B.C. AT INSIDE FACE OF 10' TYPE "C" INLET
STA:4+19.55 END 4'X3' S.B.C. AT INSIDE FACE OF 6'X6' JUNCTION BOX "G2"
CL. STA:4+22.55 DRAIN "G"= CL. STA. 1+00.00 DRAIN "E"= CENTERLINE 6'X6' JUNCTION BOX "G2"
STA:4+25.55 BEGIN 3'X2' S.B.C. AT INSIDE FACE OF 6'X6' JUNCTION BOX "G2"
STA:4+30.72 END 3'X2' S.B.C. AT INSIDE FACE OF 15' TYPE "C" INLET
STA:4+39.82 BEGIN 24" R.C.P. AT INSIDE FACE OF 15' TYPE "C" INLET
STA:5+61.32 END 24" R.C.P. AT INSIDE FACE OF 6'x6' JUNCTION BOX "G3"
CL. STA:5+64.32 DRAIN "G"= CL. STA. 1+00.00 DRAIN "E"= CENTERLINE 6'X6' JUNCTION BOX "G3" W/ 4-WAY INLET

20' SANITARY SEWER EASEMENT
LOT 900
DETENTION POND "A"
6"-8" BULL ROCK (12" DEEP MIN.)
10' E.G.T.T.V.E.
DRAIN / WATER CROSSING!!! SEE PROFILE VIEW
DRAIN / SEWER CROSSING!!! REFERENCE SHEET 6.8
FACE OF CURB
5' SIDEWALK
RIGHT OF WAY
BLOCK 10
BLOCK 11
LOT 900
DRAIN / SEWER CROSSING!!! REFERENCE SHEET 6.10
DRAIN / WATER CROSSING!!! REFERENCE SHEET 7.2 FOR DETAIL
8.75' (INLET/ OUTLET OFFSET)
SEE DETAIL "A" ON SHEET 4.6
LOT 902
BLOCK 9
DRAIN "F" SEE SHEET 4.7
DRAIN "E" SEE SHEET 4.6
DRAIN "D" SEE SHEET 4.4
RIGHT OF WAY
FACE OF CURB
5' SIDEWALK
152°37'47"
171°47'28"
90°00"
180°00"

1 ~ 5'X3' S.B.C.
STA. 0+91.41 TO STA. 1+25.91
HYDRAULIC CALCULATION
(ULTIMATE)
n = 0.013
S = 3.00%
$Q_{(100)}$ = 105.71 CFS
$A_{(B)}$ = 15.00 S.F.
$A_{(W)}$ = 15.00 S.F.
$D_{(D)}$ = 3.00'
$D_{(W)}$ = 3.00'
$V_{(D)}$ = 7.05 FPS
$V_{(W)}$ = 7.05 FPS
$VH_{(D)}$ = 0.77'
$VH_{(W)}$ = 0.77'

1 ~ 5'X3' S.B.C.
STA. 1+28.98 TO STA. 1+60.66
HYDRAULIC CALCULATION
(ULTIMATE)
n = 0.013
S = 1.75%
$Q_{(100)}$ = 83.88 CFS
$A_{(B)}$ = 6.30 S.F.
$A_{(W)}$ = 10.30 S.F.
$D_{(D)}$ = 1.26'
$D_{(W)}$ = 2.06'
$V_{(B)}$ = 13.31 FPS
$V_{(W)}$ = 8.15 FPS
$VH_{(D)}$ = 1.03'
$VH_{(W)}$ = 1.03'

1 ~ 4'X3' S.B.C.
STA. 3+99.38 TO STA. 4+19.55
HYDRAULIC CALCULATION
(ULTIMATE)
n = 0.013
S = 1.00%
$Q_{(100)}$ = 54.19 CFS
$A_{(B)}$ = 10.23 S.F.
$A_{(W)}$ = 7.14 S.F.
$D_{(D)}$ = 2.56'
$D_{(W)}$ = 1.79'
$V_{(D)}$ = 5.30 FPS
$V_{(W)}$ = 7.59 FPS
$VH_{(D)}$ = 0.89'
$VH_{(W)}$ = 0.89'

1 ~ 3'X2' S.B.C.
STA. 4+25.55 TO STA. 4+30.72
HYDRAULIC CALCULATION
(ULTIMATE)
n = 0.013
S = 1.00%
$Q_{(100)}$ = 27.81 CFS
$A_{(B)}$ = 4.86 S.F.
$A_{(W)}$ = 4.16 S.F.
$D_{(D)}$ = 1.62'
$D_{(W)}$ = 1.39'
$V_{(D)}$ = 5.72 FPS
$V_{(W)}$ = 6.68 FPS
$VH_{(D)}$ = 0.69'
$VH_{(W)}$ = 0.69'

DRAIN G
STA.1+00.00 TO END

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

1 ~ 4'X3' S.B.C.
STA. 1+63.22 TO STA. 2+90.73
HYDRAULIC CALCULATION
(ULTIMATE)
n = 0.013
S = 1.75
$Q_{(100)}$ = 62.88 CFS
$A_{(B)}$ = 12.00 S.F.
$A_{(W)}$ = 7.89S.F.
$D_{(D)}$ = 3.00'
$D_{(W)}$ = 1.97'
$V_{(D)}$ = 5.24 FPS
$V_{(W)}$ = 7.97 FPS
$VH_{(D)}$ = 0.43'
$VH_{(W)}$ = 0.99'

1 ~ 4'X3' S.B.C.
STA. 2+96.73 TO STA. 3+96.88
HYDRAULIC CALCULATION
(ULTIMATE)
n = 0.013
S = 1.00%
$Q_{(100)}$ = 62.88 CFS
$A_{(B)}$ = 10.23 S.F.
$A_{(W)}$ = 7.14 S.F.
$D_{(D)}$ = 1.52'
$D_{(W)}$ = 1.97'
$V_{(D)}$ = 5.30 FPS
$V_{(W)}$ = 7.59 FPS
$VH_{(D)}$ = 0.89'
$VH_{(W)}$ = 0.89'

1 ~ 24" R.C.P.
STA. 4+39.82 TO STA. 5+61.32
HYDRAULIC CALCULATION
(ULTIMATE)
n = 0.013
S = 2.50%
$Q_{(100)}$ = 18.67 CFS
$A_{(B)}$ = 2.62 S.F.
$A_{(W)}$ = 2.62 S.F.
$D_{(D)}$ = 2.00'
$D_{(W)}$ = 1.59'
$V_{(D)}$ = 5.94 FPS
$V_{(W)}$ = 7.13 FPS
$VH_{(D)}$ = 0.55'
$VH_{(W)}$ = 0.79'

PROPOSED GROUND
EXISTING GROUND (CL)
FILL TO BE COMPACTED AT 95% PROCTOR DENSITY
WALL (DESIGNED BY OTHERS)
PROPOSED 8" WATER LINE
T.O.C.:1776.63
GUT. INVERT @ INLET: 1775.88
PROPOSED PAVEMENT
EGL 100 YEAR
HGL 100 YEAR
DETENTION POND "A"
7.6'
WALL (DESIGNED BY OTHERS)
127.50 L.F. 4'X3' S.B.C. @ 1.75% SLOPE
PROPOSED FLOWLINE
6" CONCRETE COLLAR (TYP.)
2.4'
31.68 L.F. 5'X3' S.B.C. @ 1.75% SLOPE
PROPOSED 8" SANITARY SEWER
GROUT TO DRAIN (TYP.)
34.50 L.F. 5'X3' S.B.C. @ 3.00% SLOPE
100.16 L.F. 4'X3' S.B.C. @ 1.00% SLOPE
MATCHLINE SAME POINT
T.O.C.:1791.15
GUT. INVERT @ INLET: 1790.40
GROUT TO DRAIN (TYP.)
100.16 L.F. 4'X3' S.B.C. @ 1.00% SLOPE
20.17 L.F. 4'X3' S.B.C. @ 1.00% SLOPE
PROPOSED 8" SANITARY SEWER
DRAIN "D" SEE SHEET 4.4
6" CONCRETE COLLAR (TYP.)
121.50 L.F. 24" R.C.P. @ 2.50% SLOPE
PROPOSED 8" WATER LINE W/ 16" STEEL CASING
5.17 L.F. 3'X2' S.B.C. @ 1.00% SLOPE

PROPOSED DRAIN FLOWLINE
1761.00 1761.26 1761.86 1762.04 1768.12 1768.31 1768.67 1768.77 1769.06 1769.41 1769.76 1770.11 1770.46 1770.81 1771.00 1780.70 1780.73 1780.93 1781.13 1781.33 1781.53 1781.70 1782.70 1782.70 1782.90 1783.02 1784.50 1784.55 1785.00 1785.00 1785.50 1786.00 1786.50 1787.00 1787.50 1788.04
1+00 2+00 3+00 4+00 5+00
1795 1790 1785 1780 1775 1770 1765 1760 1755
1795 1805 1800 1795 1790 1785 1780 1775 1770

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____ DATE

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

REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER
11/03/2025
P.E.

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave. Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: 4.8 DRAIN G STA. 1+00.00 TO END

SHEET TITLE: DRAIN G STA. 1+00.00 - END

SHEET NUMBER: 4.8

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Oct 29, 2025, 2:20pm User ID: logan.haney
File: I:\Projects\314\47\05\Design\Civil\Drains\4.8 DRAIN G STA. 1+00.00 TO END.dwg
By:LOGAN.HANEY

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!!!

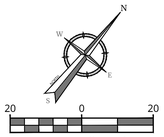
THE CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITED TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT 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.

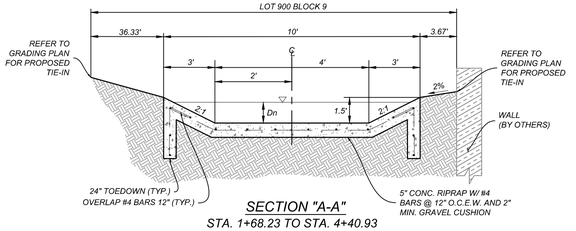
NOTE:

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 KERRVILLE WILL ACCEPT.
3. ALL DRAINAGE EASEMENTS WILL BE OWNED AND MAINTAINED BY THE DEVELOPER.
4. ALL EARTHEN CHANNELS MUST NOT EXCEED 3:1 SIDE SLOPES (MAX).

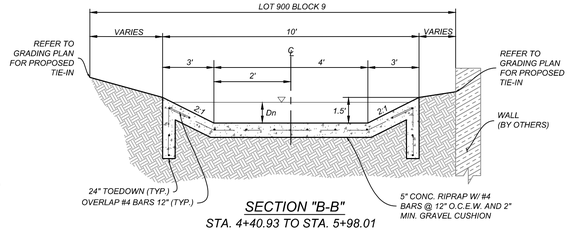
LEGEND

- EXISTING CONTOURS = 600
- PROPOSED CONTOURS = 600
- PROPOSED CONTOURS (WINDRIDGE UNIT 1) = 600
- BULL ROCK =
- FLOW ARROW =
- CONCRETE RIP-RAP =
- VERTICAL WALL (BY OTHERS) =
- SIDEWALK TO BE CONSTRUCTED BY DEVELOPER =
- PROPOSED ELECTRIC, GAS, TELEPHONE AND CABLE TELEVISION EASEMENT = E.G.T.T.V.E.





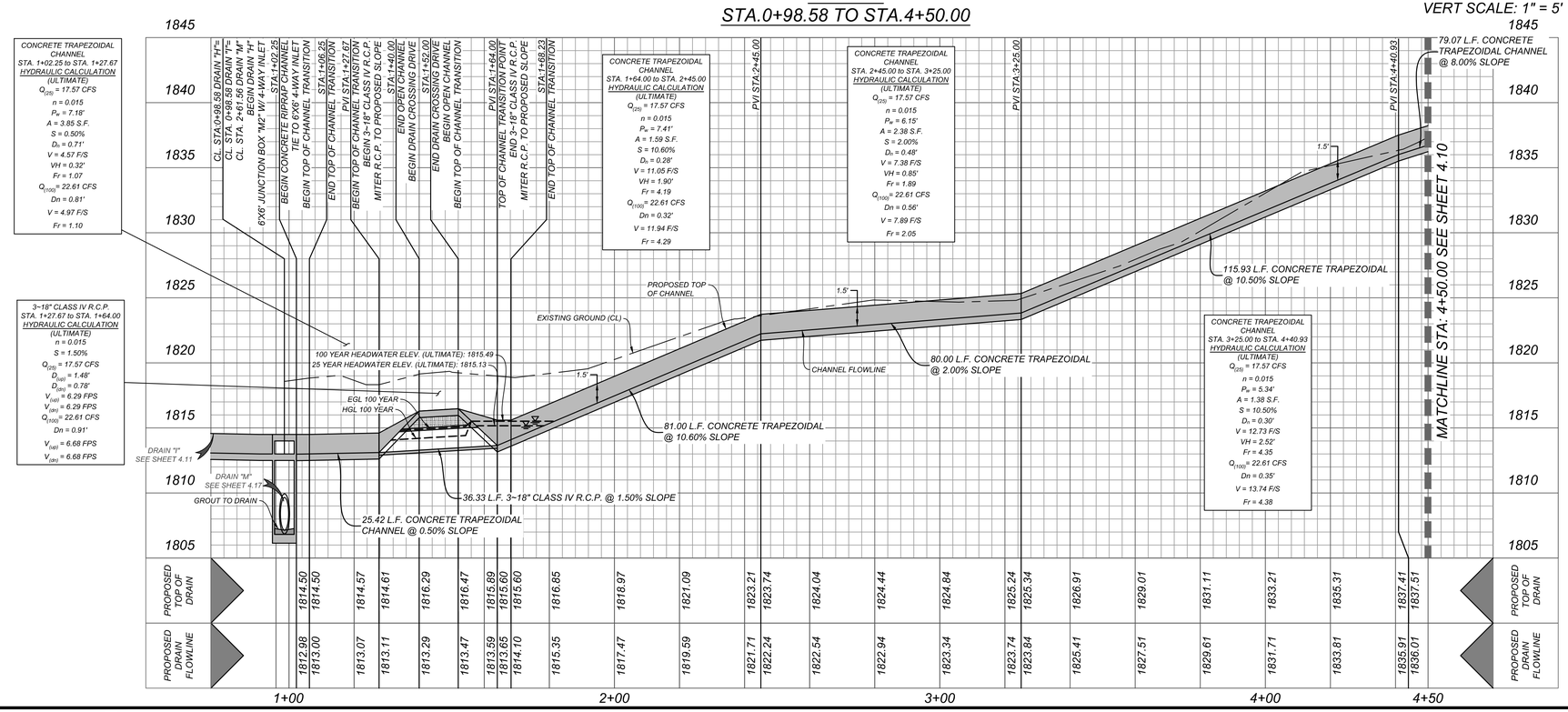
SECTION "A-A"
STA. 1+68.23 TO STA. 4+40.93
N.T.S.



SECTION "B-B"
STA. 4+40.93 TO STA. 5+98.01
N.T.S.

DRAIN H
STA.0+98.58 TO STA.4+50.00

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



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REV	DATE	DRAWN BY	DESCRIPTION

06/17/2025
STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#:F-14909
TBPLS Firm#: 10194350

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____ DATE

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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05

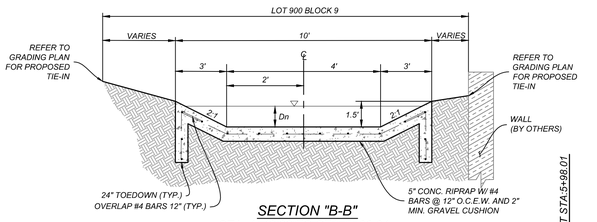
DRAWING NAME: 4.9 DRAIN H STA. 1+00.00 TO END

SHEET TITLE: DRAIN H STA. 0+98.58 - 4+50.00

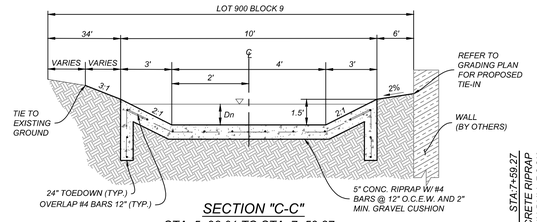
SHEET NUMBER: 4.9

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

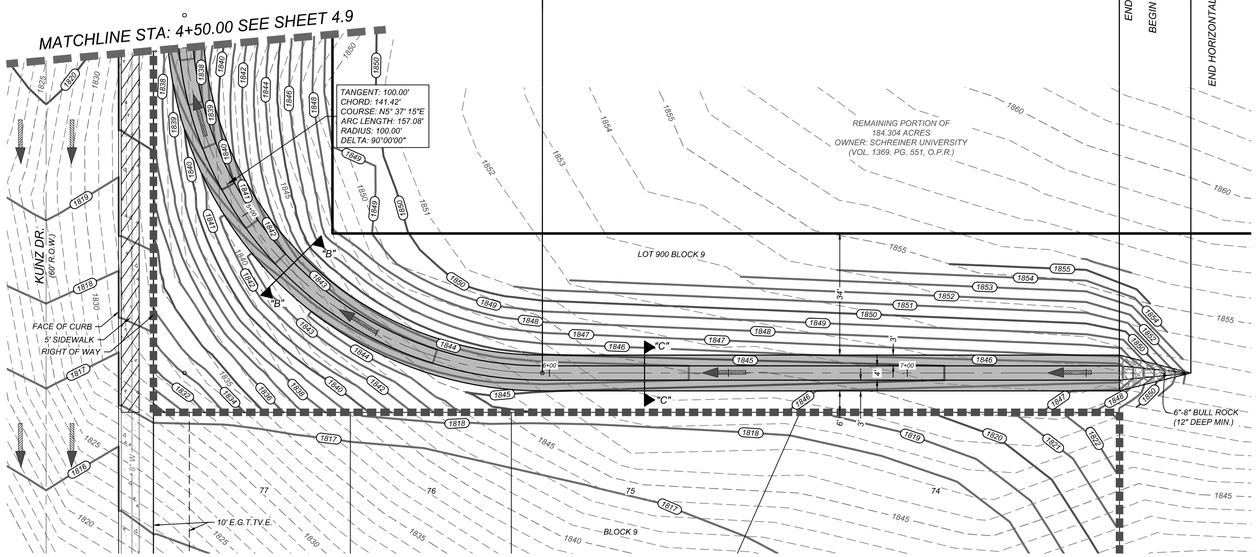
Date: Jun 13, 2025, 10:45am User ID: logan.haney
File: L:\Projects\314-47-05\Design\CIVIL\Drainage\4.9 DRAIN H STA. 1+00.00 TO END.dwg
By:LOGAN HANEY

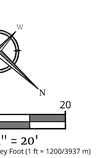


SECTION "B-B"
STA. 4+40.93 TO STA. 5+98.01
N.T.S.



SECTION "C-C"
STA. 5+98.01 TO STA. 7+59.27
N.T.S.

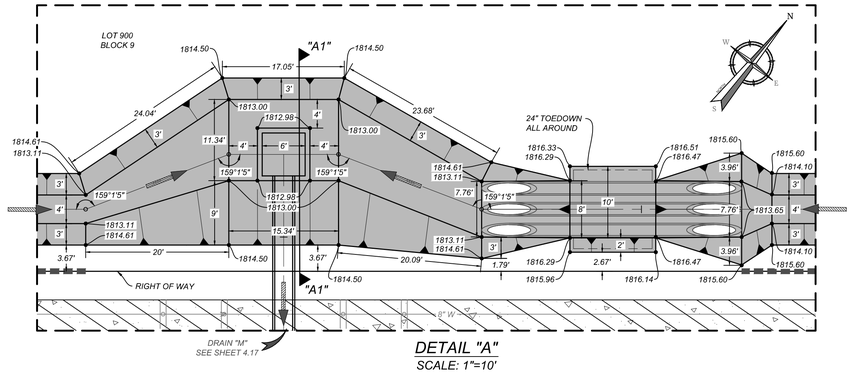




SCALE : 1" = 20'
Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

LEGEND

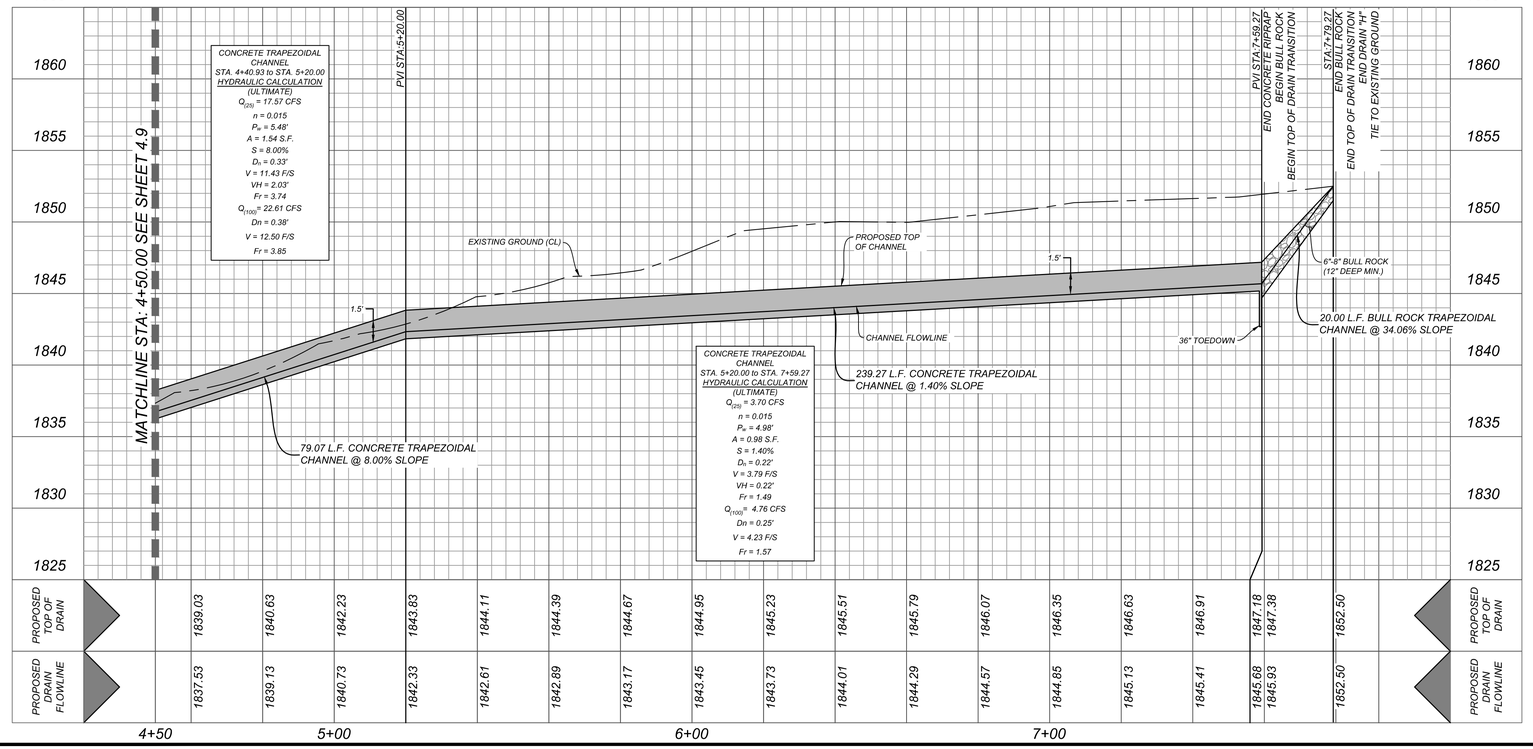
EXISTING CONTOURS	=	600
PROPOSED CONTOURS	=	600
PROPOSED CONTOURS (WINDRIDGE UNIT 1)	=	600
BULL ROCK	=	
FLOW ARROW	=	
CONCRETE RIP-RAP	=	
VERTICAL WALL (BY OTHERS)	=	
SIDEWALK TO BE CONSTRUCTED BY DEVELOPER	=	
PROPOSED ELECTRIC, GAS, TELEPHONE AND CABLE TELEVISION EASEMENT	=	E.G.T.T.V.E.



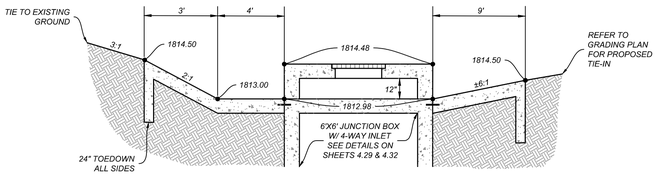
DETAIL "A"
SCALE: 1"=10'

DRAIN H
STA.4+50.00 TO END

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



	4+50		5+00			6+00				7+00			
PROPOSED TOP OF DRAIN	1839.03	1840.63	1842.23	1843.83	1844.11	1844.39	1844.67	1844.95	1845.23	1845.51	1845.79	1846.07	1846.35	1846.63	1846.91	1847.18	1847.38	1852.50
PROPOSED DRAIN FLOWLINE	1837.53	1839.13	1840.73	1842.33	1842.61	1842.89	1843.17	1843.45	1843.73	1844.01	1844.29	1844.57	1844.85	1845.13	1845.41	1845.68	1845.93	1852.50



SECTION "A1-A1"
N.T.S.

4 WAY INLET HYDRAULIC CALC.
Q_{25} = 24.25 CFS
$L_{REQ} = Q_{PEAK} / (C*H^{3/2})$
L_{REQ} = 24.25 CFS / (2.60 * 1.00 $FT^{3/2}$)
L_{REQ} = 9.33 FT.

CAUTION!!:
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TRENCH EXCAVATION SAFETY PROTECTION

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3. *ALL DRAINAGE EASEMENTS WILL BE OWNED AND MAINTAINED BY THE DEVELOPER.*
4. *ALL EARTHEN CHANNELS MUST NOT EXCEED 3:1 SIDE SLOPES (MAX).*

CITY APPROVAL

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_____ ON _____ DATE

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REV	DATE	DRAWN BY	DESCRIPTION

06/19/2025
STATE OF TEXAS
DENIS A AVENDANO
137588
LICENSED
PROFESSIONAL ENGINEER

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: 4.9 DRAIN H STA. 1+00.00 TO END

SHEET TITLE: DRAIN H STA. 4+50.00 - END

SHEET NUMBER: 4.10

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Jun 09, 2025, 1:20pm User ID: hagan.haney
File: L:\Projects\314\47\05\Design\CAD\Civil3d\4.9 DRAIN H STA. 1+00.00 TO END.dwg
\\Design\CAD\Civil3d\4.9 DRAIN H STA. 1+00.00 TO END.dwg/DRAIN H STA. 4+50.00 - END
By: LOGAN.HANEY

TRENCH EXCAVATION SAFETY PROTECTION

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NOTE:

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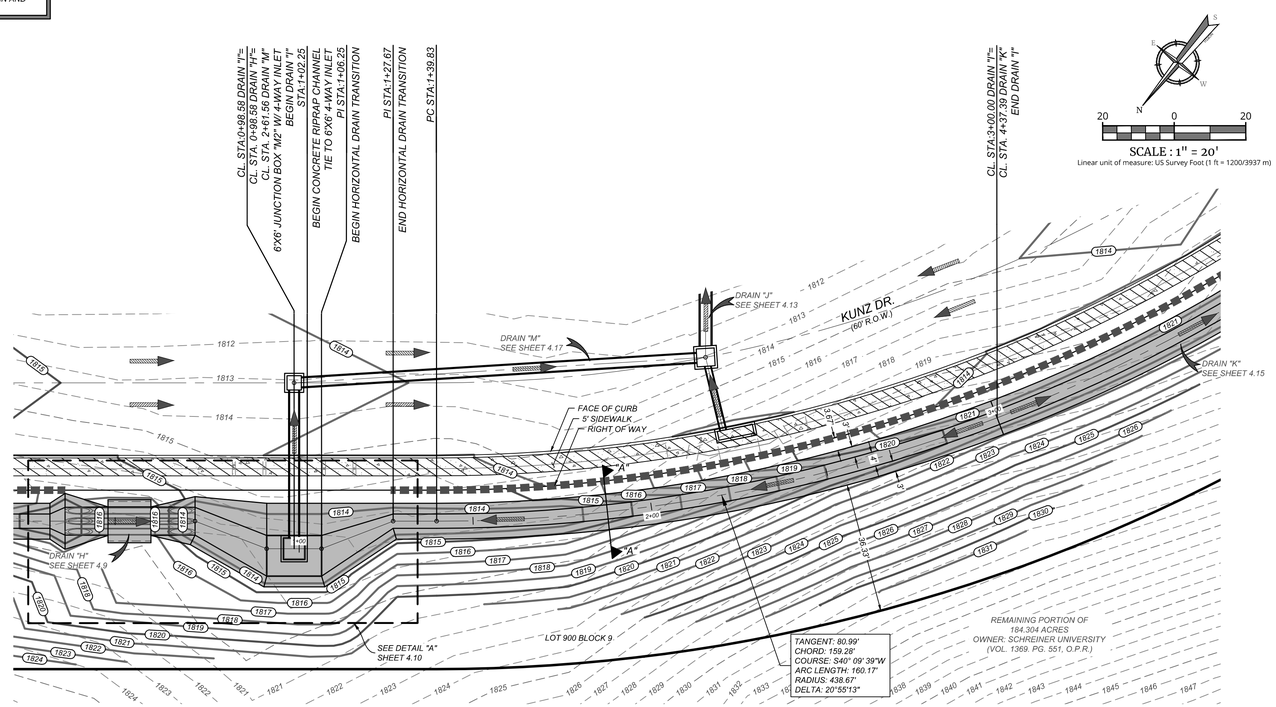
2. ANY DISTURBED AREAS WILL BE VEGETATED BY SEEDING OR SODDING. EIGHTY-FIVE PERCENT OF THE DISTURBED SURFACE AREA MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF KERRVILLE WILL ACCEPT.
3. ALL DRAINAGE EASEMENTS WILL BE OWNED AND MAINTAINED BY THE DEVELOPER.
4. ALL EARTHEN CHANNELS MUST NOT EXCEED 3:1 SIDE SLOPES (MAX).

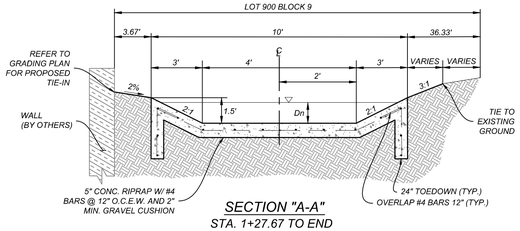
LEGEND

- EXISTING CONTOURS = 600
- PROPOSED CONTOURS = 600
- PROPOSED CONTOURS (WINDRIDGE UNIT 1) = 600
- BULL ROCK =
- FLOW ARROW =
- CONCRETE RIP-RAP =
- VERTICAL WALL (BY OTHERS) =
- SIDEWALK TO BE CONSTRUCTED BY DEVELOPER =
- PROPOSED ELECTRIC, GAS, TELEPHONE AND CABLE TELEVISION EASEMENT = E.G.T.T.V.E.



SCALE : 1" = 20'

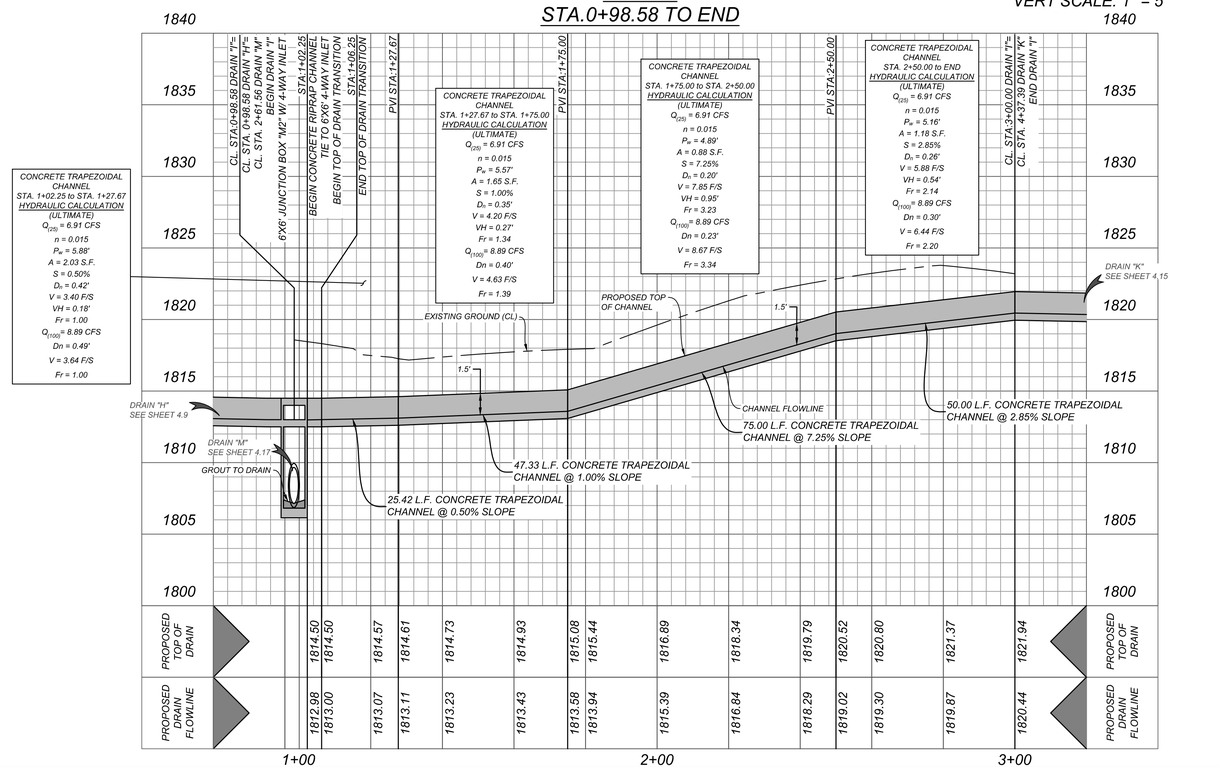
Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)



SECTION "A-A"
STA. 1+27.67 TO END
N.T.S.

DRAIN I
STA.0+98.58 TO END

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



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

REV	DATE	DRAWN BY	DESCRIPTION

06/17/2025

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#:F-14909
TBPLS Firm#: 10194550

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____
DATE

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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05

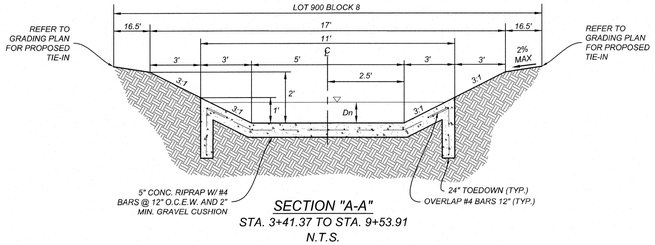
DRAWING NAME: 4.11 DRAIN I STA. 1+00.00 TO END

SHEET TITLE: DRAIN I STA. 0+98.58 - END

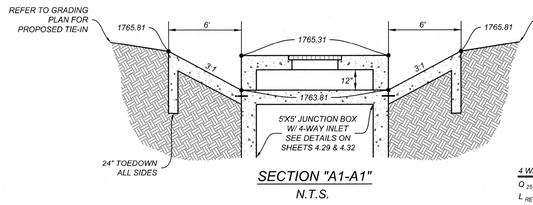
SHEET NUMBER: 4.11

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Jun 09, 2025, 1:37pm User ID: logan.haney
File: J:\Projects\314-47-05\Design\CIVIL\Drawings\11 DRAIN I STA. 1+00.00 TO END.dwg
"Design\ConfigurationLayouts\4.11 DRAIN I STA. 1+00.00 TO END.dwg"DRAIN I STA. 1+00.00 - END By: LOGAN.HANEY



SECTION "A-A"
STA. 3+41.37 TO STA. 9+53.91
N.T.S.



SECTION "A1-A1"
N.T.S.

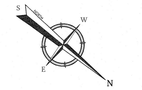
4 WAY INLET HYDRAULIC CALC.

$Q_{25} = 46.32$ CFS

$L_{REQ} = Q_{PEAK} / (C^*H^{3/2})$

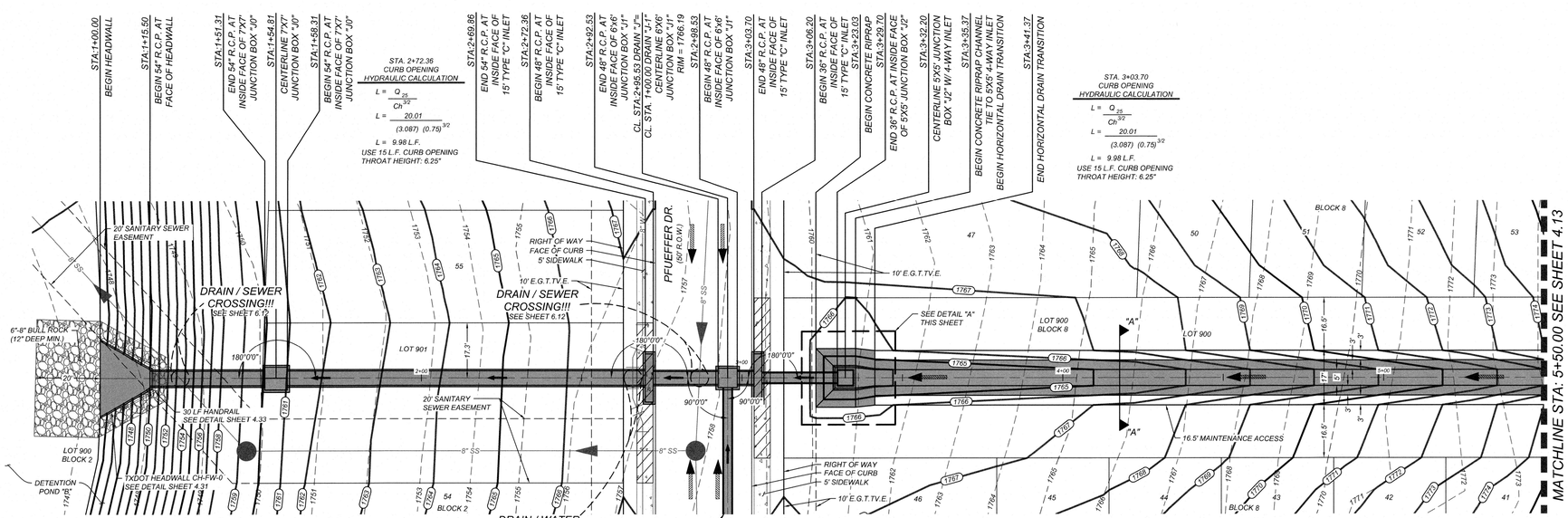
$L_{REQ} = 46.32$ CFS $/ (2.60 * 1.00$ FT$^{3/2})$

$L_{REQ} = 17.82$ FT.



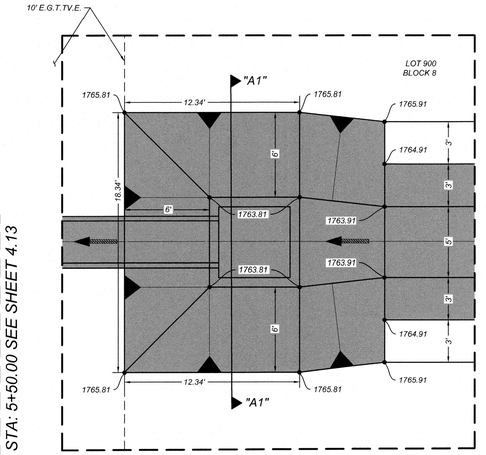
LEGEND

- EXISTING CONTOURS — 600
- PROPOSED CONTOURS — 600
- PROPOSED CONTOURS (WINDRIDGE UNIT 1) — 600
- BULL ROCK
- FLOW ARROW
- CONCRETE RIP-RAP
- VERTICAL WALL (DESIGNED BY OTHERS)
- SIDEWALK TO BE CONSTRUCTED BY DEVELOPER
- PROPOSED ELECTRIC, GAS, TELEPHONE AND CABLE TELEVISION EASEMENT — E.G.T.TV.E.

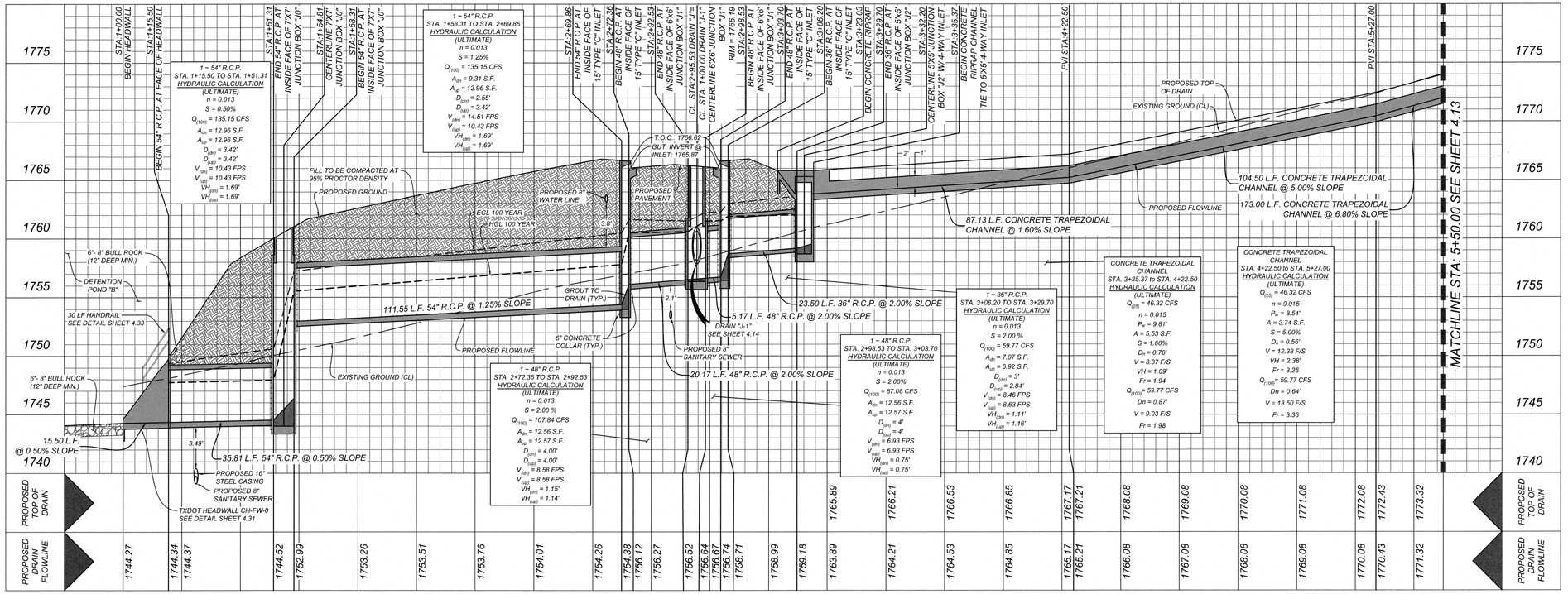


DRAIN J
STA.1+00.00 TO STA.5+50.00

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



DETAIL "A"
SCALE: 1"=5'



TRENCH EXCAVATION SAFETY PROTECTION

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5. *TOP OF WALL (TW) AND BOTTOM OF WALL (BW) ELEVATIONS ARE FINISHED GRADE.*

CITY APPROVAL

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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER
11/03/2025

WINDRIDGE SUBDIVISION - UNIT 2
FOR
LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194050

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER:	DRAWING NAME:
314-47-05	4.12 DRAIN J STA. 1+00.00 TO END

SHEET TITLE: DRAIN J STA. 1+00.00 - 5+50.00

SHEET NUMBER: 4.12

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Oct. 29, 2025, 2:15pm User ID: jferguson
File: U:\Projects\314-47-05\03 Design\Civil\Drains\4.12 DRAIN J STA. 1+00.00 TO END.dwg

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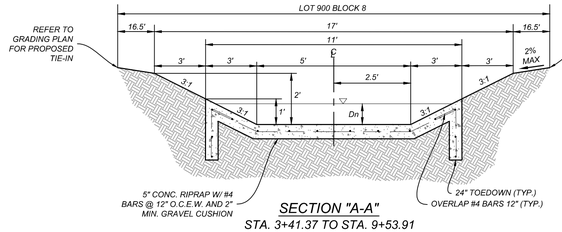
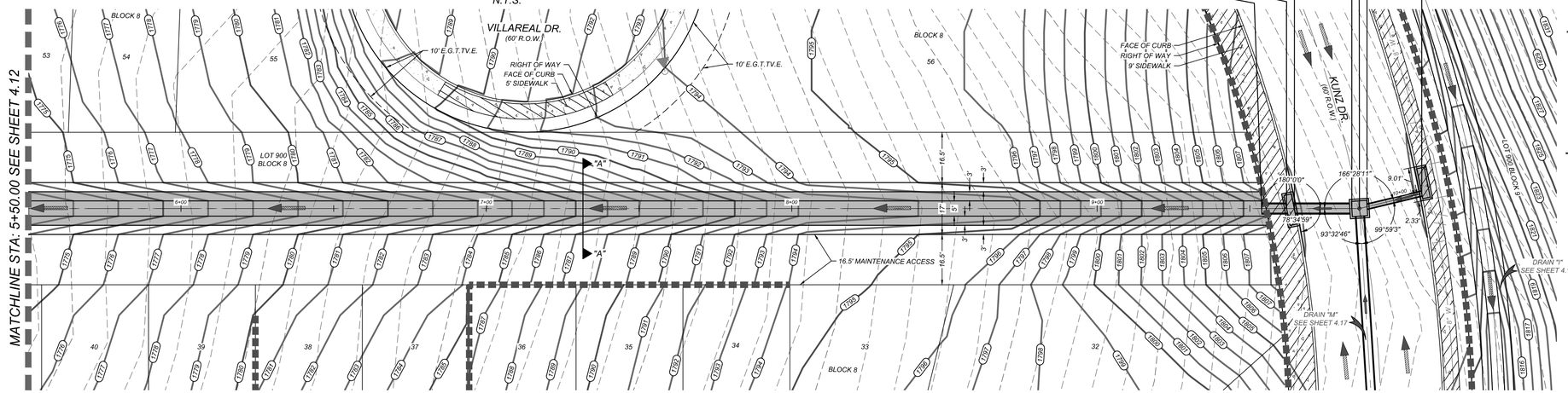


SECTION "A-A"

STA. 3+41.37 TO STA. 9+53.91

N.T.S.



STA. 9+64.58 CURB OPENING HYDRAULIC CALCULATION

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

$L = \frac{3.30}{(3.087)\ (0.75)^{3/2}}$

$L = 1.27$ L.F.

USE 10 L.F. CURB OPENING THROAT HEIGHT: 6.25"

STA. 10+06.86 CURB OPENING HYDRAULIC CALCULATION

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

$L = \frac{3.30}{(3.087)\ (0.75)^{3/2}}$

$L = 1.27$ L.F.

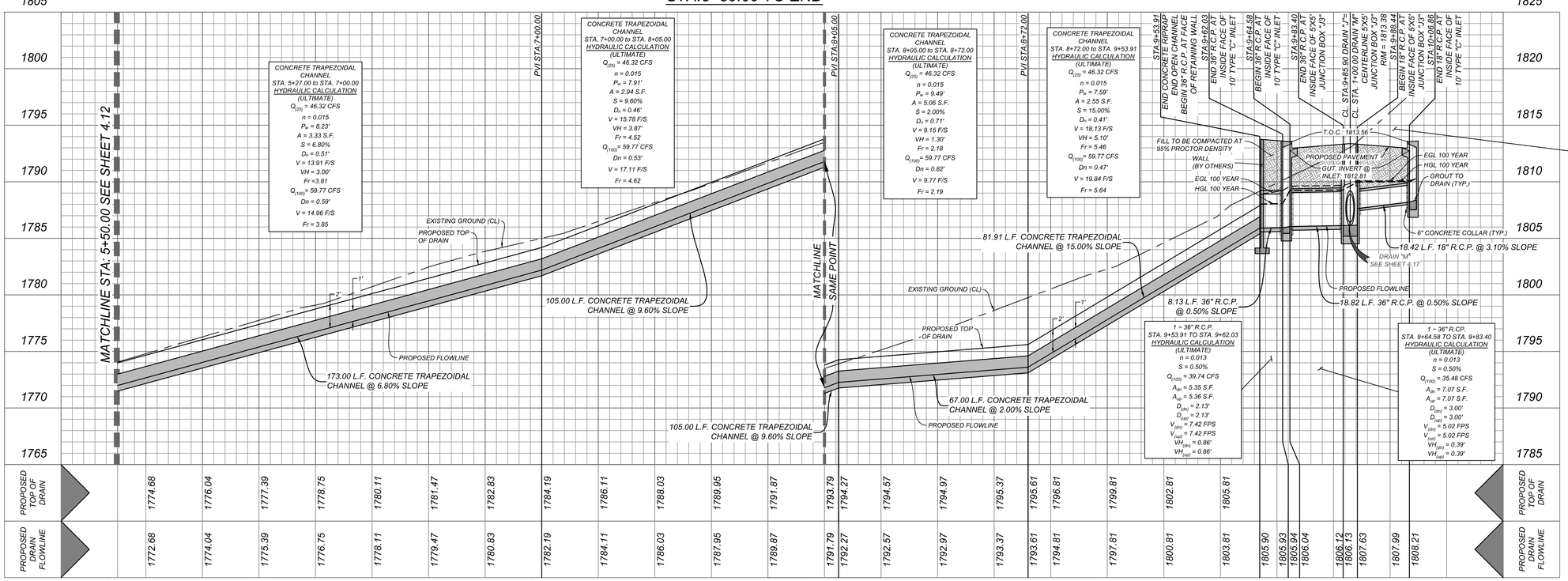
USE 10 L.F. CURB OPENING THROAT HEIGHT: 6.25"

DRAIN J

STA.5+50.00 TO END

HORZ SCALE: 1" = 20'

VERT SCALE: 1" = 5'



LEGEND

- EXISTING CONTOURS = 600
- PROPOSED CONTOURS = 600
- PROPOSED CONTOURS (WINDRIDGE UNIT 1) = 600
- BULL ROCK =
- FLOW ARROW =
- CONCRETE RIP-RAP =
- VERTICAL WALL (BY OTHERS) =
- SIDEWALK TO BE CONSTRUCTED BY DEVELOPER =
- PROPOSED ELECTRIC, GAS, TELEPHONE AND CABLE TELEVISION EASEMENT = E.G.T.TV.E.

SCALE : 1" = 20'

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

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137588
LICENSED
PROFESSIONAL ENGINEER

WINDRIDGE SUBDIVISION - UNIT 2

FOR

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

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05

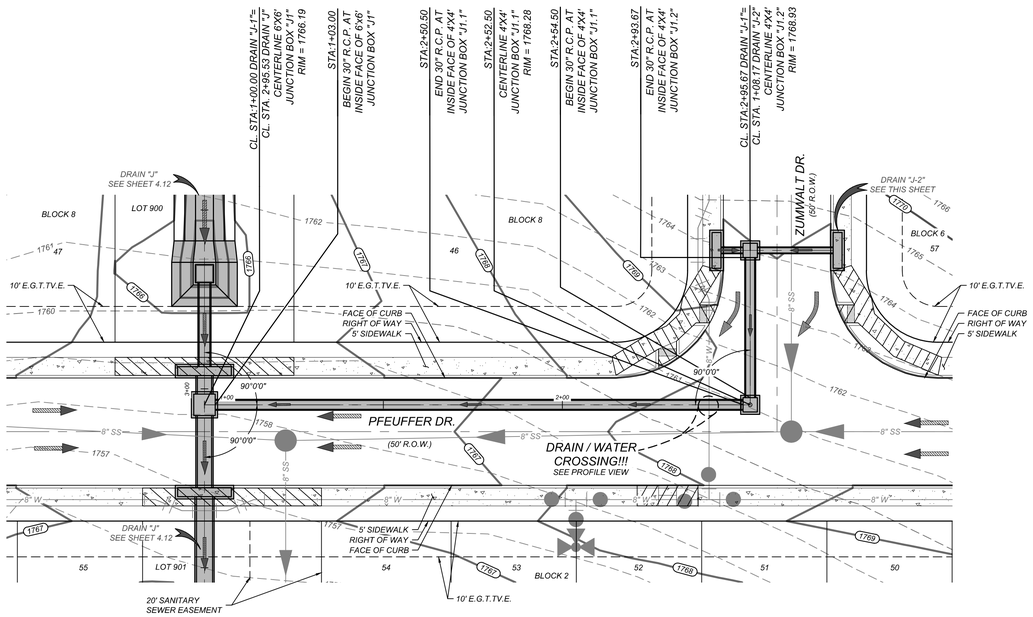
DRAWING NAME: 4.12 DRAIN J STA. 1+00.00 TO END

SHEET TITLE: DRAIN J STA. 5+50.00 - END

SHEET NUMBER: 4.13

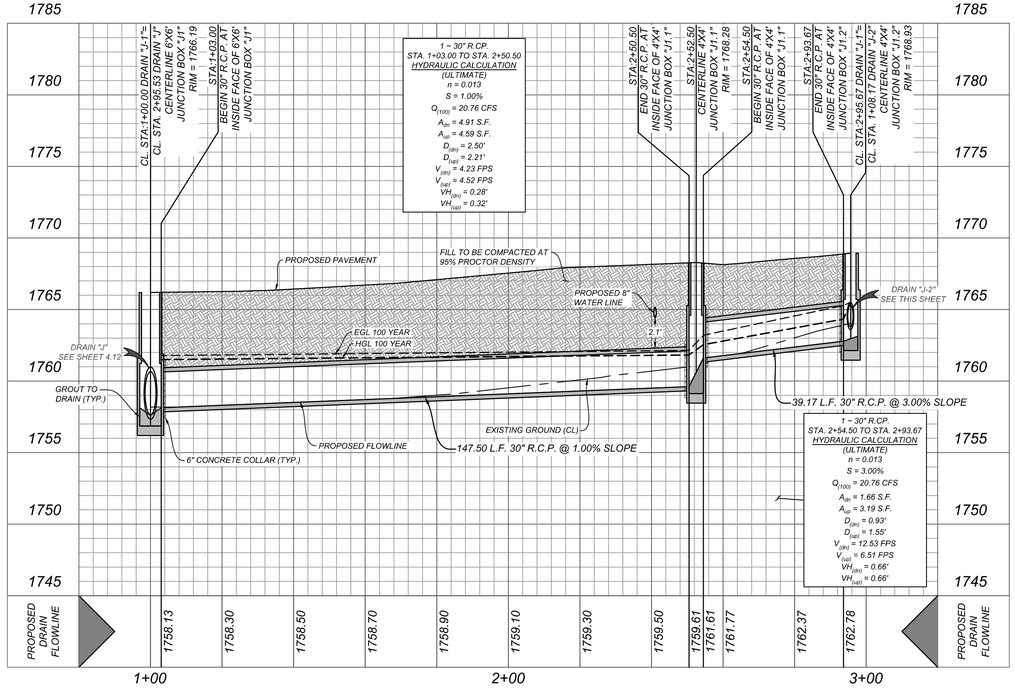
NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Jun 12, 2025, 4:44pm User ID: jogan.haney
File: U:\Projects\314\47\05\Design\Civil\Sheets\4.12 DRAIN J STA. 1+00.00 TO END.dwg
\Design\Civil\Sheet\4.12 DRAIN J STA. 1+00.00 TO END.dwg[DRAIN J STA. 5+50.00 - END By: LOGAN.HANEY



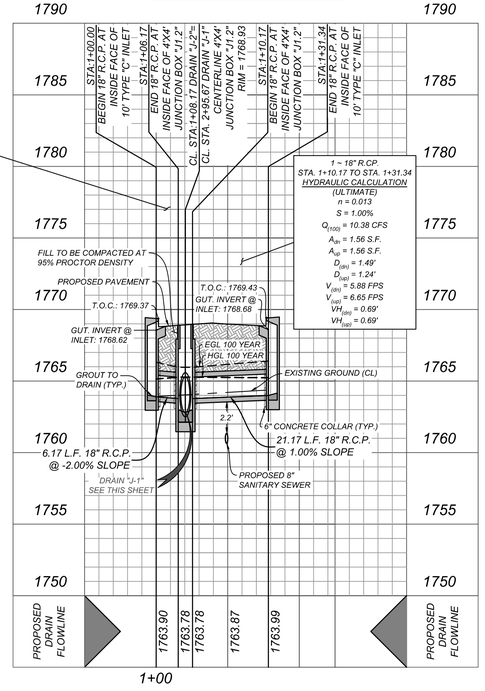
DRAIN J-1
STA.1+00.00 TO END

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



DRAIN J-2
STA.1+00.00 TO END

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



STA. 1+00.00 ~ 10' CURB-OPENING INLET ON GRADE

10' ON-GRADE CURB OPENING @ 2.00% HYDRAULIC CALCULATION

THROAT HEIGHT: 6.25"

FROM DA-13A, Q25 = 11.62 CFS

USING AUTOCAD HYDRAFLOW

Y= DEPTH OF FLOW IN GUTTER = 0.46"
A= GUTTER DEPRESSION = 0.16"
L= LENGTH OF CURB OPENING = 10'
$Q_{25\text{-}CAPTURED}$ = 8.94 CFS
$Q_{25\text{-}BYPASS}$ = 2.68 CFS

STA. 1+31.34 ~ 10' CURB-OPENING INLET ON GRADE

10' ON-GRADE CURB OPENING @ 2.00% HYDRAULIC CALCULATION

THROAT HEIGHT: 6.25"

FROM DA-13A, Q25 = 11.62 CFS

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Y= DEPTH OF FLOW IN GUTTER = 0.46"
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L= LENGTH OF CURB OPENING = 10'
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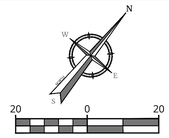

LEGEND

EXISTING CONTOURS	=	600
PROPOSED CONTOURS	=	600
PROPOSED CONTOURS (WINDRIDGE UNIT 1)	=	600
BULL ROCK	=	
FLOW ARROW	=	
CONCRETE RIP-RAP	=	
VERTICAL WALL (BY OTHERS)	=	
SIDEWALK TO BE CONSTRUCTED BY DEVELOPER	=	
PROPOSED ELECTRIC, GAS, TELEPHONE AND CABLE TELEVISION EASEMENT	=	E.G.T.TV.E.

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Know what's below. Call before you dig.
FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

REV	DATE	DRAWN BY	DESCRIPTION

06/17/2025

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED
PROFESSIONAL ENGINEER

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design

NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

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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NOTE:

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CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____
DATE

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_____

_____

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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05

DRAWING NAME: 4.12 DRAIN J STA. 1+00.00 TO END

SHEET TITLE: DRAIN J-1 & J-2 STA. 1+00.00 - END

SHEET NUMBER: 4.14

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Jun 12, 2025, 3:53pm User ID: logan.haney
File: L:\Projects\314-47-05\Design\CAD\Civil\4.12 DRAIN J STA. 1+00.00 TO END.dwg
Xrefs: L:\Projects\314-47-05\Design\CAD\Civil\4.12 DRAIN J STA. 1+00.00 TO END.dwg, L:\Projects\314-47-05\Design\CAD\Civil\4.12 DRAIN J & J-2 STA. 1+00.00 - END.dwg By: LOGAN.HANEY

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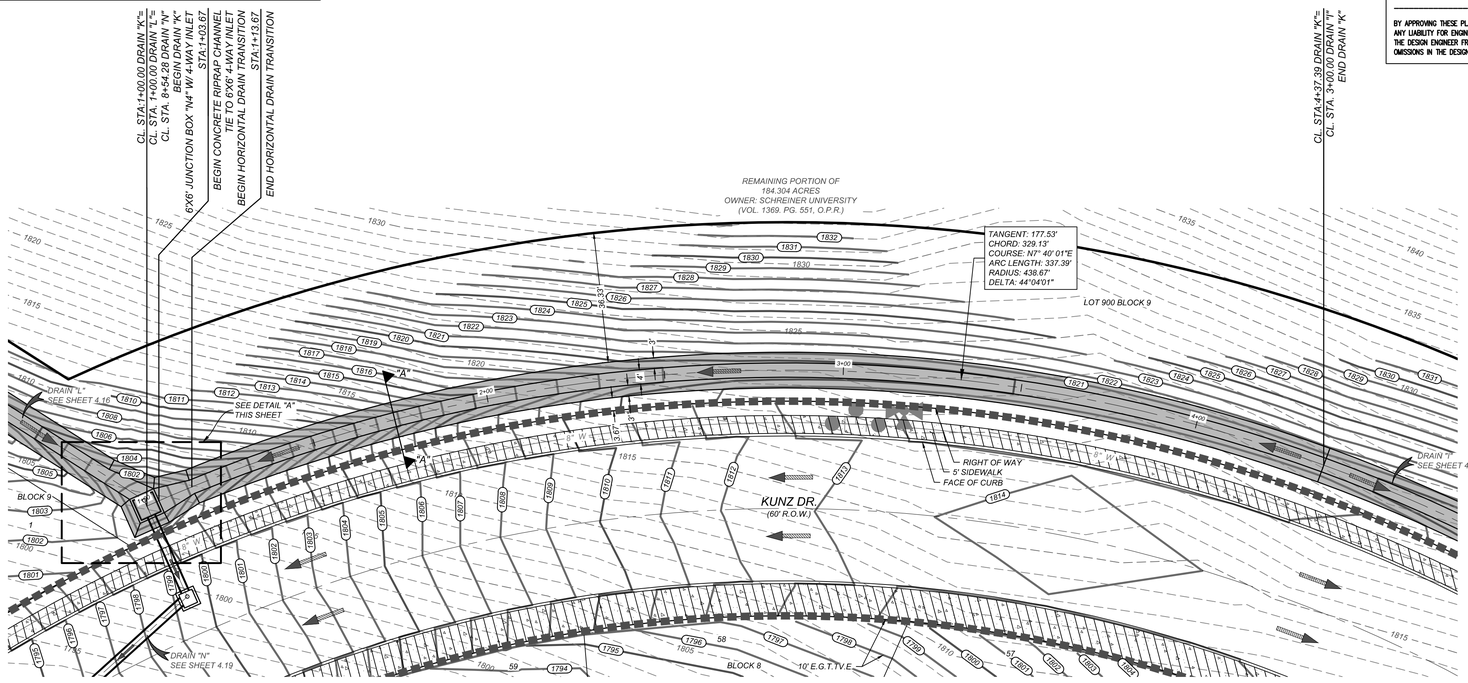
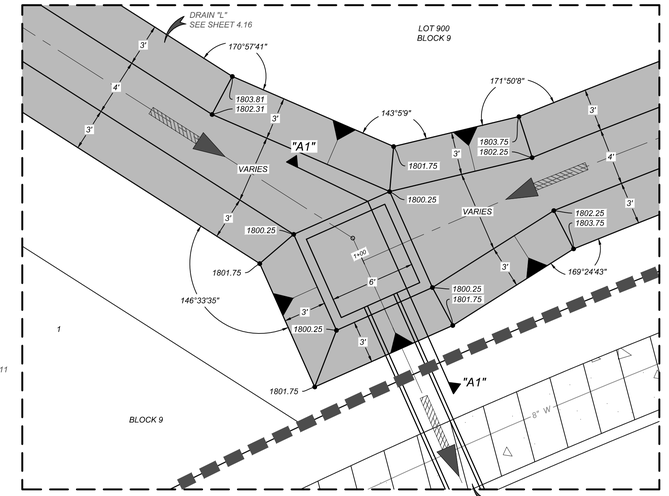
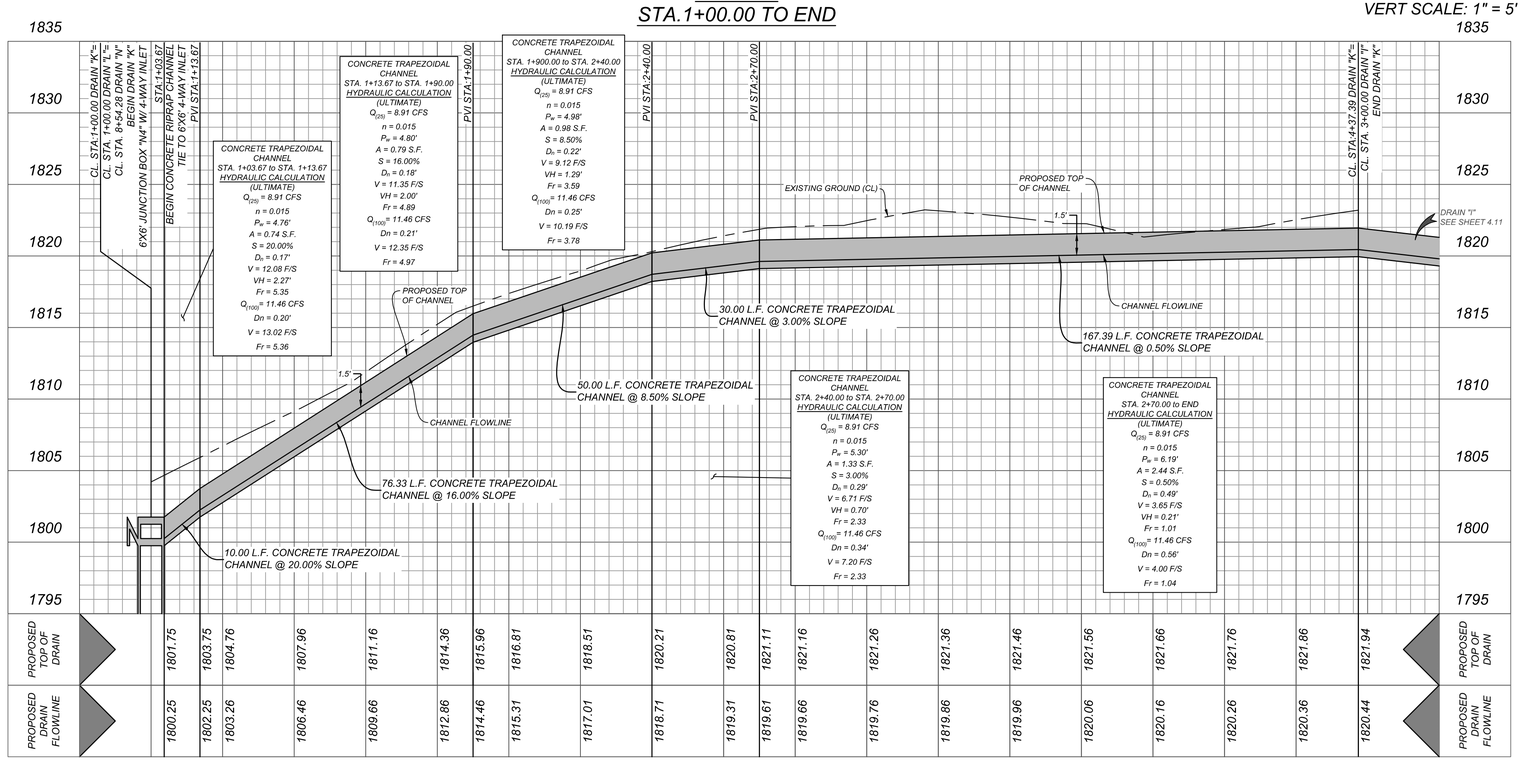




DETAIL "A"
SCALE: 1"=5'

DRAIN K
STA.1+00.00 TO END

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



| | | |

TRENCH EXCAVATION SAFETY PROTECTION

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LEGEND

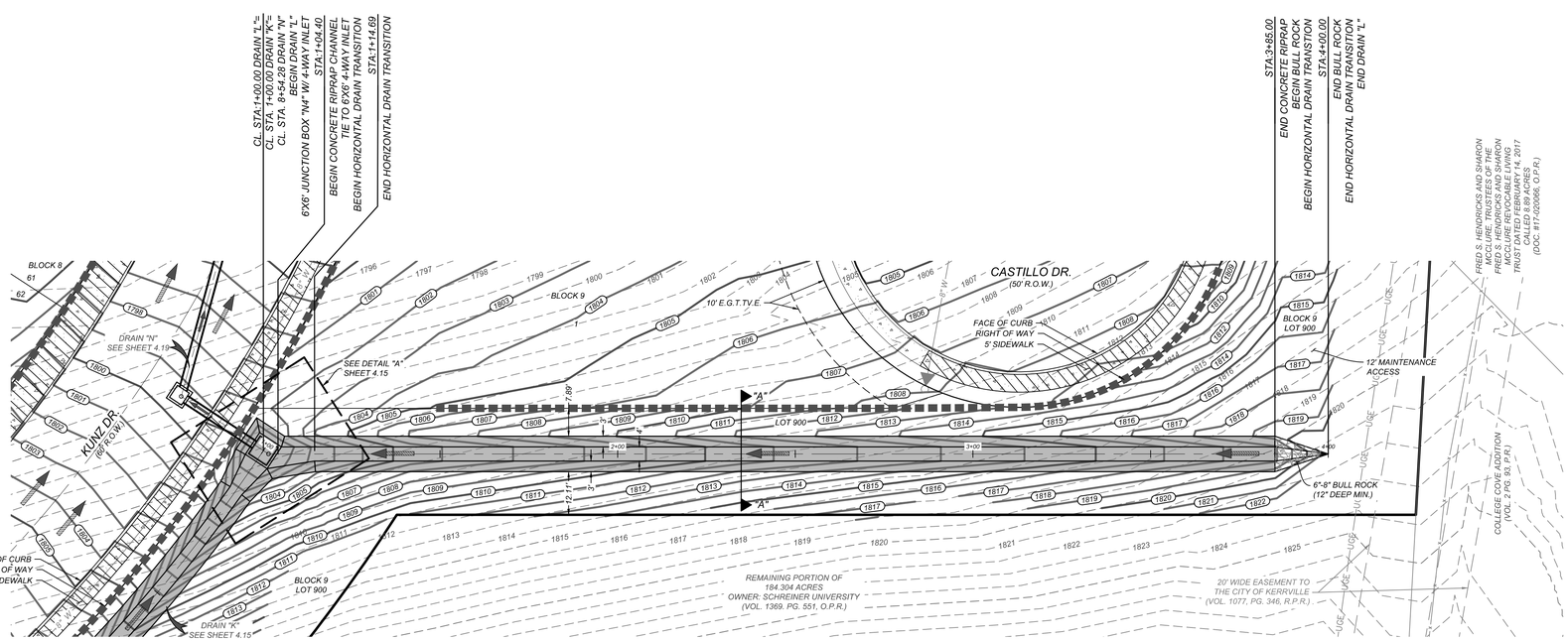
EXISTING CONTOURS	=	600
PROPOSED CONTOURS	=	600
PROPOSED CONTOURS (WINDRIDGE UNIT 1)	=	600
BULL ROCK	=	
FLOW ARROW	=	
CONCRETE RIP-RAP	=	
VERTICAL WALL (BY OTHERS)	=	
SIDEWALK TO BE CONSTRUCTED BY DEVELOPER	=	
PROPOSED ELECTRIC, GAS, TELEPHONE AND CABLE TELEVISION EASEMENT	=	E.G.T.TV.E.

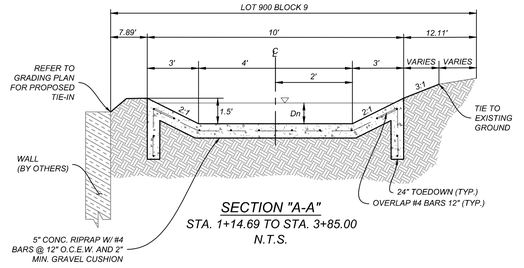
N S E W

20 0 20

SCALE : 1" = 20'

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

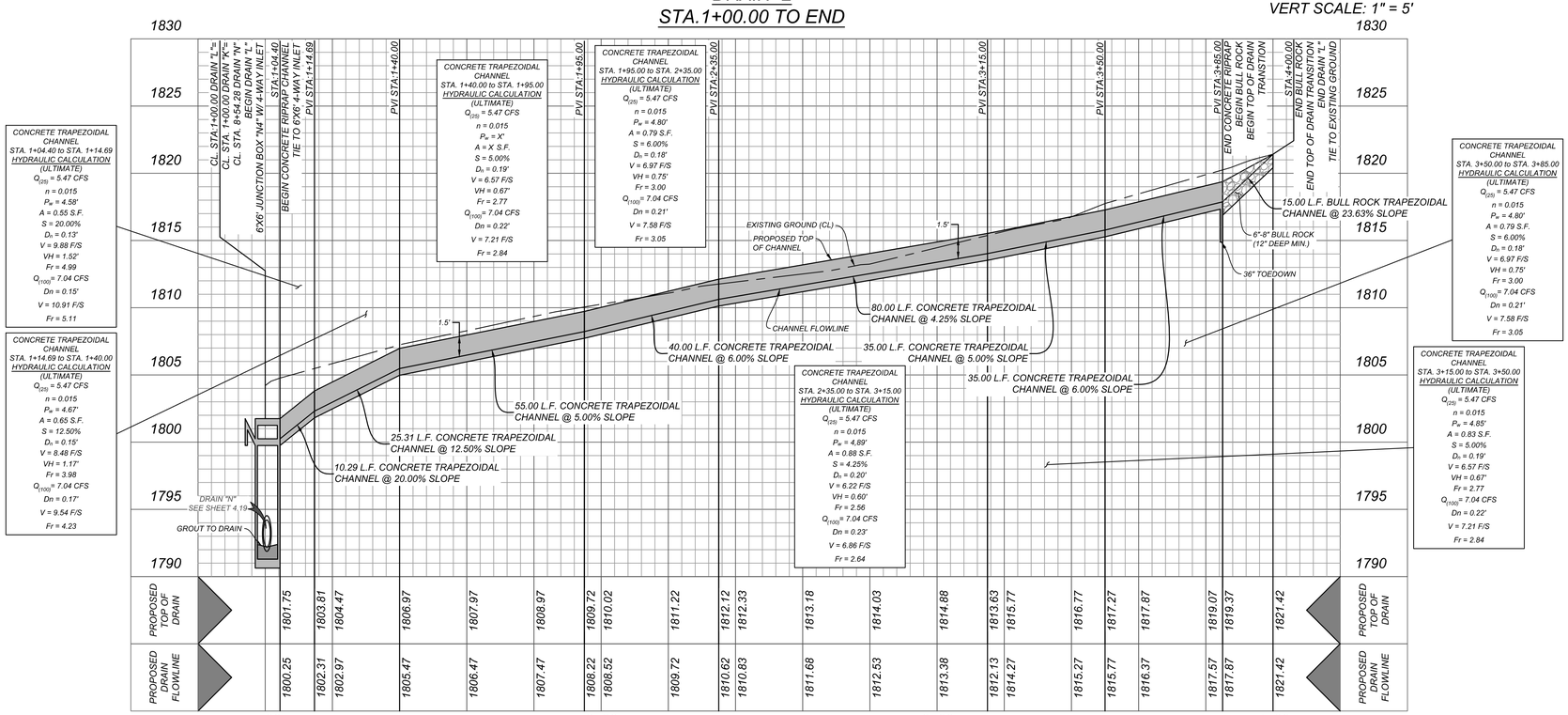




SECTION "A-A"
STA. 1+14.69 TO STA. 3+85.00
N.T.S.

DRAIN L
STA.1+00.00 TO END

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



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REV	DESCRIPTION	DRAWN BY	DATE

06/9/2025
STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED
PROFESSIONAL ENGINEER

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

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NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
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CITY APPROVAL

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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05

DRAWING NAME: 4.16 DRAIN L STA. 1+00.00 - END

SHEET TITLE: DRAIN L STA. 1+00.00 - END

SHEET NUMBER: 4.16

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Jun 12, 2025, 4:05pm User ID: logan.haney
File: L:\Projects\314-47-05\Design\4.16 DRAIN L STA. 1+00.00 - END.dwg
By: LOGAN.HANEY

TRENCH EXCAVATION SAFETY PROTECTION

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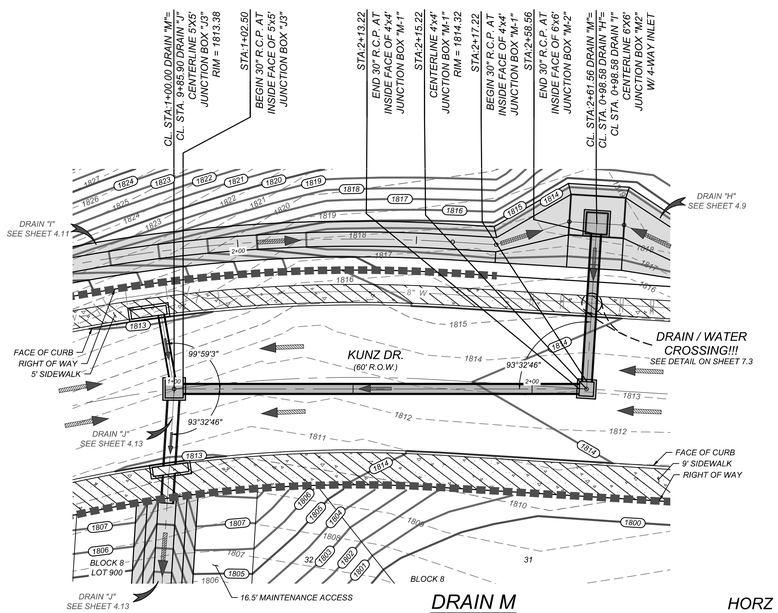
N

SCALE : 1" = 20'

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

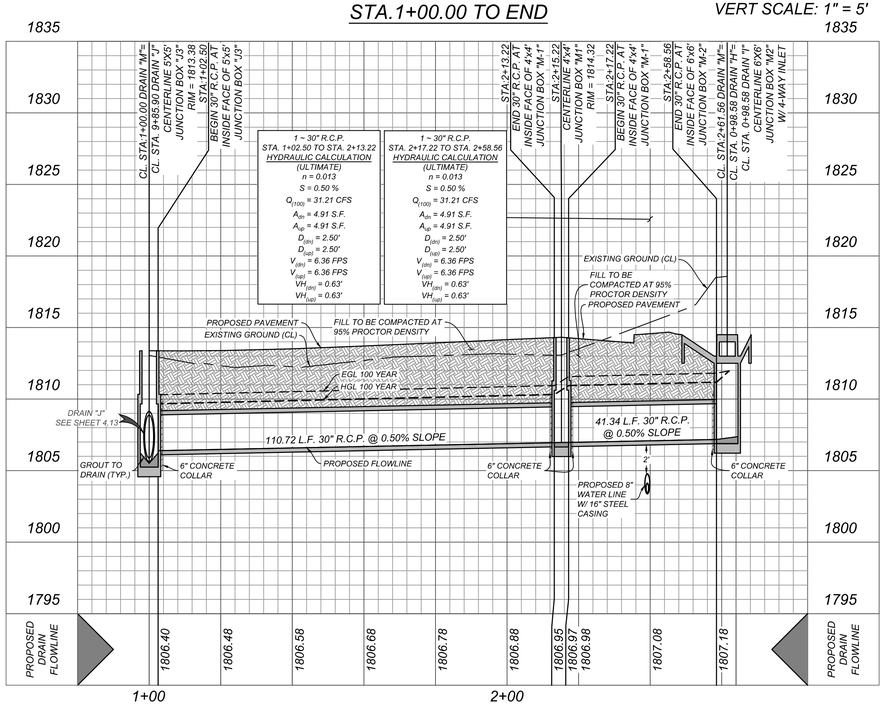
LEGEND

EXISTING CONTOURS	=	600
PROPOSED CONTOURS	=	600
PROPOSED CONTOURS (WINDRIDGE UNIT 1)	=	600
BULL ROCK	=	
FLOW ARROW	=	
CONCRETE RIP-RAP	=	
VERTICAL WALL (BY OTHERS)	=	
SIDEWALK TO BE CONSTRUCTED BY DEVELOPER	=	
PROPOSED ELECTRIC, GAS, TELEPHONE AND CABLE TELEVISION EASEMENT	=	E.G.T.TV.E.



DRAIN M
STA.1+00.00 TO END

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



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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05

DRAWING NAME: 4.17 DRAIN M STA. 1+00.00 - END

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Date: Jun 12, 2025, 2:20pm User ID: logan.haney
File: L:\JV Projects\314-47-05 Lennar - Windridge Unit 2\Design\Civil\Drains\4.17 DRAIN M STA. 1+00.00 - END.dwg
By: LOGAN.HANEY

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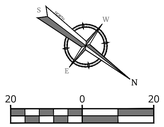

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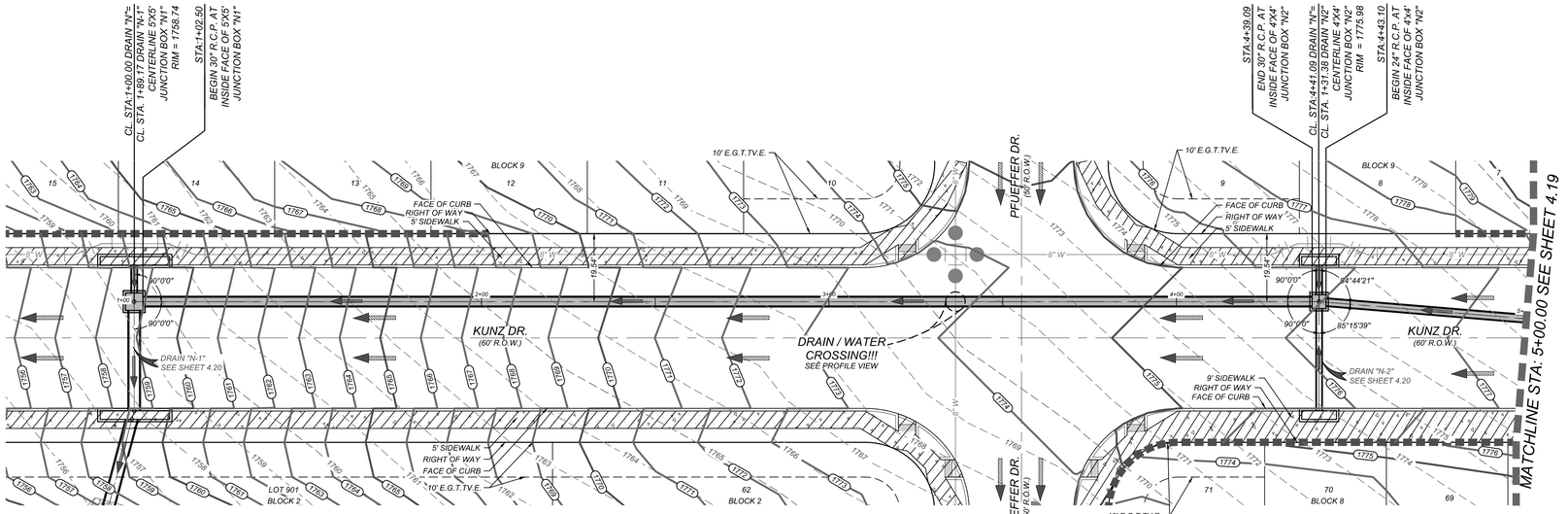
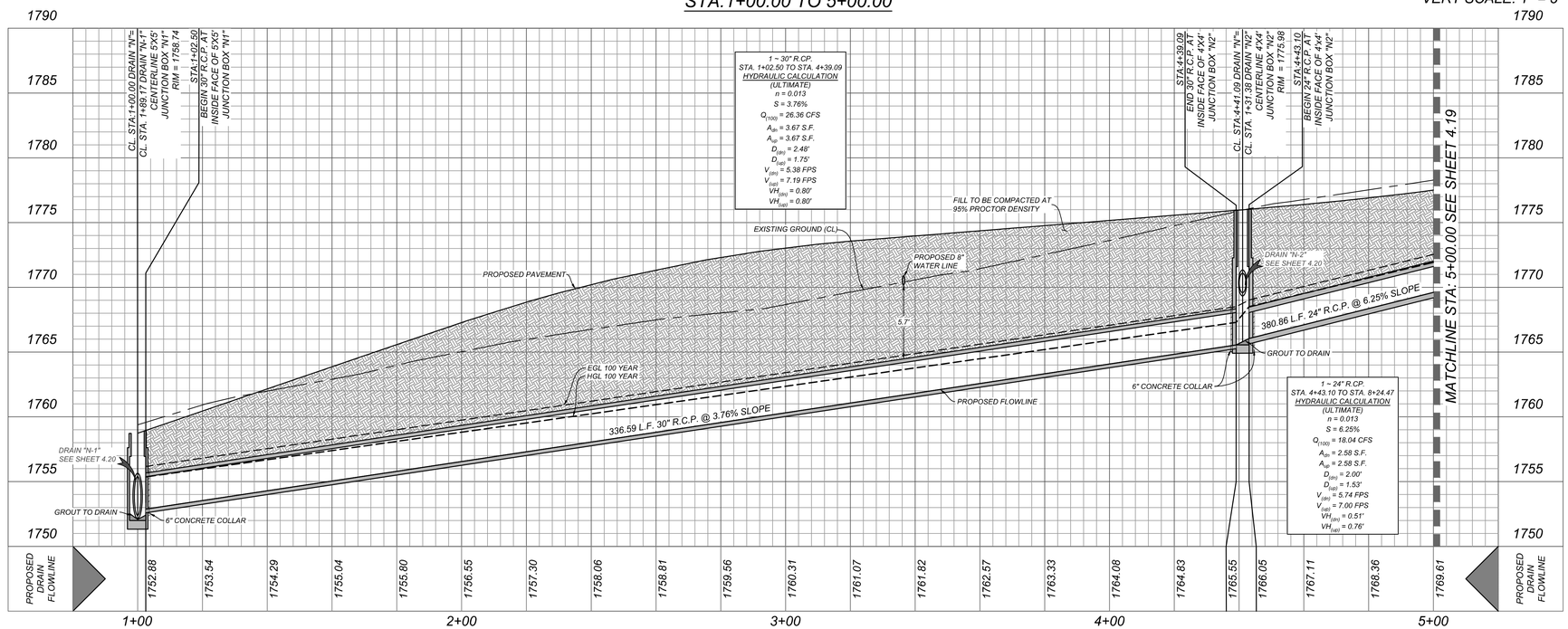
SIDEWALK TO BE CONSTRUCTED BY DEVELOPER	=	
PROPOSED ELECTRIC, GAS, TELEPHONE AND CABLE TELEVISION EASEMENT	=	E.G.T.T.V.E.



DRAIN N
STA.1+00.00 TO 5+00.00

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



CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____ DATE

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Know what's below. Call before you dig.
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REV	DATE	DRAWN BY	DESCRIPTION

06/17/2025
STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED
PROFESSIONAL ENGINEER

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave, Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: 4.18 DRAIN N STA. 1+00.00 - 5+00.00

SHEET TITLE: DRAIN N STA. 1+00.00 - 5+00.00

SHEET NUMBER: 4.18

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Jun 12, 2025, 4:20pm User ID: mcegp
File: L:\VP Projects\314-47-05 Lennar Windridge Unit 2\Design\Civil\Submittals\4.18 DRAIN N STA. 1+00.00 - 5+00.00.dwg By:MCEGO

TRENCH EXCAVATION SAFETY PROTECTION

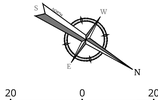
CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S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

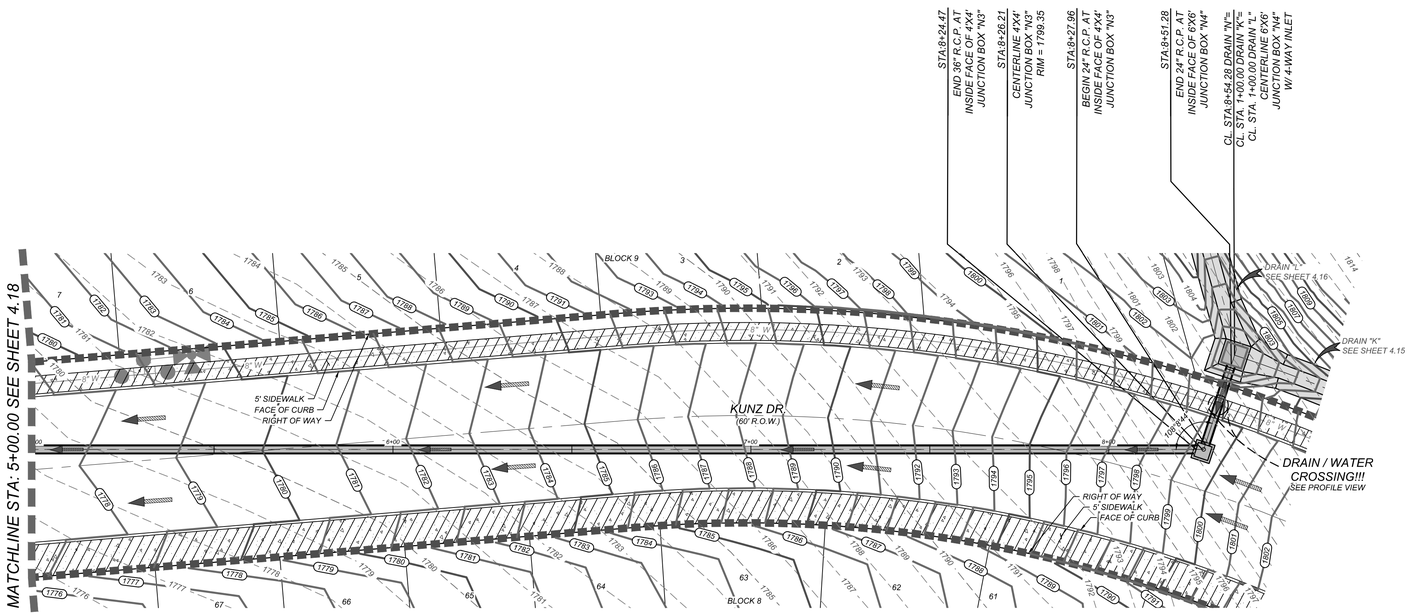
NOTE:

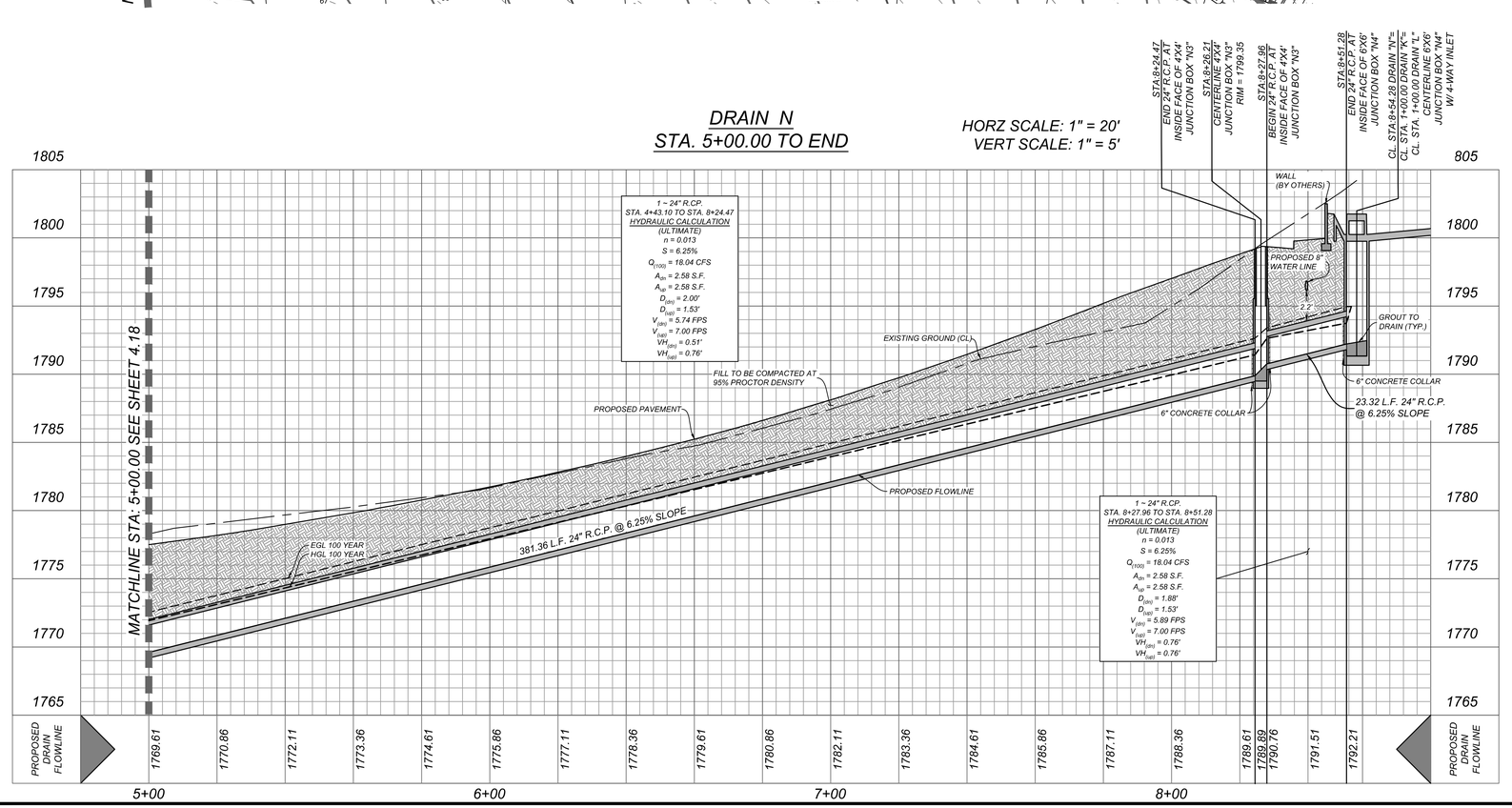
1. ALL CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 3000 PSI IN 28 DAYS.
2. ANY DISTURBED AREAS WILL BE VEGETATED BY SEEDING OR SODDING. EIGHTY-FIVE PERCENT OF THE DISTURBED SURFACE AREA MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF KERRVILLE WILL ACCEPT.
3. ALL DRAINAGE EASEMENTS WILL BE OWNED AND MAINTAINED BY THE DEVELOPER.
4. ALL EARTHEN CHANNELS MUST NOT EXCEED 3:1 SIDE SLOPES (MAX).



LEGEND

EXISTING CONTOURS	=	600
PROPOSED CONTOURS	=	600
PROPOSED CONTOURS (WINDRIDGE UNIT 1)	=	600
BULL ROCK	=	
FLOW ARROW	=	
CONCRETE RIP-RAP	=	
VERTICAL WALL (BY OTHERS)	=	
SIDEWALK TO BE CONSTRUCTED BY DEVELOPER	=	
PROPOSED ELECTRIC, GAS, TELEPHONE AND CABLE TELEVISION EASEMENT	=	E.G.T.TV.E.





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REV	DATE	DRAWN BY	DESCRIPTION

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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05

DRAWING NAME: 4.18 DRAIN N STA. 1+00.00 - 5+00.00

SHEET TITLE: DRAIN N STA. 5+00.00 - END

SHEET NUMBER: 4.19

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Jun 12, 2025, 4:21pm User ID: mcespo
File: L:\Projects\314\47\05\Design\Civil\Drains\4.18 DRAIN N STA. 1+00.00 - 5+00.00.dwg By: MCESPO

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4. *ALL EARTHEN CHANNELS MUST NOT EXCEED 3:1 SIDE SLOPES (MAX).*
5. *TOP OF WALL (TW) AND BOTTOM OF WALL (BW) ELEVATIONS ARE FINISHED GRADE.*

STA. 1+57.79 ~ 20' CURB-OPENING INLET ON GRADE

20' ON-GRADE CURB OPENING @ 8.75%

HYDRAULIC CALCULATION

THROAT HEIGHT: 6.25"

FROM SP-25A, Q25 = 7.03 CFS

USING AUTOCAD HYDRAFLOW

Y= DEPTH OF FLOW IN GUTTER = 0.33'
A= GUTTER DEPRESSION = 0.16'
L= LENGTH OF CURB OPENING = 20'
$Q_{25\text{-CAPTURED}}$ = 5.40 CFS
$Q_{25\text{-BYPASS}}$ = 1.63 CFS

STA. 1+99.63 ~ 20' CURB-OPENING INLET ON GRADE

20' ON-GRADE CURB OPENING @ 8.75%

HYDRAULIC CALCULATION

THROAT HEIGHT: 6.25"

FROM SP-25A, Q25 = 7.03 CFS

USING AUTOCAD HYDRAFLOW

Y= DEPTH OF FLOW IN GUTTER = 0.33'
A= GUTTER DEPRESSION = 0.16'
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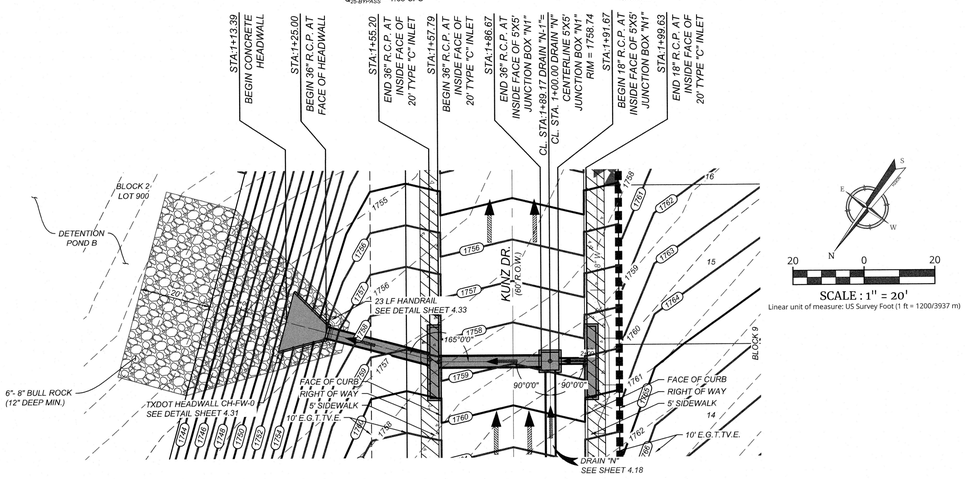
$Q_{25\text{-CAPTURED}}$ = 5.40 CFS
$Q_{25\text{-BYPASS}}$ = 1.63 CFS


STA:1+13.39
BEGIN CONCRETE HEADWALL
STA:1+25.00
BEGIN 36" R.C.P. AT FACE OF HEADWALL
STA:1+55.20
END 36" R.C.P. AT INSIDE FACE OF 20' TYPE "C" INLET
STA:1+57.79
BEGIN 36" R.C.P. AT INSIDE FACE OF 20' TYPE "C" INLET
STA:1+86.67
END 36" R.C.P. AT INSIDE FACE OF 5'X5' JUNCTION BOX "N1"
CL STA. 1+89.17 DRAIN "N"
CL STA. 1+00.00 DRAIN "N"
CENTERLINE 5'X5' JUNCTION BOX "N1"
RIM = 1758.74
STA:1+91.67
BEGIN 18" R.C.P. AT INSIDE FACE OF 5'X5' JUNCTION BOX "N1"
STA:1+99.63
END 18" R.C.P. AT INSIDE FACE OF 20' TYPE "C" INLET
BLOCK 2 LOT 900
DETENTION POND B
23 LF HANDRAIL SEE DETAIL SHEET 4.33
KUNZ DR. (60' R.O.W.)
165°0'0"
90°0'0"
90°0'0"
FACE OF CURB
RIGHT OF WAY
5' SIDEWALK
10' E.G.T.TV.E.
6"- 8" BULL ROCK (12" DEEP MIN.)
TXDOT HEADWALL CH-FW-0 SEE DETAIL SHEET 4.31
DRAIN "N" SEE SHEET 4.18
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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!!:

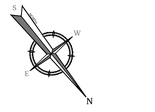
THE CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITED TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT 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.

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 KERRVILLE WILL ACCEPT.
3. ALL DRAINAGE EASEMENTS WILL BE OWNED AND MAINTAINED BY THE DEVELOPER.
4. ALL EARTHEN CHANNELS MUST NOT EXCEED 3:1 SIDE SLOPES (MAX).

LEGEND

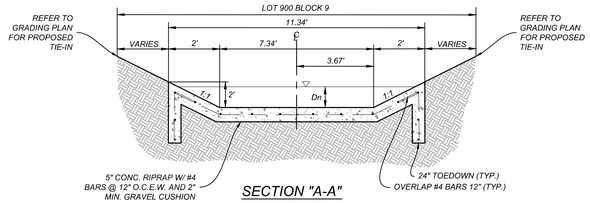
EXISTING CONTOURS	=	600
PROPOSED CONTOURS	=	600
PROPOSED CONTOURS (WINDRIDGE UNIT 1)	=	600
BULL ROCK	=	
FLOW ARROW	=	
CONCRETE RIP-RAP	=	
VERTICAL WALL (BY OTHERS)	=	
SIDEWALK TO BE CONSTRUCTED BY DEVELOPER	=	
PROPOSED ELECTRIC, GAS, TELEPHONE AND CABLE TELEVISION EASEMENT	=	E.G.T.TV.E.



20 0 20

SCALE : 1" = 20'

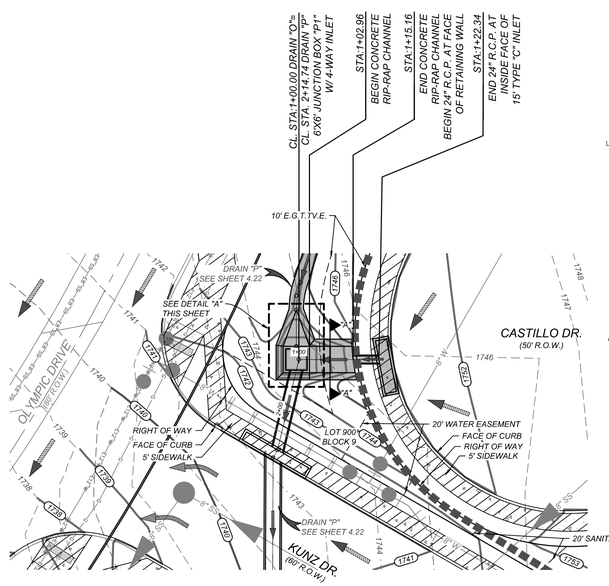
Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)



SECTION "A-A"

STA. 1+02.96 TO STA. 1+15.16

N.T.S.



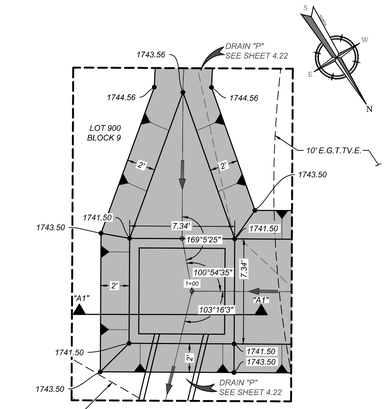
CURB OPENING HYDRAULIC CALCULATION

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

$$L = \frac{21.54}{(3.087)\ (0.75)^{3/2}}$$

$L = 10.74$ L.F.

USE 15 L.F. CURB OPENING
THROAT HEIGHT: 6.25"



DETAIL "A"

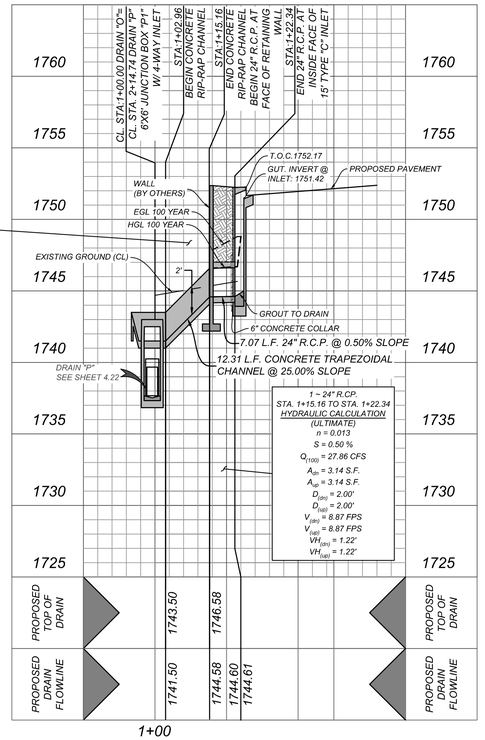
SCALE: 1"=5'

HORZ SCALE: 1" = 20'

VERT SCALE: 1" = 5'

DRAIN O

STA.1+00.00 TO END

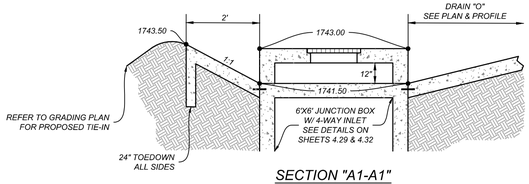


CONCRETE TRAPEZOIDAL CHANNEL
STA. 1+02.96 to STA. 1+15.16
HYDRAULIC CALCULATION
(ULTIMATE)

$Q_{(25)} = 21.54$ CFS
$n = 0.015$
$P_w = 7.88'$
$A = 1.43$ S.F.
$S = 25.00\%$
$D_h = 0.19'$
$V = 15.06$ F/S
$VH = 3.52'$
$Fr = 6.17$
$Q_{(100)} = 27.86$ CFS
$Dn = 0.22'$
$V = 16.75$ F/S
$Fr = 6.39$

1 – 24" R.C.P.
STA. 1+15.16 TO STA. 1+22.34
HYDRAULIC CALCULATION
(ULTIMATE)

$n = 0.013$
$S = 0.50\ \%$
$Q_{(100)} = 27.86$ CFS
$A_{(fp)} = 3.14$ S.F.
$A_{(p)} = 3.14$ S.F.
$D_{(25)} = 2.00'$
$D_{(fp)} = 2.00'$
$V_{(25)} = 8.87$ FPS
$V_{(fp)} = 8.87$ FPS
$VH_{(25)} = 1.22'$
$VH_{(fp)} = 1.22'$



SECTION "A1-A1"

N.T.S.

4 WAY INLET HYDRAULIC CALC.

$Q_{25} = 28.23$ CFS

$L_{REQ} = Q_{25} / (C^*H^{3/2})$

$L_{REQ} = 28.23$ CFS $/ (2.60 * 1.00\ FT^{3/2})$

$L_{REQ} = 10.86$ FT.

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____

DATE:

THIS APPROVAL WILL BECOME VOID AFTER ONE YEAR OF THE INDICATED APPROVAL DATE. EXCEPTIONS TO THIS APPROVAL ARE AS FOLLOWS:

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

REV	DATE	DRAWN BY	DESCRIPTION

06/19/2025

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER

WINDRIDGE SUBDIVISION – UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05

DRAWING NAME: DRAIN O

SHEET TITLE: DRAIN O STA. 1+00.00 - END

SHEET NUMBER: 4.21

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Jun 12, 2025, 11:07am User ID: logan.haney
File: U:\Projects\314-47\05\Design\Civil\Drawings\Windridge Unit 2 DRAIN O.dwg
\Design\Civil\Drawings\DRAIN O.dwg#4.21 DRAIN O STA. 1+00.00 - END
By: LOGAN HANEY

TRENCH EXCAVATION SAFETY PROTECTION

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

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NOTE:

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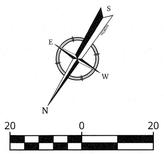
3. ALL DRAINAGE EASEMENTS WILL BE OWNED AND MAINTAINED BY THE DEVELOPER.
4. ALL EARTHEN CHANNELS MUST NOT EXCEED 3:1 SIDE SLOPES (MAX).
5. TOP OF WALL (TW) AND BOTTOM OF WALL (BW) ELEVATIONS ARE FINISHED GRADE.



SCALE : 1" = 20'

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

LEGEND

- EXISTING CONTOURS = 600
- PROPOSED CONTOURS = 600
- PROPOSED CONTOURS (WINDRIDGE UNIT 1) = 600
- BULL ROCK
- FLOW ARROW
- CONCRETE RIP-RAP
- VERTICAL WALL (DESIGNED BY OTHERS)
- SIDEWALK TO BE CONSTRUCTED BY DEVELOPER
- PROPOSED ELECTRIC, GAS, TELEPHONE AND CABLE TELEVISION EASEMENT = E.G.T.TV.E.

STA. 1+38.05 ~ 20' CURB-OPENING INLET ON GRADE

20' ON-GRADE CURB OPENING @ 3.50%

HYDRAULIC CALCULATION

THROAT HEIGHT: 6.25"

FROM SP-26E, Q25 = 5.52 CFS

USING AUTOCAD HYDRAFLOW

Y= DEPTH OF FLOW IN GUTTER = 0.35'
A= GUTTER DEPRESSION = 0.16'
L= LENGTH OF CURB OPENING = 20'
$Q_{25\text{-CAPTURED}}$ = 5.14 CFS
$Q_{25\text{-BYPASS}}$ = 0.38 CFS

STA. 1+86.25 ~ 20' CURB-OPENING INLET ON GRADE

20' ON-GRADE CURB OPENING @ 0.50%

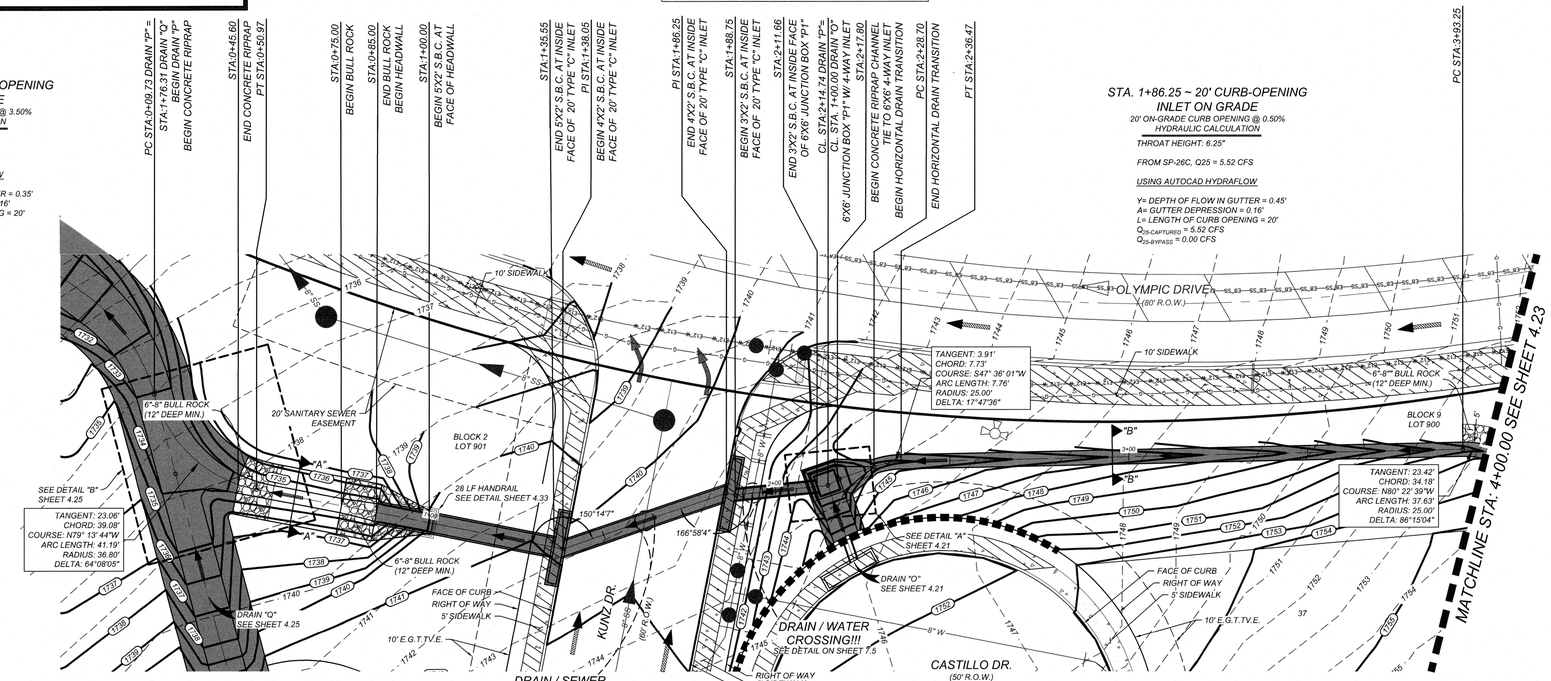
HYDRAULIC CALCULATION

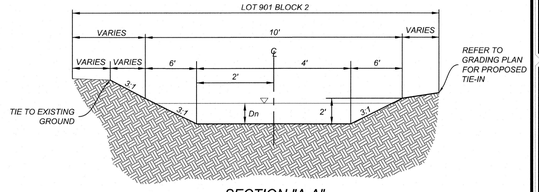
THROAT HEIGHT: 6.25"

FROM SP-26C, Q25 = 5.52 CFS

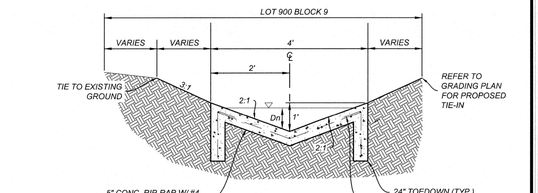
USING AUTOCAD HYDRAFLOW

Y= DEPTH OF FLOW IN GUTTER = 0.45'
A= GUTTER DEPRESSION = 0.16'
L= LENGTH OF CURB OPENING = 20'
$Q_{25\text{-CAPTURED}}$ = 5.52 CFS
$Q_{25\text{-BYPASS}}$ = 0.00 CFS





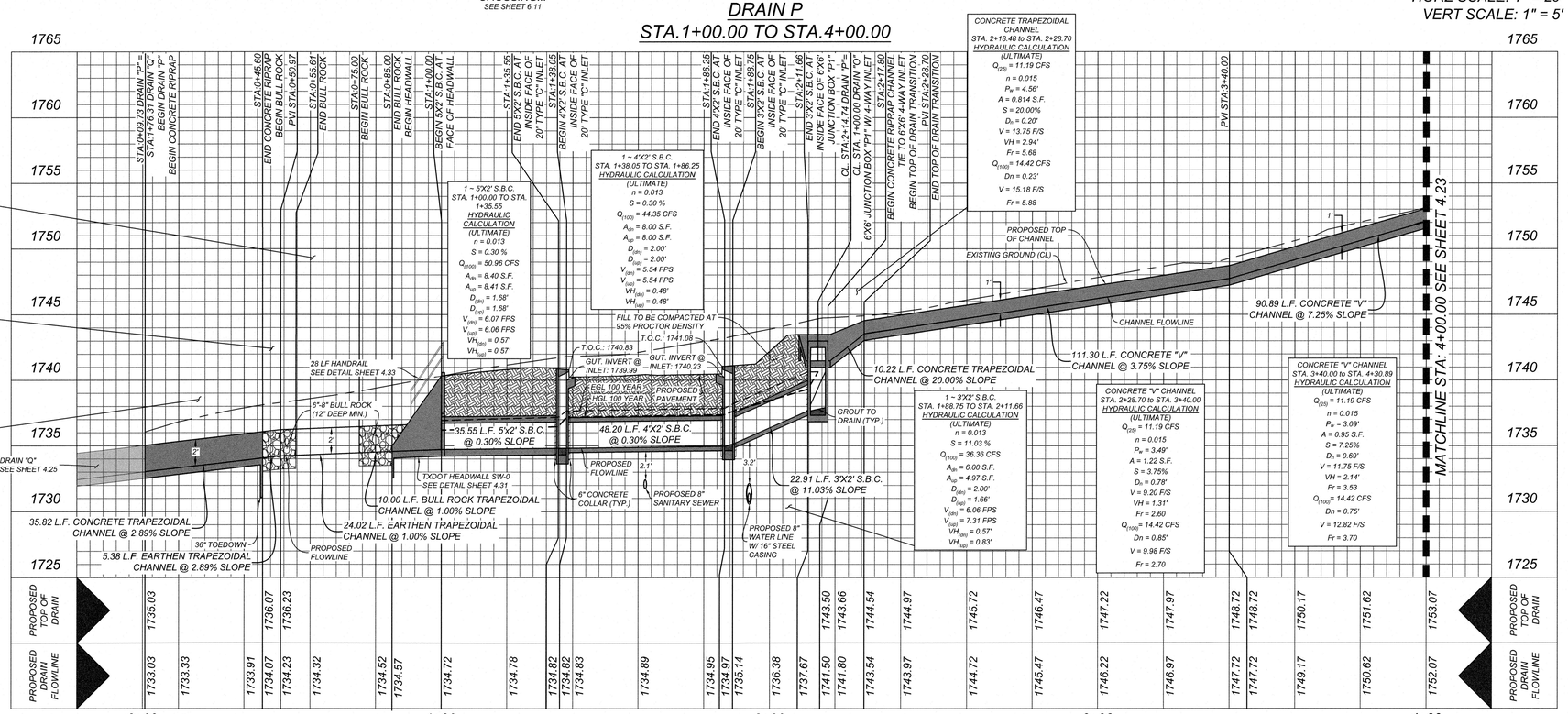
SECTION "A-A"
STA. 0+50.97 TO STA. 0+85.00
N.T.S.



SECTION "B-B"
STA. 2+28.70 TO STA. 4+30.89
N.T.S.

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

DRAIN P
STA.1+00.00 TO STA.4+00.00



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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS — DENIS A. AVENDANO — 137588 — LICENSED PROFESSIONAL ENGINEER

11/06/2025

P.E.

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design ####

NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER:	DRAWING NAME:
314-47-05	4.21 DRAIN P STA. 1+00.00 TO END

SHEET TITLE: DRAIN P STA. 0+09.73 - 4+00.00

SHEET NUMBER: 4.22

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____ DATE:

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NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Oct 31, 2025, 12:01pm User ID: nscego
File: U:\Projects\314-47\05\Design\Civil\Drains\4.21 DRAIN P STA. 1+00.00 TO END.dwg
Design\Reference\21-0904-P STA. 1+00.00 TO 1765 Design\0904-P STA. 0+09.73 - 4+00.00 By: NSCEGO

TRENCH EXCAVATION SAFETY PROTECTION

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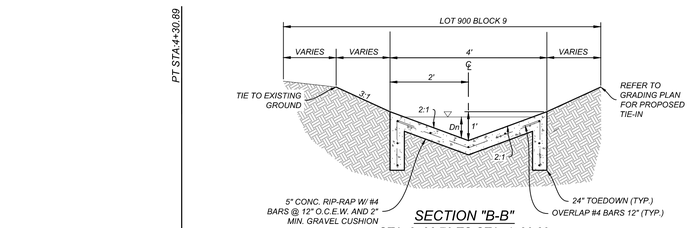
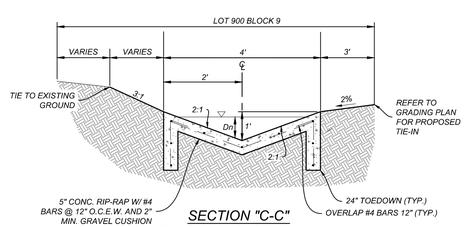
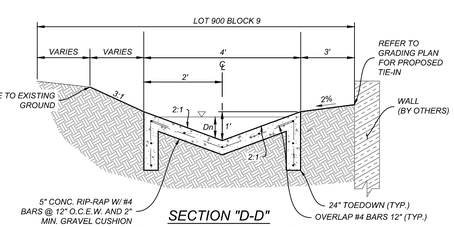


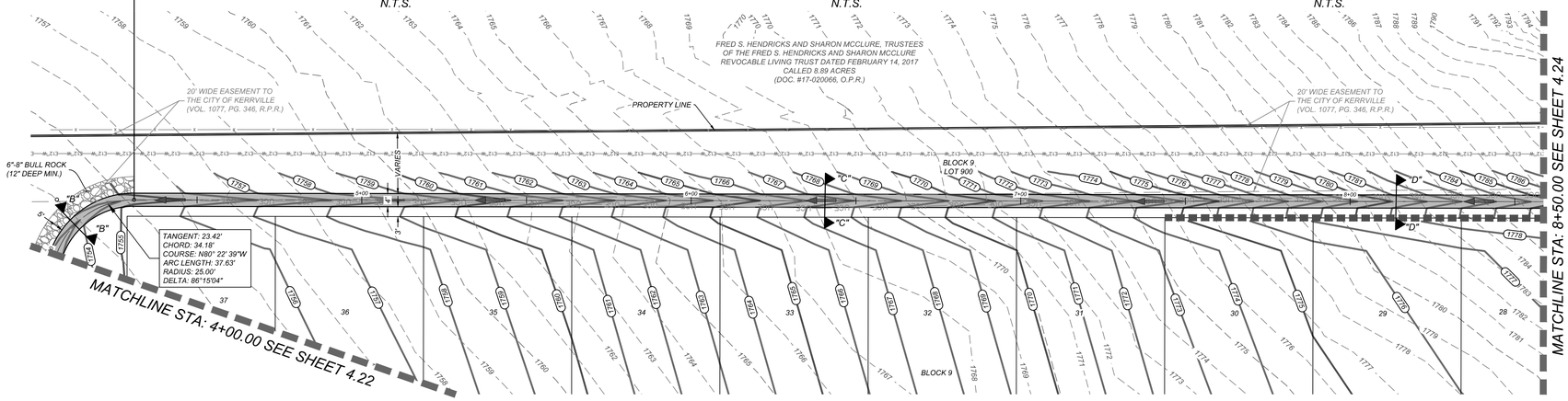
SECTION "B-B"
STA. 2+28.70 TO STA. 4+30.89
N.T.S.



SECTION "C-C"
STA. 4+30.89 TO STA. 7+44.00
N.T.S.

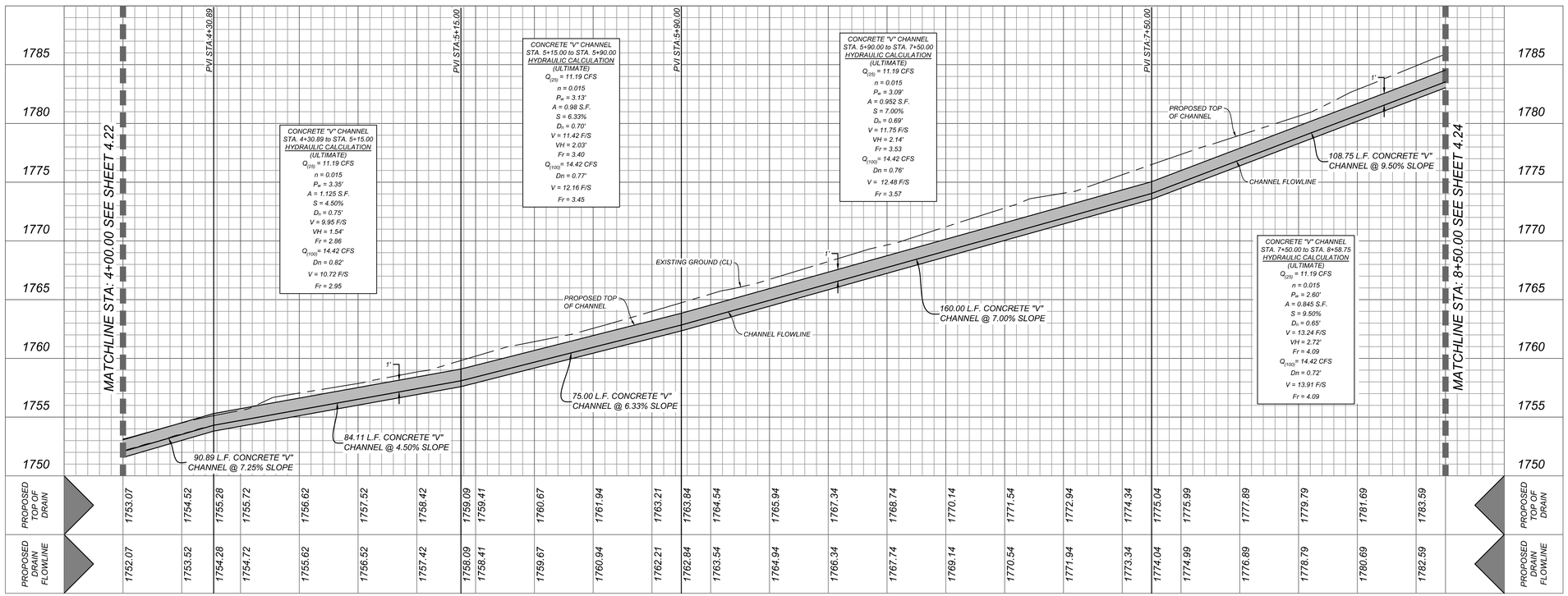


SECTION "D-D"
STA. 7+44.00 TO STA. 12+73.75
N.T.S.



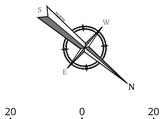
DRAIN P
STA.4+00.00 TO STA.8+50.00

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



LEGEND

EXISTING CONTOURS	=	600
PROPOSED CONTOURS	=	600
PROPOSED CONTOURS (WINDRIDGE UNIT 1)	=	600
BULL ROCK	=	
FLOW ARROW	=	
CONCRETE RIP-RAP	=	
VERTICAL WALL (BY OTHERS)	=	
SIDEWALK TO BE CONSTRUCTED BY DEVELOPER	=	
PROPOSED ELECTRIC, GAS, TELEPHONE AND CABLE TELEVISION EASEMENT	=	E.G.T.T.V.E.



CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____
DATE

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REV	DATE	DRAWN BY	DESCRIPTION

06/19/2025
STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

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New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194350

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER:	DRAWING NAME:
314-47-05	4.21 DRAIN P STA. 1+00.00 TO END

SHEET TITLE: DRAIN P STA. 4+00.00 - 8+50.00

SHEET NUMBER: 4.23

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Jun 11, 2025, 3:47pm User ID: logan.haney
File: L:\Projects\314-47-05\Civil\Design\Construction\4.21 DRAIN P STA. 1+00.00 TO END.dwg
By:LOGAN.HANEY

TRENCH EXCAVATION SAFETY PROTECTION

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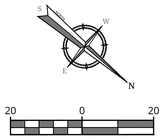
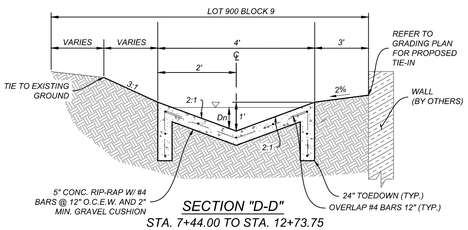
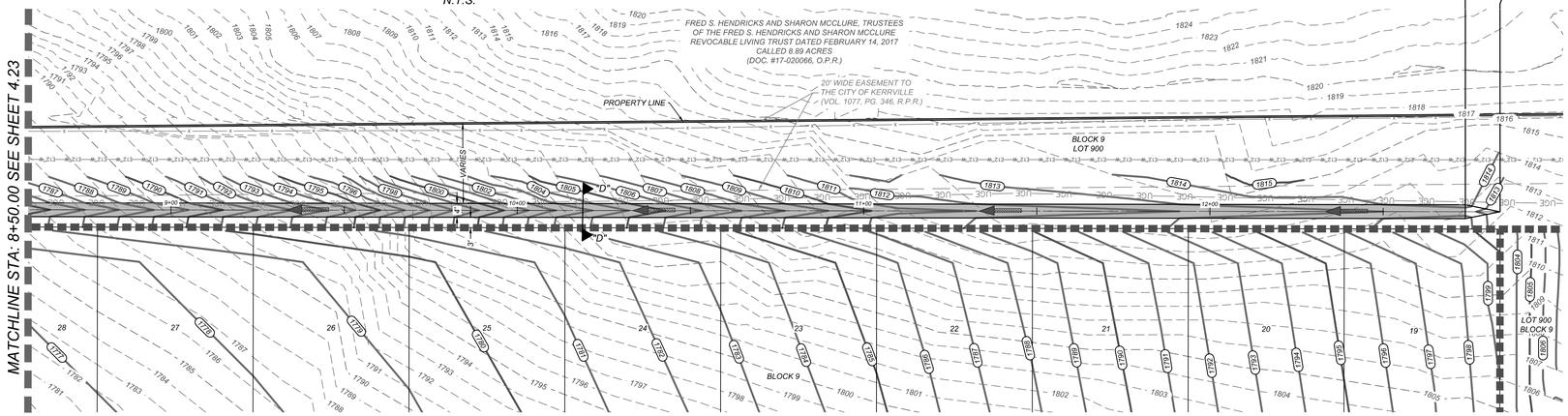


LEGEND

- EXISTING CONTOURS = 600
- PROPOSED CONTOURS = 600
- PROPOSED CONTOURS (WINDRIDGE UNIT 1) = 600
- BULL ROCK =
- FLOW ARROW =
- CONCRETE RIP-RAP =
- VERTICAL WALL (BY OTHERS) =
- SIDEWALK TO BE CONSTRUCTED BY DEVELOPER =
- PROPOSED ELECTRIC, GAS, TELEPHONE AND CABLE TELEVISION EASEMENT = E.G.T.T.V.E.

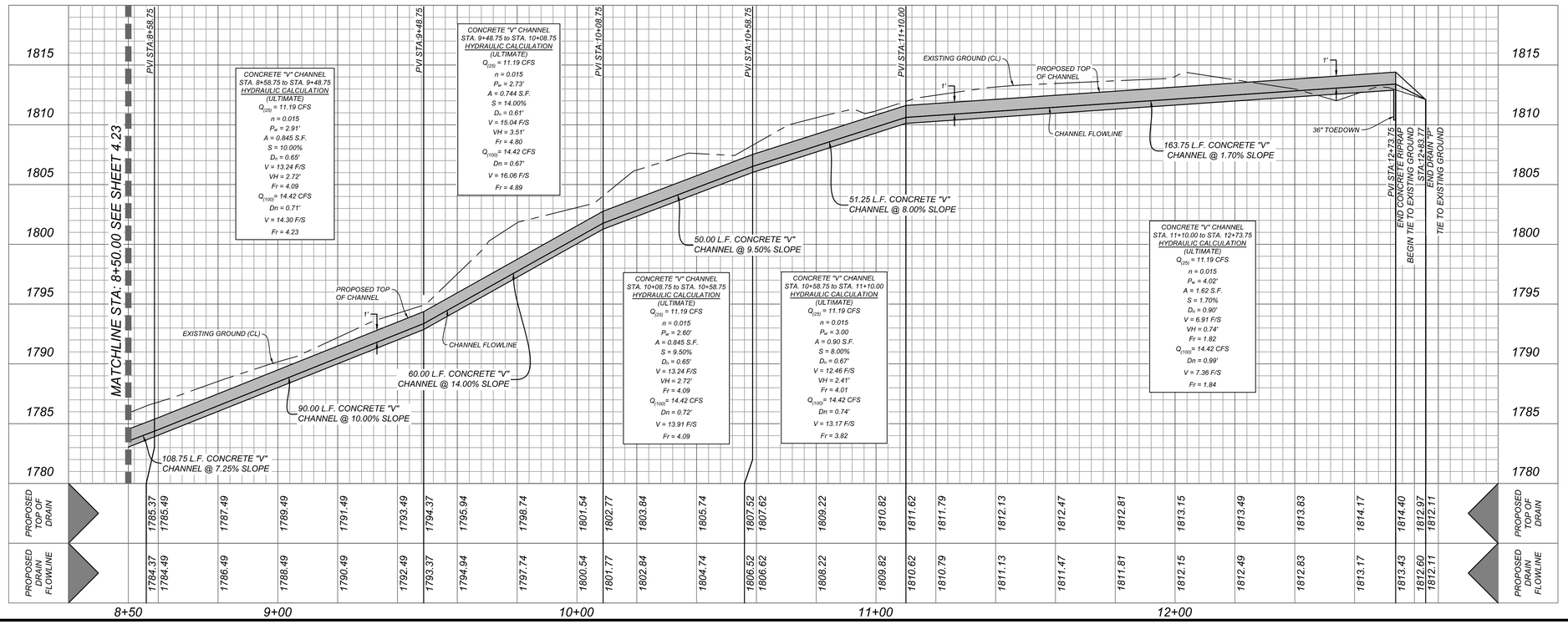


SECTION "D-D"
STA. 7+44.00 TO STA. 12+73.75
N.T.S.



DRAIN P
STA.8+50.00 TO END

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



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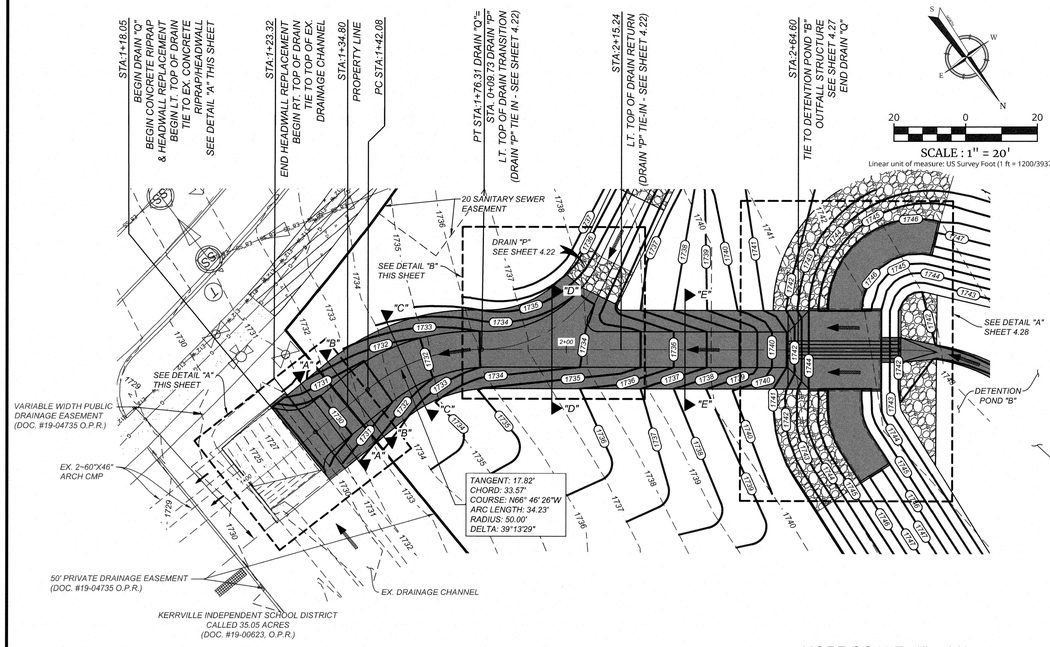
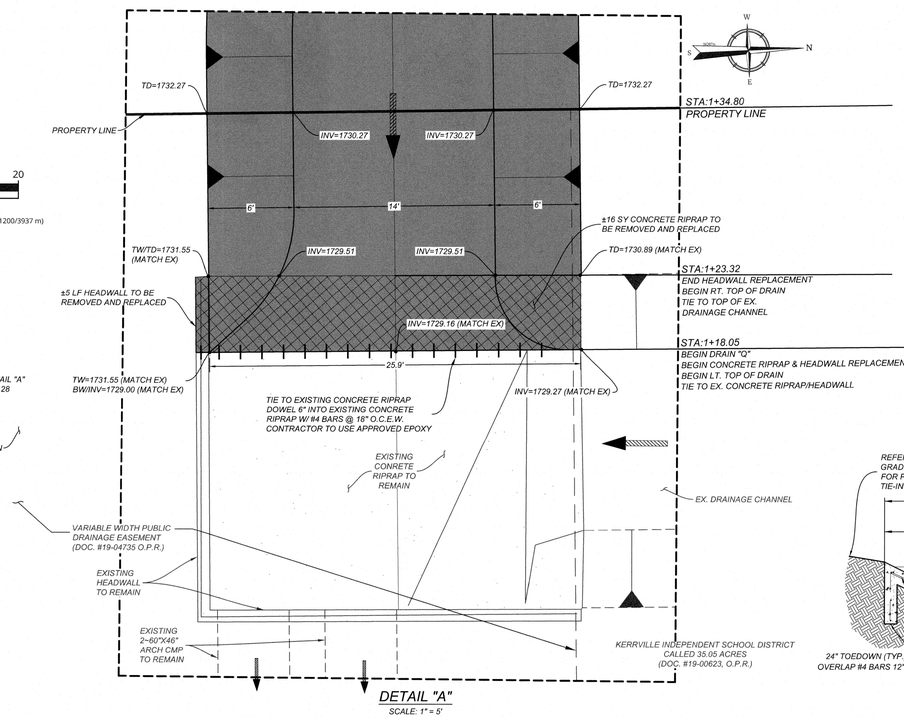




DETAIL "A"
SCALE: 1" = 5'

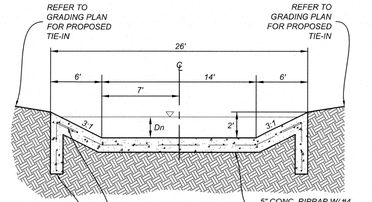
LEGEND

EXISTING CONTOURS	=	600
PROPOSED CONTOURS	=	600
PROPOSED CONTOURS (WINDRIDGE UNIT 1)	=	600
BULL ROCK	=	
FLOW ARROW	=	
CONCRETE RIP-RAP	=	
VERTICAL WALL (DESIGNED BY OTHERS)	=	
SIDEWALK TO BE CONSTRUCTED BY DEVELOPER	=	
PROPOSED ELECTRIC, GAS, TELEPHONE AND CABLE TELEVISION EASEMENT	=	E.G.T.TV.E.
CONCRETE RIPRAP TO BE REMOVED	=	

ABBREVIATIONS

BOTTOM OF WALL	=	BW
TOP OF WALL	=	TW
INVERT	=	INV
TOP OF DRAIN	=	TD

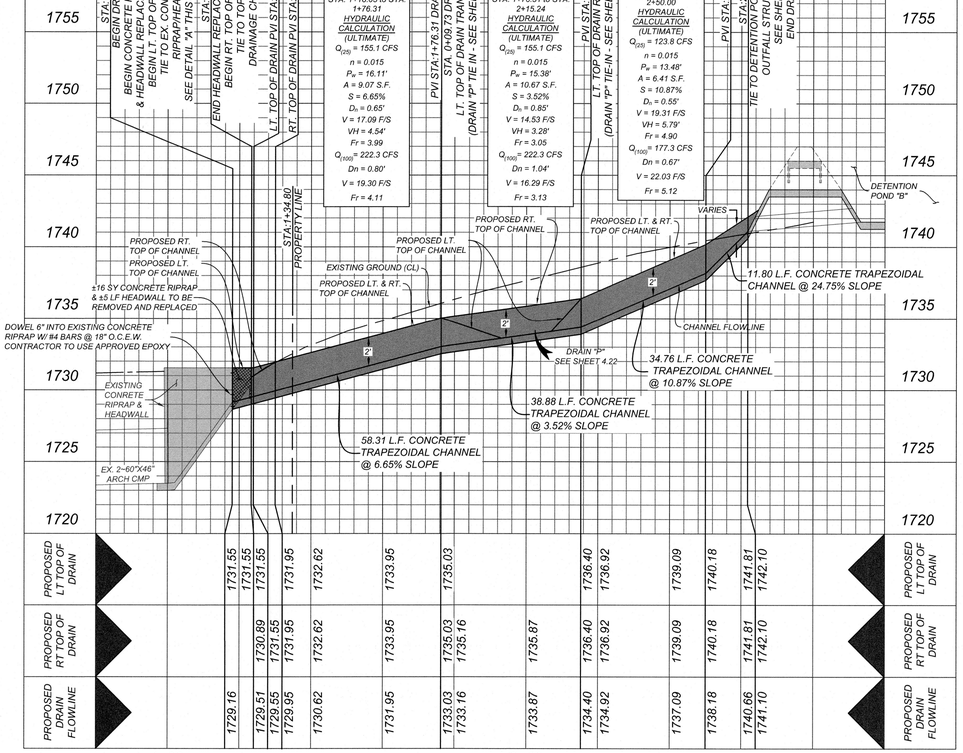
SECTION "A-A"
STA. 1+18.05 TO STA. 1+34.80
(SEE DETAIL "A" THIS SHEET)

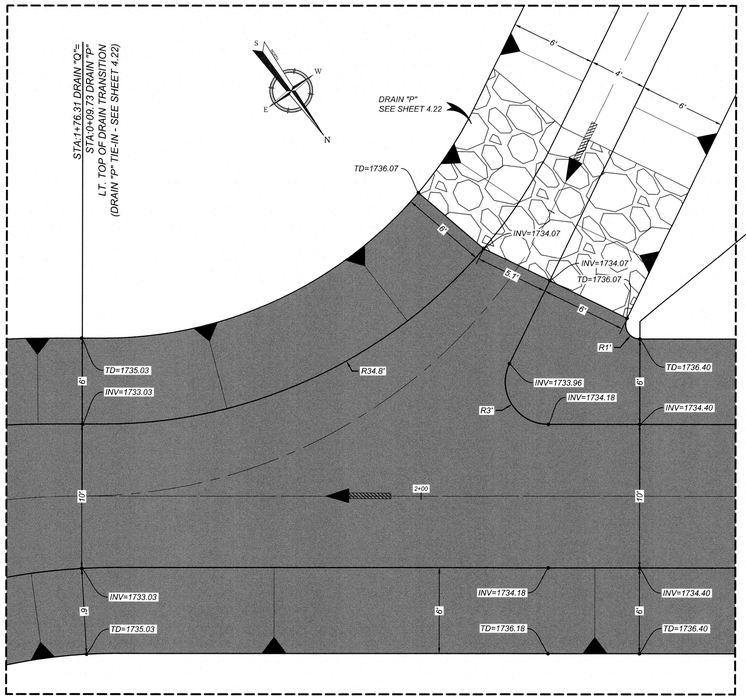


SECTION "B-B"
STA. 1+34.80 TO STA. 1+42.08
N.T.S.

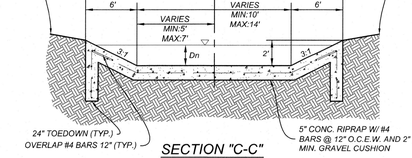
DRAIN Q
STA.1+00.00 TO END

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



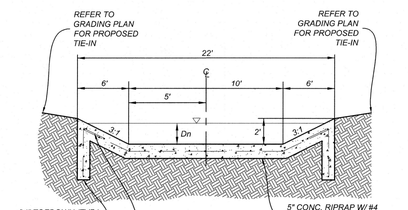


DETAIL "B"
SCALE: 1" = 5'



SECTION "C-C"
STA. 1+42.08 TO STA. 1+76.31
N.T.S.

SECTION "D-D"
STA. 1+76.31 TO STA. 2+15.24
(SEE DETAIL "B" THIS SHEET)



SECTION "E-E"
STA. 2+15.24 TO STA. 2+50.00
N.T.S.

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 KERRVILLE WILL ACCEPT.
3. ALL DRAINAGE EASEMENTS WILL BE OWNED AND MAINTAINED BY THE DEVELOPER.
4. ALL EARTHEN CHANNELS MUST NOT EXCEED 3:1 SIDE SLOPES (MAX).
5. TOP OF WALL (TW) AND BOTTOM OF WALL (BW) ELEVATIONS ARE FINISHED GRADE.

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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CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____ DATE

THIS APPROVAL WILL BECOME VOID AFTER ONE YEAR OF THE INDICATED APPROVAL DATE. EXCEPTIONS TO THIS APPROVAL ARE AS FOLLOWS:

BY APPROVING THESE PLANS, THE CITY OF KERRVILLE DOES NOT ASSUME ANY LIABILITY FOR ENGINEERING DESIGN, NOR DOES APPROVAL RELEASE THE DESIGN ENGINEER FROM LIABILITY FOR CORRECTION ERRORS OR OMISSIONS IN THE DESIGN BOTH DURING AND AFTER CONSTRUCTION.

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

REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER
11/06/2025
P.E.

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design ####
NEW BRAUNFELS (KFW)
640 North Walnut Ave, Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14900
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER:	DRAWING NAME:
314-47-05	4.25 DRAIN Q STA. 1+00.00 TO END

SHEET TITLE: DRAIN Q STA. 1+00.00 - END

SHEET NUMBER: 4.25

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

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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.

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5. TOP OF WALL (TW) AND BOTTOM OF WALL (BW) ELEVATIONS ARE FINISHED GRADE.

PROPOSED CONDITIONS POND DISCHARGE

STORM EVENT	DISCHARGE (cfs)	W.S.E. (ft)	PEAK STORAGE (ac-ft)
2 YR	8.7	1763.6	1.6
5 YR	44.9	1764.3	2.0
25 YR	111.2	1765.1	2.4
100 YR	154.5	1765.5	2.6

ULTIMATE CONDITIONS POND DISCHARGE

STORM EVENT	DISCHARGE (cfs)	W.S.E. (ft)	PEAK STORAGE (ac-ft)
2 YR	8.7	1763.6	1.6
5 YR	44.9	1764.3	2.0
25 YR	111.2	1765.1	2.4
100 YR	154.5	1765.5	2.6

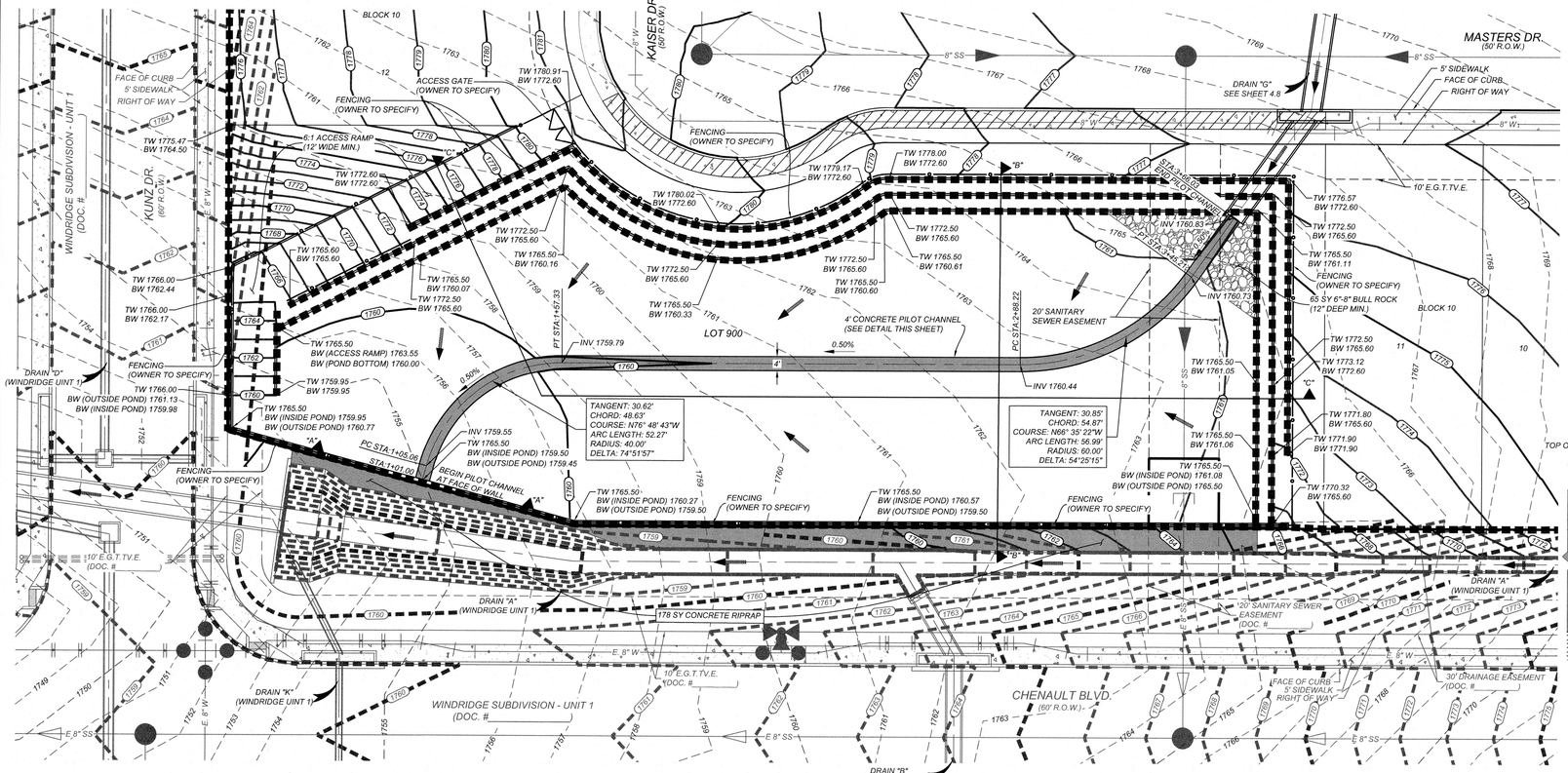
SCALE : 1" = 20'

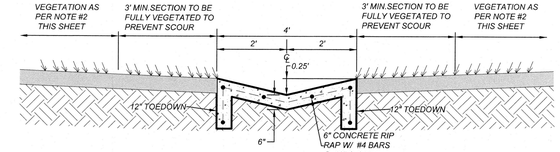
Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

LEGEND

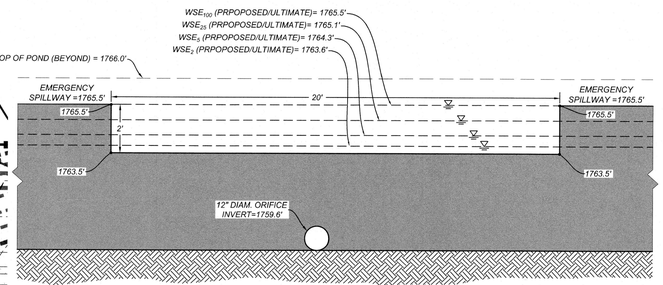
- EXISTING CONTOURS = 600
- PROPOSED CONTOURS = 600
- PROPOSED CONTOURS (WINDRIDGE UNIT 1) = 600
- BULL ROCK
- FLOW ARROW
- CONCRETE RIP-RAP
- VERTICAL WALL (DESIGNED BY OTHERS)
- SIDEWALK TO BE CONSTRUCTED BY DEVELOPER
- PROPOSED ELECTRIC, GAS, TELEPHONE AND CABLE TELEVISION EASEMENT = E.G.T.TV.E.
- FENCING (OWNER TO SPECIFY)
- TOP OF WALL = TW
- BOTTOM OF WALL = BW
- INVERT = INV

FALL PROTECTION (FENCING) OF AT LEAST 4' HEIGHT IS REQUIRED ON ALL WALLS WHERE THE WALL HEIGHT EXCEEDS 30". FENCING TYPE SHALL BE SPECIFIED BY THE OWNER AND SHALL BE IN COMPLIANCE WITH SEC. 60-50(B) OF THE CITY OF KERRVILLE CODE OF ORDINANCES. PLACEMENT AND INSTALLATION METHOD OF THE PROPOSED FENCING TO BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

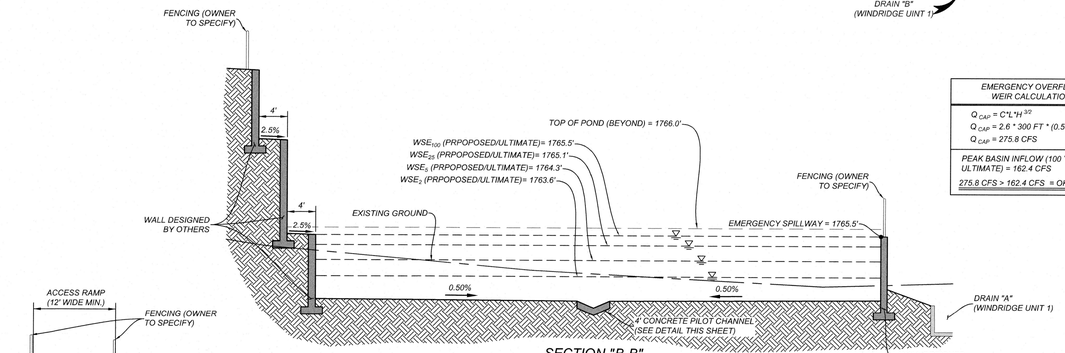




TYPICAL PILOT CHANNEL DETAIL
N.T.S.



SECTION "A-A"
N.T.S.

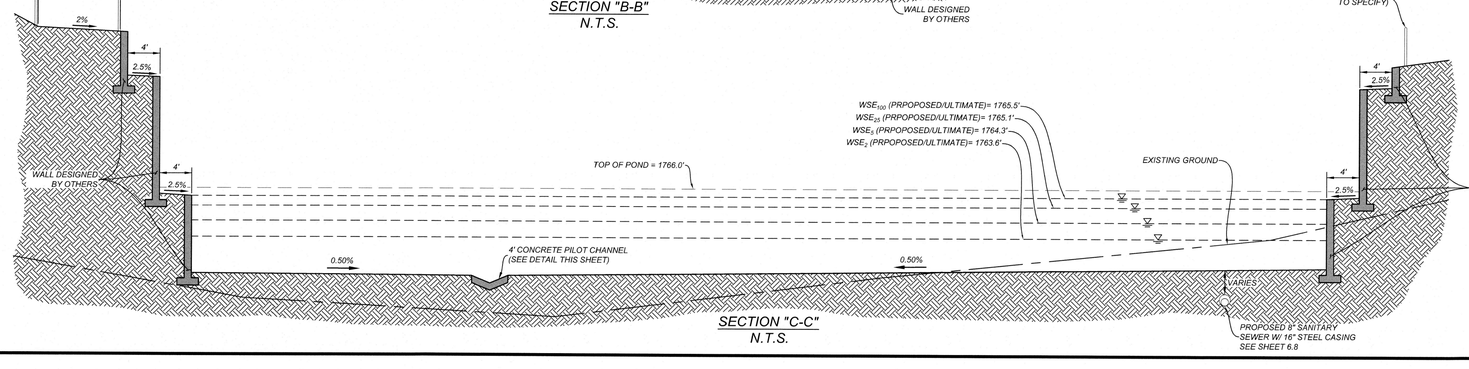


SECTION "B-B"
N.T.S.

EMERGENCY OVERFLOW WEIR CALCULATION
$Q_{CAP} = C^*L^*H^{3/2}$
$Q_{CAP} = 2.6 * 300\ FT * (0.5\ FT^{3/2})$
$Q_{CAP} = 275.8\ CFS$
PEAK BASIN INFLOW (100 YR ULTIMATE) = 162.4 CFS
275.8 CFS > 162.4 CFS = OK

DETENTION BASIN ELEVATION-STORAGE-DISCHARGE

ELEVATION (ft)	STORAGE (ac-ft)	DISCHARGE (cfs)	
1759.5	0.0	0.0	BOTTOM OF POND ELEV.
1760.0	0.1	2.0	
1761.0	0.3	4.1	
1762.0	0.8	5.9	
1763.0	1.3	7.3	
1764.0	1.8	29.4	
1765.0	2.4	109.0	
1765.5	2.6	154.5	EMERGENCY SPILLWAY ELEV.



SECTION "C-C"
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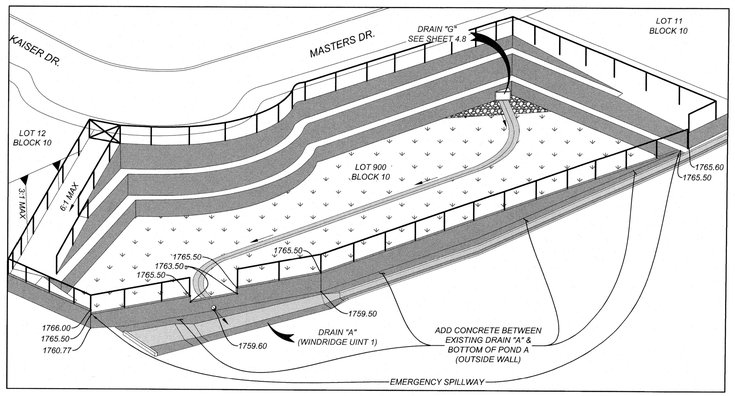

POND ISOMETRIC VIEW
N.T.S.

Colliers Engineering & Design

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

REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
DENIS A AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER
12/29/2025

WINDRIDGE SUBDIVISION – UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design

NEW BRAUNFELS (KFW)
640 North Walnut Ave, Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194650

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____
DATE

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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER:	DRAWING NAME:
314-47-05	DETENTION POND A

SHEET TITLE: DETENTION POND A

SHEET NUMBER: 4.26

Date: Dec 23, 2025, 2:21pm User ID: mdachi Flores
File: U:\Projects\314\47\05\Design\Civil\Grading\DETENTION POND A.dwg
By: MAUCHI FLORES

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

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NOTE:

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3. *ALL DRAINAGE EASEMENTS WILL BE OWNED AND MAINTAINED BY THE DEVELOPER.*
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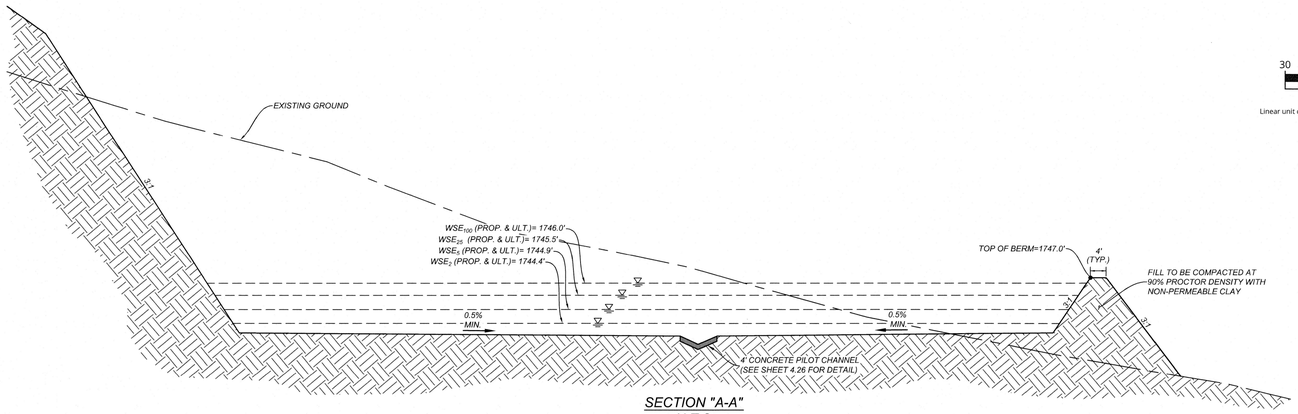
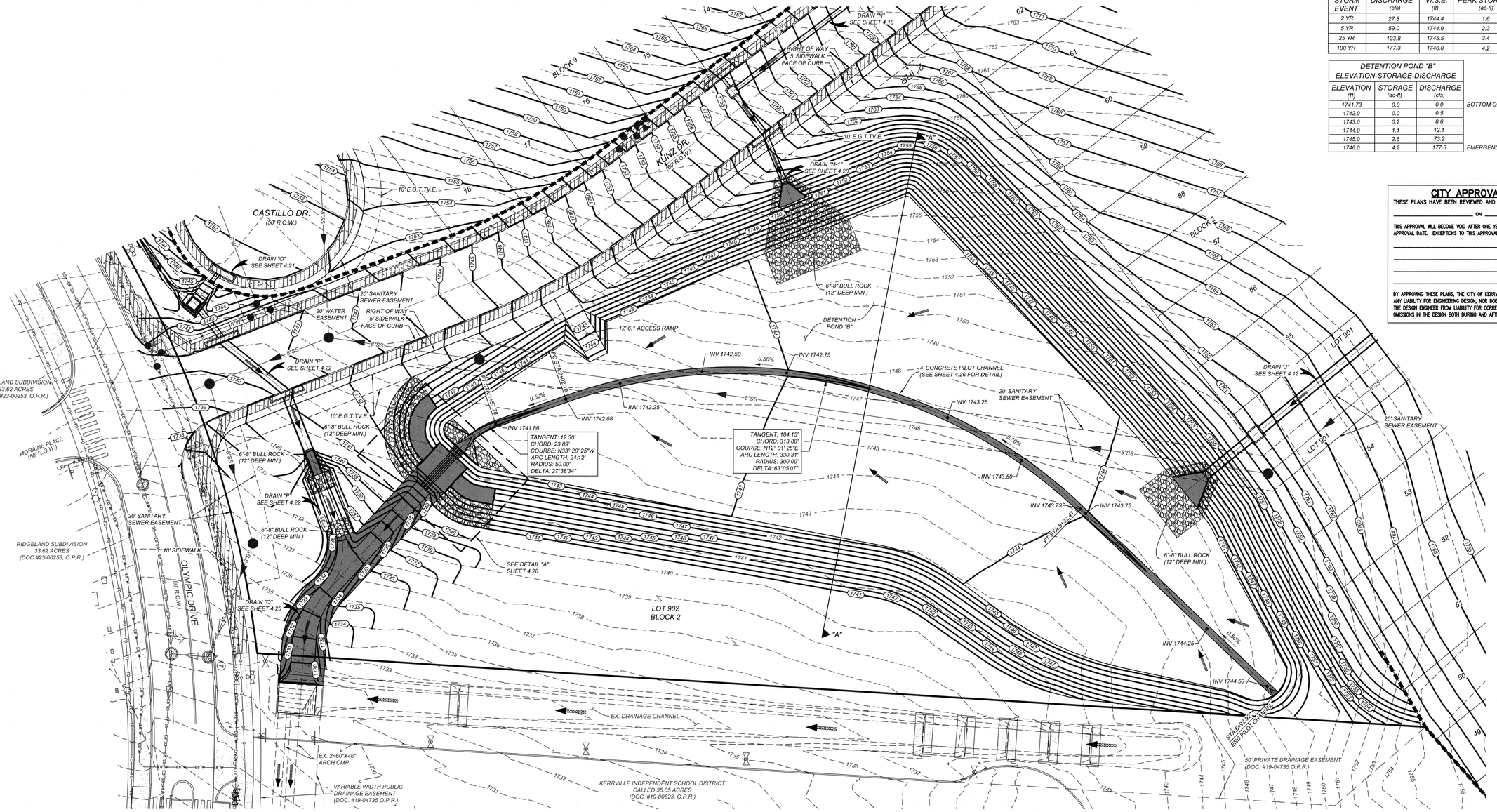
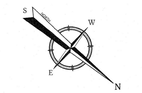
5. *TOP OF WALL (TW) AND BOTTOM OF WALL (BW) ELEVATIONS ARE FINISHED GRADE.*



SECTION "A-A"
N.T.S.





LEGEND

EXISTING CONTOURS	=	600
PROPOSED CONTOURS	=	600
PROPOSED CONTOURS (WINDRIDGE UNIT 1)	=	600
BULL ROCK	=	
FLOW ARROW	=	
CONCRETE RIP-RAP	=	
VERTICAL WALL (DESIGNED BY OTHERS)	=	
SIDEWALK TO BE CONSTRUCTED BY DEVELOPER	=	
PROPOSED ELECTRIC, GAS, TELEPHONE AND CABLE TELEVISION EASEMENT	=	E.G.T.TV.E.
INVERT	=	INV

DETENTION POND "B" DISCHARGE (PROPOSED CONDITIONS)

STORM EVENT	DISCHARGE (cfs)	W.S.E. (ft)	PEAK STORAGE (ac-ft)
2 YR	27.8	1744.4	1.6
5 YR	59.0	1744.9	2.3
25 YR	123.8	1745.5	3.4
100 YR	177.3	1746.0	4.2

DETENTION POND "B" DISCHARGE (ULTIMATE CONDITIONS)

STORM EVENT	DISCHARGE (cfs)	W.S.E. (ft)	PEAK STORAGE (ac-ft)
2 YR	27.8	1744.4	1.6
5 YR	59.0	1744.9	2.3
25 YR	123.8	1745.5	3.4
100 YR	177.3	1746.0	4.2

DETENTION POND "B" ELEVATION-STORAGE-DISCHARGE

ELEVATION (ft)	STORAGE (ac-ft)	DISCHARGE (cfs)	
1741.73	0.0	0.0	BOTTOM OF POND ELEV.
1742.0	0.0	0.5	
1743.0	0.2	8.6	
1744.0	1.1	12.1	
1745.0	2.6	73.2	
1746.0	4.2	177.3	EMERGENCY SPILLWAY ELEV.

CITY APPROVAL

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_____ ON _____ DATE

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BY APPROVING THESE PLANS, THE CITY OF KERRVILLE DOES NOT ASSUME ANY LIABILITY FOR ENGINEERING DESIGN, NOR DOES APPROVAL RELEASE THE DESIGN ENGINEER FROM LIABILITY FOR CORRECTION ERRORS OR OMISSIONS IN THE DESIGN BOTH DURING AND AFTER CONSTRUCTION.

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Formerly Known as KFW ENGINEERS & SURVEYING

PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE
Know what's below. Call before you dig.
FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER
11/06/2025
P.E.

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
####
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: DETENTION POND B

SHEET TITLE: DETENTION POND B

SHEET NUMBER: 4.27

Date: Oct 31, 2025, 12:09pm User ID: nscego
File: U:\Projects\314\47\05\design\Civil\Drains\DETENTION POND B.dwg

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

TRENCH EXCAVATION SAFETY PROTECTION

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

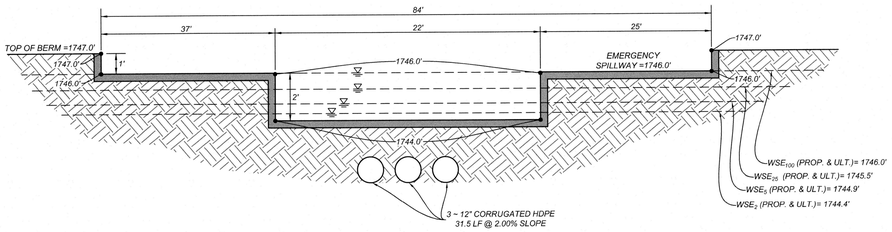
NOTE:

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 KERRVILLE WILL ACCEPT.
3. ALL DRAINAGE EASEMENTS WILL BE OWNED AND MAINTAINED BY THE DEVELOPER.
4. ALL EARTHEN CHANNELS MUST NOT EXCEED 3:1 SIDE SLOPES (MAX).

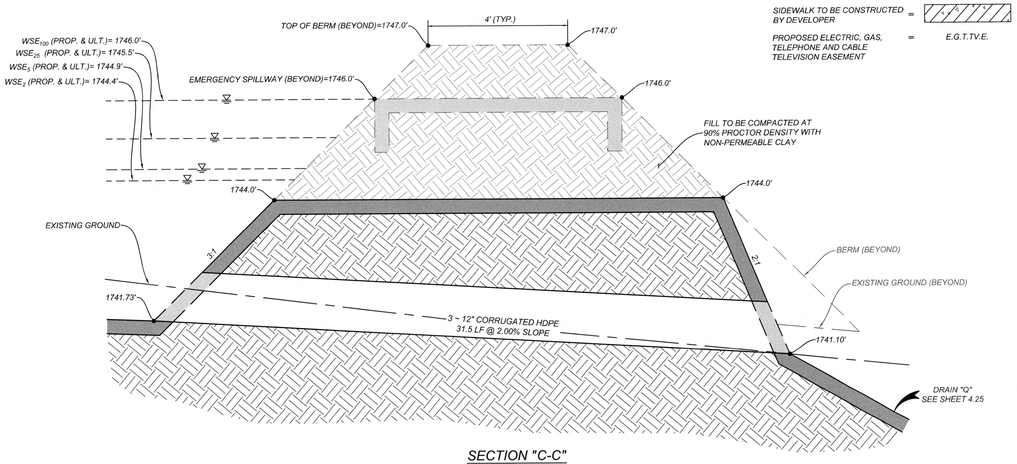
LEGEND

EXISTING CONTOURS	=	600
PROPOSED CONTOURS	=	600
PROPOSED CONTOURS (WINDRIDGE UNIT 1)	=	600
BULL ROCK	=	
FLOW ARROW	=	
CONCRETE RIP-RAP	=	
VERTICAL WALL (DESIGNED BY OTHERS)	=	
SIDEWALK TO BE CONSTRUCTED BY DEVELOPER	=	
PROPOSED ELECTRIC, GAS, TELEPHONE AND CABLE TELEVISION EASEMENT	=	E.G.T.TV.E.

EMERGENCY OVERFLOW WEIR CALCULATION (DETENTION POND "C")
$Q_{CAP} = C'L'H^{3/2}$
$Q_{CAP} = 2.6 * 84\ FT * (1\ FT^{3/2})$
$Q_{CAP} = 218.4\ CFS$
PEAK BASIN INFLOW (100YR ULTIMATE) = 217.2 CFS
218.4 CFS > 217.2 CFS = OK



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



SECTION "C-C"
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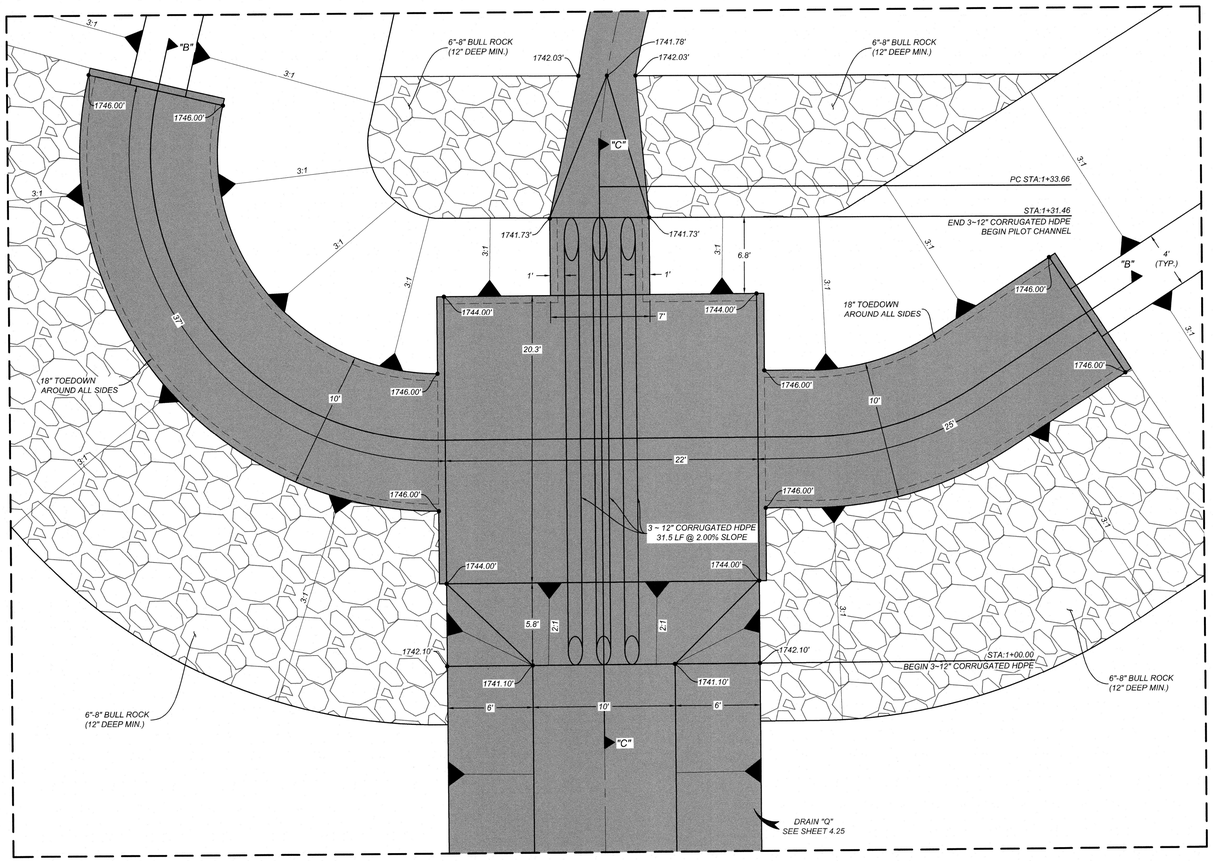

DETAIL "A"
SCALE: 1"=5'

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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER
11/03/2025
P.E.

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____
DATE

THIS APPROVAL WILL BECOME VOID AFTER ONE YEAR OF THE INDICATED APPROVAL DATE. EXCEPTIONS TO THIS APPROVAL ARE AS FOLLOWS:

BY APPROVING THESE PLANS, THE CITY OF KERRVILLE DOES NOT ASSUME ANY LIABILITY FOR ENGINEERING DESIGN, NOR DOES APPROVAL RELEASE THE DESIGN ENGINEER FROM LIABILITY FOR CORRECTION ERRORS OR OMISSIONS IN THE DESIGN BOTH DURING AND AFTER CONSTRUCTION.

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

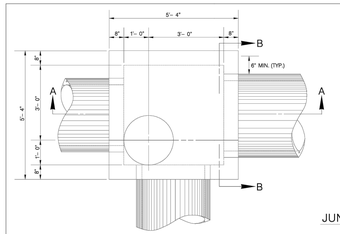
PROJECT NUMBER: 314-47-05
DRAWING NAME: DETENTION POND B

SHEET TITLE: DETENTION POND B DETAILS

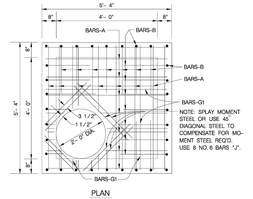
SHEET NUMBER: 4.28

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

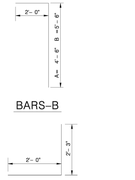
Date: Oct 29, 2025, 2:46pm User ID: logan.haney
File: U:\Projects\314\47\05\Design\Civil\Drains\DETENTION POND B.dwg
\Design\Civil\Drains\DETENTION POND B.dwg\DETENTION POND B DETAILS By: LOGAN.HANEY



PLAN



JUNCTION BOX TOP SLAB SHOWING STEEL

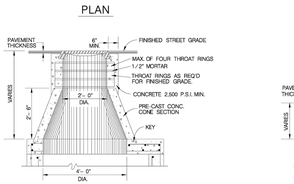


SCHEDULE FOR REINFORCING STEEL						
SHAPE	BAR	NO.	SIZE	SPACING	LENGTH	WEIGHT
STRAIGHT	A	16	4	9" O.C.	5'- 1"	54
	B	32	5	8" O.C.	6'- 10"	228
	C	32	5	8" O.C.	4'- 3"	142
STRAIGHT	D	16	4	9" O.C.	5'- 1"	54
STRAIGHT	E	16	3	12" O.C.	5'- 11"	24
STRAIGHT	G	16	4	12" O.C.	5'- 1"	54
STRAIGHT	G_1	8	4	AS SHOWN	5'- 1"	27
STRAIGHT	H	20	3	12" O.C.	4'- 5"	33
STRAIGHT	J	8	6	3 1/2"	2'- 10"	34
					TOTAL	650 LBS.

CLASS "A" CONCRETE– 3.43 CU. YDS.
(DOES NOT EXCLUDE MANHOLE OPENINGS OR PIPE OPENING)

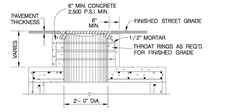
★ NOTE: BAR SIZE AND SPACING BASED ON SPANS AS SHOWN – ANY REVISIONS TO THESE SPANS SHALL INCLUDE A RE-DESIGN ON STEEL REQ'D.

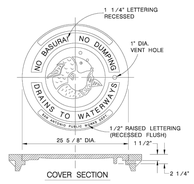
1. CONCRETE FOR STRUCTURE SHALL BE CLASS "A." 3,000 P.S.I. AT 28 DAYS.
2. ALL EXPOSED EDGES SHALL BE CHAMFERED 3 /4".
3. REINFORCING STEEL SHALL BE NEW BILLET STEEL, INTERMEDIATE GRADE; ASTM A-15. THE DEFORMATION SHALL CONFORM TO ASTM A-305.
4. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS.
5. ALL BARS INTERCEPTING MANHOLE OPENING AND REINFORCED CONCRETE PIPE SHALL BE FIELD-CUT.
6. WHERE LAPPING OF BARS IS REQUIRED, A MINIMUM LAP OF 33 DIAMETERS SHALL BE USED.
7. INVERT OF JUNCTION BOX TO BE SHAPED WITH CONCRETE FILL (2,500 P.S.I. MIN.) TO EFFECT DRAINAGE TO OUTLET PIPE. COST SUBSIDIARY TO CLASS "A" CONCRETE (JUNCTION BOXES).
8. PAYMENT FOR ALL EXCAVATION, BACKFILLING, CONCRETE, REINFORCING STEEL, VERTICAL STACK, RING AND COVER SHALL BE INCLUDED IN THE UNIT COST OF ITEM 403 – "STORM SEWER JUNCTION BOXES AND INLETS".



VARIATION OF VERTICAL STACK

VERTICAL STACK DESIGN SHALL BE GOVERNED BY THE DEPTH OF THE TOP OF THE JUNCTION BOX BELOW THE FINISHED STREET GRADE.





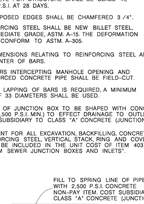
COVER SECTION

MANHOLE LID & RING DETAIL

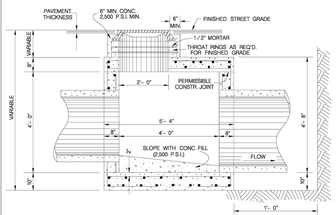
SCALE: 1 : 16

NOTES FOR MANHOLE LID AND RING

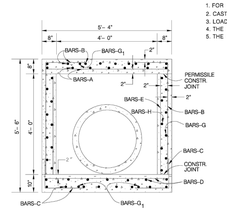
1. FOR LID DESIGN OUTSIDE OF CITY OF SAN ANTONIO, DELETE "SAN ANTONIO PUBLIC WORKS DEPT.".
2. CASTING NUMBER AND MANUFACTURER'S I.D. ON LID AND RING.
3. LOAD BEARING CAPABILITY OF HS-20 MINIMUM.
4. THE LOAD BEARING SURFACES SHALL BE MACHINE GROUND.
5. THE COMBINED WEIGHT OF THE MANHOLE RING AND COVER MUST BE AT LEAST 260 LBS.



CURVED DEFLECTOR DETAIL



SECTION A–A



SECTION B–B

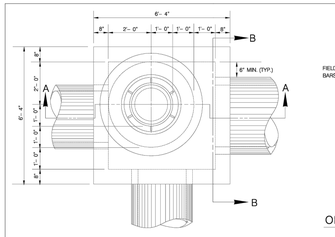
JANUARY 2005

CITY OF SAN ANTONIO

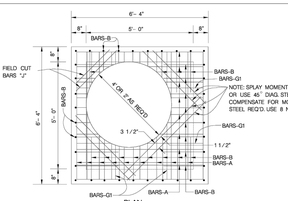
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

4'x4'x4' JUNCTION BOX STANDARDS

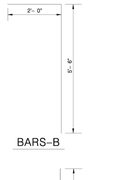
___% SUBMITTAL	PROJECT NO.:	DATE:
DRWN. BY:	DSGN. BY:	CHKD. BY:
		SHEET NO.: ___OF___



PLAN



JUNCTION BOX TOP SLAB SHOWING STEEL

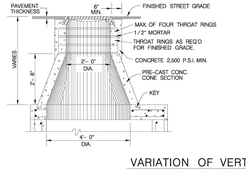


SCHEDULE FOR REINFORCING STEEL						
SHAPE	BAR	NO.	SIZE	SPACING	LENGTH	WEIGHT
STRAIGHT	A	16	4	9" O.C.	6'- 1"	73
	B	36	5	8" O.C.	7'- 6"	282
	C	36	5	8" O.C.	4'- 3"	160
STRAIGHT	D	18	4	9" O.C.	6'- 1"	73
STRAIGHT	E	20	3	12" O.C.	4'- 11"	37
STRAIGHT	G	20	4	12" O.C.	6'- 1"	81
STRAIGHT	G_1	8	4	AS SHOWN	6'- 1"	33
STRAIGHT	H	24	3	12" O.C.	5'- 5"	49
STRAIGHT	J	8	6	3 1/2" O.C.	4'- 11"	59
					TOTAL	847 lbs.

CLASS "A" CONCRETE – 5.03 CU. YDS.
(DOES NOT EXCLUDE MANHOLE OPENINGS OR PIPE OPENING)

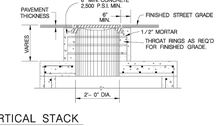
★ NOTE: BAR SIZE AND SPACING BASED ON SPANS AS SHOWN – ANY REVISIONS TO THESE SPANS SHALL INCLUDE A RE-DESIGN ON STEEL REQD.

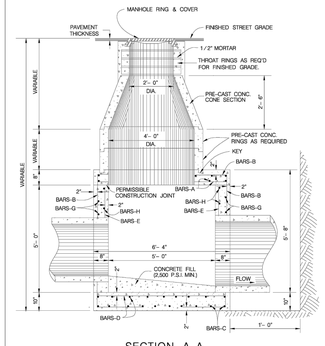
1. CONCRETE FOR STRUCTURE SHALL BE CLASS "A" 3,000 P.S.I. AT 28 DAYS.
2. ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4".
3. REINFORCING STEEL SHALL BE NEW BILLET STEEL, INTERMEDIATE GRADE, ASTM A-15. THE DEFORMATION SHALL CONFORM TO ASTM A-305.
4. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS.
5. ALL BARS INTERCEPTING MANHOLE OPENING AND REINFORCED CONCRETE PIPE SHALL BE FIELD-CUT.
6. WHERE LAPPING OF BARS IS REQUIRED, A MINIMUM LAP OF 33 DIAMETERS SHALL BE USED.
7. INVERT OF JUNCTION BOX TO BE SHAPED WITH CONCRETE FILL (2,500 P.S.I. MIN.) TO EFFECT DRAINAGE TO OUTLET PIPE COST SUBSIDIARY TO CLASS "A" CONCRETE (JUNCTION BOXES).
8. PAYMENT FOR ALL EXCAVATION, BACKFILLING, CONCRETE, REINFORCING STEEL, VERTICAL STACK, RING AND COVER SHALL BE INCLUDED IN THE UNIT COST OF ITEM 403 – "STORM SEWER JUNCTION BOXES AND INLETS".



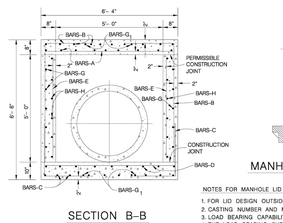
VARIATION OF VERTICAL STACK

VERTICAL STACK DESIGN SHALL BE GOVERNED BY THE DEPTH OF THE TOP OF THE JUNCTION BOX BELOW THE FINISHED STREET GRADE.

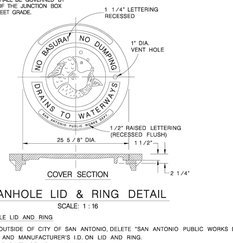




SECTION A–A



SECTION B–B



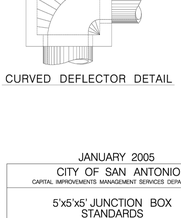
COVER SECTION

MANHOLE LID & RING DETAIL

SCALE: 1 : 16

NOTES FOR MANHOLE LID AND RING

1. FOR LID DESIGN OUTSIDE OF CITY OF SAN ANTONIO, DELETE "SAN ANTONIO PUBLIC WORKS DEPT.".
2. CASTING NUMBER AND MANUFACTURER'S I.D. ON LID AND RING.
3. LOAD BEARING CAPABILITY OF HS-20 MINIMUM.
4. THE LOAD BEARING SURFACES SHALL BE MACHINE GROUND.
5. THE COMBINED WEIGHT OF THE MANHOLE RING AND COVER MUST BE AT LEAST 260 LBS.



CURVED DEFLECTOR DETAIL

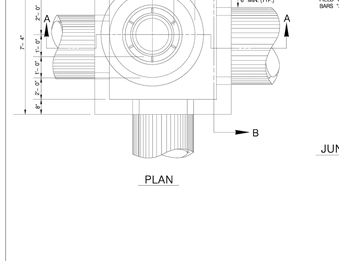
JANUARY 2005

CITY OF SAN ANTONIO

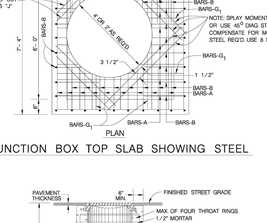
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

5'x5'x5' JUNCTION BOX STANDARDS

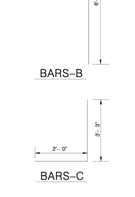
___% SUBMITTAL	PROJECT NO.:	DATE:
DRWN. BY:	DSGN. BY:	CHKD. BY:
		SHEET NO.: ___OF___



PLAN



JUNCTION BOX TOP SLAB SHOWING STEEL

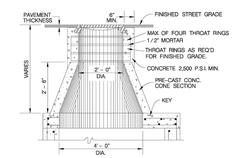


SCHEDULE FOR REINFORCING STEEL						
SHAPE	BAR	NO.	SIZE	SPACING	LENGTH	WEIGHT
STRAIGHT	A	21	4	9" O.C.	7'- 1"	99
	B	46	5	8" O.C.	8'- 6"	408
	C	46	5	8" O.C.	5'- 3"	252
STRAIGHT	D	21	4	9" O.C.	7'- 1"	99
STRAIGHT	E	28	3	12" O.C.	5'- 11"	62
STRAIGHT	G	20	4	12" O.C.	7'- 1"	95
STRAIGHT	G_1	8	4	AS SHOWN	6'- 1"	33
STRAIGHT	H	27	3	12" O.C.	7'- 1"	72
STRAIGHT	J	8	6	3 1/2" O.C.	4'- 11"	59
					TOTAL	1,179 LBS.

CLASS "A" CONCRETE – 6.94 CU. YDS.
(DOES NOT EXCLUDE MANHOLE OPENINGS OR PIPE OPENING)

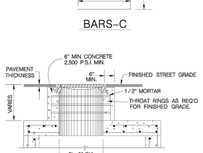
★ NOTE: BAR SIZE AND SPACING BASED ON SPANS AS SHOWN – ANY REVISIONS TO THESE SPANS SHALL INCLUDE A RE-DESIGN ON STEEL REQ'D.

1. CONCRETE FOR STRUCTURE SHALL BE CLASS "A" 3,000 P.S.I. AT 28 DAYS.
2. ALL EXPOSED EDGES SHALL BE CHAMFERED 3 /4".
3. REINFORCING STEEL SHALL BE NEW BILLET STEEL, INTERMEDIATE GRADE; ASTM A-15. THE DEFORMATION SHALL CONFORM TO ASTM A-305.
4. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS.
5. ALL BARS INTERCEPTING MANHOLE OPENING AND REINFORCED CONCRETE PIPE SHALL BE FIELD-CUT.
6. WHERE LAPPING OF BARS IS REQUIRED, A MINIMUM LAP OF 33 DIAMETERS SHALL BE USED.
7. INVERT OF JUNCTION BOX TO BE SHAPED WITH CONCRETE FILL (2,500 P.S.I. MIN.) TO EFFECT DRAINAGE TO OUTLET PIPE. COST SUBSIDIARY TO CLASS "A" CONCRETE (JUNCTION BOXES).
8. PAYMENT FOR ALL EXCAVATION, BACKFILLING, CONCRETE, REINFORCING STEEL, VERTICAL STACK, RING AND COVER SHALL BE INCLUDED IN THE UNIT COST OF ITEM 403 – "STORM SEWER JUNCTION BOXES AND INLETS".



VARIATION OF VERTICAL STACK

VERTICAL STACK DESIGN SHALL BE GOVERNED BY THE DEPTH OF THE TOP OF THE JUNCTION BOX BELOW THE FINISHED STREET GRADE.





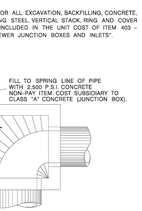
COVER SECTION

MANHOLE LID & RING DETAIL

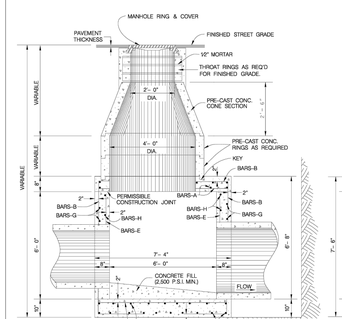
SCALE: 1 : 16

NOTES FOR MANHOLE LID AND RING

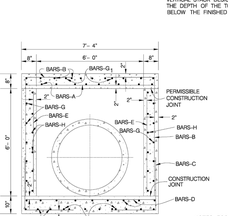
1. FOR LID DESIGN OUTSIDE OF CITY OF SAN ANTONIO, DELETE "SAN ANTONIO PUBLIC WORKS DEPT.".
2. CASTING NUMBER AND MANUFACTURER'S I.D. ON LID AND RING.
3. LOAD BEARING CAPABILITY OF HS-20 MINIMUM.
4. THE LOAD BEARING SURFACES SHALL BE MACHINE GROUND.
5. THE COMBINED WEIGHT OF THE MANHOLE RING AND COVER MUST BE AT LEAST 260 LBS.



CURVED DEFLECTOR DETAIL



SECTION A–A



SECTION B–B

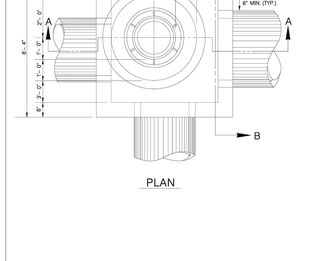
JANUARY 2005

CITY OF SAN ANTONIO

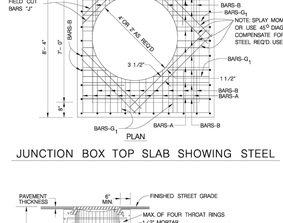
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

6'x6'x6' JUNCTION BOX STANDARDS

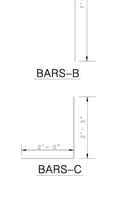
___% SUBMITTAL	PROJECT NO.:	DATE:
DRWN. BY:	DSGN. BY:	CHKD. BY:
		SHEET NO.: ___OF___



PLAN



JUNCTION BOX TOP SLAB SHOWING STEEL



SCHEDULE FOR REINFORCING STEEL						
SHAPE	BAR	NO.	SIZE	SPACING	LENGTH	WEIGHT
STRAIGHT	A	24	4	9" O.C.	8'- 1"	130
	B	48	5	8" O.C.	9'- 6"	476
	C	48	5	8" O.C.	4'- 3"	213
STRAIGHT	D	24	4	9" O.C.	8'- 1"	130
STRAIGHT	E	28	3	12" O.C.	6'- 11"	73
STRAIGHT	G	28	4	12" O.C.	8'- 4"	151
STRAIGHT	G_1	8	4	AS SHOWN	8'- 1"	43
STRAIGHT	H	32	3	12" O.C.	7'- 5"	89
STRAIGHT	J	8	6	3 1/2" O.C.	4'- 11"	59
					TOTAL	1,364 LBS.

CLASS "A" CONCRETE – 9.16 C.U. YDS.
(DOES NOT EXCLUDE MANHOLE OPENINGS OR PIPE OPENING)

★ NOTE: BAR SIZE AND SPACING BASED ON SPANS AS SHOWN – ANY REVISIONS TO THESE SPANS SHALL INCLUDE A RE-DESIGN ON STEEL REQ'D.

1. CONCRETE FOR STRUCTURE SHALL BE CLASS "A" 3,000 P.S.I. AT 28 DAYS.
2. ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4".
3. REINFORCING STEEL SHALL BE NEW BILLET STEEL, INTERMEDIATE GRADE; ASTM A–15. THE DEFORMATION SHALL CONFORM TO ASTM A–305.
4. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS.
5. ALL BARS INTERCEPTING MANHOLE OPENING AND REINFORCED CONCRETE PIPE SHALL BE FIELD–CUT.
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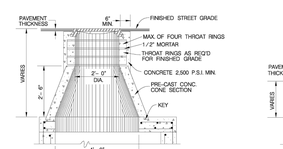
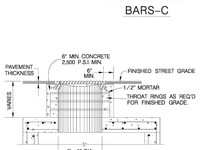
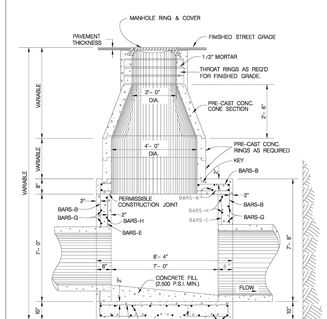


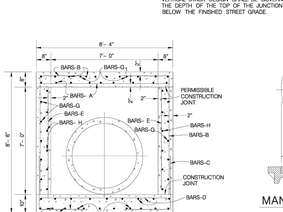
VARIATION OF VERTICAL STACK

VERTICAL STACK DESIGN SHALL BE GOVERNED BY THE DEPTH OF THE TOP OF THE JUNCTION BOX BELOW THE FINISHED STREET GRADE.

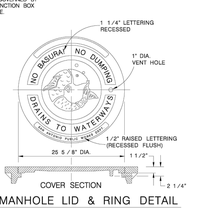




SECTION A–A



SECTION B– B



COVER SECTION

MANHOLE LID & RING DETAIL

SCALE: 1 : 16

NOTES FOR MANHOLE LID AND RING

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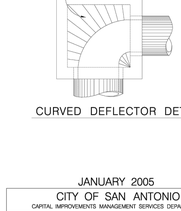

CURVED DEFLECTOR DETAIL

JANUARY 2005

CITY OF SAN ANTONIO

CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

7'x7'x7' JUNCTION BOX STANDARDS

___% SUBMITTAL	PROJECT NO.:	DATE:
DRWN. BY:	DSGN. BY:	CHKD. BY:
		SHEET NO.: ___OF___

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____ DATE

THIS APPROVAL WILL BECOME VOID AFTER ONE YEAR OF THE INDICATED APPROVAL DATE. EXCEPTIONS TO THIS APPROVAL ARE AS FOLLOWS:

BY APPROVING THESE PLANS, THE CITY OF KERRVILLE DOES NOT ASSUME ANY LIABILITY FOR ENGINEERING DESIGN, NOR DOES APPROVAL RELEASE THE DESIGN ENGINEER FROM LIABILITY FOR CORRECTION ERRORS OR OMISSIONS IN THE DESIGN BOTH DURING AND AFTER CONSTRUCTION.

Colliers Engineering & Design

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REV	DATE	DRAWN BY	DESCRIPTION

06/19/2025

STATE OF TEXAS
DENIS A AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design

NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042

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

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER:	DRAWING NAME:
314-47-05	DRAIN DETAILS

SHEET TITLE: DRAIN DETAILS

SHEET NUMBER: 4.29

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Jun 02, 2025, 4:27pm User ID: logan.haney
File: J:\JP Projects\353\4.47 (DS) Design\CAD\Sheets\DRAIN DETAILS.dwg
Design/CAD/Sheets\DRAIN DETAILS.dwg LAYOUT: DRAIN DETAILS By: LOGAN.HANEY

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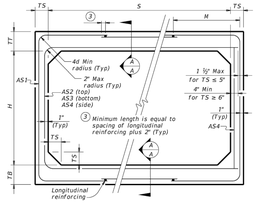
DATE
REVISIONS

BOX DATA

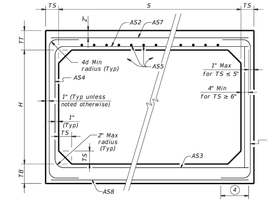
SECTION DIMENSIONS					Fill Height	M (Min)	REINFORCING (sq. in. / ft.) (2)							(1) Lift Weight
S (ft.)	H (ft.)	TT (in.)	TB (in.)	TS (in.)	(ft.)	(in.)	AS1	AS2	AS3	AS4	AS5	AS7	AS8	(tons)
3	2	7	6	4	< 2	-	0.17	0.25	0.16	0.10	0.17	0.17	0.14	3.3
3	2	4	4	4	2 < 3	31	0.13	0.19	0.18	0.10	-	-	-	2.4
3	2	4	4	4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

(1) For box length = 8'-0"
(2) AS1 thru AS4, AS7 and AS8 are minimum required areas of reinforcement per linear foot of box length. AS5 is minimum required area of reinforcement per linear foot of box width.



CORNER OPTION "A" CORNER OPTION "B"

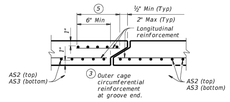
FILL HEIGHT 2 FT AND GREATER



CORNER OPTION "A" CORNER OPTION "B"

FILL HEIGHT LESS THAN 2 FT

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



SECTION A-A

(Showing top and bottom slab joint reinforcement.)

MATERIAL NOTES:
Provide 0.03 sq. in./ft. minimum longitudinal reinforcement at each face in slabs and walls. This minimum requirement may be met by the transverse wires when wire mesh reinforcement is used.
Provide Class H concrete (f'c = 5,000 psi).

GENERAL NOTES:
Designs shown conform to ASTM C1577. Refer to ASTM C1577 for information or details not shown.
See Box Culverts Precast Miscellaneous Details (SCP-MD) standard sheet for details and notes not shown.
In lieu of furnishing the designs shown on this sheet, the contractor may furnish an alternate design that is equal to or exceeds the box design for the design fill height in the table. Submit shop plans for alternate designs in accordance with Item "Precast Concrete Structural Members (Fabrication)."

HL93 LOADING

Texas Department of Transportation | Bridge Division Standard

SINGLE BOX CULVERTS PRECAST 3'-0" SPAN

SCP-3

File: CD-SCP03-20.dgn		ck: TxDOT	dw: TxDOT	ck: TxDOT	dw: TxDOT	ck: TxDOT
©TxDOT February 2020		CONT	SECT	JOB		HIGHWAY
REVISIONS		DIST	COUNTY			SHEET NO.

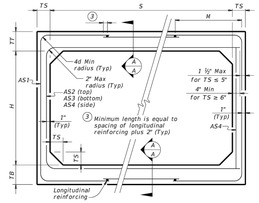
DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE
REVISIONS

BOX DATA

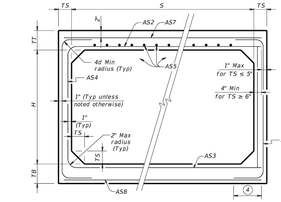
SECTION DIMENSIONS					Fill Height	M (Min)	REINFORCING (sq. in. / ft.) (2)							(1) Lift Weight
S (ft.)	H (ft.)	TT (in.)	TB (in.)	TS (in.)	(ft.)	(in.)	AS1	AS2	AS3	AS4	AS5	AS7	AS8	(tons)
4	2	7.5	6	5	< 2	-	0.18	0.27	0.15	0.12	0.18	0.18	0.14	4.5
4	2	5	5	5	2 < 3	38	0.18	0.19	0.17	0.12	-	-	-	3.6
4	2	5	5	5	3 - 5	38	0.13	0.13	0.13	0.12	-	-	-	3.6
4	2	5	5	5	10	38	0.12	0.12	0.12	0.12	-	-	-	3.6
4	2	5	5	5	15	38	0.14	0.16	0.16	0.12	-	-	-	3.6
4	2	5	5	5	20	38	0.18	0.20	0.21	0.12	-	-	-	3.6
4	2	5	5	5	25	38	0.23	0.25	0.25	0.12	-	-	-	3.6
4	2	5	5	5	30	38	0.28	0.30	0.30	0.12	-	-	-	3.6
4	3	7.5	6	5	< 2	-	0.18	0.31	0.18	0.12	0.18	0.18	0.14	5.0
4	3	5	5	5	2 < 3	38	0.15	0.23	0.20	0.12	-	-	-	4.1
4	3	5	5	5	3 - 5	38	0.12	0.16	0.16	0.12	-	-	-	4.1
4	3	5	5	5	10	38	0.12	0.14	0.14	0.12	-	-	-	4.1
4	3	5	5	5	15	38	0.12	0.18	0.18	0.12	-	-	-	4.1
4	3	5	5	5	20	38	0.14	0.23	0.24	0.12	-	-	-	4.1
4	3	5	5	5	25	38	0.17	0.29	0.29	0.12	-	-	-	4.1
4	3	5	5	5	30	38	0.21	0.35	0.35	0.12	-	-	-	4.1
4	4	7.5	6	5	< 2	-	0.18	0.33	0.20	0.12	0.18	0.18	0.14	5.5
4	4	5	5	5	2 < 3	38	0.12	0.26	0.23	0.12	-	-	-	4.6
4	4	5	5	5	3 - 5	38	0.12	0.18	0.18	0.12	-	-	-	4.6
4	4	5	5	5	10	38	0.12	0.15	0.15	0.12	-	-	-	4.6
4	4	5	5	5	15	38	0.12	0.19	0.20	0.12	-	-	-	4.6
4	4	5	5	5	20	38	0.12	0.25	0.25	0.12	-	-	-	4.6
4	4	5	5	5	25	38	0.14	0.31	0.31	0.12	-	-	-	4.6
4	4	5	5	5	30	38	0.17	0.37	0.37	0.12	-	-	-	4.6

(1) For box length = 8'-0"
(2) AS1 thru AS4, AS7 and AS8 are minimum required areas of reinforcement per linear foot of box length. AS5 is minimum required area of reinforcement per linear foot of box width.



CORNER OPTION "A" CORNER OPTION "B"

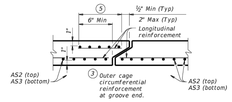
FILL HEIGHT 2 FT AND GREATER



CORNER OPTION "A" CORNER OPTION "B"

FILL HEIGHT LESS THAN 2 FT

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



SECTION A-A

(Showing top and bottom slab joint reinforcement.)

MATERIAL NOTES:
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GENERAL NOTES:
Designs shown conform to ASTM C1577. Refer to ASTM C1577 for information or details not shown.
See Box Culverts Precast Miscellaneous Details (SCP-MD) standard sheet for details and notes not shown.
In lieu of furnishing the designs shown on this sheet, the contractor may furnish an alternate design that is equal to or exceeds the box design for the design fill height in the table. Submit shop plans for alternate designs in accordance with Item "Precast Concrete Structural Members (Fabrication)."

HL93 LOADING

Texas Department of Transportation | Bridge Division Standard

SINGLE BOX CULVERTS PRECAST 4'-0" SPAN

SCP-4

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REVISIONS		DIST	COUNTY			SHEET NO.

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DATE
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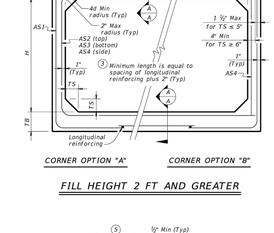
BOX DATA

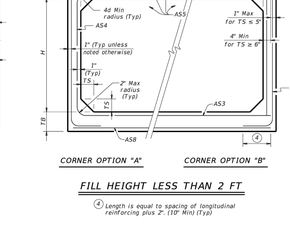
SECTION DIMENSIONS					Fill Height	M (Min)	REINFORCING (sq. in. / ft.) (2)							(1) Lift Weight
S (ft.)	H (ft.)	TT (in.)	TB (in.)	TS (in.)	(ft.)	(in.)	AS1	AS2	AS3	AS4	AS5	AS7	AS8	(tons)
5	2	8	7	6	< 2	-	0.19	0.27	0.18	0.14	0.19	0.19	0.17	6.0
5	2	6	6	6	2 < 3	44	0.22	0.20	0.16	0.14	-	-	-	5.1
5	2	6	6	6	3 - 5	44	0.16	0.14	0.14	0.14	-	-	-	5.1
5	2	6	6	6	10	36	0.15	0.14	0.14	0.14	-	-	-	5.1
5	2	6	6	6	15	36	0.20	0.18	0.18	0.14	-	-	-	5.1
5	2	6	6	6	20	36	0.26	0.23	0.24	0.14	-	-	-	5.1
5	2	6	6	6	25	36	0.33	0.29	0.29	0.14	-	-	-	5.1
5	2	6	6	6	30	36	0.39	0.34	0.35	0.14	-	-	-	5.1
5	3	8	7	6	< 2	-	0.19	0.31	0.21	0.14	0.19	0.19	0.17	6.6
5	3	6	6	6	2 < 3	45	0.18	0.24	0.19	0.14	-	-	-	5.7
5	3	6	6	6	3 - 5	36	0.16	0.17	0.16	0.14	-	-	-	5.7
5	3	6	6	6	10	36	0.14	0.16	0.17	0.14	-	-	-	5.7
5	3	6	6	6	15	35	0.16	0.21	0.22	0.14	-	-	-	5.7
5	3	6	6	6	20	35	0.21	0.27	0.28	0.14	-	-	-	5.7
5	3	6	6	6	25	35	0.26	0.34	0.34	0.14	-	-	-	5.7
5	3	6	6	6	30	35	0.31	0.41	0.41	0.14	-	-	-	5.7
5	4	8	7	6	< 2	-	0.19	0.33	0.24	0.14	0.19	0.19	0.17	7.2
5	4	6	6	6	2 < 3	45	0.16	0.27	0.22	0.14	-	-	-	6.3
5	4	6	6	6	3 - 5	45	0.14	0.19	0.18	0.14	-	-	-	6.3
5	4	6	6	6	10	36	0.14	0.18	0.18	0.14	-	-	-	6.3
5	4	6	6	6	15	35	0.14	0.23	0.24	0.14	-	-	-	6.3
5	4	6	6	6	20	35	0.17	0.30	0.31	0.14	-	-	-	6.3
5	4	6	6	6	25	35	0.21	0.37	0.38	0.14	-	-	-	6.3
5	4	6	6	6	30	35	0.25	0.44	0.45	0.14	-	-	-	6.3
5	5	8	7	6	< 2	-	0.19	0.35	0.26	0.14	0.19	0.19	0.17	7.8
5	5	6	6	6	2 < 3	45	0.14	0.29	0.24	0.14	-	-	-	6.9
5	5	6	6	6	3 - 5	45	0.14	0.21	0.20	0.14	-	-	-	6.9
5	5	6	6	6	10	45	0.14	0.19	0.20	0.14	-	-	-	6.9
5	5	6	6	6	15	36	0.14	0.24	0.25	0.14	-	-	-	6.9
5	5	6	6	6	20	35	0.15	0.31	0.32	0.14	-	-	-	6.9
5	5	6	6	6	25	35	0.18	0.38	0.39	0.14	-	-	-	6.9
5	5	6	6	6	30	35	0.21	0.46	0.47	0.14	-	-	-	6.9

(1) For box length = 8'-0"
(2) AS1 thru AS4, AS7 and AS8 are minimum required areas of reinforcement per linear foot of box length. AS5 is minimum required area of reinforcement per linear foot of box width.



CORNER OPTION "A" CORNER OPTION "B"

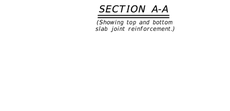
FILL HEIGHT 2 FT AND GREATER



CORNER OPTION "A" CORNER OPTION "B"

FILL HEIGHT LESS THAN 2 FT

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



SECTION A-A

(Showing top and bottom slab joint reinforcement.)

MATERIAL NOTES:
Provide 0.03 sq. in./ft. minimum longitudinal reinforcement at each face in slabs and walls. This minimum requirement may be met by the transverse wires when wire mesh reinforcement is used.
Provide Class H concrete (f'c = 5,000 psi).

GENERAL NOTES:
Designs shown conform to ASTM C1577. Refer to ASTM C1577 for information or details not shown.
See Box Culverts Precast Miscellaneous Details (SCP-MD) standard sheet for details and notes not shown.
In lieu of furnishing the designs shown on this sheet, the contractor may furnish an alternate design that is equal to or exceeds the box design for the design fill height in the table. Submit shop plans for alternate designs in accordance with Item "Precast Concrete Structural Members (Fabrication)."

HL93 LOADING

Texas Department of Transportation | Bridge Division Standard

SINGLE BOX CULVERTS PRECAST 5'-0" SPAN

SCP-5

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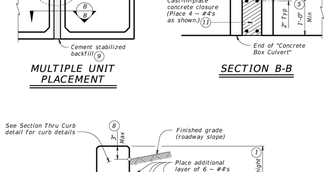
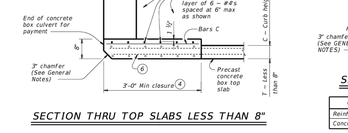


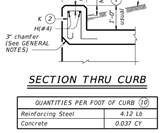
MULTIPLE UNIT PLACEMENT | SECTION B-B | DETAIL "A" (13)

WINGWALL CONNECTION

(Also applies to safety end treatment.)

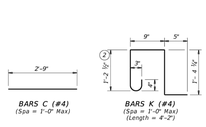


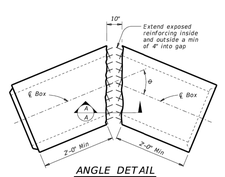
SECTION THRU TOP SLABS LESS THAN 8"



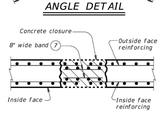
SECTION THRU CURB

QUANTITIES PER FOOT OF CURB (10)	
Reinforcing Steel	4.12 Lb
Concrete	0.037 CY

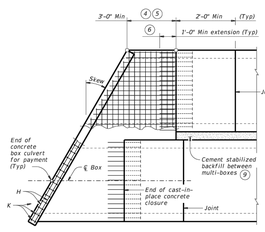




ANGLE DETAIL



SECTION A-A



PLAN OF SKEWED ENDS

(Showing multi-box placement.)

(1) 0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail, bicycle rail, or curbs taller than 1'-0, refer to the Extended Curb Details (ECD) standard sheet. For structures with T631 or T631LS bridge rail, refer to the Mounting Details for T631 & T631LS Rails (FT631-CM) standard sheet. Refer to the Box Culvert Rail Mounting Details (RAC) standard sheet for structures with bridge rail other than T631 or T631LS.

(2) For curbs less than 1'-0" high, tilt Bars K or reduce bar height as necessary to maintain cover. For curbs less than 3" high, Bars K may be omitted.

(3) Extend curb, wingwall, or safety end treatment reinforcing into concrete closure. Bend or trim, as necessary, any reinforcing that does not fit into closure area.

(4) Provide a 3'-0" Min cast-in-place concrete closure. Break back boxes in the field or cast boxes short. Provide bands of reinforcing in the closure that are the same size and spacing as in the precast box section. Provide #4 longitudinal reinforcement spaced at 12 inches Max within the closure. Except where shown otherwise, construct the cast-in-place closure flush with the inside and outside faces of the precast box section.

(5) For multiple unit placements, adjust the length of the closure for the interior walls as necessary. Provide 2'-0" Min cast-in-place closure in the top slab, bottom slab, and exterior wall. See Section B-B detail when interior walls are cast full length.

(6) Extend precast box reinforcing a minimum of 1'-0" into concrete closure (Typ).

(7) Place bands of reinforcing matching the inside and outside face reinforcing in the gaps of the top and bottom slabs. Place a band matching the outside face reinforcing of the wall in the gaps of the walls (placed in the outside face only). Tack weld the bands to the exposed reinforcing at each point of contact.

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

Reduce curb heights, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.

(9) Cement stabilized backfill between boxes is considered part of the box culvert for payment.

(10) All curb concrete and reinforcing is considered part of the box culvert for payment.

(11) Any additional concrete and reinforcing required for the closures will be considered subsidiary to the box culvert for payment.

(12) 1'-0" typical. 2'-3" when the Box Culvert Rail Mounting Details (RAC) standard sheet is referred to elsewhere in the plans.

(13) For multiple unit placement with overlay, with 1 to 2 course surface treatment, or with the top slab as the final riding surface, provide wall closure as shown in Detail "A".

(14) This dimension may be increased with approval of the Engineer to allow the precast boxes to be tunneled or jacked in accordance with Item 476, "Jacking, Boring, or Tunneling Pipe or Box." No payment will be made for any additional material in the gap between adjacent boxes.

MATERIAL NOTES:
Provide Grade 60 reinforcing steel.
Provide ASTM A1064 welded wire reinforcement.
Provide Class C concrete (f'c = 3,600 psi) for the closures.
Provide cement stabilized backfill meeting the requirements of Item 400, "Excavation and Backfill for Structures".
Any additional concrete required for the closures will be considered subsidiary to the box culvert.

GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications.
Refer to the Single Box Culverts Precast (SCP) standard sheets for details and notes not shown.
Chamfer the bottom edge of the top slab closure 3 inches at culvert closure ends.

Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing bars dimensions are out-to-out of bars.

HL93 LOADING

Texas Department of Transportation | Bridge Division Standard

BOX CULVERTS PRECAST MISCELLANEOUS DETAILS

SCP-MD

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REVISIONS		DIST	COUNTY		SHEET NO.

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____

DATE

THIS APPROVAL WILL BECOME VOID AFTER ONE YEAR OF THE INDICATED APPROVAL DATE. EXCEPTIONS TO THIS APPROVAL ARE AS FOLLOWS:

BY APPROVING THESE PLANS, THE CITY OF KERRVILLE DOES NOT ASSUME ANY LIABILITY FOR ENGINEERING DESIGN, NOR DOES APPROVAL RELEASE THE DESIGN ENGINEER FROM LIABILITY FOR CORRECTION ERRORS OR OMISSIONS IN THE DESIGN BOTH DURING AND AFTER CONSTRUCTION.

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DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave. Suite 1101
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TBPE Firm#: F-14909
TBPLS Firm#: 10194550

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AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER:	DRAWING NAME:
314-47-05	5.0 KUNZ DR STA. 1+00.00 - 11+00.00

SHEET TITLE:
DRAIN DETAILS

SHEET NUMBER:
4.30

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

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File: J:\Projects\314705\Civil\Drainage\DRAIN DETAILS.dwg
Design\Civil\Drainage\DRAIN DETAILS.dwg LAYOUT: SCP-MD
By: LOGAN HANEY

TABLE OF VARIABLE DIMENSIONS AND QUANTITIES FOR ONE HEADWALL (5)

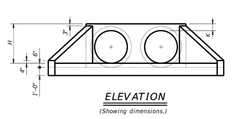
Slope	Dia. of Pipe (D)	Values for One Pipe W	X	Y	L	Reinf (Lbs)	Conc (CY) (1)	Values to be Added for Each Add'l Pipe X and W	Reinf (Lbs)	Conc (CY) (1)
2:1	12"	4' - 7 ½"	2' - 6"	2' - 10"	3' - 3 ½"	88	0.6	1' - 9"	20	0.2
	15"	5' - 5 ½"	2' - 9 ½"	3' - 4"	3' - 10 ½"	103	0.7	2' - 2"	24	0.3
	18"	6' - 4 ½"	3' - 1"	3' - 10"	4' - 5"	124	0.9	2' - 5"	32	0.3
	21"	7' - 2 ½"	3' - 4 ½"	4' - 4"	5' - 0"	143	1.1	3' - 1"	43	0.4
	24"	8' - 2 ½"	3' - 9 ½"	4' - 10"	5' - 7"	164	1.3	3' - 7"	50	0.5
	27"	9' - 1"	4' - 1"	5' - 4"	6' - 2"	179	1.5	3' - 11"	56	0.6
	30"	9' - 11 ½"	4' - 4 ½"	5' - 10"	6' - 8 ½"	203	1.7	4' - 4"	65	0.8
	33"	10' - 10"	4' - 8"	6' - 4"	7' - 3 ½"	224	2.0	4' - 8"	71	0.9
	36"	11' - 8 ½"	4' - 11 ½"	6' - 10"	7' - 10 ½"	249	2.2	5' - 1"	81	1.0
	42"	13' - 5 ½"	5' - 6 ½"	7' - 10"	9' - 0 ½"	298	2.8	5' - 10"	97	1.3
	48"	15' - 9"	6' - 1 ½"	9' - 4"	10' - 9 ½"	360	3.8	6' - 7"	117	1.7
3:1	54"	17' - 5 ½"	6' - 8 ½"	10' - 4"	11' - 11 ½"	427	4.5	7' - 6"	151	2.1
	60"	19' - 2 ½"	7' - 3 ½"	11' - 4"	13' - 1"	481	5.3	8' - 3"	174	2.5
	66"	20' - 11 ½"	7' - 10 ½"	12' - 4"	14' - 3"	544	6.2	8' - 9"	194	2.9
	72"	22' - 8 ½"	8' - 5 ½"	13' - 4"	15' - 4 ¾"	601	7.1	9' - 4"	213	3.3
4:1	12"	6' - 3"	2' - 6"	3' - 4"	4' - 3"	118	0.8	2' - 2"	32	0.2
	15"	7' - 5"	2' - 9 ½"	5' - 0"	5' - 9 ¼"	137	1.1	2' - 2"	28	0.3
	18"	8' - 6 ¾"	3' - 1"	5' - 9"	6' - 7 ¾"	170	1.3	2' - 8"	37	0.5
	21"	9' - 8 ¾"	3' - 4 ½"	6' - 6"	7' - 6"	195	1.6	3' - 1"	48	0.6
	24"	11' - 0"	3' - 9 ½"	7' - 5"	8' - 6 ½"	222	2.0	3' - 7"	58	0.7
	27"	12' - 2"	4' - 1"	8' - 0"	9' - 2 ½"	251	2.3	3' - 11"	67	0.8
	30"	13' - 4"	4' - 4 ½"	8' - 9"	10' - 1 ½"	293	2.7	4' - 4"	77	1.0
	33"	14' - 5 ¾"	4' - 8"	9' - 5"	10' - 11 ½"	318	3.0	4' - 8"	84	1.2
	36"	15' - 7 ¾"	4' - 11 ½"	10' - 3"	11' - 10"	351	3.5	5' - 1"	96	1.4
	42"	17' - 11 ½"	5' - 6 ½"	11' - 9"	13' - 6 ¾"	432	4.5	5' - 10"	119	1.7
	48"	21' - 1 ¾"	6' - 1 ½"	14' - 0"	16' - 2"	537	6.1	6' - 7"	146	2.3
	54"	23' - 5 ½"	6' - 8 ½"	15' - 6"	17' - 10 ½"	630	7.3	7' - 6"	186	2.9
	60"	25' - 9 ¼"	7' - 3 ½"	17' - 0"	19' - 7 ½"	719	8.7	8' - 3"	219	3.4
	66"	28' - 1"	7' - 10 ½"	18' - 6"	21' - 4 ¼"	811	10.1	8' - 9"	242	3.9
	72"	30' - 4 ¾"	8' - 5 ½"	20' - 0"	23' - 1 ¾"	924	11.7	9' - 4"	272	4.4
4:1	12"	7' - 10 ¾"	2' - 6"	5' - 8"	6' - 6 ½"	148	1.1	1' - 9"	24	0.3
	15"	9' - 4"	2' - 9 ½"	6' - 8"	7' - 8 ½"	181	1.5	2' - 2"	32	0.4
	18"	10' - 9 ½"	3' - 1"	7' - 6"	8' - 10 ½"	221	1.9	2' - 5"	42	0.5
	21"	12' - 2 ½"	3' - 4 ½"	8' - 8"	10' - 0"	260	2.3	3' - 1"	57	0.7
	24"	13' - 9 ½"	3' - 9 ½"	9' - 8"	11' - 2"	301	2.8	3' - 7"	67	0.9
	27"	15' - 3"	4' - 1"	10' - 8"	12' - 3 ¾"	334	3.3	3' - 11"	77	1.0
	30"	16' - 8 ¼"	4' - 4 ½"	11' - 8"	13' - 5 ½"	385	3.8	4' - 4"	89	1.3
	33"	18' - 1 ¾"	4' - 8"	12' - 8"	14' - 7 ½"	425	4.5	4' - 8"	101	1.4
	36"	19' - 7"	4' - 11 ½"	13' - 8"	15' - 9 ¾"	472	5.1	5' - 1"	115	1.7
	42"	22' - 5 ¾"	5' - 6 ½"	15' - 8"	18' - 0 ¾"	583	6.5	5' - 10"	141	2.1
	48"	26' - 6 ¼"	6' - 1 ½"	18' - 8"	21' - 6 ¾"	730	8.9	6' - 7"	175	2.8
	54"	29' - 5"	6' - 8 ½"	20' - 8"	23' - 10 ¼"	875	10.7	7' - 6"	226	3.6
	60"	32' - 3 ¾"	7' - 3 ½"	22' - 8"	26' - 2"	996	12.1	8' - 3"	264	4.3
	66"	35' - 2 ½"	7' - 10 ½"	24' - 8"	28' - 5 ¾"	1,140	14.9	8' - 9"	300	4.9
	72"	38' - 1 ¼"	8' - 5 ½"	26' - 8"	30' - 9 ½"	1,297	17.3	9' - 4"	334	5.6
6:1	12"	11' - 2"	2' - 6"	8' - 6"	9' - 9 ½"	224	1.9	1' - 9"	28	0.4
	15"	13' - 2 ½"	2' - 9 ½"	10' - 0"	11' - 6 ½"	268	2.5	2' - 2"	37	0.5
	18"	15' - 2 ½"	3' - 1"	11' - 6"	13' - 3 ½"	330	3.2	2' - 8"	50	0.7
	21"	17' - 2 ½"	3' - 4 ½"	13' - 0"	15' - 0 ¼"	387	3.9	3' - 1"	69	0.9
	24"	19' - 4 ½"	3' - 9 ½"	14' - 6"	16' - 9"	453	4.8	3' - 7"	80	1.2
	27"	21' - 4 ¾"	4' - 1"	16' - 0"	18' - 5 ½"	512	5.7	3' - 11"	96	1.4
	30"	23' - 5 ½"	4' - 4 ½"	17' - 6"	20' - 2 ½"	593	6.7	4' - 4"	110	1.7
	33"	25' - 5 ½"	4' - 8"	19' - 0"	21' - 11 ¾"	675	7.8	4' - 8"	127	2.0
	36"	27' - 5 ¾"	4' - 11 ½"	20' - 6"	23' - 8"	735	9.0	5' - 1"	144	2.3
	42"	31' - 6 ¾"	5' - 6 ½"	23' - 6"	27' - 1 ½"	922	11.5	5' - 10"	179	3.0
	48"	37' - 3 ½"	6' - 1 ½"	28' - 0"	32' - 4"	1,191	15.9	6' - 7"	231	4.0
	54"	41' - 4 ¾"	6' - 8 ½"	31' - 0"	35' - 9 ½"	1,424	19.2	7' - 6"	300	5.0
	60"	45' - 4 ¾"	7' - 3 ½"	34' - 0"	39' - 3"	1,631	22.9	8' - 3"	353	6.0

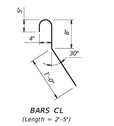
TABLE OF REINFORCING STEEL (5)

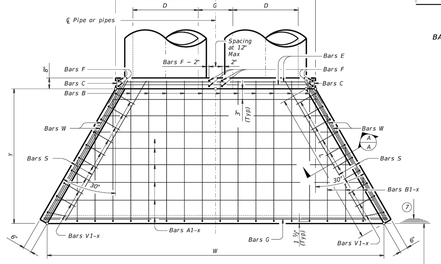
Bar	Size	Spa	No.
A	#4	1'- 0"	–
B	#3	1'- 6"	–
C	#4	1'- 0"	–
D	#3	1'- 0"	–
E	#5	–	4
F	#5	–	–
G	#3	–	2
S	#4	–	6
V	#4	1'- 0"	–
W	#5	–	4

TABLE OF CONSTANT DIMENSIONS

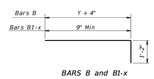
Dia of Pipe (D)	G	K (4)	H
12"	0' - 9"	1' - 0"	2' - 0"
15"	0' - 11"	1' - 0"	2' - 3"
18"	1' - 2"	1' - 0"	2' - 6"
21"	1' - 4"	1' - 0"	2' - 9"
24"	1' - 7"	1' - 0"	3' - 0"
27"	1' - 8"	1' - 0"	3' - 3"
30"	1' - 10"	1' - 0"	3' - 6"
33"	1' - 11"	1' - 0"	3' - 9"
36"	2' - 1"	1' - 0"	4' - 0"
42"	2' - 4"	1' - 0"	4' - 6"
48"	2' - 7"	1' - 3"	5' - 3"
54"	3' - 0"	1' - 3"	5' - 9"
60"	3' - 3"	1' - 3"	6' - 3"
66"	3' - 7"	1' - 3"	6' - 9"
72"	3' - 4"	1' - 3"	7' - 3"







PLAN

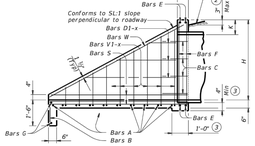


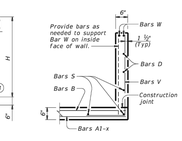
1. Quantities shown are for concrete pipe and will increase slightly for metal pipe installations.
2. For vehicle safety, construct curbs no more than 3" above finished grade. Reduce curb heights, if necessary, to meet these requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.
3. Provide a 1'-0" footing as shown where required to maintain 4" minimum cover for pipes.
4. Dimensions shown are usual and maximum.
5. Quantities shown are for one structure end only (one headwall).
6. Min Length = 6" + 3" x $\left(\frac{12 \times H - 7}{12 \times 1}\right)$
   Max Length = 12 x H - 3" x $\left(\frac{12 \times H - 7}{12 \times 1}\right)$ - 1"
7. Lengths of wings based on SL:1 slope along this line.

MATERIAL NOTES:
Provide Grade 60 reinforcing steel.
Provide Class C concrete (f'c = 3,600 psi).

GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications.
Do not mount bridge rails of any type directly to these culvert headwalls.
This standard may not be used for wall heights, H, exceeding the values shown.

Cover dimensions are clear dimensions, unless noted otherwise. Reinforcing dimensions are out-to-out of bars.





Texas Department of Transportation — Bridge Division Standard

CONCRETE HEADWALLS
WITH FLARED WINGS FOR
0° SKEW PIPE CULVERTS

CH-FW-0

*** CD-CH-FW0-20.dgn	dw: TxDOT	ck: TxDOT	dw: TxDOT	ck: TxDOT
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REVISIONS	DIST	COUNTY		SHEET NO.

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DATE:
FILE:

TABLE OF DIMENSIONS AND REINFORCING STEEL
(Wings for one structure end)

Maximum Wingwall Height He	W	X	Y	Z	Variable Reinforcing Bars // Size	Bars // Spa	Bars ⊥ Size	Bars ⊥ Spa	Estimated Quantities (3) per ft of wing length (2-wings) Reinf (Lb/Ft)	Conc (CY/Ft)
2'-6"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	33.73	0.248
3'-0"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	37.07	0.261
3'-6"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	37.74	0.273
4'-0"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	38.41	0.285
4'-6"	2'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	41.75	0.330
5'-0"	2'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	45.09	0.343
5'-6"	2'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	45.75	0.355
6'-0"	2'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	46.42	0.367
7'-0"	3'-8"	1'-9"	1'-3"	7"	#4	1'-0"	#4	1'-0"	52.77	0.414
8'-0"	4'-2"	2'-0"	1'-6"	8"	#5	1'-0"	#4	1'-0"	60.19	0.486
9'-0"	4'-8"	2'-3"	1'-9"	8"	#5	1'-0"	#4	1'-0"	81.49	0.535
10'-0"	5'-2"	2'-6"	2'-0"	8"	#5	6"	#4	6"	97.25	0.584
11'-0"	5'-8"	2'-9"	2'-3"	8"	#6	6"	#5	6"	133.65	0.634
12'-0"	6'-2"	3'-0"	2'-6"	9"	#7	6"	#5	6"	162.29	0.721
13'-0"	6'-8"	3'-3"	2'-9"	11"	#7	6"	#5	6"	178.80	0.856
14'-0"	7'-2"	3'-6"	3'-0"	1'-0"	#8	6"	#5	6"	216.78	0.959
15'-0"	7'-8"	4'-0"	3'-0"	1'-1"	#9	6"	#6	6"	283.06	1.068
16'-0"	8'-2"	4'-6"	3'-0"	1'-3"	#9	6"	#6	6"	297.02	1.234

TABLE OF WINGWALL REINFORCING (2-wings)

Bar	Size	No.	Spa
D	#5	–	1'-0"
E	#4	–	1'-0"
F	#4	–	1'-0"
G	#6	4	–
M	#4	4	–
P	#4	–	1'-0"
R	#5	6	–
V	#4	–	1'-0"

TABLE OF ESTIMATED CULVERT TOEWALL QUANTITIES

Bar	Size	No.	Spa
L	#4	–	1'-6"
Q	#4	1	–
Reinf (Lb/Ft)			2.45
Conc (CY/Ft)			0.037

WING DIMENSION FORMULAS:
(All values are in feet.)

He = H + T + C - 0.250
Lw = (Hw - 0.333) (SL)

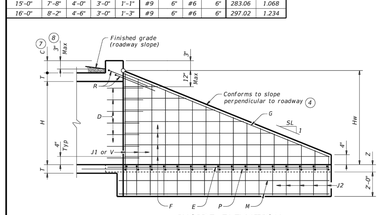
For cast-in-place culverts:
Ltw = (N) (SL) + (N + 1) (U)

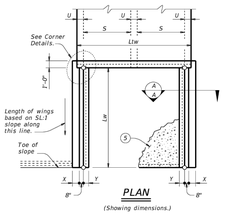
For precast culverts:
Ltw = (N) (2U + S) + (N - 1) (0.5')

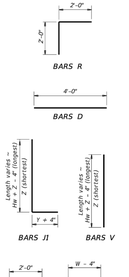
Total Wingwall Area (two wings – SF) = (Hw + 0.333') (Lw)

He = Height of wingwall
SL:1 = Side slope ratio (horizontal:1 vertical)
Lw = Length of wingwall
Ltw = Culvert toewall length
N = Number of culvert spans

See applicable box culvert standard sheet for H, S, T, and U values.







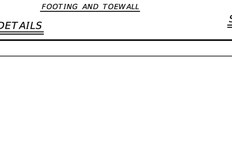
1. Extend Bars P 3'-0" minimum into bottom slab of box culvert.
2. Adjust as necessary to maintain 1 1⁄4" clear cover and 4" minimum between bars.
3. Quantities shown are based on an average wing height for two wings (one structure end). To determine total quantities for two wings, multiply the tabulated values by Lw.
4. Recommended values of side slope are: 2:1, 3:1, 4:1, and 6:1.
5. When shown elsewhere on the plans, construct 5" deep concrete riprap. Payment for riprap is as required by Item 432, "Riprap." Unless otherwise shown on the plans or directed by the Engineer, provide a 8" wide by 1'-6" deep reinforced concrete curb along the top of the riprap adjacent to natural ground; reinforce the toewall by extending typical riprap reinforcing into the toewall; and extend construction joints or grooved joints oriented in the direction of flow across the full distance of the riprap at intervals of approximately 20'. When such riprap is provided, the culvert toewall shown in SECTION B-B will not be required.
6. At Contractor's option, culvert toewall may be ended flush with wingwall toewall. Adjust reinforcing as needed.
7. 0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rails, construct curbs no higher than 9" as the Extended Curb Details (ECD) standard sheet. For structures with T631 or T631LS bridge rail, refer to the Mounting Details for T631 & T631LS Rails (T631-CM) standard sheet. Refer to the Box Culvert Rail Mounting Details (RAC) standard sheet for structures with bridge rail other than T631 or T631LS.
8. For vehicle safety, the following requirements must be met:
   - For structures without bridge rail, construct curbs no more than 3" above finished grade.
   - For structures with bridge rail, construct curbs flush with finished grade.

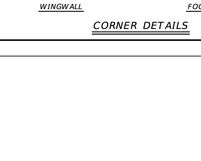
   Reduce curb heights, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.

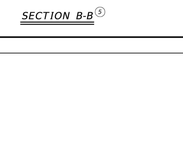
MATERIAL NOTES:
Provide Class C concrete (f'c=3,600 psi).
Provide Grade 60 reinforcing steel.
Provide galvanized reinforcing steel if required elsewhere in the plans.
In riprap, synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing unless noted otherwise.

GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications.
When structure is founded on solid rock, depth of toewalls for culverts and wingwalls may be reduced as directed by the Engineer.
See Box Culvert Supplement (BCS) standard sheet for additional dimensions and information.
The quantities for concrete and reinforcing steel resulting from the formulas given on this sheet are for Contractor's information only.

Cover dimensions are clear dimensions, unless noted otherwise. Reinforcing dimensions are out-to-out of bars.







CORNER DETAILS

Texas Department of Transportation — Bridge Division Standard

CONCRETE WINGWALLS
WITH STRAIGHT WINGS FOR
0° SKEW BOX CULVERTS

SW-0

*** CD-SW0-20.dgn	dw: GM	ck: CAE	dw: TxDOT	ck: TxDOT
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DATE:
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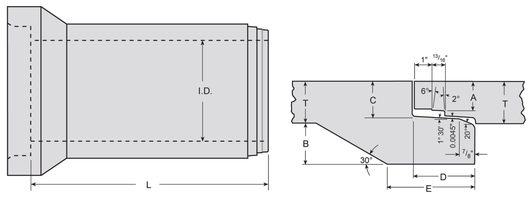
Reinforced Concrete Pipe



JOINT DETAIL

PIPE & JOINT DATA										
I.D. (in.)	Metic Eq. (mm)	Area (ft.²)	T (in.)	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	L (ft.)	Weight (lbs./ft.)
12	300	0.8	2	1.293	2	1.641	3 5/8	5	8	105
15	375	1.2	2 1/4	1.543	2 1/4	1.891	3 5/8	5	8	140
18	450	1.8	2 1/2	1.730	2 1/2	2.079	3 5/8	5	8	180
21	525	2.4	2 3/4	1.971	2 5/8	2.319	3 7/8	6	8	228
24	600	3.1	3	1.221	2 3/4	2.569	3 7/8	6 1/2	8	286
27	675	4.0	3 1/4	2.404	2 7/8	2.753	4	6 1/2	8	334
30	750	4.9	3 1/2	2.654	3 1/8	3.003	4	7	8	402
36	900	7.1	4	3.092	3 5/8	3.440	4	7 1/2	8	566
42	1,050	9.6	4 1/2	3.684	4 1/8	4.097	4 5/8	8	8	686
48	1,200	12.6	5	4.185	4 1/2	4.602	4 3/4	8 1/2	8	884

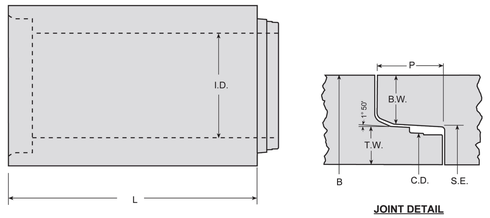
Note:
1.) All dimensions are nominal and within the permissible variations of ASTM.
2.) Reinforced concrete pipe conforms to current ASTM C-76 Specification (Class III)
3.) Rubber gaskets conform to ASTM C-433 Specification.

-No Scale-
All dimensions subject to allowable specification tolerances.

TITLE	PLANT	STATE	SECTION.PAGE	DATE
Circular Concrete Pipe, 12" - 48"		AR	3.1	2-1-05

FORTERRA

Reinforced Concrete Pipe



JOINT DETAIL

PIPE & JOINT DATA										
I.D. (size) (in.)	Metric Equiv. (mm)	Area (ft.²)	Wall Thickness (in.)	S.E. (in.)	T.W. (in.)	B (in.)	P (in.)	C.D. (in.)	Length (ft.)	Weight (lbs./ft.)
54	1,350	15.9	5.5	58.492	2.398	65	4.75	58.001	8	1,068
60	1,500	19.6	6.0	64.958	2.681	72	4.75	64.467	8	1,296
66	1,650	23.8	6.5			79			8	1,542
72	1,800	28.3	7.0	77.658	2.987	86	5.00	76.932	8	1,811
84	2,100	38.5	8.0	91.316	3.692	100	5.625	90.454	8	2,409
96	2,400	50.3	9.0			114			8	3,000
108	2,700	63.6	10.0			128			8	3,865

Note:
1.) All dimensions are nominal and within the permissible variations of ASTM.
2.) Reinforced concrete pipe conforms to current ASTM C-76 Specification (Class III)
3.) Rubber gaskets conform to ASTM C-443 Specification.

-No Scale-
All dimensions subject to allowable specification tolerances.

TITLE	PLANT	STATE	SECTION.PAGE	DATE
Circular Concrete Pipe, 54" - 108"		AR	3.2	2-1-05

FORTERRA

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PROJECT NUMBER: 314-47-05
DRAWING NAME: 5.0 KUNZ DR STA. 1+00.00 - 11+00.00

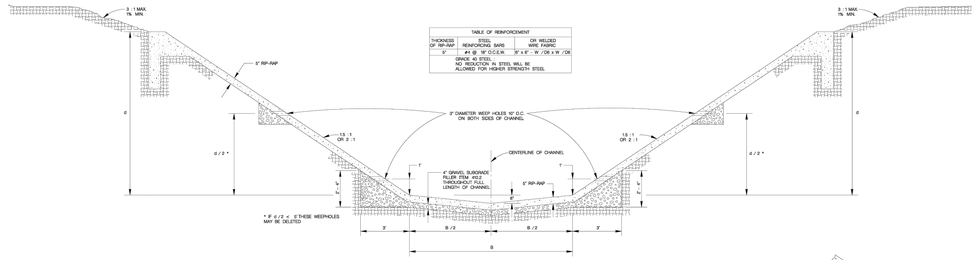
SHEET TITLE: DRAIN DETAILS

SHEET NUMBER: 4.31

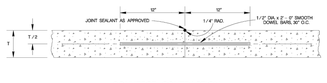
CITY APPROVAL
THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY
_____ ON _____
DATE
THIS APPROVAL WILL BECOME VOID AFTER ONE YEAR OF THE INDICATED APPROVAL DATE. EXCEPTIONS TO THIS APPROVAL ARE AS FOLLOWS:
_____
_____
_____
_____
BY APPROVING THESE PLANS, THE CITY OF KERRVILLE DOES NOT ASSUME ANY LIABILITY FOR ENGINEERING DESIGN, NOR DOES APPROVAL RELEASE THE DESIGN ENGINEER FROM LIABILITY FOR CORRECTION ERRORS OR OMISSIONS IN THE DESIGN BOTH DURING AND AFTER CONSTRUCTION.

Date: May 27, 2025, 9:53am User ID: logan.harvey
File: L:\Projects\453\314\47\05\Design\Civil\Drainage\DRAIN DETAILS.dwg
\Design\Civil\Drainage\DETAILS.dwg\4.33 DRAIN DETAILS By:LOGAN.HARVEY

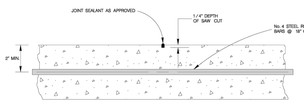
NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.



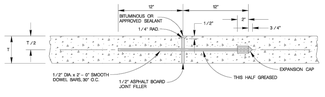
TYPICAL CHANNEL SECTION
LOOKING DOWNSTREAM
SCALE : 1" = 4'



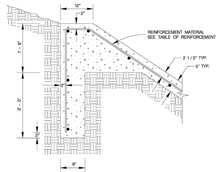
CONVERSE CONTRACTION
OR CONSTRUCTION JOINT
SCALE : 1" = 1'



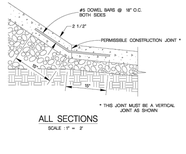
"SAW CUT" CONTRACTION JOINT
SCALE : 1" = 6"



TRANSVERSE EXPANSION JOINT
SCALE : 1" = 1'

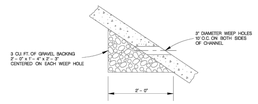


REINFORCEMENT DETAIL
TOE-DOWN
SCALE : 1" = 2'

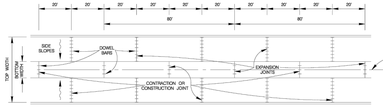


* THIS JOINT MUST BE A VERTICAL JOINT AS SHOWN

ALL SECTIONS
SCALE : 1" = 2'



WEEP HOLES DETAILS
FOR SIDE SLOPES
SCALE : 1" = 2'



EXPANSION AND CONTRACTION JOINTS
FOR CONCRETE CHANNEL LINING
SCALE : 1" = 40'

GENERAL NOTES

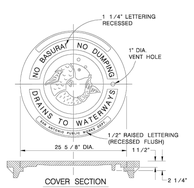
1. CONCRETE FOR CHANNEL RIP-RAP SHALL BE CLASS "A" 3000 P.S.I.
2. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS UNLESS OTHERWISE SHOWN.
3. ALL REINFORCEMENT STEEL SHALL MEET ASTM DESIGNATIONS AS CALLED FOR IN THE "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION".
4. NEW RIP-RAP SHOULD BE ATTACHED TO EXISTING RIP-RAP BY NO.4 BARS DOWELED 6" INTO EXISTING RIP-RAP. THESE BARS ARE TO BE SPACED 18" O.C. AND HAVE A LENGTH OF 18".

MAY 2009

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

TYPICAL CONCRETE CHANNEL
RIP-RAP STANDARDS

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

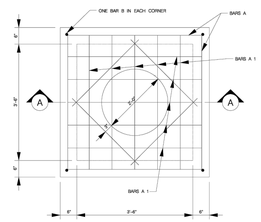


COVER SECTION

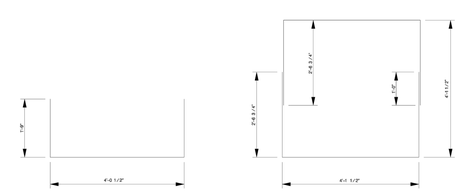
MANHOLE LID & RING DETAIL
SCALE: 1 : 16

NOTES FOR MANHOLE LID AND RING

1. FOR LID DESIGN OUTSIDE OF CITY OF SAN ANTONIO, DELETE "SAN ANTONIO PUBLIC WORKS DEPT.".
2. CASTING NUMBER AND MANUFACTURER'S I.D. ON LID AND RING.
3. LOAD BEARING CAPABILITY OF HS-20 MINIMUM.
4. THE LOAD BEARING SURFACES SHALL BE MACHINE GROUND.
5. THE COMBINED WEIGHT OF THE MANHOLE RING AND COVER MUST BE AT LEAST 260 LBS.



TOP SLAB PLAN VIEW
SCALE: 1" = 2'-0"

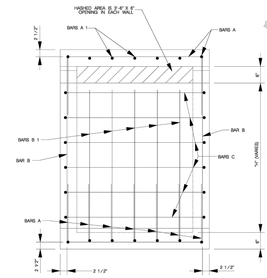


BARS A
SCALE: 1" = 2'-0"

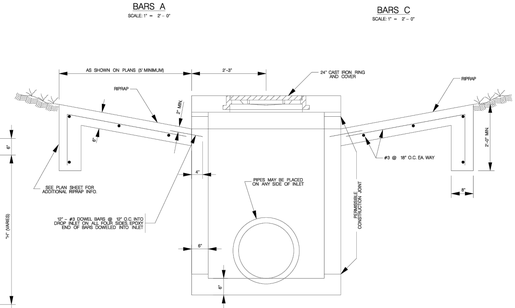
BARS C
SCALE: 1" = 2'-0"

ESTIMATED QUANTITIES FOR "H" = 4'-6"					
REINFORCING STEEL					
BAR	NO.	SIZE	SPACE	LENGTH	WEIGHT
A	18	4	8"+/-	7'-6 1/2"	79
A 1	10	4	8"+/-	4'-0 1/2"	27
B	4	4	AS SHOWN	5'-7"	15
B 1	20	4	8"+/-	4'-7"	61
C	12	4	9"+/-	18'-6"	148
J	4	4	AS SHOWN	2'-8"	6
TOTAL REINFORCING STEEL					336 Lbs. *
CLASS A CONCRETE					2.10 CY *

* FOR CONTRACTOR'S INFORMATION ONLY. QUANTITIES VARY WITH "H". SEE INLET & MANHOLE SUMMARY SHEETS FOR "H".



SIDE VIEW WALL
SCALE: 1" = 2'-0"



SECTION A–A
SCALE: 1" = 2'-0"

GENERAL NOTES:

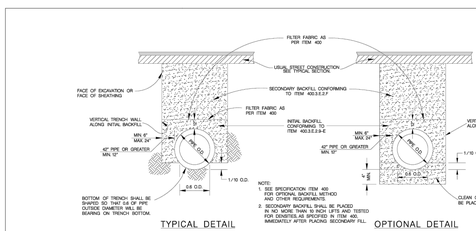
1. ALL BARS INTERCEPTING THE RING AND COVER OPENING AND PIPE OPENINGS, SHALL BE FIELD CUT
2. CONCRETE SHALL BE CLASS "A", 3000 PSI IN 28 DAYS.
3. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS.
4. ALL EXPOSED CORNERS SHALL HAVE 3/4" CHAMFER
5. PAYMENT FOR ALL EXCAVATION, BACKFILLING, CONCRETE, REINFORCING STEEL, RING, AND COVER SHALL BE INCLUDED IN THE UNIT COST OF ITEM 403 "STORM SEWER JUNCTION BOXES AND INLETS".

JANUARY 2005

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

4–WAY INLET STANDARDS

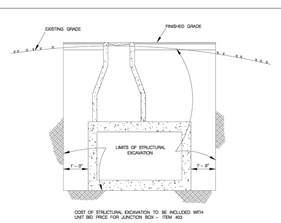
% SUBMITTAL	PROJECT NO.:	DATE:
DRWN BY M. BARRERA, P.E.	DSGN BY:	CHKD. BY:	SHEET NO.: OF:



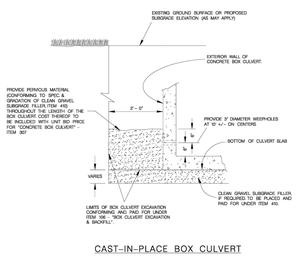
TYPICAL DETAIL

OPTIONAL DETAIL

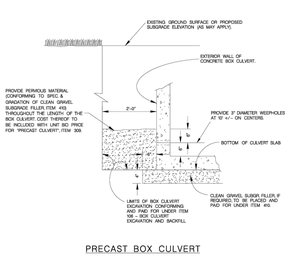
PIPE BEDDING & BACKFILL DETAILS



STRUCTURAL EXCAVATION AT JUNCTION BOXES
NO SCALE

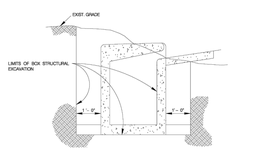


CAST–IN–PLACE BOX CULVERT

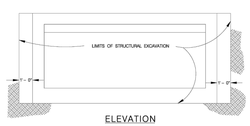


PRECAST BOX CULVERT

CONCRETE BOX CULVERT



SIDE VIEW



ELEVATION

COST OF STRUCTURAL EXCAVATION TO BE INCLUDED WITH UNIT BID PRICE FOR INLETS – ITEM 403.

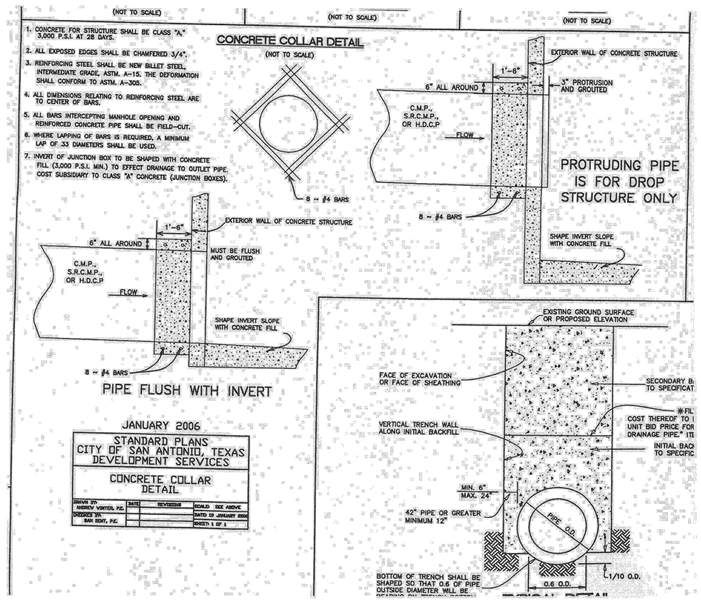
STRUCTURAL EXCAVATIONS
AT DRAINAGE INLETS
NO SCALE

MAY 2009

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

PIPE BEDDING & MISCELLANEOUS
DRAINAGE DETAILS

% SUBMITTAL	PROJECT NO.:	DATE:
DRWN BY:	DSGN BY:	CHKD. BY:	SHEET NO.: OF:



JANUARY 2006

STANDARD PLANS
CITY OF SAN ANTONIO, TEXAS
DEVELOPMENT SERVICES

CONCRETE COLLAR
DETAIL

APPROVED BY: ANDREW VORTON, P.E.	DATE	REVISIONS	SHOWN ABOVE
DESIGNED BY: SAN DIEGO, INC.			DATED 19 JANUARY 2006
			SHEET 1 OF 1

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REV	DATE	DRAWN BY	DESCRIPTION

06/19/2025

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave, Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: DRAIN DETAILS

SHEET TITLE: DRAIN DETAILS

SHEET NUMBER: 4.32

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____
DATE

THIS APPROVAL WILL BECOME VOID AFTER ONE YEAR OF THE INDICATED APPROVAL DATE. EXCEPTIONS TO THIS APPROVAL ARE AS FOLLOWS:

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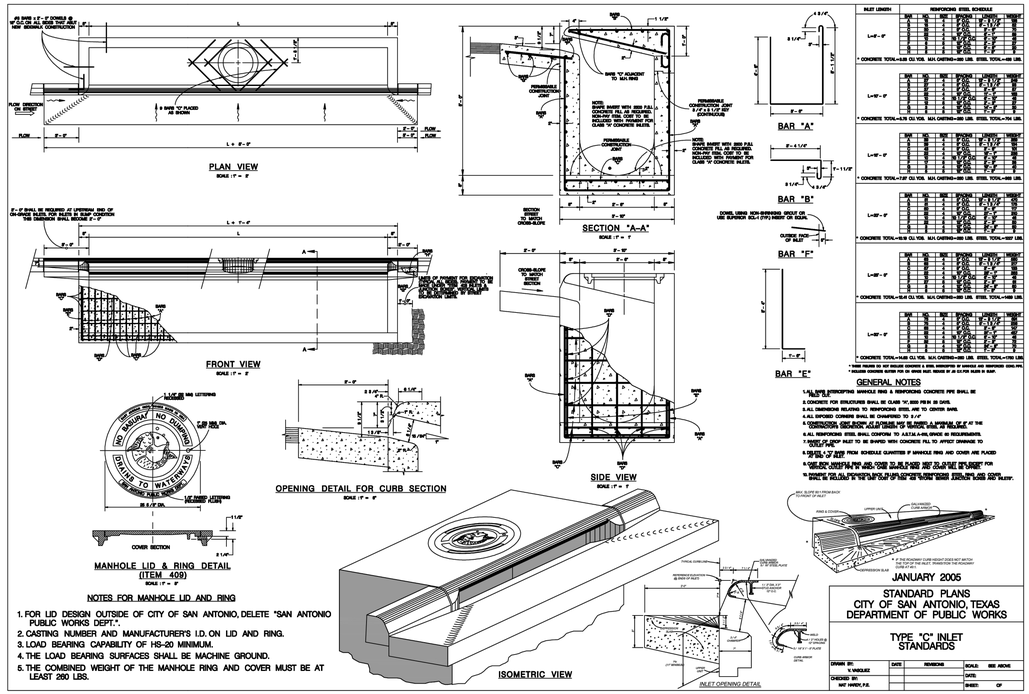
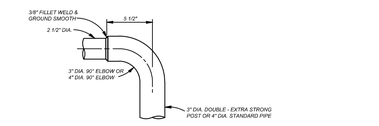
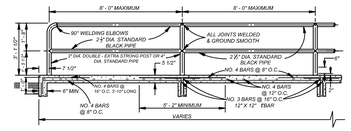
Date: Jun 02, 2025, 4:30pm User ID: logan.haney
File: L:\Projects\314-47-05\Civil\Drainage\Plans\DRAIN DETAILS.dwg
By:LOGAN.HANEY



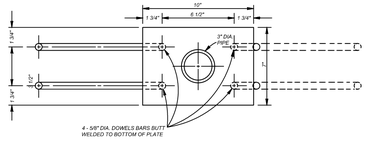


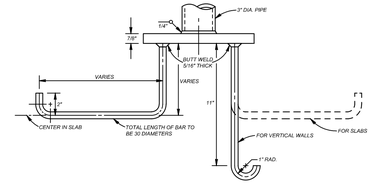
DETAIL OF 90° WELDING ELBOWS
N.T.S.

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



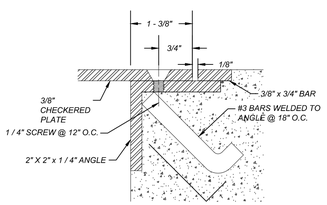
TYPICAL SIDEWALK BRIDGE & SIDEWALK PIPE RAILING SECTION
N.T.S.



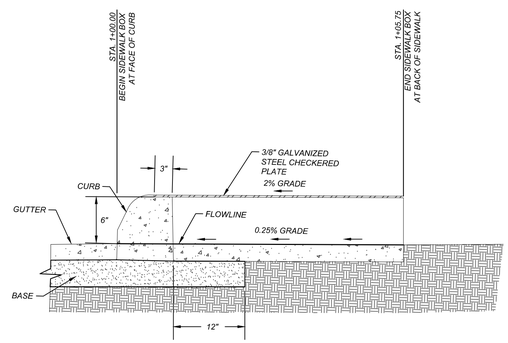


PIPE ANCHORAGE DETAILS
N.T.S.

SIDEWALK BOX DRAIN DETAIL
N.T.S.



DETAIL-1
N.T.S.



SECTION "A-A"
N.T.S.

CITY APPROVAL

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_____ ON _____
DATE

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640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14809
TBPLS Firm#: 10194350

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: DRAIN DETAILS

SHEET TITLE: DRAIN DETAILS

SHEET NUMBER: 4.33

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Date: Jun 11, 2025, 2:46pm User ID: logan.haney
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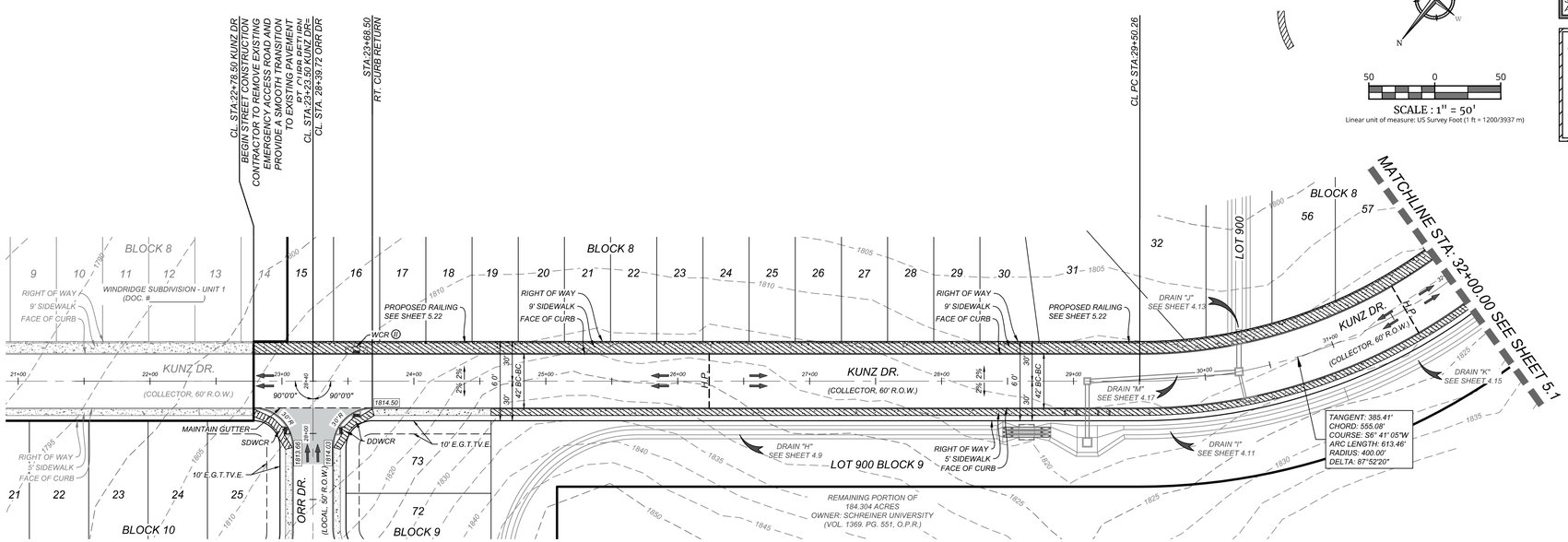
Xrefs: L:\Projects\313\314-47-05\Design\Civil\Drainage\DRAIN DETAILS.dwg
By: LOGAN HANEY

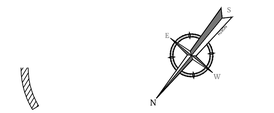
NOTE:
ALL RAMPS AND ANY PROPOSED SIDEWALKS THAT DO NOT FRONT PROPOSED RESIDENTIAL LOTS ARE REQUIRED TO BE CONSTRUCTED WITH THE STREET CONSTRUCTION.

TRENCH EXCAVATION SAFETY PROTECTION

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



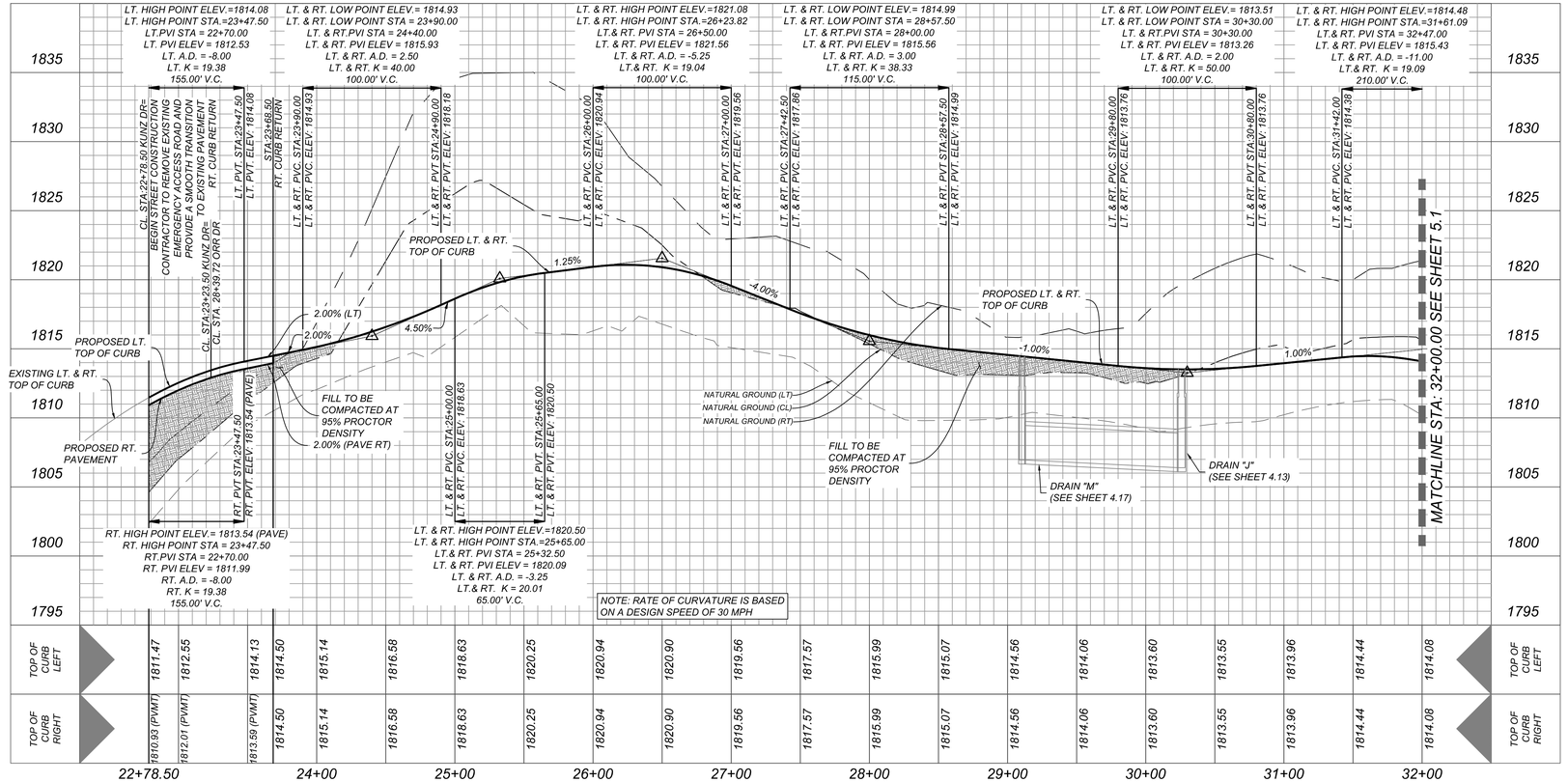


LEGEND

- = FLOW ARROW
- = WASHOUT CROWN
- E.G.T.TV.E. = ELECTRIC, GAS, TELEPHONE & CABLE EASEMENT
- V.W.C.V.E. = VARIABLE WIDTH CLEAR VISION EASEMENT
- H.P. = HIGH POINT
- SDWCR = SINGLE DIRECTIONAL WHEEL CHAIR RAMP SEE SHEET 5.14
- DDWCR = DOUBLE DIRECTIONAL WHEEL CHAIR RAMP SEE SHEET 5.14
- II = WHEELCHAIR RAMP TYPE II SEE SHEET 5.14
- = SIDEWALK TO BE CONSTRUCTED BY DEVELOPER
- = SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION
- 1722.00 = TOP OF CURB ELEVATIONS
- = PROPOSED RAILING SEE SHEET 5.22

KUNZ DR.
STA: 22+78.50 - 32+00.00

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



NOTES:
- *CONTRACTOR TO PROVIDE A SMOOTH TRANSITION TO EXISTING PAVEMENT.*
- *CONTRACTOR TO VERIFY EXISTING TOP OF CURB ELEVATIONS PRIOR TO THE START OF CONSTRUCTION & NOTIFY ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.*

CITY APPROVAL
THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____
DATE

THIS APPROVAL WILL BECOME VOID AFTER ONE YEAR OF THE INDICATED APPROVAL DATE. EXCEPTIONS TO THIS APPROVAL ARE AS FOLLOWS:

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REV	DATE	DRAWN BY	DESCRIPTION

06/19/2025
STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: 5.0 KUNZ DR STA. 1+00.00 - 11+00.00

SHEET TITLE: KUNZ DR STA. 22+78.50 - 32+00.00

SHEET NUMBER: 5.0

Date: Jun 12, 2025, 10:27am User ID: jferguson
File: L:\Projects\314\47\05\Design\Civil\SHEETS\5.0 KUNZ DR STA. 1+00.00 - 11+00.00.dwg
Design\Civil\SHEETS\5.0 KUNZ DR STA. 1+00.00 - 11+00.00.dwg\KUNZ DR STA. 22+78.50 - 32+00.00 By: JFERGUSON

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

NOTE:
ALL RAMPS AND ANY PROPOSED SIDEWALKS THAT DO NOT FRONT PROPOSED RESIDENTIAL LOTS ARE REQUIRED TO BE CONSTRUCTED WITH THE STREET CONSTRUCTION.

TRENCH EXCAVATION SAFETY PROTECTION

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

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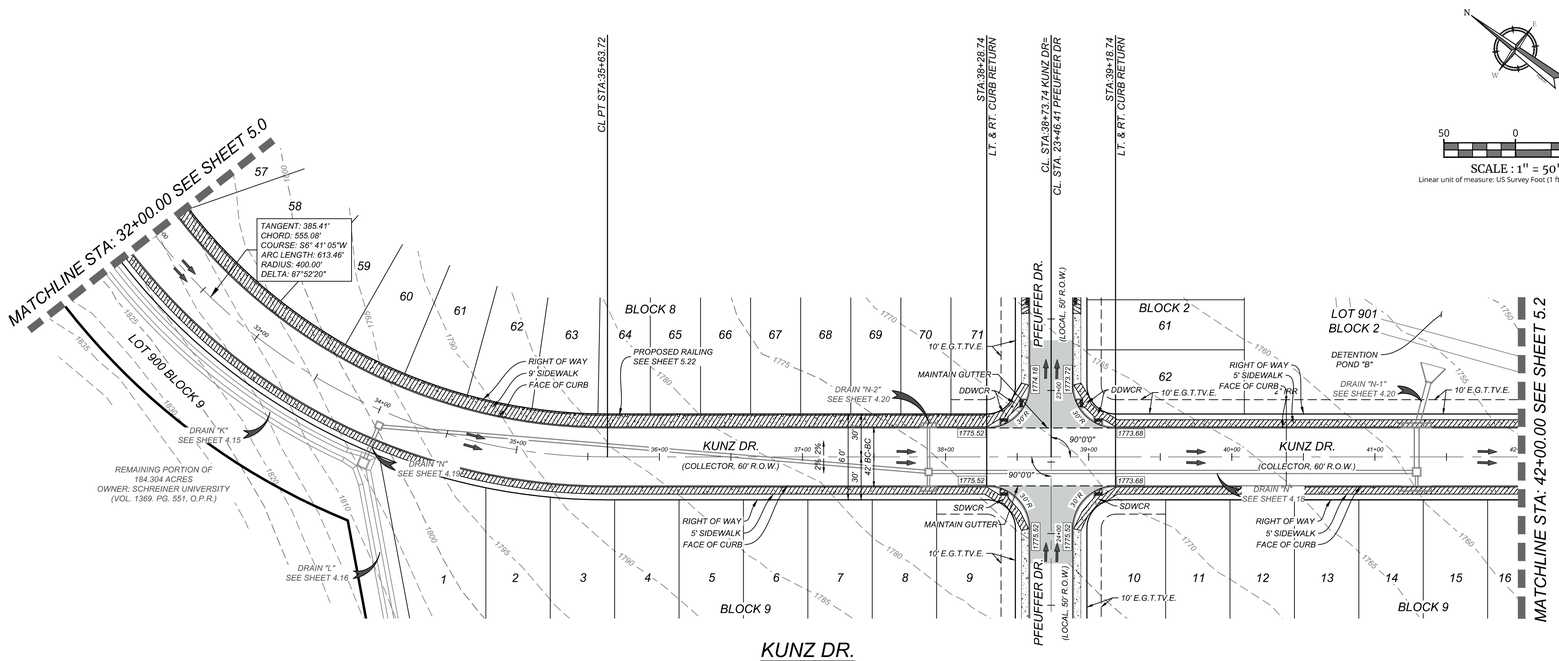


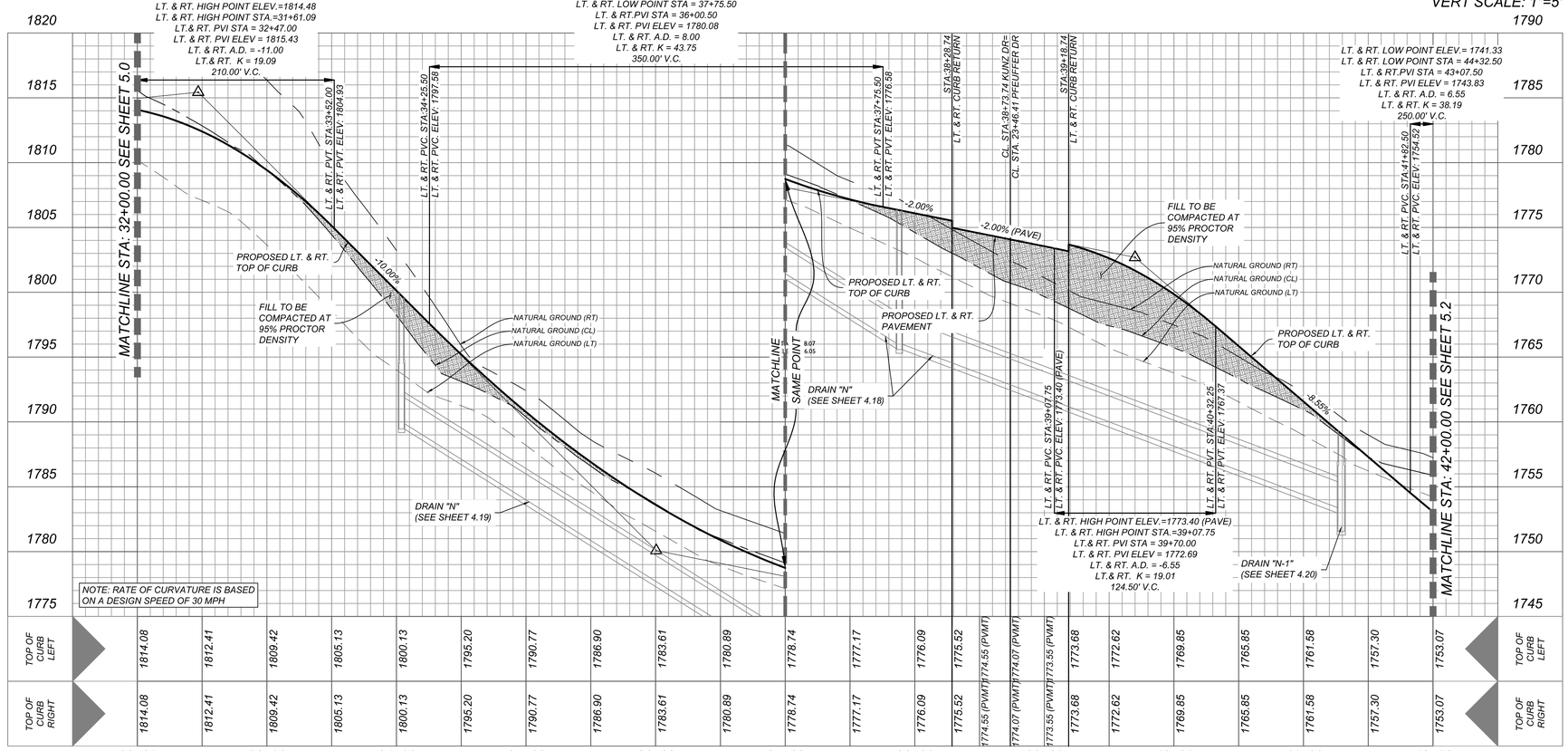
50 0 50
SCALE : 1" = 50'
Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

LEGEND

- = FLOW ARROW
- = WASHOUT CROWN
- E.G.T.TV.E. = ELECTRIC, GAS, TELEPHONE & CABLE EASEMENT
- V.W.C.V.E. = VARIABLE WIDTH CLEAR VISION EASEMENT
- H.P. = HIGH POINT
- SDWCR = SINGLE DIRECTIONAL WHEEL CHAIR RAMP SEE SHEET 5.14
- DDWCR = DOUBLE DIRECTIONAL WHEEL CHAIR RAMP SEE SHEET 5.14
- = WHEELCHAIR RAMP TYPE II SEE SHEET 5.14
- = SIDEWALK TO BE CONSTRUCTED BY DEVELOPER
- = SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION
- 1722.00 = TOP OF CURB ELEVATIONS
- = PROPOSED RAILING SEE SHEET 5.22

KUNZ DR.
STA: 32+00.00 - 42+00.00

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



	32+00	33+00	34+00	35+00	36+00	37+00	38+00	39+00	40+00	41+00	42+00
TOP OF CURB LEFT	1814.08	1812.41	1809.42	1805.13	1800.13	1795.20	1790.77	1786.90	1783.61	1780.89	1778.74	1777.17	1776.09	1775.52	1774.55 (PVMT)	1774.07 (PVMT)	1773.55 (PVMT)	1773.68	1772.62	1769.85	1765.85	1761.58	1757.30	1753.07
TOP OF CURB RIGHT	1814.08	1812.41	1809.42	1805.13	1800.13	1795.20	1790.77	1786.90	1783.61	1780.89	1778.74	1777.17	1776.09	1775.52	1774.55 (PVMT)	1774.07 (PVMT)	1773.55 (PVMT)	1773.68	1772.62	1769.85	1765.85	1761.58	1757.30	1753.07

CITY APPROVAL
THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____
DATE
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BY APPROVING THESE PLANS, THE CITY OF KERRVILLE DOES NOT ASSUME ANY LIABILITY FOR ENGINEERING DESIGN, NOR DOES APPROVAL RELEASE THE DESIGN ENGINEER FROM LIABILITY FOR CORRECTION ERRORS OR OMISSIONS IN THE DESIGN BOTH DURING AND AFTER CONSTRUCTION.

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STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED
PROFESSIONAL ENGINEER
P.E.

WINDRIDGE SUBDIVISION - UNIT 2
FOR
LENNAR HOMES OF TEXAS
CITY OF KERRVILLE
KERR COUNTY
TEXAS

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

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: 5.0 KUNZ DR STA. 1+00.00 - 11+00.00
SHEET TITLE: KUNZ DR STA. 32+00.00 - 42+00.00
SHEET NUMBER: 5.1

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Jun 12, 2025, 10:58am User ID: jferguson
File: L:\Projects\314\47\05\Design\Civil\SHEETS\5.0 KUNZ DR STA. 1+00.00 - 11+00.00.dwg
Design\Civil\SHEETS\5.0 KUNZ DR STA. 1+00.00 - 11+00.00.dwg$1 KUNZ DR STA. 32+00.00 - 42+00.00 By:JFERGUSON

NOTE:
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TRENCH EXCAVATION SAFETY PROTECTION

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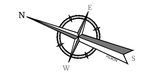
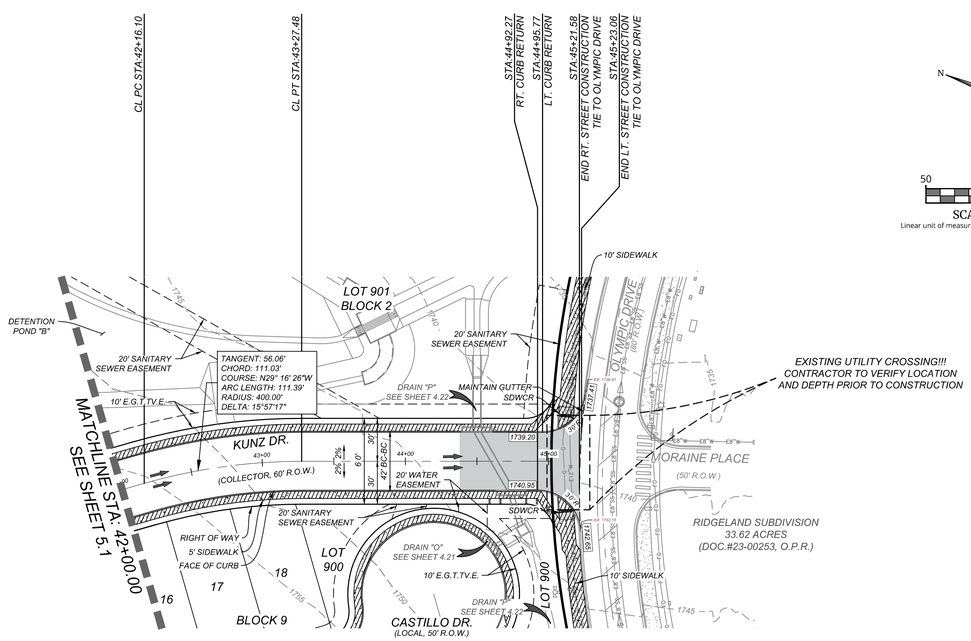
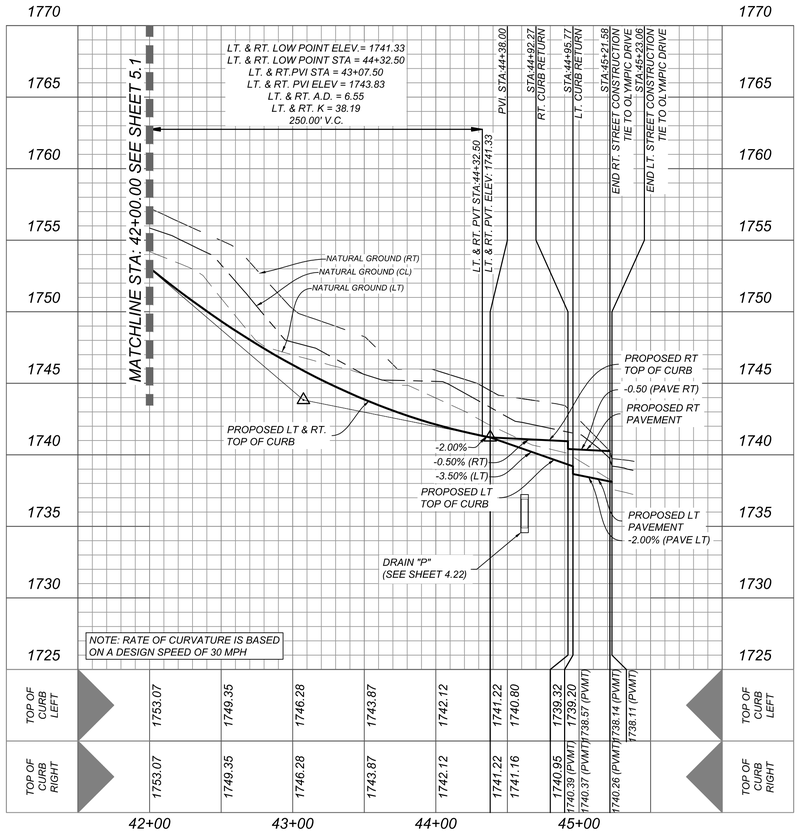




KUNZ DR.
STA: 42+00.00 - END

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



NOTES:
- *CONTRACTOR TO PROVIDE A SMOOTH TRANSITION TO EXISTING PAVEMENT.*
- *CONTRACTOR TO VERIFY EXISTING TOP OF CURB ELEVATIONS PRIOR TO THE START OF CONSTRUCTION & NOTIFY ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.*

LEGEND

→	=	FLOW ARROW
	=	WASHOUT CROWN
E.G.T.V.E.	=	ELECTRIC, GAS, TELEPHONE & CABLE EASEMENT
V.W.C.V.E.	=	VARIABLE WIDTH CLEAR VISION EASEMENT
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	=	WHEELCHAIR RAMP TYPE II SEE SHEET 5.14
	=	SIDEWALK TO BE CONSTRUCTED BY DEVELOPER
	=	SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION
1722.00	=	TOP OF CURB ELEVATIONS

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____
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DENIS A AVENDANO
137588
LICENSED
PROFESSIONAL ENGINEER

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: 5.0 KUNZ DR STA. 1+00.00 - 11+00.00

SHEET TITLE: KUNZ DR STA. 42+00.00 - END

SHEET NUMBER: 5.2

Date: Jun 12, 2025, 3:08pm User ID: jkerguson
File: U:\Projects\314-47-05\Design\Civil\SHEETS\5.0 KUNZ DR STA. 1+00.00 - 11+00.00.dwg
Design\Civil\SHEETS\5.0 KUNZ DR STA. 1+00.00 - 11+00.00.dwg[5.2 KUNZ DR STA. 42+00.00] - FIND By:JEFFGIDEON

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LEGEND

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- H.P. = HIGH POINT
- SDWCR = SINGLE DIRECTIONAL WHEEL CHAIR RAMP SEE SHEET 5.14
- DDWCR = DOUBLE DIRECTIONAL WHEEL CHAIR RAMP SEE SHEET 5.14
- (II) = WHEELCHAIR RAMP TYPE II SEE SHEET 5.14
- = SIDEWALK TO BE CONSTRUCTED BY DEVELOPER
- = SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION
- 1722.00 = TOP OF CURB ELEVATIONS

NOTE:
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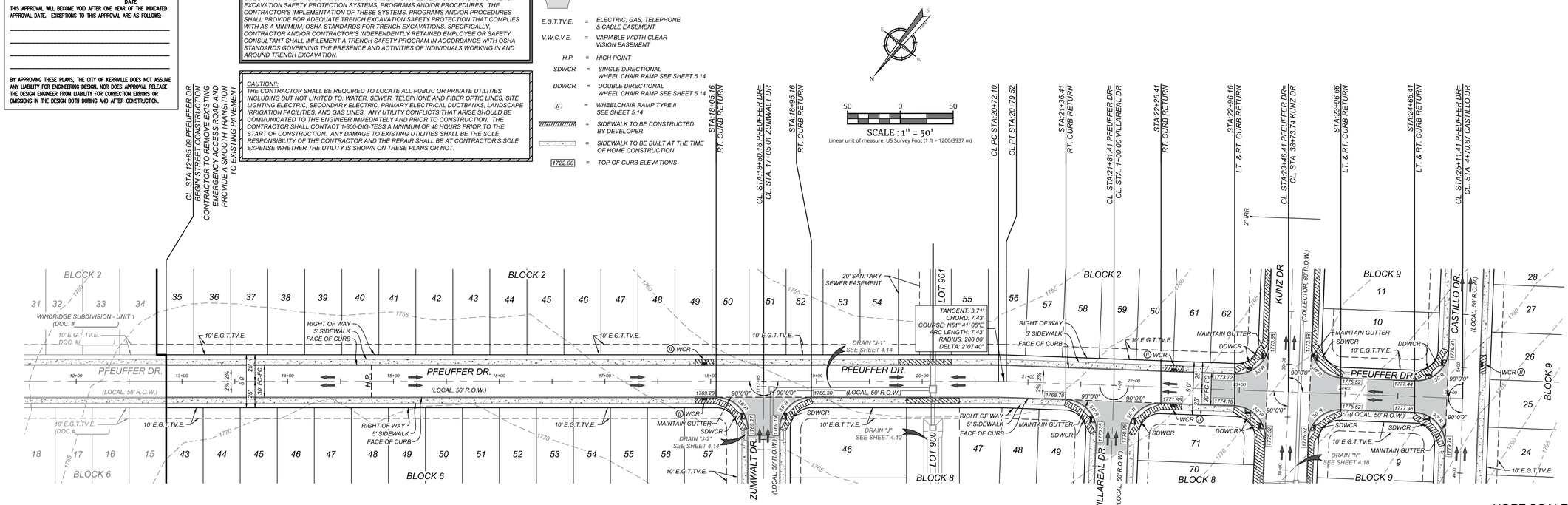
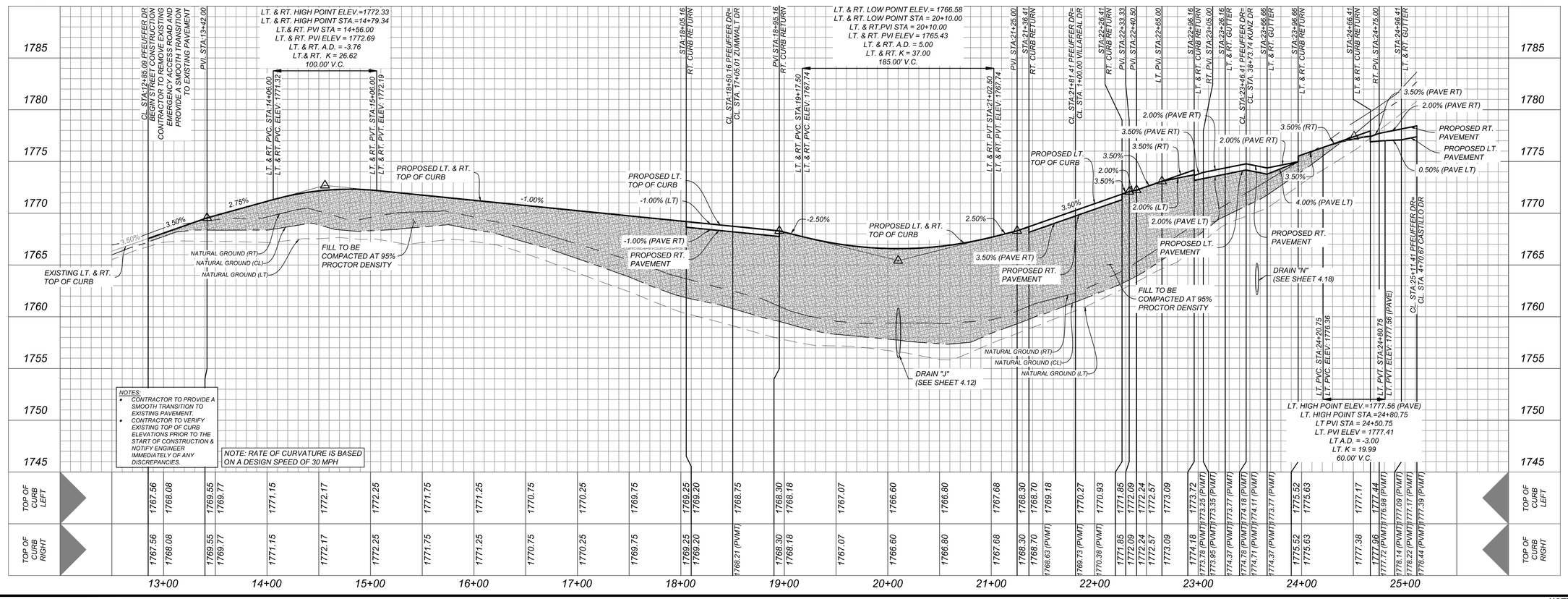


PFEUFFER DR.
STA: 12+85.09 - END

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



NOTES:
- CONTRACTOR TO PROVIDE A SMOOTH TRANSITION TO EXISTING PAVEMENT.
- CONTRACTOR TO VERIFY EXISTING TOP OF CURB ELEVATIONS PRIOR TO THE START OF CONSTRUCTION & NOTIFY ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.

NOTE: RATE OF CURVATURE IS BASED ON A DESIGN SPEED OF 30 MPH

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WINDRIDGE SUBDIVISION – UNIT 2

FOR

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CITY OF KERRVILLE
KERR COUNTY
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Colliers Engineering & Design
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COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: 5.3 PFEUFFER DR STA. 12+85.09 - END

SHEET TITLE: PFEUFFER DR STA. 12+85.09 - END

SHEET NUMBER: 5.3

Date: Jun 12, 2025, 11:50am User ID: fergason
File: L:\Projects\314\47\05\Design\Civil\Sheets\5.3 PFEUFFER DR STA. 12+85.09 – END.dwg
Design/CivilSTREETS\5.3 PFEUFFER DR STA. 12+85.09 – END.dwg\5.3 PFEUFFER DR STA. 12+85.09 – END By:JFERGUSON

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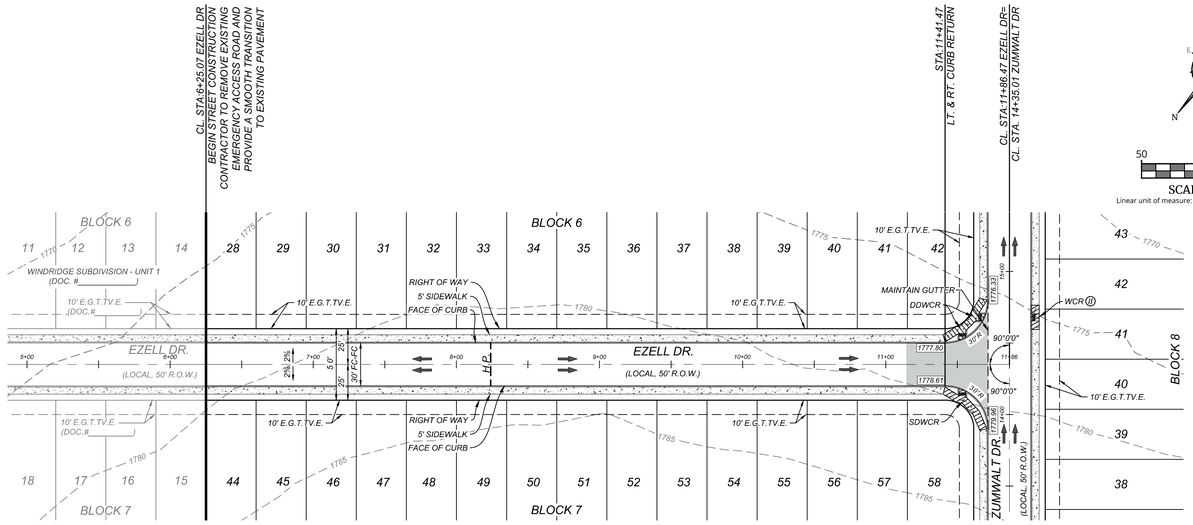
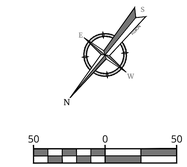
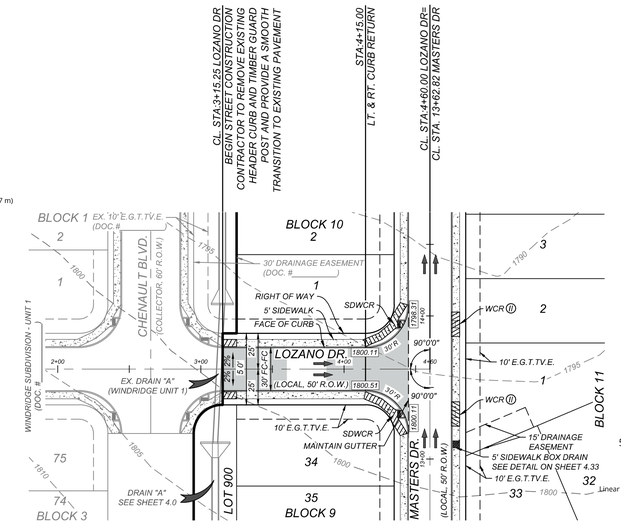
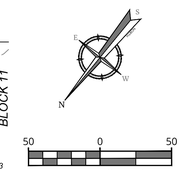






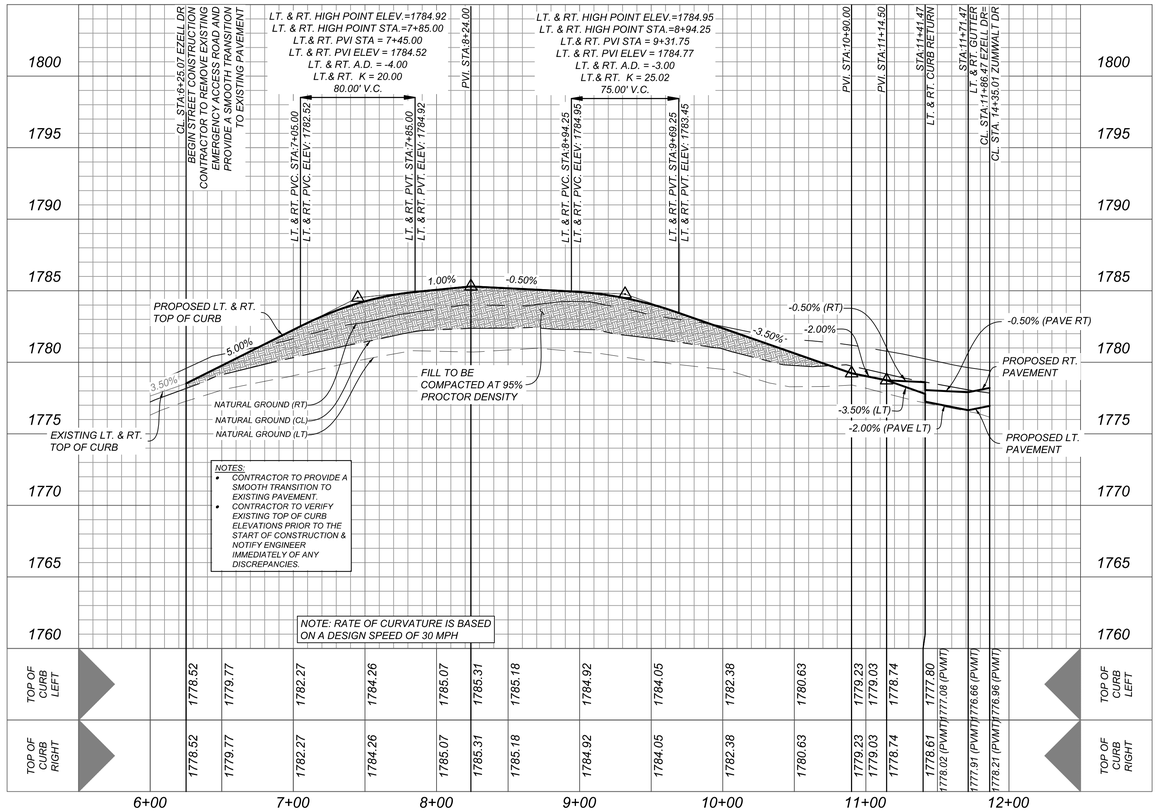


LEGEND

- → = FLOW ARROW
- = WASHOUT CROWN
- E.G.T.V.E. = ELECTRIC, GAS, TELEPHONE & CABLE EASEMENT
- V.W.C.V.E. = VARIABLE WIDTH CLEAR VISION EASEMENT
- H.P. = HIGH POINT
- SDWCR = SINGLE DIRECTIONAL WHEEL CHAIR RAMP SEE SHEET 5.14
- DDWCR = DOUBLE DIRECTIONAL WHEEL CHAIR RAMP SEE SHEET 5.14
- = WHEELCHAIR RAMP TYPE II SEE SHEET 5.14
- = SIDEWALK TO BE CONSTRUCTED BY DEVELOPER
- = SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION
- 1722.00 = TOP OF CURB ELEVATIONS

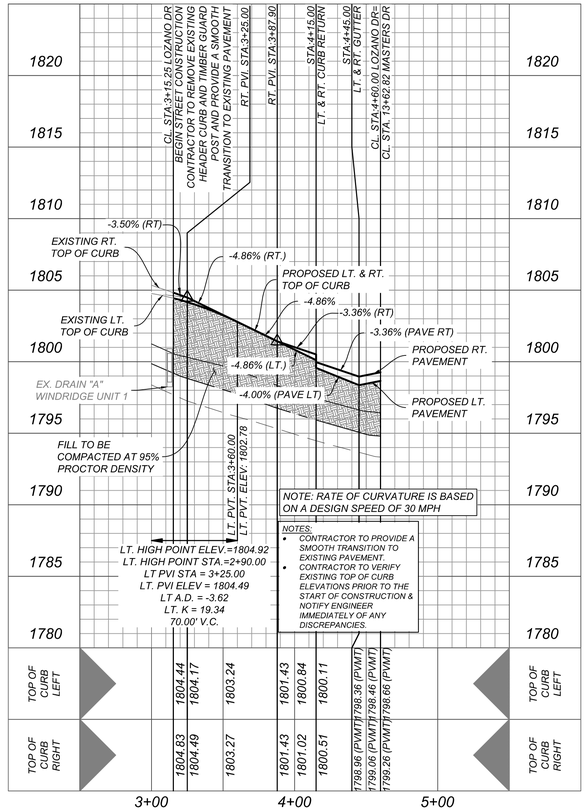
EZELL DR.
STA: 6+25.07 - END

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



LOZANO DR.
STA: 3+15.25 - END

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



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REV	DATE	DRAWN BY	DESCRIPTION

06/17/2025
STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED
PROFESSIONAL ENGINEER

WINDRIDGE SUBDIVISION – UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

CITY APPROVAL
THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____
DATE

THIS APPROVAL WILL BECOME VOID AFTER ONE YEAR OF THE INDICATED APPROVAL DATE. EXCEPTIONS TO THIS APPROVAL ARE AS FOLLOWS:

BY APPROVING THESE PLANS, THE CITY OF KERRVILLE DOES NOT ASSUME ANY LIABILITY FOR ENGINEERING DESIGN, NOR DOES APPROVAL RELEASE THE DESIGN ENGINEER FROM LIABILITY FOR CORRECTION ERRORS OR OMISSIONS IN THE DESIGN BOTH DURING AND AFTER CONSTRUCTION.

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: 5.4 EZELL DR STA. 6+25.07 - END

SHEET TITLE:
EZELL DR STA. 6+25.07 - END & LOZANO DR STA. 3+15.25 - END

SHEET NUMBER:
5.4

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Jun 12, 2025, 1:00pm User ID: kferguson
File: L:\Projects\314\47\05\Design\Civil\SHEETS\5.4 EZELL DR STA. 6+25.07 - END.dwg
Xrefs: L:\Projects\314\47\05\Design\Civil\SHEETS\5.4 EZELL DR STA. 6+25.07 - END & LOZANO DR STA. 3+15.25 - END By: JFERGUSON

TRENCH EXCAVATION SAFETY PROTECTION

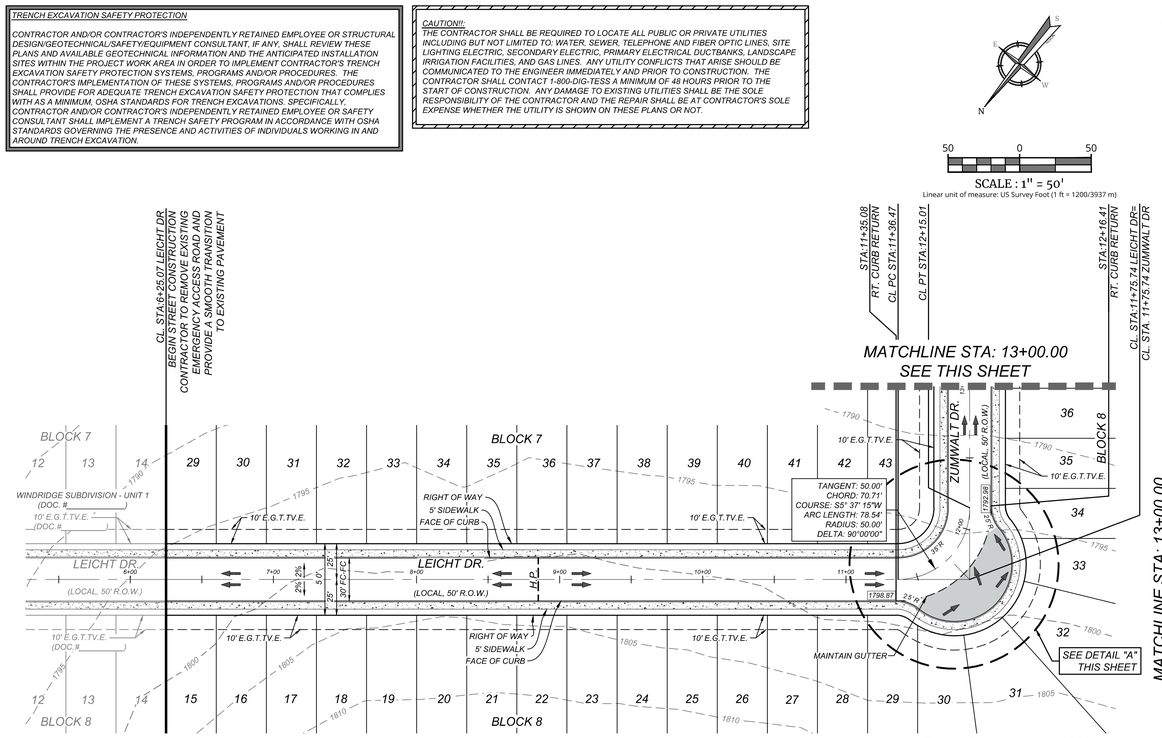
CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S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

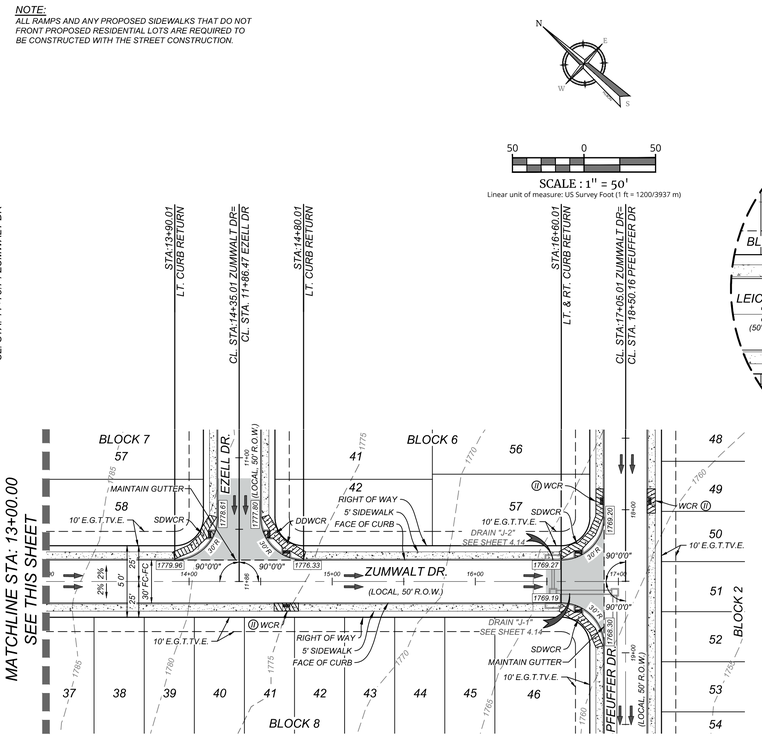
CAUTION!!:

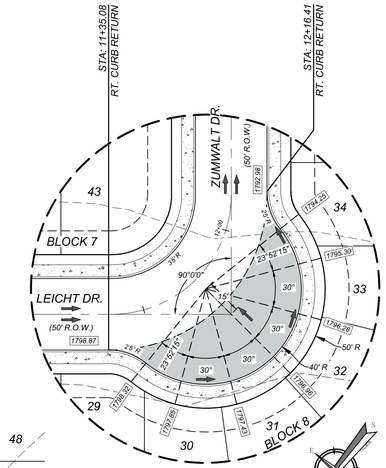
THE CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITED TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT 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.

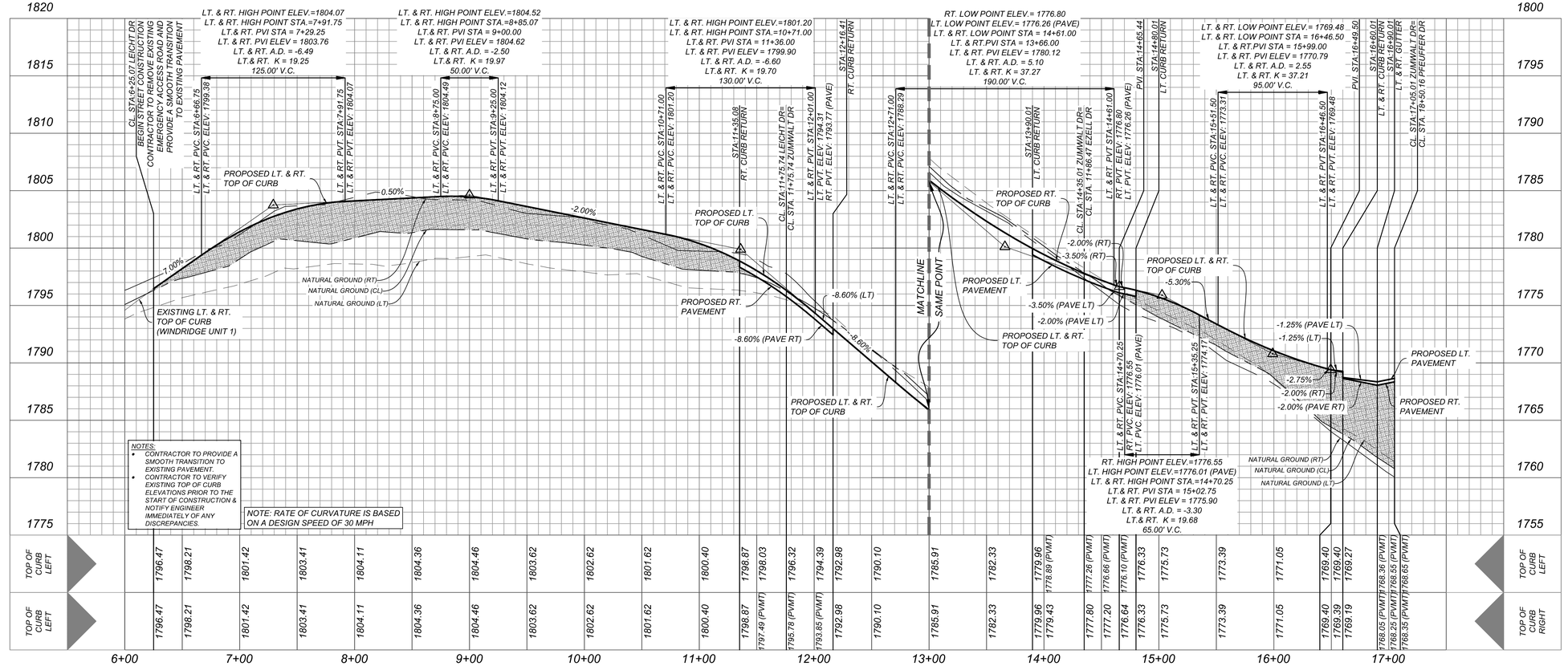
NOTE:

ALL RAMPS AND ANY PROPOSED SIDEWALKS THAT DO NOT FRONT PROPOSED RESIDENTIAL LOTS ARE REQUIRED TO BE CONSTRUCTED WITH THE STREET CONSTRUCTION.









LEGEND

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- WASHOUT CROWN
- E.G.T.TV.E. = ELECTRIC, GAS, TELEPHONE & CABLE EASEMENT
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CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____

DATE

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REV	DATE	DRAWN BY	DESCRIPTION

06/17/2025
STATE OF TEXAS — DENIS A. AVENDANO — 137588 — LICENSED PROFESSIONAL ENGINEER

WINDRIDGE SUBDIVISION – UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: 5.5 LEICHT DR

SHEET TITLE: LEICHT DR - ZUMWALT DR STA. 6+25.07 - END

SHEET NUMBER: 5.5

Date: May 23, 2025, 7:40pm User ID: logan.haney
File: L:\Projects\314\47\05\Drawings\Civil\Sheets\5.5 LEICHT DR.dwg
Xrefs: LIN_TYPES.lin, 314_47_05_Civil.dwg
Design\CivilSTREETS\5.5 LEICHT DR.dwg\5.5 LEICHT DR - ZUMWALT DR STA. 6+25.07 - END By:LOGAN.HANEY

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

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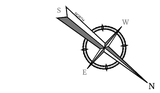



SCALE : 1" = 50'
Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

CAUTION!!:
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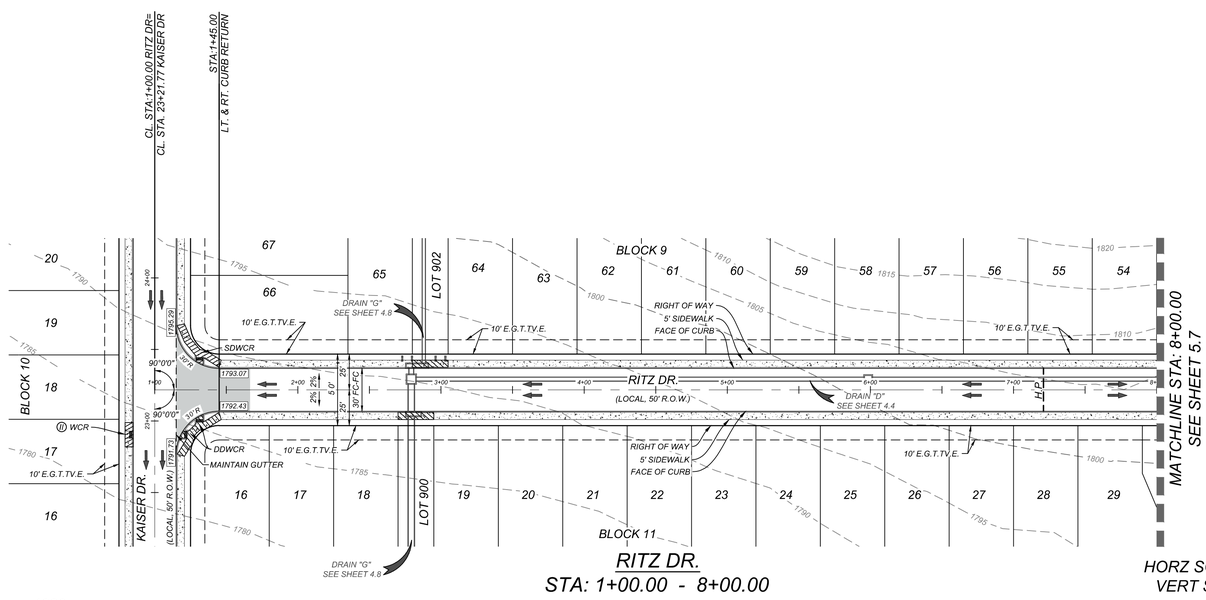
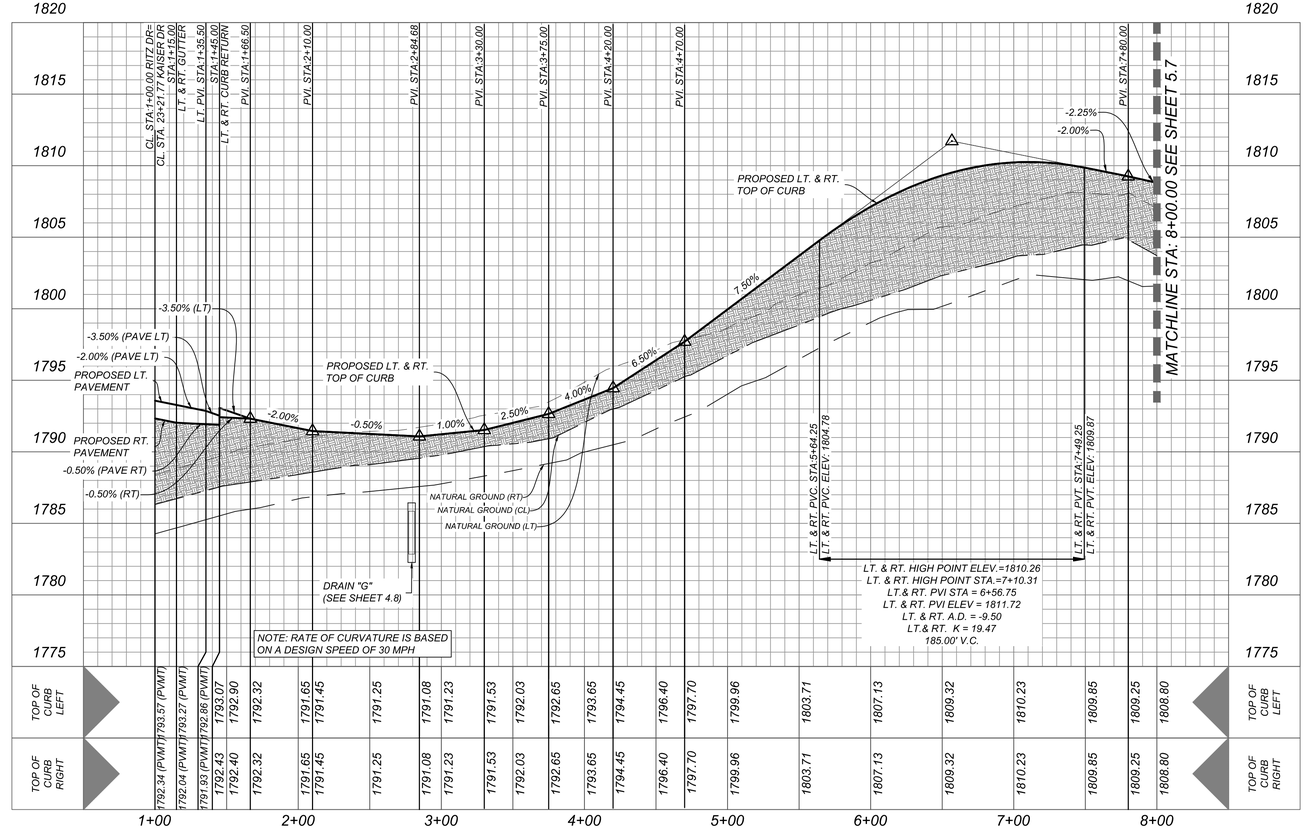


RITZ DR.
STA: 1+00.00 - 8+00.00

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



LEGEND

	=	FLOW ARROW
	=	WASHOUT CROWN
E.G.T.TV.E.	=	ELECTRIC, GAS, TELEPHONE & CABLE EASEMENT
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06/19/2025
STATE OF TEXAS
DENIS A AVENDANO
137588
LICENSED
PROFESSIONAL ENGINEER

WINDRIDGE SUBDIVISION – UNIT 2
FOR
LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: 5.6 RITZ DR-ORR DR

SHEET TITLE: RITZ DR STA. 1+00.00 - 8+00.00

SHEET NUMBER: 5.6

Date: Jun 12, 2025, 1:06pm User ID: jferguson
File: L:\Projects\314\47\05\Design\Civil\SHEETS\5.6 RITZ DR-ORR DR.dwg
Xrefs: L:\Projects\314\47\05\Design\Civil\SHEETS\5.0 - 5.01 - 5.02 - 5.03 - 5.04 - 5.05 - 5.06 - 5.07 - 5.08 - 5.09 - 5.10 - 5.11 - 5.12 - 5.13 - 5.14 - 5.15 - 5.16 - 5.17 - 5.18 - 5.19 - 5.20 - 5.21 - 5.22 - 5.23 - 5.24 - 5.25 - 5.26 - 5.27 - 5.28 - 5.29 - 5.30 - 5.31 - 5.32 - 5.33 - 5.34 - 5.35 - 5.36 - 5.37 - 5.38 - 5.39 - 5.40 - 5.41 - 5.42 - 5.43 - 5.44 - 5.45 - 5.46 - 5.47 - 5.48 - 5.49 - 5.50 - 5.51 - 5.52 - 5.53 - 5.54 - 5.55 - 5.56 - 5.57 - 5.58 - 5.59 - 5.60 - 5.61 - 5.62 - 5.63 - 5.64 - 5.65 - 5.66 - 5.67 - 5.68 - 5.69 - 5.70 - 5.71 - 5.72 - 5.73 - 5.74 - 5.75 - 5.76 - 5.77 - 5.78 - 5.79 - 5.80 - 5.81 - 5.82 - 5.83 - 5.84 - 5.85 - 5.86 - 5.87 - 5.88 - 5.89 - 5.90 - 5.91 - 5.92 - 5.93 - 5.94 - 5.95 - 5.96 - 5.97 - 5.98 - 5.99 - 5.100 - 5.101 - 5.102 - 5.103 - 5.104 - 5.105 - 5.106 - 5.107 - 5.108 - 5.109 - 5.110 - 5.111 - 5.112 - 5.113 - 5.114 - 5.115 - 5.116 - 5.117 - 5.118 - 5.119 - 5.120 - 5.121 - 5.122 - 5.123 - 5.124 - 5.125 - 5.126 - 5.127 - 5.128 - 5.129 - 5.130 - 5.131 - 5.132 - 5.133 - 5.134 - 5.135 - 5.136 - 5.137 - 5.138 - 5.139 - 5.140 - 5.141 - 5.142 - 5.143 - 5.144 - 5.145 - 5.146 - 5.147 - 5.148 - 5.149 - 5.150 - 5.151 - 5.152 - 5.153 - 5.154 - 5.155 - 5.156 - 5.157 - 5.158 - 5.159 - 5.160 - 5.161 - 5.162 - 5.163 - 5.164 - 5.165 - 5.166 - 5.167 - 5.168 - 5.169 - 5.170 - 5.171 - 5.172 - 5.173 - 5.174 - 5.175 - 5.176 - 5.177 - 5.178 - 5.179 - 5.180 - 5.181 - 5.182 - 5.183 - 5.184 - 5.185 - 5.186 - 5.187 - 5.188 - 5.189 - 5.190 - 5.191 - 5.192 - 5.193 - 5.194 - 5.195 - 5.196 - 5.197 - 5.198 - 5.199 - 5.200 - 5.201 - 5.202 - 5.203 - 5.204 - 5.205 - 5.206 - 5.207 - 5.208 - 5.209 - 5.210 - 5.211 - 5.212 - 5.213 - 5.214 - 5.215 - 5.216 - 5.217 - 5.218 - 5.219 - 5.220 - 5.221 - 5.222 - 5.223 - 5.224 - 5.225 - 5.226 - 5.227 - 5.228 - 5.229 - 5.230 - 5.231 - 5.232 - 5.233 - 5.234 - 5.235 - 5.236 - 5.237 - 5.238 - 5.239 - 5.240 - 5.241 - 5.242 - 5.243 - 5.244 - 5.245 - 5.246 - 5.247 - 5.248 - 5.249 - 5.250 - 5.251 - 5.252 - 5.253 - 5.254 - 5.255 - 5.256 - 5.257 - 5.258 - 5.259 - 5.260 - 5.261 - 5.262 - 5.263 - 5.264 - 5.265 - 5.266 - 5.267 - 5.268 - 5.269 - 5.270 - 5.271 - 5.272 - 5.273 - 5.274 - 5.275 - 5.276 - 5.277 - 5.278 - 5.279 - 5.280 - 5.281 - 5.282 - 5.283 - 5.284 - 5.285 - 5.286 - 5.287 - 5.288 - 5.289 - 5.290 - 5.291 - 5.292 - 5.293 - 5.294 - 5.295 - 5.296 - 5.297 - 5.298 - 5.299 - 5.300 - 5.301 - 5.302 - 5.303 - 5.304 - 5.305 - 5.306 - 5.307 - 5.308 - 5.309 - 5.310 - 5.311 - 5.312 - 5.313 - 5.314 - 5.315 - 5.316 - 5.317 - 5.318 - 5.319 - 5.320 - 5.321 - 5.322 - 5.323 - 5.324 - 5.325 - 5.326 - 5.327 - 5.328 - 5.329 - 5.330 - 5.331 - 5.332 - 5.333 - 5.334 - 5.335 - 5.336 - 5.337 - 5.338 - 5.339 - 5.340 - 5.341 - 5.342 - 5.343 - 5.344 - 5.345 - 5.346 - 5.347 - 5.348 - 5.349 - 5.350 - 5.351 - 5.352 - 5.353 - 5.354 - 5.355 - 5.356 - 5.357 - 5.358 - 5.359 - 5.360 - 5.361 - 5.362 - 5.363 - 5.364 - 5.365 - 5.366 - 5.367 - 5.368 - 5.369 - 5.370 - 5.371 - 5.372 - 5.373 - 5.374 - 5.375 - 5.376 - 5.377 - 5.378 - 5.379 - 5.380 - 5.381 - 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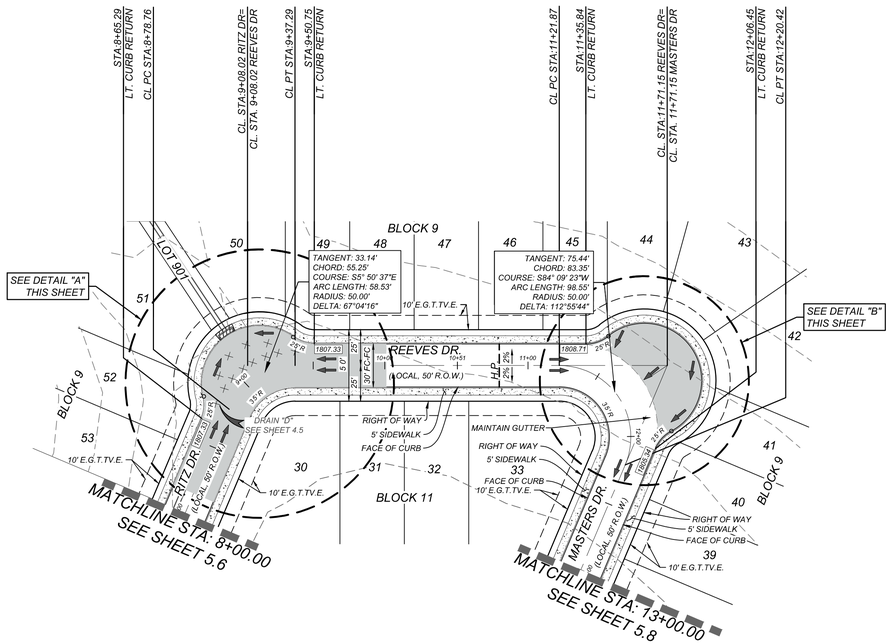
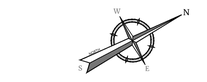
NOTE:
ALL RAMPS AND ANY PROPOSED SIDEWALKS THAT DO NOT FRONT PROPOSED RESIDENTIAL LOTS ARE REQUIRED TO BE CONSTRUCTED WITH THE STREET CONSTRUCTION.

TRENCH EXCAVATION SAFETY PROTECTION

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



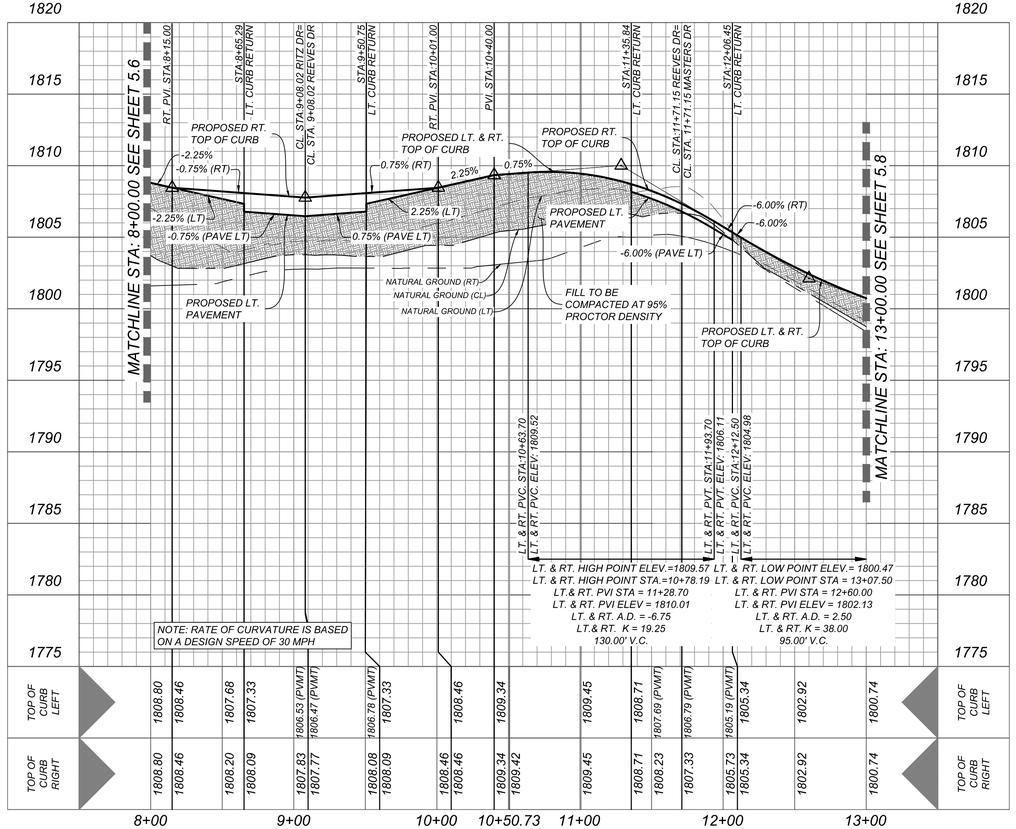


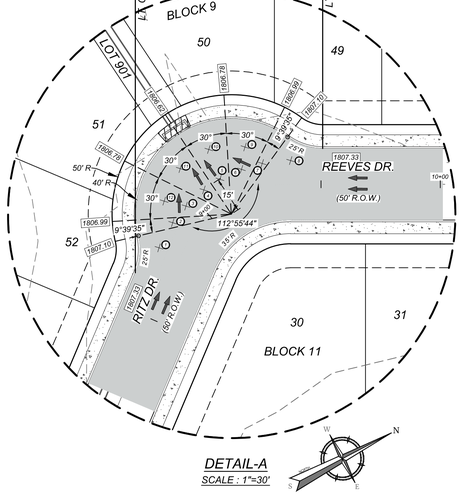
LEGEND

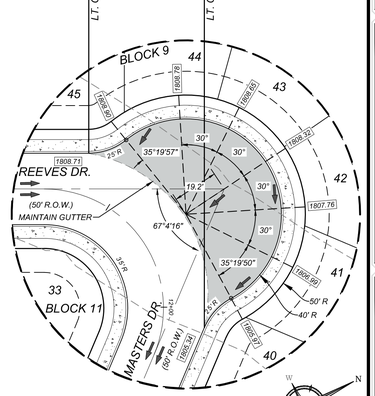
- = FLOW ARROW
- = WASHOUT CROWN
- E.G.T.TV.E. = ELECTRIC, GAS, TELEPHONE & CABLE EASEMENT
- V.W.C.V.E. = VARIABLE WIDTH CLEAR VISION EASEMENT
- H.P. = HIGH POINT
- SDWCR = SINGLE DIRECTIONAL WHEEL CHAIR RAMP SEE SHEET 5.14
- DDWCR = DOUBLE DIRECTIONAL WHEEL CHAIR RAMP SEE SHEET 5.14
- = WHEELCHAIR RAMP TYPE II SEE SHEET 5.14
- = SIDEWALK TO BE CONSTRUCTED BY DEVELOPER
- = SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION
- 1722.00 = TOP OF CURB ELEVATIONS

RITZ DR - REEVES DR - MASTERS DR
STA: 8+00.00 - 13+00.00

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







POINT #	NORTHERN	EASTING	PAVEMENT ELEV.
1	13930111.39	1931869.33	1806.82
2	13930121.38	1931862.68	1806.75
3	13930129.53	1931859.12	1806.69
4	13930139.32	1931856.58	1806.63
5	13930147.36	1931855.76	1806.63
6	13930157.28	1931856.25	1806.69
7	13930166.13	1931858.12	1806.75
8	13930177.23	1931862.59	1806.82
9	13930162.94	1931848.67	1806.51
10	13930149.02	1931842.53	1806.36
11	13930134.69	1931844.06	1806.36
12	13930122.40	1931853.00	1806.52

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____
DATE

THIS APPROVAL WILL BECOME VOID AFTER ONE YEAR OF THE INDICATED APPROVAL DATE. EXCEPTIONS TO THIS APPROVAL ARE AS FOLLOWS:

_____
_____
_____
_____

BY APPROVING THESE PLANS, THE CITY OF KERRVILLE DOES NOT ASSUME ANY LIABILITY FOR ENGINEERING DESIGN, NOR DOES APPROVAL RELEASE THE DESIGN ENGINEER FROM LIABILITY FOR CORRECTION ERRORS OR OMISSIONS IN THE DESIGN BOTH DURING AND AFTER CONSTRUCTION.

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

REV	DATE	DRAWN BY	DESCRIPTION

06/19/2025
STATE OF TEXAS
DENIS A AVENDANO
137588
LICENSED
PROFESSIONAL ENGINEER

WINDRIDGE SUBDIVISION - UNIT 2
FOR
LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: 5.6 RITZ DR-ORR DR

SHEET TITLE: RITZ DR - REEVES DR - MASTERS DR STA. 8+00.00 - 13+00.00

SHEET NUMBER: 5.7

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Jun 12, 2025, 1:43pm User ID: jferguson
File: L:\Projects\314\47-05\Design\Civil\SHEETS\5.6 RITZ DR-ORR DR.dwg
Design\Civil\SHEETS\5.6 RITZ DR-ORR DR.dwg\5.7 RITZ DR- REEVES DR- MASTER DR STA. 8+00.00 - 13+00.00 By: JFERGUSON

NOTE:
ALL RAMPS AND ANY PROPOSED SIDEWALKS THAT DO NOT FRONT PROPOSED RESIDENTIAL LOTS ARE REQUIRED TO BE CONSTRUCTED WITH THE STREET CONSTRUCTION.

TRENCH EXCAVATION SAFETY PROTECTION

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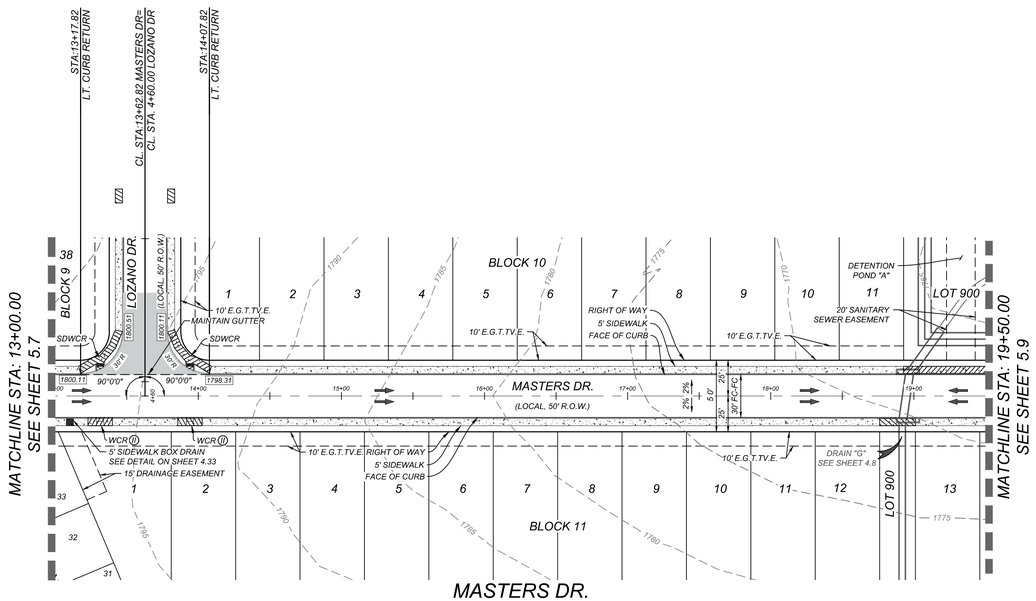
N E S W

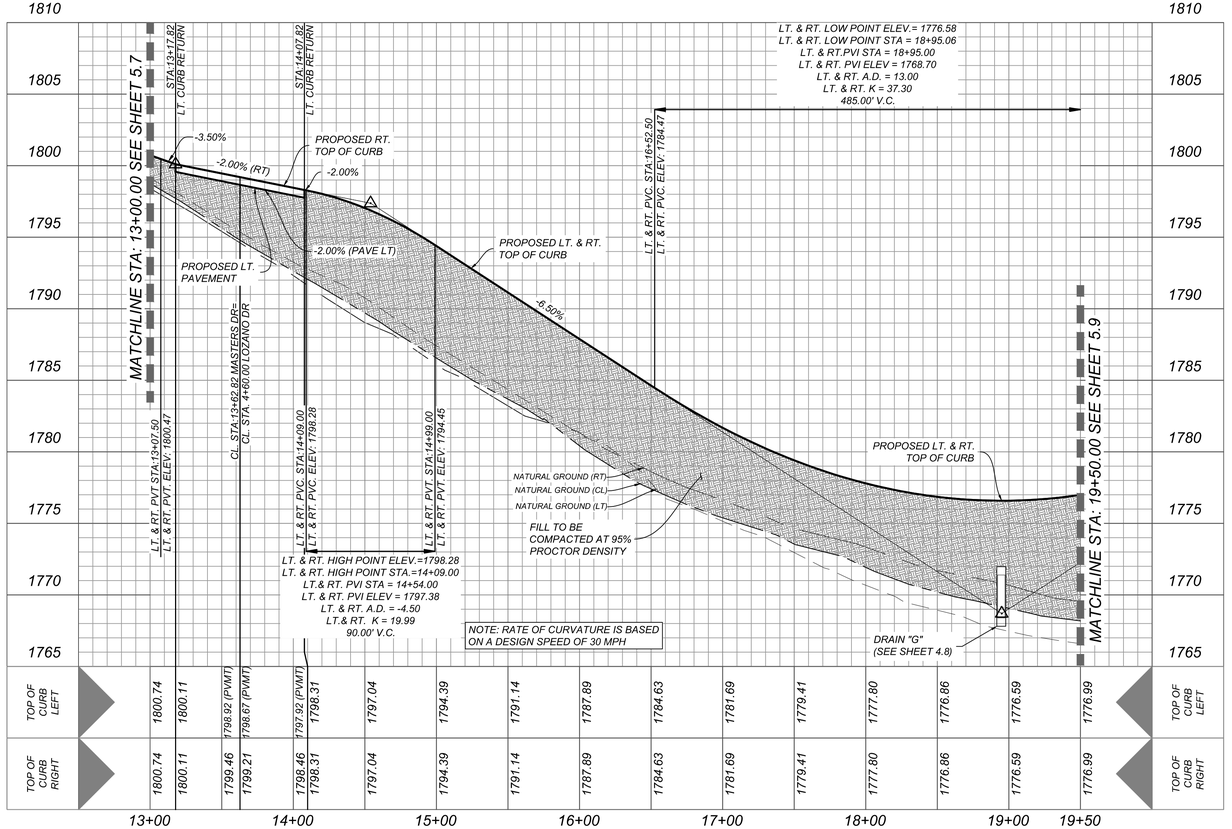
50 0 50

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



MASTERS DR.
STA: 13+00.00 - 19+50.00

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



	13+00	14+00	15+00	16+00	17+00	18+00	19+00	19+50
TOP OF CURB LEFT	1800.74	1800.11	1798.92 (PVMT) / 1798.67 (PVMT)	1797.92 (PVMT) / 1798.31	1797.04	1794.39	1791.14	1787.89	1784.63	1781.69	1779.41	1777.80	1776.86	1776.59	1776.99
TOP OF CURB RIGHT	1800.74	1800.11	1799.46 / 1799.21	1798.46 / 1798.31	1797.04	1794.39	1791.14	1787.89	1784.63	1781.69	1779.41	1777.80	1776.86	1776.59	1776.99

LEGEND

	=	FLOW ARROW
	=	WASHOUT CROWN
E.G.T.TV.E.	=	ELECTRIC, GAS, TELEPHONE & CABLE EASEMENT
V.W.C.V.E.	=	VARIABLE WIDTH CLEAR VISION EASEMENT
H.P.	=	HIGH POINT
SDWCR	=	SINGLE DIRECTIONAL WHEEL CHAIR RAMP SEE SHEET 5.14
DDWCR	=	DOUBLE DIRECTIONAL WHEEL CHAIR RAMP SEE SHEET 5.14
II	=	WHEELCHAIR RAMP TYPE II SEE SHEET 5.14
	=	SIDEWALK TO BE CONSTRUCTED BY DEVELOPER
	=	SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION
1722.00	=	TOP OF CURB ELEVATIONS

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____
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REV	DATE	DRAWN BY	DESCRIPTION

06/17/2025

STATE OF TEXAS
DENIS A AVENDANO
137588
LICENSED
PROFESSIONAL ENGINEER

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

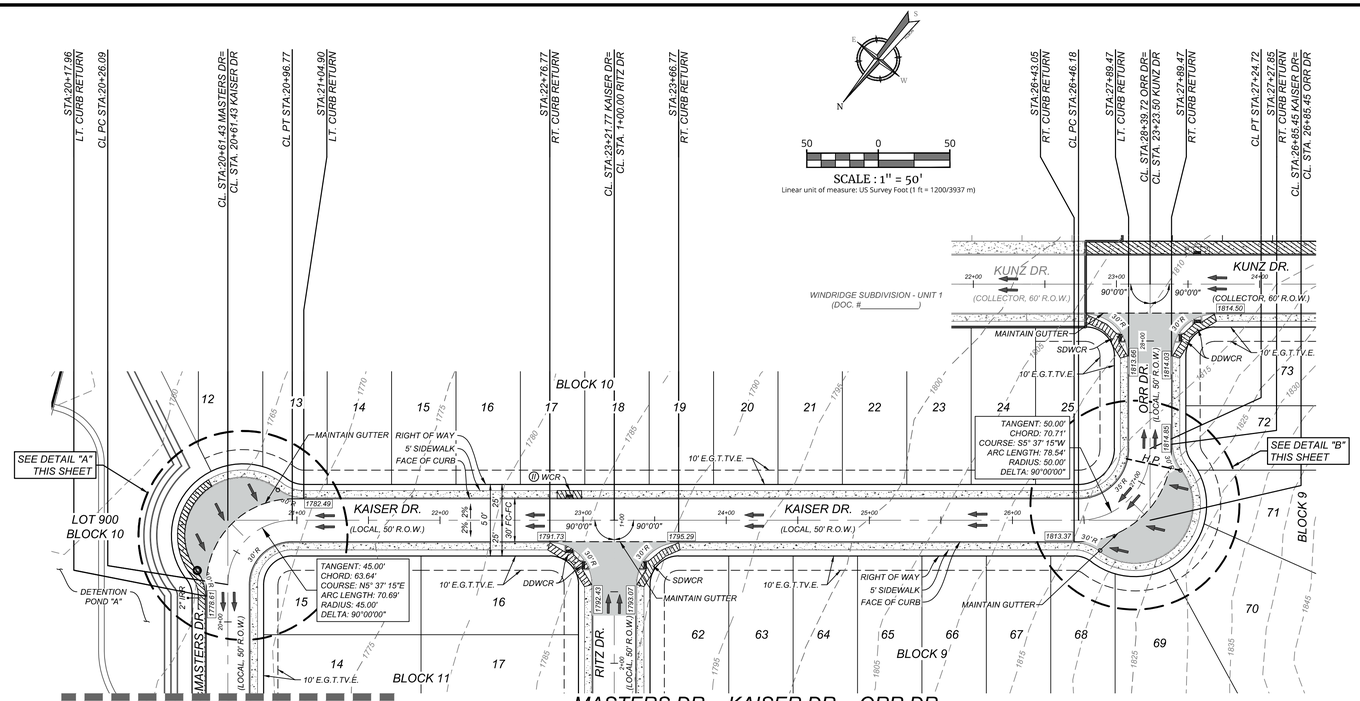
PROJECT NUMBER: 314-47-05
DRAWING NAME: 5.6 RITZ DR-ORR DR

SHEET TITLE:
MASTERS DR STA. 13+00.00 - 19+50.00

SHEET NUMBER:
5.8

Date: Jun 12, 2025, 1:44pm User ID: jfergason
File: L:\Projects\314\47\05\Design\Civil\SHEETS\5.6 RITZ DR-ORR DR.dwg
Design\Civil\SHEETS\5.6 RITZ DR-ORR DR.dwg:8 MASTERS DR STA. 13+00.00 - 19+50.00 By: JFERGASON

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

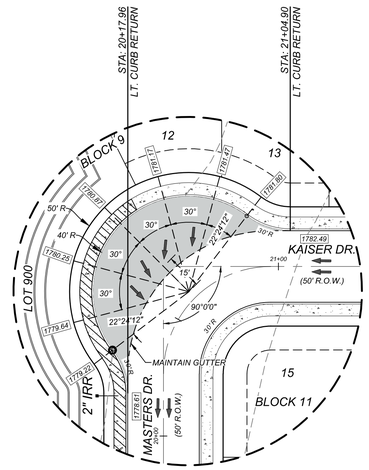


MASTERS DR. - KAISER DR. - ORR DR.
STA: 19+50.00 - END

LT. LOW POINT ELEV.= 1792.28
RT. LOW POINT ELEV.=1791.74 (PAVE)
LT. & RT. LOW POINT STA = 22+98.50
LT. & RT.PVI STA = 23+66.00
LT. & RT. PVI ELEV = 1794.64
LT. & RT. A.D. = 3.60
LT. & RT. K = 37.49
135.00' V.C.

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

NOTE:
ALL RAMPS AND ANY PROPOSED SIDEWALKS THAT DO NOT FRONT PROPOSED RESIDENTIAL LOTS ARE REQUIRED TO BE CONSTRUCTED WITH THE STREET CONSTRUCTION.



TRENCH EXCAVATION SAFETY PROTECTION

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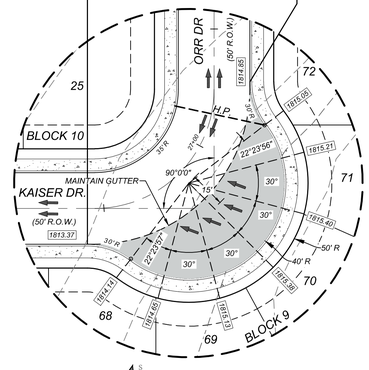
LEGEND

	=	FLOW ARROW
	=	WASHOUT CROWN
E.G.T.TV.E.	=	ELECTRIC, GAS, TELEPHONE & CABLE EASEMENT
V.W.C.V.E.	=	VARIABLE WIDTH CLEAR VISION EASEMENT
H.P.	=	HIGH POINT
SDWCR	=	SINGLE DIRECTIONAL WHEELCHAIR RAMP SEE SHEET 5.14
DDWCR	=	DOUBLE DIRECTIONAL WHEELCHAIR RAMP SEE SHEET 5.14
	=	WHEELCHAIR RAMP TYPE II SEE SHEET 5.14
	=	SIDEWALK TO BE CONSTRUCTED BY DEVELOPER
	=	SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION
1722.00	=	TOP OF CURB ELEVATIONS



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REV	DATE	DRAWN BY	DESCRIPTION

06/19/2025

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER

WINDRIDGE SUBDIVISION - UNIT 2
FOR
LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#:F-14909
TBPLS Firm#: 10194550

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____ DATE

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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: 5.6 RITZ DR-ORR DR

SHEET TITLE:
MASTERS DR - KAISER DR - ORR DR STA. 19+50.00 - END

SHEET NUMBER:
5.9

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Jun 12, 2025, 1:45pm User ID: jferguson
File: U:\Projects\314-47-05\Civil\PLOTSHEETS\5.6 RITZ DR-ORR DR.dwg
Plotted By: JEFFERGUSON

NOTE:
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TRENCH EXCAVATION SAFETY PROTECTION

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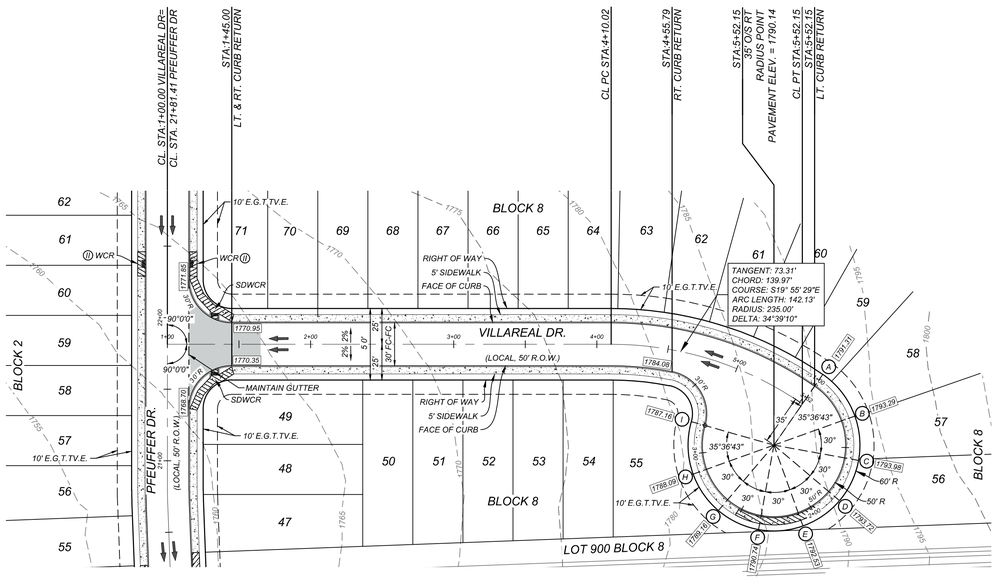
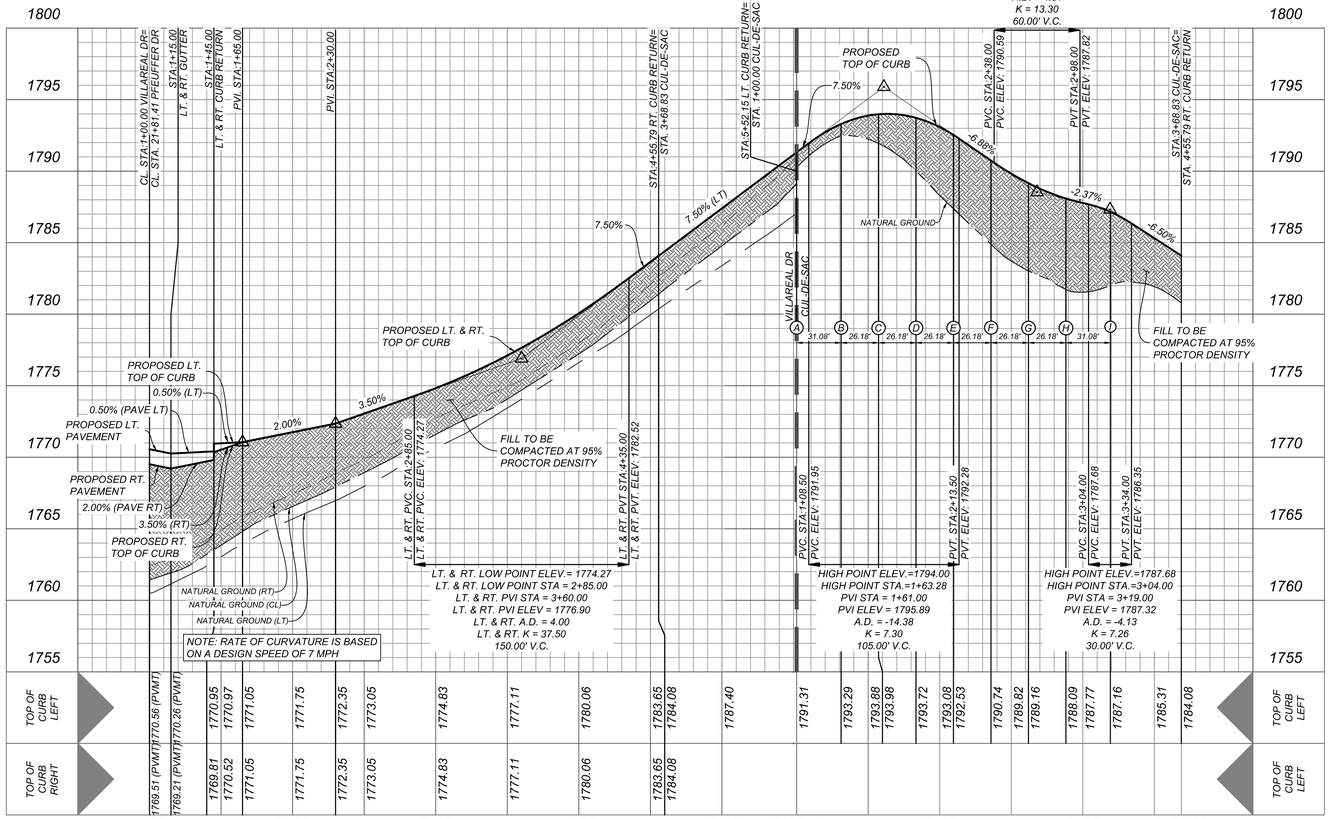


VILLAREAL DR
STA: 1+00.00 - END

LOW POINT ELEV.= 1787.82
LOW POINT STA = 2+98.00
PVI STA = 2+68.00
PVI ELEV = 1788.53
A.D. = 4.51
K = 13.30
60.00' V.C.

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



LEGEND

→	=	FLOW ARROW
	=	WASHOUT CROWN
E.G.T.TV.E.	=	ELECTRIC, GAS, TELEPHONE & CABLE EASEMENT
V.W.C.V.E.	=	VARIABLE WIDTH CLEAR VISION EASEMENT
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SDWCR	=	SINGLE DIRECTIONAL WHEEL CHAIR RAMP SEE SHEET 5.14
DDWCR	=	DOUBLE DIRECTIONAL WHEEL CHAIR RAMP SEE SHEET 5.14
(II)	=	WHEELCHAIR RAMP TYPE II SEE SHEET 5.14
	=	SIDEWALK TO BE CONSTRUCTED BY DEVELOPER
	=	SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION
1722.00	=	TOP OF CURB ELEVATIONS

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REV	DATE	DRAWN BY	DESCRIPTION

06/17/2025
STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED
PROFESSIONAL ENGINEER

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
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Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14305
TBPLS Firm#: 10194500

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: 5.10 VILLAREAL DR STA. 1+00.00 - END

SHEET TITLE: VILLAREAL DR STA. 1+00.00 - END

SHEET NUMBER: 5.10

CITY APPROVAL
THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____
DATE

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NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Jun 12, 2025, 12:37pm User ID: mytchell.flores
File: L:\Projects\314-47-05\Design\CivilSTREETS\5.10 VILLAREAL DR STA. 1+00.00 - END.dwg By: MALACHI FLORES
L:\Projects\314-47-05\Design\CivilSTREETS\5.10 VILLAREAL DR STA. 1+00.00 - END

NOTE:
ALL RAMPS AND ANY PROPOSED SIDEWALKS THAT DO NOT FRONT PROPOSED RESIDENTIAL LOTS ARE REQUIRED TO BE CONSTRUCTED WITH THE STREET CONSTRUCTION.

TRENCH EXCAVATION SAFETY PROTECTION

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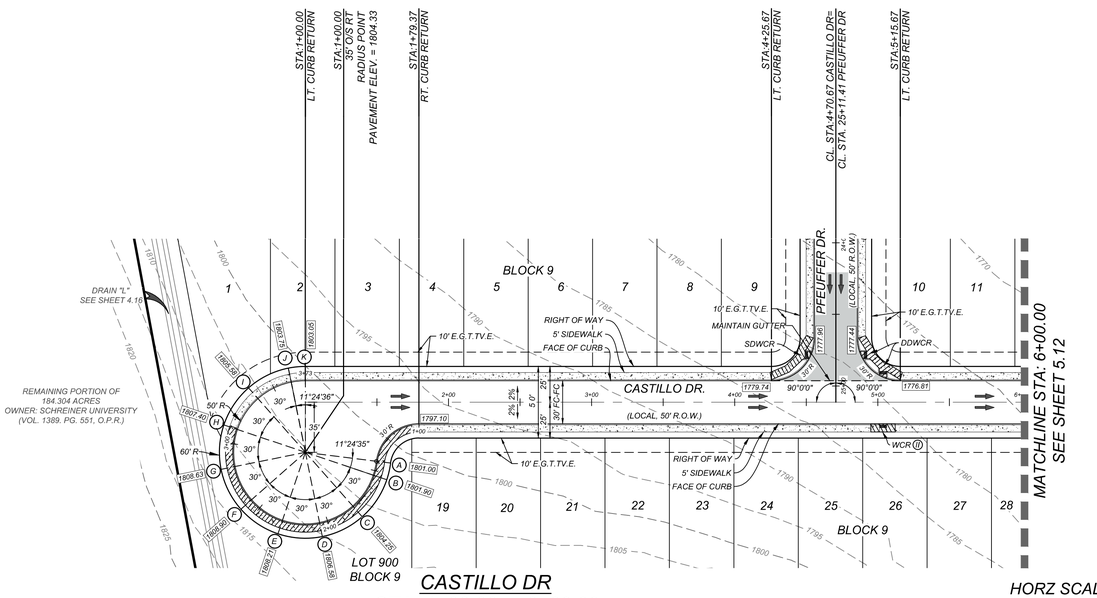
N E S W

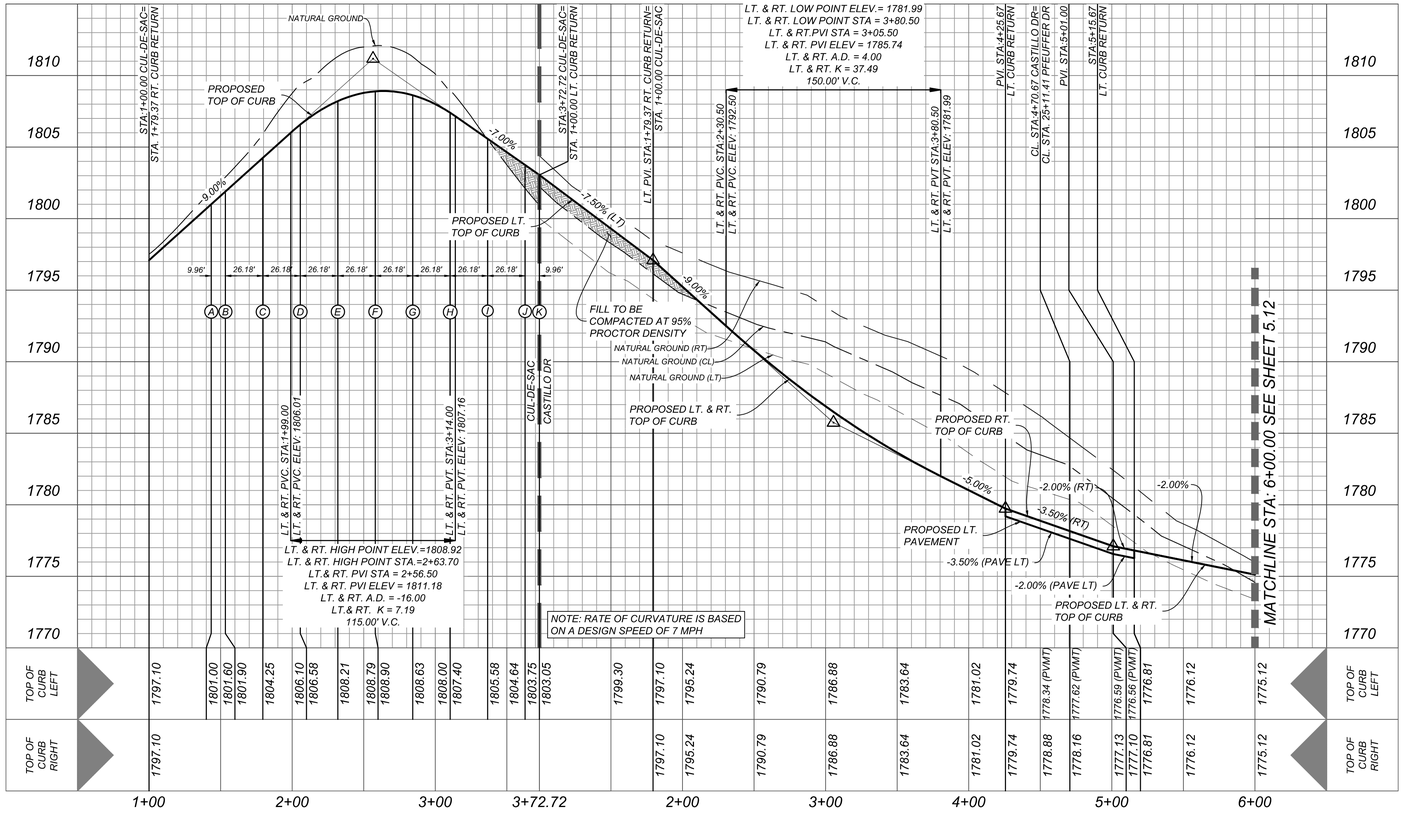
50 0 50

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



CASTILLO DR
STA: 1+00.00 - 6+00.00

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



TOP OF CURB LEFT	1797.10	1801.00	1801.60	1801.90	1804.25	1806.10	1806.58	1808.21	1808.79	1808.90	1808.63	1808.00	1807.40	1805.58	1804.64	1803.75	1803.05	1799.30	1797.10	1795.24	1790.79	1786.88	1783.64	1781.02	1779.74	1778.34 (PVMT)	1777.62 (PVMT)	1776.59 (PVMT)	1776.56 (PVMT)	1776.81	1776.12	1775.12	TOP OF CURB LEFT
TOP OF CURB RIGHT	1797.10																		1797.10	1795.24	1790.79	1786.88	1783.64	1781.02	1779.74	1778.88	1778.16	1777.13	1777.10	1776.81	1776.12	1775.12	TOP OF CURB RIGHT

LEGEND

	=	FLOW ARROW
	=	WASHOUT CROWN
E.G.T.TV.E.	=	ELECTRIC, GAS, TELEPHONE & CABLE EASEMENT
V.W.C.V.E.	=	VARIABLE WIDTH CLEAR VISION EASEMENT
H.P.	=	HIGH POINT
SDWCR	=	SINGLE DIRECTIONAL WHEEL CHAIR RAMP SEE SHEET 5.14
DDWCR	=	DOUBLE DIRECTIONAL WHEEL CHAIR RAMP SEE SHEET 5.14
II	=	WHEELCHAIR RAMP TYPE II SEE SHEET 5.14
	=	SIDEWALK TO BE CONSTRUCTED BY DEVELOPER
	=	SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION
1722.00	=	TOP OF CURB ELEVATIONS

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

REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER
06/17/2025

WINDRIDGE SUBDIVISION – UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194500

CITY APPROVAL
THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY
_____ ON _____
DATE
THIS APPROVAL WILL BECOME VOID AFTER ONE YEAR OF THE INDICATED APPROVAL DATE. EXCEPTIONS TO THIS APPROVAL ARE AS FOLLOWS:
_____
_____
_____
_____
BY APPROVING THESE PLANS, THE CITY OF KERRVILLE DOES NOT ASSUME ANY LIABILITY FOR ENGINEERING DESIGN, NOR DOES APPROVAL RELEASE THE DESIGN ENGINEER FROM LIABILITY FOR CORRECTION ERRORS OR OMISSIONS IN THE DESIGN BOTH DURING AND AFTER CONSTRUCTION.

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: 5.11 CASTILLO DR STA. 1+00.00 - END

SHEET TITLE: CASTILLO DR STA. 1+00.00 - 6+00.00

SHEET NUMBER: 5.11

Date: Jun 12, 2025, 12:35pm User ID: mmiskell.flores
File: L:\Projects\314\47\05\Design\CIVIL\SHEETS\5.11 CASTILLO DR STA. 1+00.00 - END.dwg
Layout: 5.11 CASTILLO DR STA. 1+00.00 - 6+00.00 By: MMISKELL.FLORES

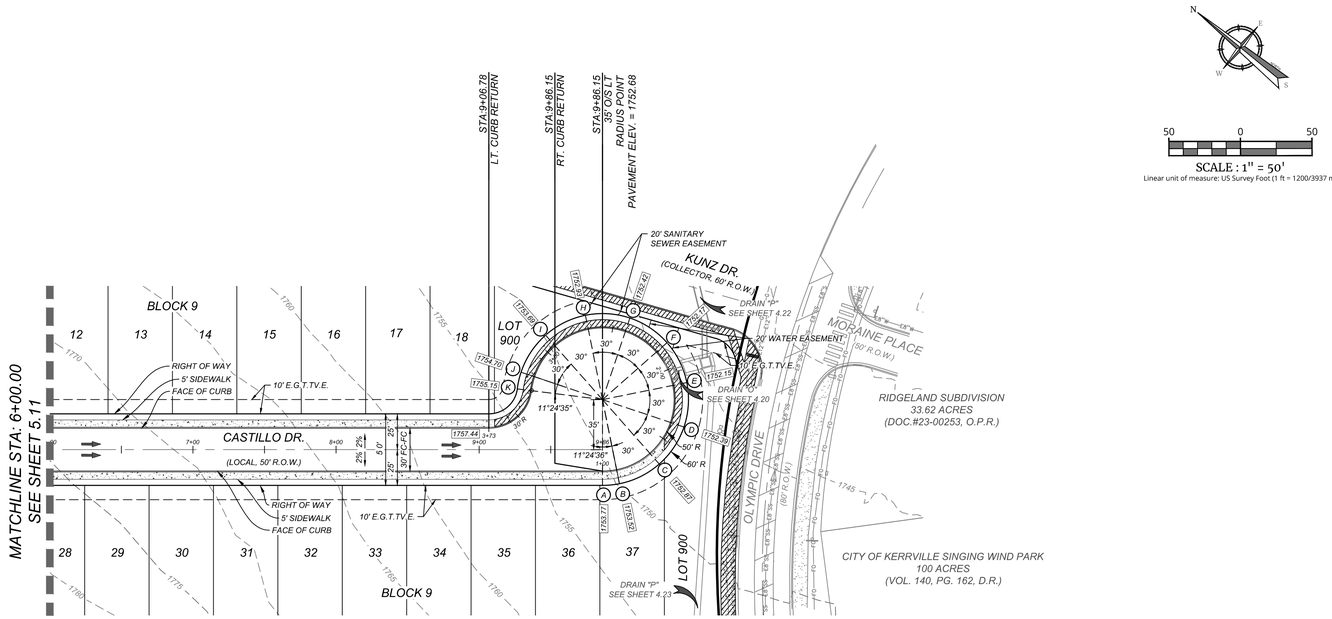
NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

NOTE:
ALL RAMPS AND ANY PROPOSED SIDEWALKS THAT DO NOT FRONT PROPOSED RESIDENTIAL LOTS ARE REQUIRED TO BE CONSTRUCTED WITH THE STREET CONSTRUCTION.

TRENCH EXCAVATION SAFETY PROTECTION

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

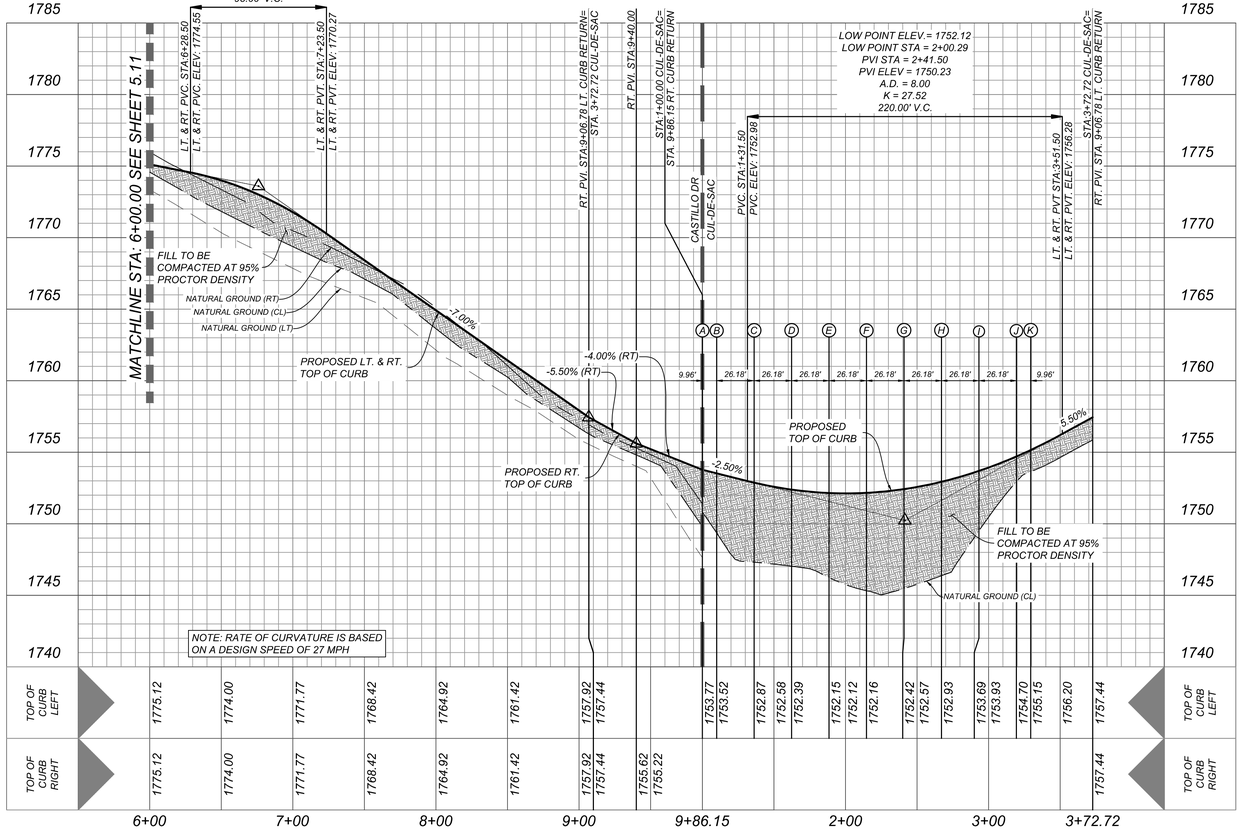
CAUTION!!:
THE CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITED TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS 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.



LT. & RT. HIGH POINT ELEV.=1774.55
LT. & RT. HIGH POINT STA.=6+28.50
LT.& RT. PVI STA = 6+76.00
LT. & RT. PVI ELEV = 1773.60
LT. & RT. A.D. = -5.00
LT.& RT. K = 19.00
95.00' V.C.

CASTILLO DR
STA: 6+00.00 - END

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



LEGEND

	=	*FLOW ARROW*
	=	*WASHOUT CROWN*
E.G.T.TV.E.	=	*ELECTRIC, GAS, TELEPHONE & CABLE EASEMENT*
V.W.C.V.E.	=	*VARIABLE WIDTH CLEAR VISION EASEMENT*
H.P.	=	*HIGH POINT*
SDWCR	=	*SINGLE DIRECTIONAL WHEEL CHAIR RAMP SEE SHEET 5.14*
DDWCR	=	*DOUBLE DIRECTIONAL WHEEL CHAIR RAMP SEE SHEET 5.14*
(if)	=	*WHEELCHAIR RAMP TYPE II SEE SHEET 5.14*
	=	*SIDEWALK TO BE CONSTRUCTED BY DEVELOPER*
	=	*SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION*
1722.00	=	*TOP OF CURB ELEVATIONS*

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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

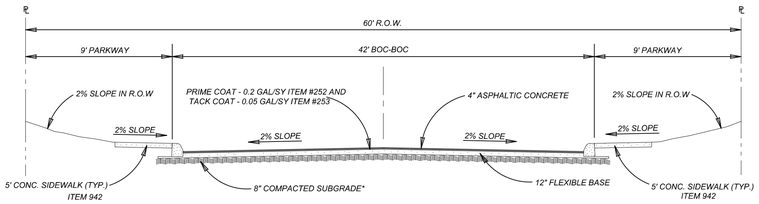
PROJECT NUMBER: 314-47-05
DRAWING NAME: 5.11 CASTILLO DR STA. 1+00.00 - END

SHEET TITLE: CASTILLO DR STA. 6+00.00 - END

SHEET NUMBER: 5.12

Date: Jun 12, 2025, 12:36pm User ID: mandel.flores
File: L:\Projects\314\47\05\Design\CIVIL\SHEETS\5.11 CASTILLO DR STA. 1+00.00 – END.dwg
By: MAUCHI FLORES

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

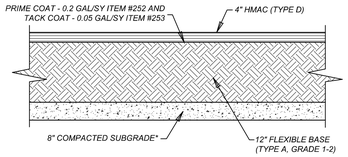


TYPICAL COLLECTOR 60 FT R.O.W. STREET SECTION

N.T.S.

Pavement Section **
4" HMAC (Type D)
12" Flexible Base (Type A, Grade 1-2)
8" Compacted Subgrade*
Total: 24"

KUNZ DR - STA: 22+78.50 - END



ASPHALT PAVEMENT DETAIL - 60 FT R.O.W.

NOT-TO-SCALE

DETAIL FOR COLLECTOR

NOTES:
1. PAVEMENT DESIGN THICKNESS BASED ON GEOTECHNICAL REPORT NO. 0312-3304 BY PROFESSIONAL SERVICE INDUSTRIES, INC. DATED SEPTEMBER 6, 2024.

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

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

*NOTE: REFERENCE GEOTECHNICAL REPORT NO. 0312-3304 BY PROFESSIONAL SERVICE INDUSTRIES, INC. DATED SEPTEMBER 6, 2024 FOR COMPACTED SUBGRADE SPECIFICATIONS.

**NOTE: ASPHALT PAVEMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE CURRENT CITY OF KERRVILLE STANDARD SPECIFICATIONS FOR CONSTRUCTION, SECTION 200 (PRIME COAT APPLIED AT A RATE NOT TO EXCEED 0.20 GAL/S.Y. AND TACK COAT APPLIED AT A RATE NOT TO EXCEED 0.05 GAL/S.Y.).

***NOTE: GEOTECHNICAL ENGINEER TO BE ON SITE TO MAKE FINAL SUBGRADE DETERMINATION. CHANGES TO THIS PAVEMENT DESIGN SHALL BE SUBMITTED TO COK PRIOR TO PLACEMENT OF BASE MATERIAL.

GENERAL NOTES:

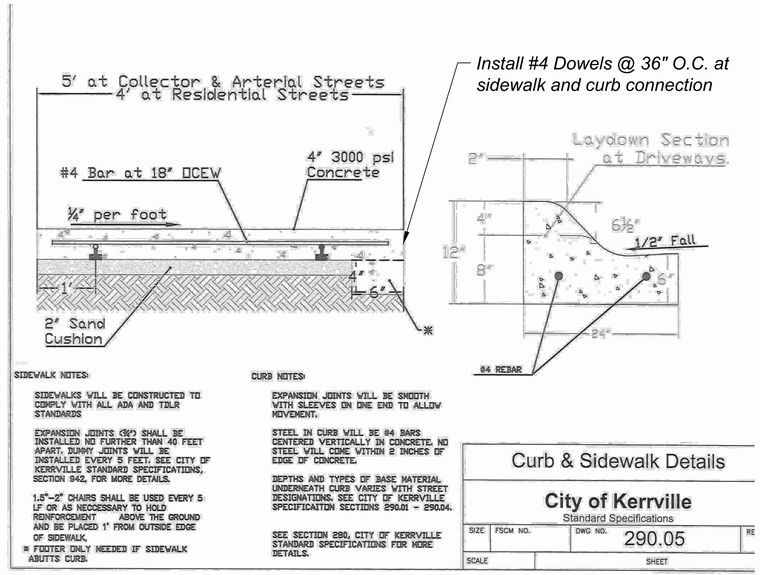
1. THE SUBGRADE SOILS SHOULD BE TESTED FOR SOLUBLE SULPHATE CONTENT PRIOR TO INSTALLATION OF THE LIME OR CEMENT.

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;
  - MINIMUM PASSING 1 ¾" SIEVE 100
  - MINIMUM PASSING ⅜" 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.

NOTES:

ANY FILL USED TO RAISE THE SUBGRADE:
- SHOULD NOT CONTAIN ANY DELETERIOUS MATERIAL.
- SHOULD HAVE A CBR VALUE OF 3.0 OR GREATER
- SHOULD NOT HAVE GRAVELS LARGER THAN 3 INCH IN SIZE
- SHOULD HAVE THE "LIME PERCENTAGE/APPLICATION RATE" RE-RUN PRIOR TO INSTALLATION
- PI SHOULD BE LESS THAN 20



SIDEWALK NOTES:

SIDEWALKS WILL BE CONSTRUCTED TO COMPLY WITH ALL ADA AND TDLR STANDARDS

EXPANSION JOINTS (⅜") SHALL BE INSTALLED NO FURTHER THAN 40 FEET APART. DUMMY JOINTS WILL BE INSTALLED EVERY 5 FEET. SEE CITY OF KERRVILLE STANDARD SPECIFICATIONS, SECTION 942, FOR MORE DETAILS.

1.5"-2" CHAIRS SHALL BE USED EVERY 5 LF OR AS NECCESSARY TO HOLD REINFORCEMENT ABOVE THE GROUND AND BE PLACED 1' FROM OUTSIDE EDGE OF SIDEWALK.

* FOOTER ONLY NEEDED IF SIDEWALK ABUTTS CURB.

CURB NOTES:

EXPANSION JOINTS WILL BE SMOOTH WITH SLEEVES ON ONE END TO ALLOW MOVEMENT.

STEEL IN CURB WILL BE #4 BARS CENTERED VERTICALLY IN CONCRETE. NO STEEL WILL COME WITHIN 2 INCHES OF EDGE OF CONCRETE.

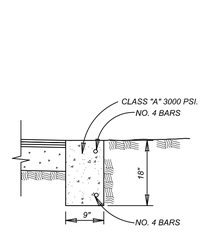
DEPTHS AND TYPES OF BASE MATERIAL UNDERNEATH CURB VARIES WITH STREET DESIGNATIONS. SEE CITY OF KERRVILLE SPECIFICAITON SECTIONS 290.01 - 290.04.

SEE SECTION 280, CITY OF KERRVILLE STANDARD SPECIFICATIONS FOR MORE DETAILS.

Curb & Sidewalk Details

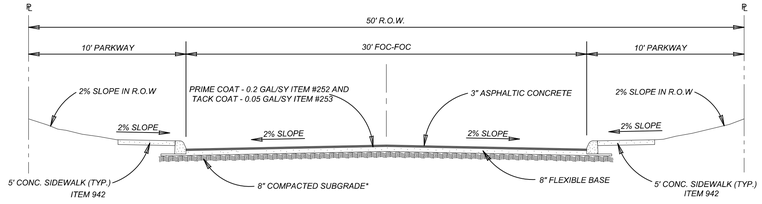
City of Kerrville
Standard Specifications

SIZE	FSCM NO.	DWG NO.	RE
		290.05	
SCALE		SHEET	



HEADER CURB

ITEM 280 ON SAND OR GRAVEL
NOT TO SCALE

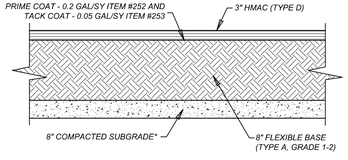


TYPICAL LOCAL 50 FT R.O.W. STREET SECTION

N.T.S.

Pavement Section **
3" HMAC (Type D)
8" Flexible Base (Type A, Grade 1-2)
8" Compacted Subgrade*
Total: 19"

LOZANO DR - STA: 3+15.25 - END
MASTERS DR - STA: 11+71.15 - END
ZUMWALT DR - STA: 11+75.74 - END
RITZ DR - STA: 1+00.00 - END
REEVES DR - STA: 9+08.02 - END
PFEUFFER DR - STA: 12+85.09 - END
LIECHT DR - STA: 6+25.07 - END
EZELL DR - STA: 6+25.07 - END
ORR DR - STA: 26+85.45 - END
VILLAREAL DR - STA: 1+00.00 - END
CASTILLO DR - STA: 1+00.00 - END



ASPHALT PAVEMENT DETAIL - 50 FT R.O.W.

NOT-TO-SCALE

DETAIL FOR LOCAL

NOTES:
1. PAVEMENT DESIGN THICKNESS BASED ON GEOTECHNICAL REPORT NO. 0312-3304 BY PROFESSIONAL SERVICE INDUSTRIES, INC. DATED SEPTEMBER 6, 2024.

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

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

*NOTE: REFERENCE GEOTECHNICAL REPORT NO. 0312-3304 BY PROFESSIONAL SERVICE INDUSTRIES, INC. DATED SEPTEMBER 6, 2024 FOR COMPACTED SUBGRADE SPECIFICATIONS.

**NOTE: ASPHALT PAVEMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE CURRENT CITY OF KERRVILLE STANDARD SPECIFICATIONS FOR CONSTRUCTION, SECTION 200 (PRIME COAT APPLIED AT A RATE NOT TO EXCEED 0.20 GAL/S.Y. AND TACK COAT APPLIED AT A RATE NOT TO EXCEED 0.05 GAL/S.Y.).

***NOTE: GEOTECHNICAL ENGINEER TO BE ON SITE TO MAKE FINAL SUBGRADE DETERMINATION. CHANGES TO THIS PAVEMENT DESIGN SHALL BE SUBMITTED TO COK PRIOR TO PLACEMENT OF BASE MATERIAL.

GENERAL NOTES:

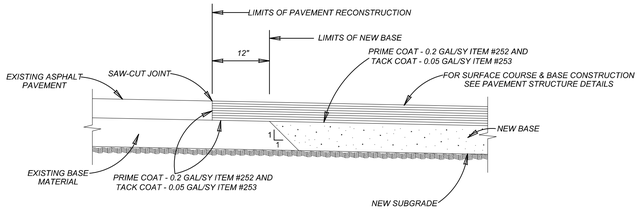
1. THE SUBGRADE SOILS SHOULD BE TESTED FOR SOLUBLE SULPHATE CONTENT PRIOR TO INSTALLATION OF THE LIME OR CEMENT.

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;
  - MINIMUM PASSING 1 ¾" SIEVE 100
  - MINIMUM PASSING ⅜" 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.

NOTES:

ANY FILL USED TO RAISE THE SUBGRADE:
- SHOULD NOT CONTAIN ANY DELETERIOUS MATERIAL.
- SHOULD HAVE A CBR VALUE OF 3.0 OR GREATER
- SHOULD NOT HAVE GRAVELS LARGER THAN 3 INCH IN SIZE
- SHOULD HAVE THE "LIME PERCENTAGE/APPLICATION RATE" RE-RUN PRIOR TO INSTALLATION
- PI SHOULD BE LESS THAN 20



PAVEMENT JUNCTION DETAILS

NOT TO SCALE

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____
DATE

THIS APPROVAL WILL BECOME VOID AFTER ONE YEAR OF THE INDICATED APPROVAL DATE. EXCEPTIONS TO THIS APPROVAL ARE AS FOLLOWS:

_____

_____

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06/17/2025

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DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER

WINDRIDGE SUBDIVISION – UNIT 2

FOR

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

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA
PROJECT NUMBER:	DRAWING NAME:		
314-47-05	STREET DETAIL SHEET		

SHEET TITLE:
STREET DETAILS

SHEET NUMBER:
5.13

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: May 22, 2025, 8:54am User ID: logan.haney
File: U:\Projects\314\47\05\Design\Civil\SHEETS\STREET DETAIL SHEET.dwg
\Design\Civil\SHEETS\STREET DETAIL SHEET.dwg\STREET DETAILS By: LOGAN.HANEY

GENERAL NOTES

1. WHEN POSSIBLE SIDEWALKS SHOULD BE PLACED NEXT TO THE CURB.

2. FOR LOCAL TYPE "A" STREETS, SIDEWALKS SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF 5' 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 5'.

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. RAMP SURFACE SHALL BE BRUSH FINISHED.

8. 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.

9. SIDEWALKS LESS THAN 5 FEET IN WIDTH SHALL BE PROVIDED WITH A PASSING SPACE AT A MAXIMUM SPACING OF 200 FEET.

10. WHEELCHAIR RAMP SHALL BE CONSTRUCTED WITH 4" CLASS "A" CONCRETE AND 2" MINIMUM GRAVEL, CRUSHED ROCK OR FLEXIBLE BASE MATERIAL.

11. REINFORCING STEEL SHALL BE #3 BARS AT 18" O.C.E.W. OR 6" x 6" - W2.9 x W2.9 WIRE MESH.

12. 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.

13. SIDEWALK CROSS GRADE SHALL HAVE A MAXIMUM SLOPE OF 2%. LANDINGS SHALL HAVE A MAXIMUM SLOPE OF 2% IN ANY DIRECTION.

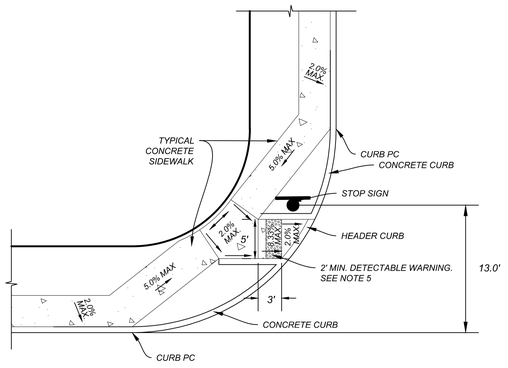
14. THE CHANGE OF GRADE BETWEEN ADJACENT SURFACES SHALL BE LESS THAN 11%. THE CHANGE OF GRADE SHALL BE DEFINED AS THE ALGEBRAIC DIFFERENCE OF THE ADJACENT SURFACE SLOPES. IN THE CASE OF A STREET ACCESS RAMP DESIGNED AT THE 8.33% MAXIMUM SLOPE, THE ADJACENT PAVEMENT CROSS SLOPE SHALL BE LESS THAN 2.67% (I.E. 8.33-(-2.67)=11). IN ADDITION, THE ADJACENT PAVEMENT CROSS SLOPE SHALL BE LESS THAN OR EQUAL TO 5%.

15. 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.

16. ADA COMPLIANCE IN ALTERATIONS INCLUDE ONLY THAT WORK WITHIN THE LIMITS, BOUNDARIES OR SCOPE OF A PLANNED PROJECT.

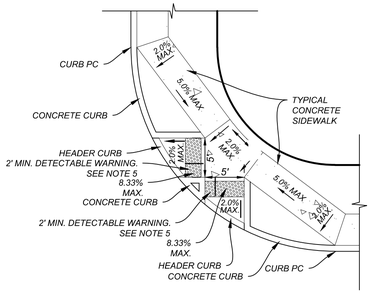
TABLE 1
(SEE NOTE 4)

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"



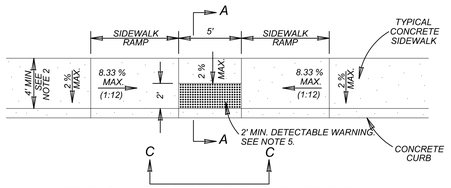
SINGLE DIRECTIONAL WHEEL CHAIR RAMP (SDWCR)

NOT TO SCALE



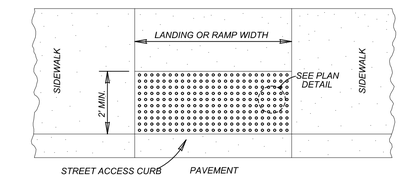
DOUBLE DIRECTIONAL WHEEL CHAIR RAMP (DDWCR)

NOT TO SCALE



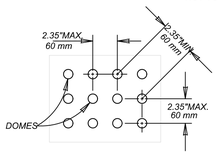
TYPICAL SIDEWALK RAMP - TYPE II

USED AT TEE INTERSECTIONS WHERE SIDEWALK ABUTS CURB
NOT TO SCALE



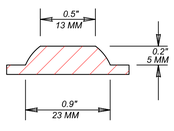
DETECTABLE WARNING SURFACE

NOT TO SCALE



PLAN DETAIL

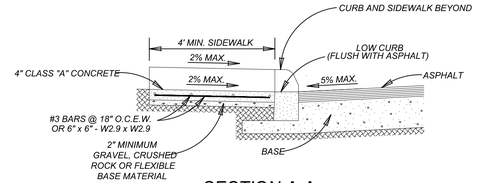
NO SCALE



DOME SECTION

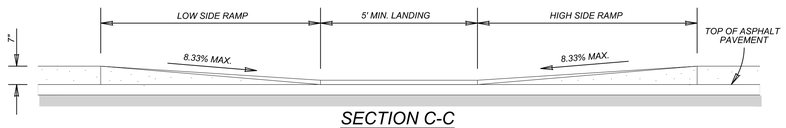
NO SCALE

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.



SECTION A-A

NOT TO SCALE



SECTION C-C

CURB PROFILE WHERE SIDEWALK ABUTS CURB
NOT TO SCALE

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REV	DATE	DRAWN BY	DESCRIPTION

06/17/2025
STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: STREET DETAIL SHEET

SHEET TITLE: WHEELCHAIR RAMP DETAILS

SHEET NUMBER: 5.14

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____ DATE

THIS APPROVAL WILL BECOME VOID AFTER ONE YEAR OF THE INDICATED APPROVAL DATE. EXCEPTIONS TO THIS APPROVAL ARE AS FOLLOWS:

_____
_____
_____
_____

BY APPROVING THESE PLANS, THE CITY OF KERRVILLE DOES NOT ASSUME ANY LIABILITY FOR ENGINEERING DESIGN, NOR DOES APPROVAL RELEASE THE DESIGN ENGINEER FROM LIABILITY FOR CORRECTION ERRORS OR OMISSIONS IN THE DESIGN BOTH DURING AND AFTER CONSTRUCTION.

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: May 22, 2025, 9:03am User ID: jgonthorney
File: U:\Projects\314-47-05 Windridge Unit 2\Design\Civil\STREETS\STREET DETAIL SHEET\STREET DETAIL SHEET.dwg
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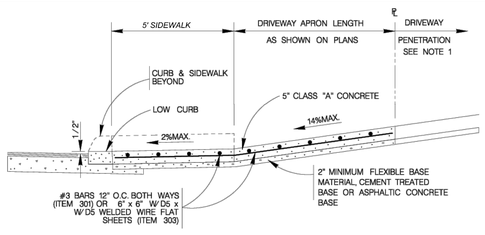
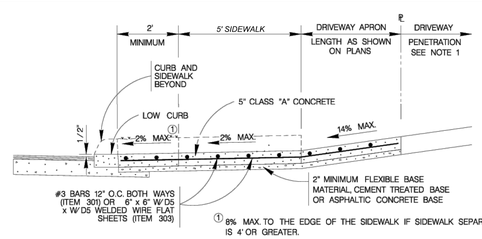


TYPICAL RESIDENTIAL DRIVEWAY SECTION

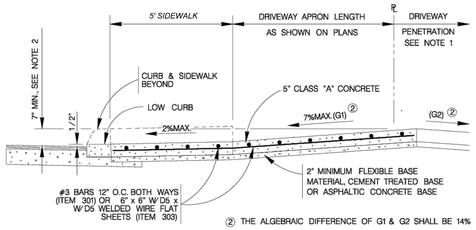
WITH SIDEWALK ABUTTING CURB
ITEM 503.1



TYPICAL RESIDENTIAL DRIVEWAY SECTION

WITH SIDEWALK SEPARATED FROM CURB
ITEM 503.1

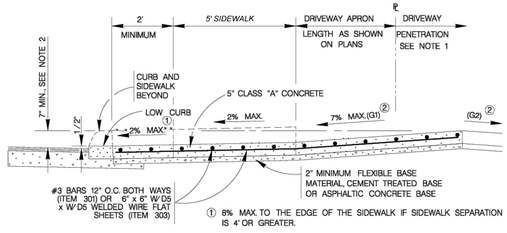
① 8% MAX. TO THE EDGE OF THE SIDEWALK IF SIDEWALK SEPARATION IS 4' OR GREATER.



② THE ALGEBRAIC DIFFERENCE OF G1 & G2 SHALL BE 14% OR LESS

TYPICAL RESIDENTIAL DRIVEWAY SECTION

WHERE PROPERTY IS LOWER THAN STREET & SIDEWALK IS ABUTTING CURB
ITEM 503.1

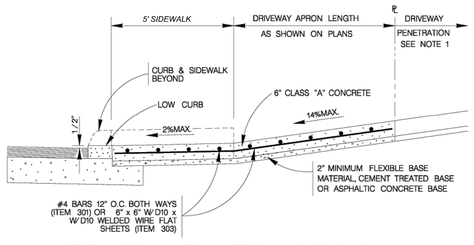


① 8% MAX. TO THE EDGE OF THE SIDEWALK IF SIDEWALK SEPARATION IS 4' OR GREATER.

② THE ALGEBRAIC DIFFERENCE OF G1 & G2 SHALL BE 14% OR LESS

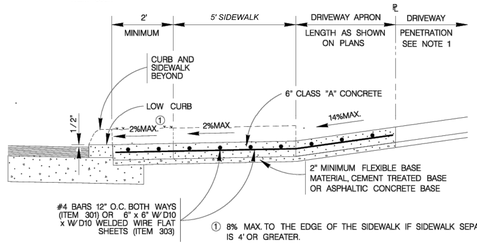
TYPICAL RESIDENTIAL DRIVEWAY SECTION

WHERE PROPERTY IS LOWER THAN STREET & SIDEWALK IS SEPARATED FROM CURB
ITEM 503.1



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

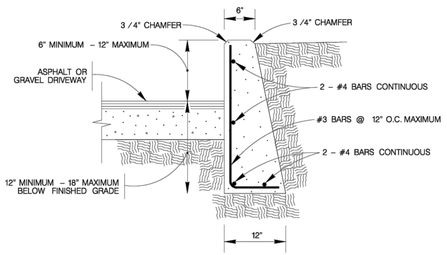
WITH SIDEWALK SEPARATED FROM CURB
ITEM 503.2

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'

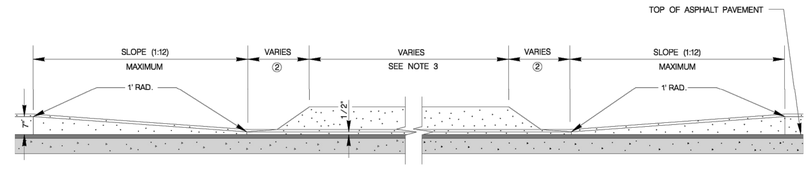
4. FOR LOCAL TYPE "A" STREETS, SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 5' AND IF SEPARATED FROM THE CURB, THE SIDEWALK SHALL BE LOCATED A MINIMUM OF 2' FROM THE BACK OF CURB.
5. FOR OTHER THAN LOCAL TYPE "A" STREETS, THE SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 5' AND SEPARATED A MINIMUM OF 2' FROM THE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



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

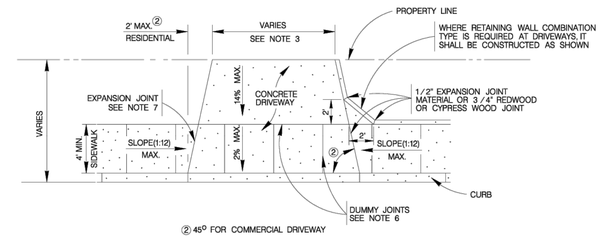
ON COMPACTED SUBGRADE
ITEM 307.1



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

CURB PROFILE AT DRIVEWAY

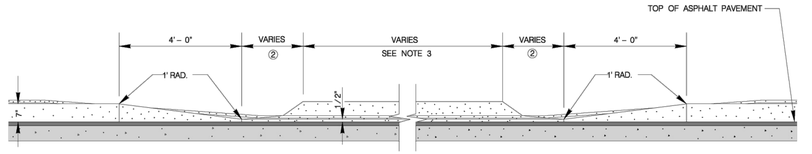
WITH SIDEWALK ABUTTING CURB



② 45^{0} FOR COMMERCIAL DRIVEWAY

TYPICAL DRIVEWAY PLAN VIEW

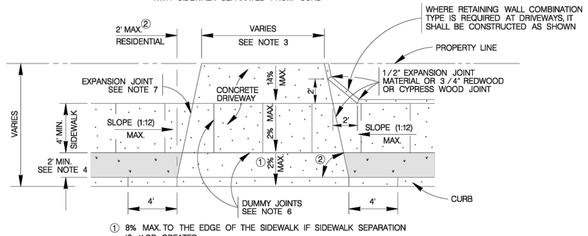
WITH SIDEWALK ABUTTING CURB



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^{0} FOR COMMERCIAL DRIVEWAY

TYPICAL DRIVEWAY PLAN VIEW

WITH SIDEWALK SEPARATED FROM CURB

CONCRETE DRIVEWAY STANDARDS

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

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____
DATE

THIS APPROVAL WILL BECOME VOID AFTER ONE YEAR OF THE INDICATED APPROVAL DATE. EXCEPTIONS TO THIS APPROVAL ARE AS FOLLOWS:

_____
_____
_____
_____

BY APPROVING THESE PLANS, THE CITY OF KERRVILLE DOES NOT ASSUME ANY LIABILITY FOR ENGINEERING DESIGN, NOR DOES APPROVAL RELEASE THE DESIGN ENGINEER FROM LIABILITY FOR CORRECTION ERRORS OR OMISSIONS IN THE DESIGN BOTH DURING AND AFTER CONSTRUCTION.

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REV	DATE	DRAWN BY	DESCRIPTION

06/17/2025
STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
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640 North Walnut Ave.
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New Braunfels, TX 78130
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COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: STREET DETAIL SHEET

SHEET TITLE: CONCRETE DRIVEWAY DETAILS

SHEET NUMBER: 5.15

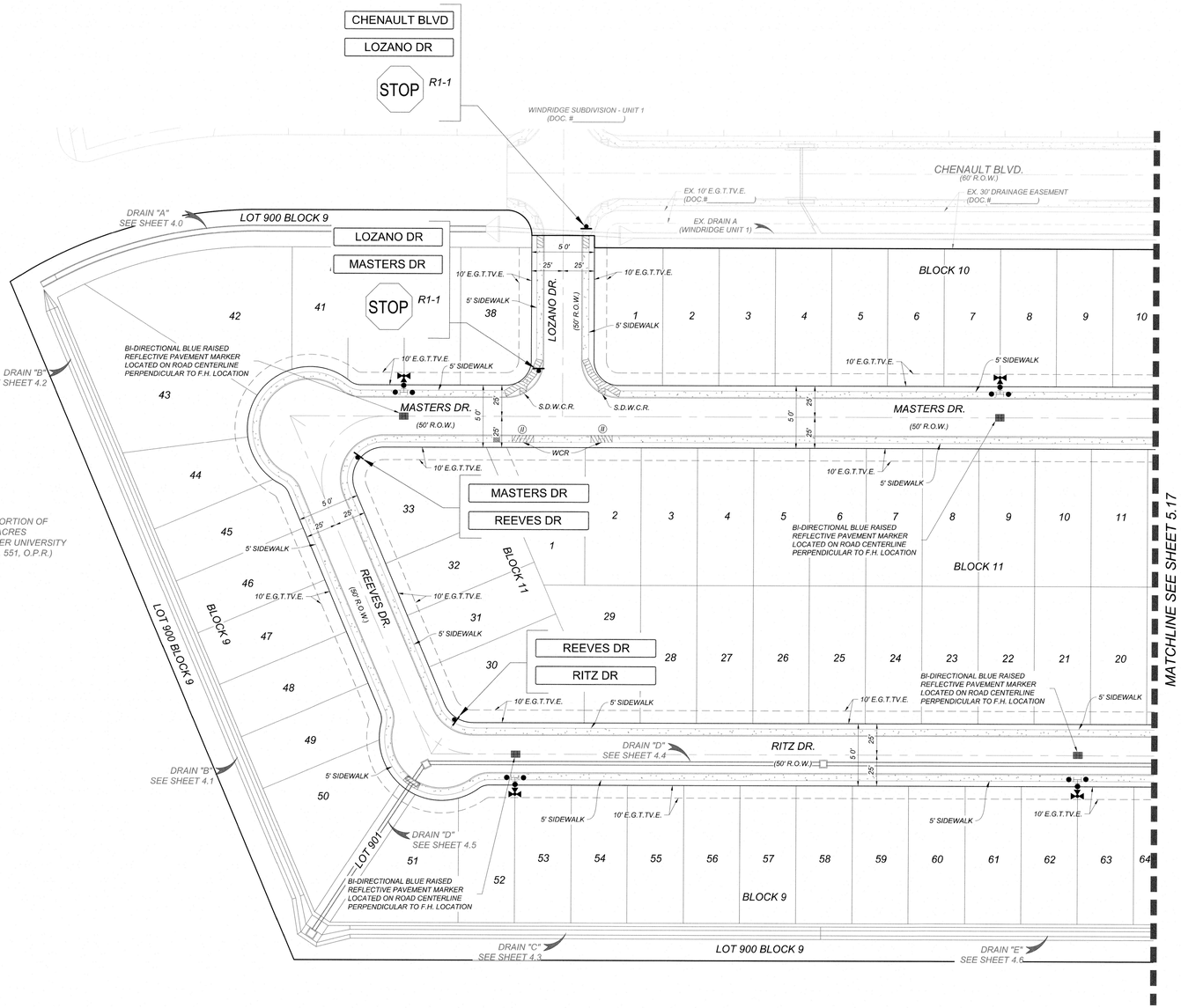
NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

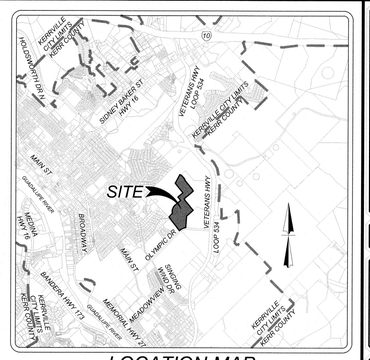
Date: May 22, 2025, 9:05am User ID: logan.haney
File: L:\Projects\314_47_05\Design\Civil\STREETS\STREET DETAIL SHEET.dwg
By: LOGAN.HANEY
\Design\Civil\STREETS\STREET DETAIL SHEET.dwg\CONCRETE DRIVEWAY DETAILS

TRENCH EXCAVATION SAFETY PROTECTION

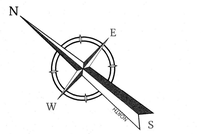
CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S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





LOCATION MAP
NOT-TO-SCALE



50 0 50 100

SCALE : 1" = 50'

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

LEGEND

E.G.T.TV.E.	=	*ELECTRIC, GAS, TELEPHONE & CABLE EASEMENT*
V.W.C.V.E.	=	*VARIABLE WIDTH CLEAR VISION EASEMENT*
SDWCR	=	*SINGLE DIRECTIONAL WHEEL CHAIR RAMP SEE SHEET 5.14*
DDWCR	=	*DOUBLE DIRECTIONAL WHEEL CHAIR RAMP SEE SHEET 5.14*
	=	*WHEELCHAIR RAMP TYPE II SEE SHEET 5.14*
	=	*SIDEWALK TO BE CONSTRUCTED BY DEVELOPER.*
	=	*SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION*
	=	*PROPOSED FIRE HYDRANT*
	=	*BLUE RAISED REFLECTIVE PAVEMENT MARKER*

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____
DATE

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STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED
PROFESSIONAL ENGINEER

11/03/2025

WINDRIDGE SUBDIVISION – UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave, Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: TRAFFIC SIGNAGE AND PEDESTRIAN PLAN

SHEET TITLE:
TRAFFIC SIGNAGE AND PEDESTRIAN PLAN

SHEET NUMBER:
5.16

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Oct 24, 2025, 10:00am User ID: logan.haney
File: U:\Projects\314-47-05\Design\Civil\STREETS\TRAFFIC SIGNAGE AND PEDESTRIAN PLAN.dwg
U:\Projects\314-47-05\Design\Civil\STREETS\TRAFFIC SIGNAGE AND PEDESTRIAN PLAN.dwg 5.16 TRAFFIC SIGNAGE AND PEDESTRIAN PLAN By: LOGAN.HANEY

TRENCH EXCAVATION SAFETY PROTECTION

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

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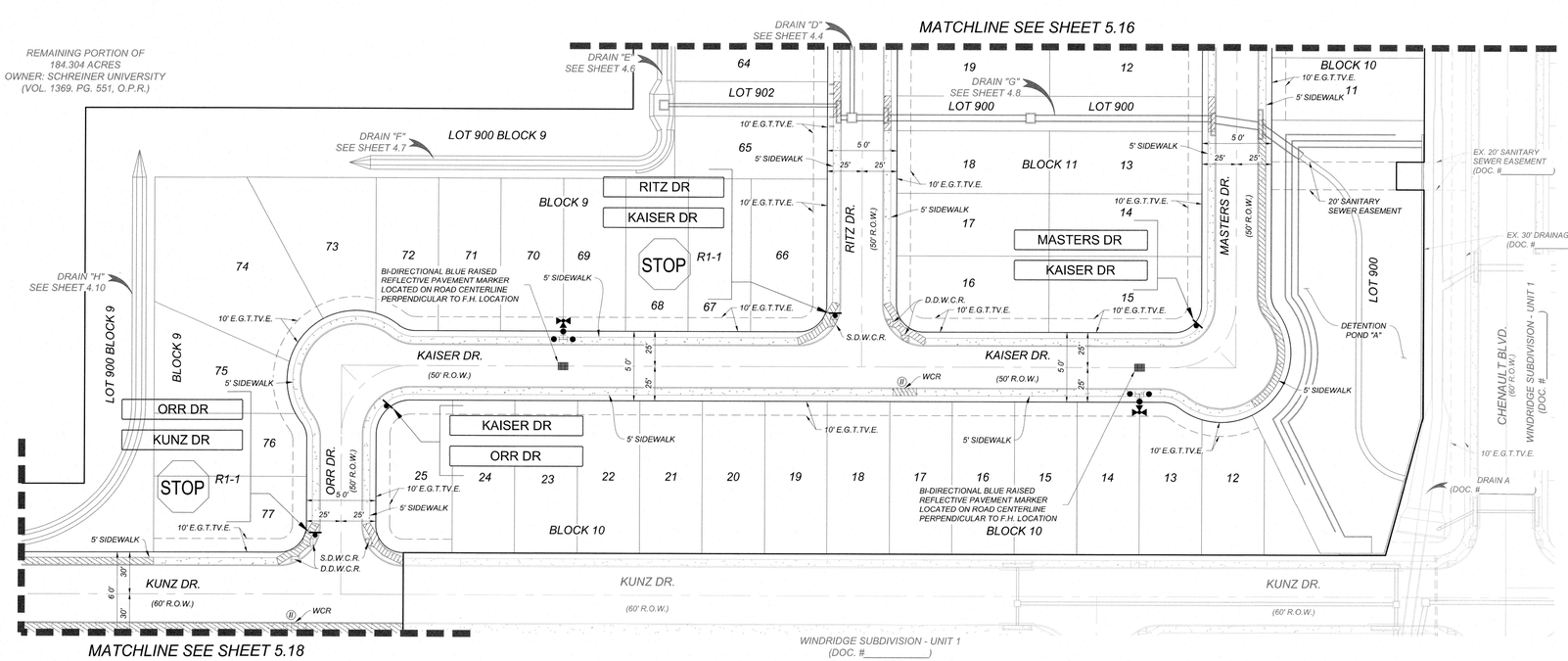
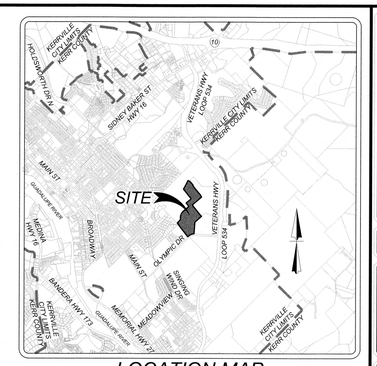
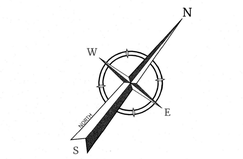




LOCATION MAP
NOT-TO-SCALE



50 0 50 100

SCALE : 1" = 50'

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

LEGEND

E.G.T.TV.E.	=	ELECTRIC, GAS, TELEPHONE & CABLE EASEMENT
V.W.C.V.E.	=	VARIABLE WIDTH CLEAR VISION EASEMENT
SDWCR	=	SINGLE DIRECTIONAL WHEEL CHAIR RAMP SEE SHEET 5.14
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CITY APPROVAL

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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER
11/03/2025
P.E.

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14009
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05

DRAWING NAME: TRAFFIC SIGNAGE AND PEDESTRIAN PLAN

SHEET TITLE:
TRAFFIC SIGNAGE AND PEDESTRIAN PLAN

SHEET NUMBER:
5.17

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Oct. 24, 2025, 10:10am User ID: logan.haney
File: U:\Projects\314\47\05\Design\Civil\STREETS\TRAFFIC SIGNAGE AND PEDESTRIAN PLAN.dwg
By:LOGAN.HANEY
\Design\Civil\STREETS\TRAFFIC SIGNAGE AND PEDESTRIAN PLAN.dwg(5.17 TRAFFIC SIGNAGE AND PEDESTRIAN PLAN)

TRENCH EXCAVATION SAFETY PROTECTION

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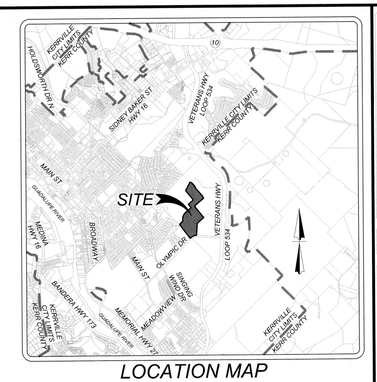
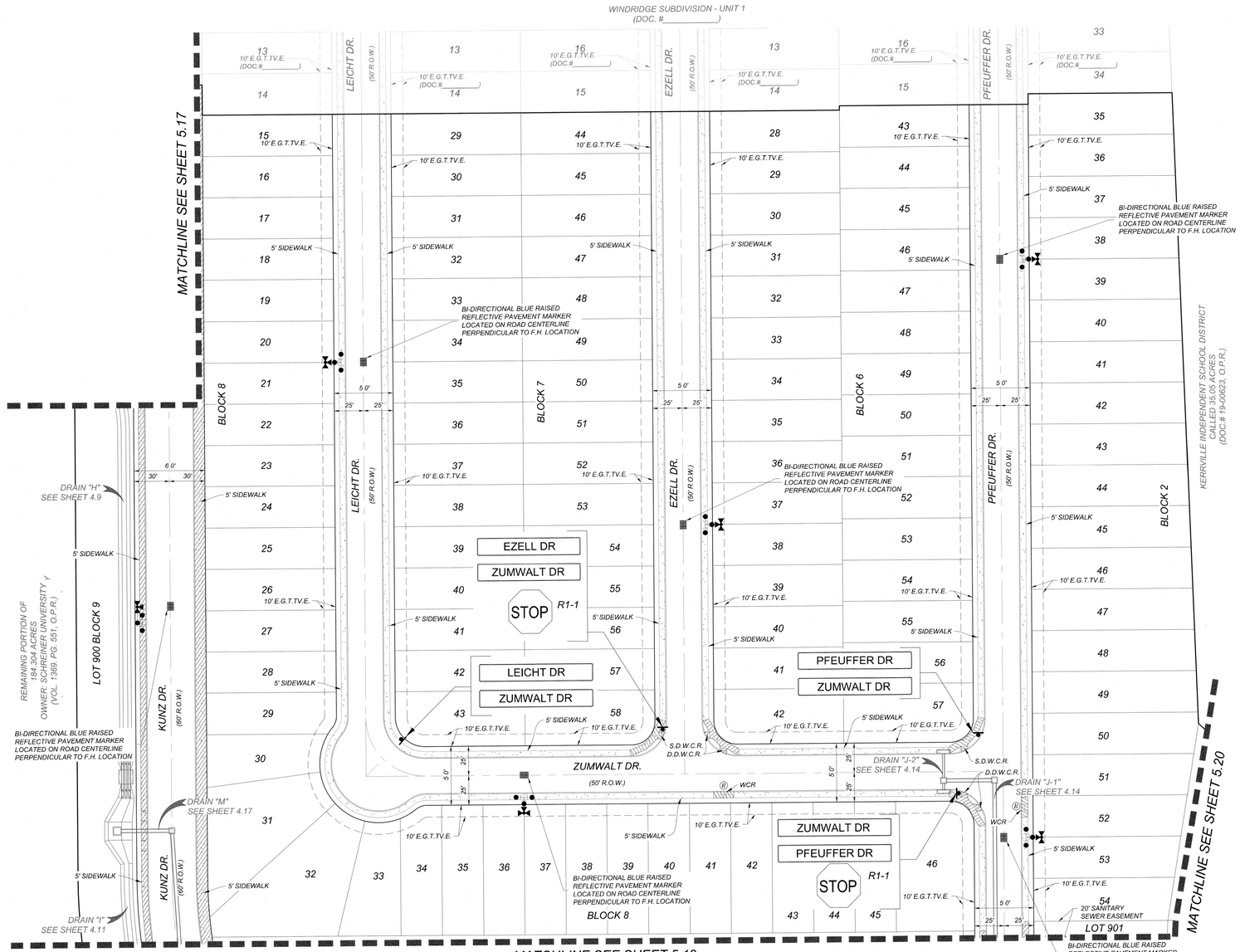


LOCATION MAP
NOT-TO-SCALE



50 0 50 100

SCALE : 1" = 50'

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

LEGEND

E.G.T.TV.E.	=	ELECTRIC, GAS, TELEPHONE & CABLE EASEMENT
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CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

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DATE

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FOR

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CITY OF KERRVILLE
KERR COUNTY
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Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave. Suite 1101
New Braunfels, TX 78130
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TBPE Firm#: F-14909
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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05

DRAWING NAME: TRAFFIC SIGNAGE AND PEDESTRIAN PLAN

SHEET TITLE: TRAFFIC SIGNAGE AND PEDESTRIAN PLAN

SHEET NUMBER: 5.18

Date: Oct 24, 2025, 10:17am User ID: logan.haney
File: U:\Projects\314-47-05_Windridge\Civil\Sheets\TRAFFIC SIGNAGE AND PEDESTRIAN PLAN.dwg
Xrefs: C:\Users\logan.haney\Desktop\Temp\Xrefs\Windridge Xrefs\Xrefs\5 TRAFFIC SIGNAGE AND PEDESTRIAN PLAN.dwg By: LOGAN HANEY

TRENCH EXCAVATION SAFETY PROTECTION

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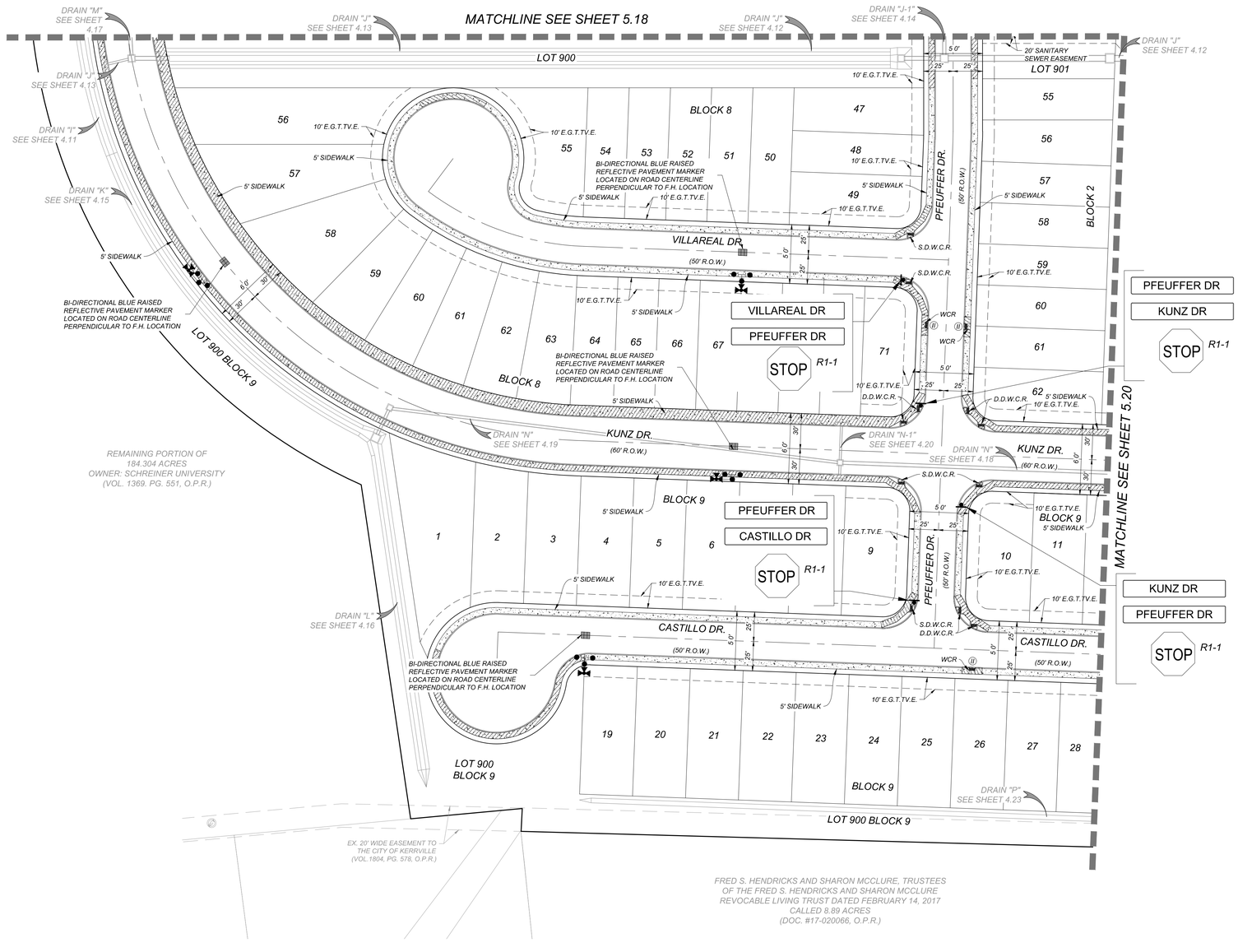
LOCATION MAP
NOT-TO-SCALE



N E S W

50 0 50 100

SCALE : 1" = 50'

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

LEGEND

E.G.T.TV.E.	=	*ELECTRIC, GAS, TELEPHONE & CABLE EASEMENT*
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	=	*BLUE RAISED REFLECTIVE PAVEMENT MARKER*

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DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER

WINDRIDGE SUBDIVISION – UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design

NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194500

CITY APPROVAL

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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05

DRAWING NAME: TRAFFIC SIGNAGE AND PEDESTRIAN PLAN

SHEET TITLE: TRAFFIC SIGNAGE AND PEDESTRIAN PLAN

SHEET NUMBER: 5.19

Date: Jun 12, 2025, 1:48pm User ID: mstorch Pane
File: L:\Projects\314-47-05\Design\Civil\SHEETS\TRAFFIC SIGNAGE AND PEDESTRIAN PLAN.dwg
\Design\Civil\SHEETS\TRAFFIC SIGNAGE AND PEDESTRIAN PLAN.dwg5.19 TRAFFIC SIGNAGE AND PEDESTRIAN PLAN By: MALACHI FLORES

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TRENCH EXCAVATION SAFETY PROTECTION

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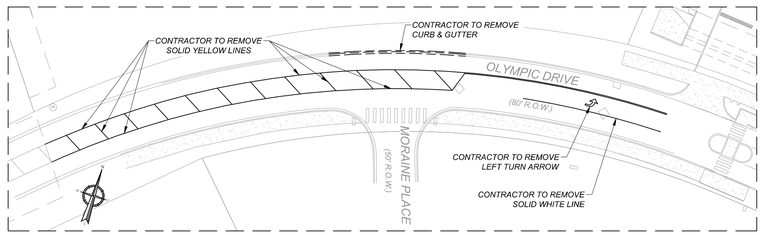
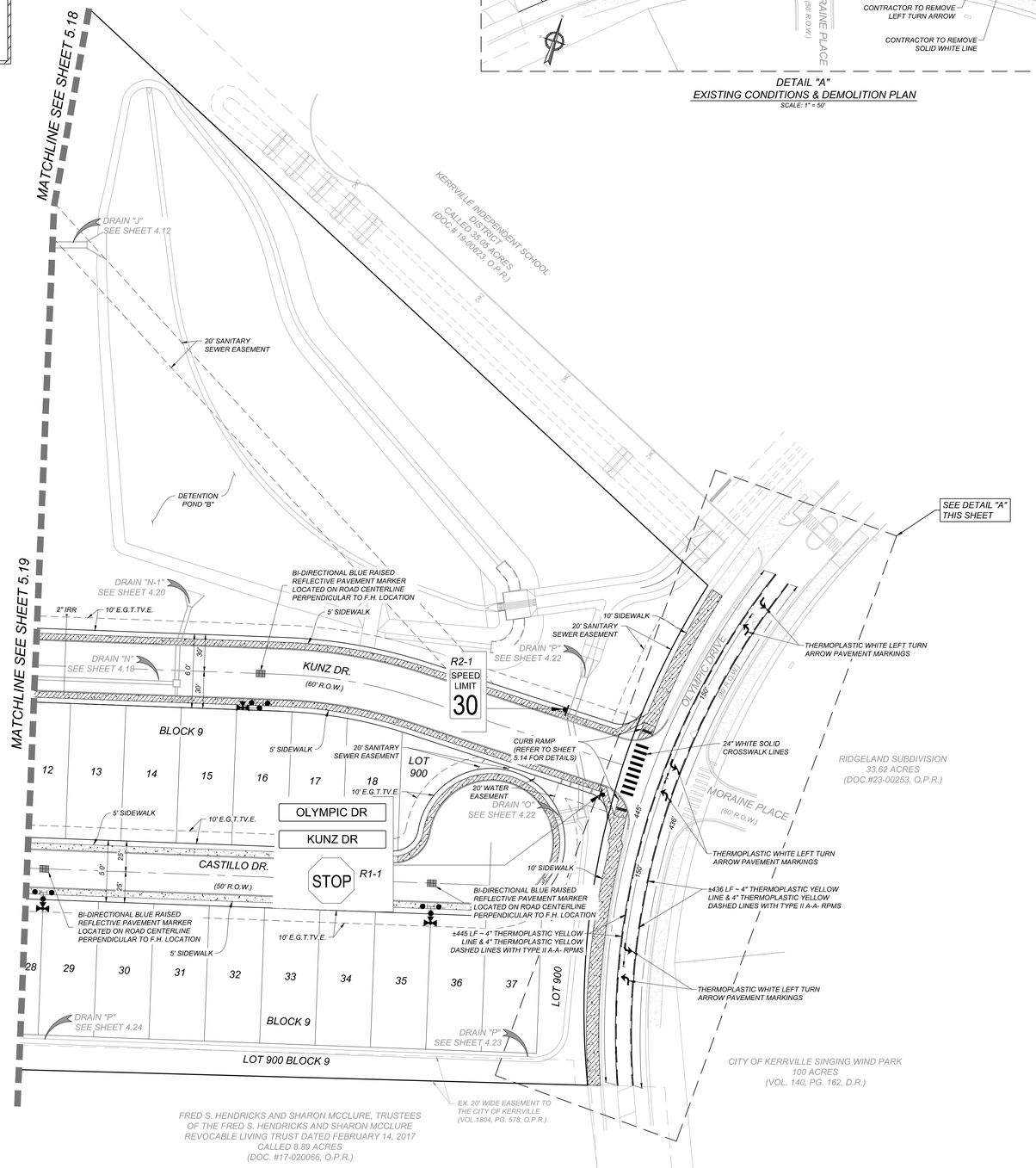
DRY UTILITY CONDUIT NOTE:
CONDUIT LOCATIONS SHOW ON PLAN ARE FOR GEOGRAPHICAL PURPOSES ONLY AND ARE APPROXIMATE. CONTRACTOR TO INSTALL PROPOSED CONDUITS IN ACCORDANCE WITH DRY UTILITY PURVEYOR'S SPECIFICATIONS. CONTRACTOR TO VERIFY THE CONDUIT LOCATIONS AND SIZES BASED ON THE DRY UTILITY PURVEYOR'S PLAN.



DETAIL "A"
EXISTING CONDITIONS & DEMOLITION PLAN
SCALE: 1" = 50'





LOCATION MAP
NOT-TO-SCALE

N E S W

50 0 50 100

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

LEGEND

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REV	DATE	DRAWN BY	DESCRIPTION

06/17/2025
STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER

WINDRIDGE SUBDIVISION – UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#:F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: TRAFFIC SIGNAGE AND PEDESTRIAN PLAN

SHEET TITLE:
TRAFFIC SIGNAGE AND PEDESTRIAN PLAN

SHEET NUMBER:
5.20

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Jun 12, 2025, 3:23pm User ID: mytoh.finger
File: J:\Projects\314-47-05\Civil\Construction\CONSTRUCTION PLANS\Design\Civil\STREETS\TRAFFIC SIGNAGE AND PEDESTRIAN PLAN.dwg
By: MALACHI FLORES

GENERAL NOTES

1.) THE EXISTING SIGNS LOCATED ON THE JOBSITE ARE THE PROPERTY OF THE CITY OF SAN ANTONIO. THROUGHOUT THE PERIOD OF THE CONTRACT, THE CONTRACTOR SHALL PROTECT THESE SIGNS SUCH THAT THEY ARE NOT DAMAGED IN THE COURSE OF CONSTRUCTION ACTIVITY. SUCH PROTECTION SHALL INCLUDE THE PERIOD AFTER SIGNS ARE REMOVED FROM INSTALLATION AND STORED BY THE CONTRACTOR OR DELIVERED TO TRAFFIC OPERATIONS. THE ASSISTANT TRAFFIC SUPERINTENDENT (207-7765) MUST BE NOTIFIED 48 HOURS IN ADVANCE PRIOR TO DELIVERY.

2.) AFTER SIGNS ARE REMOVED FROM INSTALLATION AND ARE BEING STORED BY THE CONTRACTOR, THE CONTRACTOR SHALL CONTACT THE TRAFFIC OPERATIONS SECTION OF THE PUBLIC WORKS DEPARTMENT (207-7765) AND ARRANGE FOR A CONVENIENT TIME TO DELIVER CITY SIGNS AND POLES.

3.) PRIOR TO THE START OF CONSTRUCTION, ALL EXISTING SIGNS WITHIN THE AREA OF CONSTRUCTION WILL BE INVENTORIED AND DOCUMENTED JOINTLY BY THE TRAFFIC ENGINEERING (207-7720) CONSTRUCTION INSPECTION AND THE CONTRACTOR. THIS DOCUMENT WILL BE JOINTLY SIGNED BY BOTH PARTIES REFLECTING THE SIGN TYPE, SIGN SIZE, SIGN CONDITION, SIGN LOCATION, REFLECTIVITY ADEQUACY, ETC. THE CONTRACTOR IS HELD ACCOUNTABLE FOR THESE SIGNS THROUGHOUT THE PROJECT AND AT THE PROJECTS COMPLETION.

4.) ALL GROUND MOUNTED SIGNS SHALL USE HIGH INTENSITY REFLECTIVE SHEETING.

5.) ALL OVERHEAD SIGNS SHALL USE DIAMOND GRADE REFLECTIVE SHEETING.

6.) ALL BLANKS TO BE ALUMINUM ALLOY NO. 5052-H38.

7.) "T" DENOTES THICKNESS OF SIGN BLANKS.

8.) ALL HOLES SHALL BE 3 /8" DIAMETER DRILLED OR PUNCHED AS SHOWN ON EACH BLANK DETAIL AND SHALL BE FREE OF BURRS AND /OR ROUGH EDGES.

9.) SIGN BLANK CORNERS TO BE ROUNDED AS SHOWN ON EACH DETAIL.

10.) ALL SIGN BLANK TO BE ETCHED, DEGREASED, AND HAVE AN ALODINE FINISH PRIOR TO APPLICATION OF LEGENDS.

11.) ALL DETAILS ARE NOT TO SCALE.

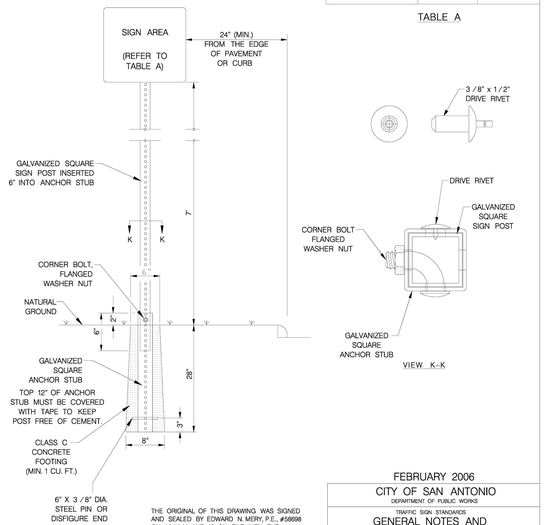
12.) ALL DIMENSIONS ARE IN INCHES.

13.) ALL SIGNS SHALL BE MANUFACTURED AND INSTALLED IN CONFORMANCE TO THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND STANDARD HIGHWAY SIGNS (FHWA) LATEST EDITION.

14.) REINSTALLATION OF PREVIOUSLY EXISTING SIGNS, WHERE REQUIRED BY THE CITY TRAFFIC ENGINEER, SHALL BE AT THE CONTRACTOR'S EXPENSE.

TYPICAL GROUND SIGN INSTALLATION

TYPE "U" MOUNT
PERFORATED SQUARE METAL TUBING (DRIVEABLE)



METAL TUBING	SIGN AREA	
	< 10 SQ. FT.	> 10 SQ. FT.
GALVANIZED SQUARE SIGN POST (PERFORATED)	1-3 /4" x 1-3 /4" (14 GAUGE)	2" x 2" (12 GAUGE)
GALVANIZED SQUARE ANCHOR STUB (PERFORATED)	2" X 2" (14 GAUGE)	2-1/4" x 2-1/4" (14 GAUGE)

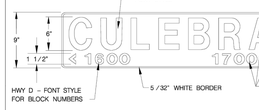
TABLE A

THE ORIGINAL OF THIS DRAWING WAS SIGNED AND SEALED BY EDWARD N. MERY, P.E., #58698 ON 02.06.06 AND IS ON FILE WITH THE TRAFFIC ENGINEERING DIVISION OF THE PUBLIC WORKS DEPARTMENT, CITY OF SAN ANTONIO.

FEBRUARY 2006
CITY OF SAN ANTONIO
DEPARTMENT OF PUBLIC WORKS
TRAFFIC SIGN STANDARDS
GENERAL NOTES AND GROUND SIGN MOUNTING
SHEET 1 OF 4

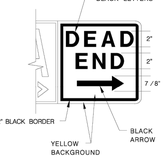
% SUBMITTAL	PROJECT NO.:	DATE:
DRAWN BY: A.F.G.	DSGN BY: E.N.M.	CHKD BY: J.D.F./E.N.M.	SHEET NO.:	OF:

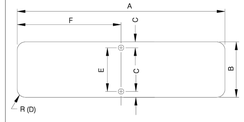
9" D3 – STREET NAME SIGN



NEW 9" D3 W / DEAD END OR NO OUTLET SIGNAGE





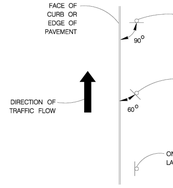


A	B	C	D	E	F	T
24"	9"	1 /2"	3 /4"	8"	12"	0.125"
30"	9"	1 /2"	3 /4"	8"	15"	0.125"
36"	9"	1 /2"	3 /4"	8"	18"	0.125"
42"	9"	1 /2"	3 /4"	8"	21"	0.125"
48"	9"	1 /2"	3 /4"	8"	24"	0.125"
54"	9"	1 /2"	3 /4"	8"	27"	0.125"

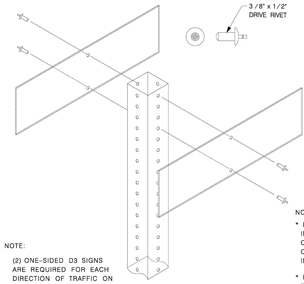
TABLE – D3 SIGNS

NOTE: A 30" LONG OR GREATER PLATE SHALL BE USED WHEN A "DEAD END" OR "NO OUTLET" SUPPLEMENT IS REQUIRED.

HEIGHT	9" (228 mm)
LENGTH	24" (600 MM) MIN. 54 (1350 MM) MAX. 6" (150 MM) INCREMENTS OF LENGTH
THICKNESS	0.125" (3MM)
SUBSTRATE	ALUMINUM ALLOY, 5052-H38 (ASTM B-209) GOLD CHROMATE FINISH
SIGN FACE MATERIALS	BLUE FILM OVER HIGH INTENSITY FP-85, SECTION 718 AND L-S-300C
LEGENDS AND SYMBOLS	SERIES D (USUAL) SERIES C OR B FOR MAXIMUM LENGTH SIGN BLANK, IF NECESSARY
COLOR	WHITE LEGEND ON BLUE BACKGROUND
LETTER TRACKING	10%



TYPICAL GROUND MOUNTED SIGN PLACEMENT



NOTE:
(2) ONE-SIDED D3 SIGNS ARE REQUIRED FOR EACH DIRECTION OF TRAFFIC ON EACH POLE.

D3 SIGN TO POLE INSTALLATION

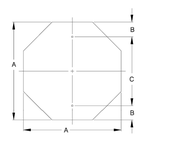
STREET SIGN ASSEMBLY EXAMPLES	PAY ITEMS			
	ITEM	UNIT	DESCRIPTION	QUANTITY
STOP SIGN WITH 2 STREET NAMES	531.3	EA.	R1-1 STOP	1
	531.57-P	EA.	9-IN STREET NAME PLATE (4 PLATES)	2
YIELD SIGN WITH 1 STREET NAME	531.4	EA.	R1-2 YIELD	1
	531.57-P	EA.	9-IN STREET NAME PLATE (2 PLATES)	1
2 STREET SIGNS	531.57	EA.	9-IN STREET NAME SIGN (2 PLATES)	1
	531.57-P	EA.	9-IN STREET NAME PLATE (2 PLATES)	1

NOTE:
* ITEM 531.57 "9-INCH STREET NAME" SIGN (1-EA.) INCLUDES THE INSTALLATION OF (2) ONE-SIDED D3 SIGNS. THIS SHALL BE FULL COMPENSATION FOR MATERIALS AND LABOR AS DESCRIBED IN C.O.S.A STANDARD SPECIFICATIONS AND GROUND SIGN MOUNTING STANDARD DETAIL.
* ITEM 531.57-P "9-INCH STREET NAME PLATE" (1-EA.) INCLUDES THE INSTALLATION OF (2) ONE-SIDED D3 SIGNS ON TOP OF EXISTING SIGN (I.E., STOP SIGN OR YIELD SIGN), EXTRA LENGTH POLE AND APPURTENANCES REQUIRED TO MEET SPECIFICATIONS.

THE ORIGINAL OF THIS DRAWING WAS SIGNED AND SEALED BY EDWARD N. MERY, P.E., #58698 ON 02.06.06 AND IS ON FILE WITH THE TRAFFIC ENGINEERING DIVISION OF THE PUBLIC WORKS DEPARTMENT, CITY OF SAN ANTONIO.

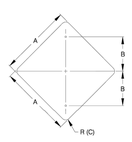
JULY 2010
CITY OF SAN ANTONIO
DEPARTMENT OF PUBLIC WORKS
TRAFFIC SIGN STANDARDS
D3 STREET NAME SIGN AND SIGN MOUNTING
SHEET 2 OF 4

% SUBMITTAL	PROJECT NO.:	DATE:
DRAWN BY: A.F.G.	DSGN BY: E.N.M.	CHKD BY: J.D.F./E.N.M.	SHEET NO.:	OF:



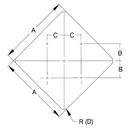
OCTAGONAL

A	B	C	T
24	3	18	0.080
30	3	24	0.080
36	3	30	0.100



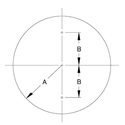
DIAMOND (A)

A	B	C	T
18	9	11/2	0.080
24	12	11/2	0.080
30	15	17/8	0.080
36	18	2 1/4	0.100



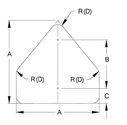
DIAMOND (B)

A	B	C	D	T
48	15	15	3	0.100



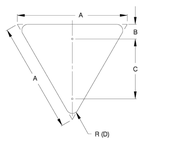
CIRCLE

A	B	T
18	15	0.100



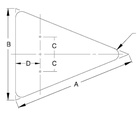
PENTAGON (SCHOOL)

A	B	C	D	T
36	24	3	2 1/4	0.100



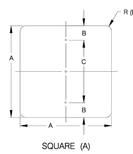
EQUILATERAL TRIANGLE

A	B	C	D	T
36	2	24	2	0.100



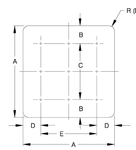
ISOSCELES TRIANGLE

A	B	C	D	E	T
40	30	7 1/2	12	17/8	0.100
48	36	9	15	2 1/4	0.100



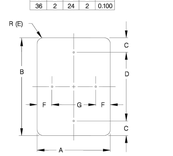
SQUARE (A)

A	B	C	D	T
18	11/2	15	11/2	0.080
24	3	18	11/2	0.080
30	3	24	17/8	0.080



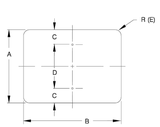
SQUARE (B)

A	B	C	D	E	T
48	6	36	9	3	0.100



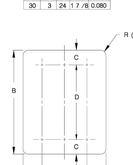
VERTICAL / HORIZONTAL RECTANGLE

A	B	C	D	E	F	G	T
12	18	11/2	15	11/2	11/2	9	0.080
12	36	3	30	11/2	11/2	9	0.080
18	24	11/2	21	11/2	11/2	15	0.080
24	30	3	24	11/2	3	18	0.080
24	36	3	30	11/2	3	18	0.080
24	48	6	36	17/8	3	18	0.080
30	36	3	30	17/8	3	24	0.080



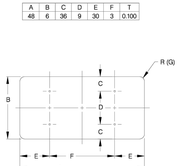
HORIZONTAL RECTANGLE

A	B	C	D	E	T
6	12	1	4	1/4	0.080
6	18	1	4	1/4	0.080
20	36	11/2	17	11/2	0.080



VERTICAL RECTANGLE

A	B	C	D	E	F	G	T
5	7 3/4	1/2	6 3/4	1/2	4	1/4	0.100
48	60	6	48	9	30	3	0.100



HORIZONTAL RECTANGLE

A	B	C	D	E	F	G	T
48	24	2	20	2	44	17/8	0.100
48	36	3	30	3	42	2 1/4	0.100
60	24	2	20	2	56	11/2	0.100
60	36	3	30	3	54	2 1/4	0.100
48	30	3	24	3	42	17/8	0.100
60	30	3	24	3	54	17/8	0.100

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FEBRUARY 2006
CITY OF SAN ANTONIO
DEPARTMENT OF PUBLIC WORKS
TRAFFIC SIGN STANDARDS
GROUND MOUNTED SIGN SIZES
SHEET 3 OF 4

% SUBMITTAL	PROJECT NO.:	DATE:
DRAWN BY: A.F.G.	DSGN BY: E.N.M.	CHKD BY: J.D.F./E.N.M.	SHEET NO.:	OF:

REFLECTOR UNIT SIZES FOR DELINEATORS AND OBJECT MARKERS

	SIZE 1	SIZE 2	SIZE 3	SIZE 4
DEVICE				
SHEETING	Yellow, White or Red Type B or C reflective sheeting			
NOTE	1. Size 1 and 4 - Direct applied reflective sheeting for use on flexible post (fix). 2. Size 2 and 3 - For use on wing channel (wc) post only. Use approved metal, plastic or fiberglass backplate with 17/64" mounting holes.			

DELINEATORS

	SINGLE		DOUBLE	
DEVICE				
	1-Size 2 reflector unit	1-Size 1 reflector unit	2-Size 2 reflector units	2-Size 1 reflector units
SHEETING	Yellow, White or Red Type B or C Reflective Sheeting			
POST TYPE	WC	FLX	WC	FLX
MOUNT TYPE	GND	GND, SRF	GND	GND, SRF

D & OM DESCRIPTIVE CODES

INSTL DEL ASSM (D-XX)SZ X (XXX)XXX(XX)

NUMBER OF REFLECTORS
S = Single
D = Double

COLOR OF REFLECTORS
W = White
Y = Yellow
R = Red

REFLECTOR UNIT SIZE
1 or 2

TYPE OF POST OR DELINEATOR
WC = Wing Channel Post
FLX = Flexible Post
BRF = Barrier Reflector

TYPE OF MOUNT
GND = Embedded (drivable or set in concrete)
CTB = Concrete Barrier Mount
GF1 or GF2 = Guard Fence Attachment
SRF = Surface Mount

DIRECTION
If Required
BI = Bi-Directional
BN = Bi-Directional with red on back

INSTL OM ASSM (OM-XX) (XXX)XXX(XX)

TYPE OF OBJECT MARKER
1, 2, 3, or 4

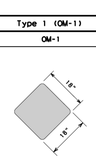
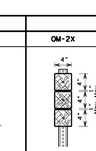
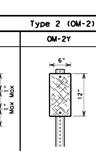
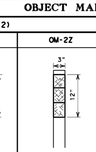
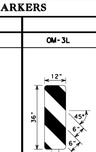
NUMBER OF REFLECTORS OR DIRECTION
R = 1-Size 2 reflector units (Type 2 only)
Y = 1-Size 1 reflector unit (Type 2 only)
Z = 2-Size 1 or 1-Size 4 reflector units(Type 2 only)
L = Left Side (Type 3 Object Marker only)
R = Right Side (Type 3 Object Marker only)
C = Center (Type 3 Object Marker only)

TYPE OF POST
WC = Wing Channel Post
FLX = Flexible Post
TMT = Thin Walled Tubing

TYPE OF MOUNT
GND = Embedded (drivable)
SRF = Surface Mount
WAS = Wedge Anchor Steel
WAP = Wedge Anchor Plastic

DIRECTION
If Required
BI = Bi-Directional

OBJECT MARKERS

	Type 1 (OM-1)	Type 2 (OM-2)			Type 3 (OM-3)			Type 4 (OM-4)
	OM-1	OM-2X	OM-2Y	OM-2Z	OM-3L	OM-3R	OM-3C	OM-4
DEVICE								
		3-Size 2 reflector units	1-Size 3 reflector unit	3-Size 1 reflector units or 1-Size 4 reflector unit				
SHEETING	Yellow-Type B_{FL} or C_{FL} Sheeting	Yellow - Type B or C Sheeting			Alternating acrylic black and retroflective yellow - Type B_{FL} or C_{FL} Sheeting			Red -Type B_{FL} or C_{FL} Sheeting
POST TYPE	TMT	WC	WC	FLX	TMT			TMT
MOUNT TYPE	WAS, WAP	GND	GND	GND, SRF	WAS, WAP			WAS, WAP

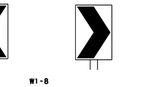
BARRIER REFLECTORS (BRF)

	GF1	GF2	CTB
DEVICE			
	1. Barrier reflectors shall meet the requirements of DMS 8600. 2. Approved Barrier Reflectors are listed on the "Barrier Reflectors" Material Producer List at www.txdot.gov.		
SHEETING	Yellow, White, Red		
NOTE	1. Minimum 9 square inches of reflective sheeting surface area.		

CHEVRONS

	W1-8			
DEVICE				
SIZE (W x L)	18"x 24" (Conventional)	24"x 30" (Conventional Oversize)	30"x 36" (Expressway)	36" x 48" (Freeway)
MOUNTING HEIGHT	4'-0" or 7'-0"		7'-0" Only	
NOTE	1. CHEVRON (W1-8) signs and ONE DIRECTION LARGE ARROW (W1-6) Signs shall be installed per Sign Mounting Details (SMD) Standard Sheets and pold under Item 644 (Small Roadside Sign Assemblies). 2. The Texas version of the ONE DIRECTION LARGE ARROW sign (W1-9T) may be used instead of the ONE DIRECTIONAL LARGE ARROW (W1-6).			

ONE DIRECTION LARGE ARROW

	W1-6	
DEVICE		
SIZE (W x L)	48" x 24" (Conventional)	60" x 30" (Expressway & Freeway)
MOUNTING HEIGHT	7'-0"	

NOTE:
Delineator and object marker backplates and sign substrates shall be 0.080" Aluminum sign blank to conform to ASTM B-209 Alloy 6061-T6 or approved alternative.

DEPARTMENTAL MATERIAL SPECIFICATIONS	
FLEXIBLE DELINEATOR & OBJECT MARKER POSTS (EMBEDDED & SURFACE MOUNT TYPES)	DMS-4400
SIGN FACE MATERIALS	DMS-8300
DELINEATORS, OBJECT MARKERS AND BARRIER REFLECTORS	DMS-8600

Texas Department of Transportation — Traffic Operations Division Standard

DELINEATOR & OBJECT MARKER MATERIAL DESCRIPTION
D & OM(1)-15

FILE: dom1-15.dgn	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
©TxDOT August 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS				
10-08 3-15	DIST	COUNTY		SHEET NO.
4-10				

20A

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CONTRACTOR TO COORDINATE WITH CITY OF KERRVILLE FOR SIGNAGE

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DATE

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06/19/2025
STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
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COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194500

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: TRAFFIC SIGNAGE NOTES AND DETAILS

SHEET TITLE:
TRAFFIC SIGNAGE NOTES AND DETAILS

SHEET NUMBER:
5.21

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Date: Jun 04, 2025, 12:11pm User ID: mgrabill.tpe
File: L:\Projects\314\47\05\Design\Civil\STREETS\TRAFFIC SIGNAGE NOTES AND DETAILS.dwg
By: MAUCHEL FLORES

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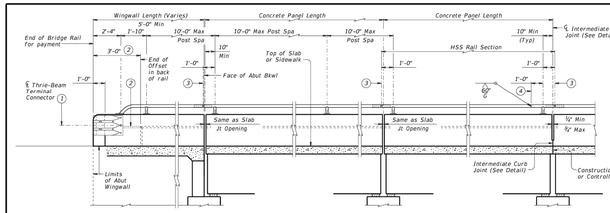
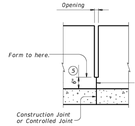


AT ABUTMENTS | AT BENTS WITH SLAB EXP JOINTS | AT BENTS WITHOUT SLAB EXP JOINTS

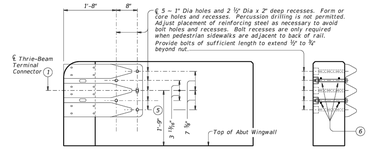
ROADWAY ELEVATION OF RAIL



INTERMEDIATE WALL JOINT DETAIL

Provide at all interior bents without slab expansion joints.

1. Terminal Connectors and associated hardware are to be paid for under the Item "Metal Beam Guard Fence." Attach Metal Beam Guard Fence Transitions to the bridge rail and extend along the embankment unless otherwise shown in the plans.
2. Back of rail offset may, with Engineer's approval, be continued to the end of the railing.
3. ℄ Expansion joint or splice joint as required.
4. One shop splice per HSS rail section is permitted with minimum 85 percent penetration. The weld may be square groove, or single V groove. Grind smooth.
5. Increase 2" for structures with overlay.
6. Place 4 additional Bars R(#4) 3'-8" in length inside Bars S(#4) and centered 2'-0" from end of rail when Terminal Connections are required. Field bend as needed.
7. HSS 2.875 x 0.203
8. HSS 2.375 x 0.154
9. ⅝" Dia Hole in bottom of HSS rail (Minimum 1 hole between posts – Typ)

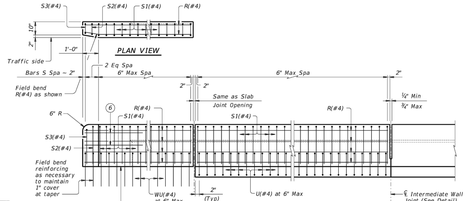


ELEVATION

SECTION

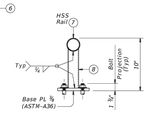
TERMINAL CONNECTION DETAILS

℄ 5 – 1" Dia holes and 2 ½" Dia x 2" deep recesses. Form or core holes and recesses. Percussion drilling is not permitted. Adjust placement of reinforcing steel as necessary to avoid bolt holes and recesses. Bolt recesses are only required when pedestrian sidewalks are adjacent to back of rail. Provide bolts of sufficient length to extend ½" to ¾" beyond nut.

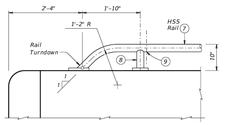


ELEVATION SHOWING TYPICAL REINFORCING PLACEMENT

(Showing without raised sidewalk)

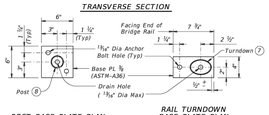


TRANSVERSE SECTION



Note that at least two anchor points (as shown) are required for the Bridge Rail on the Abutment Wingwall. Longer Wingwalls may require more than two Rail anchorages.

HSS RAIL TERMINAL DETAIL



POST BASE PLATE PLAN | RAIL TURNDOWN BASE PLATE PLAN

HSS RAIL DETAILS

SHEET 1 OF 3

Texas Department of Transportation | Bridge Division Standard

COMBINATION RAIL

TYPE C221

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REVISIONS	DIST	COUNTY		SHEET NO.

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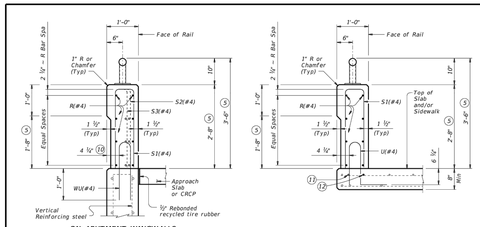
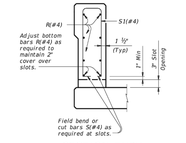
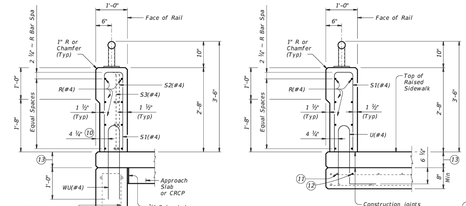


ON ABUTMENT WINGWALLS OR CIP RETAINING WALLS | ON BRIDGE SLAB

SECTIONS THRU RAIL WITHOUT RAISED SIDEWALK

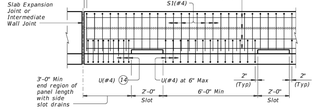


SECTION THRU OPTIONAL SIDE SLOT DRAIN



ON ABUTMENT WINGWALLS OR CIP RETAINING WALLS | ON BRIDGE SLAB

SECTIONS THRU RAIL WITH RAISED SIDEWALK



OPTIONAL SIDE SLOT DRAIN DETAIL

Note: Side Slot Drains may be used where shown elsewhere on the plans or as directed by the Engineer. Drains should not be placed over railroad tracks, lower roadways, or sidewalks. When this rail is used as a separator between a roadway surface and a sidewalk surface, side drain slots will not be permitted.

(5) Increase 2" for structures with overlay.

(10) 5 ½" when vertical reinforcing has closer clear cover over horizontal reinforcing in abutment wingwalls or retaining walls on traffic side of wall.

(11) As an aid in supporting reinforcement, additional longitudinal bars may be used in the slab with the approval of the Engineer. Such bars must be furnished at the Contractors expense.

(12) Top longitudinal slab bar may be adjusted laterally 2" plus or minus to tie reinforcing.

(13) Raised Sidewalk

(14) Space U(#4) bars at 4" Max when end region of panel length is less than 6'-0" to side slot drain. Space U(#4) bars at 6" Max when end region of panel length is 6'-0" and greater to side slot drain.

SHEET 2 OF 3

Texas Department of Transportation | Bridge Division Standard

COMBINATION RAIL

TYPE C221

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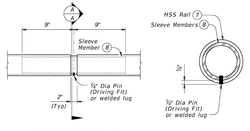
REVISIONS	DIST	COUNTY		SHEET NO.

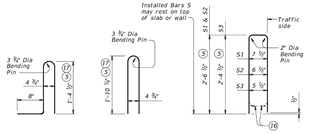
RAIL DATA FOR HORIZONTAL CURVES

	RADIUS TO FACE OF RAIL	MAX CHORD LENGTH	CONSTRUCT OR FABRICATE
HSS Rail	Over 2800'	29'-0"	Straight rail panels
	Over 1400' thru 2800'	14'-6"	To required radius or to chords shown
	Over 700' thru 1400'	7'-3"	
	Thru 700'	Zero	To required radius

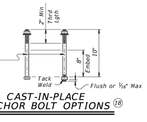


AT SPLICE OR EXP JTS | SECTION A-A

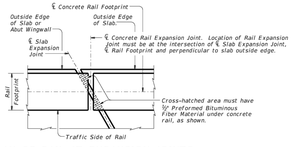
PIPE SPLICE DETAILS



BARS U (#4) | BARS WU (#4) | BARS S (#4)

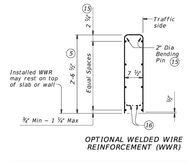


CAST-IN-PLACE ANCHOR BOLT OPTIONS (18)



PLAN OF RAIL AT EXPANSION JOINTS

Example showing Slab Expansion Joints without breakbacks.



OPTIONAL WELDED WIRE REINFORCEMENT (WWR)

DESCRIPTION	LONGITUDINAL WIRES	VERTICAL WIRES
Minimum (Cumulative Total) Wire Area	1.067 Sq In.	0.267 Sq In. per Ft
Minimum	No. of Wires: 8	Spacing: 4"
Maximum	No. of Wires: 10	Spacing: 8"
Maximum Wire Size Differential	The smaller wire must have an area of 40% or more of the larger wire.	

CONSTRUCTION NOTES:

This railing may be constructed by the slipform process when approved by the Engineer, with equipment approved by the Engineer and when adhesive anchor bolts are used. Slipforming parapet is not allowed if anchor bolts are cast with parapet wall. Provide sensor control for both line and grade. Tack welding to provide bracing for slipform operations is acceptable. Welding may be performed at a minimum spacing of 3 ft between the cage and the anchorage. It is permissible to weld to bars U, WU and S at any location on the cage. If increased bracing is needed, provide additional anchorage devices and weld in the upper two thirds of the cage. Paint welded areas on epoxy coated and/or galvanized reinforcing with an organic zinc rich paint in accordance with Item 445, "Galvanizing".

If rail is slipformed, apply an heavy epoxy bead 1" behind toe of traffic side of rail to concrete deck just before slipforming. Provide a ¾" width x ½" tall heavy epoxy bead with Type III, Class C or a Type V epoxy.

Test adhesive anchors in accordance with Item 450.3.3, "Tests". Test 3 anchors per 100 anchors installed. Perform corrective measures to provide adequate capacity if any of the tests do not meet the required test load. Repair damage from testing as directed.

At the Contractor's option anchor bolts may be cast with the parapet. See "Material Notes."

Face of rail, parapet must be plumb unless otherwise approved by the Engineer. HSS rail posts must be square to the top of parapet. Use epoxy mortar under post base plates if gaps larger than ¼" exist.

Round or chamfer exposed edges of HSS rail and HSS rail posts to approximately ¾" by grinding.

HSS rail sections must not include less than two posts, and no more than four (except at Abutments).

Chamfer all parapet exposed corners.

MATERIAL NOTES:

Provide Class "C" concrete. Provide Class "C" (HPC) if required elsewhere.

Provide Grade 60 reinforcing steel.

Epoxy coat or galvanize all reinforcing steel if slab bars are epoxy coated or galvanized.

Provide ASTM A108S or A500 Gr B or A53 Gr B for all HSS.

Galvanize all metal components of steel rail system. Apply additional coatings when shown elsewhere on the plans. When plans require paint over galvanizing, follow the requirements for "Surface Preparation" and "Paint Application" in Item 445, "Galvanizing" and Item 446, "Field Cleaning and Painting Steel." Sleeve members and anchor bolts must receive galvanization prior to installation and only field paint after installation unless directed otherwise by Engineer.

Deformed Welded Wire Reinforcement (WWR) (ASTM A1064) of equal size and spacing may be substituted for Bars U and WU unless noted otherwise. Deformed WWR (ASTM 1064) may be substituted for Bars R and S, as shown. Combinations of reinforcing steel and WWR or configurations of WWR other that shown are permitted if conditions in the table are satisfied. Provide the same laps as required for reinforcing bars.

Anchor bolts must be ¾" Dia ASTM A307 Gr A fully threaded rods with one hex nut and one hardened steel washer (ASTM F436) each. Nuts must conform to ASTM A563 requirements. Embed fully threaded rods into parapet wall with a Type III, Class C, D, E, or F anchor adhesive. Minimum adhesive bond strength must be 1,350 psi. Anchor adhesive shall be able to achieve the minimum bond strength in concrete at a 5 day cure. Base the 5 day cure strength to be accounted for). Submit signed and sealed calculations or the manufacturer's published literature showing the proposed anchor adhesive's ability to develop this load to the Engineer for approval prior to use. Anchor installation, including hole size, drilling, and clean out, must be in accordance with Item 450, "Railing".

Optional cast-in-place anchor bolts must be ¾" Dia ASTM A307 Gr A bolts (or threaded rods with one tack welded hex nut each) with one hex nut and one hardened steel washer (ASTM F436) at each bolt. Nuts must conform to ASTM A563 requirements.

Provide bar laps, where required, as follows: Uncoated or galvanized – #4 = 1'-7", Epoxy coated – #4 = 2'-5"

GENERAL NOTES:

This rail has been evaluated and accepted to be of equal strength to railings with like geometry, which have been crash tested to meet MASH TL-3 criteria. This rail can be used for speeds of 50 mph and greater when a TL-3 rated guard fence transition is used. When a TL-2 rated guard fence transition is used, this rail can only be used for speeds of 45 mph and less.

Do not use this railing on bridges with expansion joints providing more than 5" movement.

Rail anchorage details shown on this standard may require modification for select structure types. See appropriate details elsewhere in plans for these modifications.

Submit erection drawings showing panel lengths, rail post spacing, and anchor bolt setting to the Engineer for approval.

Average weight of railing with no overlay: 380 plf (total), 370 plf (Conc), 10 plf (Steel)

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

(5) Increase 2" for structures with overlay.

(7) HSS 2.875 x 0.203

(8) HSS 2.375 x 0.154

(15) No longitudinal wires may be in top center of cage.

(16) Bend or cut as required to clear drain slots.

(17) For raised sidewalks, add sidewalk height to total bar height. Use sidewalk height at rail's location.

(18) See "Material Notes" for anchor bolt information.

SHEET 3 OF 3

Texas Department of Transportation | Bridge Division Standard

COMBINATION RAIL

TYPE C221

File: RL-C221-19.dgn	dw: TxDOT	ck: TxDOT	dw: JTR	ck: JRH
©TxDOT September 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY		SHEET NO.

CITY APPROVAL

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_____ ON _____

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REV	DATE	DRAWN BY	DESCRIPTION

06/17/2025

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER

WINDRIDGE SUBDIVISION – UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05

DRAWING NAME: STREET DETAIL SHEET

SHEET TITLE: TRAFFIC RAILING DETAILS

SHEET NUMBER: 5.22

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Jun 04, 2025, 12:13pm User ID: mshoaf.forres
File: L:\Projects\314\314-47-05\Design\CAD\STREETS\STREET DETAIL SHEET.dwg
Design\CAD\STREETS\STREET DETAIL SHEET.dwg\TRAFFIC RAILING DETAILS By:MALACHI.FORES

WINDRIDGE SUBDIVISION - UNIT 2

KERRVILLE, TEXAS
SANITARY SEWER IMPROVEMENTS



LOCATION MAP
NOT-TO-SCALE

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OVERALL SANITARY SEWER PLAN	6.3
OVERALL SANITARY SEWER PLAN	6.4
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LINE D STA 5+92.76 - END, LINE E & LINE F STA. 6+35.07 - END	6.7
LINE K STA. 1+70.00 - END	6.8
LINE L STA. 1+00.00 - END	6.9
LINE M STA. 1+00.00 - END	6.10
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LINE O STA. 1+00.00 - END	6.12
LINE P STA. 1+00.00 - END	6.13
LINE Q STA. 1+00.00 - END	6.14
LINE R STA. 1+00.00 - END	6.15
LINE S STA. 1+00.00 - END	6.16
SANITARY SEWER DETAILS	6.17
SANITARY SEWER DETAILS	6.18

OWNER/DEVELOPER:
LENNAR HOMES OF TEXAS LAND & CONSTRUCTION, LTD.
100 NE LOOP 410, STE. 1155
SAN ANTONIO, TEXAS 78216
PHONE: (210) 403-6282

KNOW ALL MEN BY THESE PRESENTS:

I, THE UNDERSIGNED, DENIS A. AVENDANO, A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF TEXAS, HEREBY CERTIFY THAT PROPER ENGINEERING CONSIDERATION HAS BEEN GIVEN TO THESE PLANS AND ALL ENGINEERING ASPECTS ARE IN COMPLIANCE WITH CITY AND STATE ENGINEERING REGULATIONS AND LAWS.

REGISTERED PROFESSIONAL ENGINEER
P.E. REGISTRATION NO. 137588

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06/17/2025
STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER

WINDRIDGE SUBDIVISION – UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
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TBPLS Firm#: 10194500

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	NOV 2024	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: SSCS_3144705

SHEET TITLE: SANITARY SEWER COVER SHEET

SHEET NUMBER: 6.0

Date: May 15, 2025, 2:21pm User ID: mobashi.fyrses
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\Design\CivilSite\SSCS_3144705.dwg\SANITARY SEWER COVER SHEET By:MAUCHEVERES

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
ORGANIZED SEWAGE COLLECTION SYSTEM (SCS)
GENERAL CONSTRUCTION NOTES

1. *THIS ORGANIZED SEWAGE COLLECTION SYSTEM (SCS) MUST BE CONSTRUCTED IN ACCORDANCE WITH 30 TEXAS ADMINISTRATIVE CODE (TAC) §213.5(C) AND ANY LOCAL GOVERNMENT STANDARD SPECIFICATIONS.*

2. *ALL CONTRACTORS CONDUCTING REGULATED ACTIVITIES ASSOCIATED WITH THIS PROPOSED REGULATED PROJECT MUST BE PROVIDED WITH COPIES OF THE SCS PLAN AND THE TCEQ LETTER INDICATING THE SPECIFIC CONDITIONS OF ITS APPROVAL. DURING THE COURSE OF THESE REGULATED ACTIVITIES, THE CONTRACTORS MUST BE REQUIRED TO KEEP ON-SITE COPIES OF THE PLAN AND THE APPROVAL LETTER.*

3. *A WRITTEN NOTICE OF CONSTRUCTION MUST BE SUBMITTED TO THE PRESIDING TCEQ REGIONAL OFFICE AT LEAST 48 HOURS PRIOR TO THE START OF ANY REGULATED ACTIVITIES. THIS NOTICE MUST INCLUDE:*
   - *THE NAME OF THE APPROVED PROJECT;*
   - *THE ACTIVITY START DATE; AND*
   - *THE CONTACT INFORMATION OF THE PRIME CONTRACTOR.*

4. *ANY MODIFICATION TO THE ACTIVITIES DESCRIBED IN THE REFERENCED SCS APPLICATION FOLLOWING THE DATE OF APPROVAL MAY REQUIRE THE SUBMITTAL OF AN SCS APPLICATION TO MODIFY THIS APPROVAL, INCLUDING THE PAYMENT OF APPROPRIATE FEES AND ALL INFORMATION NECESSARY FOR ITS REVIEW AND APPROVAL.*

5. *PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITY, ALL TEMPORARY EROSION AND SEDIMENTATION (E&S) CONTROL MEASURES MUST BE PROPERLY INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS. THESE CONTROLS MUST REMAIN IN PLACE UNTIL THE DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED.*

6. *IF ANY SENSITIVE FEATURES ARE DISCOVERED DURING THE WASTEWATER LINE TRENCHING ACTIVITIES, ALL REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MUST BE SUSPENDED IMMEDIATELY. THE APPLICANT MUST IMMEDIATELY NOTIFY THE APPROPRIATE REGIONAL OFFICE OF THE TCEQ OF THE FEATURE DISCOVERED. A GEOLOGIST'S ASSESSMENT OF THE LOCATION AND EXTENT OF THE FEATURE DISCOVERED MUST BE REPORTED TO THAT REGIONAL OFFICE IN WRITING AND THE APPLICANT MUST SUBMIT A PLAN FOR ENSURING THE STRUCTURAL INTEGRITY OF THE SEWER LINE OR FOR MODIFYING THE PROPOSED COLLECTION SYSTEM ALIGNMENT AROUND THE FEATURE. THE REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MAY NOT PROCEED UNTIL THE EXECUTIVE DIRECTOR HAS REVIEWED AND APPROVED THE METHODS PROPOSED TO PROTECT THE SENSITIVE FEATURE AND THE EDWARDS AQUIFER FROM ANY POTENTIALLY ADVERSE IMPACTS TO WATER QUALITY WHILE MAINTAINING THE STRUCTURAL INTEGRITY OF THE LINE.*

7. *SEWER LINES LOCATED WITHIN OR CROSSING THE 5-YEAR FLOODPLAIN OF A DRAINAGE WAY WILL BE PROTECTED FROM INUNDATION AND STREAM VELOCITIES WHICH COULD CAUSE EROSION AND SCOURING OF BACKFILL. THE TRENCH MUST BE CAPPED WITH CONCRETE TO PREVENT SCOURING OF BACKFILL OR THE SEWER LINES MUST BE ENCASED IN CONCRETE. ALL CONCRETE SHALL HAVE A MINIMUM THICKNESS OF 6 INCHES.*

8. *BLASTING PROCEDURES FOR PROTECTION OF EXISTING SEWER LINES AND OTHER UTILITIES WILL BE IN ACCORDANCE WITH THE NATIONAL FIRE PROTECTION ASSOCIATION CRITERIA. SAND IS NOT ALLOWED AS BEDDING OR BACKFILL IN TRENCHES THAT HAVE BEEN BLASTED. IF ANY EXISTING SEWER LINES ARE DAMAGED, THE LINES MUST BE REPAIRED AND RETESTED.*

9. *ALL MANHOLES CONSTRUCTED OR REHABILITATED ON THIS PROJECT MUST HAVE WATERTIGHT SIZE ON SIZE RESILIENT CONNECTORS ALLOWING FOR DIFFERENTIAL SETTLEMENT. IF MANHOLES ARE CONSTRUCTED WITHIN THE 100-YEAR FLOODPLAIN, THE COVER MUST HAVE A GASKET AND BE BOLTED TO THE RING. WHERE GASKETED MANHOLE COVERS ARE REQUIRED FOR MORE THAN THREE MANHOLES IN SEQUENCE OR FOR MORE THAN 1500 FEET, ALTERNATE MEANS OF VENTING WILL BE PROVIDED. BRICKS ARE NOT AN ACCEPTABLE CONSTRUCTION MATERIAL FOR ANY PORTION OF THE MANHOLE.*

   THE DIAMETER OF THE MANHOLES MUST BE A MINIMUM OF FOUR FEET AND THE MANHOLE FOR ENTRY MUST HAVE A MINIMUM CLEAR OPENING DIAMETER OF 30 INCHES. THESE DIMENSIONS AND OTHER DETAILS SHOWING COMPLIANCE WITH THE COMMISSION'S RULES CONCERNING MANHOLES AND SEWER LINE/MANHOLE INVERTS DESCRIBED IN 30 TAC §217.55 ARE INCLUDED ON PLAN SHEET 3.0 OF 3.0.

   IT IS SUGGESTED THAT ENTRANCE INTO MANHOLES IN EXCESS OF FOUR FEET DEEP BE ACCOMPLISHED BY MEANS OF A PORTABLE LADDER. THE INCLUSION OF STEPS IN A MANHOLE IS PROHIBITED.

10. *WHERE WATER LINES AND NEW SEWER LINE ARE INSTALLED WITH A SEPARATION DISTANCE CLOSER THAN NINE 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 §217.53(D) (PIPE DESIGN) AND 30 TAC §290.44(E) (WATER DISTRIBUTION).*

11. *WHERE SEWERS LINES DEVIATE FROM STRAIGHT ALIGNMENT AND UNIFORM GRADE ALL CURVATURE OF SEWER PIPE MUST BE ACHIEVED BY THE FOLLOWING PROCEDURE WHICH IS RECOMMENDED BY THE PIPE MANUFACTURER: NOT ALLOWED*

    IF PIPE FLEXURE IS PROPOSED, THE FOLLOWING METHOD OF PREVENTING DEFLECTION OF THE JOINT MUST BE USED: NOT ALLOWED

    SPECIFIC CARE MUST BE TAKEN TO ENSURE THAT THE JOINT IS PLACED IN THE CENTER OF THE TRENCH AND PROPERLY BEDDED IN ACCORDANCE WITH 30 TAC §217.54.

12. *NEW SEWAGE COLLECTION SYSTEM LINES MUST BE CONSTRUCTED WITH STUB OUTS FOR THE CONNECTION OF ANTICIPATED EXTENSIONS. THE LOCATION OF SUCH STUB OUTS MUST BE MARKED ON THE GROUND SUCH THAT THEIR LOCATION CAN BE EASILY DETERMINED AT THE TIME OF CONNECTION OF THE EXTENSIONS. SUCH STUB OUTS MUST BE MANUFACTURED WYES OR TEES THAT ARE COMPATIBLE IN SIZE AND MATERIAL WITH BOTH THE SEWER LINE AND THE EXTENSION. AT THE TIME OF ORIGINAL CONSTRUCTION, NEW STUB-OUTS MUST BE CONSTRUCTED SUFFICIENTLY TO EXTEND BEYOND THE END OF THE STREET PAVEMENT. ALL STUB-OUTS MUST BE SEALED WITH A MANUFACTURED CAP TO PREVENT LEAKAGE. EXTENSIONS THAT WERE NOT ANTICIPATED AT THE TIME OF ORIGINAL CONSTRUCTION OR THAT ARE TO BE CONNECTED TO AN EXISTING SEWER LINE NOT FURNISHED WITH STUB OUTS MUST BE CONNECTED USING A MANUFACTURED SADDLE AND IN ACCORDANCE WITH ACCEPTED PLUMBING TECHNIQUES.*

    IF NO STUB-OUT IS PRESENT AN ALTERNATE METHOD OF JOINING LATERALS IS SHOWN IN THE DETAIL ON PLAN SHEET N/A. (FOR POTENTIAL FUTURE LATERALS).

    THE PRIVATE SERVICE LATERAL STUB-OUTS MUST BE INSTALLED AS SHOWN ON THE PLAN AND PROFILE SHEETS ON PLAN SHEET N/A AND MARKED AFTER BACKFILLING AS SHOWN IN THE DETAIL ON PLAN SHEET N/A.

13. *TRENCHING, BEDDING AND BACKFILL MUST CONFORM WITH 30 TAC §217.54. THE BEDDING AND BACKFILL FOR FLEXIBLE PIPE MUST COMPLY WITH THE STANDARDS OF ASTM D-2321, CLASSES IA, IB, II OR III. RIGID PIPE BEDDING MUST COMPLY WITH THE REQUIREMENTS OF ASTM C 12 (ANSI A 106.2) CLASSES A, B OR C.*

14. *SEWER LINES MUST BE TESTED FROM MANHOLE TO MANHOLE. WHEN A NEW SEWER LINE IS CONNECTED TO AN EXISTING STUB OR CLEAN-OUT, IT MUST BE TESTED FROM EXISTING MANHOLE TO NEW MANHOLE. IF A STUB OR CLEAN-OUT IS USED AT THE END OF THE PROPOSED SEWER LINE, NO PRIVATE SERVICE ATTACHMENTS MAY BE CONNECTED BETWEEN THE LAST MANHOLE AND THE CLEANOUT UNLESS IT CAN BE CERTIFIED AS CONFORMING WITH THE PROVISIONS OF 30 TAC §213.5(C)(3)(E).*

15. *ALL SEWER LINES MUST BE TESTED IN ACCORDANCE WITH 30 TAC §217.57. THE ENGINEER MUST RETAIN COPIES OF ALL TEST RESULTS WHICH MUST BE MADE AVAILABLE TO THE EXECUTIVE DIRECTOR UPON REQUEST. THE ENGINEER MUST CERTIFY IN WRITING THAT ALL WASTEWATER LINES HAVE PASSED ALL REQUIRED TESTING TO THE APPROPRIATE REGIONAL OFFICE WITHIN 30 DAYS OF TEST COMPLETION AND PRIOR TO USE OF THE NEW COLLECTION SYSTEM. TESTING METHOD WILL BE:*

    (a) FOR A COLLECTION SYSTEM PIPE THAT WILL TRANSPORT WASTEWATER BY GRAVITY FLOW, THE DESIGN MUST SPECIFY AN INFILTRATION AND EXFILTRATION TEST OR A LOW-PRESSURE AIR TEST. A TEST MUST CONFORM TO THE FOLLOWING REQUIREMENTS:
    (1) LOW PRESSURE AIR TEST.
    (A) A LOW PRESSURE AIR TEST MUST FOLLOW THE PROCEDURES DESCRIBED IN AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) C-828, ASTM C-924, OR ASTM F-1417 OR OTHER PROCEDURE APPROVED BY THE EXECUTIVE DIRECTOR, EXCEPT AS TO TESTING TIMES AS REQUIRED IN TABLE C.3 IN SUBPARAGRAPH (C) OF THIS PARAGRAPH OR EQUATION C.3 IN SUBPARAGRAPH (B)(II) OF THIS PARAGRAPH.
    (B) FOR SECTIONS OF COLLECTION SYSTEM PIPE LESS THAN 36 INCH AVERAGE INSIDE DIAMETER, THE FOLLOWING PROCEDURE MUST APPLY, UNLESS A PIPE IS TO BE TESTED AS REQUIRED BY PARAGRAPH (2) OF THIS SUBSECTION.
    (I) A PIPE MUST BE PRESSURIZED TO 3.5 POUNDS PER SQUARE INCH (PSI) GREATER THAN THE PRESSURE EXERTED BY GROUNDWATER ABOVE THE PIPE.
    (II) ONCE THE PRESSURE IS STABILIZED, THE MINIMUM TIME ALLOWABLE FOR THE PRESSURE TO DROP FROM 3.5 PSI GAUGE TO 2.5 PSI GAUGE IS COMPUTED FROM THE FOLLOWING EQUATION:

    EQUATION C.3 $T = \frac{0.085 \times D \times K}{Q}$

    WHERE:

    T = TIME FOR PRESSURE TO DROP 1.0 POUND PER SQUARE INCH GAUGE IN SECONDS
    K = 0.000419 X D X L, BUT NOT LESS THAN 1.0
    D = AVERAGE INSIDE PIPE DIAMETER IN INCHES
    L = LENGTH OF LINE OF SAME SIZE BEING TESTED, IN FEET
    Q = RATE OF LOSS, 0.0015 CUBIC FEET PER MINUTE PER SQUARE FOOT INTERNAL SURFACE

    (C) SINCE A K VALUE OF LESS THAN 1.0 MAY NOT BE USED, THE MINIMUM TESTING TIME FOR EACH PIPE DIAMETER IS SHOWN IN THE FOLLOWING TABLE C.3:

PIPE DIAMETER (INCHES)	MINIMUM TIME (SECONDS)	LENGTH FOR MINIMUM (FEET)	TIME FOR LONGER LENGTH (SECONDS/FOOT)
6	340	398	0.855
8	454	298	1.520
10	567	239	2.374
12	680	199	3.419
15	850	159	5.342
18	1020	133	7.693
21	1190	114	10.471
24	1360	100	13.676
27	1530	88	17.309
30	1700	80	21.369
33	1870	72	25.856

    (D) AN OWNER MAY STOP A TEST IF NO PRESSURE LOSS HAS OCCURRED DURING THE FIRST 25% OF THE CALCULATED TESTING TIME.

    (E) IF ANY PRESSURE LOSS OR LEAKAGE HAS OCCURRED DURING THE FIRST 25% OF A TESTING PERIOD, THEN THE TEST MUST CONTINUE FOR THE ENTIRE TEST DURATION AS OUTLINED ABOVE OR UNTIL FAILURE.

    (F) WASTEWATER COLLECTION SYSTEM PIPES WITH A 27 INCH OR LARGER AVERAGE INSIDE DIAMETER MAY BE AIR TESTED AT EACH JOINT INSTEAD OF FOLLOWING THE PROCEDURE OUTLINED IN THIS SECTION.

    (G) A TESTING PROCEDURE FOR PIPE WITH AN INSIDE DIAMETER GREATER THAN 33 INCHES MUST BE APPROVED BY THE EXECUTIVE DIRECTOR.

    (2) INFILTRATION/EXFILTRATION TEST.
    (A) THE TOTAL EXFILTRATION, AS DETERMINED BY A HYDROSTATIC HEAD TEST, MUST NOT EXCEED 50 GALLONS PER INCH OF DIAMETER PER MILE OF PIPE PER 24 HOURS AT A MINIMUM TEST HEAD OF 2.0 FEET ABOVE THE CROWN OF A PIPE AT AN UPSTREAM MANHOLE.
    (B) AN OWNER SHALL USE AN INFILTRATION TEST IN LIEU OF AN EXFILTRATION TEST WHEN PIPES ARE INSTALLED BELOW THE GROUNDWATER LEVEL.
    (C) THE TOTAL EXFILTRATION, AS DETERMINED BY A HYDROSTATIC HEAD TEST, MUST NOT EXCEED 50 GALLONS PER INCH DIAMETER PER MILE OF PIPE PER 24 HOURS AT A MINIMUM TEST HEAD OF TWO FEET ABOVE THE CROWN OF A PIPE AT AN UPSTREAM MANHOLE, OR AT LEAST TWO FEET ABOVE EXISTING GROUNDWATER LEVEL, WHICHEVER IS GREATER.
    (D) FOR CONSTRUCTION WITHIN A 25-YEAR FLOOD PLAIN, THE INFILTRATION OR EXFILTRATION MUST NOT EXCEED 10 GALLONS PER INCH DIAMETER PER MILE OF PIPE PER 24 HOURS AT THE SAME MINIMUM TEST HEAD AS IN SUBPARAGRAPH (C) OF THIS PARAGRAPH.
    (E) IF THE QUANTITY OF INFILTRATION OR EXFILTRATION EXCEEDS THE MAXIMUM QUANTITY SPECIFIED, AN OWNER SHALL UNDERTAKE REMEDIAL ACTION IN ORDER TO REDUCE THE INFILTRATION OR EXFILTRATION TO AN AMOUNT WITHIN THE LIMITS SPECIFIED. AN OWNER SHALL RETEST A PIPE FOLLOWING A REMEDIATION ACTION.

    (b) IF A GRAVITY COLLECTION PIPE IS COMPOSED OF FLEXIBLE PIPE, DEFLECTION TESTING IS ALSO REQUIRED. THE FOLLOWING PROCEDURES MUST BE FOLLOWED:
    (1) FOR A COLLECTION PIPE WITH INSIDE DIAMETER LESS THAN 27 INCHES, DEFLECTION MEASUREMENT REQUIRES A RIGID MANDREL.
    (A) MANDREL SIZING.
    (I) A RIGID MANDREL MUST HAVE AN OUTSIDE DIAMETER (OD) NOT LESS THAN 95% OF THE BASE INSIDE DIAMETER (ID) OR AVERAGE ID OF A PIPE, AS SPECIFIED IN THE APPROPRIATE STANDARD BY THE ASTMS, AMERICAN WATER WORKS ASSOCIATION, UNI-BELL, OR AMERICAN NATIONAL STANDARDS INSTITUTE, OR ANY RELATED APPENDIX.
    (II) IF A MANDREL SIZING DIAMETER IS NOT SPECIFIED IN THE APPROPRIATE STANDARD, THE MANDREL MUST HAVE AN OD EQUAL TO 95% OF THE ID OF A PIPE. IN THIS CASE, THE ID OF THE PIPE, FOR THE PURPOSE OF DETERMINING THE OD OF THE MANDREL, MUST EQUAL BE THE AVERAGE OUTSIDE DIAMETER MINUS TWO MINIMUM WALL THICKNESSES FOR OD CONTROLLED PIPE AND THE AVERAGE INSIDE DIAMETER FOR ID CONTROLLED PIPE.
    (III) ALL DIMENSIONS MUST MEET THE APPROPRIATE STANDARD.
    (B) MANDREL DESIGN.
    (I) A RIGID MANDREL MUST BE CONSTRUCTED OF A METAL OR A RIGID PLASTIC MATERIAL THAT CAN WITHSTAND 200 PSI WITHOUT BEING DEFORMED.
    (II) A MANDREL MUST HAVE NINE OR MORE ODD NUMBER OF RUNNERS OR LEGS.
    (III) A BARREL SECTION LENGTH MUST EQUAL AT LEAST 75% OF THE INSIDE DIAMETER OF A PIPE.
    (IV) EACH SIZE MANDREL MUST USE A SEPARATE PROVING RING.
    (C) METHOD OPTIONS.
    (I) AN ADJUSTABLE OR FLEXIBLE MANDREL IS PROHIBITED.
    (II) A TEST MAY NOT USE TELEVISION INSPECTION AS A SUBSTITUTE FOR A DEFLECTION TEST.
    (III) IF REQUESTED, THE EXECUTIVE DIRECTOR MAY APPROVE THE USE OF A DEFLECTOMETER OR A MANDREL WITH REMOVABLE LEGS OR RUNNERS ON A CASE-BY-CASE BASIS.
    (2) FOR A GRAVITY COLLECTION SYSTEM PIPE WITH AN INSIDE DIAMETER 27 INCHES AND GREATER, OTHER TEST METHODS MAY BE USED TO DETERMINE VERTICAL DEFLECTION.
    (3) A DEFLECTION TEST METHOD MUST BE ACCURATE TO WITHIN PLUS OR MINUS 0.2% DEFLECTION.
    (4) AN OWNER SHALL NOT CONDUCT A DEFLECTION TEST UNTIL AT LEAST 30 DAYS AFTER THE FINAL BACKFILL.
    (5) GRAVITY COLLECTION SYSTEM PIPE DEFLECTION MUST NOT EXCEED FIVE PERCENT (5%).
    (6) IF A PIPE SECTION FAILS A DEFLECTION TEST, AN OWNER SHALL CORRECT THE PROBLEM AND CONDUCT A SECOND TEST AFTER THE FINAL BACKFILL HAS BEEN IN PLACE AT LEAST 30 DAYS.

16. ALL MANHOLES MUST BE TESTED TO MEET OR EXCEED THE REQUIREMENTS OF 30 TAC §217.58.
    (a) ALL MANHOLES MUST PASS A LEAKAGE TEST.
    (b) AN OWNER SHALL TEST EACH MANHOLE (AFTER ASSEMBLY AND BACKFILLING) FOR LEAKAGE, SEPARATE AND INDEPENDENT OF THE COLLECTION SYSTEM PIPES, BY HYDROSTATIC EXFILTRATION TESTING, VACUUM TESTING, OR OTHER METHOD APPROVED BY THE EXECUTIVE DIRECTOR.
    (1) HYDROSTATIC TESTING.
    (A) THE MAXIMUM LEAKAGE FOR HYDROSTATIC TESTING OR ANY ALTERNATIVE TEST METHODS IS 0.025 GALLONS PER FOOT DIAMETER PER FOOT OF MANHOLE DEPTH PER HOUR.
    (B) TO PERFORM A HYDROSTATIC EXFILTRATION TEST, AN OWNER SHALL SEAL ALL WASTEWATER PIPES COMING INTO A MANHOLE WITH AN INTERNAL PIPE PLUG, FILL THE MANHOLE WITH WATER, AND MAINTAIN THE TEST FOR AT LEAST ONE HOUR.
    (C) A TEST FOR CONCRETE MANHOLES MAY USE A 24-HOUR WETTING PERIOD BEFORE TESTING TO ALLOW SATURATION OF THE CONCRETE.
    (2) VACUUM TESTING.
    (A) TO PERFORM A VACUUM TEST, AN OWNER SHALL PLUG ALL LIFT HOLES AND EXTERIOR JOINTS WITH A NON-SHRINK GROUT AND PLUG ALL PIPES ENTERING A MANHOLE.
    (B) NO GROUT MUST BE PLACED IN HORIZONTAL JOINTS BEFORE TESTING.
    (C) STUB-OUTS, MANHOLE BOOTS, AND PIPE PLUGS MUST BE SECURED TO PREVENT MOVEMENT WHILE A VACUUM IS DRAWN.
    (D) AN OWNER SHALL USE A MINIMUM 60 INCH/LB TORQUE WRENCH TO TIGHTEN THE EXTERNAL CLAMPS THAT SECURE A TEST COVER TO THE TOP OF A MANHOLE.
    (E) A TEST HEAD MUST BE PLACED AT THE INSIDE OF THE TOP OF A CONE SECTION, AND THE SEAL INFLATED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
    (F) THERE MUST BE A VACUUM OF 10 INCHES OF MERCURY INSIDE A MANHOLE TO PERFORM A VALID TEST.
    (G) A TEST DOES NOT BEGIN UNTIL AFTER THE VACUUM PUMP IS OFF.
    (H) A MANHOLE PASSES THE TEST IF AFTER 2.0 MINUTES AND WITH ALL VALVES CLOSED, THE VACUUM IS AT LEAST 9.0 INCHES OF MERCURY.

17. *ALL PRIVATE SERVICE LATERALS MUST BE INSPECTED AND CERTIFIED IN ACCORDANCE WITH 30 TAC §213.5(C)(3)(I). AFTER INSTALLATION OF AND, PRIOR TO COVERING AND CONNECTING A PRIVATE SERVICE LATERAL TO AN EXISTING ORGANIZED SEWAGE COLLECTION SYSTEM, A TEXAS LICENSED PROFESSIONAL ENGINEER, TEXAS REGISTERED SANITARIAN, OR APPROPRIATE CITY INSPECTOR MUST VISUALLY INSPECT THE PRIVATE SERVICE LATERAL AND THE CONNECTION TO THE SEWAGE COLLECTION SYSTEM, AND CERTIFY THAT IT IS CONSTRUCTED IN CONFORMITY WITH THE APPLICABLE PROVISIONS OF THIS SECTION. THE OWNER OF THE COLLECTION SYSTEM MUST MAINTAIN SUCH CERTIFICATIONS FOR FIVE YEARS AND FORWARD COPIES TO THE APPROPRIATE REGIONAL OFFICE UPON REQUEST. CONNECTIONS MAY ONLY BE MADE TO AN APPROVED SEWAGE COLLECTION SYSTEM.*

18. *PIPE MATERIAL FOR THE WASTEWATER LINE SHALL BE SDR 26 PVC.*

GENERAL NOTES:

1. ALL MATERIALS, CONSTRUCTION, TESTING AND WORKMANSHIP SHALL COMPLY WITH THE CITY OF KERRVILLE'S STANDARD SPECIFICATION DATED JANUARY, 2005, UNLESS SPECIFIED OTHERWISE IN THESE PLANS OR APPROVED BY THE CITY OF KERRVILLE'S ENGINEERING DEPARTMENT IN WRITING.

2. DURING THE CONSTRUCTION OF THIS PROJECT, ANY INTERPRETATION OF THE STANDARD SPECIFICATIONS OR ANY MATTER WHICH REQUIRES THE APPROVAL OF THE OWNER, MUST BE APPROVED BY CITY'S ENGINEERING DEPARTMENT BEFORE ANY CONSTRUCTION INVOLVING THAT DECISION COMMENCES. ASSUMPTIONS ABOUT WHAT THOSE DECISIONS MIGHT BE, WHICH ARE MADE DURING THE BIDDING PHASE, WILL HAVE NO BEARING ON THE DECISION.

3. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COMPLY WITH ALL FEDERAL, STATE AND LOCAL REQUIREMENTS BEFORE AND DURING CONSTRUCTION.

4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND NOTIFYING ALL AUTHORIZED INSPECTORS AND PERSONS IN CHARGE OF PRIVATE OR PUBLIC UTILITIES AFFECTED BY THIS PROJECT PRIOR TO CONSTRUCTION COMMENCEMENT.

5. THE SIZE AND LOCATION OF ALL EXISTING UNDERGROUND UTILITIES IDENTIFIED IN THESE CONSTRUCTION PLANS (INCLUDING SERVICE LATERALS) ARE APPROXIMATE AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE EXACT LOCATION (BOTH HORIZONTALLY AND VERTICALLY) PRIOR TO CONSTRUCTION COMMENCEMENT AND PROTECT THE SAME DURING CONSTRUCTION. IT SHALL BE THE DUTY OF THE CONTRACTOR TO ASCERTAIN WHETHER ANY ADDITIONAL FACILITIES OTHER THAN THOSE SHOWN ON THE PLANS MAY BE PRESENT, THE CITY DOES NOT ASSUME RESPONSIBILITY FOR UTILITIES NOT SHOWN OR NOT IN THE LOCATION SHOWN.

6. THE CONTRACTOR SHALL PROVIDE TRENCH SAFETY IN ACCORDANCE WITH OSHA SPECIFICATIONS AND PROVIDE A TRENCH SAFETY PLAN SIGNED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE STATE OF TEXAS AND PROVIDE DAILY INSPECTIONS TO ENSURE THAT THOSE REQUIREMENTS ARE BEING MET. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THE SAFETY OF THOSE PERSONS WORKING IN AND AROUND THE TRENCH.

7. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT ALL PUBLIC UTILITIES DURING CONSTRUCTION OF THIS PROJECT. ALL MANHOLES, CLEANOUTS, VALVE BOXES, FIRE HYDRANTS, ETC. MUST BE ADJUSTED TO PROPER LINE AND GRADE BY THE CONTRACTOR PRIOR TO FINAL ACCEPTANCE, ALL REPAIRS AND REPLACEMENTS BY THE CONTRACTOR SHALL BE AT HIS EXPENSE, SAID EXISTING IMPROVEMENTS SHALL ALSO INCLUDE, BUT NOT LIMITED TO, BERMS, DITCHES, FENCES, VEGETATION, ETC.

8. CONTRACTOR SHALL REPORT ANY DIFFERENCES BETWEEN THE INFORMATION IDENTIFIED IN THESE PLANS AND THE CONDITIONS IN THE FIELD IMMEDIATELY TO THE ENGINEER.

9. TEXAS LAW ARTICLE 1436C, PROHIBITS ALL ACTIVITIES IN WHICH PERSONS OR EQUIPMENT MAY COME WITHIN SIX FEET OF ENERGIZED OVERHEAD POWER LINES, AND FEDERAL REGULATION, TITLE 29, PART 1910.180(1) AND PART 1926.550(A)(15) REQUIRE A MINIMUM CLEARANCE OF TEN FEET FROM THESE FACILITIES, THE ABOVE LAWS CARRY BOTH CRIMINAL AND CIVIL LIABILITIES WITH CONTRACTORS AND OWNERS BEING LEGALLY RESPONSIBLE FOR THE SAFETY OF WORKERS UNDER THESE LAWS, CONTRACTORS SHALL COORDINATE WITH APPROPRIATE ELECTRIC COMPANY WHEN WORKING NEAR OVERHEAD POWER LINES TO BE DE-ENERGIZED AND/OR MOVED AT CONTRACTOR'S EXPENSE. CONTRACTOR SHALL ALSO SHORE EXISTING POWER POLES WHEN PERFORMING EARTHWORK OPERATIONS OR TRENCHING WITHIN CLOSE PROXIMITY OF EXISTING POWER POLES (NO SEPARATE PAY ITEM).

10. WHERE TRENCHING IS UTILIZED DURING CONSTRUCTION, NO MORE THAN 100 FT OF TRENCH SHALL BE OPEN AT ANY GIVEN TIME. NO EXCAVATIONS SHALL BE LEFT OPEN OVERNIGHT UNLESS PRIOR APPROVAL IS GRANTED BY OWNER. WHERE TRENCH IS LEFT OPEN DURING NON-WORKING HOURS, ORANGE SAFETY FENCING SHALL BE INSTALLED AT LEAST 5-FEET AROUND THE TRENCH PERIMETER, ALL EXCAVATIONS IN PAVED AREAS WHICH CANNOT BE COMPLETELY BACKFILLED PRIOR TO BEING SUBJECTED TO TRAFFIC SHALL BE COVERED WITH STEEL SHEETING AND ANCHORED TO PAVEMENT.

11. PAVEMENT PRESERVATION TECHNIQUES SHALL BE UTILIZED BY THE CONTRACTOR AT ALL TIMES DURING CONSTRUCTION. NO TRACK EQUIPMENT IS ALLOWED ON ANY CITY STREET, CURB, OR PRIVATE PAVING. UNLESS PRIOR APPROVAL IS GIVEN BY THE CITY.

12. CONTRACTOR SHALL NOT CLOSE A STREET TO TRAFFIC OR INTERFERE WITH TRAFFIC MOVEMENT ON A STREET WITHOUT NOTIFYING THE CITY ENGINEER AND SECURING PERMISSION TO DO SO. WHEN ANY STREET, SECTION OF A STREET, OR STREET SHOULDER IS CLOSED, OR TRAFFIC FLOW IS RESTRICTED, THE CONTRACTOR SHALL FURNISH A TRAFFIC CONTROL PLAN IN ACCORDANCE WITH TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD) FOR REVIEW AND APPROVAL BY THE CITY ENGINEER OR HIS DESIGNEE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND MAINTAINING BARRICADES, WARNING AND DIRECTING SIGNS, LIGHTS, TRAFFIC CONTROL DEVICES, FLAGS AND PROVIDE FLAGMEN ALONG THE ENTIRE STREET WITHIN THE LIMITS OF THE PROJECT IN ACCORDANCE WITH THE APPROVED TRAFFIC CONTROL PLAN AND TMUTCD STANDARDS. ALL BARRICADES SHALL BE EQUIPPED WITH FLASHERS AND BE KEPT BURNING BETWEEN THE HOURS OF SUNSET AND SUNRISE.

13. THE CONTRACTOR SHALL AT ALL TIMES KEEP THEIR CONSTRUCTION SITE FREE FROM ACCUMULATION OF WASTE MATERIAL, DEBRIS, OR RUBBISH GENERATED DURING CONSTRUCTION. AT THE COMPLETION OF CONSTRUCTION AND PRIOR TO THE CITY SCHEDULED WALK-THRU, THE CONTRACTOR SHALL REMOVE FROM THE SITE ALL TOOLS, SURPLUS MATERIALS, DEBRIS AND SHALL LEAVE THE SITE IN A "BROOM CLEAN" CONDITION, UNLESS SPECIAL PERMISSION HAS BEEN GRANTED BY THE CITY IN WRITING.

14. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN SANITARY CONVENIENCE FACILITIES AT THE PROJECT SITE FOR USE BY ALL LABORERS. THEY SHALL BE WELL VENTILATED, BUT PROVIDE CONCEALMENT, AND SHALL BE KEPT CLEAN AT ALL TIMES BY THE CONTRACTOR. THE FACILITIES SHALL BE REMOVED AND THE SITE RESTORED TO ITS ORIGINAL CONDITION OR BETTER UPON COMPLETION OF THE PROJECT. ALL SUCH FACILITIES SHALL CONFORM TO THE REQUIREMENTS OF THE STATE AND LOCAL HEALTH AUTHORITIES.

15. CONTRACTOR SHALL PROTECT ALL EXISTING TREES AT THE PROJECT SITE. NO EXISTING TREE SHALL BE TRIMMED OR REMOVED WITHOUT AUTHORIZATION FROM THE CITY ENGINEER UNLESS NOTED OTHERWISE ON THE PLANS.

16. CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING, TO THE ORIGINAL CONDITION OR BETTER, ANY DAMAGES TO EXISTING PAVEMENTS, SIDEWALKS, DRIVEWAYS, FENCES, OR OTHER STRUCTURES AT HIS EXPENSE, EXCEPT AS NOTED IN THE PLANS.

17. CONTRACTOR SHALL BE RESPONSIBLE FOR SAFEGUARDING AND PROTECTING ALL MATERIAL AND EQUIPMENT STORED ON THE JOB SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STORAGE OF MATERIALS IN A SAFE AND WORKMANLIKE MANNER TO PREVENT INJURIES DURING AND AFTER WORK HOURS.

18. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING MATERIALS TESTING FOR THE SCOPE OF THIS PROJECT IN ACCORDANCE WITH THE CITY OF KERRVILLE'S SPECIFICATIONS. ALL MATERIAL TESTING SHALL BE PERFORMED BY AN INDEPENDENT MATERIALS TESTING LAB APPROVED BY THE CITY OF KERRVILLE. SAID LAB SHALL BE CONTRACTED AND PAID BY THE CONTRACTOR AND HAVE A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE STATE OF TEXAS ON STAFF.

19. CONTRACTOR SHALL MAINTAIN ACCESS TO RESIDENTIAL AND COMMERCIAL PROPERTIES ADJACENT TO WORK AREAS AT ALL TIMES. CONTRACTOR SHALL PROVIDE ACCESS AROUND CONSTRUCTION WITH PROPER TRAFFIC CONTROL DEVICES.

20. NO SEPARATE PAY ITEMS COVERED IN THE PLANS, SPECIFICATIONS, OR NOTES UNLESS SPECIFICALLY ESTABLISHED IN THE UNIT COST BREAKDOWN OR BID FORM. ALL ITEMS NOT SPECIFICALLY CALLED FOR ON THE PLANS, OR IN THE SPECIFICATIONS, BUT NECESSARY TO REASONABLY CONSTRUCT THE FACILITIES OR IMPROVEMENTS, SHALL BE CONSIDERED INCIDENTAL TO THE OVERALL PROJECT AND NO SEPARATE PAYMENTS WILL BE MADE FOR THESE ITEMS. INCLUDE COST OF SAME IN THE CONTRACT TO UNI

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.

DRY UTILITY CONDUIT NOTE:

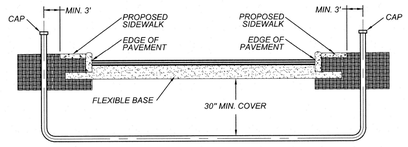
CONDUIT LOCATIONS SHOW ON PLAN ARE FOR GEOGRAPHICAL PURPOSES ONLY AND ARE APPROXIMATE. CONTRACTOR TO INSTALL PROPOSED CONDUITS IN ACCORDANCE WITH DRY UTILITY PURVEYOR'S SPECIFICATIONS. CONTRACTOR TO VERIFY THE CONDUIT LOCATIONS AND SIZES BASED ON THE DRY UTILITY PURVEYOR'S PLAN.

NOTE:

1. *ALL UTILITIES TO BE CONSTRUCTED PRIOR TO STREETS*
2. *NO VALVES, HYDRANTS, CLEANOUTS, ETC. SHALL BE CONSTRUCTED WITHIN CURBS, SIDEWALKS, OR DRIVEWAYS. THE BUILDER AND/OR DEVELOPER WILL BE RESPONSIBLE FOR REPAIR TO ROADWAY AND UTILITY INFRASTRUCTURE IF PUBLIC UTILITIES ARE INSTALLED INCORRECTLY.*
3. *ENSURE ALL DRIVEWAY APPROACHES ARE BUILT IN GENERAL ACCORDANCE WITH A.D.A. SPECIFICATIONS.*
4. *THIS PROJECT INCLUDES UTILITY INSTALLATIONS GREATER THAN 5-FEET IN DEPTH LOCATED IN PUBLIC RIGHT-OF-WAY OR EASEMENTS. DEEP TRENCHES POSE COMPACTION TESTING AND CONSTRUCTION CHALLENGES AND CITY METHODS FOR TESTING AND COMPACTION MAY NOT BE ACHIEVABLE. A UTILITY COMPACTION PLAN WILL BE REQUIRED AND MUST BE SUBMITTED FOR APPROVAL TO CITY PRIOR TO UTILITY INSTALLATION.*

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).*
2. *ALL SANITARY SEWER PIPE SHALL BE SDR 26*
   REFERENCE SHEET 6.1, SANITARY SEWER GENERAL NOTES. CRITERIA FOR SEWER MAIN CONSTRUCTION IN THE VICINITY OF WATER MAINS.
3. *SEE SHEET 6.1 FOR BENCHMARK INFORMATION.*
4. *SEE THIS SHEET FOR TYPICAL SANITARY SEWER / WATER CROSSING DETAIL.*
5. *ALL MANHOLES SHALL HAVE CONCRETE RING ENCASEMENT AND A WATER TIGHT RING AND COVER. SEE SHEET 6.17 FOR DETAILS.*

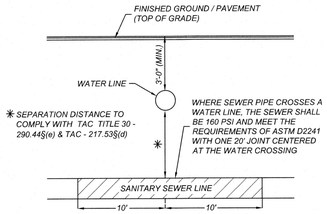


CONDUIT DETAIL
NOT TO SCALE

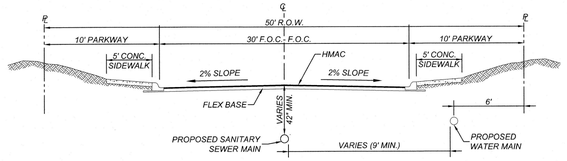
**SEE PLAN SHEETS FOR PRIVATE CONDUIT SIZE, LOCATION AND NUMBER OF CONDUITS*

NOTE:

- *CONTRACTOR SHALL BE RESPONSIBLE FOR PLACING CONDUIT SLEEVES FOR EACH KPUB FACILITY AT ALL STREETS AND DRAIN CROSSING. CONSTRUCTION SLEEVES MUST ALSO BE LOCATED FOR KPUB CREWS DURING CONSTRUCTION. (SEPARATE ITEM) SEE FINAL ELECTRIC PROVIDER'S DESIGN AND SPECIFICATION.*
- *CONTRACTOR TO CONTACT ENGINEER FOR APPROPRIATE NUMBER AND SIZE OF CONDUITS FOR TELECOMMUNICATIONS*
- *CONTRACTOR TO CONTACT ENGINEER FOR ELECTRICAL PLANS*
- *CONTRACTOR SHALL INSTALL PERMANENT MARKERS IN PROPOSED CURB WHERE CONDUITS CROSS THE ROADWAY (BOTH SIDES).*
- *CONDUITS SHALL BE PVC WITH 30 INCHES OF MINIMUM COVER FROM STREET SUBGRADE. SCHEDULE 40 TO BE USED FOR KPUB CONDUITS.*
- *ALL CONDUITS SHALL BE EXTENDED BEHIND CURBS OR PROPOSED SIDEWALKS A MINIMUM OF 3 FEET AND CAPPED FOR FUTURE USE.*
- *ALL CONDUIT SLEEVES TO BE USED FOR ELECTRIC, GAS, OR TELECOMMUNICATION UTILITY CROSSINGS SHALL BE INSTALLED TO MEET OR EXCEED DESIGN REQUIREMENTS FOR THE UTILITY AGENCY WHICH THEY ARE SERVING, INCLUDING BUT NOT LIMITED TO THE DEPTH, TRENCH PLACEMENT, AND PROXIMITY TO OTHER UTILITIES. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR VERIFYING AND INSTALLING THE CONDUIT SLEEVES TO MEET THESE SPECIFICATION INCLUDING COORDINATING WITH THE UTILITY AGENCY FOR ANY REQUIRED INSPECTIONS.*
- *CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND INSTALLING CONDUIT SLEEVES FOR EACH DRAIN CROSSING PRIOR TO THE INSTALLATION OF EACH DRAIN.*



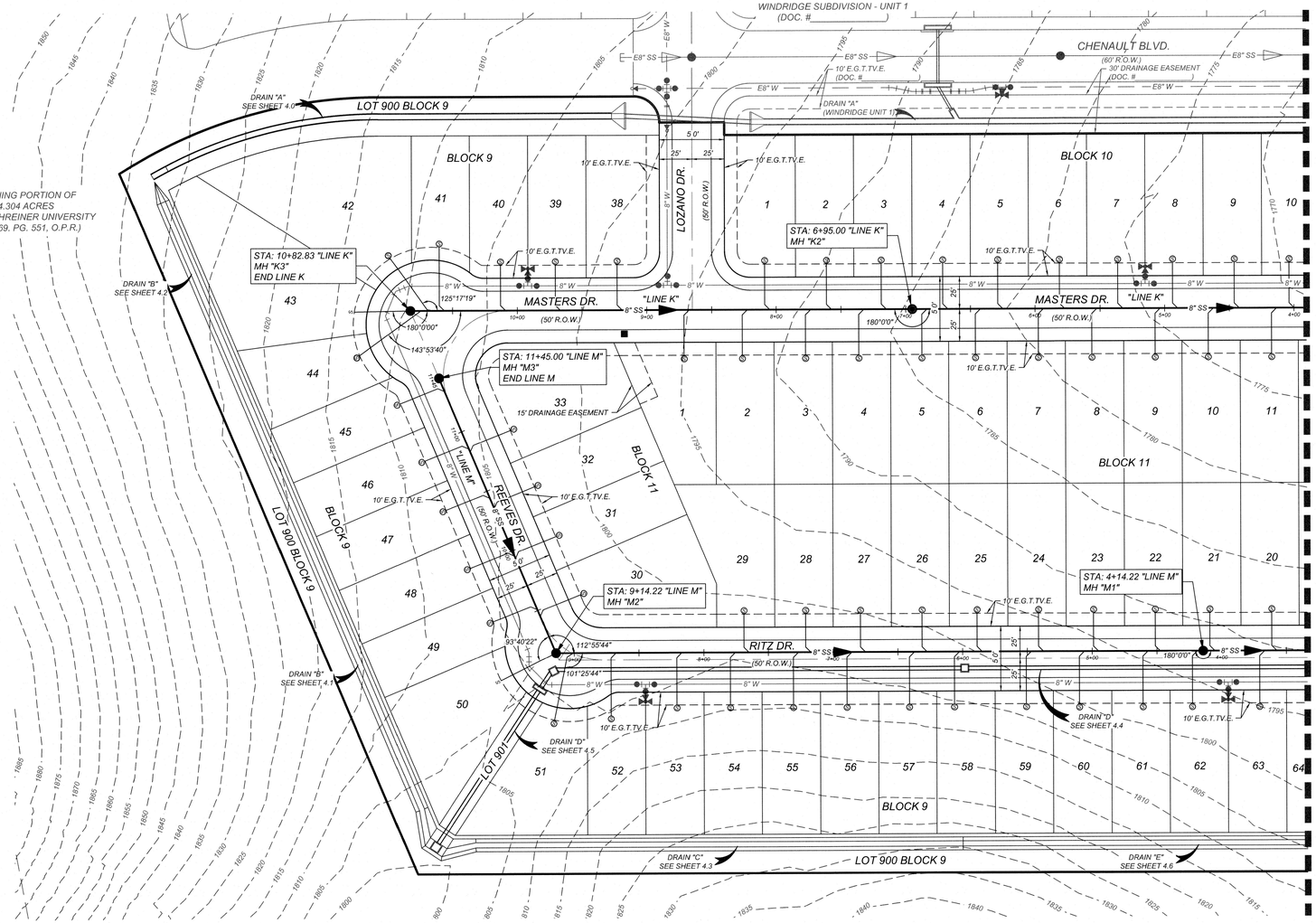
TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
NOT-TO-SCALE

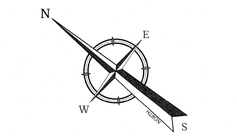


TYPICAL 50' STREET SECTION
NOT-TO-SCALE



LOCATION MAP
NOT-TO-SCALE





50 0 50 100

SCALE : 1" = 50'

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

LEGEND

EXISTING CONTOURS	=	— 1750 —
PROPOSED 8" WATER MAIN	=	—8"W—
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED CONDUIT	=	
PROPOSED SANITARY SEWER MAIN	=	—SS—
PROPOSED SANITARY SEWER MANHOLE	=	
PROPOSED SANITARY SEWER LATERAL WITH DEEP SEWER SERVICE	=	
PROPOSED SANITARY SEWER LATERAL	=	
RIGHT-OF-WAY	=	R.O.W.
PROPOSED ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E. G. T. TV. E
PROPOSED VARIABLE WIDTH CLEAR VISION EASEMENT	=	V.W.C.V.E.
EXISTING WATER MAIN	=	—E8" W—
EXISTING RECYCLED WATER MAIN	=	—RCW—
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	—E8" SS—
EXISTING SANITARY SEWER MANHOLE	=	
EXISTING OVERHEAD ELECTRIC W/POWER POLE	=	—OHE— —OHE—
EXISTING GUY WIRE/OVERHEAD ELECTRIC	=	—OHE—
EXISTING FIBER OPTIC	=	—FO—
EXISTING GAS	=	—G—
EXISTING UNDERGROUND ELECTRIC	=	—UGE—
EXISTING LIGHT POLE	=	
EXISTING MARKER POST	=	

REFER TO SHEET 6.1 FOR BENCH MARK INFORMATION

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____ DATE

THIS APPROVAL WILL BECOME VOID AFTER ONE YEAR OF THE INDICATED APPROVAL DATE. EXCEPTIONS TO THIS APPROVAL ARE AS FOLLOWS:

BY APPROVING THESE PLANS, THE CITY OF KERRVILLE DOES NOT ASSUME ANY LIABILITY FOR ENGINEERING DESIGN, NOR DOES APPROVAL RELEASE THE DESIGN ENGINEER FROM LIABILITY FOR CORRECTION ERRORS OR OMISSIONS IN THE DESIGN BOTH DURING AND AFTER CONSTRUCTION.

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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER
12/29/2025
P.E.

WINDRIDGE SUBDIVISION – UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA
PROJECT NUMBER:	DRAWING NAME:		
314-47-05	OSSP_3144705		

SHEET TITLE:
OVERALL SANITARY SEWER PLAN

SHEET NUMBER:
6.2

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Dec 23, 2025, 9:36am User ID: mdochi.flores
File: U:\Projects\314\47\05\Design\Civil\SEWER\OSSP_3144705.dwg
Design\DWG\SEWER\OSSP_3144705.dwg6.2 OVERALL SANITARY SEWER PLAN By: MM,ACB,ELOBES

TRENCH EXCAVATION SAFETY PROTECTION

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

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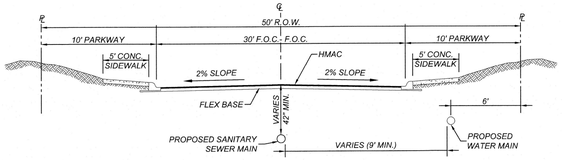
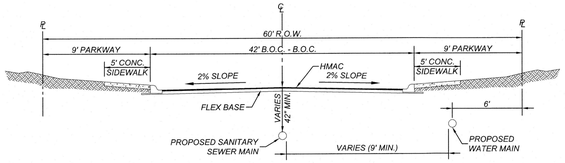
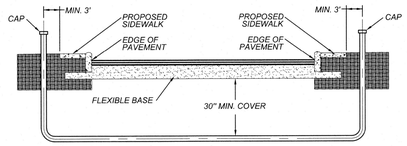
5. SEE THIS SHEET FOR TYPICAL SANITARY SEWER / WATER CROSSING DETAIL.
6. ALL MANHOLES SHALL HAVE CONCRETE RING ENCASEMENT AND A WATER TIGHT RING AND COVER. SEE SHEET 6.17 FOR DETAILS.



TYPICAL 50' STREET SECTION
NOT-TO-SCALE



TYPICAL 60' STREET SECTION
NOT-TO-SCALE



CONDUIT DETAIL
NOT TO SCALE

*SEE PLAN SHEETS FOR PRIVATE CONDUIT SIZE, LOCATION AND NUMBER OF CONDUITS

NOTE:

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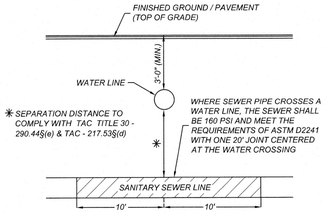
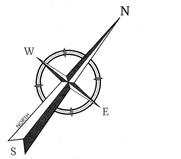


TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
NOT-TO-SCALE



LOCATION MAP
NOT-TO-SCALE



50 0 50 100

SCALE : 1" = 50'

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

LEGEND

EXISTING CONTOURS	=	— 1750 —
PROPOSED 8" WATER MAIN	=	— 8"W —
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED CONDUIT	=	
PROPOSED SANITARY SEWER MAIN	=	— SS —
PROPOSED SANITARY SEWER MANHOLE	=	
PROPOSED SANITARY SEWER LATERAL WITH DEEP SEWER SERVICE	=	
PROPOSED SANITARY SEWER LATERAL	=	
RIGHT-OF-WAY	=	R.O.W.
PROPOSED ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E. G. T. TV. E
PROPOSED VARIABLE WIDTH CLEAR VISION EASEMENT	=	V.W.C.V.E.
EXISTING WATER MAIN	=	— — —E8" W— — —
EXISTING RECYCLED WATER MAIN	=	— — — RCW — — —
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	— —E8" SS— — —
EXISTING SANITARY SEWER MANHOLE	=	
EXISTING OVERHEAD ELECTRIC W/POWER POLE	=	—OHE— — OHE—
EXISTING GUY WIRE/OVERHEAD ELECTRIC	=	— — — OHE—
EXISTING FIBER OPTIC	=	— FO — — FO —
EXISTING GAS	=	— G — — G —
EXISTING UNDERGROUND ELECTRIC	=	— UGE— — UGE—
EXISTING LIGHT POLE	=	
EXISTING MARKER POST	=	

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

REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER
12/29/2025
P.E.

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194350

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER:	DRAWING NAME:
314-47-05	OSSP_3144705

SHEET TITLE:
OVERALL SANITARY SEWER PLAN

SHEET NUMBER:
6.3

Date: Dec 23, 2025, 9:42am User ID: mdachi.flores
File: U:\Projects\314\47\05\Design\Civil\SEWER\OSSP_3144705.dwg
Design\DWG\WR\OSSP_3144705.dwg&LYOUT&LL SANITARY SEWER PLAN By: MAUCHI FLORES

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

TRENCH EXCAVATION SAFETY PROTECTION

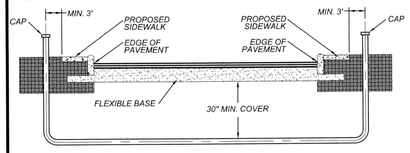
CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S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

DRY UTILITY CONDUIT NOTE!:

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



CONDUIT DETAIL
NOT TO SCALE

*SEE PLAN SHEETS FOR PRIVATE CONDUIT SIZE, LOCATION AND NUMBER OF CONDUITS

NOTE:

- CONTRACTOR SHALL BE RESPONSIBLE FOR PLACING CONDUIT SLEEVES FOR EACH KPUB FACILITY AT ALL STREETS AND DRAIN CROSSING. CONSTRUCTION SLEEVES MUST ALSO BE LOCATED FOR KPUB CREWS DURING CONSTRUCTION. (SEPARATE ITEM) SEE FINAL ELECTRIC PROVIDER'S DESIGN AND SPECIFICATION.
- CONTRACTOR TO CONTACT ENGINEER FOR APPROPRIATE NUMBER AND SIZE OF CONDUITS FOR TELECOMMUNICATIONS
- CONTRACTOR TO CONTACT ENGINEER FOR ELECTRICAL PLANS
- CONTRACTOR SHALL INSTALL PERMANENT MARKERS IN PROPOSED CURB WHERE CONDUITS CROSS THE ROADWAY (BOTH SIDES).
- CONDUITS SHALL BE PVC WITH 30 INCHES OF MINIMUM COVER FROM STREET SUBGRADE. SCHEDULE 40 TO BE USED FOR KPUB CONDUITS.
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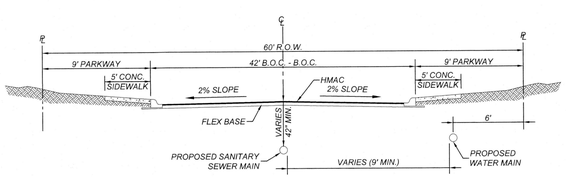
- CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND INSTALLING CONDUIT SLEEVES FOR EACH DRAIN CROSSING PRIOR TO THE INSTALLATION OF EACH DRAIN.

NOTE:

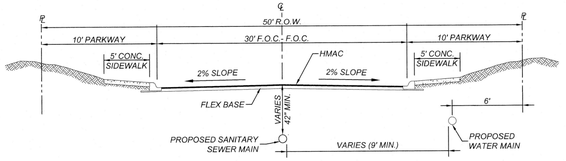
1. ALL UTILITIES TO BE CONSTRUCTED PRIOR TO STREETS
2. NO VALVES, HYDRANTS, CLEANOUTS, ETC. SHALL BE CONSTRUCTED WITHIN CURBS, SIDEWALKS, OR DRIVEWAYS. THE BUILDER AND/OR DEVELOPER WILL BE RESPONSIBLE FOR REPAIR TO ROADWAY AND UTILITY INFRASTRUCTURE IF PUBLIC UTILITIES ARE INSTALLED INCORRECTLY.
3. ENSURE ALL DRIVEWAY APPROACHES ARE BUILT IN GENERAL ACCORDANCE WITH A.D.A. SPECIFICATIONS.
4. THIS PROJECT INCLUDES UTILITY INSTALLATIONS GREATER THAN 5-FEET IN DEPTH LOCATED IN PUBLIC RIGHT-OF-WAY OR EASEMENTS. DEEP TRENCHES POSE COMPACTION TESTING AND CONSTRUCTION CHALLENGES AND CITY METHODS FOR TESTING AND COMPACTION MAY NOT BE ACHIEVABLE. A UTILITY COMPACTION PLAN WILL BE REQUIRED AND MUST BE SUBMITTED FOR APPROVAL TO CITY PRIOR TO UTILITY INSTALLATION.

NOTE:

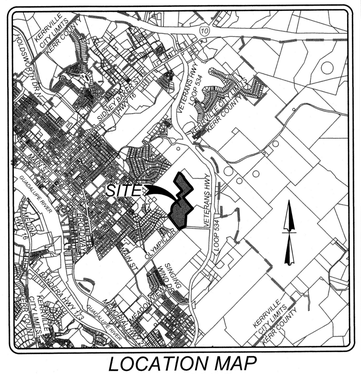
1. SEWER PIPE WHERE WATER LINE CROSSES SHALL MEET THE REQUIREMENTS OF ASTM D2241. CONTRACTOR SHALL CENTER A 20 FOOT JOINT OF 160 P.S.I. PRESSURE RATED P.V.C. AT THE PROPOSED WATER CROSSING (NO SEPARATE PAY ITEM)
2. ALL SANITARY SEWER PIPE SHALL BE SDR 26
3. REFERENCE SHEET 6.1, SANITARY SEWER GENERAL NOTES. CRITERIA FOR SEWER MAIN CONSTRUCTION IN THE VICINITY OF WATER MAINS.
4. SEE SHEET 6.1 FOR BENCHMARK INFORMATION.
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. SEE SHEET 6.17 FOR DETAILS.



TYPICAL 60' STREET SECTION
NOT-TO-SCALE



TYPICAL 50' STREET SECTION
NOT-TO-SCALE



LOCATION MAP
NOT-TO-SCALE

WINDRIDGE SUBDIVISION - UNIT 1 (DOC. #_____)

MATCHLINE SEE SHEET 6.3

STA: 6+35.07 "LINE F"
CONTACTOR TO REMOVE EXISTING 8" PLUG AND TIE PROPOSED 8" SANITARY SEWER MAIN TO EXISTING 8" SANITARY SEWER MAIN
CONTINUE "LINE F"

STA: 6+35.07 "LINE E"
CONTACTOR TO REMOVE EXISTING 8" PLUG AND TIE PROPOSED 8" SANITARY SEWER MAIN TO EXISTING 8" SANITARY SEWER MAIN
CONTINUE "LINE E"

STA: 5+92.76 "LINE D"
CONTACTOR TO REMOVE EXISTING 8" PLUG AND TIE PROPOSED 8" SANITARY SEWER MAIN
CONTINUE "LINE D"

LEICHT DR. (50' R.O.W.) — EZELL DR. (50' R.O.W.) — PFEUFFER DR. (50' R.O.W.)

BLOCK 8 — BLOCK 7 — BLOCK 6 — BLOCK 2

STA: 8+28.00 "LINE F"
MH "F3"
END LINE F

STA: 9+80.00 "LINE R"
MH "R3"
END LINE R

STA: 8+28.00 "LINE E"
MH "E3"
END LINE E

STA: 4+40.00 "LINE S"
MH "S1"
END LINE S

STA: 7+81.36 "LINE D"
MH "D3"
END LINE D

STA: 5+89.00 "LINE Q"
MH "Q2"
END LINE Q

STA: 3+70.00 "LINE R"
STA: 1+00.00 "LINE S"
MH "R1"

STA: 6+40.00 "LINE R"
MH "R2"

STA: 2+41.33 "LINE Q"
STA: 1+00.00 "LINE R"
MH "Q1"

STA: 6+65.96 "LINE O"
MH "O2"

STA: 8+05.89 "LINE O"
STA: 1+00.00 "LINE Q"
MH "O3"

"LINE R" 8" SS — ZUMWALT DR. (50' R.O.W.) — "LINE R" 8" SS

"LINE F" 8" SS — "LINE E" 8" SS — "LINE S" 8" SS — "LINE D" 8" SS — "LINE Q" 8" SS — "LINE O" 8" SS

DRAIN "H" SEE SHEET 4.9
DRAIN "M" SEE SHEET 4.17
DRAIN "I" SEE SHEET 4.11
DRAIN "J-2" SEE SHEET 4.14
DRAIN "J-1" SEE SHEET 4.14

KUNZ DR. (60' R.O.W.)

SEWER / WATER CROSSING!!! SEE DETAIL ON THIS SHEET

DRAIN/ SEWER CROSSING!!! SEE SHEET 4.14

SEWER/ WATER CROSSING!!! SEE DETAIL ON THIS SHEET

SEWER / WATER CROSSING!!! SEE DETAIL ON THIS SHEET

20' SANITARY SEWER EASEMENT "LINE O" — LOT 901

REMAINING PORTION OF 184.304 ACRES OWNER: SCHREINER UNIVERSITY (VOL. 1388, PG. 551, O.P.R.)

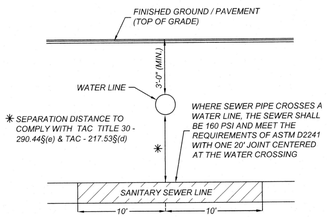
LOT 900 BLOCK 9

KERRVILLE INDEPENDENT SCHOOL DISTRICT CALLED 35.05 ACRES (DOC. #19-40823, O.P.R.)

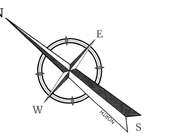
MATCHLINE SEE SHEET 6.5

MATCHLINE SEE SHEET 6.6

REFER TO SHEET 6.1 FOR BENCH MARK INFORMATION



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



50 0 50 100

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

LEGEND

EXISTING CONTOURS	=	1750
PROPOSED 8" WATER MAIN	=	8"W
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED CONDUIT	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	
PROPOSED SANITARY SEWER LATERAL WITH DEEP SEWER SERVICE	=	
PROPOSED SANITARY SEWER LATERAL	=	SS
RIGHT-OF-WAY	=	R.O.W.
PROPOSED ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E. G. T. TV. E
PROPOSED VARIABLE WIDTH CLEAR VISION EASEMENT	=	V.W.C.V.E.
EXISTING WATER MAIN	=	E8"W
EXISTING RECYCLED WATER MAIN	=	RCW
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	E8" SS
EXISTING SANITARY SEWER MANHOLE	=	
EXISTING OVERHEAD ELECTRIC W/POWER POLE	=	OHE
EXISTING GUY WIRE/OVERHEAD ELECTRIC	=	OHE
EXISTING FIBER OPTIC	=	FO
EXISTING GAS	=	G
EXISTING UNDERGROUND ELECTRIC	=	UGE
EXISTING LIGHT POLE	=	
EXISTING MARKER POST	=	

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____ DATE

THIS APPROVAL WILL BECOME VOID AFTER ONE YEAR OF THE INDICATED APPROVAL DATE. EXCEPTIONS TO THIS APPROVAL ARE AS FOLLOWS:

BY APPROVING THESE PLANS, THE CITY OF KERRVILLE DOES NOT ASSUME ANY LIABILITY FOR ENGINEERING DESIGN, NOR DOES APPROVAL RELEASE THE DESIGN ENGINEER FROM LIABILITY FOR CORRECTION ERRORS OR OMISSIONS IN THE DESIGN BOTH DURING AND AFTER CONSTRUCTION.

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER
12/29/2025
P.E.

WINDRIDGE SUBDIVISION - UNIT 2
FOR
LENNAR HOMES OF TEXAS

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TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: OSSP_3144705

SHEET TITLE: OVERALL SANITARY SEWER PLAN

SHEET NUMBER: 6.4

Date: Dec 23, 2025, 9:45am User ID: mdiehl.force
File: L:\Projects\314_K-P_OS\Design\Civil\SEWER\OSSP_3144705.dwg
\Design\Civil\SEWER\OSSP_3144705.dwg/LAYOUT\ALL SANITARY SEWER PLAN By: MAUCHELORES

TRENCH EXCAVATION SAFETY PROTECTION

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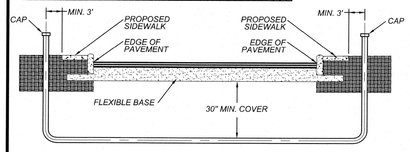

CONDUIT DETAIL
NOT TO SCALE

*SEE PLAN SHEETS FOR PRIVATE CONDUIT SIZE, LOCATION AND NUMBER OF CONDUITS

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3. SEE SHEET 6.1 FOR BENCHMARK INFORMATION.
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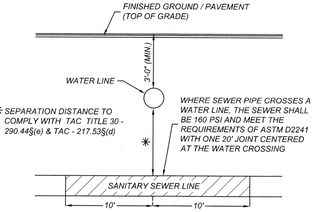
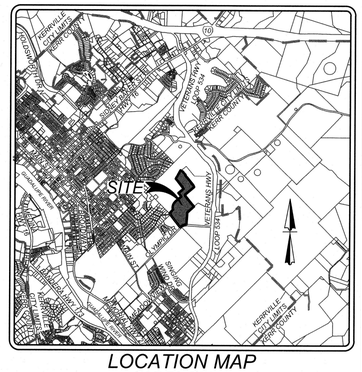
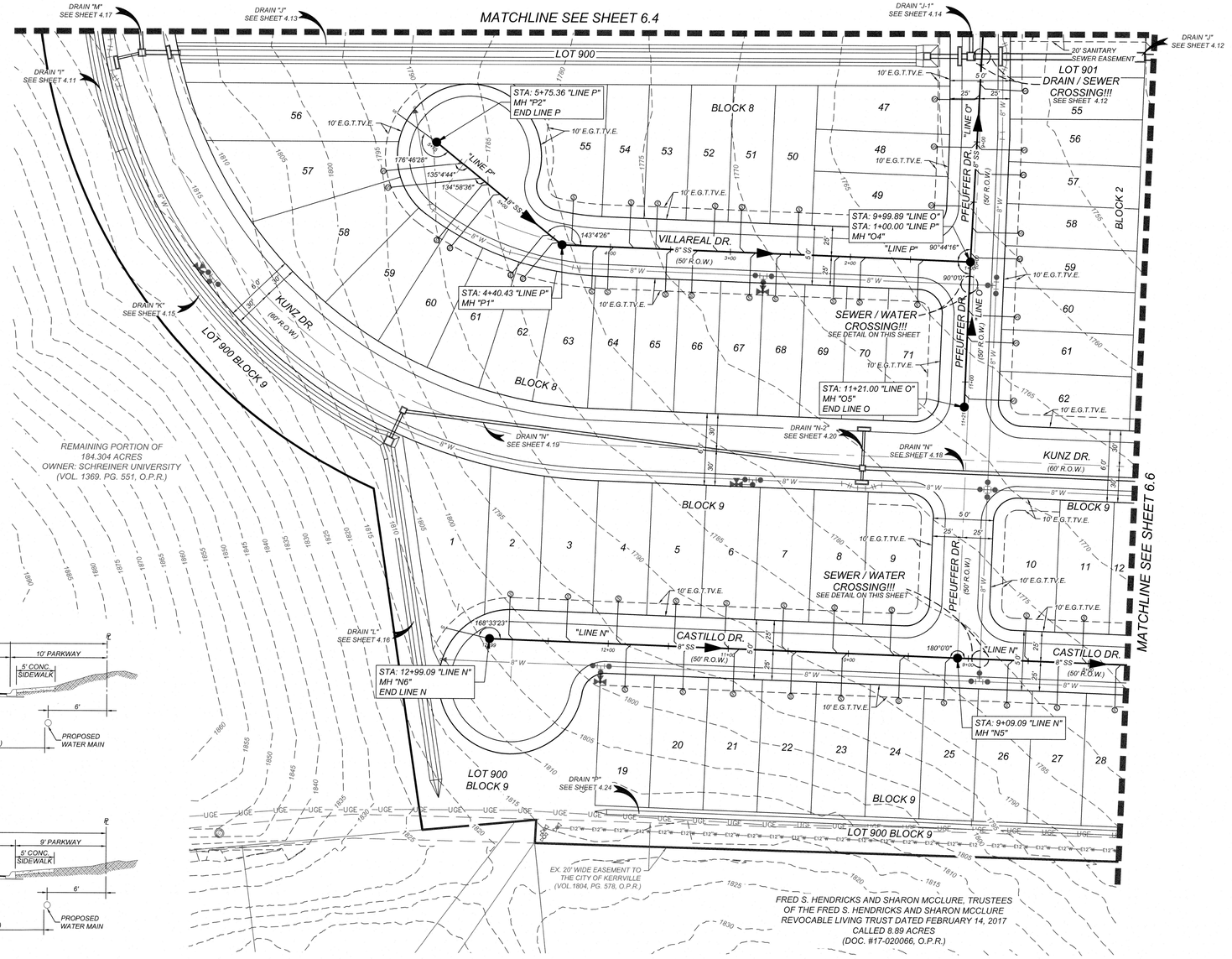
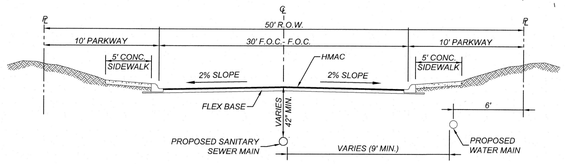


TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
NOT-TO-SCALE

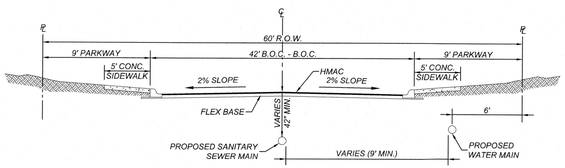


LOCATION MAP
NOT-TO-SCALE

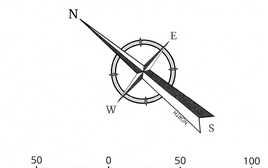




TYPICAL 50' STREET SECTION
NOT-TO-SCALE



TYPICAL 60' STREET SECTION
NOT-TO-SCALE



LEGEND

EXISTING CONTOURS	=	1750
PROPOSED 8" WATER MAIN	=	8"W
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED CONDUIT	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	
PROPOSED SANITARY SEWER LATERAL WITH DEEP SEWER SERVICE	=	
PROPOSED SANITARY SEWER LATERAL	=	ss
RIGHT-OF-WAY	=	R.O.W.
PROPOSED ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E. G. T. TV. E
PROPOSED VARIABLE WIDTH CLEAR VISION EASEMENT	=	V.W.C.V.E.
EXISTING WATER MAIN	=	E8"W
EXISTING RECYCLED WATER MAIN	=	RCW
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	E8" SS
EXISTING SANITARY SEWER MANHOLE	=	
EXISTING OVERHEAD ELECTRIC W/POWER POLE	=	OHE
EXISTING GUY WIRE/OVERHEAD ELECTRIC	=	OHE
EXISTING FIBER OPTIC	=	FO
EXISTING GAS	=	G
EXISTING UNDERGROUND ELECTRIC	=	UGE
EXISTING LIGHT POLE	=	
EXISTING MARKER POST	=	

REFER TO SHEET 6.1 FOR BENCH MARK INFORMATION

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____
DATE

THIS APPROVAL WILL BECOME VOID AFTER ONE YEAR OF THE INDICATED APPROVAL DATE. EXCEPTIONS TO THIS APPROVAL ARE AS FOLLOWS:

_____

_____

_____

_____

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Colliers
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Formerly Known as KFW ENGINEERS

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PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE
FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER
12/29/2025
P.E.

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: OSSP_3144705

SHEET TITLE: OVERALL SANITARY SEWER PLAN

SHEET NUMBER: 6.5

Date: Dec 23, 2025, 9:48am User ID: mdelchiflores
File: U:\Projects\314_47\05\Design\Civil\SEWER\OSSP_3144705.dwg
Design\Civil\SEWER\OSSP_3144705.dwg\S OVERALL SANITARY SEWER PLAN By: MALACHI FLORES

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND 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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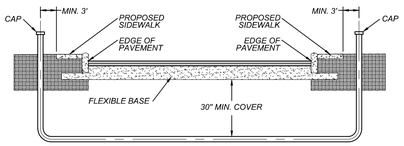
DRY UTILITY CONDUIT NOTE:
CONDUIT LOCATIONS SHOW ON PLAN ARE FOR GEOGRAPHICAL PURPOSES ONLY AND ARE APPROXIMATE. CONTRACTOR TO INSTALL PROPOSED CONDUITS IN ACCORDANCE WITH DRY UTILITY PURVEYOR'S SPECIFICATIONS. CONTRACTOR TO VERIFY THE CONDUIT LOCATIONS AND SIZES BASED ON THE DRY UTILITY PURVEYOR'S PLAN.



CONDUIT DETAIL
NOT TO SCALE

*SEE PLAN SHEETS FOR PRIVATE CONDUIT SIZE, LOCATION AND NUMBER OF CONDUITS

NOTE:

- CONTRACTOR SHALL BE RESPONSIBLE FOR PLACING CONDUIT SLEEVES FOR EACH KPUB FACILITY AT ALL STREETS AND DRAIN CROSSING. CONSTRUCTION SLEEVES MUST ALSO BE LOCATED FOR KPUB CREWS DURING CONSTRUCTION. (SEPARATE ITEM) SEE FINAL ELECTRIC PROVIDER'S DESIGN AND SPECIFICATION.
- CONTRACTOR TO CONTACT ENGINEER FOR APPROPRIATE NUMBER AND SIZE OF CONDUITS FOR TELECOMMUNICATIONS
- CONTRACTOR TO CONTACT ENGINEER FOR ELECTRICAL PLANS
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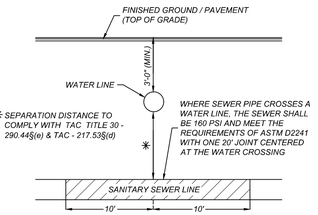
- ALL CONDUITS SHALL BE EXTENDED BEHIND CURBS OR PROPOSED SIDEWALKS A MINIMUM OF 3 FEET AND CAPPED FOR FUTURE USE.
- ALL CONDUIT SLEEVES TO BE USED FOR ELECTRIC, GAS, OR TELECOMMUNICATION UTILITY CROSSINGS SHALL BE INSTALLED TO MEET OR EXCEED DESIGN REQUIREMENTS FOR THE UTILITY AGENCY WHICH THEY ARE SERVING, INCLUDING BUT NOT LIMITED TO THE DEPTH, TRENCH PLACEMENT, AND PROXIMITY TO OTHER UTILITIES. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR VERIFYING AND INSTALLING THE CONDUIT SLEEVES TO MEET THESE SPECIFICATION INCLUDING COORDINATING WITH THE UTILITY AGENCY FOR ANY REQUIRED INSPECTIONS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND INSTALLING CONDUIT SLEEVES FOR EACH DRAIN CROSSING PRIOR TO THE INSTALLATION OF EACH DRAIN.

NOTE:

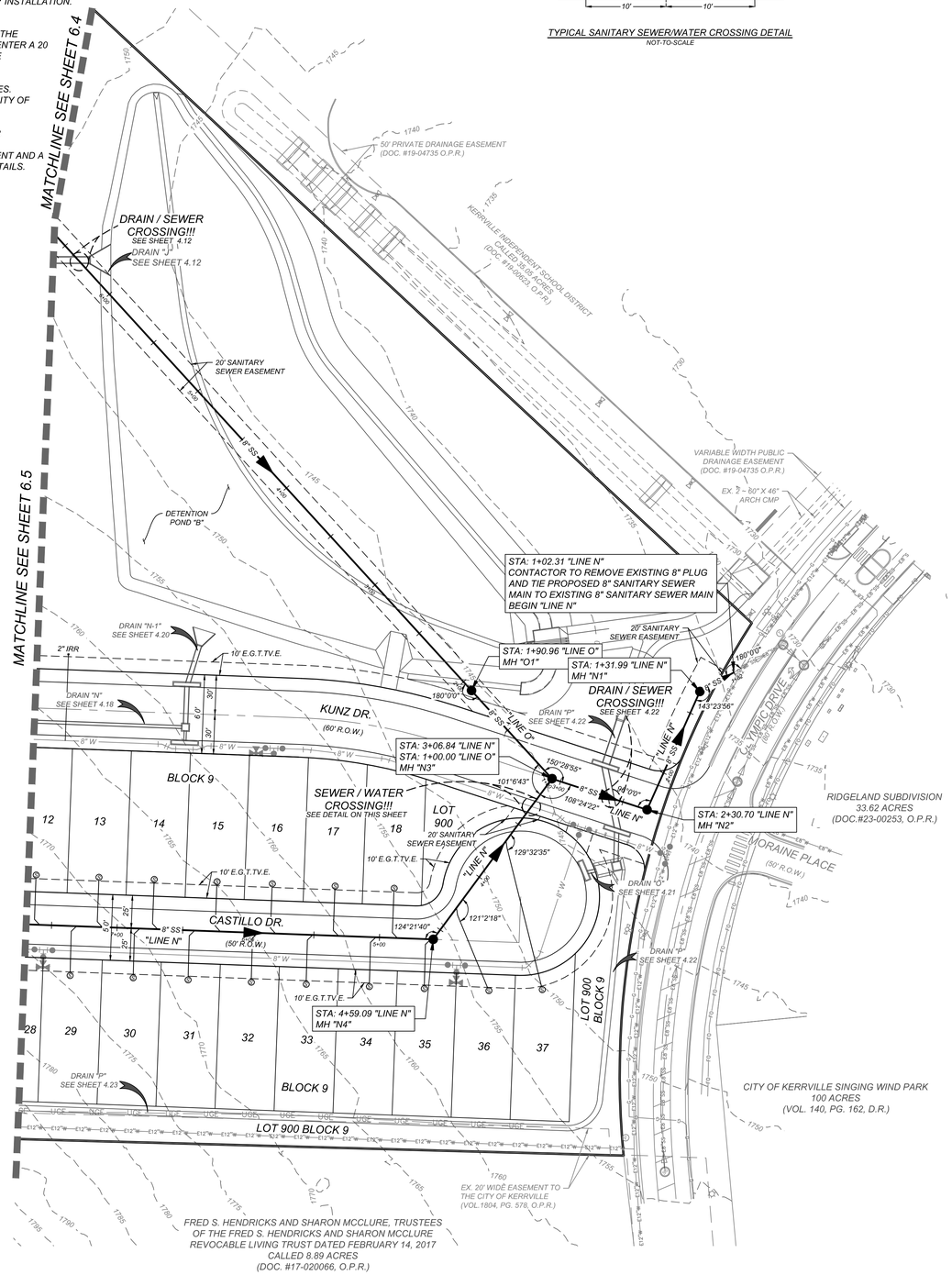
1. ALL UTILITIES TO BE CONSTRUCTED PRIOR TO STREETS
2. NO VALVES, HYDRANTS, CLEANOUTS, ETC. SHALL BE CONSTRUCTED WITHIN CURBS, SIDEWALKS, OR DRIVEWAYS. THE BUILDER AND/OR DEVELOPER WILL BE RESPONSIBLE FOR REPAIR TO ROADWAY AND UTILITY INFRASTRUCTURE IF PUBLIC UTILITIES ARE INSTALLED INCORRECTLY.
3. ENSURE ALL DRIVEWAY APPROACHES ARE BUILT IN GENERAL ACCORDANCE WITH A.D.A. SPECIFICATIONS.
4. THIS PROJECT INCLUDES UTILITY INSTALLATIONS GREATER THAN 5-FEET IN DEPTH LOCATED IN PUBLIC RIGHT-OF-WAY OR EASEMENTS. DEEP TRENCHES POSE COMPACTION TESTING AND CONSTRUCTION CHALLENGES AND CITY METHODS FOR TESTING AND COMPACTION MAY NOT BE ACHIEVABLE. A UTILITY COMPACTION PLAN WILL BE REQUIRED AND MUST BE SUBMITTED FOR APPROVAL TO CITY PRIOR TO UTILITY INSTALLATION.

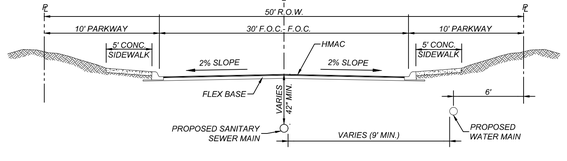
NOTE:

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).
2. ALL SANITARY SEWER PIPE SHALL BE SDR 26
REFERENCE SHEET 6.1, SANITARY SEWER GENERAL NOTES. CRITERIA FOR SEWER MAIN CONSTRUCTION IN THE VICINITY OF WATER MAINS.
3. SEE SHEET 6.1 FOR BENCHMARK INFORMATION.
4. SEE THIS SHEET FOR TYPICAL SANITARY SEWER / WATER CROSSING DETAIL.
5. ALL MANHOLES SHALL HAVE CONCRETE RING ENCASEMENT AND A WATER TIGHT RING AND COVER. SEE SHEET 6.17 FOR DETAILS.

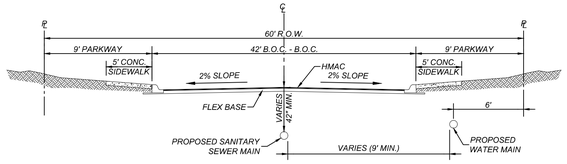


TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
NOT-TO-SCALE

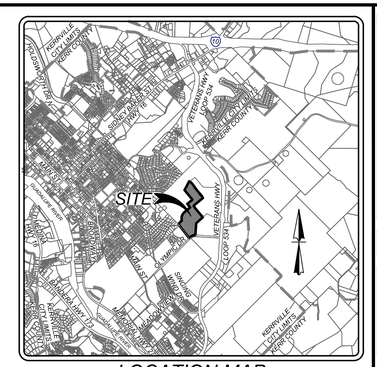




TYPICAL 50' STREET SECTION
NOT-TO-SCALE



TYPICAL 60' STREET SECTION
NOT-TO-SCALE


SITE
VETERANS HWY
LOOP 534
KERRVILLE
COMFORT
ROAD
SCHRIEWER RD
KERRVILLE INDEPENDENT SCHOOL DISTRICT
LOOP 534
KERRVILLE INDEPENDENT SCHOOL DISTRICT
CALLED 10.88 ACRES
(DOC. #19-08225 O.P.R.)

TRENCH EXCAVATION SAFETY PROTECTION

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3. *SEE SHEET 6.1 FOR BENCHMARK INFORMATION.*
4. *SEE THIS SHEET FOR TYPICAL SANITARY SEWER / WATER CROSSING DETAIL.*
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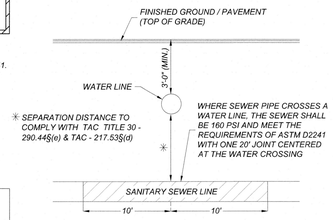

TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
NOT-TO-SCALE

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____
DATE

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_____
_____
_____
_____

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LEGEND

EXISTING CONTOURS	=	1750
PROPOSED 8" WATER MAIN	=	8"W
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED CONDUIT	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	
PROPOSED SANITARY SEWER LATERAL WITH DEEP SEWER SERVICE	=	
PROPOSED SANITARY SEWER LATERAL	=	
RIGHT-OF-WAY	=	R.O.W.
PROPOSED ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E. G. T. TV. E
PROPOSED VARIABLE WIDTH CLEAR VISION EASEMENT	=	V.W.C.V.E.
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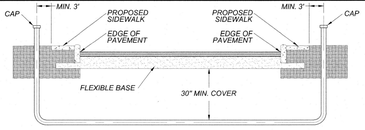
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	E8" SS
EXISTING SANITARY SEWER MANHOLE	=	
EXISTING OVERHEAD ELECTRIC W/POWER POLE	=	OHE OHE
EXISTING GUY WIRE/OVERHEAD ELECTRIC	=	OHE
EXISTING FIBER OPTIC	=	FO FO
EXISTING GAS	=	G G
EXISTING UNDERGROUND ELECTRIC	=	UGE UGE
EXISTING LIGHT POLE	=	
EXISTING MARKER POST	=	



CONDUIT DETAIL
NOT TO SCALE
(NOT FOR CURB DETAIL REFERENCE)

**SEE PLAN SHEETS FOR PRIVATE CONDUIT SIZE, LOCATION AND NUMBER OF CONDUITS*

NOTE:

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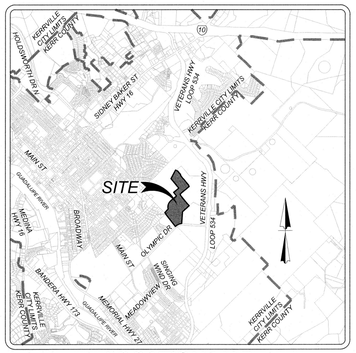
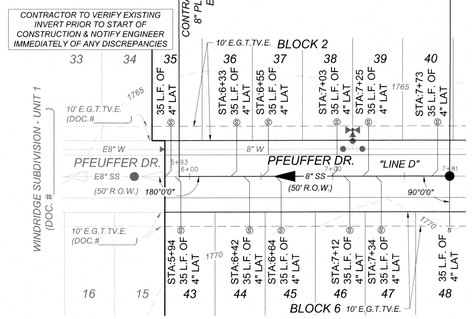
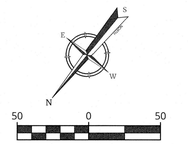


LOCATION MAP
NOT-TO-SCALE

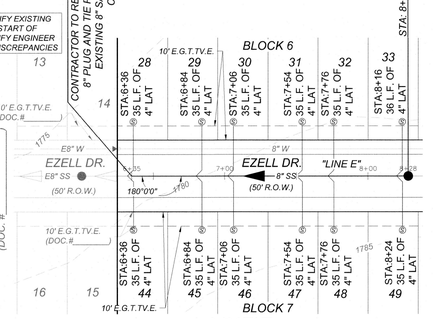


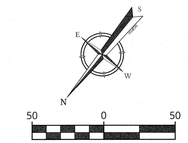


SCALE : 1" = 50'
Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

LINE D
STA: 5+92.76 - END

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

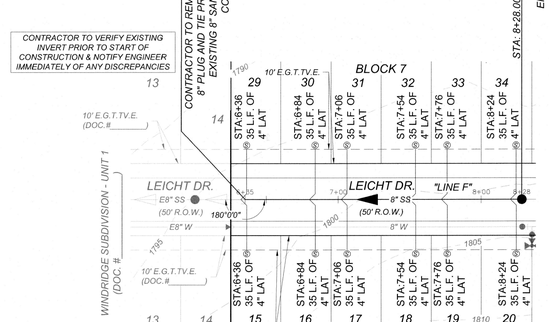


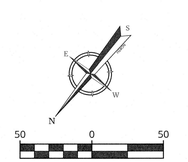


SCALE : 1" = 50'
Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

LINE E
STA: 6+35.07 - END

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

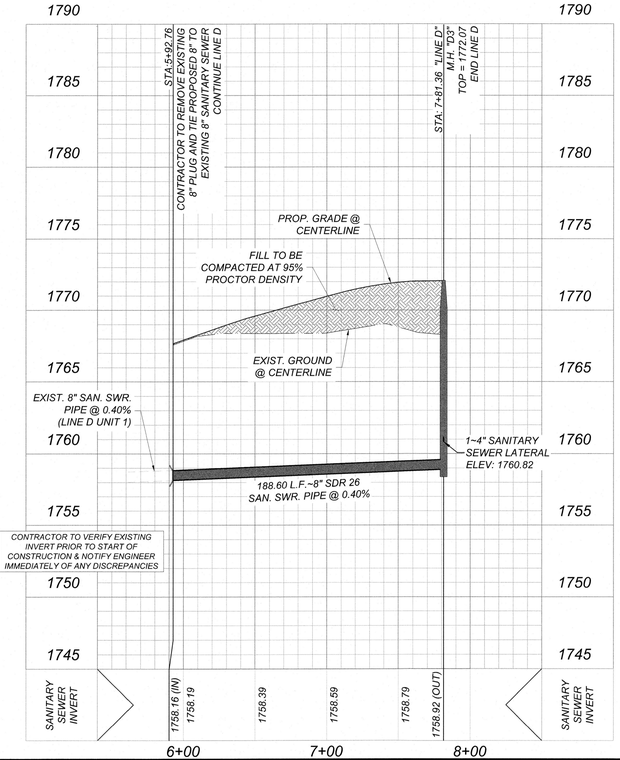


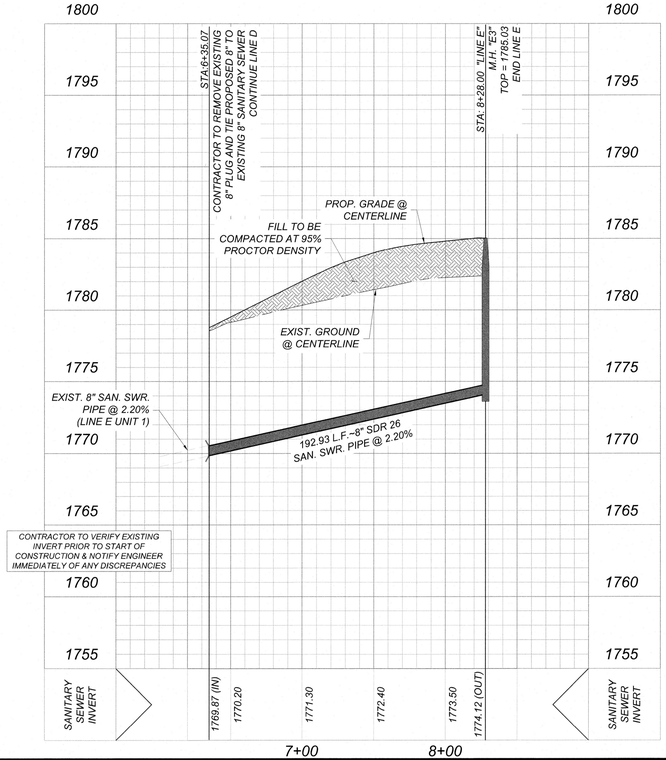


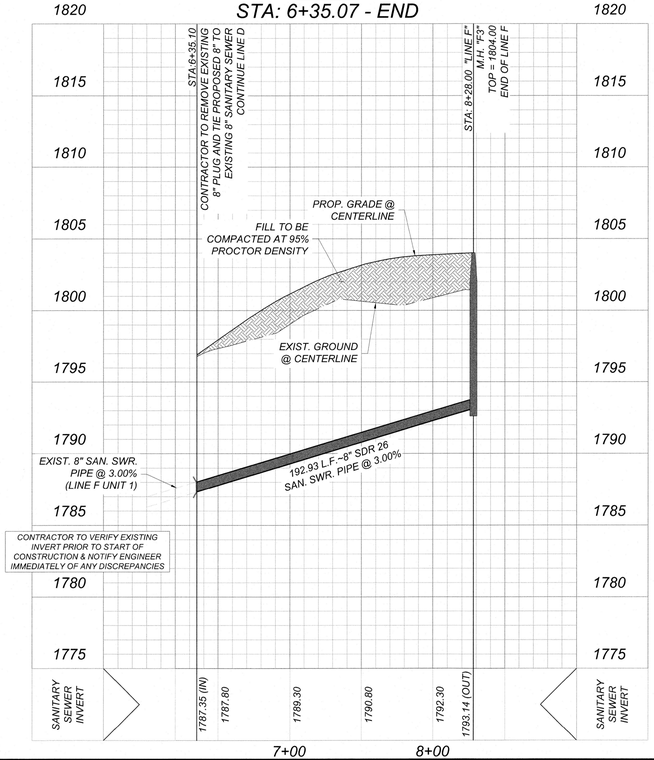
SCALE : 1" = 50'
Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

LINE F
STA: 6+35.07 - END

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







LINE D
STA: 5+92.76 - END

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

LINE E
STA: 6+35.07 - END

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

LINE F
STA: 6+35.07 - END

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

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

REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER
01/07/2026
PE.

WINDRIDGE SUBDIVISION - UNIT 2
FOR
LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave. Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER:	DRAWING NAME:
314-47-05	SSPP-DEF_3144705

SHEET TITLE:
LINE D STA 5+92.76 - END, LINE E & LINE F STA. 6+35.07 - END

SHEET NUMBER:
6.7

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Jan 05, 2026, 8:37am User ID: malachi.flores
File: U:\Projects\314\47\05\Design\Civil\SEWER\SSPP-DEF_3144705.dwg
Image(s) used from xref(s): 3144705-PROFILE.PNG, 3144705-PROFILE.PNG, 3144705-PROFILE.PNG,

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.

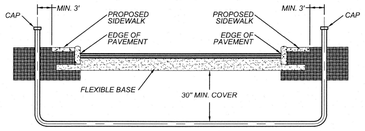
DRY UTILITY CONDUIT NOTE!:
CONDUIT LOCATIONS SHOW ON PLAN ARE FOR GEOGRAPHICAL PURPOSES ONLY AND ARE APPROXIMATE. CONTRACTOR TO INSTALL PROPOSED CONDUITS IN ACCORDANCE WITH DRY UTILITY PURVEYOR'S SPECIFICATIONS. CONTRACTOR TO VERIFY THE CONDUIT LOCATIONS AND SIZES BASED ON THE DRY UTILITY PURVEYOR'S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

NOTE:

1. *ALL UTILITIES TO BE CONSTRUCTED PRIOR TO STREETS*
2. *NO VALVES, HYDRANTS, CLEANOUTS, ETC. SHALL BE CONSTRUCTED WITHIN CURBS, SIDEWALKS, OR DRIVEWAYS. THE BUILDER AND/OR DEVELOPER WILL BE RESPONSIBLE FOR REPAIR TO ROADWAY AND UTILITY INFRASTRUCTURE IF PUBLIC UTILITIES ARE INSTALLED INCORRECTLY.*
3. *ENSURE ALL DRIVEWAY APPROACHES ARE BUILT IN GENERAL ACCORDANCE WITH A.D.A. SPECIFICATIONS.*
4. *THIS PROJECT INCLUDES UTILITY INSTALLATIONS GREATER THAN 5-FEET IN DEPTH LOCATED IN PUBLIC RIGHT-OF-WAY OR EASEMENTS. DEEP TRENCHES POSE COMPACTION TESTING AND CONSTRUCTION CHALLENGES AND CITY METHODS FOR TESTING AND COMPACTION MAY NOT BE ACHIEVABLE. A UTILITY COMPACTION PLAN WILL BE REQUIRED AND MUST BE SUBMITTED FOR APPROVAL TO CITY PRIOR TO UTILITY INSTALLATION.*

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).*
2. *ALL SANITARY SEWER PIPE SHALL BE SDR 26*
   REFERENCE SHEET 6.1, SANITARY SEWER GENERAL NOTES. CRITERIA FOR SEWER MAIN CONSTRUCTION IN THE VICINITY OF WATER MAINS.
3. *SEE SHEET 6.1 FOR BENCHMARK INFORMATION.*
4. *SEE THIS SHEET FOR TYPICAL SANITARY SEWER / WATER CROSSING DETAIL.*
5. *ALL MANHOLES SHALL HAVE CONCRETE RING ENCASEMENT AND A WATER TIGHT RING AND COVER. SEE SHEET 6.17 FOR DETAILS.*



CONDUIT DETAIL
NOT TO SCALE
(NOT FOR CURB DETAIL REFERENCE)

**SEE PLAN SHEETS FOR PRIVATE CONDUIT SIZE, LOCATION AND NUMBER OF CONDUITS*

NOTE:

- *CONTRACTOR SHALL BE RESPONSIBLE FOR PLACING CONDUIT SLEEVES FOR EACH KPUB FACILITY AT ALL STREETS AND DRAIN CROSSING. CONSTRUCTION SLEEVES MUST ALSO BE LOCATED FOR KPUB CREWS DURING CONSTRUCTION. (SEPARATE ITEM) SEE FINAL ELECTRIC PROVIDER'S DESIGN AND SPECIFICATION.*
- *CONTRACTOR TO CONTACT ENGINEER FOR APPROPRIATE NUMBER AND SIZE OF CONDUITS FOR TELECOMMUNICATIONS*
- *CONTRACTOR TO CONTACT ENGINEER FOR ELECTRICAL PLANS*
- *CONTRACTOR SHALL INSTALL PERMANENT MARKERS IN PROPOSED CURB WHERE CONDUITS CROSS THE ROADWAY (BOTH SIDES).*
- *CONDUITS SHALL BE PVC WITH 30 INCHES OF MINIMUM COVER FROM STREET SUBGRADE. SCHEDULE 40 TO BE USED FOR KPUB CONDUITS.*
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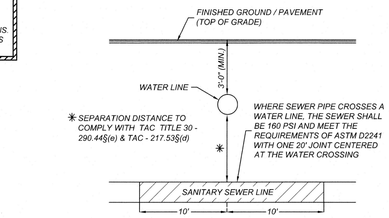
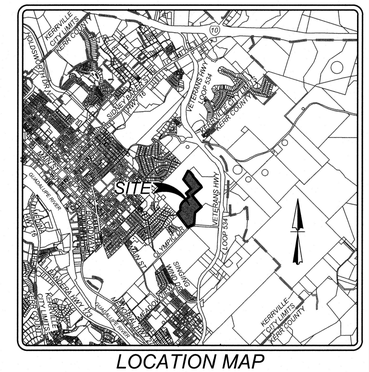
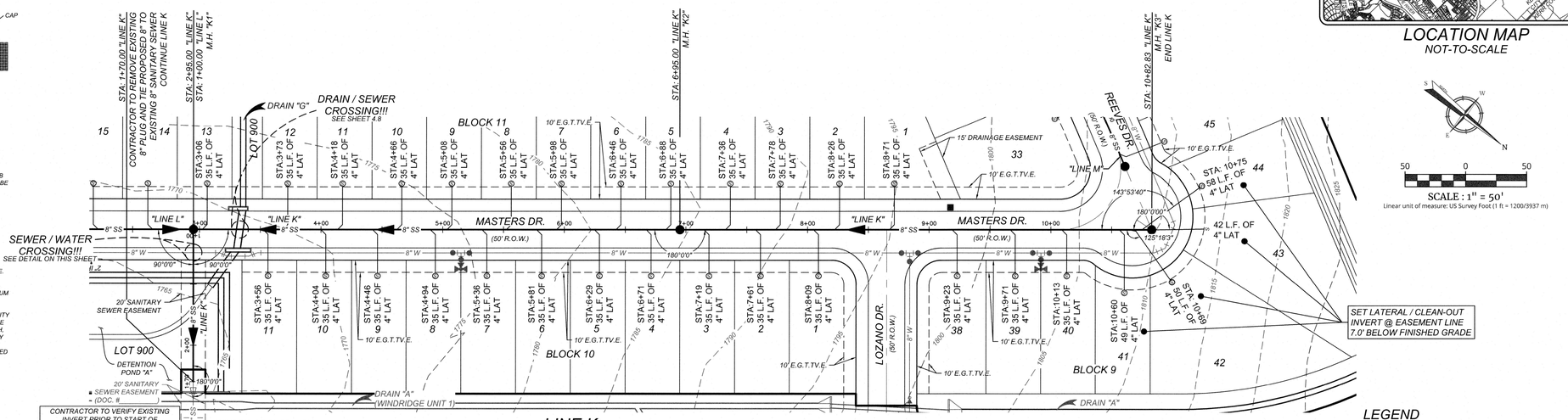
- *ALL CONDUIT SLEEVES TO BE USED FOR ELECTRIC, GAS, OR TELECOMMUNICATION UTILITY CROSSINGS SHALL BE INSTALLED TO MEET OR EXCEED DESIGN REQUIREMENTS FOR THE UTILITY AGENCY WHICH THEY ARE SERVING, INCLUDING BUT NOT LIMITED TO THE DEPTH, TRENCH PLACEMENT, AND PROXIMITY TO OTHER UTILITIES. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR VERIFYING AND INSTALLING THE CONDUIT SLEEVES TO MEET THESE SPECIFICATION INCLUDING COORDINATING WITH THE UTILITY AGENCY FOR ANY REQUIRED INSPECTIONS.*
- *CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND INSTALLING CONDUIT SLEEVES FOR EACH DRAIN CROSSING PRIOR TO THE INSTALLATION OF EACH DRAIN.*



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



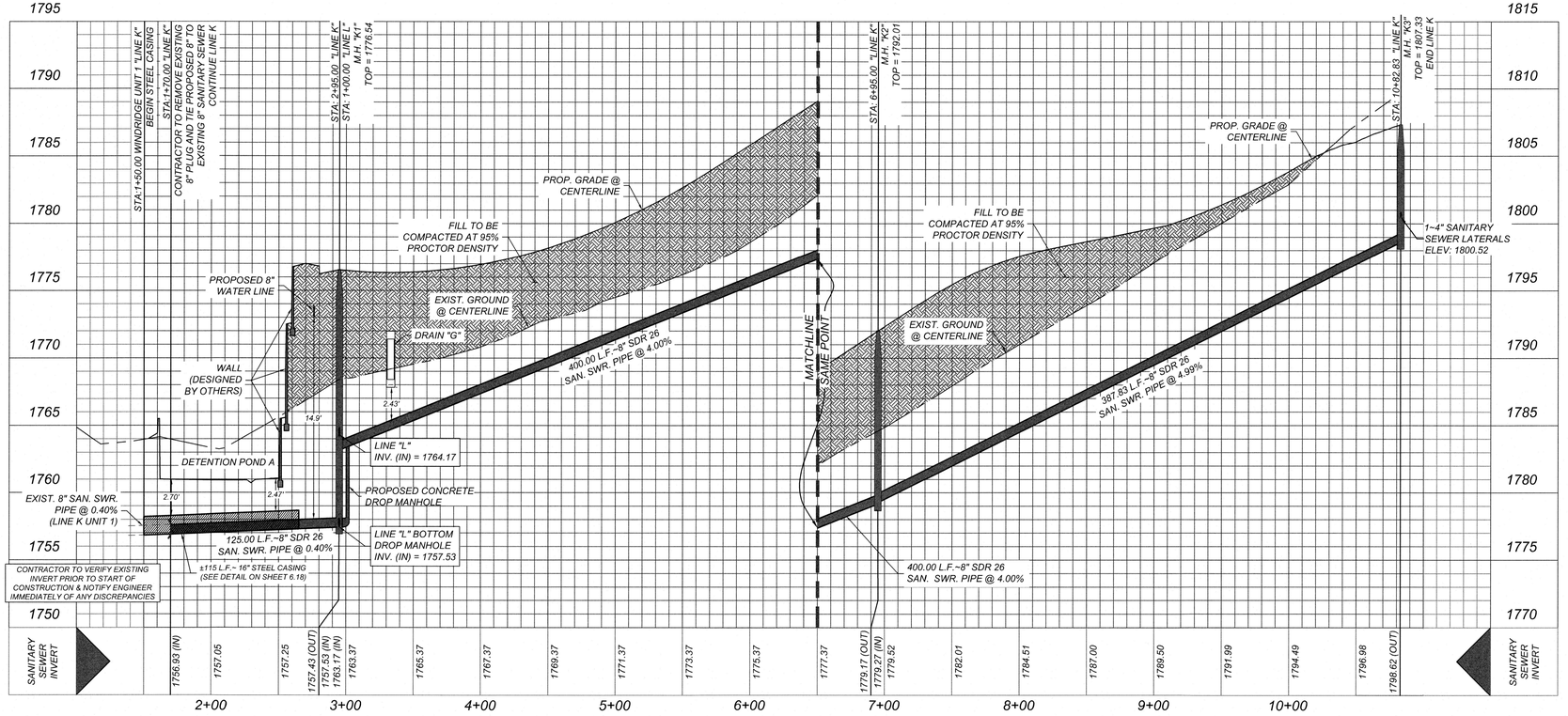
LOCATION MAP
NOT-TO-SCALE



LINE K
STA: 1+70.00 - END

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

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



LEGEND

EXISTING CONTOURS	=	1750
PROPOSED 8" WATER MAIN	=	8"W
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED CONDUIT	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	
PROPOSED SANITARY SEWER LATERAL WITH DEEP SEWER SERVICE	=	
PROPOSED SANITARY SEWER LATERAL	=	ss
RIGHT-OF-WAY	=	R.O.W.
PROPOSED ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E. G. T. TV. E
PROPOSED VARIABLE WIDTH CLEAR VISION EASEMENT	=	V.W.C.V.E.
EXISTING WATER MAIN	=	E8" W
EXISTING RECYCLED WATER MAIN	=	RCW
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	E8" SS
EXISTING SANITARY SEWER MANHOLE	=	
EXISTING OVERHEAD ELECTRIC W/POWER POLE	=	OHE
EXISTING GUY WIRE/OVERHEAD ELECTRIC	=	OHE
EXISTING FIBER OPTIC	=	FO
EXISTING GAS	=	G
EXISTING UNDERGROUND ELECTRIC	=	UGE
EXISTING LIGHT POLE	=	
EXISTING MARKER POST	=	

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____
DATE

THIS APPROVAL WILL BECOME VOID AFTER ONE YEAR OF THE INDICATED APPROVAL DATE. EXCEPTIONS TO THIS APPROVAL ARE AS FOLLOWS:

_____

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BY APPROVING THESE PLANS, THE CITY OF KERRVILLE DOES NOT ASSUME ANY LIABILITY FOR ENGINEERING DESIGN, NOR DOES APPROVAL RELEASE THE DESIGN ENGINEER FROM LIABILITY FOR CORRECTION ERRORS OR OMISSIONS IN THE DESIGN BOTH DURING AND AFTER CONSTRUCTION.

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STATE OF TEXAS
DENIS A. AVENDANO
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LICENSED
PROFESSIONAL ENGINEER
01/07/2026

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
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TBPLS Firm#: 10194350

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA
PROJECT NUMBER: 314-47-05	DRAWING NAME: SSPP-K_3144705		

SHEET TITLE:
LINE K STA. 1+70.00 - END

SHEET NUMBER:
6.8

Date: Jan 07, 2026, 2:36pm User ID: malachi.flores
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Xrefs: ADDITIONS.dwg, BASE.dwg, BASE-XREF.dwg, EXISTING.dwg, GRID.dwg, NOTES.dwg, SHEET.dwg, TABLES.dwg, TITLE.dwg, XREF-ADDITIONS.dwg, XREF-EXISTING.dwg

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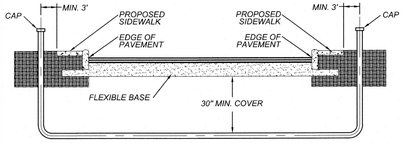

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NOTE:

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3. *SEE SHEET 6.1 FOR BENCHMARK INFORMATION.*
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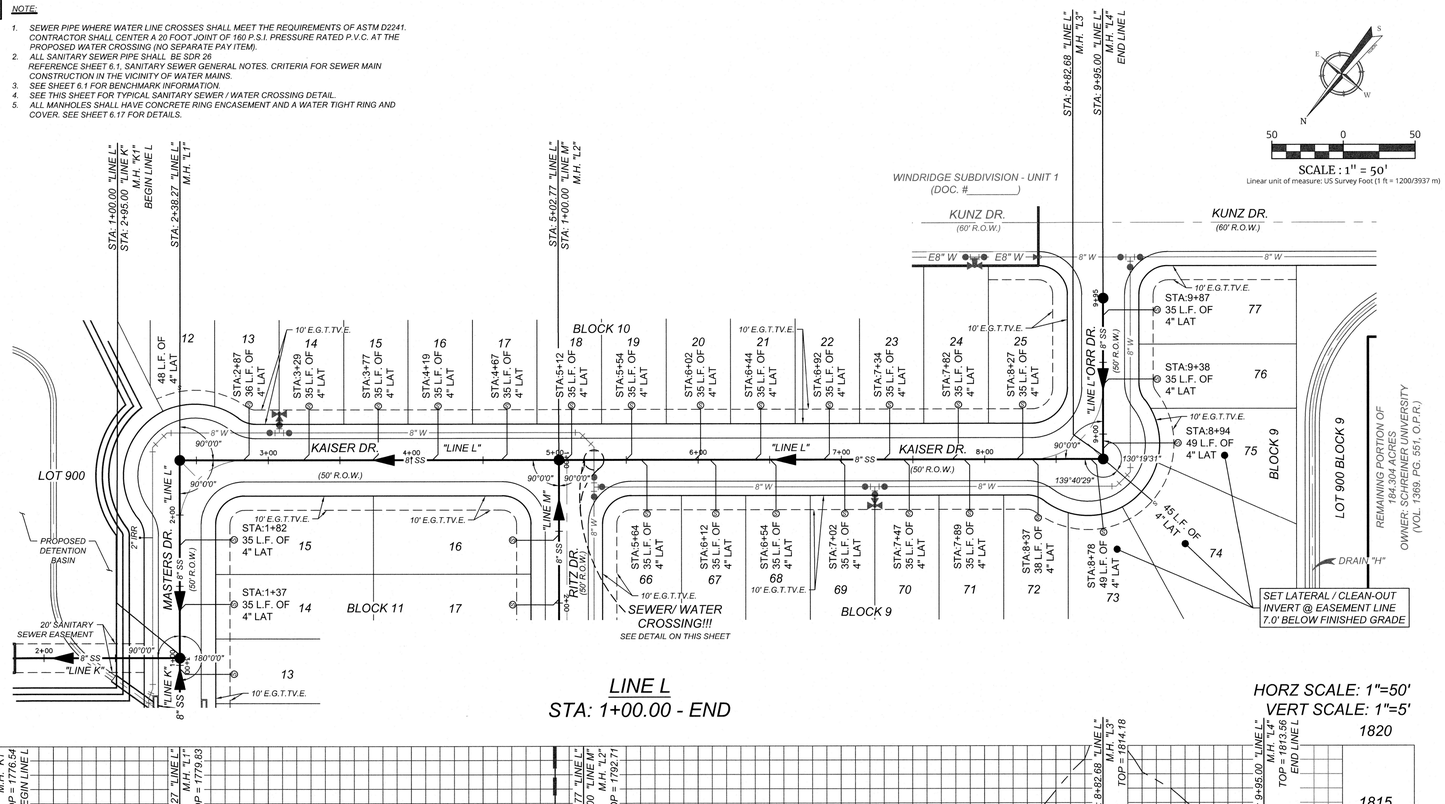
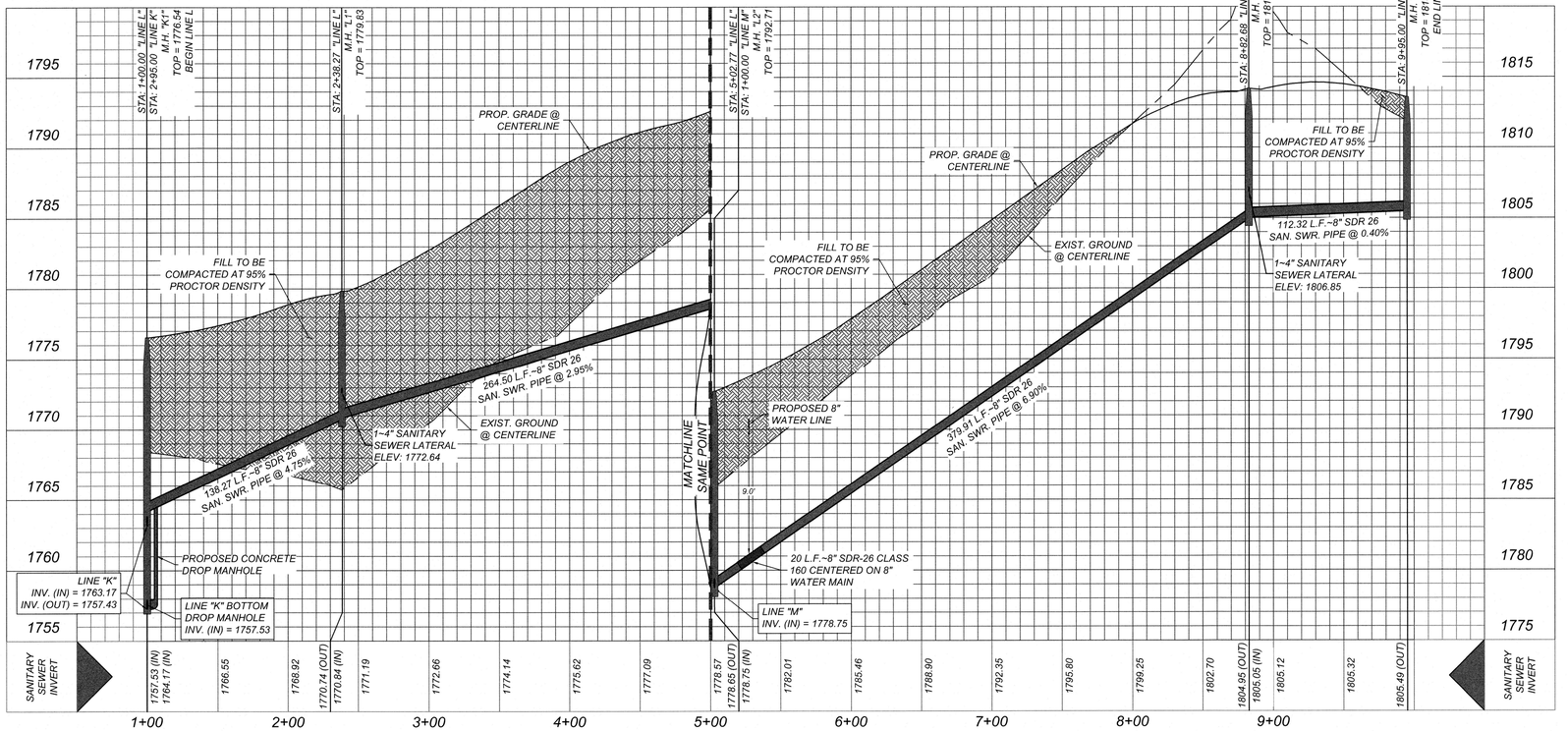
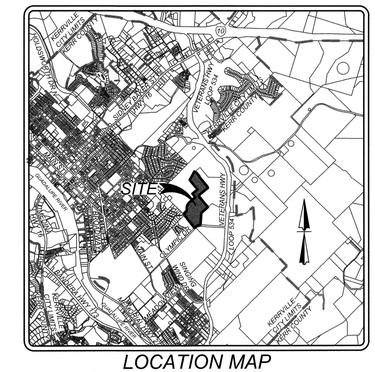


LINE L
STA: 1+00.00 - END

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



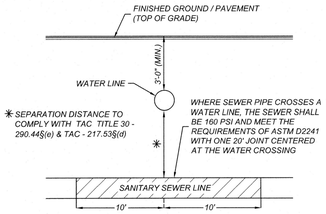


LOCATION MAP
NOT-TO-SCALE

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

LEGEND

EXISTING CONTOURS	=	1750
PROPOSED 8" WATER MAIN	=	8"W
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED CONDUIT	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	
PROPOSED SANITARY SEWER LATERAL WITH DEEP SEWER SERVICE	=	
PROPOSED SANITARY SEWER LATERAL	=	ss
RIGHT-OF-WAY	=	R.O.W.
PROPOSED ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E. G. T. TV. E
PROPOSED VARIABLE WIDTH CLEAR VISION EASEMENT	=	V.W.C.V.E.
EXISTING WATER MAIN	=	E8" W
EXISTING RECYCLED WATER MAIN	=	RCW
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	E8" SS
EXISTING SANITARY SEWER MANHOLE	=	
EXISTING OVERHEAD ELECTRIC W/POWER POLE	=	OHE
EXISTING GUY WIRE/OVERHEAD ELECTRIC	=	OHE
EXISTING FIBER OPTIC	=	FO
EXISTING GAS	=	G
EXISTING UNDERGROUND ELECTRIC	=	UGE
EXISTING LIGHT POLE	=	
EXISTING MARKER POST	=	



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

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____
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01/07/2026
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PROJECT NUMBER: 314-47-05
DRAWING NAME: SSPP-L_3144705

SHEET TITLE: LINE L STA. 1+00.00 - END

SHEET NUMBER: 6.9

Date: Jan 07, 2026, 2:40pm User ID: malachi.flores
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Design\Civil\SEWER\SSPP—L_3144705.dwg, 6.9 LINE L STA. 1+00.00 - END By MALACHI.FLORES

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

TRENCH EXCAVATION SAFETY PROTECTION

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

DRY UTILITY CONDUIT NOTE:

CONDUIT LOCATIONS SHOW 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.

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____

DATE

THIS APPROVAL WILL BECOME VOID AFTER ONE YEAR OF THE INDICATED APPROVAL DATE. EXCEPTIONS TO THIS APPROVAL ARE AS FOLLOWS:

BY APPROVING THESE PLANS, THE CITY OF KERRVILLE DOES NOT ASSUME ANY LIABILITY FOR ENGINEERING DESIGN, NOR DOES APPROVAL RELEASE THE DESIGN ENGINEER FROM LIABILITY FOR CORRECTION ERRORS OR OMISSIONS IN THE DESIGN BOTH DURING AND AFTER CONSTRUCTION.

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).
2. ALL SANITARY SEWER PIPE SHALL BE SDR 26 REFERENCE SHEET 6.1, SANITARY SEWER GENERAL NOTES. CRITERIA FOR SEWER MAIN CONSTRUCTION IN THE VICINITY OF WATER MAINS.
3. SEE SHEET 6.1 FOR BENCHMARK INFORMATION.
4. SEE THIS SHEET FOR TYPICAL SANITARY SEWER / WATER CROSSING DETAIL.
5. ALL MANHOLES SHALL HAVE CONCRETE RING ENCASEMENT AND A WATER TIGHT RING AND COVER. SEE SHEET 6.17 FOR DETAILS.

NOTE:

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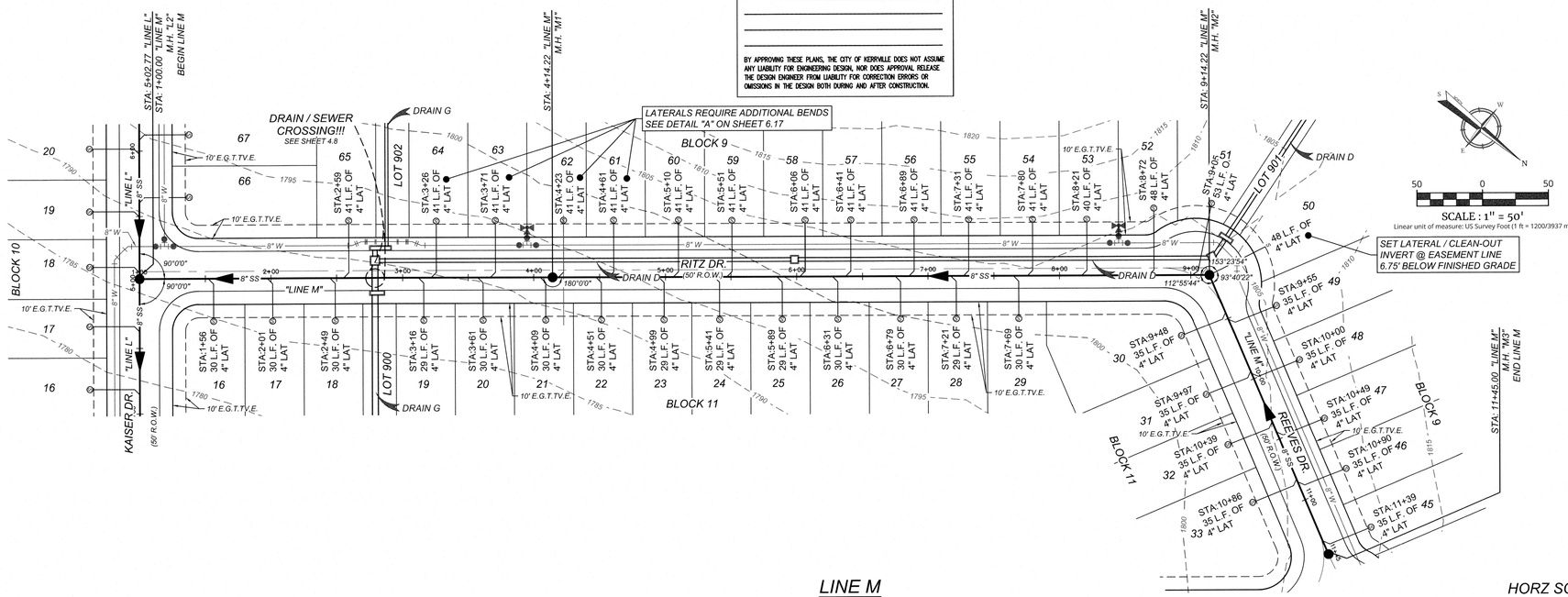
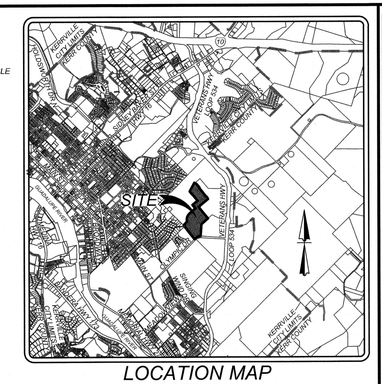


SCALE : 1" = 50'

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



LOCATION MAP
NOT-TO-SCALE

LEGEND

- EXISTING CONTOURS — 1750
- PROPOSED 8" WATER MAIN — 8"W
- PROPOSED FIRE HYDRANT
- PROPOSED WATER VALVE
- PROPOSED CONDUIT
- PROPOSED SANITARY SEWER MAIN — SS
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED SANITARY SEWER LATERAL WITH DEEP SEWER SERVICE
- PROPOSED SANITARY SEWER LATERAL
- RIGHT-OF-WAY — R.O.W.
- PROPOSED ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT — E. G. T. TV. E
- PROPOSED VARIABLE WIDTH CLEAR VISION EASEMENT — V.W.C.V.E.
- EXISTING WATER MAIN — E8" W
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- EXISTING WATER VALVE
- EXISTING SANITARY SEWER MAIN — E8" SS
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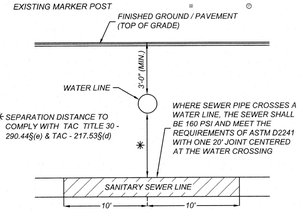
- EXISTING OVERHEAD ELECTRIC W/POWER POLE — OHE
- EXISTING GUY WIRE/OVERHEAD ELECTRIC — OHE
- EXISTING FIBER OPTIC — FO
- EXISTING GAS — G
- EXISTING UNDERGROUND ELECTRIC — UGE
- EXISTING LIGHT POLE
- EXISTING MARKER POST



TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
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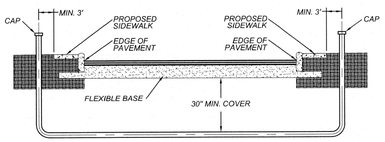

CONDUIT DETAIL
NOT TO SCALE
(NOT FOR CURB DETAIL REFERENCE)

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LINE M
STA: 1+00.00 - END

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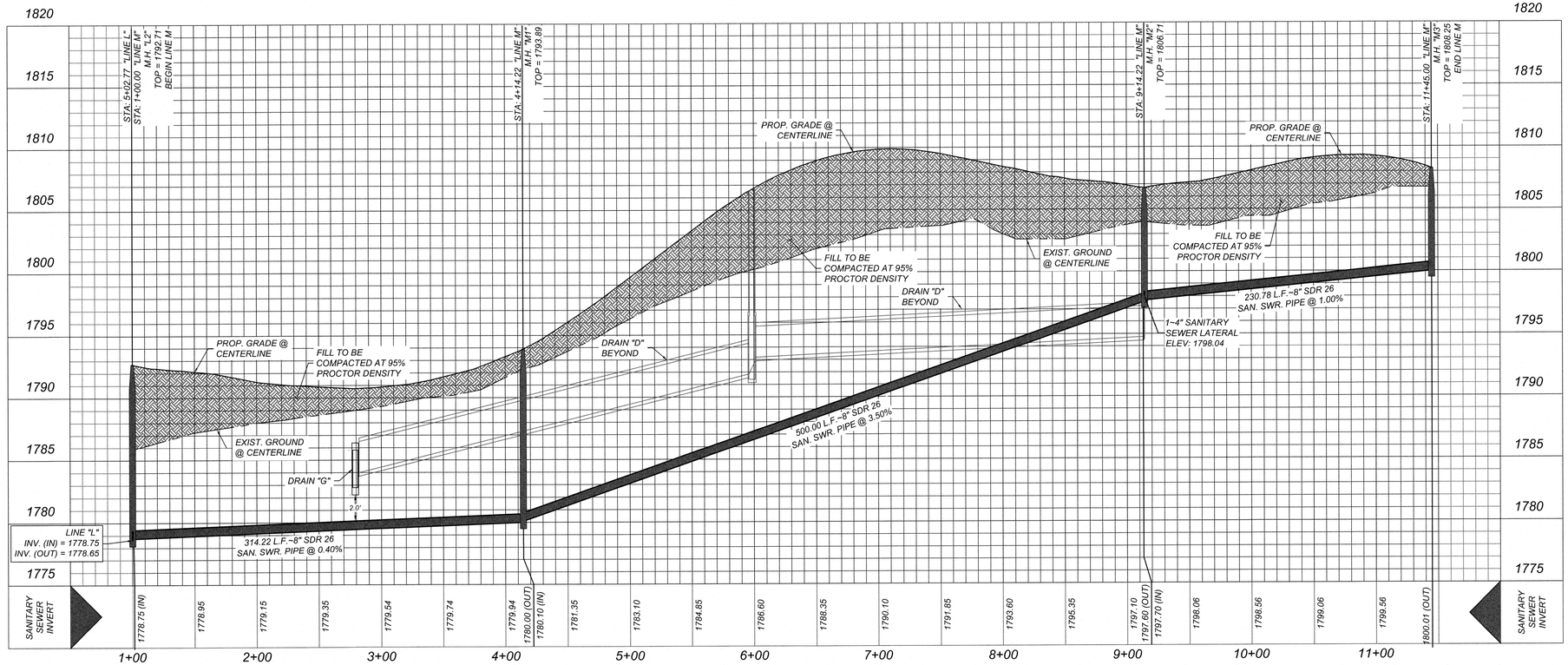

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FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER
01/07/2026

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design

NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: SSPP-M_3144705

SHEET TITLE: LINE M STA. 1+00.00 - END

SHEET NUMBER: 6.10

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

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\Design\Civil\SEWER\SSPP-M_3144705.dwg\6.10 LINE M STA. 1+00.00 - END By: MAUCHI.FLORES

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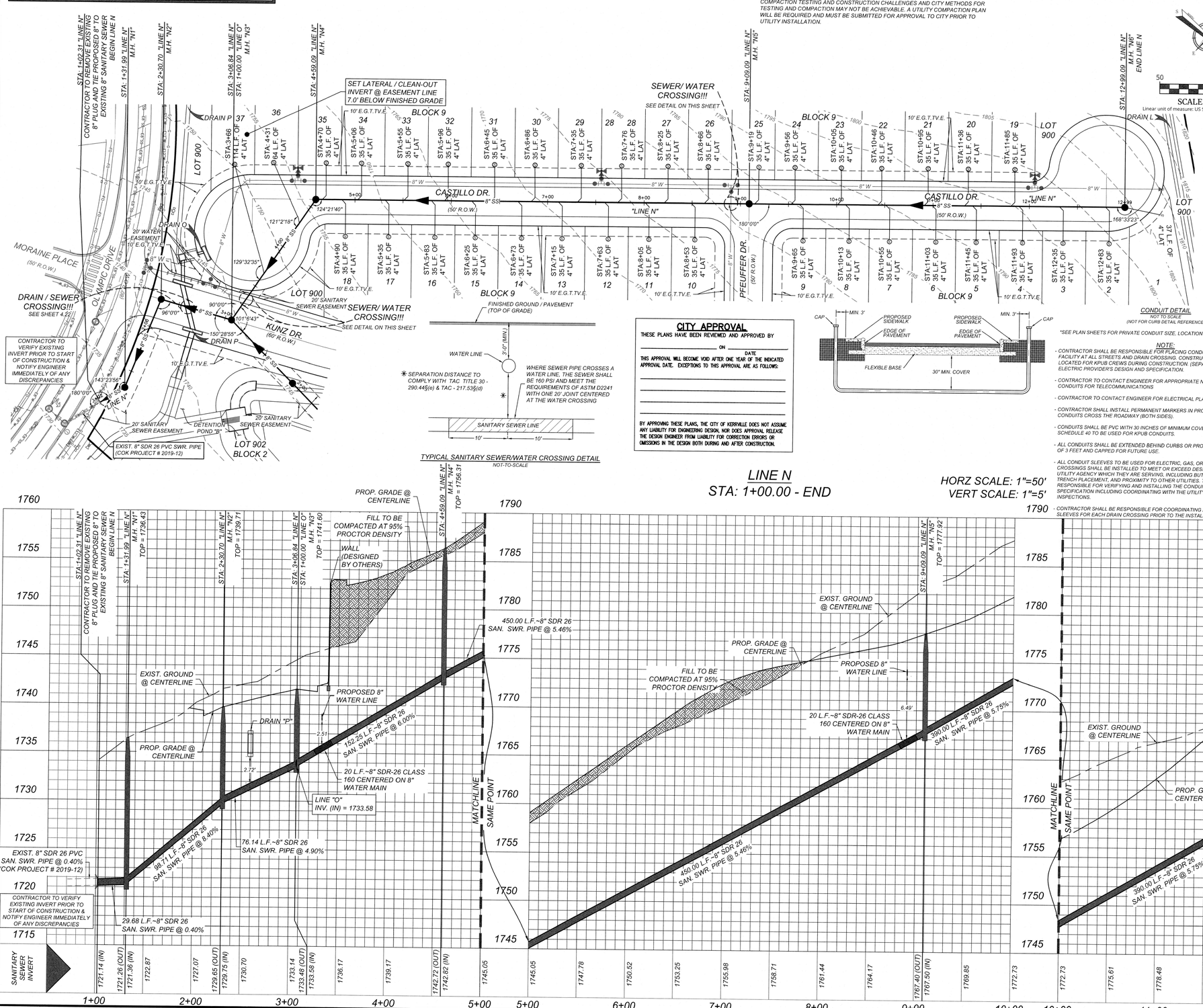

LOCATION MAP
NOT-TO-SCALE

LEGEND

EXISTING CONTOURS	=	1750
PROPOSED 8" WATER MAIN	=	8"W
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED CONDUIT	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	
PROPOSED SANITARY SEWER LATERAL WITH DEEP SEWER SERVICE	=	
PROPOSED SANITARY SEWER LATERAL	=	
RIGHT-OF-WAY	=	R.O.W.
PROPOSED ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E. G. T. TV. E
PROPOSED VARIABLE WIDTH CLEAR VISION EASEMENT	=	V.W.C.V.E.
EXISTING WATER MAIN	=	8" W
EXISTING RECYCLED WATER MAIN	=	RCW
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	8" SS
EXISTING SANITARY SEWER MANHOLE	=	
EXISTING OVERHEAD ELECTRIC W/POWER POLE	=	OHE
EXISTING GUY WIRE/OVERHEAD ELECTRIC	=	OHE
EXISTING FIBER OPTIC	=	FO
EXISTING GAS	=	G
EXISTING UNDERGROUND ELECTRIC	=	UGE
EXISTING LIGHT POLE	=	
EXISTING MARKER POST	=	

CONDUIT DETAIL
NOT TO SCALE
(NOT FOR CURB DETAIL REFERENCE)

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✳ SEPARATION DISTANCE TO COMPLY WITH TAC TITLE 30 - 290.44§(e) & TAC - 217.53§(d)

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

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

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____
DATE

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LINE N
STA: 1+00.00 - END

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

Date: Jan 05, 2026, 11:28am User ID: malachi.flores
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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER
01/07/2026
P.E.

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: SSPP-N_3144705

SHEET TITLE: LINE N STA. 1+00.00 - END

SHEET NUMBER: 6.11

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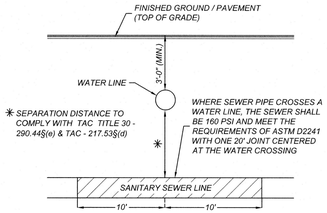

TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
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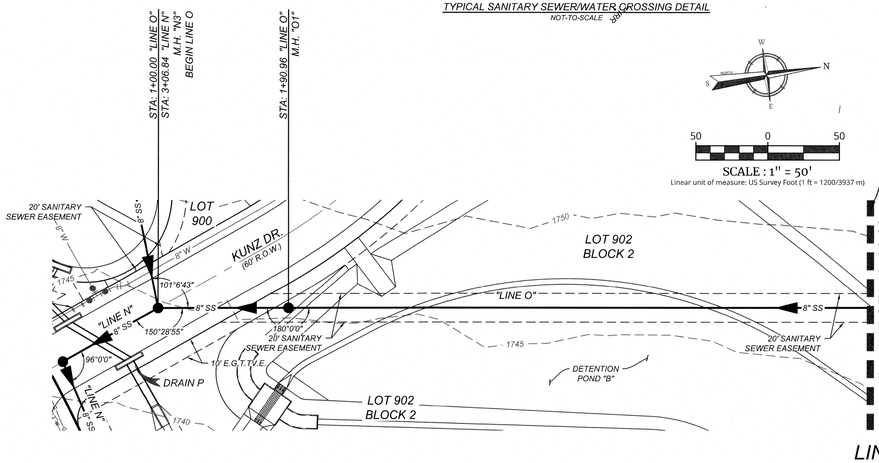
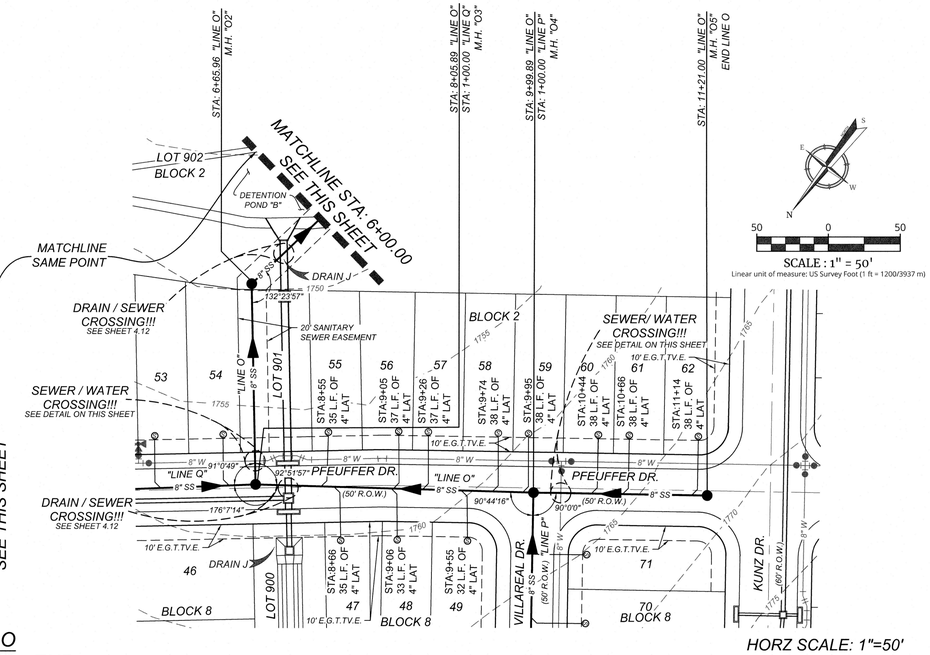
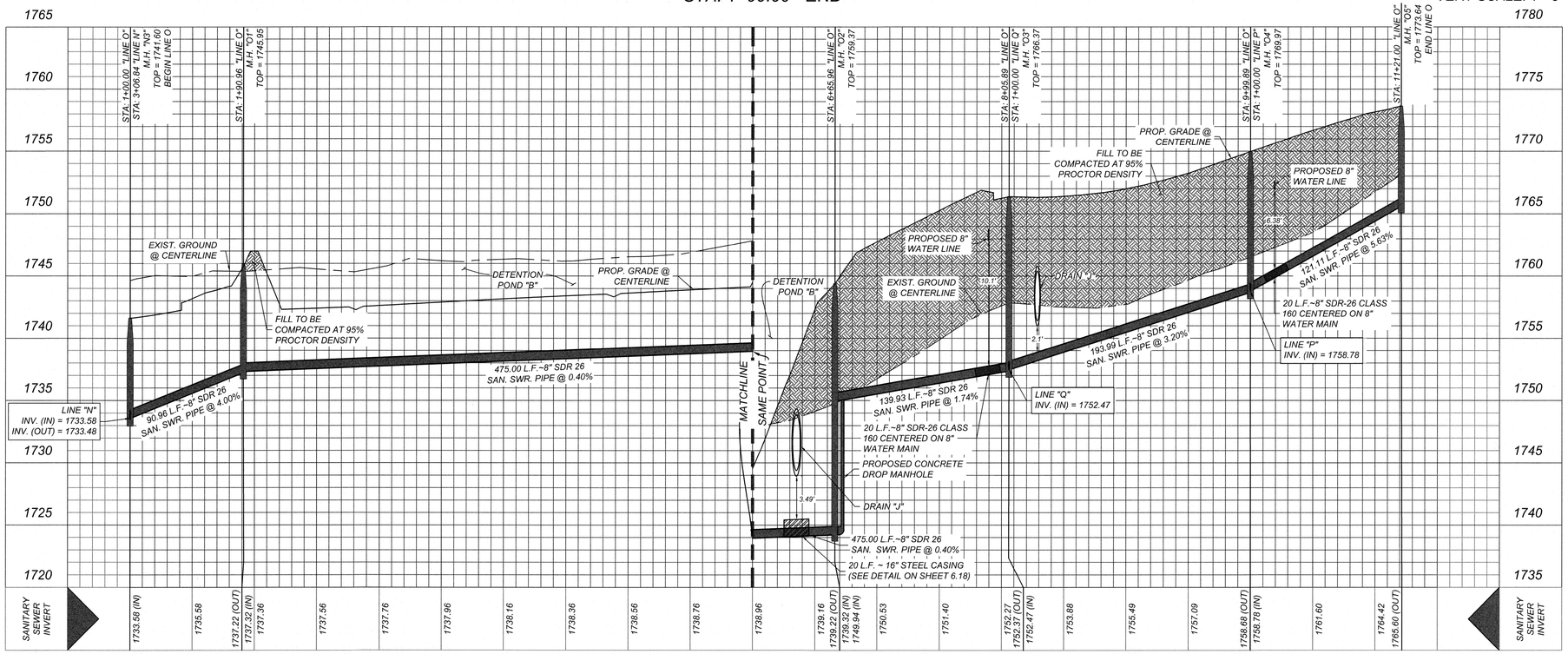
LOCATION MAP
NOT-TO-SCALE





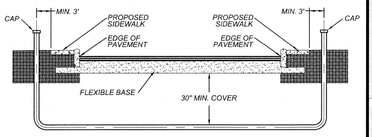
LINE O
STA: 1+00.00 - END

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



LEGEND

EXISTING CONTOURS	=	1750
PROPOSED 8" WATER MAIN	=	8"W
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED CONDUIT	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	
PROPOSED SANITARY SEWER LATERAL WITH DEEP SEWER SERVICE	=	
PROPOSED SANITARY SEWER LATERAL	=	
RIGHT-OF-WAY	=	R.O.W.
PROPOSED ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E. G. T. TV. E
PROPOSED VARIABLE WIDTH CLEAR VISION EASEMENT	=	V.W.C.V.E.
EXISTING WATER MAIN	=	E8" W
EXISTING RECYCLED WATER MAIN	=	RCW
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	E8" SS
EXISTING SANITARY SEWER MANHOLE	=	
EXISTING OVERHEAD ELECTRIC W/POWER POLE	=	OHE — OHE
EXISTING GUY WIRE/OVERHEAD ELECTRIC	=	OHE
EXISTING FIBER OPTIC	=	FO — FO
EXISTING GAS	=	G — G
EXISTING UNDERGROUND ELECTRIC	=	UGE — UGE
EXISTING LIGHT POLE	=	
EXISTING MARKER POST	=	



CONDUIT DETAIL
NOT TO SCALE
(NOT FOR CURB DETAIL REFERENCE)

*SEE PLAN SHEETS FOR PRIVATE CONDUIT SIZE, LOCATION AND NUMBER OF CONDUITS

NOTE:

- CONTRACTOR SHALL BE RESPONSIBLE FOR PLACING CONDUIT SLEEVES FOR EACH KPUB FACILITY AT ALL STREETS AND DRAIN CROSSING. CONSTRUCTION SLEEVES MUST ALSO BE LOCATED FOR KPUB CREWS DURING CONSTRUCTION, (SEPARATE ITEM) SEE FINAL ELECTRIC PROVIDER'S DESIGN AND SPECIFICATION.
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CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____

ON _____

DATE

THIS APPROVAL WILL BECOME VOID AFTER ONE YEAR OF THE INDICATED APPROVAL DATE. EXCEPTIONS TO THIS APPROVAL ARE AS FOLLOWS:

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Formerly Known as KFW ENGINEERS + SURVEYING

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

REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER
01/09/2026
P.E.

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194350

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: SSPP-O_3144705

SHEET TITLE: LINE O STA. 1+00.00 - END

SHEET NUMBER: 6.12

Date: Jan 07, 2026, 2:50pm User ID: malachi.flores
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NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

TRENCH EXCAVATION SAFETY PROTECTION

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3. *ENSURE ALL DRIVEWAY APPROACHES ARE BUILT IN GENERAL ACCORDANCE WITH A.D.A. SPECIFICATIONS.*
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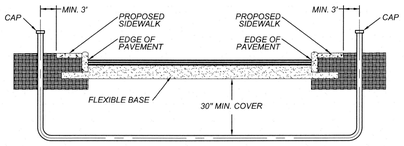

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NOT TO SCALE
(NOT FOR CURB DETAIL REFERENCE)

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NOTE:

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3. *SEE SHEET 6.1 FOR BENCHMARK INFORMATION.*
4. *SEE THIS SHEET FOR TYPICAL SANITARY SEWER / WATER CROSSING DETAIL.*
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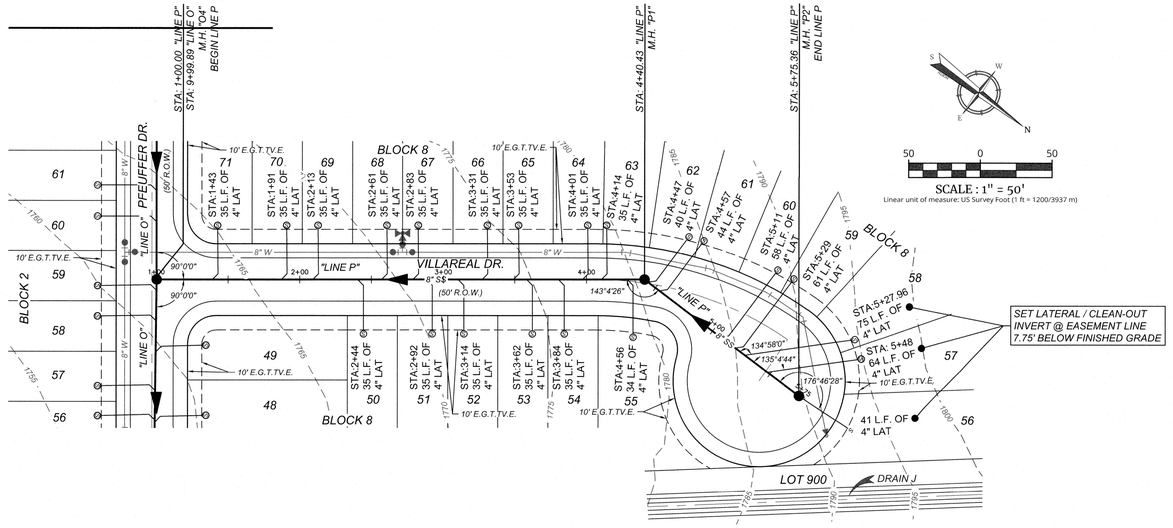
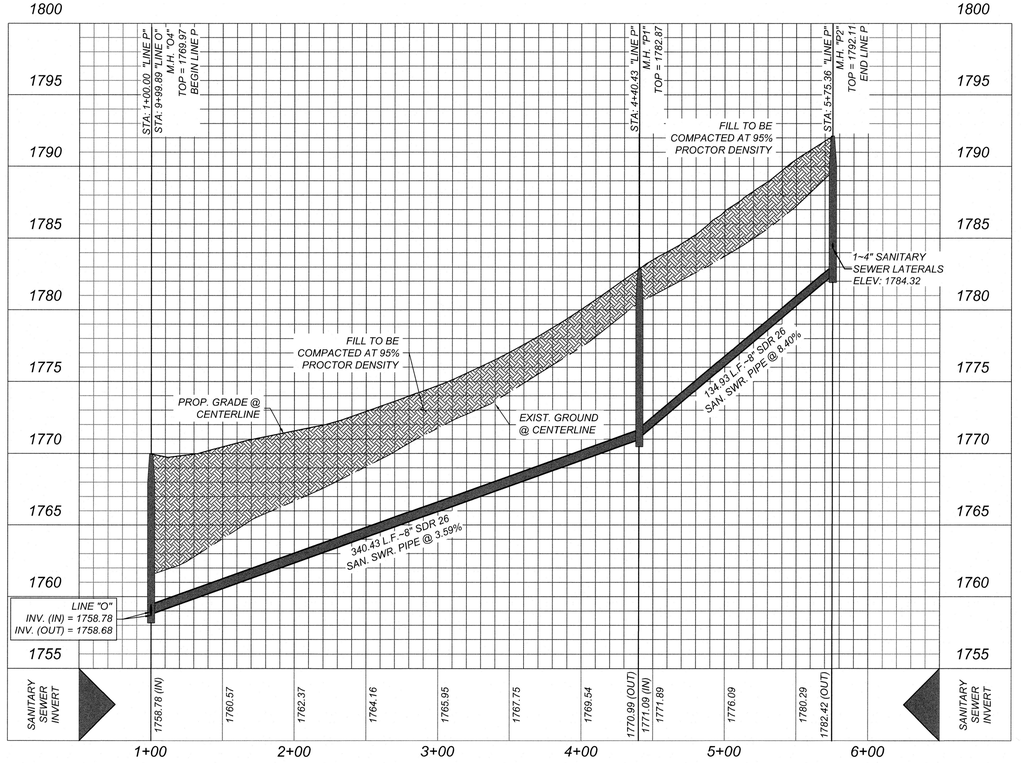
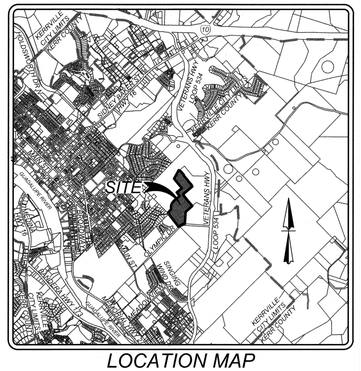
DRY UTILITY CONDUIT NOTE!:
CONDUIT LOCATIONS SHOWN ON PLAN ARE FOR GEOGRAPHICAL PURPOSES ONLY AND ARE APPROXIMATE. CONTRACTOR TO INSTALL PROPOSED CONDUITS IN ACCORDANCE WITH DRY UTILITY PURVEYOR'S SPECIFICATIONS. CONTRACTOR TO VERIFY THE CONDUIT LOCATIONS AND SIZES BASED ON THE DRY UTILITY PURVEYOR'S PLAN.



LINE P
STA: 1+00.00 - END

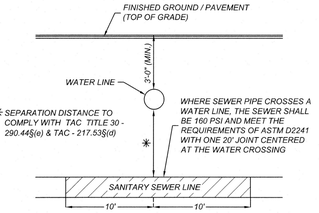
HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'





LOCATION MAP
NOT-TO-SCALE

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



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

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____ DATE.

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_____

_____

_____

_____

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

REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER
01/07/2026

WINDRIDGE SUBDIVISION – UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: SSPP-P_3144705

SHEET TITLE: LINE P STA. 1+00.00 - END

SHEET NUMBER: 6.13

Date: Jan 05, 2026, 12:36pm User ID: mdachi.flores
File: U:\Projects\314\47\05\Design\Civil\SEWER\SSPP-P_3144705.dwg
Plotted on Arch full bleed D (24.00in x 36.00in) by Mdachi.Flores

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

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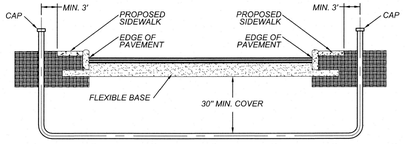

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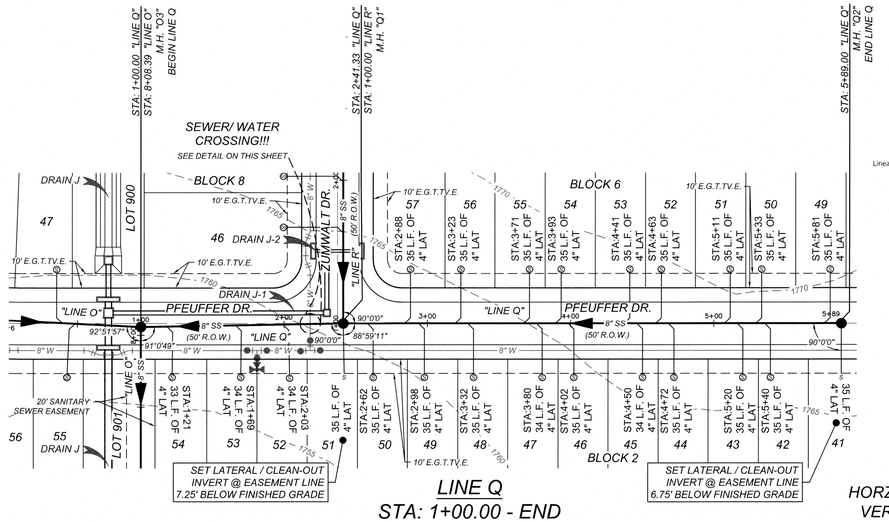
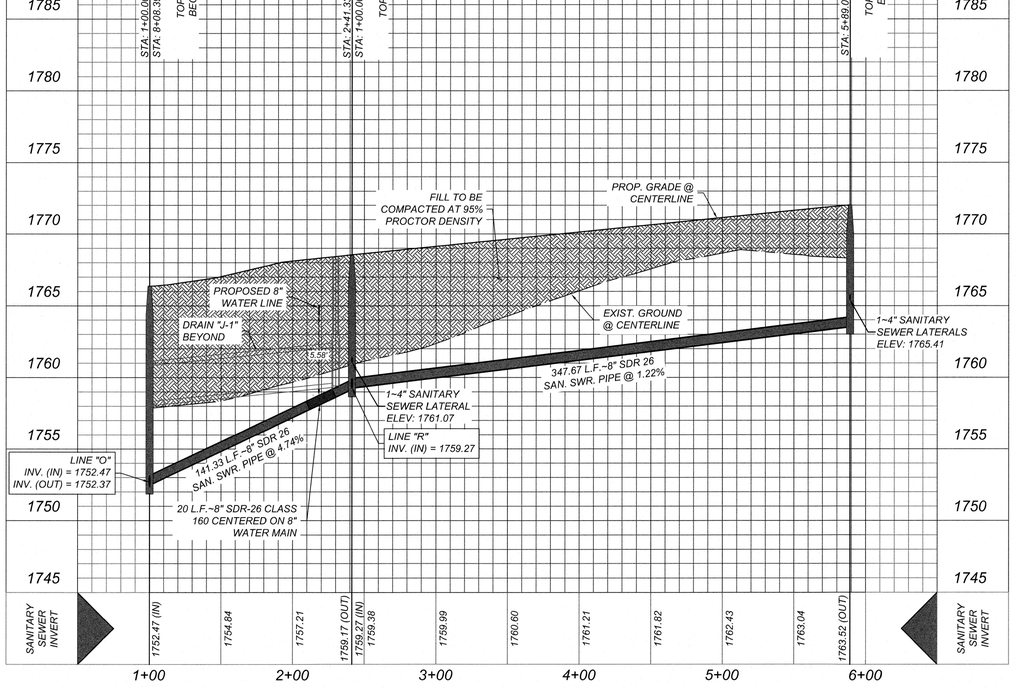
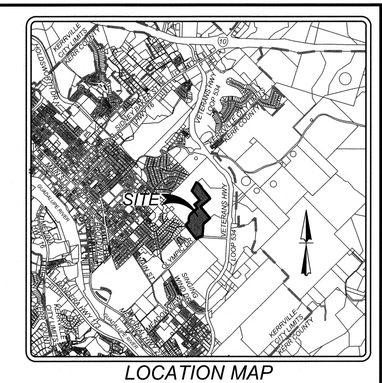


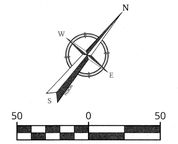
LINE Q
STA: 1+00.00 - END

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





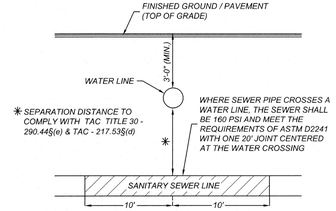
LOCATION MAP
NOT-TO-SCALE



50 0 50
SCALE : 1" = 50'
Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

LEGEND

EXISTING CONTOURS	=	1750
PROPOSED 6" WATER MAIN	=	8"W
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED CONDUIT	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	
PROPOSED SANITARY SEWER LATERAL WITH DEEP SEWER SERVICE	=	
PROPOSED SANITARY SEWER LATERAL	=	
RIGHT-OF-WAY	=	R.O.W.
PROPOSED ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E. G. T. TV. E
PROPOSED VARIABLE WIDTH CLEAR VISION EASEMENT	=	V.W.C.V.E.
EXISTING WATER MAIN	=	8" W
EXISTING RECYCLED WATER MAIN	=	RCW
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	8" SS
EXISTING SANITARY SEWER MANHOLE	=	
EXISTING OVERHEAD ELECTRIC W/POWER POLE	=	OHE
EXISTING GUY WIRE/OVERHEAD ELECTRIC	=	OHE
EXISTING FIBER OPTIC	=	FO
EXISTING GAS	=	G
EXISTING UNDERGROUND ELECTRIC	=	UGE
EXISTING LIGHT POLE	=	
EXISTING MARKER POST	=	



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

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____ DATE

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ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE
FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
DENIS A AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER
01/07/2026

WINDRIDGE SUBDIVISION - UNIT 2
FOR
LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm# F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: SSPP-Q_3144705

SHEET TITLE:
LINE Q STA. 1+00.00 - END

SHEET NUMBER:
6.14

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Jan 07, 2026, 2:56pm User ID: malachi.flores
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Plotted on Arrow50P2 24x36 Bond & Linen (D) 1:1 Model Plot by MALACHI.FLORES

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.

DRY UTILITY CONDUIT NOTE:

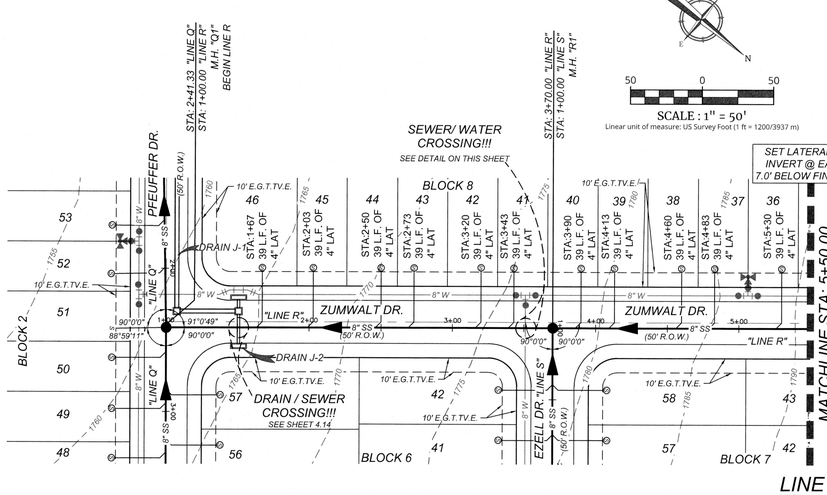
CONDUIT LOCATIONS SHOW ON PLAN ARE FOR GEOGRAPHICAL PURPOSES ONLY AND ARE APPROXIMATE. CONTRACTOR TO INSTALL PROPOSED CONDUITS IN ACCORDANCE WITH DRY UTILITY PURVEYOR'S SPECIFICATIONS. CONTRACTOR TO VERIFY THE CONDUIT LOCATIONS AND SIZES BASED ON THE DRY UTILITY PURVEYOR'S PLAN.

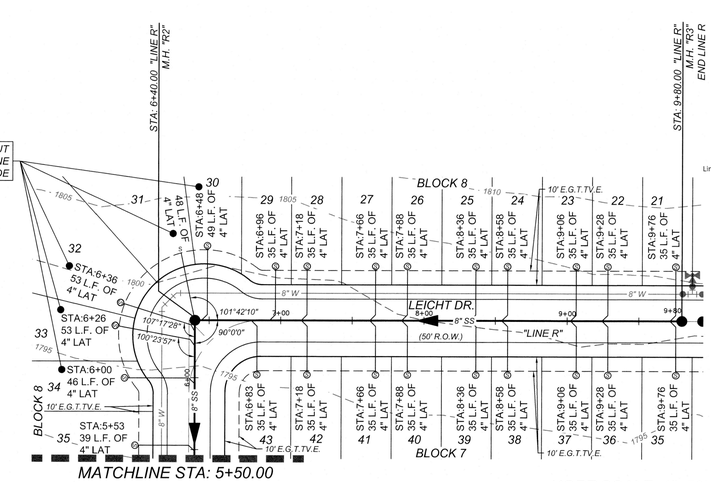
NOTE:

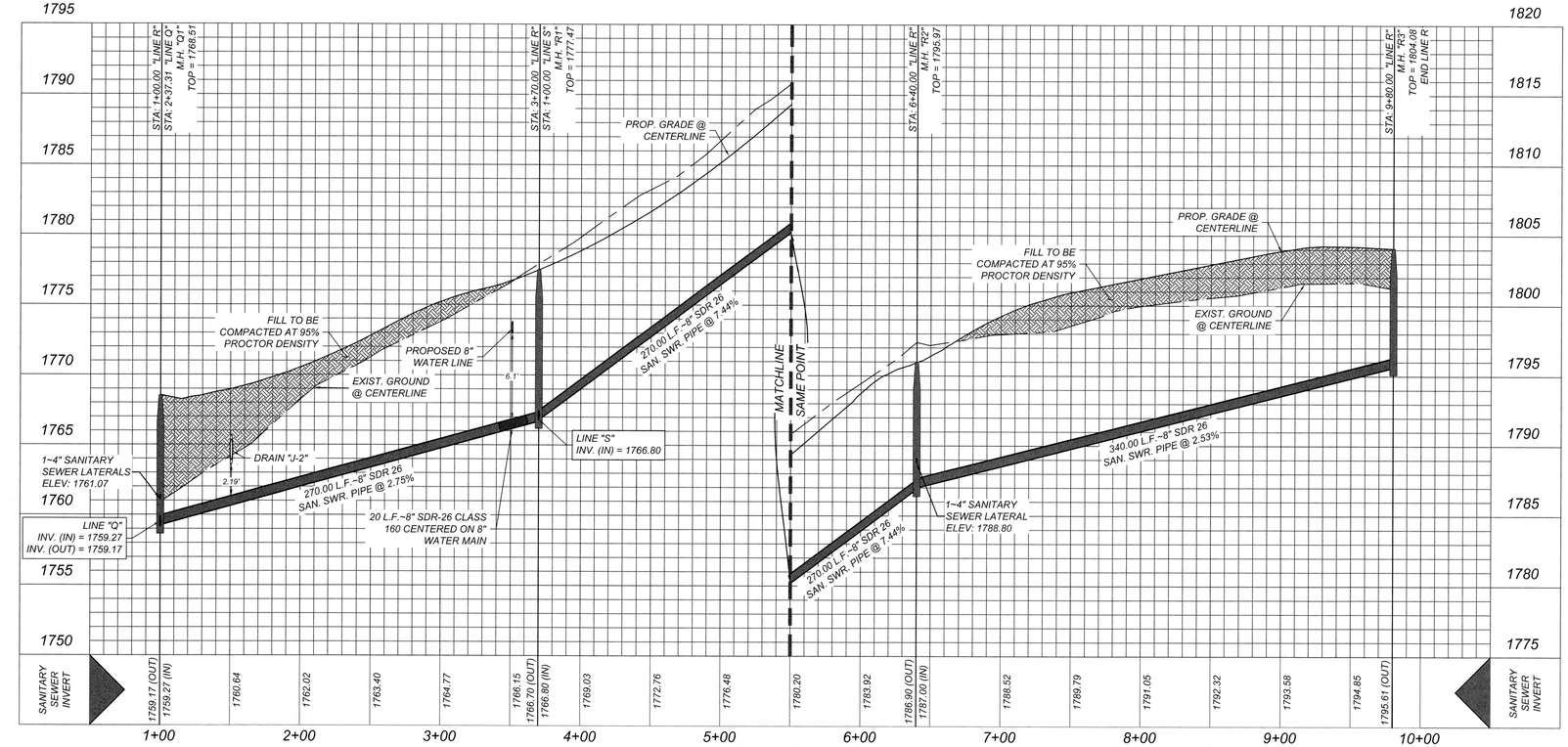
1. ALL UTILITIES TO BE CONSTRUCTED PRIOR TO STREETS
2. NO VALVES, HYDRANTS, CLEANOUTS, ETC. SHALL BE CONSTRUCTED WITHIN CURBS, SIDEWALKS, OR DRIVEWAYS. THE BUILDER AND/OR DEVELOPER WILL BE RESPONSIBLE FOR REPAIR TO ROADWAY AND UTILITY INFRASTRUCTURE IF PUBLIC UTILITIES ARE INSTALLED INCORRECTLY.
3. ENSURE ALL DRIVEWAY APPROACHES ARE BUILT IN GENERAL ACCORDANCE WITH A.D.A. SPECIFICATIONS.
4. THIS PROJECT INCLUDES UTILITY INSTALLATIONS GREATER THAN 5-FEET IN DEPTH LOCATED IN PUBLIC RIGHT-OF-WAY OR EASEMENTS. DEEP TRENCHES POSE COMPACTION TESTING AND CONSTRUCTION CHALLENGES AND CITY METHODS FOR TESTING AND COMPACTION MAY NOT BE ACHIEVABLE. A UTILITY COMPACTION PLAN WILL BE REQUIRED AND MUST BE SUBMITTED FOR APPROVAL TO CITY PRIOR TO UTILITY INSTALLATION.

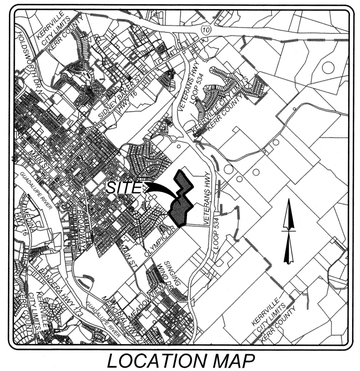
NOTE:

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).
2. ALL SANITARY SEWER PIPE SHALL BE SDR 26
   REFERENCE SHEET 6.1, SANITARY SEWER GENERAL NOTES. CRITERIA FOR SEWER MAIN CONSTRUCTION IN THE VICINITY OF WATER MAINS.
3. SEE SHEET 6.1 FOR BENCHMARK INFORMATION.
4. SEE THIS SHEET FOR TYPICAL SANITARY SEWER / WATER CROSSING DETAIL.
5. ALL MANHOLES SHALL HAVE CONCRETE RING ENCASEMENT AND A WATER TIGHT RING AND COVER. SEE SHEET 6.17 FOR DETAILS.









LOCATION MAP
NOT-TO-SCALE

LEGEND

EXISTING CONTOURS	=	— — 1750 — —
PROPOSED 8" WATER MAIN	=	8"W
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED CONDUIT	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	
PROPOSED SANITARY SEWER LATERAL WITH DEEP SEWER SERVICE	=	
PROPOSED SANITARY SEWER LATERAL	=	
RIGHT-OF-WAY	=	R.O.W.
PROPOSED ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E. G. T. TV. E
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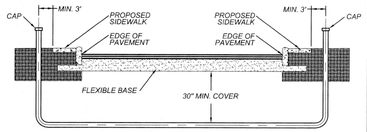
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	—E8" SS—
EXISTING SANITARY SEWER MANHOLE	=	
EXISTING OVERHEAD ELECTRIC W/POWER POLE	=	—OHE— — OHE—
EXISTING GUY WIRE/OVERHEAD ELECTRIC	=	—OHE—
EXISTING FIBER OPTIC	=	—FO— — FO—
EXISTING GAS	=	—G— — G—
EXISTING UNDERGROUND ELECTRIC	=	—UGE— —UGE—
EXISTING LIGHT POLE	=	
EXISTING MARKER POST	=	



CONDUIT DETAIL
NOT TO SCALE
(NOT FOR CURB DETAIL REFERENCE)

*SEE PLAN SHEETS FOR PRIVATE CONDUIT SIZE, LOCATION AND NUMBER OF CONDUITS

NOTE:

- CONTRACTOR SHALL BE RESPONSIBLE FOR PLACING CONDUIT SLEEVES FOR EACH KPUB FACILITY AT ALL STREETS AND DRAIN CROSSING. CONSTRUCTION SLEEVES MUST ALSO BE LOCATED FOR KPUB CREWS DURING CONSTRUCTION. (SEPARATE ITEM) SEE FINAL ELECTRIC PROVIDER'S DESIGN AND SPECIFICATION.
- CONTRACTOR TO CONTACT ENGINEER FOR APPROPRIATE NUMBER AND SIZE OF CONDUITS FOR TELECOMMUNICATIONS
- CONTRACTOR TO CONTACT ENGINEER FOR ELECTRICAL PLANS
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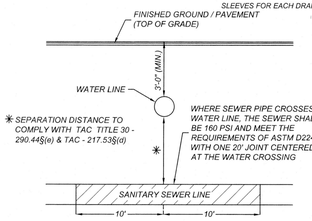
- CONDUITS SHALL BE PVC WITH 30 INCHES OF MINIMUM COVER FROM STREET SUBGRADE. SCHEDULE 40 TO BE USED FOR KPUB CONDUITS.
- ALL CONDUITS SHALL BE EXTENDED BEHIND CURBS OR PROPOSED SIDEWALKS A MINIMUM OF 3 FEET AND CAPPED FOR FUTURE USE.
- ALL CONDUIT SLEEVES TO BE USED FOR ELECTRIC, GAS, OR TELECOMMUNICATION UTILITY CROSSINGS SHALL BE INSTALLED TO MEET OR EXCEED DESIGN REQUIREMENTS FOR THE UTILITY AGENCY WHICH THEY ARE SERVING, INCLUDING BUT NOT LIMITED TO THE DEPTH, TRENCH PLACEMENT, AND PROXIMITY TO OTHER UTILITIES. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR VERIFYING AND INSTALLING THE CONDUIT SLEEVES TO MEET THESE SPECIFICATION INCLUDING COORDINATING WITH THE UTILITY AGENCY FOR ANY REQUIRED INSPECTIONS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND INSTALLING CONDUIT SLEEVES FOR EACH DRAIN CROSSING PRIOR TO THE INSTALLATION OF EACH DRAIN.



✳ SEPARATION DISTANCE TO COMPLY WITH TAC TITLE 30 - 290.44§(e) & TAC - 217.53§(d)

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

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

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____
DATE

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

REV	DESCRIPTION	DRAWN BY	DATE

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER
01/07/2026

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER:	DRAWING NAME:
314-47-05	SSPP-R_3144705

SHEET TITLE:
LINE R STA. 1+00.00 - END

SHEET NUMBER:
6.15

Date: Jan 05, 2026, 1:21pm User ID: mdoteh.flores
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Plotter: \\Projects\314705\Civil\Design\Civil\SEWER\ Model: ANSI full bleed D (24.00 x 36.00 Inches)

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

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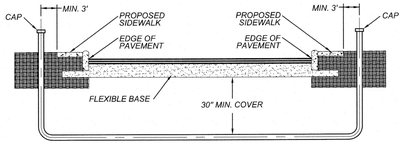

CONDUIT DETAIL
NOT TO SCALE
(NOT FOR CURB DETAIL REFERENCE)

**SEE PLAN SHEETS FOR PRIVATE CONDUIT SIZE, LOCATION AND NUMBER OF CONDUITS*

NOTE:

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3. *SEE SHEET 6.1 FOR BENCHMARK INFORMATION.*
4. *SEE THIS SHEET FOR TYPICAL SANITARY SEWER / WATER CROSSING DETAIL.*
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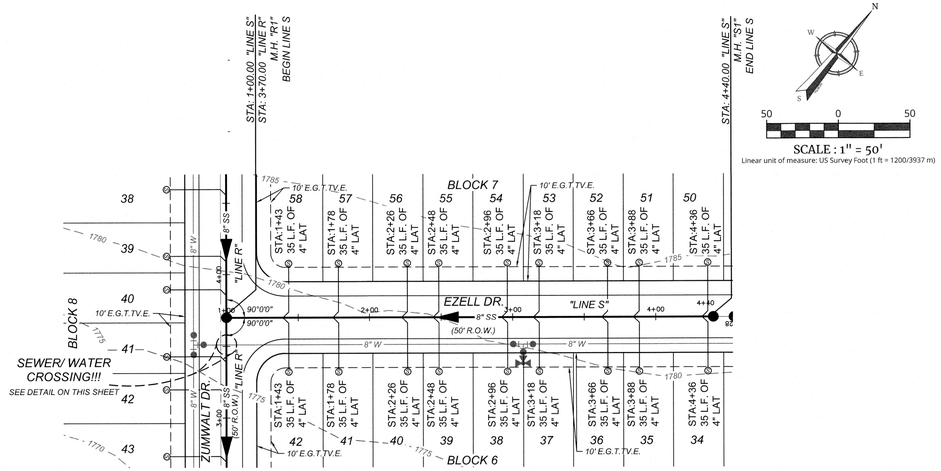

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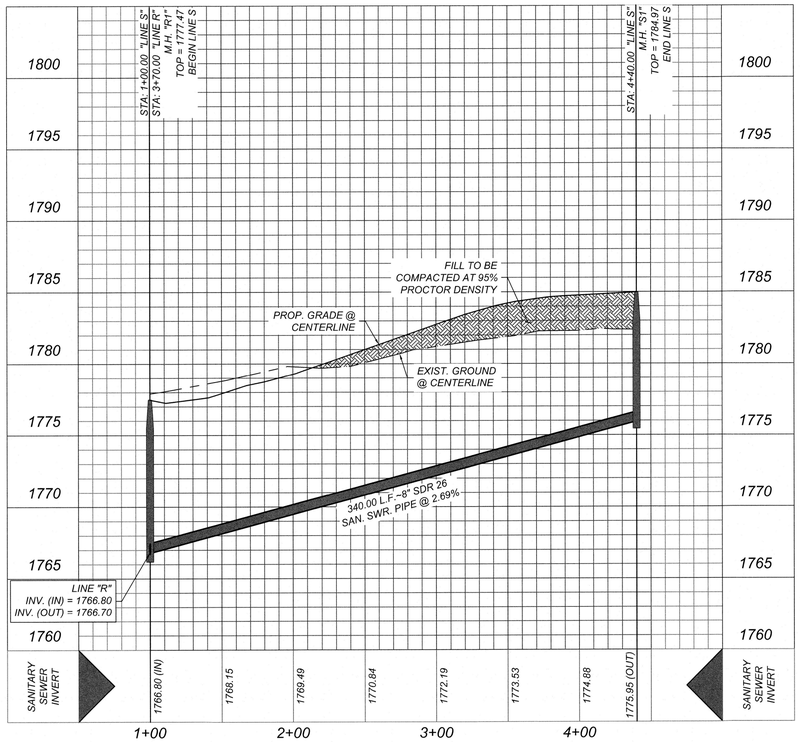
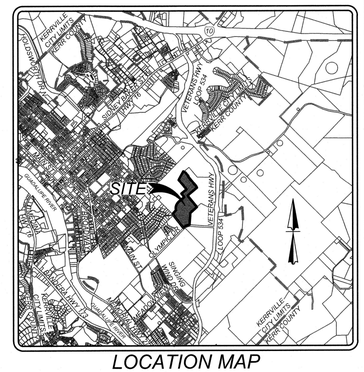
HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'





LOCATION MAP
NOT-TO-SCALE

LEGEND

EXISTING CONTOURS	=	1750
PROPOSED 8" WATER MAIN	=	8"W
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED CONDUIT	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	
PROPOSED SANITARY SEWER LATERAL WITH DEEP SEWER SERVICE	=	
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EXISTING WATER MAIN	=	–E8" W–
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EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
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EXISTING SANITARY SEWER MANHOLE	=	
EXISTING OVERHEAD ELECTRIC W/POWER POLE	=	OHE OHE
EXISTING GUY WIRE/OVERHEAD ELECTRIC	=	OHE
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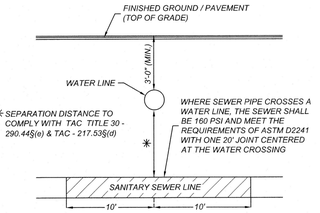

TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
NOT-TO-SCALE

CITY APPROVAL

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_____ ON _____ DATE

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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER

12/29/2025

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER:	DRAWING NAME:
314-47-05	SSPP-S_3144705

SHEET TITLE:
LINE S STA. 1+00.00 - END

SHEET NUMBER:
6.16

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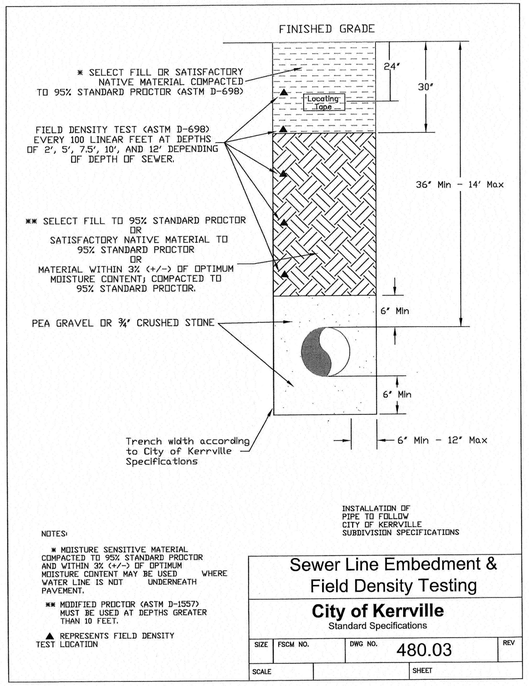


INSTALLATION OF PIPE TO FOLLOW CITY OF KERRVILLE SUBDIVISION SPECIFICATIONS

NOTES:

* MOISTURE SENSITIVE MATERIAL COMPACTED TO 95% STANDARD PROCTOR AND WITHIN 3% (+/-) OF OPTIMUM MOISTURE CONTENT MAY BE USED WHERE WATER LINE IS NOT UNDERNEATH PAVEMENT.

** MODIFIED PROCTOR (ASTM D-1557) MUST BE USED AT DEPTHS GREATER THAN 10 FEET.

▲ REPRESENTS FIELD DENSITY TEST LOCATION

Sewer Line Embedment & Field Density Testing

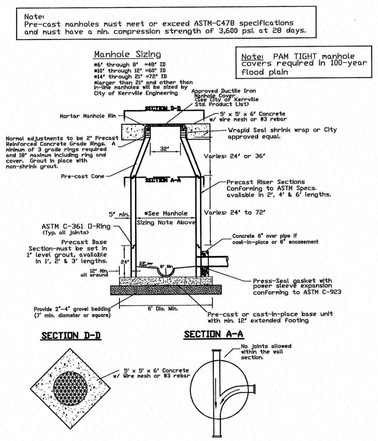
City of Kerrville
Standard Specifications

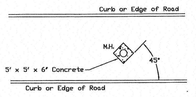
SIZE	FSCM NO.	DWG NO.	REV
		480.03	
SCALE		SHEET	

Note:
Pre-cast manholes must meet or exceed ASTM-C478 specifications and must have a min. compression strength of 3,600 psi at 28 days.

Manhole Sizing
*6" through 8" =48" ID
*10" through 12" =60" ID
*14" through 21" =72" ID
*Larger than 21" and other than in-line manholes will be sized by City of Kerrville Engineering

Note: PAM TIGHT manhole covers required in 100-year flood plain





MANHOLE POSITION IN PAVEMENT

Concrete Manhole Detail

City of Kerrville
Standard Specifications

SIZE	FSCM NO.	DWG NO.	REV
		480.04A	
SCALE NTS		SHEET	

Note:
Pre-cast manholes must meet or exceed ASTM-C478 specifications and must have a min. compression strength of 3,600 psi at 28 days.

Manhole Sizing
*6" through 8" =48" ID
*10" through 12" =60" ID
*14" through 21" =72" ID
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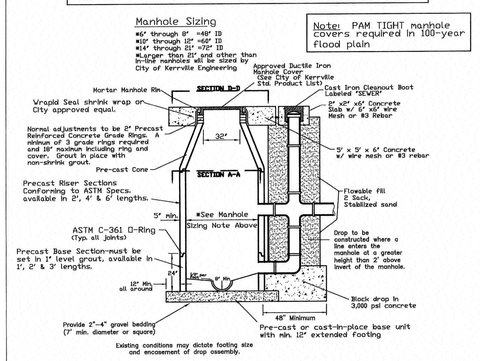
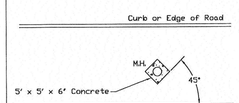
Note: PAM TIGHT manhole covers required in 100-year flood plain



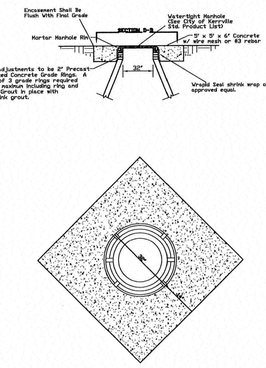


MANHOLE POSITION IN PAVEMENT

Concrete Drop Manhole Detail

City of Kerrville
Standard Specifications

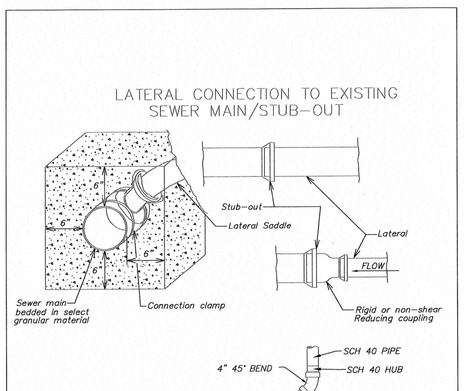
SIZE	FSCM NO.	DWG NO.	REV
		480.05A	
SCALE NTS		SHEET	



Out of Pavement Manhole Ring Encasement Detail

City of Kerrville
Standard Specifications

SIZE	FSCM NO.	DWG NO.	REV
		480.05B	
SCALE NTS		SHEET	

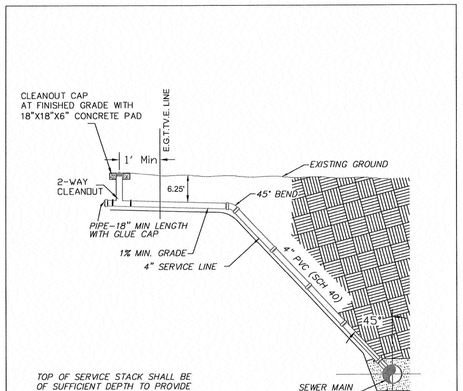


Note:
Service taps to be installed at either 9:00 thru 11:00 or 1:00 thru 3:00 o'clock positions.

Sewer Tap Detail

City of Kerrville
Standard Specifications

SIZE	FSCM NO.	DWG NO.	REV
		480.09	
SCALE		SHEET	



TOP OF SERVICE STACK SHALL BE OF SUFFICIENT DEPTH TO PROVIDE ADEQUATE FALL FROM THE FACILITY TO BE SERVED

IF CLEANOUT IS INSTALLED AT OR IN DRIVEWAY, CAST IRON OR BRONZE CLEANOUT BOX PLACED IN CONCRETE FLUSH WITH SURFACE OF DRIVE

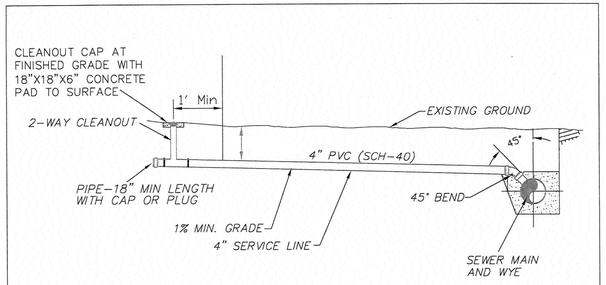
CONNECTION DOWN TO 7'-0" STANDARD SERVICE CONNECTION

DEEP SERVICE CONNECTIONS APPLY WHEN DEEPER THAN 7'-0"

Deep Sewer Service Details

City of Kerrville
Standard Specifications

SIZE	FSCM NO.	DWG NO.	REV
		480.11	
SCALE		SHEET	



IF CLEANOUT IS INSTALLED AT OR IN DRIVEWAY, CAST IRON OR BRONZE CLEANOUT BOX PLACED IN CONCRETE FLUSH WITH SURFACE OF DRIVE

TOP OF SERVICE STACK SHALL BE OF SUFFICIENT DEPTH TO PROVDE ADEQUATE FALL FROM THE FACILITY TO BE SERVED

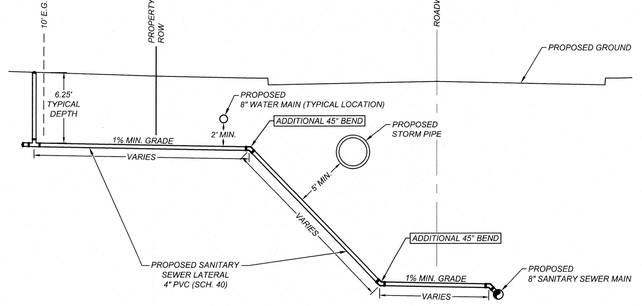
CONNECTION DOWN TO 7'-0" USE STANDARD SERVICE CONNECTION

DEEP SERVICE CONNECTIONS APPLY WHEN DEEPER THAN 7'-0"

Standard Sewer Service Detail

City of Kerrville
Standard Specifications

SIZE	FSCM NO.	DWG NO.	REV
		480.10	
SCALE		SHEET	



DETAIL "A" - ADDITIONAL LATERAL BENDS
N.T.S.

CITY APPROVAL

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_____ ON _____
DATE

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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER
01/07/2026
P.E.

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave, Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC. TBPE Firm#: F-14909 TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER:	DRAWING NAME:
314-47-05	SSDT_3144705

SHEET TITLE:
SANITARY SEWER DETAILS

SHEET NUMBER:
6.17

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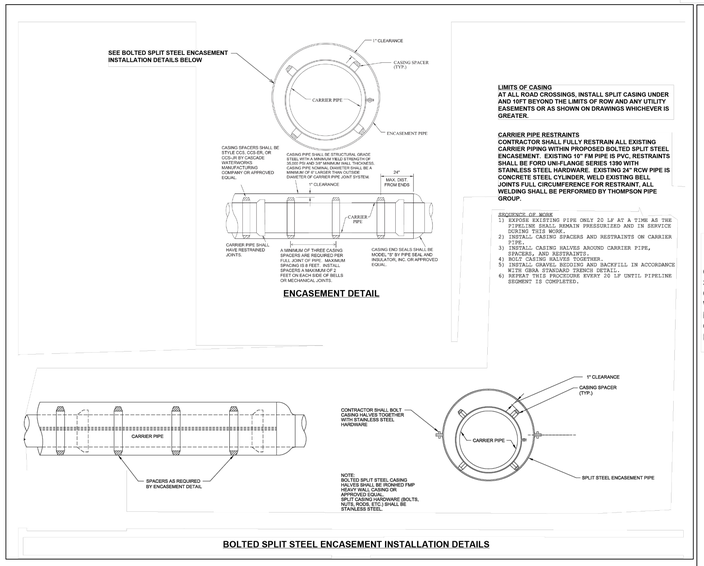
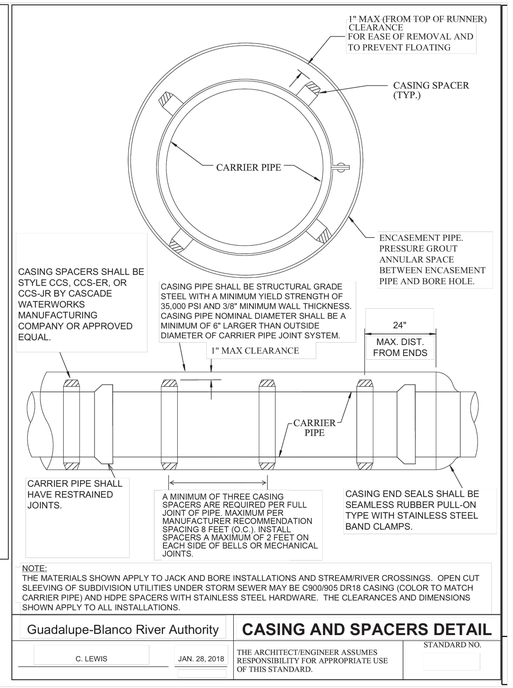
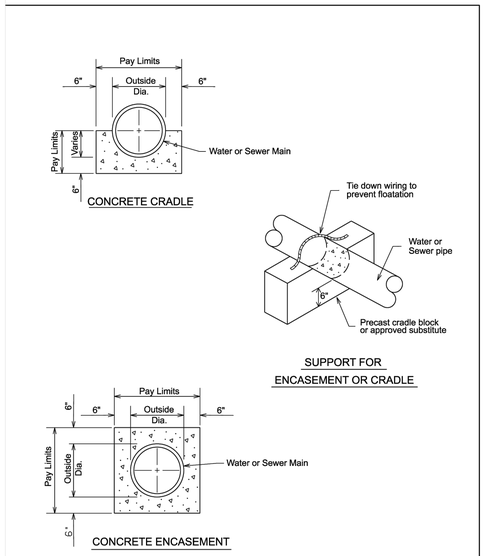




NOTE:
THE MATERIALS SHOWN APPLY TO JACK AND BORE INSTALLATIONS AND STREAM/RIVER CROSSINGS. OPEN CUT SLEEVING OF SUBDIVISION UTILITIES UNDER STORM SEWER MAY BE C900/905 DR18 CASING (COLOR TO MATCH CARRIER PIPE) AND HDPE SPACERS WITH STAINLESS STEEL HARDWARE. THE CLEARANCES AND DIMENSIONS SHOWN APPLY TO ALL INSTALLATIONS.

Guadalupe-Blanco River Authority	CASING AND SPACERS DETAIL	
C. LEWIS — JAN. 28, 2018	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO.



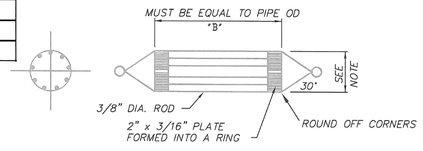
Notes:
1) All concrete encasement shall be poured at a plane 6" above the pipe between excavated trench walls.
2) All pipe with less than 3' of cover to subgrade shall be concrete-encased.
3) All Force mains shall be provided with thrust blocks, where changes in direction occur, at Tees, Bends, Crosses, changes in size, stops, or as directed by G.B.R.A.

TYPICAL CONCRETE ENCASEMENT DETAILS	APPROVED	REVISED
	DD-858-01	SHEET 1 OF 1

SDR 26
PVC Pipe

PIPE SIZE	5%
6	5.33
8	7.12
10	8.87
12	10.54
15	12.9

NOTE:
*MANDREL MUST HAVE MANUFACTURE ID PLATE INTACT.
*MANDREL MUST HAVE ODD NUMBER OF RUNNERS, 9 MINIMUM.
*AFTER CONSTRUCTION IS COMPLETED, TRUE O.D. DIMENSION FOR THE FULL LENGTH OF "B" TO 0.010 INCH BY TOOL AND LATH OR GRINDING.
*CONTRACTOR MUST PROVIDE PROVING RING.



Mandrel Detail			
City of Kerrville Standard Specifications			
SIZE	FSCM NO.	DWG NO. 480.13	REV
SCALE		SHEET	

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REV	DATE	DRAWN BY	DESCRIPTION

06/19/2025
STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED
PROFESSIONAL ENGINEER

WINDRIDGE SUBDIVISION – UNIT 2
FOR
LENNAR HOMES OF TEXAS
CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
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New Braunfels, TX 78130
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COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: SSDT_3144705
SHEET TITLE: SANITARY SEWER DETAILS
SHEET NUMBER: 6.18

Date: Jun 11, 2025, 1:35pm User ID: jferguson
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\Design\Civil\SSWR\SSDT_3144705.dwg\6.18 SANITARY SEWER DETAIL SHEET By: JFERGUSON

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

WINDRIDGE SUBDIVISION - UNIT 2

KERRVILLE, TEXAS
WATER DISTRIBUTION IMPROVEMENTS

TCEQ WATER DISTRIBUTION SYSTEM
GENERAL CONSTRUCTION NOTES

1. THIS WATER DISTRIBUTION SYSTEM MUST BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS 30 TEXAS ADMINISTRATIVE CODE (TAC) CHAPTER 290 SUBCHAPTER D. WHEN CONFLICTS ARE NOTED WITH LOCAL STANDARDS, THE MORE STRINGENT REQUIREMENT SHALL BE APPLIED. AT A MINIMUM, CONSTRUCTION FOR PUBLIC WATER SYSTEMS MUST ALWAYS MEET TCEQ'S "RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS."

2. ALL NEWLY INSTALLED PIPES AND RELATED PRODUCTS MUST CONFORM TO AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)/NSF INTERNATIONAL STANDARD 61 AND MUST BE CERTIFIED BY AN ORGANIZATION ACCREDITED BY ANSI [§290.44(A)(1)].

3. PLASTIC PIPE FOR USE IN PUBLIC WATER SYSTEMS MUST BEAR THE NSF INTERNATIONAL SEAL OF APPROVAL (NSF-PW) AND HAVE AN ASTM DESIGN PRESSURE RATING OF AT LEAST 150 PSI OR A STANDARD DIMENSION RATIO OF 26 OR LESS [§290.44(A)(2)].

4. NO PIPE WHICH HAS BEEN USED FOR ANY PURPOSE OTHER THAN THE CONVEYANCE OF DRINKING WATER SHALL BE ACCEPTED OR RELOCATED FOR USE IN ANY PUBLIC DRINKING WATER SUPPLY [§290.44(A)(3)].

5. ALL WATER LINE CROSSINGS OF WASTEWATER MAINS SHALL BE PERPENDICULAR [§290.44(E)(4)(B)].

6. WATER TRANSMISSION AND DISTRIBUTION LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. HOWEVER, THE TOP OF THE WATER LINE MUST BE LOCATED BELOW THE FROST LINE AND IN NO CASE SHALL THE TOP OF THE WATER LINE BE LESS THAN 24 INCHES BELOW GROUND SURFACE [§290.44(A)(4)].

7. THE MAXIMUM ALLOWABLE LEAD CONTENT OF PIPES, PIPE FITTINGS, PLUMBING FITTINGS, AND FIXTURES IS 0.25 PERCENT [§290.44(B)].

8. THE CONTRACTOR SHALL INSTALL APPROPRIATE AIR RELEASE DEVICES WITH VENT OPENINGS TO THE ATMOSPHERE COVERED WITH 16-MESH OR FINER, CORROSION RESISTANT SCREENING MATERIAL OR AN ACCEPTABLE EQUIVALENT [§290.44(D)(1)].

9. THE CONTRACTOR SHALL NOT PLACE THE PIPE IN WATER OR WHERE IT CAN BE FLOODED WITH WATER OR SEWAGE DURING ITS STORAGE OR INSTALLATION [§290.44(F)(1)].

10. WHEN WATERLINES ARE LAID UNDER ANY FLOWING OR INTERMITTENT STREAM OR SEMI-PERMANENT BODY OF WATER THE WATERLINE SHALL BE INSTALLED IN A SEPARATE WATERTIGHT PIPE ENCASEMENT. VALVES MUST BE PROVIDED ON EACH SIDE OF THE CROSSING WITH FACILITIES TO ALLOW THE UNDERWATER PORTION OF THE SYSTEM TO BE ISOLATED AND TESTED [§290.44(F)(2)].

11. PURSUANT TO 30 TAC §290.44(A)(5), THE HYDROSTATIC LEAKAGE RATE SHALL NOT EXCEED THE AMOUNT ALLOWED OR RECOMMENDED BY THE MOST CURRENT AWWA FORMULAS FOR PVC PIPE, CAST IRON AND DUCTILE IRON PIPE. INCLUDE THE FORMULAS IN THE NOTES ON THE PLANS.

- THE HYDROSTATIC LEAKAGE RATE FOR POLYVINYL CHLORIDE (PVC) PIPE AND APPURTENANCES SHALL NOT EXCEED THE AMOUNT ALLOWED OR RECOMMENDED BY FORMULAS IN AMERICA WATER WORKS ASSOCIATION (AWWA) C-605 AS REQUIRED IN 30 TAC §290.44(A)(5). PLEASE ENSURE THAT THE FORMULA FOR THIS CALCULATION IS CORRECT AND MOST CURRENT FORMULA IS IN USE;

$$Q = \frac{LDP^{0.5}}{148{,}000}$$

WHERE:
- Q = THE QUANTITY OF MAKEUP WATER IN GALLONS PER HOUR,
- L = THE LENGTH OF THE PIPE SECTION BEING TESTED, IN FEET,
- D = THE NOMINAL DIAMETER OF THE PIPE IN INCHES, AND
- P = THE AVERAGE TEST PRESSURE DURING THE HYDROSTATIC TEST IN POUNDS PER SQUARE INCH (PSI).

- THE HYDROSTATIC LEAKAGE RATE FOR DUCTILE IRON (DI) PIPE AND APPURTENANCES SHALL NOT EXCEED THE AMOUNT ALLOWED OR RECOMMENDED BY FORMULAS IN AMERICA WATER WORKS ASSOCIATION (AWWA) C-600 AS REQUIRED IN 30 TAC §290.44(A)(5). PLEASE ENSURE THAT THE FORMULA FOR THIS CALCULATION IS CORRECT AND MOST CURRENT FORMULA IS IN USE;

$$L = \frac{SDP^{0.5}}{148{,}000}$$

WHERE:
- L = THE QUANTITY OF MAKEUP WATER IN GALLONS PER HOUR,
- S = THE LENGTH OF THE PIPE SECTION BEING TESTED, IN FEET,
- D = THE NOMINAL DIAMETER OF THE PIPE IN INCHES, AND
- P = THE AVERAGE TEST PRESSURE DURING THE HYDROSTATIC TEST IN POUNDS PER SQUARE INCH (PSI).

12. THE CONTRACTOR SHALL MAINTAIN A MINIMUM SEPARATION DISTANCE IN ALL DIRECTIONS OF NINE FEET BETWEEN THE PROPOSED WATERLINE AND WASTEWATER COLLECTION FACILITIES INCLUDING MANHOLES. IF THIS DISTANCE CANNOT BE MAINTAINED, THE CONTRACTOR MUST IMMEDIATELY NOTIFY THE PROJECT ENGINEER FOR FURTHER DIRECTION. SEPARATION DISTANCES, INSTALLATION METHODS, AND MATERIALS UTILIZED MUST MEET §290.44(E)(1)-(4).

13. THE SEPARATION DISTANCE FROM A POTABLE WATERLINE TO A WASTEWATER MAIN OR LATERAL MANHOLE OR CLEANOUT SHALL BE A MINIMUM OF NINE FEET. WHERE THE NINE-FOOT SEPARATION DISTANCE CANNOT BE ACHIEVED, THE POTABLE WATERLINE SHALL BE ENCASED IN A JOINT OF AT LEAST 150 PSI PRESSURE CLASS PIPE AT LEAST 18 FEET LONG AND TWO NOMINAL SIZES LARGER THAN THE NEW CONVEYANCE. THE SPACE AROUND THE CARRIER PIPE SHALL BE SUPPORTED AT FIVE-FOOT INTERVALS WITH SPACERS OR BE FILLED TO THE SPRINGLINE WITH WASHED SAND. THE ENCASEMENT PIPE SHALL BE CENTERED ON THE CROSSING AND BOTH ENDS SEALED WITH CEMENT GROUT OR MANUFACTURED SEALANT [§290.44(E)(5)].

14. FIRE HYDRANTS SHALL NOT BE INSTALLED WITHIN NINE FEET VERTICALLY OR HORIZONTALLY OF ANY WASTEWATER LINE, WASTEWATER LATERAL, OR WASTEWATER SERVICE LINE REGARDLESS OF CONSTRUCTION [§290.44(E)(6)].

15. SUCTION MAINS TO PUMPING EQUIPMENT SHALL NOT CROSS WASTEWATER MAINS, WASTEWATER LATERALS, OR WASTEWATER SERVICE LINES. RAW WATER SUPPLY LINES SHALL NOT BE INSTALLED WITHIN FIVE FEET OF ANY TILE OR CONCRETE WASTEWATER MAIN, WASTEWATER LATERAL, OR WASTEWATER SERVICE LINE [§290.44(E)(7)].

16. WATERLINES SHALL NOT BE INSTALLED CLOSER THAN TEN FEET TO SEPTIC TANK DRAINFIELDS [§290.44(E)(8)].

17. THE CONTRACTOR SHALL DISINFECT THE NEW WATERLINES IN ACCORDANCE WITH AWWA STANDARD C-651-14 OR MOST RECENT, THEN FLUSH AND SAMPLE THE LINES BEFORE BEING PLACED INTO SERVICE. SAMPLES SHALL BE COLLECTED FOR MICROBIOLOGICAL ANALYSIS TO CHECK THE EFFECTIVENESS OF THE DISINFECTION PROCEDURE WHICH SHALL BE REPEATED IF CONTAMINATION PERSISTS. A MINIMUM OF ONE SAMPLE FOR EACH 1,000 FEET OF COMPLETED WATERLINE WILL BE REQUIRED OR AT THE NEXT AVAILABLE SAMPLING POINT BEYOND 1,000 FEET AS DESIGNATED BY THE DESIGN ENGINEER [§290.44(F)(3)].

18. DECHLORINATION OF DISINFECTING WATER SHALL BE IN STRICT ACCORDANCE WITH CURRENT AWWA STANDARD C655-09 OR MOST RECENT.



LOCATION MAP
NOT-TO-SCALE

INDEX

DESCRIPTION	SHEET NO.
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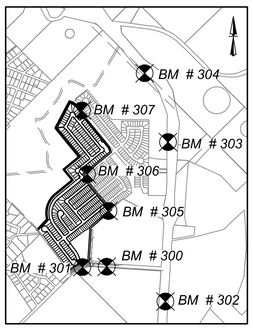

BENCH MARK LOCATION
NOT-TO-SCALE

BENCHMARKS

BM # 300 SET PK NAIL WITH WASHER ELEV: 1714.85' N: 13927381.82 E: 1932667.65	BM # 304 SET PK NAIL WITH WASHER ELEV:1804.22' N: 13931204.55 E: 1933417.23
BM # 301 SET PK NAIL WITH WASHER ELEV: 1737.34' N: 13927374.29 E: 1932187.62	BM # 305 SET PK NAIL WITH WASHER ELEV: 1714.85' N: 13928482.78 E: 1932703.05
BM # 302 SET PK NAIL WITH WASHER ELEV: 1671.69' N: 13926694.57 E: 1933826.53	BM # 306 SET PK NAIL WITH WASHER ELEV: 1737.34' N: 13929209.06 E: 1932278.67
BM # 303 SET PK NAIL WITH WASHER ELEV: 1784.55' N: 13929844.48 E: 1933878.99	BM # 307 SET PK NAIL WITH WASHER ELEV: 1671.69' N: 13930469.70 E: 1932179.96

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

OWNER/DEVELOPER:
LENNAR HOMES OF TEXAS LAND & CONSTRUCTION, LTD.
100 NE LOOP 410, STE. 1155
SAN ANTONIO, TX 78216
PHONE: (210) 403-6282

KNOW ALL MEN BY THESE PRESENTS:

I, THE UNDERSIGNED, DENIS A. AVENDANO, A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF TEXAS, HEREBY CERTIFY THAT PROPER ENGINEERING CONSIDERATION HAS BEEN GIVEN TO THESE PLANS AND ALL ENGINEERING ASPECTS ARE IN COMPLIANCE WITH CITY AND STATE ENGINEERING REGULATIONS AND LAWS.

REGISTERED PROFESSIONAL ENGINEER
P.E. REGISTRATION NO. 137588

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____
DATE

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_____

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_____

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Formerly Known as KFW

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REV	DATE	DRAWN BY	DESCRIPTION

06/19/2025

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED
PROFESSIONAL ENGINEER

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: WCS_3144705

SHEET TITLE: WATER COVER SHEET

SHEET NUMBER: 7.0

Date: May 29, 2025, 2:04pm User ID: logan.haney
File: L:\Projects\314\47\05\Design\Civil\MXD\WCS_3144705.dwg
Design\Civil\MXD\WCS_3144705.dwg\7.0 WATER COVER SHEET By: LOGAN.HANEY

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

TRENCH EXCAVATION SAFETY PROTECTION

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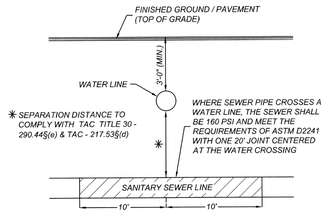
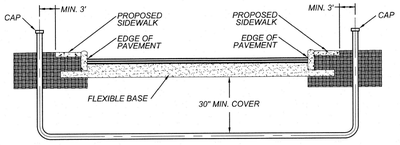


TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
NOT-TO-SCALE



CONDUIT DETAIL
NOT TO SCALE
(NOT FOR CURB DETAIL REFERENCE)

*SEE PLAN SHEETS FOR PRIVATE CONDUIT SIZE, LOCATION AND NUMBER OF CONDUITS

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- CONTRACTOR TO CONTACT ENGINEER FOR APPROPRIATE NUMBER AND SIZE OF CONDUITS FOR TELECOMMUNICATIONS
- CONTRACTOR TO CONTACT ENGINEER FOR ELECTRICAL PLANS
- CONTRACTOR SHALL INSTALL PERMANENT MARKERS IN PROPOSED CURB WHERE CONDUITS CROSS THE ROADWAY (BOTH SIDES).
- CONDUITS SHALL BE PVC WITH 30 INCHES OF MINIMUM COVER FROM STREET SUBGRADE. SCHEDULE 40 TO BE USED FOR KPUB CONDUITS.
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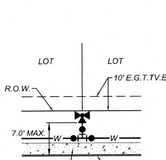
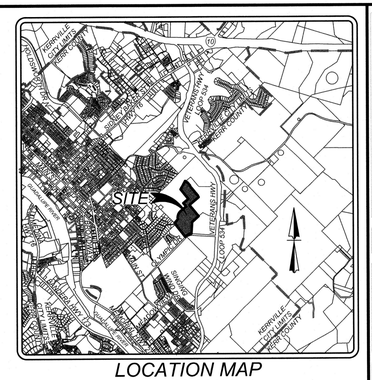
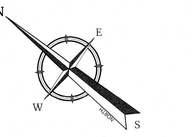


TYPICAL FIRE HYDRANT DETAIL
NOT-TO-SCALE



LOCATION MAP
NOT-TO-SCALE

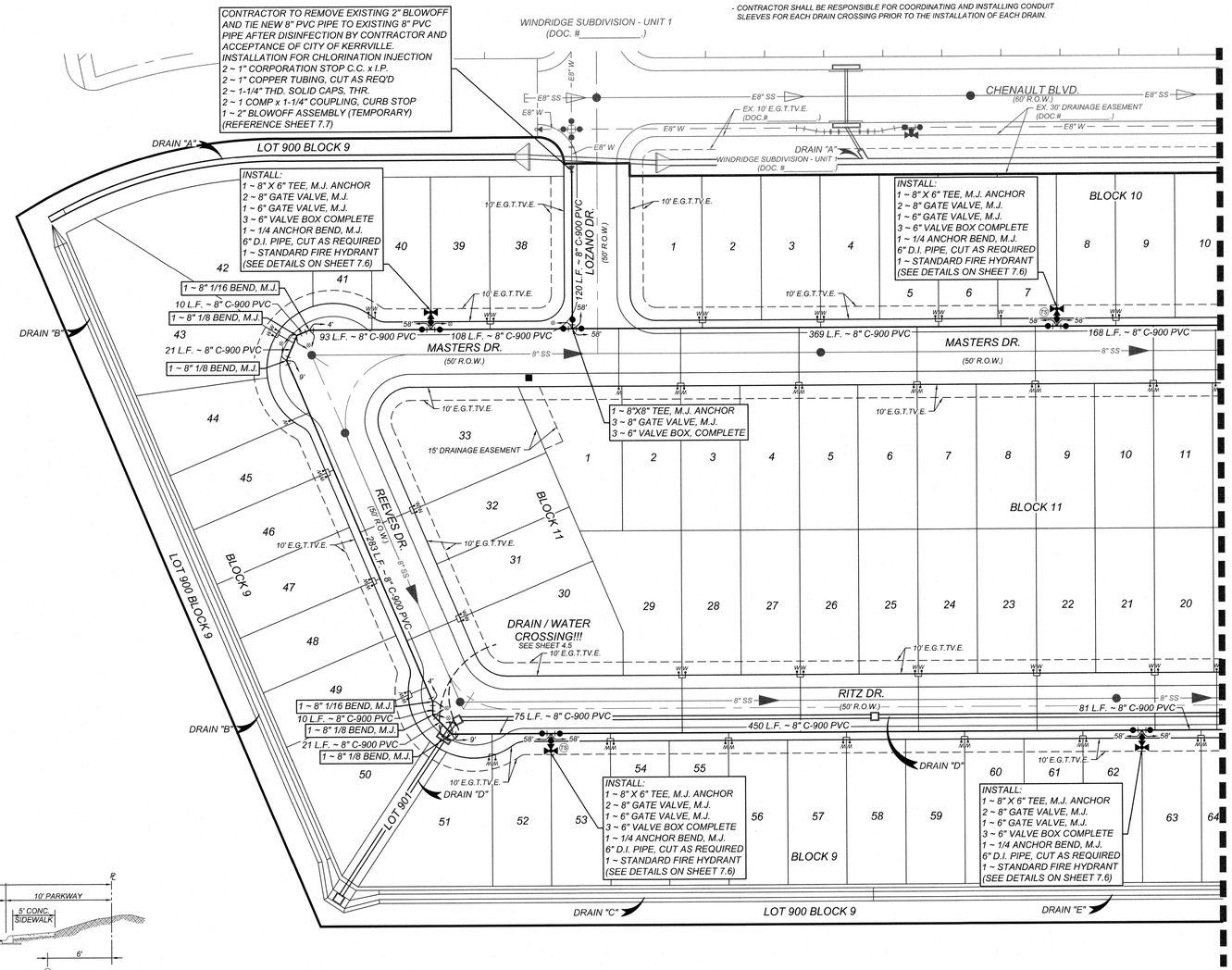


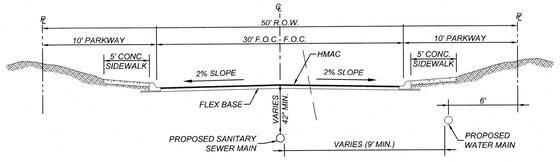
50 0 50 100

SCALE : 1" = 50'

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

CONTRACTOR TO REMOVE EXISTING 2" BLOWOFF AND TIE NEW 8" PVC PIPE TO EXISTING 8" PVC PIPE AFTER DISINFECTION BY CONTRACTOR AND ACCEPTANCE OF CITY OF KERRVILLE.
INSTALLATION FOR CHLORINATION INJECTION
2 ~ 1" CORPORATION STOP C.C. x I.P.
2 ~ 1" COPPER TUBING, CUT AS REQ'D
2 ~ 1-1/4" THD. SOLID CAPS, THR.
2 ~ 1 COMP x 1-1/4" COUPLING, CURB STOP
1 ~ 2" BLOWOFF ASSEMBLY (TEMPORARY)
(REFERENCE SHEET 7.7)





TYPICAL 50' STREET SECTION
NOT-TO-SCALE

REMAINING PORTION OF 184.304 ACRES OWNER: SCHREINER UNIVERSITY (VOL. 1369. PG. 551, O.P.R.)

LEGEND

PROPOSED 8" WATER MAIN	=	8"W
PROPOSED DUAL WATER SERVICES W/ METERS & METER BOXES (SEE DETAIL SHEET 7.6)	=	
PROPOSED SINGLE WATER SERVICE W/ METER & METER BOX (SEE DETAIL SHEET 7.6)	=	
PROPOSED IRRIGATION SERVICE W/ METER & METER BOX	=	X"
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED CONDUIT	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	
RIGHT-OF-WAY	=	R.O.W.
PROPOSED ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E. G. T. TV. E
PROPOSED VARIABLE WIDTH CLEAR VISION EASEMENT	=	V.W.C.V.E.
EXISTING WATER MAIN	=	E8" W
EXISTING RECYCLED WATER MAIN	=	RCW
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	E8" SS
EXISTING SANITARY SEWER MANHOLE	=	
EXISTING OVERHEAD ELECTRIC W/POWER POLE	=	OHE OHE
EXISTING GUY WIRE/OVERHEAD ELECTRIC	=	OHE
EXISTING FIBER OPTIC	=	
EXISTING GAS	=	
EXISTING UNDERGROUND ELECTRIC	=	
EXISTING LIGHT POLE	=	
EXISTING MARKER POST	=	
RESTRAINED LENGTH	=	X'
ENTIRE LENGTH OF PIPE TO BE RESTRAINED	=	
TRACER WIRE TEST STATION	=	

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____ DATE:

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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER
11/03/2025
P.E.

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194050

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: OW_3144705

SHEET TITLE: WATER DISTRIBUTION PLAN

SHEET NUMBER: 7.1

Date: Oct 24, 2025, 9:22am User ID: logan.honey
File: U:\Projects\314\47\05\Design\Civil\WATER\OW_3144705.dwg
Design\Civil\WATER\OW_3144705.dwg7.1 WATER DISTRIBUTION PLAN By: LOGAN.HONEY

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

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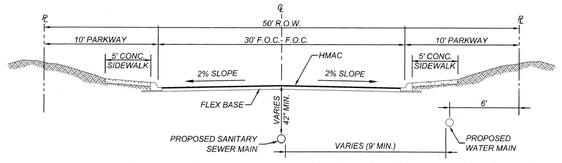
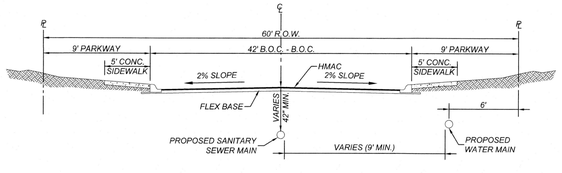


TYPICAL 50' STREET SECTION
NOT-TO-SCALE



TYPICAL 60' STREET SECTION
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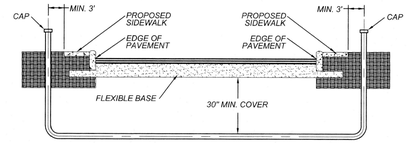

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(NOT FOR CURB DETAIL REFERENCE)

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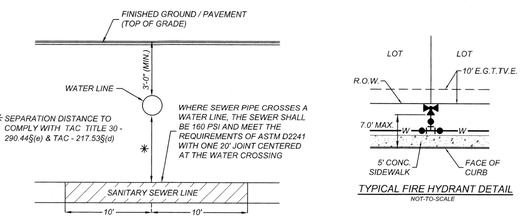
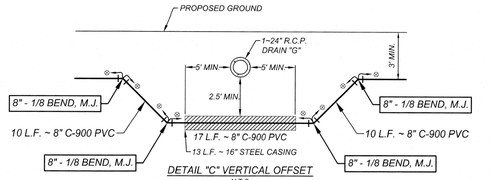
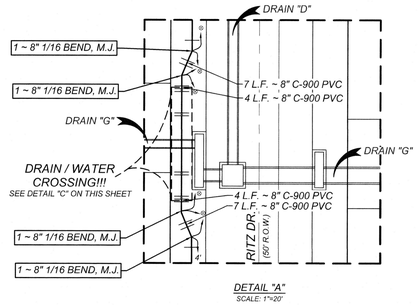


TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
NOT-TO-SCALE

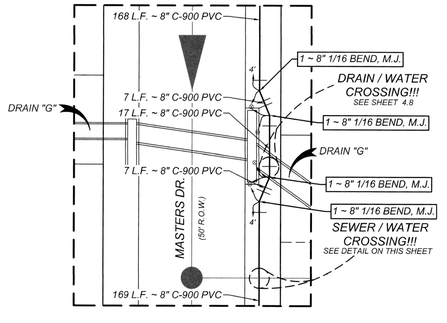
TYPICAL FIRE HYDRANT DETAIL
NOT-TO-SCALE



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



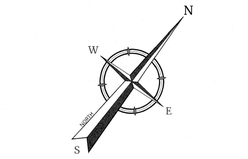
DETAIL "A"
SCALE: 1"=20'



DETAIL "B"
SCALE: 1"=20'



LOCATION MAP
NOT-TO-SCALE



50 0 50 100
SCALE : 1" = 50'
Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

LEGEND

PROPOSED 8" WATER MAIN	=	8"W
PROPOSED DUAL WATER SERVICES W/ METERS & METER BOXES (SEE DETAIL SHEET 7.6)	=	M M
PROPOSED SINGLE WATER SERVICE W/ METER & METER BOX (SEE DETAIL SHEET 7.6)	=	M
PROPOSED IRRIGATION SERVICE W/ METER & METER BOX	=	XMR-X
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED CONDUIT	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	
RIGHT-OF-WAY	=	R.O.W.
PROPOSED ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E. G. T. TV. E
PROPOSED VARIABLE WIDTH CLEAR VISION EASEMENT	=	V.W.C.V.E.
EXISTING WATER MAIN	=	E8" W
EXISTING RECYCLED WATER MAIN	=	RCW
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	E8" SS
EXISTING SANITARY SEWER MANHOLE	=	
EXISTING OVERHEAD ELECTRIC W/POWER POLE	=	OHE
EXISTING GUY WIRE/OVERHEAD ELECTRIC	=	OHE
EXISTING FIBER OPTIC	=	
EXISTING GAS	=	
EXISTING UNDERGROUND ELECTRIC	=	
EXISTING LIGHT POLE	=	
EXISTING MARKER POST	=	
RESTRAINED LENGTH	=	X
ENTIRE LENGTH OF PIPE TO BE RESTRAINED	=	
TRACER WIRE TEST STATION	=	TS

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____ DATE

THIS APPROVAL WILL BECOME VOID AFTER ONE YEAR OF THE INDICATED APPROVAL DATE. EXCEPTIONS TO THIS APPROVAL ARE AS FOLLOWS:

_____

_____

_____

_____

BY APPROVING THESE PLANS, THE CITY OF KERRVILLE DOES NOT ASSUME ANY LIABILITY FOR ENGINEERING DESIGN, NOR DOES APPROVAL RELEASE THE DESIGN ENGINEER FROM LIABILITY FOR CORRECTION ERRORS OR OMISSIONS IN THE DESIGN BOTH DURING AND AFTER CONSTRUCTION.

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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER
11/03/2025
P.E.

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave, Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm# F-14900
TBPLS Firm#: 10194050

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER:	DRAWING NAME:
314-47-05	CW_3144705

SHEET TITLE: WATER DISTRIBUTION PLAN

SHEET NUMBER: 7.2

Date: Oct 24, 2025, 9:26am User ID: logan.haney
File: U:\Projects\314\05\Design\CIVIL\WATER\CW_3144705.dwg
\Design\CIVIL\WATER\CW_3144705.dwg?-2 WATER DISTRIBUTION PLAN By LOGAN.HANEY

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

TRENCH EXCAVATION SAFETY PROTECTION

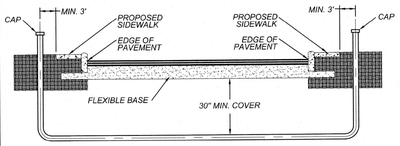
CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S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

DRY UTILITY CONDUIT NOTE:

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



CONDUIT DETAIL
NOT TO SCALE
(NOT FOR CURB DETAIL REFERENCE)

*SEE PLAN SHEETS FOR PRIVATE CONDUIT SIZE, LOCATION AND NUMBER OF CONDUITS

NOTE:

- CONTRACTOR SHALL BE RESPONSIBLE FOR PLACING CONDUIT SLEEVES FOR EACH KPUB FACILITY AT ALL STREETS AND DRAIN CROSSING. CONSTRUCTION SLEEVES MUST ALSO BE LOCATED FOR KPUB CREWS DURING CONSTRUCTION. (SEPARATE ITEM) SEE FINAL ELECTRIC PROVIDER'S DESIGN AND SPECIFICATION.
- CONTRACTOR TO CONTACT ENGINEER FOR APPROPRIATE NUMBER AND SIZE OF CONDUITS FOR TELECOMMUNICATIONS
- CONTRACTOR TO CONTACT ENGINEER FOR ELECTRICAL PLANS
- CONTRACTOR SHALL INSTALL PERMANENT MARKERS IN PROPOSED CURB WHERE CONDUITS CROSS THE ROADWAY (BOTH SIDES).
- CONDUITS SHALL BE PVC WITH 30 INCHES OF MINIMUM COVER FROM STREET SUBGRADE. SCHEDULE 40 TO BE USED FOR KPUB CONDUITS.
- ALL CONDUITS SHALL BE EXTENDED BEHIND CURBS OR PROPOSED SIDEWALKS A MINIMUM OF 3 FEET AND CAPPED FOR FUTURE USE.
- ALL CONDUIT SLEEVES TO BE USED FOR ELECTRIC, GAS, OR TELECOMMUNICATION UTILITY CROSSINGS SHALL BE INSTALLED TO MEET OR EXCEED DESIGN REQUIREMENTS FOR THE UTILITY AGENCY WHICH THEY ARE SERVING, INCLUDING BUT NOT LIMITED TO THE DEPTH, TRENCH PLACEMENT, AND PROXIMITY TO OTHER UTILITIES. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR VERIFYING AND INSTALLING THE CONDUIT SLEEVES TO MEET THESE SPECIFICATION INCLUDING COORDINATING WITH THE UTILITY AGENCY FOR ANY REQUIRED INSPECTIONS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND INSTALLING CONDUIT SLEEVES FOR EACH DRAIN CROSSING PRIOR TO THE INSTALLATION OF EACH DRAIN.

JOINT RESTRAINT NOTE:

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

WATER PLAN NOTES:

1. ALL VALVES SHALL READ "OPEN LEFT, CLOSE RIGHT".
2. ALL 8" PVC PIPE TO BE C-900, CLASS 305 (SDR 14).
3. ALL FIRE HYDRANTS SHALL BE PAINTED APPROPRIATE C.O.K. RED.

WATER/SEWER CROSSING NOTE:

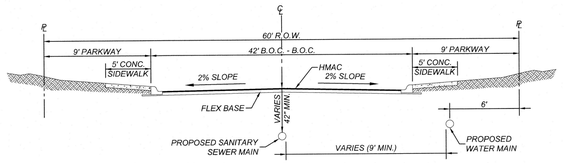
ALL WATER/SEWER CROSSINGS SHALL COMPLY WITH 30 TAC 217.53(d) AND 290.44(e) AS PER DETAIL THIS SHEET.

BACK FLOW PREVENTION DEVICES FOR RESIDENTIAL SUBDIVISIONS NOTE:

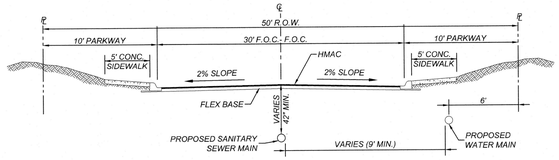
ALL IRRIGATION SERVICES WITHIN RESIDENTIAL AREAS ARE REQUIRED TO HAVE BACK FLOW PREVENTION DEVICES.

GENERAL NOTE:

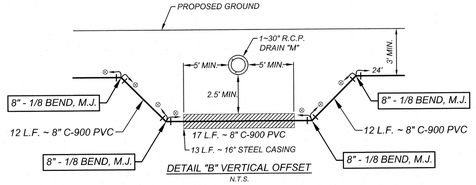
1. THIS PROJECT INCLUDES UTILITY INSTALLATIONS GREATER THAN 5-FEET IN DEPTH LOCATED IN PUBLIC RIGHT-OF-WAY OR EASEMENTS. DEEP TRENCHES POSE COMPACTION TESTING AND CONSTRUCTION CHALLENGES AND CITY METHODS FOR TESTING AND COMPACTION MAY NOT BE ACHIEVABLE. A UTILITY COMPACTION PLAN WILL BE REQUIRED AND MUST BE SUBMITTED FOR APPROVAL TO CITY PRIOR TO UTILITY INSTALLATION.



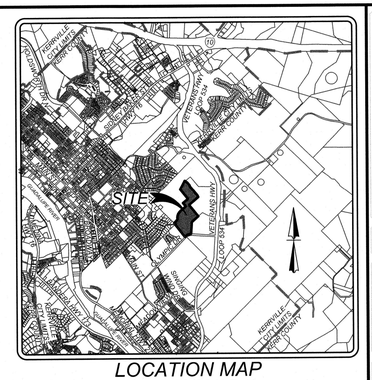
TYPICAL 60' STREET SECTION
NOT-TO-SCALE



TYPICAL 50' STREET SECTION
NOT-TO-SCALE



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



LOCATION MAP
NOT-TO-SCALE

CONTRACTOR TO REMOVE EXISTING 2" BLOWOFF AND TIE NEW 8" PVC PIPE TO EXISTING 8" PVC PIPE AFTER DISINFECTION BY CONTRACTOR AND ACCEPTANCE OF CITY OF KERRVILLE. INSTALLATION FOR CHLORINATION INJECTION
2 ~ 1" CORPORATION STOP C.C. x I.P.
2 ~ 1" COPPER TUBING, CUT AS REQ'D
2 ~ 1-1/4" THD. SOLID CAPS, THR.
2 ~ 1 COMP x 1-1/4" COUPLING, CURB STOP
1 ~ 2" BLOWOFF ASSEMBLY (TEMPORARY)
(REFERENCE SHEET 7.7)

CONTRACTOR TO REMOVE EXISTING 2" BLOWOFF AND TIE NEW 8" PVC PIPE TO EXISTING 8" PVC PIPE AFTER DISINFECTION BY CONTRACTOR AND ACCEPTANCE OF CITY OF KERRVILLE. INSTALLATION FOR CHLORINATION INJECTION
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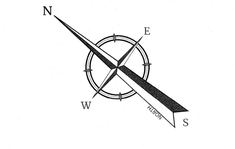
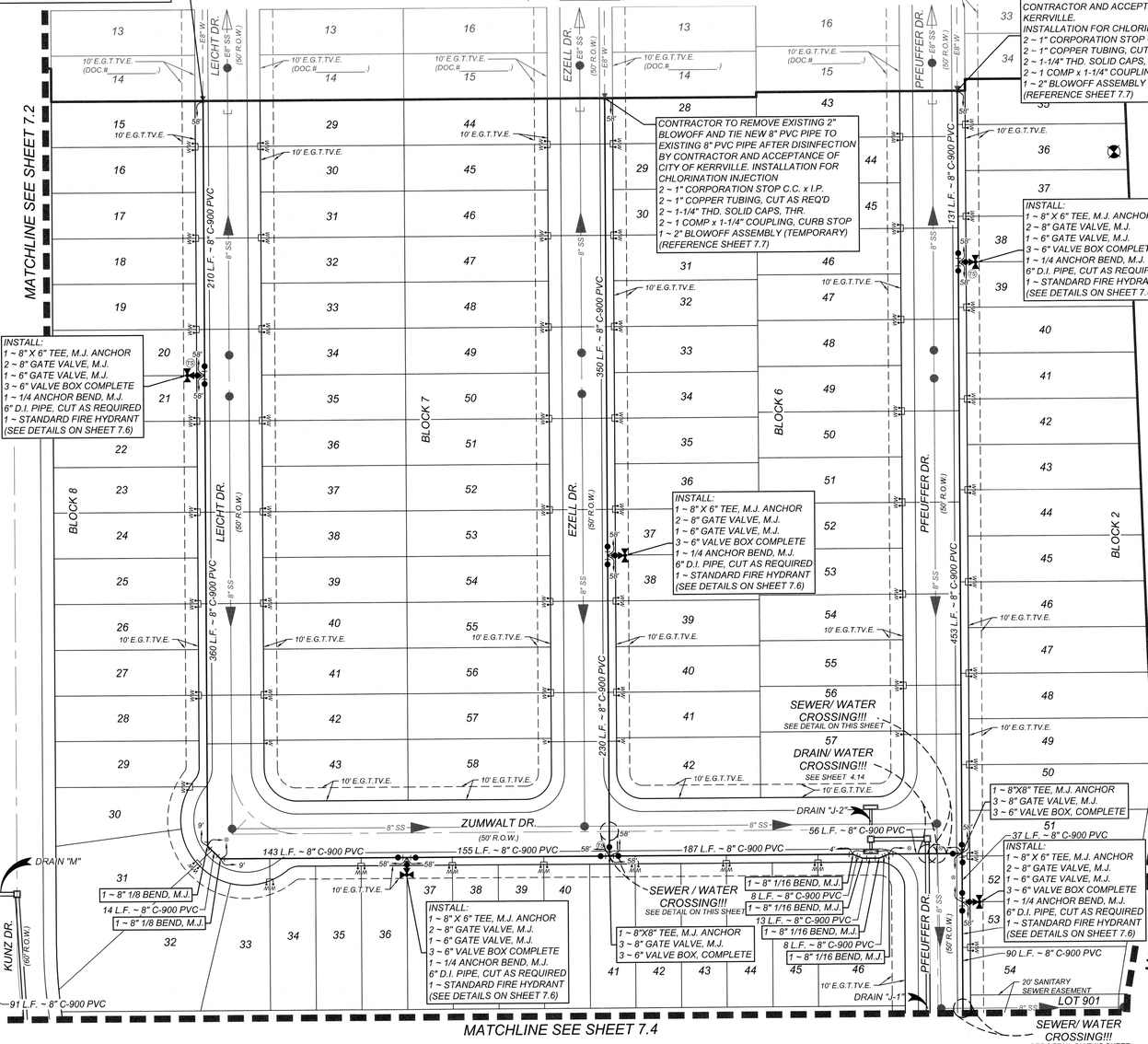
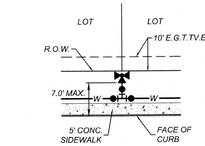
(REFERENCE SHEET 7.7)

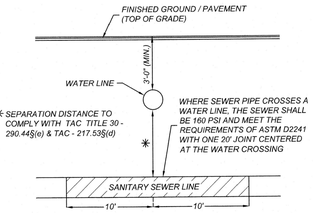


50 0 50 100
SCALE : 1" = 50'
Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)





TYPICAL FIRE HYDRANT DETAIL
NOT-TO-SCALE



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

LEGEND

PROPOSED 8" WATER MAIN	=	—8"W—
PROPOSED DUAL WATER SERVICES W/ METERS & METER BOXES (SEE DETAIL SHEET 7.6)	=	
PROPOSED SINGLE WATER SERVICE W/ METER & METER BOX (SEE DETAIL SHEET 7.6)	=	
PROPOSED IRRIGATION SERVICE W/ METER & METER BOX	=	—X"IRR—
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED CONDUIT	=	
PROPOSED SANITARY SEWER MAIN	=	—SS—
PROPOSED SANITARY SEWER MANHOLE	=	
RIGHT-OF-WAY	=	R.O.W.
PROPOSED ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E. G. T. TV. E
PROPOSED VARIABLE WIDTH CLEAR VISION EASEMENT	=	V.W.C.V.E.
EXISTING WATER MAIN	=	—E8"W—
EXISTING RECYCLED WATER MAIN	=	—RCW—
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	—E8"SS—
EXISTING SANITARY SEWER MANHOLE	=	
EXISTING OVERHEAD ELECTRIC W/POWER POLE	=	—OHE— —OHE—
EXISTING GUY WIRE/OVERHEAD ELECTRIC	=	—OHE—
EXISTING FIBER OPTIC	=	
EXISTING GAS	=	
EXISTING UNDERGROUND ELECTRIC	=	
EXISTING LIGHT POLE	=	
EXISTING MARKER POST	=	
RESTRAINED LENGTH	=	
ENTIRE LENGTH OF PIPE TO BE RESTRAINED	=	
TRACER WIRE TEST STATION	=	TS

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____ DATE

THIS APPROVAL WILL BECOME VOID AFTER ONE YEAR OF THE INDICATED APPROVAL DATE. EXCEPTIONS TO THIS APPROVAL ARE AS FOLLOWS:

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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER
11/03/2025
P.E.

WINDRIDGE SUBDIVISION - UNIT 2
FOR
LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
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640 North Walnut Ave.
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New Braunfels, TX 78130
Phone: 830.220.6042
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TBPE Firm# F-14909
TBPLS Firm# 10194050

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: OW_3144705

SHEET TITLE: WATER DISTRIBUTION PLAN

SHEET NUMBER: 7.3

Date: Oct 24, 2025, 9:27am User ID: logan.haney
File: L:\Projects\314\47\05\Civil\OW\OW_3144705.dwg
Design: C:\Users\LOGAN.HANEY\ARCHIVE\OW_3144705.dwg\7.3 WATER DISTRIBUTION PLAN By: LOGAN.HANEY

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

TRENCH EXCAVATION SAFETY PROTECTION

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

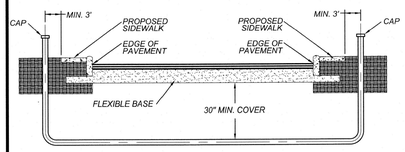
THE CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITED TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT 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.

DRY UTILITY CONDUIT NOTE!:

CONDUIT LOCATIONS SHOW 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.

GENERAL NOTE:

1. *THIS PROJECT INCLUDES UTILITY INSTALLATIONS GREATER THAN 5-FEET IN DEPTH LOCATED IN PUBLIC RIGHT-OF-WAY OR EASEMENTS. DEEP TRENCHES POSE COMPACTION TESTING AND CONSTRUCTION CHALLENGES AND CITY METHODS FOR TESTING AND COMPACTION MAY NOT BE ACHIEVABLE. A UTILITY COMPACTION PLAN WILL BE REQUIRED AND MUST BE SUBMITTED FOR APPROVAL TO CITY PRIOR TO UTILITY INSTALLATION.*



CONDUIT DETAIL
NOT TO SCALE
(NOT FOR CURB DETAIL REFERENCE)

**SEE PLAN SHEETS FOR PRIVATE CONDUIT SIZE, LOCATION AND NUMBER OF CONDUITS*

NOTE:

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- *CONTRACTOR TO CONTACT ENGINEER FOR APPROPRIATE NUMBER AND SIZE OF CONDUITS FOR TELECOMMUNICATIONS*
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- *CONTRACTOR SHALL INSTALL PERMANENT MARKERS IN PROPOSED CURB WHERE CONDUITS CROSS THE ROADWAY (BOTH SIDES).*
- *CONDUITS SHALL BE PVC WITH 30 INCHES OF MINIMUM COVER FROM STREET SUBGRADE. SCHEDULE 40 TO BE USED FOR KPUB CONDUITS.*
- *ALL CONDUITS SHALL BE EXTENDED BEHIND CURBS OR PROPOSED SIDEWALKS A MINIMUM OF 3 FEET AND CAPPED FOR FUTURE USE.*
- *ALL CONDUIT SLEEVES TO BE USED FOR ELECTRIC, GAS, OR TELECOMMUNICATION UTILITY CROSSINGS SHALL BE INSTALLED TO MEET OR EXCEED DESIGN REQUIREMENTS FOR THE UTILITY AGENCY WHICH THEY ARE SERVING, INCLUDING BUT NOT LIMITED TO THE DEPTH, TRENCH PLACEMENT, AND PROXIMITY TO OTHER UTILITIES. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR VERIFYING AND INSTALLING THE CONDUIT SLEEVES TO MEET THESE SPECIFICATION INCLUDING COORDINATING WITH THE UTILITY AGENCY FOR ANY REQUIRED INSPECTIONS.*
- *CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND INSTALLING CONDUIT SLEEVES FOR EACH DRAIN CROSSING PRIOR TO THE INSTALLATION OF EACH DRAIN.*

JOINT RESTRAINT NOTE:

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

WATER PLAN NOTES:

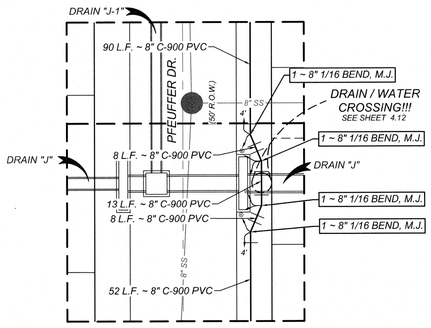
1. *ALL VALVES SHALL READ "OPEN LEFT, CLOSE RIGHT".*
2. *ALL 8" PVC PIPE TO BE C-900, CLASS 305 (SDR 14).*
3. *ALL FIRE HYDRANTS SHALL BE PAINTED APPROPRIATE C.O.K. RED.*

WATER/SEWER CROSSING NOTE:

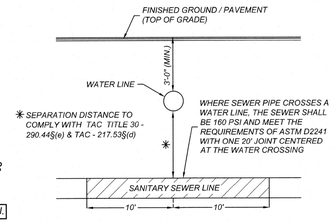
ALL WATER/SEWER CROSSINGS SHALL COMPLY WITH 30 TAC 217.53(d) AND 290.44(e) AS PER DETAIL THIS SHEET.

BACK FLOW PREVENTION DEVICES FOR RESIDENTIAL SUBDIVISIONS NOTE:

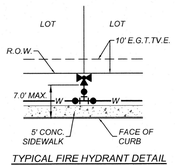
ALL IRRIGATION SERVICES WITHIN RESIDENTIAL AREAS ARE REQUIRED TO HAVE BACK FLOW PREVENTION DEVICES.



DETAIL "C"
SCALE: 1"=20'



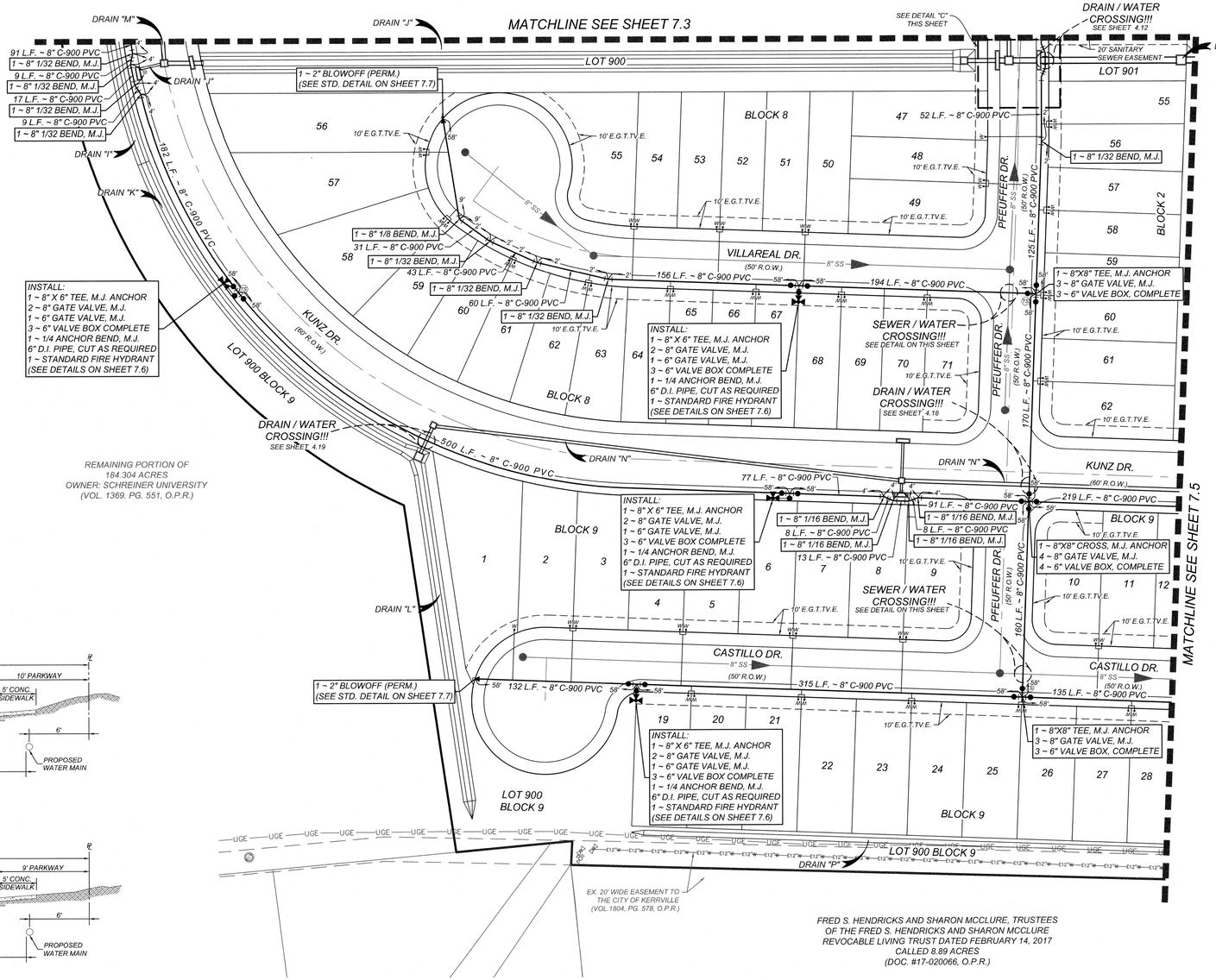
TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
NOT-TO-SCALE

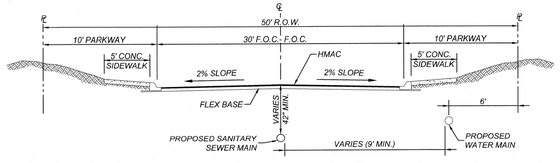


TYPICAL FIRE HYDRANT DETAIL
NOT-TO-SCALE

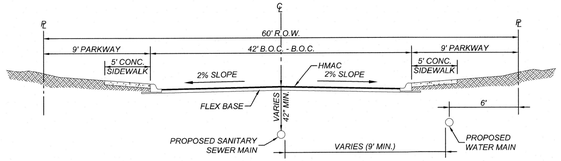


LOCATION MAP
NOT-TO-SCALE

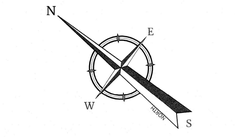




TYPICAL 50' STREET SECTION
NOT-TO-SCALE



TYPICAL 60' STREET SECTION
NOT-TO-SCALE



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

LEGEND

PROPOSED 8" WATER MAIN	=	8"W
PROPOSED DUAL WATER SERVICES W/ METERS & METER BOXES (SEE DETAIL SHEET 7.6)	=	M M
PROPOSED SINGLE WATER SERVICE W/ METER & METER BOX (SEE DETAIL SHEET 7.6)	=	M
PROPOSED IRRIGATION SERVICE W/ METER & METER BOX	=	M IRR-X
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED CONDUIT	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	
RIGHT-OF-WAY	=	R.O.W.
PROPOSED ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E. G. T. TV. E
PROPOSED VARIABLE WIDTH CLEAR VISION EASEMENT	=	V.W.C.V.E.
EXISTING WATER MAIN	=	E8" W
EXISTING RECYCLED WATER MAIN	=	RCW
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	E8" SS
EXISTING SANITARY SEWER MANHOLE	=	
EXISTING OVERHEAD ELECTRIC W/POWER POLE	=	OHE OHE
EXISTING GUY WIRE/OVERHEAD ELECTRIC	=	OHE
EXISTING FIBER OPTIC	=	
EXISTING GAS	=	
EXISTING UNDERGROUND ELECTRIC	=	
EXISTING LIGHT POLE	=	
EXISTING MARKER POST	=	
RESTRAINED LENGTH	=	X'
ENTIRE LENGTH OF PIPE TO BE RESTRAINED	=	
TRACER WIRE TEST STATION	=	TS

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____
DATE

THIS APPROVAL WILL BECOME VOID AFTER ONE YEAR OF THE INDICATED APPROVAL DATE. EXCEPTIONS TO THIS APPROVAL ARE AS FOLLOWS:

BY APPROVING THESE PLANS, THE CITY OF KERRVILLE DOES NOT ASSUME ANY LIABILITY FOR ENGINEERING DESIGN, NOR DOES APPROVAL RELEASE THE DESIGN ENGINEER FROM LIABILITY FOR CORRECTION ERRORS OR OMISSIONS IN THE DESIGN BOTH DURING AND AFTER CONSTRUCTION.

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

REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER
11/03/2025
P.E.

WINDRIDGE SUBDIVISION - UNIT 2
FOR
LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave, Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14309
TBPLS Firm#: 10194050

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: OW_3144705

SHEET TITLE: WATER DISTRIBUTION PLAN

SHEET NUMBER: 7.4

Date: Oct 24, 2025, 9:29am User ID: logan.honey
File: U:\Projects\314\47\05\Design\Civil\WATER\OW_3144705.dwg
Design/Xrefs/OW_3144705-dwg-7.4-WATER DISTRIBUTION PLAN By: LOGAN HONEY

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

TRENCH EXCAVATION SAFETY PROTECTION

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

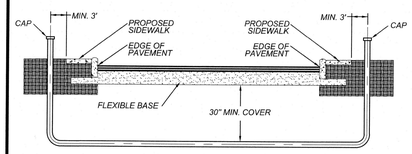
THE CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITED TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT 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.

DRY UTILITY CONDUIT NOTE:

CONDUIT LOCATIONS SHOW 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.

GENERAL NOTE:

1. THIS PROJECT INCLUDES UTILITY INSTALLATIONS GREATER THAN 5-FEET IN DEPTH LOCATED IN PUBLIC RIGHT-OF-WAY OR EASEMENTS. DEEP TRENCHES POSE COMPACTION TESTING AND CONSTRUCTION CHALLENGES AND CITY METHODS FOR TESTING AND COMPACTION MAY NOT BE ACHIEVABLE. A UTILITY COMPACTION PLAN WILL BE REQUIRED AND MUST BE SUBMITTED FOR APPROVAL TO CITY PRIOR TO UTILITY INSTALLATION.



CONDUIT DETAIL
NOT TO SCALE
(NOT FOR CURB DETAIL REFERENCE)

*SEE PLAN SHEETS FOR PRIVATE CONDUIT SIZE, LOCATION AND NUMBER OF CONDUITS

NOTE:

- CONTRACTOR SHALL BE RESPONSIBLE FOR PLACING CONDUIT SLEEVES FOR EACH KPUB FACILITY AT ALL STREETS AND DRAIN CROSSING. CONSTRUCTION SLEEVES MUST ALSO BE LOCATED FOR KPUB CREWS DURING CONSTRUCTION. (SEPARATE ITEM) SEE FINAL ELECTRIC PROVIDER'S DESIGN AND SPECIFICATION.
- CONTRACTOR TO CONTACT ENGINEER FOR APPROPRIATE NUMBER AND SIZE OF CONDUITS FOR TELECOMMUNICATIONS
- CONTRACTOR TO CONTACT ENGINEER FOR ELECTRICAL PLANS
- CONTRACTOR SHALL INSTALL PERMANENT MARKERS IN PROPOSED CURB WHERE CONDUITS CROSS THE ROADWAY (BOTH SIDES).
- CONDUITS SHALL BE PVC WITH 30 INCHES OF MINIMUM COVER FROM STREET SUBGRADE. SCHEDULE 40 TO BE USED FOR KPUB CONDUITS.
- ALL CONDUITS SHALL BE EXTENDED BEHIND CURBS OR PROPOSED SIDEWALKS A MINIMUM OF 3 FEET AND CAPPED FOR FUTURE USE.
- ALL CONDUIT SLEEVES TO BE USED FOR ELECTRIC, GAS, OR TELECOMMUNICATION UTILITY CROSSINGS SHALL BE INSTALLED TO MEET OR EXCEED DESIGN REQUIREMENTS FOR THE UTILITY AGENCY WHICH THEY ARE SERVING, INCLUDING BUT NOT LIMITED TO THE DEPTH, TRENCH PLACEMENT, AND PROXIMITY TO OTHER UTILITIES. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR VERIFYING AND INSTALLING THE CONDUIT SLEEVES TO MEET THESE SPECIFICATION INCLUDING COORDINATING WITH THE UTILITY AGENCY FOR ANY REQUIRED INSPECTIONS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND INSTALLING CONDUIT SLEEVES FOR EACH DRAIN CROSSING PRIOR TO THE INSTALLATION OF EACH DRAIN.

JOINT RESTRAINT NOTE:

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

WATER PLAN NOTES:

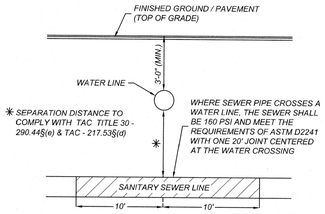
1. ALL VALVES SHALL READ "OPEN LEFT, CLOSE RIGHT".
2. ALL 8" PVC PIPE TO BE C-900, CLASS 305 (SDR 14).
3. ALL FIRE HYDRANTS SHALL BE PAINTED APPROPRIATE C.O.K. RED.

WATER/SEWER CROSSING NOTE:

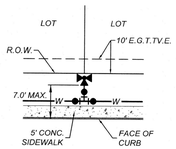
ALL WATER/SEWER CROSSINGS SHALL COMPLY WITH 30 TAC 217.53(d) AND 290.44(e) AS PER DETAIL THIS SHEET.

BACK FLOW PREVENTION DEVICES FOR RESIDENTIAL SUBDIVISIONS NOTE:

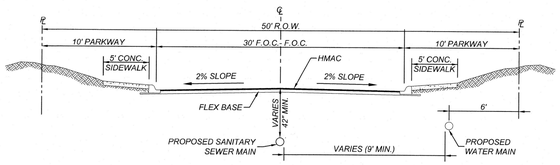
ALL IRRIGATION SERVICES WITHIN RESIDENTIAL AREAS ARE REQUIRED TO HAVE BACK FLOW PREVENTION DEVICES.



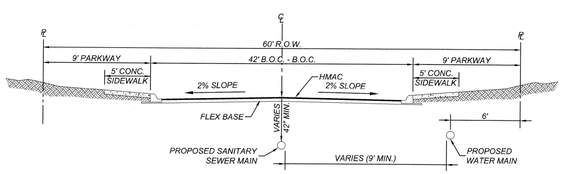
TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
NOT-TO-SCALE



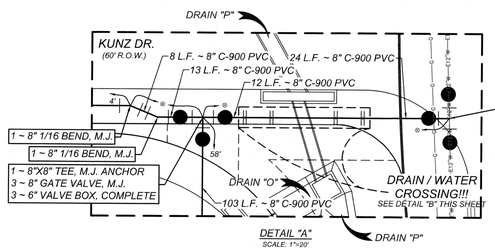
TYPICAL FIRE HYDRANT DETAIL
NOT-TO-SCALE



TYPICAL 50' STREET SECTION
NOT-TO-SCALE



TYPICAL 60' STREET SECTION
NOT-TO-SCALE



DETAIL "A"
SCALE: 1"=20'

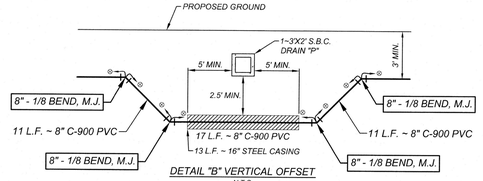
CONTRACTOR SHALL TIE NEW 8" PVC PIPE TO EXISTING 12" PIPE. 8" GATE VALVE TO REMAIN CLOSED UNTIL AFTER DISINFECTION BY CONTRACTOR AND ACCEPTANCE BY CITY OF KERRVILLE.

1 ~ 12"X8" CUT IN TEE, M.J.
2 ~ 12" GATE VALVE, M.J.
1 ~ 8" GATE VALVE, M.J.
3 ~ 6" VALVE BOX, COMPLETE

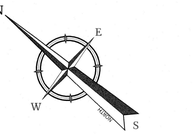
INSTALLATION FOR CHLORINATION INJECTION
2 ~ 1" CORPORATION STOP C.C. x I.P.
2 ~ 1" COPPER TUBING, CUT AS REQ'D
2 ~ 1-1/4" THD. SOLID CAPS, THR.
2 ~ 1 COMP x 1-1/4" COUPLING, CURB STOP
1 ~ 2" BLOWOFF ASSEMBLY (TEMPORARY)
(REFERENCE SHEET 7.7)



LOCATION MAP
NOT-TO-SCALE



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



50 0 50 100

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

LEGEND

PROPOSED 8" WATER MAIN	=	8"W
PROPOSED DUAL WATER SERVICES W/ METERS & METER BOXES (SEE DETAIL SHEET 7.6)	=	
PROPOSED SINGLE WATER SERVICE W/ METER & METER BOX (SEE DETAIL SHEET 7.6)	=	
PROPOSED IRRIGATION SERVICE W/ METER & METER BOX	=	I" POC
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED CONDUIT	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	
RIGHT-OF-WAY	=	R.O.W.
PROPOSED ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E. G. T. TV. E
PROPOSED VARIABLE WIDTH CLEAR VISION EASEMENT	=	V.W.C.V.E.
EXISTING WATER MAIN	=	E12"W
EXISTING RECYCLED WATER MAIN	=	RCW
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	E8"SS
EXISTING SANITARY SEWER MANHOLE	=	
EXISTING OVERHEAD ELECTRIC W/POWER POLE	=	OHE
EXISTING GUY WIRE/OVERHEAD ELECTRIC	=	OHE
EXISTING FIRBER OPTIC	=	FO
EXISTING GAS	=	G
EXISTING UNDERGROUND ELECTRIC	=	FO
EXISTING EXISTING LIGHT POLE	=	
EXISTING MARKER POST	=	
RESTRAINED LENGTH	=	X
ENTIRE LENGTH OF PIPE TO BE RESTRAINED	=	
TRACER WIRE TEST STATION	=	TS

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____ DATE

THIS APPROVAL WILL BECOME VOID AFTER ONE YEAR OF THE INDICATED APPROVAL DATE. EXCEPTIONS TO THIS APPROVAL ARE AS FOLLOWS:

_____

_____

_____

_____

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

REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER
11/03/2025
P.E.

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave, Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

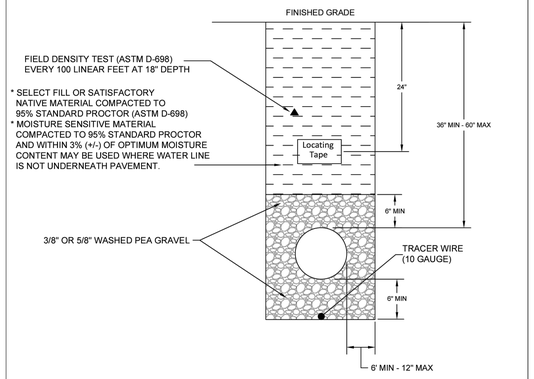
PROJECT NUMBER: 314-47-05
DRAWING NAME: OW_3144705

SHEET TITLE: WATER DISTRIBUTION PLAN

SHEET NUMBER: 7.5

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Oct 24, 2025, 9:34am User ID: logan.haney
File: U:\Projects\314-47\05\Design\Civil\WATER\OW_3144705.dwg
Description: WATER DISTRIBUTION PLAN By: LOGAN HANEY

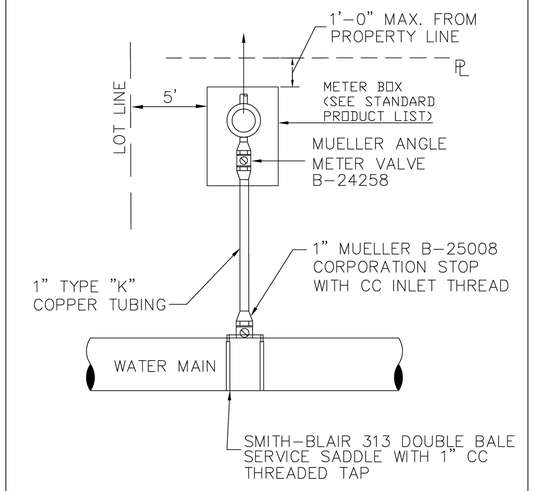


NOTES:

▲ RESPRESENTS FIELD DENSITY TEST LOCATION

INSTALLATION OF PIPE TO FOLLOW CITY OF KERRVILLE SUBDIVISION SPECIFICATIONS

Water Line Embedment & Field Density Testing			
City of Kerrville Standard Specifications			
SIZE	DATE MOD. 8/24/23	DWG NO. 380.03	REV
SCALE		SHEET	

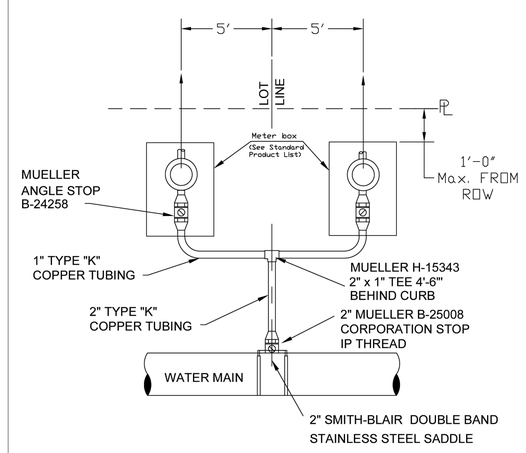


NOTE:

TAPS MUST BE IN EITHER THE 3:00 OR 9:00 O'CLOCK POSITION. NO TAPS WILL BE ALLOWED IN OTHER POSITIONS OF THE PIPE.

STAMP CURB WITH A "W" AT THE SERVICE.

Single Water Service Detail			
City of Kerrville Standard Specifications			
SIZE	DATE MOD. 8/25/23	DWG NO. 380.05	REV
SCALE		SHEET	

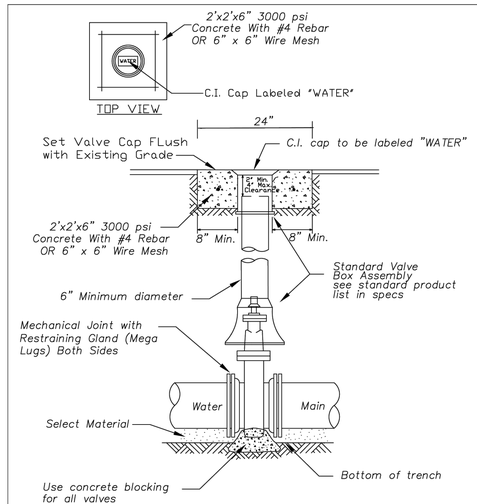


NOTE:

TAPS MUST BE IN EITHER THE 3:00 OR 8:00 O'CLOCK POSITION. NO TAPS WILL BE ALLOWED IN OTHER POSITIONS OF THE PIPE.

STAMP CURB WITH A "W" AT THE SERVICE.

Double Water Service Detail			
City of Kerrville Standard Specifications			
SIZE	DATE MOD. 11/3/23	DWG NO. 380.06	REV
SCALE		SHEET	



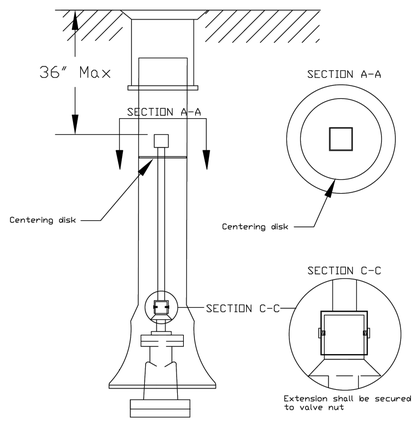
NOTE:

ALL FLUSHING AND GATE VALVES TO BE AWWA STANDARD COUNTERCLOCKWISE OPENING WITH RESILIENT SEATS.

OPERATING NUT EXTENSION REQUIRED IF TOP OF NUT IS GREATER THAN 5 FT DEEP (SEE DETAIL FOR VALVE NUT EXTENSION)

Gate Valve Detail			
City of Kerrville Standard Specifications			
SIZE	DATE MOD. 7/26/23	DWG NO. 380.08	REV
SCALE		SHEET	

NOTE:
WATER MAINS DEEPER THAN THAT ALLOWED BY THE CITY OF KERRVILLE SPECIFICATIONS WILL REQUIRE WRITTEN PERMISSION FROM THE CITY ENGINEER.



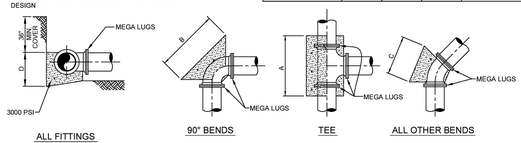
Valve Extension Details			
City of Kerrville Standard Specifications			
SIZE	DATE MOD. 12/15/23	DWG NO. 380.09	REV
SCALE		SHEET	

THRUST BLOCKING NOTES

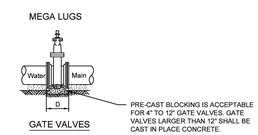
1. THRUST BLOCKING SHALL BE PLACED AGAINST UNDISTURBED SOIL.
2. CONCRETE THRUST BLOCKING SHALL BE PROVIDED WHERE CHANGES IN DIRECTION OCCURS, AT TEES, BENDS, CROSSES, CHANGES IN SIZES, STOPS(DEAD ENDS), VALVES, AND OR AS SHOWN BELOW.
3. CONTRACTOR SHALL USE THE MINUMUM AREA DIMENSIONS IN THE TABLE FOR THRUST BLOCKING AREA
4. THRUST BLOCKING IS PRIMARY BUT MECHANICAL RESTRAINT WITH APPROVAL BY CITY.
5. ENGINEER IS RESPONSIBLE FOR THRUST RESTRAINT DESIGN

THRUST BLOCK SCHEDULE

PIPE SIZE	A PLUGS & TEES	B 90° B	C 45° B	D GATE VALVES
4" OR 6"	1' - 0"	1' - 2"	1' - 2"	1' - 0"
8"	1' - 3"	1' - 6"	1' - 6"	1' - 0"
12"	2' - 8"	3' - 0"	2' - 3"	1' - 0"
16" & Larger	3' - 8"	4' - 0"	3' - 0"	2' - 0"

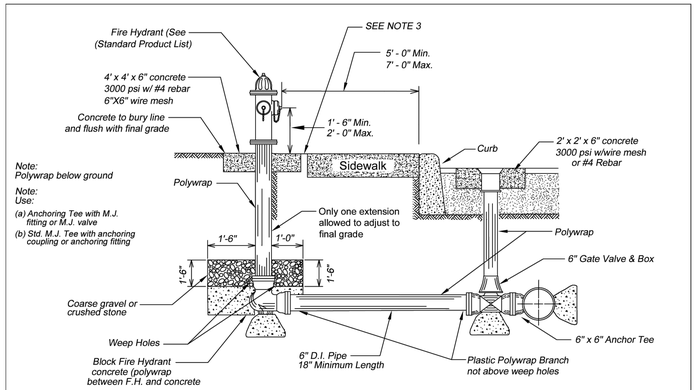


THRUST BLOCK DETAILS
SCALE : NONE



PRE-CAST BLOCKING IS ACCEPTABLE FOR 4" TO 12" GATE VALVES. GATE VALVES LARGER THAN 12" SHALL BE CAST IN PLACE CONCRETE.

Thrust Blocking Detail			
City of Kerrville Standard Specifications			
SIZE	DATE MOD. 8/25/23	DWG NO. 380.04	REV
SCALE		SHEET	



Note:

1. 3' Flat Walking Clearance around Fire Hydrant.
2. During construction, all inactive Fire Hydrants shall be bagged with a black 3 mil polyethylene bag or with 8 mil polywrap to indicate Fire Hydrant is not in current operation for fire protection.
3. If the 4'x4'x6" concrete pad for fire hydrant is located within 6" of concrete sidewalk, the concrete pad shall be extend to the edge of sidewalk
4. All valves and MJ fittings must be wrapped in 8-mil polywrap

Fire Hydrant Assembly Detail			
City of Kerrville Standard Specifications			
SIZE	DATE MOD. 12/15/23	DWG NO. **380.10**	REV
SCALE		SHEET	

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

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BY APPROVING THESE PLANS, THE CITY OF KERRVILLE DOES NOT ASSUME ANY LIABILITY FOR ENGINEERING DESIGN, NOR DOES APPROVAL RELEASE THE DESIGN ENGINEER FROM LIABILITY FOR CORRECTION ERRORS OR OMISSIONS IN THE DESIGN BOTH DURING AND AFTER CONSTRUCTION.

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

REV	DATE	DRAWN BY	DESCRIPTION

06/19/2025
STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED
PROFESSIONAL ENGINEER

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194350

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

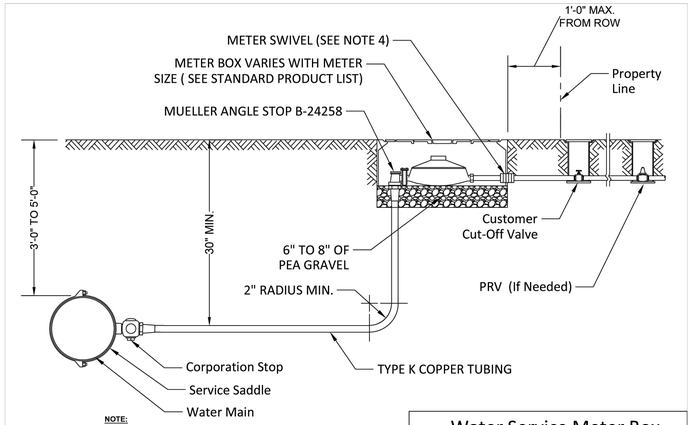
PROJECT NUMBER: 314-47-05
DRAWING NAME: WATER DETAIL SHEET

SHEET TITLE: WATER DETAILS

SHEET NUMBER: 7.6

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: May 29, 2025, 2:37pm User ID: logan.harvey
File: L:\KV-Projects\314-47-05\Design\Civil\WATER\WATER DETAIL SHEET.dwg
Xrefs: ..\Design\Civil\WATER\WATER DETAIL SHEET.dwg
By: LOGAN.HARVEY



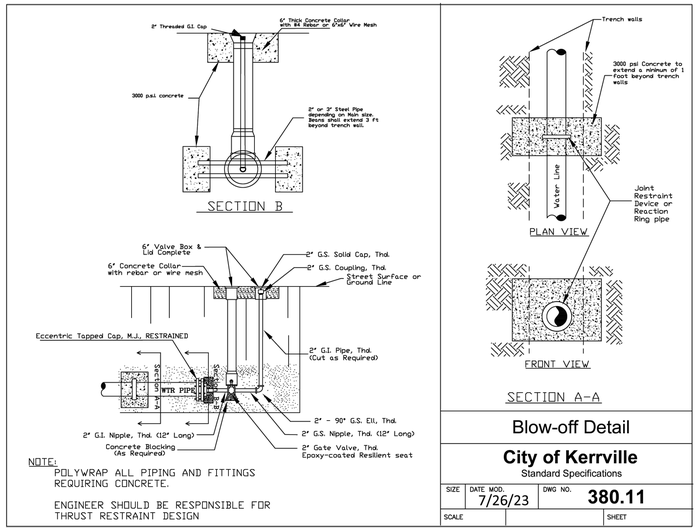
NOTE:

1. TAPS MUST BE IN EITHER THE 3:00 OR 9:00 O'CLOCK POSITION. NO TAPS WILL BE ALLOWED IN OTHER POSITIONS OF THE PIPE.
2. NO SPLICES OR JOINTS ALLOWED IN COPPER TUBING FOR SERVICE LINES
3. STAMP CONCRETE CURB WITH A "W" AT THE SERVICE
4. THE CUSTOMER SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF SERVICE INSTALLATIONS INSIDE THE PROPERTY LINE. ALL PIPING BEYOND THE METER SWIVEL SHALL BE THE RESPONSIBILITY OF THE CUSTOMER.

Water Service Meter Box

City of Kerrville
Standard Specifications

SIZE	DATE MOD.	DWG NO.	REV
	12/15/23	380.07	
SCALE		SHEET	



NOTE:
POLYWRAP ALL PIPING AND FITTINGS REQUIRING CONCRETE.

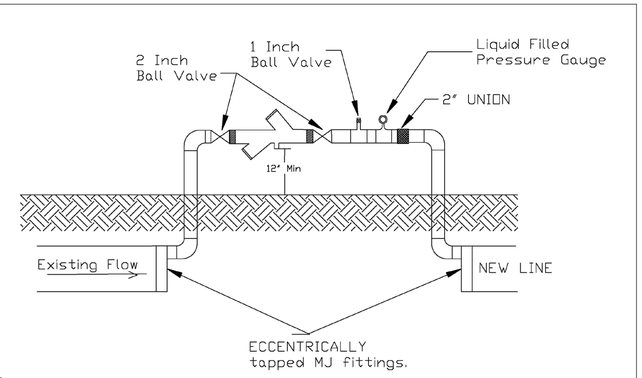
ENGINEER SHOULD BE RESPONSIBLE FOR THRUST RESTRAINT DESIGN

SECTION A-A

Blow-off Detail

City of Kerrville
Standard Specifications

SIZE	DATE MOD.	DWG NO.	
	7/26/23	380.11	
SCALE		SHEET	



NOTES:
1. All piping configurations of the Backflow Assembly shall be done with Galvanized pipe.
2. BACKFLOW PREVENTION DEVICE (R.P.Z.) designated by City of Kerrville Standard Product List.
3. This installation approved for temporary line loading only.
4. RPZ must be tested according to most recently adopted City of Kerrville plumbing code.

Backflow Prevention For Water Main Loading

City of Kerrville
Standard Specifications

SIZE	DATE MOD.	DWG NO.	REV
	7/26/23	380.12	
SCALE		SHEET	

CITY APPROVAL

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REV	DATE	DRAWN BY	DESCRIPTION

06/17/2025



WINDRIDGE SUBDIVISION – UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
640 North Walnut Ave.
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: WATER DETAIL SHEET

SHEET TITLE: WATER DETAILS

SHEET NUMBER: 7.7

Date: May 29, 2025, 2:07pm User ID: loganhaney
File: U:\Projects\314\47\05\Design\Civil\WATER\WATER DETAIL SHEET.dwg
\Design\Civil\WATER\DETAIL SHEET.dwg(WATER DETAILS) By: LOGAN.HANEY

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

TRENCH EXCAVATION SAFETY PROTECTION

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

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____
DATE

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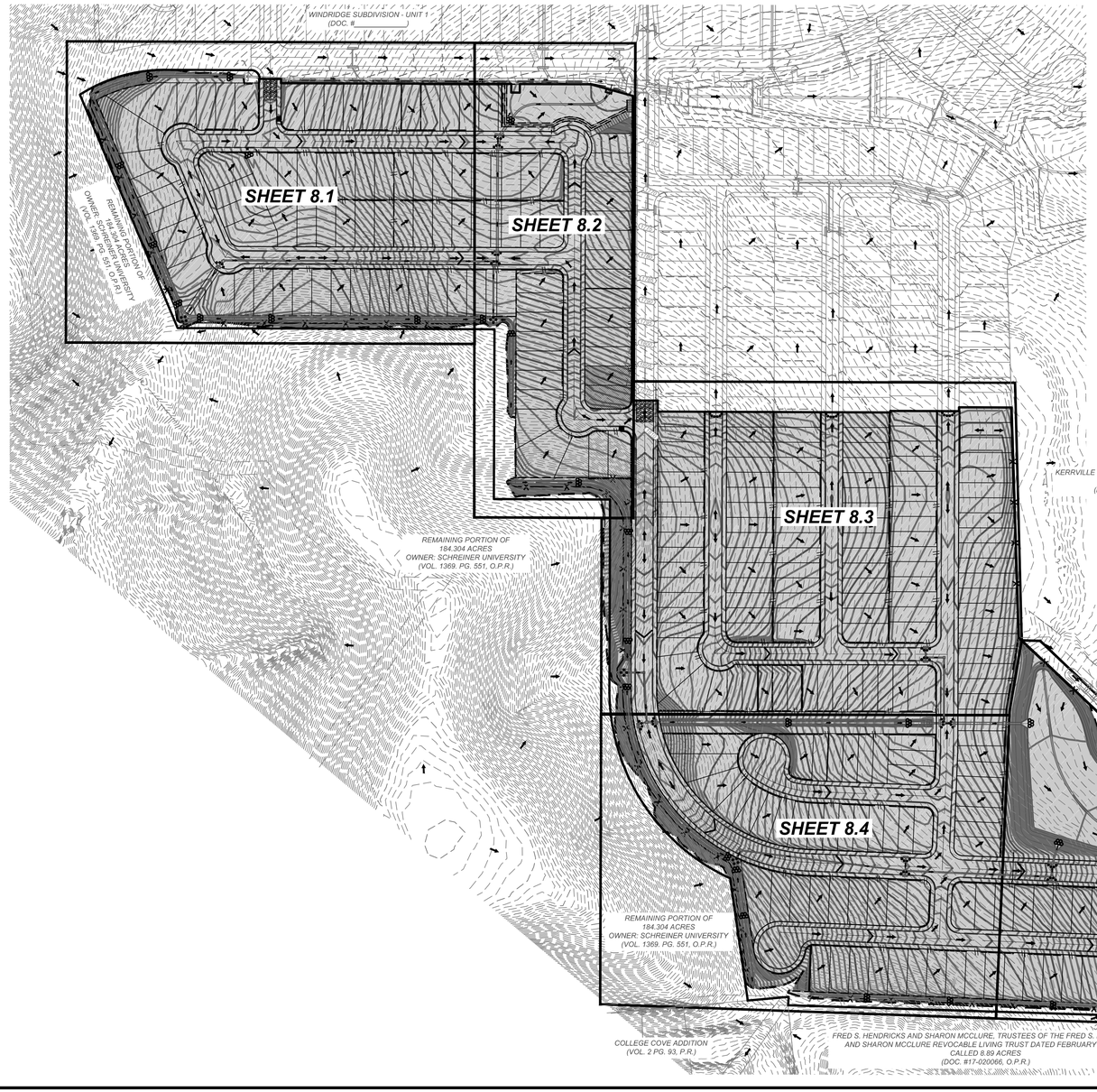
SW3P MODIFICATIONS

DATE	*SIGNATURE*	*DESCRIPTION*



SITE DESCRIPTION

PROJECT LOCATION:
INTERSECTION OF LOOP 534 AND OLYMPIC DRIVE IN KERRVILLE CITY OF KERRVILLE KERR COUNTY, TEXAS.

PROJECT DESCRIPTION:
CONSTRUCTION OF WATER AND SEWER MAINS, STREET CONSTRUCTION

MAJOR SOIL DISTURBING ACTIVITIES:
SITE GRADING, UTILITIES, STREET CONSTRUCTION PAVING, FINISH GRADING,

TOTAL PROJECT AREA: 52.30

TOTAL AREA TO BE DISTURBED: 50.83

WEIGHTED RUNOFF COEFFICIENT (AFTER CONSTRUCTION): 0.66

EXISTING CONDITION OF SOIL AND VEGETATIVE COVER AND % OF EXISTING VEGETATIVE COVER:
UNDEVELOPED AND HEAVILY VEGETATED

NAME OF RECEIVING WATERS:
CYPRESS CREEK TO GUADALUPE RIVER

EROSION AND SEDIMENT CONTROLS

SOIL STABILIZATION PRACTICES:
- ___ TEMPORARY SEEDING
- X PERMANENT PLANTING, SODDING, OR SEEDING
- ___ MULCHING
- X SOIL RETENTION BLANKET
- X BUFFER ZONES
- X PRESERVATION OF NATURAL RESOURCES

OTHER: ___

STRUCTURAL PRACTICES:
- X SILT FENCES
- ___ HAY BALES
- X ROCK BERMS
- X DIVERSION, INTERCEPTOR, OR PERIMETER DIKES
- X DIVERSION, INTERCEPTOR, OR PERIMETER SWALES
- ___ DIVERSION DIKE AND SWALE COMBINATIONS
- ___ PIPE SLOPE DRAINS
- ___ PAVED FLUMES
- X ROCK BEDDING AT CONSTRUCTION EXIT
- ___ TIMBER MATTING AT CONSTRUCTION EXIT
- ___ CHANNEL LINERS
- ___ SEDIMENT TRAPS
- ___ SEDIMENT BASINS
- ___ STORM INLET SEDIMENT TRAP
- ___ STONE OUTLET STRUCTURES
- ___ CURBS AND GUTTERS
- ___ STORM SEWERS
- X VELOCITY CONTROL DEVICES
- X GRAVEL FILTER BAGS

OTHER: ___

NARRATIVE – SEQUENCE OF CONSTRUCTION (STORM WATER MANAGEMENT) ACTIVITIES:

PHASE I:
INSTALLATION OF TEMPORARY BMPs AS PART OF THE SWPPP MEASURES

PHASE II:
SITE CLEARING, DEMO AND GRADING

PHASE III:
UTILITY INSTALLATION

PHASE IV:
SITE PAVING

PHASE V:

STORM WATER MANAGEMENT:

OTHER EROSION & SEDIMENT CONTROLS:

MAINTENANCE:
All erosion and sediment controls will be maintained in good working order. If a repair is necessary, it will be done at the earliest date possible, but no later than 7 calendar days after the surrounding exposed ground has dried sufficiently to prevent further damage from heavy equipment. The areas adjacent to drainageways shall have priority followed by devices protecting storm sewer inlets.

INSPECTION:
An inspection will be performed by the owner or contractor's representative every week

An inspection and Maintenance Report will be made per each inspection. Based on the inspection results, the controls shall be revised per the inspection report.

WASTE MATERIALS:
All waste materials will be collected and stored in a securely lidded metal dumpster. The dumpster will meet all state and local city solid waste management regulations. All trash and construction debris form the site will be deposited in the dumpster. The dumpster wil be emptied as necessary or as required by local regulations and the trash will be hauled to a local dump. No construction waste material will be buried on site.

HAZARDOUS WASTE (INCLUDING SPILL REPORTING):
At a minimum, any products in the following categories are considered to be hazardous: paints, acids for cleaning, masonry surfaces, cleaning solvents, asphalt products, chemical additives for soil stabilization or concrete curing compounds & additives. In the event of a hazardous material spill, the spill coordinator shall be contacted immediately.

SANITARY WASTE:
All sanitary waste will be collected from portable units as necessary, or as required by local regulations by a Licensed Sanitary Waste Management Contractor.

OFFSITE VEHICLE TRACKING:
- ___ HAUL ROADS DAMPENED FOR DUST CONTROL
- X EXCESS DIRT ON ROAD REMOVED ON A REGULAR BASIS.
- X STABILIZED CONSTRUCTION ENTRANCE

OTHER: ___

REMARKS:
Disposal areas, stockpiles, and haul roads shall be constructed in a manner that will minimize and control the amount of sediment that may enter receiving waters. Disposal areas shall not be located in any wetland, waterbody or streambed. Construction staging areas and vehicle maintenance areas shall be constructed by the Contractor in a manner to minimize the runoff of pollutants. All waterways shall be cleared as soon as practicable of temporary embankment, temporary bridges, matting, falsework, piling, debris or other obstructions placed during construction operations that are are not a part of the finished work.



LOCATION MAP
NOT-TO-SCALE

SWPPP REQUIREMENTS:

PRIOR TO START OF ANY CONSTRUCTION ACTIVITIES THE CONTRACTOR SHALL OBTAIN A BUILDING PERMIT FROM THE CITY OF KERRVILLE AND SUBMIT AN NOI TO TCEQ, POST REQUIRED SITE NOTICES, AND IMPLEMENT THE SWPPP MEASURES APPLICABLE TO THAT PHASE OF WORK. THE MINIMUM SWPPP MEASURES FOR THIS PROJECT ARE LISTED BELOW AND ABOVE. THE CONTRACTOR MAY MODIFY THESE MEASURES AS LONG AS THE SAME LEVEL OF PROTECTION IS PROVIDED:

EXISTING TREES AND VEGETATION ALONG FENCE LINES AND IN TREE PRESERVATION AREAS SHALL REMAIN UNLESS NOTED OTHERWISE ON LANDSCAPE OR DEMOLITION PLANS.

CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND MAINTAINING CONSTRUCTION ENTRANCES, CONCRETE WASHOUT PITS, TRASH AND RECYCLING CONTAINERS AND RESTROOM FACILITIES.

SITE WORK:
- PROVIDE SILT FENCE WHERE SHOWN.
- INSTALL GRAVEL FILTER BAGS OR OTHER INLET PROTECTION DEVICES ON CURB AND GRATE INLETS AS INLETS ARE CONSTRUCTED.
- PROVIDE ROCK FILTER DAMS ON CONCENTRATED POINTS OF DISCHARGE.
- REVEGETATE AREAS NOT SCHEDULED FOR PAVEMENT, BUILDINGS, OR AREAS ADDRESSED ON LANDSCAPE PLANS.
- PROVIDE EROSION CONTROL MATTING AT LOCATIONS SHOWN ON THE PLANS. MATTING SHALL BE TOED DOWN A MINIMUM OF 12".
- REMOVE TEMPORARY BMPs ONCE VEGETATION HAS BEEN ESTABLISHED.

CONSTRUCTION ENTRANCE(S)

CONTRACTOR SHALL CONSTRUCT CONSTRUCTION ENTRANCE(S) AS REQUIRED TO PREVENT TRACKING OF SOIL ONTO ADJACENT STREETS.

CONCRETE WASHOUT "PITS"

CONTRACTOR SHALL ESTABLISH WASHOUT FACILITIES AS REQUIRED FOR CONCRETE WASHOUT WASTE. FACILITIES MAY BE PITS, TANKS, OR OTHER FACILITIES DESIGNED FOR THIS PURPOSE.

NOTES:

THE SCALE OF THIS SWPPP PRECLUDES SHOWING THE FULL EXTENT OF THE SITE GRADING. FINISH CONTOURS ARE SHOWN. ADDITIONAL INFORMATION ON THE GRADING AND VEGETATIVE RESTORATION MAY BE FOUND ON THE SITE AND GRADING PLANS.

THE SWPPP PROGRAM SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION OF THE ENTIRE PROJECT.

LEGEND

- *EXISTING CONTOURS* (780)
- *PROPOSED CONTOURS* (780)
- *PROPOSED CONTOURS WINDRIDGE UNIT 1* (780)
- *FLOW ARROW*
- *STABILIZED CONSTRUCTION ENTRANCE/EXIT*
- *CONSTRUCTION EQUIPMENT, VEHICLE & MATERIALS STORAGE AREA*
- *CONCRETE TRUCK WASHOUT PIT*
- *INLET WITH PROTECTION (GRAVEL FILTER BAGS)*
- *DISTURBED AREA*
- *ROCK BERM*
- *HIGH SERVICE ROCK BERM (RG-348)*
- *EARTH CHECK DAM*
- *SILT FENCE PHASE 2*
- *SILT FENCE PHASE 1*
- *LIMITS OF CONSTRUCTION*
- *VERTICAL WALL (BY OTHERS)*

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

REV	DATE	DRAWN BY	DESCRIPTION

06/19/2025

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED
PROFESSIONAL ENGINEER

WINDRIDGE SUBDIVISION – UNIT 2

FOR

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

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: SW3P_3144705

SHEET TITLE:
STORM WATER POLLITION PREVENTION PLAN MAP

SHEET NUMBER:
8.0

Date: Jun 16, 2025, 8:32pm User ID: mseago
File: L:\Projects\314\47\05\04\Design\Civil\SW3P\SW3P_3144705.dwg
\Design\Civil\SW3P\SW3P_3144705.dwg,8.0 STORM WATER POLLUTION PREVENTION PLAN MAP By: MSEAGO

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

TRENCH EXCAVATION SAFETY PROTECTION

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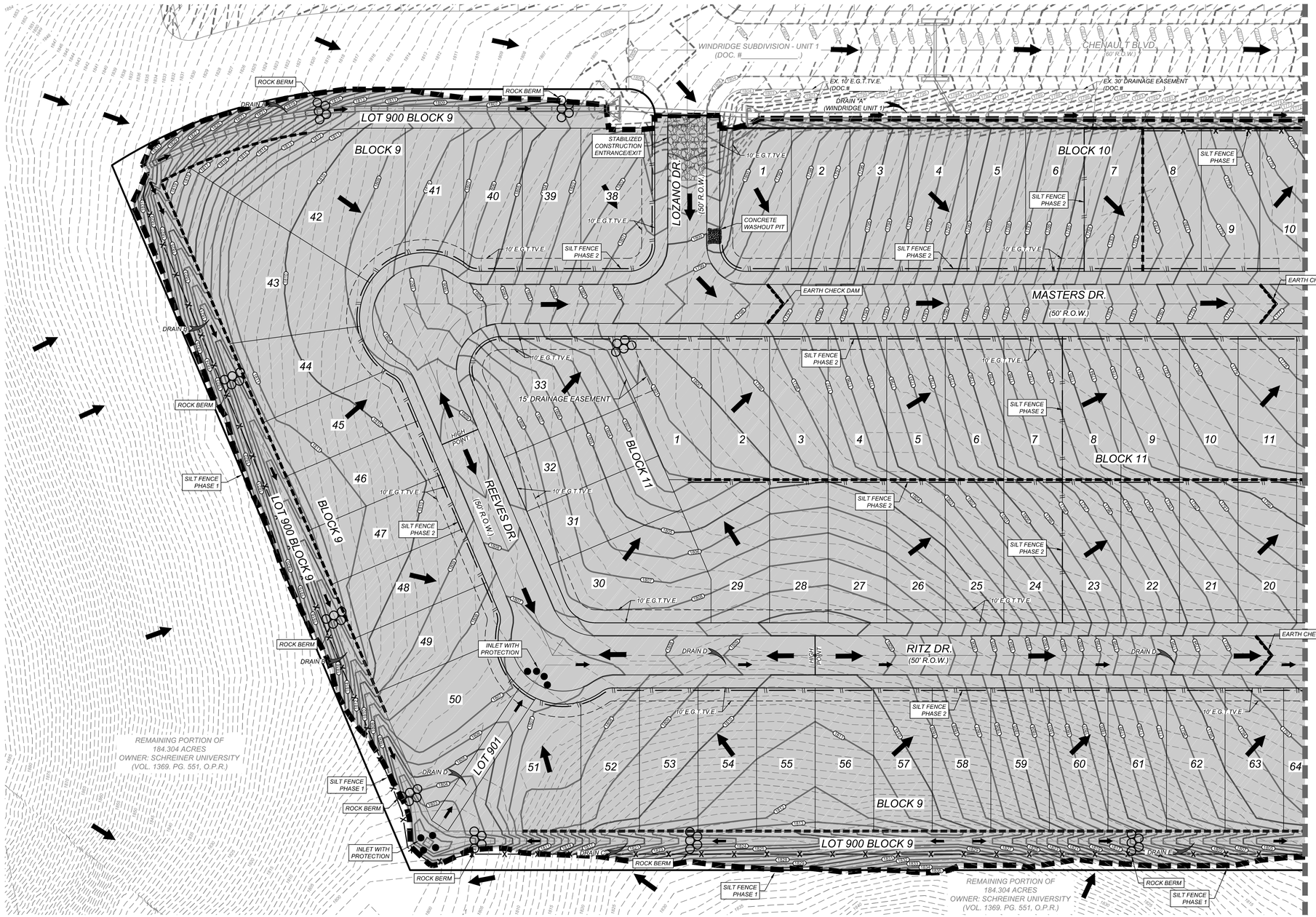
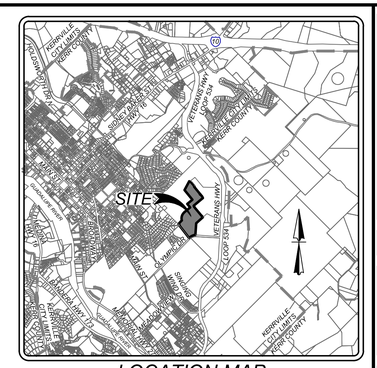
SW3P MODIFICATIONS

DATE	SIGNATURE	DESCRIPTION

REFER TO SHEET 8.0 FOR STORM WATER POLLUTION PREVENTION PLAN NOTES





LOCATION MAP
NOT-TO-SCALE

N E W S

40 0 40 80

SCALE : 1" = 40'
Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- PROPOSED CONTOURS WINDRIDGE UNIT 1
- FLOW ARROW
- STABILIZED CONSTRUCTION ENTRANCE/EXIT
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- VERTICAL WALL (BY OTHERS)

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____ DATE

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06/17/2025

STATE OF TEXAS
DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER

WINDRIDGE SUBDIVISION - UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

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

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: SW3P_3144705

SHEET TITLE: STORM WATER POLLITION PREVENTION PLAN

SHEET NUMBER: 8.1

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

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\Design\Civil\SW3P\SW3P_3144705.dwg|LT100MWATER POLLUTION PREVENTION PLAN By: NSCISO

SW3P MODIFICATIONS

DATE	SIGNATURE	DESCRIPTION

REFER TO SHEET 8.0 FOR STORM WATER POLLUTION PREVENTION PLAN NOTES

TRENCH EXCAVATION SAFETY PROTECTION

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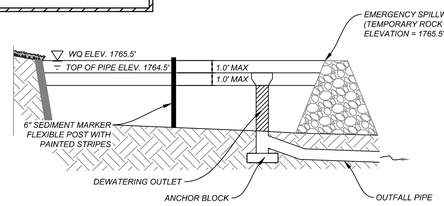


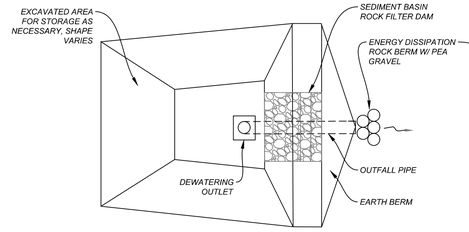
CROSS SECTION SEDIMENT BASIN
N.T.S.

SEDIMENT BASIN NOTES

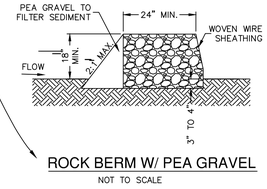
1. THE 48-HOUR DRAWDOWN TIME WILL BE ACHIEVED BY USING A RISER PIPE PERFORATED AT THE POINT MEASURED FROM THE BOTTOM OF THE RISER PIPE EQUAL TO 1/2 THE VOLUME OF THE BASIN. THIS IS THE MAXIMUM SEDIMENT STORAGE ELEVATION.
2. THE BASIN SHOULD INCLUDE A PERMANENT STAKE TO INDICATE THE SEDIMENT LEVEL IN THE POOL AND MARKED TO INDICATE WHEN THE SEDIMENT OCCUPIES 50% OF THE BASIN VOLUME (NOT THE TOP OF THE STAKE).
3. DE-WATERING HOLES ARE TO HAVE A MINIMUM AREA (A_o) OF 0.10 SF. PERFORATING THE RISER WITH MULTIPLE HOLES WITH A COMBINED SURFACE AREA EQUAL TO A_o IS ACCEPTABLE. HOLES ARE TO BE EVENLY SPACED AROUND PIPE.

SEDIMENT BASIN DESIGN DATA

BASIN DISTURBED AREA = 14.64 ACRES
DESIGN RAINFALL DEPTH = 2.95 IN (2-YR, 24 HR STORM MINUS INITIAL ABSTRACTION)
SEDIMENT VOLUME REQUIRED = 3.60 AC-FT
SEDIMENT VOLUME PROVIDED = 3.60 AC-FT



PLAN VIEW
NOT TO SCALE



ROCK BERM W/ PEA GRAVEL
NOT TO SCALE

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LOCATION MAP
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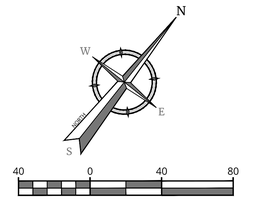
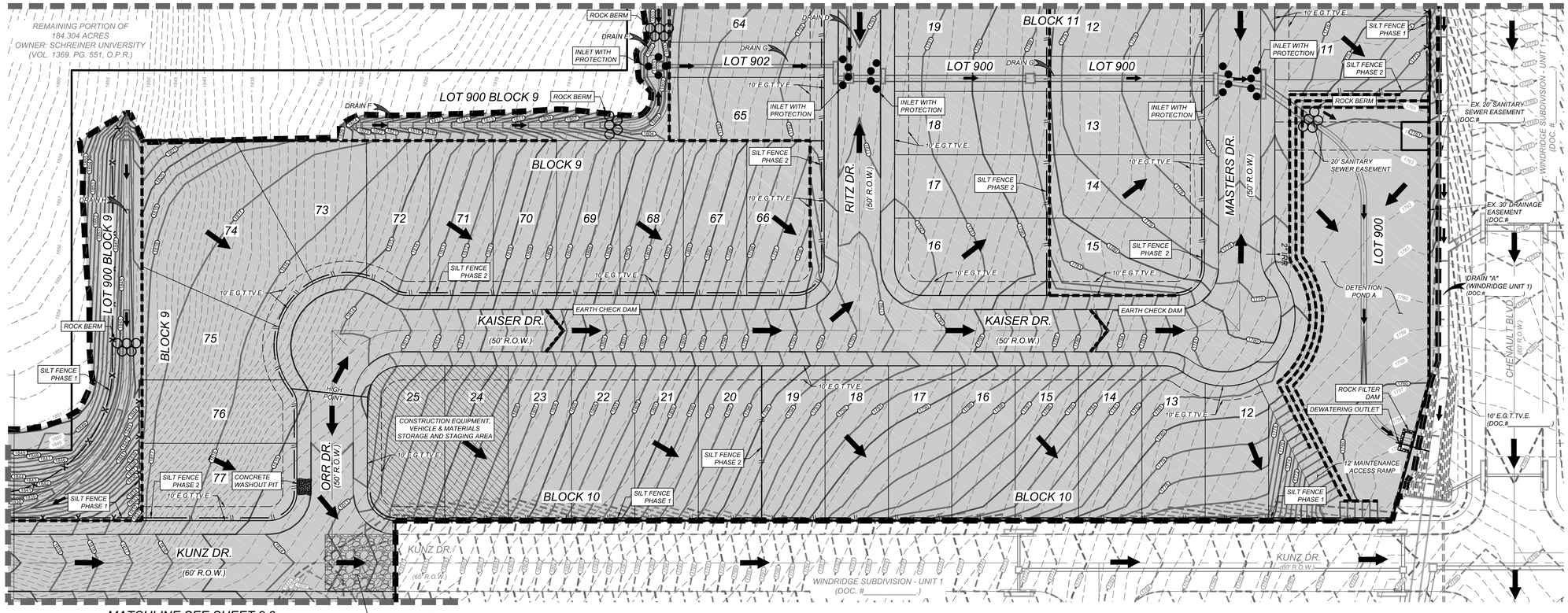


40 0 40 80
SCALE : 1" = 40'
Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

MATCHLINE SEE SHEET 8.1



MATCHLINE SEE SHEET 8.3

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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: SW3P_3144705

SHEET TITLE: STORM WATER POLLITION PREVENTION PLAN

SHEET NUMBER: 8.2

Date: Jun 16, 2025, 8:36am User ID: mcsco
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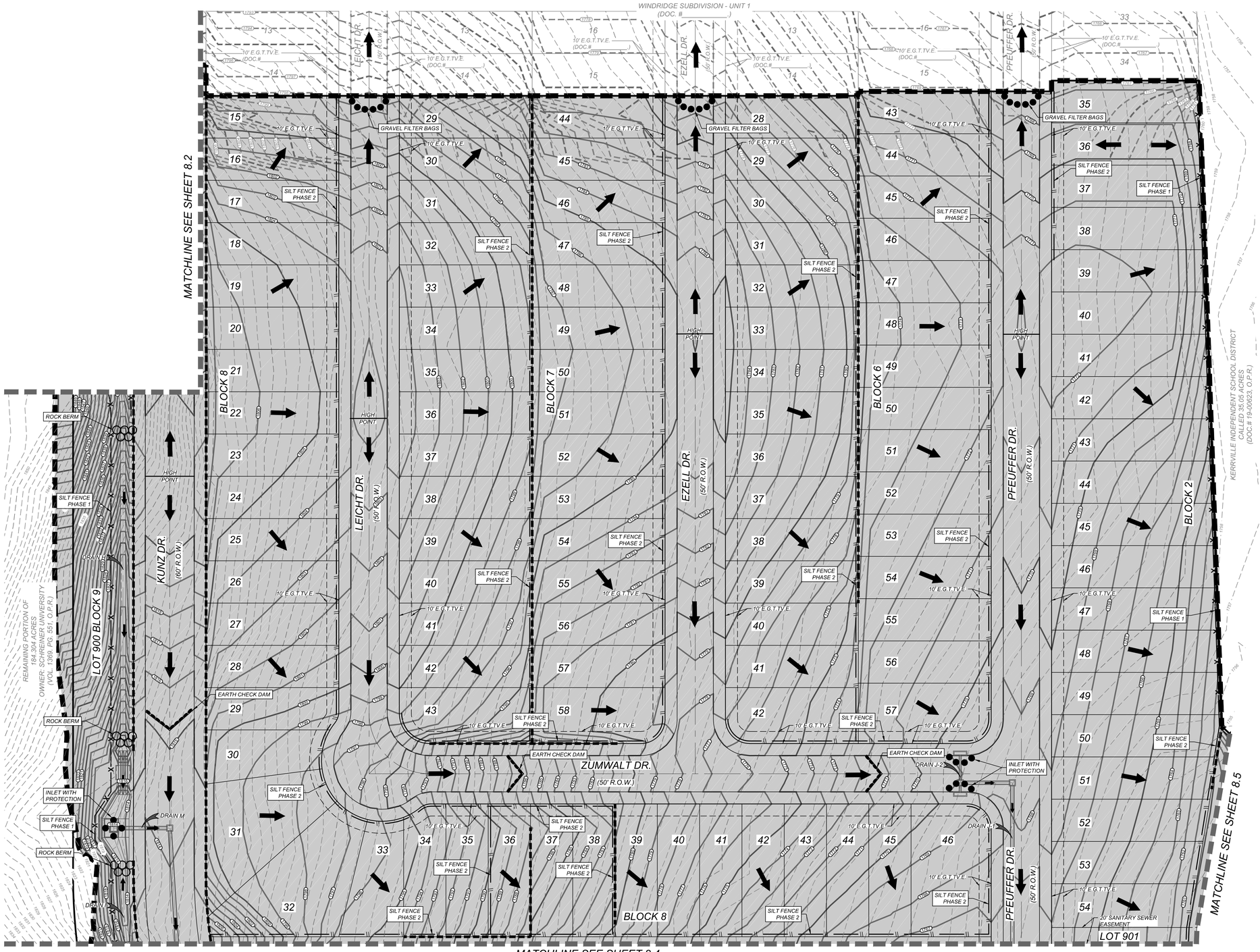
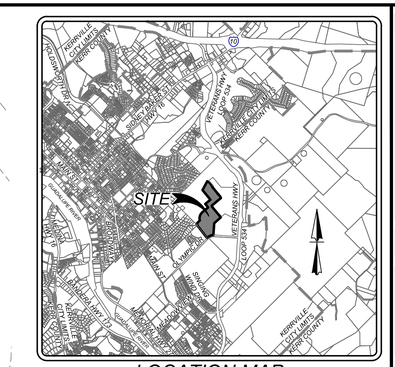
NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.





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REFER TO SHEET 8.0 FOR STORM WATER POLLUTION PREVENTION PLAN NOTES

SW3P MODIFICATIONS

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WINDRIDGE SUBDIVISION - UNIT 2

FOR

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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: SW3P_3144705

SHEET TITLE:
STORM WATER POLLITION PREVENTION PLAN

SHEET NUMBER: 8.3

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Jun 19, 2025, 8:37am User ID: mseago
File: J:\Projects\314\47\05\Design\Civil\SW3P\SW3P_3144705.dwg
Design\Civil\SW3P\SW3P_3144705.dwg 8.3 STORM WATER POLLUTION PREVENTION PLAN By:MSEGO

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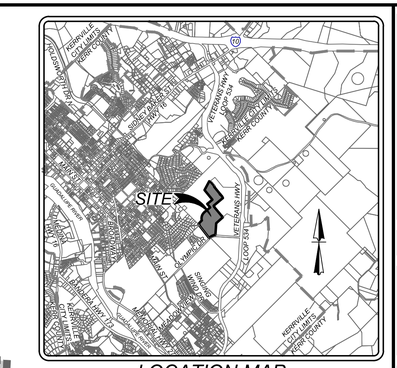

LOCATION MAP
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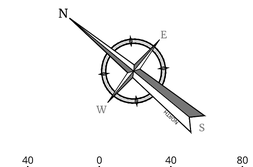

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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER: 314-47-05
DRAWING NAME: SW3P_3144705

SHEET TITLE: STORM WATER POLLITION PREVENTION PLAN

SHEET NUMBER: 8.4

Date: Jun 16, 2025, 8:37pm User ID: mcsmith
File: L:\Projects\3144705\Civil\Drawings\SW3P\SW3P_3144705.dwg
Design/Civil/SW3P/SW3P_3144705.dwg 8.4 STORM WATER POLLUTION PREVENTION PLAN By:MCSMITH

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

TRENCH EXCAVATION SAFETY PROTECTION

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

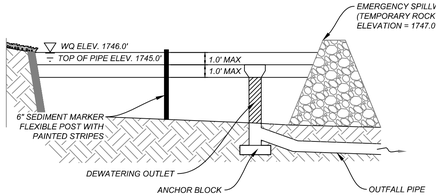
CAUTION!!:
THE CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITED TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS 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.

SEDIMENT BASIN NOTES

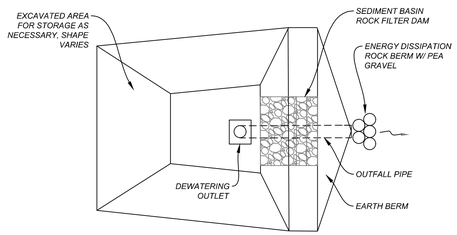
1. *THE 48-HOUR DRAWDOWN TIME WILL BE ACHIEVED BY USING A RISER PIPE PERFORATED AT THE POINT MEASURED FROM THE BOTTOM OF THE RISER PIPE EQUAL TO 1/2 THE VOLUME OF THE BASIN. THIS IS THE MAXIMUM SEDIMENT STORAGE ELEVATION.*
2. *THE BASIN SHOULD INCLUDE A PERMANENT STAKE TO INDICATE THE SEDIMENT LEVEL IN THE POOL AND MARKED TO INDICATE WHEN THE SEDIMENT OCCUPIES 50% OF THE BASIN VOLUME (NOT THE TOP OF THE STAKE).*
3. *DE-WATERING HOLES ARE TO HAVE A MINIMUM AREA (A_{DW}) OF 0.10 SF. PERFORATING THE RISER WITH MULTIPLE HOLES WITH A COMBINED SURFACE AREA EQUAL TO A_O IS ACCEPTABLE. HOLES ARE TO BE EVENLY SPACED AROUND PIPE.*

SEDIMENT BASIN DESIGN DATA

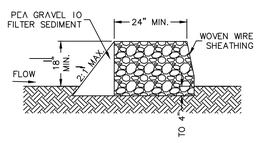
BASIN DISTURBED AREA = 22.28 ACRES
DESIGN RAINFALL DEPTH = 2.95 IN (2-YR, 24 HR STORM MINUS INITIAL ABSTRACTION)
SEDIMENT VOLUME REQUIRED = 5.48 AC-FT
SEDIMENT VOLUME PROVIDED = 5.48 AC-FT



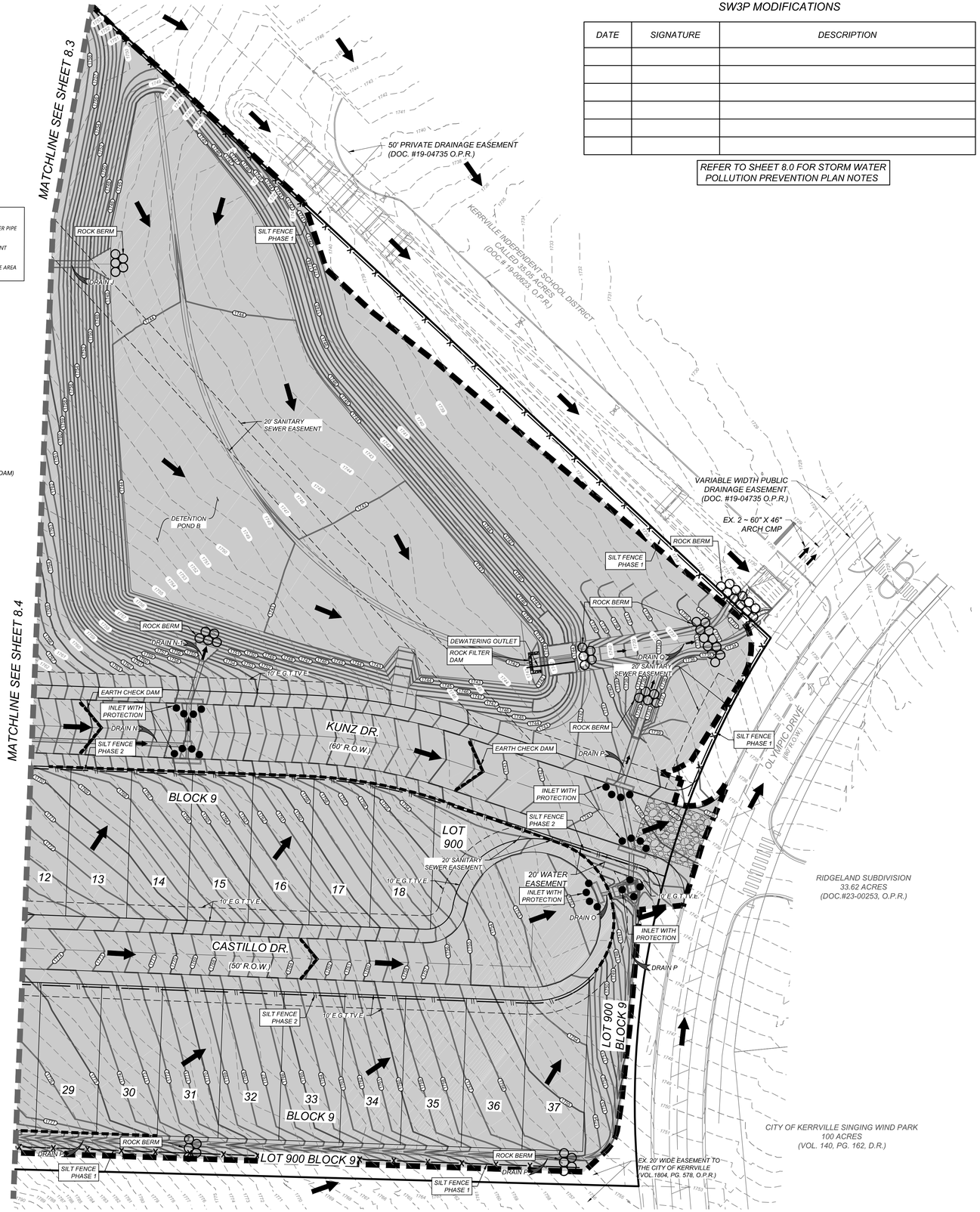
CROSS SECTION SEDIMENT BASIN
N.T.S.



PLAN VIEW
NOT TO SCALE



ROCK BERM W/ PEA GRAVEL
NOT TO SCALE



SW3P MODIFICATIONS

DATE	SIGNATURE	DESCRIPTION

REFER TO SHEET 8.0 FOR STORM WATER POLLUTION PREVENTION PLAN NOTES



LOCATION MAP
NOT-TO-SCALE

N E S W

40 0 40 80

SCALE : 1" = 40'
Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

LEGEND

- *EXISTING CONTOURS* (780)
- *PROPOSED CONTOURS* (780)
- *PROPOSED CONTOURS WINDRIDGE UNIT 1* (780)
- *FLOW ARROW*
- *STABILIZED CONSTRUCTION ENTRANCE/EXIT*
- *CONSTRUCTION EQUIPMENT, VEHICLE & MATERIALS STORAGE AREA*
- *CONCRETE TRUCK WASHOUT PIT*
- *INLET WITH PROTECTION (GRAVEL FILTER BAGS)*
- *DISTURBED AREA*
- *ROCK BERM*
- *HIGH SERVICE ROCK BERM (RG-348)*
- *EARTH CHECK DAM*
- *SILT FENCE PHASE 2*
- *SILT FENCE PHASE 1*
- *LIMITS OF CONSTRUCTION*
- *VERTICAL WALL (BY OTHERS)*

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____
DATE

THIS APPROVAL WILL BECOME VOID AFTER ONE YEAR OF THE INDICATED APPROVAL DATE. EXCEPTIONS TO THIS APPROVAL ARE AS FOLLOWS:

_____
_____
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_____

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DENIS A. AVENDANO
137588
LICENSED PROFESSIONAL ENGINEER

WINDRIDGE SUBDIVISION - UNIT 2

FOR

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CITY OF KERRVILLE
KERR COUNTY
TEXAS

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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	MAY 2025	MF	DA

PROJECT NUMBER:	DRAWING NAME:
314-47-05	SW3P_3144705

SHEET TITLE:
STORM WATER POLLITION PREVENTION PLAN

SHEET NUMBER:
8.5

Date: Jun 16, 2025, 8:39am User ID: mcengp
File: L:\Projects\314-47-05\Design\Civil\SW3P\SW3P_3144705.dwg
Plot Scale: 1.0000 '/ Inch (X AXIS) (Y AXIS)
By: NSCEG

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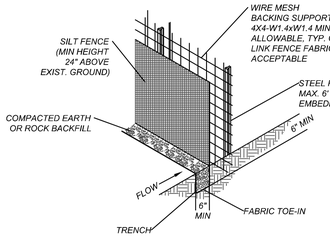


ISOMETRIC PLAN VIEW

Materials:

(1) Silt fence material should be polypropylene, polyethylene or polyamide woven or nonwoven fabric. The fabric width should be 36 inches, with a minimum unit weight of 4.5 oz/yd, mullen burst strength exceeding 190 lb/in2, ultraviolet stability exceeding 70%, and minimum apparent opening size of U.S. Sieve No. 30.

(2) Fence posts should be made of hot rolled steel, at least 4 feet long with Tee or Ybar cross section, surface painted or galvanized, minimum nominal weight 1.25 lb/ft2, and Brindell hardness exceeding 140.

(3) Woven wire backing to support the fabric should be galvanized 2" x 4" welded wire, 12 gauge minimum.

Installation:

(1) Steel posts, which support the silt fence, should be installed on a slight angle toward the anticipated runoff source. Post must be embedded a minimum of 1- foot deep and spaced not more than 8 feet on center. Where water concentrates, the maximum spacing should be 6 feet.

(2) Lay out fencing down-slope of disturbed area, following the contour as closely as possible. The fence should be sited so that the maximum drainage area is ¼ acre/l 00 feet of fence.

(3) The toe of the silt fence should be trenched in with a spade or mechanical trencher, so that the down- slope face of the trench is flat and perpendicular to the line of flow. Where fence cannot be trenched in (e.g., pavement or rock outcrop), weight fabric flap with 3 inches of pea gravel on uphill side to prevent flow from seeping under fence.

(4) The trench must be a minimum of 6 inches deep and 6 inches wide to allow for the silt fence fabric to be laid in the ground and backfilled with compacted material.

(5) Silt fence should be securely fastened to each steel support post or to woven wire, which is in turn attached to the steel fence post. There should be a 3-foot overlap, securely fastened where ends of fabric meet.

(6) Silt fence should be removed when the site is completely stabilized so as not to block or impede storm flow or drainage.

Inspection and Maintenance Guidelines:

(1) Inspect all fencing weekly.

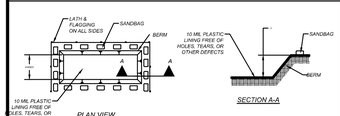
(2) Sediment should be removed when accumulation reaches 6 inches, and must removed before it reaches 50% of the above-ground height.

(3) Replace any torn fabric or install a second line of fencing parallel to the torn section.

(4) Replace or repair any sections crushed or collapsed in the course of construction activity. If a section of fence is obstructing vehicular access, consider relocating it to a spot where it will provide equal protection, but will not obstruct vehicles. A triangular filter dike may be preferable to a silt fence at common vehicle access points.

(5) When construction is complete, the sediment should be disposed of in a manner that will not cause additional siltation and the prior location of the silt fence should be revegetated. The fence itself should be disposed of in an approved landfill.

SILT FENCE

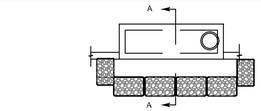


TYPE "BELOW GRADE"

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.*

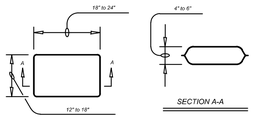
CONCRETE TRUCK WASHOUT PIT



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 GRAVEL FILTER BAGS.*

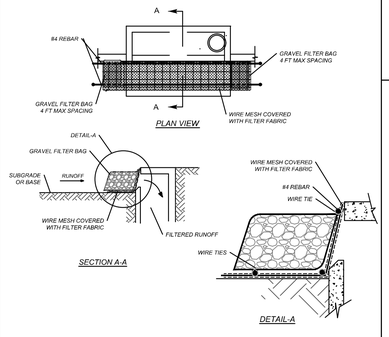
CURB INLET PROTECTION GRAVEL FILTER BAGS



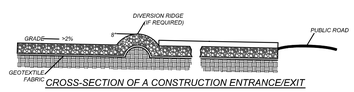
GENERAL NOTES:

- *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 ULTRAVIOLET 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



CURB INLET PROTECTION (ALRTERNATE)



CROSS-SECTION OF A CONSTRUCTION ENTRANCE/EXIT

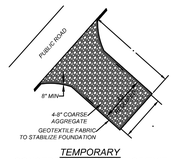
Materials:

(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:

(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.

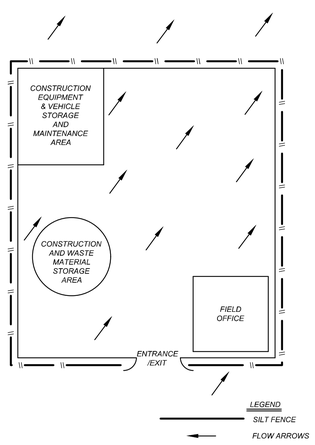
(2) All sediment spilled, dropped, washed or tracked onto public rights-of-way should be removed immediately by contractor.

(3) When necessary, wheels should be cleaned to remove sediment prior to entrance onto public right-of-way.

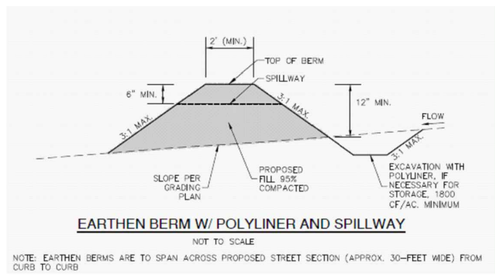
(4) When washing is required, it should be done on an area stabilized with crushed stone that drains into an approved sediment trap or sediment basin.

(5) All sediment should be prevented from entering any storm drain, ditch or water course by using approved methods.

STABILIZED CONSTRUCTION ENTRANCE / EXIT



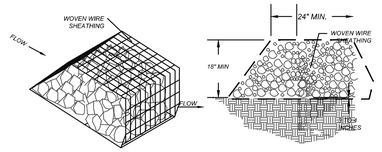
TYPICAL CONSTRUCTION STAGING AREA



EARTHEN BERM W/ POLYLINER AND SPILLWAY

NOT TO SCALE

NOTE: EARTHEN BERMS ARE TO SPAN ACROSS PROPOSED STREET SECTION (APPROX. 30—FEET WIDE) FROM CURB TO CURB



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, airt 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 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.

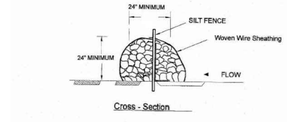
(5) The berm should be replaced when the structure ceases to function as intended due to silt accumulation among the rocks, washout, construction traffic damage, etc.

(6) The rock berm should be left in place until all upstream areas are stabilized and accumulated silt removed.

ROCK BERM

1.4.6 High Service Rock Berms

A high service rock berm should be designated in areas of important environmental significance such as in steep canyons or above permanent springs, pools, recharge features, or other environmentally sensitive areas that may require a higher level of protection. This type of sediment barrier combines the characteristics of a silt fence and a rock berm to provide a substantial level of sediment reduction and a sturdy enough barrier to withstand higher flows. The drainage area to this device should not exceed 5 acres and the slope should be less than 30%.



Cross - Section

Figure 1-29 Schematic Diagram of High Service Rock Berm (LCRA, 1998)

HIGH SERVICE ROCK BERM

CITY APPROVAL

THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY

_____ ON _____

DATE

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06/19/2025

STATE OF TEXAS — DENIS A. AVENDANO — 137588 — LICENSED PROFESSIONAL ENGINEER

WINDRIDGE SUBDIVISION – UNIT 2

FOR

LENNAR HOMES OF TEXAS

CITY OF KERRVILLE
KERR COUNTY
TEXAS

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

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	NOV 2024	MF	DA

PROJECT NUMBER: 314-47-05

DRAWING NAME: STORM WATER POLLUTION PREVENTION DETAILS

SHEET TITLE: STORM WATER POLLUTION PREVENTION DETAILS

SHEET NUMBER: 8.6

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Date: Mar 17, 2025, 10:33am User ID: mmorgan
File: U:\Projects\314\47\05\Design\Civil\CAD\Sheets\STORM WATER POLLUTION PREVENTION DETAILS.dwg
\Design\Civil\CAD\POTOMA WATER POLLUTION PREVENTION DETAILS.dwg\8.6 STORM WATER POLLUTION PREVENTION DETAILS - By: NSCEGO