SILVERLEAF CONDOMINIUMS

COMAL COUNTY, TEXAS

STREET, DRAINAGE, & WATER IMPROVEMENTS

Please Note: NBU REQUIRES GPS POINTS FOR CERTAIN ELECTRIC, WATER AND WASTEWATER ATTRIBUTES, SOME OF WHICH MUST BE TAKEN PRIOR TO BACKFILL DURING CONSTRUCTION.

GPS POINTS SHALL BE REQUIRED FROM THE DEVELOPERS CONTRACTOR. A MINIMUM OF THREE COORDINATE POINTS FOR GEOREFERENCING SHALL BE REQUIRED. THE WATER AND WASTEWATER GPS POINTS SHALL BE TO SURVEY GRADE AND ELECTRIC GPS POINTS SHALL BE MAP GRADE. REFERENCE NBU'S WATER CONNECTION POLICY FOR ADDITIONAL CAD DELIVERABLE REQUIREMENTS.

WATER:
VERTICAL BENDS AND EDGE OF STEEL CASING (IF APPLICABLE) PRIOR TO BACKFILL.
HORIZONTAL BENDS PRIOR TO BACKFILL
TEES PRIOR TO BACKFILL
FITTINGS (REDUCERS AND COUPLINGS) PRIOR TO BACKFILL
FIRE HYDRANTS (TOP OF FLANGE)
VALVES
METER (TOP CENTER OF BOX)
BLOW OFF ASSEMBLY
CORNER SLAB OF WATER TANK & GATE VALVE ON WATER TANK

WASTEWATER:
MANHOLES
CLEANOUTS
CORNER SLAB OF LIFT STATION

ELECTRIC:
POLES
TRANSFORMERS, BOTH ABOVE AND UNDERGROUND (FRONT LOCK)
PULL BOXES
STREET LIGHTS

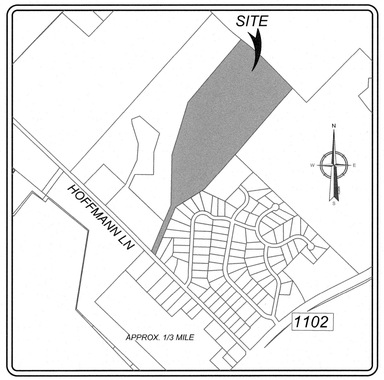
COORDINATE GPS REQUIREMENTS WITH NBU INSPECTOR

NOTES:

A. *ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE PLANS REMAINS WITH THE ENGINEER OF RECORD. IN ACCEPTING THESE PLANS, NEW BRAUNFELS UTILITIES MUST RELY UPON THE ADEQUACY OF THE WORK OF THE ENGINEER OF RECORD.*
B. *THE ENGINEER OF RECORD ACKNOWLEDGES THAT ALL PROPOSED WATER OR WASTEWATER IMPROVEMENTS MUST COMPLY WITH CRITERIA FROM THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY, THE CITY OF NEW BRAUNFELS, NBU W&WW DESIGN CRITERIA, ANY OTHER GOVERNING ENTITY ORDINANCES OR CODES, AND SOUND ENGINEERING JUDGEMENT.*
C. *THE ENGINEER OF RECORD ACKNOWLEDGES THAT THE POINT OF DELIVERY FOR THE NBU WATER SYSTEM IS THE MAIN SIDE OF THE SERVICE/LATERAL/LEAD FROM THE CUSTOMER'S METER, BACKFLOW PREVENTER, OR EASEMENT EDGE. THE CUSTOMER IS RESPONSIBLE FOR THE DESIGN, PERMITTING, CONSTRUCTION, OPERATION AND MAINTENANCE BEYOND THE POINT OF DELIVERY AND HAS SOLE CONTROL AND SUPERVISION OVER ITS INSTALLATION.*
D. *THE ENGINEER OF RECORD ACKNOWLEDGES THAT THE POINT OF DELIVERY FOR A NBU WASTEWATER SYSTEM IS THE MAIN SIDE OF THE SERVICE LATERAL FROM THE CUSTOMER'S CLEAN OUT OR PROPERTY LINE, WHICHEVER IS NEARER. THE CUSTOMER IS RESPONSIBLE FOR THE DESIGN, CONSTRUCTION, OPERATION AND MAINTENANCE BEYOND THE POINT OF DELIVERY AND HAS SOLE CONTROL AND SUPERVISION OVER ITS INSTALLATION.*
E. *WATER IS A PRECIOUS COMMODITY IN THE STATE OF TEXAS AND NEW BRAUNFELS UTILITIES (NBU) IS PASSIONATE ABOUT PROTECTING THE LOCAL RESOURCE. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ACQUIRING A FIRE HYDRANT METER SO THAT ALL WATER USED FOR CONSTRUCTION OR TESTING PURPOSES ARE PROPERLY ACCOUNTED FOR. NBU WILL NOT TOLERATE ANY WATER THEFT, REGARDLESS OF THE AMOUNT. IF WATER THEFT IS DISCOVERED THE CONTRACTOR SHALL BE SUBJECT TO MONETARY PENALTIES, CRIMINAL CHARGES, AND STOPPAGE OF ALL CONSTRUCTION ACTIVITIES RELATED TO THE PROJECT. COSTS ASSOCIATED WITH ANY WORK STOPPAGE RESULTING FROM WATER THEFT SHALL BE AT THE FULL EXPENSE OF THE CONTRACTOR.*

LEGAL DESCRIPTION
SILVERLEAF CONDOMINIUMS

BEING A 44.00 ACRE TRACT, OUT OF THE NANCY KENNER SURVEY, SECTION NUMBER 3, ABSTRACT NUMBER 306, COMAL COUNTY TEXAS AND BEING ALL OF A CALLED 44.000 ACRE TRACT KNOWN AS "PARCEL ONE", AS DESCRIBED TO JASON VOGES OF RECORD IN DOCUMENT NUMBER (DOC. NO.) 202106010626 OF THE OFFICIAL PUBLIC RECORDS OF COMAL COUNTY, TEXAS (O.P.R.).



LOCATION MAP
1" = 1000'

COMAL PROPERTY ID: 447804
NBU PERMIT NUMBERS: W-265810

IF CONSTRUCTION HAS NOT COMMENCED WITHIN ONE-YEAR OF COUNTY APPROVAL FOR CONSTRUCTION INSPECTION, THAT APPROVAL IS NO LONGER VALID.

ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE PLANS REMAINS WITH THE ENGINEER OF RECORD. IN ACCEPTING THESE PLANS, COMAL COUNTY MUST RELY UPON THE ADEQUACY OF THE WORK OF THE ENGINEER OF RECORD.

SEQUENCE OF CONSTRUCTION:

CONSTRUCTION ACTIVITY WILL INCLUDE:

1. *INSTALLATION OF TEMPORARY BMP's*
2. *SITE CLEARING AND GRUBBING ACTIVITIES FOR STREETS.*
3. *ROUGH SUBGRADE PREPARATION: EARTHWORK, GRADING, STREETS, EXCAVATION AND EMBANKMENT.*
4. *UTILITY TRENCHING AND INSTALLATION.*
5. *FINAL STREET PREPARATION, CURBING, AND PAVING ACTIVITIES.*
6. *HOME CONSTRUCTION.*
7. *SITE CLEAN UP AND REMOVAL OF TEMPORARY BMP's.*

PERMITS OR APPROVALS MUST BE OBTAINED FROM THE FOLLOWING REGULATORY AGENCIES LISTED BELOW:

- ***COMAL COUNTY***
- ***NEW BRAUNFELS UTILITIES - ELECTRIC & WATER***

ANY REVISIONS REQUIRED PER THE REGULATORY AGENCIES THAT CHANGE THE CIVIL SITE PLANS MUST BE SUBMITTED TO COMAL COUNTY FOR ACCEPTANCE.

FEMA FLOODPLAIN
PORTIONS OF RESIDENTIAL LOTS ON SILVERLEAF CONDOMINIUMS ARE IN THE SPECIAL FLOOD HAZARD ZONE ACCORDING TO FEMA FLOOD MAP COMMUNITY PANELS NO. 48091C0290G, DATED MAY 8, 2024.

EDWARDS AQUIFER
NO PORTION OF ANY LOTS ON SILVERLEAF CONDOMINIUMS ARE LOCATED WITHIN EDWARDS CONTRIBUTING ZONE OR RECHARGE ZONE. VOGES CONDOMINIUMS IS LOCATED WITHIN EDWARDS AQUIFER TRANSITION ZONE.

GAS UTILITY
GAS UTILITIES ARE NOT INCLUDED IN THE CIVIL CONSTRUCTION PLANS. FINAL GAS UTILITY DESIGN SHALL BE APPROVED BY THE COUNTY FOR ANY WORK WITHIN PUBLIC RIGHT-OF-WAY.

DEVELOPER INFORMATION:
BRIGHTLAND HOMES
9601 MCALLISTER FRWY. 600
SAN ANTONIO, TEXAS 78216
PHONE: (210) 491-0236

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

REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
WAYNE FLORES
90130
LICENSED PROFESSIONAL ENGINEER
10.27.25

FINAL SUBDIVISION PLAN

FOR

SILVERLEAF CONDOMINIUMS

COMAL COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
162 West Mill Street
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	03/11/2025	DG	WF

PROJECT NUMBER: 1186-01-02
DRAWING NAME: 0.0 COVER SHEET

SHEET TITLE: *COVER SHEET*

SHEET NUMBER: *0.0*

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Oct 24, 2025, 9:47am User ID: mgiem
Files: U:\Projects\1186\01\02\Design\Civil\Drawings\0.0 COVER SHEET.dwg
ZDesignOn4Cores\0.0 COVER SHEET.dwg\0.0 COVER SHEET By: MGIEM

Standard Construction Notes

1. Any deviation from the construction plans, drawings, or specifications for roads, drainage, or other improvements must have prior approval by the County Engineer. The engineer of record must request approval of any change in writing addressed to the County Engineer.

2. The most current editions of the City of New Braunfels Standard Details, City of San Antonio Standard Specifications and the Texas Department of Transportation Standard Specifications for Construction of Highways, Streets and Bridges shall be followed for all construction except as amended by the Comal County Subdivision Regulations.

3. Street subgrade and base density control shall be in accordance with the Comal County Subdivision Regulations.

4. All roadway compaction tests shall be the responsibilities of the Developer's Geo-technical Engineer. Each layer of material shall be compacted as specified and tested for density in accordance with the Comal County Subdivision Regulations.

5. All responsibility for the adequacy of these plans remains with the engineer of record. In accepting these plans, Comal County must rely upon the adequacy of the work of the engineer of record.

6. It is the Contractor's responsibility to see that all temporary and permanent traffic control devices are properly installed and maintained in accordance with the plans and latest edition of the Texas Manual on Uniform Traffic Control Devices. If, in the opinion of the engineering representative and the construction inspector, the barricades and signs do not conform to established standards or are incorrectly placed or are insufficient in quantity to protect the general public, the construction inspector shall have the option to stop operations until such time as the conditions are corrected. If the need arises, additional temporary traffic control devices may be ordered by the Engineering representative at the Contractor's expense.

7. A TxDOT Type II B-B blue reflective raised pavement marker shall be installed in the center of the roadway adjacent to all fire hydrants. In locations where hydrants are situated on corners, blue reflective raised pavement markers shall be installed on both approaches which front the hydrant. The raised pavement marker shall meet TxDOT material, epoxy and adhesive specifications.

8. **Groundwater**
It shall be the responsibility of the developer, contractor, subcontractors, builders, Geo-technical engineer, and project engineer to immediately notify the Office of the County Engineer and project engineer if the presence of groundwater within the site is evident. All construction activity, impacted by the discovery of groundwater, shall be suspended until the County Engineer grants a written approval of the groundwater mitigation plan.

9. **Finished Floor Elevations**
The elevation of the lowest floor shall be at least 10 inches above the finished grade of the surrounding ground, which shall be sloped in a fashion so as to direct stormwater away from the structure. Properties adjacent to stormwater conveyance structures must have floor slab elevation or bottom of floor joists a minimum of one foot above the 100-year water flow elevation in the structure. Driveways serving houses on the downhill side of the street shall have a properly sized cross swale preventing runoff from entering the garage.

10. **Signing and Pavement Marking Plan Notes**
Comal County will install county road signs and invoice the owner. The contractor is to install pavement markings. All road signs and pavement markings shall be installed in accordance with the approved engineering plans. The County will inspect all signs at final inspection.

The contractor shall install all pavement markings in accordance with approved engineering plans. The contractor shall notify the County at least 24 hours prior to the installation of all sealer and final markings. The County will inspect all markings at final application.

11. Seeding and Establishment of Vegetation within Earthen Channels, Stormwater Basins and Disturbed Areas
Seeding for the purpose of establishing vegetation within constructed earthen channels, basins and disturbed areas shall be conducted in accordance with Item 164 (Seeding for Erosion Control of TxDOT's Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges manual. Only seed types and mixes specified for the San Antonio District (District 15 in Tables 1 and 2 under Item 164 shall be utilized. During the Cool Season (Sept 1-Nov 30, Cereal Rye and seed species specified for the San Antonio District in Table 3 may be used. For Cool Season seeding applications, cool season seed mixes shall be used in conjunction with seed mixes for the San Antonio District as specified in Table 1 and 2 under Item 164.

It may be deemed necessary to incorporate topsoil and soil amendments (i.e. compost/ fertilizer into existing soil in order to facilitate vegetation growth. Topsoil, compost and fertilizer additions shall be conducted according to Items 160, 161 and 166 of TxDOT's Standard Specifications manual, respectively.

Areas requiring permanent vegetation (earthen channels, ponds, etc.) are required to meet TxDOT Specifications for Item 160 Topsoil. Testing per Tex-128-E will be required at the County's request.

Watering may also be necessary to facilitate and expedite the sprouting and growth of vegetation. Item 168 of TxDOT's Standard Specifications manual shall be adhered to for vegetative watering.

12. Excess materials, equipment, fill, or spoils shall not be places within any designated flood plain.

NEW BRAUNFELS UTILITIES - ELECTRIC & WATER ONLY

Please Note: NBU REQUIRES GPS POINTS FOR CERTAIN ELECTRIC, WATER AND WASTEWATER ATTRIBUTES, SOME OF WHICH MUST BE TAKEN PRIOR TO BACKFILL DURING CONSTRUCTION.

GPS POINTS SHALL BE REQUIRED FROM THE DEVELOPERS CONTRACTOR. A MINIMUM OF THREE COORDINATE POINTS FOR GEOREFERENCING SHALL BE REQUIRD. THE WATER AND WASTEWATER GPS POINTS SHALL BE TO SURVEY GRADE. THE ELECTRIC GPS POINTS SHALL BE TO MAP GRADE.

WATER:
VERTICAL BENDS AND EDGE OF STEEL CASING IF (APPLICABLE) PRIOR TO BACKFILL.
HORIZONTAL BENDS PRIOR TO BACKFILL.
TEES PRIOR TO BACKFILL.
FITTINGS (REDUCERS AND COUPLINGS) PRIOR TO BACKFILL.
FIRE HYDRANTS (TOP OF FLANGE).
VALVES.
METERS (TOP CENTER OF BOX).
BLOW OFF ASSEMBLY.
CORNER OF SLAB OF WATER TANK & GATE VALVE ON WATER TANK.

ELECTRIC:
POLES
TRANSFORMERS, BOTH ABOVE AND UNDERGROUND (FRONT LOCK)
PULL BOXES
STREET LIGHTS

COORDINATE GPS REQUIREMENTS WITH NBU INSPECTOR

NEW BRAUNFELS UTILITY NOTES: REV_01/01/24

1. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THE PROJECT SHALL BE APPROVED BY NEW BRAUNFELS UTILITIES AND COMPLY WITH THE CURRENT "NEW BRAUNFELS UTILITIES WATER SYSTEMS CONNECTION/CONSTRUCTION POLICY".

2. CONTRACTOR SHALL NOT PROCEED WITH ANY PIPE INSTALLATION WORK UNTIL THEY OBTAIN A COPY OF THE PLANS FROM THE CONSULTANT OR ENGINEER AND NOTIFY NBU WATER SYSTEMS ENGINEERING AT 830-608-8971 WITH AT LEAST TWO (2) WORKING DAYS (48 HOURS) NOTICE. WORK COMPLETED BY THE CONTRACTOR, WHICH HAS NOT RECEIVED A NOTICE TO PROCEED FROM NEW BRAUNFELS UTILITIES WATER SYSTEMS ENGINEERING WILL BE SUBJECT TO REMOVAL AND REPLACEMENT BY AND AT THE EXPENSE OF THE CONTRACTOR.

3. THE DEVELOPER DEDICATES THE WATER / WASTEWATER MAINS UPON COMPLETION BY THE CONTRACTOR AND ACCEPTANCE BY THE NEW BRAUNFELS UTILITIES WATER SYSTEM. NBU WILL OWN AND MAINTAIN SAID WATER / WASTEWATER MAINS WHICH ARE LOCATED WITHIN PUBLIC UTILITY EASEMENTS OR PUBLIC ROW OF PROPOSED DEVELOPMENTS. (AS APPLICABLE).

4. CONTRACTOR AGREES TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNERS AND THE ENGINEER AND HIS EMPLOYEES, PARTNERS OFFICERS, DIRECTORS, OR CONSULTANTS HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF THE WORK ON THIS PROJECT, EXCEPTING FROM LIABILITY ARISING FROM SOLE NEGLIGENCE OF THE OWNER OR ENGINEER, ENGINEER'S DIRECTORS, OFFICERS, EMPLOYEES, OR CONSULTANTS.

5. CONTRACTOR TO CONTACT THE ENGINEER-OF-RECORD (EOR) FOR ANY FIELD CHANGES. ANY REVISIONS OR CHANGES TO THE APPROVED CONSTRUCTION PLANS WILL REQUIRE ADDITIONAL APPROVAL BY NBU IN WRITING.

6. 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.

7. CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING TO ITS ORIGINAL OR BETTER CONDITION, ANY DAMAGE TO EXISTING FENCES, CURBS, STREETS, DRIVEWAYS, LANDSCAPING AND STRUCTURES, AND EXISTING UTILITIES (NOT ADJUSTED ON PLANS). COST OF RESTORATION, IF ANY, SHALL BE THE CONTRACTOR'S ENTIRE EXPENSE.

8. THE CONTRACTOR SHALL AVOID CUTTING ROOTS LARGER THAN ONE (1) INCH IN DIAMETER WHEN EXCAVATING NEAR EXISTING TREES. EXCAVATION IN VICINITY OF TREES SHALL PROCEED WITH CAUTION.

9. CONTRACTOR SHALL PROCURE ALL PERMITS AND LICENSES, PAY ALL CHARGES, FEES AND TAXES AND GIVE ALL NOTICES NECESSARY AND INCIDENTAL TO THE DUE AND LAWFUL PROSECUTION OF THE WORK.

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

11. CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF ALL WASTE MATERIALS UPON PROJECT COMPLETION. THE CONTRACTOR SHALL NOT PERMANENTLY PLACE ANY WASTE MATERIALS IN THE 100-YEAR FLOOD PLAIN WITHOUT FIRST OBTAINING AN APPROVED FLOOD PLAIN DEVELOPMENT PERMIT.

12. THE CONTRACTOR SHALL NOT PLACE ANY MATERIALS ON THE RECHARGE ZONE OF THE EDWARDS AQUIFER WITHOUT AN APPROVED WATER POLLUTION ABATEMENT PLAN FROM THE TCEQ 31 TAC 313.4 AND 31 TAC 313.9.

13. BARRICADES AND WARNING SIGNS SHALL CONFORM TO THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (TMUTCD) AND SHALL BE LOCATED TO PROVIDE MAXIMUM PROTECTION TO THE PUBLIC AS WELL AS CONSTRUCTION PERSONNEL AND EQUIPMENT WHILE PROVIDING CONTINUOUS TRAFFIC FLOW AT ALL TIMES DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL DEVICES DURING CONSTRUCTION.

14. CONTRACTOR IS REQUIRED TO VERIFY PROJECT ELEVATIONS. THE TERM "MATCH EXISTING" SHALL BE UNDERSTOOD TO SIGNIFY BOTH HORIZONTAL AND VERTICAL ALIGNMENT.

15. THE LOCATION OF UTILITIES, EITHER UNDERGROUND OR OVERHEAD, SHOWN WITHIN THE RIGHT OF WAY ARE APPROXIMATE AND SHALL BE VERIFIED BY THE CONTRACTOR BEFORE BEGINNING CONSTRUCTION OPERATIONS.

16. OSHA REGULATIONS PROHIBIT OPERATIONS THAT WILL BRING PERSONS OR EQUIPMENT WITHIN 10 FEET OF AN ENERGIZED LINE. WHERE WORKMEN AND/OR EQUIPMENT MUST WORK CLOSE TO AN ENERGIZED ELECTRICAL LINE, THE CONTRACTOR SHALL NOTIFY THE ELECTRICAL POWER COMPANY INVOLVED AND MAKE WHATEVER ADJUSTMENTS NECESSARY TO ENSURE THE SAFETY OF THOSE WORKMEN.

17. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE UTILITY SERVICE LINES AS REQUIRED FOR CONSTRUCTION. CONTRACTORS SHALL CALL THE ONE CALL SYSTEM FOR WATER/WASTEWATER LOCATION.

18. DUE TO FEDERAL REGULATIONS TITLE 49, PART 192 (8), GAS COMPANIES MUST MAINTAIN ACCESS TO GAS VALVES AT ALL TIMES. THE CONTRACTOR MUST PROTECT AND WORK AROUND ANY GAS VALVES THAT ARE IN THE PROJECT AREA.

19. THE CONTRACTOR IS FULLY RESPONSIBLE FOR THE TRAFFIC CONTROL AND WILL BE RESPONSIBLE FOR FURNISHING ALL TRAFFIC CONTROL DEVICES, AND FLAGGERS. THE CONSTRUCTION METHODS SHALL BE CONDUCTED TO PROVIDE THE LEAST POSSIBLE INTERFERENCE TO TRAFFIC. THE CONTINUOUS MOVEMENT OF THE TRAFFIC IN ONE DIRECTION, AT MINIMUM, SHALL BE MAINTAINED AT ALL TIMES. THE CONTRACTOR SHALL CLEAN UP AND REMOVE FROM THE WORK AREA ANY LOOSE MATERIAL RESULTING FROM CONTRACT OPERATIONS AT THE END OF EACH WORKDAY.

20. PRIOR TO ORDERING MATERIALS TO BE USED IN CONSTRUCTION, CONTRACTOR SHALL PROVIDE THE ENGINEER WITH FOUR (4) COPIES OF THE SOURCE, TYPE, GRADATION, MATERIAL SPECIFICATION DATA AND / OR SHOP DRAWINGS, AS APPLICABLE, TO SATISFY THE REQUIREMENTS OF THE FOLLOWING ITEMS AND ALL MATERIAL ITEMS REFERRED TO IN THESE LISTED ITEMS: A. WATER MAINS AND SERVICES B. WASTEWATER MAINS AND SERVICES

21. WATER JETTING THE BACKFILL WITHIN A STREET WILL NOT BE PERMITTED. WASTEWATER TRENCHES SUBJECT TO TRAFFIC SHALL CONFORM TO NBU CONNECTION AND CONSTRUCTION POLICY MANUAL.

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

23. UTILITY TRENCH COMPACTION WITH STREET R.O.W.

A. ALL UTILITY TRENCH COMPACTION TEST WITHIN THE STREET PAVEMENT SECTION SHALL BE THE RESPONSIBILITY OF THE DEVELOPER'S GEO-TECHNICAL ENGINEER.

B. FILL MATERIAL SHALL BE PLACED IN UNIFORM LAYERS NOT TO EXCEED TWELVE INCHES (12") LOOSE.

C. EACH LAYER OF MATERIAL SHALL BE COMPACTED AS SPECIFIED AND TESTED FOR DENSITY AND MOISTURE IN ACCORDANCE WITH TEXT METHODS TEX-113-E, TEX 114-E, TEX-115-E.

D. THE NUMBER AND LOCATION OF REQUIRED TESTS SHALL BE DETERMINED BY THE GEO-TECHNICAL ENGINEER AND APPROVED BY THE CITY OF NEW BRAUNFELS STREET INSPECTOR.

E. UPON COMPLETION OF TESTING THE GEO-TECHNICAL ENGINEER SHALL PROVIDE THE CITY OF NEW BRAUNFELS STREET INSPECTOR WITH ALL TESTING DOCUMENTATION AND A CERTIFICATION STATING THAT THE PLACEMENT OF FILL MATERIAL HAS BEEN COMPLETED IN ACCORDANCE WITH THE PLANS.

WATER NOTES: REV_01/01/24

1. THE POINT OF DELIVERY FOR AN OWNED AND MAINTAINED WATER LINE IS TYPICALLY THE DOMESTIC OR IRRIGATION WATER METER, FIRE LINE UP TO THE CONTAINMENT BACKFLOW DEVICE, OR HYDRANT METER OR AS DETERMINED BY NBU.

2. WATER INFRASTRUCTURE MUST BE CONSTRUCTED IN ACCORDANCE WITH THE NBU WATER CONNECTION POLICY.

3. ALL WATER MAINS SHALL BE CONSTRUCTED OF AWWA C900 DR 14 PVC, AWWA C900 DR 18 PVC OR MINIMUM CL 250 DUCTILE IRON PIPE.

4. ALL RESIDENTIAL WATER SERVICES SHALL BE SINGLE SERVICES CONSTRUCTED OF 1-INCH ASTM B88 TYPE K COPPER TUBING. 1-INCH AWWA C901 SDR9 CTS POLYETHYLENE TUBING MAY BE PERMITTED WITH SPECIAL APPROVAL FROM NBU ONLY.

5. ALL 2-INCH SERVICE LINES SHALL BE CONSTRUCTED OF AWWA C901 SDR9 CTS POLYETHYLENE TUBING.

6. WATER MAINS SHALL HAVE A MINIMUM OF 48 INCHES OF COVER TO FINISHED GRADE. CONCRETE ENCASEMENT WILL BE REQUIRED IF MINIMUM COVER CANNOT BE MET.

7. PIPE BEDDING OF WATER LINES SHALL BE COMPLIANT WITH NBU SPECIFICATION NO. 120, "UTILITY TRENCHING AND BACKFILL".

8. CONTRACTOR SHALL INSTALL LINE STOPPERS AT THEIR COST FOR AN OUTAGE DURING CONSTRUCTION IF SYSTEM VALVES ARE NOT AVAILABLE OR THE EXISTING VALVES DO NOT FUNCTION. LINE STOPPERS WILL BE REQUIRED BASED ON THE FOLLOWING CRITERIA: A. IF THE NUMBER OF RESIDENTIAL CUSTOMERS AFFECTED IS GREATER THAN 20 AND EXPECTED TO LAST MORE THAN 4 HOURS. B. IF ANY COMMERCIAL CUSTOMERS ARE AFFECTED BY THE OUTAGE THEN THE USE OF LINE STOPPERS WILL BE DETERMINED ON A CASE BY CASE BASIS. C. IF ANY CRITICAL CARE CUSTOMERS ARE AFFECTED BY THE OUTAGE THEN THE USE OF LINE STOPPERS WILL BE DETERMINED ON A CASE BY CASE BASIS. D. SYSTEM CONDITIONS MAY REQUIRE A LINE STOPPER AND MAY NOT BE KNOWN UNTIL CONSTRUCTION COMMENCES.

9. CONTRACTOR WILL KEEP THE AREA ON TOP OF, AROUND, AND WITHIN THE WATER METER BOX FREE OF ALL OBJECTS AND DEBRIS.

10. PLACEMENT OF METER BOXES OR VAULTS IN SIDEWALKS, DRIVEWAYS, DRIVE AISLES, PARKING AREAS, OR OTHER AREAS EXPOSED TO VEHICULAR TRAFFIC IS NOT PERMITTED. ANY METER BOXES OR VAULTS SET IN THESE AREAS WILL BE RELOCATED AT THE CONTRACTOR'S AND/OR DEVELOPER'S EXPENSE.

11. METER BOXES OR VAULTS MUST BE SET AT PROPOSED GRADE. ANY METER BOXES THAT ARE NOT SET AT THE FINAL GRADE WILL BE ADJUSTED AT CONTRACTOR'S AND/OR DEVELOPER'S EXPENSE.

12. METER BOXES FOR 5/8-INCH AND 1-INCH METERS MUST BE DFW PLASTICS DFW38C 14-AF1MP.

13. METER BOXES FOR 1.5" METERS MUST BE DFW PLASTICS DFW65C-14-AF1MP.

14. METER BOXES FOR 2" METERS MUST BE DFW PLASTICS DFW1730F-12-AF1MP.

15. THRUST BLOCKS ARE NOT PERMITTED WITHOUT SPECIAL APPROVAL. JOINTS MUST BE RESTRAINED WITH RESTRAINING SYSTEMS APPROVED BY NBU AND RESTRAINT LENGTH SHALL BE SUBMITTED TO NBU AT THE TIME OF PLAN SUBMITTAL.

16. CONTRACTOR SHALL INSTALL TRACER WIRE ON TOP OF NON-FERROUS WATER MAINS IN ACCORDANCE WITH NBU SPECIFICATIONS. TRACER WIRE SHOULD RUN FROM VALVE TO VALVE AND EXIT AT A TRACER WIRE ACCESS POINT. THE TRACER WIRE SHOULD BE ATTACHED TO THE TOP OF THE PIPE USING TAPE. EXCESS WIRE SHOULD BE COILED WITHIN THE TRACER WIRE ACCESS POINT RISER.

17. CONTRACTOR SHALL COORDINATE WITH THE ASSIGNED WATER/WASTEWATER INSPECTOR FOR COMPLETION OF THE FIELD ACCEPTANCE CHECKLIST. ALL TESTING AND ACCEPTANCE SHALL CONFORM TO NBU SPECIFICATIONS, INCLUDING BUT NOT LIMITED TO:

A. BACTERIOLOGICAL TESTING

B. HYDROSTATIC TESTING (PERFORMED VALVE TO VALVE)

18. THE NBU WATER SYSTEM SHALL BE PROTECTED FROM HAZARDS WITH APPROPRIATE BACKFLOW PREVENTION ASSEMBLIES INSTALLED ON ALL IRRIGATION SYSTEMS, FIRE SUPPRESSION SYSTEMS AND MULTI-UNIT COMPLEXES ALONG WITH MULTI-LEVEL PROPERTIES ON THE DOMESTIC METER CONTAINMENT. NBU CAN ASSIST WITH THE DECISION ON APPROPRIATE BACKFLOW ASSEMBLIES ON A CASE-BY-CASE BASIS. CONTACT NBU BACKFLOW PREVENTION SPECIALIST FOR MORE DETAILS. EMAIL QUESTIONS TO CROSSCONNECTION@NBUTEXAS.COM

19. ALL BACKFLOW PREVENTION ASSEMBLIES SHALL BE TESTED UPON INSTALLATION AND REPORTS SENT TO NBU VIA THE ONLINE TRACKING SYSTEM. CONTACT AN NBU BACKFLOW PREVENTION SPECIALIST FOR MORE DETAILS. EMAIL QUESTIONS TO CROSSCONNECTION@NBUTEXAS.COM

20. ALL RESIDENTIAL AND COMMERCIAL PROPERTIES SHALL HAVE A CUSTOMER SERVICE INSPECTION CERTIFICATE (CSI INSPECTION) COMPLETED UPON COMPLETION OF THE BUILDING OR HOME STRUCTURE. CONTACT AN NBU BACKFLOW PREVENTION SPECIALIST FOR MORE DETAILS. EMAIL QUESTIONS TO CROSSCONNECTION@NBUTEXAS.COM

WASTEWATER NOTES: REV_01/01/24

1. THE POINT OF DELIVERY FOR AN NBU OWNED AND MAINTAINED WASTEWATER LINE IS TYPICALLY THE CLEANOUT, PROPERTY LINE, OR EDGE OF EASEMENT OR AS DETERMINED BY NBU.

2. THE CONTRACTOR SHALL MAINTAIN SERVICE TO THE EXISTING WASTEWATER SYSTEM AT ALL TIMES DURING CONSTRUCTION.

3. ALL NEW WASTEWATER MAINS AND FITTINGS SHALL BE MINIMUM 8-INCH DIAMETER (ASTM D-3034 SDR-26 PVC).

4. ALL RESIDENTIAL WASTEWATER SERVICE LATERALS SHALL BE EXTENDED FOUR (4) FEET INTO THE PUBLIC UTILITY EASEMENT AND A CLEANOUT INSTALLED AT THE ROW LINE PER NBU STANDARD DETAILS. SERVICES TO LOTS WILL EXTEND FOUR (4) FEET PAST THE UNDERGROUND ELECTRIC CONDUIT IF ELECTRIC IS INSTALLED IN THE FRONT EASEMENT.

5. ALL SEWER CLEANOUTS THAT LEAD TO NBU MAINS SHALL BE INSTALLED WITH A PROTECTIVE UTILITY SHROUD AND PIVOTING MARKER POLE DURING TIME OF CONSTRUCTION.

6. PIPE BEDDING OF WASTEWATER LINES SHALL BE COMPLIANT WITH NBU SPECIFICATION NO. 120, "UTILITY TRENCHING AND BACKFILL".

7. WASTEWATER MAINS SHALL HAVE A MINIMUM OF 48 INCHES OF COVER TO FINISHED GRADE AND WASTEWATER LATERALS MUST HAVE A MINIMUM OF 36 INCHES OF COVER TO FINISHED GRADE. CONCRETE ENCASEMENT WILL BE REQUIRED IF MINIMUM COVER CANNOT BE MET.

8. ALL GRAVITY WASTEWATER PIPES SHALL HAVE GASKETED, COMPRESSION OR FUSED JOINTS PER 30 TAC §217.53 (C) (2).

9. FOR WASTEWATER LINES LESS THAN 24 INCHES IN DIAMETER, SELECT INITIAL BACKFILL MATERIAL SHALL BE PLACED IN TWO LIFTS. A. THE FIRST LIFT SHALL BE SPREAD UNIFORMLY AND SIMULTANEOUSLY ON EACH SIDE AND UNDER THE SHOULDERS OF THE PIPE TO THE MID-POINT OR SPRING LINE OF THE PIPE. B. THE SECOND LIFT SHALL BE PLACED TO A DEPTH AS SHOWN ON THE PIPE BACKFILL DETAIL. FOR PIPES LARGER THAN 24-INCH, 12-INCH MAXIMUM LIFTS SHALL BE USED.

10. ALL MANHOLES SHALL BE WATER-TIGHT, EITHER MONOLITHIC, CAST-IN-PLACE CONCRETE STRUCTURES OR PREFABRICATED MANHOLES SPECIFICALLY APPROVED BY NBU. POLYMER CONCRETE IS REQUIRED FOR MANHOLES ON MAINS 18-INCH DIAMETER AND LARGER, AT FORCE MAIN DISCHARGE POINTS, OR AT DROP MANHOLES WITH HIGH CORROSION POTENTIAL.

11. MANHOLES SHALL HAVE BOLTED WATER-TIGHT RINGS AND COVERS. IN NON-PAVED AREAS, A MANHOLE MARKER ASSEMBLY SHALL BE INSTALLED ON THE MANHOLE COVER.

12. MANHOLE VENTS SHALL BE INSTALLED AT INTERVALS NO GREATER THAN 1500 FEET.

13. ALL MANHOLES SHALL BE CONSTRUCTED SO THAT THE TOP OF THE RING IS SIX INCHES (6") ABOVE SURROUNDING GROUND IN NON-PAVED AREAS. IN PAVED AREAS, THE MANHOLE RING SHALL BE FLUSH WITH PAVEMENT.

14. ALL NEW MANHOLES, UNLESS APPROVED BY NBU, SHALL HAVE COVERS WITH 32-INCH OPENINGS.

15. WASTEWATER PIPE CONNECTIONS TO PRE-CAST MANHOLES WILL BE COMPRESSION JOINTS OR MECHANICAL "BOOT TYPE" JOINT AS APPROVED BY NBU.

16. EXISTING MANHOLES SHALL BE LINED, COATED, OR REPLACED WITH A CORROSION RESISTANT MATERIAL IF A NEW CONNECTION IS MADE BY A MAIN OR LATERAL.

17. WASTEWATER MAINS SHALL BE TESTED FROM MANHOLE TO MANHOLE.

18. IN AREAS WHERE A NEW WASTEWATER MANHOLE IS TO BE CONSTRUCTED OVER AN EXISTING WASTEWATER SYSTEM, IT SHALL BE THE CONTACTOR'S RESPONSIBILITY TO TEST THE EXISTING MANHOLES BEFORE CONSTRUCTION. AFTER THE PROPOSED MANHOLE(S) HAS BEEN BUILT, THE CONTRACTOR SHALL RE-TEST THE EXISTING SYSTEM TO THE SATISFACTION OF THE CONSTRUCTION INSPECTOR, NO SEPARATE PAY.

19. NBU INSPECTOR TO BE PRESENT FOR ALL WASTEWATER LINES TO BE INSTALLED AT DEPTHS OF 15 FEET OR GREATER FROM FINAL GRADE.

20. WHERE THE MINIMUM 9-FOOT SEPARATION DISTANCE BETWEEN WASTEWATER LINES AND WATER LINES / MAINS CANNOT BE MAINTAINED, THE INSTALLATION OF WASTEWATER LINES SHALL BE IN STRICT ACCORDANCE WITH TCEQ REQUIREMENTS. THE WASTEWATER LINE SHALL BE CONSTRUCTED OF ASTM D2241 PVC OR AWWA C900 PVC WITH PRESSURE RATING OF 150 PSI AND SHALL BE IN ACCORDANCE WITH 30 TAC §217.53 (D) (3) (A) (I).

21. CONTRACTOR SHALL COORDINATE WITH THE ASSIGNED WATER/WASTEWATER INSPECTOR FOR COMPLETION OF THE FIELD ACCEPTANCE CHECKLIST. NO TESTING WILL BE PERFORMED PRIOR TO 30 DAYS FROM COMPLETE INSTALLATION. ALL TESTING AND ACCEPTANCE SHALL CONFORM TO NBU SPECIFICATIONS BE COMPLETED IN THE FOLLOWING ORDER: A. PIPE DEFLECTION TEST (MANDREL TEST) B. PIPE LOW PRESSURE AIR TEST C. MANHOLE VACUUM TEST D. MANHOLE PROTECTIVE COATING TEST E. CCTV INSPECTION (WITHIN 72 HOURS OF CLEANING AND FLUSHING)

22. TCEQ AND EPA REQUIRE EROSION AND SEDIMENTATION CONTROL FOR CONSTRUCTION OF WASTEWATER COLLECTION SYSTEMS. DEVELOPER OR AUTHORIZED REPRESENTATIVE SHALL PROVIDE EROSION AND SEDIMENTATION CONTROL AS NOTES ON THE PROJECT'S PLAN AND PROFILE SHEETS. ALL TEMPORARY EROSION AND SEDIMENTATION CONTROLS SHALL BE REMOVED BY THE CONTRACTOR AT FINAL ACCEPTANCE OF THE PROJECT BY NBU WATER SYSTEMS.

Colliers Engineering & Design

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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
WAYNE FLORES
90130
LICENSED
PROFESSIONAL ENGINEER
9/2/2025

FINAL SUBDIVISION PLAN

FOR

SILVERLEAF CONDOMINIUMS

COMAL COUNTY TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
162 West Mill Street
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	03/11/2025	DG	WF

PROJECT NUMBER: 1186-01-02
DRAWING NAME: 0.0 COVER SHEET

SHEET TITLE: *GENERAL NOTES*

SHEET NUMBER: *0.1*

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Sep 02, 2025, 10:49am User ID: ASerna
File: L:\Projects\1186\01\02\Design\Civil\Cover\0.0 COVER SHEET.dwg
Z:\Design\Civil\Cover\0.0 COVER SHEET.dwg\01 GENERAL NOTES By ASERNA

A PRELIMINARY PLAT FOR SILVERLEAF CONDOMINIUMS HAS NOT BEEN SUBMITTED TO THE PLANNING COMMISSION FOR CONSIDERATION.

FINAL PLAT OF
SILVERLEAF CONDOMINIUMS

BEING A 44.00 ACRE TRACT, OUT OF THE NANCY KENNER SURVEY, SECTION NUMBER 3, ABSTRACT NUMBER 306, COMAL COUNTY TEXAS AND BEING ALL OF A CALLED 44.000 ACRE TRACT KNOWN AS "PARCEL ONE", AS DESCRIBED TO JASON VOGES OF RECORD IN DOCUMENT NUMBER (DOC. NO.) 202106010626 OF THE OFFICIAL PUBLIC RECORDS OF COMAL COUNTY, TEXAS (O.P.R.C.C.T.).

SURVEYOR NOTES:

1. *MONUMENTS WERE FOUND OR SET AT EACH CORNER OF THE SURVEY BOUNDARY OF THE SUBDIVISION. MONUMENTS AND LOT MARKERS WILL BE SET WITH 1/2" DIAMETER REBAR WITH A BLUE PLASTIC CAP STAMPED "COLLIERS PROP CORNER". SET AT ALL CORNERS AFTER COMPLETION OF UTILITY INSTALLATION AND STREET CONSTRUCTION UNLESS NOTED OTHERWISE.*
2. *BEARINGS AND DISTANCES ARE BASED ON THE STATE PLANE COORDINATE SYSTEM ESTABLISHED FOR THE TEXAS SOUTH CENTRAL ZONE 4204, NORTH AMERICAN DATUM (NAD) OF 1983.*
3. *THE ELEVATION FOR THIS SURVEY ARE BASED ON NAVD88 (GEOID18).*
4. *THE COORDINATES SHOWN HEREON ARE GRID. DISTANCES SHOWN HEREON ARE SURFACE DISTANCES USING AN AVERAGE COMBINED SCALE FACTOR OF 0.99980123991*

PUBLIC UTILITY PLAT NOTES:

NEW BRAUNFELS UTILITIES (NBU) IS THE ELECTRIC SERVICE PROVIDER FOR THE PLATTED PROPERTY AND MAY BE CONTACTED AT 830-629-8400 FOR FURTHER ASSISTANCE.

MAINTENANCE OF DEDICATED PUBLIC UTILITY EASEMENTS IS THE RESPONSIBILITY OF THE PROPERTY OWNER. ANY USE OF A PUBLIC UTILITY EASEMENT, OR ANY PORTION OF IT, INCLUDING LANDSCAPING OR DRAINAGE FEATURES, IS SUBJECT TO AND SHALL NOT CONFLICT WITH THE TERMS AND CONDITIONS OF THE PUBLIC UTILITY EASEMENT, AND MUST NOT ENDANGER OR INTERFERE WITH THE RIGHTS GRANTED BY THE PUBLIC UTILITY EASEMENT TO PUBLIC UTILITY PROVIDERS. THE PROPERTY OWNER MUST OBTAIN, IN ADVANCE, WRITTEN AGREEMENT WITH THE PUBLIC UTILITY PROVIDERS TO UTILIZE THE PUBLIC UTILITY EASEMENT, OR ANY PART OF IT.

PUBLIC UTILITY PROVIDERS WILL POSSESS A 5-FOOT WIDE PUBLIC UTILITY SERVICE EASEMENT TO THE BUILDING STRUCTURE ALONG THE SERVICE LINE TO THE SERVICE ENTRANCE. THIS SERVICE EASEMENT WILL VARY DEPENDING UPON THE LOCATION OF BUILDING STRUCTURE AND SERVICE.

PUBLIC UTILITY PROVIDERS SHALL HAVE ACCESS TO THE METER LOCATIONS FROM THE FRONT YARD, AND METER LOCATIONS SHALL NOT BE LOCATED WITHIN A FENCED AREA.

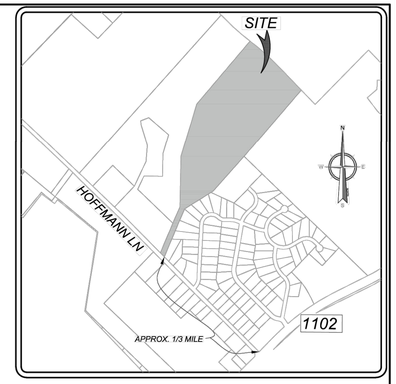
DO NOT COMBINE ANY NEW PUBLIC UTILITY EASEMENT (PUE) WITH DRAINAGE EASEMENTS (DE) OR MAKE CHANGES IN GRADE WITHIN PUBLIC UTILITY EASEMENTS WITHOUT WRITTEN APPROVAL FROM THE PUBLIC UTILITY PROVIDERS.

GENERAL NOTES:

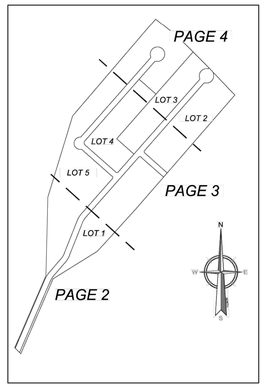
1. *DATE OF PLAT PREPARATION: OCTOBER, 2025*
2. *THIS PROPERTY WAS RELEASED FROM THE NEW BRAUNFELS ETJ PURSUANT TO PETITION ETJ23-426 DATED 11/08/2023.*
3. *THIS PROPERTY WILL BE SERVED BY A STATE-CERTIFIED PUBLIC WATER SUPPLY SYSTEM.*
4. *THIS PROPERTY WILL BE SERVED BY INDIVIDUAL ON-SITE SEWAGE FACILITIES.*
5. *COMAL COUNTY REQUIRES A MINIMUM 25 FT. BUILDING SET-BACK LINE FROM THE ROAD FRONTAGE, EXCEPT WHERE OTHERWISE NOTED ON PLAT DRAWINGS.*
6. *PROPERTY OWNERS ARE ADVISED THAT THEY ARE RESPONSIBLE FOR MAINTENANCE OF DEDICATED EASEMENTS ON THEIR PROPERTY AND MAY NOT UTILIZE THESE EASEMENTS FOR ANY PURPOSE DETRIMENTAL TO THEIR INTENDED USE (I.E., NO STRUCTURES, SEPTIC TANK FIELDS, ETC.). GRANTEES OF SAID DEDICATED EASEMENTS RESERVE THE RIGHT OF ACCESS TO SUCH EASEMENTS.*
9. *A PORTION OF THIS PROPERTY DOES LIE WITHIN A SPECIAL FLOOD HAZARD AREA, ZONE "A", THE 100-YEAR FLOOD ZONE AND 0.2% ANNUAL CHANCE FLOOD HAZARD AS DERINED BY THE FLOOD INSURANCE RATE MAP FOR COMAL COUNTY, TEXAS ON COMMUNITY PANEL NO. 48091C0290G, EFFECTIVE DATE 05/08/2024, AS PREPARED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY.*
10. *THIS PROPERTY DOES NOT LIE WITHIN THE EDWARDS AQUIFER RECHARGE ZONE.*
11. *6.043 ACRES, 4,900 L.F. ARE BEING DEDICATED TO THE PUBLIC AS RIGHT-OF-WAY.*
12. *5 LOTS BEING 37.957 ACRES.*
13. *A DRAINAGE ANALYSIS HAS BEEN COMPLETED FOR THIS PLAT AND IS AVAILABLE FOR REVIEW AT THE COMAL COUNTY ENGINEER'S OFFICE. AREAS IDENTIFIED BY THE STUDY AS BEING INUNDATED DURING CERTAIN STORM EVENTS HAVE BEEN PLACED WITHIN BUILDING SET-BACKS REQUIRES COMMISSIONER'S COURT APPROVAL.*
14. *IT IS HEREBY UNDERSTOOD AND AGREED THAT NON-EXCLUSIVE, PERPETUAL EASEMENTS ARE RESERVED FOR THE INSTALLATION AND MAINTENANCE OF PUBLIC UTILITIES AND ALL NECESSARY APPURTENANCES, WHETHER THESE IMPROVEMENTS ARE INSTALLED UNDERGROUND, OVERHEAD AND/OR ON THE SURFACE OF THE GROUND WITHIN THE PUBLIC UTILITY EASEMENTS DEDICATED ON THIS PLAT, NOTHING SHALL BE PLACED OR PERMITTED TO REMAIN IN A PUBLIC UTILITY EASEMENT AREA WHICH MAY DAMAGE OR INTERFERE WITH THE INSTALLATION AND MAINTENANCE OF SAID PUBLIC UTILITIES. THE PUBLIC UTILITY EASEMENT AREA OF EACH LOT AND ALL IMPROVEMENTS WITHIN IT SHALL BE MAINTAINED BY THE OWNER OF THE LOT, EXCEPT FOR THOSE FACILITIES FOR WHICH AN AUTHORITY OR PUBLIC UTILITY PURVEYOR IS RESPONSIBLE. PUBLIC UTILITY PURVEYORS AND THEIR EMPLOYEES SHALL HAVE ALL OF THE RIGHTS AND BENEFITS NECESSARY FOR THE FULL ENJOYMENT OF THE RIGHTS HEREIN GRANTED, INCLUDING BUT NOT LIMITED TO INGRESS AND EGRESS FROM PRIVATE ROADS AND EASEMENTS, AND THE RIGHT FROM TIME TO TIME TO CUT ANY AND ALL TREES, UNDERGROWTH, AND OTHER OBSTRUCTIONS THAT MAY CAUSE INTERFERENCE WITH THE OPERATION OF SAID PUBLIC UTILITY FACILITIES.*

THIS PROPERTY LIES WITHIN THE FOLLOWING PUBLIC UTILITY SERVICE AREA(S):

- *NEW BRAUNFELS UTILITIES (NBU) - ELECTRIC & WATER*
- *SPECTRUM - CABLE*
- *AT&T - TELEPHONE*



LOCATION MAP
1" = 1000'



PAGE INDEX
NOT TO SCALE

LINE TABLE		
LINE	LENGTH	BEARING
L1	75.14'	N45°20'24"W
L2	7.07'	N68°20'36"E
L3	10.25'	N41°22'37"E
L4	4.94'	S41°22'37"W

CURVE TABLE						
CURVE	LENGTH	RADIUS	TANGENT	DELTA	CHORD	CHORD BEARING
C1	77.90'	265.00'	39.26'	17°30'15"	77.60'	N32°05'44"E
C2	68.64'	205.00'	34.64'	19°10'59"	68.32'	N31°15'21"E
C3	87.73'	265.00'	44.30'	19°42'45"	87.30'	N31°31'15"E
C4	23.56'	15.00'	15.00'	90°00'00"	21.21'	N3°37'23"W
C5	12.50'	15.00'	6.64'	47°44'39"	12.14'	N72°29'42"W
C6	178.06'	55.00'	1147.53'	185°29'17"	109.87'	N3°37'23"W
C7	12.50'	15.00'	6.64'	47°44'39"	12.14'	N65°14'56"E
C8	15.71'	15.00'	8.66'	60°00'00"	15.00'	N11°22'37"E
C9	340.34'	65.00'	37.53'	300°00'00"	65.00'	S48°37'23"E
C10	15.71'	15.00'	8.66'	60°00'00"	15.00'	S71°22'37"W
C11	39.27'	25.00'	25.00'	90°00'00"	35.36'	S3°37'23"E
C12	23.56'	15.00'	15.00'	90°00'00"	21.21'	N86°22'37"E
C13	15.71'	15.00'	8.66'	60°00'00"	15.00'	N11°22'37"E
C14	138.99'	65.00'	118.51'	122°30'49"	113.98'	N42°38'02"E
C15	138.99'	65.00'	118.51'	122°30'49"	113.98'	S40°07'13"W
C16	15.71'	15.00'	8.66'	60°00'00"	15.00'	S71°22'37"W
C17	23.56'	15.00'	15.00'	90°00'00"	21.21'	S3°37'23"E
C18	23.56'	15.00'	15.00'	90°00'00"	21.21'	S86°22'37"W
C19	70.53'	205.00'	35.62'	19°42'45"	70.18'	S31°31'15"W
C20	62.63'	205.00'	31.56'	17°30'15"	62.39'	S32°05'44"W
C22	86.38'	265.00'	43.09'	19°10'59"	84.98'	S31°15'21"W

STATE OF TEXAS §
COUNTY OF COMAL §

KNOWN ALL MEN BY THESE PRESENTS:
THE OWNER OF THE LAND SHOWN ON THIS PLAT AND WHOSE NAME IS SUBSCRIBED HERETO, AND IN PERSON OR THROUGH A DULY AUTHORIZED AGENT, HEREBY DEDICATES TO THE USE OF THE PUBLIC FOREVER ALL STREETS, PARKS, WATER COURSES, DRAINS, EASEMENTS, AND PUBLIC PLACES THEREON SHOWN FOR THE PURPOSES AND CONSIDERATIONS THEREIN EXPRESSED.

DEREK SHUPP,
BRIGHTLAND, LTD., A TEXAS LIMITED PARTNERSHIP
BY: BRIGHTLAND HOMES I, A TEXAS LIMITED LIABILITY COMPANY,
ITS GENERAL PARTNER
AUSTIN, TEXAS 78216
PHONE (210) 491-0236

STATE OF TEXAS §
COUNTY OF BEXAR §

BEFORE ME, THE UNDERSIGNED AUTHORITY, ON THIS DAY PERSONALLY APPEARED _____
KNOWN TO ME TO BE THE PERSON WHOSE NAME IS SUBSCRIBED TO THE FOREGOING INSTRUMENT OF WRITING, AND ACKNOWLEDGED TO ME THAT THEY EXECUTED THE SAME FOR THE PURPOSES AND CONSIDERATIONS THEREIN EXPRESSED AND IN THE CAPACITY THEREIN STATED.
GIVEN UNDER MY HAND AND SEAL OF OFFICE THIS _____DAY OF _____, A.D.

NOTARY PUBLIC, STATE OF TEXAS

PRINTED NAME

STATE OF TEXAS
COUNTY OF BEXAR

KNOW ALL MEN BY THESE PRESENTS:
I , THE UNDERSIGNED , COREY CAMPBELL , A REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF TEXAS, HEREBY CERTIFY THAT THIS PLAT IS TRUE AND CORRECTLY MADE UNDER MY SUPERVISION AND IN COMPLIANCE WITH CITY AND STATE SURVEY REGULATIONS AND LAWS AND MADE ON THE GROUND AND THAT THE CORNER MONUMENTS WERE PROPERLY PLACED UNDER MY SUPERVISION.

_____.
COREY CAMPBELL
R.P.L.S. NO. 7076
COLLIERS ENGINEERING & DESIGN
3421 PAESANOS PKWY, SUITE 101
SAN ANTONIO, TEXAS 78231
PHONE: 210-979-8444
FAX: 210-979-8441

STATE OF TEXAS
COUNTY OF COMAL

APPROVAL OF THE COMMISSIONERS' COURT:

THIS PLAT OF SILVERLEAF CONDOMINIUMS, HAS BEEN SUBMITTED TO AND CONSIDERED BY THE COMMISSIONERS COURT OF COMAL COUNTY, TEXAS AND IS HEREBY APPROVED FOR FILING BY SAID COURT ON _____, _____. DATED THIS _____DAY OF _____, A.D. _____

BY: _____
COUNTY JUDGE

ATTEST: _____
COUNTY CLERK - DEPUTY

STATE OF TEXAS
COUNTY OF COMAL

I, BOBBIE KOEPP, COUNTY CLERK OF COMAL COUNTY, DO HEREBY CERTIFY THAT THIS PLAT WAS FILED FOR RECORD IN MY OFFICE ON THE _____DAY OF _____, A.D. 20___,
AT _____M. AND DULY RECORDED THE _____DAY OF _____, A.D., 20___,
AT _____M. IN THE RECORDS OF MAPS AND PLATS IN SAID OFFICE, OF SAID COUNTY, IN DOCUMENT NO._____ IN TESTIMONY WHEREOF WITNESS MY HAND AND OFFICIAL SEAL OF OFFICE THIS _____DAY OF _____, A.D. 20___.

COUNTY CLERK
COMAL COUNTY, TEXAS

BY: _____
DEPUTY

PLAT NOTES APPLY TO EVERY PAGE OF THIS MULTIPLE PAGE PLAT

PREPARED: OCTOBER, 2025

PAGE 1 OF 4

Date: Oct 27, 2025, 12:45pm User ID: mglenn
File: U:\Projects\11860\102\Design\Civil\Plat\PL11860102_FINAL.dwg

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REV	DATE	DRAWN BY	DESCRIPTION

Colliers
Engineering & Design
NEW BRAUNFELS
840 North Walnut Ave.
Suite1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909 TBPLS Firm#: 10194050
www.colliersengineering.com

FOR REFERENCE ONLY

FINAL SUBDIVISION PLAN

FOR

SILVERLEAF CONDOMINIUMS

COMAL COUNTY
TEXAS

Colliers
Engineering & Design
NEW BRAUNFELS (KFW)
162 West Mill
Street
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	03/11/2025	DG	WF

PROJECT NUMBER:	DRAWING NAME:
1186-01-02	0.5 SUBDIVISION PLAT

SHEET TITLE:
SUBDIVISION PLAT

SHEET NUMBER:
0.2

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Oct 27, 2025, 12:47pm User ID: mglenn
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Z:\Design Civil\Plat\0.5 SUBDIVISION PLAT.dwg\0.5 SUBDIVISION PLAT By: MGLENN

A PRELIMINARY PLAT FOR SILVERLEAF CONDOMINIUMS HAS NOT BEEN SUBMITTED TO THE PLANNING COMMISSION FOR CONSIDERATION.

SEE PAGE 1 OF 4 FOR PLATTING NOTES

PLAT NOTES APPLY TO EVERY PAGE OF THIS MULTIPLE PAGE PLAT

SEE PAGE 1 OF 4 FOR LINE AND CURVE TABLES

FINAL PLAT OF
SILVERLEAF CONDOMINIUMS

BEING A 44.00 ACRE TRACT, OUT OF THE NANCY KENNER SURVEY, SECTION NUMBER 3, ABSTRACT NUMBER 306, COMAL COUNTY TEXAS AND BEING ALL OF A CALLED 44.000 ACRE TRACT KNOWN AS "PARCEL ONE", AS DESCRIBED TO JASON VOGES OF RECORD IN DOCUMENT NUMBER (DOC. NO.) 202106010626 OF THE OFFICIAL PUBLIC RECORDS OF COMAL COUNTY, TEXAS (O.P.R.C.C.T.).

KEYNOTES

1. *20' PUBLIC UTILITY EASEMENT*
2. *30' PUBLIC WATER & ELECTRIC EASEMENT*
3. *VARIABLE WIDTH PUBLIC DRAINAGE EASEMENT*
4. *VARIABLE WIDTH PUBLIC DRAINAGE , & UTILITY EASEMENT*

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NEW BRAUNFELS
640 North Walnut Ave.
Suite1101
New Braunfels, TX 78130
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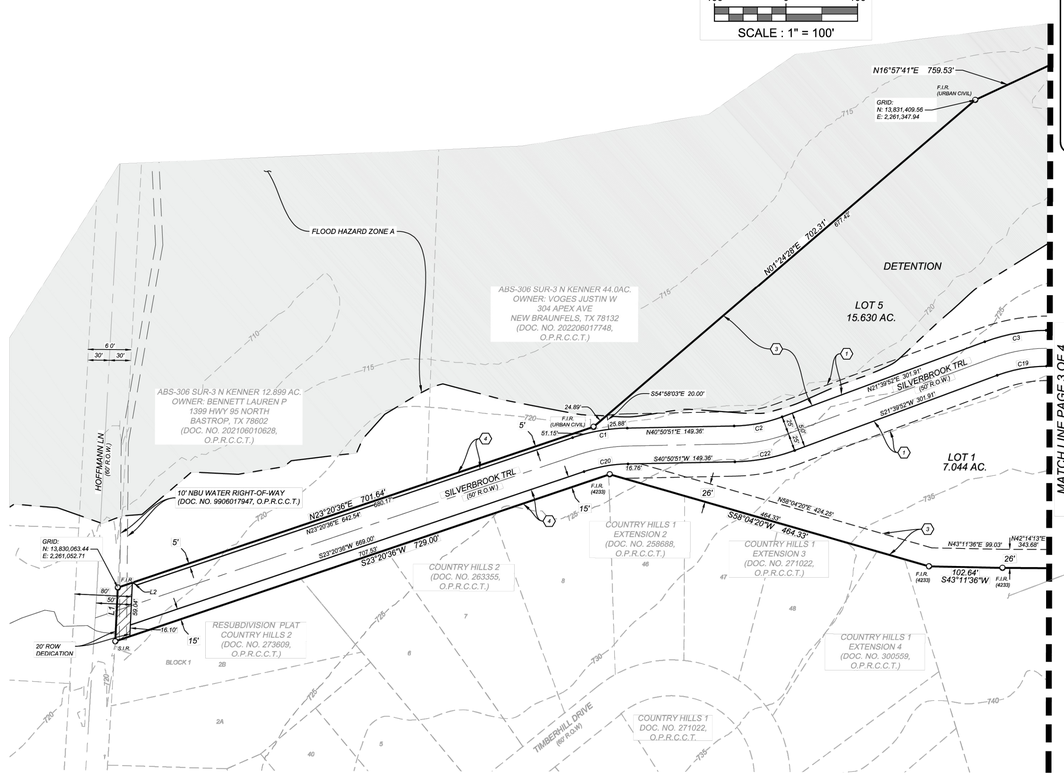
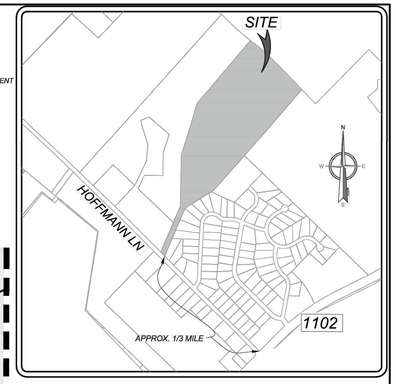
SCALE : 1" = 100'





LOCATION MAP
1" = 1000'

LEGEND

F.I.R.	=	FOUND 1/2" IRON ROD OR AS NOTED
S.I.R.	=	SET 1/2" IRON ROD WITH BLUE CAP 3 STAMPED "KFW SURVEYING"
	=	CENTERLINE OF STREET
705	=	CONTOUR LINE
P.U.E.	=	PUBLIC UTILITY EASEMENT
R.O.W.	=	RIGHT-OF-WAY
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O.P.R.C.C.T.	=	OFFICIAL PUBLIC RECORDS COMAL COUNTY, TEXAS
AC.	=	ACRES
L.F.	=	LINEAR FOOT
DOC.	=	DOCUMENT
NO.	=	NUMBER
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FINAL SUBDIVISION PLAN

FOR

SILVERLEAF CONDOMINIUMS

COMAL COUNTY TEXAS

Colliers Engineering & Design

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New Braunfels, TX 78130
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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	03/11/2025	DG	WF

PROJECT NUMBER:	DRAWING NAME:
1186-01-02	0.5 SUBDIVISION PLAT

SHEET TITLE:

SUBDIVISION PLAT

SHEET NUMBER:

0.3

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By: MGLENN

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SEE PAGE 1 OF 4 FOR PLATTING NOTES

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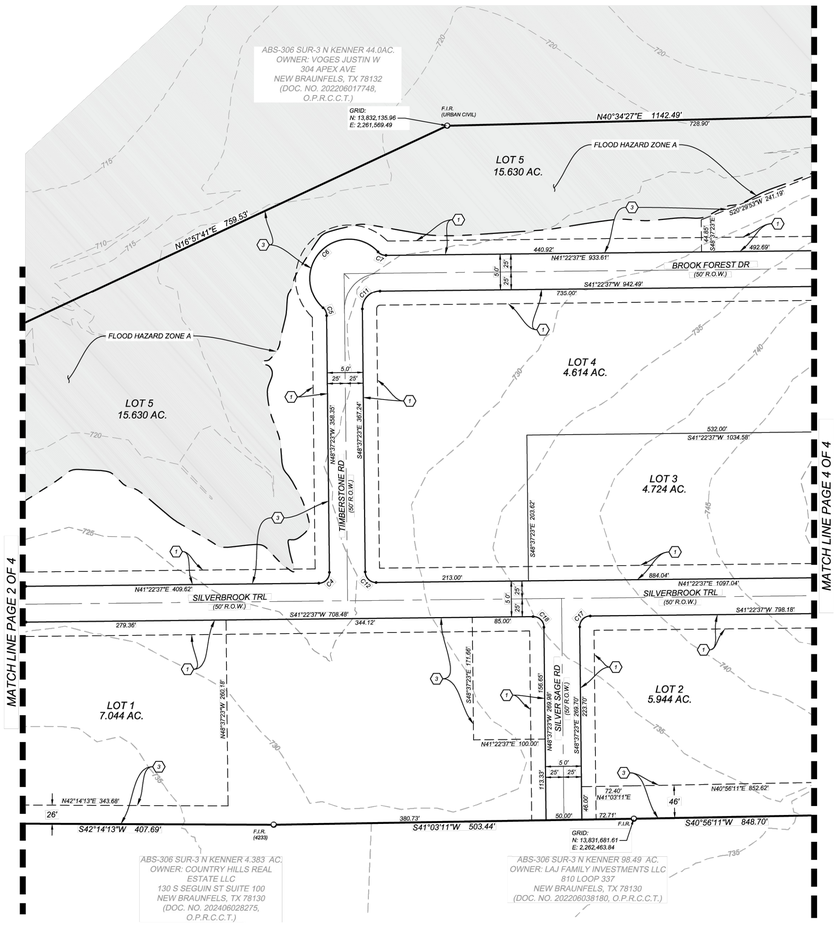

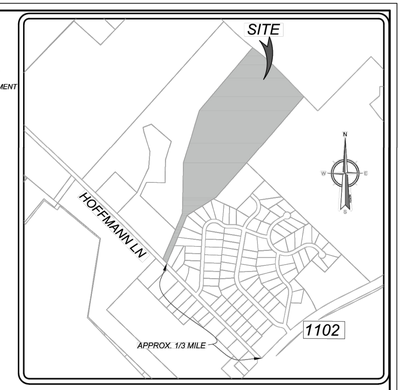

LOCATION MAP
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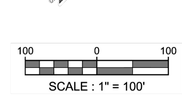

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FINAL SUBDIVISION PLAN

FOR

SILVERLEAF CONDOMINIUMS

COMAL COUNTY TEXAS

Colliers Engineering & Design

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PROJECT NUMBER:	DRAWING NAME:
1186-01-02	0.5 SUBDIVISION PLAT

SHEET TITLE:

SUBDIVISION PLAT

SHEET NUMBER:

0.4

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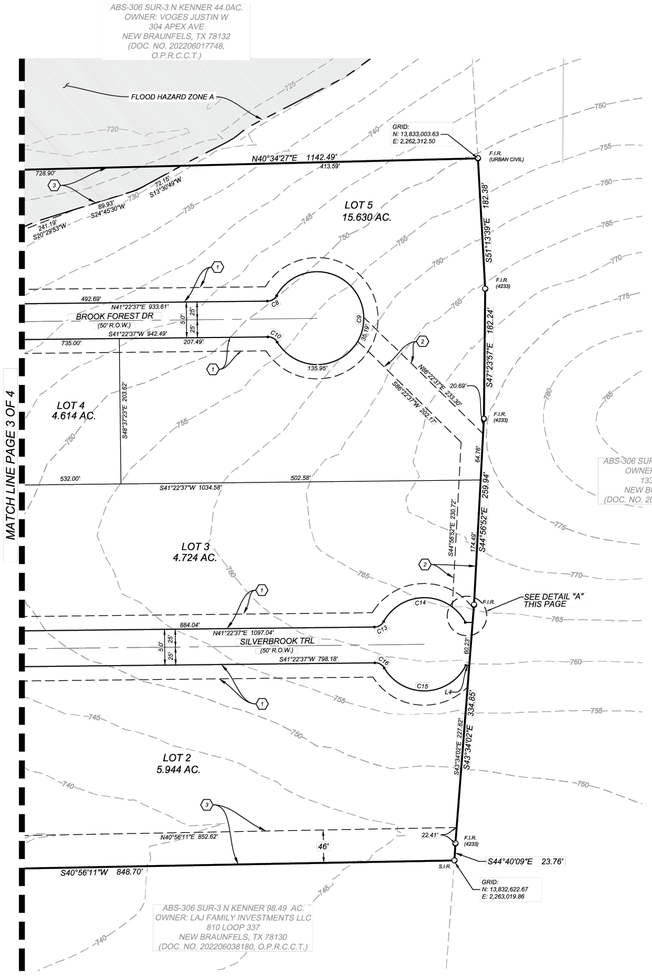

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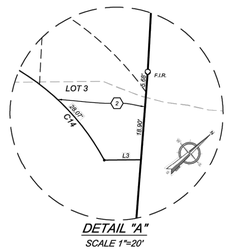
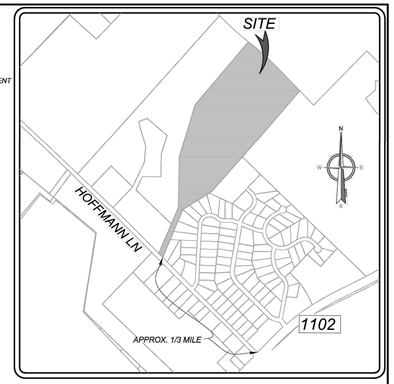
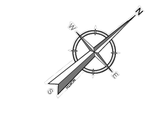




LOCATION MAP
1" = 1000'



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PROJECT NUMBER:	DRAWING NAME:
1186-01-02	0.5 SUBDIVISION PLAT

SHEET TITLE: *SUBDIVISION PLAT*

SHEET NUMBER: *0.5*

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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.

LEGEND

- PROPOSED WATER MAIN — 8"W
- PROPOSED 5/8" WATER SERVICE & METER BOX (1" PIPE) — 1W
- PROPOSED 5/8" WATER SERVICE & METER BOX (1" PIPE) W/ PRESSURE REDUCING VALVE — 1W
- PROPOSED WATER 5/8" IRRIGATION SERVICE & W/ 5/8" WATER METER & METER BOX (1" PIPE) — 5/8" IRR
- PROPOSED FIRE HYDRANT
- PUBLIC UTILITY EASEMENT — P.U.E.
- RIGHT OF WAY — R.O.W.
- PROPOSED STREET LIGHT POLE (SUBJECT TO APPROVAL)
- PROPOSED TEE & WATER VALVE
- EXISTING WATER VALVE
- EXISTING FIRE HYDRANT
- EXISTING WATER MAIN — E. 8" W
- EXISTING OVERHEAD UTILITY LINE — OHE

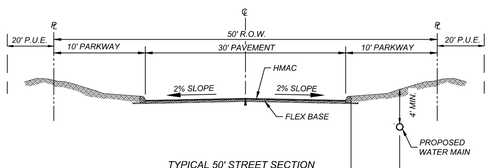
JOINT RESTRAINT NOTE:
CONTRACTOR SHALL INSTALL RETAINER GLANDS AT ALL FITTINGS AND PROVIDE JOINT RESTRAINING HARNESS OR FIELD LOCK GASKETS AT ALL JOINTS WITHIN THE LENGTHS SHOWN. CONTRACTOR SHALL INSURE THAT ALL TEES, BENDS, VALVES, ETC. HAVE A MINIMUM OF 5 FT OF PIPE WITH NO JOINTS ON EACH SIDE OF THE 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.

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

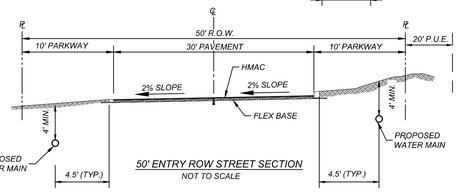
MISCELLANEOUS NOTE:
1. ALL UTILITIES TO BE CONSTRUCTED PRIOR TO STREETS.
2. NO VALVES, HYDRANTS, ETC. SHALL BE CONSTRUCTED WITHIN CURBS, SIDEWALKS, OR DRIVEWAYS.
3. ENSURE ALL DRIVEWAY APPROACHES ARE BUILT IN GENERAL ACCORDANCE WITH A.D.A. SPECIFICATIONS.

UTILITY TRENCH COMPACTION (STREET PAVEMENT / SIDEWALK):
ALL UTILITY TRENCH COMPACTION TESTS WITHIN THE STREET PAVEMENT/SIDEWALK SECTION SHALL BE THE RESPONSIBILITY OF THE DEVELOPER'S GEOTECHNICAL ENGINEER. FILL MATERIAL SHALL BE PLACED IN UNIFORM LAYERS NOT TO EXCEED TWELVE INCHES (12") LOOSE. DETERMINE THE MAXIMUM LIFT THICKNESS BASED ON THE ABILITY OF THE COMPACTING OPERATION AND EQUIPMENT USED TO MEET THE REQUIRED DENSITY. EACH LAYER OF MATERIAL SHALL BE COMPACTED TO A MINIMUM 95% DENSITY AND TESTED FOR DENSITY AND MOISTURE IN ACCORDANCE WITH TEST METHODS TEX-113-E, TEX-114-E, TEX-115-E. THE NUMBER AND LOCATION OF REQUIRED TESTS SHALL BE DETERMINED BY THE GEOTECHNICAL ENGINEER AND APPROVED BY THE COMAL COUNTY STREET INSPECTOR. AT A MINIMUM, TESTS SHALL BE TAKEN EVERY 200 LF FOR EACH LIFT AND EVERY OTHER SERVICE LINE. UPON COMPLETION OF TESTING THE GEOTECHNICAL ENGINEER SHALL PROVIDE THE COMAL COUNTY STREET INSPECTOR WITH ALL TESTING DOCUMENTATION AND A CERTIFICATION STATING THAT THE PLACEMENT OF FILL MATERIAL HAS BEEN COMPLETED IN ACCORDANCE WITH THE PLANS. ADDITIONAL DENSITY TESTS MAY BE REQUESTED BY THE COMAL COUNTY INSPECTOR.

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 COUNTY METHODS FOR TESTING AND COMPACTION MAY NOT BE ACHIEVABLE. A UTILITY COMPACTION PLAN WILL BE REQUIRED AND MUST BE SUBMITTED FOR APPROVAL TO COUNTY PRIOR TO UTILITY INSTALLATION.



TYPICAL 50' STREET SECTION
NOT TO SCALE



50' ENTRY ROW STREET SECTION
NOT TO SCALE

Please Note: NBU REQUIRES GPS POINTS FOR CERTAIN ELECTRIC, WATER AND WASTEWATER ATTRIBUTES, SOME OF WHICH MUST BE TAKEN PRIOR TO BACKFILL DURING CONSTRUCTION.

GPS POINTS SHALL BE REQUIRED FROM THE DEVELOPERS CONTRACTOR. A MINIMUM OF THREE COORDINATE POINTS FOR GEOREFERENCING SHALL BE REQUIRED. THE WATER AND WASTEWATER GPS POINTS SHALL BE TO SURVEY GRADE AND ELECTRIC GPS POINTS SHALL BE MAP GRADE. REFERENCE NBU'S WATER CONNECTION POLICY FOR ADDITIONAL CAD DELIVERABLE REQUIREMENTS.

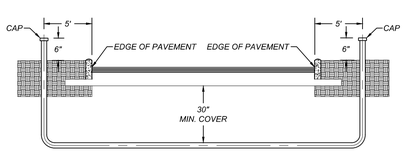
WATER:
VERTICAL BENDS AND EDGE OF STEEL CASING (IF APPLICABLE) PRIOR TO BACKFILL
HORIZONTAL BENDS PRIOR TO BACKFILL
TEES PRIOR TO BACKFILL
FITTINGS (REDUCERS AND COUPLINGS) PRIOR TO BACKFILL
FIRE HYDRANTS (TOP OF FLANGE)
VALVES
METER (TOP CENTER OF BOX)
BLOW OFF ASSEMBLY
CORNER SLAB OF WATER TANK & GATE VALVE ON WATER TANK

WASTEWATER:
MANHOLES
CLEANOUTS
CORNER SLAB OF LIFT STATION

ELECTRIC:
POLES
TRANSFORMERS, BOTH ABOVE AND UNDERGROUND (FRONT LOCK)
PULL BOXES
STREET LIGHTS

COORDINATE GPS REQUIREMENTS WITH NBU INSPECTOR

CONDUIT NOTES:
1. CONTRACTOR SHALL INSTALL PERMANENT MARKERS IN PROPOSED CURB WHERE CONDUITS CROSS THE ROADWAY (BOTH SIDES).
2. CONDUITS SHALL BE PVC WITH MINIMUM BURY OF 36 INCHES BELOW FINISHED GRADE. SCHEDULE 80 TO BE USED FOR NBU CONDUITS, ALL OTHER CONDUITS ARE SCHEDULE 40.
3. ALL CONDUITS SHALL BE EXTENDED BEHIND CURBS OR PROPOSED SIDEWALKS A MINIMUM OF 3 FEET AND CAPPED FOR FUTURE USE.
4. ALL CONDUITS SLEEVES TO BE USED FOR ELECTRIC, GAS, 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.



CONDUIT DETAIL
NOT TO SCALE

**PVC SCHEDULE 80 CONDUIT*
SEE NBU PLAN SHEETS FOR SIZE LOCATION AND NUMBER OF CONDUITS

NOTE:
- CONTRACTOR SHALL BE RESPONSIBLE FOR PLACING CONDUIT SLEEVES FOR EACH NBU FACILITY AT ALL STREETS AND DRAIN CROSSING. CONSTRUCTION SLEEVES MUST ALSO BE LOCATED FOR NBU 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 80 TO BE USED FOR CPS CONDUITS, ALL OTHER CONDUITS ARE SCHEDULE 40.
- 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.
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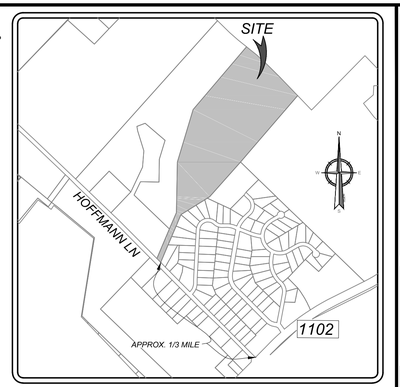


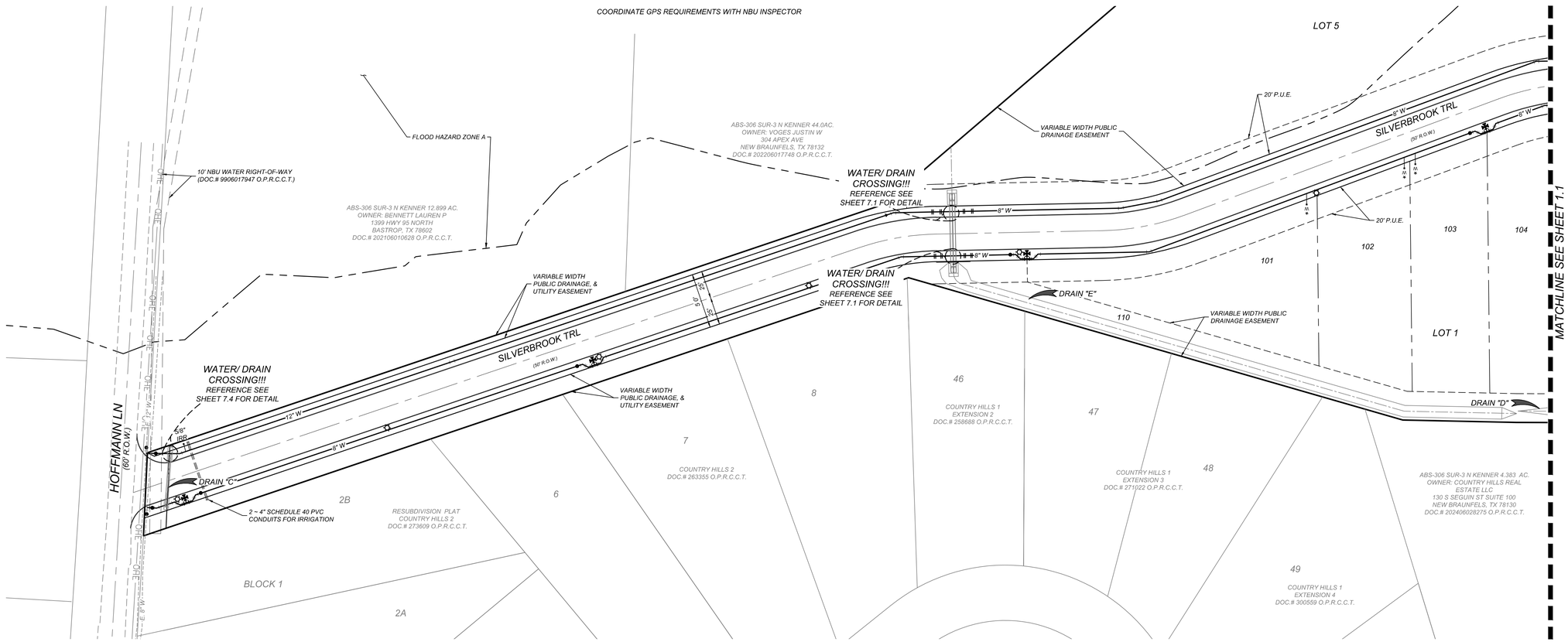
LOCATION MAP
1" = 1000'

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

BENCHMARKS

BM#	NORTHING	EASTING	ELEVATION	DESCRIPITION
300	13831849.86	2261419.20	719.76	SBM LEVELED
301	13832175.16	2261090.25	707.65	SBM LEVELED

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



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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
WAYNE FLORES
90130
LICENSED PROFESSIONAL ENGINEER
11/13/2025

FINAL SUBDIVISION PLAN

FOR

SILVERLEAF CONDOMINIUMS

COMAL COUNTY TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
162 West Mill Street
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14809
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	03/11/2025	DG	WF

PROJECT NUMBER: 1186-01-02
DRAWING NAME: 1.2 OVERALL UTILITY PLAN

SHEET TITLE: *OVERALL UTILITY PLAN*

SHEET NUMBER: *1.0*

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Nov 13, 2025, 9:13am User ID: ASerna
File: U:\Projects\1186\01\02\Design\Civil\Plan Sheets\1.2 OVERALL UTILITY PLAN.dwg
Z:\Design\Civil\Utilities\1.0 OVERALL UTILITY PLAN\Dwg\1.0 OVERALL UTILITY PLAN By: ASERNA

TRENCH EXCAVATION SAFETY PROTECTION:
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CAUTION!!!
THE CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITED TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL 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.

LEGEND

- PROPOSED WATER MAIN — 8"W
- PROPOSED 5/8" WATER SERVICE & METER BOX (1" PIPE)
- PROPOSED 5/8" WATER SERVICE & METER BOX (1" PIPE) W/ PRESSURE REDUCING VALVE
- PROPOSED WATER 5/8" IRRIGATION SERVICE & W/ 5/8" WATER METER & METER BOX (1" PIPE) — 5/8" IRR
- PROPOSED FIRE HYDRANT
- PUBLIC UTILITY EASEMENT — P.U.E.
- RIGHT OF WAY — R.O.W.
- PROPOSED STREET LIGHT POLE (SUBJECT TO APPROVAL)
- PROPOSED TEE & WATER VALVE
- EXISTING WATER VALVE
- EXISTING FIRE HYDRANT
- EXISTING WATER MAIN — E. 8" W
- EXISTING OVERHEAD UTILITY LINE — OHE

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.

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

MISCELLANEOUS NOTE:
1. *ALL UTILITIES TO BE CONSTRUCTED PRIOR TO STREETS.*
2. *NO VALVES, HYDRANTS, ETC. SHALL BE CONSTRUCTED WITHIN CURBS, SIDEWALKS, OR DRIVEWAYS.*
3. *ENSURE ALL DRIVEWAY APPROACHES ARE BUILT IN GENERAL ACCORDANCE WITH A.D.A. SPECIFICATIONS.*

UTILITY TRENCH COMPACTION (STREET PAVEMENT / SIDEWALK):
ALL UTILITY TRENCH COMPACTION TESTS WITHIN THE STREET PAVEMENT/SIDEWALK SECTION SHALL BE THE RESPONSIBILITY OF THE DEVELOPER'S GEOTECHNICAL ENGINEER. FILL MATERIAL SHALL BE PLACED IN UNIFORM LAYERS NOT TO EXCEED TWELVE INCHES (12") LOOSE. DETERMINE THE MAXIMUM LIFT THICKNESS BASED ON THE ABILITY OF THE COMPACTING OPERATION AND EQUIPMENT USED TO MEET THE REQUIRED DENSITY. EACH LAYER OF MATERIAL SHALL BE COMPACTED TO A MINIMUM 95% DENSITY AND TESTED FOR DENSITY AND MOISTURE IN ACCORDANCE WITH TEST METHODS TEX-113-E, TEX-114-E, TEX-115-E. THE NUMBER AND LOCATION OF REQUIRED TESTS SHALL BE DETERMINED BY THE GEOTECHNICAL ENGINEER AND APPROVED BY THE COMAL COUNTY STREET INSPECTOR. AT A MINIMUM, TESTS SHALL BE TAKEN EVERY 200 LF FOR EACH LIFT AND EVERY OTHER SERVICE LINE. UPON COMPLETION OF TESTING THE GEOTECHNICAL ENGINEER SHALL PROVIDE THE COMAL COUNTY STREET INSPECTOR WITH ALL TESTING DOCUMENTATION AND A CERTIFICATION STATING THAT THE PLACEMENT OF FILL MATERIAL HAS BEEN COMPLETED IN ACCORDANCE WITH THE PLANS. ADDITIONAL DENSITY TESTS MAY BE REQUESTED BY THE COMAL COUNTY INSPECTOR.

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 COUNTY METHODS FOR TESTING AND COMPACTION MAY NOT BE ACHIEVABLE. A UTILITY COMPACTION PLAN WILL BE REQUIRED AND MUST BE SUBMITTED FOR APPROVAL TO COUNTY PRIOR TO UTILITY INSTALLATION.*

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

BENCHMARKS

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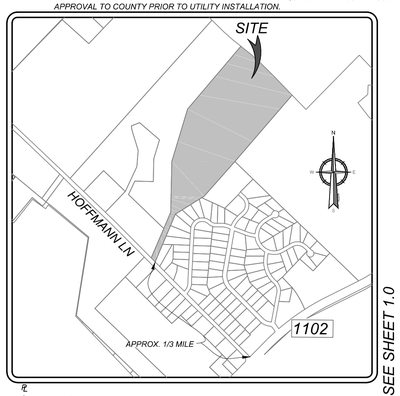
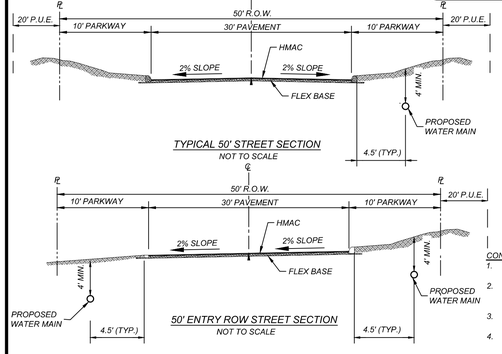
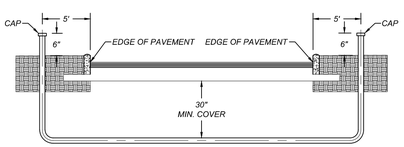


LOCATION MAP
1" = 1000'



TYPICAL 50' STREET SECTION
NOT TO SCALE

50' ENTRY ROW STREET SECTION
NOT TO SCALE



CONDUIT DETAIL
NOT TO SCALE

**PVC SCHEDULE 80 CONDUIT*
SEE NBU PLAN SHEETS FOR SIZE LOCATION AND NUMBER OF CONDUITS

CONDUIT NOTES:
1. *CONTRACTOR SHALL INSTALL PERMANENT MARKERS IN PROPOSED CURB WHERE CONDUITS CROSS THE ROADWAY (BOTH SIDES).*
2. *CONDUITS SHALL BE PVC WITH MINIMUM BURY OF 36 INCHES BELOW FINISHED GRADE. SCHEDULE 80 TO BE USED FOR NBU CONDUITS, ALL OTHER CONDUITS ARE SCHEDULE 40.*
3. *ALL CONDUITS SHALL BE EXTENDED BEHIND CURBS OR PROPOSED SIDEWALKS A MINIMUM OF 3 FEET AND CAPPED FOR FUTURE USE.*
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Please Note: NBU REQUIRES GPS POINTS FOR CERTAIN ELECTRIC, WATER AND WASTEWATER ATTRIBUTES, SOME OF WHICH MUST BE TAKEN PRIOR TO BACKFILL DURING CONSTRUCTION.

GPS POINTS SHALL BE REQUIRED FROM THE DEVELOPERS CONTRACTOR. A MINIMUM OF THREE COORDINATE POINTS FOR GEOREFERENCING SHALL BE REQUIRED. THE WATER AND WASTEWATER GPS POINTS SHALL BE TO SURVEY GRADE AND ELECTRIC GPS POINTS SHALL BE MAP GRADE. REFERENCE NBU'S WATER CONNECTION POLICY FOR ADDITIONAL CAD DELIVERABLE REQUIREMENTS.

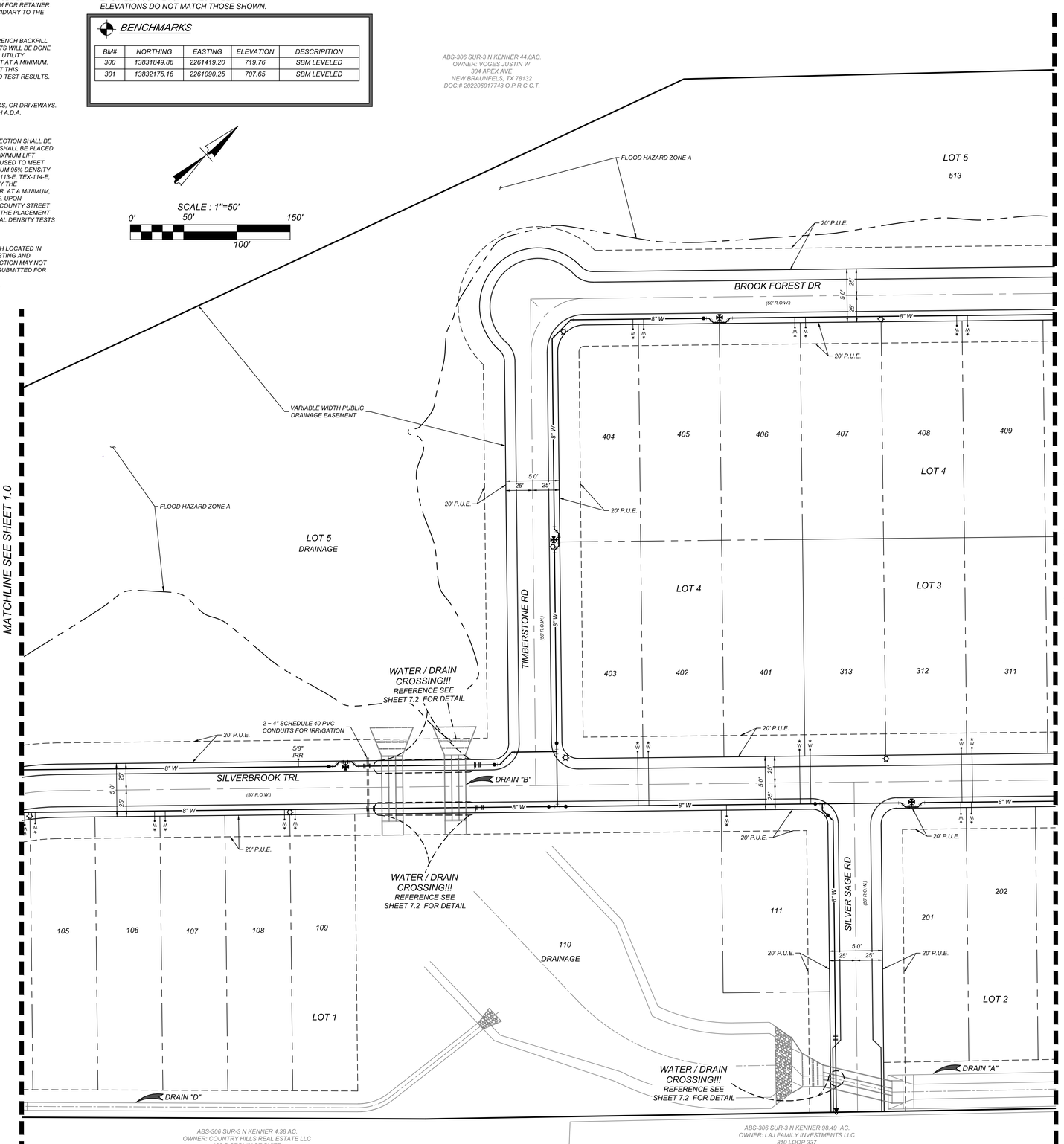
WATER:
VERTICAL BENDS AND EDGE OF STEEL CASING (IF APPLICABLE) PRIOR TO BACKFILL
HORIZONTAL BENDS PRIOR TO BACKFILL
TEES PRIOR TO BACKFILL
FITTINGS (REDUCERS AND COUPLINGS) PRIOR TO BACKFILL
FIRE HYDRANTS (TOP OF FLANGE)
VALVES
METER (TOP CENTER OF BOX)
BLOW OFF ASSEMBLY
CORNER SLAB OF WATER TANK & GATE VALVE ON WATER TANK

WASTEWATER:
MANHOLES
CLEANOUTS
CORNER SLAB OF LIFT STATION

ELECTRIC:
POLES
TRANSFORMERS, BOTH ABOVE AND UNDERGROUND (FRONT LOCK)
PULL BOXES
STREET LIGHTS

COORDINATE GPS REQUIREMENTS WITH NBU INSPECTOR

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



ABS-306 SUR-3 N KENNER 44.0AC.
OWNER: VOGES JUSTIN W
304 APEX AVE
NEW BRAUNFELS, TX 78132
DOC.# 202206017748 O.P.R.C.C.T.

ABS-306 SUR-3 N KENNER 4.38 AC.
OWNER: COUNTRY HILLS REAL ESTATE LLC
130 S SEGUIN ST SUITE
NEW BRAUNFELS, TX 78130
DOC. # 202406028275 O.P.R.C.C.T.

ABS-306 SUR-3 N KENNER 98.49 AC.
OWNER: LAJ FAMILY INVESTMENTS LLC
810 LOOP 337
NEW BRAUNFELS, TX 78130
DOC.# 202206038180 O.P.R.C.C.T.

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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
WAYNE FLORES
90130
LICENSED
PROFESSIONAL ENGINEER

11/13/2025

FINAL SUBDIVISION PLAN

FOR

SILVERLEAF CONDOMINIUMS

COMAL COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
162 West Mill Street
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	03/11/2025	DG	WF

PROJECT NUMBER:	DRAWING NAME:
1186-01-02	1.2 OVERALL UTILITY PLAN

SHEET TITLE:
OVERALL UTILITY PLAN

SHEET NUMBER:
1.1

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Nov 13, 2025, 9:13pm User ID: ASierra
File: J:\Projects\1186\01\02\Design\Civil\Utilities\1.2 OVERALL UTILITY PLAN.dwg
Z:\Design\Civil\Utilities\1.2 OVERALL UTILITY PLAN.dwg=1.1 OVERALL UTILITY PLAN By: ASIERRA

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LEGEND

- PROPOSED WATER MAIN — 8"W
- PROPOSED 5/8" WATER SERVICE & METER BOX (1" PIPE) — W
- PROPOSED 5/8" WATER SERVICE & METER BOX (1" PIPE) W/ PRESSURE REDUCING VALVE — W
- PROPOSED WATER 5/8" IRRIGATION SERVICE & W/ 5/8" WATER METER & METER BOX (1" PIPE) — W, 3/4" SDR
- PROPOSED FIRE HYDRANT
- PUBLIC UTILITY EASEMENT — P.U.E.
- RIGHT OF WAY — R.O.W.
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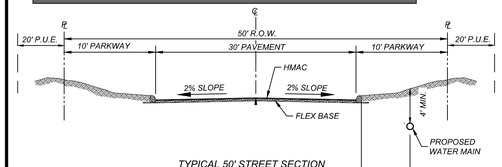

TYPICAL 50' STREET SECTION
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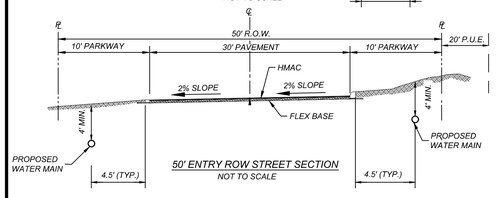

50' ENTRY ROW STREET SECTION
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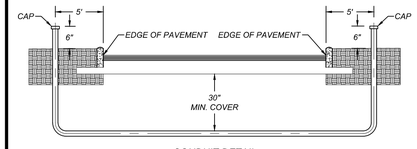

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- *ALL CONDUITS SHALL BE EXTENDED BEHIND CURBS OR PROPOSED SIDEWALKS A MINIMUM OF 3 FEET AND CAPPED FOR FUTURE USE.*
- *ALL CONDUIT SLEEVES TO BE USED FOR ELECTRIC, GAS, OR TELECOMMUNICATION UTILITY CROSSINGS SHALL BE INSTALLED TO MEET OR EXCEED DESIGN 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.*

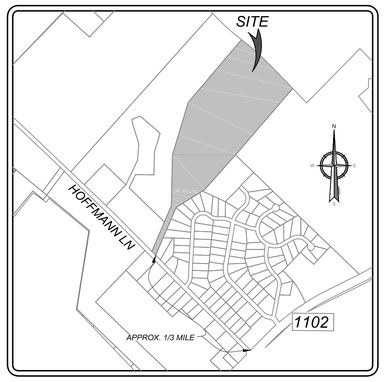
JOINT RESTRAINT NOTE:
CONTRACTOR SHALL INSTALL RETAINER GLANDS AT ALL FITTINGS AND PROVIDE JOINT RESTRAINING HARNESS OR FIELD LOCK GASKETS AT ALL JOINTS WITHIN THE LENGTH SHOWN. CONTRACTOR SHALL INSURE THAT ALL TEES, BENDS, VALVES, ETC. HAVE A MINIMUM OF 5 FT OF PIPE WITH NO JOINTS ON EACH SIDE OF THE 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.

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

MISCELLANEOUS NOTE:
1. *ALL UTILITIES TO BE CONSTRUCTED PRIOR TO STREETS.*
2. *NO VALVES, HYDRANTS, ETC. SHALL BE CONSTRUCTED WITHIN CURBS, SIDEWALKS, OR DRIVEWAYS.*
3. *ENSURE ALL DRIVEWAY APPROACHES ARE BUILT IN GENERAL ACCORDANCE WITH A.D.A. SPECIFICATIONS.*

UTILITY TRENCH COMPACTION (STREET PAVEMENT / SIDEWALK):
ALL UTILITY TRENCH COMPACTION TESTS WITHIN THE STREET PAVEMENT/SIDEWALK SECTION SHALL BE THE RESPONSIBILITY OF THE DEVELOPER'S GEOTECHNICAL ENGINEER. FILL MATERIAL SHALL BE PLACED IN UNIFORM LAYERS NOT TO EXCEED TWELVE INCHES (12") LOOSE. DETERMINE THE MAXIMUM LIFT THICKNESS BASED ON THE ABILITY OF THE COMPACTING OPERATION AND EQUIPMENT USED TO MEET THE REQUIRED DENSITY. EACH LAYER OF MATERIAL SHALL BE COMPACTED TO A MINIMUM 95% DENSITY AND TESTED FOR DENSITY AND MOISTURE IN ACCORDANCE WITH TEST METHODS TEX-113-E, TEX-114-E, TEX-115-E. THE NUMBER AND LOCATION OF REQUIRED TESTS SHALL BE DETERMINED BY THE GEOTECHNICAL ENGINEER AND APPROVED BY THE COMAL COUNTY STREET INSPECTOR. AT A MINIMUM, TESTS SHALL BE TAKEN EVERY 200 LF FOR EACH LIFT AND EVERY OTHER SERVICE LINE. UPON COMPLETION OF TESTING THE GEOTECHNICAL ENGINEER SHALL PROVIDE THE COMAL COUNTY STREET INSPECTOR WITH ALL TESTING DOCUMENTATION AND A CERTIFICATION STATING THAT THE PLACEMENT OF FILL MATERIAL HAS BEEN COMPLETED IN ACCORDANCE WITH THE PLANS. ADDITIONAL DENSITY TESTS MAY BE REQUESTED BY THE COMAL COUNTY INSPECTOR.

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 COUNTY METHODS FOR TESTING AND COMPACTION MAY NOT BE ACHIEVABLE. A UTILITY COMPACTION PLAN WILL BE REQUIRED AND MUST BE SUBMITTED FOR APPROVAL TO COUNTY PRIOR TO UTILITY INSTALLATION.*



LOCATION MAP
1" = 1000'

CONDUIT NOTES:
1. *CONTRACTOR SHALL INSTALL PERMANENT MARKERS IN PROPOSED CURB WHERE CONDUITS CROSS THE ROADWAY (BOTH SIDES).*
2. *CONDUITS SHALL BE PVC WITH MINIMUM BURY OF 36 INCHES BELOW FINISHED GRADE. SCHEDULE 80 TO BE USED FOR NBU CONDUITS, ALL OTHER CONDUITS ARE SCHEDULE 40.*
3. *ALL CONDUITS SHALL BE EXTENDED BEHIND CURBS OR PROPOSED SIDEWALKS A MINIMUM OF 3 FEET AND CAPPED FOR FUTURE USE.*
4. *ALL CONDUITS SLEEVES TO BE USED FOR ELECTRIC, GAS, 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.*

Please Note: NBU REQUIRES GPS POINTS FOR CERTAIN ELECTRIC, WATER AND WASTEWATER ATTRIBUTES, SOME OF WHICH MUST BE TAKEN PRIOR TO BACKFILL DURING CONSTRUCTION.

GPS POINTS SHALL BE REQUIRED FROM THE DEVELOPERS CONTRACTOR. A MINIMUM OF THREE COORDINATE POINTS FOR GEOREFERENCING SHALL BE REQUIRED. THE WATER AND WASTEWATER GPS POINTS SHALL BE TO SURVEY GRADE AND ELECTRIC GPS POINTS SHALL BE MAP GRADE. REFERENCE NBU'S WATER CONNECTION POLICY FOR ADDITIONAL CAD DELIVERABLE REQUIREMENTS.

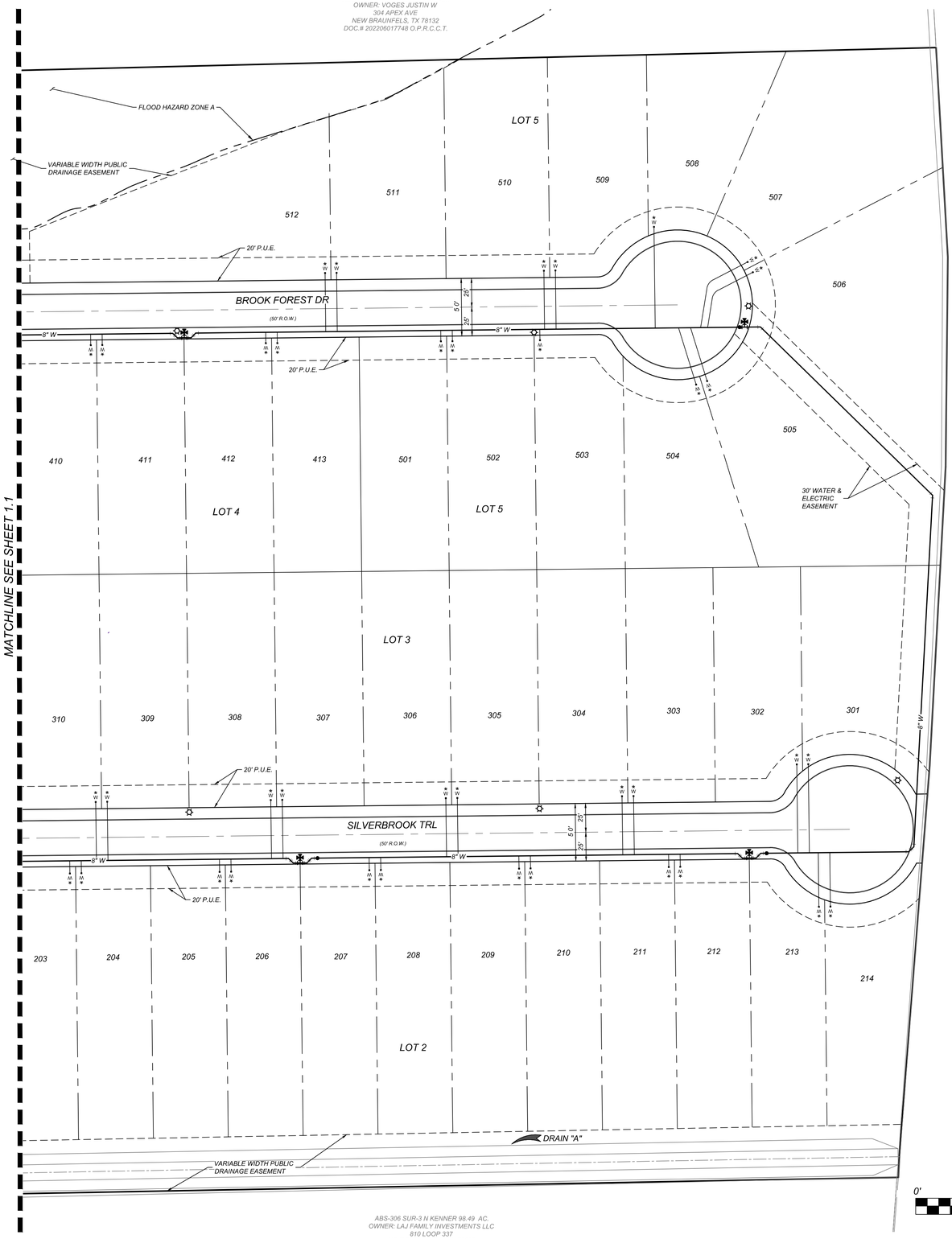
WATER:
VERTICAL BENDS AND EDGE OF STEEL CASING (IF APPLICABLE) PRIOR TO BACKFILL
HORIZONTAL BENDS PRIOR TO BACKFILL
TEES PRIOR TO BACKFILL
FITTINGS (REDUCERS AND COUPLINGS) PRIOR TO BACKFILL
FIRE HYDRANTS (TOP OF FLANGE)
VALVES
METER (TOP CENTER OF BOX)
BLOW OFF ASSEMBLY
CORNER SLAB OF WATER TANK & GATE VALVE ON WATER TANK

WASTEWATER:
MANHOLES
CLEANOUTS
CORNER SLAB OF LIFT STATION

ELECTRIC:
POLES
TRANSFORMERS, BOTH ABOVE AND UNDERGROUND (FRONT LOCK)
PULL BOXES
STREET LIGHTS

COORDINATE GPS REQUIREMENTS WITH NBU INSPECTOR

MATCHLINE SEE SHEET 1.1



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

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STATE OF TEXAS
WAYNE FLORES
90130
LICENSED PROFESSIONAL ENGINEER
11/13/2025

FINAL SUBDIVISION PLAN

FOR

SILVERLEAF CONDOMINIUMS

COMAL COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
162 West Mill Street
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	03/11/2025	DG	WF

PROJECT NUMBER:	DRAWING NAME:
1186-01-02	1.2 OVERALL UTILITY PLAN

SHEET TITLE:
OVERALL UTILITY PLAN

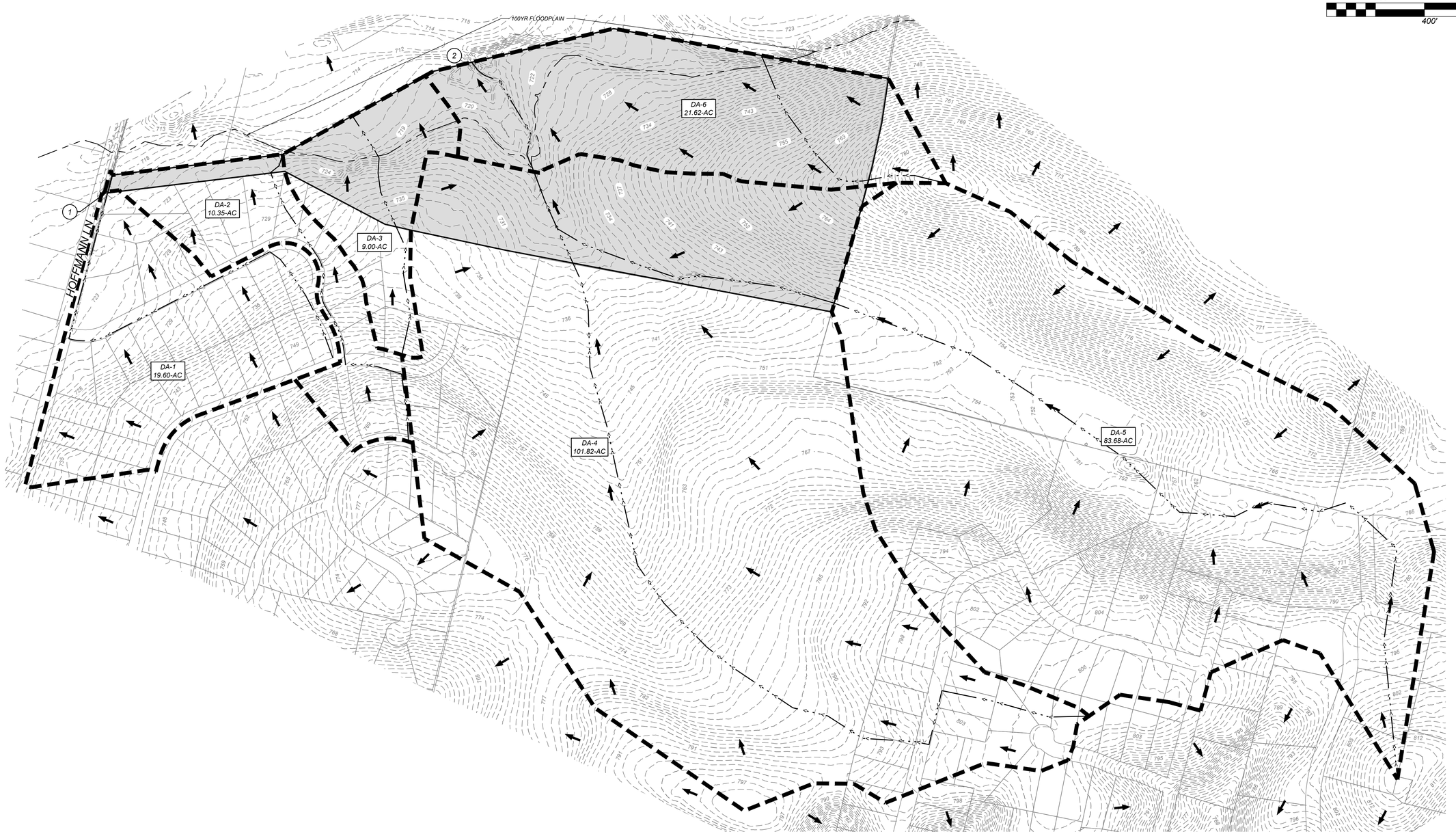
SHEET NUMBER:
1.2

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Nov 13, 2025, 9:13am User ID: AGarza
File: U:\Projects\1186\01\02\Design\Civil\Utilities\1.2 OVERALL UTILITY PLAN.dwg
Z:\Design\Civil\Utilities\1.2 OVERALL UTILITY PLAN.dwg 1.2 OVERALL UTILITY PLAN By: ASERNA

EXISTING CONDITIONS
Runoff Calculation - SCS Method (ATLAS 14)

Study Point	Drainage Area(s)	(Acres)	Curve Number (CN)	Impervious Cover (%)	$T_{canyover}$ (min)	T_{ovrt} (min)	T_{sc} (min)	T_{ch} (min)	T_{tot} (min)	T_{lag} (min)	Q_2 (ft^3/s)	Q_{10} (ft^3/s)	Q_{25} (ft^3/s)	Q_{50} (ft^3/s)	Q_{100} (ft^3/s)
SP-1	DA-1	19.60	77.00	29.08%		8.2	2.0	4.4	14.6	8.7	41.1	83.0	116.1	145.8	180.0
	DA-2	10.35	77.00	21.49%		6.4	0.9	3.3	10.6	6.4	22.3	46.2	65.0	81.9	101.4
	DA-3	9.00	77.00	4.97%		5.6	5.1	0.6	11.2	6.7	16.9	37.5	53.9	68.6	85.6
	DA-4	101.82	75.95	3.52%		15.1	5.4	9.4	29.9	17.9	128.9	294.6	427.8	548.2	686.9
	DA-5	83.68	75.68	6.32%		11.1	4.8	7.1	23.0	13.8	119.8	271.2	392.5	502.5	629.3
	DA-6	21.62	77.00	0.00%		11.5	3.7	0.0	15.2	9.1	35.9	81.7	118.1	150.8	188.6
SP-2	DA-2+DA-3+DA-4+DA-5+DA-6	*REFER TO FLOOD STUDY FOR OVERALL STORMWATER FLOWS													



LEGEND

- DA 1 / 1.0 ACRES — WATERSHED IDENTIFIER / AREA (ACRES)
- WATERSHED BOUNDARY
- FLOW PATH
- 717 — EXISTING CONTOURS
- FLOW ARROW
- 1 — ANALYSIS POINT
- PROPOSED SITE

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

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STATE OF TEXAS
WAYNE FLORES
90130
LICENSED PROFESSIONAL ENGINEER
9/2/2025

FINAL SUBDIVISION PLAN

FOR

SILVERLEAF CONDOMINIUMS

COMAL COUNTY TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
162 West Mill Street
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#:F-14909
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AS SHOWN	03/11/2025	DG	WF

PROJECT NUMBER: 1186-01-02
DRAWING NAME: 2.0 EXISTING DRAINAGE MAP

SHEET TITLE: *EXISTING DRAINAGE MAP*

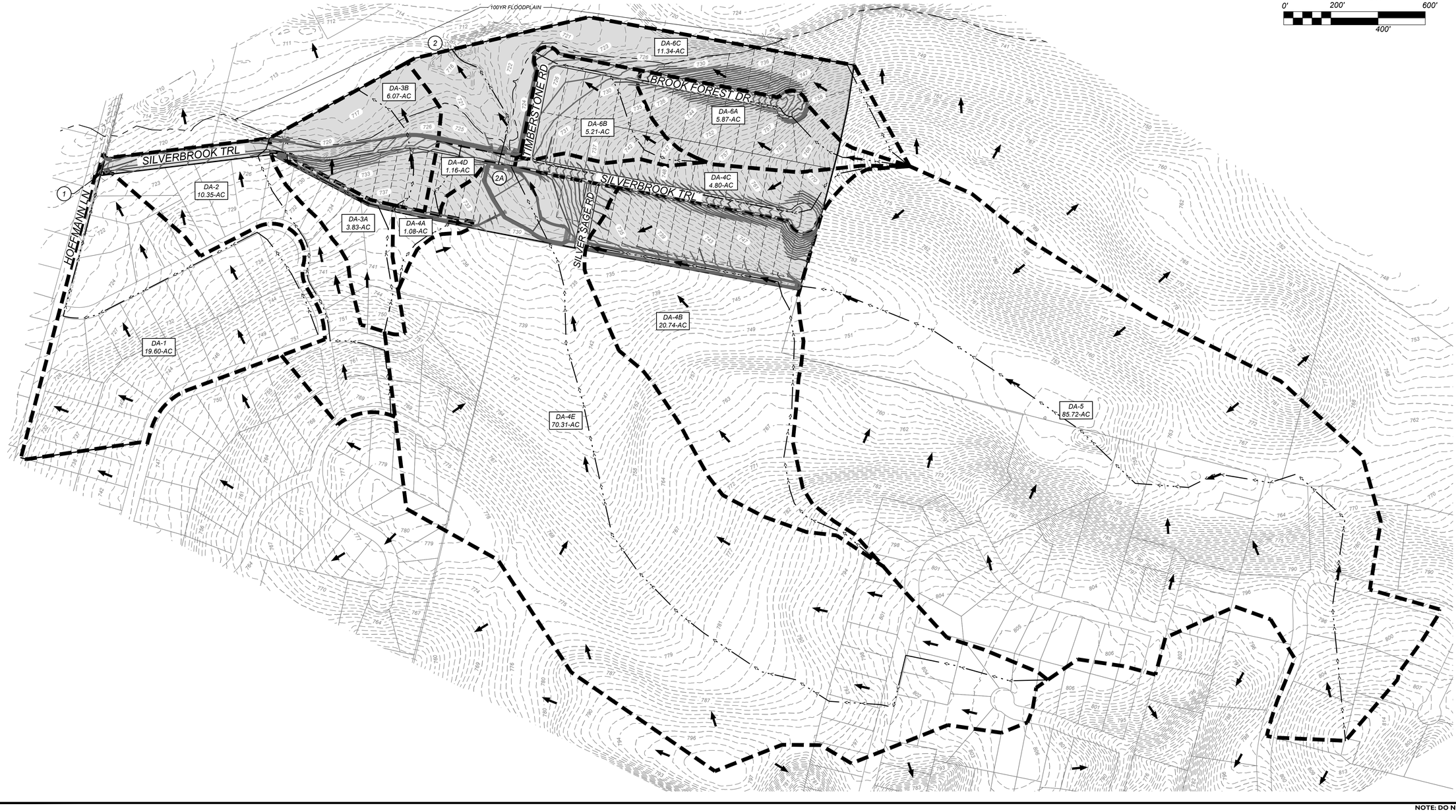
SHEET NUMBER: *2.0*

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Sep 02, 2025, 10:50am User ID: ASerna
File: L:\Projects\1186\01\02\Design\1.0 Design\2.0 EXISTING DRAINAGE MAP.dwg
Z:\Design\Civil\Drainage\2.0 EXISTING DRAINAGE MAP.dwg\2.0 EXISTING DRAINAGE MAP By: ASERNA

PROPOSED CONDITIONS
Runoff Calculation - SCS Method

Study Point	Drainage Area(s)	(Acres)	Curve Number (CN)	Impervious Cover (%)	$T_{carryover}$ (min)	T_{ovrl} (min)	T_{sc} (min)	T_{ch} (min)	T_{tot} (min)	T_{lag} (min)	Q_2 (ft^3/s)	Q_{10} (ft^3/s)	Q_{25} (ft^3/s)	Q_{50} (ft^3/s)	Q_{100} (ft^3/s)
SP-1	DA-1	19.60	77.00	29.08%		8.2	2.0	4.4	14.6	8.7	41.1	83.0	116.1	145.8	180.0
	DA-2	10.35	77.00	26.99%		6.4	0.9	3.3	10.6	6.4	23.1	47.0	65.8	82.7	102.1
	DA-3A	3.83	77.00	11.69%		5.6	3.4	1.3	10.2	6.1	7.8	16.7	23.7	30.1	37.4
	DA-3B	6.07	77.00	18.43%		7.2	1.5	0.6	9.3	5.6	13.1	27.5	38.9	49.1	60.8
	DA-4A	1.08	75.53	0.00%		9.5	2.5	0.2	12.2	7.3	1.8	4.2	6.1	7.8	9.8
	DA-4B	20.74	74.33	6.14%		7.6	7.9	2.6	18.0	10.8	30.8	71.2	104.0	133.7	168.1
	DA-4C	4.80	77.00	50.98%		5.5	1.6	3.3	10.3	6.2	12.6	23.6	32.3	40.1	49.0
	DA-4D	1.16	77.00	49.82%		10.1	1.1	0.1	11.3	6.8	3.0	5.6	7.6	9.5	11.6
	DA-4E	70.31	76.31	5.73%		15.1	5.4	9.2	29.7	17.8	92.4	207.5	299.7	382.9	478.7
	DA-5	85.72	75.70	6.17%		11.1	4.8	2.8	18.7	11.2	132.7	300.5	434.8	556.1	695.8
	DA-6A	5.87	77.00	29.65%		11.5	2.0	1.9	15.3	9.2	12.2	24.5	34.2	42.9	53.0
	DA-6B	5.21	77.00	31.00%		6.3	2.7	0.9	9.9	6.0	12.1	24.2	33.8	42.4	52.3
	DA-6C	11.34	77.00	6.20%		9.5	2.3	0.0	11.8	7.1	21.3	46.9	67.1	85.4	106.4
SP-2A	DA-4A+DA-4B+DA-4E+DA-5	177.84									250.1	567.5	821.8	1052.2	1318.0
SP-2	DA-2+DA-3A+DA-3B+DA-4C+DA-4D DA-6A+DA-6B+DA-6C+SP-2A	*REFER TO FLOOD STUDY FOR OVERALL STORMWATER FLOWS													



LEGEND

- DA 1 / 1.0 ACRES — WATERSHED IDENTIFIER AREA (ACRES)
- WATERSHED BOUNDARY
- FLOW PATH
- 717 — EXISTING CONTOURS
- FLOW ARROW
- 1 — ANALYSIS POINT
- PROPOSED SITE

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

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9/2/2025

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FOR

SILVERLEAF CONDOMINIUMS

COMAL COUNTY
TEXAS

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162 West Mill Street
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	03/11/2025	DG	WF

PROJECT NUMBER:	DRAWING NAME:
1186-01-02	2.1 PROPOSED SCS DRAINAGE MAP

SHEET TITLE: *PROPOSED SCS DRAINAGE MAP*

SHEET NUMBER: 2.1

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Date: Sep 02, 2025, 10:40am User ID: ASerna
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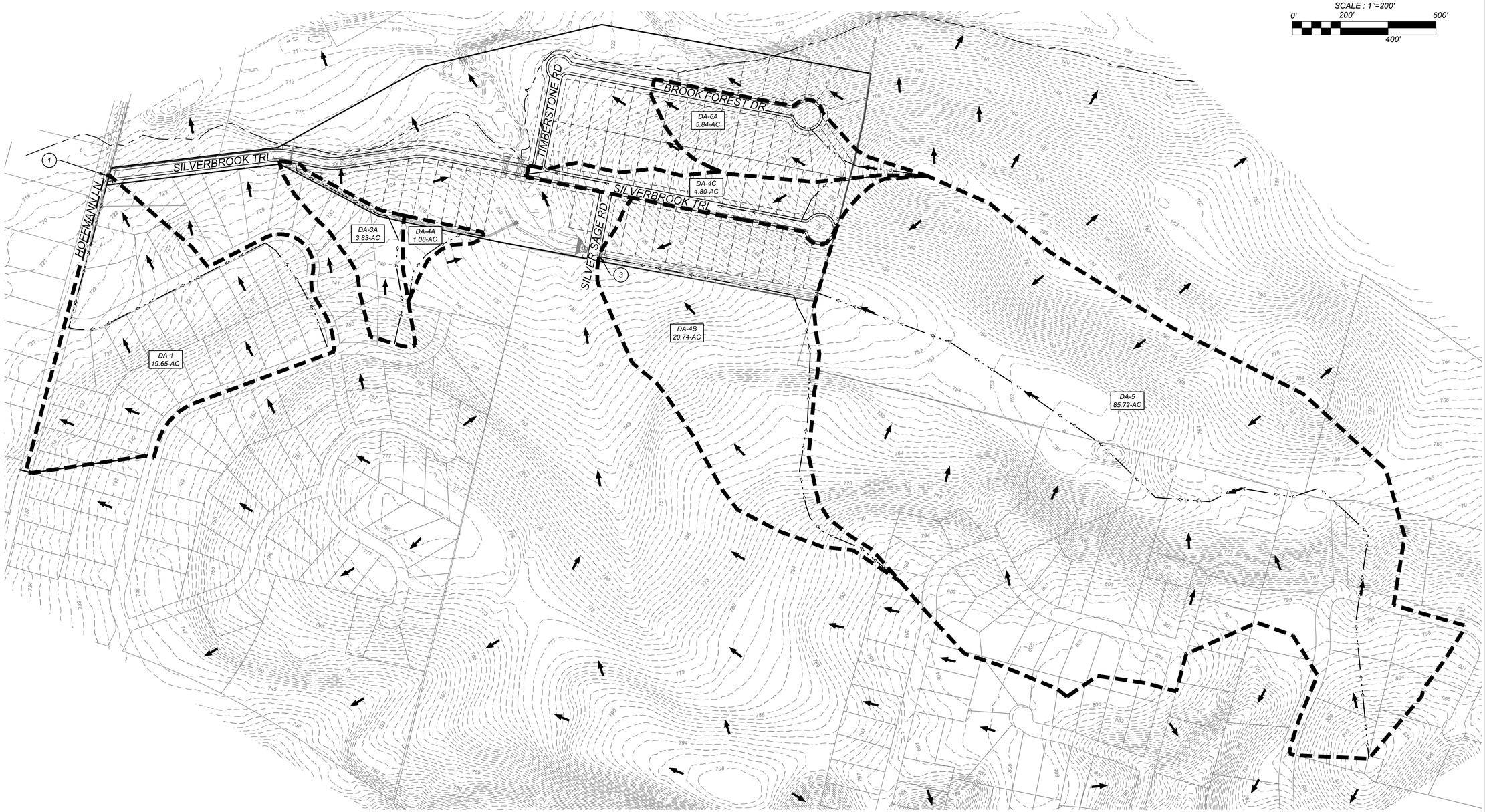
Z:\Design\Civil\Drainage\2.1 PROPOSED SCS DRAINAGE MAP.dwg\2.1 PROPOSED SCS DRAINAGE MAP By:ASERNA

Runoff Calculation - Rational Method (ATLAS 14)

Study Point	Drainage Area(s)	(Acres)	C_2	C_{10}	C_{25}	C_{50}	C_{100}	$T_{carryover}$ (min)	T_{ovrl} (min)	T_{sc} (min)	T_{ch} (min)	T_{tot} (min)	I_2 (in/hr)	I_{10} (in/hr)	I_{25} (in/hr)	I_{50} (in/hr)	I_{100} (in/hr)	Q_2 (ft^3/s)	Q_{10} (ft^3/s)	Q_{25} (ft^3/s)	Q_{50} (ft^3/s)	Q_{100} (ft^3/s)
SP-1	DA-1	19.65	0.45	0.51	0.55	0.58	0.63		8.2	2.0	4.4	14.6	4.30	6.33	7.64	8.70	9.80	38.06	63.36	82.88	99.96	120.86
	DA-3A	3.83	0.38	0.43	0.47	0.50	0.55		5.6	3.4	1.3	10.2	5.01	7.45	9.05	10.30	11.61	7.28	12.33	16.42	19.91	24.27
	DA-4A	1.08	0.32	0.37	0.41	0.44	0.48		9.5	2.5	0.2	12.2	4.67	6.92	8.39	9.54	10.75	1.61	2.76	3.71	4.53	5.57
	DA-4B	20.74	0.35	0.40	0.45	0.48	0.52		7.6	7.9	2.6	18.0	3.86	5.66	6.81	7.74	8.71	28.23	47.48	62.87	76.37	93.27
	DA-4C	4.80	0.54	0.61	0.65	0.69	0.73		5.5	1.6	3.3	10.3	5.00	7.42	9.02	10.26	11.57	12.98	21.61	28.22	33.85	40.66
	DA-4D	1.16	0.54	0.60	0.65	0.68	0.73		10.1	1.1	0.1	11.3	4.82	7.15	8.68	9.88	11.13	2.99	4.98	6.50	7.80	9.37
	DA-5	85.72	0.35	0.40	0.44	0.47	0.51		11.1	4.8	2.8	18.7	3.79	5.56	6.70	7.60	8.56	112.76	190.10	252.09	306.15	374.53
	DA-6A	5.84	0.45	0.51	0.55	0.59	0.63		11.5	2.0	1.9	15.3	4.20	6.18	7.44	8.47	9.54	11.08	18.43	24.07	29.02	35.07
SP-3	DA-4B+DA-5	106.46	0.35	0.40	0.44	0.47	0.51	18.7			2.8	21.5	3.53	5.18	6.23	7.05	7.93	130.88	220.35	292.06	353.58	432.11



LEGEND

- DA 1 / 1.0 ACRES — WATERSHED IDENTIFIER / AREA (ACRES)
- WATERSHED BOUNDARY
- FLOW PATH
- EXISTING CONTOURS
- FLOW ARROW
- ANALYSIS POINT
- PROPOSED SITE

SCALE : 1"=200'

0' 200' 600'

400'

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WAYNE FLORES
90130
LICENSED PROFESSIONAL ENGINEER

9/2/2025

FINAL SUBDIVISION PLAN

FOR

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COMAL COUNTY
TEXAS

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New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
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AS SHOWN	03/11/2025	DG	WF

PROJECT NUMBER:	DRAWING NAME:
1186-01-02	2.2 PROPOSED ONSITE DRAINAGE MAP

SHEET TITLE:

PROPOSED ONSITE DRAINAGE MAP

SHEET NUMBER:

2.2

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Sep 02, 2025, 10:50am User ID: ASerna
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Z:\Design\Civil\Drainage\2.2 PROPOSED ONSITE DRAINAGE MAP.dwg\2.1 PROPOSED SCS DRAINAGE MAP - By: ASERNA

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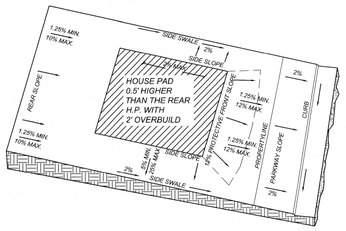
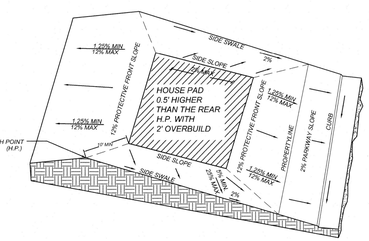
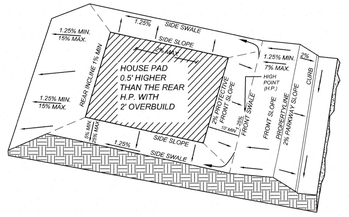
CAUTION!!!
THE CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITED TO; WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS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



TYPE 'A' LOT GRADING



TYPE 'B' LOT GRADING



TYPE 'C' LOT GRADING

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

BENCHMARKS

BM#	NORTHING	EASTING	ELEVATION	DESCRIPITION
300	13831849.86	2261419.20	719.76	SBM LEVELED
301	13832175.16	2261090.25	707.65	SBM LEVELED

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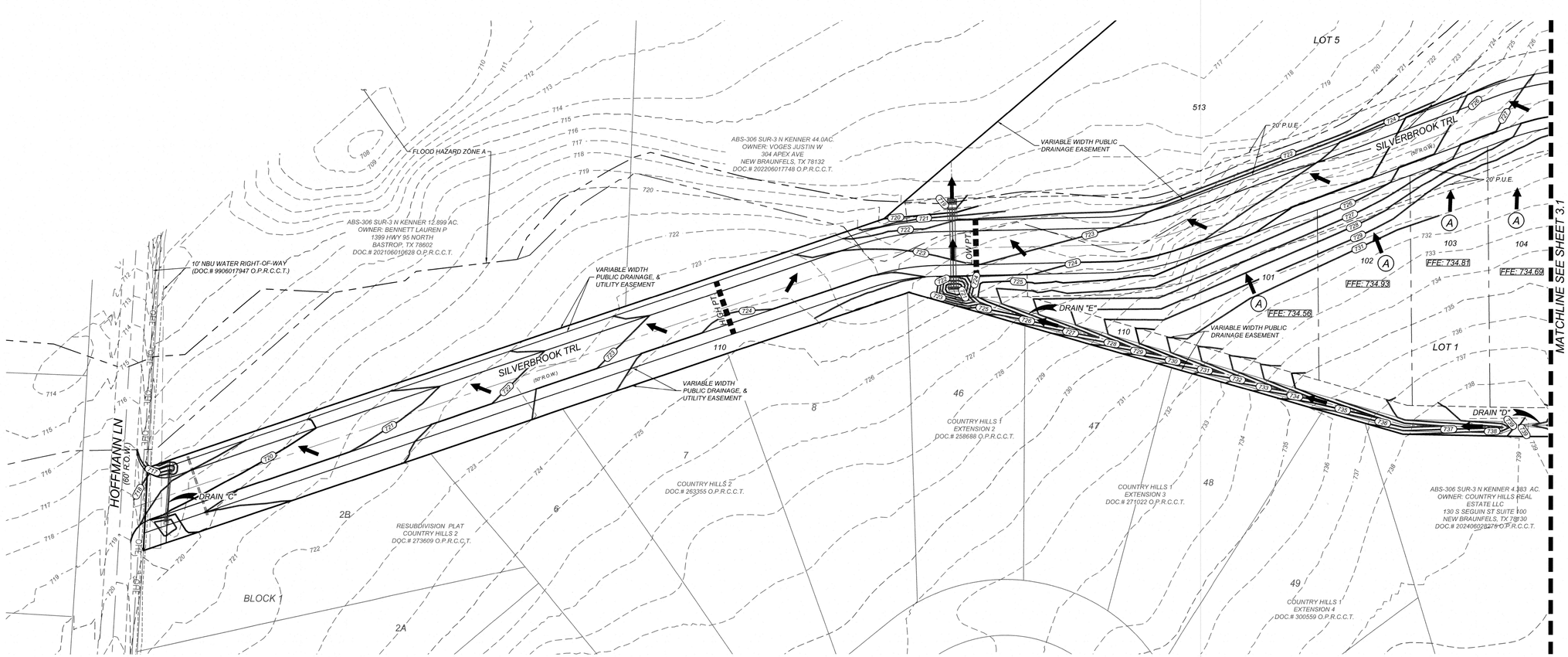

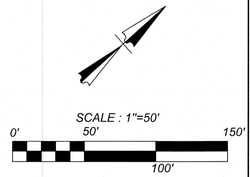

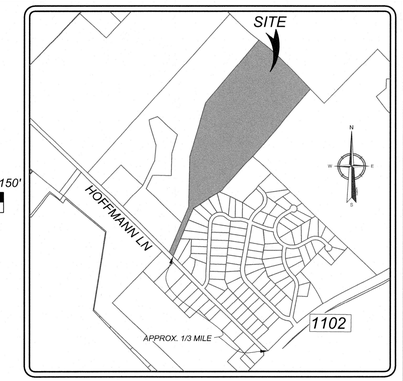

LOCATION MAP
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LEGEND

EXIST.	=	EXISTING
←	=	FLOW ARROW
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× 539.42	=	PROPOSED GROUND ELEVATION
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90130
LICENSED PROFESSIONAL ENGINEER
10-27-25

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FOR

SILVERLEAF CONDOMINIUMS

COMAL COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
162 West Mill Street
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	03/11/2025	DG	WF

PROJECT NUMBER: 1186-01-02
DRAWING NAME: 3.2 OVERALL GRADING PLAN

SHEET TITLE: *OVERALL GRADING PLAN*

SHEET NUMBER: *3.0*

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Oct 24, 2025, 9:52am User ID: mglenn
File: U:\Projects\1186\01\02\Design\Civil\Grading\3.2 OVERALL GRADING PLAN.dwg
J:\Design\Civil\Drawings\3.2 OVERALL GRADING PLAN.dwg 3.2 OVERALL GRADING PLAN By: MGLENN

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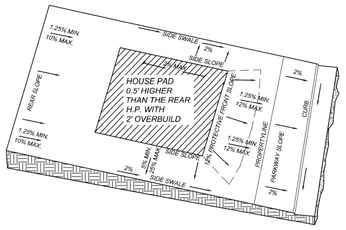
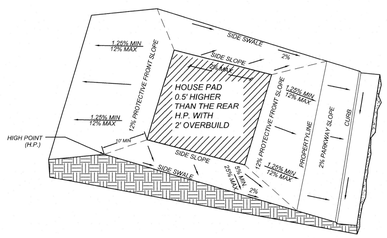
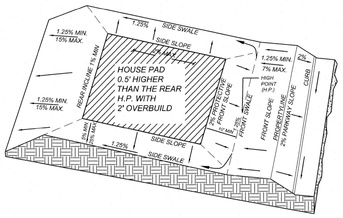


TYPE 'A' LOT GRADING



TYPE 'B' LOT GRADING



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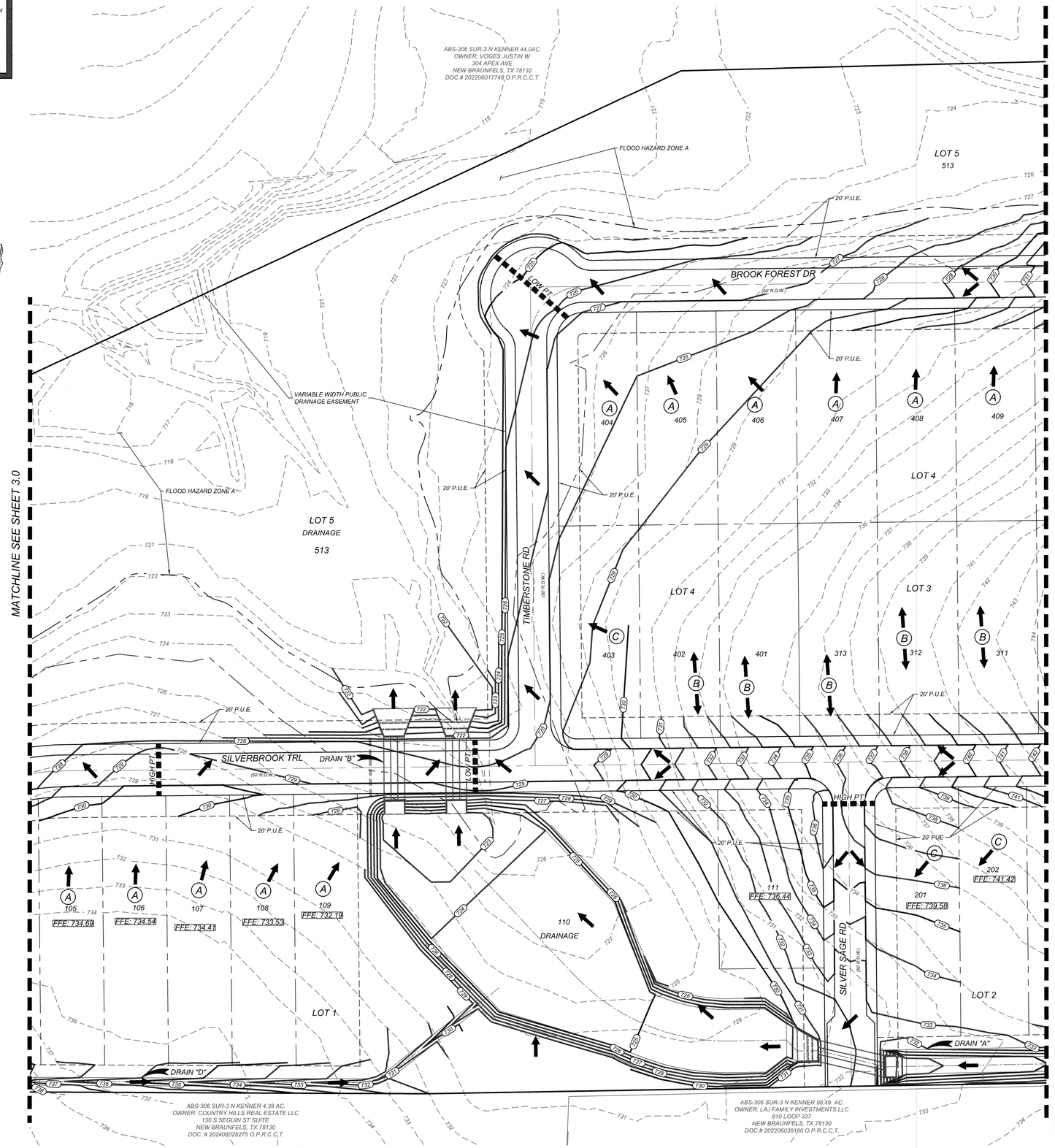

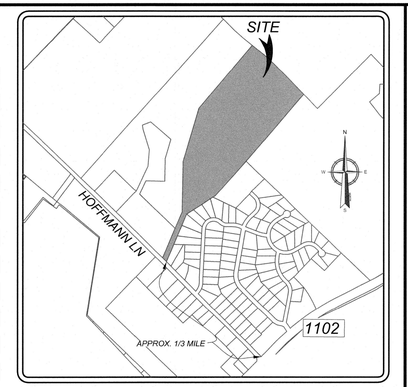

LOCATION MAP
1" = 1000'

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

LEGEND

EXIST.	=	EXISTING
←	=	FLOW ARROW
(A)	=	LOT GRADE TYPE
× 539.42	=	PROPOSED GROUND ELEVATION
— 543 —	=	EXISTING CONTOUR
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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	03/11/2025	DG	WF

PROJECT NUMBER: 1186-01-02
DRAWING NAME: 3.2 OVERALL GRADING PLAN

SHEET TITLE: *OVERALL GRADING PLAN*

SHEET NUMBER: *3.1*

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Date: Oct 24, 2025, 9:52am User ID: mglenn
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Z:\Design\Civil\Grading\3.1 OVERALL GRADING PLAN.dwg\3.1 OVERALL GRADING PLAN By: MGLENN

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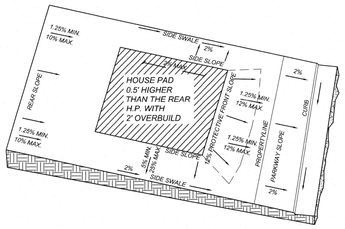

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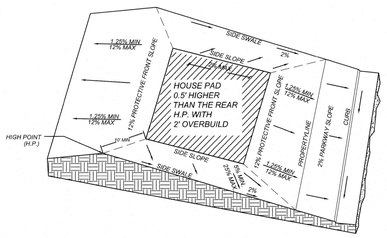

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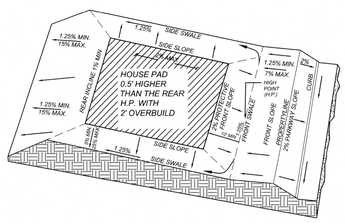

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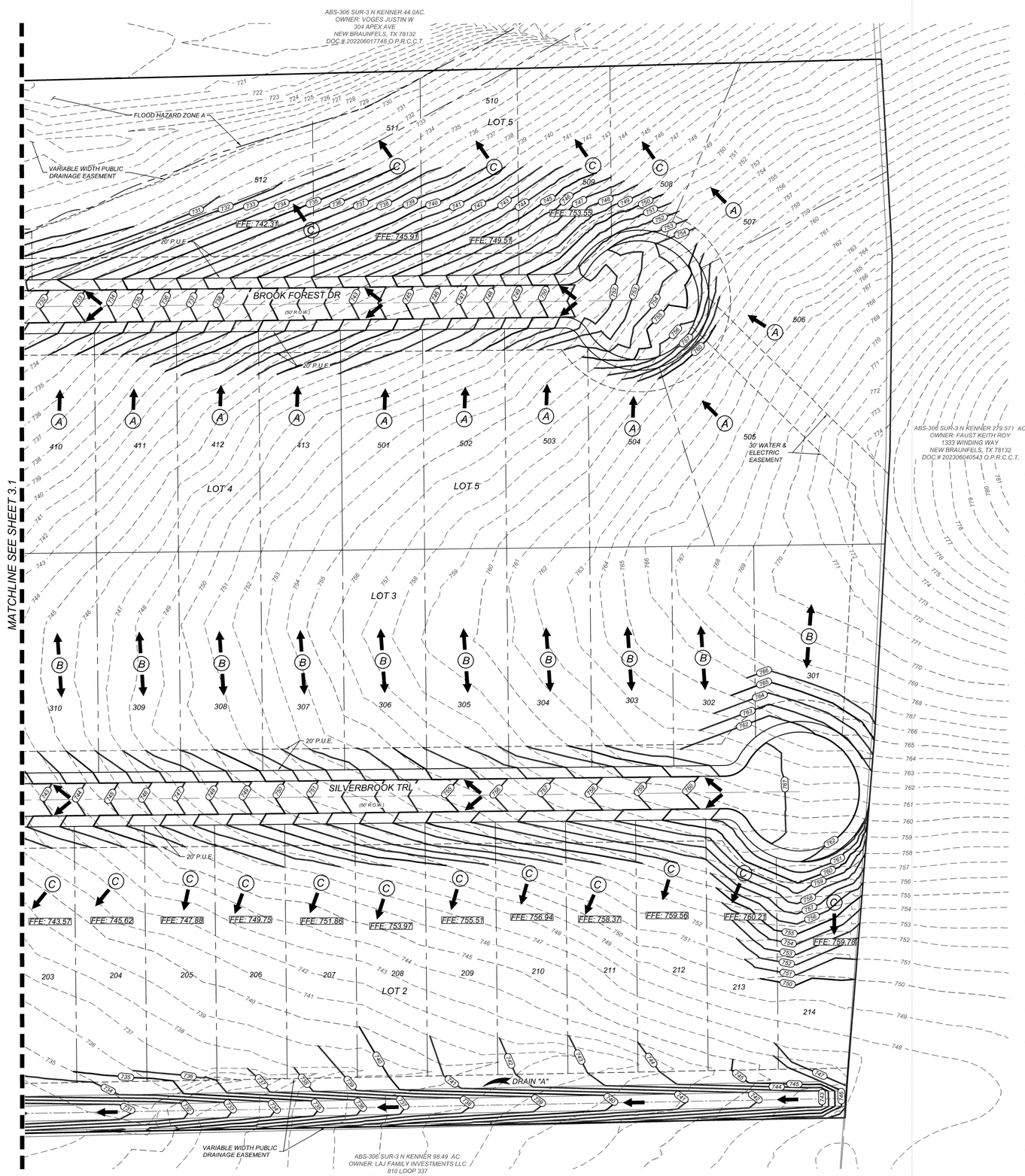

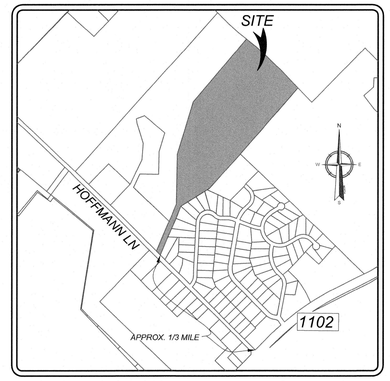

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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
WAYNE FLORES
90130
LICENSED
PROFESSIONAL ENGINEER
10-27-25

FINAL SUBDIVISION PLAN

FOR

SILVERLEAF CONDOMINIUMS

COMAL COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
162 West Mill Street
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14309
TBPLS Firm#: 10194500

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	03/11/2025	DG	WF

PROJECT NUMBER: 1186-01-02
DRAWING NAME: 3.2 OVERALL GRADING PLAN

SHEET TITLE:
OVERALL GRADING PLAN

SHEET NUMBER:
3.2

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Oct 24, 2025, 9:53am User ID: miglenn
File: U:\Projects\1186\01\02\Design\Civil\Grading\3.2 OVERALL GRADING PLAN.dwg
Z:\Design Software\3.3 OVERALL GRADING PLAN.lisp3 OVERALL GRADING PLAN By: MIGLENN

TRENCH EXCAVATION SAFETY PROTECTION

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

BENCHMARKS

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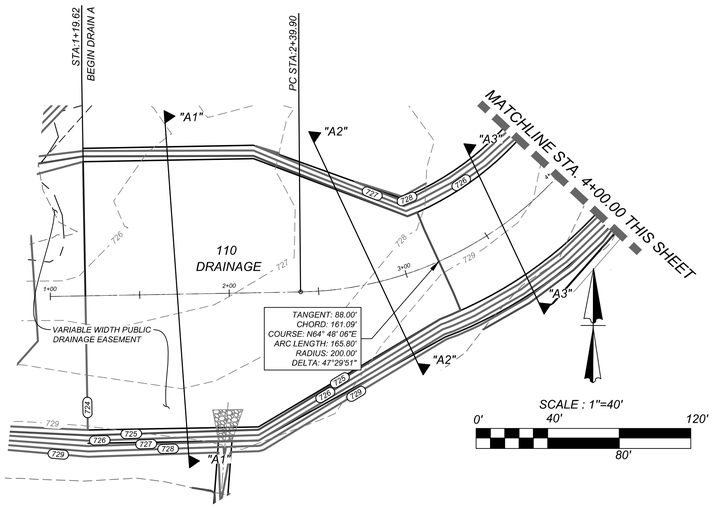
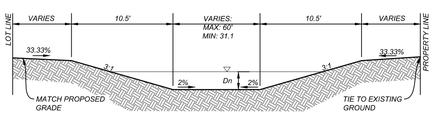
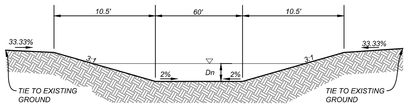
301	13832175.16	2261090.25	707.65	SBM LEVELED





SECTION "A4-A4"
STA. 4+39.31 - STA. 4+59.31
N.T.S.



SECTION "A3-A3"
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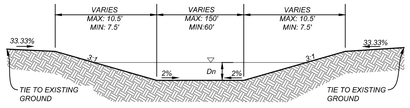
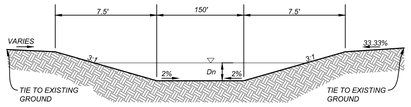
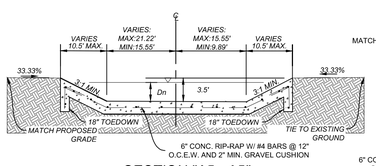
N.T.S.



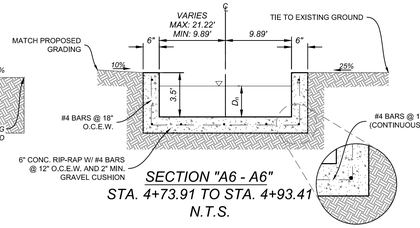
SECTION "A2-A2"
STA. 2+15.00 - STA. 3+10.33
N.T.S.



SECTION "A1-A1"
STA. 1+19.62 - STA. 2+15.00
N.T.S.



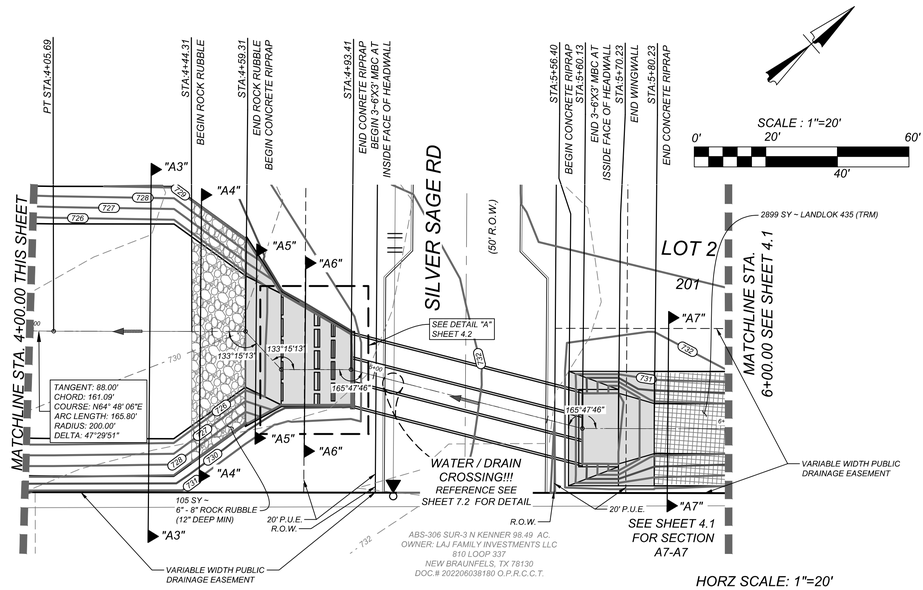
SECTION "A5 - A5"
STA. 4+59.31 TO STA. 4+73.91
N.T.S.



SECTION "A6 - A6"
STA. 4+73.91 TO STA. 4+93.41
N.T.S.

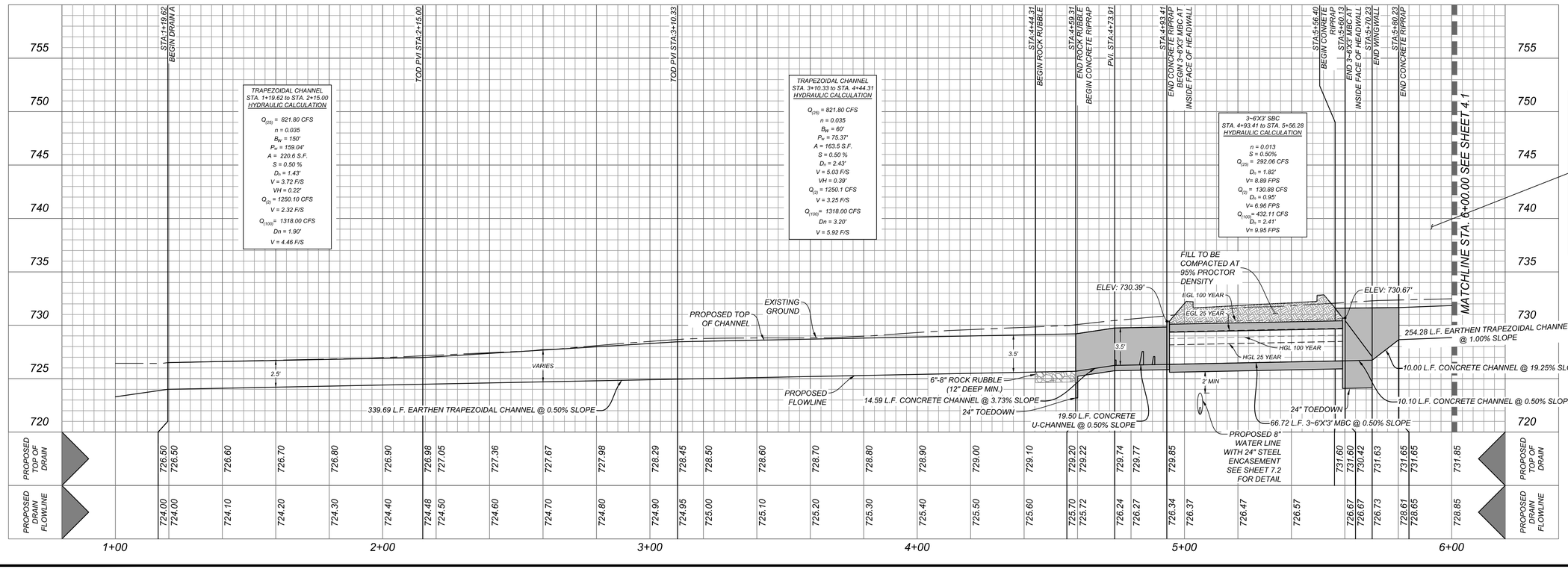
LEGEND

= *FLOW ARROW*
715 = *EXISTING CONTOUR*
713 = *PROPOSED CONTOUR*
= *LANDLOK*



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

DRAIN A
STA.1+00.00 TO STA. 6+00.00



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XRefs: ..\ZDesign\Cad\Base\DRAIN A.dwg
ZDesign\Cad\Base\DRAIN A.dwg, 1+00.00 - 6+00.00 By: DGONZALEZ

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COMAL COUNTY TEXAS

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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	03/11/2025	DG	WF

PROJECT NUMBER: 1186-01-02
DRAWING NAME: DRAIN A

SHEET TITLE: *DRAIN A STA. 1+00.00 - 6+00.00*

SHEET NUMBER: *4.0*

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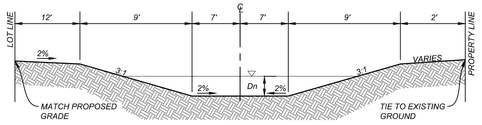

SECTION "A7-A7"
STA. 5+80.23 - STA. END
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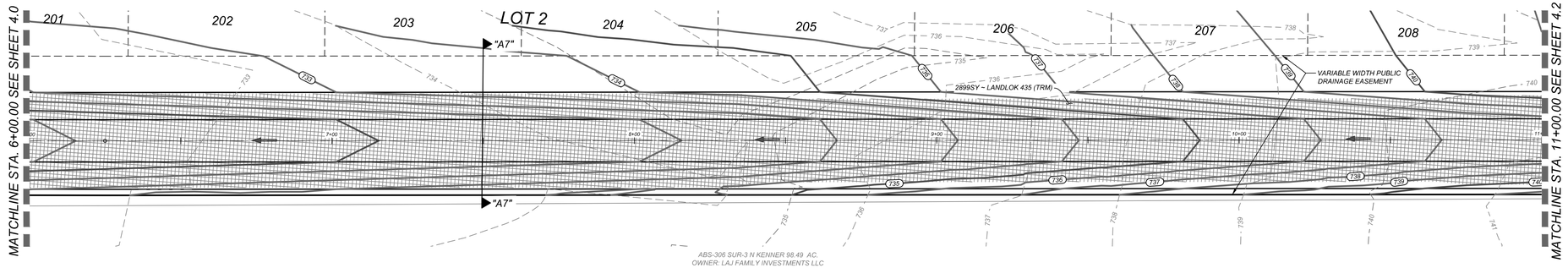
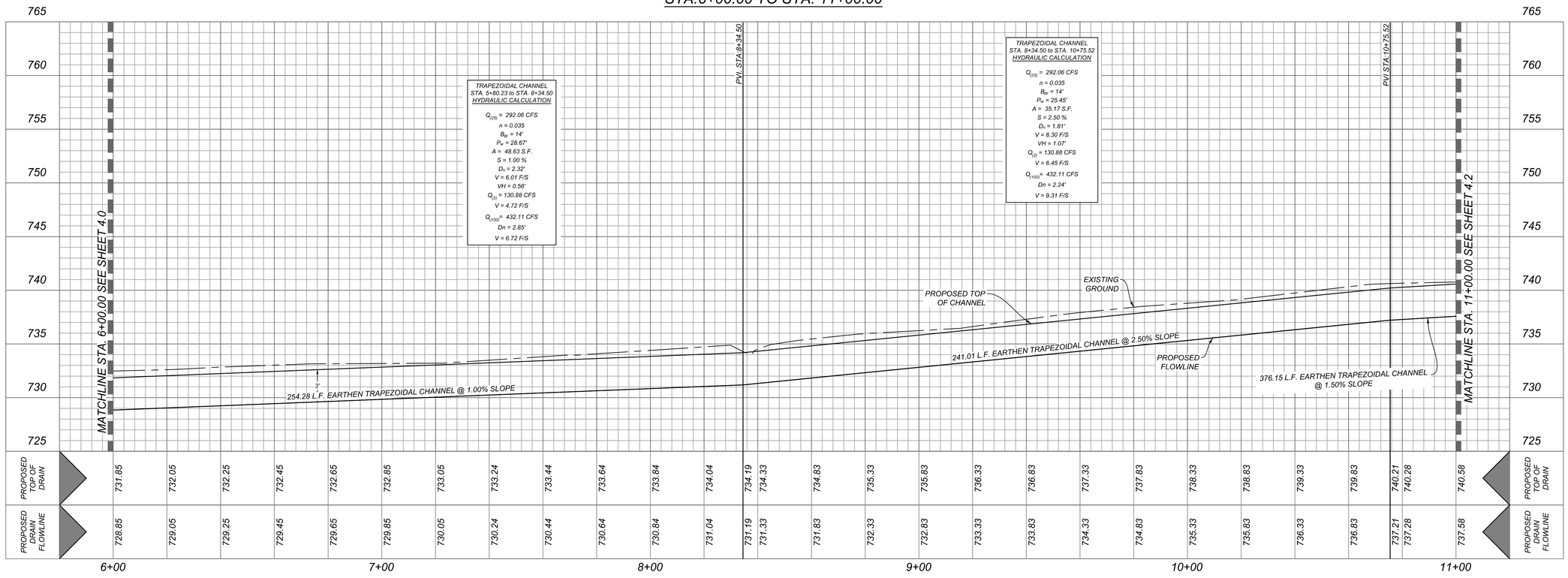


SCALE : 1"=20'
0' 20' 60'
40'

DRAIN A
STA.6+00.00 TO STA. 11+00.00

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



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9/2/2025

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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	03/11/2025	DG	WF

PROJECT NUMBER: 1186-01-02
DRAWING NAME: DRAIN A

SHEET TITLE: DRAIN A STA. 6+00.00 - 11+00.00

SHEET NUMBER: 4.1

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Sep 04, 2025, 9:24am User ID: dgonzalez
File: L:\Projects\1186\01 (Civil)\Design\Drainage\DRAIN_A.dwg
Xrefs: LJ Overall.dwg
By: DGONZALEZ

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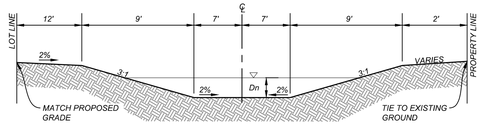

SECTION "A7-A7"
STA. 5+80.23 - STA. END
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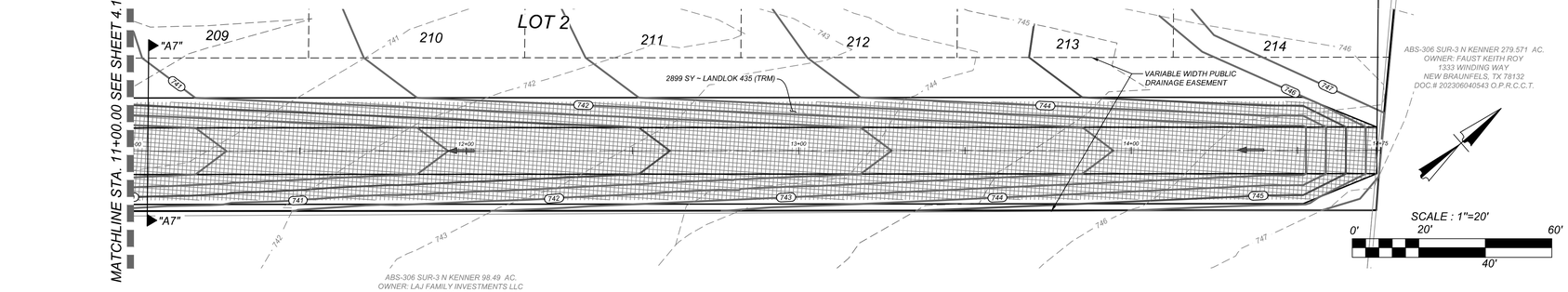
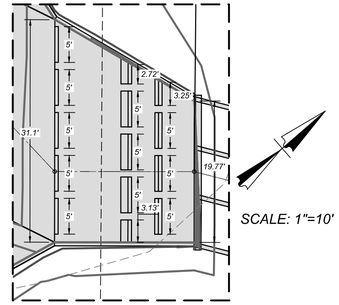
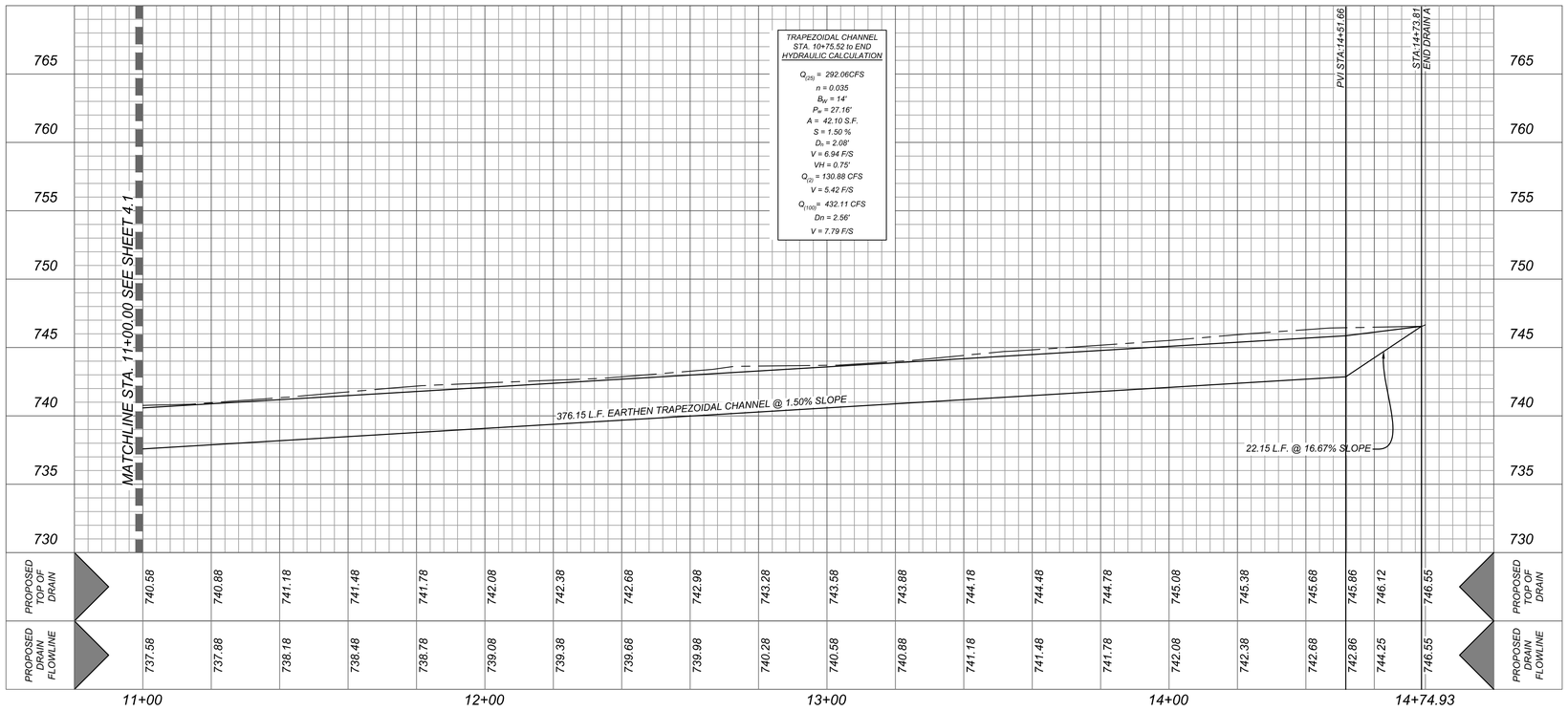




DETAIL "A"

DRAIN A
STA. 11+00.00 TO END

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



DRAIN "A" - BAFFLE BLOCK CALCULATIONS
(CONTRA COSTA METHOD)

BAFFLE BLOCKS HAVE BEEN DESIGNED FOR THE 100-YR ULTIMATE FLOWS OF 432.11 CFS.

$Q100 = 432.11$ cfs
B_W (W_B) = 19.77
$Y_1 = 2.46'$ (DEPTH BEFORE JUMP)
$V_1 = 9.95$ FPS (VELOCITY BEFORE JUMP)

FROUDE NUMBER at Y_1 is $F_1 = V_1 / ((gY_1)^{0.5}) = 1.12$
ASSUME $L_2 / H_2 = 7$

HEIGHT OF BLOCKS:
H_1 = HEIGHT OF FIRST BLOCK
H_2 = HEIGHT OF SECOND BLOCK

$L_2 / H_2 = 1.35 * F_1^2 (H_2 / Y_1)^{-1.83}$
$H_2 = 1.13'$ USE 1.25'
$H_1 = 0.5 * H_2 = 0.5 * 1.25' = 0.75'$ USE 0.75'

DISTANCE TO FLOOR BLOCKS:
L_1 = DISTANCE TO FIRST BLOCK
L_2 = DISTANCE TO SECOND BLOCK
L_3 = DISTANCE TO END SILL FROM SECOND BLOCK

$L_2 = 7 * H_2 = 7 * 1.25' = 8.75'$ USE 8.75'
$L_1 = 0.5 * L_2 = 0.5 * 8.75' = 4.375'$ USE 4.5'
$L_3 = 3.75 * (H_2 / L_2)^{(0.68)} * L_2$
$L_3 = 3.75 * (1.13' / 8.75')^{(0.68)} * 8.75' = 8.737'$ USE 8.75'

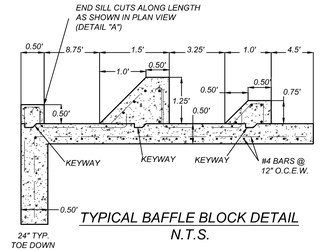
LENGTH OF BASIN:
2_{WD} BLOCK WIDTH + $L_2 + L_3 + 0.5'$ (WIDTH OF END SILL)
$1.5' + 6' + 8.75' + 8.75' = 19.5'$

MAX WATER DEPTH IN BASIN:
$Y_2 = 1.3 * (L_2 / H_2)^{0.36} * H_2$
$Y_2 = 1.3 * (8.75' / 1.25')^{0.36} * 1.25' = 3.27'$

HEIGHT OF END SILL :
$H_3 = 0.1 * Y_2$
$H_3 = 0.1 * 3.27' = 0.3274'$ USE 0.5'

DEPTH OF WATER AT BASIN EXIT:
$Q^2 / G = (A_C)^3 / TC = (Y_C * (W_B + Y_C))^3 / (W_B + (2 * Y_C))$
$W_B = 31.1'$
$Y_C = 2.46'$
$A_C = 76.527$

EXIT VELOCITY:
$V_c = Q / A_C$
$V_c = 5.65$ fps



TYPICAL BAFFLE BLOCK DETAIL
N.T.S.

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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	03/11/2025	DG	WF

PROJECT NUMBER: 1186-01-02
DRAWING NAME: DRAIN A

SHEET TITLE: *DRAIN A STA. 11+00.00 - END*

SHEET NUMBER: 4.2

Date: Sep 04, 2025, 9:30am User ID: dgonzalez
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ZDesign/Civil/Drawn/DRAIN A.dwg/DRAIN A STA. 11+00.00 - END By: DGONZALEZ

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

TRENCH EXCAVATION SAFETY PROTECTION

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BENCHMARKS

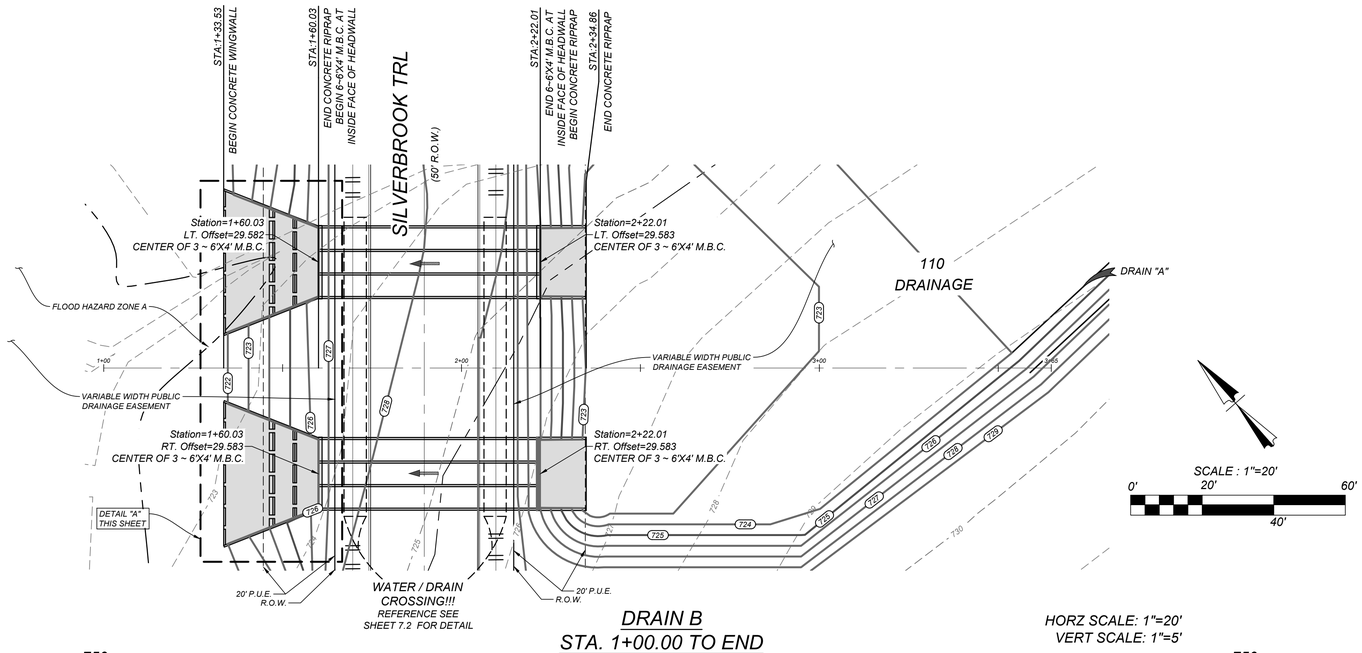
BM#	NORTHING	EASTING	ELEVATION	DESCRIPTION
300	13831849.86	2261419.20	719.76	SBM LEVELED
301	13832175.16	2261090.25	707.65	SBM LEVELED

LEGEND

= FLOW ARROW

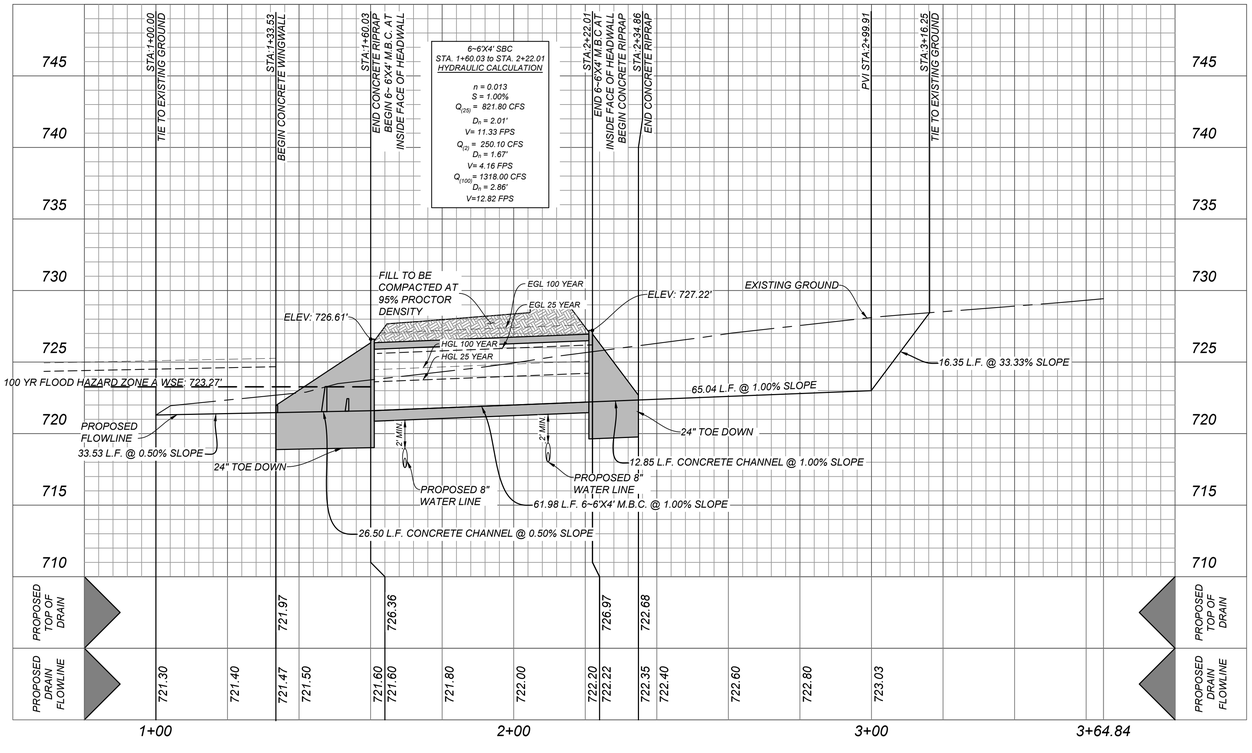
715 = EXISTING CONTOUR

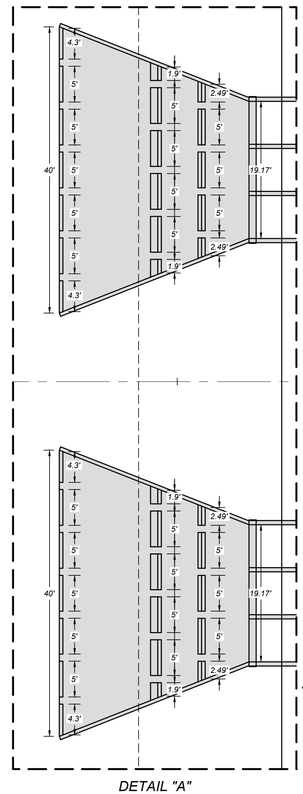
713 = PROPOSED CONTOUR



DRAIN B
STA. 1+00.00 TO END

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





DRAIN "B" - BAFFLE BLOCK CALCULATIONS (CONTRA COSTA METHOD)

BAFFLE BLOCKS HAVE BEEN DESIGNED FOR THE 100-YR ULTIMATE FLOWS OF 659 CFS.

$Q100 = 659$ cfs
$B_W\ (W_B) = 19.17$
$Y_1 = 2.86'$ (DEPTH BEFORE JUMP)
$V_1 = 12.82$ FPS (VELOCITY BEFORE JUMP)

FROUDE NUMBER at Y_1 is $F_1 = V_1 / ((gY_1)^{0.5}) = 1.34$
ASSUME $L_2 / H_2 = 7$

HEIGHT OF BLOCKS:
H_1 = HEIGHT OF FIRST BLOCK
H_2 = HEIGHT OF SECOND BLOCK

$L_2 / H_2 = 1.35 * F_1^2 (H_2 / Y_1)^{-1.83}$
$H_2 = 1.75'$ USE 1.75'
$H_1 = 0.5 * H_2 = 0.5 * 1.75' = 0.875'$ USE 0.875'

DISTANCE TO FLOOR BLOCKS:
L_1 = DISTANCE TO FIRST BLOCK
L_2 = DISTANCE TO SECOND BLOCK
L_3 = DISTANCE TO END SILL FROM SECOND BLOCK

$L_2 = 7 * H_2 = 7 * 1.75' = 12.25'$ USE 12.25'
$L_1 = 0.5 * L_2 = 0.5 * 12.25' = 6.125'$ USE 6.125'
$L_3 = 3.75 * (H_2 / L_2)^{(0.68)} * L_2$
$L_3 = 3.75 * (1.75' / 12.25')^{(0.68)} * 12.25' = 12.23'$ USE 12.25'

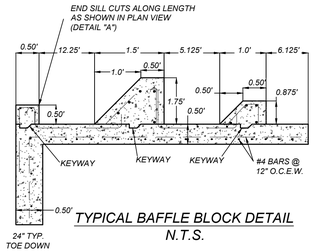
LENGTH OF BASIN:
2_{ND} BLOCK WIDTH + $L_2 + L_3 + 0.5'$ (WIDTH OF END SILL)
$1.5' + 12.25' + 12.25' + 0.5' = 26.5'$

MAX WATER DEPTH IN BASIN:
$Y_2 = 1.3 * (L_2 / H_2)^{0.35} * H_2$
$Y_2 = 1.3 * (12.25' / 1.75')^{0.35} * 1.75' = 4.58'$

HEIGHT OF END SILL :
$H_3 = 0.1 * Y_2$
$H_3 = 0.1 * 4.58' = 0.46'$ USE 0.5'

DEPTH OF WATER AT BASIN EXIT:
$Q^2 / G = (A_C)^3 / TC = (Y_C * (W_B + Y_C))^3 / (W_B + (2 * Y_C))$
$W_B = 40'$
$Y_C = 2.86'$
$A_C = 114.42$

EXIT VELOCITY:
$V_c = Q/A_c$
$V_c = 5.76$ fps



TYPICAL BAFFLE BLOCK DETAIL
N.T.S.

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

REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
WAYNE FLORES
90130
LICENSED
PROFESSIONAL ENGINEER
9/2/2025

FINAL SUBDIVISION PLAN

FOR

SILVERLEAF CONDOMINIUMS

COMAL COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
162 West Mill Street
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	03/11/2025	DG	WF

PROJECT NUMBER: 1186-01-02
DRAWING NAME: DRAIN B

SHEET TITLE: *DRAIN B STA. 1+00.00 - END*

SHEET NUMBER: 4.3

Date: Sep 02, 2025, 10:50am User ID: ASerna
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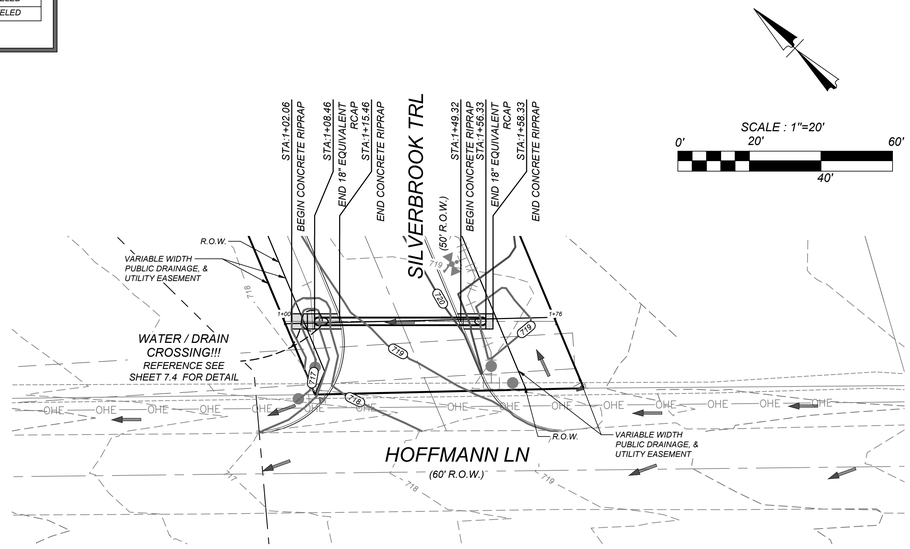
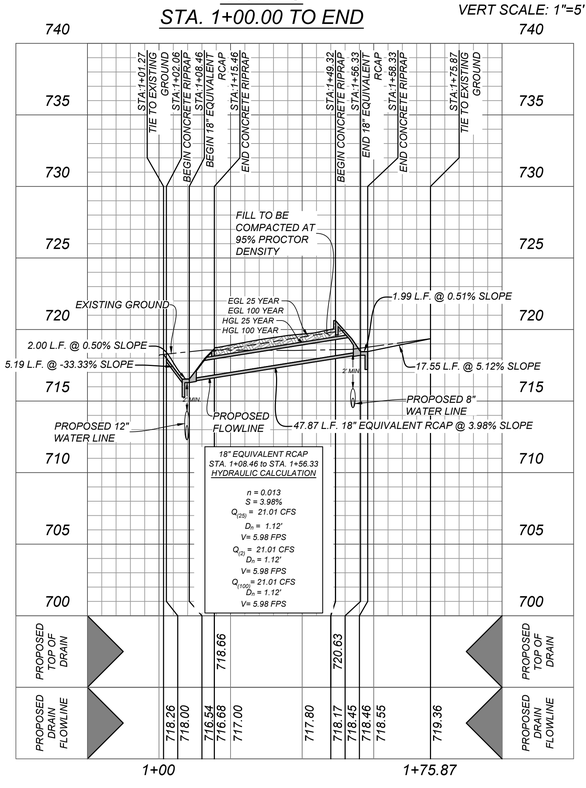


DRAIN C
STA. 1+00.00 TO END

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



NOTE: FLOW ALONG HOFFMANN LN FROM OFFSITE OVERTOPS HOFFMANN LN AT Q=21.01 CFS, D=1.08'
FOR THIS REASON, Q=21.01 CFS IS THE MAX. FLOW TO REACH THIS DRAIN.

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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	03/11/2025	DG	WF

PROJECT NUMBER: 1186-01-02
DRAWING NAME: DRAIN C

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

SHEET NUMBER: 4.4

Date: Sep 02, 2025, 10:49am User ID: ASierra
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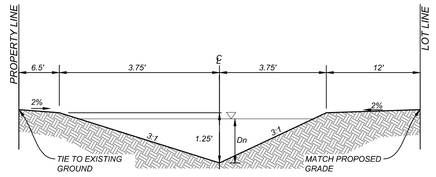

SECTION "D - D"
STA. 1+24.28 TO END
N.T.S.

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LEGEND

= FLOW ARROW
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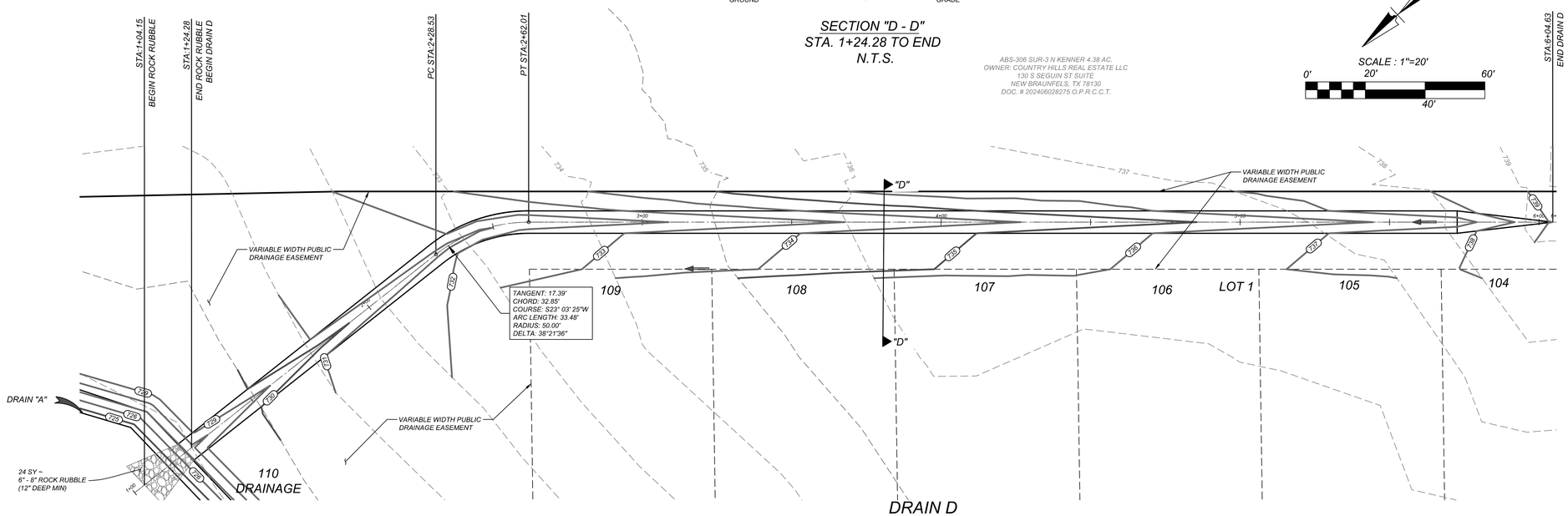
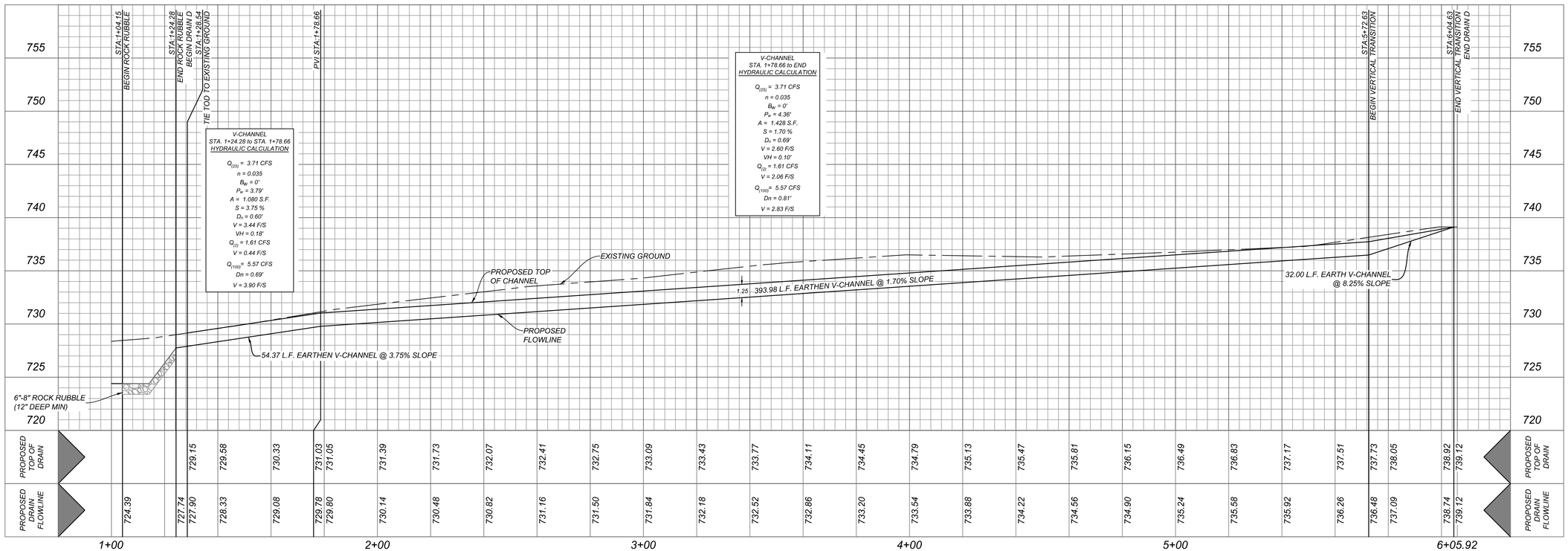
ABS-306 SUR-3 N KENNER 4.38 AC.
OWNER: COUNTRY HILLS REAL ESTATE LLC
130 S SEGUIN ST SUITE
NEW BRAUNFELS, TX 78130
DOC. # 202406028275 O.P.R.C.C.T.

SCALE : 1"=20'
0' 20' 60'
40'



DRAIN D
STA. 1+00.00 TO END

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



| | | |

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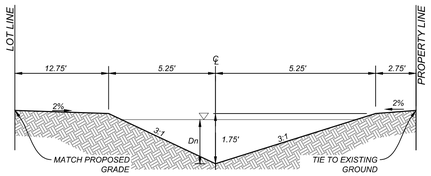

SECTION "E - E"
STA. 2+43.41 TO END
N.T.S.

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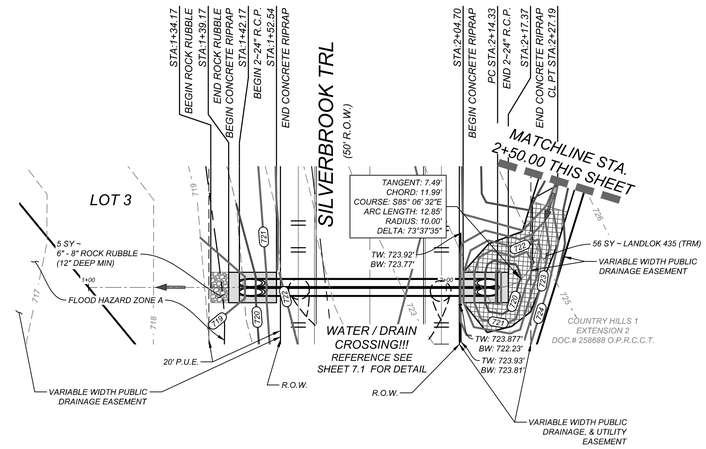
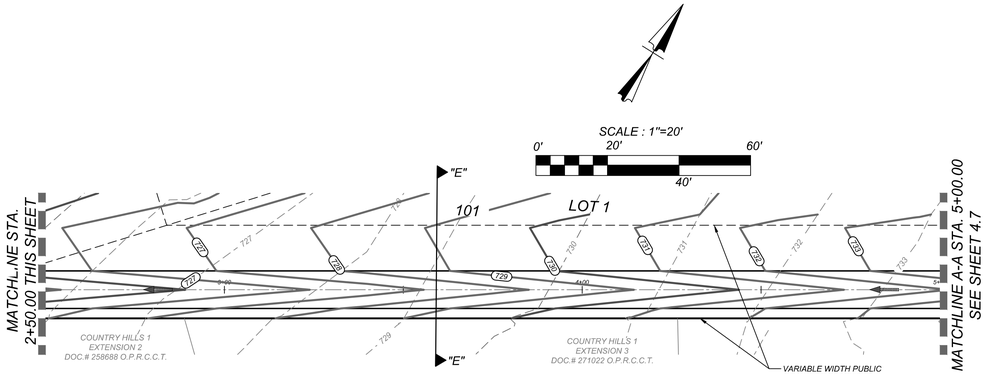
LEGEND

= *FLOW ARROW*
= *EXISTING CONTOUR*
= *PROPOSED CONTOUR*

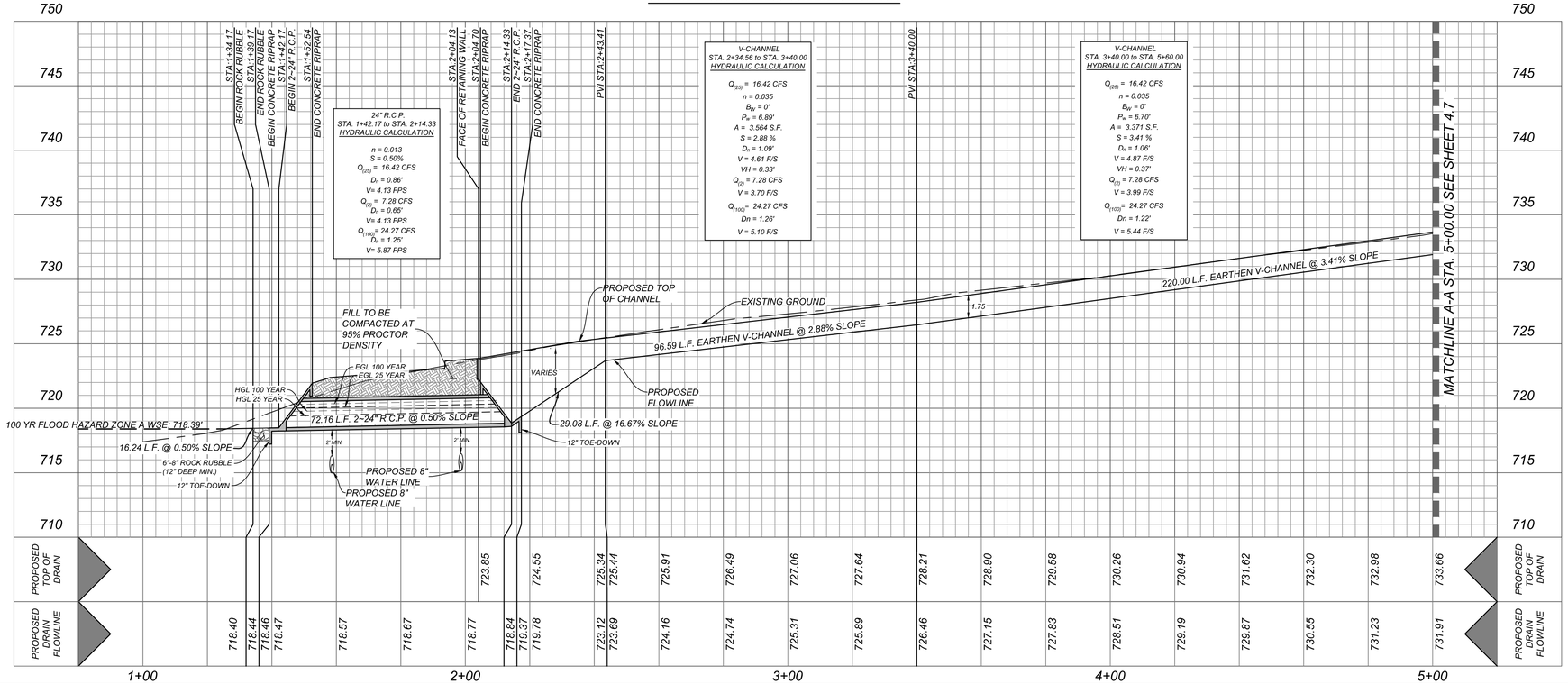
SCALE : 1"=20'
0' 20' 60'
40'





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

DRAIN E
STA.1+00.00 TO STA. 5+00.00



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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	03/11/2025	DG	WF

PROJECT NUMBER: 1186-01-02
DRAWING NAME: DRAIN E

SHEET TITLE: *DRAIN E STA 1+00.00 - 5+00.00*

SHEET NUMBER: *4.6*

Date: Sep 04, 2025, 9:39am User ID: dgonzalez
File: L:\Projects\1186\01\02\Design\NC\Civil\Plans\DRAIN E.dwg
By: DGONZALEZ
Z:\Design\Civil\Plans\DRAIN E.dwg\DRAIN E STA 1+00.00 - 5+00.00

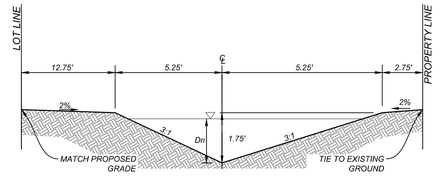
NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

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.



SECTION "E - E"
STA. 2+43.41 TO END
N.T.S.

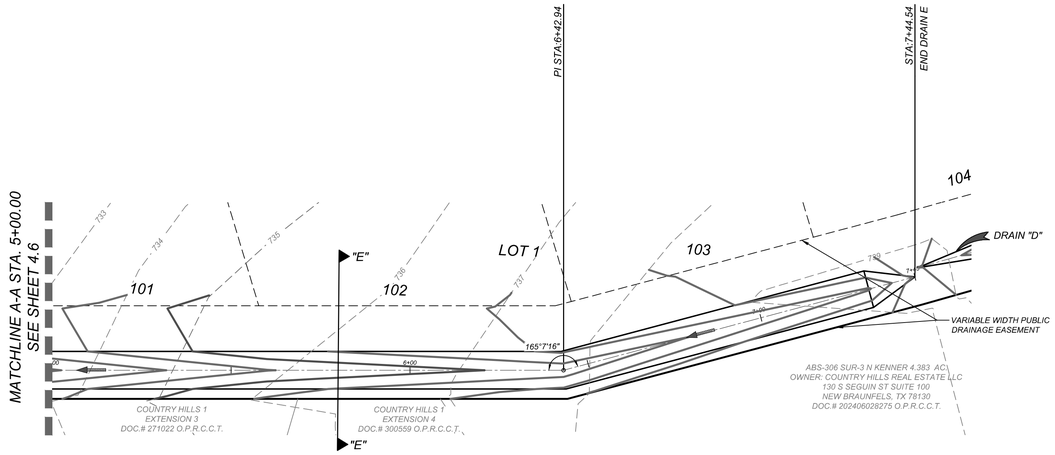
CONTRACTOR TO RUN LEVEL LOOP THROUGH BM'S PROVIDED TO CONFIRM BEFORE CONSTRUCTION. CONTACT ENGINEER/SURVEYOR IMMEDIATELY IF ELEVATIONS DO NOT MATCH THOSE SHOWN.

BENCHMARKS

BM#	NORTHING	EASTING	ELEVATION	DESCRIPITION
300	13831849.86	2261419.20	719.76	SBM LEVELED
301	13832175.16	2261090.25	707.65	SBM LEVELED

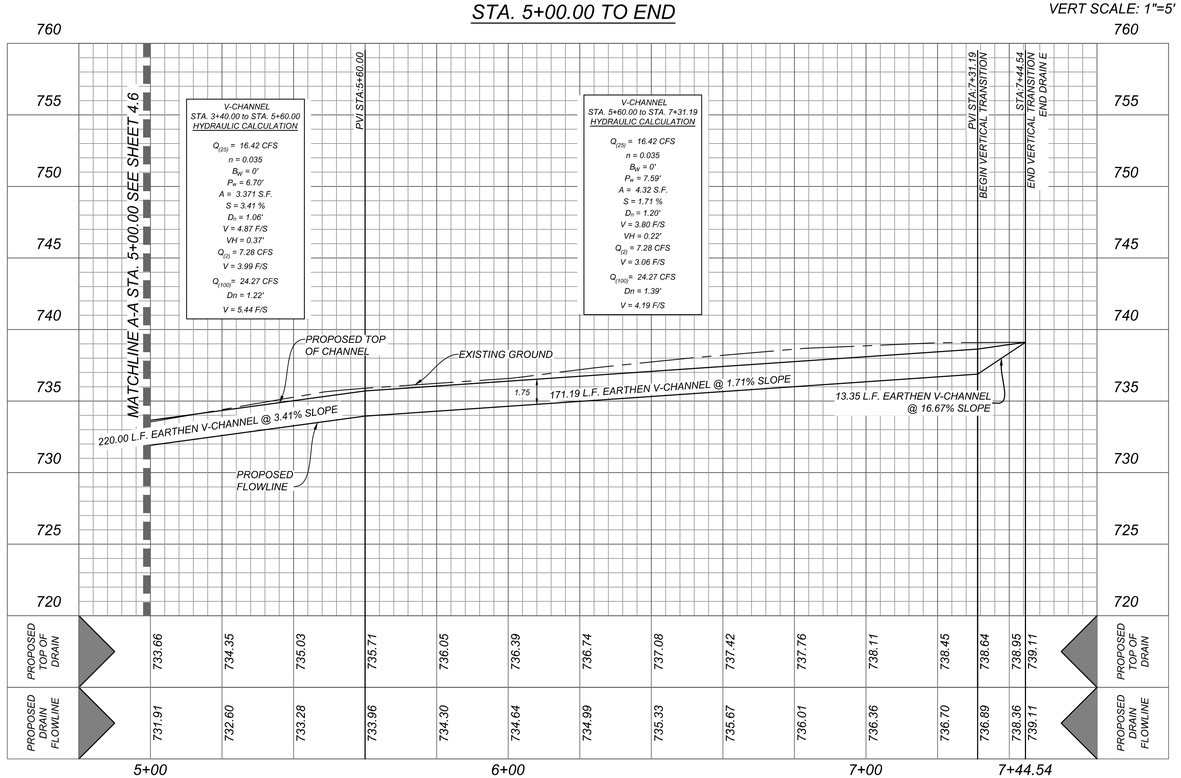
LEGEND

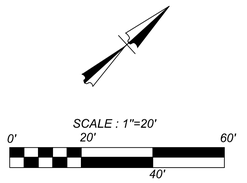
= FLOW ARROW
715 = EXISTING CONTOUR
713 = PROPOSED CONTOUR



DRAIN E
STA. 5+00.00 TO END

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





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www.colliersengineering.com

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Formerly Known as KFW ENGINEERS & SURVEYING

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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
WAYNE FLORES
90130
LICENSED
PROFESSIONAL ENGINEER
9/2/2025

FINAL SUBDIVISION PLAN

FOR

SILVERLEAF CONDOMINIUMS

COMAL COUNTY TEXAS

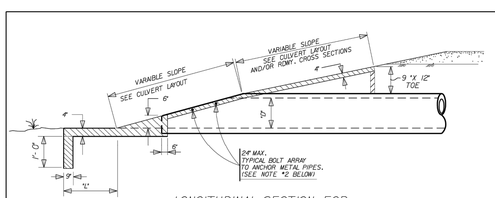
Colliers Engineering & Design
NEW BRAUNFELS (KFW)
162 West Mill Street
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14809
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	03/11/2025	DG	WF

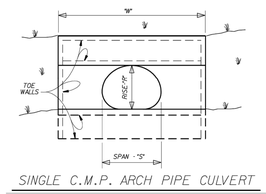
PROJECT NUMBER: 1186-01-02
DRAWING NAME: DRAIN E
SHEET TITLE: DRAIN E STA. 5+00.00 - END
SHEET NUMBER: 4.7

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

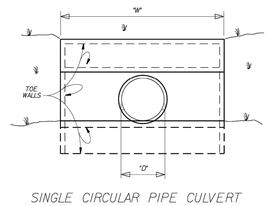
Date: Sep 04, 2025, 9:40am User ID: dgonzalez
Files: U:\Projects\1186\01\02\Design\Civil\Drawings\DRAIN E.dwg
J:\Design\Civil\Drainage\DRAIN E.dwg\DRAIN E STA. 5+00.00 - END By: DGONZALEZ



LONGITUDINAL SECTION FOR CIRCULAR & ARCH PIPES



SINGLE C.M.P. ARCH PIPE CULVERT



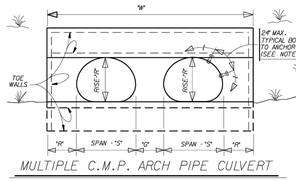
SINGLE CIRCULAR PIPE CULVERT

(CMP or RCP)

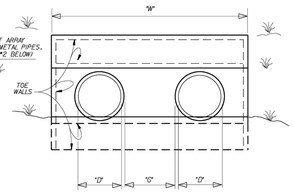
DIMENSIONS FOR CIRCULAR (CMP and RCP) PIPE CULVERTS

"D" INSIDE DIA. of PIPE	"L"	"S"		SINGLE	DOUBLE	TRIPLE	QUADRUPLE
		CGM	RCP	"W"			
18"	2'-0"	1'-0"	0'-9"	4'-6"	7'-2"	9'-10"	12'-6"
21"	2'-6"	1'-3"	0'-10½"	5'-3"	8'-4"	11'-4"	13'-4"
24"	3'-0"	1'-5"	0'-11"	6'-0"	9'-5"	12'-10"	16'-3"
30"	4'-0"	1'-8"	1'-1"	7'-6"	11'-8"	15'-10"	20'-0"
36"	5'-0"	2'-0"	1'-3"	9'-0"	13'-11"	18'-10"	23'-9"
42"	6'-0"	2'-2"	1'-5"	10'-6"	16'-2"	21'-10"	27'-6"
48"	7'-0"	2'-5"	1'-7"	12'-0"	18'-5"	24'-10"	31'-3"
54"	8'-0"	2'-10"	1'-11"	13'6"	20'-10"	28'-2"	35'-6"
60"	9'-0"	3'-2"	2'-0"	15'-0"	23'-5"	31'-4"	39'-6"

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



MULTIPLE C.M.P. ARCH PIPE CULVERT



MULTIPLE CIRCULAR PIPE CULVERT

(CMP or RCP)

DIMENSIONS FOR C.M.P. ARCH PIPE CULVERTS

DESIGN SIZE	APPROX. ARCH DIM. SPAN "S"	APPROX. ARCH DIM. RISE "R"	"L"	"S"	SINGLE	DOUBLE	TRIPLE	QUADRUPLE
					"W"			
2	23"	15"	2'-0"	1'-2"	4'-3"	7'-2"	10'-1"	13'-0"
3	28"	20"	3'-0"	1'-5"	5'-8"	9'-5"	13'-2"	16'-11"
4	35"	24"	4'-0"	1'-8"	6'-11"	11'-8"	16'-5"	20'-8"
5	42"	29"	5'-0"	1'-11"	8'-4"	13'-9"	19'-2"	24'-7"
6	49"	33"	6'-0"	2'-2"	9'-7"	15'-10"	22'-1"	28'-4"
7	57"	38"	7'-0"	2'-5"	11'-1"	18'-3"	25'-5"	32'-7"
8	64"	43"	8'-0"	2'-10"	12'-5"	20'-8"	28'-10"	37'-0"
9	71"	47"	9'-0"	3'-2"	13'-9"	22'-10"	31'-11"	41'-0"

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

NOTES:

1. FOR RIPRAP QUANTITIES AND SLOPES, SEE CULVERT LAYOUT SHEET. CONCRETE SHALL BE CLASS B UNLESS OTHERWISE SHOWN IN THE PLANS.
2. ALL METAL PIPES (CIRCULAR AND/OR ARCH) SHALL HAVE 5/8" X 6" GALVANIZED BOLTS WITH 2 HEX NUTS AT 24" CENTERS TO ANCHOR THE PIPE TO THE CONCRETE. THIS WORK WILL BE SUBSIDIARY TO THE RIPRAP HEADWALL.
3. FOR CONCRETE ARCH PIPES, THE CMP ARCH PIPE CULVERT DIMENSIONS WILL HAVE TO BE ADJUSTED FOR THE PIPE WALL THICKNESS.
4. FOR PIPES LARGER THAN SHOWN, USE THE CLEAR DISTANCE BETWEEN PIPES SHOWN IN ITEMS 460 AND/OR 464.
5. IF THE SIDES OF THE HEADWALL IS ADJACENT TO A RIPRAP SLOPE AND IF THE TOP OF THE HEADWALL IS ADJACENT TO THE ROADWAY FOUNDATION OR RIPRAP SLOPE, THE SIDE AND TOP TOE WALLS MAY BE ELIMINATED IF APPROVED BY THE ENGINEER.

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

10/95

SAN ANTONIO DISTRICT STANDARD RIPRAP HEADWALL

DATE:
FILE:
STRUCTURE DESIGN
SD0SS_23 (D-SAN_rip).dgn

TABLE OF DIMENSIONS AND REINFORCING STEEL

(Wings for One Structure End)

Maximum Wingwall Height Hw (9)	Dimensions W	X	Y	Z	Variable Reinforcing Bars J1 Size	Bars J1 Spa	Bars J2 Size	Bars J2 Spa	Estimated Quantities per Ft of wing length (Two-Wings) (3) Reinf (LB/Ft)	Conc (CY/Ft)
2'-6"	2'-1"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	33.73	0.248
3'-0"	2'-1"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	37.07	0.261
3'-6"	2'-1"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	37.74	0.273
4'-0"	2'-1"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	38.41	0.285
4'-6"	2'-2"	1'-0"	6"	7"	#4	1'-0"	#4	1'-0"	41.75	0.330
5'-0"	3'-2"	1'-0"	6"	7"	#4	1'-0"	#4	1'-0"	45.09	0.343
5'-6"	3'-2"	1'-0"	6"	7"	#4	1'-0"	#4	1'-0"	45.75	0.355
6'-0"	3'-2"	1'-0"	6"	7"	#4	1'-0"	#4	1'-0"	46.42	0.367
7'-0"	3'-8"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	52.77	0.414
8'-0"	4'-4"	2'-2"	0"	7"	#5	1'-0"	#4	1'-0"	60.19	0.486
9'-0"	4'-8"	2'-3"	1'-3"	9"	8"	#4	6"	#4	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

TABLE OF WINGWALL REINFORCING (Two-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'-0"
Q	#4	1	–
Reinf (LB/Ft)			2.45
Conc (CY/Ft)			0.037

TABLE OF ESTIMATED ANCHOR TOEWALL QUANTITIES

Bar	Size	No.	Spa
K	#4	–	1'-0"
N	#5	6	–
OL	#4	6	–
Reinf (LB/Ft)			9.82
Conc (CY/Ft)			0.074

1. Extend Bars P 3'-0" Min into bottom slab of box culvert.
2. Adjust to fit as necessary to maintain 1 1#2" clear cover and 4" Min 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 slope are: 3:1, 4:1, and 6:1. Provide 3:1 or Flatter slope.
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, 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 is not required.
6. At Contractor's option, and the culvert toewall flush with wingwall toewall. Adjust reinforcing as needed.
7. 3" Min to 7'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures without railing and curbs taller than 3'-0", refer to Extended Curb Details (ECD) standard sheet.
8. For vehicle safety, reduce curbs height, if necessary, to provide a maximum 3" projection above finished grade. No changes will be made in quantities and no additional compensation will be allowed for this work.
9. See Table of Maximum Wing Heights for various slopes. Height is limited based on a 33'-0" maximum safety pipe runner length.

TABLE OF MAXIMUM WING HEIGHTS (9)

Side Slope	Hw Max
3:1	11'- 5"
4:1	8'-10"
6:1	6'- 1"

WING DIMENSION CALCULATIONS:

Hw = H + T + C – 0.250 (9)
Lw = (Hw – 0.333) (SL)

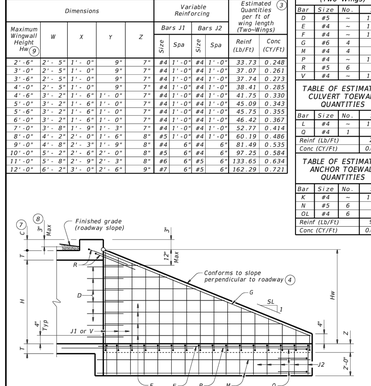
For cast-in-place culverts:
Ltw = (N) (S) + (N + 1) (U)

For precast culverts:
Ltw = (N) (2U + S) + (N – 1) (0.500)

Lc = (Ltw) – (2U)
Atw = Lc
Total Wingwall Area (two wings – SF)
= (Hw + 0.333) (Lw)

Hw = Height of wingwall (feet)
SL(1:4 Side slope ratio (horizontal : 1 vertical)
Lw = Length of wingwall (feet)
Ltw = Culvert toewall length (Feet)
Lc = Culvert curb between wings (feet)
Atw = Anchor toewall length (feet)
N = Number of culvert spans

See applicable box culvert standard for H, S, T, and U values. See Table of Maximum Wall Heights for limits on Hw.

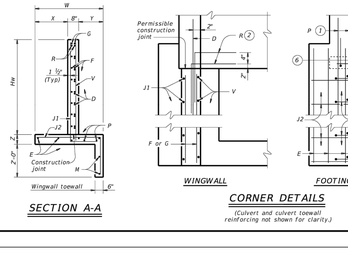


INSIDE ELEVATION OF WINGWALL

(Showing reinforcing. Culvert and culvert toewall reinforcing not shown for clarity.)

PLAN

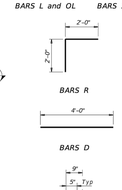
(Showing dimensions.)



SECTION A-A | WINGWALL | FOOTING AND TOEWALL | SECTION B-B (5) | SECTION C-C

CORNER DETAILS

(Culvert and culvert toewall reinforcing not shown for clarity.)



BARS J1 | BARS V | BARS L and OL | BARS J2 | BARS R | BARS D | BARS K (Length = 5'-6")

MATERIAL NOTES:

Provide Grade 60 reinforcing steel.
Provide galvanized reinforcing steel if required elsewhere in the plans.
Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.
Provide Class "C" concrete (f'c = 3,600 psi).
Adjust reinforcing as necessary to provide a minimum clear cover of 1 ½".
Provide pipe runners and anchor pipes meeting the requirements of ASTM A53 (Type E or S, Gr B), ASTM A500 Gr B, or API 5L X52.
Provide ASTM A36 steel plate cuts.
Provide ASTM A36 steel plates.
Galvanize all steel components, except reinforcing unless required elsewhere in the plans, after fabrication.
Repair galvanizing damaged during transport or construction in accordance with the Item 445, "Galvanizing."
For optional adhesive anchors, install epoxy adhesive anchorages in accordance with the manufacturer's instructions including hole size, drilling equipment and method, hole cleaning equipment and method, mixing and dispensing adhesive, and anchor insertion. Do not alter the manufacturer's mixing nozzle or dispenser. Provide anchorage rods that are clean and free of grease, oil, or any other foreign material. Demonstrate hole cleaning method to the Engineer for approval and continue the approved process for all anchorage locations. Test adhesive anchors in accordance with Item 450.3.3, "Tests." Test 3 anchors per 100 anchors installed.

GENERAL NOTES:

Design according to AASHTO LRFD Bridge Design Specifications.
The safety end treatments shown herein are intended for use in those installations where out of control vehicles are likely to traverse the openings approximately perpendicular to the pipe runners.
Pipe runners are designed for a traversing load of 1,800 pounds at yield as recommended by Research Report 280-1, "Safety Treatment of Roadside Cross-Drainage Structures", Texas Transportation Institute, March 1981.
When structure is founded on solid rock, depth of toewalls for culverts and wingwalls may be reduced or eliminated as directed by the Engineer.
All bolts, nuts, washers, brackets, angles, and pipe runners are considered parts of the safety end treatment for payment.
The quantities for pipe runners, reinforcing steel, and concrete, resulting from the formulas given herein are for Contractor's information only.
See Box Culvert Supplement (BCS) standard sheet for additional dimensions and information.

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

SHEET 1 OF 3

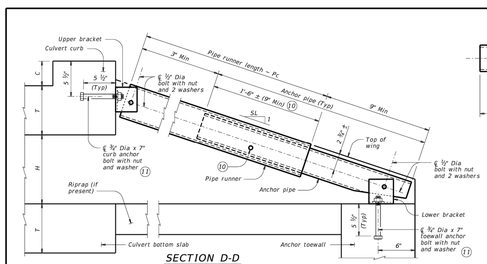
Texas Department of Transportation | Bridge Division Standard

SAFETY END TREATMENT WITH STRAIGHT WINGS

FOR 0° SKEW BOX CULVERTS
TYPE I ~ CROSS DRAINAGE

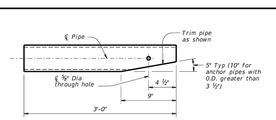
SETB-SW-0

FILE: CO-SETB-SW0-20.dgn	DN: GAF	CK: CAT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY		SHEET NO.

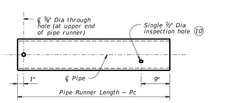


SECTION D-D

(Showing curb pipe runner.)



ANCHOR PIPE DETAILS



PIPE RUNNER DETAILS

MAXIMUM PIPE RUNNER LENGTHS AND REQUIRED PIPE RUNNER AND ANCHOR PIPE SIZES

Maximum Pipe Runner Length (Pc)	Required Pipe Runner Size Pipe Size	Pipe O.D.	Pipe I.D.	Required Anchor Pipe Size Pipe Size	Pipe O.D.	Pipe I.D.
9'-4"	3" STD	3.500"	3.068"	2" STD	2.375"	2.067"
19'-0"	4" STD	4.500"	4.026"	3" STD	3.500"	3.068"
33'-6"	5" STD	5.563"	5.047"	4" STD	4.500"	4.026"

(10) After installation of pipe runner, use the 9/16" inspection hole to ensure that the lap of the anchor pipe with the pipe runner is adequate.

(11) At contractor's option, an adhesive anchor may be used. Provide 5/8" Dia adhesive anchors that meet the requirements of ASTM A307, Gr A, for anchoring the bracket, extended rods, curb, wingwalls, and toewall using a Type III, Class C, D, E, or F anchor adhesive. Minimum embedment depth is 5 ½". Provide anchor adhesive able to achieve a basic bond strength in tension, Nba, of 20 kips. 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.

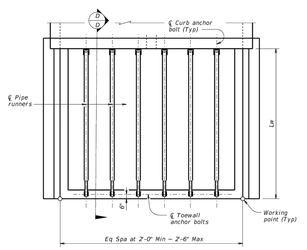
PIPE RUNNER DIMENSION CALCULATIONS:

Pc = (Lw) (K) – (1.688)

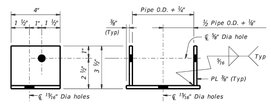
Pc = Pipe runner length (feet)

K = Constant values for use in formulas

Slope SL:1	K
3:1	1.054
4:1	1.031
6:1	1.014



PIPE RUNNER PLAN



SIDE VIEW | ELEVATION

Note: Upper and lower brackets match the required pipe diameters as shown in the table.

UPPER AND LOWER BRACKET DETAILS

SHEET 2 OF 3

Texas Department of Transportation | Bridge Division Standard

SAFETY END TREATMENT WITH STRAIGHT WINGS

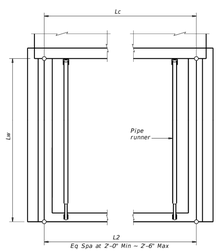
FOR 0° SKEW BOX CULVERTS
TYPE I ~ CROSS DRAINAGE

SETB-SW-0

FILE: CO-SETB-SW0-20.dgn	DN: GAF	CK: CAT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY		SHEET NO.

Culvert Station and/or Creek name followed by applicable end (Lt, Rt or Both) (12)	Lc (Ft)	L2 No. Spa	L2 Spa at (Ft)	L2 Overall Length (Ft)	Pipe Runner (Pc) No.	Pipe Runner (Pc) Length (Ft)	Pipe Runner (Pc) Size (3"-4" or 5")	Pipe Runner (Pc) Total (12) Length (Ft)	3'-0" Anchor Pipe Size (3",5" or 4")	3'-0" Anchor Pipe Total (12) Length (Ft)

(12) Quantities shown are for one structure end if Lt or Rt. Quantities shown are for two structure ends if Both.



PIPE RUNNER LAYOUT

SPECIAL NOTE:

This tabular sheet is to be filled out by the culvert specifier and provides information for the construction details and quantities of pipe runners.

An Excel 2010 spreadsheet to assist in completing this table can be downloaded from the Bridge Standards (English) web page on the TxDOT web site. The completed sheet must be signed, sealed and dated by a licensed Professional Engineer.

Note that the tabular quantities are given for estimating purposes only. It is likely that these quantities will change due to field conditions. Therefore, all dimensions must be verified by the Contractor in the field prior to fabrication of the safety end treatment components.

SHEET 3 OF 3

Texas Department of Transportation | Bridge Division Standard

SAFETY END TREATMENT WITH STRAIGHT WINGS

FOR 0° SKEW BOX CULVERTS
TYPE I ~ CROSS DRAINAGE

SETB-SW-0

FILE: CO-SETB-SW0-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY		SHEET NO.

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DATE:
FILE:

Date: Sep 02, 2025, 10:49am User ID: ASerna
File: L:\Projects\118B\01\02\Design\Civil\Box Culvert\2Design\Civil\Culverts\DRAIN DETAILS.dwg
By: ASERNA

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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
WAYNE FLORES
90130
LICENSED PROFESSIONAL ENGINEER

9/2/2025

FINAL SUBDIVISION PLAN

FOR

SILVERLEAF CONDOMINIUMS

COMAL COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
162 West Mill Street
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	03/11/2025	DG	WF

PROJECT NUMBER: 1186-01-02
DRAWING NAME: DRAIN DETAILS

SHEET TITLE: DRAIN DETAILS

SHEET NUMBER: 4.8

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

DISCLAIMER:
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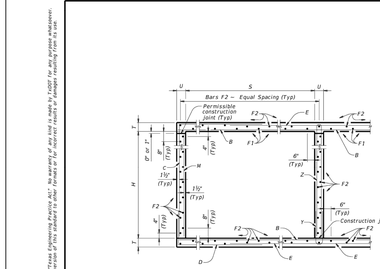
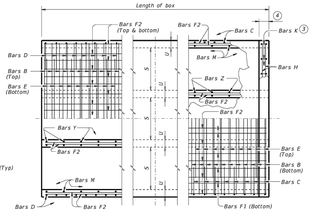
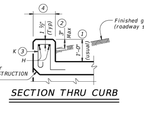
DATE:
FILE:



TYPICAL SECTION



BOTTOM SLAB PART PLANS TOP SLAB



SECTION THRU CURB

TABLE OF BAR DIMENSIONS

H	"K"	"L"
2'-0"	2'-7 ½"	4'-1"
3'-0"	3'-7 ½"	4'-1"
4'-0"	4'-7 ½"	4'-1"
5'-0"	5'-7 ½"	4'-1"
6'-0"	6'-7 ½"	4'-1"

① 0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian 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 (T631-CH) standard sheet. Refer to the Rail Anchorage Curb (RAC) standard sheet for structures with bridge rail other than T631 or T631LS.

② 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.

③ For curbs less than 1'-0" high, tilt Bars K or reduce bar height as necessary to maintain cover. For curbs less than 9" high, Bars K may be omitted.

④ 1'-0" typical. Z'-3" when the Rail Anchorage Curb (RAC) standard sheet is referred to elsewhere in the plans.

The Contractor may replace Bars B, C, D, E, F1, F2, M, Y, and/or Z with deformed welded wire reinforcement (WWR) meeting the requirements of ASTM A1064. The area of required reinforcement may be reduced by the ratio of 60 ksi / 70 ksi. Spacing of WWR is limited to 4" Min and 18" Max. When required, provide lap splices in the WWR of the same length required for the equivalent bar size, rounded up for wire sizes between conventional bar sizes. The lap length required for WWR is never less than the lap length required for uncoated #4 bars.

Example conversion: Replacing No. 6 Gr 60 at 6" Spacing with WWR.
Required WWR = (0.44 sq. in. per 0.5 Ft.) x (60 ksi / 70 ksi) = 0.755 sq. in. per ft.
If D306 wire is used to meet 0.755 sq. in. per ft. requirement in this example, the required spacing = (0.306 sq. in.) / (0.755 sq. in. per Ft.) x (12 in. per Ft.) = 4.86" Max spacing. Required lap length for the provided D306 wire is 2'-1" (the same minimum lap length required for uncoated #3 bars, as listed under MATERIAL NOTES).

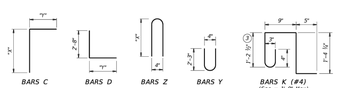
CONSTRUCTION NOTES:
Do not use permanent forms.
Chamfer the bottom edge of the top slab 3" at the entrance.
Optionally, raise construction joints shown at the flow line by a maximum of 6". If this option is taken, Bars M may be cut off or raised, Bars C and D may be reversed, and Bars Y and Z may be reversed.

MATERIAL NOTES:
Provide Grade 60 reinforcing steel.
Provide galvanized reinforcing steel if required elsewhere in the plans.
Provide Class C concrete (f'c = 3,600 psi) for culvert barrel and curb, with the following exceptions provide Class S concrete (f'c = 4,000 psi) for top slabs of:
- culverts with overlay
- culverts with a rough course surface treatment, or
- culverts with the top slab as the final riding surface.

Provide bar laps, where required, as follows:
- Uncoated or galvanized – #4 – 1'-8" Min
- Uncoated or galvanized – #5 – 2'-1" Min
- Uncoated or galvanized – #6 – 2'-6" Min

GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications for the range of fill heights shown.
See the Multiple Box Culverts Cast-In-Place Miscellaneous Detail (MC-MD) standard sheet for details pertaining to skewed ends, angle sections, and lengthening.

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



BARS C BARS D BARS Z BARS Y BARS K (#4) (Use H'-0" Max) (Length = 4'-2")

HL93 LOADING SHEET 1 OF 2

Texas Department of Transportation | Bridge Division Standard

MULTIPLE BOX CULVERTS CAST-IN-PLACE
6'-0" SPAN
0' TO 16' FILL
MC-6-16

FILE:	CD-MC616-20.dgn	DN: TXDOT	CK: BKP	DW: TxDOT	CK: TxDOT
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NUMBER OF SPANS

BILLS OF REINFORCING STEEL (For Box Length = 40 feet)

SECTION DIMENSIONS				Bars B			Bars C & D				Bars E			Bars F1 – #4			Bars F2 – #4			Bars M – #4			Bars Y & Z – #4				Bars H #4 – #4		Bars K	QUANTITIES			
							Bars C		Bars D														Bars Y		Bars Z					Per Foot of Barrel		Curb	Total	
S	H	T	U	No.	Size	Spa	Length	Wt	Length	Wt	No.	Size	Length	Wt	No.	Size	Length	Wt	No.	Size	Length	Wt	No.	Size	Length	Wt	No.	Size	Length	Wt	No.	Wt	Conc (CY)	Reinf (LB)	Conc (CY)	Reinf (LB)
2	6'-0"	2'-0"	9"	7"	108	#6	9"	13'-6"	2,190	108	#5	9"	6'-8"	751	6'-9"	760	108	#6	9"	10'-2"	1,649	10	18"	39'-9"	266	44	18"	39'-9"	1,168	108	9"	2'-0"	144	54	9"	4'-9"	171	9'-5"	195	13'-6"	36	30	84	0.894	182.4	1.0	120	36.8	7,414
3	6'-0"	2'-0"	9"	7"	108	#6	9"	20'-1"	3,258	108	#5	9"	6'-8"	751	6'-9"	760	108	#6	9"	16'-9"	2,717	15	18"	39'-9"	398	63	18"	39'-9"	1,673	108	9"	2'-0"	144	108	9"	4'-9"	343	9'-5"	391	20'-1"	54	44	122	1.302	260.9	1.5	176	53.6	10,611
4	6'-0"	2'-0"	9"	7"	108	#6	9"	26'-8"	4,326	108	#5	9"	6'-8"	751	6'-9"	760	108	#6	9"	23'-4"	3,785	20	18"	39'-9"	531	82	18"	39'-9"	2,177	108	9"	2'-0"	144	162	9"	4'-9"	514	9'-5"	586	26'-8"	71	56	156	1.711	339.4	2.0	227	70.4	13,801
5	6'-0"	2'-0"	9"	7"	108	#6	9"	33'-3"	5,394	108	#5	9"	6'-8"	751	6'-9"	760	108	#6	9"	29'-11"	4,853	25	18"	39'-9"	664	101	18"	39'-9"	2,682	108	9"	2'-0"	144	216	9"	4'-9"	685	9'-5"	782	33'-3"	89	70	195	2.120	417.8	2.5	284	87.3	16,999
6	6'-0"	2'-0"	9"	7"	108	#6	9"	39'-10"	6,462	108	#5	9"	6'-8"	751	6'-9"	760	108	#6	9"	36'-6"	5,921	30	18"	39'-9"	797	120	18"	39'-9"	3,186	108	9"	2'-0"	144	270	9"	4'-9"	857	9'-5"	977	39'-10"	106	82	228	2.529	496.4	3.0	334	104.1	20,189
2	6'-0"	3'-0"	9"	7"	108	#6	9"	13'-6"	2,190	108	#5	9"	7'-8"	864	6'-9"	760	108	#6	9"	10'-2"	1,649	10	18"	39'-9"	266	50	18"	39'-9"	1,328	108	9"	3'-0"	216	54	9"	4'-9"	171	7'-5"	268	13'-6"	36	30	84	0.958	192.8	1.0	120	39.3	7,832
3	6'-0"	3'-0"	9"	7"	108	#6	9"	20'-1"	3,258	108	#5	9"	7'-8"	864	6'-9"	760	108	#6	9"	16'-9"	2,717	15	18"	39'-9"	398	71	18"	39'-9"	1,885	108	9"	3'-0"	216	108	9"	4'-9"	343	7'-5"	535	20'-1"	54	44	122	1.389	274.4	1.5	176	57.1	11,152
4	6'-0"	3'-0"	9"	7"	108	#6	9"	26'-8"	4,326	108	#5	9"	7'-8"	864	6'-9"	760	108	#6	9"	23'-4"	3,785	20	18"	39'-9"	531	92	18"	39'-9"	2,443	108	9"	3'-0"	216	162	9"	4'-9"	514	7'-5"	803	26'-8"	71	56	156	1.819	356.1	2.0	227	74.7	14,469
5	6'-0"	3'-0"	9"	7"	108	#6	9"	33'-3"	5,394	108	#5	9"	7'-8"	864	6'-9"	760	108	#6	9"	29'-11"	4,853	25	18"	39'-9"	664	113	18"	39'-9"	3,000	108	9"	3'-0"	216	216	9"	4'-9"	685	7'-5"	1,070	33'-3"	89	70	195	2.250	437.7	2.5	284	92.5	17,780
6	6'-0"	3'-0"	9"	7"	108	#6	9"	39'-10"	6,462	108	#5	9"	7'-8"	864	6'-9"	760	108	#6	9"	36'-6"	5,921	30	18"	39'-9"	797	134	18"	39'-9"	3,558	108	9"	3'-0"	216	270	9"	4'-9"	857	7'-5"	1,338	39'-10"	106	82	228	2.681	519.3	3.0	334	110.2	21,197
2	6'-0"	4'-0"	9"	7"	108	#6	9"	13'-6"	2,190	108	#5	9"	8'-8"	976	6'-9"	760	108	#6	9"	10'-2"	1,649	10	18"	39'-9"	266	56	18"	39'-9"	1,488	108	9"	4'-0"	289	54	9"	4'-9"	171	9'-5"	340	13'-6"	36	30	84	1.023	199.2	1.0	120	41.9	8,089
3	6'-0"	4'-0"	9"	7"	108	#6	9"	20'-1"	3,258	108	#5	9"	8'-8"	976	6'-9"	760	108	#6	9"	16'-9"	2,717	15	18"	39'-9"	398	79	18"	39'-9"	1,885	108	9"	4'-0"	289	108	9"	4'-9"	343	9'-5"	679	20'-1"	54	44	122	1.475	282.6	1.5	176	60.5	11,481
4	6'-0"	4'-0"	9"	7"	108	#6	9"	26'-8"	4,326	108	#5	9"	8'-8"	976	6'-9"	760	108	#6	9"	23'-4"	3,785	20	18"	39'-9"	531	92	18"	39'-9"	2,443	108	9"	4'-0"	289	162	9"	4'-9"	514	9'-5"	1,019	26'-8"	71	56	156	1.927	366.1	2.0	227	79.1	14,870
5	6'-0"	4'-0"	9"	7"	108	#6	9"	33'-3"	5,394	108	#5	9"	8'-8"	976	6'-9"	760	108	#6	9"	29'-11"	4,853	25	18"	39'-9"	664	113	18"	39'-9"	3,000	108	9"	4'-0"	289	216	9"	4'-9"	685	9'-5"	1,359	33'-3"	89	70	195	2.380	449.5	2.5	284	97.7	18,264
6	6'-0"	4'-0"	9"	7"	108	#6	9"	39'-10"	6,462	108	#5	9"	8'-8"	976	6'-9"	760	108	#6	9"	36'-6"	5,921	30	18"	39'-9"	797	134	18"	39'-9"	3,558	108	9"	4'-0"	289	270	9"	4'-9"	857	9'-5"	1,698	39'-10"	106	82	228	2.832	533.0	3.0	334	116.2	21,652
2	6'-0"	5'-0"	9"	7"	108	#6	9"	13'-6"	2,190	108	#5	9"	9'-8"	1,089	6'-9"	760	108	#6	9"	10'-2"	1,649	10	18"	39'-9"	266	56	18"	39'-9"	1,487	108	9"	5'-0"	361	54	9"	4'-9"	171	11'-5"	412	13'-6"	36	30	84	1.088	209.6	1.0	120	44.5	8,505
3	6'-0"	5'-0"	9"	7"	108	#6	9"	20'-1"	3,258	108	#5	9"	9'-8"	1,089	6'-9"	760	108	#6	9"	16'-9"	2,717	15	18"	39'-9"	398	79	18"	39'-9"	2,098	108	9"	5'-0"	361	108	9"	4'-9"	343	11'-5"	824	20'-1"	54	44	122	1.562	296.2	1.5	176	64.0	12,024
4	6'-0"	5'-0"	9"	7"	108	#6	9"	26'-8"	4,326	108	#5	9"	9'-8"	1,089	6'-9"	760	108	#6	9"	23'-4"	3,785	20	18"	39'-9"	531	102	18"	39'-9"	2,708	108	9"	5'-0"	361	162	9"	4'-9"	514	11'-5"	1,235	26'-8"	71	56	156	2.035	382.7	2.0	227	83.4	15,536
5	6'-0"	5'-0"	9"	7"	108	#6	9"	33'-3"	5,394	108	#5	9"	9'-8"	1,089	6'-9"	760	108	#6	9"	29'-11"	4,853	25	18"	39'-9"	664	125	18"	39'-9"	3,319	108	9"	5'-0"	361	216	9"	4'-9"	685	11'-5"	1,647	33'-3"	89	70	195	2.509	469.3	2.5	284	102.8	19,056
6	6'-0"	5'-0"	9"	7"	108	#6	9"	39'-10"	6,462	108	#5	9"	9'-8"	1,089	6'-9"	760	108	#6	9"	36'-6"	5,921	30	18"	39'-9"	797	148	18"	39'-9"	3,930	108	9"	5'-0"	361	270	9"	4'-9"	857	11'-5"	2,059	39'-10"	106	82	228	2.983	555.9	3.0	334	122.3	22,570
2	6'-0"	6'-0"	9"	7"	108	#6	9"	13'-6"	2,190	108	#5	9"	10'-8"	1,202	6'-9"	760	108	#6	9"	10'-2"	1,649	10	18"	39'-9"	266	62	18"	39'-9"	1,646	108	9"	6'-0"	433	54	9"	4'-9"	171	13'-5"	484	13'-6"	36	30	84	1.153	220.0	1.0	120	47.1	8,921
3	6'-0"	6'-0"	9"	7"	108	#6	9"	20'-1"	3,258	108	#5	9"	10'-8"	1,202	6'-9"	760	108	#6	9"	16'-9"	2,717	15	18"	39'-9"	398	87	18"	39'-9"	2,310	108	9"	6'-0"	433	108	9"	4'-9"	343	13'-5"	968	20'-1"	54	44	122	1.648	309.7	1.5	176	67.4	12,565
4	6'-0"	6'-0"	9"	7"	108	#6	9"	26'-8"	4,326	108	#5	9"	10'-8"	1,202	6'-9"	760	108	#6	9"	23'-4"	3,785	20	18"	39'-9"	531	112	18"	39'-9"	2,974	108	9"	6'-0"	433	162	9"	4'-9"	514	13'-5"	1,452	26'-8"	71	56	156	2.144	399.4	2.0	227	87.7	16,204
5	6'-0"	6'-0"	9"	7"	108	#6	9"	33'-3"	5,394	108	#5	9"	10'-8"	1,202	6'-9"	760	108	#6	9"	29'-11"	4,853	25	18"	39'-9"	664	137	18"	39'-9"	3,638	108	9"	6'-0"	433	216	9"	4'-9"	685	13'-5"	1,936	33'-3"	89	70	195	2.639	489.1	2.5	284	108.0	19,849
6	6'-0"	6'-0"	9"	7"	108	#6	9"	39'-10"	6,462	108	#5	9"	10'-8"	1,202	6'-9"	760	108	#6	9"	36'-6"	5,921	30	18"	39'-9"	797	162	18"	39'-9"	4,302	108	9"	6'-0"	433	270	9"	4'-9"	857	13'-5"	2,420	39'-10"	106	82	228	3.134	578.9	3.0	334	128.3	23,488

HL93 LOADING SHEET 2 OF 2

Texas Department of Transportation | Bridge Division Standard

MULTIPLE BOX CULVERTS CAST-IN-PLACE
6'-0" SPAN
0' TO 16' FILL
MC-6-16

FILE:	CD-MC616-20.dgn	DN: TXDOT	CK: BKP	DW: TxDOT	CK: TxDOT
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11

Arch Pipe

D-Load (lb/ft/ft) for Type 3 Bedding

Fill Height Tables are based on:
1. γ_s = 120 pcf
2. AASHTO HL-93 live load
3. Positive Projecting Embankment Condition - this gives conservative results in comparison to trench conditions
4. A projection ratio of 0.9.

Class A | Class III
Class I | Class IV
Class II | Special Design

	Fill Height (feet)															
	Inside Rise x Inside Span (inches)	0.5	1	1.5	2	2.5	3	4	5	6	7	8	9	10	11	12
	11 x 18	1430	1335	1111	1241	1032	917	840	862	922	1004	1095	1075	1191	1307	1424
18" RCAP	13½ x 22	1396	1180	1091	1230	1026	913	831	854	913	993	1083	1060	1175	1289	1403
	15½ x 26	1305	1227	1132	1187	989	879	809	828	886	964	1049	1028	1138	1248	1358
24" RCAP	18 x 28½	1405	1441	1267	1229	1023	910	838	857	916	995	1082	1058	1171	1284	1397
30" RCAP	22½ x 36¼	1237	1276	1314	1161	979	875	821	843	907	987	1073	1054	1165	1276	1387
36" RCAP	26⅝ x 43⅜	1042	1084	1125	1095	929	842	805	835	901	981	1068	1056	1166	1276	1386
	31⅝16 x 51⅛	945	954	997	959	893	813	794	830	899	980	1067	1061	1170	1280	1389
	36 x 58½	988	928	904	924	836	791	785	828	899	980	1068	1067	1176	1285	1394
	40 x 65	908	954	909	906	823	783	783	830	904	986	1074	1077	1186	1295	1404
	45 x 73	826	874	910	880	804	770	775	829	903	986	1074	1083	1191	1300	1408
	54 x 88	719	770	818	843	778	754	773	833	909	992	1082	1099	1207	1315	1423
	62 x 102	657	709	758	794	766	753	785	843	920	1005	1095	1192	1227	1335	1443
	72 x 115	601	652	702	734	737	725	781	838	911	993	1084	1180	1279	1379	1435
	77½ x 122	585	636	687	771	778	761	791	853	930	1014	1103	1199	1297	1396	1446
	87⅛ x 138	554	603	656	781	761	770	805	870	946	1030	1119	1215	1313	1412	1513
	96⅞ x 154	533	581	635	792	773	773	822	886	963	1047	1136	1232	1330	1429	1530
	106½ x 168¾	522	568	623	794	777	779	826	892	968	1050	1138	1231	1327	1424	1523

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Resource # 16-202 (Revised 03/16)

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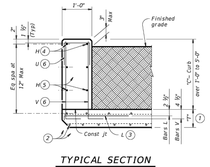

TYPICAL SECTION
Used for curbs over 1'-0" to 5'-0"

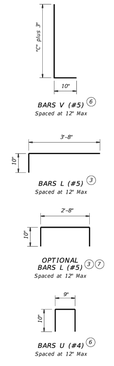

TABLE OF ESTIMATED CURB QUANTITIES ⑧

Curb Height "C"	Conc (CY/LF)	Reinf Steel (lb/LF)
1'-0"	0.037	8.9
1'-6"	0.056	14.3
2'-0"	0.074	15.4
2'-6"	0.093	17.1
3'-0"	0.111	18.8
3'-6"	0.130	21.2
4'-0"	0.148	22.2
4'-6"	0.167	24.6
5'-0"	0.185	25.6

① "T" is equal to the culvert top slab thickness. For precast boxes with slabs less than 7" thick, see SCP-MD standard for additional details.

② Adjust normal culvert slab bars as necessary to clear obstructions.

③ Place bars L as shown. Tilt hook as necessary to maintain cover.

④ Place normal culvert curb bars H(#4) as shown. Adjust as necessary to clear obstructions.

⑤ Additional bars H(#4) as required to maintain 12" Max spacing.

⑥ Replace normal culvert curb bars K with one bar U and two bars V as shown spaced at 12" Max. Adjust length of bars V as necessary to maintain clear cover.

⑦ Optional bars L are to be used only for precast box culverts with 3'-0" closure pour.

⑧ Quantities shown are for Contractor's information only. Quantities are per linear foot of curb length. The value for "C" may be interpolated for intermediate values of curb height, "C". Quantity includes bars K (when applicable).

CONSTRUCTION NOTES:
Adjust reinforcing steel as necessary to provide 1 ½" cover.
For vehicle safety, top of the curb must not project more than 3" above the finished grade.

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

GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications.
These extended curb details have sufficient strength to allow for future retrofit of Type T631 or T631LS railing. These details are suitable for use with PA1, PA2, and PA3 Precast Box Culverts. They are also suitable for retrofitting of other rail types. For new construction using T631 or T631LS railing, use the T631-CH standard.
This Curb is considered as part of the Box Culvert for payment.

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

Texas Department of Transportation | Bridge Division Standard

EXTENDED CURB DETAILS
FOR BOX CULVERTS WITH CURBS OVER 1'-0" TO 5'-0" TALL

ECD

FILE:	ecdetail.dgn	DN: GAF	CK: TxDOT	DW: TxDOT	CK: GAF
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REVISIONS		DIST	COUNTY	SHEET NO.	
03-16: General Notes added T631-CH.					

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

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FOR
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COMAL COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
162 West Mill Street
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#:F-14909
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PROJECT NUMBER: 1186-01-02
DRAWING NAME: DRAIN DETAILS

SHEET TITLE: DRAIN DETAILS

SHEET NUMBER: 4.9

Date: Sep 02, 2025, 10:50am User ID: ASerna
File: L:\Projects\1186\01\02\Design\Civil\Drains\DRAIN DETAILS.dwg
Z:\Design\Civil\Drains\DRAIN DETAILS.dwg\4.9 DRAIN DETAILS (2)
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TABLE OF DIMENSIONS AND REINFORCING STEEL
(Wings for one structure end)

Dimensions					Variable Reinforcing				Estimated Quantities per ft of wing length (2-wings) ③	
					Bars J1		Bars J2			
Maximum Wingwall Height Hw	W	X	Y	Z	Size	Spa	Size	Spa	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"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	41.75	0.330
5'-0"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	45.09	0.343
5'-6"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	45.75	0.355
6'-0"	3'-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"	#4	6"	#4	6"	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
DL	#5	~	1'-0"
DS	#5	~	1'-0"
E	#4	~	1'-0"
F	#4	~	1'-0"
G	#6	4	~
M	#4	4	~
P	#4	~	1'-0"
RS	#5	3	~
RL	#5	3	~
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.)

Hw = H + T + C - 0.250'
A = (Hw - 0.333'(SL)
B = (A) tangent (30°)
Lw = (A) ÷ cosine (30°)

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

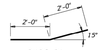
For precast culverts:
Ltw = (N) (2U + S) + (N - 1) (0.5') + cosine θ

Total wingwall area (two wings ~ SF) = 0.5 (Hw + 0.333') (Lw + A)

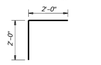
Hw = Height of wingwall
SL:1 = Side slope ratio (horizontal:1 vertical)
A = Length of short wingwalls
Lw = Length of long wingwall
Ltw = Culvert toewall length
N = Number of culvert spans
θ = Culvert skew

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

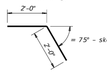
BARS DS
(Short wing)



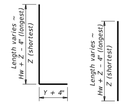
BARS DL
(Long wing)



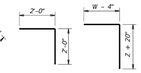
BARS RS
(Short wing)



BARS RL
(Long wing)



BARS J1 BARS V



BARS L BARS J2

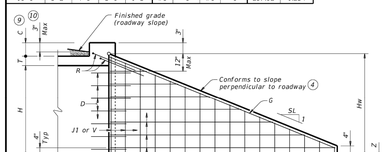
1. Extend Bars P 3'-0" minimum into bottom slab of box culvert.
2. Adjust as necessary to maintain 1 1#2" clear cover and 4" minimum between bars.
3. Quantities shown are based on an average wing height for two wings (one structure end). To determine total quantities for two wings, multiply the tabulated values by 0.5 x (A + 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 6" wide by 1'-6" deep reinforced concrete toewall along all edges 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. Applicable values of skew are: 15°, 30°, and 45°.
8. Typical wingwall angle for all skews.
9. 0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail or curbs taller than 1'-0, refer to the Extended Curb Details (ECD) standard sheet. For structures with TL631 or TL631S bridge rail, refer to the Mounting Details for TL631 & TL631LS Rails (TL631-CM) standard sheet. Refer to the Box Culvert Rail Mounting Details (RAC) standard sheet for structures with bridge rail other than TL631 or TL631LS.
10. 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 concrete, synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.

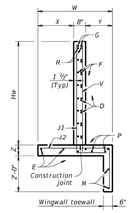
GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications.
When structure is founded on solid rock, depth of toewalls for culverts and wingwalls may be reduced or eliminated as directed by the Engineer.
See Box Culvert Supplement (BCS) standard sheet for additional dimensions and 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.

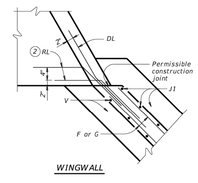


INSIDE ELEVATION
(Showing reinforcing. Culvert and culvert toewall reinforcing not shown for clarity.)

PLAN
(Showing dimensions and 30° skew.)

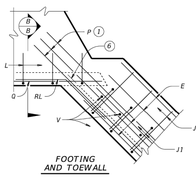


SECTION A-A

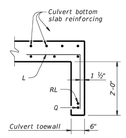


WINGWALL

CORNER DETAILS
(Culvert and culvert toewall reinforcing not shown for clarity.)



FOOTING AND TOEWALL



SECTION B-B ⑤

Texas Department of Transportation — Bridge Division Standard

CONCRETE WINGWALLS WITH FLARED WINGS FOR SKEWED BOX CULVERTS

FW-S

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

Dimensions					Variable Reinforcing				Estimated Quantities per ft of wing length (2-wings) ③	
					Bars J1		Bars J2			
Maximum Wingwall Height Hw	W	X	Y	Z	Size	Spa	Size	Spa	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"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	41.75	0.330
5'-0"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	45.09	0.343
5'-6"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	45.75	0.355
6'-0"	3'-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"	#4	6"	#4	6"	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.)

Hw = H + T + C - 0.250'
A = (Hw - 0.333'(SL)
B = (A) tangent (30°)
Lw = (A) ÷ cosine (30°)

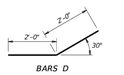
For cast-in-place culverts:
Ltw = (N) (S) + (N + 1) (U)

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

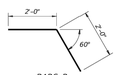
Total wingwall area (two wings ~ SF) = (Hw + 0.333') (Lw)

Hw = Height of wingwall
SL:1 = Side slope ratio (horizontal:1 vertical)
A = Length of short wingwalls
Lw = Length of long wingwall
Ltw = Culvert toewall length
N = Number of culvert spans
θ = Culvert skew

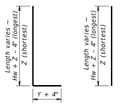
See applicable box culvert standard sheet for H, S, T, and U values.



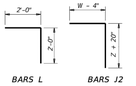
BARS D



BARS R



BARS J1 BARS V



BARS L BARS J2

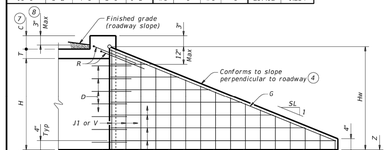
1. Extend Bars P 3'-0" minimum into bottom slab of box culvert.
2. Adjust as necessary to maintain 1 1#2" clear cover and 4" minimum between bars.
3. Quantities shown are based on an average wing height for two wings (one structure end). To determine total quantities for two wings, multiply the tabulated 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 6" wide by 1'-6" deep reinforced concrete toewall along all edges 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 rail or curbs taller than 1'-0, refer to the Extended Curb Details (ECD) standard sheet. For structures with TL631 or TL631LS bridge rail, refer to the Mounting Details for TL631 & TL631LS Rails (TL631-CM) standard sheet. Refer to the Box Culvert Rail Mounting Details (RAC) standard sheet for structures with bridge rail other than TL631 or TL631LS.
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 concrete synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing unless noted otherwise.

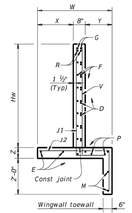
GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications.
When structure is founded on solid rock, depth of toewalls for culverts and wingwalls may be reduced or eliminated as directed by the Engineer.
See Box Culvert Supplement (BCS) standard sheet for additional dimensions and 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.

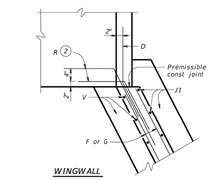


INSIDE ELEVATION
(Showing reinforcing. Culvert and culvert toewall reinforcing not shown for clarity.)

PLAN
(Showing dimensions.)

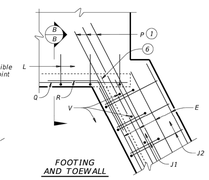


SECTION A-A

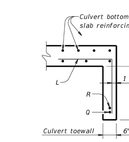


WINGWALL

CORNER DETAILS
(Culvert and culvert toewall reinforcing not shown for clarity.)



FOOTING AND TOEWALL



SECTION B-B ⑤

Texas Department of Transportation — Bridge Division Standard

CONCRETE WINGWALLS WITH FLARED WINGS FOR 0° SKEW BOX CULVERTS

FW-0

File: CD-FWS-20.dgn	DN: GAF	CK: CAT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020 REVISIONS	CONT: 1617	JOB:	HIGHWAY:	
	DIST:	COUNTY:	SHEET NO.	

Date: Sep 02, 2025, 10:50am User ID: ASmno
File: L:\Projects\11867\03\02\Design\Civil\Dwg\x DRAIN DETAILS.dwg
Z:\Design\Civil\Design\DRAIN DETAILS.dwg\x DRAIN DETAILS (3)
By: ASMNA

LANDLOK® TRM

Product Data
LANDLOK® 435

LANDLOK® 435 turf reinforcement mat (TRM) features X3® technology that consists of a dense web of interlocking, multi-lobed polypropylene fibers positioned between two biaxially oriented nets with mesh openings of approximately 1/2 in by 1/2 in (13 mm by 13 mm) and mechanically bound together every 2 in (51 mm) by parallel stitching with polypropylene thread. The TRM is designed to accelerate seedling emergence, exhibit high resiliency, and possess strength and elongation properties to limit stretching in a saturated condition. Every component of LANDLOK® 435 is stabilized against chemical and ultraviolet degradation which are normally found in a natural soil environment. Furthermore, the TRM contains no biodegradable components.

LANDLOK® 435 conforms to the property values listed below[1] and is manufactured at a Propex facility having achieved ISO 9001:2008 certification. Propex performs internal Manufacturing Quality Control (MQC) tests that have been accredited by the Geosynthetic Accreditation Institute – Laboratory Accreditation Program (GAI-LAP).

PROPERTY	TEST METHOD	ENGLISH	METRIC
ORIGIN OF MATERIALS			
% U.S. Manufactured		100%	100%
PHYSICAL			
Mass/Unit Area [2]	ASTM D-6566	8.0 oz/yd²	271 g/m²
Thickness [2]	ASTM D-6525	0.35 in	8.9 mm
Light Penetration (% Passing) [2]	ASTM D-6567	40%	40%
Color	Visual	Green	
MECHANICAL			
Tensile Strength [2]	ASTM D-6818	225 x 175 lbs/ft	3.3 x 2.6 kN/m
Elongation [2]	ASTM D-6818	50%	50%
Resiliency [2]	ASTM D-6524	80%	80%
Flexibility [2]	ASTM D-6575	0.015 in-lb	17,308 mg-cm
ENDURANCE			
UV Resistance % Retained at 1,000 hrs [2]	ASTM D-4355	80%	80%
PERFORMANCE			
Velocity (Vegetated) [2,3]	Large Scale	12 ft/sec	3.7 m/sec
Shear Stress (Vegetated) [2,3]	Large Scale	8 lb/ft²	383 Pa
Manning's n (Unvegetated) [2,4]	Calculated	0.025	0.025
Seedling Emergence [2]	ASTM D-7322	273%	273%
ROLL SIZES		8 ft x 140 ft 16 ft x 140 ft	2.45 m x 42.7 m 4.88 m x 42.7 m

NOTES:
1. The property values listed above are effective 01/22/2020 and are subject to change without notice.
2. Values represent testing at time of manufacture and are shown as typical values.
3. Maximum permissable velocity and shear stress have been obtained through vegetated testing programs featuring specific soil types, vegetation classes, flow conditions, and failure criteria. These conditions may not be relevant to every project nor are they replicated by other manufacturers. Please contact Propex for further information.
4. Calculated as typical values from large-scale flexible channel lining test programs with a flow depth of 6 to 12 inches.

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ENGINEERED EARTH SOLUTIONS™
www.propexglobal.com

Propex Operating Company, LLC · 4019 Industry Drive · Chattanooga, TN 37416 · ph 800 621 1273 · ph 423 855 1466

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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
WAYNE FLORES
90130
LICENSED
PROFESSIONAL ENGINEER
9/2/2025

FINAL SUBDIVISION PLAN
FOR
SILVERLEAF CONDOMINIUMS
COMAL COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
162 West Mill Street
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	03/11/2025	DG	WF

PROJECT NUMBER: 1186-01-02
DRAWING NAME: DRAIN DETAILS
SHEET TITLE: DRAIN DETAILS
SHEET NUMBER: 4.10

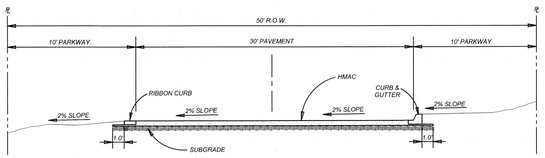
NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

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.



50' STREET SECTION W/ RIBBON CURB & STD. CURB & GUTTER

SCALE : NOT TO SCALE

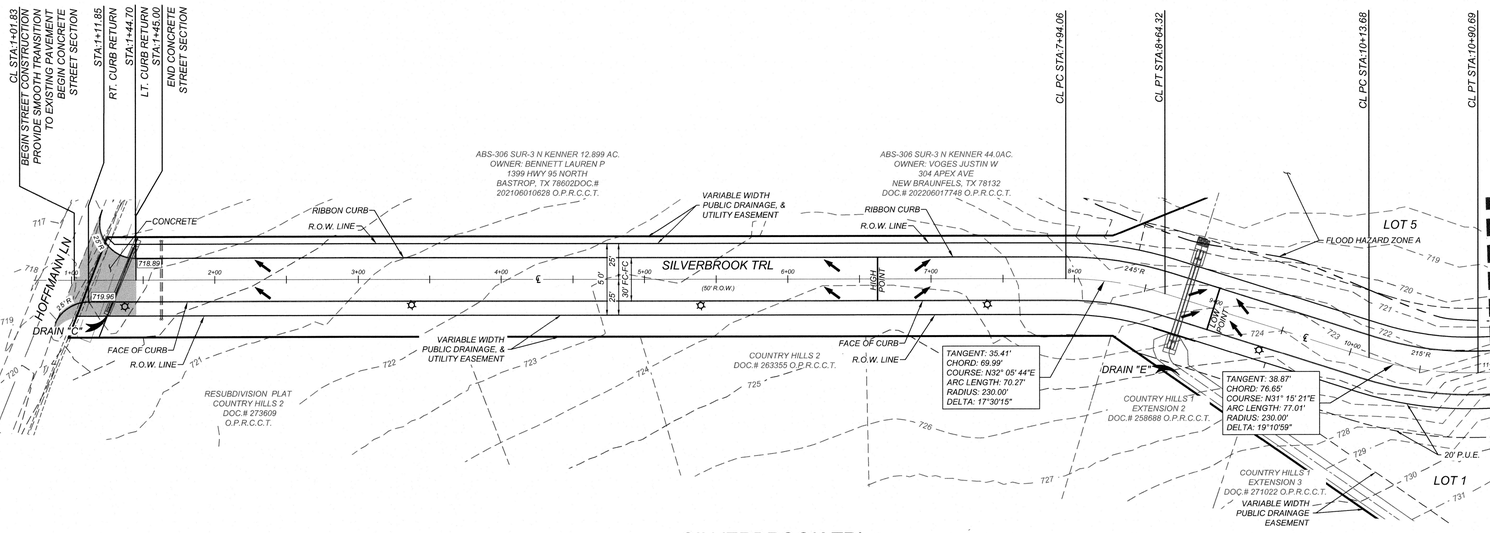
CONTRACTOR TO RUN LEVEL LOOP THROUGH BM'S PROVIDED TO CONFIRM BEFORE CONSTRUCTION. CONTACT ENGINEER/SURVEYOR IMMEDIATELY IF ELEVATIONS DO NOT MATCH THOSE SHOWN.

BENCHMARKS

BM#	NORTHING	EASTING	ELEVATION	DESCRIPTION
300	13831849.86	2261419.20	719.76	SBM LEVELED
301	13832175.16	2261090.25	707.65	SBM LEVELED

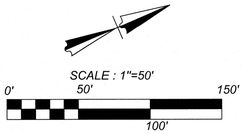
LEGEND

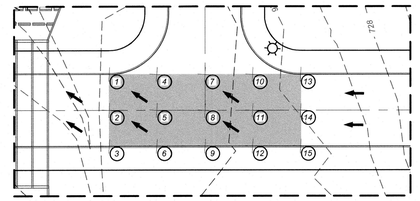
- = FLOW ARROW
- 732.87 = TOP OF CURB ELEVATIONS
- = WASHOUT CROWN



SILVERBROOK TRL
STA. 1+13.45 TO 11+00.00

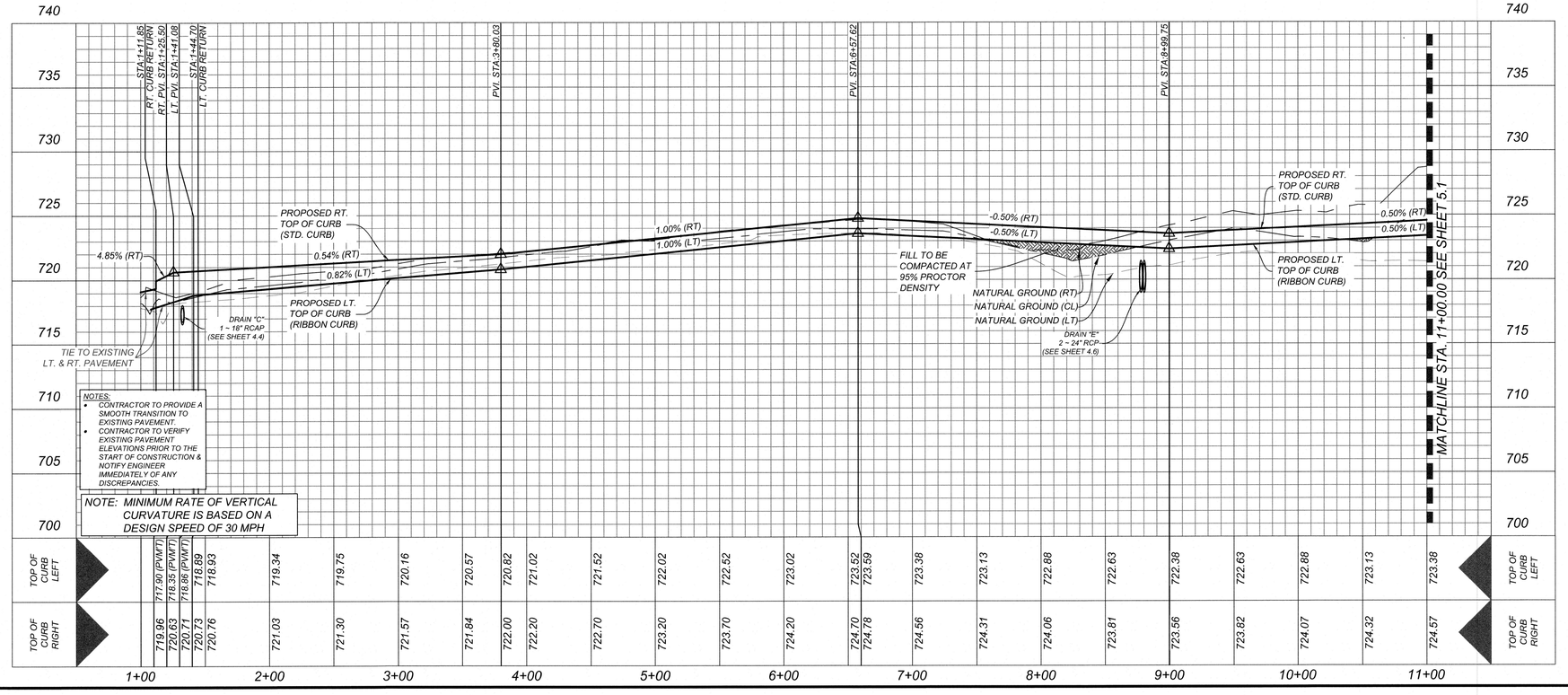
HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'





DETAIL 'A'
SCALE: 1" = 30'

POINT #	NORTHING	EASTING	GUT/PAVEMENT ELEV.
1	13833475.70	2262243.91	727.72
2	13833465.79	2262255.17	728.05
3	13833455.87	2262266.42	728.26
4	13833490.71	2262257.13	727.91
5	13833480.79	2262268.39	728.21
6	13833470.88	2262279.64	728.36
7	13833505.72	2262270.35	728.10
8	13833495.80	2262281.61	728.40
9	13833485.89	2262292.86	728.46
10	13833520.72	2262283.57	728.30
11	13833510.81	2262294.83	728.60
12	13833500.89	2262306.08	728.56
13	13833535.73	2262296.79	728.50
14	13833525.82	2262308.05	728.80
15	13833515.90	2262319.30	728.69



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

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

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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
WAYNE FLORES
90130
LICENSED PROFESSIONAL ENGINEER
10-27-25

FINAL SUBDIVISION PLAN

FOR

SILVERLEAF CONDOMINIUMS

COMAL COUNTY TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
162 West Mill Street
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	03/11/2025	DG	WF

PROJECT NUMBER: 1186-01-02

DRAWING NAME: 5.2 SILVERBROOK TRL STA. 23+00 - END

SHEET TITLE: SILVERBROOK TRL STA. 1+00 - STA. 11+00

SHEET NUMBER: 5.0

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Oct 24, 2025, 9:55am User ID: mgrenn
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Z:\Design\Civil\Sheets\5.2 SILVERBROOK TRL STA. 23+00 - END.dwg(5.1 SILVERBROOK TRL STA. 1+00 - STA. 11+00 By: MGLENN

TRENCH EXCAVATION SAFETY PROTECTION

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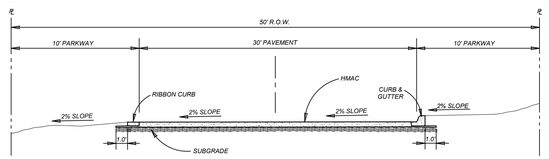
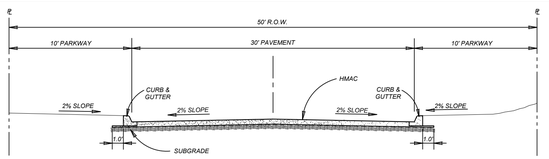
CONTRACTOR TO RUN LEVEL LOOP THROUGH BM'S PROVIDED TO CONFIRM BEFORE CONSTRUCTION. CONTACT ENGINEER/SURVEYOR IMMEDIATELY IF ELEVATIONS DO NOT MATCH THOSE SHOWN.

BENCHMARKS

BM#	NORTHING	EASTING	ELEVATION	DESCRIPITION
300	13831849.86	2261419.20	719.76	SBM LEVELED
301	13832175.16	2261090.25	707.65	SBM LEVELED



50' STREET SECTION W/ RIBBON CURB & STD. CURB & GUTTER
SCALE : NOT TO SCALE

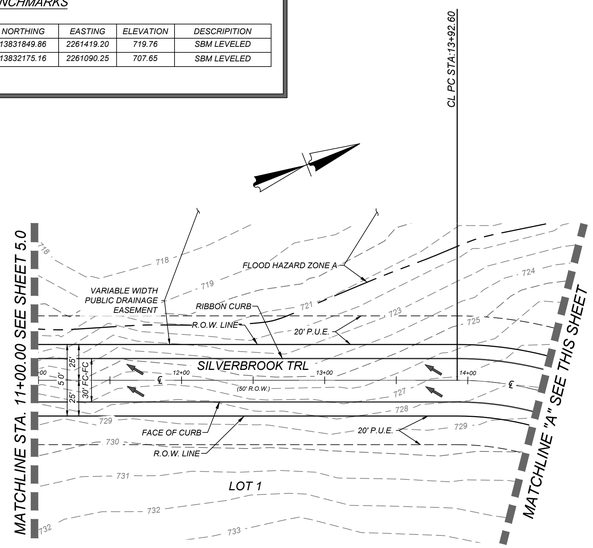


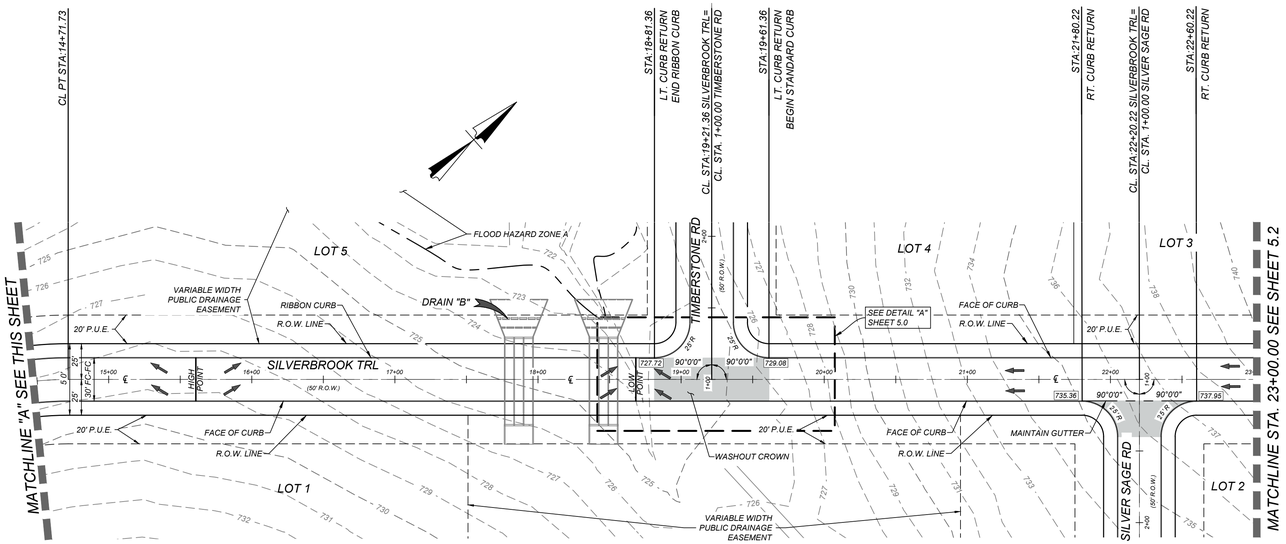
50' STREET SECTION W/ STANDARD CURB & GUTTER
SCALE : NOT TO SCALE

LEGEND

- = *FLOW ARROW*
- 732.87 = *TOP OF CURB ELEVATIONS*
- = *WASHOUT CROWN*

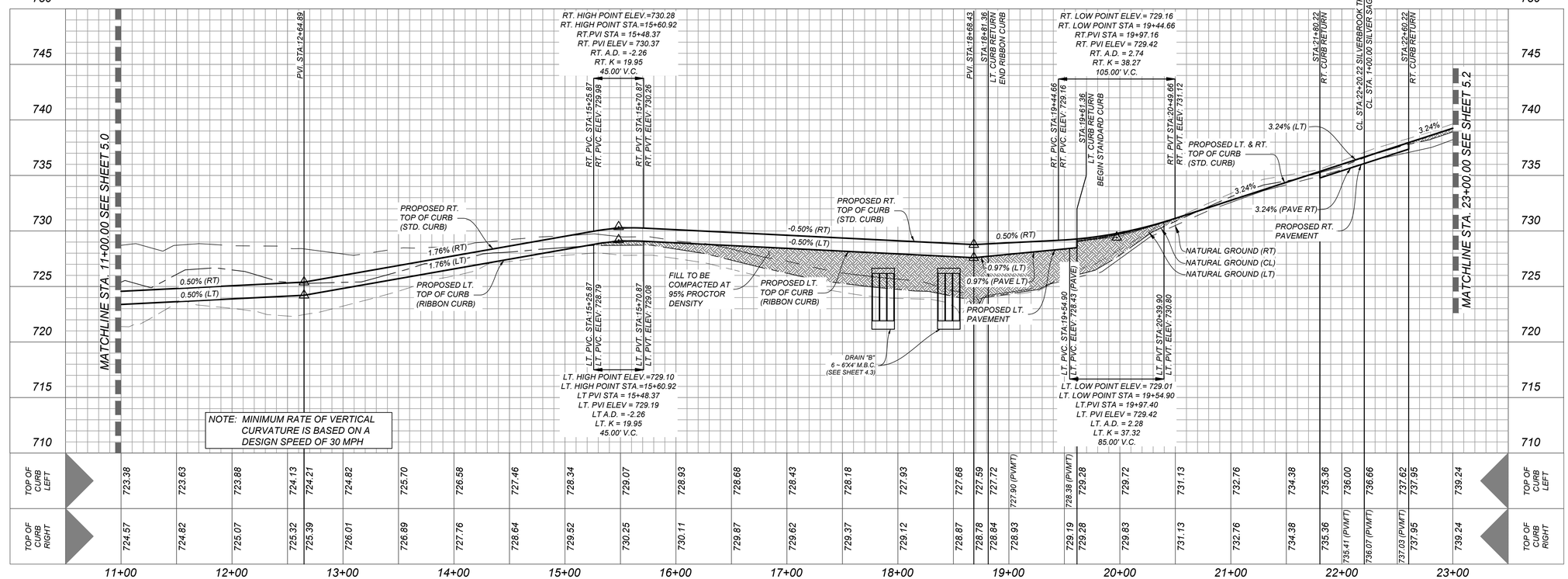
SCALE : 1"=50'
0' 50' 150'
100'





SILVERBROOK TRL
STA. 11+00.00 TO 23+00.00

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



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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
WAYNE FLORES
90130
LICENSED
PROFESSIONAL ENGINEER
9/2/2025

FINAL SUBDIVISION PLAN

FOR

SILVERLEAF CONDOMINIUMS

COMAL COUNTY TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
162 West Mill Street
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	03/11/2025	DG	WF

PROJECT NUMBER: 1186-01-02
DRAWING NAME: 5.2 SILVERBROOK TRL STA. 23+00 - END

SHEET TITLE: *SILVERBROOK TRL STA. 11+00 - STA. 23+00*

SHEET NUMBER: 5.1

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Sep 02, 2025, 10:50am User ID: ASerna
File: L:\Projects\1186\01-02\Civil\Plan Sheets\5.2 SILVERBROOK TRL STA. 23+00 - END.dwg
X:\Design\Civil\Sheets\5.2 SILVERBROOK TRL STA. 23+00 - END.dwg By: ASERNA

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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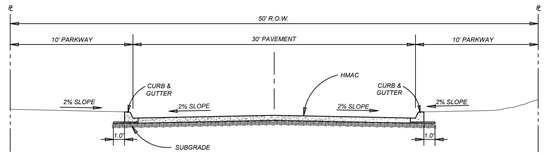


50' STREET SECTION W/ STANDARD CURB & GUTTER

SCALE : NOT TO SCALE

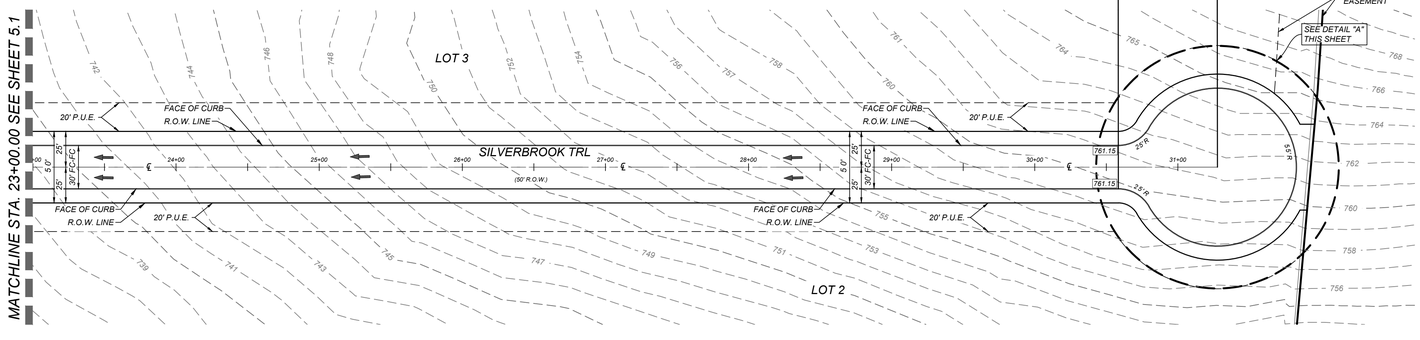
CONTRACTOR TO RUN LEVEL LOOP THROUGH BM'S PROVIDED TO CONFIRM BEFORE CONSTRUCTION. CONTACT ENGINEER/SURVEYOR IMMEDIATELY IF ELEVATIONS DO NOT MATCH THOSE SHOWN.

BENCHMARKS

BM#	NORTHING	EASTING	ELEVATION	DESCRIPITION
300	13831849.86	2261419.20	719.76	SBM LEVELED
301	13832175.16	2261090.25	707.65	SBM LEVELED

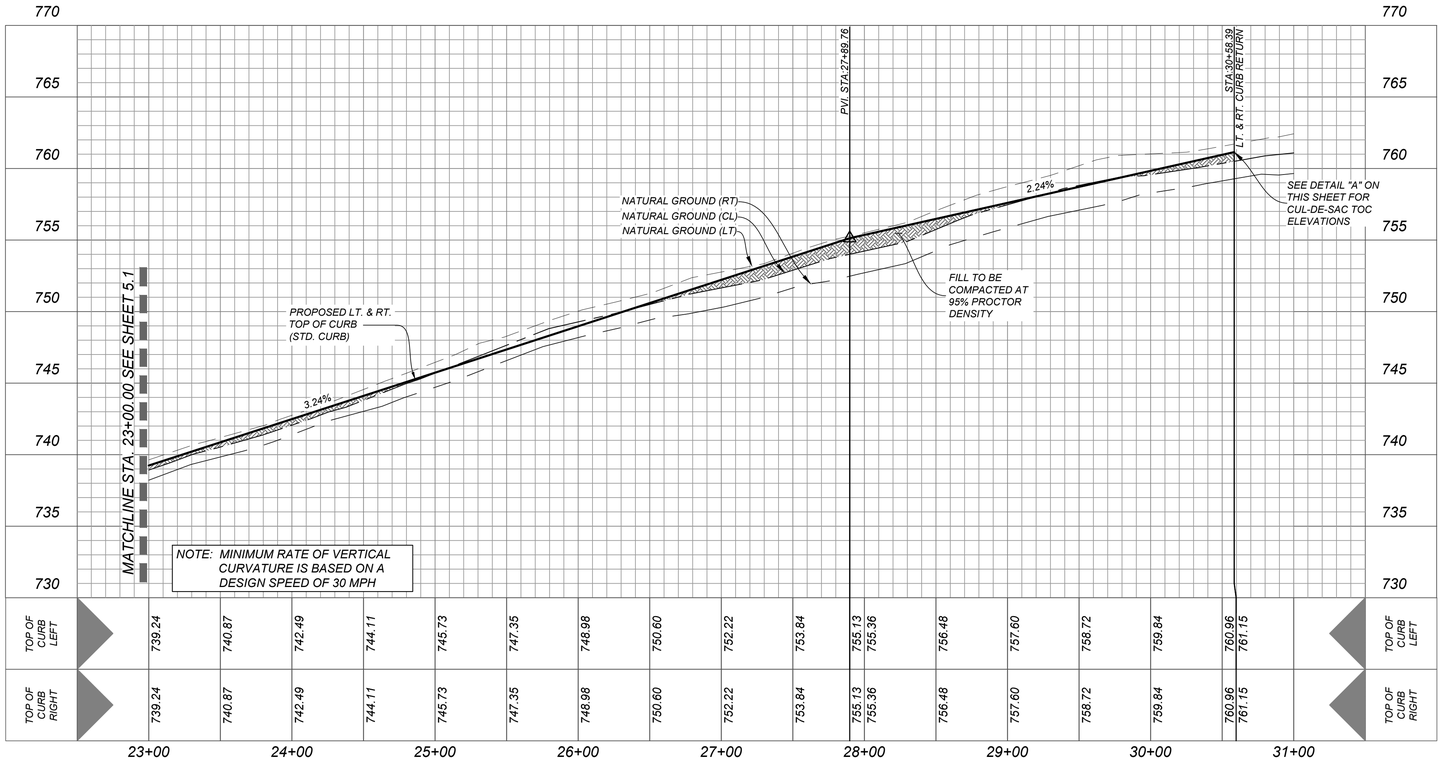
LEGEND

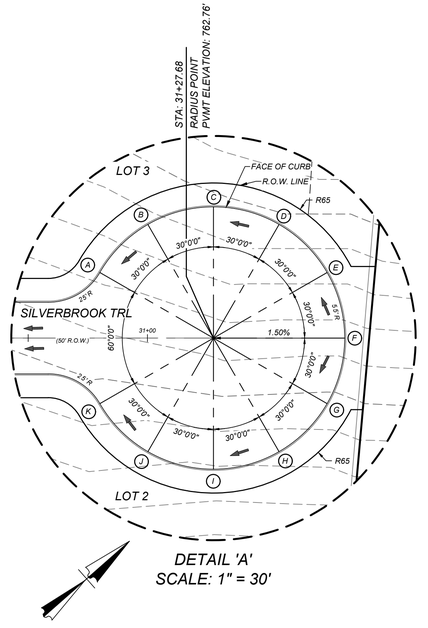
- = FLOW ARROW
- 732.87 = TOP OF CURB ELEVATIONS
- = WASHOUT CROWN



SILVERBROOK TRL
STA. 23+00.00 TO 31+00.00

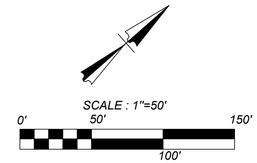
HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'





DETAIL 'A'
SCALE: 1" = 30'

CUL-DE-SAC STATION	TOP OF CURB ELEVATION
A	761.36
B	761.62
C	761.87
D	762.13
E	762.39
F	762.52
G	762.28
H	762.05
I	761.81
J	761.57
K	761.34



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9/2/2025

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COMAL COUNTY TEXAS

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

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	03/11/2025	DG	WF

PROJECT NUMBER: 1186-01-02

DRAWING NAME: 5.2 SILVERBROOK TRL STA. 23+00 - END

SHEET TITLE: SILVERBROOK TRL STA. 23+00 - END

SHEET NUMBER: 5.2

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Sep 02, 2025, 10:40am User ID: kSarna
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XRefs: L:\Projects\1186\01\02\Design\Civil\Sheets\5.2 SILVERBROOK TRL STA. 23+00 - END.dwg>5.2 SILVERBROOK TRL STA. 23+00 - END By: kSarna

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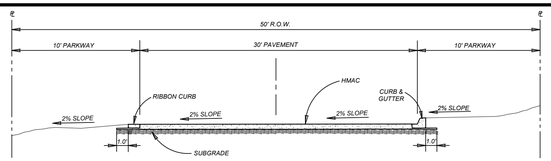


50' STREET SECTION W/ RIBBON CURB & STD. CURB & GUTTER

SCALE : NOT TO SCALE

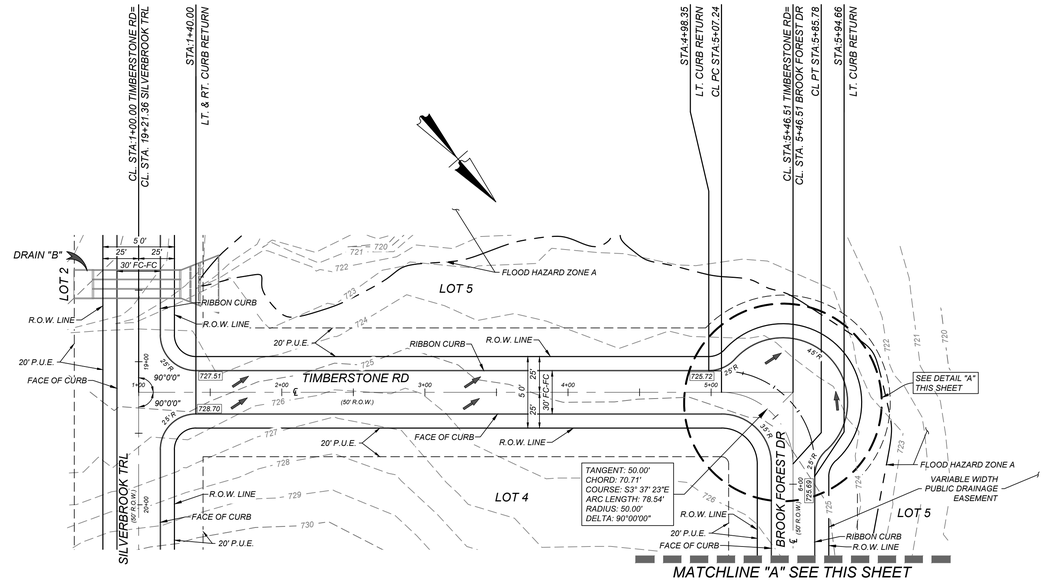
CONTRACTOR TO RUN LEVEL LOOP THROUGH BM'S PROVIDED TO CONFIRM BEFORE CONSTRUCTION. CONTACT ENGINEER/SURVEYOR IMMEDIATELY IF ELEVATIONS DO NOT MATCH THOSE SHOWN.

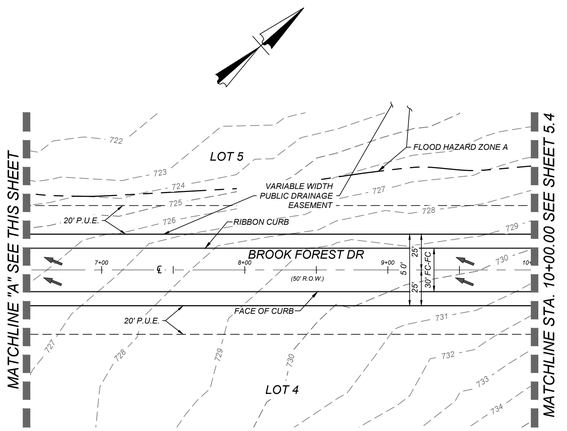
BENCHMARKS

BM#	NORTHING	EASTING	ELEVATION	DESCRIPITION
300	13831849.86	2261419.20	719.76	SBM LEVELED
301	13832175.16	2261090.25	707.65	SBM LEVELED

LEGEND

- FLOW ARROW
- 732.87 = TOP OF CURB ELEVATIONS
- WASHOUT CROWN





SCALE : 1"=50'

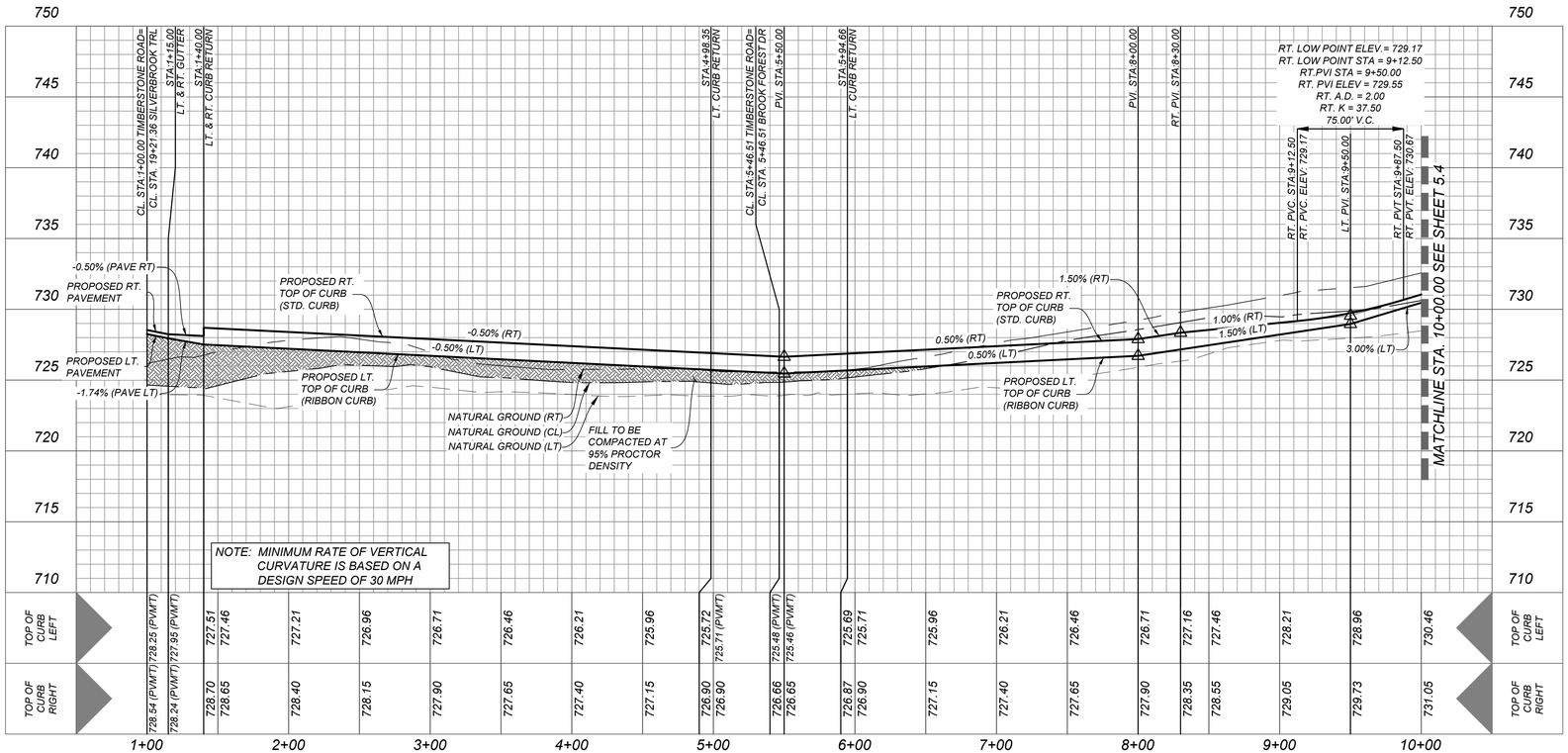
0' 50' 150'

100'

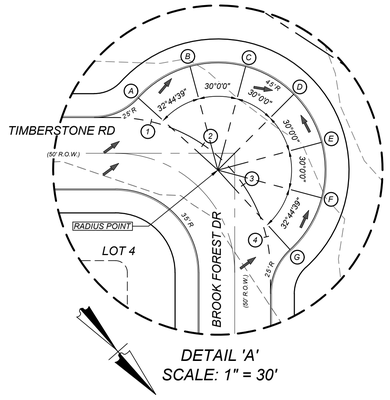
TIMBERSTONE RD
STA. 1+00.00 TO 5+46.54

BROOK FOREST DR
STA. 5+46.54 TO 10+00.00

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



	1+00	2+00	3+00	4+00	5+00	6+00	7+00	8+00	9+00	10+00
TOP OF CURB LEFT	728.35 (PVMT)	727.51	727.46	727.21	726.96	726.71	726.46	726.21	725.96	725.72
	727.96 (PVMT)	725.71 (PVMT)	725.48 (PVMT)	725.46 (PVMT)	725.69	725.71	725.96	726.21	726.46	726.71
	727.16	727.46	728.21	728.96	730.46					
TOP OF CURB RIGHT	728.54 (PVMT)	728.24 (PVMT)	728.70	728.65	728.40	728.15	727.90	727.65	727.40	727.15
	726.90	726.90	726.66	726.65	726.87	726.90	727.15	727.40	727.65	727.90
	728.35	728.55	729.05	729.73	731.05					



DETAIL 'A'
SCALE: 1" = 30'

CUL-DE-SAC STATION	TOP OF RIBBON CURB ELEVATION
A	725.42
B	725.06
C	724.72
D	724.38
E	724.68
F	725.02
G	725.39

DETAIL "A"

POINT #	NORTHING	EASTING	GUT/PAVEMENT ELEV.
1	13833764.93	2261956.04	725.62
2	13833786.57	2261946.06	725.53
3	13833810.36	2261944.55	725.49
4	13833833.09	2261951.72	725.58

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TBPE Firm#:F-14909
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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	03/11/2025	DG	WF

PROJECT NUMBER: 1186-01-02

DRAWING NAME: BLUEBONNET COURT STA. 10+00 - END

SHEET TITLE: TIMBERSTONE RD - BROOK FOREST DR STA. 1+00 - STA. 10+00

SHEET NUMBER: 5.3

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Sep 02, 2025, 10:50am User ID: ASerna
File: L:\Projects\1186\01\02\Design\Civil\Sheets\BLUEBONNET COURT STA. 10+00 — END.dwg
Z:\Design\Civil\Sheets\BLUEBONNET COURT STA. 1+00 END.dwg(5.3 TIMBERSTONE RD. BROOK FOREST DR STA. 1+00 - STA. 10+00 By:ASERNA

TRENCH EXCAVATION SAFETY PROTECTION

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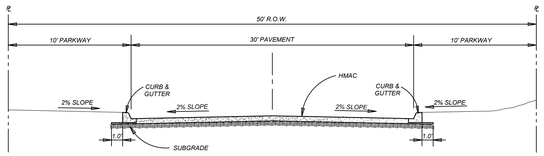


50' STREET SECTION W/ STANDARD CURB & GUTTER

SCALE : NOT TO SCALE

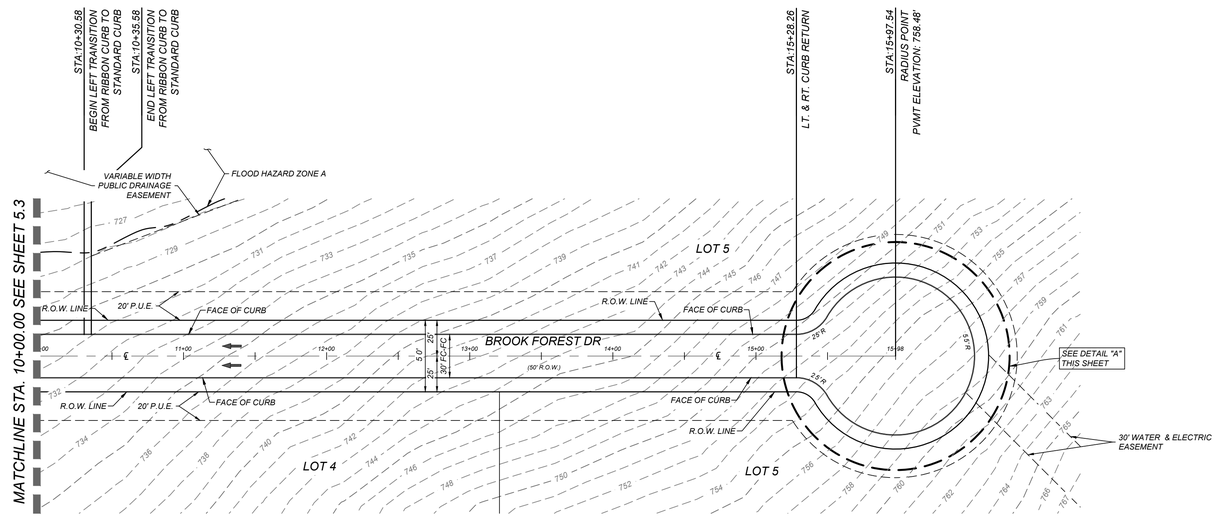
CONTRACTOR TO RUN LEVEL LOOP THROUGH BM'S PROVIDED TO CONFIRM BEFORE CONSTRUCTION. CONTACT ENGINEER/SURVEYOR IMMEDIATELY IF ELEVATIONS DO NOT MATCH THOSE SHOWN.

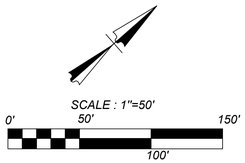
BENCHMARKS

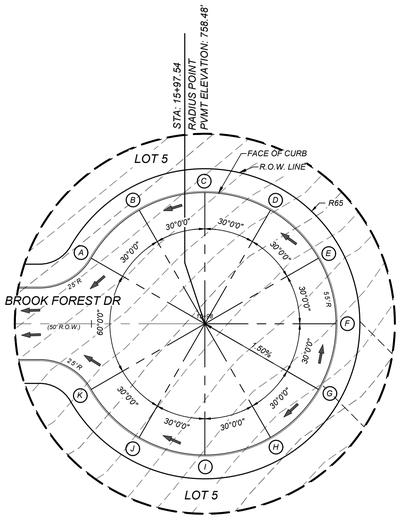
BM#	NORTHING	EASTING	ELEVATION	DESCRIPITION
300	13831849.86	2261419.20	719.76	SBM LEVELED
301	13832175.16	2261090.25	707.65	SBM LEVELED

LEGEND

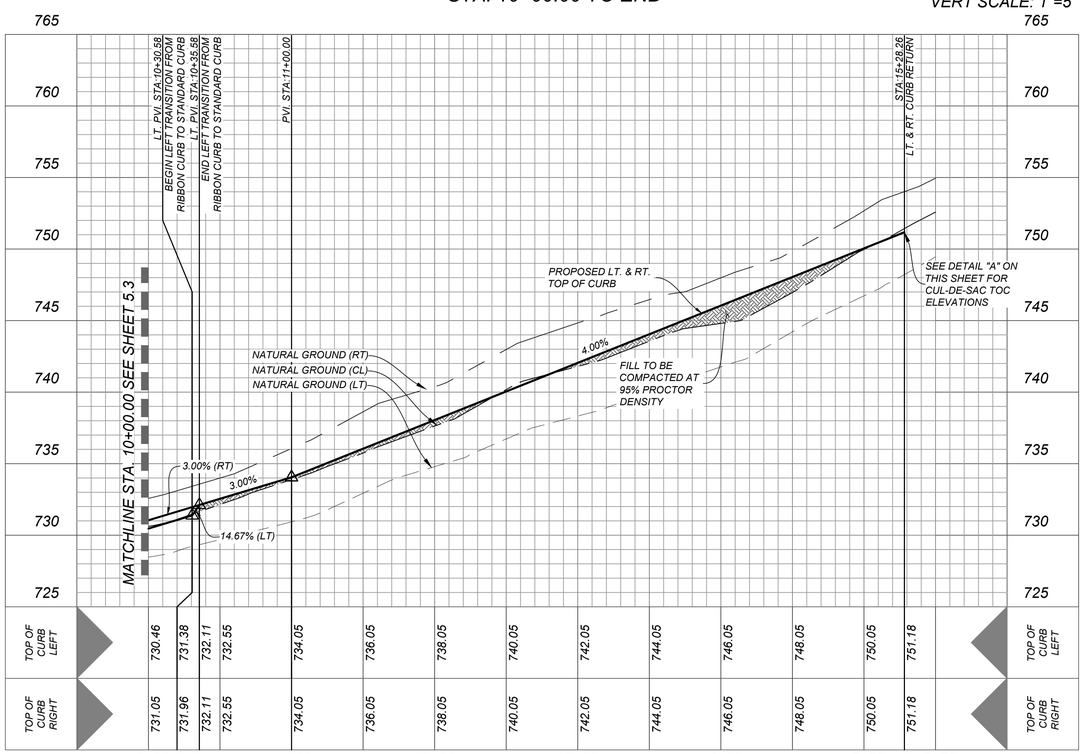
- FLOW ARROW
- 732.87 = TOP OF CURB ELEVATIONS
- WASHOUT CROWN







DETAIL 'A'
SCALE: 1" = 30'



CUL-DE-SAC STATION	TOP OF RIBBON CURB ELEVATION
A	752.22
B	753.38
C	754.53
D	755.68
E	756.83
F	757.98
G	758.24
H	756.80
I	755.36
J	753.92
K	753.48

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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	03/11/2025	DG	WF

PROJECT NUMBER: 1186-01-02

DRAWING NAME: BLUEBONNET COURT STA. 10+00 - END

SHEET TITLE: BROOK FOREST DR STA. 10+00 - END

SHEET NUMBER: 5.4

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Sep 02, 2025, 10:49am User ID: ASirna
File: L:\Projects\1186\01\Design\Civil\Drawings\BLUEBONNET COURT STA. 10+00 - END.dwg
Xrefs: L:\Projects\1186\01\Design\Civil\Drawings\Xrefs\Plan\1186-01-PLAN.dwg
J:\Design\Civil\Sheets\BLUEBONNET COURT STA. 10+00 - END.dwg,5.4 BROOK FOREST DR STA. 10+00 - END By:ASIRNA

TRENCH EXCAVATION SAFETY PROTECTION

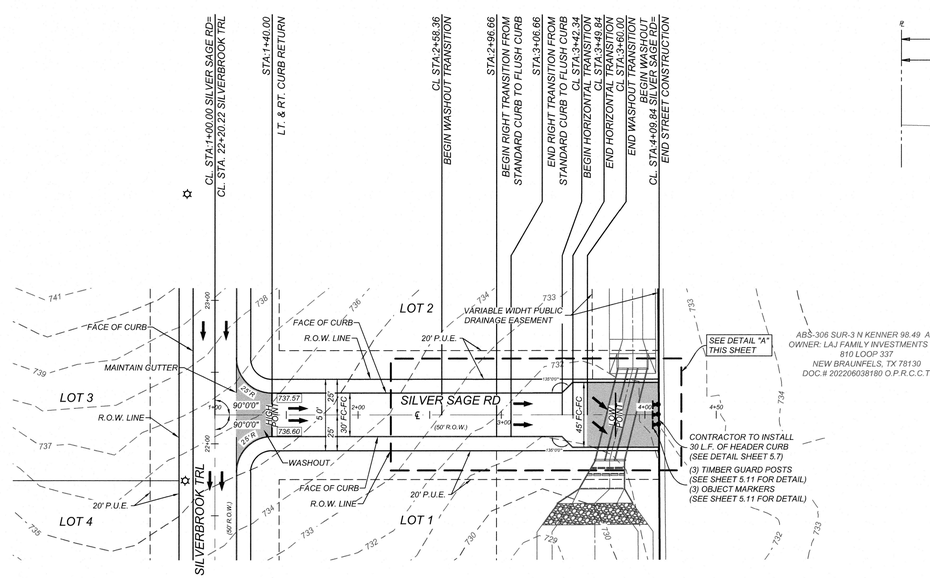
CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S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

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

BENCHMARKS

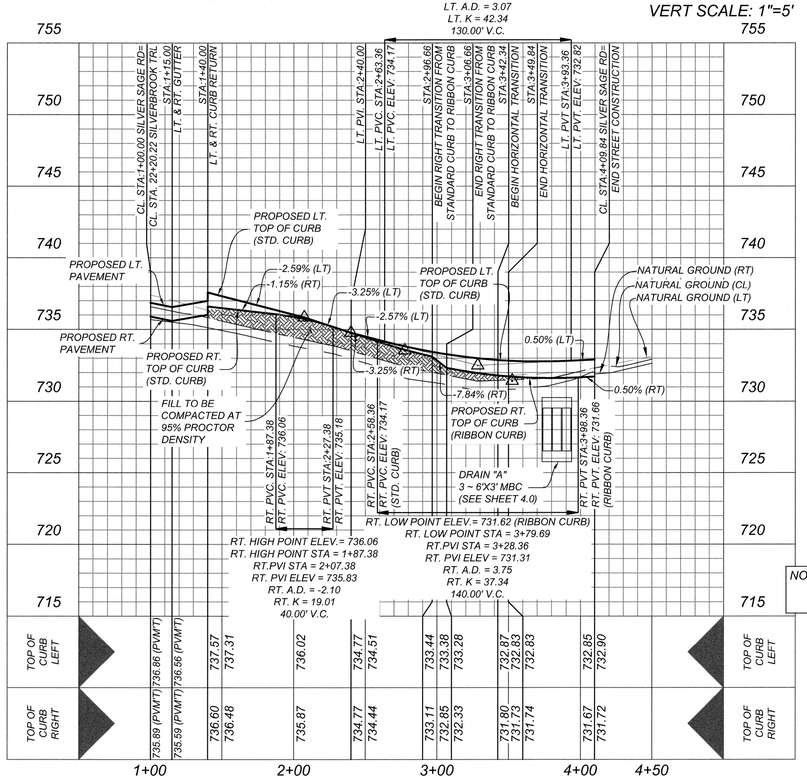
BM#	NORTHING	EASTING	ELEVATION	DESCRIPITION
300	13831849.86	2261419.20	719.76	SBM LEVELED
301	13832175.16	2261090.25	707.65	SBM LEVELED



SILVER SAGE RD
STA. 1+00.00 TO END

LT. LOW POINT ELEV.= 732.77
LT. LOW POINT STA = 3+72.19
LT.PVI STA = 3+28.36
LT. PVI ELEV = 732.50
LT. A.D. = 3.07
LT. K = 42.34
130.00' V.C.

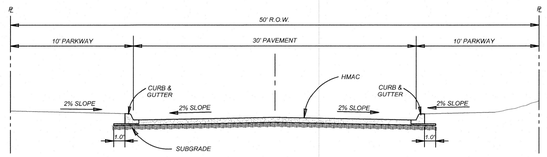
HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



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

LEGEND

= *FLOW ARROW*
732.87 = *TOP OF CURB ELEVATIONS*
= *WASHOUT CROWN*

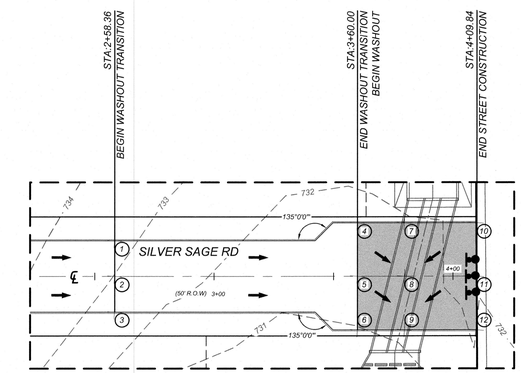


50' STREET SECTION W/ STANDARD CURB & GUTTER

SCALE : NOT TO SCALE

SCALE : 1"=50'

0' 50' 150'
100'



DETAIL 'A'
SCALE: 1" = 30'

POINT #	NORTHING	EASTING	GUT/PAVEMENT ELEV.
1	13833626.64	2262607.90	733.71
2	13833615.38	2262597.99	733.89
3	13833604.13	2262588.07	733.59
4	13833565.08	2262689.13	732.20
5	13833548.20	2262674.25	731.97
6	13833531.31	2262659.38	731.67
7	13833552.06	2262703.90	732.19
8	13833535.18	2262689.03	731.92
9	13833518.30	2262674.16	731.62
10	13833532.22	2262726.43	732.32
11	13833515.25	2262711.66	732.02
12	13833498.42	2262696.72	731.72

Colliers Engineering & Design

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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
WAYNE FLORES
90130
LICENSED PROFESSIONAL ENGINEER

10-27-25

FINAL SUBDIVISION PLAN

FOR

SILVERLEAF CONDOMINIUMS

COMAL COUNTY TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
162 West Mill Street
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	03/11/2025	DG	WF

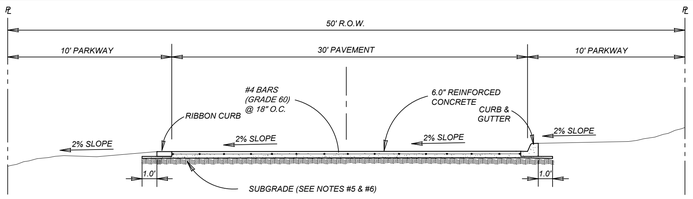
PROJECT NUMBER: 1186-01-02
DRAWING NAME: 5.5 SILVER SAGE RD STA. 1+00 - END

SHEET TITLE: *SILVER SAGE RD STA. 1+00 - END*

SHEET NUMBER: 5.5

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

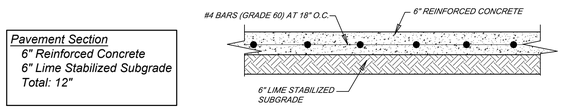
Date: Oct 24, 2025, 9:57am User ID: mderin
File: U:\Projects\1186\01\02\Design\Civil\Streets\5.5 SILVER SAGE RD STA. 1+00 - END.dwg
3Design\Plotfiles\5 SILVER SAGE RD STA. 1+00 - END.dwg\5.5 SILVER SAGE RD STA. 1+00 - END By: MDERIN



TYPICAL STREET SECTION - 50' R.O.W.

SCALE : NOT TO SCALE

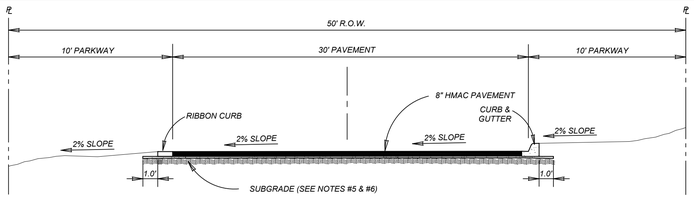
SILVERBROOK TRL STA: 1+00.00 TO 1+45.00



Pavement Section
6" Reinforced Concrete
6" Lime Stabilized Subgrade
Total: 12"

CONCRETE PAVEMENT DETAIL

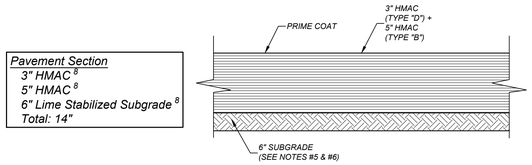
NOT-TO-SCALE



TYPICAL STREET SECTION - 50' R.O.W.

SCALE : NOT TO SCALE

SILVERBROOK TRL STA: 1+45.00 TO 18+81.36
TIMBERSTONE RD STA: 1+00.00 TO 5+46.51
BROOK FOREST DR STA: 5+46.51 TO 8+90.00
SILVER SAGE RD STA: 3+06.66 TO END



Pavement Section
3" HMAC [8]
5" HMAC [8]
6" Lime Stabilized Subgrade [8]
Total: 14"

ASPHALT PAVEMENT DETAIL - 50 FT R.O.W.

NOT-TO-SCALE

NOTES:
1. PAVEMENT DESIGN THICKNESS BASED ON GEOTECHNICAL REPORT BY INTEC, REPORT NO. S241312-P, DATED 11/22/24.

2. REFERENCE PROJECT GEOTECHNICAL REPORT AND PROJECT SPECIFICATION FOR ADDITIONAL REQUIREMENTS.

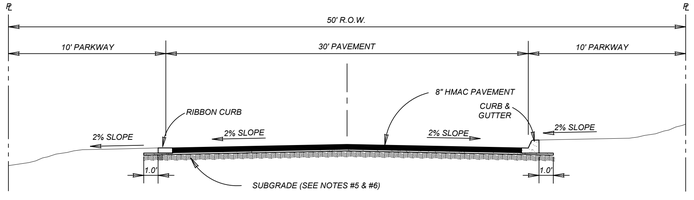
3. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING MATERIAL TESTING. TESTING TO BE PAID BY OWNER.

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

5. EXPOSED EXCAVATED SUBGRADE SHALL BE PROOF ROLLED IN ACCORDANCE WITH THE GEOTECHNICAL REPORT TO IDENTIFY WEAK YIELDING ZONES.

6. SOIL SUBGRADE AREAS REQUIRING FILL, SHALL BE SCARIFIED AND MOISTURE CONDITIONED PER THE GEOTECHNICAL REPORT.

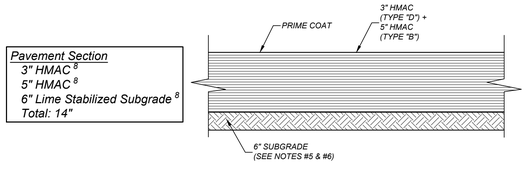
7. THE GEOTECHNICAL REPORT FOR THIS DEVELOPMENT INCLUDES ALTERNATE PAVEMENT SECTIONS. SHOULD AN ALTERNATE SECTION BE CONSIDERED, THE CONTRACTOR WILL BE REQUIRED TO GAIN APPROVAL FROM THE COUNTY. IT SHOULD BE NOTED THAT PAVEMENT SECTIONS THAT INCLUDE LIME TREATED SUBGRADE SHOULD RESULT IN A SOIL-LIME MIXTURE WITH A PH OF AT LEAST 12.4. IT IS RECOMMENDED THAT SUBGRADE SOILS BE TESTED FOR SOLUBLE SULFATE CONTENT PRIOR TO LIME TREATMENT.



TYPICAL STREET SECTION - 50' R.O.W.

SCALE : NOT TO SCALE

BROOK FOREST DR STA: 8+90.00 TO 10+30.58



Pavement Section
3" HMAC [8]
5" HMAC [8]
6" Lime Stabilized Subgrade [8]
Total: 14"

ASPHALT PAVEMENT DETAIL - 50 FT R.O.W.

NOT-TO-SCALE

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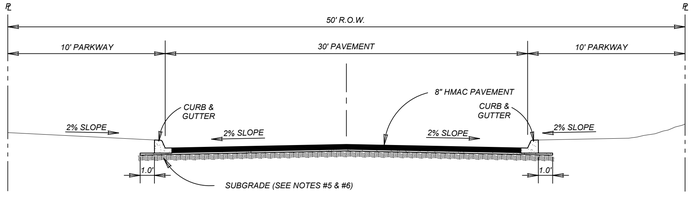
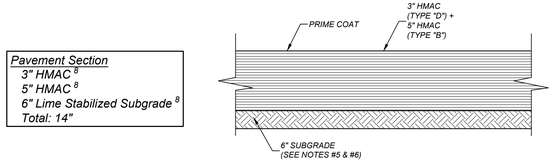


TYPICAL STREET SECTION - 50' R.O.W.

SCALE : NOT TO SCALE

SILVERBROOK TRL STA: 18+81.36 TO END
BROOK FOREST DR STA: 10+30.58 TO END
SILVER SAGE RD STA: 1+00.00 TO 3+06.66



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6" Lime Stabilized Subgrade [8]
Total: 14"

ASPHALT PAVEMENT DETAIL - 50 FT R.O.W.

NOT-TO-SCALE

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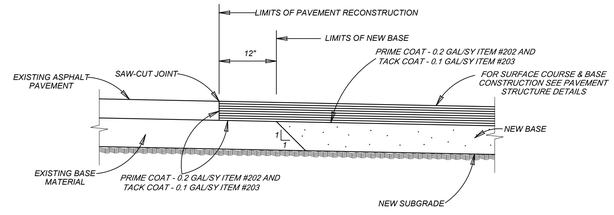

PAVEMENT JUNCTION DETAILS

NOT TO SCALE

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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
WAYNE FLORES
90130
LICENSED
PROFESSIONAL ENGINEER
9/2/2025

FINAL SUBDIVISION PLAN

FOR

SILVERLEAF CONDOMINIUMS

COMAL COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
162 West Mill Street
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	03/11/2025	DG	WF

PROJECT NUMBER: 1186-01-02
DRAWING NAME: 5.6 STREET DETAIL SHEET

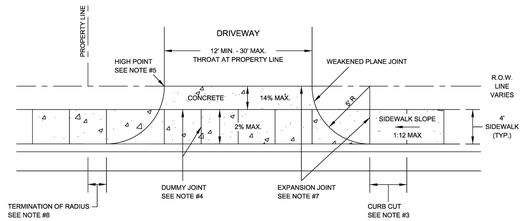
SHEET TITLE: STREET DETAIL SHEET

SHEET NUMBER: 5.6

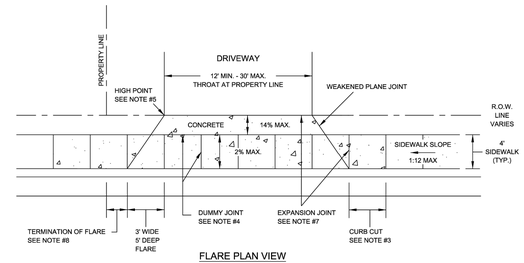
NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Sep 02, 2025, 10:50am User ID: ASerna
File: L:\Projects\1186\01\02\Design\Civil\Sheets\5.6 STREET DETAIL SHEET.dwg
XRefs: Layout: 42x36(1) 01-02 Design Civil Sheets 5.6 STREET DETAIL SHEET By:ASERNA

DRIVEWAY APRON
(RESIDENTIAL - ONE OR TWO FAMILY)



RADIUS PLAN VIEW

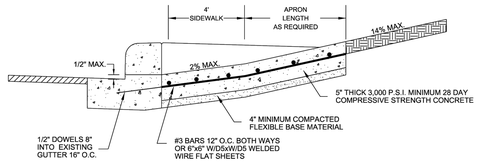


FLARE PLAN VIEW

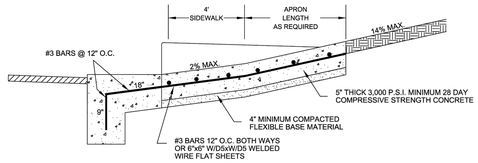
DATE APPROVED: 04/2016	DWG. NO: ST-014.1	SCALE: N.T.S.
DRAWN BY: RAS	SHEET: 1 OF 2	
FILENAME: DRIVEWAY (RESIDENTIAL - ONE OR TWO FAMILY)		

City of New Braunfels ENGINEERING DEPARTMENT

DRIVEWAY APRON
(RESIDENTIAL - ONE OR TWO FAMILY)



STRUCTURAL SECTION



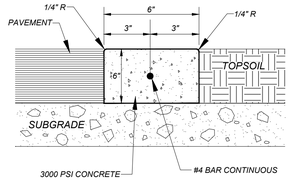
NO EXISTING CURB STRUCTURAL SECTION

NOTES:

1. WHERE GUTTER DOES NOT EXIST DRIVEWAY APRON SHALL EXTEND TO EDGE OF ASPHALT AND SHALL HAVE A MINIMUM 6" WIDE 1' DEEP GRADE BEAM MONOLITHIC AND REINFORCED SIMILAR TO APRON.
2. PLACEMENT OF SIDEWALK SHOWN IS TYPICAL; HOWEVER, ALTERNATIVE SIDEWALK PLACEMENT COMMON TO DRIVEWAY APRON WILL BE CONSIDERED PROVIDED CROSS SLOPE OF SIDEWALK IS NO GREATER THAN 2%.
3. CURB CUT LENGTH NO GREATER THAN AS REQUIRED TO MATCH SLOPE OF ADJACENT SIDEWALK.
4. DUMMY JOINTS TO BE PROVIDED AT MINIMUM 4-FT. INTERVALS PERPENDICULAR TO THE CURB LINE WITHIN THE SIDEWALK AREA AND PARALLEL TO THE SIDEWALK AREA.
5. PROVIDE A MINIMUM 7" HIGH POINT. HIGH POINT HEIGHT SHALL BE MEASURED FROM THE GUTTER FLOW LINE TO THE DRIVEWAY APRON. NOTE HIGH POINT MAY OCCUR OUTSIDE OF ROW.
6. DRIVEWAY THROAT TRANSITION MAY OCCUR OUTSIDE OF ROW.
7. PROVIDE EXPANSION JOINTS AT ALL SIDEWALK AND DRIVEWAY THROAT JOINTS. EXPANSION JOINTS SHALL BE PLACED USING 1/2" ASPHALTIC MATERIAL WITH 1/2" DOWELS 16" O.C.
8. THE TANGENT POINT OF THE DRIVEWAY CURB RETURN AT THE PUBLIC ROADWAY LINE OR FLARE SHALL BE A MINIMUM DISTANCE OF 1' OFF THE PROPERTY PROJECTED PERPENDICULAR TO THE STREET CENTERLINE, EXCEPT SINGLE FAMILY OR ZERO LOT LINE LOTS. ON SINGLE FAMILY ZERO LOT LINE LOTS WHERE THE DRIVE IS ON THE ZERO LOT LINE, THE TANGENT POINT OR FLARE SHALL BE NO GREATER THAN 3' BEYOND THE ADJOINING PROPERTY LINE PROJECTED PERPENDICULAR TO THE STREET CENTERLINE.

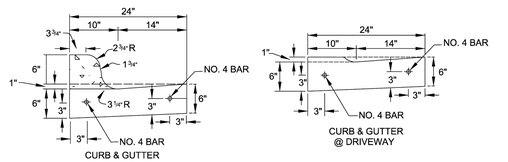
DATE APPROVED: 04/2016	DWG. NO: ST-014.2	SCALE: N.T.S.
DRAWN BY: RAS	SHEET: 2 OF 2	
FILENAME: DRIVEWAY (RESIDENTIAL - ONE OR TWO FAMILY)		

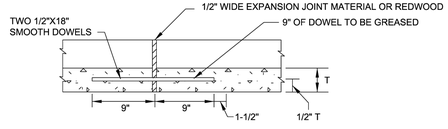
City of New Braunfels ENGINEERING DEPARTMENT



RIBBON/HEADER CURB
(NOT TO SCALE)

CURB AND GUTTER





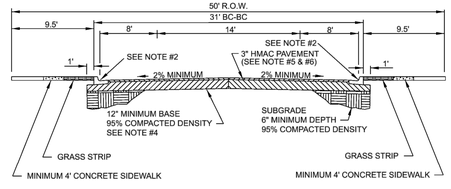
LONGITUDINAL SECTION THRU CURB AND GUTTER
SHOWING TYPICAL EXPANSION JOINT DETAILS.
REINFORCING STEEL SHALL NOT CROSS EXPANSION JOINTS.
STEEL SHALL BE TERMINATED 3" (+ OR -) 1" FROM FACE OF THE JOINT.

NOTES:

1. REINFORCING BARS SHALL BE LAPPED A MINIMUM OF 18".
2. CURB AND GUTTER SHALL HAVE FORMED TOOLED OR SAWED CONTRACTION JOINTS AT + 10'. THE DEPTH OF THESE JOINTS SHALL BE SUFFICIENT TO ENSURE CRACKING AT THE JOINTS.
3. CURB OR CURB AND GUTTER SHALL HAVE EXPANSION JOINTS AT POINTS OF CURVATURE, AT INTERVALS NO GREATER THAN 100' AND AT ALL ADJACENT STRUCTURES.
4. UNLESS OTHERWISE SHOWN, TRANSITIONS BETWEEN CURBS OR CURBS AND GUTTER OF DIFFERING CROSS SECTION SHALL BE ACCOMPLISHED OVER A 10' LENGTH OR AS APPROVED BY THE CITY ENGINEER.
5. ALL CONCRETE TO BE CLASS "A" 3000 PSI CONCRETE.
6. ALL EXPOSED CONCRETE SURFACES TO BE BRUSHED SMOOTH AND UNIFORM.

DATE APPROVED: 07/2008	DWG. NO: ST-013	SCALE: N.T.S.	City of New Braunfels ENGINEERING DEPARTMENT
DRAWN BY: RAS	SHEET: 1 OF 1		
FILENAME: CURB & GUTTER			

ONE & TWO FAMILY RESIDENTIAL
LOCAL
PARKING BOTH SIDES



NOTES:

1. STRUCTURAL SECTION REQUIRES DETAILED ENGINEERING DESIGN, SUBJECT TO THE APPROVAL OF THE CITY ENGINEER. CITY WILL ACCEPT DESIGNS THAT INCORPORATE BIAXIAL GEOGRID.
2. CITY WILL ACCEPT CURB AND GUTTER OR STAND-ALONE CURB. SEE CURB DETAIL ST-013 (CURB & GUTTER) & ST-013a (STAND-ALONE CURB).
3. ROADWAY MEASUREMENT SHOWN FROM BACK OF CURB (BC).
4. FLEXIBLE BASE MATERIAL SHALL BE TYPE "A" GRADE 2 PER TXDOT STD.
5. ASPHALT CONCRETE PAVEMENT SHALL BE TYPE "D" HOT MIX PER TXDOT ITEM 340 (2004).
6. IN NO CASE SHALL THE HMAC SECTION BE LESS THAN THAT SHOWN.
7. BASE MUST EXTEND 1' BEYOND BACK OF CURB, 9" MINIMUM THICKNESS

City of New Braunfels ENGINEERING DIVISION	STANDARD CONSTRUCTION DETAIL	SCALE: N.T.S. APPROVED DATE: STANDARD NO. ST-011

11/3/2023 10:21:58 AM Plotted By: Rick Schaefer Plot Scale: 1.0000 Plot Device: DWG To PDF.pc3 K:\Projects\1186-01\Design\Roads\ST-011.dgn

NOTE: NO SIDEWALKS REQUIRED FOR THIS PROJECT.

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

REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
WAYNE FLORES
90130
LICENSED
PROFESSIONAL ENGINEER

9/2/2025

FINAL SUBDIVISION PLAN

FOR

SILVERLEAF CONDOMINIUMS

COMAL COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
162 West Mill Street
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	03/11/2025	DG	WF

PROJECT NUMBER: 1186-01-02
DRAWING NAME: 5.6 STREET DETAIL SHEET

SHEET TITLE: *STREET DETAIL SHEET*

SHEET NUMBER: *5.7*

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Sep 02, 2025, 10:49am User ID: aSerna
File: L:\Projects\1186\01\02\Design\Plan\5.6 STREET DETAIL SHEET.dwg
Z:\Design\Civil\Sheets\5.6 STREET DETAIL SHEET.dwg\5.7 STREET DETAIL SHEET By:ASERNA

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.

LEGEND

- = BLUE RAISED REFLECTIVE PAVEMENT MARKER
- = PROPOSED FIRE HYDRANT
- = PROPOSED SIGN

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

BENCHMARKS

BM#	NORTHING	EASTING	ELEVATION	DESCRIPITION
300	13831849.86	2261419.20	719.76	SBM LEVELED
301	13832175.16	2261090.25	707.65	SBM LEVELED

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.

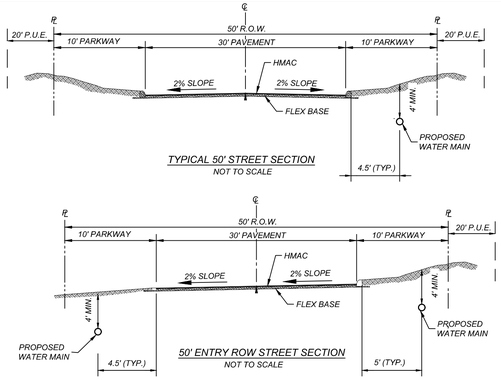
COMPACTION NOTE:
THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING 98% COMPACTION ON ALL TRENCH BACKFILL AND PAYING FOR THE TESTS TO BE PERFORMED BY A THIRD PARTY. COMPACTION TESTS WILL BE DONE AT ONE LOCATION POINT RANDOMLY SELECTED OR AS INDICATED BY NEW BRAUNFELS UTILITY INSPECTOR/TEST ADMINISTRATOR,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

MISCELLANEOUS NOTE:
1. ALL UTILITIES TO BE CONSTRUCTED PRIOR TO STREETS.
2. NO VALVES, HYDRANTS, ETC. SHALL BE CONSTRUCTED WITHIN CURBS, SIDEWALKS, OR DRIVEWAYS.
3. ENSURE ALL DRIVEWAY APPROACHES ARE BUILT IN GENERAL ACCORDANCE WITH A.D.A. SPECIFICATIONS.

UTILITY TRENCH COMPACTION (STREET PAVEMENT / SIDEWALK):
ALL UTILITY TRENCH COMPACTION TESTS WITHIN THE STREET PAVEMENT/SIDEWALK SECTION SHALL BE THE RESPONSIBILITY OF THE DEVELOPER'S GEOTECHNICAL ENGINEER. FILL MATERIAL SHALL BE PLACED IN UNIFORM LAYERS NOT TO EXCEED TWELVE INCHES (12") LOOSE. DETERMINE THE MAXIMUM LIFT THICKNESS BASED ON THE ABILITY OF THE COMPACTING OPERATION AND EQUIPMENT USED TO MEET THE REQUIRED DENSITY. EACH LAYER OF MATERIAL SHALL BE COMPACTED TO A MINIMUM 95% DENSITY AND TESTED FOR DENSITY AND MOISTURE IN ACCORDANCE WITH TEST METHODS TEX-113-E, TEX-114-E, TEX-115-E. THE NUMBER AND LOCATION OF REQUIRED TESTS SHALL BE DETERMINED BY THE GEOTECHNICAL ENGINEER AND APPROVED BY THE COMAL COUNTY STREET INSPECTOR. AT A MINIMUM, TESTS SHALL BE TAKEN EVERY 200 LF FOR EACH LIFT AND EVERY OTHER SERVICE LINE. UPON COMPLETION OF TESTING THE GEOTECHNICAL ENGINEER SHALL PROVIDE THE COMAL COUNTY STREET INSPECTOR WITH ALL TESTING DOCUMENTATION AND A CERTIFICATION STATING THAT THE PLACEMENT OF FILL MATERIAL HAS BEEN COMPLETED IN ACCORDANCE WITH THE PLANS. ADDITIONAL DENSITY TESTS MAY BE REQUESTED BY THE COMAL COUNTY INSPECTOR.

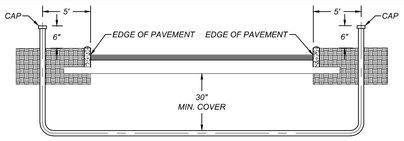
GENERAL NOTE:
1. THIS PROJECT INCLUDES UTILITY INSTALLATIONS GREATER THAN 5-FEET IN DEPTH LOCATED IN PUBLIC RIGHT-OF-WAY OR EASEMENTS. DEEP TRENCHES POSE COMPACTION TESTING AND CONSTRUCTION CHALLENGES AND COUNTY METHODS FOR TESTING AND COMPACTION MAY NOT BE ACHIEVABLE. A UTILITY COMPACTION PLAN WILL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

NOTES:
1. SIGNS AND GUARD POSTS SHALL BE INSTALLED BY COMAL COUNTY IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS AND AS DIRECTED BY THE COUNTY ENGINEER. THE DEVELOPER WILL BE RESPONSIBLE TO PAY THE COST OF LABOR AND MATERIALS FOR THIS PORTION OF THE ROAD REQUIREMENTS.



TYPICAL 50' STREET SECTION
NOT TO SCALE

50' ENTRY ROW STREET SECTION
NOT TO SCALE



CONDUIT DETAIL
NOT TO SCALE

*PVC SCHEDULE 80 CONDUIT
SEE NBU PLAN SHEETS FOR SIZE LOCATION AND NUMBER OF CONDUITS

NOTE:
- CONTRACTOR SHALL BE RESPONSIBLE FOR PLACING CONDUIT SLEEVES FOR EACH NBU FACILITY AT ALL STREETS AND DRAIN CROSSING. CONSTRUCTION SLEEVES MUST ALSO BE LOCATED FOR NBU 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 80 TO BE USED FOR CPS CONDUITS, ALL OTHER CONDUITS ARE SCHEDULE 40.
- 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.

NBU AS-BUILT REQUIREMENTS:

NBU REQUIRES GPS POINTS FOR CERTAIN WATER, WASTEWATER AND ELECTRIC IMPROVEMENTS. SOME OF THIS INFORMATION/DATA MUST BE PERFORMED DURING CONSTRUCTION, PRIOR TO BACKFILLING OPERATIONS. CONTRACTOR SHALL COORDINATE WITH NBU INSPECTOR TO VERIFY ANY ADDITIONAL ITEMS NOT SHOWN BELOW THAT NEED TO BE GPS LOCATED AND THE SURVEY/ DELIVERY REQUIREMENTS REGARDING THIS INFORMATION.

ELECTRIC:
1. POLES
2. TRANSFORMERS, BOTH ABOVE AND UNDERGROUND (FRONT LOCK)
3. PULL BOXES
4. STREET LIGHTS

SEE NBU'S "CAD/GPS DELIVERABLES" ON NBU WEBSITE AT NBUTEXAS.COM FOR COMPLETE DETAILS AND REQUIREMENTS

CONDUIT NOTES:
1. CONTRACTOR SHALL INSTALL PERMANENT MARKERS IN PROPOSED CURB WHERE CONDUITS CROSS THE ROADWAY (BOTH SIDES).
2. CONDUITS SHALL BE PVC WITH MINIMUM BURY OF 36 INCHES BELOW FINISHED GRADE. SCHEDULE 80 TO BE USED FOR CPS CONDUITS, ALL OTHER CONDUITS ARE SCHEDULE 40.
3. ALL CONDUITS SHALL BE EXTENDED BEHIND CURBS OR PROPOSED SIDEWALKS A MINIMUM OF 3 FEET AND CAPPED FOR FUTURE USE.
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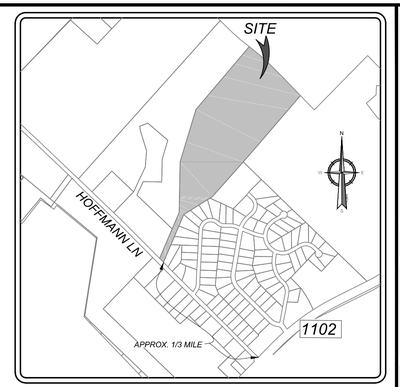
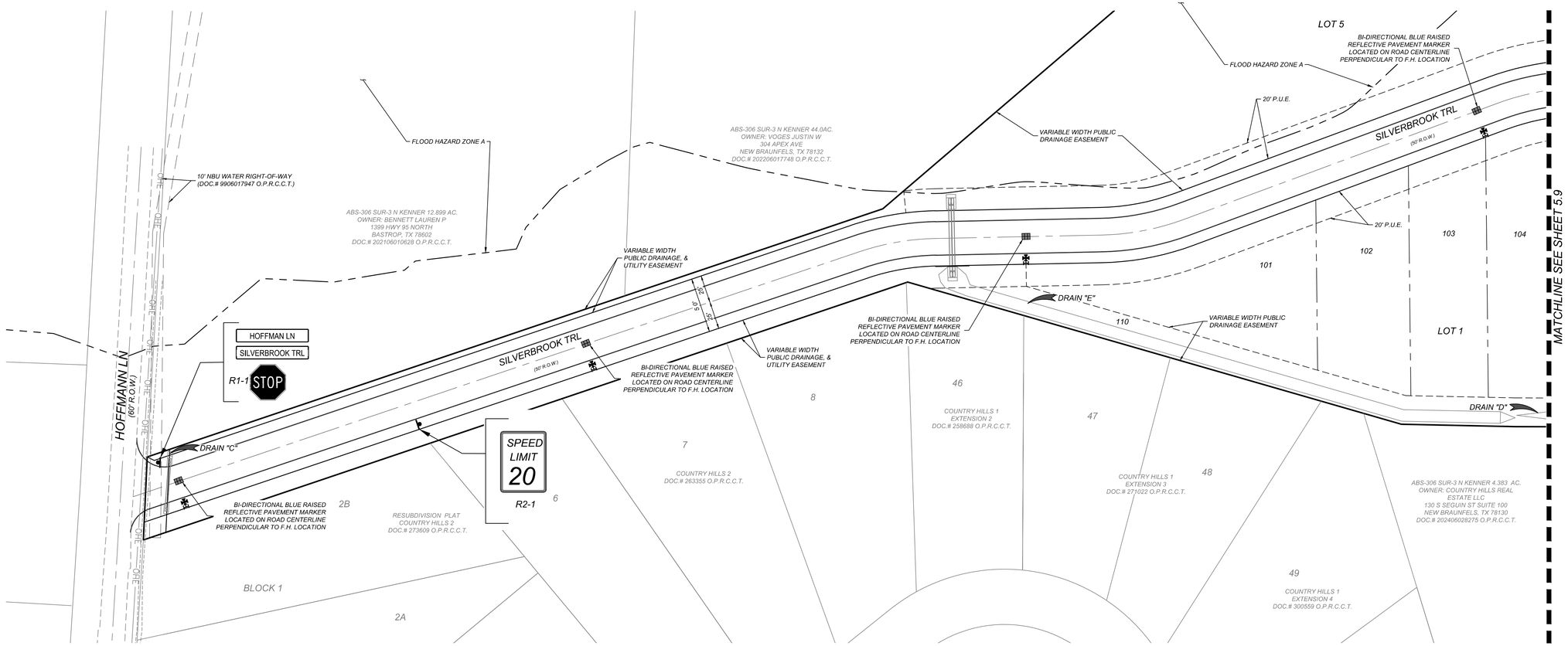


LOCATION MAP
1" = 1000'

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



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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
WAYNE FLORES
90130
LICENSED PROFESSIONAL ENGINEER
9/2/2025

FINAL SUBDIVISION PLAN

FOR

SILVERLEAF CONDOMINIUMS

COMAL COUNTY TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
162 West Mill Street
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	03/11/2025	DG	WF

PROJECT NUMBER: 1186-01-02
DRAWING NAME: TRAFFIC SIGNAGE & PEDESTRIAN ACCESSIBILITY PLAN

SHEET TITLE: TRAFFIC SIGNAGE & PEDESTRIAN ACCESSIBILITY PLAN

SHEET NUMBER: 5.8

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Sep 04, 2025, 10:20am User ID: dgonzalez
File: L:\Projects\1186\01\02\Design\Civil\Sheets\TRAFFIC SIGNAGE & PEDESTRIAN ACCESSIBILITY PLAN.dwg By: DGONZALEZ
ZDesign\Civil\Sheets\TRAFFIC SIGNAGE & PEDESTRIAN ACCESSIBILITY PLAN.dwg

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LEGEND

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BENCHMARKS

BM#	NORTHING	EASTING	ELEVATION	DESCRIPTION
300	13831849.86	2261419.20	719.76	SBM LEVELED
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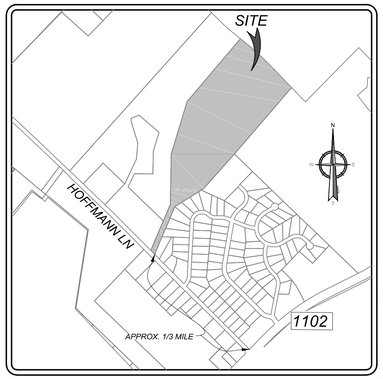
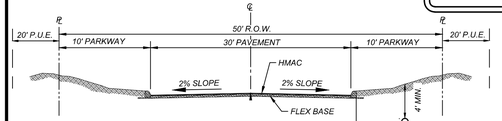
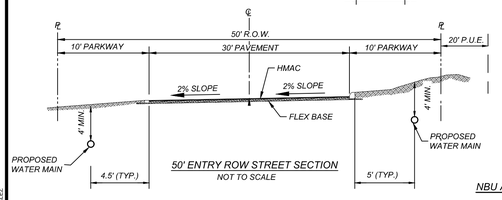


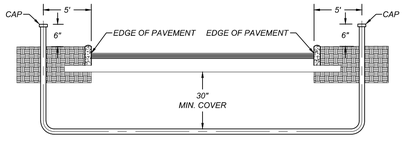
LOCATION MAP
1" = 1000'



TYPICAL 50' STREET SECTION
NOT TO SCALE



50' ENTRY ROW STREET SECTION
NOT TO SCALE



CONDUIT DETAIL
NOT TO SCALE

**PVC SCHEDULE 80 CONDUIT*
SEE NBU PLAN SHEETS FOR SIZE LOCATION AND NUMBER OF CONDUITS

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JOINT RESTRAINT NOTE:
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2. *NO VALVES, HYDRANTS, ETC. SHALL BE CONSTRUCTED WITHIN CURBS, SIDEWALKS, OR DRIVEWAYS.*
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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 COUNTY METHODS FOR TESTING AND COMPACTION MAY NOT BE ACHIEVABLE. A UTILITY COMPACTION PLAN WILL BE REQUIRED AND MUST BE SUBMITTED FOR APPROVAL TO COUNTY PRIOR TO UTILITY INSTALLATION.*

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

ABS-306 SUR-3 N KENNER 44.0AC.
OWNER: YOGES JUSTIN W
304 APEX AVE
NEW BRAUNFELS, TX 78132
DOC.# 202206017748 O.P.R.C.C.T.

MATCHLINE SEE SHEET 5.8

MATCHLINE SEE SHEET 5.10

FLOOD HAZARD ZONE A

BI-DIRECTIONAL BLUE RAISED REFLECTIVE PAVEMENT MARKER LOCATED ON ROAD CENTERLINE PERPENDICULAR TO F.H. LOCATION

LOT 5
513

20' P.U.E.

BROOK FOREST DR
(50' R.O.W.)
5.0'
25'
25'

TIMBERSTONE RD
BROOK FOREST DR

VARIABLE WIDTH PUBLIC DRAINAGE EASEMENT

404 *405* *406* *407* *408* *409*

LOT 4

FLOOD HAZARD ZONE A

LOT 5
DRAINAGE

SILVERBROOK TRL
TIMBERSTONE RD
R1-1 STOP

TIMBERSTONE RD
(50' R.O.W.)

LOT 4

LOT 3

403 *402* *401* *313* *312* *311*

BI-DIRECTIONAL BLUE RAISED REFLECTIVE PAVEMENT MARKER LOCATED ON ROAD CENTERLINE PERPENDICULAR TO F.H. LOCATION

SILVERBROOK TRL
(50' R.O.W.)
5.0'
25'
25'

DRAIN "B"

105 *106* *107* *108* *109*

LOT 1

110
DRAINAGE

SILVERBROOK TRL
SILVER SAGE RD
R1-1 STOP

111

SILVER SAGE RD
(50' R.O.W.)
5.0'
25' *25'*

202

201

LOT 2

DRAIN "A"

DRAIN "D"

CONTRACTOR TO INSTALL 90 L.F. OF HEADER CURB (SEE DETAIL SHEET 5.7)

ABS-306 SUR-3 N KENNER 4.38 AC.
OWNER: COUNTRY HILLS REAL ESTATE LLC
130 S SEGUIN ST SUITE
NEW BRAUNFELS, TX 78130
DOC. # 202406026275 O.P.R.C.C.T.

ABS-306 SUR-3 N KENNER 98.49 AC.
OWNER: LAJ FAMILY INVESTMENTS LLC
810 LOOP 337
NEW BRAUNFELS, TX 78130
DOC.# 202206038180 O.P.R.C.C.T.

NBU AS-BUILT REQUIREMENTS:

NBU REQUIRES GPS POINTS FOR CERTAIN WATER, WASTEWATER AND ELECTRIC IMPROVEMENTS. SOME OF THIS INFORMATION/DATA MUST BE PERFORMED DURING CONSTRUCTION, PRIOR TO BACKFILLING OPERATIONS. CONTRACTOR SHALL COORDINATE WITH NBU INSPECTOR TO VERIFY ANY ADDITIONAL ITEMS NOT SHOWN BELOW THAT NEED TO BE GPS LOCATED AND THE SURVEY/ DELIVERY REQUIREMENTS REGARDING THIS INFORMATION.

ELECTRIC:
1. *POLES*
2. *TRANSFORMERS, BOTH ABOVE AND UNDERGROUND (FRONT LOCK)*
3. *PULL BOXES*
4. *STREET LIGHTS*

SEE NBU'S "CAD/GPS DELIVERABLES" ON NBU WEBSITE AT NBUTEXAS.COM FOR COMPLETE DETAILS AND REQUIREMENTS

CONDUIT NOTES:
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2. *CONDUITS SHALL BE PVC WITH MINIMUM BURY OF 36 INCHES BELOW FINISHED GRADE. SCHEDULE 80 TO BE USED FOR CPS CONDUITS, ALL OTHER CONDUITS ARE SCHEDULE 40.*
3. *ALL CONDUITS SHALL BE EXTENDED BEHIND CURBS OR PROPOSED SIDEWALKS A MINIMUM OF 3 FEET AND CAPPED FOR FUTURE USE.*
4. *ALL CONDUIT SLEEVES TO BE USED FOR ELECTRIC, GAS, 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 CONDIT SLEEVES TO MEET THESE SPECIFICATION INCLUDING COORDINATING WITH THE UTILITY AGENCY FOR ANY REQUIRED INSPECTIONS.*

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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
WAYNE FLORES
90130
LICENSED
PROFESSIONAL ENGINEER
9/2/2025

FINAL SUBDIVISION PLAN

FOR

SILVERLEAF CONDOMINIUMS

COMAL COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
162 West Mill Street
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	03/11/2025	DG	WF

PROJECT NUMBER:	DRAWING NAME:
1186-01-02	TRAFFIC SIGNAGE & PEDESTRIAN ACCESSIBILITY PLAN

SHEET TITLE:
TRAFFIC SIGNAGE & PEDESTRIAN ACCESSIBILITY PLAN

SHEET NUMBER:
5.9

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Sep 04, 2025, 9:56am User ID: dgonzalez
File: L:\Projects\1186-01-02\Civil\Exhibits\TRAFFIC SIGNAGE & PEDESTRIAN ACCESSIBILITY PLAN.dwg
Xrefs: LJ-X1186(1).DWG
By: DGONZALEZ
Z:\Design\Civil\Sheets\TRAFFIC SIGNAGE & PEDESTRIAN ACCESSIBILITY PLAN.dwg

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.

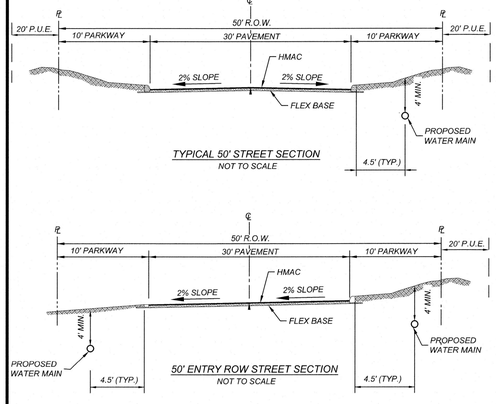
LEGEND

- = *BLUE RAISED REFLECTIVE PAVEMENT MARKER*
- = *PROPOSED FIRE HYDRANT*
- = *PROPOSED SIGN*

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

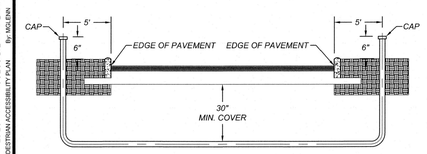
BENCHMARKS

BM#	NORTHING	EASTING	ELEVATION	DESCRIPITION
300	13831849.86	2261419.20	719.76	SBM LEVELED
301	13832175.16	2261090.25	707.65	SBM LEVELED



TYPICAL 50' STREET SECTION
NOT TO SCALE

50' ENTRY ROW STREET SECTION
NOT TO SCALE



CONDUIT DETAIL
NOT TO SCALE

**PVC SCHEDULE 80 CONDUIT*
SEE NBU PLAN SHEETS FOR SIZE LOCATION AND NUMBER OF CONDUITS

NOTE:

- *CONTRACTOR SHALL BE RESPONSIBLE FOR PLACING CONDUIT SLEEVES FOR EACH NBU FACILITY AT ALL STREETS AND DRAIN CROSSING. CONSTRUCTION SLEEVES MUST ALSO BE LOCATED FOR NBU 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 80 TO BE USED FOR CPS CONDUITS, ALL OTHER CONDUITS ARE SCHEDULE 40.*
- *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.

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

MISCELLANEOUS NOTE:
1. *ALL UTILITIES TO BE CONSTRUCTED PRIOR TO STREETS.*
2. *NO VALVES, HYDRANTS, ETC. SHALL BE CONSTRUCTED WITHIN CURBS, SIDEWALKS, OR DRIVEWAYS.*
3. *ENSURE ALL DRIVEWAY APPROACHES ARE BUILT IN GENERAL ACCORDANCE WITH A.D.A. SPECIFICATIONS.*

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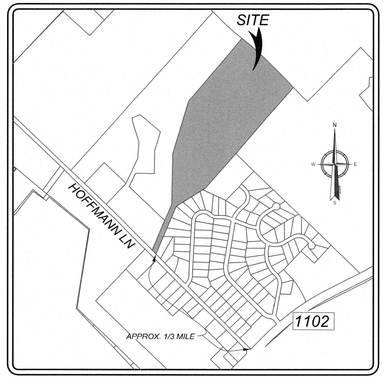
SCALE : 1"=50'
0' 50' 150'
100'



LOCATION MAP
1" = 1000'

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2. *TRANSFORMERS, BOTH ABOVE AND UNDERGROUND (FRONT LOCK)*
3. *PULL BOXES*
4. *STREET LIGHTS*

SEE NBU'S "CAD/GPS DELIVERABLES" ON NBU WEBSITE AT NBUTEXAS.COM FOR COMPLETE DETAILS AND REQUIREMENTS

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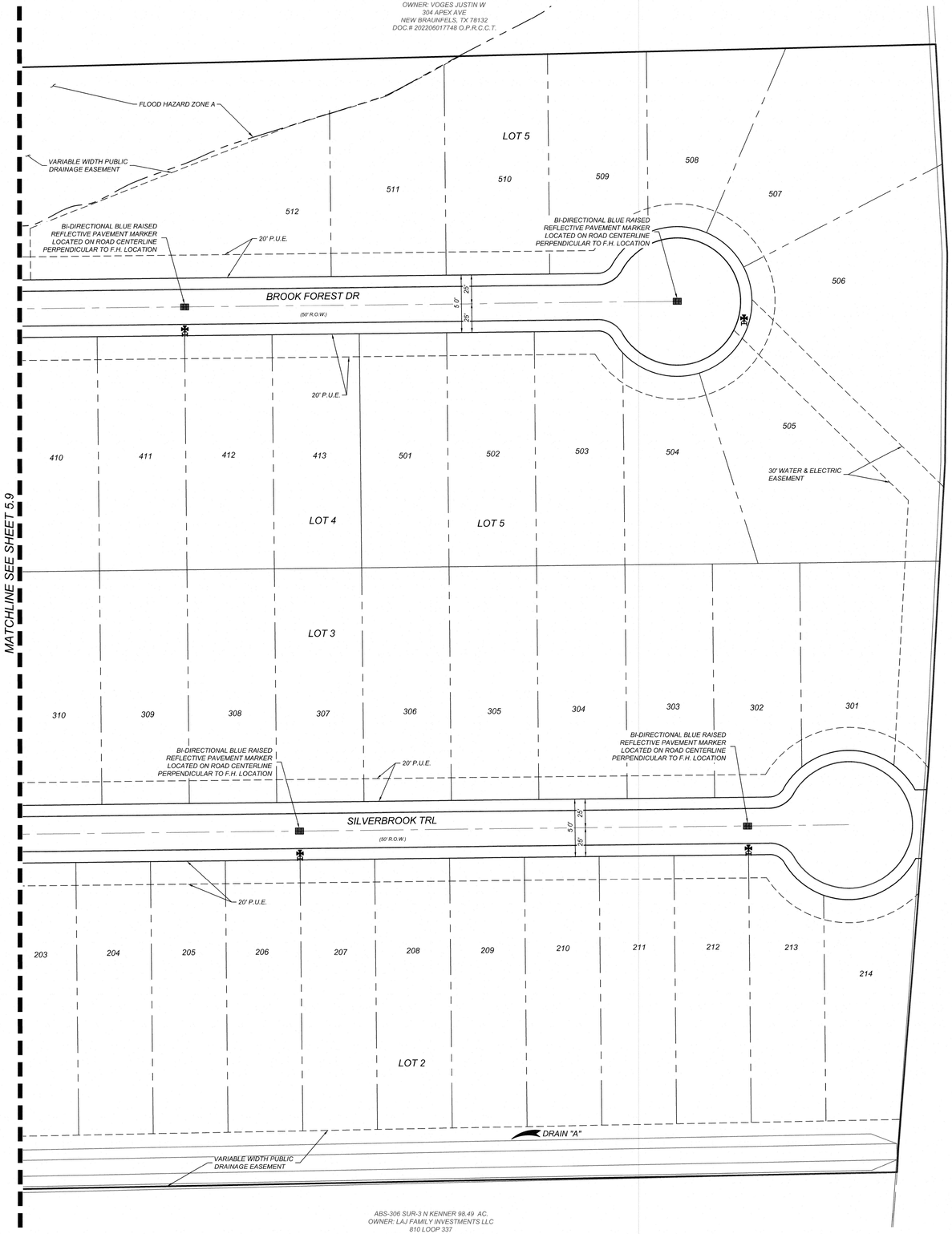

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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
WAYNE FLORES
90130
LICENSED PROFESSIONAL ENGINEER
10-27-25

FINAL SUBDIVISION PLAN

FOR

SILVERLEAF CONDOMINIUMS

COMAL COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
162 West Mill Street
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14809
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	03/11/2025	DG	WF

PROJECT NUMBER: 1186-01-02
DRAWING NAME: TRAFFIC SIGNAGE & PEDESTRIAN ACCESSIBILITY PLAN

SHEET TITLE:
TRAFFIC SIGNAGE & PEDESTRIAN ACCESSIBILITY PLAN

SHEET NUMBER:
5.10

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Oct 24, 2025, 9:59am User ID: mglenn
File: U:\Projects\1186\01\02\Design\Civil\Streets\TRAFFIC SIGNAGE & PEDESTRIAN ACCESSIBILITY PLAN.dwg
XDesignCADSheetsTRAFFIC SIGNAGE & PEDESTRIAN ACCESSIBILITY PLANxlsTRAFFIC SIGNAGE & PEDESTRIAN ACCESSIBILITY PLAN By XDLDN

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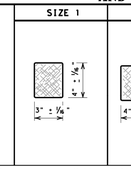
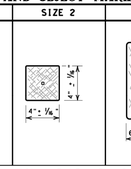
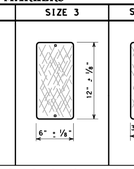
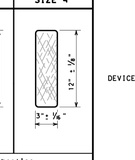
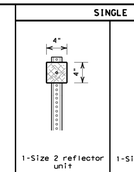
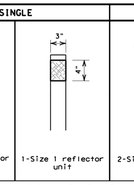
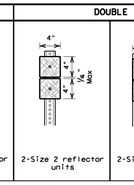
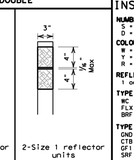
DATE:
FILE:

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

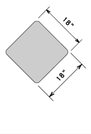
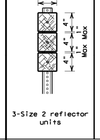
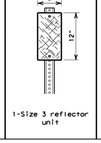
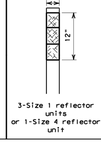
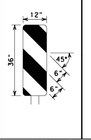
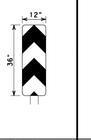
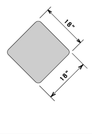
INSTL DEL ASSM (D-XX)SZ X (XXX)XXX(XX)

- 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; BR = 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: X = 3-Size 2 reflector units (type 2 only); Y = 1-Size 3 reflector unit (type 2 only); Z = 3-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; TWT = Thin Walled Tubing
- TYPE OF MOUNT: GND = Embedded (drivable); SMT = Surface Mount; WAS = Wedge Anchor Steel; WAP = Wedge Anchor Plastic
- DIRECTION: If Required; BI = Bi-Directional

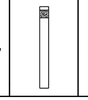
OBJECT MARKERS

	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	TWT	WC	WC	FLX	TWT			TWT
MOUNT TYPE	WAS, WAP	GND	GND	GND, SRF	WAS, WAP			WAS, WAP

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

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

DEVICE: W1-8

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 paid 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

DEVICE: W1-6

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.

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 10-09 3-15 4-10	DIST	COUNTY		SHEET NO.

20A

PAVEMENT MARKING REQUIREMENTS

PAVEMENT MARKINGS SHALL BE USED IN ACCORDANCE WITH THE LATEST REVISION OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD) AND WHERE JUSTIFIED BY ENGINEERING JUDGMENT OR STUDY.

ALL PAVEMENT MARKINGS SHALL BE SHOWN IN THE ENGINEERING PLANS FOR REVIEW AND APPROVAL AS PART OF THE PLAN & PROFILE SHEET OR SEPARATE SIGNING & PAVEMENT MARKING LAYOUT SHEET. DESIGN, MATERIALS AND INSTALLATION SHOULD FOLLOW TXDOT TRAFFIC STANDARDS PM (1-4) - 12. CITY OF SAN ANTONIO TRAFFIC ENGINEERING STANDARDS FOR PAVEMENT MARKINGS DESIGNATING TRAFFIC LANES, LANE USAGE & LANE REGULATION AND PEDESTRIAN/BICYCLIST ACCOMMODATIONS MAY BE USED FOR ADDITIONAL STANDARD DESIGN DETAILS. MARKINGS STANDARDS SHALL BE INCLUDED IN THE ENGINEERING PLANS.

ALL PAVEMENT MARKINGS SHALL BE TYPE 1 HOT APPLIED THERMOPLASTIC AND MEET TXDOT DEPARTMENTAL MATERIAL SPECIFICATIONS DMS-8220. TYPE II TRAFFIC PAINT MARKINGS SHALL ONLY BE USED AS SEALER AND MEET TXDOT DEPARTMENTAL MATERIAL SPECIFICATION DMS-8200.

THE CONTRACTOR SHALL NOTIFY COMAL COUNTY AT LEAST TWENTY-FOUR (24) HOURS PRIOR TO THE INSTALLATION OF ALL SEALER AND FINAL MARKINGS. THE CONTRACTOR MAY BE RESPONSIBLE FOR THE PLACING SPOTS TABS BEFORE MARKING APPLICATION. THE COUNTY WILL INSPECT ALL MARKINGS AT FINAL APPLICATION.

NOTES:

1. *SIGNS AND GUARD POSTS SHALL BE INSTALLED BY COMAL COUNTY IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS AND AS DIRECTED BY THE COUNTY ENGINEER. THE DEVELOPER WILL BE RESPONSIBLE TO PAY THE COST OF LABOR AND MATERIALS FOR THIS PORTION OF THE ROAD REQUIREMENTS.*

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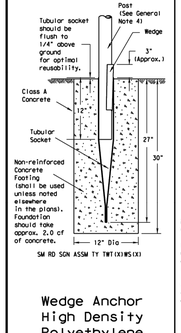
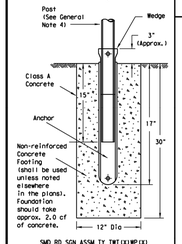
DATE:
FILE:

Wedge Anchor Steel System



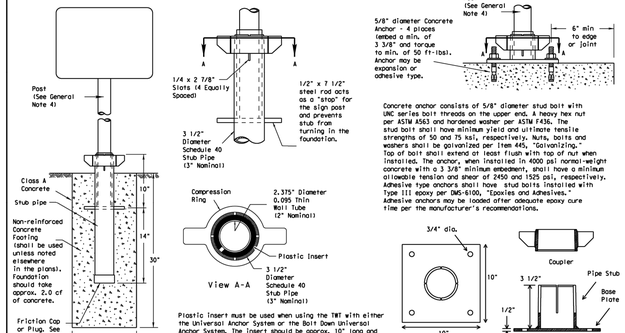
SM RD SGN ASSM TY TWT(XX)WS(X)

Wedge Anchor High Density Polyethylene (HDPE) System



SMD RD SGN ASSM TY TWT(XX)WP(X)

Universal Anchor System with Thin-Walled Tubing Post

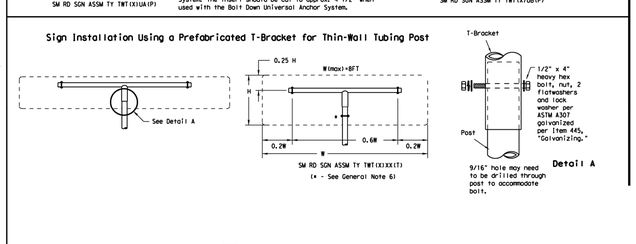


SM RD SGN ASSM TY TWT(XX)UA(P)

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

Plastic Insert must be used when using the TWT with either the Universal Anchor System or the Bolt Down Universal Anchor System. The insert should be approx. 10" long and cover the tubing from just above the top of the stub pipe to the bottom of the sign post when using the Universal Anchor System. The insert should be cut to approx. 4 1/2" when used with the Bolt Down Universal Anchor System.

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



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

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

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

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

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

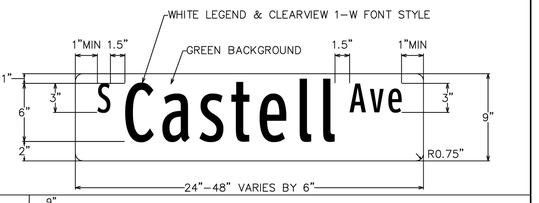
Texas Department of Transportation — Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS WEDGE & UNIVERSAL ANCHOR WITH THIN WALL TUBING POST SMD(TWT)-08

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

266

STREET SIGN DETAIL - GROUND MOUNT



Height	9"
Length	24" min 48" max 6" increments in length
Thickness	0.080"
Substrate	Flat aluminum sheeting with ¾" radius circular fillets at corners conforming to the requirements of ASTM B 209, Alloys 6061—T—6, or 5052—H38.
Sign Face Materials	Green film over High Intensity Prismatic sheeting
Legend	Legends shall be Clearview 1—W font style. Reduced spacing between the letters or words should not be used as a means of reducing the overall size of a street name sign unless approved by the City Traffic Engineer.
Color	White legend on green background

Notes:

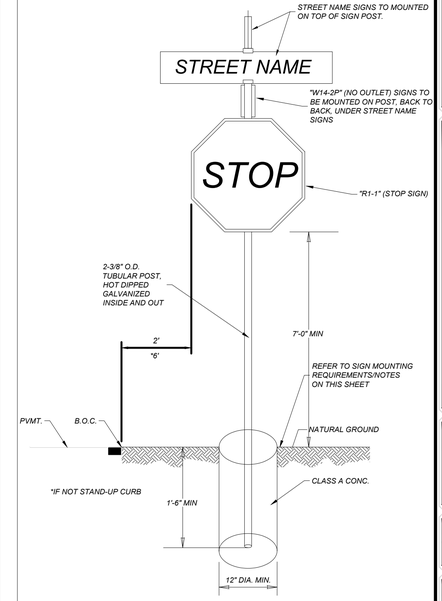
1. Street name signs shall be double sided when center mounted on top of sign post. Only one street name sign should be installed on top of sign post with STOP or YIELD sign.
2. When two sets of street name signs are required (e.g. at "T" intersections), one double-sided street name sign shall be mounted on sign post. The sign assembly shall meet minimum height requirements as required in the Texas Manual on Uniform Traffic Control Devices (TMUTCD). When required, DEAD END (W14-1a) or NO OUTLET (W14-2a) signs shall also be mounted on the sign post.
3. Street name signs greater than 36" long and center mounted on top of sign post shall be mounted on post top bracket with 12" slot. All other street name signs center mounted on top of sign post shall be mounted on post top bracket with 5 ¼" slot.
4. Street name signs mounted on sign post shall be mounted with double-sided round pole brackets. Two holes should be punched in the center of the 9" street name sign blank 1" from edge of the blank with 7"spacing between holes.
5. The lettering for names of streets shall be composed of a combination of lower-case letters with initial upper-case letters. Acceptable abbreviations per TMUTCD may be used except for the street name itself.
6. Red background (red film over High Intensity Prismatic) should be used for private street name signs.

Street Sign Detail - Ground Mount		
ISSUE DATE: February 2013	DWG. NO: ST-024	SCALE: N.T.S.
DRAWN BY: RAS	CONTACT: GF	SHEET: 1 OF 1

City of New Braunfels

ENGINEERING DIVISION
424 S. CASTELL AVE.
NEW BRAUNFELS, TEXAS 78130
PHONE: 830.221.4020
FAX: 830.626.3000

P:\2010 ENGINEERING-AUTOCAD\DETAILS\NB-PUBLIC WORKS DETAILS\NB-UNAPPROVED DETAILS-2013\ST-2013.024 STREET SIGN DETAIL - GROUND MOUNT.DWG



SIGN LOCATION DETAIL
(NOT-TO-SCALE)

Colliers Engineering & Design
www.colliersengineering.com

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Formerly Known as KFW

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

STATE OF TEXAS — WAYNE FLORES — 90130 — LICENSED PROFESSIONAL ENGINEER

9/2/2025

FINAL SUBDIVISION PLAN

FOR

SILVERLEAF CONDOMINIUMS

COMAL COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
162 West Mill Street
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	03/11/2025	DG	WF

PROJECT NUMBER: 1186-01-02
DRAWING NAME: 5.6 STREET DETAIL SHEET

SHEET TITLE: *TRAFFIC DETAIL SHEET*

SHEET NUMBER: 5.11

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Sep 02, 2025, 10:49am User ID: ASimon
File: L:\Projects\1186\01\02\Civil\Design\Comal\5.6 STREET DETAIL SHEET.dwg
Z:\Design\Civil\Streets\5.6 STREET DETAIL SHEET.dwg\5.11 TRAFFIC DETAIL SHEET By: ASIMON

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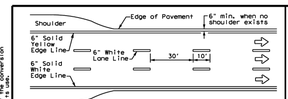
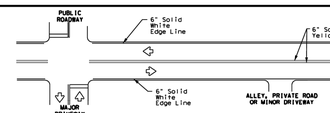
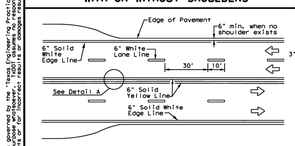
EDGE LINE AND LANE LINES ONE-WAY ROADWAY WITH OR WITHOUT SHOULDERS

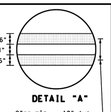


TYPICAL TWO-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS



CENTERLINE AND LANE LINES FOUR LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS



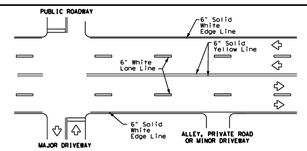


DETAIL "A"

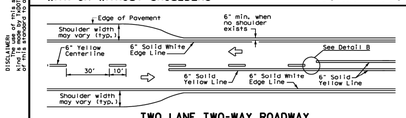
9"** min. - 10' typ. (18' max. for traveled way greater than 48' only)

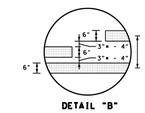
* 2" minimum for restripe projects when approved by the Engineer.
** 8" minimum for restripe projects when approved by the Engineer.

TYPICAL MULTI-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS



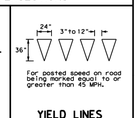
TWO LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS



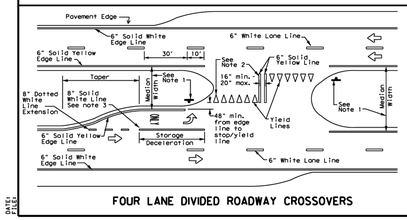


DETAIL "B"

* 2" minimum for restripe projects when approved by the Engineer.



FOUR LANE DIVIDED ROADWAY CROSSOVERS



NOTES

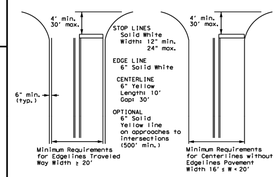
1. Where divided highways are separated by median widths at the median opening itself of 30 feet or more, median openings shall be signed as two separate intersections. Each median opening has two width measurements, with one measurement for each approach. The narrow median width will be the controlling width to determine if signs are required. Yield signs are the typical intersection control. Stop signs and stop bars are optional as determined by the Engineer.
2. Install median striping (double yellow centerlines and stop lines/yield lines) when a 50' or greater median centerline can be placed. Stop lines shall only be used with stop signs. Yield lines shall only be used with yield signs.
3. Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer.

GENERAL NOTES

1. Edge line striping shall be as shown in the plans or as directed by the Engineer. The edge line should not be placed less than 6 inches from the edge of pavement. This distance may vary due to pavement raveling or other conditions. Edge lines are not required in curb and gutter sections of roadways.
2. The traveled way includes only that portion of the roadway used for vehicular travel. It does not include the parking lanes, sidewalks, berms and shoulders. The traveled ways shall be measured from the center of edge line to the center of edge line of a two lane roadway.

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

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



NOTE: Traveled way is exclusive of shoulder widths. Refer to General Note 2 for additional details.

GUIDE FOR PLACEMENT OF STOP LINES, EDGE LINE & CENTERLINE

Based on Traveled Way and Pavement Widths for Undivided Roadways

Texas Department of Transportation — Traffic Safety Division Standard

TYPICAL STANDARD PAVEMENT MARKINGS

PM(1)-22

FILE: pm1-22.dgn	DN:	CK:	DW:	CK:
©TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS 11-78 8-00 6-20				
8-95 5-03 12-22	DIST	COUNTY		SHEET NO.
5-00 2-12				

FILED

Colliers
Engineering & Design
www.colliersengineering.com

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Formerly Known as KFW

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REV	DESCRIPTION	DRAWN BY	DATE

STATE OF TEXAS
WAYNE FLORES
90130
LICENSED
PROFESSIONAL ENGINEER

9/2/2025

FINAL SUBDIVISION PLAN

FOR

SILVERLEAF CONDOMINIUMS

COMAL COUNTY TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
162 West Mill Street
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	03/11/2025	DG	WF

PROJECT NUMBER:	DRAWING NAME:
1186-01-02	5.6 STREET DETAIL SHEET

SHEET TITLE:

TRAFFIC DETAIL SHEET

SHEET NUMBER:

5.12

Date: Sep 02, 2025, 10:50am User ID: ASerna
File: L:\Projects\1186\01 Design\01 Civil\Sheets\5.6 STREET DETAIL SHEET.dwg
Xrefs: L:\Projects\1186\01 Design\01 Civil\Sheets\5.6 STREET DETAIL SHEET.dwg TRAFFIC DETAIL SHEET By: ASERNA

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

SILVERLEAF CONDOMINIUMS

COMAL COUNTY, TEXAS

WATER DISTRIBUTION IMPROVEMENTS

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

BENCHMARKS

BM#	NORTHING	EASTING	ELEVATION	DESCRIPITION
300	13831849.86	2261419.20	719.76	SBM LEVELED
301	13832175.16	2261090.25	707.65	SBM LEVELED

NEW BRAUNFELS UTILITY NOTES: REV_01/01/24

1. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THE PROJECT SHALL BE APPROVED BY NEW BRAUNFELS UTILITIES AND COMPLY WITH THE CURRENT "NEW BRAUNFELS UTILITIES WATER SYSTEMS CONNECTION/CONSTRUCTION POLICY".
2. CONTRACTOR SHALL NOT PROCEED WITH ANY PIPE INSTALLATION WORK UNTIL THEY OBTAIN A COPY OF THE PLANS FROM THE CONSULTANT OR ENGINEER AND NOTIFY NBU WATER SYSTEMS ENGINEERING AT 830-608-8971 WITH AT LEAST TWO (2) WORKING DAYS (48 HOURS) NOTICE. WORK COMPLETED BY THE CONTRACTOR, WHICH HAS NOT RECEIVED A NOTICE TO PROCEED FROM NEW BRAUNFELS UTILITIES WATER SYSTEMS ENGINEERING WILL BE SUBJECT TO REMOVAL AND REPLACEMENT BY AND AT THE EXPENSE OF THE CONTRACTOR.
3. THE DEVELOPER DEDICATES THE WATER / WASTEWATER MAINS UPON COMPLETION BY THE CONTRACTOR AND ACCEPTANCE BY THE NEW BRAUNFELS UTILITIES WATER SYSTEM. NBU WILL OWN AND MAINTAIN SAID WATER / WASTEWATER MAINS WHICH ARE LOCATED WITHIN PLATTED UTILITY EASEMENTS OR PUBLIC ROW OF PROPOSED DEVELOPMENTS. (AS APPLICABLE).
4. CONTRACTOR AGREES TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNERS AND THE ENGINEER AND HIS EMPLOYEES, PARTNERS OFFICERS, DIRECTORS, OR CONSULTANTS HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF THE WORK ON THIS PROJECT, EXCEPTING FROM LIABILITY ARISING FROM SOLE NEGLIGENCE OF THE OWNER OR ENGINEER, ENGINEER'S DIRECTORS, OFFICERS, EMPLOYEES, OR CONSULTANTS.
5. CONTRACTOR TO CONTACT THE ENGINEER-OF-RECORD (EOR) FOR ANY FIELD CHANGES. ANY REVISIONS OR CHANGES TO THE APPROVED CONSTRUCTION PLANS WILL REQUIRE ADDITIONAL APPROVAL BY NBU IN WRITING.
6. 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.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING TO ITS ORIGINAL OR BETTER CONDITION, ANY DAMAGE TO EXISTING FENCES, CURBS, STREETS, DRIVEWAYS, LANDSCAPING AND STRUCTURES, AND EXISTING UTILITIES (NOT ADJUSTED ON PLANS). COST OF RESTORATION, IF ANY, SHALL BE THE CONTRACTOR'S ENTIRE EXPENSE.
8. THE CONTRACTOR SHALL AVOID CUTTING ROOTS LARGER THAN ONE (1) INCH IN DIAMETER WHEN EXCAVATING NEAR EXISTING TREES. EXCAVATION IN VICINITY OF TREES SHALL PROCEED WITH CAUTION.
9. CONTRACTOR SHALL PROCURE ALL PERMITS AND LICENSES, PAY ALL CHARGES, FEES AND TAXES AND GIVE ALL NOTICES NECESSARY AND INCIDENTAL TO THE DUE AND LAWFUL PROSECUTION OF THE WORK.
10. NO EXTRA PAYMENT SHALL BE ALLOWED FOR WORK CALLED FOR ON THE PLANS BUT NOT INCLUDED ON THE BID SCHEDULE. THIS INCIDENTAL WORK WILL BE REQUIRED AND SHALL BE INCLUDED UNDER THE PAY ITEM TO WHICH IT RELATES.
11. CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF ALL WASTE MATERIALS UPON PROJECT COMPLETION. THE CONTRACTOR SHALL NOT PERMANENTLY PLACE ANY WASTE MATERIALS IN THE 100-YEAR FLOOD PLAIN WITHOUT FIRST OBTAINING AN APPROVED FLOOD PLAIN DEVELOPMENT PERMIT.
12. THE CONTRACTOR SHALL NOT PLACE ANY MATERIALS ON THE RECHARGE ZONE OF THE EDWARDS AQUIFER WITHOUT AN APPROVED WATER POLLUTION ABATEMENT PLAN FROM THE TCEQ 31 TAC 313.4 AND 31 TAC 313.9.
13. BARRICADES AND WARNING SIGNS SHALL CONFORM TO THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (TMUTCD) AND SHALL BE LOCATED TO PROVIDE MAXIMUM PROTECTION TO THE PUBLIC AS WELL AS CONSTRUCTION PERSONNEL AND EQUIPMENT WHILE PROVIDING CONTINUOUS TRAFFIC FLOW AT ALL TIMES DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL DEVICES DURING CONSTRUCTION.
14. CONTRACTOR IS REQUIRED TO VERIFY PROJECT ELEVATIONS. THE TERM "MATCH EXISTING" SHALL BE UNDERSTOOD TO SIGNIFY BOTH HORIZONTAL AND VERTICAL ALIGNMENT.
15. THE LOCATION OF UTILITIES, EITHER UNDERGROUND OR OVERHEAD, SHOWN WITHIN THE RIGHT OF WAY ARE APPROXIMATE AND SHALL BE VERIFIED BY THE CONTRACTOR BEFORE BEGINNING CONSTRUCTION OPERATIONS.
16. OSHA REGULATIONS PROHIBIT OPERATIONS THAT WILL BRING PERSONS OR EQUIPMENT WITHIN 10 FEET OF AN ENERGIZED LINE. WHERE WORKMEN AND/OR EQUIPMENT MUST WORK CLOSE TO AN ENERGIZED ELECTRICAL LINE, THE CONTRACTOR SHALL NOTIFY THE ELECTRICAL POWER COMPANY INVOLVED AND MAKE WHATEVER ADJUSTMENTS NECESSARY TO ENSURE THE SAFETY OF THOSE WORKMEN.
17. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE UTILITY SERVICE LINES AS REQUIRED FOR CONSTRUCTION. CONTRACTORS SHALL CALL THE ONE CALL SYSTEM FOR WATER/WASTEWATER LOCATION.
18. DUE TO FEDERAL REGULATIONS TITLE 49, PART 192 (8), GAS COMPANIES MUST MAINTAIN ACCESS TO GAS VALVES AT ALL TIMES. THE CONTRACTOR MUST PROTECT AND WORK AROUND ANY GAS VALVES THAT ARE IN THE PROJECT AREA.
19. THE CONTRACTOR IS FULLY RESPONSIBLE FOR THE TRAFFIC CONTROL AND WILL BE RESPONSIBLE FOR FURNISHING ALL TRAFFIC CONTROL DEVICES, AND FLAGGERS. THE CONSTRUCTION METHODS SHALL BE CONDUCTED TO PROVIDE THE LEAST POSSIBLE INTERFERENCE TO TRAFFIC. THE CONTINUOUS MOVEMENT OF THE TRAFFIC IN ONE DIRECTION, AT MINIMUM, SHALL BE MAINTAINED AT ALL TIMES. THE CONTRACTOR SHALL CLEAN UP AND REMOVE FROM THE WORK AREA ANY LOOSE MATERIAL RESULTING FROM CONTRACT OPERATIONS AT THE END OF EACH WORKDAY.
20. PRIOR TO ORDERING MATERIALS TO BE USED IN CONSTRUCTION, CONTRACTOR SHALL PROVIDE THE ENGINEER WITH FOUR (4) COPIES OF THE SOURCE, TYPE, GRADATION, MATERIAL SPECIFICATION DATA AND / OR SHOP DRAWINGS, AS APPLICABLE, TO SATISFY THE REQUIREMENTS OF THE FOLLOWING ITEMS AND ALL MATERIAL ITEMS REFERRED TO IN THESE LISTED ITEMS: A. WATER MAINS AND SERVICES B. WASTEWATER MAINS AND SERVICES
21. WATER JETTING THE BACKFILL WITHIN A STREET WILL NOT BE PERMITTED. WASTEWATER TRENCHES SUBJECT TO TRAFFIC SHALL CONFORM TO NBU CONNECTION AND CONSTRUCTION POLICY MANUAL.
22. CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES. THE CONTRACTOR'S IMPLEMENTATION OF THE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLIES WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. 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.
23. UTILITY TRENCH COMPACTION WITH STREET R.O.W.
    A. ALL UTILITY TRENCH COMPACTION TEST WITHIN THE STREET PAVEMENT SECTION SHALL BE THE RESPONSIBILITY OF THE DEVELOPER'S GEO-TECHNICAL ENGINEER.
    B. FILL MATERIAL SHALL BE PLACED IN UNIFORM LAYERS NOT TO EXCEED TWELVE INCHES (12") LOOSE.
    C. EACH LAYER OF MATERIAL SHALL BE COMPACTED AS SPECIFIED AND TESTED FOR DENSITY AND MOISTURE IN ACCORDANCE WITH TEXT METHODS TEX-113-E, TEX 114-E, TEX-115-E.
    D. THE NUMBER AND LOCATION OF REQUIRED TESTS SHALL BE DETERMINED BY THE GEO-TECHNICAL ENGINEER AND APPROVED BY THE CITY OF NEW BRAUNFELS STREET INSPECTOR.
    E. UPON COMPLETION OF TESTING THE GEO-TECHNICAL ENGINEER SHALL PROVIDE THE CITY OF NEW BRAUNFELS STREET INSPECTOR WITH ALL TESTING DOCUMENTATION AND A CERTIFICATION STATING THAT THE PLACEMENT OF FILL MATERIAL HAS BEEN COMPLETED IN ACCORDANCE WITH THE PLANS.

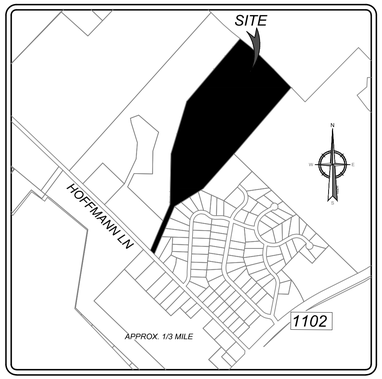
"WATER IS A PRECIOUS COMMODITY IN THE STATE OF TEXAS AND NEW BRAUNFELS UTILITIES (NBU) IS PASSIONATE ABOUT PROTECTING THE LOCAL RESOURCE. NBU'S CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ACQUIRING A FIRE HYDRANT METER SO THAT ALL WATER USED FOR CONSTRUCTION OR TESTING PURPOSES ARE PROPERLY ACCOUNTED FOR. NBU WILL NOT TOLERATE ANY WATER THEFT, REGARDLESS OF THE AMOUNT. IF WATER THEFT IS DISCOVERED NBU'S CONTRACTOR SHALL BE SUBJECT TO MONETARY PENALTIES, CRIMINAL CHARGES, AND STOPPAGE OF ALL CONSTRUCTION ACTIVITIES RELATED TO THE PROJECT. COSTS ASSOCIATED WITH ANY WORK STOPPAGE RESULTING FROM WATER THEFT SHALL BE AT THE FULL EXPENSE OF THE CONTRACTOR.

WATER NOTES: REV_01/01/24

1. THE POINT OF DELIVERY FOR AN OWNED AND MAINTAINED WATER LINE IS TYPICALLY THE DOMESTIC OR IRRIGATION WATER METER, FIRE LINE UP TO THE CONTAINMENT BACKFLOW DEVICE, OR HYDRANT METER OR AS DETERMINED BY NBU.
2. WATER INFRASTRUCTURE MUST BE CONSTRUCTED IN ACCORDANCE WITH THE NBU WATER CONNECTION POLICY.
3. ALL WATER MAINS SHALL BE CONSTRUCTED OF AWWA C900 DR 14 PVC, AWWA C900 DR 18 PVC OR MINIMUM CL 250 DUCTILE IRON PIPE.
4. ALL RESIDENTIAL WATER SERVICES SHALL BE SINGLE SERVICES CONSTRUCTED OF 1-INCH ASTM B88 TYPE K COPPER TUBING. 1-INCH AWWA C901 SDR9 CTS POLYETHYLENE TUBING MAY BE PERMITTED WITH SPECIAL APPROVAL FROM NBU ONLY.
5. ALL 2-INCH SERVICE LINES SHALL BE CONSTRUCTED OF AWWA C901 SDR9 CTS POLYETHYLENE TUBING.
6. WATER MAINS SHALL HAVE A MINIMUM OF 48 INCHES OF COVER TO FINISHED GRADE. CONCRETE ENCASEMENT WILL BE REQUIRED IF MINIMUM COVER CANNOT BE MET.
7. PIPE BEDDING OF WATER LINES SHALL BE COMPLIANT WITH NBU SPECIFICATION NO. 120, "UTILITY TRENCHING AND BACKFILL".
8. CONTRACTOR SHALL INSTALL LINE STOPPERS AT THEIR COST FOR AN OUTAGE DURING CONSTRUCTION IF SYSTEM VALVES ARE NOT AVAILABLE OR THE EXISTING VALVES DO NOT FUNCTION. LINE STOPPERS WILL BE REQUIRED BASED ON THE FOLLOWING CRITERIA: A. IF THE NUMBER OF RESIDENTIAL CUSTOMERS AFFECTED IS GREATER THAN 20 AND EXPECTED TO LAST MORE THAN 4 HOURS. B. IF ANY COMMERCIAL CUSTOMERS ARE AFFECTED BY THE OUTAGE THEN THE USE OF LINE STOPPERS WILL BE DETERMINED ON A CASE BY CASE BASIS. C. IF ANY CRITICAL CARE CUSTOMERS ARE AFFECTED BY THE OUTAGE THEN THE USE OF LINE STOPPERS WILL BE DETERMINED ON A CASE BY CASE BASIS. D. SYSTEM CONDITIONS MAY REQUIRE A LINE STOPPER AND MAY NOT BE KNOWN UNTIL CONSTRUCTION COMMENCES.
9. CONTRACTOR WILL KEEP THE AREA ON TOP OF, AROUND, AND WITHIN THE WATER METER BOX FREE OF ALL OBJECTS AND DEBRIS.
10. PLACEMENT OF METER BOXES OR VAULTS IN SIDEWALKS, DRIVEWAYS, DRIVE AISLES, PARKING AREAS, OR OTHER AREAS EXPOSED TO VEHICULAR TRAFFIC IS NOT PERMITTED. ANY METER BOXES OR VAULTS SET IN THESE AREAS WILL BE RELOCATED AT THE CONTRACTOR'S AND/OR DEVELOPER'S EXPENSE.
11. METER BOXES OR VAULTS MUST BE SET AT PROPOSED GRADE. ANY METER BOXES THAT ARE NOT SET AT THE FINAL GRADE WILL BE ADJUSTED AT CONTRACTOR'S AND/OR DEVELOPER'S EXPENSE.
12. METER BOXES FOR 5/8-INCH AND 1-INCH METERS MUST BE DFW PLASTICS DFW38C :14-AF1MP.
13. METER BOXES FOR 1.5" METERS MUST BE DFW PLASTICS DFW65C-14-AF1MP.
14. METER BOXES FOR 2" METERS MUST BE DFW PLASTICS DFW1730F-12-AF1MP.
15. THRUST BLOCKS ARE NOT PERMITTED WITHOUT SPECIAL APPROVAL. JOINTS MUST BE RESTRAINED WITH RESTRAINING SYSTEMS APPROVED BY NBU AND RESTRAINT LENGTH SHALL BE SUBMITTED TO NBU AT THE TIME OF PLAN SUBMITTAL.
16. CONTRACTOR SHALL INSTALL TRACER WIRE ON TOP OF NON-FERROUS WATER MAINS IN ACCORDANCE WITH NBU SPECIFICATIONS. TRACER WIRE SHOULD RUN FROM VALVE TO VALVE AND EXIT AT A TRACER WIRE ACCESS POINT. THE TRACER WIRE SHOULD BE ATTACHED TO THE TOP OF THE PIPE USING TAPE. EXCESS WIRE SHOULD BE COILED WITHIN THE TRACER WIRE ACCESS POINT RISER.
17. CONTRACTOR SHALL COORDINATE WITH THE ASSIGNED WATER/WASTEWATER INSPECTOR FOR COMPLETION OF THE FIELD ACCEPTANCE CHECKLIST. ALL TESTING AND ACCEPTANCE SHALL CONFORM TO NBU SPECIFICATIONS, INCLUDING BUT NOT LIMITED TO:
    A. BACTERIOLOGICAL TESTING
    B. HYDROSTATIC TESTING (PERFORMED VALVE TO VALVE)
18. THE NBU WATER SYSTEM SHALL BE PROTECTED FROM HAZARDS WITH APPROPRIATE BACKFLOW PREVENTION ASSEMBLIES INSTALLED ON ALL IRRIGATION SYSTEMS, FIRE SUPPRESSION SYSTEMS AND MULTI-UNIT COMPLEXES ALONG WITH MULTI-LEVEL PROPERTIES ON THE DOMESTIC METER CONTAINMENT. NBU CAN ASSIST WITH THE DECISION ON APPROPRIATE BACKFLOW ASSEMBLIES ON A CASE-BY-CASE BASIS. CONTACT NBU BACKFLOW PREVENTION SPECIALIST FOR MORE DETAILS. EMAIL QUESTIONS TO CROSSCONNECTION@NBUTEXAS.COM
19. ALL BACKFLOW PREVENTION ASSEMBLIES SHALL BE TESTED UPON INSTALLATION AND REPORTS SENT TO NBU VIA THE ONLINE TRACKING SYSTEM. CONTACT AN NBU BACKFLOW PREVENTION SPECIALIST FOR MORE DETAILS. EMAIL QUESTIONS TO CROSSCONNECTION@NBUTEXAS.COM
20. ALL RESIDENTIAL AND COMMERCIAL PROPERTIES SHALL HAVE A CUSTOMER SERVICE INSPECTION CERTIFICATE (CSI INSPECTION) COMPLETED UPON COMPLETION OF THE BUILDING OR HOME STRUCTURE. CONTACT AN NBU BACKFLOW PREVENTION SPECIALIST FOR MORE DETAILS. EMAIL QUESTIONS TO CROSSCONNECTION@NBUTEXAS.COM

WASTEWATER NOTES: REV_01/01/24

1. THE POINT OF DELIVERY FOR AN NBU OWNED AND MAINTAINED WASTEWATER LINE IS TYPICALLY THE CLEANOUT, PROPERTY LINE, OR EDGE OF EASEMENT OR AS DETERMINED BY NBU.
2. THE CONTRACTOR SHALL MAINTAIN SERVICE TO THE EXISTING WASTEWATER SYSTEM AT ALL TIMES DURING CONSTRUCTION.
3. ALL NEW WASTEWATER MAINS AND FITTINGS SHALL BE MINIMUM 8-INCH DIAMETER (ASTM D-3034 SDR-26 PVC).
4. ALL RESIDENTIAL WASTEWATER SERVICE LATERALS SHALL BE EXTENDED FOUR (4) FEET INTO THE PUBLIC UTILITY EASEMENT AND A CLEANOUT INSTALLED AT THE ROW LINE PER NBU STANDARD DETAILS. SERVICES TO LOTS WILL EXTEND FOUR (4) FEET PAST THE UNDERGROUND ELECTRIC CONDUIT IF ELECTRIC IS INSTALLED IN THE FRONT EASEMENT.
5. ALL SEWER CLEANOUTS THAT LEAD TO NBU MAINS SHALL BE INSTALLED WITH A PROTECTIVE UTILITY SHROUD AND PIVOTING MARKER POLE DURING TIME OF CONSTRUCTION.
6. PIPE BEDDING OF WASTEWATER LINES SHALL BE COMPLIANT WITH NBU SPECIFICATION NO. 120, "UTILITY TRENCHING AND BACKFILL".
7. WASTEWATER MAINS SHALL HAVE A MINIMUM OF 48 INCHES OF COVER TO FINISHED GRADE AND WASTEWATER LATERALS MUST HAVE A MINIMUM OF 36 INCHES OF COVER TO FINISHED GRADE. CONCRETE ENCASEMENT WILL BE REQUIRED IF MINIMUM COVER CANNOT BE MET.
8. ALL GRAVITY WASTEWATER PIPES SHALL HAVE GASKETED, COMPRESSION OR FUSED JOINTS PER 30 TAC §217.53 (C) (2).
9. FOR WASTEWATER LINES LESS THAN 24 INCHES IN DIAMETER, SELECT INITIAL BACKFILL MATERIAL SHALL BE PLACED IN TWO LIFTS, A. THE FIRST LIFT SHALL BE SPREAD UNIFORMLY AND SIMULTANEOUSLY ON EACH SIDE AND UNDER THE SHOULDERS OF THE PIPE TO THE MID-POINT OR SPRING LINE OF THE PIPE. B. THE SECOND LIFT SHALL BE PLACED TO A DEPTH AS SHOWN ON THE PIPE BACKFILL DETAIL. FOR PIPES LARGER THAN 24-INCH, 12-INCH MAXIMUM LIFTS SHALL BE USED.
10. ALL MANHOLES SHALL BE WATER-TIGHT, EITHER MONOLITHIC, CAST-IN-PLACE CONCRETE STRUCTURES OR PREFABRICATED MANHOLES SPECIFICALLY APPROVED BY NBU. POLYMER CONCRETE IS REQUIRED FOR MANHOLES ON MAINS 18-INCH DIAMETER AND LARGER, AT FORCE MAIN DISCHARGE POINTS, OR AT DROP MANHOLES WITH HIGH CORROSION POTENTIAL.
11. MANHOLES SHALL HAVE BOLTED WATER-TIGHT RINGS AND COVERS, IN NON-PAVED AREAS, A MANHOLE MARKER ASSEMBLY SHALL BE INSTALLED ON THE MANHOLE COVER.
12. MANHOLE VENTS SHALL BE INSTALLED AT INTERVALS NO GREATER THAN 1500 FEET.
13. ALL MANHOLES SHALL BE CONSTRUCTED SO THAT THE TOP OF THE RING IS SIX INCHES (6") ABOVE SURROUNDING GROUND IN NON-PAVED AREAS, IN PAVED AREAS, THE MANHOLE RING SHALL BE FLUSH WITH PAVEMENT.
14. ALL NEW MANHOLES, UNLESS APPROVED BY NBU, SHALL HAVE COVERS WITH 32-INCH OPENINGS.
15. WASTEWATER PIPE CONNECTIONS TO PRE-CAST MANHOLES WILL BE COMPRESSION JOINTS OR MECHANICAL "BOOT TYPE" JOINT AS APPROVED BY NBU.
16. EXISTING MANHOLES SHALL BE LINED, COATED, OR REPLACED WITH A CORROSION RESISTANT MATERIAL IF A NEW CONNECTION IS MADE BY A MAIN OR LATERAL.
17. WASTEWATER MAINS SHALL BE TESTED FROM MANHOLE TO MANHOLE.
18. IN AREAS WHERE A NEW WASTEWATER MANHOLE IS TO BE CONSTRUCTED OVER AN EXISTING WASTEWATER SYSTEM, IT SHALL BE THE CONTACTOR'S RESPONSIBILITY TO TEST THE EXISTING MANHOLES BEFORE CONSTRUCTION. AFTER THE PROPOSED MANHOLE(S) HAS BEEN BUILT, THE CONTRACTOR SHALL RE-TEST THE EXISTING SYSTEM TO THE SATISFACTION OF THE CONSTRUCTION INSPECTOR, NO SEPARATE PAY.
19. NBU INSPECTOR TO BE PRESENT FOR ALL WASTEWATER LINES TO BE INSTALLED AT DEPTHS OF 15 FEET OR GREATER FROM FINAL GRADE.
20. WHERE THE MINIMUM 9-FOOT SEPARATION DISTANCE BETWEEN WASTEWATER LINES AND WATER LINES / MAINS CANNOT BE MAINTAINED, THE INSTALLATION OF WASTEWATER LINES SHALL BE IN STRICT ACCORDANCE WITH TCEQ REQUIREMENTS. THE WASTEWATER LINE SHALL BE CONSTRUCTED OF ASTM D2241 PVC OR AWWA C900 PVC WITH PRESSURE RATING OF 150 PSI AND SHALL BE IN ACCORDANCE WITH 30 TAC §217.53 (D) (3) (A) (I).
21. CONTRACTOR SHALL COORDINATE WITH THE ASSIGNED WATER/WASTEWATER INSPECTOR FOR COMPLETION OF THE FIELD ACCEPTANCE CHECKLIST. NO TESTING WILL BE PERFORMED PRIOR TO 30 DAYS FROM COMPLETE INSTALLATION. ALL TESTING AND ACCEPTANCE SHALL CONFORM TO NBU SPECIFICATIONS BE COMPLETED IN THE FOLLOWING ORDER A. PIPE DEFLECTION TEST (MANDREL TEST) B. PIPE LOW PRESSURE AIR TEST C. MANHOLE VACUUM TEST D. MANHOLE PROTECTIVE COATING TEST E. CCTV INSPECTION (WITHIN 72 HOURS OF CLEANING AND FLUSHING)
22. TCEQ AND EPA REQUIRE EROSION AND SEDIMENTATION CONTROL FOR CONSTRUCTION OF WASTEWATER COLLECTION SYSTEMS. DEVELOPER OR AUTHORIZED REPRESENTATIVE SHALL PROVIDE EROSION AND SEDIMENTATION CONTROL AS NOTES ON THE PROJECT'S PLAN AND PROFILE SHEETS. ALL TEMPORARY EROSION AND SEDIMENTATION CONTROLS SHALL BE REMOVED BY THE CONTRACTOR AT FINAL ACCEPTANCE OF THE PROJECT BY NBU WATER SYSTEMS.



LOCATION MAP
1" = 1000'

INDEX

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

IF CONSTRUCTION HAS NOT COMMENCED WITHIN ONE-YEAR OF CITY APPROVAL FOR CONSTRUCTION INSPECTION, THAT APPROVAL IS NO LONGER VALID.

COMAL PROPERTY ID: 447804
NBU PERMIT NUMBERS: W-265810

PERMITS OR APPROVALS MUST BE OBTAINED FROM THE FOLLOWING REGULATORY AGENCIES LISTED BELOW:

- ***COMAL COUNTY***
- ***NEW BRAUNFELS UTILITIES - ELECTRIC & WATER***

ANY REVISIONS REQUIRED PER THE REGULATORY AGENCIES THAT CHANGE THE CIVIL SITE PLANS MUST BE SUBMITTED TO COMAL COUNTY FOR ACCEPTANCE.

NOTE:

1. *ALL IRRIGATION SERVICES WITHIN RESIDENTIAL AREAS SHALL HAVE A REDUCED PRESSURE BACKFLOW PREVENTION ASSEMBLY (RPZ) INSTALLED PRIOR TO PLACEMENT OF METER. ALL NEW FACILITIES ARE REQUIRED TO COMPLY WITH THE REQUIREMENTS OF THE LATEST NBU BACKFLOW POLICY.*

FEMA FLOODPLAIN
PORTIONS OF RESIDENTIAL LOTS ON SILVERLEAF CONDOMINIUMS ARE IN THE SPECIAL FLOOD HAZARD ZONE ACCORDING TO FEMA FLOOD MAP COMMUNITY PANELS NO. 48091C0290G, DATED MAY 8, 2024.

EDWARDS AQUIFER
NO PORTION OF ANY LOTS ON SILVERLEAF CONDOMINIUMS ARE LOCATED WITHIN EDWARDS CONTRIBUTING ZONE OR RECHARGE ZONE. VOGES CONDOMINIUMS IS LOCATED WITHIN EDWARDS AQUIFER TRANSITION ZONE.

GAS UTILITY
GAS UTILITIES ARE NOT INCLUDED IN THE CIVIL CONSTRUCTION PLANS. FINAL GAS UTILITY DESIGN SHALL BE APPROVED BY THE COUNTY FOR ANY WORK WITHIN PUBLIC RIGHT-OF-WAY.

CITY OF NEW BRAUNFELS
GAS UTILITIES ARE NOT INCLUDED IN THE CIVIL CONSTRUCTION PLANS. FINAL GAS UTILITY DESIGN SHALL BE APPROVED BY THE CITY FOR ANY WORK WITHIN PUBLIC RIGHT-OF-WAY.

NBU NOTE:

POINT OF DELIVERY IS WATER METER. NBU IS RESPONSIBLE FROM WATER MAIN TO WATER METER. CUSTOMER IS RESPONSIBLE FOR LINE FROM THE METER TO PRIVATE PLUMBING, INCLUDING DESIGN, OPERATION, AND COMPLIANCE WITH CITY CODES.

Please Note: NBU REQUIRES GPS POINTS FOR CERTAIN ELECTRIC, WATER AND WASTEWATER ATTRIBUTES. SOME OF WHICH MUST BE TAKEN PRIOR TO BACKFILL DURING CONSTRUCTION.

GPS POINTS SHALL BE REQUIRED FROM THE DEVELOPERS CONTRACTOR. A MINIMUM OF THREE COORDINATE POINTS FOR GEOREFERENCING SHALL BE REQUIRED. THE WATER AND WASTEWATER GPS POINTS SHALL BE TO SURVEY GRADE AND ELECTRIC GPS POINTS SHALL BE MAP GRADE. REFERENCE NBU'S WATER CONNECTION POLICY FOR ADDITIONAL CAD DELIVERABLE REQUIREMENTS.

WATER:
VERTICAL BENDS AND EDGE OF STEEL CASING (IF APPLICABLE) PRIOR TO BACKFILL.
HORIZONTAL BENDS PRIOR TO BACKFILL
TEES PRIOR TO BACKFILL
FITTINGS (REDUCERS AND COUPLINGS) PRIOR TO BACKFILL
FIRE HYDRANTS (TOP OF FLANGE)
VALVES
METER (TOP CENTER OF BOX)
BLOW OFF ASSEMBLY
CORNER SLAB OF WATER TANK & GATE VALVE ON WATER TANK

WASTEWATER:
MANHOLES
CLEANOUTS
CORNER SLAB OF LIFT STATION

ELECTRIC:
POLES
TRANSFORMERS, BOTH ABOVE AND UNDERGROUND (FRONT LOCK)
PULL BOXES
STREET LIGHTS

COORDINATE GPS REQUIREMENTS WITH NBU INSPECTOR

NOTE:

1. *ALL UTILITIES TO BE CONSTRUCTED PRIOR TO STREETS*
2. *NO VALVES, HYDRANTS, CLEANOUTS, ETC. SHALL BE CONSTRUCTED WITHIN CURBS, SIDEWALKS, OR DRIVEWAYS.*
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.*
5. *ALL WATER SERVICES SHALL BE SLEEVED*
6. *PRV WILL BE REQUIRED FOR EACH LOT*

UTILITY TRENCH COMPACTION
ALL UTILITY TRENCH COMPACTION TESTS WITHIN THE STREET PAVEMENT/SIDEWALK SECTION SHALL BE THE RESPONSIBILITY OF THE DEVELOPER'S GEOTECHNICAL ENGINEER. FILL MATERIAL SHALL BE PLACED IN UNIFORM LAYERS NOT TO EXCEED TWELVE INCHES (12") LOOSE. DETERMINE THE MAXIMUM LIFT THICKNESS BASED ON THE ABILITY OF THE COMPACTING OPERATION AND EQUIPMENT USED TO MEET THE REQUIRED DENSITY. EACH LAYER OF MATERIAL SHALL BE COMPACTED TO A MINIMUM 95% DENSITY AND TESTED FOR DENSITY AND MOISTURE IN ACCORDANCE WITH TEST METHODS TEX-113-E, TEX-114-E, TEX-115-E. THE NUMBER AND LOCATION OF REQUIRED TESTS SHALL BE DETERMINED BY THE GEOTECHNICAL ENGINEER AND APPROVED BY THE COMAL COUNTY STREET INSPECTOR. AT A MINIMUM, TESTS SHALL BE TAKEN EVERY 200 LF FOR EACH LIFT AND EVERY OTHER SERVICE LINE. UPON COMPLETION OF TESTING THE GEOTECHNICAL ENGINEER SHALL PROVIDE THE COMAL COUNTY STREET INSPECTOR WITH ALL TESTING DOCUMENTATION AND A CERTIFICATION STATING THAT THE PLACEMENT OF FILL MATERIAL HAS BEEN COMPLETED IN ACCORDANCE WITH THE PLANS. ADDITIONAL DENSITY TESTS MAY BE REQUESTED BY THE COMAL COUNTY INSPECTOR.

NOTES:

A. *ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE PLANS REMAINS WITH THE ENGINEER OF RECORD. IN ACCEPTING THESE PLANS, NEW BRAUNFELS UTILITIES MUST RELY UPON THE ADEQUACY OF THE WORK OF THE ENGINEER OF RECORD.*
B. *THE ENGINEER OF RECORD ACKNOWLEDGES THAT ALL PROPOSED WATER OR WASTEWATER IMPROVEMENTS MUST COMPLY WITH CRITERIA FROM THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY, THE CITY OF NEW BRAUNFELS, NBU W&WW DESIGN CRITERIA, ANY OTHER GOVERNING ENTITY ORDINANCES OR CODES, AND SOUND ENGINEERING JUDGEMENT.*
C. *THE ENGINEER OF RECORD ACKNOWLEDGES THAT THE POINT OF DELIVERY FOR THE NBU WATER SYSTEM IS THE MAIN SIDE OF THE SERVICE LATERAL/LEAD FROM THE CUSTOMER'S METER, BACKFLOW PREVENTER, OR EASEMENT EDGE. THE CUSTOMER IS RESPONSIBLE FOR THE DESIGN, PERMITTING, CONSTRUCTION, OPERATION AND MAINTENANCE BEYOND THE POINT OF DELIVERY AND HAS SOLE C

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.

Please Note: NBU REQUIRES GPS POINTS FOR CERTAIN ELECTRIC, WATER AND WASTEWATER ATTRIBUTES, SOME OF WHICH MUST BE TAKEN PRIOR TO BACKFILL DURING CONSTRUCTION.

GPS POINTS SHALL BE REQUIRED FROM THE DEVELOPERS CONTRACTOR. A MINIMUM OF THREE COORDINATE POINTS FOR GEOREFERENCING SHALL BE REQUIRED. THE WATER AND WASTEWATER GPS POINTS SHALL BE TO SURVEY GRADE AND ELECTRIC GPS POINTS SHALL BE MAP GRADE. REFERENCE NBU'S WATER CONNECTION POLICY FOR ADDITIONAL CAD DELIVERABLE REQUIREMENTS.

WATER:
VERTICAL BENDS AND EDGE OF STEEL CASING (IF APPLICABLE) PRIOR TO BACKFILL.
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ELECTRIC:
POLES
TRANSFORMERS, BOTH ABOVE AND UNDERGROUND (FRONT LOCK)
PULL BOXES
STREET LIGHTS

COORDINATE GPS REQUIREMENTS WITH NBU INSPECTOR

WATER
DISTRIBUTION QUANTITIES

DEVELOPER'S NAME	BRIGHTLAND HOMES
DEVELOPER'S ADDRESS	9601 MCALLISTER FRWY, SUITE 600
DEVELOPER'S CITY	SAN ANTONIO
DEVELOPER'S STATE	TEXAS
DEVELOPER'S ZIP	78216
DEVELOPER'S PHONE	(713) 243-3525
ACREAGE	44.00
5/8" WATER SHORT SERVICES (1" PIPE)	39
5/8" WATER LONG SERVICES (1" PIPE)	23
TOTAL 5/8" METER BOXES	62
TOTAL LUE	62
TOTAL FIRE HYDRANTS	12
TOTAL LINEAR FOOTAGE 8" C-900	6,255
TOTAL LINEAR FOOTAGE 8" DI	322
TOTAL LINEAR FOOTAGE 12" C-900	675
TOTAL LINEAR FOOTAGE 12" DI	30
TOTAL 2" BLOWOFFS	1
TOTAL LINEAR FOOTAGE 18" STEEL CASING	194
TOTAL LINEAR FOOTAGE 24" STEEL CASING	12
TOTAL 8"x8" TEES	3
TOTAL 8"x8" CUT-IN TEES	1
TOTAL 12"x12" CUT-IN TEES	1
TOTAL 12"x8" REDUCERS	1
TOTAL 8" 1/8 BENDS	68
TOTAL 8" 1/16 BENDS	9
TOTAL 8" 1/32 BENDS	5
TOTAL 12" 1/16 BENDS	1
TOTAL 12" 1/32 BENDS	1
TOTAL 8" GATE VALVES	17
TOTAL 12" GATE VALVES	2
5/8" IRRIGATION SERVICE (1" PIPE)	2

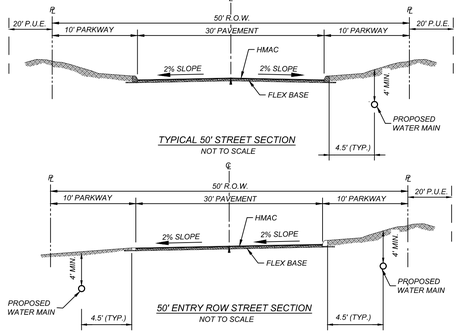
JOINT RESTRAINT NOTE:
CONTRACTOR SHALL INSTALL RETAINER GLANDS AT ALL FITTINGS AND PROVIDE JOINT RESTRAINING HARNESS OR FIELD LOCK GASKETS AT ALL JOINTS WITHIN THE LENGTH SHOWN. CONTRACTOR SHALL INSURE THAT ALL TEES, BENDS, VALVES, ETC. HAVE A MINIMUM OF 5 FT OF PIPE WITH NO JOINTS ON EACH SIDE OF THE 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.

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

MISCELLANEOUS NOTE:
1. *ALL UTILITIES TO BE CONSTRUCTED PRIOR TO STREETS.*
2. *NO VALVES, HYDRANTS, ETC. SHALL BE CONSTRUCTED WITHIN CURBS, SIDEWALKS, OR DRIVEWAYS.*
3. *ENSURE ALL DRIVEWAY APPROACHES ARE BUILT IN GENERAL ACCORDANCE WITH A.D.A. SPECIFICATIONS.*

UTILITY TRENCH COMPACTION (STREET PAVEMENT / SIDEWALK):
ALL UTILITY TRENCH COMPACTION TESTS WITHIN THE STREET PAVEMENT/SIDEWALK SECTION SHALL BE THE RESPONSIBILITY OF THE DEVELOPER'S GEOTECHNICAL ENGINEER. FILL MATERIAL SHALL BE PLACED IN UNIFORM LAYERS NOT TO EXCEED TWELVE INCHES (12") LOOSE. DETERMINE THE MAXIMUM LIFT THICKNESS BASED ON THE ABILITY OF THE COMPACTING OPERATION AND EQUIPMENT USED TO MEET THE REQUIRED DENSITY. EACH LAYER OF MATERIAL SHALL BE COMPACTED TO A MINIMUM 95% DENSITY AND TESTED FOR DENSITY AND MOISTURE IN ACCORDANCE WITH TEST METHODS TEX-113-E, TEX-114-E, TEX-115-E. THE NUMBER AND LOCATION OF REQUIRED TESTS SHALL BE DETERMINED BY THE GEOTECHNICAL ENGINEER AND APPROVED BY THE COMAL COUNTY STREET INSPECTOR. AT A MINIMUM, TESTS SHALL BE TAKEN EVERY 200 LF FOR EACH LIFT AND EVERY OTHER SERVICE LINE. UPON COMPLETION OF TESTING THE GEOTECHNICAL ENGINEER SHALL PROVIDE THE COMAL COUNTY STREET INSPECTOR WITH ALL TESTING DOCUMENTATION AND A CERTIFICATION STATING THAT THE PLACEMENT OF FILL MATERIAL HAS BEEN COMPLETED IN ACCORDANCE WITH THE PLANS. ADDITIONAL DENSITY TESTS MAY BE REQUESTED BY THE COMAL COUNTY INSPECTOR.

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 COUNTY METHODS FOR TESTING AND COMPACTION MAY NOT BE ACHIEVABLE. A UTILITY COMPACTION PLAN WILL BE REQUIRED AND MUST BE SUBMITTED FOR APPROVAL TO COUNTY PRIOR TO UTILITY INSTALLATION.*



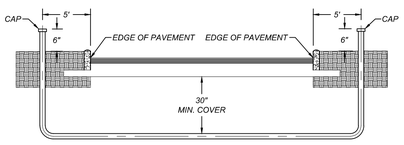
CONTRACTORS SHALL INSTALL LINE STOPPERS AT THEIR COST FOR AN OUTAGE DURING CONSTRUCTION IF SYSTEM VALVES ARE NOT AVAILABLE OR THE EXISTING VALVES DO NOT FUNCTIONS. LINE STOPPERS WILL BE REQUIRED BASED ON THE FOLLOWING CRITERIA.

i. IF THE NUMBER OF RESIDENTIAL CUSTOMERS AFFECTED IS GREATER THAN 20 AND EXPECTED TO LAST MORE THAN 4 HOURS.

ii. IF ANY COMMERCIAL CUSTOMERS ARE AFFECTED BY THE OUTAGE THEN THE USE OF LINE STOPPERS WILL BE DETERMINED ON A CASE BY CASE BASIS.

iii. IF ANY CRITICAL CARE CUSTOMERS ARE AFFECTED BY THE OUTAGE THEN THE USE OF LINE STOPPERS WILL BE DETERMINED ON A CASE BY CASE BASIS.

iv. SYSTEM CONDITIONS MAY BE REQUIRED A LINE STOPPER AND MAY NOT BE KNOWN UNTIL CONSTRUCTION COMMENCES.



CONDUIT DETAIL
NOT TO SCALE

**PVC SCHEDULE 80 CONDUIT*
SEE PLAN SHEETS FOR SIZE LOCATION AND NUMBER OF CONDUITS

NOTE:
- *CONTRACTOR SHALL BE RESPONSIBLE FOR PLACING CONDUIT SLEEVES FOR EACH NBU FACILITY AT ALL STREETS AND DRAIN CROSSING. CONSTRUCTION SLEEVES MUST ALSO BE LOCATED FOR NBU 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 80 TO BE USED FOR CPS CONDUITS, ALL OTHER CONDUITS ARE SCHEDULE 40.*
- *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: NO VALVES WITHIN PAVEMENT

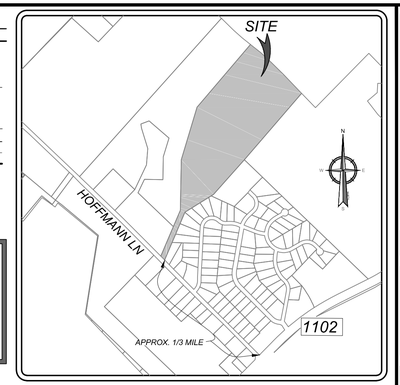
LEGEND

PROPOSED WATER MAIN	8"W
PROPOSED 5/8" WATER SERVICE & METER BOX (1" PIPE) W/ PRESSURE REDUCING VALVE	
PROPOSED FIRE HYDRANT	
PUBLIC UTILITY EASEMENT (P.U.E.)	
PROPOSED TEE & WATER VALVE	
EXISTING WATER MAIN	E. 8" W
EXISTING OVERHEAD UTILITY LINE	OHE
LOT LINE	
STREET CENTER LINE	
PROPERTY LINE	

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

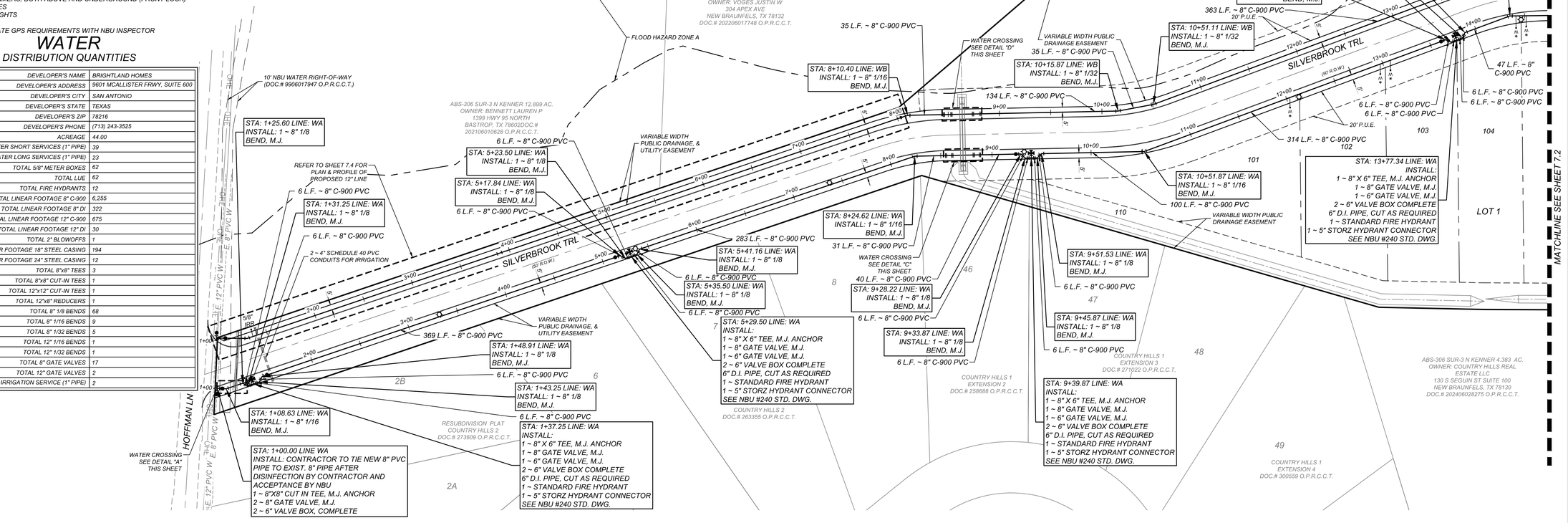
BENCHMARKS

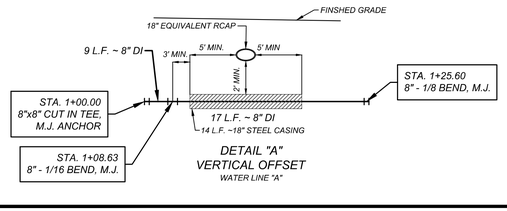
BM#	NORTHING	EASTING	ELEVATION	DESCRIPTION
300	13831849.86	2261419.20	719.76	SBM LEVELED
301	13832175.16	2261090.25	707.65	SBM LEVELED

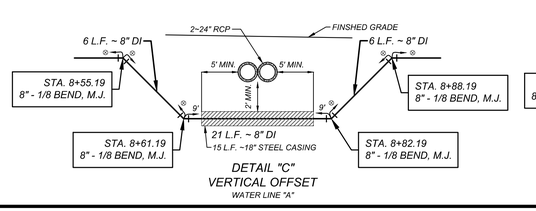


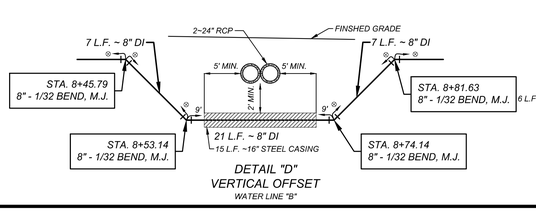
LOCATION MAP
1" = 1000'

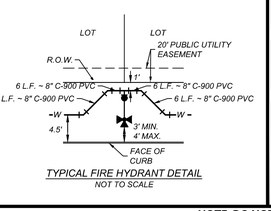
SCALE : 1"=50'
0' 50' 150'
100'











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www.colliersengineering.com

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Formerly Known as KFW

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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
WAYNE FLORES
90130
LICENSED PROFESSIONAL ENGINEER
11/13/2025

FINAL SUBDIVISION PLAN

FOR

SILVERLEAF CONDOMINIUMS

COMAL COUNTY TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
162 West Mill Street
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	03/11/2025	DG	WF

PROJECT NUMBER: 1186-01-02
DRAWING NAME: 7.1 WATER DISTRIBUTION PLAN

SHEET TITLE: *WATER DISTRIBUTION PLAN*

SHEET NUMBER: 7.1

Date: Nov 13, 2025, 8:36pm User ID: ASerna
File: L:\Projects\1186\01-02\Design\Civil\Water\7.1 WATER DISTRIBUTION PLAN.dwg
Z:\Design\Civil\Water\7.1 WATER DISTRIBUTION PLAN.dwg, 7.1 WATER DISTRIBUTION PLAN
By: ASERNA

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.

Please Note: NBU REQUIRES GPS POINTS FOR CERTAIN ELECTRIC, WATER AND WASTEWATER ATTRIBUTES, SOME OF WHICH MUST BE TAKEN PRIOR TO BACKFILL DURING CONSTRUCTION.

GPS POINTS SHALL BE REQUIRED FROM THE DEVELOPERS CONTRACTOR. A MINIMUM OF THREE COORDINATE POINTS FOR GEOREFERENCING SHALL BE REQUIRED. THE WATER AND WASTEWATER GPS POINTS SHALL BE TO SURVEY GRADE AND ELECTRIC GPS POINTS SHALL BE MAP GRADE. REFERENCE NBU'S WATER CONNECTION POLICY FOR ADDITIONAL CAD DELIVERABLE REQUIREMENTS.

WATER:
VERTICAL BENDS AND EDGE OF STEEL CASING (IF APPLICABLE)
PRIOR TO BACKFILL
HORIZONTAL BENDS PRIOR TO BACKFILL
TEES PRIOR TO BACKFILL
FITTINGS (REDUCERS AND COUPLINGS) PRIOR TO BACKFILL
FIRE HYDRANTS (TOP OF FLANGE)
VALVES
METER (TOP CENTER OF BOX)
BLOW OFF ASSEMBLY
CORNER SLAB OF WATER TANK & GATE VALVE ON WATER TANK

WASTEWATER:
MANHOLES
CLEANOUTS
CORNER SLAB OF LIFT STATION

ELECTRIC:
POLES
TRANSFORMERS, BOTH ABOVE AND UNDERGROUND (FRONT LOCK)
PULL BOXES
STREET LIGHTS

COORDINATE GPS REQUIREMENTS WITH NBU INSPECTOR

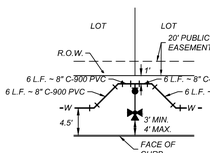
CONTRACTORS SHALL INSTALL LINE STOPPERS AT THEIR COST FOR AN OUTAGE DURING CONSTRUCTION IF SYSTEM VALVES ARE NOT AVAILABLE OR THE EXISTING VALVES DO NOT FUNCTIONS. LINE STOPPERS WILL BE REQUIRED BASED ON THE FOLLOWING CRITERIA.

i. IF THE NUMBER OF RESIDENTIAL CUSTOMERS AFFECTED IS GREATER THAN 20 AND EXPECTED TO LAST MORE THAN 4 HOURS.

ii. IF ANY COMMERCIAL CUSTOMERS ARE AFFECTED BY THE OUTAGE THEN THE USE OF LINE STOPPERS WILL BE DETERMINED ON A CASE BY CASE BASIS.

iii. IF ANY CRITICAL CARE CUSTOMERS ARE AFFECTED BY THE OUTAGE THEN THE USE OF LINE STOPPERS WILL BE DETERMINED ON A CASE BY CASE BASIS.

iv. SYSTEM CONDITIONS MAY BE REQUIRED A LINE STOPPER AND MAY NOT BE KNOWN UNTIL CONSTRUCTION COMMENCES.



TYPICAL FIRE HYDRANT DETAIL
NOT TO SCALE

WATER
DISTRIBUTION QUANTITIES

DEVELOPER'S NAME	BRIGHTLAND HOMES
DEVELOPER'S ADDRESS	9601 MCALLISTER FRWY, SUITE 600
DEVELOPER'S CITY	SAN ANTONIO
DEVELOPER'S STATE	TEXAS
DEVELOPER'S ZIP	78216
DEVELOPER'S PHONE	(713) 243-3525
ACREAGE	44.00
5/8" WATER SHORT SERVICES (1" PIPE)	39
5/8" WATER LONG SERVICES (1" PIPE)	23
TOTAL 5/8" METER BOXES	62
TOTAL LUE	62
TOTAL FIRE HYDRANTS	12
TOTAL LINEAR FOOTAGE 8" C-900	6,255
TOTAL LINEAR FOOTAGE 8" DI	322
TOTAL LINEAR FOOTAGE 12" C-900	675
TOTAL LINEAR FOOTAGE 12" DI	30
TOTAL 2" BLOWOFFS	1
TOTAL LINEAR FOOTAGE 18" STEEL CASING	194
TOTAL LINEAR FOOTAGE 24" STEEL CASING	12
TOTAL 8"x8" TEES	3
TOTAL 8"x8" CUT-IN TEES	1
TOTAL 12"x12" CUT-IN TEES	1
TOTAL 12"x8" REDUCERS	1
TOTAL 8" 1/8 BENDS	68
TOTAL 8" 1/16 BENDS	9
TOTAL 8" 1/32 BENDS	5
TOTAL 12" 1/16 BENDS	1
TOTAL 12" 1/32 BENDS	1
TOTAL 8" GATE VALVES	17
TOTAL 12" GATE VALVES	2
5/8" IRRIGATION SERVICE (1" PIPE)	2

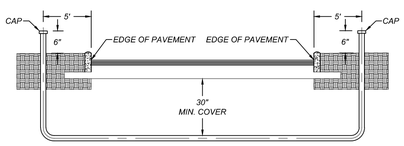
JOINT RESTRAINT NOTE:
CONTRACTOR SHALL INSTALL RETAINER GLANDS AT ALL FITTINGS AND PROVIDE JOINT RESTRAINING HARNESS OR FIELD LOCK GASKETS AT ALL JOINTS WITHIN THE LENGTH SHOWN. CONTRACTOR SHALL INSURE THAT ALL TEES, BENDS, VALVES, ETC. HAVE A MINIMUM OF 5 FT OF PIPE WITH NO JOINTS ON EACH SIDE OF THE 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.

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

MISCELLANEOUS NOTE:
1. *ALL UTILITIES TO BE CONSTRUCTED PRIOR TO STREETS.*
2. *NO VALVES, HYDRANTS, ETC. SHALL BE CONSTRUCTED WITHIN CURBS, SIDEWALKS, OR DRIVEWAYS.*
3. *ENSURE ALL DRIVEWAY APPROACHES ARE BUILT IN GENERAL ACCORDANCE WITH A.D.A. SPECIFICATIONS.*

UTILITY TRENCH COMPACTION (STREET PAVEMENT / SIDEWALK):
ALL UTILITY TRENCH COMPACTION TESTS WITHIN THE STREET PAVEMENT/SIDEWALK SECTION SHALL BE THE RESPONSIBILITY OF THE DEVELOPER'S GEOTECHNICAL ENGINEER. FILL MATERIAL SHALL BE PLACED IN UNIFORM LAYERS NOT TO EXCEED TWELVE INCHES (12") LOOSE. DETERMINE THE MAXIMUM LIFT THICKNESS BASED ON THE ABILITY OF THE COMPACTING OPERATION AND EQUIPMENT USED TO MEET THE REQUIRED DENSITY. EACH LAYER OF MATERIAL SHALL BE COMPACTED TO A MINIMUM 95% DENSITY AND TESTED FOR DENSITY AND MOISTURE IN ACCORDANCE WITH TEST METHODS TEX-113-E, TEX-114-E, TEX-115-E. THE NUMBER AND LOCATION OF REQUIRED TESTS SHALL BE DETERMINED BY THE GEOTECHNICAL ENGINEER AND APPROVED BY THE COMAL COUNTY STREET INSPECTOR, AT A MINIMUM, TESTS SHALL BE TAKEN EVERY 200 LF FOR EACH LIFT AND EVERY OTHER SERVICE LINE. UPON COMPLETION OF TESTING THE GEOTECHNICAL ENGINEER SHALL PROVIDE THE COMAL COUNTY STREET INSPECTOR WITH ALL TESTING DOCUMENTATION AND A CERTIFICATION STATING THAT THE PLACEMENT OF FILL MATERIAL HAS BEEN COMPLETED IN ACCORDANCE WITH THE PLANS. ADDITIONAL DENSITY TESTS MAY BE REQUESTED BY THE COMAL COUNTY INSPECTOR.

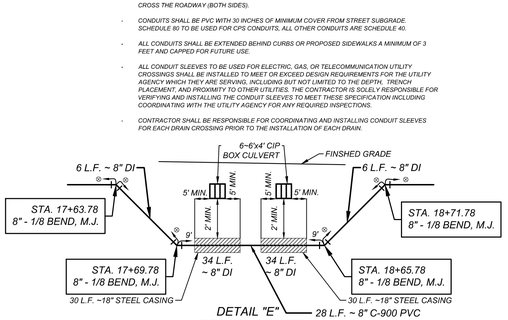
GENERAL NOTE:
1. *THIS PROJECT INCLUDES UTILITY INSTALLATIONS GREATER THAN 5-FEET IN DEPTH LOCATED IN PUBLIC RIGHT-OF-WAY OR EASEMENTS. DEEP TRENCHES POSE COMPACTION TESTING AND CONSTRUCTION CHALLENGES AND COUNTY METHODS FOR TESTING AND COMPACTION MAY NOT BE ACHIEVABLE. A UTILITY COMPACTION PLAN WILL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

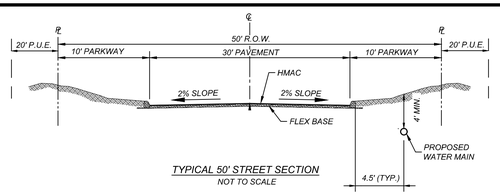


CONDUIT DETAIL
NOT TO SCALE

**PVC SCHEDULE 80 CONDUIT*
SEE PLAN SHEETS FOR SIZE LOCATION AND NUMBER OF CONDUITS

NOTE:
- *CONTRACTOR SHALL BE RESPONSIBLE FOR PLACING CONDUIT SLEEVES FOR EACH NBU FACILITY AT ALL STREETS AND DRAIN CROSSING. CONSTRUCTION SLEEVES MUST ALSO BE LOCATED FOR NBU 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 80 TO BE USED FOR CPS CONDUITS. ALL OTHER CONDUITS ARE SCHEDULE 40.*
- *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 50' STREET SECTION
NOT TO SCALE

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

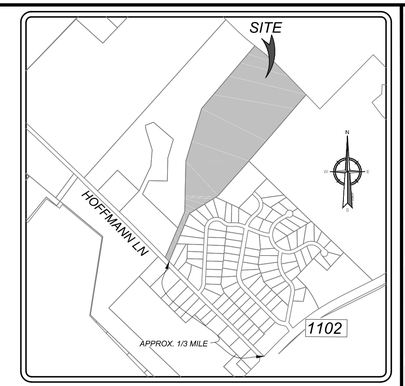
BENCHMARKS

BM#	NORTHING	EASTING	ELEVATION	DESCRIPTION
300	13831849.86	2261419.20	719.76	SBM LEVELED
301	13832175.16	2261090.25	707.65	SBM LEVELED

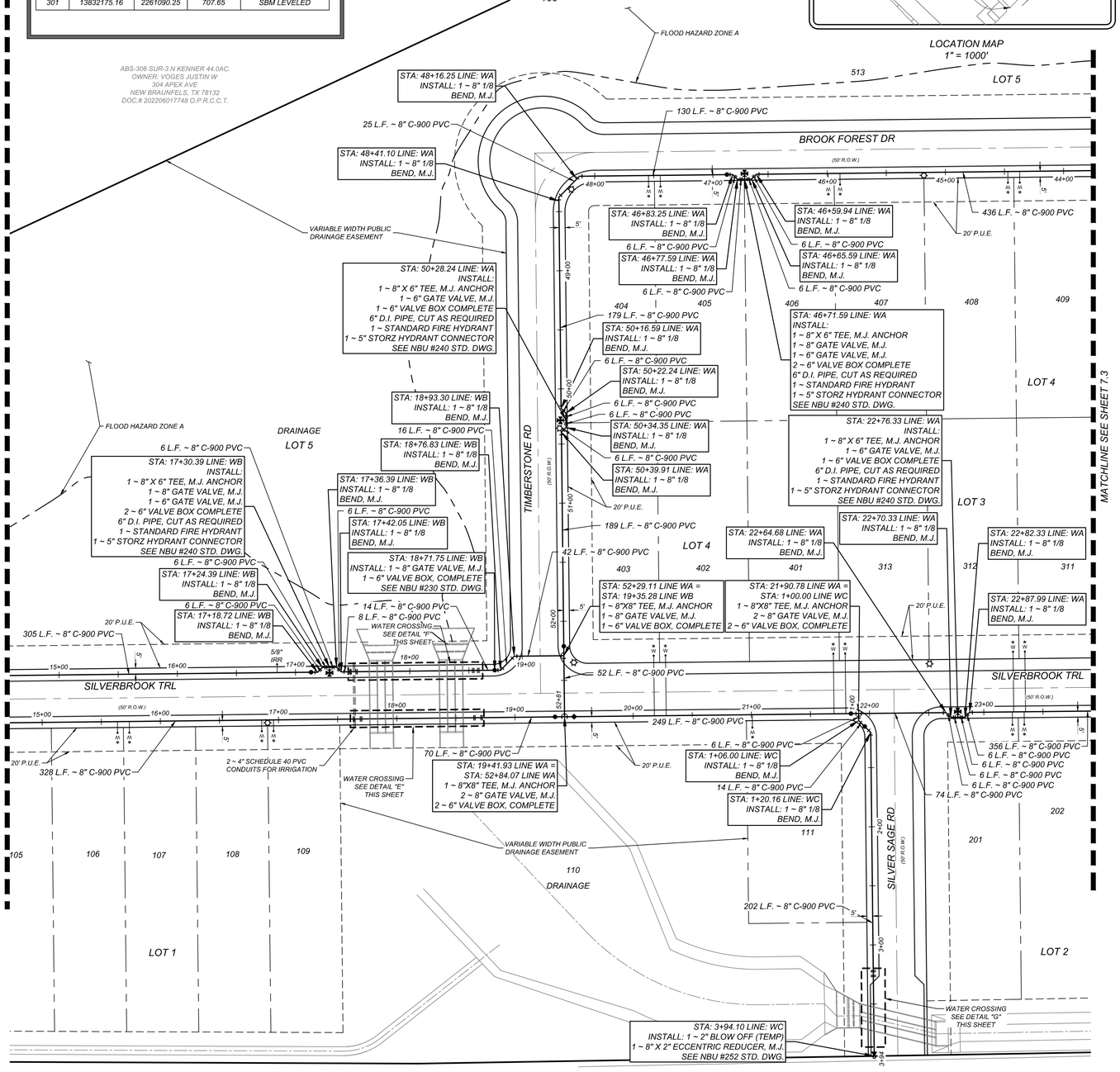
LEGEND

PROPOSED WATER MAIN	8"W
PROPOSED 5/8" WATER SERVICE & METER BOX (1" PIPE) W/ PRESSURE REDUCING VALVE	
PROPOSED FIRE HYDRANT	
PUBLIC UTILITY EASEMENT (P.U.E.)	
PROPOSED TEE & WATER VALVE	
EXISTING WATER MAIN	E. 8" W
EXISTING OVERHEAD UTILITY LINE	OHE
LOT LINE	
STREET CENTER LINE	
PROPERTY LINE	

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



LOCATION MAP
1" = 1000'



Colliers
Engineering & Design
www.colliersengineering.com

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Formerly Known as KFW ENGINEERS & SURVEYING

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REV	DATE	DESCRIPTION	DRAWN BY

STATE OF TEXAS
WAYNE FLORES
90130
LICENSED PROFESSIONAL ENGINEER
11/13/2025

FINAL SUBDIVISION PLAN
FOR
SILVERLEAF CONDOMINIUMS
COMAL COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
162 West Mill Street
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	03/11/2025	DG	WF

PROJECT NUMBER:	DRAWING NAME:
1186-01-02	7.1 WATER DISTRIBUTION PLAN

SHEET TITLE:
WATER DISTRIBUTION PLAN

SHEET NUMBER:
7.2

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Nov 13, 2025, 8:37pm User ID: AGarza
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ZDesignCivilSheets7.1 WATER DISTRIBUTION PLANdwg12 By ASERNA

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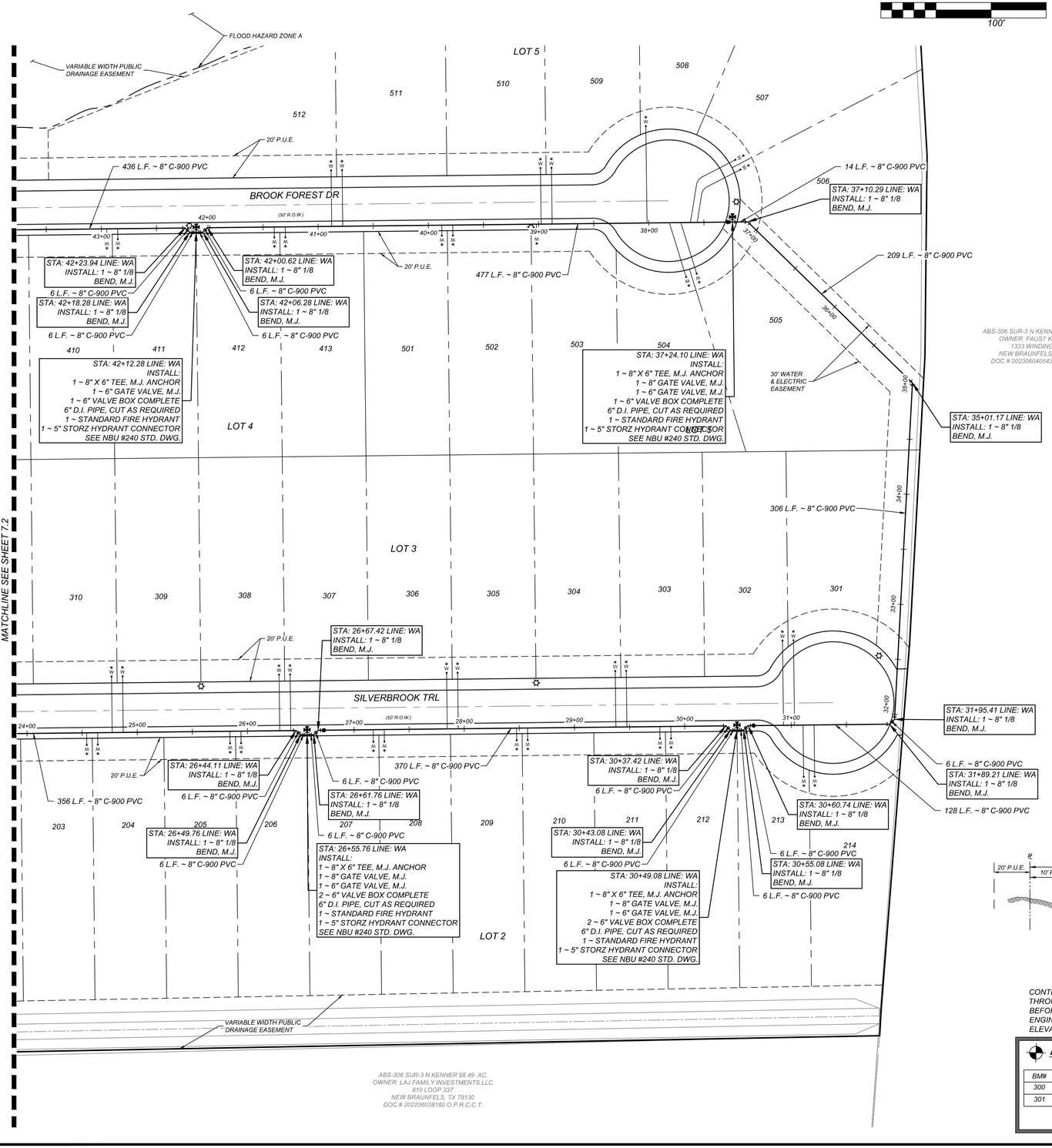

ABS-306 SUR-3 N KENNER 98.49 AC.
OWNER: LAJ FAMILY INVESTMENTS LLC
810 LOOP 337
NEW BRAUNFELS, TX 78130
DOC.# 202206038180 O.P.R.C.C.T.

ABS-306 SUR-3 N KENNER 279.571 AC.
OWNER: FAUST KEITH ROY
1333 WINDING WAY
NEW BRAUNFELS, TX 78132
DOC.# 202306040543 O.P.R.C.C.T.

LEGEND

- PROPOSED WATER MAIN — 8"W
- PROPOSED 5/8" WATER SERVICE & METER BOX (1" PIPE) W/ PRESSURE REDUCING VALVE
- PROPOSED FIRE HYDRANT
- PUBLIC UTILITY EASEMENT (P.U.E.)
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- EXISTING OVERHEAD UTILITY LINE — OHE —
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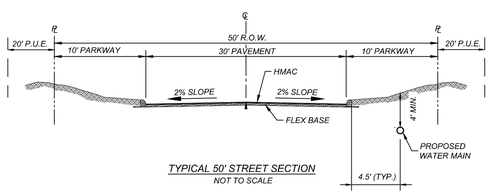
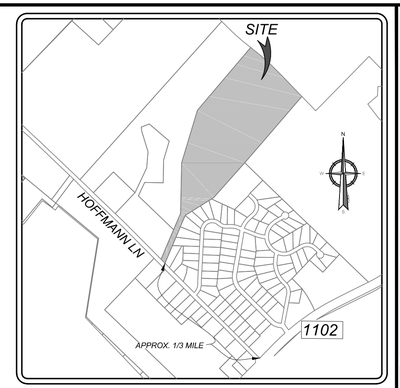


TYPICAL 50' STREET SECTION
NOT TO SCALE

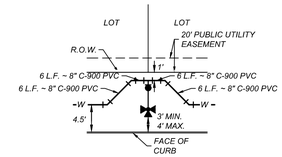
CONTRACTOR TO RUN LEVEL LOOP THROUGH BM'S PROVIDED TO CONFIRM BEFORE CONSTRUCTION. CONTACT ENGINEER/SURVEYOR IMMEDIATELY IF ELEVATIONS DO NOT MATCH THOSE SHOWN.

BENCHMARKS

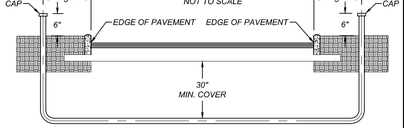
BM#	NORTHING	EASTING	ELEVATION	DESCRIPITION
300	13831849.86	2261419.20	719.76	SBM LEVELED
301	13832175.16	2261090.25	707.65	SBM LEVELED



LOCATION MAP
1" = 1000'



TYPICAL FIRE HYDRANT DETAIL
NOT TO SCALE



CONDUIT DETAIL
NOT TO SCALE

**PVC SCHEDULE 80 CONDUIT*
SEE PLAN SHEETS FOR SIZE LOCATION AND NUMBER OF CONDUITS

NOTE:
- *CONTRACTOR SHALL BE RESPONSIBLE FOR PLACING CONDUIT SLEEVES FOR EACH NBU FACILITY AT ALL STREETS AND DRAIN CROSSING. CONSTRUCTION SLEEVES MUST ALSO BE LOCATED FOR NBU 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 80 TO BE USED FOR CPS CONDUITS, ALL OTHER CONDUITS ARE SCHEDULE 40.*
- *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.*

WATER
DISTRIBUTION QUANTITIES

DEVELOPER'S NAME	BRIGHTLAND HOMES
DEVELOPER'S ADDRESS	9601 MCALLISTER FRWY, SUITE 600
DEVELOPER'S CITY	SAN ANTONIO
DEVELOPER'S STATE	TEXAS
DEVELOPER'S ZIP	78216
DEVELOPER'S PHONE	(713) 243-3525
ACREAGE	44.00
5/8" WATER SHORT SERVICES (1" PIPE)	39
5/8" WATER LONG SERVICES (1" PIPE)	23
TOTAL 5/8" METER BOXES	62
TOTAL LUE	62
TOTAL FIRE HYDRANTS	12
TOTAL LINEAR FOOTAGE 8" C-900	6,255
TOTAL LINEAR FOOTAGE 8" DI	322
TOTAL LINEAR FOOTAGE 12" C-900	675
TOTAL LINEAR FOOTAGE 12" DI	30
TOTAL 2" BLOWOFFS	1
TOTAL LINEAR FOOTAGE 18" STEEL CASING	194
TOTAL LINEAR FOOTAGE 24" STEEL CASING	12
TOTAL 8"x8" TEES	3
TOTAL 8"x8" CUT-IN TEES	1
TOTAL 12"x12" CUT-IN TEES	1
TOTAL 12"x8" REDUCERS	1
TOTAL 8" 1/8 BENDS	68
TOTAL 8" 1/16 BENDS	9
TOTAL 8" 1/32 BENDS	5
TOTAL 12" 1/16 BENDS	1
TOTAL 12" 1/32 BENDS	1
TOTAL 8" GATE VALVES	17
TOTAL 12" GATE VALVES	2
5/8" IRRIGATION SERVICE (1" PIPE)	2

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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
WAYNE FLORES
90130
LICENSED
PROFESSIONAL ENGINEER
11/13/2025

FINAL SUBDIVISION PLAN
FOR
SILVERLEAF CONDOMINIUMS
COMAL COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
162 West Mill Street
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14809
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	03/11/2025	DG	WF

PROJECT NUMBER: 1186-01-02
DRAWING NAME: 7.1 WATER DISTRIBUTION PLAN

SHEET TITLE:
WATER DISTRIBUTION PLAN

SHEET NUMBER:
7.3

Date: Nov 13, 2025, 8:39pm User ID: AS.wynn
File: J:\Projects\1186\2000\2 Design\2 CAD\Water\7.1 WATER DISTRIBUTION PLAN.dwg
By: ASWynn
2Design\CivilWater\7.1 WATER DISTRIBUTION PLAN.dwg\7.3

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.

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

BENCHMARKS

BM#	NORTHING	EASTING	ELEVATION	DESCRIPITION
300	13831849.86	2261419.20	719.76	SBM LEVELED
301	13832175.16	2261090.25	707.65	SBM LEVELED

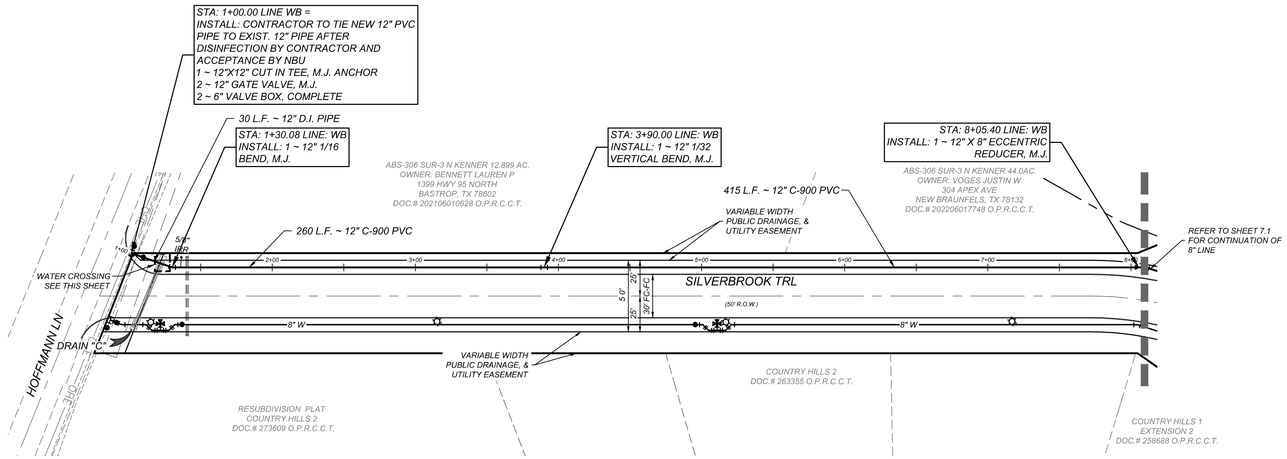
LEGEND

- PROPOSED WATER MAIN — 8"W
- PROPOSED 5/8" WATER SERVICE & METER BOX (1" PIPE) W/ PRESSURE REDUCING VALVE
- PROPOSED FIRE HYDRANT
- PUBLIC UTILITY EASEMENT (P.U.E.) — E: 8" W/-
- PROPOSED TEE & WATER VALVE
- EXISTING WATER MAIN — E: 8" W/-
- EXISTING OVERHEAD UTILITY LINE — OHE
- LOT LINE
- STREET CENTER LINE
- PROPERTY LINE

SCALE : 1"=50'

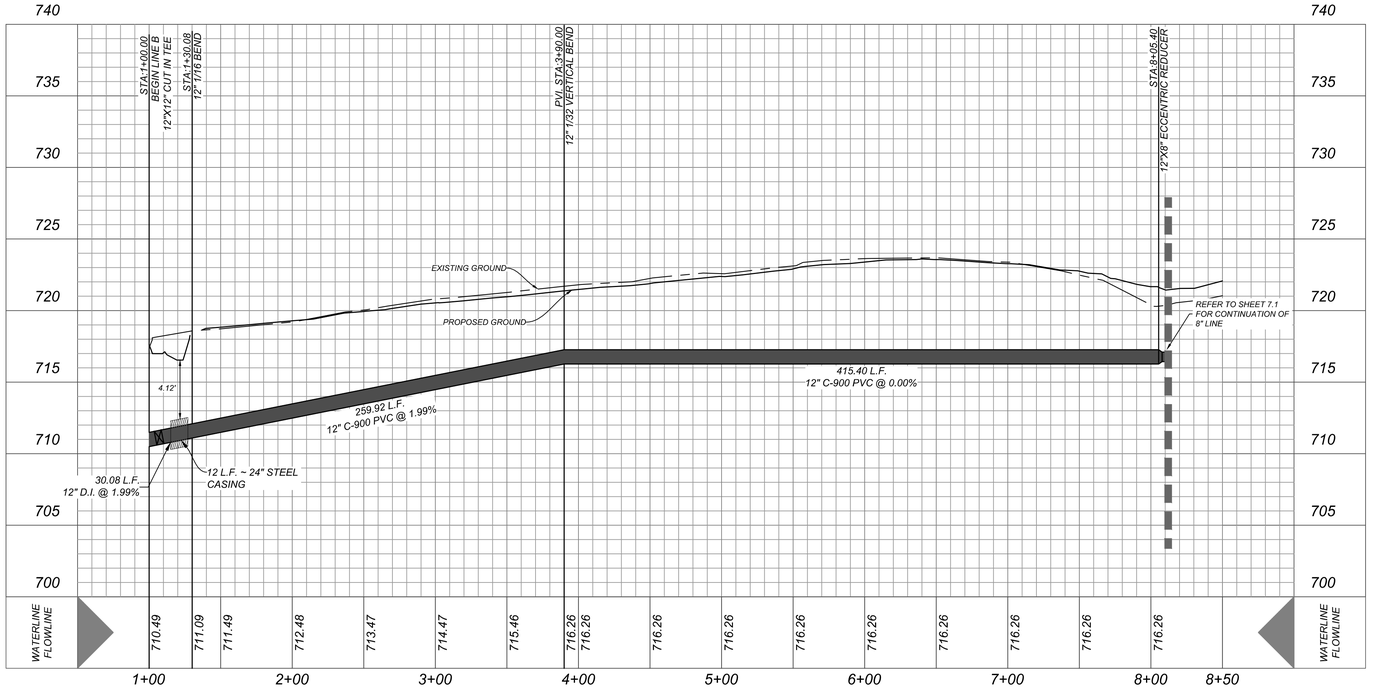
0' 50' 150'

100'



WB
STA. 1+00.00 TO 8+50.00

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



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5/8" IRRIGATION SERVICE (1" PIPE)	2

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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
WAYNE FLORES
90130
LICENSED
PROFESSIONAL ENGINEER

11/13/2025

FINAL SUBDIVISION PLAN

FOR

SILVERLEAF CONDOMINIUMS

COMAL COUNTY TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
162 West Mill Street
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	03/11/2025	DG	WF

PROJECT NUMBER: 1186-01-02
DRAWING NAME: LINE B STA.1+00 - END

SHEET TITLE: *LINE B STA. 1+00.00 - 8+05.40*

SHEET NUMBER: 7.4

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Nov 13, 2025, 8:30am User ID: ASerna
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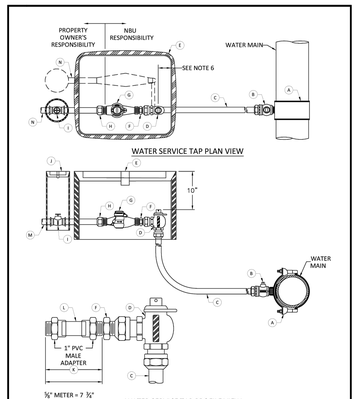
By: ASERNA



WATER SERVICE TAP PLAN VIEW

WATER SERVICE TAP PROFILE VIEW

NBU — NEW BRAUNFELS UTILITIES, WATER SYSTEMS ENGINEERING

DRAWN BY:	STANDARD DRAWING:	STANDARD INSTALLATION DETAIL FOR 5/8" & 1" METER	
EWL			
DESIGNED BY: A. WILLARD			
ENGINEERING: 2/1/24	UPDATED:	SCALE: N.T.S.	SHEET: 1 OF 2
DRAWING NO.: 202			

MATERIALS LIST:

A. 1" SERVICE CLAMP
B. 1" CORPORATION STOP
C. 1" TYPE "K" COPPER WATER SERVICE PIPE
D. 1" X 1" ANGLE METER
E. METER BOX AND LID - PER SPL W-11.0

MATERIALS TO BE INSTALLED BY PLUMBER:

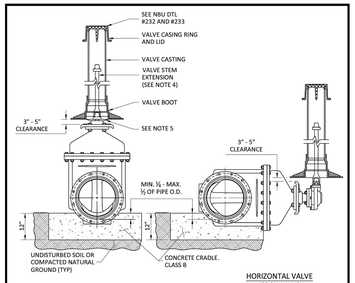
F. BRASS METER BUSHING - SIZE AS REQUIRED TO CONNECT ANGLE METER STOP TO METER. A 1" X 3/4" METER BUSHING IS REQUIRED AT THE ANGLE STOP FOR ALL 5/8" METERS.
G. WATER METER PURCHASED FROM NBU
H. BRASS WATER METER COUPLING MAKE: IPT x SWIVEL COUPLING NUT
I. PROPERTY OWNER'S CUT OFF VALVE - 1" BRASS GATE VALVE
J. PROPERTY OWNER'S CUT OFF VALVE BOX AND LID - NDS #D109-G
K. TEMPORARY METER SPACER (REQUIRED TO ASSURE METER WILL FIT APPROPRIATELY)
L. 1" WOODEN DOWEL (SHOW ADDRESS ON DOWEL USING WATERPROOF MARKER)
M. 1" PIPE MEETING CITY OF NEW BRAUNFELS PLUMBING CODE REQUIREMENTS
N. FUTURE IRRIGATION CONNECTION (SEE NOTE 8)

NOTES:

1. SERVICE PIPE SHALL BE ANNEALED SEAMLESS TYPE "K" COPPER TUBING MEETING THE CURRENT ASTM B88 STANDARD WITH NO SWEAT OR SOLDERED JOINTS. PIPE SHALL BE PLACED IN A STRAIGHT HORIZONTAL ALIGNMENT AND ALLOWED TO RELAX AND "SNAKE" LOOSELY IN THE TRENCH.
2. SERVICE SADDLE SHALL BE WRAPPED COMPLETELY WITH 8 MIL POLYETHYLENE FILM.
3. TOP OF BOXES MUST BE 2" ABOVE GROUND OR FLUSH WITH PAVEMENT SURFACE.
4. BEDDING AND BACKFILL FOR ALL PIPING, TUBING, AND APPURTENANCES SHALL BE PER NBU SPECIFICATIONS.
5. METER BOX LOCATIONS SHALL BE AS PER DETAILS 402 THROUGH 409, UTILITY LAYOUTS. METER BOXES SHALL NOT BE PLACED IN SIDEWALKS, DRIVEWAYS, OR VEHICULAR TRAFFIC AREAS.
6. ANGLE STOP TO BE PLACED A MAXIMUM OF 4" FROM BACK OF BOX THAT FACES CURB. TOP OF ANGLE STOP SHOULD BE A MINIMUM OF 10" FROM THE TOP OF METER BOX.
7. METER SIZES TO BE SHOWN ON PLANS.
8. APPROPRIATE BACKFLOW PREVENTION ASSEMBLY REQUIRED AS DETERMINED BY NBU WATER PROTECTION SPECIALIST. BACKFLOW PREVENTION ASSEMBLY SHALL BE LOCATED AS CLOSE AS POSSIBLE TO THE NBU IRRIGATION WATER METER WITH NO TEES OR CONNECTION BETWEEN THE TWO. CONTACT A WATER PROTECTION SPECIALIST AT BACKFLOW@NBUTEXAS.COM.

NBU — NEW BRAUNFELS UTILITIES, WATER SYSTEMS ENGINEERING

DRAWN BY:	STANDARD DRAWING:	STANDARD INSTALLATION DETAIL FOR 5/8" & 1" METER	
EWL			
DESIGNED BY: A. WILLARD			
ENGINEERING: 2/1/24	UPDATED:	SCALE: N.T.S.	SHEET: 2 OF 2
DRAWING NO.: 202			



VERTICAL VALVE

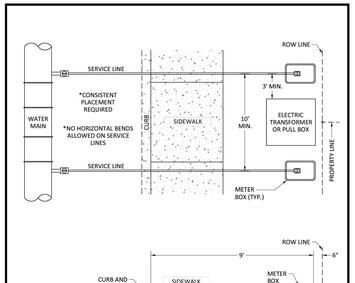
HORIZONTAL VALVE
USE ONLY WHEN SPECIFIED IN DRAWINGS AND WITH NBU STAFF APPROVAL

NOTES:

1. WELD SOCKET 2 ½" X 2" DEEP TO 1" SCH, 40 CARBON STEEL ROUND STEM EXTENSION, FITTED ON OPERATING NUT. [SCH.80 FOR LENGTHS OVER 10'.]
2. VALVE CASTING SHALL BE 6" DI PIPE WITH BELL OR COLLAR CENTERED OVER VALVE BOOT.
3. NUT AT TOP OF VALVE EXTENSION ROD SHALL BE SQUARE 2" LONG WELDED TO TOP OF ROD.
4. VALVE STEM EXTENSIONS ARE REQUIRED ON ALL VALVES THAT EXCEED 3' DEEP FROM FINISHED GRADE. VALVE EXTENSIONS SHALL BE PLACED SUCH THAT THE EXTENSION NUT IS BETWEEN 12" AND 18" FROM FINISHED GRADE.
5. TRUMBULL VALVE BOX ALIGNMENT DEVICE OR APPROVED EQUAL.

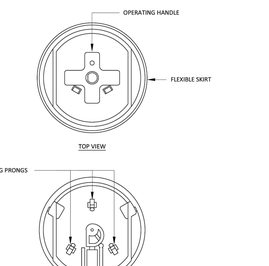
NBU — NEW BRAUNFELS UTILITIES, WATER SYSTEMS ENGINEERING

DRAWN BY:	STANDARD DRAWING:	TYPICAL GATE VALVE	
EWL			
DESIGNED BY: A. WILLARD			
ENGINEERING: 2/1/24	UPDATED:	SCALE: N.T.S.	SHEET: 1 OF 1
DRAWING NO.: 230			



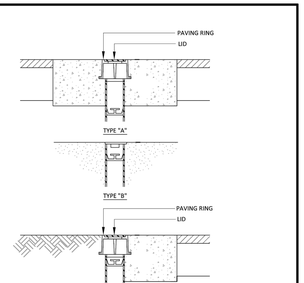
NBU — NEW BRAUNFELS UTILITIES, WATER SYSTEMS ENGINEERING

DRAWN BY:	STANDARD DRAWING:	SERVICE TAP- METER BOX PLACEMENT BETWEEN: SIDEWALK AND PROPERTY LINE	
EWL			
DESIGNED BY: A. WILLARD			
ENGINEERING: 2/1/24	UPDATED:	SCALE: N.T.S.	SHEET: 1 OF 1
DRAWING NO.: 244			



NBU — NEW BRAUNFELS UTILITIES, WATER SYSTEMS ENGINEERING

DRAWN BY:	STANDARD DRAWING:	DEBRIS CAP INSTALLATION	
EWL			
DESIGNED BY: A. WILLARD			
ENGINEERING: 2/1/24	UPDATED:	SCALE: N.T.S.	SHEET: 1 OF 2
DRAWING NO.: 234			

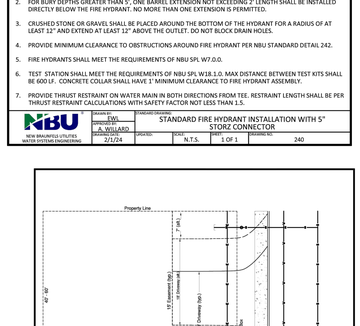


NOTES:

1. DEBRIS CAP SHALL BE INSTALLED AS CLOSE UNDER THE CAST IRON COVER WITHOUT INTERFERING WITH COVER OPERATION.
2. FLEXIBLE SKIRT SHALL BE TRIMMED TO PROVIDE A SMOOTH CONTACT WITH THE INTERIOR DIAMETER OF THE PIPE.
3. DEBRIS CAP SHALL MEET THE REQUIREMENTS OF NBU SPL W20.1.0.

NBU — NEW BRAUNFELS UTILITIES, WATER SYSTEMS ENGINEERING

DRAWN BY:	STANDARD DRAWING:	DEBRIS CAP INSTALLATION	
EWL			
DESIGNED BY: A. WILLARD			
ENGINEERING: 2/1/24	UPDATED:	SCALE: N.T.S.	SHEET: 2 OF 2
DRAWING NO.: 234			

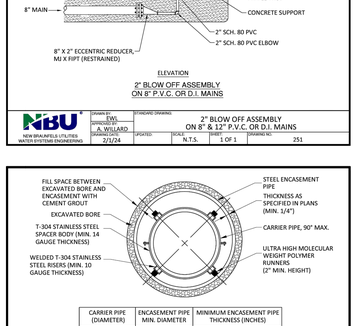


NOTES:

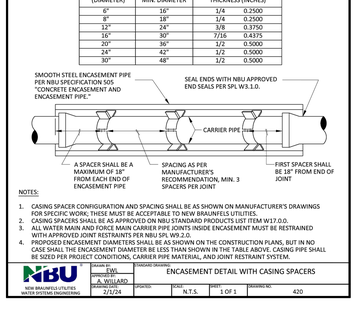
1. DIMENSIONS SHOWN ARE APPLICABLE FOR HYDRANTS INSTALLED BETWEEN CURB AND SIDEWALK. WHERE SIDEWALK ABUTS CURB, IN PUBLIC OR COMMERCIAL AREAS, THE OFFSET FROM BACK OF CURB SHALL BE 6" TO 9'. HYDRANTS ARE NOT TO BE PLACED IN SIDEWALK AREAS. SEE NEW BRAUNFELS UTILITIES STANDARD SPECIFICATIONS FOR LOCATION OF HYDRANT.
2. FOR BURY DEPTHS GREATER THAN 5', ONE BARREL EXTENSION NOT EXCEEDING 2' LENGTH SHALL BE INSTALLED DIRECTLY BELOW THE FIRE HYDRANT. NO MORE THAN ONE EXTENSION IS PERMITTED.
3. CRUSHED STONE OR GRAVEL SHALL BE PLACED AROUND THE BOTTOM OF THE HYDRANT FOR A RADIUS OF AT LEAST 12" AND EXTEND AT LEAST 12" ABOVE THE OUTLET. DO NOT BLOCK DRAIN HOLES.
4. PROVIDE MINIMUM CLEARANCE TO OBSTRUCTIONS AROUND FIRE HYDRANT PER NBU STANDARD DETAIL 242.
5. FIRE HYDRANTS SHALL MEET THE REQUIREMENTS OF NBU SPL W7.0.0.
6. TEST STATION SHALL MEET THE REQUIREMENTS OF NBU SPL W18.1.0. MAX DISTANCE BETWEEN TEST KITS SHALL BE 600 LF. CONCRETE COLLAR SHALL HAVE 1' MINIMUM CLEARANCE TO FIRE HYDRANT ASSEMBLY.
7. PROVIDE THRUST RESTRAINT ON WATER MAIN IN BOTH DIRECTIONS FROM TEE. RESTRAINT LENGTH SHALL BE PER THRUST RESTRAINT CALCULATIONS WITH SAFETY FACTOR NOT LESS THAN 1.5.

NBU — NEW BRAUNFELS UTILITIES, WATER SYSTEMS ENGINEERING

DRAWN BY:	STANDARD DRAWING:	STANDARD FIRE HYDRANT INSTALLATION WITH 5" STORZ CONNECTOR	
EWL			
DESIGNED BY: A. WILLARD			
ENGINEERING: 2/1/24	UPDATED:	SCALE: N.T.S.	SHEET: 1 OF 1
DRAWING NO.: 240			



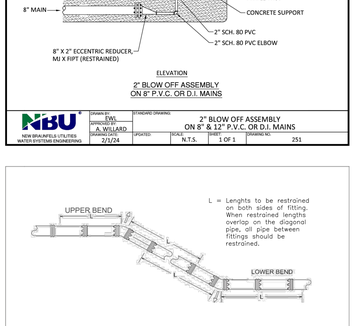
ELEVATION
2" BLOW OFF ASSEMBLY ON 12" P.V.C. OR D.I. MAINS



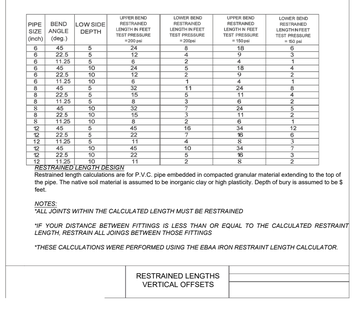
ELEVATION
2" BLOW OFF ASSEMBLY ON 8" P.V.C. OR D.I. MAINS

NBU — NEW BRAUNFELS UTILITIES, WATER SYSTEMS ENGINEERING

DRAWN BY:	STANDARD DRAWING:	2" BLOW OFF ASSEMBLY ON 8" & 12" P.V.C. OR D.I. MAINS	
EWL			
DESIGNED BY: A. WILLARD			
ENGINEERING: 2/1/24	UPDATED:	SCALE: N.T.S.	SHEET: 1 OF 1
DRAWING NO.: 251			



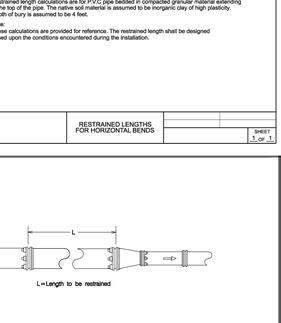
ELEVATION
2" BLOW OFF ASSEMBLY ON 12" P.V.C. OR D.I. MAINS



ELEVATION
2" BLOW OFF ASSEMBLY ON 8" P.V.C. OR D.I. MAINS

NBU — NEW BRAUNFELS UTILITIES, WATER SYSTEMS ENGINEERING

DRAWN BY:	STANDARD DRAWING:	2" BLOW OFF ASSEMBLY ON 8" & 12" P.V.C. OR D.I. MAINS	
EWL			
DESIGNED BY: A. WILLARD			
ENGINEERING: 2/1/24	UPDATED:	SCALE: N.T.S.	SHEET: 1 OF 1
DRAWING NO.: 251			



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

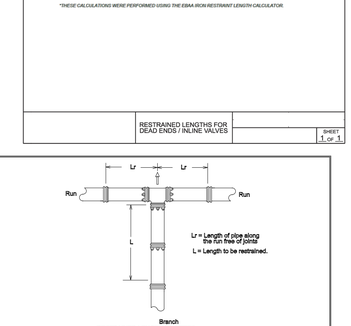
RESTRAINED LENGTH DESIGN

Restrained length calculations are for P.V.C. pipe bedded in compacted granular material extending to the top of the pipe. The native soil material is assumed to be inorganic clay of high plasticity. Depth of bury is assumed to be 4 feet.

Note:
These calculations are provided for reference. The restrained length shall be designed based upon the conditions encountered during the installation.

RESTRAINED LENGTHS FOR HORIZONTAL BENDS

SHEET 1 OF 1



L=LENGTH TO BE RESTRAINED

PIPE SIZE (inch)	RESTRAINED LENGTH IN FEET, WHEN TEXT PRESSURE = 150 psi	RESTRAINED LENGTH IN FEET, WHEN TEXT PRESSURE = 200 psi
8	58	78

RESTRAINED LENGTH DESIGN

Restrained length calculations are for P.V.C. pipe bedded in compacted granular material extending to the top of the pipe. The native soil material is assumed to be inorganic clay of high plasticity. Depth of bury is assumed to be 4 feet.

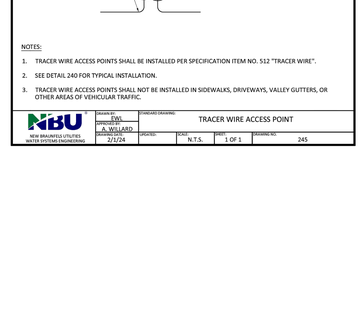
NOTES:
ALL JOINTS WITHIN THE CALCULATED LENGTH MUST BE RESTRAINED

IF YOUR DISTANCE BETWEEN FITTINGS IS LESS THAN OR EQUAL TO THE CALCULATED RESTRAINT LENGTH, RESTRAIN ALL JOINGS BETWEEN THOSE FITTINGS

THESE CALCULATIONS WERE PERFORMED USING THE EBAA IRON RESTRAINT LENGTH CALCULATOR.

RESTRAINED LENGTHS FOR DEAD ENDS / INLINE VALVES

SHEET 1 OF 1



NOTES:

1. TRACER WIRE ACCESS POINTS SHALL BE INSTALLED PER SPECIFICATION ITEM NO. 512 "TRACER WIRE".
2. SEE DETAIL 240 FOR TYPICAL INSTALLATION.
3. TRACER WIRE ACCESS POINTS SHALL NOT BE INSTALLED IN SIDEWALKS, DRIVEWAYS, VALLEY GUTTERS, OR OTHER AREAS OF VEHICULAR TRAFFIC.

NBU — NEW BRAUNFELS UTILITIES, WATER SYSTEMS ENGINEERING

DRAWN BY:	STANDARD DRAWING:	TRACER WIRE ACCESS POINT	
EWL			
DESIGNED BY: A. WILLARD			
ENGINEERING: 2/1/24	UPDATED:	SCALE: N.T.S.	SHEET: 1 OF 1
DRAWING NO.: 245			

NOTES:
All dimensions and locations shown are approximate. Actual dimensions and locations may vary as determined by the engineer and/or developer's representative. Contractor shall verify all dimensions and locations of the location of the existing water and sewer lines.

NBU — NEW BRAUNFELS UTILITIES, WATER SYSTEMS ENGINEERING

DRAWN BY: D. A.	STANDARD DRAWING:	NARROW LOT WATER & SEWER SERVICE ALIGNMENT SCENARIO	
APPROVED BY: N. P.			
DATE: 12/20/18	SCALE: N.T.S.	SHEET: 1 OF 1	DRAWING NO.: #10

CARRIER PIPE (DIAMETER)	ENCASEMENT PIPE MIN. DIAMETER	MINIMUM ENCASEMENT PIPE THICKNESS (INCHES)
6"	16"	1/4 0.2500
8"	18"	1/4 0.2500
12"	24"	3/8 0.3750
16"	30"	7/16 0.4375
20"	36"	1/2 0.5000
24"	42"	1/2 0.5000
30"	48"	1/2 0.5000

NOTES:

1. CASING SPACER CONFIGURATION AND SPACING SHALL BE AS SHOWN ON MANUFACTURER'S DRAWINGS FOR SPECIFIC WORK; THESE MUST BE ACCEPTABLE TO NEW BRAUNFELS UTILITIES.
2. CASING SPACERS SHALL BE AS APPROVED ON NBU STANDARD PRODUCTS LIST ITEM W17.0.0.
3. ALL WATER MAIN AND FORCE MAIN CARRIER PIPE JOINTS INSIDE ENCASEMENT MUST BE RESTRAINED WITH APPROVED JOINT RESTRAINTS PER NBU SPL W9.2.0.
4. PROPOSED ENCASEMENT DIAMETERS SHALL BE AS SHOWN ON THE CONSTRUCTION PLANS, BUT IN NO CASE SHALL THE ENCASEMENT DIAMETER BE LESS THAN SHOWN IN THE TABLE ABOVE. CASING PIPE SHALL BE SIZED PER PROJECT CONDITIONS, CARRIER PIPE MATERIAL, AND JOINT RESTRAINT SYSTEM.

NBU — NEW BRAUNFELS UTILITIES, WATER SYSTEMS ENGINEERING

DRAWN BY:	STANDARD DRAWING:	ENCASEMENT DETAIL WITH CASING SPACERS	
EWL			
DESIGNED BY: A. WILLARD			
ENGINEERING: 2/1/24	UPDATED:	SCALE: N.T.S.	SHEET: 1 OF 1
DRAWING NO.: 420			

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

RESTRAINED LENGTH DESIGN
Restrained length calculations are for P.V.C. pipe embedded in compacted granular material extending to the top of the pipe. The native soil material is assumed to be inorganic clay or high plasticity. Depth of bury is assumed to be 5 feet.

NOTES:
ALL JOINTS WITHIN THE CALCULATED LENGTH MUST BE RESTRAINED

IF YOUR DISTANCE BETWEEN FITTINGS IS LESS THAN OR EQUAL TO THE CALCULATED RESTRAINT LENGTH, RESTRAIN ALL JOINGS BETWEEN THOSE FITTINGS

THESE CALCULATIONS WERE PERFORMED USING THE EBAA IRON RESTRAINT LENGTH CALCULATOR.

RESTRAINED LENGTHS VERTICAL OFFSETS

PIPE SIZE (inch)	SMALL SIZE (inch)	RESTRAINED LENGTH IN FEET, WHEN TEXT PRESSURE = 150 psi	RESTRAINED LENGTH IN FEET, WHEN TEXT PRESSURE = 200 psi
8	6	42	56
8	6	25	42

RESTRAINED LENGTH DESIGN
Restrained length calculations are for P.V.C. pipe bedded in compacted granular material extending to the top of the pipe. The native soil material is assumed to be inorganic clay of high plasticity. Depth of bury is assumed to be 4 feet.

NOTES:
ALL JOINTS WITHIN THE CALCULATED LENGTH MUST BE RESTRAINED

IF YOUR DISTANCE BETWEEN FITTINGS IS LESS THAN OR EQUAL TO THE CALCULATED RESTRAINT LENGTH, RESTRAIN ALL JOINGS BETWEEN THOSE FITTINGS

THESE CALCULATIONS WERE PERFORMED USING THE EBAA IRON RESTRAINT LENGTH CALCULATOR.

RESTRAINED LENGTHS FOR REDUCERS

SHEET 1 OF 1

Branch

RESTRAINED LENGTH FOR TEES

PIPE SIZE (inch)	BRANCH SIZE (inch)	LENGTH OF RUN (ft)	RESTRAINED LENGTH IN FEET, WHEN TEXT PRESSURE = 150 psi	RESTRAINED LENGTH IN FEET, WHEN TEXT PRESSURE = 200 psi
8	8	0	58	78
8	8	5	32	51
8	8	10	6	25
8	8	15	1	3

RESTRAINED LENGTH DESIGN
Restrained length calculations are for P.V.C pipe bedded in compacted granular material extending to the top of the pipe. The native soil material is assumed to be inorganic clay of high plasticity. Depth of bury is assumed to be 4 feet.

NOTES:
ALL JOINTS WITHIN THE CALCULATED LENGTH MUST BE RESTRAINED

IF YOUR DISTANCE BETWEEN FITTINGS IS LESS THAN OR EQUAL TO THE CALCULATED RESTRAINT LENGTH, RESTRAIN ALL JOINGS BETWEEN THOSE FITTINGS

THESE CALCULATIONS WERE PERFORMED USING THE EBAA IRON RESTRAINT LENGTH CALCULATOR.

RESTRAINED LENGTHS FOR TEES

SHEET 1 OF 1

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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
WAYNE FLORES
90130
LICENSED PROFESSIONAL ENGINEER
9/2/2025

FINAL SUBDIVISION PLAN

FOR

SILVERLEAF CONDOMINIUMS

COMAL COUNTY TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
162 West Mill Street
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	03/11/2025	DG	WF

PROJECT NUMBER: 1186-01-02
DRAWING NAME: 7.4 WATER DISTRIBUTION DETAIL SHEET

SHEET TITLE:
WATER DISTRIBUTION DETAIL SHEET

SHEET NUMBER:
7.5

Date: Sep 02, 2025, 10:59am User ID: ASerna
File: L:\Projects\1186\01\02\Design\Civil\Water\7.4 WATER DISTRIBUTION DETAIL SHEET.dwg
ZDesignCivilWater\7.4 WATER DISTRIBUTION DETAIL SHEET.dwg By: ASERNA

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.

PROJECT COMPLETION:

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

GENERAL:

1. *THIS EXHIBIT IS TO BE USED FOR THE PURPOSES OF STORMWATER POLLUTION PREVENTION ONLY. ALL OTHER CIVIL ENGINEERING INFORMATION SHOULD BE OBTAINED FROM THE APPROPRIATE CONSTRUCTION DOCUMENTS.*
2. *THE PURPOSE OF THE SIGNATURE AND SEAL OF THE ENGINEER ON THIS DOCUMENT IS TO DEMONSTRATE COMPLIANCE WITH THE TPDES STORMWATER POLLUTION PREVENTION PLAN REGULATIONS ONLY.*
3. *ALL OWNERS/OPERATORS ARE RESPONSIBLE FOR FAMILIARIZING THEMSELVES WITH THE STORMWATER POLLUTION PREVENTION PLAN AND COMPLYING WITH THE REGULATIONS CONTAINED WITHIN IT.*
4. *PER TPDES REQUIREMENTS, DISTURBED AREAS ON WHICH CONSTRUCTION ACTIVITIES HAVE CEASED (TEMPORARILY OR PERMANENTLY), SHALL BE STABILIZED WITHIN 14 DAYS UNLESS ACTIVITY RESUMES WITHIN 21 DAYS. SEEDING DOES NOT CONSTITUTE AS STABILIZATION.*

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

BENCHMARKS

BM#	NORTHING	EASTING	ELEVATION	DESCRIPITION
300	13831849.86	2261419.20	719.76	SBM LEVELED
301	13832175.16	2261090.25	707.65	SBM LEVELED

Seeding and Establishment of Vegetation within Earthen Channels, Stormwater Basins and Disturbed Areas

Seeding for the purpose of establishing vegetation within constructed earthen channels, basins and disturbed areas shall be conducted in accordance with Item 164 (Seeding for Erosion Control of TxDOT's Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges manual. Only seed types and mixes specified for the San Antonio District (District 15 in Tables 1 and 2 under Item 164 shall be utilized. During the Cool Season (Sept 1-Nov 30, Cereal Rye and seed species specified for the San Antonio District in Table 3 may be used. For Cool Season seeding applications, cool season seed mixes shall be used in conjunction with seed mixes for the San Antonio District as specified in Table 1 and 2 under Item 164.

COORDINATION NOTE:

1. *CONTACT SPECTRUM TO COORDINATE CABLE TV SERVICE. (210) 244-0500*
2. *CONDUIT FOR ELECTRICAL SERVICE. CONFIRM REQUIREMENTS AND COORDINATE WITH NEW BRAUNFELS UTILITY FOR INSPECTION. (866) 629-8400.*
3. *CONTACT AT&T TO COORDINATE TELEPHONE SERVICE. 1-800-449-7928.*
4. *CONTRACTOR TO COORDINATE WITH NEW BRAUNFELS UTILITY PRIOR TO CONSTRUCTION TO PLAN ELECTRIC SERVICE.*
5. *CONTRACTOR TO COORDINATE WITH NEW BRAUNFELS UTILITY TO PLAN WATER SERVICES (866) 629-8400.*
6. *CONTRACTOR SHALL CONTACT 1-800-DIG-TESS A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION.*

MAINTENANCE AND INSPECTION:

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

INSTALLATION:

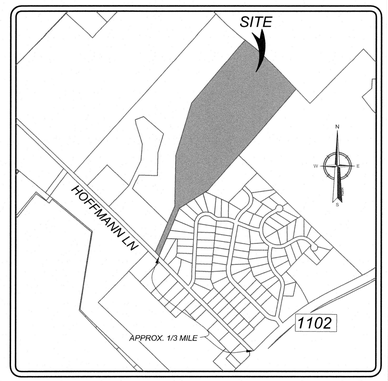
1. *ALL OPERATORS SHALL SUBMIT A NOTICE OF INTENT (NOI) AT LEAST 48 HOURS IN ADVANCE AND ALL BEST MANAGEMENT PRACTICES (BMP'S) SHALL BE IN PLACE PRIOR TO STARTING CONSTRUCTION ACTIVITIES.*
2. *CONTRACTOR TO ENSURE THAT STRUCTURAL BMP'S ARE INSTALLED WITHIN THE LIMITS OF THE SITE BOUNDARY.*
3. *CONTRACTOR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

SW3P MODIFICATIONS

DATE	SIGNATURE	DESCRIPTION

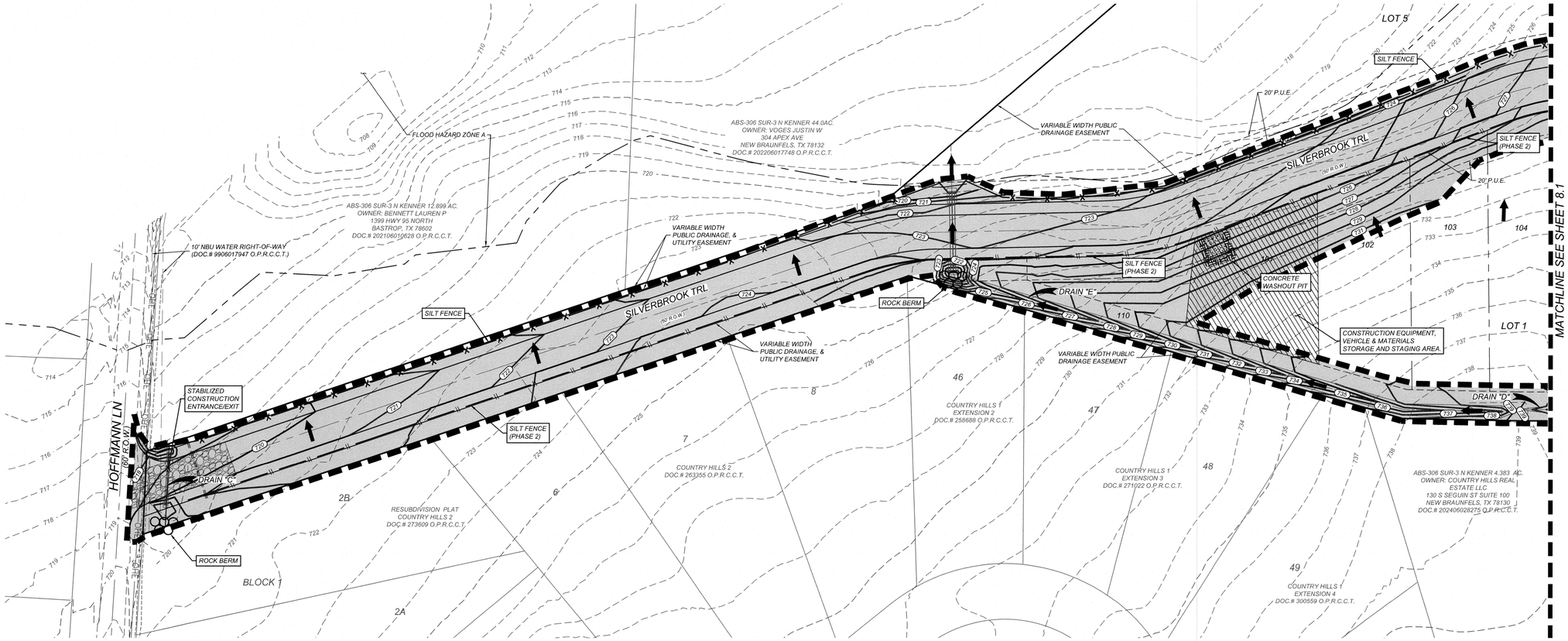
LEGEND

- LIMITS OF CONSTRUCTION
- 780 EXISTING CONTOURS
- 780 PROPOSED GRADE
- 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
- SILT FENCE PHASE 1
- SILT FENCE PHASE 2



LOCATION MAP
1" = 1000'

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



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REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
WAYNE FLORES
90130
LICENSED PROFESSIONAL ENGINEER
10.27.25

FINAL SUBDIVISION PLAN

FOR

SILVERLEAF CONDOMINIUMS

COMAL COUNTY
TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
162 West Mill Street
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14809
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	03/11/2025	DG	WF

PROJECT NUMBER:	DRAWING NAME:
1186-01-02	EROSION AND SEDIMENTATION CONTROL PLAN

SHEET TITLE:
EROSION AND SEDIMENTATION CONTROL PLAN

SHEET NUMBER:
8.0

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Oct 24, 2025, 10:17am User ID: mplenn
File: U:\Projects\1186\01\02\Design\Civil\SWPPP\EROSION AND SEDIMENTATION CONTROL PLAN.dwg
ZDesign\Civil\SWPPP\EROSION AND SEDIMENTATION CONTROL PLAN.dwg8.1 EROSION AND SEDIMENTATION CONTROL PLAN By: MCLENN

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.

PROJECT COMPLETION:

1. ALL DISTURBED AREAS ARES NOT COVERED BY IMPERVIOUS COVER ARE TO BE STABILIZED PER THE SWPPP AND PROJECT SPECIFICATIONS PRIOR TO REMOVAL OF ANY BMP'S AND/OR PRIOR TO FILING A NOTICE OF TERMINATION (NOT).
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3. CONTRACTOR TO ENSURE THEY HAVE MET ALL REQUIREMENTS OF THE SWPPP BEFORE FILING A NOTICE OF TERMINATION (NOT).

GENERAL:

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COORDINATION NOTE:

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2. CONDUIT FOR ELECTRICAL SERVICE. CONFIRM REQUIREMENTS AND COORDINATE WITH NEW BRAUNFELS UTILITY FOR INSPECTION. (866) 629-8400.

3. CONTACT AT&T TO COORDINATE TELEPHONE SERVICE. 1-800-449-7928.

4. CONTRACTOR TO COORDINATE WITH NEW BRAUNFELS UTILITY PRIOR TO CONSTRUCTION TO PLAN ELECTRIC SERVICE.

5. CONTRACTOR TO COORDINATE WITH NEW BRAUNFELS UTILITY TO PLAN WATER SERVICES (866) 629-8400.

6. CONTRACTOR SHALL CONTACT 1-800-DIG-TESS A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION.

MAINTENANCE AND INSPECTION:

1. CONTRACTOR SHOULD LIMIT CONSTRUCTION ACTIVITIES TO ONLY THOSE AREAS SHOWN TO BE DISTURBED ON THIS PLAN. IF ADDITIONAL VEGETATED AREAS ARE DISTURBED, THEY SHOULD BE PROTECTED WITH APPROPRIATE BEST MANAGEMENT PRACTICES UNTIL THE AREAS HAVE BEEN STABILIZED AS PER THE SPECIFICATIONS OF THE SWPPP. THE AREAS OF THIS ADDITIONAL SOIL DISTURBANCE AND THE MEASURES USED SHOULD BE SHOWN ON THE SITE PLAN AND NOTED WITHIN THE MODIFICATIONS SECTION WITH THE SIGNATURE AND DATE OF THE RESPONSIBLE PARTY.

2. CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE AND INSPECTION OF BMP'S AS PER THE SPECIFICATIONS OF THE SWPPP. THE CONTRACTOR MAY MODIFY THE CONTROLS AS NECESSARY TO PREVENT SEDIMENT RUNOFF. THESE MODIFICATIONS SHOULD BE SHOWN AND THE SITE PLAN AND NOTED WITHIN THE MODIFICATIONS SECTION WITH THE SIGNATURE AND DATE OF THE RESPONSIBLE PARTY.

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

INSTALLATION:

1. ALL OPERATORS SHALL SUBMIT A NOTICE OF INTENT (NOI) AT LEAST 48 HOURS IN ADVANCE AND ALL BEST MANAGEMENT PRACTICES (BMPS) SHALL BE IN PLACE PRIOR TO STARTING CONSTRUCTION ACTIVITIES.

2. CONTRACTOR TO ENSURE THAT STRUCTURAL BMP'S ARE INSTALLED WITHIN THE LIMITS OF THE SITE BOUNDARY.

3. CONTRACTOR MAY INSTALL THE BEST MANAGEMENT PRACTICES IN PHASES THAT COINCIDE WITH THE DISTURBANCE OF UP GRADIENT AREAS. THIS PHASING SHOULD BE NOTED WITHIN THE MODIFICATIONS SECTION WITH THE SIGNATURE AND DATE OF THE RESPONSIBLE PARTY.

4. CONTRACTOR TO VERIFY SUFFICIENT VEGETATION IN AREAS DENOTED AS VEGETATED FILTER STRIP. IF INSUFFICIENT VEGETATION EXISTS, CONTRACTOR SHALL IMPLEMENT A DIFFERENT BEST MANAGEMENT PRACTICE AND WILL SHOW IT ON THIS PLAN WITH NOTATION IN THE MODIFICATIONS SECTION WITH THE SIGNATURE AND DATE OF THE RESPONSIBLE PARTY.

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

BENCHMARKS

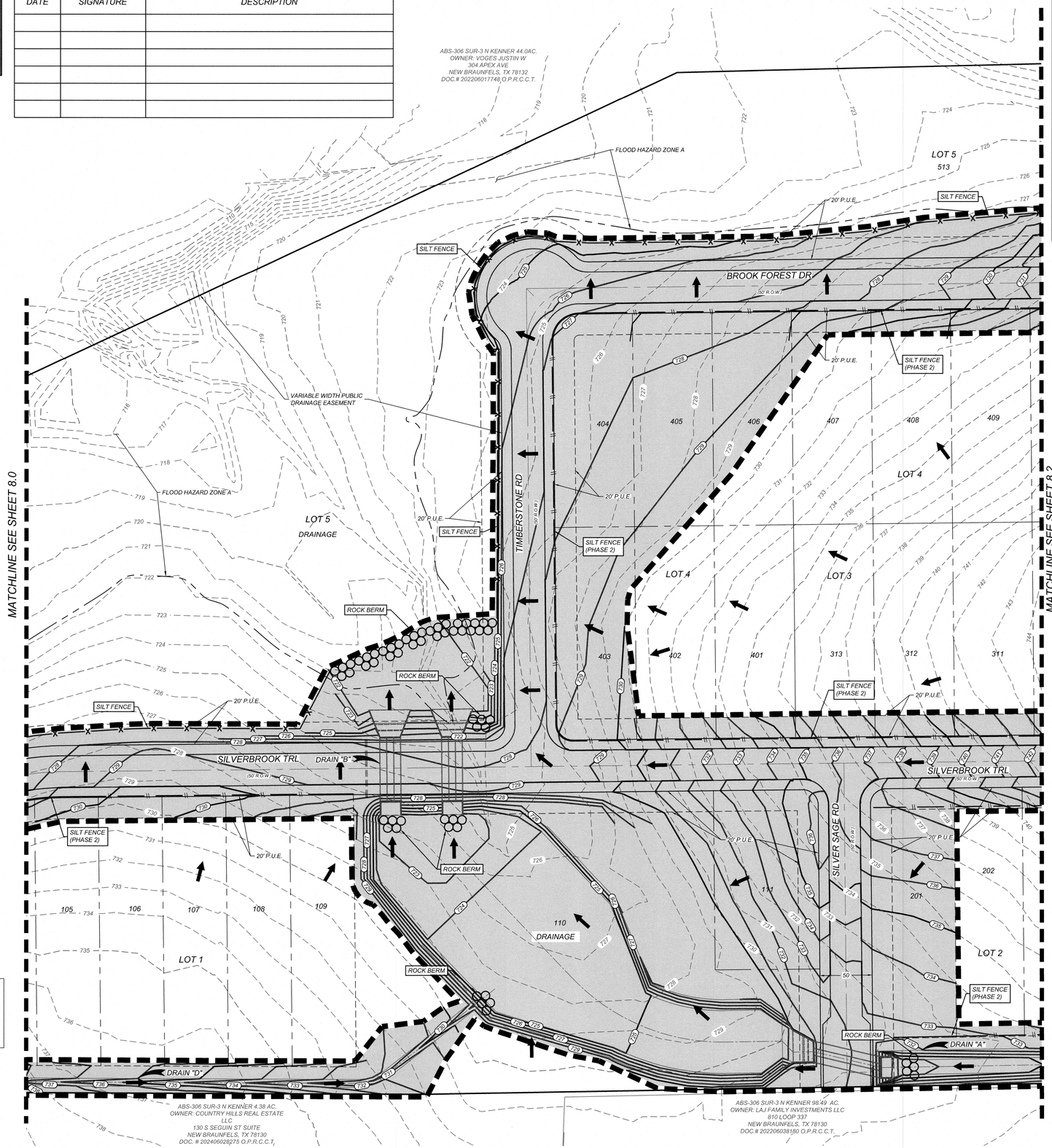
BM#	NORTHING	EASTING	ELEVATION	DESCRIPITION
300	13831849.86	2261419.20	719.76	SBM LEVELED
301	13832175.16	2261090.25	707.65	SBM LEVELED

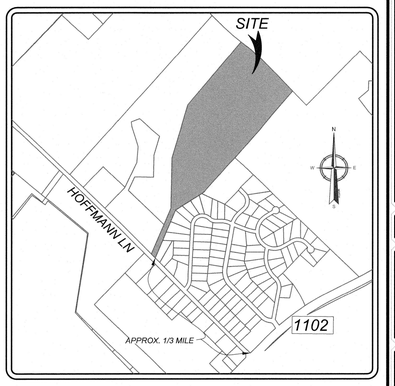
Seeding and Establishment of Vegetation within Earthen Channels, Stormwater Basins and Disturbed Areas

Seeding for the purpose of establishing vegetation within constructed earthen channels, basins and disturbed areas shall be conducted in accordance with Item 164 (Seeding for Erosion Control of TxDOT's Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges manual. Only seed types and mixes specified for the San Antonio District (District 15 in Tables 1 and 2 under Item 164 shall be utilized. During the Cool Season (Sept 1-Nov 30, Cereal Rye and seed species specified for the San Antonio District in Table 3 may be used. For Cool Season seeding applications, cool season seed mixes shall be used in conjunction with seed mixes for the San Antonio District as specified in Table 1 and 2 under Item 164.

SW3P MODIFICATIONS

DATE	SIGNATURE	DESCRIPTION





LOCATION MAP
1" = 1000'

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

LEGEND

- LIMITS OF CONSTRUCTION
- 780 — EXISTING CONTOURS
- 780 PROPOSED GRADE
- 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
- SILT FENCE PHASE 1
- SILT FENCE PHASE 2

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

REV	DATE	DRAWN BY	DESCRIPTION

STATE OF TEXAS
WAYNE FLORES
90130
LICENSED PROFESSIONAL ENGINEER
10.27.25

FINAL SUBDIVISION PLAN

FOR

SILVERLEAF CONDOMINIUMS

COMAL COUNTY TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
162 West Mill Street
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	03/11/2025	DG	WF

PROJECT NUMBER:	DRAWING NAME:
1186-01-02	EROSION AND SEDIMENTATION CONTROL PLAN

SHEET TITLE:
EROSION AND SEDIMENTATION CONTROL PLAN

SHEET NUMBER:
8.1

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Oct 24, 2025, 10:18am User ID: mglenn
File: U:\Projects\1186\01\02\Design\Civil\SW3P\EROSION AND SEDIMENTATION CONTROL PLAN.dwg
ZSheetSet\SW3P\EROSION AND SEDIMENTATION CONTROL PLAN\sht8.1 EROSION AND SEDIMENTATION CONTROL PLAN By: MGLENN

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.

PROJECT COMPLETION:

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

GENERAL:

1. *THIS EXHIBIT IS TO BE USED FOR THE PURPOSES OF STORMWATER POLLUTION PREVENTION ONLY. ALL OTHER CIVIL ENGINEERING INFORMATION SHOULD BE OBTAINED FROM THE APPROPRIATE CONSTRUCTION DOCUMENTS.*
2. *THE PURPOSE OF THE SIGNATURE AND SEAL OF THE ENGINEER ON THIS DOCUMENT IS TO DEMONSTRATE COMPLIANCE WITH THE TPDES STORMWATER POLLUTION PREVENTION PLAN REGULATIONS ONLY.*
3. *ALL OWNER/OPERATORS ARE RESPONSIBLE FOR FAMILIARIZING THEMSELVES WITH THE STORMWATER POLLUTION PREVENTION PLAN AND COMPLYING WITH THE REGULATIONS CONTAINED WITHIN IT.*
4. *PER TPDES REQUIREMENTS, DISTURBED AREAS ON WHICH CONSTRUCTION ACTIVITIES HAVE CEASED (TEMPORARILY OR PERMANENTLY) SHALL BE STABILIZED WITHIN 14 DAYS UNLESS ACTIVITY RESUMES WITHIN 21 DAYS. SEEDING DOES NOT CONSTITUTE AS STABILIZATION.*

COORDINATION NOTE:

1. *CONTACT SPECTRUM TO COORDINATE CABLE TV SERVICE. (210) 244-0500*
2. *CONDUIT FOR ELECTRICAL SERVICE. CONFIRM REQUIREMENTS AND COORDINATE WITH NEW BRAUNFELS UTILITY FOR INSPECTION. (866) 629-8400.*
3. *CONTACT AT&T TO COORDINATE TELEPHONE SERVICE. 1-800-449-7928.*
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6. *CONTRACTOR SHALL CONTACT 1-800-DIG-TESS A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION.*

MAINTENANCE AND INSPECTION:

1. *CONTRACTOR SHOULD LIMIT CONSTRUCTION ACTIVITIES TO ONLY THOSE AREAS SHOWN TO BE DISTURBED ON THIS PLAN. IF ADDITIONAL VEGETATED AREAS ARE DISTURBED, THEY SHOULD BE PROTECTED WITH APPROPRIATE BEST MANAGEMENT PRACTICES UNTIL THE AREAS HAVE BEEN STABILIZED AS PER THE SPECIFICATIONS OF THE SWPPP. THE AREAS OF THIS ADDITIONAL SOIL DISTURBANCE AND THE MEASURES USED SHOULD BE SHOWN ON THE SITE PLAN AND NOTED WITHIN THE MODIFICATIONS SECTION WITH THE SIGNATURE AND DATE OF THE RESPONSIBLE PARTY.*
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INSTALLATION:

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2. *CONTRACTOR TO ENSURE THAT STRUCTURAL BMP'S ARE INSTALLED WITHIN THE LIMITS OF THE SITE BOUNDARY.*
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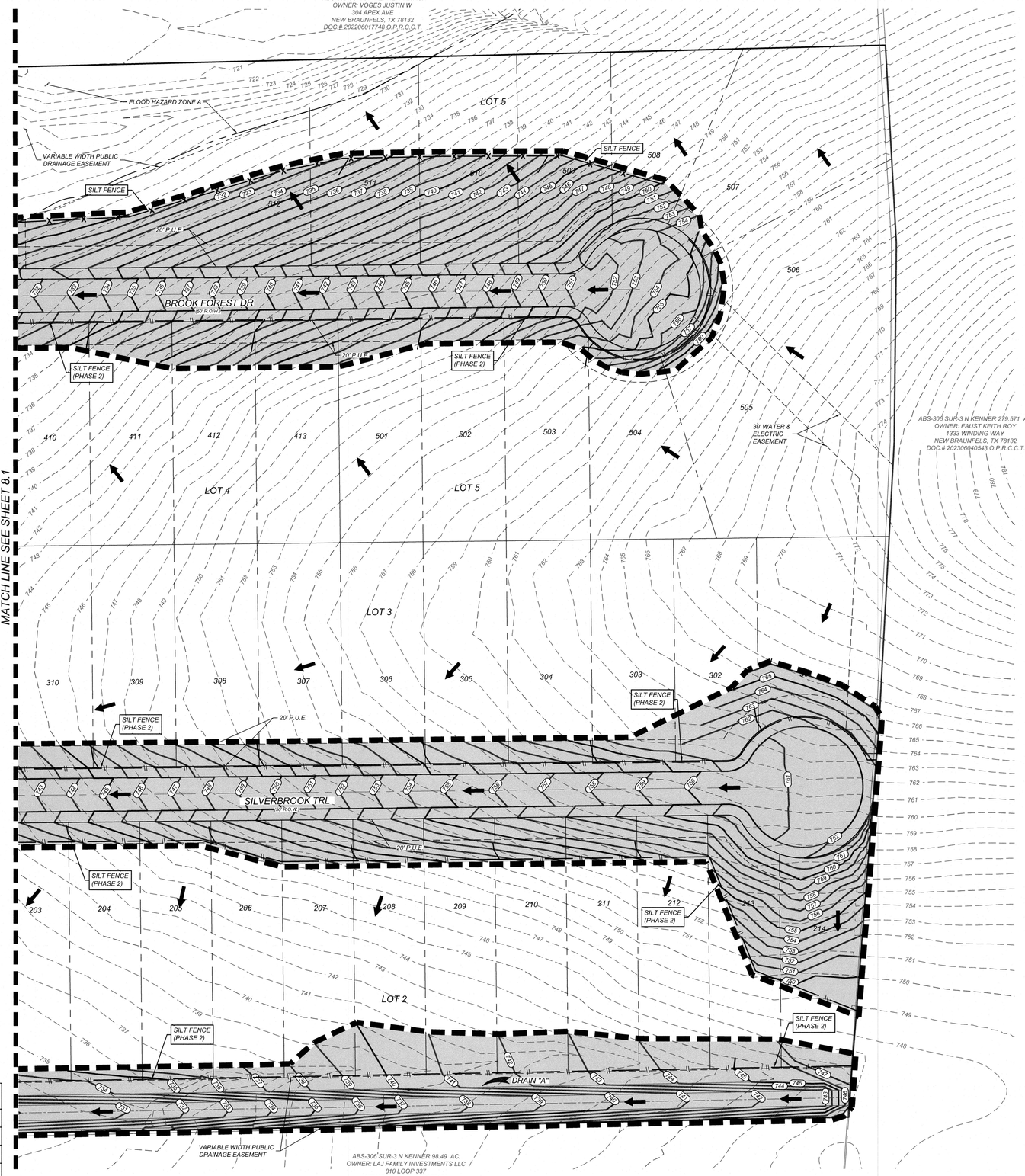

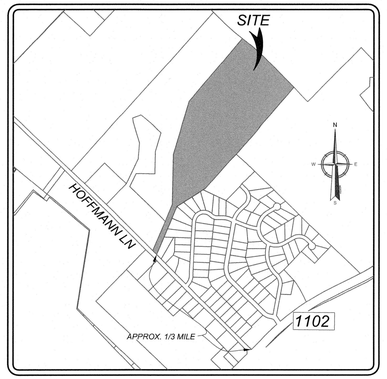

LOCATION MAP
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SCALE : 1"=50'
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LEGEND

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REV	DATE	DRAWN BY	DESCRIPTION

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LICENSED PROFESSIONAL ENGINEER
10.27.25

FINAL SUBDIVISION PLAN

FOR

SILVERLEAF CONDOMINIUMS

COMAL COUNTY TEXAS

Colliers Engineering & Design
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162 West Mill Street
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	03/11/2025	DG	WF

PROJECT NUMBER: 1186-01-02
DRAWING NAME: EROSION AND SEDIMENTATION CONTROL PLAN

SHEET TITLE: *EROSION AND SEDIMENTATION CONTROL PLAN*

SHEET NUMBER: 8.2

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Oct 24, 2025, 10:20am User ID: mglenn
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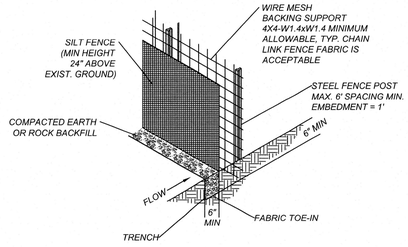
Z:\Design\Civil\SW3P\EROSION AND SEDIMENTATION CONTROL PLAN_Page2-3 EROSION AND SEDIMENTATION CONTROL PLAN By: MGLENN



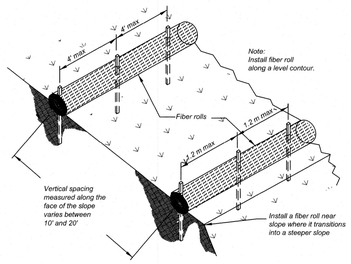
ISOMETRIC PLAN VIEW

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.

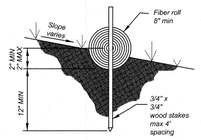
Installation:
(1) Steel posts, which support the silt fence, should be installed on a slight angle toward the anticipated runoff source. Post must be embedded a minimum of 1- foot deep and spaced not more than 8 feet on center. Where water concentrates, the maximum spacing should be 6 feet.
(2) Lay out 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 stone flow or drainage.

Inspection and Maintenance Guidelines:
(1) Inspect all fencing weekly, and after any rainfall.
(2) Remove sediment when buildup reaches 6 inches.
(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



TYPICAL FIBER ROLL INSTALLATION
N.T.S.



ENTRENCHMENT DETAIL
N.T.S.

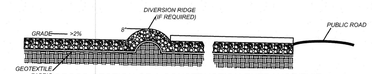
FIBER ROLL

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

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

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

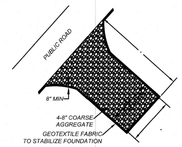
Inspection and Maintenance Guidelines:
(1) Inspect prior to forecast rain, daily during extended rain events, after rain events, and weekly.
(2) Repair or replace split, torn, unraveling, or slumping fiber rolls.
(3) If the fiber roll is used as a sediment capture device, or as an erosion control device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



CROSS-SECTION OF A CONSTRUCTION ENTRANCE/EXIT

Materials:

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

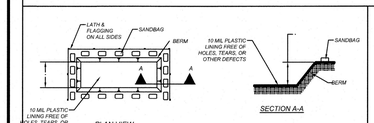


TEMPORARY CONSTRUCTION ENTRANCE/EXIT

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

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

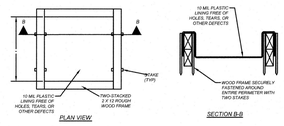
STABILIZED CONSTRUCTION ENTRANCE / EXIT



PLAN VIEW

SECTION A-A

TYPE "BELOW GRADE"



PLAN VIEW

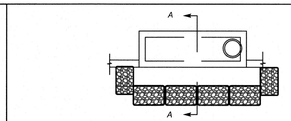
SECTION B-B

TYPE "ABOVE GRADE"

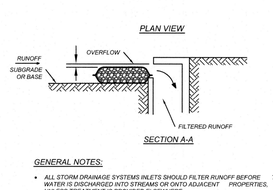
GENERAL NOTES:

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

CONCRETE TRUCK WASHOUT PIT



PLAN VIEW

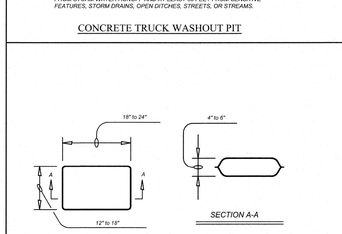


SECTION A-A

GENERAL NOTES:

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

CURB INLET PROTECTION GRAVEL FILTER BAGS

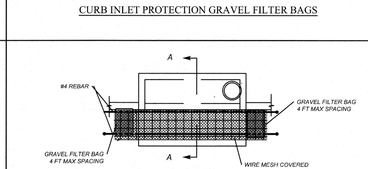


SECTION A-A

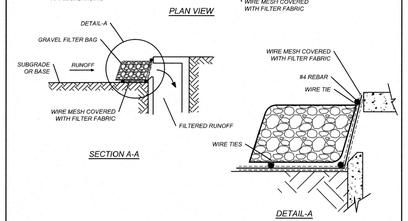
GENERAL NOTES:

- *THE FILTER BAG MATERIAL SHALL BE MADE OF POLYPROPYLENE, POLYETHYLENE OR POLYAMIDE WOVEN FABRIC, MIN UNIT WEIGHT OF 4 OUNCES/SY, MULLEN BURST STRENGTH EXCEEDING 300 PSI AND 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



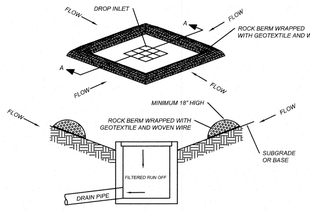
PLAN VIEW



SECTION A-A

DETAIL-A

CURB INLET PROTECTION (ALTERNATE)

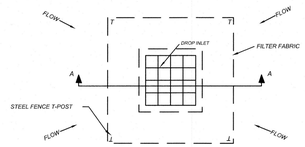


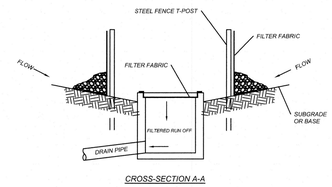
CROSS-SECTION A-A

GENERAL NOTES:

- *USE OPEN GRADED CLEAN STONE.*
- *THE ROCK SHOULD BE ENCLOSED WITH A WOVEN WIRE SHEATHING HAVING MAXIMUM 1 INCH OPENING AND MINIMUM WIRE DIAMETER OF 20 GAUGE AND WRAPPED IN GEOTEXTILE WITH 300 PSI BURST STRENGTH FILTER FABRIC.*
- *INSPECTION SHOULD BE MADE FREQUENTLY ON SEVERE SERVICE ROCK BERMS; SILT SHOULD BE REMOVED WHEN ACCUMULATION REACHES 4 INCHES OR MORE.*
- *WHEN THE SITE IS COMPLETELY STABILIZED, THE BERM AND ACCUMULATED SILT SHOULD BE REMOVED AND DISPOSED OF IN AN APPROVED MANNER.*

GRATE INLET PROTECTION



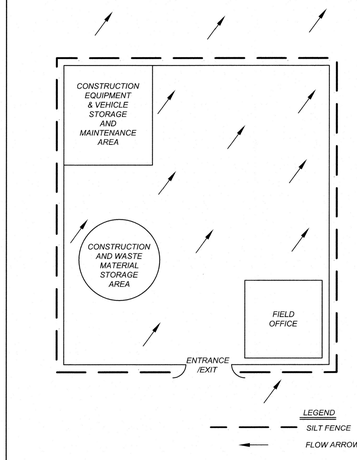


CROSS-SECTION A-A

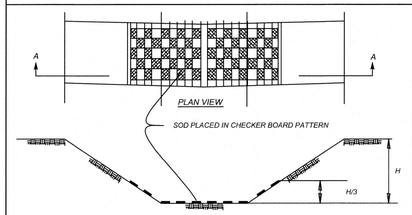
GENERAL NOTES:

- *ALL MATERIALS AND ERECTION PROCEDURES WILL BE THE SAME AS DESCRIBED IN THE STANDARD SILT FENCE REQUIREMENTS.*

GRATE INLET PROTECTION (ALTERNATE)



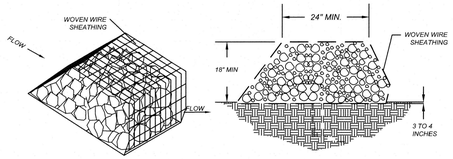
TYPICAL CONSTRUCTION STAGING AREA



SECTION A-A

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

CHANNEL LINING



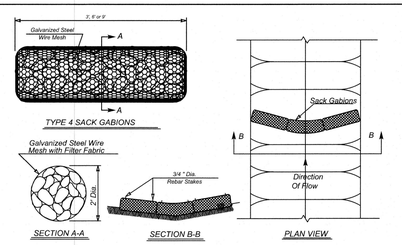
ISOMETRIC PLAN VIEW — CROSS SECTION

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

Installation:
(1) Lay out the woven wire sheathing perpendicular to the flow line. The sheathing should be 20 gauge woven wire mesh with 1 inch openings.
(2) Berm should have a top width of 2 feet minimum with side slopes being 2:1 (H:V) or flatter.
(3) Place the rock along the sheathing as shown in the diagram Figure 1-28), to a height not less than 18".
(4) Wrap the wire sheathing around the rock and secure with tie wire so that the ends of the sheathing overlap at least 2 inches, ain 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



SECTION A-A — SECTION B-B — PLAN VIEW

GENERAL NOTES:

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

TYPE 4 SACK GABIONS

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FINAL SUBDIVISION PLAN

FOR

SILVERLEAF CONDOMINIUMS

COMAL COUNTY TEXAS

Colliers Engineering & Design
NEW BRAUNFELS (KFW)
162 West Mill Street
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14809
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	03/11/2025	DG	WF

PROJECT NUMBER:	DRAWING NAME:
1186-01-02	EROSION AND SEDIMENTATION CONTROL PLAN DETAILS

SHEET TITLE: *EROSION AND SEDIMENTATION CONTROL PLAN DETAILS*

SHEET NUMBER: 8.3

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Date: Oct 24, 2025, 10:25am User ID: mglenn
File: U:\Projects\1186\01\02\Design\Civil\SWPP\EROSION AND SEDIMENTATION CONTROL PLAN DETAILS.dwg
J:\Design\Civil\SWPP\EROSION AND SEDIMENTATION CONTROL PLAN DETAILS.dwg,8.3 EROSION AND SEDIMENTATION CONTROL PLAN DETAILS By: MGLENN