TCEQ WPAP & SCS APPLICATION

for

SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1
WILLIAMSON COUNTY, TEXAS

Prepared For:

Santa Rita KC, LLC
Attn: James Edward Horne
1700 Cross Creek Lane, Suite 100
Liberty Hill, TX 78642
(512) 502-2050

Prepared By:

Steven P. Cates, P.E.
CARLSON, BRIGANCE & DOERING, INC.
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Austin, Texas 78749
(512) 280-5160
Firm #F3791

Carlson, Brigance & Doering, Inc.
Civil Engineering ◆ Surveying



5-30-2025

CBD No. 5665
May 2025

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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: **Santa Rita Ranch Northwest Phase 2 Section 1**						**2. Regulated Entity No.:**			
3. Customer Name: Santa Rita KC, LLC.						**4. Customer No.:604360008**			
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):**		55.27	
9. Application Fee:	$6,500.00		**10. Permanent BMP(s):**			Batch Detention			
11. SCS (Linear Ft.):	14,119		**12. AST/UST (No. Tanks):**			N/A			
13. County:	Williamson		**14. Watershed:**			North Fork San Gabriel River			

Application Distribution

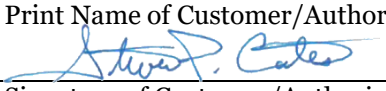
Instructions: Use the table below to determine the number of applications required. One original and one copy of the application, plus additional copies (as needed) for each affected incorporated city, county, and groundwater conservation district are required. Linear projects or large projects, which 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 _x_Georgetown ___Jerrell ___Leander _x_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. Santa Rita KC, LLC / Carlson, Brigance, & Doering, Inc.
Print Name of Customer/Authorized Agent  **5-30-2025** 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):	

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: Steven P. Cates, P.E.

Date: 5/30/2025

Signature of Customer/Agent:



Project Information

1. Regulated Entity Name: Santa Rita Ranch Northwest Phase 2 Section 1
2. County: Williamson
3. Stream Basin: North Fork San Gabriel River
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: James Edward Horne
   Entity: Santa Rita KC, LLC
   Mailing Address: 1700 Cross Creek Lane, Suite 100
   City, State: Liberty Hill, TX Zip: 78642
   Telephone: 512-502-2050 FAX: _____
   Email Address: ed@srraustin.com

8. Agent/Representative (If any):

   Contact Person: Steven P. Cates, P.E.
   Entity: Carlson, Brigance & Doering, Inc.
   Mailing Address: 501 W. William Cannon Blvd.
   City, State: Austin, Texas Zip: 78749
   Telephone: 512-280-5160 FAX: 512-280-5165
   Email Address: steve@cbdeng.com

9. Project Location:

   ☐ The project site is located inside the city limits of _____.
   ☒ The project site is located outside the city limits but inside the ETJ (extra-territorial jurisdiction) of the City of Liberty Hill.
   ☐ 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.

    West of Ronald Reagan Blvd, Between Elizabeth Park Blvd. and Tower Road

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: 6/04/2025

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.

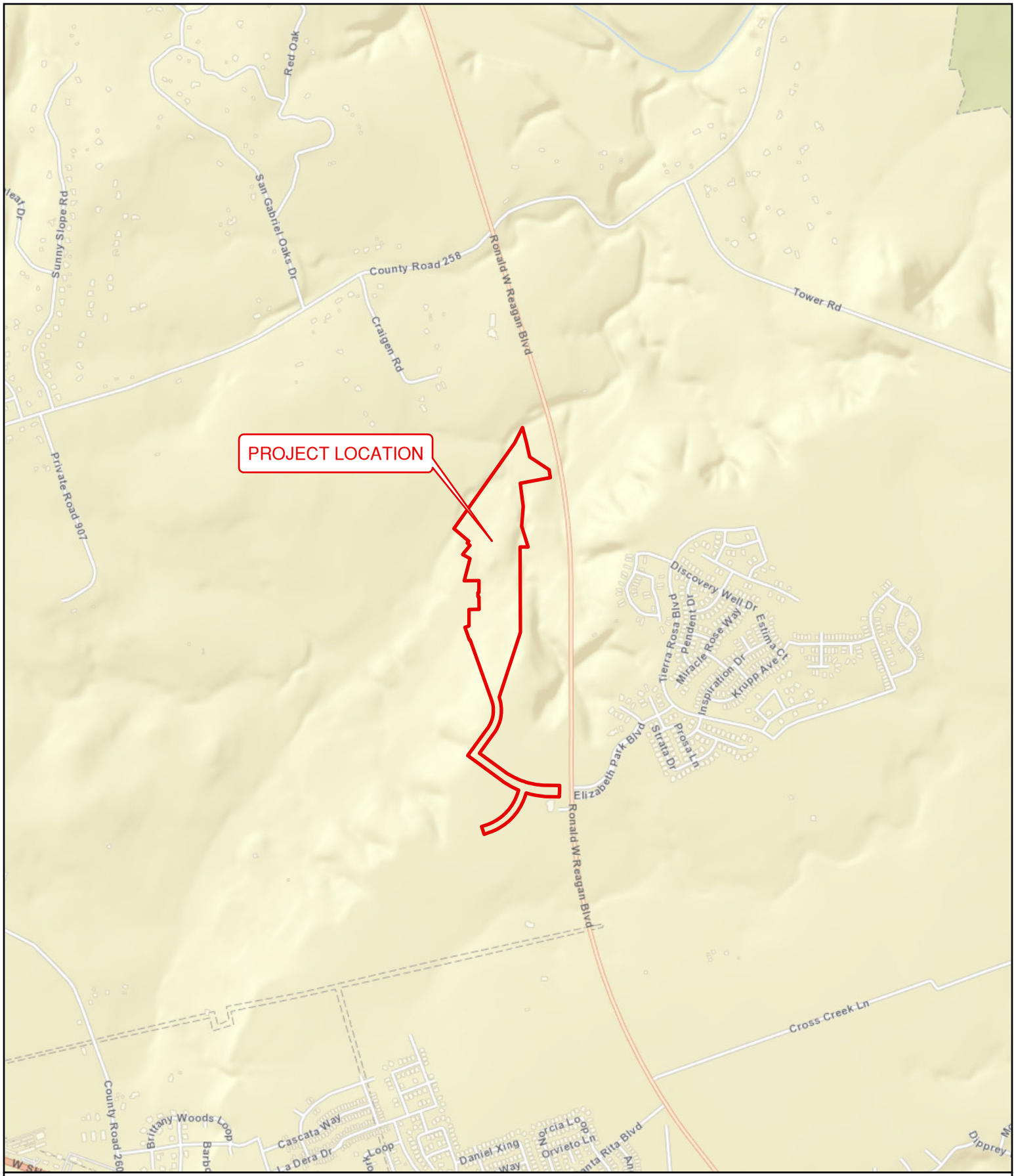
General Information Form
ATTACHMENT A

TCEQ WPAP & SCS APPLICATION

Santa Rita Ranch Northwest Phase 2 Section 1

Williamson County, Texas

ROAD MAP



Santa Rita Ranch

Water Pollution Abatement Plan Map

Leander NE Quadrant

Subject Boundary

N W E S

Carlson, Brigance & Doering, Inc.
Civil Engineering ❖ Surveying

0 1,000 2,000 4,000 Feet

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Carlson, Brigance & Doering, Inc. shall not be liable for errors, omissions, or inaccuracies contained in this map. For informational purposes only.

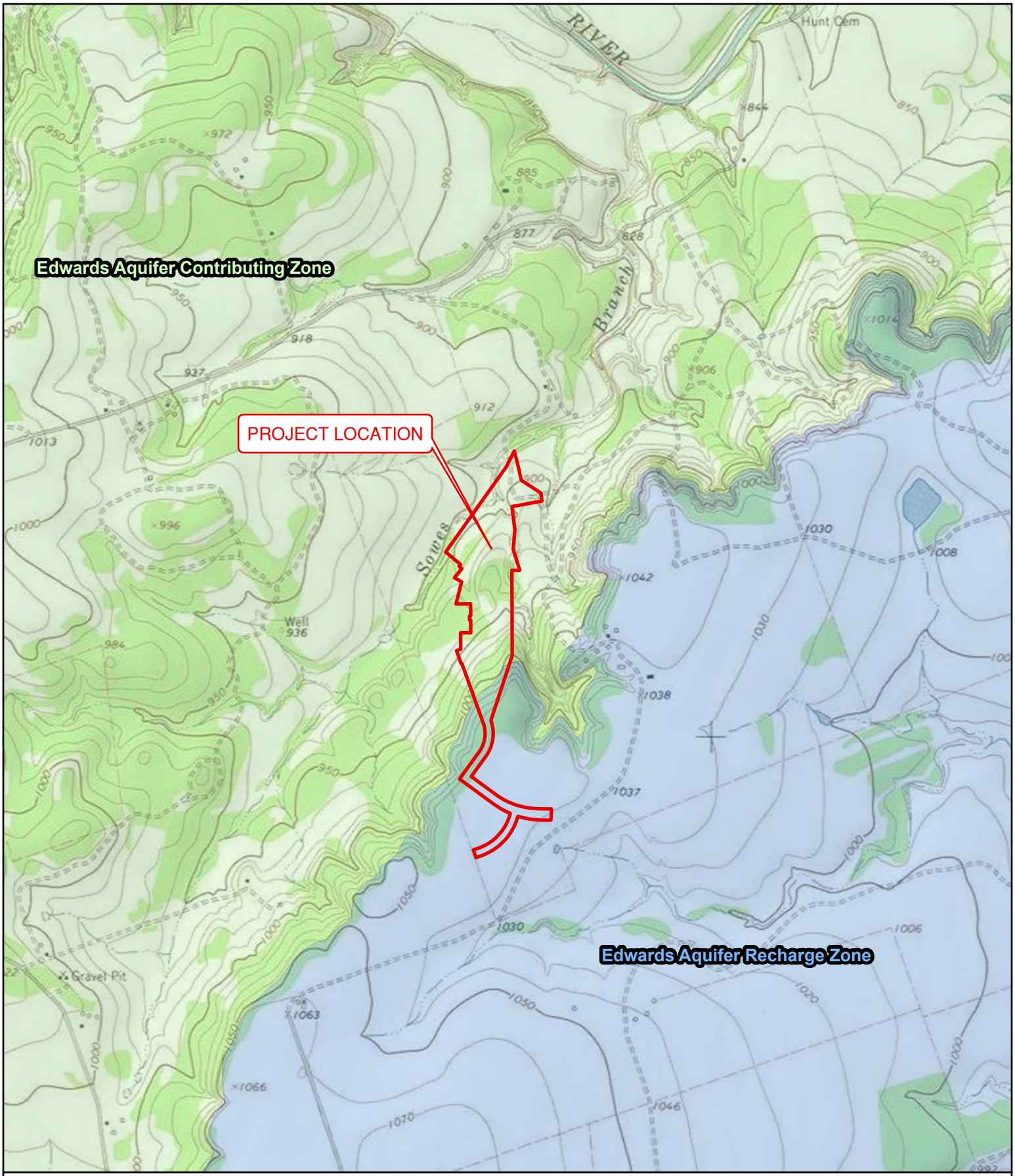
General Information Form
ATTACHMENT B

TCEQ WPAP & SCS APPLICATION

Santa Rita Ranch Northwest Phase 2 Section 1

Williamson County, Texas

USGS / EDWARDS AUQUIFER RECHARGE ZONE MAP



Santa Rita Ranch

Water Pollution Abatement Plan Map

Leander NE Quadrant

Subject Boundary

N

W E

S

Carlson, Brigance & Doering, Inc.
Civil Engineering ❖ Surveying

0 1,000 2,000 4,000 Feet

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Carlson, Brigance & Doering, Inc. shall not be liable for errors, omissions, or inaccuracies contained in this map. For informational purposes only.

General Information Form
ATTACHMENT C

TCEQ WPAP & SCS APPLICATION

Santa Rita Ranch Northwest Phase 2 Section 1

Williamson County, Texas

Project Description:

Santa Rita Ranch Northwest Phase 2 Section 1 is a 55.27-acre residential development that is composed of 87 single-family lots. The project is located to the west of Ronald Reagan Blvd. and south of Saddleback at Santa Rita Ranch Phase 1 section 1. The project is located within the City of Liberty Hill ETJ, in Williamson County, Texas. This project includes 8,382 linear feet of roadway, 12,118.71 linear feet of water main line, 5,348 linear feet of 8" SDR 26 PVC ASTM D3034 wastewater main line, 5,348 linear feet of 12" SDR 26 PVC ASTM D3034 wastewater main line, 100 linear feet of 8" and 20 linear feet of 12" C900 (150 psi) PVC AWWA C900 wastewater main line at water crossings, 821.22 linear feet of 2-8" C900 DR-18 PVC force main and 1,039 linear feet of 6" SDR 26 PVC ASTM D3034 of wastewater service line.

The proposed wastewater line will flow into an existing SCS gravity system to the approved Lift Station 2A and then the Liberty Hill Wastewater Treatment Plant. The entirety of the wastewater system is contained within the contributing zone.

The site may have soil imported. The fill material shall consist of crushed limestone, select fill, and topsoil. The fill material will be used to facilitate drainage, roadway construction, revegetation of the property, and to elevate the building foundations.

This project is located within the Edwards Aquifer Recharge Zone. Flows were calculated using the National Resource Conservation hydrologic method. Water Quality will be provided by a proposed batch detention pond constructed with this section.

Within the 55.27-acre improvement area, approximately 17.74 acres of impervious cover will be installed (32.10% of total project site). The batch detention ponds have been designed in accordance with the January 20, 2017 Addendum Sheet to RG-348 which establishes Batch Detention Basins as Section 3.2.17 of RG-348. They have been sized to treat and detain for Phase 2 section 1 and future sections.

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Environmental Services

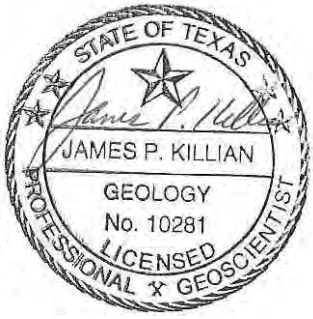
GEOLOGIC ASSESSMENT
APPROXIMATELY 651-ACRE SANTA RITA RANCH 10 TRACTS
TOWER ROAD, RONALD REAGAN BOULEVARD, AND WEST STATE HIGHWAY 29
GEORGETOWN, WILLIAMSON COUNTY, TEXAS
HJN 200130.13GA

PREPARED FOR:

SANTA RITA KC LLC
AUSTIN, TEXAS

PREPARED BY:

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



JULY 2025

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A Branch of LJA Environmental Services, LLC • TBPG Firm No. 50679

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II. ATTACHMENTS:

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B STRATIGRAPHIC COLUMN
C DESCRIPTION OF SITE GEOLOGY
D SITE GEOLOGIC MAP
E SUPPORTING INFORMATION
F ADDITIONAL SITE MAPS

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

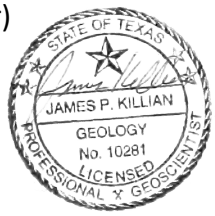
To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

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

Date: 8 July 2025 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 651-acre Santa Rita Ranch 10 Tracts; Georgetown, Williamson County, Texas

Project Information

1. Date(s) Geologic Assessment was performed: 19 May to 5 June 2025
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)
Brackett gravelly clay loam, 3-12% slopes (BkE)	C	1-4
Brackett-Rock outcrop-Real complex, 8-30% slopes (BkrG)	C	1-2
Crawford clay, 0-1% slopes (CfA)	D	2.67
Crawford Clay, 1-3% slopes (CfB)	D	2.5
Denton silty clay, 3-5% slopes (DnC)	D	1-3

** 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" = 1900'

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 6 (#) 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.

Table 1 – Soil Units, Infiltration Characteristics and Thickness (Continued)

Soil Name	Group*	Thickness (feet)
Doss silty clay, moist, 1-5% slopes (DoC)	D	1.5
Eckrant cobbly clay, 1-8% slopes (EaD)	D	1
Eckrant extremely stony clay, 1-3% slopes (EeB)	D	1
Eckrant-Rock outcrop association, 1-10% slopes (ErE)	D	1
Eckrant-Rock outcrop complex, 8-30% slopes, hilly (ErG)	D	1
Fairlie clay, 0-1% slopes (FaA)	D	0.7 to 4
Fairlie clay, 1-2% slopes (FaB)	D	0.7 to 4
Georgetown clay loam, 0-2% slopes (GeB)	D	0.5 to 3
Georgetown stony clay loam, 1-3% slopes (GsB)	D	0.5 to 3
Sunev silty clay loam, 1-3% slopes (SvB)	B	1.5 to 4.3

** 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.

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ATTACHMENT A

GEOLOGIC ASSESSMENT TABLE

GEOLOGIC ASSESSMENT TABLE — **PROJECT NAME:** Santa Rita Ranch 10 Tracts; Georgetown, 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)	DIP	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	
C-6	30.664682	-97.809837	SF	20	Ked	2.5	0.5	1	--	0	--		C,F,O	10	30	X		X		Hilltop
SF-11	30.671303	-97.815308	SH/C	30	Ked	305	30	9	--	0	--		C,F,O	45	75		X	X		Hilltop
SF-13	30.671198	-97.818138	SH/SC	20	Ked	1	0.5	4	--	0	--		C,F,O	10	30	X		X		Hilltop
SF-14	30.672066	-97.820236	SH/SC	20	Ked	0.5	0.5	1	--	0	--		C,F,O	25	45		X	X		Hilltop
SF-15	30.679111	-97.823843	SH/C	30	Ked	50	25	7	--	0	--		C,F,O	35	65		X	X		Hilltop
SF-16	30.675387	-97.823553	SH/C	30	Ked	300	200	6	--	0	--		C,F,O	65	95		X		X	Hilltop
SF-17	30.671915	-97.82164	SH/SC	20	Ked	0.3	0.3	1	--	0	--		C,F,O	25	45		X	X		Hilltop
SF-18	30.681683	-97.820847	SC	20	Ked	1.5	1.5	1	--	0	--		C,F,O	10	30	X		X		Hilltop
SF-19	30.680418	-97.82251	SH	20	Ked	15	12	3	--	0	--		C,F,O	25	45		X	X		Hilltop
SR-3	30.675214	-97.819649	SH/SC	20	Ked	0.5	0.5	1	--	0	--		C,F,O	10	30	X		X		Hilltop
SR-5	30.673946	-97.815971	SC	20	Ked	1	1	1.5	--	0	--		C,F,O	30	50		X	X		Hilltop
SR-6	30.673006	-97.815392	SC	20	Ked	0.5	0.5	1.5	--	0	--		C,F,O	25	45		X	X		Hilltop
SR-7	30.674126	-97.816582	SC	20	Ked	0.5	0.5	1.5	--	0	--		C,F,O	25	45		X	X		Hilltop
SR-8	30.672991	-97.815529	SC	20	Ked	1.5	1	1.5	--	0	--		C,F,O	20	45		X	X		Hilltop
SR-9	30.672617	-97.815796	SC	20	Ked	2.5	1	1.5	--	0	--		C,F,O	20	45		X	X		Hilltop
SR-10	30.673801	-97.816833	SC	20	Ked	0.5	0.5	1	--	0	--		C,F,O	35	55		X	X		Hilltop
SR-11	30.674778	-97.818787	SC	20	Ked	2	1.5	2.5	--	0	--		C,F,O	30	50		X	X		Hilltop
SR-12	30.672495	-97.820045	SH/C	30	Ked	25	12	1	--	0	--		C,F,O	30	60		X	X		Hilltop
SR-14	30.678613	-97.824318	SH	20	Ked	6	4	2.5	--	0	--		C,F,O	15	35	X		X		Hilltop
SR-16	30.681606	-97.820808	SC	20	Ked	1.3	0.8	4.5	--	0	--		C,F,O	15	35	X		X		Hilltop
SR-17	30.681532	-97.820953	SC	20	Ked	1.5	1	3.5	--	0	--		C,F,O	25	45		X	X		Hilltop
SR-19	30.679644	-97.823785	SC	20	Ked	3	1.5	1.5	--	0	--		C,F,O	15	35	X		X		Hilltop
SR-20	30.685268	-97.837471	F	20	Kgru/Kw	--	--	--	N30E	10			C,F,O	5	35	X			X	Streambed
SR-21	30.672928	-97.820053	SC	20	Ked	2	1	2.5	--	0	--		C,F,O	10	30	X		X		Hilltop
M-10	30.663092	-97.80825	MB	30	Ked	0.3	0.3	--	--	0	--		X	5	35	X		X		Hilltop
M-13	30.67552	-97.818718	MB	30	Ked	0.3	0.3	--	--	0	--		X	5	35	X		X		Hilltop
M-14	30.675489	-97.818634	MB	30	Ked	0.3	0.3	--	--	0	--		X	5	35	X		X		Hilltop
M-19	30.670528	-97.838242	MB	30	Ked	0.3	0.3	--	--	0	--		X	5	35	X		X		
M-22	30.645662	-97.842722	MB	30	Qt/Ked	0.3	0.3	--	--	0	--		X	5	35	X		X		
M-23	30.645802	-97.844337	MB	30	Qt/Ked	0.3	0.3	--	--	0	--		X	5	35	X		X		Hilltop

* 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: PVC well casing/steel 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.

James P. Killian

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

Date: 07/08/2025

Sheet ___1___ of ___1___

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

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ATTACHMENT B

STRATIGRAPHIC COLUMN

Geologic Unit	Hydrologic Unit	Approx. Thickness at Project Site (ft)	Elevation (ft msl)	Depth (ft)
			1070	0
Terraces along streams (Qt)		10		
			1060	10
Edwards Limestone (Ked)	Edwards Aquifer	85		
			975	95
Comanche Peak Limestone (Kc)		50		
			925	145
Keys Valley Marl (Kkv)		50		
			875	195
Upper Glen Rose Limestone (Kgru)	Confining Unit	220		
			655	415

Note: Unit elevation and thickness given with respect to a ground surface elevation of 1070 ft along the southernmost boundary of the subject site.

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Date:	07/03/2025
Drawn:	KRW
HJN NO:	200130 GA

Attachment B

Stratigraphic Column
Santa Rita Ranch
10 Tracts
Georgetown, Williamson County, Texas

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

200130 - Santa Rita Ranch\Graphics\GA_Maps\200130-001GA_05A_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 651 acres (Santa Rita Ranch [SRR] Phase 2C, Phase 3 Section 5, Phase 5 Section 6, Phase 7B Section 4, Phase 7C Section 4, Phase 8 [Sections 1 through 5], Section NW2, various Commercial [COMM] sections, and Liberty Hill Independent School District [LHISD]) located along the south side of Tower Road, the east and west sides of Ronald Reagan Boulevard, and north of West State Highway 29 in Georgetown, 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 mostly undeveloped vacant rangeland, with SRR Phase 2C, Phase 3 Section 5, and various COMM sections containing habitable structures. 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.

Approximately 452 acres of the subject site are located within the EARZ and 199 acres are in the Edwards Aquifer Contributing Zone (EACZ) 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 EACZ is the area or watershed where runoff from precipitation flows downgradient to the Recharge Zone of the Edwards Aquifer. The Contributing Zone is located upstream (upgradient) and generally north and northwest of the Recharge Zone.

A review of existing literature shows the subject site is underlain by terraces along streams (Qt), the undifferentiated Edwards Limestone Formation (Ked), Comanche Peak Limestone (Kc), Keys Valley Marl (Kkv), and Upper Glen Rose Limestone (Kgru) (UT-BEG, 2014), with estimated maximum thicknesses of about 10, 85, 50, 50, and 220 feet, respectively.

A total of 24 naturally occurring geologic features (C-6, SF-11, SF-13, SF-14, SF-15, SF-16, SF-17 to SF-19, SR-3, SR-5 to SR-12, SR-14, SR-16, SR-17, SR-19, SR-20, and SR-21) were identified at this site. Six man-made features (M-10, M-13, M-14, M-19, M-22, and M-23) were identified. Further information pertaining to the geologic and man-made features is presented in the following Attachments D, E, and F.

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ATTACHMENT D

SITE GEOLOGIC MAP



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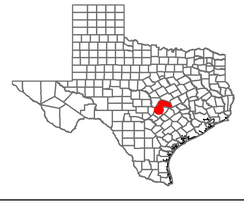
Date:	07/07/2025
Drawn:	KRW
HJN NO:	200130.013 GA
Source:	Esri, 2024; TWSC, 2014

Legend

- Man-Made Feature
- Fault
- Subject Site
- Terraces along streams (Qt)
- Edwards Limestone (Ked)
- Comanche Peak Limestone (Kc)
- Keys Valley Marl (Kkv)
- Upper Glen Rose Limestone (Kgru)

Attachment D

Site Geologic Map
Santa Rita Ranch
10 Tracts
Georgetown, Williamson County, Texas

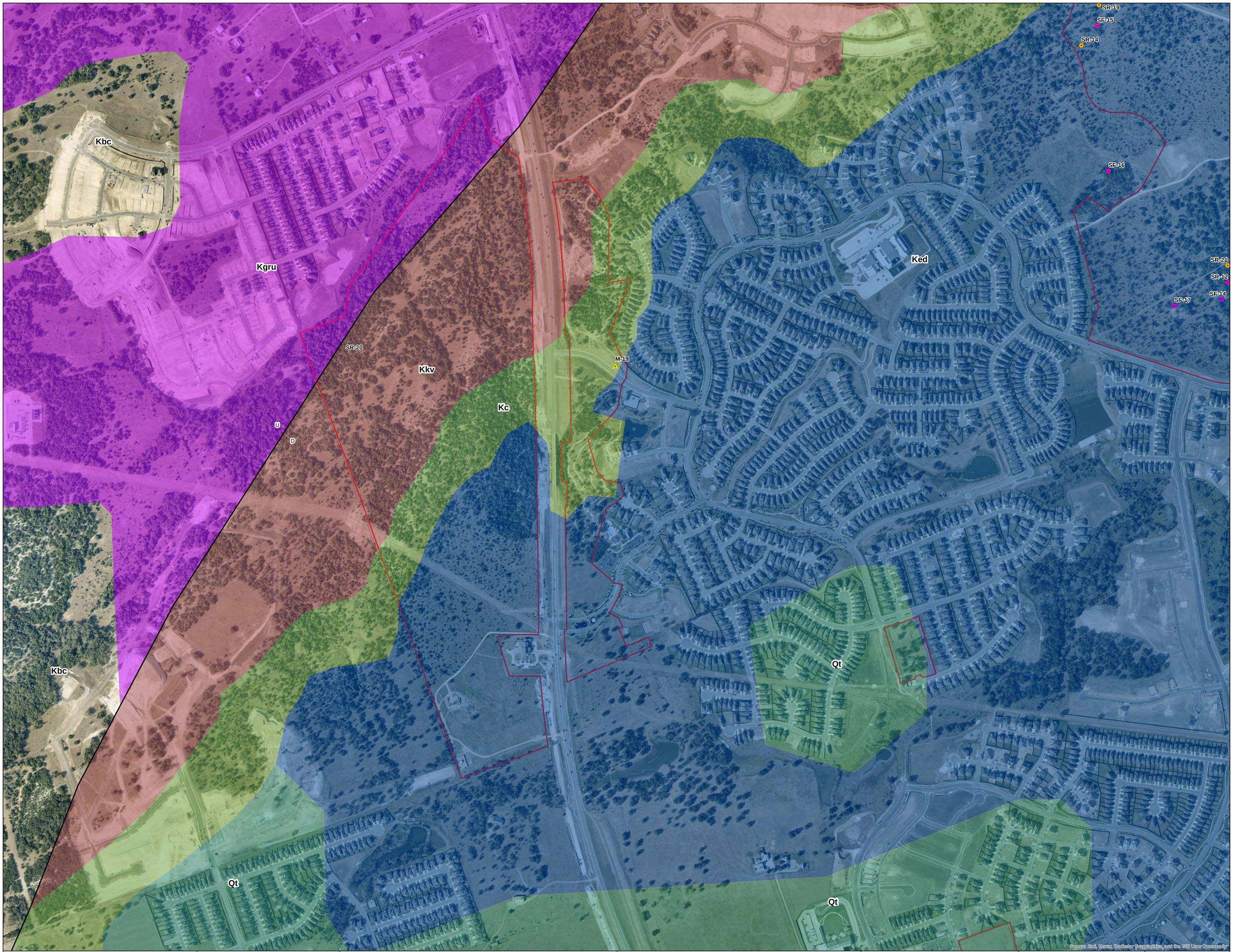


STATE OF TEXAS
JAMES P. KILLIAN
GEOLOGY
No. 10281
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0 200 400
Feet

Scale: 1" = 400'

200130 - Santa Rita Ranch\Graphics\GA_Maps\200130-013GA_06A_SGM1



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Date:	07/07/2025
Drawn:	KRW
HJN NO:	200130.013 GA
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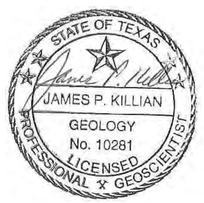
Legend

- Cave
- Man-Made Feature
- Non-Sensitive Geologic Feature
- Sensitive Geologic Feature
- Fault
- Subject Site
- Terraces along streams (Qt)
- Edwards Limestone (Ked)
- Comanche Peak Limestone (Kc)
- Keys Valley Marl (Kkv)
- Upper Glen Rose Limestone (Kgru)

Attachment D

Site Geologic Map
Santa Rita Ranch
10 Tracts
Georgetown, Williamson County, Texas

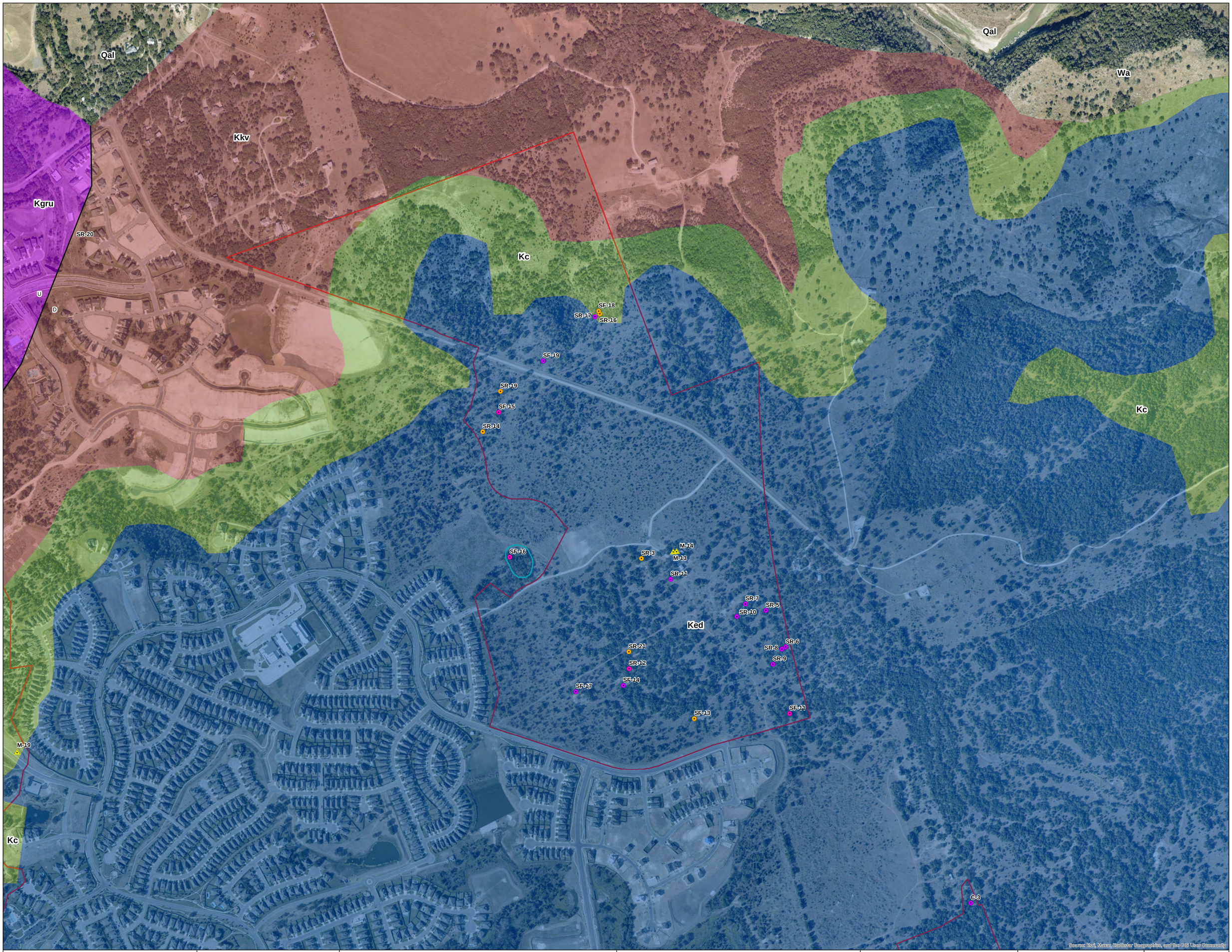




0 200 400
Feet

Scale: 1" = 400'

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Horizon™ Environmental Services

Date:	07/07/2025
Drawn:	KRW
HJN NO:	200130.013 GA
Source:	Esri, 2024; TWSC, 2014

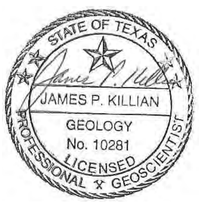
Legend

- Cave
- Man-Made Feature
- Non-Sensitive Geologic Feature
- Sensitive Geologic Feature
- Fault
- Sinkhole
- Subject Site
- Edwards Limestone (Ked)
- Comanche Peak Limestone (Kc)
- Keys Valley Marl (Kkv)
- Upper Glen Rose Limestone (Kgru)

Attachment D

Site Geologic Map
Santa Rita Ranch
10 Tracts
Georgetown, Williamson County, Texas





0 200 400
Feet

Scale: 1" = 400'

200130 - Santa Rita Ranch\Graphics\GA_Maps\200130-013GA_06A_SGM2



Horizon™ Environmental Services

Date:	07/07/2025
Drawn:	KRW
HJN NO:	200130.013 GA
Source:	Esri, 2024; TWSC, 2014

Legend

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

Attachment D

Site Geologic Map
Santa Rita Ranch
10 Tracts
Georgetown, Williamson County, Texas

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

0 200 400
Feet

Scale: 1" = 400'

200130 - Santa Rita Ranch\Graphics\GA_Maps\200130-013GA_06A_SGM4

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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 651 acres of mostly vacant rangeland located along the north and south side of Tower Road, the east and west sides of Ronald Reagan Boulevard, and the north side of West State Highway (SH) 29 in Georgetown, Williamson County, Texas (Appendix F, Figure 1).

2.2 LAND USE

Most of the subject site is reportedly vacant with no apparent use, aside from Phase 2C which is partially used for farming. SRR Phase 2C, Phase 3 Section 5, and various COMM sections contain habitable structures. Tower Road bisects the north side of the northern portion of the subject site, and West SH 29 forms the southernmost border. Surrounding lands are generally used for residential, commercial, and agricultural purposes.

2.3 TOPOGRAPHY AND SURFACE WATER

The subject site is situated on gently to steeply sloping terrain within the North, Middle, and South Forks of the San Gabriel River watershed (Appendix F, Figures 2 and 3). Surface elevations on the subject site vary from a minimum of approximately 870 feet above mean sea level (amsl) near the northern corner of the northeastern tract (east of Tower Road) within an unnamed tributary of the North Fork of the San Gabriel River to a maximum of approximately 1070 feet amsl within the southwestern tract near SH 29 (USGS, 1976). Drainage on the site occurs primarily by overland surface flow in multiple directions depending on proximity to unnamed tributaries of Sowes Branch and/or the San Gabriel River.

2.4 EDWARDS AQUIFER ZONE

The subject site is found within the Edwards Aquifer Recharge Zone and Edwards Aquifer Contributing Zone (TCEQ, 2025) (Attachment F, Figure 2).

2.5 SURFACE SOILS

Fifteen soil units are mapped within the subject site (NRCS, 2025) (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.

Brackett gravelly clay loam, 3 to 12% slopes (BkE) has a moderately alkaline, pale brown, clay loam surface layer about 5 inches thick with about 15% cover of limestone fragments that range from 4 to 12 inches in diameter. The subsoil, to 16 inches, is moderately alkaline, pale yellow clay loam with about 5% weakly cemented fine limestone fragments. The underlying layer is very pale brown, interbedded, calcareous loam and limestone. This soil is well-drained, permeability is moderately slow, and available water capacity is very low. Runoff is rapid (Werchan and Coker, 1983).

Brackett-Rock outcrop-Real complex, 8 to 30% slopes (BkrG) consists of hilly to steep Brackett soils and Rock outcrop on uplands. This complex is made up of about 50% Brackett soils, about 25% Rock outcrop, and 25% other soils. Typically, the Brackett soils have a moderately alkaline, grayish-brown, gravelly, silty clay loam surface layer about 4 inches thick. About 60 to 80% of the surface is covered with limestone pebbles, cobbles, stones, and a few boulders. The subsoil, which extends to a depth of about 12 inches, is moderately alkaline, light brownish-gray, gravelly, silty clay loam. The underlying material is interbedded limestone and marl. The Brackett soils are well-drained. Runoff is rapid and available water capacity is very low. Erosion is a moderate to severe hazard. Rock outcrop consists of narrow horizontal bands and random areas of marl outcrop. Loose cobbles, stones, and boulders are common on the surface (Werchan and Coker, 1983).

Crawford clay, 0 to 1% slopes (CfA) is a nearly level soil on tops of mesas, on footslopes, and in shallow valleys on uplands. Typically, the surface layer is neutral, dark grayish brown clay about 6 inches thick. 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. 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).

Crawford clay, 1 to 3% slopes (CfB) is a gently sloping soil found at footslopes and at the heads of drainageways on uplands. The underlying material is whitish, fractured, hard limestone. The soil is well-drained, and available water capacity is low. Runoff is medium. Rooting depth is moderately deep. Erosion is a medium hazard. This soil is mainly used for rangeland. Because of the soil's high position on landscapes and general association with post oak, this soil is desirable for homesites. Limitations are the clayey texture and shrink-swell potential. Foundations are subject to shifting and breaking, and paved roads become bumpy and broken. Underground steel pipes may corrode if not protected. Septic systems function very poorly in the clay subsoil. This soil is suitable for recreational areas and use as habitat for openland and rangeland wildlife (Werchan and Coker, 1983).

Denton silty clay, 3 to 5% slopes (DnC) typically has an upper layer of dark brown, silty clay about 18 inches thick. The subsoil, to a depth of about 25 inches, is light brown, silty clay. The layer below that, to 32 inches, is pale brown, silty clay loam. The underlying material is limestone interbedded with weathered limestone and limy material. The soil is calcareous and moderately alkaline. This soil is well-drained, and runoff is medium. Permeability is slow. When dry, the soil cracks and water enters the soil rapidly; but when the soil is wet, water enters it slowly. The available water capacity is medium, and erosion is a moderate hazard (Werchan and Coker, 1983).

Doss silty clay, moist, 1 to 5% slopes (DoC) is a gently sloping soil on uplands. The underlying material is limy earth interbedded with limestone fragments. This soil is calcareous and moderately alkaline. Doss silty clay has a moderately slow permeability and is well-drained. This soil is used for rangeland and crops. The construction of utility lines and foundations can be difficult due to the shallowness to rock (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 a 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 foundations, buried utility lines, septic systems, and streets more difficult.

Eckrant extremely stony clay, 0 to 3% slopes (EeB) is gently sloping and located on broad ridges and in shallow valleys on uplands. Typically, this soil has an extremely stony, very dark gray, clay surface layer about 11 inches thick. The underlying material is indurated limestone. About 25% of the surface is covered with fragments of limestone; most are about 6 inches across, but range from 3 inches to 3 feet across and are as much as 10 inches thick. The soil is calcareous, moderately alkaline, and well-drained. Permeability is moderately slow, and surface runoff is rapid. The fragments of limestone on the surface help to prevent erosion. The available water capacity is very low because of the shallowness of the soil and stones in the soil (Werchan and Coker, 1983).

Eckrant-Rock outcrop association, 1 to 10% slopes (ErE) is a complex on uplands consisting of Eckrant soils and Rock outcrop on hills and ridges on sides of drainageways. This complex is 70% Eckrant soils, 15% Rock outcrop, and 15% other soils. Typically, the surface layer of Eckrant soils is calcareous, moderately alkaline, dark grayish brown, extremely stony clay about 8 inches thick. The underlying material is fractured, indurated limestone. Limestone fragments 6 inches to 2 feet in size cover 35% of the surface. Rock outcrop consists of exposed limestone bedrock in narrow horizontal bands. Loose cobbles and stones on the surface are common. Permeability is moderately slow. Rooting depth is very shallow. Runoff is rapid and available water capacity is very low. Plant and tree growth is severely limited, especially on exposed limestone ledges. This complex is mainly used for rangeland. Forage yields from the large variety of plants are low. This complex has an aesthetic appeal for use as homesites; however, the hard limestone substratum and slopes are limitations. The complex has poor suitability for recreational uses because of slope, the clayey surface, large stones, and the shallow to very shallow depth to rock. This complex supports fair habitat to rangeland wildlife. The wildlife population is generally high (Werchan and Coker, 1983).

Eckrant-Rock outcrop complex, hilly (ErG) is a complex found on uplands consisting of Eckrant soils and Rock outcrop mostly along major streams where geologic erosion has formed sharp hills, ridges, and ravines. The soils and Rock outcrop are so intricately mixed or so small in area that mapping them separately was not practical. Slopes range from 10 to 30%. Most areas are long and narrow, are parallel to streams, and range from 10 to 200 acres. This complex is made up of about 41% Eckrant soils, 38% Rock outcrop, and 21% other soils. Typically, the Eckrant soils have a calcareous, moderately alkaline, extremely stony silty clay loam surface layer about 11 inches thick. The underlying material below 11 inches is indurated limestone. About 55% of the soil surface is covered with fragments of limestone that are 1 to 6 feet across. Rock outcrop consists of exposed limestone bedrock. Most areas of Rock outcrop are directly below the crests of hills and ridges. Loose cobbles and stones on the surface are common. Permeability is moderately slow. The soils are well-drained. Because of low available water capacity, rapid runoff from the steep slopes, and very shallow to shallow rooting depth, these soils do not have the moisture needed for vigorous plant growth. This complex is used as rangeland. Forage yields are low. Most areas of this complex have aesthetic appeal for use as homesites. However, most housing developments stop at the edge of the ridges because of the difficulty of building on the steeper side slopes. Streets and utility lines are difficult to construct or install because of bedrock and slope. Most landscaping consists of modifying the existing plants and trees. This complex is not suitable for recreational uses other than hiking (Werchan and Coker, 1983).

Fairlie clay, 0 to 1% slopes (FaA) is a nearly level soil is on broad plateaus, slightly depressed areas near the head of drains, and in shallow valleys on uplands. Typically, this soil has a dark gray clay upper layer about 36 inches thick. The underlying material to a depth of 55 inches is weakly cemented limestone interbedded with limy material. The soil is calcareous and moderately alkaline. This soil is moderately well-drained. Surface runoff is slow when the soil is dry and cracked. The available water capacity is high. Erosion is a slight hazard. This soil is used mainly for crops. The main crops are grain sorghum, hay, and small grains. Yields are high in years of favorable weather. During dry periods, the cracking of the soil breaks some plant roots and limits the production of warm-season crops. Management includes maintaining tilth and fertility. Some areas of this soil are used for improved tame pasture. High forage yields are possible under good management and with favorable weather. This soil has severe limitations for urban uses. Because of the high shrink-swell potential, building foundations and streets crack unless they are properly constructed. Corrosivity of underground utility pipes is severe. Septic systems work poorly or may fail during rainy periods. Landscaping and gardening with hand tools are difficult because of the clayey texture. Recreational areas can be developed on this soil. However, when wet, the clayey surface is sticky and muddy, and foot and vehicle traffic are difficult. Cracking of the soil during dry periods limits some playground activities (Werchan and Coker, 1983).

Fairlie clay, 1 to 2% slopes (FaB) is a gently sloping soil found along broad flats and on edges of drainways on uplands. Weakly cemented limestone interbedded with limey material underlies the soil. Fairlie clay is calcareous and moderately alkaline. Fairlie clay is most prominently used for crops but can also be used for tame pastures. The soil is suitable for urban uses, but the hazard of corrosivity to underground steel utility lines is severe due to the clayey texture and slow permeability associated with the soil (Werchan and Coker, 1983).

Georgetown clay loam, 0 to 2% slopes (GeB) is a nearly level to gently sloping soil found on uplands. Typically, the surface layer is slightly acidic, brown clay loam about 7 inches thick. The subsoil extends to about 35 inches; it is neutral to slightly acidic, reddish-brown clay in the upper part and cobbly clay in the lower part. The underlying material is indurated limestone that has limy earth imbedded in the crevices. This soil is well-drained. Permeability is slow. Surface runoff is medium. The available water capacity is low. Plant growth may be restricted because of the moderate depth of the soil, but cool-season crops make good yields in most years. Erosion is a slight hazard. This soil is used as rangeland. It is capable of producing medium yields of vigorous grasses. This soil is suitable for urban uses. Septic systems are difficult to install because of shallowness to fractured limestone. The risk of corrosion is high for unprotected steel pipe. Soil reaction is favorable, and landscaping and gardening with supplemental watering can be successful. This soil is easily adapted to recreational uses (Werchan and Coker, 1983).

Georgetown stony clay loam, 1 to 3% slopes (GsB) is typically found on higher parts of uplands. Typically, this soil has a slightly acidic, brown, stony clay loam surface layer about 7 inches thick and few stones on or near the surface. The subsoil, which extends down to a depth of about 35 inches, is neutral, reddish-brown clay in the upper part and slightly acidic, reddish-brown, cobbly clay in the lower part. The underlying material is indurated, fractured limestone that has clay loam in crevices and fractures. This soil is well-drained. Permeability is slow, and surface runoff is medium. The available water capacity is low. Reaction is neutral to slightly acidic. The

erosion hazard ranges to slight. 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).

Sunev silty clay loam, 1 to 3% slopes (SvB) is a gently sloping soil foubd on stream terraces below areas of the nearly level Sunev soil. Areas are generally long and narrow and lie along streams. Typically, the upper layer is dark grayish brown, silty clay loam about 18 inches thick. The underlying layer, which extends to 60 inches, is reddish yellow, silty clay loam and has many soft masses and concretions of calcium carbonate. This soil is calcareous and moderately alkaline throughout. This soil is well-drained. Permeability is moderate. Runoff is medium. The available water capacity is moderate. Roots easily penetrate this soil. Erosion is a slight hazard. This soil is used for crops or pasture or as rangeland. In places, terraces are needed to help control erosion; elsewhere, close-growing, high-residue crops are adequate. This soil is well-suited to pasture and rangeland. Because this soil is near streams, most areas are desirable as homesites. For urban uses, corrosion of underground pipe is a moderate limitation that can easily be controlled. Septic systems function if properly designed. Landscaping and gardening are easily done, but the soil dries rapidly, and some plants develop chlorosis because of the high lime content. This soil is well-suited to recreational uses. It dries out quickly after rains. When this soil is wet and not protected, the surface becomes sticky (Werchan and Coker, 1983).

2.6 WATER WELLS

A review of TCEQ and Texas Water Development Board (TWDB) records revealed 5 water wells on the subject site and 42 wells within 0.5 miles of the subject site (TCEQ, 2005; TWDB, 2025). According to the TWDB records, all the off-site wells are reportedly completed within the Edwards Aquifer and Trinity Aquifer at total depths ranging from 152 to 850 feet below surface. Horizon observed 6 water wells (M-10, M-13, M-14, M-19, M-22, and M-23) on the subject sites. Approximately 2 of these wells (M-10 and M-13) appear to be currently unused or plugged/abandoned. The on-site wells appeared to be properly constructed with 4-inch PVC pipe surrounded by 8-inch steel casing. According to TWDB records, these wells are reportedly competed within the Trinity Aquifer at total depths ranging from 770 to 860 feet below surface grade.

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

Portions of the subject site are underlain by recent (Quaternary age) thin deposits (less than 10 feet) of terraces along streams (Qt). Terraces along streams are predominantly gravel, sand, silt, and clay. Thickness varies depending on distance from the floodplain source.

Most of the subject site is underlain by Edwards Limestone (Ked), which underlies the terraces along streams. 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 Comanche Peak Limestone Formation (Kc) underlies the Edwards and crops out on the steep, north-facing slopes located above Sowes Branch within the northernmost tracts. It is approximately 50 feet thick and consists of white, soft, nodular limestone interbedded with marl and calcareous clay.

Underlying Comanche Peak Limestone is the Walnut Formation (Kw), which crops out along the moderate to gently sloping areas located near Sowes Branch in the northernmost tracts. The uppermost 50 feet of the Walnut is named the Keys Valley Marl Member (Kwkv) and consists of cream-colored, fossiliferous marl with some thin interbeds of soft limestone. Keys Valley Marl is underlain by the Cedar Park Limestone (Kwcp) and Bee Creek Marl (Kwbc) members of the Walnut Formation.

Beneath the Walnut Formation, the Upper Member of the Glen Rose Limestone (Kgru) crops along the northern edge of the northwest tract, west of Ronald Reagan Boulevard, with an estimated thickness of up to 220 feet. It consists of alternating resistant and recessive beds of light gray to yellowish-gray limestone, dolomite, and marl.

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

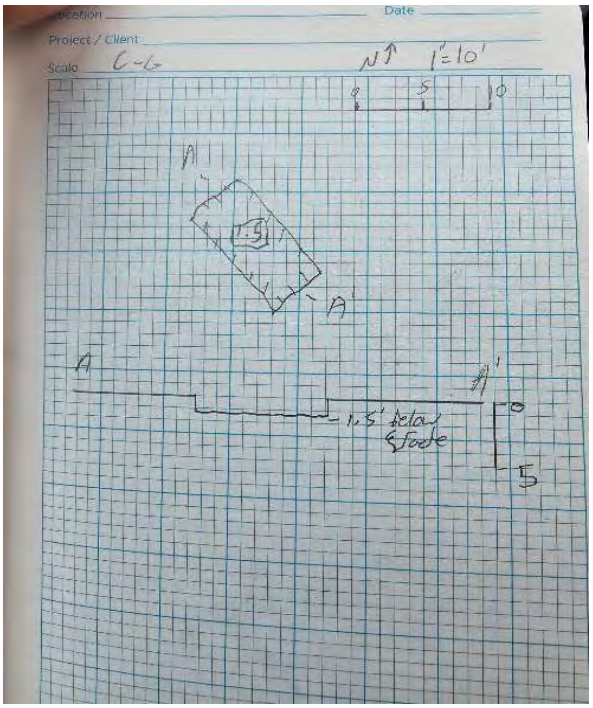
The subject site is located within the Balcones Fault Zone. Available geologic reports indicate the nearest mapped fault crosses through the northwest tract near Sowes Branch, trending from southwest to northeast (TWSC, 2025).

Field Assessment

A field survey was conducted by Horizon support staff under the supervision of a licensed Horizon geologist between 19 May and 5 June 2025. Horizon observed 6 man-made features (M-10, M-13, M-14, M-19, M-22, and M-23) and 24 naturally occurring geologic features (C-6, SF-11, SF-13, SF-14, SF-15, SF-16, SF-17 to SF-19, SR-3, SR-5 to SR-12, SR-14, SR-16, SR-17, SR-19, SR-20, and SR-21) on the subject site that meet the TCEQ definition of a potential recharge feature. No springs were observed at the site. Previous geologic assessments were conducted on the subject site by SWCA Environmental Consultants (SWCA, 2006) and Horizon (Horizon, 2014). SWCA originally identified all of the geologic features previously listed.

Geologic features on the subject site are described as follows:

Geologic Feature C-6: Prior to further investigation, this feature appeared to be a solution-enlarged fracture (azimuth: N215°W) measuring approximately 2.5 feet long by 0.5 feet wide by 1 foot deep, with smaller semi-open drainage portal openings amongst loose cobbles and soil. No significant air flow conductivity was noted. After limited hand excavation, probing with a steel rod encountered firm soil and cobbles about 2 feet below the feature's floor. Horizon staff excavated the feature on 1 October 2024 using a backhoe with hoe ram attachment. Excavation dimensions measured approximately 10 feet long by 5 feet wide by 1.5 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. This feature has been deemed non-sensitive for groundwater recharge capability. This feature has a low infiltration rate and a surface runoff catchment of less than 0.1 acre.



Sketch of C-6



Geologic feature C-6 (solution-enlarged fracture) before excavation, facing northwest



Geologic feature C-6 after excavation, facing northwest

Geologic Feature SF-11: Previously assessed in 2006 by SWCA as an unnamed cave within a sinkhole. During a subsequent geologic assessment by Horizon in 2014, this feature's sinkhole measured approximately 12 feet in diameter by 2.5 feet deep and dropped into an open portal about 4 feet long by 3 feet wide by 6 feet deep, with nesting black vultures within. A few semi-open drainage portals were observed along the entrance drop floor amongst rocks, soil, and cobbles. Significant air flow conductivity was noted near the entrance drop. Based on the size of the sink, presence of air flow conductivity, and the well-defined drainage portal opening, the potential for additional subgrade cave passage is very probable.

Horizon staff excavated the feature (16 feet long by 6 to 9 feet wide by 7 to 19 feet deep) in late April and early May 2024 using a backhoe with hoe ram attachment and found a small void opening (3 feet long by 1.5 feet high) about 17 feet below the surface along the west wall of the excavation floor that dropped into a low passage about 10 feet long by 6 to 8 feet wide by 2 to 3 feet high. At the end of this entrance passage, a low (1 to 2 feet high by 3 feet wide) narrow crawlway occurs for another 5 feet before entering a larger (room) extended passage about 75 feet long by 15 to 25 feet wide by 4 to 9 feet high. Horizon staff discovered several drains throughout the feature, but they were either too low or narrow to pursue.

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 in early May 2024. The floor of the feature was covered with red clay and/or white pulverite, large ceiling breakdown, scattered speleothems, and cave coral. Horizon staff surveyed and mapped the cave, which has been officially named **Das Beachcomber Cave** for identification purposes, on 13 June 2024. Plan and profile cave maps are included in this report. The cave footprint has a horseshoe-shaped configuration trending towards the west with a surveyed total length of approximately 305 feet and 30 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 less than 1 acre. 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 sinkhole/footprint of the cave.



Geologic feature SF-11 (sinkhole) before excavation, facing northeast



Geologic feature SF-11 after excavation, facing northeast



Entrance opening (~3 feet long by 1.5 feet high) about 17 feet below the surface along west wall/floor of excavated pit drop, facing northwest



View of large passage near north end of Das Beachcomber Cave with ceiling heights ranging from 2 to over 9 feet high, facing northwest



View along south-central passage of Das Beachcomber Cave with ceiling heights ranging from 2 to 5 feet high, facing south

Geologic Feature SF-13: Prior to further investigation, this feature appeared to be a sinkhole that measured approximately 10 feet in diameter by 2.5 feet deep, with a partially filled opening near its center about 1 foot long by 0.5 feet wide by 4 feet deep. No significant air flow conductivity was noted at the opening. Horizon staff excavated the feature on 23 and 24 September 2024 using a backhoe with hoe ram attachment. Excavation dimensions measured approximately 7 feet long by 2 to 4 feet wide by 10 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. This feature has been deemed non-sensitive for

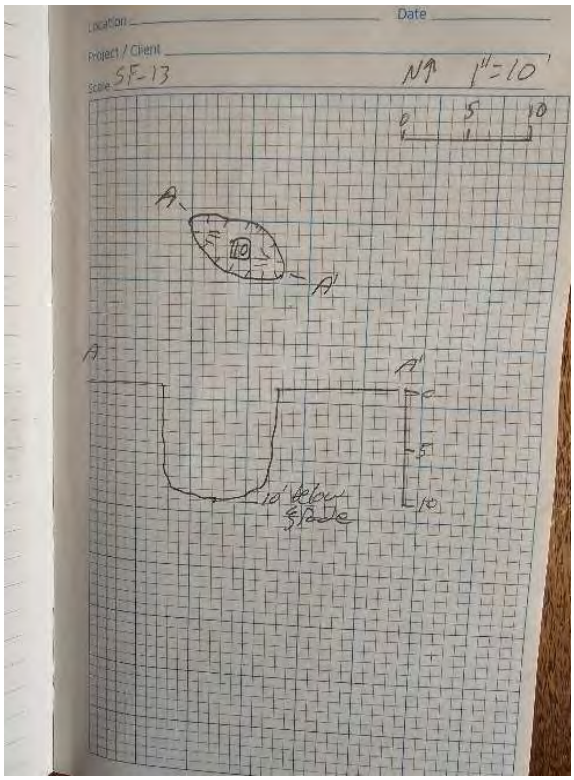
groundwater recharge capability. This feature has a low infiltration rate and a surface runoff catchment of less than 0.1 acre.



Geologic feature SF-13 (sinkhole) before excavation, facing southeast

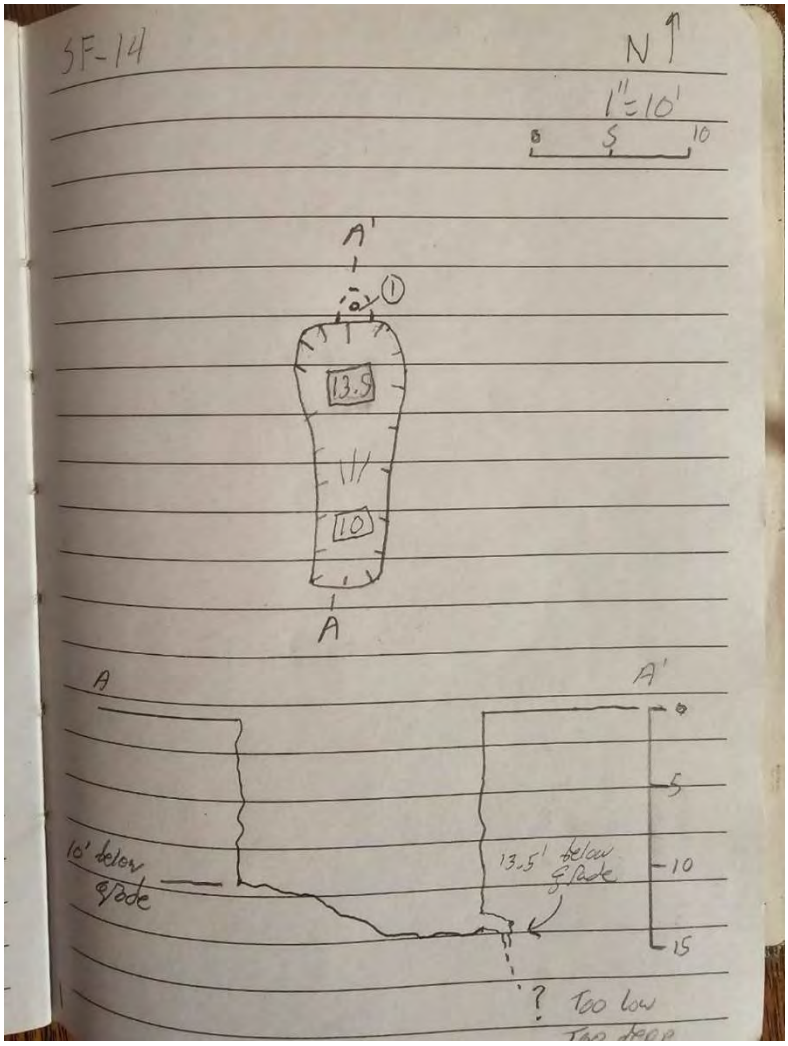


Geologic feature SF-13 after excavation, facing southeast



Sketch of SF-13

Geologic Feature SF-14: This feature was previously assessed in 2006 by SWCA as a sinkhole which measured approximately 6 feet in diameter by 1.5 feet deep, with a large boulder and several smaller boulders within the feature. Small, semi-open drainage portals were observed amongst the rocks and loose soil about 0.5 feet in diameter by 1 foot deep. No significant air flow conductivity was noted. Horizon staff excavated the feature (17 feet long by 5 to 7 feet wide by 10 to 13.5 feet deep) on 13 to 17 September 2024 using a backhoe with hoe ram attachment. Approximately 12.5 feet below the surface on the north wall of the excavation is a small void opening (2 feet wide by 1 foot high) into a heavily weathered and solutioned bedrock void that extends about 2 feet toward the north, 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 had been massively infilled over many years. 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 sinkhole/footprint of the feature. This feature has an intermediate infiltration rate and a surface runoff catchment less than 0.4 acres.



Sketch of SF-14



Geologic feature SF-14 (sinkhole) before excavation, facing south



Geologic feature SF-14 after excavation, facing north

Geologic Feature SF-15: This feature had been previously assessed by SWCA as 2 small sinkholes that were partially filled with discarded trash (barbed wire and scrap metal) (SWCA, 2006). However, the feature is 1 large sinkhole (~50 feet long by 25 feet wide by 3 feet deep) and 1 open solution cavity (~3 feet long by 1.5 feet wide by 6 feet deep) located within the sinkhole's catchment area. Near the center of the sinkhole is a partially filled trash area with an open drainage portal about 5 feet long by 3 feet wide by 4 feet deep. Slight to moderate air flow conductivity was noted amongst the trashed portal opening. The solution cavity is located about 20 feet due southeast from the lowest part of the sinkhole with some discarded trash (barbed wire and bottles). It had slight air flow conductivity, and the floor of the cavity appears to slope back towards the sinkhole drainage portal. Based on the presence of air flow conductivity and a very

well-defined sinkhole perimeter, the potential for additional subgrade passage is very probable. This feature meets the requirements to be classified as a potential cave based on it being a natural, underground, open space formed by dissolution of limestone that is large enough for an average-sized person to enter.

Horizon staff excavated the feature (20 feet long by 6 to 8 feet wide by 3 to 7 feet deep) from 3 and 6 May 2024 using a backhoe with hoe ram attachment. At approximately 7 feet below the surface, a void opening was found along the south wall about 2 feet wide by 3 feet high that appeared to extend over 30 feet toward the southeast into a slanted room about 12 to 17 feet wide by less than 1 to 5 feet high, with a few speleothems (ceiling soda straws) above large rock breakdown and soil-covered floors. A smaller passage about 4 feet wide by 2 feet high was found behind the room that extended about 20 feet toward the southwest but became too low and narrow to continue. 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 7 May 2024. The floor of the feature was covered with dark gray clayey soil, ceiling breakdown, a few speleothems, and cave coral. Horizon staff surveyed and mapped the cave, which has been officially named **Jimbo's Fissure Cave** for identification purposes, on 6 June 2024. Plan and profile cave maps are included in this report. The cave is approximately 70 feet long (south to north) and 17 feet at its widest. Interior ceiling heights within the cave range from less than 1 foot to 5 feet. This feature has a high infiltration rate and a surface runoff catchment less than 1 acre. 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 sinkhole/footprint of the cave.



Geologic feature SF-15 (sinkhole/potential cave) before excavation, facing south



Geologic feature SF-15 after excavation, facing southeast



Geologic feature SF-15 (Jimbo's Fissure Cave) interior view with large breakdown rock on floor, facing southeast



Geologic feature SF-15 (Jimbo's Fissure Cave) opposite view, facing northwest

Geologic Feature SF-16: This feature had been previously assessed by SWCA as an unnamed cave within a very large sinkhole that is rimmed with boulders and cobble debris (SWCA, 2006). This sinkhole is located within a broader drainage area that appears to drain over several (~8) acres. It measures approximately 300 feet long by 200 feet wide by 3 to 6 feet deep and funnels into a large, open vertical shaft about 10 feet in diameter by 5 feet deep that was covered with a large boulder to prevent potential entry by visitors. Along the west side of the shaft floor is an opening measuring 5 feet long by 4 to 6 feet deep that connects to an apparent low bedding plane void extending about 20 feet (north to south) by 10 feet wide by 1 to 3 feet high. Several internal open drains were observed along the floor at the lowest points of the void. Significant air flow conductivity was noted along the edges of the boulder that covers the main shaft opening.

Horizon staff removed the large boulder and excavated the feature (11 feet long by 8 feet wide by 11 feet deep) on 9, 10, and 13 May 2024 using a backhoe with hoe ram attachment. At approximately 9 feet below the surface, a low horizontal bedding plane void filled with soil, rocks, and/or wooden sticks/branches was found along the north and northwest walls about 20 to 25 feet wide by 1 to 3 feet high. About 10 feet west of the excavation, a small (1.5 feet in diameter by 3 to 6 feet deep) open drainage portal was found in the floor of the bedding plane room with significant air flow conductivity. On 14 and 15 May 2024, Horizon staff hand-excavated/enlarged the interior drainage portal down to about 7 feet and found a low horizontal open tunnel passage (~3 to 4 feet wide by less than 1 to 1 foot high) that extended over 20 feet toward the north. On 17, 21, and 22 May 2024, Horizon staff hand-excavated the floor of the tunnel passage and found a shallow pit about 4 feet long by 2 feet wide by 2.5 feet deep near the apparent end of the tunnel passage that had an additional open void passage near the floor of the pit (~4 feet wide by less than 1 to 1 foot high) that extended to the north another 15 feet with high air flow conductivity. This additional tunnel passage had a clean-washed rock floor with some infilled soil, sticks, and

rocks further ahead. Exploration was terminated at this point due to the constrictive size of the additional passage. Of note, large amounts of surface water inflow appear to have scoured this explored area of the feature and additional passage is most likely.

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 14, 15, 17, 21, and 22 May 2024. The floor of the feature was covered with dark gray clay, wooden debris (sticks, logs), small ceiling breakdown, and a few speleothems. Horizon staff surveyed and mapped the cave, which has been officially named **Santa Rita Sink Cave** for identification purposes, on 15 May and 10 June 2024. Plan and profile cave maps are included in this report. The cave is approximately 60 feet long (south to north) and 35 feet at its widest. Interior ceiling heights within the cave range from less than 1 foot to 6 feet. This feature has a very high infiltration rate and a surface runoff catchment greater than 8 acres. This feature has been deemed highly sensitive for groundwater recharge and therefore has a TCEQ (upslope) setback buffer of 200 feet surrounding the entire perimeter of the sinkhole, which includes the footprint of the cave.



Geologic feature SF-16 (very large sinkhole/cave) before excavation, facing east



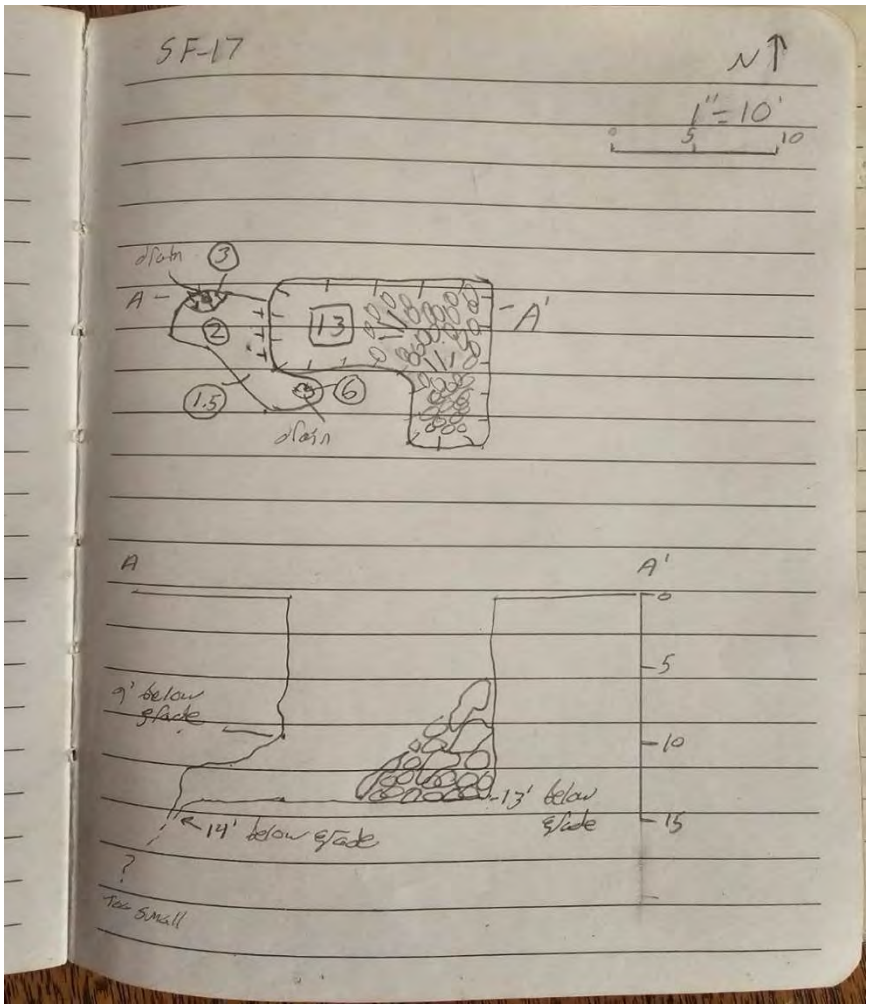
Geologic feature SF-16 after excavation, facing east



Geologic feature SF-16 (Santa Rita Sink Cave) interior view (station no. 1) of low, highly scoured room along northwestern wall of excavation, facing west

Geologic Feature SF-17: This feature has been previously assessed by SWCA as a non-karst closed depression (SWCA, 2006). However, an open drainage portal about 0.3 feet in diameter by 1 foot deep was observed within the loose leaves and soil/rock at its lowest point. This feature is identified as a sinkhole about 20 feet in diameter by 3 feet deep, with an apparent drainage portal. No significant air flow conductivity was noted at the opening. Horizon staff excavated the feature (13 feet long by 6 to 11 feet wide by 6 to 13 feet deep) on 18 to 23 September 2024 using a backhoe with hoe ram attachment. Approximately 9 feet below the surface on the west wall of the excavation is a void opening (4 feet wide by 1.5 to 2 feet high) into a heavily weathered and solutioned bedrock void that extends about 6 feet towards the west and

4 feet towards the south. Two very narrow drains occur at either end of the void that became too narrow to observe further. The floor of the feature was covered with thin layers of loose soil/clay that had been massively infilled over many years. 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 sinkhole/footprint of the feature. This feature has an intermediate infiltration rate and a surface runoff catchment less than 0.4 acres.



Sketch of SF-17



Geologic feature SF-17 (sinkhole) before excavation, facing north



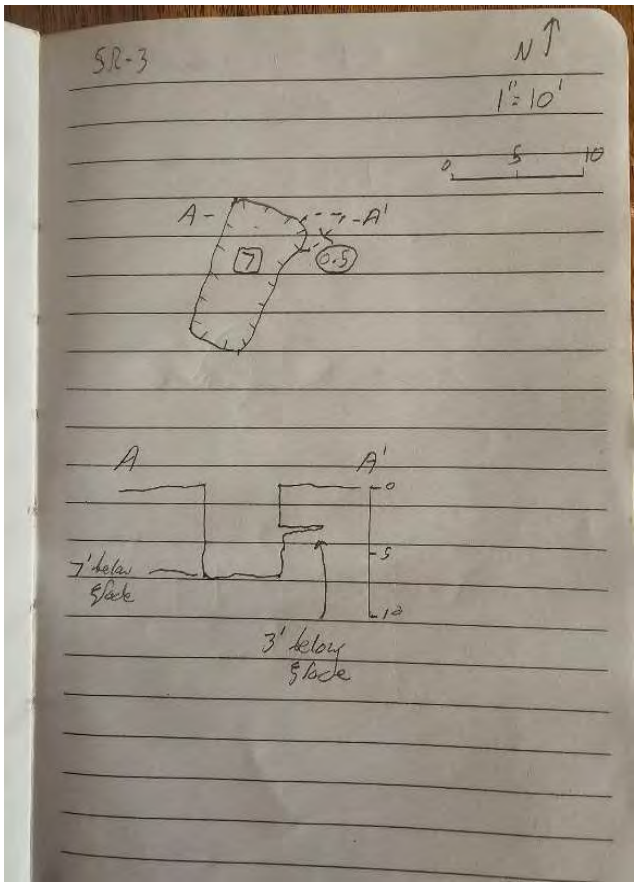
Geologic feature SF-17 after excavation, facing west

Geologic Feature SF-18: This feature has been previously assessed by SWCA as a solution cavity (SWCA, 2006). It measures approximately 1.5 feet in diameter by 1 foot deep and is located within an exposed slab of limestone about 4 feet by 4 feet. No drainage portals or air flow conductivity were observed along the firm, clay-filled floor. The feature appears to be epikarstic due to surficial weathering processes. 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.

Geologic Feature SF-19: This feature has been previously assessed by SWCA as a sinkhole that has large boulders slumping into it that may have been the result of past ranching activities such as land clearing (SWCA, 2006). It measures approximately 15 feet long by 12 feet wide by 3 feet deep, with several semi-open drainage portals around apparent infilled (bladed)

rocks and boulders. No significant air flow conductivity was noted. This feature has been deemed sensitive for groundwater recharge and therefore has a TCEQ buffer of less than 200 feet upslope (to existing property boundary/Tower Road right-of-way) and 50 feet downslope surrounding the sinkhole of the feature. This feature has an intermediate infiltration rate and an apparent surface runoff catchment less than 0.4 acres.

Geologic Feature SR-3: Prior to further investigation, this feature appeared to be a small upland sinkhole located between 2 live oak trees, measuring approximately 6 feet in diameter by 1 foot deep, with an open drainage portal amongst loose rocks and soil. This feature was lightly excavated, revealing a portal about 0.5 feet in diameter by 1 foot deep with no significant air flow conductivity. Probing with a steel rod encountered loose clay soil and cobbles about 2 feet down below the feature's floor. Horizon staff excavated the feature on 7 September 2024 using a backhoe with hoe ram attachment. Excavation dimensions measured approximately 10 feet long by 4 to 6 feet wide by 7 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 of the feature. At only 3 feet below the surface along the northeast wall was a very low bedding plane void (2 feet wide by <0.5 feet high) that extended only 3 feet towards the east before pinching off. This feature has been deemed non-sensitive for groundwater recharge capability. This feature has a low infiltration rate and a surface runoff catchment of less than 0.1 acre.



Sketch of SR-3



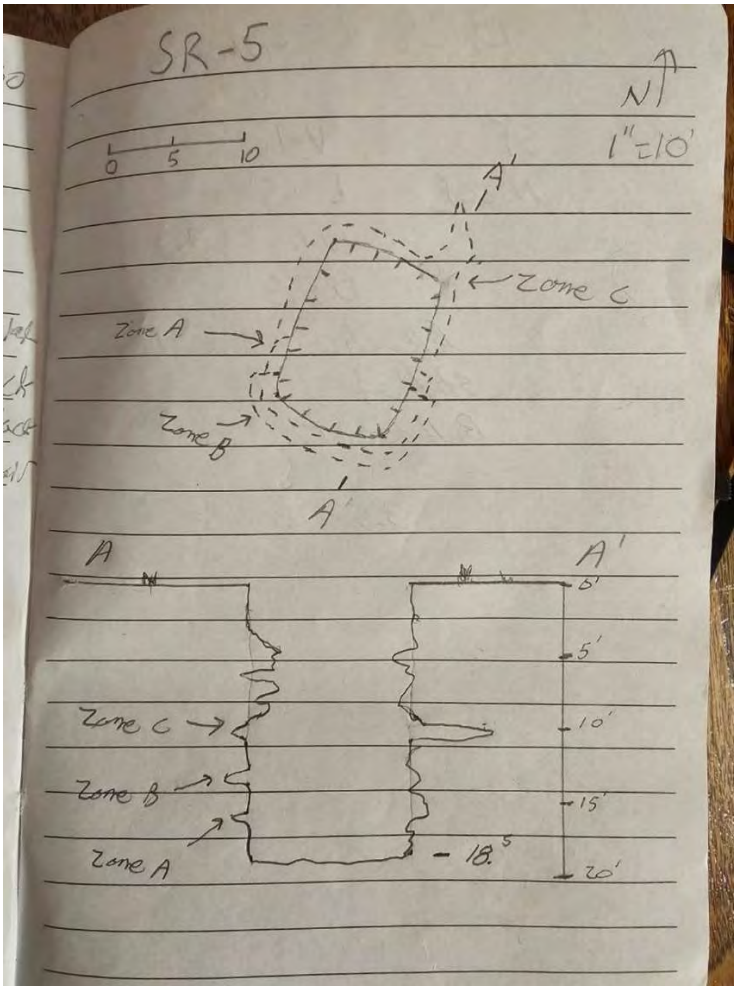
Geologic feature SR-3 (sinkhole) before excavation, facing north



Geologic feature SR-3 after excavation, facing north

Geologic Feature SR-5: Two solution cavities spaced about 8 feet apart in an open area near a cactus patch. Both cavities measure approximately 1 foot in diameter by 1 to 1.5 feet deep. Significant air flow conductivity was noted at the openings. Probing with a steel rod encountered loose cobbles and soil about 2 feet below the feature's floor. Horizon staff excavated the feature (12 feet long by 8 feet wide by 18.5 feet deep) on 24 to 26 April 2024 using a backhoe with hoe ram attachment. Starting from 6 feet down to 16 feet below the surface there were 3 separate zones (A, B, C) of open bedding plane voids along each wall of the excavation. No voids were found on the floor of the feature. The largest bedding plane zone (C) occurs about 10 feet below the surface and had a void opening (2 feet wide by 1 foot high) that extends about 6 feet

toward the northeast, where it appeared to pinch off. The floor of the feature was covered with thin layers of loose soil/clay that had been massively infilled over many years. 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 sinkhole/footprint of the feature. This feature has an intermediate infiltration rate and an apparent surface runoff catchment less than 0.4 acres.



Sketch of SR-5



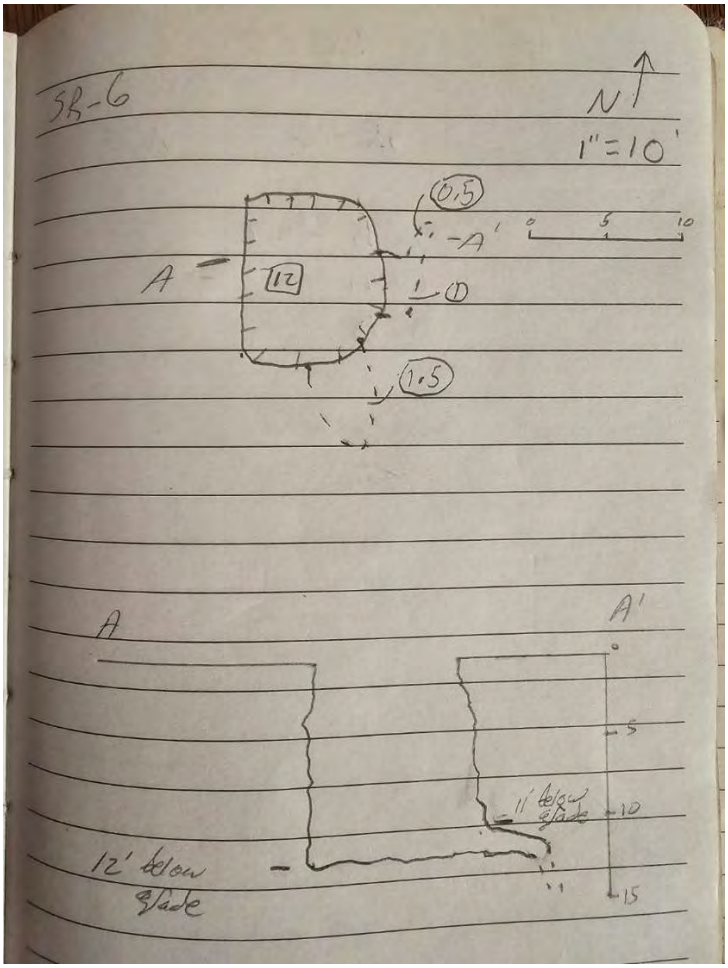
Geologic feature SR-5 (solution cavities) before excavation, facing southwest



Geologic feature SR-5 after excavation, facing northeast

Geologic Feature SR-6: Solution cavity near a cedar elm tree, measuring approximately 0.5 feet in diameter by 1.5 feet deep. Significant air flow conductivity was noted. Probing with a steel rod encountered loose soil and rocks about 2.5 feet below the feature's floor. Horizon staff excavated the feature (12 feet long by 8 to 10 feet wide by 12 feet deep) on 18, 20, and 23 April 2024 using a backhoe with hoe ram attachment. At approximately 11.5 feet below the surface there were 2 bedding plane voids along the east and south walls of the excavation. No voids were found on the floor of the feature. The eastern void (4 feet wide by 1.5 foot high) extends about 3 feet towards the east, where it appears to turn to north and drop into a narrow drain too tight to follow. The southern void (4 feet wide by 1.5 feet high) extends about 6 feet towards the south, where it appears to pinch off. The floor of the feature was covered with thin layers of loose soil/clay that had been massively infilled over many years. 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 sinkhole/footprint of the feature. This feature has an intermediate infiltration rate and an apparent surface runoff catchment less than 0.4 acres.



Sketch of SR-6



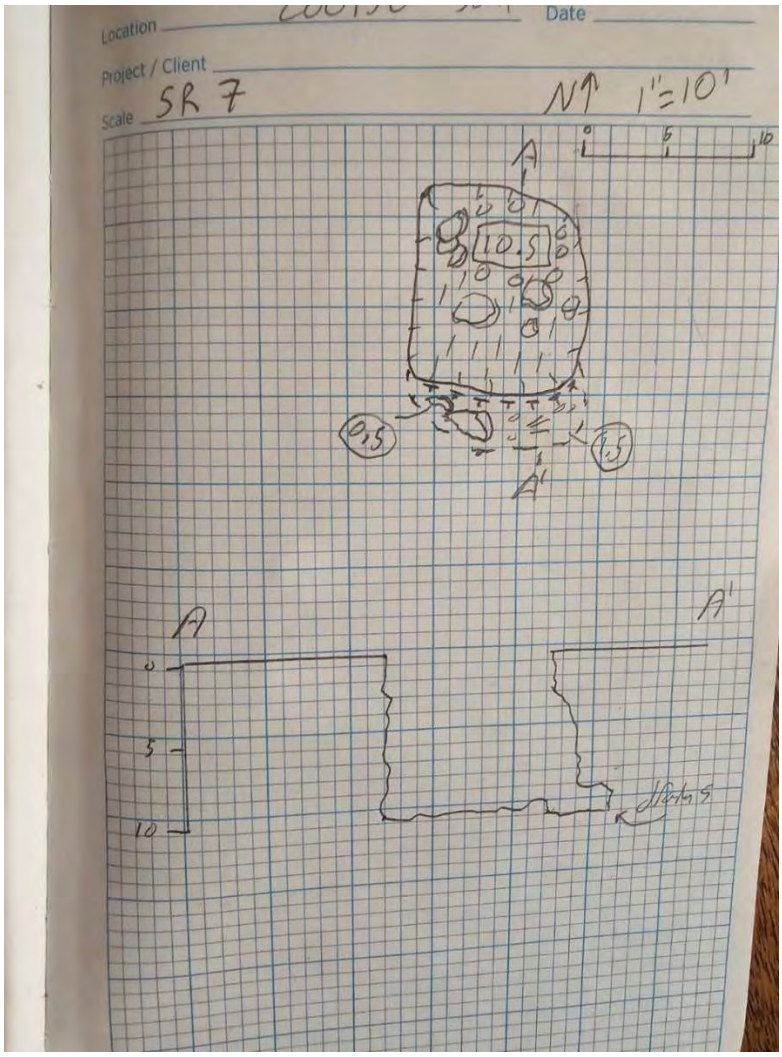
Geologic feature SR-6 (solution cavity) before excavation, facing south



Geologic feature SR-6 after excavation, facing east

Geologic Feature SR-7: Small, upland sinkhole measuring approximately 5 feet in diameter by 1 foot deep, located under a cluster of live oak trees, with a semi-open drainage portal about 0.5 feet in diameter by 1.5 feet deep. No significant air flow conductivity was noted. Probing with a steel rod encountered loose leaves, cobbles, and soil about 2.5 feet below the feature's floor. Horizon staff excavated the feature (12 feet long by 10 feet wide by 10.5 feet deep) on 10 and 11 September 2024 using a backhoe with hoe ram attachment. At approximately 8 feet below the surface there was 1 bedding plane void along the south wall of the excavation. No voids were found on the floor of the feature. This void (8 feet wide by 0.5 to 1.5 feet high) extends about 3 feet towards the south, where it appears to drop into very small drains too small to follow. The floor of the feature was covered with thin layers of loose soil/clay that had been

massively infilled over many years. This feature has been deemed sensitive for groundwater recharge capability and therefore has a TCEQ buffer of 200 feet upslope and 50 feet downslope surrounding the sinkhole/footprint of the feature. This feature has an intermediate infiltration rate and a surface runoff catchment of less than 0.4 acres.



Sketch of SR-7



Geologic feature SR-7 (sinkhole) before excavation, facing southeast



Geologic feature SR-7 after excavation, facing southeast

Geologic Feature SR-8: Two solution cavities spaced about 3 feet apart next to a cedar elm tree. The larger cavity measures approximately 0.5 feet in diameter by 1 foot deep and the smaller cavity measures 0.2 feet in diameter by 0.5 feet deep. No significant air flow conductivity was noted at the openings. Probing with a steel rod encountered loose cobbles and soil about 2 feet below the feature's floor. 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 feature. This feature has an intermediate infiltration rate and a surface runoff catchment of less than 0.4 acres.



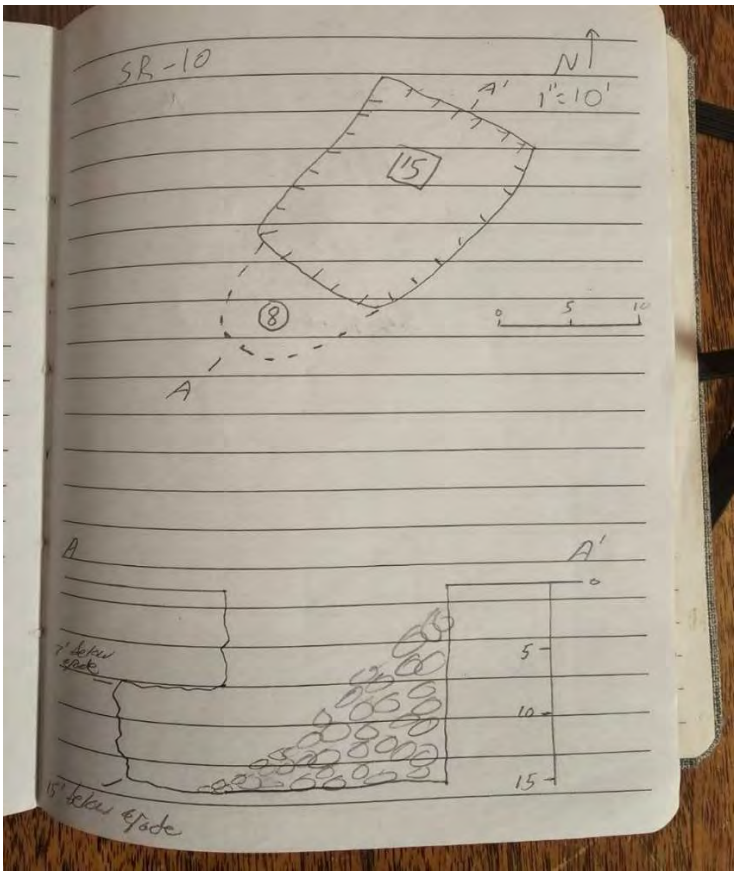
View of geologic feature SR-8 (2 closely spaced solution cavities), facing east

Geologic Feature SR-9: Small, upland sinkhole measuring approximately 6 feet long by 4 feet wide by 1 foot deep, with an open solution cavity drainage portal near the center about 1.5 feet long by 1 foot wide by 2.5 feet deep. No significant air flow conductivity was noted. Probing with a steel rod encountered loose leaves, cobbles, and soil about 3.5 feet below the feature's floor. 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 feature. This feature has an intermediate infiltration rate and a surface runoff catchment of less than 0.4 acres.



View of geologic feature SR-9 (sinkhole), facing south

Geologic Feature SR-10: Large upland sinkhole located near a persimmon tree thicket that measures approximately 18 feet long by 15 feet wide by 3 feet deep, with 1 open drainage portal (0.5 feet in diameter by 1 foot deep) located along its rock/clay floor. Significant air flow conductivity was noted at the opening. Probing with a steel rod encountered loose soil and cobbles about 2 feet below the feature's floor. Horizon staff excavated the feature (15 feet long by 12 feet wide by 5 to 15 feet deep) on 1 and 2 May 2024 using a backhoe with hoe ram attachment. At approximately 7 feet below the surface there was 1 bedding plane void along the southwest wall of the excavation. No voids were found on the floor of the feature. This void (8 feet wide by 8 feet high) extends about 7 feet towards the southwest, where it appears to drop into very small drains too small to follow. The floor of the feature was covered with thin layers of loose soil/clay that had been massively infilled over many years. 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 sinkhole/footprint of the feature. This feature has an intermediate infiltration rate and a surface runoff catchment of less than 0.4 acres.



Sketch of SR-10



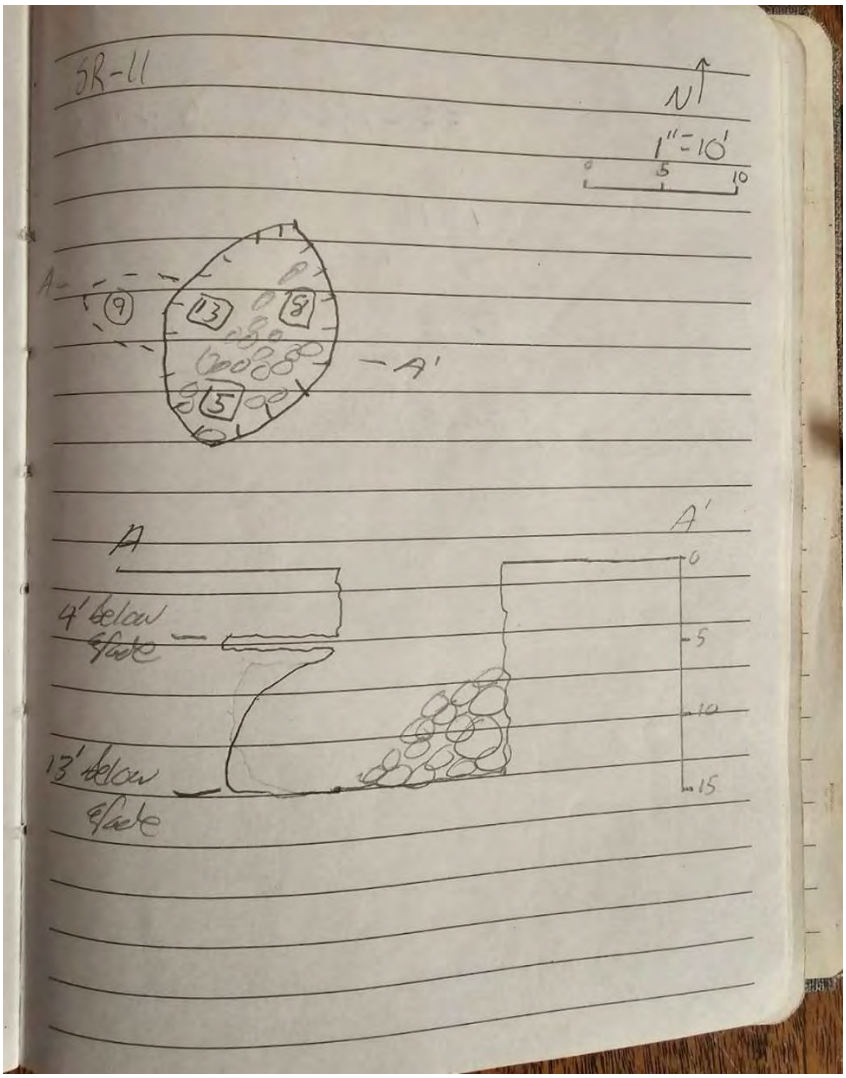
Geologic feature SR-10 (sinkhole) before excavation, facing southwest



Geologic feature SR-10 after excavation, facing southwest

Geologic Feature SR-11: Solution cavity located near live oak trees and cactus patch. A large rock covering the cavity was removed to facilitate inspection. This feature measures approximately 2 feet long by 1.5 feet wide by 2.5 feet deep, with significant air flow conductivity. Probing with a steel rod encountered loose soil and rocks about 4 feet below the feature's floor. Horizon staff excavated the feature (15 feet long by 7 to 11 feet wide by 5 to 13 feet deep) on 4 and 5 April 2024 using a backhoe with hoe ram attachment. At approximately 4 feet below the surface there was 1 bedding plane void (2 feet wide by <1 foot high) and a larger void below (4 feet wide by 9 feet high) along the west wall of the excavation. No voids were found on the floor of the feature. Both of these extend about 7 feet towards the west and appeared to pinch off. The floor of the feature was covered with thin layers of loose soil/clay that had been massively infilled

over many years. 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 feature. This feature has an intermediate infiltration rate and a surface runoff catchment of less than 0.4 acres.



Sketch of SR-11



Geologic feature SR-11 (solution cavity) before excavation, facing northeast



Geologic feature SR-11 after excavation, facing west

Geologic Feature SR-12: Upland sinkhole measuring approximately 10 feet long by 7 feet wide by 2 feet deep, with open drainage portals near the center amongst loose cobbles and soil. Significant air flow conductivity was noted. Probing with a steel rod encountered loose cobbles and soil about 3.5 feet below the feature's floor. Horizon staff excavated the feature (15 feet long by 9 to 10 feet wide by 3 to 11 feet deep) from 28 and 29 May 2024 using a backhoe with hoe ram attachment. At approximately 11 feet below the surface, a very low void opening was found along the north wall about 2.5 feet wide by less than 1 foot high that appeared to extend about 12 feet toward the northwest into a low soil-covered room about 12 feet wide by less than 1 to 2 feet high, with very narrow and low drains along the northwest side. After hand-excavating the entrance void tunnel and entering the low room, a higher dome-type passage (10 feet long by

2 to 3 feet wide by 2 to 6 feet high) was found to the northeast. The floor of the feature was covered with dark gray clayey soil, ceiling breakdown, a few speleothems, and cave coral.

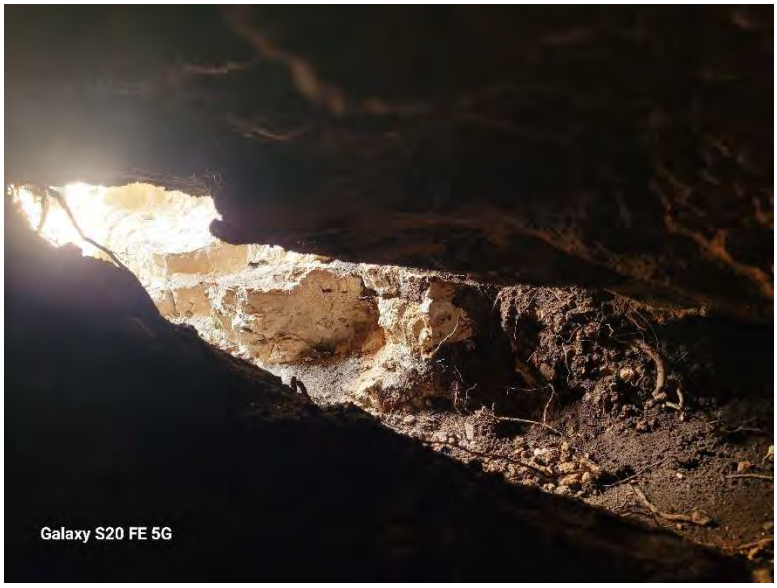
This feature is classified as a **cave** based on it being a natural underground open space formed by the dissolution of limestone that is large enough for an average-sized person to enter. Horizon staff performed hand excavation and exploration of the cave on 29 May 2024. The floor of the feature was covered with dark gray clayey soil, ceiling breakdown, cave coral, and a few inactive speleothems. Horizon staff surveyed and mapped the cave, which has been officially named **Miserable Midget Cave** for identification purposes, on 10 June 2024. Plan and profile cave maps are included in this report. The cave is approximately 25 feet long (southwest to northeast) and 12 feet at its widest. Interior ceiling heights within the cave range from less than 1 foot to 6 feet. 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 sinkhole/footprint of the cave. This feature has an intermediate to high infiltration rate and a surface runoff catchment of less than 0.4 acres.



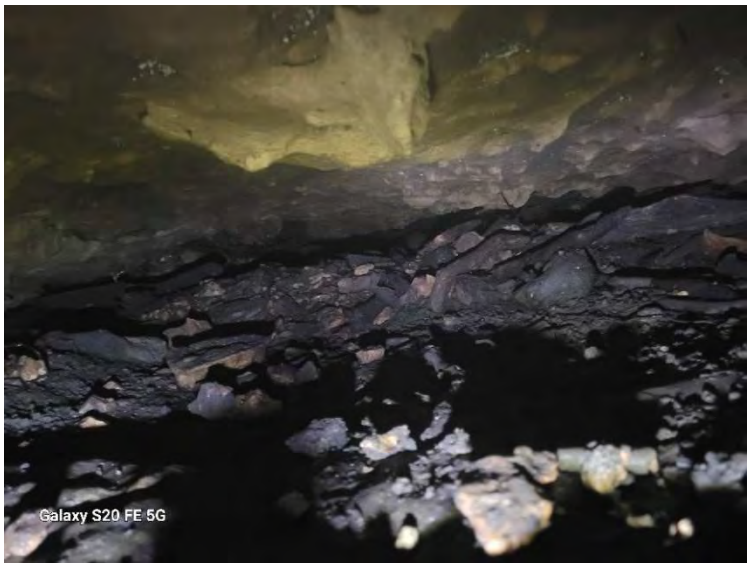
Geologic feature SR-12 (sinkhole) before excavation, facing southeast



Geologic feature SR-12 after excavation, facing north

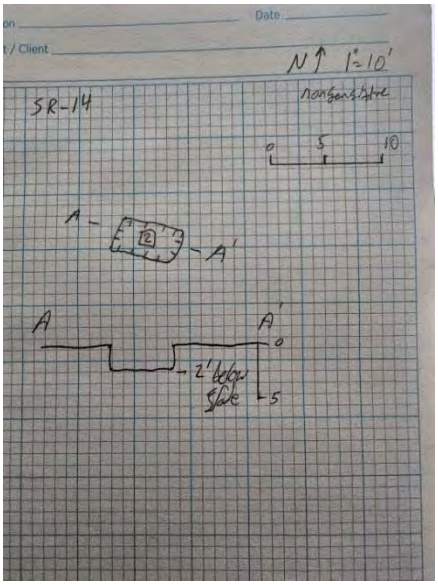


Geologic feature SR-12 (Miserable Midget Cave) interior view back towards the entrance, facing southwest



Geologic feature SR-12 (Miserable Midget Cave) opposite interior view, facing north

Geologic Feature SR-14: Small, upland sinkhole measuring approximately 6 feet long by 4 feet wide by 2.5 feet deep, with a semi-open drainage portal near the center about 0.5 feet in diameter by 1 foot deep. No significant air flow conductivity was noted. Probing with a steel rod encountered firm soil and cobbles about 3 feet below the feature's floor. Horizon staff excavated the feature on 5 September 2024 using a backhoe with hoe ram attachment. Excavation dimensions measured approximately 8 feet long by 6 feet wide by 7 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 low infiltration rate and a surface runoff catchment of less than 0.1 acre.



Sketch of SR-14



Geologic feature SR-14 (sinkhole) before excavation, facing south

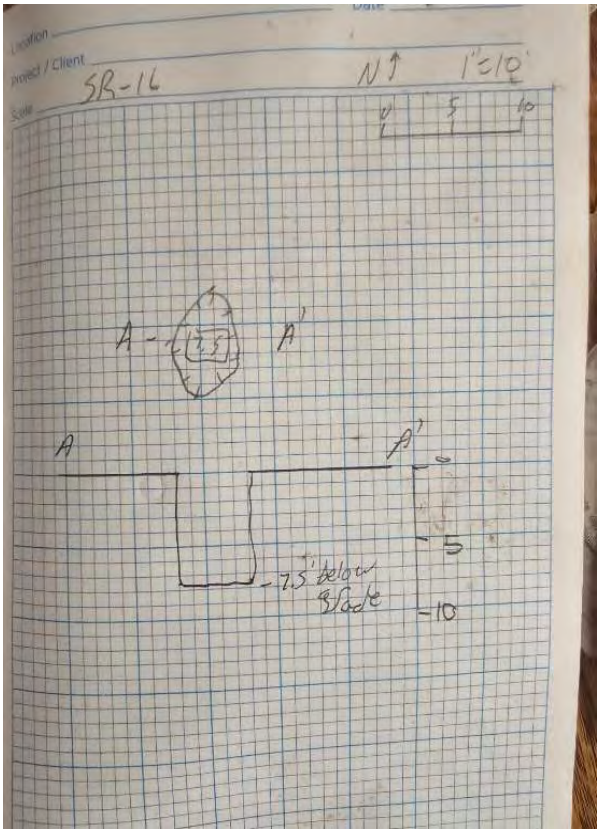


Geologic feature SR-14 after excavation, facing south

Geologic Feature SR-16: Prior to further investigation, this feature appeared to be a solution cavity measuring approximately 1.3 feet long by 0.8 feet wide by 4.5 feet deep within a very small rock sink (3 feet in diameter by 1 foot deep). No significant air flow conductivity was noted. Probing with a steel rod encountered loose soil and rocks about 5 feet below the feature's floor. Horizon staff excavated the feature on 9, 10, and 17 May 2024 using a backhoe with hoe ram attachment. Excavation dimensions measured approximately 7 feet long by 3 to 5 feet wide by 7.5 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. This feature has been deemed non-sensitive for groundwater recharge capability. This feature has a low infiltration rate and a surface runoff catchment of less than 0.1 acre.



Geologic feature SR-16 (solution cavity) before excavation, facing north

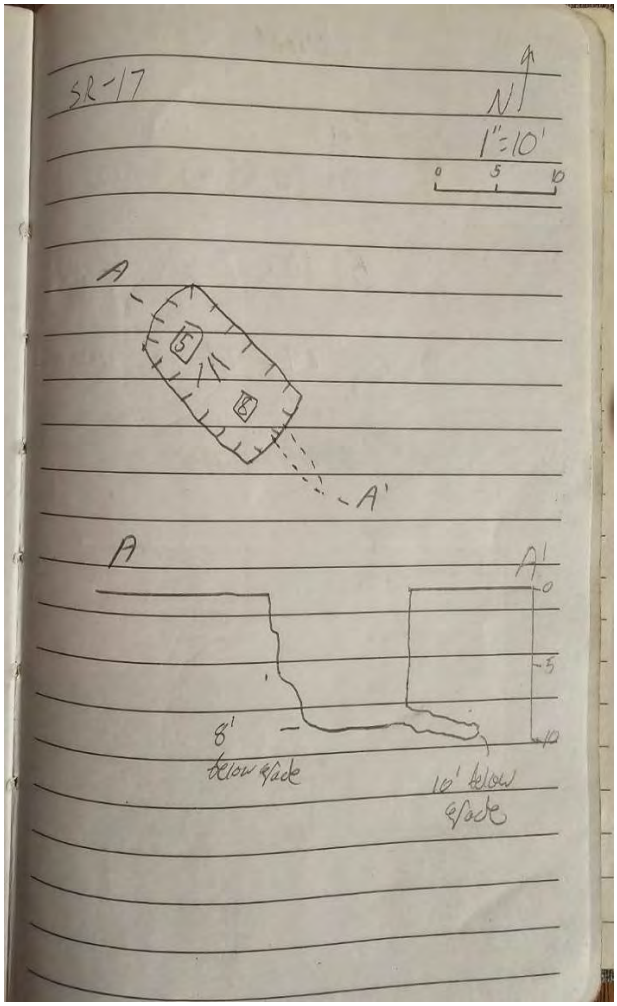


Sketch of SR-16



Geologic feature SR-16 after excavation, facing north

Geologic Feature SR-17: Solution cavity that measures approximately 1.5 feet long by 1 foot wide by 3.5 feet deep within a very small rock sink (3 feet in diameter by 1 foot deep). Significant air flow conductivity was noted. Probing with a steel rod encountered loose soil and rocks about 4.5 feet below the feature's floor. Horizon staff excavated the feature on 30 May and 2 to 3 June 2024 using a backhoe with hoe ram attachment. Excavation dimensions measured approximately 13 feet long by 5 to 7 feet wide by 5 to 8 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 of the feature. A narrow void (~1.5 foot wide by 1 foot high) was found along the southeast wall of the excavation about 7 feet below the surface that extended about 5 feet southeast before pinching off. 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 feature. This feature has an intermediate infiltration rate and a surface runoff catchment of less than 0.4 acres.



Sketch of SR-17



Geologic feature SR-17 (solution cavity) before excavation, facing south



Geologic feature SR-17 after excavation, facing southeast

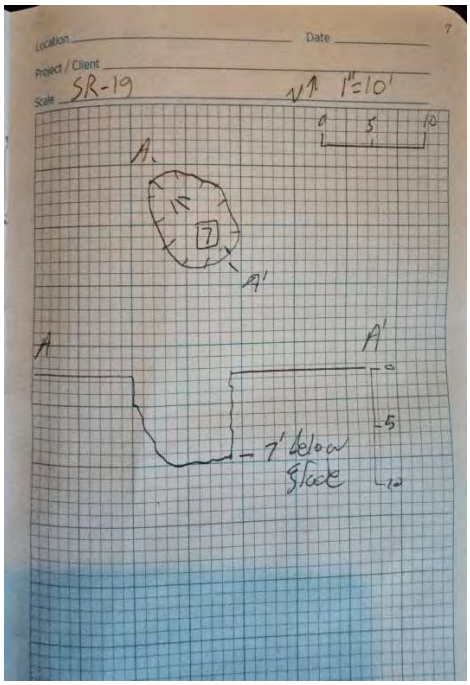
Geologic Feature SR-19: Solution cavity measuring approximately 3 feet long by 1.5 feet wide by 1.5 feet deep, with semi-open drainage portals amongst loose clay soil and rocks. No significant air flow conductivity was noted. Probing with a steel rod encountered loose soil and rocks about 2 feet below the feature's floor. Horizon staff excavated the feature on 8 and 9 October 2024 using a backhoe with hoe ram attachment. Excavation dimensions measured approximately 8 feet long by 6 feet wide by 7 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 low infiltration rate and a surface runoff catchment of less than 0.1 acre.



Geologic feature SR-19 (solution cavity) before excavation, facing south



Geologic feature SR-19 after excavation, facing south

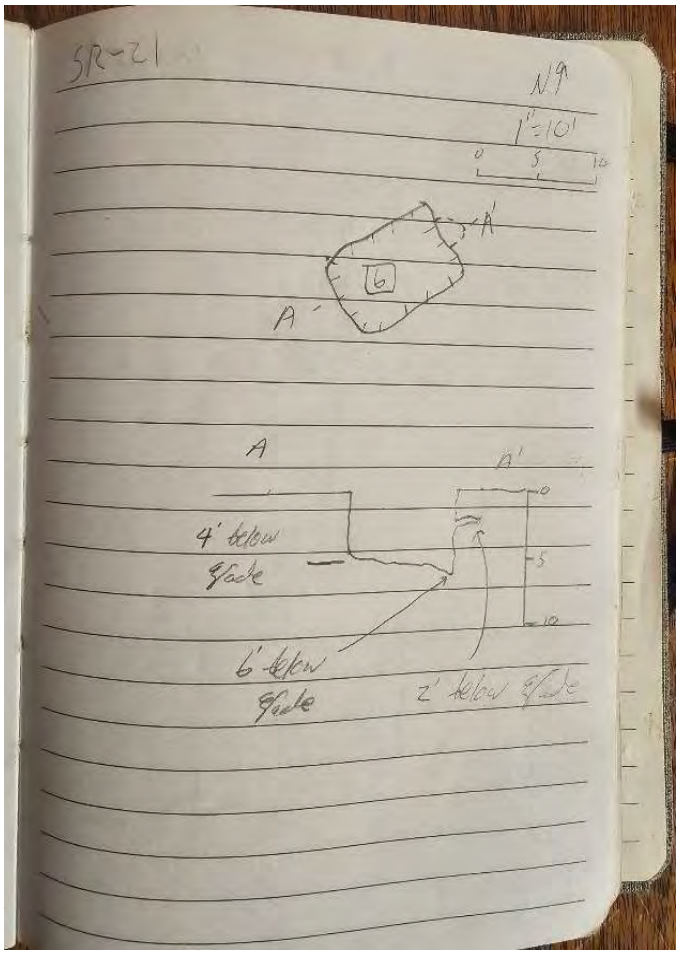


Sketch of SR-19

Geologic Feature SR-20: Mapped normal (inactive) fault located in Santa Rita North within the Edwards Aquifer Contributing Zone. This feature has an apparent low infiltration rate and is not located in the Recharge Zone of the Edwards Aquifer; therefore, it is a non-sensitive feature that would not require protective measures.

Geologic Feature SR-21: Prior to further investigation, this feature appeared to be a solution cavity measuring approximately 2 feet long by 1 foot wide by 2.5 feet deep, with semi-open drainage portals amongst loose clay soil and rocks. No significant air flow conductivity was

noted. Probing with a steel rod encountered loose soil and rocks about 3 feet below the feature's floor. Horizon staff excavated the feature on 17 to 18 September 2024 using a backhoe with hoe ram attachment. Excavation dimensions measured approximately 10 feet long by 7 feet wide by 6 feet deep. After mechanical excavation, Horizon probed the floor of the feature with a steel rod and no portals and/or voids were discovered in the floor of the feature. However, along the northeast wall about 2 feet below the surface was a small void pocket about 3 feet wide by less than 0.5 feet high that extended about 2 feet toward the northeast before pinching off. This feature has been deemed non-sensitive for groundwater recharge capability. This feature has a low infiltration rate and a surface runoff catchment of less than 0.1 acre.



Sketch of SR-21



Geologic feature SR-21 (solution cavity) before excavation, facing northwest



Geologic feature SR-21 after excavation, facing northeast

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

Fifteen geologic features (SF-11, SF-14, SF-15, SF-16, SF-17, SF-19, SR-5 to SR-12, and SR-17) have been deemed 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 4 features (SF-11 [Das Beachcomber Cave], SF-15 [Jimbos Fissure Cave], SF-16 [Santa Rita Sink Cave], and SR-12 [Miserable Midget 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.

Nine geologic features (C-6, SF-13, SF-18, SR-3, SR-14, SR-16, SR-19, SR-20 [inactive fault], and SR-21) 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.

Additionally, no springs were identified within the Recharge Zone of the subject site that would require protection or mitigation pursuant to the City of Georgetown Edwards Aquifer Recharge Zone Water Quality Ordinance No. 2013-59. However, several streams were identified within the Recharge Zone of the subject site that would require protection per the City of Georgetown's ordinance.

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 most of 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

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

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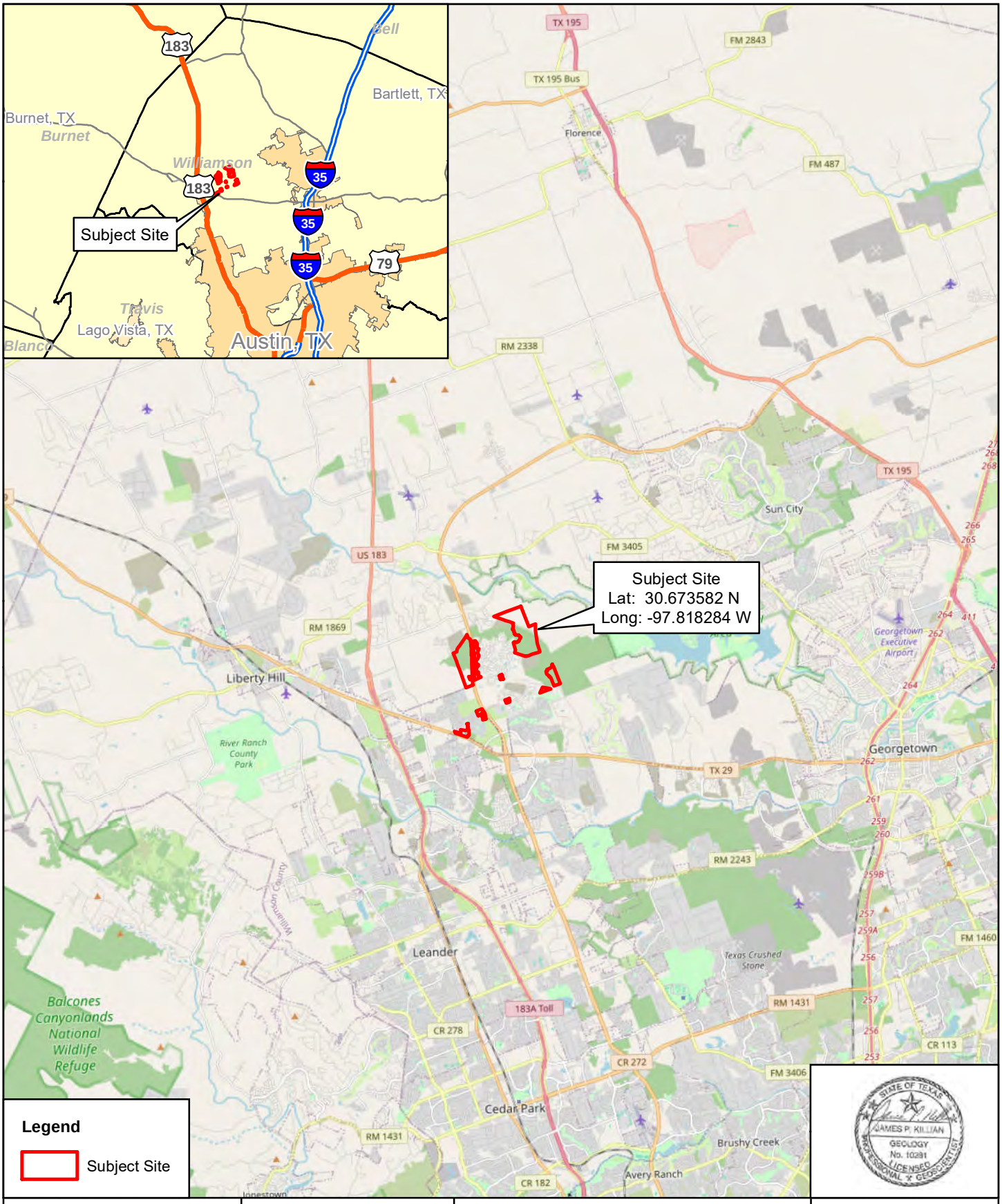
(UT-BEG) University of Texas Bureau of Economic Geology, Geologic Atlas of Texas Austin Sheet, Francis Luther Whitney Memorial Edition. C.V. Proctor, Jr., T.E. Brown, J.H. McGowen, and N.B. Waechter. 1974. Reprinted 1995.

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ATTACHMENT F

ADDITIONAL SITE MAPS



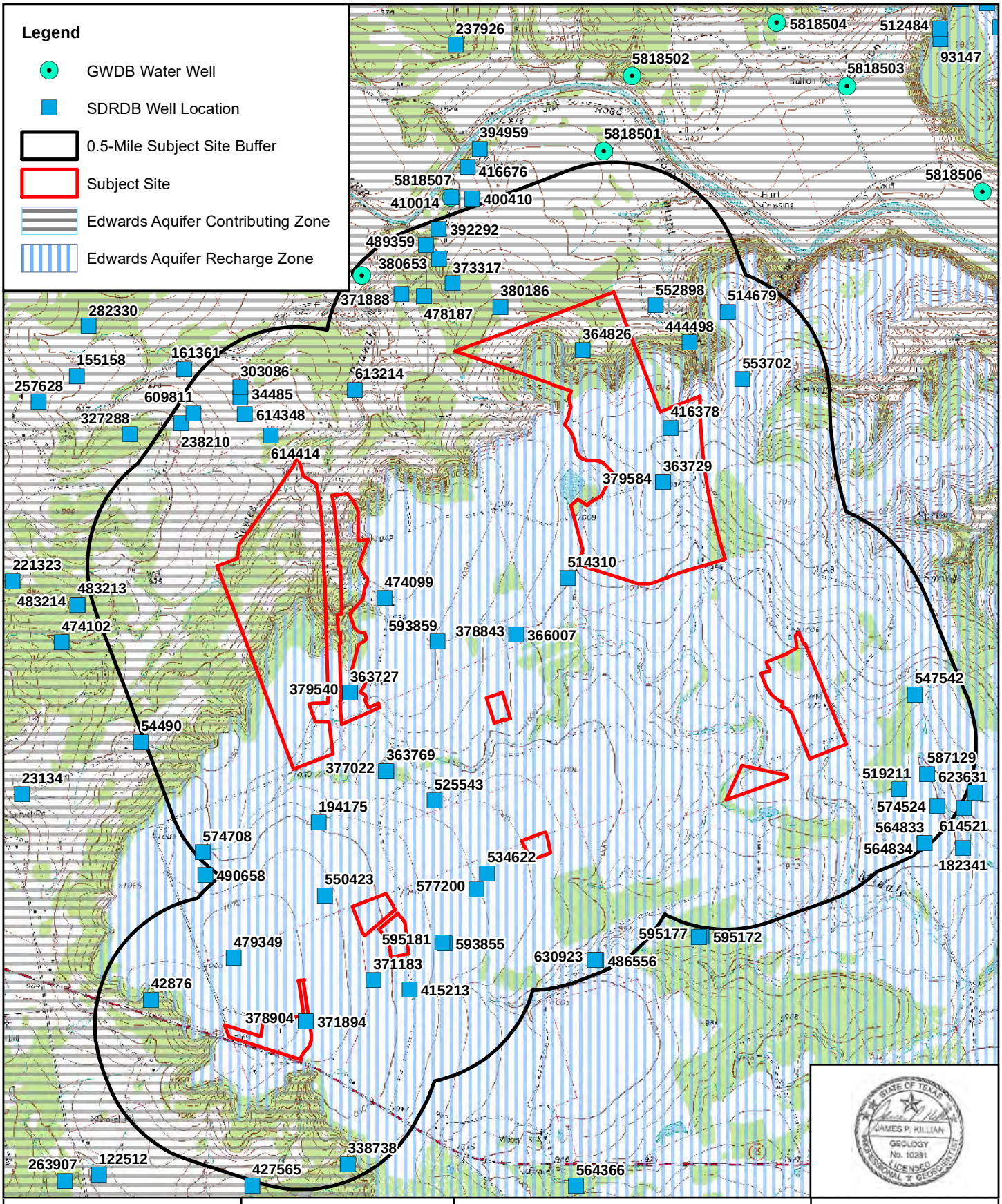
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Source:	OSM, 2025

Attachment F, Figure 1

Vicinity Map
Santa Rita Ranch
10 Tracts
Georgetown, Williamson County, Texas

0 1.5 3
Miles

200130 - Santa Rita Ranch\Graphics\GA_Maps\200130-013GA_01A_Vicinity



Horizon Environmental Services

Date:	06/16/2025
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HJN NO:	200130 GA
Source:	TCEQ, 2025; TWDB, 2025; USGS, 1976

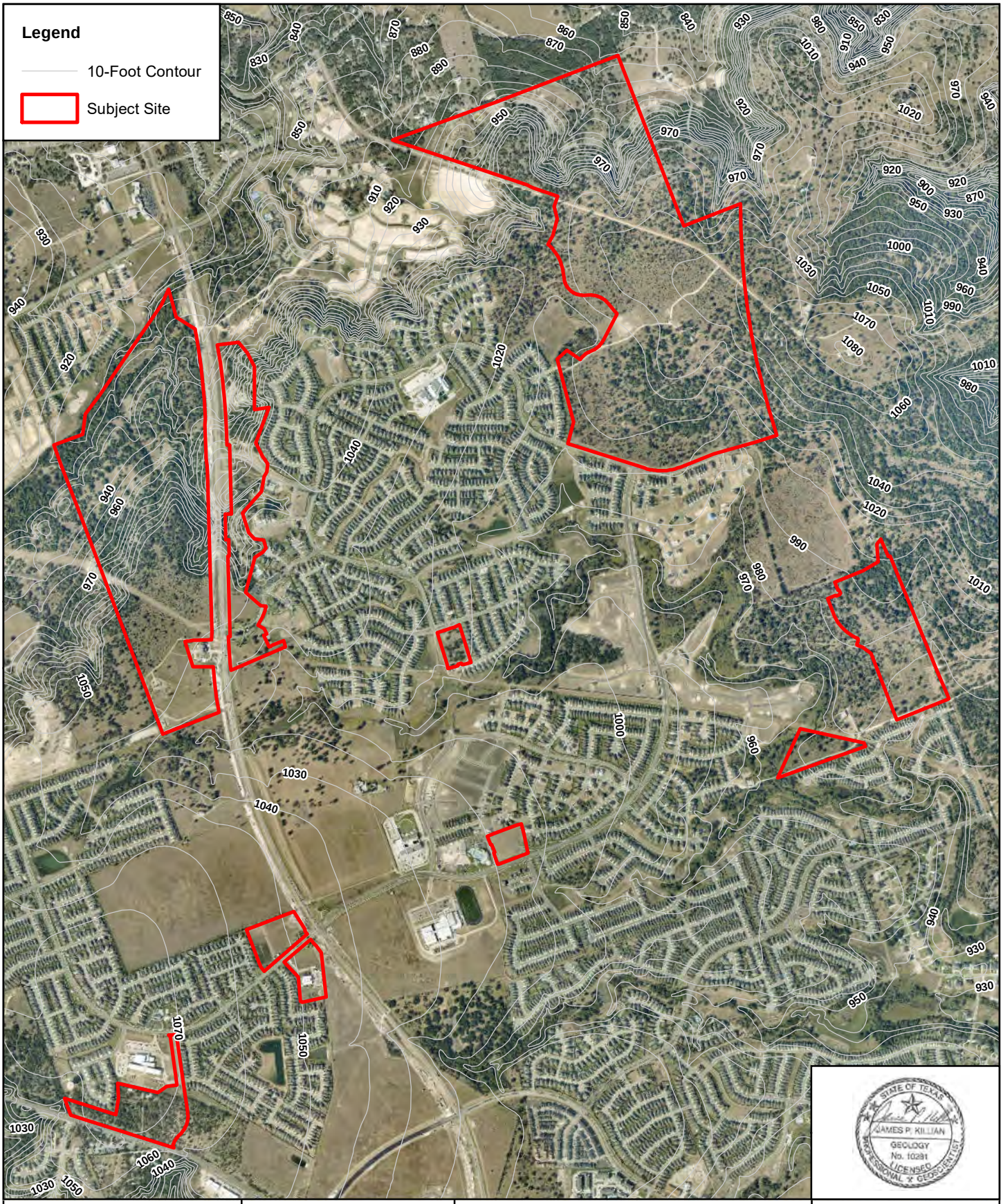
Attachment F, Figure 2

Topography and Hydrogeology Map
Santa Rita Ranch
10 Tracts
Georgetown, Williamson County, Texas

N

0 1,350 2,700
Feet

200130 - Santa Rita Ranch\Graphics\GA_Maps\200130-001GA_02A_TopoHydro



Date:	06/16/2025
Drawn:	KRW
HJN NO:	200130 GA
Source:	CAPCOG, 2015; Esri, 2024

Attachment F, Figure 3

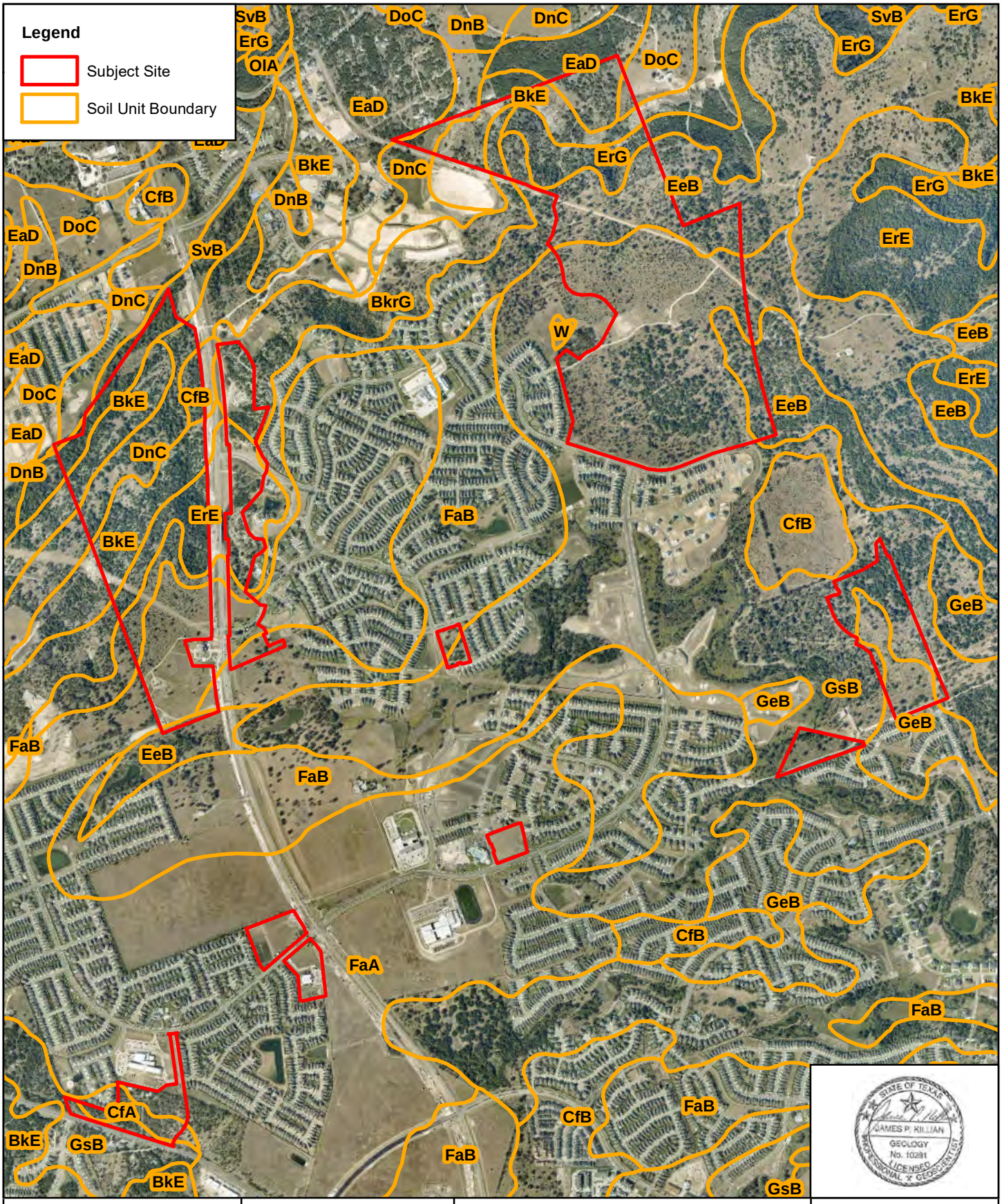
Site Topography Map
Santa Rita Ranch
10 Tracts
Georgetown, Williamson County, Texas

0 950 1,900
Feet

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

Horizon Environmental Services

200130 - Santa Rita Ranch\Graphics\GA_Maps\200130-001GA_03A_Topo



Horizon Environmental Services

Date:	06/16/2025
Drawn:	KRW
HJN NO:	200130 GA
Source:	Esri, 2024; NRCS, 2025

Attachment F, Figure 4

Site Soil Map
Santa Rita Ranch
10 Tracts
Georgetown, Williamson County, Texas

N

0 950 1,900
Feet

200130 - Santa Rita Ranch\Graphics\GA_Maps\200130-001GA_04A_Soil



Horizon™ Environmental Services

Date:	07/07/2025
Drawn:	KRW
HJN NO:	200130.013 GA
Source:	Esri, 2024; TWSC, 2014

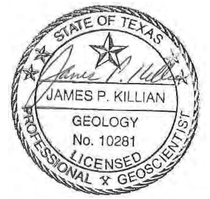
Legend

- Cave
- Man-Made Feature
- Non-Sensitive Geologic Feature
- Sensitive Geologic Feature
- Fault
- Cave Footprint
- Sinkhole
- Subject Site
- TCEQ Buffer Area

Attachment F, Figure 5

Geologic Feature Buffer Map
Santa Rita Ranch
10 Tracts
Georgetown, Williamson County, Texas

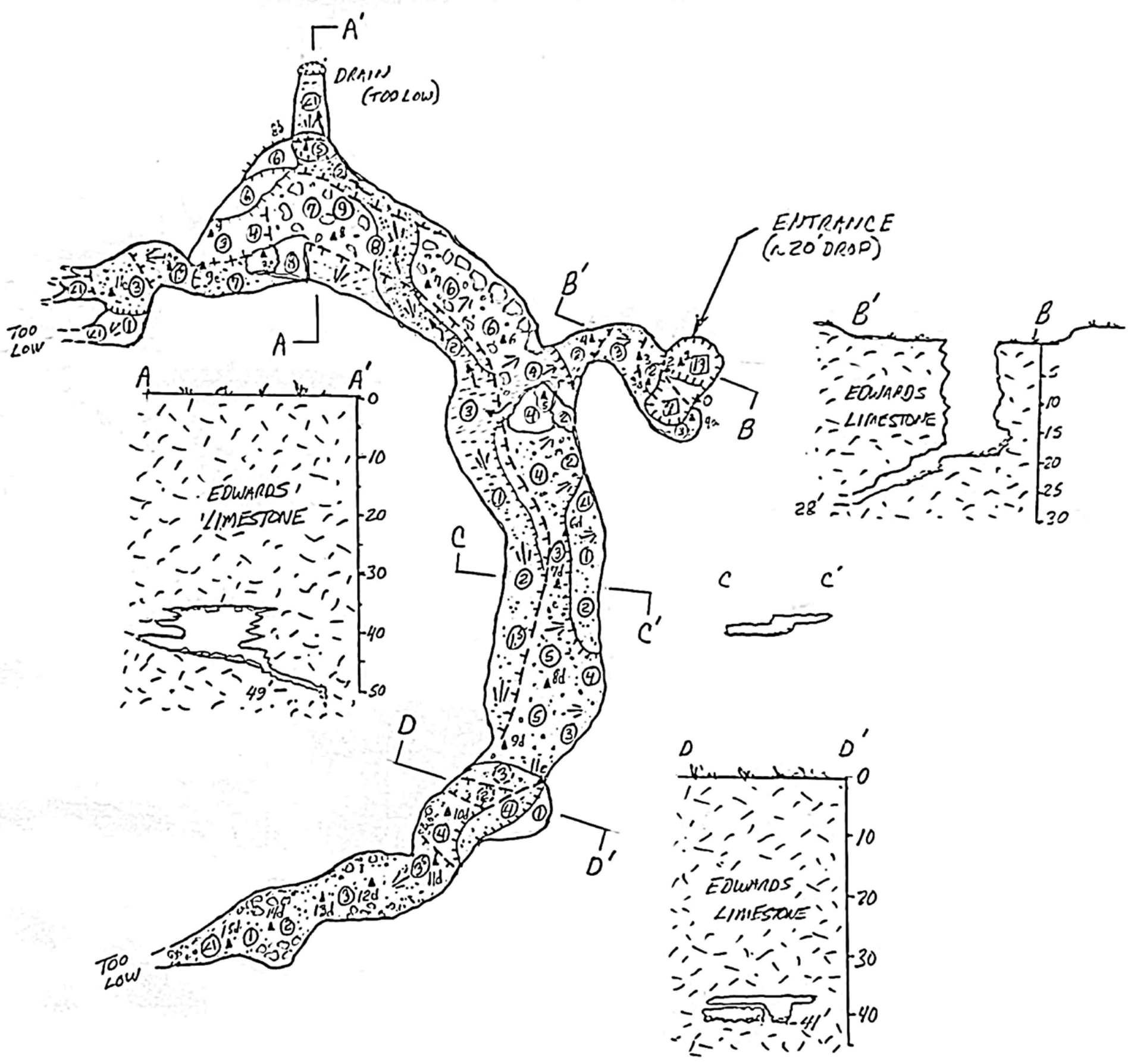




0 200 400
Feet

Scale: 1" = 400'

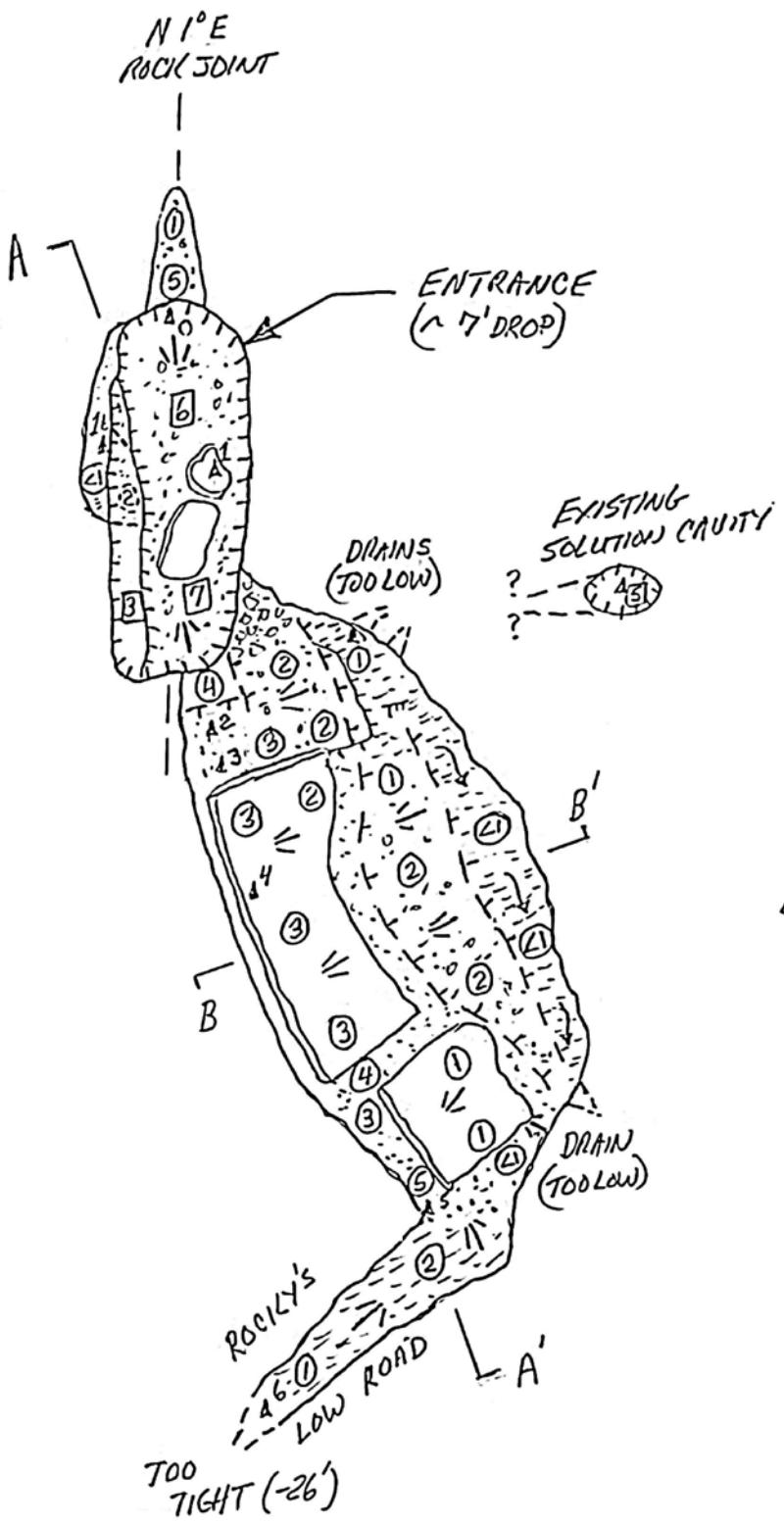
200130 - Santa Rita Ranch\Graphics\GA_Maps\200130-013GA_07A_Buffer



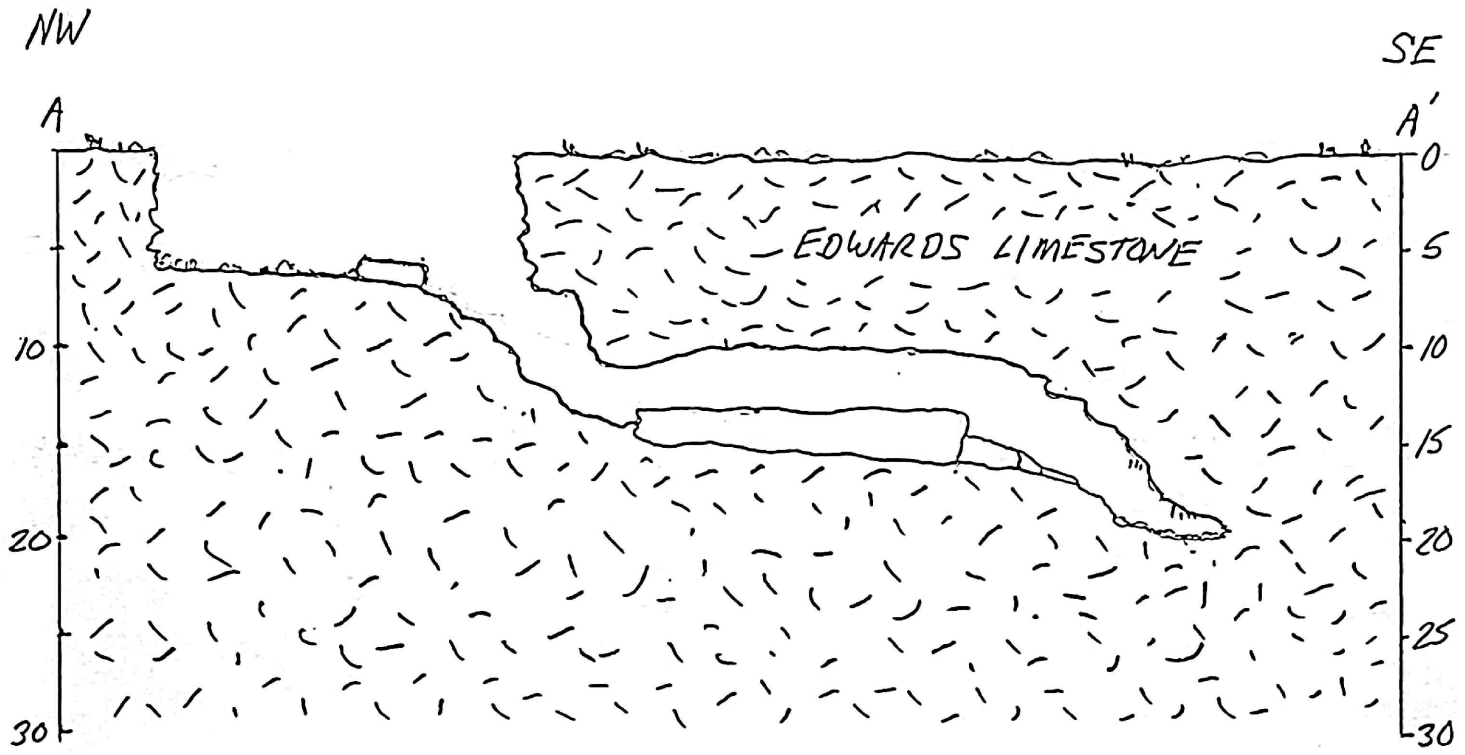
Horizon Environmental Services	Date: 11/11/2024 Drawn: KRW HJN NO: 200130KS Drafted By: J. Killian	Das Beachcomber Cave (SF-11) Santa Rita Ranch Georgetown, Williamson County, Texas Suuntos & Laser Survey, 13 June 2024 Personnel: J. Killian, E. Bryant, C. Hall, R. Eyler & T. Bradley Length: 305' Depth: 49'	② Ceiling Height (ft) △ Survey Station 1" = 20'

"Do Not Scale This Drawing"

200130 - Santa Rita Ranch\Graphics\GA_Maps\Cavemaps







"Do Not Scale This Drawing"

Horizon™ Environmental Services

Date:	11/11/2024
Drawn:	KRW
HJN NO:	200130KS
Drafted By:	J. Killian

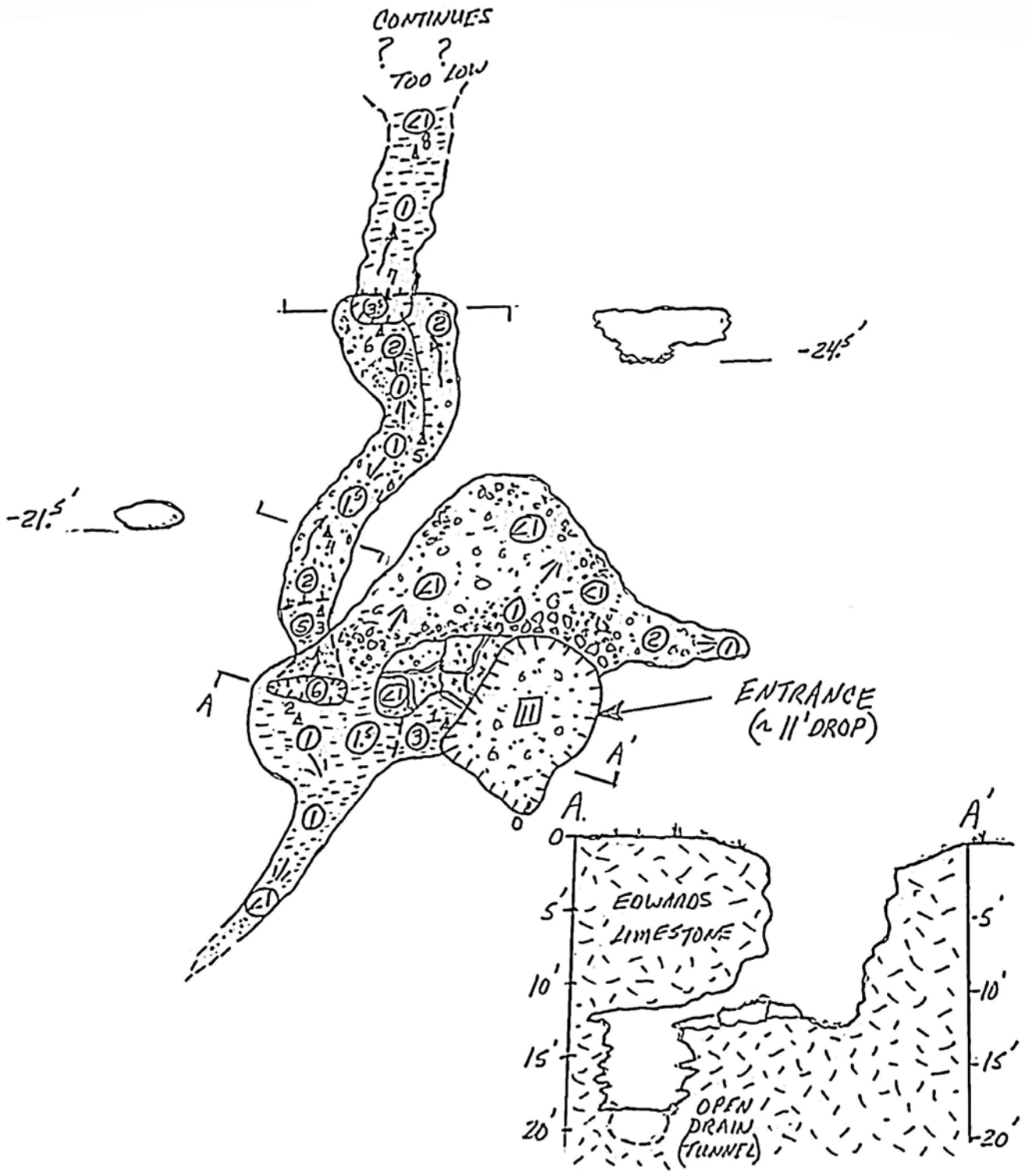
Jimbo's Fissure Cave (SF-15)
Santa Rita Ranch
Georgetown, Williamson County, Texas
Suuntos & Laser Survey, 06 June 2024
Personnel: J. Killian, R. Eyler, C. Hall
& T. Bradley
Length: 70 Depth: 26'

② Ceiling Height (ft)
△ Survey Station

1" = 10'

N

200130 - Santa Rita Ranch\Graphics\GA_Maps\Cavemaps



"Do Not Scale This Drawing"

Horizon™ Environmental Services

Date:	04/03/2025
Drawn:	KRW
HJN NO:	200130GA
Drafted By:	J. Killian

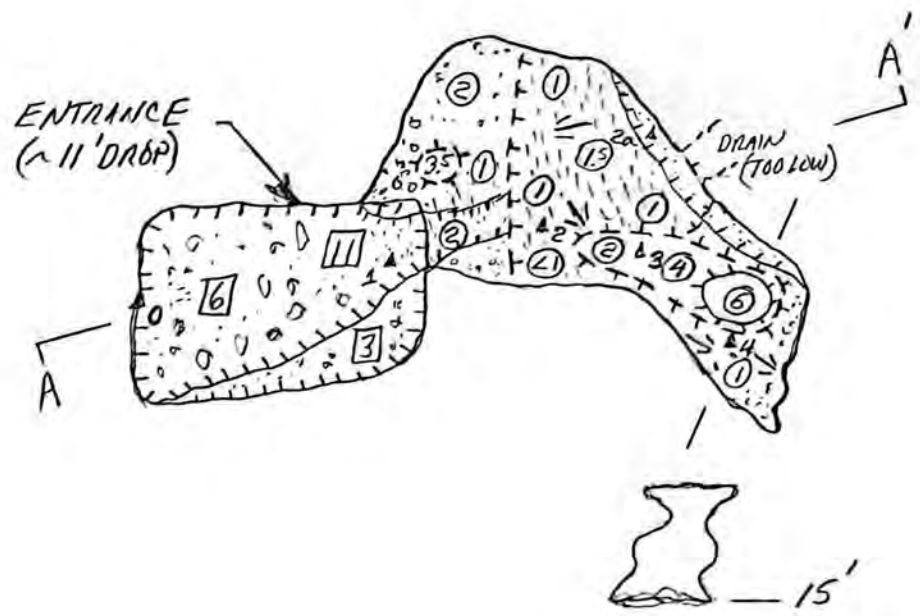
Santa Rita Sink Cave (SF-16)
Santa Rita Ranch
Georgetown, Williamson County, Texas
Suuntos & Laser Survey, 15 May & 10 June 2024
Personnel: J. Killian, R. Eyler, C. Hall
E. Bryant & T. Bradley
Length: 115' Depth: 26'

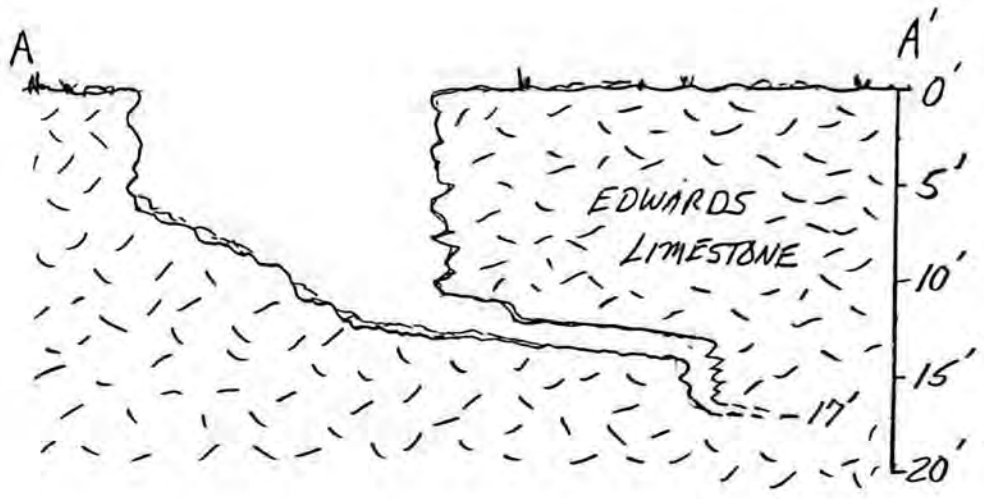
② Ceiling Height (ft)
△ Survey Station

1" = 10'

N

200130 - Santa Rita Ranch\Graphics\GA_Maps\Cavemaps





"Do Not Scale This Drawing"

Horizon™ Environmental Services

Date:	04/22/2025
Drawn:	KRW
HJN NO:	200130GA
Drafted By:	J. Killian

Miserable Midget Cave (SR-12)
Santa Rita Ranch
Georgetown, Williamson County, Texas
Suuntos & Laser Survey, 10 June 2024
Personnel: J. Killian, C. Hall
R. Eyler & T. Bradley
Length: 40' Depth:17'

② Ceiling Height (ft)
△ Survey Station

1" = 10'

200130 - Santa Rita Ranch\Graphics\GA_Maps\Cavemaps

Water Pollution Abatement Plan Application

Texas Commission on Environmental Quality

for Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(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 **Water Pollution Abatement Plan Application Form** is hereby submitted for TCEQ review and Executive Director approval. The form was prepared by:

Print Name of Customer/Agent: Steven P. Cates, P.E.

Date: 5/30/2025

Signature of Customer/Agent:



Regulated Entity Name: Santa Rita Ranch Northwest Phase 2 Section 1

Regulated Entity Information

1. The type of project is:

   ☒ Residential: Number of Lots:87
   ☐ Residential: Number of Living Unit Equivalents:_____
   ☐ Commercial
   ☐ Industrial
   ☐ Other:_____

2. Total site acreage (size of property):55.27

3. Estimated projected population:261

4. The amount and type of impervious cover expected after construction are shown below:

Table 1 - Impervious Cover Table

Impervious Cover of Proposed Project	Sq. Ft.	Sq. Ft./Acre	Acres
Structures/Rooftops	321,473	÷ 43,560 =	7.38
Parking	0	÷ 43,560 =	0
Other paved surfaces	450,846	÷ 43,560 =	10.35
Total Impervious Cover	772,754	÷ 43,560 =	17.74

Total Impervious Cover 17.74 **÷ Total Acreage** 55.27 **X 100 =** 32.10**% Impervious Cover**

5. ☒ **Attachment A - Factors Affecting Surface Water Quality**. A detailed description of all factors that could affect surface water and groundwater quality that addresses ultimate land use is attached.

6. ☐ Only inert materials as defined by 30 TAC §330.2 will be used as fill material.

For Road Projects Only

Complete questions 7 - 12 if this application is exclusively for a road project.

7. Type of project:

   ☐ TXDOT road project.
   ☐ County road or roads built to county specifications.
   ☐ City thoroughfare or roads to be dedicated to a municipality.
   ☐ Street or road providing access to private driveways.

8. Type of pavement or road surface to be used:

   ☐ Concrete
   ☐ Asphaltic concrete pavement
   ☐ Other: _____

9. Length of Right of Way (R.O.W.): _____ feet.

   Width of R.O.W.: _____ feet.
   L x W = _____ Ft^2 ÷ 43,560 Ft^2/Acre = _____ acres.

10. Length of pavement area: _____ feet.

    Width of pavement area: _____ feet.
    L x W = _____ Ft^2 ÷ 43,560 Ft^2/Acre = _____ acres.
    Pavement area _____ acres ÷ R.O.W. area _____ acres x 100 = _____% impervious cover.

11. ☐ A rest stop will be included in this project.

    ☐ A rest stop will not be included in this project.

12. ☐ Maintenance and repair of existing roadways that do not require approval from the TCEQ Executive Director. Modifications to existing roadways such as widening roads/adding shoulders totaling more than one-half (1/2) the width of one (1) existing lane require prior approval from the TCEQ.

Stormwater to be generated by the Proposed Project

13. ☒ **Attachment B - Volume and Character of Stormwater**. A detailed description of the volume (quantity) and character (quality) of the stormwater runoff which is expected to occur from the proposed project is attached. The estimates of stormwater runoff quality and quantity are based on the area and type of impervious cover. Include the runoff coefficient of the site for both pre-construction and post-construction conditions.

Wastewater to be generated by the Proposed Project

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

100% Domestic	18,270 Gallons/day
_____% Industrial	_____Gallons/day
_____% Commingled	_____Gallons/day
TOTAL gallons/day 18,270	

15. Wastewater will be disposed of by:

☐ On-Site Sewage Facility (OSSF/Septic Tank):

- ☐ **Attachment C - Suitability Letter from Authorized Agent**. An on-site sewage facility will be used to treat and dispose of the wastewater from this site. The appropriate licensing authority's (authorized agent) written approval is attached. It states that the land is suitable for the use of private sewage facilities and will meet or exceed the requirements for on-site sewage facilities as specified under 30 TAC Chapter 285 relating to On-site Sewage Facilities.
- ☐ Each lot in this project/development is at least one (1) acre (43,560 square feet) in size. The system will be designed by a licensed professional engineer or registered sanitarian and installed by a licensed installer in compliance with 30 TAC Chapter 285.

☐ Sewage Collection System (Sewer Lines):

- ☐ Private service laterals from the wastewater generating facilities will be connected to an existing SCS.
- ☐ Private service laterals from the wastewater generating facilities will be connected to a proposed SCS.

- ☐ The SCS was previously submitted on_____.
- ☐ The SCS was submitted with this application.
- ☒ The SCS will be submitted at a later date. The owner is aware that the SCS may not be installed prior to Executive Director approval.

☐ The sewage collection system will convey the wastewater to the Liberty Hill Wastewater Treatment Plant (name) Treatment Plant. The treatment facility is:

☒ Existing.
☐ Proposed.

16. ☒ All private service laterals will be inspected as required in 30 TAC §213.5.

Site Plan Requirements

Items 17 – 28 must be included on the Site Plan.

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

Site Plan Scale: 1" = 50'.

18. 100-year floodplain boundaries:

☐ Some part(s) of the project site is located within the 100-year floodplain. The floodplain is shown and labeled.
☒ No part of the project site is located within the 100-year floodplain.
The 100-year floodplain boundaries are based on the following specific (including date of material) sources(s): FEMA- FIRM Panel #48491C0275E Williamson County, Texas and incorporated areas: Effective Date: September 26, 2008

19. ☒ The layout of the development is shown with existing and finished contours at appropriate, but not greater than ten-foot contour intervals. Lots, recreation centers, buildings, roads, open space, etc. are shown on the plan.

☐ The layout of the development is shown with existing contours at appropriate, but not greater than ten-foot intervals. Finished topographic contours will not differ from the existing topographic configuration and are not shown. Lots, recreation centers, buildings, roads, open space, etc. are shown on the site plan.

20. All known wells (oil, water, unplugged, capped and/or abandoned, test holes, etc.):

☐ There are _____ (#) 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 §76.

☒ There are no wells or test holes of any kind known to exist on the project site.

21. Geologic or manmade features which are on the site:

☒ All sensitive geologic or manmade features identified in the Geologic Assessment are shown and labeled.
☐ No sensitive geologic or manmade features were identified in the Geologic Assessment.

☐ **Attachment D - Exception to the Required Geologic Assessment**. A request and justification for an exception to a portion of the Geologic Assessment is attached.

22. ☒ The drainage patterns and approximate slopes anticipated after major grading activities.
23. ☒ Areas of soil disturbance and areas which will not be disturbed.
24. ☒ Locations of major structural and nonstructural controls. These are the temporary and permanent best management practices.
25. ☒ Locations where soil stabilization practices are expected to occur.
26. ☒ Surface waters (including wetlands).

    ☐ N/A

27. ☒ Locations where stormwater discharges to surface water or sensitive features are to occur.

    ☐ There will be no discharges to surface water or sensitive features.

28. ☒ Legal boundaries of the site are shown.

Administrative Information

29. ☒ 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.
30. ☒ Any modification of this WPAP will require Executive Director approval, prior to construction, and may require submission of a revised application, with appropriate fees.

Water Pollution Abatement Plan Application

ATTACHMENT A

TCEQ WPAP & SCS APPLICATION

Santa Rita Ranch Northwest Phase 2 Section 1

Williamson County, Texas

Factors Affecting Water Quality:

During Construction

Non-Stormwater Discharges: The Following non-stormwater discharges may occur from the site during the construction period:

- Utility water line flushing during the initial line testing must use uncontaminated water that is not hyperchlorinated.
- Pavement wash waters (where no spills or leaks of toxic or hazardous materials have occurred)
- Groundwater (from dewatering of excavation) must be uncontaminated.
- Water used to wash vehicles or control dust must be accomplished using potable water without detergents.

All non-stormwater discharge will be directed to the temporary Erosion and Sedimentation Controls (Best Management Practices) to remove any suspended solids contained therein.
Stormwater during construction will remove loose material and transport it downstream.

Post Construction

Non-stormwater discharges after construction has been completed which can affect water quality include:

- Fertilizers and pesticides
- Household chemicals
- Pet Waste
- Used oil
- Car washing
- Mulching
- Sediment

Post Construction stormwater discharges typically transport sediment in the form of dirt and dust accumulated on the streets and other impervious flatwork, rooftops, and sediment from erosion of grassy areas. That material will be transported through the storm sewer system to the wet basins, where most of the pollutants will be removed.

Water Pollution Abatement Plan Application

ATTACHMENT B

TCEQ WPAP & SCS APPLICATION

Santa Rita Ranch Northwest Phase 2 Section 1

Williamson County, Texas

Volume and Character of Stormwater:

Existing and developed hydrology models were created in HEC-HMS, v.4.8. A 24-hour frequency storm was applied to the meteorological models for the 2, 10, 25, and 100-year storm events. The model was run over a 24-hour period with a computational time interval of 1 minute. Subbasins utilized an SCS Curve Number Loss Method and SCS Unit Hydrograph Transform Method. Reaches utilized either a Muskingum-Cunge or Lag Routing Method. See below for specific model input data.

Meteorological Model

Frequency storms with the following parameters were used to model storm events:

HEC-HMS Meteorological Model Parameters

Probability	2-yr = 50%, 10-yr = 10%, 25-100-yr = Other
Input Type	Partial Duration
Output Type	Annual Duration (only applicable for 2-10-yr)
Intensity Duration	5 Minutes
Storm Duration	1 Day
Intensity Position	50%
Storm Area	(Blank if less than 10 mi²)
Curve	Uniform for all subbasins

Partial-duration precipitation depths are per the Depth-Duration-Frequency Estimates for the San Gabriel River Zone in Williamson County, Texas, according to NOAA Atlas 14, Volume 11, Version 2. See the table below:

Precipitation Depths (in) per Recurrence Interval

Duration	2-YR	10-YR	25-YR	100-YR
5-min	0.51	0.757	0.921	1.19
15-min	1.02	1.51	1.84	2.37
60-min	1.88	2.79	3.4	4.39
2-hr	2.3	3.55	4.43	5.98
3-hr	2.55	4.02	5.09	7.06
6-hr	2.98	4.81	6.18	8.75
12-hr	3.44	5.54	7.12	10.1
24-hr	3.94	6.3	8.04	11.2

Land Use & Curve Numbers

In existing conditions, the soils are primarily hydrologic soil group D, as per the USDA Web Soil Survey. The soils map and data have been included in Appendix B. The curve numbers were selected from Urban

Hydrology for Small Watersheds[1] based on hydrologic soil groups and aerial maps. See table below. Curve numbers were assessed independently from impervious cover.

Runoff Curve Numbers

Cover Type	Hydrologic Condition	Hydrologic Soil Group	Curve Number
Pasture	Good	D	80
Woods-grass combination	Good	D	79
Meadow	Good	D	78

Existing impervious cover was determined from aerial imagery. Proposed impervious cover was estimated from the proposed and anticipated future layout using TCEQ assumptions for residential tracts. Impervious cover was calculated as a percent of the total drainage basin. Curve number and impervious cover percents were loss inputs for subbasins in the model.

Time of Concentration

All time of concentration calculations were generated using SCS methodology provided in Urban Hydrology for Small Watersheds[2] for sheet, shallow concentrated, and channel flow. A maximum of 100 feet was used for sheet flow calculations. Lag times were calculated as 60 percent of the time of concentration. Lag times were transform inputs for subbasins and reaches in the model. Times of concentration for future developed drainage areas were approximated based on assumed basin size.

Reaches

Reaches representing the Middle Fork San Gabriel River were modeled using the Muskingum-Cunge routing method with 8-point cross-sections. In developed conditions, reaches contributing to the Middle Fork were modeled with the Lag method.

Reservoirs

All reservoirs were modeled using outflow structures with an elevation-storage method. Initial conditions were elevations set to the bottom of pond elevation for batch detention facilities. The model assumed no tailwater condition. Future batch detention ponds were modeled with a generic stage-storage and outflow spillways assigned to the assumed water quality volume elevation.

[1] Natural Resources Conservation Service, Conservation Engineering Division. 1986. Urban Hydrology for Small Watersheds. Technical Release 55. U.S. Department of Agriculture. https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1044171.pdf

[2] Ibid.

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: Steven P. Cates, P.E.

Date: 5/30/2025

Signature of Customer/Agent:



Regulated Entity Name: Santa Rita Ranch Northwest Phase 2 Section 1

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: North Fork of the San Gabriel River

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.

Temporary Stormwater Section
ATTACHMENT A

TCEQ WPAP & SCS APPLICATION

Santa Rita Ranch Northwest Phase 2 Section 1

Williamson County, Texas

Spill Response Actions:

1. Contain the spill.
2. Immediately stake off area.
3. Notify Hazardous Material team (if necessary); notify TCEQ:
   (512) 339-2929 or Emergency # 1-800-832-8224
4. Take necessary steps to clean up, i.e. notify remediation contractor if large spill, or small spills will be cleaned by the construction contractor.

All site personnel will be made aware of the manufactures' recommended methods for spill cleanup, and the location of the information and cleanup supplies.

Spills will be reported according to the Reportable Quantity, attached on the following page.

Materials and equipment necessary for spill cleanup will be kept onsite in an accessible location known to site personnel.

All Spills will be cleaned up immediately upon discovery. Any spill of hydrocarbons or hazardous substances greater than 25 gallons will require notification to the fire Department Hazardous Materials Team and TCEQ. As with all spills, an effort shall be made to prevent material from entering surface streams and storm drains by using rock or earth berms to contain the material.

Kind of spill	Where discharged	Reportable quantity	Rule, statute, or responsible agency
Hazardous substance	onto land	"Final RQ" in Table 302.4 in 40 CFR 302.4 (PDF)	30 TAC 327
	into water	"Final RQ" or 100 lbs, whichever is **less**	
Any oil	coastal waters	as required by the Texas General Land Office	Texas General Land Office
Crude oil, oil that is neither a petroleum product nor used oil	onto land	210 gallons (five barrels)	30 TAC 327
	directly into water	enough to create a sheen	
Petroleum product, used oil	onto land, from an exempt PST facility	210 gallons (five barrels)	30 TAC 327
	onto land, or onto land from a non-exempt PST facility	25 gallons	
	directly into water	enough to create a sheen	
Associated with the exploration, development and production of oil, gas, or geothermal resources	under the jurisdiction of the Railroad Commission of Texas	as required by the Railroad Commission of Texas	Railroad Commission of Texas
Industrial solid waste or other substances	into water	100 lbs	30 TAC 327
From petroleum storage tanks, underground or aboveground	into water	enough to create a sheen on water	30 TAC 334.75-81
From petroleum storage tanks, underground or aboveground	onto land	25 gallons or equal to the RQ under 40 CFR 302	30 TAC 327
Other substances that may be useful or valuable and are not ordinarily considered to be waste, but will cause pollution if discharged into water in the state	into water	100 lbs	30 TAC 327

1.4.16 Spill Prevention and Control

The objective of this section is to describe measures to prevent or reduce the discharge of pollutants to drainage systems or watercourses from leaks and spills by reducing the chance for spills, stopping the source of spills, containing and cleaning up spills, properly disposing of spill materials, and training employees.
The following steps will help reduce the stormwater impacts of leaks and spills:

Education

(1) Be aware that different materials pollute in different amounts. Make sure that each employee knows what a "significant spill" is for each material they use, and what is the appropriate response for "significant" and "insignificant" spills. Employees should also be aware of when spill must be reported to the TCEQ. Information available in 30 TAC 327.4 and 40 CFR 302.4.
(2) Educate employees and subcontractors on potential dangers to humans and the environment from spills and leaks.
(3) Hold regular meetings to discuss and reinforce appropriate disposal procedures (incorporate into regular safety meetings).
(4) Establish a continuing education program to indoctrinate new employees.
(5) Have contractor's superintendent or representative oversee and enforce proper spill prevention and control measures.

General Measures

(1) To the extent that the work can be accomplished safely, spills of oil, petroleum products, substances listed under 40 CFR parts 110,117, and 302, and sanitary and septic wastes should be contained and cleaned up immediately.
(2) Store hazardous materials and wastes in covered containers and protect from vandalism.
(3) Place a stockpile of spill cleanup materials where it will be readily accessible.
(4) Train employees in spill prevention and cleanup.
(5) Designate responsible individuals to oversee and enforce control measures.
(6) Spills should be covered and protected from stormwater runon during rainfall to the extent that it doesn't compromise clean up activities.
(7) Do not bury or wash spills with water.
(8) Store and dispose of used clean up materials, contaminated materials, and recovered spill material that is no longer suitable for the intended purpose in conformance with the provisions in applicable BMPs.
(9) Do not allow water used for cleaning and decontamination to enter storm drains or watercourses. Collect and dispose of contaminated water in accordance with applicable regulations.
(10) Contain water overflow or minor water spillage and do not allow it to discharge into drainage facilities or watercourses.
(11) Place Material Safety Data Sheets (MSDS), as well as proper storage, cleanup, and spill reporting instructions for hazardous materials stored or used on the project site in an open, conspicuous, and accessible location.
(12) Keep waste storage areas clean, well organized, and equipped with ample cleanup supplies as appropriate for the materials being stored. Perimeter controls, containment structures, covers, and liners should be repaired or replaced as needed to maintain proper function.

Cleanup

(1) Clean up leaks and spills immediately.
(2) 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.
(3) 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

(1) 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.
(2) Use absorbent materials on small spills rather than hosing down or burying the spill.
(3) Absorbent materials should be promptly removed and disposed of properly.
(4) Follow the practice below for a minor spill:
(5) Contain the spread of the spill.
(6) Recover spilled materials.
(7) 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:

(1) Contain spread of the spill.
(2) Notify the project foreman immediately
(3) 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.
(4) If the spill occurs in dirt areas, immediately contain the spill by constructing an earthen dike. Dig up and properly dispose of contaminated soil.
(5) 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:

(1) 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.
(2) 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.
(3) Notification should first be made by telephone and followed up with a written report.
(4) 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.
(5) Other agencies which may need to be consulted include, but are not limited to, the City Police Department, County Sheriff Office, Fire Departments, etc.

More information on spill rules and appropriate responses is available on the TCEQ website at:
https://www.tceq.texas.gov/response/spills

Vehicle and Equipment Maintenance

(1) If maintenance must occur onsite, use a designated area and a secondary containment, located away from drainage courses, to prevent the run on of stormwater and the runoff of spills.
(2) Regularly inspect onsite vehicles and equipment for leaks and repair immediately
(3) Check incoming vehicles and equipment (including delivery trucks, and employee and subcontractor vehicles) for leaking oil and fluids. Do not allow leaking vehicles or equipment onsite.
(4) Always use secondary containment, such as a drain pan or drop cloth, to catch spills or leaks when removing or changing fluids.
(5) Place drip pans or absorbent materials under paving equipment when not in use.
(6) Use absorbent materials on small spills rather than hosing down or burying the spill. Remove the absorbent materials promptly and dispose of properly.
(7) Promptly transfer used fluids to the proper waste or recycling drums. Don't leave full drip pans or other open containers lying around.
(8) Oil filters disposed of in trashcans or dumpsters can leak oil and pollute stormwater. Place the oil filter in a funnel over a waste oil-recycling drum to drain excess oil before disposal. Oil filters can also be recycled. Ask the oil supplier or recycler about recycling oil filters.
(9) Store cracked batteries in a non-leaking secondary container. Do this with all cracked batteries even if you think all the acid has drained out. If you drop a battery, treat it as if it is cracked. Put it into the containment area until you are sure it is not leaking.

Vehicle and Equipment Fueling

(1) If fueling must occur on site, use designated areas, located away from drainage courses, to prevent the runon of stormwater and the runoff of spills.
(2) Discourage "topping off" of fuel tanks.
(3) Always use secondary containment, such as a drain pan, when fueling to catch spills/ leaks.

Temporary Stormwater Section
ATTACHMENT B

TCEQ WPAP & SCS APPLICATION

Santa Rita Ranch Northwest Phase 2 Section 1

Williamson County, Texas

Potential Sources of Contamination:

Gasoline, Diesel, and Hydraulic Fluid from construction equipment,
Asphalt products,
Construction Materials,
Trash and Debris,
Paint,
Concrete,
Gypsum from sheet rock,
Sediment.

All materials shall be hauled in a manner consistent with the manufacturer's recommendations. Disposal of waste material shall be in conformance with all state and local laws

Temporary Stormwater Section
ATTACHMENT C

TCEQ WPAP & SCS APPLICATION

Santa Rita Ranch Northwest Phase 2 Section 1

Williamson County, Texas

Sequence of Major Activities:

1. Install and maintain Erosion Control and Tree Protection per the Approved Plans and specifications prior to any clearing and grubbing, grading, excavating, etc... Notify Construction Inspection Division when installed.

2. Prior to beginning construction, the owner or his representative shall hold a Pre-Construction Conference between TCEQ, Williamson County, Contractor, and any other affected parties. Notify TCEQ at least 48 hours prior to the time of the conference and 48 hours prior to beginning construction. Prior to Pre-Construction Conference.

3. Hold Pre-Construction Conference with contractor, TCEQ, EV Inspector, Engineer, and owner or his representative.

4. Rough grade roadway.
   (Estimate of disturbed area = 8.88 ac)

5. Begin installation of storm sewer. Upon completion, restore as much disturbed areas as possible, particularly channels and large open areas. (Estimate of disturbed area = 0.00 ac)

6. Regrade streets to subgrade (Estimate of disturbed area = 8.88 ac)

7. Ensure that all underground utility crossings are completed. Lay first course base material on all streets. (8.88 ac)

8. Install curb and gutter. (Estimate of disturbed area = 0.84 ac)

9. Place concrete for common area 4’ sidewalk. (Estimate of disturbed area = 1.68 ac)

10. Lay final base course on all streets. (8.88 ac)

11. Lot grading. (Estimate of disturbed area = 20.32 ac)

12. Lay asphalt. (8.02 ac)

13. Clean site and revegetate all disturbed area according to the plans and specifications. Stabilization measures should include seeding and/or mulching.

14. Complete permanent erosion control and restoration of site vegetation.

15. Project Engineer to provide a written concurrence letter, and scheduling final inspection with EV Inspector, prior to the removal of erosion controls.

16. Remove and dispose of temporary erosion/sedimentation control measures.

17. Complete any necessary final dress up of areas disturbed by Item 16.

18. Conduct a final inspection and complete all punch list items.

Clearing and grubbing under a development permit, solely for the purpose of surveying and soil exploration, shall be a hand-cutting or blade-up operation.

Temporary Stormwater Section
ATTACHMENT D

TCEQ WPAP & SCS APPLICATION

Santa Rita Ranch Northwest Phase 2 Section 1

Williamson County, Texas

Temporary Best Management Practices and Measures:

Install temporary erosion control measures, stabilized construction entrance, concrete washout area, inlet protection, and tree protection according to the plans and specifications prior to any clearing and grubbing, grading, excavating, etc. Upgradient stormwaters during construction crossing disturbed areas will be filtered utilizing standard Best Management Practices, such as erosion logs and silt fences, prior to leaving the site. The silt fences will be placed along down gradient areas of the site to prevent any sediment from entering storm sewers or surface streams.

Geological features on this site are located outside of the Limits of Construction and no stormwater from the disturbed areas will drain to the geological features.

Temporary Stormwater Section
ATTACHMENT F

TCEQ WPAP & SCS APPLICATION

Santa Rita Ranch Northwest Phase 2 Section 1

Williamson County, Texas

Structural Practices:

For areas that will have less than 10 acres within a common drainage area disturbed at one time, a combination of temporary BMPs and measures will be used to protect down slope and side slope boundaries of the construction area. For areas that will have more than 10 acres within a common drainage area disturbed at one time, a combination of a sediment basin and other erosion control measures, such as silt fences and rock berms, will be provided. For any areas not draining to sediment ponds, silt fences shall be provided.

Structural erosion control and pollution prevention practices shall be implemented to limit runoff discharge of pollutants from exposed soils. The structural practices utilized include:

Silt Fence

- Barrier consisting of geotextile fabric supported by metal posts to prevent soil and sediment loss from a site.
    1) Silt fence material should be polypropylene, polyethylene or polyamide woven or nonwoven fabric. The fabric width should be 36 inches, with a minimum unit weight of 4.5 oz/yd, mullen burst strength exceeding 190 lb/in2 , ultraviolet stability exceeding 70%, and minimum apparent opening size of U.S. Sieve No. 30.
    2) Fence posts should be made of hot rolled steel, at least 4 feet long with Tee or Ybar cross section, surface painted or galvanized, minimum nominal weight 1.25 lb/ft2 , and Brindell hardness exceeding 140.
    3) Woven wire backing to support the fabric should be galvanized 2” x 4” welded wire, 12 gauge minimum.

Fiber Rolls

- Placed at the toe and on the face of slopes to intercept runoff, reduce its flow velocity, release the runoff as sheet flow, and provide removal of sediment from the runoff.
    1) Core material: Core material should be biodegradable or recyclable. Material may be compost, mulch, aspen wood fibers, chipped site vegetation, agricultural rice or wheat straw, coconut fiber, 100% recyclable fibers, or similar materials.
    2) Containment Mesh: Containment mesh should be 100% biodegradable, photodegradable or recyclable such as burlap, twine, UV photodegradable plastic, polyester, or similar material. When the fiber role will remain in place as part of a vegetative system use biodegradable or photodegradable mesh. For temporary installation recyclable mesh is recommended.

Stabilized Construction Entrance

- 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.

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

Inlet Protection

- Filter barrier protection installed around stormwater inlets that provide protection against silt transport or accumulation in storm sewer systems.
    1) Filter fabric should be a nylon reinforced polypropylene fabric which meets the following minimum criteria: Tensile Strength, 90 lbs.; Puncture Rating, 60 lbs.; Mullen Burst Rating, 280 psi; Apparent Opening Size, U.S. Sieve No. 70.
    2) Posts for fabric should be 2” x 4” pressure treated wood stakes or galvanized steel, tubular in cross-section or they may be standard fence “T” posts.
    3) Concrete blocks should be standard 8” x 8” x 16” concrete masonry units.
    4) Wire mesh should be standard hardware cloth or comparable wire mesh with an opening size not to exceed 1/2 inch.

Concrete Washout

- Prevent or reduce the discharge of pollutants to stormwater from concrete waste by conducting washout offsite, performing washout in a designated area, and training employees and subcontractors.
    1) 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.

Temporary Sediment Basin

- Intercepts sediment-laden runoff and trap the sediment in order to protect drainage ways, properties and rights of way downstream.
    1) Riser should be corrugated metal or reinforced concrete pipe or box and should have watertight fittings or end to end connections of sections.
    2) An outlet pipe of corrugated metal or reinforced concrete should be attached to the riser and should have positive flow to a stabilized outlet on the downstream side of the embankment.
    3) An anti-vortex device and rubbish screen should be attached to the top of the riser and should be made of polyvinyl chloride or corrugated metal.

Rock Berm

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

Temporary Stormwater Section
ATTACHMENT G

TCEQ WPAP & SCS APPLICATION

Santa Rita Ranch Northwest Phase 2 Section 1

Williamson County, Texas

Drainage Area Map:

An overall drainage area map is included within the plan set submitted with this application.

Temporary Stormwater Section

ATTACHMENT H

TCEQ WPAP & SCS APPLICATION

Santa Rita Ranch Northwest Phase 2 Section 1

Williamson County, Texas

Temporary Sediment Pond(s) Plans and Calculations:

Batch Detention Ponds 19H-B1 and 19H-B2 will act as a temporary sediment basin. This basin in combination with temporary BMPs will be installed to control sediment transport during construction of the site. The construction plans for proposed Pond 19H-B1 and 19H-B2 have been submitted with this application.

Per 30 TAC 213.5(b)(4)(D)(i), temporary sediment ponds shall provide: 1) storage for a calculated volume of runoff from a two-year, 24-hour storm from each disturbed acre drained; 2) storage equivalent to 3,600 cubic feet of storage per acre drained; or 3) equivalent control measures until final stabilization of the site.

The table below provides the required storage equivalent to 3,600 cubic feet per disturbed acre from the proposed site draining to each pond. The proposed batch detention ponds have sufficient storage within the provided water quality storage to collect sediment runoff during construction activities until final stabilization of the site.

Proposed Ponds	On-site Disturbed Area (ac)	Required Storage (cf)	Provided WQV (cf)
Pond 19H-B1	23.33	83,988	178,011
Pond 19H-B2	22.38	80,568	115,000

*Sediment control will be provided by a combination of a temporary sediment basin and other structural BMPs such as silt fence, rock berms, and temporary rolled erosion control matting prior to final stabilization.

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Temporary Stormwater Section
ATTACHMENT I

TCEQ WPAP & SCS APPLICATION

Santa Rita Ranch Northwest Phase 2 Section 1

Williamson County, Texas

Inspection and Maintenance for Best Management Practices:

The Best Management Practices installed during construction will be maintained in accordance with the requirements of the EPA's NPDES/TPDES storm water pollution prevention program (SWPPP). The following maintenance procedures shall be followed until permanent stabilization is complete.

Silt Fence

a. Inspect weekly or after each rainfall event and repair or replacement shall be made promptly as needed.
b. Silt Fence shall be removed when the site is completely stabilized so as to not block or impede storm flow or drainage.
c. Accumulated silt shall be removed when it reaches a depth of 6 inches. The Silt shall be disposed of on an approved site and in such a manner that will not contribute to additional siltation.

Fiber Rolls

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

Stabilized Construction Entrance

a. The entrance shall be maintained in a condition that will prevent tracking or flowing of sediment onto a public roadway. This may require periodic top dressing with additional stone as conditions demand, as well as repair and clean out of any devices used to trap sediment.
b. Entrance must be properly graded to incorporate a drain swale or similar measure to prevent runoff from leaving the construction site.

Inlet Protection

a. Inspection shall be made weekly or after each rainfall event and replacement or repair shall be made promptly as needed.
b. Accumulated silt shall be removed when it reaches a depth of 6 inches. The Silt shall be disposed of on an approved site and in such a manner that will not contribute to additional siltation
c. The dyke shall be removed when the site is completely stabilized so as to not block or impede storm flow or drainage.

Temporary Sediment Basins

a. Inspection shall be made weekly or after each rainfall event. Check the embankment spillways, and outlet for erosion damage, and inspect the embankment for piping and settlement. Repair should be made promptly as needed.
b. Trash and other debris should be removed after each rainfall event to prevent clogging of the outlet structure.
c. Accumulated silt should be removed and the basin should be regraded to its original dimensions at such point that the capacity of the impoundment has been reduced to 75% of its storage capacity.
d. The removed sediment should be stockpiled or redistributed in areas that are protected from erosion.

Concrete Washout

a. Inspection shall be made daily or after each rainfall event to check for leaks, identify any plastic linings and sidewalls which have been damaged by construction activities.
b. When the washout container is filled over 75 % of its capacity, the washwater should be vacuumed off or allowed to evaporate to avoid overflows. When the remaining cementitious solids have hardened, they should be removed and recycled.
c. Damages to the container should be repaired promptly and as needed.
d. Before heavy rains, the washout containers liquid level should be lowered or the container should be covered to avoid an overflow during the rain event.

The owner shall hire an E&S compliance company to inspect E&S measures and keep reports of onsite inspections with deficiencies and solutions.

Temporary Stormwater Section
ATTACHMENT J

TCEQ WPAP & SCS APPLICATION

Santa Rita Ranch Northwest Phase 2 Section 1

Williamson County, Texas

Schedule of Interim and Permanent Soil Stabilization Practices:

Soil Stabilization for all disturbed areas shall be accomplished by hydraulic planting. Following is an outline to accomplish the required stabilization.

1. Preparing Seed Bed. After the designated areas have been rough graded to the lines, grades and typical sections indicated in the Drawings or as provided for in other items of this contract and for any other soil area disturbed by the construction, a suitable seedbed shall be prepared. The seedbed shall consist of a minimum of either 4 inches (100 millimeters) of approved topsoil or 4 inches (100 millimeters) of approved salvaged topsoil, cultivated and rolled sufficiently to enhance the soil to a state of good health, when the soil particles on the surface are small enough and lie closely enough together to prevent the seed from being covered too deeply for optimum germination. The optimum depth for seeding shall be 114 inch (6 millimeters). Water shall be gently applied as required to prepare the seedbed prior to the planting operation either by broadcast seeding or hydraulic planting. Bare soils should be seeded or otherwise stabilized within 14 calendar days after final grading or where construction activity has temporarily ceased for more than 21 days. Seeding shall be performed in accordance with the requirements hereinafter described.

2. Watering. All watering shall comply with Chisholm Trail Subdivision Rules and Regulations. Broadcast seeded areas shall immediately be watered with a minimum of 5 gallons of water per square yard (22.5 liters of water per square meter) or as needed and in the marmer and quantity as directed by the Engineer or designated representative. Hydraulic seeded areas and native grass seeded areas shall be watered commencing after the tackifier has dried with a minimum of 5 gallons of water per square yard (22.5 liters of water per square meter) or as needed to keep the seedbed in a wet condition favorable for the growth of grass. Watering applications shall constantly maintain the seedbed in a wet condition favorable for the growth of grass. Watering shall continue until the grass is uniformly 1 1/2 inches (40 mm) in height and accepted by the Engineer or designated representative. Watering can be postponed immediately after a 1/2 inch (12.5 mm) or greater rainfall on the site but shall be resumed before the soil dries out.

3. Hydraulic Planting. The seedbed shall be prepared as specified above and hydraulic planting equipment, which is capable of placing all materials in a single operation, shall be used.

March 1 to September 15

Hydraulic planting mixture and minimum rate of application pounds per 1000 square feet (kilograms per 100 square meters):

Planting Mixture			
Hulled Bermuda Seed (PLS=0.83)	Fiber Mulch		Soil Tackifier
	Cellulose	Wood	
1 lbs/1000 ft2 (0.5 kgs/100 m2)	45.9 Lbs/1000 ft2 (22.5 kgs/100m2)		1.4 lbs/1000 ft2 (0.7 kgs/100 m2)
		57.4 lbs/1000 ft2 (28.01 kgs/100 m2)	1.5 lbs/1000 ft2 (0.75 kgs/100 m2)

September 15 to March 1

Add 1.5 pounds per 1000 square feet (0.75 kgs/ 100 m@) of cool season cover crop (see table 1) to above mixture. The fertilizer shall conform to City of Austin Standard Specification Item No. 606S, “Fertilizer”.

Table 1 : Cool Season Cover Crop			
Common Name	Botanical Name	Application rates	
		Lbs/1000 feet^2	Kg/ 100 meter^2
Wheat	Triticum aestivum	0.5	0.25
Oats	Avena sativa	0.5	0.25
Cereal Rye Grain	Secale cereal	0.5	0.25
Total Cool Season Cover Crop Seeding Rate		1.5	0.75
Total Cool Season Seeding Rate (Grass Wildflowers, & Cover Crop)		4.5	2.25

Permanent 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)(C), (D)(Ii), (E), and (5), 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 **Permanent Stormwater Section** is hereby submitted for TCEQ review and executive director approval. The application was prepared by:

Print Name of Customer/Agent: Steven P. Cates, P.E.

Date: 5/30/2025

Signature of Customer/Agent



Regulated Entity Name: Santa Rita Ranch Northwest Phase 2 Section 1

Permanent Best Management Practices (BMPs)

Permanent best management practices and measures that will be used during and after construction is completed.

1. ☒ Permanent BMPs and measures must be implemented to control the discharge of pollution from regulated activities after the completion of construction.

   ☐ N/A

2. ☒ These practices and measures have been designed, and will be constructed, operated, and maintained to insure that 80% of the incremental increase in the annual mass loading of total suspended solids (TSS) from the site caused by the regulated activity is removed. These quantities have been calculated in accordance with technical guidance prepared or accepted by the executive director.

   ☒ The TCEQ Technical Guidance Manual (TGM) was used to design permanent BMPs and measures for this site.

☐ A technical guidance other than the TCEQ TGM was used to design permanent BMPs and measures for this site. The complete citation for the technical guidance that was used is: _____

☐ N/A

3. ☒ Owners must insure that permanent BMPs and measures are constructed and function as designed. A Texas Licensed Professional Engineer must certify in writing that the permanent BMPs or measures were constructed as designed. The certification letter must be submitted to the appropriate regional office within 30 days of site completion.

   ☐ N/A

4. Where a site is used for low density single-family residential development and has 20 % or less impervious cover, other permanent BMPs are not required. This exemption from permanent BMPs must be recorded in the county deed records, with a notice that if the percent impervious cover increases above 20% or land use changes, the exemption for the whole site as described in the property boundaries required by 30 TAC §213.4(g) (relating to Application Processing and Approval), may no longer apply and the property owner must notify the appropriate regional office of these changes.

   ☐ The site will be used for low density single-family residential development and has 20% or less impervious cover.
   ☐ The site will be used for low density single-family residential development but has more than 20% impervious cover.
   ☒ The site will not be used for low density single-family residential development.

5. The executive director may waive the requirement for other permanent BMPs for multi-family residential developments, schools, or small business sites where 20% or less impervious cover is used at the site. This exemption from permanent BMPs must be recorded in the county deed records, with a notice that if the percent impervious cover increases above 20% or land use changes, the exemption for the whole site as described in the property boundaries required by 30 TAC §213.4(g) (relating to Application Processing and Approval), may no longer apply and the property owner must notify the appropriate regional office of these changes.

   ☐ **Attachment A - 20% or Less Impervious Cover Waiver**. The site will be used for multi-family residential developments, schools, or small business sites and has 20% or less impervious cover. A request to waive the requirements for other permanent BMPs and measures is attached.
   ☐ The site will be used for multi-family residential developments, schools, or small business sites but has more than 20% impervious cover.
   ☒ The site will not be used for multi-family residential developments, schools, or small business sites.

6. ☒ **Attachment B - BMPs for Upgradient Stormwater**.

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

☐ No surface water, groundwater or stormwater originates upgradient from the site and flows across the site, and an explanation is attached.

☐ Permanent BMPs or measures are not required to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site, and an explanation is attached.

7. ☒ **Attachment C - BMPs for On-site Stormwater**.

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

☐ Permanent BMPs or measures are not required to prevent pollution of surface water or groundwater that originates on-site or flows off the site, including pollution caused by contaminated stormwater runoff, and an explanation is attached.

8. ☒ **Attachment D - BMPs for Surface Streams**. A description of the BMPs and measures that prevent pollutants from entering surface streams, sensitive features, or the aquifer is attached. Each feature identified in the Geologic Assessment as sensitive has been addressed.

☐ N/A

9. ☒ The applicant understands that to the extent practicable, BMPs and measures must maintain flow to naturally occurring sensitive features identified in either the geologic assessment, executive director review, or during excavation, blasting, or construction.

☒ The permanent sealing of or diversion of flow from a naturally-occurring sensitive feature that accepts recharge to the Edwards Aquifer as a permanent pollution abatement measure has not been proposed.

☐ **Attachment E - Request to Seal Features**. A request to seal a naturally-occurring sensitive feature, that includes, for each feature, a justification as to why no reasonable and practicable alternative exists, is attached.

10. ☒ **Attachment F - Construction Plans**. All construction plans and design calculations for the proposed permanent BMP(s) and measures have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer, and are signed, sealed, and dated. The plans are attached and, if applicable include:

☒ Design calculations (TSS removal calculations)

☒ TCEQ construction notes

☒ All geologic features

☒ All proposed structural BMP(s) plans and specifications

☐ N/A

11. ☒ **Attachment G - Inspection, Maintenance, Repair and Retrofit Plan**. A plan for the inspection, maintenance, repairs, and, if necessary, retrofit of the permanent BMPs and measures is attached. The plan includes all of the following:

    ☒ Prepared and certified by the engineer designing the permanent BMPs and measures
    ☒ Signed by the owner or responsible party
    ☒ Procedures for documenting inspections, maintenance, repairs, and, if necessary retrofit
    ☐ A discussion of record keeping procedures

    ☐ N/A

12. ☐ **Attachment H - Pilot-Scale Field Testing Plan**. Pilot studies for BMPs that are not recognized by the Executive Director require prior approval from the TCEQ. A plan for pilot-scale field testing is attached.

    ☒ N/A

13. ☒ **Attachment I -Measures for Minimizing Surface Stream Contamination**. A description of the measures that will be used to avoid or minimize surface stream contamination and changes in the way in which water enters a stream as a result of the construction and development is attached. The measures address increased stream flashing, the creation of stronger flows and in-stream velocities, and other in-stream effects caused by the regulated activity, which increase erosion that results in water quality degradation.

    ☐ N/A

Responsibility for Maintenance of Permanent BMP(s)

Responsibility for maintenance of best management practices and measures after construction is complete.

14. ☒ The applicant is responsible for maintaining the permanent BMPs after construction until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property (such as without limitation, an owner's association, a new property owner or lessee, a district, or municipality) or the ownership of the property is transferred to the entity. Such entity shall then be responsible for maintenance until another entity assumes such obligations in writing or ownership is transferred.

    ☐ N/A

15. ☒ A copy of the transfer of responsibility must be filed with the executive director at the appropriate regional office within 30 days of the transfer if the site is for use as a multiple single-family residential development, a multi-family residential development, or a non-residential development such as commercial, industrial, institutional, schools, and other sites where regulated activities occur.

    ☐ N/A

Permanent Stormwater Section
ATTACHMENT B

TCEQ WPAP & SCS APPLICATION

Santa Rita Ranch Northwest Phase 2 Section 1

Williamson County, Texas

Best Management Practices for Upgradient Stormwater:

Upgradient stormwater will travel overland to the curb and gutter and captured by the curb inlets to be conveyed to proposed Batch Detention Pond 19H-B1 and Batch detention pond 19H-B2. Proposed Batch Detention Ponds 19H-B1 and 19H-B2 will treat future development as well.

Permanent Stormwater Section
ATTACHMENT C

TCEQ WPAP & SCS APPLICATION

Santa Rita Ranch Northwest Phase 2 Section 1

Williamson County, Texas

Best Management Practices for On-site Stormwater:

Stormwater runoff from Northwest Phase 2 Section 1 will sheet flow across lawns, be captured in gutters and curb inlets, and piped into proposed Batch Detention Ponds 19H-B1 and 19H-B2 . Proposed Batch Detention Ponds 19H-B1 and 19H-B2 will treat future development. These water quality ponds provide TSS removal for the upstream sections. The water quality volume provided in these ponds will be sufficient to accommodate TSS removal for Northwest Phase 2 Section 1.

TCEQ project and drainage area maps are provided in the included construction plans. TCEQ TSS removal calculations are provided in Appendix A of this application. TCEQ WPAP & SCS approval letters are provided in Appendix B.

Permanent Stormwater Section
ATTACHMENT D

TCEQ WPAP & SCS APPLICATION

Santa Rita Ranch Northwest Phase 2 Section 1

Williamson County, Texas

Best Management Practices for Surface Stream Stormwater:

Stormwater runoff from drainage areas A to G will sheet flow across lawns, be captured in gutters and curb inlets, and piped into proposed Batch Detention Ponds 19H-B1 and 19H-B2 as shown on the Drainage Area Plan.

The batch ponds discharge through rock rip-rap and rock berms which will deter heavy floods from entering streams and aid in collection of sediment. The remaining site stormwater runoff will sheet flow across the lots and discharge directly into the North Fork of the San Gabriel River.

Permanent Stormwater Section
ATTACHMENT F

TCEQ WPAP & SCS APPLICATION

Santa Rita Ranch Northwest Phase 2 Section 1

Williamson County, Texas

Construction Plans:

Construction Plans for the erosion and sedimentation control measures proposed with this development are included at the end of this report.

Permanent Stormwater Section
ATTACHMENT G

TCEQ WPAP & SCS APPLICATION

Santa Rita Ranch Northwest Phase 2 Section 1

Williamson County, Texas

Inspection, Maintenance, Repair and Retrofit Plan:

Maintenance Guidelines for Batch Detention Basins

Batch detention basins may have somewhat higher maintenance requirements than an extended detention basin since they are active stormwater controls. The maintenance activities are identical to those of extended detention basins with the addition of maintenance and inspections of the automatic controller and the valve at the outlet.

- ***Inspections***. Inspections should take place a minimum of twice a year. One inspection should take place during wet weather to determine if the basin is meeting the target detention time of 12 hours and a drawdown time of no more than 48 hours. The remaining inspections should occur between storm events so that manual operation of the valve and controller can be verified. The level sensor in the basin should be inspected and any debris or sediment in the area should be removed. The outlet structure and the trash screen should be inspected for signs of clogging. Debris and sediment should be removed from the orifice and outlet(s) as described in previous sections. Debris obstructing the valve should be removed. During each inspection, erosion areas inside and downstream of this BMP should be identified and repaired/revegetated immediately.

- ***Mowing*.** The basin, basin side-slopes, and embankment of the basin must be mowed to prevent woody growth and control weeds. A mulching mower should be used, or the grass clippings should be caught and removed. Mowing should take place at least twice a year, or more frequently if vegetation exceeds 18 inches in height. More frequent mowing to maintain aesthetic appeal may be necessary in landscaped areas.

- ***Litter and Debris Removal***. Litter and debris removal should take place at least twice a year, as part of the periodic mowing operations and inspections. Debris and litter should be removed from the surface of the basin. Particular attention should be paid to floatable debris around the outlet structure. The outlet should be checked for possible clogging or obstructions and any debris removed.

- ***Erosion control.*** The basin side slopes and embankment all may periodically suffer from slumping and erosion. To correct these problems, corrective action, such as regrading and revegetation, may be necessary. Correction of erosion control should take place whenever required based on the periodic inspections.

- ***Nuisance Control.*** Standing water or soggy conditions may occur in the basin. Some standing water may occur after a storm event since the valve may close with 2 to 3 inches of water in the basin. Some flow into the basin may also occur between storms due to spring flow and residential water use that enters the storm sewer system. Twice a year, the facility should be evaluated in terms of nuisance control (insects, weeds, odors, algae, etc.).

- ***Structural Repairs and Replacement.*** With each inspection, any damage to structural elements of the basin (pipes, concrete drainage structures, retaining walls, etc.) should be identified and repaired immediately. An example of this type of repair can include patching of cracked concrete, sealing of voids, removal of vegetation from cracks and joints. The various inlet/outlet structures in a basin will eventually deteriorate and must be replaced.

- ***Sediment Removal***. A properly designed batch detention basin will accumulate quantities of sediment over time. The accumulated sediment can detract from the appearance of the facility and reduce the pollutant removal performance of the facility. The sediment also tends to accumulate near the outlet structure and can interfere with the level sensor operation. Sediment shall be removed from the basin at least every 5 years, when sediment depth exceeds 6 inches, when the sediment interferes with the level sensor or when the basin does not drain within 48 hours. Care should be taken not to compromise the basin lining during maintenance.

- ***Logic Controller.*** The Logic Controller should be inspected as part of the twice yearly investigations. Verify that the external indicators (active, cycle in progress) are operating properly by turning the controller off and on, and by initiating a cycle by triggering the level sensor in the basin. The valve should be manually opened and closed using the open/close switch to verify valve operation and to assist in inspecting the valve for debris. The solar panel should be inspected and any dust or debris on the panel should be carefully removed. The controller and all other circuitry and wiring should be inspected for signs of corrosion, damage from insects, water leaks, or other damage. At the end of the inspection, the controller should be reset.

Ultimately, these facilities will be owned, operated and maintained by the proposed Williamson County MUD No. 19F. Until the ownership of facilities is transferred to the MUD, Santa Rita KC, LLC. will be responsible for maintenance of these facilities in accordance with the above stated requirements.

Acknowledged by: _____

James Edward Horne
Santa Rita KC, LLC.

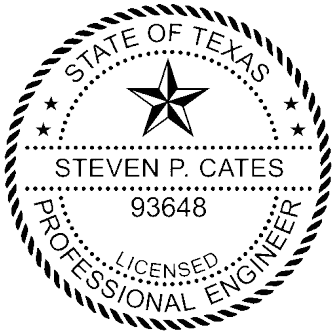
BMP DESIGN FIRM INFORMATION

Carlson, Brigance & Doering, Inc.
Mr. Steven P. Cates, P.E.
Phone: (512) 280-5160
5501 West William Cannon
Austin, TX 78749

The above Inspection, Maintenance, Repair, and Retrofit Plan has been prepared by the undersigned Engineer, and I hereby certify that the above Plan conforms with the minimum requirements of the TCEQ Technical Guidance on Best Management Practices, RG-348.

_____
Steven P. Cates, P.E.

5-30-2025
Date



CARLSON, BRIGANCE & DOERING, INC.
ID# F3791

Permanent Stormwater Section

ATTACHMENT I

TCEQ WPAP & SCS APPLICATION

Santa Rita Ranch Northwest Phase 2 Section 1

Williamson County, Texas

Measures for Minimizing Surface Stream Contamination:

The development minimizes surface stream contamination by maintaining the naturally occurring sheet flow across the lots. Drainage from this development will be directed towards batch detention ponds which will reduce the developed flow rated to predeveloped flow rates. There are no surface streams within this site.

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: Santa Rita Ranch Northwest Phase 2 Section 1

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: James Edward Horne
   Entity: Santa Rita KC, LLC.
   Mailing Address: 1700 Cross Creek Lane, Suite 100
   City, State: Liberty Hill, Texas Zip: 78642
   Telephone: 512-502-2050 Fax: _____
   Email Address: ed@srraustin.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: Steven P. Cates, P.E.
   Texas Licensed Professional Engineer's Number: 93648
   Entity: Carlson, Brigance, and Doering, Inc.
   Mailing Address: 5501 W. William Cannon Dr.
   City, State:Austin, Texas Zip: 78749
   Telephone:512-280-5160 Fax:512-280-5165
   Email Address:steve@cbdeng.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: 87
   ☐ 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	18,270 gallons/day
_____% Industrial	_____ gallons/day
_____% Commingled	_____ gallons/day

   Total gallons/day: 18,270

6. Existing and anticipated infiltration/inflow is 36,960 gallons/day. This will be addressed by: SDR 26 PVC with gasketed joints.

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 this application, 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)*
6"	1,039	SDR 26 PVC	ASTM D3034
8"	921	C900 (150 psi) PVC	AWWA C900
8"	6,770	SDR 26 PVC	ASTM D3034
12"	20	C900 (150 psi) PVC	AWWA C900
12"	5,348	SDR 26 PVC	ASTM D3034

Total Linear Feet: 14,099

(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 Liberty Hill Wastewater (name) Treatment Plant. The treatment facility is:

   ☒ Existing
   ☐ Proposed

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

   ☒ The City of Liberty Hill 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?*
A	88 Of 109	22+97.05	MH
B	89 Of 109	2+87.36	CO
C	90 Of 109	5+48.42	CO
D	95 Of 109	36+57.48	CO
E	94 Of 109	0+60.00	CO
WWFM	96 Of 109	8+41.22	CO
	Of		

Line	*Shown on Sheet*	*Station*	*Manhole or Clean-out?*
	Of		
	Of		
	Of		

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" = 40'.

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*
	of	to
	of	to
	of	to
	of	to

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*
	of	to
	of	to
	of	to
	of	to

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*
WWLN B	0+36.90	CROSSING		147
WWLN C	4+81.92	CROSSING		35
WWLN D	7+79.93	CROSSING		40
WWLN D	31+09.10	CROSSING		89
WWLN E	0+36.50	CROSSING		105
WWFM	7+34.47	CROSSING		28
		CROSSING		

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*

Line	*Manhole*	*Station*	*Sheet*

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*

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*

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]**	103 of 109
Manhole, showing inverts comply with 30 TAC §217.55(l)(2) **[Required]**	103 of 109
Alternate method of joining lateral to existing SCS line for potential future connections **[Required]**	103 of 109
Typical trench cross-sections **[Required]**	103 of 109
Bolted manholes **[Required]**	103 of 109
Sewer Service lateral standard details **[Required]**	103 of 109
Clean-out at end of line **[Required, if used]**	103 of 109
Baffles or concrete encasement for shock/erosion protection **[Required, if flow velocity of any section of pipe >10 fps]**	N/A of N/A
Detail showing Wastewater Line/Water Line Crossing **[Required, if crossings are proposed]**	103 of 109
Mandrel detail or specifications showing compliance with 30 TAC §217.57(b) and (c) **[Required, if Flexible Pipe is used]**	N/A of N/A

Standard Details	*Shown on Sheet*
Drop manholes **[Required, if a pipe entering a manhole is more than 24 inches above manhole invert]**	N/A of 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: 6/04/2025

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: Steven P. Cates, P.E.

Date: 5/30/2025

Place engineer's seal here:



Signature of Licensed Professional Engineer:



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)

Santa Rita Ranch Northwest
Phase 2 Section 1

SCS Engineering Design Report

Prepared by:

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May 2025
CBD No. 5665



5-30-2025

Santa Rita Ranch Northwest
Phase 2 Section 1

SCS Engineering Design Report

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II. Description of Proposed System

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IV. System Design

Santa Rita Ranch Northwest
Phase 2 Section 1

SCS Engineering Design Report

I. GENERAL

Santa Rita Ranch Northwest Phase 2 Section 1 is a 55.27-acre residential development that is composed of 87 single-family lots. The project is located to the west of Ronald Reagan Blvd. and south of Saddleback at Santa Rita Ranch Phase 1 section 1. The project is located within the City of Liberty Hill ETJ, in Williamson County, Texas. This project includes 8,382 linear feet of roadway, 12,118.71 linear feet of water main line, 5,348 linear feet of 8" SDR 26 PVC ASTM D3034 wastewater main line, 5,348 linear feet of 12" SDR 26 PVC ASTM D3034 wastewater main line, 100 linear feet of 8" and 20 linear feet of 12" C900 (150 psi) PVC AWWA C900 wastewater main line at water crossings, 821.22 linear feet of 2-8" C900 DR-18 PVC force main and 1,039 linear feet of 6" SDR 26 PVC ASTM D3034 of wastewater service line The proposed wastewater line will flow into an existing SCS gravity system to the approved Lift Station 2A and then the Liberty Hill Wastewater Treatment Plant.

Flow was calculated using LCRA design criteria (210 gallons per LUE, 1,000 gal/acre/day) assuming 3 people per LUE at 70 gpd/person for residential use.

II. DESCRIPTION OF PROPOSED SYSTEM

The gravity mains and manholes meet the TCEQ requirements of Chapter 217. All the gravity mains with this project are PVC SDR-26 ATSM D3034. The construction plans consist of the following:

Linear Feet	Pipe Material	National Standard Specification for Pipe
12,119	PVC SDR-26	ASTM D3034
941	PVC C900 (150 psi)	AWWA C900

The pipes are designed with a slope that will provide a velocity of at least 2 feet per second, as calculated using Manning's equation with an "n" value of 0.013. Additionally, the collection system is designed to ensure that, with pipes flowing full, the velocities will be less than 10 feet per second.

Pipe Diameter: 8" Min. Slope: 0.42% Max. Slope: 8.40%
12" Min. Slope: 0.25% Max. Slope: 4.89%

The plans and specifications, which describe the project identified in the report, are in compliance with all the requirements of Chapter 217. Refer to the calculations at the end of the report for all the analysis for flows & deflection.

Santa Rita Ranch Northwest
Phase 2 Section 1

SCS Engineering Design Report

III. Pipe Deflection Calculations

6", 8", & 12" SDR 26 ATSM D3034 – 6ft-16ft Depth of Bury

Given: 6" & 8" SDR 26 PVC ATSM D3034 Pipe
H= 6 ft (Depth of Bury)
γ = 120 lbs/cf (Backfill Soil Unit Weight)
D_L = 1.0 (Deflection Lag Factor)
K = 0.085 (Bedding Constant)
W' = 16,000 moving wheel load (live load)
PS = 144 psi (Pipe Stiffness for PVC SDR 26)
E^1 = 3,000 psi (Soil Modulus for Limestone)

PIPE DEFLECTION, %
(2 Trucks Passing Live Load)

Including a 16000 Lb MOVING Wheel Load
Effective Length of Wheel Load: 3.00 Ft

DLF = 1.00 K = 0.085 PS = 144 psi E' = 3000 psi

Prism Load, Wp, Condition

Backfill Weight = 120 Lb / Ft ^ 3

	Outside Diameters, ins.			
Depth, Ft	6.275	8.400	12.500	15.300
6.00	0.32 %	0.32 %	0.32 %	0.32 %
8.00	0.35 %	0.35 %	0.35 %	0.35 %
10.00	0.40 %	0.40 %	0.40 %	0.40 %
12.00	0.46 %	0.46 %	0.46 %	0.46 %
14.00	0.52 %	0.52 %	0.52 %	0.52 %
16.00	0.58 %	0.58 %	0.58 %	0.58 %
18.00	0.65 %	0.65 %	0.65 %	0.65 %

Deflection = 0.58% < 2.0% ok

Santa Rita Ranch Northwest
Phase 2 Section 1

SCS Engineering Design Report

6" & 8" SDR 18 PVC AWWA C900 Pipe

Given 6" & 8" SDR 18 PVC AWWA C900 Pipe
H= 3 ft (Mi. Depth of Bury)
γ = 120 lbs/cf (Backfill Soil Unit Weight)
D_L = 1.0 (Deflection Lag Factor)
K = 0.085 (Bedding Constant)
W' = 16,000 moving wheel load (live load)
PS = 455 psi (Pipe Stiffness for PVC SDR 18)
E^1 = 3,000 psi (Soil Modulus for Limestone)

PIPE DEFLECTION, %
(2 Trucks Passing Live Load)

Including a 16000 Lb MOVING Wheel Load
Effective Length of Wheel Load: 3.00 Ft

DLF = 1.00 K = 0.085 PS = 455 psi E' = 3000 psi

Prism Load, Wp, Condition Backfill Weight = 120 Lb / Ft ^ 3

	Outside Diameters, ins.	
Depth, Ft	6.900	9.050
3.00	0.35 %	0.35 %
5.00	0.26 %	0.26 %
7.00	0.27 %	0.27 %
9.00	0.31 %	0.31 %
11.00	0.35 %	0.35 %
13.00	0.40 %	0.40 %
15.00	0.45 %	0.45 %

Deflection = 0.55% < 2.0% ok

Santa Rita Ranch Northwest
Phase 2 Section 1

SCS Engineering Design Report

IV. System Design

Flow Calculations:

DEV. TYPE	LUE's	Population (PPL)	gpd/LUE	Flow (gpm)	I&I Area (ac)
Single Family Lots	87	261	210	12.96	36.96

Peaking Factor (PF) = 4.10
PF = (18+(PPL/1000)^0.5)/((4+(PPL/1000)^0.5))

Minimum Flow Factor (MF) = 0.15
MF= 0.2(PPL/1000)^0.198

Inflow & Infiltration (I&I) =25.67 gpm
I&I = 1000gpd/ac*(I&I Area) ac./1440

Minimum Dry Weather Flow (Min.DWF) = 1.94 gpm
Min.DWF = (PPL)*70*(MF)/1440gpd/gpm

Average Dry Weather Flow (ADWF) = 12.69 gpm
ADWF = (PPL)*70/1440gpd/gpm

Maximum Dry Weather Flow (Max.DWF) = 52.06 gpm
Max.DWF = (PPL)*70*(PF)/1440gpd/gpm

Maximum Wet Weather Flow (MWWF) **= 77.73 gpm**
MWWF = Max.DWF + I&I

Pipe Capacity:

77.73 gpm / (448.8 gpm/cfs) = 0.17 cfs

Full Flow of 8" pipe at 0.34% (assuming n = 0.013) = 0.65 cfs

0.17 cfs / 0.65 cfs = 27% pipe capacity

Full Flow of 12" pipe at 0.20% (assuming n = 0.013) = 1.59 cfs

0.17 cfs / 1.59 cfs = 11% pipe capacity

Lift Station Capacity:

Per the Santa Rita Ranch Phase 2A Lift Station Engineering Report, the receiving systems have sufficient capacity to treat flows from proposed Phase 2 Section 1.

Appendix A

TCEQ WPAP & SCS APPLICATION

Santa Rita Ranch Northwest Phase 2 Section 1

Williamson County, Texas

BMP TSS Removal Worksheet

Phase 2 Section 1
(SITES)

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1
Date Prepared: 5/20/2025

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**

* The values entered in these fields should be for the total project area.

SADDLEBACK AT SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1

Total project area included in plan * =	55.27	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	17.74	acres
Total post-development impervious cover fraction * =	0.32	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	15441	lbs.

BATCH DETENTION POND 19H-B1

SADDLEBACK AT SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1

Total project area included in plan * =	21.54	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	7.87	acres
Total post-development impervious cover fraction * =	0.37	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	6850	lbs.

$L_{M\ TOTAL}$ = 6850 lbs.

BATCH DETENTION POND 19H-B2

SADDLEBACK AT SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1

Total project area included in plan * =	28.45	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	6.41	acres
Total post-development impervious cover fraction * =	0.23	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	5579	lbs.

COMMECIAL AREA 11

Total project area included in plan * =	9.17	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	7.34	acres
Total post-development impervious cover fraction * =	0.80	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	6389	lbs.

SADDLEBACK AT SANTA RITA RANCH NORTHWEST PHASE 2 FUTURE

Total project area included in plan * =	1.48	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	0.00	acres
Total post-development impervious cover fraction * =	0.00	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	0	lbs.

$L_{M\ TOTAL}$ = 11968 lbs.

BATCH DETENTION POND 5-2

SADDLEBACK AT SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1

Total project area included in plan * =	2.98	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	1.79	acres
Total post-development impervious cover fraction * =	0.60	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	1558	lbs.

SADDLEBACK AT SANTA RITA RANCH FUTURE

Total project area included in plan * =	59.86	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	7.33	acres
Total post-development impervious cover fraction * =	0.12	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	6380	lbs.

$L_{M\ TOTAL}$ = 7938 lbs.

KIMMILEY HORN

ELIZABETH PARKWAY & MALDANADO DRIVE

Total project area included in plan * =	2.30	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan * =	1.67	acres
Total post-development impervious cover fraction * =	0.73	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	1454	lbs.



5-30-2025

Appendix A

TCEQ WPAP & SCS APPLICATION

Santa Rita Ranch Northwest Phase 2 Section 1

Williamson County, Texas

BMP TSS Removal Worksheet

Phase 2 Section 1

TSS Removal Calculations 04-20-2009

Project Name: 5665 SRR NW Phase 2 Section 1
Date Prepared: 5/20/2025

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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 * =	55.27	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	18.31	acres
Total post-development impervious cover fraction * =	0.33	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	15937	lbs.

* The values entered in these fields should be for the total project area.

Number of drainage basins / outfalls areas leaving the plan area = 1

2. Drainage Basin Parameters (This information should be provided for each basin):

Drainage Basin/Outfall Area No. = 1

Total drainage basin/outfall area =	55.27	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	18.31	acres
Post-development impervious fraction within drainage basin/outfall area =	0.33	
$L_{M\ THIS\ BASIN}$ =	15937	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Batch Detention
Removal efficiency = 91 percent

SOURCE:
"COMPLYING WITH THE EDWARDS AQUIFER RULES TECHNICAL GUIDANCE ON BEST MANAGEMENT PRACTICES RG-348 (REVISED JULY 2005)", ADDENDUM DATED JANUARY 20, 2017, SECTION 3.2.17 'BATCH

Aqualogic Cartridge Filter
Batch Detention
Bioretention
Contech StormFilter
Constructed Wetland
Extended Detention
Grassy Swale
Retention / Irrigation
Sand Filter
Stormceptor
Vegetated Filter Strips
Vortechs
Wet Basin
Wet Vault

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: $L_R = (\text{BMP efficiency}) \times P \times (A_I \times 34.6 + A_P \times 0.54)$

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 =	55.27	acres
A_I =	18.31	acres
A_P =	36.96	acres
L_R =	19029	lbs

5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area

Desired $L_{M\ THIS\ BASIN}$ = 15937 lbs.

F = 0.84

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 =	1.26	inches
Post Development Runoff Coefficient =	0.27	
On-site Water Quality Volume =	69217	cubic feet

Calculations from RG-348 Pages 3-36 to 3-37

Off-site area draining to BMP =	0.00	acres
Off-site Impervious cover draining to BMP =	0.00	acres
Impervious fraction of off-site area =	0	
Off-site Runoff Coefficient =	0.00	
Off-site Water Quality Volume =	0	cubic feet
Storage for Sediment =	13843	
Total Capture Volume (required water quality volume(s) x 1.20) =	83061	cubic feet



CARLSON, BRIGANCE & DOERING, INC.
ID# F3791

5-30-2025

Appendix A

TCEQ WPAP & SCS APPLICATION

Santa Rita Ranch Northwest Phase 2 Section 1

Williamson County, Texas

BMP TSS Removal Worksheet

Drainage Basin 19H-B1

(Overall)

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: 5665 SRR NW Phase 2
Date Prepared: 5/20/2025

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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 * =	21.54	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	7.87	acres
Total post-development impervious cover fraction * =	0.37	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	6850	lbs.

* The values entered in these fields should be for the total project area.

Number of drainage basins / outfalls areas leaving the plan area = 1

2. Drainage Basin Parameters (This information should be provided for each basin):

Drainage Basin/Outfall Area No. = 1

Total drainage basin/outfall area =	16.89	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	6.86	acres
Post-development impervious fraction within drainage basin/outfall area =	0.41	
$L_{M\ THIS\ BASIN}$ =	5971	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Batch Detention
Removal efficiency = 91 percent

SOURCE:
"COMPLYING WITH THE EDWARDS AQUIFER RULES TECHNICAL GUIDANCE ON BEST MANAGEMENT PRACTICES RG-348 (REVISED JULY 2005)", ADDENDUM DATED JANUARY 20, 2017, SECTION 3.2.17 'BATCH

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Constructed Wetland
Extended Detention
Grassy Swale
Retention / Irrigation
Sand Filter
Stormceptor
Vegetated Filter Strips
Vortechs
Wet Basin
Wet Vault

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: $L_R = (\text{BMP efficiency}) \times P \times (A_I \times 34.6 + A_P \times 0.54)$

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 =	16.89	acres
A_I =	6.86	acres
A_P =	10.03	acres
L_R =	7070	lbs

5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area

Desired $L_{M\ THIS\ BASIN}$ = 6850 lbs.

F = 0.97

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 =	3.00	inches
Post Development Runoff Coefficient =	0.31	
On-site Water Quality Volume =	56989	cubic feet

Calculations from RG-348 Pages 3-36 to 3-37

Off-site area draining to BMP =	0.00	acres
Off-site Impervious cover draining to BMP =	0.00	acres
Impervious fraction of off-site area =	0	
Off-site Runoff Coefficient =	0.00	
Off-site Water Quality Volume =	0	cubic feet
Storage for Sediment =	11398	
Total Capture Volume (required water quality volume(s) x 1.20) =	68387	cubic feet

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ID# F-3791

5-30-2025

Appendix A

TCEQ WPAP & SCS APPLICATION

Santa Rita Ranch Phase Northwest Phase 2 Section 1

Williamson County, Texas

BMP TSS Removal Worksheet

Drainage Basin 19H-B2

(Overall)

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: 5665 SRR NW Phase 2
Date Prepared: 5/20/2025

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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 * =	39.10	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	13.75	acres
Total post-development impervious cover fraction * =	0.35	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	11968	lbs.

* The values entered in these fields should be for the total project area.

Number of drainage basins / outfalls areas leaving the plan area = 1

2. Drainage Basin Parameters (This information should be provided for each basin):

Drainage Basin/Outfall Area No. = 1

Total drainage basin/outfall area =	34.43	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	12.90	acres
Post-development impervious fraction within drainage basin/outfall area =	0.37	
$L_{M\ THIS\ BASIN}$ =	11228	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Batch Detention
Removal efficiency = 91 percent

SOURCE:
"COMPLYING WITH THE EDWARDS AQUIFER RULES TECHNICAL GUIDANCE ON BEST MANAGEMENT PRACTICES RG-348 (REVISED JULY 2005)", ADDENDUM DATED JANUARY 20, 2017, SECTION 3.2.17 'BATCH

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Sand Filter
Stormceptor
Vegetated Filter Strips
Vortechs
Wet Basin
Wet Vault

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 =	34.43	acres
A_I =	12.90	acres
A_P =	21.53	acres
L_R =	13336	lbs

5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area

Desired $L_{M\ THIS\ BASIN}$ = 11968 lbs.

F = 0.90

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 =	1.70	inches
Post Development Runoff Coefficient =	0.29	
On-site Water Quality Volume =	62628	cubic feet

Calculations from RG-348 Pages 3-36 to 3-37

Off-site area draining to BMP =	0.00	acres
Off-site Impervious cover draining to BMP =	0.00	acres
Impervious fraction of off-site area =	0	
Off-site Runoff Coefficient =	0.00	
Off-site Water Quality Volume =	0	cubic feet
Storage for Sediment =	12526	
Total Capture Volume (required water quality volume(s) x 1.20) =	75154	cubic feet

STATE OF TEXAS
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ID# F3791

5-30-2025

99370

Appendix A

TCEQ WPAP & SCS APPLICATION

Santa Rita Ranch Phase Northwest Phase 2 Section 1

Williamson County, Texas

BMP TSS Removal Worksheet

Drainage Basin 5-2

(Overall)

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: 5665 SRR NW Phase 2
Date Prepared: 12/17/2024

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 * =	62.84	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	9.12	acres
Total post-development impervious cover fraction * =	0.15	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	7938	lbs.

* The values entered in these fields should be for the total project area.

Number of drainage basins / outfalls areas leaving the plan area = 1

2. Drainage Basin Parameters (This information should be provided for each basin):

Drainage Basin/Outfall Area No. = 1

Total drainage basin/outfall area =	57.13	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	7.33	acres
Post-development impervious fraction within drainage basin/outfall area =	0.13	
$L_{M\ THIS\ BASIN}$ =	6380	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Batch Detention
Removal efficiency = 91 percent

SOURCE:
"COMPLYING WITH THE EDWARDS AQUIFER RULES TECHNICAL GUIDANCE ON BEST MANAGEMENT PRACTICES RG-348 (REVISED JULY 2005)", ADDENDUM DATED JANUARY 20, 2017, SECTION 3.2.17 'BATCH

Aqualogic Cartridge Filter
Batch Detention
Bioretention
Contech StormFilter
Constructed Wetland
Extended Detention
Grassy Swale
Retention / Irrigation
Sand Filter
Stormceptor
Vegetated Filter Strips
Vortechs
Wet Basin
Wet Vault

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: $L_R = (\text{BMP efficiency}) \times P \times (A_I \times 34.6 + A_P \times 0.54)$

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 =	57.13	acres
A_I =	7.33	acres
A_P =	49.80	acres
L_R =	8168	lbs

5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area

Desired $L_{M\ THIS\ BASIN}$ = 7938 lbs.

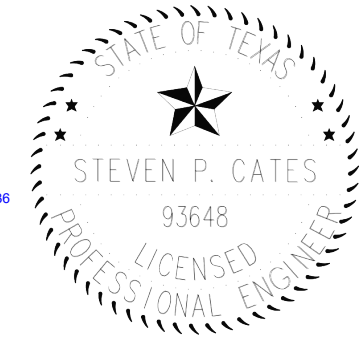
F = 0.97

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 =	3.00	inches
Post Development Runoff Coefficient =	0.15	
On-site Water Quality Volume =	92710	cubic feet

Calculations from RG-348 Pages 3-36 to 3-37

Off-site area draining to BMP =	0.00	acres
Off-site Impervious cover draining to BMP =	0.00	acres
Impervious fraction of off-site area =	0	
Off-site Runoff Coefficient =	0.00	
Off-site Water Quality Volume =	0	cubic feet
Storage for Sediment =	18542	
Total Capture Volume (required water quality volume(s) x 1.20) =	111252	cubic feet



CARLSON, BRIGANCE & DOERING, INC.
ID# F3791

5-30-2025

Appendix B

TCEQ WPAP & SCS APPLICATION

Santa Rita Ranch Phase Northwest Phase 2 Section 1

Williamson County, Texas

WPAP and SCS Approval Letters

Jon Niermann, *Chairman*
Emily Lindley, *Commissioner*
Bobby Janecka, *Commissioner*
Erin E. Chancellor, *Interim Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

December 16, 2022

Mr. James Edward Horne
Santa Rita KC, LLC
1700 Cross Creek Lane, Suite 100
Liberty Hill, Texas 78642

Re: Edwards Aquifer, Williamson County

NAME OF PROJECT: Santa Rita Ranch Phase 5 Section 4; Located North of HWY 29 and East of Ronald Reagan Blvd.; Liberty Hill (ETJ), Texas

TYPE OF PLAN: Request for Approval of a Water Pollution Abatement Plan (WPAP) and an Organized Sewage Collection System (SCS); 30 Texas Administrative Code (TAC) Chapter 213 Edwards Aquifer

Edwards Aquifer Protection Program (EAPP) ID Nos. 11003302 (WPAP) and 11003303 (SCS); Regulated Entity No. RN111587374

Dear Mr. Horne:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the WPAP and SCS applications for the above-referenced project submitted to the Austin Regional Office by Carlson, Brigance & Doering, Inc. on behalf of Santa Rita KC, LLC on October 12, 2022. Final review of the WPAP and SCS was completed after additional material was received on December 15, 2022. As presented to the TCEQ, the Temporary and Permanent Best Management Practices (BMPs) were selected and construction plans were prepared by a Texas Licensed Professional Engineer to be in general compliance with the requirements of 30 TAC Chapter 213 and Chapter 217. These planning materials were sealed, signed and dated by a Texas Licensed Professional Engineer. Therefore, based on the engineer's concurrence of compliance, the planning materials for construction of the proposed project and pollution abatement measures are hereby approved subject to applicable state rules and the conditions in this letter. The applicant or a person affected may file with the chief clerk a motion for reconsideration of the executive director's final action on this Edwards Aquifer Protection Plan. A motion for reconsideration must be filed no later than 23 days after the date of this approval letter. *This approval expires two (2) years from the date of this letter unless, prior to the expiration date, more than 10 percent of the construction has commenced on the project or an extension of time has been requested.*

BACKGROUND

The Santa Rita Ranch Phase 4 Section 2 WPAP approved by letter dated March 18, 2021 (EAPP ID No. 11002349) included the development of 123 single-family residential lots, roads and drives, utilities, and three (4-3, 4-4 and 4-5) batch detention basins. Batch detention basin 4-5 was also sized for future development, with a provided water quality volume of 250,544 cubic feet.

The Santa Rita Ranch Phase 5 Section 2 WPAP approved by letter dated May 25, 2022 (EAPP ID No. 11002962) included the development of 42 single-family residential lots, roads and drives, utilities, and a batch detention basin (5-1). Batch detention basin 5-1 was sized for future development, with a provided water quality volume of 119,201 cubic feet.

PROJECT DESCRIPTION

WPAP DESCRIPTON

The proposed single-family residential project will have an area of approximately 27.02 acres. It will include the development of 112 single-family residential lots, roads and drives, utilities, and associated appurtenances. The impervious cover will be 15.48 acres (57.3 percent). The project also proposes the construction of batch detention 5-2 to treat stormwater runoff from future Phase 5 developments.

SCS DESCRIPTION

The proposed 5,780 linear feet SCS will consist of approximately 1,725 linear feet of 6-inch diameter SDR 26 PVC ASTM D3034, 3,915 linear feet of 8-inch diameter SDR 26 PVC ASTM D3034, and 140 linear feet of 8-inch diameter AWWA C900 PVC, with associated manholes and stub-outs. Project wastewater will be disposed of by conveyance to the existing Liberty Hill Wastewater Treatment Plant and will comply with the City of Liberty Hill specifications.

PERMANENT POLLUTION ABATEMENT MEASURES

To prevent the pollution of stormwater runoff originating on-site or upgradient of the site and potentially flowing across and off the site after construction, two approved batch detention basins (Pond 4-5, EAPP ID No. 11002349; and Pond 5-1, EAPP ID No. 11002962) designed using the TCEQ technical guidance document, Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices (2005), will be utilized to treat stormwater runoff. The required total suspended solids (TSS) treatment for this project is 13,474 pounds of TSS generated from the 15.48 acres of impervious cover. The approved measures meet the required 80 percent removal of the increased load in TSS caused by the project.

Additionally, batch detention basin 5-2 designed using the TCEQ technical guidance document, Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices (2005), which will be constructed with this project, will be used for future development. It will have an approved water quality volume of 140,944 cubic feet and will be capable of removing 33,866 pounds of TSS generated from 38.91 acres of impervious cover.

GEOLOGY

According to the Geologic Assessment (GA) included with the application, no sensitive geologic features were observed at the site. The site is underlain by the Edwards Limestone (Ked) in the Edwards Aquifer Recharge Zone. The TCEQ site assessment conducted on December 15, 2022 revealed the site to be generally as described by the GA.

SPECIAL CONDITIONS

I. All permanent pollution abatement measures shall be operational prior to occupancy of the houses.

II. All sediment and/or media removed from the water quality basin during maintenance activities shall be properly disposed of according to 30 TAC 330 or 30 TAC 335, as applicable.

III. All wastewater collection and conveyance infrastructure shall be operational prior to any occupancy of the houses and prior to any wastewater flow being introduced into the sewage collection system.

STANDARD CONDITIONS

1. Pursuant to Chapter 7 Subchapter C of the Texas Water Code, any violations of the requirements in 30 TAC Chapter 213 may result in administrative penalties
2. The holder of the approved Edwards Aquifer protection plan must comply with all provisions of 30 TAC Chapter 213 and all best management practices and measures contained in the approved plan. Additional and separate approvals, permits, registrations and/or authorizations from other TCEQ Programs (i.e., Stormwater, Water Rights, UIC) can be required depending on the specifics of the plan.
3. In addition to the rules of the Commission, the applicant may also be required to comply with state and local ordinances and regulations providing for the protection of water quality.

Prior to Commencement of Construction:

4. Within 60 days of receiving written approval of an Edwards Aquifer Protection Plan, the applicant must submit to the Austin Regional Office, proof of recordation of notice in the county deed records, with the volume and page number(s) of the county deed records of the county in which the property is located. A description of the property boundaries shall be included in the deed recordation in the county deed records. A suggested form (Deed Recordation Affidavit, TCEQ-0625) that you may use to deed record the approved WPAP is enclosed.
5. All contractors conducting regulated activities at the referenced project location shall be provided a copy of this notice of approval. At least one complete copy of the approved WPAP and this notice of approval shall be maintained at the project location until all regulated activities are completed.
6. Modification to the activities described in the referenced WPAP application following the date of approval may require the submittal of a plan to modify this approval, including the payment of appropriate fees and all information necessary for its review and approval prior to initiating construction of the modifications.
7. The applicant must provide written notification of intent to commence construction, replacement, or rehabilitation of the referenced project. Notification must be submitted to the Austin Regional Office no later than 48 hours prior to commencement of the regulated activity. Written notification must include the date on which the regulated activity will commence, the name of the approved plan and program ID number for the regulated activity, and the name of the prime contractor with the name and telephone number of the contact person. The executive director will use the notification to determine if the approved plan is eligible for an extension.
8. Temporary erosion and sedimentation (E&S) controls, i.e., silt fences, rock berms, stabilized construction entrances, or other controls described in the approved WPAP, must be installed prior to construction and maintained during construction. Temporary E&S controls may be removed when vegetation is established and the construction area is stabilized. If a water quality pond is proposed, it shall be used as a sedimentation basin during construction. The TCEQ may monitor stormwater discharges from the site to evaluate the adequacy of temporary E&S control measures. Additional controls may be necessary if excessive solids are being discharged from the site.
9. All borings with depths greater than or equal to 20 feet must be plugged with non-shrink grout from the bottom of the hole to within three (3) feet of the surface. The remainder of the hole must be backfilled with cuttings from the boring. All borings less than 20 feet must be backfilled with cuttings from the boring. All borings must be backfilled or plugged within four (4) days of completion of the drilling operation. Voids may be filled with gravel.

During Construction:

10. During the course of regulated activities related to this project, the applicant or agent shall comply with all applicable provisions of 30 TAC Chapter 213, Edwards Aquifer. The applicant shall remain responsible for the provisions and conditions of this approval until such responsibility is legally transferred to another person or entity.
11. This approval does not authorize the installation of temporary aboveground storage tanks on this project. If the contractor desires to install a temporary aboveground storage tank for use during construction, an application to modify this approval must be submitted and approved prior to installation. The application must include information related to tank location and spill containment. Refer to Standard Condition No. 6, above.
12. If any sensitive feature (caves, solution cavities, sink holes, etc.) is discovered during construction, all regulated activities near the feature must be suspended immediately. The applicant or his agent must immediately notify the Austin Regional Office of the discovery of the feature. Regulated activities near the feature may not proceed until the executive director has reviewed and approved the methods proposed to protect the feature and the aquifer from potentially adverse impacts to water quality. The plan must be sealed, signed, and dated by a Texas Licensed Professional Engineer.
13. All water wells, including injection, dewatering, and monitoring wells must be in compliance with the requirements of the Texas Department of Licensing and Regulation under Title 16 TAC Chapter 76 (relating to Water Well Drillers and Pump Installers) and all other locally applicable rules, as appropriate.
14. If sediment escapes the construction site, the 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). Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50 percent. Litter, construction debris, and construction chemicals shall be prevented from becoming stormwater discharge pollutants.
15. Intentional discharges of sediment laden water are not allowed. If dewatering becomes necessary, the discharge will be filtered through appropriately selected best management practices. These may include vegetated filter strips, sediment traps, rock berms, silt fence rings, etc.
16. The following records shall be maintained and made available to the executive director 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.
17. Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, and construction activities will not resume within 21 days. When the initiation of stabilization measures by the 14th day is precluded by weather conditions, stabilization measures shall be initiated as soon as practicable.
18. No part of the system shall be used as a holding tank for a pump-and-haul operation.

After Completion of Construction:

19. A Texas Licensed Professional Engineer must certify in writing that the permanent BMPs or measures were constructed as designed. The certification letter must be submitted to the Austin Regional Office within 30 days of site completion.
20. The applicant shall be responsible for maintaining the permanent BMPs after construction until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property (such as without limitation, an owner's association, a new property owner or lessee, a district, or municipality) or the ownership of the property is transferred to the entity. Such entity shall then be responsible for

maintenance until another entity assumes such obligations in writing or ownership is transferred. A copy of the transfer of responsibility must be filed with the executive director through Austin Regional Office within 30 days of the transfer. A copy of the transfer form (TCEQ-10263) is enclosed.

21. Upon legal transfer of this property, the new owner(s) is required to comply with all terms of the approved Edwards Aquifer protection plan. If the new owner intends to commence any new regulated activity on the site, a new Edwards Aquifer protection plan that specifically addresses the new activity must be submitted to the executive director. Approval of the plan for the new regulated activity by the executive director is required prior to commencement of the new regulated activity.
22. Certification by a Texas Licensed Professional Engineer of the testing of sewage collection systems required by 30 TAC Chapter 213 and Chapter 217 shall be submitted to the Austin Regional Office within 30 days of test completion and prior to the new sewage collection system being put into service. The certification should include the project name as it appeared on the approved application, the program ID number, and two copies of a site plan sheet(s) indicating the wastewater lines and manholes that were tested and are being certified as complying with the appropriate regulations. 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. Should any test result fail to meet passing test criteria and then subsequently pass testing, the result(s) and an explanation of what repair, adjustment, or other means were taken to facilitate a subsequent passing result shall be provided.

    Every five years after the initial certification, the sewage collection system shall be retested. Any lines that fail the test must be repaired and retested. Certification that the system continues to meet the requirements of 30 TAC Chapter 213 and Chapter 217 shall be submitted to the Austin Regional Office. The certification should include the project name as it appeared on the approved application, the program ID number and two copies of a site plan sheet(s) indicating the wastewater lines and manholes that were tested and are being certified as complying with the appropriate regulations. Should any test result fail to meet passing test criteria, and then subsequently pass testing, the result(s) and an explanation of what repair, adjustment, or other means were taken to facilitate a subsequent passing result shall be provided.
23. If ownership of this organized sewage collection system is legally transferred (e.g., developer to city or Municipal Utility District), the new owner(s) is required to comply with all terms of the approved Edwards Aquifer protection plan. If the new owner intends to commence any new regulated activity on the site, a new Edwards Aquifer protection plan that specifically addresses the new activity must be submitted to the executive director. Approval of the plan for the new regulated activity by the executive director is required prior to commencement of the new regulated activity.
24. An Edwards Aquifer protection plan approval or extension will expire, and no extension will be granted if more than 50 percent of the total construction has not been completed within ten years from the initial approval of a plan. A new Edwards Aquifer protection plan must be submitted to the Austin Regional Office with the appropriate fees for review and approval by the executive director prior to commencing any additional regulated activities.
25. At project locations where construction is initiated and abandoned, or not completed, the site shall be returned to a condition such that the aquifer is protected from potential contamination.

This action is taken under authority delegated by the Executive Director of the Texas Commission on Environmental Quality. If you have any questions or require additional information, please contact Mihaela (Miki) Chilarescu, P.E. of the Edwards Aquifer Protection Program of the Austin Regional Office at (512) 339-2929.

Sincerely,

Lillian Butler

Lillian Butler, Section Manager
Edwards Aquifer Protection Program
Texas Commission on Environmental Quality

LIB/mec

Enclosure: Deed Recordation Affidavit, Form TCEQ-0625
Change in Responsibility for Maintenance of Permanent BMPs, Form TCEQ-10263

CC: Steven P Cates, P.E. - Carlson, Brigance & Doering, Inc.

Appendix C

TCEQ WPAP & SCS APPLICATION

Santa Rita Ranch Northwest Phase 2 Section 1

Williamson County, Texas

Water Quality Calculation

Spreadsheet

SADDLEBACK AT SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1

Table 1 - Impervious Cover per Section

Sections	TCEQ Project Area Per Section						Onsite Drainage Basin to BMP Per Section						TSS Removal Required (lbs)
Contributing Sections	Project Area (ac)	# Lots	Impervious Areas (ac)				Drainage Basin (ac)	# Lots	Impervious Areas (ac)				
			Lots	ROW	Misc.	Total			Lots	ROW	Misc.	Total	
PROPOSED BATCH DETENTION POND 19H-B1													
NW 2-1	21.54	55	4.71	3.16	0.00	7.87	16.89	43	3.70	3.16	0.00	6.86	6,850
PROPOSED BATCH DETENTION POND 19H-B2													
NW 2-1	28.45	32	2.67	3.74	0.00	6.41	24.85	32	2.67	3.75	0.00	6.42	5,579
commercial area 11	9.17	0	0.00	0.00	7.34	7.34	8.10	0	0.00	0.00	6.48	6.48	6,389
NW 2-FUTURE	1.48	0	0.00	0.00	0.00	0.00	1.48	0	0.00	0.00	0.00	0.00	0
EXISITNG BATCH DETENTION POND 5-2													
NW 2-1	2.98	0	0.00	1.79	0.00	1.79	0.00	0	0.00	0.00	0.00	0.00	1,558
FUTURE LHISD	59.86	0	0.00	0.00	7.33	7.33	57.13	0	0.00	0.00	7.33	7.33	6,380
ELIZABETH PRKWY & MALDANADO DR. (EI DORADO SUBDIVISION) (EAPP ID: 11003440)													
NW 2-1	2.30	0	0.00	1.66	0.01	1.67	2.30	0	0.00	1.66	0.01	1.67	1,454
SADDLEBACK AT SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1													
NW 2-1	55.27	87	7.38	10.35	0.01	17.74							**15,441**

Table 2 - BMP Treatment Requirements

Project Area			Drainage Basin						BMP Treatment Provided	
			Onsite		Offsite		Total		Permanent Pool (cf)	
Total (ac)	Impv Area (ac)	Required TSS Removal (lbs)	Total (ac)	Impv Area (ac)	Total (ac)	Impv Area (ac)	Total (ac)	Impv Area (ac)	Required	Provided
PROPOSED BATCH DETENTION POND 19H-B1										
21.54	7.87	6,850	16.89	6.86	0.00	0.00	16.89	6.86	68,387	178,011
PROPOSED BATCH DETENTION POND 19H-B2										
39.10	13.75	11,968	34.43	12.90	0.00	0.00	34.43	12.90	75,154	115,000
EXISITNG BATCH DETENTION POND 5-2										
62.84	9.12	7,938	57.13	0.00	0.00	0.00	57.13	0.00	111,252	140,994
ELIZABETH PRKWY & MALDANADO DR. (EI DORADO SUBDIVISION) (EAPP ID: 11003440)										
2.30	1.67	1,784	2.30	1.67	0.00	0.00	2.30	1.67	*Treatment Provided by EAPP ID: 11003440	

Pond 19H-B1 Stage-Storage

Stage	Area (sf)	Area (ac)	Incremental Storage (cf)	Cumulative Storage (cf)	Cumulative Storage (ac-ft)	
898.00	182	0.00	0	0	0.00	**Pond Bottom**
899.00	13,775	0.32	6,979	6,979	0.16	
900.00	29,181	0.67	21,478	28,456	0.65	
901.00	46,226	1.06	37,704	66,160	1.52	
902.00	58,560	1.34	52,393	118,553	2.72	
903.00	60,356	1.39	59,458	**178,011**	4.09	**WQV Provided**
904.00	62,185	1.43	61,271	239,281	5.49	
905.00	64,049	1.47	63,117	302,398	6.94	
906.00	65,948	1.51	64,999	367,397	8.43	
907.00	67,880	1.56	66,914	434,311	9.97	**Top of Berm**

*Pond 19H-B1 Stage-Storage per Saddleback at Santa Rita Ranch Northwest Phase 2 Section 1 Construction Plans

Pond 19H-B2 Stage-Storage

Stage	Area (sf)	Area (ac)	Incremental Storage (cf)	Cumulative Storage (cf)	Cumulative Storage (ac-ft)	
890.00	182	0.00	0	0	0.00	**Pond Bottom**
891.00	11,005	0.25	5,594	5,594	0.13	
892.00	30,000	0.69	20,502	26,096	0.60	
893.00	56,890	1.31	43,445	69,540	1.60	
893.70				**115,000**		**WQV Provided**
894.00	78,107	1.79	67,498	137,039	3.15	
895.00	81,962	1.88	80,034	217,073	4.98	
896.00	85,874	1.97	83,918	300,991	6.91	
897.00	89,845	2.06	87,859	388,851	8.93	
898.00	93,873	2.16	91,859	480,710	11.04	
899.00	97,960	2.25	95,917	576,627	13.24	**Top of Berm**

*Pond 19H-B2 Stage-Storage per Saddleback at Santa Rita Ranch Northwest Phase 2 Section 1 Construction Plans

Pond 5-2 Stage-Storage

Stage	Area (sf)	Area (ac)	Incremental Storage (cf)	Cumulative Storage (cf)	Cumulative Storage (ac-ft)	
1006.00	25	0.00	0	0	0.00	**Pond Bottom**
1007.00	24,980	0.57	12,503	12,503	0.29	
1008.00	42,185	0.97	33,583	46,085	1.06	
1009.00	44,953	1.03	43,569	89,654	2.06	
1010.00	47,781	1.10	46,367	136,021	3.12	
1010.10				**140,944**		**WQV Provided**
1011.00	50,670	1.16	49,226	185,247	4.25	
1012.00	53,620	1.23	52,145	237391.5	5.45	
1013.00	56,630	1.30	55,125	292,517	6.72	
1014.00	54,432	1.25	55,531	348,048	7.99	
1015.00	57,230	1.31	55,831	403,879	9.27	**Top of Berm**

*Pond 5-2 Stage-Storage per Santa Rita Ranch Phase 5, Section 4 Construction Plans



CARLSON, BRIGANCE & DOERING, INC.
ID# F3791

5-30-2025

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

I James Edward Horne,
Print Name

Vice President,
Title - Owner/President/Other

of Santa Rita KC,LLC,
Corporation/Partnership/Entity Name

have authorized Steven P. Cates, P.E.
Print Name of Agent/Engineer

of Carlson, Brigance & Doering, Inc.
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

8-11-2025
Date

THE STATE OF Texas §

County of Travis §

BEFORE ME, the undersigned authority, on this day personally appeared James Edward Horne 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 11th day of August, 2025.

Ashley Cuellar Sousa
NOTARY PUBLIC

Ashley Cuellar Sousa
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: May 16, 2026

ASHLEY CUELLAR SOUSA
Notary Public, State of Texas
My Commission Expires
May 16, 2026
NOTARY ID 13376154-3

Application Fee Form

Texas Commission on Environmental Quality

Name of Proposed Regulated Entity: Santa Rita Ranch Northest Phase 2 Section 1
Regulated Entity Location: South Tower Road. , West of Ronald Reagan Blvd.
Name of Customer: Santa Rita KC, LLC.
Contact Person: James Edward Horne Phone: 512-280-5160
Customer Reference Number (if issued):CN 604360008
Regulated Entity Reference Number (if issued):RN _____

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	55.27 Acres	$ 6,500.00
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	Acres	$
Sewage Collection System	L.F.	$
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: 5/30/2025

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

TCEQ Core Data Form

TCEQ Use Only

For detailed instructions regarding completion of 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 604360008		RN

SECTION II: Customer Information

4. General Customer Information | **5. Effective Date for Customer Information Updates** (mm/dd/yyyy)

☐ 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:*

Santa Rita KC, 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)*
800901906	32034201288	203420128	N/A

11. Type of Customer: ☒ Corporation ☐ Individual Partnership: ☐ General ☐ Limited

Government: ☐ City ☐ County ☐ Federal ☐ 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 ☐ Voluntary Cleanup Applicant ☐ Other:

15. Mailing Address:

1700 Cross Creek Lane

Suite 100

City	State	ZIP	ZIP + 4
Liberty Hill	TX	78642	

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

18. Telephone Number	19. Extension or Code	20. Fax Number *(if applicable)*
(512) 502-2050		( ) -

SECTION III: Regulated Entity Information

21. General Regulated Entity Information *(If 'New Regulated Entity" is selected below this form should be accompanied by a permit application)*

☒ 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 Agency 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.)*

Santa Rita Ranch Northwest Phase 2 Section 1

23. Street Address of the Regulated Entity: *(No PO Boxes)*								
	City		**State**		**ZIP**		**ZIP + 4**	
24. County								

Enter Physical Location Description if no street address is provided.

25. Description to Physical Location:	West of Ronald Reagan Blvd.,between Elizabeth Park Blvd. and Tower Road.

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

27. Latitude (N) In Decimal:	30.675428	**28. Longitude (W) In Decimal:**	-97.842404

Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
30	40	31.5408	97	50	32.6544

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)
1521		236115	

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

Single Family Residential Development

34. Mailing Address:	**Santa Rita KC, LLC**							
	1700 Cross Creek Lane, Suite 100							
	City	**Liberty Hill**	**State**	**TX**	**ZIP**	**78642**	**ZIP + 4**	

35. E-Mail Address:	**ed@srraustin.com**

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
(512) 502-2050		**( ) -**

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	☐ Waste Water	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:

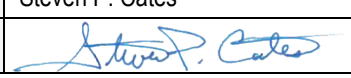
SECTION IV: Preparer Information

40. Name:	Steven P. Cates, P.E.	**41. Title:**	Senior Project Engineer

42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(512) 280-5160		(512) 280-5165	steve@cbdeng.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:	Carlson, Brigance & Doering, Inc.	**Job Title:**	Senior Project Engineer
Name*(In Print)* **:**	Steven P. Cates	**Phone:**	(512) 280-5160
Signature:		**Date:**	5/30/2025

SANTA RITA RANCH NORTHWEST
PHASE 2 SECTION 1

WILLIAMSON COUNTY, TEXAS
CONSTRUCTION PLANS

ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE PLANS REMAINS WITH THE ENGINEER WHO PREPARED THEM IN ACCEPTING THESE PLANS, WILLIAMSON COUNTY MUST RELY UPON THE ADEQUACY OF THE WORK OF THE DESIGN ENGINEER.

THESE PLANS WERE PREPARED, SEALED, SIGNED AND DATED BY A TEXAS LICENSED PROFESSIONAL ENGINEER. THEREFORE BASED ON THE ENGINEER'S CONCURRENCE OF COMPLIANCE, THE CONSTRUCTION PLANS FOR THE PROPOSED PROJECT ARE HEREBY APPROVED SUBJECT TO THE STANDARD CONSTRUCTION SPECIFICATIONS AND DETAILS MANUAL AND ALL OTHER APPLICABLE CITY, STATE AND FEDERAL REQUIREMENTS AND CODES.

SUBMITTED BY:

6-9-2025

STEVEN P. CATES, P.E. *DATE*
REGISTERED PROFESSIONAL ENGINEER No. 93648

ACCEPTED FOR CONSTRUCTION: (PROJECT #2025-??-WD)

CITY OF GEORGETOWN *DATE*
(WATER SYSTEM ONLY)

ACCEPTED FOR CONSTRUCTION: (PROJECT #2025-??-CON)

JAMES HERRERA, INTERIM PUBLIC WORKS DIRECTOR *DATE*
(WASTEWATER SYSTEM PLAN)

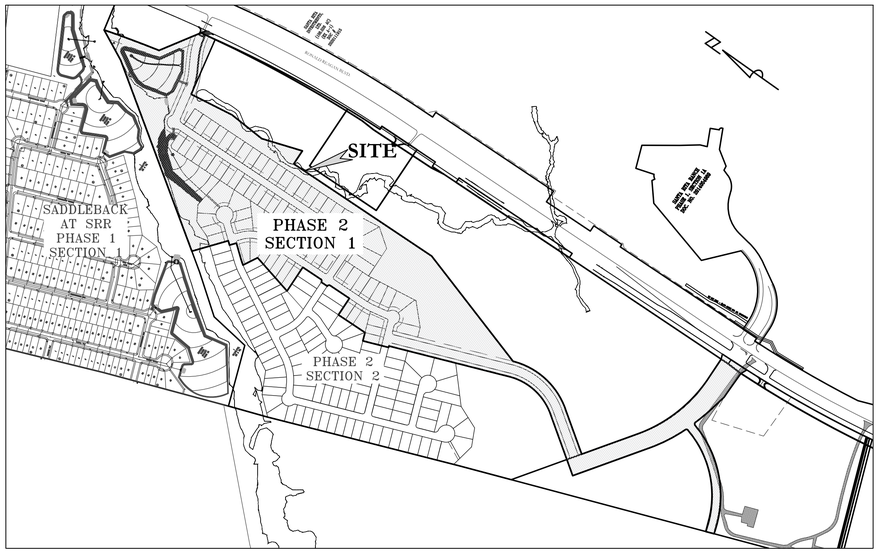
McKENZI HICKS, INTERIM DIRECTOR OF PLANNING *DATE*
(WASTEWATER SYSTEM PLAN)

Based on the design engineer's certification of compliance with all applicable City, State and Federal regulations the plans and specifications contained herein have been reviewed and are found to be in compliance with the requirements of the City of Liberty Hill.

REVIEWED FOR COMPLIANCE WITH COUNTY REQUIREMENTS (WCSR 2021B):

FOR WILLIAMSON COUNTY *DATE*

WILLIAMSON COUNTY M.U.D. #19H *DATE*



LOCATION MAP
SCALE: 1" = 500'

WATER POLLUTION ABATEMENT PLAN AND ORGANIZED SEWAGE COLLECTION SYSTEM PLAN
APPROVED BY TCEQ ON _____, 2025
30 TEXAS ADMINISTRATIVE CODE (TAC) CHAPTER 213 AND CHAPTER 217 EDWARDS AQUIFER
EDWARDS AQUIFER PROTECTION PROGRAM ID NO. _____ (WPAP) AND _____ (SCS)

OWNER:

SANTA RITA KC, LLC
1700 CROSS CREEK LANE, STE. 100
LIBERTY HILL, TX. 78642

ENGINEER & SURVEYOR:
CARLSON, BRIGANCE & DOERING, INC.
5501 WEST WILLIAM CANNON DRIVE
AUSTIN, TEXAS 78749
(512) 280-5160 phone
(512) 280-5165 fax

TOTAL ACREAGE: 54.873 AC
SURVEY: B. MANLOVE SURVEY,
ABSTRACT NO. 417

F.E.M.A. MAP NO. 48491C 0275E
WILLIAMSON COUNTY, TEXAS AND
INCORPORATED AREAS.
DATED: SEPTEMBER 26, 2008

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

REV. NO.	SHT. NO.	DESCRIPTION OF REVISION	ACCEPTED	DATE	ACCEPTED	DATE	ACCEPTED	DATE	ACCEPTED	DATE
			WILLIAMSON COUNTY		CITY OF GEORGETOWN		CITY OF LIBERTY HILL		W.C. M.U.D. #19H	

DESIGNED BY: SPC
DRAFTED BY: CL
DATE
REVISION

Carlson, Brigance & Doering, Inc.
Civil Engineering ◆ Surveying
FIRM ID #F3791
Main Office
5501 West William Cannon Dr. 78749
Austin, Texas
Phone No. (512) 280-5160
North Office
1212 RR 620 N, Suite 600
Austin, Texas 78750
Fax No. (512) 280-5165

SHEET NAME: COVER SHEET
JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1
PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED
PROFESSIONAL ENGINEER
CARLSON, BRIGANCE & DOERING, INC.
ID# F3791
6-9-2025

DATE: MAY 2025
JOB NUMBER: 5665
SHEET: 1 OF 103
SHEET NO.: 1

FILE PATH:J:\AC3D\5665\dwg\5665-COVER.dwg - Jun 09, 2025 - 10:11am

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4 - GENERAL NOTES (2 OF 2)
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7 - FINAL PLAT
8 - FINAL PLAT
9 - EROSION CONTROL PLAN (1 OF 3)
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80 - WATERLINE E (0+00 TO END)
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85 - WASTEWATER LINE A (0+00 TO 7+00)
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87 - WASTEWATER LINE A (14+00 TO 19+00)
88 - WASTEWATER LINE A (19+00 TO END)
89 - WASTEWATER LINE B (0+00 TO END)
90 - WASTEWATER LINE C (0+00 TO END)
91 - WASTEWATER LINE D (0+00 TO 8+00)
92 - WASTEWATER LINE D (8+00 TO 15+00)
93 - WASTEWATER LINE D (15+00 TO 22+00)
94 - WASTEWATER LINE D & E (22+00 TO 29+00)
95 - WASTEWATER LINE D (29+00 TO END)
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97 - CONSTRUCTION DETAILS (1 OF 5)
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101 - CONSTRUCTION DETAILS (5 OF 5)
102 - WATER DETAILS
103 - WASTEWATER DETAILS

DESIGNED BY: SPC
DRAFTED BY: CL

DATE
REVISION

Carlson, Brigance & Doering, Inc.
Civil Engineering ◆ Surveying
FIRM ID #F3791
Main Office
5501 West William Cannon Dr. 78749
Austin, Texas
Phone No. (512) 280-5160
North Office
12129 RR 620 N, Ste. 600
Austin, Texas 78750
Fax No. (512) 280-5165

SHEET NAME: SHEET INDEX
JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1
PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED PROFESSIONAL ENGINEER
CARLSON, BRIGANCE & DOERING, INC.
ID# F-3791
6-9-2025

DATE: MAY 2025
JOB NUMBER: 5665
SHEET: 2 OF 103
SHEET NO.: 2

FILE PATH: J:\AC3D\5665\dwg\5665-COVER.dwg - Jun 10, 2025 - 6:03pm

CONSTRUCTION SEQUENCING

1. GENERAL CONTRACTOR TO INSTALL AND MAINTAIN EROSION CONTROLS AND TREE PROTECTION PER APPROVED PLANS.
2. HOLD PRE-CONSTRUCTION CONFERENCE. PROVIDE 72 HOUR NOTIFICATION TO THE OWNER, THE DESIGN ENGINEER, THE CONTRACTOR AND SUBCONTRACTORS, THE M.U.D. ENGINEER (512) 836-4817, THE CITY OF LIBERTY HILL (512) 778-5449, (WAYNE BONNET, DIRECTOR OF PUBLIC WORKS), WILLIAMSON COUNTY INSPECTIONS SUPERVISOR, GEORGE MAYFIELD (512) 943-3324, AND THE CITY OF GEORGETOWN UTILITY SYSTEM (512)930-3640. SEE WILLIAMSON COUNTY SUBDIVISION REGULATIONS CONSTRUCTION-GENERAL NOTE #1 ON THIS SHEET.
3. ROUGH CUT ALL REQUIRED OR NECESSARY PONDS. EITHER THE PERMANENT OUTLET STRUCTURE OR A TEMPORARY OUTLET MUST BE CONSTRUCTED PRIOR TO DEVELOPMENT OF ANY EMBANKMENT OR EXCAVATION THAT LEADS TO PONDING CONDITIONS. THE OUTLET SYSTEM MUST CONSIST OF A LOW-LEVEL OUTLET AND AN EMERGENCY OVERFLOW. THE OUTLET SYSTEM SHALL BE PROTECTED FROM EROSION AND SHALL BE MAINTAINED THROUGHOUT THE COURSE OF CONSTRUCTION UNTIL FINAL RESTORATION IS ACHIEVED.
4. ROUGH GRADE STREETS. NO DEVELOPMENT OF EMBANKMENT WILL BE PERMITTED AT THIS TIME. ONCE STREETS ARE ROUGH CUT, THE GEOTECHNICAL ENGINEER IS TO FIELD VERIFY PAVEMENT DESIGN IS APPROPRIATE, AND MODIFY RECOMMENDATIONS ACCORDINGLY.
5. INSTALL ALL UTILITIES TO BE LOCATED UNDER THE PROPOSED PAVEMENT.
6. BEGIN INSTALLATION OF STORM SEWER LINES. UPON COMPLETION, RESTORE AS MUCH DISTURBED AREA AS MUCH AS POSSIBLE, PARTICULARLY CHANNELS AND LARGE OPEN AREAS.
7. REGRADE STREETS TO SUBGRADE.
8. INSURE THAT ALL UNDERGROUND UTILITY CROSSINGS ARE COMPLETED. LAY FIRST COURSE BASE MATERIAL ON ALL STREETS.
9. INSTALL CURB AND GUTTER.
10. LAY FINAL BASE COURSE ON ALL STREETS.
11. LAY ASPHALT.
12. COMPLETE ALL UNDERGROUND INSTALLATIONS WITHIN THE R.O.W.
13. COMPLETE PERMANENT EROSION CONTROL AND RESTORATION OF SITE VEGETATION.
14. THE PROJECT ENGINEER INSPECTS JOB AND WRITES CONCURRENCE LETTER TO THE CITY. FINAL INSPECTION IS SCHEDULED UPON RECEIPT OF LETTER. FINAL INSPECTION WITH THE M.U.D. ENGINEER, EV INSPECTOR, THE CITY OF LIBERTY HILL, WILLIAMSON COUNTY, AND THE CITY OF GEORGETOWN PRIOR TO THE REMOVAL OF EROSION CONTROLS.
15. REMOVE AND DISPOSE OF TEMPORARY EROSION CONTROLS. TREE PROTECTION SHALL BE REQUIRED TO BE MAINTAINED AND REMAIN IN PLACE FOR EACH RESIDENTIAL LOT THROUGH RECEIPT OF THE CONCURRENCE LETTER TO THE RESIDENTIAL CERTIFICATE OF OCCUPANCY.
16. COMPLETE ANY NECESSARY FINAL DRESS UP OF AREAS DISTURBED BY ITEM 15.

GEORGETOWN UTILITY SYSTEMS GENERAL NOTES:

1. THESE CONSTRUCTION PLANS WERE PREPARED, SEALED AND DATED BY A TEXAS LICENSED PROFESSIONAL ENGINEER. THEREFORE BASED ON THE ENGINEER'S CONCURRENCE OF COMPLIANCE, THE CONSTRUCTION PLANS FOR CONSTRUCTION OF THE PROPOSED PROJECT ARE HEREBY APPROVED SUBJECT TO THE STANDARD CONSTRUCTION SPECIFICATIONS AND DETAILS MANUAL AND ALL OTHER APPLICABLE CITY, STATE AND FEDERAL REQUIREMENTS AND CODES.
2. THIS PROJECT IS SUBJECT TO ALL CITY STANDARD SPECIFICATIONS AND DETAILS IN EFFECT AT THE TIME OF SUBMITTAL OF THE PROJECT OF THE CITY.
3. THE SITE CONSTRUCTION PLANS SHALL MEET ALL REQUIREMENTS OF THE APPROVED SITE PLAN.
4. PRIVATE WATER SYSTEM FIRE LINES SHALL BE TESTED BY THE CONTRACTOR TO 200 PSI FOR 2 HOURS.
5. PRIVATE WATER SYSTEM FIRE LINES SHALL BE DUCTILE IRON PIPING FROM THE WATER MAIN TO THE BUILDING SPRINKLER SYSTEM, AND 200 PSI C900 PVC FOR ALL OTHERS.
6. PUBLIC WATER SYSTEM MAINS SHALL BE 150 PSI C900 PVC AND TESTED BY THE CONTRACTOR AT 150 PSI FOR 4 HOURS.
7. ALL BENDS AND CHANGES IN DIRECTION ON WATER MAINS SHALL BE RESTRINED AND THRUST BLOCKED.
8. LONG FIRE HYDRANT LEADS SHALL BE RESTRAINED.
9. ALL WATER LINES ARE TO BE BACTERIA TESTED BY THE CONTRACTOR ACCORDING TO THE CITY STANDARDS AND SPECIFICATIONS.
10. WATER AND SEWER MAIN CROSSINGS SHALL MEET ALL REQUIREMENTS OF THE TCEQ AND THE CITY.
11. A MAINTENANCE BOND IS REQUIRED TO BE SUBMITTED TO TEH CITY PRIOR TO APPROVAL OF THE PUBLIC IMPROVMENTS. THIS BOND SHALL BE ESTABLISHED FOR 2 YEARS IN THE AMOUNT OF 10% OF THE COST OF THE PUBLIC IMPROVEMENTS AND SHALL FOLLOW THE CITY FORMAT.
12. RECORD DRAWINGS OF THE PUBLIC IMPROVMENTS SHALL BE SUBMITTED TO THE CITY BY THE DESIGN ENGINEER PRIOR TO ACCEPTACNE OF THE PROJECT. THESE DRAWINGS SHALL BE SUBMITTED AS A PDF (300P DPI) ON A FLASH DRIVE, OR BY A CLOUD SOURCE.

STREET AND DRAINAGE NOTES:

1. ROADWAY CONSTRUCTION SHALL BE IN ACCORDANCE WITH CURRENT "WILLIAMSON COUNTY SUBDIVISION REGULATIONS," AS APPLICABLE.
2. ALL MATERIALS SHALL BE SAMPLED AND TESTED BY AN INDEPENDENT TESTING LABORATORY IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS APPROVED BY THE COUNTY ENGINEER. THE OWNER SHALL PAY FOR ALL TESTING SERVICES AND SHALL FURNISH THE COUNTY ENGINEER WITH CERTIFIED COPIES OF THESE TEST RESULTS. ANY RETESTING SHALL BE PAID FOR BY THE CONTRACTOR. THE COUNTY ENGINEER MUST APPROVE THE TEST RESULTS PRIOR TO CONSTRUCTING THE NEXT COURSE OF THE ROADWAY STRUCTURE. ANY MATERIAL WHICH DOES NOT MEET THE MINIMUM REQUIRED TEST SPECIFICATIONS SHALL BE REMOVED AND RECOMPACTED OR REPLACED UNLESS ALTERNATIVE REMEDIAL ACTION IS APPROVED IN WRITING FROM THE COUNTY ENGINEER.
3. BACKFILL BEHIND THE CURB SHALL BE COMPACTED TO OBTAIN A MINIMUM OF 95% MAXIMUM DENSITY TO WITHIN 3" OF TOP OF CURB. MATERIAL USED SHALL BE PRIMARILY GRANULAR WITH NO ROCKS LARGER THAN 6" IN THE GREATEST DIMENSION. THE REMAINING 3" SHALL BE CLEAN TOPSOIL FREE FROM ALL CLODS AND SUITABLE FOR SUSTAINING PLANT LIFE.
4. DEPTH OF COVER FOR ALL CROSSINGS UNDER PAVEMENT INCLUDING GAS, ELECTRIC, TELEPHONE, CABLE TV, WATER SERVICES, ETC., SHALL BE A MINIMUM OF 30" BELOW SUBGRADE.
5. STREET RIGHTS-OF-WAY SHALL BE GRADED AT A SLOPE OF 1/4" PER FOOT TOWARD THE CURB UNLESS OTHERWISE INDICATED. HOWEVER, IN NO CASE SHALL THE WIDTH OF RIGHT-OF-WAY AT 1/4" PER FOOT SLOPE BE LESS THAN 10 FEET UNLESS A SPECIFIC REQUEST FOR AN ALTERNATE GRADING SCHEME IS MADE TO AND ACCEPTED BY THE COUNTY ENGINEER. BARRICADES BUILT TO WILLIAMSON COUNTY STANDARDS SHALL BE CONSTRUCTED ON ALL DEAD-END STREETS AND AS NECESSARY DURING CONSTRUCTION TO MAINTAIN JOB AND PUBLIC SAFETY.
6. ALL R.C.P. SHALL BE MINIMUM CLASS III, UNLESS OTHERWISE NOTED.
7. THE PREPARATION OF SUBGRADE SHALL FOLLOW GOOD ENGINEERING PRACTICES AS DIRECTED BY THE COUNTY ENGINEER AND IN CONJUNCTION WITH THE OUTLINED IN THE GEOTECHNICAL REPORT BY MLA LABS, INC., DATED APRIL 12, 2023. THE PAVING SECTIONS ARE TO BE CONSTRUCTED AS FOLLOWS:

RECOMMENDATIONS PAVEMENT THICKNESS SECTIONS

Street Classification	Subgrade Material	Hot Mix Asphaltic Concrete, in	Crushed Limestone Base, in	Lime Stabilized Subgrade, in
Local Streets	Subgrade PI < 20	2.0	12	–
	Subgrade 20 < PI < 35	2.0	12	8
	Subgrade 35 < PI < 55	2.0	14	8
Collectors	Subgrade PI < 20	2.0	14	–
	Subgrade 20 < PI < 35	2.0	17	8
	Subgrade 35 < PI < 55	2.0	17	8
Minor Arterial	Subgrade PI < 20	3.0	20	–
	Subgrade 20 < PI < 35	3.0	22	8
	Subgrade 35 < PI < 55	3.0	22	10

Notes:
1. Where the subgrade is comprised of limestone or low PI clay (PI < 20), lime stabilization may be omitted.
2. The surface clay must first be tested for sulfate reaction and a mix design should be completed to determine the proper lime content, lime bype, mixing procedure and curing conditions required.
3. The subgrade improvement should be extended a min. 18" beyond the back of curb line, unless lime treatments being used, base should extended 3 feet beyond the back of the curb line.
4. These pavement thickness designs are intended to transfer the load from the anticipated traffic conditions.
5. The responsibility of assigning street classification to the streets in this project is left to the civil engineer.
6. If pavement designs other than those listed above are desired, please contact MLA labs, inc.

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 REVISION OF THE CONSTRUCTION PLANS.

8. WHERE PI'S ARE OVER 20, SUBGRADES MUST BE STABILIZED UTILIZING A METHOD ACCEPTABLE TO THE COUNTY ENGINEER. THE GEOTECHNICAL ENGINEER SHALL RECOMMEND AN APPROPRIATE SUBGRADE STABILIZATION IF SULFATES ARE DETERMINED TO BE PRESENT. SEE THE GEOTECHNICAL REPORT FOR DESIGN GUIDES FOR DIFFERENT PI VALUES.
9. CONTRACTOR IS TO AVOID INSTALLATION OF IRRIGATION, PLANTINGS, SILT FENCE, ETC. IN THE SUBGRADE IMPROVEMENT EXTENDED BEHIND THE CURB.

PER THE WILLIAMSON COUNTY ENGINEER, THERE MUST BE A TxDOT HMAC WEARTING SURFACE 340 TYPE D, WITHOUT "RAS". WILLIAMSON COUNTY REQUIRES THE 2 INCH WEARING SURFACE TO BE "VIRGIN MIX"

CITY OF LIBERTY HILL GENERAL NOTES (REVISED JUNE 10, 2024):

1. ALL CONSTRUCTION OF THE WASTEWATER SYSTEM SHALL BE IN ACCORDANCE WITH THE CITY OF ROUND ROCK STANDARD SPECIFICATIONS MANUAL.
2. ANY EXISTING UTILITIES, PAVEMENT, CURBS, SIDEWALKS, STRUCTURES, TREES, ETC., (NOT PLANNED FOR DESTRUCTION OR REMOVAL) THAT ARE DAMAGED OR REMOVED, SHALL BE REPAIRED, OR REPLACED, AT THE CONTRACTOR'S EXPENSE.
3. THE CONTRACTOR SHALL VERIFY ALL DEPTHS AND LOCATIONS OF EXISTING UTILITIES PRIOR TO ANY CONSTRUCTION ACTIVITIES. ANY DISCREPANCIES WITH THE CONSTRUCTION PLANS FOUND IN THE FIELD SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER WHO SHALL BE RESPONSIBLE FOR REVISING THE PLANS AS APPROPRIATE. FAILURE TO COMPLETE THIS STEP PRIOR TO COMMENCEMENT OF CONSTRUCTION MAY RESULT IN SIGNIFICANT DELAYS AND/OR EXPENDITURES FOR WHICH THE CITY SHALL NOT BE HELD LIABLE.
4. MANHOLE FRAMES, COVERS, VALVES, CLEANOUTS, ETC. SHALL BE RAISED TO FINISHED GRADE PRIOR TO FINAL PAVING CONSTRUCTION.
5. THE CONTRACTOR SHALL GIVE THE CITY OF LIBERTY HILL PLANNING AND DEVELOPMENT DEPARTMENT 48 HOURS' NOTICE BEFORE BEGINNING EACH PHASE OF CONSTRUCTION BY BOTH CALLING (512) 548-5519 AND EMAILING planning@libertyhilltx.gov
6. ALL AREAS DISTURBED OR EXPOSED DURING CONSTRUCTION SHALL BE REVEGETATED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. THIS INCLUDES ANY AREAS LOCATED OUTSIDE OF THE DEFINED LIMITS OF CONSTRUCTION (LOC), IN RIGHTS-OF-WAY (ROW), OR LOCATED ON ADJACENT PROPERTIES. REVEGETATION OF ALL DISTURBED OR EXPOSED AREAS SHALL CONSIST OF SODDING OR SEEDING, AT THE CONTRACTOR'S OPTION. HOWEVER, THE TYPE OF REVEGETATION MUST EQUAL OR EXCEED THE TYPE OF VEGETATION PRESENT BEFORE CONSTRUCTION.
7. PRIOR TO ANY CONSTRUCTION, THE ENGINEER SHALL CONVENE A PRECONSTRUCTION CONFERENCE BETWEEN THE CITY OF LIBERTY HILL, HIMSELF, THE CONTRACTOR, OTHER UTILITY COMPANIES, ANY AFFECTED PARTIES, AND ANY OTHER ENTITY THE CITY OR ENGINEER MAY REQUIRE.
8. THE ENGINEER SHALL FURNISH THE CITY OF LIBERTY HILL WITH ACCURATE "AS-BUILT" DRAWINGS FOLLOWING THE COMPLETION OF ALL CONSTRUCTION. THE CONTRACTOR AND THE ENGINEER SHALL KEEP ACCURATE RECORDS OF ALL CONSTRUCTION THAT DEVIATES FROM THE PLANS. THESE "AS-BUILT" DRAWINGS SHALL MEET ALL APPLICABLE REQUIREMENTS TO THE SATISFACTION OF THE CITY ENGINEER PRIOR TO FINAL SITE INSPECTION APPROVAL. CHANGES TO APPROVED, CONSTRUCTION-STAMPED PLANS SHALL REQUIRE AN APPROVED SITE PLAN OR STORMWATER PERMIT AMENDMENT THAT IS APPROVED BY THE CITY PRIOR TO FIELD USE.
9. THE CITY OF LIBERTY HILL SHALL NOT BE PETITIONED FOR ACCEPTANCE UNTIL ALL NECESSARY EASEMENT DOCUMENTS HAVE BEEN SIGNED AND RECORDED.
10. WHEN CONSTRUCTION IS BEING CARRIED OUT WITHIN EASEMENTS, THE CONTRACTOR SHALL CONFINE CONTRACTOR'S WORK TO WITHIN THE PERMANENT AND ANY TEMPORARY EASEMENTS. PRIOR TO FINAL ACCEPTANCE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL TRASH AND DEBRIS WITHIN THE PERMANENT AND TEMPORARY EASEMENTS. CLEANUP SHALL BE TO THE SATISFACTION OF THE CITY ENGINEER AND/OR DIRECTOR OF PUBLIC WORKS.
11. PRIOR TO ANY CONSTRUCTION, THE CONTRACTOR SHALL APPLY FOR AND SECURE ALL PROPER PERMITS FROM THE APPROPRIATE AUTHORITIES.

13. AVAILABLE PERMANENT BENCHMARKS WITH VERTICAL DATUM INFORMATION THAT MAY BE UTILIZED FOR THE CONSTRUCTION OF THIS PROJECT ARE DESCRIBED AS FOLLOWS:

BENCHMARKS:

DESCRIPTION	ELEVATION	NORTHING	EASTING
MAG NAIL W/ SHINER ON RONALD REAGAN BOULEVARD	902.77	10,219,838.4682	3,079,718.4620
MAG NAIL W/ SHINER AT END OF GUARDRAIL ON RONALD REAGAN BOULEVARD	900.80	10,219,364.8892	3,079,878.7660
MAG NAIL W/ SHINER ON RONALD REAGAN BOULEVARD	899.85	10,218,932.5392	3,080,013.6460

15. ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE PLANS REMAINS WITH THE ENGINEER WHO PREPARED THEM. IN REVIEWING THESE PLANS, THE CITY OF LIBERTY HILL MUST RELY ON THE ADEQUACY OF THE WORK OF THE DESIGN ENGINEER.
16. CONTRACTORS ON SITE SHALL HAVE AN APPROVED SET OF PLANS AT ALL TIMES. FAILURE TO HAVE AN APPROVED SET MAY RESULT IN A STOP WORK ORDER.

TRENCH SAFETY NOTES:

1. IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS AND THE U. S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, ALL TRENCHES OVER 5 FEET IN DEPTH, IN EITHER HARD AND COMPACT OR SOFT AND UNSTABLE SOIL SHALL BE SLOPED, SHORED, SHEETED, BRACED OR OTHERWISE SUPPORTED. FURTHERMORE, ALL TRENCHES LESS THAN 5 FEET IN DEPTH SHALL ALSO BE EFFECTIVELY PROTECTED WHEN HAZARDOUS GROUND MOVEMENT MAY BE EXPECTED. TRENCH SAFETY SYSTEMS TO BE UTILIZED FOR THIS PROJECT SHALL BE PROVIDED AS PART OF A PACKAGE REQUIRED PRIOR TO THE PRE-CONSTRUCTION MEETING AND ANY CONSTRUCTION ACTIVITIES.
2. IN ACCORDANCE WITH THE U. S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, WHEN PERSONS ARE IN TRENCHES 4-FEET DEEP OR MORE, ADEQUATE MEANS OF EXIT, SUCH AS A LADDER OR STEPS, MUST BE PROVIDED AND LOCATED SO AS TO REQUIRE NO MORE THAN 25 FEET OF LATERAL TRAVEL.
3. IF TRENCH SAFETY SYSTEM DETAILS WERE NOT PROVIDED IN THE PLANS BECAUSE TRENCHES WERE ANTICIPATED TO BE LESS THAN 5 FEET IN DEPTH AND DURING CONSTRUCTION IT IS FOUND THAT TRENCHES ARE IN FACT 5 FEET OR MORE IN DEPTH OR TRENCHES LESS THAN 5 FEET IN DEPTH ARE IN AN AREA WHERE HAZARDOUS GROUND MOVEMENT IS EXPECTED, ALL CONSTRUCTION SHALL CEASE, THE TRENCHED AREA SHALL BE BARRICADED AND THE ENGINEER NOTIFIED IMMEDIATELY. CONSTRUCTION SHALL NOT RESUME UNTIL APPROPRIATE TRENCH SAFETY SYSTEM DETAILS, AS DESIGNED BY A PROFESSIONAL ENGINEER IN THE STATE OF TEXAS, ARE SUBMITTED TO THE CITY OF LIBERTY HILL FOR REVIEW AND APPROVAL.

TRAFFIC MARKING NOTES:

1. ANY METHODS, STREET MARKINGS AND SIGNAGE NECESSARY FOR WARNING MOTORISTS, WARNING PEDESTRIANS OR DIVERTING TRAFFIC DURING CONSTRUCTION SHALL CONFORM TO THE TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, LATEST EDITIONS.
2. ALL PAVEMENT MARKINGS, MARKERS, PAINT, TRAFFIC BUTTONS, TRAFFIC CONTROLS AND SIGNS SHALL BE INSTALLED IN ACCORDANCE WITH THE TEXAS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS AND BRIDGES AND, THE TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, LATEST EDITIONS.

EROSION AND SEDIMENTATION CONTROL NOTES:

1. EROSION CONTROL MEASURES, SITE WORK AND RESTORATION WORK SHALL BE IN ACCORDANCE WITH THE CITY OF LIBERTY HILL UNIFIED DEVELOPMENT CODE.
2. ALL SLOPES SHALL BE SODDED OR SEEDED WITH APPROVED GRASS, GRASS MIXTURES OR GROUND COVER SUITABLE TO THE AREA AND SEASON IN WHICH THEY ARE APPLIED.
3. SILT FENCES, ROCK BERMS, SEDIMENTATION BASINS AND SIMILARLY RECOGNIZED TECHNIQUES AND MATERIALS SHALL BE EMPLOYED DURING CONSTRUCTION TO PREVENT POINT SOURCE SEDIMENTATION LOADING OF DOWNSTREAM FACILITIES. INSTALLATION AND CONDITION SHALL BE REGULARLY INSPECTED BY THE CITY OF LIBERTY HILL FOR EFFECTIVENESS. ADDITIONAL MEASURES MAY BE REQUIRED IF, IN THE OPINION OF THE CITY ENGINEER, THEY ARE WARRANTED.
4. ALL TEMPORARY EROSION CONTROL MEASURES SHALL NOT BE REMOVED UNTIL REVEGETATION HAS BEEN ESTABLISHED AND APPROVAL RECEIVED FROM THE CITY OF LIBERTY HILL. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN ALL TEMPORARY EROSION CONTROL STRUCTURES AND TO REMOVE EACH STRUCTURE AS APPROVED BY THE ENGINEER.
5. ALL MUD, DIRT, ROCKS, DEBRIS, ETC., SPILLED, TRACKED OR OTHERWISE DEPOSITED ON EXISTING PAVED STREETS, DRIVES AND AREAS USED BY THE PUBLIC SHALL BE CLEANED UP IMMEDIATELY.

WILLIAMSON COUNTY SUBDIVISION REGULATIONS
APPENDIX B
ADOPTED AND EFFECTIVE AS OF JUNE 22, 2021

B4 - CONSTRUCTION - GENERAL

B4.1 A PRECONSTRUCTION MEETING SHALL BE SCHEDULED PRIOR TO THE START OF CONSTRUCTION. THE DESIGN ENGINEER, OWNER, CONTRACTOR, SUBCONTRACTORS, AND COUNTY ENGINEER SHALL ATTEND THIS MEETING. ALL ROADS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS AS APPROVED BY THE COUNTY ENGINEER AND IN ACCORDANCE WITH THE SPECIFICATIONS FOUND IN THE CURRENT VERSION OF THE "TEXAS DEPARTMENT OF TRANSPORTATION MANUAL STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS, AND BRIDGES" UNLESS OTHERWISE STATED ON THE CONSTRUCTION DOCUMENTS APPROVED BY THE COUNTY ENGINEER.

B4.2 ALL MATERIALS SHALL BE SAMPLED AND TESTED BY AN INDEPENDENT TESTING LABORATORY IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS APPROVED BY THE COUNTY ENGINEER. THE OWNER SHALL PAY FOR ALL TESTING SERVICES AND SHALL FURNISH THE COUNTY ENGINEER WITH CERTIFIED COPIES OF THESE TEST RESULTS. THE COUNTY ENGINEER MUST APPROVE THE TEST RESULTS PRIOR TO CONSTRUCTING THE NEXT COURSE OF THE ROADWAY STRUCTURE. ANY MATERIAL WHICH DOES NOT MEET THE MINIMUM REQUIRED TEST SPECIFICATIONS SHALL BE REMOVED AND RECOMPACTED OR REPLACED UNLESS ALTERNATIVE REMEDIAL ACTION IS APPROVED IN WRITING FROM THE COUNTY ENGINEER.

B4.3 EXCEPT FOR ELECTRICAL LINES, ALL UNDERGROUND NONFERROUS UTILITIES WITHIN A RIGHT-OF-WAY OR EASEMENT MUST BE ACCOMPANIED BY FERROUS METAL LINES TO AID IN TRACING THE LOCATION OF SAID UTILITIES THROUGH THE USE OF A METAL DETECTOR.

B4.4 ALL PAVEMENTS ARE TO BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER. THE DESIGN SHALL BE BASED ON A 20-YEAR DESIGN LIFE AND IN CONJUNCTION WITH RECOMMENDATIONS BASED UPON A SOILS REPORT OF SAMPLES TAKEN ALONG THE PROPOSED ROADWAYS. TEST BORINGS SHALL BE PLACED AT A MAXIMUM SPACING OF 500 FEET OR OTHER SAMPLING FREQUENCY APPROVED BY THE COUNTY ENGINEER BASED ON RECOMMENDATIONS PROVIDED BY THE GEOTECHNICAL ENGINEER. BORINGS SHALL BE TO A DEPTH OF TEN FT OR, IF SOLID ROCK IS ENCOUNTERED, ONE FT BELOW NON-FRACTURED ROCK. THE SOILS REPORT AND PAVEMENT DESIGN SHALL BE SUBMITTED TO THE COUNTY ENGINEER FOR REVIEW. THE PAVEMENT DESIGN MUST BE APPROVED BY THE COUNTY ENGINEER PRIOR TO OR CONCURRENTLY WITH THE REVIEW AND APPROVAL OF THE CONSTRUCTION PLANS. IN ADDITION TO THE BASIS OF THE PAVEMENT DESIGN, THE SOILS REPORT SHALL CONTAIN THE RESULTS OF SAMPLED AND TESTED SUBGRADE FOR PLASTICITY INDEX.

B5 - SUBGRADE

B5.1 THE PREPARATION OF THE SUBGRADE SHALL FOLLOW GOOD ENGINEERING PRACTICES AS DIRECTED BY THE COUNTY ENGINEER IN CONJUNCTION WITH RECOMMENDATIONS OUTLINED IN THE GEOTECHNICAL REPORT. WHEN THE PLASTICITY INDEX (PI) IS GREATER THAN 20, A SUFFICIENT AMOUNT OF LIME SHALL BE ADDED AS DESCRIBED IN ITEM 260 OF THE CURRENT EDITION OF THE TXDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION UNTIL THE PI IS LESS THAN 20. IF THE ADDITION OF LIME AS DESCRIBED IN ITEM 260 IS NOT FEASIBLE, AN ALTERNATE STABILIZING DESIGN SHALL BE PROPOSED AND SUBMITTED TO THE COUNTY ENGINEER FOR APPROVAL. THE SUBGRADE SHALL BE PREPARED AND COMPACTED TO ACHIEVE A DRY DENSITY PER TXDOT ITEM 132. IN ADDITION, PROOF ROLLING MAY BE REQUIRED BY THE COUNTY ENGINEER.

B5.2 IF LIME IS NECESSARY, THEN A SUFFICIENT AMOUNT OF LIME SHALL BE ADDED, AS DESCRIBED IN ITEM 260 OF THE CURRENT EDITION OF THE TXDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION TO PROPERLY STABILIZE SUBGRADE. THE USE OF HYDRATED LIME OR LIME SLURRY IS APPROVED; HOWEVER, THE USE OF PELLETIZED LIME IS NOT APPROVED.

B5.3 PRIOR TO LIME STABILIZATION, A SULFATE TEST OF IN SITU SOILS SHALL BE PERFORMED BY DEVELOPER TO CONFIRM THE APPROPRIATE MEANS AND METHODS OF STABILIZATION. PROVIDE SULFATE TEST TO COUNTY ENGINEER PRIOR TO STABILIZATION.

B5.4 ANY VARIATION TO THE COUNTY'S STABILIZATION REQUIREMENTS MUST BE APPROVED BY THE COUNTY ENGINEER.

B5.5 THE SUBGRADE SHALL BE PREPARED AND COMPACTED TO ACHIEVE A DRY DENSITY PER TXDOT ITEM 132. IN ADDITION, PROOF ROLLING MAY BE REQUIRED BY THE COUNTY ENGINEER.

B5.6 THE SUBGRADE SHALL BE INSPECTED AND APPROVED BY AN INDEPENDENT TESTING LABORATORY AND A CERTIFIED COPY OF ALL INSPECTION REPORTS FURNISHED TO THE COUNTY ENGINEER. THE COUNTY ENGINEER MUST APPROVE THE REPORT PRIOR TO APPLICATION OF THE BASE MATERIAL. ALL DENSITY TEST REPORTS SHALL INCLUDE A COPY OF THE WORK SHEET SHOWING THE PERCENTAGE OF THE MAXIMUM DRY (PROCTOR) DENSITY. THE NUMBER AND LOCATION OF ALL SUBGRADE TESTS SHALL BE DETERMINED BY THE COUNTY ENGINEER.

B6 - BASE MATERIAL

B6.1 BASE MATERIAL SHALL CONFORM TO ITEM 247 OF THE CURRENT EDITION OF THE TXDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION, "FLEXIBLE BASE". THE BASE MATERIAL SHALL BE TYPE A GRADE 4, OR AS APPROVED BY THE COUNTY ENGINEER. GRADE 4 MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF TABLE B6.1

MASTER GRADATION SIEVE SIZE	CUMULATIVE % RETAINED
2 1/2"	–
1 3/4"	0
7/8"	10% – 35%
3/8"	30% – 65%
#4	45% – 75%
#40	70% – 90%
#200	87% – 95%

B6.2 EACH LAYER OF BASE COURSE SHALL BE TESTED FOR IN-PLACE DRY DENSITY AND MEASURED FOR COMPACTED THICKNESS. THE NUMBER AND LOCATION OF ALL BASE TEST SAMPLES SHALL BE DETERMINED BY THE COUNTY ENGINEER.

B6.3 THE BASE SHALL BE PREPARED AND COMPACTED TO ACHIEVE A MINIMUM OF 100% OF THE MAXIMUM (PROCTOR) DRY DENSITY OR AS APPROVED BY THE COUNTY ENGINEER UPON RECOMMENDATION BY THE TESTING LABORATORY. THE MAXIMUM LIFT SHALL NOT EXCEED SIX INCHES. THE BASE MUST BE INSPECTED AND APPROVED BY AN INDEPENDENT TESTING LABORATORY AND A CERTIFIED COPY OF THE TEST RESULTS FURNISHED TO THE COUNTY ENGINEER FOR APPROVAL. PRIOR TO THE PLACEMENT OF THE FIRST LIFT OF BASE, THE STOCKPILE SHALL BE TESTED FOR THE SPECIFICATIONS FOUND IN ITEM 247 TABLE 1 AND THE RESULT FURNISHED TO THE COUNTY ENGINEER FOR APPROVAL.

B7 - BITUMINOUS PAVEMENT

B7.1 URBAN ROADS REQUIRE A MINIMUM 2 INCH WEARING SURFACE OF HMAC TYPE D. THE MIX SHALL BE FROM A TXDOT CERTIFIED PLANT AND THE MIX DESIGN SHALL BE SUBMITTED TO THE COUNTY ENGINEER FOR APPROVAL PRIOR TO PLACEMENT OF THE MATERIAL.

B7.2 IF PROVIDING MIXTURE TYPE C OR D, USE PERFORMANCE GRADE (PG) BINDER 70-22. PROVIDE PG BINDER THAT DOES NOT CONTAIN RECYCLED ENGINE OIL BOTTOMS (REOBS) OR POLY PHOSPHORIC ACID (PPA). RECYCLED ASPHALT PAVEMENT (RAP) IS NOT PERMITTED FOR USE AS A COMPONENT OF THE HMACP. THE CONTRACTOR IS ALSO NOT PERMITTED THE USE RECYCLED ASPHALT SHINGLES (RAS) AS A COMPONENT OF THE HMACP.

B7.3 IF PROVIDING MIXTURE TYPE B, USE PG BINDER 64-22. PROVIDE PG BINDERS THAT DO NOT CONTAIN REOBS OR PPA. FOR SUBSURFACE COURSE TYPE B, THE USE OF TWENTY PERCENT (20%) RAP IS PERMITTED IN THE MIX DESIGN. THE CONTRACTOR IS NOT PERMITTED TO USE RAS AS A COMPONENT OF THE HMACP.

B7.4 TARGET LABORATORY MOLDED DENSITY IS 96.5% FOR ALL MIXTURES WITHOUT RAP AND WHEN USING A TEXAS GYRATORY COMPACTOR (TGC) FOR DESIGNING THE MIXTURE. WHEN USING SUPERPAVE GYRATORY COMPACTOR (SGC) TO DESIGN MIXTURES, SUBMIT THE SGC MIX DESIGN TO THE ENGINEER FOR APPROVAL.

B7.5 ALL MIXTURES MUST MEET THE HAMBURG REQUIREMENT AS STATED IN THE TABLE BELOW.

HIGH-TEMPERATURE BINDER GRADE	TEST METHOD	MINIMUM # OF PASSES @ 0.5" RUT DEPTH (TESTED @ 122°F)
PG 64 OR LOWER	TEX-242-F	7,000
PG 70	TEX-242-F	15,000
PG-76 OR HIGHER	TEX-242-F	20,000

* THE COUNTY ENGINEER MAY ACCEPT HAMBURG WHEEL TEST RESULTS FOR PRODUCTION AND PLACEMENT IF NO MORE THAN 10F THE 5 MOST RECENT TESTS IS BELOW THE SPECIFIED NUMBER OF PASSES AND THE FAILING TEST IS NO MORE THAN 2,000 PASSES BELOW THE SPECIFIED NUMBER OF PASSES.

B7.6 SUBMIT ANY PROPOSED ADJUSTMENTS OR CHANGES TO A JOB MIX FORMULA TO THE COUNTY ENGINEER BEFORE PRODUCTION OF THE NEW JOB MIX FORMULA.

B7.7 UNLESS OTHERWISE APPROVED, PROVIDE TYPE B MIXTURES THAT HAVE NO LESS THAN 4.5% ASPHALT BINDER, AND TY C AND D MIXTURES WITH NO LESS THAN 4.7% BINDER.

B7.8 FOR MIXTURE DESIGN VERIFICATION, PROVIDE THE ENGINEER WITH TWO 5-GALLON BUCKETS OF EACH AGGREGATE STOCKPILE TO BE USED ON THE PROJECT AND THREE GALLONS OF EACH PG BINDER TO BE USED ON THE PROJECT. ALSO PROVIDE SUFFICIENT QUANTITIES OF ANY OTHER ADDITIVES THAT WILL BE USED IN THE HMA MIXTURE. THIS MUST BE DONE PRIOR TO APPROVAL OF THE MIX DESIGN, UNL

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
WATER POLLUTION ABATEMENT PLAN
GENERAL CONSTRUCTION NOTES

EDWARDS AQUIFER PROTECTION PROGRAM CONSTRUCTION NOTES - LEGAL DISCLAIMER

THE FOLLOWINGLISTED "CONSTRUCTION NOTES" ARE INTENDED TO BE ADVISORY IN NATURE ONLY AND DO NOT CONSTITUTE AN APPROVAL OR CONDITIONAL APPROVAL BY THE EXECUTIVE DIRECTOR (ED). NOR DO THEY CONSTITUTE A COMPREHENSIVE LISTING OF RULES OR CONDITIONS TO BE FOLLOWED DURING CONSTRUCTION. FURTHER ACTIONS MAY BE REQUIRED TO ACHIEVE COMPLIANCE WITH TCEQ REGULATIONS FOUND IN TITLE 30, TEXAS ADMINISTRATIVE CODE (TAC), CHAPTERS 213 AND 217, AS WELL AS LOCAL ORDINANCES AND REGULATIONS PROVIDING FOR THE PROTECTION OF WATER QUALITY. ADDITIONALLY, NOTHING CONTAINED IN THE FOLLOWINGLISTED "CONSTRUCTION NOTES" RESTRICTS THE POWERS OF THE ED, THE COMMISSION OR ANY OTHER GOVERNMENTAL ENTITY TO PREVENT, CORRECT, OR CURTAIL ACTIVITIES THAT RESULT OR MAY RESULT IN POLLUTION OF THE EDWARDS AQUIFER OR HYDROLOGICALLY CONNECTED SURFACE WATERS. THE HOLDER OF ANY EDWARDS AQUIFER PROTECTION PLAN CONTAINING "CONSTRUCTION NOTES" IS STILL RESPONSIBLE FOR COMPLIANCE WITH TITLE 30, TAC, CHAPTERS 213 OR ANY OTHER APPLICABLE TCEQ REGULATION, AS WELL AS ALL CONDITIONS OF AN EDWARDS AQUIFER PROTECTION PLAN THROUGH ALL PHASES OF PLAN IMPLEMENTATION. FAILURE TO COMPLY WITH ANY CONDITION OF THE EDS APPROVAL, WHETHER OR NOT IN CONTRADICTION OF ANY "CONSTRUCTION NOTES," IS A VIOLATION OF TCEQ REGULATIONS AND ANY VIOLATION IS SUBJECT TO ADMINISTRATIVE RULES, ORDERS, AND PENALTIES AS PROVIDED UNDER TITLE 30, TAC § 213.10 (RELATING TO ENFORCEMENT). SUCH VIOLATIONS MAY ALSO BE SUBJECT TO CIVIL PENALTIES AND INJUNCTION. THE FOLLOWINGLISTED "CONSTRUCTION NOTES" IN NO WAY REPRESENT AN APPROVED EXCEPTION BY THE ED TO ANY PART OF TITLE 30 TAC, CHAPTERS 213 AND 217, OR ANY OTHER TCEQ APPLICABLE REGULATION

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 APPROVED 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 THE 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;

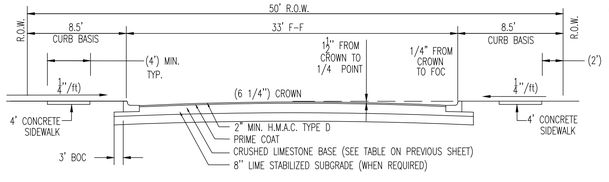
   B. ANY CHANGE IN THE NATURE OR CHARACTER OF THE REGULATED ACTIVITY FROM THAT WHICH WAS ORIGINALLY APPROVED OR A CHANGE WHICH WOULD SIGNIFICANTLY IMPACT THE ABILITY OF THE PLAN TO PREVENT POLLUTION OF THE EDWARDS AQUIFER;

   C. ANY DEVELOPMENT OF LAND PREVIOUSLY IDENTIFIED AS UNDEVELOPED IN THE ORIGINAL WATER POLLUTION ABATEMENT PLAN.

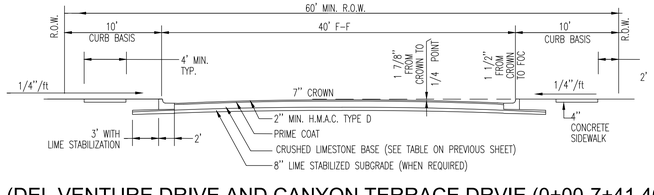
AUSTIN REGIONAL OFFICE
12100 PARK 35 CIRCLE, BUILDING A
AUSTIN, TEXAS 78753-1808
PHONE (512) 339-2929
FAX (512) 339-3795

SAN ANTONIO REGIONAL OFFICE
14250 JUDSON ROAD
SAN ANTONIO, TEXAS 78233-4480
PHONE (210) 490-3096
FAX (210) 545-4329

THESE GENERAL CONSTRUCTION NOTES MUST BE INCLUDED ON THE CONSTRUCTION PLANS PROVIDED TO THE CONTRACTOR AND ALL SUBCONTRACTORS.
TCEQ-0592 (REV. JULY 15, 2015)



(ALL LOCAL STREETS)
N.T.S.



(DEL VENTURE DRIVE AND CANYON TERRACE DRVIE (0+00-7+41.46)
N.T.S.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
ORGANIZED SEWAGE COLLECTION SYSTEM
GENERAL CONSTRUCTION NOTES

EDWARDS AQUIFER PROTECTION PROGRAM CONSTRUCTION NOTES - LEGAL DISCLAIMER

THE FOLLOWINGLISTED "CONSTRUCTION NOTES" ARE INTENDED TO BE ADVISORY IN NATURE ONLY AND DO NOT CONSTITUTE AN APPROVAL OR CONDITIONAL APPROVAL BY THE EXECUTIVE DIRECTOR, NOR DO THEY CONSTITUTE A COMPREHENSIVE LISTING OF RULES OR CONDITIONS TO BE FOLLOWED DURING CONSTRUCTION. FURTHER ACTIONS MAY BE REQUIRED TO ACHIEVE COMPLIANCE WITH TCEQ REGULATIONS FOUND IN TITLE 30, TEXAS ADMINISTRATIVE CODE, CHAPTERS 213 AND 217, AS WELL AS LOCAL ORDINANCES AND REGULATIONS PROVIDING FOR THE PROTECTION OF WATER QUALITY. ADDITIONALLY, NOTHING CONTAINED IN THE FOLLOWINGLISTED "CONSTRUCTION NOTES" RESTRICTS THE POWERS OF THE EXECUTIVE DIRECTOR, THE COMMISSION OR ANY OTHER GOVERNMENTAL ENTITY TO PREVENT, CORRECT, OR CURTAIL ACTIVITIES THAT RESULT OR MAY RESULT IN POLLUTION OF THE EDWARDS AQUIFER OR HYDROLOGICALLY CONNECTED SURFACE WATERS. THE HOLDER OF ANY EDWARDS AQUIFER PROTECTION PLAN CONTAINING "CONSTRUCTION NOTES" IS STILL RESPONSIBLE FOR COMPLIANCE WITH TITLE 30, TEXAS ADMINISTRATIVE CODE, CHAPTERS 213 OR ANY OTHER APPLICABLE TCEQ REGULATION, AS WELL AS ALL CONDITIONS OF AN EDWARDS AQUIFER PROTECTION PLAN THROUGH ALL PHASES OF PLAN IMPLEMENTATION. FAILURE TO COMPLY WITH ANY CONDITION OF THE EXECUTIVE DIRECTOR'S APPROVAL, WHETHER OR NOT IN CONTRADICTION OF ANY "CONSTRUCTION NOTES," IS A VIOLATION OF TCEQ REGULATIONS AND ANY VIOLATION IS SUBJECT TO ADMINISTRATIVE RULES, ORDERS, AND PENALTIES AS PROVIDED UNDER TITLE 30, TEXAS ADMINISTRATIVE CODE § 213.10 (RELATING TO ENFORCEMENT). SUCH VIOLATIONS MAY ALSO BE SUBJECT TO CIVIL PENALTIES AND INJUNCTION. THE FOLLOWINGLISTED "CONSTRUCTION NOTES" IN NO WAY REPRESENT AN APPROVED EXCEPTION BY THE EXECUTIVE DIRECTOR TO ANY PART OF TITLE 30 TEXAS ADMINISTRATIVE CODE, CHAPTERS 213 AND 217, OR ANY OTHER TCEQ APPLICABLE REGULATION.

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 SHEETS 82 - 96 OF 103.

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: THERE SHALL BE NO CURVATURE OF SANITARY SEWER LINE PIPES.

IF PIPE FLEXURE IS PROPOSED, THE FOLLOWING METHOD OF PREVENTING DEFLECTION OF THE JOINT MUST BE USED: THERE SHALL BE NO FLEXURE OF SANITARY SEER LINE PIPES.

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 TECNIQUES. ~~IF NO STUB-OUT IS PRESENT AN ALTERNATE METHOD OF JOINING LATERALS IS SHOWN IN THE DETAIL ON PLAN SHEET __ OF __ (FOR POTENTIAL FUTURE LATERALS).~~ (NOT APPLICABLE)

THE PRIVATE SERVICE LATERAL STUB-OUTS MUST BE INSTALLED AS SHOWN ON THE PLAN AND PROFILE SHEETS ON PLAN SHEETS 82 - 96 OF 103 AND MARKED AFTER BACKFILLING AS SHOWN IN THE DETAIL ON PLAN SHEET 103 OF 103.

13. TRENCHING, BEDDING AND BACKFILL MUST CONFORM WITH 30 TAC §217.54. THE BEDDING AND BACKFILL FOR FLEXIBLE PIPE MUST COMPLY WITH THE STANDARDS OF ASTM D-2321, CLASSES IA, IB, II OR III. RIGID PIPE BEDDING MUST COMPLY WITH THE REQUIREMENTS OF ASTM C 12 (ANSI A 106.2) CLASSES A, B OR C.

14. SEWER LINES MUST BE TESTED FROM MANHOLE TO MANHOLE. WHEN A NEW SEWER LINE IS CONNECTED TO AN EXISTING STUB OR CLEAN-OUT, IT MUST BE TESTED FROM EXISTING MANHOLE TO NEW MANHOLE. IF A STUB OR CLEAN-OUT IS USED AT THE END OF THE PROPOSED SEWER LINE, NO PRIVATE SERVICE ATTACHMENTS MAY BE CONNECTED BETWEEN THE LAST MANHOLE AND THE CLEANOUT UNLESS IT CAN BE CERTIFIED AS CONFORMING WITH THE PROVISIONS OF 30 TAC §213.5(C)(3)(E).

15. ALL SEWER LINES MUST BE TESTED IN ACCORDANCE WITH 30 TAC §217.57. THE ENGINEER MUST RETAIN COPIES OF ALL TEST RESULTS WHICH MUST BE MADE AVAILABLE TO THE EXECUTIVE DIRECTOR UPON REQUEST. THE ENGINEER MUST CERTIFY IN WRITING THAT ALL WASTEWATER LINES HAVE PASSED ALL REQUIRED TESTING TO THE APPROPRIATE REGIONAL OFFICE WITHIN 30 DAYS OF TEST COMPLETION AND PRIOR TO USE OF THE NEW COLLECTION SYSTEM. TESTING METHOD WILL BE:

(a. FOR A COLLECTION SYSTEM PIPE THAT WILL TRANSPORT WASTEWATER BY GRAVITY FLOW, THE DESIGN MUST SPECIFY AN INFILTRATION AND EXFILTRATION TEST OR A LOW-PRESSURE AIR TEST. A TEST MUST CONFORM TO THE FOLLOWING REQUIREMENTS:

(1) LOW PRESSURE AIR TEST.

(A) A LOW PRESSURE AIR TEST MUST FOLLOW THE PROCEDURES DESCRIBED IN AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) C-828, ASTM C-924, OR ASTM F-1417 OR OTHER PROCEDURE APPROVED BY THE EXECUTIVE DIRECTOR, EXCEPT AS TO TESTING TIMES AS REQUIRED IN TABLE C.3 IN SUBPARAGRAPH (C) OF THIS PARAGRAPH OR EQUATION C.3 IN SUBPARAGRAPH (B)(II) OF THIS PARAGRAPH.

(B) FOR SECTIONS OF COLLECTION SYSTEM PIPE LESS THAN 36 INCH AVERAGE INSIDE DIAMETER, THE FOLLOWING PROCEDURE MUST APPLY, UNLESS A PIPE IS TO BE TESTED AS REQUIRED BY PARAGRAPH (2) OF THIS SUBSECTION.

(i) A PIPE MUST BE PRESSURIZED TO 3.5 POUNDS PER SQUARE INCH (PSI) GREATER THAN THE PRESSURE EXERTED BY GROUNDWATER ABOVE THE PIPE.

(ii) ONCE THE PRESSURE IS STABILIZED, THE MINIMUM TIME ALLOWABLE FOR THE PRESSURE TO DROP FROM 3.5 PSI GAUGE TO 2.5 PSI GAUGE IS COMPUTED FROM THE FOLLOWING EQUATION:

EQUATION C.3

$$T = \frac{0.085 \times D \times K}{Q}$$

WHERE:

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

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

PIPE DIAMETER *(INCHES)*	Minimum Time (seconds)	Maximum Length for Minimum Time (feet)	Time for Longer Length (seconds/foot)
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. IF ANY PRESSURE LOSS OR LEAKAGE HAS OCCURRED DURING THE FIRST 25% OF A TESTING PERIOD, THEN THE TEST MUST CONTINUE FOR THE ENTIRE TEST DURATION AS OUTLINED ABOVE OR UNTIL FAILURE.

(E) 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.

(F.) 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.

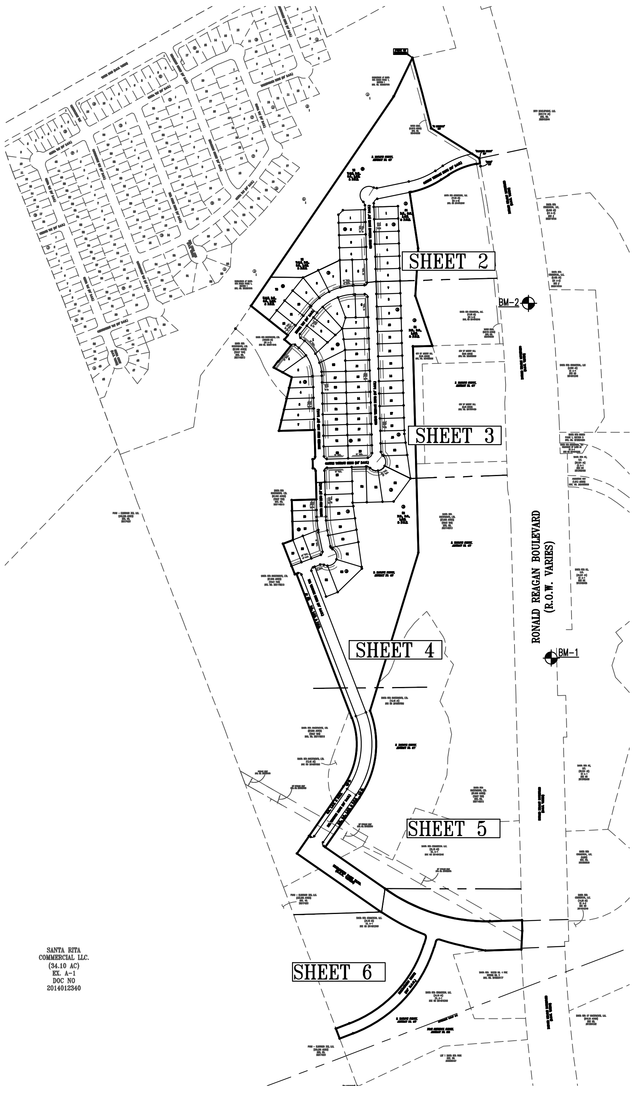
(4) AN OWNER SHALL NOT CONDUCT A DEFLECTION TEST UNTIL AT LEAST 30 DAYS AFTER THE FINAL BACKFILL.

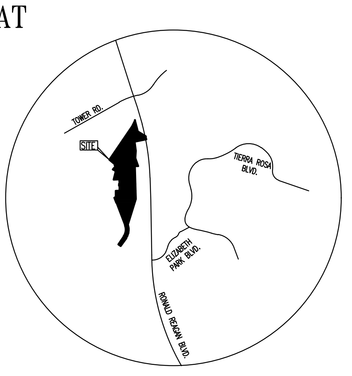
(5) GRAVITY COLLECTION SYSTEM PIPE DEFLECTION MUST NOT EXCEED FIVE PERCENT (5%).

(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.

1. 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 MANH

SANTA RITA RANCH NORTHWEST PHASE 2, SECTION 1
FINAL PLAT





VICINITY MAP
APPROX. SCALE: 1"=2000'

GRAPHIC SCALE
0 100 150 200 300
(IN FEET)
1 inch = 100 ft.

LEGEND
- BENCHMARK
- CAPPED 1/2" IRON ROD FOUND STAMPED "CBD SETSTONE" (UNLESS NOTED)
- CAPPED 1/2" IRON ROD SET STAMPED "CBD SETSTONE"
- 1 LOT NUMBER
- (A) BLOCK DESIGNATION
- B.S.L. BUILDING SETBACK LINE
- P.U.E. PUBLIC UTILITY EASEMENT
- W.Q.E. WATER QUALITY EASEMENT
- D.E. DRAINAGE EASEMENT
- L.S.E. LANDSCAPE EASEMENT
- O.S. OPEN SPACE

DATE: APRIL 17, 2025

OWNER:
SANTA RITA KC, LLC
1700 CROSS CREEK LANE, STE. 100
LIBERTY HILL, TX 78642

DEVELOPER:
SANTA RITA KC, LLC
1700 CROSS CREEK LANE, STE. 100
LIBERTY HILL, TX 78642

ENGINEER & SURVEYOR:
CARLSON, BRIGANCE & DOERING, INC.
5501 WEST WILLIAM CANNON DRIVE
AUSTIN, TEXAS 78749
(512) 280-5160 PHONE

BASIS OF BEARINGS – TEXAS COORDINATE SYSTEM, CENTRAL ZONE (4203), NAD83
ELEVATION DATUM – NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD '88) GEOID 12B.

TOTAL ACREAGE: 54.873 ACRES
SURVEY: THE B. MANLOVE SURVEY, ABSTRACT NO. 417,

F.E.M.A. MAP NO. 48491C0275E
WILLIAMSON COUNTY, TEXAS AND INCORPORATED AREAS
DATED: SEPTEMBER 26, 2008

TOTAL OF LOTS	90
SINGLE FAMILY LOTS:	87
W.Q.E., D.E., O.S., L.S.E., & P.U.E. LOTS:	1
D.E., O.S., L.S.E., & P.U.E. LOTS:	1
O.S., L.S.E., & P.U.E. LOTS:	1

BENCHMARKS

BM-1: MAG NAIL FOUND ON THE EAST EDGE OF ASPHALT OF RONALD REAGAN BLVD. +/- 500' SOUTH OF THE INTERSECTION WITH AUGUSTINE WAY
N: 10215964.05
E: 3080354.28
ELEV: 1002.35

BM-2: MAG NAIL FOUND ON THE EAST EDGE OF ASPHALT OF RONALD REAGAN BLVD. +/- 1400' NORTH OF THE INTERSECTION WITH AUGUSTINE WAY.
N: 10217958.48
E: 3080226.45
ELEV: 926.20

ROAD TABLE

STREET NAMES	LINEAR FOOTAGE	R.O.W. WIDTH	PAVEMENT WIDTH	DESIGN SPEED	DESIGNATION	CLASSIFICATION
CANYON TERRACE DRIVE	657'	60' R.O.W.	40' FOC-FOC	35 M.P.H.	PUBLIC	MINOR COLLECTOR
CANYON TERRACE DRIVE	1,860'	50' R.O.W.	33' FOC-FOC	25 M.P.H.	PUBLIC	LOCAL
DEL VENTURE DRIVE	1,749'	60' R.O.W.	33' FOC-FOC	35 M.P.H.	PUBLIC	MINOR COLLECTOR
ELIZABETH PARK BLVD.	1,368'	R.O.W. VARIES	FOC-FOC VARIES	45 M.P.H.	PUBLIC	MINOR ARTERIAL
ENCINA WAY	595'	50' R.O.W.	33' FOC-FOC	25 M.P.H.	PUBLIC	LOCAL
MALDANADO DRIVE	859'	60' R.O.W.	40' FOC-FOC	35 M.P.H.	PUBLIC	LOCAL
PIONEER HILLS BEND	1,503'	50' R.O.W.	33' FOC-FOC	35 M.P.H.	PUBLIC	LOCAL
TOTAL	8,591'					

Carlson, Brigance & Doering, Inc.
FIRM ID #F3791 ◆ REG. # 10024900
Civil Engineering ◆ Surveying
5501 West William Cannon ◆ Austin, Texas 78749
Phone No. (512) 280-5160 ◆ Fax No. (512) 280-5165

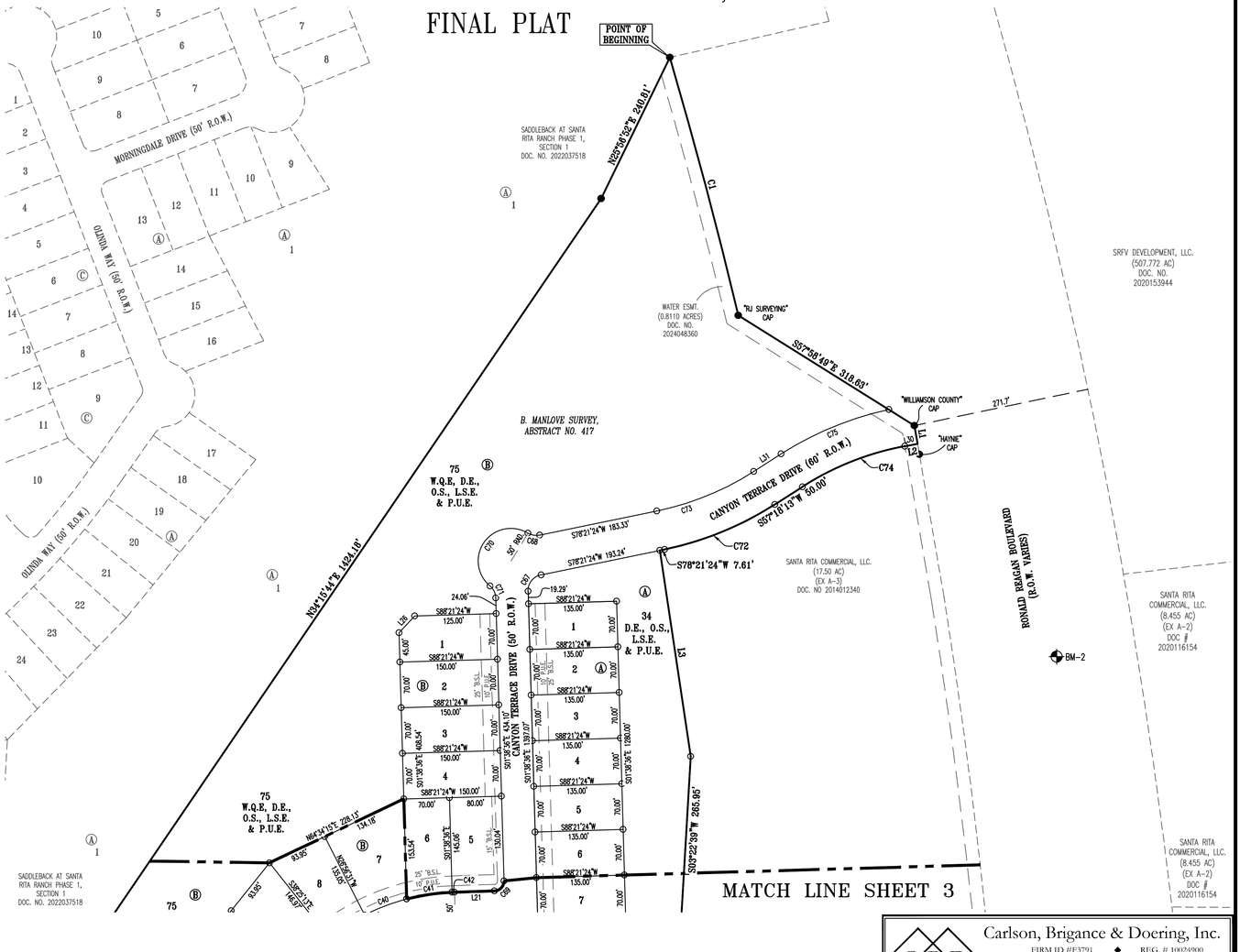
J:\AC3D\5665\dwg\5665-FINAL PLAT

SHEET NO. 1 OF 9

SANTA RITA RANCH NORTHWEST PHASE 2, SECTION 1
FINAL PLAT

GRAPHIC SCALE
0 100 150 200 300
(IN FEET)
1 inch = 100 ft.

LEGEND
- BENCHMARK
- CAPPED 1/2" IRON ROD FOUND STAMPED "CBD SETSTONE" (UNLESS NOTED)
- CAPPED 1/2" IRON ROD SET STAMPED "CBD SETSTONE"
- 1 LOT NUMBER
- (A) BLOCK DESIGNATION
- B.S.L. BUILDING SETBACK LINE
- P.U.E. PUBLIC UTILITY EASEMENT
- W.Q.E. WATER QUALITY EASEMENT
- D.E. DRAINAGE EASEMENT
- L.S.E. LANDSCAPE EASEMENT
- O.S. OPEN SPACE

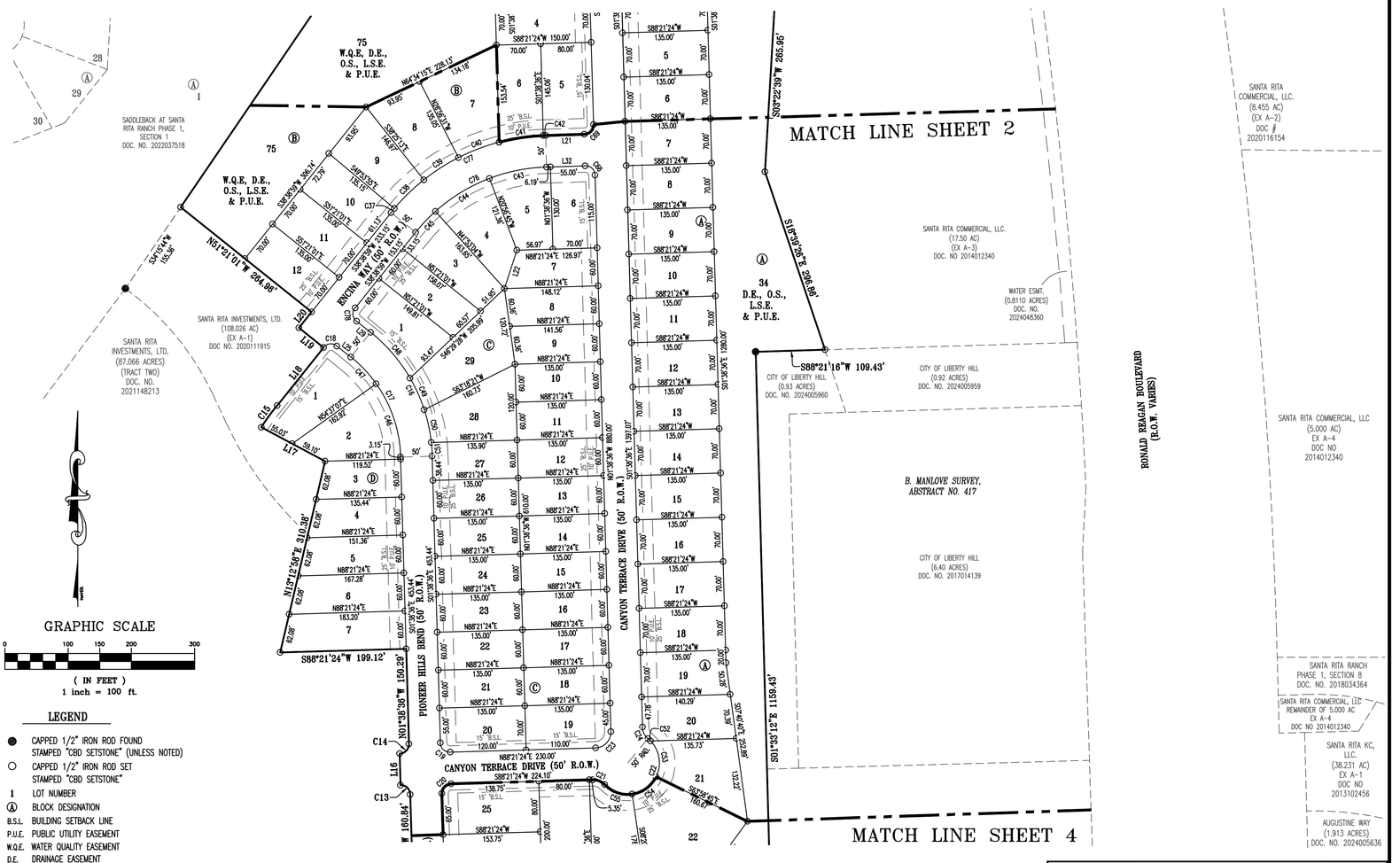


Carlson, Brigance & Doering, Inc.
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J:\AC3D\5665\dwg\5665-FINAL PLAT

SHEET NO. 2 OF 9

SANTA RITA RANCH NORTHWEST PHASE 2, SECTION 1
FINAL PLAT

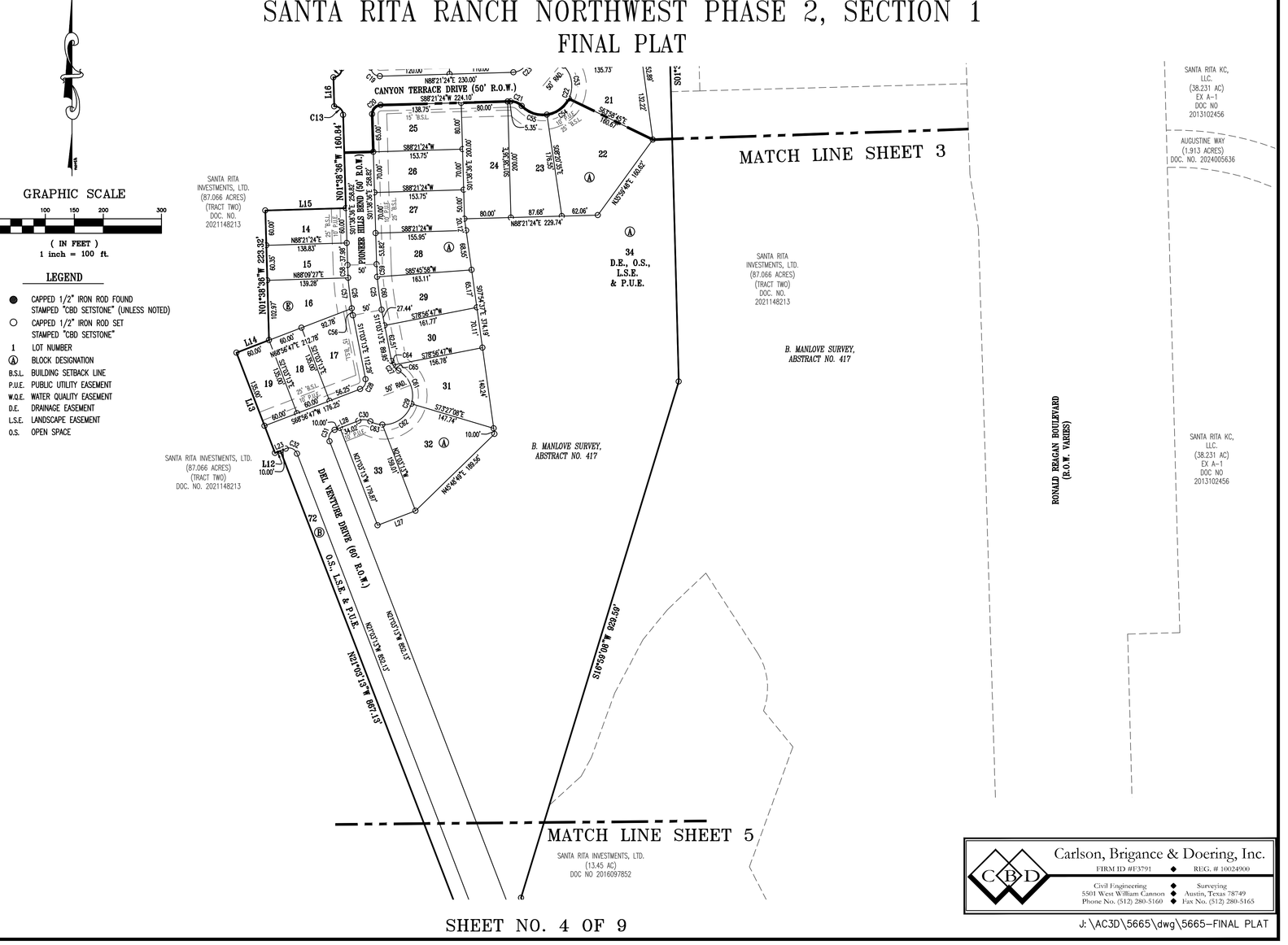


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SHEET NO. 3 OF 9

J:\AC3D\5665\dwg\5665-FINAL PLAT

SANTA RITA RANCH NORTHWEST PHASE 2, SECTION 1
FINAL PLAT

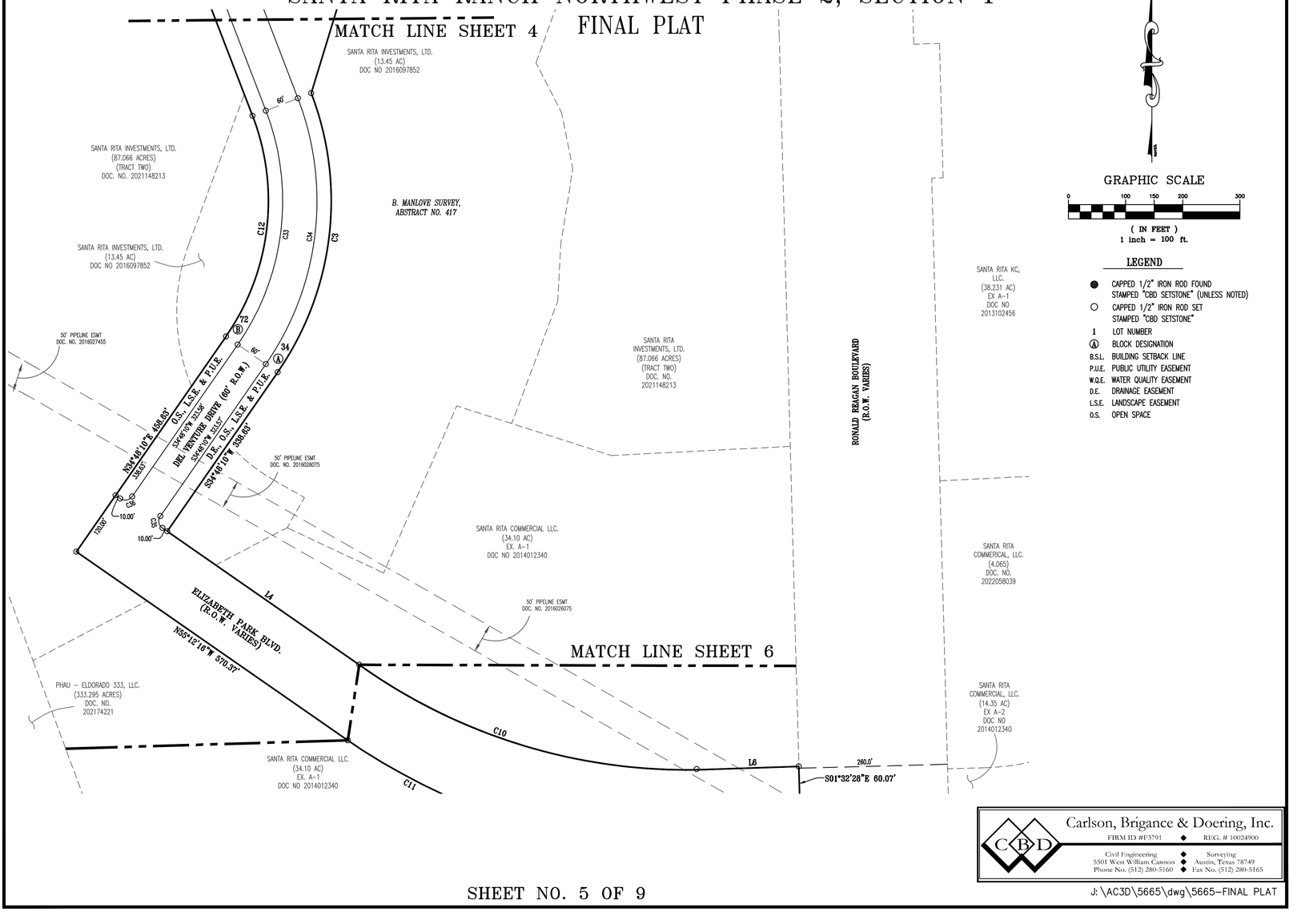


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SHEET NO. 4 OF 9

J:\AC3D\5665\dwg\5665-FINAL PLAT

SANTA RITA RANCH NORTHWEST PHASE 2, SECTION 1
FINAL PLAT



GRAPHIC SCALE

0 100 150 200 300

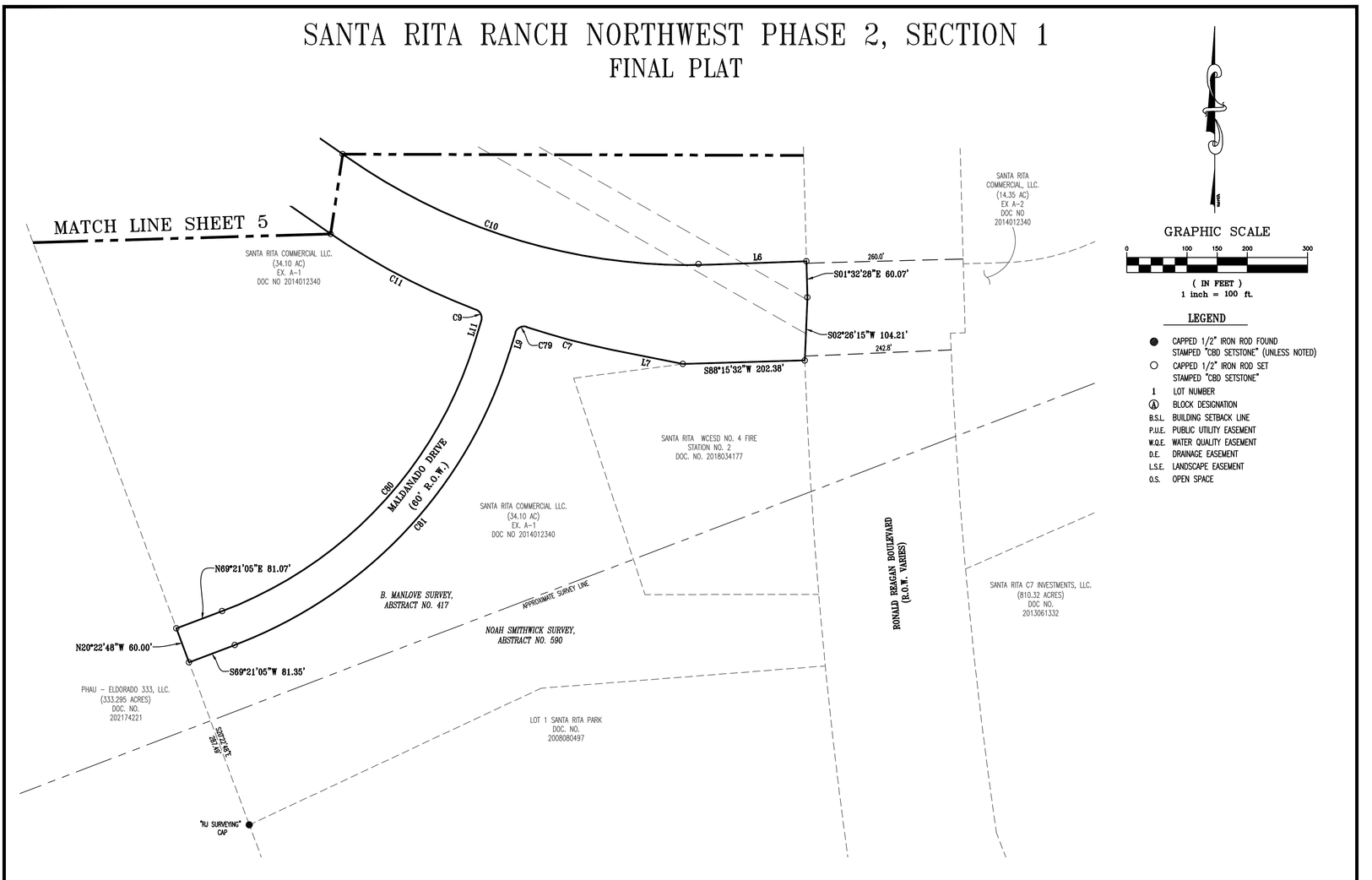
(IN FEET)
1 inch = 100 ft.

LEGEND

- ● CAPPED 1/2" IRON ROD FOUND STAMPED "CBD SETSTONE" (UNLESS NOTED)
- ○ CAPPED 1/2" IRON ROD SET STAMPED "CBD SETSTONE"
- 1 LOT NUMBER
- Ⓐ BLOCK DESIGNATION
- B.S.L. BUILDING SETBACK LINE
- P.U.E. PUBLIC UTILITY EASEMENT
- W.Q.E. WATER QUALITY EASEMENT
- D.E. DRAINAGE EASEMENT
- L.S.E. LANDSCAPE EASEMENT
- O.S. OPEN SPACE

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SANTA RITA RANCH NORTHWEST PHASE 2, SECTION 1
FINAL PLAT



GRAPHIC SCALE

0 100 150 200 300

(IN FEET)
1 inch = 100 ft.

LEGEND

- ● CAPPED 1/2" IRON ROD FOUND STAMPED "CBD SETSTONE" (UNLESS NOTED)
- ○ CAPPED 1/2" IRON ROD SET STAMPED "CBD SETSTONE"
- 1 LOT NUMBER
- Ⓐ BLOCK DESIGNATION
- B.S.L. BUILDING SETBACK LINE
- P.U.E. PUBLIC UTILITY EASEMENT
- W.Q.E. WATER QUALITY EASEMENT
- D.E. DRAINAGE EASEMENT
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SANTA RITA RANCH NORTHWEST PHASE 2, SECTION 1
FINAL PLAT

Curve Table						
Curve #	Length	Radius	Chord Direction	Chord Length	Tangent	DELTA
C1	409.39	8150.00	S14°52'57"E	409.35	204.74	2°52'41"
C3	511.74	525.00	S06°52'16"W	491.72	278.26	55°50'56"
C7	144.77	1159.50	N75°02'49"W	144.68	72.48	7°09'14"
C9	22.61	15.00	N26°06'39"W	20.53	14.07	86°21'19"
C10	633.73	988.00	S73°34'48"E	622.92	328.20	36°45'04"
C11	280.23	1140.00	N62°14'47"W	279.52	140.82	14°05'03"
C12	404.52	415.00	N06°52'16"E	388.70	219.96	55°50'56"
C13	23.56	15.00	N46°38'36"W	21.21	15.00	90°00'00"
C14	23.56	15.00	N43°21'40"E	21.21	15.00	89°59'29"
C15	42.45	475.00	N36°05'23"E	42.44	21.24	5°07'13"
C16	225.56	260.00	N26°29'48"W	218.56	120.43	49°42'25"
C17	182.19	210.00	N26°29'48"W	176.53	97.27	49°42'25"
C18	23.56	15.00	S83°36'59"W	21.21	15.00	90°00'00"
C19	23.56	15.00	S46°38'36"E	21.21	15.00	90°00'00"
C20	23.56	15.00	S43°21'24"W	21.21	15.00	90°00'00"
C21	21.03	25.00	N67°32'54"W	20.41	11.18	48°11'23"
C22	162.65	50.00	N43°21'24"E	99.85	897.21	186°22'46"
C23	39.27	25.00	N43°21'24"E	35.36	25.00	90°00'00"
C24	21.03	25.00	S25°44'17"E	20.41	11.18	48°11'23"
C25	78.84	480.00	S06°20'54"E	78.75	39.51	9°24'37"
C26	87.05	530.00	S06°20'54"E	86.95	43.62	9°24'37"
C27	21.03	25.00	S35°08'54"E	20.41	11.18	48°11'23"
C28	20.94	15.00	N28°56'47"E	19.28	12.59	89°00'00"
C29	153.92	50.00	N28°56'47"E	99.95	1581.95	176°22'46"
C30	21.03	25.00	N85°53'31"W	20.41	11.18	48°11'23"
C31	23.56	15.00	S23°56'47"W	21.21	15.00	90°00'00"
C32	23.56	15.00	N66°03'13"W	21.21	15.00	90°00'00"
C33	428.95	440.00	N06°52'29"E	412.16	233.25	55°51'23"
C34	487.44	500.00	N06°52'29"E	468.36	265.05	55°51'23"
C35	23.56	15.00	S10°12'03"E	21.21	15.00	90°00'26"
C36	23.56	15.00	N79°47'57"E	21.21	15.00	89°59'34"
C37	8.23	325.00	N39°22'32"E	8.23	4.12	1°27'06"
C38	65.11	325.00	N45°50'26"E	65.00	32.66	11°28'42"
C39	65.11	325.00	N57°19'08"E	65.00	32.66	11°28'42"
C40	69.04	325.00	N69°08'37"E	68.91	34.65	12°10'17"
C41	70.65	325.00	N81°27'25"E	70.51	35.46	12°27'19"
C42	3.81	325.00	N88°01'14"E	3.81	1.91	0°40'20"
C43	92.65	275.00	S78°42'20"W	92.21	46.77	19°18'09"
C44	100.50	275.00	S58°35'05"W	99.94	50.82	20°56'19"
C45	45.43	275.00	S43°22'58"W	45.38	22.77	9°27'56"
C46	123.66	210.00	N18°30'44"W	121.88	63.68	33°44'17"
C47	58.53	210.00	N43°21'57"W	58.34	29.46	15°58'07"
C48	96.20	260.00	S40°45'01"E	95.65	48.66	21°11'39"
C49	54.84	260.00	S24°06'30"E	54.74	27.52	12°05'05"
C50	52.94	260.00	S12°14'00"E	52.84	26.56	11°39'55"
C51	21.59	260.00	S04°01'19"E	21.58	10.80	4°45'26"
C52	5.10	50.00	S46°54'32"E	5.10	2.55	5°50'54"
C53	61.09	50.00	S08°58'55"E	57.36	35.01	70°00'20"
C54	48.55	50.00	S53°50'20"W	46.67	26.38	55°38'11"
C55	47.90	50.00	N70°53'34"W	46.09	25.97	54°53'22"

Curve Table						
Curve #	Length	Radius	Chord Direction	Chord Length	Tangent	DELTA
C56	12.23	530.00	N10°23'33"W	12.23	6.12	1°19'20"
C57	52.92	530.00	N08°52'15"W	52.90	26.48	5°43'15"
C58	21.90	530.00	N02°49'37"W	21.90	10.95	2°22'02"
C59	21.70	480.00	S02°56'19"E	21.70	10.85	2°35'26"
C60	57.13	480.00	S07°38'37"E	57.10	28.60	6°49'10"
C61	66.14	50.00	S21°20'52"E	61.42	38.92	75°47'28"
C62	66.22	50.00	S54°29'17"W	61.48	38.98	75°52'50"
C63	21.56	50.00	N75°13'04"W	21.40	10.95	24°42'28"
C64	7.61	25.00	S19°46'14"E	7.58	3.83	17°26'03"
C65	13.42	25.00	S43°51'55"E	13.26	6.88	30°45'20"
C66	23.56	15.00	N46°38'36"W	21.21	15.00	90°00'00"
C67	34.91	25.00	S38°21'24"W	32.14	20.98	80°00'00"
C68	18.69	25.00	S80°13'36"E	18.26	9.81	42°50'00"
C69	23.56	15.00	N43°21'24"E	21.21	15.00	90°00'00"
C70	149.25	50.00	S35°40'43"W	99.69	636.85	171°01'23"
C71	21.03	25.00	N25°44'17"W	20.41	11.18	48°11'23"
C72	183.72	500.00	N67°49'48"E	182.69	92.91	21°03'12"
C73	161.68	440.00	N67°49'48"E	160.77	81.76	21°03'12"
C74	170.00	440.00	S68°22'19"W	168.94	86.07	22°08'13"
C75	179.48	500.00	S67°35'14"W	178.52	90.72	20°34'03"
C76	238.58	275.00	S63°30'12"W	231.16	127.38	49°42'25"
C77	281.95	325.00	S63°30'12"W	273.19	150.54	49°42'25"
C78	23.56	15.00	S08°21'01"E	21.21	15.00	90°00'00"
C79	23.13	15.08	S64°29'50"W	20.93	14.54	87°55'11"
C80	634.21	695.00	N43°12'32"E	612.44	341.11	52°17'05"
C81	688.97	755.00	S43°12'32"W	665.31	370.56	52°17'05"

Line Table		
Line #	Length	Direction
L1	28.45	S09°45'17"E
L2	20.04	S78°26'25"W
L3	319.62	S08°33'08"E
L4	421.68	S55°12'16"E
L6	161.72	N88°02'40"E
L7	121.29	N78°37'26"W
L9	34.95	S17°02'12"W
L11	36.87	N17°04'00"E
L12	9.89	S68°56'47"W
L13	185.00	N21°03'13"W
L14	60.00	N68°56'47"E
L15	138.83	N88°21'24"E
L16	50.00	N01°38'36"W
L17	114.13	N61°55'29"W
L18	117.44	N38°38'59"E
L19	50.00	N51°21'01"W

Line Table		
Line #	Length	Direction
L20	32.02	N38°38'59"E
L21	61.19	N88°21'24"E
L22	63.62	S17°46'27"W
L23	19.89	S68°56'47"W
L25	28.04	S51°21'01"E
L26	35.36	N43°21'24"E
L27	70.00	S68°56'47"W
L28	44.02	N68°56'47"E
L29	28.04	S51°21'01"E
L30	20.04	S79°26'25"W
L32	61.19	N88°21'24"E

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SANTA RITA RANCH NORTHWEST PHASE 2, SECTION 1
FINAL PLAT

METES AND BOUNDS

BEING ALL OF A 55.234 ACRE TRACT OF LAND SITUATED IN THE B. WARLOW SURVEY, ABSTRACT NUMBER 417, WILLIAMSON COUNTY, TEXAS, BEING ALL OF A CALLED 46.244 ACRE TRACT OF LAND CONVEYED TO SANTA RITA KC, LLC BY DEED RECORDED IN DOCUMENT NUMBER 2025012725, OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS, ALL OF A CALLED 3.742 ACRE TRACT OF LAND CONVEYED TO SANTA RITA KC, LLC BY DEED RECORDED IN DOCUMENT NUMBER 2025012726, OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS, ALL OF A CALLED 3.653 ACRE TRACT OF LAND CONVEYED TO SANTA RITA KC, LLC BY DEED RECORDED IN DOCUMENT NUMBER 2025012728, OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS, ALL OF A CALLED 0.501 ACRE TRACT OF LAND CONVEYED TO SANTA RITA KC, LLC BY DEED RECORDED IN DOCUMENT NUMBER 2025012727, OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS, AND A PART OF A CALLED 1.999 ACRE TRACT OF LAND CONVEYED TO SANTA RITA KC, LLC BY DEED RECORDED IN DOCUMENT NUMBER OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS, SAID 56.140 ACRE TRACT OF LAND BEING MORE FULLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

BEGINNING, AT A CAPPED 1/2 INCH IRON ROD FOUND STAMPED 'CBD SETSTONE' AT THE NORTHEAST CORNER OF SAID 3.742 ACRE TRACT OF LAND, BEING ON THE WEST RIGHT-OF-WAY LINE OF RONALD REAGAN BOULEVARD (R.O.W. VARIES), SAME BEING ON THE SOUTH LINE OF SAID LOT 1, BLOCK A, SADDLEBACK AT SANTA RITA RANCH PHASE 1, SECTION 1, A SUBDIVISION RECORDED IN DOCUMENT NUMBER 2020035710, OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS, ALSO BEING AT THE BEGINNING OF A CURVE TO THE RIGHT, FOR THE NORTHEAST CORNER AND POINT OF BEGINNING OF THE HEREIN DESCRIBED TRACT OF LAND,

THENCE, WITH THE COMMON LINE OF SAID 3.742 ACRE TRACT AND SAID RONALD REAGAN BOULEVARD, THE FOLLOWING FOUR (4) COURSES AND DISTANCES, NUMBERED 1 THROUGH 4,

1) ALONG SAID CURVE TO THE RIGHT, HAVING A RADIUS OF 8,150.00 FEET, AN ARC LENGTH OF 409.39 FEET, AND A CHORD THAT BEARS S14°52'57"E, A DISTANCE OF 409.35 FEET TO A CAPPED 1/2 INCH IRON ROD FOUND STAMPED 'RJ SURVEYING',
2) S16°15'49"E, A DISTANCE OF 318.83 FEET TO A CAPPED 1/2 INCH IRON ROD FOUND STAMPED 'WILLIAMSON COUNTY',
3) S09°45'17"E, A DISTANCE OF 44.79 FEET TO A CAPPED 1/2 INCH IRON ROD FOUND STAMPED 'IRVINE,' AND
4) S09°47'47"E, A DISTANCE OF 43.96 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE' AT THE SOUTHEAST CORNER OF SAID 3.742 ACRE TRACT OF LAND, BEING ON THE WEST LINE OF SAID RONALD REAGAN BOULEVARD, SAME BEING ON THE EAST LINE OF A CALLED 17.50 ACRE TRACT OF LAND (EXHIBIT A-3) CONVEYED TO SANTA RITA COMMERCIAL, LLC, BY DEED RECORDED IN DOCUMENT NUMBER 2014012340, OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS,

THENCE, S78°21'24"W, WITH THE SOUTH LINE OF SAID 3.742 ACRE TRACT AND OVER AND ACROSS SAID 17.50 ACRE TRACT OF LAND, A DISTANCE OF 417.21 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE' AT THE SOUTHWEST CORNER OF SAID 3.742 ACRE TRACT OF LAND, BEING ON THE WEST LINE OF SAID 17.50 ACRE TRACT OF LAND, SAME BEING ON THE EAST LINE OF SAID 46.244 ACRE TRACT OF LAND,

THENCE, WITH THE COMMON LINE OF SAID 46.244 ACRE TRACT AND SAID 17.50 ACRE TRACT OF LAND, THE FOLLOWING THREE (3) COURSES AND DISTANCES, NUMBERED 1 THROUGH 3,

1) S08°33'08"E, A DISTANCE OF 319.62 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE',
2) S03°22'36"E, A DISTANCE OF 265.85 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE', AND
3) S18°39'26"E, A DISTANCE OF 296.86 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE' AT THE NORTHEAST CORNER OF A CALLED 0.83 ACRE TRACT OF LAND CONVEYED TO THE CITY OF LIBERTY HILL BY DEED RECORDED IN DOCUMENT NUMBER 2024005960, OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS, BEING AT THE NORTHWEST CORNER OF A CALLED 0.80 ACRE TRACT OF LAND CONVEYED TO THE CITY OF LIBERTY HILL BY DEED RECORDED IN DOCUMENT NUMBER 2024005959, OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS,

THENCE, WITH THE COMMON LINE OF SAID 0.83 ACRE TRACT AND SAID 46.244 ACRE TRACT OF LAND, OVER AND ACROSS A CALLED 108.026 ACRE TRACT (EXHIBIT A-1) CONVEYED TO SANTA RITA INVESTMENTS, LTD. BY DEED RECORDED IN DOCUMENT NUMBER 2020111915, OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS, AND A CALLED 87.066 ACRE TRACT OF LAND (TRACT TWO) CONVEYED TO SANTA RITA INVESTMENTS, LTD. BY DEED RECORDED IN DOCUMENT NUMBER 2021140213, OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS, THE FOLLOWING TWO (2) COURSES AND DISTANCES, NUMBERED 1 AND 2,

1) S88°21'16"W, A DISTANCE OF 109.43 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE' AT THE NORTHWEST CORNER OF SAID 0.83 ACRE TRACT OF LAND, AND
2) S01°33'12"E, IN PART WITH THE WEST LINE OF SAID 0.83 ACRE TRACT OF LAND, A DISTANCE OF 1159.43 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE',

THENCE, ALONG THE EAST LINE OF SAID 46.244 ACRE TRACT OF LAND, OVER AND ACROSS SAID 87.066 ACRE TRACT OF LAND, AND A CALLED 13.45 ACRE TRACT OF LAND CONVEYED TO SANTA RITA INVESTMENTS, LTD., BY DEED RECORDED IN DOCUMENT NUMBER 2016097852, OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS, AND SAID 108.026 ACRE TRACT OF LAND, THE FOLLOWING THREE (3) COURSES AND DISTANCES, NUMBERED 1 THROUGH 3,

1) S16°59'28"W, A DISTANCE OF 929.59 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE' FOR CORNER, AT THE BEGINNING OF A CURVE TO THE RIGHT,
2) ALONG SAID CURVE TO THE RIGHT, HAVING A RADIUS OF 525.00 FEET, AN ARC LENGTH OF 511.74 FEET, AND A CHORD THAT BEARS S06°52'16"W, A DISTANCE OF 491.72 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE,'
3) S34°48'10"W, A DISTANCE OF 338.63 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE,' ON THE NORTH LINE OF SAID 0.501 ACRE TRACT,

THENCE, WITH THE NORTH LINE OF SAID 0.501 ACRE TRACT AND THE NORTH LINE OF SAID 3.653 ACRE TRACT, OVER AND ACROSS SAID 87.066 ACRE TRACT, AND A CALLED 34.10 ACRE TRACT OF LAND (EXHIBIT A-1) CONVEYED TO SANTA RITA COMMERCIAL LLC., BY DEED RECORDED IN DOCUMENT NUMBER 2014012340, OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS, THE FOLLOWING THREE (3) COURSES AND DISTANCES, NUMBERED 1 THROUGH 3,

1) S55°12'16"E, A DISTANCE OF 409.21 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE,' BEING AT THE BEGINNING OF A CURVE TO THE LEFT,
2) ALONG SAID CURVE TO THE LEFT, HAVING A RADIUS OF 1,020.00 FEET, AN ARC LENGTH OF 827.82 FEET, AND A CHORD THAT BEARS S72°50'16"E, A DISTANCE OF 617.96 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE',
3) N89°31'45"E, A DISTANCE OF 179.03 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE', ON THE WEST RIGHT-OF- WAY LINE OF RONALD REAGAN BOULEVARD (R.O.W. VARIES), AT THE NORTHEAST CORNER OF SAID 3.653 ACRE TRACT,

THENCE, WITH THE WEST RIGHT OF WAY LINE OF RONALD REAGAN BOULEVARD (R.O.W. VARIES) AND THE EAST LINE OF SAID 3.653 ACRE TRACT, THE FOLLOWING TWO (2) COURSES AND DISTANCES, NUMBERED 1 THROUGH 2,

1) S01°32'28"E, A DISTANCE OF 56.88 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE',
2) S02°26'15"W, A DISTANCE OF 97.31 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE,' AT THE SOUTHEAST CORNER OF SAID 3.653 ACRE TRACT,

THENCE, WITH THE SOUTH LINE OF SAID 3.653 ACRE TRACT, OVER AND ACROSS SAID 34.10 ACRE TRACT, THE FOLLOWING 3 (THREE) COURSES AND DISTANCES, NUMBERED 1 THROUGH 2,

1) S89°33'23"W, A DISTANCE OF 130.26 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE,' BEING AT THE BEGINNING OF A CURVE TO THE RIGHT,
2) ALONG SAID CURVE TO THE RIGHT, HAVING A RADIUS OF 1,140.00 FEET, AN ARC LENGTH OF 324.56 FEET, AND A CHORD THAT BEARS N82°06'17"W, A DISTANCE OF 325.44 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE' AT THE NORTHEAST CORNER OF SAID 1.999 ACRE TRACT, BEING AT THE BEGINNING OF A CURVE TO THE RIGHT,
3) ALONG SAID CURVE TO THE RIGHT, HAVING A RADIUS OF 1,138.98 FEET, AN ARC LENGTH OF 10.12 FEET, AND A CHORD THAT BEARS N73°36'39"W, A DISTANCE OF 10.12 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE,' BEING AT THE BEGINNING OF A CURVE TO THE LEFT,

THENCE, OVER AND ACROSS SAID 1.999 ACRE TRACT, THE FOLLOWING FOUR (4) COURSES AND DISTANCES, NUMBERED 1 THROUGH 4,

1) ALONG SAID CURVE TO THE LEFT, HAVING A RADIUS OF 15.00 FEET, AN ARC LENGTH OF 23.44 FEET, AND A CHORD THAT BEARS S61°36'18"W, A DISTANCE OF 21.13 FEET TO A CALCULATED POINT,
2) S17°04'00"W, A DISTANCE OF 32.21 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE,' BEING AT THE BEGINNING OF A CURVE TO THE RIGHT,
3) ALONG SAID CURVE TO THE RIGHT, HAVING A RADIUS OF 755.00 FEET, AN ARC LENGTH OF 668.97 FEET, AND A CHORD THAT BEARS S43°12'32"W, A DISTANCE OF 665.31 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE',
4) S68°21'50"W, A DISTANCE OF 81.35 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE,' AT THE SOUTHWEST CORNER OF SAID 1.999 ACRE TRACT, BEING ON THE EAST LINE OF A CALLED 333.295 ACRE TRACT OF LAND CONVEYED TO PHAU - ELDORADO 333, LLC. BY DEED RECORDED IN DOCUMENT NUMBER 2021174221, OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS,

THENCE, N20°22'48"W, WITH THE SOUTH LINE OF SAID 1.999 ACRE TRACT AND THE EAST LINE OF SAID 333.295 ACRE TRACT, A DISTANCE OF 60.00 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE,'

THENCE, OVER AND ACROSS SAID 1.999 ACRE TRACT, THE FOLLOWING FOUR (4) COURSES AND DISTANCES, NUMBERED 1 THROUGH 4,

1) N68°21'05"E, A DISTANCE OF 81.07 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE,' BEING AT THE BEGINNING OF A CURVE TO THE LEFT,
2) ALONG SAID CURVE TO THE LEFT, HAVING A RADIUS OF 695.00 FEET, AN ARC LENGTH OF 634.21 FEET, AND A CHORD THAT BEARS N43°13'30"E, A DISTANCE OF 612.44 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE',
3) N17°04'00"E, A DISTANCE OF 35.00 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE,' AT THE NORTHWEST CORNER OF SAID 1.999 ACRE TRACT, BEING ON THE SOUTH LINE OF A SAID 3.653 ACRE TRACT, SAME BEING AT THE BEGINNING OF A CURVE TO THE LEFT,
4) ALONG SAID CURVE TO THE LEFT, HAVING A RADIUS OF 15.00 FEET, AN ARC LENGTH OF 22.51 FEET, AND A CHORD THAT BEARS N25°50'38"W, A DISTANCE OF 20.46 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE' ON THE SOUTH LINE OF SAID 3.653 ACRE TRACT,

THENCE, WITH THE SOUTH LINE OF SAID 3.653 ACRE TRACT, OVER AND ACROSS THE NORTH LINE OF SAID 34.10 ACRE TRACT, THE FOLLOWING 2 (TWO) COURSES AND DISTANCES, NUMBERED ONE THROUGH 2,

1) ALONG SAID CURVE TO THE RIGHT, HAVING A RADIUS OF 1,140.00 FEET, AN ARC LENGTH OF 261.85 FEET, AND A CHORD THAT BEARS N61°47'05"W, A DISTANCE OF 261.28 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE',
2) N55°12'16"W, PASSING THE SOUTHWEST CORNER OF SAID 3.653 ACRE TRACT, BEING THE SOUTHEAST CORNER OF SAID 0.0501 ACRE TRACT, SAME BEING THE NORTH LINE OF SAID 34.10 ACRE TRACT, ALSO BEING THE SOUTH LINE OF SAID 87.066 ACRE TRACT, AND CONTINUING FOR A TOTAL DISTANCE OF 578.11 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE,'

THENCE, N34°48'10"E, WITH THE WEST LINE OF SAID 0.501 ACRE TRACT OF LAND, AND OVER AND ACROSS SAID 87.066 ACRE TRACT, A DISTANCE OF 458.63 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE,' BEING AT THE BEGINNING OF A CURVE TO THE LEFT,

THENCE, ALONG THE WEST LINES OF SAID 46.244 ACRE TRACT OF LAND, OVER AND ACROSS SAID 87.066 ACRE TRACT OF LAND, SAID 13.45 ACRE TRACT OF LAND, AND SAID 108.026 ACRE TRACT OF LAND, THE FOLLOWING 20 (TWENTY) COURSES AND DISTANCES, NUMBERED 1 THROUGH 20,

1) ALONG SAID CURVE TO THE LEFT, HAVING A RADIUS OF 415.00 FEET, AN ARC LENGTH OF 404.52 FEET, AND A CHORD THAT BEARS N06°52'16"E, A DISTANCE OF 388.70 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE',
2) N21°03'13"W, A DISTANCE OF 867.13 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE',
3) S68°56'47"W, A DISTANCE OF 9.89 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE',
4) N21°03'13"W, A DISTANCE OF 185.00 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE',
5) N68°56'47"E, A DISTANCE OF 60.00 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE',
6) N21°03'36"W, A DISTANCE OF 223.32 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE',
7) N88°21'24"E, A DISTANCE OF 138.83 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE',
8) N01°38'36"W, A DISTANCE OF 160.84 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE,' AT THE BEGINNING OF A CURVE TO THE LEFT,
9) ALONG SAID CURVE TO THE LEFT, HAVING A RADIUS OF 15.00 FEET, AN ARC LENGTH OF 23.56 FEET, AND A CHORD THAT BEARS N46°38'36"W, A DISTANCE OF 21.21 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE',
10) N01°38'36"W, A DISTANCE OF 50.00 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE,' AT THE BEGINNING OF A CURVE TO THE LEFT,
11) ALONG SAID CURVE TO THE LEFT, HAVING A RADIUS OF 15.00 FEET, AN ARC LENGTH OF 23.56 FEET, AND A CHORD THAT BEARS N43°21'40"E, A DISTANCE OF 21.21 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE',
12) N01°38'36"W, A DISTANCE OF 150.29 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE',
13) S88°21'24"W, A DISTANCE OF 199.12 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE',
14) N13°12'58"E, A DISTANCE OF 310.38 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE',
15) N01°53'29"W, A DISTANCE OF 114.13 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE',
16) ALONG SAID CURVE TO THE RIGHT, HAVING A RADIUS OF 475.00 FEET, AN ARC LENGTH OF 42.45 FEET, AND A CHORD THAT BEARS N30°05'23"E, A DISTANCE OF 42.44 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE,'
17) N28°38'05"E, A DISTANCE OF 117.44 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE',
18) N21°21'01"W, A DISTANCE OF 50.00 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE',
19) N28°38'59"E, A DISTANCE OF 32.02 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE,' AND
20) N51°21'01"W, A DISTANCE OF 264.86 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED 'CBD SETSTONE' ON THE WEST LINE OF SAID108.026 ACRE TRACT, BEING ON THE EAST LINE OF SAID LOT 1, FOR CORNER, FROM WHICH A CAPPED 1/2 INCH IRON ROD FOUND STAMPED 'CBD SETSTONE' ON THE EAST LINE OF SAID LOT 1, BEING ON THE WEST LINE OF SAID 108.026 ACRE TRACT, BEARS S34°15'44"W, A DISTANCE OF 155.36 FEET,

THENCE, N34°15'44"E, WITH THE COMMON LINE OF SAID LOT 1 AND SAID 46.244 ACRE TRACT, A DISTANCE OF 1,424.18 FEET TO A CAPPED 1/2 INCH IRON ROD FOUND STAMPED 'CBD SETSTONE' AT THE NORTHWEST CORNER OF SAID 3.742 ACRE TRACT, BEING AT THE NORTHEAST CORNER OF SAID 46.244 ACRE TRACT OF LAND, AND

THENCE, N05°56'32"E, WITH THE COMMON LINE OF SAID LOT 1 AND SAID 3.742 ACRE TRACT, A DISTANCE OF 240.81 FEET TO THE POINT OF BEGINNING AND CONTAINING 55.234 ACRES OF LAND.

GENERAL:

1. BASIS OF BEARINGS – TEXAS COORDINATE SYSTEM, CENTRAL ZONE (4203), NAD83
   ELEVATION DATUM – NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD '88) GEOID 12B.
2. THIS SUBDIVISION LIES WITHIN THE CITY OF LIBERTY HILL EXTRA-TERRITORIAL JURISDICTION.
3. IT IS THE RESPONSIBILITY OF THE OWNER, NOT THE COUNTY, TO ASSURE COMPLIANCE WITH PROVISIONS OF ALL APPLICABLE STATE, FEDERAL AND LOCAL LAWS, AND REGULATIONS RELATING TO PLATTING AND DEVELOPMENT OF THIS PROPERTY. THE COUNTY ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF REPRESENTATIONS BY OTHER PARTIES IN THIS PLAT. FLOODPLAIN DATA, IN PARTICULAR, MAY CHANGE. IT IS FURTHER UNDERSTOOD THAT THE OWNERS OF THE TRACT OF LAND COVERED BY THIS PLAT MUST INSTALL AT THEIR OWN EXPENSE ALL TRAFFIC CONTROL DEVICES AND SIGNAGE THAT MAY BE REQUIRED BEFORE THE ROADS IN THE SUBDIVISION HAVE FINALLY BEEN ACCEPTED FOR MAINTENANCE BY THE COUNTY.
4. ALL PUBLIC ROADWAYS AND EASEMENTS AS SHOWN ON THIS PLAT ARE FREE OF LIENS.

DRAINAGE AND FLOODPLAIN:

1. THIS SUBDIVISION IS SUBJECT TO STORM-WATER MANAGEMENT CONTROLS AS REQUIRED BY WILLIAMSON COUNTY SUBDIVISION REGULATIONS, SECTION B11.1, ON NEW DEVELOPMENT THAT WOULD EVOKE SUCH CONTROLS BEYOND EXISTING CONDITIONS.
2. MAINTENANCE RESPONSIBILITY OF DRAINAGE WILL NOT BE ACCEPTED BY THE COUNTY OTHER THAN THAT ACCEPTED IN CONNECTION WITH DRAINING OR PROTECTING THE ROAD SYSTEM. MAINTENANCE RESPONSIBILITY FOR STORM WATER MANAGEMENT CONTROLS WILL REMAIN WITH THE OWNER.
3. ANY PROPOSED DEVELOPMENT THAT OBSTRUCTS OR DIVERTS FLOW WITHIN A DRAINAGE EASEMENT MAY NOT BE PERMITTED AND IS AT THE DISCRETION OF THE WILLIAMSON COUNTY FLOODPLAIN ADMINISTRATOR.

WATER AND WASTEWATER:

1. NO LOT IN THIS SUBDIVISION SHALL BE OCCUPIED UNTIL CONNECTION IS MADE TO AN APPROVED PUBLIC SEWER SYSTEM.
2. NO LOT IN THIS SUBDIVISION SHALL BE OCCUPIED UNTIL WATER SATISFACTORY FOR HUMAN CONSUMPTION IS AVAILABLE FROM A SOURCE IN ADEQUATE AND SU

PROPOSED BATCH DETENTION POND 19H–B2

LOC AND SILT FENCE AT PROPERTY LINE. LINES ARE SHOWN OFFSET FOR GRAPHICAL PURPOSE ONLY

TEMPORARY ROCK BERM

76
W.Q.E. D.E., O.S., L.S.E. & P.U.E.

CANYON TERRACE DRIVE

STABILIZED CONSTRUCTION ENTRANCE (50'L x 20'W)

LOC TO STOP AT EX EDGE OF PAVEMENT

RONALD REAGAN BLVD.

100 YEAR FLOODPLAIN (PER ATLAS 14)

1
OS,LSE,PUE, DE & WQ

PROPOSED BATCH DETENTION POND 19H–B1

CONTRACTOR STAGING AND TEMPORARY SPOILS AREA

CONCRETE WASHOUT SEE DETAIL SHEET 12

INLET PROTECTION (TYP.)

56
D.E.,O.S.,L.S.E. & P.U.E.
SANTA RITA COMMERCIAL, LLC.
(17.50 AC)
EX A–3
DOC NO 2014012340

36
D.E., O.S., L.S.E. & P.U.E.

ENCINA CIRCLE

MATCH LINE TO NEXT SHEET FOR CONTINUATION–10

*ALL AREAS DISTURBED OUTSIDE OF THE SINGLE FAMILY LOTS ARE REQUIRED TO BE REVEGETATED BY THE CONTRACTOR

LEGEND

- SF — SILT FENCE
- JH — SILT FENCE J–HOOK
- LOC — LIMITS OF CONSTRUCTION
- IP — INLET PROTECTION
- RB — TEMPORARY ROCK BERM
- SCE — STABILIZED CONSTRUCTION ENTRANCE
- EROSION CONTROL LOG CHECK DAM
- ROLLED EROSION CONTROL MATTING, (EXCEL SS–2, TOPSOIL AND SEEDING
- TOPSOIL AND SEED
- TOPSOIL AND DRILL SEED

0 60' 120'

SCALE: 1" = 60'

DESIGNED BY: SPC	DRAFTED BY: CL

DATE

REVISION

Carlson, Brigance & Doering, Inc.
Civil Engineering ◆ Surveying
FIRM ID #F3791
Main Office: 5501 West William Cannon Dr. Austin, Texas 78749 Phone No. (512) 280-5160
North Office: 121 29 RR 620 N. Ste. 600 Austin, Texas 78726 Fax No. (512) 280-5165

SHEET NAME: EROSION (1 OF 3)

JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1

PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED PROFESSIONAL ENGINEER
CARLSON, BRIGANCE & DOERING, INC.
ID# F3791

6-9-2025

DATE: MAY 2025

JOB NUMBER: 5665

SHEET: 9 OF 103

SHEET NO.: 9

FILE PATH: J:\ACD\5665\dwg\5665-EROSION.dwg - Jun 09, 2025 - 10:25am

MATCH LINE SEE PREVIOUS SHEET FOR CONTINUATION-9

ENCINA CIRCLE

PIONEER HILLS BEND

CANYON TERRACE DRIVE

FLARE COURT

ENCINA WAY

100 YEAR FLOODPLAIN (PER ATLAS 14)

FUTURE SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 2

CITY OF LIBERTY HILL (0.93 ACRES) DOC. NO. 2024005960

CITY OF LIBERTY HILL (0.92 ACRES) DOC. NO. 2024005959

CITY OF LIBERTY HILL (6.40 AC) DOC NO 2017014139

34 COMMERCIAL, D.E., O.S., L.S.E. & P.U.E.

LOC AND SILT FENCE AT PROPERTY LINE. LINES ARE SHOWN OFFSET FOR GRAPHICAL PURPOSE ONLY

CONTRACTOR TO MAINTAIN SILT FENCE OR OTHER APPROPRIATE EROSION CONTROL ACROSS INTERSECTION TO PREVENT RUNOFF ONTO EXISTING STREET DURING A RAIN EVENT

INLET PROTECTION (TYP.)

MATCH LINE SEE NEXT SHEET FOR CONTINUATION-11

LEGEND

- SF — SILT FENCE
- JH — SILT FENCE J-HOOK
- LOC — LIMITS OF CONSTRUCTION
- IP — INLET PROTECTION
- RB — TEMPORARY ROCK BERM
- SCE — STABILIZED CONSTRUCTION ENTRANCE
- EROSION CONTROL LOG CHECK DAM
- ROLLED EROSION CONTROL MATTING, (EXCEL SS-2, TOPSOIL AND SEEDING
- TOPSOIL AND SEED
- TOPSOIL AND DRILL SEED

*ALL AREAS DISTURBED OUTSIDE OF THE SINGLE FAMILY LOTS ARE REQUIRED TO BE REVEGETATED BY THE CONTRACTOR

0 60' 120'

SCALE: 1" = 60'

DESIGNED BY: SPC

DRAFTED BY: CL

DATE

REVISION

Carlson, Brigance & Doering, Inc.
Civil Engineering ◆ Surveying
FIRM ID #F3791
Main Office
5501 West William Cannon Dr. 78749
Austin, Texas 78749
Phone No. (512) 280-5160
North Office
12129 RR 620 N. 600
Austin, Texas 78750
Fax No. (512) 280-5165

SHEET NAME: EROSION (2 OF 3)

JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1

PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED PROFESSIONAL ENGINEER
CARLSON, BRIGANCE & DOERING, INC.
ID# F3791
6-9-2025

DATE: MAY 2025

JOB NUMBER: 5665

SHEET: 10 OF 103

SHEET NO.: 10

FILE PATH: J:\ACAD\5665\dwg\5665-EROSION.dwg - Jun 09, 2025 - 10:23am

LEGEND

- SF — SILT FENCE
- JH — SILT FENCE J-HOOK
- LOC — LIMITS OF CONSTRUCTION
- IP — INLET PROTECTION
- RB — TEMPORARY ROCK BERM
- SCE — STABILIZED CONSTRUCTION ENTRANCE
- EROSION CONTROL LOG CHECK DAM
- ROLLED EROSION CONTROL MATTING, (EXCEL SS-2, TOPSOIL AND SEEDING
- TOPSOIL AND SEED
- TOPSOIL AND DRILL SEED

*ALL AREAS DISTURBED OUTSIDE OF THE SINGLE FAMILY LOTS ARE REQUIRED TO BE REVEGETATED BY THE CONTRACTOR

0 60' 120'

SCALE: 1" = 60'

34

COMMERCIAL, D.E., O.S., L.S.E. & P.U.E.

INLET PROTECTION (TYP.)

CONTRACTOR STAGING AND TEMPORARY SPOILS AREA

CONCRETE WASHOUT SEE DETAIL SHEET 12

LOC AND SILT FENCE AT PROPERTY LINE. LINES ARE SHOWN OFFSET FOR GRAPHICAL PURPOSE ONLY

STABILIZED CONSTRUCTION ENTRANCE (50'L x 20'W)

160 O.S., D.E., L.S.E. & P.U.E.

(0.0190 ACRES) DOC. NO 2024048350

DEL VENTURE DRIVE

PIONEER HILLS BEND

ELIZABETH PARK BLVD.

MADDALENA DRIVE

0 60' 120'

SCALE: 1" = 60'

DESIGNED BY: SPC

DRAFTED BY: CL

DATE

REVISION

Carlson, Brigance & Doering, Inc.
Civil Engineering ◆ Surveying
FIRM ID #F3791
Main Office
5501 West William Cannon Dr. 78749
Austin, Texas
Phone No. (512) 280-5160
North Office
12129 RR 620 N. Ste. 600
Austin, Texas 78750
Fax No. (512) 280-5165

SHEET NAME: EROSION (3 OF 3)

JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1

PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED PROFESSIONAL ENGINEER
CARLSON, BRIGANCE & DOERING, INC.
ID# F3791
6-9-2025

DATE: MAY 2025

JOB NUMBER: 5665

SHEET: 11 OF 103

SHEET NO.: 11

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Specifications

Western Excelsior manufactures a full line of Rolled Erosion Control Products (RECPs). Excel SS-2 temporary Erosion Control Blanket is composed of a 100% certified weed free agricultural straw matrix mechanically (stitch) bound on two inch centers between two photodegradable, synthetic nets. Excel SS-2 is intended for use in channels or on slopes requiring erosion protection for a period up to twelve months. Actual field longevity is dependent on soil and climatic conditions.

Each roll of EXCEL SS-2 is made in the USA and manufactured under Western Excelsior's Quality Assurance Program to ensure a continuous distribution of fibers and consistent thickness. Typical manufactured properites are provided in Table 1 and product characteristics are provided in Table 2.

Table 1 - Specified Expected Values

Tested Property	Test Method	Value
Tensile Strength (MD) x (TD)	ASTM D6818	10.0 lb/in (1.8 kN/m) x 8.2 lb/in (1.1 kN/m)
Elongation (MD) x (TD)	ASTM D6818	20 % x 26 %
Mass Per Unit Area	ASTM D6475	8.0 oz/yd^2 (271 g/m^2)
Thickness	ASTM D6525	0.28 in (7 mm)
Light Penetration	ASTM D6567	22 % open
Water Absorption	ASTM D1117	450 %

Table 2 - Netting

Top Net Type	Synthetic, Photodegradable
Bottom Net Type	Synthetic, Photodegradable
Top Net Opening Dimensions	0.5 in (13 mm) x 0.5 in (13 mm)
Bottom Net Opening Dimensions	0.5 in (13 mm) x 0.5 in (13 mm)

Excel SS-2 is available in multiple roll sizes ranging in width from 8.0 ft to 16.0 ft, and 112.5 ft to 600 ft in length. Standard roll sizes are 100 square yards, measuring 8.0 ft wide by 112.5 ft long. Custom roll sizes are available upon request.

Document # WE_EXCEL_SS2_SPEC. This document has been developed to provide the characteristic properties of the product described. For questions, to request performance data or Installation recommendations, contact Western Excelsior at 866-540-9810 or wexcotech@westernexcelsior.com. Updated 4/14/2014.

I. PERMANENT EROSION CONTROL:

1. All disturbed areas outside of the single family lots shall be revegetated as noted below.
2. All revegetated areas require a minimum of four (4) inches of topsoil be placed prior to revegetation. Do not add topsoil within the critical root zone of existing trees.
3. All revegetated areas are required to be watered immediately after installation to achieve germination and a healthy stand of plants that can ultimately survive without supplemental water. Apply the water uniformly to the planted areas without causing displacement or erosion of the materials or soil. Maintain the seedbed in a moist condition favorable for grass growth. A temporary sprinkler system must be installed in areas not accessible to a water truck. The sprinkler system must remain in place until acceptable grass growth per #4 below is established.
4. Permanent erosion control shall be acceptable when the grass has grown at least 1½ inches high with a minimum of 95 percent with no bare spots larger than 10 square feet.

II. VEGETATIVE STABILIZATION:

1. Seed Mix:
   a) Seed mix shall be ordered from Native American Seed - 10101 FM 1102 New Braunfels, TX 78130 – (800) 728-4043
   b) Dam Slope Mix Item #2808MIX 31222 (see mix below). You must submit to the engineer (via email at steve@cbdeng.com), a receipt showing total pounds purchased is equal to the seed rate multiplied by the total square footage of area to be revegetated. The dam slope mix seed rate is 2 lbs. per 1000 sq.ft. for Hydromulch.

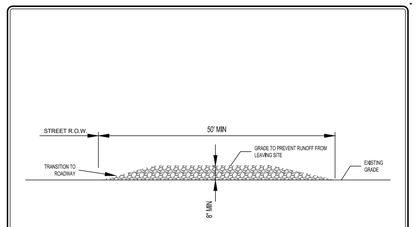
Name	% by wt	Test Date	Germination	Dormant	Total Germ
Prairie Wildrye	16.70%	8/2022	15%	70%	85%
Virginia Wildrye	14.32%	8/2022	7%	85%	92%
Sideoats Grama	11.93%	8/2022	54%	14%	68%
Big Bluestem	11.93%	7/2022	97%	2%	99%
Tall Dropseed	8.95%	11/2022	31%	51%	82%
Indiangrass	5.97%	7/2022	51%	47%	98%
Purity: 85.18%	Inert: 14.81%	Other: 0.01%	Weed: 0%	Noxious: None	**Origin: USA**
Germ: 39.47%	Dormant: 45.22%	Ttl Germ: 84.69%	PLS: 72.14%	Seeds/lb: 264,245	**Net Weight: 50 Lbs**

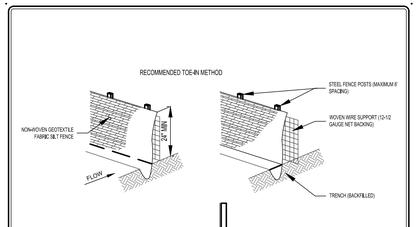
Little Bluestem 4.89%, Blue Grama 4.89%, Little Bluestem - Pineywoods 4.89%, Buffalograss 2.98%, Western Wheatgrass 2.98%, Switchgrass 1.79%, Eastern Gamagrass 1.12%, Sand Lovegrass 1.01%, Cane Bluestem 0.89%, Sand Dropseed 0.89%, Curly Mesquite 0.36%, Texas Cupgrass 0.18%, Slender Grama 0.030%

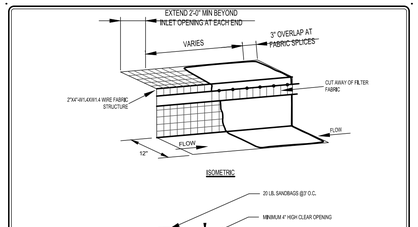
2. Revegetation between September 15th to March 1st:
   a) Add Cereal Rye Grain to Dam Slope Mix. You must submit to the engineer (via email at steve@cbdeng.com), a receipt showing total pounds purchased is equal to the seed rate multiplied by the total square footage of area to be revegetated. The cereal rye grain seed rate is 10 lbs. per 1000 sq.ft. for Hydromulch.
   b) Hydromulch shall comply with Table 1, below.

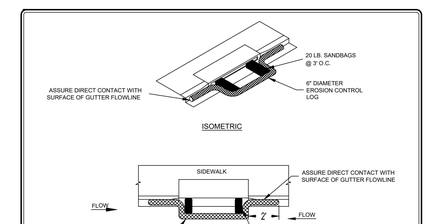
Material	Description	Longevity	Typical Applications	Application Rates
Bonded Fiber Matrix (BFM)	80% Organic defibrated fibers			
10% Tackifier		6 months	On slopes up to 2:1 and erosive soil conditions	2,500 to 4,000 lbs per acre (see manufacturers recommendations)
Fiber Reinforced Matrix (FRM)	65% Organic defibrated fibers 25% Reinforcing Fibers or less 10% Tackifier	Up to 12 months	On slopes up to 1:1 and erosive soil conditions	3,000 to 4,500 lbs per acre (see manufacturers recommendations)

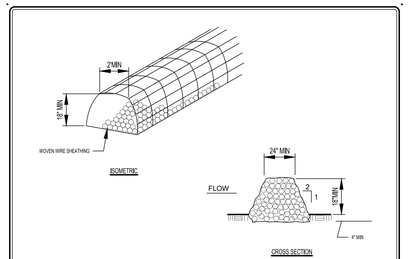
1. Erosion Control Matting:
   a) Erosion control matting shall be installed within areas delineated on the Erosion Control Plan. Matting shall be EXCEL SS-2 per the specification on this sheet.

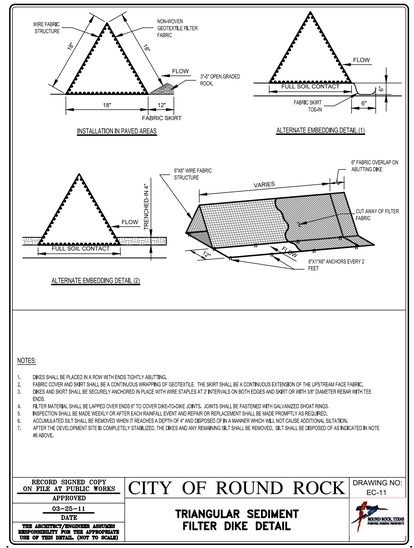


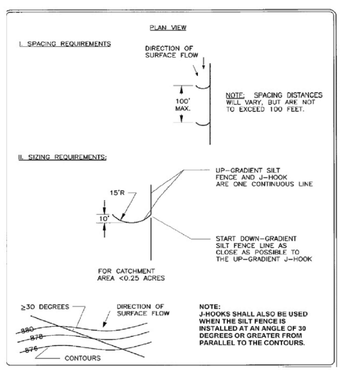


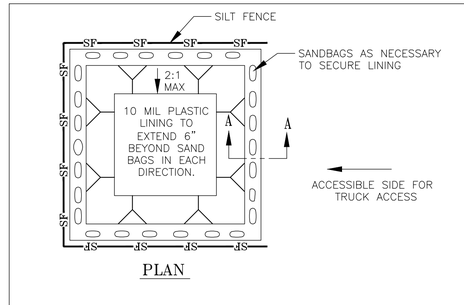












CONCRETE WASHOUT AREA NOTES:

1. WASHOUT SHALL BE INSTALLED PRIOR TO PLACING ANY CONCRETE ON-SITE.
2. INSTALL DIRECTIONAL SIGNS AS NECESSARY TO INDICATE WASHOUT LOCATION TO CONCRETE SUPPLY VEHICLES.
3. WASHOUT SHALL BE INSPECTED WEEKLY AND AFTER RAIN EVENTS IN ACCORDANCE WITH SWPPP.
4. CONTRACTOR TO MAINTAIN, REPAIR, ENLARGE OR RELOCATE WASHOUT AS NECESSARY TO MEET PROJECT REQUIREMENTS.
5. WHEN NECESSARY DURING CONSTRUCTION, OR AT THE COMPLETION OF ALL CONSTRUCTION, CONCRETE SHALL BE REMOVED AND LAWFULLY DISPOSED OF AND THE WASHOUT AREA FILLED WITH COMPACTED SELECT FILL.
6. CONCRETE WASHOUT SHALL NOT BE LOCATED WITHIN 50' OF STORM INLET, DITCH, OR SUBSURFACE DRAINAGE SYSTEM.

CONCRETE WASHOUT DETAIL
N.T.S

DESIGNED BY: SPC | DRAFTED BY: CL

DATE | REVISION

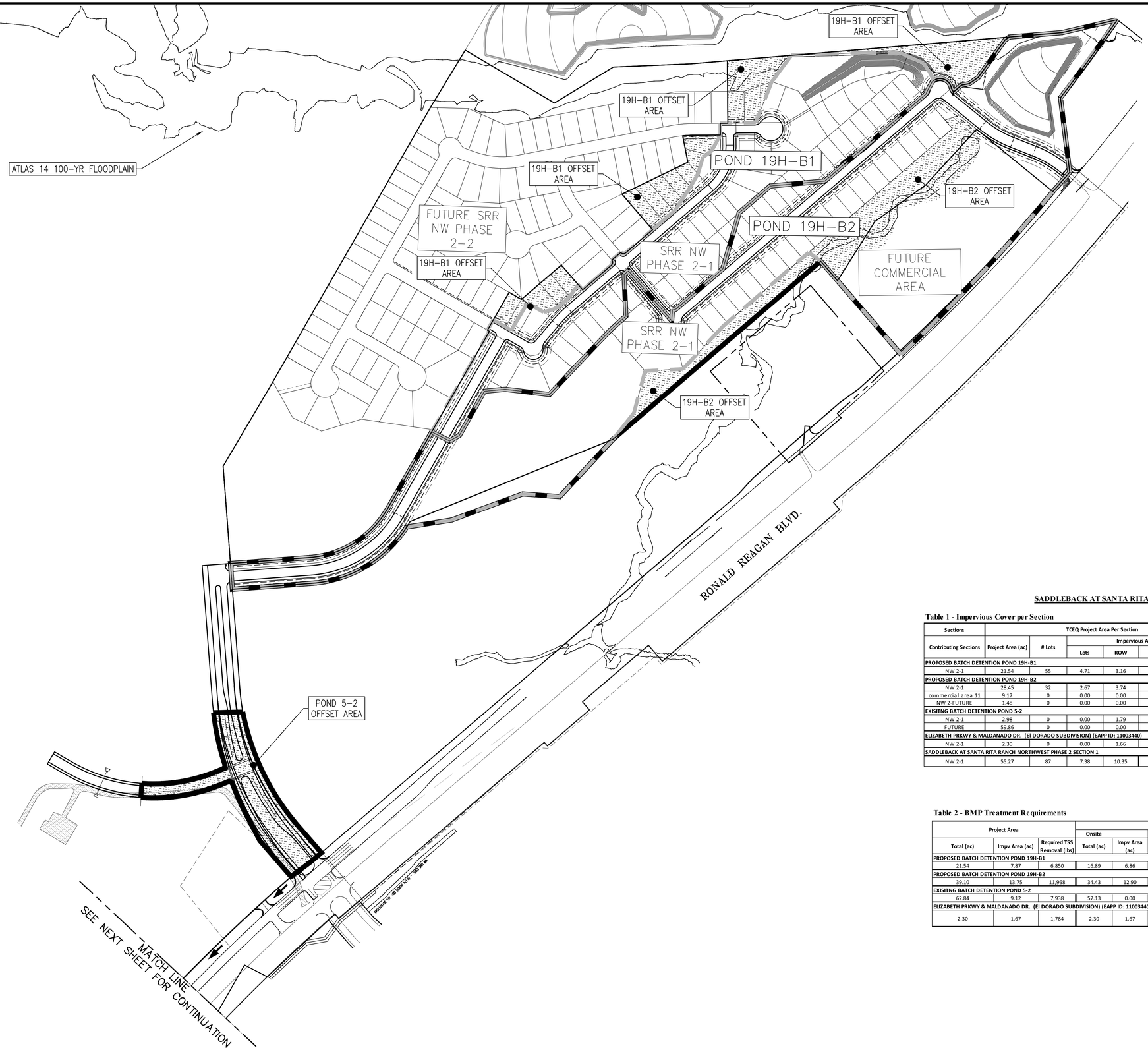
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SHEET NAME: EROSION CONTROL NOTES & DETAILS
JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1
PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED PROFESSIONAL ENGINEER
CARLSON, BRIGANCE & DOERING, INC.
ID# F3791
6-9-2025

DATE: MAY 2025
JOB NUMBER: 5665
SHEET: 12 OF 103
SHEET NO.: 12

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LEGEND

- SECTION BOUNDARIES
- XX — SECTION NUMBER
- TCEQ PROJECT AREA BOUNDARY
- DRAINAGE BOUNDARY LINE
- OFFSET TCEQ PROJECT AREAS (SEE NOTE 1, THIS SHEET)
- OFFSITE CONTRIBUTING AREA

0 200' 400'

SCALE: 1" = 200'

SADDLEBACK AT SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1

Table 1 - Impervious Cover per Section

Sections	TCEQ Project Area Per Section						Onsite Drainage Basin to BMP Per Section						TSS Removal Required (lbs)
Contributing Sections	Project Area (ac)	# Lots	Impervious Areas (ac)				Drainage Basin (ac)	# Lots	Impervious Areas (ac)				
			Lots	ROW	Misc.	Total			Lots	ROW	Misc.	Total	
PROPOSED BATCH DETENTION POND 19H-B1													
NW 2-1	21.54	55	4.71	3.16	0.00	7.87	16.89	43	3.70	3.16	0.00	6.86	6,850
PROPOSED BATCH DETENTION POND 19H-B2													
NW 2-1	28.45	32	2.67	3.74	0.00	6.41	24.85	32	2.67	3.75	0.00	6.42	5,579
commercial area 11	9.17	0	0.00	0.00	7.34	7.34	8.10	0	0.00	0.00	6.48	6.48	6,389
NW 2-FUTURE	1.48	0	0.00	0.00	0.00	0.00	1.48	0	0.00	0.00	0.00	0.00	0
EXISITNG BATCH DETENTION POND 5-2													
NW 2-1	2.98	0	0.00	1.79	0.00	1.79	0.00	0	0.00	0.00	0.00	0.00	1,558
FUTURE	59.86	0	0.00	0.00	7.33	7.33	57.13	0	0.00	0.00	7.33	7.33	6,380
ELIZABETH PRKWY & MALDANADO DR. (El DORADO SUBDIVISION) (EAPP ID: 11003440)													
NW 2-1	2.30	0	0.00	1.66	0.01	1.67	2.30	0	0.00	1.66	0.01	1.67	1,454
SADDLEBACK AT SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1													
NW 2-1	55.27	87	7.38	10.35	0.01	17.74							**15,441**

Table 2 - BMP Treatment Requirements

Project Area			Drainage Basin						BMP Treatment Provided	
			Onsite		Offsite		Total		Permanent Pool (cf)	
Total (ac)	Impv Area (ac)	Required TSS Removal (lbs)	Total (ac)	Impv Area (ac)	Total (ac)	Impv Area (ac)	Total (ac)	Impv Area (ac)	Required	Provided
PROPOSED BATCH DETENTION POND 19H-B1										
21.54	7.87	6,850	16.89	6.86	0.00	0.00	16.89	6.86	68,387	178,011
PROPOSED BATCH DETENTION POND 19H-B2										
99.10	13.75	11,968	34.43	12.90	0.00	0.00	34.43	12.90	75,154	115,000
EXISITNG BATCH DETENTION POND 5-2										
62.84	9.12	7,938	57.13	0.00	0.00	0.00	57.13	0.00	111,252	140,994
ELIZABETH PRKWY & MALDANADO DR. (El DORADO SUBDIVISION) (EAPP ID: 11003440)										
2.30	1.67	1,784	2.30	1.67	0.00	0.00	2.30	1.67	*Treatment Provided by EAPP ID: 11003440	

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SHEET NAME: TCEQ PROJECT AND DRAINAGE AREA MAP (1 OF 2)

JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1

PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
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LICENSED PROFESSIONAL ENGINEER

CARLSON, BRIGANCE & DOERING, INC.
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6-9-2025

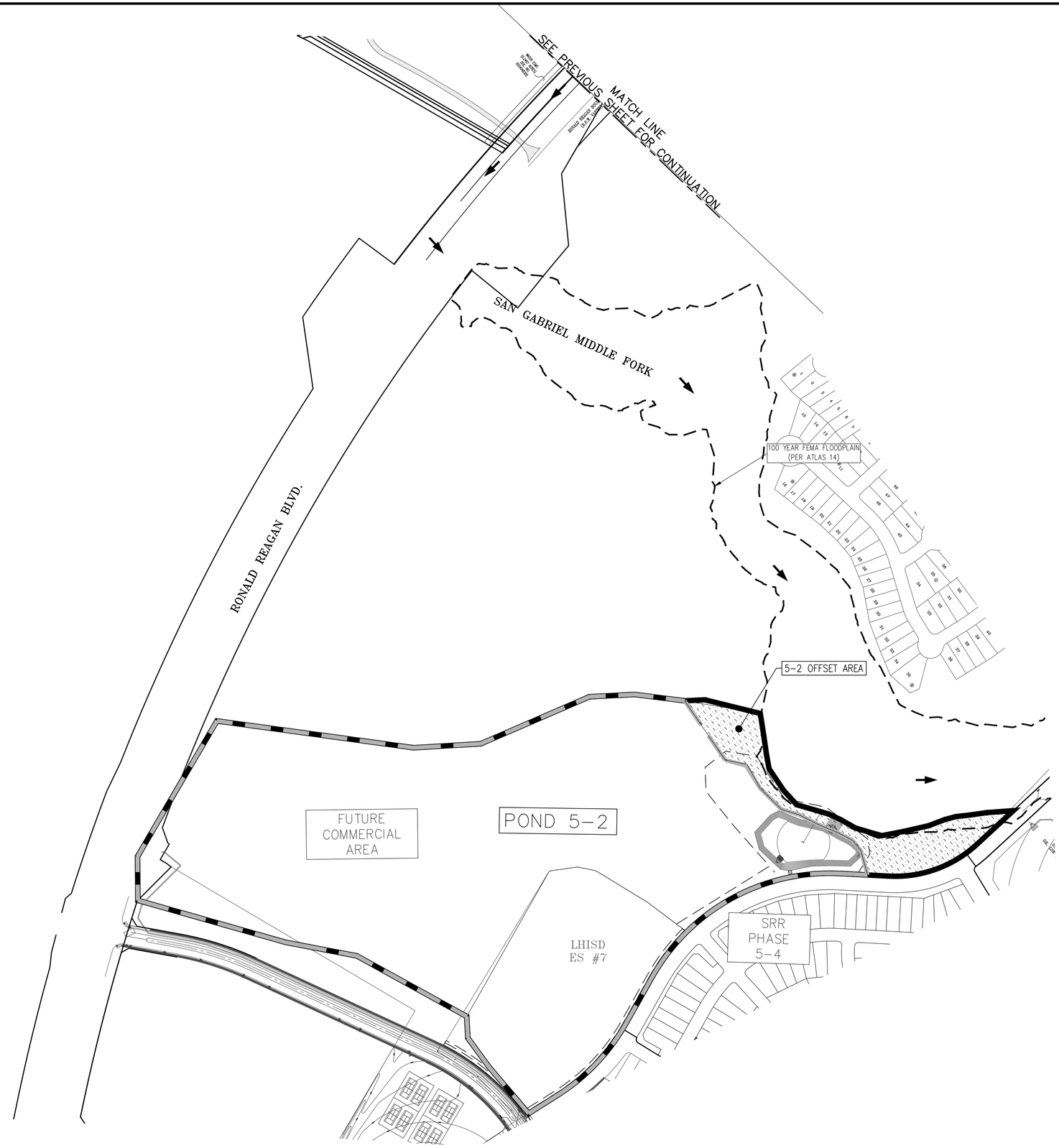
DATE: MAY 2025

JOB NUMBER: 5665

SHEET: 15 OF 103

SHEET NO.: 15

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LEGEND

- SECTION BOUNDARIES
- XX — SECTION NUMBER
- TCEQ PROJECT AREA BOUNDARY
- DRAINAGE BOUNDARY LINE
- OFFSET TCEQ PROJECT AREAS (SEE NOTE 1, THIS SHEET)
- OFFSITE CONTRIBUTING AREA

0 200' 400'

SCALE: 1" = 200'

DESIGNED BY:	DRAFTED BY:
SPC	CL

DATE

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SHEET NAME: TCEQ PROJECT AND DRAINAGE AREA MAP (2 OF 2)

JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1

PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

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ID # F3791

6-9-2025

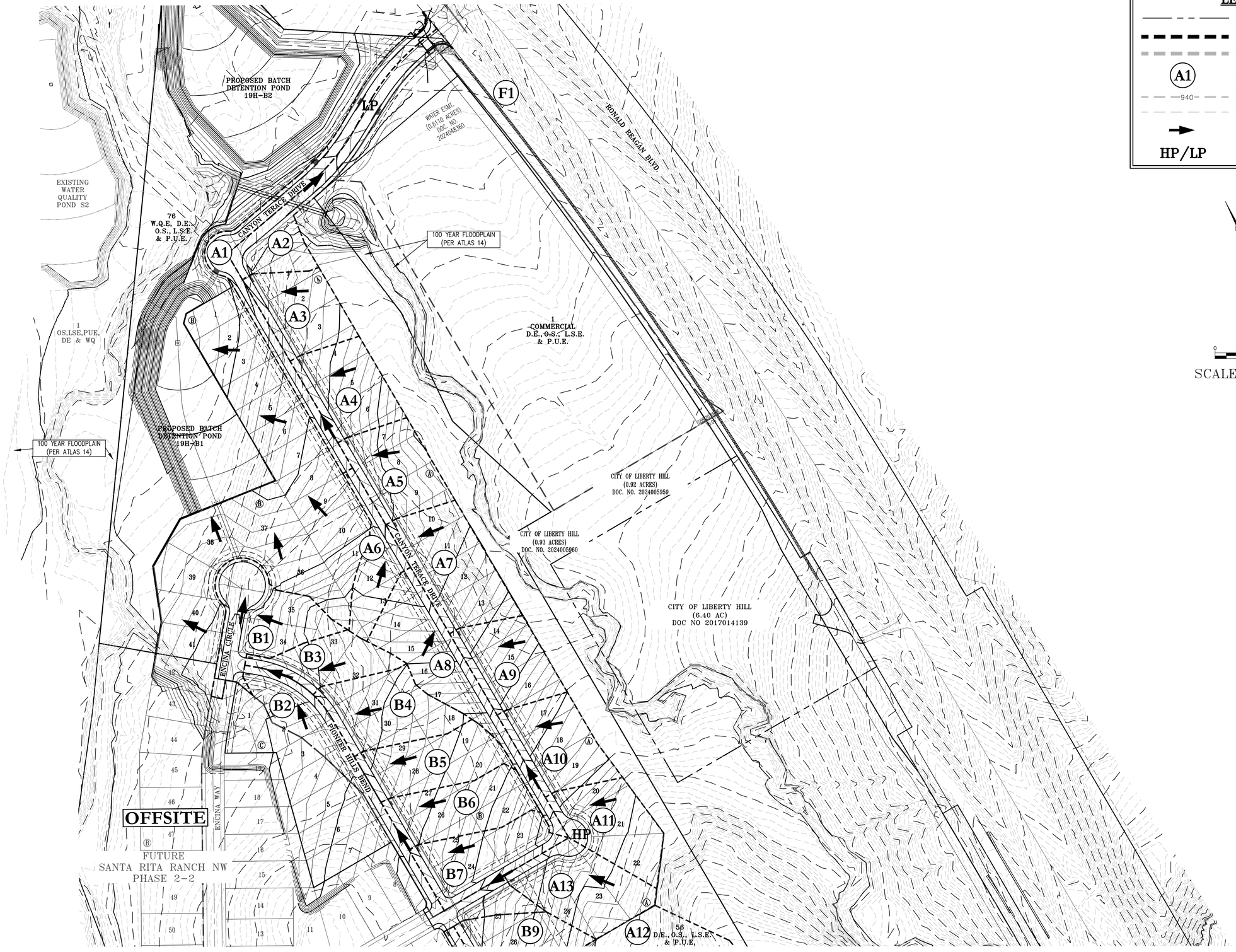
DATE: MAY 2025

JOB NUMBER: 5665

SHEET: 16 OF 103

SHEET NO.: 16

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LEGEND

- PROPERTY BOUNDARY
- DRAINAGE BOUNDARY LINE
- FUTURE DRAINAGE BOUNDARY
- A1 — DRAINAGE AREA LABEL
- 940 — EXISTING CONTOUR MAJOR
- EXISTING CONTOUR MINOR
- FLOW ARROW
- HP/LP — HIGH POINT/LOW POINT

0 100' 200'

SCALE: 1" = 100'

DESIGNED BY: SPC

DRAFTED BY: CL

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SHEET NAME: DRAINAGE AREA PLAN (1 OF 2)

JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1

PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

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STEVEN P. CATES
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ID# F-3791

6-9-2025

DATE: MAY 2025

JOB NUMBER: 5665

SHEET: 17 OF 103

SHEET NO.: 17

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SHEET NAME: DRAINAGE AREA PLAN (2 OF 2)

JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1

PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

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6-9-2025

DATE
MAY 2025

JOB NUMBER
5665

SHEET
18 OF 103

SHEET NO.
18

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Area No.	Area (Acre)	T_C (Min.)	Perv. (%)	Imperv. (%)	C 25	C 100	I_{25} In/Hr	I_{100} In/Hr	Q_{25} CFS	Q_{100} CFS
A1	0.86	10	18	82	0.76	0.84	8.78	11.23	5.7	8.1
A2	0.77	15	32	68	0.68	0.76	7.60	9.82	4.0	5.8
A3	0.71	11	49	51	0.63	0.71	8.53	10.94	3.8	5.5
A4	0.77	10	49	51	0.63	0.71	8.78	11.23	4.2	6.1
A5	0.77	12	49	51	0.63	0.71	8.33	10.70	4.1	5.9
A6	0.51	11	45	55	0.65	0.73	8.46	10.85	2.8	4.0
A7	1.05	13	49	51	0.58	0.66	7.90	10.19	4.8	7.1
A8	1.10	10	42	58	0.66	0.74	8.78	11.23	6.4	9.1
A9	0.75	10	49	51	0.63	0.71	8.76	11.21	4.1	6.0
A10	0.80	10	50	50	0.63	0.71	8.78	11.23	4.4	6.4
A11	0.82	12	51	49	0.62	0.70	8.27	10.63	4.2	6.1
A12	21.62	11	53	47	0.61	0.69	8.37	10.74	110.4	160.2
A13	0.91	13	50	50	0.62	0.70	8.07	10.39	4.6	6.6
B1	0.98	11	42	58	0.66	0.75	8.42	10.80	5.5	7.9
B2	0.77	11	36	64	0.69	0.77	8.57	10.99	4.5	6.5
B3	0.56	12	48	52	0.63	0.71	8.19	10.54	2.9	4.2
B4	0.88	12	51	49	0.62	0.70	8.19	10.53	4.5	6.5
B5	0.79	11	52	48	0.62	0.70	8.58	10.99	4.2	6.1
B6	0.81	10	52	48	0.62	0.70	8.67	11.11	4.3	6.3
B7	0.80	10	44	56	0.65	0.73	8.78	11.23	4.6	6.6
B8	0.73	10	41	59	0.67	0.75	8.78	11.23	4.3	6.1
B9	0.68	10	51	49	0.62	0.70	8.78	11.23	3.7	5.4
B10	0.93	10	50	50	0.63	0.71	8.78	11.23	5.1	7.4
B11	0.92	10	51	49	0.62	0.70	8.78	11.23	5.0	7.3
B12	0.53	10	27	73	0.73	0.82	8.78	11.23	3.4	4.8
B13	0.91	10	39	61	0.68	0.76	8.78	11.23	5.4	7.8
D1	0.57	10	30	70	0.72	0.80	8.78	11.23	3.6	5.2
D2	0.59	10	30	70	0.72	0.80	8.78	11.23	3.7	5.3
D3	0.81	10	28	72	0.70	0.78	8.78	11.23	5.0	7.1
D4	0.89	10	31	69	0.68	0.77	8.78	11.23	5.4	7.7
E1	2.12	10	30	70	0.69	0.77	8.78	11.23	12.8	18.4
G	7.62	17	20	80	0.75	0.83	7.14	9.27	40.6	58.8
C	34.94	24	50	50	0.65	0.73	6.11	8.01	138.9	204.5
H	8.12	10	20	80	0.77	0.85	8.78	11.23	54.6	77.7
OFFSITE 1	1.12	12	19	81	0.75	0.84	8.33	10.70	7.0	10.1
OFFSITE 2	1.14	12	18	82	0.76	0.85	8.27	10.63	7.2	10.3
OFFSITE 3	0.23	10	19	81	0.75	0.84	8.78	11.23	1.5	2.2
OFFSITE 4	0.23	10	17	83	0.76	0.85	8.78	11.23	1.5	2.2

AREAS COMBINED	T_C (Min.)	C_{25}*A	C_{100}*A	I_{25} In/Hr	I_{100} In/Hr	Q_{25} CFS	Q_{100} CFS
C	24	22.73	25.53	6.11	8.01	138.9	204.5
B12-B13	10	1.00	1.12	8.78	11.23	8.8	12.6
B11-B13	10	1.57	1.77	8.78	11.23	13.8	19.8
B10-B13	10	2.16	2.42	8.78	11.23	18.9	27.2
B9-B13	10	2.58	2.90	8.78	11.23	22.6	32.6
B8-B13	10	3.06	3.44	8.78	11.23	26.9	38.7
B7-B13	10	3.59	4.03	8.78	11.23	31.5	45.3
B6-B13	10	4.09	4.60	8.67	11.11	35.4	51.1
B5-B13	11	4.58	5.15	8.58	10.99	39.2	56.6
B4-B13	12	5.12	5.77	8.19	10.53	42.0	60.8
B3-B13	12	5.48	6.17	8.19	10.53	44.9	65.0
B2-B13	12	6.01	6.76	8.19	10.53	49.2	71.2
JC-B1: B2-B13, C	24	28.74	32.29	6.11	8.01	175.7	258.7
B1-B13, C	24	29.39	33.02	6.11	8.01	179.6	264.5
A12-A13	13	13.76	15.55	8.07	10.39	111.1	161.6
A11-A13	13	14.27	16.12	8.07	10.39	115.2	167.6
A10-A13	13	14.77	16.69	8.07	10.39	119.2	173.5
A9-A13	13	15.24	17.22	8.07	10.39	123.0	179.0
A8-A13	13	15.97	18.04	8.07	10.39	128.9	187.4
A7-A13	13	16.58	18.73	7.90	10.19	131.0	190.9
A6-A13	13	16.91	19.10	7.90	10.19	133.6	194.7
A5-A13	13	17.40	19.65	7.90	10.19	137.5	200.3
A4-A13	13	17.88	20.20	7.90	10.19	141.3	205.8
A3-A13	13	18.33	20.70	7.90	10.19	144.8	211.0
H	13	24.55	27.62	7.90	10.19	194.0	281.5
A1-A2	15	1.17	1.31	7.60	9.82	8.9	12.9
JC-A1: A3-A13, A2-A1, H	15	25.72	28.93	7.60	9.82	195.4	284.2
D3-D4	10	1.18	1.32	8.78	11.23	10.4	14.9
D2-D4	10	1.60	1.80	8.78	11.23	14.1	20.2
D1-D4	10	2.01	2.26	8.78	11.23	17.7	25.3

25 - YEAR INLET FLOW CALCULATION TABLE

INLET NUMBER	DRAINAGE AREA NO.	Q (CFS)	Q PASS (CFS)	Q SPILL (CFS)	Q ADD (CFS)	Q TOTAL (QA) (CFS)	SLOPE (%)	a (FT)	Yo (FT)	PAVEMENT WIDTH	PONDED WIDTH (FT)	Qa/La	La (FT)	LENGTH (FT)	L/La	a/Yo	Q/Qa	REMARK
A1	A1	5.7	0.0	0.0	0.0	5.7	LP	0.42	0.25	40	4.95	-	-	15	-	1.66	1.00	
A2	A2	4.0	0.0	0.0	0.0	4.0	LP	0.42	0.20	40	3.77	-	-	15	-	2.12	1.00	
A3	A3	3.8	0.0	0.0	0.0	3.8	0.50	0.42	0.19	33	3.55	0.65	5.84	10	1.71	2.16	1.00	
A4	A4	4.2	0.0	0.0	0.0	4.2	1.77	0.42	0.16	33	2.94	0.62	6.81	10	1.47	2.57	1.00	
A5	A5	4.1	0.0	0.0	0.0	4.1	1.77	0.42	0.16	33	2.89	0.62	6.52	10	1.53	2.61	1.00	
A6	A6	2.8	0.0	0.0	0.0	2.8	1.77	0.42	0.14	33	2.54	0.60	4.64	10	2.15	2.96	1.00	
A7	A7	4.8	0.0	0.0	0.0	4.8	1.77	0.42	0.17	33	3.07	0.63	7.63	10	1.31	2.47	1.00	
A8	A8	6.4	0.0	0.0	0.0	6.4	2.76	0.42	0.17	33	3.13	0.63	10.04	10	**1.00**	2.42	1.00	
A9	A9	4.1	0.0	0.0	0.0	4.1	3.80	0.42	0.14	33	2.55	0.60	6.84	10	1.46	2.95	1.00	
A10	A10	4.4	0.0	0.0	0.0	4.4	3.80	0.42	0.15	33	2.61	0.61	7.27	10	1.38	2.89	1.00	
A11	A11	4.2	0.0	0.0	0.0	4.2	3.80	0.42	0.14	33	2.56	0.60	6.96	10	1.44	2.93	1.00	
A13	A13	4.6	0.0	0.0	0.0	4.6	1.95	0.42	0.16	33	2.97	0.63	7.32	10	1.37	2.55	1.00	
B1	B1	5.5	0.0	0.0	0.0	5.5	LP	0.42	0.24	33	4.59	-	-	15	-	1.72	1.00	
B2	B2	4.5	0.0	0.0	0.0	4.5	1.58	0.42	0.17	33	3.07	0.63	7.21	10	1.39	2.47	1.00	
B3	B3	2.9	0.0	0.0	0.0	2.9	1.58	0.42	0.15	33	2.62	0.61	4.78	10	2.09	2.87	1.00	
B4	B4	4.5	0.0	0.0	0.0	4.5	2.45	0.42	0.16	33	2.83	0.62	7.27	10	1.38	2.67	1.00	
B5	B5	4.2	0.0	0.0	0.0	4.2	2.45	0.42	0.15	33	2.76	0.61	6.82	10	1.47	2.73	1.00	
B6	B6	4.3	0.0	0.0	0.0	4.3	2.45	0.42	0.16	33	2.80	0.62	7.03	10	1.42	2.70	1.00	
B7	B7	4.6	0.0	0.0	0.0	4.6	2.45	0.42	0.16	33	2.85	0.62	7.42	10	1.35	2.65	1.00	
B8	B8	4.3	0.0	0.0	0.0	4.3	1.65	0.42	0.17	33	2.98	0.63	6.80	10	1.47	2.54	1.00	
B9	B9	3.7	0.0	0.0	0.0	3.7	1.65	0.42	0.16	33	2.84	0.62	5.99	10	1.67	2.66	1.00	
B10	B10	5.1	0.0	0.0	0.0	5.1	6.50	0.42	0.14	33	2.50	0.60	8.51	10	1.18	3.01	1.00	
B11	B11	5.0	0.0	0.0	0.0	5.0	6.50	0.42	0.14	33	2.48	0.60	8.36	10	1.20	3.03	1.00	
B12	B12	3.4	0.0	0.0	0.0	3.4	2.00	0.42	0.14	40	2.57	0.60	5.61	10	1.78	3.01	1.00	
B13	B13	5.4	0.0	0.0	0.0	5.4	2.00	0.42	0.16	40	3.06	0.62	8.66	10	1.15	2.56	1.00	
D1	D1	3.6	0.0	0.0	0.0	3.6	9.00	0.42	0.11	40	2.00	0.57	6.31	10	1.59	3.81	1.00	
D2	D2	3.7	0.0	0.0	0.0	3.7	9.00	0.42	0.11	40	2.02	0.57	6.45	10	1.55	3.78	1.00	
D3	D3	5.0	0.0	0.0	0.0	5.0	6.50	0.42	0.13	40	2.39	0.59	8.41	10	1.19	3.23	1.00	
D4	D4	5.4	0.0	0.0	0.0	5.4	6.50	0.42	0.13	40	2.45	0.60	9.01	10	1.11	3.14	1.00	
E1	E1	12.8	3.2	0.0	0.0	9.6	2.00	0.42	0.18	74	3.98	0.64	15.05	15	**1.00**	2.35	1.00	PASS 3.2 CFS TO OFFSITE

100 - YEAR INLET FLOW CALCULATION TABLE

INLET NUMBER	DRAINAGE AREA NO.	Q (CFS)	Q PASS (CFS)	Q SPILL (CFS)	Q ADD (CFS)	Q TOTAL (QA) (CFS)	SLOPE (%)	a (FT)	Yo (FT)	PAVEMENT WIDTH	PONDED WIDTH (FT)	Qa/La	La (FT)	LENGTH (FT)	L/La	a/Yo	Q/Qa	REMARK
A1	A1	8.1	0.0	0.0	0.4	8.5	LP	0.42	0.33	40	6.84	-	-	15	-	1.27	1.00	
A2	A2	5.8	0.0	0.0	0.0	5.8	LP	0.42	0.25	40	5.00	-	-	15	-	1.65	1.00	
A3	A3	5.5	0.0	0.0	0.0	5.5	0.50	0.42	0.22	33	4.07	0.68	8.12	10	1.23	1.91	1.00	
A4	A4	6.1	0.0	0.0	0.0	6.1	1.77	0.42	0.18	33	3.35	0.64	9.51	10	1.05	2.28	1.00	
A5	A5	5.9	0.0	0.0	0.6	6.5	1.77	0.42	0.19	33	3.42	0.65	9.99	10	1.00	2.23	1.00	
A6	A6	4.0	0.4	0.0	2.8	6.4	1.77	0.42	0.19	33	3.41	0.65	9.96	10	1.00	2.24	1.00	PASS 0.4 CFS TO A1
A7	A7	7.1	0.6	0.0	0.0	6.5	1.77	0.42	0.19	33	3.42	0.65	9.99	10	1.00	2.23	1.00	PASS 0.6 CFS TO A5
A8	A8	9.1	2.8	0.0	0.0	6.3	2.76	0.42	0.17	33	3.13	0.63	10.01	10	**1.00**	2.42	1.00	PASS 2.8 CFS TO A6
A9	A9	6.0	0.0	0.0	0.1	6.1	3.80	0.42	0.16	33	2.91	0.62	9.74	10	1.03	2.60	1.00	
A10	A10	6.4	0.1	0.0	0.0	6.3	3.80	0.42	0.16	33	2.95	0.62	10.04	10	**1.00**	2.57	1.00	PASS 0.1 CFS TO A9
A11	A11	6.1	0.0	0.0	0.0	6.1	3.80	0.42	0.16	33	2.92	0.62	9.81	10	1.02	2.59	1.00	
A13	A13	6.6	0.2	0.0	0.0	6.4	1.95	0.42	0.18	33	3.35	0.64	10.00	10	**1.00**	2.27	1.00	PASS 0.2 CFS TO FUTURE SRR NW 2-2
B1	B1	7.9	0.0	0.0	0.0	7.9	LP	0.42	0.31	33	6.15	-	-	15	-	1.34	1.00	
B2	B2	6.5	0.0	0.0	0.0	6.5	1.58	0.42	0.19	33	3.50	0.65	10.02	10	**1.00**	2.19	1.00	
B3	B3	4.2	0.0	0.0	0.2	4.4	1.58	0.42	0.17	33	3.04	0.63	7.02	10	1.43	2.49	1.00	
B4	B4	6.5	0.2	0.0	0.0	6.3	2.45	0.42	0.18	33	3.20	0.64	9.93	10	1.01	2.38	1.00	PASS 0.2 CFS TO B3
B5	B5	6.1	0.0	0.0	0.2	6.3	2.45	0.42	0.18	33	3.19	0.64	9.85	10	1.01	2.38	1.00	
B6	B6	6.3	0.2	0.0	0.3	6.4	2.45	0.42	0.18	33	3.20	0.64	10.00	10	1.00	2.37	1.00	PASS 0.2 CFS TO B5
B7	B7	6.6	0.3	0.0	0.0	6.3	2.45	0.42	0.18	33	3.19	0.64	9.92	10	1.01	2.38	1.00	PASS 0.3 CFS TO B6
B8	B8	6.1	0.0	0.0	0.0	6.1	1.65	0.42	0.19	33	3.39	0.65	9.45	10	1.06	2.25	1.00	
B9	B9	5.4	1.4	0.0	2.5	6.5	1.65	0.42	0.19	33	3.46	0.65	9.93	10	1.01	2.21	1.00	PASS 1.4 CFS TO FUTURE SRR NW 2-2
B10	B10	7.4	2.5	0.0	1.2	6.1	6.50	0.42	0.15	33	2.65	0.61	9.98	10	1.00	2.84	1.00	PASS 2.5 CFS TO B9
B11	B11	7.3	1.2	0.0	0.0	6.1	6.50	0.42	0.15	33	2.65	0.61	9.93	10	1.01	2.84	1.00	PASS 1.2 CFS TO B10
B12	B12	4.8	0.0	0.0	0.0	4.8	2.00	0.42	0.16	40	2.93	0.62	7.79	10	1.28	2.66	1.00	
B13	B13	7.8	1.4	0.0	0.0	6.4	2.00	0.42	0.17	40	3.26	0.63	10.04	10	**1.00**	2.42	1.00	PASS 1.4 CFS TO FUTURE SRR NW 2-2
D1	D1	5.2	0.0	0.0	0.0	5.2	9.00	0.42	0.12	40	2.28	0.59	8.81	10	1.14	3.37	1.00	
D2	D2	5.3	1.1	0.0	1.7	5.9	9.00	0.42	0.13	40	2.39	0.59	9.95	10	1.01	3.22	1.00	PASS 1.1 CFS TO B13
D3	D3	7.1	1.2	0.0	0.0	5.9	6.50	0.42	0.14	40	2.55	0.60	9.91	10	1.01	3.03	1.00	PASS 1.2 CFS TO D1
D4	D4	7.7	1.7	0.0	0.0	6.0	6.50	0.42	0.14	40	2.56	0.60	10.01	10	**1.00**	3.02	1.00	PASS 1.7 CFS TO D2
E1	E1	18.4	8.8	0.0	0.0	9.6	2.00	0.42	0.18	74	3.98	0.64	15.02	15	**1.00**	2.35	1.00	PASS 8.8 CFS TO OFFSITE

DESIGNED BY: SPC

DRAFTED BY: CL

REVISION | DATE

Carlson, Brigance & Doering, Inc.
Civil Engineering ◆ Surveying
FIRM ID #F3791
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North Office: 12129 RR 620 N, Suite 600 Austin, Texas 78750 Fax No. (512) 280-5165

SHEET NAME: DRAINAGE CALCS

JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1

PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED PROFESSIONAL ENGINEER
CARLSON, BRIGANCE & DOERING, INC.
ID# F3791

6-9-2025

DATE: MAY 2025

JOB NUMBER: 5665

SHEET: 19 OF 103

SHEET NO.: 19

FILE PATH: J:\AC3D\5665\dwg\5665-DRAINAGE.dwg - Jun 09, 2025 - 10:44am

EXISTING SADDLEBACK AT
SANTA RITA RANCH
PHASE 1 SECTION 1

(50.016 AC)
DOC NO 2004032994

W.Q.E,
D.E.,
O.S.,
L.S.E. &
P.U.E.

105

PROPOSED
BATCH
DETENTION
POND 19H-B2

CANYON TERRANCE DRIVE

PROPOSED
BATCH
DETENTION
POND
19H-B1

WALL

ENCINA CIRCLE

CANYON TERRACE DRIVE

SANTA RITA
COMMERCIAL, LLC.
(17.50 AC) EX A-3
DOC NO 2014012340

RONALD REAGAN

MATCH LINE
SEE NEXT SHEET FOR CONTINUATION

LEGEND

- 936 — EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- 930 — PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- FLOW ARROW

0 60' 120'

SCALE: 1" = 60'

DESIGNED BY: SPC	DRAFTED BY: CL

DATE

REVISION

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SHEET NAME: GRADING PLAN (1 OF 3)

JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 2

PROJECT: PRELIMINARY PLAT

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED
PROFESSIONAL ENGINEER

CARLSON, BRIGANCE & DOERING, INC.
ID# F3791

6-9-2025

DATE
NOV 2024

JOB NUMBER
5666

SHEET
20 OF 61

SHEET NO.
20

FILE PATH: J:\ACD\5665\dwg\5665-GRADING.dwg - Jun 09, 2025 - 3:28pm



LEGEND

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- FLOW ARROW

0 60' 120'

SCALE: 1" = 60'

DESIGNED BY: SPC

DRAFTED BY: CL

DATE

REVISION

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SHEET NAME: GRADING PLAN (2 OF 3)

JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 2

PROJECT: PRELIMINARY PLAT

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED PROFESSIONAL ENGINEER
CARLSON, BRIGANCE & DOERING, INC.
ID# F3791

6-9-2025

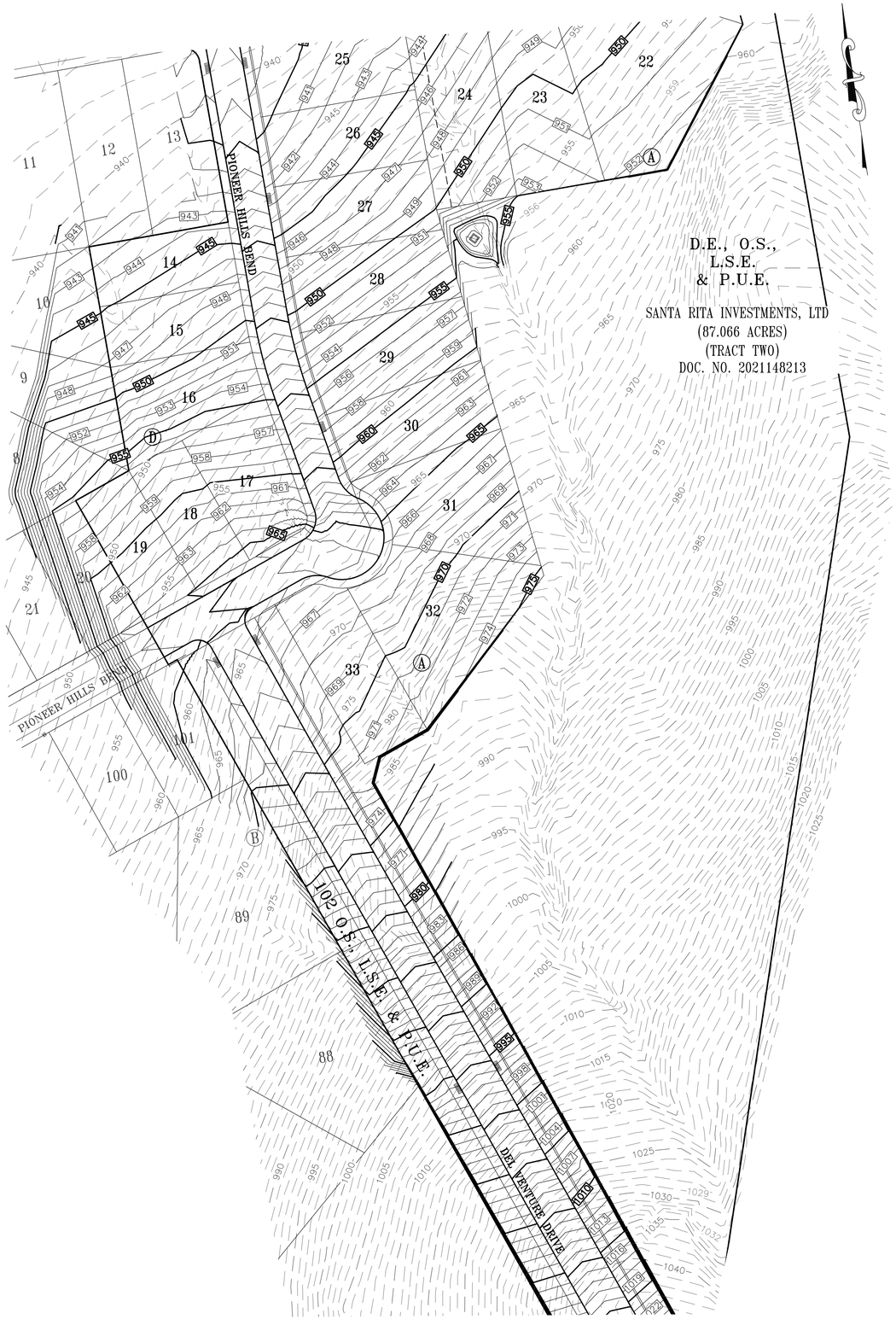
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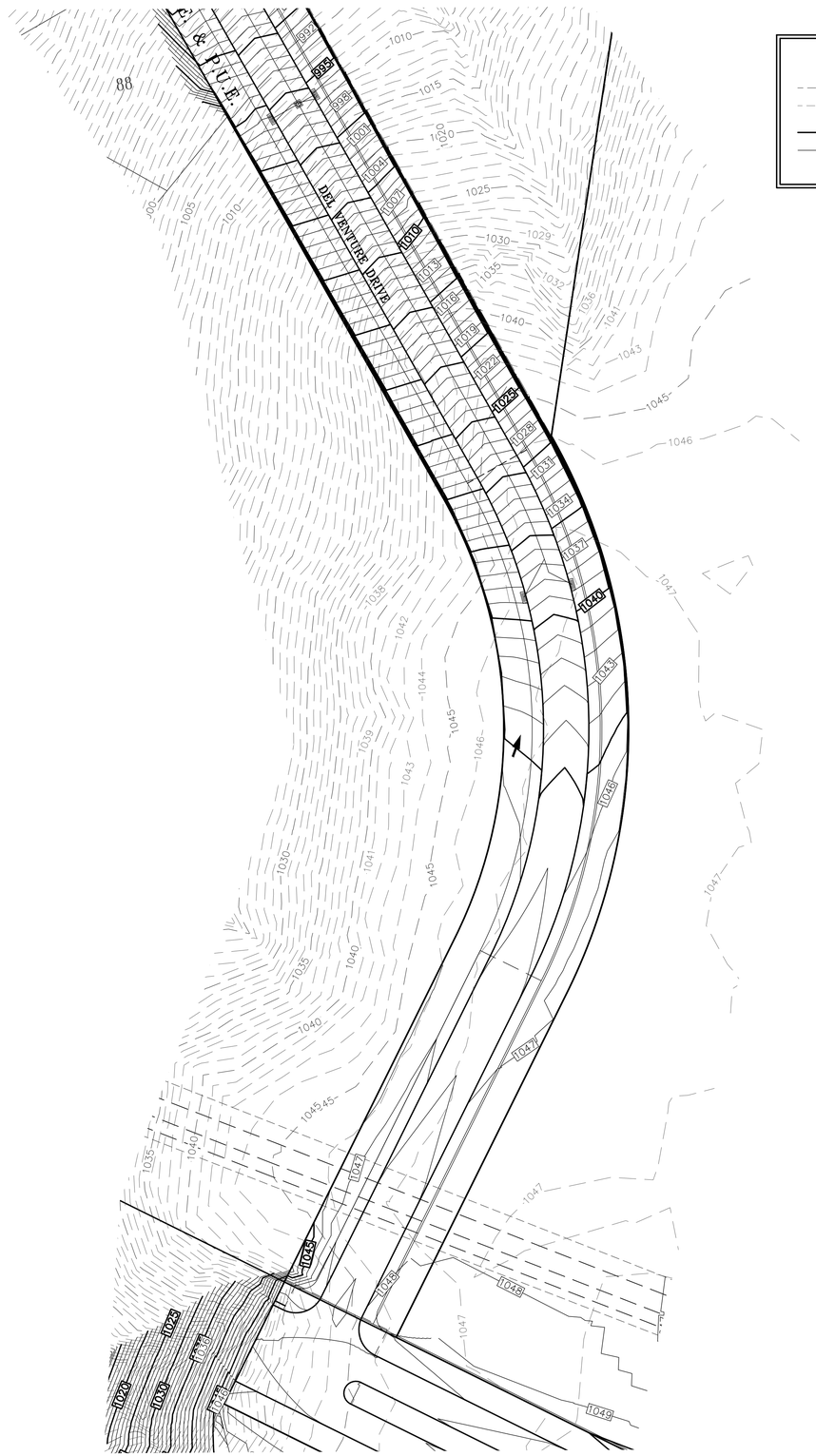
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SHEET: 21 OF 61

SHEET NO.: 21

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LEGEND

- 936 — EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- 930 PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- FLOW ARROW

0 60' 120'

SCALE: 1" = 60'

DESIGNED BY: SPC	DRAFTED BY: CL

DATE

REVISION

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SHEET NAME: GRADING PLAN (3 OF 3)

JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 2

PROJECT: PRELIMINARY PLAT

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED PROFESSIONAL ENGINEER
CARLSON, BRIGANCE & DOERING, INC.
ID# F3791
6-9-2025

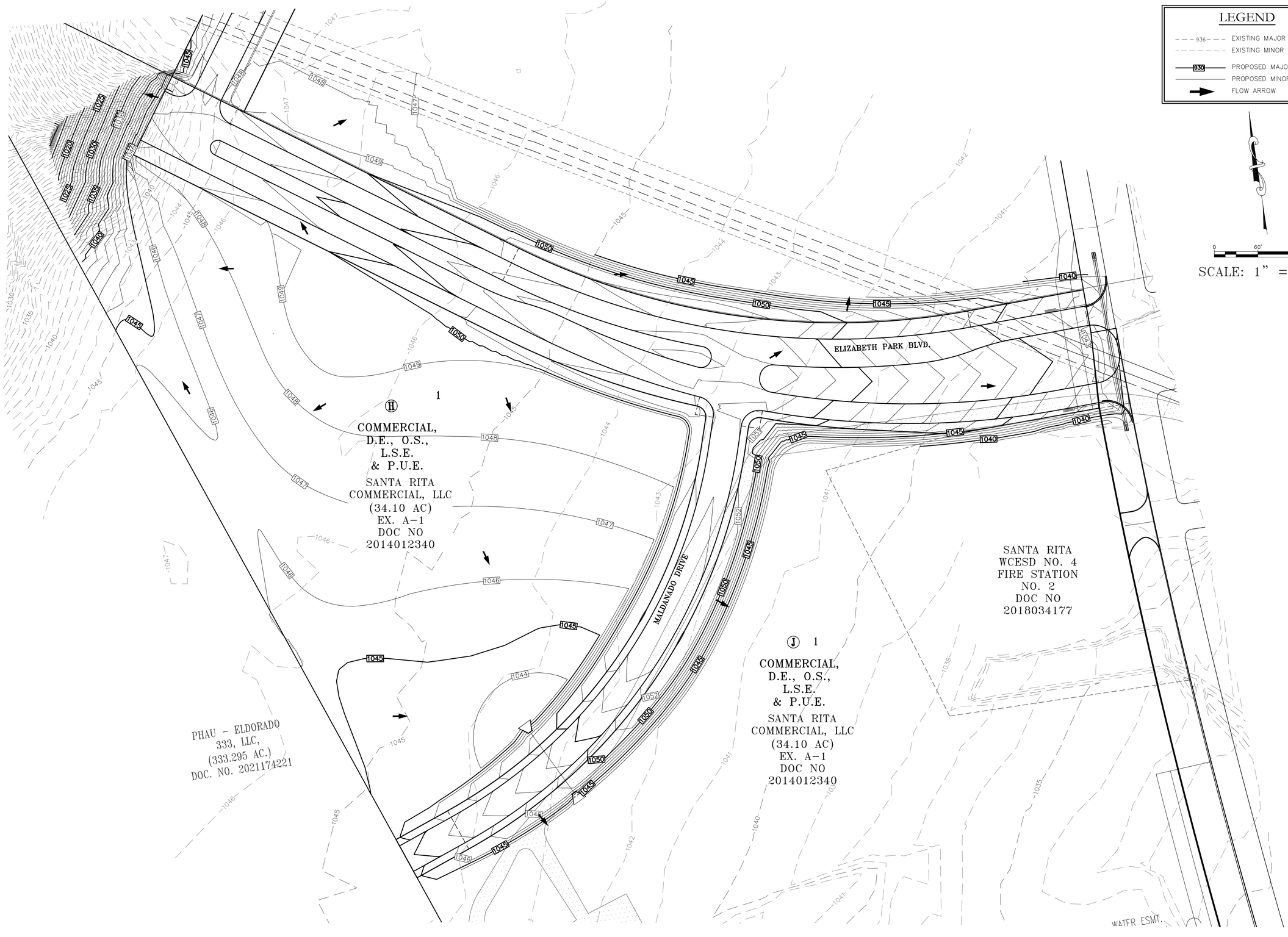
DATE: NOV 2024

JOB NUMBER: 5666

SHEET: 22 OF 61

SHEET NO.: 22

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Austin, Texas 78750
Fax No. (512) 280-5165

SHEET NAME: GRADING PLAN (4 OF 4)

JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 2

PROJECT: PRELIMINARY PLAT

STATE OF TEXAS
STEVEN P. CATES
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CARLSON, BRIGANCE & DOERING, INC.
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6-9-2025

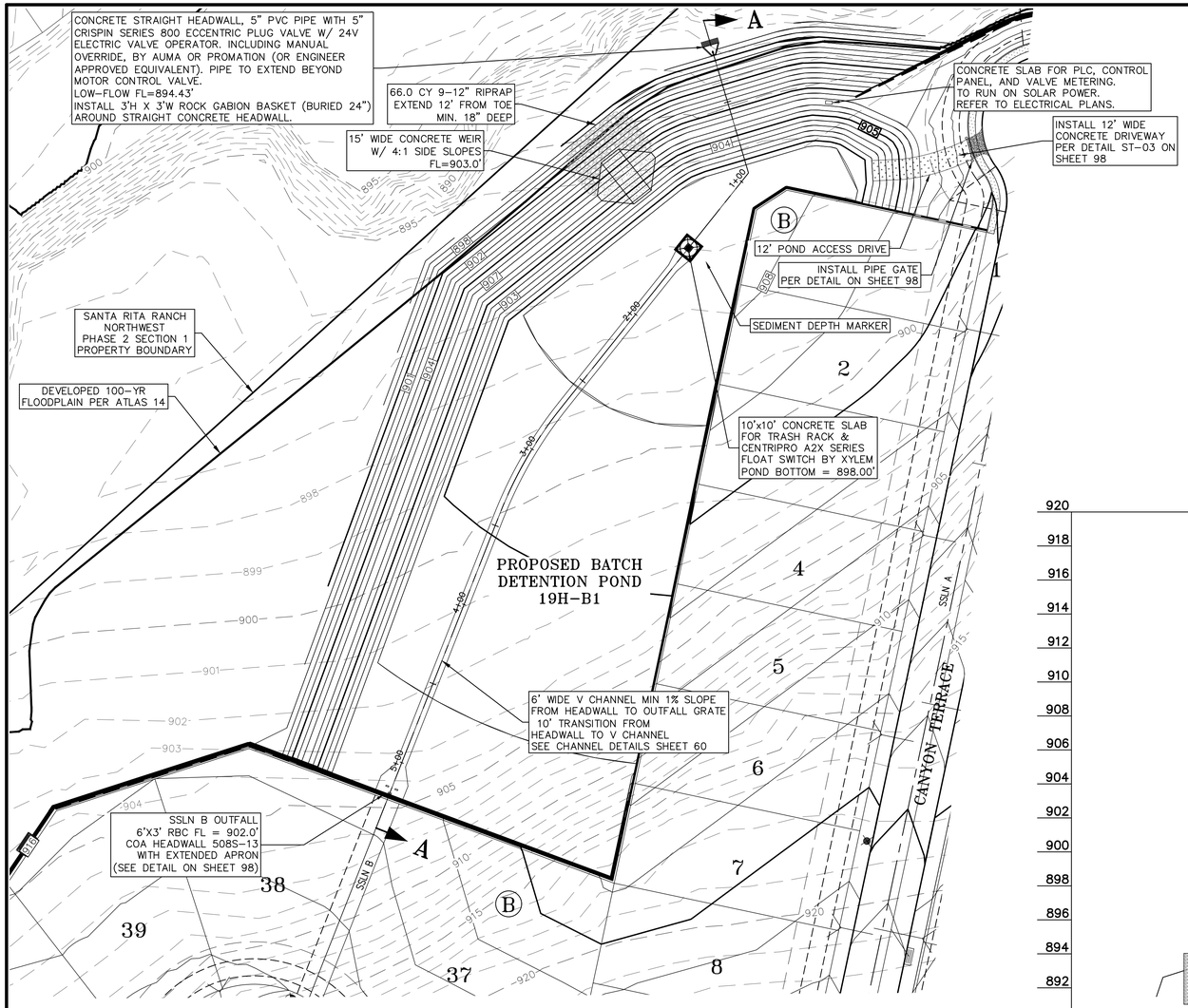
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JOB NUMBER: 5666

SHEET: 23 OF 61

SHEET NO.: 23

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NOTES:

1. THIS BATCH DETENTION POND WILL REQUIRE AN IMPERMEABLE LINER ACCORDING TO SECTION 3.4.2. OF TCEQ PUBLICATION RG 348. SEE SHEET 60 FOR IMPERMEABLE LINER & PROTECTIVE SOIL LAYER NOTES AND SPECIFICATIONS.

LEGEND

- 936 — EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- 930 — PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- FLOW ARROW

0 40' 80'

SCALE: 1" = 40'

POND 19H-B1 SECTION A-A

HORIZONTAL SCALE: 1"=40'
VERTICAL SCALE: 1"=4'

24-HR STORM EVENT	BATCH DETENTION POND 19H-B1			
	PEAK Qin (cfs)	PEAK Qout (cfs)	PEAK STORAGE (ac-ft)	PEAK ELEVATION (ft)
2-YR	34.7	0.0	3.1	901.9
10-YR	70.2	2.1	5.6	903.1
25-YR	91.4	11.8	6.1	903.4
100-YR	124.3	41.6	7.2	903.9

Pond 19H-B1 Stage-Storage

Stage	Area (sf)	Area (ac)	Incremental Storage (cf)	Cumulative Storage (cf)	Cumulative Storage (ac-ft)	
898.00	182	0.00	0	0	0.000	Pond Bottom
899.00	13,775	0.32	6,979	6,979	0.160	
900.00	29,181	0.67	21,478	28,456	0.653	
901.00	46,226	1.06	37,704	66,160	1.519	
902.00	58,560	1.34	52,393	118,553	2.722	
903.00	60,356	1.39	59,458	178,011	4.087	WQV Provided
904.00	62,185	1.43	61,271	239,281	5.493	
905.00	64,049	1.47	63,117	302,398	6.942	
906.00	65,948	1.51	64,999	367,397	8.434	
907.00	67,880	1.56	66,914	434,311	9.970	Top of Berm

*Pond 19H-B1 Stage-Storage per Saddleback at Santa Rita Ranch Northwest Phase 2 Section 1 Construction Plans

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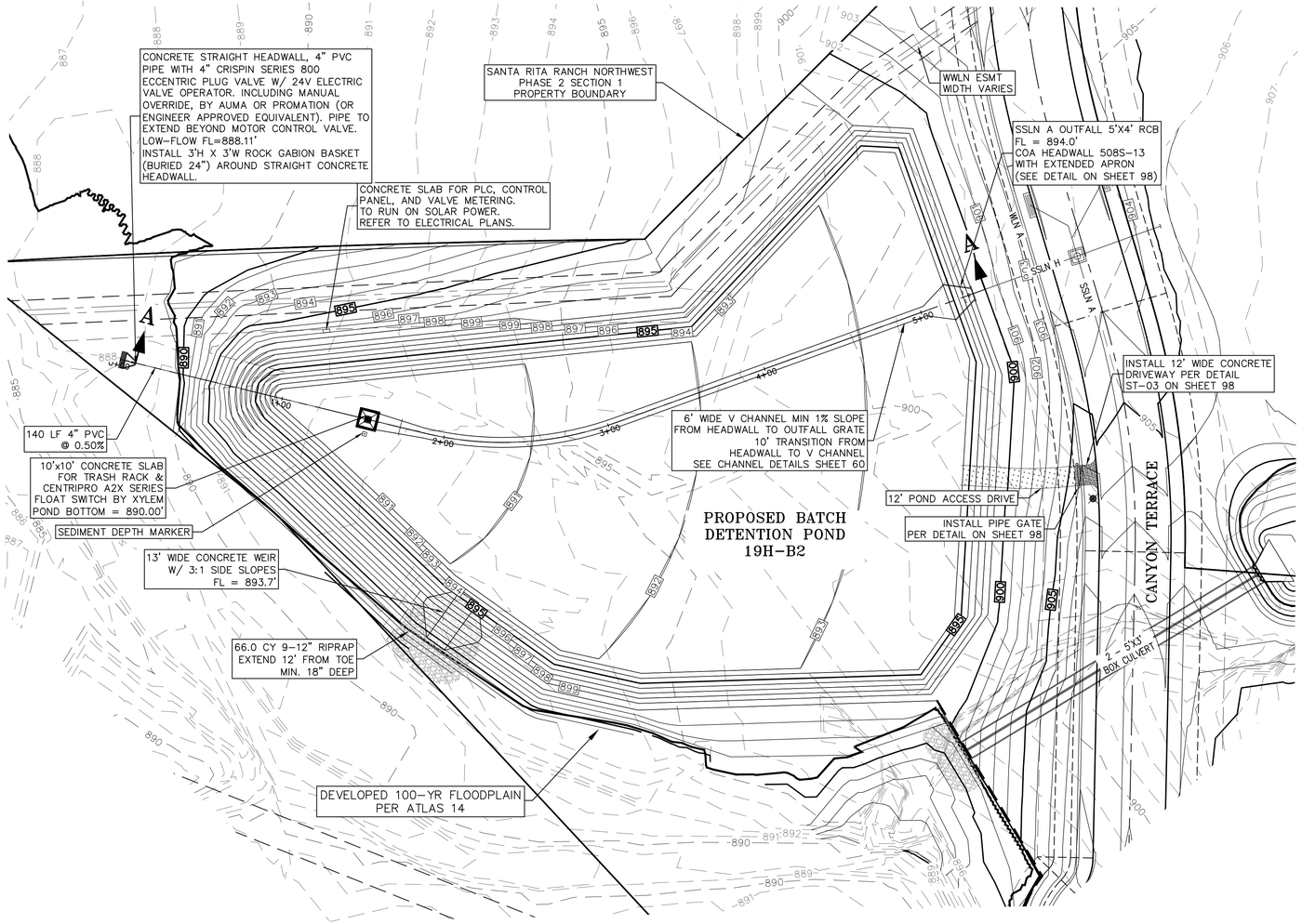
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DRAFTED BY: CL
DATE
REVISION

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SHEET NAME: POND 19H-B1 PLAN
JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1
PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

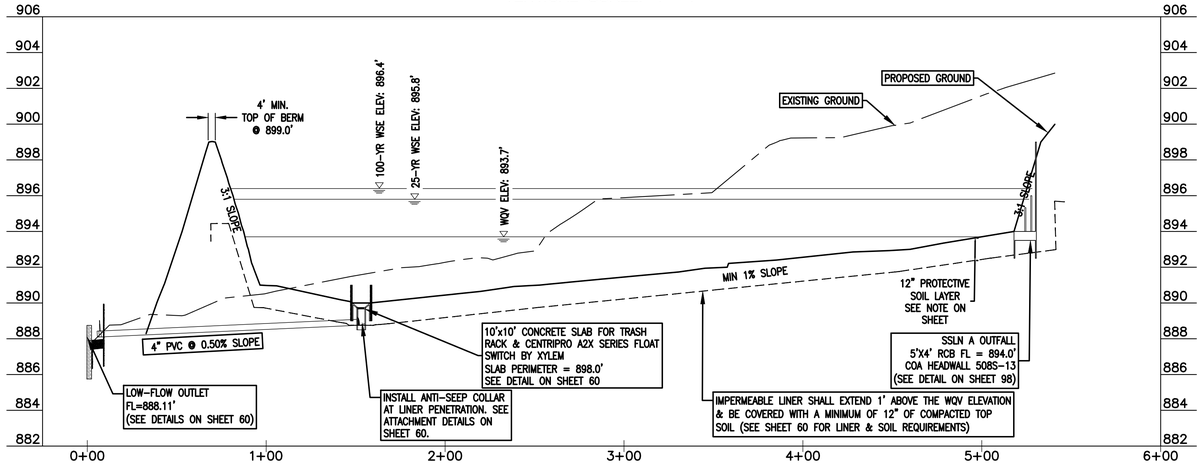
STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED PROFESSIONAL ENGINEER
CARLSON, BRIGANCE & DOERING, INC.
ID# F-3791
6-9-2025

DATE: MAY 2025
JOB NUMBER: 5665
SHEET: 58 OF 103
SHEET NO.: 58



POND 19H-B2 SECTION A-A

HORIZONTAL SCALE: 1"=40'
VERTICAL SCALE: 1"=4'



LEGEND

- 936 — EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- 930 — PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- FLOW ARROW

0 40' 80'

SCALE: 1" = 40'

NOTES:

1. THIS BATCH DETENTION POND WILL REQUIRE AN IMPERMEABLE LINER ACCORDING TO SECTION 3.4.2. OF TCEQ PUBLICATION RG 348. SEE SHEET 60 FOR IMPERMEABLE LINER & PROTECTIVE SOIL LAYER NOTES AND SPECIFICATIONS.

BATCH POND 19H-B2 LOW-FLOW ORIFICE CALCULATION

Orifice Equation: $Q = C_O * A * (2*g*h)^{0.5}$

WQ Volume (cf) =	115,000
WQ Elevation (ft) =	893.66
Max. Drawdown Time (hr) =	48
Orifice Coefficient =	0.60
Orifice Diameter (in) =	4.00
Center Elev. At Discharge (ft) =	888.28
Head at 1/2 Volume (ft) =	4.44
Qavg (cfs) =	0.89
Drain Time (hr) =	**36.1**

24-HR STORM EVENT	BATCH DETENTION POND 19H-B2			
	PEAK Qin (cfs)	PEAK Qout (cfs)	PEAK STORAGE (ac-ft)	PEAK ELEVATION (ft)
2-YR	65.5	21.5	3.9	894.4
10-YR	131.1	83.4	5.8	895.4
25-YR	170.5	119.6	6.7	895.8
100-YR	231.8	172.3	7.9	896.4

Pond 19H-B2 Stage-Storage

Stage	Area (sf)	Area (ac)	Incremental Storage (cf)	Cumulative Storage (cf)	Cumulative Storage (ac-ft)	
890.00	182	0.00	0	0	0.00	Pond Bottom
891.00	11,005	0.25	5,594	5,594	0.13	
892.00	30,000	0.69	20,502	26,096	0.60	
893.00	56,890	1.31	43,445	69,540	1.60	
893.70				**115,000**		WQV Provided
894.00	81,087	1.86	68,988	138,529	3.18	
895.00	84,899	1.95	82,993	221,522	5.09	
896.00	88,774	2.04	86,837	308,359	7.08	
897.00	92,708	2.13	90,741	399,100	9.16	
898.00	96,703	2.22	94,706	493,806	11.34	
899.00	100,757	2.31	98,730	592,536	13.60	Top of Berm

*Pond 19H-B2 Stage-Storage per Saddleback at Santa Rita Ranch Northwest Phase 2 Section 1 Construction Plans

DESIGNED BY: SPC | DRAFTED BY: CL

DATE | REVISION

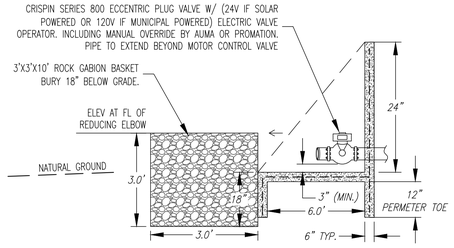
Carlson, Brigance & Doering, Inc.
Civil Engineering ◆ Surveying
FIRM ID #F3791
Main Office: 5501 West William Cannon Dr. Austin, Texas 78749 Phone No. (312) 280-5160
North Office: 12129 RR 620 N, Suite 600 Austin, Texas 78750 Fax No. (312) 280-5165

SHEET NAME: POND 19H-B2 PLAN
JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1
PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

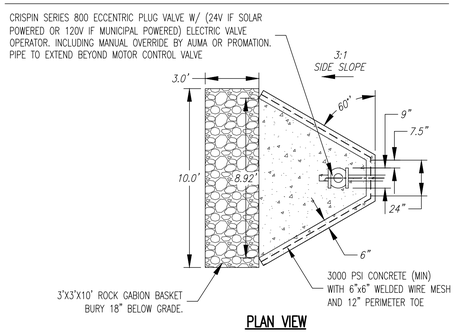
STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED PROFESSIONAL ENGINEER
CARLSON, BRIGANCE & DOERING, INC.
ID# F-3791
6-9-2025

DATE: MAY 2025
JOB NUMBER: 5665
SHEET: 59 OF 103
SHEET NO.: 59

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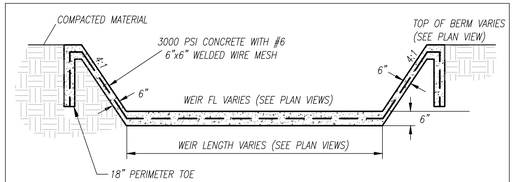
PROFILE VIEW



PLAN VIEW

HEADWALL WITH PLUG VALVE DETAIL

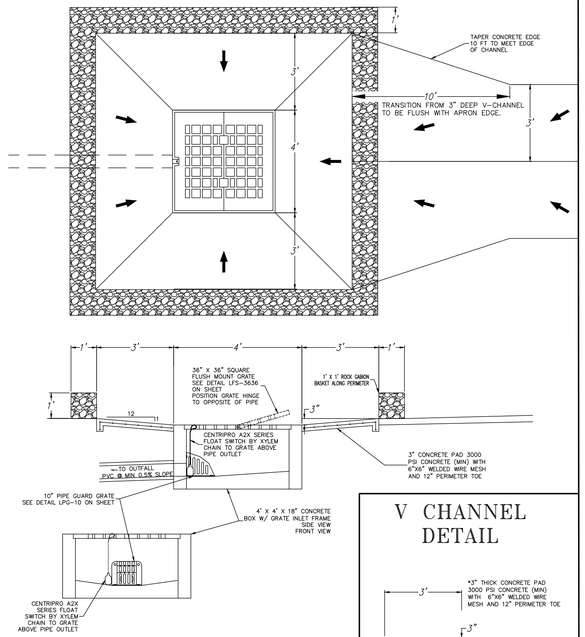
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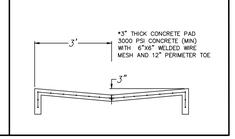
WEIR DETAIL

N.T.S.

POND OUTLET GRATE DETAIL
N.T.S.



V CHANNEL DETAIL



INSPECTION, MAINTENANCE, REPAIR AND RETROFIT PLAN:

TEMPORARY BMP'S:

BEST MANAGEMENT PRACTICES (BMP' S) INSTALLED DURING CONSTRUCTION WILL BE MAINTAINED IN ACCORDANCE WITH THE REQUIREMENTS OF THE EPA'S NPDES STORMWATER POLLUTION PREVENTION PROGRAM. THE CONSTRUCTION SUPERINTENDENT WILL INSPECT TEMPORARY EROSION CONTROLS ON A REGULAR BASIS AND ADJUST THE CONTROLS AND/OR REMOVE ANY SEDIMENT BUILDUP IN ACCORDANCE WITH THE EROSION/SEDIMENTATION CONTROL NOTES AND AS OTHERWISE DIRECTED BY THE OWNER OR HIS DESIGNATED REPRESENTATIVE. TEMPORARY EROSION CONTROLS SHOULD BE INSPECTED, MAINTAINED, AND REPAIRED, AT A MINIMUM, EVERY SEVEN (7) DAYS AND WITHIN 24 HOURS OF A STORM OF 0.5 INCHES OR MORE RAINFALL DEPTH. SEDIMENT SHALL BE REMOVED FROM CONTROLS WHEN 50% OF THE DESIGN HEIGHT IS EXCEEDED. FOLLOWING INSPECTION OF THE BMP'S, DEFICIENCIES SHALL BE NOTED AND CORRECTED BY THE CONTRACTOR.

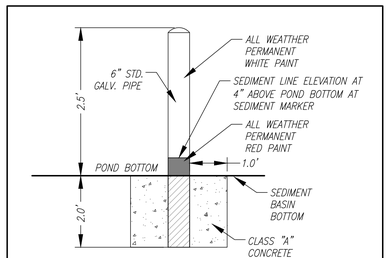
PERMANENT BMP:

BATCH DETENTION BASINS

- INSPECTIONS. BASINS SHOULD BE INSPECTED AT LEAST TWICE A YEAR (ONCE DURING OR IMMEDIATELY FOLLOWING WET WEATHER) TO EVALUATE FACILITY OPERATION. WHEN POSSIBLE, INSPECTIONS SHOULD BE CONDUCTED DURING WET WEATHER TO DETERMINE IF THE POND IS MEETING THE TARGET DETENTION TIME OF 12 HOURS AND A DRAWDOWN OF NO MORE THAN 48 HOURS. IN PARTICULAR, THE DETENTION CONTROL DEVICE SHOULD BE REGULARLY INSPECTED FOR EVIDENCE OF CLOGGING, OR CONVERSELY, FOR TOO RAPID A RELEASE. IF THE DETENTION TIME IS LESS THAN 12 HOURS OR THE DRAWDOWN TIME IS EXCEEDED BY MORE THAN 24 HOURS, THEN REPAIRS SHOULD BE SCHEDULED IMMEDIATELY. DURING EACH INSPECTION, EROSION AREAS INSIDE AND DOWNSTREAM OF THE BMP SHOULD BE IDENTIFIED AND REPAIRED OR REVEGETATED IMMEDIATELY.
- MOWING. THE BASIN, SIDE SLOPES, EMBANKMENT, AND EMERGENCY SPILLWAY OF A BATCH DETENTION BASIN MUST BE MOWED REGULARLY TO DISCOURAGE WOODY GROWTH AND CONTROL WEEDS. GRASS AREAS IN AND AROUND BASINS SHOULD BE MOWED AT LEAST TWICE ANNUALLY TO LIMIT VEGETATION HEIGHT TO 18 INCHES. MORE FREQUENT MOWING TO MAINTAIN AESTHETIC APPEAL MAY BE NECESSARY IN LANDSCAPED AREAS. WHEN MOWING OF GRASS IS PERFORMED, A MULCHING MOWER SHOULD BE USED, OR GRASS CLIPPINGS SHOULD BE CAUGHT AND REMOVED.
- DEBRIS AND LITTER REMOVAL. DEBRIS AND LITTER WILL ACCUMULATE NEAR THE DETENTION CONTROL DEVICE AND SHOULD BE REMOVED DURING REGULAR MOWING OPERATIONS AND INSPECTIONS. PARTICULAR ATTENTION SHOULD BE PAID TO FLOATING DEBRIS THAT CAN EVENTUALLY CLOG THE CONTROL DEVICE OR RISER.
- EROSION CONTROL. THE BASIN SIDE SLOPES, EMERGENCY SPILLWAY, AND EMBANKMENT ALL MAY PERIODICALLY SUFFER FROM SLUMPING AND EROSION, ALTHOUGH THIS SHOULD NOT OCCUR OFTEN IF THE SOILS ARE PROPERLY COMPACTED DURING CONSTRUCTION. REGRADING AND REVEGETATION MAY BE REQUIRED TO CORRECT THE PROBLEMS.
- STRUCTURAL REPAIRS AND REPLACEMENT. WITH EACH INSPECTION, ANY DAMAGE TO THE STRUCTURAL ELEMENTS OF THE SYSTEM (PIPES, CONCRETE DRAINAGE STRUCTURES, RETAINING WALLS, ETC.) SHOULD BE IDENTIFIED AND REPAIRED IMMEDIATELY. THESE REPAIRS SHOULD INCLUDE PATCHING OF CRACKED CONCRETE, SEALING OF VOIDS, AND REMOVAL OF VEGETATION FROM CRACKS AND JOINTS. THE VARIOUS INLET/OUTLET AND RISER WORKS IN A BASIN WILL EVENTUALLY DETERIORATE AND MUST BE REPLACED. PUBLIC WORKS EXPERTS HAVE ESTIMATED THAT CORRUGATED METAL PIPE (CMP) HAS A USEFUL LIFE OF ABOUT 25 YR, WHEREAS REINFORCED CONCRETE BARRELS AND RISERS MAY LAST FROM 50 TO 75 YR.
- NUISANCE CONTROL. STANDING WATER MAY OCCUR AFTER A STORM EVENT SINCE THE VALVE MAY CLOSE WITH 2 TO 3 INCHES OF WATER IN THE BASIN. FLOW SUCH AS SPRING FLOW AND RESIDENTIAL WATER USE MAY DISCHARGE INTO THE BASIN BETWEEN STORM EVENTS THAT DO NOT ENGAGE THE LEVEL SENSOR. STANDING WATER CAN CREATE NUISANCE CONDITIONS FOR NEARBY RESIDENTS. ODORS, MOSQUITOES, WEEDS, AND LITTER ARE ALL OCCASIONALLY PERCEIVED TO BE PROBLEMS. MOST OF THESE PROBLEMS ARE GENERALLY A SIGN THAT REGULAR INSPECTIONS AND MAINTENANCE ARE NOT BEING PERFORMED (E.G., MOWING, DEBRIS REMOVAL, CLEARING THE OUTLET CONTROL DEVICE). TWICE A YEAR, THE FACILITY SHOULD BE EVALUATED FOR NUISANCE CONTROL.
- SEDIMENT REMOVAL. WHEN PROPERLY DESIGNED, BATCH DETENTION BASINS WILL ACCUMULATE QUANTITIES OF SEDIMENT OVER TIME. SEDIMENT ACCUMULATION IS A SERIOUS MAINTENANCE CONCERN IN BATCH DETENTION PONDS FOR SEVERAL REASONS. FIRST, SEDIMENT ACCUMULATION CAN MAKE BATCH DETENTION BASINS VERY UNSIGHTLY. SECOND, THE SEDIMENT DEPOSITION GRADUALLY REDUCES AVAILABLE STORAGE CAPACITY RESERVED FOR POLLUTANT REMOVAL AND DETENTION WITHIN THE BASIN. THIRD, SEDIMENT TENDS TO ACCUMULATE AROUND THE OUTLET CONTROL DEVICE. THIS INCREASES THE RISK OF CLOGGING THE ORIFICE OR INTERFERING WITH THE LEVEL SENSOR, WHICH CAN IN TURN REDUCE THE TREATMENT EFFICACY OF THE FACILITY. SEDIMENT CAN BE RESUSPENDED IF ALLOWED TO ACCUMULATE OVER TIME AND ESCAPE THROUGH THE HYDRAULIC CONTROL TO DOWNSTREAM CHANNELS AND STREAMS. FOR THESE REASONS, ACCUMULATED SEDIMENT NEEDS TO BE REMOVED FROM THE BASIN WHEN SEDIMENT DEPTH EXCEEDS 6 INCHES, WHEN SEDIMENT INTERFERES WITH THE LEVEL SENSOR, WHEN THE BASIN DOES NOT DRAIN WITHIN 48 HOURS, OR AT LEAST EVERY 5 YEARS.
- LOGIC CONTROLLER. THE LOGIC CONTROLLER SHOULD BE INSPECTED AS PART OF THE TWICE YEARLY INSPECTIONS. VERIFY THAT THE EXTERNAL INDICATORS (ACTIVE, CYCLE IN PROGRESS) ARE OPERATING PROPERLY BY TURNING THE CONTROLLER OFF AND ON, AND BY INITIATING A CYCLE BY TRIGGERING THE LEVEL SENSOR IN THE BASIN. THE VALVE SHOULD BE MANUALLY OPENED AND CLOSED USING THE OPEN/CLOSE SWITCH TO VERIFY VALVE OPERATION AND TO ASSIST IN INSPECTING THE VALVE FOR DEBRIS. THE SOLAR PANEL SHOULD BE INSPECTED AND ANY DUST OR DEBRIS ON THE PANEL SHOULD BE CAREFULLY REMOVED. THE CONTROLLER AND ALL OTHER CIRCUITRY AND WIRING SHOULD BE INSPECTED FOR SIGNS OF CORROSION, DAMAGE FROM INSECTS, WATER LEAKS, OR OTHER DAMAGE. AT THE END OF THE INSPECTION, THE CONTROLLER SHOULD BE RESET.

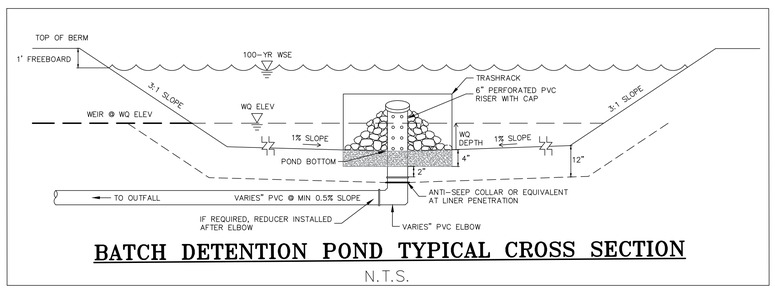
ULTIMATELY, THESE FACILITIES WILL BE OWNED, OPERATED AND MAINTAINED BY THE PROPOSED WILLIAMSON COUNTY MUD NO. 19C UNTIL THE OWNERSHIP OF FACILITIES IS TRANSFERRED TO THE MUD, SANTA RITA C7 INVESTMENTS LLC WILL BE RESPONSIBLE FOR MAINTENANCE OF THESE FACILITIES IN ACCORDANCE WITH THE ABOVE STATED REQUIREMENTS.





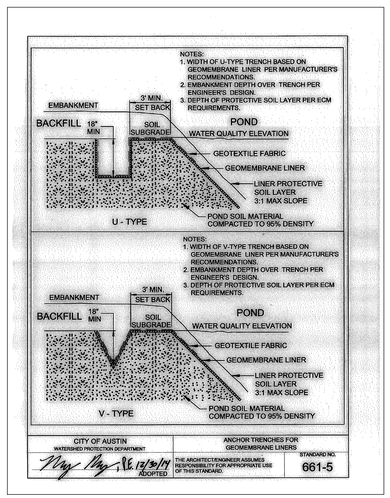
CONCRETE FILLED FIXED SEDIMENT MARKER

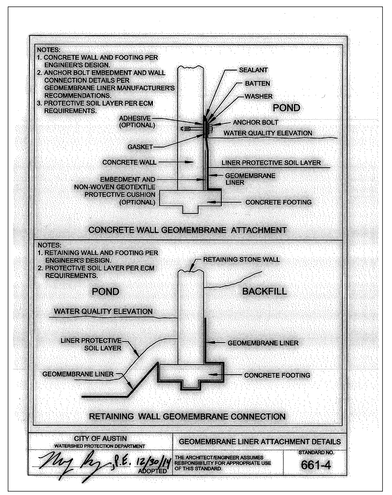
N.T.S.



BATCH DETENTION POND TYPICAL CROSS SECTION

N.T.S.





IMPERMEABLE LINER NOTES

IMPERMEABLE LINERS SHOULD BE USED FOR WATER QUALITY BASINS (RETENTION, EXTENDED DETENTION, SAND FILTERS, WET PONDS, CONSTRUCTED WETLANDS, AND BATCH DETENTION PONDS) LOCATED OVER THE RECHARGE ZONE AND IN AREAS WITH THE POTENTIAL FOR GROUNDWATER CONTAMINATION. IMPERMEABLE LINERS MAY BE CLAY, CONCRETE OR GEOMEMBRANE. IF GEOMEMBRANE IS USED, SUITABLE GEOTEXTILE FABRIC SHOULD BE PLACED ON THE TOP AND BOTTOM OF THE MEMBRANE FOR PUNCTURE PROTECTION AND THE LINERS COVERED WITH A MINIMUM OF 6 INCHES OF COMPACTED TOPSOIL. THE TOPSOIL SHOULD BE STABILIZED WITH APPROPRIATE VEGETATION. CLAY LINERS SHOULD MEET THE SPECIFICATIONS IN TABLE 3-6 AND HAVE A MINIMUM THICKNESS OF 12 INCHES.

TABLE 3-6 CLAY LINER SPECIFICATIONS (COA, 2004)

PROPERTY	TEST METHOD	UNIT	SPECIFICATION (MIN.)
PERMEABILITY	ASTM D-2434	%	1×10^{-6}
PLASTICITY INDEX OF CLAY	ASTM D-423 & D-424	%	NOT LESS THAN 15
LIQUID LIMIT OF CLAY	ASTM D-2216	%	NOT LESS THAN 30
CLAY PARTICLES PASSING	ASTM D-422	%	NOT LESS THAN 30
CLAY COMPACTION	ASTM D-2216	%	95% OF STANDARD PROCTOR DENSITY

IF A GEOMEMBRANE LINER IS USED IT SHOULD HAVE A MINIMUM THICKNESS OF 30 MILS AND BE ULTRAVIOLET RESISTANT. THE GEOTEXTILE FABRIC (FOR PROTECTION OF GEOMEMBRANE) SHOULD BE NONWOVEN GEOTEXTILE FABRIC AND MEET THE SPECIFICATIONS IN TABLE 3-7.

TABLE 3-7 GEOTEXTILE FABRIC SPECIFICATIONS (COA, 2004)

PROPERTY	TEST METHOD	UNIT	SPECIFICATION (MIN.)
UNIT WEIGHT		OZ/YD^2	8
FILTRATION RATE		IN/SEC	0.0800
PUNCTURE STRENGTH	ASTM D-751*	lb	125
MULLEN BURST STRENGTH	ASTM-D751	psi	400
TENSILE STRENGTH	ASTM D-1682	lb	200
EQUIV. OPENING SIZE	US STANDARD SIEVE	No.	80
	*MODIFIED		

PROTECTIVE SOIL LAYER NOTES

THE WET AND BATCH DETENTION PONDS WILL BE CONSTRUCTED WITH A MINIMUM OF 12" OF A PROTECTION SOIL LAYER ABOVE THE SELECTED IMPERMEABLE LINER SO THAT PLANTINGS CAN BE PROPERLY INSTALLED ABOVE THE LINER AND LINER INTEGRITY CAN BE MAINTAINED.

MATERIAL PLACED OVER LINER TO CONSIST OF SOIL THAT CLASSIFIES PER USDA STANDARDS AS A SANDY CLAY LOAM, SANDY CLAY, OR CLAY LOAM. THE SOIL SHALL BE FREE OF ORGANICS AND ANGULAR/SHARP MATERIALS, AND SHALL CONTAIN NO MATERIALS GREATER THAN 1" IN DIAMETER. MATERIAL TO BE PLACED AND COMPACTED IN TWO UNIFORM LIFTS.

DESIGNED BY: SPC | DRAFTED BY: CL

DATE | REVISION

Carlson, Brigance & Doering, Inc.
Civil Engineering ◆ Surveying
FIRM ID #F3791
Main Office: 5501 West William Cannon Dr. Austin, Texas 78749 Phone No. (512) 280-5160
North Office: 121 29 RR 620 N. Suite 200 Austin, Texas 78750 Fax No. (512) 280-5165

SHEET NAME: POND DETAILS

JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1

PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED
PROFESSIONAL ENGINEER
CARLSON, BRIGANCE & DOERING, INC.
ID# F3791
6-9-2025

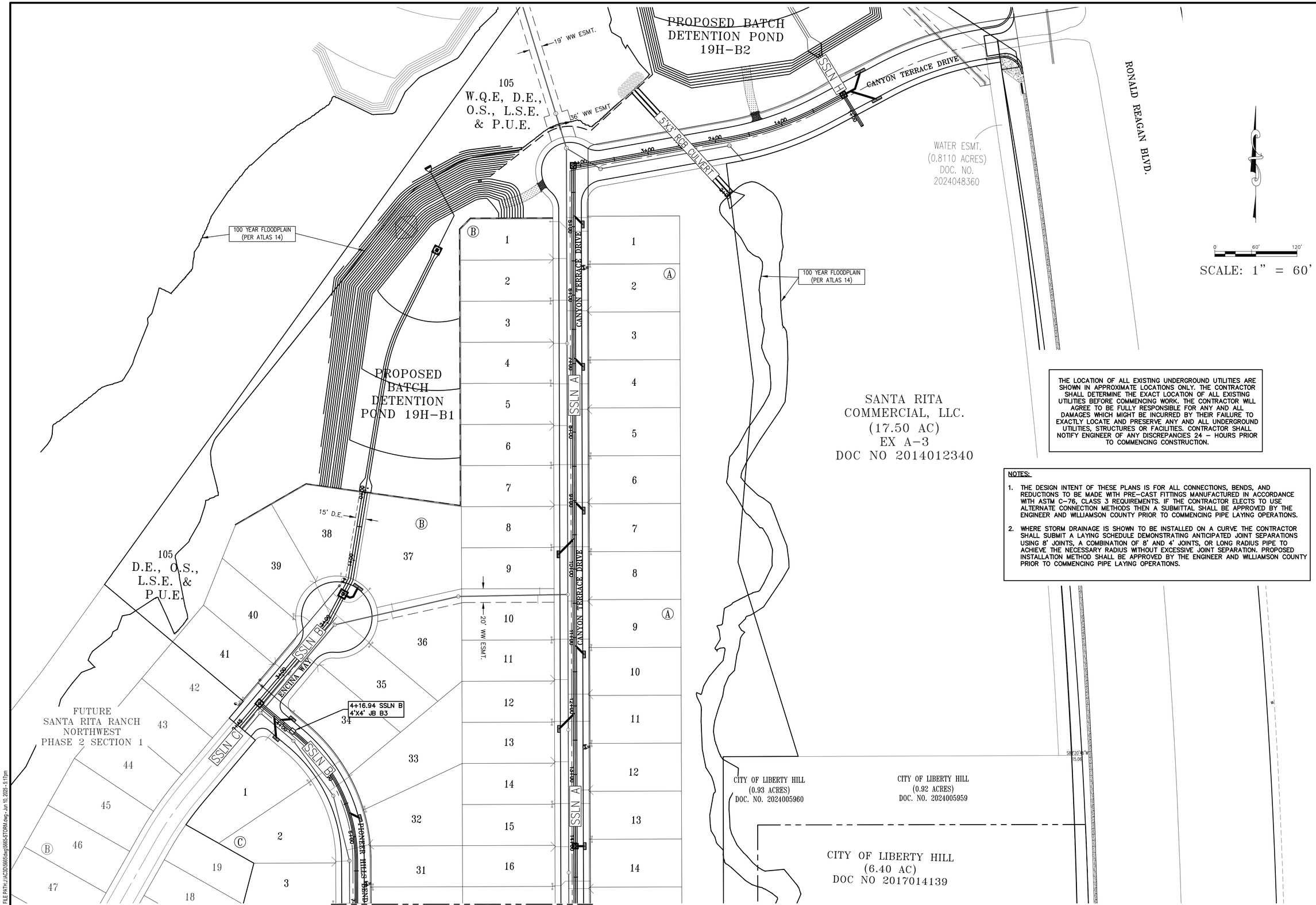
DATE: MAY 2025

JOB NUMBER: 5665

SHEET: 60 OF 103

SHEET NO.: 60

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THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR WILL AGREE TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE INCURRED BY THEIR FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES, STRUCTURES OR FACILITIES. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES 24 -- HOURS PRIOR TO COMMENCING CONSTRUCTION.

NOTES:

1. THE DESIGN INTENT OF THESE PLANS IS FOR ALL CONNECTIONS, BENDS, AND REDUCTIONS TO BE MADE WITH PRE-CAST FITTINGS MANUFACTURED IN ACCORDANCE WITH ASTM C-76, CLASS 3 REQUIREMENTS. IF THE CONTRACTOR ELECTS TO USE ALTERNATE CONNECTION METHODS THEN A SUBMITTAL SHALL BE APPROVED BY THE ENGINEER AND WILLIAMSON COUNTY PRIOR TO COMMENCING PIPE LAYING OPERATIONS.
2. WHERE STORM DRAINAGE IS SHOWN TO BE INSTALLED ON A CURVE THE CONTRACTOR SHALL SUBMIT A LAYING SCHEDULE DEMONSTRATING ANTICIPATED JOINT SEPARATIONS USING 8' JOINTS, A COMBINATION OF 8' AND 4' JOINTS, OR LONG RADIUS PIPE TO ACHIEVE THE NECESSARY RADIUS WITHOUT EXCESSIVE JOINT SEPARATION. PROPOSED INSTALLATION METHOD SHALL BE APPROVED BY THE ENGINEER AND WILLIAMSON COUNTY PRIOR TO COMMENCING PIPE LAYING OPERATIONS.

DESIGNED BY: SPC
DRAFTED BY: CL

DATE

REVISION

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Civil Engineering ◆ Surveying
FIRM ID #F3791
Main Office
5501 West William Cannon Dr.
Austin, Texas 78749
Phone No. (512) 280-5160
North Office
12129 RR 620 N., Ste. 600
Austin, Texas 78750
Fax No. (512) 280-5165

SHEET NAME: OVERALL STORMSEWER (1 OF 3)

JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1

PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED PROFESSIONAL ENGINEER
CARLSON, BRIGANCE & DOERING, INC.
ID# F3791
6-9-2025

DATE
MAY 2025

JOB NUMBER
5665

SHEET
61 OF 103

SHEET NO.
61

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MATCH LINE
SEE PREVIOUS SHEET FOR CONTINUATION

FUTURE
SANTA RITA RANCH
NORTHWEST
PHASE 2 SECTION 1

PIONEER HILLS BEND

SSLN B

SSLN A

CANYON TERRACE DRIVE

CANYON TERRACE DRIVE

PIONEER HILLS BEND

DEL VENTURE DRIVE

15' D.E.

CITY OF LIBERTY HILL
(6.40 AC)
DOC NO 2017014139

100 YEAR FLOODPLAIN
(PER ATLAS 14)

56
COMMERCIAL,
D.E., O.S., L.S.E.
& P.U.E.
SANTA RITA INVESTMENTS, LTD
(87.066 ACRES)
(TRACT TWO)
DOC. NO. 2021148213

MATCH LINE
SEE THIS SHEET FOR CONTINUATION

MATCH LINE
SEE THIS SHEET FOR CONTINUATION

102 O.S., L.S.E. & P.U.E.

DEL VENTURE DRIVE

SSLN D

56
COMMERCIAL,
D.E., O.S., L.S.E.
& P.U.E.
SANTA RITA INVESTMENTS, LTD
(87.066 ACRES)
(TRACT TWO)
DOC. NO. 2021148213

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56
COMMERCIAL,
D.E., O.S., L.S.E.
& P.U.E.
SANTA RITA INVESTMENTS, LTD
(87.066 ACRES)
(TRACT TWO)
DOC. NO. 2021148213

MATCH LINE
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0 60' 120'

SCALE: 1" = 60'

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DESIGNED BY: SPC
DRAFTED BY: CL

DATE
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FIRM ID #F3791
Main Office
5501 West William Cannon Dr. (512) 280-5160
Austin, Texas 78749
North Office
12129 RR 620 N, Suite 600
Austin, Texas 78750
Phone No. (512) 280-5160 Fax No. (512) 280-5165

SHEET NAME: OVERALL STORMSEWER (2 OF 3)
JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1
PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED
PROFESSIONAL ENGINEER
CARLSON, BRIGANCE & DOERING, INC.
6-9-2025

DATE: MAY 2025
JOB NUMBER: 5665
SHEET: 62 OF 103
SHEET NO.: 62

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COMMERCIAL,
D.E., O.S., L.S.E.
& P.U.E.
SANTA RITA INVESTMENTS, LTD
(87.066 ACRES)
(TRACT TWO)
DOC. NO. 2021148213

(50' PIPELINE ESMT)
DOC NO 2016026075

ELIZABETH PARK BLVD.

WATER ESMT.
(0.3334 ACRES)
DOC. NO. 2024048352

WATER ESMT.
(0.0190 ACRES)
DOC. NO.
2024048350

SSLN K

25+15.00
25+40.00
25+65.00
25+90.00
26+15.00
26+40.00
26+65.00
26+90.00
27+15.00
27+40.00

Ⓗ
1
COMMERCIAL,
D.E., O.S., L.S.E.
& P.U.E.
SANTA RITA
COMMERCIAL, LLC
(34.10 AC)
EX. A-1
DOC NO 2014012340

MALDANADO DRIVE

SSLN C

SANTA RITA
WCESD NO. 4
FIRE STATION
NO. 2
DOC NO
2018034177

WATER ESMT.
(0.0557 ACRES)
DOC. NO.
2024048900

LOT 1
SANTA RITA
PARK
DOC NO
2008080497

RONALD REAGAN BOULEVARD
(R.O.W. VARIES)

0 60' 120'
SCALE: 1" = 60'

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2. WHERE STORM DRAINAGE IS SHOWN TO BE INSTALLED ON A CURVE THE CONTRACTOR SHALL SUBMIT A LAYING SCHEDULE DEMONSTRATING ANTICIPATED JOINT SEPARATIONS USING 8' JOINTS, A COMBINATION OF 8' AND 4' JOINTS, OR LONG RADIUS PIPE TO ACHIEVE THE NECESSARY RADIUS WITHOUT EXCESSIVE JOINT SEPARATION. PROPOSED INSTALLATION METHOD SHALL BE APPROVED BY THE ENGINEER AND WILLIAMSON COUNTY PRIOR TO COMMENCING PIPE LAYING OPERATIONS.

DESIGNED BY: SPC
DRAFTED BY: CL

REVISION	DATE

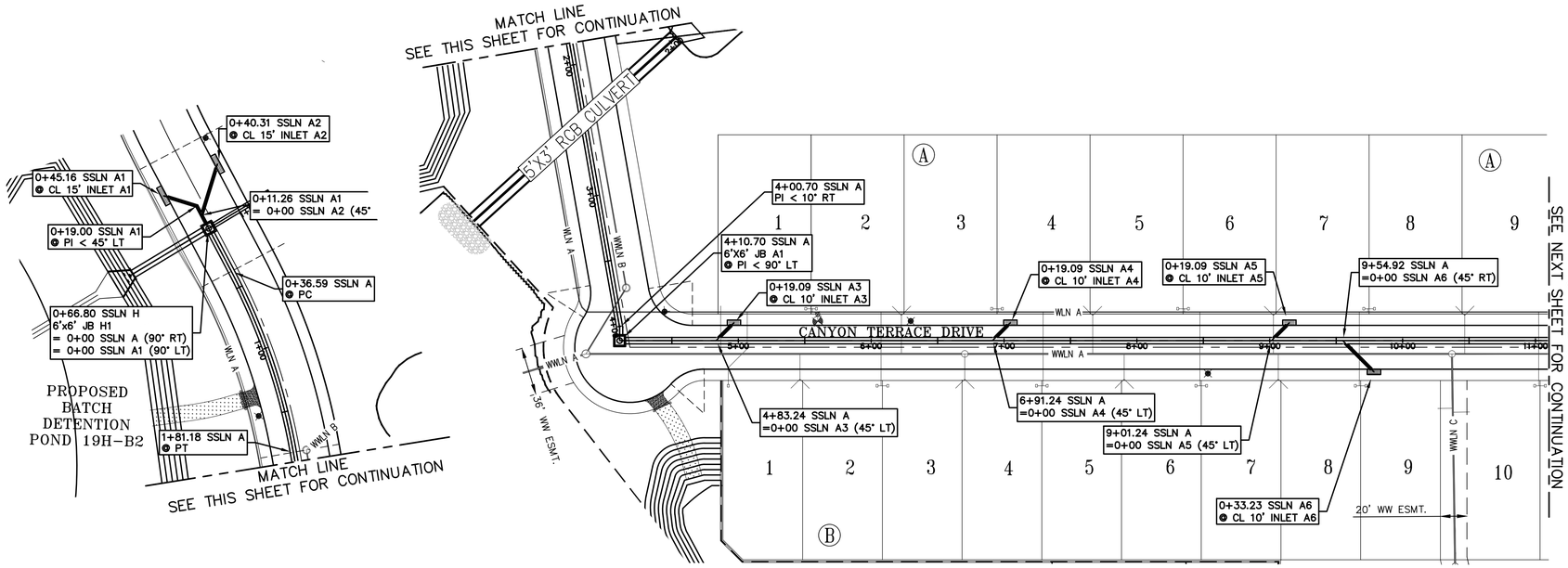
Carlson, Brigance & Doering, Inc.
Civil Engineering ◆ Surveying
FIRM ID #F3791
Main Office
5501 West William Cannon Dr. 78749
Austin, Texas
Phone No. (512) 280-5160
North Office
12129 RR 620 N, Suite 600
Austin, Texas 78750
Fax No. (512) 280-5165

SHEET NAME: OVERALL STORMSEWER (3 OF 3)
JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1
PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED PROFESSIONAL ENGINEER
CARLSON, BRIGANCE & DOERING, INC.
ID# F3791
6-9-2025

DATE: MAY 2025
JOB NUMBER: 5665
SHEET: 63 OF 103
SHEET NO.: 63

FILE PATH: J:\ACD\5665\dwg\5665-STORM.dwg - Jun 10, 2025 - 5:17pm



0 50' 100'

SCALE: 1" = 50'

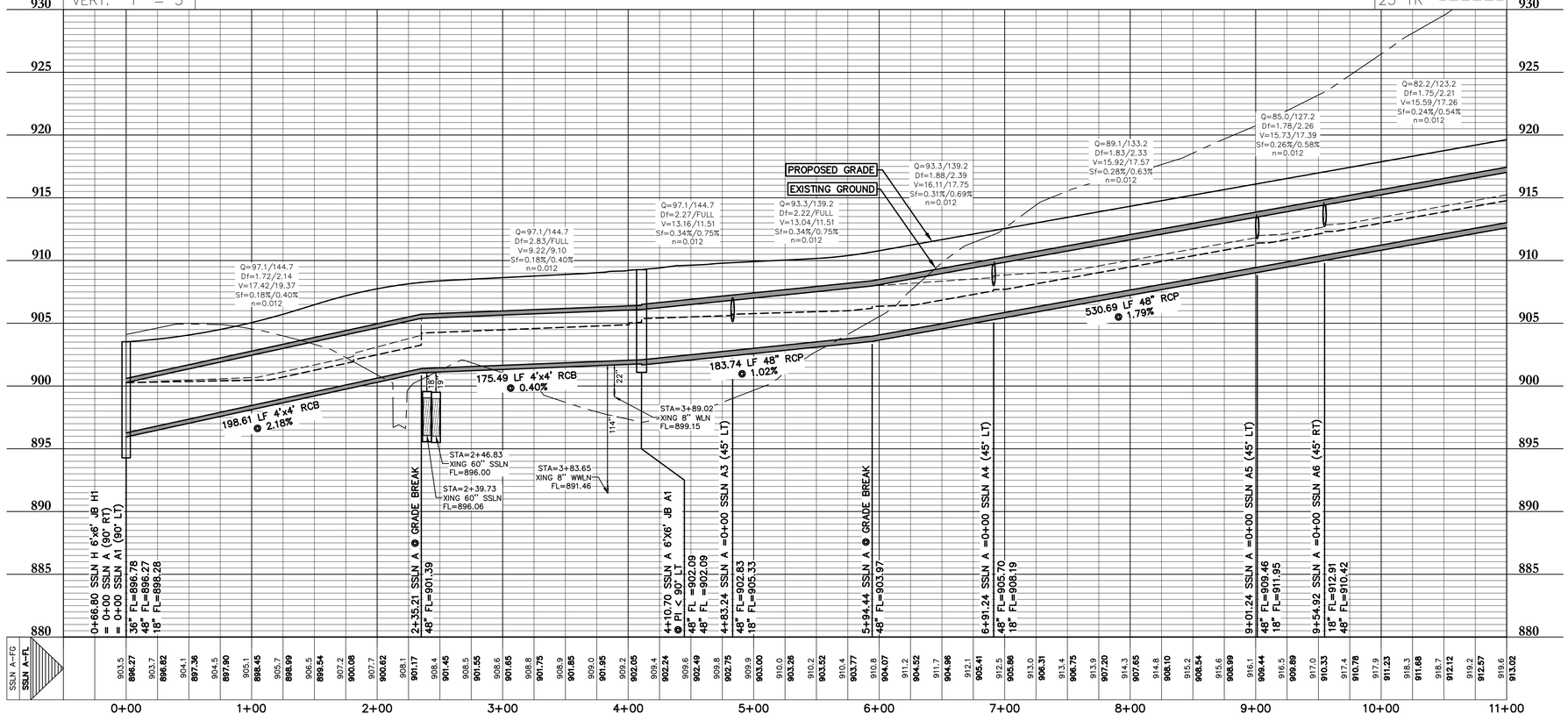
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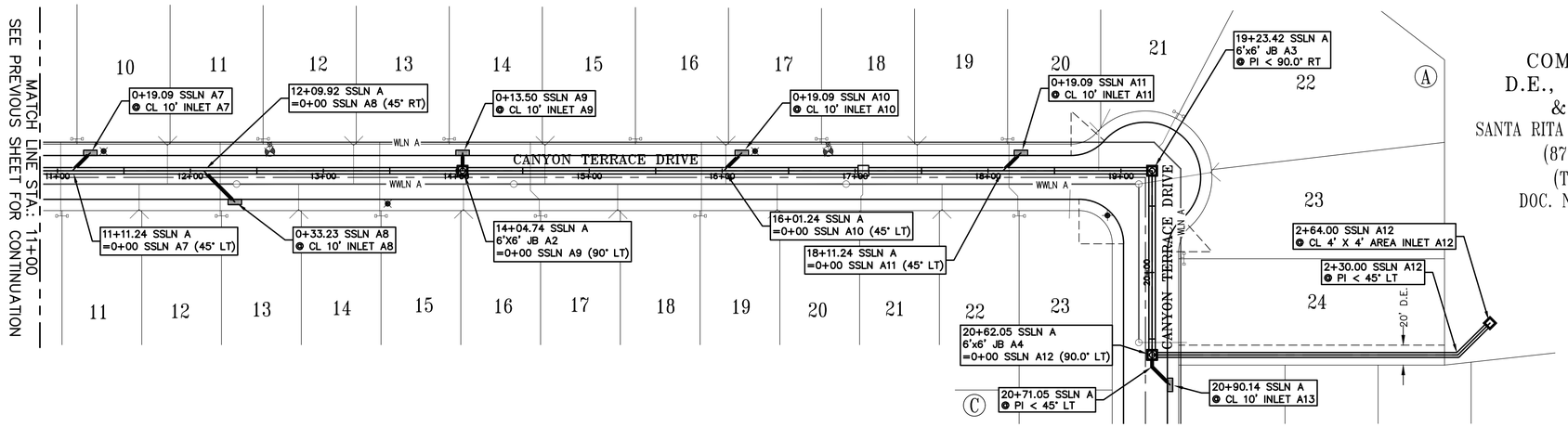
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SSLN A

PROFILE SCALE
HORIZ. 1" = 50'
VERT. 1" = 5'



| | | |



56
COMMERCIAL,
D.E., O.S., L.S.E.
& P.U.E.
SANTA RITA INVESTMENTS, LTD
(87.066 ACRES)
(TRACT TWO)
DOC. NO. 2021148213

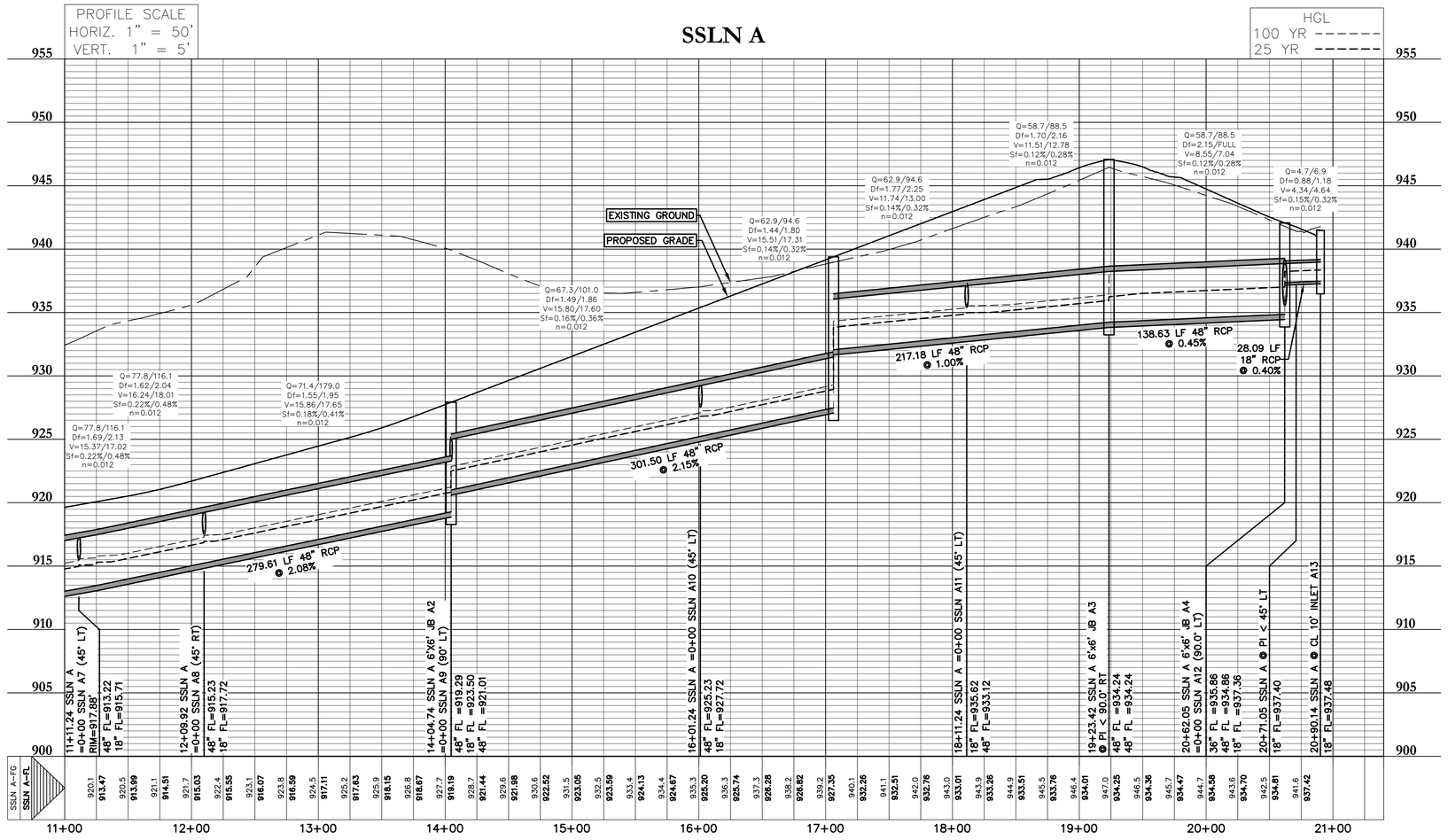
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SSLN A



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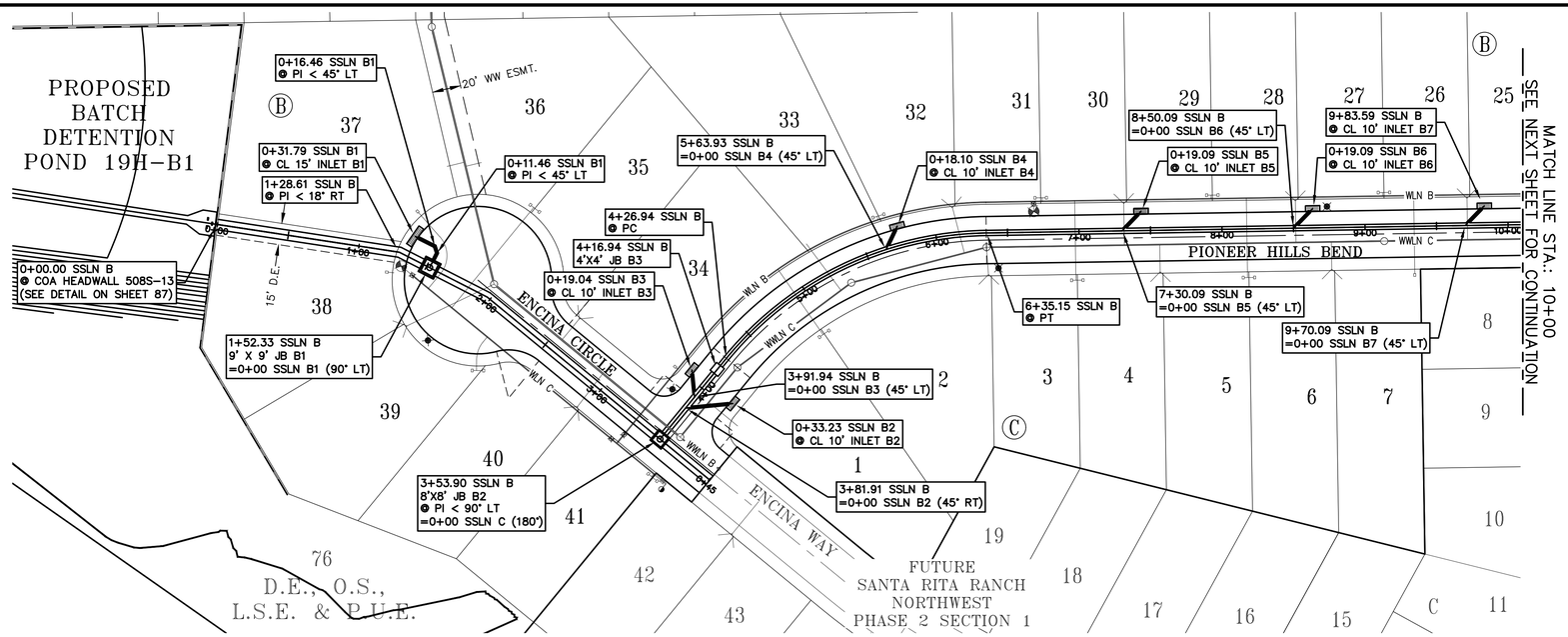
DESIGNED BY: SPC
DRAFTED BY: CL
DATE
REVISION

SHEET NAME: STORMSEWER LINE A (11+00 TO END)
JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1
PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED PROFESSIONAL ENGINEER
CARLSON, BRIGANCE & DOERING, INC.
ID# F3791
6-9-2025

DATE: MAY 2025
JOB NUMBER: 5665
SHEET: 65 OF 103
SHEET NO.: 65

FILE PATH: J:\ACD\5665\dwg\5665-STORM.dwg - Jun 10, 2025 - 5:18pm



SCALE: 1" = 50'

THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR WILL AGREE TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE INCURRED BY THEIR FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES, STRUCTURES OR FACILITIES. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES 24 – HOURS PRIOR TO COMMENCING CONSTRUCTION.

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SSLN B

PROFILE SCALE
HORIZ. 1" = 50'
VERT. 1" = 5'

HGL
100 YR ------
25 YR ------

PROPOSED GRADE
EXISTING GROUND

Q=50.8/72.8
Df=1.49/1.86
V=14.54/15.82
Sf=0.43%/0.88%
n=0.012

Q=55.1/79.1
Df=1.31/1.66
V=13.62/14.77
Sf=0.55%/1.14%
n=0.012

Q=59.3/85.2
Df=1.63/2.08
V=15.11/16.31
Sf=0.58%/1.20%
n=0.012

Q=63.8/92.3
Df=1.71/2.21
V=15.37/16.51
Sf=0.67%/1.41%
n=0.012

Q=66.7/96.5
Df=1.75/2.20
V=13.87/15.11
Sf=0.32%/0.68%
n=0.012

Q=71.2/103.0
Df=1.82/2.31
V=14.10/15.31
Sf=0.37%/0.77%
n=0.012

Q=63.8/92.3
Df=1.70/2.14
V=13.72/14.97
Sf=0.03%/0.62%
n=0.012

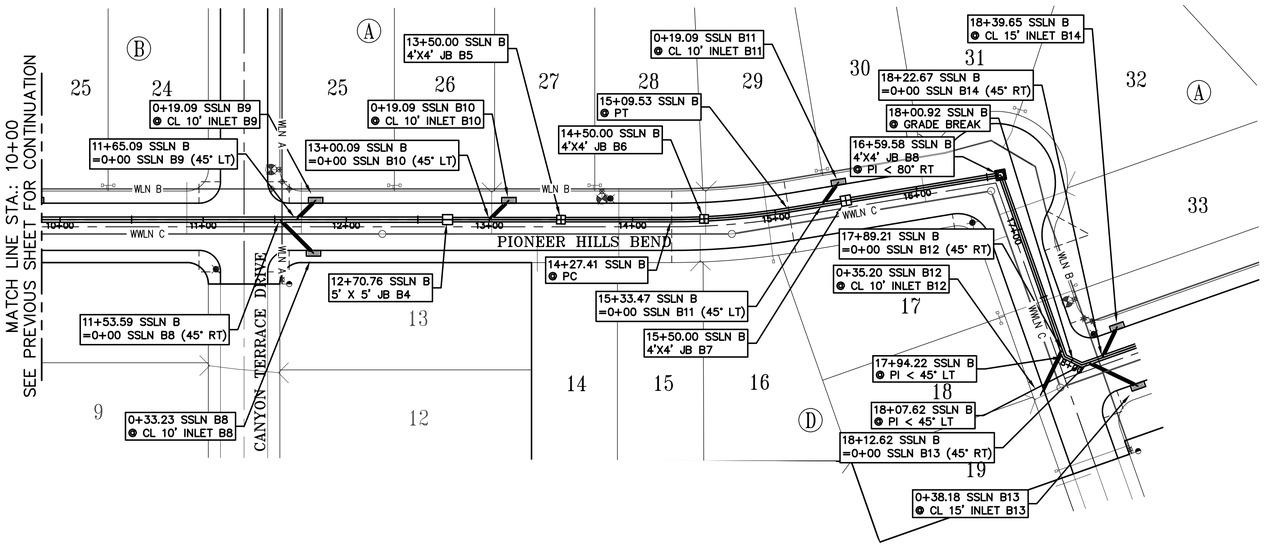
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Df=2.22/2.59
V=15.76/16.67
Sf=0.38%/0.40%
n=0.012

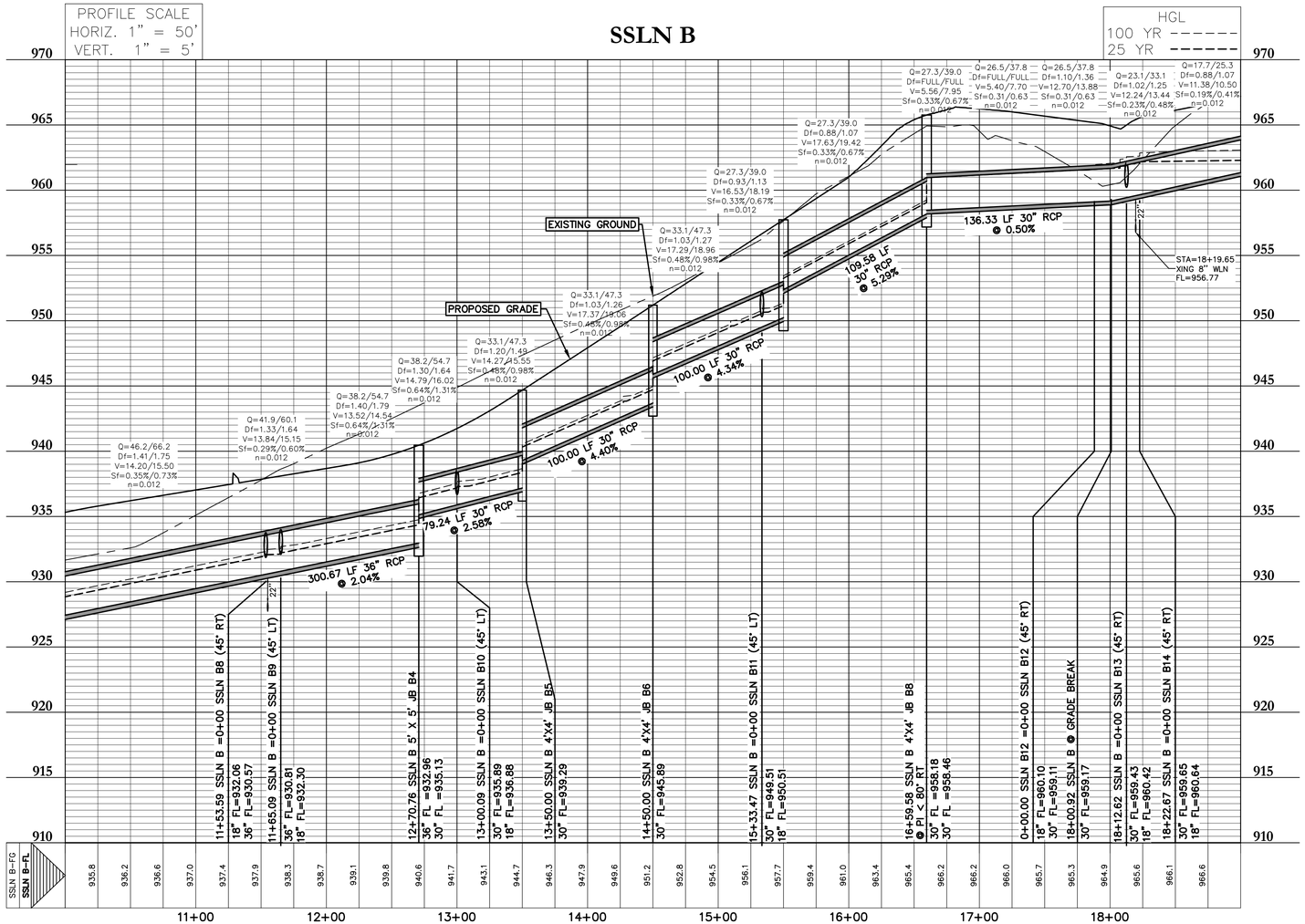
Q=215.6/264.5
Df=2.49/2.90
V=14.43/15.21
Sf=0.38%/0.41%
n=0.012

152.33 LF 6'x3' RCB @ 0.90%
201.57 LF 6'x3' RCB @ 1.17%
63.04 LF 42" RCP @ 1.50%
94.94 LF 36" RCP @ 2.04%
843.82 LF 36" RCP @ 2.04%
STA=3+32.40 XING 8" WLN FL=910.76
STA=3+63.90 XING 12" WWLN FL=910.70

	0+00.00 SSLN B @ COA HEADWALL 508S-13 (SEE DETAIL ON SHEET 87)	1+52.33 SSLN B 9' X 9' JB B1 =0+00 SSLN B1 (90° LT)	3+53.90 SSLN B 8'X8' JB B2 @ PI < 90° LT =0+00 SSLN C (180°)	3+81.91 SSLN B =0+00 SSLN B2 (45° RT)	3+91.94 SSLN B =0+00 SSLN B3 (45° LT)	5+63.93 SSLN B =0+00 SSLN B4 (45° LT)	7+30.09 SSLN B =0+00 SSLN B5 (45° LT)	8+50.09 SSLN B =0+00 SSLN B6 (45° LT)	9+70.09 SSLN B =0+00 SSLN B7 (45° LT)
	72" FL=902.00	72" FL=911.73 18" FL=913.95	72" FL =914.09 42" FL =914.09 72" FL =914.80	42" FL=914.51 18" FL=916.87	42" FL=914.66 18" FL=917.02	36" FL=918.54 18" FL=920.04	36" FL=921.93 18" FL=923.43	36" FL=924.38 18" FL=925.87	18" FL=928.32 36" FL=926.83
SSLN B-FG	958.36	961.25	961.37	961.41	961.43	961.58	961.73	961.83	961.91
SSLN B-FL	959.06	961.27	961.39	961.46	961.45	961.60	961.75	961.85	961.94

| | | |







0 50' 100'

SCALE: 1" = 50'

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DESIGNED BY: SPC | DRAFTED BY: CL

DATE | REVISION

Carlson, Brigance & Doering, Inc.
Civil Engineering ◆ Surveying
FIRM ID #F3791
Main Office
5501 West William Cannon Dr. 78749
Austin, Texas 78735
Phone No. (512) 280-5160 Fax No. (512) 280-5165
North Office
12129 RR 620 N, Suite 600
Austin, Texas 78750

SHEET NAME: STORMSEWER LINE B (10+00 TO 18+50)

JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1

PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED PROFESSIONAL ENGINEER
CARLSON, BRIGANCE & DOERING, INC.
ID# F3791

6-9-2025

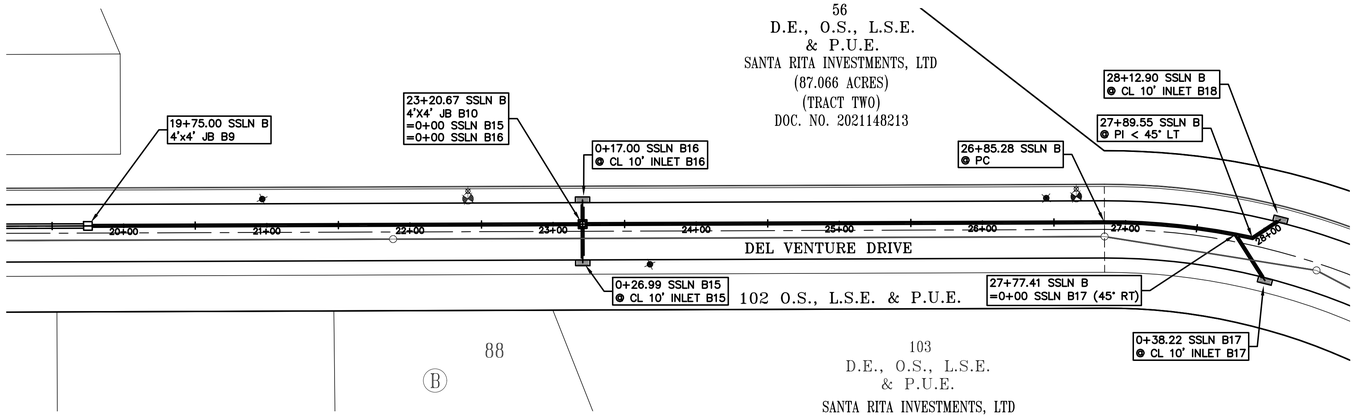
DATE: MAY 2025

JOB NUMBER: 5665

SHEET: 67 OF 103

SHEET NO.: 67

FILE PATH: J:\AC3D\5665\dwg\5665-ST01RM.dwg - Jun 10, 2025 - 5:57pm



PROFILE SCALE
HORIZ. 1" = 50'
VERT. 1" = 5'

0 50' 100'

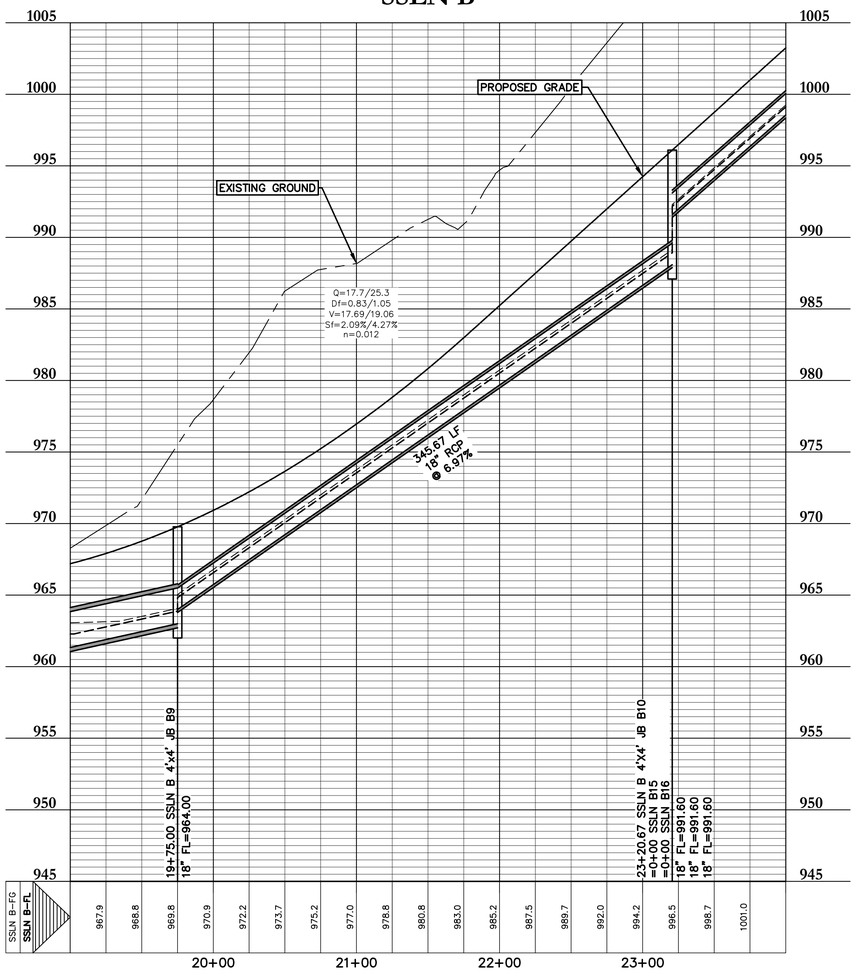
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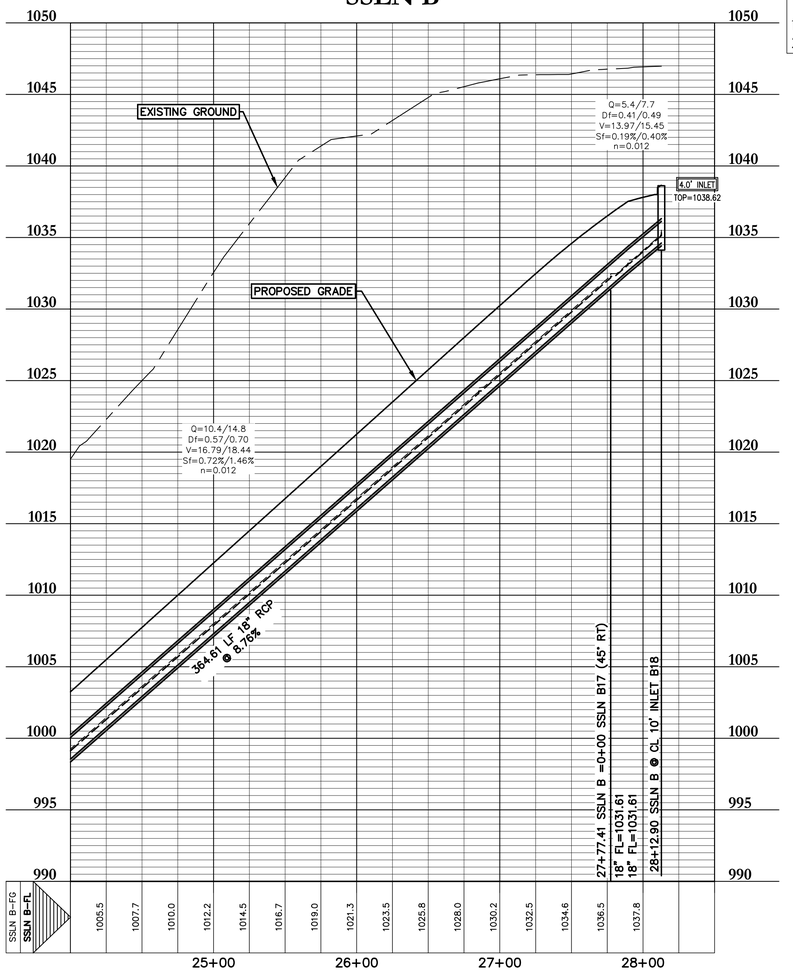
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SSLN B



SSLN B



DESIGNED BY: SPC
DRAFTED BY: CL

DATE

REVISION

Carlson, Brigance & Doering, Inc.
Civil Engineering ◆ Surveying
FIRM ID #F3791
Main Office
5501 West William Cannon Dr. 78749
Austin, Texas 78759
Phone No. (512) 280-5160
North Office
12129 RR 620 N. #300, 600
Austin, Texas 78750
Fax No. (512) 280-5165

SHEET NAME: STORMSEWER LINE B (18+50 TO END)

JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1

PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
93648
PROFESSIONAL ENGINEER
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ID# F3791

6-9-2025

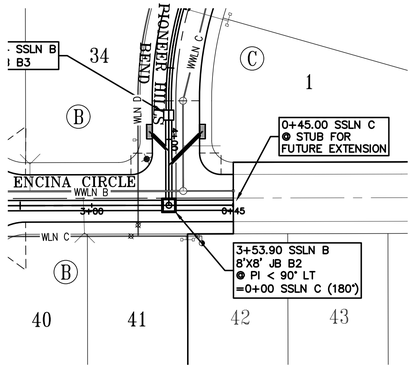
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MAY 2025

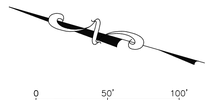
JOB NUMBER
5665

SHEET
68 OF 103

SHEET NO.
68

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SCALE: 1" = 50'

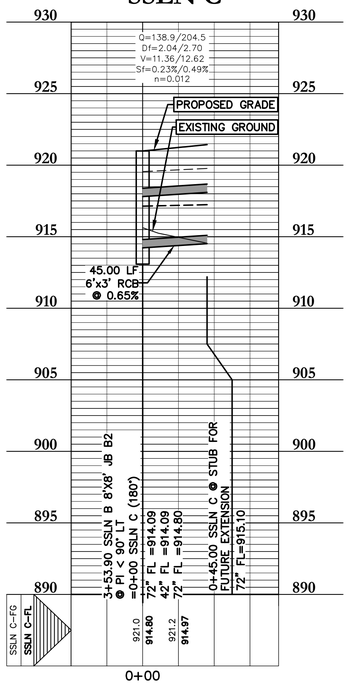
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PROFILE SCALE	HGL
HORIZ. 1" = 50'	100 YR ------
VERT. 1" = 5'	25 YR ------

SSLN C



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Civil Engineering ◆ Surveying
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North Office
12129 RR 620 N, Suite 600
Austin, Texas 78750
Fax No. (512) 280-5165

DESIGNED BY:	DRAFTED BY:
SPC	CL

DATE	REVISION

SHEET NAME: STORMSEWER LINE C (0+00 TO END)

JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1

PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED
PROFESSIONAL ENGINEER

CARLSON, BRIGANCE & DOERING, INC.
ID# F3791

6-9-2025

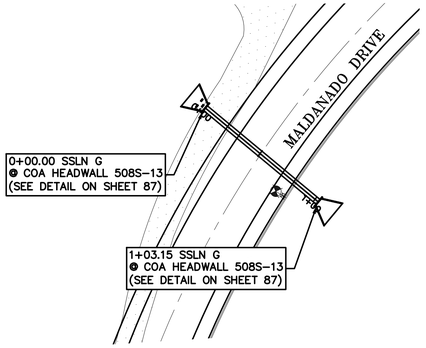
DATE
MAY 2025

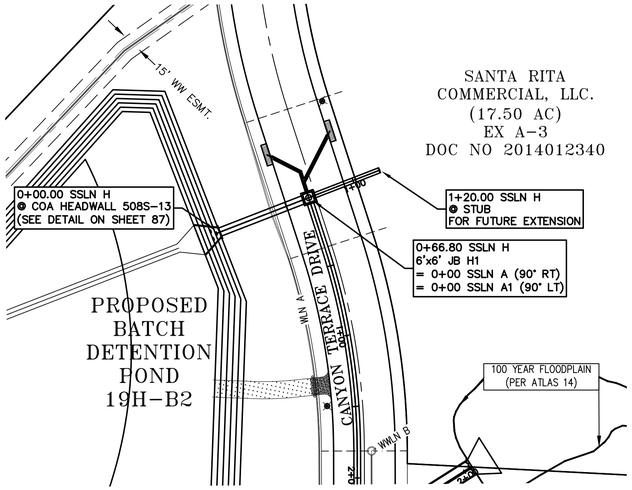
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5665

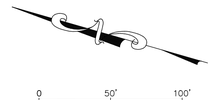
SHEET
69 OF 103

SHEET NO.
69

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SCALE: 1" = 50'

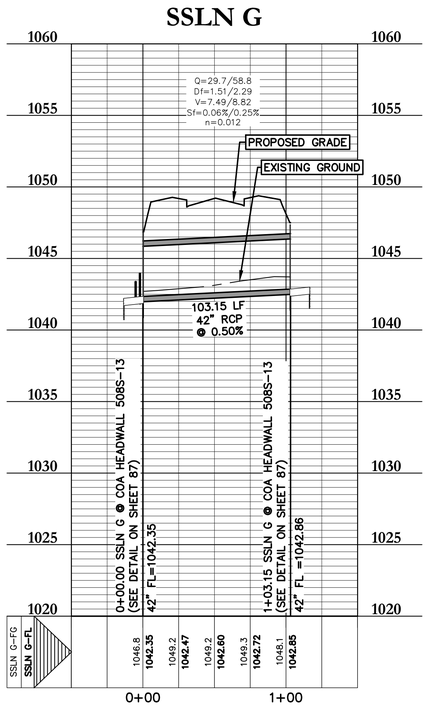
THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR WILL AGREE TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE INCURRED BY THEIR FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES, STRUCTURES OR FACILITIES. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES 24 – HOURS PRIOR TO COMMENCING CONSTRUCTION.

NOTES:

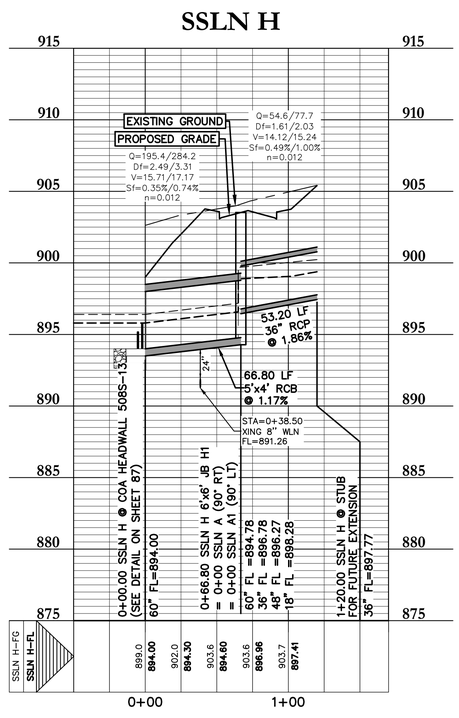
1. THE DESIGN INTENT OF THESE PLANS IS FOR ALL CONNECTIONS, BENDS, AND REDUCTIONS TO BE MADE WITH PRE-CAST FITTINGS MANUFACTURED IN ACCORDANCE WITH ASTM C-76, CLASS 3 REQUIREMENTS. IF THE CONTRACTOR ELECTS TO USE ALTERNATE CONNECTION METHODS THEN A SUBMITTAL SHALL BE APPROVED BY THE ENGINEER AND WILLIAMSON COUNTY PRIOR TO COMMENCING PIPE LAYING OPERATIONS.
2. WHERE STORM DRAINAGE IS SHOWN TO BE INSTALLED ON A CURVE THE CONTRACTOR SHALL SUBMIT A LAYING SCHEDULE DEMONSTRATING ANTICIPATED JOINT SEPARATIONS USING 8' JOINTS, A COMBINATION OF 8' AND 4' JOINTS, OR LONG RADIUS PIPE TO ACHIEVE THE NECESSARY RADIUS WITHOUT EXCESSIVE JOINT SEPARATION. PROPOSED INSTALLATION METHOD SHALL BE APPROVED BY THE ENGINEER AND WILLIAMSON COUNTY PRIOR TO COMMENCING PIPE LAYING OPERATIONS.

PROFILE SCALE	HGL
HORIZ. 1" = 50'	100 YR -------
VERT. 1" = 5'	25 YR -------

SSLN G



SSLN H



Carlson, Brigance & Doering, Inc.
Civil Engineering ◆ Surveying
FIRM ID #F3791
Main Office
5501 West William Cannon Dr. 78749 (78735 for UPS) Suite 600
Austin, Texas 78749
Phone No. (512) 280-5160 Fax No. (512) 280-5165
North Office
12129 RR 620 N. Suite 600
Austin, Texas 78750

DESIGNED BY:	DRAFTED BY:
SPC	CL

DATE	REVISION

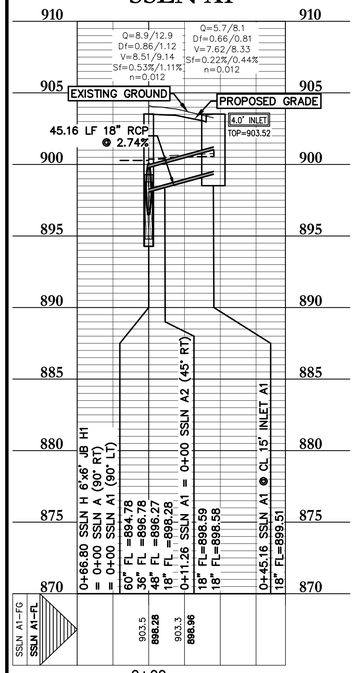
SHEET NAME: STORMSEWER LINE G AND H (0+00 TO END)
JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1
PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED PROFESSIONAL ENGINEER
CARLSON, BRIGANCE & DOERING, INC.
ID# F3791
6-9-2025

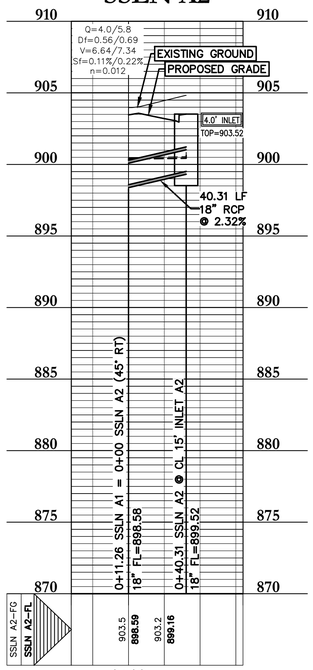
DATE: MAY 2025
JOB NUMBER: 5665
SHEET: 70 OF 103
SHEET NO.: 70

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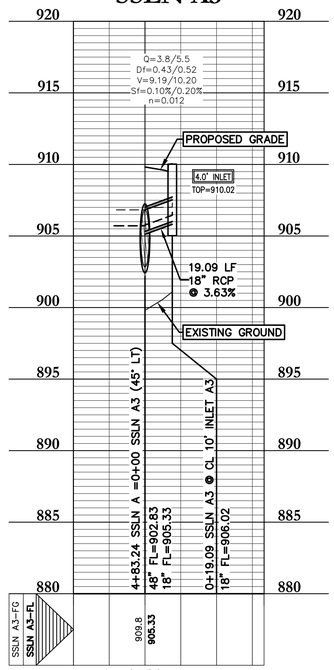
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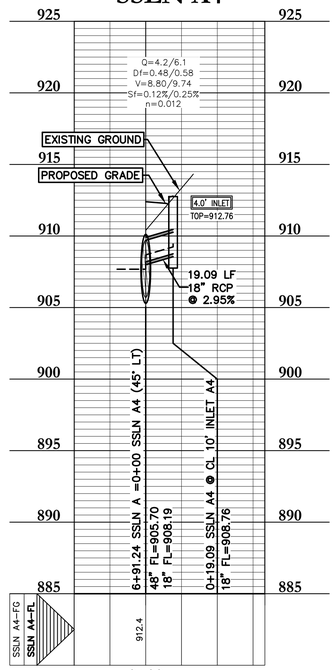
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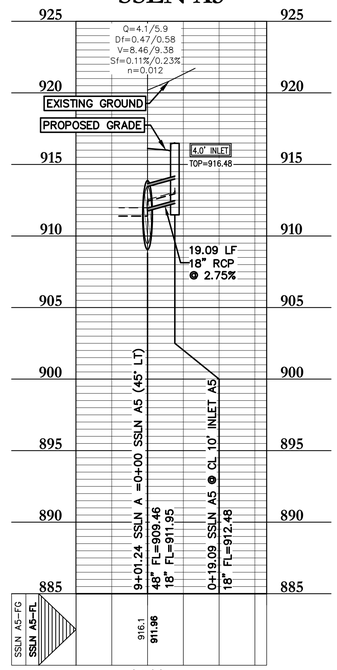
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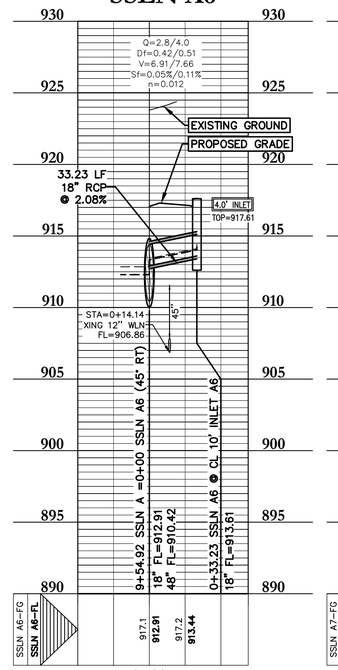
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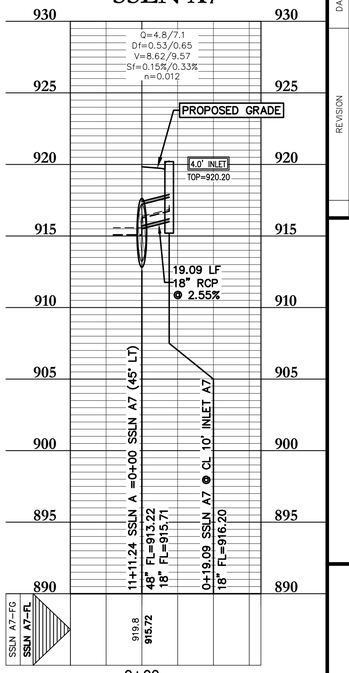
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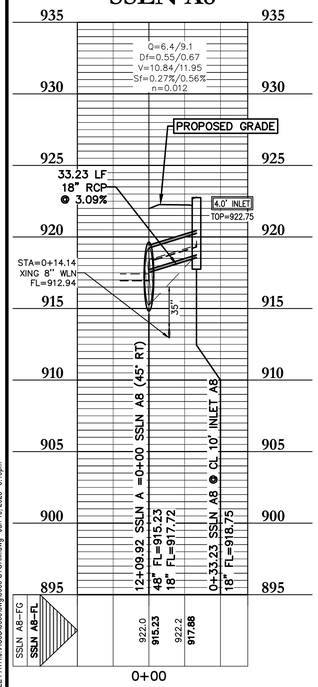
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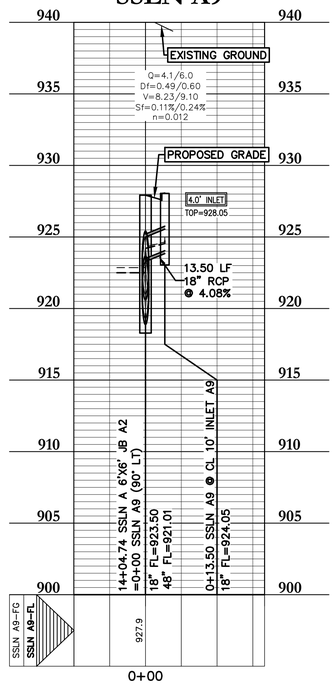
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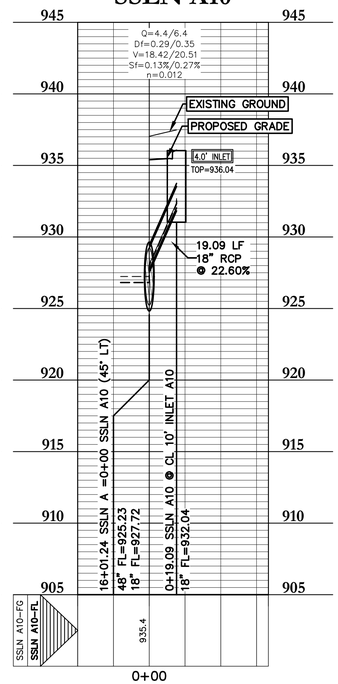
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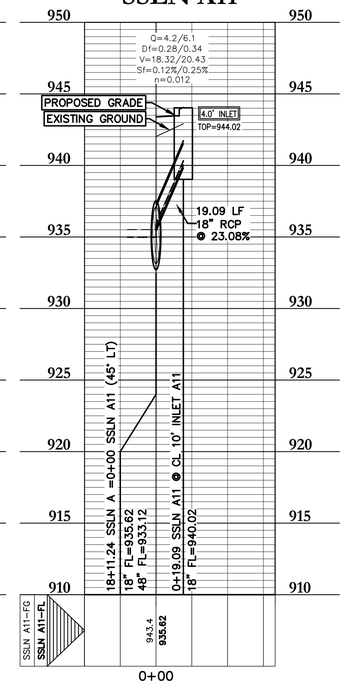
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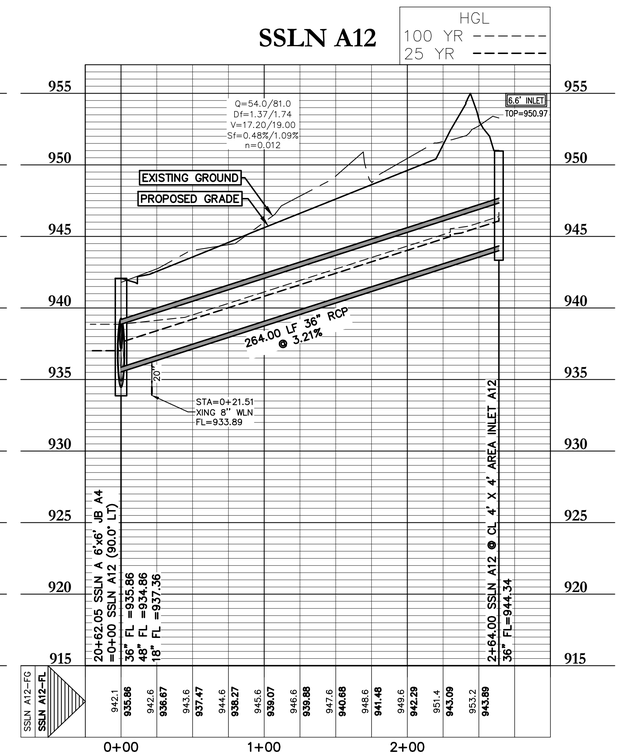
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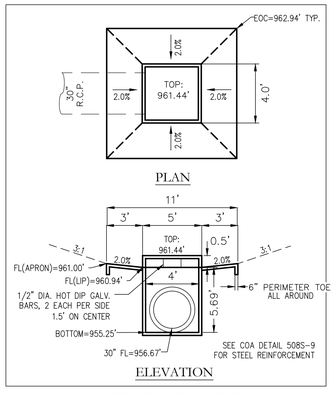


SSLN A11



SSLN A12





4'x4' AREA INLET "A2" DETAIL
N.T.S.

$Q = C\ L\ H^{3/2}$
$Q = 48.7$ cfs
$L = 16'$
$C = 3.0'$
$H = 1.01'$

$Q = Co\ A\sqrt{2gh}$
$Q = 48.7$ cfs
$Co = 0.6$
$A = 4.91$ sq.ft.
$H = 5.49'$

DESIGNED BY: SPC
DRAFTED BY: CL

DATE
REVISION

Carlson, Brigance & Doering, Inc.
Civil Engineering ◆ Surveying
FIRM ID #F3791
Main Office: 5501 West William Cannon Dr. Austin, Texas 78749
North Office: 12129 RR 620 N. #300, Austin, Texas 78750
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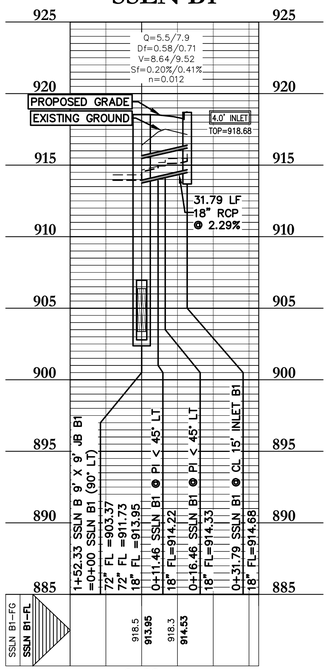
SHEET NAME: STORMSEWER LATERALS (1 OF 3)
JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1
PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. GATES
93648
LICENSED PROFESSIONAL ENGINEER
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ID# F3791
6-9-2025

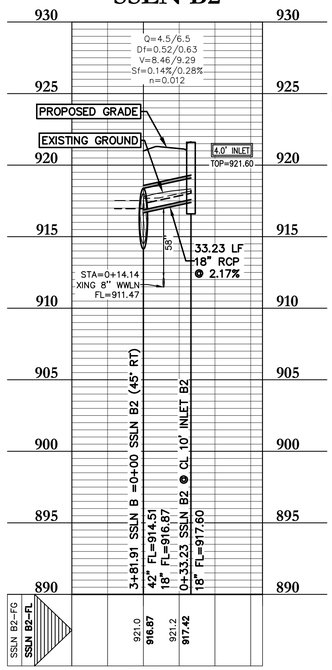
DATE: MAY 2025
JOB NUMBER: 5665
SHEET: 71 OF 103
SHEET NO.: 71

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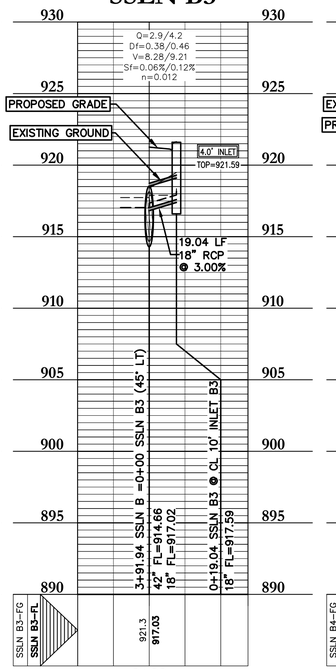
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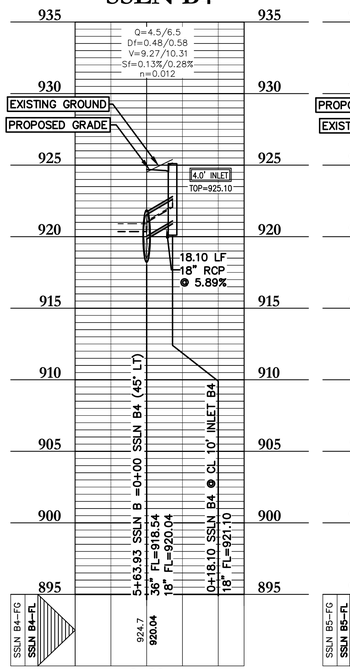
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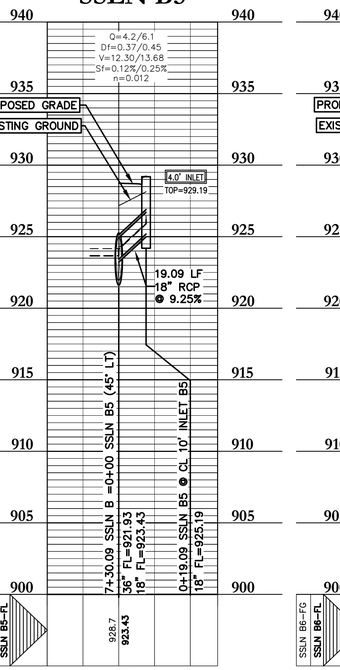
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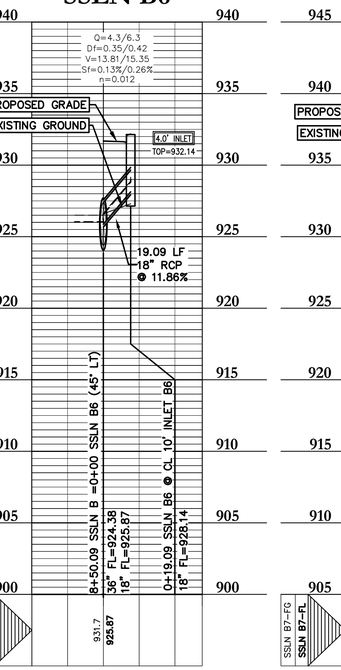
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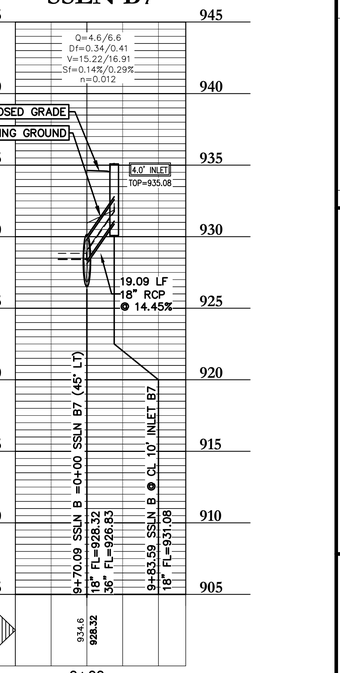
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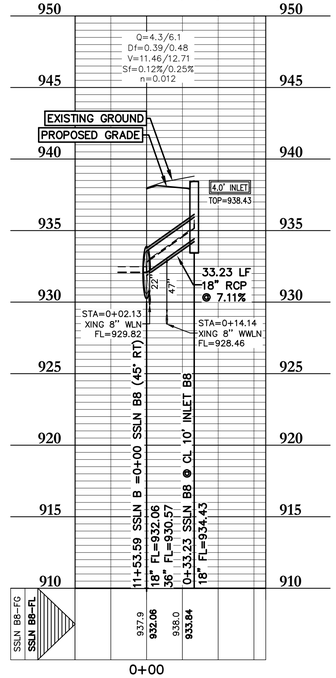
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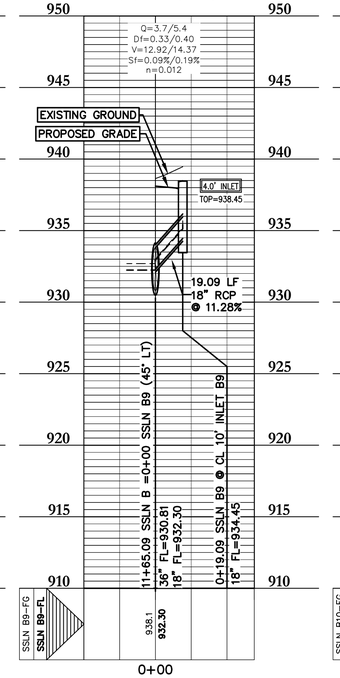
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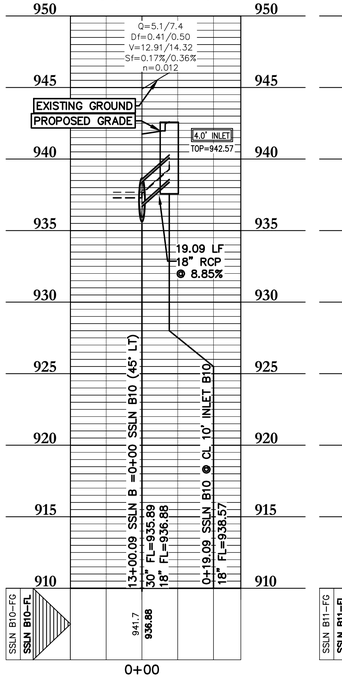
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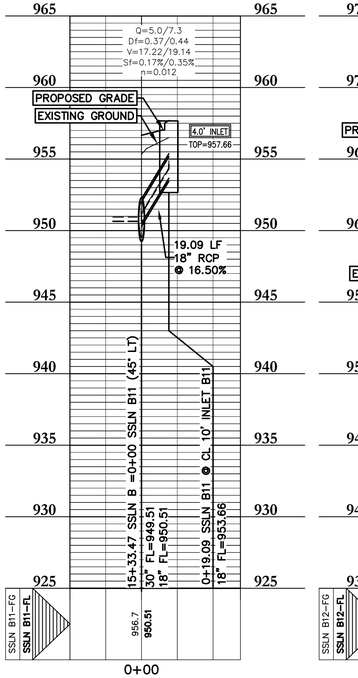
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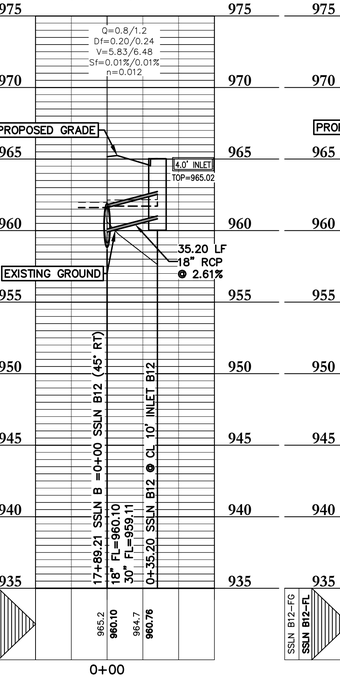
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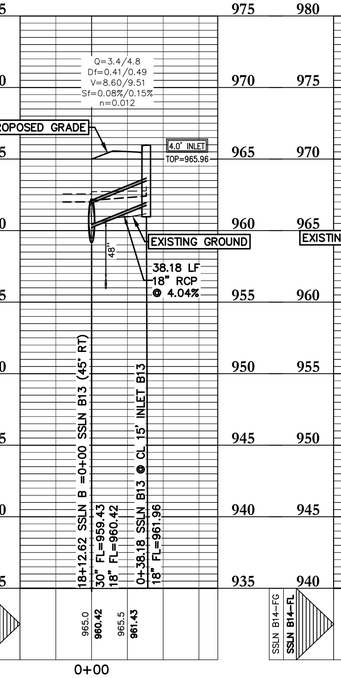
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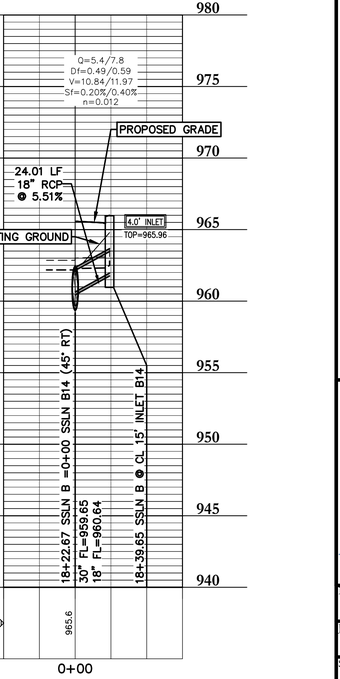
SSLN B12



SSLN B13



SSLN B14



HGL
100 YR
25 YR

DESIGNED BY:	DRAFTED BY:
SPC	CL

DATE

REVISION

Carlson, Brigance & Doering, Inc.
Civil Engineering ◆ Surveying
FIRM ID #F3791
Main Office
5501 West William Cannon Dr. (512) 280-5160
Austin, Texas 78749
Phone No. (512) 280-5160

North Office
1120 RR 620 S, Suite 600
Austin, Texas 78750
Fax No. (512) 280-5165

SHEET NAME: STORMSEWER LATERALS (2 OF 3)

JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1

PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. GATES
93648
LICENSED
PROFESSIONAL ENGINEER
CARLSON, BRIGANCE & DOERING, INC.
@ F3791

6-9-2025

DATE: MAY 2025

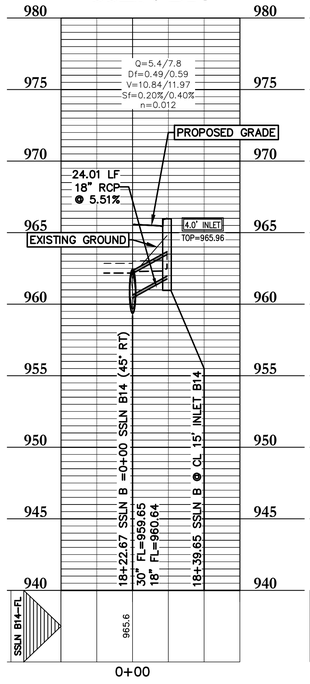
JOB NUMBER: 5665

SHEET: 72 OF 103

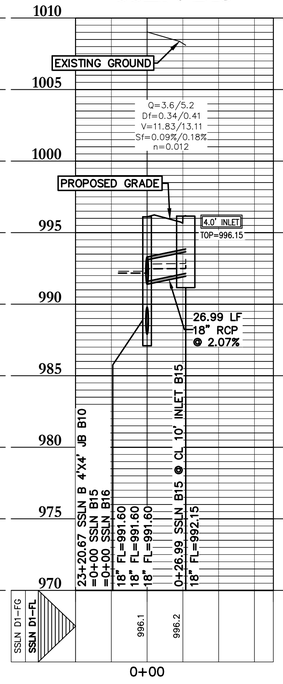
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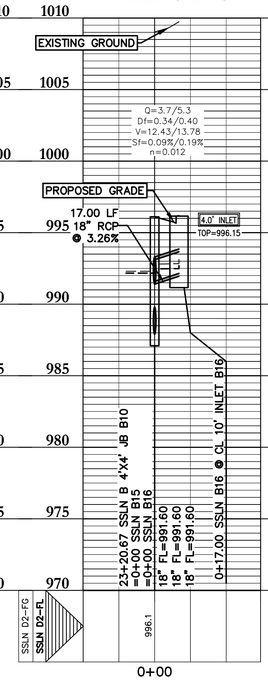
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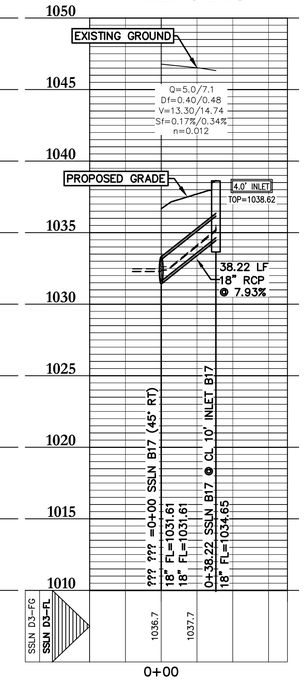
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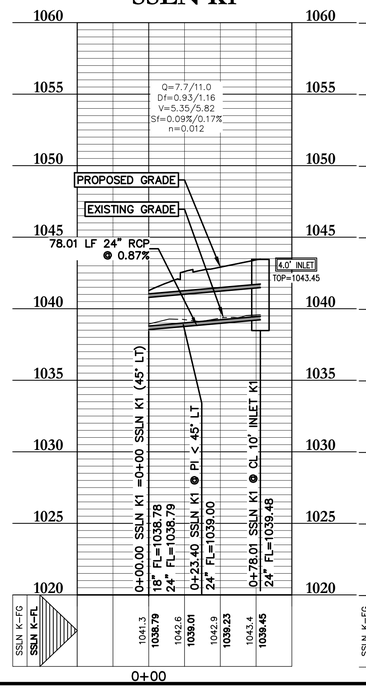


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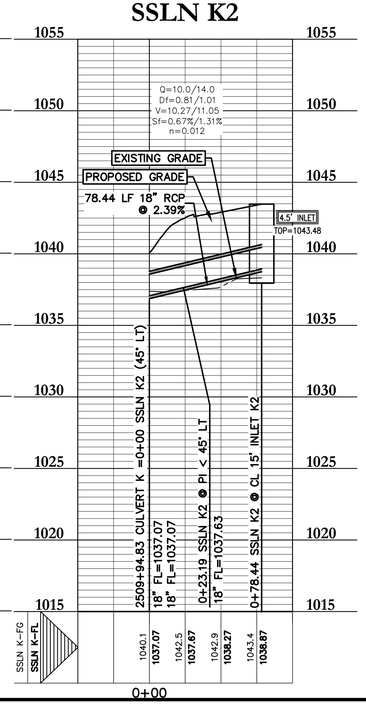


HGL
100 YR ------
25 YR ------

SSLN K1



SSLN K2



FILE PATH: J:\ACD\5665\dwg\5665-STORM.dwg - Jun 10, 2025 - 5:20pm

DESIGNED BY: SPC
DRAFTED BY: CL

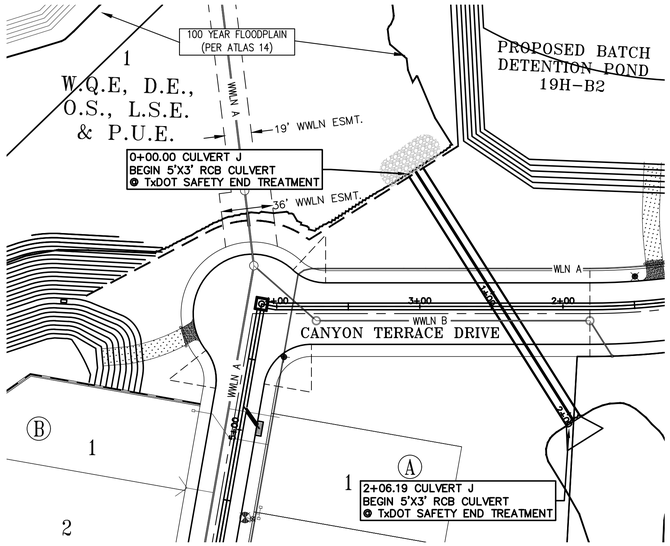
DATE
REVISION

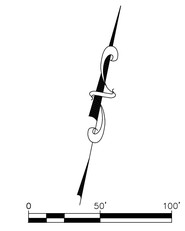
Carlson, Brigance & Doering, Inc.
Civil Engineering ◆ Surveying
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Main Office
5501 West William Cannon Dr.
Austin, Texas 78749
Phone No. (512) 280-5160
North Office
Suite 600
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SHEET NAME: STORMSEWER LATERALS (3 OF 3)
JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1
PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED
PROFESSIONAL ENGINEER
CARLSON, BRIGANCE & DOERING, INC.
ID# F3791
6-9-2025

DATE: MAY 2025
JOB NUMBER: 5665
SHEET: 73 OF 103
SHEET NO.: 73

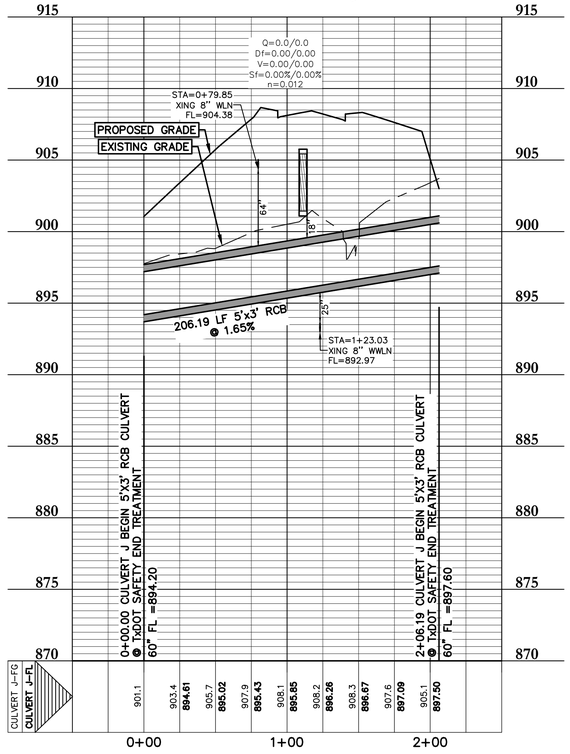




SCALE: 1" = 50'

PROFILE SCALE
HORIZ. 1" = 50'
VERT. 1" = 5'

CULVERT J



THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR WILL AGREE TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE INCURRED BY THEIR FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES, STRUCTURES OR FACILITIES. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES 24 – HOURS PRIOR TO COMMENCING CONSTRUCTION.

NOTES:

1. THE DESIGN INTENT OF THESE PLANS IS FOR ALL CONNECTIONS, BENDS, AND REDUCTIONS TO BE MADE WITH PRE-CAST FITTINGS MANUFACTURED IN ACCORDANCE WITH ASTM C-76, CLASS 3 REQUIREMENTS. IF THE CONTRACTOR ELECTS TO USE ALTERNATE CONNECTION METHODS THEN A SUBMITTAL SHALL BE APPROVED BY THE ENGINEER AND WILLIAMSON COUNTY PRIOR TO COMMENCING PIPE LAYING OPERATIONS.
2. WHERE STORM DRAINAGE IS SHOWN TO BE INSTALLED ON A CURVE THE CONTRACTOR SHALL SUBMIT A LAYING SCHEDULE DEMONSTRATING ANTICIPATED JOINT SEPARATIONS USING 8' JOINTS, A COMBINATION OF 8' AND 4' JOINTS, OR LONG RADIUS PIPE TO ACHIEVE THE NECESSARY RADIUS WITHOUT EXCESSIVE JOINT SEPARATION. PROPOSED INSTALLATION METHOD SHALL BE APPROVED BY THE ENGINEER AND WILLIAMSON COUNTY PRIOR TO COMMENCING PIPE LAYING OPERATIONS.

DESIGNED BY: SPC
DRAFTED BY: CL
DATE
REVISION

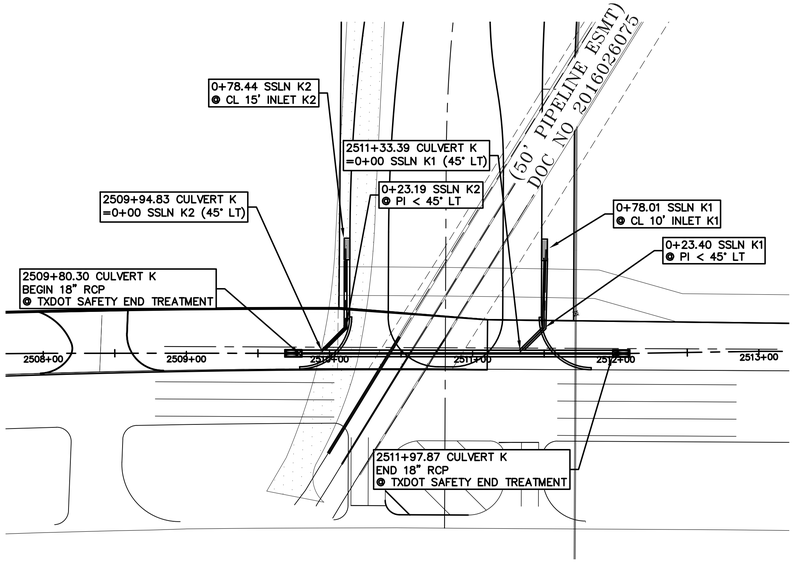
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Phone No. (512) 280-5160
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12129 RR 620 N. Ste. 600
Austin, Texas 78750
Fax No. (512) 280-5165

SHEET NAME: STORMSEWER CULVERT J
JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1
PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
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CARLSON, BRIGANCE & DOERING, INC.
ID# F3791
6-9-2025

DATE: MAY 2025
JOB NUMBER: 5665
SHEET: 74 OF 103
SHEET NO.: 74

FILE PATH:J:\AC3D\5665\dwg\5665-STORM.dwg - Jun 10, 2025 - 5:20pm





0 50' 100'

SCALE: 1" = 50'

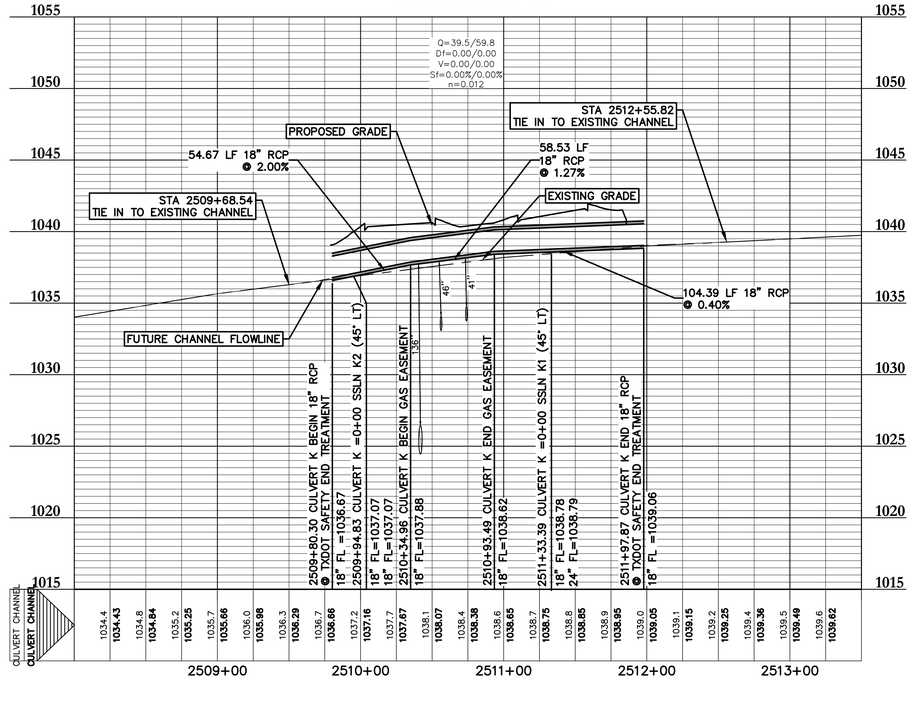
THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR WILL AGREE TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE INCURRED BY THEIR FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES, STRUCTURES OR FACILITIES. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES 24 – HOURS PRIOR TO COMMENCING CONSTRUCTION.

NOTES:

1. THE DESIGN INTENT OF THESE PLANS IS FOR ALL CONNECTIONS, BENDS, AND REDUCTIONS TO BE MADE WITH PRE–CAST FITTINGS MANUFACTURED IN ACCORDANCE WITH ASTM C–76, CLASS 3 REQUIREMENTS. IF THE CONTRACTOR ELECTS TO USE ALTERNATE CONNECTION METHODS THEN A SUBMITTAL SHALL BE APPROVED BY THE ENGINEER AND WILLIAMSON COUNTY PRIOR TO COMMENCING PIPE LAYING OPERATIONS.
2. WHERE STORM DRAINAGE IS SHOWN TO BE INSTALLED ON A CURVE THE CONTRACTOR SHALL SUBMIT A LAYING SCHEDULE DEMONSTRATING ANTICIPATED JOINT SEPARATIONS USING 8' JOINTS, A COMBINATION OF 8' AND 4' JOINTS, OR LONG RADIUS PIPE TO ACHIEVE THE NECESSARY RADIUS WITHOUT EXCESSIVE JOINT SEPARATION. PROPOSED INSTALLATION METHOD SHALL BE APPROVED BY THE ENGINEER AND WILLIAMSON COUNTY PRIOR TO COMMENCING PIPE LAYING OPERATIONS.

PROFILE SCALE
HORIZ. 1" = 50'
VERT. 1" = 5'

CULVERT K



Carlson, Brigance & Doering, Inc.
Civil Engineering ◆ Surveying
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Main Office
5501 West William Cannon Dr. 78749
Austin, Texas
Phone No. (512) 280-5160
North Office
12129 RR 620 N. Ste. 600
Austin, Texas 78750
Fax No. (512) 280-5165

DESIGNED BY: SPC
DRAFTED BY: CL
DATE
REVISION

SHEET NAME: STORMSEWER CULVERT K
JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1
PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED PROFESSIONAL ENGINEER
CARLSON, BRIGANCE & DOERING, INC.
ID# F3791
6-9-2025

DATE: MAY 2025
JOB NUMBER: 5665
SHEET: 75 OF 103
SHEET NO.: 75

FILE PATH:J:\AC\D\5665\dwg\5665-STORM.dwg - Jun 10, 2025 - 5:21pm

Curve Table					
Curve #	Radius	Tangent	Delta	Chord	Arc Length
C1	261.50'	121.13'	049°42'25"	219.82'	226.86'

THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR WILL AGREE TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE INCURRED BY THEIR FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES, STRUCTURES OR FACILITIES. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES 24 – HOURS PRIOR TO COMMENCING CONSTRUCTION.

76
W.Q.E, D.E.,
O.S., L.S.E. &
P.U.E.

PROPOSED
BATCH
DENTENTION
POND 19H–B2

1
OS,LSE,PUE,
DE & WQ

100 YEAR FLOODPLAIN
(PER ATLAS 14)

8+89.97 8" WLN A
DEFLECT JOINT 1° (HORZ)

8+94.97 8" WLN A
DEFLECT JOINT 1° (HORZ)

8+99.97 8" WLN A
@ 11.25° BEND LT (HORZ)

9+04.97 8" WLN A
@ 22.5° BEND LT (HORZ)

9+09.97 8" WLN A
@ 45° BEND LT (HORZ)

4+68.75 8" WLN A
@ PT

7+05.05 8" WLN A
@ PT

5+68.75 8" WLN A
@ PC

0.069 AC. WLN ESMT
DOC#_____

5'X3' RCB CULVERT

CANYON TERRACE DRIVE

WWLN B

15.0' WW ESMT
PER PLAT

25'x12' BORE PIT

3+03.34 8" WLN A
@ PC

0+00.00 8" WLN A
FIELD LOCATE, VERIFY DEPTH,
AND CONNECT TO
EXISTING 24" DI WLN
± 10' OFF R.O.W.
1–24"x8" TAPPING SLEEVE
1–8" GV W/BOX

0+20.49 8" WLN A
END ENCASEMENT

12'x12' RECEIVING PIT

522.00 LF 18"x 0.250" WALL STEEL
CASING COMPLETE WITH INSULATORS AT 5'
CENTERS AND NEOPRENE

WATER ESMT.
(0.8110 ACRES)
DOC. NO.
2024048360

100 YEAR FLOODPLAIN
(PER ATLAS 14)

15.0' WW ESMT
PER PLAT

10+83.77 8" WLN A
1–8"x6" TEE
1–6" GV W/ BOX
1–5 1/4" FIRE HYDRANT
7.0 LF FIRE LEAD

100–117
psi

0.342 AC. WLN ESMT
DOC#_____

0.623 AC. WLN ESMT
DOC#_____

0.342 AC. WLN ESMT
DOC#_____

PROPOSED
BATCH
DETENTION
POND 19H–B1

104
D.E., O.S.,
L.S.E. &
P.U.E.

0+00.00 8" WLN B
1–8"x6" TEE
1–6" GV W/ BOX
1–5 1/4" FIRE HYDRANT
10.0 LF FIRE LEAD

1+85.02 8" WLN B
=0+00.00 WLN C
1–8"x8" TEE
2–8" GV W/ BOX

2+29.51 8" WLN B
1–AUTOMATIC FLUSH VALVE
1–8" PLUG
INSTALL 8" GV W/ BOX

0+94.54 8" WLN C
@ PC

ENGINA CIRCLE

ENGINA WAY

PIONEER HILLS BEND CT

SSLN A

SSLN B

SSLN C

WWLN A

WWLN C

20' WW ESMT

0.059 AC. WLN ESMT
DOC#_____

17+83.77 8" WLN A
1–8"x6" TEE
1–6" GV W/ BOX
1–5 1/4" FIRE HYDRANT
7.0 LF FIRE LEAD

SANTA RITA
COMMERCIAL, LLC.
(17.50 AC)
EX A–3
DOC NO
2014012340

CITY OF LIBERTY HILL
(0.93 ACRES)
DOC. NO. 2024005960

CITY OF LIBERTY HILL
(0.92 ACRES)
DOC. NO. 2024005959

S82°20'56"W
15.08'

RONALD REAGAN BLVD

MATCH LINE
SEE NEXT SHEET FOR CONTINUATION

WATER LEGEND

- S PROPOSED DOUBLE SERVICE
- D PROPOSED DOUBLE SERVICE
- PROPOSED FIRE HYDRANT
- PROPOSED GATE VALVE & BOX
- EXISTING FIRE HYDRANT
- WV EXISTING GATE VALVE & BOX
- 67–85 psi LOWEST AND HIGHEST PRESSURE RANGE (PER 1138–1178 PRESSURE PLANE)

0 60' 120'

SCALE: 1" = 60'

PIPE RESTRAINT CHART

BEND ANGLE	8" PVC	12" PVC	18"D.I.
Horizontal Bends			
11.25°	3'	4'	5'
22.5°	6'	8'	9'
45°	12'	16'	19'
Vertical Bends			
11.25° Upper	8'	11'	10'
11.25° Lower	2'	3'	3'
22.5° Upper	16'	22'	20'
22.5° Lower	4'	5'	6'
45° Upper	32'	45'	40'
45° Lower	8'	11'	12'

Note: All joints within the above lengths from fittings must be restrained.

NOTES:

1.) ALL ONSITE UTILITY MATERIALS AND WORK SHALL CONFORM TO THE CURRENT PLUMBING CODE.

2.) ALL WATER LINES MUST BE CONSTRUCTED IN COMPLIANCE WITH TCEQ RULE 30 TAC SEC. 290.44 RELATED TO WATER DISTRIBUTION LINES. WATER LINES SHALL HAVE A MINIMUM 9' SEPARATION FROM SEWER MAINS. WHERE 9 FEET SEPARATION CANNOT BE ACHEIVED CONTRACTOR MUS FOLLOW 290.44(e)(4)(A).

3.) PRESSURE REDUCING VALVES SHALL BE INSTALLED ON THE PROPERTY OWNERS SIDE OF THE WATER METER WHERE SERVICE PRESSURE IS 80 psi OR GREATER

4.) FIRE HYDRANTS SPACED MAX. OF 500

5.) FIRE HYDRANTS MUST BE INSTALLED WITH THE CENTER OF THE FIVE (5) INCH STEAMER OPENING AT LEAST 18 INCHES ABOVE FINISHED GRADE. THE FIVE(5) INCH OPENING MUST FACE THE STREET AND MUST BE TOTALLY UNOBSTRUCTED TO THE STREET. FIRE HYDRANT DESIGN SHELL BE 2–2.5" NST OUTLETS. 1–5" STORZ CONNECTION WITH A CAP TO INCLUDE A HEX NUT TO FIT A HYDRANT WRENCH ALONG WITH A REFLECTIVE BAND. THE FIRE HYDRANT SHALL BE PANTED SILVER IN COLOR AND DESIGNATED BY BLUE REFLECTOR IN THE CENTER OF THE ROAD.

6.) ALL WATER LINES SHALL BE CONSTRUCTED WITH AWWA C–900 DR18 UNLESS OTHERWISE SPECIFIED.

7.) WATERLINE TO BE INSTALLED WITH A MAX 1° JOINT DEFLECTION THROUGH ALL CURVES

DESIGNED BY: SPC
DRAFTED BY: CL
DATE
REVISION

Carlson, Brigance & Doering, Inc.
Civil Engineering ◆ Surveying
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Main Office
5501 West William Cannon Dr.
Austin, Texas 78749
Phone No. (312) 280-5160
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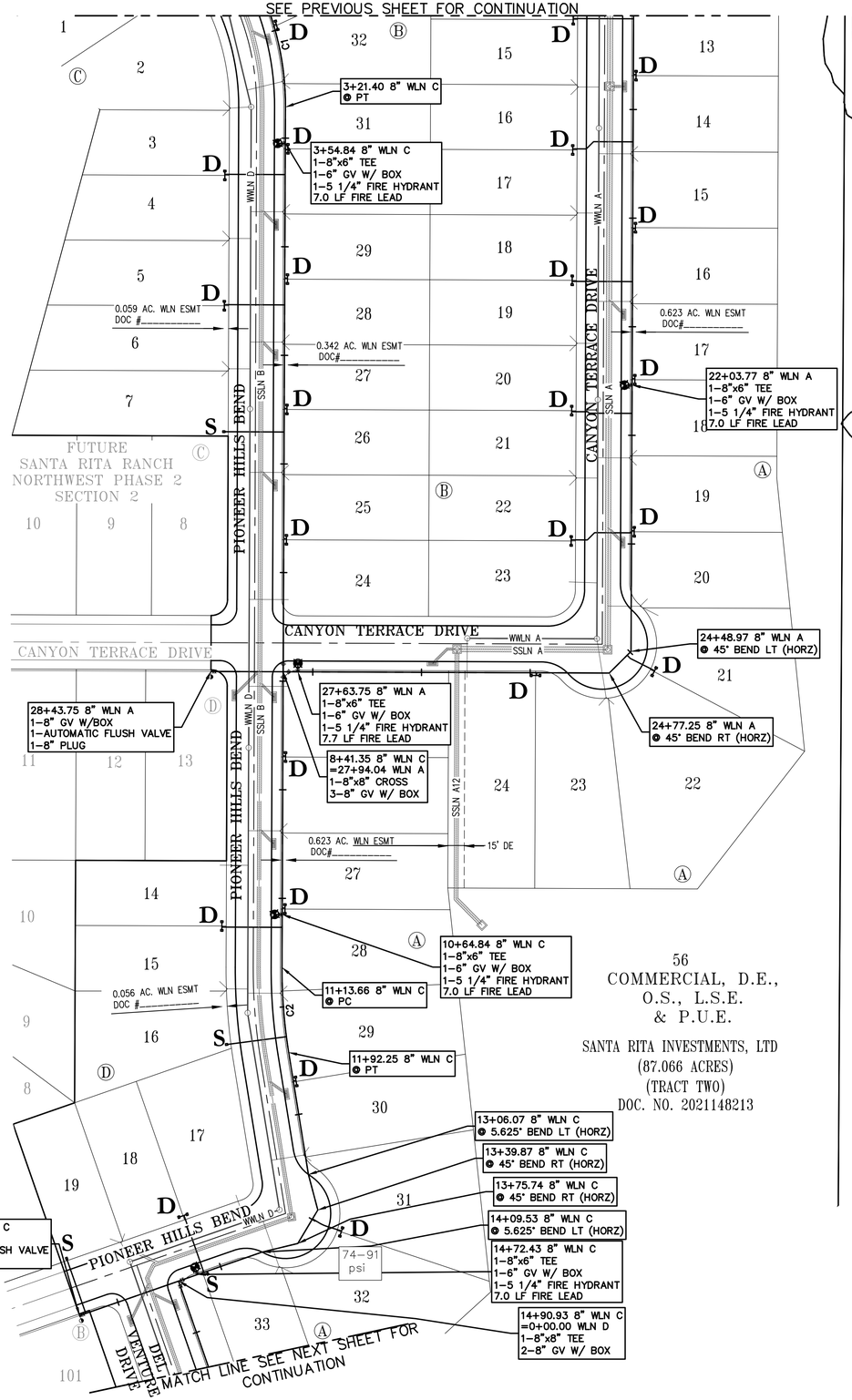
SHEET NAME: OVERALL WATER PLAN (1 OF 4)
JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1
PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED
PROFESSIONAL ENGINEER
CARLSON, BRIGANCE & DOERING, INC.
ID# F3791

6-9-2025

DATE: MAY 2025
JOB NUMBER: 5665
SHEET: 76 OF 103
SHEET NO.: 76

FILE PATH: J:\AC3D\5665\dwg\5665-WATER.dwg - Jun 10, 2025 - 5:00pm



WATER LEGEND

- S PROPOSED DOUBLE SERVICE
- D PROPOSED DOUBLE SERVICE
- PROPOSED FIRE HYDRANT
- PROPOSED GATE VALVE & BOX
- EXISTING FIRE HYDRANT
- WV EXISTING GATE VALVE & BOX
- 67–85 psi LOWEST AND HIGHEST PRESSURE RANGE (PER 1138–1178 PRESSURE PLANE)

SCALE: 1" = 60'

PIPE RESTRAINT CHART

BEND ANGLE	8" PVC	12" PVC	18"D.I.
Horizontal Bends			
11.25°	3'	4'	5'
22.5°	6'	8'	9'
45°	12'	16'	19'
Vertical Bends			
11.25° Upper	8'	11'	10'
11.25° Lower	2'	3'	3'
22.5° Upper	16'	22'	20'
22.5° Lower	4'	5'	6'
45° Upper	32'	45'	40'
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Note: All joints within the above lengths from fittings must be restrained.

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Curve Table

Curve #	Radius	Tangent	Delta	Chord	Arc Length
C1	261.50'	121.13'	049°42'25"	219.82'	226.86'
C2	478.50'	39.38'	009°24'37"	78.50'	78.59'

NOTES:

1.) ALL ONSITE UTILITY MATERIALS AND WORK SHALL CONFORM TO THE CURRENT PLUMBING CODE.

2.) ALL WATER LINES MUST BE CONSTRUCTED IN COMPLIANCE WITH TCEQ RULE 30 TAC SEC. 290.44 RELATED TO WATER DISTRIBUTION LINES. WATER LINES SHALL HAVE A MINIMUM 9' SEPARATION FROM SEWER MAINS. WHERE 9 FEET SEPARATION CANNOT BE ACHEIVED CONTRACTOR MUS FOLLOW 290.44(e)(4)(A).

3.) PRESSURE REDUCING VALVES SHALL BE INSTALLED ON THE PROPERTY OWNERS SIDE OF THE WATER METER WHERE SERVICE PRESSURE IS 80 psi OR GREATER

4.) FIRE HYDRANTS SPACED MAX. OF 500

5.) FIRE HYDRANTS MUST BE INSTALLED WITH THE CENTER OF THE FIVE (5) INCH STEAMER OPENING AT LEAST 18 INCHES ABOVE FINISHED GRADE. THE FIVE(5) INCH OPENING MUST FACE THE STREET AND MUST BE TOTALLY UNOBSTRUCTED TO THE STRET. FIRE HYDRANT DESIGN SHELL BE 2–2.5" NST OUTLETS. 1–5" STORZ CONNECTION WITH A CAP TO INCLUDE A HEX NUT TO FIT A HYDRANT WRENCH ALONG WITH A REFLECTIVE BAND. THE FIRE HYDRANT SHALL BE PANTED SILVER IN COLOR AND DESIGNATED BY BLUE REFLECTOR IN THE CENTER OF THE ROAD.

6.) ALL WATER LINES SHALL BE CONSTRUCTED WITH AWWA C–900 DR18 UNLESS OTHERWISE SPECIFIED.

7.) WATERLINE TO BE INSTALLED WITH A MAX 1° JOINT DEFLECTION THROUGH ALL CURVES

DESIGNED BY: SPC
DRAFTED BY: CL
DATE
REVISION

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Civil Engineering ◆ Surveying
FIRM ID #F3791
Main Office
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Austin, Texas
Phone No. (512) 280-5160
North Office
12129 RR 620 N, Ste. 600
Austin, Texas 78750
Fax No. (512) 280-5165

SHEET NAME: OVERALL WATER PLAN (2 OF 4)
JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1
PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED PROFESSIONAL ENGINEER
CARLSON, BRIGANCE & DOERING, INC.
ID# F3791
6-9-2025

DATE: MAY 2025
JOB NUMBER: 5665
SHEET: 77 OF 103
SHEET NO.: 77

FILE PATH: J:\AC3D\5665\dwg\5665-WATER.dwg - Jun 10, 2025 - 5:00pm

Curve Table					
Curve #	Radius	Tangent	Delta	Chord	Arc Length
C3	501.50'	265.81'	055°50'56"	469.71'	488.84'
C4	1018.50'	323.74'	035°15'59"	617.05'	626.90'

THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR WILL AGREE TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE INCURRED BY THEIR FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES, STRUCTURES OR FACILITIES. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES 24 – HOURS PRIOR TO COMMENCING CONSTRUCTION.

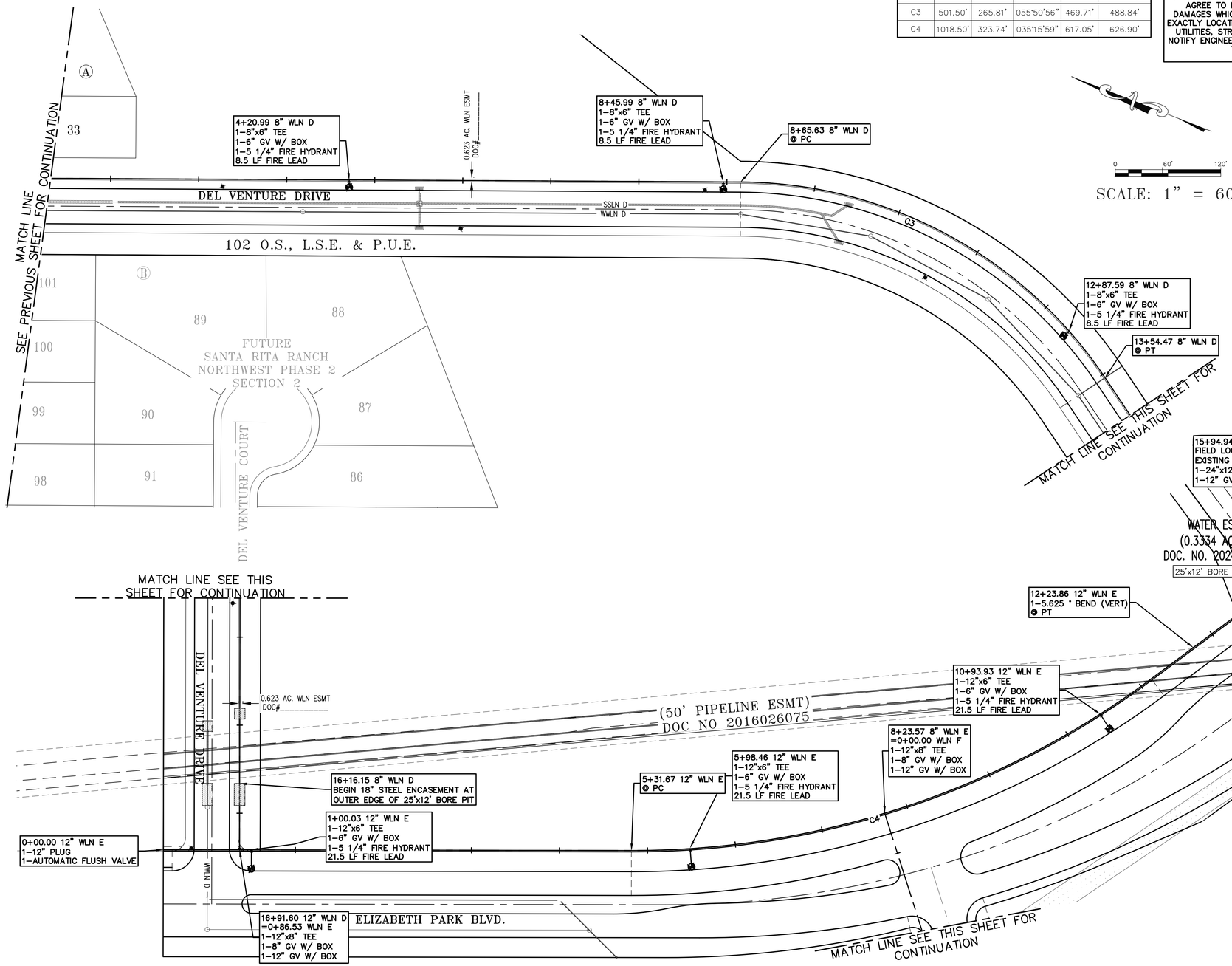
PIPE RESTRAINT CHART

BEND ANGLE 8" PVC 12" PVC 18"D.I.			
Horizontal Bends			
11.25°	3'	4'	5'
22.5°	6'	8'	9'
45°	12'	16'	19'
Vertical Bends			
11.25° Upper	8'	11'	10'
11.25° Lower	2'	3'	3'
22.5° Upper	16'	22'	20'
22.5° Lower	4'	5'	6'
45° Upper	32'	45'	40'
45° Lower	8'	11'	12'

Note: All joints within the above lengths from fittings must be restrained.

WATER LEGEND

- S PROPOSED DOUBLE SERVICE
- D PROPOSED DOUBLE SERVICE
- PROPOSED FIRE HYDRANT
- PROPOSED GATE VALVE & BOX
- EXISTING FIRE HYDRANT
- WV EXISTING GATE VALVE & BOX
- 67–85 psi LOWEST AND HIGHEST PRESSURE RANGE (PER 1138–1178 PRESSURE PLANE)



NOTES:

1.) ALL ONSITE UTILITY MATERIALS AND WORK SHALL CONFORM TO THE CURRENT PLUMBING CODE.

2.) ALL WATER LINES MUST BE CONSTRUCTED IN COMPLIANCE WITH TCEQ RULE 30 TAC SEC. 290.44 RELATED TO WATER DISTRIBUTION LINES. WATER LINES SHALL HAVE A MINIMUM 9' SEPARATION FROM SEWER MAINS. WHERE 9 FEET SEPARATION CANNOT BE ACHEIVED CONTRACTOR MUS FOLLOW 290.44(e)(4)(A).

3.) PRESSURE REDUCING VALVES SHALL BE INSTALLED ON THE PROPERTY OWNERS SIDE OF THE WATER METER WHERE SERVICE PRESSURE IS 80 psi OR GREATER

4.) FIRE HYDRANTS SPACED MAX. OF 500

5.) FIRE HYDRANTS MUST BE INSTALLED WITH THE CENTER OF THE FIVE (5) INCH STEAMER OPENING AT LEAST 18 INCHES ABOVE FINISHED GRADE. THE FIVE(5) INCH OPENING MUST FACE THE STREET AND MUST BE TOTALLY UNOBSTRUCTED TO THE STREET. FIRE HYDRANT DESIGN SHELL BE 2–2.5" NST OUTLETS. 1–5" STORZ CONNECTION WITH A CAP TO INCLUDE A HEX NUT TO FIT A HYDRANT WRENCH ALONG WITH A REFLECTIVE BAND. THE FIRE HYDRANT SHALL BE PANTED SILVER IN COLOR AND DESIGNATED BY BLUE REFLECTOR IN THE CENTER OF THE ROAD.

6.) ALL WATER LINES SHALL BE CONSTRUCTED WITH AWWA C–900 DR18 UNLESS OTHERWISE SPECIFIED.

7.) WATERLINE TO BE INSTALLED WITH A MAX 1° JOINT DEFLECTION THROUGH ALL CURVES

DESIGNED BY: SPC
DRAFTED BY: CL

DATE

REVISION

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Civil Engineering ◆ Surveying
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Fax No. (512) 280-5165

SHEET NAME: OVERALL WATER PLAN (3 OF 4)

JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1

PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED
PROFESSIONAL ENGINEER

CARLSON, BRIGANCE & DOERING, INC.
ID# F3791

6-9-2025

DATE: MAY 2025

JOB NUMBER: 5665

SHEET: 78 OF 103

SHEET NO.: 78

FILE PATH:J:\AC3D\5665\dwg\5665-WATER.dwg - Jun 10, 2025 - 5:00pm

Curve Table					
Curve #	Radius	Tangent	Delta	Chord	Arc Length
C5	693.50'	340.38'	052°17'05"	611.12'	632.85'

THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR WILL AGREE TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE INCURRED BY THEIR FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES, STRUCTURES OR FACILITIES. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES 24 – HOURS PRIOR TO COMMENCING CONSTRUCTION.

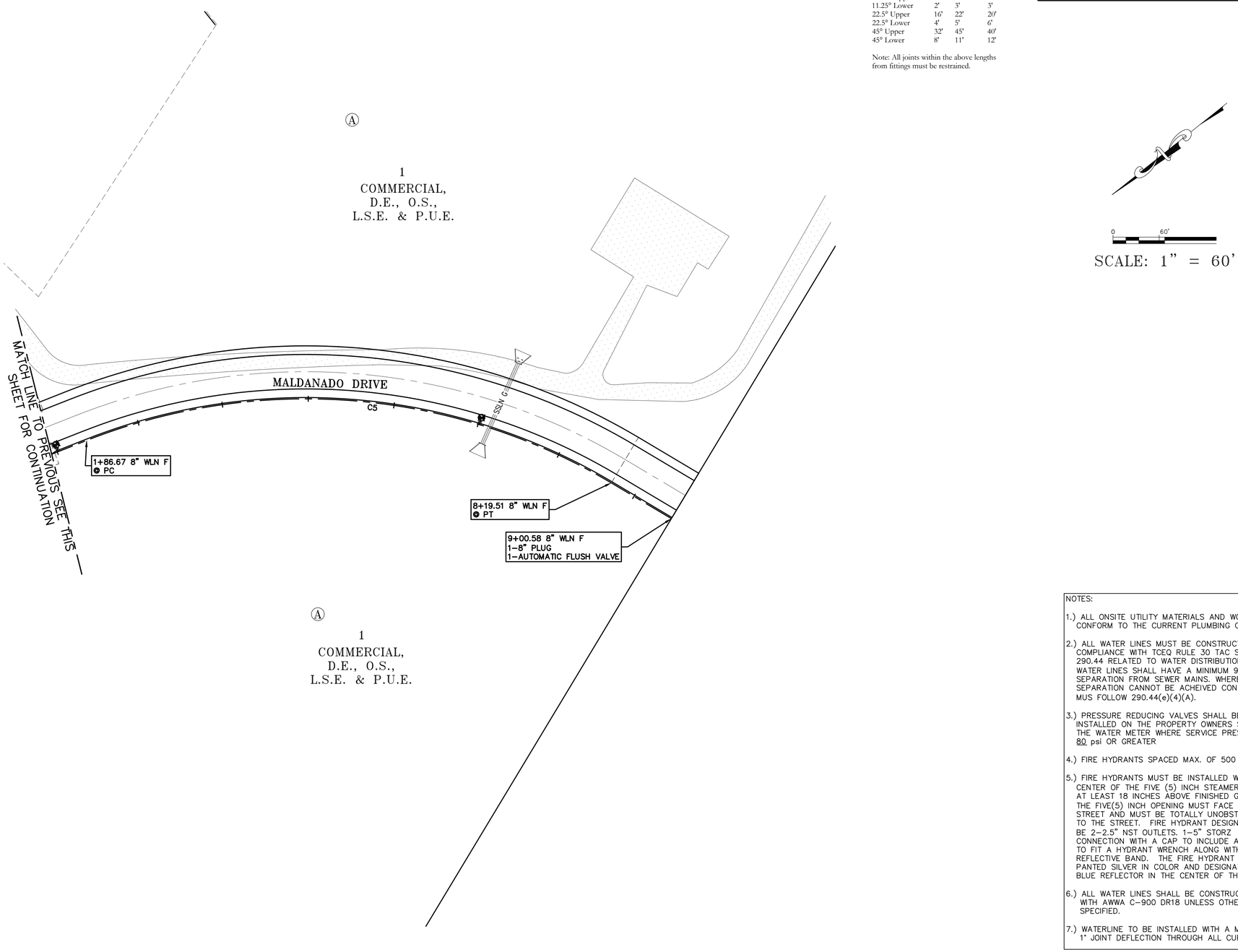
PIPE RESTRAINT CHART

BEND ANGLE	8" PVC	12" PVC	18"D.I.
Horizontal Bends			
11.25°	3'	4'	5'
22.5°	6'	8'	9'
45°	12'	16'	19'
Vertical Bends			
11.25° Upper	8'	11'	10'
11.25° Lower	2'	3'	3'
22.5° Upper	16'	22'	20'
22.5° Lower	4'	5'	6'
45° Upper	32'	45'	40'
45° Lower	8'	11'	12'

Note: All joints within the above lengths from fittings must be restrained.

WATER LEGEND

- S PROPOSED DOUBLE SERVICE
- D PROPOSED DOUBLE SERVICE
- PROPOSED FIRE HYDRANT
- PROPOSED GATE VALVE & BOX
- EXISTING FIRE HYDRANT
- WV EXISTING GATE VALVE & BOX
- 67–85 psi LOWEST AND HIGHEST PRESSURE RANGE (PER 1138–1178 PRESSURE PLANE)



SCALE: 1" = 60'

NOTES:

1.) ALL ONSITE UTILITY MATERIALS AND WORK SHALL CONFORM TO THE CURRENT PLUMBING CODE.

2.) ALL WATER LINES MUST BE CONSTRUCTED IN COMPLIANCE WITH TCEQ RULE 30 TAC SEC. 290.44 RELATED TO WATER DISTRIBUTION LINES. WATER LINES SHALL HAVE A MINIMUM 9' SEPARATION FROM SEWER MAINS. WHERE 9 FEET SEPARATION CANNOT BE ACHEIVED CONTRACTOR MUS FOLLOW 290.44(e)(4)(A).

3.) PRESSURE REDUCING VALVES SHALL BE INSTALLED ON THE PROPERTY OWNERS SIDE OF THE WATER METER WHERE SERVICE PRESSURE IS 80 psi OR GREATER

4.) FIRE HYDRANTS SPACED MAX. OF 500

5.) FIRE HYDRANTS MUST BE INSTALLED WITH THE CENTER OF THE FIVE (5) INCH STEAMER OPENING AT LEAST 18 INCHES ABOVE FINISHED GRADE. THE FIVE(5) INCH OPENING MUST FACE THE STREET AND MUST BE TOTALLY UNOBSTRUCTED TO THE STREET. FIRE HYDRANT DESIGN SHELL BE 2–2.5" NST OUTLETS. 1–5" STORZ CONNECTION WITH A CAP TO INCLUDE A HEX NUT TO FIT A HYDRANT WRENCH ALONG WITH A REFLECTIVE BAND. THE FIRE HYDRANT SHALL BE PANTED SILVER IN COLOR AND DESIGNATED BY BLUE REFLECTOR IN THE CENTER OF THE ROAD.

6.) ALL WATER LINES SHALL BE CONSTRUCTED WITH AWWA C–900 DR18 UNLESS OTHERWISE SPECIFIED.

7.) WATERLINE TO BE INSTALLED WITH A MAX 1° JOINT DEFLECTION THROUGH ALL CURVES

DESIGNED BY: SPC
DRAFTED BY: CL

DATE

REVISION

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SHEET NAME: OVERALL WATER PLAN (4 OF 4)

JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1

PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED PROFESSIONAL ENGINEER
CARLSON, BRIGANCE & DOERING, INC.
ID# F3791

6-9-2025

DATE: MAY 2025

JOB NUMBER: 5665

SHEET: 79 OF 103

SHEET NO.: 79

FILE PATH:J:\AC3D\5665\dwg\5665-WATER.dwg - Jun 10, 2025 - 5:00pm

THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR WILL AGREE TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE INCURRED BY THEIR FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES, STRUCTURES OR FACILITIES. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES 24 – HOURS PRIOR TO COMMENCING CONSTRUCTION.

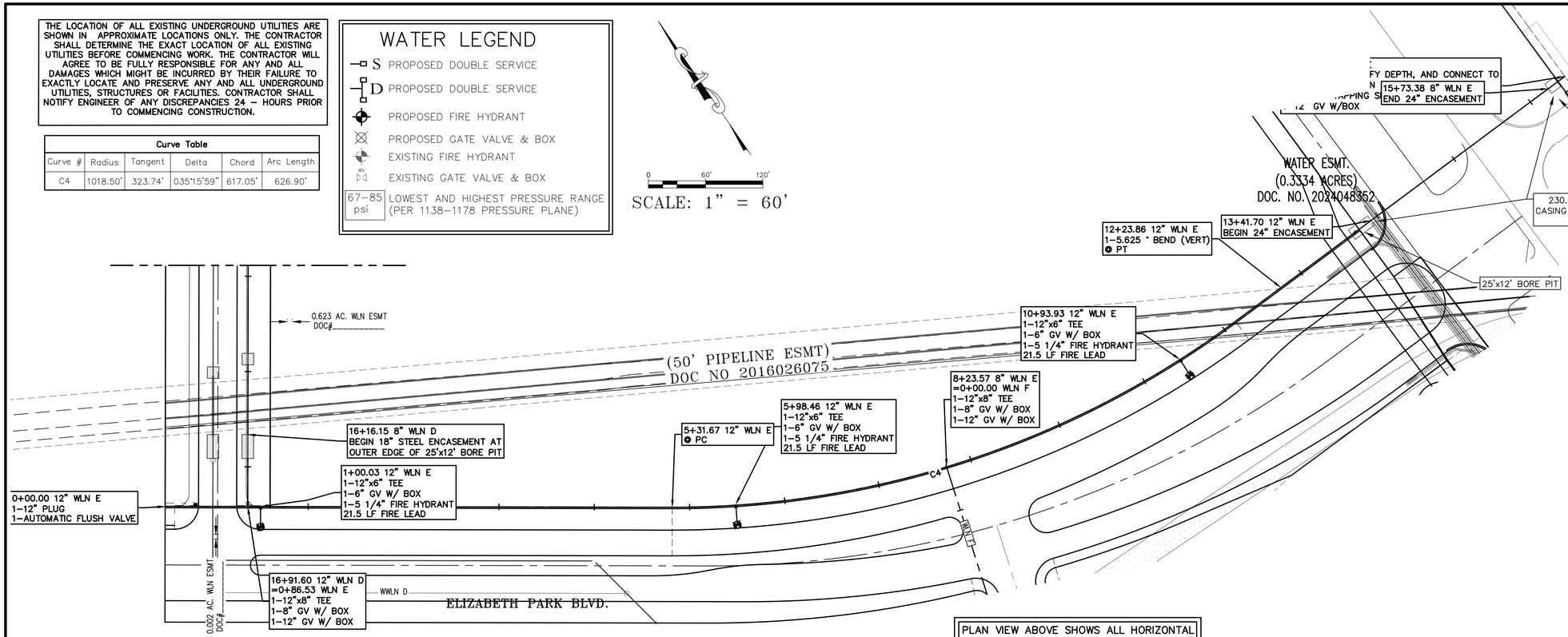
Curve Table					
Curve #	Radius	Tangent	Delta	Chord	Arc Length
C4	1018.50'	323.74'	035°15'59"	617.05'	626.90'

WATER LEGEND

- S PROPOSED DOUBLE SERVICE
- D PROPOSED DOUBLE SERVICE
- PROPOSED FIRE HYDRANT
- PROPOSED GATE VALVE & BOX
- EXISTING FIRE HYDRANT
- WV EXISTING GATE VALVE & BOX
- 67–85 psi LOWEST AND HIGHEST PRESSURE RANGE (PER 1138–1178 PRESSURE PLANE)

0 60' 120'

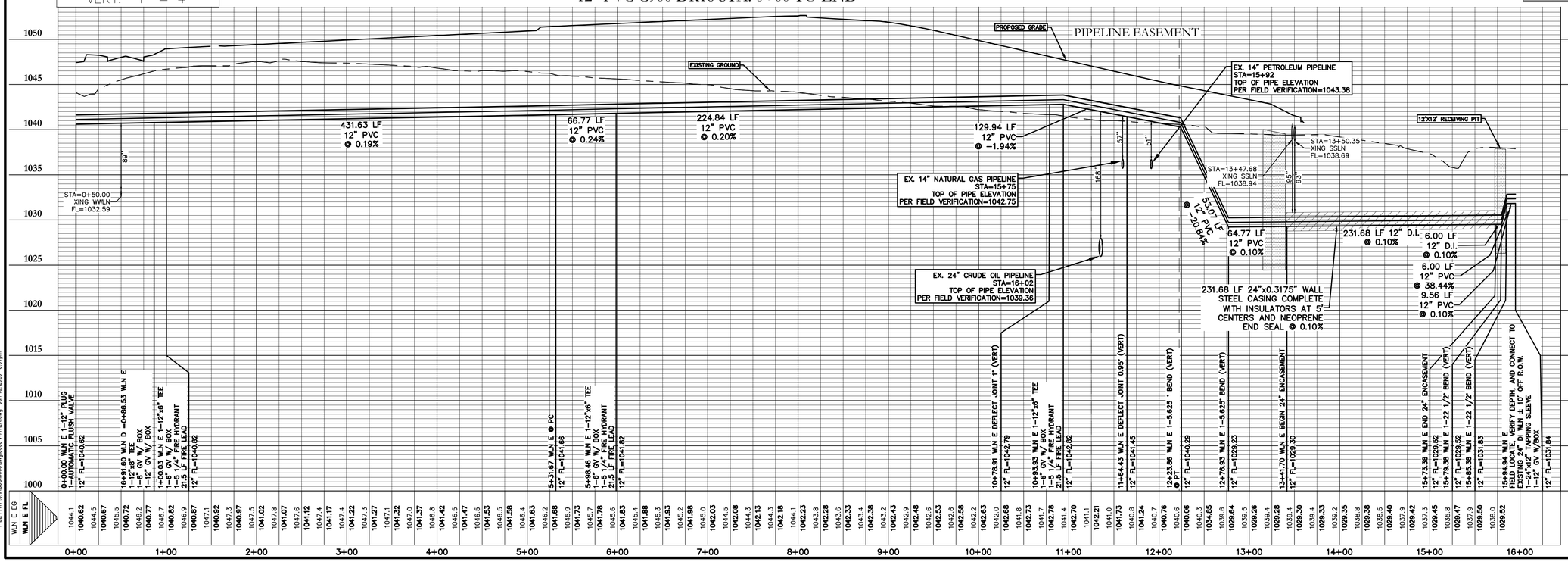
SCALE: 1" = 60'



PLAN VIEW ABOVE SHOWS ALL HORIZONTAL BENDS AND PIPE DEFLECTIONS SEE PROFILE BELOW FOR ALL VERTICAL BENDS AND JOINT DEFLECTIONS

PROFILE SCALE
HORIZ. 1" = 40'
VERT. 1" = 4'

WATER LINE "E"
12" PVC C900 DR18 STA. 0+00 TO END



PIPE RESTRAINT CHART			
BEND ANGLE	8" PVC	12" PVC	18"D.I.
Horizontal Bends			
11.25°	3'	4'	5'
22.5°	6'	8'	9'
45°	12'	16'	19'
Vertical Bends			
11.25° Upper	8'	11'	10'
11.25° Lower	2'	3'	3'
22.5° Upper	16'	22'	20'
22.5° Lower	4'	5'	6'
45° Upper	32'	45'	40'
45° Lower	8'	11'	12'

Note: All joints within the above lengths from fittings must be restrained.

NOTES:

1.) ALL ONSITE UTILITY MATERIALS AND WORK SHALL CONFORM TO THE CURRENT PLUMBING CODE.

2.) ALL WATER LINES MUST BE CONSTRUCTED IN COMPLIANCE WITH TCEQ RULE 30 TAC SEC. 290.44 RELATED TO WATER DISTRIBUTION LINES. WATER LINES SHALL HAVE A MINIMUM 9' SEPARATION FROM SEWER MAINS. WHERE 9 FEET SEPARATION CANNOT BE ACHEIVED CONTRACTOR MUS FOLLOW 290.44(e)(4)(A).

3.) PRESSURE REDUCING VALVES SHALL BE INSTALLED ON THE PROPERTY OWNERS SIDE OF THE WATER METER WHERE SERVICE PRESSURE IS 80 psi OR GREATER

4.) FIRE HYDRANTS SPACED MAX. OF 500

5.) FIRE HYDRANTS MUST BE INSTALLED WITH THE CENTER OF THE FIVE (5) INCH STEAMER OPENING AT LEAST 18 INCHES ABOVE FINISHED GRADE. THE FIVE(5) INCH OPENING MUST FACE THE STREET AND MUST BE TOTALLY UNOBSTRUCTED TO THE STREET. FIRE HYDRANT DESIGN SHELL BE 2–2.5" NST OUTLETS. 1–5" STORZ CONNECTION WITH A CAP TO INCLUDE A HEX NUT TO FIT A HYDRANT WRENCH ALONG WITH A REFLECTIVE BAND. THE FIRE HYDRANT SHALL BE PAINTED SILVER IN COLOR AND DESIGNATED BY BLUE REFLECTOR IN THE CENTER OF THE ROAD.

6.) ALL WATER LINES SHALL BE CONSTRUCTED WITH AWWA C–900 DR18 UNLESS OTHERWISE SPECIFIED.

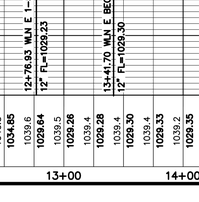
7.) WATERLINE TO BE INSTALLED WITH A MAX 1° JOINT DEFLECTION THROUGH ALL CURVES

Carlson, Brigance & Doering, Inc.
Civil Engineering ◆ Surveying
FIRM ID #F3791
Main Office: 5501 West William Cannon Dr. Austin, Texas 78749 Phone No. (512) 280-5160
North Office: 12129 RR 620 N, Suite 600 Austin, Texas 78750 Fax No. (512) 280-5165

DESIGNED BY: SPC | DRAFTED BY: CL

DATE | REVISION

SHEET NAME: WATERLINE E (0+00 TO END)
JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1
PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS



CARLSON, BRIGANCE & DOERING, INC.
ID# F3791

6-9-2025

DATE: MAY 2025
JOB NUMBER: 5665
SHEET: 80 OF 103
SHEET NO.: 80

FILE PATH: J:\ACAD\5665\dwg\5665-WATER.dwg - Jun 10, 2025 - 5:01pm

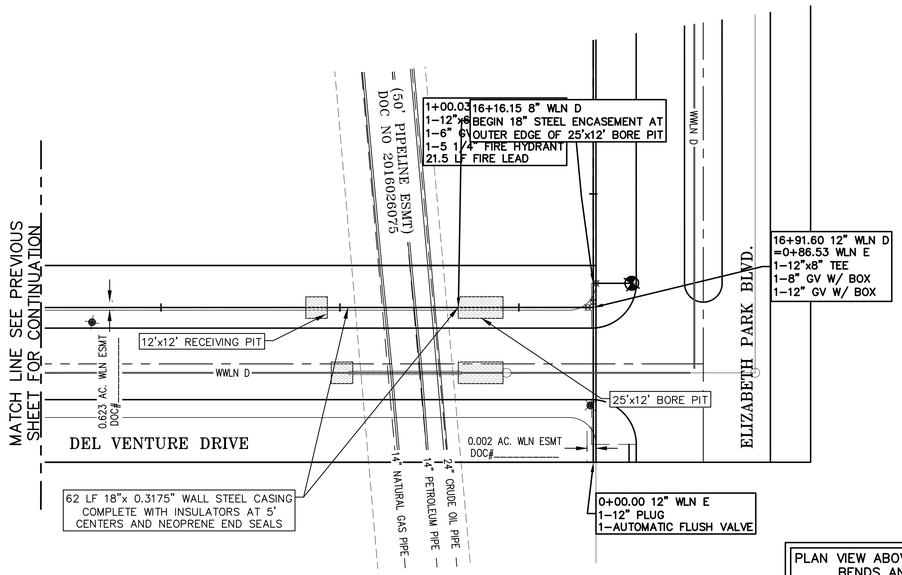
THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR WILL AGREE TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE INCURRED BY THEIR FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES, STRUCTURES OR FACILITIES. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES 24 – HOURS PRIOR TO COMMENCING CONSTRUCTION.

WATER LEGEND

- S PROPOSED DOUBLE SERVICE
- D PROPOSED DOUBLE SERVICE
- PROPOSED FIRE HYDRANT
- PROPOSED GATE VALVE & BOX
- EXISTING FIRE HYDRANT
- WV EXISTING GATE VALVE & BOX
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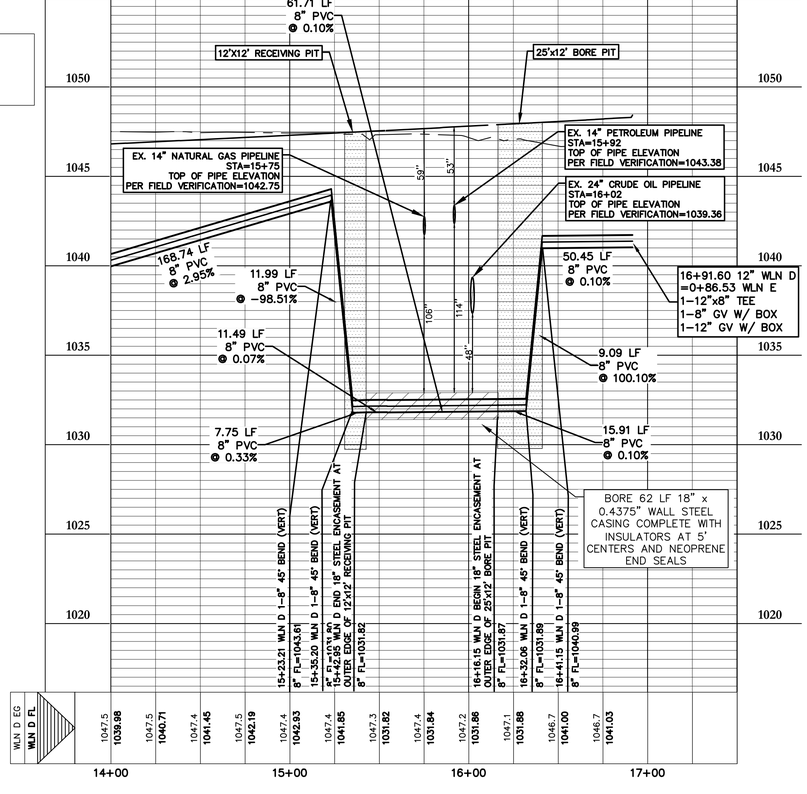
SCALE: 1" = 60'



PLAN VIEW ABOVE SHOWS ALL HORIZONTAL BENDS AND PIPE DEFLECTIONS SEE PROFILE BELOW FOR ALL VERTICAL BENDS AND JOINT DEFLECTIONS

WATER LINE "D"
8" PVC C-900 DR-18 STA. 14+00 TO END

PROFILE SCALE
HORIZ. 1" = 40'
VERT. 1" = 4'



NOTES:

1.) ALL ONSITE UTILITY MATERIALS AND WORK SHALL CONFORM TO THE CURRENT PLUMBING CODE.

2.) ALL WATER LINES MUST BE CONSTRUCTED IN COMPLIANCE WITH TCEQ RULE 30 TAC SEC. 290.44 RELATED TO WATER DISTRIBUTION LINES. WATER LINES SHALL HAVE A MINIMUM 9' SEPARATION FROM SEWER MAINS. WHERE 9 FEET SEPARATION CANNOT BE ACHEIVED CONTRACTOR MUS FOLLOW 290.44(e)(4)(A).

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6.) ALL WATER LINES SHALL BE CONSTRUCTED WITH AWWA C–900 DR18 UNLESS OTHERWISE SPECIFIED.

7.) WATERLINE TO BE INSTALLED WITH A MAX 1° JOINT DEFLECTION THROUGH ALL CURVES

PIPE RESTRAINT CHART

BEND ANGLE 8" PVC 12" PVC 18"D.I.

Horizontal Bends			
11.25°	3'	4'	5'
22.5°	6'	8'	9'
45°	12'	16'	19'
Vertical Bends			
11.25° Upper	8'	11'	10'
11.25° Lower	2'	3'	3'
22.5° Upper	16'	22'	20'
22.5° Lower	4'	5'	6'
45° Upper	32'	45'	40'
45° Lower	8'	11'	12'

Note: All joints within the above lengths from fittings must be restrained.

DESIGNED BY: SPC | DRAFTED BY: CL

DATE | REVISION

Carlson, Brigance & Doering, Inc.
Civil Engineering ◆ Surveying
FIRM ID #F3791
Main Office: 5501 West William Cannon Dr. Austin, Texas 78749 Phone No. (512) 280-5160
North Office: 12129 RR 620 N. Ste. 600 Austin, Texas 78750 Fax No. (512) 280-5165

SHEET NAME: WATERLINE D (15+00 TO END)

JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1

PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED PROFESSIONAL ENGINEER

CARLSON, BRIGANCE & DOERING, INC.
@ F3791

6-9-2025

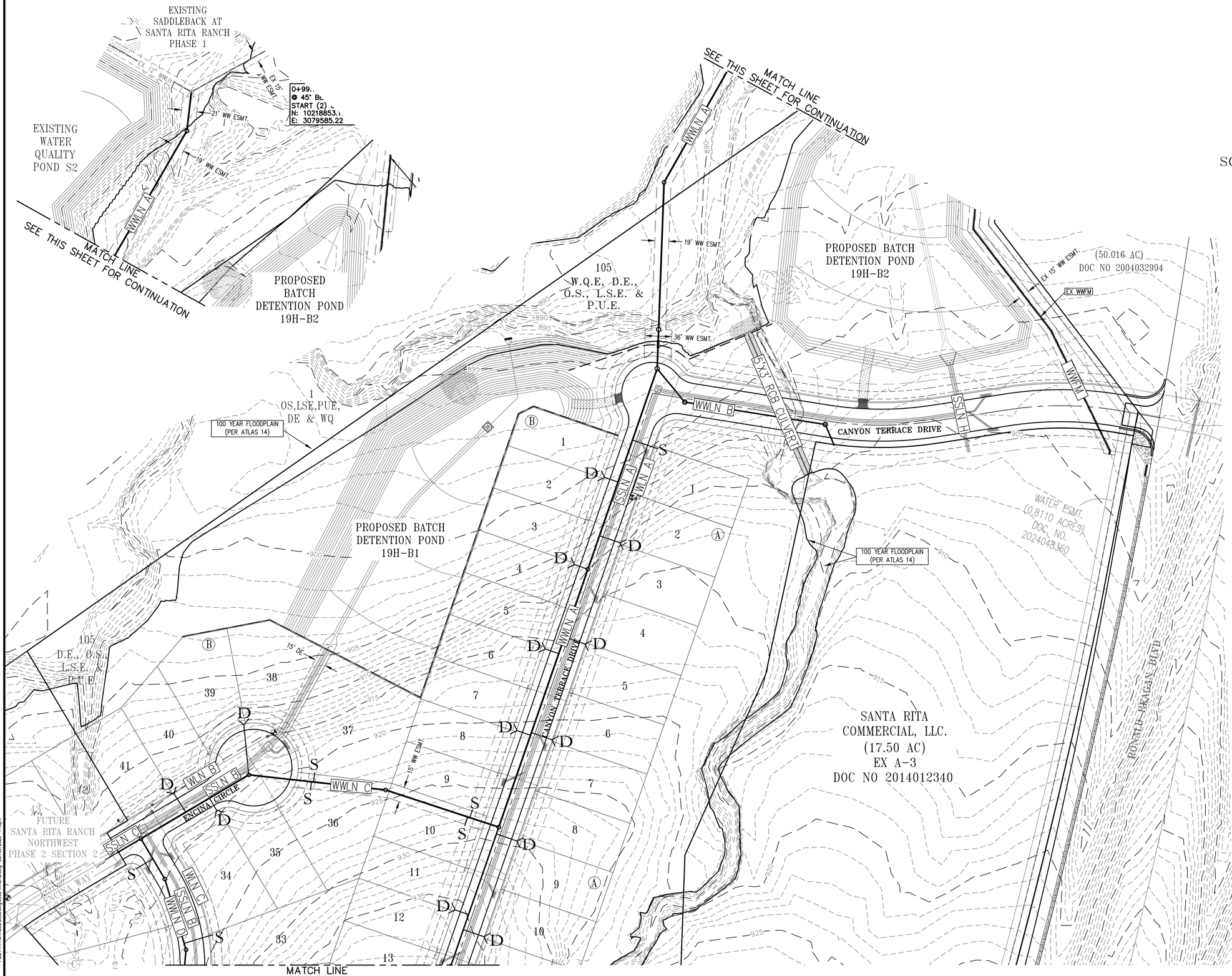
DATE: MAY 2025

JOB NUMBER: 5665

SHEET: 81 OF 103

SHEET NO.: 81

FILE PATH:J:\ACAD\5665\dwg\5665-WATER.dwg - Jun 10, 2025 - 5:01pm



WASTEWATER LEGEND

- S — PROPOSED SINGLE SERVICE
- D — PROPOSED DOUBLE SERVICE
- PROPOSED MANHOLE
- EXISTING MANHOLE
- FLOW DIRECTION ARROW

SINGLE AND DOUBLE WASTEWATER SERVICES TO BE INSTALLED PER THE SANTA RITA RANCH SINGLE AND DOUBLE WASTEWATER SERVICE DETAILS ON THE WASTEWATER DETAILS SHEET

WASTEWATER NOTES

PER THE CITY OF LIBERTY HILL WASTEWATER NOTES REVISED JUNE 10, 2024

1. ALL STREETS ARE TO BE BUILT TO SUB-GRADE PRIOR TO UTILITY INSTALLATION.
2. PIPE MATERIAL FOR PRESSURE WASTEWATER MAINS SHALL BE PVC (AWWA C-900, MIN. CLASS 150), SDR26. HIGHER PRESSURE RATED (160 PSI). OR DUCTILE IRON (AWWA C-100, MIN. CLASS 200). PIPE MATERIAL FOR GRAVITY WASTEWATER MAINS SHALL BE PVC (ASTM D2241 OR D3034, MAX. DR-26) AND DUCTILE IRON (AWWA C-100, MIN. CLASS 200).
3. UNLESS OTHERWISE ACCEPTED BY THE CITY ENGINEER, MINIMUM DEPTH OF COVER FOR ALL LINES OUTSIDE OF THE PAVEMENT SHALL BE 42" BELOW FINISHED GRADE AND 30" BELOW SUBGRADE FOR ALL LINES LOCATED IN PAVED AREAS.
4. ALL DUCTILE IRON PIPE AND FITTINGS SHALL BE WRAPPED WITH A MINIMUM OF 8-MIL POLYETHYLENE AND SEALED WITH DUCT TAPE OR AN EQUIVALENT ACCEPTABLE BY THE CITY ENGINEER.
5. THE CONTRACTOR SHALL CONTACT THE CITY OF LIBERTY HILL PUBLIC WORKS DEPARTMENT BY BOTH CALLING 512-548-5529 AND EMAILING pubworks@libertyhilltx.gov TO COORDINATE UTILITY TIE-INS AND NOTIFY THEM AT LEAST 48 HOURS PRIOR TO CONNECTING TO ANY EXISTING LINES.
6. ALL MANHOLES SHALL BE CONCRETE WITH CAST IRON RING AND COVER. ALL MANHOLES LOCATED OUTSIDE OF THE PAVEMENT SHALL HAVE BOLTED COVERS. CORE CONNECTIONS TO FIBERGLASS MANHOLES SHALL NOT BE ALLOWED.
7. THE CONTRACTOR, AT CONTRACTOR'S EXPENSE, SHALL PERFORM QUALITY TESTING FOR ALL WASTEWATER PIPE INSTALLED AND PRESSURE PIPE HYDROSTATIC TESTING OF ALL WASTEWATER LINES CONSTRUCTED AND SHALL PROVIDE ALL EQUIPMENT (INCLUDING PUMPS AND GAUGES), SUPPLIES AND LABOR NECESSARY TO PERFORM THE TESTS. QUALITY AND PRESSURE TESTING SHALL BE MONITORED BY THE CITY OF LIBERTY HILL PERSONNEL.
8. THE CONTRACTOR SHALL COORDINATE TESTING WITH THE CITY OF LIBERTY HILL PUBLIC WORKS DEPARTMENT AND PROVIDE NO LESS THAN 24 HOURS' NOTICE PRIOR TO PERFORMING STERILIZATION, QUALITY TESTING, OR PRESSURE TESTING BY BOTH CALLING (512) 548-5529 AND EMAILING pubworks@libertyhilltx.gov.
9. THE CONTRACTOR (OR SUBCONTRACTORS) SHALL NOT OPEN OR CLOSE ANY VALVES UNLESS AUTHORIZED BY THE CITY OF LIBERTY HILL PERSONNEL.
10. ALL WASTEWATER SERVICE LOCATIONS SHALL BE APPROPRIATELY MARKED AS FOLLOWS:
    WASTEWATER SERVICE "S" ON TOP OF CURB
    TOOLS FOR MARKING THE CURB SHALL BE PROVIDED BY THE CONTRACTOR. OTHER APPROPRIATE MEANS OF MARKING SERVICE LOCATIONS SHALL BE PROVIDED IN AREAS WITHOUT CURBS. SUCH MEANS OF MARKING SHALL BE AS SPECIFIED BY THE ENGINEER AND ACCEPTED BY THE CITY OF LIBERTY HILL.
11. CONTACT THE CITY OF LIBERTY HILL PUBLIC WORKS DEPARTMENT FOR ASSISTANCE IN OBTAINING EXISTING WASTEWATER LOCATIONS BY BOTH CALLING (512) 548-5529 AND EMAILING pubworks@libertyhilltx.gov.
12. SAND, AS DESCRIBED IN SPECIFICATION ITEM 510 PIPE, SHALL NOT BE USED AS BEDDING FOR 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 BY WEIGHT	PERCENT RETAINED
1/2"	0
3/8"	0-2
#4	40-85
#10	95-100

13. 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 (7AM – 4PM) AND POSSIBLY BETWEEN 12AM AND 6AM.
14. ALL WASTEWATER CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) REGULATIONS, 30 TAC CHAPTER 213 AND 317, AS APPLICABLE. ALL WATER CONSTRUCTION SHALL BE IN ACCORDANCE WITH TCEQ REGULATIONS, 30 TAC CHAPTER 290. WHENEVER TCEQ AND CITY OF LIBERTY HILL SPECIFICATIONS CONFLICT, THE MORE STRINGENT SHALL APPLY.

DESIGNED BY: SPC | DRAFTED BY: CL

DATE

REVISION

Carlson, Brigance & Doering, Inc.
Civil Engineering ◆ Surveying
FIRM ID #F3791
Main Office: 5501 West William Cannon Dr. Austin, Texas 78749 Phone No. (512) 280-5160
North Office: 12129 RR 620 N, Suite 600 Austin, Texas 78750 Fax No. (512) 280-5165

SHEET NAME: OVERALL WASTEWATER PLAN (1 OF 3)

JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1

PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED PROFESSIONAL ENGINEER
CARLSON, BRIGANCE & DOERING, INC.
ID# F-3791

6-9-2025

DATE: MAY 2025

JOB NUMBER: 5665

SHEET: 82 OF 103

SHEET NO.: 82

FILE PATH: J:\ACD\5665\dwg\5665-WASTE.dwg - Jun 09, 2025 - 1:46pm

MATCH LINE
SEE PREVIOUS SHEET FOR CONTINUATION

FUTURE SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 2

CANYON TERRACE DRIVE

FLARE COURT

PIONEER HILLS BEND

CANYON TERRACE DRIVE

CANYON TERRACE DRIVE

WWLN D

SSLN B

WLN C

SSLN B

WLN C

PIONEER HILLS BEND

WWLN A

CANYON TERRACE DRIVE

SSLN A

WLN A

SSLN A

SSLN A12

WWLN D

WLN E

DOUBLE EAGLE DRIVE

CITY OF LIBERTY HILL
(0.93 ACRES)
DOC. NO. 2024005960

CITY OF LIBERTY HILL
(0.92 ACRES)
DOC. NO. 2024005959

100 YEAR FLOODPLAIN
(PER ATLAS 14)

CITY OF LIBERTY HILL
(6.40 AC)
DOC NO 2017014139

56
COMMERCIAL, D.E., O.S.,
L.S.E,
& P.V.E.
SANTA RITA INVESTMENTS, LTD
(87.066 ACRES)
(TRACT TWO)
DOC. NO. 2021148213

MATCH LINE
SEE NEXT SHEET FOR CONTINUATION

FILE PATH:J:\ACAD\5665\dwg\5665-WASTE.dwg - Jun 09, 2025 - 1:46pm

WASTEWATER LEGEND

- S — PROPOSED SINGLE SERVICE
- D — PROPOSED DOUBLE SERVICE
- PROPOSED MANHOLE
- EXISTING MANHOLE
- FLOW DIRECTION ARROW

0 60' 120'

SCALE: 1" = 60'

SINGLE AND DOUBLE WASTEWATER SERVICES TO BE INSTALLED PER THE SANTA RITA RANCH SINGLE AND DOUBLE WASTEWATER SERVICE DETAILS ON THE WASTEWATER DETAILS SHEET

WASTEWATER NOTES

PER THE CITY OF LIBERTY HILL WASTEWATER NOTES REVISED JUNE 10, 2024

1. ALL STREETS ARE TO BE BUILT TO SUB-GRADE PRIOR TO UTILITY INSTALLATION.
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4. ALL DUCTILE IRON PIPE AND FITTINGS SHALL BE WRAPPED WITH A MINIMUM OF 8-MIL POLYETHYLENE AND SEALED WITH DUCT TAPE OR AN EQUIVALENT ACCEPTABLE BY THE CITY ENGINEER.
5. THE CONTRACTOR SHALL CONTACT THE CITY OF LIBERTY HILL PUBLIC WORKS DEPARTMENT BY BOTH CALLING 512-548-5529 AND EMAILING pubworks@libertyhilltx.gov TO COORDINATE UTILITY TIE-INS AND NOTIFY THEM AT LEAST 48 HOURS PRIOR TO CONNECTING TO ANY EXISTING LINES.
6. ALL MANHOLES SHALL BE CONCRETE WITH CAST IRON RING AND COVER. ALL MANHOLES LOCATED OUTSIDE OF THE PAVEMENT SHALL HAVE BOLTED COVERS. CORE CONNECTIONS TO FIBERGLASS MANHOLES SHALL NOT BE ALLOWED.
7. THE CONTRACTOR, AT CONTRACTOR'S EXPENSE, SHALL PERFORM QUALITY TESTING FOR ALL WASTEWATER PIPE INSTALLED AND PRESSURE PIPE HYDROSTATIC TESTING OF ALL WASTEWATER LINES CONSTRUCTED AND SHALL PROVIDE ALL EQUIPMENT (INCLUDING PUMPS AND GAUGES), SUPPLIES AND LABOR NECESSARY TO PERFORM THE TESTS. QUALITY AND PRESSURE TESTING SHALL BE MONITORED BY THE CITY OF LIBERTY HILL PERSONNEL.
8. THE CONTRACTOR SHALL COORDINATE TESTING WITH THE CITY OF LIBERTY HILL PUBLIC WORKS DEPARTMENT AND PROVIDE NO LESS THAN 24 HOURS' NOTICE PRIOR TO PERFORMING STERILIZATION, QUALITY TESTING, OR PRESSURE TESTING BY BOTH CALLING (512) 548-5529 AND EMAILING pubworks@libertyhilltx.gov.
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SIEVE SIZE BY WEIGHT	PERCENT RETAINED
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DESIGNED BY: SPC | DRAFTED BY: CL

DATE

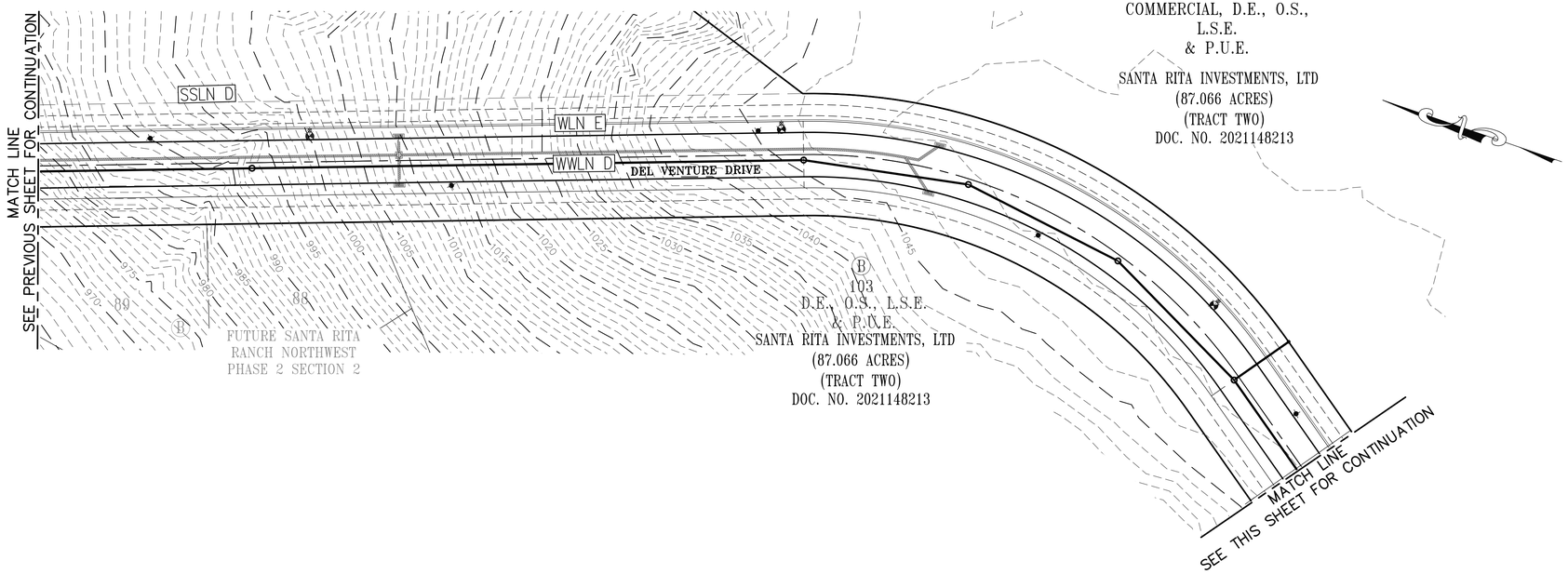
REVISION

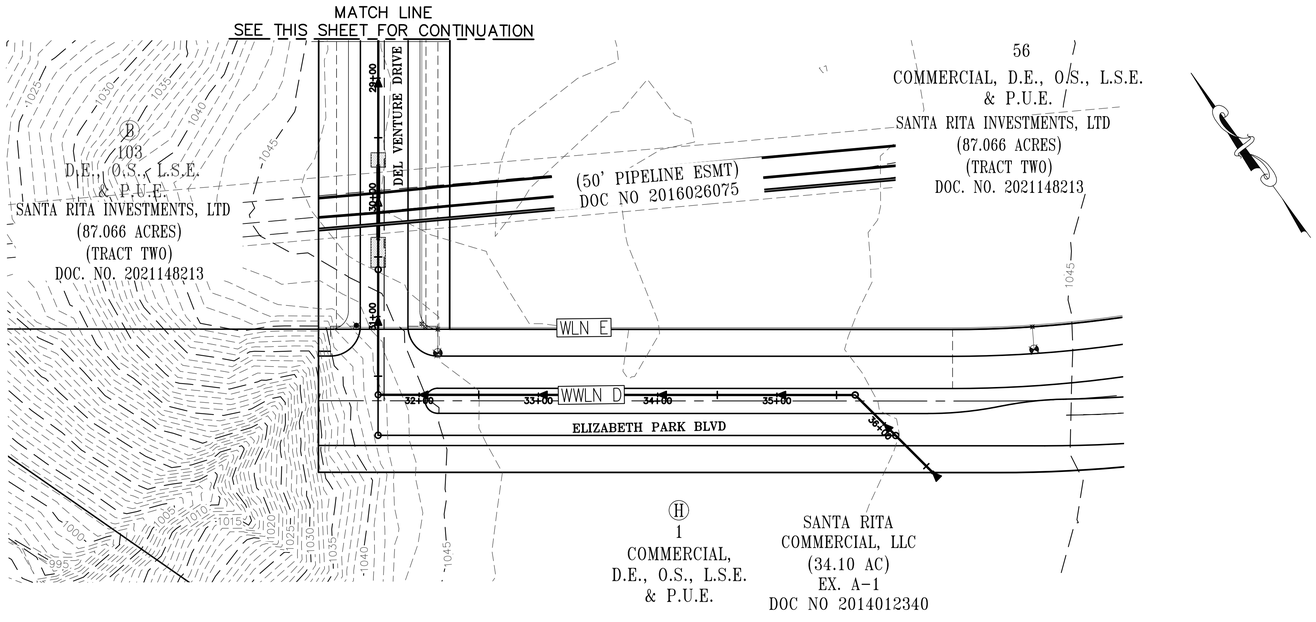
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SHEET NAME: OVERALL WASTEWATER PLAN (2 OF 3)
JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1
PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
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CARLSON, BRIGANCE & DOERING, INC.
ID# F3791
6-9-2025

DATE: MAY 2025
JOB NUMBER: 5665
SHEET: 83 OF 103
SHEET NO.: 83





WASTEWATER LEGEND

- S — PROPOSED SINGLE SERVICE
- D — PROPOSED DOUBLE SERVICE
- PROPOSED MANHOLE
- EXISTING MANHOLE
- FLOW DIRECTION ARROW

0 60' 120'

SCALE: 1" = 60'

SINGLE AND DOUBLE WASTEWATER SERVICES TO BE INSTALLED PER THE SANTA RITA RANCH SINGLE AND DOUBLE WASTEWATER SERVICE DETAILS ON THE WASTEWATER DETAILS SHEET

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7. THE CONTRACTOR, AT CONTRACTOR'S EXPENSE, SHALL PERFORM QUALITY TESTING FOR ALL WASTEWATER PIPE INSTALLED AND PRESSURE PIPE HYDROSTATIC TESTING OF ALL WASTEWATER LINES CONSTRUCTED AND SHALL PROVIDE ALL EQUIPMENT (INCLUDING PUMPS AND GAUGES), SUPPLIES AND LABOR NECESSARY TO PERFORM THE TESTS. QUALITY AND PRESSURE TESTING SHALL BE MONITORED BY THE CITY OF LIBERTY HILL PERSONNEL.
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9. THE CONTRACTOR (OR SUBCONTRACTORS) SHALL NOT OPEN OR CLOSE ANY VALVES UNLESS AUTHORIZED BY THE CITY OF LIBERTY HILL PERSONNEL.
10. ALL WASTEWATER SERVICE LOCATIONS SHALL BE APPROPRIATELY MARKED AS FOLLOWS:
    WASTEWATER SERVICE "S" ON TOP OF CURB
    TOOLS FOR MARKING THE CURB SHALL BE PROVIDED BY THE CONTRACTOR. OTHER APPROPRIATE MEANS OF MARKING SERVICE LOCATIONS SHALL BE PROVIDED IN AREAS WITHOUT CURBS. SUCH MEANS OF MARKING SHALL BE AS SPECIFIED BY THE ENGINEER AND ACCEPTED BY THE CITY OF LIBERTY HILL.
11. CONTACT THE CITY OF LIBERTY HILL PUBLIC WORKS DEPARTMENT FOR ASSISTANCE IN OBTAINING EXISTING WASTEWATER LOCATIONS BY BOTH CALLING (512) 548-5529 AND EMAILING pubworks@libertyhilltx.gov.
12. SAND, AS DESCRIBED IN SPECIFICATION ITEM 510 PIPE, SHALL NOT BE USED AS BEDDING FOR 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 BY WEIGHT	PERCENT RETAINED
1/2"	0
3/8"	0-2
#4	40-85
#10	95-100

13. 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 (7AM - 4PM) AND POSSIBLY BETWEEN 12AM AND 6AM.
14. ALL WASTEWATER CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) REGULATIONS, 30 TAC CHAPTER 213 AND 317, AS APPLICABLE. ALL WATER CONSTRUCTION SHALL BE IN ACCORDANCE WITH TCEQ REGULATIONS, 30 TAC CHAPTER 290. WHENEVER TCEQ AND CITY OF LIBERTY HILL SPECIFICATIONS CONFLICT, THE MORE STRINGENT SHALL APPLY.

DESIGNED BY: SPC | DRAFTED BY: CL

DATE | REVISION

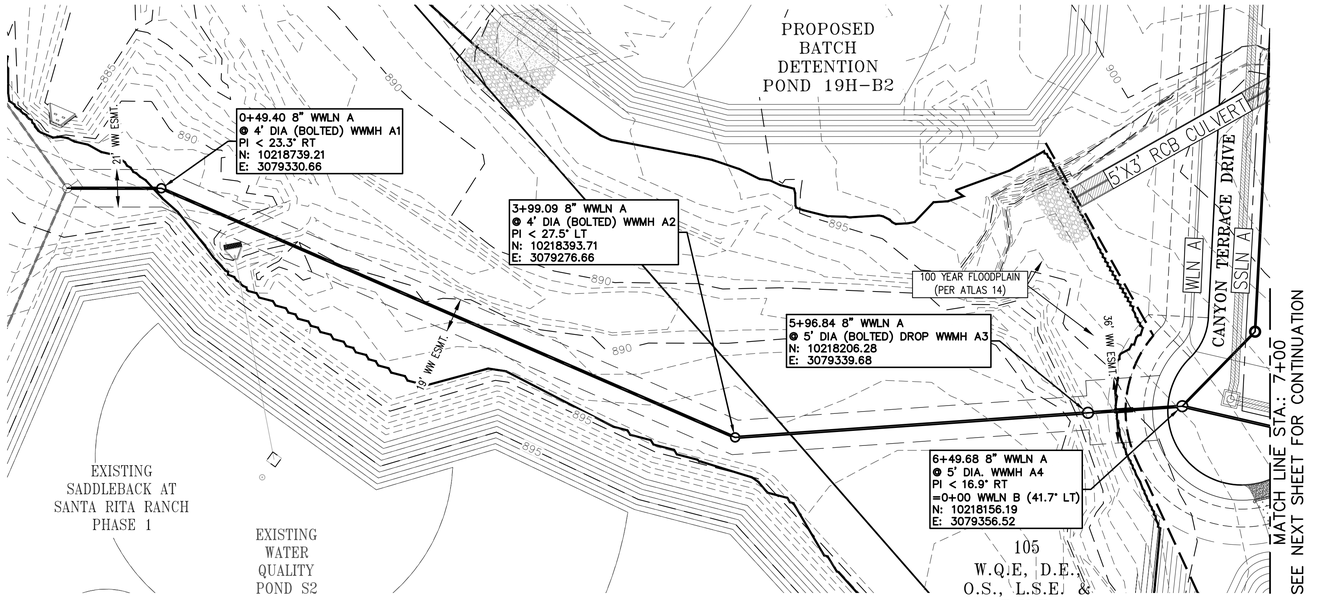
Carlson, Brigance & Doering, Inc.
Civil Engineering ◆ Surveying
FIRM ID #F3791
Main Office: 5501 West William Cannon Dr. Austin, Texas 78749 Phone No. (512) 280-5160
North Office: 1212 RR 620 N, Suite 300 Austin, Texas 78734 Fax No. (512) 280-5165

SHEET NAME: OVERALL WASTEWATER PLAN (3 OF 3)
JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1
PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED PROFESSIONAL ENGINEER
CARLSON, BRIGANCE & DOERING, INC.
ID# F3791
6-9-2025

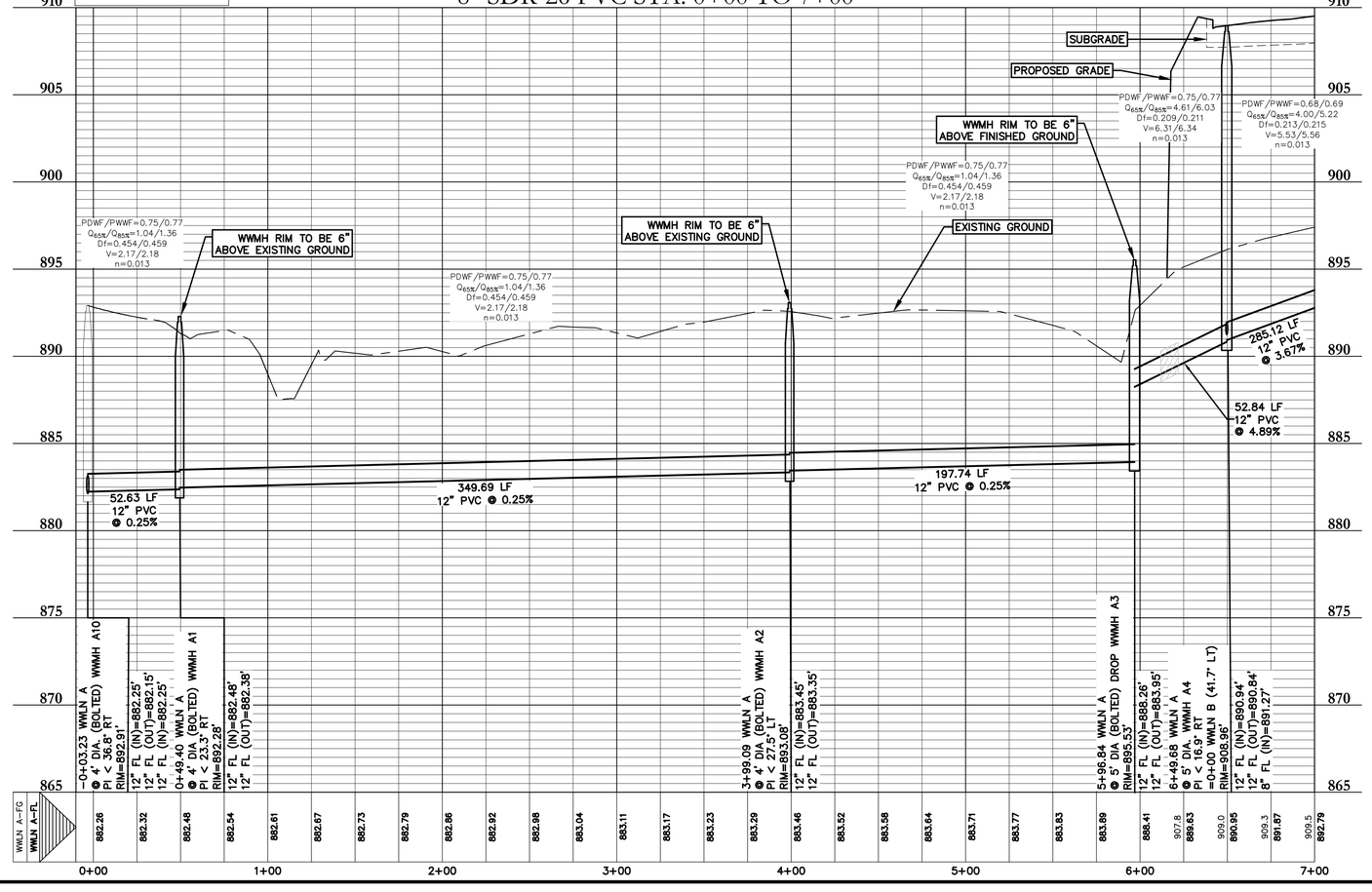
DATE: MAY 2025
JOB NUMBER: 5665
SHEET: 84 OF 103
SHEET NO.: 84

FILE PATH: J:\ACD\5665\dwg\5665-WASTE.dwg - Jun 09, 2025 - 1:47pm



PROFILE SCALE
HORIZ. 1" = 40'
VERT. 1" = 4'

WWLN "A"
8" SDR-26 PVC STA. 0+00 TO 7+00



WASTEWATER LEGEND

- S / D — PROPOSED SINGLE SERVICE / PROPOSED DOUBLE SERVICE
- PROPOSED MANHOLE
- EXISTING MANHOLE
- FLOW DIRECTION ARROW

SCALE: 1" = 40'

SINGLE AND DOUBLE WASTEWATER SERVICES TO BE INSTALLED PER THE SANTA RITA RANCH SINGLE AND DOUBLE WASTEWATER SERVICE DETAILS ON THE WASTEWATER DETAILS SHEET

WASTEWATER NOTES
PER THE CITY OF LIBERTY HILL WASTEWATER NOTES REVISED JUNE 10, 2024

1. ALL STREETS ARE TO BE BUILT TO SUB-GRADE PRIOR TO UTILITY INSTALLATION.
2. PIPE MATERIAL FOR PRESSURE WASTEWATER MAINS SHALL BE PVC (AWWA C-900, MIN. CLASS 150), SDR26. HIGHER PRESSURE RATED (160 PSI). OR DUCTILE IRON (AWWA C-100, MIN. CLASS 200). PIPE MATERIAL FOR GRAVITY WASTEWATER MAINS SHALL BE PVC (ASTM D2241 OR D3034, MAX. DR-26) AND DUCTILE IRON (AWWA C-100, MIN. CLASS 200).
3. UNLESS OTHERWISE ACCEPTED BY THE CITY ENGINEER, MINIMUM DEPTH OF COVER FOR ALL LINES OUTSIDE OF THE PAVEMENT SHALL BE 42" BELOW FINISHED GRADE AND 30" BELOW SUBGRADE FOR ALL LINES LOCATED IN PAVED AREAS.
4. ALL DUCTILE IRON PIPE AND FITTINGS SHALL BE WRAPPED WITH A MINIMUM OF 8-MIL POLYETHYLENE AND SEALED WITH DUCT TAPE OR AN EQUIVALENT ACCEPTABLE BY THE CITY ENGINEER.
5. THE CONTRACTOR SHALL CONTACT THE CITY OF LIBERTY HILL PUBLIC WORKS DEPARTMENT BY BOTH CALLING 512-548-5529 AND EMAILING pubworks@libertyhilltx.gov TO COORDINATE UTILITY TIE-INS AND NOTIFY THEM AT LEAST 48 HOURS PRIOR TO CONNECTING TO ANY EXISTING LINES.
6. ALL MANHOLES SHALL BE CONCRETE WITH CAST IRON RING AND COVER. ALL MANHOLES LOCATED OUTSIDE OF THE PAVEMENT SHALL HAVE BOLTED COVERS. CORE CONNECTIONS TO FIBERGLASS MANHOLES SHALL NOT BE ALLOWED.
7. THE CONTRACTOR, AT CONTRACTOR'S EXPENSE, SHALL PERFORM QUALITY TESTING FOR ALL WASTEWATER PIPE INSTALLED AND PRESSURE PIPE HYDROSTATIC TESTING OF ALL WASTEWATER LINES CONSTRUCTED AND SHALL PROVIDE ALL EQUIPMENT (INCLUDING PUMPS AND GAUGES), SUPPLIES AND LABOR NECESSARY TO PERFORM THE TESTS. QUALITY AND PRESSURE TESTING SHALL BE MONITORED BY THE CITY OF LIBERTY HILL PERSONNEL.
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SIEVE SIZE	PERCENT
BY WEIGHT	RETAINED
1/2"	0
3/8"	0-2
#4	40-85
#10	95-100

13. 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 (7AM - 4PM) AND POSSIBLY BETWEEN 12AM AND 6AM.
14. ALL WASTEWATER CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) REGULATIONS, 30 TAC CHAPTER 213 AND 317, AS APPLICABLE. ALL WATER CONSTRUCTION SHALL BE IN ACCORDANCE WITH TCEQ REGULATIONS, 30 TAC CHAPTER 290. WHENEVER TCEQ AND CITY OF LIBERTY HILL SPECIFICATIONS CONFLICT, THE MORE STRINGENT SHALL APPLY.

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DATE | REVISION

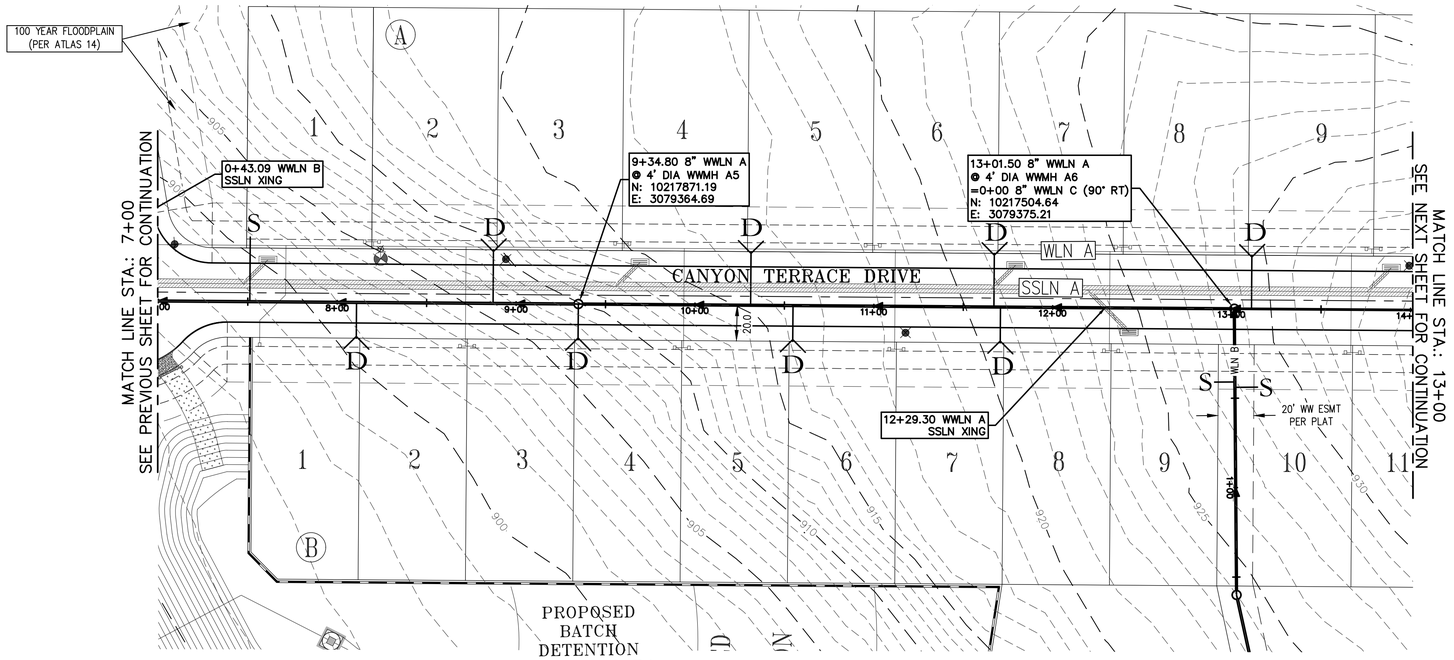
Carlson, Brigance & Doering, Inc.
Civil Engineering ◆ Surveying
FIRM ID #F3791
Main Office: 5501 West William Cannon Dr. Austin, Texas 78749 — Phone No. (312) 280-5160
North Office: 121 2nd RR 620 N. Suite 300 Austin, Texas 78734 — Fax No. (512) 280-5165

SHEET NAME: WASTEWATER LINE A (0+00 TO 7+00)
JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1
PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS — STEVEN P. CATES — 93648 — LICENSED PROFESSIONAL ENGINEER
CARLSON, BRIGANCE & DOERING, INC. ID# F3791
6-9-2025

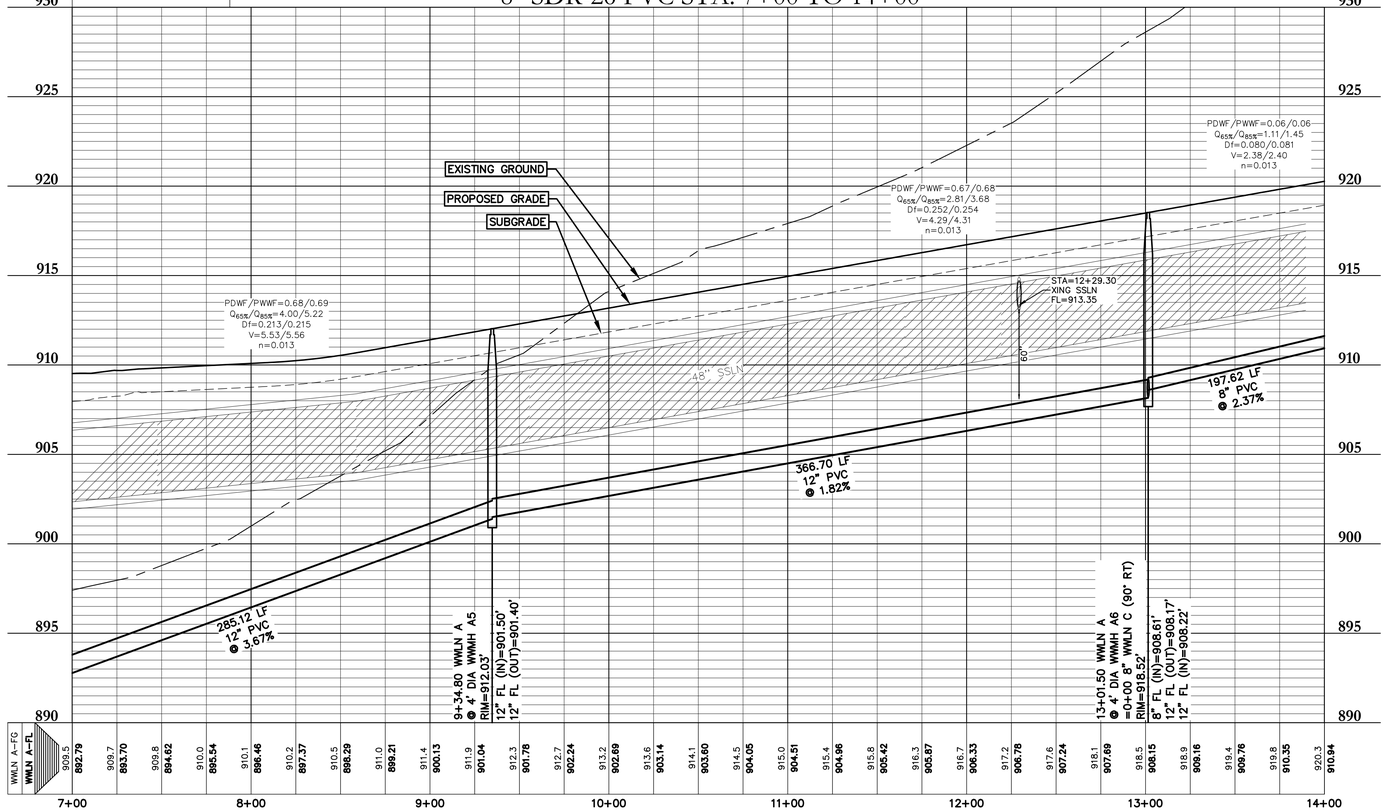
DATE: MAY 2025
JOB NUMBER: 5665
SHEET: 85 OF 103
SHEET NO.: 85

FILE PATH: J:\ACD\5665\dwg\5665-WASTE.dwg - Jun 09, 2025 - 1:47pm



PROFILE SCALE
HORIZ. 1" = 40'
VERT. 1" = 4'

WWLN "A"
8" SDR-26 PVC STA. 7+00 TO 14+00



WASTEWATER LEGEND

- S — PROPOSED SINGLE SERVICE
- D — PROPOSED DOUBLE SERVICE
- PROPOSED MANHOLE
- EXISTING MANHOLE
- FLOW DIRECTION ARROW

SCALE: 1" = 40'

SINGLE AND DOUBLE WASTEWATER SERVICES TO BE INSTALLED PER THE SANTA RITA RANCH SINGLE AND DOUBLE WASTEWATER SERVICE DETAILS ON THE WASTEWATER DETAILS SHEET

WASTEWATER NOTES
PER THE CITY OF LIBERTY HILL WASTEWATER NOTES REVISED JUNE 10, 2024

1. ALL STREETS ARE TO BE BUILT TO SUB-GRADE PRIOR TO UTILITY INSTALLATION.
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6. ALL MANHOLES SHALL BE CONCRETE WITH CAST IRON RING AND COVER. ALL MANHOLES LOCATED OUTSIDE OF THE PAVEMENT SHALL HAVE BOLTED COVERS. CORE CONNECTIONS TO FIBERGLASS MANHOLES SHALL NOT BE ALLOWED.
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SIEVE SIZE BY WEIGHT	PERCENT RETAINED
1/2"	0
3/8"	0–2
#4	40–85
#10	95–100

13. 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 (7AM – 4PM) AND POSSIBLY BETWEEN 12AM AND 6AM.
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DESIGNED BY: SPC | DRAFTED BY: CL

DATE

REVISION

Carlson, Brigance & Doering, Inc.
Civil Engineering ◆ Surveying
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Austin, Texas 78749
Phone No. (512) 280-5160
North Office
1120 RR 620 N, Suite 600
Austin, Texas 78750
Fax No. (512) 280-5165

SHEET NAME: WASTEWATER LINE A (7+00 TO 14+00)

JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1

PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED PROFESSIONAL ENGINEER
CARLSON, BRIGANCE & DOERING, INC.
ID# F3791

6-9-2025

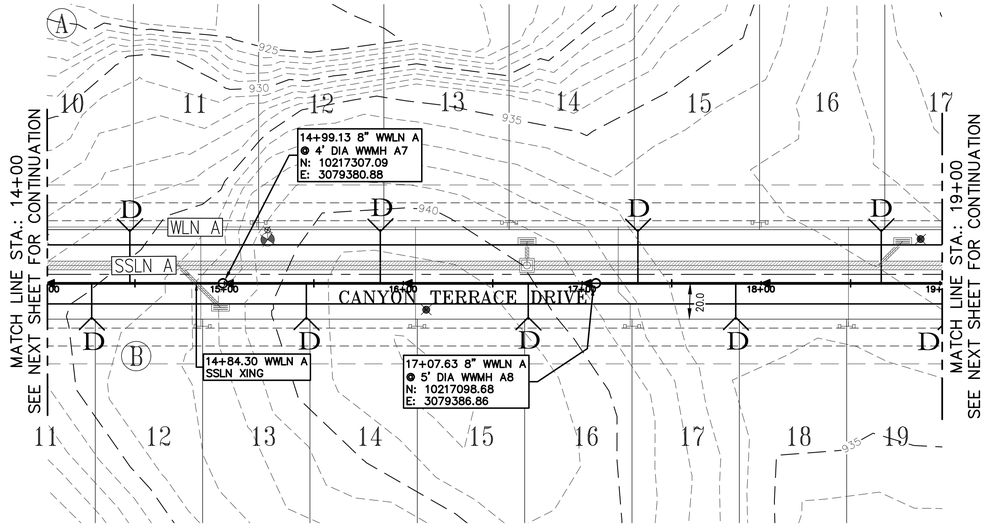
DATE: MAY 2025

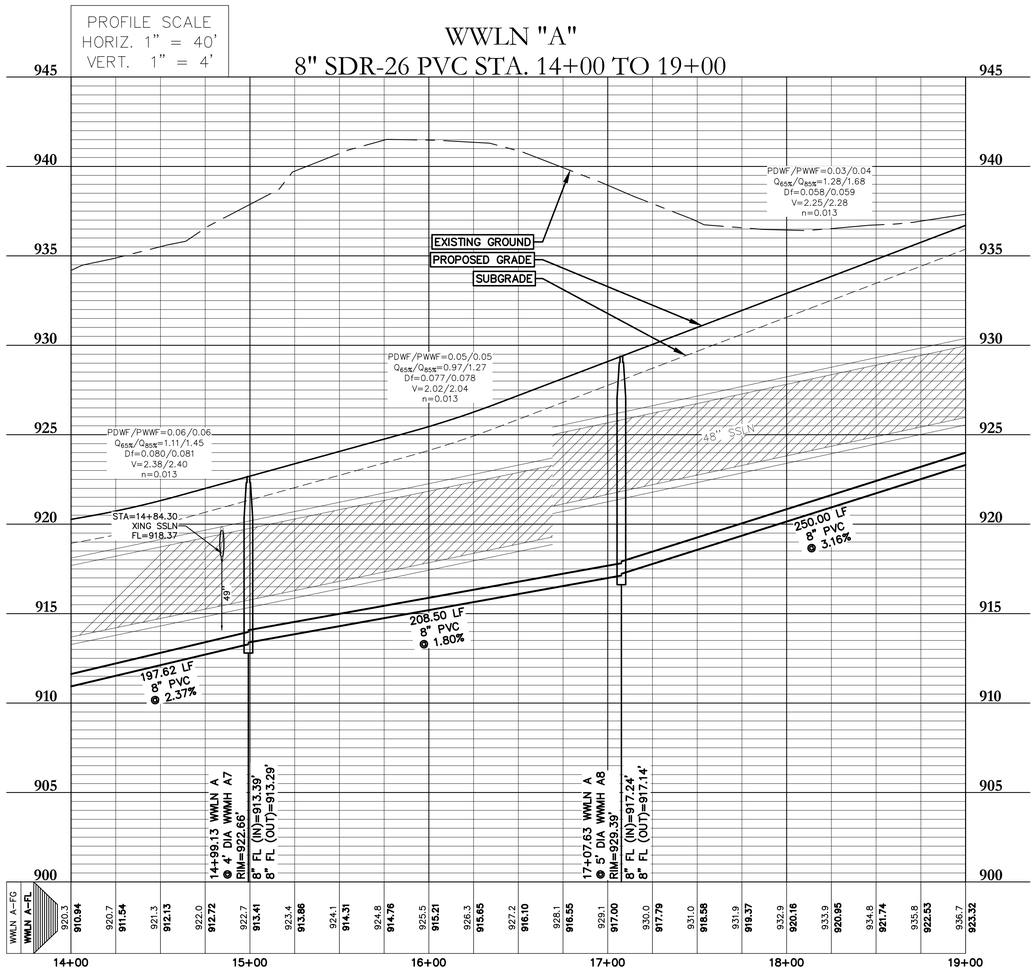
JOB NUMBER: 5665

SHEET: 86 OF 103

SHEET NO.: 86

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WASTEWATER LEGEND

- S — PROPOSED SINGLE SERVICE
- D — PROPOSED DOUBLE SERVICE
- PROPOSED MANHOLE
- EXISTING MANHOLE
- FLOW DIRECTION ARROW

0 40' 80'

SCALE: 1" = 40'

SINGLE AND DOUBLE WASTEWATER SERVICES TO BE INSTALLED PER THE SANTA RITA RANCH SINGLE AND DOUBLE WASTEWATER SERVICE DETAILS ON THE WASTEWATER DETAILS SHEET

WASTEWATER NOTES

PER THE CITY OF LIBERTY HILL WASTEWATER NOTES REVISED JUNE 10, 2024

1. ALL STREETS ARE TO BE BUILT TO SUB-GRADE PRIOR TO UTILITY INSTALLATION.
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4. ALL DUCTILE IRON PIPE AND FITTINGS SHALL BE WRAPPED WITH A MINIMUM OF 8-MIL POLYETHYLENE AND SEALED WITH DUCT TAPE OR AN EQUIVALENT ACCEPTABLE BY THE CITY ENGINEER.
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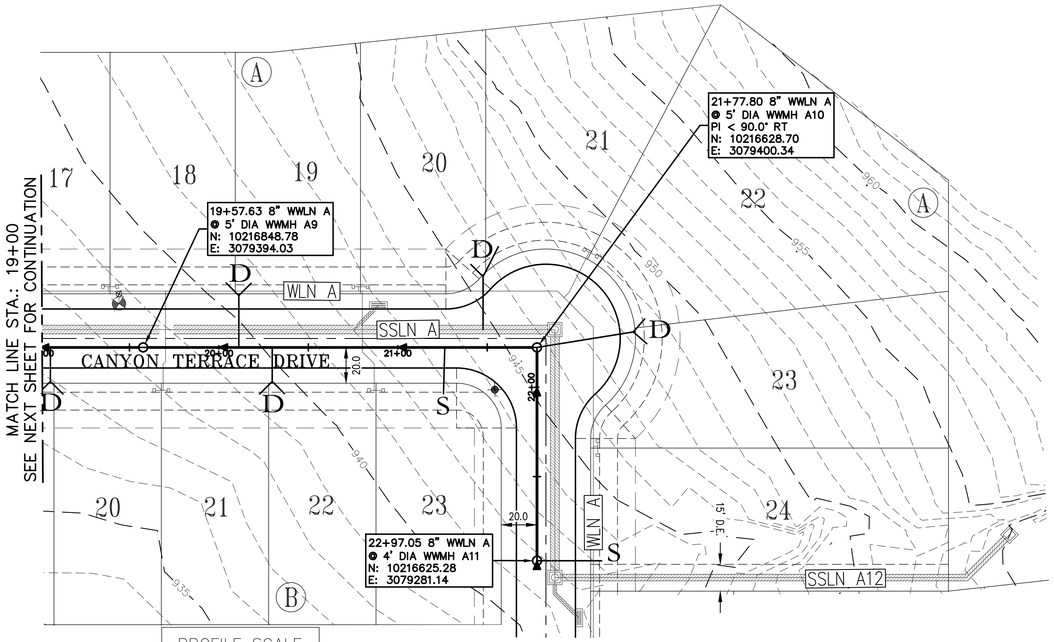
SHEET NAME: WASTEWATER LINE A (14+00 TO 19+00)
JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1
PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED PROFESSIONAL ENGINEER
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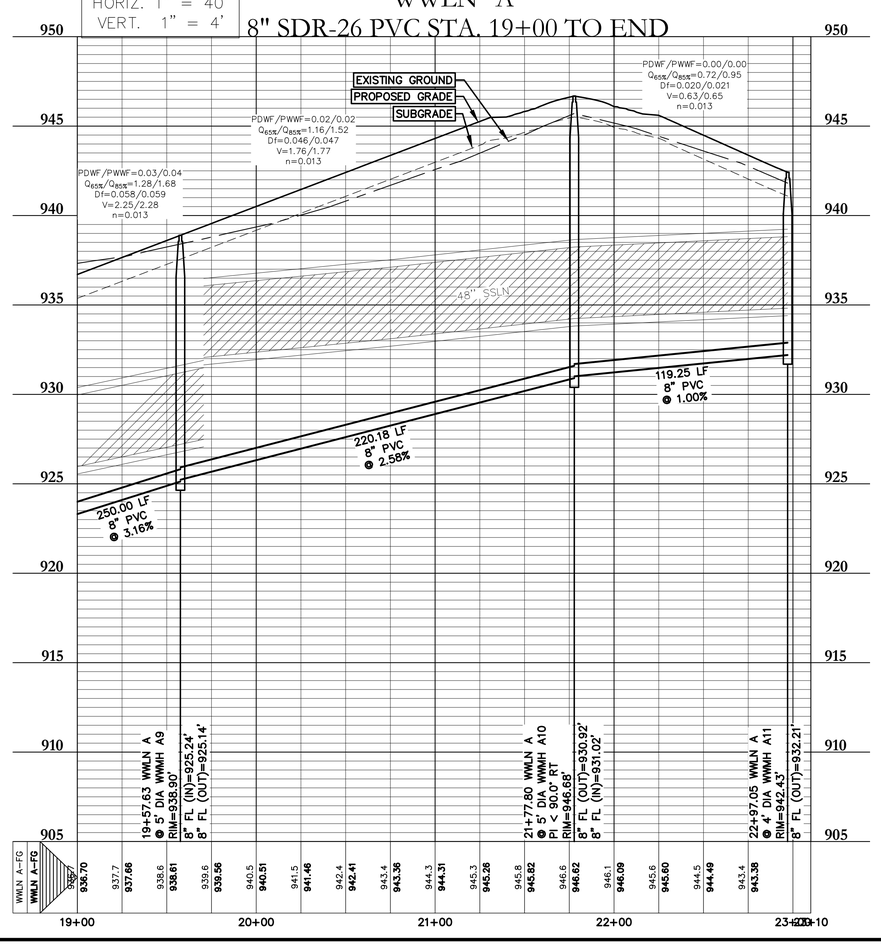
DATE: MAY 2025
JOB NUMBER: 5665
SHEET: 87 OF 103
SHEET NO.: 87

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PROFILE SCALE
HORIZ. 1" = 40'
VERT. 1" = 4'

WWLN "A"
8" SDR-26 PVC STA. 19+00 TO END



WASTEWATER LEGEND

- S — PROPOSED SINGLE SERVICE
- D — PROPOSED DOUBLE SERVICE
- PROPOSED MANHOLE
- EXISTING MANHOLE
- ◀ FLOW DIRECTION ARROW

0 40' 80'

SCALE: 1" = 40'

SINGLE AND DOUBLE WASTEWATER SERVICES TO BE INSTALLED PER THE SANTA RITA RANCH SINGLE AND DOUBLE WASTEWATER SERVICE DETAILS ON THE WASTEWATER DETAILS SHEET

WASTEWATER NOTES
PER THE CITY OF LIBERTY HILL WASTEWATER NOTES
REVISED JUNE 10, 2024

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5. THE CONTRACTOR SHALL CONTACT THE CITY OF LIBERTY HILL PUBLIC WORKS DEPARTMENT BY BOTH CALLING 512-548-5529 AND EMAILING pubworks@libertyhilltx.gov TO COORDINATE UTILITY TIE-INS AND NOTIFY THEM AT LEAST 48 HOURS PRIOR TO CONNECTING TO ANY EXISTING LINES.
6. ALL MANHOLES SHALL BE CONCRETE WITH CAST IRON RING AND COVER. ALL MANHOLES LOCATED OUTSIDE OF THE PAVEMENT SHALL HAVE BOLTED COVERS. CORE CONNECTIONS TO FIBERGLASS MANHOLES SHALL NOT BE ALLOWED.
7. THE CONTRACTOR, AT CONTRACTOR'S EXPENSE, SHALL PERFORM QUALITY TESTING FOR ALL WASTEWATER PIPE INSTALLED AND PRESSURE PIPE HYDROSTATIC TESTING OF ALL WASTEWATER LINES CONSTRUCTED AND SHALL PROVIDE ALL EQUIPMENT (INCLUDING PUMPS AND GAUGES), SUPPLIES AND LABOR NECESSARY TO PERFORM THE TESTS. QUALITY AND PRESSURE TESTING SHALL BE MONITORED BY THE CITY OF LIBERTY HILL PERSONNEL.
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    TOOLS FOR MARKING THE CURB SHALL BE PROVIDED BY THE CONTRACTOR. OTHER APPROPRIATE MEANS OF MARKING SERVICE LOCATIONS SHALL BE PROVIDED IN AREAS WITHOUT CURBS. SUCH MEANS OF MARKING SHALL BE AS SPECIFIED BY THE ENGINEER AND ACCEPTED BY THE CITY OF LIBERTY HILL.
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SIEVE SIZE BY WEIGHT	PERCENT RETAINED
1/2"	0
3/8"	0-2
#4	40-85
#10	95-100

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DESIGNED BY: SPC | DRAFTED BY: CL

DATE

REVISION

Carlson, Brigance & Doering, Inc.
Civil Engineering ◆ Surveying
FIRM ID #F3791
Main Office: 5501 West William Cannon Dr. Austin, Texas 78749 Phone No. (512) 280-5160
North Office: 121 29 RR 620 N. Suite 600 Austin, Texas 78726 Fax No. (512) 280-5165

SHEET NAME: WASTEWATER LINE A (19+00 TO END)

JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1

PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED PROFESSIONAL ENGINEER
CARLSON, BRIGANCE & DOERING, INC.
ID# F3791
6-9-2025

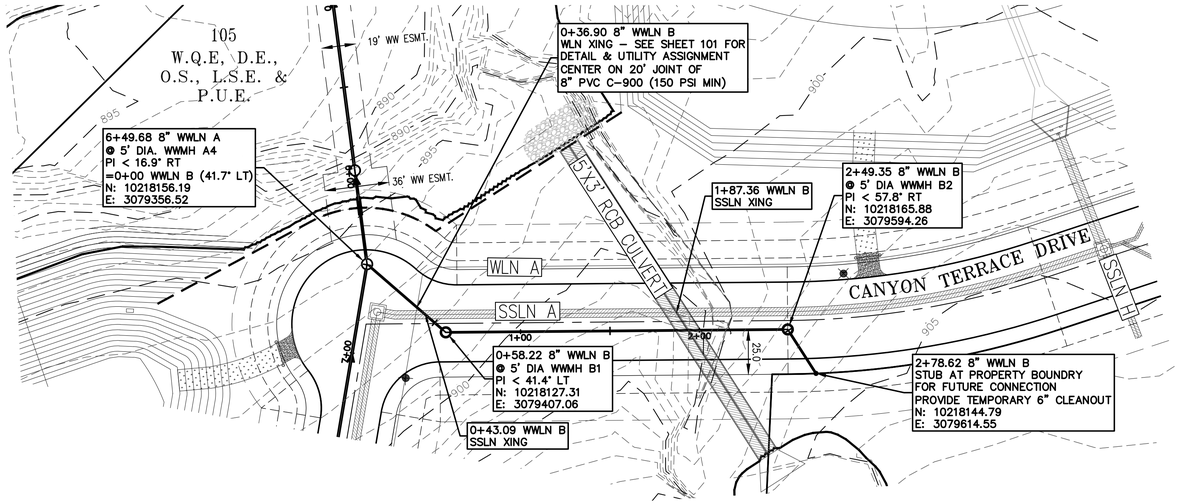
DATE: MAY 2025

JOB NUMBER: 5665

SHEET: 88 OF 103

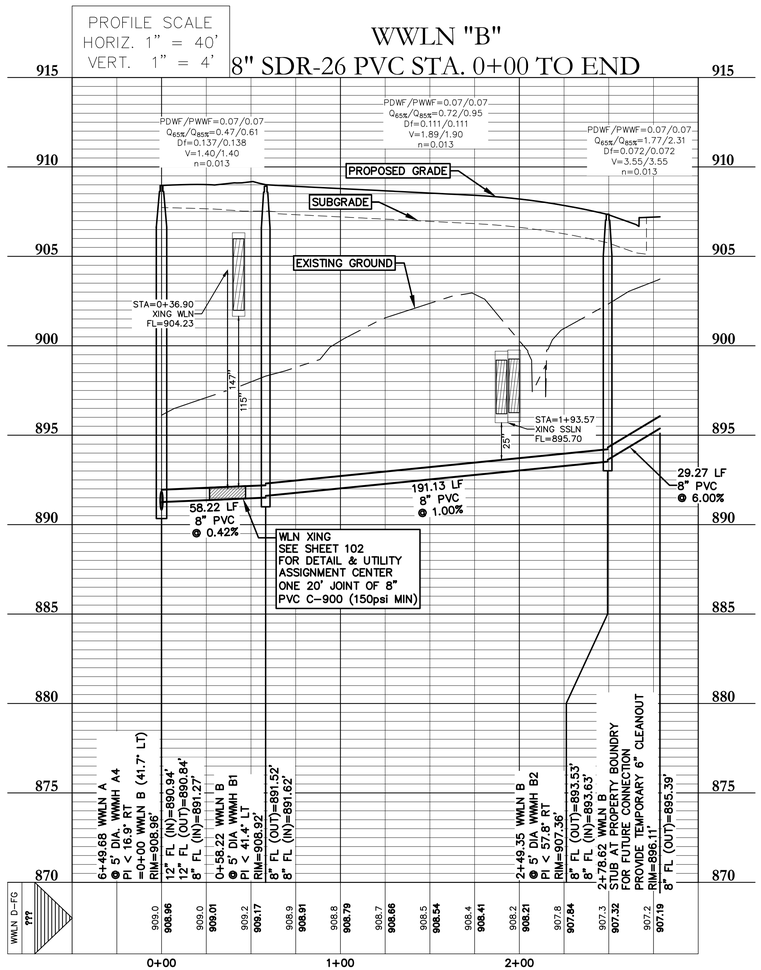
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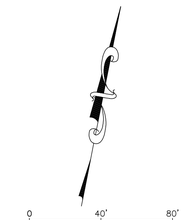
PROFILE SCALE
HORIZ. 1" = 40'
VERT. 1" = 4'

WWLN "B"
8" SDR-26 PVC STA. 0+00 TO END



WASTEWATER LEGEND

- S / D — PROPOSED SINGLE SERVICE / PROPOSED DOUBLE SERVICE
- PROPOSED MANHOLE
- EXISTING MANHOLE
- FLOW DIRECTION ARROW



SCALE: 1" = 40'

SINGLE AND DOUBLE WASTEWATER SERVICES TO BE INSTALLED PER THE SANTA RITA RANCH SINGLE AND DOUBLE WASTEWATER SERVICE DETAILS ON THE WASTEWATER DETAILS SHEET

VARIANCE NOTE

WWLN B STA. 00+00.00 TO 2+48.09 DOES NOT MEET 2 FPS IN PDWF. A MINIMUM 1% SLOPE IS BEING UTILIZED FOR ALL PIPES THAT CANNOT ACHIEVE 2 FPS IN PDWF, AND A VARIANCE FOR THE DESIGN VELOCITY REQUIREMENTS IS BEING APPROVED BY LIBERTY HILL.

WASTEWATER NOTES

PER THE CITY OF LIBERTY HILL WASTEWATER NOTES REVISED JUNE 10, 2024

1. ALL STREETS ARE TO BE BUILT TO SUB-GRADE PRIOR TO UTILITY INSTALLATION.
2. PIPE MATERIAL FOR PRESSURE WASTEWATER MAINS SHALL BE PVC (AWWA C-900, MIN. CLASS 150), SDR26. HIGHER PRESSURE RATED (160 PSI). OR DUCTILE IRON (AWWA C-100, MIN. CLASS 200). PIPE MATERIAL FOR GRAVITY WASTEWATER MAINS SHALL BE PVC (ASTM D2241 OR D3034, MAX. DR-26) AND DUCTILE IRON (AWWA C-100, MIN. CLASS 200).
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SIEVE SIZE BY WEIGHT	PERCENT RETAINED
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3/8"	0–2
#4	40–85
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DATE | REVISION

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Austin, Texas 78749
Phone No. (512) 280-5160
North Office
1219 RR 620 N. Suite 600
Austin, Texas 78734
Fax No. (512) 280-5165

SHEET NAME: WASTEWATER LINE B (0+00 TO END)

JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1

PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED PROFESSIONAL ENGINEER
CARLSON, BRIGANCE & DOERING, INC.
ID# F3791

6-9-2025

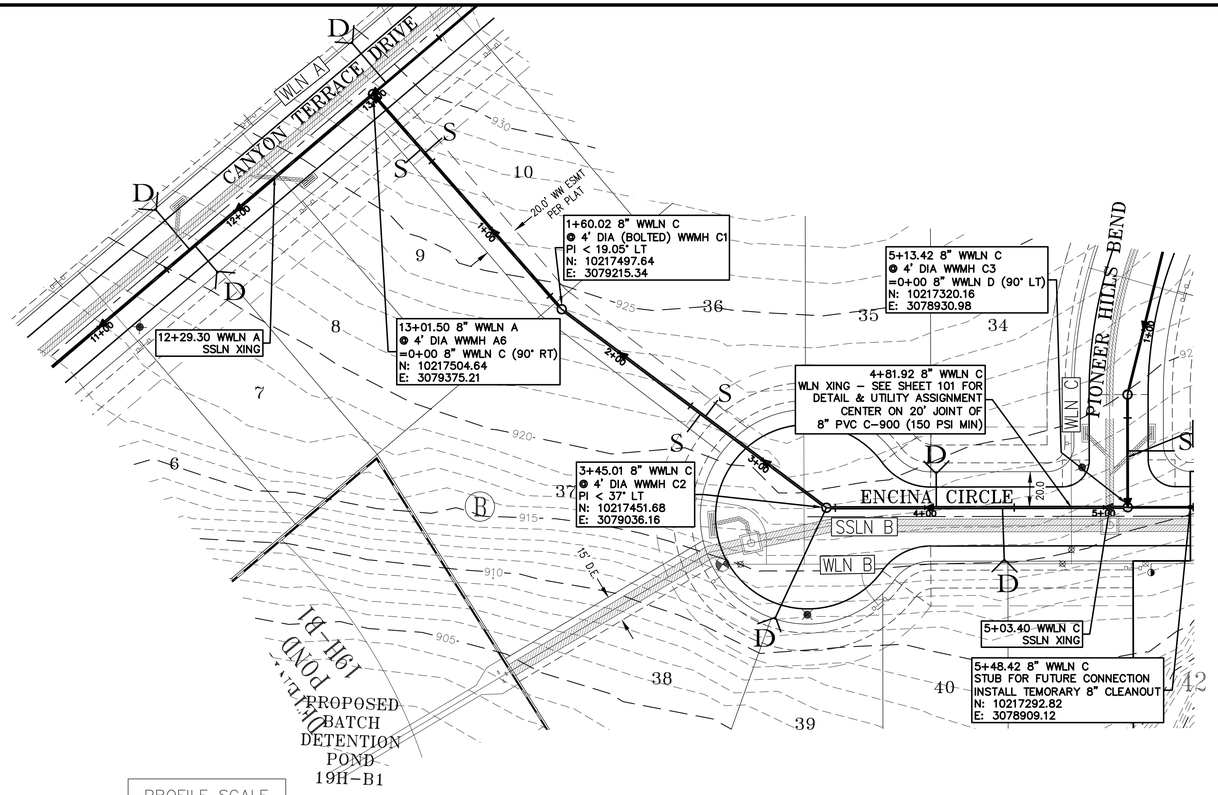
DATE: MAY 2025

JOB NUMBER: 5665

SHEET: 89 OF 103

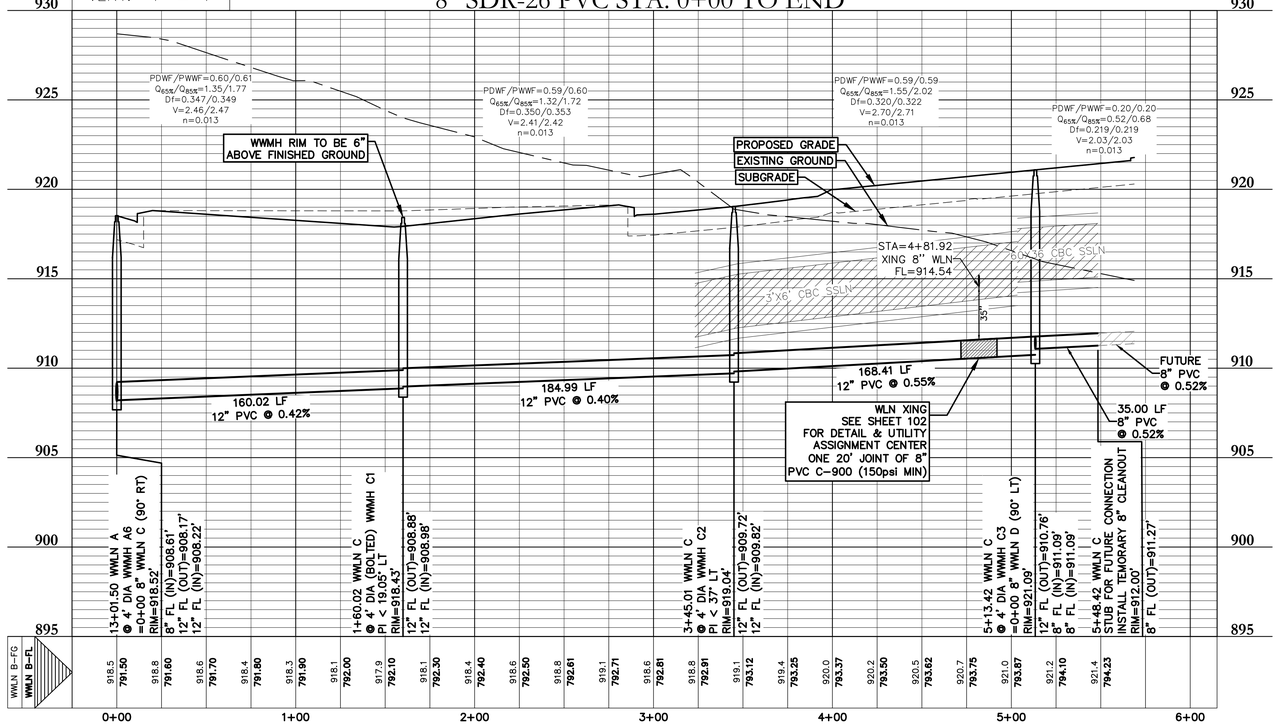
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PROFILE SCALE
HORIZ. 1" = 40'
VERT. 1" = 4'

WWLN "C"
8" SDR-26 PVC STA. 0+00 TO END



WASTEWATER LEGEND

- S — PROPOSED SINGLE SERVICE
- D — PROPOSED DOUBLE SERVICE
- PROPOSED MANHOLE
- EXISTING MANHOLE
- FLOW DIRECTION ARROW

0 40' 80'

SCALE: 1" = 40'

SINGLE AND DOUBLE WASTEWATER SERVICES TO BE INSTALLED PER THE SANTA RITA RANCH SINGLE AND DOUBLE WASTEWATER SERVICE DETAILS ON THE WASTEWATER DETAILS SHEET

WASTEWATER NOTES

PER THE CITY OF LIBERTY HILL WASTEWATER NOTES REVISED JUNE 10, 2024

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SIEVE SIZE BY WEIGHT	PERCENT RETAINED
1/2"	0
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DATE	
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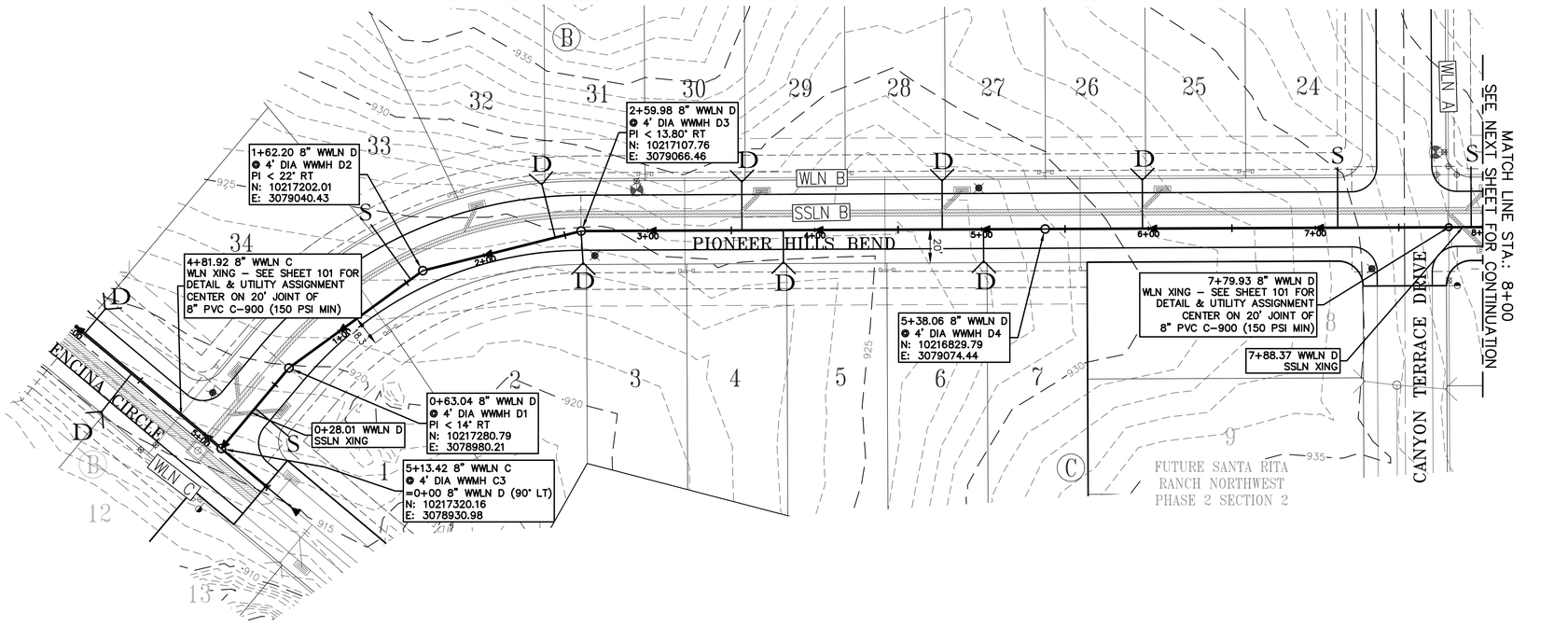
Carlson, Brigance & Doering, Inc.
Civil Engineering ◆ Surveying
FIRM ID #F3791
Main Office: 5501 West William Cannon Dr. Austin, Texas 78749 Phone No. (512) 280-5160
North Office: 1212 RR 620 S, Suite 201-600 Austin, Texas 78734 Fax No. (512) 280-5165

SHEET NAME: WASTEWATER LINE C (0+00 TO END)
JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1
PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED PROFESSIONAL ENGINEER
CARLSON, BRIGANCE & DOERING, INC.
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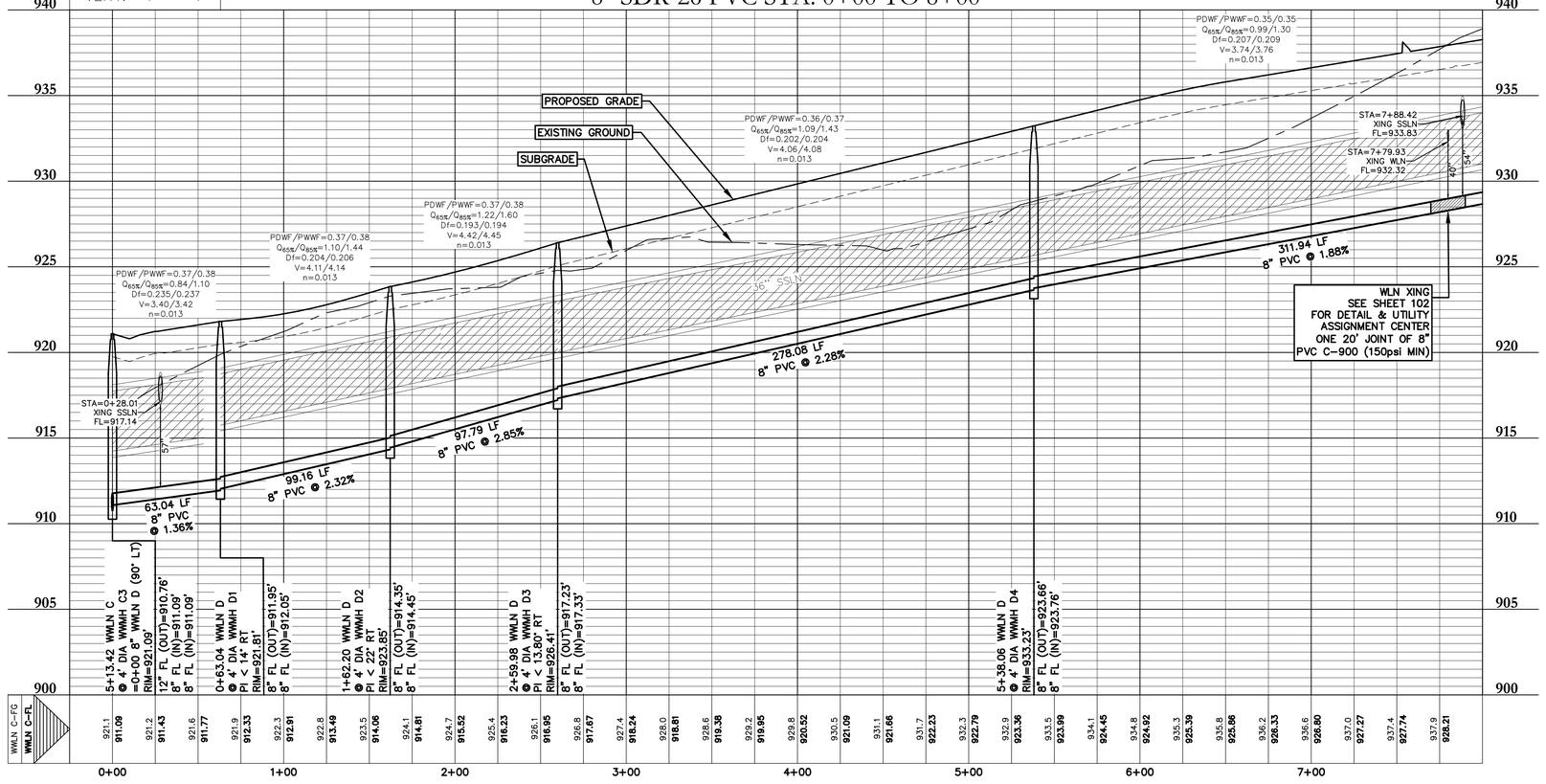
DATE: MAY 2025
JOB NUMBER: 5665
SHEET: 90 OF 103
SHEET NO.: 90

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PROFILE SCALE
HORIZ. 1" = 40'
VERT. 1" = 4'

WWLN "D"
8" SDR-26 PVC STA. 0+00 TO 8+00



WASTEWATER LEGEND

- S — PROPOSED SINGLE SERVICE
- D — PROPOSED DOUBLE SERVICE
- PROPOSED MANHOLE
- EXISTING MANHOLE
- FLOW DIRECTION ARROW

SCALE: 1" = 40'

SINGLE AND DOUBLE WASTEWATER SERVICES TO BE INSTALLED PER THE SANTA RITA RANCH SINGLE AND DOUBLE WASTEWATER SERVICE DETAILS ON THE WASTEWATER DETAILS SHEET

WASTEWATER NOTES

PER THE CITY OF LIBERTY HILL WASTEWATER NOTES REVISED JUNE 10, 2024

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SHEET NAME: WASTEWATER LINE D (0+00 TO 8+00)

JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1

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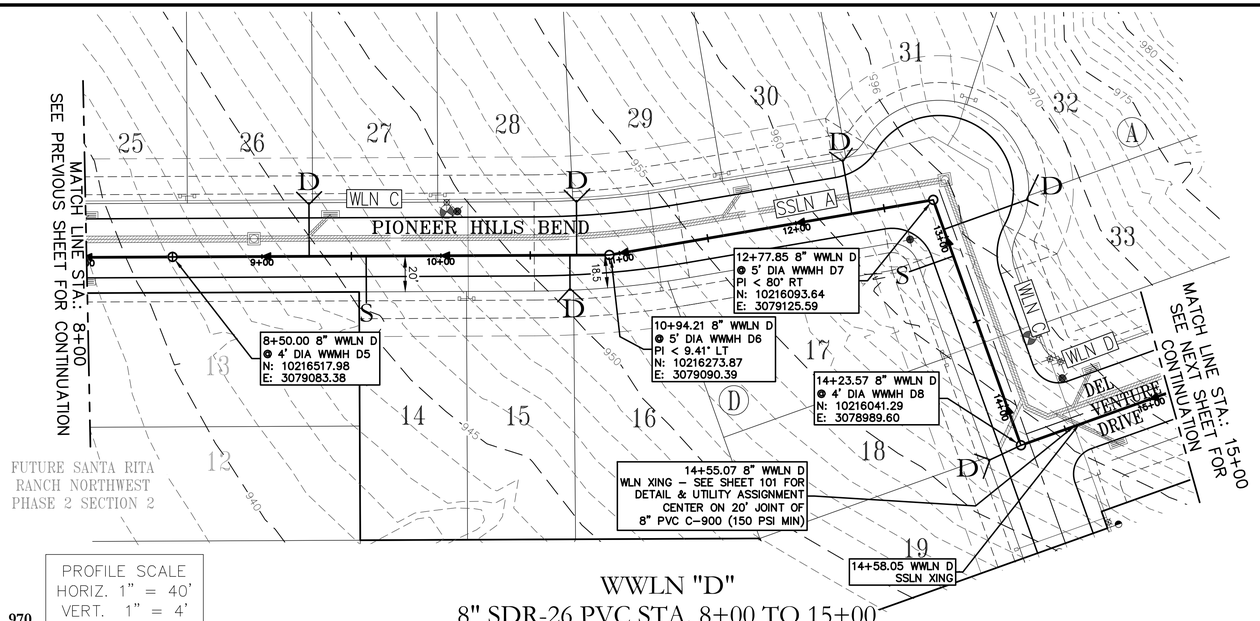
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JOB NUMBER
5665

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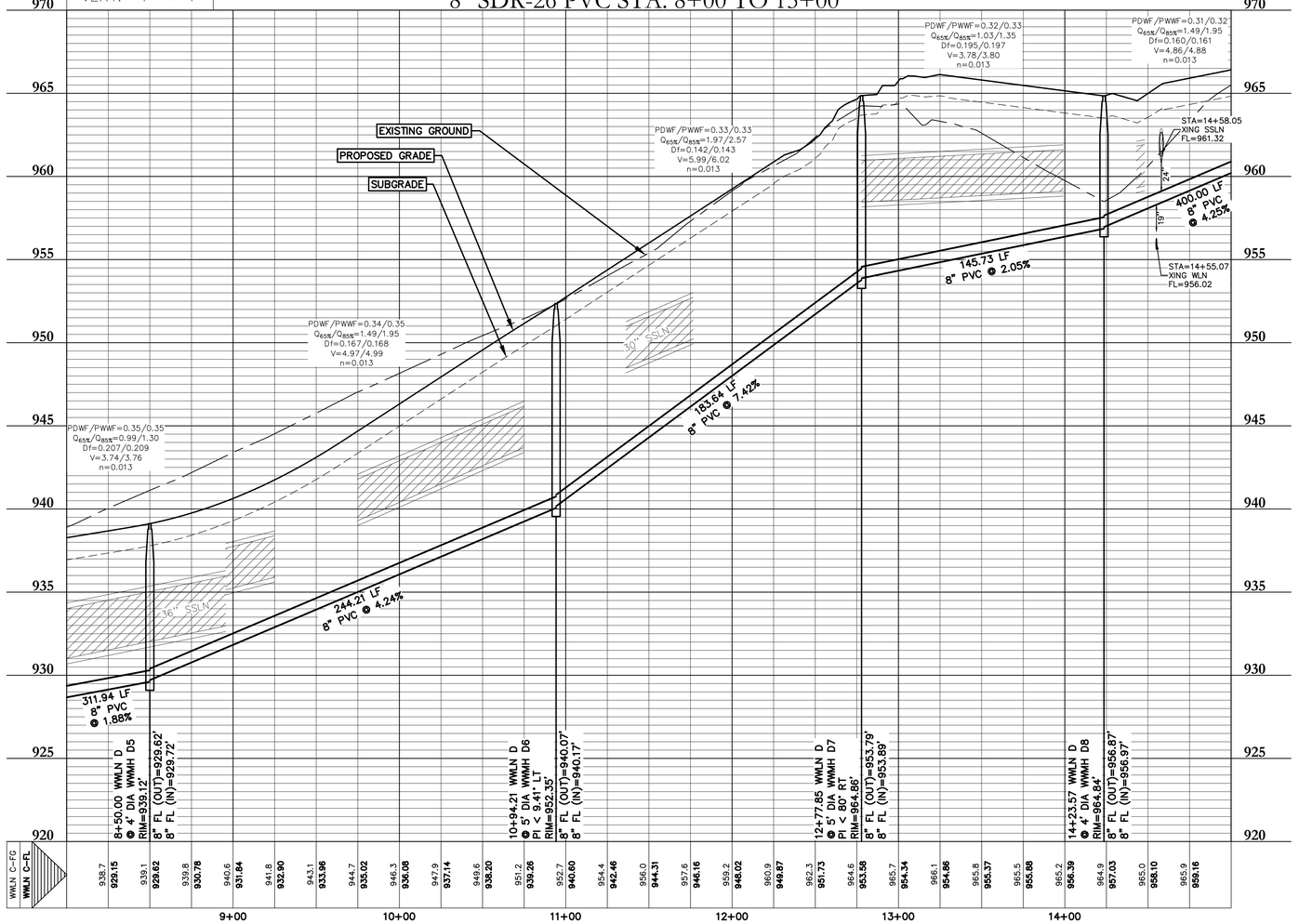
SHEET NO.
91

FILE PATH:J:\ACD\5665\dwg\5665-WASTE.dwg - Jun 09, 2025 - 1:48pm



PROFILE SCALE
HORIZ. 1" = 40'
VERT. 1" = 4'

WWLN "D"
8" SDR-26 PVC STA. 8+00 TO 15+00



WASTEWATER LEGEND

- S — PROPOSED SINGLE SERVICE
- D — PROPOSED DOUBLE SERVICE
- PROPOSED MANHOLE
- EXISTING MANHOLE
- FLOW DIRECTION ARROW

0 40' 80'

SCALE: 1" = 40'

SINGLE AND DOUBLE WASTEWATER SERVICES TO BE INSTALLED PER THE SANTA RITA RANCH SINGLE AND DOUBLE WASTEWATER SERVICE DETAILS ON THE WASTEWATER DETAILS SHEET

WASTEWATER NOTES
PER THE CITY OF LIBERTY HILL WASTEWATER NOTES REVISED JUNE 10, 2024

1. ALL STREETS ARE TO BE BUILT TO SUB-GRADE PRIOR TO UTILITY INSTALLATION.
2. PIPE MATERIAL FOR PRESSURE WASTEWATER MAINS SHALL BE PVC (AWWA C-900, MIN. CLASS 150), SDR26. HIGHER PRESSURE RATED (160 PSI). OR DUCTILE IRON (AWWA C-100, MIN. CLASS 200). PIPE MATERIAL FOR GRAVITY WASTEWATER MAINS SHALL BE PVC (ASTM D2241 OR D3034, MAX. DR-26) AND DUCTILE IRON (AWWA C-100, MIN. CLASS 200).
3. UNLESS OTHERWISE ACCEPTED BY THE CITY ENGINEER, MINIMUM DEPTH OF COVER FOR ALL LINES OUTSIDE OF THE PAVEMENT SHALL BE 42" BELOW FINISHED GRADE AND 30" BELOW SUBGRADE FOR ALL LINES LOCATED IN PAVED AREAS.
4. ALL DUCTILE IRON PIPE AND FITTINGS SHALL BE WRAPPED WITH A MINIMUM OF 8-MIL POLYETHYLENE AND SEALED WITH DUCT TAPE OR AN EQUIVALENT ACCEPTABLE BY THE CITY ENGINEER.
5. THE CONTRACTOR SHALL CONTACT THE CITY OF LIBERTY HILL PUBLIC WORKS DEPARTMENT BY BOTH CALLING 512-548-5529 AND EMAILING pubworks@libertyhilltx.gov TO COORDINATE UTILITY TIE-INS AND NOTIFY THEM AT LEAST 48 HOURS PRIOR TO CONNECTING TO ANY EXISTING LINES.
6. ALL MANHOLES SHALL BE CONCRETE WITH CAST IRON RING AND COVER. ALL MANHOLES LOCATED OUTSIDE OF THE PAVEMENT SHALL HAVE BOLTED COVERS. CORE CONNECTIONS TO FIBERGLASS MANHOLES SHALL NOT BE ALLOWED.
7. THE CONTRACTOR, AT CONTRACTOR'S EXPENSE, SHALL PERFORM QUALITY TESTING FOR ALL WASTEWATER PIPE INSTALLED AND PRESSURE PIPE HYDROSTATIC TESTING OF ALL WASTEWATER LINES CONSTRUCTED AND SHALL PROVIDE ALL EQUIPMENT (INCLUDING PUMPS AND GAUGES), SUPPLIES AND LABOR NECESSARY TO PERFORM THE TESTS. QUALITY AND PRESSURE TESTING SHALL BE MONITORED BY THE CITY OF LIBERTY HILL PERSONNEL.
8. THE CONTRACTOR SHALL COORDINATE TESTING WITH THE CITY OF LIBERTY HILL PUBLIC WORKS DEPARTMENT AND PROVIDE NO LESS THAN 24 HOURS' NOTICE PRIOR TO PERFORMING STERILIZATION, QUALITY TESTING, OR PRESSURE TESTING BY BOTH CALLING (512) 548-5529 AND EMAILING pubworks@libertyhilltx.gov.
9. THE CONTRACTOR (OR SUBCONTRACTORS) SHALL NOT OPEN OR CLOSE ANY VALVES UNLESS AUTHORIZED BY THE CITY OF LIBERTY HILL PERSONNEL.
10. ALL WASTEWATER SERVICE LOCATIONS SHALL BE APPROPRIATELY MARKED AS FOLLOWS:
    WASTEWATER SERVICE "S" ON TOP OF CURB
    TOOLS FOR MARKING THE CURB SHALL BE PROVIDED BY THE CONTRACTOR. OTHER APPROPRIATE MEANS OF MARKING SERVICE LOCATIONS SHALL BE PROVIDED IN AREAS WITHOUT CURBS. SUCH MEANS OF MARKING SHALL BE AS SPECIFIED BY THE ENGINEER AND ACCEPTED BY THE CITY OF LIBERTY HILL.
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12. SAND, AS DESCRIBED IN SPECIFICATION ITEM 510 PIPE, SHALL NOT BE USED AS BEDDING FOR 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 BY WEIGHT	PERCENT RETAINED
1/2"	0
3/8"	0-2
#4	40-85
#10	95-100

13. 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 (7AM - 4PM) AND POSSIBLY BETWEEN 12AM AND 6AM.
14. ALL WASTEWATER CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) REGULATIONS, 30 TAC CHAPTER 213 AND 317, AS APPLICABLE. ALL WATER CONSTRUCTION SHALL BE IN ACCORDANCE WITH TCEQ REGULATIONS, 30 TAC CHAPTER 290. WHENEVER TCEQ AND CITY OF LIBERTY HILL SPECIFICATIONS CONFLICT, THE MORE STRINGENT SHALL APPLY.

DESIGNED BY: SPC | DRAFTED BY: CL

DATE

REVISION

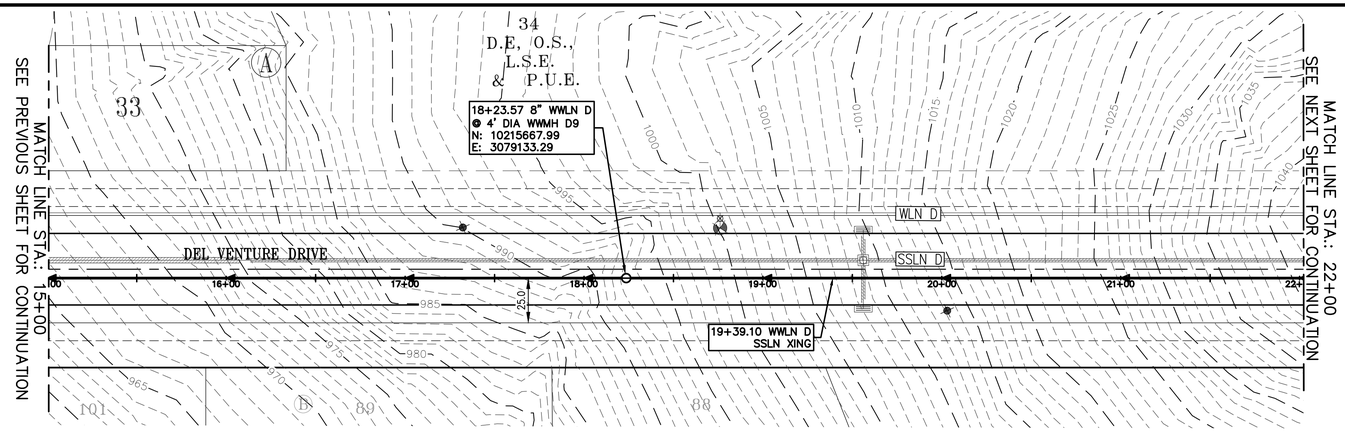
Carlson, Brigance & Doering, Inc.
Civil Engineering ◆ Surveying
FIRM ID #F3791
Main Office: 5501 West William Cannon Dr. Austin, Texas 78749 | Phone No. (312) 280-5160
North Office: 12129 RR 620 N, Suite 600 Austin, Texas 78750 | Fax No. (512) 280-5165

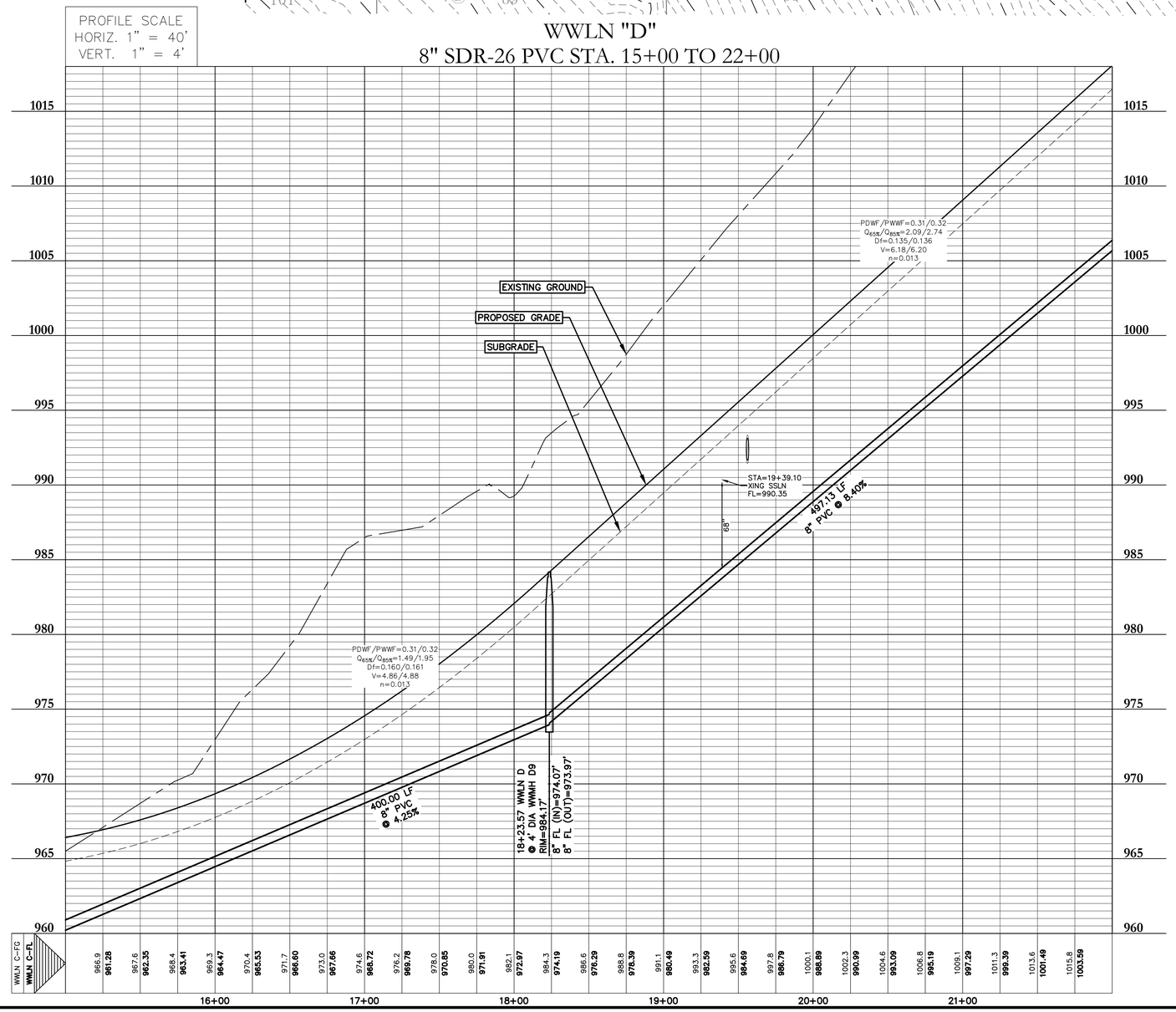
SHEET NAME: WASTEWATER LINE D (8+00 TO 15+00)
JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1
PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED PROFESSIONAL ENGINEER
CARLSON, BRIGANCE & DOERING, INC.
ID# F3791
6-9-2025

DATE: MAY 2025
JOB NUMBER: 5665
SHEET: 92 OF 103
SHEET NO.: 92

FILE PATH: J:\AC3D\5665\dwg\5665-WASTE.dwg - Jun 09, 2025 - 1:49pm





WASTEWATER LEGEND

- S — PROPOSED SINGLE SERVICE
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REVISION

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Civil Engineering ◆ Surveying
FIRM ID #F3791
Main Office
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Austin, Texas 78749
Phone No. (512) 280-5160
North Office
12129 RR 620 N. Suite 600
Austin, Texas 78750
Fax No. (512) 280-5165

SHEET NAME: WASTEWATER LINE D (15+00 TO 22+00)

JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1

PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED PROFESSIONAL ENGINEER
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@ F3791

6-9-2025

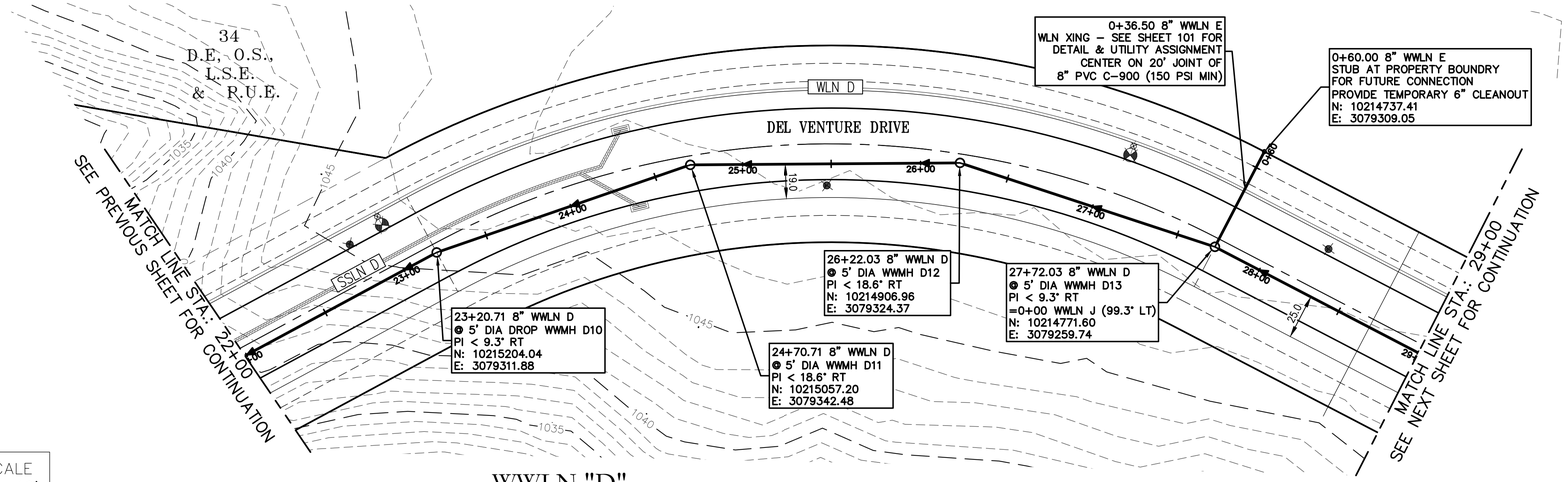
DATE: MAY 2025

JOB NUMBER: 5665

SHEET: 93 OF 103

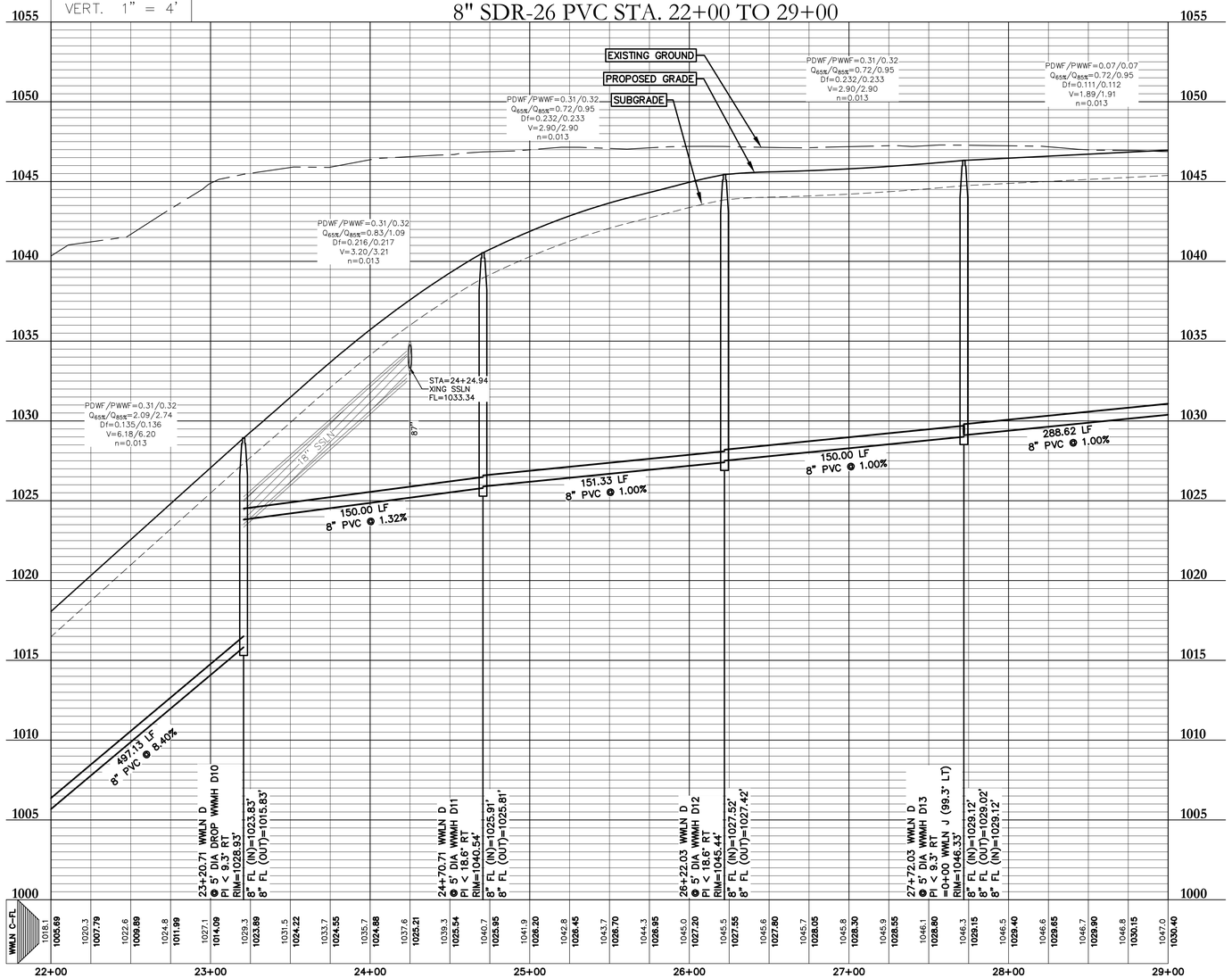
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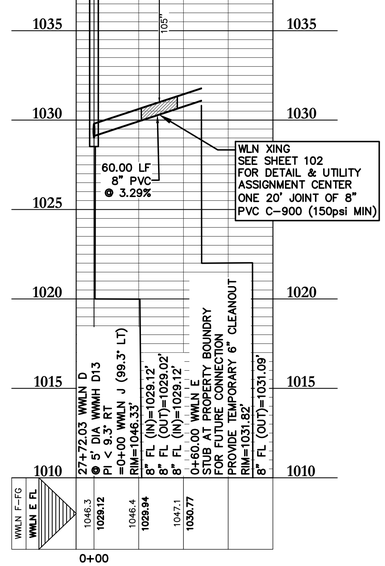


WWLN "D"
8" SDR-26 PVC STA. 22+00 TO 29+00

PROFILE SCALE
HORIZ. 1" = 40'
VERT. 1" = 4'



WWLN "E"
8" SDR-26 PVC STA. 0+00 TO END



WASTEWATER LEGEND

- S / D — PROPOSED SINGLE SERVICE
- S / D — PROPOSED DOUBLE SERVICE
- PROPOSED MANHOLE
- EXISTING MANHOLE
- FLOW DIRECTION ARROW

SCALE: 1" = 40'

VARIANCE NOTE

WWLN D STA. 27+72.03 TO END DOES NOT MEET 2 FPS IN PDWF. A MINIMUM 1% SLOPE IS BEING UTILIZED FOR ALL PIPES THAT CANNOT ACHIEVE 2 FPS IN PDWF, AND A VARIANCE FOR THE DESIGN VELOCITY REQUIREMENTS IS BEING APPROVED BY LIBERTY HILL.

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Phone No. (512) 280-5160
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Fax No. (512) 280-5165

SHEET NAME: WASTEWATER LINE D & E (22+00 TO 29+00)

JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1

PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

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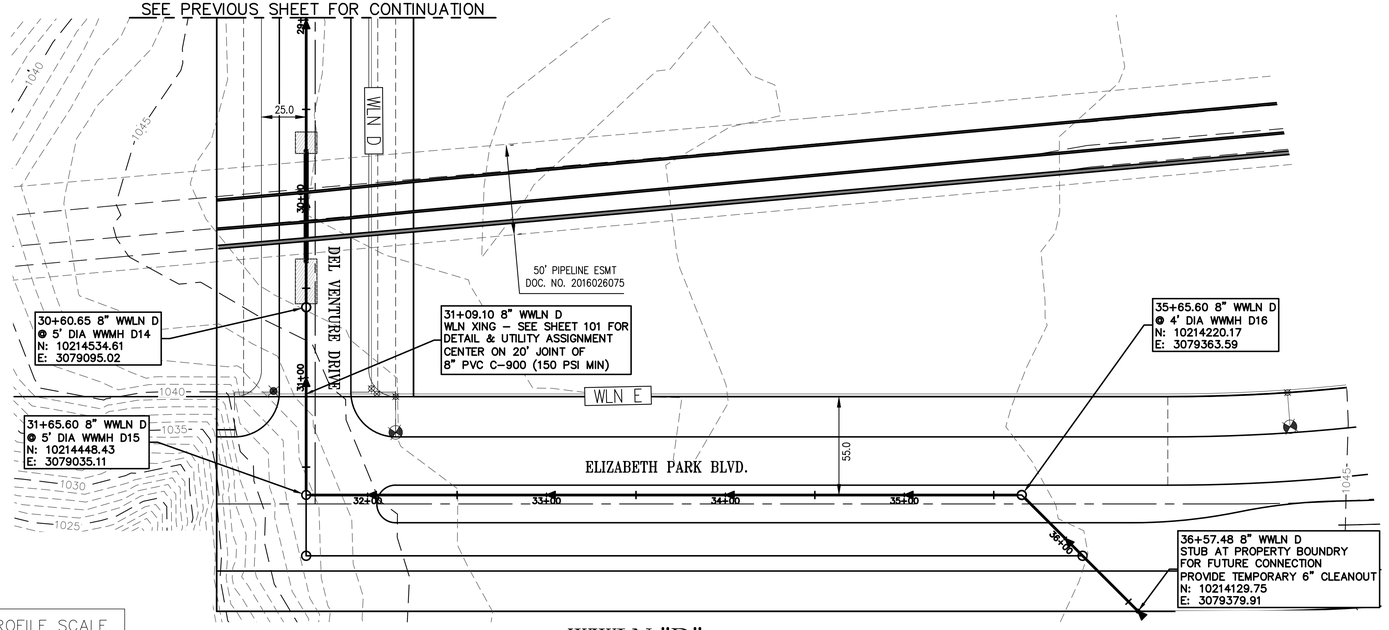
DATE: MAY 2025

JOB NUMBER: 5665

SHEET: 94 OF 103

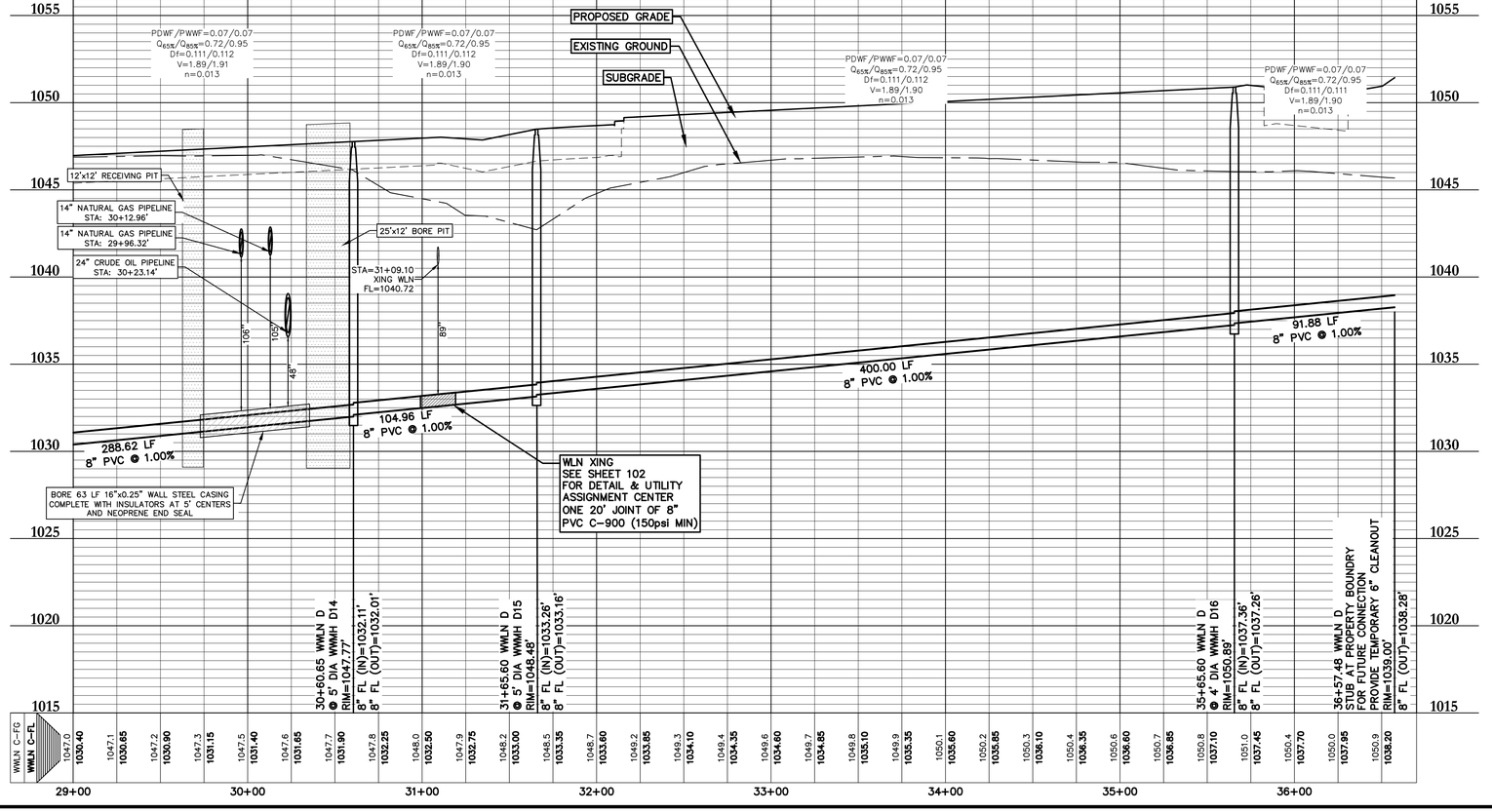
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PROFILE SCALE
HORIZ. 1" = 40'
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8" SDR-26 PVC STA. 29+00 TO END



WASTEWATER LEGEND

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FIRM ID #F3791
Main Office: 5501 West William Cannon Dr. Austin, Texas 78749 Phone No. (512) 280-5160
North Office: 1219 RR 620 N, Suite 600 Austin, Texas 78732 Fax No. (512) 280-5165

SHEET NAME: WASTEWATER LINE D (29+00 TO END)

JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1

PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED PROFESSIONAL ENGINEER
CARLSON, BRIGANCE & DOERING, INC.
ID# F3791

6-9-2025

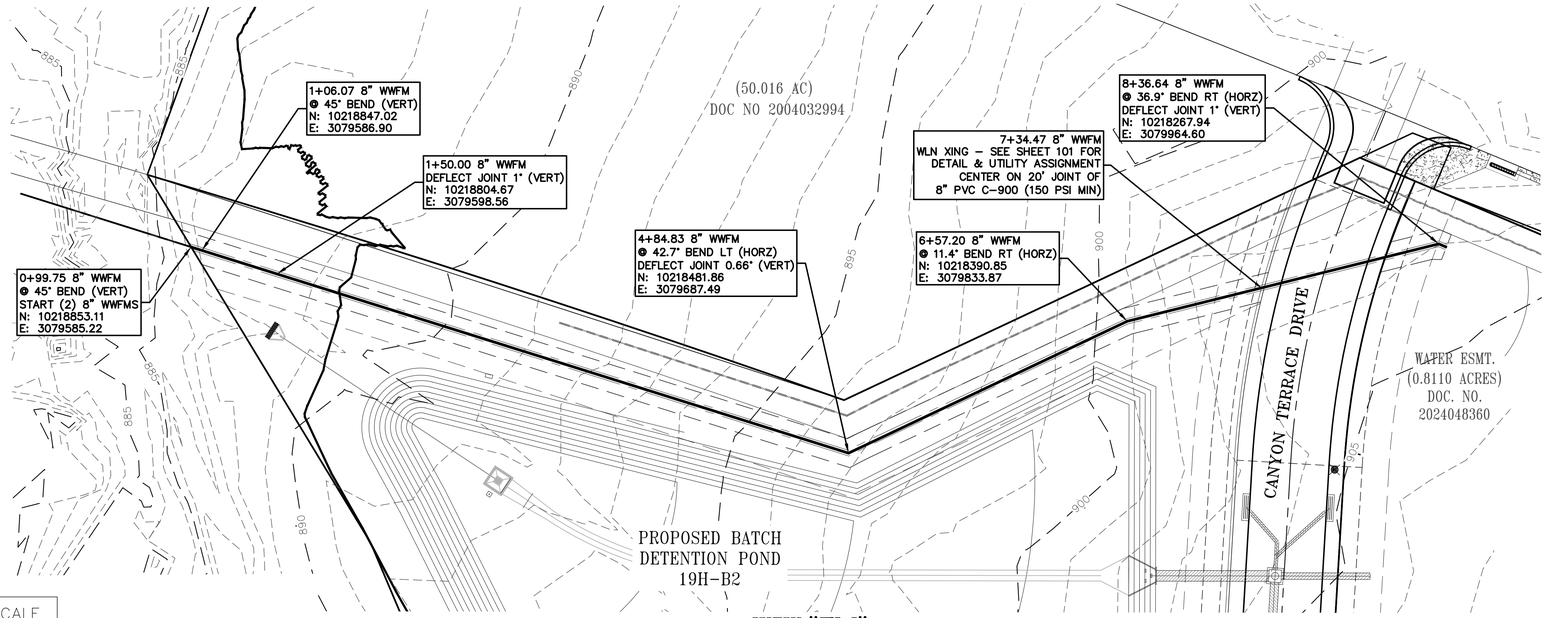
DATE: MAY 2025

JOB NUMBER: 5665

SHEET: 95 OF 103

SHEET NO.: 95

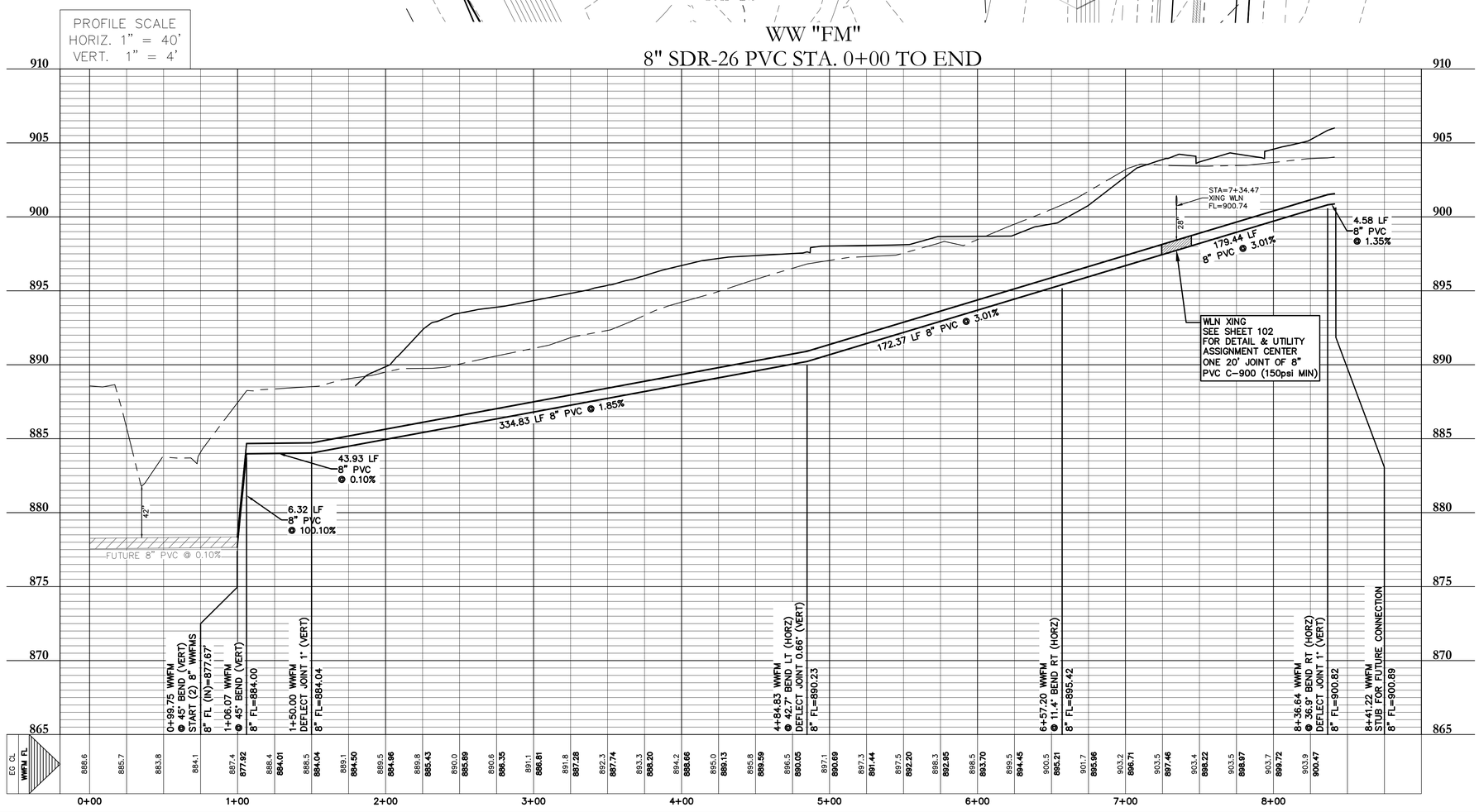
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SCALE: 1" = 40'

WW "FM"
8" SDR-26 PVC STA. 0+00 TO END

PROFILE SCALE
HORIZ. 1" = 40'
VERT. 1" = 4'



WASTEWATER LEGEND

- PROPOSED SINGLE SERVICE
- PROPOSED DOUBLE SERVICE
- PROPOSED MANHOLE
- EXISTING MANHOLE
- FLOW DIRECTION ARROW

0 40' 80'

VARIANCE NOTE

WWLN D STA. 29+00.00 TO END DOES NOT MEET 2 FPS IN PDWF. A MINIMUM 1% SLOPE IS BEING UTILIZED FOR ALL PIPES THAT CANNOT ACHIEVE 2 FPS IN PDWF, AND A VARIANCE FOR THE DESIGN VELOCITY REQUIREMENTS IS BEING APPROVED BY LIBERTY HILL.

SINGLE AND DOUBLE WASTEWATER SERVICES TO BE INSTALLED PER THE SANTA RITA RANCH SINGLE AND DOUBLE WASTEWATER SERVICE DETAILS ON THE WASTEWATER DETAILS SHEET

WASTEWATER NOTES

PER THE CITY OF LIBERTY HILL WASTEWATER NOTES REVISED JUNE 10, 2024

1. ALL STREETS ARE TO BE BUILT TO SUB-GRADE PRIOR TO UTILITY INSTALLATION.
2. PIPE MATERIAL FOR PRESSURE WASTEWATER MAINS SHALL BE PVC (AWWA C-900, MIN. CLASS 150), SDR26. HIGHER PRESSURE RATED (160 PSI). OR DUCTILE IRON (AWWA C-100, MIN. CLASS 200). PIPE MATERIAL FOR GRAVITY WASTEWATER MAINS SHALL BE PVC (ASTM D2241 OR D3034, MAX. DR-26) AND DUCTILE IRON (AWWA C-100, MIN. CLASS 200).
3. UNLESS OTHERWISE ACCEPTED BY THE CITY ENGINEER, MINIMUM DEPTH OF COVER FOR ALL LINES OUTSIDE OF THE PAVEMENT SHALL BE 42" BELOW FINISHED GRADE AND 30" BELOW SUBGRADE FOR ALL LINES LOCATED IN PAVED AREAS.
4. ALL DUCTILE IRON PIPE AND FITTINGS SHALL BE WRAPPED WITH A MINIMUM OF 8-MIL POLYETHYLENE AND SEALED WITH DUCT TAPE OR AN EQUIVALENT ACCEPTABLE BY THE CITY ENGINEER.
5. THE CONTRACTOR SHALL CONTACT THE CITY OF LIBERTY HILL PUBLIC WORKS DEPARTMENT BY BOTH CALLING 512-548-5529 AND EMAILING pubworks@libertyhilltx.gov TO COORDINATE UTILITY TIE-INS AND NOTIFY THEM AT LEAST 48 HOURS PRIOR TO CONNECTING TO ANY EXISTING LINES.
6. ALL MANHOLES SHALL BE CONCRETE WITH CAST IRON RING AND COVER. ALL MANHOLES LOCATED OUTSIDE OF THE PAVEMENT SHALL HAVE BOLTED COVERS. CORE CONNECTIONS TO FIBERGLASS MANHOLES SHALL NOT BE ALLOWED.
7. THE CONTRACTOR, AT CONTRACTOR'S EXPENSE, SHALL PERFORM QUALITY TESTING FOR ALL WASTEWATER PIPE INSTALLED AND PRESSURE PIPE HYDROSTATIC TESTING OF ALL WASTEWATER LINES CONSTRUCTED AND SHALL PROVIDE ALL EQUIPMENT (INCLUDING PUMPS AND GAUGES), SUPPLIES AND LABOR NECESSARY TO PERFORM THE TESTS. QUALITY AND PRESSURE TESTING SHALL BE MONITORED BY THE CITY OF LIBERTY HILL PERSONNEL.
8. THE CONTRACTOR SHALL COORDINATE TESTING WITH THE CITY OF LIBERTY HILL PUBLIC WORKS DEPARTMENT AND PROVIDE NO LESS THAN 24 HOURS' NOTICE PRIOR TO PERFORMING STERILIZATION, QUALITY TESTING, OR PRESSURE TESTING BY BOTH CALLING (512) 548-5529 AND EMAILING pubworks@libertyhilltx.gov.
9. THE CONTRACTOR (OR SUBCONTRACTORS) SHALL NOT OPEN OR CLOSE ANY VALVES UNLESS AUTHORIZED BY THE CITY OF LIBERTY HILL PERSONNEL.
10. ALL WASTEWATER SERVICE LOCATIONS SHALL BE APPROPRIATELY MARKED AS FOLLOWS:
    WASTEWATER SERVICE "S" ON TOP OF CURB
    TOOLS FOR MARKING THE CURB SHALL BE PROVIDED BY THE CONTRACTOR. OTHER APPROPRIATE MEANS OF MARKING SERVICE LOCATIONS SHALL BE PROVIDED IN AREAS WITHOUT CURBS. SUCH MEANS OF MARKING SHALL BE AS SPECIFIED BY THE ENGINEER AND ACCEPTED BY THE CITY OF LIBERTY HILL.
11. CONTACT THE CITY OF LIBERTY HILL PUBLIC WORKS DEPARTMENT FOR ASSISTANCE IN OBTAINING EXISTING WASTEWATER LOCATIONS BY BOTH CALLING (512) 548-5529 AND EMAILING pubworks@libertyhilltx.gov.
12. SAND, AS DESCRIBED IN SPECIFICATION ITEM 510 PIPE, SHALL NOT BE USED AS BEDDING FOR 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 BY WEIGHT	PERCENT RETAINED
1/2"	0
3/8"	0-2
#4	40-85
#10	95-100

13. 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 (7AM – 4PM) AND POSSIBLY BETWEEN 12AM AND 6AM.
14. ALL WASTEWATER CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) REGULATIONS, 30 TAC CHAPTER 213 AND 317, AS APPLICABLE. ALL WATER CONSTRUCTION SHALL BE IN ACCORDANCE WITH TCEQ REGULATIONS, 30 TAC CHAPTER 290. WHENEVER TCEQ AND CITY OF LIBERTY HILL SPECIFICATIONS CONFLICT, THE MORE STRINGENT SHALL APPLY.

DESIGNED BY: SPC
DRAFTED BY: CL
DATE
REVISION

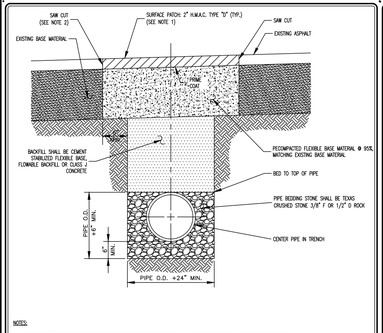
Carlson, Brigance & Doering, Inc.
Civil Engineering ◆ Surveying
FIRM ID #F3791
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121 2nd ST. SUITE 600
Austin, Texas 78752
Fax No. (512) 280-5165

SHEET NAME: WASTEWATER FM (0+00 TO END)
JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1
PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

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DATE: MAY 2025
JOB NUMBER: 5665
SHEET: 96 OF 103
SHEET NO.: 96

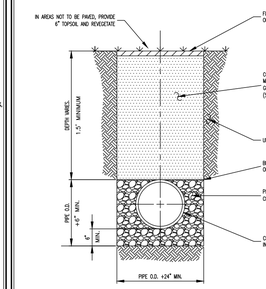
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NOTES:

1. H.M.A.C. SHOWN IN THIS DETAIL IS SEPARATE FROM ANY ADDITIONAL THICKNESS CREATED BY ANY OVERLAY ITEM IN CONTRACT.
2. THE CONTRACTOR SHALL SAW CUT, REMOVE AND REPLACE EXISTING PAVEMENT AND FLEXIBLE BASE A MINIMUM OF 6" BEYOND EITHER THE EDGE OF THE STORM SEWER TRENCH OR THE POINT WHERE EXISTING PAVEMENT IS DAMAGED DUE TO TRENCHING OPERATIONS, WHICHEVER IS GREATER.
3. INSTALLATION OF BACKFILL, SAW CUTTING AND REMOVAL OF EXISTING PAVEMENT AND SURFACE PATCH, SHALL NOT BE PAID FOR SEPARATELY. COSTS FOR THESE ITEMS SHALL BE INCLUDED IN UNIT PRICE BIDS FOR STORM SEWER PIPE.
4. TRENCH WIDTH, INCLUDING TRENCHING STEEL PLATES TO SPAN THE TRENCH AS NECESSARY OR TO ALLOW BACKFILL TO CURE. SUCH PLATES SHALL BE SUITABLE FOR VEHICLE PASSAGE, MAY THE TRENCH AND SHALL BE SATISFACTORILY ANCHORED IN PLACE. COSTS FOR THIS ITEM SHALL BE INCLUDED IN UNIT PRICE BIDS FOR STORM SEWER PIPE.
5. ALL TRENCHING AND TRENCH SAFETY SHALL COMPLY WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.

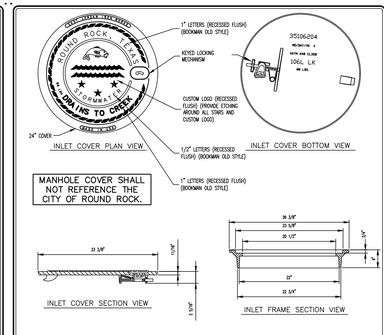
APPROVED	CITY OF ROUND ROCK	DRAWING NO:
04-01-10 DATE	**STORM SEWER LINE BEDDING DETAIL (EXISTING PAVED SURFACE)**	DR-01
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)		ROUND ROCK, TEXAS "HOME TOWN TEXAS"



NOTE:

ALL TRENCHING AND TRENCH SAFETY SHALL COMPLY WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.

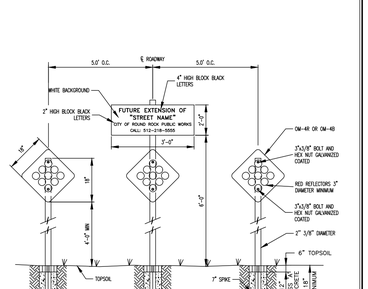
APPROVED	CITY OF ROUND ROCK	DRAWING NO:
04-01-10 DATE	**STORM SEWER LINE BEDDING DETAIL (NON-PAVED SURFACE)**	DR-02
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)		ROUND ROCK, TEXAS "HOME TOWN TEXAS"



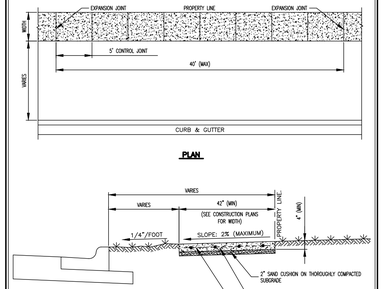
NOTES:

1. COVER AND FRAME SHALL COMPLY WITH STANDARD SPECIFICATIONS FOR DRAINAGE, SEWER, UTILITY AND RELATED EXISTING: MGWTD DESIGNATION M306-04.
2. INLET COVER SHALL BE MODEL NUMBER 106L LK (PRODUCT NUMBER: 35106204) AS MANUFACTURED BY EAST JORDAN IRON WORKS, INCORPORATED, OR APPROVED EQUAL.
3. INLET FRAME SHALL BE MODEL NUMBER 106L LK (PRODUCT NUMBER: 35106004) AS MANUFACTURED BY EAST JORDAN IRON WORKS, INCORPORATED, OR APPROVED EQUAL.
4. INLET COVER AND FRAME ASSEMBLY, IF ORDERED AS A SET, SHALL BE MODEL NUMBER: 106L-4L (PRODUCT NUMBER: 35106104) AS MANUFACTURED BY EAST JORDAN IRON WORKS, INCORPORATED, OR APPROVED EQUAL.
5. ALL CORNERS AND EDGES SHALL HAVE A 1/16" MINIMUM AND 1/8" MAXIMUM RADIUS.
6. INLET COVER SHALL BE CAST WITH TWO 1" DIAMETER STEEL PICKBARS. WEIGHT SHALL BE CAST ON BOTH TOP AND BOTTOM OF COVER.
7. FILLETS SHALL BE 1/4" RADIUS UNLESS OTHERWISE SPECIFIED.
8. MANUFACTURER SHALL REMOVE EXCESS IRON AND MACHINE FINISH SEATING SURFACES TO NOTED DIMENSIONS.
9. INLET COVER SHALL BE DIPPED IN A WATER-BASED ASPHALTIC COATING, PRIOR TO SHIPMENT FROM FOUNDRY.

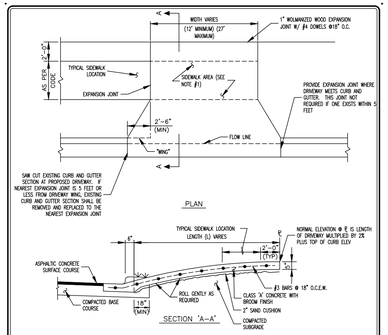
APPROVED	CITY OF ROUND ROCK	DRAWING NO:
04-01-10 DATE	**STORM SEWER INLET COVER AND FRAME DETAIL**	DR-07
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)		ROUND ROCK, TEXAS "HOME TOWN TEXAS"



APPROVED	CITY OF ROUND ROCK	DRAWING NO:
04-01-10 DATE	**STREET END MARKER DETAIL**	ST-09
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)		ROUND ROCK, TEXAS "HOME TOWN TEXAS"



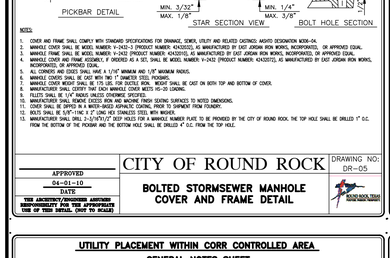
APPROVED	CITY OF ROUND ROCK	DRAWING NO:
04-01-10 DATE	**SIDEWALK DETAIL**	ST-01
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)		ROUND ROCK, TEXAS "HOME TOWN TEXAS"



NOTE:

1. THE SIDEWALK AREA OF THE DRIVEWAY SHALL SLOPE TOWARD THE STREET PAVING AT NO MORE THAN 2%.

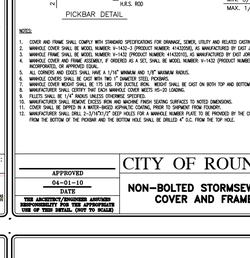
APPROVED	CITY OF ROUND ROCK	DRAWING NO:
04-01-10 DATE	**CONCRETE DRIVEWAY DETAIL (RESIDENTIAL)**	ST-02
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)		ROUND ROCK, TEXAS "HOME TOWN TEXAS"



NOTES:

1. COVER AND FRAME SHALL COMPLY WITH STANDARD SPECIFICATIONS FOR DRAINAGE, SEWER, UTILITY AND RELATED CASTINGS: MGWTD DESIGNATION M306-04.
2. MANHOLE COVER SHALL BE MODEL NUMBER: X-1423-2 (PRODUCT NUMBER: A1423202), AS MANUFACTURED BY EAST JORDAN IRON WORKS, INCORPORATED, OR APPROVED EQUAL.
3. MANHOLE FRAME SHALL BE MODEL NUMBER: X-1423 (PRODUCT NUMBER: A1423001), AS MANUFACTURED BY EAST JORDAN IRON WORKS, INCORPORATED, OR APPROVED EQUAL.
4. MANHOLE COVER AND FRAME ASSEMBLY, IF ORDERED AS A SET, SHALL BE MODEL NUMBER: V-2432 (PRODUCT NUMBER: A2432002), AS MANUFACTURED BY EAST JORDAN IRON WORKS, INCORPORATED, OR APPROVED EQUAL.
5. ALL CORNERS AND EDGES SHALL HAVE A 1/16" MINIMUM AND 1/8" MAXIMUM RADIUS.
6. MANHOLE COVERS SHALL BE CAST WITH TWO 1" DIAMETER STEEL PICKBARS.
7. MANHOLE COVER WEIGHT SHALL BE 175 LBS. FOR DUCTILE IRON. WEIGHT SHALL BE CAST ON BOTH TOP AND BOTTOM OF COVER.
8. MANUFACTURER SHALL CERTIFY THAT EACH MANHOLE COVER MEETS H5-20 LOADING.
9. FILLETS SHALL BE 1/4" RADIUS UNLESS OTHERWISE SPECIFIED.
10. MANUFACTURER SHALL REMOVE EXCESS IRON AND MACHINE FINISH SEATING SURFACES TO NOTED DIMENSIONS.
11. COVER SHALL BE DIPPED IN A WATER-BASED ASPHALTIC COATING, PRIOR TO SHIPMENT FROM FOUNDRY.
12. BOLTS SHALL BE 5/8"-11NC X 2" LONG HEX STAINLESS STEEL WITH WASHERS.
13. MANUFACTURER SHALL DRILL 2-3/16"x1/2" DEEP HOLES FOR A MANHOLE NUMBER PLATE TO BE PROVIDED BY THE CITY OF ROUND ROCK. THE TOP HOLE SHALL BE DRILLED 1" O.C. FROM THE BOTTOM OF THE PICKBAR AND THE BOTTOM HOLE SHALL BE DRILLED 4" O.C. FROM THE TOP HOLE.

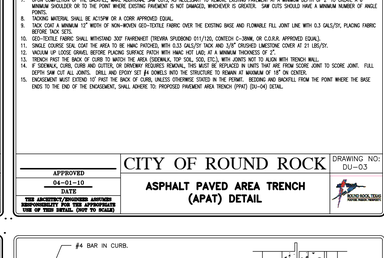
APPROVED	CITY OF ROUND ROCK	DRAWING NO:
04-01-10 DATE	**BOLTED STORMSEWER MANHOLE COVER AND FRAME DETAIL**	DR-05
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)		ROUND ROCK, TEXAS "HOME TOWN TEXAS"



NOTES:

1. COVER AND FRAME SHALL COMPLY WITH STANDARD SPECIFICATIONS FOR DRAINAGE, SEWER, UTILITY AND RELATED CASTINGS: MGWTD DESIGNATION M306-04.
2. MANHOLE COVER SHALL BE MODEL NUMBER: X-1423-3 (PRODUCT NUMBER: A1423203), AS MANUFACTURED BY EAST JORDAN IRON WORKS, INCORPORATED, OR APPROVED EQUAL.
3. MANHOLE FRAME SHALL BE MODEL NUMBER: X-1423 (PRODUCT NUMBER: A1423001), AS MANUFACTURED BY EAST JORDAN IRON WORKS, INCORPORATED, OR APPROVED EQUAL.
4. MANHOLE COVER AND FRAME ASSEMBLY, IF ORDERED AS A SET, SHALL BE MODEL NUMBER: V-1423 (PRODUCT NUMBER: A1423002), AS MANUFACTURED BY EAST JORDAN IRON WORKS, INCORPORATED, OR APPROVED EQUAL.
5. ALL CORNERS AND EDGES SHALL HAVE A 1/16" MINIMUM AND 1/8" MAXIMUM RADIUS.
6. MANHOLE COVERS SHALL BE CAST WITH TWO 1" DIAMETER STEEL PICKBARS.
7. MANHOLE COVER WEIGHT SHALL BE 175 LBS. FOR DUCTILE IRON. WEIGHT SHALL BE CAST ON BOTH TOP AND BOTTOM OF COVER.
8. MANUFACTURER SHALL CERTIFY THAT EACH MANHOLE COVER MEETS H5-20 LOADING.
9. FILLETS SHALL BE 1/4" RADIUS UNLESS OTHERWISE SPECIFIED.
10. MANUFACTURER SHALL REMOVE EXCESS IRON AND MACHINE FINISH SEATING SURFACES TO NOTED DIMENSIONS.
11. COVER SHALL BE DIPPED IN A WATER-BASED ASPHALTIC COATING, PRIOR TO SHIPMENT FROM FOUNDRY.
12. MANUFACTURER SHALL DRILL 2-3/16"x1/2" DEEP HOLES FOR A MANHOLE NUMBER PLATE TO BE PROVIDED BY THE CITY OF ROUND ROCK. THE TOP HOLE SHALL BE DRILLED 1" O.C. FROM THE BOTTOM OF THE PICKBAR AND THE BOTTOM HOLE SHALL BE DRILLED 4" O.C. FROM THE TOP HOLE.

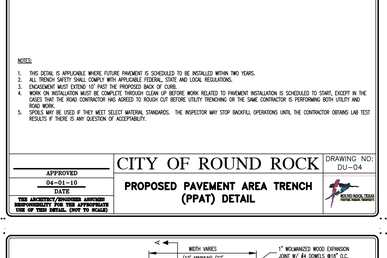
APPROVED	CITY OF ROUND ROCK	DRAWING NO:
04-01-10 DATE	**NON-BOLTED STORMSEWER MANHOLE COVER AND FRAME DETAIL**	DR-06
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)		ROUND ROCK, TEXAS "HOME TOWN TEXAS"



NOTES:

1. ALL TRENCH SAFETY SHALL COMPLY WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.
2. STEEL PLATES OF SUITABLE WIDTH TO SPAN THE TRENCH FOR WORK IN PUBLIC TRAFFIC, MUST BE AVAILABLE ON SITE BEFORE ANY PAVEMENT IS CUT.
3. STEEL PLATES SHALL BE CONTRACTOR PROVIDED AND PLACED AS NECESSARY FOR TRENCH SAFETY AND TO ALLOW FOR TUNNELLE FILL CURING TIME.
4. STEEL PLATES SHALL BE ANCHORED IN PLACE WHEN INSTALLED TO ASSURE NO DISPLACEMENT UNDER TRAFFIC.
5. SURFACE SHALL BE SAW CUT PRIOR TO EXCAVATION.
6. BACKFILL SHALL BE PLACED WITH ENCASEMENT IN A PROCESS TO ASSURE NO DISPLACEMENT FROM BEING CENTERED IN THE TRENCH BOTTOM. FLOWABLE FILL SHALL BE STRUCK OFF AT THE TOP OF THE EXISTING BASE OR 2" BELOW EXISTING FINISHED SURFACE, WHICHEVER IS GREATER.
7. UPON COMPLETION OF THE BACKFILL AND ADDITIONAL SAW CUTS, AS NECESSARY TO REMOVE EXISTING PAVEMENT AT A MINIMUM DEPTH OF 2" TO CREATE A 6" MINIMUM SHOULDER OR TO THE POINT WHERE EXISTING PAVEMENT IS NOT DAMAGED, WHICHEVER IS GREATER. SAW CUTS SHOULD HAVE A MINIMUM NUMBER OF ANGLE POINTS.
8. TACKING MATERIAL SHALL BE ACTSPM OR A CQRR APPROVED EQUAL.
9. TACK COAT A MINIMUM 12" WIDTH OF NON-WOVEN GEO-TEXTILE FABRIC OVER THE EXISTING BASE AND FLOWABLE FILL JOINT LINE WITH 0.3 GAL/SY, PLACING FABRIC BEFORE TACK SETS.
10. GEO-TEXTILE FABRIC SHALL WITHSTAND 200 FAHRENHEIT (TREVIRA SPUNBOND 0117/120, CONTECH C-380NL OR C.O.R.R. APPROVED EQUAL).
11. SMALL COURSE SEAL COAT THE AREA TO BE HAND PATCHED WITH 0.33 GAL/SY TACK AND 3/8" CRUSHED LIMESTONE COVER AT 21 LBS/SY.
12. VACUUM UP LOOSE GRAVEL BEFORE PLACING SURFACE PATCH WITH HMAC HOT LAID, AT A MINIMUM THICKNESS OF 2".
13. TRENCH PAST THE BACK OF CURB SHALL MATCH THE AREA DISTURBING ALONG THE SIDE OF THE TRENCH WALL.
14. IF SIDEWALK CURB, CURB AND GUTTER, OR DRIVEWAY REQUIRES REMOVAL THIS MUST BE REPLACED IN UNITS THAT ARE FROM SCORE JOINT TO SCORE JOINT. FULL DEPTH SAW CUT ALL LINES. DRILL AND EPOXY SET #4 DOWELS INTO THE STRUCTURE TO REMAIN AT MAXIMUM OF 18" ON CENTER.
15. ENCASEMENT MUST EXTEND 10' PAST THE BACK OF CURB, UNLESS OTHERWISE STATED IN THE PERMIT. BEDDING AND BACKFILL FROM THE POINT WHERE THE BASE ENDS TO THE END OF THE ENCASEMENT, SHALL ADHERE TO PROPOSED PAVEMENT AREA TRENCH (PPAT) (DU-04) DETAIL.

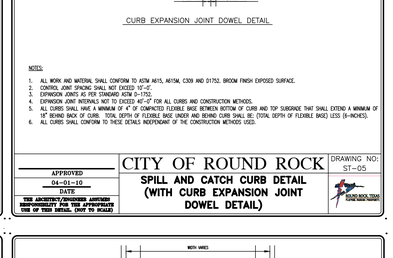
APPROVED	CITY OF ROUND ROCK	DRAWING NO:
04-01-10 DATE	**ASPHALT PAVED AREA TRENCH (APAT) DETAIL**	DU-03
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)		ROUND ROCK, TEXAS "HOME TOWN TEXAS"



NOTES:

1. THIS DETAIL IS APPLICABLE WHERE FUTURE PAVEMENT IS SCHEDULED TO BE INSTALLED WITHIN TWO YEARS.
2. ALL TRENCH SAFETY SHALL COMPLY WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.
3. ENCASEMENT MUST EXTEND 10' PAST THE PROPOSED BACK OF CURB.
4. WORK ON INSTALLATION MUST BE COMPLETE THROUGH CLEAN UP BEFORE WORK RELATED TO PAVEMENT INSTALLATION IS SCHEDULED TO START, EXCEPT IN THE CASES THAT THE ROAD CONTRACTOR AND AGREED TO ROUGH CUT BEFORE UTILITY TRENCHING OR THE SAME CONTRACTOR IS PERFORMING BOTH UTILITY AND ROAD WORK.
5. SPOILS MAY BE USED IF THEY MEET SELECT MATERIAL STANDARDS. THE INSPECTOR MAY STOP BACKFILL OPERATIONS UNTIL THE CONTRACTOR OBTAINS LAB TEST RESULTS IF THERE IS ANY QUESTION OF ACCEPTABILITY.

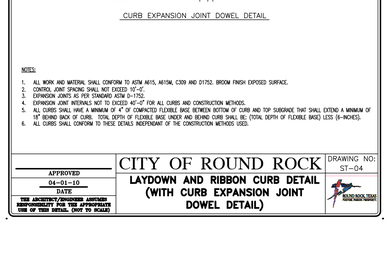
APPROVED	CITY OF ROUND ROCK	DRAWING NO:
04-01-10 DATE	**PROPOSED PAVEMENT AREA TRENCH (PPAT) DETAIL**	DU-04
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)		ROUND ROCK, TEXAS "HOME TOWN TEXAS"



NOTES:

1. ALL WORK AND MATERIAL SHALL CONFORM TO ASTM A615, A615M, A706, C309 AND D1752. BROOM FINISH EXPOSED SURFACE.
2. CONTROL JOINT SPACING SHALL NOT EXCEED 10'-0".
3. EXPANSION JOINTS AS PER STANDARD ASTM D-1752.
4. EXPANSION JOINT INTERVALS NOT TO EXCEED 40'-0" FOR ALL CURBS AND CONSTRUCTION METHODS.
5. ALL CURBS SHALL HAVE A MINIMUM OF 4" OF COMPACTED FLEXIBLE BASE BETWEEN BOTTOM OF CURB AND TOP SUBGRADE THAT SHALL EXTEND A MINIMUM OF 18" BEHIND BACK OF CURB. TOTAL DEPTH OF FLEXIBLE BASE UNDER AND BEHIND CURB SHALL BE: (TOTAL DEPTH OF FLEXIBLE BASE) LESS (6-INCHES).
6. ALL CURBS SHALL CONFORM TO THESE DETAILS INDEPENDANT OF THE CONSTRUCTION METHODS USED.

APPROVED	CITY OF ROUND ROCK	DRAWING NO:
04-01-10 DATE	**SPILL AND CATCH CURB DETAIL (WITH CURB EXPANSION JOINT DOWEL DETAIL)**	ST-05
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)		ROUND ROCK, TEXAS "HOME TOWN TEXAS"



NOTES:

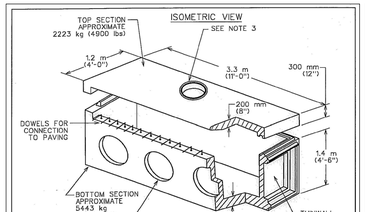
1. ALL WORK AND MATERIAL SHALL CONFORM TO ASTM A615, A615M, A706, C309 AND D1752. BROOM FINISH EXPOSED SURFACE.
2. CONTROL JOINT SPACING SHALL NOT EXCEED 10'-0".
3. EXPANSION JOINTS AS PER STANDARD ASTM D-1752.
4. EXPANSION JOINT INTERVALS NOT TO EXCEED 40'-0" FOR ALL CURBS AND CONSTRUCTION METHODS.
5. ALL CURBS SHALL HAVE A MINIMUM OF 4" OF COMPACTED FLEXIBLE BASE BETWEEN BOTTOM OF CURB AND TOP SUBGRADE THAT SHALL EXTEND A MINIMUM OF 18" BEHIND BACK OF CURB. TOTAL DEPTH OF FLEXIBLE BASE UNDER AND BEHIND CURB SHALL BE: (TOTAL DEPTH OF FLEXIBLE BASE) LESS (6-INCHES).
6. ALL CURBS SHALL CONFORM TO THESE DETAILS INDEPENDANT OF THE CONSTRUCTION METHODS USED.

APPROVED	CITY OF ROUND ROCK	DRAWING NO:
04-01-10 DATE	**LAYDOWN AND RIBBON CURB DETAIL (WITH CURB EXPANSION JOINT DOWEL DETAIL)**	ST-04
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)		ROUND ROCK, TEXAS "HOME TOWN TEXAS"

UTILITY PLACEMENT WITHIN CORR CONTROLLED AREA

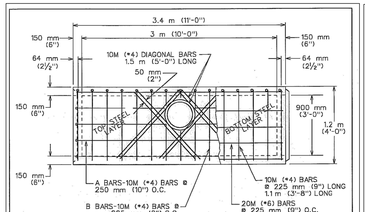
GENERAL NOTES SHEET

1. UTILITY USE IS A PUBLIC OR PRIVATE WIRED COMMUNICATION, TELEVISION, GAS, FIBER OPTIC AND IRRIGATION (DRY OR PRESSURE) LINE, CABLE, CONDUIT, PIPE OR TUBING.
2. UTILITY CASTING IS ANY MANHOLE AND VAULT COVER, GRATE, VALVE BOX, HYDRANT, HORIZONTAL OR VERTICAL ENCLOSURE OR HANDLE CONFIGURATION.
3. ENCROACHMENT IS ANY NUMBER OF CONDUITS, CASING PIPES (CONCRETE, PVC, CORRUGATED METAL, WELDED STEEL, ECT.), AND/OR PROTECTIVE ARMOR BEDDING (CONCRETE, FLOWABLE FILL, ETC.)
4. ALL TRENCH SAFETY SHALL COMPLY WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.
5. UTILITY WORK SITE IS THE LOCATION WHERE A UTILITY IS MAINTAINED, REPAIRED AND/OR INSTALLED.
6. A COPY OF THE PERMIT IS REQUIRED ON THE UTILITY WORK SITE AUTH CORR OWNED/LEASED PROPERTY, ROW, CORR ENCROACH ON PUBLIC PROPERTY, ROW, CORR ENCROACH ON PUBLIC PROPERTY ACTIVITIES REQUIRING TRAFFIC, SAFETY OR CAUSES LONGER LANE CONFIGURATIONS LONG TERM. THIS EXCLUDES UNACCEPTED SUBDIVISIONS, CITY, STATE OR FEDERAL CONTROLLED PROPERTY, PRIVATELY CONTROLLED EASEMENTS & PRIVATELY OWNED PROPERTY.
7. VARIANCE FROM THESE STANDARDS IS ONLY ALLOWED, IF DETAILED PLANS HAVE WRITTEN APPROVAL BY THE CORR BEFORE CONSTRUCTION STARTS.
8. PUBLIC AREA EXCAVATION MUST BE BARRICADED WITH APPROVED VEHICLE AND PEDESTRIAN TRAFFIC CONTROL DEVICES BEFORE CONSTRUCTION STARTS.
9. INACTIVE (NO PERSONNEL PRESENT) EXCAVATION OUTSIDE OF AN EXISTING PAVEMENT, LEFT OPEN OVERNIGHT, MUST HAVE PEDESTRIAN FENCING & PLATING.
10. TRENCH EXCAVATION MAY BE LEFT OPEN OVERNIGHT, IF PLATED AND BARRICADED OR HOLDED BETWEEN 8:00 AM AND 5:00 PM.
11. TOTAL TRENCH LENGTH OPEN AT ONE TIME SHALL NOT EXCEED 1,000 LF WITHOUT PRIOR EXCEPTION OR ENCROACHMENT PLUS A MAXIMUM OF 2' F THE CDI IS LESS THAN 6 1/2", PLUS 6" F THE CDI IS BETWEEN 6 1/2" & 9", PLUS 1' F THE CDI IS MORE THAN 9" OR OVER A MAXIMUM OF 24".
12. FOR A UTILITY WORK SITE IN AN AREA THAT IS SCHEDULED FOR FUTURE PAVEMENT, SEE ASPHALT PAVED AREA TRENCH (APAT) (DU-03) DETAIL.
13. FOR A UTILITY WORK SITE IN AN AREA THAT HAS EXISTING PAVEMENT, SEE PROPOSED PAVEMENT AREA TRENCH (PPAT) (DU-04) DETAIL.
14. FOR A CROSSING OF A CORR OWNED UTILITY, SEE UTILITY CROSSING INSTALLATION (UCI) (DU-05) DETAIL.
15. REQUIRED ENCASEMENT MUST BE SCHEDULE 40 PVC, EXCEPT GAS, WHICH MUST BE SCHEDULE 40 WELDED JOINT STEEL OR SCHEDULE 80 PVC. OTHER TYPES OF ENCASEMENT REQUIRE CORR APPROVAL.
16. ALL ELECTRICAL CONDUCTIVE LINES OVER AS VOLTED MUST BE GROUNDED.
17. ALL UTILITY LINES MUST BE ENCASED UNDER EXISTING A

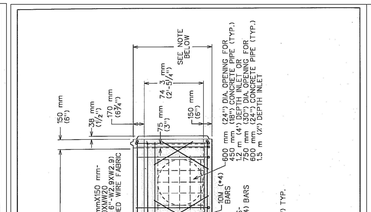


NOTES:
1. ALL CONCRETE SHALL BE CLASS "AA" AS PER ITEM 403S.
2. ALL REINFORCING STEEL SHALL BE GRADE 60
3. MANHOLE FRAME AND COVER SHALL BE IN ACCORDANCE WITH CITY OF AUSTIN STANDARD 503S-1.
4. DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTERS OF BARS.
5. IN AREAS OF CONFLICT BETWEEN REINFORCING STEEL, PIPES AND MANHOLE FRAME, THE REINFORCEMENT SHALL BE BENT OR ADJUSTED TO CLEAR AS DIRECTED BY THE ENGINEER.
6. PAYMENT FOR INLET AT THE CONTRACT PRICE SHALL INCLUDE THE TRANSITION CURB IN ACCORDANCE WITH CITY OF AUSTIN STANDARD INLET DESIGN.
7. INVERT OF INLET SHALL BE SLOPED 1/2D WITH FILL CONCRETE BY CONTRACTOR, SHAPED AS "V" SECTION
8. THE INLET AS DESIGNED EXCEEDS THE REQUIREMENTS OF ASTM C478.
9. THIS STANDARD COMPLIES WITH THE CITY OF AUSTIN STANDARD SPECIFICATIONS ITEM NO. 508S.
10. FOR INLET CONNECTION VARIATIONS FOR MAKING A 6 m (20'-0") CURB INLET FROM STANDARD 3 m (10'-0") INLETS, SEE DALWORTH CURB INLET CONNECTION DETAIL SHEET DG-86-103.

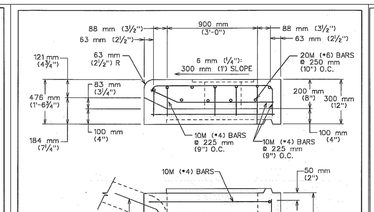
CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	CURB INLET 3 m (10') PRECAST TYPE 1 OR TYPE 1-R	
Bill Gardner 12/9/08 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-4 1 OF 5



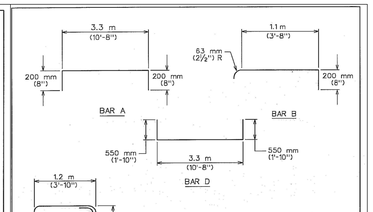
CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	CURB INLET 3 m (10') PRECAST TYPE 1 OR TYPE 1-R	
Bill Gardner 12/9/08 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-4 2 OF 5



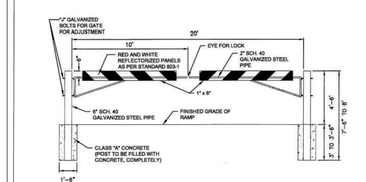
CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	CURB INLET 3 m (10') PRECAST TYPE 1 OR TYPE 1-R	
Bill Gardner 12/9/08 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-4 3 OF 5



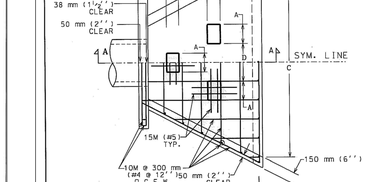
CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	CURB INLET 3 m (10') PRECAST TYPE 1 OR TYPE 1-R	
Bill Gardner 12/9/08 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-4 4 OF 5



CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	CURB INLET 3 m (10') PRECAST TYPE 1 OR TYPE 1-R	
Bill Gardner 12/9/08 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-4 5 OF 5



CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	TYPICAL DETAILS FOR CURB INLET	
Bill Gardner 12/9/08 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-3 1 OF 4

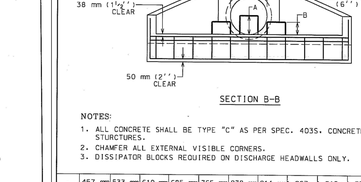


CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	TYPICAL DETAILS FOR CURB INLET	
Bill Gardner 12/9/08 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-3 2 OF 4

TABLE OF QUANTITIES
FOR 18" OUTLET PIPE
REINFORCING STEEL QUANTITIES

BARS	SIZE	SPACING	NUMBER	LENGTH	WEIGHT
A	4	230mm (9")•	15	2 m (7'-0")	73
B	4	250 mm (10")	4	3.25 m (10'-8")	29
C	4	460 mm (18")	7	760 mm (2'-6")	12
D	4	150 mm (6")	5	3.25 m (10'-8")	80
E	4	300 mm (12")	6	760 mm (2'-6")	10
F	4	250 mm (10")	3	4 m (13'-0")	35
G	4	300 mm (12")	11	1.25 m (4'-3")	31
H	6		1	4.25 m (14'-0")	20
J	4	300 mm (12")	7	3.25 m (10'-8")	50
K	4	230 mm (9")•	30	800 mm (2'-7 1/2")	52
L	4	300 mm (12")•	6	1.3 m (4'-4")	17
M	4	-	4	500 mm (1'-8") AVG	4
TOTAL STEEL, LB.					413
TOTAL CONCRETE, C.Y.					4.08

• EXCEPT AS SHOWN ON PLAN



CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	TYPICAL DETAILS FOR CURB INLET	
Bill Gardner 12/9/08 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-3 3 OF 4

NOTES:
1. ALL CONCRETE SHALL BE CLASS "A"
2. ALL REINFORCING STEEL SHALL BE GRADE 60
3. DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTERS OF BARS.
4. VERTICAL STEEL MAY BE SPLICED (380 mm or 15" MIN. LAP) IN THE LOWER ONE-HALF OF ALL INLET WALLS.S. IN AREAS OF CONFLICT BETWEEN REINFORCING STEEL, PIPES AND MANHOLE FRAME, THE REINFORCEMENT SHALL BE BENT OR ADJUSTED TO CLEAR AS DIRECTED BY THE ENGINEER.
5. QUANTITIES SHOWN HEREON ARE FOR THE CONTRACTOR'S INFORMATION ONLY. PAYMENT WILL BE MADE FOR EACH INLET OF THE TYPE SPECIFIED, COMPLETE IN PLACE INCLUDING MANHOLE FRAME AND OVER.
6. CHAMFER ALL EXPOSED EDGES 20 mm (3/4 ").
7. MANHOLE FRAME AND COVER SHALL BE IN ACCORDANCE WITH CITY OF AUSTIN STANDARD 503S-1.
8. THE CONTRACTOR MAY PROPOSE ALTERNATE PROCEDURES FOR THE CONSTRUCTION OF INLETS, INCLUDING PRECAST UNITS. PLANS FOR SUCH PROPOSED ALTERNATES SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL BEFORE CONSTRUCTION.
9. ALL INLET WALLS SHALL BE FORMED EXCEPT WHERE THE NATURE OF THE SURROUNDING MATERIAL IS SUCH THAT IT CAN BE TRIMMED TO A SMOOTH VERTICAL FACE. WHEN INLET WALLS ARE PLACED TO NEAT EXCAVATION LINES THE WALL THICKNESS SHALL NOT EXCEED 10 INCHES.
10. PAYMENT FOR INLET AT THE CONTRACT PRICE SHALL INCLUDE THE TRANSITION CURB.
11. INVERT OF INLET SHALL BE SLOPED 1:20 WITH FILL CONCRETE, SHAPED AS "V" SECTION
12. NO SPLICING OF REINFORCING STEEL SHALL BE PERMITTED UNLESS OTHERWISE NOTED ON THE PLANS OR PERMITTED IN WRITING BY THE ENGINEER.

REFERENCES:
FOR EXPANSION JOINT DOWEL AND DOWEL LOCATION DETAILS SEE STD. 430S-3, "CURB EXPANSION JOINT DOWEL DETAIL".
FOR 18" MANHOLE FRAME AND COVER DETAILS SEE STD. 503S-1, "18" COVER AND FRAME".

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	TYPICAL DETAILS FOR CURB INLET	
Bill Gardner 12/9/08 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-3 4 OF 4

NOTE:
RAMP BARRICADE SUBSIDIARY TO ITEM 403-G CONCRETE STRUCTURES

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	POND PIPE GATE AT RAMP DETAIL	
E Clark, P.E. 1/9/2004 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 662S-1

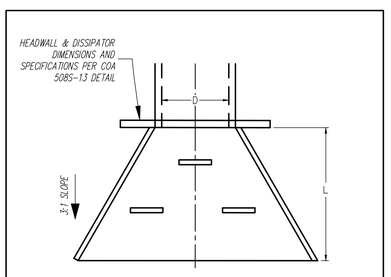
CITY OF AUSTIN DEPARTMENT OF WATERSHED PROTECTION AND DEVELOPMENT REVIEW	STANDARD HEADWALL AND ENERGY DISSIPATORS	
Bill Gardner 8/26/97 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-13 1 OF 2

NOTES:
1. ALL CONCRETE SHALL BE TYPE "C" AS PER SPEC. 403S. CONCRETE FOR STRUCTURES.
2. CHAMFER ALL EXTERNAL VISIBLE CORNERS.
3. DISSIPATOR BLOCKS REQUIRED ON DISCHARGE HEADWALLS ONLY.

D	457 mm (18")	533 mm (21")	610 mm (24")	685 mm (27")	765 mm (30")	838 mm (33")	914 mm (36")	1.067 m (42")	1.219 m (48")	1.372 m (54")	1.524 m (60")		
A	225 mm (9")	250 mm (10")	300 mm (12")	350 mm (14")	375 mm (15")	400 mm (16")	450 mm (18")	525 mm (21")	600 mm (24")	675 mm (27")	750 mm (30")		
B	150 mm (6")	175 mm (7")	200 mm (8")	225 mm (9")	250 mm (10")	275 mm (11")	300 mm (12")	350 mm (14")	400 mm (16")	450 mm (18")	500 mm (20")		
C	2.29 m (90")	2.67 m (105")	3.05 m (120")	3.43 m (135")	3.81 m (150")	4.19 m (165")	4.57 m (180")	5.33 m (210")	6.10 m (240")	6.86 m (270")	7.62 m (300")		
L	1.37 m (54")	1.60 m (63")	1.83 m (72")	2.06 m (81")	2.29 m (90")	2.51 m (99")	2.74 m (108")	3.20 m (126")	3.66 m (144")	4.11 m (162")	4.57 m (180")		
E	300 mm (12")	350 mm (14")	400 mm (16")	450 mm (18")	500 mm (20")	550 mm (22")	600 mm (24")	700 mm (28")	800m (32")	900 mm (36")	1000 mm (40")		

DIMENSIONS IN MILLIMETERS, METERS AND (INCHES).
DISCHARGE VELOCITIES GREATER THAN 3 METERS/SECOND (10 fps) REQUIRE ROCK OUTLET PROTECTION.

CITY OF AUSTIN DEPARTMENT OF WATERSHED PROTECTION AND DEVELOPMENT REVIEW	STANDARD HEADWALL AND ENERGY DISSIPATORS	
Bill Gardner 8/26/97 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-13 2 OF 2



EXTENDED APRON LENGTH PER PIPE DIAMETER (MODIFIED FROM COA 508S-13 HEADWALL DETAIL)									
D	18"	24"	30"	36"	42"	48"	54"	60"	
L	7.5'	9'	10.5'	12'	13.5'	15'	16.5'	19.5'	

508S-13 HEADWALL WITH EXTENDED APRON
N.T.S.

DESIGNED BY: SPC
DRAFTED BY: CL

DATE
REVISION

Carlson, Brigance & Doering, Inc.
Civil Engineering ◆ Surveying
FIRM ID #F3791
Main Office: 5501 West William Cannon Dr. Austin, Texas 78749
North Office: 12129 RR 620 N. #600 Austin, Texas 78750
Phone No. (512) 280-5160 Fax No. (512) 280-5165

SHEET NAME: CONSTRUCTION DETAILS (2 OF 5)
JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1
PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED PROFESSIONAL ENGINEER
CARLSON, BRIGANCE & DOERING, INC.
ID# F-3791
6-9-2025

DATE: MAY 2025
JOB NUMBER: 5665
SHEET: 98 OF 103
SHEET NO.: 98

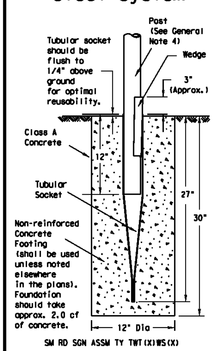
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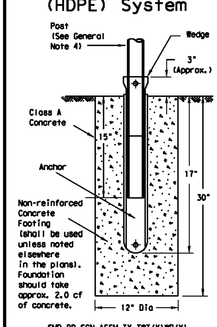
DATE: FILE:

Wedge Anchor Steel System



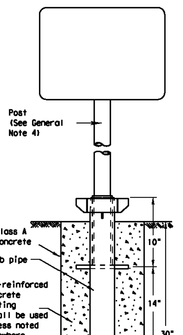
SM RD SGN ASSM TY TWT(X)WS(X)

Wedge Anchor High Density Polyethylene (HDPE) System

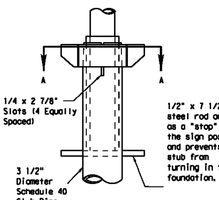


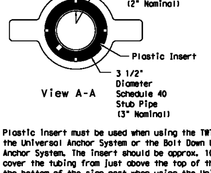
SMD RD SGN ASSM TY TWT(X)HP(X)

Universal Anchor System with Thin-Walled Tubing Post

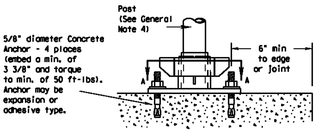


SM RD SGN ASSM TY TWT(X)UA(P)

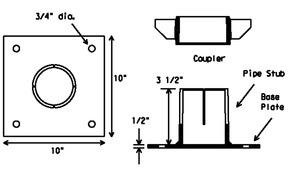




Plastic insert must be used when using the TWT with either the Universal Anchor System or the Bolt Down Universal Anchor System. The insert should be approx. 10" long and cover the tubing from just above the top of the stub pipe to the bottom of the sign post when using the Universal Anchor System. The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

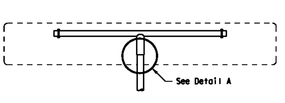


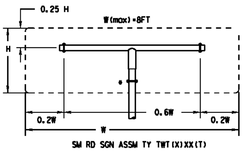
Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. A heavy hex nut per ASTM A563 and hardened washer per ASTM F436. The stud bolt shall have minimum yield and ultimate tensile strengths of 50 and 75 ksi, respectively. Nuts, bolts and washers shall be galvanized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



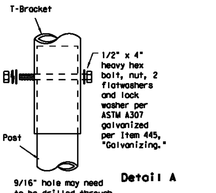
SM RD SGN ASSM TY TWT(X)LB(P)

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





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



Detail A

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

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

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

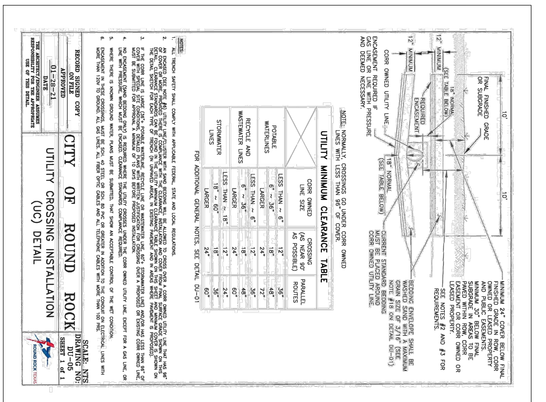
NOTE
The devices shall be installed per manufacturer's recommendations. Installation procedures shall be provided to the Engineer by Contractor.

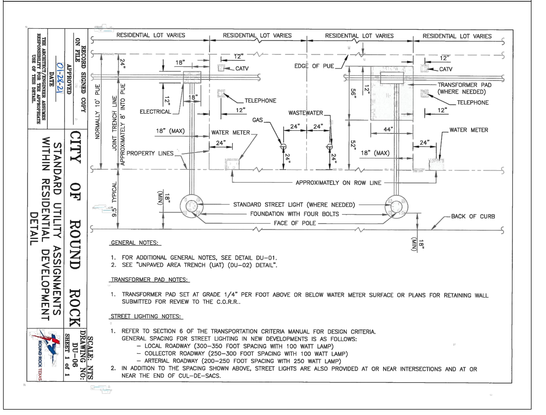
Texas Department of Transportation
Traffic Operations Division

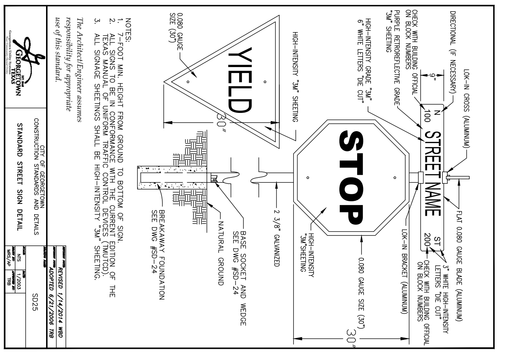
SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS WEDGE & UNIVERSAL ANCHOR WITH THIN WALL TUBING POST SMD(TWT)-08

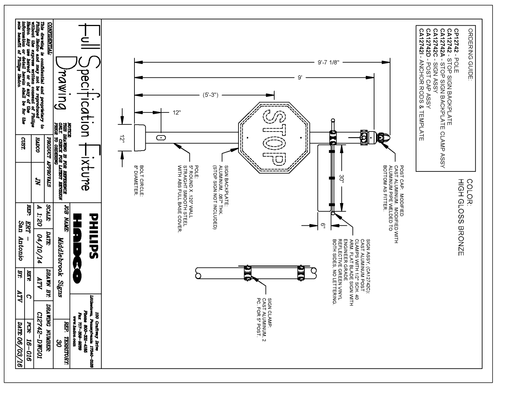
©TxDOT July 2002	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
9-08 REVISIONS	CONT	SECT	JOB	HIGHWAY
	DIST	COUNTY		SHEET NO.

266









SHEET NAME: CONSTRUCTION DETAILS (3 OF 5)
JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1
PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

Carlson, Brigance & Doering, Inc.
Civil Engineering ◆ Surveying
FIRM ID #F3791
Main Office: 5501 West William Cannon Dr. Austin, Texas 78749
North Office: 12129 RR 620 N., Ste. 600 Austin, Texas 78750
Phone No. (512) 280-5160 Fax No. (512) 280-5165

CARLSON, BRIGANCE & DOERING, INC. 81-1727
STEVEN P. CAMPBELL 93648 LICENSED PROFESSIONAL ENGINEER

REVISION	DATE

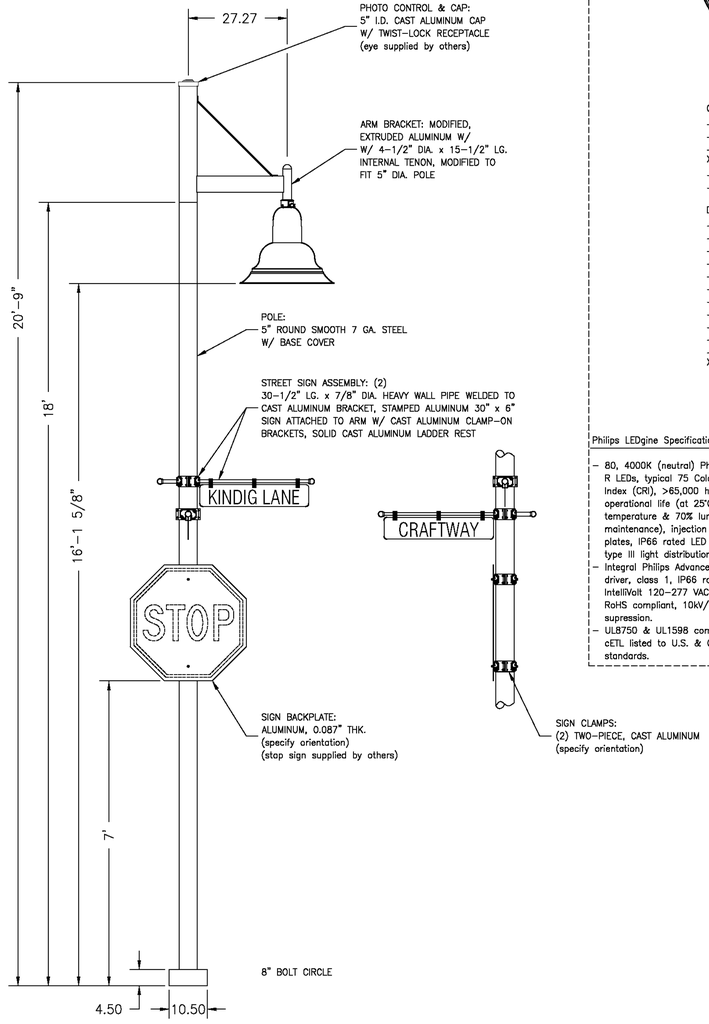
DESIGNED: SPC
DRAWN: SPC
CHECKED: SPC

DATE: 6-9-2025
JOB NUMBER: 5665
SHEET: 99 OF 103
SHEET NO. 99

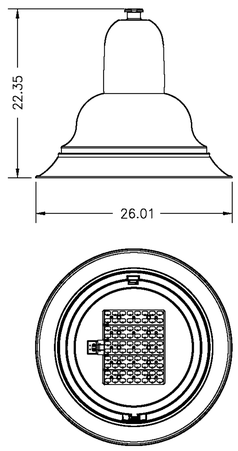
Ordering Guide:

C11910: LUMINAIRE
CA11910: ARM BRACKET W/O PHOTO CONTROL
CA11910B: ANCHOR BOLTS
CA11910C: SIGN BACKPLATE
CA11910D: SIGN CLAMPS
CA11910I: ARM BRACKET W/ PHOTO CONTROL (shown)
CA11910K: STREET SIGN ASSEMBLY
CP11910A: POLE

Color:
Bronze



Luminaire Detail
Scale 1:12



COLOR:
_ BLACK
_ WHITE
_ VERDE
X BRONZE
_ GRAY
_ GREEN

DIMMING CONTROL:
_ 4 HRS 25% REDUCTION
_ 4 HRS 50% REDUCTION
_ 4 HRS 75% REDUCTION
_ 6 HRS 25% REDUCTION
_ 6 HRS 50% REDUCTION
_ 6 HRS 75% REDUCTION
_ 8 HRS 25% REDUCTION
_ 8 HRS 50% REDUCTION
_ 8 HRS 75% REDUCTION
_ CUSTOM DIMMING SCHEDULE
_ WIRELESS CONTROLS
X NONE

Philips LEDgine Specifications:

- 80, 4000K (neutral) Philips Lumileds R LEDs, typical 75 Color Rendering Index (CRI), >65,000 hours of operational life (at 25°C ambient temperature & 70% lumen maintenance), injection molded optical plates, IP66 rated LED module, type III light distribution.
- Integral Philips Advance Xitanium LED driver, class 1, IP66 rated, 350mA, IntelliVolt 120-277 VAC, 50-60 Hz, RoHS compliant, 10kV/10kA surge supression.
- UL8750 & UL1598 compliant, ETL & cETL listed to U.S. & Canadian safety standards.

PRODUCT APPROVALS	
HADCO	SDK
CUSTOMER	

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PHILIPS
HADCO

100 Craftway Drive
Littlestown, Pa 17340
Phone 800-331-4185
Fax 717-359-9289
www.philips.com

JOB NAME: Middlebrook

DRAWN BY: H. Kuhn

SCALE: 1:25 | DATE: 07/05/16

DRAWING NUMBER: C11910-DWG09

REP: ERT - San Antonio

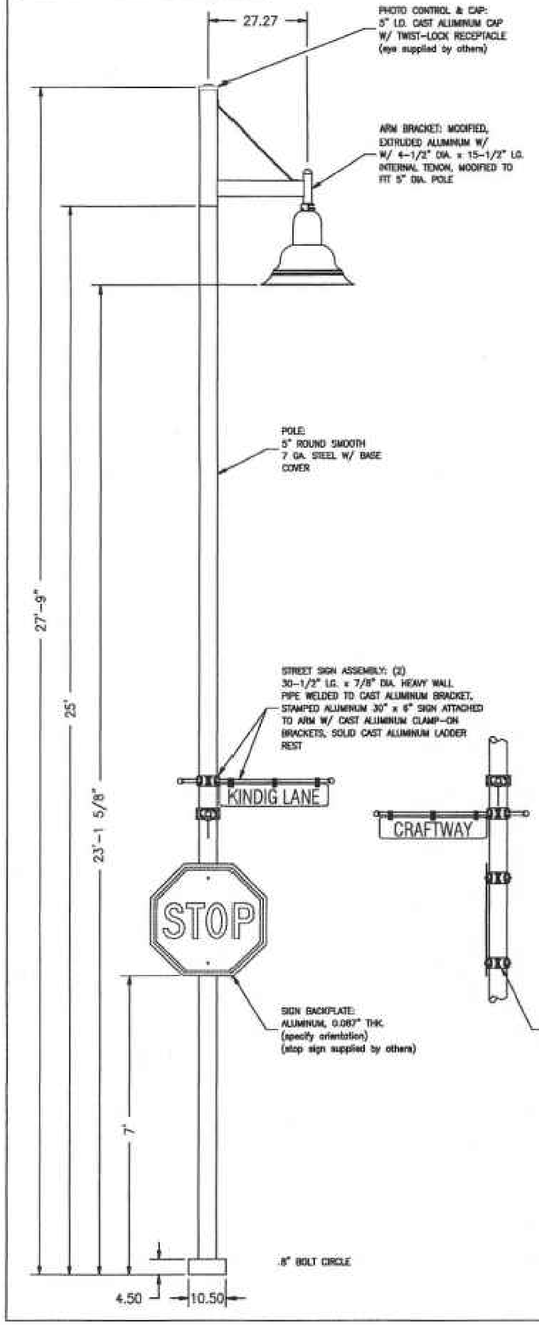
REV: A | PCN: 16-019

BY: . | DATE: .

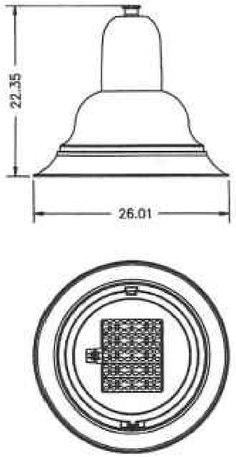
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CA11910I: ARM BRACKET W/ PHOTO CONTROL (shown)
CA11910K: STREET SIGN ASSEMBLY
CP11910A: POLE

Color:
Bronze



Luminaire Detail
Scale 1:12



COLOR:
_ BLACK
_ WHITE
_ VERDE
X BRONZE
_ GRAY
_ GREEN

DIMMING CONTROL:
_ 4 HRS 25% REDUCTION
_ 4 HRS 50% REDUCTION
_ 4 HRS 75% REDUCTION
_ 6 HRS 25% REDUCTION
_ 6 HRS 50% REDUCTION
_ 6 HRS 75% REDUCTION
_ 8 HRS 25% REDUCTION
_ 8 HRS 50% REDUCTION
_ 8 HRS 75% REDUCTION
_ CUSTOM DIMMING SCHEDULE
_ WIRELESS CONTROLS
X NONE

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- Integral Philips Advance Xitanium LED driver, class 1, IP66 rated, 350mA, IntelliVolt 120-277 VAC, 50-60 Hz, RoHS compliant, 10kV/10kA surge supression.
- UL8750 & UL1598 compliant, ETL & cETL listed to U.S. & Canadian safety standards, vibration tested to ANSI C136.31 for normal applications.

PRODUCT APPROVALS	
HADCO	JLN
CUST.	

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Full
Specification
(Complete Assembly)
Drawing

PHILIPS
HADCO

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Littlestown, Pa 17340
Phone 800-331-4185
Fax 717-359-9289
www.hadco.com

JOB NAME: Middlebrook

REP. TERRITORY: 30 | DRAWN BY: SMK

SCALE: 1:25 | DATE: 08/22/14

DRAWING NUMBER: C11910-DWG07

REP: ERT - San Antonio

REV: B | PCN: 14-038

BY: SMK | DATE: 08/28/14

DESIGNED BY: SPC	DRAFTED BY: CL

DATE	REVISION

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Fax No. (512) 280-5165

SHEET NAME: CONSTRUCTION DETAILS (4 OF 5)

JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1

PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED
PROFESSIONAL ENGINEER
CARLSON, BRIGANCE & DOERING, INC.
ID# F3791

6-9-2025

DATE: MAY 2025

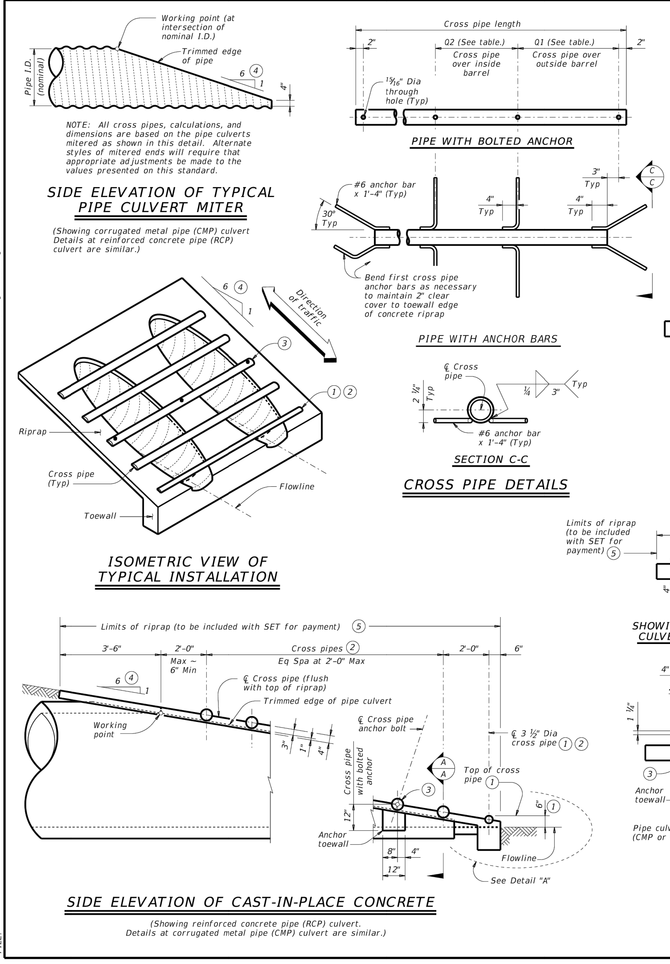
JOB NUMBER: 5665

SHEET: 100 OF 103

SHEET NO.: 100

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CROSS PIPE LENGTHS, REQUIRED PIPE SIZES, AND RIPRAP QUANTITIES (2)

Nominal Culvert I.D.	Conc Riprap (CY) (6)	Pipe Culvert Spa – G	Single Barrel – Q1	Multi-Barrel – Q1	Q2	Conditions for Use of Cross Pipes	Cross Pipe Sizes
12"	0.6	0' - 9"	N/A	2' - 1"	1' - 9"	3 or more pipe culverts	3" Std (3.500" O.D.)
15"	0.7	0' - 11"	N/A	2' - 5"	2' - 2"		
18"	0.8	1' - 2"	N/A	2' - 10"	2' - 8"		
21"	0.9	1' - 4"	N/A	3' - 2"	3' - 1"		
24"	0.9	1' - 7"	N/A	3' - 6"	3' - 7"		
27"	1.0	1' - 8"	N/A	3' - 10"	3' - 11"	3 or more pipe culverts	3 ½" Std (4.000" O.D.)
30"	1.1	1' - 10"	N/A	4' - 2"	4' - 4"	2 or more pipe culverts	
33"	1.2	1' - 11"	4' - 2"	4' - 5"	4' - 8"	All pipe culverts	4" Std (4.500" O.D.)
36"	1.3	2' - 1"	4' - 5"	4' - 9"	5' - 1"	All pipe culverts	
42"	1.5	2' - 4"	4' - 11"	5' - 5"	5' - 10"		
48"	1.7	2' - 7"	5' - 5"	6' - 0"	6' - 7"	All pipe culverts	5" Std (5.563" O.D.)
54"	2.0	3' - 0"	5' - 11"	6' - 9"	7' - 6"		
60"	2.2	3' - 3"	6' - 5"	7' - 4"	8' - 3"		
66"	2.4	3' - 3"	6' - 11"	7' - 10"	8' - 9"		
72"	2.7	3' - 4"	7' - 5"	8' - 5"	9' - 4"		

(1) The proper installation of the first cross pipe is critical for vehicle safety. Place the top of the first cross pipe no more than 6" above the flow line.

(2) Provide cross pipes, except the first bottom pipe, of the size shown in the table. Provide a 3 1#2" standard pipe (4" O.D.) for the first bottom pipe.

(3) Install the third cross pipe from the bottom of the culvert using a bolted connection. Ensure that riprap concrete does not flow into the cross pipe so as to permit disassembly of the bolted connection to allow cleanout access. At the Contractor's option, install all other cross pipes using the bolted connection details.

(4) Match cross slope as shown elsewhere in the plans. Cross slope of 6:1 or flatter is required for vehicle safety.

(5) Riprap placed beyond the limits shown will be paid for as concrete riprap in accordance with Item 432, "Riprap".

(6) Quantities shown are for one end of one reinforced concrete pipe (RCP) culvert. For multiple pipe culverts or for corrugated metal pipe (CMP) culverts, quantities will need to be adjusted. Riprap quantities are for contractor's information only.

MATERIAL NOTES:

Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.

Provide cross pipes that meet the requirements of ASTM A53 (Type E or S, Gr B), ASTM A500 (Gr B), or API 5LX52.

Provide ASTM A307 bolts and nuts.

Galvanize all steel components, except concrete reinforcing, after fabrication. Repair galvanizing damaged during transport or construction in accordance with the specifications.

GENERAL NOTES:

Cross pipes are designed for a traversing load of 10,000 pounds at yield as recommended by Research Report 280-2F, "Safety Treatment of Roadside Parallel-Drainage Structures", Texas Transportation Institute, March 1981.

Safety end treatments (SET) shown herein are intended for use in those installations where out of control vehicles are likely to traverse the openings approximately perpendicular to the cross pipes.

Construct concrete riprap and all necessary inverts in accordance with the requirements of Item 432, "Riprap".

Payment for riprap and toewall is included in the Price Bid for each Safety End Treatment.

Texas Department of Transportation — Bridge Division Standard

SAFETY END TREATMENT

FOR 12" DIA TO 72" DIA PIPE CULVERTS TYPE II ~ PARALLEL DRAINAGE

SETP-PD

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

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

DATE:
FILE:

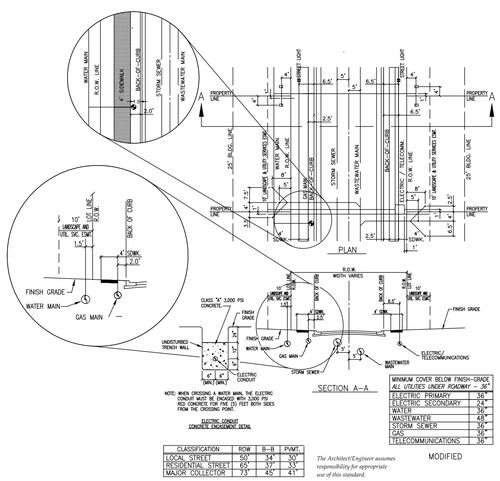
SHEET NO. 101
SHEET 101 OF 103
JOB NUMBER 5665
DATE MAY 2025
6-9-2025
CARLSON, BRIGANCE & DOERING, INC. STUART P. GATES 93848 LICENSED PROFESSIONAL ENGINEER 01-12-2026

SHEET NAME: CONSTRUCTION DETAILS (5 OF 5)
JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1
PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

Carlson, Brigance & Doering, Inc.
Civil Engineering ◆ Surveying
FIRM ID #F3791
Main Office: 5501 West William Cannon Dr. Austin, Texas 78749
North Office: 12129 RR 620 N., Ste. 600 Austin, Texas 78750
Phone No. (512) 280-5160 Fax No. (512) 280-5165

REVISION	DATE

PRINTED 3:51 PM 6/9/2025



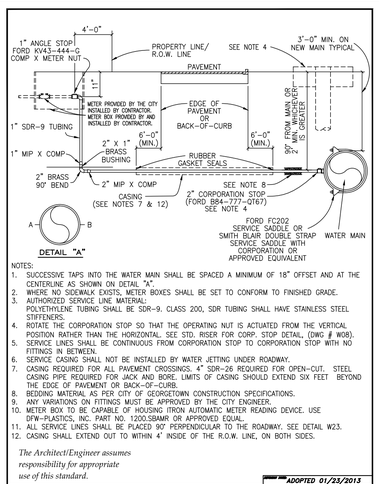
CLASSIFICATION	ROW	B-B	PVMT
LOCAL STREET	50'	34'	30'
RESIDENTIAL STREET	65'	37'	33'
MAJOR COLLECTOR	73'	45'	41'

MINIMUM COVER BELOW FINISH-GRADE, ALL UTILITIES UNDER PSW/MHW = -36"	
ELECTRIC PRIMARY	36"
ELECTRIC SECONDARY	24"
WATER	36"
WASTEWATER	48"
STORM SEWER	36"
GAS	36"
TELECOMMUNICATIONS	36"

MODIFIED

The Architect/Engineer assumes responsibility for appropriate use of this standard.

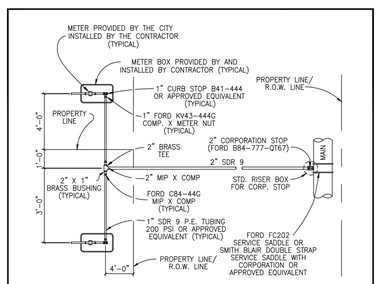
CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
TYPICAL WATER SERVICE-ELEVATION
ADOPTED 01/23/2013 — W03 — NTS — 1/2013



NOTES:
1. SUCCESSIVE TAPS INTO THE WATER MAIN SHALL BE SPACED A MINIMUM OF 18" OFFSET AND AT THE CENTERLINE AS SHOWN ON DETAIL "A".
2. WHERE NO SIDEWALK EXISTS, METER BOXES SHALL BE SET TO CONFORM TO FINISHED GRADE.
3. AUTHORIZED SERVICE LINE MATERIAL: POLYETHYLENE TUBING SHALL BE SDR-9. CLASS 200, SDR TUBING SHALL HAVE STAINLESS STEEL STIFFENERS.
4. ROTATE THE CORPORATION STOP SO THAT THE OPERATING NUT IS ACTUATED FROM THE VERTICAL POSITION RATHER THAN THE HORIZONTAL. SEE STD. RISER FOR CORP. STOP DETAIL, (DWG # W08).
5. SERVICE LINES SHALL BE CONTINUOUS FROM CORPORATION STOP TO CORPORATION STOP WITH NO FITTINGS IN BETWEEN.
6. SERVICE CASING SHALL NOT BE INSTALLED BY WATER JETTING UNDER ROADWAY.
7. CASING REQUIRED FOR ALL PAVEMENT CROSSINGS. 4" SDR-26 REQUIRED FOR OPEN-CUT. STEEL CASING PIPE REQUIRED FOR JACK AND BORE. LIMITS OF CASING SHOULD EXTEND SIX FEET BEYOND THE EDGE OF PAVEMENT OR BACK-OF-CURB.
8. BEDDING MATERIAL AS PER CITY OF GEORGETOWN CONSTRUCTION SPECIFICATIONS.
9. ANY VARIATIONS ON FITTINGS MUST BE APPROVED BY THE CITY ENGINEER.
10. METER BOX TO BE CAPABLE OF HOUSING TRION AUTOMATIC METER READING DEVICE. USE DFW-PLASTICS, INC. PART NO. 1200.SBAMR OR APPROVED EQUAL.
11. ALL SERVICE LINES SHALL BE PLACED 90° PERPENDICULAR TO THE ROADWAY. SEE DETAIL W23.
12. CASING SHALL EXTEND OUT TO WITHIN 4' INSIDE OF THE R.O.W. LINE, ON BOTH SIDES.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

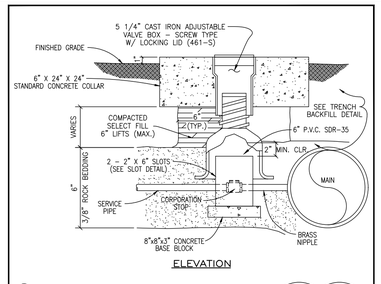
CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
TYPICAL WATER SERVICE-ELEVATION
ADOPTED 01/23/2013 — W03 — NTS — 1/2013



NOTES:
1. AUTHORIZED SERVICE LINE MATERIAL: POLYETHYLENE TUBING SHALL BE SDR-9. CLASS 200, SDR TUBING SHALL HAVE STAINLESS STEEL STIFFENERS.
2. ANGLE STOP SHALL BE 1" MINIMUM.
3. 1" ANGLE STOPS WITH 3/4" VALVES SHALL NOT BE PERMITTED.
4. MULTIPLE SERVICE/METER INSTALLATIONS OF MORE THAN 4 METERS PER SERVICE AND SERVICE LINES LARGER THAN 2" IN DIAMETER SHALL BE HANDLED ON AN INDIVIDUAL BASIS.
5. ANGLE STOPS 1 1/2" AND 2" IN SIZE SHALL BE PROVIDED WITH BOTH A LOCKING CAP AND METER FLANGE.
6. ANGLE STOPS SHALL BE INSTALLED 8" BELOW FINISHED GRADE AND MARKED WITH A 2" X 2" X 48" TREATED WOOD STAKE, PAINTED BLUE.
7. BEDDING MATERIAL AS PER CITY OF GEORGETOWN CONSTRUCTION SPECIFICATIONS.
8. CASING REQUIREMENTS FOR SERVICE LINES CROSSING ROADWAYS SEE DETAIL W-03 NOTE #7.
9. ANY VARIATIONS ON FITTINGS MUST BE APPROVED BY THE CITY ENGINEER.
10. ALL SERVICE LINES SHALL BE PLACED 90° PERPENDICULAR TO THE ROADWAY.

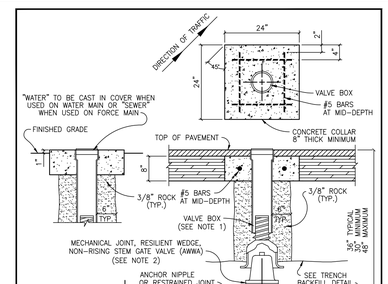
The Architect/Engineer assumes responsibility for appropriate use of this standard.

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
DOUBLE WATER SERVICE PLAN
ADOPTED 01/23/2013 — W05 — NTS — 1/2013



The Architect/Engineer assumes responsibility for appropriate use of this standard.

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
STANDARD RISER BOX FOR CORPORATION STOP
ADOPTED 6/21/2006 — W08 — NTS — 1/2003



NOTES:
1. VALVE BOX SHALL BE 5 1/4" CAST IRON ADJUSTABLE HAVING AN ADJUSTABLE RANGE OF + OR - 6 INCHES FROM INSTALLED FINISH GRADE.
2. ACCEPTABLE GATE VALVES ARE:
   A. AMERICAN FLOW CONTROL – SERIES 2500
   B. MUELLER – 2360 SERIES
   C. CLOW

The Architect/Engineer assumes responsibility for appropriate use of this standard.

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
TYPICAL VALVE SETTING
ADOPTED 6/21/2006 — W07 — NTS — 1/2003

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
AUTOMATIC FLUSHING VALVE
TRANSFERRED FROM TCTSUD — W-08C — NTS — 1/2015

NOTES:
1. FIRE HYDRANT SHALL BE INSTALLED ON SAME SIDE OF ROAD AS WATER MAIN.
2. FIRE HYDRANT SHALL BE INSTALLED PLUMB AND TRUE.
3. ALL FIRE HYDRANT EXTERIORS SHALL BE FACTORY PRIMED AND PAINTED SILVER USING A HIGH GRADE ENAMEL.
4. HEEL AND THRUST BLOCKS TO REST IN UNDISTURBED SOIL.
5. THE ONLY FIRE HYDRANTS ACCEPTABLE ARE:
   A. KENNEDY – K81
   B. AMERICAN DARLING – B84B
   C. CLOW MEDALLION
6. DOUBLE BLUE REFLECTOR "PYE-LITES" BRAND, MANUFACTURED BY PAVEMENT MARKERS INC. TO BE INSTALLED AT CENTERLINE OF STREET PERPENDICULAR TO HYDRANT.
7. ALL METALLIC PIPES AND FITTINGS SHALL BE WRAPPED WITH 8 MIL. POLYETHELENE FILM.
8. FIRE HYDRANT DESIGN SHALL BE 2-2.5" MST OUTLETS, 1-5.0" STORZ PUMPER NOZZLE WITH A 1.5", 5-SIDED OPERATING NUT ON THE NOZZLE CAP THAT OPENS LEFT, ALONG WITH A REFLECTIVE BAND.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
TYPICAL FIRE HYDRANT INSTALLATION
ADOPTED 6/21/2006 — W10 — NTS — 1/2003

ALL THRUST BLOCKS SHALL BE FORMED, LAID FORMS SHALL BE INSPECTED BY THE CITY OF GEORGETOWN PRIOR TO THE POURING OF CONCRETE AND SHALL ALSO BE INSPECTED BY THE CITY OF GEORGETOWN PRIOR TO COVERING. TYPICAL LOCATIONS WHICH REQUIRE CONCRETE REACTION (THRUST) BLOCKS, FOR PRESSURE MAINS FOUR INCHES (4") AND GREATER, CONCRETE SHALL HAVE A 2,500 P.S.I. MINIMUM STRENGTH AT TWENTY EIGHT (28) DAYS AND BEAR AGAINST UNDISTURBED STABLE SOILS. AREA OF CONTACT SHALL BE GOVERNED BY PIPE SIZE, MAXIMUM PRESSURE IN PIPE, AND BEARING CAPACITY OF SOIL. PROTECT FITTINGS, BOLTS, ETC. BY COVERING WITH VISQUEEN OR OTHER ACCEPTABLE MATERIAL. CONCRETE SHALL BE A MINIMUM OF TWELVE INCHES (12") THICK.

PIPE SIZE	THRUST BLOCK AREA REQUIRED	PIPE SIZE	THRUST BLOCK AREA REQUIRED	REMARKS
4"	2.0 SQ. FT.	18"	30.0 SQ. FT.	
6"	4.0 SQ. FT.	20"	37.0 SQ. FT.	VALUES ARE FOR 90° BENDS, BASED ON 2000 P.S.F. SAFE BEARING LOAD AND PIPE PRESSURE OF 150 P.S.I. PLUS 3.5X SAFETY FACTOR FOR OTHER SOILS AND PRESSURES, THE AREA REQUIRED IS IN DIRECT PROPORTION.
8"	6.6 SQ. FT.	24"	53.0 SQ. FT.	
10"	10.0 SQ. FT.	27"	80.0 SQ. FT.	
12"	14.0 SQ. FT.	30"	98.0 SQ. FT.	
14"	18.0 SQ. FT.	36"	127.0 SQ. FT.	
16"	24.0 SQ. FT.			

* THE ENGINEER OF RECORD SHALL CALCULATE THE SIZE OF THE DEADMAN REQUIRED AS WELL AS ANY INSTALLATION WHICH IS NOT COVERED BY THE ABOVE.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
TYPICAL THRUST BLOCKS FOR WATER AND FORCE MAIN
ADOPTED 6/21/2006 — W11 — NTS — 1/2003

NOTES:
1. CASING SPACERS SHALL BE BOLT ON STYLE WITH A SHELL MADE IN TWO SECTIONS OF HEAVY T-304 STAINLESS STEEL. CONNECTING FLANGES SHALL BE RIBBED FOR EXTRA STRENGTH. CASING SPACERS SHALL BE MADE BY CASCADE WATERWORKS MFG. CO. OR APPROVED EQUAL.
2. CASING SPACERS SHALL HAVE RUNNERS MADE OF ULTRA HIGH MOLECULAR WEIGHT POLYMER, WITH A MINIMUM HEIGHT OF 2 INCHES.
3. DO NOT USE WEDGES BETWEEN TOP OF PVC CARRIER PIPE AND INSIDE OF CASING TO KEEP PVC FROM MOVING.
4. PRIOR TO INSERTING PVC CARRIER PIPE, ANY WATER SHOULD BE PUMPED OUT OF THE CASING PIPE SO THAT NO MORE THAN A FEW INCHES OF WATER REMAINS.
5. SPACERS WILL BE REQUIRED WITHIN AT LEAST 3 FEET FROM BOTH OPENINGS OF THE ENCASEMENT PIPE AND SPACED NO GREATER THAN 6 FEET THROUGHOUT THE ENCASEMENT PIPE.
6. ENCASEMENT PIPE SHALL BE SMOOTH STEEL 35,000 PSI YIELD STRENGTH WITH THICKNESS ACCORDING TO THE FOLLOWING TABLE:
7. WHEN CASING IS REQUIRED UNDER PAVEMENT WITHIN THE R.O.W., THE CASING SHALL EXTEND OUT TO WITHIN 4' INSIDE OF THE R.O.W. LINE, ON BOTH SIDES.
8. ALL JOINTS SHALL BE RESTRAINED ON PVC CARRIER PIPE.

PIPE SIZE–CARRIER (DIAMETER)	PIPE SIZE–CASING (DIAMETER)(MIN.)	MINIMUM PIPE THICKNESS (INCHES)
6"	16"	
8"	18"	1/4 0.2500
10"	20"	5/16 0.3125
12" – 14"	24"	3/8 0.3750
16" – 18"	30"	7/16 0.4375
20"	36"	1/2 0.5000
24"	42"	1/2 0.5000
30"	48"	1/2 0.5000

The Architect/Engineer assumes responsibility for appropriate use of this standard.

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
INSTALLATION OF P.V.C. PIPE THROUGH CASING
ADOPTED 6/21/2006 — W14 — NTS — 1/2003

1. TEST STATION SHALL BE HANDLEY INDUSTRIES INC. – 2 INCH CATHODIC TEST STATIONS OR APPROVED EQUAL.
2. THE 15" ABS PLASTIC BOX SHALL BE A FLANGED TOP FOR INSTALLATION AT GROUND LEVEL.
3. ALL TERMINALS ARE TO BE MADE OF SOLID BRASS.
4. PLASTIC LIDS SHALL BE COLOR BLUE AND MARKED "WATER".
5. TEST TERMINALS ARE TO BE INCORPORATED WITH HANDLEY VALVE BOXES.
6. BURY SPLICE SHALL BE 3M DIRECT BURY SPLICE (DBR) OR APPROVED EQUAL.
7. TEST STATIONS SHALL BE INSTALLED AT EACH FIRE HYDRANT LOCATION.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
TRACER WIRE INSTALLATION AND TEST STATION LOCATION
ADOPTED 6/21/2006 — W18 — NTS — 1/2003

The Architect/Engineer assumes responsibility for appropriate use of this standard.

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
METER BOX (NON-TRAFFIC AREAS)
ADOPTED 6/21/2006 — W23 — NTS — 1/2003

NOTES:
1. SEE VALVE SETTING DETAIL, DWG. #W-07.
2. ACCEPTABLE GATE VALVES ARE:
   A. MUELLER – 2360 SERIES
   B. CLOW

The Architect/Engineer assumes responsibility for appropriate use of this standard.

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
INLINE VALVE INSTALLATION
ADOPTED 6/21/2006 — W21 — NTS — 1/2003

TRENCH WIDTHS
*PIPE LESS THAN 20" DIAMETER
1'-0" + PIPE O.D.
*20" DIAMETER PIPE AND LARGER
2'-0" + PIPE O.D.

NOTES:
1. DENSITY TESTS SHALL BE TAKEN IN ACCORDANCE WITH THE CITY OF GEORGETOWN CONSTRUCTION SPECIFICATIONS AND STANDARDS.
2. CONTRACTOR OR ENGINEER MAY USE FLOWABLE BACKFILL AS AN ALTERNATE BACKFILL MATERIAL (SEE C9 FLOWABLE BACKFILL FOR THE SPECIFICATION).

The Architect/Engineer assumes responsibility for appropriate use of this standard.

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
TRENCH AND EMBEDMENT DETAIL UNDER PROPOSED ROADWAY
ADOPTED 6/21/2006 — W22 — NTS — 1/2003

GUS PROJECT #2024-48-WD

DESIGNED BY: SPC | DRAFTED BY: CL

DATE | REVISION

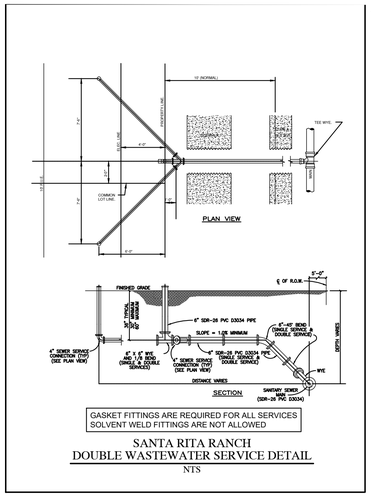
Carlson, Brigance & Doering, Inc.
Civil Engineering ◆ Surveying
CBD
FIRM ID #F3791
Main Office: 5501 West William Cannon Dr. Austin, Texas 78749
North Office: 12129 RR 620 N, #600 Austin, Texas 78750
Phone No. (512) 280-5160 Fax No. (512) 280-5165

SHEET NAME: WATER DETAILS
JOB NAME: SANTA RITA RANCH NORTHWEST PHASE 2 SECTION 1
PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED PROFESSIONAL ENGINEER
CARLSON, BRIGANCE & DOERING, INC.
ID# F3791
6-9-2025

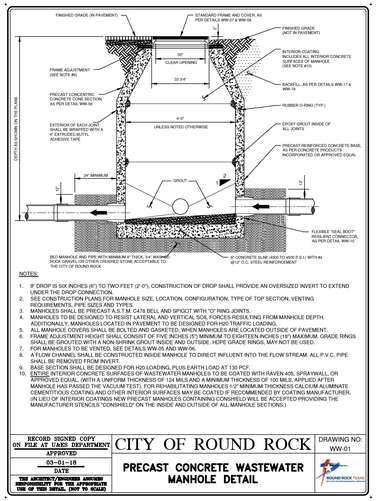
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GASKET FITTINGS ARE REQUIRED FOR ALL SERVICES
SOLVENT WELD FITTINGS ARE NOT ALLOWED

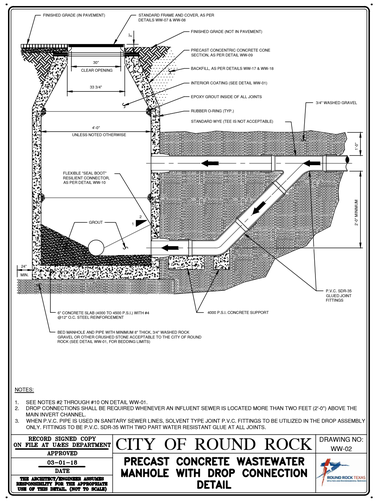
SANTA RITA RANCH
DOUBLE WASTEWATER SERVICE DETAIL
NTS



NOTES:

1. 6" DROP IS SIX INCHES (6") TO TWO FEET (2'-0"). CONSTRUCTION OF DROP SHALL PROVIDE AN OVERSIZED INVERT TO EXTEND UNDER THE DROP CONNECTION.
2. SEE CONSTRUCTION PLANS FOR MANHOLE SIZE, LOCATION, CONFIGURATION, TYPE OF TOP SECTION, VENTING REQUIREMENTS, PIPE SIZES AND TYPES.
3. MANHOLES SHALL BE PRECAST A.S.T.M. C478 BELL AND SPIGOT WITH "O" RING JOINTS.
4. MANHOLES TO BE DESIGNED TO RESIST LATERAL AND VERTICAL SOIL FORCES RESULTING FROM MANHOLE DEPTH. ADDITIONALLY, MANHOLES LOCATED IN PAVEMENT TO BE DESIGNED FOR HS20 TRAFFIC LOADING.
5. ALL MANHOLE COVERS SHALL BE BOLTED AND GASKETED, WHEN MANHOLES ARE LOCATED OUTSIDE OF PAVEMENT.
6. MANHOLE FRAMES SHALL BE SET IN A FULL BED OF MORTAR. ADJUSTMENT BETWEEN CASTING AND MAXIMUM GRADE RINGS SHALL BE GROUTED WITH A NON-SHRINK GROUT INSIDE AND OUTSIDE. HDPE GRADE RINGS, MAY NOT BE USED.
7. FOR MANHOLES TO BE VENTED, SEE DETAILS WW-05 AND WW-06.
8. A FLOW CHANNEL SHALL BE CONSTRUCTED INSIDE MANHOLE TO DIRECT INFLUENT INTO THE FLOW STREAM. ALL P.V.C. PIPE SHALL BE REMOVED FROM INVERT.
9. BASE SECTION SHALL BE DESIGNED FOR H20 LOADING, PLUS EARTH LOAD AT 130 PCF.
10. ENTIRE INTERIOR CONCRETE SURFACES OF WASTEWATER MANHOLES TO BE COATED WITH RAVEN 405, SPRAYWALL, OR APPROVED EQUAL, WITH A UNIFORM THICKNESS OF 124 MILS AND A MINIMUM THICKNESS OF 100 MILS, APPLIED AFTER MANHOLE HAS PASSED THE VACUUM TEST). FOR REHABILITATING MANHOLES 1/2" MINIMUM THICKNESS CALCIUM ALUMINATE CEMENTITIOUS COATING AND OTHER INTERIOR SURFACES MAY BE COATED IF RECOMMENDED BY COATING MANUFACTURER, ON LIEU OF INTERIOR COATINGS NEW PRECAST MANHOLES CONTAINING CONSHIELD WILL BE ACCEPTED PROVIDING THE MANUFACTURER STENCILS "CONSHIELD" ON THE INSIDE AND OUTSIDE OF ALL MANHOLE SECTIONS.)

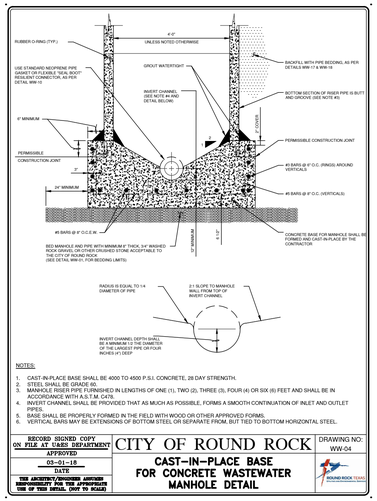
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APPROVED 03-01-18 DATE	PRECAST CONCRETE WASTEWATER MANHOLE DETAIL	WW-01
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)		ROUND ROCK TEXAS



NOTES:

1. SEE NOTES #2 THROUGH #10 ON DETAIL WW-01.
2. DROP CONNECTIONS SHALL BE REQUIRED WHENEVER AN INFLUENT SEWER IS LOCATED MORE THAN TWO FEET (2'-0") ABOVE THE MAIN INVERT CHANNEL.
3. WHEN P.V.C. PIPE IS USED IN SANITARY SEWER LINES, SOLVENT TYPE JOINT P.V.C. FITTINGS TO BE UTILIZED IN THE DROP ASSEMBLY ONLY. FITTINGS TO BE P.V.C. SDR-35 WITH TWO PART WATER RESISTANT GLUE AT ALL JOINTS.

RECORD SIGNED COPY ON FILE AT UARS DEPARTMENT	CITY OF ROUND ROCK	DRAWING NO:
APPROVED 03-01-18 DATE	PRECAST CONCRETE WASTEWATER MANHOLE WITH DROP CONNECTION DETAIL	WW-02
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)		ROUND ROCK TEXAS

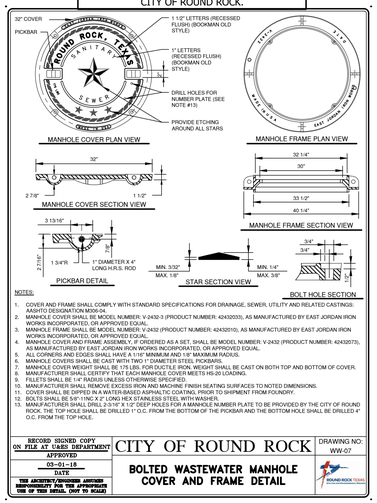


NOTES:

1. CAST-IN-PLACE BASE SHALL BE 4000 TO 4500 P.S.I. CONCRETE, 28 DAY STRENGTH.
2. STEEL SHALL BE GRADE 60.
3. MANHOLE RISER PIPE FURNISHED IN LENGTHS OF ONE (1), TWO (2), THREE (3), FOUR (4) OR SIX (6) FEET AND SHALL BE IN ACCORDANCE WITH A.S.T.M. C478.
4. INVERT CHANNEL SHALL BE PROVIDED THAT AS MUCH AS POSSIBLE, FORMS A SMOOTH CONTINUATION OF INLET AND OUTLET PIPES.
5. BASE SHALL BE PROPERLY FORMED IN THE FIELD WITH WOOD OR OTHER APPROVED FORMS.
6. VERTICAL BARS MAY BE EXTENSIONS OF BOTTOM STEEL OR SEPARATE FROM, BUT TIED TO BOTTOM HORIZONTAL STEEL.

RECORD SIGNED COPY ON FILE AT UARS DEPARTMENT	CITY OF ROUND ROCK	DRAWING NO:
APPROVED 03-01-18 DATE	CAST-IN-PLACE BASE FOR CONCRETE WASTEWATER MANHOLE DETAIL	WW-04
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)		ROUND ROCK TEXAS

MANHOLE COVER SHALL NOT REFERENCE THE CITY OF ROUND ROCK.

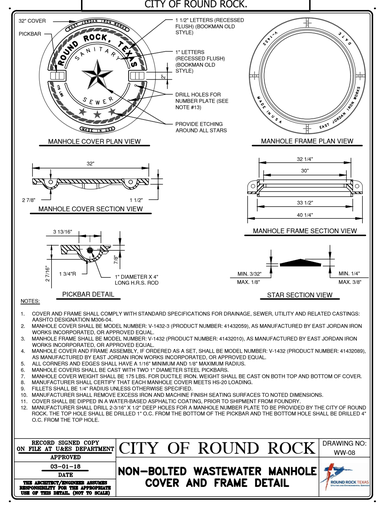


NOTES:

1. COVER AND FRAME SHALL COMPLY WITH STANDARD SPECIFICATIONS FOR DRAINAGE, SEWER, UTILITY AND RELATED CASTINGS: ASHTO DESIGNATION M306-04.
2. MANHOLE COVER SHALL BE MODEL NUMBER: V-1432-3 (PRODUCT NUMBER: 41432059), AS MANUFACTURED BY EAST JORDAN IRON WORKS INCORPORATED, OR APPROVED EQUAL.
3. MANHOLE FRAME SHALL BE MODEL NUMBER: V-2432 (PRODUCT NUMBER: 41432010), AS MANUFACTURED BY EAST JORDAN IRON WORKS INCORPORATED, OR APPROVED EQUAL.
4. MANHOLE COVER AND FRAME ASSEMBLY, IF ORDERED AS A SET, SHALL BE MODEL NUMBER: V-2432 (PRODUCT NUMBER: 42432073), AS MANUFACTURED BY EAST JORDAN IRON WORKS INCORPORATED, OR APPROVED EQUAL.
5. ALL CORNERS AND EDGES SHALL HAVE A 1/16" MINIMUM AND 1/8" MAXIMUM RADIUS.
6. MANHOLE COVERS SHALL BE CAST WITH TWO 1" DIAMETER STEEL PICKBARS.
7. MANHOLE COVER WEIGHT SHALL BE 175 LBS. FOR DUCTILE IRON. WEIGHT SHALL BE CAST ON BOTH TOP AND BOTTOM OF COVER.
8. MANUFACTURER SHALL CERTIFY THAT EACH MANHOLE COVER MEETS H-20 LOADING.
9. FILLETS SHALL BE 1/4" RADIUS UNLESS OTHERWISE SPECIFIED.
10. MANUFACTURER SHALL REMOVE EXCESS IRON AND MACHINE FINISH SEATING SURFACES TO NOTED DIMENSIONS.
11. COVER SHALL BE COATED IN A WATER-BASED ASPHALTIC COATING, PRIOR TO SHIPMENT FROM FOUNDRY.
12. BOLTS SHALL BE 5/8"-11NC X 2" LONG HEX STAINLESS STEEL WITH WASHER.
13. MANUFACTURER SHALL DRILL 2-3/16" X 1/2" DEEP HOLES FOR A MANHOLE NUMBER PLATE TO BE PROVIDED BY THE CITY OF ROUND ROCK. THE TOP HOLE SHALL BE DRILLED 1" O.C. FROM THE BOTTOM OF THE PICKBAR AND THE BOTTOM HOLE SHALL BE DRILLED 4" O.C. FROM THE TOP HOLE.

RECORD SIGNED COPY ON FILE AT UARS DEPARTMENT	CITY OF ROUND ROCK	DRAWING NO:
APPROVED 03-01-18 DATE	BOLTED WASTEWATER MANHOLE COVER AND FRAME DETAIL	WW-07
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)		ROUND ROCK TEXAS

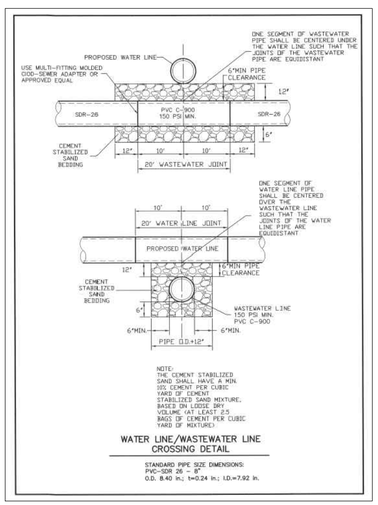
MANHOLE COVER SHALL NOT REFERENCE THE CITY OF ROUND ROCK.



NOTES:

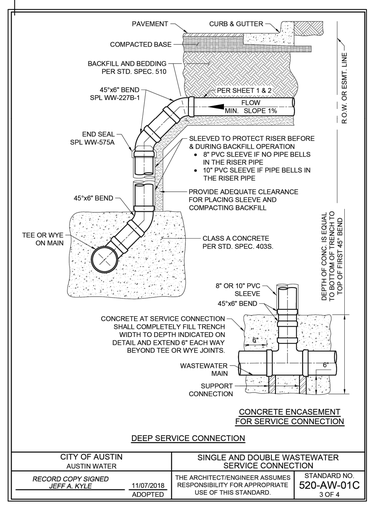
1. COVER AND FRAME SHALL COMPLY WITH STANDARD SPECIFICATIONS FOR DRAINAGE, SEWER, UTILITY AND RELATED CASTINGS: ASHTO DESIGNATION M306-04.
2. MANHOLE COVER SHALL BE MODEL NUMBER: V-1432-3 (PRODUCT NUMBER: 41432059), AS MANUFACTURED BY EAST JORDAN IRON WORKS INCORPORATED, OR APPROVED EQUAL.
3. MANHOLE FRAME SHALL BE MODEL NUMBER: V-2432 (PRODUCT NUMBER: 41432010), AS MANUFACTURED BY EAST JORDAN IRON WORKS INCORPORATED, OR APPROVED EQUAL.
4. MANHOLE COVER AND FRAME ASSEMBLY, IF ORDERED AS A SET, SHALL BE MODEL NUMBER: V-1432 (PRODUCT NUMBER: 41432089), AS MANUFACTURED BY EAST JORDAN IRON WORKS INCORPORATED, OR APPROVED EQUAL.
5. ALL CORNERS AND EDGES SHALL HAVE A 1/16" MINIMUM AND 1/8" MAXIMUM RADIUS.
6. MANHOLE COVERS SHALL BE CAST WITH TWO 1" DIAMETER STEEL PICKBARS.
7. MANHOLE COVER WEIGHT SHALL BE 175 LBS. FOR DUCTILE IRON. WEIGHT SHALL BE CAST ON BOTH TOP AND BOTTOM OF COVER.
8. MANUFACTURER SHALL CERTIFY THAT EACH MANHOLE COVER MEETS H-20 LOADING.
9. FILLETS SHALL BE 1/4" RADIUS UNLESS OTHERWISE SPECIFIED.
10. MANUFACTURER SHALL REMOVE EXCESS IRON AND MACHINE FINISH SEATING SURFACES TO NOTED DIMENSIONS.
11. COVER SHALL BE COATED IN A WATER-BASED ASPHALTIC COATING, PRIOR TO SHIPMENT FROM FOUNDRY.
12. BOLTS SHALL BE 5/8"-11NC X 2" LONG HEX STAINLESS STEEL WITH WASHER.
13. MANUFACTURER SHALL DRILL 2-3/16" X 1/2" DEEP HOLES FOR A MANHOLE NUMBER PLATE TO BE PROVIDED BY THE CITY OF ROUND ROCK. THE TOP HOLE SHALL BE DRILLED 1" O.C. FROM THE BOTTOM OF THE PICKBAR AND THE BOTTOM HOLE SHALL BE DRILLED 4" O.C. FROM THE TOP HOLE.

RECORD SIGNED COPY ON FILE AT UARS DEPARTMENT	CITY OF ROUND ROCK	DRAWING NO:
APPROVED 03-01-18 DATE	NON-BOLTED WASTEWATER MANHOLE COVER AND FRAME DETAIL	WW-08
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)		ROUND ROCK TEXAS



GASKET FITTINGS ARE REQUIRED FOR ALL SERVICES
SOLVENT WELD FITTINGS ARE NOT ALLOWED

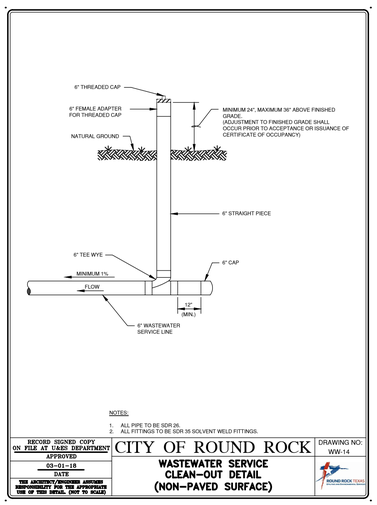
SANTA RITA RANCH
SINGLE WASTEWATER SERVICE DETAIL
NTS



NOTE:

CONCENTRIC CONCRETE CONE SECTION SHALL BE MANUFACTURED USING 4000 TO 4500 P.S.I. CONCRETE, 28 DAY STRENGTH AND IN ACCORDANCE WITH A.S.T.M. C478, AS MANUFACTURED BY CONCRETE PRODUCTS INCORPORATED, OR APPROVED EQUAL.

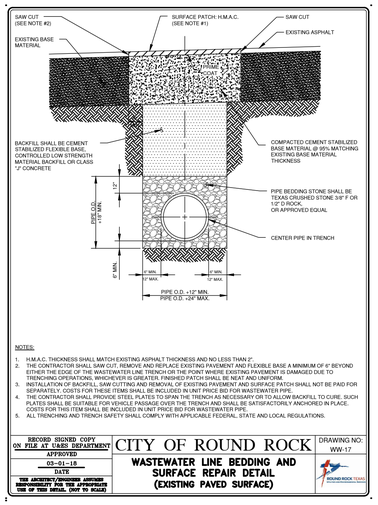
RECORD SIGNED COPY ON FILE AT UARS DEPARTMENT	CITY OF ROUND ROCK	DRAWING NO:
APPROVED 03-01-18 DATE	PRECAST 48" CONCENTRIC CONCRETE CONE SECTION DETAIL	WW-09
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)		ROUND ROCK TEXAS



NOTE:

1. FLEXIBLE "SEAL BOOT" RESILIENT CONNECTOR TO BE A MINIMUM OF 12 INCHES (12") FROM A MANHOLE JOINT.

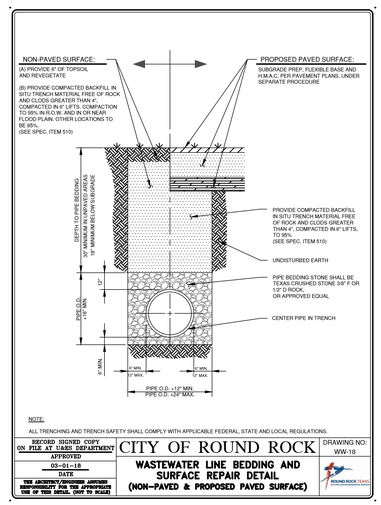
RECORD SIGNED COPY ON FILE AT UARS DEPARTMENT	CITY OF ROUND ROCK	DRAWING NO:
APPROVED 03-01-18 DATE	FLEXIBLE "SEAL BOOT" RESILIENT CONNECTOR DETAIL	WW-10
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)		ROUND ROCK TEXAS



NOTES:

1. MINIMUM DROP FROM INLET TO OUTLET OF MANHOLE IS 0.1 FEET AND MAXIMUM DROP IS 2 FEET, UNLESS SPECIAL APPROVAL IS OBTAINED FROM THE CITY OF ROUND ROCK.
2. INVERT CHANNELS TO BE CONSTRUCTED FOR SMOOTH FLOW WITH NO OBSTRUCTIONS.
3. SPILLWAYS SHALL BE CONSTRUCTED BETWEEN PIPES WITH DIFFERENT INVERT ELEVATIONS PROVIDING FOR SMOOTH FLOW.
4. CHANNELS FOR FUTURE CONSTRUCTIONS, SHALL BE CONSTRUCTED WITH PIPE EXTENDING 3' BEYOND EXTERIOR OF MANHOLE WALL, WITH GLUED PLUG.
5. SLOPE MANHOLE BENCH AT 2:1 SLOPE FROM MANHOLE WALL TO CHANNEL.
6. INVERT CHANNEL SHALL BE A MINIMUM OF 1/2 THE DIAMETER OF THE LARGEST PIPE OR FOUR INCHES (4") DEEP.

RECORD SIGNED COPY ON FILE AT UARS DEPARTMENT	CITY OF ROUND ROCK	DRAWING NO:
APPROVED 03-01-18 DATE	WASTEWATER FLOW PATTERNS FOR INVERT CHANNELS DETAIL	WW-11
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)		ROUND ROCK TEXAS



NOTES:

1. ALL PIPE TO BE SDR 26.
2. ALL FITTINGS TO BE SDR 35 SOLVENT WELD FITTINGS.

RECORD SIGNED COPY ON FILE AT UARS DEPARTMENT	CITY OF ROUND ROCK	DRAWING NO:
APPROVED 03-01-18 DATE	WASTEWATER SERVICE CLEAN-OUT DETAIL (PAVED SURFACE)	WW-13
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)		ROUND ROCK TEXAS

NOTE:
THE CEMENT STABILIZED SAND SHALL HAVE A MIN 10% CEMENT PER CUBIC YARD OF CEMENT STABILIZED SAND MIXTURE, BASED ON LOOSE DRY VOLUME (AT LEAST 2.5 BAGS OF CEMENT PER CUBIC YARD OF MIXTURE)

WATER LINE/WASTEWATER LINE CROSSING DETAIL

STANDARD PIPE SIZE DIMENSIONS:
PVC-SDR 26 - 8"
O.D. 8.40 in.; t=0.24 in.; I.D.=7.92 in.

CONCRETE ENCASEMENT FOR SERVICE CONNECTION

DEEP SERVICE CONNECTION

CITY OF AUSTIN AUSTIN WATER	SINGLE AND DOUBLE WASTEWATER SERVICE CONNECTION	
RECORD COPY SIGNED JEFF A. KYLE 11/07/2018 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 520-AW-01C 3 OF 4

NOTES:

1. ALL PIPE TO BE SDR 26.
2. ALL FITTINGS TO BE SDR 35 SOLVENT WELD FITTINGS.

RECORD SIGNED COPY ON FILE AT UARS DEPARTMENT	CITY OF ROUND ROCK	DRAWING NO:
APPROVED 03-01-18 DATE	WASTEWATER SERVICE CLEAN-OUT DETAIL (NON-PAVED SURFACE)	WW-14
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)		ROUND ROCK TEXAS

NOTES:

1. H.M.A.C. THICKNESS SHALL MATCH EXISTING ASPHALT THICKNESS AND NO LESS THAN 2".
2. THE CONTRACTOR SHALL SAW CUT, REMOVE AND REPLACE EXISTING PAVEMENT AND FLEXIBLE BASE A MINIMUM OF 6" BEYOND EITHER THE EDGE OF THE WASTEWATER LINE TRENCH OR THE POINT WHERE EXISTING PAVEMENT IS DAMAGED DUE TO TRENCHING OPERATIONS, WHICHEVER IS GREATER. FINISHED PATCH SHALL BE NEAT AND UNIFORM.
3. INSTALLATION OF BACKFILL, SAW CUTTING AND REMOVAL OF EXISTING PAVEMENT AND SURFACE PATCH SHALL NOT BE PAID FOR SEPARATELY. COSTS FOR THESE ITEMS SHALL BE INCLUDED IN UNIT PRICE BID FOR WASTEWATER PIPE.
4. THE CONTRACTOR SHALL PRESENT STEEL PLATES SUFFICIENT IN THICKNESS AND ASSEMBLY OR TO ALLOW BACKFILL TO CURE. SUCH PLATES SHALL BE SUITABLE FOR VEHICULAR TRAFFIC OVER THE TRENCH AND SHALL BE SATISFACTORILY ANCHORED IN PLACE. COSTS FOR THIS ITEM SHALL BE INCLUDED IN UNIT PRICE BID FOR WASTEWATER PIPE.
5. ALL TRENCHING AND TRENCH SAFETY SHALL COMPLY WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.

RECORD SIGNED COPY ON FILE AT UARS DEPARTMENT	CITY OF ROUND ROCK	DRAWING NO:
APPROVED 03-01-18 DATE	WASTEWATER LINE BEDDING AND SURFACE REPAIR DETAIL (EXISTING PAVED SURFACE)	WW-17
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)		ROUND ROCK TEXAS

NON-PAVED SURFACE:
(A) PROVIDE 4" OF TOPSOIL AND REVEGETATE
(B) PROVIDE COMPACTED BACKFILL IN SITU TRENCH MATERIAL FREE OF ROCK AND CLODS GREATER THAN 4", COMPACTED IN 6" LIFTS. COMPACTION TO 95% IN R.O.W. AND IN OR NEAR FLOOD PLAIN. OTHER LOCATIONS TO BE 95%. (SEE SPEC. ITEM 510)
PROPOSED PAVED SURFACE:
SUBGRADE PREP, FLEXIBLE BASE AND H.M.A.C. PER PAVEMENT PLANS, UNDER SEPARATE PROCEDURE
DEPTH TO PIPE BEDDING (6" MINIMUM IN HAYNED AREAS 12" MINIMUM BELOW SUBGRADE
PROVIDE COMPACTED BACKFILL IN SITU TRENCH MATERIAL FREE OF ROCK AND CLODS GREATER THAN 4", COMPACTED IN 6" LIFTS, TO 95%. (SEE SPEC. ITEM 510)
UNDISTURBED EARTH
PIPE BEDDING STONE SHALL BE TEXAS

ELECTRONICALLY RECORDED 2025012725
Williamson County, Texas Total Pages: 13

NOTICE OF CONFIDENTIALITY RIGHTS: IF YOU ARE A NATURAL PERSON, YOU MAY REMOVE OR STRIKE ANY OR ALL OF THE FOLLOWING INFORMATION FROM ANY INSTRUMENT THAT TRANSFERS AN INTEREST IN REAL PROPERTY BEFORE IT IS FILED FOR RECORD IN THE PUBLIC RECORDS: YOUR SOCIAL SECURITY NUMBER OR YOUR DRIVER'S LICENSE NUMBER.

WARRANTY DEED

STATE OF TEXAS §
§ KNOW ALL MEN BY THESE PRESENTS:
COUNTY OF WILLIAMSON §

THAT **SANTA RITA INVESTMENTS, LTD.**, a Texas limited partnership ("***Grantor***"), for and in consideration of TEN AND NO/100 DOLLARS ($10.00), and other good and valuable consideration in hand paid by **SANTA RITA KC, LLC,** a Texas limited liability company ("***Grantee***"), whose mailing address is 7143 Valburn Dr., Austin, Texas 78731, the receipt and sufficiency of which are hereby acknowledged, has GRANTED, BARGAINED, SOLD, TRANSFERRED, ASSIGNED, and CONVEYED, and by these presents does GRANT, BARGAIN, SELL, TRANSFER, ASSIGN, and CONVEY to Grantee, 46.244 acres of land, more or less, more particularly described on the attached Exhibit A (the "***Land***") attached hereto and made a part hereof, together with all of Grantor's rights, title and interests in and to the following as the following relate exclusively to the Land (reserving and not conveying any such rights, titles and interests as to other land): all entitlements, easements, rights, rights of way, water, water rights, minerals, mineral rights, air rights, development rights, plans, permits, applications, approvals and privileges appurtenant thereto, all streets and water courses adjacent to, abutting or serving the Property, and all improvements located thereon (together with the Land collectively called the "***Property***").

This conveyance is made and accepted subject to all liens, security interests, covenants, restrictions and other valid and subsisting matters against the Property and of record in the Official Public Records of Williamson County, Texas and Grantee accepts the Property subject to such matters and to all taxes and assessments assessed against the Property for 2025 which are hereby assumed by Grantee.

TO HAVE AND TO HOLD the Property, together with all and singular the rights and appurtenances belonging in any way thereto, subject to the provisions of this Deed, to Grantee, Grantee's successors and assigns forever, and Grantor binds itself and its successors and assigns TO WARRANT AND FOREVER DEFEND all and singular the Property to Grantee and Grantee's successors and assigns, against every person lawfully claiming or to claim all or any part of the Property.

[signature page follows]

Unofficial Document

EXECUTED to be effective as of February __, 2025 (the "***Effective Date***").

GRANTOR:

SANTA RITA INVESTMENTS, LTD,
a Texas limited partnership

By: MREM Texas Manager, LLC, a Delaware limited liability company, its General Partner

By:_____
James Edward Horne, Vice President

STATE OF TEXAS §
§
COUNTY OF TRAVIS §

This instrument was acknowledged before me on this 21 day of February, 2025 by James Edward Horne, Vice President of MREM Texas Manager, LLC, a Delaware limited liability company, the General Partner of Santa Rita Investments, Ltd, a Texas limited partnership, on behalf of such limited liability company and limited partnership.

_____
Notary Public, State of Texas

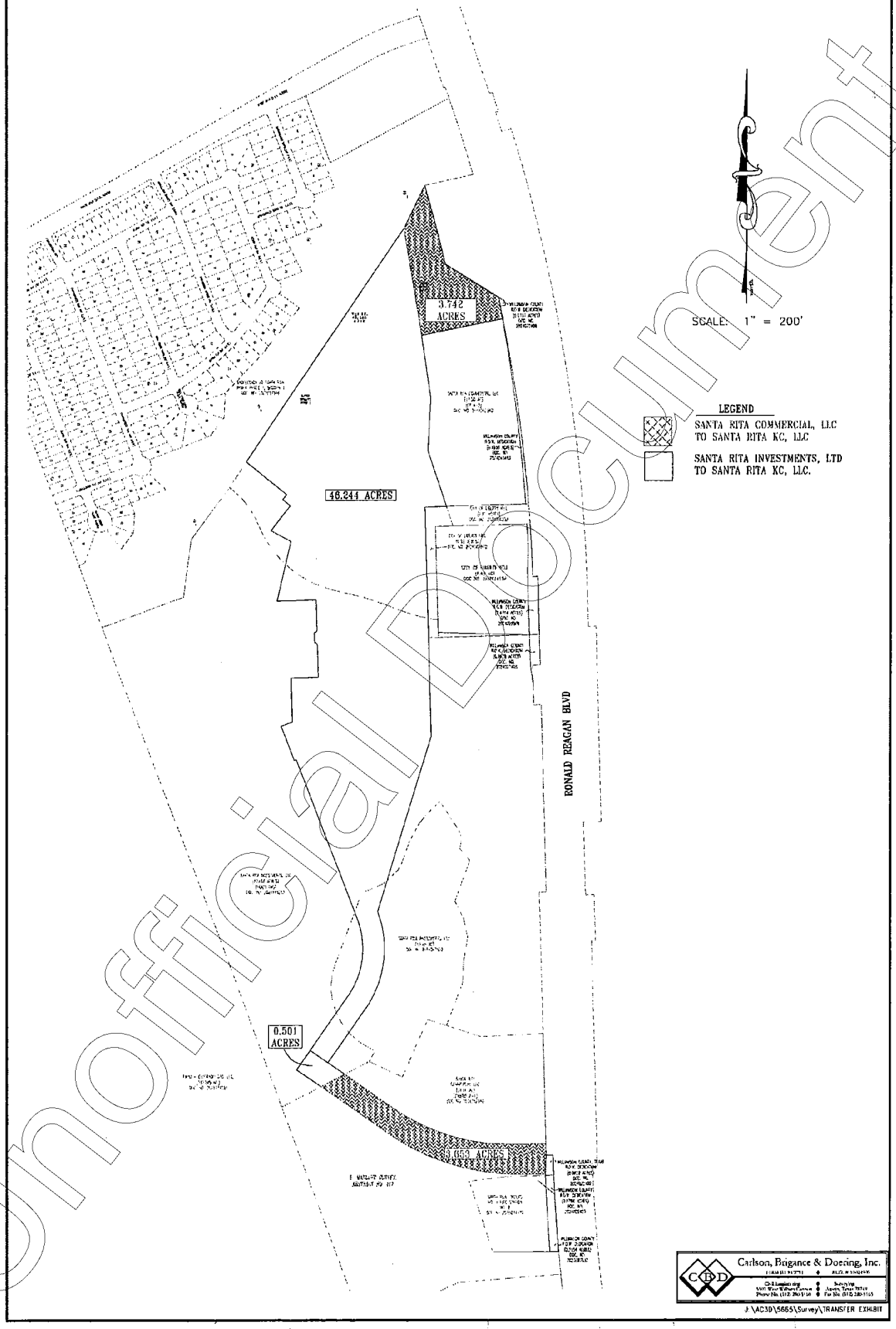
AIMEE RANDLE
My Notary ID # 2790126
Expires July 27, 2028

Unofficial Document

EXHIBIT A
TO WARRANTY DEED

Unofficial Document

SANTA RITA NORTHWEST PHASE 2 TRANSFER EXHIBIT



Carlson, Brigance & Doering, Inc.

J:\AC30\5665\Survey\TRANSFER EXHIBIT

Unofficial Document

46.244 ACRES
B MANLOVE SURVEY, ABSTRACT NO. 417
WILLIAMSON COUNTY, TEXAS

METES AND BOUNDS

BEING ALL OF A 46.244 ACRE TRACT OF LAND SITUATED IN THE B. MANLOVE SURVEY, ABSTRACT NUMBER 417, WILLIAMSON COUNTY, TEXAS, BEING A PORTION OF A CALLED 108.026 ACRE TRACT OF LAND (EXHIBIT A-1) CONVEYED TO SANTA RITA INVESTMENTS, LTD. BY DEED RECORDED IN DOCUMENT NUMBER 2020111915, OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS, AND A PORTION OF A CALLED 87.066 ACRE TRACT OF LAND (TRACT TWO) CONVEYED TO SANTA RITA INVESTMENTS, LTD. BY DEED RECORDED IN DOCUMENT NUMBER 2021148213, OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS, SAID 46.244 ACRE TRACT OF LAND BEING MORE FULLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

BEGINNING, at a capped 1/2 inch iron rod found stamped "CBD SETSTONE" at the northeast corner of said 108.026 acre tract of land, being on the south line of said Lot 1, Block A, Saddleback at Santa Rita Ranch Phase 1, Section 1, a subdivision recorded in Document Number 2022037518, Official Public Records, Williamson County, Texas, same being at the northwest corner of a called 17.50 acre tract of land (Exhibit A-3) conveyed to Santa Rita Commercial, LLC. by deed recorded in Document Number 2014012340, Official Public Records, Williamson County, Texas for the northeast corner and **POINT OF BEGINNING** of the herein described tract of land, at the beginning of a curve to the right,

THENCE, with the common line of said 108.026 acre tract and said 17.50 acre tract of land, the following four (4) courses and distances, numbered 1 through 4,

1) S09°33'36"E, a distance of 499.91 feet to a calculated point for corner,
2) S08°33'08"E, a distance of 366.67 feet to a calculated point for corner,
3) S03°22'39"W, a distance of 265.95 feet to a calculated point for corner, and
4) S18°39'26"E, a distance of 296.86 feet to a calculated point at the northwest corner of a called 0.92 acre tract conveyed to the City of Liberty Hill by deed recorded in Document Number 2024005959, Official Public Records, Williamson County, Texas, being the northeast corner of a called 0.93 acre tract of land conveyed to The City of Liberty Hill by deed recorded in Document Number 2024005960, Official Public Records, Williamson County, Texas, for corner,

THENCE, S88°21'16"W, with the north line of said 0.93 acre tract, over and across said 108.026 acre tract of land, a distance of 109.43 feet to a calculated point at the northwest corner of said 0.93 acre tract of land, for corner,

THENCE, over and across said 108.026 acre tract, and said 87.066 acre tract of land, the following twenty-six (26) courses and distances, numbered 1 through 26,

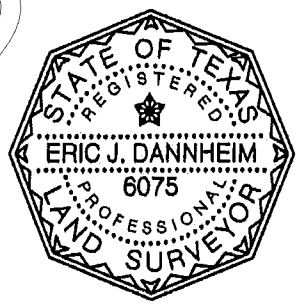
1) S01°33'12"E, in part with the west line of said 0.93 acre tract of land, a distance of 1159.43 feet to a calculated point for corner,
2) S16°59'08"W, a distance of 929.59 feet to a calculated point for corner, at the beginning of a curve to the right,
3) Along said curve to the right, having a radius of 525.00 feet, an arc length of 511.74 feet, and a chord that bears S06°52'16"W, a distance of 491.72 feet to a calculated point for corner,
4) S34°48'10"W, a distance of 338.63 feet to a calculated point for corner,
5) N55°12'16"W, a distance of 110.00 feet to a calculated point for corner,
6) N34°48'10"E, a distance of 338.63 feet to a calculated point for corner, being at the beginning of a curve to the left,
7) Along said curve to the left, having a radius of 415.00 feet, an arc length of 404.52 feet, and a chord that bears N06°52'16"E, a distance of 388.70 feet to a calculated point for corner,
8) N21°03'13"W, a distance of 867.13 feet to a calculated point for corner,
9) S68°56'47"W, a distance of 9.89 feet to a calculated point for corner,
10) N21°03'13"W, a distance of 185.00 feet to a calculated point for corner,
11) N68°56'47"E, a distance of 60.00 feet to a calculated point for corner,
12) N01°38'36"W, a distance of 223.32 feet to a calculated point for corner,
13) N88°21'24"E, a distance of 138.83 feet to a calculated point for corner,
14) N01°38'36"W, a distance of 160.84 feet to a calculated point for corner, being a the beginning of a curve to the left,

Unofficial Document

15) Along said curve to the left, having a radius of 15.00 feet, an arc length of 23.56 feet, and a chord that bears N46°38'36"W, a distance of 21.21 feet to a calculated point for corner,
16) N01°38'36"W, a distance of 50.00 feet to a calculated point for corner, being at the beginning of a curve to the left,
17) Along said curve to the left, having a radius of 15.00 feet, an arc length of 23.56 feet, and a chord that bears N43°21'40"E, a distance of 21.21 feet to a calculated point for corner,
18) N01°38'36"W, a distance of 150.29 feet to a calculated point for corner,
19) S88°21'24"W, a distance of 199.12 feet to a calculated point for corner,
20) N13°12'58"E, a distance of 310.38 feet to a calculated point for corner,
21) N61°55'29"W, a distance of 114.13 feet to a calculated point for corner,
22) Along said curve to the right, having a radius of 475.00 feet, an arc length of 42.45 feet, and a chord that bears N36°05'23"E, a distance of 42.44 feet to a calculated point for corner,
23) N38°38'59"E, a distance of 117.44 feet to a calculated point for corner,
24) N51°21'01"W, a distance of 50.00 feet to a calculated point for corner,
25) N38°38'59"E, a distance of 32.02 feet to a calculated point for corner, and
26) N51°21'01"W, a distance of 264.96 feet to a calculated point on the west line of said 108.026 acre tract, being on the east line of said Lot 1, for corner, from which a capped 1/2 inch iron rod found stamped "CBD SETSTONE" on the east line of said Lot 1, being on the west line of said 108.026 acre tract, bears S34°15'44"W, a distance of 155.36 feet,

THENCE, N34°15'44"E, with the common line of said Lot 1 and said 108.026 acre tract of land a distance of 1,424.18 feet to the **POINT OF BEGINNING** and containing 46.244 acres of land, as shown on the attached sketch.

Surveyed by: 12/17/24



Eric J. Dannheim, R.P.L.S. NO. 6075
Carlson, Brigance & Doering, Inc.
Reg. # 10024900
5501 West William Cannon Drive
Austin, TX 78749
Phone: (512) 280-5160
Edannheim@cbdeng.com

BEARING BASIS: TEXAS STATE PLANE COORDINATE SYSTEM, CENTRAL ZONE (4203), NAD83
DATE OF SURVEY: AUGUST 13, 2018

Unofficial Document

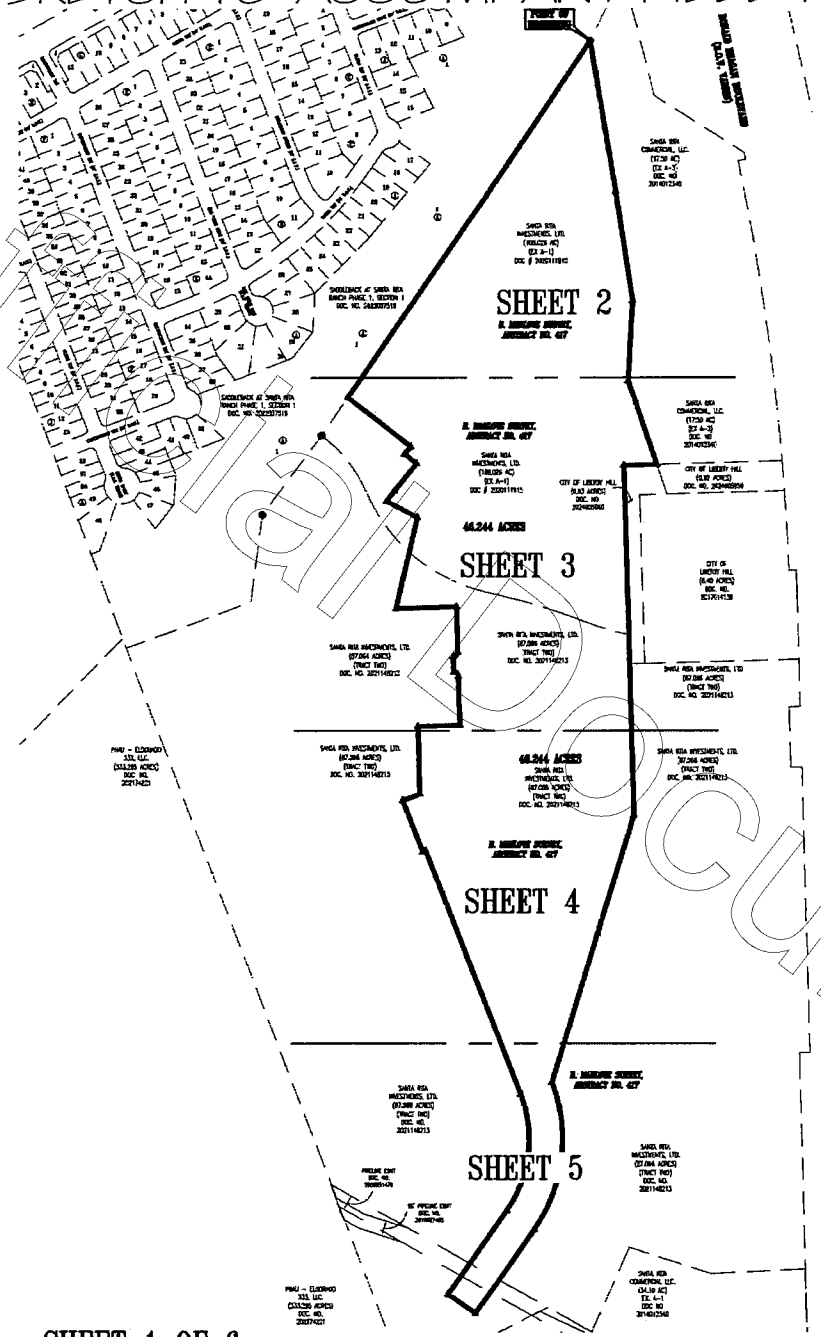
SKETCH TO ACCOMPANY FIELD NOTES



SCALE: 1" = 500'

LEGEND

- CAPPED 1/2" IRON ROD FOUND STAMPED "CBD SETSTONE"
- CALCULATED POINT



STATE OF TEXAS
REGISTERED
ERIC J. DANNHEIM
6075
PROFESSIONAL
LAND SURVEYOR

12/17/24

SHEET 1 OF 6

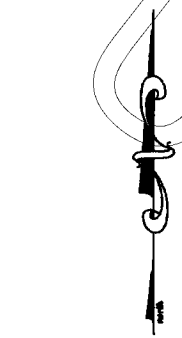
BEARING BASIS: TEXAS COORDINATE SYSTEM, CENTRAL ZONE (4203), NAD83

Carlson, Brigance & Doering, Inc.
FIRM ID #F3791 ◆ REG. # 10024900
Civil Engineering ◆ Surveying
5501 West William Cannon ◆ Austin, Texas 78749
Phone No. (512) 280-5160 ◆ Fax No. (512) 280-5165

J:\AC3D\5665\Survey\M&B – 46.244 ACRES – INVESTMENTS TO KC

Unofficial Document

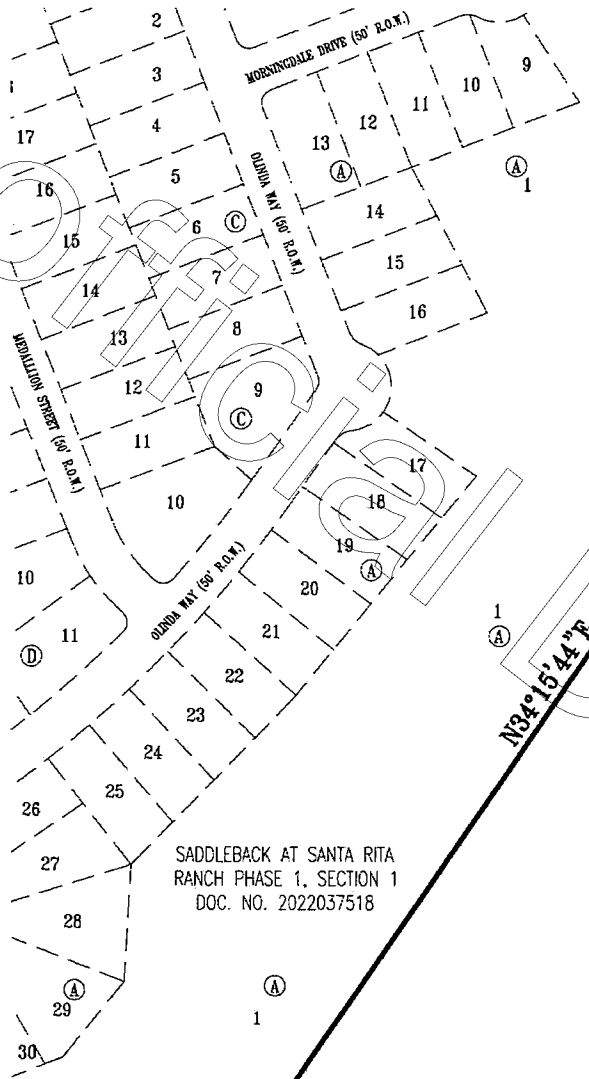
SKETCH TO ACCOMPANY FIELD NOTES



SCALE: 1" = 200'

LEGEND

- CAPPED 1/2" IRON ROD FOUND STAMPED "CBD SETSTONE"
- CALCULATED POINT



POINT OF BEGINNING

RONALD REAGAN BOULEVARD (R.O.W. VARIES)

S09°33'36"E 409.91'

S08°33'08"E 388.67'

N34°15'44"E 1424.18'

L1

SANTA RITA COMMERCIAL, LLC. (17.50 AC) (EX A-3) DOC. NO 2014012340

SANTA RITA INVESTMENTS, LTD. (108.026 AC) (EX A-1) DOC. # 2020111915

46.244 ACRES

B. MANLOVE SURVEY, ABSTRACT NO. 417

MATCH LINE SHEET 3

BEARING BASIS: TEXAS COORDINATE SYSTEM, CENTRAL ZONE (4203), NAD83

STATE OF TEXAS REGISTERED ERIC J. DANNHEIM 6075 PROFESSIONAL LAND SURVEYOR

12/17/24

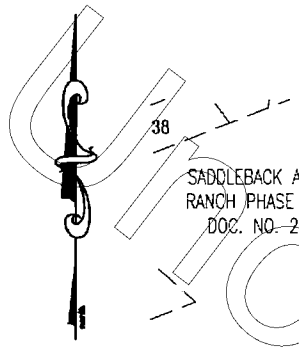
Carlson, Brigance & Doering, Inc.
FIRM ID #F3791 ◆ REG. # 10024900
Civil Engineering ◆ Surveying
5501 West William Cannon ◆ Austin, Texas 78749
Phone No. (512) 280-5160 ◆ Fax No. (512) 280-5165

SHEET 2 OF 6

J:\AC3D\5665\Survey\M&B – 46.244 ACRES – INVESTMENTS TO KC

Unofficial Document

SKETCH TO ACCOMPANY FIELD NOTES



SCALE: 1" = 200'

LEGEND

- CAPPED 1/2" IRON ROD FOUND STAMPED "CBD SETSTONE"
- CALCULATED POINT

MATCH LINE SHEET 2

SADDLEBACK AT SANTA RITA RANCH PHASE 1, SECTION 1 DOC. NO. 2022037518

S34°15'44"W 155.36'

L18 L17 L16 L15 C5 L14

N13°12'58"E 310.38'

L13 L12 L11 C4 C3 L10 L9

B. MANLOVE SURVEY, ABSTRACT NO. 417

SANTA RITA INVESTMENTS, LTD. (108.026 AC) (EX A-1) DOC # 2020111915

46.244 ACRES

SANTA RITA INVESTMENTS, LTD. (87.066 ACRES) (TRACT TWO) DOC. NO. 2021148213

SANTA RITA INVESTMENTS, LTD. (87.066 ACRES) (TRACT TWO) DOC. NO. 2021148213

L2

SANTA RITA COMMERCIAL, LLC. (17.50 AC) (EX A-3) DOC. NO 2014012340

L3

CITY OF LIBERTY HILL (0.92 ACRES) DOC. NO. 2024005959

CITY OF LIBERTY HILL (0.93 ACRES) DOC. NO. 2024005960

CITY OF LIBERTY HILL (6.40 ACRES) DOC. NO. 2017014139

S01°33'12"E 1159.43'

SANTA RITA INVESTMENTS, LTD (87.066 ACRES) (TRACT TWO) DOC. NO. 2021148213

MATCH LINE SHEET 4

STATE OF TEXAS REGISTERED ERIC J. DANNHEIM 6075 PROFESSIONAL LAND SURVEYOR

12/17/24

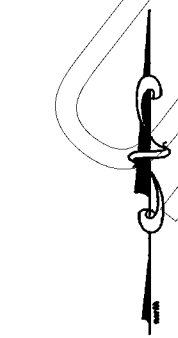
BEARING BASIS: TEXAS COORDINATE SYSTEM, CENTRAL ZONE (4203), NAD83

Carlson, Brigance & Doering, Inc.
FIRM ID #F3791 ◆ REG. # 10024900
Civil Engineering ◆ Surveying
5501 West William Cannon ◆ Austin, Texas 78749
Phone No. (512) 280-5160 ◆ Fax No. (512) 280-5165

J:\AC3D\5665\Survey\M&B – 46.244 ACRES – INVESTMENTS TO KC

Unofficial Document

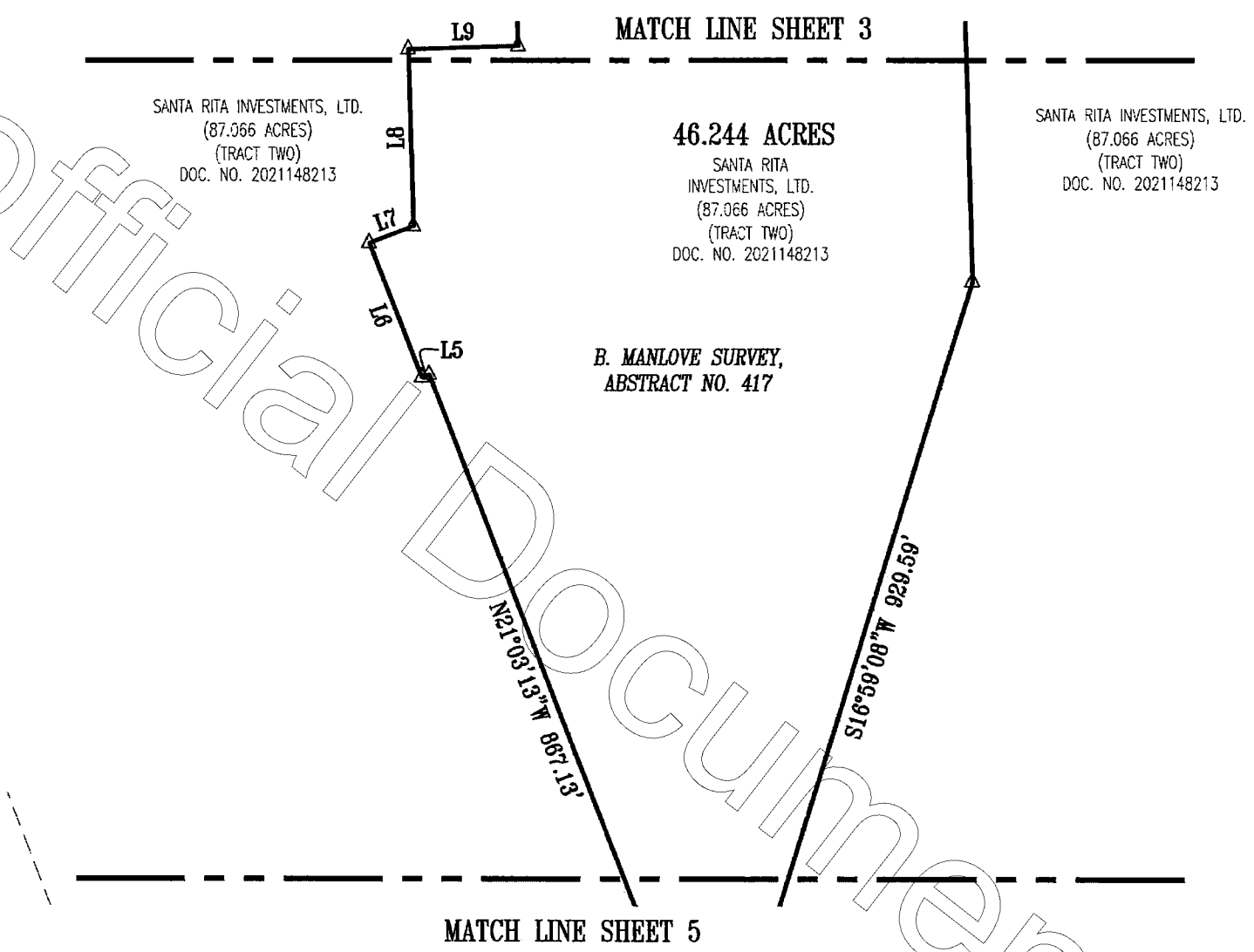
SKETCH TO ACCOMPANY FIELD NOTES



SCALE: 1" = 200'

LEGEND

- CAPPED 1/2" IRON ROD FOUND STAMPED "CBD SETSTONE"
- CALCULATED POINT



STATE OF TEXAS
REGISTERED
ERIC J. DANNHEIM
6075
PROFESSIONAL
LAND SURVEYOR

12/17/24

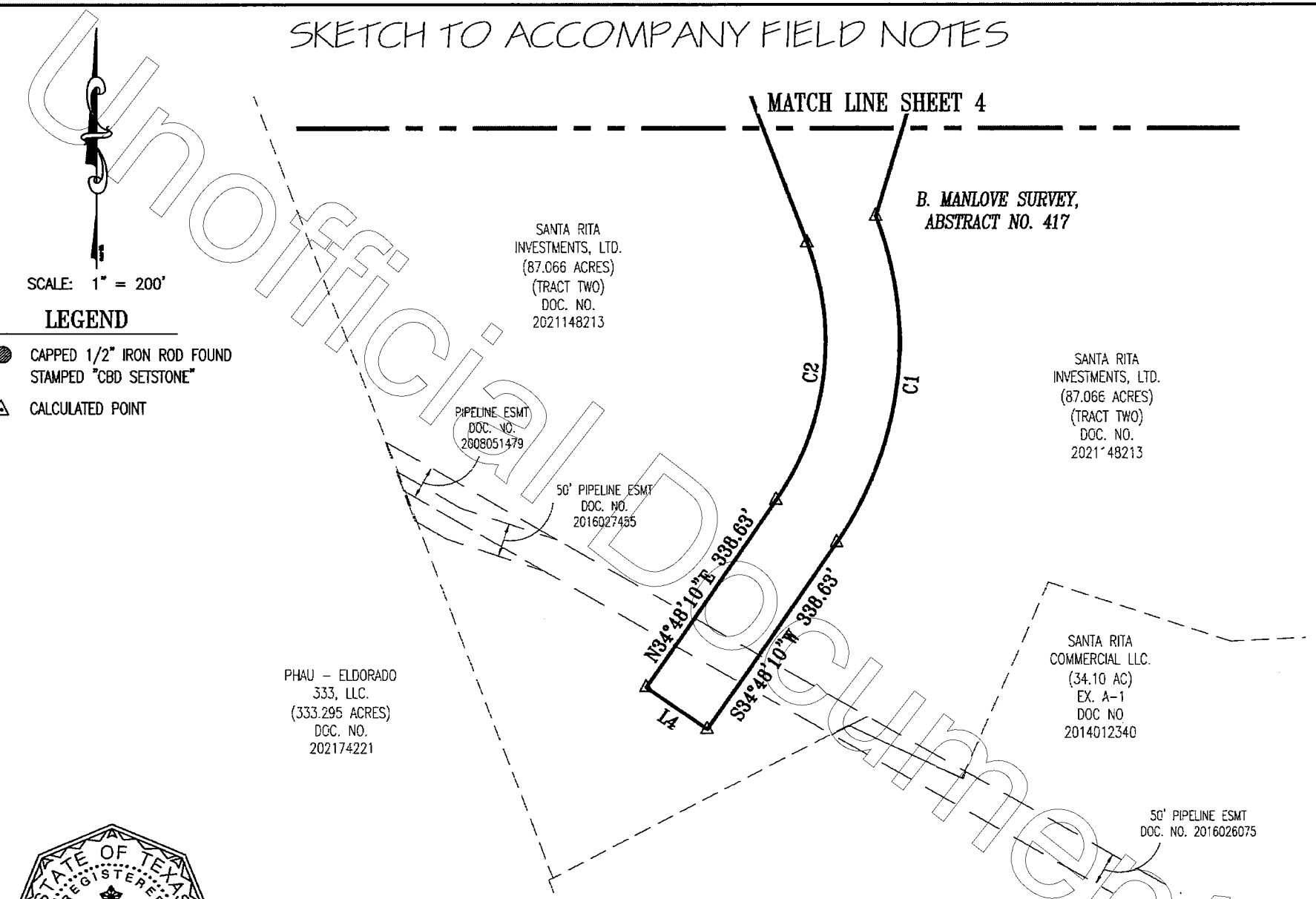
BEARING BASIS: TEXAS COORDINATE SYSTEM, CENTRAL ZONE (4203), NAD83

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J:\AC3D\5665\Survey\M&B – 46.244 ACRES – INVESTMENTS TO KC

Unofficial Document

SKETCH TO ACCOMPANY FIELD NOTES



SCALE: 1" = 200'

LEGEND

- CAPPED 1/2" IRON ROD FOUND STAMPED "CBD SETSTONE"
- CALCULATED POINT

STATE OF TEXAS
REGISTERED
ERIC J. DANNHEIM
6075
PROFESSIONAL
LAND SURVEYOR

12/17/24

BEARING BASIS: TEXAS COORDINATE SYSTEM, CENTRAL ZONE (4203), NAD83

Carlson, Brigance & Doering, Inc.
FIRM ID #F3791 ◆ REG. # 10024900
Civil Engineering ◆ Surveying
5501 West William Cannon ◆ Austin, Texas 78749
Phone No. (512) 280-5160 ◆ Fax No. (512) 280-5165

J:\AC3D\5665\Survey\M&B – 46.244 ACRES – INVESTMENTS TO KC

Unofficial Document

SKETCH TO ACCOMPANY FIELD NOTES

Unofficial Document

Line Table		
Line #	Length	Direction
L1	265.95	S03°22'39"W
L2	296.86	S18°39'26"E
L3	109.43	S88°21'16"W
L4	110.00	N55°12'16"W
L5	9.89	S68°56'47"W
L6	185.00	N21°03'13"W
L7	60.00	N68°56'47"E
L8	223.32	N01°38'36"W
L9	138.83	N88°21'24"E

Line Table		
Line #	Length	Direction
L10	160.84	N01°38'36"W
L11	50.00	N01°38'36"W
L12	150.29	N01°38'36"W
L13	199.12	S88°21'24"W
L14	114.13	N61°55'29"W
L15	117.44	N38°38'59"E
L16	50.00	N51°21'01"W
L17	32.02	N38°38'59"E
L18	264.96	N51°21'01"W

Curve Table						
Curve #	Length	Radius	Chord Direction	Chord Length	Tangent	DELTA
C1	511.74	525.00	S06°52'16"W	491.72	278.26	55°50'56"
C2	404.52	415.00	N06°52'16"E	388.70	219.96	55°50'56"
C3	23.56	15.00	N46°38'36"W	21.21	15.00	90°00'00"
C4	23.56	15.00	N43°21'40"E	21.21	15.00	89°59'29"
C5	42.45	475.00	N36°05'23"E	42.44	21.24	5°07'13"

STATE OF TEXAS
REGISTERED
ERIC J. DANNHEIM
6075
PROFESSIONAL
LAND SURVEYOR

12/17/24

BEARING BASIS: TEXAS COORDINATE SYSTEM, CENTRAL ZONE (4203), NAD83

Carlson, Brigance & Doering, Inc.
FIRM ID #F3791 ◆ REG. # 10024900
Civil Engineering ◆ Surveying
5501 West William Cannon ◆ Austin, Texas 78749
Phone No. (512) 280-5160 ◆ Fax No. (512) 280-5165

J:\AC3D\5665\Survey\M&B – 46.244 ACRES – INVESTMENTS TO KC

ELECTRONICALLY RECORDED
OFFICIAL PUBLIC RECORDS

2025012725

Pages: 13 Fee: $69.00
02/21/2025 12:53 PM
PKINNE



Nancy E. Rister, County Clerk
Williamson County,Texas

Unofficial Document

ELECTRONICALLY RECORDED 2025012726
Williamson County, Texas Total Pages: 6

NOTICE OF CONFIDENTIALITY RIGHTS: IF YOU ARE A NATURAL PERSON, YOU MAY REMOVE OR STRIKE ANY OR ALL OF THE FOLLOWING INFORMATION FROM ANY INSTRUMENT THAT TRANSFERS AN INTEREST IN REAL PROPERTY BEFORE IT IS FILED FOR RECORD IN THE PUBLIC RECORDS: YOUR SOCIAL SECURITY NUMBER OR YOUR DRIVER'S LICENSE NUMBER.

WARRANTY DEED

STATE OF TEXAS §
§ KNOW ALL MEN BY THESE PRESENTS:
COUNTY OF WILLIAMSON §

THAT **SANTA RITA COMMERCIAL, LLC**, a Texas limited liability company ("***Grantor***"), for and in consideration of TEN AND NO/100 DOLLARS ($10.00), and other good and valuable consideration in hand paid by **SANTA RITA KC, LLC,** a Texas limited liability company ("***Grantee***"), whose mailing address is 7143 Valburn Dr., Austin, Texas 78731, the receipt and sufficiency of which are hereby acknowledged, has GRANTED, BARGAINED, SOLD, TRANSFERRED, ASSIGNED, and CONVEYED, and by these presents does GRANT, BARGAIN, SELL, TRANSFER, ASSIGN, and CONVEY to Grantee, 3.742 acres of land, more or less, more particularly described on the attached Exhibit A (the "***Land***") attached hereto and made a part hereof, together with all of Grantor's rights, title and interests in and to the following as the following relate exclusively to the Land (reserving and not conveying any such rights, titles and interests as to other land): all entitlements, easements, rights, rights of way, water, water rights, minerals, mineral rights, air rights, development rights, plans, permits, applications, approvals and privileges appurtenant thereto, all streets and water courses adjacent to, abutting or serving the Property, and all improvements located thereon (together with the Land collectively called the "***Property***").

This conveyance is made and accepted subject to all liens, security interests, covenants, restrictions and other valid and subsisting matters against the Property and of record in the Official Public Records of Williamson County, Texas and Grantee accepts the Property subject to such matters and to all taxes and assessments assessed against the Property for 2025 which are hereby assumed by Grantee.

TO HAVE AND TO HOLD the Property, together with all and singular the rights and appurtenances belonging in any way thereto, subject to the provisions of this Deed, to Grantee, Grantee's successors and assigns forever, and Grantor binds itself and its successors and assigns TO WARRANT AND FOREVER DEFEND all and singular the Property to Grantee and Grantee's successors and assigns, against every person lawfully claiming or to claim all or any part of the Property.

[signature page follows]

Unofficial Document

EXECUTED to be effective as of February, __, 2025 (the "***Effective Date***").

GRANTOR:

SANTA RITA COMMERCIAL, LLC
a Texas limited liability company

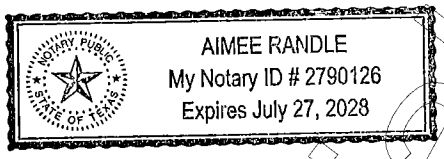
By: MREM Texas Manager, LLC, a Delaware limited liability company, its Manager

By: _____
James Edward Horne, Vice President

STATE OF TEXAS §
§
COUNTY OF Travis §

This instrument was acknowledged before me on this 21 day of February, 2025 by James Edward Horne, Vice President of MREM Texas Manager, LLC, a Delaware limited liability company, the Manager of Santa Rita Commercial, LLC, a Texas limited liability company on behalf of such limited liability companies.

_____
Notary Public, State of Texas



Unofficial Document

EXHIBIT A
TO WARRANTY DEED

Unofficial Document

3.742 ACRES
B. MANLOVE SURVEY, ABSTRACT NO. 417
WILLIAMSON COUNTY, TEXAS

METES AND BOUNDS

BEING ALL OF A 3.742 ACRE TRACT OF LAND SITUATED IN THE B. MANLOVE SURVEY, ABSTRACT NUMBER 417, WILLIAMSON COUNTY, TEXAS, BEING A PORTION OF A CALLED 17.50 ACRE TRACT OF LAND (EXHIBIT A-3) CONVEYED TO SANTA RITA COMMERCIAL, LLC. BY DEED RECORDED IN DOCUMENT NUMBER 2014012340, OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS, SAID 3.742 ACRE TRACT OF LAND BEING MORE FULLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

BEGINNING, at a capped 1/2 inch iron rod found stamped "CBD SETSTONE" at the northeast corner of said 17.50 acre tract of land, being on the west right-of-way line of Ronald Reagan Boulevard (R.O.W. varies), same being on the south line of Lot 1, Block A, Saddleback at Santa Rita Ranch Phase 1, Section 1, a subdivision recorded in Document Number 2022037518, Official Public Records, Williamson County, Texas, for the northeast corner and **POINT OF BEGINNING** of the herein described tract of land, at the beginning of a curve to the right,

THENCE, with the common line of said 17.50 acre tract and said Ronald Reagan Boulevard, the following four (4) courses and distances, numbered 1 through 4,

1) Along said curve to the right, having a radius of 8,150.00 feet, an arc length of 409.39 feet, and a chord that bears S14°52'57"E, a distance of 409.35 feet to a capped 1/2 inch iron rod found stamped "RJ SURVEYING" for corner,
2) S57°58'49"E, a distance of 318.63 feet to a capped 1/2 inch iron rod found stamped "WILLIAMSON COUNTY" at the northwest corner of a called 0.0191 acre tract of land conveyed to Williamson County for right-of-way purposes described in Document Number 2024022408, Official Public Records, Williamson County, Texas, for corner,
3) S09°45'17"E, with the west line of said 0.0191 acre tract of land, a distance of 44.79 feet to a capped 1/2 inch iron rod found stamped "HAYNIE" at the north corner of a called 0.1956 acre tract of land conveyed to Williamson County by deed recorded in Document Number 2024046469, Official Public Records, Williamson County, Texas for corner, and
4) S09°47'47"E, with the west line of said 0.1956 acre tract, a distance of 63.96 feet to a calculated point on the east line of said 17.50 acre tract of land, being on the west line of said 0.1956 acre tract of land, same being on the west line of said Ronald Reagan Boulevard, for the southeast corner of the herein described tract of land,

THENCE, S78°21'24"W, over and across said 17.50 acre tract of land, a distance of 417.71 feet to a calculated point on the west line of said 17.50 acre tract of land, being on the east line of a called 108.026 acre tract of land (Exhibit A-1) conveyed to Santa Rita Investments, LTD. by deed recorded in Document Number 2020111915, Official Public Records, Williamson County, Texas, for the southwest corner of the herein described tract of land,

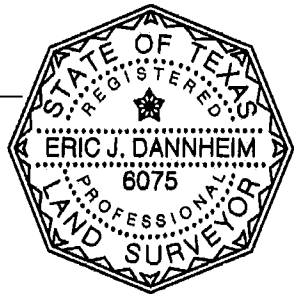
THENCE, with the common line of said 108.026 acre tract and said 17.50 acre tract of land, the following two (2) courses and distances, numbered 1 and 2,

1) N08°33'08"W, a distance of 47.05 feet to a calculated point for corner, and
2) N09°33'36"W, a distance of 499.91 feet to a capped 1/2 inch iron rod found stamped "CBD SETSTONE" at the northwest corner of said 17.50 acre tract of land, being on the east line of said Lot 1, Block A, for the northwest corner of the herein described tract of land,

THENCE, N25°56'52"E, with the common line of said Lot 1 and said 17.50 acre tract of land, and over and across said 108.026 acre tract of land, a distance of 240.81 feet to the **POINT OF BEGINNING** and containing 3.742 acres of land, as shown on the attached sketch.

Surveyed by: _____ 12/17/24

Eric J. Dannheim, R.P.L.S. NO. 6075
Carlson, Brigance & Doering, Inc.
Reg. # 10024900
5501 West William Cannon Drive
Austin, TX 78749
Phone: (512) 280-5160
Edannheim@cbdeng.com

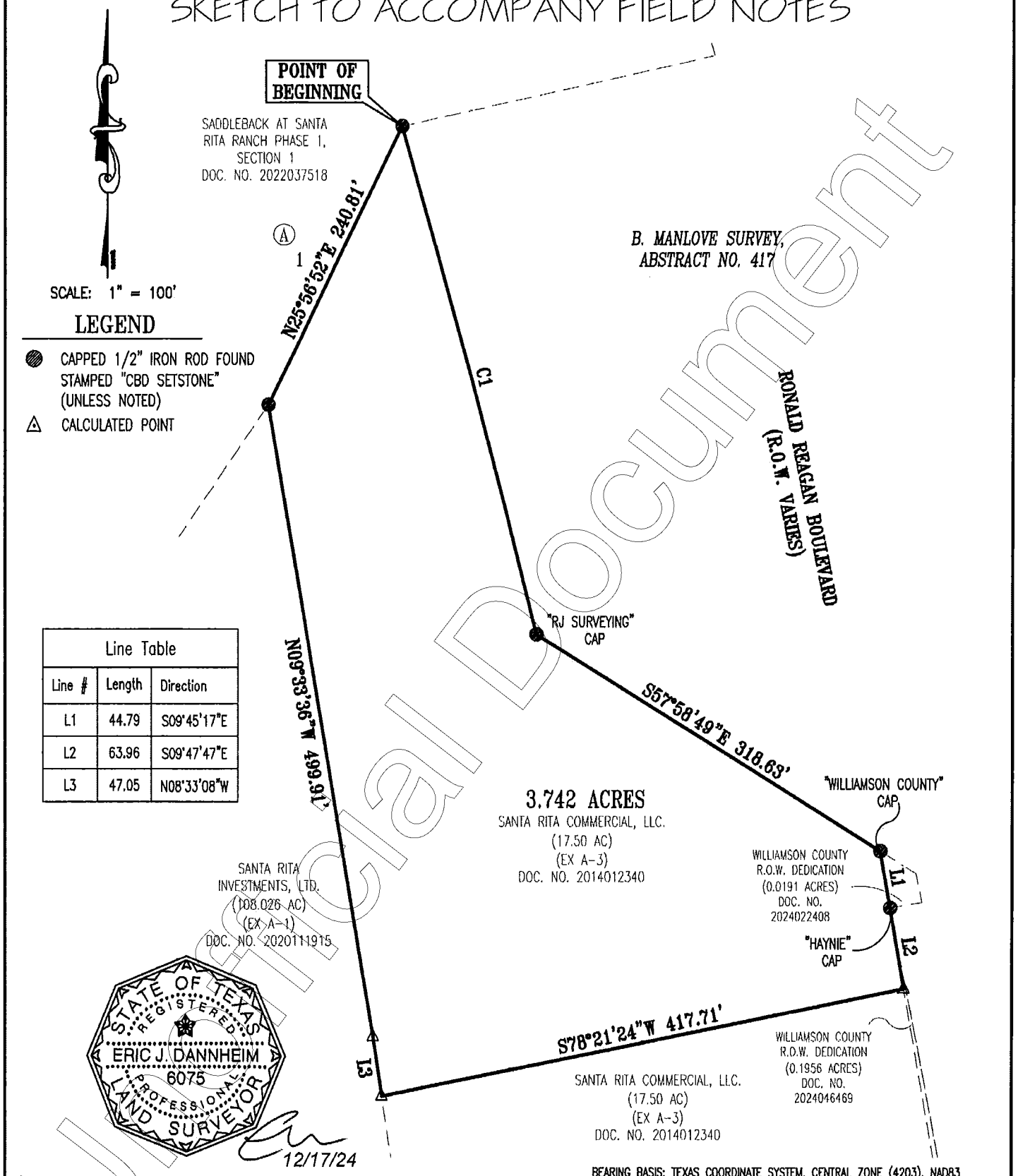


BEARING BASIS: TEXAS STATE PLANE COORDINATE SYSTEM, CENTRAL ZONE (4203), NAD83
DATE OF SURVEY: AUGUST 13, 2018

PATH: - J:AC3D\ 5665\SURVEY\METES AND BOUNDS\M&B - 3.742 ACRES – COMMERCIAL TO KC.DOC

Unofficial Document

SKETCH TO ACCOMPANY FIELD NOTES



SCALE: 1" = 100'

LEGEND

- CAPPED 1/2" IRON ROD FOUND STAMPED "CBD SETSTONE" (UNLESS NOTED)
- CALCULATED POINT

Line Table		
Line #	Length	Direction
L1	44.79	S09°45'17"E
L2	63.96	S09°47'47"E
L3	47.05	N08°33'08"W

STATE OF TEXAS REGISTERED ERIC J. DANNHEIM 6075 PROFESSIONAL LAND SURVEYOR

12/17/24

Curve Table						
Curve #	Length	Radius	Chord Direction	Chord Length	Tangent	DELTA
C1	409.39	8150.00	S14°52'57"E	409.35	204.74	2°52'41"

BEARING BASIS: TEXAS COORDINATE SYSTEM, CENTRAL ZONE (4203), NAD83

Carlson, Brigance & Doering, Inc.
FIRM ID #F3791 ◆ REG. # 10024900
Civil Engineering ◆ Surveying
5501 West William Cannon ◆ Austin, Texas 78749
Phone No. (512) 280-5160 ◆ Fax No. (512) 280-5165

J:\AC3D\5665\Survey\M&B - 3.742 ACRES - COMMERCIAL TO KC

Unofficial Document

ELECTRONICALLY RECORDED
OFFICIAL PUBLIC RECORDS

2025012726

Pages: 6 Fee: $41.00
02/21/2025 12:53 PM
PKINNE

Nancy E. Rister, County Clerk
Williamson County,Texas

Unofficial Document

ELECTRONICALLY RECORDED 2025012727
Williamson County, Texas Total Pages: 6

NOTICE OF CONFIDENTIALITY RIGHTS: IF YOU ARE A NATURAL PERSON, YOU MAY REMOVE OR STRIKE ANY OR ALL OF THE FOLLOWING INFORMATION FROM ANY INSTRUMENT THAT TRANSFERS AN INTEREST IN REAL PROPERTY BEFORE IT IS FILED FOR RECORD IN THE PUBLIC RECORDS: YOUR SOCIAL SECURITY NUMBER OR YOUR DRIVER'S LICENSE NUMBER.

WARRANTY DEED

STATE OF TEXAS §
§ KNOW ALL MEN BY THESE PRESENTS:
COUNTY OF WILLIAMSON §

THAT **SANTA RITA INVESTMENTS, LTD.**, a Texas limited partnership ("***Grantor***"), for and in consideration of TEN AND NO/100 DOLLARS ($10.00), and other good and valuable consideration in hand paid by **SANTA RITA KC, LLC,** a Texas limited liability company ("***Grantee***"), whose mailing address is 7143 Valburn Dr., Austin, Texas 78731, the receipt and sufficiency of which are hereby acknowledged, has GRANTED, BARGAINED, SOLD, TRANSFERRED, ASSIGNED, and CONVEYED, and by these presents does GRANT, BARGAIN, SELL, TRANSFER, ASSIGN, and CONVEY to Grantee, 0.501 acres of land, more or less, more particularly described on the attached Exhibit A (the "***Land***") attached hereto and made a part hereof, together with all of Grantor's rights, title and interests in and to the following as the following relate exclusively to the Land (reserving and not conveying any such rights, titles and interests as to other land): all entitlements, easements, rights, rights of way, water, water rights, minerals, mineral rights, air rights, development rights, plans, permits, applications, approvals and privileges appurtenant thereto, all streets and water courses adjacent to, abutting or serving the Property, and all improvements located thereon (together with the Land collectively called the "***Property***").

This conveyance is made and accepted subject to all liens, security interests, covenants, restrictions and other valid and subsisting matters against the Property and of record in the Official Public Records of Williamson County, Texas and Grantee accepts the Property subject to such matters and to all taxes and assessments assessed against the Property for 2025 which are hereby assumed by Grantee.

TO HAVE AND TO HOLD the Property, together with all and singular the rights and appurtenances belonging in any way thereto, subject to the provisions of this Deed, to Grantee, Grantee's successors and assigns forever, and Grantor binds itself and its successors and assigns TO WARRANT AND FOREVER DEFEND all and singular the Property to Grantee and Grantee's successors and assigns, against every person lawfully claiming or to claim all or any part of the Property.

[signature page follows]

Unofficial Document

EXECUTED to be effective as of February __, 2025 (the "***Effective Date***").

GRANTOR:

SANTA RITA INVESTMENTS, LTD,
a Texas limited partnership

By: MREM Texas Manager, LLC, a Delaware limited liability company, its General Partner

By: _____
James Edward Horne, Vice President

STATE OF TEXAS §
§
COUNTY OF TRAVIS §

This instrument was acknowledged before me on this 21 day of February, 2025 by James Edward Horne, Vice President of MREM Texas Manager, LLC, a Delaware limited liability company, the General Partner of Santa Rita Investments, Ltd, a Texas limited partnership, on behalf of such limited liability company and limited partnership.

_____
Notary Public, State of Texas

NOTARY PUBLIC STATE OF TEXAS
AIMEE RANDLE
My Notary ID # 2790126
Expires July 27, 2028

Unofficial Document

EXHIBIT A
TO WARRANTY DEED

Unofficial Document

0.501 ACRES
B. MANLOVE SURVEY, ABSTRACT NO. 417
WILLIAMSON COUNTY, TEXAS

METES AND BOUNDS

BEING ALL OF A 0.501 ACRE (21,844 SQ. FT.) TRACT OF LAND SITUATED IN THE B. MANLOVE SURVEY, ABSTRACT NUMBER 417, WILLIAMSON COUNTY, TEXAS, BEING A PORTION OF A CALLED 87.066 ACRE TRACT OF LAND (TRACT TWO) CONVEYED TO SANTA RITA INVESTMENTS, LTD BY DEED RECORDED IN DOCUMENT NUMBER 2021148213, OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS, SAID 0.501 ACRE TRACT OF LAND BEING MORE FULLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

COMMENCING at a capped 1/2 inch iron rod found stamped "RJ SURVEYING" at the southwest corner of said 87.066 acre tract of land, same being the northwest corner of a called 34.10 acre tract of land (EXHIBIT A-1) conveyed to Santa Rita Commercial LLC. by deed recorded in Document Number 2014012340, Official Public Records, Williamson County, Texas, on the east line of a called 333.295 acre tract of land conveyed to PHAU – ELDORADO 333, LLC. by deed recorded in Document Number 2021174221, for the **POINT OF COMMENCEMENT** of the herein described tract of land, from which a capped 1/2 inch iron rod found stamped "RJ SURVEYING" on the east line of said 333.295 acre tract, at the southwest corner of said 34.10 acre tract of land, same being the northwest corner of Lot 1, Santa Rita Park, a subdivision recorded in Document Number 2008080497, bears S20°22'48"E, a distance of 1194.40 feet,

THENCE, N62°25'05"E, with the north line of said 34.10 acre tract, and the south line of said 87.066 acre tract, a distance of 225.49 feet, to a calculated point for the southwest corner hereof and the **POINT OF BEGINNING** of the herein described tract of land,

THENCE, over and across said 87.066 acre tract of land, the following three (3) courses and distances, numbered 1 through 3,

1) N55°12'16"W, a distance of 150.64 feet to a calculated point for the northwest corner hereof,

2) N34°48'03"E, a distance of 120.00 feet to a calculated point for the northeast corner hereof,

3) S55°12'16"E, a distance of 213.43 feet to a calculated point, on the south line of said 87.066 acre tract of land, and the north line of said 34.10 acre tract of land, for southeast corner hereof,

THENCE, S62°25'05"W, with the north line of said 34.10 acre tract, and the south line of said 87.066 acre tract, a distance of 135.44 feet to the **POINT OF BEGINNING** and containing 0.501 acres (21,844 SQ. FT.) of land, as shown on the attached sketch.

Surveyed by: 2/18/25

Eric J. Dannheim, R.P.L.S. NO. 6075
Carlson, Brigance & Doering, Inc.
Reg. # 10024900
5501 West William Cannon Drive
Austin, TX 78749
Phone: (512) 280-5160
Edannheim@cbdeng.com



BEARING BASIS: TEXAS STATE PLANE COORDINATE SYSTEM, CENTRAL ZONE (4203), NAD83
DATE OF SURVEY: OCTOBER 9, 2018

Unofficial Document

SKETCH TO ACCOMPANY FIELD NOTES

Unofficial Document



SCALE: 1" = 100'

LEGEND

- ● 1/2" CAPPED IRON ROD FOUND STAMPED "RJ SURVEYING"
- △ CALCULATED POINT

SANTA RITA INVESTMENTS, LTD
(87.066 ACRES)
(TRACT TWO)
DOC. NO. 2021148213

N34°48'03"E
120.00'

S55°12'16"E
213.43'

0.501 ACRE
(21,844 SQ. FT.)

N55°12'16"W
150.64'

S62°25'05"W
135.44'

SANTA RITA INVESTMENTS, LTD.
(13.45 AC)
DOC NO 2016097852

PHAU - ELDORADO 333, LLC,
(333.295 AC.)
DOC. NO. 2021174221

POINT OF BEGINNING

N62°25'05"E
225.49'

SANTA RITA COMMERCIAL LLC.
(34.10 AC)
(EXHIBIT A-1)
DOC NO 2014012340

POINT OF COMMENCEMENT

S20°22'48"E
1194.40'

B. MANLOVE SURVEY,
ABSTRACT NO. 417

SANTA RITA COMMERCIAL LLC.
(34.10 AC)
(EXHIBIT A-1)
DOC NO 2014012340

PHAU - ELDORADO 333, LLC,
(333.295 AC.)
DOC. NO. 2021174221

LOT 1
SANTA RITA PARK
DOC NO 2008080497

STATE OF TEXAS
REGISTERED
ERIC J. DANNHEIM
6075
PROFESSIONAL
LAND SURVEYOR

2/18/25

BEARING BASIS: TEXAS COORDINATE SYSTEM, CENTRAL ZONE (4203), NAD83

Carlson, Brigance & Doering, Inc.
FIRM ID #F3791 ◆ REG. # 10024900
Civil Engineering ◆ Surveying
5501 West William Cannon ◆ Austin, Texas 78749
Phone No. (512) 280-5160 ◆ Fax No. (512) 280-5165

J:\AC3D\5665\Survey\M&B – 0.501 ACRE – INVESTMENTS TO KC

ELECTRONICALLY RECORDED
OFFICIAL PUBLIC RECORDS

2025012727

Pages: 6 Fee: $41.00
02/21/2025 12:53 PM
PKINNE

Nancy E. Rister, County Clerk
Williamson County,Texas

Unofficial Document

ELECTRONICALLY RECORDED 2025012728
Williamson County, Texas Total Pages: 8

NOTICE OF CONFIDENTIALITY RIGHTS: IF YOU ARE A NATURAL PERSON, YOU MAY REMOVE OR STRIKE ANY OR ALL OF THE FOLLOWING INFORMATION FROM ANY INSTRUMENT THAT TRANSFERS AN INTEREST IN REAL PROPERTY BEFORE IT IS FILED FOR RECORD IN THE PUBLIC RECORDS: YOUR SOCIAL SECURITY NUMBER OR YOUR DRIVER'S LICENSE NUMBER.

WARRANTY DEED

STATE OF TEXAS §
§ KNOW ALL MEN BY THESE PRESENTS:
COUNTY OF WILLIAMSON §

THAT **SANTA RITA COMMERCIAL, LLC**, a Texas limited liability company ("***Grantor***"), for and in consideration of TEN AND NO/100 DOLLARS ($10.00), and other good and valuable consideration in hand paid by **SANTA RITA KC, LLC,** a Texas limited liability company ("***Grantee***"), whose mailing address is 7143 Valburn Dr., Austin, Texas 78731, the receipt and sufficiency of which are hereby acknowledged, has GRANTED, BARGAINED, SOLD, TRANSFERRED, ASSIGNED, and CONVEYED, and by these presents does GRANT, BARGAIN, SELL, TRANSFER, ASSIGN, and CONVEY to Grantee, 3.653 acres of land, more or less, more particularly described on the attached Exhibit A (the "***Land***") attached hereto and made a part hereof, together with all of Grantor's rights, title and interests in and to the following as the following relate exclusively to the Land (reserving and not conveying any such rights, titles and interests as to other land): all entitlements, easements, rights, rights of way, water, water rights, minerals, mineral rights, air rights, development rights, plans, permits, applications, approvals and privileges appurtenant thereto, all streets and water courses adjacent to, abutting or serving the Property, and all improvements located thereon (together with the Land collectively called the "***Property***").

This conveyance is made and accepted subject to all liens, security interests, covenants, restrictions and other valid and subsisting matters against the Property and of record in the Official Public Records of Williamson County, Texas and Grantee accepts the Property subject to such matters and to all taxes and assessments assessed against the Property for 2025 which are hereby assumed by Grantee.

TO HAVE AND TO HOLD the Property, together with all and singular the rights and appurtenances belonging in any way thereto, subject to the provisions of this Deed, to Grantee, Grantee's successors and assigns forever, and Grantor binds itself and its successors and assigns TO WARRANT AND FOREVER DEFEND all and singular the Property to Grantee and Grantee's successors and assigns, against every person lawfully claiming or to claim all or any part of the Property.

[signature page follows]

Unofficial Document

EXECUTED to be effective as of February 21, 2025 (the "***Effective Date***").

GRANTOR:

SANTA RITA COMMERCIAL, LLC
a Texas limited liability company

By: MREM Texas Manager, LLC, a Delaware limited liability company, its Manager

By: _____
James Edward Horne, Vice President

STATE OF TEXAS §
§
COUNTY OF TRAVIS §

This instrument was acknowledged before me on this 21 day of February, 2025 by James Edward Horne, Vice President of MREM Texas Manager, LLC, a Delaware limited liability company, the Manager of Santa Rita Commercial, LLC a Texas limited liability company on behalf of such limited liability companies.

_____
Notary Public, State of Texas

NOTARY PUBLIC STATE OF TEXAS
AIMEE RANDLE
My Notary ID # 2790126
Expires July 27, 2028

Unofficial Document

EXHIBIT A
TO WARRANTY DEED

Unofficial Document

3.653 ACRES
B. MANLOVE SURVEY, ABSTRACT NO. 417
WILLIAMSON COUNTY, TEXAS

METES AND BOUNDS

BEING ALL OF A 3.653 ACRE TRACT OF LAND SITUATED IN THE B. MANLOVE SURVEY, ABSTRACT NUMBER 417, WILLIAMSON COUNTY, TEXAS, BEING A PORTION OF A CALLED 34.10 ACRE TRACT OF LAND (EXHIBIT A-1) CONVEYED TO SANTA RITA COMMERCIAL LLC. BY DEED RECORDED IN DOCUMENT NUMBER 2014012340, OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS, SAID 3.653 ACRE TRACT OF LAND BEING MORE FULLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

COMMENCING at a capped 1/2 inch iron rod found stamped "RJ SURVEYING", at the northwest corner of said 34.10 acre tract, same being the southwest corner of a called 87.066 acre tract of land (Tract Two), conveyed to Santa Rita Investments, LTD by deed recorded in Document Number 2021148213, Official Public Records, Williamson County, Texas, also being on the east line of a called 333.295 acre tract of land conveyed to PHAU – ELDORADO 333, LLC. by deed recorded in Document Number 2021174221, Official Public Records, Williamson County, Texas, for the **POINT OF COMMENCEMENT** of the herein described tract of land, from which a capped 1/2 inch iron rod found stamped "RJ SURVEYING" on the east line of said 333.295 acre tract, being at the southwest corner of said 34.10 acre tract of land, same being the northwest corner of Lot 1, Santa Rita Park, a subdivision recorded in Document Number 2008080497, Official Public Records, Williamson County, Texas, bears S20°22'48"E, a distance of 1194.40 feet,

THENCE, N62°25'05"E, with the north line of said 34.10 acre tract and the south line of said 87.066 acre tract, a distance of 225.49 feet, to a calculated point for the southwest corner and the **POINT OF BEGINNING** of the herein described tract of land,

THENCE, N62°25'05"E, with the common line of said 34.10 acre tract and said 87.066 acre tract, a distance of 135.44 feet to a calculated point for the northwest corner hereof,

THENCE, over and across said 34.10 acre tract of land, the following three (3) courses and distances, numbered 1 through 3,

1) S55°12'16"E, a distance of 305.77 feet to a calculated point, being at the beginning of a curve to the left,
2) Along said curve to the left, having a radius of 1,020.00 feet, an arc length of 627.82 feet, and a chord that bears S72°50'16"E, a distance of 617.96 feet to a calculated point, and
3) N89°31'45"E, a distance of 179.03 feet to a calculated point, on the west right-of-way line of Ronald Reagan Boulevard (R.O.W. varies) and the east line of said 34.10 acre tract, for the northeast corner of the herein described tract of land,

THENCE, with the west right-of-way line of Ronald Reagan Boulevard (R.O.W. varies) and the east line of said 34.10 acre tract, the following two (2) courses and distances, numbered 1 through 2,

1) S01°32'28"E, a distance of 56.88 feet to a calculated point,
2) S02°26'15"W, a distance of 97.31 feet to a calculated point for the southeast corner hereof,

THENCE, over and across said 34.10 acre tract of land, the following five (5) courses and distances, numbered 1 through 5,

1) S89°33'23"W, a distance of 130.26 feet to a calculated point, being at the beginning of a curve to the right,
2) Along said curve to the right, having a radius of 1,140.00 feet, an arc length of 326.97 feet, and a chord that bears N82°05'40"W, a distance of 325.85 feet to a calculated point,

Unofficial Document

3.653 ACRES
B. MANLOVE SURVEY, ABSTRACT NO. 417
WILLIAMSON COUNTY, TEXAS

3) N71°10'14"W, a distance of 107.69 feet to a calculated point, being at the beginning of a curve to the right,
4) Along said curve to the right, having a radius of 1,140.00 feet, an arc length of 263.81 feet, and a chord that bears N61°50'02"W, a distance of 263.22 feet to a calculated point, and
5) N55°12'16"W, a distance of 427.45 feet to the **POINT OF BEGINNING** and containing 3.653 acres of land, as shown on the attached sketch.

Surveyed by: 2/18/25

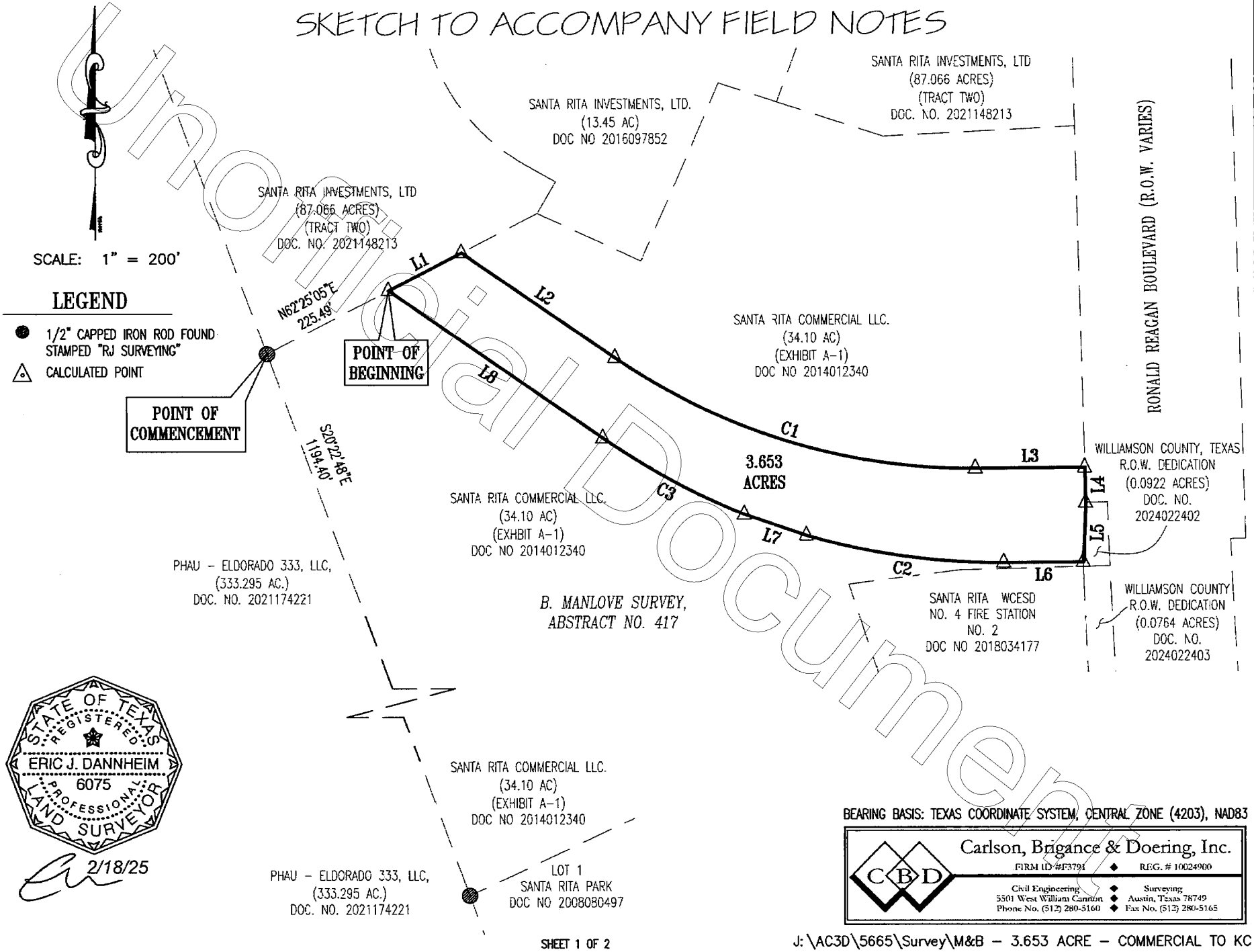
Eric J. Dannheim, R.P.L.S. NO. 6075
Carlson, Brigance & Doering, Inc.
Reg. # 10024900
5501 West William Cannon Drive
Austin, TX 78749
Phone: (512) 280-5160
Edannheim@cbdeng.com

STATE OF TEXAS
REGISTERED
ERIC J. DANNHEIM
6075
PROFESSIONAL
LAND SURVEYOR

BEARING BASIS: TEXAS STATE PLANE COORDINATE SYSTEM, CENTRAL ZONE (4203), NAD83
DATE OF SURVEY: OCTOBER 9, 2018

Unofficial Document

SKETCH TO ACCOMPANY FIELD NOTES



STATE OF TEXAS
REGISTERED
ERIC J. DANNHEIM
6075
PROFESSIONAL
LAND SURVEYOR

2/18/25

BEARING BASIS: TEXAS COORDINATE SYSTEM, CENTRAL ZONE (4203), NAD83

Carlson, Brigance & Doering, Inc.
FIRM ID #F3791 ◆ REG. # 10024900
Civil Engineering ◆ Surveying
5501 West William Cannon ◆ Austin, Texas 78749
Phone No. (512) 280-5160 ◆ Fax No. (512) 280-5165

SHEET 1 OF 2

J:\AC3D\5665\Survey\M&B – 3.653 ACRE – COMMERCIAL TO KC

Unofficial Document

SKETCH TO ACCOMPANY FIELD NOTES

Unofficial Document

Line Table		
Line #	Length	Direction
L1	135.44	N62°25'05"E
L2	305.77	S55°12'16"E
L3	179.03	N89°31'45"E
L4	56.88	S01°32'28"E

Line Table		
Line #	Length	Direction
L5	97.31	S02°26'15"W
L6	130.26	S89°33'23"W
L7	107.69	N71°10'14"W
L8	427.45	N55°12'16"W

Curve Table						
Curve #	Length	Radius	Chord Direction	Chord Length	Tangent	DELTA
C1	627.82	1020.00	S72°50'16"E	617.96	324.21	35°15'59"
C2	326.97	1140.00	N82°05'40"W	325.85	164.61	16°26'00"
C3	263.81	1140.00	N61°50'02"W	263.22	132.49	13°15'31"

STATE OF TEXAS
REGISTERED
ERIC J. DANNHEIM
6075
PROFESSIONAL
LAND SURVEYOR

2/18/25

Carlson, Brigance & Doering, Inc.
FIRM ID #F-3791 ◆ REG. # 10024900
Civil Engineering ◆ Surveying
3501 West William Cannon ◆ Austin, Texas 78749
Phone No. (512) 280-5160 ◆ Fax No. (512) 280-5165

J:\AC3D\5665\Survey\M&B – 3.653 ACRE – COMMERCIAL TO KC

ELECTRONICALLY RECORDED
OFFICIAL PUBLIC RECORDS

2025012728

Pages: 8 Fee: $49.00
02/21/2025 12:53 PM
PKINNE



Nancy E. Rister, County Clerk
Williamson County,Texas

Unofficial Document

ELECTRONICALLY RECORDED 2025030401
Williamson County, Texas Total Pages: 8

NOTICE OF CONFIDENTIALITY RIGHTS: IF YOU ARE A NATURAL PERSON, YOU MAY REMOVE OR STRIKE ANY OR ALL OF THE FOLLOWING INFORMATION FROM ANY INSTRUMENT THAT TRANSFERS AN INTEREST IN REAL PROPERTY BEFORE IT IS FILED FOR RECORD IN THE PUBLIC RECORDS: YOUR SOCIAL SECURITY NUMBER OR YOUR DRIVER'S LICENSE NUMBER.

WARRANTY DEED

STATE OF TEXAS §
§ KNOW ALL MEN BY THESE PRESENTS:
COUNTY OF WILLIAMSON §

THAT **SANTA RITA COMMERCIAL, LLC**, a Texas limited liability company ("***Grantor***"), for and in consideration of TEN AND NO/100 DOLLARS ($10.00), and other good and valuable consideration in hand paid by **SANTA RITA KC, LLC**, a Texas limited liability company ("***Grantee***"), whose mailing address is 7143 Valburn Dr., Austin, Texas 78731, the receipt and sufficiency of which are hereby acknowledged, has GRANTED, BARGAINED, SOLD, TRANSFERRED, ASSIGNED, and CONVEYED, and by these presents does GRANT, BARGAIN, SELL, TRANSFER, ASSIGN, and CONVEY to Grantee, 1.999 acres of land, more or less, more particularly described on the attached Exhibit A (the "***Land***") attached hereto and made a part hereof, together with all of Grantor's rights, title and interests in and to the following as the following relate exclusively to the Land (reserving and not conveying any such rights, titles and interests as to other land): all entitlements, easements, rights, rights of way, water, water rights, minerals, mineral rights, air rights, development rights, plans, permits, applications, approvals and privileges appurtenant thereto, all streets and water courses adjacent to, abutting or serving the Property, and all improvements located thereon (together with the Land collectively called the "***Property***").

This conveyance is made and accepted subject to all liens, security interests, covenants, restrictions and other valid and subsisting matters against the Property and of record in the Official Public Records of Williamson County, Texas and Grantee accepts the Property subject to such matters and to all taxes and assessments assessed against the Property for 2025 which are hereby assumed by Grantee.

TO HAVE AND TO HOLD the Property, together with all and singular the rights and appurtenances belonging in any way thereto, subject to the provisions of this Deed, to Grantee, Grantee's successors and assigns forever, and Grantor binds itself and its successors and assigns TO WARRANT AND FOREVER DEFEND all and singular the Property to Grantee and Grantee's successors and assigns, against every person lawfully claiming or to claim all or any part of the Property.

[signature page follows]

Unofficial Document

EXECUTED to be effective as of April __, 2025 (the "***Effective Date***").

GRANTOR:

SANTA RITA COMMERCIAL, LLC
a Texas limited liability company

By: MREM Texas Manager, LLC, a Delaware limited liability company, its Manager

By: _____
James Edward Horne, Vice President

STATE OF TEXAS §
§
COUNTY OF Williamson §

This instrument was acknowledged before me on this 22 day of April, 2025 by James Edward Horne, Vice President of MREM Texas Manager, LLC, a Delaware limited liability company, the Manager of Santa Rita Commercial, LLC, a Texas limited liability company on behalf of such limited liability companies.

_____
Notary Public, State of Texas

PATRICIA A MELTON
Notary ID #2653505
My Commission Expires
May 25, 2028

Unofficial Document

EXHIBIT A
TO WARRANTY DEED

Unofficial Document

Carlson, Brigance & Doering, Inc.

Civil Engineering ❖ Surveying
FirmID#F3791 Reg#10024900

1.999 ACRES
B. MANLOVE SURVEY, ABSTRACT NO. 417
WILLIAMSON COUNTY, TEXAS

METES AND BOUNDS

BEING ALL OF A 1.999 ACRE TRACT OF LAND SITUATED IN THE B. MANLOVE SURVEY, ABSTRACT NUMBER 417, WILLIAMSON COUNTY, TEXAS, BEING A PORTION OF A CALLED 34.10 ACRE TRACT OF LAND (EXHIBIT A-1) CONVEYED TO SANTA RITA COMMERCIAL LLC. BY DEED RECORDED IN DOCUMENT NUMBER 2014012340, OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS, SAID 1.999 ACRE TRACT OF LAND BEING MORE FULLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

COMMENCING at a capped 1/2 inch iron rod found stamped "RJ SURVEYING", at the northwest corner of said 34.10 acre tract, same being the southwest corner of a called 87.066 acre tract of land (Tract Two), conveyed to Santa Rita Investments, LTD by deed recorded in Document Number 2021148213, Official Public Records, Williamson County, Texas, also being on the east line of a called 333.295 acre tract of land conveyed to PHAU – ELDORADO 333, LLC. by deed recorded in Document Number 2021174221, Official Public Records, Williamson County, Texas, for the **POINT OF COMMENCEMENT** of the herein described tract of land,

THENCE, S20°22'48"E, with the west line of said 34.10 acre tract and the east line of said 333.295 acre tract, a distance of 821.92 feet, to a calculated point for the west corner and the **POINT OF BEGINNING** of the herein described tract of land,

THENCE, over and across said 34.10 acre tract of land, the following three (3) courses and distances, numbered 1 through 3,

1) N69°21'05"E, a distance of 80.95 feet to a calculated point, being at the beginning of a curve to the left,

2) Along said curve to the left, having a radius of 670.00 feet, an arc length of 611.40 feet, and a chord that bears N43°12'32"E, a distance of 590.41 feet to a calculated point,

3) N17°04'00"E, a distance of 50.79 feet to a calculated point on the south line of a 3.653 acre tract of land conveyed to Santa Rita KC, LLC. by deed recorded in Document Number 2025012728, Official Public Records, Williamson County, Texas, for the northwest corner of the herein described tract of land, being at the beginning of a curve to the left,

THENCE, continuing across said 34.10 acre tract with the south line of said 3.653 acre tract, the following 3 (three) courses and distances, numbered 1 through 3,

1) Along said curve to the left, having a radius of 1,140.00 feet, an arc length of 1.95 feet, and a chord that bears S68°24'51"E, a distance of 1.95 feet to a calculated point,

2) S71°10'14"E, a distance of 107.69 feet to a calculated point, being at the beginning of a curve to the left,

Unofficial Document

3) Along said curve to the left, having a radius of 1,140.00 feet, an arc length of 0.41 feet, and a chord that bears S73°53'17"E, a distance of 0.41 feet to a calculated point for the northeast corner of the herein described tract of land,

THENCE, continuing over and across said 34.10 acre tract, the following three (3) courses and distances, numbered 1 through 3,

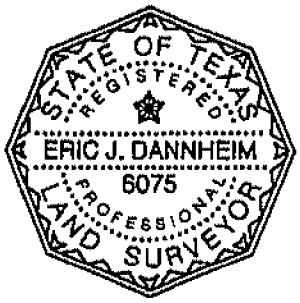
1) S17°04'00"W, a distance of 47.33 feet to a calculated point, being at the beginning of a curve to the right,

2) Along said curve to the right, having a radius of 780.00 feet, an arc length of 711.78 feet, and a chord that bears S43°12'32"W, a distance of 687.34 feet to a calculated point,

3) S69°21'05"W, a distance of 81.47 feet to a calculated point on the west line of said 34.10 acre tract and the east line of said 333.295 acre tract for the south corner of the herein described tract of land, from which a capped 1/2 inch iron rod found stamped "RJ SURVEYING" on the east line of said 333.295 acre tract, being at the southwest corner of said 34.10 acre tract of land, same being the northwest corner of Lot 1, Santa Rita Park, a subdivision recorded in Document Number 2008080497, Official Public Records, Williamson County, Texas, bears S20°22'48"E, a distance of 262.49 feet,

THENCE, N20°22'48"W, with the west line of said 34.10 acre tract and the east line of said 333.295 acre tract, a distance of 110.00 feet to the **POINT OF BEGINNING**, containing 1.999 acres of land, as shown on the attached sketch.

Surveyed by: _____ 4/16/25

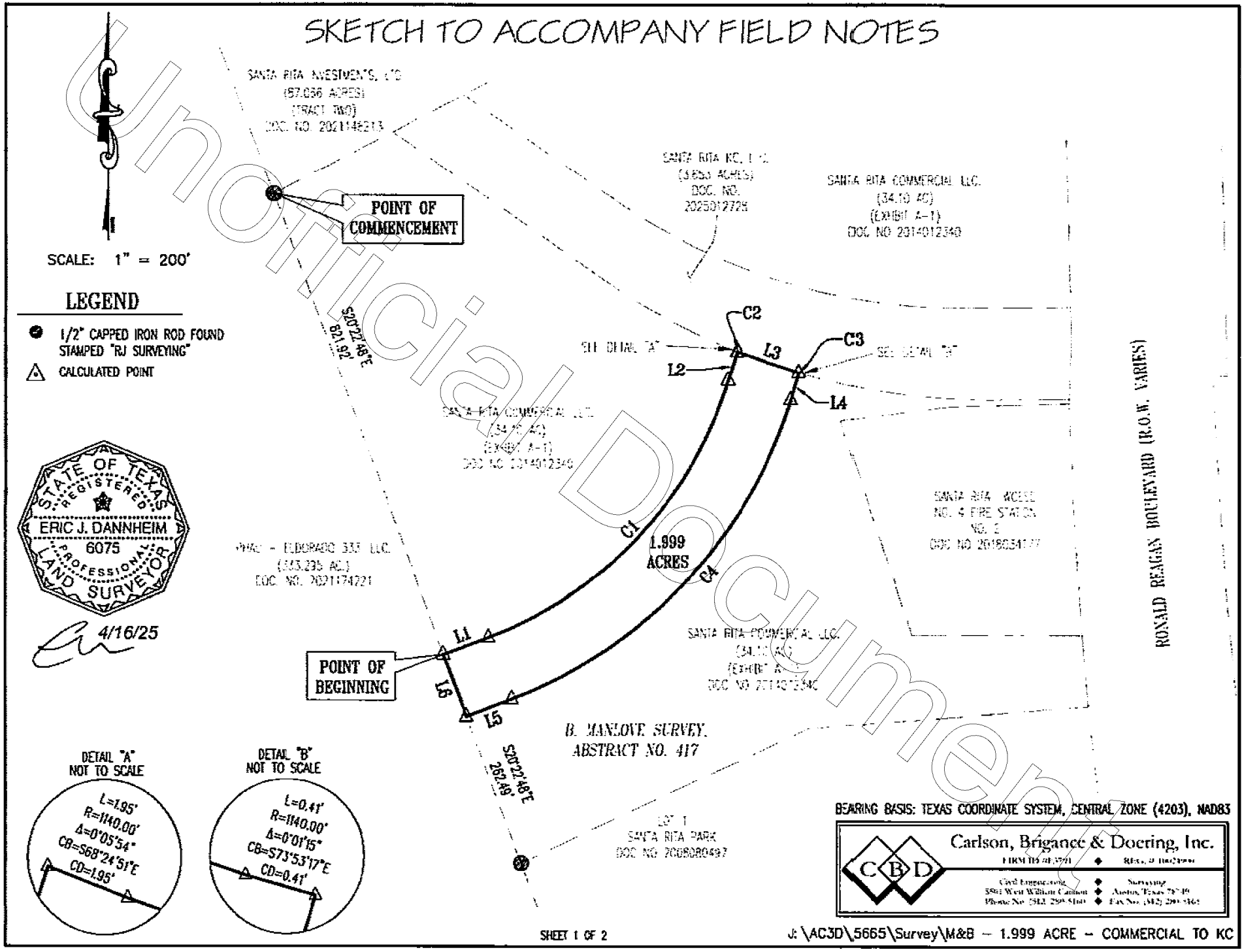


ERIC J. DANNHEIM, R.P.L.S. No. 6075
Carlson, Brigance & Doering, Inc.
REG.#10024900
5501 West William Cannon Drive
Austin, TX 78749
Ph: 512-280-5160
EDANNHEIM@cbdeng.com

BEARING BASIS: TEXAS COORDINATE SYSTEM, CENTRAL ZONE (4203), NAD83
SURVEY DATE: SEPTEMBER 2023

Unofficial Document

SKETCH TO ACCOMPANY FIELD NOTES



BEARING BASIS: TEXAS COORDINATE SYSTEM, CENTRAL ZONE (4203), NAD83

Carlson, Brigance & Doering, Inc.
Civil Engineering • Surveying
5501 West William Cannon • Austin, Texas 78749
Phone No. (512) 280-5160 • Fax No. (512) 280-5165

SHEET 1 OF 2

J:\AC3D\5665\Survey\M&B – 1.999 ACRE – COMMERCIAL TO KC

Unofficial Document

RECORDERS MEMORANDUM
All or parts of the text on this page was not clearly legible for satisfactory recordation

SKETCH TO ACCOMPANY FIELD NOTES

Unofficial Document

Line Table		
Line #	Length	Direction
L1	80.95	N69°21'05"E
L2	50.79	N17°04'00"E
L3	107.69	S71°10'14"E
L4	47.33	S17°04'00"W
L5	81.47	S69°21'05"W
L6	110.00	N20°22'48"W

Curve Table						
Curve #	Length	Radius	Chord Direction	Chord Length	Tangent	DELTA
C1	611.40	670.00	N43°12'32"E	590.41	328.84	52°17'05"
C2	1.95	1140.00	S68°24'51"E	1.95	0.98	0°05'54"
C3	0.41	1140.00	S73°53'17"E	0.41	0.21	0°01'15"
C4	711.78	780.00	S43°12'32"W	687.34	382.83	52°17'05"

STATE OF TEXAS
REGISTERED
ERIC J. DANNHEIM
6075
PROFESSIONAL
LAND SURVEYOR

4/16/25

Carlson, Brigance & Doering, Inc.

SHEET 2 OF 2

J:\AC3D\5665\Survey\M&B – 1.999 ACRE – COMMERCIAL TO KC

RECORDERS MEMORANDUM
All or parts of the text on this page was not clearly legible for satisfactory recordation

ELECTRONICALLY RECORDED
OFFICIAL PUBLIC RECORDS

2025030401

Pages: 8 Fee: $57.00
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PKINNE

Nancy E. Rister, County Clerk
Williamson County,Texas

Unofficial Document

ELECTRONICALLY RECORDED 2025059977
Williamson County, Texas Total Pages: 8

NOTICE OF CONFIDENTIALITY RIGHTS: IF YOU ARE A NATURAL PERSON, YOU MAY REMOVE OR STRIKE ANY OR ALL OF THE FOLLOWING INFORMATION FROM ANY INSTRUMENT THAT TRANSFERS AN INTEREST IN REAL PROPERTY BEFORE IT IS FILED FOR RECORD IN THE PUBLIC RECORDS: YOUR SOCIAL SECURITY NUMBER OR YOUR DRIVER'S LICENSE NUMBER.

WARRANTY DEED

STATE OF TEXAS §
§ KNOW ALL MEN BY THESE PRESENTS:
COUNTY OF WILLIAMSON §

THAT **SANTA RITA COMMERCIAL, LLC**, a Texas limited liability company ("***Grantor***"), for and in consideration of TEN AND NO/100 DOLLARS ($10.00), and other good and valuable consideration in hand paid by **SANTA RITA KC, LLC**, a Texas limited liability company ("***Grantee***"), whose mailing address is 7143 Valburn Dr., Austin, Texas 78731, the receipt and sufficiency of which are hereby acknowledged, has GRANTED, BARGAINED, SOLD, TRANSFERRED, ASSIGNED, and CONVEYED, and by these presents does GRANT, BARGAIN, SELL, TRANSFER, ASSIGN, and CONVEY to Grantee, 0.071 acres of land, more or less, more particularly described on the attached Exhibit A (the "***Land***") attached hereto and made a part hereof, together with all of Grantor's rights, title and interests in and to the following as the following relate exclusively to the Land (reserving and not conveying any such rights, titles and interests as to other land): all entitlements, easements, rights, rights of way, water, water rights, minerals, mineral rights, air rights, development rights, plans, permits, applications, approvals and privileges appurtenant thereto, all streets and water courses adjacent to, abutting or serving the Property, and all improvements located thereon (together with the Land collectively called the "***Property***").

This conveyance is made and accepted subject to all liens, security interests, covenants, restrictions and other valid and subsisting matters against the Property and of record in the Official Public Records of Williamson County, Texas and Grantee accepts the Property subject to such matters and to all taxes and assessments assessed against the Property for 2025 which are hereby assumed by Grantee.

TO HAVE AND TO HOLD the Property, together with all and singular the rights and appurtenances belonging in any way thereto, subject to the provisions of this Deed, to Grantee, Grantee's successors and assigns forever, and Grantor binds itself and its successors and assigns TO WARRANT AND FOREVER DEFEND all and singular the Property to Grantee and Grantee's successors and assigns, against every person lawfully claiming or to claim all or any part of the Property.

[signature page follows]

Unofficial Document

EXECUTED to be effective as of July 31, 2025 (the "***Effective Date***").

GRANTOR:

SANTA RITA COMMERCIAL, LLC
a Texas limited liability company

By: MREM Texas Manager, LLC, a Delaware limited liability company, its Manager

By: _____
James Edward Horne, Vice President

STATE OF TEXAS §
§
COUNTY OF Williamson §

This instrument was acknowledged before me on this 31 day of July, 2025 by James Edward Horne, Vice President of MREM Texas Manager, LLC, a Delaware limited liability company, the Manager of Santa Rita Commercial, LLC, a Texas limited liability company on behalf of such limited liability companies.

_____
Notary Public, State of Texas

PATRICIA A MELTON
Notary ID #2653505
My Commission Expires
May 25, 2028

Unofficial Document

EXHIBIT A
TO WARRANTY DEED

Two (2) tracts of land in Williamson County, Texas totaling 0.071 acres and described as follows:

First Tract: 0.066 acres of land, more or less, located in the B. Manlove Survey, Abstract Number 417, in Williamson County, Texas described by Metes and Bounds on "Exhibit A-1" attached hereto and made a part hereof for all purposes; and

Second Tract: 0.005 acres of land, more or less, located in the B. Manlove Survey, Abstract Number 417, in Williamson County, Texas described by Metes and Bounds on "Exhibit A-2" attached hereto and made a part hereof for all purposes.

Unofficial Document

Carlson, Brigance & Doering, Inc.

Civil Engineering ❖ Surveying
FirmID#F3791 Reg#10024900

EXHIBIT A-1

0.066 ACRES (2,857 SQ.FT.)
B. MANLOVE SURVEY, ABSTRACT NO. 417
WILLIAMSON COUNTY, TEXAS

METES AND BOUNDS

A DESCRIPTION OF A 0.066 ACRE (2,857 SQ.FT.) TRACT IN THE B. MANLOVE SURVEY, ABSTRACT NUMBER 417, WILLIAMSON COUNTY, TEXAS, BEING A PORTION OF A CALLED 34.10 ACRE TRACT OF LAND (EXHIBIT A-1) CONVEYED TO SANTA RITA COMMERCIAL LLC. BY DEED RECORDED IN DOCUMENT NUMBER 2014012340, OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS, SAID 0.066 ACRE (2,857 SQ.FT.) TRACT OF LAND BEING MORE FULLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

BEGINNING, at a capped 1/2 inch iron rod found stamped "WILLIAMSON COUNTY" at the northwest corner of a called 0.0764 acre tract conveyed to Williamson County by deed recorded in Document Number 2024022403, Official Public Records, Williamson County, Texas, being at the southwest corner of a called 0.0922 acre tract conveyed to Williamson County by deed recorded in Document Number 2024022402, Official Public Records, Williamson County, Texas, same being on the north line of Lot 1, Block A, Santa Rita WCESD No. 4 Fire Station No. 2, a subdivision recorded in Document Number 2018034177, Official Public Records, Williamson County, Texas, also being on the west right-of-way line of Ronald Reagan Boulevard (R.O.W. varies), for the southeast corner and the **POINT OF BEGINNING** of the herein described tract of land,

THENCE, S88°24'10"W, over and across said 34.10 acre tract and with the north line of said Lot 1, a distance of 202.75 feet to a calculated point, from which a capped 1/2 inch iron rod found stamped "RJ SURVEYING" at the northwest corner of said Lot 1, bears S82°37'40"W, a distance of 182.84 feet,

THENCE, continuing over and across said 34.10 acre tract of land, the following two (2) courses and distances, numbered 1 and 2,

1) N78°49'11"W, a distance of 111.25 feet to a calculated point, being at the beginning of a curve to the right, and
2) Along said curve to the right, having a radius of 1,159.50 feet, an arc length of 87.22 feet, and a chord that bears N76°39'53"W, a distance of 87.20 feet to a calculated point on the south line of a called 3.653 acre tract conveyed to Santa Rita KC, LLC by deed recorded in Document Number 2025012728, Official Public Records Williamson County, Texas, for the west corner of the herein described tract of land, being at the beginning of a curve to the left,

THENCE, over and across said 34.10 acre tract, and with the south line of said 3.653 acre tract, the following two (2) courses and distances, numbered 1 and 2,

1) Along said curve to the left, having a radius of 1,140.00 feet, an arc length of 269.03 feet, and a chord that bears S83°33'02"E, a distance of 268.40 feet to a calculated point, and
2) N89°33'23"E, a distance of 130.26 feet to a calculated point on the west line of said Ronald Reagan Boulevard, being on the west line of said 0.0922 acre tract, for the northeast corner of the herein described tract of land,

THENCE, S02°26'15"W, over and across said 34.10 acre tract, and with the west line of said Ronald Reagan Boulevard, a distance of 6.90 feet to the **POINT OF BEGINNING,** containing 0.066 acres (2,857 SQ.FT.) of land, as shown on the attached sketch.

Surveyed by: _____ 7/8/25

ERIC J. DANNHEIM, R.P.L.S. No. 6075
Carlson, Brigance & Doering, Inc.
REG.#10024900
5501 West William Cannon Drive
Austin, TX 78749
Ph: 512-280-5160
EDANNHEIM@cbdeng.com



BEARING BASIS: TEXAS COORDINATE SYSTEM, CENTRAL ZONE (4203), NAD83
SURVEY DATE: SEPTEMBER 2023

Unofficial Document

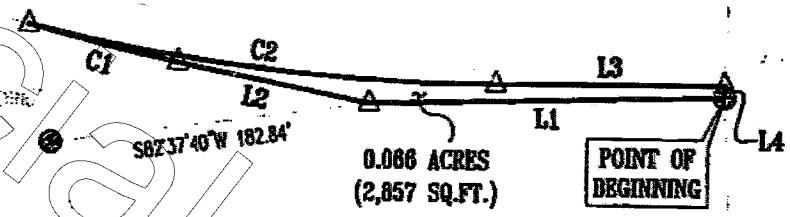
SKETCH TO ACCOMPANY FIELD NOTES



SCALE: 1" = 200'

LEGEND

- 1/2" CAPPED IRON ROD FOUND STAMPED "WILLIAMSON COUNTY" (UNLESS NOTED)
- CALCULATED POINT



RONALD REAGAN BOULEVARD
(R.O.W. VARIES)

B. MANLOVE SURVEY,
ABSTRACT NO. 417

Curve Table						
Curve #	Length	Radius	Chord Direction	Chord Length	Tangent	DELTA
C1	87.22	1159.50	N76°39'53"W	87.20	43.63	4°18'36"
C2	269.03	1140.00	S83°33'02"E	268.40	135.14	13°31'16"

Line Table		
Line #	Length	Direction
L1	202.75	S88°24'10"W
L2	111.25	N78°49'11"W
L3	130.26	N89°33'23"E
L4	6.90	S02°26'15"W

STATE OF TEXAS
REGISTERED
ERIC J. DANNHEIM
6075
PROFESSIONAL
LAND SURVEYOR

7/8/25

BEARING BASIS: TEXAS COORDINATE SYSTEM, CENTRAL ZONE (4203), NAD83

Carlson, Brigance & Doering, Inc.

J:\AC3D\5665\Survey\M&E - 0.066 ACRE - COMMERCIAL TO KC

Unofficial Document

RECORDERS MEMORANDUM
All or parts of the text on this page was not clearly legible for satisfactory recordation

Carlson, Brigance & Doering, Inc.

Civil Engineering ❖ Surveying
FirmID#F3791 Reg#10024900

EXHIBIT A-2

0.005 ACRES (197 SQ.FT.)
B. MANLOVE SURVEY, ABSTRACT NO. 417
WILLIAMSON COUNTY, TEXAS

METES AND BOUNDS

A DESCRIPTION OF A 0.005 ACRE (197 SQ.FT.) TRACT IN THE B. MANLOVE SURVEY, ABSTRACT NUMBER 417, WILLIAMSON COUNTY, TEXAS, BEING A PORTION OF A CALLED 34.10 ACRE TRACT OF LAND (EXHIBIT A-1) CONVEYED TO SANTA RITA COMMERCIAL LLC. BY DEED RECORDED IN DOCUMENT NUMBER 2014012340, OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS, SAID 0.005 ACRE (197 SQ.FT.) TRACT OF LAND BEING MORE FULLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

COMMENCING, at a capped 1/2 inch iron rod found stamped "WILLIAMSON COUNTY" at the northwest corner of a called 0.0764 acre tract conveyed to Williamson County by deed recorded in Document Number 2024022403, Official Public Records, Williamson County, Texas, being at the southwest corner of a called 0.0922 acre tract conveyed to Williamson County by deed recorded in Document Number 2024022402, Official Public Records, Williamson County, Texas, same being on the north line of Lot 1, Block A, Santa Rita WCESD No. 4 Fire Station No. 2, a subdivision recorded in Document Number 2018034177, Official Public Records, Willaimson County, Texas, also being on the west right-of-way line of Ronald Reagan Boulevard (R.O.W. varies),

THENCE, N01°01'58"E, over and across said 34.10 acre tract and a called 3.653 acre tract conveyed to Santa Rita KC, LLC by deed recorded in Document Number 2025012728, Official Public Records Williamson County, Texas, a distance of 161.00 feet to a calculated point on the west line of said Ronald Reagan Boulevard, being on the east line of said 34.10 acre tract, same being at the northeast corner of said 3.653 acre tract, for the southeast corner and the **POINT OF BEGINNING** of the herein described tract of land,

THENCE, S89°31'45"W, over and across said 34.10 acre tract and with the north line of said 3.653 acre tract, a distance of 123.29 feet to a calculated point for the west corner of the herein described tract of land, from which a capped 1/2 inch iron rod found stamped "RJ SURVEYING" at the northwest corner of said Lot 1, bears S54°21'00"W, a distance of 324.41 feet,

THENCE, N88°02'40"E, continuing over and across said 34.10 acre tract of land, a distance of 123.28 feet to a calculated point on the east line of said 34.10 acre tract, being on the west line of said Roanld Reagan Boulevard, for the northeast corner of the herein described tract of land,

THENCE, S01°32'28"E, with the common line of said 34.10 acre tract and said Ronald Reagan Boulevard, a distance of 3.19 feet to a calculated point to the **POINT OF BEGINNING,** containing 0.005 acres (197 SQ.FT.) of land, as shown on the attached sketch.

Surveyed by: _____ 7/8/25

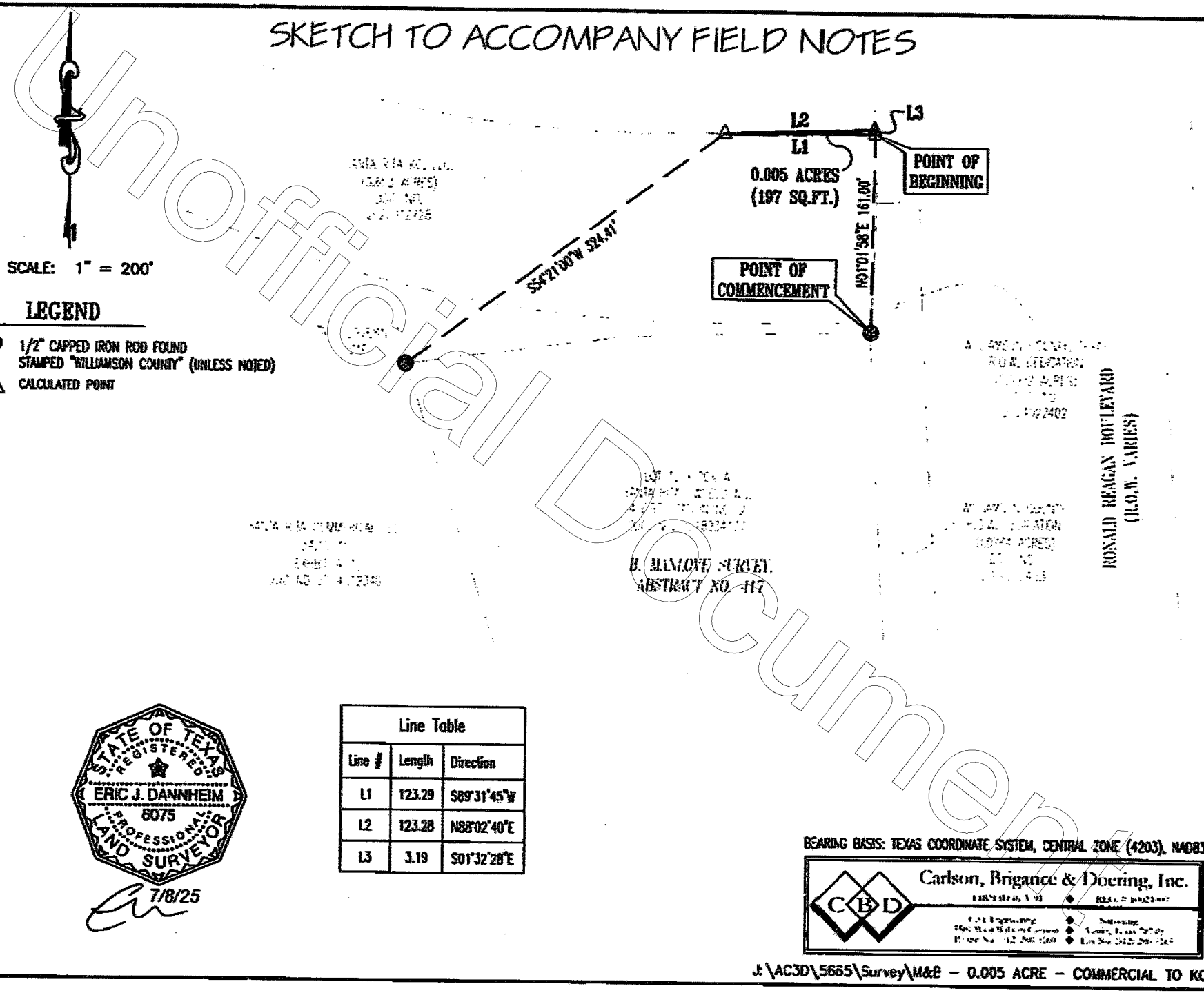
ERIC J. DANNHEIM, R.P.L.S. No. 6075
Carlson, Brigance & Doering, Inc.
REG.#10024900
5501 West William Cannon Drive
Austin, TX 78749
Ph: 512-280-5160
EDANNHEIM@cbdeng.com

STATE OF TEXAS
REGISTERED
ERIC J. DANNHEIM
6075
PROFESSIONAL
LAND SURVEYOR

BEARING BASIS: TEXAS COORDINATE SYSTEM, CENTRAL ZONE (4203), NAD83
SURVEY DATE: SEPTEMBER 2023

Unofficial Document

SKETCH TO ACCOMPANY FIELD NOTES



SCALE: 1" = 200'

LEGEND

- 1/2" CAPPED IRON ROD FOUND STAMPED "WILLIAMSON COUNTY" (UNLESS NOTED)
- CALCULATED POINT

Line Table		
Line #	Length	Direction
L1	123.29	S89°31'45"W
L2	123.28	N88°02'40"E
L3	3.19	S01°32'28"E

STATE OF TEXAS
REGISTERED
ERIC J. DANNHEIM
6075
PROFESSIONAL
LAND SURVEYOR

7/8/25

BEARING BASIS: TEXAS COORDINATE SYSTEM, CENTRAL ZONE (4203), NAD83

Carlson, Brigance & Doering, Inc.

J:\AC3D\5685\Survey\M&B - 0.005 ACRE - COMMERCIAL TO KC

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Nancy E. Rister, County Clerk
Williamson County,Texas

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