

WATER POLLUTION ABATEMENT PLAN
FOR
LYNDON RANCH

PREPARED FOR
Texas Commission on Environmental Quality
Region 13 – San Antonio
14250 Judson Road
San Antonio, Texas 78233
210-490-3096 (office)
210-545-4329 (fax)

PREPARED BY



F-13351

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Prepared
September 20, 2023



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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: Lyndon Ranch				2. Regulated Entity No.:					
3. Customer Name: Paravel New Braunfels I LP				4. Customer No.:					
5. Project Type: (Please circle/check one)	<input checked="" type="radio"/> New	Modification		Extension		Exception			
6. Plan Type: (Please circle/check one)	<input checked="" type="radio"/> WPAP	<input type="radio"/> CZP	<input type="radio"/> SCS	<input type="radio"/> UST	<input type="radio"/> AST	<input type="radio"/> EXP	<input type="radio"/> EXT	Technical Clarification	Optional Enhanced Measures
7. Land Use: (Please circle/check one)	<input checked="" type="radio"/> Residential		Non-residential		8. Site (acres):		28.13		
9. Application Fee:	\$6,500		10. Permanent BMP(s):			Batch Detention			
11. SCS (Linear Ft.):	n/a		12. AST/UST (No. Tanks):			n/a			
13. County:	Comal		14. Watershed:			Comal/Guadalupe 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.)	—	—	—
Region (1 req.)	—	—	—
County(ies)	—	—	—
Groundwater Conservation District(s)	<input type="checkbox"/> Edwards Aquifer Authority <input type="checkbox"/> Barton Springs/ Edwards Aquifer <input type="checkbox"/> Hays Trinity <input type="checkbox"/> Plum Creek	<input type="checkbox"/> Barton Springs/ Edwards Aquifer	NA
City(ies) Jurisdiction	<input type="checkbox"/> Austin <input type="checkbox"/> Buda <input type="checkbox"/> Dripping Springs <input type="checkbox"/> Kyle <input type="checkbox"/> Mountain City <input type="checkbox"/> San Marcos <input type="checkbox"/> Wimberley <input type="checkbox"/> Woodcreek	<input type="checkbox"/> Austin <input type="checkbox"/> Bee Cave <input type="checkbox"/> Pflugerville <input type="checkbox"/> Rollingwood <input type="checkbox"/> Round Rock <input type="checkbox"/> Sunset Valley <input type="checkbox"/> West Lake Hills	<input type="checkbox"/> Austin <input type="checkbox"/> Cedar Park <input type="checkbox"/> Florence <input type="checkbox"/> Georgetown <input type="checkbox"/> Jerrell <input type="checkbox"/> Leander <input type="checkbox"/> Liberty Hill <input type="checkbox"/> Pflugerville <input type="checkbox"/> Round Rock

San Antonio Region					
County:	Bexar	Comal	Kinney	Medina	Uvalde
Original (1 req.)	—	✓	—	—	—
Region (1 req.)	—	✓	—	—	—
County(ies)	—	✓	—	—	—
Groundwater Conservation District(s)	<input type="checkbox"/> Edwards Aquifer Authority <input type="checkbox"/> Trinity-Glen Rose	<input checked="" type="checkbox"/> Edwards Aquifer Authority	<input type="checkbox"/> Kinney	<input type="checkbox"/> EAA <input type="checkbox"/> Medina	<input type="checkbox"/> EAA <input type="checkbox"/> Uvalde
City(ies) Jurisdiction	<input type="checkbox"/> Castle Hills <input type="checkbox"/> Fair Oaks Ranch <input type="checkbox"/> Helotes <input type="checkbox"/> Hill Country Village <input type="checkbox"/> Hollywood Park <input type="checkbox"/> San Antonio (SAWS) <input type="checkbox"/> Shavano Park	<input type="checkbox"/> Bulverde <input type="checkbox"/> Fair Oaks Ranch <input type="checkbox"/> Garden Ridge <input checked="" type="checkbox"/> New Braunfels <input type="checkbox"/> Schertz	NA	<input type="checkbox"/> 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.

James Ingalls, P.E.

Print Name of Customer/Authorized Agent

Signature of Customer/Authorized Agent

9-20-23

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: James Ingalls, P.E.

Date: 9-20-23

Signature of Customer/Agent:



Project Information

1. Regulated Entity Name: Lyndon Ranch
2. County: Comal
3. Stream Basin: Comal River
4. Groundwater Conservation District (If applicable): _____
5. Edwards Aquifer Zone:
 Recharge Zone
 Transition Zone
6. Plan Type:
 WPAP
 SCS
 Modification
 AST
 UST
 Exception Request

7. Customer (Applicant):

Contact Person: Curtis Thigpen
Entity: Paravel New Braunfels I, LP
Mailing Address: 1509 Old W 38th St. #3
City, State: Austin, TX Zip: 78731
Telephone: 512-934-8923 FAX: _____
Email Address: cthigpen@paravelcap.com

8. Agent/Representative (If any):

Contact Person: James Ingalls, P.E.
Entity: INK Civil
Mailing Address: 2021 SH 46 W, Ste. 105
City, State: New Braunfels, TX Zip: 78132
Telephone: 830-358-7127 FAX: _____
Email Address: jamesingalls@ink-civil.com

9. Project Location:

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

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

_____ The project is located off LP 337, approximately 2,350 ft east of California Blvd, and approximately 1,600 ft west of River Rd

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: 9/30/2023

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:

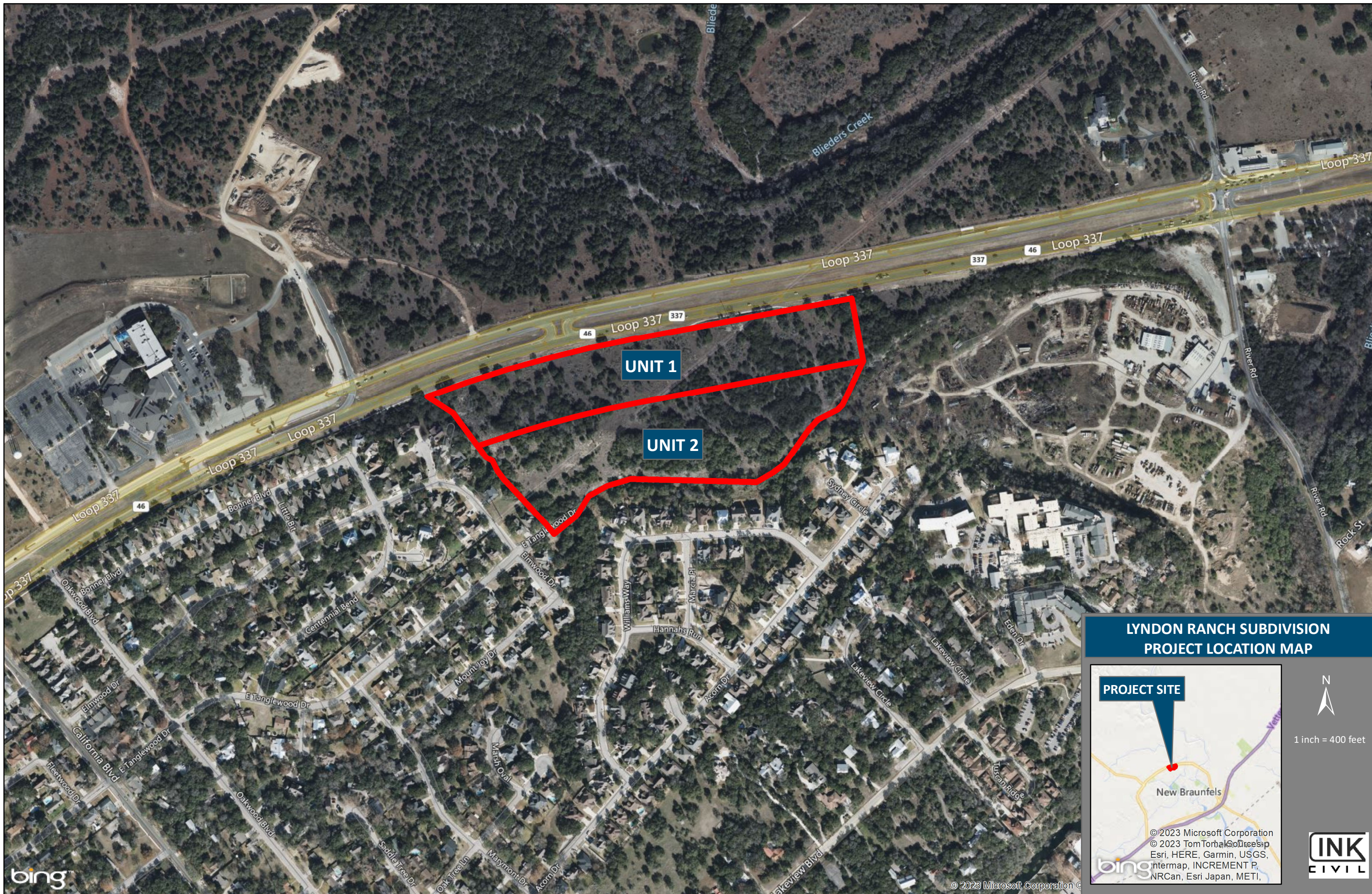
- (1) Waste disposal wells regulated under 30 TAC Chapter 331 (relating to Underground Injection Control);
- (2) Land disposal of Class I wastes, as defined in 30 TAC §335.1; and

- (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:

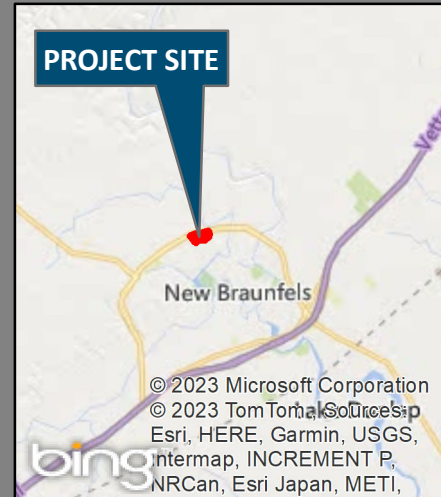
- For a Water Pollution Abatement Plan or Modification, the total acreage of the site where regulated activities will occur.
 - For an Organized Sewage Collection System Plan or Modification, the total linear footage of all collection system lines.
 - For a UST Facility Plan or Modification or an AST 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.



UNIT 1

UNIT 2

LYNDON RANCH SUBDIVISION PROJECT LOCATION MAP

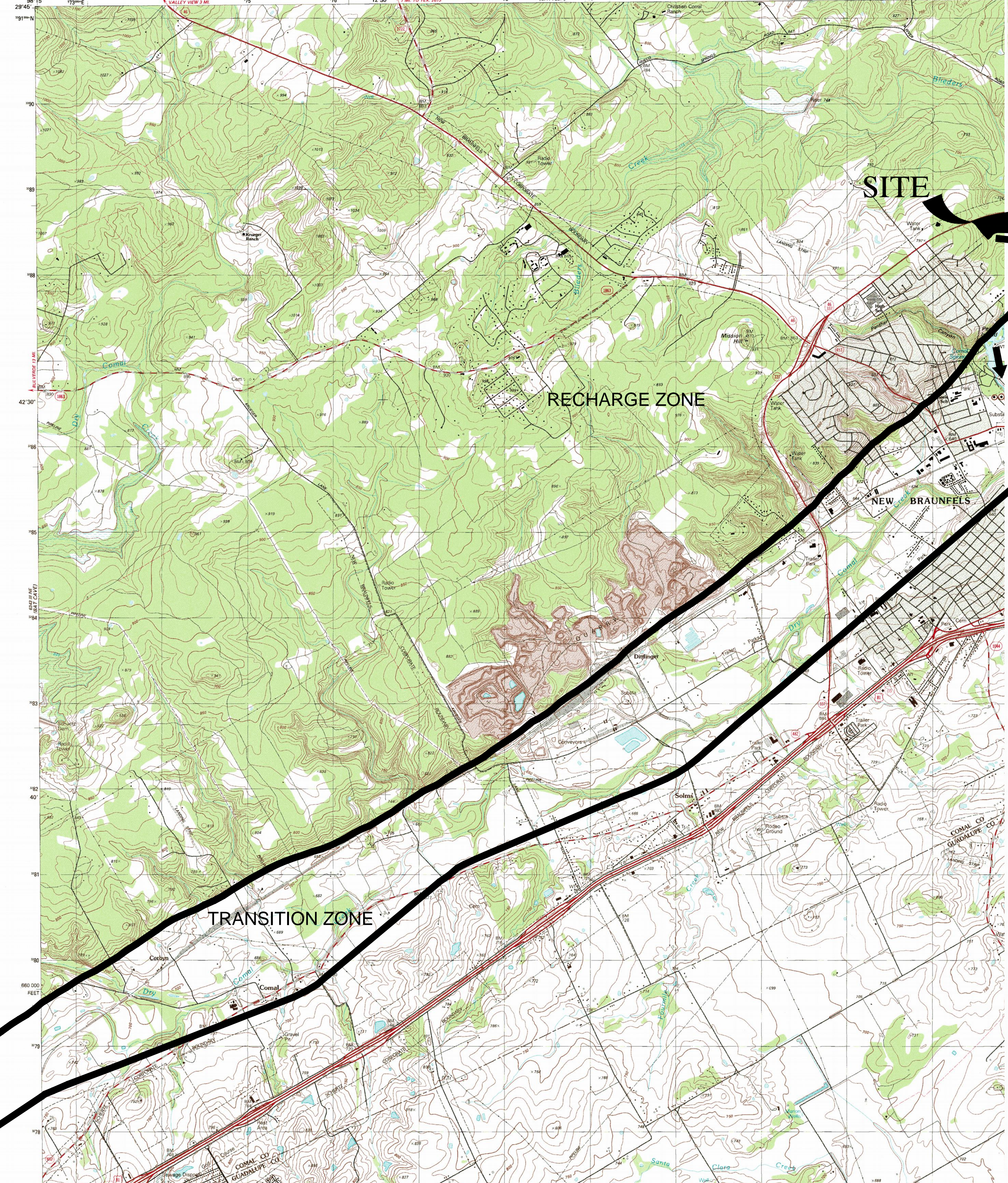


1 inch = 400 feet

© 2023 Microsoft Corporation
© 2023 TomTom, Sourcepoint
Esri, HERE, Garmin, USGS,
Intermap, INCREMENT P,
NRCAn, Esri Japan, METI,
bing



© 2023 Microsoft Corporation



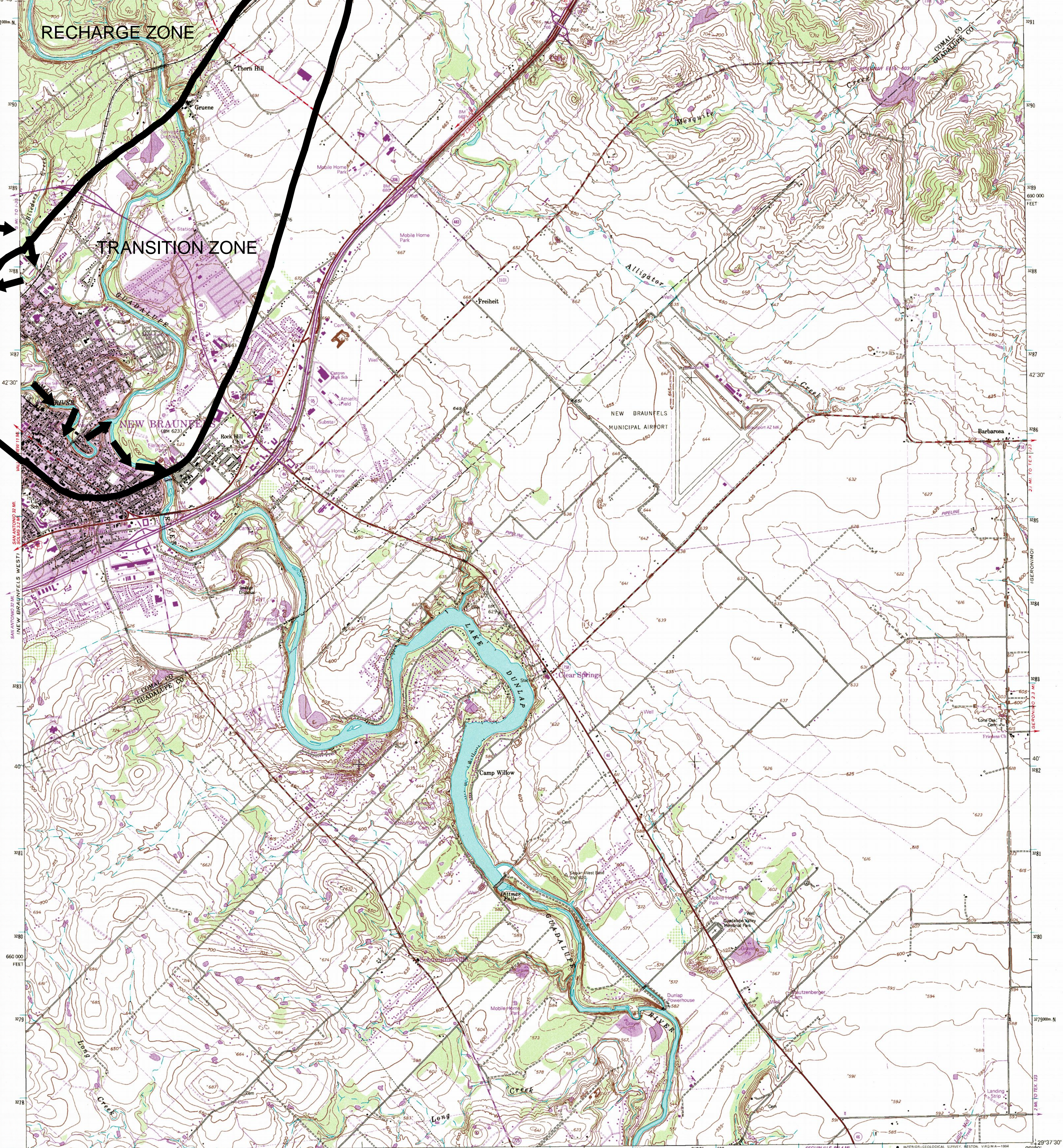
Produced by the United States Geological Survey
 Revised in cooperation with the Texas Water Development Board
 Control by USGS, NGS/NOAA, and USCE
 Compiled by the Army Map Service by photogrammetric methods
 from aerial photographs taken 1956. Field checked 1968
 Revised from aerial photographs taken 1986. Field checked 1987
 Map edited 1988
 Projection and 10,000-foot grid ticks: Texas coordinate
 system, south central zone (Lambert conformal conic)
 1000-meter Universal Transverse Mercator grid, zone 14
 1927 North American Datum
 To place on the predicted North American Datum 1983
 move the projection lines 28 meters south and
 28 meters east as shown by dashed corner ticks
 Four red dashed lines indicate selected fence and field lines
 respectively on aerial photographs. This information is uncheckered

SCALE 1:24 000
 CONTOUR INTERVAL 10 FEET
 NATIONAL GEODETIC VERTICAL DATUM OF 1929

ROAD CLASSIFICATION
 Primary highway, Light hard surface
 Secondary highway, Hard surface
 Interstate Route
 U. S. R.

NEW BRAUNFELS
 2999

2998-413
 DMA 6343 1



Produced by the United States Geological Survey in
 cooperation with the Defense Mapping Agency
 Control by USGS and NGS/NOAA and USCE
 Compiled from aerial photographs taken 1968. Revisions in purple
 and woodblock compiled from aerial photographs taken 1986 and
 other sources and has been field checked. Map edited 1994
 Conflicts may exist between some updated features and previously
 mapped contours
 North American Datum of 1927 (NAD 27). Projection and
 1000-foot ticks: Texas Coordinate System, south central zone
 (Lambert Conformal Conic)
 Sine 1000-meter Universal Transverse Mercator ticks, zone 14
 North American Datum of 1983 (NAD 83) is shown by dashed
 corner ticks. The values of the shift between NAD 27 and NAD 83
 for 7-minute intersections are obtainable from National Geodetic
 Survey NADCON software

SCALE 1:24 000
 CONTOUR INTERVAL 10 FEET
 SUPPLEMENTARY CONTOUR INTERVAL 5 FEET
 NATIONAL GEODETIC VERTICAL DATUM OF 1929

ROAD CLASSIFICATION
 Primary highway, Light-duty road, hard or
 hard surface
 Secondary highway, Improved surface
 hard surface
 Unimproved road
 Interstate Route
 U. S. Route
 State Route

NEW BRAUNFELS EAST, TEX.
 2998-F11-024
 1988
 REVISED 1994
 DMA 6343 1-NE-SERIES 1982

ATTACHMENT “C”
Project Description

The proposed site is a 28.13-acre tract of undeveloped land located along Loop 337 and extends along the frontage from approximately 2,350-ft east of California Blvd, to approximately 1,600 ft west of River Rd. An existing LCRA power transmission lines runs through the property. The entire site slopes south to a creek with natural grades ranging from 5-10%.

The project will be disturbed with 8.88-acres of impervious cover (31.56%). The proposed use for the project is a multifamily development consisting of 303 units, and an amenity center for the community. The construction of an amenity center, seven apartment buildings, parking, storm drain, and utility mains and service lines are planned. The project site is served by New Braunfels Utilities for electric, water, and wastewater. The BMP proposed for the development is a batch detention pond, located on the second lot of the overall tract. The batch detention pond is designed using RG-348 to ensure the TSS removal efficiency is at least 80%.

Within Loop 337 right-of-way (ROW) there is an additional drainage area of 2.82-acres with 1.31-acres of existing impervious cover draining onto the site. Currently the offsite area within the ROW is treated by vegetative filter strip per review of the Loop 337 WPAP approved in 2017. After construction of two proposed deceleration, right-turn lanes, and driveways for the development, 1.65-acres of impervious cover within the Loop 337 ROW flows onto the project site. A net increase of 0.34-acres of impervious cover within the ROW. It is proposed in this WPAP to re-vegetate the ROW with vegetative filter strip adjacent to the eastern deceleration lane and both right-turn lanes. Medians proposed at each of the two driveways impacts existing drainage areas delineated by TXDOT to the vegetative filter strips maintained by TXDOT. In total the western and eastern driveway connections will impact 0.49-acres of impervious cover that will now be proposed to be treated by the on-site batch detention basin. The TSS Removal Calculation accounts for the additional 440 lbs of TSS coinciding with the 0.49-acres of Loop 337 impervious cover necessary to be treated by the impact.

Step 6 of the TSS Removal Calculations accounts for 2.33-acres of the off-site drainage area and 1.15-acres of impervious cover from the ROW. This is 0.49-acres less than the actual 2.82-acres of drainage area and 1.65-acres of impervious cover because the 0.49-acres of impervious cover is counted for in the TSS design removal.

According to the Flood Insurance Rate Map No. 48091C0435F, the site is outside of the flood plain. The entire site drains to Comal Springs which flows into the Comal River.

**GEOLOGIC ASSESSMENT
FOR THE APPROXIMATELY 26.5-ACRE
LAUREL TREE RANCH TRACT**

Comal County, Texas

September 2022

Submitted to:

Paravel Capital
1509 Old W 38th Street,
Suite 3
Austin, Texas 78731

Prepared by:

aci consulting
1001 Mopac Circle
Austin, Texas 78746
TBPG Firm License No. 50260

aci project #: 22-22-105

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: Mark T. Adams

Telephone: (512) 347-9000

Date: 9/26/2022

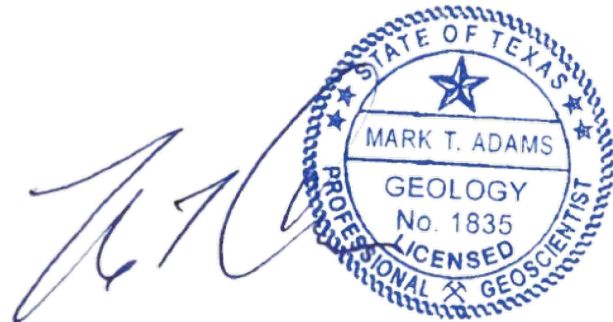
Fax: (512) 306-0974

Representing: aci Group LLC TBPG License No. 50260 (Name of Company and TBPG or TBPE registration number)

Signature of Geologist:

9/26/2022

Regulated Entity Name: Laurel Tree Ranch



Project Information

1. Date(s) Geologic Assessment was performed: 5/10/2022, 5/16/2022, 5/27/2022

2. Type of Project:

WPAP

AST

SCS

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)
CrD - Comfort-Rock outcrop complex, 1 to 8 percent slopes	D	0-3.33

Soil Name	Group*	Thickness(feet)

** 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" = 100'
 Site Geologic Map Scale: 1" = 100'
 Site Soils Map Scale (if more than 1 soil type): 1" = 400'
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 _____ (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply.)
 - The wells are not in use and have been properly abandoned.
 - The wells are not in use and will be properly abandoned.
 - The wells are in use and comply with 16 TAC Chapter 76.
 - There are no wells or test holes of any kind known to exist on the project site.

Administrative Information

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

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September 2022

Geologic Assessment for the 26.5-acre Laurel Tree Ranch Tract located in Comal County, Texas

1.0 INTRODUCTION

The Texas Commission on the Environmental Quality (TCEQ) regulates activities that have the potential to pollute the Edwards Aquifer through the Edwards Aquifer Protection Program. Projects meeting a certain criterion over the Edwards Aquifer Recharge Zone must submit an Edwards Aquifer Protection Plan (EAPP).

The purpose of this report is to identify all potential pathways for contaminant movement to the Edwards Aquifer and provide sufficient geologic information so that the appropriate Best Management Practices (BMPs) can be proposed in the Edwards Aquifer Protection Plan (EAPP). This report complies with the requirements of Title 30, Texas Administrative Code (TAC) Chapter 213 relating to the protection of the Edwards Aquifer Recharge Zone. Per the Rules, the Geologic Assessment must be completed by a Geologist licensed according to the Texas Geoscience Practice Act.

2.0 PROJECT INFORMATION

The approximately 26.5-acre Laurel Tree Ranch Tract, hereafter referred to as the subject area or site, is located south of Laurel Tree Ranch, approximately 0.44 mile west of the intersection of River Road (Rd) and Laurel Tree Ranch, in the City of New Braunfels, Comal County, Texas (**Attachment A, Figure 1**). Pedestrian investigations of the 26.5-acre tract were performed on May 10, 2022 and May 16, 2022 by Marcos Cardenas and Andrew Marlow, under the supervision of Mark Adams, P.G. with **aci consulting**. Additionally, several features encountered during the initial field investigation were re-evaluated on May 25, 2022, to determine their recharge potential.

This report is intended to satisfy the requirements for a Geologic Assessment, which shall be included as a component of a Water Pollution Abatement Plan (WPAP) and Sewage Collection System (SCS). The site is approximately 26.5 acres in total. The proposed site use is currently pending design. The scope of the report consists of a site reconnaissance, field survey, and review of existing data and reports. Features identified during the field

survey were ranked utilizing the Texas Commission on Environmental Quality (TCEQ) matrix for Edwards Aquifer Recharge Zone features. The ranking of the features will determine their viability as “sensitive” features.

3.0 INVESTIGATION METHODS

The following investigation methods and activities were used to develop this report:

- Review of existing files and literature to determine the regional geology and any known caves associated with the project area;
- Review of past geological field reports, cave studies, and correspondence regarding the existing geologic features on the project area, if available;
- Site reconnaissance by a registered professional geologist to identify and examine caves, recharge features, and other significant geological structures;
- Evaluation of collected field data and a ranking of features using the TCEQ Ranking Table 0585 for the Edwards Aquifer Recharge Zone; and
- Review of historic aerial photographs to determine if there are any structural features present, and to determine any past disturbances on the subject property.

4.0 SOILS AND GEOLOGY

The following includes a site-specific description of the soils, geologic stratigraphy, geologic structure, and karstic characteristics as they relate to the Edwards aquifer. Also included in this section is a review of historic aerials for presence of geologic changes or changes to manmade features in bedrock.

Soils

According to the United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) Web Soil Survey (2022), one soil unit occurs within the project area (**Attachment A, Figure 2**):

- CrD - Comfort-Rock outcrop complex, 1 to 8 percent slopes
The Comfort component makes up 70 percent of the map unit. Slopes are 1 to 8 percent. This component is on ridges on dissected plateaus. The parent material consists of residuum weathered from limestone. Depth to a root restrictive layer, bedrock, lithic, is 10 to 20 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted

depth) is very low. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. This soil does not meet the criteria for hydric soils. Hydrologic Soil Group: D.

Geologic Stratigraphy

According to the *Geologic Map of the New Braunfels West Quadrangle, Texas*, one geologic unit occurs within the project area (**Attachment A, Figure 3**). This unit and a description by Collins (2000) are as follows:

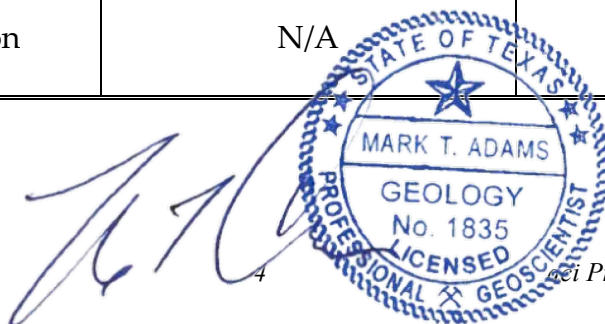
- Person Formation (Kp)

“Person limestone, dolomitic limestone, and dolomite also reflect the shallow subtidal to tidal-flat cyclic deposition on the San Marcos Platform (Rose, 1972; Abbott, 1973). This upper unit of the Edwards Group, 130 to 150 ft thick along its outcrop belt, thickens downdip. Person outcrops typically contain limestone interbedded with recrystallized dolomitic limestone and argillaceous limestone (Rose, 1972; Abbott, 1973). Some leached and collapsed intervals exist, and honeycombed porosity is common. Pockets of red clay (terra rosa) occur locally in collapse features, cave and vuggy intervals, and solution-widened bedding planes and fractures. Chert is also locally abundant. Common fossils include pelecypods, gastropods, and rudistids. The lower 20 to 30 ft comprises the Regional Dense Member, commonly dense argillaceous limestone and limestone. The Regional Dense Member of the San Marcos Platform, stratigraphically equivalent to the Kiamichi Formation of North Central Texas (Rose, 1972; Abbott, 1973), represents a regional sea-level highstand. A distinct topographic bench commonly occurs at the Regional Dense Member's contact with the Kainer Formation, which aids in the mapping of these units.”

Site-Specific Stratigraphic Column

Formation	Members	Thickness (Collins, 2000)
Person Formation	N/A	130-150 feet

9/26/2022



Geologic Structure

The geologic strata associated with the Edwards Aquifer include the Georgetown Limestone Formation of the Washita Group, the Edwards Limestone Group which is interfingered with the Comanche Peak Formation, followed by the Walnut formation, and finally the Glen Rose Formation of the Trinity Group. These Groups dip gently to the southeast and are characterized by the Balcones Fault Escarpment, a zone of an echelon normal faults downthrown to the southeast. Locally, the dominant structural trend of faults within the area is 45°, as evidenced by the mapped fault patterns (**Attachment A, Figure 4**). Thus, all features that have a trend ranging from 30° to 60° are considered “on trend” and were awarded the additional 10 points in the Geologic Assessment Table.

The entire subject area is underlain by the Person Formation (Kp). The geology appeared uniform throughout the site; however, it was noted throughout that massive limestone boulders appeared unnaturally displaced causing the appearance of small to large depressions in certain areas. After review of historic aerials, it was determined that the displacement of these boulders is likely attributed to the use of heavy machinery and vegetation clearing over the years.

Karstic Characteristics

In limestone landscapes, karst is expressed by erratically developed cavernous porosity from dissolution of bedrock as water combined with weak acids moves through the subsurface. Karst terrains are typical of the Edwards Limestone, occurring across a vast region of Central Texas, including the Balcones Fault Escarpment. The features produced by karst processes include, but are not limited to, sinkholes, solution cavities, solution enlarged fractures, and caves. These features can eventually provide conduits for fluid movement such as surface water runoff, as “point recharge” to the Edwards Aquifer. Faults and manmade features within bedrock can also provide conduits for point recharge in many cases.

According to Edwards aquifer zone map produced by the TCEQ (2005), the entire subject area is within the southern segment of the Edwards aquifer Recharge Zone. Thus, all karst features identified as sensitive within the project limits have the potential to be point recharge features into the Edwards aquifer.

Review of Historic Aerials

Aerial photographs were reviewed for the subject property and adjoining properties from 1938, 1952, 1958, 1969, 1973, 1983, 1995, 2004, 2010, 2016, and 2020 (**Attachment C**). Review of historic aerials suggests that the subject property was used as undeveloped or agricultural land since before the first aerial dated 1938. An easement where the current electric transmission line resides is present in the 1938 aerial image. Vegetation clearing occurs between the 1938 and 1952 aerials. Laurel Tree Ranch, a major roadway abutting the north property boundary, first appears in the 1969 aerial. Residential developments to the south, east, and west first appear in the 1969 aerial and appear to expand through the 2020 aerial. The Eden Heights retirement home complex first appears in the 1983 aerial. A construction yard to the east first appears in the 1995 aerial. The subject property itself remains relatively unchanged throughout the aerials, with the exception of vegetation clearing and regrowth in several of the images.

5.0 SUMMARY OF FINDINGS

This report documents the findings of a geologic assessment conducted by **aci consulting** personnel on May 10, May 16, and May 25 of 2022. Thirty-four features (manmade features in bedrock, karst, and non-karst features) were noted on the site. Comprehensive descriptions and recommendations for each feature can be found in **Attachment B**. Based on assessment of each feature, it was determined that all thirty-one naturally occurring features are non-sensitive. Three features are man-made features in bedrock, which have been deemed sensitive for the purpose of bringing to the attention of the project engineer.

6.0 REFERENCES

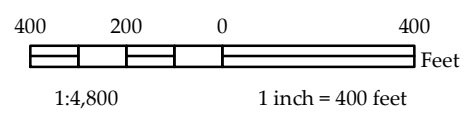
- Collins, E.W., 2000. *Geologic Map of the New Braunfels West Quadrangle, Texas*. Bureau of Economic Geology. Austin, Texas.
- (SCS) Soil Conservation Survey. 1983. Soil Survey of Comal County, Texas. United States Department of Agriculture. Texas Agriculture Experiment Station.
- (TCEQ) Texas Commission on Environmental Quality. 2004. Instructions to Geologists for Geologic Assessments on the Edwards Aquifer Recharge/Transition Zones. October 1, 2004. Austin, Texas.
- (TCEQ) Texas Commission on Environmental Quality. 2005. "Edwards Aquifer Protection Program, Chapter 213 Rules - Recharge Zone, Transition Zone, Contributing Zone, and Contributing Zone within the Transition Zone." Map. Digital data. September 1, 2005. Austin, Texas.
- (TWDB) Texas Water Development Board. 2022. Water Data Interactive Groundwater Data Viewer. Accessed on June 10, 2022. Available at:
<http://www2.twdb.texas.gov/apps/waterdatainteractive/groundwaterdataviewer>
- (USDA NRCS) U.S. Department of Agriculture Natural Resources Conservation Service. 2022. WebSoilSurvey.com. Soil Survey Area: Comal County, Texas. Date accessed: June 10, 2022.

ATTACHMENT A

Site Maps



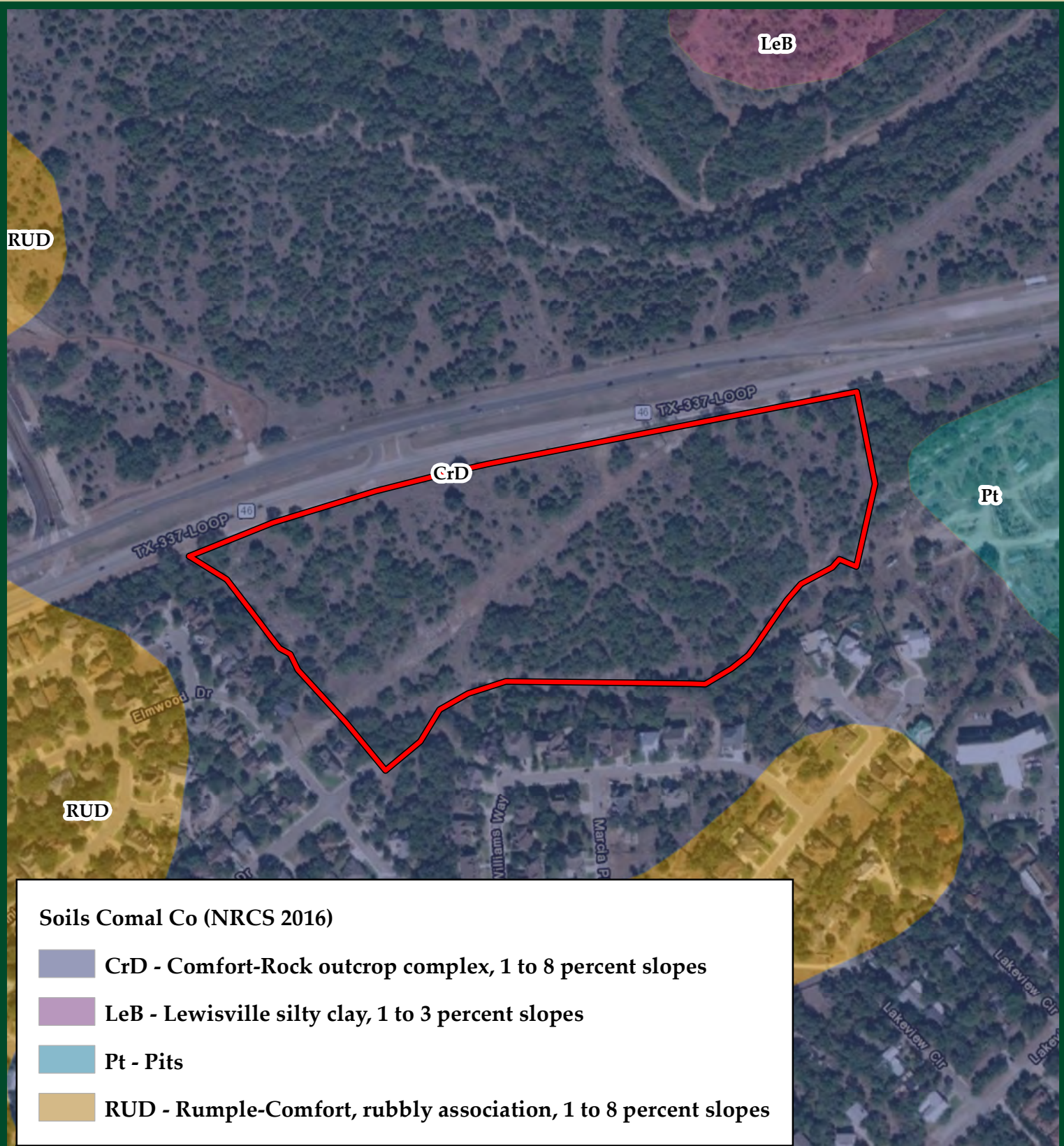
This map is intended for planning purposes only. All map data should be considered preliminary. All boundaries and designations are subject to confirmation.



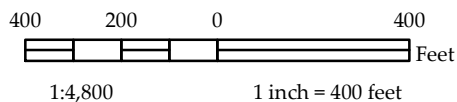
 Subject Area




26.5-acre Laurel Tree Ranch
Figure 1: Site Location Map

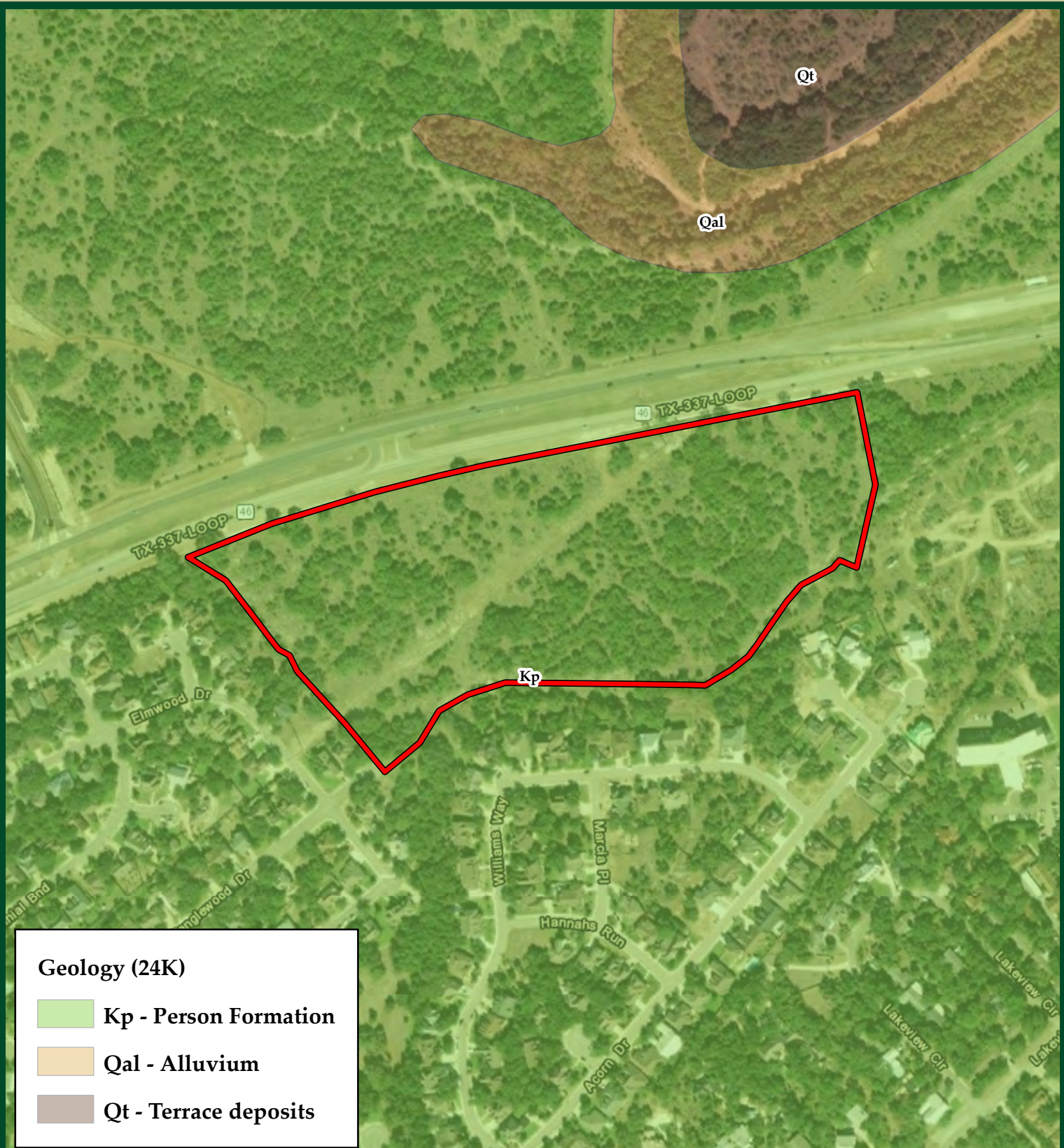


This map is intended for planning purposes only. All map data should be considered preliminary. All boundaries and designations are subject to confirmation.






 Subject Area

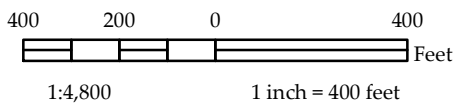





Geology (24K)

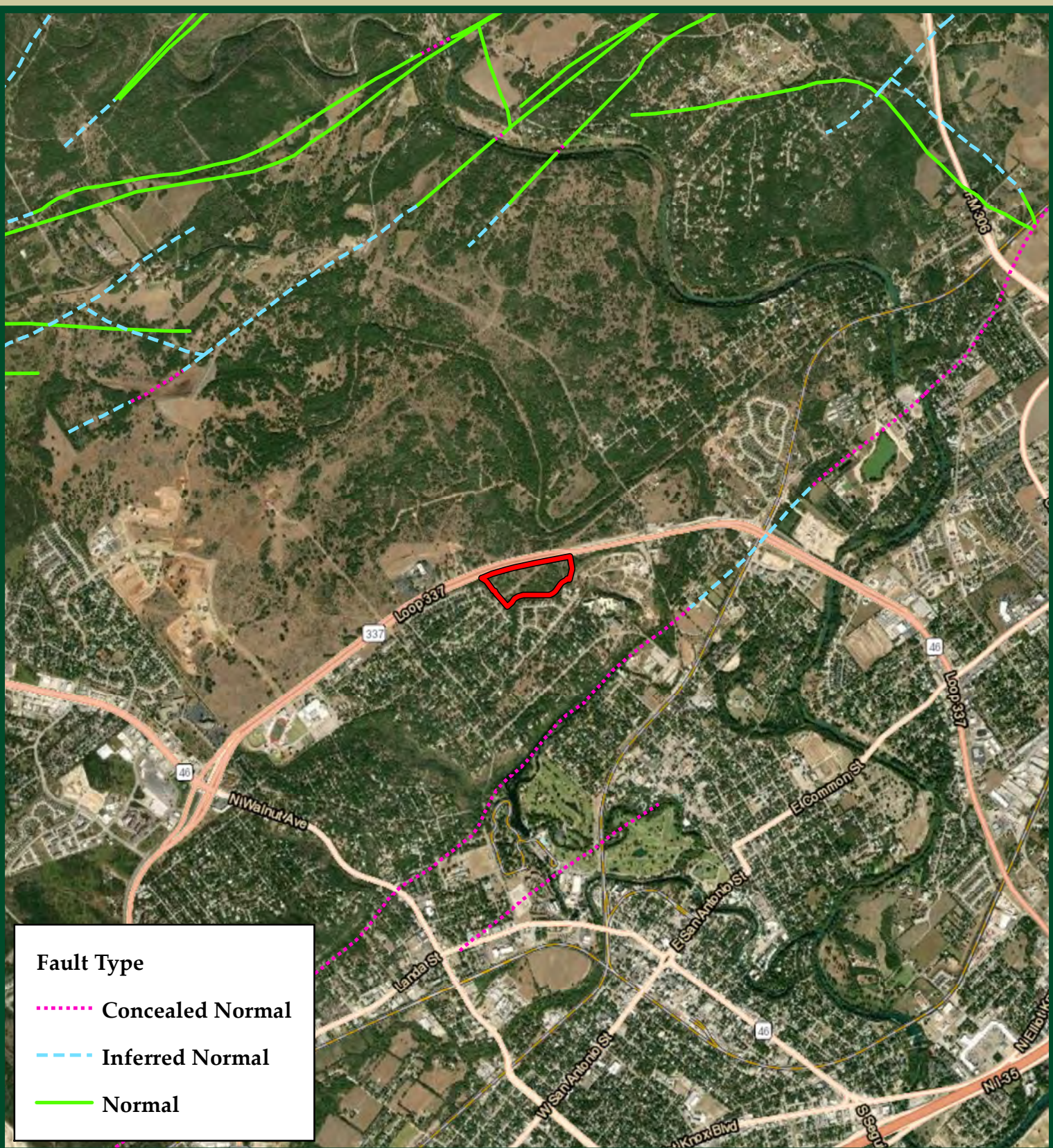
-  Kp - Person Formation
-  Qal - Alluvium
-  Qt - Terrace deposits

This map is intended for planning purposes only. All map data should be considered preliminary. All boundaries and designations are subject to confirmation.



 Subject Area

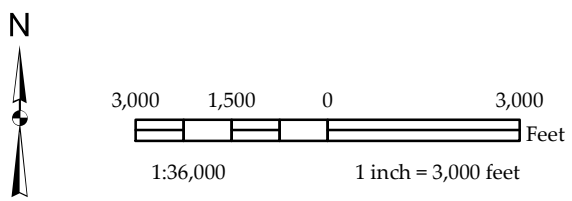




Fault Type

- ⋯ Concealed Normal
- Inferred Normal
- Normal

This map is intended for planning purposes only. All map data should be considered preliminary. All boundaries and designations are subject to confirmation.



Subject Area

Regional Fault Trend ~45°



ATTACHMENT B

Geologic Table Geologic and Manmade Feature Map (Figure 5) Feature Descriptions and Recommendations

GEOLOGIC ASSESSMENT TABLE						PROJECT NAME: Laurel Tree Ranch														
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)	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		
F01	29.726404	-98.136505	CD	5	Kp	5	3	1	-	-	-	-	C, O	5	10	X		X		Hillside
F02	29.726595	-98.136576	CD	5	Kp	6	6	1	-	-	-	-	C, O, V	5	10	X		X		Hillside
F03	29.726951	-98.136516	CD	5	Kp	5	5	1	-	-	-	-	C, O, V	5	10	X		X		Hillside
F04A	29.726649	-98.136108	CD	5	Kp	10	6	1.5	-	-	-	-	C, O, V	7	12	X		X		Hillside
F04B	29.72662	-98.136153	SF	20	Kp	7	0.25	0.5	28	-	-	-	C, O, V	7	27	X		X		Hillside
F04C	29.726575	-98.1361	CD	5	Kp	7	4	1	-	-	-	-	C, O, V	7	12	X		X		Hillside
F04D	29.726692	-98.136147	SF	20	Kp	4	0.25	0.5	46	10	-	-	C, O, V	7	37	X		X		Hillside
F05	29.725946	-98.135532	CD	5	Kp	10	10	1	-	-	-	-	C, O, V	5	10	X		X		Hillside
F06	29.726769	-98.136194	SC	20	Kp	1	2	2	-	-	-	-	N, V, F	10	30	X		X		Hillside
F07	29.726897	-98.136013	CD	5	Kp	3.5	3.5	0.5	-	-	-	-	C, O, V	6	11	X		X		Hillside
F08	29.726556	-98.135601	SC	20	Kp	3	1	1.5	100	-	-	-	N, V, F	15	35	X		X		Hillside
MB01	29.726237	-98.134844	MB	30	Kp	6	6	?	-	-	-	-	?	10	40		X	X		Hillside
F09	29.726591	-98.13468	CD	5	Kp	3	3	0.5	-	-	-	-	O, V	7	12	X		X		Hillside
F10	29.725929	-98.134059	CD	5	Kp	4	4	1	-	-	-	-	O, V	7	12	X		X		Hillside
F11	29.726974	-98.13485	O	5	Kp	3	3	0.5	-	-	-	-	O, F, V	7	12	X		X		Hillside

* DATUM: NAD 1983 State Plane 4203

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	Manmade 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

12 TOPOGRAPHY
Cliff, Hilltop, Hillside, Drainage, Floodplain, Streambed

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

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

Date 9/26/2022

Sheet 1 of 3

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

9/26/2022



GEOLOGIC ASSESSMENT TABLE						PROJECT NAME: Laurel Tree Ranch														
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)	DOOR	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	
F12	29.726793	-98.134523	O	5	KP	1	0.5	0.5	-	-	-	-	O, V	5	10	X		X		Hillside
F13	29.726289	-98.133924	CD	5	KP	4	4	1	-	-	-	-	C, O	6	11	X		X		Hillside
F14	29.725864	-98.133621	SC	20	KP	1	1	2	-	-	-	-	O	10	30	X		X		Hillside
F15	29.725902	-98.133047	CD	5	KP	4	4	1	-	-	-	-	O, F, V	5	10	X		X		Hillside
F16	29.726208	-98.133215	SC	20	KP	3	1.5	3	-	-	-	-	O	7	27	X		X		Hillside
F17	29.726285	-98.133536	CD	5	KP	3	3	0.5	-	-	-	-	O, F, V	5	10	X		X		Hillside
F18	29.726264	-98.133192	CD	5	KP	6	3	1.5	-	-	-	-	O, F, V	5	10	X		X		Hillside
F19A	29.726454	-98.133184	CD	5	KP	3	3	1	-	-	-	-	O, F, V	5	10	X		X		Hillside
F19B	29.726441	-98.133248	CD	5	KP	3	3	1	-	-	-	-	O, F, V	5	10	X		X		Hillside
F20	29.727157	-98.133722	O	5	KP	1	1	1.5	-	-	-	-	O, V	7	12	X		X		Hillside
F21	29.727083	-98.133701	SC	20	KP	1	2	2	-	-	-	-	N, O, C	18	38	X		X		Hillside
F22	29.726583	-98.13349	SC	20	KP	1.5	1	3	-	-	-	-	C, O, F	10	30	X		X		Hillside
F23	29.72617	-98.132499	SC	20	KP	0.5	0.5	0.5	-	-	-	-	C, O, V	5	25	X		X		Hillside
F24	29.726577	-98.132833	SC	20	KP	2	1	3	-	-	-	-	O, V	10	30	X		X		Hillside
F25	29.727039	-98.132966	CD	5	KP	6	2	0.5	-	-	-	-	C, V, F	5	10	X		X		Hillside

* DATUM: NAD 1983 State Plane 4203

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	Manmade 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
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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

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Cliff, Hilltop, Hillside, Drainage, Floodplain, Streambed

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

Date 9/26/2022

Sheet 2 of 3

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

9/26/2022



The subject area is not within any FEMA Flood Hazard Zones.
 The subject area is entirely within the Edwards Aquifer Recharge Zone.
 There are no mapped flowlines (NHD), waterbodies (NHD), or wetlands (NWI), within the subject area.



This map is intended for planning purposes only. All map data should be considered preliminary. All boundaries and designations are subject to confirmation.



100 50 0 100
 Feet
 1:1,200 1 inch = 100 Feet

Subject Area

Geologic Features

- Manmade Feature in Bedrock
- Non-Sensitive

Geology (24K)

- Kp - Person Formation
- Qal - Alluvium

9/26/2022



F01

GPS: 29.726404, -98.136505

F01 is a closed depression located on a gently sloping hillside in the Person Formation. This feature is approximately 5 feet long by 3 feet wide by 1 foot deep. The infill material consists of large boulders, organic material, and dark, loose soils. The catchment area is less than 1.6 acres. It was noted that an unnatural displacement of large boulders and several brush piles were located near this feature suggesting possible land clearing or the use of heavy machinery on the property. The infiltration rate for this feature was determined to be low and assigned a point value of 5, due to no evidence of subsurface development and the absence of any portals. In following the Instructions to Geologists, this feature has been determined to be non-sensitive.

Recommendations: There are no recommendations for this feature.



F01

F02

GPS: 29.726595, -98.136576

F02 is a closed depression located on a gently sloping hillside in the Person Formation. This feature is approximately 6 feet in diameter by 1 foot deep. The infill material consists of several fractured boulders, organic material, and vegetation including juvenile hackberries and desert Christmas cactus. The catchment area is less than 1.6 acres. It was noted that an unnatural displacement of large boulders and several brush piles were located near this feature suggesting possible land clearing or the use of heavy machinery on the property. The infiltration rate for this feature was determined to be low and assigned a point value of 5, due to no evidence of subsurface development and the absence of any portals. In following the Instructions to Geologists, this feature has been determined to be non-sensitive.

Recommendations: There are no recommendations for this feature.



F02

F03

GPS: 29.726951, -98.136516

F03 is a closed depression located on a gently sloping hillside in the Person Formation. This feature is approximately 5 feet in diameter by 1 foot deep. The infill material consists of cobbles, organic material, compact soils, and vegetation including grasses, Lindhimer's senna, Mexican hat, Texas persimmon, Texas kidneywood, and acacias. The catchment area is less than 1.6 acres. This feature is located near the northern property boundary and a major highway. The infiltration rate for this feature was determined to be low and assigned a point value of 5, due to no evidence of subsurface development and the absence of any portals. In following the Instructions to Geologists, this feature has been determined to be non-sensitive.

Recommendations: There are no recommendations for this feature.



F03

F04A

GPS: 29.726649, -98.136108

F04A is a closed depression on a gently sloping hillside with several unnaturally positioned boulders (likely epikarst slabs) in the middle of the depression. The dimensions of F04A are approximately 10 feet long by 6 feet wide by 1.5 feet deep. F04A is within a 75-ft radius of F04B, F04C, and F04D. Two large oak trees are positioned in the middle of all four features, likely contributing to the displacement of the large float rocks via root upheaval. The catchment area is less than 1.6 acres. Light hand excavation was performed to identify any portals or subsurface development within the depression. No visible drainage portals were noted. Infill material consisted of loose soils, organic material, large boulders, and vegetation including Texas live oak and Texas persimmon. The infiltration rate for this feature was determined to be low and assigned a point value of 7. This feature is determined to be non-sensitive.

Recommendations: There are no recommendations for this feature.



F-04A

F04B

GPS: 29.72662, -98.136153

F04B is a solution fracture on a gently sloping hillside. The dimensions of F04B are approximately 7 feet long by 0.25 feet wide by 0.5 feet deep. The trend of the main fracture within the feature was measured at 28°. F04B is within a 75-ft radius of F04A, F04C, and F04D. Two large oak trees are positioned in the middle of all four features, likely contributing to the displacement of the large float rocks. Additionally, there are persimmon and cedar trees within the feature. The catchment area is less than 1.6 acres. Extensive excavation was performed to identify any portals or subsurface development within the depression. No visible drainage portals were noted. Infill material consisted of loose soils, organic material, large boulders, and vegetation. The infiltration rate for this feature was determined to be low and assigned a point value of 7. This feature is determined to be non-sensitive.

Recommendations: There are no recommendations for this feature.



F04B



F04B after excavation.

F04C

GPS: 29.726575, -98.1361

F04C is a closed depression on a gently sloping hillside. The dimensions of F04C are approximately 7 feet long by 4 feet wide by 1 foot deep. There are several unnaturally positioned boulders along one side of the depression. F04C is within a 75-ft radius of F04A, F04B, and F04D. Two large oak trees are positioned in the middle of all four features, likely contributing to the displacement of the large float rocks. Additionally, there are trees within the feature. The catchment area is less than 1.6 acres. Extensive excavation was performed to identify any portals or subsurface development within the depression. No visible drainage portals were noted. Infill material consisted of loose soils, organic material, large boulders, and vegetation. The infiltration rate for this feature was determined to be low and assigned a point value of 7. This feature is determined to be non-sensitive.

Recommendations: There are no recommendations for this feature.



F04C before excavations.



F04C after excavations.

F04D

GPS: 29.726692, -98.136147

F04D is a solution fracture on a gently sloping hillside. The dimensions of F04D are approximately 4 feet long by 0.25 feet wide by 0.5 feet deep. The trend of the main fracture within the feature was measured at 46°. F04D is within a 75-ft radius of F04A, F04B, and F04C. Two large oak trees are positioned in the middle of all four features, likely contributing to the displacement of the large float rocks. The catchment area is less than 1.6 acres. Light hand excavation was performed to identify any portals or subsurface development within the depression. No visible drainage portals were noted. Infill material consisted of loose soils, organic material, large boulders, and vegetation. The infiltration rate for this feature was determined to be low and assigned a point value of 7. As the surrounding features were determined to be non-sensitive and likely epikarst in origin, this feature has also been determined to be non-sensitive.

Recommendations: There are no recommendations for this feature.



F04D

F05

GPS: 29.725946, -98.135532

F05 is a closed depression on a gently sloping hillside with several unnaturally positioned boulders (likely epikarst slabs) in the middle of the depression. The dimensions of F05 are approximately 10 feet in diameter by 1 foot deep. The catchment area is less than 1.6 acres. Light hand excavation was performed to identify any portals or subsurface development within the depression. No visible drainage portals were noted. Infill material consisted of loose soils, organic material, large boulders (epikarst), and vegetation including Ashe juniper, green briar, and grasses. The infiltration rate for this feature was determined to be low and assigned a point value of 5. This feature is determined to be non-sensitive.

Recommendations: There are no recommendations for this feature.



F05

F06

GPS: 29.726769, -98.136194

F-06 is a solution cavity located on a gently sloping hillside. The dimensions of this feature are approximately 2 feet by 1 foot by 2 feet deep. There is exposed bedrock, vegetation including prickly pear cactus, and hard, compact soils within the feature. Extensive excavation was performed on this feature to determine the extent of any subsurface development. After excavations, the vertical depth of the feature was measured at 2.5 feet below the surface. There was no additional lateral development beyond the initial surface expression, and no portals or drains were noted after removing the infill material. It was determined that this feature is a shallow solution cavity with no significant sub surface development. The catchment area is less than 1.6 acres, and the infiltration rate was determined to be low and assigned a point value of 10. This feature is determined to be non-sensitive.

Recommendations: There are no recommendations for this feature.



F06 before excavations.



F06 after excavations.

F07

GPS: 29.726897, -98.136013

F07 is a closed depression on a gently sloping hillside. The dimensions of F07 are approximately 3.5 feet in diameter by 0.5 foot deep. The catchment area is less than 1.6 acres. Light hand excavation was performed to identify any portals or subsurface development within the depression. No visible drainage portals were noted. Infill material consisted of loose soils, organic material, cobbles, and vegetation including Ashe juniper, Lindhimer's senna, and other grasses. The infiltration rate for this feature was determined to be low and assigned a point value of 6. This feature is determined to be non-sensitive.

Recommendations: There are no recommendations for this feature.



F07

F08

GPS: 29.726556, -98.135601

F08 is a solution cavity located on a gently sloping hillside. The dimensions of this feature are approximately 3 feet by 1 foot by 1.5 feet deep, with approximately 1.5 feet of lateral development trending at 100°. There is exposed bedrock, dark organic material, and hard, compact soils within the feature. Extensive excavation was performed on this feature to determine the extent of any subsurface development. After excavations, the vertical depth of the feature was measured at 2 feet below the surface. No portals or apertures were noted within the feature beyond the initial surface expression. It was determined that this feature is a shallow solution cavity with no significant subsurface development. The catchment area is less than 1.6 acres, and the infiltration rate was determined to be low and assigned a point value of 15. After feature excavations, this feature is determined to be non-sensitive.

Recommendations: There are no recommendations for this feature.



F-08 before feature excavations.



Interior of F08 before excavations.



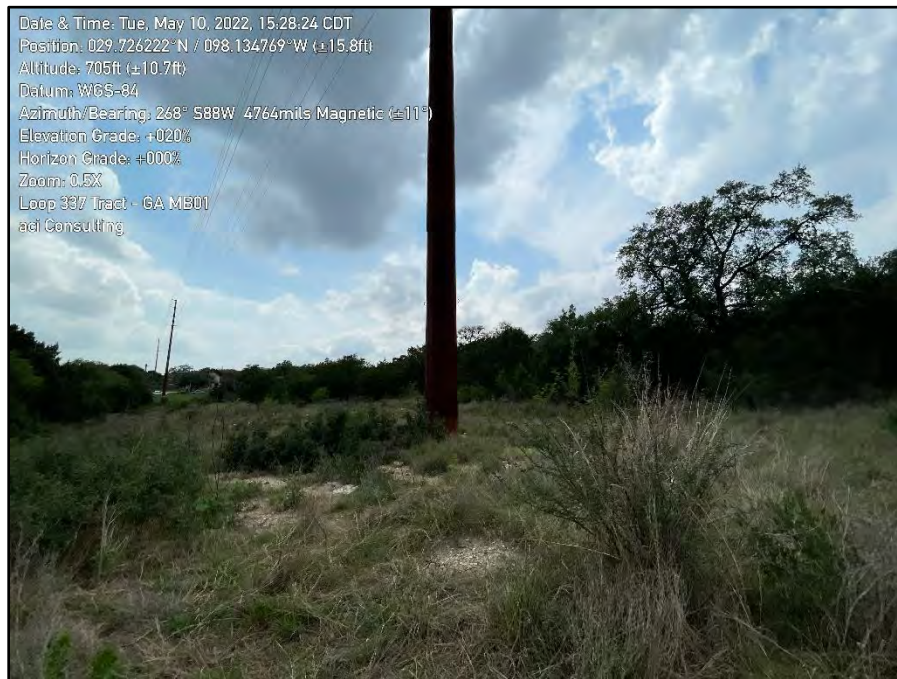
F08 after feature excavations.

MB01

GPS: 29.726237, -98.134844

MB01 is a manmade feature in bedrock, an electric transmission pole, on a gently sloping hillside. The dimensions of MB01 are approximately 6 feet in diameter with an unknown depth. The catchment area is less than 1.6 acres and the infill material is unknown. The infiltration rate for this feature was determined to be low and assigned a point value of 10, in order to deem this feature as sensitive.

Recommendations: Bring to the attention of the engineer.



MB01

F09

GPS: 29.726591, -98.13468

F09 is a closed depression on a gently sloping hillside. The dimensions of F09 are approximately 3 feet in diameter by 0.5 foot deep. The catchment area is less than 1.6 acres. Light hand excavation was performed to identify any portals or subsurface development within the depression. No visible drainage portals were noted; however, several unnaturally positioned limestone rocks were noted near the feature. The upheaval of these rocks was likely caused by the roots of a Texas live oak tree nearby. Infill material consisted of loose soils, organic material, and vegetation including juvenile Texas live oak and Texas persimmon. The infiltration rate for this feature was determined to be low and assigned a point value of 7. This feature is determined to be non-sensitive.

Recommendations: There are no recommendations for this feature.



F09

F10

GPS: 29.725929, -98.134059

F10 is a closed depression on a gently sloping hillside. The dimensions of F10 are approximately 4 feet in diameter by 1 foot deep. The catchment area is less than 1.6 acres. Light hand excavation was performed to identify any portals or subsurface development within the depression. No visible drainage portals were noted beneath the feature. Infill material consisted of large boulders, grasses, and organic material. This feature is located near an area of cleared vegetation, and the unnatural location of the large limestone boulders is likely attributed to the use of heavy machinery for vegetation clearing or agricultural purposes. The infiltration rate for this feature was determined to be low and assigned a point value of 7. This feature is determined to be non-sensitive.

Recommendations: There are no recommendations for this feature.



F10

F11

GPS: 29.726974, -98.13485

F11 is a “other natural bedrock feature”, a vuggy rock located within a small depression, on a gently sloping hillside. The dimensions the closed depression are approximately 3 feet in diameter by 0.5 foot deep. Several solution cavities were noted on the limestone boulder; thus, light hand excavation was performed to identify any portals or subsurface development within the depression. No visible drainage portals were noted beneath the feature. The closed depression noted around the feature is likely attributed to the Ashe Juniper and persimmon trees growing within the feature. Other infill material consisted of organic material and compact clay soils. The catchment area is less than 1.6 acres. The infiltration rate for this feature was determined to be low and assigned a point value of 7. This feature is determined to be non-sensitive.

Recommendations: There are no recommendations for this feature.



F11

F12

GPS: 29.726793, -98.134523

F12 is an “other natural bedrock feature”, a creature feature, on a gently sloping hillside. The dimensions of F12 are approximately 1 foot long by 0.5 foot wide by 0.5 foot deep. No visible drainage portals were noted beneath the feature. This feature is likely a non-karst feature, influenced by surrounding vegetation and wildlife. Infill material consisted of organic material and tree roots. The catchment area is less than 1.6 acres. The infiltration rate for this feature was determined to be low and assigned a point value of 5. This feature is determined to be non-sensitive.

Recommendations: There are no recommendations for this feature.



F12

F13

GPS: 29.726289, -98.133924

F13 is a closed depression on a gently sloping hillside. The dimensions of F13 are approximately 4 feet in diameter by 1 foot deep. The catchment area is less than 1.6 acres. Light hand excavation was performed to identify any portals or subsurface development within the depression. No visible drainage portals were noted beneath the feature. Infill material consisted of large boulders, organic material, and loose, dark soils. The infiltration rate for this feature was determined to be low and assigned a point value of 6. This feature is determined to be non-sensitive.

Recommendations: There are no recommendations for this feature.



F13

F14

GPS: 29.725864, -98.133621

F14 is a solution cavity located on a gently sloping hillside. The dimensions of this feature are approximately 1 foot long by 1 foot wide with 2 feet of lateral development. There is loose, organic material and dark soils within the feature. Light hand excavation was performed on this feature to determine the extent of any subsurface development. No portals or apertures were noted within the feature. It was determined that this feature is a shallow solution cavity with no significant sub surface development. The catchment area is less than 1.6 acres, and the infiltration rate was determined to be low, and assigned a point value of 10. This feature is determined to be non-sensitive.

Recommendations: There are no recommendations for this feature.



F14.

F15

GPS: 29.725902, -98.133047

F15 is a closed depression on a gently sloping hillside. The dimensions of F15 are approximately 4 feet in diameter by 1 foot deep. The catchment area is less than 1.6 acres. Light hand excavation was performed to identify any portals or subsurface development within the depression. No visible drainage portals were noted beneath the feature. Infill material consisted, organic material, compact soils and vegetation including Texas live oak, agarita, cedar elm, and crepe myrtle. The infiltration rate for this feature was determined to be low and assigned a point value of 5. This feature is determined to be non-sensitive.

Recommendations: There are no recommendations for this feature.



F15

F16

GPS: 29.726208, -98.133215

F16 is a solution cavity located on a gently sloping hillside. The dimensions of this feature are approximately 3 feet long by 1.5 feet wide with 3 feet of lateral development. There is loose, organic material and dark soils within the feature. Light hand excavation was performed on this feature to determine the extent of any subsurface development. No portals or apertures were noted within the feature. It was determined that this feature is a shallow solution cavity with no significant sub surface development. The catchment area is less than 1.6 acres, and the infiltration rate was determined to be low, and assigned a point value of 7. This feature is determined to be non-sensitive.

Recommendations: There are no recommendations for this feature.



F16



Interior of F16.

F17

GPS: 29.726285, -98.133536

F17 is a closed depression on a gently sloping hillside. The dimensions of F17 are approximately 3 feet in diameter by 0.5 foot deep. Large limestone boulders were noted within the depression, as well as several persimmon trees growing up through the boulders, likely contributing to the development of the feature. Light hand excavation was performed to identify any portals or subsurface development within the depression. No visible drainage portals were noted beneath the feature. Infill material consisted, organic material, compact soils, and vegetation. The catchment area is less than 1.6 acres. The infiltration rate for this feature was determined to be low and assigned a point value of 5. This feature is determined to be non-sensitive.

Recommendations: There are no recommendations for this feature.



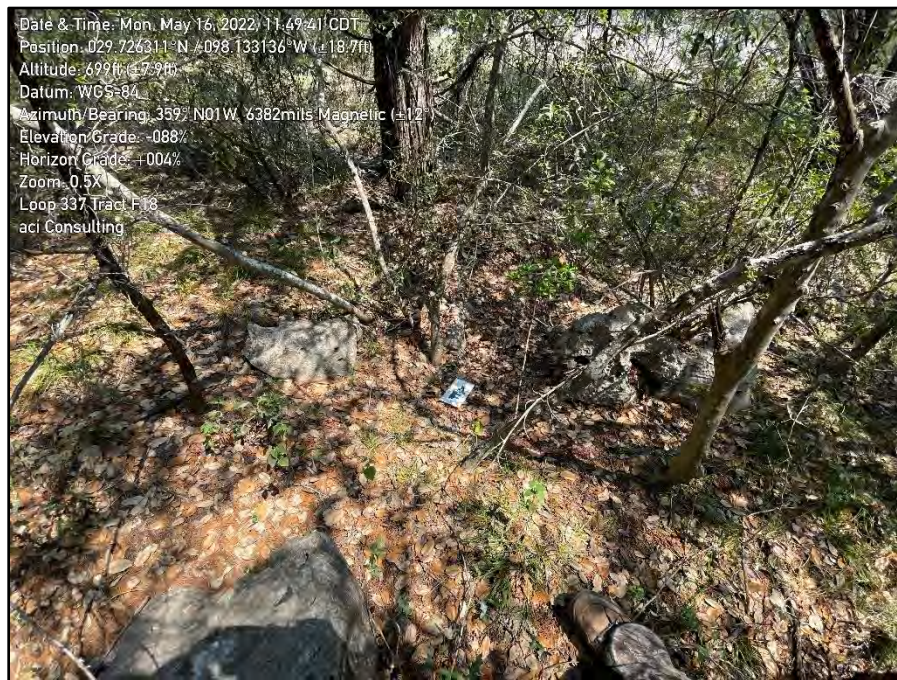
F17

F18

GPS: 29.726264, -98.133192

F18 is a closed depression on a gently sloping hillside. The dimensions of F18 are approximately 6 feet long by 3 feet wide by 1.5 feet deep. This feature was similar to F17 in that large limestone boulders were noted around the depression, as well as vegetation, likely contributing to the development of the feature. Light hand excavation was performed to identify any portals or subsurface development within the depression. No visible drainage portals were noted beneath the feature. Infill material consisted, organic material, compact soils, and vegetation. The catchment area is less than 1.6 acres. The infiltration rate for this feature was determined to be low and assigned a point value of 5. This feature is determined to be non-sensitive.

Recommendations: There are no recommendations for this feature.



F18

F19A

GPS: 29.726454, -98.133184

F19A is a closed depression on a gently sloping hillside. The dimensions of F19A are approximately 3 feet in diameter by 1 foot deep. It was noted that unnaturally shifted boulders and juvenile vegetation were located within the feature. Light hand excavation was performed to identify any portals or subsurface development within the depression. No visible drainage portals were noted beneath the feature. Infill material consisted, organic material, compact soils, and vegetation (Texas persimmon and Ashe juniper). The catchment area is less than 1.6 acres. The infiltration rate for this feature was determined to be low and assigned a point value of 5. Due to the lack of subsurface development and the location of this feature being near an area of previous disturbance (vegetation clearing present in historic aerials) this feature is determined to be non-sensitive.

Recommendations: There are no recommendations for this feature.



F19A

F19B

GPS: 29.726441, -98.133248

F19B is a closed depression adjacent to F19A, on a gently sloping hillside. The dimensions of F19B are approximately 3 feet in diameter by 1 foot deep. It was noted that unnaturally placed boulders and juvenile vegetation were located within the feature. Light hand excavation was performed to identify any portals or subsurface development within the depression. No visible drainage portals were noted beneath the feature. Infill material consisted, organic material, compact soils, and vegetation (Ashe juniper). The catchment area is less than 1.6 acres. The infiltration rate for this feature was determined to be low and assigned a point value of 5. Due to the lack of subsurface development and the location of this feature near an area of previous disturbance (vegetation clearing present in historic aerials), this feature is determined to be non-sensitive.

Recommendations: There are no recommendations for this feature.



F19B

F20

GPS: 29.727157, -98.133722

F20 is an “other” type feature, a creature feature, on a gently sloping hillside. The dimensions of F20 are approximately 1 foot in diameter by 1.5 feet deep (laterally). Evidence of burrowing including a fill pile of loose soil and organic material was noted outside of the feature. Extensive excavations were performed on this feature to verify the lack of subsurface development. No visible drainage portals were noted within the feature. Infill material consisted, organic material, tree roots, and vegetation (Bluewood condalia). The catchment area is less than 1.6 acres. The infiltration rate for this feature was determined to be low and assigned a point value of 7. This feature is determined to be non-sensitive.

Recommendations: There are no recommendations for this feature.



F20



F20 after feature excavations.

F21

GPS: 29.727083, -98.133701

F21 is a solution cavity located on a gently sloping hillside. The dimensions of F21 are approximately 1 foot by 2 feet by 2 feet deep, with approximately 1 foot of lateral development within the feature. The feature is rock lined, with loose organic material, and cobbles within the feature. Extensive excavation was performed on this feature to determine the extent of any subsurface development. After excavations, the dimensions of the feature were 3.5 feet long by 2.5 feet wide by 3 feet deep. Six feet of lateral development along a tapering bedding plane was exposed before hitting an area of hard, compact soils. There was no air flow or water present within the feature. The catchment area is less than 1.6 acres, and the infiltration rate was determined to be low and assigned a point value of 18. After feature excavations, it was determined that this feature is a non-sensitive shallow, solution cavity with minor potential for background infiltration.

Recommendations: There are no recommendations for this feature.



F-21 before excavations



F21 after excavations.

F22

GPS: 29.726583, -98.13349

F22 is a solution cavity located on a gently sloping hillside. The dimensions of F22 are approximately 1.5 feet by 1 foot by 3 feet deep (laterally). The infill material of this feature appeared to be loose organics, light colored soils, and limestone cobbles. Extensive excavation was performed on this feature to determine the extent of any subsurface development. After excavations, the dimensions of the feature were approximately 1.5 feet long by 2.5 feet wide by 3 feet deep (laterally). It was determined that this feature is a shallow solution cavity likely influenced by animal burrowing. The drainage area is less than 1.6 acres, and the infiltration rate has been determined to be low and assigned a point value of 10. This feature is non-sensitive.

Recommendations: There are no recommendations for this feature.



F-22

F23

GPS: 29.72617, -98.132499

F23 is a solution cavity located on a gently sloping hillside. The dimensions of F23 are approximately 0.5 feet in diameter by 0.5 feet deep. The infill material of this feature appeared to be loose organics, cobbles, and tree roots. Evidence of animal burrowing was noted near the cavity, and it is likely that this feature has been influenced by the nearby juniper tree. The drainage area is less than 1.6 acres, and the infiltration rate has been determined to be low and assigned a point value of 5. This feature is non-sensitive.

Recommendations: There are no recommendations for this feature.



F23

F24

GPS: 29.726577, -98.132833

F24 is a solution cavity located on a gently sloping hillside. The dimensions of F24 are approximately 2 feet long by 1 foot wide by 3 feet deep (laterally). The infill material consists of loose organics, dark, compact soils, and vegetation (Texas persimmon). Harvestmen were also noted within the feature; however, after several minutes of light hand excavation, it was determined that this feature lacked any subsurface development beyond the 3 feet of observed lateral development. The drainage area is less than 1.6 acres, and the infiltration rate has been determined to be low and assigned a point value of 10. This feature is non-sensitive.

Recommendations: There are no recommendations for this feature.



F24

F25

GPS: 29.727039, -98.132966

F25 is a closed depression located on a gently sloping hillside. The dimensions of F25 are approximately 6 feet long by 2 foot wide by 0.5 foot deep. The infill material consists of cobbles, grasses, and compact soil. Light hand excavation was performed to identify any portals or subsurface development within the depression. No visible drainage portals were noted beneath the feature. The drainage area is less than 1.6 acres, and the infiltration rate has been determined to be low and assigned a point value of 5. This feature is non-sensitive.

Recommendations: There are no recommendations for this feature.



F25

F26

GPS: 29.726747, -98.132482

F26 is a solution enlarged fracture located on a gently sloping hillside. The dimensions of F26 are approximately 4 feet long by 0.25 foot wide by 0.5 foot deep and is trending mainly at 84°. The infill material consists of loose organic material, cobbles, and vegetation including persimmon. Light hand excavation was performed to identify any portals or subsurface development within the depression. No visible drainage portals were noted beneath the feature, and it was determined this feature is likely an epikarst feature. The drainage area is less than 1.6 acres, and the infiltration rate has been determined to be low and assigned a point value of 5. This feature is non-sensitive.

Recommendations: There are no recommendations for this feature.



F26

F27

GPS: 29.726607, -98.132054

F27 is a closed depression located on a gently sloping hillside. The dimensions of F27 are approximately 3 feet long by 1 foot wide by 2 foot deep. Several large, fractured limestone boulders are located within the depression. Additional infill material consists of loose organic material, cobbles, and vegetation including agarita, Christmas cholla, and Ashe juniper. Light hand excavation was performed to identify any portals or subsurface development within the depression. No visible drainage portals were noted beneath the feature, and it was determined displaced boulders are likely epikarst. The drainage area is less than 1.6 acres, and the infiltration rate has been determined to be low and assigned a point value of 6. This feature is non-sensitive.

Recommendations: There are no recommendations for this feature.



F27

MB02

GPS: 29.727678, -98.132748

MB02 is a manmade feature in bedrock, an electric transmission pole, on a gently sloping hillside. The dimensions of MB02 are approximately 6 feet in diameter with an unknown depth. The catchment area is less than 1.6 acres, and the infill material is unknown. The infiltration rate for this feature was determined to be low and assigned a point value of 10 in order to deem this feature as sensitive.

Recommendations: Bring to the attention of the engineer.



MB02

MB03

GPS: 29.727817, -98.132554

MB03 is a manmade feature in bedrock, a test pit, on a gently sloping hillside. The dimensions of MB03 are approximately 2 feet in diameter with an unknown depth. The catchment area is less than 1.6 acres, and the infill material appears to be sandy gravel. The infiltration rate for this feature was determined to be low and assigned a point value of 10, in order to deem this feature as sensitive.

Recommendations: Bring to the attention of the engineer.



MB03



ATTACHMENT C

Historic Aerial Photographs

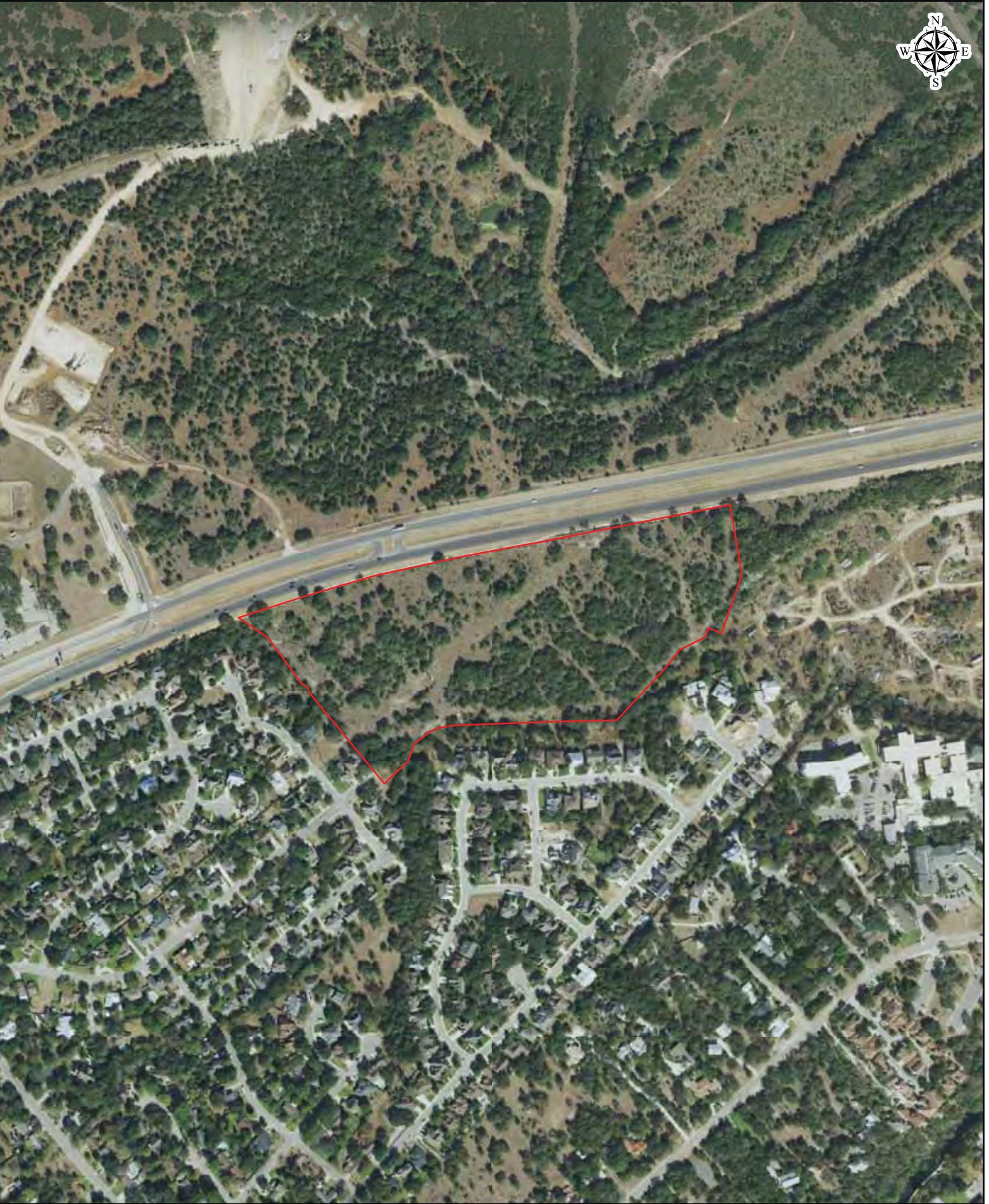
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ACI CONSULTING
1001 Mopac Circle
Austin, TX 78746



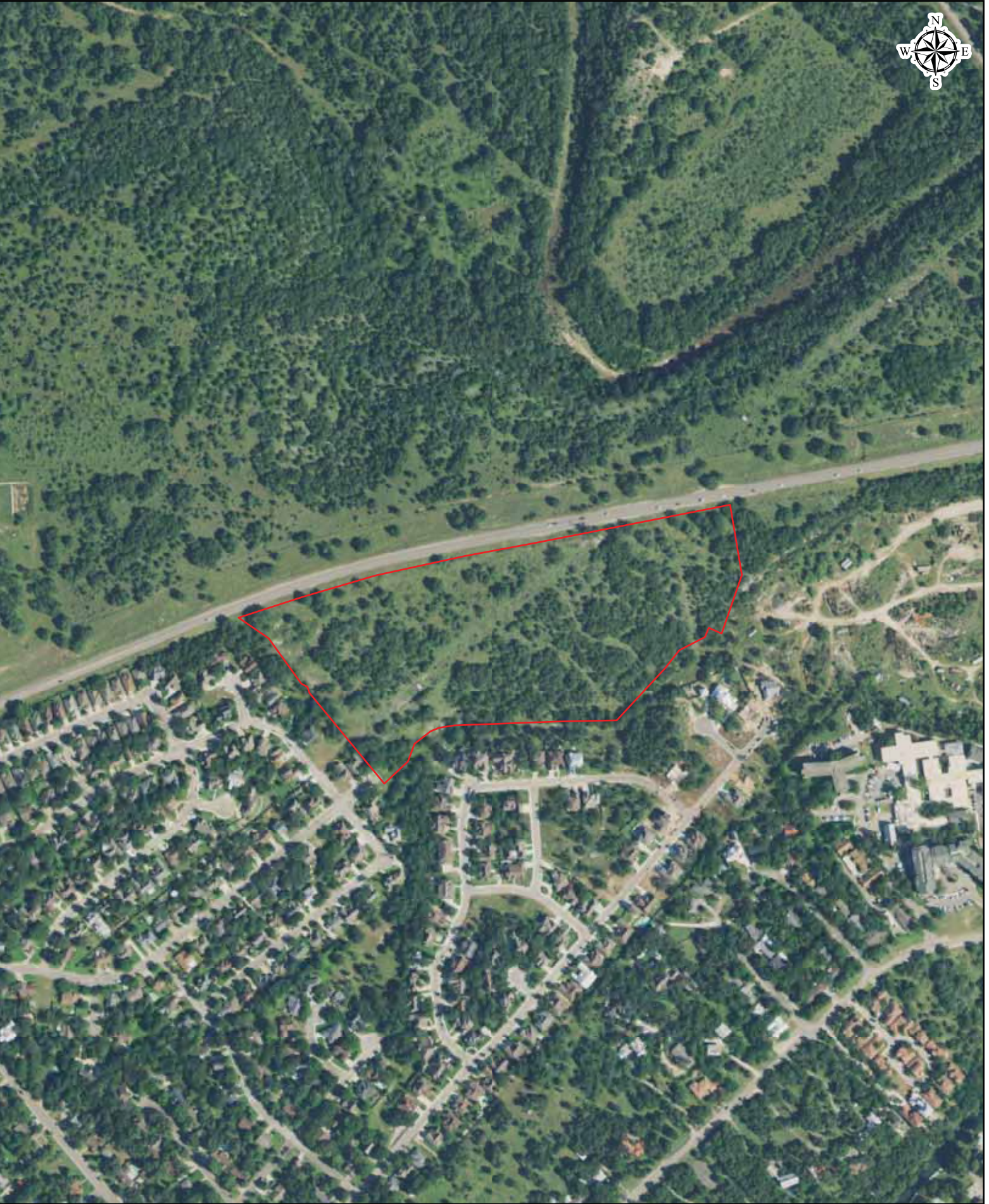
Historical
Aerial
Photographs

26.5-acre Loop 337 Tract
New , TX
Comal County
PO #: 22-22-105
ES-139725
Thursday, May 12, 2022



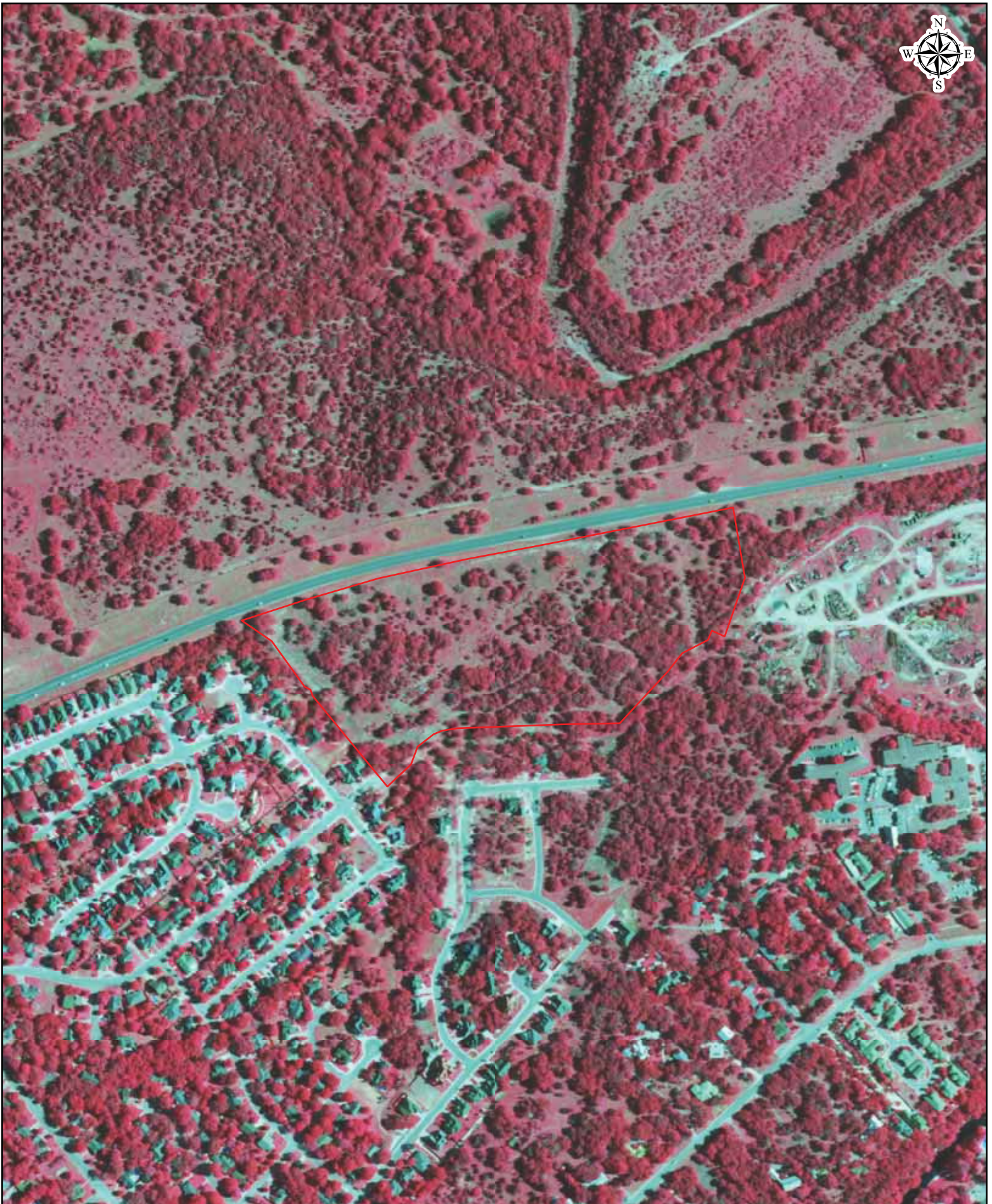
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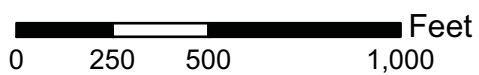


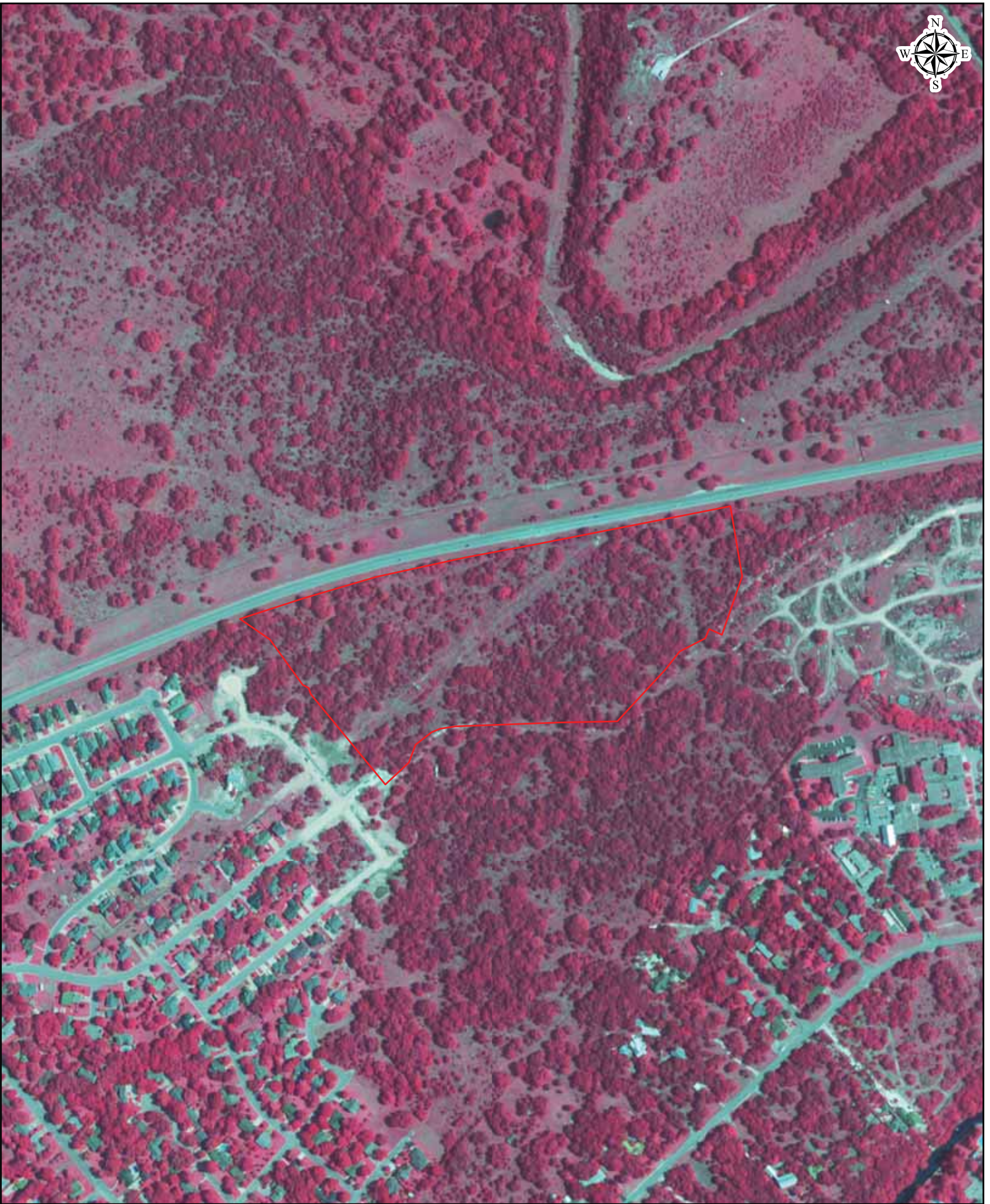
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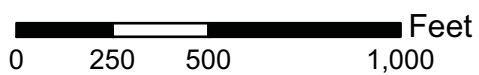


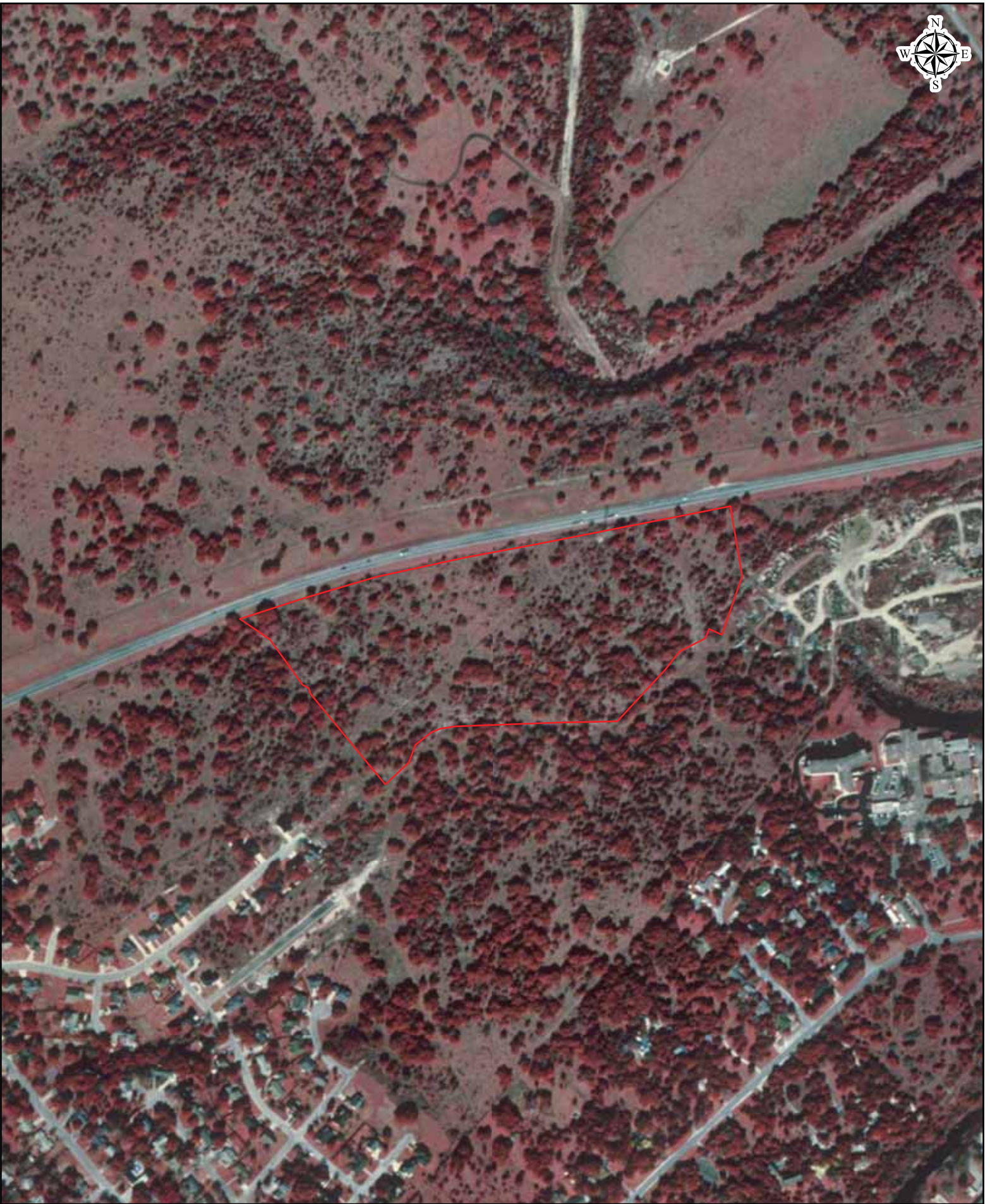
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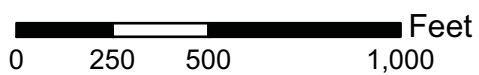


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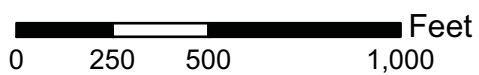


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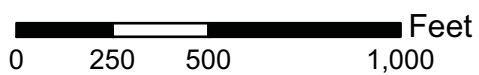


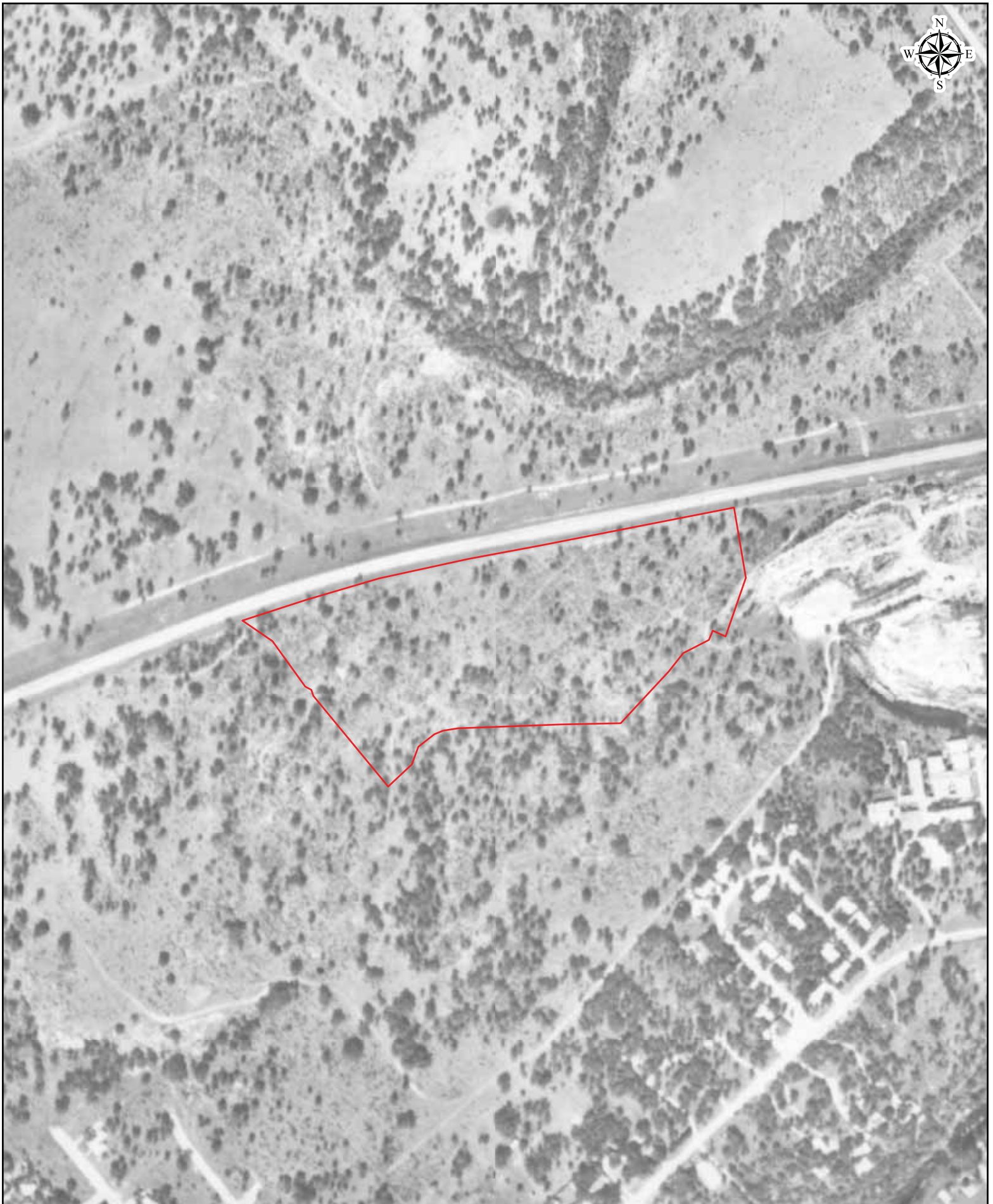
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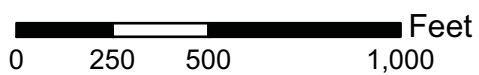


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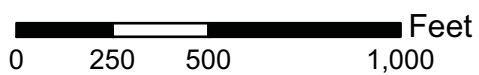


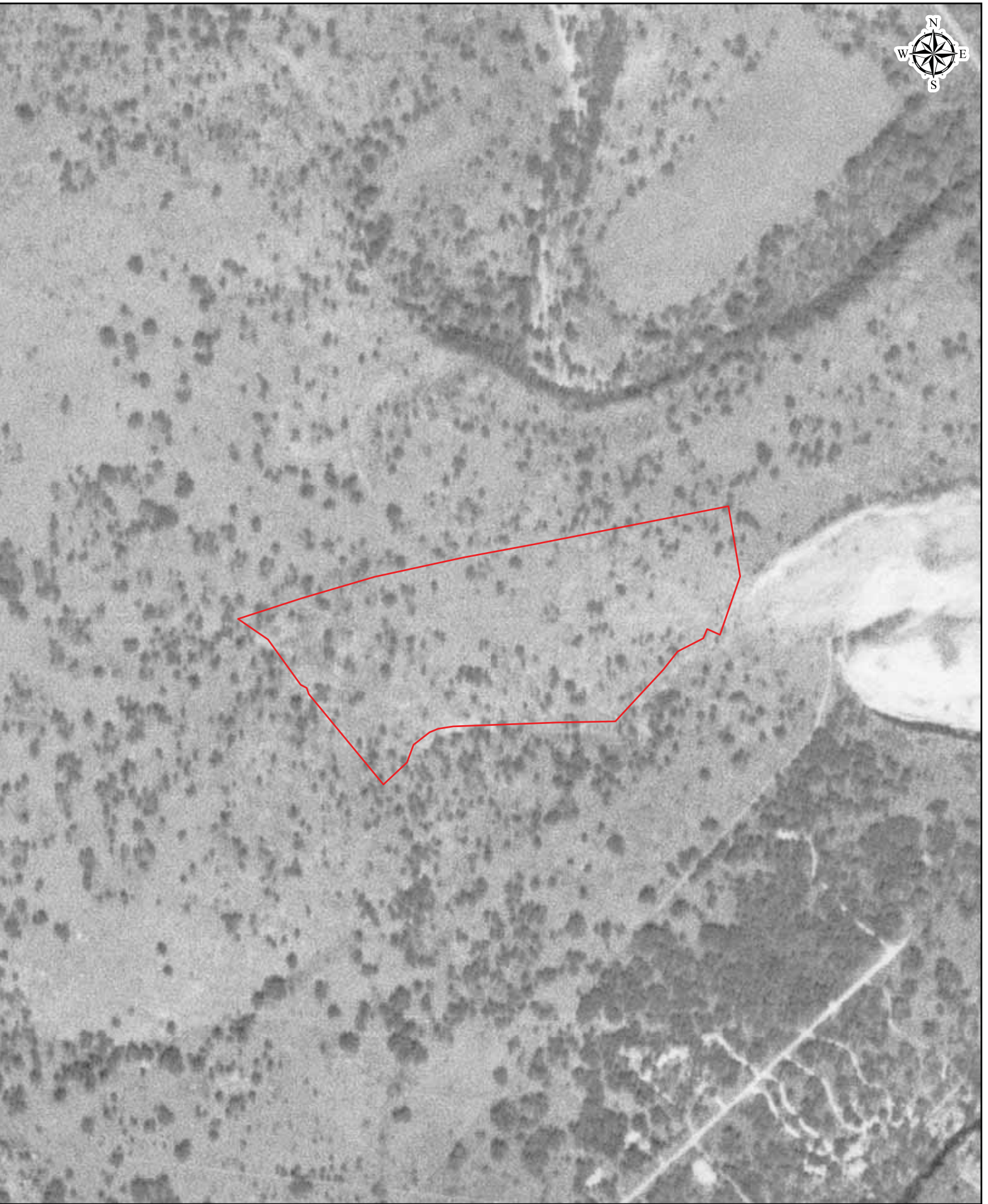
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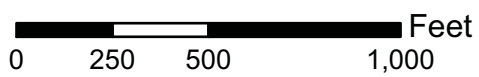


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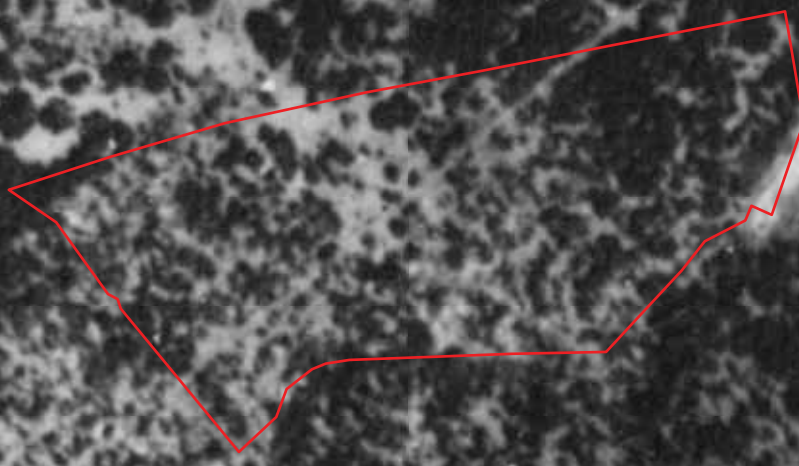


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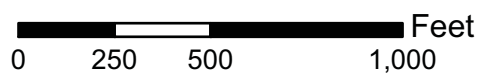




BQU-4R



Date: 1938
Source: ASCS



HISTORICAL AERIAL PHOTOGRAPHS	
ES-139725	May 12, 2022



AERIAL SOURCE DEFINITIONS

Acronym	Agency
NASA	National Aeronautics & Space Administration
AMS	Army Mapping Service
ASCS	Agricultural Stabilization & Conservation Service
SCS	Soil Conservation Service
USBR	United States Bureau of Reclamation
Fairchild	Fairchild Aerial Surveys
TXDOT	Texas Department of Transportation
BLM	Bureau of Land Management
USAF	United States Air Force
USCOE	United States Corps of Engineers
USDA	United States Department of Agriculture
USGS	United States Geological Survey
WALLACE	Wallace-Zingery Aerial Surveys
TNRIS	Texas Natural Resources Information System

HISTORICAL AERIAL PHOTOGRAPHS	
ES-139725	May 12, 2022



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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: James Ingalls, P.E.

Date: 9-20-23

Signature of Customer/Agent:



Regulated Entity Name: Lyndon Ranch

Regulated Entity Information

1. The type of project is:

- Residential: Number of Lots: _____
- Residential: Number of Living Unit Equivalents: 303 Units = 152 LUE's
- Commercial
- Industrial
- Other: _____

2. Total site acreage (size of property): 28.13

3. Estimated projected population: 456

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	140,230	÷ 43,560 =	3.22
Parking	214,418	÷ 43,560 =	4.92
Other paved surfaces	32,088	÷ 43,560 =	0.74
Total Impervious Cover	386,736	÷ 43,560 =	8.88

Total Impervious Cover 8.88 ÷ Total Acreage 28.13 X 100 = 31.57% 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 = _____ Ft² ÷ 43,560 Ft²/Acre = _____ acres.

10. Length of pavement area: _____ feet.

Width of pavement area: _____ feet.

L x W = _____ Ft² ÷ 43,560 Ft²/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:

<u>100</u> % Domestic	<u>31,920</u> Gallons/day
<u> </u> % Industrial	<u> </u> Gallons/day
<u> </u> % Commingled	<u> </u> Gallons/day
TOTAL gallons/day <u>31,920</u>	

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 SCS Modification approved on 7/12/2023

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 New Gruene (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" = 100 '.

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 Firmette 48091C0435F effective 9/2/2009

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 0 (#) 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.

ATTACHMENT “A”
Factors Affecting Water Quality

The development will consist of 7 multifamily structures and an amenity center for the community, with associated parking. Total impervious cover for the site is 8.77 acres (31.18%). In order to minimize pollution from the site, a batch detention pond is proposed. Some pollution may occur due to automobile waste, cleaning chemicals, and improperly disposed of waste or litter from the residents, which may have an effect on surface water by sediments leaving the site after a rainfall event.

ATTACHMENT “B”
Volume and Character of Stormwater

The development of this site will not result in an increase of stormwater run-off. Stormwater from the buildings and parking will be collected in a storm drain system. Downstream from the storm drain system there is a detention pond that will mitigate the proposed flows to be below the pre-development conditions. *Table B.1* illustrates the summary of existing and proposed flows from the site.

Table B.1

Existing/Proposed Comparison Table			
	EXA	PRO A	
Storm Event	Q (CFS)	Q (CFS)	Delta Q (CFS)
2	51.05	39.74	-11.31
10	114.38	99.86	-14.52
25	164.48	147.36	-17.12
50	209.50	190.43	-19.07
100	261.19	240.45	-20.74

ATTACHMENT “C”
Suitability Letter from Authorized Agent

There is no proposed OSSF.

ATTACHMENT “D”
Exception to the Required Geologic Assessment

No exception will be requested.

ATTACHMENT “A”
Factors Affecting Water Quality

The development will consist of 7 multifamily structures and an amenity center for the community, with associated parking. Total impervious cover for the site is 8.88-acres (31.56%). To minimize pollution from the site, a batch detention pond is proposed onsite. To mitigate the TSS increase for the right turn lanes proposed in the right of way, vegetative filter strips will be utilized. Some pollution may occur due to automobile waste, cleaning chemicals, and improperly disposed of waste or litter from the residents, which may have an effect on surface water by sediments leaving the site after a rainfall event.

ATTACHMENT “B”
Volume and Character of Stormwater

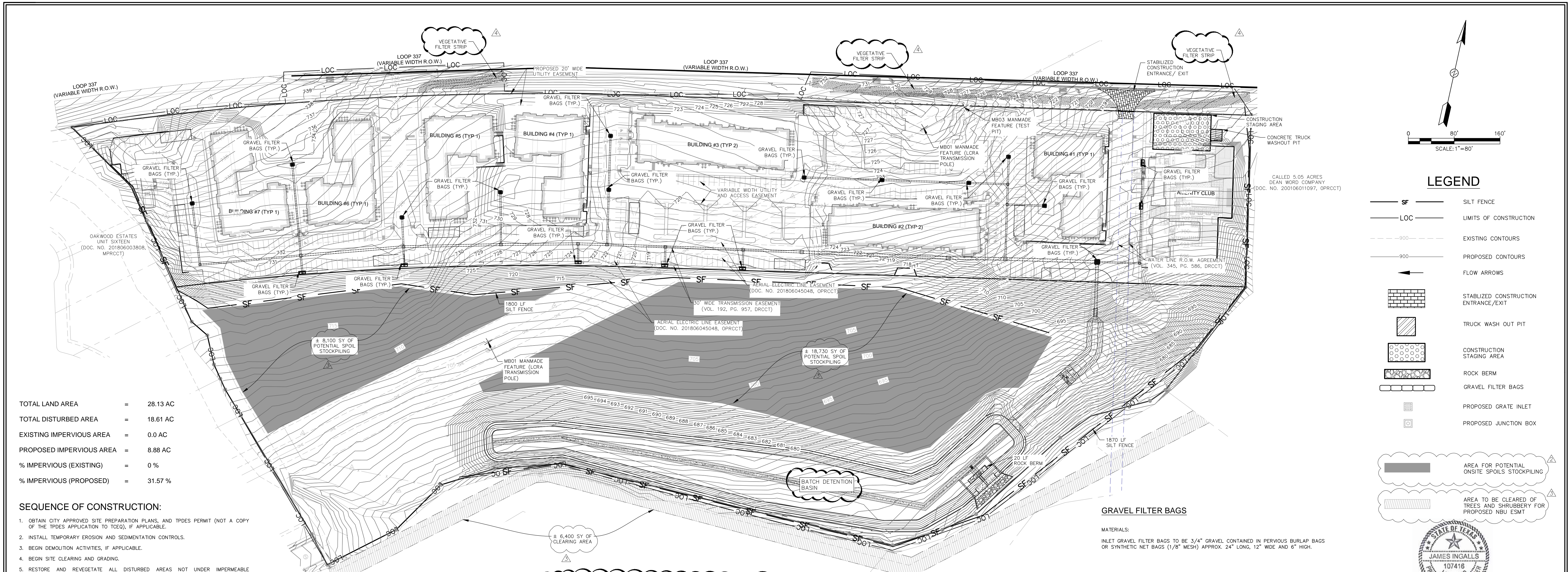
The development of this site will not result in an increase of stormwater run-off. Stormwater from the buildings and parking will be collected in a storm drain system. Downstream from the storm drain system there is a detention pond that will mitigate the proposed flows to be below the pre-development conditions.

ATTACHMENT “C”
Suitability Letter from Authorized Agent

There is no proposed OSSF.

ATTACHMENT “D”
Exception to the Required Geologic Assessment

No exception will be requested.



TOTAL LAND AREA = 28.13 AC
TOTAL DISTURBED AREA = 18.61 AC
EXISTING IMPERVIOUS AREA = 0.0 AC
PROPOSED IMPERVIOUS AREA = 8.88 AC
% IMPERVIOUS (EXISTING) = 0 %
% IMPERVIOUS (PROPOSED) = 31.57 %

- SEQUENCE OF CONSTRUCTION:**
- OBTAIN CITY APPROVED SITE PREPARATION PLANS, AND TPDES PERMIT (NOT A COPY OF THE TPDES APPLICATION TO TCEQ), IF APPLICABLE.
 - INSTALL TEMPORARY EROSION AND SEDIMENTATION CONTROLS.
 - BEGIN DEMOLITION ACTIVITIES, IF APPLICABLE.
 - BEGIN SITE CLEARING AND GRADING.
 - RESTORE AND REVEGETATE ALL DISTURBED AREAS NOT UNDER IMPERMEABLE IMPROVEMENTS.
 - COMPLETE ANY REMAINING "PUNCH LIST" ITEMS.
 - CONTRACTOR SHALL REMOVE TEMPORARY EROSION CONTROLS AFTER PERMANENT STABILIZATION IS AT LEAST 70% EVENLY ESTABLISHED. RYE IS NOT ACCEPTED. THE SITE WILL BE PERMANENTLY STABILIZED WHEN ALL IMPROVEMENTS ARE CONSTRUCTED PER THE DESIGN PLANS WHICH INCLUDES PAVEMENT, BUILDING, AND OTHER LANDSCAPE IMPROVEMENTS PER LANDSCAPE PLANS. ALL PERVIOUS SURFACES TO BE SOO OR OTHER PERVIOUS IMPROVEMENTS PER LANDSCAPE PLAN.

SOIL STABILIZATION NOTE
 PER TPDES REQUIREMENTS, DISTURBED AREAS ON WHICH CONSTRUCTION ACTIVITIES HAVE CEASED (TEMPORARILY OR PERMANENTLY) SHALL BE STABILIZED WITHIN 14 DAYS UNLESS ACTIVITY RESUMES WITHIN 21 DAYS. SEEDING DOES NOT CONSTITUTE AS STABILIZATION.
 SUBSTANTIAL GRADING IS PROPOSED WITH THIS UNIT. PER THE NEW BRAUNFELS DRAINAGE AND EROSION CONTROL DESIGN MANUAL SEC. 13.2(N), STRIPPING OF VEGETATION FROM PROJECT SITES SHALL BE PHASED SO AS TO EXPOSE THE MINIMUM AMOUNT OF AREA TO SOIL EROSION FOR THE SHORTEST POSSIBLE TIME.

CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES 48 HOURS PRIOR TO EXCAVATION:

New Braunfels Utilities	830-629-8400
Spectrum Cable	830-625-3408
Centerpoint Gas	830-643-6434
Robert Sanders	830-643-6903
Hammages Line	888-876-5786
AT&T Telephony	830-303-1333
Erick White PM	210-283-1706
Scott McBrearty (Construction)	210-658-4886
Texas One Call	830-545-6005

C.P.E. LOCATOR
 CALL CENTER POINT ENERGY LOCATOR AT 1-800-545-6005, 48HRS BEFORE BEGINNING ANY EXCAVATION. DUE TO FEDERAL REGULATIONS TITLE 49, PART 192.181, CENTER POINT ENERGY MUST MAINTAIN GAS VALVES AT ALL TIMES. THE CONTRACTOR MUST PROTECT AND WORK AROUND ANY GAS VALVES THAT ARE IN THE PROJECT AREA.

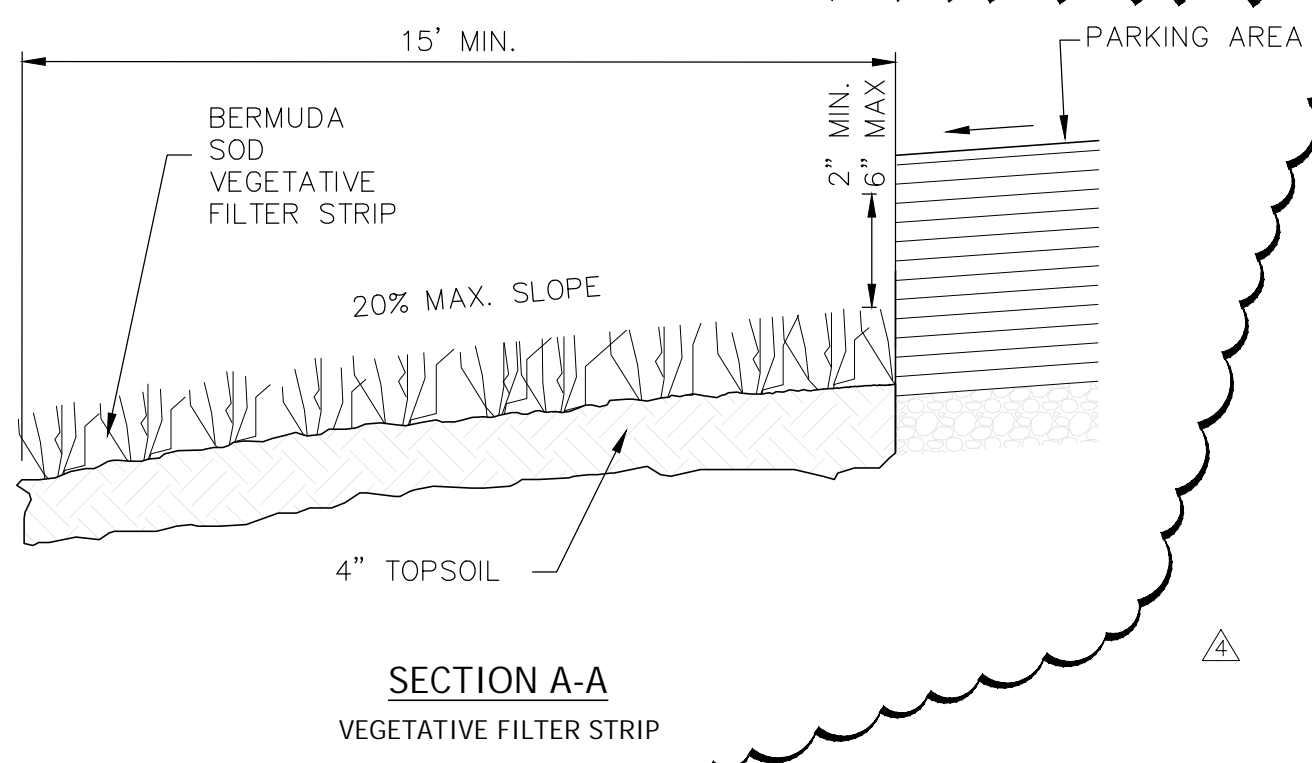
TELEPHONE LOCATOR
 THE EXISTENCE AND LOCATION OF UNDERGROUND CABLE INDICATED ON THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. CONTRACTOR TO CONTACT THE TELEPHONE COMPANY CABLE LOCATOR 48HRS PRIOR TO EXCAVATION AT 1-800-545-6005. CONTRACTOR HAS THE RESPONSIBILITY TO PROTECT AND SUPPORT TELEPHONE COMPANY DURING CONSTRUCTION.

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

THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE LOCATION 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.

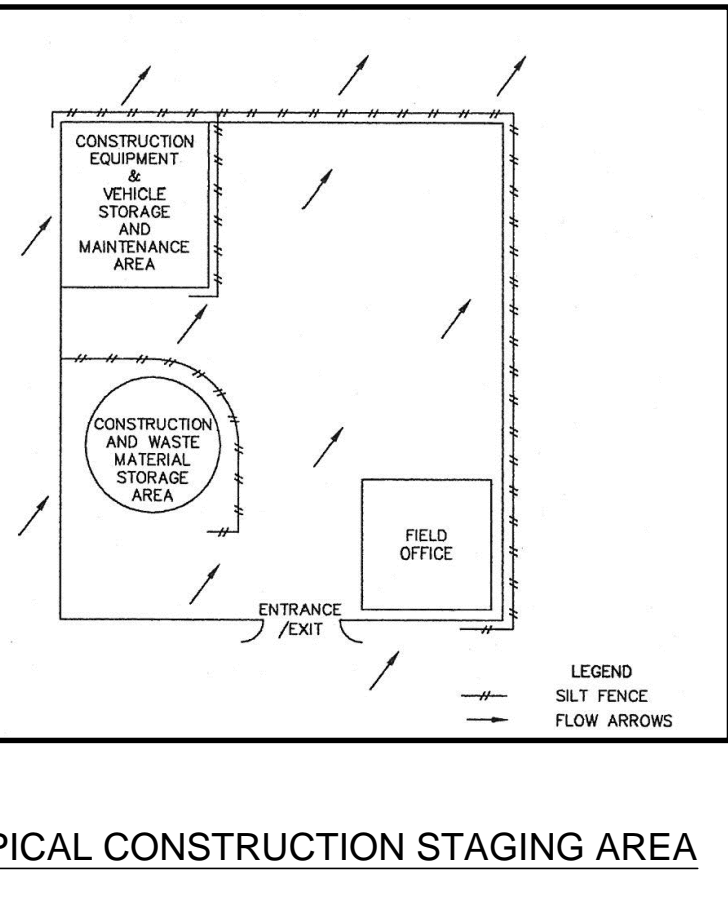
VEGETATIVE FILTER STRIP MAINTENANCE:

- PEST MANAGEMENT:** AN INTEGRATED PEST MANAGEMENT (IPM) PLAN SHOULD BE DEVELOPED FOR VEGETATED AREAS. THIS PLAN SHOULD SPECIFY HOW PROBLEM INSECTS AND WEEDS WILL BE CONTROLLED WITH MINIMAL TO NO USE OF INSECTICIDES AND HERBICIDES.
- SEASONAL MOWING AND LAWN CARE:** IF THE FILTER STRIP IS MADE UP OF TURF GRASS, IT SHOULD BE MOWED AS NEEDED TO LIMIT VEGETATION HEIGHT TO 18 INCHES, USING A MULCHING MOWER (OR REMOVAL OF CLIPPINGS). IF NATIVE GRASSES ARE USED, THE FILTER MAY REQUIRE LESS FREQUENT MOWING, BUT A MINIMUM OF TWICE ANNUALLY. GRASS CLIPPINGS AND BRUSH DEBRIS SHOULD NOT BE DEPOSITED ON VEGETATED FILTER STRIP AREAS. REGULAR MOWING SHOULD ALSO INCLUDE WEED CONTROL PRACTICES, HOWEVER HERBICIDE USE SHOULD BE KEPT TO A MINIMUM (URBONAS ET AL, 1992). HEALTHY GRASS CAN BE MAINTAINED WITHOUT USING FERTILIZERS BECAUSE RUNOFF USUALLY CONTAINS SUFFICIENT NUTRIENTS. IRRIGATION OF THE SITE CAN HELP ASSURE A DENSE AND HEALTHY VEGETATIVE COVER.
- INSPECTION:** INSPECT FILTER STRIPS AT LEAST TWICE ANNUALLY FOR EROSION OR DAMAGE TO VEGETATION; HOWEVER, ADDITIONAL INSPECTION AFTER PERIODS OF HEAVY RUNOFF IS MOST DESIRABLE. THE STRIP SHOULD BE CHECKED FOR UNIFORMITY OF GRASS COVER, DEBRIS AND LITTER, AND AREAS OF SEDIMENT ACCUMULATION. MORE FREQUENT INSPECTIONS OF THE GRASS COVER DURING THE FIRST FEW YEARS AFTER ESTABLISHMENT WILL HELP TO DETERMINE IF ANY PROBLEMS ARE DEVELOPING, AND TO PLAN FOR LONG-TERM RESTORATIVE MAINTENANCE NEEDS. BARE SPOTS AND AREAS OF EROSION IDENTIFIED DURING SEMI-ANNUAL INSPECTIONS MUST BE REPLANTED AND RESTORED TO MEET SPECIFICATIONS. CONSTRUCTION OF A LEVEL SPREADER DEVICE MAY BE NECESSARY TO REESTABLISH SHALLOW OVERLAND FLOW.
- DEBRIS AND LITTER REMOVAL:** TRASH TENDS TO ACCUMULATE IN VEGETATED AREAS, PARTICULARLY ALONG HIGHWAYS. ANY FILTER STRIP STRUCTURES (I.E. LEVEL SPREADERS) SHOULD BE KEPT FREE OF OBSTRUCTIONS TO REDUCE FLOATABLES BEING FLUSHED DOWNSTREAM, AND FOR AESTHETIC REASONS, THE NEED FOR THIS PRACTICE IS DETERMINED THROUGH PERIODIC INSPECTION, BUT SHOULD BE PERFORMED NO LESS THAN 4 TIMES PER YEAR.
- SEDIMENT REMOVAL:** SEDIMENT REMOVAL IS NOT NORMALLY REQUIRED IN FILTER STRIPS, SINCE THE VEGETATION NORMALLY GROWS THROUGH IT AND BINDS TO THE SOIL. HOWEVER, SEDIMENT MAY ACCUMULATE ALONG THE UPSTREAM BOUNDARY OF THE STRIP PREVENTING UNIFORM OVERLAND FLOW. EXCESS SEDIMENT SHOULD BE REMOVED BY HAND OR WITH FLAT-BOTTOMED SHOVELS.
- GRASS RESEEDING AND MULCHING:** A HEALTHY DENSE GRASS SHOULD BE MAINTAINED ON THE FILTER STRIP. IF AREAS ARE ERODED, THEY SHOULD BE FILLED, COMPACTED, AND RESEEDED SO THAT THE FINAL GRADE IS LEVEL. GRASS DAMAGED DURING THE SEDIMENT REMOVAL PROCESS SHOULD BE PROMPTLY REPLACED USING THE SAME SEED MIX USED DURING FILTER STRIP ESTABLISHMENT. IF POSSIBLE, FLOW SHOULD BE DIVERTED FROM THE DAMAGED AREAS UNTIL THE GRASS IS FIRMLY ESTABLISHED. BARE SPOTS AND AREAS OF EROSION IDENTIFIED DURING SEMI-ANNUAL INSPECTIONS MUST BE REPLANTED AND RESTORED TO MEET SPECIFICATIONS. CORRECTIVE MAINTENANCE, SUCH AS WEEDING OR REPLANTING SHOULD BE DONE MORE FREQUENTLY IN THE FIRST TWO TO THREE YEARS AFTER INSTALLATION TO ENSURE STABILIZATION. DENSE VEGETATION MAY REQUIRE IRRIGATION IMMEDIATELY AFTER PLANTING, AND DURING PARTICULARLY DRY PERIODS, PARTICULARLY AS THE VEGETATION IS INITIALLY ESTABLISHED.



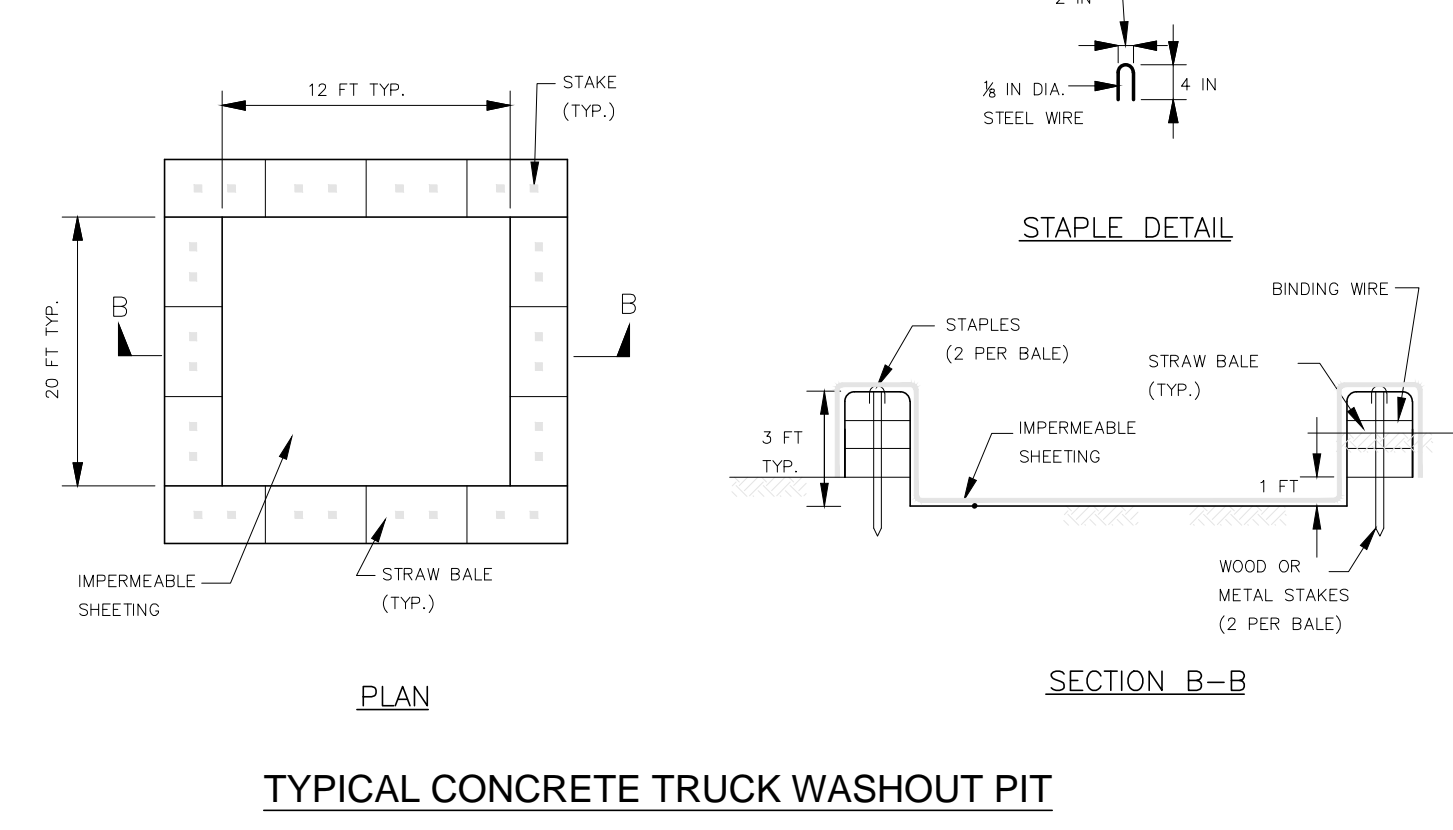
HYDRAULIC MULCH

MATERIALS:
 HYDRAULIC MULCHES: WOOD FIBER MULCH CAN BE APPLIED ALONE OR AS A COMPONENT OF HYDRAULIC MATRICES. WOOD FIBER APPLIED ALONE IS TYPICALLY APPLIED AT THE RATE OF 2,000 TO 4,000 LB/ACRE. WOOD FIBER MULCH IS MANUFACTURED FROM WOOD OR WOOD WASTE FROM LUMBER MILLS OR FROM URBAN SOURCES.
 HYDRAULIC MATRICES: HYDRAULIC MATRICES INCLUDE A MIXTURE OF WOOD FIBER AND ACRYLIC POLYMER OR OTHER TACKIFIER AS BINDER. APPLIED AS A LIQUID SLURRY USING A HYDRAULIC APPLICATION MACHINE (I.E., HYDRO SEEDER) AT THE FOLLOWING MINIMUM RATES, OR AS SPECIFIED BY THE MANUFACTURER TO ACHIEVE COMPLETE COVERAGE OF THE TARGET AREA: 2,000 TO 4,000 LB/ACRE WOOD FIBER MULCH, AND 5 TO 10% (BY WEIGHT) OF TACKIFIER (ACRYLIC COPOLYMER, GUAR, PSYLLIUM, ETC.)
 BONDED FIBER MATRIX: BONDED FIBER MATRIX (BFM) IS A HYDRAULICALLY APPLIED SYSTEM OF FIBERS AND ADHESIVES THAT UPON DRYING FORMS AN EROSION RESISTANT BLANKET THAT PROMOTES VEGETATION, AND PREVENTS SOIL EROSION. BFMS ARE TYPICALLY APPLIED AT RATES FROM 3,000 LB/ACRE TO 4,000 LB/ACRE BASED ON THE MANUFACTURER'S RECOMMENDATION. A BIODEGRADABLE BFM IS COMPOSED OF MATERIALS THAT ARE 100% BIODEGRADABLE. THE BINDER IN THE BFM SHOULD ALSO BE BIODEGRADABLE AND SHOULD NOT DISSOLVE OR DISPERSE UPON RE-WETTING. TYPICALLY, BIODEGRADABLE BFMS SHOULD NOT BE APPLIED IMMEDIATELY BEFORE, DURING OR IMMEDIATELY AFTER RAINFALL IF THE SOIL IS SATURATED. DEPENDING ON THE PRODUCT, BFMS TYPICALLY REQUIRE 12 TO 24 HOURS TO DRY AND BECOME EFFECTIVE.
INSTALLATION:
 1. PRIOR TO APPLICATION, ROUGHEN EMBANKMENT AND FILL AREAS BY ROLLING WITH A CRIMPING OR PUNCHING TYPE ROLLER OR BY TRACK WALKING. TRACK WALKING SHALL ONLY BE USED WHERE OTHER METHODS ARE IMPRACTICAL.
 2. TO BE EFFECTIVE, HYDRAULIC MATRICES REQUIRE 24 HOURS TO DRY BEFORE RAINFALL OCCURS.
 3. AVOID MULCH OVER SPRAY ONTO ROADS, SIDEWALKS, DRAINAGE CHANNELS, EXISTING VEGETATION, ETC.
 4. 4\"/>



GRAVEL FILTER BAGS

MATERIALS:
 INLET GRAVEL FILTER BAGS TO BE 3/4\"/>



- EROSION CONTROL NOTES:**
- LIMITS OF CONSTRUCTION AND OTHER EROSION CONTROL IMPROVEMENTS SHOWN OUTSIDE THE PROPERTY ARE SHOWN FOR GRAPHICAL PURPOSE ONLY. IF NEAR PROPERTY LINE, THE INTENT IS TO BE PLACED NEAR THE PROPERTY LINE, NOT ON THE ADJACENT PROPERTY.
 - DO NOT DISTURB VEGETATED AREAS (TREES, GRASS, WEEDS, BRUSH, ETC.) ANY MORE THAN NECESSARY FOR CONSTRUCTION.
 - CONSTRUCTION ENTRANCE/EXIT LOCATION, CONCRETE WASH-OUT PIT, AND CONSTRUCTION EQUIPMENT AND MATERIAL STORAGE YARD TO BE DETERMINED IN THE FIELD.
 - STORM WATER POLLUTION PREVENTION CONTROLS MAY NEED TO BE MODIFIED IN THE FIELD TO ACCOMPLISH THE DESIRED EFFECT. ALL MODIFICATIONS ARE TO BE NOTED IN THE SWPPP DOCUMENTS AND SIGNED AND DATED BY THE RESPONSIBLE PARTY.
 - RESTRICT ENTRY/EXIT TO THE PROJECT SITE TO DESIGNATED LOCATIONS BY USE OF ADEQUATE FENCING, IF NECESSARY.
 - ALL STORM WATER POLLUTION PREVENTION CONTROLS ARE TO BE MAINTAINED AND IN WORKING CONDITIONS AT ALL TIMES.
 - STORM WATER POLLUTION PREVENTION STRUCTURES SHOULD BE CONSTRUCTED WITHIN THE SITE BOUNDARIES. SOME OF THESE FEATURES MAY BE SHOWN OUTSIDE THE SITE BOUNDARIES ON THIS PLAN FOR VISUAL CLARITY.
 - AS SOON AS PRACTICAL, ALL DISTURBED SOIL THAT WILL NOT BE COVERED BY IMPERVIOUS COVER SUCH AS PARKWAY AREAS, EASEMENT AREAS, EMBANKMENT SLOPES, ETC. WILL BE STABILIZED PER APPLICABLE PROJECT SPECIFICATIONS.
 - BEST MANAGEMENT PRACTICES MAY BE INSTALLED IN STAGES TO COINCIDE WITH THE DISTURBANCE OF UP-GRADE AREAS.
 - BEST MANAGEMENT PRACTICES MAY BE REMOVED IN STAGES ONCE THE WATERSHED FOR THAT PORTION CONTROLLED BY THE BEST MANAGEMENT PRACTICES HAS BEEN STABILIZED IN ACCORDANCE WITH TPDES REQUIREMENTS.
 - UPON COMPLETION OF THE PROJECT, INCLUDING SITE STABILIZATION, AND BEFORE FINAL PAYMENT IS ISSUED, CONTRACTOR SHALL REMOVE ALL SEDIMENT AND EROSION CONTROL MEASURES, PAYING SPECIAL ATTENTION TO ROCK BERMS IN DRAINAGE FEATURES.
 - STRIPPING OF VEGETATION FROM PROJECT SITES SHALL BE PHASED SO AS TO EXPOSE THE MINIMUM AMOUNT OF AREA TO SOIL EROSION FOR THE SHORTEST POSSIBLE PERIOD OF TIME PER THE NEW BRAUNFELS DRAINAGE AND EROSION CONTROL DESIGN MANUAL SEC. 12.2(N).

LEGEND

— SF —	SILT FENCE
— LOC —	LIMITS OF CONSTRUCTION
— 900 —	EXISTING CONTOURS
— 900 —	PROPOSED CONTOURS
→	FLOW ARROWS
[Symbol]	STABILIZED CONSTRUCTION ENTRANCE/EXIT
[Symbol]	TRUCK WASH OUT PIT
[Symbol]	CONSTRUCTION STAGING AREA
[Symbol]	ROCK BERM
[Symbol]	GRAVEL FILTER BAGS
[Symbol]	PROPOSED GRATE INLET
[Symbol]	PROPOSED JUNCTION BOX

[Symbol] AREA FOR POTENTIAL ONSITE SPOILS STOCKPILING
 [Symbol] AREA TO BE CLEARED OF TREES AND SHRUBBERY FOR PROPOSED NBU ESMT



PARAVEL CAPITAL
 1509 OLD W 38TH ST. #3
 AUSTIN TX, 78731

LYNDON RANCH

WPAP SITE PLAN

SHEET 47 OF 65

NO	DATE	ISSUES AND REVISIONS
Δ	8-11-2023	UPDATED PER COMB COMMENTS
Δ	9-26-2023	UPDATED PER NBU COMMENTS
Δ	10-05-2023	UPDATED WATER QUALITY BMP

2021 W SH46, STE 105
 NEW BRAUNFELS, TX, 78132
 PH: 830-358-7127 ink-civil.com
 TBPE FIRM F-13351

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: James Ingalls, P.E.

Date: 9-20-23

Signature of Customer/Agent:



Regulated Entity Name: Lyndon Ranch

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: Comal/Guadalupe 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.

ATTACHMENT “A”
Spill Response Actions

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 spills 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, and 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 runoff 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 BMP's.

(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 BMP's 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: http://www.tnrcc.state.tx.us/enforcement/emergency_response.html

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 runoff 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 runoff 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.

ATTACHMENT “B”
Potential Sources of Contamination

The only potential sources of contamination are construction equipment leaks, re-fueling spills, port-o-lets, and the total suspended solids (TSS) due to the construction activities on-site. There are no other anticipated potential sources of contamination.

ATTACHMENT “C”
Sequence of Major Activities

Stages of Construction:

1. Installation of temporary BMP's.
2. Minor site grading: This includes the removal of organic material and other debris within the proposed site. Approximate total disturbed area = 18.61 acres.
3. Grading: Cutting and filling of the proposed site to prepare the site for parking and foundation construction. Approximate total disturbed area = 18.0 acres
4. Utility installation: All sewer and water mains and services will be installed.
5. Finished grading: Final landscaping, parking and building infrastructure are installed. Final fill and grading of the utility main trenches. Approximate total disturbed area = 8.7 acres.

ATTACHMENT “D”
Temporary BMP's and Measures

The following sequence will be followed for installing temporary BMP's:

1. Silt fence will be constructed on the downgradient side of proposed site.
2. A stabilized construction exit will be installed prior to any site work.

A. Silt Fence will be installed on the most downgradient side of the site and will reduce potential pollution from any stormwater that originates onsite or offsite. A stabilized construction exit will be constructed at the entrance of the site; this will reduce the amount of contaminants leaving the site.

B. Silt fence will be placed on the downgradient side of each proposed improvement to contain pollutants generated from onsite runoff. Disturbed areas will be seeded to replace destroyed vegetation. The existing vegetation located downgradient of each proposed improvement will work in conjunction with the silt fence and stabilized construction entrance to prevent pollution of water originating onsite and/or flowing offsite.

C. The proposed silt fences, and stabilized construction entrance constructed upgradient of the existing streams will prevent pollutants from entering them, as well as the aquifer.

D. The sensitive features identified in the geologic assessment are manmade and will not be affected.

ATTACHMENT “E”
Request to Temporarily Seal a Feature

There will be no request to temporarily seal a geologic feature.

ATTACHMENT “F”
Structural Practices

Stabilized Construction Entrance/Exit, rock gabions, and silt fence will be used to protect disturbed soils and to prevent contamination from leaving the project site.

ATTACHMENT “G”
Drainage Area Map

See Drainage Area Map at the end of this section.

ATTACHMENT “H”
Temporary Sediment Pond Plans and Calculations

No sediment ponds will be constructed, other TBMP’s are used for protection.

ATTACHMENT “I”
Inspection and Maintenance for BMP’s

Inspection and Maintenance Plan: The contractor is required to inspect the control and fences at weekly intervals and after any rainfall events to ensure that they are functioning properly. The contractor is required to document any changes on the Site Plan, documentation must include person performing task, task performed, and date. The contractor must also document if proper inspection measures have been taken while making changes. The person(s) responsible for maintenance controls and fences shall immediately make any necessary repairs to damaged areas.

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

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

Silt Fence: Remove sediment when buildup reaches 6 inches. Replace any torn fabric or install a second line of fencing parallel to the torn section. Replace or repair any sections crushed or collapsed in the course of construction activity. If a section of fence is obstructing vehicular access, consider relocating it to a spot where it will provide equal protection, but will not obstruct vehicles. A triangular filter dike may be preferable to a silt fence at common vehicle access points. When construction is complete, the sediment should be disposed of in a manner that will not cause additional siltation and the prior location of the silt fence should be revegetated. The fence itself should be disposed of in an approved landfill.

TCEQ staff will be allowed full access to the property during construction of the project for inspecting controls and fences and to verify that the accepted plan is being utilized in the field. TCEQ staff has the right to speak with the contractor to verify plan changes and modifications.

Documentation: All scheduled inspection and maintenance measures made to the temporary BMPs must be documented clearly on the WPAP Site Plan showing inspection/maintenance measures performed, date, and person responsible for inspection and maintenance. Any changes made to the location or type of controls shown on the accepted plans, due to onsite conditions, shall be documented on the site plan that is part of this Water Pollution Abatement Plan. No other changes shall be made unless approved by TCEQ and the Design Engineer. Documentation shall clearly show changes made, date, person responsible for the change, and the reason for the change.

Owner's Information:

Owner: PARAVEL NEW BRAUNFELS I, LP
Contact: Curtis Thigpen
Address: 1509 Old W 38th St, Ste. 3
Austin, Texas 78731

Design Engineer:

Company: INK Civil
Contact: James Ingalls, P.E.
Phone: (830) 358-7127
Address: 2021 SH 46W, Ste. 105
New Braunfels, Texas 78132

Person or Firm Responsible for Erosion/Sedimentation Control Maintenance:

Company: _____
Contact: _____
Phone: _____
Address: _____

Signature of Responsible Party: _____

This portion of the form shall be filled out and signed by the responsible party prior to construction.

ATTACHMENT “J”
Schedule of Interim and Permanent Soil Stabilization Practices

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. Areas which are disturbed by construction staging and storage areas will be hydro mulched with the appropriate seed mixture. Areas between the edge of pavement and property line will also be hydro mulched. There will be no fill slopes exceeding a 3:1 slope, and all fill slopes will be hydro mulched. Installation and acceptable mixtures of hydro mulch are as follows:

Materials:

Hydraulic Mulches: Wood fiber mulch can be applied alone or as a component of hydraulic matrices. Wood fiber applied alone is typically applied at the rate of 2,000 to 4,000 lb/acre. Wood fiber mulch is manufactured from wood or wood waste from lumber mills or from urban sources.

Hydraulic Matrices: Hydraulic matrices include a mixture of wood fiber and acrylic polymer or other tackifier as binder. Apply as a liquid slurry using a hydraulic application machine (i.e., hydro seeder) at the following minimum rates, or as specified by the manufacturer to achieve complete coverage of the target area: 2,000 to 4,000 lb/acre wood fiber mulch, and 5 to 10% (by weight) of tackifier (acrylic copolymer, guar, psyllium, etc.)

Bonded Fiber Matrix: Bonded fiber matrix (BFM) is a hydraulically applied system of fibers and adhesives that upon drying forms an erosion resistant blanket that promotes vegetation, and prevents soil erosion. BFMs are typically applied at rates from 3,000 lb/acre to 4,000 lb/acre based on the manufacturer’s recommendation. A biodegradable BFM is composed of materials that are 100% biodegradable. The binder in the BFM should also be biodegradable and should not dissolve or disperse upon re-wetting. Typically, biodegradable BFMs should not be applied immediately before, during or immediately after rainfall if the soil is saturated. Depending on the product, BFMs typically require 12 to 24 hours to dry and become effective.

Seed Mixtures:

Dates	Climate	Species	(lb/ac.)
Sept. 1 to Nov. 30	Temporary Cool Season	Tall Fescue	4.0
		Oats	21.0
		Wheats	30.0
		Total	55.0
Sept. 1 to Nov. 30	Cool Season Legume	Hairy Vetch	8.0
May 1 to Aug. 31	Temporary Warm Season	Foxtail Millet	30.0

Fertilizer: Fertilizer should be applied at the rate of 40 pounds of nitrogen and 40 pounds of phosphorus per acre, which is equivalent to about 1.0 pounds of nitrogen and phosphorus per 1000 square feet.

Installation:

- (1) Prior to application, roughen embankment and fill areas by rolling with a crimping or punching type roller or by track walking. Track walking shall only be used where other methods are impractical.
- (2) To be effective, hydraulic matrices require 24 hours to dry before rainfall occurs.
- (3) Avoid mulch over spray onto roads, sidewalks, drainage channels, existing vegetation, etc.

Texas Commission on Environmental Quality
TSS Removal Calculations 04-20-2009

Project Name: **Lyndon Ranch**
Date Prepared: **11/16/2023**

1. The Required Load Reduction for the total project.

Calculations from RG-348

Page 3-29 Equation 3.3: $L_{R} = 27.2(A_{i} \times P)$
where:
 L_{R} = Required TSS removal resulting from the proposed development = 80% of increased load
 A_{i} = 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 = **Comal**
Total project area included in plan = **26.13** acres
Predevelopment impervious area within the limits of the plan = **0.00** acres
Total post-development impervious area within the limits of the plan = **8.38** acres
Total post-development impervious cover fraction = **0.32**
 P = **33** inches

L_{R} = **7971** lbs.
Number of drainage basins / outfalls areas leaving the plan area = **2**

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

Drainage Basin/Outfall Area No. = **A**
Total drainage basin/outfall area = **22.50** acres
Predevelopment impervious area within drainage basin/outfall area = **0.00** acres
Post-development impervious area within drainage basin/outfall area = **6.65** acres
Post-development impervious fraction within drainage basin/outfall area = **0.38**
 L_{R} = **7754** lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = **Batch Detention**
Removal efficiency = **91** percent

4. Calculate Maximum TSS Load Removed (L_{R}) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7: $L_{R} = (BMP \text{ efficiency}) \times P \times (A_{i} \times 34.6 + A_{u} \times 0.54)$

where:
 A_{i} = Total On-Site drainage area in the BMP catchment area
 A_{u} = Impervious area proposed in the BMP catchment area
 A_{u} = Impervious area remaining in the BMP catchment area
 L_{R} = TSS Load removed from this catchment area by the proposed BMP

A_{i} = **22.50** acres
 A_{u} = **0.00** acres
 A_{u} = **13.85** acres
 L_{R} = **9212** lbs

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

Desired L_{R} = **8411** lbs.
 F = **0.91**

6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area.

Rainfall Depth = **1.80** inches
Post Development Runoff Coefficient = **0.39**
On-site Water Quality Volume = **44922** cubic feet

Calculations from RG-348

Pages 3-36 to 3-37

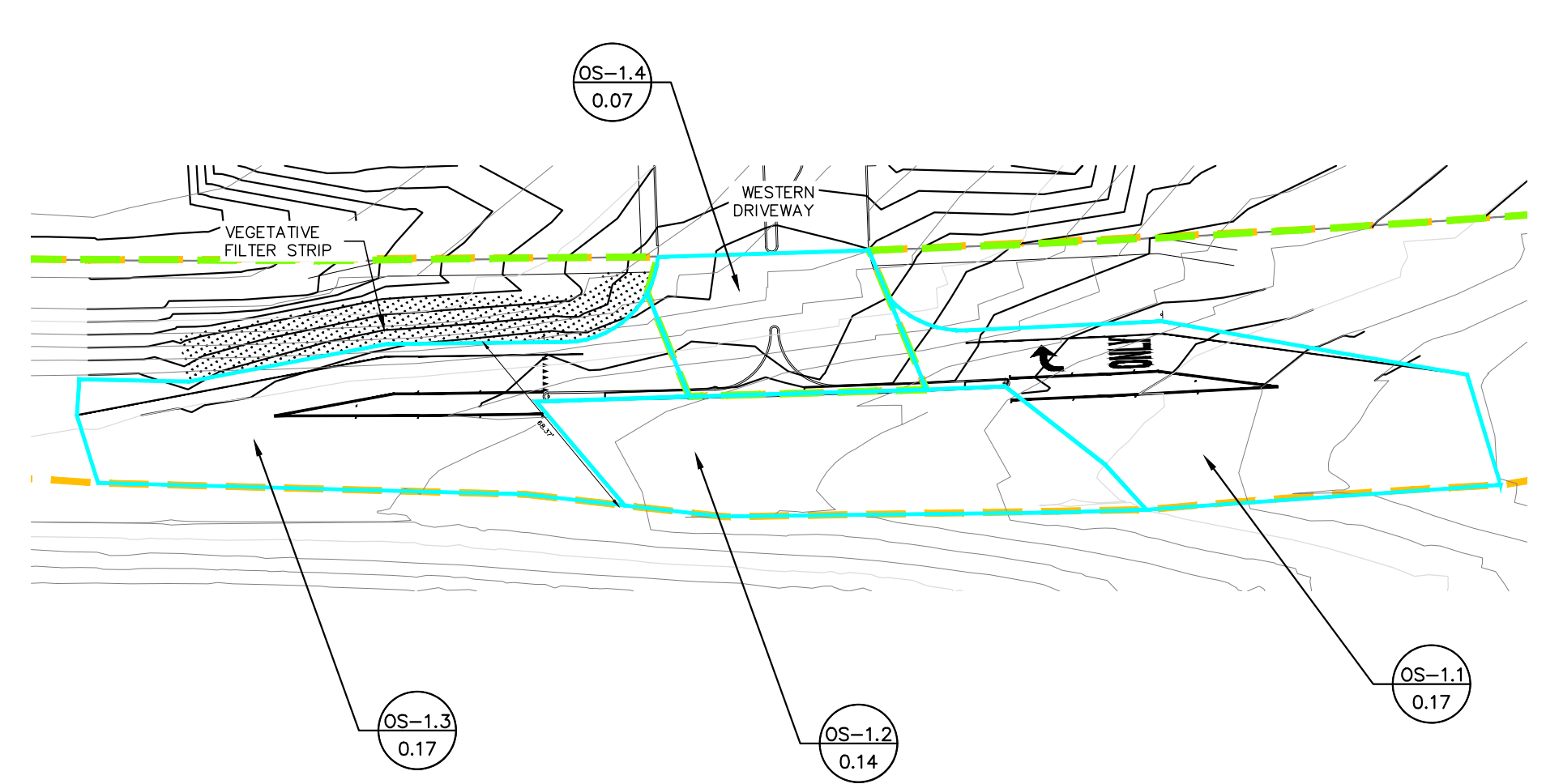
Off-site area draining to BMP = **2.33** acres
Off-site impervious cover draining to BMP = **1.15** acres
Impervious fraction of off-site area = **0.49**
Off-site Runoff Coefficient = **0.39**
Off-site Water Quality Volume = **5389** cubic feet

Storage for Sediment = **882** cubic feet
Total Capture Volume (required water quality volume) $\times 1.25$ = **59293** cubic feet

8. Batch Detention Basin System

Designed as Required in RG-348 Addendum Sheet Section 3.4.16
Required Water Quality Volume for batch detention basin = **59293** cubic feet

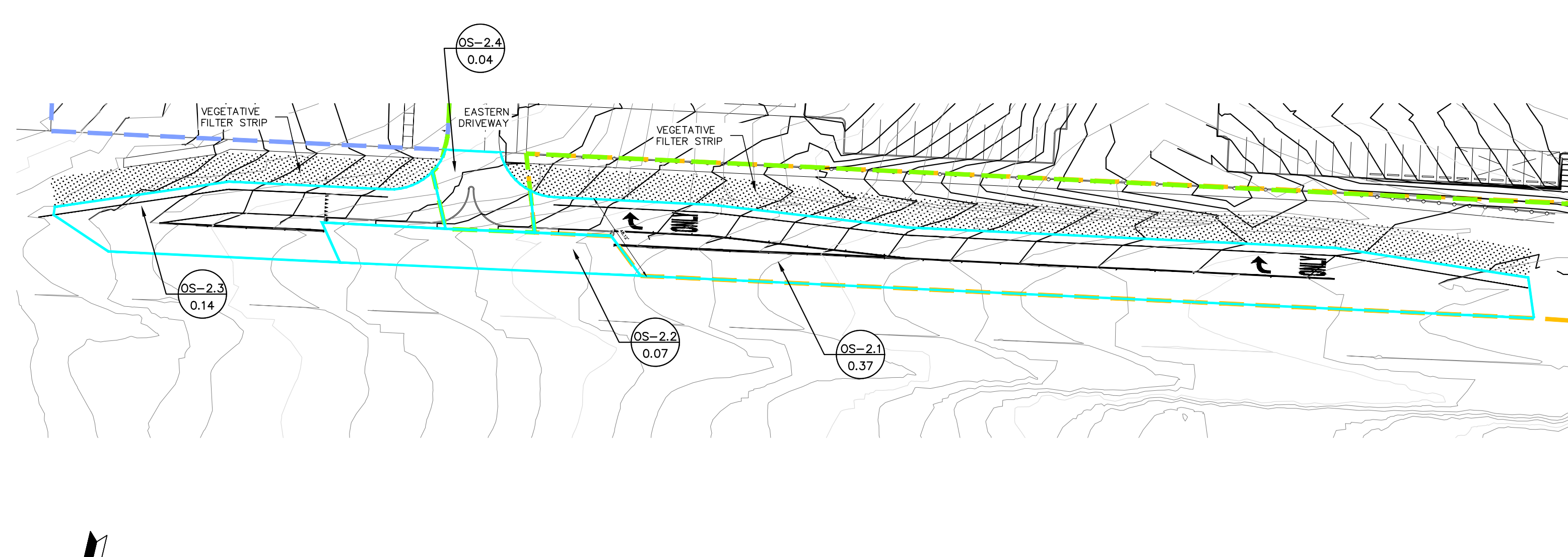
WATER QUALITY VOLUME PROVIDED: 96,549 CF



WESTERN DRIVEWAY				
DRAINAGE AREA	ACREAGE	EXISTING IMPERVIOUS COVER (AC)	PROPOSED IMPERVIOUS COVER (AC)	BMP
OS-1.1	0.17	0.14	0.17	ON-SITE BMP
OS-1.2	0.14	0.14	0.14	ON-SITE BMP
OS-1.3	0.17	0.13	0.17	ROADSIDE VFS
OS-1.4	0.07	0.0	0.07	ON-SITE BMP

ON-SITE BMP WILL ACCOUNT FOR 0.38-ACRES OF IMPERVIOUS COVER FROM LOOP 337 ROW FROM THE WESTERN DRIVEWAY
REQUIRED LOAD REMOVAL ADDED TO DESIGN TSS REMOVAL

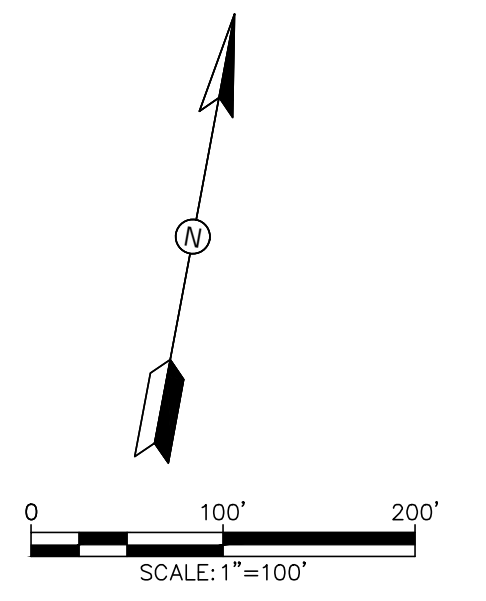
Drainage Basin/Outfall Area No. = OS-1.1,1.2,1.4		
Total drainage basin/outfall area =	0.38	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.38	acres
Post-development impervious fraction within drainage basin/outfall area =	1.00	
L_{R} THIS BASIN =	341	lbs.



EASTERN DRIVEWAY				
DRAINAGE AREA	ACREAGE	EXISTING IMPERVIOUS COVER (AC)	PROPOSED IMPERVIOUS COVER (AC)	BMP
OS-2.1	0.37	0.21	0.37	ROADSIDE VFS
OS-2.2	0.07	0.07	0.07	ON-SITE BMP
OS-2.3	0.14	0.10	0.14	ROADSIDE VFS
OS-2.4	0.04	0.0	0.04	ON-SITE BMP

ON-SITE BMP WILL ACCOUNT FOR 0.11-ACRES OF IMPERVIOUS COVER FROM LOOP 337 ROW FROM THE WESTERN DRIVEWAY
REQUIRED LOAD REMOVAL ADDED TO DESIGN TSS REMOVAL

Drainage Basin/Outfall Area No. = OS-1.1,1.2,1.4		
Total drainage basin/outfall area =	0.11	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.11	acres
Post-development impervious fraction within drainage basin/outfall area =	1.00	
L_{R} THIS BASIN =	99	lbs.



LEGEND

- LIMITS OF DRAINAGE AREA
- LIMITS OF SUB-DRAINAGE AREA
- EXISTING CONTOURS
- PROPOSED CONTOURS
- PROPOSED STORMDRAIN
- DRAINAGE BASIN LABEL
- BASIN AREA (AC)



PARAVEL CAPITAL
1509 OLD W 38TH ST. #3
AUSTIN TX, 78731

LYNDON RANCH

TREATMENT AREA MAP

SHEET **EX** OF **EX**

NO	DATE	ISSUES AND REVISIONS



2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
PH: 830-358-7127 ink-civil.com
TBPE FIRM F-13351

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: James Ingalls, P.E.

Date: 9-20-23

Signature of Customer/Agent



Regulated Entity Name: Lyndon Ranch

Permanent Best Management Practices (BMPs)

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

- Permanent BMPs and measures must be implemented to control the discharge of pollution from regulated activities after the completion of construction.
 N/A
- 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

ATTACHMENT “A”
20% or Less Impervious Cover Waiver

The 20% Impervious Cover Waiver does not apply. Permanent BMP’s will be designed in accordance with TCEQ requirements for the removal of TSS generated by the proposed development.

ATTACHMENT “B”
BMP’s for Upgradient Stormwater

There is a small amount of upgradient stormwater from Loop 337 that flows across the site. This is captured in the on-site storm drain system where it is accounted for in the sizing of the batch detention basin.

ATTACHMENT “C”
BMP’s for On-Site Stormwater

The permanent BMP used to treat on-site stormwater runoff will be a batch detention basin. Please refer to the Treatment Area Map in the Temporary Stormwater Section for areas of treatment and TSS calculations used.

ATTACHMENT “D”
BMP’s for Surface Streams

No surface streams are in proximity to the site. All stormwater runoff flows into small tributaries where it eventually continues to the Comal/Guadalupe River. Pollution control from the batch detention basin should minimize contaminants from leaving the site with stormwater runoff.

ATTACHMENT “E”
Request to Seal Feature

N/A. There is no request to seal sensitive features on site.

ATTACHMENT “F”
Construction Plans

See the construction plans attached at the end of this section.

ATTACHMENT “G”
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.

Attachment "G"

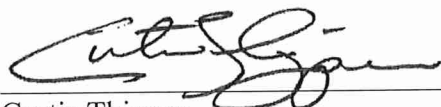
Maintenance Plan for Batch Detention Basin

BMP Location: The batch detention basin will be located inside the footprint of the detention pond along the southern property line.

Owner: Paravel New Braunfels I, LP
1509 Old W 38th St. #3
Austin, TX 78731

Contact: Curtis Thigpen
Phone: (512)-934-8923

The batch detention basin maintenance and monitoring procedures will be implemented to ensure that the proposed BMP functions as designed.

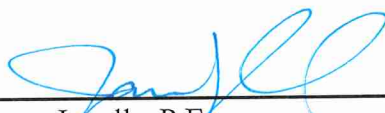


Curtis Thigpen
Paravel New Braunfels I, LP

09/19/2023

Date

I have reviewed the attached maintenance and monitoring procedures and to the best of my knowledge certify that, if they are followed as outlined, the BMP will function as designed.



James Ingalls, P.E.

DETENTION POND NOTES
CONSTRUCTION SPECIFICATION - TOP SOIL

1. VEGETATION OF POND BOTTOM - THE WORK CONSISTS OF PLACEMENT OF TOP SOIL ON NEW EARTH EMBANKMENTS, OTHER EARTHILLS, AND EARTH BACKFILLS REQUIRED BY THE DRAWINGS.
2. MATERIAL - THE TOPSOIL SHALL BE FERTILE SOIL, CONSISTING PRIMARILY OF CLAY AND CLAYEY MATERIALS WITH A PLASTICITY INDEX GREATER THAN 15, AND SHALL BE FREE OF LARGE ORGANIC OR ROCK MATERIAL.
3. APPLICATION - TOPSOIL SHALL BE PLACED AT GRADES INDICATED ON THE PLANS AND ROLLED TO REDUCE EROSION. PERIODIC INSPECTION ARE REQUIRED AND ADDITIONAL TOPSOIL ADDED AS REQUIRED UNTIL VEGETATION HAS ESTABLISHED.

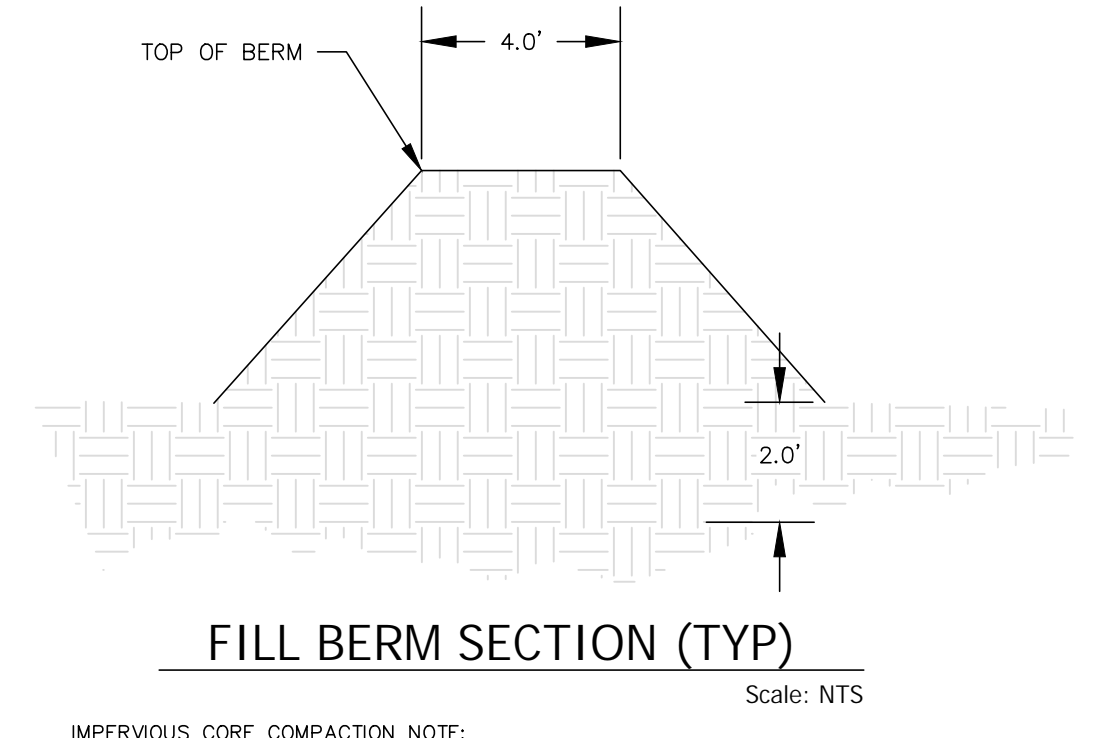
CONSTRUCTION SPECIFICATION - VEGETATION

1. VEGETATION OF EMBANKMENT - THE WORK CONSISTS OF ESTABLISHING VEGETATION ON NEW EARTH EMBANKMENTS, OTHER EARTHILLS, AND EARTH BACKFILLS REQUIRED BY THE DRAWINGS.
2. MATERIAL - VEGETATION SHALL CONSIST OF "NATIVE SUN TURF GRASS" AS SUPPLIED BY NATIVE AMERICAN SEED IN JUNCTION, TX, CONSISTING OF 34% BLUE GRAMA AND 64% BUFFALO GRASS, OR ENGINEER APPROVED EQUAL. SEED MIXTURE SHALL CONSIST OF A PURE LIVE SEED OF 90-95%.
3. APPLICATION - THE SEED MIXTURE SHALL BE INSTALLED PER DISTRIBUTOR RECOMMENDATIONS AT A RATE OF 1 LB PER 400 SQFT. SEED MIXTURE SHALL BE WATERED AS REQUIRED UNTIL VEGETATION IS ESTABLISHED.

DRAINAGE INFRASTRUCTURE MAINTENANCE AND MONITORING GUIDELINES

DETENTION POND A WILL BE ACCESSED FROM RAMPS AS SHOWN.

- SEASONAL MOWING AND LAWN CARE - IF THE DETENTION POND IS MADE UP OF TURF GRASS, IT SHOULD BE MOWED AS NEEDED TO LIMIT VEGETATION HEIGHT TO 18 INCHES, USING A MULCHING MOWER (OR REMOVAL OF CLIPPINGS). IF NATIVE GRASSES ARE USED, THE POND MAY REQUIRE LESS FREQUENT MOWING, BUT A MINIMUM OF TWICE ANNUALLY. REGULAR MOWING SHOULD ALSO INCLUDE WEED CONTROL PRACTICES, HOWEVER HERBICIDE USE SHOULD BE KEPT TO A MINIMUM. HEALTHY GRASS CAN BE MAINTAINED WITHOUT USING FERTILIZERS BECAUSE RUNOFF USUALLY CONTAINS SUFFICIENT NUTRIENTS. IRRIGATION OF THE SITE CAN HELP ASSURE A DENSE AND HEALTHY VEGETATIVE COVER.
- INSPECTION - INSPECT DETENTION POND AT LEAST TWICE ANNUALLY FOR EROSION OR DAMAGE TO VEGETATION. HOWEVER, ADDITIONAL INSPECTION AFTER PERIODS OF HEAVY RUNOFF IS MOST DESIRABLE. MORE FREQUENT INSPECTIONS OF THE GRASS COVER DURING THE FIRST FEW YEARS AFTER ESTABLISHMENT WILL HELP TO DETERMINE IF ANY PROBLEMS ARE DEVELOPING, AND TO PLAN FOR LONG-TERM RESTORATIVE MAINTENANCE NEEDS. BARE SPOTS AND AREAS OF EROSION IDENTIFIED DURING SEM-ANNUAL INSPECTIONS MUST BE REPLANTED AND RESTORED TO MEET SPECIFICATIONS.
- DEBRIS AND LITTER REMOVAL - THE DETENTION POND SHOULD BE KEPT FREE OF OBSTRUCTIONS TO REDUCE FLOATABLES BEING FLOUSED DOWNSTREAM, AND FOR AESTHETIC REASONS. THE NEED FOR THIS PRACTICE IS DETERMINED THROUGH PERIODIC INSPECTION, BUT SHOULD BE PERFORMED NO LESS THAN 2 TIMES PER YEAR.
- SEDIMENT REMOVAL - SEDIMENT MAY ACCUMULATE WITHIN THE DETENTION POND, PREVENTING UNIFORM OVERLAND FLOW. SEE ATTACHED EXHIBIT FOR SEDIMENT MARKER LOCATION NEAR THE POND OUTFALL. SEDIMENT IS TO BE REMOVED WHEN THE ACCUMULATED OR AT LEAST EVERY 10 YEARS.



IMPERVIOUS CORE COMPACTION NOTE:
MATERIAL TO HAVE A PI OF 30 OR GREATER, MINIMUM COMPACTED DRY DENSITY OF 90% AND GROUND CONTENT NO MORE THAN 5% BY WEIGHT LARGER THAN NO.4 SIEVE.

DETENTION POND NOTES

EARTH FILL

1. SCOPE - THE WORK CONSISTS OF THE CONSTRUCTION OF EARTH EMBANKMENTS, OTHER EARTHILLS, AND EARTH BACKFILLS REQUIRED BY THE DRAWINGS AND SPECIFICATIONS. EARTH FILL IS COMPOSED OF NATURAL EARTH MATERIALS THAT CAN BE PLACED AND COMPACTED BY CONSTRUCTION EQUIPMENT OPERATED IN A CONVENTIONAL MANNER. EARTH BACKFILL IS COMPOSED OF NATURAL EARTH MATERIAL PLACED AND COMPACTED IN CONFINED SPACES OR ADJACENT TO STRUCTURES (INCLUDING PIPES) BY HAND TAMING, MANUALLY DIRECTED POWER TAMPERS OR VIBRATING PLATES, OR THEIR EQUIVALENT.
2. MATERIAL - FILL MATERIALS SHALL CONTAIN NO FROZEN SOIL, SOO, BRUSH, ROOTS, OR OTHER PERISHABLE MATERIAL. UNLESS OTHERWISE NOTED ON THE PLANS, ROCK PARTICLES LARGER THAN 6" SHALL BE REMOVED PRIOR TO COMPACTION OF THE FILL. THE TYPES OF MATERIAL USED IN THE VARIOUS FILLS SHALL BE AS LISTED AND DESCRIBED IN THE SPECIFICATIONS AND DRAWINGS.
3. FOUNDATION PREPARATION - FOUNDATIONS FOR EARTH FILL SHALL BE STRIPPED TO REMOVE VEGETATION AND OTHER UNSUITABLE MATERIAL OR SHALL BE EXCAVATED AS SPECIFIED. EXCEPT AS OTHERWISE SPECIFIED, EARTH FOUNDATION SURFACES SHALL BE GRADED TO REMOVE SURFACE IRREGULARITIES AND SHALL BE SCARIFIED PARALLEL TO THE AXIS OF THE FILL OR OTHERWISE ACCEPTABLY SCORED AND LOOSENED TO A MINIMUM DEPTH OF 2 INCHES. THE MOISTURE CONTENT OF THE LOOSENED MATERIAL SHALL BE CONTROLLED AS SPECIFIED FOR THE EARTH FILL, AND THE SURFACE MATERIAL OF THE FOUNDATION SHALL BE COMPACTED AND BONDED WITH THE FIRST LAYER OF EARTH FILL AS SPECIFIED OR SUBSEQUENT LAYERS OF EARTH FILL. EARTH ABUTMENT SURFACES SHALL BE FREE OF LOOSE, UNCOMPACTED EARTH IN EXCESS OF 2 INCHES IN DEPTH NORMAL TO THE SLOPE AND SHALL BE AT SUCH A MOISTURE CONTENT THAT THE EARTH FILL CAN BE COMPACTED AGAINST THEM TO PRODUCE A GOOD BOND BETWEEN THE FILL AND THE ABUTMENTS. ROCK FOUNDATION AND ABUTMENT SURFACES SHALL BE CLEARED OF ALL LOOSE MATERIAL BY HAND OR OTHER EFFECTIVE MEANS AND SHALL BE FREE OF STANDING WATER WHEN FILL IS PLACED UPON THEM. OCCASIONAL ROCK OUTCROPS IN EARTH FOUNDATIONS FOR EARTH FILL, EXCEPT IN DAMS AND OTHER STRUCTURES DESIGNED TO RESTRAIN THE MOVEMENT OF WATER, SHALL NOT REQUIRE SPECIAL TREATMENT IF THEY DO NOT INTERFERE WITH COMPACTION OF THE FOUNDATION AND INITIAL LAYERS OF THE FILL OR THE BOND BETWEEN THE FOUNDATION AND THE FILL. FOUNDATION AND ABUTMENT SURFACES SHALL BE NO STEEPER THAN ONE HORIZONTAL TO ONE VERTICAL UNLESS OTHERWISE SPECIFIED. TEST BITS OR OTHER CAVITIES SHALL BE FILLED WITH COMPACTED EARTH FILL CONFORMING TO THE SPECIFICATIONS FOR THE EARTH FILL TO BE PLACED UPON THE FOUNDATION.

4. PLACEMENT
EARTH FILL SHALL BE PLACED IN APPROXIMATELY HORIZONTAL LAYERS. THE THICKNESS OF EACH LAYER BEFORE COMPACTION SHALL NOT EXCEED THE MAXIMUM THICKNESS SPECIFIED AS SHOWN ON THE DRAWINGS. MATERIALS PLACED BY DUMPING IN PILES OR WINDOWS SHALL BE SPREAD UNIFORMLY TO NOT MORE THAN THE SPECIFIED THICKNESS BEFORE BEING COMPACTED. HAND COMPACTED EARTH BACKFILL SHALL BE PLACED IN LAYERS WHOSE THICKNESS BEFORE COMPACTION DOES NOT EXCEED THE MAXIMUM THICKNESS SPECIFIED FOR LAYERS OF EARTH BACKFILL COMPACTED BY MANUALLY DIRECTED POWER TAMPERS. EARTH BACKFILL SHALL BE PLACED IN A MANNER THAT PREVENTS DAMAGE TO THE STRUCTURES AND ALLOWS THE STRUCTURES TO ASSUME THE LOADS FROM THE EARTH BACKFILL GRADUALLY AND UNIFORMLY. THE HEIGHT OF THE EARTH BACKFILL ADJACENT TO A STRUCTURE SHALL BE INCREASED AT APPROXIMATELY THE SAME RATE ON ALL SIDES OF THE STRUCTURE. EARTH FILL AND EARTH BACKFILL IN DAMS, LEVEES, AND OTHER STRUCTURES DESIGNED TO RESTRAIN THE MOVEMENT OF WATER SHALL BE PLACED TO MEET THE FOLLOWING ADDITIONAL REQUIREMENTS:

- (a) THE DISTRIBUTION OF MATERIALS THROUGHOUT EACH ZONE SHALL BE ESSENTIALLY UNIFORM, AND THE EARTH FILL SHALL BE FREE FROM LENSES, POCKETS, STREAKS, OR LAYERS OF MATERIAL DIFFERING SUBSTANTIALLY IN TEXTURE, MOISTURE CONTENT, OR GRADATION FROM THE SURROUNDING MATERIAL. ZONE EARTHILLS SHALL BE CONSTRUCTED CONCURRENTLY UNLESS OTHERWISE SPECIFIED.
- (b) IF THE SURFACE OF ANY LAYER BECOMES TOO HARD AND SMOOTH FOR PROPER BOND WITH THE SUCCEEDING LAYER, IT SHALL BE SCARIFIED PARALLEL TO THE AXIS OF THE FILL TO A DEPTH OF NOT LESS THAN 2 INCHES BEFORE THE NEXT LAYER IS PLACED.
- (c) THE TOP SURFACE OF EMBANKMENTS SHALL BE MAINTAINED APPROXIMATELY LEVEL DURING CONSTRUCTION WITH TWO EXCEPTIONS: A CROWN OR CROSS-SLOPE OF ABOUT 2 PERCENT SHALL BE MAINTAINED TO ENSURE EFFECTIVE DRAINAGE, OR AS OTHERWISE SPECIFIED FOR DRAINFILL OR SECTIONAL ZONES.
- (d) DAM EMBANKMENTS SHALL BE CONSTRUCTED IN CONTINUOUS LAYERS FROM ABUTMENT TO ABUTMENT EXCEPT WHERE OPENINGS TO FACILITATE CONSTRUCTION OR TO ALLOW THE PASSAGE OF STREAM FLOW DURING CONSTRUCTION ARE SPECIFICALLY AUTHORIZED IN THE CONTRACT.
- (e) EMBANKMENTS BUILT AT DIFFERENT LEVELS AS DESCRIBED UNDER (C) OR (D) ABOVE SHALL BE CONSTRUCTED SO THAT THE SLOPE OF THE BONDING SURFACES BETWEEN EMBANKMENT IN PLACE AND EMBANKMENT TO BE PLACED IS NOT STEEPER THAN 3 FEET HORIZONTAL TO 1 FOOT VERTICAL. THE BONDING SURFACE OF THE EMBANKMENT IN PLACE SHALL BE STRIPPED OF ALL MATERIAL NOT MEETING THE REQUIREMENTS OF THIS SPECIFICATION AND SHALL BE SCARIFIED, MOISTENED, AND RECOMPACTED WHEN THE NEW EARTH FILL IS PLACED AGAINST IT. THIS ENSURES A GOOD BOND WITH THE NEW EARTH FILL AND OBTAINS THE SPECIFIED MOISTURE CONTENT AND DENSITY AT THE CONTACT OF THE INPLACE AND NEW EARTHILLS.
- (f) THE FILL MATERIAL SHALL BE FREE OF ORGANIC MATTER AND OTHER OBJECTIONABLE MATERIAL. PLACING AND SPREADING OF FILL SHALL BEGIN ON THE LOWEST PART OF THE WORKING AREA AND CONTINUE IN HORIZONTAL

LAYERS OF APPROXIMATE UNIFORM THICKNESS, NOT EXCEEDING 9 INCHES BEFORE COMPACTION. WHERE THE BORROW YIELDS MATERIALS OF VARYING TEXTURE AND GRADATION, THE MORE IMPERVIOUS MATERIAL SHALL BE PLACED TOWARD THE WATERSIDE OF THE BERM. THE CONSTRUCTION EQUIPMENT SHALL BE OPERATED OVER THE AREA OF EACH LAYER IN A MANNER TO BREAK UP LARGE CLODS AND OBTAIN COMPACTION.

5. CONTROL OF MOISTURE CONTENT
DURING PLACEMENT AND COMPACTION OF EARTH FILL AND EARTH BACKFILL, THE MOISTURE CONTENT OF THE MATERIAL BEING PLACED SHALL BE MAINTAINED WITHIN THE SPECIFIED RANGE. THE APPLICATION OF WATER TO THE EARTH FILL MATERIAL SHALL BE ACCOMPLISHED AT THE BORROW AREAS INsofar AS PRACTICABLE. WATER MAY BE APPLIED BY SPRINKLING THE MATERIAL AFTER PLACEMENT ON THE EARTH FILL, IF NECESSARY. UNIFORM MOISTURE DISTRIBUTION SHALL BE OBTAINED BY DISKING. MATERIAL THAT IS TOO WET WHEN DEPOSITED ON THE EARTH FILL SHALL EITHER BE REMOVED OR BE DRIED TO THE SPECIFIED MOISTURE CONTENT PRIOR TO COMPACTION. IF THE TOP SURFACE OF THE PRECEDING LAYER OF COMPACTED EARTH FILL OR A FOUNDATION OR ABUTMENT SURFACE IN THE ZONE OF CONTACT WITH THE EARTH FILL BECOMES TOO DRY TO PERMIT SUITABLE BOND, IT SHALL EITHER BE REMOVED OR SCARIFIED AND MOISTENED BY SPRINKLING TO AN ACCEPTABLE MOISTURE CONTENT BEFORE PLACEMENT OF THE NEXT LAYER OF EARTH FILL.

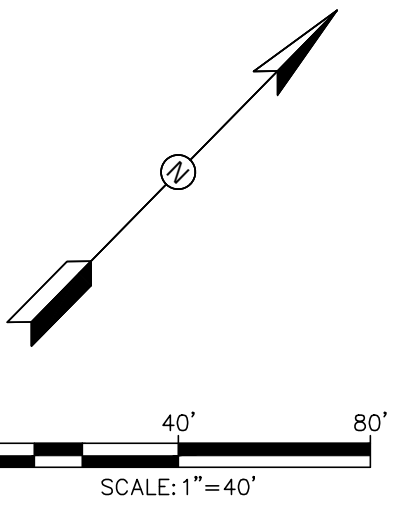
6. COMPACTION
EARTH FILL - EARTH FILL SHALL BE COMPACTED ACCORDING TO THE FOLLOWING REQUIREMENTS FOR THE CLASS OF COMPACTION SPECIFIED:

CLASS A COMPACTION - EACH LAYER OF EARTH FILL SHALL BE COMPACTED AS NECESSARY TO PROVIDE THE DENSITY OF THE EARTH FILL MATRIX NOT LESS THAN THE MINIMUM DENSITY SPECIFIED ON THE DRAWINGS. THE EARTH FILL MATRIX IS DEFINED AS THE PORTION OF THE EARTH FILL MATERIAL FINER THAN THE MAXIMUM PARTICLE SIZE USED IN THE COMPACTION TEST METHOD SPECIFIED.

7. REWORKING OR REMOVAL AND REPLACEMENT OF DEFECTIVE EARTH FILL
EARTH FILL PLACED AT DENSITIES LOWER THAN THE SPECIFIED MINIMUM DENSITY OR AT MOISTURE CONTENTS OUTSIDE THE SPECIFIED ACCEPTABLE RANGE OF MOISTURE CONTENT OR OTHERWISE NOT CONFORMING TO THE REQUIREMENTS OF THE SPECIFICATIONS SHALL BE REWORKED TO MEET THE REQUIREMENTS OR REMOVED AND REPLACED BY ACCEPTABLE EARTH FILL. THE REPLACEMENT EARTH FILL AND THE FOUNDATION, ABUTMENT, AND EARTH FILL SURFACES UPON WHICH IT IS PLACED SHALL CONFORM TO ALL REQUIREMENTS OF THIS SPECIFICATION FOR FOUNDATION PREPARATION, APPROVAL, PLACEMENT, MOISTURE CONTROL, AND COMPACTION.

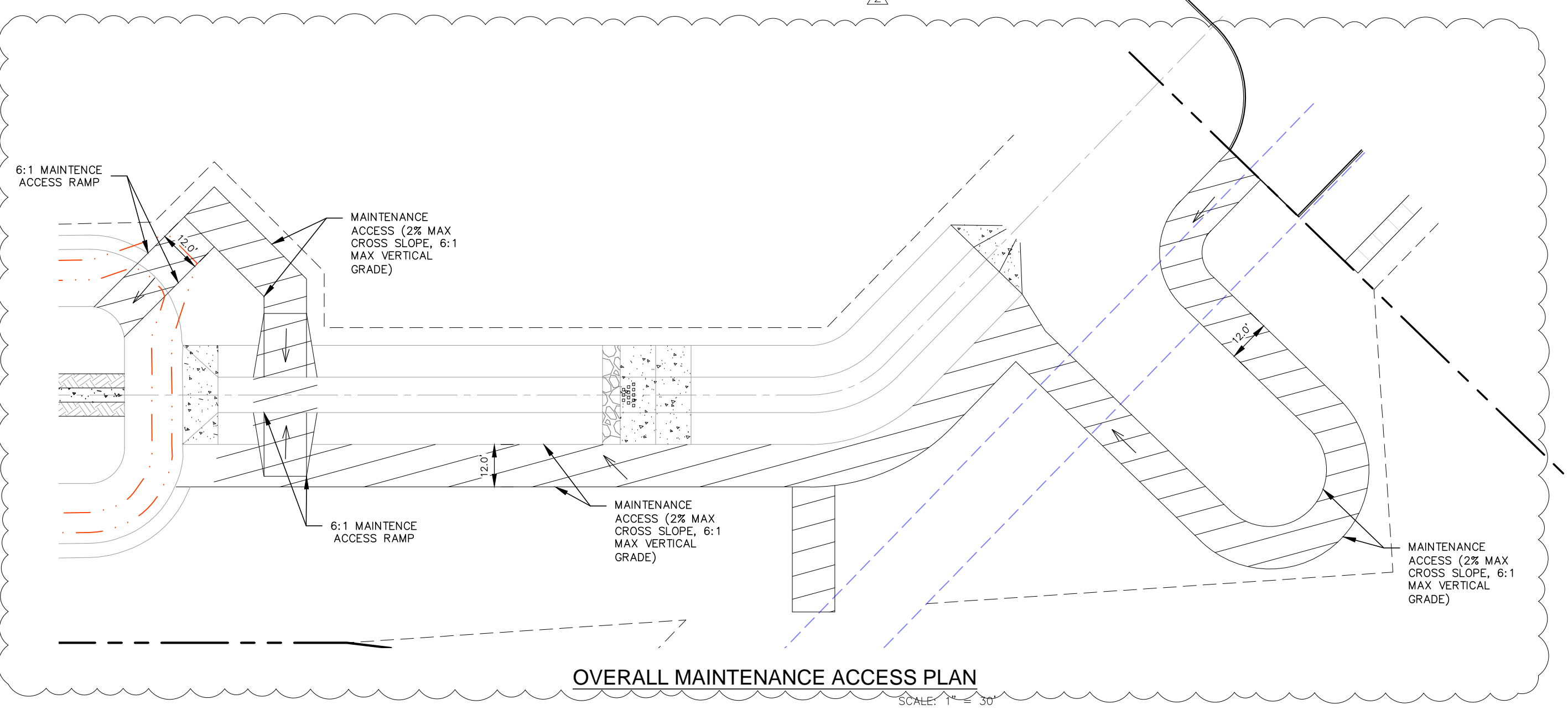
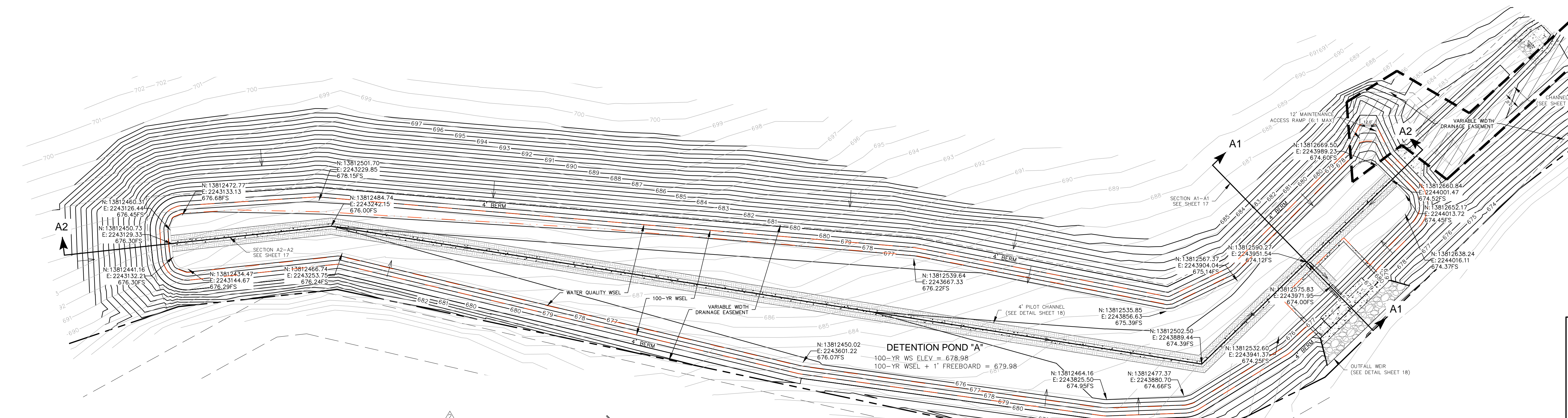
8. TESTING
DURING THE COURSE OF THE WORK, THE CONTRACTOR WILL PERFORM QUALITY CONTROL TESTS REQUIRED TO IDENTIFY MATERIAL, DETERMINE COMPACTION CHARACTERISTICS, DETERMINE MOISTURE CONTENT, AND DETERMINE DENSITY OF EARTH FILL IN PLACE. TESTS PERFORMED WILL BE SUBMITTED TO THE ENGINEER OF RECORD TO VERIFY THAT THE EARTHILLS CONFORM TO CONTRACT REQUIREMENTS OF THE SPECIFICATIONS.

DENSITIES OF EARTH FILL REQUIRING CLASS A COMPACTION WILL BE DETERMINED IN ACCORDANCE WITH ASTM D 698, D 1556, D 2167, D 2922, OR D 2937 EXCEPT THAT THE VOLUME AND MOIST WEIGHT OF INCLUDED ROCK PARTICLES LARGER THAN THOSE USED IN THE COMPACTION TEST METHOD SPECIFIED FOR THE TYPE OF FILL WILL BE DETERMINED AND DEDUCTED FROM THE VOLUME AND MOST WEIGHT OF THE TOTAL SAMPLE BEFORE COMPUTATION OF DENSITY OR, IF USING THE NUCLEAR GAUGE, ADDED TO THE SPECIFIED DENSITY TO BRING IT TO THE MEASURE OF EQUIVALENT COMPOSITION FOR COMPARISON (SEE ASTM D 4718). THE DENSITY SO COMPUTED IS USED TO DETERMINE THE PERCENT COMPACTION OF THE EARTH FILL MATRIX. UNLESS OTHERWISE SPECIFIED, MOISTURE CONTENT IS DETERMINED BY ONE OF THE FOLLOWING METHODS: ASTM D 2216, D 3017, D 4643, D 4844, OR D 4959.



LEGEND

- 900 ——— EXISTING CONTOUR
- 900 ——— PROPOSED CONTOUR
- ←—— DRAINAGE FLOW ARROW
- 100 YR WSEL



PARAVEL CAPITAL
1509 OLD W 38TH ST. #3
AUSTIN TX, 78731

LYNDON RANCH

**DETENTION POND
PLAN & NOTES**

SHEET **16** OF **65**

NO	DATE	ISSUES AND REVISIONS
Δ	8-11-2023	UPDATED PER CONB COMMENTS



2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
PH: 830-358-7127 ink-civil.com
TBPE FIRM F-13351

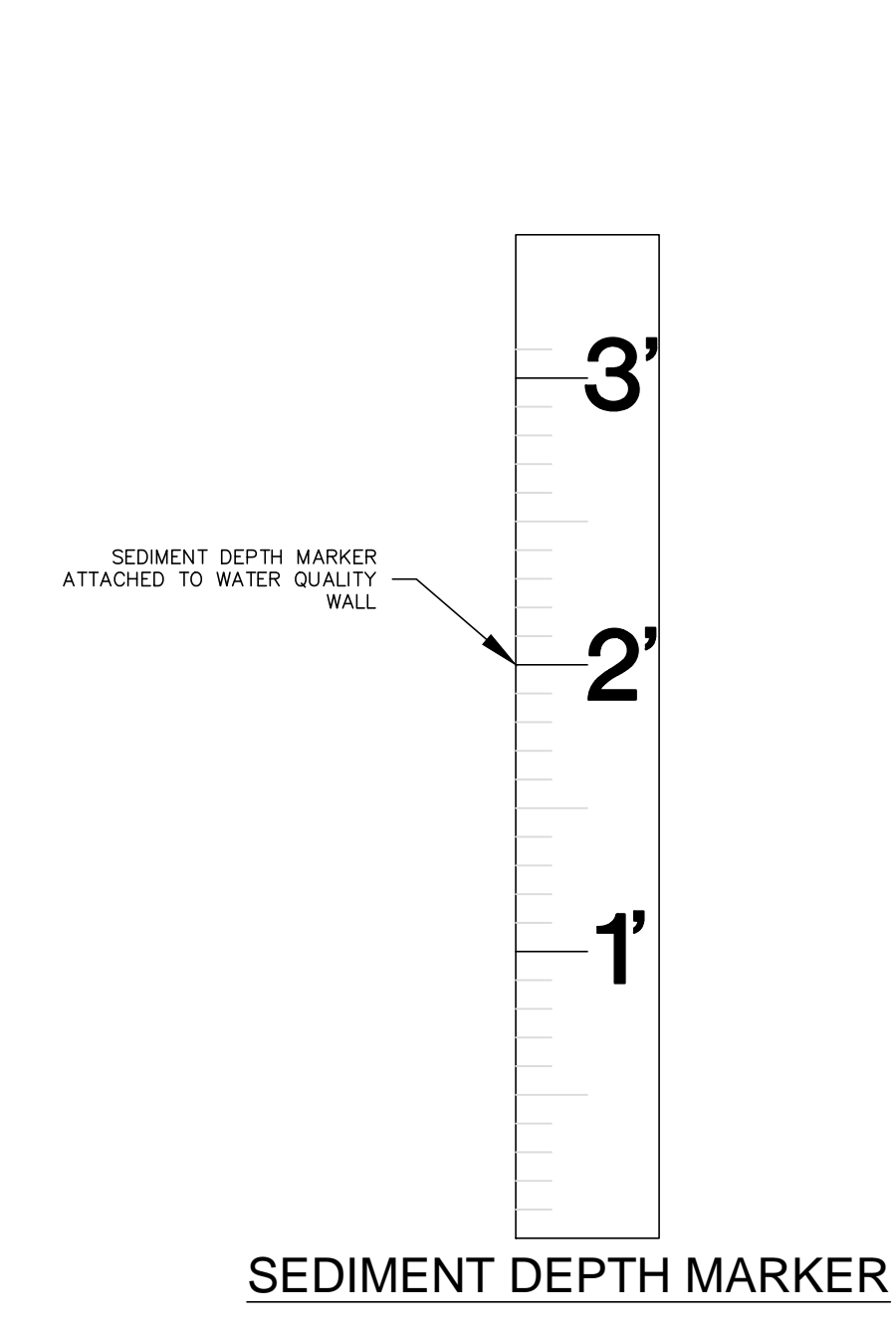
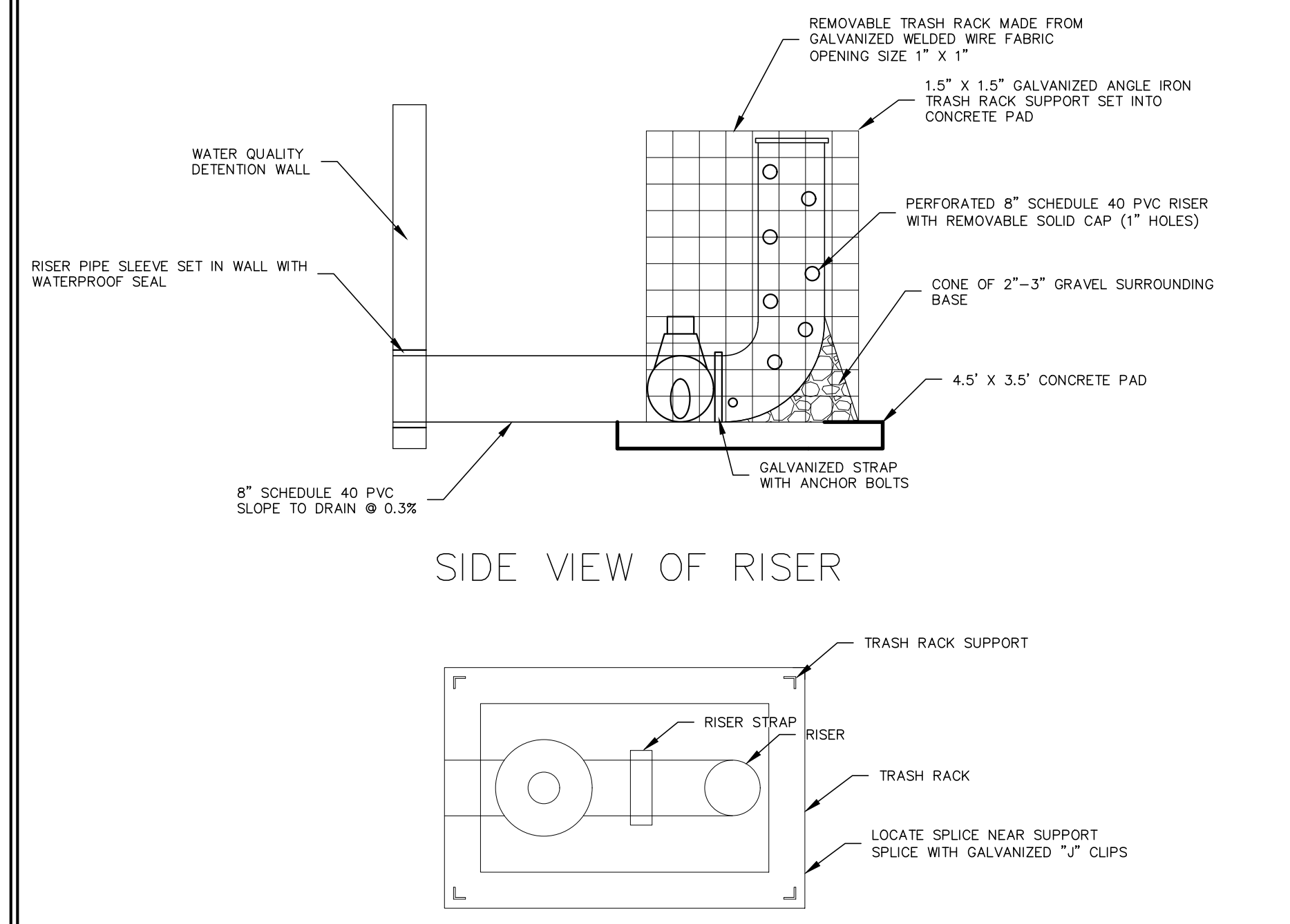
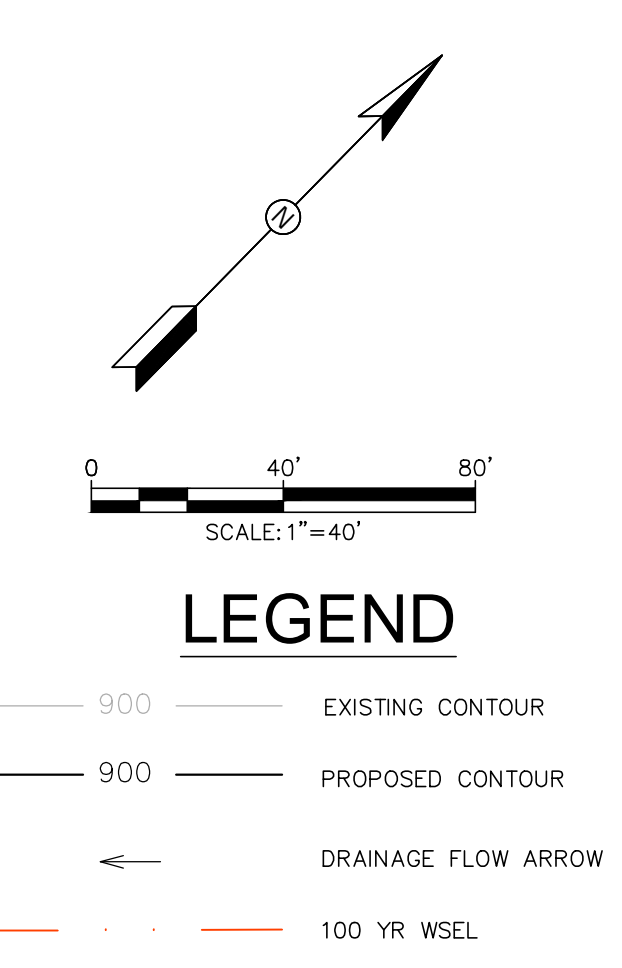


TABLE 3.6 (CLAY LINER SPECIFICATION)

PROPERTY	TEST METHOD	UNIT	SPECIFICATION
PERMEABILITY	ASTM D-2434	CM/SEC	1 x 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

NOTE: IMPERVIOUS CLAY BERM CORE AND CLAY LINER SHOWN ARE TO BE CONSIDERED SUBSIDIARY TO POND EXCAVATION. (NO SEPARATE PAY ITEM)

BASE BID:
12" IMPERMEABLE CLAY LINER FOR THE BASIN BOTTOM AND ALONG THE 3:1 SLOPE UP TO ELEVATION = 677.10



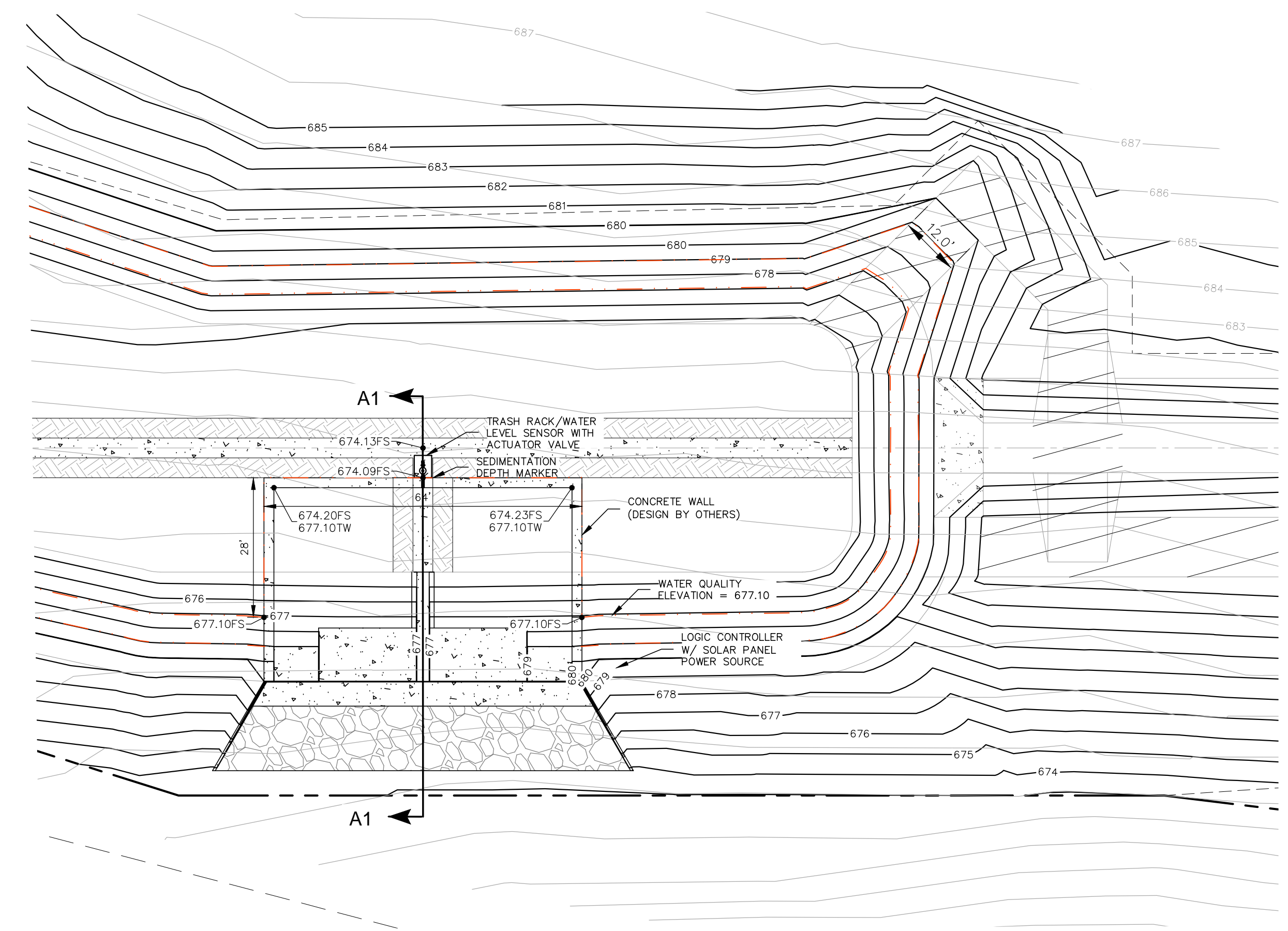
Batch Detention Basin Storage Summary

Stage	Elev	Area (sf)	Incremental Storage	Total Storage
0.0	674.00	0	0	0
1.0	675.00	15,134	7,567	7,567
2.0	676.00	44,625	29,880	37,447
3.0	677.00	61,236	52,931	90,377
3.1	677.10	70,235	6172	96,549

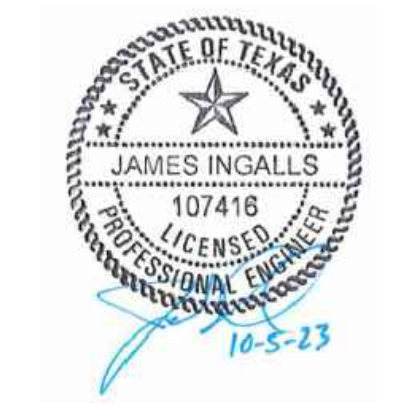
Drawdown Rate Through Discharge Pipe

Size in Inches = 8
Slope in Percent = 0.3
n coefficient = 0.009
Rate (From Table 1 Below) = 590.89 GPDx1000 = 590,890 GPD = 410.34 GPM

Drawdown Time = 722,237 Gallons / 410.34 GPM = 1.76 Days = **29.33 Hours**



- NOTE:
- ALL CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 3000 PSI IN 28 DAYS.
 - ANY DISTURBED AREAS WILL BE VEGETATED BY SEEDING OR SODDING.
 - ALL EARTHEN CHANNELS MUST NOT EXCEED 3:1 SIDE SLOPES (MAX).
 - VALVE TO BE EQUIPPED WITH MANUAL OPENING CAPABILITY.
 - VALVE TO BE IN CLOSED POSITION AT ALL TIMES BETWEEN STORM EVENTS.
 - LOGIC CONTROLLER TO OPEN VALVE 12 HOURS (BY SIGNALING ACTUATOR TO TURN VALVE INTO FULLY OPEN POSITION) AFTER FIRST RAINFALL READING BY WATER LEVEL SENSOR.
 - VEGETATION ON THE BASIN EMBANKMENTS SHOULD BE MOWED AS APPROPRIATE TO PREVENT ESTABLISHMENT OF WOODY VEGETATION.
 - ALL CABLES TO BE PROTECTED BY CONDUIT AND BURIED TO PREVENT DAMAGE DURING MAINTENANCE ACTIVITIES.
 - MANUAL CONTROLS OF THE CONTROLLER WILL BE USED TO KEEP VALVE CLOSED IN THE EVENT OF A HAZARDOUS MATERIAL SPILL IN THE BASIN. ALL COMPONENTS OF THE SYSTEM MUST BE INSPECTED WITHIN 7 DAYS FOR PROPER OPERATION.
 - FIXED VERTICAL SEDIMENTATION DEPTH MARKER TO BE INSTALLED TO INDICATE WHEN SEDIMENTATION ACCUMULATION REACHES A REQUIRED REMOVAL DEPTH OF 6 INCHES.
 - 12 INCHES OF CLAY TO BE USED AS IMPERMEABLE LINER FOR BATCH DETENTION BASIN. CLAY SHOULD BE STABILIZED WITH APPROPRIATE VEGETATION AND MEET SPECIFICATIONS FROM TABLE 3-6 OF THE EDWARDS AQUIFER TECHNICAL GUIDANCE MANUAL. (SHOWN ON THIS PAGE)
 - UPON COMPLETION OF CONSTRUCTION, AND IN ACCORDANCE WITH TCEQ REGULATIONS, ALL PERMANENT BMP'S (BASINS) MUST BE CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER.



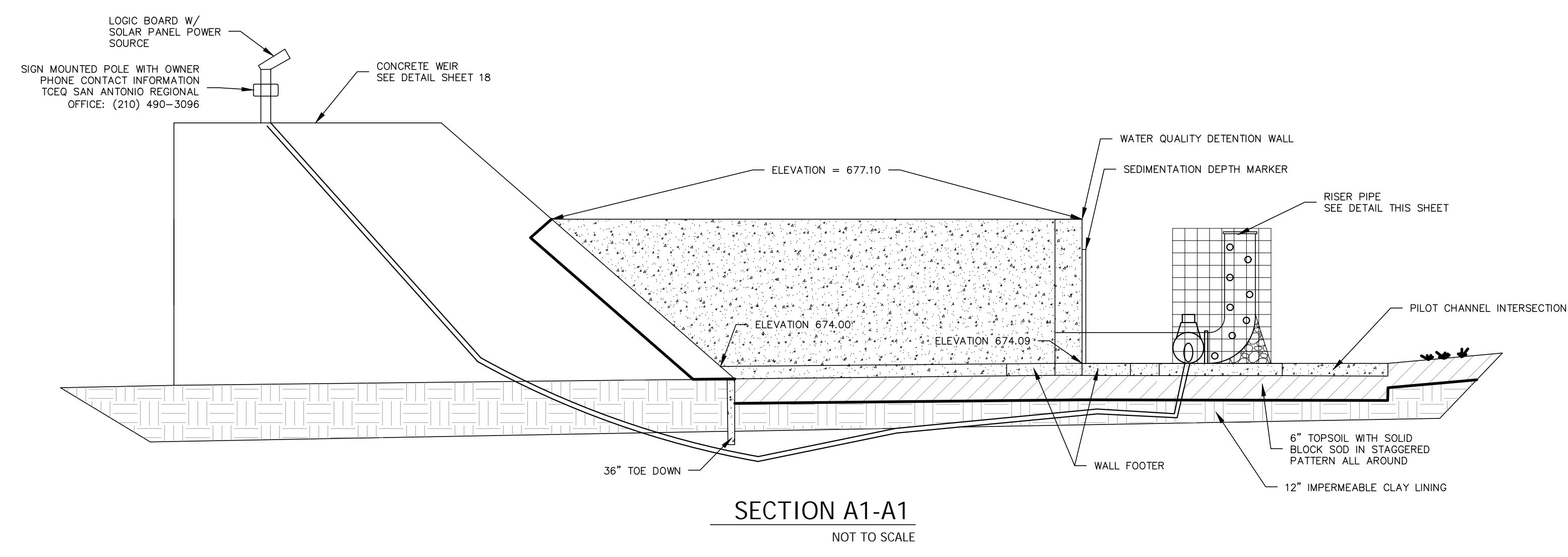
PARAVEL CAPITAL
1509 OLD W 38TH ST. #3
AUSTIN TX, 78731

LYNDON RANCH

BATCH DETENTION POND PLAN & NOTES

SHEET **16A** OF **65**

NO	DATE	ISSUES AND REVISIONS
1	8-11-2023	UPDATED PER COMB COMMENTS



2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
PH: 830-358-7127 ink-civil.com
TBPE FIRM F-13351

Drawing Name: R:\Projects\PARA001_LP_337_Teamwork\Civil\Construction\Drawings\COMMERCIAL_BATCH\BATCH DETENTION POND DETAILS.dwg User: abal@inkcivil.com Nov 20, 2023 - 11:14am

ATTACHMENT "I"
Measures for Minimizing Surface Stream Contamination

All surface streams will be protected from erosion by not allowing runoff to exceed existing velocities. The storm water runoff patterns for the site will remain. The natural vegetation downgradient of the site will continue to provide additional filtration to help prevent pollutants from entering streams, sensitive features, and the aquifer.

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

I _____ Curtis Thigpen _____,
Print Name
Principal _____,
Title - Owner/President/Other
of _____ Paravel New Braunfels I, LP _____,
Corporation/Partnership/Entity Name
have authorized _____ James Ingalls, P.E. _____
Print Name of Agent/Engineer
of _____ INK Civil _____
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:

[Signature]
Applicant's Signature

5-2-23
Date

THE STATE OF Texas §

County of Travis §

BEFORE ME, the undersigned authority, on this day personally appeared Curtis Thiigen 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 2 day of May, 2023

Amy L Burnett
NOTARY PUBLIC

Amy L Burnett
Typed or Printed Name of Notary



MY COMMISSION EXPIRES: 1-30-2027

Application Fee Form

Texas Commission on Environmental Quality

Name of Proposed Regulated Entity: Lyndon Ranch

Regulated Entity Location: 1509 Old W 38th St. #3 Austin, TX 78731

Name of Customer: Paravel New Braunfels I, LP

Contact Person: Curtis Thigpen

Phone: 512-937-8923

Customer Reference Number (if issued): CN _____

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

San Antonio Regional Office

Mailed to: TCEQ - Cashier

Overnight Delivery to: TCEQ - Cashier

Revenues Section

12100 Park 35 Circle

Mail Code 214

Building A, 3rd Floor

P.O. Box 13088

Austin, TX 78753

Austin, TX 78711-3088

(512)239-0357

Site Location (Check All That Apply):

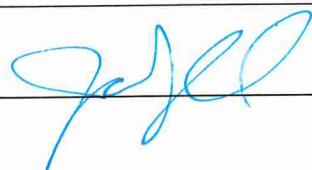
Recharge Zone

Contributing Zone

Transition Zone

Type of Plan	Size	Fee Due
Water Pollution Abatement Plan, Contributing Zone Plan: One Single Family Residential Dwelling	Acres	\$
Water Pollution Abatement Plan, Contributing Zone Plan: Multiple Single Family Residential and Parks	Acres	\$
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	28.13 Acres	\$ 6,500
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: _____

9-20-23

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

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

Organized Sewage Collection Systems and Modifications

<i>Project</i>	<i>Cost per Linear Foot</i>	<i>Minimum Fee- Maximum Fee</i>
Sewage Collection Systems	\$0.50	\$650 - \$6,500

Underground and Aboveground Storage Tank System Facility Plans and Modifications

<i>Project</i>	<i>Cost per Tank or Piping System</i>	<i>Minimum Fee- Maximum Fee</i>
Underground and Aboveground Storage Tank Facility	\$650	\$650 - \$6,500

Exception Requests

<i>Project</i>	<i>Fee</i>
Exception Request	\$500

Extension of Time Requests

<i>Project</i>	<i>Fee</i>
Extension of Time Request	\$150



TCEQ Core Data Form

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

SECTION I: General Information

1. Reason for Submission (If other is checked please describe in space provided.)		
<input checked="" type="checkbox"/> New Permit, Registration or Authorization (Core Data Form should be submitted with the program application.)		
<input type="checkbox"/> Renewal (Core Data Form should be submitted with the renewal form)	<input type="checkbox"/> 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 606063501		RN 11157812

SECTION II: Customer Information

4. General Customer Information		5. Effective Date for Customer Information Updates (mm/dd/yyyy)	
<input type="checkbox"/> New Customer		<input type="checkbox"/> Update to Customer Information	
<input type="checkbox"/> Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)		<input checked="" type="checkbox"/> Change in Regulated Entity Ownership	
<i>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).</i>			
6. Customer Legal Name (If an individual, print last name first: eg: Doe, John)		<i>If new Customer, enter previous Customer below:</i>	
PARAVEL NEW BRAUNFELS I, LP			
7. TX SOS/CPA Filing Number	8. TX State Tax ID (11 digits)	9. Federal Tax ID (9 digits)	10. DUNS Number (if applicable)
0804645088	32085409178	N/A	N/A
11. Type of Customer:	<input type="checkbox"/> Corporation	<input type="checkbox"/> Individual	Partnership: <input type="checkbox"/> General <input checked="" type="checkbox"/> Limited
Government: <input type="checkbox"/> City <input type="checkbox"/> County <input type="checkbox"/> Federal <input type="checkbox"/> Local <input type="checkbox"/> State <input type="checkbox"/> Other	<input type="checkbox"/> Sole Proprietorship		<input type="checkbox"/> Other:
12. Number of Employees		13. Independently Owned and Operated?	
<input checked="" type="checkbox"/> 0-20 <input type="checkbox"/> 21-100 <input type="checkbox"/> 101-250 <input type="checkbox"/> 251-500 <input type="checkbox"/> 501 and higher		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
14. Customer Role (Proposed or Actual) – as it relates to the Regulated Entity listed on this form. Please check one of the following			
<input type="checkbox"/> Owner <input type="checkbox"/> Operator <input checked="" type="checkbox"/> Owner & Operator <input type="checkbox"/> Other:			
<input type="checkbox"/> Occupational Licensee <input type="checkbox"/> Responsible Party <input type="checkbox"/> VCP/BSA Applicant			
15. Mailing Address:	1509 OLD W 38TH ST. #3		
City	AUSTIN	State	TX
ZIP	78731	ZIP + 4	
16. Country Mailing Information (if outside USA)		17. E-Mail Address (if applicable)	
		CTHIGPEN@PARAVELCAP.COM	
18. Telephone Number	19. Extension or Code	20. Fax Number (if applicable)	

SECTION III: Regulated Entity Information**21. General Regulated Entity Information** (If 'New Regulated Entity' is selected, a new permit application is also required.)
 New Regulated Entity
 Update to Regulated Entity Name
 Update to Regulated Entity Information

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

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

LYNDON RANCH

23. Street Address of the Regulated Entity:

TBD

(No PO Boxes)

City

State

ZIP

ZIP + 4

24. County

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

25. Description to Physical Location:

SOUTH OF LOOP 337, APPROX. 0.44 MILES WEST OF THE RIVER RD & LOOP 337 INTERSECTION

26. Nearest City

State

Nearest ZIP Code

NEW BRAUNFELS

TX

78132

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

27. Latitude (N) In Decimal:

29.72611

28. Longitude (W) In Decimal:

98.13389

Degrees

Minutes

Seconds

Degrees

Minutes

Seconds

29

43

34.0

98

08

02.0

29. Primary SIC Code**30. Secondary SIC Code****31. Primary NAICS Code****32. Secondary NAICS Code**

(4 digits)

(4 digits)

(5 or 6 digits)

(5 or 6 digits)

6552

1521

237210

N/A

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

REAL ESTATE

34. Mailing**Address:**

City

NEW BRAUNFELS

State

TX

ZIP

78730

ZIP + 4

35. E-Mail Address:**36. Telephone Number****37. Extension or Code****38. Fax Number** (if applicable)

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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.

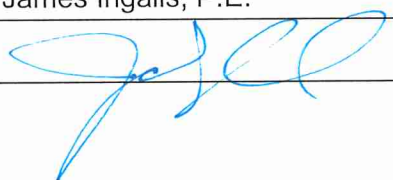
<input type="checkbox"/> Dam Safety	<input type="checkbox"/> Districts	<input checked="" type="checkbox"/> Edwards Aquifer	<input type="checkbox"/> Emissions Inventory Air	<input type="checkbox"/> Industrial Hazardous Waste
<input type="checkbox"/> Municipal Solid Waste	<input type="checkbox"/> New Source Review Air	<input type="checkbox"/> OSSF	<input type="checkbox"/> Petroleum Storage Tank	<input type="checkbox"/> PWS
<input type="checkbox"/> Sludge	<input checked="" type="checkbox"/> Storm Water	<input type="checkbox"/> Title V Air	<input type="checkbox"/> Tires	<input type="checkbox"/> Used Oil
<input type="checkbox"/> Voluntary Cleanup	<input type="checkbox"/> Wastewater	<input type="checkbox"/> Wastewater Agriculture	<input type="checkbox"/> Water Rights	<input type="checkbox"/> Other:

SECTION IV: Preparer Information

40. Name:	Chad Friesenhahn		41. Title:	EIT
42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address	
(830) - 358-7127		() -	chadfriesenhahn@ink-civil.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:	INK CIVIL	Job Title:	PROJECT ENGINEER	
Name (In Print):	James Ingalls, P.E.	Phone:	(830) - 358-7127	
Signature:			Date:	9-20-23



4615 NW Loop 410 | San Antonio, TEXAS 78229-0928 | (210) 615-1110 | WWW.TXDOT.GOV

**Letter of Intent
For Work In TxDOT Right Of Way Requiring
An Edwards Aquifer Protection Plan**

TxDOT Tracking #:	CML23-033-SL337
Roadway:	Loop 337
Limits:	Approx. 0.53 miles from Loop 337 and River Road intersection

The purpose of this letter is to provide the Texas Commission On Environmental Quality (TCEQ) acknowledgement that TxDOT will be allowing work to occur in TxDOT right of way (ROW) that would require an Edwards Aquifer Protection Plan (EAPP), where the applicant of the EAPP is PARAVEL NEW BRAUNFELS I, LP.

Furthermore, by signing this letter, PARAVEL NEW BRAUNFELS I, LP certifies that all permanent Best Management Practices (BMP's) required to treat the proposed new impervious cover within TxDOT ROW would be constructed entirely on PARAVEL NEW BRAUNFELS I, LP property and outside of TxDOT ROW, including areas of ROW reservation or dedication.

The work to be performed in TxDOT ROW is part of a larger plan of development by the Permittee, and is not part of a TxDOT roadway project.

Note that this is not an approval from TxDOT for work to proceed to construction. No construction shall begin until all of the following have occurred:

- TxDOT has been provided a copy of the Permittee's TCEQ Authorization Letter
- All of the terms of the Donation Agreement have been met
- An Access Permit has been issued
- The Pre-work Meeting has been held

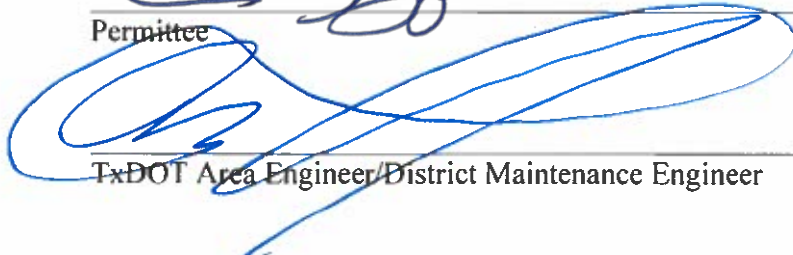
Signatures:



Permittee

11.20.23

Date



TxDOT Area Engineer/District Maintenance Engineer

11/17/23

Date



TCEQ Core Data Form

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

SECTION I: General Information

1. Reason for Submission <i>(If other is checked please describe in space provided.)</i>		
<input type="checkbox"/> New Permit, Registration or Authorization <i>(Core Data Form should be submitted with the program application.)</i>		
<input type="checkbox"/> Renewal <i>(Core Data Form should be submitted with the renewal form)</i>	<input checked="" type="checkbox"/> Other LINK TO DEVELOPMENT	
2. Customer Reference Number <i>(if issued)</i>	Follow this link to search for CN or RN numbers in Central Registry**	3. Regulated Entity Reference Number <i>(if issued)</i>
CN 600803456		RN 109996165

SECTION II: Customer Information

4. General Customer Information		5. Effective Date for Customer Information Updates (mm/dd/yyyy)	
<input type="checkbox"/> New Customer <input checked="" type="checkbox"/> Update to Customer Information <input type="checkbox"/> Change in Regulated Entity Ownership <input type="checkbox"/> Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)			
<i>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).</i>			
6. Customer Legal Name <i>(If an individual, print last name first: eg: Doe, John)</i>		<i>If new Customer, enter previous Customer below:</i>	
TEXAS DEPARTMENT OF TRANSPORTATION			
7. TX SOS/CPA Filing Number	8. TX State Tax ID (11 digits)	9. Federal Tax ID (9 digits)	10. DUNS Number <i>(if applicable)</i>
N/A	N/A	N/A	N/A
11. Type of Customer:		Partnership: <input type="checkbox"/> General <input type="checkbox"/> Limited	
<input type="checkbox"/> Corporation <input type="checkbox"/> Individual Government: <input type="checkbox"/> City <input type="checkbox"/> County <input type="checkbox"/> Federal <input type="checkbox"/> Local <input checked="" type="checkbox"/> State <input type="checkbox"/> Other		<input type="checkbox"/> Sole Proprietorship <input type="checkbox"/> Other:	
12. Number of Employees		13. Independently Owned and Operated?	
<input type="checkbox"/> 0-20 <input type="checkbox"/> 21-100 <input type="checkbox"/> 101-250 <input type="checkbox"/> 251-500 <input checked="" type="checkbox"/> 501 and higher		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
14. Customer Role (Proposed or Actual) – <i>as it relates to the Regulated Entity listed on this form. Please check one of the following</i>			
<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator <input type="checkbox"/> Owner & Operator <input type="checkbox"/> Other: <input type="checkbox"/> Occupational Licensee <input type="checkbox"/> Responsible Party <input type="checkbox"/> VCP/BSA Applicant			
15. Mailing Address:		4615 NW LOOP 410	
City	SAN ANTONIO	State	TX
ZIP	78229	ZIP + 4	
16. Country Mailing Information <i>(if outside USA)</i>		17. E-Mail Address <i>(if applicable)</i>	
N/A		N/A	
18. Telephone Number		19. Extension or Code	20. Fax Number <i>(if applicable)</i>

210-615-1110

() -

SECTION III: Regulated Entity Information

21. General Regulated Entity Information (If "New Regulated Entity" is selected, a new permit application is also required.)							
<input type="checkbox"/> New Regulated Entity <input type="checkbox"/> Update to Regulated Entity Name <input checked="" type="checkbox"/> Update to Regulated Entity Information							
<i>The Regulated Entity Name submitted may be updated, in order to meet TCEQ Core Data Standards (removal of organizational endings such as Inc, LP, or LLC).</i>							
22. Regulated Entity Name (Enter name of the site where the regulated action is taking place.)							
LOOP 337 - FROM INTERSTATE HIGHWAY 35 TO HILLCREST DRIVE (CSJ 0216-01-036 & CSJ 0216-01-054 & CSJ 0216-01-055)							
23. Street Address of the Regulated Entity: <i>(No PO Boxes)</i>		N/A					
		City		State		ZIP	
24. County							

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

25. Description to Physical Location:		SOUTH OF LOOP 337, APPROX. 0.44 MILES OF THE RIVER RD & LOOP 337 INTERSECTION					
26. Nearest City				State		Nearest ZIP Code	
NEW BRAUNFELS				TX		78132	
<i>Latitude/Longitude are required and may be added/updated to meet TCEQ Core Data Standards. (Geocoding of the Physical Address may be used to supply coordinates where none have been provided or to gain accuracy).</i>							
27. Latitude (N) In Decimal:		29.72611		28. Longitude (W) In Decimal:		98.13389	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds		
29	43	34.0	98	08	02.0		
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)	
1611		9621		N/A		N/A	
33. What is the Primary Business of this entity? (Do not repeat the SIC or NAICS description.)							
TEXAS DEPARTMENT OF TRANSPORTATION							
34. Mailing Address:		4615 NW LOOP 410					
		City	SAN ANTONIO	State	TX	ZIP	78229
35. E-Mail Address:							
36. Telephone Number			37. Extension or Code			38. Fax Number (if applicable)	
210-615-1110						() -	

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.

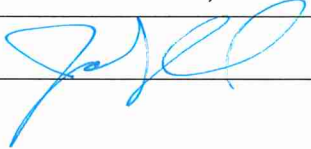
<input type="checkbox"/> Dam Safety	<input type="checkbox"/> Districts	<input checked="" type="checkbox"/> Edwards Aquifer	<input type="checkbox"/> Emissions Inventory Air	<input type="checkbox"/> Industrial Hazardous Waste
<input type="checkbox"/> Municipal Solid Waste	<input type="checkbox"/> New Source Review Air	<input type="checkbox"/> OSSF	<input type="checkbox"/> Petroleum Storage Tank	<input type="checkbox"/> PWS
<input type="checkbox"/> Sludge	<input type="checkbox"/> Storm Water	<input type="checkbox"/> Title V Air	<input type="checkbox"/> Tires	<input type="checkbox"/> Used Oil
<input type="checkbox"/> Voluntary Cleanup	<input type="checkbox"/> Wastewater	<input type="checkbox"/> Wastewater Agriculture	<input type="checkbox"/> Water Rights	<input type="checkbox"/> Other:

SECTION IV: Preparer Information

40. Name:	CHAD FRIESENHAHN, EIT		41. Title:	GRADUATE ENGINEER
42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address	
830-358-7127		() -	chadfriesenhahn@ink-civil.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:	INK Civil	Job Title:	PROFESSIONAL ENGINEER
Name (In Print):	JAMES INGALLS, PE	Phone:	830-358-7127
Signature:		Date:	11-20-23