ORGANIZED SEWAGE COLLECTION SYSTEM

LOST WOODS ESTATES
2855 CR 175
LEANDER, WILLIAMSON COUNTY, TEXAS

Prepared For:

M I HOMES OF AUSTIN, LLC

7600 N. Capital of Texas Hwy.; Bldg. C, Suite 250
Austin, TX 78731
512-770-8505

Prepared By:

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Firm No. 928
KHA Project No. 067783129

01/05/2026

01/05/2026

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SECTION 1: EDWARDS AQUIFER APPLICATION COVER PAGE

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Texas Commission on Environmental Quality

Edwards Aquifer Application Cover Page

Our Review of Your Application

The Edwards Aquifer Program staff conducts an administrative and technical review of all applications. The turnaround time for administrative review can be up to 30 days as outlined in 30 TAC 213.4(e). Generally administrative completeness is determined during the intake meeting or within a few days of receipt. The turnaround time for technical review of an administratively complete Edwards Aquifer application is 90 days as outlined in 30 TAC 213.4(e). Please know that the review and approval time is directly impacted by the quality and completeness of the initial application that is received. In order to conduct a timely review, it is imperative that the information provided in an Edwards Aquifer application include final plans, be accurate, complete, and in compliance with 30 TAC 213.

Administrative Review

1. Edwards Aquifer applications must be deemed administratively complete before a technical review can begin. To be considered administratively complete, the application must contain completed forms and attachments, provide the requested information, and meet all the site plan requirements. The submitted application and plan sheets should be final plans. Please submit one full-size set of plan sheets with the original application, and half-size sets with the additional copies.

   To ensure that all applicable documents are included in the application, the program has developed tools to guide you and web pages to provide all forms, checklists, and guidance. Please visit the below website for assistance: http://www.tceq.texas.gov/field/eapp.

2. This Edwards Aquifer Application Cover Page form (certified by the applicant or agent) must be included in the application and brought to the administrative review meeting.

3. Administrative reviews are scheduled with program staff who will conduct the review. Applicants or their authorized agent should call the appropriate regional office, according to the county in which the project is located, to schedule a review. The average meeting time is one hour.

4. In the meeting, the application is examined for administrative completeness. Deficiencies will be noted by staff and emailed or faxed to the applicant and authorized agent at the end of the meeting, or shortly after. Administrative deficiencies will cause the application to be deemed incomplete and returned.

   An appointment should be made to resubmit the application. The application is re-examined to ensure all deficiencies are resolved. The application will only be deemed administratively complete when all administrative deficiencies are addressed.

5. If an application is received by mail, courier service, or otherwise submitted without a review meeting, the administrative review will be conducted within 30 days. The applicant and agent will be contacted with the results of the administrative review. If the application is found to be administratively incomplete, it can be retrieved from the regional office or returned by regular mail. If returned by mail, the regional office may require arrangements for return shipping.
6. If the geologic assessment was completed before October 1, 2004 and the site contains "possibly sensitive" features, the assessment must be updated in accordance with the *Instructions to Geologists* (TCEQ-0585 Instructions).

Technical Review

1. When an application is deemed administratively complete, the technical review period begins. The regional office will distribute copies of the application to the identified affected city, county, and groundwater conservation district whose jurisdiction includes the subject site. These entities and the public have 30 days to provide comments on the application to the regional office. All comments received are reviewed by TCEQ.

2. A site assessment is usually conducted as part of the technical review, to evaluate the geologic assessment and observe existing site conditions. The site must be accessible to our staff. The site boundaries should be clearly marked, features identified in the geologic assessment should be flagged, roadways marked and the alignment of the Sewage Collection System and manholes should be staked at the time the application is submitted. If the site is not marked the application may be returned.

3. We evaluate the application for technical completeness and contact the applicant and agent via Notice of Deficiency (NOD) to request additional information and identify technical deficiencies. There are two deficiency response periods available to the applicant. There are 14 days to resolve deficiencies noted in the first NOD. If a second NOD is issued, there is an additional 14 days to resolve deficiencies. If the response to the second notice is not received, is incomplete or inadequate, or provides new information that is incomplete or inadequate, the application must be withdrawn or will be denied. Please note that because the technical review is underway, whether the application is withdrawn or denied **the application fee will be forfeited**.
4. The program has 90 calendar days to complete the technical review of the application. If the application is technically adequate, such that it complies with the Edwards Aquifer rules, and is protective of the Edwards Aquifer during and after construction, an approval letter will be issued. Construction or other regulated activity may not begin until an approval is issued.

Mid-Review Modifications

It is important to have final site plans prior to beginning the permitting process with TCEQ to avoid delays.

Occasionally, circumstances arise where you may have significant design and/or site plan changes after your Edwards Aquifer application has been deemed administratively complete by TCEQ. This is considered a "Mid-Review Modification". Mid-Review Modifications may require redistribution of an application that includes the proposed modifications for public comment.

If you are proposing a Mid-Review Modification, two options are available:

- If the technical review has begun your application can be denied/withdrawn, your fees will be forfeited, and the plan will have to be resubmitted.
- TCEQ can continue the technical review of the application as it was submitted, and a modification application can be submitted at a later time.

If the application is denied/withdrawn, the resubmitted application will be subject to the administrative and technical review processes and will be treated as a new application. The application will be redistributed to the affected jurisdictions.

Please contact the regional office if you have questions. If your project is located in Williamson, Travis, or Hays County, contact TCEQ's Austin Regional Office at 512-339-2929. If your project is in Comal, Bexar, Medina, Uvalde, or Kinney County, contact TCEQ's San Antonio Regional Office at 210-490-3096

Please fill out all required fields below and submit with your application.

1. Regulated Entity Name: Lost Woods Estates						**2. Regulated Entity No.:** N/A			
3. Customer Name: M I Homes of Austin, LLC						**4. Customer No.:** 604305250			
5. Project Type: **(Please circle/check one)**	**New**		Modification			Extension		Exception	
6. Plan Type: **(Please circle/check one)**	WPAP	CZP	**SCS**	UST	AST	EXP	EXT	Technical Clarification	Optional Enhanced Measures
7. Land Use: **(Please circle/check one)**	**Residential**		Non-residential			**8. Site (acres):**			28.12
9. Application Fee:	$1,899.50		**10. Permanent BMP(s):**					Batch Detention and Water Quality Pond and one Wet Vault	
11. SCS (Linear Ft.):	3,799		**12. AST/UST (No. Tanks):**					N/A	
13. County:	Williamson		**14. Watershed:**					Brushy Creek	

Application Distribution

Instructions: Use the table below to determine the number of applications required. One original and one copy of the application, plus additional copies (as needed) for each affected incorporated city, county, and groundwater conservation district are required. Linear projects or large projects, which cross into multiple jurisdictions, can require additional copies. Refer to the "Texas Groundwater Conservation Districts within the EAPP Boundaries" map found at:

http://www.tceq.texas.gov/assets/public/compliance/field_ops/eapp/EAPP%20GWCD%20map.pdf

For more detailed boundaries, please contact the conservation district directly.

Austin Region			
County:	**Hays**	**Travis**	**Williamson**
Original (1 req.)	___	___	_X_
Region (1 req.)	___	___	_X_
County(ies)	___	___	_X_
Groundwater Conservation District(s)	___Edwards Aquifer Authority ___Barton Springs/ Edwards Aquifer ___Hays Trinity ___Plum Creek	___Barton Springs/ Edwards Aquifer	NA
City(ies) Jurisdiction	___Austin ___Buda ___Dripping Springs ___Kyle ___Mountain City ___San Marcos ___Wimberley ___Woodcreek	___Austin ___Bee Cave ___Pflugerville ___Rollingwood ___Round Rock ___Sunset Valley ___West Lake Hills	___Austin ___Cedar Park ___Florence ___Georgetown ___Jerrell _X_Leander ___Liberty Hill ___Pflugerville ___Round Rock

San Antonio Region					
County:	**Bexar**	**Comal**	**Kinney**	**Medina**	**Uvalde**
Original (1 req.)	___	___	___	___	___
Region (1 req.)	___	___	___	___	___
County(ies)	___	___	___	___	___
Groundwater Conservation District(s)	___ Edwards Aquifer Authority ___Trinity-Glen Rose	___Edwards Aquifer Authority	___Kinney	___EAA ___Medina	___EAA ___Uvalde
City(ies) Jurisdiction	___Castle Hills ___Fair Oaks Ranch ___Helotes ___Hill Country Village ___Hollywood Park ___San Antonio (SAWS) ___Shavano Park	___Bulverde ___Fair Oaks Ranch ___Garden Ridge ___New Braunfels ___Schertz	NA	___San Antonio ETJ (SAWS)	NA

I certify that to the best of my knowledge, that the application is complete and accurate. This application is hereby submitted to TCEQ for administrative review and technical review. Alejandro E. Granados Rico, P.E.
Print Name of Customer/Authorized Agent   01/05/2026
Signature of Customer/Authorized Agent Date

FOR TCEQ INTERNAL USE ONLY				
Date(s)Reviewed:		Date Administratively Complete:		
Received From:		Correct Number of Copies:		
Received By:		Distribution Date:		
EAPP File Number:		Complex:		
Admin. Review(s) (No.):		No. AR Rounds:		
Delinquent Fees (Y/N):		Review Time Spent:		
Lat./Long. Verified:		SOS Customer Verification:		
Agent Authorization Complete/Notarized (Y/N):		Fee Check:	Payable to TCEQ (Y/N):	
Core Data Form Complete (Y/N):			Signed (Y/N):	
Core Data Form Incomplete Nos.:			Less than 90 days old (Y/N):	

SECTION 2:
GENERAL INFORMATION

General Information Form

Texas Commission on Environmental Quality

For Regulated Activities on the Edwards Aquifer Recharge and Transition Zones and Relating to 30 TAC §213.4(b) & §213.5(b)(2)(A), (B) Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **General Information Form** is hereby submitted for TCEQ review. The application was prepared by:

Print Name of Customer/Agent: Alejandro E. Granados Rico, P.E.

Date: 01/05/2026

Signature of Customer/Agent:

_____

Project Information

1. Regulated Entity Name: Lost Woods Estates
2. County: Williamson
3. Stream Basin: Brushy Creek
4. Groundwater Conservation District (If applicable): N/A
5. Edwards Aquifer Zone:

   ☒ Recharge Zone
   ☐ Transition Zone

6. Plan Type:

   ☐ WPAP ☒ SCS

☐ Modification
☐ AST
☐ UST
☐ Exception Request

7. Customer (Applicant):

   Contact Person: Royce Rippy
   Entity: M I Homes of Austin, LLC
   Mailing Address: 7600 N. Capital of Texas Hwy.; Bldg. C, Suite 250
   City, State: Austin, TX Zip: 78731
   Telephone: 512-770-8505 Fax: N/A
   Email Address: rrippy@mihomes.com

8. Agent/Representative (If any):

   Contact Person: Alejandro E. Granados Rico, P.E.
   Entity: Kimley-Horn
   Mailing Address: 501 S. Austin Ave, Suite 1310
   City, State: Georgetown, Texas Zip: 78626
   Telephone: 512-520-0768 Fax: N/A
   Email Address: alex.granados@kimley-horn.com

9. Project Location:

   ☒ The project site is located inside the city limits of Leander.
   ☐ The project site is located outside the city limits but inside the ETJ (extra-territorial jurisdiction) of _____.
   ☐ The project site is not located within any city's limits or ETJ.

10. ☒ The location of the project site is described below. The description provides sufficient detail and clarity so that the TCEQ's Regional staff can easily locate the project and site boundaries for a field investigation. 2855 CR 175

11. ☒ **Attachment A – Road Map**. A road map showing directions to and the location of the project site is attached. The project location and site boundaries are clearly shown on the map.

12. ☒ **Attachment B - USGS / Edwards Recharge Zone Map**. A copy of the official 7 ½ minute USGS Quadrangle Map (Scale: 1" = 2000') of the Edwards Recharge Zone is attached. The map(s) clearly show:

    ☒ Project site boundaries.
    ☒ USGS Quadrangle Name(s).
    ☒ Boundaries of the Recharge Zone (and Transition Zone, if applicable).
    ☒ Drainage path from the project site to the boundary of the Recharge Zone.

13. ☒ **The TCEQ must be able to inspect the project site or the application will be returned**. Sufficient survey staking is provided on the project to allow TCEQ regional staff to locate the boundaries and alignment of the regulated activities and the geologic or manmade features noted in the Geologic Assessment.

    ☒ Survey staking will be completed by this date: TBD

14. ☒ **Attachment C – Project Description**. Attached at the end of this form is a detailed narrative description of the proposed project. The project description is consistent throughout the application and contains, at a minimum, the following details:

- ☒ Area of the site
- ☒ Offsite areas
- ☒ Impervious cover
- ☒ Permanent BMP(s)
- ☒ Proposed site use
- ☒ Site history
- ☒ Previous development
- ☒ Area(s) to be demolished

15. Existing project site conditions are noted below:

- ☐ Existing commercial site
- ☐ Existing industrial site
- ☒ Existing residential site
- ☐ Existing paved and/or unpaved roads
- ☐ Undeveloped (Cleared)
- ☒ Undeveloped (Undisturbed/Uncleared)
- ☐ Other: _____

Prohibited Activities

16. ☒ I am aware that the following activities are prohibited on the Recharge Zone and are not proposed for this project:

(1) Waste disposal wells regulated under 30 TAC Chapter 331 of this title (relating to Underground Injection Control);

(2) New feedlot/concentrated animal feeding operations, as defined in 30 TAC §213.3;

(3) Land disposal of Class I wastes, as defined in 30 TAC §335.1;

(4) The use of sewage holding tanks as parts of organized collection systems; and

(5) New municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41(b), (c), and (d) of this title (relating to Types of Municipal Solid Waste Facilities).

(6) New municipal and industrial wastewater discharges into or adjacent to water in the state that would create additional pollutant loading.

17. ☒ I am aware that the following activities are prohibited on the Transition Zone and are not proposed for this project:

(1) Waste disposal wells regulated under 30 TAC Chapter 331 (relating to Underground Injection Control);

(2) Land disposal of Class I wastes, as defined in 30 TAC §335.1; and

(3) New municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41 (b), (c), and (d) of this title.

Administrative Information

18. The fee for the plan(s) is based on:

- ☐ For a Water Pollution Abatement Plan or Modification, the total acreage of the site where regulated activities will occur.
- ☒ For an Organized Sewage Collection System Plan or Modification, the total linear footage of all collection system lines.
- ☐ For a UST Facility Plan or Modification or an AST Facility Plan or Modification, the total number of tanks or piping systems.
- ☐ A request for an exception to any substantive portion of the regulations related to the protection of water quality.
- ☐ A request for an extension to a previously approved plan.

19. ☒ Application fees are due and payable at the time the application is filed. If the correct fee is not submitted, the TCEQ is not required to consider the application until the correct fee is submitted. Both the fee and the Edwards Aquifer Fee Form have been sent to the Commission's:

- ☐ TCEQ cashier
- ☒ Austin Regional Office (for projects in Hays, Travis, and Williamson Counties)
- ☐ San Antonio Regional Office (for projects in Bexar, Comal, Kinney, Medina, and Uvalde Counties)

20. ☒ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.

21. ☒ No person shall commence any regulated activity until the Edwards Aquifer Protection Plan(s) for the activity has been filed with and approved by the Executive Director.

Kimley»Horn

Road Map

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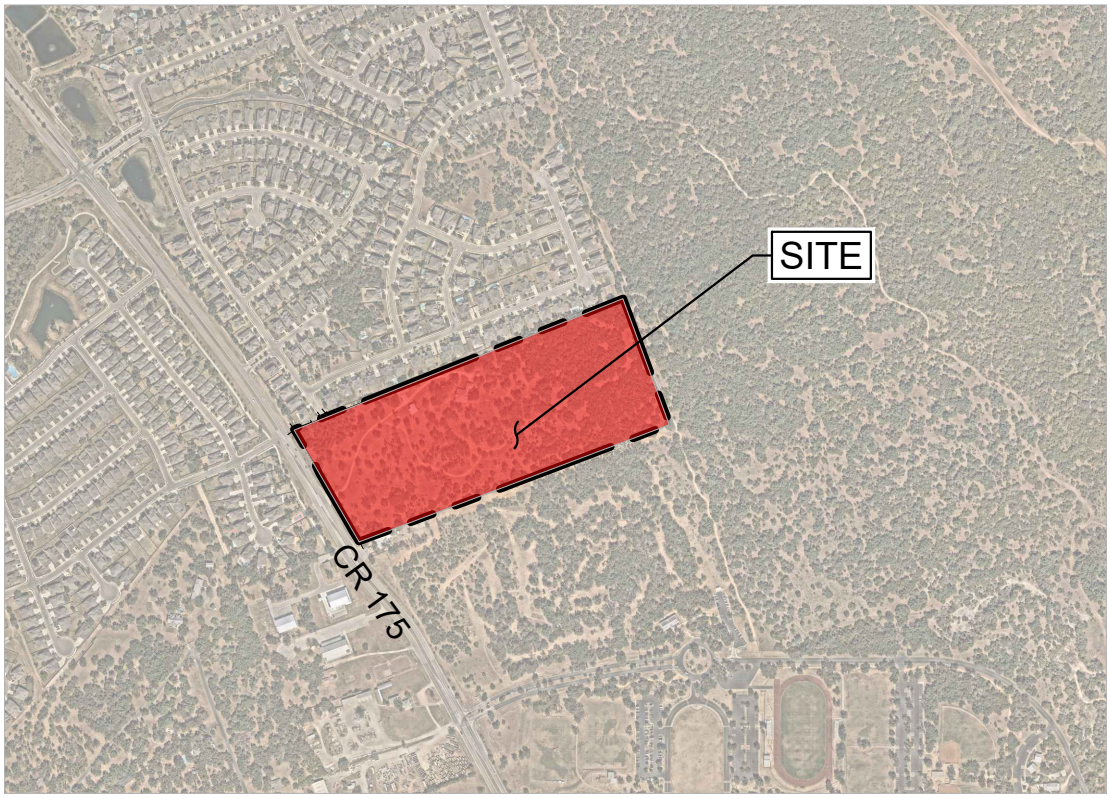

DIRECTIONS FROM TCEQ HEADQUARTER TO PROJECT SITE

1. HEAD SOUTH ON PARK 35 CIRCLE, TURNING RIGHT ONTO S IH-35 FRONTAGE ROAD
2. MAKE A "U" TURN AT E. BRAKER LN, USE LEFT LANE TO TAKE RAMP ONTO IH-35
3. CONTINUE NORTH ON IH-35
4. TAKE EXIT 256 ONTO NIH-35 FRONTAGE ROAD TOWARDS CEDAR PARK
5. STAY RIGHT TOWARDS UNIVERSITY BLVD AND TURN LEFT ONTO UNIVERSITY BLVD
6. CONTINUE ON RANCH RD 1431 W
7. TURN RIGHT ONTO CR 175 / SAME BASS RD
8. CONTINUE ON CR 175
9. SITE IS LOCATED ON THE RIGHT

SHEET 1 OF 1 SHEETS	Scale: 1"=1000' Designed by: KJM Drawn by: KJM Checked by: AEG Date: December 2025 Project No. 067783188	ROAD MAP	LOST WOODS ESTATES LEANDER, TEXAS		Kimley»Horn

This product is for informational purposes and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. It does not represent an on-th-ground survey and represents only the approximate relative location of property boundaries.

Kimley»Horn

USGS/Edwards Recharge Zone Map

IMAGES
XREFS
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DWG NAME K:\GEO_CIVIL\067783185 - MI HOMES LEANDER SIMPSON TRACTS\CAD\CONSTRUCTION PLANS\EXHIBITS\PLANSHEETS\USGS QUADRANGLE MAP.DWG
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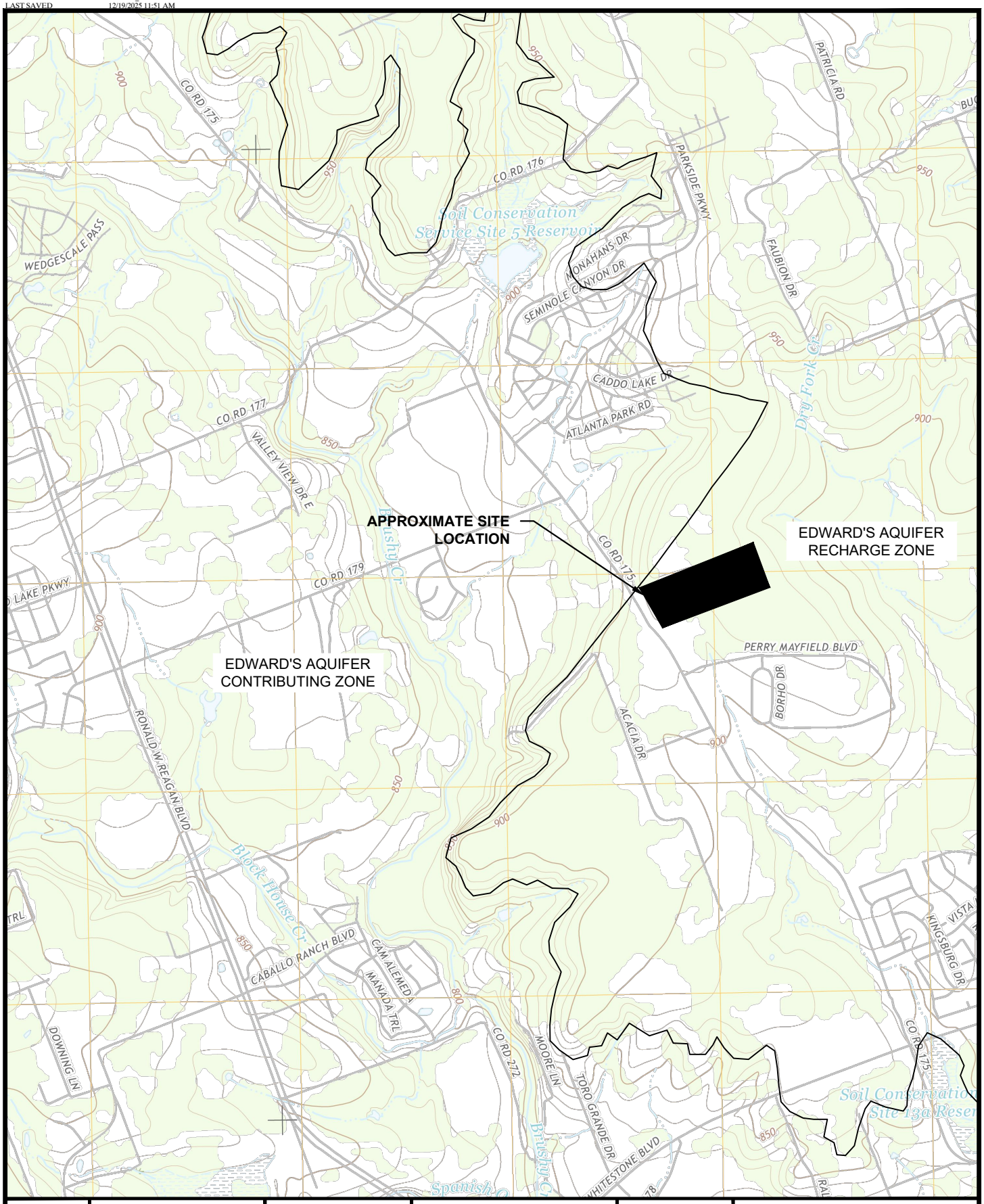


SHEET 1 OF 1 SHEETS	Scale: 1"=2000' Designed by: KJM Drawn by: KJM Checked by: AEG Date: December 2025 Project No. 067783188	USGS MAP	LOST WOODS ESTATES LEANDER, TEXAS	N W E S	Kimley»Horn

This product is for informational purposes and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. It does not represent an on-th-ground survey and represents only the approximate relative location of property boundaries.

Introduction

The subject site is a 28.12 acre lot located within the Full Purpose city limits of the City of Leander, at 2855 CR 175. The existing site contains one single family residence and undeveloped/undisturbed acreage. The proposed development is a single phased subdivision comprised of residential single-family lots.

portion of this site is located in the Federal Emergency Management Agency's 100-year floodplain according to FIRM 48491C0460F, dated December 20, 2019. The site is located within the Edwards Aquifer Contributing and Recharge Zone according to TCEQ Edwards Aquifer Map.

Current Tract Conditions

Legal Description

The legal description is described as 28.12 acres tract of land situated in the Anastasha Carr Survey, Abstract 122, Williamson County, Texas; and being a portion of a called 28.28 acres tract of land to Peggy Borho Simpson, as shown in instrument recorded under document number 2024032193, of the official public records of Williamson County, Texas, (O.P.R.W.C.T.); said 28.28 acres tract describe in vol. 2542, pg. 838, O.P.R.W.C.T.

Land Use

The lot is zoned for Single-Family Suburban (SFS). The site resides within the Full Purpose city limits of the City of Leander in Williamson County, Texas.

Existing Drainage Conditions

Under existing conditions, the site has five ridges that send flows to five points at the southwest, northwest, south, southeast and eastern portion of the property boundary. This flow then travels within a channels; another sheet flows off the property, eventually discharging into Brushy Creek.

Proposed Development

The proposed Lost Woods Estates project includes the construction of 79 single-family residential lots. Water and wastewater lines will be designed according to City of Leander specifications and connect to City of Leander utility services. Access to the site will be through a connection to the CR 175 with one collector drive and one emergency fire access drive, and a connection to the existing Blended Tree Ranch. The project proposes 13.54 acres (48.15%) of total impervious cover. Water will be treated according to TCEQ requirements through one on site pond and water quality pump and a stormtrooper. The pond and water quality pump flow will be discharged to a point south of the site and then flow into Brushy Creek. The stormtrooper will discharge to a point west of the site and then flow into an off-site roadside channel along CR 175. Proposed flow conditions will not exceed existing conditions.

Kimley»Horn

Drainage and Water Quality Analysis

Floodplain Information

According to the FEMA Flood Insurance Rate Map Panel No. 48491C0460F for Williamson County, effective December, 20, 2019, no portion of the development lies within the 100-yr floodplain (Zone A).

On-Site Drainage

The proposed site will convey runoff through an underground storm pipe system into one water quality pump/detention pond and through a stormtrooper. Other portions of the site will overland flow. The water quality pump/detention pond will release the runoff at or below existing condition flow rates onto rock riprap and a level spreader which will then be conveyed south via sheet flow. The stormtrooper will release the runoff at or below existing flow rates onto rock riprap which will then be conveyed north via an existing roadside channel. Drainage area maps and calculations are included in the construction set included in the Exhibits Section.

Off-Site Drainage

Under existing conditions, 2.98 acres of offsite water enters the site from the north. The off-site drainage from the north will not be interrupted by development. It will flow through an the proposed storm pipe system and will be treated via the water quality pump/detention pond and the stormtrooper.
In proposed conditions, once runoff is released from the water quality pump/detention ponds it will sheet flow south. Once the runoff is released from the stormtrooper it will enter an existing roadside channel that will eventually outfall into Brushy Creek.

Detention and Water Quality

Water Quality Best Management Practices (BMP) for Lost Woods Estates will address the water quality requirements for the ultimate area disturbed within this phase. WQP-C and WQP-C-OFF will be treated by a water quality pump/detention pond built with this development. SWAQ-A and SWAQ-A-OFF will be treated by stormtrooper built with this development. The NT areas will not be treated by any proposed BMPS. NT-A, NT-C1, NT-C2, NT-D and NT-E have a total of 2.5 acres of impervious cover. These drainage areas are to meet all water quality requirements per TCEQ requirements. See Permanent Stormwater Section – Attachment C for a breakdown on TSS calculations.

The water quality pump/detention pond requirements used for the purpose of this report are assumed to be based on the requirements outlined by the City of Austin Drainage Criteria Manual. To reduce the flow to pre-developed conditions, rock riprap and a level spreader will be constructed as a part of this development phase to reduce flows to existing conditions.

Erosion and Sedimentation Controls

Temporary erosion and sedimentation controls during construction are proposed on the Erosion Control Plan and include: silt fence, inlet protection, construction staging area, concrete washout, rock berm, and a stabilized construction entrance designed to City of Austin criteria. The land disturbed during construction, including the staging and stockpile areas, will drain into the proposed on-site storm sewer system where it will be conveyed to the proposed water quality pump/detention quality pond and stormtrooper located on-site. The water quality pump/detention ponds will discharge onto proposed rock riprap and level spreader and sheet flow at the southern portion of the property; the stormtrooper will discharge onto proposed rock riprap at the western portion of the property and into an existing roadside channel that drains off-site and north.

Sewage Collection System

The sewage collection system that is within the Edward's Aquifer Recharge Zone will consist of approximately 3,799 LF of 8" SDR 26 ASTM D3034 PVC. All wastewater in Lost Woods Estates shall be conveyed via gravity line that ties to an existing sewage collection system in the adjacent subdivision to the north. Please see the attached overall Lost Woods Estates Wastewater Exhibit below.

SECTION 3:
GEOLOGIC ASSESSMENT

Horizon™
Environmental Services

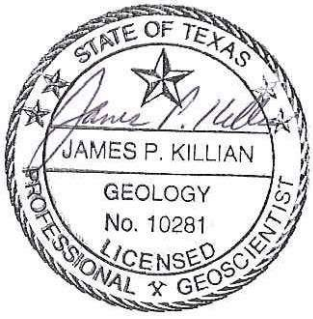
GEOLOGIC ASSESSMENT
APPROXIMATELY 28-ACRE SIMPSON TRACT
COUNTY ROAD 175 AND TANGLEWOOD ESTATES DRIVE
LEANDER, WILLIAMSON COUNTY, TEXAS
HJN 24213.001GA

PREPARED FOR:

M/I HOMES OF AUSTIN, LLC
AUSTIN, TEXAS

PREPARED BY:

HORIZON ENVIRONMENTAL SERVICES
A BRANCH OF LJA ENVIRONMENTAL SERVICES, LLC
TBPG FIRM REGISTRATION NO. 50679



DECEMBER 2024

1507 S Interstate 35 • Austin, Texas 78741-2502 • 512.328.2430 • www.horizon-esi.com
A Branch of LJA Environmental Services, LLC • TBPG Firm No. 50679

Horizon
Environmental Services

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E SUPPORTING INFORMATION
F ADDITIONAL SITE MAPS
G SITE PHOTOGRAPHS

Geologic Assessment

Texas Commission on Environmental Quality

For Regulated Activities on The Edwards Aquifer Recharge/transition Zones and Relating to 30 TAC §213.5(b)(3), Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Signature

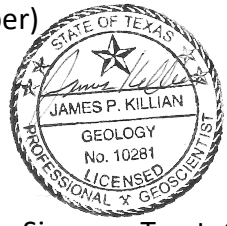
To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

Print Name of Geologist: James Killian Telephone: 512-328-2430

Date: 16 December 2024 Fax: 512-328-1804

Representing: Horizon Environmental Services and TBPG Form Registration No. 50679 (Name of Company and TBPG or TBPE registration number)

Signature of Geologist:



Regulated Entity Name: Approximately 28-acre Simpson Tract; County Road 175 and Tanglewood Estates Drive, Leander, Williamson County, Texas

Project Information

1. Date(s) Geologic Assessment was performed: 29 August 2024
2. Type of Project:
   - ☒ WPAP
   - ☒ SCS
   - ☐ AST
   - ☐ UST
3. Location of Project:
   - ☒ Recharge Zone
   - ☐ Transition Zone
   - ☐ Contributing Zone within the Transition Zone

4. ☒ **Attachment A - Geologic Assessment Table**. Completed Geologic Assessment Table (Form TCEQ-0585-Table) is attached.

5. ☒ Soil cover on the project site is summarized in the table below and uses the SCS Hydrologic Soil Groups* (Urban Hydrology for Small Watersheds, Technical Release No. 55, Appendix A, Soil Conservation Service, 1986). If there is more than one soil type on the project site, show each soil type on the site Geologic Map or a separate soils map.

Table 1 - Soil Units, Infiltration Characteristics and Thickness

Soil Name	Group*	Thickness(feet)

Soil Name	Group*	Thickness(feet)
Crawford clay, 0-1% slopes (CfA)	D	3.3
Eckrant cobbly clay, 1-8% slopes (EaD)	D	0.9
Eckrant stony clay, 0-3% slopes (EeB)	D	0.9
Georgetown stony clay loam, 1-3% slopes (GsB)	D	3

** Soil Group Definitions (Abbreviated)*

A. Soils having a high infiltration rate when thoroughly wetted.

B. Soils having a moderate infiltration rate when thoroughly wetted.

C. Soils having a slow infiltration rate when thoroughly wetted.

D. Soils having a very slow infiltration rate when thoroughly wetted.

6. ☒ **Attachment B – Stratigraphic Column**. A stratigraphic column showing formations, members, and thicknesses is attached. The outcropping unit, if present, should be at the top of the stratigraphic column. Otherwise, the uppermost unit should be at the top of the stratigraphic column.

7. ☒ **Attachment C – Site Geology**. A narrative description of the site specific geology including any features identified in the Geologic Assessment Table, a discussion of the potential for fluid movement to the Edwards Aquifer, stratigraphy, structure(s), and karst characteristics is attached.

8. ☒ **Attachment D – Site Geologic Map(s)**. The Site Geologic Map must be the same scale as the applicant's Site Plan. The minimum scale is 1": 400'

   Applicant's Site Plan Scale: 1" = 400'
   Site Geologic Map Scale: 1" = 400'
   Site Soils Map Scale (if more than 1 soil type): 1" = 500'

9. Method of collecting positional data:

   ☒ Global Positioning System (GPS) technology.
   ☐ Other method(s). Please describe method of data collection: _____

10. ☒ The project site and boundaries are clearly shown and labeled on the Site Geologic Map.

11. ☒ Surface geologic units are shown and labeled on the Site Geologic Map.

12. ☒ Geologic or manmade features were discovered on the project site during the field investigation. They are shown and labeled on the Site Geologic Map and are described in the attached Geologic Assessment Table.

    ☐ Geologic or manmade features were not discovered on the project site during the field investigation.

13. ☒ The Recharge Zone boundary is shown and labeled, if appropriate.

14. All known wells (test holes, water, oil, unplugged, capped and/or abandoned, etc.): If applicable, the information must agree with Item No. 20 of the WPAP Application Section.

    ☒ There are 2 (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply.)
    ☐ The wells are not in use and have been properly abandoned.
    ☐ The wells are not in use and will be properly abandoned.
    ☒ The wells are in use and comply with 16 TAC Chapter 76.
    ☐ There are no wells or test holes of any kind known to exist on the project site.

Administrative Information

15. ☒ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.

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Environmental Services

ATTACHMENT A

GEOLOGIC ASSESSMENT TABLE

GEOLOGIC ASSESSMENT TABLE

PROJECT NAME: 28-acre Simpson Tract, CR 175, Leander, Williamson Co., Tx

LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING		
1A	1B *	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DOD	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						<40	>40	<1.6	>1.6	
F-1	30.565453	-97.769769	SC	20	Ked	1	1	1					C,F,O	25	45		X	X		Hillside
F-2	30.565951	-97.768532	SF	20	Ked	1	0.1	0.5	N300W	0			C,F,O	15	35	X		X		Hillside
F-3	30.564526	-97.768077	SH/C	30	Ked	6	6	1					C,F,O	30	60		X	X		Hillside
F-4	30.564679	-97.768845	SC	20	Ked	2.5	2.5	1.5					C,F,O	15	35	X		X		Hillside
M-1	30.565239	-97.770789	MB	30	Ked	0.3	0.3	--					X	5	35	X		X		Hillside
M-2	30.563785	-97.773334	MB	30	Ked	0.3	0.3	--					X	5	35	X		X		Hillside

* DATUM:_____

2A TYPE	TYPE	2B POINTS
C	Cave	30
SC	Solution cavity	20
SF	Solution-enlarged fracture(s)	20
F	Fault	20
O	Other natural bedrock features	5
MB	Man-made feature in bedrock	30
SW	Swallow hole	30
SH	Sinkhole	20
CD	Non-karst closed depression	5
Z	Zone, clustered or aligned features	30

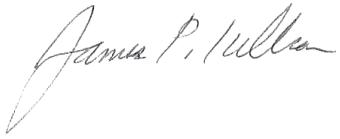
8A INFILLING	
N	None, exposed bedrock
C	Coarse - cobbles, breakdown, sand, gravel
O	Loose or soft mud or soil, organics, leaves, sticks, dark colors
F	Fines, compacted clay-rich sediment, soil profile, gray or red colors
V	Vegetation. Give details in narrative description
FS	Flowstone, cements, cave deposits
X	Other materials: private water well casing/concrete

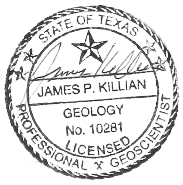
12 TOPOGRAPHY

Cliff, Hilltop, Hillside, Drainage, Floodplain, Streambed

I have read, I understood, and I have followed the Texas Commission on Environmental Quality's Instructions to Geologists. The information presented here complies with that document and is a true representation of the conditions observed in the field.

My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.





Date: 11/6/2024

Sheet ___1___ of ___1___

TCEQ-0585-Table (Rev. 10-01-04)

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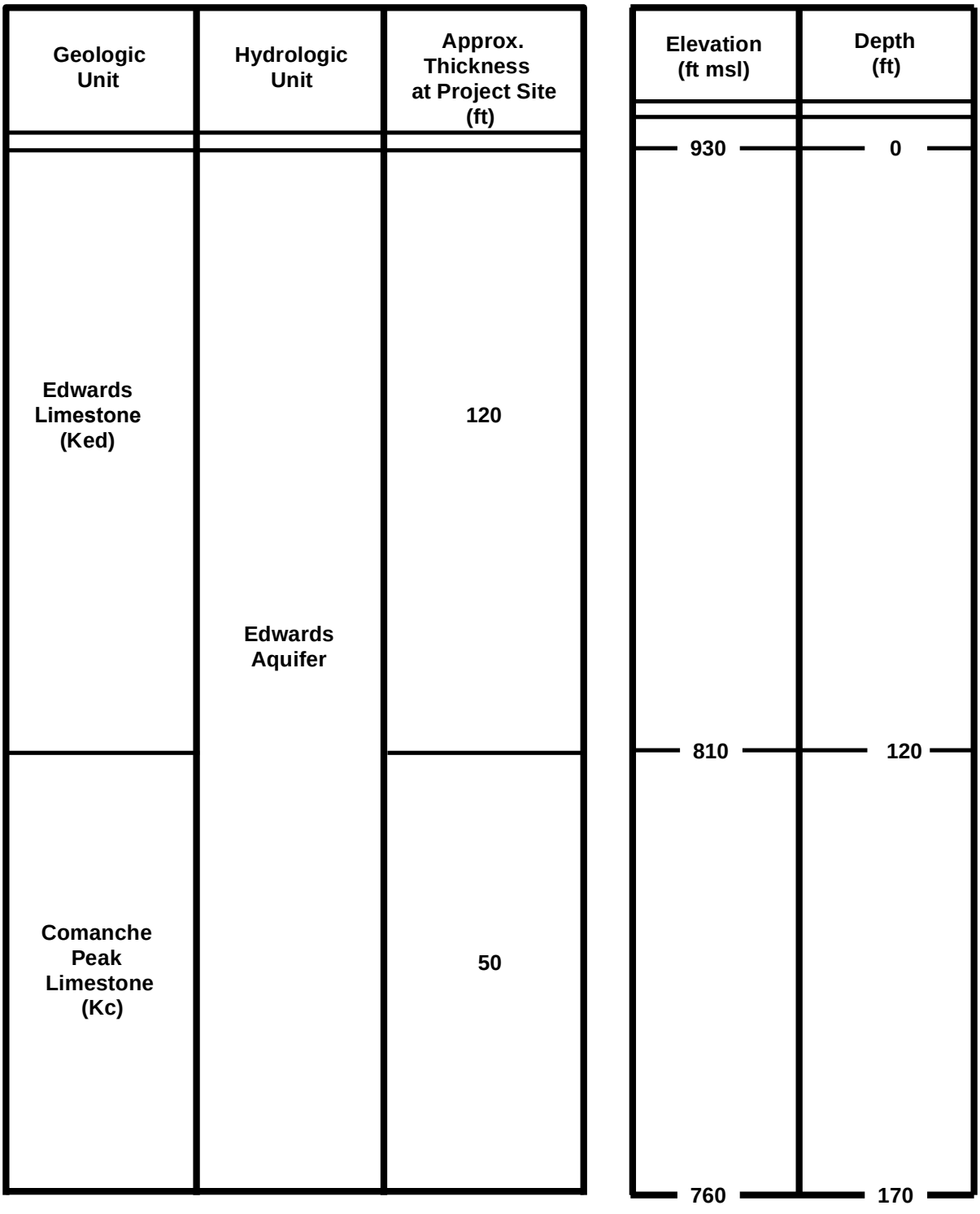
ATTACHMENT B

STRATIGRAPHIC COLUMN



Note: Unit elevation and thickness given with respect to a ground surface elevation of 930 ft along the northern boundary of the subject site.

Horizon Environmental Services

Date:	9/3/2024
Drawn:	KRW
HJN NO:	24213.001 GA

Attachment B

Stratigraphic Column
28-Acre Simpson Tract
Leander, Williamson County, Texas

STATE OF TEXAS
JAMES P. KILLIAN
GEOLOGY
No. 10291
LICENSED
PROFESSIONAL GEOSCIENTIST

24213--Simpson_Tracts_Leander\Graphics\24213-001GA28_05_Strat.mxd

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ATTACHMENT C

DESCRIPTION OF SITE GEOLOGY

Geologic information for the subject site obtained via literature review is provided in Attachment E, Supporting Information.

A geologic assessment of approximately 28 acres located at County Road (CR) 175 approximately 150 feet southeast of Tanglewood Estates Drive, Leander, Williamson County, Texas, was conducted pursuant to Texas rules for regulated activities in the Edwards Aquifer Recharge Zone (EARZ) (30 TAC 213). The subject site consists of vacant woodlands on the northeastern portion of the site and rangeland in the surrounding areas, with a homestead on the north-central portion of the site. Assessment findings were used to develop recommendations for site construction measures intended to be protective of water resources at the subject site and adjacent areas.

The entire subject site is located within the EARZ, as defined by the Texas Commission on Environmental Quality (TCEQ). The EARZ occurs where surface water enters the subsurface through exposed limestone bedrock containing faults, fractures, sinkholes, and caves.

The subject site is completely underlain by Edwards Limestone (Ked) (UT-BEG, 1995), which has an estimated maximum thickness of about 120 feet thick.

A total of 4 naturally occurring geologic features (F-1 to F-4) and 2 man-made features (M-1 and M-2) were identified at this site. Further information pertaining to the features is presented in the following Attachments D, E, and F. Photographs of the subject site and the geologic and man-made features are presented in Attachment G.

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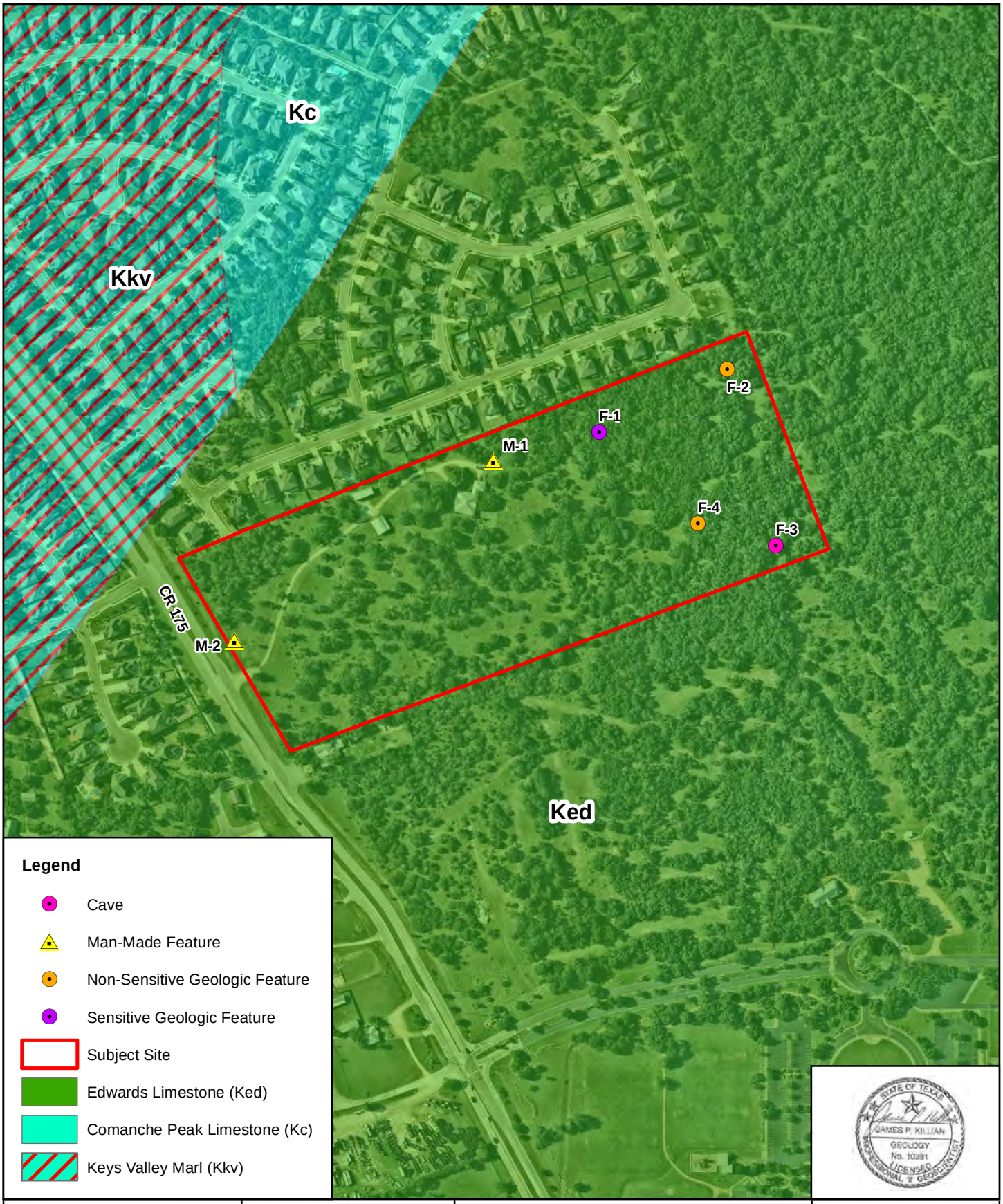
ATTACHMENT D

SITE GEOLOGIC MAP



Legend

- Cave
- Man-Made Feature
- Non-Sensitive Geologic Feature
- Sensitive Geologic Feature
- Subject Site
- Edwards Limestone (Ked)
- Comanche Peak Limestone (Kc)
- Keys Valley Marl (Kkv)

STATE OF TEXAS
JAMES P. KILLIAN
GEOLOGY
No. 10291
LICENSED
PROFESSIONAL GEOSCIENTIST

Horizon™ Environmental Services

Date:	11/16/2024
Drawn:	KRW
HJN NO:	24213.001GA
Source:	Nearmap, 2024; TWSC, 2014

Attachment D, Figure 1

Site Geologic Map
28-Acre Simpson Tract
Leander, Williamson County, Texas

N

0 200 400
Feet

24213–Simpson_Tracts_Leander\Graphics\24213-001GA28_06A_SGM.mxd

Legend

- Cave
- Man-Made Feature
- Non-Sensitive Geologic Feature
- Sensitive Geologic Feature
- 2- foot Contour
- Subject Site
- TCEQ Buffer Area

STATE OF TEXAS
JAMES P. KILLIAN
GEOLOGY
No. 10281
LICENSED
PROFESSIONAL GEOSCIENTIST

Horizon Environmental Services

Date:	12/16/2024
Drawn:	KRW
HJN NO:	24213.001GA
Source:	COA, 2019; Nearmap, 2024

Attachment D, Figure 2

Geologic Feature Buffer Map
28-Acre Simpson Tract
Leander, Williamson County, Texas

N

0 200 400
Feet

24213--Simpson_Tracts_Leander\Graphics\24213-001GA28_07A_Buffer.mxd

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ATTACHMENT E

SUPPORTING INFORMATION

1.0 INTRODUCTION AND METHODOLOGY

This report and any proposed abatement measures are intended to fulfill Texas Commission on Environmental Quality (TCEQ) reporting requirements (TCEQ, 2005). This geologic assessment includes a review of the subject site for potential aquifer recharge and documentation of general geologic characteristics for the subject site. Horizon Environmental Services (Horizon) conducted the necessary field and literature studies according to TCEQ *Instructions to Geologists for Geologic Assessments on the Edwards Aquifer Recharge/Transition Zones* (TCEQ, 2004).

Horizon walked transects spaced 50 feet apart, mapped the locations of features using a sub-foot accurate Trimble Geo HX handheld GPS, and posted processed data utilizing GPS Pathfinder Office software, topographic maps, and aerial photographs. Horizon also searched the area around any potential recharge features encountered to look for additional features. When necessary, Horizon removed loose rocks and soil (by hand) to preliminarily assess each feature's subsurface extent while walking transects. However, labor-intensive excavation was not conducted during this assessment. Features that did not meet the TCEQ definition of a potential recharge feature (per TCEQ, 2004), such as surface weathering, karren, or animal burrows, were evaluated in the field and omitted from this report.

The results of this survey do not preclude the possibility of encountering subsurface voids or abandoned test or water wells during the clearing or construction phases of the proposed project. If a subsurface void is encountered during any phase of the project, work should be halted until the TCEQ (or appropriate agency) is contacted and a geologist can investigate the feature.

2.0 ENVIRONMENTAL SETTING

2.1 LOCATION AND GENERAL DESCRIPTION

The subject site consists of approximately 28 acres of vacant woodlands, rangeland, and a homestead, located adjacent to the southeastern corner of the intersection of County Road (CR) 175 and Tanglewood Estates Drive in Williamson County, Texas (Appendix F, Figure 1).

2.2 LAND USE

The subject site is reportedly used for a single-family residence. One habitable structure was observed on the site. CR 175 borders the site to the west and Tanglewood Estates Drive is located north of the subject site. Surrounding lands are generally used for residential, agricultural, recreational, and commercial purposes.

2.3 TOPOGRAPHY AND SURFACE WATER

The subject site is situated on gently sloping terrain within the Turkey Creek-Brushy Creek watershed (Appendix F, Figures 2 and 3). Surface elevations on the subject site vary from a minimum of approximately 910 feet above mean sea level (amsl) near the northwestern property

corner along CR 175 to a maximum of approximately 932 feet amsl near the northeastern property corner (USGS, 1987). Drainage on the site occurs primarily by overland surface flow occurring from northeast to southwest toward unnamed tributaries of Turkey Creek-Brushy Creek.

2.4 EDWARDS AQUIFER ZONE

The subject site is found within the Edwards Aquifer Recharge Zone (TCEQ, 2024) (Attachment F, Figure 2).

2.5 SURFACE SOILS

Four soil units are mapped within the subject site (NRCS, 2024) (Appendix F, Figure 4). Generally, the soil series are similar in their physical, chemical, and engineering properties, with the principal exception being rock fragment content and thickness. The soil units are described in further detail below.

Crawford clay, 0 to 1% slopes (CfA) is a nearly level soil found on tops of mesas, on foot slopes, and in shallow valleys on uplands. The substratum is fractured, whitish limestone. This soil is well-drained. Permeability is very slow. This soil swells when wet and shrinks when dry. Water enters the soil rapidly when the soil is dry and very slowly when the soil is moist. The available water capacity is low. Runoff is slow. The rooting zone is moderately deep. This soil is used mainly as rangeland. A few areas are used for grain sorghum or small grains, and a few areas are used for tame grass pasture or hay. If this soil used as rangeland, the potential is high for grass forage production. Most areas are aesthetically pleasing as homesites; however, because of the shrink-swell potential, foundations can shift and buckle. Paved roads generally become bumpy and broken and constantly need patching. Underground steel pipe that is not protected is subject to corrosion. Septic systems function poorly in the heavy clay subsoil. Septic drain fields placed in contact with underlying limestone can allow contaminants to leach through fractures into local wells. This soil is moderately well-suited to use as recreational areas; however, during wet periods the clayey surface is sticky and slippery and foot and vehicle traffic are difficult. Cracks in dry soil limit some playground activities (Werchan and Coker, 1983).

Eckrant cobbly clay, 1 to 8% slopes (EaD) is a gently sloping soil found on undulating uplands. The slopes for Eckrant cobbly clay average around 4%. The underlying material is coarsely fractured, indurated limestone. Roughly 50% of the surface has a cover of 4 to 8 inches across limestone fragments. The soil is well-drained with moderate permeability and a very low available water capacity. Eckrant cobbly clay is used for rangelands. This soil is well-suited for urban uses because of the underlying strata, but this can also make site preparation of foundation, buried utility lines, septic systems, and streets more difficult (Werchan and Coker, 1983).

Eckrant stony clay, 0 to 3% slopes (EeB) is gently sloping and located on broad ridges and in shallow valleys on uplands. The soil is very stony, calcareous, and moderately alkaline. Indurated limestone underlies the Eckrant stony clay. It is known to be well-drained with a moderately slow permeability. Due to the shallowness of the soil and underlying strata, the available water capacity is very low. Eckrant stony clay is most used for rangeland. The shallow

limestone provides a stable foundation for housing, but makes construction of underground utility lines, foundations, roads, and streets difficult (Werchan and Coker, 1983).

Georgetown stony clay loam, 1 to 3% slopes (GsB) is typically found on higher parts of uplands. Underlying this soil is indurated, fractured limestone that has clay loam in crevices and fractures. The soil is well-drained with slow permeability and a low available water capacity. Georgetown stony clay loam is used as rangeland. The soil is suitable for urban uses, but corrosion to buried pipelines is a hazard due to the clayey subsoil. Septic systems do not function well in the clayey subsoil (Werchan and Coker, 1983).

2.6 WATER WELLS

A review of TCEQ and Texas Water Development Board (TWDB) records revealed no water wells on the subject site and 5 wells within 0.5 miles of the subject site (TCEQ, 2005; TWDB, 2024). According to the TWDB records, all the off-site wells are reportedly completed within the Trinity Aquifer at total depths ranging from 645 to 800 feet below surface. Horizon observed 2 wells on the subject site (M-1 and M-2). The private on-site wells are in use and appeared to be properly constructed with 4-inch PVC pipe surrounded by 8-inch steel casing.

If the on-site wells are not intended for future use, they should be capped or properly abandoned according to the Administrative Rules of the Texas Department of Licensing and Regulation (TDLR), 16 Texas Administrative Code (TAC), Chapter 76. TCEQ publication RG-347, “Landowner’s Guide to Plugging Abandoned Water Wells,” provides specific guidance. If a well is intended for use, it must comply with 16 TAC §76.

The results of this assessment do not preclude the existence of additional undocumented/abandoned wells on the site. If a water well or casing is encountered during construction, work should be halted near the feature until the TCEQ is contacted.

2.7 GEOLOGY

Literature Review

The subject site is underlain by Edwards Limestone (Ked) (UT-BEG, 1995). Edwards Limestone comprises limestone, dolomite, and chert. Limestone is aphanitic to fine grained, massive to thin bedded, hard, brittle, and in part rudistid biostromes, with much miliolid biosparite. Dolomite is fine to very fine grained, porous, medium gray to grayish brown. Nodules and plates are common in chert, varying in amount from bed to bed, with some intervals free of chert, mostly white to light gray. In zone of weathering, the formation is considerably recrystallized, "honeycombed," and cavernous, forming an aquifer; it forms flat areas and plateaus bordered by scarps. Thickness ranges from 60 to 350 feet, thinning northward.

The site Stratigraphic Column is provided as Attachment B, and the Site Geologic Map is Attachment D.

The subject site is located within the Balcones Fault Zone. Available geologic reports indicate the nearest mapped fault is located approximately 0.05 miles to the northwest, trending from southwest to northeast (TWSC, 2024).

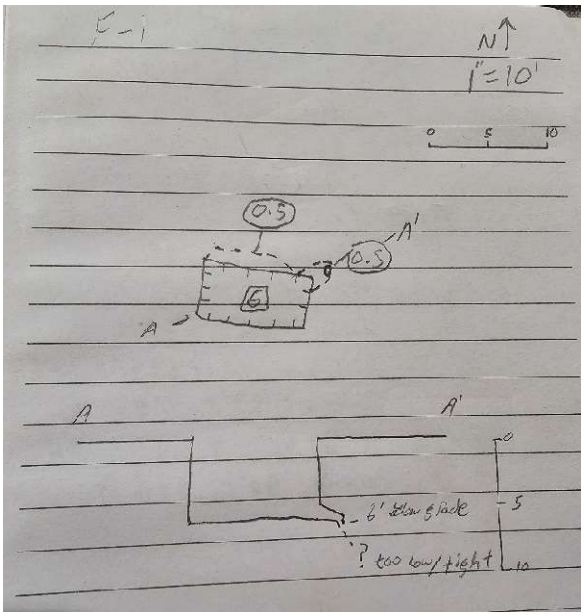
Field Assessment

A field survey was conducted by Horizon support staff under the supervision of a licensed Horizon geologist on 29 August 2024. Horizon observed 2 man-made features (M-1 to M-2) and 4 naturally occurring geologic features (F-1 to F-4) on the subject site that meet the TCEQ definition of a potential recharge feature. No springs were observed at the site. Man-made features M-1 and M-2 are private water wells located on the central and western portions of the subject site. These water wells appeared to be in good working condition with no apparent breaks or surficial leakage (photographs included in Attachment G).

Geologic features on the subject site are described as follows:

Geologic Feature F-1 is a pair of small solution cavities measuring approximately 1 foot in diameter by 1 foot deep and 3 inches long by 1 inch wide by 1 foot deep. Horizon initially excavated the feature by hand and slight air flow conductivity was noted at the opening. Horizon staff excavated the feature (8.5 feet long by 4 feet wide by 6 feet deep) on 26 October 2024 using a backhoe with hoe ram attachment. Approximately 5.5 feet below the surface in the northeastern corner of the excavation is a small void opening (1 foot across) into a heavily weathered and solutioned bedrock void that extends about 2 feet toward the northeast, where it then drops down and becomes too narrow to observe further. The floor of the feature was covered with thin layers of loose soil/clay that has been massively infilled over many years. Interior ceiling heights in the void are less than 0.5 feet on average. Based on a lack of pursuable void leads, the excavation was terminated and left open for review/concurrence by the TCEQ. This feature has an intermediate infiltration rate and a surface runoff catchment of less than 0.4 acres.

Feature F-1 does not meet the minimum requirements to be classified as a cave. This feature has been deemed sensitive for groundwater recharge and therefore has a TCEQ buffer of 200 feet upslope and 50 feet downslope surrounding the excavation.

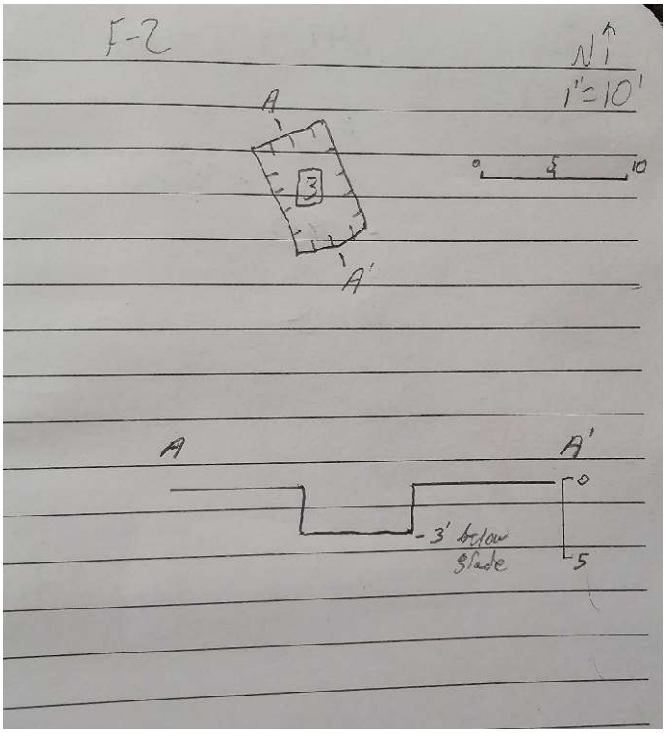


Sketch of F-1

Geologic feature F-1 (2 solution cavities) before excavation, facing northeast

Geologic feature F-1 after excavation, facing northeast

Geologic Feature F-2 is a solution-enlarged fracture (N300°W) measuring approximately 1 foot long by 1 inch wide by 0.5 feet deep. Very slight air flow conductivity was noted at the opening. After limited hand excavation, probing with a steel rod encountered loose small rocks and/or cobbles about 1 foot below the surface. Horizon staff excavated the feature on 25 October 2024 using a backhoe with hoe ram attachment. Excavation dimensions measured approximately 7.5 feet long by 5 feet wide by 3 feet deep. After mechanical excavation, Horizon probed the floor of the feature with a steel rod; however, no portals and/or voids were discovered in the walls or floor of the feature. Based on a lack of pursuable void leads, the excavation was terminated and left open for review/concurrence by the TCEQ. This feature has been deemed non-sensitive for groundwater recharge capability. This feature has a very low infiltration rate and a surface runoff catchment of less than 0.1 acre.



Sketch of F-2

Geologic feature F-2 (solution-enlarged fracture) before excavation, facing northwest

Geologic feature F-2 after excavation, facing northwest

Geologic Feature F-3 consists of two small upland sinkholes spaced about 20 feet apart, with one measuring approximately 6 feet in diameter by 1 foot deep and the second measuring 3 feet in diameter by 0.5 feet deep. Near the center of the larger sinkhole is a semi-open drainage portal filled with clay, leaves, and loose cobbles that measures approximately 1.5 feet long by 1 foot wide and drops down 1.5 feet. Horizon initially excavated the feature by hand and moderate air flow conductivity was noted at the opening. This feature meets the requirements to be classified as a **potential cave** based on the presence of a surficial collapsed sinkhole with evident air flow conductivity from an open drainage portal void near its center.

Horizon staff excavated the feature (15 feet long by 6 to 7 feet wide by 3 to 6 feet deep) from 22 to 24 October 2024 using a backhoe with hoe ram attachment. At approximately 6 feet below the surface, a void opening was found along the northwestern wall about 3 feet wide by 2 feet high that appeared to extend over 18 feet toward the west/northwest into a room about 10 to 15 feet wide by 1 to 6 feet high, with numerous speleothems (columns, stalactites, stalagmites, etc.) above a rock breakdown floor covered with cave coral. A vertical pit drop was found in the floor about 2 feet northwest of the entrance that measured 4.5 feet long by 2 feet wide and dropped 5 feet into another (lower level) room about 30 feet long by 6 to 15 feet wide and 1 to 5 feet high. A third vertical opening (1 foot in diameter) was found along the floor in the southeastern corner of the upper room, which enlarged and dropped over 10 feet with air flow conductivity. Additional excavation/exploration of this area on 20 November and 4 December 2024 revealed a series of vertical pit drops into deeper horizontal bedding plane voids at 25 and 32 feet below the surface. These low (1 to 2 feet high) bedding plane voids are about 10 feet wide and extend 10 to 15 feet toward the north. A small room (~10 feet long by 8 feet wide by 3 to 5 feet high) was found near the bottom at 35 feet below the surface. This feature is classified as a **cave** based on it being a natural underground open space formed by the dissolution of limestone that is large enough for an average-sized person to enter. Horizon staff performed hand excavation and exploration of the cave on 25 October, 3 and 20 November, and 4 December

2024. The floor of the feature was covered with clay, ceiling breakdown, numerous speleothems, and cave coral. Horizon staff surveyed and mapped the cave, which has been officially named **Homer's Cave** for identification purposes, on 30 October, 4 November, and 4 December 2024. Plan and profile cave maps are included in this report. The cave is approximately 45 feet long (south to north) and 40 feet at its widest. Interior ceiling heights within the cave range from less than 1 foot to 9 feet. This feature has a high infiltration rate and a surface runoff catchment of less than 1 acre. This cave has one opening near the northwestern end of the excavation and has been left open for proposed upcoming (late December 2024) biological collections (Phase III Karst Survey). This feature has been deemed sensitive for groundwater recharge and therefore has a TCEQ buffer of 200 feet upslope and 50 feet downslope surrounding the footprint of the cave.

Geologic feature F-3 (larger sinkhole with drainage portal) before excavation, facing down

Geologic feature F-3 (Homer's Cave) after excavation, facing northwest

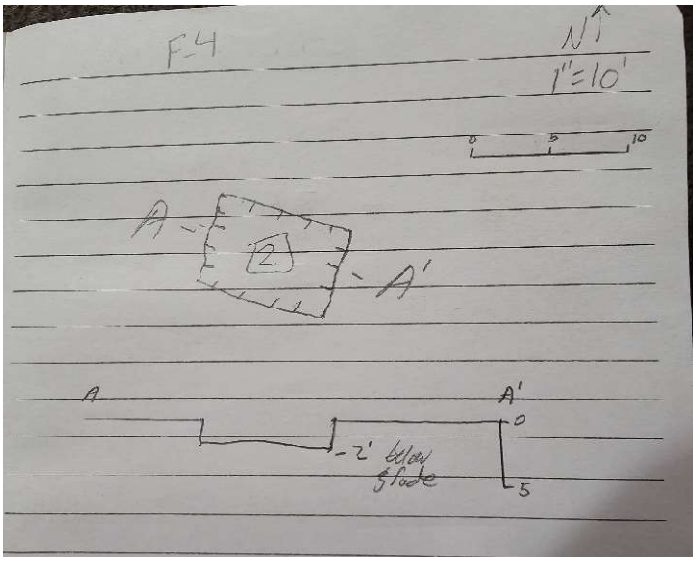
View within upper-level room (Bart's Ballroom) of F-3 (Homer's Cave), facing southeast toward entrance opening

View within lower lever room (Lisa's Lair) of F-3 (Homer's Cave), facing north

Geologic feature F-3 (Homer's Cave), view about halfway down through a series of free-climbable pit drops (Flander's Fathom), facing down

Geologic feature F-3 (Homer's Cave), view of decorated room at bottom of Flander's Fathom, facing south

Geologic Feature F-4 is a solution cavity measuring approximately 2.5 feet in diameter by 1.5 feet deep, and was infilled with loose leaves, clay, and debris. Very slight air flow conductivity was noted at the opening. After limited hand excavation, probing with a steel rod encountered loose small rocks and/or cobbles about 1.5 feet below the surface. Horizon staff excavated the feature on 27 October 2024 using a backhoe with hoe ram attachment. Excavation dimensions measured approximately 9 feet long by 7 feet wide by 2 feet deep. After mechanical excavation, Horizon probed the floor of the feature with a steel rod; however, no portals and/or voids were discovered in the floor or walls of the feature. Based on a lack of pursuable void leads, the excavation was terminated and left open for review/concurrence by the TCEQ. This feature has been deemed non-sensitive for groundwater recharge capability. This feature has a very low infiltration rate and a surface runoff catchment of less than 0.1 acre.



Sketch of F-4

Geologic feature F-4 (solution cavity) before excavation, facing north

Geologic feature F-4 after excavation, facing southeast

The Geologic Assessment Table (Attachment A) describes those features observed on the subject site that meet the TCEQ definition of a potential recharge feature.

3.0 CONCLUSIONS AND RECOMMENDATIONS

Two geologic features (F-1 and F-3) were identified at the subject site that would require protection or mitigation pursuant to TCEQ rules for protection of the Edwards Aquifer (30 TAC 213). Geologic features F-1 and F-3 (**Homer's Cave**) have been deemed to be sensitive based on the Geologic Assessment Table (Attachment A). A sensitive feature would require a TCEQ protective setback buffer. In general, a protective buffer encompassing a sensitive feature is recommended to meet the TCEQ guidance for a setback of at least 50 feet in all directions from the feature's areal extent (perimeter), plus its watershed catchment up to 200 feet from the perimeter of the feature. However, a larger protective buffer for feature F-3 (Homer's Cave) is recommended to meet the TCEQ guidance for setbacks of caves with mapped subsurface footprints. Caves with a known subsurface footprint (i.e., surveyed/mapped) include a protective buffer zone extending an additional 50 feet in all directions from the footprint, plus the cave's watershed catchment up to 200 feet from the footprint.

Two geologic features (F-2 and F-4) and 2 man-made features (M-1 and M-2) have been evaluated as non-sensitive for groundwater recharge capability and would therefore not require TCEQ protective setback buffers. No further action is recommended for these non-sensitive features.

Most of the subject site appears well-suited to development prospectuses. It should be noted that soil and drainage erosion would increase with ground disturbance. Native grasses and the cobbly content of the soil aid to prevent erosion. Soil and sedimentation fencing should be placed in all appropriate areas prior to any subject site disturbing activities.

Because the subject site is located over the Edwards Aquifer Recharge Zone, it is possible that subsurface voids underlie the site. If any subsurface voids are encountered during site development, work should halt immediately so that a geologist may assess the potential for the void(s) to provide meaningful contribution to the Edwards Aquifer.

4.0 REFERENCES

(COA) City of Austin. Geographic Information Systems/Maps. *2017 2-foot Contours,* <http://austintexas.gov/department/gis-and-maps/gis-data>. Updated 15 August 2019.

(Nearmap) Nearmap US, Inc. Nearmap Vertical™ digital orthographic photograph, <https://go.nearmap.com>. Imagery date 11 October 2024.

(NRCS) US Department of Agriculture, Natural Resources Conservation Service. Web Soil Survey, <http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>. Soil map data layer updated 12 September 2019. Accessed 6 November 2024.

(OSM) OpenStreetMap contributors. OpenStreetMap, <http://www.openstreetmap .org>. Available under the Open Database License (www.opendatacommons.org/ licenses/odbl). Accessed 27 August 2024.

(TCEQ) Texas Commission on Environmental Quality. Instructions to Geologists for Geologic Assessments on the Edwards Aquifer Recharge/Transition Zones. Revised October 2004.

_____. RG-348, Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices. Revised July 2005.

_____. Optional Enhanced Measures for the Protection of Water Quality in the Edwards Aquifer (Revised). Appendix A to RG-348, Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices. September 2007.

_____. Edwards Aquifer Protection Program. Edwards Aquifer Viewer, <http://www.tceq. state.tx.us/field/eapp/viewer.html>. Accessed 4 September 2024.

(TWDB) Texas Water Development Board. Water Information Integration and Dissemination System. TWDB Groundwater Database, <https://www3.twdb.texas.gov/apps/water datainteractive/groundwaterdataviewer>. Accessed 5 November 2024.

(TWSC) United States Geological Survey, Texas Water Science Center. Geologic Database of Texas, <https://txpub.usgs.gov/txgeology/>. Updated 1 February 2014; Accessed 5 November 2024.

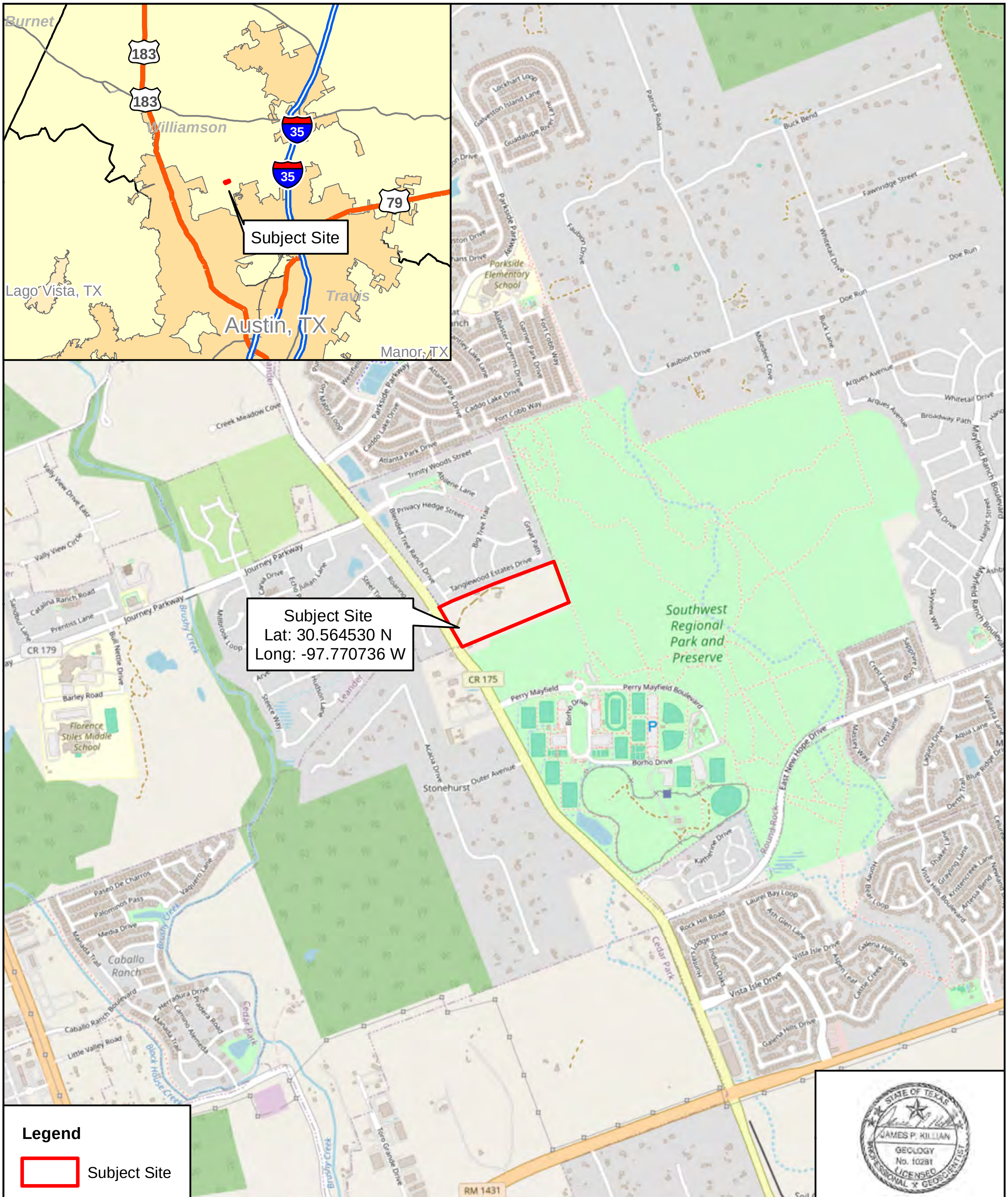
(UT-BEG) University of Texas Bureau of Economic Geology, Geologic Atlas of Texas Austin Sheet, Francis Luther Whitney Memorial Edition. C.V. Proctor, Jr., T.E. Brown, J.H. McGowen, and N.B. Waechter. 1974. Reprinted 1995.

(USGS) US Geological Survey. 7.5-minute series topographic maps, Leander, Texas, quadrangle. 1987.

Werchan, Leroy E., and John L. Coker. *Soil Survey of Williamson County, Texas*. US Department of Agriculture, Natural Resources Conservation Service (formerly Soil Conservation Service), in cooperation with the Texas Agricultural Experiment Station. 1983.

ATTACHMENT F

ADDITIONAL SITE MAPS



Horizon Environmental Services	Date: 8/26/2024	**Attachment F, Figure 1**	N
	Drawn: MPD	Vicinity Map	0 1,000 2,000
	HJN NO: 24213.001GA	28-Acre Simpson Tract	Feet
	Source: OSM, 2024	Leander, Williamson County, Texas	

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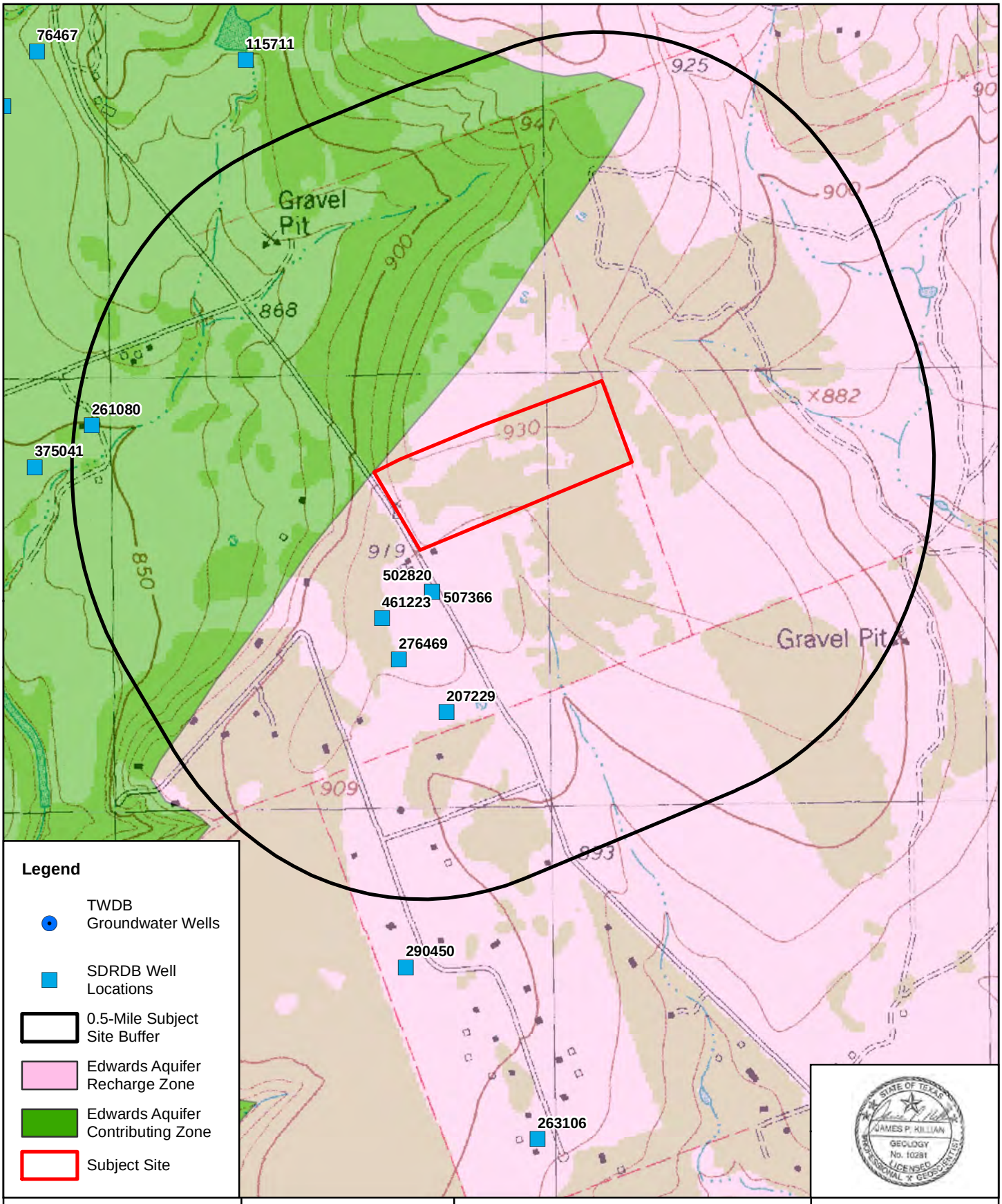

Date:	8/26/2024
Drawn:	MPD
HJN NO:	24213.001GA
Source:	USGS, 1987 TCEQ, 2024; TWDB, 2024

Attachment F, Figure 2

Topography and Hydrogeology Map
28-Acre Simpson Tract
Leander, Williamson County, Texas

0 500 1,000
Feet

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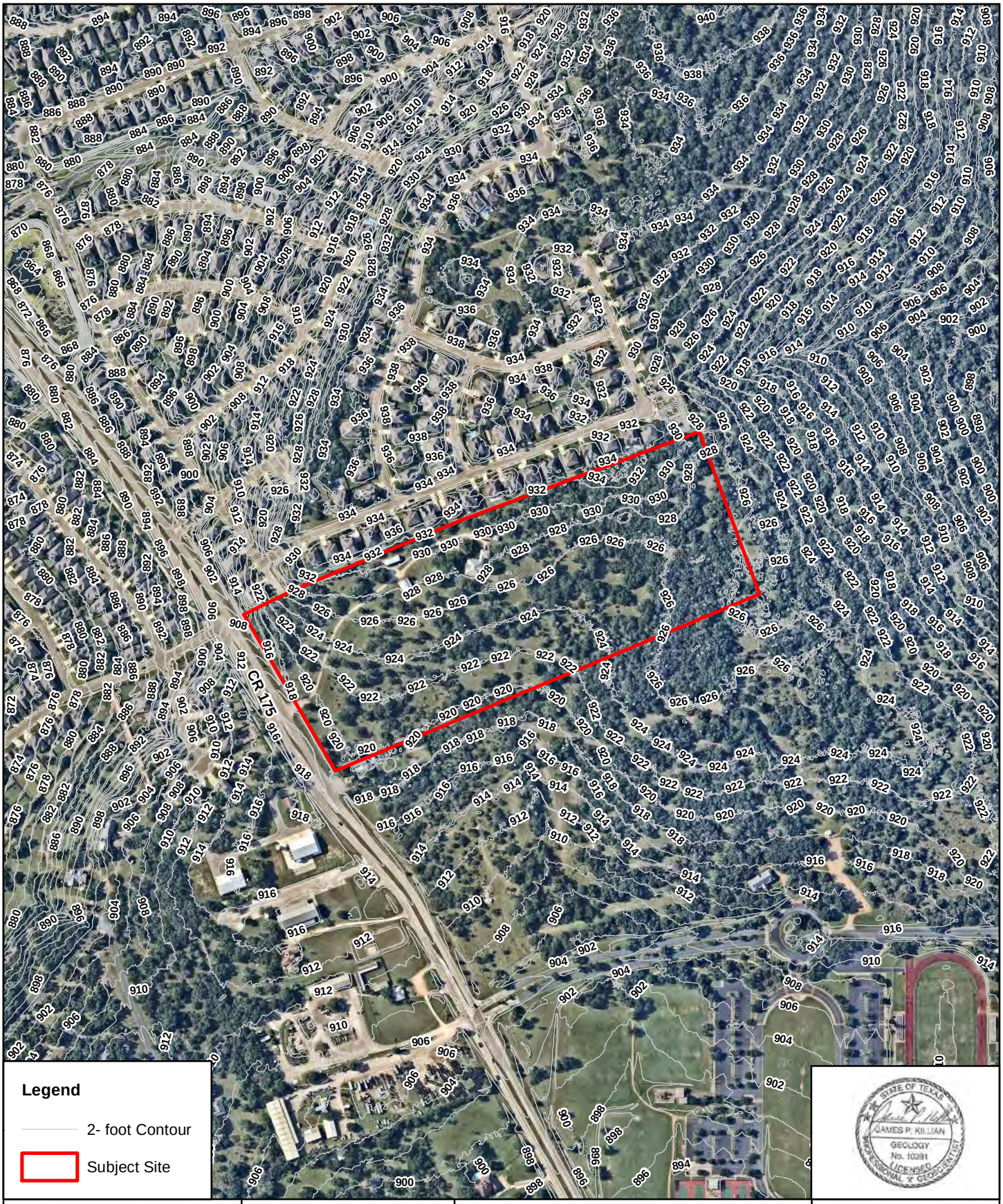

Legend

2- foot Contour

Subject Site

JAMES P. KILLIAN
GEOLOGY
No. 10281
LICENSED
PROFESSIONAL GEOSCIENTIST
STATE OF TEXAS

Horizon™
Environmental Services

Date:	8/26/2024
Drawn:	MPD
HJN NO:	24213.001GA
Source:	COA, 2019; Nearmap, 2024

Attachement F, Figure 3

Site Topographic Map
28-Acre Simpson Tract
Leander, Williamson County, Texas

N

0 250 500
Feet

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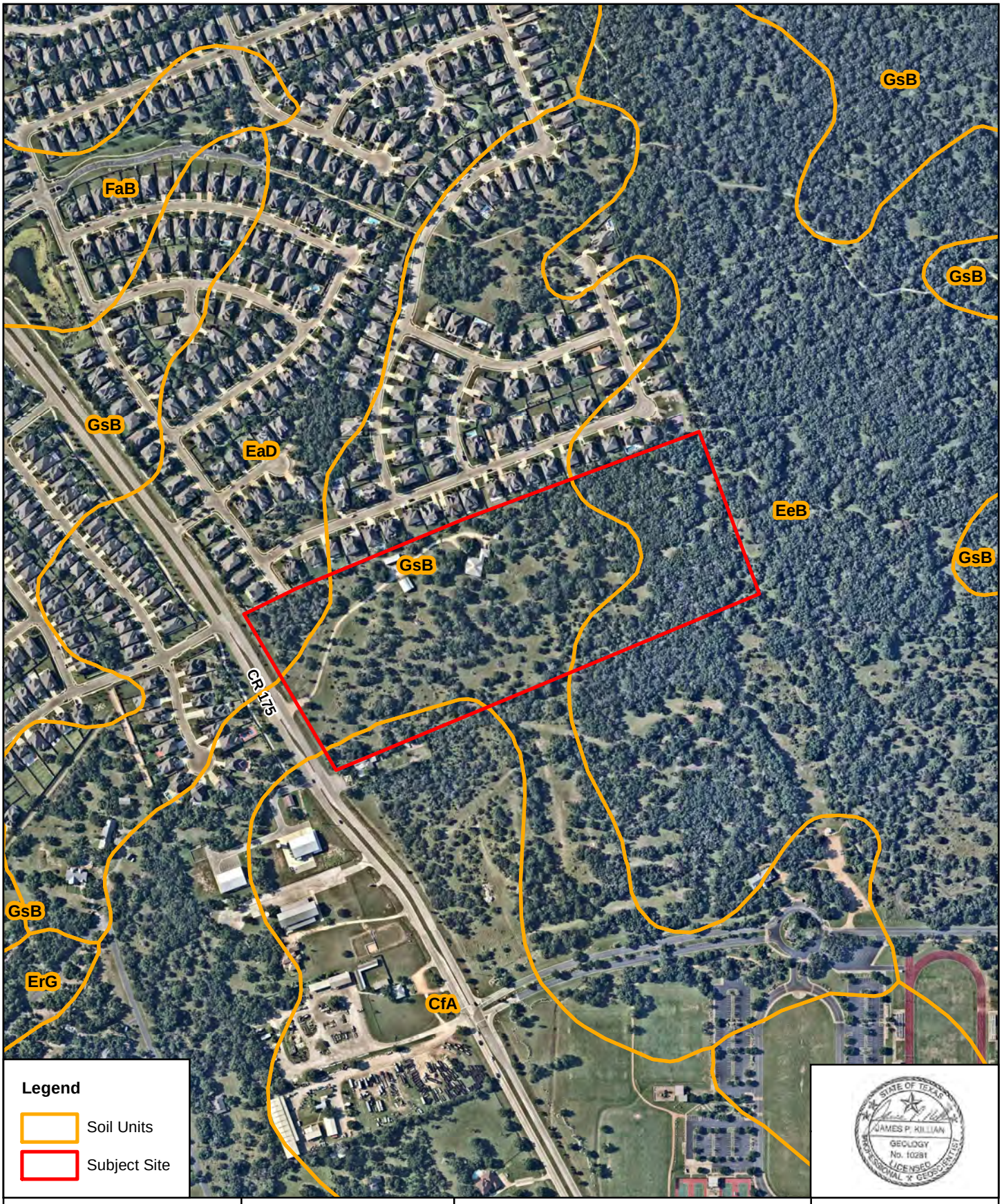

STATE OF TEXAS
JAMES P. KILLIAN
GEOLOGY
No. 10281
LICENSED
PROFESSIONAL GEOSCIENTIST

Horizon™ Environmental Services

Date:	8/26/2024
Drawn:	MPD
HJN NO:	24213.001GA
Source:	Nearmap, 2024 NRCS, 2024

Attachement F, Figure 4

NRCS Soils Map
28-Acre Simpson Tract
Leander, Williamson County, Texas

N

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Feet

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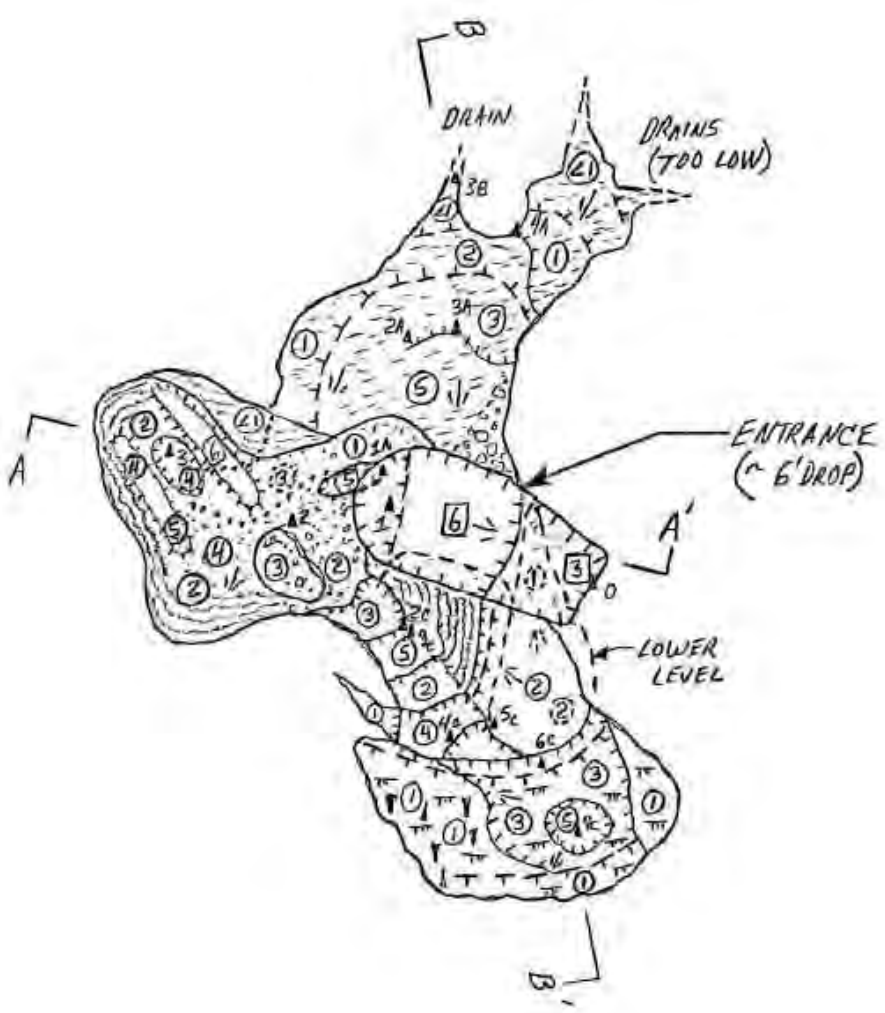


"Do Not Scale This Drawing"

Horizon™ Environmental Services

Date:	12/18/2024
Drawn:	KRW
HJN NO:	24213.003KS
Drafted By:	J. Killian

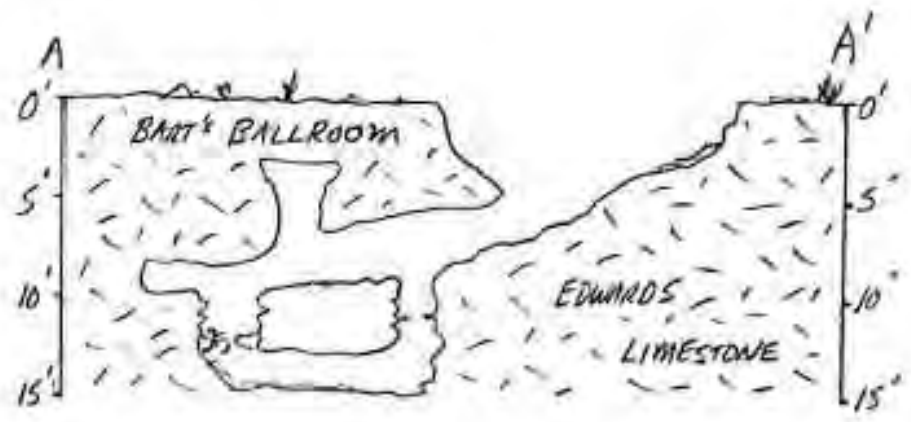
Homer's Cave (F-3)
28-Acre Simpson Tract
Leander, Williamson County, Texas
Suuntos & Laser Survey, 10-30-2024, 11-04-2024, 12-04-2024
Personnel: J. Killian, E. Bryant, C. Hall
T. Dillon, G Sherrod & T. Bradley
Length: 110' Depth: 36'

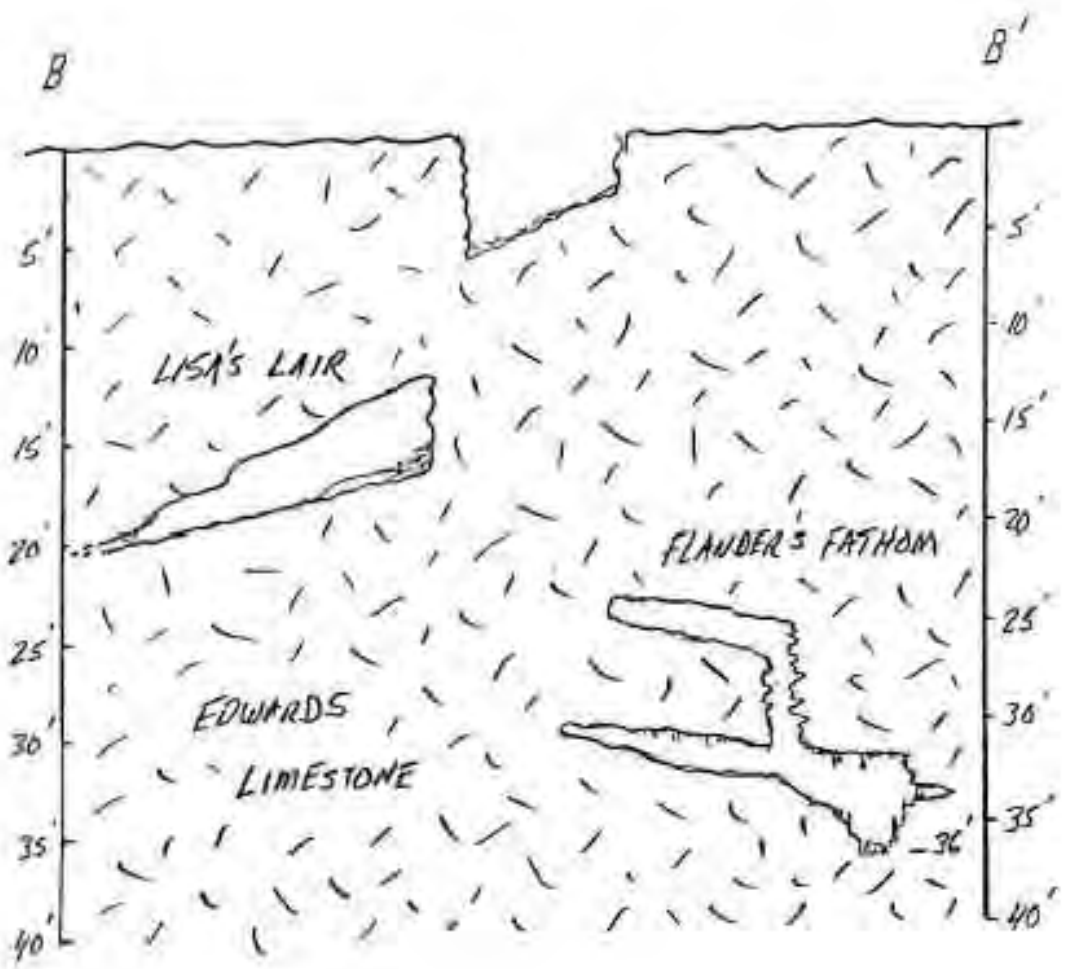
② Ceiling Height (ft)
△ Survey Station

1" = 10'

N

24213--Simpson_Tracts_Leander\Graphics





Horizon Environmental Services	Date: 12/18/2024 Drawn: KRW HJN NO: 24213.003KS Drafted By: J. Killian	Homer's Cave (F-3) 28-Acre Simpson Tract Leander, Williamson County, Texas Suuntos & Laser Survey, 10-30-2024, 11-04-2024, 12-04-2024 Personnel: J. Killian, E. Bryant, C. Hall T. Dillon, G Sherrod & T. Bradley Length: 110' Depth: 36'	② Ceiling Height (ft) △ Survey Station 1" = 10'

"Do Not Scale This Drawing"

24213--Simpson_Tracts_Leander\Graphics

Horizon
Environmental Services

ATTACHMENT G

SITE PHOTOGRAPHS

Horizon
Environmental Services

PHOTO 1
Man-made feature M-1 (water well in wellhouse), facing northeast

PHOTO 2
Man-made feature M-1 (water well), facing northeast

PHOTO 3
Man-made feature M-2 (water well under windmill), facing west

PHOTO 4
Man-made feature M-2 (water well under windmill), facing northwest

SECTION 4: ORGANIZED SEWAGE COLLECTION SYSTEM

Organized Sewage Collection System Application

Texas Commission on Environmental Quality

For Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(c), Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Regulated Entity Name: Lost Woods Estates

1. ☒ **Attachment A – SCS Engineering Design Report**. This Engineering Design Report is provided to fulfill the requirements of 30 TAC Chapter 217, including 217.10 of Subchapter A, §§217.51 – 217.70 of Subchapter C, and Subchapter D as applicable, and is required to be submitted with this SCS Application Form.

Customer Information

2. The entity and contact person responsible for providing the required engineering certification of testing for this sewage collection system upon completion (including private service connections) and every five years thereafter to the appropriate TCEQ region office pursuant to 30 TAC §213.5(c) is:

   Contact Person: Royce Rippy
   Entity: M I Homes of Austin, LLC
   Mailing Address: 7600 N. Capital of Texas Hwy.; Bldg. C, Suite 250
   City, State: Austin, TX Zip: 78731
   Telephone: (512) 770-8524 Fax: N/A
   Email Address: rrippy@mihomes.com
   The appropriate regional office must be informed of any changes in this information within 30 days of the change.

3. The engineer responsible for the design of this sewage collection system is:

   Contact Person: Alejandro E. Granados Rico, P.E.
   Texas Licensed Professional Engineer's Number: 130084
   Entity: Kimley-Horn
   Mailing Address: 501 S. Austin Ave, Suite 1310
   City, State: Georgetown, Texas Zip: 78626
   Telephone: (512) 520-0768 Fax: N/A
   Email Address: alex.granados@kimley-horn.com

Project Information

4. Anticipated type of development to be served (estimated future population to be served, plus adequate allowance for institutional and commercial flows):

   ☒ Residential: Number of single-family lots: 79
   ☐ Multi-family: Number of residential units:
   ☐ Commercial
   ☐ Industrial
   ☐ Off-site system (not associated with any development)
   ☐ Other: _____

5. The character and volume of wastewater is shown below:

100 % Domestic	19,355 gallons/day
_____% Industrial	_____ gallons/day
_____% Commingled	_____gallons/day

   Total gallons/day: 27,930

6. Existing and anticipated infiltration/inflow is 0 gallons/day. This will be addressed by: n/a.

7. A Water Pollution Abatement Plan (WPAP) is required for construction of any associated commercial, industrial or residential project located on the Recharge Zone.

   ☐ The WPAP application for this development was approved by letter dated . A copy of the approval letter is attached.
   ☒ The WPAP application for this development was submitted to the TCEQ on January 5th 2026, but has not been approved.
   ☐ A WPAP application is required for an associated project, but it has not been submitted.
   ☐ There is no associated project requiring a WPAP application.

8. Pipe description:

Table 1 - Pipe Description

Pipe Diameter(Inches)	*Linear Feet (1)*	*Pipe Material (2)*	*Specifications (3)*
8	3,799	PVC SDR-26	ASTM D-3034

Total Linear Feet: 3,799

(1) Linear feet - Include stub-outs and double service connections. Do not include private service laterals.
(2) Pipe Material - If PVC, state SDR value.
(3) Specifications - ASTM / ANSI / AWWA specification and class numbers should be included.

9. The sewage collection system will convey the wastewater to the Brushy Creek Wastewater (name) Treatment Plant. The treatment facility is:

   ☒ Existing
   ☐ Proposed

10. All components of this sewage collection system will comply with:

☒ The City of Leander standard specifications.
☐ Other. Specifications are attached.

11. ☒ No force main(s) and/or lift station(s) are associated with this sewage collection system.
☐ A force main(s) and/or lift station(s) is associated with this sewage collection system and the **Lift Station/Force Main System Application** form (TCEQ-0624) is included with this application.

Alignment

12. ☒ There are no deviations from uniform grade in this sewage collection system without manholes and with open cut construction.

13. ☒ There are no deviations from straight alignment in this sewage collection system without manholes.
☐ **Attachment B - Justification and Calculations for Deviation in Straight Alignment without Manholes**. A justification for deviations from straight alignment in this sewage collection system without manholes with documentation from pipe manufacturer allowing pipe curvature is attached.
☐ For curved sewer lines, all curved sewer line notes (TCEQ-0596) are included on the construction plans for the wastewater collection system.

Manholes and Cleanouts

14. ☒ Manholes or clean-outs exist at the end of each sewer line(s). These locations are listed below: (Please attach additional sheet if necessary)

Table 2 - Manholes and Cleanouts

Line	*Shown on Sheet*	*Station*	*Manhole or Clean-out?*
WWL-A	55	1+00.00	Manhole
WWL-A	55	3+22.61	Manhole
WWL-A	55	4+25.70	Manhole
WWL-A	55	7+64.46	Manhole
WWL-A	56	12+08.91	Manhole
WWL-A	56	16+53.21	Manhole
WWL-A	56	20+97.80	Manhole
WWL-B	57	1+00.00	Manhole
WWL-B	57	2+08.97	Manhole
WWL-B	57	6+11.65	Manhole
WWL-B	57	10+14.33	Manhole

Line	*Shown on Sheet*	*Station*	*Manhole or Clean-out?*
WWL-B	58	11+80.18	Manhole
WWL-B	58	16+64.09	Manhole

15. ☒ Manholes are installed at all Points of Curvature and Points of Termination of a sewer line.

16. ☒ The maximum spacing between manholes on this project for each pipe diameter is no greater than:

Pipe Diameter (inches)	Max. Manhole Spacing (feet)
6 - 15	500
16 - 30	800
36 - 48	1000
≥54	2000

☐ **Attachment C – Justification for Variance from Maximum Manhole Spacing**. The maximum spacing between manholes on this project (for each pipe diameter used) is greater than listed in the table above. A justification for any variance from the maximum spacing is attached, and must include a letter from the entity which will operate and maintain the system stating that it has the capability to maintain lines with manhole spacing greater than the allowed spacing.

17. ☐ All manholes will be monolithic, cast-in-place concrete.

☒ The use of pre-cast manholes is requested for this project. The manufacturer's specifications and construction drawings, showing the method of sealing the joints, are attached.

Site Plan Requirements

Items 18 - 25 must be included on the Site Plan.

18. ☒ The Site Plan must have a minimum scale of 1" = 400'.

Site Plan Scale: 1" = 50'.

19. ☒ The Site Plan must include the sewage collection system general layout, including manholes with station numbers, and sewer pipe stub outs (if any). Site plan must be overlain by topographic contour lines, using a contour interval of not greater than ten feet and showing the area within both the five-year floodplain and the 100-year floodplain of any drainage way.

20. Lateral stub-outs:

☒ The location of all lateral stub-outs are shown and labeled.
☐ No lateral stub-outs will be installed during the construction of this sewer collection system.

21. Location of existing and proposed water lines:

☒ The entire water distribution system for this project is shown and labeled.

☒ If not shown on the Site Plan, a Utility Plan is provided showing the entire water and sewer systems.

☐ There will be no water lines associated with this project.

22. 100-year floodplain:

☒ After construction is complete, no part of this project will be in or cross a 100-year floodplain, either naturally occurring or manmade. (Do not include streets or concrete-lined channels constructed above of sewer lines.)

☐ After construction is complete, all sections located within the 100-year floodplain will have water-tight manholes. These locations are listed in the table below and are shown and labeled on the Site Plan. (Do not include streets or concrete-lined channels constructed above sewer lines.)

Table 3 - 100-Year Floodplain

Line	*Sheet*	*Station*
n/a	n/a	n/a

23. 5-year floodplain:

☒ After construction is complete, no part of this project will be in or cross a 5-year floodplain, either naturally occurring or man-made. (Do not include streets or concrete-lined channels constructed above sewer lines.)

☐ After construction is complete, all sections located within the 5-year floodplain will be encased in concrete or capped with concrete. These locations are listed in the table below and are shown and labeled on the Site Plan. (Do not include streets or concrete-lined channels constructed above sewer lines.)

Table 4 - 5-Year Floodplain

Line	*Sheet*	*Station*
n/a	n/a	n/a

24. ☒ Legal boundaries of the site are shown.

25. ☒ The ***final plans and technical specifications*** are submitted for the TCEQ's review. Each sheet of the construction plans and specifications are dated, signed, and sealed by the Texas Licensed Professional Engineer responsible for the design on each sheet.

Items 26 - 33 must be included on the Plan and Profile sheets.

26. ☒ All existing or proposed water line crossings and any parallel water lines within 9 feet of sewer lines are listed in the table below. These lines must have the type of pressure rated pipe to be installed shown on the plan and profile sheets. Any request for a variance from the required pressure rated piping at crossings must include a variance approval from 30 TAC Chapter 290.

☐ There will be no water line crossings.
☐ There will be no water lines within 9 feet of proposed sewer lines.

Table 5 - Water Line Crossings

Line	*Station or Closest Point*	*Crossing or Parallel*	*Horizontal Separation Distance*	*Vertical Separation Distance*
WWL-B	1+28.00	CROSSING	N/A	5.4'

27. Vented Manholes:

☒ **No part** of this sewer line is within the 100-year floodplain and vented manholes are not required by 30 TAC Chapter 217.
☐ **A portion** of this sewer line is within the 100-year floodplain and vented manholes will be provided at less than 1500 foot intervals. These water-tight manholes are listed in the table below and labeled on the appropriate profile sheets.
☐ **A portion** of this sewer line is within the 100-year floodplain and an alternative means of venting shall be provided at less than 1500 feet intervals. A description of the alternative means is described on the following page.
☐ **A portion** of this sewer line is within the 100-year floodplain; however, there is no interval longer than 1500 feet located within. No vented manholes will be used.

Table 6 - Vented Manholes

Line	*Manhole*	*Station*	*Sheet*
n/a	n/a	n/a	n/a

28. Drop manholes:

☒ There are no drop manholes associated with this project.
☐ Sewer lines which enter new or existing manholes or "manhole structures" higher than 24 inches above the manhole invert are listed in the table below and labeled on the appropriate profile sheets. These lines meet the requirements of 30 TAC §217.55(l)(2)(H).

Table 7 - Drop Manholes

Line	*Manhole*	*Station*	*Sheet*
n/a	n/a	n/a	n/a

29. Sewer line stub-outs (For proposed extensions):

☐ The placement and markings of all sewer line stub-outs are shown and labeled.
☒ No sewer line stub-outs are to be installed during the construction of this sewage collection system.

30. Lateral stub-outs (For proposed private service connections):

☒ The placement and markings of all lateral stub-outs are shown and labeled.
☐ No lateral stub-outs are to be installed during the construction of this sewage collection system.

31. Minimum flow velocity (From Appendix A)

☒ Assuming pipes are flowing full; all slopes are designed to produce flows equal to or greater than 2.0 feet per second for this system/line.

32. Maximum flow velocity/slopes (From Appendix A)

☒ Assuming pipes are flowing full, all slopes are designed to produce maximum flows of less than or equal to 10 feet per second for this system/line.

☐ **Attachment D – Calculations for Slopes for Flows Greater Than 10.0 Feet per Second.** Assuming pipes are flowing full, some slopes produce flows which are greater than 10 feet per second. These locations are listed in the table below. Calculations are attached.

Table 8 - Flows Greater Than 10 Feet per Second

Line	*Profile Sheet*	*Station to Station*	*FPS*	*% Slope*	*Erosion/Shock Protection*
n/a	n/a	n/a	n/a	n/a	n/a

33. Assuming pipes are flowing full, where flows are ≥ 10 feet per second, the provisions noted below have been made to protect against pipe displacement by erosion and/or shock under 30 TAC §217.53(l)(2)(B).

☐ Concrete encasement shown on appropriate Plan and Profile sheets for the locations listed in the table above.

☐ Steel-reinforced, anchored concrete baffles/retards placed every 50 feet shown on appropriate Plan and Profile sheets for the locations listed in the table above.

☒ N/A

Administrative Information

34. ☒ The final plans and technical specifications are submitted for TCEQ review. Each sheet of the construction plans and specifications are dated, signed, and sealed by the Texas Licensed Professional Engineer responsible for the design on each sheet.

35. ☒ Standard details are shown on the detail sheets, which are dated, signed, and sealed by the Texas Licensed Professional Engineer, as listed in the table below:

Table 9 - Standard Details

Standard Details	*Shown on Sheet*
Lateral stub-out marking **[Required]**	n/a
Manhole, showing inverts comply with 30 TAC §217.55(l)(2) **[Required]**	68
Alternate method of joining lateral to existing SCS line for potential future connections **[Required]**	n/a
Typical trench cross-sections **[Required]**	67
Bolted manholes **[Required]**	n/a
Sewer Service lateral standard details **[Required]**	66
Clean-out at end of line **[Required, if used]**	n/a

Standard Details	***Shown on Sheet***
Baffles or concrete encasement for shock/erosion protection **[Required, if flow velocity of any section of pipe >10 fps]**	n/a
Detail showing Wastewater Line/Water Line Crossing **[Required, if crossings are proposed]**	55-58
Mandrel detail or specifications showing compliance with 30 TAC §217.57(b) and (c) **[Required, if Flexible Pipe is used]**	n/a
Drop manholes **[Required, if a pipe entering a manhole is more than 24 inches above manhole invert]**	n/a

36. ☒ All organized sewage collection system general construction notes (TCEQ-0596) are included on the construction plans for this sewage collection system.

37. ☒ All proposed sewer lines will be sufficiently surveyed/staked to allow an assessment prior to TCEQ executive director approval. If the alignments of the proposed sewer lines are not walkable on that date, the application will be deemed incomplete and returned.

    ☒ Survey staking was completed on this date: 08/20/2024

38. ☒ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.

39. ☒ Any modification of this SCS application will require TCEQ approval, prior to construction, and may require submission of a revised application, with appropriate fees.

Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **Organized Sewage Collection System Application** is hereby submitted for TCEQ review and executive director approval. The system was designed in accordance with the requirements of 30 TAC §213.5(c) and 30 TAC §217 and prepared by:

Print Name of Licensed Professional Engineer: Alejandro E. Granados Rico P.E.

Date: January 5th 2026

Place engineer's seal here:

Signature of Licensed Professional Engineer: Alejandro E. Granados Rico

Appendix A-Flow Velocity Table

Flow Velocity (Flowing Full) All gravity sewer lines on the Edwards Aquifer Recharge Zone shall be designed and constructed with hydraulic slopes sufficient to give a velocity when flowing full of not less than 2.0 feet per second, and not greater than 10 feet per second. The grades shown in the following table are based on Manning's formula and an n factor of 0.013 and shall be the minimum and maximum acceptable slopes unless provisions are made otherwise.

Table 10 - Slope Velocity

Pipe Diameter(Inches)	*% Slope required for minimum flow velocity of 2.0 fps*	*% Slope which produces flow velocity of 10.0 fps*
6	0.50	12.35
8	0.33	8.40
10	0.25	6.23
12	0.20	4.88
15	0.15	3.62
18	0.11	2.83
21	0.09	2.30
24	0.08	1.93
27	0.06	1.65
30	0.055	1.43
33	0.05	1.26
36	0.045	1.12
39	0.04	1.01
>39	*	*

**For lines larger than 39 inches in diameter, the slope may be determined by Manning's formula (as shown below) to maintain a minimum velocity greater than 2.0 feet per second when flowing full and a maximum velocity less than 10 feet per second when flowing full.*

$$v = \frac{1.49}{n} \times R_h^{0.67} \times \sqrt{S}$$

Figure 1 - Manning's Formula

Where:

v = velocity (ft/sec)
n = Manning's roughness coefficient (0.013)
Rh = hydraulic radius (ft)
S = slope (ft/ft)

Kimley»Horn

Attachment A

Engineer's Design Report

This Engineering Design Report has been prepared to comply with the Texas Commission on Environmental Quality Design Criteria for Domestic Wastewater Systems, 30 TAC Chapter 217, including 217.10 of Subchapter A, §§217.51 – 217.70 of Subchapter C, and Subchapter D as applicable. Please note that throughout this application, the more stringent of AWU or TCEQ regulations shall apply.

Project Description

Introduction

Lost Woods Estates is an undeveloped 28.12 acre property located at 2855 CR 175 and within the city limits of the Leander, Texas. The proposed Lost Woods Estates project includes the construction of 79 single family homes with associated roadway, water, wastewater, and drainage improvements to support the project. This project proposes 13.54 acres (48.15%) of impervious cover.

This project is located within the Brushy Creek Watershed. No portion of this site is located in the Federal Emergency Management Agency's 100-year floodplain according to FIRM 48491C0460F. The site is located within the Edwards Aquifer Recharge Zone according to the City of Austin and Edward's Aquifer GIS databases. There are no critical water quality zones. There are two critical environmental features located on-site. The site consists of 28.12 acres of single residence.

On-site infrastructure is comprised of water, gas, electric, wastewater, and storm sewer lines. The wastewater service outlined in this report will consist of two (2) lines that will convey wastewater to an existing gravity wastewater system in the adjacent subdivision to the north. The existing offsite line will gravity flow and be deposited at the Brushy Creek Regional Wastewater Treatment Plant to be treated. At the preliminary plat stage; an agreement between MI Homes of Austin, LLC and the City of Leander recognizes the proposed flow from the Lost Woods Estates development and that the city will accept to treat it through the Brushy Creek Regional Wastewater Treatment Plant. All lines will consist of single and double service connections to homes that are proposed per this development. All proposed manholes shall be watertight, with watertight rings and covers. All proposed wastewater lines will be installed within the Edwards Aquifer Recharge Zone (EARZ) and Contributing Zone (EACZ).

Pipe Design

Flow Design Basis

Service for the build-out of the 28.12 acre 79 single family homes, Lost Woods Estates site, located at 2855 CR 175, will be served by this wastewater system. This is the only phase of the Lost Woods Estates Subdivision. The City of Austin Utility Criteria Manual (UCM) was used to determine the parameters for the design of the wastewater line system. See Appendix B for the map illustrating the property to be served by this wastewater line system and Appendix C for the calculations (as approved by the City of Austin).

Gravity Pipe and Joint Materials

The proposed pipe to be used for the 8" wastewater line will be ASTM D3034 SDR-26 PVC pipe (cell class 12454). The joints for this pipe shall meet the requirements of ASTM D3212. The pipe joints shall have an integral bell and rubber gasket seal with the locked-in type gasket.

Separation Distances for Water and Wastewater

A 26-foot minimum horizontal separation is maintained between all proposed wastewater infrastructure and proposed water lines. There is 1 water line crossing which does meet the nine-foot minimum vertical separation. See Table 5 – Water Crossings for all water line crossings.

Service Connections

Service connections have been included for each of the 79 proposed single-family homes.

Boring and Tunneling of Crossings

No boring or tunneling of crossings are proposed for this project.

Corrosion Potential

PVC pipe will be utilized for or all proposed wastewater lines. No deterioration of the proposed pipe or its associated components is anticipated in this application.

Odor Control

All flows contributing to the proposed wastewater lines are from single family developments generating domestic sewage.

Active Geologic Faults

Per the Geologic Assessment, 4 naturally occurring geologic features were located within the area of the project. Please see the attached Geologic Assessment for details.

Capacity Analysis

The capacity of each proposed wastewater segment is calculated below based on Manning's Equation. The calculation for each segment is based on the minimum proposed slope.

$$Q = \frac{1.49}{n} * A * R^{0.67} * S^{0.5}$$

Where:

Qfull = flow rate of fluid in pipe at full flow (ft^3/s) (cfs)

Q90%= flow rate of fluid in pipe at 90% full flow (ft^3/s) (cfs)

A = area of pipe (ft^2) = $\frac{\pi * d^2}{4}$

d = internal pipe diameter (ft) = Do – 2t

Do = outside diameter (in)

t = pipe wall thickness (in)

n = Manning's Roughness coefficient = 0.013

Rfull = hydraulic radius of pipe (full flow) = A/P = D/4 (ft)

R90%= hydraulic radius of pipe (90% full flow) = 0.9*A/P = 0.9*D/4 (ft)

P = wetted perimeter of pipe = π *D (ft)

S = slope of energy line

Pipes	Length	Slope	Slope	Diameter		Pipe	Manning's	P	A	Rfull	R90%	Qfull	Q90%	Vfull	V90%
	ft	*%*	*ft/ft*	*in*	*ft*	Material		*ft*	*sf*	*ft*	*ft*	*cfs*	*cfs*	*fps*	*fps*
A-1	445	0.90	0.009	8.00	0.67	PVC	0.013	2.09	0.35	0.17	0.15	1.14	1.03	3.27	2.95
A-2	444	0.65	0.007	8.00	0.67	PVC	0.013	2.09	0.35	0.17	0.15	0.97	0.87	2.78	2.50
A-3	444	0.65	0.007	8.00	0.67	PVC	0.013	2.09	0.35	0.17	0.15	0.97	0.87	2.78	2.50
A-4	339	0.65	0.007	8.00	0.67	PVC	0.013	2.09	0.35	0.17	0.15	0.97	0.87	2.78	2.50
A-5	103	0.55	0.006	8.00	0.67	PVC	0.013	2.09	0.35	0.17	0.15	0.89	0.80	2.56	2.30
A-6	223	0.55	0.006	8.00	0.67	PVC	0.013	2.09	0.35	0.17	0.15	0.89	0.80	2.56	2.30
B-1	484	0.50	0.005	8.00	0.67	PVC	0.013	2.09	0.35	0.17	0.15	0.85	0.77	2.44	2.20
B-2	166	0.50	0.005	8.00	0.67	PVC	0.013	2.09	0.35	0.17	0.15	0.85	0.77	2.44	2.20
B-3	403	0.50	0.005	8.00	0.67	PVC	0.013	2.09	0.35	0.17	0.15	0.85	0.77	2.44	2.20
B-4	403	0.50	0.005	8.00	0.67	PVC	0.013	2.09	0.35	0.17	0.15	0.85	0.77	2.44	2.20
B-5	109	6.62	0.066	8.00	0.67	PVC	0.013	2.09	0.35	0.17	0.15	3.10	2.79	8.88	7.99

Pipe Type	Minimum Velocity *fps*	Maximum Velocity *fps*
8" PVC	2.44	8.88

The proposed wastewater line installed at the slope specified provides capacity in excess of the calculated peak wet weather design flows at full flow and 90% full flow conditions.

Structural Analysis

Flexible pipe is proposed on this project. Structural calculations are provided for the flexible pipe to be installed. The proposed collection system piping is designed to have a minimum structural life of 50 years. As previously mentioned, all proposed PVC pipe shall be cell class 12454 with a tensile strength of 7,000 psi.

Live Load Calculations – no significant live loads are anticipated on any segment of this project.

Buckling Pressure - the following equations utilized for the calculation of buckling pressure are taken from the *Handbook of PVC Pipe: Design and Construction* (Uni-Bell PVC Pipe Association, 2001).

$$Pcr = \frac{2 * E}{(1 - v^2) * (DR - 1)^3} \qquad \textit{(Equation 7.14)}$$

$$Pb = 1.15 * \sqrt{Pcr * E'} \qquad \textit{(Equation 7.18)}$$

$$H = (Pb*144)/w \qquad \textit{(Equation 6.7)}$$

Where:

Pcr = critical buckling pressure (psi)

E = modulus of elasticity (psi) = 400,000 psi for PVC

v = Poisson's Ratio = 0.38 for PVC

DR = dimension ratio

Pb = buckling pressure in soil (psi)

E' = modulus of soil reaction (psi) = 2,000 psi for crushed rock compacted to greater than 95% relative density

H = maximum allowable cover height of soil (ft)

w = weight of soil (lbs/ft^3) = 120 lbs/ft^3

8" ASTM D3034 SDR-26

$$Pcr = \frac{2*400{,}000}{(1-0.38^2)*(26-1)^3}$$

Pcr = 59.84 psi

$$Pb = 1.15*\sqrt{59.84*2{,}000}$$

Pb = 397.84 psi

H = (397.84*144) / 120

H = 477.41 ft height of soil to cause pipe buckling

Prism Load Calculations - the following equations utilized for the calculation of prism loads are taken from the *Handbook of PVC Pipe: Design and Construction* (Uni-Bell PVC Pipe Association, 2001).

P = H*w *(Equation 6.7)*

Where:

P = prism load pressure due to soil weight (lbs/ft^2)

H = depth of pipe (ft)

w = soil density (lbs/ft^3) = 120 lbs/ft^3

8" ASTM D3034 SDR-26

P = 20 * 120

P = 2,400 lbs/ft^2 or 16.67 psi

Long Term Deflection Calculations - the following equations utilized for the calculation of long term deflection are taken from the *Handbook of PVC Pipe: Design and Construction* (Uni-Bell PVC Pipe Association, 2001).

$$\Delta Y/D = \frac{DL*K*P+K*W_1}{[2E/(3(DR-1)^3)]+0.061*E'}*100 \qquad \textit{(Equation 7.10)}$$

Where:

ΔY/D = long term deflection (%)

DL = Deflection Lag Factor = 1.0 for prism load calculation

K = bedding constant = 0.096 for 90°

P = prism load pressure due to soil weight (lbs/ft^2)

W_1 = live load (psi) = 0 psi

E = modulus of elasticity (psi) = 400,000 psi for PVC

DR = dimension ratio

E' = modulus of soil reaction (psi) = 2,000 psi for crushed rock bedding compacted to greater than 95% relative density

Note: Leonhardt's Zeta factor is assumed to equal 1, and thus is not required in the calculation. This is a conservative assumption that results in a more conservatively calculated value for long term deflection.

8" ASTM D3034 SDR-26

$$\Delta Y/D = \frac{1.0*0.096*16.67 + 0.096*0}{[2(400{,}000)/(3(26-1)^3)] + 0.061*2{,}000} * 100$$

ΔY/D = 1.15%

Wall Crushing Calculations - the following equations utilized for the calculation of wall crushing are taken from the *Handbook of PVC Pipe: Design and Construction* (Uni-Bell PVC Pipe Association, 2001).

$$Py = \frac{\Theta c * 2 * A}{D} \qquad \textit{(Equation 7.20)}$$

$$H = Py / w \qquad \textit{(Equation 6.7)}$$

Where:

Py = pressure due to soil weight (psi)

Θc = compressive stress (psi) = 4,000 psi for PVC pipe

A= surface area of the pipe wall (in^2/in)

D = mean pipe diameter (in) = Do – t

t = pipe wall thickness (in)

H = maximum allowable height of cover (ft)

w = soil density (lbs/ft^3) = 120 lbs/ft^3

8" ASTM D3034 SDR-26

Do = 8.4– 0.323 = 8.077 in, A =3.88 in^2/ft (0.323 in * 12 in/ft)

$$Py = \frac{4{,}000*2*(3.88/12)}{8.077}$$

Py = 320.25 psi

H = (320.25*144) / 120

H = 384.30 ft height of soil to cause wall crushing

Strain Calculations - the following equations utilized for the calculation of strain are taken from the *Handbook of PVC Pipe: Design and Construction* (Uni-Bell PVC Pipe Association, 2001).

$$\varepsilon h = \frac{P*D}{2*t*E} \qquad \textit{(Equation 7.22)}$$

$$\varepsilon f = \frac{t}{D}*\frac{[3*\Delta Y/D]}{[1-2*\Delta Y/D]} \qquad \textit{(Equation 7.24)}$$

$$\varepsilon = \varepsilon h + \varepsilon f \qquad \textit{(Equation 7.25)}$$

Where:

- εh = maximum strain in the pipe wall due to hoop stress (in/in)
- P = prism load pressure due to soil weight (psi)
- D = mean pipe diameter (in) = Do – t
- t = pipe wall thickness (in)
- E = modulus of elasticity (psi) = 400,000 psi for PVC
- εf = maximum strain in the pipe due to ring deflection or flexure (in/in)
- ΔY/D = long term deflection
- ε = maximum combined strain in pipe wall (in/in)

8" ASTM D3034 SDR-26

$$\varepsilon h = \frac{16.67 * 8.077}{2 * 0.323 * 400{,}000}$$

εh = 0.00052 in/in

$$\varepsilon f = \frac{0.323}{8.077} * \frac{[3*0.0115]}{[1-2*0.0115]}$$

εf = 0.0014 in/in

ε = 0.00035 + 0.0014

ε = 0.00175 in/in

Per the *Handbook of PVC Pipe: Design and Construction* (Uni-Bell PVC Pipe Association, 2001), deflection test samples have experienced a pipe wall strain of up to 0.025 in/in and have not "showed any failures or cracks". The calculated strains for this project are significantly below this level, so no failure due to strain is anticipated.

Pipe Stiffness Calculation - the following equations utilized for the calculation of pipe stiffness are taken from the *Handbook of PVC Pipe: Design and Construction* (Uni-Bell PVC Pipe Association, 2001).

$$Ps = 4.47 * \frac{E}{(DR-1)^3} \qquad \textit{(Equation 7.3)}$$

Where:

Ps =	pipe stiffness (psi)
DR =	Dimensional Ration = Do / t
Do =	Outside diameter (in)
t =	pipe wall thickness (in)
E =	modulus of elasticity (psi) = 400,000 psi for PVC

8" ASTM D3034 SDR-26

DR = 26

$$Ps = 4.47 * \frac{400{,}000}{(26-1)^3}$$

Ps = 115 psi

Criteria for Laying Pipe

Pipe Embedment

Bedding and initial backfill material selection and installation will be carried out in accordance with applicable governing procedures contained within the *City of Austin Standard Specifications for Pipes and Appurtenances, TCEQ Chapter 217.54(a),* and in accordance with the City of Leander Detail 104-1 on sheet 67. Bedding material shall be in accordance with City of Austin Standard Specification Item 510, Section 510.3(14). Compacted backfill, from a point one (1) foot above the pipe to the finished surface, will be comprised of suitable material removed during excavation, as described in Item 510, Section 510.2(6). Brush, debris, and junk shall not be utilized as a backfilling material.

Compaction

Trench compaction will be carried out in accordance with the *City of Austin Standard Specifications for Pipes and Appurtenances* and *TCEQ Chapter 217.54(b)*. Proper placement of the backfill and compaction per City of Austin requirements will not negatively impact the structural integrity of the pipe.

Envelope Size

Envelope size will be in accordance with *City of Austin Standard Specifications for Pipes and Appurtenances* and *TCEQ Chapter 217.54(c).* Per the City of Leander Detail 104-1 on sheet 67, a minimum of 6-inch and maximum of 12-inch space shall be allowed between the outside diameter of the pipe and the trench wall and floor. In addition, a minimum of 6-inch and maximum of 12-inch space shall be allowed between the outside diameter of the pipe bell and the trench wall. The embedment and initial backfill must be installed to a minimum depth of 12 inches above the crown of the pipe.

Trench Width

Trench width will be in accordance with the City of Leander Detail 104-1 on sheet 67 and *TCEQ Chapter 217.54(d).* Per the City of Leander Detail 104-1 on sheet 67, a minimum of 6-inch and maximum of 12-inch space shall be allowed between the outside diameter of the pipe and the trench wall and floor. In addition, a minimum of 6-inch and maximum of 12-inch space shall be allowed between the outside diameter of the pipe bell and the trench wall. These limits shall be maintained to protect the structural integrity of the pipe and will be sufficient for the placement of materials and use of compaction equipment in the pipe zone.

Manholes and Related Structures

Manhole and Appurtenance Placement

Manholes are located at all points of change in alignment or grade and at the intersection of all pipes for this project.

Manhole Stub Outs

No manholes are being placed at the end of a line that may be extended in the future, so no stub outs are included on this project.

Cleanouts

No dead end lines are included in this project, so no cleanouts are proposed.

Manhole Material

Monolithic or precast manholes are acceptable for the contractor to utilize and are included in the City of Austin Detail 506S-10 on sheet 68. The use of bricks is not acceptable for the manhole or for cover adjustments.

Manhole Spacing

Manhole spacing meets the requirements of Table C.2 in *TCEQ Chapter 217.55*.

Manholes within Waterways

No manholes will be located within flow paths of waterways or in areas where water ponding is probable.

Manhole Covers, Inlets, and Bases

Per the COA detail 506S-10 sheet 68, the manhole covers shall have a 30-inch diameter clear opening. Manhole covers shall be constructed of cast iron and have no openings for water to infiltrate. No proposed manholes are located within the 100-year flood plain. All manholes shall be watertight, with watertight rings and covers, as shown per the City of Leander detail 107-3 on sheet 80.

As shown in the project details, the bottom of the manhole shall have a U-shaped channel to provide smooth continuation between the inlet and outlet pipes. For the proposed pipe, the manhole channel depth shall be equal to at least half the largest pipe diameter. Manholes with different pipe sizes shall have the tops of the pipes at the same elevation and flow channels in the invert sloped evenly from pipe to pipe. A bench will be provided above each manhole channel to slope at a minimum of 0.5 inches per foot.

Manhole Steps

No steps shall be allowed in any proposed manholes.

Manhole Connections

Manhole-pipe connections shall be watertight per City of Austin pipe to manhole connector SPL WW-146D. See detail 506S-10 on Sheet 68.

Manhole Venting

The proposed manholes are spaced at less than 1,500 foot intervals and none are located within the 100-year flood plain. Therefore, no vented manholes are proposed on this project.

Trenchless Pipe Installation

There will be no trenchless pipe installation.

Testing Requirements for Gravity Pipes

Infiltration/Exfiltration and Low Pressure Air Test

All testing will be in compliance with Texas Administrative Code title 30 Part 1 Chapter 217 Subchapter C 217.57 and 217.58. See TCEQ note on Sheet 3.

Infiltration and exfiltration or low pressure air testing in accordance with ASTM C828, C924 or F1417 are required for all proposed gravity wastewater pipe as specified in the project notes, Sheet 3. The requirements specified are in accordance with *TCEQ Chapter 217.57*.

Deflection Testing

For the proposed 8-inch, deflection shall be measured with a rigid mandrel per the project detail on Sheet 3. The requirements specified are in accordance with *TCEQ Chapter 217.57*.

Owner Inspection

The Owner shall have an inspector onsite during construction of the project. A professional engineer registered in the state of Texas (Alejandro E. Granados Rico, P.E.) shall be present to witness the testing of the wastewater lines.

Testing Requirements for Manholes

Manhole testing in accordance with *TCEQ Chapter 217.58* is specified in the project notes, sheet 3. Manholes will be tested after assembly and backfilling for leakage by either a hydrostatic test and/or a vacuum test.

For the vacuum test, all lift holes and exterior joints shall be plugged with an approved non-shrink grout and no grout shall be placed in horizontal joints before testing. All pipes entering the manhole shall be plugged, taking care to securely brace the plugs from being drawn into the manhole. Stubouts, manhole boots and pipe plugs shall be secured to prevent movement while the vacuum is drawn. A minimum 60-inch/lb torque wrench shall be used to tighten the external clamps that secure the test cover to the top of the manhole. The test head shall be placed at the inside of the top of the cone section and the seal inflated in accordance with the manufacturer's recommendation. A vacuum of 10 inches of mercury shall be drawn and the vacuum pump shut off. With the valves closed, the time shall be measured for the vacuum to drop to 9 inches of mercury. The manhole shall pass if the time is greater than 2 minutes. If the manhole fails the initial test, necessary repairs shall be made with a non-shrink grout while the vacuum is still being drawn. If the manhole fails a second time, repairs should again be made and the manhole shall be tested by means of a hydrostatic test. If any manhole fails the hydrostatic test, after failing the vacuum test twice, the contractor should consider replacing that manhole. If the contractor chooses to attempt to repair that manhole, the manhole must be retested by means of the hydrostatic test until it passes.

Inspection will be provided during critical phases of construction by a qualified inspector under the direction of a P.E. (Alejandro E. Granados Rico, P.E.). Critical phases of construction are deemed at a minimum to include testing of pipe and manholes for leakage, and testing of flexible pipe for installed deflection.
TCEQ approval letters for plans and specifications review contain the requirement that once the project is completed, a P.E. registered in the state of Texas (Alejandro E. Granados Rico, P.E.) much certify that the construction was performed substantially in accordance with the approved plans and specifications.

Notification and Inspection

TCEQ Chapter 213 requires that the applicant must provide written notification to the Austin regional office at least 48 hours prior to commencing construction on the regulated activity. If any sensitive feature is discovered during construction then the work shall be suspended immediately and the Austin regional office shall be notified to then determine the appropriate course of action. All other notification and inspection requirements identified in *TCEQ Chapter 213.5(c)* shall be met.

SECTION 5: TEMPORARY STORMWATER SECTION

Temporary Stormwater Section

Texas Commission on Environmental Quality

for Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(b)(4)(A), (B), (D)(I) and (G); Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **Temporary Stormwater Section** is hereby submitted for TCEQ review and executive director approval. The application was prepared by:

Print Name of Customer/Agent: Alejandro E. Granados Rico, P.E.

Date: 01/05/2026

Signature of Customer/Agent:

Regulated Entity Name: Lost Woods Estates

Project Information

Potential Sources of Contamination

Examples: Fuel storage and use, chemical storage and use, use of asphaltic products, construction vehicles tracking onto public roads, and existing solid waste.

1. Fuels for construction equipment and hazardous substances which will be used during construction:

   ☐ The following fuels and/or hazardous substances will be stored on the site: _____

   These fuels and/or hazardous substances will be stored in:

☐ Aboveground storage tanks with a cumulative storage capacity of less than 250 gallons will be stored on the site for less than one (1) year.

☐ Aboveground storage tanks with a cumulative storage capacity between 250 gallons and 499 gallons will be stored on the site for less than one (1) year.

☐ Aboveground storage tanks with a cumulative storage capacity of 500 gallons or more will be stored on the site. An Aboveground Storage Tank Facility Plan application must be submitted to the appropriate regional office of the TCEQ prior to moving the tanks onto the project.

☒ Fuels and hazardous substances will not be stored on the site.

2. ☒ **Attachment A - Spill Response Actions**. A site specific description of the measures to be taken to contain any spill of hydrocarbons or hazardous substances is attached.

3. ☒ Temporary aboveground storage tank systems of 250 gallons or more cumulative storage capacity must be located a minimum horizontal distance of 150 feet from any domestic, industrial, irrigation, or public water supply well, or other sensitive feature.

4. ☒ **Attachment B - Potential Sources of Contamination**. A description of any activities or processes which may be a potential source of contamination affecting surface water quality is attached.

Sequence of Construction

5. ☒ **Attachment C - Sequence of Major Activities**. A description of the sequence of major activities which will disturb soils for major portions of the site (grubbing, excavation, grading, utilities, and infrastructure installation) is attached.

   ☒ For each activity described, an estimate (in acres) of the total area of the site to be disturbed by each activity is given.

   ☒ For each activity described, include a description of appropriate temporary control measures and the general timing (or sequence) during the construction process that the measures will be implemented.

6. ☒ Name the receiving water(s) at or near the site which will be disturbed or which will receive discharges from disturbed areas of the project: N/A

Temporary Best Management Practices (TBMPs)

Erosion control examples: tree protection, interceptor swales, level spreaders, outlet stabilization, blankets or matting, mulch, and sod. Sediment control examples: stabilized construction exit, silt fence, filter dikes, rock berms, buffer strips, sediment traps, and sediment basins. Please refer to the Technical Guidance Manual for guidelines and specifications. All structural BMPs must be shown on the site plan.

7. ☒ **Attachment D – Temporary Best Management Practices and Measures**. TBMPs and measures will prevent pollution of surface water, groundwater, and stormwater. The construction-phase BMPs for erosion and sediment controls have been designed to retain sediment on site to the extent practicable. The following information is attached:

☒ A description of how BMPs and measures will prevent pollution of surface water, groundwater or stormwater that originates upgradient from the site and flows across the site.

☒ A description of how BMPs and measures will prevent pollution of surface water or groundwater that originates on-site or flows off site, including pollution caused by contaminated stormwater runoff from the site.

☒ A description of how BMPs and measures will prevent pollutants from entering surface streams, sensitive features, or the aquifer.

☒ A description of how, to the maximum extent practicable, BMPs and measures will maintain flow to naturally-occurring sensitive features identified in either the geologic assessment, TCEQ inspections, or during excavation, blasting, or construction.

8. ☒ The temporary sealing of a naturally-occurring sensitive feature which accepts recharge to the Edwards Aquifer as a temporary pollution abatement measure during active construction should be avoided.

☐ **Attachment E - Request to Temporarily Seal a Feature**. A request to temporarily seal a feature is attached. The request includes justification as to why no reasonable and practicable alternative exists for each feature.

☒ There will be no temporary sealing of naturally-occurring sensitive features on the site.

9. ☒ **Attachment F - Structural Practices**. A description of the structural practices that will be used to divert flows away from exposed soils, to store flows, or to otherwise limit runoff discharge of pollutants from exposed areas of the site is attached. Placement of structural practices in floodplains has been avoided.

10. ☒ **Attachment G - Drainage Area Map**. A drainage area map supporting the following requirements is attached:

☒ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin will be provided.

☐ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a smaller sediment basin and/or sediment trap(s) will be used.

☐ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin or other equivalent controls are not attainable, but other TBMPs and measures will be used in combination to protect down slope and side slope boundaries of the construction area.

☐ There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time. A smaller sediment basin and/or sediment trap(s) will be used in combination with other erosion and sediment controls within each disturbed drainage area.

☐ There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time. Erosion and sediment controls other than sediment basins or sediment traps within each disturbed drainage area will be used.

11. ☒ **Attachment H - Temporary Sediment Pond(s) Plans and Calculations**. Temporary sediment pond or basin construction plans and design calculations for a proposed temporary BMP or measure have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer. All construction plans and design information must be signed, sealed, and dated by the Texas Licensed Professional Engineer. Construction plans for the proposed temporary BMPs and measures are attached.

☒ N/A

12. ☒ **Attachment I - Inspection and Maintenance for BMPs.** A plan for the inspection of each temporary BMP(s) and measure(s) and for their timely maintenance, repairs, and, if necessary, retrofit is attached. A description of the documentation procedures, recordkeeping practices, and inspection frequency are included in the plan and are specific to the site and/or BMP.

13. ☒ All control measures must be properly selected, installed, and maintained in accordance with the manufacturer's specifications and good engineering practices. If periodic inspections by the applicant or the executive director, or other information indicate a control has been used inappropriately, or incorrectly, the applicant must replace or modify the control for site situations.

14. ☒ If sediment escapes the construction site, off-site accumulations of sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain).

15. ☒ Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50%. A permanent stake will be provided that can indicate when the sediment occupies 50% of the basin volume.

16. ☒ Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from becoming a pollutant source for stormwater discharges (e.g., screening outfalls, picked up daily).

Soil Stabilization Practices

Examples: establishment of temporary vegetation, establishment of permanent vegetation, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, or preservation of mature vegetation.

17. ☒ **Attachment J - Schedule of Interim and Permanent Soil Stabilization Practices**. A schedule of the interim and permanent soil stabilization practices for the site is attached.

18. ☒ Records must be kept at the site of the dates when major grading activities occur, the dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated.

19. ☒ Stabilization practices must be initiated as soon as practicable where construction activities have temporarily or permanently ceased.

Administrative Information

20. ☒ All structural controls will be inspected and maintained according to the submitted and approved operation and maintenance plan for the project.

21. ☒ If any geologic or manmade features, such as caves, faults, sinkholes, etc., are discovered, all regulated activities near the feature will be immediately suspended. The appropriate TCEQ Regional Office shall be immediately notified. Regulated activities must cease and not continue until the TCEQ has reviewed and approved the methods proposed to protect the aquifer from any adverse impacts.

22. ☒ Silt fences, diversion berms, and other temporary erosion and sediment controls will be constructed and maintained as appropriate to prevent pollutants from entering sensitive features discovered during construction.

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Attachment A
Spill Response Actions

If there is an accidental spill on site, the contractor shall respond with appropriate action. All onsite personnel will be trained to perform and be knowledgeable of the spill response actions. The contractor will be required to contact the owner and in turn the owner will contact the TCEQ in the event of a spill on site. In addition to the following guidance, reference the latest version of TCEQ's Technical Guidance Manual (TGM) RG-348 Section 2.4.16.

Cleanup

- Clean up leaks and spills immediately.
- Use a rag for small spills on paved surfaces, a damp mop for general cleanup, and absorbent material for larger spills. If the spilled material is hazardous, then the used cleanup materials are also hazardous and must be disposed of as hazardous waste.
- Never hose down or bury dry material spills. Clean up as much of the material as possible and dispose of properly. See the waste management BMPs in this section for specific information.

Minor Spills

- Minor spills typically involve small quantities of oil, gasoline, paint, etc. which can be controlled by the first responder at the discovery of the spill.
- Use absorbent materials on small spills rather than hosing down or burying the spill.
- Absorbent materials should be promptly removed and disposed of properly.
- Follow the practice below for a minor spill:
  - Contain the spread of the spill.
  - Recover spilled materials.
  - Clean the contaminated area and properly dispose of contaminated materials.

Semi-Significant Spills

Semi-significant spills still can be controlled by the first responder along with the aid of other personnel such as laborers and the foreman, etc. This response may require the cessation of all other activities.

Spills should be cleaned up immediately:

- Contain spread of the spill.
- Notify the project foreman immediately.
- If the spill occurs on paved or impermeable surfaces, clean up using "dry" methods (absorbent materials, cat litter and/or rags). Contain the spill by encircling with absorbent materials and do not let the spill spread widely.
- If the spill occurs in dirt areas, immediately contain the spill by constructing an earthen dike. Dig up and properly dispose of contaminated soil.
- If the spill occurs during rain, cover spill with tarps or other material to prevent contaminating runoff.

Significant/Hazardous Spills

For significant or hazardous spills that are in reportable quantities:

- Notify the TCEQ by telephone as soon as possible and within 24 hours at (512)339-2929 (Austin) or 210-490-3096 (San Antonio) between 8 AM and 5 PM. After hours, contact the Environmental

Release Hotline at 1-800-832-8224. It is the contractor's responsibility to have all emergency phone numbers at the construction site.

- For spills of federal reportable quantities, in conformance with the requirements in 40 CFR parts 110,119, and 302, the contractor should notify the National Response Center at (800) 424-8802.
- Notification should first be made by telephone and followed up with a written report.
- The services of a spills contractor or a Haz-Mat team should be obtained immediately. Construction personnel should not attempt to clean up until the appropriate and qualified staffs have arrived at the job site.
- Other agencies which may need to be consulted include, but not limited to, the City Police Department, County Sheriff Office, Fire Departments, etc.

Attachment B
Potential Sources of Contamination

Potential Source: Oil, grease, fuel, and hydraulic fluid contamination from construction equipment and vehicle dripping.

Preventative Measures: Vehicle maintenance will be performed within the construction staging area or a local maintenance shop.

Potential Source: Miscellaneous trash and litter from construction workers and material wrappings.

Preventative Measures: Trash containers will be placed throughout the site to encourage proper disposal of trash.

Potential Source: Silt leaving the site.

Preventative Measures: Contractor will install all temporary best management practices prior to start of construction including the stabilized construction entrance to prevent tracking onto adjoining streets.

Potential Source: Construction Debris.

Preventative Measures: Construction debris will be monitored daily by contractor. Debris will be collected weekly and placed in disposal bins. Situations requiring immediate attention will be addressed on a case by case basis.

Potential Source: Soil and Mud from Construction Vehicle tires as they leave the site.

Preventative Measures: A stabilized construction exit shall be utilized as vehicles leave the site. Any soil, mud, etc. carried from the project onto public roads shall be cleaned up within 24 hours.

Potential Source: Sediment from soil, sand, gravel and excavated materials stock piled on site.

Preventative Measures: Silt fence shall be installed on the down gradient side of the stock piled materials. Reinforced rock berms shall be installed at all downstream discharge locations.

Potential Source: Portable toilet spill.

Preventative Measures: Toilets on the site will be emptied on a regular basis by the contracted toilet company.

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Attachment C
Sequence of Major Activities

The installation of erosion and sedimentation controls shall occur prior to any excavation of materials or major disturbances on the site. The sequence of major construction activities will be as follows. Approximate acreage to be disturbed is listed in parentheses next to each activity.

Intended Schedule or Sequence of Major Activities:

1. Construct Access (0.05 Acres)
2. Installation of Temporary BMPs (28.12 Acres)
3. Initiate Grubbing and Topsoil Stripping of Site (28.12 Acres)
4. Rough Subgrade Preparation (earthwork, grading, street and drainage excavation and embankment) (27.75 Acres)
5. Wet and Dry Utility Construction (4 Acres)
6. Final Subgrade Preparation (4 Acres)
7. Installation of Base Materials (4 Acres)
8. Concrete (foundations, curbs, flatwork) (4 Acres)
9. Building Construction (5 Acres)
10. Paving Activities (3.5 Acres)
11. Topsoil, Irrigation and Landscaping (27.75 Acres)
12. Site cleanup and Removal of Temporary BMPs (28.12 Acres)

Maximum total construction time is not expected to exceed 36 months.

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Attachment D

Temporary Best Management Practices and Measures

A. No storm water originates up gradient that impacts the site. An upstream off-site area will bypass through an existing channel.

B. Temporary BMPs will be installed prior to soil disturbing construction activity. Silt fencing will be placed along the down-gradient sides of the property to prevent silt from escaping the construction area. A temporary construction entrance will be placed on site to reduce vehicle "tracking" onto adjoining streets. A concrete washout pit will be used to collect all excess concrete during construction.

BMPs for this project will protect surface water or groundwater from turbid water, phosphorus, sediment, oil, and other contaminants, which may mobilize in storm water flows by slowing the flow of runoff to allow sediment and suspended solids to settle out of the runoff.

Practices may also be implemented on site for interim and permanent stabilization. Stabilization practices may include but are not limited to: establishment of temporary vegetation, establishment of permanent vegetation, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of existing trees and vegetation, and other similar measures.

C. There are three sensitive features located in Phase 2-2, as noted in the geologic assessment. A buffer will be provided for 50 feet in all directions. Any excavation within 50 feet of the feature will be avoided. We are not proposing and fill or covering of the sensitive features.

There are no surface streams within the boundaries of the project. The temporary onsite BMPs will be used to treat stormwater runoff before it leaves the project and prevent pollutants from entering into surface streams or any sensitive features down-gradient of the site.

D. The BMPs for this project are designed to allow water to pass through after sedimentation has occurred. Existing flow patterns will be maintained to any naturally occurring sensitive features that are discovered during construction.

Temporary runoff protection measures will be installed according to the recommendations made in Chapter 1 of RG-348. Temporary erosion control will be placed as close to the site of construction soil disturbance as possible to minimize any disturbance with drainage areas. Frequent inspections of erosion controls will be warranted near the environmentally sensitive features, especially after every rainfall.

Attachment E

Request To Temporarily Seal a Feature

The permanent sealing of or diversion of flow from a naturally-occurring “sensitive” or “”possibly sensitive” feature that accepts recharge to the Edwards Aquifer as a permanent pollution abatement measure has not been proposed for any naturally occurring “sensitive” or “possibly sensitive” features on this site.

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Attachment F
Structural Practices

Structural BMPs will be used to limit runoff discharge of pollutants from exposed areas of the site. BMPs will be installed prior to soil disturbing construction activity. Silt fencing will be placed along the down-gradient sides of the property to prevent silt from escaping the construction area. A temporary construction entrance will be placed at the site entry/exit point to reduce tracking onto adjoining streets. A construction staging area will be used onsite to perform all vehicle maintenance and for equipment and material storage. A concrete truck washout pit will be placed on site to provide containment and easier cleanup of waste from concrete operations. The location of all structural temporary BMP's are shown on the erosion control plan sheet and details and specifications are provided on the erosion control details sheet which can be found at the end of this report under Section 8.

Description of Temporary BMPs

Temporary Construction Entrance/Exit

The purpose of a temporary gravel construction entrance is to provide a stable entrance/exit condition from the construction site and keep mud and sediment off public roads. A stabilized construction entrance is a stabilized pad of crushed stone located at any point traffic will be entering or leaving the construction site from a public right-of-way, street, alley, sidewalk or parking area. The purpose of a stabilized construction entrance is to reduce or eliminate the tracking or flowing of sediment onto public rights-of-way. This practice should be used at all points of construction ingress and egress.

Excessive amounts of mud can also present a safety hazard to roadway users. To minimize the amount of sediment loss to nearby roads, access to the construction site should be limited to as few points as possible and vegetation around the perimeter should be protected where access is not necessary. A rock stabilized construction entrance should be used at all designated access points.

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.

Silt Fence

The purpose of a silt fence is to intercept and detain water-borne sediment from unprotected areas of a limited extent. Silt fence is used during the period of construction near the perimeter of a disturbed area to intercept sediment while allowing water to percolate through. This fence should remain in place until the disturbed area is permanently stabilized. Silt fence should not be used where there is a concentration of water in a channel or drainage way. If concentrated flow occurs after installation, corrective action must be taken such as placing a rock berm in the areas of concentrated flow.

Silt fencing within the site may be temporarily moved during the day to allow construction activity provided it is replaced and properly anchored to the ground at the end of the day. Silt fences on the perimeter of the site or around drainage ways should not be moved at any time.

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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.

Concrete Washout Area

The purpose of concrete washout areas is to prevent or reduce the discharge of pollutants to stormwater from concrete waste by conducting washout offsite, performing onsite washout in a designated area, and training employees and subcontractors.
The following steps will help reduce stormwater pollution from concrete wastes:

- Incorporate requirements for concrete waste management into material supplier and subcontractor agreements.
- Avoid mixing excess amounts of fresh concrete.
- Perform washout of concrete trucks in designated areas only.
- Do not wash out concrete trucks into storm drains, open ditches, streets, or streams.
- Do not allow excess concrete to be dumped onsite, except in designated areas.
- For onsite washout:
- Locate washout area at least 50 feet from sensitive features, storm drains, open ditches, or water bodies. Do not allow runoff from this area by constructing a temporary pit or bermed area large enough for liquid and solid waste.
- Wash out wastes into the temporary pit where the concrete can set, be broken up, and then disposed properly.

Below grade concrete washout facilities are typical. These consist of a lined excavation sufficiently large to hold expected volume of washout material. Above grade facilities are used if excavation is not practical. Temporary concrete washout facility (type above grade) should be constructed as shown on the details at the end of this section, with sufficient quantity and volume to contain all liquid and concrete waste generated by washout operations. Plastic lining material should be a minimum of 10 mil in polyethylene sheeting and should be free of holes, tears, or other defects that compromise the impermeability of the material.

When temporary concrete washout facilities are no longer required for the work, the hardened concrete should be removed and disposed of. Materials used to construct temporary concrete washout facilities should be removed from the site of the work and disposed of. Holes, depressions or other ground disturbance caused by the removal of the temporary concrete washout facilities should be backfilled and repaired.

Rock Berm

The purpose of a rock berm is to serve as a check dam in areas of concentrated flow, to intercept sediment-laden runoff, detain the sediment and release the water in sheet flow. The rock berm should be used when the contributing drainage area is less than 5 acres. Rock berms are used in areas where the volume of runoff is too great for a silt fence to contain. They are less effective for sediment removal than silt fences, particularly for fine particles, but are able to withstand higher flows than a silt fence. As such, rock berms are often used in areas of channel flows (ditches, gullies, etc.). Rock berms are most effective at reducing bed load in channels and should not be substituted for other erosion and sediment control measures further up the watershed.

Inspection and Maintenance Guidelines:

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

Inlet Protection

Storm sewers that are made operational prior to stabilization of the associated drainage areas can convey large amounts of sediment to natural drainage ways. In case of extreme sediment loading, the storm sewer itself may clog and lose a major portion of its capacity. To avoid these problems, it is necessary to prevent sediment from entering the system at the inlets. The following guidelines for inlet protection are based primarily on recommendations by the Virginia Dept. of Conservation and Recreation (1992) and the North Central Texas Council of Governments (NCTCOG, 1993b).

In developments for which drainage is to be conveyed by underground storm sewers (i.e., streets with curbs and gutters), all inlets that may receive storm runoff from disturbed areas should be protected. Temporary inlet protection is a series of different measures that provide protection against silt transport or accumulation in storm sewer systems. This clogging can greatly reduce or completely stop the flow in the pipes. The different measures are used for different site conditions and inlet types.

Care should be taken when choosing a specific type of inlet protection. Field experience has shown that inlet protection that causes excessive ponding in an area of high construction activity may become so inconvenient that it is removed or bypassed, thus transmitting sediment-laden flows unchecked. In such situations, a structure with an adequate overflow mechanism should be utilized.

It should also be noted that inlet protection devices are designed to be installed on construction sites and not on streets and roads open to the public. When used on public streets these devices will cause ponding of runoff, which can cause minor flooding and can present a traffic hazard. An example of appropriate siting would be a new subdivision where the storm drain system is installed before the area is stabilized and the streets open to the general public. When construction occurs adjacent to active streets, the sediment should be controlled on site and not on public thoroughfares. Occasionally, roadwork or utility installation will occur on public roads. In these cases, inlet protection is an appropriate temporary BMP.

The following inlet protection devices are for drainage areas of one acre or less. Runoff from larger disturbed areas should be routed to a temporary sediment trap or basin.

Filter barrier protection using silt fence is appropriate when the drainage area is less than one acre and the basin slope is less than five percent. This type of protection is not applicable in paved areas.

Block and gravel protection is used when flows exceed 0.5 cubic feet per second and it is necessary to allow for overtopping to prevent flooding. This form of protection is also useful for curb type inlets as it works well in paved areas.

Wire mesh and gravel protection is used when flows exceed 0.5 cubic feet per second and construction traffic may occur over the inlet. This form of protection may be used with both curb and drop inlets.

Excavated impoundment protection around a drop inlet may be used for protection against sediment entering a storm drain inlet. With this method, it is necessary to install weep holes to allow the impoundment to drain completely. If this measure is implemented, the impoundment should be sized such that the volume of excavation is 3,600 cubic feet per acre (equivalent to 1 inch of runoff) of disturbed area entering the inlet.

Inspection and Maintenance Guidelines:

(1) Inspection should be made weekly and after each rainfall. Repair or replacement should be made promptly as needed by the contractor.
(2) Remove sediment when buildup reaches a depth of 3 inches. Removed sediment should be deposited in a suitable area and in such a manner that it will not erode.
(3) Check placement of device to prevent gaps between device and curb.
(4) Inspect filter fabric and patch or replace if torn or missing.
(5) Structures should be removed and the area stabilized only after the remaining drainage area has been properly stabilized.

Attachment G
Drainage Area Map

There is one area greater than 10 acres within a common drainage area that will be disturbed at one time. WQP-C is greater than 10 acres and will be disturbed. An existing and proposed drainage area map is provided at the end of this report in Section 8 to support the aforementioned requirement.

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Attachment H

Temporary Sediment Pond(s) Plans and Calculations

A sedimentation basin is required, where feasible, for a common drainage location that serves an area with ten (10) or more acres disturbed at one time.

A sedimentation basin may be temporary or permanent and must provide sufficient storage to contain a calculated volume of runoff from a 2-year, 24-hour storm from each disturbed acre drained. When calculating the volume of runoff from a 2-year, 24-hour storm event, it is not required to include the flows from offsite areas and flow from onsite areas that are either undisturbed or have already undergone permanent stabilization, if these flows are diverted around both the disturbed areas of the site and the sediment basin.

Where rainfall data is not available or a calculation cannot be performed, the sedimentation basin must provide at least 3,600 cubic feet of storage per acre drained until final stabilization of the site.

If a sedimentation basin is not feasible, then the permittee shall provide equivalent control measures until final stabilization of the site. In determining whether installing a sediment basin is feasible, the permittee may consider factors such as site soils, slope, available area, public safety, precipitation patterns, site geometry, site vegetation, infiltration capacity, geotechnical factors, depth to groundwater, and other similar considerations. The permittee shall document the reason that the sediment basins are not feasible, and shall utilize equivalent control measures, which may include a series of smaller sediment basins.

Sites With Drainage Areas Less than Ten Acres

Sediment traps and sediment basins may be used to control solids in storm water runoff for drainage locations serving less than ten (10) acres.

Alternatively, a sediment basin that provides storage for a calculated volume of runoff from a 2-year, 24-hour storm from each disturbed acre drained may be utilized. Where rainfall data is not available or a calculation cannot be performed, a temporary or permanent sediment basin providing 3,600 cubic feet of storage per acre drained may be provided.

Proposed Sedimentation Basin Calculations

For Lost Woods Estates, the proposed onsite batch detention pond will serve as storage for on-site and off-site drainage. The basins will be designed to contain the 3,600 cubic feet per acre of disturbed area draining to the pond.

Temporary Sedimentation:

A batch detention pond will serve as storage for on-site and off-site drainage for Lost Woods Estates (as shown on sheets 31 and 32 of the construction drawings) during the construction phase. Drainage area C includes 22.80 acres and generates a volume of 82,080 ft^3. The proposed detention pond (Pond-C) will contain a volume of 292,700 ft^3, thus the constructed detention pond will be adequately sized for sedimentation purposed for drainage area C.

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Attachment I

Inspection and Maintenance for BMPs

Personnel Responsible for Inspections

The agent that performs the inspections should be knowledgeable of this general permit, familiar with the construction site, and knowledgeable of the SWPPP for the site. The contractor is to provide an inspector with a CPESC, CESSWI, or CISEC certification. Documentation of the inspector's qualifications is to be included in the attached Inspector Qualifications Log.

Inspection Schedule

The primary operator is required to choose one of the two inspections listed below.

☐ **Option 1:** Once every seven calendar days. If this alternative schedule is developed, then the inspection must occur regardless of whether or not there has been a rainfall event since the previous inspection.

☐ **Option 2:** Once every 14 calendar days and within 24 hours of the end of a storm event of two inches or greater.

The inspections may occur on either schedule provided that documentation reflects the current schedule and that any changes to the schedule are conducted in accordance with the following provisions: the schedule may be changed a maximum of one time each month, the schedule change must be implemented at the beginning of a calendar month, and the reason for the schedule change must be documented (e.g., end of "dry" season and beginning of "wet" season).

If option 2 is the chosen frequency of inspections a rain gauge must be properly maintained on site or the storm event information from a weather station that is representative of the site location. For any day of rainfall during normal business hours that measures 0.25 inches or greater, proper documentation of the total rainfall measured for that day must be recorded.
Personnel provided by the permittee must inspect:

- disturbed areas of the construction site that have not been finally stabilized;
- areas used for storage of materials that are exposed to precipitation;
- structural controls (for evidence of, or the potential for, pollutants entering the drainage system);
- sediment and erosion control measures identified in the SWP3 (to ensure they are operating correctly); and
- locations where vehicles enter or exit the site (for evidence of off-site sediment tracking).

Reductions in Inspection Frequency

Where sites have been finally or temporarily stabilized or where runoff is unlikely due to winter conditions (e.g. site is covered with snow, ice, or frozen ground exists), inspections must be conducted at least once every month. In arid, semi-arid, or drought-stricken areas, inspections must be conducted at least once every month and within 24 hours after the end of a storm event of 0.5 inches or greater. A record of the total rainfall measured, as well as the approximate beginning and ending dates of winter or drought conditions resulting in monthly frequency of inspections in the attached Rain Gauge Log.

In the event of flooding or other uncontrollable situations which prohibit access to the inspection sites, inspections must be conducted as soon as access is practicable.

Inspection Report Forms

Use the Inspection Report Forms given as a checklist to ensure that all required areas of the construction site are addressed. There is space to document the inspector's name as well as when the inspections regularly take place. The tables will document that the required area was inspected. (If there were any

areas of concern, briefly describe them in this space with a more detailed description in the narrative section. Use the last table to document any discharges found during the inspections).
Describe how effective the installed BMPs are performing. Describe any BMP failures that were noted during the investigation and describe any maintenance required due to the failure. If new BMPs are needed as the construction site changes, the inspector can use the space at the bottom of the section to list BMPs to be implemented before the next inspection.

Describe the inspector's qualifications, how the inspection was conducted, and describe any areas of non-compliance in detail. If an inspection report does not identify any incidents of non-compliance, then it must contain a certifying signature stating that the facility or site is in compliance. The report must be signed by a person and in a manner required by 30 TAC 305.128. There is space at the end of the form to allow for this certifying signature.

Whenever an inspection shows that BMP modifications are needed to better control pollutants in runoff, the changes must be completed within seven calendar days following the inspection. If existing BMPs are modified or if additional BMPs are needed, you must describe your implementation schedule, and wherever possible, make the required BMP changes before the next storm event.

The Inspection Report Form functions as the required report and must be signed in accordance with TCEQ rules at 30 TAC 305.128.

Corrective Action

Personnel Responsible for Corrective Actions

Both Primary and Secondary Operators are responsible for maintaining all necessary Corrective Actions. If an individual is specifically identified as the responsible party for modifying the contact information for that individual should be documented in the attached Inspector Qualifications Log.

Corrective Action Forms

The Temporary BMPs must be modified based on the results of inspections, as necessary, to better control pollutants in runoff. Revisions must be completed within seven (7) calendar days following the inspection. If existing BMPs are modified or if additional BMPs are necessary, an implementation schedule must be described in the attached forms and wherever possible those changes implemented before the next storm event. If implementation before the next anticipated storm event is impracticable, these changes must be implemented as soon as practicable. Actions taken as a result of inspections must be properly documented by completing the corrective action forms given.

Schedule of Interim and Permanent Soil Stabilization

Construction practices shall disturb the minimal amount of existing ground cover as required for land clearing, grading, and construction activity for the shortest amount of time possible to minimize the potential of erosion and sedimentation from the site. Existing vegetation shall be maintained and left in place until it is necessary to disturb for construction activity. For this project the following stabilization practices will be implemented:

1. Hydraulic Mulch and Seeding: Disturbed areas subject to erosion shall be stabilized with hydraulic mulch and/or seeded and watered to provide interim stabilization. For areas that are not to be sodded as per the project landscaping plan, a minimum of 85% vegetative cover will be established to provide permanent stabilization.
2. Sodding and Wood Mulch: As per the project landscaping plan, Sodding and wood mulch will be applied to landscaped areas to provide permanent stabilization prior to project completion.

Records of the following shall be maintained:

a) The dates when major grading activities occur;
b) The dates when construction activities temporarily or permanently cease on a portion of the site; and
c) The dates when stabilization measures are initiated.

Stabilization measures must be initiated as soon as practical in portions of the site where construction activities have temporarily or permanently ceased, and except as provided in the following, must be initiated no more that fourteen (14) days after the construction activity in that portion of the site has temporarily or permanently ceased:

Where the initiation of stabilization measures by the 14th day after construction activity temporarily or permanently ceased is precluded by snow cover or frozen ground conditions, stabilization measures must be initiated as soon as practical.

Where construction activity on a portion of the site is temporarily ceased and earth disturbing activities will be resumed within twenty-one (21) days, temporary stabilization measures do not have to be initiated on that portion of the site.

In arid areas (areas with an average rainfall of 0-10 inches), semiarid areas (areas with an average annual rainfall of 10 to 20 inches), and areas experiencing droughts where the initiation of stabilization measures by the 14th day after construction activity has temporarily or permanently ceased is precluded by seasonably arid conditions, stabilization measures must be initiated as soon as practical.

Maintenance

Below are some maintenance practices to be used to maintain erosion and sediment controls:

- All measures will be maintained in good working order. The operator should correct any damage or deficiencies as soon as practicable after the inspection, but in no case later than seven (7) calendar days after the inspection.
- BMP Maintenance (as applicable)
- Sediment must be removed from sediment traps and sedimentation ponds no later than the time that design capacity has been reduced by 50%. For perimeter controls such as silt fences, berms, etc., the trapped sediment must be removed before it reaches 50% of the above-ground height.
- Silt fence will be inspected for depth of sediment, tears, to see of the fabric is securely attached to the fence posts, and to see that the fence posts are firmly in the ground.
- Drainage swale will be inspected and repaired as necessary.
- Inlet control will be inspected and repaired as necessary.
- Check dam will be inspected and repaired as necessary.
- Straw bale dike will be inspected and repaired as necessary.
- Diversion dike will be inspected and any breaches promptly repaired.
- Temporary and permanent seeding and planting will be inspected for bare spots, washouts, and healthy growth.
- If sediment escapes the site, accumulations must be removed at a frequency that minimizes off-site impacts, and prior to the next rain event, if feasible. If the permittee does not own or operate the off-site conveyance, then the permittee must to work with the owner or operator of the property to remove the sediment.
- Locations where vehicles enter or exit the site must be inspected for evidence of off-site sediment tracking.

To maintain the above practices, the following will be performed:

- Maintenance and repairs will be conducted before the next anticipated storm event or as necessary to maintain the continued effectiveness of storm water controls. Following an inspection, deficiencies should be corrected no later than seven (7) calendar days after the inspection.

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Inspector Qualifications Log*

Inspector Name: _____
Qualifications (Check as appropriate and provide description):
□ Training Course _____
□ Supervised Experience _____
□ Other _____

Inspector Name: _____
Qualifications (Check as appropriate and provide description):
□ Training Course _____
□ Supervised Experience _____
□ Other _____

Inspector Name: _____
Qualifications (Check as appropriate and provide description):
□ Training Course _____
□ Supervised Experience _____
□ Other _____

Inspector Name: _____
Qualifications (Check as appropriate and provide description):
□ Training Course _____
□ Supervised Experience _____
□ Other _____

Inspector Name: _____
Qualifications (Check as appropriate and provide description):
□ Training Course _____
□ Supervised Experience _____
□ Other _____

Inspector Name: _____
Qualifications (Check as appropriate and provide description):
□ Training Course _____
□ Supervised Experience _____
□ Other _____

** The agent that performs the inspections should be knowledgeable of this general permit, familiar with the construction site, and knowledgeable of the SWPPP for the site. The contractor is to provide an inspector with a CPESC, CESSWI, or CISEC certification.*

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Amendment Log

No.	Description of the Amendment	Date of Amendment	Amendment Prepared by [Name(s) and Title]

Kimley»Horn

Construction Activity Sequence Log

Name of Operator	Projected dates Month/year	Activity Disturbing Soil clearing, excavation, etc.	Location on-site where activity will be conducted	Acreage being disturbed

*Construction activity sequences for linear projects may be conducted on a rolling basis. As a result, construction activities may be at different stages at different locations in the project area. The Contractor is required to complete and update the schedule and adjust as necessary.

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Stormwater Control Installation and Removal Log

Stormwater Control	Location On-Site	Installation Date	Removal Date

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Stabilization Activities Log

Date Activity Initiated	Description of Activity	Description of Stabilization Measure and Location	Date Activity Ceased (Indicate Temporary or Permanent)	Date When Stabilization Measures Initiated

Stabilization and erosion control practices may include, but are not limited to: establishing temporary or permanent vegetation, mulching, geotextiles, sod stabilization, vegetative buffer strips, and protecting existing trees and vegetation. List practices used where they are located, when they will be implemented, and whether they are temporary (interim) or permanent.

Kimley»Horn

Inspection Frequency Log

Date	Frequency Schedule and Reason for Change

Kimley»Horn

Rain Gauge Log

Date	Location of Rain Gauge	Gauge Reading

Kimley»Horn

General Information					
Name of Project		**Tracking No.**		**Inspection Date**	
Inspector Name, Title & Contact Information					
Present Phase of Construction					
Inspection Location (if multiple inspections are required, specify location where this inspection is being conducted)					

Inspection Frequency

Standard Frequency: ☐ Weekly ☐ Every 14 days and within 24 hours of a 0.25" rain

Increased Frequency: ☐ Every 7 days and within 24 hours of a 0.25" rain

Reduced Frequency:

- ☐ Once per month (for stabilized areas)
- ☐ Once per month and within 24 hours of a 0.25" rain (for arid, semi-arid, or drought-stricken areas during seasonally dry periods or during drought)
- ☐ Once per month (for frozen conditions where earth-disturbing activities are being conducted)

Was this inspection triggered by a 0.25" storm event? ☐ Yes ☐ No

If yes, how did you determined whether a 0.25" storm event has occurred?

☐ Rain gauge on site ☐ Weather station representative of site. Specify weather station source:

Total rainfall amount that triggered the inspection (in inches)**:**

Unsafe Conditions for Inspection

Did you determine that any portion of your site was unsafe for inspection? ☐ Yes ☐ No

If "yes", complete the following:

- Describe the conditions that prevented you from conducting the inspection in this location:

- Location(s) where conditions were found:

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Condition and Effectiveness of Erosion and Sediment (E&S) Controls				
Type/Location of E&S Control	**Repairs or Other Maintenance Needed?**	**Corrective Action Required?**	**Date on Which Maintenance or Corrective Action First Identified?**	**Notes**
1.	☐Yes ☐No	☐Yes ☐No		
2.	☐Yes ☐No	☐Yes ☐No		
3.	☐Yes ☐No	☐Yes ☐No		
4.	☐Yes ☐No	☐Yes ☐No		
5.	☐Yes ☐No	☐Yes ☐No		
6.	☐Yes ☐No	☐Yes ☐No		
7.	☐Yes ☐No	☐Yes ☐No		
8.	☐Yes ☐No	☐Yes ☐No		
9.	☐Yes ☐No	☐Yes ☐No		
10.	☐Yes ☐No	☐Yes ☐No		

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Condition and Effectiveness of Pollution Prevention (P2) Practices				
Type/Location of P2 Practices	**Repairs or Other Maintenance Needed?**	**Corrective Action Required?**	**Identification Date**	**Notes**
1.	☐Yes ☐No	☐Yes ☐No		
2.	☐Yes ☐No	☐Yes ☐No		
3.	☐Yes ☐No	☐Yes ☐No		
4.	☐Yes ☐No	☐Yes ☐No		
5.	☐Yes ☐No	☐Yes ☐No		
6.	☐Yes ☐No	☐Yes ☐No		
7.	☐Yes ☐No	☐Yes ☐No		
8.	☐Yes ☐No	☐Yes ☐No		
9.	☐Yes ☐No	☐Yes ☐No		
10.	☐Yes ☐No	☐Yes ☐No		

Stabilization of Exposed Soil			
Stabilization Area	**Stabilization Method**	**Have You Initiated Stabilization?**	**Notes**
1.		☐ YES ☐ NO If yes, provide date:	
2.		☐ YES ☐ NO If yes, provide date:	
3.		☐ YES ☐ NO If yes, provide date:	
4.		☐ YES ☐ NO If yes, provide date:	
5.		☐ YES ☐ NO If yes, provide date:	

Description of Discharges	
Was a stormwater discharge or other discharge occurring from any part of your site at the time of the inspection? ☐ Yes ☐ No **If "yes", provide the following information for each point of discharge:**	
Discharge Location	**Observations**
1.	Describe the discharge: At points of discharge and the channels and banks of surface waters in the immediate vicinity, are there any visible signs of erosion and/or sediment accumulation that can be attributed to your discharge? ☐ Yes ☐ No If yes, describe what you see, specify the location(s) where these conditions were found, and indicate whether modification, maintenance, or corrective action is needed to resolve the issue:
2.	Describe the discharge: At points of discharge and the channels and banks of surface waters in the immediate vicinity, are there any visible signs of erosion and/or sediment accumulation that can be attributed to your discharge? ☐ Yes ☐ No If yes, describe what you see, specify the location(s) where these conditions were found, and indicate whether modification, maintenance, or corrective action is needed to resolve the issue:
3.	Describe the discharge: At points of discharge and the channels and banks of surface waters in the immediate vicinity, are there any visible signs of erosion and/or sediment accumulation that can be attributed to your discharge? ☐ Yes ☐ No If yes, describe what you see, specify the location(s) where these conditions were found, and indicate whether modification, maintenance, or corrective action is needed to resolve the issue:

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Contractor or Subcontractor Certification and Signature
"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." **Signature of Contractor or Subcontractor:** _____ **Date:** **Printed Name and Affiliation:** _____

Certification and Signature by Permittee
"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." **Signature of Permittee or "Duly Authorized Representative":** _____ **Date:** **Printed Name and Affiliation:** _____

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Section A – Initial Report (Complete this section within 24 hours of discovering the condition that triggered corrective action)					
Name of Project		Tracking No.		Today's Date	
Date Problem First Discovered			Time Problem First Discovered		
Name and Contact Information of Individual Completing this Form					

What site conditions triggered the requirement to conduct corrective action:

☐ A required stormwater control was never installed, was installed incorrectly, or not in accordance with the requirements in Part 2 and/or 3

☐ The stormwater controls that have been installed and maintained are not effective enough for the discharge to meet applicable water quality standards

☐ A prohibited discharge has occurred or is occurring

Provide a description of the problem:

Deadline for completing corrective action (*Enter date that is either: (1) no more than 7 calendar days after the date you discovered the problem, or (2) if it is infeasible to complete work within the first 7 days, enter the date that is as soon as practicable following the 7th day)*:

If your estimated date of completion falls after the 7-day deadline, explain (1) why you believe it is infeasible to complete work within 7 days, and (2) why the date you have established for making the new or modified stormwater control operational is the soonest practicable timeframe:

Section B – Corrective Action Progress

(Complete this section no later than 7 calendar days after discovering the condition that triggered corrective action)

Section B.1 – Why the Problem Occurred

Cause(s) of Problem (Add an additional sheet if necessary)	How This Was Determined and the Date You Determined the Cause
1.	1.
2.	2.
3.	3.

Section B.2 – Stormwater Control Modifications to be Implemented to Correct the Problem

List of Stormwater Control Modification(s) Needed to Correct Problem (Add an additional sheet if necessary)	Completion Date	SWPPP Update Necessary?	Notes
1.		☐Yes ☐No Date:	
2.		☐Yes ☐No Date:	
3.		☐Yes ☐No Date:	

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Section A – Initial Report (Complete this section within 24 hours of discovering the condition that triggered corrective action)					
Name of Project		Tracking No.		Today's Date	
Date Problem First Discovered			Time Problem First Discovered		
Name and Contact Information of Individual Completing this Form					

What site conditions triggered the requirement to conduct corrective action:

☐ A required stormwater control was never installed, was installed incorrectly, or not in accordance with the requirements in Part 2 and/or 3

☐ The stormwater controls that have been installed and maintained are not effective enough for the discharge to meet applicable water quality standards

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List of Stormwater Control Modification(s) Needed to Correct Problem (Add an additional sheet if necessary)	Completion Date	SWPPP Update Necessary?	Notes
1.		☐Yes ☐No Date:	
2.		☐Yes ☐No Date:	
3.		☐Yes ☐No Date:	

Kimley»Horn

Contractor or Subcontractor Certification and Signature
"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." **Signature of Contractor or Subcontractor:** _____ **Date:** **Printed Name and Affiliation:** _____
Certification and Signature by Permittee
"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." **Signature of Permittee or "Duly Authorized Representative":** _____ **Date:** **Printed Name and Affiliation:** _____

SECTION 6: ADDITIONAL FORMS

Agent Authorization Form
For Required Signature
Edwards Aquifer Protection Program
Relating to 30 TAC Chapter 213
Effective June 1, 1999

I Royce Rippy,
Print Name

Vice President of Land,
Title - Owner/President/Other

of M I HOMES OF AUSTIN,
Corporation/Partnership/Entity Name

have authorized Alejandro E. Granados Rico, P.E.
Print Name of Agent/Engineer

of Kimley-Horn and Associates
Print Name of Firm

to represent and act on the behalf of the above-named Corporation, Partnership, or Entity for the purpose of preparing and submitting this plan application to the Texas Commission on Environmental Quality (TCEQ) for the review and approval consideration of regulated activities.

I also understand that:

1. The applicant is responsible for compliance with 30 Texas Administrative Code Chapter 213 and any condition of the TCEQ's approval letter. The TCEQ is authorized to assess administrative penalties of up to $10,000 per day per violation.

2. For those submitting an application who are not the property owner, but who have the right to control and possess the property, additional authorization is required from the owner.

3. Application fees are due and payable at the time the application is submitted. The application fee must be sent to the TCEQ cashier or to the appropriate regional office. The application will not be considered until the correct fee is received by the commission.

4. A notarized copy of the Agent Authorization Form must be provided for the person preparing the application, and this form must accompany the completed application.

5. No person shall commence any regulated activity on the Edwards Aquifer Recharge Zone, Contributing Zone or Transition Zone until the appropriate application for the activity has been filed with and approved by the Executive Director.

SIGNATURE PAGE:

Applicant's Signature

2/3/26
Date

THE STATE OF TEXAS §

County of Williamson §

BEFORE ME, the undersigned authority, on this day personally appeared Royce Rippy known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that (s)he executed same for the purpose and consideration therein expressed.

GIVEN under my hand and seal of office on this 3rd day of February 2026

KYLE KRIEGEL
Notary Public, State of Texas
Comm. Expires 04-03-2028
Notary ID 134835605

NOTARY PUBLIC

Kyle Kriegel
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 4-03-2028

Application Fee Form

Texas Commission on Environmental Quality
Name of Proposed Regulated Entity: Lost Woods Estates
Regulated Entity Location: 2855 CR 175
Name of Customer: M I Homes of Austin, LLC
Contact Person: Royce Rippy Phone: 512-770-8505
Customer Reference Number (if issued): 604305250
Regulated Entity Reference Number (if issued):N/A

Austin Regional Office (3373)

☐ Hays ☐ Travis ☒ Williamson

San Antonio Regional Office (3362)

☐ Bexar ☐ Medina ☐ Uvalde
☐ Comal ☐ Kinney

Application fees must be paid by check, certified check, or money order, payable to the **Texas Commission on Environmental Quality**. Your canceled check will serve as your receipt. **This form must be submitted with your fee payment**. This payment is being submitted to:

☒ Austin Regional Office
☐ Mailed to: TCEQ - Cashier
Revenues Section
Mail Code 214
P.O. Box 13088
Austin, TX 78711-3088

☐ San Antonio Regional Office
☐ Overnight Delivery to: TCEQ - Cashier
12100 Park 35 Circle
Building A, 3rd Floor
Austin, TX 78753
(512)239-0357

Site Location (Check All That Apply):

☒ Recharge Zone ☐ Contributing Zone ☐ Transition Zone

Type of Plan	*Size*	*Fee Due*
Water Pollution Abatement Plan, Contributing Zone Plan: One Single Family Residential Dwelling	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Multiple Single Family Residential and Parks	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	Acres	
Sewage Collection System	3,799 LF	$ 1,899.50
Lift Stations without sewer lines	Acres	$
Underground or Aboveground Storage Tank Facility	Tanks	$
Piping System(s)(only)	Each	$
Exception	Each	$
Extension of Time	Each	$

Signature: _____ Date: 10/03/2025

Application Fee Schedule

Texas Commission on Environmental Quality
Edwards Aquifer Protection Program 30 TAC Chapter 213 (effective 05/01/2008)

Water Pollution Abatement Plans and Modifications

Contributing Zone Plans and Modifications

Project	*Project Area in Acres*	*Fee*
One Single Family Residential Dwelling	< 5	$650
Multiple Single Family Residential and Parks	< 5 5 < 10 10 < 40 40 < 100 100 < 500 ≥ 500	$1,500 $3,000 $4,000 $6,500 $8,000 $10,000
Non-residential (Commercial, industrial, institutional, multi-family residential, schools, and other sites where regulated activities will occur)	< 1 1 < 5 5 < 10 10 < 40 40 < 100 ≥ 100	$3,000 $4,000 $5,000 $6,500 $8,000 $10,000

Organized Sewage Collection Systems and Modifications

Project	*Cost per Linear Foot*	*Minimum Fee-Maximum Fee*
Sewage Collection Systems	$0.50	$650 - $6,500

Underground and Aboveground Storage Tank System Facility Plans and Modifications

Project	*Cost per Tank or Piping System*	*Minimum Fee-Maximum Fee*
Underground and Aboveground Storage Tank Facility	$650	$650 - $6,500

Exception Requests

Project	*Fee*
Exception Request	$500

Extension of Time Requests

Project	*Fee*
Extension of Time Request	$150

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Core Data Form

TCEQ Use Only

TCEQ Core Data Form

For detailed instructions on completing this form, please read the Core Data Form Instructions or call 512-239-5175.

SECTION I: General Information

1. Reason for Submission *(If other is checked please describe in space provided.)*

☒ New Permit, Registration or Authorization *(Core Data Form should be submitted with the program application.)*

☐ Renewal *(Core Data Form should be submitted with the renewal form)* ☐ Other

2. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	3. Regulated Entity Reference Number *(if issued)*
CN 604305250		RN

SECTION II: Customer Information

4. General Customer Information	5. Effective Date for Customer Information Updates (mm/dd/yyyy)	10/1/2025

☐ New Customer ☐ Update to Customer Information ☐ Change in Regulated Entity Ownership
☐ Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)

The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State (SOS) or Texas Comptroller of Public Accounts (CPA).

6. Customer Legal Name *(If an individual, print last name first: eg: Doe, John)* *If new Customer, enter previous Customer below:*

M I Homes of Austin LLC	

7. TX SOS/CPA Filing Number	8. TX State Tax ID (11 digits)	9. Federal Tax ID (9 digits)	10. DUNS Number *(if applicable)*
0801672376	32049298139		

11. Type of Customer: ☒ Corporation ☐ Individual Partnership: ☐ General ☐ Limited
Government: ☐ City ☐ County ☐ Federal ☐ Local ☐ State ☐ Other ☐ Sole Proprietorship ☐ Other:

12. Number of Employees
☐ 0-20 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☐ 501 and higher

13. Independently Owned and Operated?
☐ Yes ☒ No

14. Customer Role (Proposed or Actual) – *as it relates to the Regulated Entity listed on this form. Please check one of the following*

☐ Owner ☐ Operator ☐ Owner & Operator
☐ Occupational Licensee ☐ Responsible Party ☐ VCP/BSA Applicant ☐ Other:

15. Mailing Address:	7600 N. Capital of Texas Hwy.: Bldg. C, Suite 250						
	City	Austin	State	TX	ZIP	78731	ZIP + 4

16. Country Mailing Information *(if outside USA)*	17. E-Mail Address *(if applicable)*

18. Telephone Number	19. Extension or Code	20. Fax Number *(if applicable)*
(512) 770-8505		( ) -

SECTION III: Regulated Entity Information

21. General Regulated Entity Information *(If 'New Regulated Entity" is selected, a new permit application is also required.)*

☒ New Regulated Entity ☐ Update to Regulated Entity Name ☐ Update to Regulated Entity Information

The Regulated Entity Name submitted may be updated, in order to meet TCEQ Core Data Standards (removal of organizational endings such as Inc, LP, or LLC).

22. Regulated Entity Name *(Enter name of the site where the regulated action is taking place.)*

Lost Woods Estates

23. Street Address of the Regulated Entity: ***(No PO Boxes)***	2855 CR175							
	City	Leander	**State**	TX	**ZIP**	78641	**ZIP + 4**	
24. County	Williamson							

If no Street Address is provided, fields 25-28 are required.

25. Description to Physical Location:	

26. Nearest City	**State**	**Nearest ZIP Code**

Latitude/Longitude are required and may be added/updated to meet TCEQ Core Data Standards. (Geocoding of the Physical Address may be used to supply coordinates where none have been provided or to gain accuracy).

27. Latitude (N) In Decimal:			**28. Longitude (W) In Decimal:**		
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds

29. Primary SIC Code (4 digits)	**30. Secondary SIC Code** (4 digits)	**31. Primary NAICS Code** (5 or 6 digits)	**32. Secondary NAICS Code** (5 or 6 digits)
6552		237210	

33. What is the Primary Business of this entity? *(Do not repeat the SIC or NAICS description.)*

Single Family Homes

34. Mailing Address:	**7600 N. Capital of Texas Hwy., Bldg. C, Suite 250**							
	City	**Austin**	**State**	**TX**	**ZIP**	**78731**	**ZIP + 4**	

35. E-Mail Address:	**rrippy@mihomes.com**

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
(512) 770-8505		( ) -

39. TCEQ Programs and ID Numbers Check all Programs and write in the permits/registration numbers that will be affected by the updates submitted on this form. See the Core Data Form instructions for additional guidance.

☐ Dam Safety	☐ Districts	☐ Edwards Aquifer	☐ Emissions Inventory Air	☐ Industrial Hazardous Waste
☐ Municipal Solid Waste	☐ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
☐ Sludge	☐ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
☐ Voluntary Cleanup	☐ Wastewater	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:

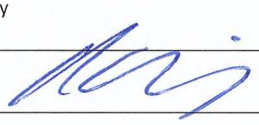
SECTION IV: Preparer Information

40. Name:	Alejandro E. Granados Rico	**41. Title:**	Project Manager

42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(512) 782-0602		( ) -	alex.granados@kimley-horn.com

SECTION V: Authorized Signature

46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 6 and/or as required for the updates to the ID numbers identified in field 39.

Company:	M I Homes of Austin	**Job Title:**	Vice President of Land
Name *(In Print):*	Royce Rippy	**Phone:**	(512) 770- **8505**
Signature:		**Date:**	10/3/2025

SECTION 7: EXHIBITS

APPROVED BY:

ROBIN M. GRIFFIN, AICP, EXECUTIVE DIRECTOR OF DEVELOPMENT SERVICES — DATE

EMILY TRUMAN, P.E., CITY ENGINEER — DATE

GINA ELLISON, P.E., EXECUTIVE DIRECTOR OF PUBLIC WORKS — DATE

ASHLEA BOYLE, CPRP, DIRECTOR OF PARKS AND RECREATION — DATE

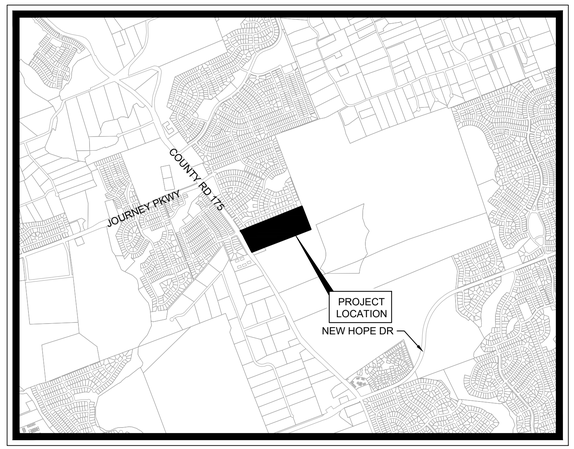
CHIEF JOSHUA DAVIS, FIRE MARSHAL — DATE

PLAN SUBMITTAL/REVIEW LOG

1ST SUBMITTAL 12/09/2025

LOST WOODS ESTATES

PUBLIC IMPROVEMENT CONSTRUCTION PLANS
PICP-25-0272
CITY OF LEANDER,
WILLIAMSON COUNTY, TEXAS



VICINITY MAP

SCALE: 1" = 2,000'

DECEMBER 2025

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3	TCEQ GENERAL NOTES
4	KH GENERAL NOTES
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6	FINAL PLAT (SHEET 2 OF 2)
7	OVERALL PRELIMINARY PLAT
8	EXISTING CONDITIONS AND DEMOLITION PLAN (SHEET 1 OF 2)
9	EXISTING CONDITIONS AND DEMOLITION PLAN (SHEET 2 OF 2)
10	TREE PROTECTION PLAN
11	TREE LIST TABLE (SHEET 1 OF 2)
12	TREE LIST TABLE (SHEET 2 OF 2)
13	EROSION CONTROL PLAN (SHEET 1 OF 2)
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17	TYPICAL CROSS SECTION
18	PAVING PLAN AND PROFILE - BLENDED TREE RANCH DRIVE
19	PAVING PLAN AND PROFILE - BONSAI ROAD (SHEET 1 OF 2)
20	PAVING PLAN AND PROFILE - BONSAI RD (SHEET 2 OF 2)
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22	PAVING PLAN AND PROFILE - GOLDEN JUBILEE BEND (SHEET 2 OF 2)
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24	EXISTING DRAINAGE AREA MAP
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REVISIONS/CORRECTIONS		
REVISION #	DESCRIPTION	APPROVAL

ENGINEER

Kimley»Horn

501 SOUTH AUSTIN AVENUE, SUITE 1310
GEORGETOWN, TEXAS 78626
CERTIFICATE OF REGISTRATION #928

Tel. No. (512) 418-1771
Fax No. (512) 418-1791

CONTACT: ALEJANDRO E. GRANADOS RICO

OWNER/DEVELOPER

M/I HOMES OF AUSTIN, LLC
7600 N. CAPITAL OF TEXAS HWY.
BLDG. C, SUITE 250
AUSTIN, TX 78731
TEL: (512) 770-8524
CONTACT: KYLE KRIEGEL

LEGAL DESCRIPTION

BEING A 28.12 ACRES TRACT OF LAND SITUATED IN THE ANASTASHA CARR SURVEY, ABSTRACT 122, WILLIAMSON COUNTY, TEXAS; AND BEING A PORTION OF A CALLED 28.280 ACRES TRACT OF LAND TO PEGGY BORHO SIMPSON, AS SHOWN ON INSTRUMENT RECORDED UNDER DOCUMENT NO. 2024032193, OF THE OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY, TEXAS, (O.P.R.W.C.T.); SAID 28.280 ACRES TRACT DESCRIBED IN VOL. 2542, PG. 838, O.P.R.W.C.T.

WATERSHED STATUS

THIS SITE IS LOCATED IN THE TURKEY CREEK OF THE BRUSHY CREEK WATERSHED.
THIS SITE IS LOCATED IN THE EDWARDS AQUIFER RECHARGE ZONE.

FLOODPLAIN INFORMATION

NO PORTION OF THIS TRACT IS WITHIN A FLOOD HAZARD AREA AS SHOWN ON THE FLOOD INSURANCE RATE MAP PANEL #48491C0460F FOR WILLIAMSON CO., EFFECTIVE DECEMBER 20, 2019.

DISTURBED ACREAGE INFORMATION

LOST WOODS ESTATES DISTURBED ACREAGE APPROX.= 26.12 ACRES

GENERAL NOTES

1. ALL PUBLIC IMPROVEMENTS INCLUDING WATER AND WASTEWATER WITHIN DEDICATED RIGHT OF WAY AND PUBLIC UTILITY EASEMENTS TO BE OWNED AND MAINTAINED BY THE CITY OF LEANDER.
2. ALL WATER QUALITY IMPROVEMENTS, INCLUDING THE BATCH DETENTION POND, ARE TO BE DEDICATED, OWNED AND MAINTAINED BY THE HOA. HOA WILL MOW AND MAINTAIN THE LANDSCAPING IN THE OPEN CHANNELS, DETENTION, AND WATER QUALITY AREAS.
3. THE ENGINEER OF RECORD IS SOLELY RESPONSIBLE FOR THE COMPLETENESS, ACCURACY, REGULATORY COMPLIANCE, AND ADEQUACY OF THESE PLANS AND/OR SPECIFICATIONS WHETHER OR NOT THE PLANS AND/OR SPECIFICATIONS WERE REVIEWED BY THE CITY ENGINEER(S).

BENCHMARKS

BASIS OF BEARINGS IS THE TEXAS COORDINATE SYSTEM OF 1983, CENTRAL ZONE (4203). ALL COORDINATES AND DISTANCES SHOWN HEREON ARE GRID VALUES. THE UNIT OF LINEAR MEASUREMENT IS U.S. SURVEY FEET.

BM #104 - 1/2-INCH IRON ROD SET IN THE CENTER MEDIAN OF COUNTY ROAD 175, ±67 FEET NORTH OF THE INTERSECTION OF MINERAL DRIVE AND COUNTY ROAD 175, ±73 FEET WEST OF A FIBER OPTIC RISER IN THE EASTERLY RIGHT-OF-WAY LINE OF COUNTY ROAD 175.

N: 10178313.802'
E: 3101940.730'
ELEV.= 906.44'

BM #105 - 1/2-INCH IRON ROD SET IN THE WESTERLY RIGHT-OF-WAY OF COUNTY ROAD 175, ±695 FEET SOUTH OF THE INTERSECTION OF MINERAL DRIVE AND COUNTY ROAD 175, ± 56 FEET EAST OF THE NORTHEAST CORNER OF A METAL SHED.

N: 10177624.355'
E: 3102276.765'
ELEV.=917.20'

Plotted By:Granados, Alex Date:December 15, 2025 09:34:31am File Path:K:\DFO_Civil\067783185 – MI Homes Leander Simpson Tracts\Cad\Construction Plans\PlanSheets\C--Cover Sheet.dwg
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No.	REVISIONS	DATE	BY

LOST WOODS ESTATES

Kimley»Horn
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TEXAS REGISTERED ENGINEERING FIRM F-928

12/9/2025

STATE OF TEXAS
ALEJANDRO E. GRANADOS RICO
130084
LICENSED PROFESSIONAL ENGINEER

KHA PROJECT 067783185
DATE DECEMBER 2025
SCALE: AS SHOWN
DESIGNED BY: AEG
DRAWN BY: AEG
CHECKED BY: AEG

COVER SHEET

LOST WOODS ESTATES
CITY OF LEANDER
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER
1
OF 76

CITY CONTACTS:

ENGINEERING MAIN LINE:	512-528-2721
PLANNING DEPARTMENT:	512-528-2750
PUBLIC WORKS MAIN LINE:	512-259-2640
STORMWATER INSPECTIONS:	512-285-0055
UTILITIES MAIN LINE:	512-259-1142
UTILITIES ON-CALL:	512-690-4760

GENERAL NOTES:

REVISED JULY 22, 2024

1. CONTRACTORS SHALL HAVE AN APPROVED SET OF PLANS WITH APPROVED REVISIONS ON SITE AT ALL TIMES. FAILURE TO HAVE APPROVED PLANS ON SITE MAY RESULTS IN ISSUANCE OF WORK STOPPAGE.
2. CONTACT 811 SYSTEM FOR EXISTING WATER AND WASTEWATER LOCATIONS 48 HOURS PRIOR TO CONSTRUCTION
   a. **REFRESH ALL LOCATES *BEFORE* 14 DAYS** - LOCATE REFRESH REQUESTS MUST INCLUDE A COPY OF YOUR 811 TICKET. TEXAS PIPELINE DAMAGE PREVENTION LAWS REQUIRE THAT A LOCATE REFRESH REQUEST BE SUBMITTED BEFORE 14 DAYS, OR IF LOCATION MARKERS ARE NO LONGER VISIBLE.
   b. **REPORT PIPELINE DAMAGE IMMEDIATELY** - IF YOU WITNESS OR EXPERIENCE PIPELINE EXCAVATION DAMAGE, PLEASE CONTACT THE CITY OF LEANDER BY PHONE AT 512-259-2640
3. THE CONTRACTORS SHALL CONTACT THE CITY INSPECTOR 48 HOURS BEFORE:
   a. BEGINNING EACH PHASE OF CONSTRUCTION. CONTACT ASSIGNED CITY INSPECTOR.
   b. ANY TESTING. CONTRACTORS SHALL PROVIDE QUALITY TESTING FOR ALL INFRASTRUCTURES TO BE ACCEPTED AND MAINTAINED BY THE CITY OF LEANDER AFTER COMPLETION.
   c. PROOF ROLLING SUB-GRADE AND EVERY LIFT OF ROADWAY EMBANKMENT, IN-PLACE DENSITY TESTING OF EVERY BASE COURSE, AND ASPHALT CORES. ALL OF THIS TESTING MUST BE WITNESSED BY A CITY OF LEANDER REPRESENTATIVE.
   d. CONNECTING TO THE EXISTING WATER LINES
   e. THE INSTALLATION OF ANY DRAINAGE FACILITY WITHIN A DRAINAGE EASEMENT OR STREET ROW. THE METHOD OF PLACEMENT AND COMPACTION OF BACKFILL IN THE CITY'S ROW MUST BE APPROVED PRIOR TO THE START OF BACKFILL OPERATIONS
4. ALL RESPONSIBILITILY FOR THE ACCURACY OF THESE PLANS REMAINS WITH THE ENGINEER OF RECORD WHO PREPARED THEM. IN REVIEWING THESE PLANS, THE CITY MUST RELY ON THE ADEQUACY OF THE WORK OF THE ENGINEER OF RECORD.
5. **EXCESS SOIL SHALL BE REMOVED AT THE CONTRACTOR'S EXPENSE. NOTIFY THE CITY OF LEANDER IF THE DISPOSAL SITE IS INSIDE THE CITY'S JURISDICTIONAL BOUNDARIES.**
6. BURNING IS PROHIBITED
7. NO WORK IS TO BE PERFORMED BETWEEN THE HOURS OF 9:00 P.M. AND 7:00 A.M. OR WEEKENDS. THE CITY INSPECTOR RESERVES THE RIGHT TO REQUIRE THE CONTRACTOR TO UNCOVER ALL WORK PERFORMED WITHOUT INSPECTION.
8. CONTRACT THE CITY INSPECTOR 4 DAYS PRIOR TO WORK FOR APPROVAL TO SCHEDULE ANY INSPECTIONS ON WEEKENDS OR CITY HOLIDAYS.
9. NO BLASTING IS ALLOWED.
10. ANY CHANGES OR REVISIONS TO THESE PLANS MUST FIRST BE SUBMITTED TO THE CITY BY THE DESIGN ENGINEER FOR REVIEW AND WRITTEN APPROVAL PRIOR TO CONSTRUCTION OF THE REVISION. ALL CHANGES AND REVISIONS SHALL USE REVISION CLOUDS TO HIGHLIGHT ALL REVISIONS AND CHANGES WITH EACH SUBMITTAL. REVISION TRIANGLE MARKERS AND NUMBERS SHALL BE USED TO MARK REVISIONS. ALL CLOUDS AND TRIANGLE MARKERS FROM PREVIOUS REVISIONS MUST BE REMOVED. REVISION INFORMATION SHALL BE UPDATED ON COVER SHEET AND AFFECTED PLAN SHEET TITLE BLOCK.
11. THE CONTRACTOR AND ENGINEER SHALL KEEP ACCURATE RECORDS OF ALL CONSTRUCTION THAT DEVIATES FROM THE PLANS. THE ENGINEER SHALL FURNISH THE CITY OF LEANDER ACCURATE "RECORD DRAWINGS" FOLLOWING THE COMPLETION OF ALL CONSTRUCTION. THESE "RECORD DRAWINGS" SHALL MEET THE SATISFACTION OF THE ENGINEERING DEPARTMENTS PRIOR TO FINAL ACCEPTANCE.
12. THE CONTRACTOR WILL REIMBURSE THE CITY FOR ALL REPAIR AND/OR COST INCURRED AS A RESULT OF ANY DAMAGE TO ANY PUBLIC INFRASTRUCTURE WITHIN CITY EASEMENT OR PUBLIC RIGHT-OF-WAY, REGARDLESS OF THESE PLANS.
13. WHEN CONSTRUCTION IS BEING CARRIED OUT WITHIN EASEMENTS, THE CONTRACTOR SHALL CONFINE HIS WORK TO WITHIN THE PERMANENT AND TEMPORARY EASEMENTS, PRIOR TO ACCEPTANCE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL TRASH AND DEBRIS WITHIN THE PERMANENT EASEMENTS. CLEANUP SHALL BE TO THE SATISFACTION OF THE ENGINEER OF RECORD AND CITY.
14. CONTRACTOR TO LOCATE, PROTECT, AND MAINTAIN BENCHMARKS, MONUMENTS, CONTROL POINTS AND PROJECT ENGINEERING REFERENCE POINTS. RE-ESTABLISH DISTURBED OR DESTROYED ITEMS BY REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF TEXAS, AT NO ADDITIONAL COST TO THE PROPERTY OWNER.
15. ALL CONSTRUCTION OPERATIONS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH APPLICABLE REGULATIONS OF THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA). OSHA STANDARDS MAY BE PURCHASED FROM THE GOVERNMENT PRINTING OFFICE; INFORMATION AND RELATED REFERENCE MATERIALS MAY BE PURCHASED FROM OSHA, 1033 LA POSADA DR. SUITE 375, AUSTIN, TEXAS 78752-3832.
16. ALL MANHOLE FRAMES/COVERS AND WATER VALVE/METER BOXES MUST BE ADJUSTED TO FINISHED GRADE AT THE OWNER'S EXPENSE BY THE CONTRACTOR FOR CITY CONSTRUCTION INSPECTOR INSPECTION. ALL UTILITY ADJUSTMENTS SHALL BE COMPLETED PRIOR TO FINAL PAVING. CONTRACTOR SHALL BACKFILL AROUND MANHOLES AND VALVE BOXES WITH CLASS A CONCRETE.
17. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT WHERE NOT SPECIFICALLY COVERED IN THE PROJECT SPECIFICATIONS SHALL CONFORM TO ALL CITY OF LEANDER DETAILS AND CITY OF AUSTIN STANDARD SPECIFICATIONS.
18. PROJECT SPECIFICATIONS TAKE PRECEDENCE OVER PLANS AND SPECIAL CONDITIONS GOVERN OVER TECHNICAL SPECIFICATIONS.
19. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ACQUIRING ALL PERMITS, TESTS, APPROVALS AND ACCEPTANCES REQUIRED TO COMPLETE CONSTRUCTION OF THIS PROJECT.
20. THE CONTRACTOR MUST OBTAIN A CONSTRUCTION WATER METER FOR ALL WATER USED DURING CONSTRUCTION. A COPY OF THIS PERMIT MUST BE CARRIED AT ALL TIMES BY ALL WHO USE WATER.
21. THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING ROADS AND DRIVES ADJACENT TO AND NEAR THE SITE FREE FROM SOIL, SEDIMENT AND DEBRIS. CONTRACTOR WILL NOT REMOVE SOIL, SEDIMENT OR DEBRIS FROM ANY AREA OR VEHICLE BY MEANS OF WATER. ONLY SHOVELING AND SWEEPING WILL BE ALLOWED. THE CONTRACTOR WILL BE RESPONSIBLE FOR DUST CONTROL FROM THE SITE. THE CONTRACTOR SHALL KEEP THE SITE AREA CLEAN AND MAINTAINED AT ALL TIMES, TO THE SATISFACTION OF THE CITY. THE SUBDIVISION (OR SITE) WILL NOT BE ACCEPTED (OR CERTIFICATE OF OCCUPANCY ISSUED) UNTIL THE SITE HAS BEEN CLEANED TO THE SATISFACTION OF THE CITY.
22. TREES IN EXISTING ROW SHOULD BE PROTECTED OR NOTED IN THE PLANS TO BE REMOVED.

CONSTRUCTION SEQUENCE NOTES:

1. REACH OUT TO THE CITY FOR PRE-CONSTRUCTION MEETING AND CONSTRUCTION PERMIT.
2. SET-UP E/S CONTROLS AND TREE PROTECTION AND REACH OUT TO CITY FOR INSPECTION.
3. SET UP TEMPORARY TRAFFIC CONTROLS.
4. CONSTRUCT THE DRAINAGE PONDS AND STORM WATER FEATURES.
5. START UTILITY, ROAD, GRADING, FRANCHISE UTILITY AND ALL NECESSARY INFRASTRUCTURE CONSTRUCTION. [NOTE: PLEASE UPDATE AS PER THE PROJECT]
6. REQUEST FINAL WALKTHROUGH AND CONDUCT WALKTHROUGH WITH ENGINEER OF RECORD AND CITY DEPARTMENT.
7. ENGINEER OF RECORD IS RESPONSIBLE TO PREPARE AND SUBMIT CLOSEOUT DOCUMENTS FOR PROJECT CLOSEOUT.

EROSION CONTROL NOTES

1. THE CONTRACTOR IS REQUIRED TO INSPECT THE CONTROLS AND FENCES AT WEEKLY INTERVALS AND AFTER SIGNIFICANT RAINFALL EVENTS TO ENSURE THAT THEY ARE FUNCTIONING PROPERLY. THE CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE OF CONTROLS AND FENCES AND SHALL IMMEDIATELY MAKE ANY NECESSARY REPAIRS TO DAMAGED AREAS. SILT ACCUMULATION AT CONTROLS MUST BE REMOVED WHEN THE DEPTH REACHES SIX (6) INCHES
2. THE TEMPORARY SPOILS DISPOSAL SITE IS TO BE SHOWN IN THE EROSION CONTROL MAP.
3. ANY ON-SITE SPOILS DISPOSAL SHALL BE REMOVED PRIOR TO ACCEPTANCE UNLESS SPECIFICALLY SHOWN ON THE PLANS. THE DEPTH OF SPOIL SHALL NOT EXCEED 10 FEET IN ANY AREA.
4. ALL AREAS DISTURBED OR EXPOSED DURING CONSTRUCTION SHALL BE RESTORED WITH A MINIMUM OF 6 INCHES OF TOPSOIL AND COMPOST BLEND. TOPSOIL ON SINGLE FAMILY LOTS MAY BE INSTALLED WITH HOME CONSTRUCTION. THE TOPSOIL AND COMPOST BLEND SHALL CONSIST OF 75% TOPSOIL AND 25% COMPOST.
5. SEEDING FOR REESTABLISHING VEGETATION SHALL COMPLY WITH THE AUSTIN GROW GREEN GUIDE OR WILLIAMSON COUNTY'S PROTOCOL FOR SUSTAINABLE ROADSIDES (SPEC 164--WC001 SEEDING FOR EROSION CONTROL). RESEEDING VARIETIES OF BERMUDA SHALL NOT BE USED.
6. STABILIZED CONSTRUCTION ENTRANCE IS REQUIRED AT ALL POINTS WHERE CONSTRUCTION TRAFFIC IS EXITING THE PROJECT ONTO EXISTING PAVEMENT. LINEAR CONSTRUCTION PROJECTS MAY REQUIRE SPECIAL CONSIDERATION. ROADWAYS SHALL REMAIN CLEAR OF SILT AND MUD.
7. TEMPORARY STOP SIGNS SHOULD BE INSTALLED AT ALL CONSTRUCTION ENTRANCES WHERE A STOP CONDITION DOES NOT ALREADY EXIST.
8. IN THE EVENT OF INCLEMENT WEATHER THAT MAY RESULT IN A FLOODING SITUATION, THE CONTRACTOR SHALL REMOVE INLET PROTECTION MEASURES UNTIL SUCH TIME AS THE WEATHER EVENT HAS PASSED.

WATER AND WASTEWATER GENERAL NOTES:

1. ALL NEWLY INSTALLED PIPES AND RELATED PRODUCTS MUST CONFORM TO AMERICAN NATIONAL STANDARDS INSTITUTE/NATIONAL SANITATION FOUNDATION (ANSI/NSF) STANDARD 61 AND MUST BE CERTIFIED BY AND ORGANIZATION ACCREDITED BY ANSI.
2. ALL WATER SERVICE, WASTEWATER SERVICE AND VALVE LOCATIONS SHALL BE APPROPRIATELY STAMPED AS FOLLOWS:
   WATER SERVICE "W" ON TOP OF CURB
   WASTEWATER SERVICE "S" ON TOP OF CURB
   VALVE "V" ON TOP OF CURB
3. OPEN UTILITIES SHALL NOT BE PERMITTED ACROSS THE EXISTING PAVED SURFACES. WATER AND WASTEWATER LINES ACROSS THE EXISTING PAVED SURFACES SHALL BE BORED AND INSTALLED IN STEEL ENCASEMENT PIPES. BELL RESTRAINTS SHALL BE PROVIDED AT JOINTS.
4. INTERIOR SURFACES OF ALL DUCTILE IRON POTABLE OR RECLAIMED WATER PIPE SHALL BE CEMENT-MORTAR LINED AND SEAL COATED AS REQUIRED BY AWWA C104.
5. SAND, AS DESCRIBED IN AUSTIN SPECIFICATION ITEM 510 PIPE, SHALL NOT BE USED AS BEDDING FOR WATER AND WASTEWATER LINES. ACCEPTABLE BEDDING MATERIALS ARE PIPE BEDDING STONE, PEA GRAVEL AND IN LIEU OF SAND, A NATURALLY OCCURRING OR MANUFACTURED STONE MATERIAL CONFORMING TO ASTM C33 FOR STONE QUALITY AND MEETING THE FOLLOWING GRADATION SPECIFICATION:

SIEVE SIZE	PERCENT RETAINED BY WEIGHT
1/2"	0
3/8"	0-2
#4	40-85
#10	95-100

6. DENSITY TESTING FOR TRENCH BACKFILL SHALL BE DONE IN MAXIMUM 12" LIFTS.

WATER NOTES:

1. SAMPLING TAPS SHALL BE BROUGHT UP TO 3 FEET ABOVE GRADE AND SHALL BE EASILY ACCESSIBLE FOR CITY PERSONNEL AT THE CONTRACTORS' REQUEST, AND IN HIS PRESENCE, SAMPLES FOR BACTERIOLOGICAL TESTING WILL BE COLLECTED BY THE CITY OF LEANDER NOT LESS THAN 24 HOURS AFTER THE TREATED LINE HAS BEEN FLUSHED OF THE CONCENTRATED CHLORINE SOLUTION AND CHARGED WITH WATER APPROVED BY THE CITY.
2. CITY PERSONNEL WILL OPERATE OR AUTHORIZE THE CONTRACTOR TO OPERATE ALL WATER VALVES THAT WILL PASS THROUGH THE CITY'S POTABLE WATER. THE CONTRACTOR MAY BE FINED $500 OR MORE, INCLUDING ADDITIONAL THEFT OF WATER FINES, IF A WATER VALVE IS OPERATED IN AN UNAUTHORIZED MANNER, REGARDLESS OF WHO OPERATED THE VALVE.
3. THE CONTRACTOR IS HEREBY NOTIFIED THAT CONNECTING TO, SHUTTING DOWN, OR TERMINATING EXISTING UTILITY LINES MAY HAVE TO OCCUR AT OFF-PEAK HOURS. SUCH HOURS ARE USUALLY OUTSIDE NORMAL WORKING HOURS AND POSSIBLY BETWEEN 12 AM AND 6 AM AFTER COORDINATING WITH CITY CONSTRUCTION INSPECTORS AND INFORMING AFFECTED PROPERTIES
4. PRESSURE TAPS OR HOT TAPS SHALL BE IN ACCORDANCE WITH CITY OF LEANDER STANDARD SPECIFICATIONS. THE CONTRACTOR SHALL PERFORM ALL EXCAVATION AND SHALL FURNISH, INSTALL AND AIR TEST THE SLEEVE AND VALVE. A CITY OF LEANDER INSPECTOR MUST BE PRESENT WHEN THE CONTRACTOR MAKES A TAP, AND/OR ASSOCIATED TESTS. A MINIMUM OF TWO (2) WORKING DAYS NOTICE IS REQUIRED. "SIZE ON SIZE" TAPS SHALL NOT BE PERMITTED UNLESS MADE BY THE USE OF AN APPROVED FULL-CIRCLE GASKETED TAPPING SLEEVE. CONCRETE THRUST BLOCKS SHALL BE PLACED BEHIND AND UNDER ALL TAP SLEEVES A MINIMUM OF 24 HOURS PRIOR TO THE BRANCH BEING PLACED INTO SERVICE. THRUST BLOCKS SHALL BE INSPECTED PRIOR TO BACKFILL.
5. FIRE HYDRANTS ON MAINS UNDER CONSTRUCTION SHALL BE SECURELY WRAPPED WITH A BLACK POLY WRAP BAG AND TAPED INTO PLACE. THE POLY WRAP SHALL BE REMOVED WHEN THE MAINS ARE ACCEPTED AND PLACED INTO SERVICE.
6. THRUST BLOCKS OR RESTRAINTS SHALL BE IN ACCORDANCE WITH THE CITY OF LEANDER STANDARD SPECIFICATIONS AND REQUIRED AT ALL FITTINGS PER DETAIL OR MANUFACTURER'S RECOMMENDATION. ALL FITTINGS SHALL HAVE BOTH THRUST BLOCKS AND RESTRAINTS.
7. ALL DEAD END WATER MAINS SHALL HAVE "FIRE HYDRANT ASSEMBLY" OR "BLOW-OFF VALVE AND THRUST BLOCK" OR "BLOW-OFF VALVE AND THRUST RESTRAINTS". THRUST RESTRAINTS SHALL BE INSTALLED ON THE MINIMUM LAST THREE PIPE LENGTHS (STANDARD 20' LAYING LENGTH). ADDITIONAL THRUST RESTRAINTS MAY BE REQUIRED BASSED UPON THE MANUFACTURERS RECOMMENDATION AND/OR ENGINEER'S DESIGN.
8. PIPE MATERIAL FOR PUBLIC WATER MAINS SHALL BE PVC (AWWA C900-DR14 MIN. 305 PSI PRESSURE RATING). WATER SERVICES (2" OR LESS) SHALL BE POLYETHYLENE TUBING (BLACK, 200PSI, AND SDR-(9)). COPPER PIPES AND FITTINGS ARE NOT ALLOWED IN THE PUBLIC RIGHT OF WAY. ALL PLASTIC PIPES FOR USE IN PUBLIC WATER SYSTEMS MUST BEAR THE NATIONAL SANITATION FOUNDATION SEAL OF APPROVAL (NSF-PW).
9. ALL FIRE HYDRANT LEADS SHALL BE DUCTILE IRON PIPE (AWWA C115/C151 PRESSURE CLASS 350).
10. ALL IRON PIPE AND FITTINGS SHALL BE WRAPPED WITH MINIMUM 8-MIL POLYETHYLENE.
11. LINE FLUSHING OR ANY ACTIVITY USING A LARGE QUANTITY OF WATER MUST BE COORDINATED WITH THE PUBLIC WORKS DEPARTMENT.
12. ALL WATER METER BOXES SHALL BE:
    a. SINGLE, 1" METER AND BELOW DFW37F-12-1CA, OR EQUAL
    b. DUAL, 1" METERS AND BELOW DFW39F-12-1CA, OR EQUAL
    c. 1.5" SINGLE METER DFW65C-14-1CA, OR EQUAL
    d. 2" SINGLE METER DFW1730F-12-1CA, OR EQUAL
13. ALL WATER VALVE COVERS ARE TO BE PAINTED BLUE.

WASTEWATER NOTES:

1. CURVILINEAR WASTEWATER DESIGN LAYOUT IS NOT PERMITTED.
2. MANDREL TESTING SHALL BE CONDUCTED AFTER THE FINAL BACKFILL HAS BEEN IN PLACE AT LEAST 30 DAYS.
3. MANHOLES SHALL BE COATED PER CITY OF AUSTIN SPL WW-511 (RAVEN 405 OR SPRAYWALL). PENETRATIONS TO EXISTING WASTEWATER MANHOLES REQUIRE THE CONTRACTOR TO RECOAT THE ENTIRE MANHOLE IN ACCORDANCE WITH CITY OF AUSTIN STANDARD SPECIFICATIONS SECTION NO. 506.5.
4. RECLAIMED AND RECYCLED WATER LINE SHALL BE CONSTRUCTED OF "PURPLE PIPE." ALL RECLAIMED AND RECYCLED WATER VALVE COVERS SHALL BE SQUARE AND PAINTED PURPLE.
5. FORCE MAIN PIPES NEED TO HAVE SWEEPING WYES FOR JOINTS.

STREET AND DRAINAGE NOTES:

1. THE CITY OF LEANDER HAS NOT REVIEWED THESE PLANS FOR COMPLIANCE WITH THE AMERICANS WITH DISABILITIES ACT (ADA). IT IS THE RESPONSIBILITY OF THE OWNER TO PROVIDE COMPLIANCE WITH ALL LEGISTATION RELATED TO ACCESSIBLITY WITHIN THE LIMITS OF CONSTRUCTION SHOWN IN THESE PLANS. ALL SIDEWALKS SHALL COMPLY WITH THE AMERICANS WITH DISABILITIES ACT AND TEXAS ACCESSIBILITY STANDARS (TAS).
2. BACKFILL BEHIND THE CURB SHALL BE COMPACTED TO OBTAIN A MINIMUM OF 95% MAXIMUM DENSITY TO WITHIN 6" OF TOP OF CURB. MATERIAL USED SHALL BE PRIMARILY GRANULAR WITH NO ROCKS LARGER THAN 6" IN THE GREATEST DIMENSION. THE REMAINING 6" SHALL BE CLEAN TOPSOIL FREE FROM ALL CLODS AND SUITABLE FOR SUSTAINING PLANT LIFE.
3. A MINIMUM OF 6" OF TOPSOIL SHALL BE PLACED BETWEEN THE CURB AND RIGHT-OF-WAY AND IN ALL DRAINAGE CHANNELS EXCEPT CHANNELS CUT IN STABLE ROCK.
4. DEPTH OF COVER FOR ALL CROSSINGS UNDER PAVEMENT, INCLUDING GAS, ELECTRIC, TELEPHONE, CABLE TV, ETC., SHALL BE A MINIMUM OF 36" BELOW SUBGRADE.
5. STREET RIGHT-OF-WAY SHALL BE GRADED AT A SLOPE OF ¼" PER FOOT TOWARD THE CURB UNLESS OTHERWISE INDICATED.
6. ALL DRAINAGE PIPE IN PUBLIC RIGHT OF WAY OR EASEMENTS SHALL BE REINFORCED CONCRETE PIPE MINIMUM CLASS III OF TONGUE AND GROOVE OR O-RING JOINT DESIGN. CORRUGATED METAL PIPE IS NOT ALLOWED IN PUBLIC RIGHT OR WAY OR EASEMENTS.
7. THE CONTRACTOR MUST PROVIDE A PNEUMATIC TRUCK PER TXDOT SPEC FOR PROOF ROLLING.
8. ALL STRIPING, WITH THE EXCEPTION OF STOP BARS, CROSS WALKS, WORDS AND ARROWS, IS TO BE TYPE II (WATER BASED). STOP BARS, CROSS WALKS, WORDS AND ARROWS REQUIRE TYPE I THERMOPLASTIC.
9. MANHOLE FRAMES, COVERS, VALVES, CLEAN-OUTS, ETC. SHALL BE RAISED TO GRADE PRIOR TO FINAL PAVEMENT CONSTRUCTION.
10. A STOP BAR SHALL BE PLACED AT ALL STOP SIGN LOCATIONS.
11. THE GEOTECHNICAL ENGINEER SHALL INSPECT THE SUBGRADE FOR COMPLIANCE WITH THE DESIGN ASSUMPTIONS MADE DURING PREPARATION OF THE SOILS REPORT. ANY ADJUSTMENTS THAT ARE REQUIRED SHALL BE MADE THROUGH REVISIONS OF THE APPROVED CONSTRUCTION PLANS.
12. GEOTECHNICAL INVESTIGATION INFORMATION AND PAVEMENT RECOMMENDATIONS WERE PROVIDED BY MLA GEOTECHNICAL IN OCTOBER 2025.
13. A TRAFFIC CONTROL PLAN, IN ACCORDANCE WITH THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CITY OF AUSTIN TRANSPORATION CRITERIA MANUAL, CITY OF LEANDER STANDARD DETAILS AND TEXAS DEPARTMENT OF TRANSPORTATION CRITERIA, SHALL BE SUBMITTED TO THE CITY OF LEANDER FOR REVIEW AND APPROVAL PRIOR TO ANY PARTIAL OR COMPLETE ROADWAY CLOSURES. TRAFFIC CONTROL PLANS MUST BE SITE SPECIFIC AND SIGNED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
14. ALL LANE CLOSURES SHALL OCCUR ONLY BETWEEN THE HOURS OF 9 AM AND 4 PM UNLESS OTHERWISE NOTED ON THE PLANS. ANY NIGHT TIME LANE CLOSURES REQUIRE APPROVAL OF THE CITY ENGINEER AND SHALL OCCUR BETWEEN THE HOURS OF 8 PM AND 6 AM. LANE CLOSURES OBSERVED BY THE CITY DURING PEAK HOURS OF 6 AM TO 9 AM OR 4 PM TO 8 PM WILL BE SUBJECT TO A FINE AND/OR SUBSEQUENT ISSUANCE OF WORK STOPPAGE.
15. TEMPORARY ROCK CRUSHING IS NOT ALLOWED. ALL SOURCES OF FLEXIBLE BASE MATERIAL ARE REQUIRED TO BE APPROVED BY THE CITY. PRIOR TO BASE PLACEMENT ALL CURRENT TRIAXIAL TEST REPORTS FOR PROPOSED STOCK PILES ARE TO BE SUBMITTED TO THE CITY CONSTRUCTION INSPECTOR FOR REVIEW AND APPROVAL.
16. AT ROAD INTERSECTIONS THAT HAVE A VALLEY GUTTER, THE CROWN TO THE INTERSECTING ROAD WILL BE CULMINATED AT A DISTANCE OF 40 FEET FROM THE INTERSECTING CURB LINE UNLESS OTHERWISE NOTED.
17. NO PONDING OF WATER SHALL BE ALLOWED TO COLLECT ON OR NEAR THE INTERSECTION OF PRIVATE DRIVEWAYS AND PUBLIC STREETS. RECONSTRUCTION OF THE DRIVEWAY APPROACH SHALL BE AT THE CONTRACTOR'S EXPENSE.
18. ALL DRIVEWAY APPROACHES SHALL HAVE A UNIFORM TWO PERCENT SLOPE WITHIN THE PUBLIC RIGHT OF WAY UNLESS APPROVED IN WRITING BY THE ENGINEERING DEPARTMENT.
19. IMPROVEMENTS THAT INCLUDE RECONSTRUCTION OF AN EXISTING TYPE II DRIVEWAY SHALL BE DONE IN A MANNER WHICH RETAINS OPERATIONS OF NOT LESS THAN HALF OF THE DRIVEWAY TO REMAIN OPEN AT ALL TIMES. FULL CLOSURE OF SUCH DRIVEWAY CAN BE CONSIDERED WITH WRITTEN AUTHORIZATION OBTAINED BY THE CONTRACTOR FROM ALL PROPERTY OWNERS AND ACCESS EASEMENT RIGHT HOLDERS ALLOWING THE FULL CLOSURE OF THE DRIVEWAY.
20. CONTRACTOR MUST CLEAR FIVE (5) FEET BEYOND ALL PUBLIC RIGHT OF WAY TO PREVENT FUTURE VEGETATIVE GROWTH INTO THE SIDEWALK AREAS.
21. SLOPE OF NATURAL GROUND ADJACENT TO THE PUBLIC RIGHT OF WAY SHALL NOT EXCEED 3:1 SLOPE. IF A 3:1 SLOPE IS NOT POSSIBLE, SLOPE PROTECTION OR RETAINING WALL MUST BE SUBMITTED TO THE CITY FOR REVIEW AND APPROVAL PRIOR TO FINAL ACCEPTANCE.
22. THERE SHALL BE NO WATER, WASTEWATER OR DRAINAGE APPURTENANCES, INCLUDING BUT NOT LIMITED TO VALVES, FITTINGS, METERS, CLEAN-OUTS, MANHOLES, OR VAULTS IN ANY DRIVEWAY, SIDEWALK, TRAFFIC OR PEDESTRIAN AREA.
23. PUBLIC SIDEWALKS SHALL NOT USE CURB INLETS AS PARTIAL WALKING SURFACE. SIDEWALKS SHALL NOT USE TRAFFIC CONTROL BOXES, METERS, CHECK VALVE VAULTS, COMMUNICATION VAULTS, OR OTHER BURIED OR PARTIALLY BURIED INFRASTRUCTURE AS A VEHICULAR OR PEDESTRIAN SURFACE.
24. ALL WET UTILITIES SHALL BE INSTALLED AND ALL DENSITIES MUST HAVE PASSED INSPECTION(S) PRIOR TO THE INSTALLATION OF DRY UTILITIES.
25. DRY UTILITIES SHALL BE INSTALLED AFTER SUBGRADE IS CUT AND BEFORE THE FIRST COURSE OF BASE. NO TRENCHING COMPACTED BASE. IF NECESSARY DRY UTILITIES INSTALLED AFTER FIRST COURSE BASE SHALL BE BORED ACROSS THE FULL WIDTH OF THE PUBLIC RIGHT-OF-WAY.
26. A MINIMUM OF SEVEN (7) DAYS OF CURE TIME IS REQUIRED FOR HMAC PRIOR TO THE INTRODUCTION OF VEHICULAR TRAFFIC TO ALL STREETS.

TRENCH SAFETY NOTES:

1. TRENCH SAFETY SYSTEMS TO BE UTILIZED FOR THIS PROJECT ARE DESCRIBED IN ITEM 5095 "TRENCH SAFETY SYSTEMS" OF THE CITY OF AUSTIN STANDARD SPECIFICATIONS AND SHALL BE IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS AND THE U.S. OCCUPATION SAFETY AND HEALTH ADMINISTRATION REGULATIONS.

GRADING NOTES:

1. POSITIVE DRAINAGE SHALL BE MAINTAINED ON ALL SURFACE AREAS WITHIN THE SCOPE OF THIS PROJECT. CONTRACTOR SHOULD TAKE PRECAUTIONS NOT TO ALLOW ANY PONDING OF WATER.
2. THE CONTRACTOR SHALL CONSTRUCT EARTHEN EMBANKMENTS WITH SLOPES NO STEEPER THAN 3:1 AND COMPACT SOIL TO 95% OF MAXIMUM DENSITY IN ACCORDANCE WITH THE CITY OF AUSTIN STANDARD SPECIFICATIONS.
3. AREAS OF SOIL DISTURBANCE ARE LIMITED TO GRADING AND IMPROVEMENTS SHOWN. ALL OTHER AREAS WILL NOT BE DISTURBED.

BENCHMARK NOTES:

SIR, ELEV.= 883.464

CONTROL POINT 102, ELEV.= 868.467

CONTROL POINT 103, ELEV.= 850.911

BENCHMARKS

SIR, ELEV = 883.464
CONTROL POINT 102, ELEV.=868.467
CONTROL POINT 103, ELEV.=850.911

No.	REVISIONS	DATE	BY

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TEXAS REGISTERED ENGINEERING FIRM F-928

12/9/2025

KHA PROJECT	067783185
DATE	DECEMBER 2025
SCALE:	AS SHOWN
DESIGNED BY:	AEG
DRAWN BY:	AEG
CHECKED BY:	AEG

CITY OF LEANDER
GENERAL NOTES

LOST WOODS ESTATES
CITY OF LEANDER
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER
2
OF 76

Plotted By:Erforth, Kara Date:December 11, 2025 03:32:11pm File Path:K:\CEO_Civil\067783185 - Mi Homes Leander Simpson Tracts\Civil\Construction Plans\Plan Sheets\C-General Notes.dwg
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TEXAS COMMISSION ON ENVIRONMENTAL QUALITY WATER POLLUTION ABATEMENT PLAN
GENERAL CONSTRUCTION NOTES:

1. A WRITTEN NOTICE OF CONSTRUCTION MUST BE SUBMITTED TO THE TCEQ REGIONAL OFFICE AT LEAST 48 HOURS PRIOR TO THE START OF ANY REGULATED ACTIVITIES. THIS NOTICE MUST INCLUDE:
   - -THE NAME OF THE APPROVED PROJECT;
   - -THE ACTIVITY START DATE; AND
   - -THE CONTACT INFORMATION OF THE PRIME CONTRACTOR.
2. ALL CONTRACTORS CONDUCTING REGULATED ACTIVITIES ASSOCIATED WITH THIS PROJECT MUST BE PROVIDED WITH COMPLETE COPIES OF THE WATER POLLUTION ABATEMENT PLAN (WPAP) AND THE TCEQ LETTER INDICATING THE SPECIFIC CONDITIONS OF ITS APPROVAL. DURING THE COURSE OF THESE REGULATED ACTIVITIES, THE CONTRACTORS ARE REQUIRED TO KEEP ON-SITE COPIES OF THE APPROVED PLAN AND APPROVAL LETTER.
3. IF ANY SENSITIVE FEATURE(S) (CAVES, SOLUTION CAVITY, SINK HOLE, ETC.) IS DISCOVERED DURING CONSTRUCTION, ALL REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MUST BE SUSPENDED IMMEDIATELY. THE APPROPRIATE TCEQ REGIONAL OFFICE MUST BE IMMEDIATELY NOTIFIED OF ANY SENSITIVE FEATURES ENCOUNTERED DURING CONSTRUCTION. CONSTRUCTION ACTIVITIES MAY NOT BE RESUMED UNTIL THE TCEQ HAS REVIEWED AND APPROVED THE APPROPRIATE PROTECTIVE MEASURES IN ORDER TO PROTECT ANY SENSITIVE FEATURE AND THE EDWARDS AQUIFER FROM POTENTIALLY ADVERSE IMPACTS TO WATER QUALITY.
4. NO TEMPORARY OR PERMANENT HAZARDOUS SUBSTANCE STORAGE TANK SHALL BE INSTALLED WITHIN 150 FEET OF A WATER SUPPLY SOURCE, DISTRIBUTION SYSTEM, WELL, OR SENSITIVE FEATURE.
5. PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITY, ALL TEMPORARY EROSION AND SEDIMENTATION (E&S) CONTROL MEASURES MUST BE PROPERLY INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE APPROVED PLANS AND MANUFACTURERS SPECIFICATIONS. IF INSPECTIONS INDICATE A CONTROL HAS BEEN USED INAPPROPRIATELY, OR INCORRECTLY, THE APPLICANT MUST REPLACE OR MODIFY THE CONTROL FOR SITE SITUATIONS. THESE CONTROLS MUST REMAIN IN PLACE UNTIL THE DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED.
6. ANY SEDIMENT THAT ESCAPES THE CONSTRUCTION SITE MUST BE COLLECTED AND PROPERLY DISPOSED OF BEFORE THE NEXT RAIN EVENT TO ENSURE IT IS NOT WASHED INTO SURFACE STREAMS, SENSITIVE FEATURES, ETC.
7. SEDIMENT MUST BE REMOVED FROM SEDIMENT TRAPS OR SEDIMENTATION BASINS NOT LATER THAN WHEN IT OCCUPIES 50% OF THE BASIN'S DESIGN CAPACITY.
8. LITTER, CONSTRUCTION DEBRIS, AND CONSTRUCTION CHEMICALS EXPOSED TO STORMWATER SHALL BE PREVENTED FROM BEING DISCHARGED OFFSITE.
9. ALL SPOILS (EXCAVATED MATERIAL) GENERATED FROM THE PROJECT SITE MUST BE STORED ON-SITE WITH PROPER E&S CONTROLS. FOR STORAGE OR DISPOSAL OF SPOILS AT ANOTHER SITE ON THE EDWARDS AQUIFER RECHARGE ZONE, THE OWNER OF THE SITE MUST RECEIVE APPROVAL OF A WATER POLLUTION ABATEMENT PLAN FOR THE PLACEMENT OF FILL MATERIAL OR MASS GRADING PRIOR TO THE PLACEMENT OF SPOILS AT THE OTHER SITE.
10. IF PORTIONS OF THE SITE WILL HAVE A TEMPORARY OR PERMANENT CEASE IN CONSTRUCTION ACTIVITY LASTING LONGER THAN 14 DAYS, SOIL STABILIZATION IN THOSE AREAS SHALL BE INITIATED AS SOON AS POSSIBLE PRIOR TO THE 14TH DAY OF INACTIVITY. IF ACTIVITY WILL RESUME PRIOR TO THE 21ST DAY, STABILIZATION MEASURES ARE NOT REQUIRED. IF DROUGHT CONDITIONS OR INCLEMENT WEATHER PREVENT ACTION BY THE 14TH DAY, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS POSSIBLE.
11. THE FOLLOWING RECORDS SHALL BE MAINTAINED AND MADE AVAILABLE TO THE TCEQ UPON REQUEST:
   - -THE DATES WHEN MAJOR GRADING ACTIVITIES OCCUR;
   - -THE DATES WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON A PORTION OF THE SITE; AND
   - -THE DATES WHEN STABILIZATION MEASURES ARE INITIATED.
12. THE HOLDER OF ANY APPROVED EDWARD AQUIFER PROTECTION PLAN MUST NOTIFY THE APPROPRIATE REGIONAL OFFICE IN WRITING AND OBTAIN APPROVAL FROM THE EXECUTIVE DIRECTOR PRIOR TO INITIATING ANY OF THE FOLLOWING:
   - A. ANY PHYSICAL OR OPERATIONAL MODIFICATION OF ANY WATER POLLUTION ABATEMENT STRUCTURE(S), INCLUDING BUT NOT LIMITED TO PONDS, DAMS, BERMS, SEWAGE TREATMENT PLANTS, AND DIVERSIONARY STRUCTURES;
   - B. ANY CHANGE IN THE NATURE OR CHARACTER OF THE REGULATED ACTIVITY FROM THAT WHICH WAS ORIGINALLY APPROVED OR A CHANGE WHICH WOULD SIGNIFICANTLY IMPACT THE ABILITY OF THE PLAN TO PREVENT POLLUTION OF THE EDWARDS AQUIFER;
   - C. ANY DEVELOPMENT OF LAND PREVIOUSLY IDENTIFIED AS UNDEVELOPED IN THE ORIGINAL WATER POLLUTION ABATEMENT PLAN.

TCEQ REGION 11 OFFICE
12100 PARK 35 CIRCLE,
BUILDING A, RM 179
AUSTIN, TEXAS 78753-3795
PHONE: (512) 339-2929
FAX: (512) 339-3795

TCEQ - SEWAGE COLLECTION SYSTEM PLAN NOTES

1. THIS ORGANIZED SEWAGE COLLECTION SYSTEM (SCS) MUST BE CONSTRUCTED IN ACCORDANCE WITH 30 TEXAS ADMINISTRATIVE CODE (TAC) §213.5(C), THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY'S (TCEQ) EDWARDS AQUIFER RULES AND ANY LOCAL GOVERNMENT STANDARD SPECIFICATIONS.
2. ALL CONTRACTORS CONDUCTING REGULATED ACTIVITIES ASSOCIATED WITH THIS PROPOSED REGULATED PROJECT MUST BE PROVIDED WITH COPIES OF THE SCS PLAN AND THE TCEQ LETTER INDICATING THE SPECIFIC CONDITIONS OF ITS APPROVAL. DURING THE COURSE OF THESE REGULATED ACTIVITIES, THE CONTRACTORS MUST BE REQUIRED TO KEEP ON-SITE COPIES OF THE PLAN AND THE APPROVAL LETTER.
3. A WRITTEN NOTICE OF CONSTRUCTION MUST BE SUBMITTED TO THE PRESIDING TCEQ REGIONAL OFFICE AT LEAST 48 HOURS PRIOR TO THE START OF ANY REGULATED ACTIVITIES. THIS NOTICE MUST INCLUDE:
   - -THE NAME OF THE APPROVED PROJECT;
   - -THE ACTIVITY START DATE; AND
   - -THE CONTACT INFORMATION OF THE PRIME CONTRACTOR.
4. ANY MODIFICATION TO THE ACTIVITIES DESCRIBED IN THE REFERENCED SCS APPLICATION FOLLOWING THE DATE OF APPROVAL MAY REQUIRE THE SUBMITTAL OF AN SCS APPLICATION TO MODIFY THIS APPROVAL, INCLUDING THE PAYMENT OF APPROPRIATE FEES AND ALL INFORMATION NECESSARY FOR ITS REVIEW AND APPROVAL.
5. PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITY, ALL TEMPORARY EROSION AND SEDIMENTATION (E&S) CONTROL MEASURES MUST BE PROPERLY INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS. THESE CONTROLS MUST REMAIN IN PLACE UNTIL THE DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED.
6. IF ANY SENSITIVE FEATURES ARE DISCOVERED DURING THE WASTEWATER LINE TRENCHING ACTIVITIES, ALL REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MUST BE SUSPENDED IMMEDIATELY. THE APPLICANT MUST IMMEDIATELY NOTIFY THE APPROPRIATE REGIONAL OFFICE OF THE TCEQ OF THE FEATURE DISCOVERED. A GEOLOGIST'S ASSESSMENT OF THE LOCATION AND EXTENT OF THE FEATURE DISCOVERED MUST BE REPORTED TO THAT REGIONAL OFFICE IN WRITING AND THE APPLICANT MUST SUBMIT A PLAN FOR ENSURING THE STRUCTURAL INTEGRITY OF THE SEWER LINE OR FOR MODIFYING THE PROPOSED COLLECTION SYSTEM ALIGNMENT AROUND THE FEATURE. THE REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MAY NOT PROCEED UNTIL THE EXECUTIVE DIRECTOR HAS REVIEWED AND APPROVED THE METHODS PROPOSED TO PROTECT THE SENSITIVE FEATURE AND THE EDWARDS AQUIFER FROM ANY POTENTIALLY ADVERSE IMPACTS TO WATER QUALITY WHILE MAINTAINING THE STRUCTURAL INTEGRITY OF THE LINE.
7. SEWER LINES LOCATED WITHIN OR CROSSING THE 5-YEAR FLOODPLAIN OF A DRAINAGE WAY WILL BE PROTECTED FROM INUNDATION AND STREAM VELOCITIES WHICH COULD CAUSE EROSION AND SCOURING OF BACKFILL. THE TRENCH MUST BE CAPPED WITH CONCRETE TO PREVENT SCOURING OF BACKFILL, OR THE SEWER LINES MUST BE ENCASED IN CONCRETE. ALL CONCRETE SHALL HAVE A MINIMUM THICKNESS OF 6 INCHES.
8. BLASTING PROCEDURES FOR PROTECTION OF EXISTING SEWER LINES AND OTHER UTILITIES WILL BE IN ACCORDANCE WITH THE NATIONAL FIRE PROTECTION ASSOCIATION CRITERIA. SAND IS NOT ALLOWED AS BEDDING OR BACKFILL IN TRENCHES THAT HAVE BEEN BLASTED. IF ANY EXISTING SEWER LINES ARE DAMAGED, THE LINES MUST BE REPAIRED AND RETESTED.
9. ALL MANHOLES CONSTRUCTED OR REHABILITATED ON THIS PROJECT MUST HAVE WATERTIGHT SIZE ON SIZE RESILIENT CONNECTORS ALLOWING FOR DIFFERENTIAL SETTLEMENT. IF MANHOLES ARE CONSTRUCTED WITHIN THE 100-YEAR FLOODPLAIN, THE COVER MUST HAVE A GASKET AND BE BOLTED TO THE RING. WHERE GASKETED MANHOLE COVERS ARE REQUIRED FOR MORE THAN THREE MANHOLES IN SEQUENCE OR FOR MORE THAN 1500 FEET, ALTERNATE MEANS OF VENTING WILL BE PROVIDED. BRICKS ARE NOT AN ACCEPTABLE CONSTRUCTION MATERIAL FOR ANY PORTION OF THE MANHOLE.

   THE DIAMETER OF THE MANHOLES MUST BE A MINIMUM OF FOUR FEET AND THE MANHOLE FOR ENTRY MUST HAVE A MINIMUM CLEAR OPENING DIAMETER OF 30 INCHES. THESE DIMENSIONS AND OTHER DETAILS SHOWING COMPLIANCE WITH THE COMMISSION'S RULES CONCERNING MANHOLES AND SEWER LINE/MANHOLE INVERTS DESCRIBED IN 30 TAC §217.55 ARE INCLUDED ON PLAN SHEET 68 OF 76.

   IT IS SUGGESTED THAT ENTRANCE INTO MANHOLES IN EXCESS OF FOUR FEET DEEP BE ACCOMPLISHED BY MEANS OF A PORTABLE LADDER. THE INCLUSION OF STEPS IN A MANHOLE IS PROHIBITED.
10. WHERE WATER LINES AND NEW SEWER LINE ARE INSTALLED WITH A SEPARATION DISTANCE CLOSER THAN NINE FEET (I.E., WATER LINES CROSSING WASTEWATER LINES, WATER LINES PARALLELING WASTEWATER LINES, OR WATER LINES NEXT TO MANHOLES) THE INSTALLATION MUST MEET THE REQUIREMENTS OF 30 TAC §217.53(D) (PIPE DESIGN) AND 30 TAC §290.44(E) (WATER DISTRIBUTION).
11. WHERE SEWERS LINES DEVIATE FROM STRAIGHT ALIGNMENT AND UNIFORM GRADE ALL CURVATURE OF SEWER PIPE MUST BE ACHIEVED BY THE FOLLOWING PROCEDURE WHICH IS RECOMMENDED BY THE PIPE MANUFACTURER: NONE

    IF PIPE FLEXURE IS PROPOSED, THE FOLLOWING METHOD OF PREVENTING DEFLECTION OF THE JOINT MUST BE USED: NO FLEXURE PROPOSED

    SPECIFIC CARE MUST BE TAKEN TO ENSURE THAT THE JOINT IS PLACED IN THE CENTER OF THE TRENCH AND PROPERLY BEDDED IN ACCORDANCE WITH 30 TAC §217.54.
12. NEW SEWAGE COLLECTION SYSTEM LINES MUST BE CONSTRUCTED WITH STUB OUTS FOR THE CONNECTION OF ANTICIPATED EXTENSIONS. THE LOCATION OF SUCH STUB OUTS MUST BE MARKED ON THE GROUND SUCH THAT THEIR LOCATION CAN BE EASILY DETERMINED AT THE TIME OF CONNECTION OF THE EXTENSIONS. SUCH STUB OUTS MUST BE MANUFACTURED WYES OR TEES THAT ARE COMPATIBLE IN SIZE AND MATERIAL WITH BOTH THE SEWER LINE AND THE EXTENSION. AT THE TIME OF ORIGINAL CONSTRUCTION, NEW STUB-OUTS MUST BE CONSTRUCTED SUFFICIENTLY TO EXTEND BEYOND THE END OF THE STREET PAVEMENT. ALL STUB-OUTS MUST BE SEALED WITH A MANUFACTURED CAP TO PREVENT LEAKAGE. EXTENSIONS THAT WERE NOT ANTICIPATED AT THE TIME OF ORIGINAL CONSTRUCTION OR THAT ARE TO BE CONNECTED TO AN EXISTING SEWER LINE NOT FURNISHED WITH STUB OUTS MUST BE CONNECTED USING A MANUFACTURED SADDLE AND IN ACCORDANCE WITH ACCEPTED PLUMBING TECHNIQUES.

    ~~IF NO STUB-OUT IS PRESENT AN ALTERNATE METHOD OF JOINING LATERALS IS SHOWN IN THE DETAIL ON PLAN SHEET N/A OF N/A. (FOR POTENTIAL FUTURE LATERALS).~~

    ~~THE PRIVATE SERVICE LATERAL STUB-OUTS MUST BE INSTALLED AS SHOWN ON THE PLAN AND PROFILE SHEETS ON PLAN SHEET N/A OF N/A AND MARKED AFTER BACKFILLING AS SHOWN IN THE DETAIL ON PLAN SHEET N/A OF N/A.~~
13. TRENCHING, BEDDING AND BACKFILL MUST CONFORM WITH 30 TAC §217.54. THE BEDDING AND BACKFILL FOR FLEXIBLE PIPE MUST COMPLY WITH THE STANDARDS OF ASTM D-2321, CLASSES IA, IB, II OR III. RIGID PIPE BEDDING MUST COMPLY WITH THE REQUIREMENTS OF ASTM C 12 (ANSI A 106.2) CLASSES A, B OR C.
14. SEWER LINES MUST BE TESTED FROM MANHOLE TO MANHOLE. WHEN A NEW SEWER LINE IS CONNECTED TO AN EXISTING STUB OR CLEAN-OUT, IT MUST BE TESTED FROM EXISTING MANHOLE TO NEW MANHOLE. IF A STUB OR CLEAN-OUT IS USED AT THE END OF THE PROPOSED SEWER LINE, NO PRIVATE SERVICE ATTACHMENTS MAY BE CONNECTED BETWEEN THE LAST MANHOLE AND THE CLEANOUT UNLESS IT CAN BE CERTIFIED AS CONFORMING WITH THE PROVISIONS OF 30 TAC §213.5(C)(3)(E).
15. ALL SEWER LINES MUST BE TESTED IN ACCORDANCE WITH 30 TAC §217.57. THE ENGINEER MUST RETAIN COPIES OF ALL TEST RESULTS WHICH MUST BE MADE AVAILABLE TO THE EXECUTIVE DIRECTOR UPON REQUEST. THE ENGINEER MUST CERTIFY IN WRITING THAT ALL WASTEWATER LINES HAVE PASSED ALL REQUIRED TESTING TO THE APPROPRIATE REGIONAL OFFICE WITHIN 30 DAYS OF TEST COMPLETION AND PRIOR TO USE OF THE NEW COLLECTION SYSTEM. TESTING METHOD WILL BE:

(A) FOR A COLLECTION SYSTEM PIPE THAT WILL TRANSPORT WASTEWATER BY GRAVITY FLOW, THE DESIGN MUST SPECIFY AN INFILTRATION AND EXFILTRATION TEST OR A LOW-PRESSURE AIR TEST. A TEST MUST CONFORM TO THE FOLLOWING REQUIREMENTS:
(1) LOW PRESSURE AIR TEST.
(A) A LOW PRESSURE AIR TEST MUST FOLLOW THE PROCEDURES DESCRIBED IN AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) C-828, ASTM C-924, OR ASTM F-1417 OR OTHER PROCEDURE APPROVED BY THE EXECUTIVE DIRECTOR, EXCEPT AS TO TESTING TIMES AS REQUIRED IN TABLE C.3 IN SUBPARAGRAPH (C) OF THIS PARAGRAPH OR EQUATION C.3 IN SUBPARAGRAPH (B)(II) OF THIS PARAGRAPH.
(B) FOR SECTIONS OF COLLECTION SYSTEM PIPE LESS THAN 36 INCH AVERAGE INSIDE DIAMETER, THE FOLLOWING PROCEDURE MUST APPLY, UNLESS A PIPE IS TO BE TESTED AS REQUIRED BY PARAGRAPH (2) OF THIS SUBSECTION.
(i) A PIPE MUST BE PRESSURIZED TO 3.5 POUNDS PER SQUARE INCH (PSI) GREATER THAN THE PRESSURE EXERTED BY GROUNDWATER ABOVE THE PIPE.
(ii) ONCE THE PRESSURE IS STABILIZED, THE MINIMUM TIME ALLOWABLE FOR THE PRESSURE TO DROP FROM 3.5 PSI GAUGE TO 2.5 PSI GAUGE IS COMPUTED FROM THE FOLLOWING EQUATION:

EQUATION C.3

$$T = (0.085 * D * K) / Q$$

WHERE:

T = TIME FOR PRESSURE TO DROP 1.0 POUND PER SQUARE INCH GAUGE IN SECONDS
K = 0.000419 X D X L, BUT NOT LESS THAN 1.0
D = AVERAGE INSIDE PIPE DIAMETER IN INCHES
L = LENGTH OF LINE OF SAME SIZE BEING TESTED, IN FEET
L = LENGTH OF LINE OF SAME SIZE BEING TESTED, IN FEET
Q = RATE OF LOSS, 0.0015 CUBIC FEET PER MINUTE PER SQUARE FOOT INTERNAL SURFACE

(C) SINCE A K VALUE OF LESS THAN 1.0 MAY NOT BE USED, THE MINIMUM TESTING TIME FOR EACH PIPE DIAMETER IS SHOWN IN THE FOLLOWING TABLE C.3:

PIPE DIAMETER (IN)	MINIMUM TIME (SEC)	MAXIMUM LENGTH FOR MINIMUM TIME (FT)	TIME FOR LONGER LENGTH (SEC/FT)
6	340	398	0.8550
8	454	298	1.5200
10	567	239	2.3740
12	680	199	3.4190
15	850	159	5.3420
18	1020	133	7.6930
21	1190	114	10.4710
24	1360	100	13.6760
27	1530	88	17.3090
30	1700	80	21.3690
33	1870	72	25.8560

(D) AN OWNER MAY STOP A TEST IF NO PRESSURE LOSS HAS OCCURRED DURING THE FIRST 25% OF THE CALCULATED TESTING TIME.
(E) IF ANY PRESSURE LOSS OR LEAKAGE HAS OCCURRED DURING THE FIRST 25% OF TESTING PERIOD, THEN THE TEST MUST CONTINUE FOR THE ENTIRE TEST DURATION AS OUTLINED ABOVE OR UNTIL FAILURE.

(F) WASTEWATER COLLECTION SYSTEM PIPES WITH A 27 INCH OR LARGER AVERAGE INSIDE DIAMETER MAY BE AIR TESTED AT EACH JOINT INSTEAD OF FOLLOWING THE PROCEDURE OUTLINED IN THIS SECTION.
(G) A TESTING PROCEDURE FOR PIPE WITH AN INSIDE DIAMETER GREATER THAN 33 INCHES MUST BE APPROVED BY THE EXECUTIVE DIRECTOR.
(2) INFILTRATION/EXFILTRATION TEST.
(A) THE TOTAL EXFILTRATION, AS DETERMINED BY A HYDROSTATIC HEAD TEST, MUST NOT EXCEED 50 GALLONS PER INCH OF DIAMETER PER MILE OF PIPE PER 24 HOURS AT A MINIMUM TEST HEAD OF 2.0 FEET ABOVE THE CROWN OF A PIPE AT AN UPSTREAM MANHOLE.
(B) AN OWNER SHALL USE AN INFILTRATION TEST IN LIEU OF AN EXFILTRATION TEST WHEN PIPES ARE INSTALLED BELOW THE GROUNDWATER LEVEL.
(C) THE TOTAL EXFILTRATION, AS DETERMINED BY A HYDROSTATIC HEAD TEST, MUST NOT EXCEED 50 GALLONS PER INCH DIAMETER PER MILE OF PIPE PER 24 HOURS AT A MINIMUM TEST HEAD OF TWO FEET ABOVE THE CROWN OF A PIPE AT AN UPSTREAM MANHOLE, OR AT LEAST TWO FEET ABOVE EXISTING GROUNDWATER LEVEL, WHICHEVER IS GREATER.
(D) FOR CONSTRUCTION WITHIN A 25-YEAR FLOOD PLAIN, THE INFILTRATION OR EXFILTRATION MUST NOT EXCEED 10 GALLONS PER INCH DIAMETER PER MILE OF PIPE PER 24 HOURS AT THE SAME MINIMUM TEST HEAD AS IN SUBPARAGRAPH (C) OF THIS PARAGRAPH.
(E) IF THE QUANTITY OF INFILTRATION OR EXFILTRATION EXCEEDS THE MAXIMUM QUANTITY SPECIFIED, AN OWNER SHALL UNDERTAKE REMEDIAL ACTION IN ORDER TO REDUCE THE INFILTRATION OR EXFILTRATION TO AN AMOUNT WITHIN THE LIMITS SPECIFIED. AN OWNER SHALL RETEST A PIPE FOLLOWING A REMEDIATION ACTION.
(B) IF A GRAVITY COLLECTION PIPE IS COMPOSED OF FLEXIBLE PIPE, DEFLECTION TESTING IS ALSO REQUIRED. THE FOLLOWING PROCEDURES MUST BE FOLLOWED:
(1) FOR A COLLECTION PIPE WITH INSIDE DIAMETER LESS THAN 27 INCHES, DEFLECTION MEASUREMENT REQUIRES A RIGID MANDREL.
(A) MANDREL SIZING.
(I) A RIGID MANDREL MUST HAVE AN OUTSIDE DIAMETER (OD) NOT LESS THAN 95% OF THE BASE INSIDE DIAMETER (ID) OR AVERAGE ID OF A PIPE, AS SPECIFIED IN THE APPROPRIATE STANDARD BY THE ASTMS, AMERICAN WATER WORKS ASSOCIATION, UNI-BELL, OR AMERICAN NATIONAL STANDARDS INSTITUTE, OR ANY RELATED APPENDIX.
(II) IF A MANDREL SIZING DIAMETER IS NOT SPECIFIED IN THE APPROPRIATE STANDARD, THE MANDREL MUST HAVE AN OD EQUAL TO 95% OF THE ID OF A PIPE. IN THIS CASE, THE ID OF THE PIPE, FOR THE PURPOSE OF DETERMINING THE OD OF THE MANDREL, MUST EQUAL BE THE AVERAGE OUTSIDE DIAMETER MINUS TWO MINIMUM WALL THICKNESSES FOR OD CONTROLLED PIPE AND THE AVERAGE INSIDE DIAMETER FOR ID CONTROLLED PIPE.
(III) ALL DIMENSIONS MUST MEET THE APPROPRIATE STANDARD.
(B) MANDREL DESIGN.
(I) A RIGID MANDREL MUST BE CONSTRUCTED OF A METAL OR A RIGID PLASTIC MATERIAL THAT CAN WITHSTAND 200 PSI WITHOUT BEING DEFORMED.
(II) A MANDREL MUST HAVE NINE OR MORE ODD NUMBER OF RUNNERS OR LEGS.
(III) A BARREL SECTION LENGTH MUST EQUAL AT LEAST 75% OF THE INSIDE DIAMETER OF A PIPE.
(IV) EACH SIZE MANDREL MUST USE A SEPARATE PROVING RING.
(C) METHOD OPTIONS.
(I) AN ADJUSTABLE OR FLEXIBLE MANDREL IS PROHIBITED.
(II) A TEST MAY NOT USE TELEVISION INSPECTION AS A SUBSTITUTE FOR A DEFLECTION TEST.
(III) IF REQUESTED, THE EXECUTIVE DIRECTOR MAY APPROVE THE USE OF A DEFLECTOMETER OR A MANDREL WITH REMOVABLE LEGS OR RUNNERS ON A CASE-BY-CASE BASIS.
(2) FOR A GRAVITY COLLECTION SYSTEM PIPE WITH AN INSIDE DIAMETER 27 INCHES AND GREATER, OTHER TEST METHODS MAY BE USED TO DETERMINE VERTICAL DEFLECTION.
(3) A DEFLECTION TEST METHOD MUST BE ACCURATE TO WITHIN PLUS OR MINUS 0.2% DEFLECTION.
(4) AN OWNER SHALL NOT CONDUCT A DEFLECTION TEST UNTIL AT LEAST 30 DAYS AFTER THE FINAL BACKFILL.
(5) GRAVITY COLLECTION SYSTEM PIPE DEFLECTION MUST NOT EXCEED FIVE PERCENT (5%).
(6) IF A PIPE SECTION FAILS A DEFLECTION TEST, AN OWNER SHALL CORRECT THE PROBLEM AND CONDUCT A SECOND TEST AFTER THE FINAL BACKFILL HAS BEEN IN PLACE AT LEAST 30 DAYS.

16. ALL MANHOLES MUST BE TESTED TO MEET OR EXCEED THE REQUIREMENTS OF 30 TAC §217.58.

(A) ALL MANHOLES MUST PASS A LEAKAGE TEST.
(B) AN OWNER SHALL TEST EACH MANHOLE (AFTER ASSEMBLY AND BACKFILLING) FOR LEAKAGE, SEPARATE AND INDEPENDENT OF THE COLLECTION SYSTEM PIPES, BY HYDROSTATIC EXFILTRATION TESTING, VACUUM TESTING, OR OTHER METHOD APPROVED BY THE EXECUTIVE DIRECTOR.
(1) HYDROSTATIC TESTING.
(A) THE MAXIMUM LEAKAGE FOR HYDROSTATIC TESTING OR ANY ALTERNATIVE TEST METHODS IS 0.025 GALLONS PER FOOT DIAMETER PER FOOT OF MANHOLE DEPTH PER HOUR.
(B) TO PERFORM A HYDROSTATIC EXFILTRATION TEST, AN OWNER SHALL SEAL ALL WASTEWATER PIPES COMING INTO A MANHOLE WITH AN INTERNAL PIPE PLUG, FILL THE MANHOLE WITH WATER, AND MAINTAIN THE TEST FOR AT LEAST ONE HOUR.
(C) A TEST FOR CONCRETE MANHOLES MAY USE A 24-HOUR WETTING PERIOD BEFORE TESTING TO ALLOW SATURATION OF THE CONCRETE.
(2) VACUUM TESTING.
(A) TO PERFORM A VACUUM TEST, AN OWNER SHALL PLUG ALL LIFT HOLES AND EXTERIOR JOINTS WITH A NON-SHRINK GROUT AND PLUG ALL PIPES ENTERING A MANHOLE.
(B) NO GROUT MUST BE PLACED IN HORIZONTAL JOINTS BEFORE TESTING.
(C) STUB-OUTS, MANHOLE BOOTS, AND PIPE PLUGS MUST BE SECURED TO PREVENT MOVEMENT WHILE A VACUUM IS DRAWN.
(D) AN OWNER SHALL USE A MINIMUM 60 INCH/LB TORQUE WRENCH TO TIGHTEN THE EXTERNAL CLAMPS THAT SECURE A TEST COVER TO THE TOP OF A MANHOLE.
(E) A TEST HEAD MUST BE PLACED AT THE INSIDE OF THE TOP OF A CONE SECTION, AND THE SEAL INFLATED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
(F) THERE MUST BE A VACUUM OF 10 INCHES OF MERCURY INSIDE A MANHOLE TO PERFORM A VALID TEST.
(G) A TEST DOES NOT BEGIN UNTIL AFTER THE VACUUM PUMP IS OFF.
(H) A MANHOLE PASSES THE TEST IF AFTER 2.0 MINUTES AND WITH ALL VALVES CLOSED, THE VACUUM IS AT LEAST 9.0 INCHES OF MERCURY.

17. ALL PRIVATE SERVICE LATERALS MUST BE INSPECTED AND CERTIFIED IN ACCORDANCE WITH 30 TAC §213.5(C)(3)(I). AFTER INSTALLATION OF AND, PRIOR TO COVERING AND CONNECTING A PRIVATE SERVICE LATERAL TO AN EXISTING ORGANIZED SEWAGE COLLECTION SYSTEM, A TEXAS LICENSED PROFESSIONAL ENGINEER, TEXAS REGISTERED SANITARIAN, OR APPROPRIATE CITY INSPECTOR MUST VISUALLY INSPECT THE PRIVATE SERVICE LATERAL AND THE CONNECTION TO THE SEWAGE COLLECTION SYSTEM, AND CERTIFY THAT IT IS CONSTRUCTED IN CONFORMITY WITH THE APPLICABLE PROVISIONS OF THIS SECTION. THE OWNER OF THE COLLECTION SYSTEM MUST MAINTAIN SUCH CERTIFICATIONS FOR FIVE YEARS AND FORWARD COPIES TO THE APPROPRIATE REGIONAL OFFICE UPON REQUEST. CONNECTIONS MAY ONLY BE MADE TO AN APPROVED SEWAGE COLLECTION SYSTEM.

BENCHMARKS

BASIS OF BEARINGS IS THE TEXAS COORDINATE SYSTEM OF 1983, CENTRAL ZONE (4203). ALL COORDINATES AND DISTANCES SHOWN HEREON ARE GRID VALUES. THE UNIT OF LINEAR MEASUREMENT IS U.S. SURVEY FEET.

BM #104 - 1/2-INCH IRON ROD SET IN THE CENTER MEDIAN OF COUNTY ROAD 175, ±67 FEET NORTH OF THE INTERSECTION OF MINERAL DRIVE AND COUNTY ROAD 175, ±73 FEET WEST OF A FIBER OPTIC RISER IN THE EASTERLY RIGHT-OF-WAY LINE OF COUNTY ROAD 175.

N: 10178313.802'
E: 3101940.730'
ELEV.= 906.44'

BM #105 - 1/2-INCH IRON ROD SET IN THE WESTERLY RIGHT-OF-WAY OF COUNTY ROAD 175, ±695 FEET SOUTH OF THE INTERSECTION OF MINERAL DRIVE AND COUNTY ROAD 175, ± 56 FEET EAST OF THE NORTHEAST CORNER OF A METAL SHED.

N: 10177624.355'
E: 3102276.765'
ELEV.=917.20'

No.	REVISIONS	DATE	BY

Kimley»Horn
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TEXAS REGISTERED ENGINEERING FIRM F-928

12/9/2025
STATE OF TEXAS
ALEJANDRO E. GRANADOS RICO
130084
LICENSED
PROFESSIONAL ENGINEER
Alejandro E. Granados Rico

KHA PROJECT 067783185
DATE DECEMBER 2025
SCALE: AS SHOWN
DESIGNED BY: AEG
DRAWN BY: AEG
CHECKED BY: AEG

TCEQ GENERAL NOTES

LOST WOODS ESTATES
CITY OF LEANDER
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER
3
OF 76

Plotted By:Erfurth, Kara Date:December 16, 2025 04:22:22pm File Path:K:\GEO_Civil\067783185 – MI Homes Leander Simpson Tracts\Cad\Construction Plans\PlanSheets\C-General Notes.dwg
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KH GENERAL NOTES

OVERALL:

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THESE PLANS, CITY (OR TOWN) STANDARD DETAILS AND SPECIFICATIONS, THE FINAL GEOTECHNICAL REPORT AND ALL ISSUED ADDENDA, AND COMMONLY ACCEPTED CONSTRUCTION STANDARDS. THE CITY SPECIFICATIONS SHALL GOVERN WHERE OTHER SPECIFICATIONS DO NOT EXIST. IN CASE OF CONFLICTING SPECIFICATIONS OR DETAILS, THE MORE RESTRICTIVE SPECIFICATION AND DETAIL SHALL BE FOLLOWED.
2. THE CONTRACTOR SHALL COMPLY WITH CITY (OR TOWN) "GENERAL NOTES" FOR CONSTRUCTION, IF EXISTING AND REQUIRED BY THE CITY. FOR INSTANCES WHERE THEY CONFLICT WITH THESE KH GENERAL NOTES, THEN THE MORE RESTRICTIVE SHALL APPLY.
3. THE CONTRACTOR SHALL FURNISH ALL MATERIAL AND LABOR TO CONSTRUCT THE FACILITY AS SHOWN AND DESCRIBED IN THE CONSTRUCTION DOCUMENTS IN ACCORDANCE WITH THE APPROPRIATE AUTHORITIES' SPECIFICATIONS AND REQUIREMENTS.
4. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING TO DETERMINE EXISTING CONDITIONS.
5. THE EXISTING CONDITIONS SHOWN ON THESE PLANS WERE PROVIDED BY THE TOPOGRAPHIC SURVEY PREPARED BY THE PROJECT SURVEYOR, AND ARE BASED ON THE BENCHMARKS SHOWN. THE CONTRACTOR SHALL REFERENCE THE SAME BENCHMARKS.
6. THE CONTRACTOR SHALL REVIEW AND VERIFY THE EXISTING TOPOGRAPHIC SURVEY SHOWN ON THE PLANS REPRESENTS EXISTING FIELD CONDITIONS PRIOR TO CONSTRUCTION, AND SHALL REPORT ANY DISCREPANCIES FOUND TO THE OWNER AND ENGINEER IMMEDIATELY.
7. IF THE CONTRACTOR DOES NOT ACCEPT THE EXISTING TOPOGRAPHIC SURVEY AS SHOWN ON THE PLANS, WITHOUT EXCEPTION, THEN THE CONTRACTOR SHALL SUPPLY AT THEIR OWN EXPENSE, A TOPOGRAPHIC SURVEY BY A REGISTERED PROFESSIONAL LAND SURVEYOR TO THE OWNER AND ENGINEER FOR REVIEW.
8. CONTRACTOR SHALL PROVIDE ALL CONSTRUCTION SURVEYING AND STAKING.
9. CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL CONTROL, INCLUDING BENCHMARKS PRIOR TO COMMENCING CONSTRUCTION OR STAKING OF IMPROVEMENTS. PROPERTY LINES AND CORNERS SHALL BE HELD AS THE HORIZONTAL CONTROL.
10. THE CONTRACTOR SHALL REVIEW AND VERIFY ALL DIMENSIONS, ELEVATIONS, AND FIELD CONDITIONS THAT MAY AFFECT CONSTRUCTION. ANY DISCREPANCIES ON THE DRAWINGS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER BEFORE COMMENCING WORK. NO FIELD CHANGES OR DEVIATIONS FROM DESIGN ARE TO BE MADE WITHOUT PRIOR APPROVAL OF THE ARCHITECT, ENGINEER, AND IF APPLICABLE THE CITY AND OWNER. NO CONSIDERATION WILL BE GIVEN TO CHANGE ORDERS FOR WHICH THE CITY, ENGINEER, AND OWNER WERE NOT CONTACTED PRIOR TO CONSTRUCTION OF THE AFFECTED ITEM.
11. CONTRACTOR SHALL THOROUGHLY CHECK COORDINATION OF CIVIL, LANDSCAPE, MEP, ARCHITECTURAL, AND OTHER PLANS PRIOR TO COMMENCING CONSTRUCTION. OWNER/ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCY PRIOR TO COMMENCING WITH CONSTRUCTION.
12. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE VARIOUS UTILITY COMPANIES WHICH MAY HAVE BURIED OR AERIAL UTILITIES WITHIN OR NEAR THE CONSTRUCTION AREA BEFORE COMMENCING WORK TO HAVE THEM LOCATE THEIR EXISTING UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE AN ADEQUATE MINIMUM NOTICE TO ALL UTILITY COMPANIES PRIOR TO BEGINNING CONSTRUCTION.
13. CONTRACTOR SHALL CALL TEXAS 811 AN ADEQUATE AMOUNT OF TIME PRIOR TO COMMENCING CONSTRUCTION OR ANY EXCAVATION.
14. CONTRACTOR SHALL USE EXTREME CAUTION AS THE SITE CONTAINS VARIOUS KNOWN AND UNKNOWN PUBLIC AND PRIVATE UTILITIES.
15. THE LOCATIONS, ELEVATIONS, DEPTH, AND DIMENSIONS OF EXISTING UTILITIES SHOWN ON THE PLANS WERE OBTAINED FROM AVAILABLE UTILITY COMPANY MAPS AND PLANS, AND ARE CONSIDERED APPROXIMATE AND INCOMPLETE. IT SHALL BE THE CONTRACTORS' RESPONSIBILITY TO VERIFY THE PRESENCE, LOCATION, ELEVATION, DEPTH, AND DIMENSION OF EXISTING UTILITIES SUFFICIENTLY IN ADVANCE OF CONSTRUCTION SO THAT ADJUSTMENTS CAN BE MADE TO PROVIDE ADEQUATE CLEARANCES. THE ENGINEER SHALL BE NOTIFIED WHEN A PROPOSED IMPROVEMENT CONFLICTS WITH AN EXISTING UTILITY.
16. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING ANY ADJUSTMENTS AND RELOCATIONS OF EXISTING UTILITIES THAT CONFLICT WITH THE PROPOSED IMPROVEMENTS, INCLUDING BUT NOT LIMITED TO, ADJUSTING EXISTING MANHOLES TO MATCH PROPOSED GRADE, RELOCATING EXISTING POLES AND GUY WIRES THAT ARE LOCATED IN PROPOSED DRIVEWAYS, ADJUSTING THE HORIZONTAL OR VERTICAL ALIGNMENT OF EXISTING UNDERGROUND UTILITIES TO ACCOMMODATE PROPOSED GRADE OR CROSSING WITH A PROPOSED UTILITY, AND ANY OTHERS THAT MAY BE ENCOUNTERED THAT ARE UNKNOWN AT THIS TIME AND NOT SHOWN ON THESE PLANS.
17. CONTRACTOR SHALL ARRANGE FOR OR PROVIDE, AT ITS EXPENSE, ALL GAS, TELECOMMUNICATIONS, CABLE, OVERHEAD AND UNDERGROUND POWER LINE, AND UTILITY POLE ADJUSTMENTS NEEDED.
18. CONTRACTOR IS RESPONSIBLE FOR COORDINATING INSTALLATION OF FRANCHISE UTILITIES THAT ARE NECESSARY FOR ON-SITE AND OFF-SITE CONSTRUCTION, AND SERVICE TO THE PROPOSED DEVELOPMENT.
19. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ALL DAMAGES DUE TO THE CONTRACTORS' FAILURE TO EXACTLY LOCATE AND PRESERVE ALL UTILITIES. THE OWNER OR ENGINEER WILL ASSUME NO LIABILITY FOR ANY DAMAGES SUSTAINED OR COST INCURRED BECAUSE OF THE OPERATIONS IN THE VICINITY OF EXISTING UTILITIES OR STRUCTURES. IF IT IS NECESSARY TO SHORE, BRACE, SWING OR RELOCATE A UTILITY, THE UTILITY COMPANY OR DEPARTMENT AFFECTED SHALL BE CONTACTED BY THE CONTRACTOR AND THEIR PERMISSION OBTAINED REGARDING THE METHOD TO USE FOR SUCH WORK.
20. BRACING OF UTILITY POLES MAY BE REQUIRED BY THE UTILITY COMPANIES WHEN TRENCHING OR EXCAVATING IN CLOSE PROXIMITY TO THE POLES. THE COST OF BRACING POLES WILL BE BORNE BY THE CONTRACTOR, WITH NO SEPARATE PAY ITEM FOR THIS WORK. THE COST IS INCIDENTAL TO THE PAY ITEM.
21. CONTRACTOR SHALL USE ALL NECESSARY SAFETY PRECAUTIONS TO AVOID CONTACT WITH OVERHEAD AND UNDERGROUND POWER LINES. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LOCAL, STATE, FEDERAL AND UTILITY OWNER REGULATIONS PERTAINING TO WORK SETBACKS FROM POWER LINES.
22. THE CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN ALL REQUIRED CONSTRUCTION PERMITS, APPROVALS, AND BONDS PRIOR TO CONSTRUCTION.
23. THE CONTRACTOR SHALL HAVE AVAILABLE AT THE JOB SITE AT ALL TIMES A COPY OF THE CONTRACT DOCUMENTS INCLUDING PLANS, GEOTECHNICAL REPORT AND ADDENDA, PROJECT AND CITY SPECIFICATIONS, AND SPECIAL CONDITIONS, COPIES OF ANY REQUIRED CONSTRUCTION PERMITS, EROSION CONTROL PLANS, SWPPP AND INSPECTION REPORTS.
24. ALL SHOP DRAWINGS AND OTHER DOCUMENTS THAT REQUIRE ENGINEER REVIEW SHALL BE SUBMITTED BY THE CONTRACTOR SUFFICIENTLY IN ADVANCE OF CONSTRUCTION OF THAT ITEM, SO THAT NO LESS THAN 10 BUSINESS DAYS FOR REVIEW AND RESPONSE IS AVAILABLE.
25. ALL NECESSARY INSPECTIONS AND/OR CERTIFICATIONS REQUIRED BY CODES, JURISDICTIONAL AGENCIES, AND/OR UTILITY SERVICE COMPANIES SHALL BE PERFORMED PRIOR TO USE OF THE FACILITY AND THE FINAL CONNECTION OF SERVICES.
26. CONTRACTOR SHALL ARRANGE FOR REQUIRED CITY INSPECTIONS.
27. CONTRACTOR'S BID PRICE SHALL INCLUDE ALL INSPECTION FEES.
28. ALL SYMBOLS SHOWN ON THESE PLANS (E.G. FIRE HYDRANT, METERS, VALVES, INLETS, ETC.…) ARE FOR PRESENTATION PURPOSES ONLY AND ARE NOT TO SCALE. CONTRACTOR SHALL COORDINATE FINAL SIZES AND LOCATIONS WITH APPROPRIATE CITY INSPECTOR.
29. THE SCOPE OF WORK FOR THE CIVIL IMPROVEMENTS SHOWN ON THESE PLANS TERMINATES 5-FEET FROM THE BUILDING. REFERENCE THE BUILDING PLANS (E.G. ARCHITECTURAL, STRUCTURAL, MEP) FOR AREAS WITHIN 5-FEET OF THE BUILDING AND WITHIN THE BUILDING FOOTPRINT.
30. REFER TO ARCHITECTURAL AND STRUCTURAL PLANS FOR ALL FINAL BUILDING DIMENSIONS.
31. THE PROPOSED BUILDING FOOTPRINT(S) SHOWN IN THESE PLANS WAS PROVIDED TO KIMLEY-HORN AND ASSOCIATES, INC. (KH) BY THE PROJECT ARCHITECT AT THE TIME THESE PLANS WERE PREPARED. IT MAY NOT BE THE FINAL CORRECT VERSION BECAUSE THE BUILDING DESIGN WAS ONGOING. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR CONFIRMING THE FINAL CORRECT VERSION OF THE BUILDING FOOTPRINT WITH THE ARCHITECT AND STRUCTURAL ENGINEER PRIOR TO LAYOUT. DIMENSIONS AND/OR COORDINATES SHOWN ON THESE PLANS WERE BASED ON THE ABOVE STATED ARCHITECTURAL FOOTPRINT, AND ARE THEREFORE A PRELIMINARY LOCATION OF THE BUILDING. THE CONTRACTOR IS SOLELY RESPONSIBLE TO VERIFY WHAT PART OF THE BUILDING THE ARCHITECT'S FOOTPRINT REPRESENTS (E.G. SLAB, OUTSIDE WALL, MASONRY LEDGE, ETC.….) AND TO CONFIRM ITS FINAL POSITION ON THE SITE BASED ON THE FINAL ARCHITECTURAL FOOTPRINT, CIVIL DIMENSION CONTROL PLAN, SURVEY BOUNDARY AND/OR PLAT. ANY DIFFERENCES FOUND SHALL BE REPORTED TO KH IMMEDIATELY.
32. ALL CONSTRUCTION SHALL COMPLY WITH THE PROJECT'S FINAL GEOTECHNICAL REPORT (OR LATEST EDITION), INCLUDING SUBSEQUENT ADDENDA.
33. CONTRACTOR IS RESPONSIBLE FOR ALL MATERIALS TESTING AND CERTIFICATION, UNLESS SPECIFIED OTHERWISE BY OWNER. ALL MATERIALS TESTING SHALL BE COORDINATED WITH THE APPROPRIATE CITY INSPECTOR AND COMPLY WITH CITY STANDARD SPECIFICATIONS AND GEOTECHNICAL REPORT. TESTING SHALL BE PERFORMED BY AN APPROVED INDEPENDENT AGENCY FOR TESTING MATERIALS. OWNER SHALL APPROVE THE AGENCY NOMINATED BY THE CONTRACTOR FOR MATERIALS TESTING.
34. ALL COPIES OF MATERIALS TEST RESULTS SHALL BE SENT TO THE OWNER, ENGINEER AND ARCHITECT DIRECTLY FROM THE TESTING AGENCY.
35. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO SHOW, BY THE STANDARD TESTING PROCEDURES OF THE MATERIALS, THAT THE WORK CONSTRUCTED MEETS THE PROJECT REQUIREMENTS AND CITY SPECIFICATIONS.
36. DUE TO THE POTENTIAL FOR DIFFERENTIAL SOIL MOVEMENT ADJACENT TO THE BUILDING, THE CONTRACTOR SHALL ADHERE TO GEOTECHNICAL REPORT'S RECOMMENDATION FOR SUBGRADE PREPARATION SPECIFIC TO FLATWORK ADJACENT TO THE PROPOSED BUILDING. THE OWNER AND CONTRACTOR ARE ADVISED TO OBTAIN A GEOTECHNICAL ENGINEER RECOMMENDATION SPECIFIC TO FLATWORK ADJACENT TO THE BUILDING, IF NONE IS CURRENTLY EXISTING.
37. ALL CONTRACTORS MUST CONFINE THEIR ACTIVITIES TO THE WORK AREA. NO ENCROACHMENTS OUTSIDE OF THE WORK AREA WILL BE ALLOWED. ANY DAMAGE RESULTING THEREFROM SHALL BE CONTRACTOR'S SOLE RESPONSIBILITY TO REPAIR.
38. THE CONTRACTOR SHALL PROTECT ALL EXISTING STRUCTURES, UTILITIES, MANHOLES, POLES, GUY WIRES, VALVE COVERS, VAULT LIDS, FIRE HYDRANTS, COMMUNICATION BOXES/PEDESTALS, AND OTHER FACILITIES TO REMAIN AND SHALL REPAIR ANY DAMAGES AT NO COST TO THE OWNER.
39. THE CONTRACTOR SHALL IMMEDIATELY REPAIR OR REPLACE ANY PHYSICAL DAMAGE TO PRIVATE PROPERTY OR PUBLIC IMPROVEMENTS, INCLUDING BUT NOT LIMITED TO: FENCES, WALLS, SIGNS, PAVEMENT, CURBS, UTILITIES, SIDEWALKS, GRASS, TREES, LANDSCAPING, AND IRRIGATION SYSTEMS, ETC.… TO ORIGINAL CONDITION OR BETTER AT NO COST TO THE OWNER.
40. ALL AREAS IN EXISTING RIGHT-OF-WAY DISTURBED BY SITE CONSTRUCTION SHALL BE REPAIRED TO ORIGINAL CONDITION OR BETTER, INCLUDING AS NECESSARY GRADING, LANDSCAPING, CULVERTS, AND PAVEMENT.
41. THE CONTRACTOR SHALL SALVAGE ALL EXISTING POWER POLES, SIGNS, WATER VALVES, FIRE HYDRANTS, METERS, ETC... THAT ARE TO BE RELOCATED DURING CONSTRUCTION.
42. CONTRACTOR SHALL MAINTAIN ADEQUATE SITE DRAINAGE DURING ALL PHASES OF CONSTRUCTION, INCLUDING MAINTAINING EXISTING DITCHES OR CULVERTS FREE OF OBSTRUCTIONS AT ALL TIMES.
43. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND SUBMITTING A TRENCH SAFETY PLAN, PREPARED BY A PROFESSIONAL ENGINEER IN THE STATE OF TEXAS, TO THE CITY PRIOR TO CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING TRENCH SAFETY REQUIREMENTS IN ACCORDANCE WITH CITY, STATE, AND FEDERAL REQUIREMENTS, INCLUDING OSHA FOR ALL TRENCHES. NO OPEN TRENCHES SHALL BE ALLOWED OVERNIGHT WITHOUT PRIOR WRITTEN APPROVAL OF THE CITY.
44. THE CONTRACTOR SHALL KEEP TRENCHES FREE FROM WATER.
45. SITE SAFETY IS SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.
46. THESE PLANS DO NOT EXTEND TO OR INCLUDE DESIGNS OR SYSTEMS PERTAINING TO THE SAFETY OF THE CONTRACTOR OR ITS EMPLOYEES, AGENTS OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK. THE ENGINEER'S SEAL HEREON DOES NOT EXTEND TO ANY SUCH SAFETY SYSTEM. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTATION OF ALL REQUIRED SAFETY PROCEDURES AND PROGRAMS.
47. SIGNS RELATED TO SITE OPERATION OR SAFETY ARE NOT INCLUDED IN THESE PLANS.
48. CONTRACTOR OFFICE AND STAGING AREA SHALL BE AGREED ON BY THE OWNER AND CONTRACTOR PRIOR TO BEGINNING OF CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR ALL PERMITTING REQUIREMENTS FOR THE CONSTRUCTION OFFICE, TRAILER, STORAGE, AND STAGING OPERATIONS AND LOCATIONS.
49. LIGHT POLES, SIGNS, AND OTHER OBSTRUCTIONS SHALL NOT BE PLACED IN ACCESSIBLE ROUTES.
50. ALL SIGNS, PAVEMENT MARKINGS, AND OTHER TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".
51. TOP RIM ELEVATIONS OF ALL EXISTING AND PROPOSED MANHOLES SHALL BE COORDINATED WITH TOP OF PAVEMENT OR FINISHED GRADE AND SHALL BE ADJUSTED TO BE FLUSH WITH THE ACTUAL FINISHED GRADE AT THE TIME OF PAVING.
52. CONTRACTOR SHALL ADJUST ALL EXISTING AND PROPOSED VALVES, FIRE HYDRANTS, AND OTHER UTILITY APPURTENANCES TO MATCH ACTUAL FINISHED GRADES AT THE TIME OF PAVING.
53. THE CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTION SEQUENCING AND PHASING, AND SHALL CONTACT THE APPROPRIATE CITY OFFICIALS, INCLUDING BUILDING OFFICIAL, ENGINEERING INSPECTOR, AND FIRE MARSHALL TO LEARN OF ANY REQUIREMENTS.
54. CONTRACTOR IS RESPONSIBLE FOR PREPARATION, SUBMITTAL, AND APPROVAL BY THE CITY OF A TRAFFIC CONTROL PLAN PRIOR TO THE START OF CONSTRUCTION, AND THEN THE IMPLEMENTATION OF THE PLAN.
55. CONTRACTOR SHALL KEEP A NEAT AND ACCURATE RECORD OF CONSTRUCTION, INCLUDING ANY DEVIATIONS OR VARIANCES FROM THE PLANS.
56. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AS-BUILT PLANS TO THE ENGINEER AND CITY IDENTIFYING ALL DEVIATIONS AND VARIATIONS FROM THESE PLANS MADE DURING CONSTRUCTION.

EROSION CONTROL:

1. THE CONTRACTOR SHALL COMPLY WITH ALL LOCAL, STATE, AND FEDERAL EROSION CONTROL AND WATER QUALITY REQUIREMENTS, LAWS, AND ORDINANCES THAT APPLY TO THE CONSTRUCTION SITE LAND DISTURBANCE.
2. CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF THE "TCEQ GENERAL PERMIT TO DISCHARGE UNDER THE TEXAS POLLUTANT DISCHARGE ELIMINATION SYSTEM TXR 150000".
3. EROSION CONTROL DEVICES SHOWN ON THE EROSION CONTROL PLAN FOR THE PROJECT SHALL BE INSTALLED PRIOR TO THE START OF LAND DISTURBANCE.
4. ALL EROSION CONTROL DEVICES ARE TO BE INSTALLED IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS FOR THE PROJECT.
5. CONTRACTOR IS SOLELY RESPONSIBLE FOR INSTALLATION, IMPLEMENTATION, MAINTENANCE, AND EFFECTIVENESS OF ALL EROSION CONTROL DEVICES, BEST MANAGEMENT PRACTICES (BMPS), AND FOR UPDATING THE EROSION CONTROL PLAN DURING CONSTRUCTION AS FIELD CONDITIONS CHANGE.
6. CONTRACTOR SHALL DOCUMENT THE DATES OF INSTALLATION, MAINTENANCE OR MODIFICATION, AND REMOVAL FOR EACH BMP EMPLOYED IN THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IF APPLICABLE.
7. AS STORM SEWER INLETS ARE INSTALLED ON-SITE, TEMPORARY EROSION CONTROL DEVICES SHALL BE INSTALLED AT EACH INLET PER APPROVED DETAILS.
8. THE EROSION CONTROL DEVICES SHALL REMAIN IN PLACE UNTIL THE AREA IT PROTECTS HAS BEEN PERMANENTLY STABILIZED.
9. CONTRACTOR SHALL PROVIDE ADEQUATE EROSION CONTROL DEVICES NEEDED DUE TO PROJECT PHASING.
10. CONTRACTOR SHALL OBSERVE THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES AND MAKE FIELD ADJUSTMENTS AND MODIFICATIONS AS NEEDED TO PREVENT SEDIMENT FROM LEAVING THE SITE. IF THE EROSION CONTROL DEVICES DO NOT EFFECTIVELY CONTROL EROSION AND PREVENT SEDIMENTATION FROM WASHING OFF THE SITE, THEN THE CONTRACTOR SHALL NOTIFY THE ENGINEER.
11. OFF-SITE SOIL BORROW, SPOIL, AND STORAGE AREAS (IF APPLICABLE) ARE CONSIDERED AS PART OF THE PROJECT SITE AND MUST ALSO COMPLY WITH THE EROSION CONTROL REQUIREMENTS FOR THIS PROJECT. THIS INCLUDES THE INSTALLATION OF BMP'S TO CONTROL EROSION AND SEDIMENTATION AND THE ESTABLISHMENT OF PERMANENT GROUND COVER ON DISTURBED AREAS PRIOR TO FINAL APPROVAL OF THE PROJECT. CONTRACTOR IS RESPONSIBLE FOR MODIFYING THE SWPPP AND EROSION CONTROL PLAN TO INCLUDE BMPS FOR ANY OFF-SITE THAT ARE NOT ANTICIPATED OR SHOWN ON THE EROSION CONTROL PLAN.
12. ALL STAGING, STOCKPILES, SPOIL, AND STORAGE SHALL BE LOCATED SUCH THAT THEY WILL NOT ADVERSELY AFFECT STORM WATER QUALITY. PROTECTIVE MEASURES SHALL BE PROVIDED IF NEEDED TO ACCOMPLISH THIS REQUIREMENT, SUCH AS COVERING OR ENCIRCLING THE AREA WITH AN APPROPRIATE BARRIER.
13. CONTRACTORS SHALL INSPECT ALL EROSION CONTROL DEVICES, BMPS, DISTURBED AREAS, AND VEHICLE ENTRY AND EXIT AREAS WEEKLY AND WITHIN 24 HOURS OF ALL RAINFALL EVENTS OF 0.5 INCHES OR GREATER, AND KEEP A RECORD OF THIS INSPECTION IN THE SWPPP BOOKLET IF APPLICABLE, TO VERIFY THAT THE DEVICES AND EROSION CONTROL PLAN ARE FUNCTIONING PROPERLY.
14. CONTRACTOR SHALL CONSTRUCT A STABILIZED CONSTRUCTION ENTRANCE AT ALL PRIMARY POINTS OF ACCESS IN ACCORDANCE WITH CITY SPECIFICATIONS. CONTRACTOR SHALL ENSURE THAT ALL CONSTRUCTION TRAFFIC USES THE STABILIZED ENTRANCE AT ALL TIMES FOR ALL INGRESS/EGRESS.
15. SITE ENTRY AND EXITS SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT THE TRACKING AND FLOWING OF SEDIMENT AND DIRT ONTO OFF-SITE ROADWAYS. ALL SEDIMENT AND DIRT FROM THE SITE THAT IS DEPOSITED ONTO AN OFF-SITE ROADWAY SHALL BE REMOVED IMMEDIATELY.
16. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING ALL SILT AND DEBRIS FROM THE AFFECTED OFF-SITE ROADWAYS THAT ARE A RESULT OF THE CONSTRUCTION, AS REQUESTED BY OWNER AND CITY. AT A MINIMUM, THIS SHOULD OCCUR ONCE PER DAY FOR THE OFF-SITE ROADWAYS.
17. WHEN WASHING OF VEHICLES IS REQUIRED TO REMOVE SEDIMENT PRIOR TO EXITING THE SITE, IT SHALL BE DONE IN AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP BMP.
18. CONTRACTOR SHALL INSTALL A TEMPORARY SEDIMENT BASIN FOR ANY ON-SITE DRAINAGE AREAS THAT ARE GREATER THAN 10 ACRES, PER TCEQ AND CITY STANDARDS. IF NO ENGINEERING DESIGN HAS BEEN PROVIDED FOR A SEDIMENTATION BASIN ON THESE PLANS, THEN THE CONTRACTOR SHALL ARRANGE FOR AN APPROPRIATE DESIGN TO BE PROVIDED.
19. ALL FINES IMPOSED FOR SEDIMENT OR DIRT DISCHARGED FROM THE SITE SHALL BE PAID BY THE RESPONSIBLE CONTRACTOR.
20. WHEN SEDIMENT OR DIRT HAS CLOGGED THE CONSTRUCTION ENTRANCE VOID SPACES BETWEEN STONES OR DIRT IS BEING TRACKED ONTO A ROADWAY, THE AGGREGATE PAD MUST BE WASHED DOWN OR REPLACED. RUNOFF FROM THE WASH-DOWN OPERATION SHALL NOT BE ALLOWED TO DRAIN DIRECTLY OFF SITE WITHOUT FIRST FLOWING THROUGH ANOTHER BMP TO CONTROL SEDIMENTATION. PERIODIC RE-GRADING OR NEW STONE MAY BE REQUIRED TO MAINTAIN THE EFFECTIVENESS OF THE CONSTRUCTION ENTRANCE.
21. TEMPORARY SEEDING OR OTHER APPROVED STABILIZATION SHALL BE INITIATED WITHIN 14 DAYS OF THE LAST DISTURBANCE OF ANY AREA, UNLESS ADDITIONAL CONSTRUCTION IN THE AREA IS EXPECTED WITHIN 21 DAYS OF THE LAST DISTURBANCE.
22. CONTRACTOR SHALL FOLLOW GOOD HOUSEKEEPING PRACTICES DURING CONSTRUCTION, ALWAYS CLEANING UP DIRT, LOOSE MATERIAL, AND TRASH AS CONSTRUCTION PROGRESSES.
23. UPON COMPLETION OF FINE GRADING, ALL SURFACES OF DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED. STABILIZATION IS ACHIEVED WHEN THE AREA IS EITHER COVERED BY PERMANENT IMPERVIOUS STRUCTURES, SUCH AS BUILDINGS, SIDEWALK, PAVEMENT, OR A UNIFORM PERENNIAL VEGETATIVE COVER.
24. AT THE CONCLUSION OF THE PROJECT, ALL INLETS, DRAIN PIPE, CHANNELS, DRAINAGEWAYS AND BORROW DITCHES AFFECTED BY THE CONSTRUCTION SHALL BE DREDGED, AND THE SEDIMENT GENERATED BY THE PROJECT SHALL BE REMOVED AND DISPOSED IN ACCORDANCE WITH APPLICABLE REGULATIONS.
25. ANY SEQUENCE OF CONSTRUCTION SHOWN HEREON IS A GENERAL OVERVIEW AND IS INTENDED TO CONVEY THE GENERAL CONCEPTS OF THE EROSION CONTROL DESIGN AND SHOULD NOT BE RELIED UPON FOR CONSTRUCTION PURPOSES. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR DETAILED PHASING AND CONSTRUCTION SEQUENCING NECESSARY TO CONSTRUCT THE PROPOSED IMPROVEMENTS INCLUDED IN THESE PLANS. THE CONTRACTOR SHALL NOTIFY ENGINEER IN WRITING IMMEDIATELY, PRIOR TO AND/OR DURING CONSTRUCTION IF ANY ADDITIONAL INFORMATION ON THE CONSTRUCTION SEQUENCE IS NECESSARY. CONTRACTOR IS SOLELY RESPONSIBLE FOR COMPLYING WITH THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION AND ALL OTHER APPLICABLE LAWS.

STORM WATER DISCHARGE AUTHORIZATION:

1. CONTRACTOR SHALL COMPLY WITH ALL TCEQ AND EPA STORM WATER POLLUTION PREVENTION REQUIREMENTS.
2. CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF THE TCEQ GENERAL PERMIT TO DISCHARGE UNDER THE TEXAS POLLUTANT DISCHARGE ELIMINATION SYSTEM TXR 150000.
3. THE CONTRACTOR SHALL ENSURE THAT ALL PRIMARY OPERATORS SUBMIT A NOI TO TCEQ AT LEAST SEVEN DAYS PRIOR TO COMMENCING CONSTRUCTION (IF APPLICABLE), OR IF UTILIZING ELECTRONIC SUBMITTAL, PRIOR TO COMMENCING CONSTRUCTION. ALL PRIMARY OPERATORS SHALL PROVIDE A COPY OF THE SIGNED NOI TO THE OPERATOR OF ANY MS4 (TYPICALLY THE CITY) RECEIVING DISCHARGE FROM THE SITE.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR THE IMPLEMENTATION OF THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IF APPLICABLE, INCLUDING POSTING SITE NOTICE, INSPECTIONS, DOCUMENTATION, AND SUBMISSION OF ANY INFORMATION REQUIRED BY THE TCEQ AND EPA (E.G. NOI).
5. ALL CONTRACTORS AND SUBCONTRACTORS PROVIDING SERVICES RELATED TO THE SWPPP SHALL SIGN THE REQUIRED CONTRACTOR CERTIFICATION STATEMENT ACKNOWLEDGING THEIR RESPONSIBILITIES AS SPECIFIED IN THE SWPPP.
6. A COPY OF THE SWPPP, INCLUDING NOI, SITE NOTICE, CONTRACTOR CERTIFICATIONS, AND ANY REVISIONS, SHALL BE SUBMITTED TO THE CITY BY THE CONTRACTOR AND SHALL BE RETAINED ON-SITE DURING CONSTRUCTION.
7. A NOTICE OF TERMINATION (NOT) SHALL BE SUBMITTED TO TCEQ BY ANY PRIMARY OPERATOR WITHIN 30 DAYS AFTER ALL SOIL DISTURBING ACTIVITIES AT THE SITE HAVE BEEN COMPLETED AND A UNIFORM VEGETATIVE COVER HAS BEEN ESTABLISHED ON ALL UNPAVED AREAS AND AREAS NOT COVERED BY STRUCTURES, A TRANSFER OF OPERATIONAL CONTROL HAS OCCURRED, OR THE OPERATOR HAS OBTAINED ALTERNATIVE AUTHORIZATION UNDER A DIFFERENT PERMIT. A COPY OF THE NOT SHALL BE PROVIDED TO THE OPERATOR OF ANY MS4 RECEIVING DISCHARGE FROM THE SITE.

DEMOLITION:

1. KH IS NOT RESPONSIBLE FOR THE MEANS AND METHODS EMPLOYED BY THE CONTRACTOR TO IMPLEMENT THIS DEMOLITION PLAN. THIS PRELIMINARY DEMOLITION PLAN SIMPLY INDICATES THE KNOWN OBJECTS ON THE SUBJECT TRACT THAT ARE TO BE DEMOLISHED AND REMOVED FROM THE SITE.
2. KH DOES NOT WARRANT OR REPRESENT THAT THE PLAN, WHICH WAS PREPARED BASED ON SURVEY AND UTILITY INFORMATION PROVIDED BY OTHERS, SHOWS ALL IMPROVEMENTS AND UTILITIES, THAT THE IMPROVEMENTS AND UTILITIES ARE SHOWN ACCURATELY, OR THAT THE UTILITIES SHOWN CAN BE REMOVED. THE CONTRACTOR IS RESPONSIBLE FOR PERFORMING ITS OWN SITE RECONNAISSANCE TO SCOPE ITS WORK AND TO CONFIRM WITH THE OWNERS OF IMPROVEMENTS AND UTILITIES THE ABILITY AND PROCESS FOR THE REMOVAL OF THEIR FACILITIES.
3. THIS PLAN IS INTENDED TO GIVE A GENERAL GUIDE TO THE CONTRACTOR, NOTHING MORE. THE GOAL OF THE DEMOLITION IS TO LEAVE THE SITE IN A STATE SUITABLE FOR THE CONSTRUCTION OF THE PROPOSED DEVELOPMENT. REMOVAL OR PRESERVATION OF IMPROVEMENTS, UTILITIES, ETC. TO ACCOMPLISH THIS GOAL ARE THE RESPONSIBILITY OF THE CONTRACTOR.
4. CONTRACTOR IS STRONGLY CAUTIONED TO REVIEW THE FOLLOWING REPORTS DESCRIBING SITE CONDITIONS PRIOR TO BIDDING AND IMPLEMENTING THE DEMOLITION PLAN:
   a. ENVIRONMENTAL SITE ASSESSMENT PROVIDED BY THE OWNER,
   b. ASBESTOS BUILDING INSPECTION REPORT(S) PROVIDED BY THE OWNER,
   c. GEOTECHNICAL REPORT PROVIDED BY THE OWNER.
   d. OTHER REPORTS THAT ARE APPLICABLE AND AVAILABLE.
5. CONTRACTOR SHALL CONTACT THE OWNER TO VERIFY WHETHER ADDITIONAL REPORTS OR AMENDMENTS TO THE ABOVE CITED REPORTS HAVE BEEN PREPARED AND TO OBTAIN/REVIEW/AND COMPLY WITH THE RECOMMENDATION OF SUCH STUDIES PRIOR TO STARTING ANY WORK ON THE SITE.
6. CONTRACTOR SHALL COMPLY WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS REGARDING THE DEMOLITION OF OBJECTS ON THE SITE AND THE DISPOSAL OF THE DEMOLISHED MATERIALS OFF-SITE. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO REVIEW THE SITE, DETERMINE THE APPLICABLE REGULATIONS, RECEIVE THE REQUIRED PERMITS AND AUTHORIZATIONS, AND COMPLY.
7. KH DOES NOT REPRESENT THAT THE REPORTS AND SURVEYS REFERENCED ABOVE ARE ACCURATE, COMPLETE, OR COMPREHENSIVE SHOWING ALL ITEMS THAT WILL NEED TO BE DEMOLISHED AND REMOVED.
8. SURFACE PAVEMENT INDICATED MAY OVERLAY OTHER HIDDEN STRUCTURES, SUCH AS ADDITIONAL LAYERS OF PAVEMENT, FOUNDATIONS OR WALLS, THAT ARE ALSO TO BE REMOVED.

GRADING:

1. THE CONTRACTOR AND GRADING SUBCONTRACTOR SHALL VERIFY THE SUITABILITY OF EXISTING AND PROPOSED SITE CONDITIONS INCLUDING GRADES AND DIMENSIONS BEFORE START OF CONSTRUCTION. THE CIVIL ENGINEER SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES.
2. CONTRACTOR SHALL OBTAIN ANY REQUIRED GRADING PERMITS FROM THE CITY.
3. UNLESS OTHERWISE NOTED, PROPOSED CONTOURS AND SPOT ELEVATIONS SHOWN IN PAVED AREA REFLECT TOP OF PAVEMENT SURFACE. IN LOCATIONS ALONG A CURB LINE, ADD 6-INCHES (OR THE HEIGHT OF THE CURB) TO THE PAVING GRADE FOR TOP OF CURB ELEVATION.
4. PROPOSED SPOT ELEVATIONS AND CONTOURS OUTSIDE THE PAVEMENT ARE TO TOP OF FINISHED GRADE.
5. PROPOSED CONTOURS ARE APPROXIMATE. PROPOSED SPOT ELEVATIONS AND DESIGNATED GRADIENT ARE TO BE USED IN CASE OF DISCREPANCY.
6. ALL FINISHED GRADES SHALL TRANSITION UNIFORMLY BETWEEN THE FINISHED ELEVATIONS SHOWN.
7. CONTOURS AND SPOT GRADES SHOWN ARE ELEVATIONS OF TOP OF THE FINISHED SURFACE. WHEN PERFORMING THE GRADING OPERATIONS, THE CONTRACTOR SHALL PROVIDE AN APPROPRIATE ELEVATION HOLD-DOWN ALLOWANCE FOR THE THICKNESS OF PAVEMENT, SIDEWALK, TOPSOIL, MULCH, STONE, LANDSCAPING, RIP-RAP AND ALL OTHER SURFACE MATERIALS THAT WILL CONTRIBUTE TO THE TOP OF FINISHED GRADE. FOR EXAMPLE, THE LIMITS OF EARTHWORK IN PAVED AREAS IS THE BOTTOM OF THE PAVEMENT SECTION.
8. NO REPRESENTATIONS OF EARTHWORK QUANTITIES OR SITE BALANCE ARE MADE BY THESE PLANS. THE CONTRACTOR SHALL PROVIDE THEIR OWN EARTHWORK CALCULATION TO DETERMINE THEIR CONTRACT QUANTITIES AND COST. ANY SIGNIFICANT VARIANCE FROM A BALANCED SITE SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE CIVIL ENGINEER.
9. ALL GRADING AND EARTHWORK SHALL COMPLY WITH THE PROJECT'S FINAL GEOTECHNICAL REPORT (OR LATEST EDITION), INCLUDING SUBSEQUENT ADDENDA.
10. ALL EXCAVATION IS UNCLASSIFIED AND SHALL INCLUDE ALL MATERIALS ENCOUNTERED. UNUSABLE EXCAVATED MATERIAL AND ALL WASTE RESULTING FROM SITE CLEARING AND GRUBBING SHALL BE REMOVED FROM THE SITE AND APPROPRIATELY DISPOSED BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE.
11. EROSION CONTROL DEVICES SHOWN ON THE EROSION CONTROL PLAN FOR THE PROJECT SHALL BE INSTALLED PRIOR TO THE START OF GRADING. REFERENCE EROSION CONTROL PLAN, DETAILS, GENERAL NOTES, AND SWPPP FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
12. BEFORE ANY EARTHWORK IS PERFORMED, THE CONTRACTOR SHALL STAKE OUT AND MARK THE LIMITS OF THE PROJECT'S PROPERTY LINE AND SITE IMPROVEMENTS. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY ENGINEERING AND SURVEYING FOR LINE AND GRADE CONTROL POINTS RELATED TO EARTHWORK.
13. CONTRACTOR TO DISPOSE OF ALL EXCESS EXCAVATION MATERIALS IN A MANNER THAT ADHERES TO LOCAL, STATE AND FEDERAL LAWS AND REGULATIONS. THE CONTRACTOR SHALL KEEP A RECORD OF WHERE EXCESS EXCAVATION WAS DISPOSED, ALONG WITH THE RECEIVING LANDOWNER'S APPROVAL TO DO SO.
14. CONTRACTOR IS RESPONSIBLE FOR REMOVAL AND REPLACEMENT OF TOPSOIL AT THE COMPLETION OF FINE GRADING. CONTRACTOR SHALL REFER TO LANDSCAPE ARCHITECTURE PLANS FOR SPECIFICATIONS AND REQUIREMENTS FOR TOPSOIL.
15. CONTRACTOR SHALL MAINTAIN ADEQUATE SITE DRAINAGE DURING ALL PHASES OF CONSTRUCTION, INCLUDING MAINTAINING EXISTING DITCHES OR CULVERTS FREE OF OBSTRUCTIONS AT ALL TIMES.
16. NO EARTHWORK FILL SHALL BE PLACED IN ANY EXISTING DRAINAGE WAY, SWALE, CHANNEL, DITCH, CREEK, OR FLOODPLAIN FOR ANY REASON OR ANY LENGTH OF TIME, UNLESS THESE PLANS SPECIFICALLY INDICATE THIS IS REQUIRED.
17. TEMPORARY CULVERTS MAY BE REQUIRED IN SOME LOCATIONS TO CONVEY RUN-OFF.
18. REFER TO DIMENSION CONTROL PLAN, AND PLAT FOR HORIZONTAL DIMENSIONS.
19. THE CONTRACTOR SHALL CLEAR AND GRUB THE SITE AND PLACE, COMPACT, AND CONDITION FILL PER THE PROJECT GEOTECHNICAL ENGINEER'S SPECIFICATIONS. THE FILL MATERIAL TO BE USED SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT.
20. CONTRACTOR IS RESPONSIBLE FOR ALL SOILS TESTING AND CERTIFICATION, UNLESS SPECIFIED OTHERWISE BY OWNER. ALL SOILS TESTING SHALL BE COORDINATED WITH THE APPROPRIATE CITY INSPECTOR AND SHALL COMPLY WITH CITY STANDARD SPECIFICATIONS AND THE GEOTECHNICAL REPORT. SOILS TESTING SHALL BE PERFORMED BY AN APPROVED INDEPENDENT AGENCY FOR TESTING SOILS. THE OWNER SHALL APPROVE THE AGENCY NOMINATED BY THE CONTRACTOR FOR SOILS TESTING.
21. ALL COPIES OF SOILS TEST RESULTS SHALL BE SENT TO THE OWNER, ENGINEER AND ARCHITECT DIRECTLY FROM THE TESTING AGENCY.
22. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO SHOW, BY THE STANDARD TESTING PROCEDURES OF THE SOILS, THAT THE WORK CONSTRUCTED MEETS THE PROJECT REQUIREMENTS AND CITY SPECIFICATIONS.
23. THE SCOPE OF WORK FOR CIVIL IMPROVEMENT SHOWN ON THESE PLANS TERMINATES 5-FEET FROM THE BUILDING. CONTRACTOR SHALL REFER TO THE GEOTECHNICAL REPORT AND STRUCTURAL PLANS AND SPECIFICATIONS FILL, CONDITIONING, AND PREPARATION IN THE BUILDING PAD.
24. DUE TO THE POTENTIAL FOR DIFFERENTIAL SOIL MOVEMENT ADJACENT TO THE BUILDING, THE CONTRACTOR SHALL ADHERE TO GEOTECHNICAL REPORT'S RECOMMENDATION FOR SUBGRADE PREPARATION SPECIFIC TO FLATWORK ADJACENT TO THE PROPOSED BUILDING. THE OWNER AND CONTRACTOR ARE ADVISED TO OBTAIN A GEOTECHNICAL ENGINEER RECOMMENDATION SPECIFIC TO FLATWORK ADJACENT TO THE BUILDING, IF NONE IS CURRENTLY EXISTING.
25. CONTRACTOR SHALL ENSURE THAT SUFFICIENT POSITIVE SLOPE AWAY FROM THE BUILDING PAD IS ACHIEVED FOR ENTIRE PERIMETER OF THE PROPOSED BUILDING(S) DURING GRADING OPERATIONS AND IN THE FINAL CONDITION. IF THE CONTRACTOR OBSERVES THAT THIS WILL NOT BE ACHIEVED, THE CONTRACTOR SHALL CONTACT THE ENGINEER TO REVIEW THE LOCATION.
26. THE CONTRACTOR SHALL TAKE ALL AVAILABLE PRECAUTIONS TO CONTROL DUST. CONTRACTOR SHALL CONTROL DUST BY SPRINKLING WATER, OR BY OTHER MEANS APPROVED BY THE CITY, AT NO ADDITIONAL COST TO THE OWNER.
27. CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANIES FOR ANY REQUIRED UTILITY ADJUSTMENTS AND/OR RELOCATIONS NEEDED FOR GRADING OPERATIONS AND TO ACCOMMODATE PROPOSED GRADE, INCLUDING THE UNKNOWN UTILITIES NOT SHOWN ON THESE PLANS. CONTRACTOR SHALL REFER TO THE GENERAL NOTES "OVERALL" SECTION THESE PLANS FOR ADDITIONAL INFORMATION.
28. EXISTING TREE LOCATIONS SHOWN ON THESE PLANS ARE APPROXIMATE. CONTRACTOR SHALL REPORT ANY DISCREPANCIES FOUND IN THE FIELD THAT AFFECT THE GRADING PLAN TO THE CIVIL ENGINEER.
29. CONTRACTOR SHALL FIELD VERIFY ALL PROTECTED TREE LOCATIONS, INDIVIDUAL PROTECTED TREE CRITICAL ROOT ZONES, AND PROPOSED SITE GRADING, AND NOTIFY THE CIVIL ENGINEER AND LANDSCAPE ARCHITECT OF ANY CONFLICTS WITH THE TREE PRESERVATION PLAN BY THE LANDSCAPE ARCHITECT PRIOR TO COMMENCING THE WORK.
30. TREE PROTECTION MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH THE CITY STANDARD TREE PROTECTION DETAILS AND THE APPROVED TREE PRESERVATION PLANS BY THE LANDSCAPE ARCHITECT.
31. CONTRACTOR SHALL REFER TO THE LANDSCAPING AND TREE PRESERVATIONS PLANS FOR ALL INFORMATION AND DETAILS REGARDING EXISTING TREES TO BE REMOVED AND PRESERVED.
32. NO TREE SHALL BE REMOVED UNLESS A TREE REMOVAL PERMIT HAS BEEN ISSUED BY THE CITY, OR CITY HAS OTHERWISE CONFIRMED IN WRITING THAT ONE IS NOT NEEDED FOR THE TREE(S).
33. NO TREE SHALL BE REMOVED OR DAMAGED WITHOUT PRIOR AUTHORIZATION OF THE OWNER OR OWNER'S REPRESENTATIVE. EXISTING TREES SHALL BE PRESERVED WHENEVER POSSIBLE AND GRADING IMPACT TO THEM HELD TO A MINIMUM.
34. AFTER PLACEMENT OF SUBGRADE AND PRIOR TO PLACEMENT OF PAVEMENT, CONTRACTOR SHALL TEST AND OBSERVE PAVEMENT AREAS FOR EVIDENCE OF PONDING AND INADEQUATE SLOPE FOR DRAINAGE. ALL AREAS SHALL ADEQUATELY DRAIN TOWARDS THE INTENDED STRUCTURE TO CONVEY STORMWATER RUNOFF. CONTRACTOR SHALL IMMEDIATELY NOTIFY OWNER AND ENGINEER IF ANY AREAS OF POOR DRAINAGE ARE DISCOVERED.
35. CONTRACTOR FIELD ADJUSTMENT OF PROPOSED SPOT GRADES IS ALLOWED, IF THE APPROVAL OF THE CIVIL ENGINEER IS OBTAINED.

RETAINING WALLS:

1. RETAINING WALLS SHOWN ARE FOR SITE GRADING PURPOSES ONLY, AND INCLUDE ONLY LOCATION AND SURFACE SPOT ELEVATIONS AT THE TOP AND BOTTOM OF THE WALL.
2. RETAINING WALL TYPE OR SYSTEM SHALL BE SELECTED BY THE OWNER.
3. RETAINING WALL DESIGN SHALL BE PROVIDED BY OTHERS AND SHALL FIT IN THE WALL ZONE OR LOCATION SHOWN ON THESE PLANS. STRUCTURAL DESIGN AND PERMITTING OF RETAINING WALLS, RAILINGS, AND OTHER WALL SAFETY DEVICES SHALL BE PERFORMED BY A LICENSED ENGINEER AND ARE NOT PART OF THIS PLAN SET.
4. RETAINING WALL DESIGN SHALL MEET THE INTENT OF THE GRADING PLAN AND SHALL ACCOUNT FOR ANY INFLUENCE ON ADJACENT BUILDING FOUNDATIONS, UTILITIES, PROPERTY LINES AND OTHER CONSTRUCTABILITY NOTES.
5. RETAINING WALL ENGINEER SHALL CONSULT THESE PLANS AND THE GEOTECHNICAL REPORT FOR POTENTIAL CONFLICTS.

PAVING:

1. ALL PAVING MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THESE PLANS, THE CITY STANDARD DETAILS AND SPECIFICATIONS, THE FINAL GEOTECHNICAL REPORT AND ALL ISSUED ADDENDA, AND COMMONLY ACCEPTED CONSTRUCTION STANDARDS. THE CITY SPECIFICATIONS SHALL GOVERN WHERE OTHER SPECIFICATIONS DO NOT EXIST. IN CASE OF CONFLICTING SPECIFICATIONS OR DETAILS, THE MORE RESTRICTIVE SPECIFICATION/DETAIL SHALL BE FOLLOWED.
2. ALL PRIVATE ON-SITE PAVING AND PAVING SUBGRADE SHALL COMPLY WITH THE PROJECT'S FINAL GEOTECHNICAL REPORT (OR LATEST EDITION), INCLUDING ALL ADDENDA.
3. ALL FIRELANE PAVING AND PAVING SUBGRADE SHALL COMPLY WITH CITY STANDARDS AND DETAILS. IF THESE ARE DIFFERENT THAN THOSE IN THE GEOTECHNICAL REPORT, THEN THE MORE RESTRICTIVE SHALL BE FOLLOWED.
4. ALL PUBLIC PAVING AND PAVING SUBGRADE SHALL COMPLY WITH CITY STANDARD CONSTRUCTION DETAILS AND SPECIFICATIONS.
5. CONTRACTOR IS RESPONSIBLE FOR ALL PAVING AND PAVING SUBGRADE TESTING AND CERTIFICATION, UNLESS SPECIFIED OTHERWISE BY OWNER. ALL PAVING AND PAVING SUBGRADE TESTING SHALL BE COORDINATED WITH THE APPROPRIATE CITY INSPECTOR. TESTING SHALL BE PERFORMED BY AN APPROVED INDEPENDENT AGENCY FOR TESTING PAVING AND SUBGRADE. OWNER SHALL APPROVE THE AGENCY NOMINATED BY THE CONTRACTOR FOR PAVING AND PAVING SUBGRADE TESTING.
6. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO SHOW, BY THE STANDARD TESTING PROCEDURES OF THE PAVING AND PAVING SUBGRADE, THAT THE WORK CONSTRUCTED MEETS THE PROJECT REQUIREMENTS AND CITY SPECIFICATIONS.
7. DUE TO THE POTENTIAL FOR DIFFERENTIAL SOIL MOVEMENT ADJACENT TO THE BUILDING, THE CONTRACTOR SHALL ADHERE TO GEOTECHNICAL REPORT'S RECOMMENDATION FOR SUBGRADE PREPARATION SPECIFIC TO FLATWORK ADJACENT TO THE PROPOSED BUILDING. THE OWNER AND CONTRACTOR ARE ADVISED TO OBTAIN A GEOTECHNICAL ENGINEER RECOMMENDATION SPECIFIC TO FLATWORK ADJACENT TO THE BUILDING, IF NONE IS CURRENTLY EXISTING.
8. CURB RAMPS ALONG PUBLIC STREETS AND IN THE PUBLIC RIGHT-OF-WAY SHALL BE CONSTRUCTED BASED ON THE CITY STANDARD CONSTRUCTION DETAIL AND SPECIFICATIONS.
9. PRIVATE CURB RAMPS ON THE SITE (I.E. OUTSIDE PUBLIC STREET RIGHT-OF-WAY) SHALL CONFORM TO ADA AND TAS STANDARDS AND SHALL HAVE A DETECTABLE WARNING SURFACE THAT IS FULL WIDTH AND FULL DEPTH OF THE CURB RAMP, NOT INCLUDING FLARES.
10. ALL ACCESSIBLE RAMPS, CURB RAMPS, STRIPING, AND PAVEMENT MARKINGS SHALL CONFORM TO ADA AND TAS STANDARDS, LATEST EDITION.
11. ANY COMPONENTS OF THE PROJECT SUBJECT TO RESIDENTIAL USE SHALL ALSO CONFORM TO THE FAIR HOUSING ACT, AND COMPLY WITH THE FAIR HOUSING ACT DESIGN MANUAL BY THE US DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT.
12. CONTRACTOR SHALL CONSTRUCT PROPOSED PAVEMENT TO MATCH EXISTING PAVEMENT WITH A SMOOTH, FLUSH, CONNECTION.
13. CONTRACTOR SHALL FURNISH AND INSTALL ALL PAVEMENT MARKINGS FOR FIRE LANES, PARKING STALLS, HANDICAPPED PARKING SYMBOLS, AND MISCELLANEOUS STRIPING WITHIN PARKING LOT AND AROUND BUILDING AS SHOWN ON THE PLANS. ALL PAINT AND PAVEMENT MARKINGS SHALL ADHERE TO CITY AND OWNER STANDARDS.
14. REFER TO GEOTECHNICAL REPORT FOR PAVING JOINT LAYOUT PLAN REQUIREMENTS FOR PRIVATE PAVEMENT.
15. REFER TO CITY STANDARD DETAILS AND SPECIFICATIONS FOR JOINT LAYOUT PLAN REQUIREMENTS FOR PUBLIC PAVEMENT.
16. ALL REINFORCING STEEL SHALL CONFORM TO THE GEOTECHNICAL REPORT, CITY STANDARDS, AND ASTM A-615, GRADE 60, AND SHALL BE SUPPORTED BY BAR CHAIRS. CONTRACTOR SHALL USE THE MORE STRINGENT OF THE CITY AND GEOTECHNICAL STANDARDS.
17. ALL JOINTS SHALL EXTEND THROUGH THE CURB.
18. THE MINIMUM LENGTH OF OFFSET JOINTS AT RADIUS POINTS SHALL BE 2 FEET.
19. CONTRACTOR SHALL SUBMIT A JOINTING PLAN TO THE ENGINEER AND OWNER PRIOR TO BEGINNING ANY OF THE PAVING WORK.
20. ALL SAWCUTS SHALL BE FULL DEPTH FOR PAVEMENT REMOVAL AND CONNECTION TO EXISTING PAVEMENT.
21. FIRE LANES SHALL BE MARKED AND LABELED AS A FIRELANE PER CITY STANDARDS.
22. UNLESS THE PLANS SPECIFICALLY DICTATE TO THE CONTRARY, ON-SITE AND OTHER DIRECTIONAL SIGNS SHALL BE ORIENTED SO THEY ARE READILY VISIBLE TO THE ONCOMING TRAFFIC FOR WHICH THEY ARE INTENDED.
23. CONTRACTOR IS RESPONSIBLE FOR INSTALLING NECESSARY CONDUIT FOR LIGHTING, IRRIGATION, ETC. PRIOR TO PLACEMENT OF PAVEMENT. ALL CONSTRUCTION DOCUMENTS (CIVIL, MEP, LANDSCAPE, IRRIGATION, AND ARCHITECT) SHALL BE CONSULTED.
24. BEFORE PLACING PAVEMENT, CONTRACTOR SHALL VERIFY THAT SUITABLE ACCESSIBLE PEDESTRIAN ROUTES (PER ADA, TAS, AND FHA) EXIST TO AND FROM EVERY DOOR AND ALONG SIDEWALKS, ACCESSIBLE PARKING SPACES, ACCESS AISLES, AND ACCESSIBLE ROUTES. IN NO CASE SHALL AN ACCESSIBLE RAMP SLOPE EXCEED 1 VERTICAL TO 12 HORIZONTAL. IN NO CASE SHALL SIDEWALK CROSS SLOPE EXCEED 2.0 PERCENT. IN NO CASE SHALL LONGITUDINAL SIDEWALK SLOPE EXCEED 5.0 PERCENT. ACCESSIBLE PARKING SPACES AND ACCESS AISLES SHALL NOT EXCEED 2.0 PERCENT SLOPE IN ANY DIRECTION.
25. CONTRACTOR SHALL TAKE FIELD SLOPE MEASUREMENTS ON FINISHED SUBGRADE AND FORM BOARDS PRIOR TO PLACING PAVEMENT TO VERIFY THAT ADA/TAS SLOPE REQUIREMENTS ARE PROVIDED. CONTRACTOR SHALL CONTACT ENGINEER PRIOR TO PAVING IF ANY EXCESSIVE SLOPES ARE ENCOUNTERED. NO CONTRACTOR CHANGE ORDERS WILL BE ACCEPTED FOR ADA AND TAS SLOPE COMPLIANCE ISSUES.

STORM DRAINAGE:

1. ALL STORM SEWER MATERIALS AND CONSTRUCTION SHALL COMPLY WITH CITY STANDARD CONSTRUCTION DETAILS AND SPECIFICATIONS.
2. THE SITE UTILITY CONTRACTOR SHALL PROVIDE ALL MATERIALS AND APPURTENANCES NECESSARY FOR COMPLETE INSTALLATION OF THE STORM SEWER.
3. THE CONTRACTOR SHALL FIELD VERIFY THE SIZE, CONDITION, HORIZONTAL, AND VERTICAL LOCATIONS OF ALL EXISTING STORM SEWER FACILITIES THAT ARE TO BE CONNECTED TO, PRIOR TO START OF CONSTRUCTION OF ANY STORM SEWER, AND SHALL NOTIFY THE ENGINEER OF ANY CONFLICTS DISCOVERED.
4. THE CONTRACTOR SHALL VERIFY AND COORDINATE ALL DIMENSIONS SHOWN, INCLUDING THE HORIZONTAL AND VERTICAL LOCATION OF CURB INLETS AND GRATE INLETS AND ALL UTILITIES CROSSING THE STORM SEWER.
5. FLOW LINE, TOP-OF-CURB, RIM, THROAT, AND GRATE ELEVATIONS OF PROPOSED INLETS SHALL BE VERIFIED WITH THE GRADING PLAN AND FIELD CONDITIONS PRIOR TO THEIR INSTALLATION.
6. ALL PUBLIC STORM SEWER CONSTRUCTION, PIPE, STRUCTURES, AND FITTINGS SHALL ADHERE TO CITY PUBLIC WORKS STANDARD DETAILS AND SPECIFICATIONS. CONTRACTOR SHALL ARRANGE FOR REQUIRED CITY INSPECTIONS.
7. ALL PRIVATE STORM SEWER CONSTRUCTION, PIPE, STRUCTURES, AND FITTINGS SHALL ADHERE TO THE APPLICABLE PLUMBING CODE. CONTRACTOR SHALL ARRANGE FOR REQUIRED CITY INSPECTIONS.
8. ALL PVC TO RCP CONNECTIONS AND ALL STORM PIPE CONNECTIONS ENTERING STRUCTURES OR OTHER STORM PIPES SHALL HAVE A CONCRETE COLLAR AND BE GROUTED TO ASSURE THE CONNECTION IS WATERTIGHT.
9. ALL PUBLIC STORM SEWER LINES SHALL BE MINIMUM CLASS III RCP. PRIVATE STORM SEWER LINES 18-INCHES AND GREATER SHALL BE CLASS III RCP OR OTHER APPROVED MATERIAL.
10. WHERE COVER EXCEEDS 20-FEET OR IS LESS THAN 2-FEET, CLASS IV RCP SHALL BE USED.
11. IF CONTRACTOR PROPOSES TO USE HDPE OR PVC IN LIEU OF RCP FOR PRIVATE STORM SEWER, CONTRACTOR SHALL SUBMIT TECHNICAL DATA TO THE OWNER, ENGINEER AND CITY ENGINEER/INSPECTOR FOR APPROVAL PRIOR TO ORDERING THE MATERIAL. ANY PROPOSED HDPE AND PVC SHALL BE WATERTIGHT.
12. THE CONTRACTOR SHALL PROVIDE CONSTRUCTION SURVEYING FOR ALL STORM SEWER LINES.
13. EMBEDMENT FOR ALL STORM SEWER LINES, PUBLIC OR PRIVATE, SHALL BE PER CITY STANDARD DETAILS.
14. ALL WYE CONNECTIONS AND PIPE BENDS ARE TO BE PREFABRICATED AND INSTALLED PER MANUFACTURERS SPECIFICATIONS.
15. USE 4 FOOT JOINTS WITH BEVELED ENDS IF RADIUS OF STORM SEWER IS LESS THAN 100 FEET.
16. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND SUBMITTING A TRENCH SAFETY PLAN, PREPARED BY A PROFESSIONAL ENGINEER IN THE STATE OF TEXAS, TO THE CITY PRIOR TO CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING TRENCH SAFETY REQUIREMENTS IN ACCORDANCE WITH CITY, STATE, AND FEDERAL REQUIREMENTS, INCLUDING OSHA FOR ALL TRENCHES. NO OPEN TRENCHES SHALL BE ALLOWED OVERNIGHT WITHOUT PRIOR WRITTEN APPROVAL OF THE CITY.
17. THE CONTRACTOR SHALL KEEP TRENCHES FREE FROM WATER.

POND NOTES:

1. ANY PONDS THAT ARE INTENDED TO HOLD WATER INDEFINITELY SHALL BE CONSTRUCTED WATERTIGHT.
2. FOR ANY PONDS INTENDED TO HOLD WATER INDEFINITELY: THE CONTRACTOR SHALL REFER TO THE GEOTECHNICAL REPORT FOR POND LINER SPECIFICATIONS.
3. A GEOTECHNICAL ENGINEER SHALL REVIEW AND APPROVE ALL POND LINER MATERIAL, PLACEMENT PROCEDURES, AND PROVIDE TESTING TO ENSURE THE POND LINER MATERIAL PLACED IS WATERTIGHT.
4. STORM SEWER PIPES AND HEADWALLS THAT CONNECT TO A POND INTENDED TO HOLD WATER INDEFINITELY SHALL BE INSTALLED WITH WATERTIGHT JOINTS TO AT LEAST 1-FOOT ABOVE THE NORMAL POOL WATER SURFACE ELEVATION.
5. ANY GRAVEL OR OTHER PERVIOUS EMBEDMENT AROUND PIPES OR OUTFALL STRUCTURES NEAR THE POND SHALL BE ELIMINATED FOR AT LEAST 20-FEET FROM THE POND SO NO ROUTE FOR WATER TO LEAK THROUGH THE EMBEDMENT MATERIAL IS PROVIDED. BACKFILL IN THESE AREAS SHALL BE OF IMPERVIOUS MATERIAL.
6. FOR ANY PONDS INTENDED TO HOLD WATER INDEFINITELY: THE WATER LEVEL FOLLOWING COMPLETION AND FILLING OF THE POND SHALL BE MONITORED BY THE CONTRACTOR FOR AT LEAST 60 DAYS TO OBSERVE WATER INFLOW, OUTFLOW, AND CALCULATE EVAPORATION TO VERIFY THAT THE POND IS WATERTIGHT.
7. FOR ANY PONDS INTENDED TO HOLD WATER INDEFINITELY: THE POND WATER LEVEL SHALL ALSO BE MAINTAINED BY THE CONTRACTOR FOR THE DURATION OF CONSTRUCTION SO THAT IT REMAINS FULL TO ITS DESIGN WATER LEVEL, AND IS NOT LOWERED, AS THIS MAY DRY-OUT THE POND LINER AND RISK ITS WATERTIGHT PROPERTIES.

WATER AND WASTEWATER:

1. ALL WATER AND WASTEWATER MATERIALS AND CONSTRUCTION SHALL COMPLY WITH CITY STANDARD CONSTRUCTION DETAILS AND SPECIFICATIONS.
2. CONTRACTOR SHALL FIELD VERIFY THE SIZE, CONDITION, HORIZONTAL, AND VERTICAL LOCATIONS OF ALL EXISTING WATER AND WASTEWATER FACILITIES THAT ARE TO BE CONNECTED TO, PRIOR TO START OF CONSTRUCTION OF ANY WATER OR WASTEWATER CONSTRUCTION, AND SHALL NOTIFY THE ENGINEER OF ANY CONFLICTS DISCOVERED.
3. CONTRACTOR SHALL VERIFY AND COORDINATE ALL DIMENSIONS SHOWN, INCLUDING THE HORIZONTAL AND VERTICAL LOCATION OF ALL UTILITY SERVICES ENTERING THE BUILDING.
4. THE CONTRACTOR SHALL FIELD VERIFY THE ELEVATION OF ALL UTILITY CROSSINGS PRIOR TO THE INSTALLATION OF ANY PIPE.
5. THE SITE UTILITY CONTRACTOR SHALL PROVIDE ALL MATERIALS AND APPURTENANCES NECESSARY FOR COMPLETE INSTALLATION OF THE WATER AND WASTEWATER IMPROVEMENTS.
6. ALL PUBLIC WATER AND WASTEWATER CONSTRUCTION, PIPE, STRUCTURES, AND FITTINGS SHALL ADHERE TO CITY PUBLIC WORKS STANDARD DETAILS AND SPECIFICATIONS. CONTRACTOR SHALL ARRANGE FOR REQUIRED CITY INSPECTIONS.
7. ALL PRIVATE WATER AND WASTEWATER CONSTRUCTION, PIPE, STRUCTURES, AND FITTINGS SHALL ADHERE TO THE APPLICABLE PLUMBING CODE. CONTRACTOR SHALL ARRANGE FOR REQUIRED CITY INSPECTIONS.
8. FIRE SPRINKLER LINES SHALL BE DESIGNED AND INSTALLED BY A LICENSED FIRE SPRINKLER CONTRACTOR, AND COMPLY TO THE APPLICABLE CODES AND INSPECTIONS REQUIRED. THESE PLANS WERE PREPARED WITHOUT THE BENEFIT OF THE FIRE SPRINKLER DESIGN. CONTRACTOR SHALL NOTIFY THE ENGINEER IF ANY DISCREPANCIES.
9. EMBEDMENT FOR ALL WATER AND WASTEWATER LINES, PUBLIC OR PRIVATE, SHALL BE PER CITY STANDARD DETAILS.
10. CONTRACTOR SHALL TAKE REQUIRED SANITARY PRECAUTIONS, FOLLOWING ANY CITY, TCEQ, AND AWWA STANDARDS, TO KEEP WATER PIPE AND FITTINGS CLEAN AND CAPPED AT TIMES WHEN INSTALLATION IS NOT IN PROGRESS.
11. CONTRACTOR SHALL PROVIDE CONSTRUCTION SURVEYING FOR ALL WATER AND WASTEWATER LINES.
12. ALL WATER AND WASTEWATER SERVICES SHALL TERMINATE 5-FEET OUTSIDE THE BUILDING, UNLESS NOTED OTHERWISE.
13. CONTRACTOR SHALL COMPLY WITH CITY REQUIREMENTS FOR WATER AND WASTEWATER SERVICE DISRUPTIONS AND THE AMOUNT OF PRIOR NOTICE THAT IS REQUIRED, AND SHALL COORDINATE DIRECTLY WITH THE APPROPRIATE CITY DEPARTMENT.
14. CONTRACTOR SHALL SEQUENCE WATER AND WASTEWATER CONSTRUCTION TO AVOID INTERRUPTION OF SERVICE TO SURROUNDING PROPERTIES.
15. CONTRACTOR SHALL MAINTAIN WATER SERVICE AND WASTEWATER SERVICE TO ALL CUSTOMERS THROUGHOUT CONSTRUCTION (IF NECESSARY, BY USE OF TEMPORARY METHODS APPROVED BY THE CITY AND OWNER). THIS WORK SHALL BE CONSIDERED SUBSIDIARY TO THE PROJECT AND NO ADDITIONAL COMPENSATION SHALL BE ALLOWED.
16. THE CONTRACTOR IS RESPONSIBLE TO PROTECT ALL WATER AND WASTEWATER LINES CROSSING THE PROJECT. THE CONTRACTOR SHALL REPAIR ALL DAMAGED LINES IMMEDIATELY. ALL REPAIRS OF EXISTING WATER MAINS, WATER SERVICES, SEWER MAINS, AND SANITARY SEWER SERVICES ARE SUBSIDIARY TO THE WORK, AND NO ADDITIONAL COMPENSATION SHALL BE ALLOWED.
17. VALVE ADJUSTMENTS SHALL BE CONSTRUCTED SUCH THAT THE COVERS ARE AT FINISHED SURFACE GRADE OF THE PROPOSED PAVEMENT.
18. THE ENDS OF ALL EXISTING WATER MAINS THAT ARE CUT, BUT NOT REMOVED, SHALL BE PLUGGED AND ABANDONED IN PLACE. THIS WORK SHALL BE CONSIDERED AS A SUBSIDIARY COST TO THE PROJECT AND NO ADDITIONAL COMPENSATION SHALL BE ALLOWED.
19. ALL FIRE HYDRANTS, VALVES, TEES, BENDS, WYES, REDUCERS, FITTINGS, AND ENDS SHALL BE MECHANICALLY RESTRAINED AND/OR THRUST BLOCKED TO CITY STANDARDS.
20. CONTRACTOR SHALL INSTALL A FULL SEGMENT OF WATER OR WASTEWATER PIPE CENTERED AT ALL UTILITY CROSSINGS SO THAT THE JOINTS ARE GREATER THAN 9-FEET FROM THE CROSSING.
21. ALL CROSSINGS AND LOCATIONS WHERE WASTEWATER IS LESS THAN 9-FEET FROM WATER, WASTEWATER CONSTRUCTION AND MATERIALS SHALL COMPLY WITH TCEQ CHAPTER 217.53.
22. ALL CROSSING AND LOCATIONS WHERE WATER IS LESS THAN 9-FEET FROM WASTEWATER, WATER CONSTRUCTION AND MATERIALS SHALL COMPLY WITH TCEQ CHAPTER 290.44.
23. ALL WATER AND WASTEWATER SHALL BE TESTED IN ACCORDANCE WITH THE CITY, AWWA, AND TCEQ STANDARDS AND SPECIFICATIONS. AT A MINIMUM, THIS SHALL CONSIST OF THE FOLLOWING:
   a. ALL WATERLINES SHALL BE HYDROSTATICALLY TESTED AND CHLORINATED BEFORE BEING PLACED INTO SERVICE. CONTRACTOR SHALL COORDINATE WITH THE CITY FOR THEIR REQUIRED PROCEDURES AND SHALL ALSO COMPLY WITH TCEQ REGULATIONS.
   b. WASTEWATER LINES AND MANHOLES SHALL BE PRESSURE TESTED. CONTRACTOR SHALL COORDINATE WITH THE CITY FOR THEIR REQUIRED PROCEDURES AND SHALL ALSO COMPLY WITH TCEQ REGULATIONS. AFTER COMPLETION OF THESE TESTS, A TELEVISION INSPECTION SHALL BE PERFORMED AND PROVIDED TO THE CITY AND OWNER ON A DVD.
24. CONTRACTOR SHALL INSTALL DETECTABLE WIRING OR MARKING TAPE A MINIMUM OF 12" ABOVE WATER AND WASTEWATER LINES. MARKER DECALS SHALL BE LABELED "CAUTION - WATER LINE", OR "CAUTION - SEWER LINE". DETECTABLE WIRING AND MARKING TAPE SHALL COMPLY WITH CITY STANDARDS, AND SHALL BE INCLUDED IN THE COST OF THE WATER AND WASTEWATER PIPE.
25. DUCTILE IRON PIPE SHALL BE PROTECTED FROM CORROSION BY A LOW-DENSITY POLYETHYLENE LINER WRAP THAT IS AT LEAST A SINGLE LAYER OF 8-MIL. ALL DUCTILE IRON JOINTS SHALL BE BONDED.
26. WATERLINES SHALL BE INSTALLED AT NO LESS THAN THE MINIMUM COVER REQUIRED BY THE CITY.
27. CONTRACTOR SHALL PROVIDE CLEAN-OUTS FOR PRIVATE SANITARY SEWER LINES AT ALL CHANGES IN DIRECTION AND 100-FOOT INTERVALS, OR AS REQUIRED BY THE APPLICABLE PLUMBING CODE. CLEAN-OUTS REQUIRED IN PAVEMENT OR SIDEWALKS SHALL HAVE CAST IRON COVERS FLUSH WITH FINISHED GRADE.
28. CONTRACTOR SHALL PROVIDE BACKWATER VALVES FOR PLUMBING FIXTURES AS REQUIRED BY THE APPLICABLE PLUMBING CODE (E.G. FLOOR ELEVATION OF FIXTURE UNIT IS BELOW THE ELEVATION OF THE MANHOLE COVER OF THE NEXT UPSTREAM MANHOLE IN THE PUBLIC SEWER). CONTRACTOR SHALL REVIEW BOTH MEP AND CIVIL PLANS TO CONFIRM WHERE THESE ARE REQUIRED.
29. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND SUBMITTING A TRENCH SAFETY PLAN, PREPARED BY A PROFESSIONAL ENGINEER IN THE STATE OF TEXAS, TO THE CITY PRIOR TO CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING TRENCH SAFETY REQUIREMENTS IN ACCORDANCE WITH CITY, STATE, AND FEDERAL REQUIREMENTS, INCLUDING OSHA FOR ALL TRENCHES. NO OPEN TRENCHES SHALL BE ALLOWED OVERNIGHT WITHOUT PRIOR WRITTEN APPROVAL OF THE CITY.
30. THE CONTRACTOR SHALL KEEP TRENCHES FREE FROM WATER.

ABBREVIATIONS AND DEFINITIONS:

A	AREA
ADA	AMERICANS WITH DISABILITIES ACT
AWWA	AMERICAN WATER WORKS ASSOCIATION
B-B	BACK TO BACK
BC	BEGIN CURVE
BC	BACK OF CURB
BCR	BEGIN CURB RETURN
BMP	BEST MANAGEMENT PRACTICE
BOC	BACK OF CURB
BVCE	BEGIN VERTICAL CURVE ELEVATION
BVCS	BEGIN VERTICAL CURVE STATION
BW	BOTTOM OF WALL
CFS	CUBIC FEET PER SECOND
CITY	CITY, TOWN, OR OTHER APPLICABLE LOCAL GOVERNMENT JURISDICTION
C/L	CENTERLINE
CL	CENTERLINE
CONC	CONCRETE
CY	CUBIC YARD
DEMO	DEMOLITION
DG	DECOMPOSED GRANITE
DTL	DETAIL
EA	EACH
EC	END CURVE
ECR	END CURB RETURN
EG	EXISTING GROUND
EL	ELEVATION
ELEC	ELECTRICAL / ELECTRICITY
ELEV	ELEVATION
EPA	UNITES STATES ENVIRONMENTAL PROTECTION AGENCY
ESMT	EASEMENT
EVCE	END VERTICAL CURVE ELEVATION
EVCS	END VERTICAL CURVE STATION
EX.	EXISTING
F-F	FACE TO FACE
FG	FINISHED GROUND
FH	FIRE HYDRANT
FL	FLOW LINE
FOC	FACE OF CURB
FT	FEET
HGL	HYDRAULIC GRADE LINE
KH	KIMLEY-HORN AND ASSOCIATES, INC.
KHA	KIMLEY-HORN AND ASSOCIATES, INC.
LAT	LATERAL
LF	LINEAR FEET
LT	LEFT
MAX	MAXIMUM
ME	MATCH EXISTING ELEVATION
MH	MANHOLE
MIN	MINUTE / MINIMUM
NO	NUMBER
NOI	NOTICE OF INTENT, REF. TCEQ GENERAL PERMIT
NOT	NOTICE OF TERMINATION, REF. TCEQ GENERAL PERMIT
NTS	NOT TO SCALE
OC	ON CENTER
OFF	OFFSET
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
PC	POINT OF CURVATURE
PCC	PORTLAND CEMENT CONCRETE / POINT OF COMPOUND CURVATURE
PGL	PROPOSED GRADE LINE
PI	POINT OF INFLECTION
PROP	PROPOSED
PRC	POINT OF REVERSE CURVATURE
PSI	POUNDS PER SQUARE INCH
PT	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE
PVI	POINT OF VERTICAL INFLECTION
PVMT	PAVEMENT
RCP	REINFORCED CONCRETE PIPE
ROW	RIGHT OF WAY
RT	RIGHT
SF	SQUARE FEET
SS	SANITARY SEWER
SSMH	SANITARY SEWER MANHOLE
STA	STATION
STD	STANDARD
SY	SQUARE YARD
TAS	ARCHITECTURAL BARRIERS TEXAS ACCESSIBILITY STANDARDS
TC	TOP OF CURB
TCEQ	TEXAS COMMISSION OF ENVIRONMENTAL QUALITY
TEMP	TEMPORARY
TXDOT	TEXAS DEPARTMENT OF TRANSPORTATION
TXMUTCD	TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES
TW	TOP OF WALL
TYP	TYPICAL
VC	VERTICAL CURVE
WTR	WATER
WW	WASTEWATER

THESE PLAN AND GENERAL NOTES REFER TO:
GEOTECHNICAL ENGINEERING REPORT
(FIRM) MLA GEOTECHNICAL
25101100.106
(DATE) OCTOBER 2025
INCLUDING ALL REVISIONS AND ADDENDA TO THIS REPORT THAT MAY HAVE BEEN RELEASED AFTER THE NOTED DATE.

BENCHMARKS

SIR, ELEV.= 883.464
CONTROL POINT 102, ELEV.=868.467
CONTROL POINT 103, ELEV.=850.911

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No.	REVISIONS	DATE	BY

Kimley»Horn
© 2025 KIMLEY-HORN AND ASSOCIATES, INC.
501 S AUSTIN AVE #1310, GEORGETOWN, TX 78626
PHONE: 512-520-0768
WWW.KIMLEY-HORN.COM
TEXAS REGISTERED ENGINEERING FIRM F-928

12/9/2025
STATE OF TEXAS
ALEJANDRO E. GRANADOS RICO
130084
LICENSED PROFESSIONAL ENGINEER

KHA PROJECT 067783185
DATE DECEMBER 2025
SCALE: AS SHOWN
DESIGNED BY: AEG
DRAWN BY: AEG
CHECKED BY: AEG

KH GENERAL NOTES

LOST WOODS ESTATES
CITY OF LEANDER
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER
4
OF 76

Plotted By: Erfurth, Kara Date: December 11, 2025 03:32:25pm File Path: K:\GEO_Civil\067783185 – MI Homes Leander Simpson Tracts\Cad\Construction Plans\PlanSheets\C-KH General Notes.dwg
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Plotted By:Erfurth, Kara Date:December 11, 2025 03:32:33pm File Path:K:\GEO_Civil\067783185 – MI Homes Leander Simpson Tracts\Cad\Construction Plans\PlanSheets\C-Final Plat.dwg
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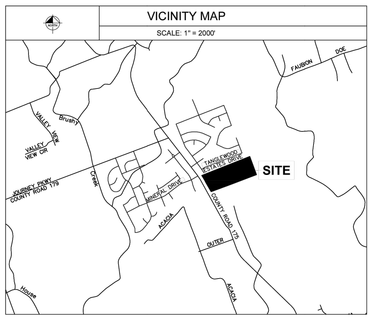
LOST WOODS ESTATES
FINAL PLAT

SUBDIVISION INFORMATION
OWNER: MI HOMES OF AUSTIN, LLC,
ACREAGE: 28.12 ACRES
SURVEY: ANASTASHA CARR SURVEY, ABSTRACT 122
SURVEYOR: KIMLEY-HORN & ASSOCIATES, INC.
ENGINEER: KIMLEY-HORN & ASSOCIATES, INC.
LINEAR FOOTAGE OF NEW STREETS: 3,907
NUMBER OF LOTS: 86
LAND USE: SINGLE-FAMILY
DATE: 10/16/2025

VICINITY MAP
SCALE: 1" = 2000



SHEET INDEX

SHEET NO.	DESCRIPTION
1 OF 4	COVER SHEET
2 OF 4	OVERALL PLAT SHEET
3 OF 4	LINE - CURVE DATA AND LOTS TABLES
4 OF 4	PLAT NOTES, SIGNATURE SHEET AND LEGAL DESCRIPTION

STREET TABLE		
STREET NAME	LINEAR FEET	PUBLIC R.O.W. WIDTH
BLENDED TREE BRANCH DRIVE	517	50'
SHADBUSH ROAD	167	74'
GOLDEN JUBILEE BEND	1,674	50'
BONSAI ROAD	1,545	50'

RELEASE OF THIS APPLICATION DOES NOT CONSTITUTE A VERIFICATION OF ALL DATA, INFORMATION AND CALCULATIONS SUPPLIED BY THE APPLICANT. THE ENGINEER OF RECORD IS SOLELY RESPONSIBLE FOR THE COMPLETENESS, ACCURACY AND ADEQUACY OF HIS/HER SUBMITTAL, WHETHER OR NOT THE APPLICATION IS REVIEWED FOR CODE COMPLIANCE BY CITY ENGINEERS.

FILING DATE: _____, 2023

OWNER/DEVELOPER:
MI HOMES OF AUSTIN, LLC
7600 N. CAPITAL OF TEXAS HWY.
BLDG. C, SUITE 250,
AUSTIN, TX 78731
TEL: 512-770-8503
CONTACT: AUSTIN EVETTS

SURVEYOR:
KIMLEY-HORN AND ASSOCIATES, INC.
10814 JOLLYVILLE ROAD, SUITE 200
AUSTIN, TEXAS 78759

CIVIL ENGINEER:
KIMLEY-HORN AND ASSOCIATES, INC.
501 S. AUSTIN AVENUE, SUITE 1310
GEORGETOWN, TEXAS 78626

FINAL PLAT
LOST WOODS ESTATES
SUBDIVISION
BEING 28.12 ACRES OUT OF THE
ANASTASHA CARR SURVEY, ABSTRACT 122
WILLIAMSON COUNTY, TEXAS

Kimley»Horn
10814 JOLLYVILLE ROAD, CAMPUS IV
SUITE 200, AUSTIN, TEXAS 78759
TBPELS FIRM # 10194624
TEL. NO. (512) 418-1771
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SCALE	DRAWN BY	CHECKED BY	DATE	PROJECT NO.	SHEET NO.
N/A	TJR	MMII	10/16/2025	067783188	1 OF 4

XXX-XXXX-XXXX.0APA

DESIGNED - RAMOS 12/5/2025 1:22 PM LAST SAVED 12/5/2025 1:51 PM
DRAWN - SIMPSON LEANDER\DRAWINGS\PLAT\SET\LOST WOODS ESTATES FLAT\FINAL PLAT-067783185_LOST WOODS ESTATES.DWG PLOTTED BY: RAMOS, KANE

NORTH

GRAPHIC SCALE IN FEET
100 0 50 100 200
1" = 100' @ 18X24

LINE TYPE LEGEND	
SUBDIVISION BOUNDARY LINE	
LOT/BLOCK/R.O.W. LINE	
ADJOINER PROPERTY LINE	
PROPOSED EASEMENT LINE	
EXISTING EASEMENT LINE	
SIDEWALK	

LEGEND	
O.P.R.W.C.T.	OFFICIAL PUBLIC RECORDS WILLIAMSON COUNTY, TEXAS
R.O.W.	RIGHT OF WAY
H.D.	HEREBY DEDICATED
S.D.E.	SIGHT DISTANCE EASEMENT
P.U.E.	PUBLIC UTILITY EASEMENT
●	1/2" IRON ROD FOUND W/ CAP (CAP NOTED)
○	1/2" IRON ROD SET W/ CAP "KHA"
△	CALCULATED POINT
(A)	SUBDIVISION BLOCK

ENGINEER'S CERTIFICATION:

I, ALEJANDRO E. GRANADOS, P.E. AM AUTHORIZED UNDER THE LAWS OF THE STATE OF TEXAS TO PRACTICE THE PROFESSION OF ENGINEERING, AND DO HEREBY STATE THAT THIS PLAT CONFORMS WITH THE APPLICABLE ORDINANCES OF THE CITY OF LEANDER, TEXAS.

NO PORTION OF THIS SUBDIVISION IS WITHIN THE BOUNDARIES OF THE 100 YEAR FLOODPLAIN ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD INSURANCE RATE MAP (FIRM) COMMUNITY PANEL NO. 4851G0460D, MAP NO. 48491C0460F, EFFECTIVE DATE: DECEMBER 20, 2019, FOR TRAVIS COUNTY, TEXAS.

ALEJANDRO E. GRANADOS, P.E.
REGISTERED PROFESSIONAL ENGINEER NO. 130084
KIMLEY-HORN AND ASSOCIATES, INC.
501 S AUSTIN AVENUE, SUITE 1310,
GEORGETOWN, TEXAS 78626

PRELIMINARY
THIS DOCUMENT SHALL NOT BE RECORDED FOR ANY PURPOSE AND SHALL NOT BE USED OR VIEWED OR RELIED UPON AS A FINAL SURVEY DOCUMENT

SURVEYOR'S CERTIFICATION:

I, MICHAEL A. MONTGOMERY II, AM AUTHORIZED UNDER THE LAWS OF THE STATE OF TEXAS TO PRACTICE THE PROFESSION OF LAND SURVEYING AND HEREBY CERTIFY THAT THIS PLAT COMPLIES WITH THE SURVEY RELATED PORTIONS OF TITLE 30, OF THE LOCAL GOVERNMENTAL CODE, IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE, AND WAS PREPARED FROM AN ACTUAL ON THE GROUND SURVEY OF THE PROPERTY MADE BY ME OR UNDER MY SUPERVISION.

PLAT COMPLETION DATE: October 16, 2025.

MICHAEL A. MONTGOMERY II, R.P.L.S.
REGISTERED PROFESSIONAL
LAND SURVEYOR NO. 6890

PRELIMINARY
THIS DOCUMENT SHALL NOT BE RECORDED FOR ANY PURPOSE AND SHALL NOT BE USED OR VIEWED OR RELIED UPON AS A FINAL SURVEY DOCUMENT

FINAL PLAT
LOST WOODS ESTATES
SUBDIVISION
BEING 28.12 ACRES OUT OF THE
ANASTASHA CARR SURVEY, ABSTRACT 122
WILLIAMSON COUNTY, TEXAS

Kimley»Horn
10814 JOLLYVILLE ROAD, CAMPUS IV
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SCALE	DRAWN BY	CHECKED BY	DATE	PROJECT NO.	SHEET NO.
1" = 100'	TJR	MMII	10/16/2025	067783188	2 OF 4

XXX-XXXX-XXXX.0APA

DESIGNED - RAMOS 12/5/2025 1:22 PM LAST SAVED 12/5/2025 1:51 PM
DRAWN - KANE_BARRY\AUSTIN SURVEY PROJECTS\067783185 - SIMPSON LEANDER\DRAWINGS\PLAT\SET\LOST WOODS ESTATES FLAT\FINAL PLAT-067783185_LOST WOODS ESTATES.DWG PLOTTED BY: RAMOS, KANE

BENCHMARKS

CP_ELEV=1000.227
CONTROL POINT 102, ELEV=988.467
CONTROL POINT 103, ELEV=950.911

SHEET NUMBER 5 OF 76	LOST WOODS ESTATES CITY OF LEANDER WILLIAMSON COUNTY, TEXAS	DRAFT FINAL PLAT (SHEET 1 OF 2)	KHA PROJECT 067783185 DATE DECEMBER 2025 SCALE: AS SHOWN DESIGNED BY: AEG DRAWN BY: AEG CHECKED BY: AEG	12/9/2025	Kimley»Horn © 2025 KIMLEY-HORN AND ASSOCIATES, INC. 501 S AUSTIN AVE #1310, GEORGETOWN, TX 78626 PHONE: 512-520-0768 WWW.KIMLEY-HORN.COM TEXAS REGISTERED ENGINEERING FIRM F-928	No. REVISIONS DATE BY

Plotted By: Erfurth, Kara Date: December 11, 2025 03:32:41pm File Path: K:\GEO_Civil\067783185 – MI Homes Leander Simpson Tracts\Cad\Construction Plans\PlanSheets\C-Final Plat.dwg
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BLOCK A			
LOT NO.	ACRES	SQ. FT.	ZONING CLASSIFICATION
1	0.207	9,000	SFU
2	0.222	9,663	SFU
3	0.194	8,447	SFU
4	0.233	10,160	SFU
5	0.319	13,888	SFU

HOA LOT AREA			
LOT NO.	ACRES	SQ. FT.	ZONING CLASSIFICATION
1	1.577	68,709	H.O.A. LOT
2	0.156	6,776	H.O.A. LOT
3	0.021	904	H.O.A. LOT

BLOCK B			
LOT NO.	ACRES	SQ. FT.	ZONING CLASSIFICATION
1	0.328	14,268	SFU
2	0.245	10,650	SFU
3	0.213	9,287	SFU
4	0.201	8,764	SFU
5	0.216	9,393	SFU
6	0.217	9,445	SFU
7	0.218	9,498	SFU
8	0.224	9,756	SFU
9	0.224	9,770	SFU
10	0.225	9,783	SFU
11	0.225	9,796	SFU
12	0.225	9,806	SFU
13	0.225	9,816	SFU
14	0.226	9,826	SFU
15	0.220	9,603	SFU
16	0.207	9,012	SFU
17	1.445	62,960	SFU
18	0.291	12,677	SFU
19	0.226	9,866	SFU
20	0.276	12,011	SFU
21	0.347	15,112	SFU

BLOCK B			
LOT NO.	ACRES	SQ. FT.	ZONING CLASSIFICATION
22	0.270	11,760	SFU
23	0.296	12,879	SFU
24	0.294	12,815	SFU
25	0.293	12,751	SFU
26	0.263	11,473	SFU
27	0.647	28,188	SFU
28	0.282	12,271	SFU
29	0.264	11,492	SFU
30	0.257	11,199	SFU
31	0.256	11,135	SFU
32	0.254	11,071	SFU
33	0.253	11,007	SFU
34	0.251	10,943	SFU
35	0.250	10,879	SFU
36	0.248	10,815	SFU
37	0.247	10,751	SFU
38	0.245	10,687	SFU
39	0.244	10,623	SFU
40	0.242	10,560	SFU
41	0.252	10,966	SFU
42	0.237	10,309	SFU

BLOCK C			
LOT NO.	ACRES	SQ. FT.	ZONING CLASSIFICATION
1	0.327	14,234	SFU
2	0.227	9,868	SFU
3	0.227	9,868	SFU
4	0.227	9,868	SFU
5	0.227	9,868	SFU
6	0.227	9,868	SFU
7	0.227	9,868	SFU
8	0.227	9,868	SFU
9	0.227	9,868	SFU
10	0.227	9,868	SFU
11	0.235	10,218	SFU
12	0.234	10,214	SFU
13	0.226	9,841	SFU
14	0.210	9,168	SFU
15	0.208	9,059	SFU
16	0.208	9,059	SFU
17	0.208	9,059	SFU
18	0.243	10,564	SFU
19	0.268	11,679	SFU
20	0.230	10,011	SFU
21	0.230	10,011	SFU

BLOCK C			
LOT NO.	ACRES	SQ. FT.	ZONING CLASSIFICATION
22	0.230	10,011	SFU
23	0.230	10,011	SFU
24	0.230	10,011	SFU
25	0.230	10,011	SFU
26	0.230	10,011	SFU
27	0.238	10,361	SFU
28	0.238	10,361	SFU
29	0.238	10,361	SFU
30	0.238	10,361	SFU
31	0.238	10,361	SFU
32	0.238	10,361	SFU
33	0.238	10,361	SFU
34	0.238	10,361	SFU
35	0.238	10,361	SFU
36	0.296	12,874	SFU

LINE TABLE		
NO.	BEARING	LENGTH
L1	N31°39'29"W	57.25'
L2	S23°35'34"E	45.17'
L3	N27°45'48"W	79.92'
L4	S62°14'12"W	7.85'
L5	N35°48'07"W	59.68'
L6	N35°48'07"W	47.11'
L7	N27°29'57"W	51.18'
L8	S62°30'03"W	35.00'
L9	S62°30'03"W	35.00'
L10	N27°45'48"W	84.55'
L11	N29°55'48"W	89.69'
L12	S59°02'42"W	43.46'
L13	N78°35'40"E	50.00'
L14	S78°35'40"W	50.00'
L15	N08°59'11"E	75.22'
L16	S69°03'59"W	62.80'
L17	S69°03'59"W	45.99'
L18	S69°03'59"W	45.76'
L19	S65°56'01"E	35.49'
L20	S27°29'57"E	38.73'
L21	N27°45'48"W	80.00'
L22	N27°45'48"W	70.00'

CURVE TABLE					
NO.	DELTA	RADIUS	LENGTH	CHORD BEARING	CHORD
C1	2°04'48"	6075.00'	220.55'	N31°04'39"W	220.54'
C2	1°44'07"	275.00'	8.33'	N34°56'03"W	8.33'
C3	8°18'10"	275.00'	39.85'	N31°39'02"W	39.82'
C4	8°18'10"	325.00'	47.10'	N31°39'02"W	47.06'
C5	6°34'03"	275.00'	31.52'	N30°46'58"W	31.50'
C6	4°22'57"	325.00'	24.86'	N33°36'38"W	24.85'
C7	3°55'13"	325.00'	22.24'	N29°27'33"W	22.23'
C8	90°00'00"	15.00'	23.56'	S72°29'57"E	21.21'
C9	90°00'00"	15.00'	23.56'	S17°30'03"W	21.21'
C10	6°33'56"	525.00'	60.16'	S65°47'01"W	60.13'
C11	6°33'56"	475.00'	54.43'	S65°47'01"W	54.40'
C12	19°12'25"	15.00'	5.03'	N17°53'44"W	5.00'
C13	70°31'44"	15.00'	18.46'	N26°58'20"E	17.32'
C14	89°44'08"	15.00'	23.49'	N17°22'08"E	21.16'
C15	90°15'52"	15.00'	23.63'	N72°37'52"W	21.26'
C16	70°31'44"	15.00'	18.46'	N82°29'56"W	17.32'
C17	19°44'08"	15.00'	5.17'	N37°22'01"W	5.14'
C18	37°24'37"	50.00'	32.65'	S06°48'19"E	32.07'
C19	29°20'35"	50.00'	25.61'	S40°10'55"E	25.33'
C20	39°28'46"	50.00'	34.45'	S74°35'36"E	33.77'
C21	162°32'55"	50.00'	141.85'	S69°22'28"E	98.84'
C22	39°23'56"	15.00'	10.31'	N07°47'59"W	10.11'
C23	83°26'04"	15.00'	21.84'	S69°12'59"E	19.96'
C24	39°42'55"	15.00'	10.40'	S49°12'32"W	10.19'
C25	56°18'57"	50.00'	49.14'	N57°30'33"E	47.19'
C26	1°13'04"	325.00'	6.91'	S69°40'31"W	6.91'
C27	8°18'37"	325.00'	47.14'	S74°26'22"W	47.10'
C28	9°31'41"	325.00'	54.05'	S73°49'50"W	53.98'

CURVE TABLE					
NO.	DELTA	RADIUS	LENGTH	CHORD BEARING	CHORD
C29	9°31'41"	275.00'	45.73'	S73°49'50"W	45.68'
C30	3°57'53"	275.00'	19.03'	S71°02'56"W	19.03'
C31	5°33'48"	275.00'	26.70'	S75°48'46"W	26.69'
C32	9°10'10"	275.00'	44.01'	N74°00'35"E	43.96'
C33	9°31'41"	275.00'	45.73'	N73°49'50"E	45.68'
C34	9°31'41"	325.00'	54.05'	N73°49'50"E	53.98'
C35	0°21'31"	275.00'	1.72'	N69°14'45"E	1.72'
C36	90°00'00"	15.00'	23.56'	N65°56'01"W	21.21'
C37	89°59'44"	15.00'	23.56'	S24°04'03"W	21.21'
C38	8°25'19"	15.00'	2.20'	S73°16'39"W	2.20'
C39	43°35'53"	15.00'	11.41'	N80°42'45"W	11.14'
C40	52°01'12"	15.00'	13.62'	N84°55'24"W	13.16'
C41	52°01'12"	15.00'	13.62'	N43°03'23"E	13.16'
C42	71°45'02"	50.00'	62.61'	S52°55'18"W	58.60'
C43	130°28'59"	50.00'	113.87'	S82°17'17"W	90.81'
C44	58°43'58"	50.00'	51.25'	N61°50'13"W	49.04'
C45	23°04'26"	50.00'	20.14'	N20°56'01"W	20.00'
C46	130°28'59"	50.00'	113.87'	N55°50'42"E	90.81'
C47	53°40'34"	50.00'	46.84'	N17°26'30"E	45.15'
C48	76°48'25"	50.00'	67.03'	N82°40'59"E	62.12'
C49	39°42'54"	15.00'	10.40'	S40°47'28"E	10.19'
C50	84°42'54"	50.00'	73.93'	N18°17'28"W	67.38'
C51	56°00'34"	50.00'	48.88'	N52°04'16"E	46.95'
C52	169°25'49"	50.00'	147.86'	N24°03'59"E	99.57'
C53	28°42'20"	50.00'	25.05'	S85°34'16"E	24.79'
C54	39°42'54"	15.00'	10.40'	S88°55'27"W	10.19'
C55	90°00'00"	15.00'	23.56'	N24°03'59"E	21.21'

FINAL PLAT
LOST WOODS ESTATES SUBDIVISION

BEING 28.12 ACRES OUT OF THE
ANASTASHA CARR SURVEY, ABSTRACT 122
WILLIAMSON COUNTY, TEXAS

Kimley»Horn
10814 JOLLYVILLE ROAD, CAMPUS IV
SUITE 200, AUSTIN, TEXAS 78759 TBPELS FIRM # 10194624
TEL. NO. (512) 418-1771
WWW.KIMLEY-HORN.COM

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XXX-XXXX-XXXX.0APA

SCALE	DRAWN BY	CHECKED BY	DATE	PROJECT NO.	SHEET NO.
1" = N/A'	TJR	MMII	10/16/2025	067783188	3 OF 4

DWG NAME: K:\AUS_SURVEY\AUSTIN SURVEY PROJECTS\067783185 - SIMPSON LEANDER\DWG\PLATS\LOST WOODS ESTATES PLAT\V-PLAT-067783188_LOST WOODS ESTATES.DWG PLOTTED BY ROWLAND, TANNER 10/16/2025 5:22 PM LAST SAVED 10/16/2025 5:19 PM

CITY OF LEANDER CERTIFICATION:

APPROVED THIS THE ____ DAY OF ____, 20__ A.D. AND AUTHORIZED TO BE FILED FOR RECORD BY THE COUNTY CLERK OF WILLIAMSON COUNTY.

____
ROBIN GRIFFIN, AICP
EXECUTIVE DIRECTOR OF
DEVELOPMENT SERVICES
CITY OF LEANDER, TEXAS

ATTEST: ______________________
DORA CRABTREE
CITY SECRETARY
CITY OF LEANDER, TEXAS

FOR CORPORATE ENTITY – IF THERE ARE NO LIEN HOLDERS:

STATE OF TEXAS §
COUNTY OF WILLIAMSON §

THAT M/I HOMES OF AUSTIN, LLC, AS THE OWNER OF THAT CERTAIN 28.12 ACRE TRACT OF LAND RECORDED IN DOCUMENT NUMBER 2024101357 OF THE OFFICIAL RECORDS OF WILLIAMSON COUNTY, TEXAS DOES HEREBY CERTIFY THAT THERE ARE NO LIEN HOLDERS AND DEDICATES TO THE PUBLIC FOREVER USE OF ALL ADDITIONAL ROW, STREETS, ALLEYS, EASEMENTS, PARKS, AND ALL OTHER LANDS INTENDED FOR PUBLIC DEDICATION, OR WHEN THE SUBDIVIDER HAS MADE PROVISION FOR PERPETUAL MAINTENANCE THEREOF, TO THE INHABITANTS OF THE SUBDIVISION AS SHOWN HEREON TO BE KNOW AS LOST WOODS ESTATES.

____

SIGNATURE: ______________________

NAME OF AUTHORIZED OFFICER: ______________________

TITLE OF OFFICER: ______________________

STATE OF TEXAS §
COUNTY OF WILLIAMSON §

BEFORE ME, THE UNDERSIGNED AUTHORITY, A NOTARY PUBLIC IN AND FOR SAID COUNTY AND STATE, ON THIS THE ____ DAY OF ______, 20____, PERSONALLY APPEARED, ______________, ON BEHALF OF SAID ______________, A DULY AUTHORIZED AGENT WITH AUTHORITY TO SIGN SAID DOCUMENT, PERSONALLY KNOWN TO ME (AND PROVED TO ME ON THE BASIS OF SATISFACTORY EVIDENCE) TO BE THE PERSON WHOSE NAME IS SUBSCRIBED TO THE FOREGOING INSTRUMENT, AND ACKNOWLEDGED TO ME THAT (S)HE EXECUTED THE SAME FOR THE PURPOSES AND CONSIDERATION THEREIN EXPRESSED.

GIVEN UNDER MY HAND AND SEAL OF OFFICE ON THIS THE ___ DAY OF ____ 20___.

____
NOTARY PUBLIC IN AND FOR THE STATE OF TEXAS

PRINTED NAME: ______________________

MY COMMISSION EXPIRES ON:

SURVEYOR'S NOTES:

1. ACCORDING TO COMMUNITY PANEL NO. 4810790460, MAP NO. 48491C0460F, EFFECTIVE DATE DECEMBER 20, 2019, OF THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD INSURANCE RATE MAP (FIRM), THE SUBJECT TRACT IS LOCATED WITHIN ZONE "X" (UN-SHADED) WHICH IS DEFINED BY FEMA AS "AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN," COMMONLY KNOWN AS THE 500-YEAR FLOODPLAIN. ZONE "X" (UN-SHADED) IS OUTSIDE OF ANY FEMA ESTABLISHED FLOOD HAZARD ZONE. ALL ZONE DELINEATIONS SHOWN HEREON ARE APPROXIMATE. THIS FLOOD STATEMENT DOES NOT IMPLY THAT THE PROPERTY AND/OR THE STRUCTURES THEREON WILL BE FREE FROM FLOODING OR FLOOD DAMAGE. ON RARE OCCASIONS, GREATER FLOODS CAN AND WILL OCCUR AND FLOOD HEIGHTS MAY BE INCREASED BY MAN-MADE OR NATURAL CAUSES. THIS FLOOD STATEMENT SHALL NOT CREATE ANY LIABILITY ON THE PART OF KIMLEY-HORN OR THE UNDERSIGNED.
2. BASIS OF BEARINGS IS THE TEXAS COORDINATE SYSTEM OF 1983, CENTRAL ZONE (4203). ALL COORDINATES AND DISTANCES SHOWN HEREON ARE SURFACE VALUES. THE SURFACE ADJUSTMENT FACTOR IS 1.0000314069. THE UNIT OF LINEAR MEASUREMENT IS U.S. SURVEY FEET.
3. ALL LOTS LOCATED IN THIS SUBDIVISION WILL BE MONUMENTED WITH A 1/2" IRON ROD WITH A SURVEYOR'S CAP STAMPED "KHA" OR A MAG NAIL WITH WASHER STAMPED "KHA" PRIOR TO LOT SALES, UNLESS OTHERWISE STATED.

LEGAL DESCRIPTION:
28.12 ACRES

BEING A 28.12 ACRES TRACT OF LAND SITUATED IN THE ANASTASHA CARR SURVEY, ABSTRACT 122, WILLIAMSON COUNTY, TEXAS; AND BEING ALL OF A CALLED 28.12 ACRES TRACT OF LAND TO M/I HOMES OF AUSTIN, LLC, AS SHOWN ON INSTRUMENT RECORDED UNDER DOC. NO. 2024101357, O.P.R.W.C.T.; AND BEING MORE PARTICULARLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

BEGINNING AT A 1/2-INCH IRON ROD FOUND, IN THE NORTHEASTERLY RIGHT-OF-WAY LINE OF COUNTY ROAD 172, A VARIABLE RIGHT-OF-WAY WIDTH, SAME BEING THE WEST BOUNDARY LINE OF SAID 28.12 ACRES TRACT, FOR THE NORTHEAST CORNER OF A CALLED 6,650 SQ. FT. TRACT OF LAND DESCRIBED TO WILLIAMSON COUNTY, AS SHOWN ON INSTRUMENT RECORDED UNDER DOCUMENT NO. 2009016238, O.P.R.W.C.T.; SAME BEING THE SOUTHWEST CORNER OF BORHO, PHASE 5, A LEGAL SUBDIVISION AS SHOWN ON PLAT RECORDED UNDER DOCUMENT NO. 2014079128, O.P.R.W.C.T.;

THENCE, DEPARTING SAID NORTHEASTERLY RIGHT-OF-WAY LINE OF COUNTY ROAD 175, WITH SAID NORTH BOUNDARY LINE OF THE 28.12 ACRES TRACT, SAME BEING THE SOUTH BOUNDARY LINE OF SAID BORHO, PHASE 5 AND THE SOUTH BOUNDARY LINE BORHO, PHASE 7, A LEGAL SUBDIVISION AS SHOWN ON PLAT RECORDED UNDER DOCUMENT NO. 2016070584, O.P.R.W.C.T.; NORTH 68°19'07" EAST, A DISTANCE OF 1,845.69 FEET TO A 1/2-INCH IRON ROD FOUND, IN THE WEST BOUNDARY LINE OF A CALLED 558.26 ACRES TRACT OF LAND DESCRIBED TO WILLIAMSON COUNTY, TEXAS, AS SHOWN ON INSTRUMENT RECORDED UNDER DOCUMENT NO. 2006065107, O.P.R.W.C.T.; FOR THE NORTHEAST CORNER OF SAID 28.12 ACRES TRACT, SAME BEING THE SOUTHEAST CORNER OF SAID BORHO, PHASE 7;

THENCE, WITH SAID WEST BOUNDARY LINE OF THE 558.26 ACRES TRACT, SAME BEING THE EAST BOUNDARY LINE OF SAID 28.12 ACRES TRACT, SOUTH 20°16'49" EAST, A DISTANCE OF 700.00 FEET TO A 1/2-INCH IRON ROD FOUND, FOR THE SOUTHEAST CORNER OF SAID 28.12 ACRES TRACT;

THENCE, CONTINUING WITH SAID WEST BOUNDARY LINE OF THE 558.26 ACRES TRACT, SAME BEING THE SOUTH BOUNDARY LINE OF SAID 28.12 ACRES TRACT, THE FOLLOWING THREE (3) COURSES AND DISTANCES:

1. SOUTH 69°10'56" WEST, A DISTANCE OF 590.99 FEET TO A 1/2-INCH IRON ROD FOUND;
2. SOUTH 69°13'26" WEST, A DISTANCE OF 532.19 FEET TO A 1/2-INCH IRON ROD FOUND;
3. SOUTH 69°45'16" WEST, A DISTANCE OF 245.66 FEET TO A 1/2-INCH IRON ROD FOUND, FOR THE NORTHEAST CORNER OF A CALLED 0.782 ACRES TRACT OF LAND DESCRIBED TO AVULA HOLDINGS LLC AND VD INVESTMENTS & MANAGEMENT, LLC, AS SHOWN ON INSTRUMENT RECORDED UNDER DOCUMENT NO. 2022009487, O.P.R.W.C.T.;

THENCE, DEPARTING SAID WEST BOUNDARY LINE OF THE 558.26 ACRES TRACT, CONTINUING WITH SAID SOUTH BOUNDARY LINE OF THE 28.12 ACRES TRACT, SAME BEING THE NORTH BOUNDARY LINE OF SAID 0.782 ACRES TRACT, SOUTH 69°39'56" WEST, A DISTANCE OF 361.95 FEET TO A 1/2-INCH IRON ROD WITH PLASTIC CAP STAMPED "KHA" SET, IN SAID EASTERLY RIGHT-OF-WAY LINE OF COUNTY ROAD 175, FOR THE SOUTHWEST CORNER OF SAID 28.12 ACRES TRACT, SAME BEING THE NORTHWEST CORNER OF SAID 0.782 ACRES TRACT;

THENCE, WITH SAID EASTERLY RIGHT-OF-WAY LINE OF COUNTY ROAD 175, THE FOLLOWING FOUR (4) COURSES AND DISTANCES:

1. NORTH 31°39'29" WEST, A DISTANCE OF 57.25 FEET TO A 1/2-INCH IRON ROD WITH PLASTIC CAP STAMPED "KHA" SET;
2. NORTH 29°56'54" WEST, A DISTANCE OF 352.36 FEET TO A 1/2-INCH IRON ROD WITH PLASTIC CAP STAMPED "KHA" SET;
3. NORTH 23°35'34" WEST, A DISTANCE OF 45.17 FEET TO A 1/2-INCH IRON ROD WITH PLASTIC CAP STAMPED "KHA" SET, FOR THE BEGINNING OF A CURVE;
4. WITH SAID CURVE TO THE LEFT, HAVING A CENTRAL ANGLE OF 02°04'48", A RADIUS OF 6,075.00 FEET, A CHORD BEARING AND DISTANCE OF NORTH 31°04'39" WEST, 220.54 FEET, AND AN ARC LENGTH OF 220.55 FEET TO THE **POINT OF BEGINNING** AND CONTAINING 28.12 ACRES OF LAND, MORE OR LESS, IN WILLIAMSON COUNTY, TEXAS. THIS DOCUMENT WAS PREPARED IN THE OFFICE OF KIMLEY-HORN INC. IN AUSTIN, TEXAS.

GENERAL PLAT NOTES:

1. THIS SUBDIVISION IS WHOLLY CONTAINED WITHIN THE CURRENT CORPORATE LIMITS OF THE CITY OF LEANDER, TEXAS.
2. NO LOT IN THIS SUBDIVISION SHALL BE OCCUPIED UNTIL CONNECTED TO THE CITY OF LEANDER WATER DISTRIBUTION AND WASTEWATER COLLECTION FACILITIES.
3. A BUILDING PERMIT IS REQUIRED FROM THE CITY OF LEANDER PRIOR TO CONSTRUCTION OF ANY BUILDING OR SITE IMPROVEMENTS ON ANY LOT IN THIS SUBDIVISION.
4. NO BUILDINGS, FENCES, LANDSCAPING OR OTHER STRUCTURES ARE PERMITTED WITHIN DRAINAGE EASEMENTS SHOWN EXCEPT AS APPROVED BY THE CITY OF LEANDER PUBLIC WORKS DEPARTMENT.
5. PROPERTY OWNER SHALL PROVIDE FOR ACCESS TO DRAINAGE EASEMENTS AS MAY BE NECESSARY AND SHALL NOT PROHIBIT ACCESS BY THE CITY OF LEANDER.
6. ALL EASEMENTS ON PRIVATE PROPERTY SHALL BE MAINTAINED BY THE PROPERTY OWNER OR HIS OR HER ASSIGNS.
7. IN ADDITION TO THE EASEMENT SHOWN HEREON, A TEN (10') FOOT WIDE PUBLIC UTILITY, ACCESS, AND LANDSCAPE EASEMENT IS DEDICATED ALONG AND ADJACENT TO ALL RIGHT-OF-WAY AND A TWO AND A HALF (2.5') FOOT WIDE PUBLIC UTILITY EASEMENT IS DEDICATED ALONG ALL SIDE LOT LINES. A TEN (10') FOOT WIDE PUBLIC UTILITY, ACCESS, AND LANDSCAPE EASEMENT IS DEDICATED ALONG ALL RIGHT-OF-WAY OF NON-RESIDENTIAL LOTS. (SEE ASSIGNMENT EXHIBIT ON PAGE 2 OF 4)
8. BUILDING SETBACKS NOT SHOWN HEREON SHALL COMPLY WITH THE MOST CURRENT COMPOSITE ZONING ORDINANCE OF THE CITY OF LEANDER.
9. SIDEWALKS SHALL BE INSTALLED ON BOTH SIDES OF SHADBUSH ROAD, BLENDED TREE RANCH ROAD, BONSAI ROAD, AND GOLDEN JUBILEE BEND. THOSE SIDEWALKS NOT ABUTTING A RESIDENTIAL, COMMERCIAL OR INDUSTRIAL LOT (INCLUDING SIDEWALKS ALONG STREET FRONTAGES OF LOTS PROPOSED FOR SCHOOLS, CHURCHES, PARK LOTS, DETENTION LOTS, DRAINAGE LOTS, LANDSCAPE LOTS, OR SIMILAR LOTS), SIDEWALKS ON ARTERIAL STREETS TO WHICH ACCESS IS PROHIBITED, SIDEWALKS ON DOUBLE FRONTAGE LOTS ON THE SIDE TO WHICH ACCESS IS PROHIBITED, AND ALL SIDEWALKS ON SAFE SCHOOL ROUTES SHALL BE INSTALLED WHEN THE ADJOINING STREET IS CONSTRUCTED.
10. ALL UTILITY LINES MUST BE LOCATED UNDERGROUND.
11. THIS PLAT CONFORMS TO THE PRELIMINARY PLAT APPROVED BY THE PLANNING & ZONING COMMISSION ON ______________.
12. APPROVAL OF THIS FINAL PLAT DOES NOT CONSTITUTE THE APPROVAL OF VARIANCES OR WAIVERS TO ORDINANCE REQUIREMENTS.

SINGLE-FAMILY & TWO FAMILY PLAT NOTES:

1. NO DRIVEWAY SHALL BE CONSTRUCTED CLOSER THAN 50' OR 60% OF PARCEL FRONTAGE, WHICHEVER IS LESS, TO THE ROW OF AN INTERSECTING LOCAL OR COLLECTOR STREET OR 100' OR 60% OF PARCEL FRONTAGE, WHICHEVER IS LESS, TO THE ROW OF AN INTERSECTING ARTERIAL STREET.
2. THE HOA WILL OWN AND MAINTAIN THE FOLLOWING LOT: BLOCK D, LOTS 1, 2, AND 3.
3. THE HOA BY LAWS ARE RECORDED IN THE OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY, TEXAS UNDER DOCUMENT NUMBER ______________.
4. THE HOMEOWNERS ASSOCIATION IS REQUIRED TO MOW AND MAINTAIN LANDSCAPING IN THE OPEN CHANNELS, DETENTION AND WATER QUALITY AREAS.
5. THE HOA SHALL OWN AND MAINTAIN DRAINAGE AND WATER QUALITY IMPROVEMENTS CONTAINED IN OPEN CHANNELS, DETENTION AND WATER QUALITY AREAS.

STATE OF TEXAS §
COUNTY OF WILLIAMSON §

KNOW ALL MEN BY THESE PRESENTS

I, NANCY RISTER, CLERK OF THE COUNTY COURT OF WILLIAMSON COUNTY, TEXAS,DO HEREBY CERTIFY THAT THE FOREGOING INSTRUMENT OF WRITING, WITH ITS CERTIFICATE WAS FILED FOR RECORD IN MY OFFICE ON THE ______ DAY OF ______________, 20__ A.D., AT ________ O'CLOCK __M., AND DULY RECORDED ON THE ______ DAY OF ______________, 20__ A.D., AT ________ O'CLOCK __M., IN THE PLAT RECORDS OF SAID COUNTY AND STATE IN DOCUMENT NO. ______________ OF THE OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY, TEXAS.

TO CERTIFY WHICH, WITNESS MY HAND AND SEAL AT THE COUNTY COURT OF SAID COUNTY, AT MY OFFICE IN GEORGETOWN, TEXAS, THE DATE LAST SHOWN ABOVE WRITTEN.

____
NANCY RISTER, COUNTY CLERK
OF WILLIAMSON COUNTY, TEXAS

BY: ______________________ DEPUTY

FINAL PLAT
LOST WOODS ESTATES SUBDIVISION

BEING 28.12 ACRES OUT OF THE
ANASTASHA CARR SURVEY, ABSTRACT 122
WILLIAMSON COUNTY, TEXAS

Kimley»Horn
10814 JOLLYVILLE ROAD, CAMPUS IV
SUITE 200, AUSTIN, TEXAS 78759 TBPELS FIRM # 10194624
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WWW.KIMLEY-HORN.COM

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XXX-XXXX-XXXX.0APA

SCALE	DRAWN BY	CHECKED BY	DATE	PROJECT NO.	SHEET NO.
N/A	TJR	MMII	10/16/2025	067783188	4 OF 4

DWG NAME: K:\AUS_SURVEY\AUSTIN SURVEY PROJECTS\067783185 - SIMPSON LEANDER\DWG\PLATS\LOST WOODS ESTATES PLAT\V-PLAT-067783188_LOST WOODS ESTATES.DWG PLOTTED BY ROWLAND, TANNER 10/16/2025 5:23 PM LAST SAVED 10/16/2025 5:19 PM

BENCHMARKS

SIR, ELEV.= 883.464
CONTROL POINT 102, ELEV.=868.467
CONTROL POINT 103, ELEV.=850.911

LOST WOODS ESTATES

CITY OF LEANDER
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER
6
OF 76

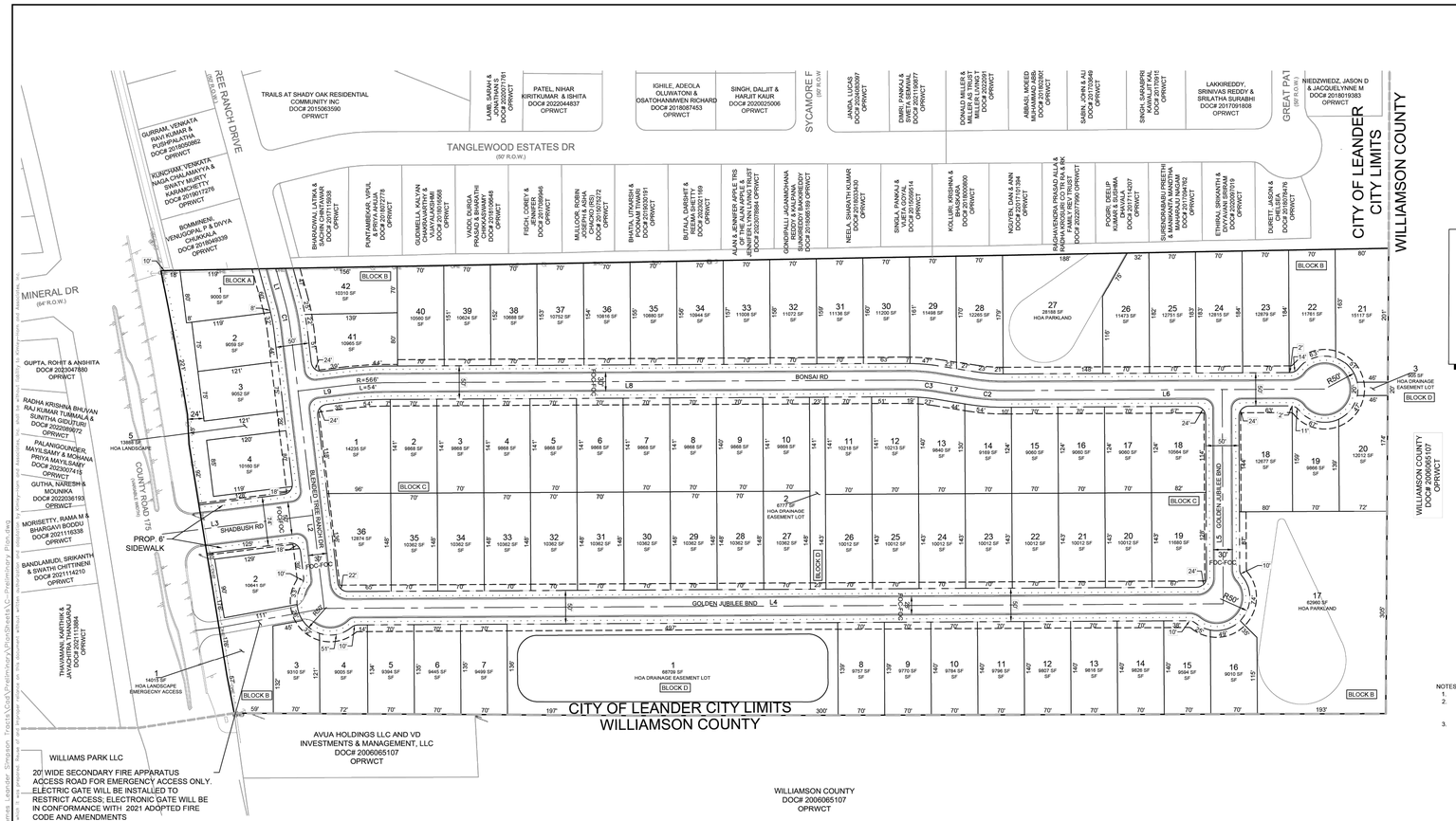
DRAFT
FINAL PLAT
(SHEET 2 OF 2)

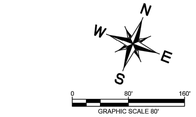
KHA PROJECT	067783185
DATE	DECEMBER 2025
SCALE:	AS SHOWN
DESIGNED BY:	AEG
DRAWN BY:	AEG
CHECKED BY:	AEG

12/9/2025
STATE OF TEXAS
ALEJANDRO E. GRANADOS RICO
130084
LICENSED
PROFESSIONAL ENGINEER

Kimley»Horn
© 2025 KIMLEY-HORN AND ASSOCIATES, INC.
501 S AUSTIN AVE #1310, GEORGETOWN, TX 78626
PHONE: 512-520-0768
WWW.KIMLEY-HORN.COM
TEXAS REGISTERED ENGINEERING FIRM F-928

No.	REVISIONS	DATE	BY

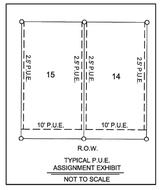




LEGEND

- PROPERTY LINE
- CITY OF LEANDER LIMITS
- PROPOSED LOT LINE
- PROPOSED STREET CENTERLINE
- PROPOSED 5' SIDEWALK (UNLESS NOTED OTHERWISE)
- PUBLIC UTILITY EASEMENT

NOTES:
1. LINE AND CURVE TABLES PROVIDED ON SHEET 5.
2. ALL HOMES BUILT ON LOTS SIDING OR BACKING UP TO A MAJOR ARTERIAL ROADWAY ARE REQUIRED TO BE BUILT TO TYPE A ARCHITECTURAL STANDARDS. THESE INCLUDE: LOTS 1-4 IN BLOCK A AND LOT 2 IN BLOCK B.
3. NO SINGLE FAMILY LOTS SHALL TAKE FRONTAGE FROM CR 175.



TYPICAL P.U.E. ASSIGNMENT EXHIBIT
NOT TO SCALE

STREET INFORMATION	
STREET NAME	LENGTH
BLENDED TREE RANCH	519'
SHADBUSH	228'
GOLDEN JUBILEE	1691'
BONSAI	1544'

Michael Montgomery
Registered Professional
Land Surveyor No. 6890
10814 Jollyville Road, Campus IV, Suite 200
Austin, Texas 78759

SURVEYOR'S STATEMENT: THIS SURVEY WAS PERFORMED UTILIZING THE TITLE REPORT PREPARED BY TITLE RESOURCES GUARANTY COMPANY, G.F. NO. 2428624-COM (ISSUE DATE: AUGUST 20, 2024, EFFECTIVE DATE: AUGUST 8, 2024) AND REFLECTS ONLY THOSE EASEMENTS AND ENCUMBRANCES OF RECORD MENTIONED THEREIN. KIMLEY-HORN DID NOT ABSTRACT THE PUBLIC RECORDS. THE SURVEYED TRACT MAY BE SUBJECT TO ADDITIONAL GOVERNMENTAL REGULATIONS AND RESTRICTIONS PRIOR TO FURTHER SITE DEVELOPMENT. KIMLEY-HORN DID NOT REVIEW LEASE INTEREST WHILE PERFORMING THIS SURVEY.

BENCHMARKS

SIR, ELEV.= 883.464
CONTROL POINT 102, ELEV.=868.467
CONTROL POINT 103, ELEV.=850.911

No.	REVISIONS	DATE	BY

PP-25-0070

Kimley»Horn
© 2025 KIMLEY-HORN AND ASSOCIATES, INC.
501 S AUSTIN AVE #1310, GEORGETOWN, TX 78626
PHONE: 512-520-0788
WWW.KIMLEY-HORN.COM
TEXAS REGISTERED ENGINEERING FIRM F-928

10/7/25

ALEJANDRO E. ORNADOS RICO
130084
LICENSED PROFESSIONAL ENGINEER

KHA PROJECT	067783188
DATE	October 25
SCALE:	AS SHOWN
DESIGNED BY:	KJM
DRAWN BY:	KJM
CHECKED BY:	AEG

PRELIMINARY PLAN

LOST WOODS ESTATES
CITY OF LEANDER
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER
5

12/9/2025

STATE OF TEXAS
ALEJANDRO E. ORNADOS RICO
130084
LICENSED PROFESSIONAL ENGINEER

Kimley»Horn
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501 S AUSTIN AVE #1310, GEORGETOWN, TX 78626
PHONE: 512-520-0788
WWW.KIMLEY-HORN.COM
TEXAS REGISTERED ENGINEERING FIRM F-928

No.	REVISIONS	DATE	BY

KHA PROJECT	067783185
DATE	DECEMBER 2025
SCALE:	AS SHOWN
DESIGNED BY:	AEG
DRAWN BY:	AEG
CHECKED BY:	AEG

OVERALL PRELIMINARY PLAT

LOST WOODS ESTATES
CITY OF LEANDER
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER
7
OF 76

Plotted By:Erforth, Kora Date:December 11, 2025 03:32:47pm File Path:K:\GEO_Civil\067783185 – Mi Homes Leander Simpson Tracts\Civil\Construction Plans\PlanSheets\C– Final Plot.dwg
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Plotted By:Marquez, Kyle Date:October 07, 2025 02:48:03pm File Path:K:\GEO_Civil\067783185 – Mi Homes Leander Simpson Tracts\Civil\Construction Plans\PlanSheets\C– Preliminary Plan.dwg
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EXISTING 8" PVC WWL (BORHO PHASE 5)

EXISTING 12" PVC WL (BORHO PHASE 5)

TANGLEWOOD ESTATES DR

CR 175 (VARIABLE WIDTH ROW)

BLENDED TREE RANCH DR

JOURNEY PARKWAY

GURRAM, VENKATA RAVI KUMAR & PUSHPALATHA DOC# 2016050862 OPRWCT

KUNCHAM, VENKATA NAGA CHALAMAYYA & SWATY MURTY KARAMCHETTY DOC# 2019017276 OPRWCT

BOMMINENI, VENUGOPAL P & DIVYA CHUKKALA DOC# 2018049339 OPRWCT

BHARADWAJ LATIKA & SACHIN CHINTAWAR DOC# 2021115938 OPRWCT

PUNTAMBEKAR, VIPUL & PRIYA AHUJA DOC# 2018072778 OPRWCT

GUDIMELLA, KALYAN CHAKRAVARTHY & VIJAYALAKSHMI DOC# 2018016568 OPRWCT

VADDI, DURGA PRASAD & BHARATHI CHIKKASWAMY DOC# 2021106648 OPRWCT

FISCH, COREY & JENNIFER DOC# 2017089846 OPRWCT

MULLOOR, ROBIN JOSEPH & ASHA CHACKO (RS) DOC# 2015075272 OPRWCT

BHATIA, UTKARSH & POONAM TIWARI DOC# 2019030191 OPRWCT

BUTALA, DARSHIT & REEMA SHETTY DOC# 2023021169 OPRWCT

ALAN & JENNIFER APPLE TRS OF THE ALAN APPLE & JENNIFER LYNN LIVING TRUST DOC# 2023078884 OPRWCT

GONDIPALLI JAGANMOHANA REDDY & KALPANA SUNKIREDDY BAKKIREDDY DOC# 2018065188 OPRWCT

NEELA, SHARATH KUMAR DOC# 2019113430

GUPTA, ROHIT & ANSHITA DOC# 2023047880 OPRWCT

RADHA KRISHNA BHUVAN RAJ KUMAR TUMMALA & SUNITHA GIDUTURI DOC# 2022089072 OPRWCT

PALANIGOUNDER, MAYILSAMY & MOHANA PRIYA MAYILSAMY DOC# 2023067415 OPRWCT

GUTHA, NARESH & MOUNIKA DOC# 2022036193 OPRWCT

MORISETTY, RAMA M & BHARGAVI BODDU DOC# 2021116338 OPRWCT

BANDLAMUDI, SRIKANTH & SWATHI CHITTINENI DOC# 2021114210 OPRWCT

THAVAMANI, KARTHIK & JAYACHITRA THANGARAJ DOC# 2021113884 OPRWCT

WILLIAMS PARK LLC

AVUA HOLDINGS LLC AND VD INVESTMENTS & MANAGEMENT, LLC DOC# 2006065107 OPRWCT

WILLIAMSON COUNTY DOC# 2006065107 OPRWCT

1,845 LF OF BARBED WIRE FENCE TO BE REMOVED

9,784 SF OF GRAVEL TO BE REMOVED

285 LF OF IRON FENCE TO BE REMOVED

3,636 SF OF ASPHALT TO BE REMOVED

771 LF OF BARBED WIRE FENCE TO BE REMOVED

EXISTING CULVERT TO BE REMOVED

EXISTING CULVERT TO REMAIN

EXISTING OVERHEAD ELECTRIC LINE TO REMAIN

BUILDING TO BE REMOVED

5,139 SF OF GRAVEL TO BE REMOVED

8,100 SF OF DIRT DRIVE TO BE REMOVED

951 LF OF IRON FENCE TO BE REMOVED

1,730 LF OF BARBED WIRE FENCE TO BE REMOVED

56 LF OF WALL TO BE REMOVED

197 SF OF CONCRETE TO BE REMOVED

113 LF OF WALL TO BE REMOVED

943 SF OF CONCRETE TO BE REMOVED

BUILDING TO BE REMOVED

MATCH LINE SEE SHEET 9

0 50' 100'

GRAPHIC SCALE 50'

LEGEND

- PROPERTY LINE
- 632 EXISTING CONTOUR
- OHE EXISTING OVERHEAD POWER LINE
- SAVED SIGNIFICANT TREE
- SAVED HIGHER SIGNIFICANT TREE
- REMOVED SIGNIFICANT TREE
- REMOVED HIGHER SIGNIFICANT TREE
- SAVED HERITAGE TREE
- REMOVED HERITAGE TREE

NOTES:

1. SEE SHEET 10 FOR TREE PRESERVATION PLAN.

BENCHMARKS

SIR, ELEV.= 883.464
CONTROL POINT 102, ELEV.=868.467
CONTROL POINT 103, ELEV.=850.911

No.	REVISIONS	DATE	BY

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TEXAS REGISTERED ENGINEERING FIRM F-928

12/9/2025

STATE OF TEXAS
ALEJANDRO E. GRANADOS RICO
130084
LICENSED
PROFESSIONAL ENGINEER

KHA PROJECT 067783185
DATE DECEMBER 2025
SCALE: AS SHOWN
DESIGNED BY: AEG
DRAWN BY: AEG
CHECKED BY: AEG

EXISTING CONDITIONS AND DEMOLITION PLAN (SHEET 1 OF 2)

LOST WOODS ESTATES

CITY OF LEANDER
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER
8
OF 76

Plotted By:Erfurth, Kora Date:December 11, 2025 04:31:10pm File Path:K:\GEO_Civil\067783185 – Mi Homes Leander Simpson Tracts\Civil\Construction Plans\PlanSheets\C–Existing Conditions and Demolition Plan.dwg
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LEGEND

- PROPERTY LINE
- 632 EXISTING CONTOUR
- OHE EXISTING OVERHEAD POWER LINE
- SAVED SIGNIFICANT TREE
- SAVED HIGHER SIGNIFICANT TREE
- REMOVED SIGNIFICANT TREE
- REMOVED HIGHER SIGNIFICANT TREE
- SAVED HERITAGE TREE
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NOTES:

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DRAWN BY:	AEG
CHECKED BY:	AEG

EXISTING CONDITIONS AND DEMOLITION PLAN (SHEET 2 OF 2)

LOST WOODS ESTATES

CITY OF LEANDER
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER
9
OF 76

Plotted By:Erfurth, Kara Date:December 11, 2025 04:31:20pm File Path:K:\GEO_Civil\067783185 – Mt. Horeb Leander Simpson Tracts\Cad\Construction Plans\PlanSheets\C-Existing Conditions and Demolition Plan.dwg
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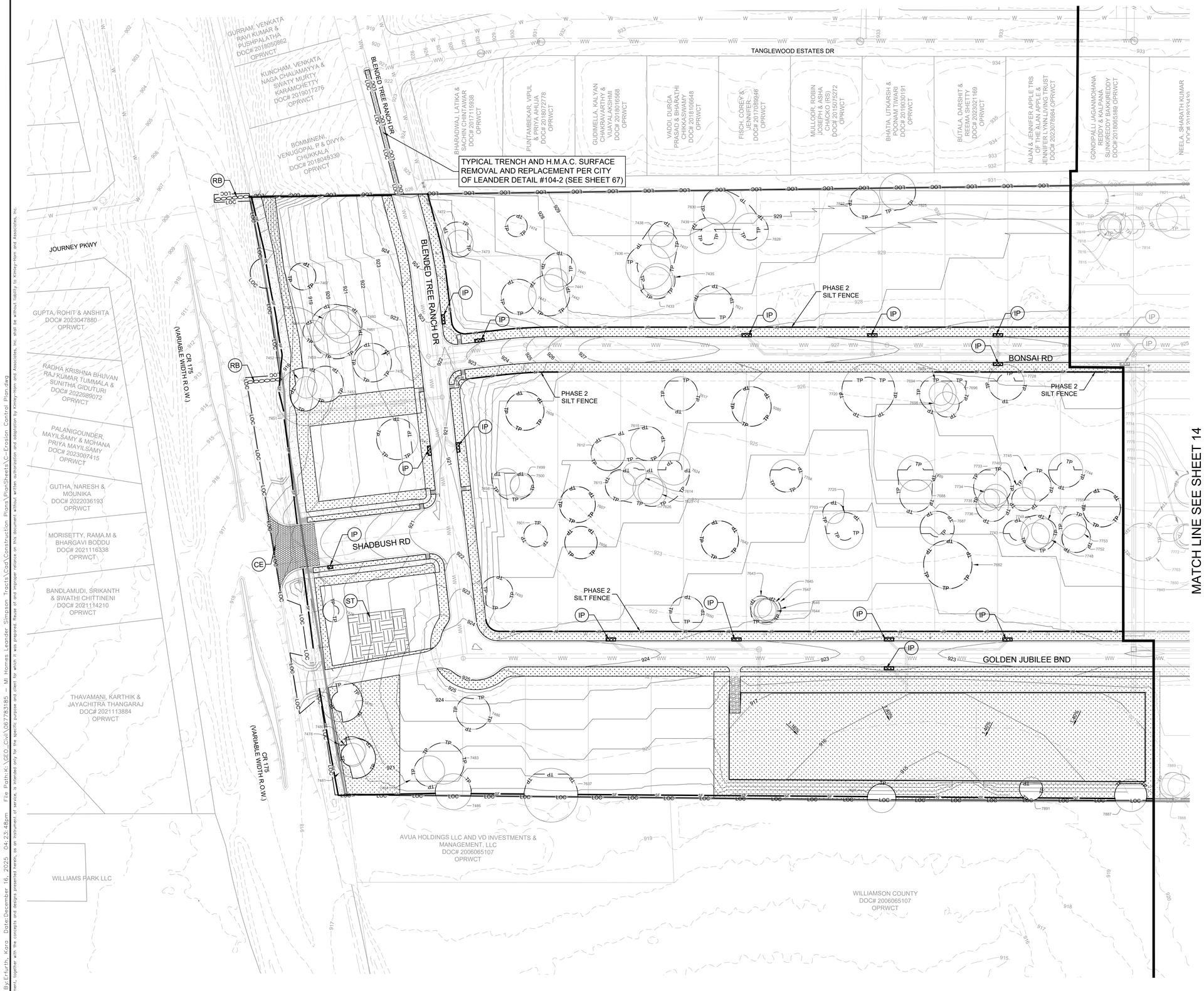

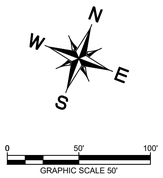

EROSION CONTROL LEGEND

	PROPERTY LINE
632	PROPOSED CONTOUR
632	EXISTING CONTOUR
	ORANGE SAFETY FENCE
SF — SF	SILT FENCE
CE	STABALIZED CONSTRUCTION ENTRANCE/EXIT
IP	INLET PROTECTION
RB	ROCK BERM
LOC — LOC	LIMITS OF CONSTRUCTION
TP — TP — TP	TREE PROTECTION
V	LIMITS OF REVEGETATION
ST	STAGING, SPOILS, AND CONCRETE WASHOUT AREA
	SAVED TREE

NOTES:

1. ALL EROSION SEDIMENTATION CONTROLS CALLED OUT AS "PHASE 2" ARE TO BE INSTALLED AFTER THE APPLICABLE IMPROVEMENT IS INSTALLED AND NOT WITH THE INITIAL EROSION SEDIMENTATION CONTROLS. PHASE 2 SILT FENCE(S) SHALL BE INSTALLED AFTER EACH ROAD OR POND IS INSTALLED TO IMPEDE SEDIMENT FROM THE PAD LOTS.
2. GRADED AREAS MUST BE STABILIZED PRIOR TO ACCEPTANCE OR EROSION CONTROLS MUST BE IN PLACE TO PREVENT SEDIMENT FROM ENTERING THE ROADWAYS
3. NO LOTS SHOULD BE CLEARED OUTSIDE LIMITS OF CONSTRUCTION
4. THE CITY OF LEANDER ENVIRONMENTAL INSPECTOR HAS THE AUTHORITY TO ADD OR MODIFY EROSION/SEDIMENT CONTROLS ON SITE THROUGHOUT THE DURATION OF THE PROJECT
5. STOCKPILE TO BE REMOVED PRIOR TO ACCEPTANCE.
6. PONDS SHALL BE CLEARED FROM POLLUTION FROM CONSTRUCTION SEDIMENT FLOW BEFORE FINAL WALKTHROUGH.

BENCHMARKS

BASIS OF BEARINGS IS THE TEXAS COORDINATE SYSTEM OF 1983, CENTRAL ZONE (4203). ALL COORDINATES AND DISTANCES SHOWN HEREON ARE GRID VALUES. THE UNIT OF LINEAR MEASUREMENT IS U.S. SURVEY FEET.

BM #104 - 1/2-INCH IRON ROD SET IN THE CENTER MEDIAN OF COUNTY ROAD 175, ±67 FEET NORTH OF THE INTERSECTION OF MINERAL DRIVE AND COUNTY ROAD 175, ±73 FEET WEST OF A FIBER OPTIC RISER IN THE EASTERLY RIGHT-OF-WAY LINE OF COUNTY ROAD 175.

N: 10178313.802'
E: 3101940.730'
ELEV.= 906.44'

BM #105 - 1/2-INCH IRON ROD SET IN THE WESTERLY RIGHT-OF-WAY OF COUNTY ROAD 175, ±695 FEET SOUTH OF THE INTERSECTION OF MINERAL DRIVE AND COUNTY ROAD 175, ± 56 FEET EAST OF THE NORTHEAST CORNER OF A METAL SHED.

N: 10177624.355'
E: 3102276.765'
ELEV.=917.20'

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12/9/2025

STATE OF TEXAS
ALEJANDRO E. GRANADOS, RICE
130084
LICENSED
PROFESSIONAL ENGINEER

KHA PROJECT	067783185
DATE	DECEMBER 2025
SCALE:	AS SHOWN
DESIGNED BY:	AEG
DRAWN BY:	AEG
CHECKED BY:	AEG

LOST WOODS ESTATES

CITY OF LEANDER
WILLIAMSON COUNTY, TEXAS

EROSION CONTROL PLAN (SHEET 1 OF 2)

SHEET NUMBER
13
OF 76

Plotted By:Erfurth, Kara Date:December 16, 2025 04:23:48pm File Path:K:\GEO_Civil\067783185 – Mt. Homes Leander Simpson Tracts\Civil\Construction Plans\PlanSheets\C-Erosion Control Plan.dwg
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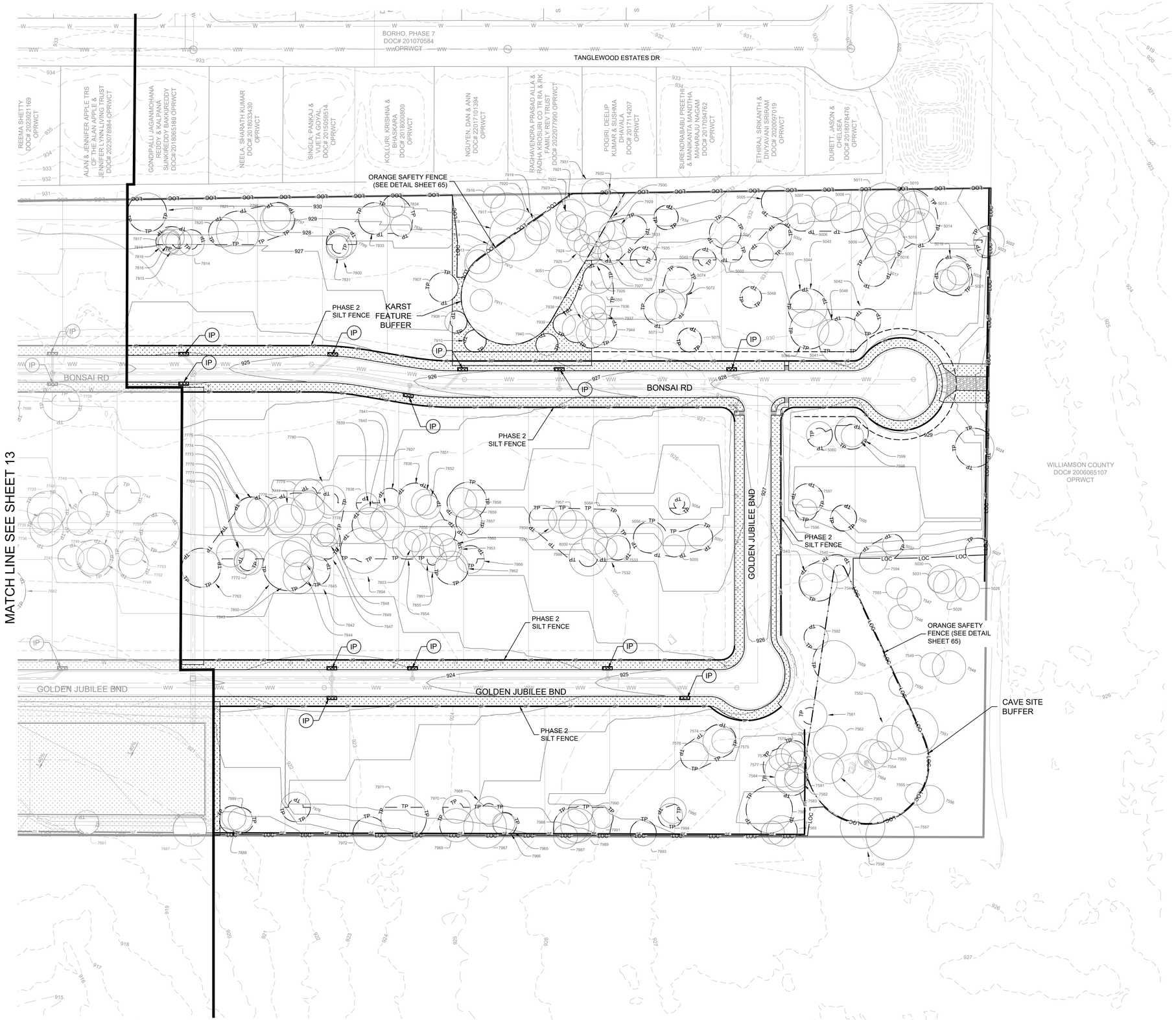

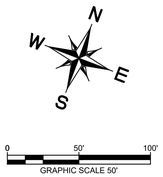

EROSION CONTROL LEGEND

		PROPERTY LINE
	632	PROPOSED CONTOUR
	632	EXISTING CONTOUR
		ORANGE SAFETY FENCE
SF	SF	SILT FENCE
CE		STABALIZED CONSTRUCTION ENTRANCE/EXIT
IP		INLET PROTECTION
RB		ROCK BERM
LOC	LOC	LIMITS OF CONSTRUCTION
TP	TP TP	TREE PROTECTION
V		LIMITS OF REVEGETATION
ST		STAGING, SPOILS, AND CONCRETE WASHOUT AREA
		SAVED TREE

NOTES:

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5. STOCKPILE TO BE REMOVED PRIOR TO ACCEPTANCE.
6. PONDS SHALL BE CLEARED FROM POLLUTION FROM CONSTRUCTION SEDIMENT FLOW BEFORE FINAL WALKTHROUGH.

BENCHMARKS

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ALEJANDRO E. GRANADOS RICO
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KHA PROJECT	067783185
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SCALE:	AS SHOWN
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DRAWN BY:	AEG
CHECKED BY:	AEG

EROSION CONTROL PLAN (SHEET 2 OF 2)

LOST WOODS ESTATES

CITY OF LEANDER
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER
14
OF 76

Plotted By:Erforth, Kora Date:December 16, 2025 04:24:01pm File Path:K:\GEO_Civil\067783185 – Mi Homes Leander Simpson Tracts\Cad\Construction Plans\PlanSheets\C-Erosion Control Plan.dwg
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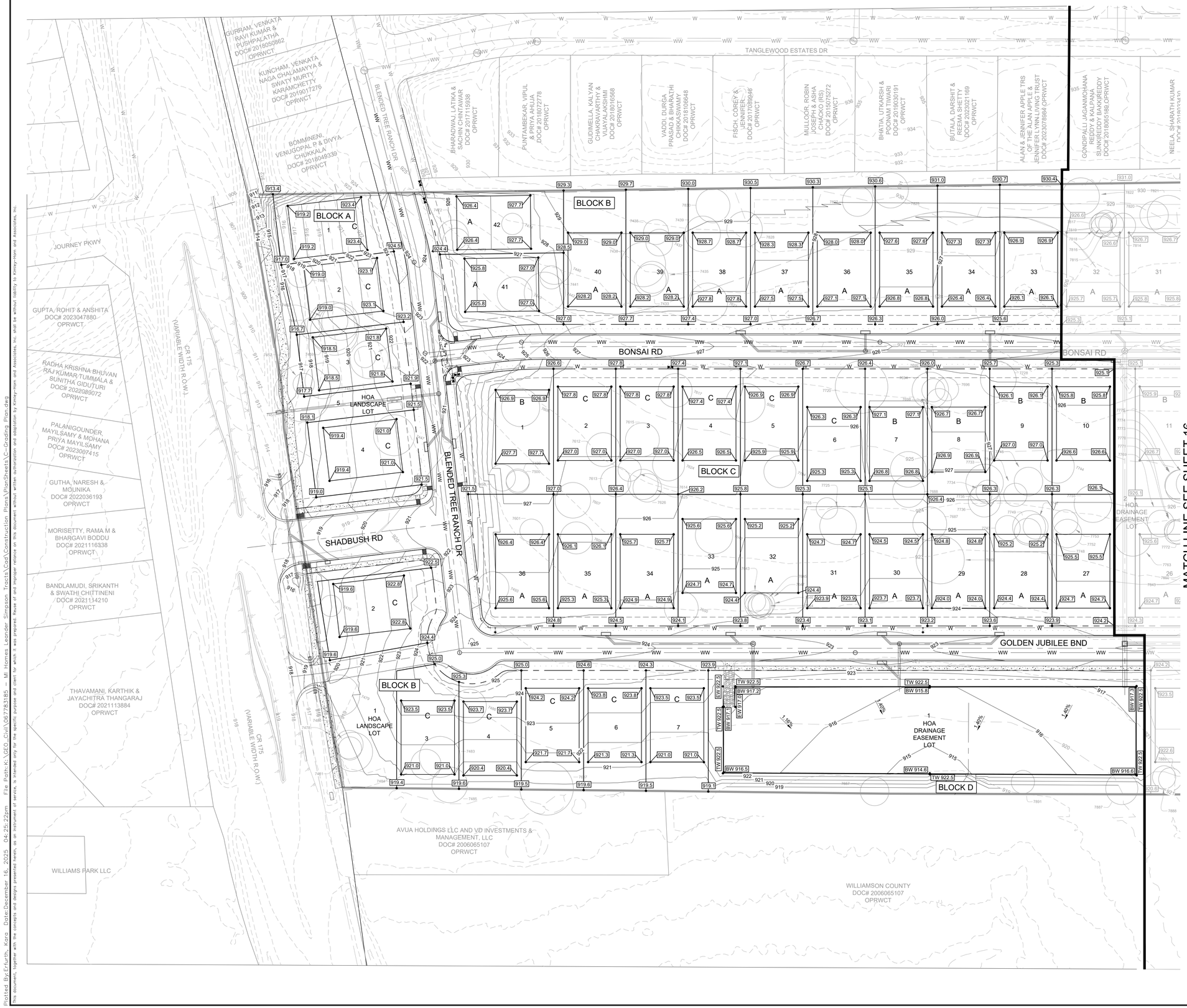


N
W E
S

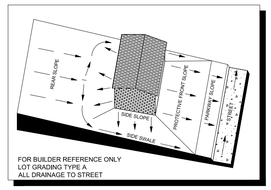
0 50' 100'
GRAPHIC SCALE 50'

LEGEND

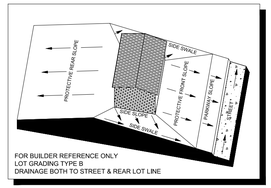
- PROPERTY LINE
- 555 PROPOSED CONTOUR
- 555 EXISTING CONTOUR
- LOT DRAINAGE FLOW DIRECTION
- STREET DRAINAGE FLOW DIRECTION
- SAVED TREE

NOTES:

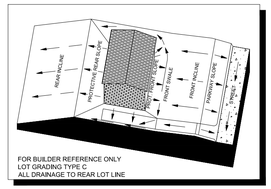
1. FINISHED LOT ELEVATIONS AT THE STREET R.O.W. SHALL BE GRADED UP FROM THE TOP OF CURB IN CONFORMANCE WITH THE STREET CROSS-SECTIONS SHOWN ON PAVING DETAIL SHEET.
2. ALL BLOCK GRADING SHALL BE A MINIMUM OF 1.50% GRADE.
3. ALL SLOPES TO BE 3:1 OR FLATTER.
4. CONTRACTOR TO PROVIDE STRUCTURAL DESIGN FOR ANY RETAINING WALLS SHOWN.



FOR BUILDER REFERENCE ONLY
LOT GRADING TYPE A
ALL DRAINAGE TO STREET



FOR BUILDER REFERENCE ONLY
LOT GRADING TYPE B
DRAINAGE BOTH TO STREET & REAR LOT LINE



FOR BUILDER REFERENCE ONLY
LOT GRADING TYPE C
ALL DRAINAGE TO REAR LOT LINE

BENCHMARKS

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PROFESSIONAL ENGINEER
12/9/2025

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DRAWN BY: AEG
CHECKED BY: AEG

GRADING PLAN (SHEET 1 OF 2)

LOST WOODS ESTATES

CITY OF LEANDER
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER
15
OF 76

Plotted By:Erfurth, Kora Date:December 16, 2025 04:25:22pm File Path:K:\CEO_Civil\067783185 – Mi Homes Leander Simpson Tracts\Cad\Construction Plans\Construction Plans\Grading Plan.dwg
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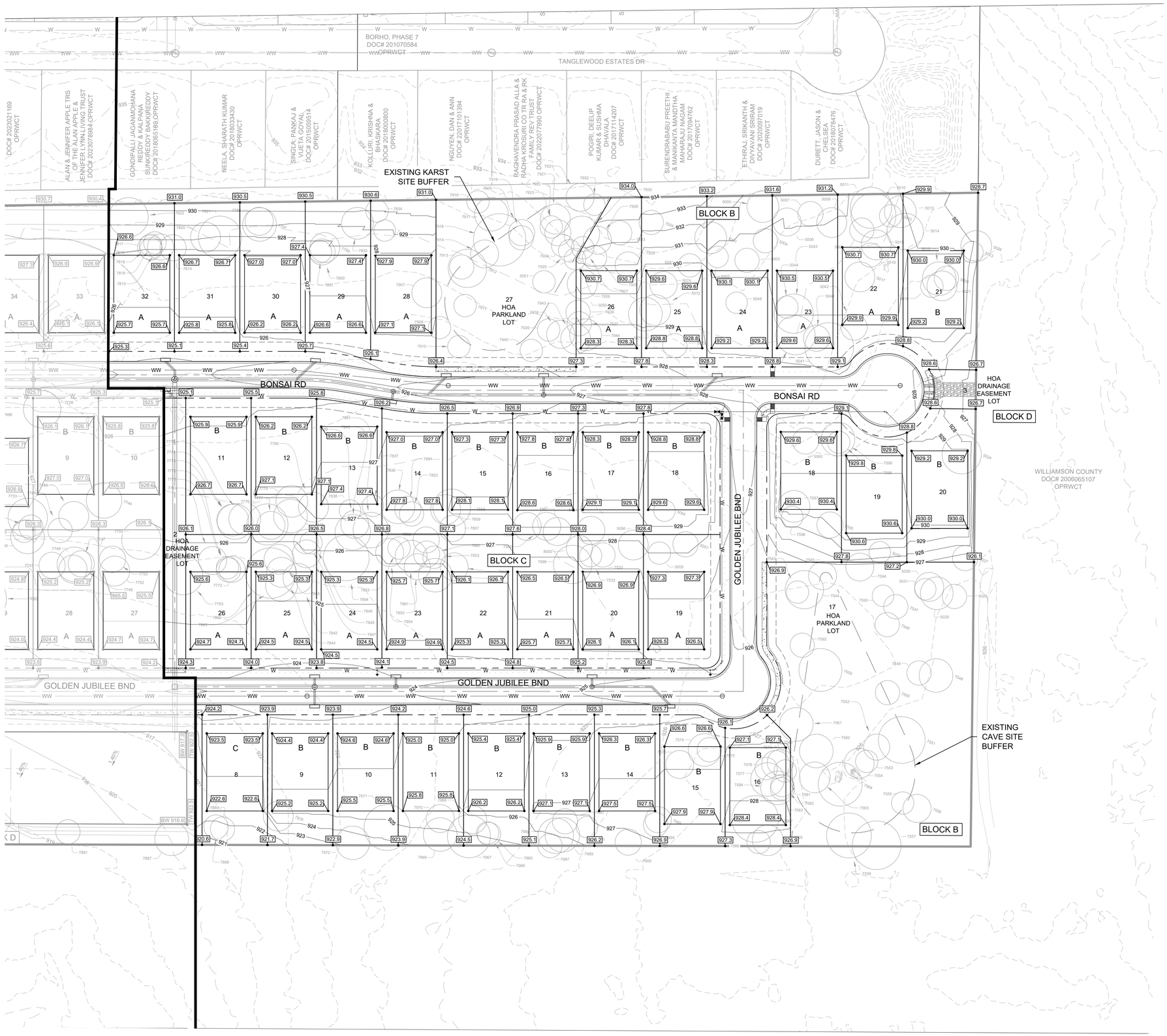
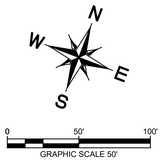
MATCH LINE SEE SHEET 15





LEGEND

- PROPERTY LINE
- 555 PROPOSED CONTOUR
- 555 EXISTING CONTOUR
- LOT DRAINAGE FLOW DIRECTION
- STREET DRAINAGE FLOW DIRECTION
- SAVED TREE

NOTES:

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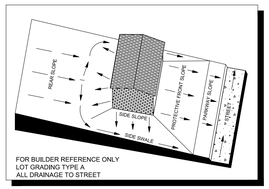

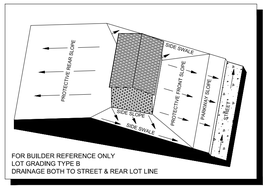

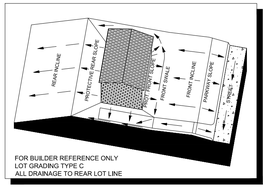

BENCHMARKS

BASIS OF BEARINGS IS THE TEXAS COORDINATE SYSTEM OF 1983, CENTRAL ZONE (4203). ALL COORDINATES AND DISTANCES SHOWN HEREON ARE GRID VALUES. THE UNIT OF LINEAR MEASUREMENT IS U.S. SURVEY FEET.

BM #104 - 1/2-INCH IRON ROD SET IN THE CENTER MEDIAN OF COUNTY ROAD 175, ±67 FEET NORTH OF THE INTERSECTION OF MINERAL DRIVE AND COUNTY ROAD 175, ±73 FEET WEST OF A FIBER OPTIC RISER IN THE EASTERLY RIGHT-OF-WAY LINE OF COUNTY ROAD 175.

N: 10178313.802'
E: 3101940.730'
ELEV.= 906.44'

BM #105 - 1/2-INCH IRON ROD SET IN THE WESTERLY RIGHT-OF-WAY OF COUNTY ROAD 175, ±695 FEET SOUTH OF THE INTERSECTION OF MINERAL DRIVE AND COUNTY ROAD 175, ± 56 FEET EAST OF THE NORTHEAST CORNER OF A METAL SHED.

N: 10177624.355'
E: 3102276.765'
ELEV.=917.20'

No.	REVISIONS	DATE	BY

Kimley»Horn

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501 S AUSTIN AVE #1310, GEORGETOWN, TX 78626
PHONE: 512-520-0788
WWW.KIMLEY-HORN.COM
TEXAS REGISTERED ENGINEERING FIRM F-928

12/9/2025

STATE OF TEXAS
ALEJANDRO E. GRANADOS RICO
130084
LICENSED
PROFESSIONAL ENGINEER

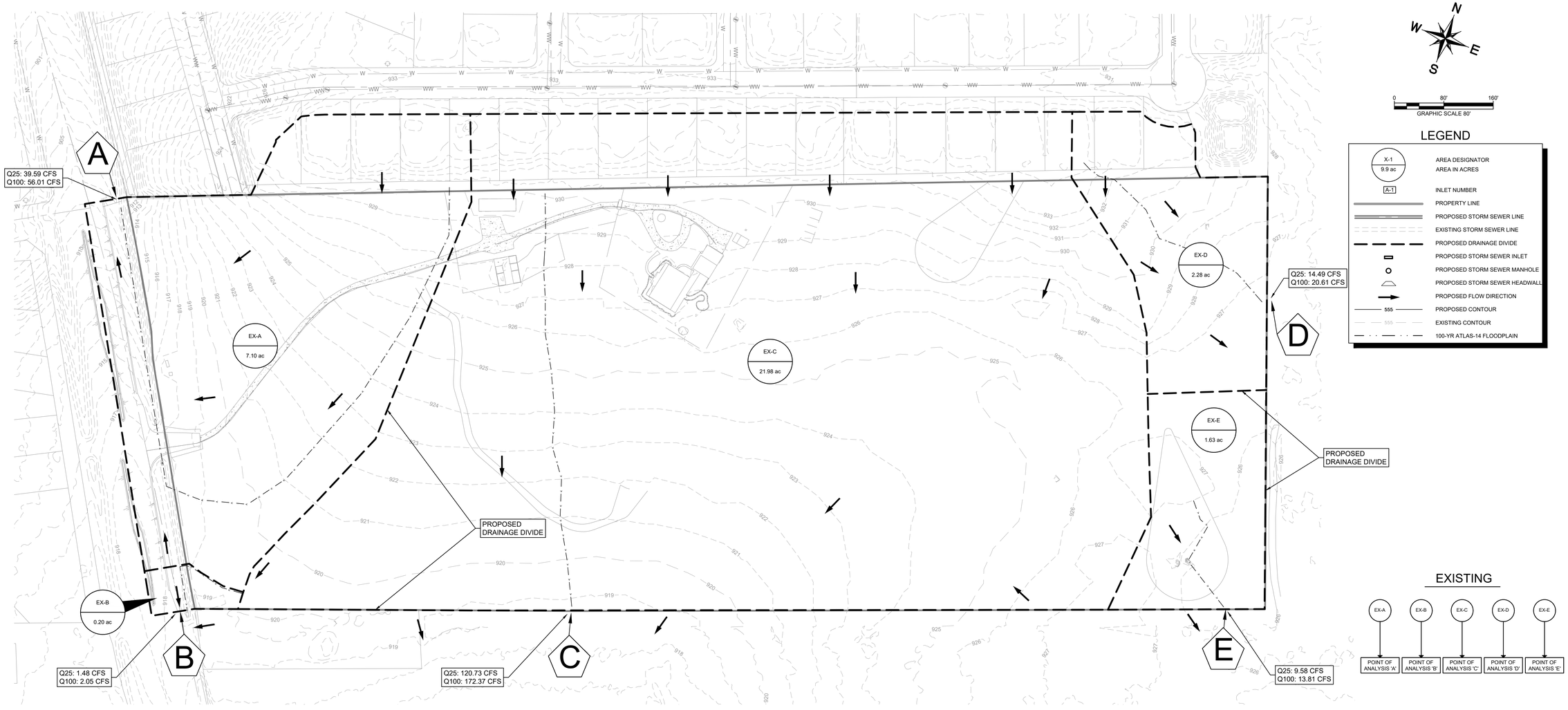
KHA PROJECT	067783185
DATE	DECEMBER 2025
SCALE:	AS SHOWN
DESIGNED BY:	AEG
DRAWN BY:	AEG
CHECKED BY:	AEG

GRADING PLAN (SHEET 2 OF 2)

LOST WOODS ESTATES

CITY OF LEANDER
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER
16
OF 76



Lost Woods Estates ACRE- Existing Time of Conc.

Drainage Calculations - SCS Method

DRAINAGE AREA	AREA	AREA	IMPERVIOUS COVER	IMPERVIOUS COVER	PERVIOUS CURVE NO.	WEIGHTED CURVE NO.	SHEET FLOW				SHALLOW CONCENTRATED FLOW				CHANNEL FLOW										TOTAL Tc**	Q_2	Q_{10}	Q_{25}	Q_{100}
								P-2yr24hr	3.92	IN	Grass Surface				Channel Flow					Pipe Flow									
	(sf)	(Ac.)	(Ac.)	%	Cn*	Cn*	N	L (ft)	S (ft/ft)	Tt(min)	L (ft)	V (fps)	S (ft/ft)	Tt(min)	L (ft)	V (fps)	n	S (ft/ft)	Tt(min)	L (ft)	V (fps)	n	S (ft/ft)	Tt(min)	(min)	(cfs)	(cfs)	(cfs)	(cfs)
EX-A	309,226	7.10	1.05	14.82	79.00	81.82	0.24	100	0.020	**12.89**	655	2.28	0.020	**4.78**	456	6.0	0.040	0.017	**1.27**						**18.94**	**15.96**	**29.92**	**39.59**	**56.01**
EX-B	8,848	0.20	0.06	31.24	79.00	84.94	0.24	100	0.032	**10.68**					73	3.0	0.040	0.010	**0.41**						**11.09**	**0.64**	**1.14**	**1.48**	**2.05**
EX-C	957,649	21.98	1.55	7.06	79.00	80.34	0.24	100	0.017	**13.76**	571	2.10	0.017	**4.52**											**18.28**	**47.58**	**90.71**	**120.73**	**172.37**
EX-D	99,312	2.28	0.23	10.07	79.00	80.91	0.24	100	0.026	**11.61**	264	2.10	0.017	**2.09**											**13.70**	**5.77**	**10.90**	**14.49**	**20.61**
EX-E	71,003	1.63	0.00	0.00	79.00	79.00	0.24	100	0.018	**13.39**	112	1.14	0.005	**1.64**											**15.03**	**3.66**	**7.13**	**9.58**	**13.81**

**The minimum Tc is 6 minutes per the TR-55.

Lost Woods Estates

DETENTION RESULTS - SCS METHOD

EXISTING CONDITIONS

Point of Analysis	Total Drainage Area (Acres)	Total Impervious Cover Area (acres)	Impervious Area (%)	Storm Event	Existing Runoff (cfs)
A	7.10	1.05	14.82%	2	15.96
				10	29.92
				25	39.59
				100	56.01
B	0.20	0.06	31.24%	2	0.64
				10	1.14
				25	1.48
				100	2.05
C	21.98	1.55	7.06%	2	47.58
				10	90.71
				25	120.73
				100	172.37
D	2.28	0.23	10.07%	2	5.77
				10	10.90
				25	14.49
				100	20.61
E	1.63	0.00	0.00%	2	3.66
				10	7.13
				25	9.58
				100	13.81

BENCHMARKS

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12/9/2025

STATE OF TEXAS
ALEJANDRO E. ORANDOS REG.
130084
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ENGINEER

KHA PROJECT	067783185
DATE	DECEMBER 2025
SCALE:	AS SHOWN
DESIGNED BY:	AEG
DRAWN BY:	AEG
CHECKED BY:	AEG

EXISTING DRAINAGE AREA MAP

LOST WOODS ESTATES

CITY OF LEANDER
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER
24
OF 76

Plotted By: Lee, David Date: December 16, 2025 10:52:30am File Path: K:\GEO_Civil\067783185 – Mt. Hannes Leander Simpson Tracts\Civil\Construction Plans\PlanSheets\C-Existing Drainage Area Map.dwg
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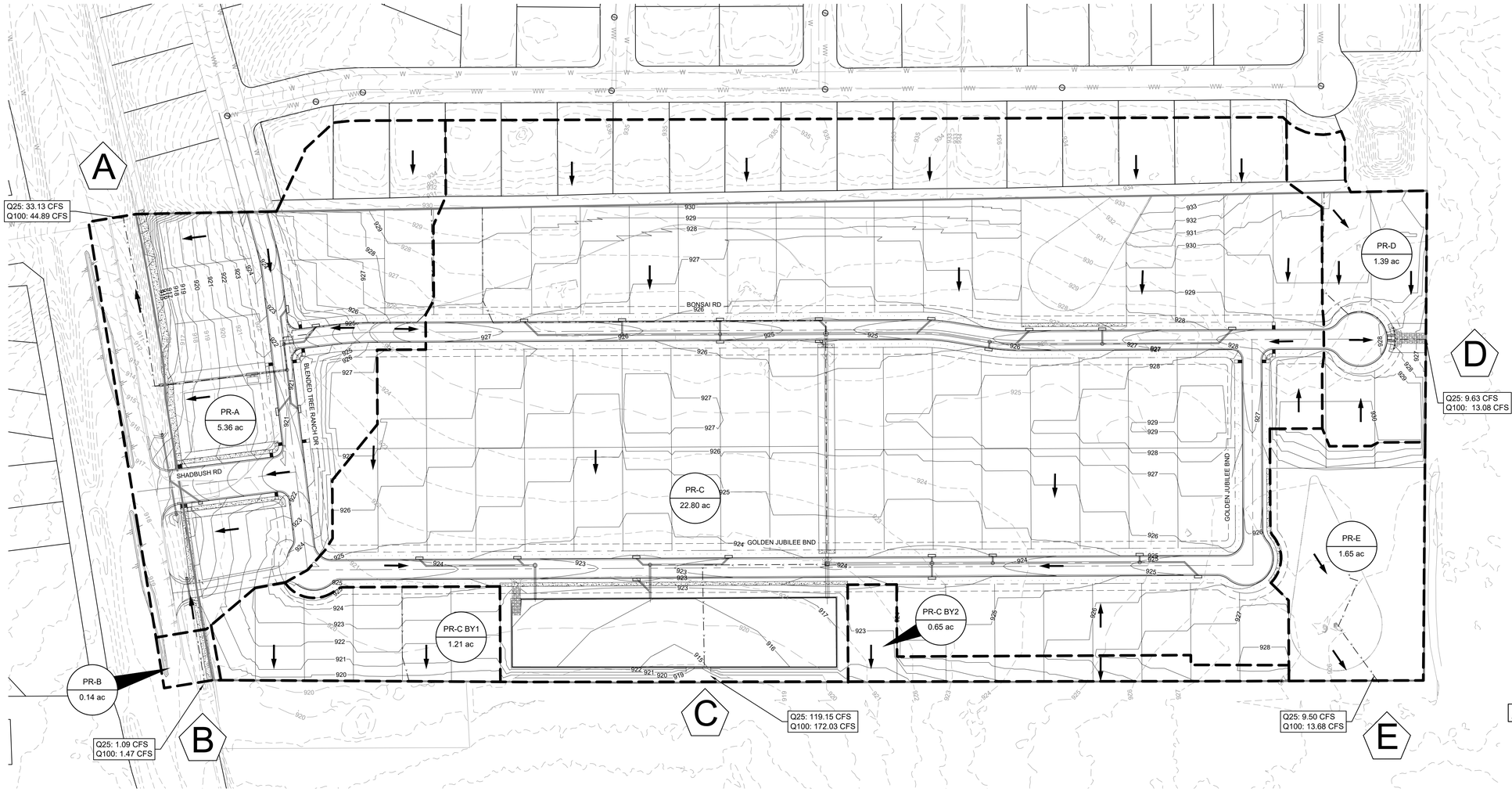
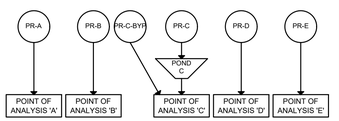


LEGEND

- X-1 / 9.9 ac — AREA DESIGNATOR / AREA IN ACRES
- A-1 — INLET NUMBER
- PROPERTY LINE
- PROPOSED STORM SEWER LINE
- EXISTING STORM SEWER LINE
- PROPOSED DRAINAGE DIVIDE
- PROPOSED STORM SEWER INLET
- PROPOSED STORM SEWER MANHOLE
- PROPOSED STORM SEWER HEADWALL
- PROPOSED FLOW DIRECTION
- 555 — PROPOSED CONTOUR
- 555 — EXISTING CONTOUR
- 100-YR ATLAS-14 FLOODPLAIN

PROPOSED



Lost Woods Estates - Proposed Time of Conc.

Drainage Calculations - SCS Method

DRAINAGE AREA	AREA (sf)	AREA (Ac.)	IMPERVIOUS COVER (Ac.)	IMPERVIOUS COVER %	PERVIOUS CURVE NO. Cn*	WEIGHTED CURVE NO. Cn*	SHEET FLOW N	SHEET FLOW L (ft)	SHEET FLOW P-2yr24hr 3.92 IN S (ft/ft)	SHEET FLOW Tt(min)	SHALLOW CONCENTRATED FLOW L (ft)	SHALLOW CONCENTRATED FLOW V (fps)	SHALLOW CONCENTRATED FLOW S (ft/ft)	SHALLOW CONCENTRATED FLOW Tt(min)	CHANNEL FLOW Channel Flow L (ft)	CHANNEL FLOW Channel Flow V (fps)	CHANNEL FLOW Channel Flow n	CHANNEL FLOW Channel Flow S (ft/ft)	CHANNEL FLOW Channel Flow Tt(min)	CHANNEL FLOW Pipe Flow L (ft)	CHANNEL FLOW Pipe Flow V (fps)	CHANNEL FLOW Pipe Flow n	CHANNEL FLOW Pipe Flow S (ft/ft)	CHANNEL FLOW Pipe Flow Tt(min)	TOTAL Tc** (min)	Q_2 (cfs)	Q_{10} (cfs)	Q_{25} (cfs)	Q_{100} (cfs)
PR-A	233,283	5.36	2.90	54.15%	80.00	89.75	0.24	100	0.010	**17.01**	68	2.28	0.020	**0.50**	247	6.0	0.04	0.017	**0.69**	434	8.0	0.013	0.013	**0.90**	**19.10**	**15.86**	**26.17**	**33.13**	**44.89**
PR-B	5,991	0.14	0.08	58.17%	80.00	90.47	0.15	100	0.032	**7.34**					73	3.0	0.040	0.010	**0.41**							**7.74**	**0.53**	**0.86**	**1.09**	**1.47**
PR-C	993,049	22.80	11.59	50.84%	80.00	89.15	0.24	100	0.010	**17.01**	68	2.28	0.020	**0.50**						1145	8.0	0.013	0.005	**2.39**	**19.90**	**44.37**	**83.14**	**114.79**	**165.32**
PR-C BYPASS	80,774	1.85	0.75	40.45%	80.00	87.28	0.15	100	0.040	**6.71**	36	2.39	0.022	**0.25**												**6.96**	**7.83**	**13.32**	**17.05**	**23.38**
PR-D	60,754	1.39	0.73	52.34%	80.00	89.42	0.24	100	0.010	**17.01**	90	2.28	0.020	**0.66**	133	3.0	0.040	0.007	**0.74**							**18.41**	**4.58**	**7.59**	**9.63**	**13.08**
PR-E	72,014	1.65	0.00	0.00%	79.00	79.00	0.24	100	0.018	**13.39**	112	1.14	0.005	**1.64**												**15.03**	**3.59**	**7.06**	**9.50**	**13.68**

**The minimum Tc is 6 minutes per the TR-55.

PROPOSED CONDITIONS

Point of Analysis	Total Drainage Area (Acres)	Total Impervious Cover Area (acres)	Impervious Area (%)	Storm Event	Developed Runoff (cfs)
A	5.36	2.90	54.15%	2	15.86
				10	26.17
				25	33.13
				100	44.89
B	0.14	0.08	58.17%	2	0.53
				10	0.86
				25	1.09
				100	1.47
C	22.80	11.59	50.84%	2	45.98
				10	86.15
				25	119.15
				100	172.03
D	1.39	0.73	52.34%	2	4.58
				10	7.59
				25	9.63
				100	13.08
E	1.65	0.00	0.00%	2	3.59
				10	7.06
				25	9.50
				100	13.68

PROPOSED VS. EXISTING COMPARISON

Point of Analysis	Storm Event	Existing Runoff (cfs)	Developed Runoff (cfs)	Runoff Difference at Point of Analysis (cfs)	Is Developed ≤ Existing?
A	2	15.96	15.86	(0.10)	YES
	10	29.92	26.17	(3.75)	YES
	25	39.59	33.13	(6.46)	YES
	100	56.01	44.89	(11.12)	YES
B	2	0.64	0.53	(0.11)	YES
	10	1.14	0.86	(0.28)	YES
	25	1.48	1.09	(0.39)	YES
	100	2.05	1.47	(0.58)	YES
C	2	47.58	45.98	(1.60)	YES
	10	90.71	86.15	(4.56)	YES
	25	120.73	119.15	(1.58)	YES
	100	172.37	172.03	(0.34)	YES
D	2	5.77	4.58	(1.19)	YES
	10	10.90	7.59	(3.31)	YES
	25	14.49	9.63	(4.86)	YES
	100	20.61	13.08	(7.53)	YES
E	2	3.66	3.59	(0.07)	YES
	10	7.13	7.06	(0.07)	YES
	25	9.58	9.50	(0.08)	YES
	100	13.81	13.68	(0.13)	YES

*NOTE: Pond Pack V8i was used to calculate the runoff and design the pond volume and oulet structure.

BENCHMARKS

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No.	REVISIONS	DATE	BY

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TEXAS REGISTERED ENGINEERING FIRM F-928

12/9/2025

STATE OF TEXAS — ALEJANDRO E. ORANDOS RIOS — 130084 — LICENSED PROFESSIONAL ENGINEER

KHA PROJECT 067783185	
DATE	DECEMBER 2025
SCALE:	AS SHOWN
DESIGNED BY:	AEG
DRAWN BY:	AEG
CHECKED BY:	AEG

PROPOSED DRAINAGE AREA MAP

LOST WOODS ESTATES

CITY OF LEANDER
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER
25
OF 76

Plotted By: Lee, David Date: December 16, 2025 10:54:35am File Path: K:\CEO_Civil\067783185 - Mi Homes Leander Simpson Tract\Civil\Construction Plans\PlanSheets\C-Drainage Area Map.dwg
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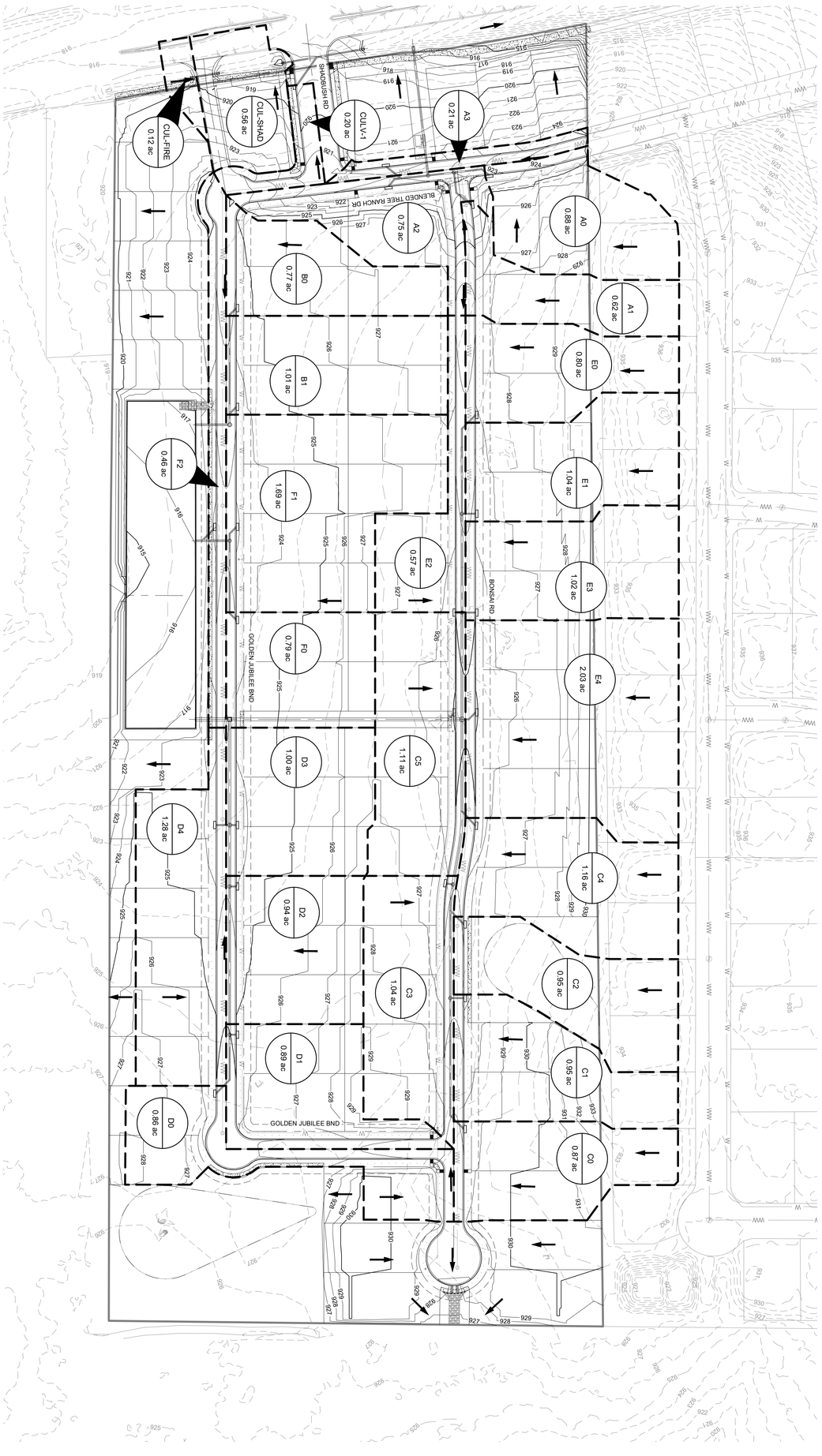

LEGEND

- AREA DESIGNATOR / AREA IN ACRES
- INLET NUMBER
- PROPERTY LINE
- PROPOSED STORM SEWER LINE
- EXISTING STORM SEWER LINE
- PROPOSED DRAINAGE DIVIDE
- PROPOSED STORM SEWER INLET
- PROPOSED STORM SEWER MANHOLE
- PROPOSED STORM SEWER HEADWALL
- PROPOSED FLOW DIRECTION
- PROPOSED CONTOUR
- EXISTING CONTOUR
- 100-YR ATLAS-14 FLOODPLAIN

GRAPHIC SCALE 80' 0 80' 160'

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N: 10197462.130'
E: 3197840.730'
ELEV.= 996.44'

BM #105 - 1/2-INCH IRON ROD SET IN THE WESTERLY RIGHT-OF-WAY OF COUNTY ROAD 175, 4956 FEET SOUTH OF THE INTERSECTION OF NORTHEAST CORNER OF A METAL SHED, 1.58' FEET EAST OF THE
N: 10177824.595'
E: 3197722.795'
ELEV.= 977.22'

SHEET NUMBER 26 OF 76	LOST WOODS ESTATES CITY OF LEANDER WILLIAMSON COUNTY, TEXAS	INLET DRAINAGE AREA MAP	KHA PROJECT 067783185 DATE DECEMBER 2025 SCALE: AS SHOWN DESIGNED BY: AEG DRAWN BY: AEG CHECKED BY: AEG

12/9/2025

Kimley»Horn
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No.	REVISIONS	DATE	BY

Lost Woods Estates
Proposed "C" Value Calculations

DRAINAGE AREA	AREA (sf)	AREA (Ac.)	Lots	SF of Lots	LF of Local	SF of Local	LF of Collector	SF of Collect	Offsite Impervious cover	IMPERVIOUS COVER (sf)	IMPERVIOUS COVER %	Comp. C_{25}	Comp. C_{100}
A0	38156.57	0.88	3.5	17,500	150	2925	0	0	0	20,425	54%	**0.652**	**0.733**
A1	26960.52	0.62	2.0	10,000	161	3140	0	0	0	13,140	49%	**0.629**	**0.709**
A2	32733.03	0.75	1.0	5,000	596	11622	0	0	0	16,622	51%	**0.639**	**0.719**
A3	8978.87	0.21	0.0	0	376	7332	0	0	0	7,332	82%	**0.790**	**0.876**
B0	33640.22	0.77	3.0	15,000	171	3335	0	0	0	18,335	55%	**0.657**	**0.738**
B1	43958.79	1.01	4.0	20,000	140	2730	0	0	0	22,730	52%	**0.643**	**0.724**
C0	37942.47	0.87	3.0	15,000	142	2769	0	0	0	17,769	47%	**0.619**	**0.699**
C1	41295.41	0.95	3.0	15,000	180	3510	0	0	0	18,510	45%	**0.610**	**0.689**
C2	41361.47	0.95	2.0	10,000	110	2145	0	0	0	12,145	29%	**0.534**	**0.610**
C3	45171.22	1.04	5.0	25,000	387	7547	0	0	0	32,547	72%	**0.743**	**0.827**
C4	50432.63	1.16	4.0	20,000	141	2750	0	0	0	22,750	45%	**0.611**	**0.690**
C5	48185	1.11	5.0	25,000	374	7293			0	32,293	67%	**0.718**	**0.802**
D0	37468.65	0.86	3.0	15,000	515	10043	0	0	0	25,043	67%	**0.717**	**0.801**
D1	38890.57	0.89	2.0	10,000	499	9731	0	0	0	19,731	51%	**0.639**	**0.719**
D2	40839.45	0.94	3.0	15,000	210	4095	0	0	0	19,095	47%	**0.619**	**0.698**
D3	43557.11	1.00	3.0	15,000	210	4095	0	0	0	19,095	44%	**0.605**	**0.684**
D4	55944.75	1.28	6.0	30,000	507	9887	0	0	0	39,887	71%	**0.739**	**0.824**
E0	34844.94	0.80	3.0	15,000	152	2964	0	0	0	17,964	52%	**0.643**	**0.723**
E1	45299.88	1.04	4.0	20,000	140	2730	0	0	0	22,730	50%	**0.636**	**0.716**
E2	24929.22	0.57	2.0	10,000	420	8190	0	0	0	18,190	73%	**0.748**	**0.832**
E3	44571.19	1.02	4.0	20,000	140	2730	0	0	0	22,730	51%	**0.640**	**0.720**
E4	88317.8	2.03	8.0	40,000	280	5460			0	45,460	51%	**0.642**	**0.723**
F0	34492.08	0.79	2.0	10,000	164	3198	0	0	0	13,198	38%	**0.577**	**0.655**
F1	73497.57	1.69	6.0	30,000	280	5460	0	0	0	35,460	48%	**0.626**	**0.706**
F2	20048.14	0.46	0.0	0	754	14703	0	0	0	14,703	73%	**0.749**	**0.834**
CUL-FIRE	5035.53	0.12	0.0	0	0	0	0	0	1316	1,316	26%	**0.518**	**0.593**
CUL-SHAD	24205.03	0.56	1.0	5,000	157	3140	0	0	3628	11,768	49%	**0.628**	**0.708**
CULV-1	8735.36	0.20	0.0	0	141	2750	129	4064	0	6,813	78%	**0.772**	**0.858**

Lost Woods Estates
Time of Concentration

DRAINAGE AREA	SHEET FLOW (P-2yr24hr 3.92 IN) N	L (ft)	S (ft/ft)	Tt(min)	SHALLOW CONCENTRATED FLOW (Grass Surface) L (ft)	V (fps)	S (ft/ft)	Tt(min)	CHANNEL FLOW (Channel Flow (PAVEMENT)) L (ft)	V (fps)	a (ft^2)	Pw (ft)	r	n	S (ft/ft)	Tt(min)	TOTAL Tc** (min)
A0	0.15	100	0.025	**8.097**	252	2.7	0.029	**1.529**	54	5.0	3.8	15.5	0.245	0.016	0.019	**0.18**	**9.80**
A1	0.15	100	0.036	**6.998**	201	2.4	0.022	**1.400**	151	6.2	3.8	15.5	0.245	0.016	0.029	**0.41**	**8.80**
A2	0.15	50	0.020	**5.084**	160	3.3	0.041	**0.816**	50	2.6	3.8	15.5	0.245	0.016	0.005	**0.32**	**6.22**
A3	0.15	16	0.010	**2.696**	0	2.7	0.028	**0.000**	280	4.3	3.8	15.5	0.245	0.016	0.014	**1.08**	**5.00**
B0	0.15	100	0.010	**11.681**	201	2.0	0.016	**1.641**	5	5.2	3.8	15.5	0.245	0.016	0.020	**0.02**	**13.34**
B1	0.15	100	0.010	**11.681**	203	2.1	0.017	**1.608**	48	2.6	3.8	15.5	0.245	0.016	0.005	**0.31**	**13.60**
C0	0.15	100	0.010	**11.681**	210	2.2	0.018	**1.617**	49	2.8	3.8	15.5	0.245	0.016	0.006	**0.29**	**13.59**
C1	0.24	100	0.010	**17.013**	209	2.7	0.028	**1.290**	164	3.1	3.8	15.5	0.245	0.016	0.007	**0.90**	**19.20**
C2	0.15	100	0.010	**11.681**	211	3.1	0.037	**1.133**	73	2.6	3.8	15.5	0.245	0.016	0.005	**0.47**	**13.29**
C3	0.24	50	0.010	**9.771**	67	2.2	0.018	**0.516**	258	2.8	3.8	15.5	0.245	0.016	0.006	**1.52**	**11.81**
C4	0.15	100	0.016	**9.679**	233	2.7	0.027	**1.465**	118	2.6	3.8	15.5	0.245	0.016	0.005	**0.76**	**11.91**
C5	0.24	50	0.010	**9.771**	75	2.0	0.016	**0.612**	229	2.6	3.8	15.5	0.245	0.016	0.005	**1.48**	**11.86**
D0	0.15	50	0.010	**6.709**	66	2.0	0.015	**0.557**	505	3.1	3.8	15.5	0.245	0.016	0.007	**2.76**	**10.02**
D1	0.15	100	0.026	**7.971**	83	2.4	0.023	**0.565**	45	2.6	3.8	15.5	0.245	0.016	0.005	**0.29**	**8.83**
D2	0.15	100	0.025	**8.097**	84	2.4	0.023	**0.572**	183	2.6	3.8	15.5	0.245	0.016	0.005	**1.18**	**9.85**
D3	0.15	100	0.014	**10.210**	102	2.2	0.018	**0.785**	122	2.6	3.8	15.5	0.245	0.016	0.005	**0.79**	**11.78**
D4	0.15	50	0.016	**5.559**	67	2.2	0.019	**0.502**	358	2.6	3.8	15.5	0.245	0.016	0.005	**2.31**	**8.37**
E0	0.24	100	0.040	**9.771**	220	2.4	0.022	**1.532**	47	2.8	3.8	15.5	0.245	0.016	0.006	**0.28**	**11.58**
E1	0.24	100	0.036	**10.192**	225	2.5	0.024	**1.500**	111	2.6	3.8	15.5	0.245	0.016	0.005	**0.72**	**12.41**
E2	0.15	50	0.010	**6.709**	67	1.2	0.006	**0.893**	129	2.6	3.8	15.5	0.245	0.016	0.005	**0.83**	**8.44**
E3	0.24	100	0.037	**10.081**	204	2.7	0.029	**1.237**	116	2.6	3.8	15.5	0.245	0.016	0.005	**0.75**	**12.07**
E4	0.24	100	0.024	**11.986**	210	2.8	0.030	**1.252**	147	2.6	3.8	15.5	0.245	0.016	0.005	**0.95**	**14.19**
F0	0.24	100	0.013	**15.318**	99	2.2	0.018	**0.762**	119	2.6	3.8	15.5	0.245	0.016	0.005	**0.77**	**16.85**
F1	0.15	100	0.010	**11.681**	206	2.0	0.015	**1.737**	72	2.6	3.8	15.5	0.245	0.016	0.005	**0.47**	**13.88**
F2	0.15	18	0.011	**2.852**	0	2.0	0.015	**0.000**	490	2.6	3.8	15.5	0.245	0.016	0.005	**3.17**	**6.02**
CUL-FIRE	0.24	50	0.044	**5.402**	43	4.7	0.085	**0.152**	15	9.9	3.8	15.5	0.245	0.016	0.073	**0.03**	**5.58**
CUL-SHAD	0.15	50	0.048	**3.582**	92	4.2	0.068	**0.364**	75	5.3	3.8	15.5	0.245	0.016	0.021	**0.24**	**5.00**
CULV-1	0.15	15	0.053	**1.314**	0	2.0	0.015	**0.000**	190	5.9	3.8	15.5	0.245	0.016	0.026	**0.54**	**5.00**

**The minimum Tc is 5 minutes per the City of Austin DCM.

Lost Woods Estates
Proposed Inlet Runoff (Q) Calculations

D.A. Number	Drainage Area (Ac)	TOTAL I.C. (%)	Comp. C_{25}	Comp. C_{100}	TOTAL T_c (Min.)	i_{25} (in/hr)	i_{100} (in/hr)	Q_{25} (cfs)	Q_{100} (cfs)
A0	**0.88**	54%	**0.65**	**0.73**	9.80	9.17	12.16	**5.24**	**7.81**
A1	**0.62**	49%	**0.63**	**0.71**	8.80	9.54	12.64	**3.71**	**5.54**
A2	**0.75**	51%	**0.64**	**0.72**	6.22	10.66	14.13	**5.12**	**7.64**
A3	**0.21**	82%	**0.79**	**0.88**	5.00	11.30	15.00	**1.84**	**2.71**
B0	**0.77**	55%	**0.66**	**0.74**	13.34	8.11	10.75	**4.11**	**6.13**
B1	**1.01**	52%	**0.64**	**0.72**	13.60	8.04	10.66	**5.22**	**7.78**
C0	**0.87**	47%	**0.62**	**0.70**	13.59	8.04	10.66	**4.34**	**6.49**
C1	**0.95**	45%	**0.61**	**0.69**	19.20	6.85	9.09	**3.96**	**5.93**
C2	**0.95**	29%	**0.53**	**0.61**	13.29	8.12	10.77	**4.12**	**6.23**
C3	**1.04**	72%	**0.74**	**0.83**	11.81	8.53	11.31	**6.57**	**9.70**
C4	**1.16**	45%	**0.61**	**0.69**	11.91	8.50	11.27	**6.01**	**9.00**
C5	**1.11**	67%	**0.72**	**0.80**	11.86	8.51	11.29	**6.77**	**10.01**
D0	**0.86**	67%	**0.72**	**0.80**	10.02	9.10	12.06	**5.61**	**8.31**
D1	**0.89**	51%	**0.64**	**0.72**	8.83	9.53	12.63	**5.43**	**8.10**
D2	**0.94**	47%	**0.62**	**0.70**	9.85	9.16	12.14	**5.31**	**7.95**
D3	**1.00**	44%	**0.60**	**0.68**	11.78	8.54	11.32	**5.16**	**7.74**
D4	**1.28**	71%	**0.74**	**0.82**	8.37	9.70	12.86	**9.22**	**13.61**
E0	**0.80**	52%	**0.64**	**0.72**	11.58	8.60	11.40	**4.42**	**6.59**
E1	**1.04**	50%	**0.64**	**0.72**	12.41	8.36	11.08	**5.53**	**8.25**
E2	**0.57**	73%	**0.75**	**0.83**	8.44	9.68	12.83	**4.14**	**6.11**
E3	**1.02**	51%	**0.64**	**0.72**	12.07	8.45	11.21	**5.54**	**8.26**
E4	**2.03**	51%	**0.64**	**0.72**	14.19	7.89	10.46	**10.27**	**15.33**
F0	**0.79**	38%	**0.58**	**0.66**	16.85	7.29	9.68	**3.33**	**5.02**
F1	**1.69**	48%	**0.63**	**0.71**	13.88	7.97	10.56	**8.42**	**12.58**
F2	**0.46**	73%	**0.75**	**0.83**	6.02	10.76	14.27	**3.71**	**5.48**
CUL-FIRE	**0.12**	26%	**0.52**	**0.59**	5.58	10.99	14.57	**0.66**	**1.00**
CUL-SHAD	**0.56**	49%	**0.63**	**0.71**	5.00	11.30	15.00	**3.95**	**5.90**
CULV-1	**0.20**	78%	**0.77**	**0.86**	5.00	11.30	15.00	**1.75**	**2.58**

25-Year Street Capacity & Inlet Design Calculations

Project: Lost Woods Estates
Location: Leander, TX
Date: 12/5/2025

Inlet No. (1)	Inlet Type (5)	Inlet Condition (Sag or On-Grade) (6)	Area No. (7)	Areas (acres) (8)	25 YR Runoff "c" (9)	Conc. Time (min.) (10)	25-year Intensity (in/hr) (11)	25-year Runoff (cfs) (12)	25-year Carryover Flow (cfs) (13)	25-year Total Gutter Q (cfs) (14)	Sag Inlet Percentage of flow from: Lower Station (15)	Higher Station (16)	Sag Inlet Split 25-year Runoff (cfs) from: Lower Station (17)	Higher Station (18)
A0	Curb	On-Grade	A0	0.88	0.65	9.8	9.17	5.24	0.00	5.24	N/A	N/A	N/A	N/A
A1	Curb	On-Grade	A1	0.62	0.63	8.8	9.54	3.71	0.00	3.71	N/A	N/A	N/A	N/A
A2	Curb	Sag	A2	0.75	0.64	6.2	10.66	5.12	0.00	5.12	50%	50%	2.56	2.56
A3	Curb	Sag	A3	0.21	0.79	5.0	11.30	1.84	0.00	1.84	80%	20%	1.47	0.37
B0	Curb	On-Grade	B0	0.77	0.66	13.3	8.11	4.11	0.00	4.11	N/A	N/A	N/A	N/A
B1	Curb	On-Grade	B1	1.01	0.64	13.6	8.04	5.22	0.00	5.22	N/A	N/A	N/A	N/A
C0	Curb	On-Grade	C0	0.87	0.62	13.6	8.04	4.34	0.00	4.34	N/A	N/A	N/A	N/A
C1	Curb	On-Grade	C1	0.95	0.61	19.2	6.85	3.96	0.00	3.96	N/A	N/A	N/A	N/A
C2	Curb	On-Grade	C2	0.95	0.53	13.3	8.12	4.12	0.00	4.12	N/A	N/A	N/A	N/A
C3	Curb	On-Grade	C3	1.04	0.74	11.8	8.53	6.57	0.00	6.57	N/A	N/A	N/A	N/A
C4	Curb	On-Grade	C4	1.16	0.61	11.9	8.50	6.01	0.00	6.01	N/A	N/A	N/A	N/A
C5	Curb	Sag	C5	1.11	0.72	11.9	8.51	6.77	0.00	6.77	35%	65%	2.37	4.40
D0	Curb	On-Grade	D0	0.86	0.72	10.0	9.10	5.61	0.00	5.61	N/A	N/A	N/A	N/A
D1	Curb	On-Grade	D1	0.89	0.64	8.8	9.53	5.43	0.00	5.43	N/A	N/A	N/A	N/A
D2	Curb	On-Grade	D2	0.94	0.62	9.9	9.16	5.31	0.00	5.31	N/A	N/A	N/A	N/A
D3	Curb	Sag	D3	1.00	0.60	11.8	8.54	5.16	0.00	5.16	65%	35%	3.35	1.81
D4	Curb	Sag	D4	1.28	0.74	8.4	9.70	9.22	0.00	9.22	25%	75%	2.31	6.92
E0	Curb	On-Grade	E0	0.80	0.64	11.6	8.60	4.42	0.00	4.42	N/A	N/A	N/A	N/A
E1	Curb	On-Grade	E1	1.04	0.64	12.4	8.36	5.53	0.00	5.53	N/A	N/A	N/A	N/A
E2	Curb	On-Grade	E2	0.57	0.75	8.4	9.68	4.14	0.00	4.14	N/A	N/A	N/A	N/A
E3	Curb	On-Grade	E3	1.02	0.64	12.1	8.45	5.54	0.00	5.54	N/A	N/A	N/A	N/A
E4	Curb	Sag	E4	2.03	0.64	14.2	7.89	10.27	0.00	10.27	50%	50%	5.14	5.14
F0	Curb	On-Grade	F0	0.79	0.58	16.8	7.29	3.33	0.00	3.33	N/A	N/A	N/A	N/A
F1	Curb	Sag	F1	1.69	0.63	13.9	7.97	8.42	0.00	8.42	65%	35%	5.47	2.95
F2	Curb	Sag	F2	0.46	0.75	6.0	10.76	3.71	0.00	3.71	65%	35%	2.41	1.30
CULV-1	Curb	On-Grade	CULV-1	0.20	0.77	5.0	11.30	1.75	0.00	1.75	N/A	N/A	N/A	N/A

Inlet No. (1)	"S_L" Street Longitudinal Slope (%) On-Grade/Lower Station for Sag (19)	Higher Station for Sag (20)	Street Section (Type) (21)	Roadway Cross Slope "S_x" (%) (22)	Manning's Coefficient for Pavement "n" (23)	Street Capacity (cfs) (24)	Right-of-Way Capacity (cfs) On-Grade/Lower Station for Sag (25)	Higher Station for Sag (26)	25-year Depth of Flow (ft) On-Grade/Lower Station for Sag (27)	Higher Station for Sag (28)	25-year Spread of Flow "T" (ft) On-Grade/Lower Station for Sag (29)	Higher Station for Sag (30)	Gutter Cross Slope "S_w" (%) (31)	Width of Depressed Gutter "W" (32)	25-year Ratio of Flow "E_0" (33)
A0	2.00%	2.00%	Type F	3.32%	0.0175	13.37	34.66	N/A	0.41	N/A	12.40	N/A	27.78%	1.50	0.45
A1	2.00%	2.00%	Type F	3.81%	0.0175	13.37	34.66	N/A	0.38	N/A	10.05	N/A	27.78%	1.50	0.52
A2	2.00%	0.50%	Type F	4.19%	0.0175	13.37	34.66	17.33	0.35	0.41	8.30	12.20	27.78%	1.50	N/A
A3	2.00%	0.50%	Type F	4.58%	0.0175	13.37	34.66	17.33	0.29	0.24	6.44	4.81	27.78%	1.50	N/A
B0	0.50%	0.50%	Type F	2.98%	0.0175	6.68	17.33	N/A	0.44	N/A	14.00	N/A	27.78%	1.50	0.41
B1	0.50%	0.50%	Type F	2.98%	0.0175	6.68	17.33	N/A	0.47	N/A	14.00	N/A	27.78%	1.50	0.41
C0	0.67%	0.67%	Type F	2.98%	0.0175	7.74	20.06	N/A	0.43	N/A	14.00	N/A	27.78%	1.50	0.41
C1	0.67%	0.50%	Type F	2.98%	0.0175	7.74	20.06	N/A	0.43	N/A	14.00	N/A	27.78%	1.50	0.41
C2	0.50%	0.50%	Type F	2.98%	0.0175	6.68	17.33	N/A	0.44	N/A	14.00	N/A	27.78%	1.50	0.41
C3	0.67%	0.67%	Type F	2.98%	0.0175	7.74	20.06	N/A	0.48	N/A	14.00	N/A	27.78%	1.50	0.41
C4	0.50%	0.50%	Type F	2.98%	0.0175	6.68	17.33	N/A	0.49	N/A	14.00	N/A	27.78%	1.50	0.41
C5	0.50%	0.50%	Type F	3.48%	0.0175	6.68	17.33	17.33	0.40	0.45	11.60	14.00	27.78%	1.50	N/A
D0	0.55%	0.55%	Type F	2.98%	0.0175	7.01	18.17	N/A	0.47	N/A	14.00	N/A	27.78%	1.50	0.41
D1	0.55%	0.55%	Type F	2.98%	0.0175	7.01	18.17	N/A	0.47	N/A	14.00	N/A	27.78%	1.50	0.41
D2	0.55%	0.55%	Type F	2.98%	0.0175	7.01	18.17	N/A	0.47	N/A	14.00	N/A	27.78%	1.50	0.41
D3	0.50%	0.55%	Type F	2.98%	0.0175	7.01	17.33	18.17	0.42	0.38	14.00	9.65	27.78%	1.50	N/A
D4	0.50%	0.55%	Type F	3.53%	0.0175	7.01	17.33	18.17	0.40	0.50	11.40	14.00	27.78%	1.50	N/A
E0	0.50%	0.50%	Type F	2.98%	0.0175	6.68	17.33	N/A	0.45	N/A	14.00	N/A	27.78%	1.50	0.41
E1	0.50%	0.50%	Type F	2.98%	0.0175	6.68	17.33	N/A	0.48	N/A	14.00	N/A	27.78%	1.50	0.41
E2	0.50%	0.50%	Type F	2.98%	0.0175	6.68	17.33	N/A	0.44	N/A	14.00	N/A	27.78%	1.50	0.41
E3	0.50%	0.50%	Type F	2.98%	0.0175	6.68	17.33	N/A	0.48	N/A	14.00	N/A	27.78%	1.50	0.41
E4	0.50%	0.50%	Type F	2.98%	0.0175	6.68	17.33	17.33	0.47	0.47	14.00	14.00	27.78%	1.50	N/A
F0	0.50%	0.50%	Type F	2.98%	0.0175	6.68	17.33	N/A	0.42	N/A	14.00	N/A	27.78%	1.50	0.41
F1	0.50%	0.50%	Type F	2.98%	0.0175	6.68	17.33	17.33	0.47	0.42	14.00	13.55	27.78%	1.50	N/A
F2	0.50%	0.50%	Type F	3.46%	0.0175	6.68	17.33	17.33	0.41	0.35	11.73	8.36	27.78%	1.50	N/A
CULV-1	2.00%	2.00%	Type G	2.79%	0.0175	24.13	70.51	N/A	0.26	N/A	9.38	N/A	27.78%	1.50	0.62

Inlet No. (1)	Gutter Depression Depth "a" (ft) (34)	Equivalent Cross Slope "S_e" (%) (36)	25-year Required Length "L_T" (37)	Length Provided "L" (ft) (38)	Inlet Efficiency "E" (39)	25-year Inlet Capacity (cfs) (40)	25-year Carryover Flow "q" (cfs) (41)	Target Inlet No. (42)
A0	0.42	15.71%	12.79	10	0.94	4.90	0.34	N/A
A1	0.42	18.36%	10.08	10	1.00	3.71	0.00	N/A
A2	0.42	N/A	2.08	10	1.00	5.12	0.00	N/A
A3	0.42	N/A	0.87	10	1.00	1.84	0.00	N/A
B0	0.42	14.31%	8.06	10	1.00	4.11	0.00	N/A
B1	0.42	14.31%	8.91	10	1.00	5.22	0.00	N/A
C0	0.42	14.31%	9.00	10	1.00	4.34	0.00	N/A
C1	0.42	14.31%	8.66	10	1.00	3.96	0.00	N/A
C2	0.42	14.31%	8.07	10	1.00	4.12	0.00	N/A
C3	0.42	14.31%	10.72	10	0.99	6.52	0.05	N/A
C4	0.42	14.31%	9.46	10	1.00	6.01	0.00	N/A
C5	0.42	N/A	2.59	10	1.00	6.77	0.00	N/A
D0	0.42	14.31%	9.45	10	1.00	5.61	0.00	N/A
D1	0.42	14.31%	9.32	10	1.00	5.43	0.00	N/A
D2	0.42	14.31%	9.24	10	1.00	5.31	0.00	N/A
D3	0.42	N/A	2.03	10	1.00	5.16	0.00	N/A
D4	0.42	N/A	3.53	10	1.00	9.22	0.00	N/A
E0	0.42	14.31%	8.31	10	1.00	4.42	0.00	N/A
E1	0.42	14.31%	9.13	10	1.00	5.53	0.00	N/A
E2	0.42	14.31%	8.09	10	1.00	4.14	0.00	N/A
E3	0.42	14.31%	9.14	10	1.00	5.54	0.00	N/A
E4	0.42	N/A	3.70	10	1.00	10.27	0.00	N/A
F0	0.42	14.31%	7.38	10	1.00	3.33	0.00	N/A
F1	0.42	N/A	3.18	10	1.00	8.42	0.00	N/A
F2	0.42	N/A	1.51	10	1.00	3.71	0.00	N/A
CULV-1	0.42	19.94%	7.00	5	0.90	1.57	0.18	N/A

100-Year Street Capacity & Inlet Design Calculations

Project: Lost Woods Estates
Location: Leander, TX
Date: 12/5/2025

Inlet No. (1)	Inlet Type (5)	Inlet Condition (Sag or On-Grade) (6)	Area No. (7)	Areas (acres) (8)	100 YR Runoff "c" (9)	Conc. Time (min.) (10)	100-year Intensity (in/hr) (11)	100-year Runoff (cfs) (12)	100-year Carryover Flow (cfs) (13)	100-year Total Gutter Q (cfs) (14)	Sag Inlet Percentage of flow from: Lower Station (15)	Higher Station (16)	Sag Inlet Split 100-year Runoff (cfs) from: Lower Station (17)	Higher Station (18)
A0	Curb	On-Grade	A0	0.88	0.73	9.8	12.16	7.81	0.00	7.81	N/A	N/A	N/A	N/A
A1	Curb	On-Grade	A1	0.62	0.71	8.8	12.64	5.54	0.00	5.54	N/A	N/A	N/A	N/A
A2	Curb	Sag	A2	0.75	0.72	6.2	14.13	7.64	0.46	8.10	50%	50%	4.05	4.05
A3	Curb	Sag	A3	0.21	0.88	5.0	15.00	2.71	0.00	2.71	80%	20%	2.17	0.54
B0	Curb	On-Grade	B0	0.77	0.74	13.3	10.75	6.13	0.00	6.13	N/A	N/A	N/A	N/A
B1	Curb	On-Grade	B1	1.01	0.72	13.6	10.66	7.78	0.00	7.78	N/A	N/A	N/A	N/A
C0	Curb	On-Grade	C0	0.87	0.70	13.6	10.66	6.49	0.00	6.49	N/A	N/A	N/A	N/A
C1	Curb	On-Grade	C1	0.95	0.69	19.2	9.09	5.93	0.04	5.97	N/A	N/A	N/A	N/A
C2	Curb	On-Grade	C2	0.95	0.61	13.3	10.77	6.23	0.01	6.24	N/A	N/A	N/A	N/A
C3	Curb	On-Grade	C3	1.04	0.83	11.8	11.31	9.70	0.00	9.70	N/A	N/A	N/A	N/A
C4	Curb	On-Grade	C4	1.16	0.69	11.9	11.27	9.00	0.00	9.00	N/A	N/A	N/A	N/A
C5	Curb	Sag	C5	1.11	0.80	11.9	9.68	8.58	0.95	9.53	35%	65%	3.34	6.19
D0	Curb	On-Grade	D0	0.86	0.80	10.0	12.06	8.31	0.00	8.31	N/A	N/A	N/A	N/A
D1	Curb	On-Grade	D1	0.89	0.72	8.8	12.63	8.10	0.00	8.10	N/A	N/A	N/A	N/A
D2	Curb	On-Grade	D2	0.94	0.70	9.9	12.14	7.95	0.25	8.20	N/A	N/A	N/A	N/A
D3	Curb	Sag	D3	1.00	0.68	11.8	11.32	7.74	0.28	8.02	65%	35%	5.21	2.81
D4	Curb	Sag	D4	1.28	0.82	8.4	12.86	13.61	0.31	13.92	25%	75%	3.48	10.44
E0	Curb	On-Grade	E0	0.80	0.72	11.6	11.31	6.54	0.00	6.54	N/A	N/A	N/A	N/A
E1	Curb	On-Grade	E1	1.04	0.72	12.4	9.68	7.21	0.00	7.21	N/A	N/A	N/A	N/A
E2	Curb	On-Grade	E2	0.57	0.83	8.4	12.83	6.11	0.00	6.11	N/A	N/A	N/A	N/A
E3	Curb	On-Grade	E3	1.02	0.72	12.1	11.27	8.30	0.03	8.33	N/A	N/A	N/A	N/A
E4	Curb	Sag	E4	2.03	0.72	14.2	14.57	21.35	0.80	22.15	50%	50%	11.08	11.08
F0	Curb	On-Grade	F0	0.79	0.66	16.8	9.68	5.02	0.00	5.02	N/A	N/A	N/A	N/A
F1	Curb	Sag	F1	1.69	0.71	13.9	10.56	12.58	0.14	12.72	65%	35%	8.27	4.45
F2	Curb	Sag	F2	0.46	0.83	6.0	14.27	5.48	0.00	5.48	65%	35%	3.56	1.92
CULV-1	Curb	On-Grade	CULV-1	0.20	0.86	5.0	15.00	2.58	0.00	2.58	N/A	N/A	N/A	N/A

Inlet No. (1)	"S_L" Street Longitudinal Slope (%) On-Grade/Lower Station for Sag (19)	Higher Station for Sag (20)	Street Section (Type) (21)	Roadway Cross Slope "S_x" (%) (22)	Manning's Coefficient for Pavement "n" (23)	Street Capacity (cfs) (24)	Right-of-Way Capacity (cfs) On-Grade/Lower Station for Sag (25)	Higher Station for Sag (26)	100-year Depth of Flow (ft) On-Grade/Lower Station for Sag (27)	Higher Station for Sag (28)	100-year Spread of Flow "T" (ft) On-Grade/Lower Station for Sag (29)	Higher Station for Sag (30)	Gutter Cross Slope "S_w" (%) (31)	Width of Depressed Gutter "W" (32)	100-year Ratio of Flow "E0" (33)
A0	2.00%	2.00%	Type F	2.98%	0.0175	13.37	34.66	N/A	0.44	N/A	14.00	N/A	27.78%	1.50	0.41
A1	2.00%	2.00%	Type F	3.21%	0.0175	13.37	34.66	N/A	0.41	N/A	12.90	N/A	27.78%	1.50	0.43
A2	2.00%	0.50%	Type F	3.71%	0.0175	13.37	34.66	17.33	0.39	0.44	10.55	14.00	27.78%	1.50	N/A
A3	2.00%	0.50%	Type F	4.32%	0.0175	13.37	34.66	17.33	0.33	0.27	7.67	5.65	27.78%	1.50	N/A
B0	0.50%	0.50%	Type F	2.98%	0.0175	6.68	17.33	N/A	0.49	N/A	14.00	N/A	27.78%	1.50	0.41
B1	0.50%	0.50%	Type F	2.98%	0.0175	6.68	17.33	N/A	0.54	N/A	15.76	N/A	27.78%	1.50	0.36
C0	0.67%	0.67%	Type F	2.98%	0.0175	7.74	20.06	N/A	0.48	N/A	14.00	N/A	27.78%	1.50	0.41
C1	0.67%	0.50%	Type F	2.98%	0.0175	7.74	0.87	N/A	0.47	N/A	14.00	N/A	27.78%	1.50	0.41
C2	0.50%	0.50%	Type F	2.98%	0.0175	6.68	0.76	N/A	0.49	N/A	14.00	N/A	27.78%	1.50	0.41
C3	0.67%	0.67%	Type F	2.98%	0.0175	7.74	20.06	N/A	0.55	N/A	16.59	N/A	27.78%	1.50	0.34
C4	0.50%	0.50%	Type F	2.98%	0.0175	6.68	17.33	N/A	0.57	N/A	17.40	N/A	27.78%	1.50	0.32
C5	0.50%	0.50%	Type F	2.98%	0.0175	6.68	0.39	0.39	0.42	0.49	14.00	14.00	27.78%	1.50	N/A
D0	0.55%	0.55%	Type F	2.98%	0.0175	7.01	18.17	N/A	0.54	N/A	15.96	N/A	27.78%	1.50	0.35
D1	0.55%	0.55%	Type F	2.98%	0.0175	7.01	0.79	N/A	0.53	N/A	15.67	N/A	27.78%	1.50	0.36
D2	0.55%	0.55%	Type F	2.98%	0.0175	7.01	18.17	N/A	0.54	N/A	15.81	N/A	27.78%	1.50	0.36
D3	0.50%	0.55%	Type F	2.98%	0.0175	7.01	17.33	18.17	0.47	0.41	14.00	12.58	27.78%	1.50	N/A
D4	0.50%	0.55%	Type F	2.98%	0.0175	7.01	0.39	0.40	0.43	0.59	14.00	18.53	27.78%	1.50	N/A
E0	0.50%	0.50%	Type F	2.98%	0.0175	6.68	0.26	N/A	0.50	N/A	14.00	N/A	27.78%	1.50	0.41
E1	0.50%	0.50%	Type F	2.98%	0.0175	6.68	0.39	N/A	0.52	N/A	14.88	N/A	27.78%	1.50	0.38
E2	0.50%	0.50%	Type F	2.98%	0.0175	6.68	17.33	N/A	0.49	N/A	14.00	N/A	27.78%	1.50	0.41
E3	0.50%	0.50%	Type F	2.98%	0.0175	6.68	0.76	N/A	0.55	N/A	16.53	N/A	27.78%	1.50	0.34
E4	0.50%	0.50%	Type F	2.98%	0.0175	6.68	0.26	0.26	0.61	0.61	19.73	19.73	27.78%	1.50	N/A
F0	0.50%	0.50%	Type F	2.98%	0.0175	6.68	17.33	N/A	0.46	N/A	14.00	N/A	27.78%	1.50	0.41
F1	0.50%	0.50%	Type F	2.98%	0.0175	6.68	17.33	17.33	0.55	0.45	16.44	14.00	27.78%	1.50	N/A
F2	0.50%	0.50%	Type F	2.98%	0.0175	6.68	17.33	17.33	0.43	0.39	14.00	10.23	27.78%	1.50	N/A
CULV-1	2.00%	2.00%	Type G	2.67%	0.0175	24.13	3.97	N/A	0.30	N/A	11.10	N/A	27.78%	1.50	0.54

Inlet No. (1)	Gutter Depression Depth "a" (ft) (34)	Equivalent Cross Slope "S_e" (%) (36)	100-year Required Length "LT" (37)	Length Provided "L" (ft) (38)	Inlet Efficiency "E" (39)	100-year Inlet Capacity (cfs) (40)	100-year Carryover Flow "q" (cfs) (41)	Target Inlet No. (42)
A0	0.42	14.31%	16.00	10	0.83	6.47	1.34	A2
A1	0.42	15.24%	13.34	10	0.92	5.08	0.46	A2
A2	0.42	N/A	3.14	10	1.00	8.10	0.00	N/A
A3	0.42	N/A	1.22	10	1.00	2.71	0.00	N/A
B0	0.42	14.31%	9.53	10	1.00	6.13	0.00	B1
B1	0.42	12.93%	11.20	10	0.98	7.64	0.14	F1
C0	0.42	14.31%	10.66	10	0.99	6.45	0.04	C1
C1	0.42	14.31%	10.29	10	1.00	5.96	0.01	C2
C2	0.42	14.31%	9.61	10	1.00	6.24	0.00	C4
C3	0.42	12.37%	13.78	10	0.90	8.75	0.95	C5
C4	0.42	11.88%	12.53	10	0.94	8.49	0.51	E4
C5	0.42	N/A	3.57	10	1.00	9.53	0.00	N/A
D0	0.42	12.79%	11.93	10	0.96	8.00	0.31	D4
D1	0.42	12.99%	11.69	10	0.97	7.85	0.25	D2
D2	0.42	12.89%	11.80	10	0.97	7.92	0.28	D3
D3	0.42	N/A	3.04	10	1.00	8.02	0.00	N/A
D4	0.42	N/A	5.20	10	1.00	13.92	0.00	N/A
E0	0.42	14.31%	9.80	10	1.00	6.54	0.00	E1
E1	0.42	13.58%	10.53	10	1.00	7.18	0.03	E3
E2	0.42	14.31%	9.52	10	1.00	6.11	0.00	C5
E3	0.42	12.41%	11.81	10	0.97	8.04	0.29	E4
E4	0.42	N/A	7.08	10	1.00	22.15	0.00	N/A
F0	0.42	14.31%	8.77	10	1.00	5.02	0.00	F1
F1	0.42	N/A	4.64	10	1.00	12.72	0.00	N/A
F2	0.42	N/A	2.14	10	1.00	5.48	0.00	N/A
CULV-1	0.42	17.64%	8.86	5	0.78	2.00	0.58	N/A

BENCHMARKS

BASIS OF BEARINGS IS THE TEXAS COORDINATE SYSTEM OF 1983, CENTRAL ZONE (4203). ALL COORDINATES AND DISTANCES SHOWN HEREON ARE GRID VALUES. THE UNIT OF LINEAR MEASUREMENT IS U.S. SURVEY FEET.

BM #104 - 1/2-INCH IRON ROD SET IN THE CENTER MEDIAN OF COUNTY ROAD 175, ±67 FEET NORTH OF THE INTERSECTION OF MINERAL DRIVE AND COUNTY ROAD 175, ±73 FEET WEST OF A FIBER OPTIC RISER IN THE EASTERLY RIGHT-OF-WAY LINE OF COUNTY ROAD 175.

N: 10178313.802'
E: 3101940.730'
ELEV.= 906.44'

BM #105 - 1/2-INCH IRON ROD SET IN THE WESTERLY RIGHT-OF-WAY OF COUNTY ROAD 175, ±695 FEET SOUTH OF THE INTERSECTION OF MINERAL DRIVE AND COUNTY ROAD 175, ± 56 FEET EAST OF THE NORTHEAST CORNER OF A METAL SHED.

N: 10177624.355'
E: 3102276.765'
ELEV.=917.20'

No.	REVISIONS	DATE	BY

Kimley»Horn

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501 S AUSTIN AVE #1310, GEORGETOWN, TX 78626
PHONE: 512-520-0768
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TEXAS REGISTERED ENGINEERING FIRM F-928

12/9/2025
STATE OF TEXAS
ALEJANDRO E. GRANADOS RICO
130084
LICENSED PROFESSIONAL ENGINEER
Alejandro E. Granados Rico

KHA PROJECT 067783185
DATE DECEMBER 2025
SCALE: AS SHOWN
DESIGNED BY: AEG
DRAWN BY: AEG
CHECKED BY: AEG

INLET DRAINAGE AREA CALCULATIONS

LOST WOODS ESTATES

CITY OF LEANDER
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER
27
OF 76

Plotted By: Lee, David Date: December 16, 2025 10:56:30am File Path: K:\GEO_Civil\067783185 - MI Homes Leander Simpson Tracts\Cad\Construction Plans\PlanSheets\C-Inlet Drainage Area Map.dwg
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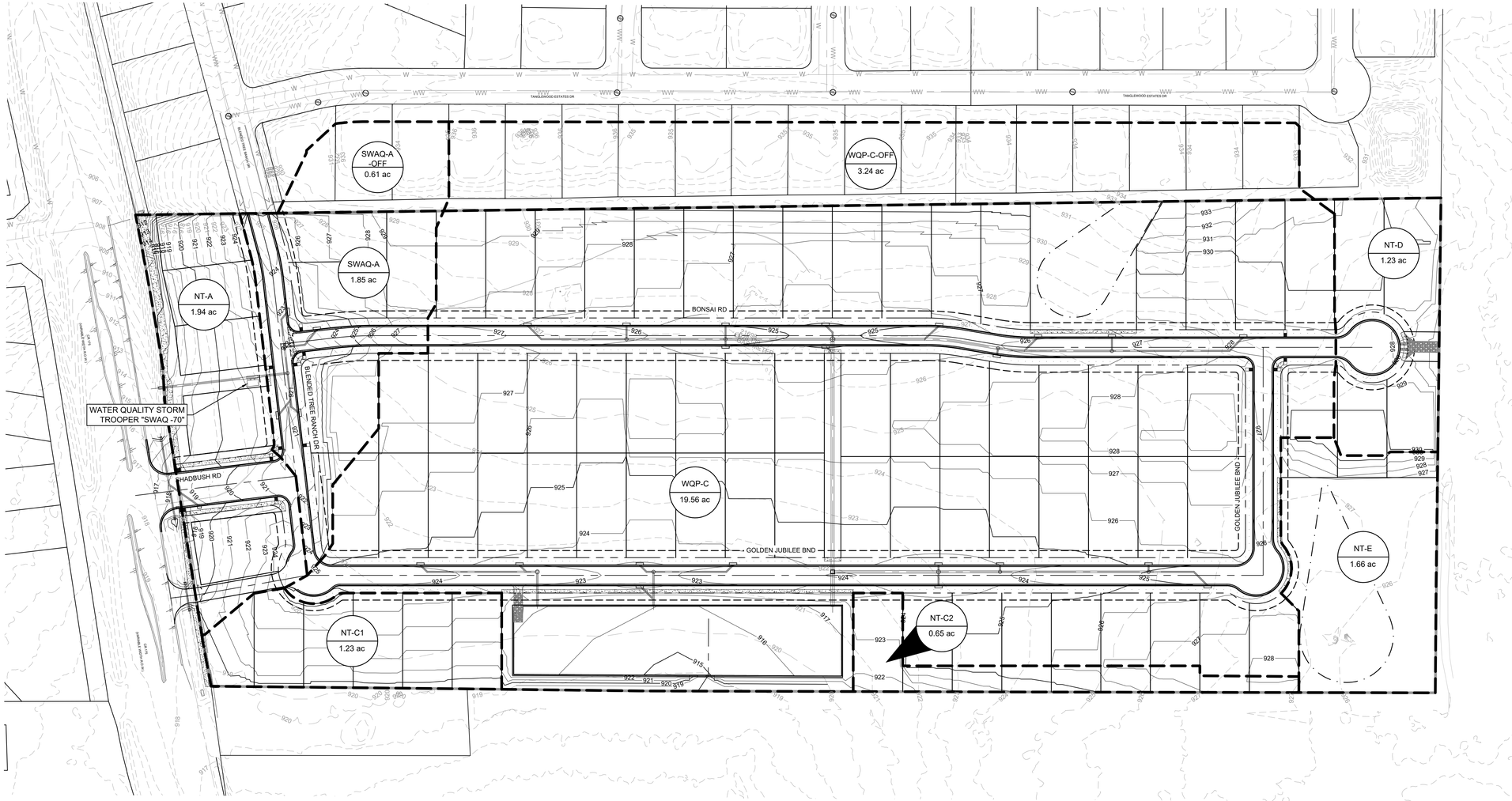

N
W E
S

0 80' 160'
GRAPHIC SCALE 80'

LEGEND

X-1 / 9.9 ac	WATER QUALITY AREA DESIGNATOR AREA IN ACRES
	PROPERTY LINE
	PROPOSED DRAINAGE DIVIDE
	PROPOSED FLOW DIRECTION
555	PROPOSED CONTOUR
555	EXISTING CONTOUR

TCEQ Overall Water Quality Drainage Basins					
Basin ID	**Proposed Area (AC)**	**Proposed Impervious Cover (AC)**	**% Impervious Cover**	**REQUIRED TSS REMOVAL**	**PROPOSED TSS REMOVAL**
SWAQ-A	1.85	1.06	57%	853	1084
WQP-C	19.56	9.98	51%	8286	10200
NT-A	1.94	1.09	56%	897	0
NT-C	1.88	0.76	40%	662	0
NT-D	1.23	0.65	53%	566	0
NT-E	1.66	0.00	0%	0	0
TOTAL ONSITE	28.12	13.54	48%	**11263**	**11284**
SWAQ-A-OFF	0.29	0.21	73%	0	0
WQP-C-OFF	3.24	1.43	44%	0	0
TOTAL OFFSITE	3.53	1.64	47%	0	0
TOTAL	31.65	15.18	48%	**11263**	**11284**

BENCHMARKS

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TEXAS REGISTERED ENGINEERING FIRM F-928

12/9/2025

STATE OF TEXAS
ALEJANDRO E. GRANADOS RICO
130084
LICENSED
PROFESSIONAL ENGINEER

KHA PROJECT 067783185
DATE DECEMBER 2025
SCALE: AS SHOWN
DESIGNED BY: AEG
DRAWN BY: AEG
CHECKED BY: AEG

WATER QUALITY DRAINAGE AREA MAP

LOST WOODS ESTATES

CITY OF LEANDER
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER
28
OF 76

Plotted By:Lee, David Date:December 16, 2025 10:58:25am File Path:K:\GEO_Civil\067783185 – MI Homes Leander Simpson Tracts\Cad\Construction Plans\PlanSheets\C– WQ Drainage Area Map.dwg
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Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Lost Woods Estates
Date Prepared: 12/4/2025

Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell.
Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348.
Characters shown in red are data entry fields.
Characters shown in black (Bold) are calculated fields. Changes to these fields will remove the equations used in the spreadsheet.

1. The Required Load Reduction for the total project:	Calculations from RG-348	Pages 3-27 to 3-30

Page 3-29 Equation 3.3: $L_M = 27.2(A_N \times P)$

where:
$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	Williamson	
Total project area included in plan * =	28.12	acres
Predevelopment impervious area within the limits of the plan * =	0.60	acres
Total post-development impervious area within the limits of the plan* =	13.54	acres
Total post-development impervious cover fraction * =	0.48	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	11263	lbs.

* The values entered in these fields should be for the total project area.

Number of drainage basins / outfalls areas leaving the plan area = 6

2. Drainage Basin Parameters (This information should be provided for each basin):			
Drainage Basin/Outfall Area No. =	NT-A		
Total drainage basin/outfall area =	1.94	acres	
Predevelopment impervious area within drainage basin/outfall area =	0.06	acres	
Post-development impervious area within drainage basin/outfall area =	1.09	acres	
Post-development impervious fraction within drainage basin/outfall area =	0.56		
$L_{M\ THIS\ BASIN}$ =	897	lbs.	

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Lost Woods Estates
Date Prepared: 12/4/2025

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Total project area included in plan * =	28.12	acres
Predevelopment impervious area within the limits of the plan * =	0.60	acres
Total post-development impervious area within the limits of the plan* =	13.54	acres
Total post-development impervious cover fraction * =	0.48	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	11263	lbs.

* The values entered in these fields should be for the total project area.

Number of drainage basins / outfalls areas leaving the plan area = 6

2. Drainage Basin Parameters (This information should be provided for each basin):			
Drainage Basin/Outfall Area No. =	NT-C		
Total drainage basin/outfall area =	1.88	acres	NT-C1 (1.23 AC) + NT-C2 (0.65 AC)
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres	
Post-development impervious area within drainage basin/outfall area =	0.76	acres	
Post-development impervious fraction within drainage basin/outfall area =	0.40		
$L_{M\ THIS\ BASIN}$ =	662	lbs.	

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Lost Woods Estates
Date Prepared: 12/4/2025

Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell.
Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348.
Characters shown in red are data entry fields.
Characters shown in black (Bold) are calculated fields. Changes to these fields will remove the equations used in the spreads

1. The Required Load Reduction for the total project:	Calculations from RG-348	Pages 3-27 to 3-30

Page 3-29 Equation 3.3: $L_M = 27.2(A_N \times P)$

where:
$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of increased loa
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	Williamson	
Total project area included in plan * =	28.12	acres
Predevelopment impervious area within the limits of the plan * =	0.60	acres
Total post-development impervious area within the limits of the plan* =	13.54	acres
Total post-development impervious cover fraction * =	0.48	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	11263	lbs.

* The values entered in these fields should be for the total project area.

Number of drainage basins / outfalls areas leaving the plan area = 6

2. Drainage Basin Parameters (This information should be provided for each basin):		
Drainage Basin/Outfall Area No. =	WQP-C	
Total drainage basin/outfall area =	19.56	acres
Predevelopment impervious area within drainage basin/outfall area =	0.46	acres
Post-development impervious area within drainage basin/outfall area =	9.98	acres
Post-development impervious fraction within drainage basin/outfall area =	0.51	
$L_{M\ THIS\ BASIN}$ =	8286	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Batch Extended Detention
Removal efficiency = 91 percent

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7: L_R = (BMP efficiency) x P x (A_I x 34.6 + A_P x 0.54)

where:
A_C = Total On-Site drainage area in the BMP catchment area
A_I = Impervious area proposed in the BMP catchment area
A_P = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	19.56	acres
A_I =	9.98	acres
A_P =	9.58	acres
L_R =	10206	lbs

5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area

Desired $L_{M\ THIS\ BASIN}$ = 10200 lbs.

F = 1.00

6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area.	Calculations from RG-348	Pages 3-34 to 3-36
Rainfall Depth =	4.00	inches
Post Development Runoff Coefficient =	0.36	
On-site Water Quality Volume =	103150	cubic feet

	Calculations from RG-348	Pages 3-36 to 3-37
Off-site area draining to BMP =	3.24	acres
Off-site Impervious cover draining to BMP =	1.43	acres
Impervious fraction of off-site area =	0.44	
Off-site Runoff Coefficient =	0.33	
Off-site Water Quality Volume =	15384	cubic feet
Storage for Sediment =	23707	
Total Capture Volume (required water quality volume(s) x 1.20) =	142240	cubic feet

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Lost Woods Estates
Date Prepared: 12/4/2025

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where:
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A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	Williamson	
Total project area included in plan * =	28.12	acres
Predevelopment impervious area within the limits of the plan * =	0.60	acres
Total post-development impervious area within the limits of the plan* =	13.54	acres
Total post-development impervious cover fraction * =	0.48	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	11263	lbs.

* The values entered in these fields should be for the total project area.

Number of drainage basins / outfalls areas leaving the plan area = 6

2. Drainage Basin Parameters (This information should be provided for each basin):		
Drainage Basin/Outfall Area No. =	NT-D	
Total drainage basin/outfall area =	1.23	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.65	acres
Post-development impervious fraction within drainage basin/outfall area =	0.53	
$L_{M\ THIS\ BASIN}$ =	566	lbs.

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Lost Woods Estates
Date Prepared: 12/4/2025

Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell.
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Page 3-29 Equation 3.3: $L_M = 27.2(A_N \times P)$

where:
$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	Williamson	
Total project area included in plan * =	28.12	acres
Predevelopment impervious area within the limits of the plan * =	0.60	acres
Total post-development impervious area within the limits of the plan* =	13.54	acres
Total post-development impervious cover fraction * =	0.48	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	11263	lbs.

* The values entered in these fields should be for the total project area.

Number of drainage basins / outfalls areas leaving the plan area = 6

2. Drainage Basin Parameters (This information should be provided for each basin):		
Drainage Basin/Outfall Area No. =	NT-E	
Total drainage basin/outfall area =	1.66	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious fraction within drainage basin/outfall area =	0.00	
$L_{M\ THIS\ BASIN}$ =	0	lbs.

BENCHMARKS

BASIS OF BEARINGS IS THE TEXAS COORDINATE SYSTEM OF 1983, CENTRAL ZONE (4203). ALL COORDINATES AND DISTANCES SHOWN HEREON ARE GRID VALUES. THE UNIT OF LINEAR MEASUREMENT IS U.S. SURVEY FEET.

BM #104 - 1/2-INCH IRON ROD SET IN THE CENTER MEDIAN OF COUNTY ROAD 175, ±67 FEET NORTH OF THE INTERSECTION OF MINERAL DRIVE AND COUNTY ROAD 175, ±73 FEET WEST OF A FIBER OPTIC RISER IN THE EASTERLY RIGHT-OF-WAY LINE OF COUNTY ROAD 175.

N: 10178313.802'
E: 3101940.730'
ELEV.= 906.44'

BM #105 - 1/2-INCH IRON ROD SET IN THE WESTERLY RIGHT-OF-WAY OF COUNTY ROAD 175, ±695 FEET SOUTH OF THE INTERSECTION OF MINERAL DRIVE AND COUNTY ROAD 175, ± 56 FEET EAST OF THE NORTHEAST CORNER OF A METAL SHED.

N: 10177624.355'
E: 3102276.765'
ELEV.=917.20'

BY | DATE | REVISIONS | No.

Kimley»Horn
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501 S AUSTIN AVE #1310, GEORGETOWN, TX 78626
PHONE: 512-520-0788
WWW.KIMLEY-HORN.COM
TEXAS REGISTERED ENGINEERING FIRM F-928

12/9/2025

STATE OF TEXAS
ALEJANDRO E. ORANDOS RIOS
130084
LICENSED PROFESSIONAL ENGINEER

KHA PROJECT 067783185
DATE DECEMBER 2025
SCALE: AS SHOWN
DESIGNED BY: AEG
DRAWN BY: AEG
CHECKED BY: AEG

WATER QUALITY DRAINAGE CALCULATIONS (SHEET 1 OF 2)

LOST WOODS ESTATES

CITY OF LEANDER
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER
29
OF 76

Plotted By: Lee, David Date: December 16, 2025 10:58:33am File Path: K:\GEO_Civil\067783185 – Mt Homes Leander Simpson Tracts\Civil\Construction Plans\PlanSheets\C– WQ Drainage Area Maps.dwg
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Texas Commission on Environmental Quality
TSS Removal Calculations

AREA SWAQ-A	DRAINAGE BASIN	1

STEP ONE: Required TSS Removal

EQUATION 3.3
$L_m = 27.2(A_n \times P)$
L_m = Required TSS Removal (pounds)
A_n = Net Increase in Impervius Area (acres)
P = Average Annual Precipitation (inches)

Drainage Basin =	2.46	Acres
Pre-Dev. Imp. Area =	0.29	Acres
Post-Dev. Imp. Area =	1.27	
Pervious Area =	1.19	Acres
P =	32	Inches
L_m =	853	Lbs

STEP TWO: Select an Appropriate BMP

Effective Area =	0.92	EA = (Ai x 0.9) + (Ap x 0.03)
StormTrooper SWAQ_	70	
Unit Surface Area =	730	Sq. Ft.

EQUATION 3.4
Q = CiA, where:

C = 0.48	Composite Run-Off Coefficient
i = 1.10	Stormwater Quality Intensity
A = 2.46	Drainage Basin Acreage
Q = 1.30	Required Treatment Flow

EQUATION 3.5
$V_{OR} = Q/A$, where:

Q = 1.30	Required Treatment Flow
A = 730	Unit Surface Area
V_{OR} = 1.78E-03	Overflow Rate
BMP Effeciency = 76%	

STEP THREE: Calculate Fraction of Annual Runoff to be Treated

Unit By-Pass Flowrate = 6.06	cfs
Treated Intensity = 1.10	in/hr
Annual Volume Treated = 90%	Volume of Run-Off Entering Unit
Treatment Reduction = 1.00	BMP Effeciency Reduction Factor
Actual BMP Effeciency = 76%	

STEP FOUR: Calculate TSS Load Removed by BMPs

EQUATION 3.8
$L_r = (BMP\ Efficiency) \times P \times (A_I \times 34.6 + A_P \times 0.54)$
L_r = Load Removed by BMP
BMP Efficiency = TSS Removal Efficiency
A_I = Impervious Tributary Area to the BMP (ac)
A_P = Pervious Tributary Area to the BMP (ac)

A_I = 1.27
A_P = 1.19

L_r = 1084 lbs

TOTAL SITE DETAILS	
Project Name:	Lost Woods Estates
Project Location:	Leander, Williamson County, TX
Date Prepared:	12/4/2025
Prepared By:	Alex Granados
Total Project Area to be Treated =	2.46
Pre-Development Impervious Area =	0.29
Post-Development Impervious Area =	1.27
Composite Run-Off Coefficient =	0.52
Required TSS Removal L_m =	**853**
County =	Williamson

STORMTROOPER	
Model	**E.A. @ 80%**
5	< 0.13
10	0.14 - 0.20
20	0.21 - 0.33
25	0.34 - 0.50
40	0.51 - 0.79
70	0.80 - 0.98
110	0.99 - 1.23

Texas Commission on Environmental Quality
TSS Required Load Reduction Calculations

Project Name: Lost Woods Estates
Project Location: Leander, Williamson County, TX
Date Prepared: 12/4/2025
Prepared For: Alex Granados

Lm = 27.2(AN x P)

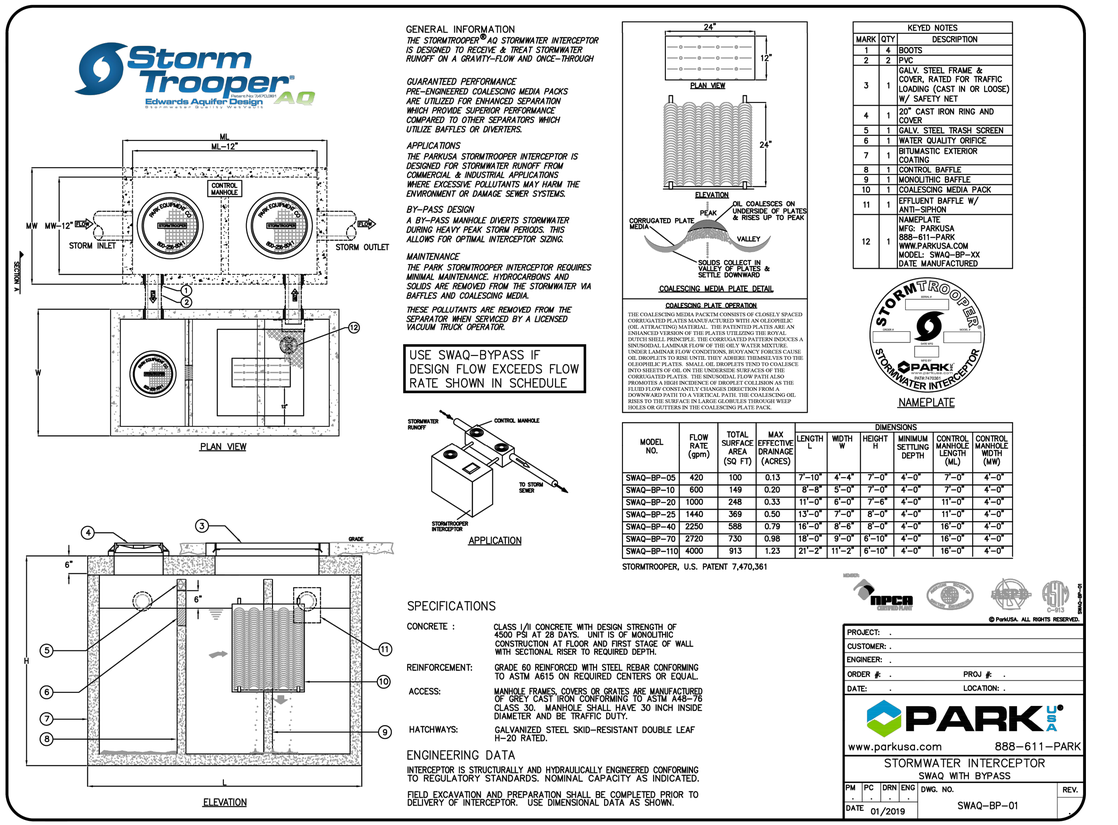
where:
Lm = Required TSS removal
An = Net increase in impervious area for site
P = Average annual precipitation, inches

Site Data:
County = **Williamson**
Stormwater Quality Structure = **Wet Vault**
Total site area = **2.46** acres
Pre-development impervious area = **0.29** acres
Post-development impervious area = **1.270** acres
Post-development impervious fraction = **0.52**
P = **32** inches

Lm = **853** lbs. Total Project Required Removal

Drainage Basin	Outfall	Total Area	Impervious Cover	Impervious Area	Pre-Dev. Impervious Cover	A_n for Drainage Area	Runoff Coef. (C)	Pervious Area	Runoff Coef. (C)	Composite Runoff Coef. (C)	**Effective Area**	Intensity (I)	Calculated Flow (Q)	Required Pollutant Removal	StormTrooper Model	Unit Surface Area	By-Pass Flowrate	Intensity Treated	Fraction of Flow Treated (F)	F/0.9	Overflow Rate (ft/s)	Removal Effeciency	Actual Effeciency	Load Reduction (L_R)
	[ID]	[ac]	[%]	[ac]	[ac]	[ac]		[ac]			[ac]	[in/hr]	[cfs]	L_m in [lbs]	#	(sf)	(cfs)	[in/hr]	[Figure 3-11]			[Figure 3-10]		(lbs)
1	SWAQ-A	**2.46**	**51.6%**	1.27	**0.29**	0.98	0.9	1.19	0.03	0.48	0.92	1.1	1.30	853	**70**	730	6.06	1.10	**0.90**	1.00	1.78E-03	**76%**	76%	**1084**

Total TSS Removed by BMP's Annually = 1084
Total Required Reduction (Lm) = 853
Solids Removed By Other Means = 0
Sufficient Removal = Yes



GENERAL INFORMATION

THE STORMTROOPER® AQ STORMWATER INTERCEPTOR IS DESIGNED TO RECEIVE & TREAT STORMWATER RUNOFF ON A GRAVITY–FLOW AND ONCE–THROUGH

GUARANTEED PERFORMANCE
PRE–ENGINEERED COALESCING MEDIA PACKS ARE UTILIZED FOR ENHANCED SEPARATION WHICH PROVIDE SUPERIOR PERFORMANCE COMPARED TO OTHER SEPARATORS WHICH UTILIZE BAFFLES OR DIVERTERS.

APPLICATIONS
THE PARKUSA STORMTROOPER INTERCEPTOR IS DESIGNED FOR STORMWATER RUNOFF FROM COMMERCIAL & INDUSTRIAL APPLICATIONS WHERE EXCESSIVE POLLUTANTS MAY HARM THE ENVIRONMENT OR DAMAGE SEWER SYSTEMS.

BY–PASS DESIGN
A BY–PASS MANHOLE DIVERTS STORMWATER DURING HEAVY PEAK STORM PERIODS. THIS ALLOWS FOR OPTIMAL INTERCEPTOR SIZING.

MAINTENANCE
THE PARK STORMTROOPER INTERCEPTOR REQUIRES MINIMAL MAINTENANCE. HYDROCARBONS AND SOLIDS ARE REMOVED FROM THE STORMWATER VIA BAFFLES AND COALESCING MEDIA.

THESE POLLUTANTS ARE REMOVED FROM THE SEPARATOR WHEN SERVICED BY A LICENSED VACUUM TRUCK OPERATOR.

USE SWAQ–BYPASS IF DESIGN FLOW EXCEEDS FLOW RATE SHOWN IN SCHEDULE

SPECIFICATIONS

CONCRETE : CLASS I/II CONCRETE WITH DESIGN STRENGTH OF 4500 PSI AT 28 DAYS. UNIT IS OF MONOLITHIC CONSTRUCTION AT FLOOR AND FIRST STAGE OF WALL WITH SECTIONAL RISER TO REQUIRED DEPTH.

REINFORCEMENT: GRADE 60 REINFORCED WITH STEEL REBAR CONFORMING TO ASTM A615 ON REQUIRED CENTERS OR EQUAL.

ACCESS: MANHOLE FRAMES, COVERS OR GRATES ARE MANUFACTURED OF GREY CAST IRON CONFORMING TO ASTM A48–76 CLASS 30. MANHOLE SHALL HAVE 30 INCH INSIDE DIAMETER AND BE TRAFFIC DUTY.

HATCHWAYS: GALVANIZED STEEL SKID–RESISTANT DOUBLE LEAF H–20 RATED.

ENGINEERING DATA

INTERCEPTOR IS STRUCTURALLY AND HYDRAULICALLY ENGINEERED CONFORMING TO REGULATORY STANDARDS. NOMINAL CAPACITY AS INDICATED.

FIELD EXCAVATION AND PREPARATION SHALL BE COMPLETED PRIOR TO DELIVERY OF INTERCEPTOR. USE DIMENSIONAL DATA AS SHOWN.

COALESCING MEDIA PLATE DETAIL

COALESCING PLATE OPERATION

THE COALESCING MEDIA PACK/TM CONSISTS OF CLOSELY SPACED CORRUGATED PLATES MANUFACTURED WITH AN OLEOPHILIC (OIL ATTRACTING) MATERIAL. THE PATENTED PLATES ARE AN ENHANCED VERSION OF THE PLATES UTILIZING THE ROYAL DUTCH SHELL PRINCIPLE. THE CORRUGATED PATTERN INDUCES A SINUSOIDAL LAMINAR FLOW OF THE OIL/ WATER MIXTURE. UNDER LAMINAR FLOW CONDITIONS, BUOYANCY FORCES CAUSE OIL DROPLETS TO RISE UNTIL THEY ADHERE THEMSELVES TO THE OLEOPHILIC PLATES. SMALL OIL DROPLETS TEND TO COALESCE INTO LARGER GLOBULES AS THEY TRAVEL UPWARD ALONG THE CORRUGATED PLATES. THE SINUSOIDAL FLOW PATH ALSO PROMOTES A HIGH INCIDENCE OF DROPLET COLLISION AS THE FLUID FLOW CONSTANTLY CHANGES DIRECTION FROM A DOWNWARD PATH TO A VERTICAL PATH. THE COALESCING OIL RISES TO THE SURFACE IN LARGE GLOBULES THROUGH WEEP HOLES OR GUTTERS IN THE COALESCING PLATE PACK.

KEYED NOTES		
MARK	QTY	DESCRIPTION
1	4	BOOTS
2	2	PVC
3	1	GALV. STEEL FRAME & COVER, RATED FOR TRAFFIC LOADING (CAST IN OR LOOSE) W/ SAFETY NET
4	1	20" CAST IRON RING AND COVER
5	1	GALV. STEEL TRASH SCREEN
6	1	WATER QUALITY ORIFICE
7	1	BITUMASTIC EXTERIOR COATING
8	1	CONTROL BAFFLE
9	1	MONOLITHIC BAFFLE
10	1	COALESCING MEDIA PACK
11	1	EFFLUENT BAFFLE W/ ANTI–SIPHON
12	1	NAMEPLATE MFG: PARKUSA 888–611–PARK WWW.PARKUSA.COM MODEL: SWAQ–BP–XX DATE MANUFACTURED

NAMEPLATE

MODEL NO.	FLOW RATE (gpm)	TOTAL SURFACE AREA (SQ FT)	MAX EFFECTIVE DRAINAGE (ACRES)	DIMENSIONS LENGTH L	WIDTH W	HEIGHT H	MINIMUM SETTLING DEPTH	CONTROL MANHOLE LENGTH (ML)	CONTROL MANHOLE WIDTH (MW)
SWAQ–BP–05	420	100	0.13	7'–10"	4'–4"	7'–0"	4'–0"	7'–0"	4'–0"
SWAQ–BP–10	600	149	0.20	8'–8"	5'–0"	7'–0"	4'–0"	7'–0"	4'–0"
SWAQ–BP–20	1000	248	0.33	11'–0"	6'–0"	7'–6"	4'–0"	11'–0"	4'–0"
SWAQ–BP–25	1440	369	0.50	13'–0"	7'–0"	8'–0"	4'–0"	11'–0"	4'–0"
SWAQ–BP–40	2250	588	0.79	16'–0"	8'–6"	8'–0"	4'–0"	16'–0"	4'–0"
SWAQ–BP–70	2720	730	0.98	18'–0"	9'–0"	6'–10"	4'–0"	16'–0"	4'–0"
SWAQ–BP–110	4000	913	1.23	21'–2"	11'–2"	6'–10"	4'–0"	16'–0"	4'–0"

STORMTROOPER, U.S. PATENT 7,470,361

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PROJECT:	.
CUSTOMER:	.
ENGINEER:	.
ORDER #:	. PROJ #: .
DATE:	. LOCATION: .

PARK USA
www.parkusa.com 888–611–PARK

STORMWATER INTERCEPTOR
SWAQ WITH BYPASS

PM	PC	DRN	ENG	DWG. NO.	REV.
.	.	.	.	SWAQ–BP–01	
DATE 01/2019					

BENCHMARKS

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E: 3101940.730'
ELEV.= 906.44'

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Kimley»Horn
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501 S AUSTIN AVE #1310, GEORGETOWN, TX 78626
PHONE: 512-520-0788
WWW.KIMLEY-HORN.COM
TEXAS REGISTERED ENGINEERING FIRM F-928

12/9/2025

STATE OF TEXAS
ALEJANDRO E. GRANADOS RICO
130084
LICENSED
PROFESSIONAL ENGINEER

KHA PROJECT 067783185
DATE DECEMBER 2025
SCALE: AS SHOWN
DESIGNED BY: AEG
DRAWN BY: AEG
CHECKED BY: AEG

WATER QUALITY DRAINAGE CALCULATIONS (SHEET 2 OF 2)

LOST WOODS ESTATES

CITY OF LEANDER
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER
30
OF 76

Plotted By: Lee, David Date: December 16, 2025 10:58:43am File Path: K:\CEO_Civil\067783185 – Mi Homes Leander Simpson Tracts\Civil\Construction Plans\PlanSheets\C– WQ Drainage Area Maps.dwg
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PUMP STATION GENERAL NOTES

1. CONFIGURATIONS AND DIMENSIONS SHOWN ARE BASED ON THE EQUIPMENT SPECIFIED. THE CONTRACTOR SHALL VERIFY THE LAYOUT AND ALL DIMENSIONS PRIOR TO CONSTRUCTION.
2. ALL PENETRATIONS SHALL BE SEALED WATER AND GAS TIGHT PER APPROVED METHODS.
3. ALL EXPOSED METAL WITHIN THE WET WELL SHALL BE GRADE 316 STAINLESS STEEL.
4. CONTRACTOR SHALL FOLLOW THE INSTALLATION INSTRUCTIONS PROVIDED BY THE SUPPLIER/MANUFACTURER.
5. UPON RECEIPT OF THE LIFT STATION SHIPMENT, INSPECT THE ENTIRE SHIPMENT FOR DAMAGE BEFORE THE LIFT STATION IS TAKEN OFF THE TRUCK. IF THERE IS DAMAGE, NOTE AS SPECIFICALLY AS POSSIBLE INCLUDING CLEAR PHOTOS OF DAMAGE ON THE BILL OF LADING AS TO ANY DAMAGE, THEN OFFLOAD. CONTACT THE SHIPPER AT ONCE AND HAVE THE BILL OF LADING WITH YOU.
6. PROPOSED CHECK VALVE, COUPLING, PLUG VALVE AND AIR RELEASE VALVES (BALL VALVES MAY BE USED DEPENDING ON TYPE OF PROPOSED PUMPS).
7. PROPOSED PUMPS TO BE SELECTED BASED ON APPLICATION, FLOW, AND HEAD CONDITIONS OF FORCE MAIN.
8. CONCRETE SHALL BE 1500 PSI COVERING THE ANTI-FLOATATION RING AS SHOWN.
9. ALUMINUM ACCESS COVERS MAY BE BOLTED DIRECTLY TO THE 3-INCH WIDE FLANGE AT THE TOP OF THE FIBERGLASS BASIN. HATCHES TO BE SIZED BASED ON PUMPS SELECTED.
10. SELECT BACKFILL MATERIAL FREE OF VOIDS, SHARP OBJECTS, OR OTHER DEBRIS.

SHOP DRAWINGS AND CONSTRUCTION SUBMITTAL NOTES

1. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND PRODUCT DATA FOR LIFT STATION EQUIPMENT, PIPING AND APPURTENANCES. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE OWNER FOR REVIEW PRIOR TO INSTALLATION, ALLOWING SUFFICIENT TIME FOR THE OWNER'S REVIEW AND RESPONSE.
2. CONTRACTOR SHALL SUBMIT DIMENSIONAL LAYOUT DRAWINGS AND PRODUCT DATA, CERTIFIED CORRECT FOR CONSTRUCTION, FOR REVIEW BY THE OWNER.
3. THE CONTRACTOR WILL MAKE SPECIFIC MENTION OF THOSE ITEMS THAT VARY FROM THE REQUIREMENTS OF THE CONTRACT DOCUMENTS IN THE LETTER OF TRANSMITTAL.
4. THE CONTRACTOR WILL ASSIGN A SEQUENTIAL NUMBER TO EACH SUBMITTAL (1, 2, 3, ETC.). RE-SUBMITTALS WILL BE IDENTIFIED WITH THEIR ORIGINAL NUMBER FOLLOWED BY A SEQUENTIAL LETTER (A, B, C, ETC.). FOR EXAMPLE, SUBMITTAL 12-C IS THE THIRD RE-SUBMITTAL OF THE OF THE TWELFTH ITEM FOR THE PROJECT.
5. THE CONTRACTOR WILL NOT DELIVER TO THE SITE, STORE, OR INCORPORATE INTO THE WORK, ANY MATERIALS OR EQUIPMENT FOR WHICH APPROVED SUBMITTALS HAVE NOT BEEN OBTAINED.
6. OWNER'S REVIEW, APPROVAL, OR OTHER APPROPRIATE ACTION REGARDING CONTRACTOR'S SUBMISSIONS WILL BE ONLY TO CHECK CONFORMITY WITH THE DESIGN CONCEPT OF THE PROJECT AND FOR COMPLIANCE WITH THE INFORMATION CONTAINED IN THE CONTRACT DOCUMENTS AND SHALL NOT EXTEND TO MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES OF CONSTRUCTION (EXCEPT WHERE A SPECIFIC MEANS, METHOD, TECHNIQUE, SEQUENCE OR PROCEDURE OF CONSTRUCTION IS INDICATED IN OR REQUIRED BY THE CONTRACT DOCUMENTS) OR TO SAFETY PRECAUTIONS OR PROGRAMS INCIDENT THERETO. THE REVIEW AND APPROVAL OF A SEPARATE COMPONENT ITEM WILL NOT INDICATE APPROVAL OF THE ASSEMBLY INTO WHICH THE ITEM IS FUNCTIONALLY INTEGRATED. CONTRACTOR SHALL MAKE CORRECTIONS REQUIRED BY OWNER, AND SHALL RETURN THE REQUIRED NUMBER OF CORRECTED COPIES OF SHOP DRAWINGS TO THE OWNER. CONTRACTOR MAY BE REQUIRED TO RESUBMIT AS REQUIRED REVISED SHOP DRAWINGS OR SAMPLES FOR FURTHER REVIEW.

PUMP AND MOTOR NOTES

1. CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, ELECTRICAL EQUIPMENT AND INCIDENTALS REQUIRED TO PROVIDE A PACKAGE LIFT STATION AS PROVIDED BY **PUMP SOLUTION INC. (CADEN KOZIK, 512-846-2600)** IN ACCORDANCE WITH TCEQ, INCLUDING (2) SUBMERSIBLE SEWAGE PUMPS WITH BASE DISCHARGE ASSEMBLIES AS SPECIFIED HEREIN AND SHOWN ON THE PLANS. THE CONTRACTOR'S RESPONSIBILITIES ARE AS FOLLOWS: RECEIVING THE LIFT STATION AND OFF LOADING, EXCAVATION AND SETTING, ALL PLUMBING CONNECTIONS, ALL ELECTRICAL CONDUITS FROM THE WET WELL TO CONTROL PANEL, PROVIDE PROPER BACKFILL AND COMPACTION PROCEDURES. THE CONTRACTOR WILL BE REQUIRED TO LOWER THE PUMPS INTO PLACE AND CHECK FOR PROPER ROTATION. A STARTUP PROCEDURE FORM WILL BE PROVIDED AND IT MUST BE FILLED OUT AND RETURNED TO THE LIFT STATION SUPPLIER PRIOR TO THE OWNER'S POSSESSION DATE.
2. THE PUMP SHALL HAVE A FLANGED DISCHARGE ADAPTABLE TO 3" VERTICAL DISCHARGE AND BE CAPABLE OF HANDLING STORM FLOWS AND ENABLING IT TO BE PUMPED OVER LONG DISTANCES OR HIGH VERTICAL LIFTS IN PIPELINES AS SMALL AS 2.00" IN DIAMETER.

THE CENTRIFUGAL PUMP SHALL BE EQUAL TO THE: BARNES SE51/52

3. MATERIALS:
   - 3.1. PUMP CASING: CAST IRON A 48 CLASS 30B OR HIGHER
   - 3.2. IMPELLER: CAST IRON A 48 CLASS 30 OR HIGHER
   - 3.3. SHAFT: 416 STAINLESS STEEL
   - 3.4. BEARING BRACKET: CAST IRON A 48 CLASS 30 OR HIGHER
   - 3.5. MOTOR CASING: CAST IRON A 48 CLASS 30 OR HIGHER
   - 3.6. HARDWARE: STAINLESS STEEL A 276 300 SERIES
   - 3.7. SHAFT PROTECTION SLEEVE: STAINLESS STEEL A 276 TYPE 420
   - 3.8. O-RINGS: NITRILE RUBBER (NBR)
4. MOTOR:
   - 4.1. RATED VOLTAGE: 240 V
   - 4.2. RATED FREQUENCY: 60 HZ
   - 4.3. SPEED: 1750 RPM
   - 4.4. INSULATION CLASS B OR BETTER
5. SHAFT SEAL:
   - 5.1. TYPE: SINGLE TYPE 21, CARBON/CERAMIC, DOUBLE TANDEM CARBON/CERAMIC
   - 5.2. ARRANGEMENT: TANDEM
   - 5.3. SEAL ON MEDIUM SIDE WITH ELASTOMER BELLOWS
   - 5.4. MECHANICAL SEAL PUMP SIDE: SILICON CARBIDE/ SILICON CARBIDE
   - 5.5. MECHANICAL SEAL BEARING SIDE: CARBON/ SILICON CARBIDE
6. PROTECTIONS:
   - 6.1. TEMPERATURE PROTECTION BY THERMAL SENSORS.
   - 6.2. MOTOR HOUSING MONITORING BY CONDUCTIVE MOISTURE SENSOR ELECTRODE WHICH WILL ACTIVATE AN ALARM IF LIQUID IS PRESENT.
7. CABLE:
   - 7.1. POWER CORD LENGTH: 50' MINIMUM
   - 7.2. CORD SHALL BE CAPABLE OF CONTINUED EXPOSURE TO THE PUMPED LIQUID.
   - 7.3. CSA CERTIFIED SUBMERSIBLE POWER CABLE 2000V AND SIZED FOR THE FULL LOAD AMP RATING OF THE PUMP IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, WHICHEVER IS GREATER.
8. IMPELLER
   - 8.1. 2 VANE, OPEN, WITH PUMP OUT VANES ON BACK SIDE. DYNAMICALLY BALANCED, ISO G6.3.
9. BEARINGS:
   - 9.1. TYPE: ANTIFRICTION
   - 9.2. PROVIDE UPPER AND LOWER BALL BEARINGS TO PROVIDE A MINIMUM B10 BEARING LIFE OF 100,000 HOURS AT ALL ANTICIPATED AXIAL AND RADIAL LOADS.

THE MOTOR HOUSING SHALL BE FINNED AND AIR-FILLED TO DISSIPATE HEAT AND ENABLE THE UNIT TO OPERATE UNSUBMERGED WITHOUT DAMAGE TO THE MOTOR. ALL EXTERNAL-MATING PARTS SHALL BE MACHINED AND SEALED WITH A NUNA-H SQUARE RING. ALL FASTENERS EXPOSED TO THE LIQUID SHALL BE 300 SERIES STAINLESS STEEL. THE MOTOR SHALL BE PROTECTED ON THE TOP SIDE WITH AN ATTACHED SEALED JUNCTION BOX CHAMBER WHICH IN THE EVENT OF CORD DAMAGE WILL PREVENT MOISTURE WICKING INTO THE MOTOR HOUSING. THE MOTOR SHALL BE PROTECTED ON THE LOWER SIDE WITH A TANDEM MECHANICAL SEAL ARRANGEMENT WITH EACH SEAL HAVING A SEPARATE SPRING ASSEMBLY THE UPPER AND LOWER BALL BEARINGS SHALL BE CAPABLE OF HANDLING ALL THRUST LOADS. THE PUMP HOUSING HAVING A SEPARATE SPRING ASSEMBLY. THE UPPER AND LOWER BALL BEARINGS SHALL BE CAPABLE OF HANDLING ALL THRUST LOADS. THE PUMP HOUSING SHALL BE OF THE CONCENTRIC DESIGN THEREBY EQUALIZING THE PRESSURE FORCES INSIDE THE HOUSING, WHICH WILL EXTEND THE SERVICE LIFE OF THE SEALS AND BEARINGS. THE TOP CAP SHALL HAVE CAST IN LIFTING LUGS.

10. COMPONENTS REQUIRED FOR THE REPAIR OF THE PUMP SHALL BE READILY AVAILABLE WITHIN 24 HOURS. COMPONENTS SUCH AS MECHANICAL SEALS AND BEARINGS SHALL NOT BE OF A PROPRIETARY DESIGN AND BE AVAILABLE FROM LOCAL INDUSTRIAL SUPPLY HOUSES. SPECIAL TOOLS SHALL NOT BE REQUIRED TO SERVICE THE PUMP. A NETWORK OF SERVICE STATIONS SHALL BE AVAILABLE NATIONWIDE IN THOSE CASES WHERE SERVICE REQUIREMENTS ARE BEYOND THE COPE OF IN-HOUSE SERVICE MECHANICS.
11. THE TWO YEAR PRO-RATED WARRANTY FOR PERMANENT WASTEWATER LIFT STATIONS SHALL BE IN WRITING IN A PUBLISHED SERVICE BULLETIN. LABOR CHARGES FROM AN AUTHORIZED SERVICE STATION FOR REPAIRS WILL BE INCLUDED IN THIS WARRANTY AGREEMENT DURING THE FIRST 12 MONTHS OF OPERATION.

FORCE MAIN NOTES

1. FORCE MAIN
   - 1.1. 3" SCHEDULE 80 FORCE MAIN IN ACCORDANCE WITH ASTM D1785 SHALL BE USED.
2. LIFT STATION PIPING
   - 2.1. LIFT STATION DISCHARGE PIPING SHALL BE 3" SCHEDULE 80 AND FITTINGS AND PIPE SHALL BE FLANGED.
     - 2.1.1. FITTINGS IN ACCORDANCE WITH AWWA C153 AND AWWA C110.
     - 2.1.2. FLANGES: AWWA/ANSI C115/A21.15, ASME B16.1, CLASS 125
     - 2.1.3. BOLTS AND NUTS SHALL BE 316 STAINLESS.
   - 2.2. PIPE AND FITTINGS SHALL BE LINED WITH PROTECTO 401.
   - 2.3. PROVIDE POLYETHYLENE ENCASEMENT IN ACCORDANCE WITH AWWA FOR BURIED DIP.

ELECTRICAL PROVISIONS

1. IT IS THE INTENTION THAT THIS SPECIFICATION SHALL COVER A COMPLETE ELECTRICAL PUMP CONTROL SYSTEM FOR A PACKAGE LIFT STATION HEREINAFTER DESCRIBED AND ALL NECESSARY APPURTENANCES WHICH MIGHT NORMALLY BE CONSIDERED A PART OF THE COMPLETE ELECTRICAL SYSTEM OF THIS INSTALLATION. ALL OF THE AUTOMATIC CONTROL EQUIPMENT IS TO BE SUPPLIED BY ONE MANUFACTURER. IT SHALL BE FACTORY ASSEMBLED, WIRED, TESTED AND COVERED BY COMPLETE ELECTRICAL DRAWINGS AND INSTRUCTIONS SUBMITTAL.

2. WIRING
   - 2.1. ALL WIRING SHALL BE MINIMUM 600 VOLT (UL) TYPE MTW OR AWM AND HAVE A CURRENT CARRYING CAPACITY OF NOT LESS THAN 125% OF THE FULL LOAD CURRENT.
   - 2.2. THE CONDUCTORS SHALL BE IN COMPLETE CONFORMITY WITH THE NATIONAL ELECTRIC CODE, STATE, LOCAL AND NEMA ELECTRICAL STANDARDS.
   - 2.3. TO ENSURE THE SAFETY OF ALL PERSONNEL WORKING WITH THIS EQUIPMENT, AS WELL AS PROVIDING A SIMPLE MEANS OF TRACING WIRES WHEN TROUBLESHOOTING, ALL WIRING SHALL BE COLOR CODED IN STRICT ACCORDANCE WITH THE WIRING DIAGRAMS FURNISHED BY THE EQUIPMENT SUPPLIER.

3. UL APPROVAL
   - 3.1. THE CONTROL PANEL SHALL BE CONSTRUCTED IN COMPLIANCE WITH UNDERWRITER'S LABORATORIES INDUSTRIAL CONTROL PANELS LISTING AND FOLLOW-UP SERVICE; UTILIZING UL LISTED AND RECOGNIZED COMPONENTS WHERE APPLICABLE. THE CONTROL PANEL SHALL BEAR THE UNDERWRITERS LABORATORIES 508/698A SERIALIZED LABEL RELATING TO HAZARDOUS LOCATIONS WITH INTRINSICALLY SAFE CIRCUIT EXTENSIONS AND BE SUITABLE FOR USE AS SERVICE EQUIPMENT.

4. ENCLOSURE
   - 4.1. THE DESCRIBED EQUIPMENT SHALL BE HOUSED IN A NEMA 4X STAINLESS STEEL ENCLOSURE ARRANGED FOR MOUNTING AS SHOWN ON THE DRAWINGS. THE ENCLOSURE SHALL BE CONSTRUCTED OF NOT LESS THAN 14 GAUGE #304 STAINLESS STEEL AND SHALL INCLUDE THE FOLLOWING:
     - 4.1.1. ALL SEAMS SHALL BE CONTINUOUSLY WELDED AND GROUND SMOOTH.
     - 4.1.2. DOOR AND BODY STIFFENERS SHALL BE PROVIDED FOR EXTRA RIGIDITY.
     - 4.1.3. CAPTIVATED DOOR SCREWS THREAD INTO SEALED WELLS.
     - 4.1.4. HEAVY GAUGE CONTINUOUS HINGE.
     - 4.1.5. REMOVABLE AND REVERSIBLE PRINT POCKET.
     - 4.1.6. OIL RESISTANT GASKET AND ADHESIVE
     - 4.1.7. COLLAR STUDS SHALL BE PROVIDED FOR MOUNTING PANEL.
     - 4.1.8. AIR CONDITIONER
   - 4.2. AN INTERNALLY MOUNTED HINGED PAINTED STEEL INNER PANEL SHALL BE PROVIDED SO THAT ALL THE COMPONENTS NORMALLY ACTUATED BY OPERATING PERSONNEL ARE ACCESSIBLE WITHOUT OPENING THE DEAD FRONT AND YET ARE NOT EXPOSED TO THE ELEMENTS OR TO UNAUTHORIZED PERSONNEL.
   - 4.3. ALL FIELD INSTALLED CONDUITS, FITTINGS OR CONNECTIONS SHALL ENTER THE ENCLOSURE THROUGH THE BOTTOM ONLY FOR ANY OUTDOOR ENCLOSURE.
   - 4.4. ALL MAJOR COMPONENTS AND SUB-ASSEMBLIES SHALL BE IDENTIFIED AS TO FUNCTION WITH LAMINATED, ENGRAVED BAKELITE NAMEPLATES OR SIMILAR APPROVED MEANS.

5. POWER SUPPLY AND METERING
   - 5.1. THE INCOMING SERVICE SHALL BE 240 VOLTS, 1 PHASE, 3 WIRE, 60 CYCLE. ALL METERING SHALL BE DONE AHEAD OF THE MAIN DISCONNECT AND CONTROL PANEL. THE CONTRACTOR IN ACCORDANCE WITH LOCAL POWER COMPANY REQUIREMENTS SHALL INSTALL THE METER.
   - 5.2. THE CONTROL SHALL OPERATE 5 HP MOTOR(S) ON A PUMP DOWN MODE, AND INCLUDE ITEMS AS SPECIFIED HEREINAFTER.

6. LIGHTNING ARRESTOR
   - 6.1. A LIGHTNING ARRESTOR SHALL BE SUPPLIED IN THE CONTROL PANEL AND CONNECTED TO EACH LINE OF THE INCOMING SIDE OF THE MAIN POWER INPUT TERMINALS. THE ARRESTOR SHALL PROTECT THE CONTROL AGAINST DAMAGE DUE TO LIGHTNING STRIKES ON THE INCOMING POWER LINE.

7. VOLTAGE MONITOR
   - 7.1. A SOLID STATE, OVER AND UNDER VOLTAGE RELEASE RELAY SHALL BE PROVIDED TO ENSURE ADDITIONAL RUNNING PROTECTION FOR THE PUMP MOTOR(S). THE RELAY SHALL BE COMPLETE WITH AN LED TO INDICATE PROPER VOLTAGE SEQUENCE, ALL PHASES IN OPERATION AND VOLTAGE WITHIN LIMITS. THE RELAY SHALL ALSO INCLUDE AN ADJUSTABLE VOLTAGE MONITOR, BE UL AND CSA CERTIFIED AND BE COMPLETE WITH AUTOMATIC RESET FAILURE.

8. PUMP CIRCUIT BREAKER
   - 8.1. A THERMAL MAGNETIC CIRCUIT BREAKER SHALL BE SUPPLIED AS BRANCH CIRCUIT PROTECTION FOR EACH PUMP MOTOR. THE CIRCUIT BREAKERS MUST HAVE A MINIMUM AMPERE INTERRUPTING CAPACITY OF (10,000-240 VOLT) SYMMETRICAL RMS AMPS. THE CIRCUIT BREAKER SHALL BE OPERABLE THROUGH THE OPERATOR'S DOOR OF THE ENCLOSURE.
   - 8.2. THE CIRCUIT BREAKER SHALL BE PROPERLY SIZED TO PROTECT THE CONTROL CIRCUIT CONDUCTORS. MOTOR STARTER AND THE MOTOR AGAINST OVER CURRENT DUE TO SHORT CIRCUIT OR GROUNDS.

9. MOTOR STARTERS
   - 9.1. A NEMA RATED VARIABLE FREQUENCY DRIVE (VFD) MOTOR STARTER WITH MANUAL RESET SHALL BE PROVIDED FOR EACH PUMP.

10. CONTROL TRANSFORMER
    - 10.1. THE PANEL SHALL INCLUDE A DRY TYPE CONTROL TRANSFORMER WITH A SUFFICIENT VA RATING TO OPERATE ALL 120-VOLT LOADS. PROPERLY SIZED PRIMARY AND SECONDARY FUSE PROTECTION SHALL BE PROVIDED. THIS TRANSFORMER MAY NOT BE REQUIRED IF 120 VOLTS CAN BE OBTAINED FROM THE INCOMING SERVICE.

11. CONTROL BREAKER - DOOR MOUNTED
    - 11.1. THE PANEL SHALL BE SUPPLIED WITH A PROPERLY SIZED CONTROL POWER CIRCUIT BREAKER. THE BREAKER SHALL BE OPERATOR DOOR MOUNTED AND SHALL SUPPLY POWER TO ALL CONTROL WIRING WITHIN THE ENCLOSURE.

12. WETWELL LEVEL-RESPONSE AUTOMATIC PUMP AND ALARM CONTROL SYSTEM
    - 12.1. PLC WITH TOUCH SCREEN FOR LEVEL TRANSDUCER AND PRIMARY CONTROL
    - 12.2. A WETWELL LEVEL-RESPONSIVE AUTOMATIC PUMP CONTROLLER/ALTERNATOR AND ABNORMAL LEVEL ALARM MODULE SHALL BE FURNISHED TO CONTROL TWO PUMPS IN RESPONSE TO DIRECT-ACTING LIQUID LEVEL SENSORS IN THE WETWELL. THE CONTROLLER SHALL PROVIDE INDEPENDENT ON, COMMON OFF OPERATION OF 2 PUMPS WITH HIGH LEVEL ALARM. A SOLID STATE ALTERNATOR SHALL CHANGE THE PUMP SEQUENCE AFTER EACH CYCLE OF OPERATION. THE CONTROLLER/ALTERNATOR/ALARM MODULE SHALL BE A STANDARD STOCKED UNIT.
    - 12.3. FOUR FLOATS WILL BE REQUIRED TO CONTROL THE OPERATION OF THE DUPLEX PUMPS. AS THE LIQUID LEVEL RISES IN THE WETWELL THE PUMPS STOP FLOAT ENERGIZES FIRST. AS THE LEVEL INCREASES THE START FLOAT ENERGIZES AND STARTS THE PUMP, WITH THE PUMP RUNNING, THE LEVEL DECREASES TO THE PUMP STOP FLOAT, AND TURNS THE PUMP OFF. WHEN THE PUMP STOPS, THE ALTERNATOR SHALL INDEX SO THAT THE OTHER PUMP STARTS ON THE NEXT RISE IN LEVEL. IF THE LEVEL CONTINUES TO RISE WITH THE LEAD PUMP RUNNING, THE LAG START FLOAT WILL ENERGIZE AND START THE LAG PUMP. BOTH LEAD AND LAG PUMPS SHALL OPERATE TOGETHER UNTIL THE STOP FLOAT IS DE-ENERGIZED.
    - 12.4. A FLOAT SHALL BE REQUIRED TO SIGNAL THE HIGH LEVEL ALARM IF THE LEVEL CONTINUES TO RISE ABOVE THE NORMAL PUMPING LEVELS.
    - 12.5. AN ADJUSTABLE DELAY TIMER SHALL BE PROVIDED TO PREVENT SIMULTANEOUS STARTING OF THE PUMPS AFTER A POWER FAIL.

13. RUNNING TIME METER
    - 13.1. A NON-RESETABLE RUNNING TIME METER MEASURING HOURS AND TENTHS OF HOURS OF OPERATION UP TO 99999.9 HOURS SHALL BE INTEGRAL TO THE OPERATOR INTERFACE TERMINAL.

14. SELECTOR SWITCHES.
    - 14.1. A 22 MM OIL TIGHT, THREE-POSITION, "HANDS-OFF-AUTOMATIC" SELECTOR SWITCH SHALL BE FLUSH-MOUNTED ON THE OPERATOR'S DOOR OF THE CONTROL PANEL FOR THE OPERATION OF EACH VFD. THIS SELECTOR SWITCH SHALL OPERATE THE VFD WHEN IT IS IN EITHER THE "HAND" POSITION OR THE "AUTOMATIC" POSITION, AND THE AUTOMATIC CONTROL SYSTEM IS CALLING FOR THE OPERATION OF THE EQUIPMENT IN THE MANNER AS HEREIN DESCRIBED.
    - 14.2. AN ALTERNATOR OVERRIDE SWITCH (1-2, AUTO, 2-1) SHALL BE INTEGRAL TO THE OPERATOR INTERFACE TERMINAL. THIS SWITCH WILL ALLOW THE OPERATOR TO SELECT EITHER AUTOMATIC ALTERNATION OR MANUALLY SELECT THE LEAD PUMP.

15. STATUS INDICATORS AND ALARM LIGHTS
    - 15.1. ALL LIGHTS SHALL BE 22 MM OIL TIGHT, FLUSH MOUNTED ON THE OPERATOR'S DOOR OF THE CONTROL PANEL, AND HAVE REPLACEABLE BULBS.
    - 15.2. A GREEN "PUMP RUNNING" PILOT LIGHT SHALL BE OPERATED FROM A RESPECTIVE STARTER AUXILIARY CONTACT.
    - 15.3. A RED "HIGH LEVEL" PILOT LIGHT WILL INDICATE A HIGH WETWELL CONDITION.
    - 15.4. A RED "SEAL FAIL" PILOT LIGHT WILL INDICATE A PUMP SEAL FAILURE ALARM CONDITION OF EACH SEWAGE PUMP. THIS LIGHT SHALL BE OPERATED BY A SOLID-STATE RESISTANCE CONTROL RELAY DESIGNED FOR CONNECTION TO THE MOISTURE PROBE IN EACH PUMP MOTOR.
    - 15.5. A RED "PUMP OVERTEMP" PILOT LIGHT AND RESET PUSH BUTTON SHALL BE MOUNTED ON THE OPERATOR'S DOOR. OVER TEMPERATURE PROTECTION SHALL BE PROVIDED IN THE CONTROL PANEL TO OPERATE IN CONJUNCTION WITH OVER TEMPERATURE SWITCH IN EACH PUMP MOTOR. THE CONTROL SHALL PROVIDE PUMP LOCKOUT OF OPERATION UPON OCCURRENCE OF HIGH TEMPERATURE.

16. WEATHERPROOF ALARM LIGHT
    - 16.1. A WEATHERPROOF HIGH WATER, 40-WATT ALARM LIGHT ASSEMBLY INCLUDING A HIGH IMPACT RESISTANT LEXAN RED LENS SHALL BE INCLUDED, FOR PANEL MOUNTING ONLY. THE ALARM LIGHT BULB SHALL BE REPLACEABLE FROM INSIDE THE CONTROL PANEL WITHOUT HAVING TO REMOVE THE WEATHERPROOF RED LENS FROM THE PANEL. A SOLID-STATE FLASHER SHALL BE INCLUDED TO STROBE THE ALARM LIGHT FOR ANY OF THE SPECIFIED ALARM CONDITIONS.

17. WEATHERPROOF ALARM HORN
    - 17.1. A WEATHERPROOF HIGH WATER AUDIBLE U.L. LISTED ALARM HORN SHALL BE PROVIDED. THE HORN WILL BE SIDE MOUNTED TO THE CONTROL PANEL, OR PROVIDED FOR REMOTE MOUNTING, AND SHALL OPERATE ON 115 VAC WITH A TYPICAL 95 DB OUTPUT. AN ALARM SILENCE PUSH BUTTON SHALL BE INCLUDED AND MOUNTED ON THE OPERATOR'S DOOR.

18. WETWELL LEVEL SENSING FLOAT SWITCHES.
    - 18.1. EACH FLOAT SHALL HAVE A CHEMICAL RESISTANT POLYPROPYLENE CASING WITH A FIRMLY BONDED ELECTRICAL CABLE PROTRUDING. ONE END OF THE CABLE SHALL BE PERMANENTLY CONNECTED TO THE GLASS ENCLOSED MERCURY SWITCH AND THE ENTIRE ASSEMBLY ENCAPSULATED TO FORM A COMPLETELY WATERTIGHT IMPACT RESISTANT UNIT. THE CABLE SHALL BE P.V.C. TYPE STO WITH #18 CONDUCTORS, RATED 600 VOLTS, IN LENGTHS AS REQUIRED TO RUN UNSPLICED TO THE CONTROL PANEL. THE FLOATS SHALL BE SUSPENDED TYPE WITH A BUILT IN WEIGHT. FLOATS THAT REQUIRE AN EXTERNAL WEIGHT WILL NOT BE ACCEPTABLE. USE 10 PSI X 40' CORD BLUE RIBBON LEVEL TRANSDUCER OR APPROVED EQUAL.
    - 18.2. THE CONTRACTOR SHALL INSTALL AND WIRE THE FLOAT SWITCHES AS SHOWN ON THE DRAWINGS. THE FLOAT SWITCH CABLES SHALL BE SUSPENDED FROM A CABLE RACK MOUNTED TO THE TOP OF THE WETWELL.

19. AUTO-DIALER
    - 19.1. LIFT STATION SHALL BE EQUIPPED WITH A SENSAPHONE SENTINEL CELLULAR AUTO-DIALER OR APPROVED EQUAL WHICH AUTOMATICALLY ACTIVATES TO GIVE WARNINGS FOR POWER OUTAGES, PUMP FAILURES, AND HIGH WATER LEVELS.

20. IF 1 PHASE SERVICE IS SPECIFIED, VFDs ARE TO BE PROVIDED IN THE PANEL AND AIR CONDITIONER ADDED FOR 1 PHASE TO 3 PHASE CONVERSION.
21. MAIN BREAKER/DISCONNECT MEANS TO BE PROVIDED BY OTHERS.
22. JUNCTION BOX(ES), IF REQUIRED, ARE TO BE PROVIDED BY OTHERS.
23. PUMP CONTROL PANEL IS TO BE MOUNTED ON UNI-STRUT RACKS. UNI-STRUT RACKS MAY BE MOUNTED ON POSTS WITH CONCRETE FOOTINGS DIRECTLY ADJACENT TO LIFT STATION. CONTRACTOR SHALL SUBMIT CONTROL PANEL LOCATION AND MOUNTING METHODS TO ENGINEER FOR APPROVAL PRIOR TO PLACEMENT.
24. ALL PENETRATIONS SHALL BE SEALED WATER AND GAS TIGHT PER APPROVED METHODS.
25. ELECTRICAL CONTRACTOR TO PROVIDE AND SIZE ALL CONDUITS, MAIN BREAKER/DISCONNECT, WIRES, ETC. PER ALL NEC CODES AND ALL APPLICABLE STATE AND LOCAL CODES.

PUMP CONTROL NARRATIVE

- PUMP #1 DELAY: 12 HOURS
- PUMP #1 START: 0.5 HOURS
- PUMP #1 STOP: 2.5 HOURS
- PUMP #2 START: 0.5 HOURS
- PUMP #2 STOP: 2.5 HOURS

No.	REVISIONS	DATE	BY

Kimley»Horn
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501 S AUSTIN AVE #1310, GEORGETOWN, TX 78626
PHONE: 512-520-0768
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TEXAS REGISTERED ENGINEERING FIRM F-928

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TREVOR Q. RENN P.E.
SERIAL NO. 135269
DATE: 9/10/2025

KHA PROJECT 067783185	DATE 9/10/2025	SCALE: AS SHOWN	
DESIGNED BY: TOR	DRAWN BY: XXX	CHECKED BY: TOR	

WATER QUALITY PUMP STATION NOTES

LOST WOODS ESTATES

CITY OF LEANDER
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER
33
OF 76

Plotted By: Lee, David Date: December 16, 2025 10:59:43am File Path: K:\GEO_Civil\067783185 - Mt Homes Leander Simpson Tracts\Civil Construction Plans\PlanSheets\C-Water Quality Pump Station Notes.dwg
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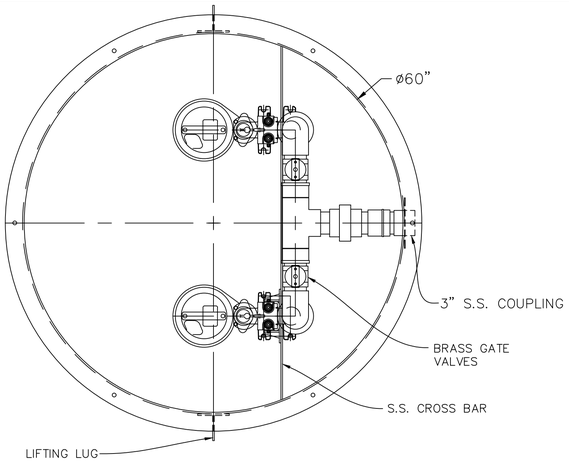
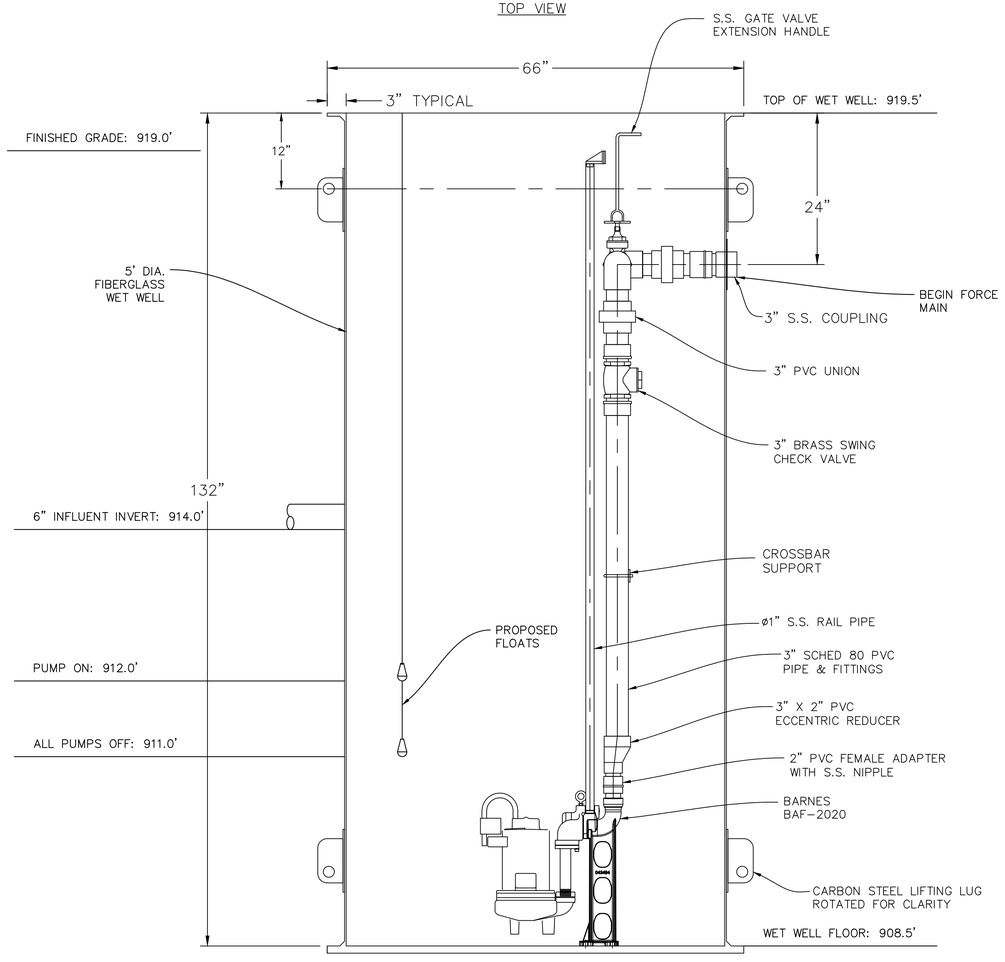


TOP VIEW



SECTIONAL ELEVATION VIEW

STEELE PLASTICS, LLC
1280 Sturgis Rd.
Conway, AR 72034
(501) 327-5122 Fax (501) 327-0807

TITLE 60" X 132" DUPLEX SYSTEM 3" WITH VALVES – PVC

PROJECT LOST WOODS WQ PS

JOB NO.

P.O. NO.

CUSTOMER PUMP SOLUTIONS

DWG. NO.

No.	REVISIONS	DATE	BY

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SERIAL NO. 135269
DATE: 9/10/2025

KHA PROJECT 067783185	DATE 9/10/2025	SCALE: AS SHOWN	DESIGNED BY: TQR	DRAWN BY: NN	CHECKED BY: TQR

WATER QUALITY PUMP STATION PLAN & SECTION

LOST WOODS ESTATES
CITY OF LEANDER
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER
34
OF 76

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Plotted By: Eyles, David Date: December 16, 2025 11:00:01am File Path: K:\DEO_Civil\067783185 – MI Homes Leander Simpson Tracts\Cad\Construction Plans\PlanSheets\C- Water Quality Pump Station Plan and Section.dwg
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BARNES®
Professional Plumbing
www.cranepumps.com

CONTROL PANELS

Single Phase, Duplex, Alternating
120/208/240 VAC

Accessories

The Duplex controls are supplied in a NEMA 4X weathertight thermoplastic enclosure with removable mounting flanges for indoor/outdoor mounting. Each will contain two pole, amperage rated magnetic motor contactors for pump control and circuit breakers for pump disconnects and branch circuit protection. Hand-off-automatic switches are provided for manual operation of the pumps. Pump run, float status, and control/alarm power indicators are provided as well as a control/alarm fuse and on/off switch.

Terminal blocks are provided for customer connection of power, pump leads, and level switches or other pilot controls.The alternating action equalizes pump wear. In addition to the alternating pump control, this system provides override control should either pump fail.

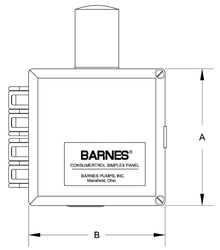
The Alarm package includes a top mounted red beacon for 360° visual checks and a horn for audio warning of alarm conditions. A test-normal-silence switch is provided for testing of the alarm and silencing of the horn. A horn silence relay automatically resets the alarm horn after alarm condition has been resolved.

PART NO.	PUMP FULL LOAD AMPS	CIRCUIT BREAKER	CONTACTOR	PH
106483	0 - 7	2 Pole, 15 Amp	2 Pole, 25 Amp	1
106484	7 - 15	2 Pole, 20 Amp	2 Pole, 25 Amp	1
106485	15 - 20	2 Pole, 30 Amp	2 Pole, 25 Amp	1

c UL us

Series: Duplex
P/N: 106483 thru 106485

WARNING:
CANCER AND REPRODUCTIVE HARM -
WWW.P65WARNINGS.CA.GOV



inches (mm)

A - Height	B - Width	C - Depth
14 (356)	12 (305)	6 (152)

BARNES®
www.cranepumps.com

1.25" - 3" Break Away Fitting

With or Without Check Valve
Standard & Non-Sparking

Break Away Fittings

Specifications:

Each BAF break away fitting consists of a cast iron base elbow which is bolted to the floor of the wet well, lower and upper guide rail supports and a cast iron moveable elbow with a sealing plate and o-ring. The pump is connected to the moveable elbow though a stainless steel nipple supplied with each assembly.

The guide rails (supplied by customer) are attached to the base elbow at the lower end and a pipe spacer support bracket at the upper end. The guide rails are set in place by sliding the pipe over a stainless steel plug. Each plug has an o-ring to reduce noise and vibration. The guide rails serve only as a guide as they carry none of the pump weight. 1" (25mm) schedule 40 galvanized steel pipes should be used for guide rails.

An optional intermediate guide rail bracket is recommended for depths of 13 feet (4m) or more. See page 2.

The BAF's, 1212, 1220 & 2020 are for pumps up to 200 lbs (91kg) which do not generate in excess of 150 ft. TDH (45 Meters).

The BAF's, 2030 & 3030 is for pumps up to 250 lbs (114kg) which do not generate in excess of 150 ft. TDH (45 Meters).

One break away fitting is required per pump. (The S.S. Lifting bridle is included.)

Assemblies DO NOT include Pump, Discharge piping, Guide Rails, Lifting Chain, nor Gate Valve with Handle.

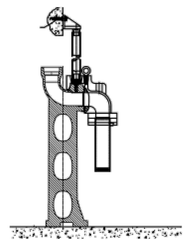
These items must be purchased separately.

Specifications: With Check Valve "CV" Series
In addition to standard features listed above, a commercially available Flap Check Valve is supplied with each model. The valve is installed between the pump discharge flange and the inlet flange on the moveable elbow.

Specifications: Non-Sparking "NS" Series
The "NS" series is similar in design to the standard version except it has a Bronze Moveable Elbow to prevent sparking.

Model Key: BAF - 1212NS
12 = 1¼"
20 = 2"
30 = 3"
Customer Connection
Pump Connection

For Submersible Sump, Sewage, Effluent & Grinder Pumps.



Models: Without Check Valve

STD P/N		"NS" P/N
127300	BAF - 1212	127303
127301	BAF - 1220	127311
127302	BAF - 2020	127312
127306	BAF - 2030	127305
127304	BAF - 3030	127314

Models: With Check Valve

STD P/N		"NS" P/N
127307	BAF - 1212CV	127310
127308	BAF - 1220CV	127313
127309	BAF - 2020CV	127315

DESCRIPTION:

THE BREAK AWAY FITTING IS DESIGNED TO ALLOW THE SUBMERSIBLE PUMP TO BE INSTALLED OR REMOVED WITHOUT REQUIRING PERSONNEL TO ENTER THE WET WELL.

WARNING:
CANCER AND REPRODUCTIVE HARM -
WWW.P65WARNINGS.CA.GOV

1.25" - 3" Break Away Fitting

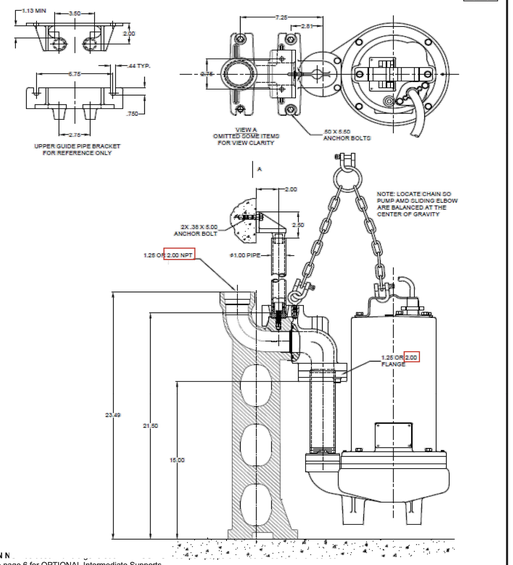
Without Check Valve

BARNES®
www.cranepumps.com

Break Away Fittings

BAF - 1212, 1220, 2020

inches (mm)



* **CAN N**
See page 6 for OPTIONAL Intermediate Supports.
NOTE: Lifting Chain sold separately.

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Specifications

Duplex Fiberglass Lift Station: Rail Pipe

Word File

Pre-Packaged Fiberglass Systems

DESCRIPTION: The manufacturer shall furnish a complete Pump Station(s). The pump station shall consist of a basin package, pump and control panel.

- The Basin Package shall include the following: fiberglass basin with anti-flotation collar, BAF lift out system with stainless steel guide rails, isolation valve, mechanical floats, basin cover, check valve, stainless lifting chain, field locatable conduit fitting, and bug free station vent. All equipment in the wet well shall be capable of constant submerge in sewage to a minimum depth of 30 feet without electrical power being energized.
- The Control Panel (optional) shall include a NEMA 4X weather tight thermoplastic enclosure with removable mounting flanges. The panel shall have alternating action that equalizes pump wear. In addition to the alternating pump control, this system provides override control should either pump fail. The panel shall have indicators showing pump run, float status, and control/alarm power indicators. The high level alarm shall consist of a horn for audio warning, as well as a top mounted red beacon. The interior of the panel shall consist of magnetic motor contactors, circuit breakers, terminal blocks for customer connection of power, pump leads, and level switches, and hand-off-automatic switches are provided for manual operation of the pumps.
- The Pump (optional) shall include a Barnes Grinder, Effluent, or Sewage Ejector, and shall be selected based on the hydraulic requirements of the system.

SHOP DRAWINGS AND MANUALS: After receipt of notice to proceed, the manufacturer shall furnish the engineer a minimum of eight (8) sets of shop drawings detailing the equipment to be furnished including dimensional data and materials of construction. The engineer shall promptly review this data, and return two (2) copies to the manufacturer as approved, or approved as noted. Upon receipt of accepted shop drawings, the manufacturer shall proceed with order entry and fabrication of the equipment. Prior to completion of equipment delivery, the manufacturer shall supply four (4) copies of Operation and Maintenance Manuals to the owner, and one (1) copy of the same to the engineer.

PRE-APPROVAL OF MANUFACTURER: The system design is detailed in the drawings. Any pump manufacturer not specified, but wishing to be pre-approved as an acceptable supplier shall submit a complete hydraulic analysis based on the design detailed in the drawings at least fifteen days prior to bid date. All manufacturers must have been in the business of manufacturing complete pump stations for a minimum of ten years. Manufacturer Representatives, Distributors, or Packagers will not be considered to be manufacturers. Manufacturer must demonstrate to the satisfaction of engineer that the proposed pump equipment will meet system flows and heads required. In addition, pre-submittal must also demonstrate to the satisfaction of the engineer that the equipment being proposed meets or exceeds all performance and safety requirements, materials of construction, and user benefits of the specified equipment. Only pre-approved pump station manufacturers will be considered. All bids utilizing manufacturers not pre-approved will be considered non-responsive.

ACCEPTABLE MANUFACTURER(S): Acceptable pump station manufacturer(s) are Barnes pumps as manufactured by Crane Pumps & Systems., or pre-approved equal.

CORROSION PROTECTION: All materials exposed to wastewater shall have inherent corrosion protection: i.e., painted cast iron, fiberglass, stainless steel, PVC.

STATION CONFIGURATION: Basins shall be supplied in a wet well configuration.

LEVEL DETECTION: Level detection for controlling the pump and alarm operation shall be accomplished by use of a detection mechanism specifically designed for use in a sewage system and shall be removable without the need to enter the pump. Switches utilized in the system shall be hermetically sealed in a submersible, watertight protective casing. Level detection mechanism shall be suspended mechanical floats with adjustable weights for sight specific settings to provide switch operation from solids, greases, oils, and fats. Level detection mechanism shall not require any regular, preventive maintenance. The level detection mechanism shall consist of four (Duplex) switches, one for each function (HIGH WATER ALARM, LEAD PUMP ON, LAG PUMP ON, ALL PUMPS OFF). The level controls shall be serviceable without the need for a confined space entry as defined by OSHA or the need to remove the pump. Use of mercury floats will not be acceptable.

SHUT-OFF VALVE: The pump discharge shall be equipped with a factory installed, manual valve with separate union. Valves shall be, constructed of (Gate-PVC(1-1/4" and 2") Ball-PP (3")) , with a minimum rated pressure of 150 PSI (10.6 kgs/sq. meter). All valves shall be operable from ground level. Shut off valve must be replaceable without excavating basin exterior. Shut off valves shall be each equal to the size of the station discharge.

BASIN CONSTRUCTION AND ASSEMBLY: The basin shall be fiberglass reinforced polyester resin with a 3" (76.2 mm) ballast support flange. The basin shall be furnished with one flexible inlet flange (shipped loose to facilitate field location) to accept a 4.50" (114 mm) OD DWV pipe. Inlet location can vary to accommodate ease of installation. (See installation instructions or consult factory for details.) Basin capacities and dimensions shall be as shown on the contract drawings or as specified herein. The basin FRP wall laminate thickness shall vary with the wetwell depth to provide the aggregate strength to meet the tensile and flexural physical property requirements. The basin FRP wall laminate must be designed to withstand wall collapse or buckling based on a hydrostatic pressure of pounds per square foot, a saturated soil weight of 120 pounds per cubic foot, a soil modulus of 700 pounds per square foot. Basin must comply with the pipe stiffness values as specified in ASTM D 3753. The basin laminate must be constructed to withstand or exceed 150% of the assumed loading on any depth. The finished FRP laminate will have a Barcol hardness of at least 90% of the resin manufactures specified hardness for the fully cured resin. The Barcol Hardness shall be the same for both interior and exterior surfaces. Manufacture must submit documentation including calculation and production certification that basin (s) on the project are in compliance with the above requirements.

All piping inside the basin silhouette shall be at a level in the station that is lower than the frost depth or depth of bury specified for the low pressure sewer piping, whichever is lowest.

Fiberglass cover shall be grass green color. Steel cover shall be black in color. Aluminum cover shall be natural silver color.

All discharge piping shall be constructed of Schedule 80 PVC and terminate outside the stations with a bulkhead female NPT fitting. The manufacturer shall guarantee all bulkhead penetrations watertight.

PUMP REMOVAL SYSTEM: Each basin shall be equipped with a 300 series stainless steel pipe guide rail assembly to facilitate removal of the pump(s) from ground level. A stainless steel lifting chain with harness shall be supplied for pump removal. Pump removal system must not require the loosening of fasteners to facilitate pump removal, and shall provide for automatic alignment and re-connection of discharge piping for the replacement pump. Pump replacement shall be accomplished while the basin is full of sewage without the need to dewater the basin.

WARRANTY: The manufacturer shall provide a warranty of twenty-four (24) months after date of manufacture. The owner will return any equipment found to be defective to the manufacturer for inspection and validation of the defect. Defective equipment will be repaired or replaced and shipped back to customer at no charge. Consult factory for extended warranty information.

End

Recycle Timer

GT3W Series — Timers — IDEC

GT3W Series — Dual Time Range Timers

Key features of the GT3W series include:
- **Sequential start, sequential interval, on-delay, recycler, and interval ON timing functions**
- **2 time settings in one timer**
- **8 selectable operation modes on each model**
- **Mountable in sockets or flush panel**
- **Power and output status indicating LEDs**
- **Time ranges up to 300 hours**

c-UL Listed
UL Listed
File No.E55996

General Specifications

Operation System	Solid state CMOS Circuit	
Operation Type	Multi-Mode	
Time Range	1: 0.1sec to 9 hours, 3: 0.1sec to 300hours	
Pollution Degree	2 (IEC60664-1)	
Over voltage category	III (IEC60664-1)	
Rated Operational Voltage	AF20	100-240V AC(50/60Hz)
	AD24	24V AC(50/60Hz)/24V DC
	D12	12V DC
Voltage Tolerance	AF20	85-264V AC(50/60Hz)
	AD24	20.4-26.4V AC(50/60Hz)/21.6-26.4V DC
	D12	10.8-13.2V DC
Disengaging value of Input Voltage	Rated Voltage x10% minimum	
Range of Ambient Operating Temperature	-10 to +50°C (without freezing)	
Range of Ambient Storage and Transport Temperature	-30 to +75°C (without freezing)	
Range of Relative Humidity	35 to 85%RH (without condensation)	
Atmospheric Pressure	80kPa to 110kPa (Operating), 70kPa to 110kPa (Transport)	
Reset Time	60msec maximum	
Repeat Error	±0.2%, ±10msec*	
Voltage Error	±0.2%, ±10msec*	
Temperature Error	±0.6%, ±10msec*	
Setting Error	±10% maximum	
Insulation Resistance	100MΩ minimum (500V DC)	
Dielectric Strength	Between power and output terminals: 2000V AC, 1 minute Between contacts of different poles: 2000V AC, 1 minute Between contacts of the same pole:750V AC, 1 minute	
Vibration Resistance	10 to 55Hz amplitude 0.75mm2 hours in each of 3 axes	
Shock Resistance	Operating extremes: 98m/sec² (approx.10G) Damage limits: 490m/sec² (approx. 50G) 3 times in each of 3 axes	
Degree of Protection	IP40 (enclosure), IP20 (socket) (IEC60529)	
Power Consumption (Approximate)	AF20 100V AC/60Hz	2.3VA
	200V AC/60Hz	4.6VA
	AD24 (AC/DC)	1.8VA/0.9W
Mounting Position	Free	
Dimensions	40Hx 36W x 70 mm	
Weight (Approx.)	72g	

** *For the value of the error against a preset time, whichever the largest.*

Contact Ratings

Allowable Contact Power		960VA/120W
Allowable Voltage		250V AC/150V DC
Allowable Current		5A
Maximum permissible operating frequency		1800 cycles per hour
Rated Load		1/8HP, 240V AC 3A, 240V AC (Resistive) 5A, 120V AC/30V DC (Resistive)
Conditional Short Circuit		Fuse 5A, 250V
Life	Electrical	100,000 op. minimum (Resistive)
	Mechanical	20,000,000 op. minimum

GT3W Table of Contents

Specifications — G-44
Part Number List — G-45
Timing Diagrams / Schematics — G-46
Instructions: Setting Timer — G-47
GT3 Accessories — G-48
GT3 Instructions — G-50
GT3 Dimensions — G-52
Timing Diagrams Overview — G-4

G Timers

Recycle Timer

IDEC Timers — GT3W Series

Part Number List

Part Numbers

Mode of Operation	Output	Contact	Time Range*	Rated Voltage	Pin Configuration	New Part Numbers
A: Sequential Start B: On-delay with course & fine C: Recycler & instaneous D: Recycler outputs (OFF Start) E: Recycler outputs (ON Start) F: Interval ON G: Interval ON Delay H: Sequential Interval	3A, 240V AC 5A, 120V AC/30V DC (Resistive Load)	Delayed SPDT + Delayed SPDT	1: 0.1sec - 6 hours *(See Time Range Settings for details.)	100 to 240V AC (50/60Hz)	8 pin	GT3W-A11AF20N
					11 pin	GT3W-A11EAF20N
				24V AC/DC	8 pin	GT3W-A11AD24N
					11 pin	GT3W-A11EAD24N
				12V DC	8 pin	GT3W-A11D12N
					11 pin	GT3W-A11ED12N
			3: 0.1sec - 300 hours	100 to 240V AC (50/60Hz)	8 pin	GT3W-A33AF20N
				24V AC/DC		GT3W-A33AD24N

1. For schematics, see page G-46.
2. For socket and accessory part number information, see page G-48.
3. 8- and 11-pin models differ only in the number of pins (extra pins are not used).
4. For the timing diagram overview, see page G-4.
5. *For details on setting time ranges, see the instructions on page G-47.

Time Range Table

Time Range Code: 1			Time Range Code: 3		
Time Range Selector	Scale	Time Range	Time Range Selector	Scale	Time Range
1S	0-1	0.1 sec - 1 sec	1S	0-3	0.1 sec - 3 sec
10S		0.3 sec - 10 sec	1M		3 sec - 3 min
10M		15 sec - 10 min	1H		3 min - 3 hours
1S	0-6	0.1 sec - 6 sec	1S	0-30	0.6 sec - 30 sec
10S		1 sec - 60 sec	1M		36 sec - 30 min
1M		6 sec - 6 min	1H		36min - 30 hours
10M		1 min - 60 min	10H		6 hours - 300 hours
1H		6 min - 6 hours			

We will set to Run 1/2 hour, off 2.5 hrs. and Recycle this until off float clears.

G Timers

Plotted By: Lee, David Date: December 16, 2025 11:00:23am File Path: K:\CEO_Civil\067783185 — Mt Homes Leander Simpson Tracts\Cad\Construction Plans\Plan Sheets\C—Water Quality Pump Station Details.dwg
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No.	REVISIONS	DATE	BY

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TREVOR Q. RENN P.E.
SERIAL NO. 135269
DATE:
9/10/2025

KHA PROJECT 067783185	SCALE: AS SHOWN	
DATE 9/10/2025	DESIGNED BY:	TOR
	DRAWN BY:	XXX
	CHECKED BY:	TOR

WATER QUALITY LIFT STATION DETAILS (SHEET 1 OF 2)

LOST WOODS ESTATES
CITY OF LEANDER
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER
35
OF 76

GT3W Series

Recycle Timer

Timers IDEC

Timing Diagrams/Schematics

G

Timers

G-46

Off Delay Timer

idec RTE-P1, -P2, -B1, -B2 ALL MULTI-TIMERS INSTRUCTION SHEET

Read this instruction sheet to make sure of correct operation before starting installation, operation, maintenance, and inspection of the RTE series timers. The end user should keep this instruction sheet for future reference.

TIME RANGE Determined by Time Range Selector and Dial Selector

(hr: hours)

Range \ Dial	0-1	0-3	0-10	0-30	0-60
s	0.1sec - 1sec	0.1sec - 3sec	0.2sec - 10sec	0.6sec - 30sec	1.2sec - 60sec
min	1.2sec - 1min	3.6sec - 30min	12sec - 10min	36sec - 30min	1.2min - 60min
h	1.2min - 1hr	3.6min - 3hr	12min - 10hr	36min - 30hr	1.2hr - 60hr
10h	12min - 10hr	36min - 30hr	2hr - 100hr	6hr - 300hr	12hr - 600hr

GENERAL SPECIFICATIONS

Operation System		Solid-state CMOS circuit
Operation Type		Multi-Mode
Time Range		0.1sec to 600hours
Pollution Degree		2 (IE60664-1)
Over voltage category		Ⅲ (IE60664-1)
Rated Operational Voltage	AF20	100-240V AC(50/60Hz)
	AD24	24V AC(50/60Hz)/24V DC
	D12	12V DC
Voltage Tolerance	AF20	85-264V AC(50/60Hz)
	AD24	20.4-26.4V AC(50/60Hz)/21.6-26.4V DC
	D12	10.8-13.2V DC
Input off Voltage		Rated Voltage × 10% minimum
Ambient Operating Temperature		-20 to +65℃ (without freezing)
Ambient Storage and Transport Temperature		-30 to +75℃ (without freezing)
Relative Humidity		35 to 85%RH (without condensation)
Atmospheric Pressure		80kPa to 110kPa (Operating) 70kPa to 110kPa (Transport)
Reset Time		100msec maximum
Repeat Error		±0.2%, ±20msec*
Voltage Error		±0.2%, ±20msec*
Temperature Error		±0.5%, ±20msec*
Setting Error		±10% maximum
Insulation Resistance		100MΩ minimum (500V DC)
Dielectric Strength		Between power and output terminals: 2000V AC, 1 minute; Between contacts of different poles: 2000V AC, 1 minute; Between contacts of the same pole: 1000V AC, 1 minute
Vibration Resistance		10 to 55Hz amplitude 0.5mm 2 hours in each of 3 axes
Shock Resistance		Operating extremes: 98m/sec² (10G) Damage limits: 490m/sec² (50G) 3 times in each of 3 axes
Degree of Protection		IP40 (enclosure), IP20 (socket) (IEC60529)

Power Consumption (Approx.)	TYPE		RTE-P1, -B1	RTE-P2, -B2
	AF20	120V AC/60Hz	6.5VA	6.6VA
		240V AC/60Hz	11.6VA	12.1VA
	AD24(AC/DC)		3.4VA/1.7W	3.5VA/1.7W
	D12		1.6W	1.6W

Mounting Position		Free
Dimensions	RTE-P1, P2	40H × 36W × 77.9D mm
	RTE-B1, B2	40H × 36W × 74.9D mm
Weight (Approx.)	RTE-P1 / RTE-P2 / RTE-B1, -B2	87g / 89g / 85g

* For the value of the error against a preset time, whichever the largest applies.

APPLICABLE STANDARDS

UL508, CSA C22.2 No.14, IEC61812-1, EN61812-1

EMC

Electrostatic Discharge		level 3 Contact±6.0kV, Air±8.0kV	IEC61000-4-2 EN61000-4-2
Electromagnetic Field		level 3 10V/m, AM 80%, 80M-1000MHz	IEC61000-4-3 EN61000-4-3
Fast Transient/Burst		level 3 Power Supply: ±2.0kV	IEC61000-4-4 EN61000-4-4
Surge	AF20	level 3 Power Supply: Line to Line ±1.0kV Line to Ground ±2.0kV	IEC61000-4-5 EN61000-4-5
	AD24 D12	level 2 Power Supply: Line to Line ±0.5kV Line to Ground ±1.0kV	
Radiated Emission		Group 1 Class A	CISPR 11 EN55011

TYPES

RTE-P1AF20

Connection type: P: Pin; B: Blade

Operation Mode: 1: No Control Signal (A: ON-Delay 1, B: Interval, C: Cycle 1, D: Cycle 3); 2: Control Signal (A: ON-Delay 2, B: Cycle 2, C: Cycle 4, D: Signal ON/OFF-Delay, E: Signal OFF-Delay, F: One-Shot)

Power Voltage: AF20: 100 to 240V AC(50/60Hz); AD24: 24V AC(50/60Hz)/24V DC; D12: 12V DC

CONTACT RATINGS

Contact Configuration		2 Form C, DPDT (Delay output)
Allowable Voltage / Allowable Current		240V AC, 30V DC / 10A
Maximum Permissible Operating Frequency		1800 cycles per hour
Rated Load	Resistive	10A 240V AC, 30V DC
	Inductive	7A 240V AC, 30V DC
	Horse Power Rating	1/6 HP 120V AC, 1/3 HP 240V AC
Conditional Short Circuit		Fuse 10A, 240V
Life	Electrical	500,000 op. minimum (Resistive)
	Mechanical	50,000,000 op. minimum

TEMPERATURE DERATING CURVES

SWITCH SETTING

(1)Turn the selectors securely using a flat screwdriver 4mm wide maximum. Note that incomplete setting may cause malfunction. Do not turn the selectors beyond the limits.
(2)Since changing the setting during timer operation may cause malfunction, turn power off before changing the setting.

DIMENSIONS

Safety Precautions

Special expertise is required to use the Electronic Timer.
- All Electronic Timers are manufactured under IDEC's rigorous quality control system, but users must add a backup or fail safe provision to the control system using the Electronic Timer in applications where heavy damage or personal injury may be caused in case the Electronic Timer should fail.
- Install the Electronic Timer according to instructions described in this instruction sheet and the catalog.
- Make sure that the operating conditions are as described in the catalog. If you are uncertain about the specifications, contact IDEC in advance.
- In this instruction sheet, safety precautions are categorized in order of importance to Warning and Caution.

Warning Warning notices are used to emphasize that improper operation may cause severe personal injury or death.
- Turn power off to the Electronic timer before starting installation, removal, wiring, maintenance, and inspection on the Electronic Timer. Failure to turn power off may cause electrical shocks or fire hazard.
- Do not use the Electronic Timer for an emergency stop circuit or interlocking circuit. If the Electronic Timer should fail, a machine disorder, breakdown, or accident may occur.

Caution Caution notices are used where inattention might cause personal injury or damage to equipment.
- The Electronic Timer is designed for installation in equipment. Do not install the Electronic Timer outside equipment.
- Install the Electronic Timer in environments described in this instruction sheet and the catalog. If the Electronic Timer is used in places where the Electronic Timer is subjected to high-temperature, high-humidity, condensation, corrosive gases, excessive vibrations, and excessive shocks, then electrical shocks, fire hazard, or malfunction will result.
- Use an IEC60127-approved fuse and circuit breaker on the power and output line outside the Electronic Timer.
- Do not disassemble, repair, or modify the Electronic Timer.
- When disposing of the Electronic Timer, do so as an industrial waste.

IDEC IZUMI CORPORATION http://www.idec.com

Instruction Sheet B-766-0 June 2003

Off Delay Timer

OPERATION CHART

RTE-P1, -B1

A: ON-Delay 1 (power start)
Set timer for desired delay, apply power to coil. Contacts transfer after preset time has elapsed, and remain in transferred position until timer is reset. Reset occurs with removal of power.

B: Interval (power start)
Set timer for desired delay, apply power to coil. Contacts transfer immediately, and return to original position after preset time has elapsed. Reset occurs with removal of power.

C: Cycle 1 (power start, OFF first)
Set timer for desired delay, apply power to coil. First transfer of contacts occurs after preset delay has elapsed, after the next elapse of preset delay contacts return to original position. The timer now cycles between on and off as long as power is applied (duty ratio 1:1).

D: Cycle 3 (power start, ON first)
Functions in same manner as Mode C, with the exception that first transfer of contacts occurs as soon as power is applied. The ratio is 1:1. Time On = Time Off

RTE-P2, -B2

A: ON-Delay 2 (signal start)
When a preset time has elapsed after the start input turned on while power is on, the NO output contact goes on.

B: Cycle 2 (signal start, OFF first)
When the start input turns on while power is on, the output oscillates at a preset cycle (duty ratio 1:1), starting while the NO contact off.

C: Cycle 4 (signal start, ON first)
When the start input turns on while power is on, the NO contact goes on. The output oscillates at a preset cycle (duty ratio 1:1).

D: Signal ON/OFF-Delay
When the start input turns on while power is on, the NO output contact goes on. When a preset time has elapsed while the start input remains on, the output contact goes off. When the start input turns off, the NO contact goes on again. When a preset time has elapsed after the start input turned off, the NO contact goes off.

E: Signal OFF-Delay
When power is turned on while the start input is on, the NO output contact goes on. When a preset time has elapsed after the start input turned off, the NO output contact goes off.

F: One-Shot (signal start)
When the start input turns on while power is on, the NO output contact goes on. When a preset time has elapsed, the NO output contact goes off.

Note : T=Set Time, Ta=Shorter than set time, (1): RTE-P1, (2): RTE-B1, (A): RTE-P2, (B): RTE-B2

INTERNAL CONNECTIONS

CAUTION:
RTE-P2: Do not apply voltage to terminals #5, #6 and #7.
RTE-B1, -B2: Do not apply voltage to terminals #2, #5 and #8.

NOTE: RTE series are UL Listed when uesd in combination with following IDEC's sockets:
RTE-P1: SR2P-06* pin type socket.
RTE-P2: SR3P-05* pin type socket.
RTE-B1, -B2: SR3B-05* blade type socket.
(*-May be followed by A,B,C or U)
The socket to be used with these timers are rated:
-Conductor Temperature Rating 60℃min.,
-Use 14AWG max.(2mm²max.) Copper conductors only,
-Terminal Torque 9 to 12lb.·in (1.0 to 1.3 N·m)

Pump Data Sheet - Crane Barnes.60

Company: Lost Woods WQ Pump Station
Name: PUMP SOLUTIONS
Date: 11/19/2025

BARNES

Pump:

Size:	SE51/52	Dimensions:	
Type:	Sewage Eject 2-3"-1B	Suction:	---
Synch Speed:	1800 rpm	Discharge:	2 in
Dia:	4.125 in		
Curve:	V104871		

Fluid:

Name:	Water		
SG:	1	Vapor Pressure:	0.256 psi a
Density:	62.4 lb/ft³	Atm Pressure:	14.7 psi a
Viscosity:	1.1 cP		
Temperature:	60 °F	Margin Ratio:	1

Pump Limits:

Temperature:	104 °F	Sphere Size:	2 in
Wkg Pressure:	---		

Search Criteria:

Flow:	60 US gpm	Near Miss:	---
Head:	10.92 ft	Static Head:	10 ft

Motor:

Motor is integral to the pump except in 4A, 4B, and 5B catalog sections.

Pump Selection Warnings:
None

--- Duty Point ---
Flow: 60 US gpm
Head: 10.9 ft
Eff: ---
Power: --- hp
NPSHr: ---
Speed: 1750 rpm

--- Design Curve ---
Shutoff Head: 15.9 ft
Shutoff dP: 6.88 psi
Min Flow: --- US gpm
BEP: --- %
NOL Power: ---

--- Max Curve ---
Max Power: ---

Temp. 104ï¿½F (40ï¿½C) Continous.

Performance Evaluation:

Flow	Speed	Head	Efficiency	Power	NPSHr
US gpm	rpm	ft	%	hp	ft
72	1750	9.94	---	---	---
60	1750	10.9	---	---	---
48	1750	11.9	---	---	---
36	1750	12.9	---	---	---
24	1750	14	---	---	---

Selected from catalog: Barnes.60, Vers 4/23/20

Plotted By: Lee, David Date: December 16, 2025 11:00:33am File Path: K:\GEO_Civil\067783185 – MI Homes Leander Simpson Tracts\Cad\Construction Plans\PlanSheets\C-Water Quality Pump Station Details.dwg
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Kimley»Horn

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TEXAS REGISTERED ENGINEERING FIRM F-928

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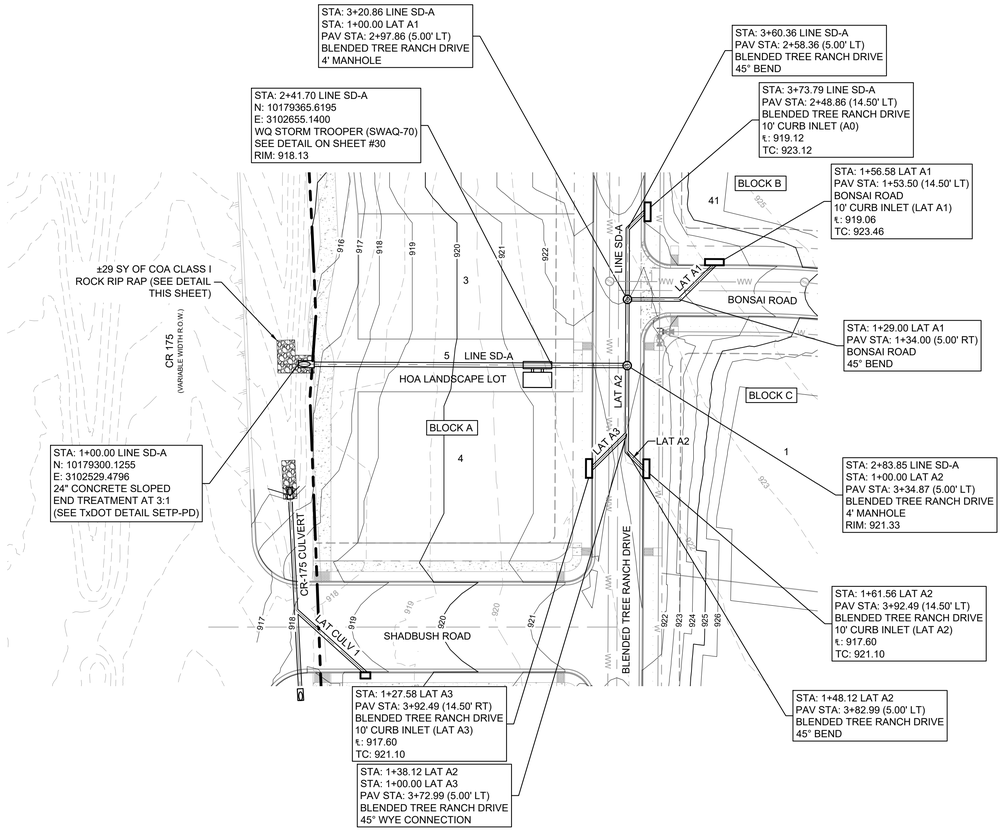
TREVOR Q. RENN P.E.
SERIAL NO. 135269
DATE:
9/10/2025

KHA PROJECT 067783185
DATE 9/10/2025
SCALE: AS SHOWN
DESIGNED BY: TQR
DRAWN BY: XXX
CHECKED BY: TQR

WATER QUALITY LIFT STATION DETAILS (SHEET 2 OF 2)

LOST WOODS ESTATES
CITY OF LEANDER
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER
36
OF 76

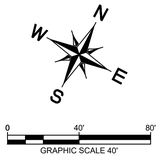


STORM OUTFALL DESIGN - SD-A

Lost Woods Estates

INPUT VALUES	Storm Line SD-A	Unit	Source
Discharge (Q) =	21.65	cfs	StormCAD Model
Velocity at Outfall (V_1) =	9.78	ft/s	StormCAD Model
Outlet Pipe Diameter (D) =	2.0	ft	Required Size for Conveyance
HEADWALL[1]			
Headwall Length (L) =	6.00	ft	COA Detail 508S-18, Based on Outlet Diameter
Headwall Width (C) =	6.00	ft	COA Detail 508S-18, Based on Outlet Diameter
Depth of Flow at End of Headwall (d) =	0.62	ft	Based on Manning's Equation, using Goal Seek in Excel to solve for depth
Velocity at End of Headwall (V_2) =	5.86	ft/sec	$V = \frac{Q}{A}, \quad where\ A = Cd$
RIPRAP			
Riprap Size (D_{50}) =	0.40	ft	$D_{50} = 0.0105V_2^{2.06}$ (ECM 1.4.6.D.5)
	6.00	in	Rounded up to Nearest Diameter Size in City of Austin ECM, 591S.3 Rock Riprap Gradation Table
Riprap Classification =	I	---	Based on City of Austin ECM, 591S.3 Rock Riprap Gradation Table
Apron Width =	10.00	ft	Apron Width $= 5D$ (508S-18)
Apron Length =	20.00	ft	Apron Length $= 10D$ (508S-18)
Apron Depth =	1.00	ft	Apron Depth $= 2D_{50}$ (508S-18)

[1]For additional headwall geometry, refer to COA Standard Detail 508S-18



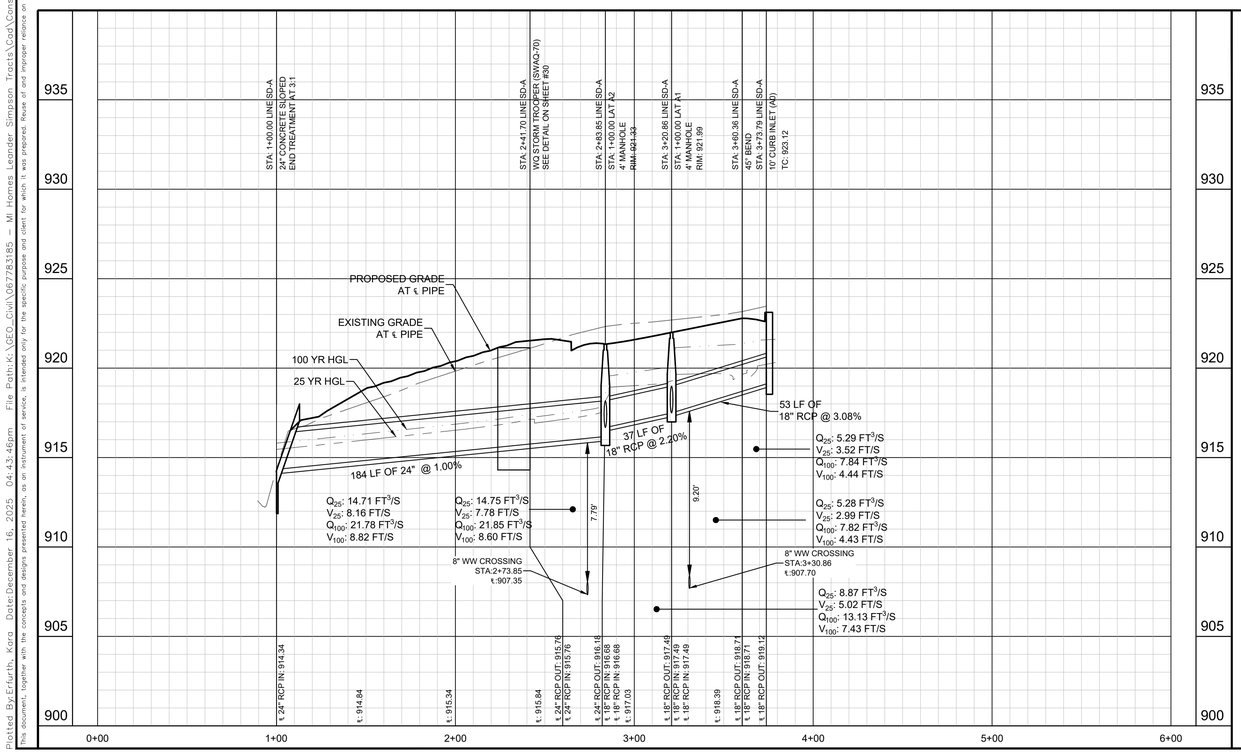
LEGEND

- PROPERTY LINE
- 555 PROPOSED CONTOUR
- 555 EXISTING CONTOUR
- STORM SEWER
- STORM INLET
- STORM MANHOLE
- W WATER MAIN
- WW WASTEWATER MAIN

STORM NOTES

1. ALL DIMENSIONS ARE TO CENTERLINE OF PIPE UNLESS NOTED OTHERWISE.
2. CONTRACTOR TO FIELD VERIFY LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION. CONTACT ENGINEER IF FIELD CONDITIONS VARY.
3. CONTRACTOR TO PROVIDE CL IV RCP AT ALL LOCATIONS WITH LESS THAN 2.0' OF COVERAGE.

LINE SD-A



PROFILE SCALE
1" = 40' HORIZONTAL
1" = 4' VERTICAL

BENCHMARKS

BASIS OF BEARINGS IS THE TEXAS COORDINATE SYSTEM OF 1983, CENTRAL ZONE (4203). ALL COORDINATES AND DISTANCES SHOWN HEREON ARE GRID VALUES. THE UNIT OF LINEAR MEASUREMENT IS U.S. SURVEY FEET.

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ELEV.= 906.44'

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N: 10177624.355'
E: 3102276.765'
ELEV.=917.20'

No.	REVISIONS	DATE	BY

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TEXAS REGISTERED ENGINEERING FIRM F-928

12/9/2025

KHA PROJECT 067783185	
DATE	DECEMBER 2025
SCALE:	AS SHOWN
DESIGNED BY:	AEG
DRAWN BY:	AEG
CHECKED BY:	AEG

STORM PLAN AND PROFILE LINE A

LOST WOODS ESTATES

CITY OF LEANDER
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER
37
OF 76

Plotted By:Erfurth, Kora Date:December 16, 2025 04:43:46pm File Path:K:\GEO_Civil\067783185 – MI Homes Leander Simpson Tracts\Civil\Construction Plans\Plan Sheets\C- Storm Plan and Profile.dwg
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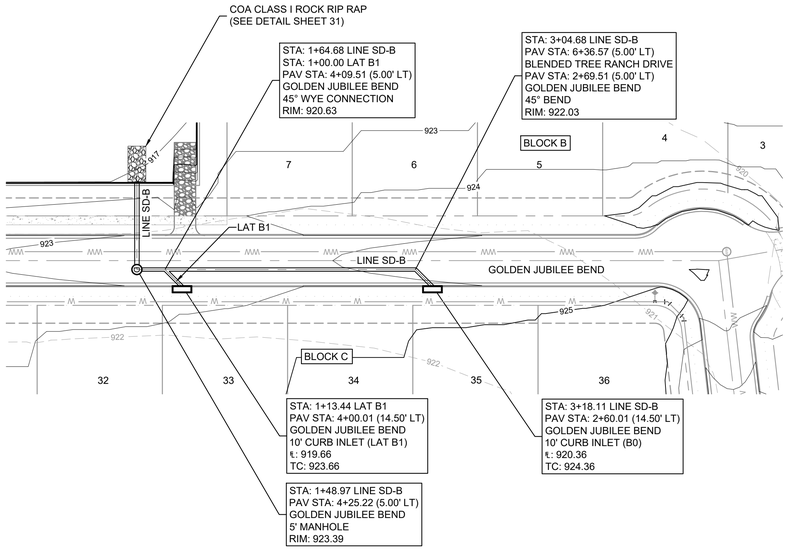

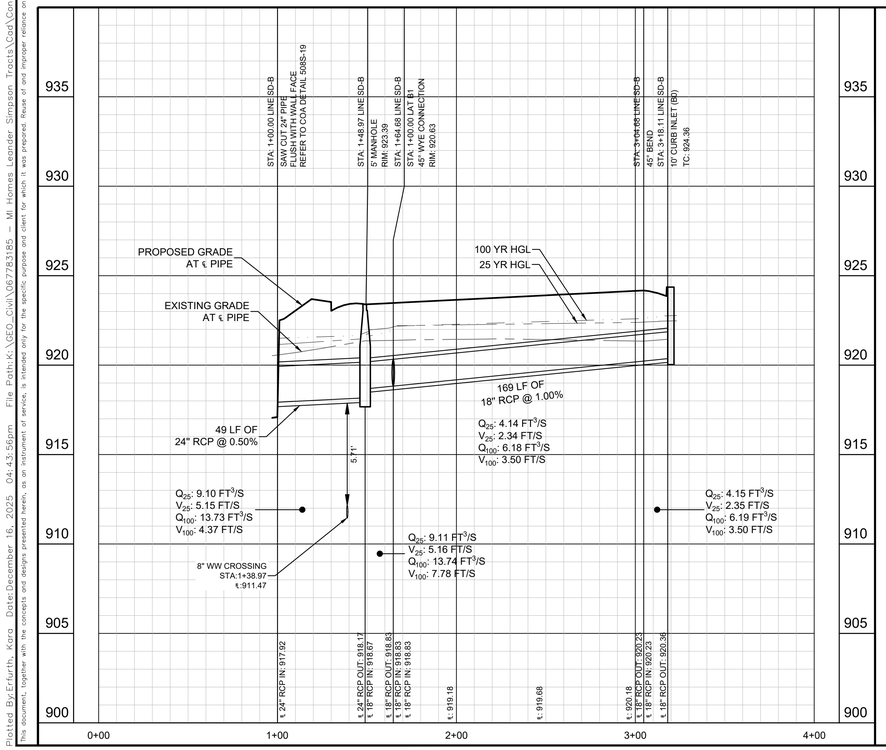

LEGEND

- PROPERTY LINE
- 555 PROPOSED CONTOUR
- 555 EXISTING CONTOUR
- STORM SEWER
- STORM INLET
- STORM MANHOLE
- W WATER MAIN
- WW WASTEWATER MAIN

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12/9/2025

STATE OF TEXAS
ALEJANDRO E. GRANADOS RICO
130084
LICENSED
PROFESSIONAL ENGINEER

KHA PROJECT	067783185
DATE	DECEMBER 2025
SCALE:	AS SHOWN
DESIGNED BY:	AEG
DRAWN BY:	AEG
CHECKED BY:	AEG

STORM PLAN AND PROFILE LINE B

LOST WOODS ESTATES

CITY OF LEANDER
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER
38
OF 76

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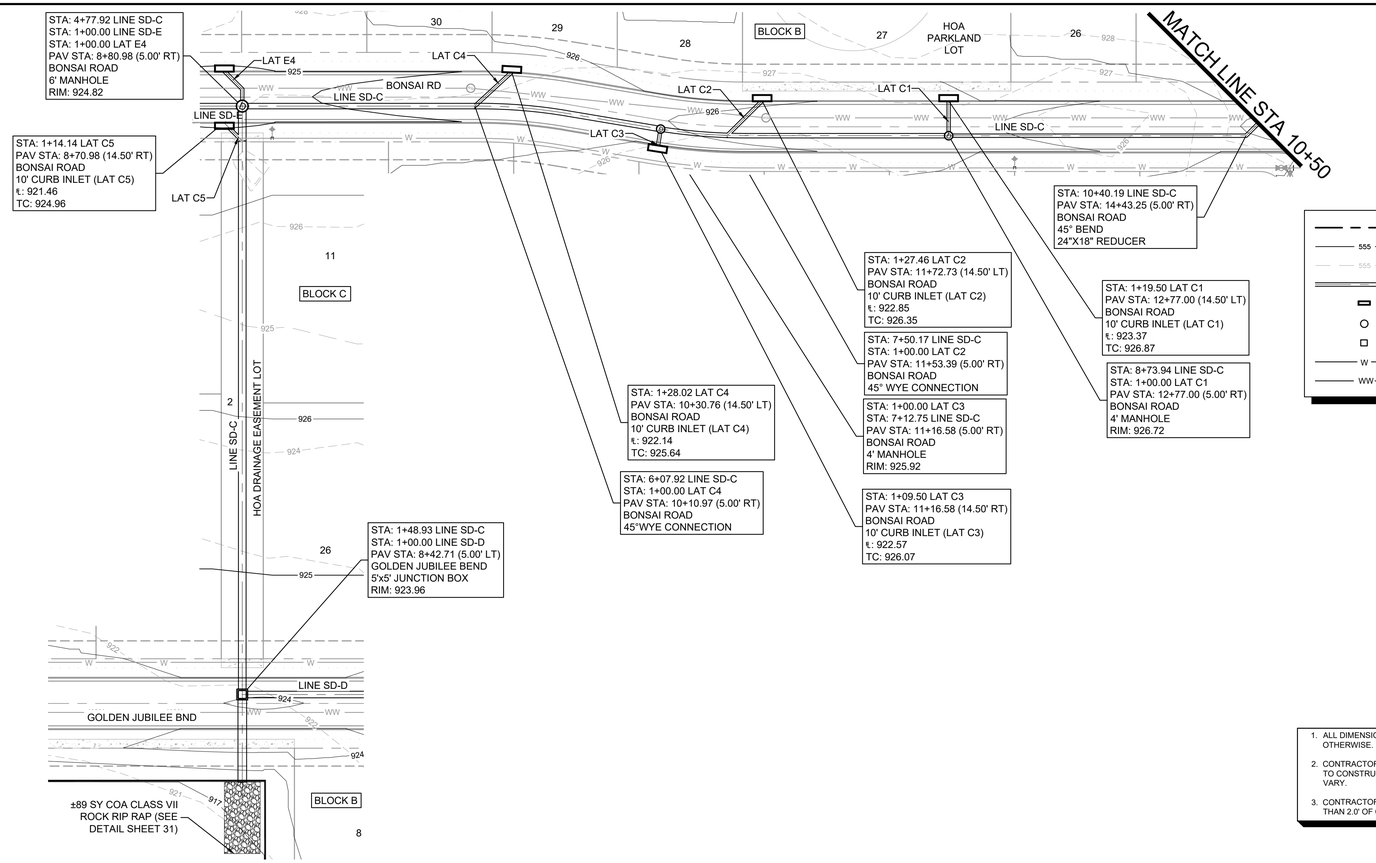
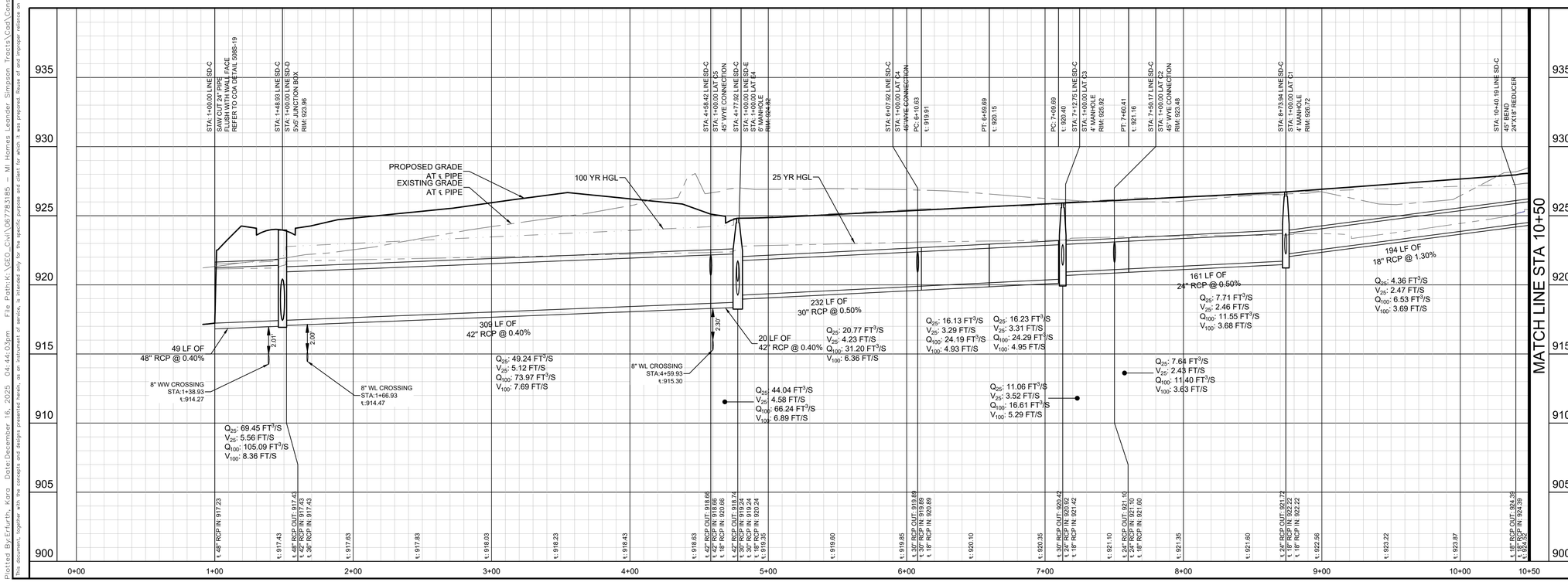


LINE SD-C



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12/9/2025

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ALEJANDRO E. GRANADOS RICO
130084
LICENSED PROFESSIONAL ENGINEER

KHA PROJECT 067783185
DATE DECEMBER 2025
SCALE: AS SHOWN
DESIGNED BY: AEG
DRAWN BY: AEG
CHECKED BY: AEG

STORM PLAN AND PROFILE LINE C (SHEET 1 OF 2)

LOST WOODS ESTATES

CITY OF LEANDER
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER
39
OF 76

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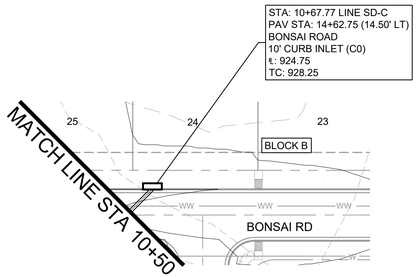

0 40' 80'

GRAPHIC SCALE 40'

LEGEND

- PROPERTY LINE
- 555 PROPOSED CONTOUR
- 555 EXISTING CONTOUR
- STORM SEWER
- STORM INLET
- STORM MANHOLE
- W WATER MAIN
- WW WASTEWATER MAIN

STORM NOTES

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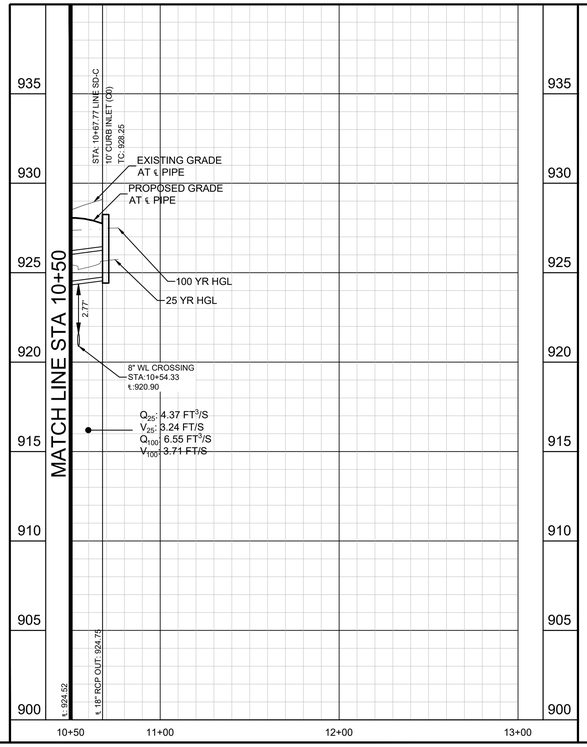
LINE SD-C



PROFILE SCALE

1" = 40' HORIZONTAL
1" = 4' VERTICAL

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SCALE:	AS SHOWN
DESIGNED BY:	AEG
DRAWN BY:	AEG
CHECKED BY:	AEG

STORM PLAN AND PROFILE LINE C (SHEET 2 OF 2)

LOST WOODS ESTATES

CITY OF LEANDER
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER
40
OF 76

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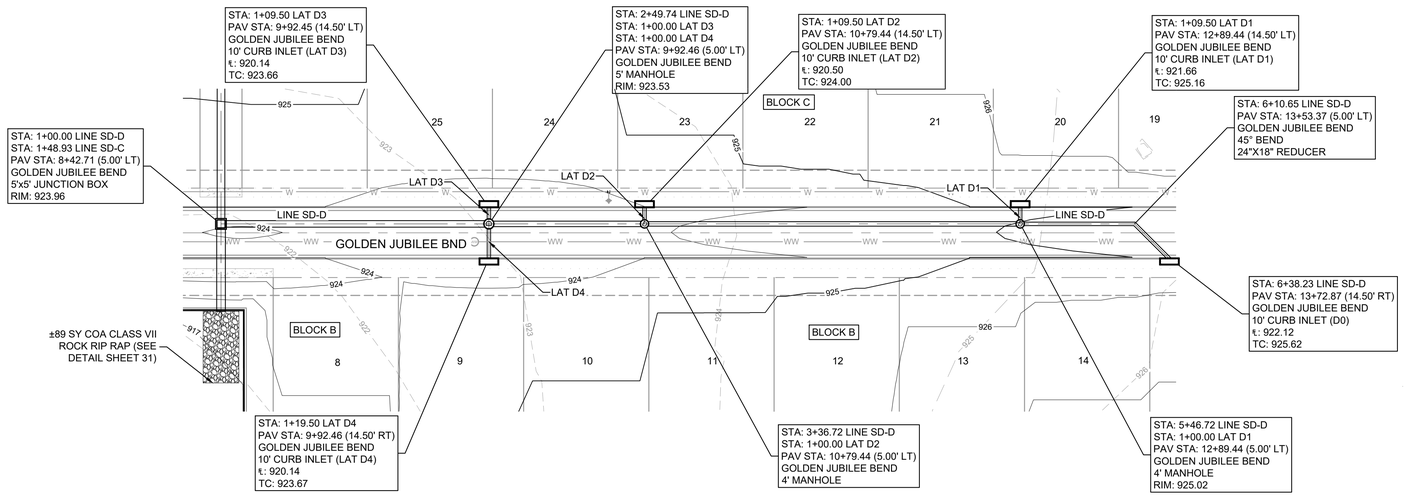

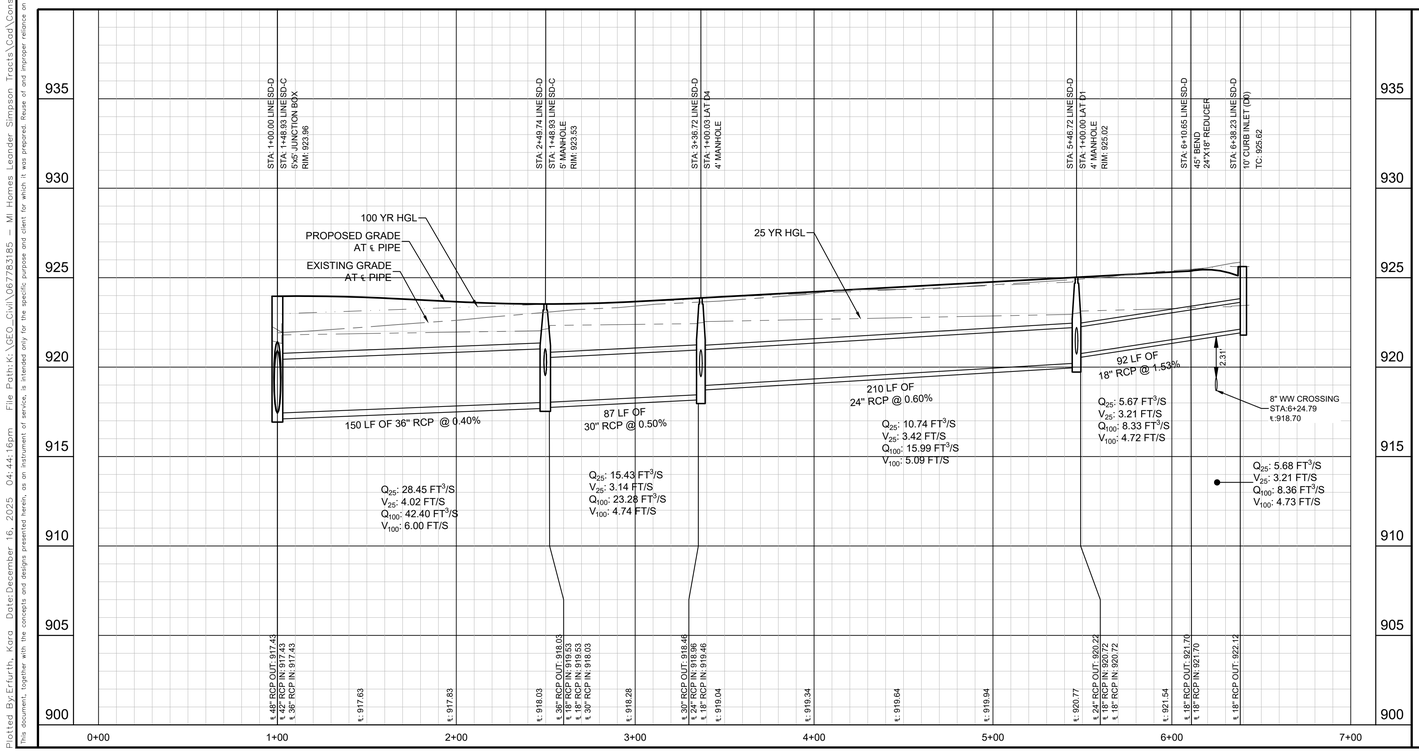

LEGEND

- PROPERTY LINE
- 555 PROPOSED CONTOUR
- 555 EXISTING CONTOUR
- STORM SEWER
- STORM INLET
- STORM MANHOLE
- JUNCTION BOX
- W WATER MAIN
- WW WASTEWATER MAIN

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CHECKED BY:	AEG

STORM PLAN AND PROFILE LINE D

LOST WOODS ESTATES

CITY OF LEANDER
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER
41
OF 76

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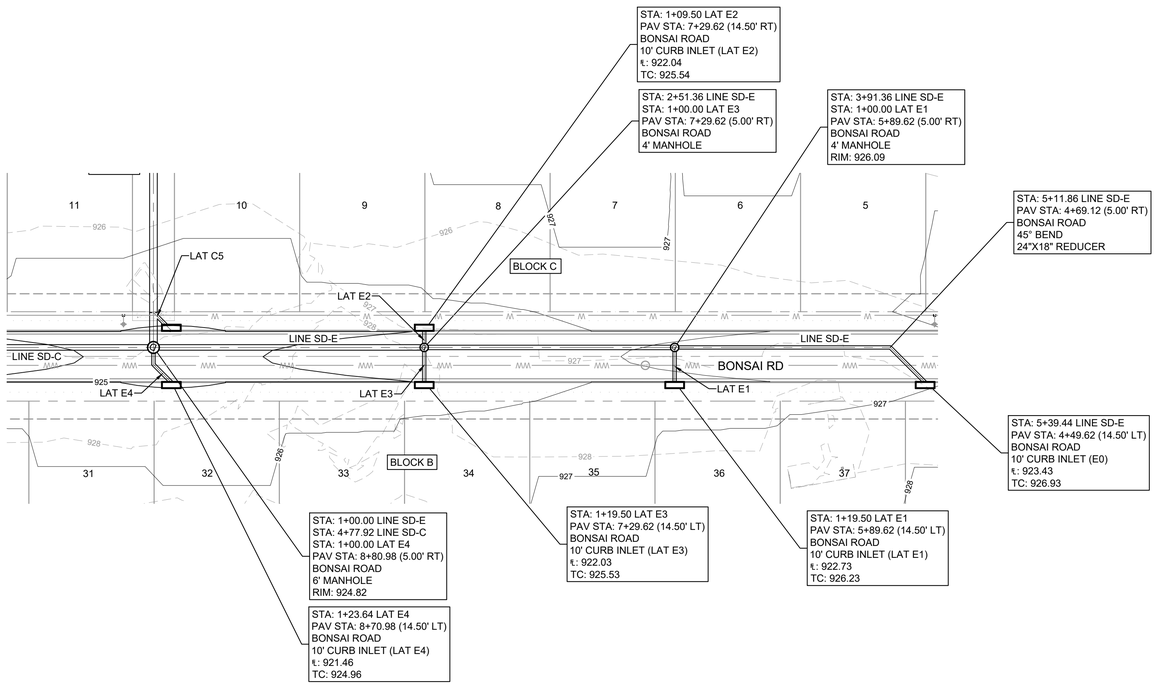

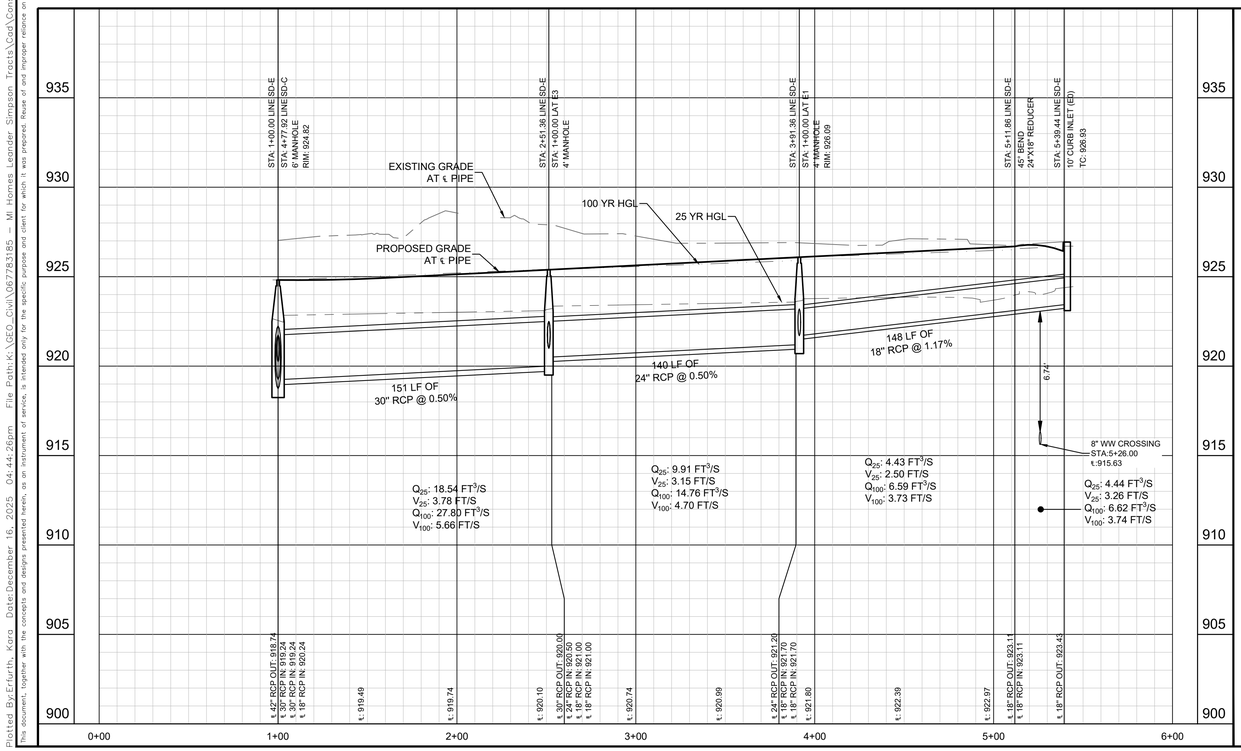

LEGEND

- PROPERTY LINE
- 555 PROPOSED CONTOUR
- 555 EXISTING CONTOUR
- STORM SEWER
- STORM INLET
- STORM MANHOLE
- W WATER MAIN
- WW WASTEWATER MAIN

STORM NOTES

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PROFILE SCALE
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BENCHMARKS

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E: 3101940.730'
ELEV.= 906.44'

BM #105 - 1/2-INCH IRON ROD SET IN THE WESTERLY RIGHT-OF-WAY OF COUNTY ROAD 175, ±695 FEET SOUTH OF THE INTERSECTION OF MINERAL DRIVE AND COUNTY ROAD 175, ± 56 FEET EAST OF THE NORTHEAST CORNER OF A METAL SHED.

N: 10177624.355'
E: 3102276.765'
ELEV.=917.20'

No.	REVISIONS	DATE	BY

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501 S AUSTIN AVE #1310, GEORGETOWN, TX 78626
PHONE: 512-520-0788
WWW.KIMLEY-HORN.COM
TEXAS REGISTERED ENGINEERING FIRM F-928

12/9/2025

STATE OF TEXAS
ALEJANDRO E. GRANADOS RIOS
130084
LICENSED PROFESSIONAL ENGINEER

KHA PROJECT 067783185	
DATE	DECEMBER 2025
SCALE:	AS SHOWN
DESIGNED BY:	AEG
DRAWN BY:	AEG
CHECKED BY:	AEG

STORM PLAN AND PROFILE LINE E

LOST WOODS ESTATES

CITY OF LEANDER
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER
42
OF 76

Plotted By:Erfurth, Kora Date:December 16, 2025 04:44:26pm File Path:K:\GEO_Civil\067783185 – MI Homes Leander Simpson Tracts\Civil\Construction Plans\Plan Sheets\C- Storm Plan and Profile.dwg
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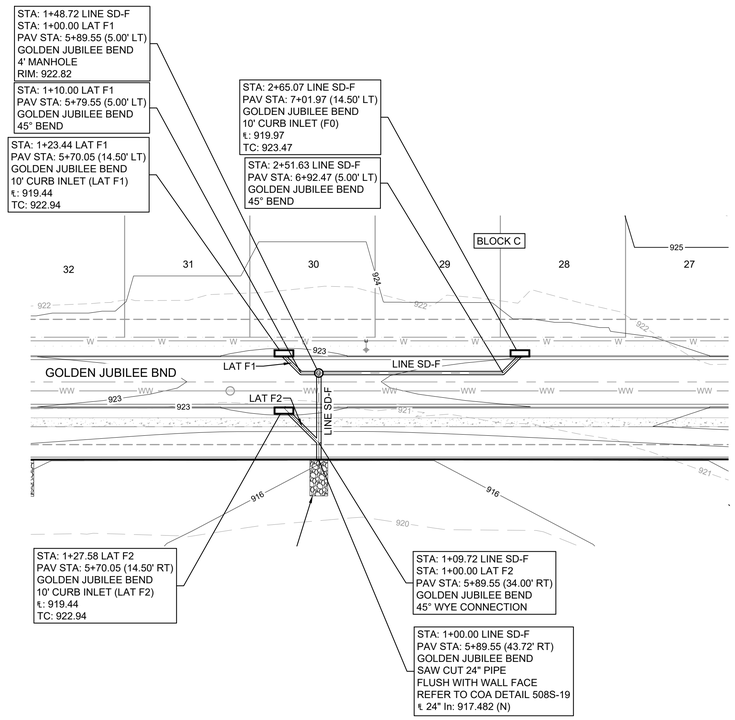
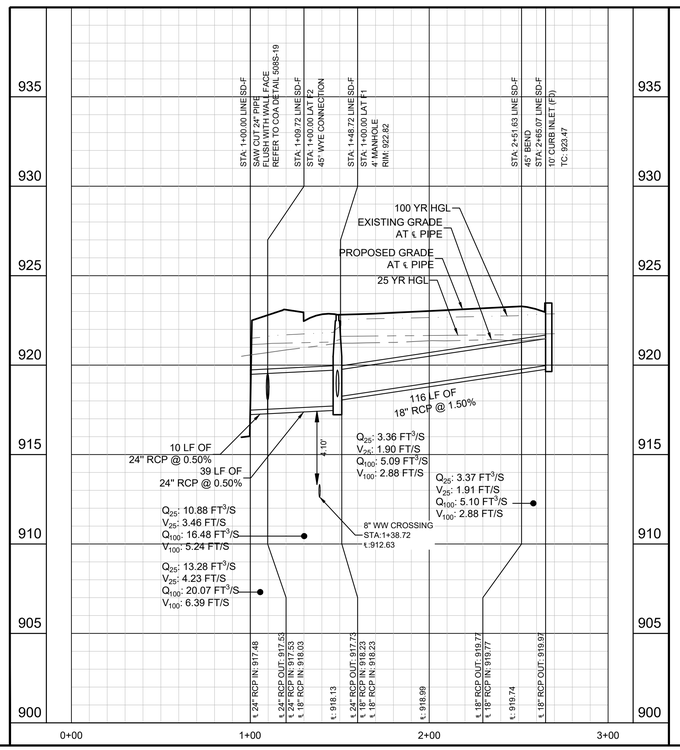
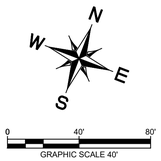


LINE SD-F





LEGEND

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STORM PLAN AND PROFILE LINE F

LOST WOODS ESTATES

CITY OF LEANDER
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER
43
OF 76

Plotted By:Erfurth, Kora Date:December 16, 2025 04:44:31pm File Path:K:\GEO_Civil\067783185 – MI Homes Leander Simpson Tracts\Cad\Construction Plans\PlanSheets\C- Storm Plan and Profile.dwg
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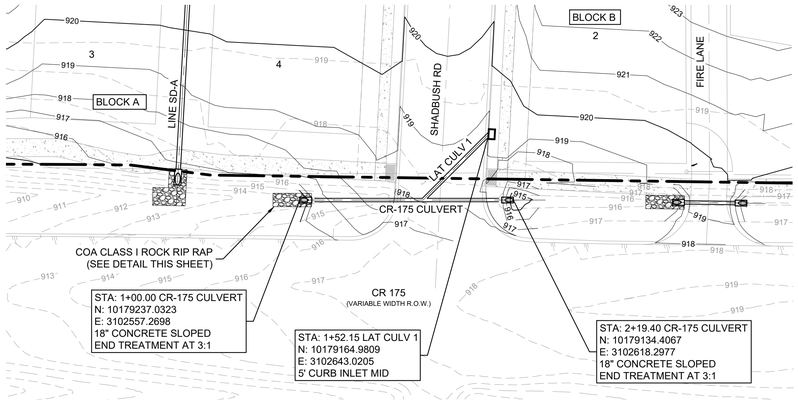
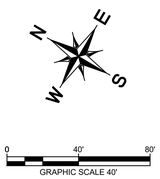


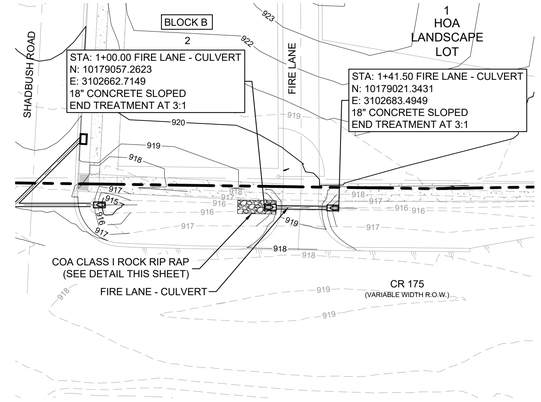


STORM OUTFALL DESIGN - CULVERTS

Lost Woods Estates

INPUT VALUES	Storm Line		Unit	Source
	CR 175 - CULV	FIRE LANE - CULV		
Discharge (Q) =	8.50	1.00	cfs	StormCAD Model
Velocity at Outfall (V_1) =	5.96	3.1	ft/s	StormCAD Model
Outlet Pipe Diameter (D) =	1.5	1.5	ft	Required Size for Conveyance
HEADWALL[1]				
Headwall Length (L) =	4.50	4.50	ft	COA Detail 508S-18, Based on Outlet Diameter
Headwall Width (C) =	4.50	4.50	ft	COA Detail 508S-18, Based on Outlet Diameter
Depth of Flow at End of Headwall (d) =	0.44	0.14	ft	Based on Manning's Equation, using Goal Seek in Excel to solve for depth
Velocity at End of Headwall (V_2) =	4.25	1.55	ft/sec	$V = \frac{Q}{A}, \quad where\ A = Cd$
RIPRAP				
Riprap Size (D_{50}) =	0.21	0.03	ft	$D_{50} = 0.0105V_2^{2.06}$ (ECM 1.4.6.D.5)
	6.00	6.00	in	Rounded up to Nearest Diameter Size in City of Austin ECM, 591S.3 Rock Riprap Gradation Table
Riprap Classification =	I	I	---	Based on City of Austin ECM, 591S.3 Rock Riprap Gradation Table
Apron Width =	7.50	7.50	ft	Apron Width $= 5D$ (508S-18)
Apron Length =	15.00	15.00	ft	Apron Length $= 10D$ (508S-18)
Apron Depth =	1.00	1.00	ft	Apron Depth $= 2D_{50}$ (508S-18)

[1]For additional headwall geometry, refer to COA Standard Detail 508S-18



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STORM NOTES

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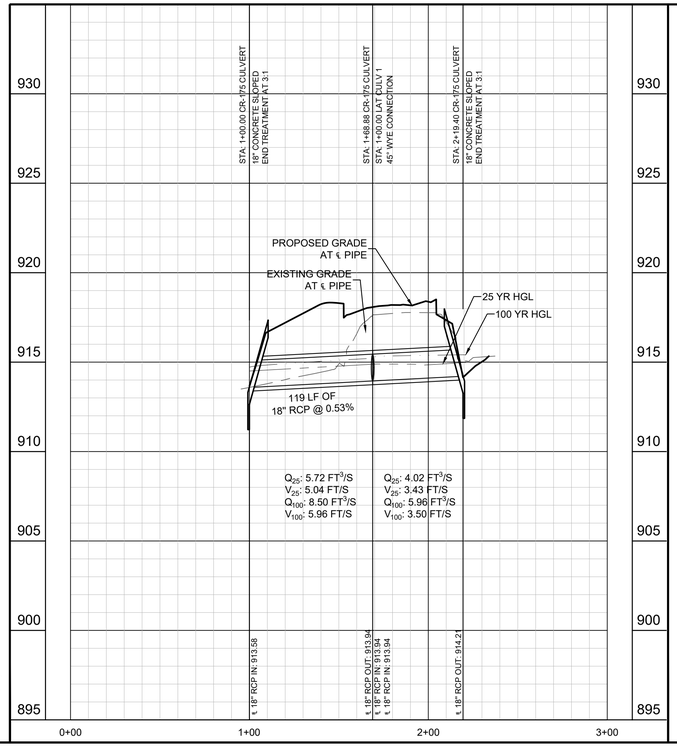
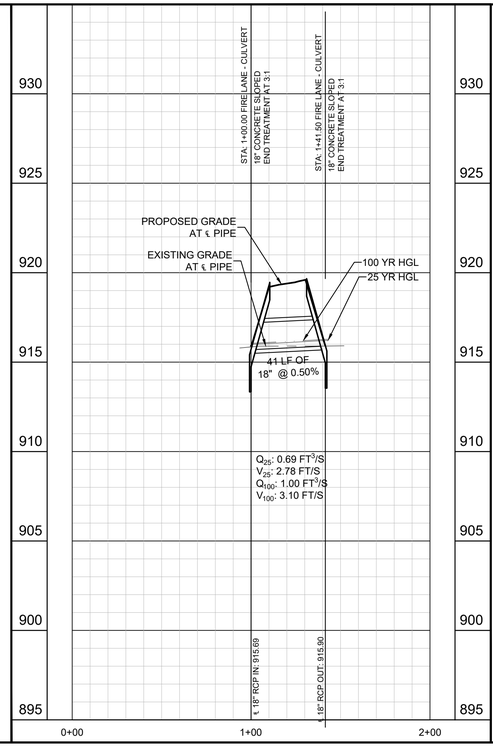
CR-175 CULVERT



FIRE LANE - CULVERT



PROFILE SCALE

1" = 40' HORIZONTAL
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BENCHMARKS

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12/9/2025

KHA PROJECT 067783185			
	DATE	DECEMBER 2025	
	SCALE:	AS SHOWN	
	DESIGNED BY:	AEG	
	DRAWN BY:	AEG	
	CHECKED BY:	AEG	

STORM PLAN AND PROFILE CR-175 CULVERT

LOST WOODS ESTATES

CITY OF LEANDER
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER
44
OF 76

Plotted By:Erfurth, Kara Date:December 16, 2025 04:45:57pm File Path:K:\GEO_Civil\067783185 - Mi Homes Leander Simpson Tracts\Cad\Construction Plans\PlanSheets\C- Storm Plan and Profile - Culvert.dwg
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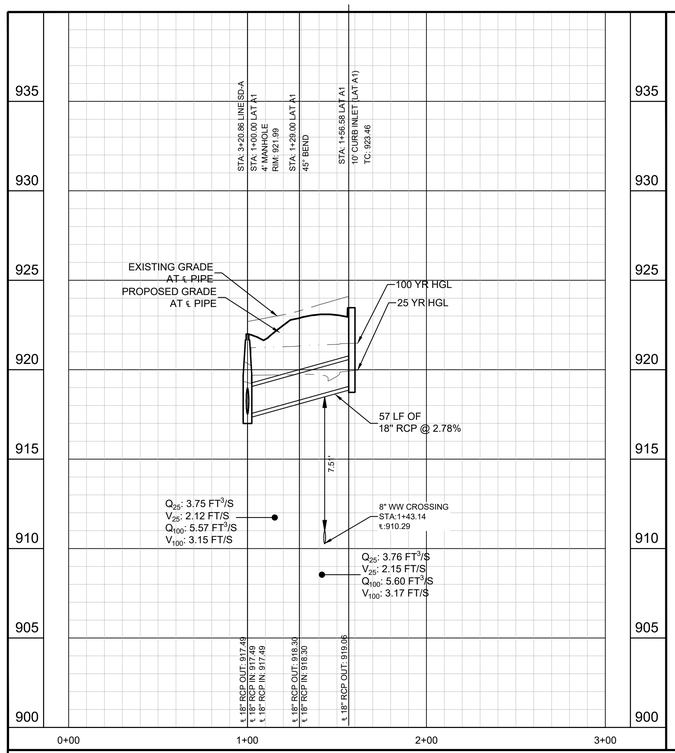

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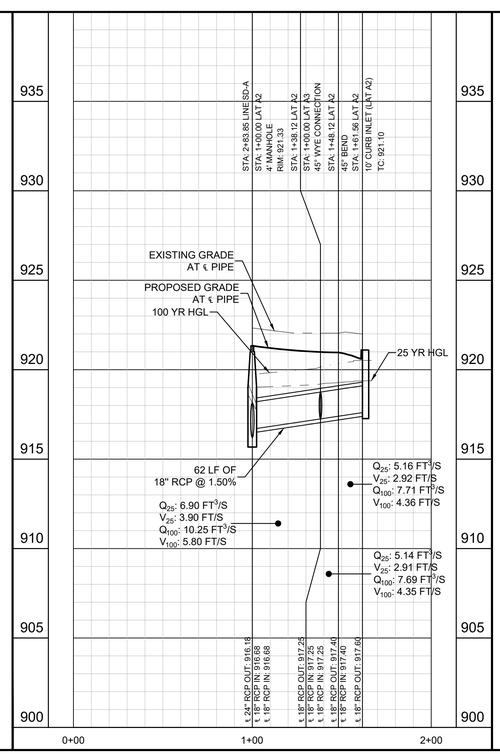

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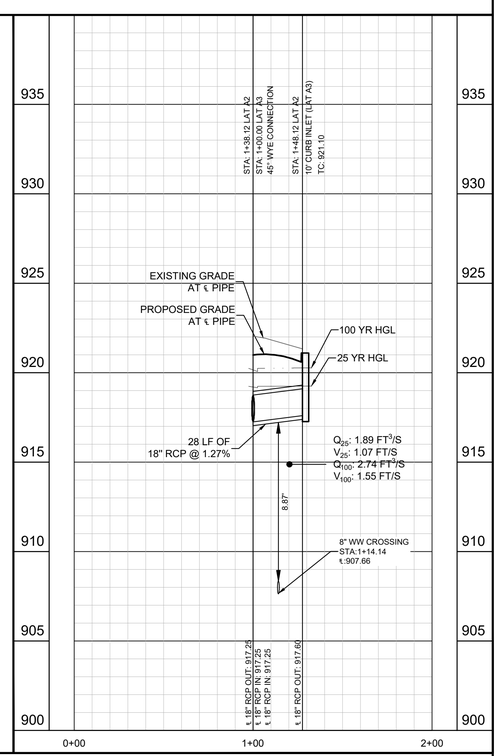

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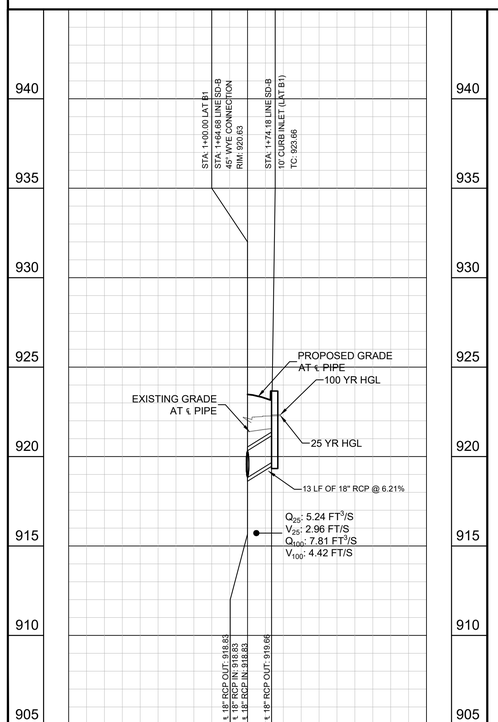
LAT B1



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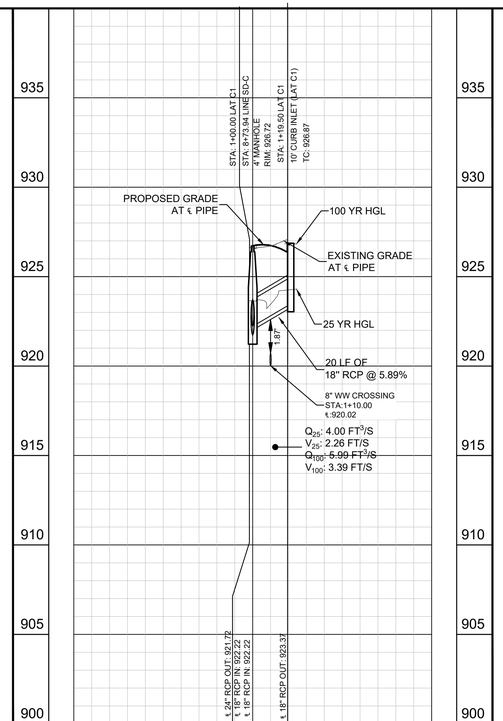

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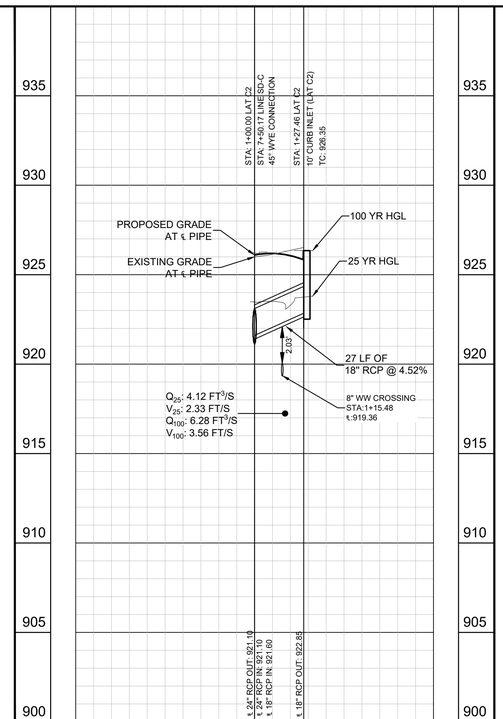

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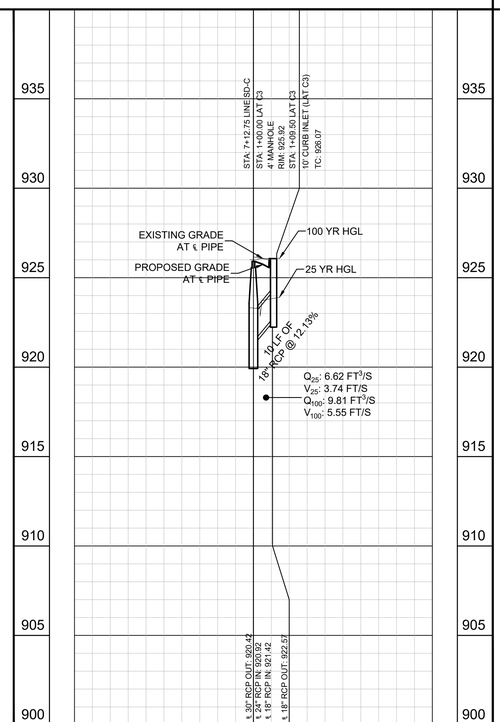

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DESIGNED BY:	AEG
DRAWN BY:	AEG
CHECKED BY:	AEG

STORM LATERALS (SHEET 1 OF 3)

LOST WOODS ESTATES

CITY OF LEANDER
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER
45
OF 76

Plotted By:Erfurth, Kora Date:December 16, 2025 04:46:31pm File Path:K:\GEO_Civil\067783185 – Mi Homes Leander Simpson Tracts\Civil\Construction Plans\PlanSheets\C–Storm Laterals.dwg
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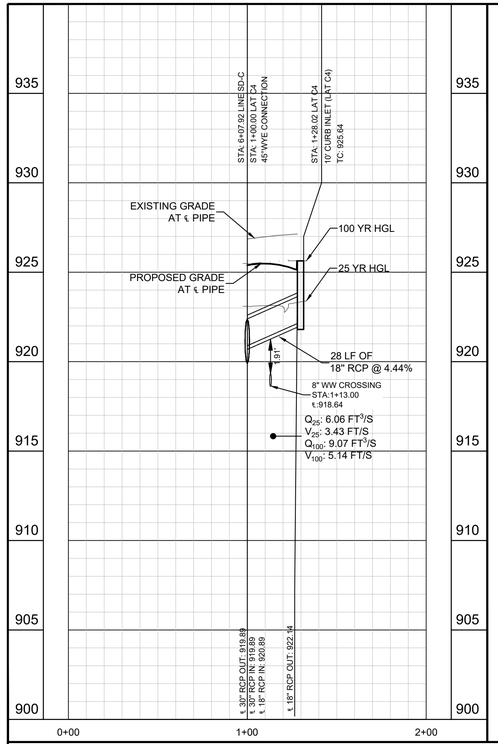

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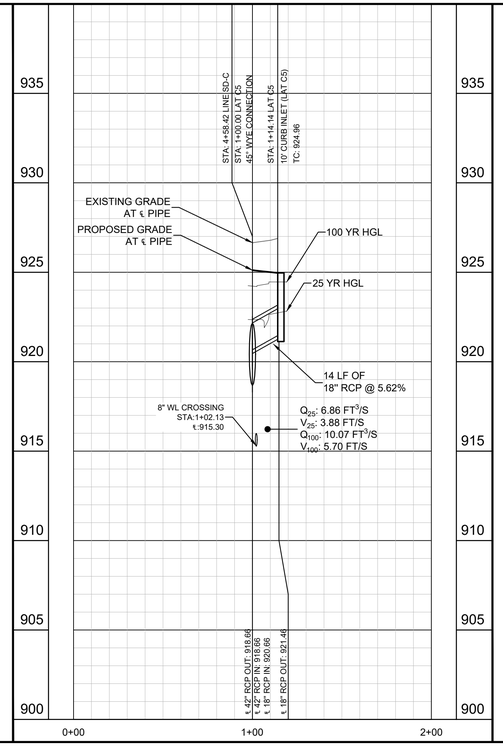

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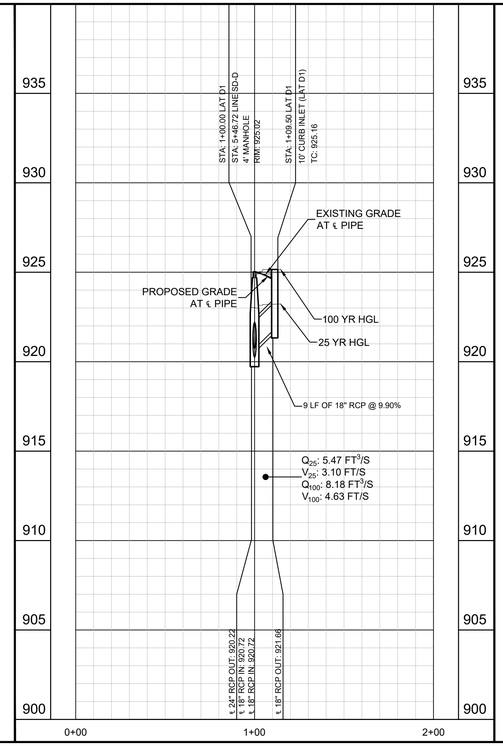

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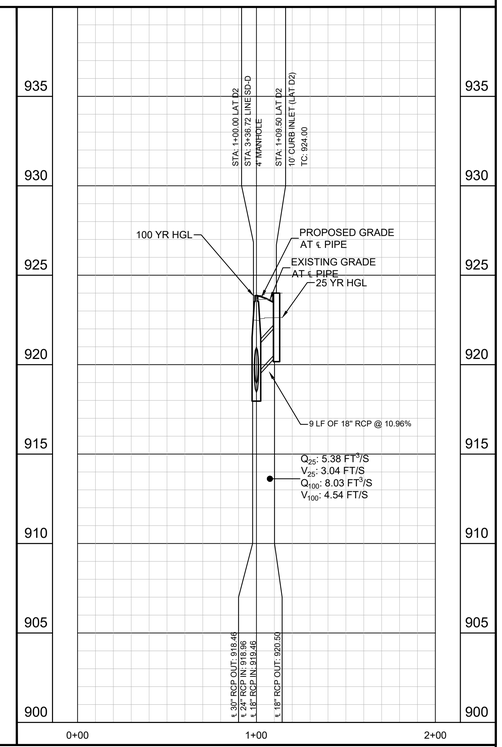

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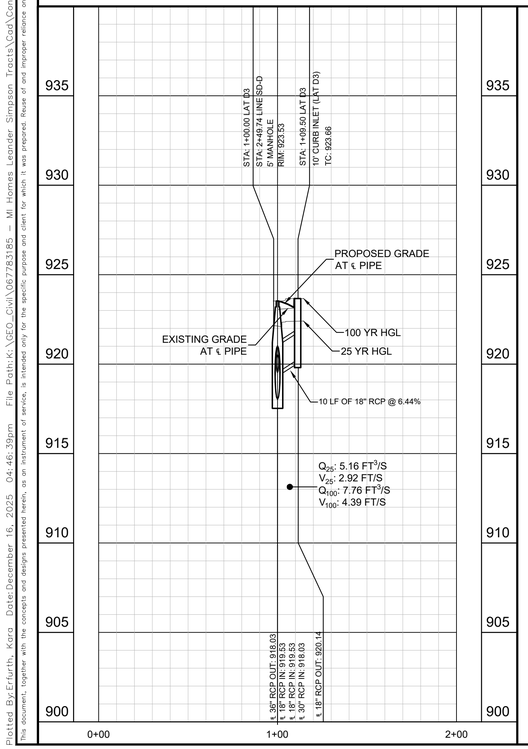

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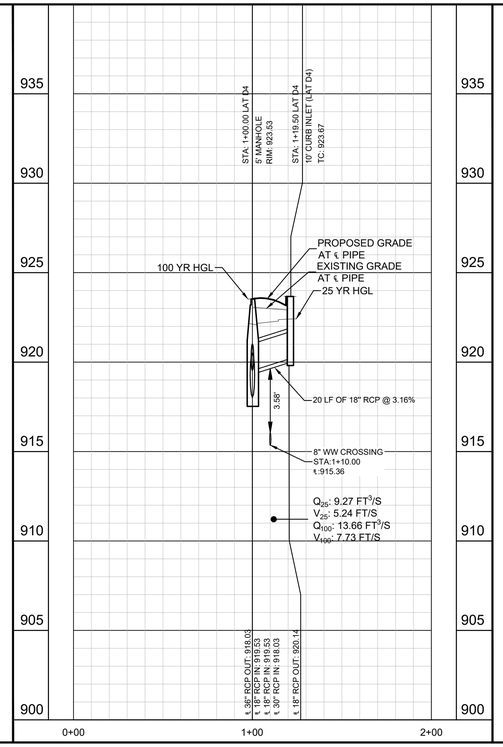

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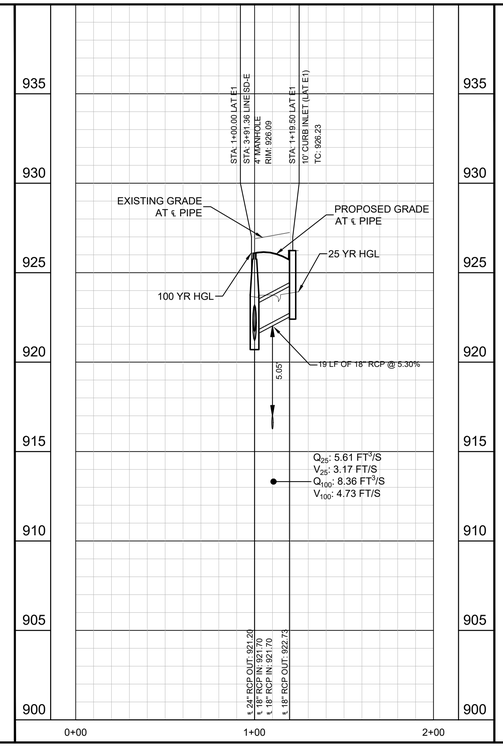

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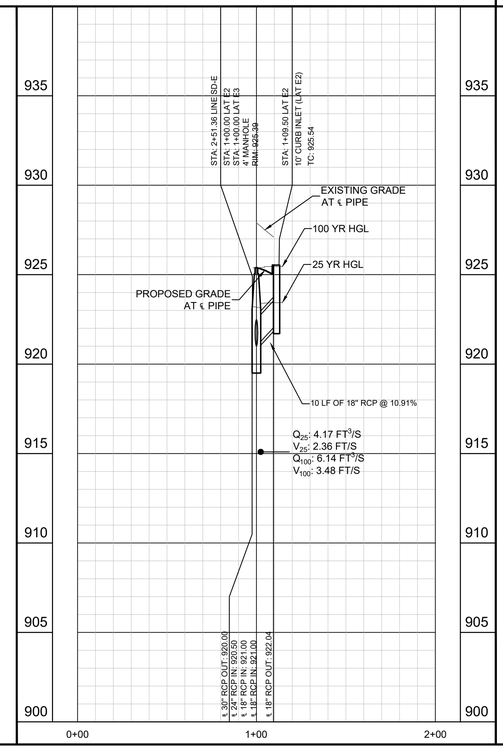

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PROFESSIONAL
ENGINEER

KHA PROJECT 067783185	
DATE	DECEMBER 2025
SCALE:	AS SHOWN
DESIGNED BY:	AEG
DRAWN BY:	AEG
CHECKED BY:	AEG

STORM LATERALS (SHEET 2 OF 3)

LOST WOODS ESTATES

CITY OF LEANDER
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER
46
OF 76

Plotted By:Erfurth, Kara Date:December 16, 2025 04:46:39pm File Path:K:\GEO_Civil\067783185 – Mt Homes Leander Simpson Tracts\Civil\Construction Plans\PlanSheets\C- Storm Laterals.dwg
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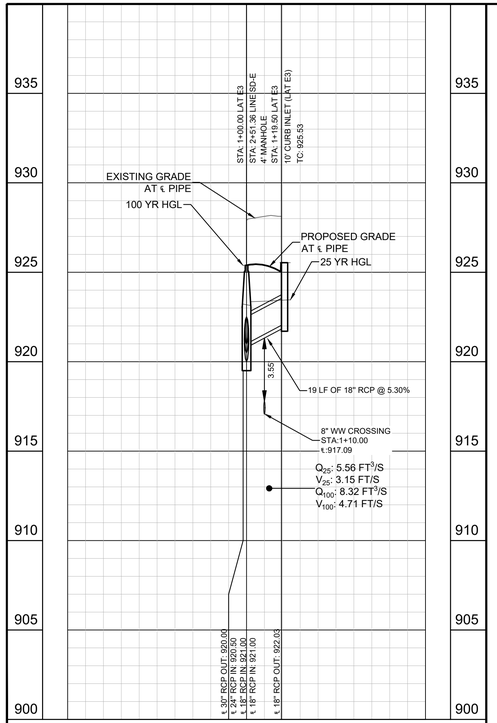
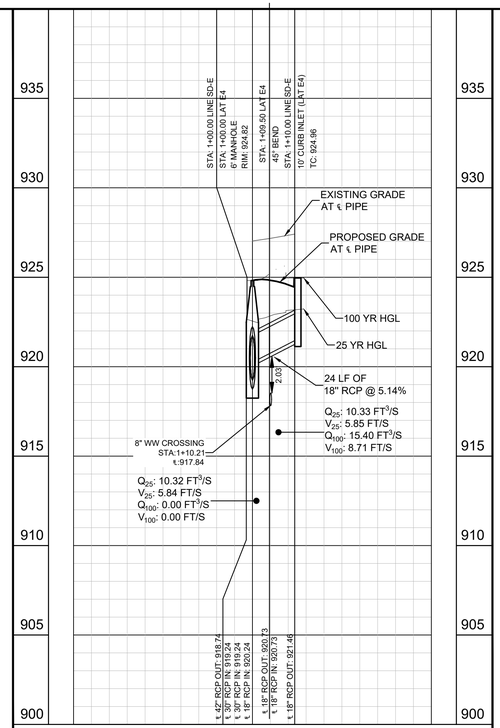
LAT E3



LAT E4



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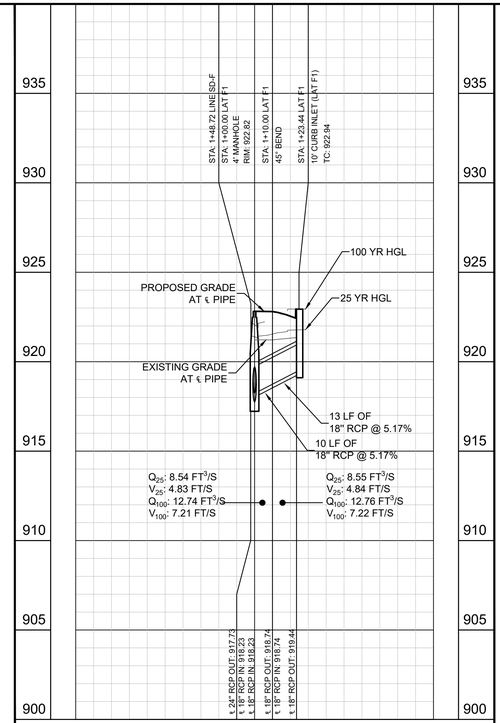
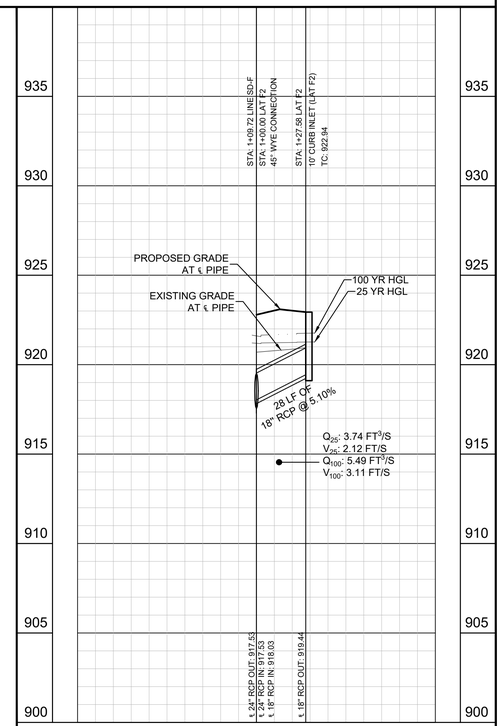


LAT F2



PROFILE SCALE
1" = 40' HORIZONTAL
1" = 4' VERTICAL

PROFILE SCALE
1" = 40' HORIZONTAL
1" = 4' VERTICAL

BENCHMARKS

BASIS OF BEARINGS IS THE TEXAS COORDINATE SYSTEM OF 1983, CENTRAL ZONE (4203). ALL COORDINATES AND DISTANCES SHOWN HEREON ARE GRID VALUES. THE UNIT OF LINEAR MEASUREMENT IS U.S. SURVEY FEET.

BM #104 - 1/2-INCH IRON ROD SET IN THE CENTER MEDIAN OF COUNTY ROAD 175, ±67 FEET NORTH OF THE INTERSECTION OF MINERAL DRIVE AND COUNTY ROAD 175, ±73 FEET WEST OF A FIBER OPTIC RISER IN THE EASTERLY RIGHT-OF-WAY LINE OF COUNTY ROAD 175.

N: 10178313.802'
E: 3101940.730'
ELEV.= 906.44'

BM #105 - 1/2-INCH IRON ROD SET IN THE WESTERLY RIGHT-OF-WAY OF COUNTY ROAD 175, ±695 FEET SOUTH OF THE INTERSECTION OF MINERAL DRIVE AND COUNTY ROAD 175, ± 56 FEET EAST OF THE NORTHEAST CORNER OF A METAL SHED.

N: 10177624.355'
E: 3102276.765'
ELEV.=917.20'

No.	REVISIONS	DATE	BY

Kimley»Horn
© 2025 KIMLEY-HORN AND ASSOCIATES, INC.
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PHONE: 512-520-0788
WWW.KIMLEY-HORN.COM
TEXAS REGISTERED ENGINEERING FIRM F-928

12/9/2025

STATE OF TEXAS
ALEJANDRO E. GRANADOS III
130084
LICENSED PROFESSIONAL ENGINEER

KHA PROJECT 067783185	
DATE	DECEMBER 2025
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STORM LATERALS (SHEET 3 OF 3)

LOST WOODS ESTATES

CITY OF LEANDER
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER
47
OF 76

Plotted By:Erfurth, Kara Date:December 16, 2025 04:46:46pm File Path:K:\GEO_Civil\067783185 – MI Homes Leander Simpson Tracts\Civil\Construction Plans\PlanSheets\C- Storm Laterals.dwg
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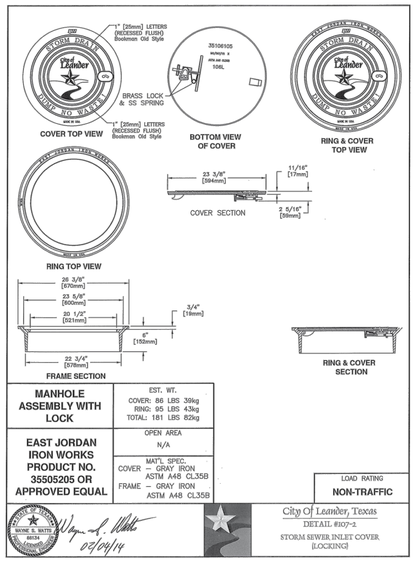
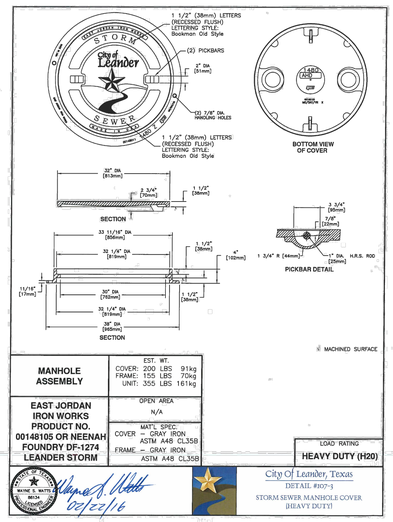
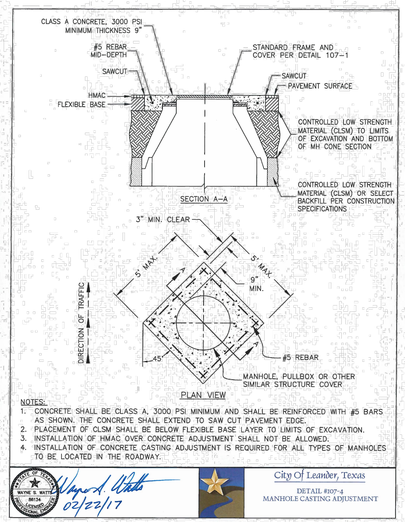
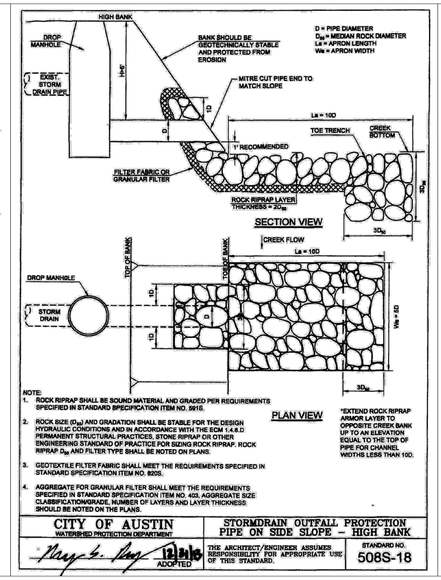
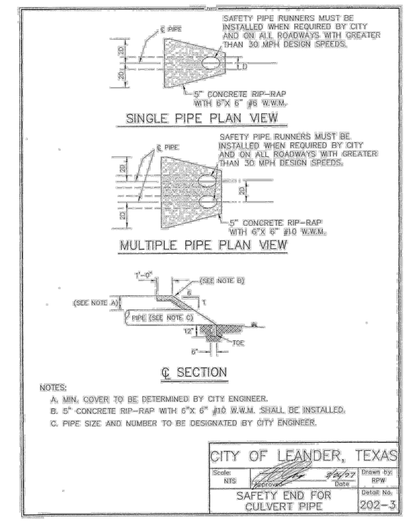
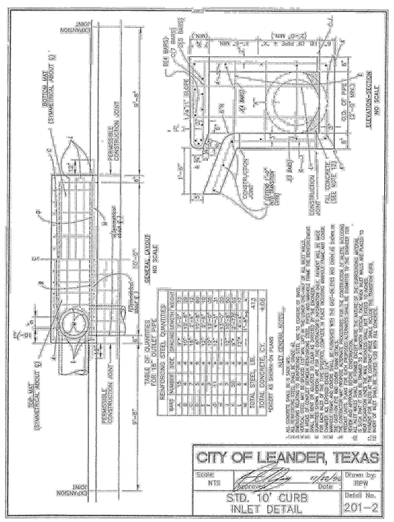

STORM DRAIN
City of Leander
DUMP TO WATER
1" [25mm] LETTERS (RECESSED FLUSH) Bookman Old Style
BRASS LOCK & SS SPRING
35106105
COVER TOP VIEW
BOTTOM VIEW OF COVER
RING & COVER TOP VIEW
RING TOP VIEW
COVER SECTION
23 3/8" [594mm]
11/16" [17mm]
2 5/16" [59mm]
26 3/8" [670mm]
23 5/8" [600mm]
20 1/2" [521mm]
3/4" [19mm]
6" [153mm]
22 3/4" [578mm]
FRAME SECTION
RING & COVER SECTION
MANHOLE ASSEMBLY WITH LOCK
EST. WT.
COVER: 86 LBS 39kg
RING: 95 LBS 43kg
TOTAL: 181 LBS 82kg
EAST JORDAN IRON WORKS PRODUCT NO. 35505205 OR APPROVED EQUAL
OPEN AREA
N/A
MAT'L SPEC:
COVER — GRAY IRON ASTM A48 CL35B
FRAME — GRAY IRON ASTM A48 CL35B
LOAD RATING
NON-TRAFFIC
WAYNE S. WATTS 88134 LICENSED PROFESSIONAL ENGINEER
Wayne S. Watts
07/09/14
City Of Leander, Texas
DETAIL #107-2
STORM SEWER INLET COVER [LOCKING]


STORM SEWER
City of Leander
SEWER
DUMP TO WATER
1 1/2" (38mm) LETTERS (RECESSED FLUSH) LETTERING STYLE: Bookman Old Style
(2) PICKBARS
3" DIA. (51mm)
(2) 7/8" DIA. LIFTING HOLES
BOTTOM VIEW OF COVER
30" DIA. [813mm]
3 3/4" [96mm]
1 1/2" [38mm]
SECTION
33 11/16" DIA. [856mm]
32 1/4" DIA. [819mm]
3 1/2" [89mm]
4" [102mm]
1 3/4" R [44mm]
1" DIA. H.R.S. ROD [25mm]
PICKBAR DETAIL
11/16" [17mm]
30" DIA. [760mm]
32 1/4" DIA. [819mm]
38" DIA. [965mm]
SECTION
MACHINED SURFACE
MANHOLE ASSEMBLY
EST. WT.
COVER: 200 LBS 91kg
FRAME: 155 LBS 70kg
UNIT: 355 LBS 161kg
EAST JORDAN IRON WORKS PRODUCT NO. 00148105 OR NEENAH FOUNDRY DF-1274 LEANDER STORM
OPEN AREA
N/A
MAT'L SPEC:
COVER — GRAY IRON ASTM A48 CL35B
FRAME — GRAY IRON ASTM A48 CL35B
LOAD RATING
HEAVY DUTY (H20)
WAYNE S. WATTS 88134 LICENSED PROFESSIONAL ENGINEER
Wayne S. Watts
02/22/16
City Of Leander, Texas
DETAIL #107-1
STORM SEWER MANHOLE COVER [HEAVY DUTY]


CLASS A CONCRETE, 3000 PSI MINIMUM THICKNESS 9"
#5 REBAR MID-DEPTH
SAWCUT
HMAC FLEXIBLE BASE
STANDARD FRAME AND COVER PER DETAIL 107-1
SAWCUT
PAVEMENT SURFACE
CONTROLLED LOW STRENGTH MATERIAL (CLSM) TO LIMITS OF EXCAVATION AND BOTTOM OF MH CONE SECTION
CONTROLLED LOW STRENGTH MATERIAL (CLSM) OR SELECT BACKFILL PER CONSTRUCTION SPECIFICATIONS
SECTION A–A
3" MIN. CLEAR
5" MAX.
5" MIN.
45°
#5 REBAR
MANHOLE, PULLBOX OR OTHER SIMILAR STRUCTURE COVER
DIRECTION OF TRAFFIC
PLAN VIEW
NOTES:
1. CONCRETE SHALL BE CLASS A, 3000 PSI MINIMUM AND SHALL BE REINFORCED WITH #5 BARS AS SHOWN. THE CONCRETE SHALL EXTEND TO SAW CUT PAVEMENT EDGE.
2. PLACEMENT OF CLSM SHALL BE BELOW FLEXIBLE BASE LAYER TO LIMITS OF EXCAVATION.
3. INSTALLATION OF HMAC OVER CONCRETE ADJUSTMENT SHALL NOT BE ALLOWED.
4. INSTALLATION OF CONCRETE CASTING ADJUSTMENT IS REQUIRED FOR ALL TYPES OF MANHOLES TO BE LOCATED IN THE ROADWAY.
WAYNE S. WATTS 88134 LICENSED PROFESSIONAL ENGINEER
Wayne S. Watts
02/22/17
City Of Leander, Texas
DETAIL #107-4
MANHOLE CASTING ADJUSTMENT


HIGH BANK
DROP MANHOLE
EXIST. STORM DRAIN PIPE
BANK SHOULD BE GEOTECHNICALLY STABLE AND PROTECTED FROM EROSION
MITRE CUT PIPE END TO MATCH SLOPE
D = PIPE DIAMETER
DM = MEDIAN ROCK DIAMETER
La = APRON LENGTH
Wa = APRON WIDTH
La = 10D
TOE TRENCH
CREEK BOTTOM
1' RECOMMENDED
FILTER FABRIC OR GRANULAR FILTER
ROCK RIPRAP LAYER THICKNESS = 2DM
SECTION VIEW
CREEK FLOW
DROP MANHOLE
STORM DRAIN
TOP OF BANK
TOE OF BANK
PLAN VIEW
*EXTEND ROCK RIPRAP ARMOR LAYER TO OPPOSITE CREEK BANK UP TO AN ELEVATION EQUAL TO THE TOP OF PIPE FOR CHANNEL WIDTHS LESS THAN 10D.
NOTE:
1. ROCK RIPRAP SHALL BE SOUND MATERIAL AND GRADED PER REQUIREMENTS SPECIFIED IN STANDARD SPECIFICATION ITEM NO. 5916.
2. ROCK SIZE (D_{50}) AND GRADATION SHALL BE STABLE FOR THE DESIGN HYDRAULIC CONDITIONS AND IN ACCORDANCE WITH THE ECM 1.4.8.D PERMANENT STRUCTURAL PRACTICES, STONE RIPRAP OR OTHER ENGINEERING STANDARD OF PRACTICE FOR SIZING ROCK RIPRAP. ROCK RIPRAP D_{50} AND FILTER TYPE SHALL BE NOTED ON PLANS.
3. GEOTEXTILE FILTER FABRIC SHALL MEET THE REQUIREMENTS SPECIFIED IN STANDARD SPECIFICATION ITEM NO. 8208.
4. AGGREGATE FOR GRANULAR FILTER SHALL MEET THE REQUIREMENTS SPECIFIED IN STANDARD SPECIFICATION ITEM NO. 403. AGGREGATE SIZE CLASSIFICATION/GRADE, NUMBER OF LAYERS AND LAYER THICKNESS SHOULD BE NOTED ON THE PLANS.
CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT
ADOPTED
STORMDRAIN OUTFALL PROTECTION PIPE ON SIDE SLOPE – HIGH BANK
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
STANDARD NO. 508S-18


SAFETY PIPE RUNNERS MUST BE INSTALLED WHEN REQUIRED BY CITY AND ON ALL ROADWAYS WITH GREATER THAN 30 MPH DESIGN SPEEDS.
℄ PIPE
5" CONCRETE RIP–RAP WITH 6"X 6" #6 W.W.M.
SINGLE PIPE PLAN VIEW
SAFETY PIPE RUNNERS MUST BE INSTALLED WHEN REQUIRED BY CITY AND ON ALL ROADWAYS WITH GREATER THAN 30 MPH DESIGN SPEEDS.
5" CONCRETE RIP–RAP WITH 6"X 6" #10 W.W.M.
MULTIPLE PIPE PLAN VIEW
1'–0"
(SEE NOTE B)
(SEE NOTE A)
PIPE (SEE NOTE C)
12"
TOE
℄ SECTION
NOTES:
A. MIN. COVER TO BE DETERMINED BY CITY ENGINEER.
B. 5" CONCRETE RIP–RAP WITH 6"X 6" #10 W.W.M. SHALL BE INSTALLED.
C. PIPE SIZE AND NUMBER TO BE DESIGNATED BY CITY ENGINEER.
CITY OF LEANDER, TEXAS
Scale: NTS
Approved
Date
Drawn by: RPW
Detail No. 202–3
SAFETY END FOR CULVERT PIPE


CURB
GUTTER
CONCRETE PAVEMENT
SEE DETAIL
SEE NOTE 2
SEE NOTE 3
SEE NOTE 4
SEE NOTE 5
SEE NOTE 6
SEE NOTE 7
SEE NOTE 8
SEE NOTE 9
SEE NOTE 10
SEE NOTE 11
SEE NOTE 12
SEE NOTE 13
SEE NOTE 14
SEE NOTE