

<p>PHONE 512.930.9412</p>	<p>FAX 512.930.9416</p>
 <p>STEGER BIZZELL</p>	
<p>ADDRESS 1978 S. AUSTIN AVENUE GEORGETOWN, TX 78626</p>	<p>WEB STGERBIZZELL.COM</p>
<p>SERVICES > > ENGINEERS > > PLANNERS > > SURVEYORS</p>	
<p>TEXAS REGISTERED ENGINEERING FIRM F-181</p>	

**Water Pollution Abatement Plan
and
Organized Sewage Collection System Plan**

For

Woodside East - Phase B

In the
City of Georgetown
Williamson County, Texas

Submitted: 1/25/2024

Job Number: 22226-21-03

**Water Pollution Abatement Plan
and
Organized Sewage Collection System Plan**

For

Woodside East - Phase B

In

City of Georgetown
Williamson County, Texas

Job Number: 22226-21-03

Prepared by:



Texas Registered Engineering Firm-181
1978 S. Austin Ave
Georgetown, TX 78626

Water Pollution Abatement Plan Checklist

- **Edwards Aquifer Application Cover Page (TCEQ-20705)**
- **General Information Form (TCEQ-0587)**
 - Attachment A - Road Map
 - Attachment B - USGS / Edwards Recharge Zone Map
 - Attachment C - Project Description
- **Geologic Assessment Form (TCEQ-0585)**
 - Attachment A - Geologic Assessment Table (TCEQ-0585-Table)
 - Attachment B - Stratigraphic Column
 - Attachment C - Site Geology
 - Attachment D - Site Geologic Map(s)
- **Water Pollution Abatement Plan Application Form (TCEQ-0584)**
 - Attachment A - Factors Affecting Surface Water Quality
 - Attachment B - Volume and Character of Stormwater
 - Attachment C - Suitability Letter from Authorized Agent (if OSSF is proposed)
 - Attachment D - Exception to the Required Geologic Assessment (if requested)
 - Site Plan
- **Temporary Stormwater Section (TCEQ-0602)**
 - Attachment A - Spill Response Actions
 - Attachment B - Potential Sources of Contamination
 - Attachment C - Sequence of Major Activities
 - Attachment D - Temporary Best Management Practices and Measures
 - Attachment E - Request to Temporarily Seal a Feature (if requested)
 - Attachment F - Structural Practices
 - Attachment G - Drainage Area Map
 - Attachment H - Temporary Sediment Pond(s) Plans and Calculations
 - Attachment I - Inspection and Maintenance for BMPs
 - Attachment J - Schedule of Interim and Permanent Soil Stabilization Practices
- **Permanent Stormwater Section (TCEQ-0600)**
 - Attachment A - 20% or Less Impervious Cover Waiver (if requested for multi-family, school, or small business site)
 - Attachment B - BMPs for Upgradient Stormwater
 - Attachment C - BMPs for On-site Stormwater
 - Attachment D - BMPs for Surface Streams
 - Attachment E - Request to Seal Features (if sealing a feature)
 - Attachment F - Construction Plans
 - Attachment G - Inspection, Maintenance, Repair and Retrofit Plan
 - Attachment H - Pilot-Scale Field Testing Plan (if proposed)
 - Attachment I - Measures for Minimizing Surface Stream Contamination

- **Agent Authorization Form (TCEQ-0599), if application submitted by agent**
- **Application Fee Form (TCEQ-0574)**
- **Check Payable to the “Texas Commission on Environmental Quality”**
- **Core Data Form (TCEQ-10400)**

Organized Sewage Collection System Plan Checklist

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 - Attachment D - Site Geologic Map(s)
- **Organized Sewage Collection System Plan (TCEQ-0582)**
 - Attachment A - SCS Engineering Design Report
 - Attachment B - Justification and Calculations for Deviation in Straight Alignment Without Manholes
 - Attachment C - Justification for Variance from Maximum Manhole Spacing
 - Attachment D – Calculations for Slopes for Flows Greater Than 10.0 Feet Per Second Site Plan
 - Final Plan and Profile Sheets
- **Lift Station / Force Main System Application (TCEQ-0624) if applicable**
 - Attachment A - Engineering Design Report
 - Site Plan
 - Final Plan and Profile Sheets
- **Temporary Stormwater Section (TCEQ-0602)**
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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: Woodside East – Phase B				2. Regulated Entity No.: N/A			
3. Customer Name: MK Woodside Development, Inc.				4. Customer No.: CN606076271			
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 checked="" type="radio"/> SCS	<input type="radio"/> UST	<input type="radio"/> AST	<input type="radio"/> EXP	<input type="radio"/> EXT
7. Land Use: (Please circle/check one)	<input checked="" type="radio"/> Residential		Non-residential		8. Site (acres):		34.28
9. Application Fee:	\$7,819.50		10. Permanent BMP(s):		Vegetative Filter Strip, Batch Detention		
11. SCS (Linear Ft.):	7,639		12. AST/UST (No. Tanks):		N/A		
13. County:	Williamson		14. Watershed:		Berry Creek		

Application Distribution

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

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

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

Austin Region			
County:	Hays	Travis	Williamson
Original (1 req.)	—	—	✗
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 checked="" 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 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 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.	
Tyson L. Hasz	
Print Name of Customer/Authorized Agent	1/19/2024
Signature of Customer/Authorized Agent	Date

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

General Information Form

Texas Commission on Environmental Quality

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

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

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

Signature

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

Print Name of Customer/Agent: MK Woodside Development, Inc. / Steger Bizzell, Tyson Hasz, P.E.

Date: 1/19/2024

Signature of Customer/Agent:



Project Information

1. Regulated Entity Name: Woodside East - Phase B
2. County: Williamson
3. Stream Basin: Berry Creek
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: Blake Magee

Entity: MK Woodside Development, Inc.

Mailing Address: 1011 North Lamar

City, State: Austin, TX

Zip: 78703

Telephone: (512) 481-0303

FAX: N/A

Email Address: blake@blakemageeco.com

8. Agent/Representative (If any):

Contact Person: Tyson L. Hasz, P.E.

Entity: Steger Bizzell

Mailing Address: 1978 S. Austin Ave

City, State: Georgetown, TX

Zip: 78626

Telephone: (512) 930-9412

FAX: N/A

Email Address: tyson.hasz@stegerbizzell.com

9. Project Location:

The project site is located inside the city limits of Georgetown.

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.

FROM AUSTIN: TRAVELLING NORTH ON I-35, TAKE EXIT 266 TO TX-195 N. AFTER APPROXIMATELY 0.2 MILES, TURN LEFT ONTO TX-195 W AND CONTINUE FOR 5.3 MILES. TAKE A LEFT ONTO RATTLESNAKE RD, CONTINUE FOR 0.6 MILES, AND TURN LEFT ONTO RONALD REAGAN BLVD. CONTINUE STRAIGHT FOR APPROXIMATELY 0.8 MILES. THE SITE IS LOCATED ON THE LEFT.

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: 2/20/2024

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.

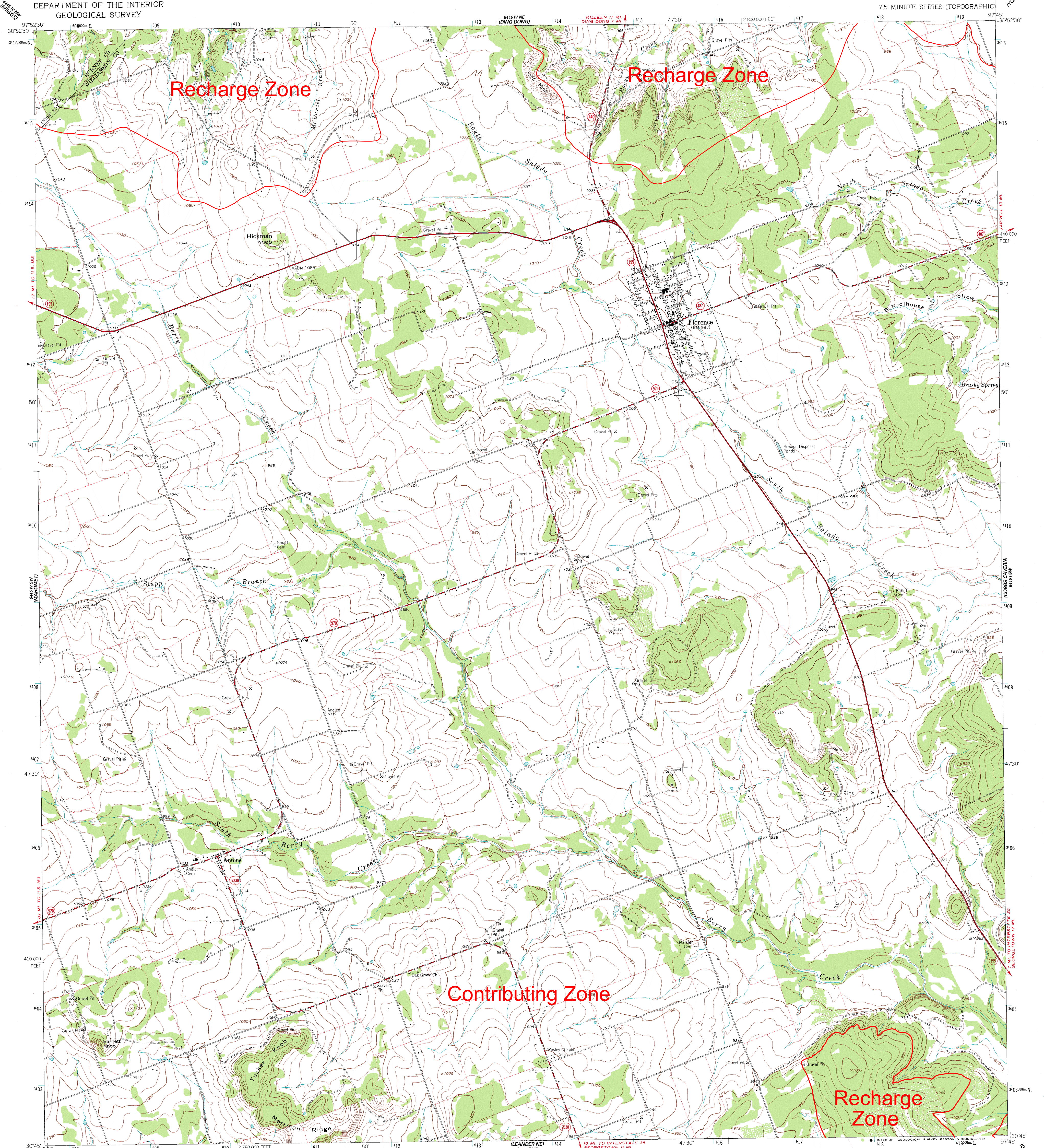
17. I am aware that the following activities are prohibited on the Transition Zone and are not proposed for this project:
- (1) Waste disposal wells regulated under 30 TAC Chapter 331 (relating to Underground Injection Control);
 - (2) Land disposal of Class I wastes, as defined in 30 TAC §335.1; and
 - (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

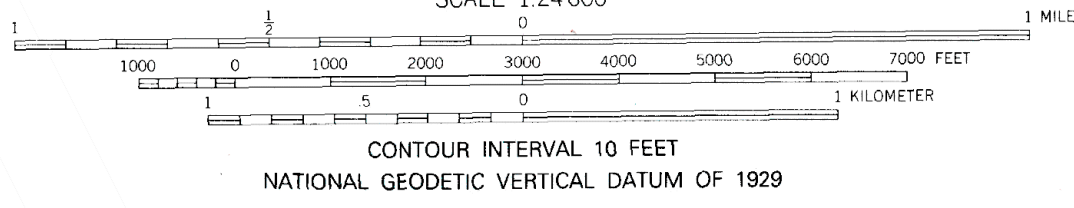
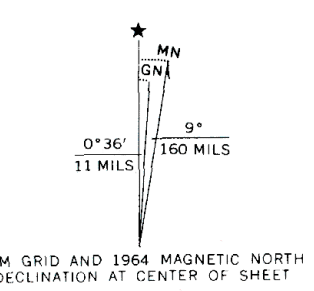
18. The fee for the plan(s) is based on:
- For a Water Pollution Abatement Plan or Modification, the total acreage of the site where regulated activities will occur.
 - For an Organized Sewage Collection System Plan or Modification, the total linear footage of all collection system lines.
 - For a UST 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.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

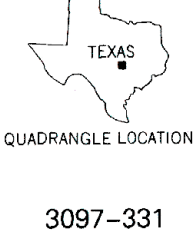
FLORENCE QUADRANGLE
TEXAS
7.5 MINUTE SERIES (TOPOGRAPHIC)



Mapped, edited, and published by the Geological Survey
Control by USGS and NOS/NOAA
Topography by photogrammetric methods from aerial photographs
taken 1963. Field checked 1964
Polyconic projection. 1927 North American Datum
10,000-foot grid based on Texas coordinate system, central zone
1000-meter Universal Transverse Mercator grid ticks, zone 14,
shown in blue. The difference between 1927 North American Datum
and North American Datum of 1983 (NAD 83) for 7.5 minute
intersections is given in USGS Bulletin 1875. The NAD 83 is shown
by dashed corner ticks
Fine red dashed lines indicate selected fence lines
Map photoinspected 1976
No major culture or drainage changes observed



WOODSIDE EAST - PHASE B
WILLIAMSON COUNTY, TEXAS



3097-331

ROAD CLASSIFICATION
Heavy-duty ——— Light-duty ———
Medium-duty ——— Unimproved dirt ———
○ State Route

FLORENCE, TEX.
30097-G7-TF-024
1964
PHOTOINSPECTED 1976
JOB No. 22226-21-03

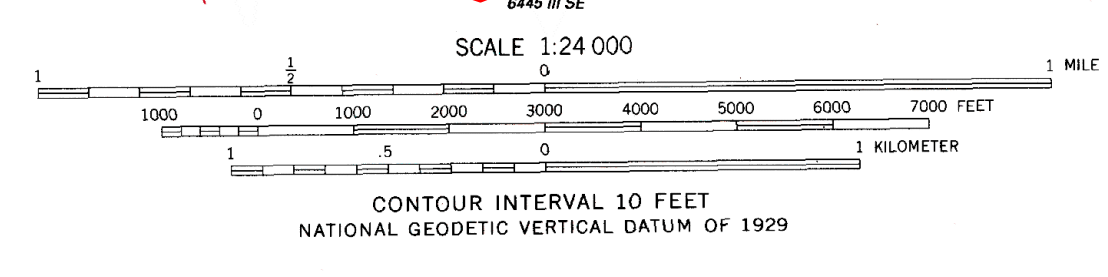
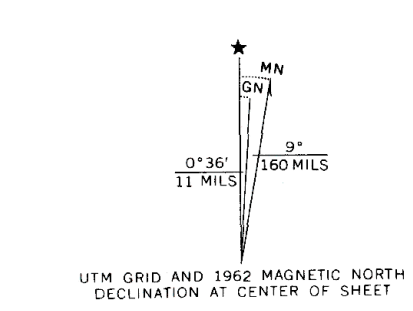
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF TEXAS
TEXAS WATER DEVELOPMENT BOARD

LEANDER NE QUADRANGLE
TEXAS-WILLIAMSON CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)



Mapped, edited, and published by the Geological Survey
Control by USGS and NOS/NOAA
Topography by photogrammetric methods from aerial photographs
taken 1962. Field checked 1962
Polyconic projection. 1927 North American Datum
10,000-foot grid based on Texas coordinate system,
central zone
1000-meter Universal Transverse Mercator grid ticks, zone 14,
shown in blue
The difference between 1927 North American Datum and North
American Datum of 1983 (NAD 83) for 7.5 minute intersections is
given in USGS Bulletin 1875. The NAD 83 is shown by dashed
corner ticks
Fine red dashed lines indicate selected fence lines



WOODSIDE EAST - PHASE B
WILLIAMSON COUNTY, TEXAS

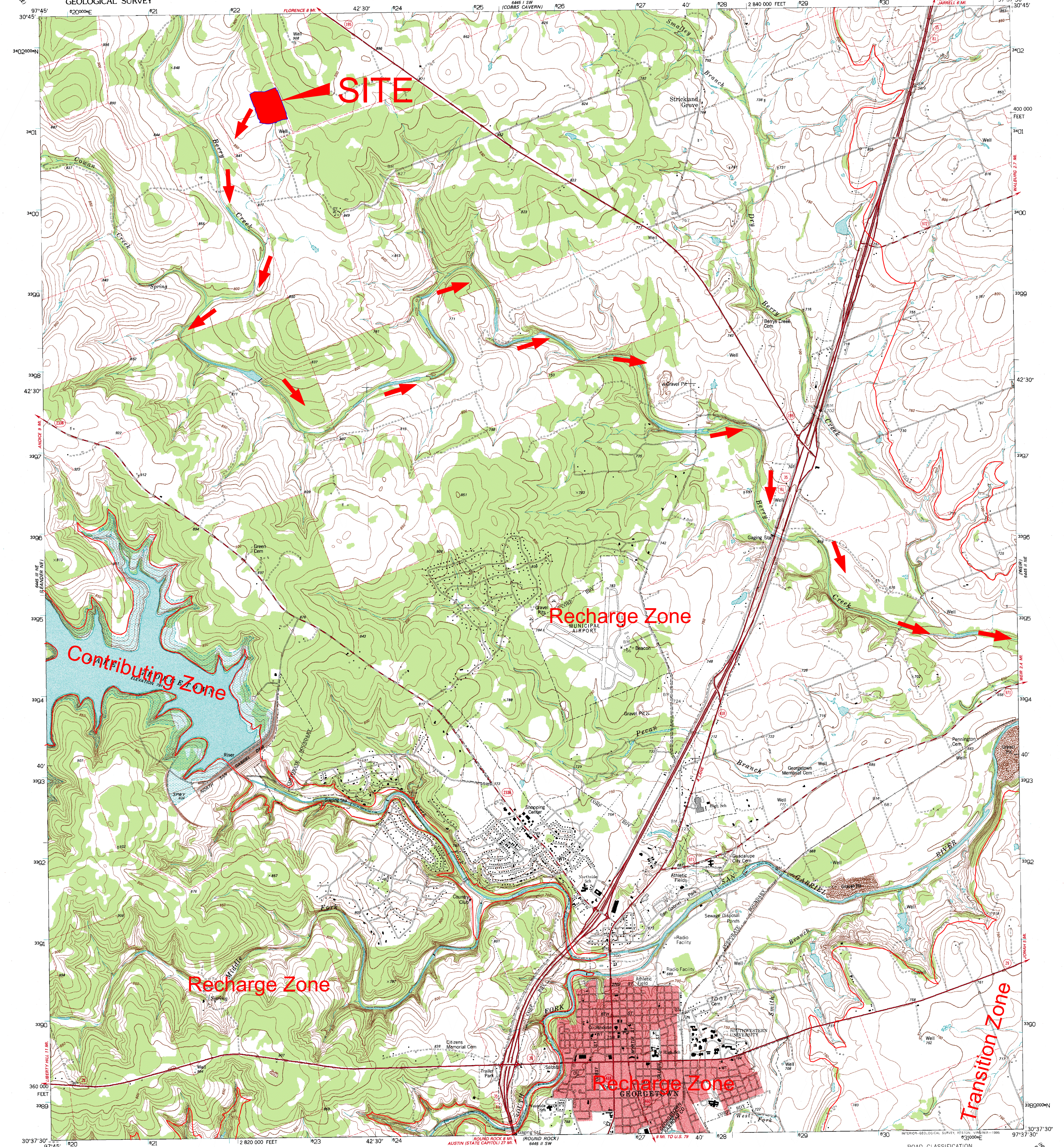


ROAD CLASSIFICATION

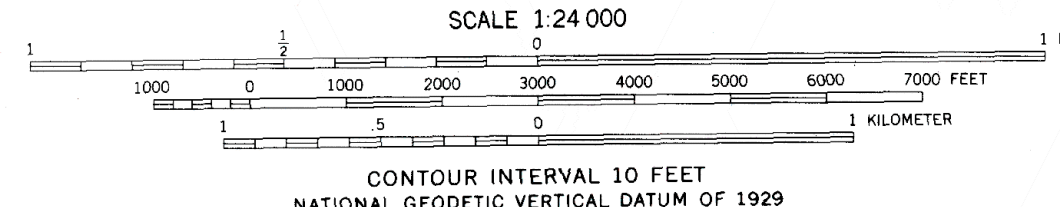
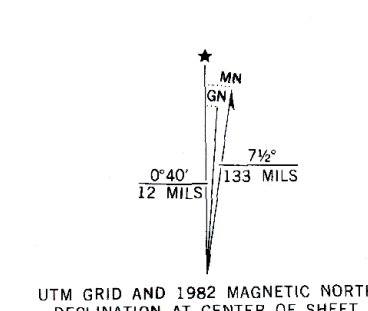
Heavy-duty	Light duty
Medium-duty	Unimproved dirt
U.S. Route	State Route

LEANDER NE, TEX.
30097-F7-1F-024
1962
PHOTOGRAPHED 1976
JOB No. 22226-21-03

Map photospcted 1976
No major culture or drainage changes observed



Produced by the United States Geological Survey
Control by USGS and NOS/NOAA
Compiled from aerial photographs taken 1974. Field checked 1975
Map edited 1982
North American Datum of 1927 (NAD 27). Projection and
1000-foot ticks: Texas Coordinate System, central zone
(Lambert Conformal Conic)
Blue 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 7.5-minute intersections are obtainable from National Geodetic
Survey NADCON software
Red tint indicates areas in which only landmark buildings are shown
Fine red dashed lines indicate selected fence lines
Areas covered by dashed light-blue pattern are subject to
controlled inundation



WOODSIDE EAST - PHASE B
WILLIAMSON COUNTY, TEXAS



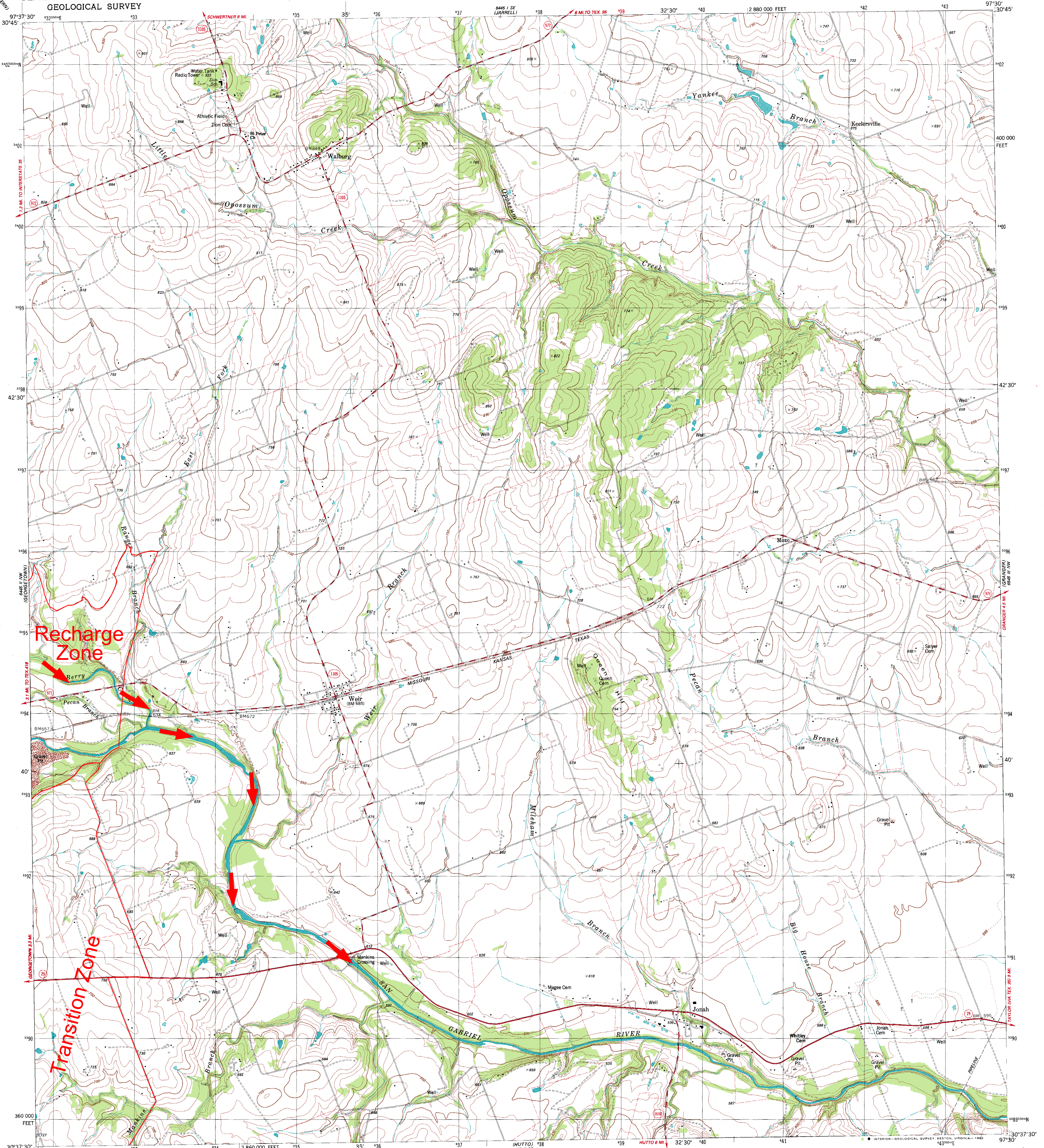
ROAD CLASSIFICATION

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

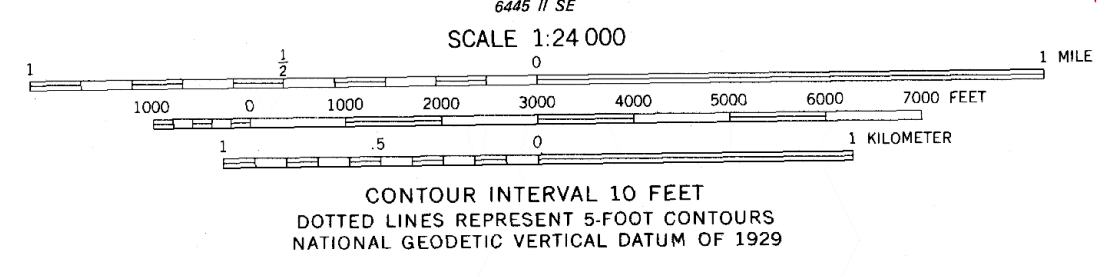
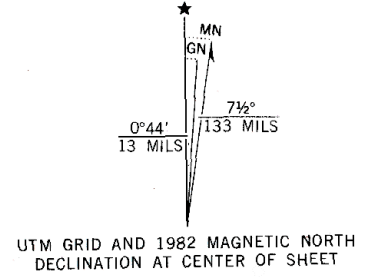
ISBN 0-607-51004-6
 9 780607 510041
 GEORGETOWN, TX
 30097-F6-TF-024
 1982
 DMA 6445 II NW-SERIES V1982
 JOB No. 22226-21-03

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

WEIR QUADRANGLE
TEXAS—WILLIAMSON CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
NE4 ROUND ROCK 18 QUADRANGLE



Mapped, edited, and published by the Geological Survey
Control by USGS and NOS/NOAA
Topography by photogrammetric methods from aerial photographs taken 1974. Field checked 1975. Map edited 1982
Projection and 10,000-foot grid ticks: Texas coordinate system, 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 17 meters south and 28 meters east as shown by dashed corner ticks
Fine red dashed lines indicate selected fence lines



WOODSIDE EAST - PHASE B
WILLIAMSON COUNTY, TEXAS



3097-314

ROAD CLASSIFICATION

Primary highway, hard surface	Light duty road, hard or improved surface
Secondary highway, hard surface	Unimproved road
Interstate Route	U. S. Route
	State Route

WEIR, TEX.
NE4 ROUND ROCK 18 QUADRANGLE
N3037.5-W97307.5
1982
DMA 6445 II NE-SERIES V882
JOB No. 22226-21-03

Attachment C – Project Description

This project is part of a large 468 acre master plan community known as Woodside. The western portion of the overall development will be a continuation of Sun City, Texas and the eastern portion being traditional single family residential development.

The site limits of construction is 48.62 acres. The limits of construction include the construction of an offsite water quality pond G. Pond G is located within a future phase of Woodside East, and the land is owned by the same entity that is developing Woodside East – Ph B. The Woodside/MK Woodside Development, Inc. site is located in Georgetown, Texas and bound by State Highway 195 to the east, Ronald Reagan Boulevard to the north, and Sun City to the west. The land was previously used for ranchland with no previous development.

The WPAP & SCS application will include paving, drainage, water and wastewater, drainage and water quality improvements for Woodside East - Phase B. This phase of the neighborhood includes 141 lots.

The proposed wastewater system will consist of 8-inch SDR-26 PVC wastewater line. This system will ultimately flow to the existing Sun City Lift Station along Berry Creek. The wastewater will then be conveyed to the City of Georgetown Pecan Branch Wastewater Treatment Plant.

A master TSS removal plan was developed for Woodside to remove 85% removal using batch detention ponds and a vegetative filter strip. A portion of the area included in this submittal will be treated by one of two batch detention ponds to be built with the adjacent subdivision, Woodside West - Phases A & E, while the remaining portion will be treated by an on-site vegetative filter strip or offsite batch detention pond G, to be constructed with this phase. A WPAP Application for Woodside West - Phases A & E has been submitted and is currently under review. The site generally drains from northeast to southwest and into Berry Creek. 37.91 acres of offsite areas to the east of the project limits will be routed into the offsite batch detention pond G and 28.91 acres of offsite areas will be diverted around the north side of proposed Woodside East - Phase B.

The limits of the Woodside East - Phase B SCS WPAP is 34.28 acres. The proposed impervious cover within the limits of Woodside East – Phase B will be 19.55 acres and 57.03%.

The MK Woodside Development property is approximately 468 acres. The geologic assessment included with the project is for 510 acres and includes two future commercial tracts on either side of the Above and Beyond Way entry from Ronald Reagan Boulevard. There is one sensitive feature, M-04, located within the overall 468-acre project boundary and is located within the limits of improvements included in this application. This is shown and described within the attached geologic assessment. Per the geologist recommendation, a 50ft setback is present around the feature.



**GEOLOGIC ASSESSMENT
FOR THE APPROXIMATELY 510-ACRE
WOODSIDE TRACT**

Williamson County, Texas

September 2022

Submitted to:

Blake Magee Company
1011 North Lamar
Austin, Texas 78703

Prepared by:

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

aci project #: 22-22-138

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

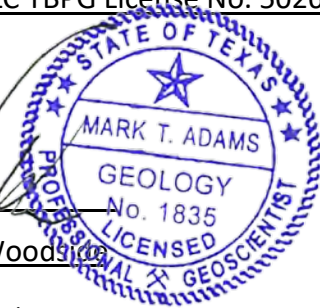
Telephone: (512) 347-9000

Date: 9/12/2022

Fax: (512) 306-0974

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

Signature of Geologist:



9-13-2022

Regulated Entity Name: Woodside

Project Information

1. Date(s) Geologic Assessment was performed: 3/15/2021 & 3/17/2021

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)
DoC—Doss silty clay, moist, 1 to 5 percent slopes	D	1.6
EaD—Eckrant cobbly clay, 1 to 8 percent slopes	D	1.6
EeB—Eckrant stony clay, 0 to 3 percent slopes, stony	D	1.6
GeB—Georgetown clay loam, 0 to 2 percent slopes	D	3.3

Soil Name	Group*	Thickness(feet)
GsB—Georgetown stony clay loam, 1 to 3 percent slopes	D	3.3

** Soil Group Definitions (Abbreviated)*

- A. Soils having a high infiltration rate when thoroughly wetted.
- B. Soils having a moderate infiltration rate when thoroughly wetted.
- C. Soils having a slow infiltration rate when thoroughly wetted.
- D. Soils having a very slow infiltration rate when thoroughly wetted.

6. **Attachment B – Stratigraphic Column.** A stratigraphic column showing formations, members, and thicknesses is attached. The outcropping unit, if present, should be at the top of the stratigraphic column. Otherwise, the uppermost unit should be at the top of the stratigraphic column.
7. **Attachment C – Site Geology.** A narrative description of the site specific geology including any features identified in the Geologic Assessment Table, a discussion of the potential for fluid movement to the Edwards Aquifer, stratigraphy, structure(s), and karst characteristics is attached.
8. **Attachment D – Site Geologic Map(s).** The Site Geologic Map must be the same scale as the applicant's Site Plan. The minimum scale is 1": 400'

Applicant's Site Plan Scale: 1" = 100'

Site Geologic Map Scale: 1" = 100'

Site Soils Map Scale (if more than 1 soil type): 1" = 1,500'

9. Method of collecting positional data:

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

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

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

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

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

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

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

There are 2 (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply.)

The wells are not in use and have been properly abandoned.

The wells are not in use and will be properly abandoned.

The wells are in use and comply with 16 TAC Chapter 76.

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

Administrative Information

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

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Geologic Assessment for the Woodside Tract located in Williamson County, Texas

September 2022

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 Woodside Tract (previously known as the Madison Tract and the Fakhr Tract), hereafter referred to as the subject area or site, is located approximately 1 mile northwest of the intersection of Sun City Blvd and Highway 195, in the City of Georgetown, Williamson County, Texas (**Attachment A, Figure 1**). Investigations of the subject area were initiated in 2004, as part of Karst Feature Assessment (2006) on the western portion of the tract, previously known as the Fakhr Tract (**Attachment A, Figure 1**). This included an assessment of previously documented karst features to determine, if any, development restrictions for the entity Madison Realty Investors, Inc., within the Fakhr Tract subject area (report available upon request). Geologic work for this portion of the subject area continued in 2012, where M. Trojan & Associates conducted a geologic assessment for the Fakhr Tract (report available upon request).

Additional pedestrian surveys were conducted subsequent to the listed reports, with the final remaining 167 acres of the Woodside Tract surveyed on March 15th and March 17th, 2021, by Kara Posso, G.I.T., Marcos Cardenas, Sarah King, Joey O'Keefe, and Erin Wilson,

under the supervision of Mark Adams, P.G. with **aci consulting**. Information from the Geologic Assessment done by M. Trojan & Associates for the Fakhr Property (2012), as well as work done by **aci consulting** was compiled and used to generate this report for the Woodside Tract.

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 Plan (SCS). The site is approximately 510 acres in total. The proposed site use is for low-density, single-family, residential development, as well as multifamily residential development, and commercial development. 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 (2021), five soil units occur within the project alignment (**Attachment A, Figure 2**):

- DoC—Doss silty clay, moist, 1 to 5 percent slopes

The Doss component makes up 85 percent of the map unit. Slopes are 1 to 5 percent. This component is on hillslopes on dissected plateaus. The parent material consists of residuum weathered from limestone. Depth to a root restrictive layer, bedrock, paralithic, is 11 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. Organic matter content in the surface horizon is about 2 percent. This component is in the R081CY574TX Shallow 29-35 Pz ecological site. Nonirrigated land capability classification is 4e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 55 percent. There are no saline horizons within 30 inches of the soil surface. This soil does not meet the criteria for hydric soils. Hydrologic Soil Group: D.

- EaD—Eckrant cobbly clay, 1 to 8 percent slopes

The Eckrant component makes up 85 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 4 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 high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 6 percent. This component is in the R081CY360TX Low Stony Hill 29-35 Pz ecological site. Nonirrigated land capability classification is 6s. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 2 percent. There are no saline horizons within 30 inches of the soil surface. This soil does not meet the criteria for hydric soils. Hydrologic Soil Group: D.

- EeB—Eckrant stony clay, 0 to 3 percent slopes, stony

The Eckrant, stony component makes up 85 percent of the map unit. Slopes are 0 to 3 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 4 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. Organic matter content in the surface horizon is about 6 percent. This component is in the R081CY360TX Low Stony Hill 29-35 Pz ecological site. Nonirrigated land capability classification is 6s. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 2 percent. There are no saline horizons within 30 inches of the soil surface. This soil does not meet the criteria for hydric soils. Hydrologic Soil Group: D.

- GeB—Georgetown clay loam, 0 to 2 percent slopes

The Georgetown component makes up 90 percent of the map unit. Slopes are 0 to 2 percent. This component is on broad ridges on dissected plateaus. The parent material consists of clayey residuum weathered from limestone. Depth to a root restrictive layer, bedrock, lithic, is 20 to 40 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 3 percent. This component is in the R081CY361TX Redland 29-35 Pz ecological site. Nonirrigated land capability classification is 3s. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. This soil does not meet the criteria for hydric soils. Hydrologic Soil Group: D.

- GsB—Georgetown stony clay loam, 1 to 3 percent slopes

The Georgetown component makes up 90 percent of the map unit. Slopes are 1 to 3 percent. This component is on broad ridges on dissected plateaus. The parent material consists of clayey residuum weathered from limestone. Depth to a root restrictive layer, bedrock, lithic, is 20 to 40 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter

content in the surface horizon is about 3 percent. This component is in the R081CY361TX Redland 29-35 Pz ecological site. Nonirrigated land capability classification is 6s. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. This soil does not meet the criteria for hydric soils. Hydrologic Soil Group: D.

Geologic Stratigraphy

According to the *Geologic Map of the Georgetown Quadrangle, Texas*, and the *Geologic Map of the Cobbs Cavern Quadrangle, Texas*, two geologic units occur within the project area (**Attachment A, Figure 3**). These units and a description by Collins et al., (1997) are as follows:

- Georgetown Formation (Kgt)

“Limestone and marl. Nodular, very fossiliferous, diagnostic marine megafossils include *Waconella wacoensis* (formerly *Kingena wacoensis*) and *Gryphaea washitaensis*. Rare small vugs. Uppermost Edwards aquifer strata. Thickness increases northward from ~65ft to 110ft.”

- Edwards Limestone (Ked)

“Limestone, dolomitic limestone and marl. Massive to thin beds, chert, and fossiliferous; fossils include rudistids. Shallow subtidal to tidal-flat cycles. Honeycomb textures, voids in collapsed breccias, and cavern systems. Accounts for most of the Edwards aquifer strata. Thickness is between 100ft to 300ft; thins northward.”

Site-Specific Stratigraphic Column

Formation	Members	Thickness (Collins et al., 1997)
Georgetown Formation		65-110 feet
Edwards Limestone		100-300 feet

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 interfingering 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 25°, as evidenced by the mapped fault patterns (**Attachment A, Figure 4**). Thus, all features that have a trend ranging from 05° to 40° are considered “on trend” and were awarded the additional 10 points in the Geologic Assessment Table.

The subject area is underlain by Kgt and Ked (Collins et al., 1997). The Georgetown Formation overlies the Edwards Limestone Formation on-site. The contact between the two units is present in the southwestern portion of the subject area. The contact was exhibited as gradient with Georgetown Formation float rocks present on top of Edwards Limestone bedrock.

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 northern 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 site and it was determined that ranching and agricultural activities occurred on the site since the first aerial image dated 1941 (**Attachment C**). Evidence of a rural residence or agricultural structure, and associated road, are first visible in the eastern portion of the tract in the 1953 aerial. The 1981 aerial shows the initial stages of a quarry development offsite, along the northeastern property boundary. In the 2004 aerial, a residential subdivision is first visible to the south of the site and expands to the west of the site in the 2010 aerial.

5.0 SUMMARY OF FINDINGS

This report documents the findings of several geologic assessments and karst surveys conducted on the Woodside Tract since 2004. **aci consulting** conducted a geologic assessment for a previously un-surveyed 167-acre portion of the Woodside Tract on March 15th, 2021, and March 17th, 2021. Descriptions, recommendations, and locations for these features can be found in **Attachment B**. Based on the identification and assessment of each feature, it was determined that there is one sensitive naturally occurring feature (M-04). This feature will require a 50-foot setback around the the sink of the feature.

Three (karst) features were identified in the 2012 geologic assessment conducted by M. Trojan and Associates (report available upon request). The findings from that report indicate one feature (F-01) is sensitive and the other two are non-sensitive. **aci consulting** attempted to locate F-01 during the most recent survey conducted in 2021. This feature was not identified by **aci consulting** during the field work conducted in 2021 or during previous work within the site.

Of the sensitive features identified in the 2006 assessment for the greater Fakhr Tract, several were determined to be eligible for inclusion in the regional habitat plan and have been transferred to Williamson County. The remaining features not transferred to Williamson County were determined to be non-sensitive (**Attachment C**) (Report available upon request).

Over the course of multiple investigations on the tract and a follow up re-evaluation, only one naturally occurring karst feature has been identified and rated as sensitive. This feature is included in this report as M-04. The portion of the of the Fakhr Tract with a high density of sensitive caves and features was dedeed to Williamson County as part of the Percilla's Well Karst Preserve and is under the control of the county. Subsequent investigations by others not available for this report revealed no additional sensitive features.

6.0 REFERENCES

Collins, E.W., 1997. *Geologic Map of the Georgetown Quadrangle, Texas*. Bureau of Economic Geology. Austin, Texas.

Collins, E.W., 1997. *Geologic Map of the Cobbs Cavern Quadrangle, Texas*. Bureau of Economic Geology. Austin, Texas.

(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.

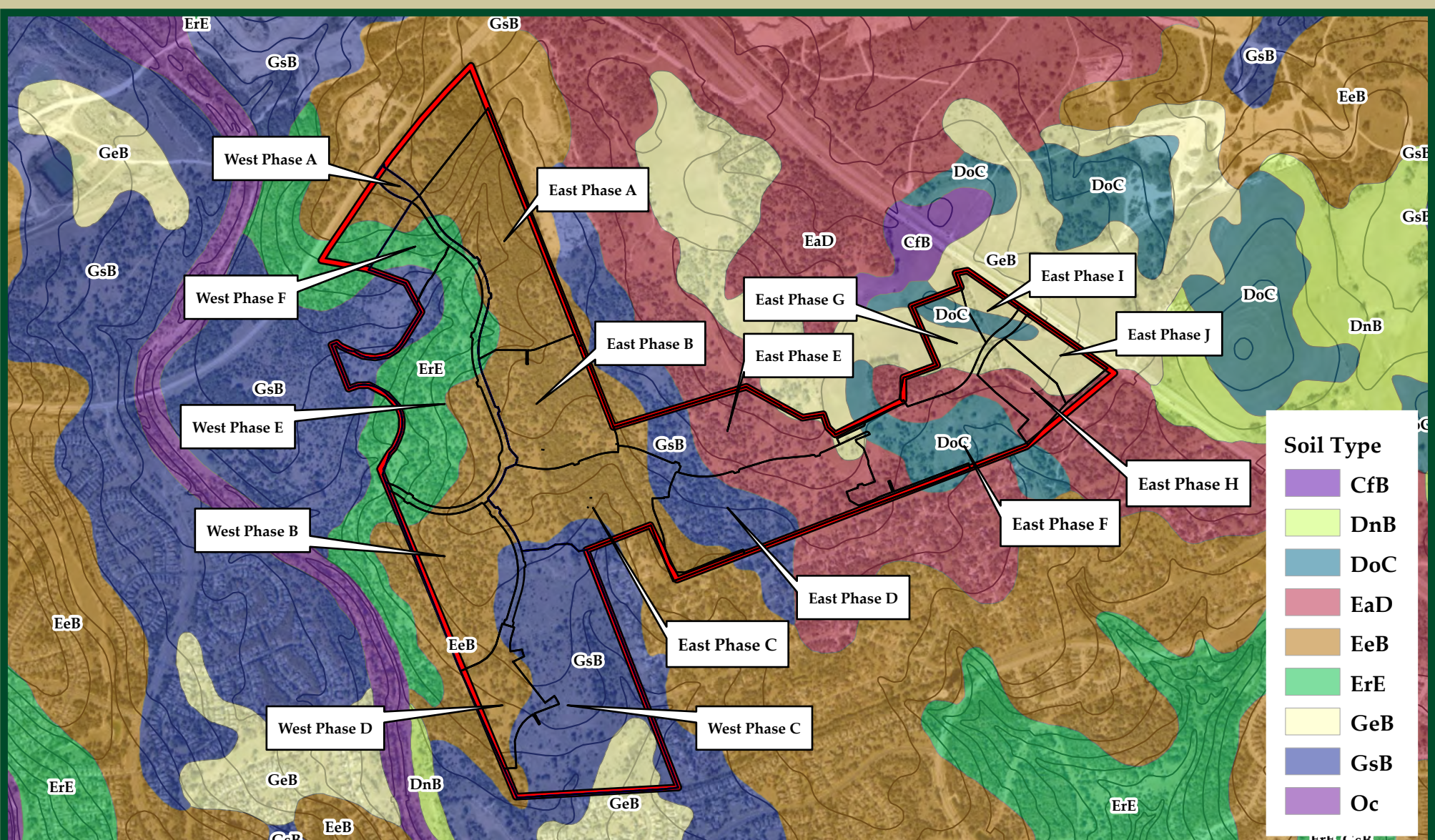
(TWDB) Texas Water Development Board. 2021. Water Data Interactive Groundwater Data Viewer. Accessed on March 22, 2021. Available at:
<http://www2.twdb.texas.gov/apps/waterdatainteractive/groundwaterdataviewer>

(USDA NRCS) U.S. Department of Agriculture Natural Resources Conservation Service. 2021. WebSoilSurvey.com. Soil Survey Area: Williamson County, Texas. Date accessed: March 22, 2021.

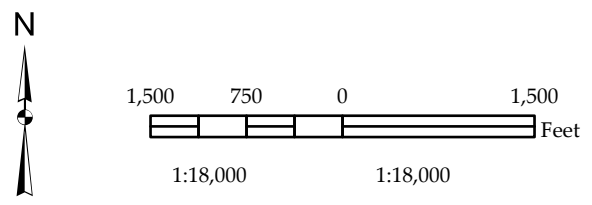
ATTACHMENT A

Site Maps

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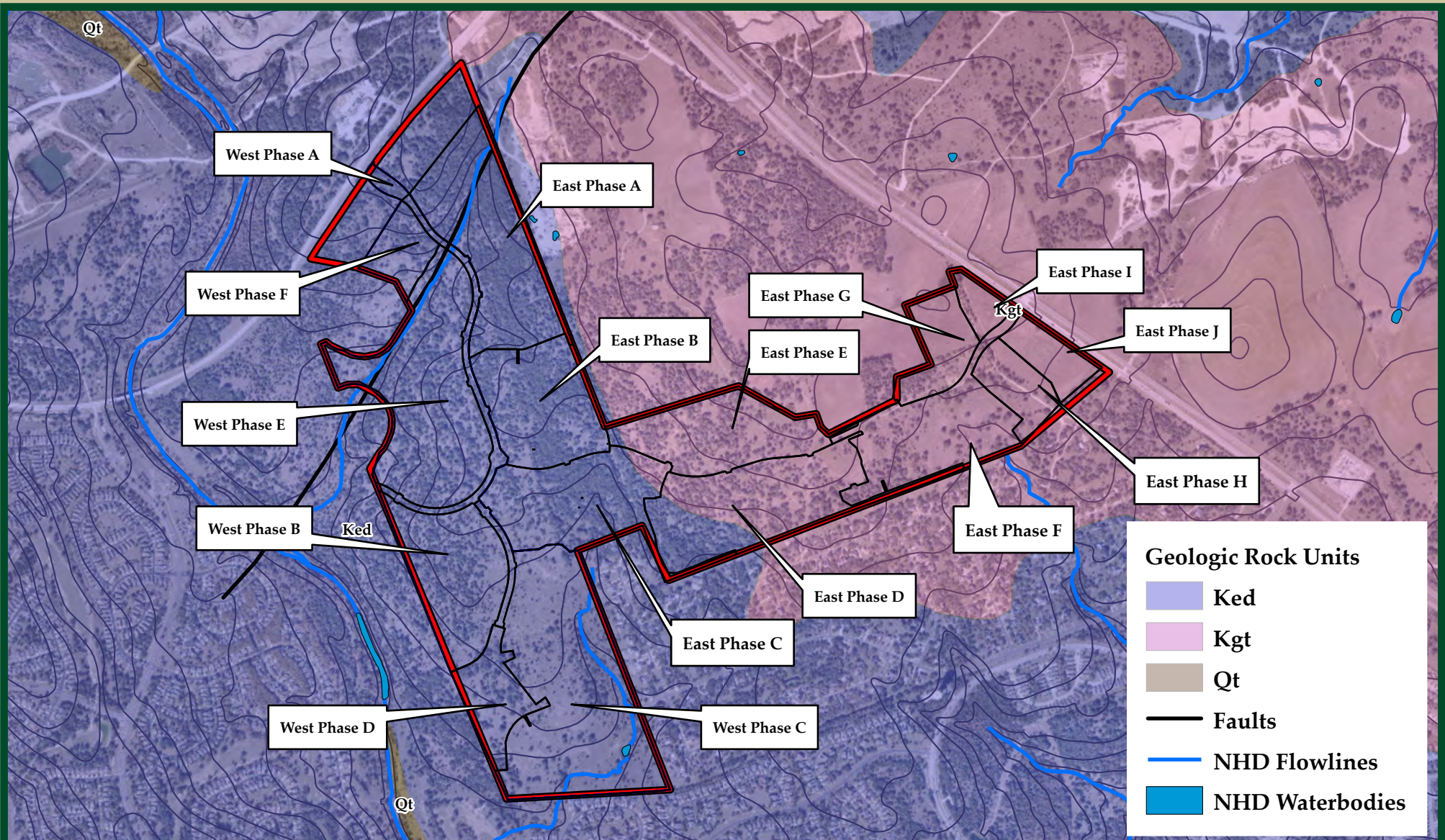
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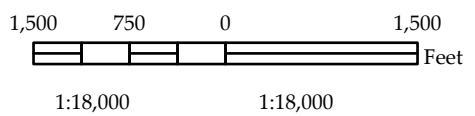
Subject Area (~510.5 acres)



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

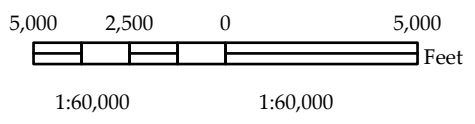
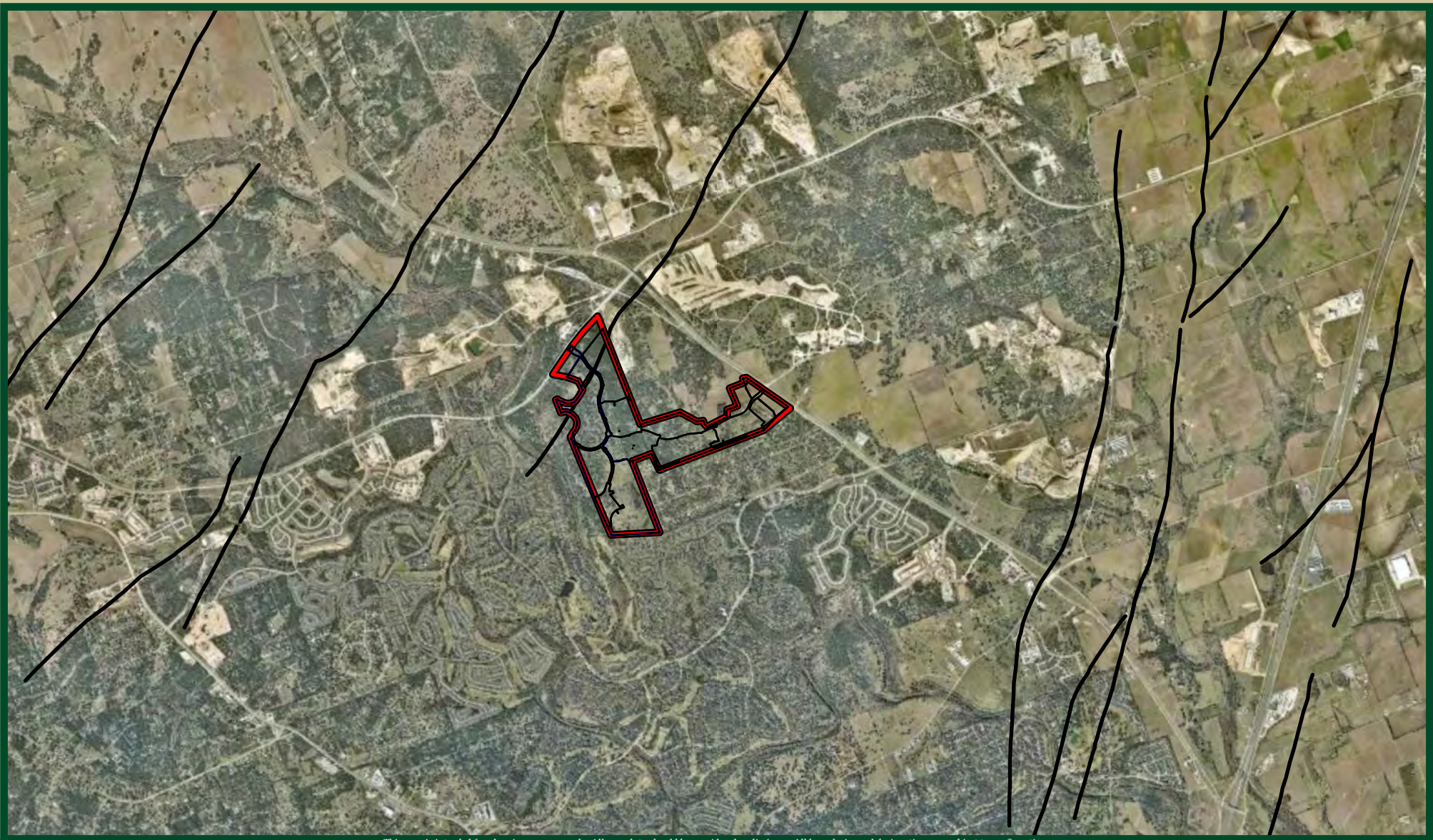




 Subject Area (~510.5 acres)



Woodside Tract
Figure 3: Site Geologic Map

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-  Subject Area (~510.5 acres)
-  Faults

Regional Fault Trend ~25°



Woodside Tract

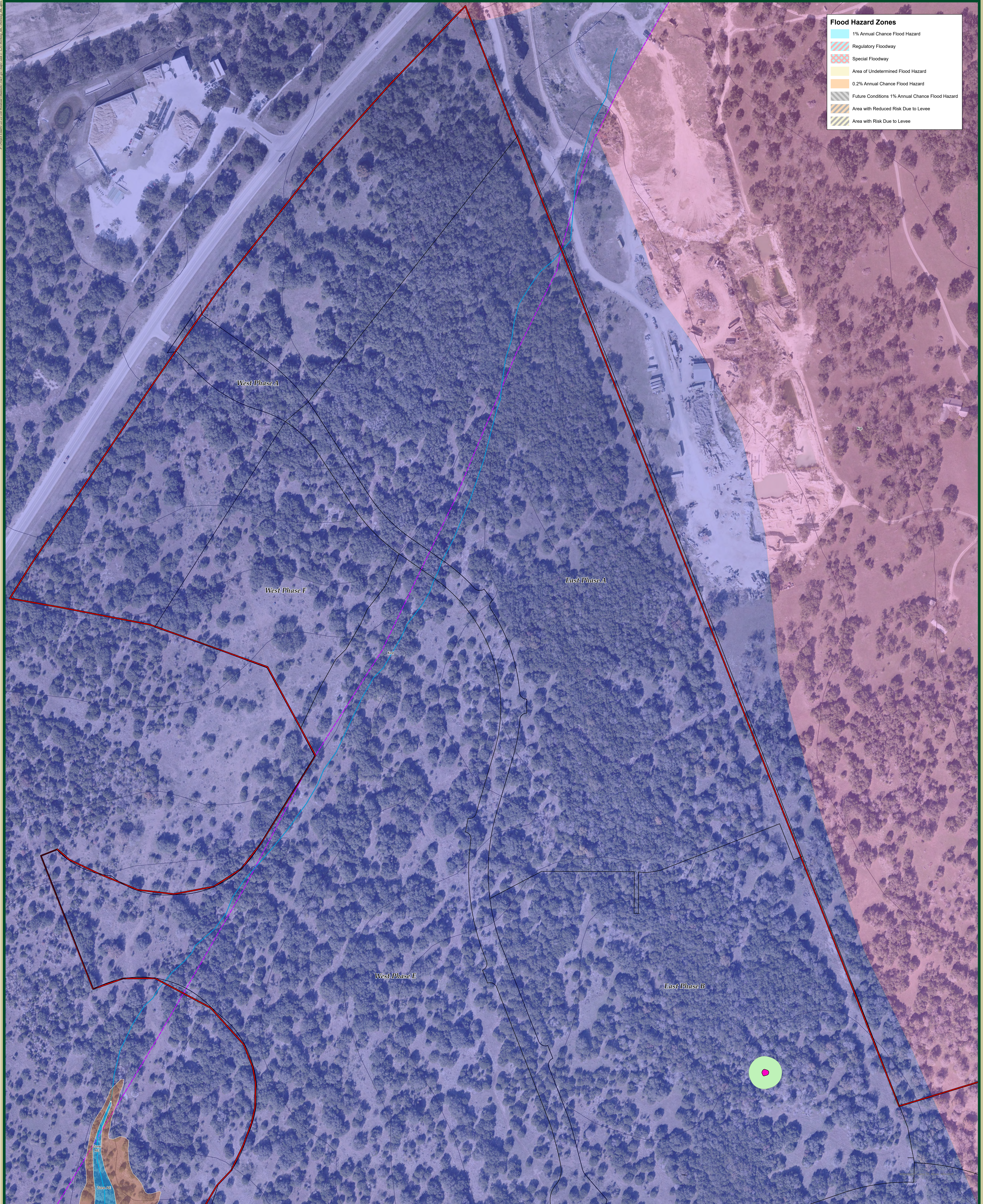
Figure 4: Regional Fault Trend

aci Project No.: 22-14-009ZZJ

September 2022

ATTACHMENT B

Geologic Table Geologic and Manmade Feature Map (Figures 5-1, 5-2, & 5-3) Feature Descriptions and Recommendations



Flood Hazard Zones

- 1% Annual Chance Flood Hazard
- Regulatory Floodway
- Special Floodway
- Area of Undetermined Flood Hazard
- 0.2% Annual Chance Flood Hazard
- Future Conditions 1% Annual Chance Flood Hazard
- Area with Reduced Risk Due to Levee
- Area with Risk Due to Levee

West Phase A

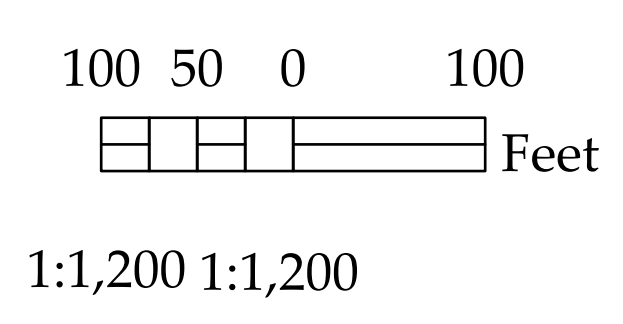
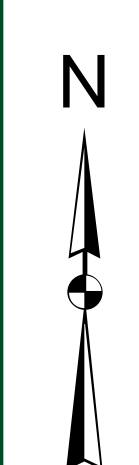
West Phase F

East Phase A

West Phase E

East Phase B

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 (~510.5 acres)

- M-04
- M-04 50-ft Buffer

Geologic Rock Units

- Ked
- Kgt
- Fault
- Inferred Normal

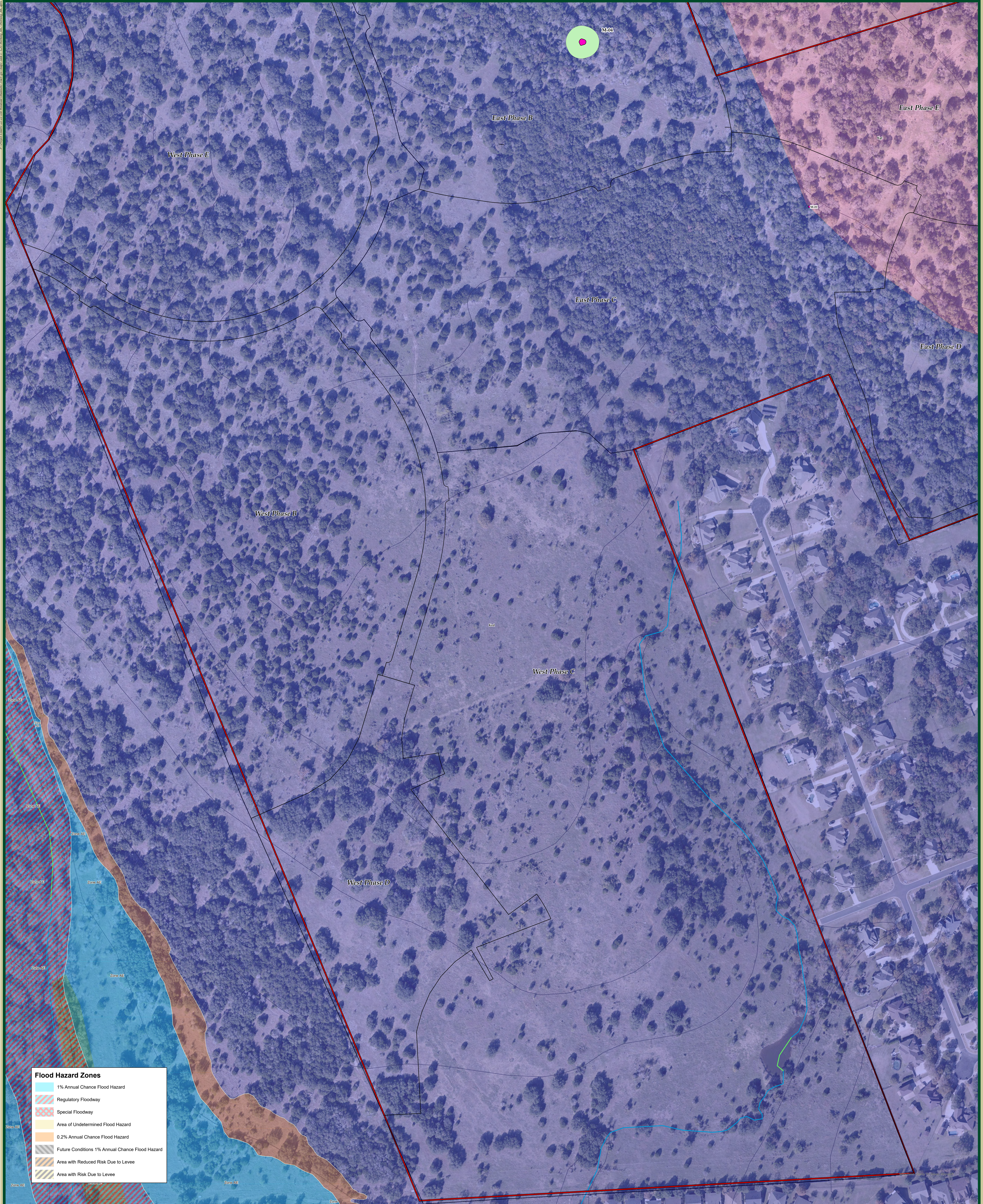
NHD Flowlines

- Stream/River

The entire subject area is within the Edwards Aquifer Recharge Zone.
The remaining subject area continues on the next map.



Woodside Tract
Figure 5-1: Feature Map



Flood Hazard Zones

	1% Annual Chance Flood Hazard
	Regulatory Floodway
	Special Floodway
	Area of Undetermined Flood Hazard
	0.2% Annual Chance Flood Hazard
	Future Conditions 1% Annual Chance Flood Hazard
	Area with Reduced Risk Due to Levee
	Area with Risk Due to Levee

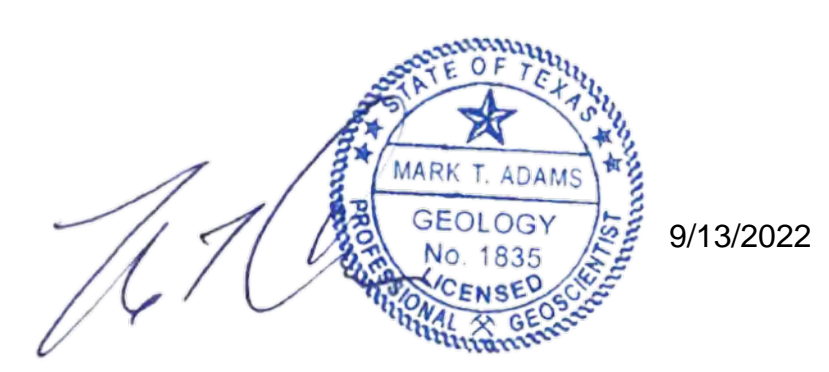
Geologic Rock Units

	Ked
	Kgt
	Qt

NHD Flowlines









	ArtificialPath
	StreamRiver

The entire subject area is within the Edwards Aquifer Recharge Zone.
The remaining subject area continues on the next map.



Woodside Tract
Figure 5-2: Feature Map

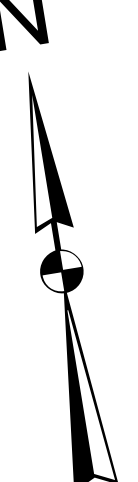
Flood Hazard Zones

-  1% Annual Chance Flood Hazard
-  Regulatory Floodway
-  Special Floodway
-  Area of Undetermined Flood Hazard
-  0.2% Annual Chance Flood Hazard
-  Future Conditions 1% Annual Chance Flood Hazard
-  Area with Reduced Risk Due to Levee
-  Area with Risk Due to Levee




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


N




100 50 0 100
Feet


1:1,200 1:1,200

 Subject Area (~510.5 acres)


 aci Features (2021)

Geologic Rock Units

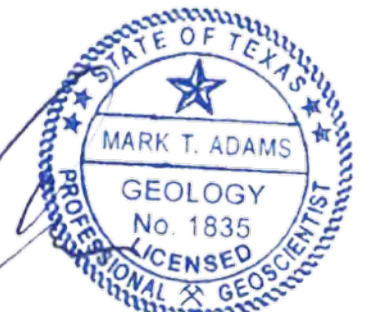
 Ked

 Kgt

NHD Flowlines

 Stream/River

The entire subject area is within the Edwards Aquifer REcharge Zone.
The remaining subject area continues on the previous maps.



9/13/2022



Woodside Tract
Figure 5-3: Feature Map

M-01

GPS: 30.740266, -97.718621

This feature is a closed depression, located on a gently sloping hillside. This feature was located at the contact between the Edwards Limestone and Georgetown Formations. The approximate dimensions of the depression are 3 feet long by 2 feet wide by 0.5 feet deep. Light hand excavation was performed to identify any apertures within the depression, none of which were observed. It was noted that the interior of the feature is not rock lined, rather the infill material consisted of loose soils and organics such as leaves, sticks, and roots. Several small shrubs were observed near the feature suggesting the possibility of a root heave among the limestone float rocks within the depression. The catchment area is less than 1.6 acres and the probability of rapid infiltration was determined to be low and assigned a point value of 10. The feature was determined to be non-sensitive.

Recommendation: No protections required.



M-01 (view showing depression).



M-01 (top view showing center of feature).

M-02

GPS: 30.739062, -97.714590

This feature is a 'other natural bedrock feature', a fractured epikarst float rock located on a gently sloping hillside in the Georgetown Formation. This feature was observed within a minor depression approximately 3 feet in diameter. Light hand excavation was performed to assess the extent of this feature and if any portals were present within the depression. After light hand excavation, a fractured float rock was observed. The dimensions of this feature were 1.5 feet by 2 feet by 0.5 foot deep. There were no apertures observed after excavation and the feature is not rock lined. Infill material consists of dark soils and loose organics. The drainage area is less than 1.6 acres and the probability of rapid infiltration was designated as low, with a point value of 8. The feature was determined to be non-sensitive.

Recommendation: No protections required.



M-02.

M-04

GPS: 30.741945 -97.721155

M-04 is a cave located on a gently sloping hillside in the Edwards Limestone Formation. The aperture of the cave is roughly a keyhole shape trending at 275°, with a width ranging between 0.5 feet and 2.5 feet. The dimensions of this feature are approximately 8 feet long by 2.5 feet wide by 6 feet deep. The subsurface extent, if any, of this feature was not explored during at the time of this assessment. The approximate diameter of the sink surrounding the feature is 11 feet. This feature was rock lined with small amounts of loose-leaf organics in the interior. There was vegetation present around the perimeter of the feature, however it was not determined if there was any biological activity present within the cave. There was no air flow or water flow observed within the aperture of the cave. The catchment area was determined to be less than 1.6 acres, thus, the relative infiltration rate was determined to be intermediate and assigned a point value of 20

Recommendation: Recommended 50ft setback around the perimeter of the sink. (See Figure 5-2).



M-04 (View of depression)

MMB-01

GPS: 30.741691, -97.709857

This feature is a 'manmade feature in bedrock', a well, located on a gently sloping hillside in the Georgetown Limestone Formation. The dimensions of this well are 0.5 foot wide and extends below the surface for an unknown depth. The drainage of this feature was less than 1.6 acres and the probability of rapid infiltration has been designated as low (10 pts). As this feature is a manmade feature in bedrock, it has been designated as sensitive to call the attention of the engineer.

Recommendation: Notify engineer for proper handling.



MMB-01.

MMB-02

GPS: 30.742861, -97.707667

This feature is a 'manmade feature in bedrock', a well, located on a gently sloping hillside in the Georgetown Limestone Formation. The dimensions of this well are 0.2 foot wide and extends below the surface for an unknown depth. The drainage of this feature was less than 1.6 acres and the probability of rapid infiltration has been designated as low (10 pts). As this feature is a manmade feature in bedrock, it has been designated as sensitive to call the attention of the engineer.

Recommendation: Notify engineer for proper handling.



MMB-02.

MMB-03

GPS: 30.742767, -97.707409

This feature is a 'manmade feature in bedrock', a potential septic tank, located on a gently sloping hillside in the Georgetown Limestone Formation. The above ground dimensions of this tank are approximately 4 feet in diameter and extends below the surface for an unknown depth. The below ground dimensions of the tank itself were not determined. The drainage of this feature was less than 1.6 acres and the probability of rapid infiltration has been designated as low (10 pts). As this feature is a manmade feature in bedrock, it has been designated as sensitive to call the attention of the engineer.

Recommendation: Notify engineer for proper handling.



MMB-03.

MMB-04

GPS: 30.74289, -97.707494

This feature is a 'manmade feature in bedrock', a potential septic tank, located on a gently sloping hillside in the Georgetown Limestone Formation. The above ground dimensions of this tank are approximately 6 feet by 4 feet and extends below the surface for an unknown depth. The below ground dimensions of the tank itself were not determined. The drainage of this feature was less than 1.6 acres, and the probability of rapid infiltration has been designated as low (10 pts). As this feature is a manmade feature in bedrock, it has been designated as sensitive to call the attention of the engineer.

Recommendation: Notify engineer for proper handling.



MMB-04

MMB-05

GPS: 30.742662, -97.707332

This feature is a 'manmade feature in bedrock', a potential septic tank, located on a gently sloping hillside in the Georgetown Limestone Formation. The above ground dimensions of this tank are approximately 4 feet in diameter and extends below the surface for an unknown depth. The below ground dimensions of the tank itself were not determined. The drainage of this feature was less than 1.6 acres and the probability of rapid infiltration has been designated as low (10 pts). As this feature is a manmade feature in bedrock, it has been designated as sensitive to call the attention of the engineer.

Recommendation: Notify engineer for proper handling.



MMB-05.

ATTACHMENT C

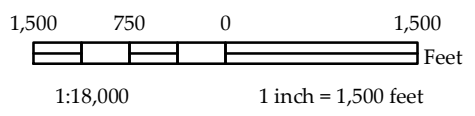
Karst Feature Assessment Map (2006)

aci consulting

2006



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 (~510.5 acres)  Fakhr GA Features (non-sensitive)





ATTACHMENT D

Historic Aerials

Prepared for:

ACI CONSULTING
1001 Mopac Circle
Austin, TX 78746



Historical Aerial Photographs

Madison Tract

TX

Williamson County

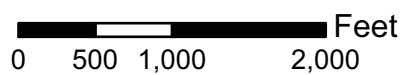
PO #: 22-14-009ZZJ

ES-135955

Friday, March 19, 2021

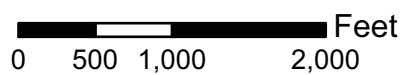


Date: 2020
Source: USDA



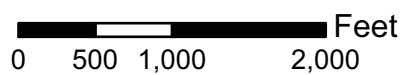


Date: 2016
Source: USDA





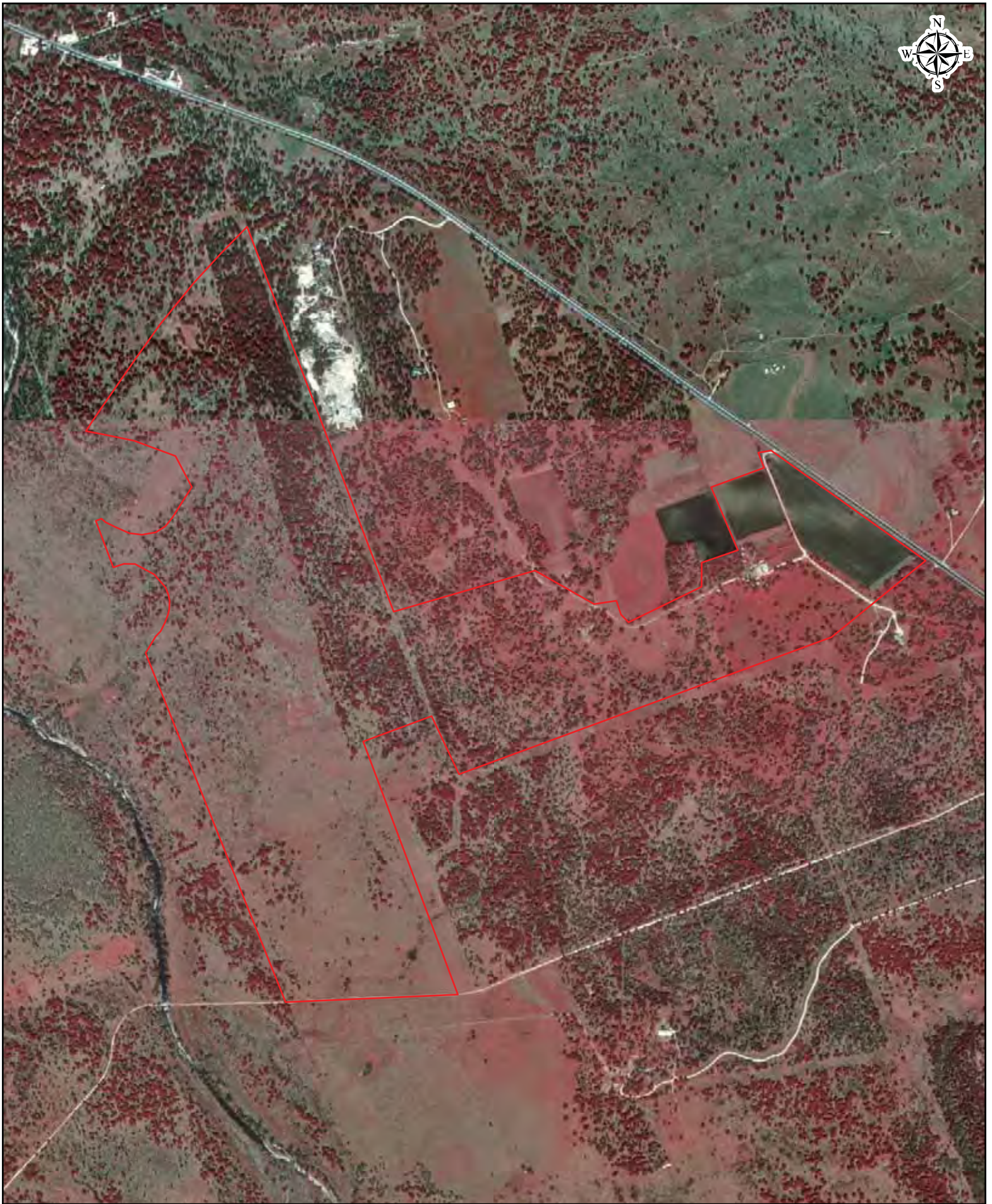
Date: 2010
Source: USDA



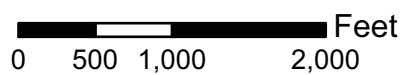


Date: 2004
Source: USDA





Date: 1995
Source: USGS





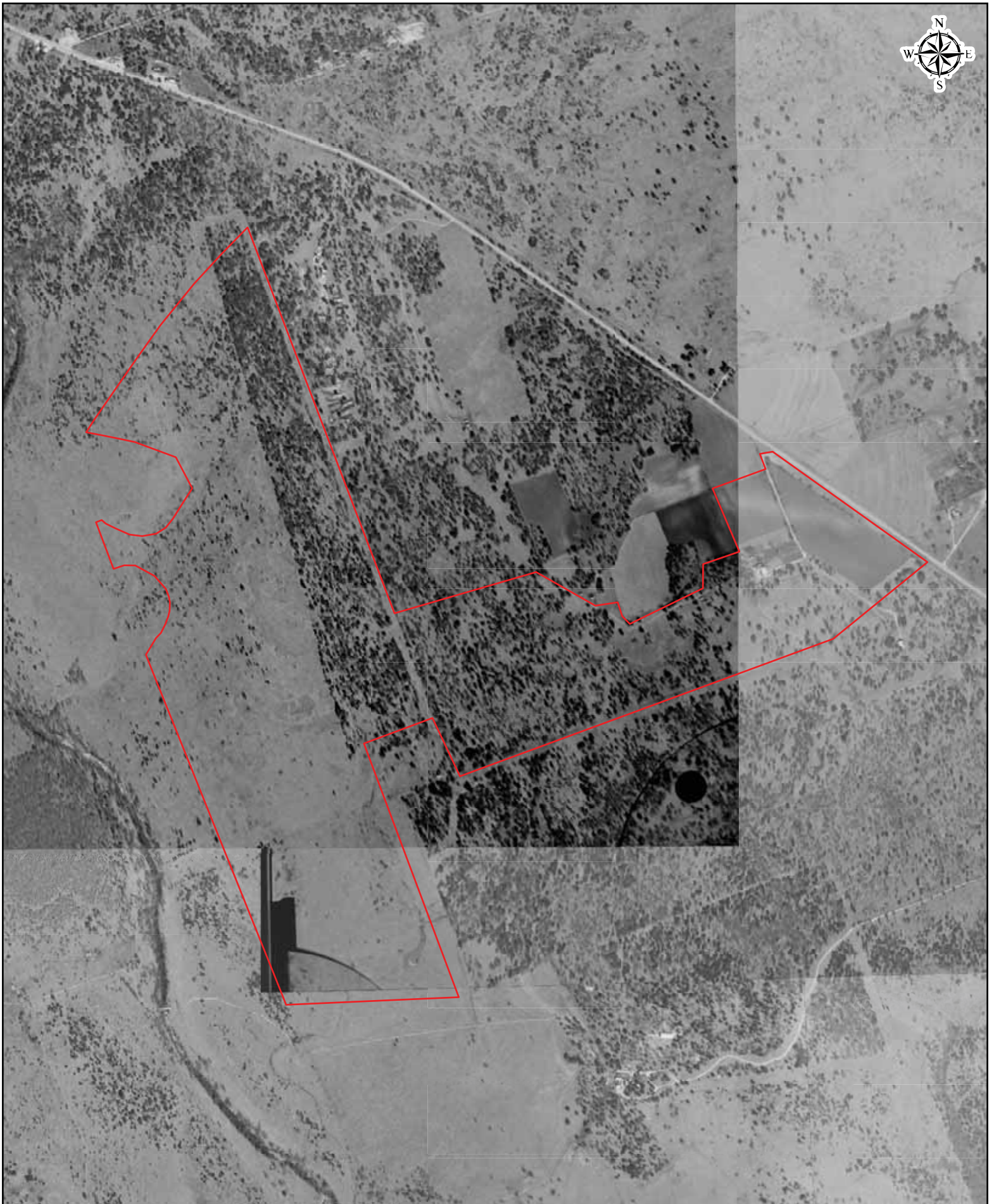
Date: 1990
Source: USGS



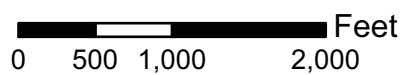


Date: 1981
Source: USGS



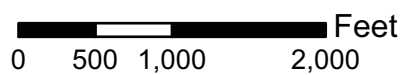


Date: 1974
Source: USGS



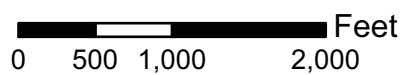


Date: 1953
Source: AMS





Date: 1941
Source: ASCS



HISTORICAL AERIAL PHOTOGRAPHS	
ES- 135955	March 19, 2021



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-135955	March 19, 2021



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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: MK Woodside Development, Inc. / Steger Bizzell, Tyson Hasz, P.E.

Date: 1/19/2024

Signature of Customer/Agent:



Regulated Entity Name: Woodside East - Phase B

Regulated Entity Information

1. The type of project is:

- Residential: Number of Lots:141
- Residential: Number of Living Unit Equivalents: _____
- Commercial
- Industrial
- Other: _____

2. Total site acreage (size of property):34.28

3. Estimated projected population:353

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	537,355	÷ 43,560 =	12.34
Parking	0.0	÷ 43,560 =	0.0
Other paved surfaces	314,257	÷ 43,560 =	7.21
Total Impervious Cover	851,612	÷ 43,560 =	19.55

Total Impervious Cover 19.55 ÷ Total Acreage 34.28 X 100 = 57.03% 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	_____ Gallons/day
_____ % Industrial	_____ Gallons/day
_____ % Commingled	_____ Gallons/day
TOTAL gallons/day _____	

15. Wastewater will be disposed of by:

- On-Site Sewage Facility (OSSF/Septic Tank):
- Attachment C - Suitability Letter from Authorized Agent.** An on-site sewage facility will be used to treat and dispose of the wastewater from this site. The appropriate licensing authority's (authorized agent) written approval is attached. It states that the land is suitable for the use of private sewage facilities and will meet or exceed the requirements for on-site sewage facilities as specified under 30 TAC Chapter 285 relating to On-site Sewage Facilities.
- Each lot in this project/development is at least one (1) acre (43,560 square feet) in size. The system will be designed by a licensed professional engineer or registered sanitarian and installed by a licensed installer in compliance with 30 TAC Chapter 285.
- Sewage Collection System (Sewer Lines):
- Private service laterals from the wastewater generating facilities will be connected to an existing SCS.
- Private service laterals from the wastewater generating facilities will be connected to a proposed SCS.
- The SCS was previously submitted on _____.
- The SCS was submitted with this application.
- The SCS will be submitted at a later date. The owner is aware that the SCS may not be installed prior to Executive Director approval.

The sewage collection system will convey the wastewater to the Pecan Branch (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): _____

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

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

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

There are _____ (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply)

The wells are not in use and have been properly abandoned.

The wells are not in use and will be properly abandoned.

The wells are in use and comply with 16 TAC §76.

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

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

All sensitive geologic or manmade features identified in the Geologic Assessment are shown and labeled.

No sensitive geologic or manmade features were identified in the Geologic Assessment.

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

- 22. The drainage patterns and approximate slopes anticipated after major grading activities.
- 23. Areas of soil disturbance and areas which will not be disturbed.
- 24. Locations of major structural and nonstructural controls. These are the temporary and permanent best management practices.
- 25. Locations where soil stabilization practices are expected to occur.
- 26. Surface waters (including wetlands).
 - N/A
- 27. Locations where stormwater discharges to surface water or sensitive features are to occur.
 - There will be no discharges to surface water or sensitive features.
- 28. Legal boundaries of the site are shown.

Administrative Information

- 29. Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.
- 30. Any modification of this WPAP will require Executive Director approval, prior to construction, and may require submission of a revised application, with appropriate fees.

Attachment A – Factors Affecting Surface Water Quality

The following factors are anticipated to adversely affect surface water and groundwater quality:

- Disturbance of vegetated areas.
- Leaking oil from parked vehicles.
- Malfunctioning wastewater collection system and spill on site.
- Loss of vegetative ground cover due to inadequate watering or mismanagement.
- Over fertilizing vegetative areas.
- The use of roads by automotive traffic and subsequent oil/grease pollutants from normal use.
- The accidental or improper discharge of the following:
 - a) Concrete
 - b) Cleaning solvents
 - c) Detergents
 - d) Petroleum based products
 - e) Paints
 - f) Paint solvents
 - g) Acids
 - h) Concrete additives

Attachment B – Volume and Character of Storm Water

The existing condition for the site is undeveloped ranch land. The proposed Woodside East - Phase B is composed of a drainage area which discharges to Berry Creek south of the property, as shown in the Berry Creek drainage report. A summary of the drainage calculations is below and is also included in the attached exhibits.

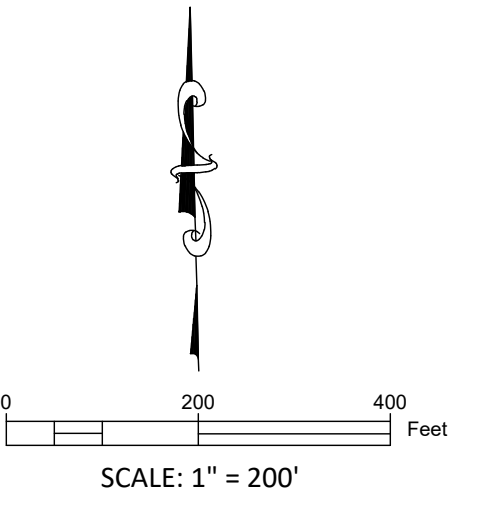
The character of the storm water generated by this project is typical of residential development. The stormwater flows across the pavement, then is conveyed through the site and treated by batch detention ponds or is conveyed across single-family lots via sheet flow and is treated with vegetative filter strips.

Berry Creek Runoff Calculations – Existing Conditions

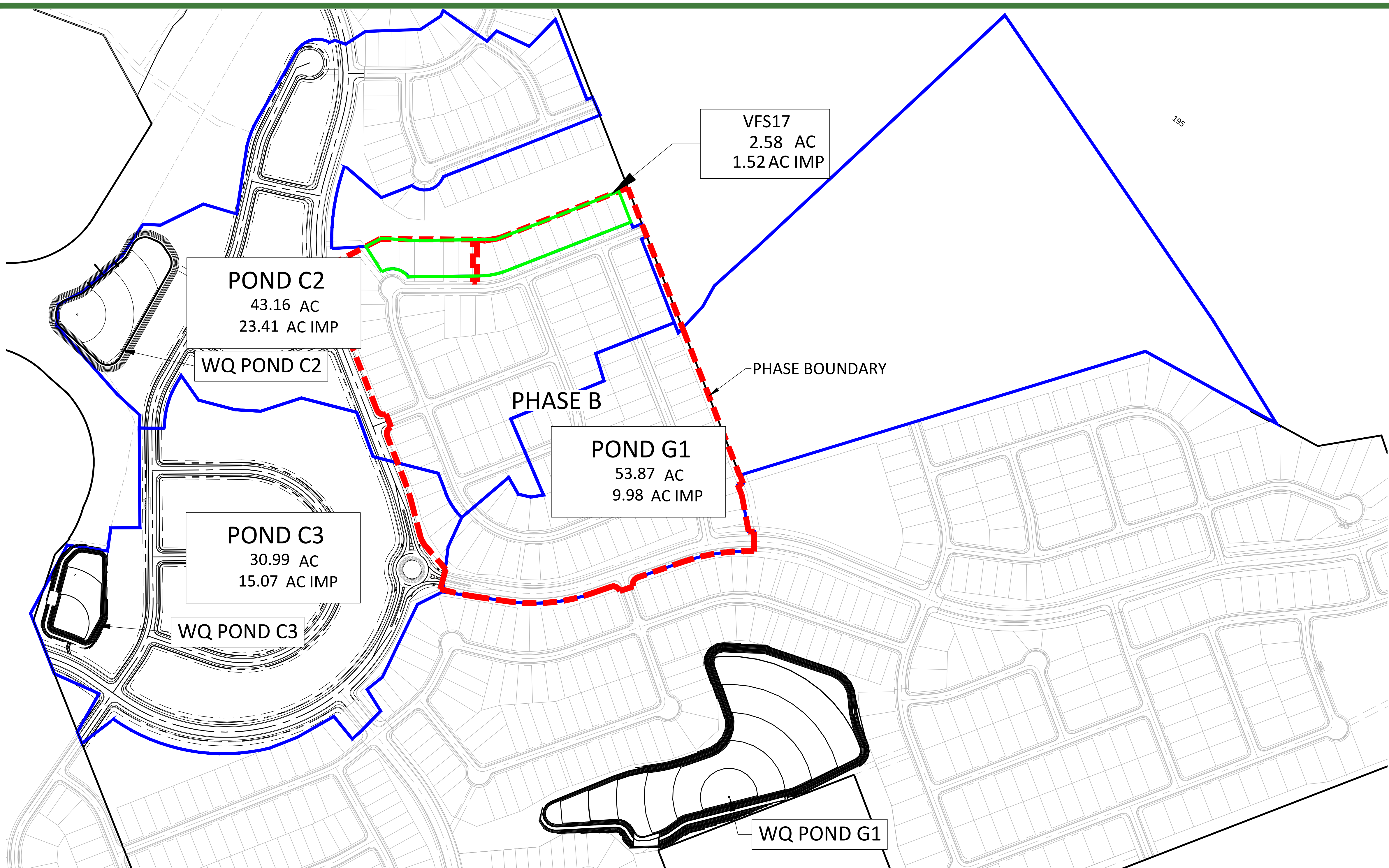
EXISTING CONDITION SUBBASIN ELEMENTS								
SUBBASIN	AREA [SQ MI]	CN	LAG [MIN]	Q2 [CFS]	Q10 [CFS]	Q25 [CFS]	Q100 [CFS]	DOWNSTREAM
A	55.80078125	80.0	235.41	6687.4	15864.17	21852.75	30690.46	R-1
A-1	.09540625	87.2	13.995	144.7	250.13	312.65	404.76	R-1
B	.303125	84.5	20.57	318.74	606.2	781.75	1035.3	J-1
C-1	.08890625	80.0	15.06	90.43	182.73	238.7	323.26	R_C1-C2
C-2A	.054375	80.0	21.71	50.89	105.46	138.87	189.2	R_C2A-C2B
C-2B	.03745313	80.0	13.72	38.08	77.89	101.95	138.95	J-C2
C-2C	.04217188	80.0	11.21	47.33	95.41	124.02	168.89	J-C2
C-3A	.0361875	80.0	14.89	33.92	70.29	92.55	126.1	R_C3A-C3B
C-3B	.08003125	80.0	18.69	68.62	143.78	190.45	259.82	J-C3
C-3C	.03898438	80.0	14.26	40.91	82.23	107.17	145.03	J-C3
C-4A	.05154688	80.0	12.65	90.81	148.99	183.44	234.61	J-C4
C4-B	.06579688	80.0	13.24	68.16	139.09	181.81	247.5	J-C4
D	.11645313	82.88	22.61	105.55	209.68	274.03	367.34	J-1
E	.3141875	84.5	27.99	271.89	529.61	689.12	917.29	J-2
F	.19184375	80.0	19.52	212.01	406.42	524.11	697.1	J-2
G	.6435	83.14	30.55	486.79	982.43	1293.17	1739.24	J-3
G-1	.06917188	80.0	15.58	74.49	151.09	196.96	268.12	R_G1-G2
G-2	.13353125	80.0	40.002	126.15	261.03	343.52	468.15	J-G2
G-3A	.04140625	80.0	11.2	46.5	93.72	121.83	165.92	J-G3
G-3B	.0138125	80.0	10.97	23.32	41.18	51.61	67.8	J-G3
G-4A	.027	80.0	15.08	26.1	53.84	70.73	96.33	J-G4
G-4B	.15692188	83.7	22.79	138.12	271.78	354.55	473.57	J-G4
G-4C	.08151563	80	15.74	77.02	159.37	209.73	285.82	POI-G4
G-5A	.04626563	80.0	12.33	49.67	100.81	131.43	178.87	J-G5
G-5C	.1503125	89.55	44.6	199.29	341.39	426.97	548.03	J-G5
H	10.79682813	82.3	79.16	3969.51	8672.89	11669.6	16017.65	J-3
I	3.73673438	82.7	73.18	1449.35	3132.31	4202.32	5750.76	J-4
J	1.62089063	84.5	33.7	1237.23	2440.67	3192.7	4264.07	R_J-K
K	.8356875	84.82	29.99	780.59	1499.6	1941.94	2575.29	J-4
K-1	.06257813	80.0	16.31	57.99	120.22	158.45	216.06	R_K1_K2
K-2	.12379688	80.0	14.34	122.92	252.58	331.16	451.02	POI-K2
K-4	.1555625	82.57	19.87	149.84	296.89	387.19	519.13	J-4
K-5	.08782813	82.65	14.99	99.89	192.87	248.83	332.79	J-4
L	.20442188	86.5	22.8	224.51	412.29	526.51	689.32	J-4

Berry Creek Runoff Calculations – Developed Site

PROPOSED CONDITION SUBBASIN ELEMENTS								
SUBBASIN	AREA [SQ MI]	CN	LAG [MIN]	Q2 [CFS]	Q10 [CFS]	Q25 [CFS]	Q100 [CFS]	DOWNSTREAM
A	55.80078125	80.0	235.41	6687.4	15864.17	21852.75	30690.46	R-1
A-1	.09540625	87.2	13.995	144.7	250.13	312.65	404.76	R-1
B	.303125	84.5	20.57	318.74	606.2	781.75	1035.3	J-1
C-1	.08890625	80.83	15.46	81.68	167.27	220.08	298.52	R_C1-C2
C-2A	.054375	80.0	21.71	50.89	105.46	138.87	189.2	R_C2A-C2B
C-2B	.02892188	89.24	15.66	45.58	76.27	94.61	121.18	J-C2
C-2C	.04217188	87.88	11.31	84.41	136.85	167.92	215.64	J-C2
C-3A	.0361875	80.0	14.89	33.92	70.29	92.55	126.1	R_C3A-C3B
C-3B	.08770313	88.29	19.52	165.63	270.73	332.4	427.03	
C-3C	.03898438	80.84	13.44	42.2	84.41	109.76	148.45	J-C3
C-4A	.05517188	89.08	15.02	98.21	161.18	198.34	253.48	J-C4
C4-B	.06579688	80.05	12.31	70.92	143.72	187.31	254.84	J-C4
D	.11590625	84.01	22.62	111.9	216.85	281.31	374.25	J-1
E	.3141875	84.5	27.99	271.89	529.61	689.12	917.29	J-2
F	.15021875	84.83	17.61	178.49	332.09	424.71	560.06	J-2
F-1	.0445625	90.73	10.62	91.98	143.64	174.21	220.29	R_F1-F
G	.6435	83.14	30.55	486.79	982.43	1293.17	1739.24	J-3
G-1	.06917188	80.0	15.58	74.49	151.09	196.96	268.12	R_G1-G2
G-2	.176875	89.65	20.58	321.44	521.74	640.22	815.7	POND G
G-3A	.03284375	88.72	12.77	56.28	93.32	115.25	147.9	J-G3
G-3B	.01395313	84.0	10.97	22.84	41.73	52.82	69.93	J-G3
G-4A	.028	88.37	19.65	46.11	77.42	95.95	123.33	J-G4
G-4B	.15692188	83.7	22.79	138.12	271.78	354.55	473.57	J-G4
G-4C	.01028125	86.41	13.27	18.39	31.08	38.5	50.02	POI-G4
G-5A	.02059375	89.09	12.66	36.1	59.35	73.12	93.57	J-G5
G-5B	.02820313	80.4	14.34	32.82	65.75	85.24	115.96	J-G5
G-5C	.1503125	89.55	44.6	199.29	341.39	426.97	548.03	J-G5
H	10.79682813	82.3	79.16	3969.51	8672.89	11669.6	16017.65	J-3
I	3.73673438	82.7	73.18	1449.35	3132.31	4202.32	5750.76	J-4
J	1.62089063	84.5	33.7	1237.23	2440.67	3192.7	4264.07	R_J-K
K	.8356875	84.82	29.99	780.59	1499.6	1941.94	2575.29	J-4
K-1	.06257813	80.0	16.31	57.99	120.22	158.45	216.06	R_K1_K2
K-2	.12896875	90.82	18.9	196.98	324.61	401.32	510.0	POND K
K-3	.0185	83.54	12.16	21.8	41.34	53.08	70.51	POI-K2
K-4	.1555625	82.57	19.87	149.84	296.89	387.19	519.13	J-4
K-5	.08782813	82.65	14.99	99.89	192.87	248.83	332.79	J-4
L	.20442188	86.5	22.8	224.51	412.29	526.51	689.32	J-4



- NOTES:**
- POND G1 AREA INCLUDES 37.91 ACRES FROM OFFSITE EVALUATED AT 0% IMPERVIOUS COVER
 - OFFSITE WATER WILL BE DIVERTED AROUND THE CATCHMENTS OF PONDS C2 AND C3
 - IMPERVIOUS COVER WAS ASSUMED TO BE THE MAXIMUM AMOUNT ALLOWED PER LOT TYPE AS DESCRIBED IN THE WOODSIDE PLANNED UNIT DEVELOPMENT



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

Drainage Basin/Outlet Area No.	C2
Total drainage basin/outlet area =	43.16 acres
Predevelopment impervious area within drainage basin/outlet area =	6.90 acres
Post-development impervious area within drainage basin/outlet area =	23.41 acres
Post-development impervious fraction within drainage basin/outlet area =	0.54 %

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = **Best Management Practice**
Removal efficiency = **91** percent

4. Calculate Maximum TSS Load Removed (Lr) for this Drainage Basin by the selected BMP Type.

RD-348 Page 3-33 Equation 3.7: $L_r = (BMP\ efficiency) \times P \times (A_i + 34.4 \times A_{i-1} \times 0.54)$

where:

- A_i = Total On-Site drainage area in the BMP catchment area
- A_{i-1} = Impervious area proposed in the BMP catchment area
- A_{i-2} = Previous area remaining in the BMP catchment area
- L_r = TSS Load removed from this catchment area by the proposed BMP

$A_i = 43.16$ acres
 $A_{i-1} = 6.90$ acres
 $A_{i-2} = 17.28$ acres
 $L_r = 2144$ lbs

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

Desired L_r (lbs/acre) = **2144** lbs
 $F = 0.85$

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

Calculations from RD-348 Page 3-34 to 3-36

Parameter	Value
Basin Depth	1.32 inches
Post-Development Runoff Coefficient	0.38
On-Site Water Quality Volume	5272 cubic feet

Calculations from RD-348 Page 3-36 to 3-37

Parameter	Value
Off-site area draining to BMP	6.30 acres
Off-site impervious cover draining to BMP	0.20 acres
Impervious fraction of off-site area	0.00
Off-site Runoff Coefficient	0.02
Off-site Water Quality Volume	36 cubic feet

Storage for Sediment = **10852** cubic feet
Total Capture Volume (required water quality volume) x 1.20 = **6332** cubic feet

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

Drainage Basin/Outlet Area No.	C3
Total drainage basin/outlet area =	31.96 acres
Predevelopment impervious area within drainage basin/outlet area =	6.90 acres
Post-development impervious area within drainage basin/outlet area =	15.07 acres
Post-development impervious fraction within drainage basin/outlet area =	0.47 %

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = **Best Management Practice**
Removal efficiency = **91** percent

4. Calculate Maximum TSS Load Removed (Lr) for this Drainage Basin by the selected BMP Type.

RD-348 Page 3-33 Equation 3.7: $L_r = (BMP\ efficiency) \times P \times (A_i + 34.4 \times A_{i-1} \times 0.54)$

where:

- A_i = Total On-Site drainage area in the BMP catchment area
- A_{i-1} = Impervious area proposed in the BMP catchment area
- A_{i-2} = Previous area remaining in the BMP catchment area
- L_r = TSS Load removed from this catchment area by the proposed BMP

$A_i = 31.92$ acres
 $A_{i-1} = 15.07$ acres
 $A_{i-2} = 15.55$ acres
 $L_r = 1491$ lbs

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

Desired L_r (lbs/acre) = **1491** lbs
 $F = 0.85$

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

Calculations from RD-348 Page 3-34 to 3-36

Parameter	Value
Basin Depth	1.32 inches
Post-Development Runoff Coefficient	0.38
On-Site Water Quality Volume	5489 cubic feet

Calculations from RD-348 Page 3-36 to 3-37

Parameter	Value
Off-site area draining to BMP	0.04 acres
Off-site impervious cover draining to BMP	0.20 acres
Impervious fraction of off-site area	0.00
Off-site Runoff Coefficient	0.02
Off-site Water Quality Volume	4 cubic feet

Storage for Sediment = **10854** cubic feet
Total Capture Volume (required water quality volume) x 1.20 = **6597** cubic feet

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

Drainage Basin/Outlet Area No.	POND G1
Total drainage basin/outlet area =	15.96 acres
Predevelopment impervious area within drainage basin/outlet area =	0.00 acres
Post-development impervious area within drainage basin/outlet area =	9.98 acres
Post-development impervious fraction within drainage basin/outlet area =	0.63 %

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = **Best Management Practice**
Removal efficiency = **91** percent

4. Calculate Maximum TSS Load Removed (Lr) for this Drainage Basin by the selected BMP Type.

RD-348 Page 3-33 Equation 3.7: $L_r = (BMP\ efficiency) \times P \times (A_i + 34.4 \times A_{i-1} \times 0.54)$

where:

- A_i = Total On-Site drainage area in the BMP catchment area
- A_{i-1} = Impervious area proposed in the BMP catchment area
- A_{i-2} = Previous area remaining in the BMP catchment area
- L_r = TSS Load removed from this catchment area by the proposed BMP

$A_i = 15.96$ acres
 $A_{i-1} = 0.00$ acres
 $A_{i-2} = 5.98$ acres
 $L_r = 1049$ lbs

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

Desired L_r (lbs/acre) = **1049** lbs
 $F = 0.85$

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

Calculations from RD-348 Page 3-34 to 3-36

Parameter	Value
Basin Depth	1.32 inches
Post-Development Runoff Coefficient	0.38
On-Site Water Quality Volume	3579 cubic feet

Calculations from RD-348 Page 3-36 to 3-37

Parameter	Value
Off-site area draining to BMP	37.91 acres
Off-site impervious cover draining to BMP	0.00 acres
Impervious fraction of off-site area	0.00
Off-site Runoff Coefficient	0.02
Off-site Water Quality Volume	3798 cubic feet

Storage for Sediment = **7785** cubic feet
Total Capture Volume (required water quality volume) x 1.20 = **4692** cubic feet

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

Drainage Basin/Outlet Area No.	VFS17
Total drainage basin/outlet area =	2.58 acres
Predevelopment impervious area within drainage basin/outlet area =	0.88 acres
Post-development impervious area within drainage basin/outlet area =	1.52 acres
Post-development impervious fraction within drainage basin/outlet area =	0.59 %

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = **Vegetated Filter Strip**
Removal efficiency = **85** percent

4. Calculate Maximum TSS Load Removed (Lr) for this Drainage Basin by the selected BMP Type.

RD-348 Page 3-33 Equation 3.7: $L_r = (BMP\ efficiency) \times P \times (A_i + 34.4 \times A_{i-1} \times 0.54)$

where:

- A_i = Total On-Site drainage area in the BMP catchment area
- A_{i-1} = Impervious area proposed in the BMP catchment area
- A_{i-2} = Previous area remaining in the BMP catchment area
- L_r = TSS Load removed from this catchment area by the proposed BMP

$A_i = 2.58$ acres
 $A_{i-1} = 1.88$ acres
 $L_r = 148$ lbs

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

Desired L_r (lbs/acre) = **148** lbs
 $F = 1.00$

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

Calculations from RD-348 Page 3-34 to 3-36

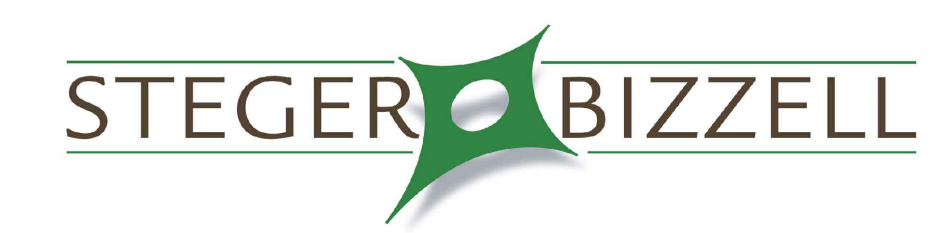
Parameter	Value
Basin Depth	4.00 inches
Post-Development Runoff Coefficient	0.47
On-Site Water Quality Volume	1667 cubic feet

Calculations from RD-348 Page 3-36 to 3-37

Parameter	Value
Off-site area draining to BMP	0.00 acres
Off-site impervious cover draining to BMP	0.00 acres
Impervious fraction of off-site area	0.00
Off-site Runoff Coefficient	0.00
Off-site Water Quality Volume	0 cubic feet

Storage for Sediment = **200** cubic feet
Total Capture Volume (required water quality volume) x 1.20 = **1600** cubic feet

WATER QUALITY PLAN
FOR
WOODSIDE - EAST PH B
GEORGETOWN, TEXAS



ADDRESS	1978 S. AUSTIN AVENUE	GEORGETOWN, TX 78626
METRO	512.930.9412	TEXAS REGISTERED ENGINEERING FIRM F-181 TBPLS FIRM No. 10003700
SERVICES	>>ENGINEERS >>PLANNERS >>SURVEYORS	WEB STEGEBIZZELL.COM

These drawings are the sole property of STEGER & BIZZELL ENGINEERING, INC. The use of these drawings is hereby restricted to the original site for which they were prepared. Reproduction or reuse of these drawings in whole or in part without written permission of STEGER & BIZZELL ENGINEERING, INC. is strictly prohibited.

Organized Sewage Collection System Application

Texas Commission on Environmental Quality

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

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

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

Regulated Entity Name: Woodside East - Phase B

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

Customer Information

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

Contact Person: Blake Magee

Entity: MK Woodside Development, Inc.

Mailing Address: 1011 North Lamar

City, State: Austin, TX

Zip: 78703

Telephone: (512) 481-0303

Fax: N/A

Email Address: blake@blakemageeco.com

The appropriate regional office must be informed of any changes in this information within 30 days of the change.

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

Contact Person: Tyson Hasz, P.E.

Texas Licensed Professional Engineer's Number: 145151

Entity: Steger Bizzell

Mailing Address: 1978 S. Austin Ave

City, State: Georgetown, TX

Zip: 78626

Telephone: (512) 930-9412

Fax: n/a

Email Address: tyson.hasz@stegerbizzell.com

Project Information

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

- Residential: Number of single-family lots: 141
- Multi-family: Number of residential units: _____
- Commercial
- Industrial
- Off-site system (not associated with any development)
- Other: _____

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

<u>100%</u> Domestic	<u>141,427</u> gallons/day
_____% Industrial	_____ gallons/day
_____% Commingled	_____ gallons/day
Total gallons/day: <u>141,427</u>	

6. Existing and anticipated infiltration/inflow is 26,870 gallons/day. This will be addressed by: The project is all new construction with PVC pipe serving the new development.

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

- The WPAP application for this development was approved by letter dated _____. A copy of the approval letter is attached.
- The WPAP application for this development was submitted to the TCEQ on 1/19/2024, but has not been approved.
- A WPAP application is required for an associated project, but it has not been submitted.
- There is no associated project requiring a WPAP application.

8. Pipe description:

Table 1 - Pipe Description

<i>Pipe Diameter(Inches)</i>	<i>Linear Feet (1)</i>	<i>Pipe Material (2)</i>	<i>Specifications (3)</i>
6	1875	PVC SDR-26	ASTM D 3034 ASTM D 3212
8	5564	PVC SDR-26	ASTM D 3034 ASTM D 3213
8	200	PVC DR-18	ASTM D 1784 ASTM D 3139

Total Linear Feet: 7639

- (1) Linear feet - Include stub-outs and double service connections. Do not include private service laterals.
 - (2) Pipe Material - If PVC, state SDR value.
 - (3) Specifications - ASTM / ANSI / AWWA specification and class numbers should be included.
9. The sewage collection system will convey the wastewater to the Pecan Branch (name) Treatment Plant. The treatment facility is:

- Existing
- Proposed

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

- The City of Georgetown standard specifications.
- Other. Specifications are attached.

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

Alignment

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

Manholes and Cleanouts

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

Table 2 - Manholes and Cleanouts

<i>Line</i>	<i>Shown on Sheet</i>	<i>Station</i>	<i>Manhole or Clean-out?</i>
WW-A01	51 Of 71	0+00.00	Manhole
WW-A02	53 Of 71	0+00.00	Manhole
WW-A03	53 Of 71	0+00.00	Manhole
WW-A04	54 Of 71	0+00.00	Manhole

<i>Line</i>	<i>Shown on Sheet</i>	<i>Station</i>	<i>Manhole or Clean-out?</i>
WW-A05	54 Of 71	0+00.00	Clean-out
WW-A06	55 Of 71	0+00.00	Manhole
WW-A07	56 Of 71	0+00.00	Manhole
WW-A08	56 Of 71	0+00.00	Manhole
WW-B24	57 Of 71	2+02.56	Manhole
WW-B24	57 Of 71	8+03.01	Clean-out

15. Manholes are installed at all Points of Curvature and Points of Termination of a sewer line.
16. The maximum spacing between manholes on this project for each pipe diameter is no greater than:

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

- Attachment C – Justification for Variance from Maximum Manhole Spacing.** The maximum spacing between manholes on this project (for each pipe diameter used) is greater than listed in the table above. A justification for any variance from the maximum spacing is attached, and must include a letter from the entity which will operate and maintain the system stating that it has the capability to maintain lines with manhole spacing greater than the allowed spacing.
17. All manholes will be monolithic, cast-in-place concrete.
- The use of pre-cast manholes is requested for this project. The manufacturer's specifications and construction drawings, showing the method of sealing the joints, are attached.

Site Plan Requirements

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

18. The Site Plan must have a minimum scale of 1" = 400'.
Site Plan Scale: 1" = 100'.
19. The Site Plan must include the sewage collection system general layout, including manholes with station numbers, and sewer pipe stub outs (if any). Site plan must be overlain by topographic contour lines, using a contour interval of not greater than ten feet and showing the area within both the five-year floodplain and the 100-year floodplain of any drainage way.

20. Lateral stub-outs:

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

21. Location of existing and proposed water lines:

- The entire water distribution system for this project is shown and labeled.
- If not shown on the Site Plan, a Utility Plan is provided showing the entire water and sewer systems.
- There will be no water lines associated with this project.

22. 100-year floodplain:

- After construction is complete, no part of this project will be in or cross a 100-year floodplain, either naturally occurring or manmade. (Do not include streets or concrete-lined channels constructed above of sewer lines.)
- After construction is complete, all sections located within the 100-year floodplain will have water-tight manholes. These locations are listed in the table below and are shown and labeled on the Site Plan. (Do not include streets or concrete-lined channels constructed above sewer lines.)

Table 3 - 100-Year Floodplain

<i>Line</i>	<i>Sheet</i>	<i>Station</i>
N/A	of	to
	of	to
	of	to
	of	to

23. 5-year floodplain:

- After construction is complete, no part of this project will be in or cross a 5-year floodplain, either naturally occurring or man-made. (Do not include streets or concrete-lined channels constructed above sewer lines.)
- After construction is complete, all sections located within the 5-year floodplain will be encased in concrete or capped with concrete. These locations are listed in the table below and are shown and labeled on the Site Plan. (Do not include streets or concrete-lined channels constructed above sewer lines.)

Table 4 - 5-Year Floodplain

<i>Line</i>	<i>Sheet</i>	<i>Station</i>
N/A	of	to
	of	to
	of	to
	of	to

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

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

26. All existing or proposed water line crossings and any parallel water lines within 9 feet of sewer lines are listed in the table below. These lines must have the type of pressure rated pipe to be installed shown on the plan and profile sheets. Any request for a variance from the required pressure rated piping at crossings must include a variance approval from 30 TAC Chapter 290.
- There will be no water line crossings.
- There will be no water lines within 9 feet of proposed sewer lines.

Table 5 - Water Line Crossings

<i>Line</i>	<i>Station or Closest Point</i>	<i>Crossing or Parallel</i>	<i>Horizontal Separation Distance</i>	<i>Vertical Separation Distance</i>
WW-A02	0+28.00	Crossing	N/A	2.0'
WW-A03	1+87.40	Crossing	N/A	2.0'
WW-A03	4+28.40	Crossing	N/A	2.4'
WW-A06	3+93.74	Crossing	N/A	2.0'
WW-A07	1+63.55	Crossing	N/A	2.0'
WW-A08	1+45.73	Crossing	N/A	2.4'
WW-A08	6+46.76	Crossing	N/A	8.2'

27. Vented Manholes:

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

Table 6 - Vented Manholes

<i>Line</i>	<i>Manhole</i>	<i>Station</i>	<i>Sheet</i>
N/A			

<i>Line</i>	<i>Manhole</i>	<i>Station</i>	<i>Sheet</i>

28. Drop manholes:

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

Table 7 - Drop Manholes

<i>Line</i>	<i>Manhole</i>	<i>Station</i>	<i>Sheet</i>
N/A			

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

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

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

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

31. Minimum flow velocity (From Appendix A)

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

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

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

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

Table 8 - Flows Greater Than 10 Feet per Second

<i>Line</i>	<i>Profile Sheet</i>	<i>Station to Station</i>	<i>FPS</i>	<i>% Slope</i>	<i>Erosion/Shock Protection</i>
N/A					

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

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

Administrative Information

34. The final plans and technical specifications are submitted for TCEQ review. Each sheet of the construction plans and specifications are dated, signed, and sealed by the Texas Licensed Professional Engineer responsible for the design on each sheet.
35. Standard details are shown on the detail sheets, which are dated, signed, and sealed by the Texas Licensed Professional Engineer, as listed in the table below:

Table 9 - Standard Details

<i>Standard Details</i>	<i>Shown on Sheet</i>
Lateral stub-out marking [Required]	59 of 71
Manhole, showing inverts comply with 30 TAC §217.55(l)(2) [Required]	58 of 71
Alternate method of joining lateral to existing SCS line for potential future connections [Required]	58 of 71
Typical trench cross-sections [Required]	58 of 71
Bolted manholes [Required]	59 of 71
Sewer Service lateral standard details [Required]	58 of 71
Clean-out at end of line [Required, if used]	58 of 71
Baffles or concrete encasement for shock/erosion protection [Required, if flow velocity of any section of pipe >10 fps]	of

Standard Details	Shown on Sheet
Detail showing Wastewater Line/Water Line Crossing [Required, if crossings are proposed]	59 of 71
Mandrel detail or specifications showing compliance with 30 TAC §217.57(b) and (c) [Required, if Flexible Pipe is used]	59 of 71
Drop manholes [Required, if a pipe entering a manhole is more than 24 inches above manhole invert]	of

36. All organized sewage collection system general construction notes (TCEQ-0596) are included on the construction plans for this sewage collection system.
37. All proposed sewer lines will be sufficiently surveyed/staked to allow an assessment prior to TCEQ executive director approval. If the alignments of the proposed sewer lines are not walkable on that date, the application will be deemed incomplete and returned.
- Survey staking was completed on this date: 2/20/2024
38. Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.
39. Any modification of this SCS application will require TCEQ approval, prior to construction, and may require submission of a revised application, with appropriate fees.

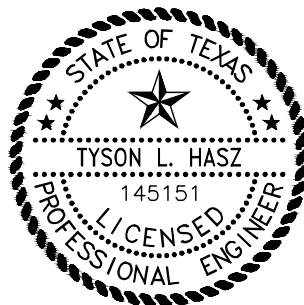
Signature

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

Print Name of Licensed Professional Engineer: Tyson L. Hasz, P.E. F-181

Date: 1/19/2024

Place engineer's seal here:



Signature of Licensed Professional Engineer:

Tyson Hasz

Appendix A-Flow Velocity Table

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

Table 10 - Slope Velocity

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

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

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

Figure 1 - Manning's Formula

Where:

v = velocity (ft/sec)

n = Manning's roughness coefficient
(0.013)

R_h = hydraulic radius (ft)

S = slope (ft/ft)

ATTACHMENT A

ENGINEERING DESIGN REPORT
FOR
Woodside East - Phase B
Organized Sewage Collection System

Job No. 22226-21-03

Prepared by:

STEGER BIZZELL
F-181
1978 South Austin Ave.
Georgetown, Texas 78626

**Engineering Design Report
For a
WASTEWATER COLLECTION SYSTEM
Within
Woodside East - Phase B**

PURPOSE

The purpose of this report is to demonstrate that the proposed wastewater collection system complies with the Texas Commission on Environmental Quality's Chapter 217 - Design Criteria for Domestic Wastewater Systems. The project includes the construction of wastewater lines to service Woodside East - Phase B. Woodside is a high-quality residential development located in Georgetown, Texas.

The sewage collection system from Woodside East - Phase B will be connected to a proposed 8-inch stub along the west side of the property. The proposed 8-inch stub is being constructed as part of another phase within the subdivision, Woodside West – Phases A & E. The proposed 8-inch stub ultimately connects to an existing 24-inch stub. The existing collection system then travels down to Berry Creek and into the Sun City Lift Station where it ultimately flows to the Pecan Branch WWTP.

The CITY OF GEORGETOWN will own and maintain the sanitary sewer collection system described in this application. The PECAN BRANCH wastewater treatment plant (WWTP) will receive and treat flows from the project. The TCEQ Permit No. is WQ 00104890002. The Permittee is the Pulte Homes of Texas, L.P. The plans will also be reviewed by the City of Georgetown's Development Engineer.

PIPE DESIGN 30 TAC §217.53

Flow design basis (30 TAC §217.53(a))

Flow development for the area is based on the following City of Georgetown design criteria:

Unit Flow:

- Woodside = 70 gallons per capita per day (gpcd)
- Typical Residential = 70 gpcd

Dry Weather Flow (DWF):

- Woodside = 2.5 people/LUE*(70 gpcd+30 gpcd) = 250 gpd/LUE
- Woodside = (250 gpd/LUE * 141 LUE) = 35,250 gpd

Woodside East - Phase B:

AvgDWF= 35,250 gpd/10⁶ = 0.00352 (mgd)

Peak Flow Factor (PF) = 2.8*AvgDWF^{-0.0732} = 4.23

Peak DWF = PF*DWF = 149,107.5 gpd

I/I flows have to be considered as part of flow development. A generally accepted I/I generation rate in the City of Georgetown is 1,000 gallons/acre/day. The total area contributing to infiltration for the Woodside East - Phase B portion of the system is 26.87 acres. Therefore, the flow resulting from I/I would be as follows:

Woodside East - Phase B:

26.87 acres * 1,000 gallons/acre/day = 26,870 gpd

Potential peak flow in the system would be as follows:

Woodside East - Phase B:

114,557 gpd + 26,870 gpd = 141,427 gpd or 0.2188 Cfs

The wastewater lines in Woodside East - Phase B consist of 8-inch pipe within the neighborhood. Further downstream these lines join the existing interceptor.

For the portion of the collection system proposed in this report, which encompasses the Woodside East - Phase B phase of development, the proposed minimum slope for 8-inch diameter pipe is 0.50%, and the proposed maximum slope for 8-inch diameter pipe is 6.13%. The required minimum slope for 8-inch diameter pipe is 0.33%, and the required maximum slope is 8.40%. The proposed system meets these requirements.

The minimum pipe full velocity is 2 fps and the maximum pipe full velocity is 10 fps based on the minimum and maximum slopes for each diameter of pipe. The proposed system falls within the required slopes and therefore meets the minimum and maximum velocity requirements.

Gravity pipe materials (30 TAC §217.53(b)), Joints for gravity pipe (30 TAC §217.53(c))

PIPE	LINEAR FEET	PIPE MATERIAL	NATIONAL SPECIFICATION FOR PIPE MATERIAL	NATIONAL STANDARD FOR PIPE JOINTS
6" Services	1875	PVC SDR-26	ASTM D3034	ASTM D3212
8" Gravity	5564	PVC SDR-26	ASTM D3034	ASTM D3212
8" Gravity	200	PVC DR-18	ASTM D1784	ASTM D3139

Separation distances (30 TAC §217.53(d))

The proposed wastewater collection system complies with the TCEQ Separation Distance requirements for horizontal separation. Where the proposed potable water system cross the proposed collection system the water system will be above the wastewater collection system.

The crossings will meet TCEQ criteria for potable water line crossings. DR-18 PVC pipe with a pressure rating of 150 psi will be used for crossings with vertical separations of less than two-feet and greater than six-inches and are labeled on the wastewater plan and profile sheets.

Building laterals and taps (30 TAC §217.53(e))

There are 6" laterals to proposed homes with this project.

Bores (30 TAC §217.53(f))

There are no bores associated with this project.

Corrosion potential (30 TAC §217.53(g)), Odor control (30 TAC §217.53(h))

PVC SDR-26 and DR-18 meeting the requirements of ASTM D3034 and F679 for pipe and ASTM D3212 for pipe joints are proposed for this project. The sewer pipe will handle ordinary domestic sewer.

Active geologic faults (30 TAC §217.53(i))

There are no known active geologic faults within the limits of construction.

Capacity analysis (30 TAC §217.53(j))

The existing downstream collection system consists of 18" and larger pipes. The existing 18" line at the connection point has a minimum grade of 0.15% and a line capacity of 2,636,973 gpd. Confirmation of capacity from the City of Georgetown was included with the submittal package for the SCS approved on January 9, 2015. There is an agreement in place between the City of Georgetown and the developer, which ensures wastewater capacity within the system for the development of the Sun City Tract, including Woodside.

Structural analysis (30 TAC §217.53(k))

See Attachment Form 10243 for structural calculations following this report.

Minimum and maximum slopes (30 TAC §217.53(l))

The wastewater collection system contains slopes sufficient to maintain velocities greater than 2.0 feet per second and less than 10.0 feet per second, when flowing full. For 8" diameter pipe, the minimum slope is 0.33%, and the maximum slope is 8.40%. For this system, the proposed minimum slope is 0.50% and the maximum slope is 6.13%.

Alignment (30 TAC §217.53(m))

The proposed wastewater collection system has been designed with uniform grade between manholes. No deviations from straight alignment between manholes are proposed.

Inverted siphons or sag pipes (30 TAC §217.53(n))

There are no inverted siphons or sag pipes proposed with this project.

Bridged sections (30 TAC §217.53(o))

There are no bridged sections proposed with this project.

CRITERIA FOR LAYING PIPE 30 TAC §217.54

**Pipe embedment (30 TAC §217.54(a)), Compaction (30 TAC §217.54(b))
Envelope size (30 TAC §217.54(c)), Trench width (30 TAC §217.54(d))**

The project will comply with the City of Georgetown's details and specifications for pipe embedment and excavation. The detail is included in the construction plans on Sheet 58 of the Woodside East - Phase B Construction Plan. The bedding complies with ASTM D-2321 class 1B gravel. The minimum trench width for 8", 12", 15", 18 and 21" pipe is 21", 25", 28", 31" and 35" respectively. The maximum trench width for 8", 12", 15", 18" and 21" pipe is 35", 39", 41", 45 and 48" respectively.

MANHOLES AND RELATED STRUCTURES 30 TAC §217.55

Precast concrete manholes are proposed for this project. A detail for the manhole is included in the construction plans on Sheet 58. The manholes must meet the requirements of ASTM C-478. Manholes are proposed at the end of the sewer line and at changes in alignment. A detail for the cleanout is included in the construction plans on Sheet 58 cleanouts proposed. Details for the manhole covers and inverts are included on Sheet 58.

The manholes have been spaced to comply with Table C.3 of 30 TAC §217.55. The maximum spacing between manholes is 422'.

TRENCHLESS PIPE INSTALLATION 30 TAC §217.54

There is no Trenchless Pipe Installation proposed with this project.

TESTING REQUIREMENTS FOR INSTALLATION OF GRAVITY COLLECTION SYSTEM PIPES 30 TAC §217.57

The testing requirements for Gravity System Pipes are included in the Site Development Plan on Sheet 3.

TESTING REQUIREMENTS FOR MANHOLES 30 TAC §217.58

The following testing requirements are taken from 30 TAC §217.58. The testing requirements are also included in the construction plans on Sheet 3.

All manholes must pass a leakage test. An owner shall test each manhole (after assembly and backfilling) for leakage, separate and independent of the collection system pipes, by hydrostatic exfiltration testing, vacuum testing, or other method approved by the executive director.

Hydrostatic Testing

The maximum leakage for hydrostatic testing or any alternative test methods is 0.025 gallons per foot diameter per foot of manhole depth per hour. To perform a hydrostatic exfiltration test, an owner shall seal all wastewater pipes coming into a manhole with an internal pipe plug, fill the manhole with water and maintain the test for at least one hour. A test for concrete manholes may use a 24 hour wetting period before testing to allow saturation of the concrete.

Vacuum Testing

To perform a vacuum test, an owner shall plug all lift holes and exterior joints with a non-shrink grout and plug all pipes entering a manhole. No grout must be placed in horizontal joints before testing. Stub outs, manhole boots and pipe plugs must be secured to prevent movement while a vacuum is drawn. An owner shall use a minimum 60 inch/lb torque wrench to tighten the external clamps that secure a test cover to the top of a manhole. A test head must be placed at the inside of the top of a cone section and the seal inflated in accordance with the manufacturer's recommendations. There must be a vacuum of 10 inches of mercury inside a manhole to perform a valid test. A test does not begin until after the vacuum pump is off. A manhole passes the test if after 2.0 minutes and with all valves closed, the vacuum is a least 9.0 inches of mercury.

LIFT STATION REQUIREMENTS 30 TAC §217.54

There are no Lift Station or force mains associated with this project.

DR-18 PIPE

CHOOSE PIPE DIAMTER AND WALL THICKNESS

Dia. = 8 "

Wall = 0.503 "

Buckling Analysis

T63) Pressure due to live load

$L_1 =$ = 0

T68) Calculate allowable and predicted buckling pressure.

a) Calculate allowable buckling pressure:

$q_a = 0.4 * \text{sqrt}(32 * R_w * B' * E_b * (E * I / D^3))$ Equation (1)

$R_w = 1 - 0.33 * (h_w / h)$ Equation (2)

$B' = 1 / (1 + 4 * e^{-0.065H})$ Equation (3)

$I = (t^3 / 12) * (\text{inches}^4 / \text{Linch})$ Equation (4)

$q_a =$ allowable buckling pressure, pounds per square inch (psi) = 241.95 psi

$h =$ height of soil surface above top of pipe in inches (in) = 228 "

$h_w =$ height of water surface above top of pipe in inches (in) (groundwater elevation) = 0 "

$R_w =$ Water buoyancy factor. If $h_w = 0$, $R_w = 1$. If $0 < h_w < h$ (groundwater elevation is between the top of the pipe and the ground surface), calculate R_w with Equation 2 = 1

$H =$ Depth of burial in feet (ft) from ground surface to crown of pipe. = 19.00 '

$B' =$ Empirical coefficient of elastic support = 0.46

$E_b =$ modulus of soil reaction for the bedding material (psi) = 3000 psi

$E =$ modulus of elasticity of the pipe material (psi) = 400000 psi

$I =$ moment of inertia of the pipe wall cross section per linear inch of pipe, $\text{inch}^4 / \text{lineal inch} = \text{inch}^3$.

For solid wall pipe, I can be calculated with equation 4. If the pipe used is not solid wall pipe (for example a pipe with a ribbed cross section), the proper moment of inertia formula must be obtained from the manufacturer. = 0.01060529

$t =$ pipe structural wall thickness (in) = 0.503 "

$D =$ mean pipe diameter (in) = 8 "

b) Calculate pressure applied to pipe under installed conditions:

$q_p = Y_w * h_w + R_w * (W_c / D) + L_1$ Equation (5)

$W_c = Y_s * H * (D + t) / 144$ Equation (6)

$q_p =$ pressure applied to pipe under installed conditions (psi) = 18.23 psi

$Y_w = 0.0361$ pounds per cubic inch (pci), specific weight of water = 0.0361 pcf

$Y_s =$ specific weight of soil in pounds per cubic foot (pcf) = 130 pcf

$W_c =$ vertical soil load on the pipe per unit length in pounds per linear inch (lb/in) = 145.85 lb/in

$L_1 =$ Live load as determined in T63 = 0 psi

Wall Crushing

T71) If no concrete encased flexible pipe is proposed, skip to T73, otherwise:

$$H = (24 * P_c * A) / (Y_s * D_o) \quad \text{Equation (7)}$$

D_o = outside pipe diameter, in.	=	9.006 in.
P_c = compressive stress or hydrostatic design basis (HDB). For typical PVC pipe assume 4,000 psi. For any other pipe material the HDB must be supplied by the pipe manufacturer.	=	4000 psi
A = surface area of the pipe wall, in. ² /ft	=	6.036 in. ² /ft
Y_s = specific weight of soil in pounds per cubic foot (pcf)	=	130 pcf
H = Depth of burial in feet (ft) from ground surface to crown of pipe.	=	495 ft
24 = conversions and coefficients	=	24

T81) Determine Pipe Stiffness

$$P_s = EI / 0.149 * r^3 \quad \text{Equation (10)}$$

E = modulus of elasticity of the pipe material (psi)	=	400000 psi
I = moment of inertia of the pipe wall cross section per linear inch of pipe, inch ⁴ /lineal inch = inch ³ . For solid wall pipe, I can be calculated with equation 4. If the pipe used is not solid wall pipe (for example a pipe with a ribbed cross section), the proper moment of inertia formula must be obtained from the manufacturer.		
mean pipe diameter (in)	=	0.01060529 in.
r = mean radius (in)	=	4 in.
P_s	=	445 psi

T83) Calculate P_s /SSF ratio

$$P_s / \text{SSF} = P_s / 0.61 * \text{zeta} * E_b \text{ or } = 0.15 \quad \text{Equation (12)}$$

P_s = Pipe stiffness (psi)	=	445 psi
E_b = modulus of soil reaction for the bedding material (psi) [from T76]	=	3000 psi
zeta = 1.0, or a value calculated with the method in T79	=	1.0
SSF = soil stiffness factor (0.061 * zeta * E_b)	=	183
P_s / SSF	=	2.43

T86) Calculate and report predicted deflection.

$$\Delta Y / D (\%) = (K * (L_p + L_i) * 100) / ((0.149 * P_s) + (0.061 * \text{zeta} * E_b)) \quad \text{Equation (13)}$$

$$L_p = (Y_s * H) / 144 \quad \text{Equation (14)}$$

$\Delta Y / D$ = Predicted % vertical deflection under load	=	0.76 %
ΔY = Change in vertical pipe diameter under load		
D = Undeformed mean pipe diameter (in)	=	8 in.
K = Bedding angle constant. Assumed to be 0.110 unless otherwise justified.	=	0.110
Y_s = Unit weight of soil (pcf). Y_s less than 120 pcf must be justified.	=	130 pcf
H = Depth of burial (ft) from ground surface to crown of pipe.	=	19 ft.
L_p = Prism load (psi). If prism load is calculated using Marston's load formula, or other formulas less conservative than the one provided above, the load should be multiplied by a deflection lag factor $DL = 1.5$ to account for long-term deflection of the pipe as the bedding consolidates.	=	17.15 psi
(P_s from T82; zeta from T80; and E_b from T76)		

ASTM D3034 PIPE (NOT ASTM D2241)

CHOOSE PIPE SDR AND DIAMETER

SDR = 26
 Dia. = 8 "
 Wall = 0.323 "

Buckling Analysis

T63) Pressure due to live load

$L_1 =$ = 0

T68) Calculate allowable and predicted buckling pressure.

a) Calculate allowable buckling pressure:

$q_a = 0.4 * \text{Sqrt}(32 * R_w * B' * E_b * (E * I / D^3))$ Equation (1)

$R_w = 1 - 0.33 * (h_w / h)$ Equation (2)

$B' = 1 / (1 + 4 * e^{-0.065H})$ Equation (3)

$I = (t^3 / 12) * (\text{inches}^4 / \text{Linch})$ Equation (4)

$q_a =$ allowable buckling pressure, pounds per square inch (psi) = 124.50 psi

$h =$ height of soil surface above top of pipe in inches (in) = 228 "

$h_w =$ height of water surface above top of pipe in inches (in) (groundwater elevation) = 0 "

$R_w =$ Water buoyancy factor. If $h_w = 0$, $R_w = 1$. If $0 < h_w < h$ (groundwater elevation is between the top of the pipe and the ground surface), calculate R_w with Equation 2 = 1

$H =$ Depth of burial in feet (ft) from ground surface to crown of pipe. = 19.00'

$B' =$ Empirical coefficient of elastic support = 0.46

$E_b =$ modulus of soil reaction for the bedding material (psi) = 3000 psi

$E =$ modulus of elasticity of the pipe material (psi) = 400000 psi

$I =$ moment of inertia of the pipe wall cross section per linear inch of pipe, $\text{inch}^4 / \text{lineal inch} = \text{inch}^3$.

For solid wall pipe, I can be calculated with equation 4. If the pipe used is not solid wall pipe (for example a pipe with a ribbed cross section), the proper moment of inertia formula must be obtained from the manufacturer.

$I =$ 0.00280819

$t =$ pipe structural wall thickness (in) = 0.323 "

$D =$ mean pipe diameter (in) = 8 "

b) Calculate pressure applied to pipe under installed conditions:

$q_b = Y_w * h_w + R_w * (W_c / D) + L_1$ Equation (5)

$W_c = Y_s * H * (D + t) / 144$ Equation (6)

$q_b =$ pressure applied to pipe under installed conditions (psi) = 17.85 psi

$Y_w =$ 0.0361 pounds per cubic inch (pci), specific weight of water = 0.0361 pcf

$Y_s =$ specific weight of soil in pounds per cubic foot (pcf) = 130 pcf

$W_c =$ vertical soil load on the pipe per unit length in pounds per linear inch (lb/in) = 142.76 lb/in

$L_1 =$ Live load as determined in T63 = 0 psi

Wall Crushing

T71) If no concrete encased flexible pipe is proposed, skip to T73, otherwise:

$$H = (24 * P_c * A) / (Y_s * D_o) \quad \text{Equation (7)}$$

D_o = outside pipe diameter, in.	=	8.646 in.
P_c = compressive stress or hydrostatic design basis (HDB). For typical PVC pipe assume 4,000 psi. For any other pipe material the HDB must be supplied by the pipe manufacturer.	=	4000 psi
A = surface area of the pipe wall, in. ² /ft	=	3.876 in. ² /ft
Y_s = specific weight of soil in pounds per cubic foot (pcf)	=	130 pcf
H = Depth of burial in feet (ft) from ground surface to crown of pipe.	=	331 ft
24 = conversions and coefficients	=	24

T81) Determine Pipe Stiffness

$$P_s = EI / 0.149 * r^3 \quad \text{Equation (10)}$$

E = modulus of elasticity of the pipe material (psi)	=	400000 psi
I = moment of inertia of the pipe wall cross section per linear inch of pipe, inch ⁴ /lineal inch = inch ³ . For solid wall pipe, I can be calculated with equation 4. If the pipe used is not solid wall pipe (for example a pipe with a ribbed cross section), the proper moment of inertia formula must be obtained from the manufacturer.		
mean pipe diameter (in)	=	0.00280819 in.
r = mean radius (in)	=	4 in.
P_s	=	118 psi

T83) Calculate P_s /SSF ratio

$$P_s / \text{SSF} = P_s / 0.61 * \text{zeta} * E_b \text{ or } = 0.15 \quad \text{Equation (12)}$$

P_s = Pipe stiffness (psi)	=	118 psi
E_b = modulus of soil reaction for the bedding material (psi) [from T76]	=	3000 psi
zeta = 1.0, or a value calculated with the method in T79	=	1.0
SSF = soil stiffness factor (0.061 * zeta * E_b)	=	183
P_s / SSF	=	0.64

T86) Calculate and report predicted deflection.

$$\Delta Y / D (\%) = (K * (L_p + L_i) * 100) / ((0.149 * P_s) + (0.061 * \text{zeta} * E_b)) \quad \text{Equation (13)}$$

$$L_p = (Y_s * H) / 144 \quad \text{Equation (14)}$$

$\Delta Y / D$ = Predicted % vertical deflection under load	=	0.94 %
ΔY = Change in vertical pipe diameter under load		
D = Undeformed mean pipe diameter (in)	=	8 in.
K = Bedding angle constant. Assumed to be 0.110 unless otherwise justified.	=	0.110
Y_s = Unit weight of soil (pcf). Y_s less than 120 pcf must be justified.	=	130 pcf
H = Depth of burial (ft) from ground surface to crown of pipe.	=	19 ft.
L_p = Prism load (psi). If prism load is calculated using Marston's load formula, or other formulas less conservative than the one provided above, the load should be multiplied by a deflection lag factor $DL = 1.5$ to account for long-term deflection of the pipe as the bedding consolidates.	=	17.15 psi
(P_s from T82; zeta from T80; and E_b from T76)		

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: MK Woodside Development, Inc. / Steger Bizzell, Tyson Hasz, P.E.

Date: 1/19/2024

Signature of Customer/Agent:



Regulated Entity Name: Woodside East - Phase B

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: Berry Creek

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

Because fuels and hazardous substances will be provided by an off-site facility, no on-site containment procedures are provided for in this WPAP.

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

Education

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

General Measures

1. To the extent that the work can be accomplished safely, spills of oil, petroleum products, 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 run-on during rainfall to the extent that it doesn’t compromise clean-up activities.
7. Do not bury or wash spills with water.
8. Store and dispose of used clean up materials, contaminated materials, and recovered spill material that is no longer suitable for the intended purpose in conformance with the provisions in applicable BMPs.
9. Do not allow water used for cleaning and decontamination to enter storm drains or watercourses. Collect and dispose of contaminated water in accordance with applicable regulations.
10. Contain water overflow or minor water spillage and do not allow it to discharge into drainage facilities or watercourses.
11. Place Material Safety Data Sheets (MSDS), as well as proper storage, cleanup, and spill reporting instructions for hazardous materials stored or used on the project site in an open, conspicuous, and accessible location.

12. Keep waste storage areas clean, well-organized, and equipped with ample cleanup supplies as appropriate for the materials being stored. Perimeter controls, containment structures, covers, and liners should be repaired or replaced as needed to maintain proper function.

Cleanup

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

Minor Spills

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

Semi-Significant Spills

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

Spills should be cleaned up immediately:

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

Significant/Hazardous Spills

For significant or hazardous spills that are in reportable quantities:

1. Notify the TCEQ by telephone as soon as possible and within 24 hours at 512-339-2929 (Austin) or 210-490-3096 (San Antonio) between 8 AM and 5 PM. After hours, contact the Environmental Release Hotline at 1-800-832-8224. It is the contractor's responsibility to have all emergency phone numbers at the construction site.

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

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

Vehicle and Equipment Maintenance

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

Vehicle and Equipment Fueling

1. If fueling must occur on site, use designated areas, located away from drainage courses, to prevent the run-on 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.

If a spill should occur, the person responsible for the spill should contact the TCEQ at (512) 339-2929 or call 911. Soil contaminated by spills that occur on-site will be removed and disposed at an approved disposal site.

Attachment B – Potential Sources of Contamination

- Hydraulic and diesel
- Portable toilet systems (Sanitary Waste)
- Trash from construction workers
- Paints, Paint Solvents, glues, concrete and other building materials
- Plant fertilizers and Pesticides
- Inadequate maintenance of temporary water pollution abatement measures
- Stock piles or spoils of materials

Attachment C – Sequence of Major Activities

The following sequence of activities is suggested. The sequence of construction will take place in one phase. The actual sequence may vary slightly depending on the contractor or weather conditions.

1. Construction activities will commence with the installation of the required erosion controls and stabilized construction entrances. (48.62 acres)
2. Excavation will take place where the pond, roads and utilities will be situated. Spoils of this material may be placed at a location on the project site as directed by the contractor or hauled off-site. These spoils and any other loose granular material will be enclosed by a silt fence. A pond will be rough graded to provide sediment containment during construction. (48.62 acres)
3. The installation of the utilities, BMPs, and storm sewer will disturb a portion of the site. Proposed utility improvements include the construction of water mains, wastewater mains, BMPs, and storm sewer extensions and connections. (48.62 acres)
4. Grading on the site will consist of the placement and compaction of base or select fill material under and/or around the roads and culverts, and excavation and fill for the proposed roads and culverts. (48.62 acres)
5. Paving of the site will consist of the roads and sidewalks. (48.62 acres)
6. After the roads and sidewalks are installed, finish grading around the site will be completed. (48.62 acres)
7. After the construction of the pond, roads, utilities, etc. disturbed areas will be hydro-mulched or seeded. (48.62 acres)
8. Once vegetation is established on the site, Temporary BMPs will be removed as allowed by the engineer.

Attachment D – Temporary Best Management Practices and Measures

The following sequence of activities is suggested. The sequence of construction will take place in one phase. The actual sequence may vary slightly depending on the contractor or weather conditions.

1. Construction activities will commence with the installation of the required silt fence and erosion and sedimentation control measures.
2. Excavation will take place where the roads and utilities will be situated. Spoils of this material may be placed at a location on the project site as directed by the contractor or hauled off-site. These spoils and any other loose granular material will be enclosed by a silt fence. **Silt fence, rock berm, and temporary construction entrances will be utilized as the control measures.**
3. Grading on the site will consist of the placement and compaction of base or select fill material under and/or around the entry road and excavation and fill for the proposed roads. **Silt fence will be utilized as the control measure.**
4. The installation of the utilities, BMPs, and storm sewer will disturb a portion of the site. Proposed utility improvements include an extension of an existing wastewater collection system and water line. **Silt fence, rock berm, and inlet protection will be utilized as the control measures.**
5. Subsequent to the construction of the road and utilities etc. Disturbed areas will be hydro-mulched or seeded. **Silt fence, rock berm, and inlet protection will be utilized as the control measures.**
6. Once vegetation is established on the site, Temporary BMPs will be removed as allowed by the engineer.

All surface runoff originating up-gradient or on site will be contained within the proposed silt fence. The silt fence will trap most pollutants and prevent them from entering off-site surface streams, sensitive features or the aquifer.

Attachment E – Request to Temporarily Seal a Feature

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

Attachment F – Structural Practices

Silt fences, construction entrances, and inlet protection will be used to limit the runoff discharge of sediments from exposed areas on the site during construction. Drainage off the site is typically in a sheet flow or shallow concentrated flow condition. Water Quality Pond G will be excavated to provide a temporary sedimentation pond.

Attachment G – Drainage Area Map

See the attached Woodside East - Phase B drainage area exhibits for existing and proposed drainage area maps.

Attachment H – Temporary Sediment Pond(s) Plan and Calculations

Construction Phase - Temporary Sediment Basin C2			
Elevation [ft]	Area [s.f.]	Avg End Incremental Volume [c.f.]	Avg End Cumulative Volume [c.f.]
842	25	0	0.00
843	16976	8501	8,500.50
844	32318.6268	24647	33,147.81
845	52717.28	42518	75,665.77
846	59080.36	55899	131,564.59
847	62339.18	60710	192,274.36
848	65654.57	63997	256,271.23
849	69026.49	67341	323,611.76
850	72454	70740	394,352.01
851	75939.98	74197	468,549.00
3,000 Ft ³ /Ac		Required =	141,985.97

Construction Phase - Temporary Sediment Basin G1			
Elevation [ft]	Area [s.f.]	Avg End Incremental Volume [c.f.]	Avg End Cumulative Volume [c.f.]
855	25	0	0
856	20725	10375	10,375
857	67890	44308	54,683
858	124784	96337	151,020
859	195317	160050	311,070
860	274820	235068	546,138
860.5	274820	137410	683,548
3,000 Ft ³ /Ac		Required =	446,585.09

Attachment I – Inspection and Maintenance for BMPs

Silt Fence

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

Concrete Washout

1. Inspection should be made weekly and after each rainfall by the responsible party.
2. Remove sediment and other debris when buildup reaches 6 inches and dispose of the accumulated silt in an approved manner that will not cause any additional siltation.
3. The berm/temporary pit should be reshaped as needed during inspection.
4. The berm/temporary pit should be replaced when the structure ceases to function as intended due to silt accumulation among the rocks, washout, construction traffic damage, etc.
5. The washout should be left in place until construction has been completed.
6. 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 Concrete Washout should be revegetated.
7. The concrete from the washout should be removed from the site in an appropriate manner.

Rock Berm

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

Temporary Construction Entrance/Exit

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

Inlet Protection

1. Inspection should be made weekly and after each rainfall. Check inlet protection for damage. Repair should be made promptly as needed by the contractor
2. Trash and other debris should be removed after each rainfall.
3. Accumulated silt should be removed.
4. The removed sediment should be stockpiled or redistributed in areas that are protected from erosion.
5. When construction is complete, the sediment should be disposed of in a manner that will not cause additional siltation.

The following sample forms should be utilized to document the inspection and maintenance of the proposed temporary BMPs as described above. This form shall be kept on site with the WPAP until the project is completed. A report documenting the Temporary BMPs maintenance activities, sediment removal and modifications to the sedimentation and erosion controls is required.

Attachment J – Schedule of Interim and Permanent Soil Stabilization Practices

Vehicular traffic should be limited to areas of the project site where construction will take place. The contractor should endeavor to preserve existing vegetation as much as practicable to reduce erosion and lower the cost associated with stabilization. **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.**

All disturbed areas shall be stabilized as described below.

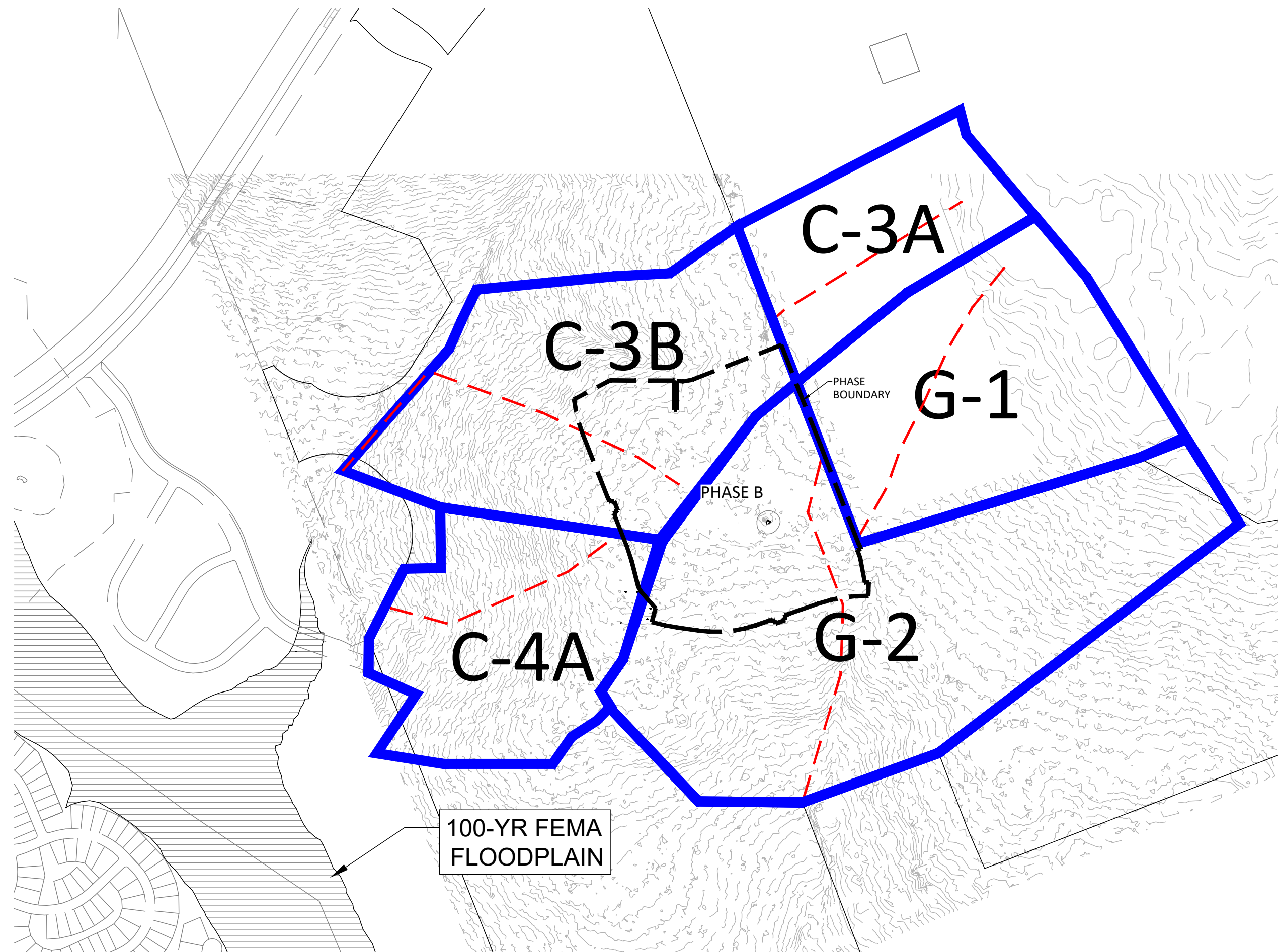
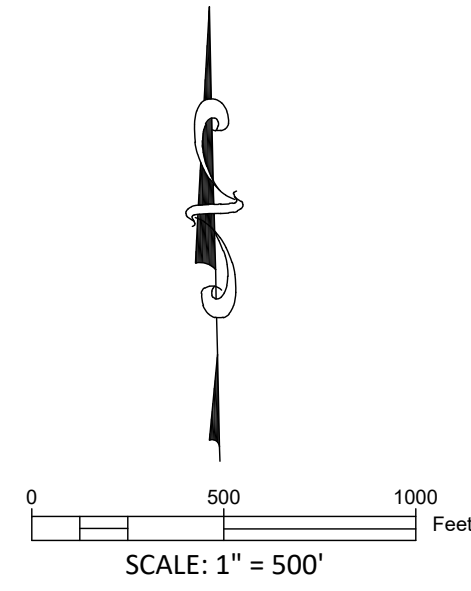
Except as provided for below, stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased.

- A. Where the initiation of stabilization measures by the 14th day after construction activity temporarily or permanently ceases is precluded by snow cover or frozen ground conditions, stabilization measures shall be initiated as soon as practicable.
- B. Where construction activity on a portion of the site has temporarily ceased, and earth-disturbing activities will be resumed within 21 days, temporary stabilization measures do not have to be initiated on that portion of the site.
- C. In areas experiencing drought, where the initiation of stabilization measures by the 14th day after construction activity has temporarily or permanently ceased is precluded by seasonal arid conditions, stabilization measures shall be initiated as soon as practicable.

Stabilization measures as described as follows:

All disturbed grass areas should be planted in drought resistant species normally grown as permanent lawns, such as Zoysia, Bermuda and Buffalo. Grass areas may be sodded, plugged, sprigged or seeded except that solid sod shall be used in swales or other areas subject to erosion. All planted areas shall be provided with a readily available water supply and watered as necessary to ensure continuous healthy growth and development. Maintenance shall include the replacement of all dead plant material if that material was used to meet the requirements of this section.

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- Legend**
- - - Tc Route
 - Basin Boundary
 - - - Phase Boundary

Drainage Basin	NRCS Time of Concentration - Existing Conditions														Total Tt [min]	Total Tlag [min]		
	Sheet Flow					Shallow Concentrated - Unpaved				Shallow Concentrated - Unpaved				Channelized				
	L [ft]	S [ft/ft]	n	P2	Tt [min]	S [ft/ft]	V [ft/s]	L [ft]	Tt [min]	S [ft/ft]	V [ft/s]	L [ft]	Tt [min]	L [ft]			V [ft/s]	Tt [min]
C-3A	300.00	0.018	0.13	4.20	19.13	0.020	2.26	700	5.17					157	5.00	0.52	24.82	14.89
C-3B	300.00	0.011	0.13	4.20	23.64	0.027	2.64	500	3.15					1,308	5.00	4.36	31.16	18.69
C-4A	300.00	0.024	0.13	4.20	17.06	0.041	3.25	500	2.57					438	5.00	1.46	21.09	12.65
G-1	300.00	0.018	0.13	4.20	19.30	0.017	2.10	500	3.96					812	5.00	2.71	25.97	15.58
G-2	300.00	0.021	0.13	4.20	17.95	0.016	2.05	1,000	8.12					52	5.00	0.17	26.24	15.74

BASIN	AREA [AC]	CN	LAG [MIN]	FLOWS [CFS]			
				100-YR	25-YR	10-YR	2-YR
				C-3A	23.16	80	14.89
C-3B	51.22	80	18.69	259.8	190.4	143.8	68.6
C-4A	32.99	80	12.65	234.6	183.4	149	90.8
G-1	44.27	80	15.58	243.6	178.7	135.8	65.7
G-2	85.46	80	15.74	468.1	343.5	261	126.2

NO.	REVISION	BY	DATE

DESIGNED BY: SJT 7/10/2022
 DATE: 7/10/2022
 DRAWN BY: TLH 1/22/2024
 DATE: 1/22/2024
 CHECKED BY: BEM 7/14/2022
 DATE: 7/14/2022
 APPROVED BY: BEM 7/14/2022
 DATE: 7/14/2022

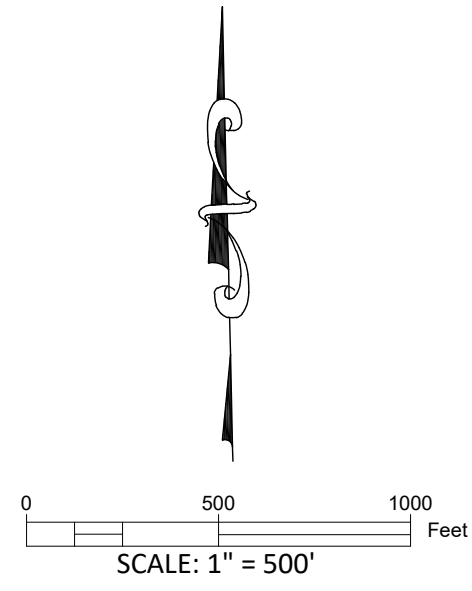


ADDRESS: 1978 S. AUSTIN AVENUE GEORGETOWN, TX 78626
 METRO: 512.930.9412 TEXAS REGISTERED ENGINEERING FIRM F-181 WEB: STEGERBIZZELL.COM
 SERVICES: >>ENGINEERS >>PLANNERS >>SURVEYORS

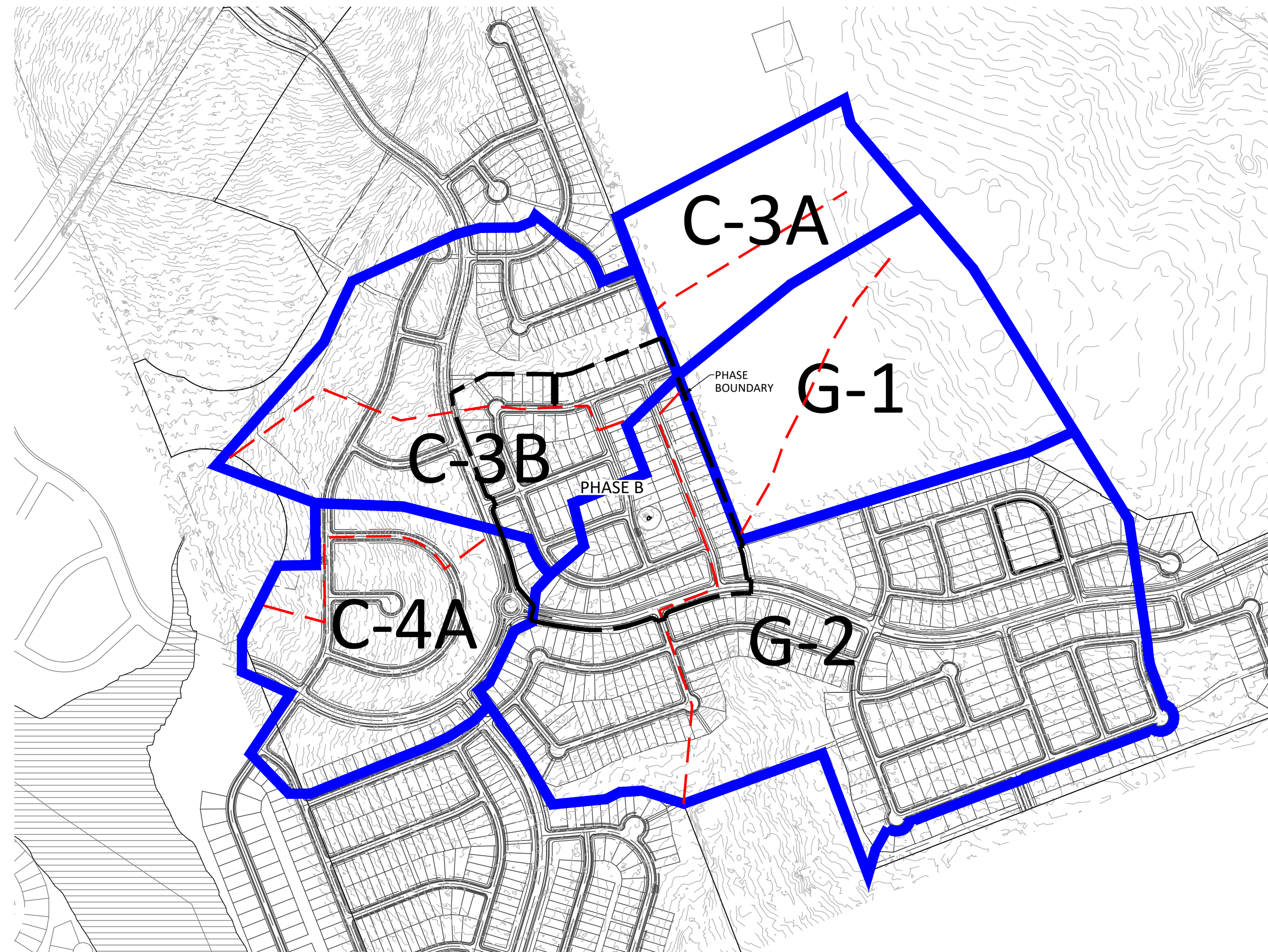
WOODSIDE EAST - PHASE B
EXISTING CONDITION DRAINAGE MAP
 for
BERRY CREEK
 Georgetown, Williamson County, Texas

Project No:
22226-M

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- Legend**
- - - Tc Route
 - _ _ _ Basin Boundary
 - - - Phase Boundary



Drainage Basin	NRCS Time of Concentration - Developed Conditions																Total Tt [min]	Total Tlag [min]
	Sheet Flow					Shallow Concentrated - Unpaved				Shallow Concentrated - Unpaved				Channelized				
	L [ft]	S [ft/ft]	n	P2	Tt [min]	S [ft/ft]	V [ft/s]	L [ft]	Tt [min]	S [ft/ft]	V [ft/s]	L [ft]	Tt [min]	L [ft]	V [ft/s]	Tt [min]		
C-3A	300.00	0.018	0.13	4.20	19.30	0.017	2.10	500	3.96	0.017	2.65	100	0.63	812	5.00	2.71	26.60	15.96
C-3B	150.00	0.008	0.24	4.20	24.68	0.009	1.55	50	0.54	0.010	1.99	100	0.84	1,945	5.00	6.48	32.54	19.52
C-4A	150.00	0.015	0.24	4.20	19.28	0.017	2.10	50	0.40	0.022	3.03	100	0.55	1,277	5.00	4.26	24.48	14.69
G-1	300.00	0.022	0.13	4.20	17.58	0.009	1.53	500	5.46	0.009	1.92	0	0.00	812	5.00	2.71	25.75	15.45
G-2	150.00	0.021	0.24	4.20	16.83	0.003	0.89	50	0.94	0.003	1.19	200	2.80	2,022	5.00	6.74	27.31	16.39

BASIN	AREA [AC]	CN	LAG [MIN]	FLOWS [CFS]			
				100-YR	25-YR	10-YR	2-YR
				C-3A	23.16	80.0	15.96
C-3B	56.13	88.3	19.52	427.0	332.4	270.7	165.6
C-4A	35.31	89.1	14.69	253.5	198.3	161.2	98.2
G-1	44.27	80.0	15.45	268.1	197.0	151.1	74.5
G-2	113.2	89.7	16.39	815.7	640.2	521.7	321.4

NO.	REVISION	BY	DATE

SJT DESIGNED BY: 7/10/2022 DATE
 TLH DRAWN BY: 1/22/2024 DATE
 BEM CHECKED BY: 7/14/2022 DATE
 BEM APPROVED BY: 7/14/2022 DATE



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 SERVICES >>ENGINEERS >>PLANNERS >>SURVEYORS

**WOODSIDE EAST - PHASE B
 DEVELOPED CONDITION DRAINAGE MAP
 for
 BERRY CREEK
 Georgetown, Williamson County, Texas**

Project No:
22226-M

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)(li), (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: MK Woodside Development, Inc. / Steger Bizzell, Tyson Hasz, P.E.

Date: 1/19/2024

Signature of Customer/Agent



Regulated Entity Name: Woodside East - Phase B

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 B – BMPs for Upgradient Stormwater

37.91 acres of upgradient stormwater will be routed into Pond G1 by a series of storm sewers. This upgradient area is evaluated at 0% impervious cover. Another 28.91 acres of upgradient stormwater will be diverted around the north side of the project by a series of storm sewer systems and will not be treated.

Attachment C – BMPs for On-site Stormwater

The overall development of Woodside is limited to 45-percent cumulative impervious cover. Per Woodside PUD, each lot within the Woodside development has a defined maximum impervious cover of 60-percent. A portion of the site (2.67 acres) will be treated with the use of vegetative filter strips designed to treat on-site stormwater for a total site-removal of 85 percent. The remaining portion of the site will be treated by an offsite batch detention pond, to be constructed with this phase (Pond G1 (15.96 acres) or batch detention ponds built with the subdivision Woodside West Phases A&E (Ponds C2 (14.96 acres) & C3 (0.69 acres)).

Attachment D – BMPs for Surface Streams

There are no additional BMPs for minimizing pollutants from entering surface streams. The Permanent BMPs have been designed to remove 85% of the anticipated pollutant loads. Temporary BMPs have been designed to reduce the potential pollutant load during construction activities.

Attachment E – Request to Seal Features

There are no sensitive features that require sealing.

Attachment F – Construction Plans

See Attached Woodside East - Phase B Construction Plans

Attachment G – Inspection, Maintenance, Repair and Retrofit Plan

The following can be found in the TCEQ's "Complying with the Edwards Rules: Technical Guidance Manual on Best Management Practices."

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 regarding 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.

Vegetative Filter Strips

Once a vegetated area is well established, little additional maintenance is generally necessary. The key to establishing a viable vegetated feature is the care and maintenance it receives in the first few months after it is planted. Once established, all vegetated BMPs require some basic maintenance to insure the health of the plants including:

- *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 or 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 3-92 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 it 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

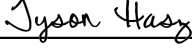
final grade is level. Grass damaged during the sediment removal process should be promptly replaced using the same seed mix used during filter strip establishment. If possible, flow should be diverted from the damaged areas until the grass is firmly established. Bare spots and areas of erosion identified 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.

NOTE: This Inspection, Maintenance, Repair and Retrofit Plan for the **Woodside East - Phase B Filter Strips and Water Quality Ponds** were created and designed by the engineer of this BMP. Maintenance is the responsibility of the Owner and should be followed in accordance with this plan in order to keep the BMPs operating correctly.

DocuSigned by:

5EA2F31945EE4B7...
Blake J. Magee
MK Woodside Development, Inc.

1/11/2024
Date

DocuSigned by:

7870685566DB479...
Tyson L. Hasz, P.E.
Steger Bizzell
F-181

1/10/2024
Date



SAMPLE)** PERMANENT BMP LOG ** (SAMPLE)**

INSPECTOR: _____ DATE: _____

Inspectors Company: _____

Company Address: _____

Company Phone: _____ Fax: _____

Date of Last Inspection: _____ Recent Heavy Rainfall: YES NO
(CIRCLE ONE)

Status of BMP(s): _____

Corrective Action Required (if any): _____

Date Corrected (if applicable): _____

*If actions are required they must be completed within 7 working days of this INSPECTION.

Inspectors Signature

Date:

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

I Mr. Blake Magee,
Print Name

President,
Title - Owner/President/Other

of MK Woodside Development, Inc.,
Corporation/Partnership/Entity Name

have authorized Mr. Tyson Hasz, P.E.
Print Name of Agent/Engineer

of Steger Bizzell
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:

DocuSigned by:
Blake J. Magee
Applicant's Signature

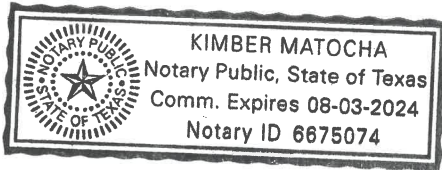
1/11/2024
Date

THE STATE OF TEXAS §

County of Travis §

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

GIVEN under my hand and seal of office on this 11th day of January 2024.



DocuSigned by:
Kimber Matocha
NOTARY PUBLIC

Kimber Matocha
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 08-03-2024

Application Fee Form

Texas Commission on Environmental Quality

Name of Proposed Regulated Entity: Woodside East - Phase B

Regulated Entity Location: Georgetown, TX

Name of Customer: MK Woodside Development, Inc. / Steger Bizzell

Contact Person: Blake Magee

Phone: (512) 481-0303

Customer Reference Number (if issued): CN 606076271

Regulated Entity Reference Number (if issued): RN N/A

Austin Regional Office (3373)

Hays

Travis

Williamson

San Antonio Regional Office (3362)

Bexar

Medina

Uvalde

Comal

Kinney

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

Austin Regional Office

San Antonio Regional Office

Mailed to: TCEQ - Cashier

Overnight Delivery to: TCEQ - Cashier

Revenues Section

Mail Code 214

P.O. Box 13088

Austin, TX 78711-3088

12100 Park 35 Circle

Building A, 3rd Floor

Austin, TX 78753

(512)239-0357

Site Location (Check All That Apply):

Recharge Zone

Contributing Zone

Transition Zone

<i>Type of Plan</i>	<i>Size</i>	<i>Fee Due</i>
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	34.28 Acres	\$ 4,000.00
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	Acres	\$
Sewage Collection System	7,639 L.F.	\$ 3,819.50
Lift Stations without sewer lines	Acres	\$
Underground or Aboveground Storage Tank Facility	Tanks	\$
Piping System(s)(only)	Each	\$
Exception	Each	\$
Extension of Time	Each	\$

Signature: 

Date: 1/19/2024

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 606076271		RN

SECTION II: Customer Information

4. General Customer Information		5. Effective Date for Customer Information Updates (mm/dd/yyyy)		1/19/2023	
<input type="checkbox"/> New Customer <input 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 (If an individual, print last name first: eg: Doe, John)				<i>If new Customer, enter previous Customer below:</i>	
MK Woodside Development, Inc.					
7. TX SOS/CPA Filing Number		8. TX State Tax ID (11 digits)		9. Federal Tax ID	10. DUNS Number (if applicable)
0804265234		32081347612		(9 digits) 87-3727833	
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 type="checkbox"/> 0-20 <input checked="" 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 checked="" type="checkbox"/> Owner <input 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:		1011 North Lamar			
City		Austin	State	TX	ZIP
				78703	ZIP + 4
16. Country Mailing Information (if outside USA)			17. E-Mail Address (if applicable)		
			blake@blakemageco.com		
18. Telephone Number		19. Extension or Code		20. Fax Number (if applicable)	

SECTION III: Regulated Entity Information

21. General Regulated Entity Information <i>(If 'New Regulated Entity' is selected, a new permit application is also required.)</i>							
<input checked="" type="checkbox"/> New Regulated Entity <input type="checkbox"/> Update to Regulated Entity Name <input 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 <i>(Enter name of the site where the regulated action is taking place.)</i>							
Woodside East - Phase B							
23. Street Address of the Regulated Entity: <i>(No PO Boxes)</i>		Ronald Reagan Boulevard & Berry Creek					
City	Georgetown	State	TX	ZIP	78633	ZIP + 4	
24. County	Williamson						

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

25. Description to Physical Location:		Southwest of the intersection of TX-195 and Ronald Reagan Boulevard and east of the intersection of Ronald Reagan Boulevard and Sun City Boulevard in Georgetown.					
26. Nearest City				State		Nearest ZIP Code	
Georgetown				TX		78633	
<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:		30.7424		28. Longitude (W) In Decimal:		-97.7212	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds		
30	44	32.64	-97	43	16.32		
29. Primary SIC Code (4 digits)		30. Secondary SIC Code (4 digits)		31. Primary NAICS Code (5 or 6 digits)		32. Secondary NAICS Code (5 or 6 digits)	
6552		1521		N/A			
33. What is the Primary Business of this entity? <i>(Do not repeat the SIC or NAICS description.)</i>							
Land Development and Residential Homes							
34. Mailing Address:		1011 North Lamar					
City	Austin	State	TX	ZIP	78703	ZIP + 4	
35. E-Mail Address:		blake@blakemageeco.com					
36. Telephone Number			37. Extension or Code		38. Fax Number <i>(if applicable)</i>		
(512) 481-303					() -		

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
		SCS & WPAP		
<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

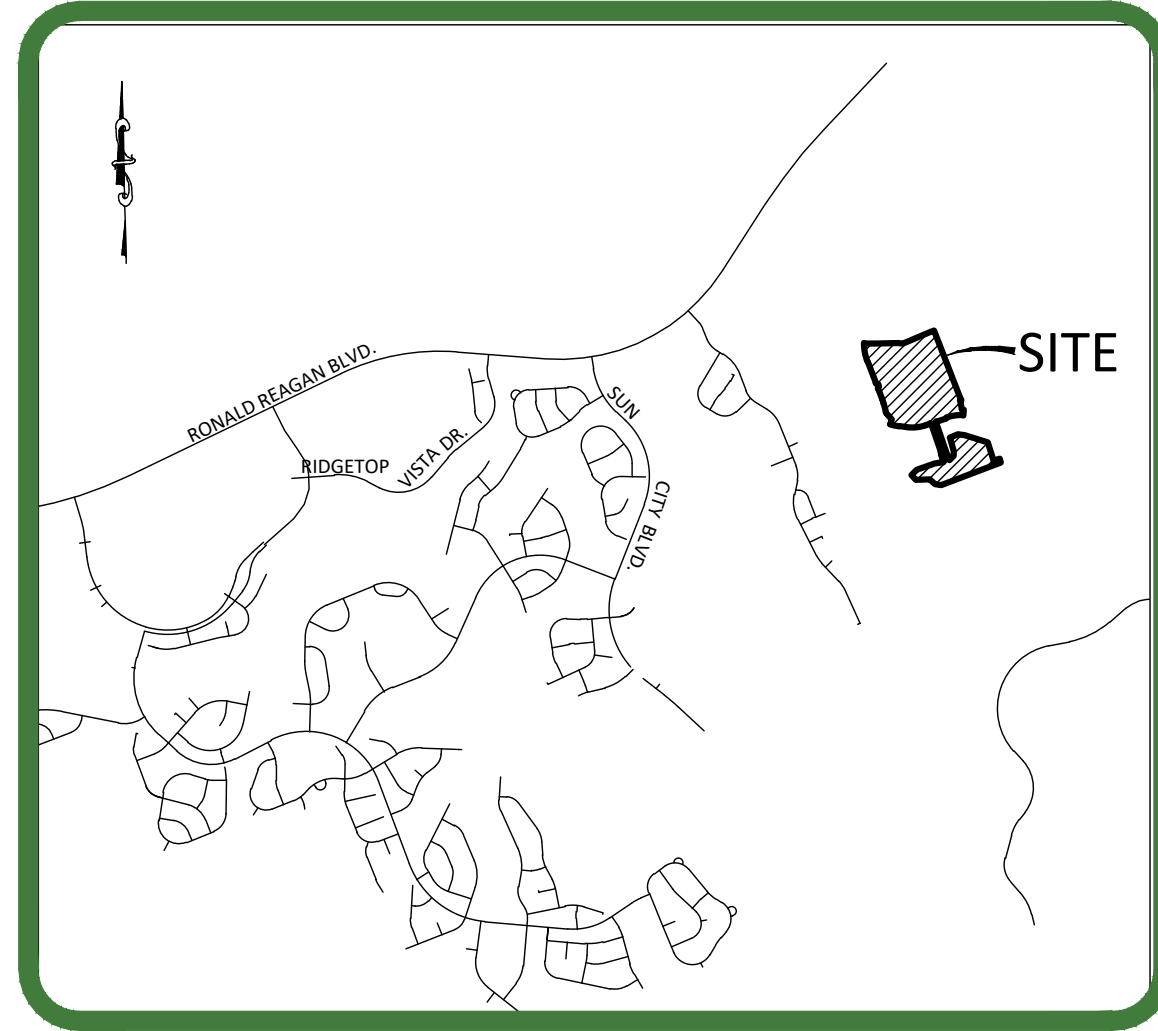
40. Name:	Steger Bizzell - Tyson L. Hasz, P.E.		41. Title:	Project Manager
42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address	
(512) 930-9412		() -	tyson.hasz@stegerbizzell.com	

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:	Steger Bizzell	Job Title:	Project Manager	
Name (In Print):	Tyson L. Hasz, P.E.	Phone:	(512) 930- 9412	
Signature:		Date:	1/19/2023	

CONSTRUCTION PLANS FOR WOODSIDE EAST - PHASE B CITY OF GEORGETOWN WILLIAMSON COUNTY, TEXAS 2023-XX-CON



Location Map
1" = 3000'

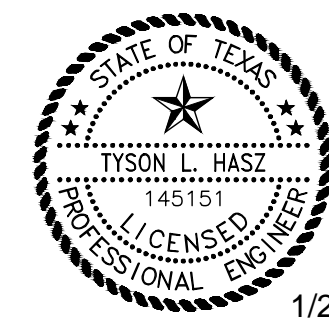
NOTE:

1. These construction plans were prepared, sealed, signed, and dated by a Texas Licensed Professional Engineer. Therefore based on the engineer's concurrence of compliance, the construction plans for construction of the proposed project are hereby approved subject to the Standard Construction Specifications and Details Manual and all other applicable City, State and Federal Requirements and Codes.
2. This project is subject to all City Standard Specifications and Details in effect at the time of submittal of the project to the City.
3. The property subject to this application is subject to the Water Quality Regulations of the City of Georgetown.
4. A Geologic Assessment, in accordance with the City of Georgetown Water Quality Regulations, was completed on August 7, 2015 and June 6, 2018. Any springs and streams as identified in the Geologic Assessment are shown herein.
5. The project limits of construction is 48.62 acres.
6. All electric distribution lines and individual service lines shall be installed underground. If overhead lines existed prior to underground installation, such poles, guys wires, and related structures shall be removed following construction of the underground infrastructure (only applicable for residential property).
7. All electric communication and infrastructure shall comply with UDC Section 13.06
8. All bearings and coordinates are referenced to the Texas Coordinate System, Central Zone. NAD 83 horizontal control datum and NGVD 29 vertical control datum. All distances and coordinates are surface and may be converted to grid by multiplying by the combined scale factor of 0.999856056. The translation of the Sun City coordinate system to NAD 83 / 93 HARN coordiante systsem and the NAVD 88 Vertical Datum are as follows:
 (NAD83) Northing -1.83' = Northing (NAD 83 / 93 HARN)
 (NAD83) Easting -1.49' = Easting (NAD 83 / 93 HARN)
 (NGVD29) Elevation +0.35' = Elevation (NAD 83 / 93 HARN)
9. The property subject to this application is subject to the Water Quality Regulations of the City of Georgetown.

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Submitted By:

Tyson L. Hasz, P.E.



1/25/2024

Date

APPROVED for the City of Georgetown:

David Munk P.E. Development Engineer _____ Date _____
 According to the approval of the Planning and Zoning Commission on _____

BENCHMARKS:

B.M. NH50 34951 Kickapoo Creek Lane and Salado Creek Lane (PK Nail in Pavement)
 ELEV = 904.97
 N = 10,237,409.60
 E = 3,106,552.84



TEXAS ONE-CALL 800-344-8377

NOTE:
 CONTRACTOR IS TO FURNISH A SET OF CONSTRUCTION PLANS BACK TO THE ENGINEER AT THE END OF THE PROJECT WITH ALL DEVIATIONS NOTED IN RED INK ON THE PLAN SHEETS. CONTRACTOR SHALL NOT RECEIVE FINAL PAYMENT UNTIL COMPLETE "AS-BUILT" SET IS RETURNED TO ENGINEER.

ADDRESS	1978 S. AUSTIN AVENUE	GEORGETOWN, TX 78626
METRO	512.930.9412	TEXAS REGISTERED ENGINEERING FIRM F-181 TBPLS FIRM No. 10003700
SERVICES	>>>ENGINEERS >>>PLANNERS >>>SURVEYORS	

Warning!

There are existing water pipelines, underground telephone cables and other above and below ground utilities in the vicinity of this project. The Contractor shall contact all appropriate companies prior to any construction in the area and determine if any conflicts exist. If so, the Contractor shall immediately contact the Engineer who shall revise the design as necessary.

OWNER / DEVELOPER
 MK WOODSIDE DEVELOPMENT, INC.
 1011 NORTH LAMAR BLVD
 AUSTIN, TEXAS 78703
 512-481-0303
 CONTACT: BLAKE MAGEE
 BLAKE@BLAKEMAGEECO.COM

ENGINEER/APPLICANT:

SURVEYOR
 McKim & Creed
 TBPLS FIRM NO. 10177601
 8868 RESEARCH BLVD, STE. 407
 AUSTIN, TEXAS 78758
 512-916-0224
 CONTACT: JORGE FERNANDEZ, R.P.L.S.

STEGER BIZZELL
 TBPLS FIRM NO. 10003700
 1978 S. AUSTIN AVE
 GEORGETOWN, TEXAS 78626
 OFFICE: 512-930-9412
 CONTACT: TYSON L. HASZ

THESE CONSTRUCTION PLANS HAVE BEEN PREPARED TO FULFILL THE REQUIREMENTS FOR THE TCEQ FOR WATER POLLUTION ABATEMENT OVER THE EDWARDS AQUIFER. CONTRACTOR SHALL CONTACT THE ENGINEER FOR ADDITIONAL DETAILED CONSTRUCTION PLAN PRIOR TO CONSTRUCTION.

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SEQUENCE OF CONSTRUCTION

- 1. Temporary erosion and sedimentation controls are to be installed as indicated on the approved construction plan and in accordance with the Stormwater Pollution Prevention Plan (SWPPP) that is required to be posted on the site. Install tree protection and initiate tree mitigation measures.
2. Prior to beginning construction, the Owner or his authorized representative, shall convene a Pre-Construction Conference between the City of Georgetown, Engineer, Contractor, County Engineer (if applicable), Texas Commission on Environmental Quality Field Office, and any other affected parties.
3. The Environmental Project Manager, and/or Site Supervisor, and/or Designated Responsible Party, and the General Contractor will follow the Storm Water Pollution Prevention Plan (SWPPP) posted on the site.
4. Rough grade the pond(s) at 100% proposed capacity.
5. Temporary erosion and sedimentation controls will be inspected and maintained in accordance with the Storm Water Pollution Prevention Plan (SWPPP) posted on the site.
6. Begin site clearing/construction activities.
7. Permanent water quality ponds or controls will be cleaned out and filter media will be installed prior to/concurrently with revegetation of site.
8. Complete construction and start revegetation of the site and installation of landscaping.
9. Upon completion of the site construction and revegetation of a project site, a final inspection will be scheduled by the appropriate City Inspector.
10. After a final inspection has been conducted by the City Inspector and with approval from the City Inspector, remove the temporary erosion and sedimentation controls and complete any necessary final revegetation resulting from removal of the controls.

ACCESSIBILITY NOTES

- 1. Project shall be constructed in full compliance with the Texas Accessibility Standards (TAS) 2012.
2. Slopes in the direction of pedestrian travel shall not exceed 5% (1:20) or have a cross slope greater than 2% (1:48).
3. Curb Ramps:
A. Curb ramps shall not exceed 8.3% (1:12) in the direction of pedestrian travel.
B. Curb ramps flares (wings) shall not exceed 1:10.
C. Minimum width of a curb ramp is 36".
D. Top of the curb ramp must be 2% in all directions for an area 36" wide and 48" deep.
E. When truncated domes are used, the truncated dome system shall extend the full width of the curb ramp and for a minimum depth of 24" at the bottom of the curb ramp.
F. Returned curb ramps shall only be used where the adjacent surface on one or both sides of the curb ramp do not allow pedestrian travel such as but not limited to stop lights, stop signs and permanently mounted waste receptacles.
4. There shall be no changes in level greater than 1/4" on any accessible route or 1/2" with a 1:2 bevel.
5. Decomposed granite surfaces, or similar Engineer-approved surfaces shall be compacted tight and maintained by the Owner at all times.
6. Provide directional signage using the international symbol of accessibility when not all routes are accessible.
7. Verify that no plantings or other site elements on circulation paths would be protruding objects based on TAS 307 (protrudes more 4" and is higher than 27" from the surface and less than 80" from the surface).

Contractor shall notify the Engineer before proceeding with any Work, which is in conflict with the Texas Accessibility Standards. Contractor is financially responsible for proceeding with any Work without written direction on any clarification from the Engineer.

TCEQ WATER DISTRIBUTION SYSTEM GENERAL CONSTRUCTION NOTES

- 1. This water distribution system must be constructed in accordance with the current Texas Commission on Environmental Quality (TCEQ) Rules and Regulations for Public Water Systems 30 Texas Administrative Code (TAC) Chapter 290 Subchapter D.
2. An appointed engineer shall notify in writing the local TCEQ's Regional Office when construction will start.
3. All newly installed pipes and related products must conform to American National Standards Institute (ANSI)/NSF International Standard 61 and must be certified by an organization accredited by ANSI, as required by 30 TAC §290.44(a)(1).
4. Plastic pipe for use in public water systems must bear the NSF International Seal of Approval (NSF-pw) and have an ASTM design pressure rating of at least 150 psi or a standard dimension ratio of 26 or less, as required by 30 TAC §290.44(a)(2).
5. No pipe which has been used for any purpose other than the conveyance of drinking water shall be accepted or relocated for use in any public drinking water supply, as required by 30 TAC §290.44(a)(3).
6. Water transmission and distribution lines shall be installed in accordance with the manufacturer's instructions.
7. Pursuant to 30 TAC §290.44(a)(5), the hydrostatic leakage rate shall not exceed the amount allowed or recommended by the most current AWWA formulas for PVC pipe, cast iron and ductile iron pipe.
• The hydrostatic leakage rate for polyvinyl chloride (PVC) pipe and appurtenances shall not exceed the amount allowed or recommended by formulas in America Water Works Association (AWWA) C-605 as required in 30 TAC §290.44(a)(5). Please ensure that the formula for this calculation is correct and most current formula is in use;

Q = (L x D x P^1.2) / 148,000

Q = the quantity of makeup water in gallons per hour,
L = the length of the pipe section being tested, in feet,
D = the nominal diameter of the pipe in inches, and
P = the average test pressure during the hydrostatic test in pounds per square inch (psi).

• The hydrostatic leakage rate for ductile iron (DI) pipe and appurtenances shall not exceed the amount allowed or recommended by formulas in America Water Works Association (AWWA) C-600 as required in 30 TAC §290.44(a)(5). Please ensure that the formula for this calculation is correct and most current formula is in use;

L = (S x D x P^1.2) / 148,000

L = the quantity of makeup water in gallons per hour,
S = the length of the pipe section being tested, in feet,
D = the nominal diameter of the pipe in inches, and
P = the average test pressure during the hydrostatic test in pounds per square inch (psi).

- 8. The maximum allowable lead content of pipes, pipe fittings, plumbing fittings, and fixtures to 0.25 percent.
9. The system must be designed to maintain a minimum pressure of 35 psi at all points within the distribution network at flow rates of at least 1.5 gallons per minute per connection.
10. The contractor shall install appropriate air release devices in the distribution system at all points where topography or other factors may create air locks in the lines.
11. Pursuant to 30 TAC §290.44(d)(4), accurate water meters shall be provided.
12. Pursuant to 30 TAC §290.44(d)(5), sufficient valves and blowoffs to make repairs.
13. Pursuant to 30 TAC §290.44(d)(6), the system shall be designed to afford effective circulation of water with a minimum of dead ends.
14. The contractor shall maintain a minimum separation distance in all directions of nine feet between the proposed waterline and wastewater collection facilities including manholes and septic tank drainfields.

further direction. Separation distances, installation methods, and materials utilized must meet 30 TAC §290.44(e)(1- 4) of the current rules.

- 15. Pursuant to 30 TAC §290.44(e)(5), the separation distance from a potable waterline to a wastewater main or lateral manhole or cleanout shall be a minimum of nine feet.
16. Pursuant to 30 TAC §290.44(e)(6), fire hydrants shall not be installed within nine feet vertically or horizontally of any wastewater line, wastewater lateral, or wastewater service line regardless of construction.
17. Pursuant to 30 TAC §290.44(e)(7), suction mains to pumping equipment shall not cross wastewater mains, wastewater laterals, or wastewater service lines.
18. Pursuant to 30 TAC §290.44(e)(8), waterlines shall not be installed closer than ten feet to septic tank drainfields.
19. Pursuant to 30 TAC §290.44(f)(1), the contractor shall not place the pipe in water or where it can be flooded with water or sewage during its storage or installation.
20. Pursuant to 30 TAC §290.44(f)(2), when waterlines are laid under any flowing or intermittent stream or semi-permanent body of water the water main shall be installed in a separate watertight pipe encasement.
21. The contractor shall disinfect the new water mains in accordance with AWWA Standard C-651 and then flush and sample the lines before being placed into service.

CITY OF GEORGETOWN GENERAL NOTES

- 1. These construction plans were prepared, sealed, signed and dated by a Texas Licensed Professional Engineer.
2. This project is subject to all City Standard Specifications and Details in effect at the time of submittal of the project to the City.
3. The site construction plans shall meet all requirements of the approved site plan.
4. Wastewater mains and service lines shall be SDR 26 PVC.
5. Wastewater mains shall be installed without horizontal or vertical bends.
6. Maximum distance between wastewater manholes is 500 feet.
7. Wastewater mains shall be low pressure air tested and mandrel tested by the contractor according to the City of Georgetown and TCEQ requirements.
8. Wastewater manholes shall be vacuum tested and coated by the contractor according to City of Georgetown and TCEQ requirements.
9. Wastewater mains shall be camera tested by the contractor and submitted to the City on DVD format prior to paving the streets.
10. Private water system fire lines shall be tested by the contractor to 200 psi for 2 hours.
11. Private water system fire lines shall be ductile iron piping from the water main to the building sprinkler system, and 200 psi C900 PVC for all others.
12. Public water system mains shall be 150 psi C900 PVC and tested by the contractor at 150 psi for 4 hours.
13. All bends and changes in direction on water mains shall be restrained and thrust blocked.
14. Long fire hydrant leads shall be restrained.
15. All water lines are to be bacteria tested by the contractor according to the City standards and specifications.
16. Water and Sewer main crossings shall meet all requirements of the TCEQ and the City.
17. Flexible base material for public streets shall be TXDOT Type A Grade 1.
18. Hot mix asphaltic concrete pavement shall be Type D unless otherwise specified and shall be a minimum of 2 inches thick on public streets and roadways.
19. All sidewalk ramps and sidewalks not intended to be constructed with the individual houses shall be installed with the public infrastructure.
20. A maintenance bond is required to be submitted to the City prior to acceptance of the public improvements.
21. Record drawings of the public improvements shall be submitted to the City by the design engineer prior to acceptance of the project.

GENERAL CONSTRUCTION NOTES

- 1. Prior to beginning construction, the Owner or his authorized representative, shall convene a Pre-Construction Conference between the City of Georgetown, Engineer, Contractor, County Engineer (if applicable), Texas Commission on Environmental Quality Field Office, and any other affected parties.
2. Any existing utilities, pavement, curbs, and/or sidewalks damaged or removed shall be repaired by the Contractor at his expense before acceptance of the project.
3. The location of any existing water, wastewater lines or other utilities shall be verified by the City of Georgetown & other utility providers prior to construction.
4. Manhole frames, covers, water valve covers, etc., shall be raised to finished pavement grade at the Contractor's expense by a qualified contractor with City inspection.
5. Steger Bizzell has endeavored to design these plans compliant with ADA/TDLR and other accessibility requirements.
6. Topography based upon LIDAR survey dated August 20, 2014 and supplemental field topo survey dated July 17-18, 2017 by McKim and Creed.

TEMPORARY EROSION CONTROL NOTES

- 1. The Contractor shall install erosion/sedimentation controls and tree protective fencing prior to any site preparation work.
2. The placement of erosion/sedimentation controls shall be in accordance with the EROSION & SEDIMENTATION CONTROL PLAN.
3. Any significant variation in materials or locations of controls or fences from those shown on the approved plans must be approved by the City Engineer.
4. The Contractor is required to inspect all controls and fences at weekly intervals and after significant rainfall events to insure that they are functioning properly.
5. Prior to final acceptance, haul roads and waterway crossings constructed for temporary Contractor access must be removed, accumulated sediment removed from the waterway and the area restored to the original grade and revegetated.
6. Field revisions to the EROSION & SEDIMENTATION CONTROL PLAN required by the Engineer or field inspector with the Texas Commission may be on Environmental Quality (TCEQ) during the course of construction to correct control inadequacies.

PERMANENT EROSION CONTROL NOTES

- 1. All disturbed areas shall be restored as noted below:
a. A minimum of four inches of imported sandy loam topsoil or approved equal shall be placed in all drainage channels (except rock) and on all cleared areas.
b. Grass areas may be sodded, plugged, sprigged or seeded except that solid sod shall be used in swales or other areas subject to erosion.
c. Fertilizer shall be slow release granular or pelleted type and shall have an analysis of 15-15-15 and shall be applied at the rate of 23 pounds per acre once at the time of planting and again once during the time of establishment.
d. All planted areas shall be provided with a readily available water supply and watered as necessary to ensure continuous healthy growth and development.
e. Mulch type used shall be Mulch, applied at a rate of 1,500 pounds per acre.
2. Disturbed areas within areas to become public shall be re-vegetated to the City of Georgetown requirements.

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

- 1. Written construction notification must be given to the appropriate TCEQ regional office no later than 48 hours prior to commencement of the regulated activity.
2. All contractors conducting regulated activities associated with this project must be provided with complete copies of the approved Water Pollution Abatement Plan and the TCEQ letter indicating the specific conditions of its approval.
3. If any sensitive feature is discovered during construction, all regulated activities near the sensitive feature must be suspended immediately.
4. No temporary aboveground hydrocarbon and hazardous substance storage tank system is installed within 150 feet of a domestic, industrial, irrigation, or public water supply well, or other sensitive feature.
5. Prior to commencement of construction, all temporary erosion and sedimentation (E&S) control measures must be properly selected, installed, and maintained in accordance with the manufacturers specifications and good engineering practices.
6. 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.
7. Sediment must be removed from sediment traps or sediment ponds not later than when design capacity has been reduced by 50%.
8. Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from becoming a pollutant source for stormwater discharges.
9. All spoils (excavated material) generated from the project site must be stored on-site with proper E&S controls.
10. Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased.
11. The following records shall be maintained and made available to the TCEQ upon request: the dates when major grading activities occur; the dates when construction activities temporarily or permanently cease on a portion of the site; and the dates when stabilization measures are initiated.
12. The holder of any approved Edward Aquifer protection plan must notify the appropriate regional office in writing and obtain approval from the executive director prior to initiating any of the following:
A. any physical or operational modification of any water pollution abatement structure(s), including but not limited to ponds, dams, berms, sewage treatment plants, and diversionary structures;
B. any change in the nature or character of the regulated activity from that which was originally approved or a change which would significantly impact the ability of the plan to prevent pollution of the Edwards Aquifer;
C. any development of land previously identified as undeveloped in the original water pollution abatement plan.

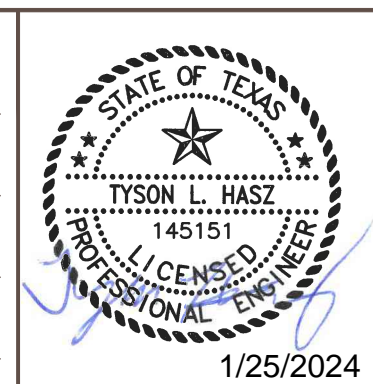
Austin Regional Office
12100 Park 35 Circle
Building A, 1st Floor
Austin, Texas 78753
Phone (512) 339-2929
Fax (512) 339-3795

THESE CONSTRUCTION PLANS HAVE BEEN PREPARED TO FULFILL THE REQUIREMENTS FOR THE TCEQ FOR WATER POLLUTION ABATEMENT OVER THE EDWARDS AQUIFER. CONTRACTOR SHALL CONTACT THE ENGINEER FOR ADDITIONAL DETAILED CONSTRUCTION PLAN PRIOR TO CONSTRUCTION.

WARNING! There are existing water pipelines, underground telephone cables and other above and below ground utilities in the vicinity of this project. The Contractor shall contact all appropriate companies prior to any construction in the area and determine if any conflicts exist. If so, the Contractor shall immediately contact the Engineer who shall revise the design as necessary.

Table with 4 columns: NO., REVISION, BY, DATE. Contains multiple empty rows for tracking changes.

Table with 2 columns: Field Name, Date. Includes entries for TLH, CL, EJH (DESIGNED BY), TEH, TG, CL, EJH (DRAWN BY), TLH (CHECKED BY), TLH (APPROVED BY).



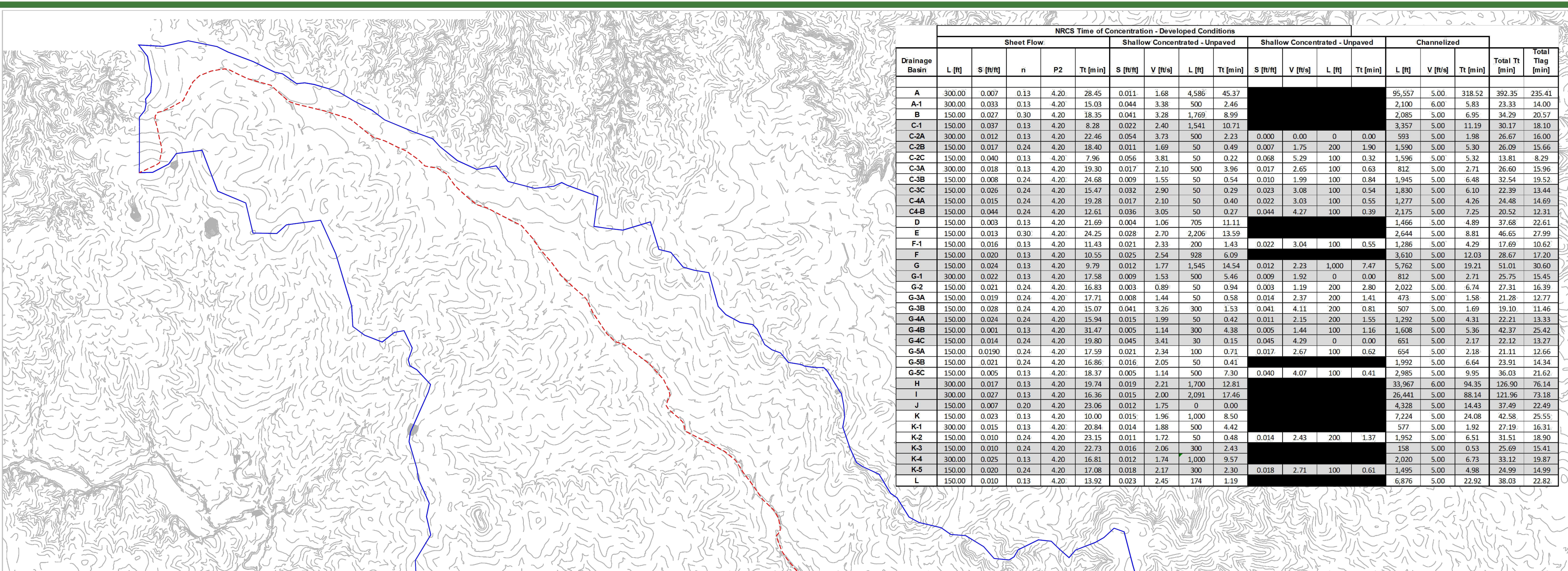
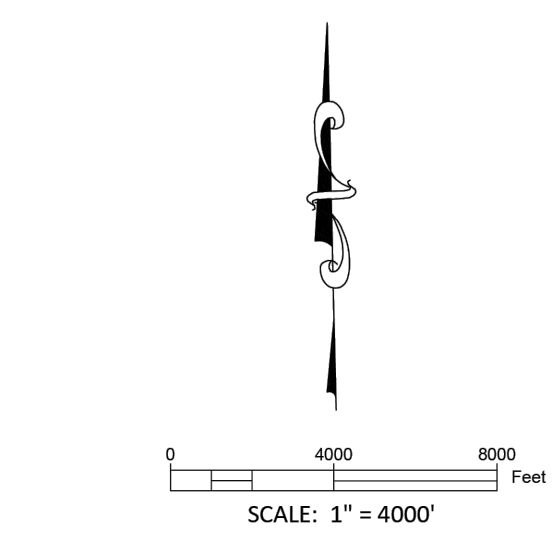
STEGER BIZZELL logo and contact information including address (1978 S. AUSTIN AVENUE, GEORGETOWN, TX 78626), phone, and website.

GENERAL NOTES (1 OF 2)
WOODSIDE EAST - PHASE B
City of Georgetown
Williamson County, Texas

Table with 2 columns: Field Name, Value. Includes Project Number (22226121-MADISON TRACT), SCALE (AS NOTED), Project Path, Project Name, Drawing Path, Xref DWG FILE, and Sheet Number (02 of 71 sheets).

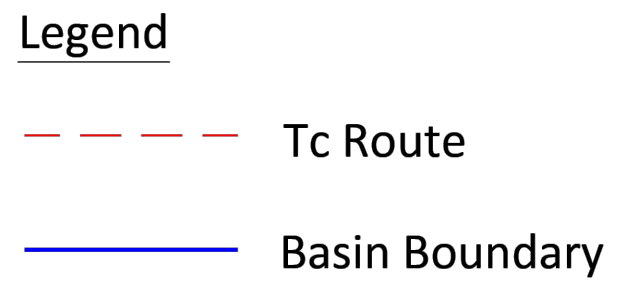
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Drainage Basin	NRCS Time of Concentration - Developed Conditions														Total Tt [min]	Total Tlag [min]		
	Sheet Flow				Shallow Concentrated - Unpaved				Shallow Concentrated - Paved				Channelized					
	L [ft]	S [ft/ft]	n	P2	Tt [min]	S [ft/ft]	V [ft/s]	L [ft]	Tt [min]	S [ft/ft]	V [ft/s]	L [ft]	Tt [min]	L [ft]			V [ft/s]	
A	300.00	0.007	0.13	4.20	28.45	0.011	1.68	4.586	45.37					95.557	5.00	318.52	392.35	235.41
A-1	300.00	0.033	0.13	4.20	15.03	0.044	3.38	5.00	2.46					2.100	6.00	5.83	23.33	14.00
B	150.00	0.027	0.30	4.20	18.35	0.041	3.28	1.769	8.59					3.285	5.00	6.95	34.29	20.57
C-1	150.00	0.037	0.13	4.20	8.38	0.022	2.40	1.541	10.71					3.357	5.00	11.19	30.17	18.10
C-2A	300.00	0.012	0.13	4.20	22.46	0.054	3.73	500	2.23	0.000	0.00	0	0.00	593	5.00	1.98	26.67	16.00
C-2B	150.00	0.017	0.24	4.20	18.40	0.011	1.69	50	0.49	0.007	1.75	200	1.90	1.590	5.00	5.30	26.09	15.66
C-2C	150.00	0.040	0.13	4.20	7.96	0.056	3.81	50	0.22	0.068	5.29	100	0.32	1.596	5.00	5.32	13.81	8.29
C-3A	300.00	0.018	0.13	4.20	19.30	0.017	2.10	500	3.96	0.017	2.65	100	0.63	812	5.00	2.71	26.60	15.96
C-3B	150.00	0.008	0.24	4.20	24.68	0.009	1.55	50	0.54	0.010	1.99	100	0.84	1.945	5.00	6.48	32.54	19.52
C-3C	150.00	0.036	0.24	4.20	15.47	0.032	2.90	50	0.29	0.023	3.08	100	0.54	1.830	5.00	6.10	22.39	13.44
C-4A	150.00	0.015	0.24	4.20	19.28	0.017	2.10	50	0.40	0.022	3.03	100	0.55	1.277	5.00	4.26	24.48	14.69
C-4B	150.00	0.044	0.24	4.20	12.61	0.036	3.05	50	0.27	0.044	4.27	100	0.39	2.175	5.00	7.25	20.52	12.31
D	150.00	0.003	0.13	4.20	21.69	0.004	1.06	705	11.11					1.466	5.00	4.89	37.68	22.61
E	150.00	0.013	0.30	4.20	24.25	0.028	2.70	2.206	13.59					2.644	5.00	8.81	46.65	27.99
F-1	150.00	0.016	0.13	4.20	11.43	0.021	2.33	200	1.43	0.022	3.04	100	0.55	1.286	5.00	4.29	17.69	10.62
F	150.00	0.020	0.13	4.20	10.55	0.025	2.54	928	6.09					3.610	5.00	12.03	28.67	17.20
G	150.00	0.034	0.13	4.20	9.79	0.015	1.77	1.545	14.54	0.012	2.23	1,000	7.47	3.762	5.00	19.21	51.01	30.60
G-1	300.00	0.022	0.13	4.20	17.58	0.009	1.53	500	5.46	0.009	1.92	0	0.00	812	5.00	2.71	25.75	15.43
G-2	150.00	0.021	0.24	4.20	16.83	0.003	0.89	50	0.94	0.003	1.19	200	2.80	2.022	5.00	6.74	27.31	16.39
G-3A	150.00	0.019	0.24	4.20	17.71	0.008	1.44	50	0.58	0.014	2.37	200	1.41	473	5.00	1.58	21.28	12.77
G-3B	150.00	0.028	0.24	4.20	15.07	0.041	3.26	300	1.53	0.041	4.11	200	0.81	507	5.00	1.69	19.10	11.46
G-4A	150.00	0.024	0.24	4.20	15.94	0.015	1.99	50	0.42	0.011	2.15	200	1.55	1.292	5.00	4.31	22.21	13.33
G-4B	150.00	0.061	0.13	4.20	31.47	0.065	1.14	300	4.38	0.005	1.44	100	1.16	1.608	5.00	5.36	42.37	25.42
G-4C	150.00	0.034	0.13	4.20	19.80	0.015	2.41	50	0.35	0.015	2.29	0	0.00	631	5.00	2.17	22.32	13.27
G-5A	150.00	0.0190	0.24	4.20	17.59	0.021	2.34	100	0.71	0.017	2.67	100	0.62	654	5.00	2.18	21.11	12.66
G-5B	150.00	0.021	0.24	4.20	16.86	0.016	2.05	50	0.41					1.992	5.00	6.64	23.91	14.34
G-5C	150.00	0.005	0.13	4.20	18.37	0.005	1.14	500	7.30	0.040	4.07	100	0.41	2.985	5.00	9.95	36.03	21.62
H	300.00	0.017	0.13	4.20	19.74	0.019	2.21	1,700	12.81					33.967	6.00	94.35	126.90	76.14
I	300.00	0.027	0.13	4.20	16.36	0.015	2.00	2,091	17.46					26.441	5.00	88.14	121.96	73.18
J	150.00	0.067	0.20	4.20	23.06	0.072	1.75	0	0.00					4.328	5.00	14.43	37.49	22.49
K	150.00	0.023	0.13	4.20	10.00	0.015	1.96	1,000	8.50					3.224	5.00	24.09	42.58	25.55
K-1	300.00	0.015	0.13	4.20	20.84	0.014	1.88	500	4.42					577	5.00	1.92	27.19	16.31
K-2	150.00	0.010	0.24	4.20	23.15	0.011	1.72	50	0.48	0.014	2.43	200	1.37	1.952	5.00	6.51	31.51	18.90
K-3	150.00	0.010	0.24	4.20	22.73	0.016	2.06	300	2.43					158	5.00	0.53	25.69	15.41
K-4	300.00	0.025	0.13	4.20	16.81	0.012	1.74	1,000	9.57					2,020	5.00	6.73	33.12	19.87
K-5	150.00	0.020	0.24	4.20	17.08	0.018	2.17	300	2.30	0.018	2.71	100	0.61	1.495	5.00	4.98	24.99	14.99
L	150.00	0.010	0.13	4.20	13.92	0.023	2.45	174	1.19					6.876	5.00	22.92	38.03	22.82

PROPOSED CONDITION SUBBASIN ELEMENTS								
SUBBASIN	AREA [SQ.M]	CN	LAG [MIN]	Q2 [CFS]	Q10 [CFS]	Q25 [CFS]	Q100 [CFS]	DOWNSTREAM
A	55.80078125	80.0	235.41	6887.4	15864.17	21852.75	30990.46	R-1
A-1	.09540625	87.2	13.995	144.7	250.13	312.65	404.76	R-1
B	.303125	84.5	20.57	318.74	606.2	781.75	1035.3	J-1
C-1	.08890625	80.83	15.46	81.68	167.27	220.08	298.52	R_C1-C2
C-2A	.054375	80.0	21.71	50.89	105.46	138.87	189.2	R_C2A-C2B
C-2B	.02892188	89.24	15.66	45.58	76.27	94.61	121.18	J-2
C-2C	.04217188	87.88	11.31	84.41	136.85	167.92	215.64	J-2
C-3A	.0961875	80.0	14.89	33.92	70.29	92.55	126.1	R_C3A-C3B
C-3B	.08770313	88.29	19.52	165.63	270.73	332.4	427.03	
C-3C	.03898438	80.84	13.44	42.2	84.41	109.76	148.45	J-3
C-4A	.05517188	89.08	15.02	98.21	161.18	198.34	254.48	J-4
C-4B	.06579688	80.05	12.31	70.92	143.72	187.31	254.84	J-4
D	.11590625	84.01	22.62	111.9	216.85	281.31	374.25	J-1
E	.3141875	84.5	27.99	271.89	529.61	689.12	917.29	J-2
F	.15021875	84.83	17.61	178.49	332.09	424.71	560.06	J-2
F-1	.0454625	90.73	10.62	91.98	143.64	174.21	220.29	R_F1-F
G	.6435	83.14	30.55	486.79	982.43	1292.17	1739.24	J-3
G-1	.08917188	80.0	15.58	74.49	151.09	196.96	268.12	R_G1-G2
G-2	.176875	89.65	20.58	321.44	521.74	640.22	815.7	POND G
G-3A	.03284375	88.72	12.77	56.28	93.32	115.25	147.9	J-3
G-3B	.01395313	84.0	10.97	22.84	41.73	52.82	69.93	J-3
G-4A	.028	88.37	19.65	46.11	77.42	95.85	123.33	J-4
G-4B	.15692188	83.7	22.79	138.12	271.78	354.55	473.57	J-4
G-4C	.01028125	86.41	13.27	18.39	31.08	38.5	50.02	POND G4
G-5A	.03099375	89.09	12.66	36.1	59.35	73.12	93.57	J-5
G-5B	.02820313	80.4	14.34	32.82	65.75	83.24	115.96	J-5
G-5C	.1503125	89.55	44.6	199.29	341.39	429.97	548.03	J-5
H	10.79682813	82.3	79.16	3969.51	8672.89	11669.6	16017.65	J-3
I	3.73673438	82.7	73.18	1449.35	3132.31	4202.32	5750.76	J-4
J	1.62080663	84.5	33.7	1237.23	2440.67	3192.7	4264.07	R_J-K
K	.8356875	84.82	29.99	780.59	1499.6	1941.84	2575.29	J-4
K-1	.06257813	80.0	16.31	57.99	120.22	158.45	216.06	R_K1-K2
K-2	.12896875	90.82	18.9	196.98	324.61	401.32	510.0	POND K
K-3	.0185	83.54	12.16	21.8	41.34	53.08	70.51	POND K2
K-4	.1555625	82.57	19.87	149.84	296.89	387.19	519.13	J-4
K-5	.08782813	82.65	14.99	99.89	192.87	248.83	332.79	J-4
L	.20442188	86.5	22.8	224.51	412.29	526.51	689.32	J-4



NOTE:
SHADED AREA REPRESENTS DEVELOPMENT WITHIN THIS STUDY.

NO.	REVISION	BY	DATE

SJT
DESIGNED BY: 7-10-2022
DATE

SJT
DRAWN BY: 7-10-2022
DATE

BEM
CHECKED BY: 7-14-2022
DATE

BEM
APPROVED BY: 7-14-2022
DATE



STEGER BIZZELL

ADDRESS: 1978 S. AUSTIN AVENUE, GEORGETOWN, TX 78626

METRO: 512.930.9412, SERVICES: >>ENGINEERS >>PLANNERS >>SURVEYORS

ATTACHMENT "B" - DEVELOPED CONDITION DRAINAGE MAP
for
BERRY CREEK
Georgetown
Williamson County, Texas

Project No: 22226-M

THESE CONSTRUCTION PLANS HAVE BEEN PREPARED TO FULFILL THE REQUIREMENTS FOR THE TCEQ PER WATER POLLUTION ABATEMENT OVER THE EDWARDS AQUIFER. CONTRACTOR SHALL CONTACT THE ENGINEER FOR ADDITIONAL DETAILED CONSTRUCTION PLAN PRIOR TO CONSTRUCTION.

WARNING!
There are existing water pipelines, underground telephone cables and other above and below ground utilities in the vicinity of this project. The Contractor shall contact all appropriate companies prior to any construction in the area and determine if any conflicts exist. If so, the Contractor shall immediately contact the Engineer who shall revise the design as necessary.

NO.	REVISION	BY	DATE



STEGER BIZZELL

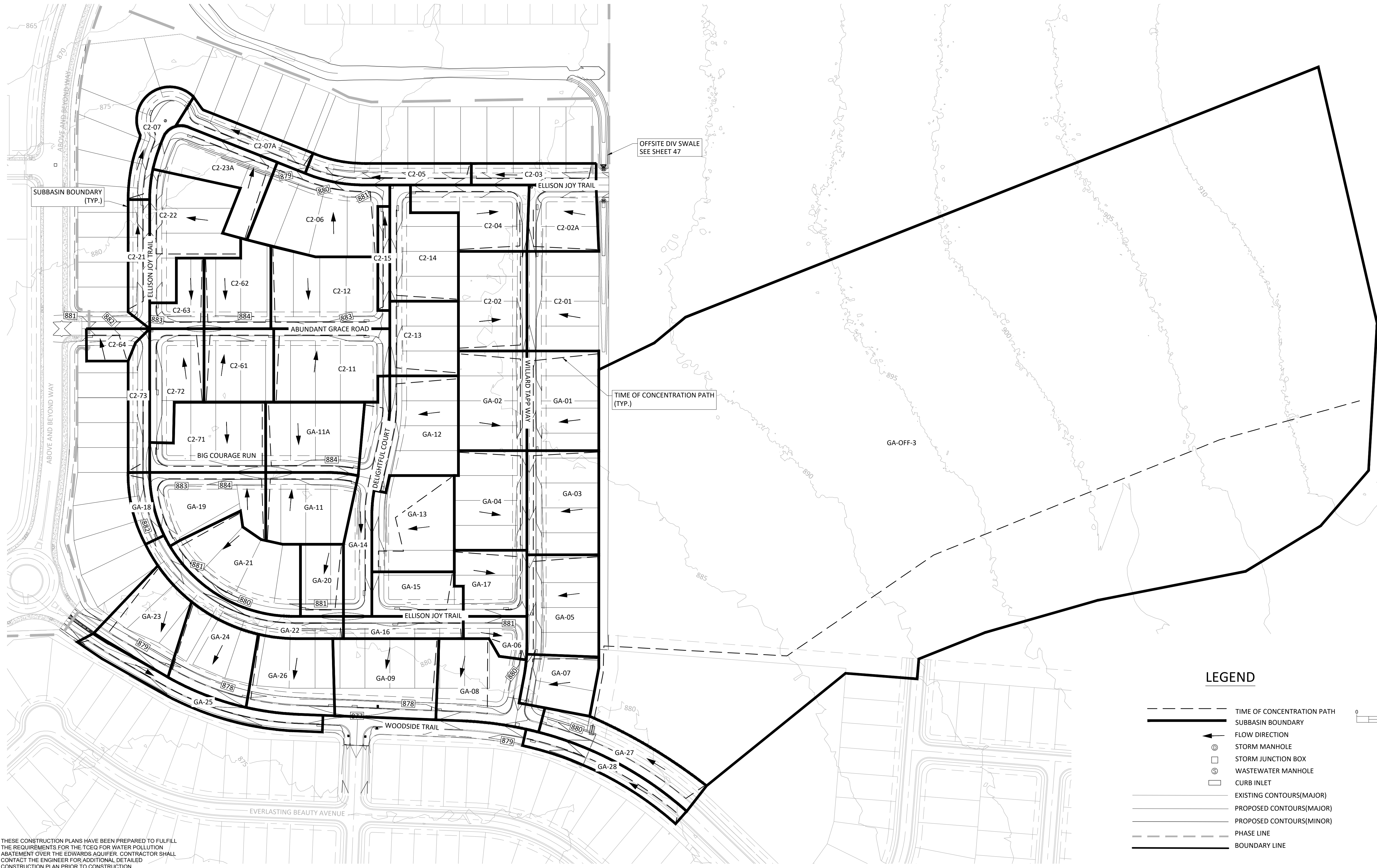
ADDRESS: 1978 S. AUSTIN AVENUE, GEORGETOWN, TX 78626

METRO: 512.930.9412, SERVICES: >>ENGINEERS >>PLANNERS >>SURVEYORS

DEVELOPED DRAINAGE PLAN
WOODSIDE EAST - PHASE B
City of Georgetown
Williamson County, Texas

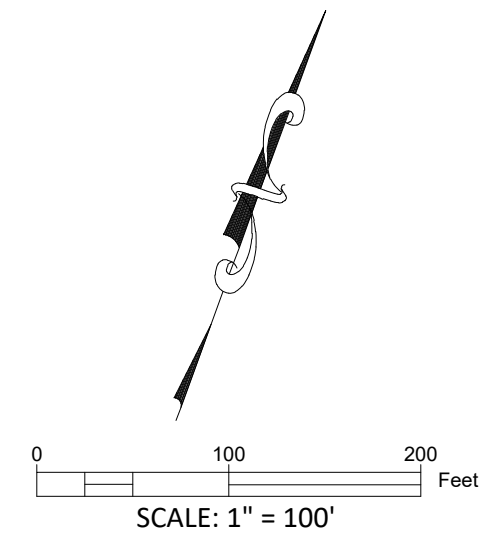
Project Number: 22226/21-MADISON TRACT
SCALE: AS NOT

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LEGEND

- TIME OF CONCENTRATION PATH
- SUBBASIN BOUNDARY
- ← FLOW DIRECTION
- ⊙ STORM MANHOLE
- STORM JUNCTION BOX
- ⊙ WASTEWATER MANHOLE
- CURB INLET
- EXISTING CONTOURS(MAJOR)
- PROPOSED CONTOURS(MAJOR)
- PROPOSED CONTOURS(MINOR)
- PHASE LINE
- BOUNDARY LINE

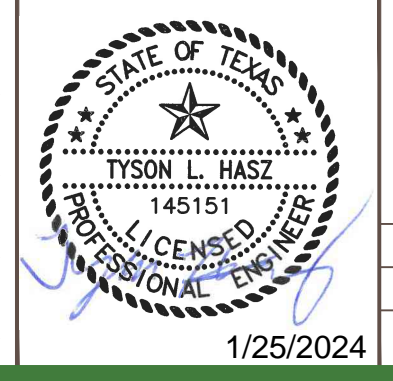


THESE CONSTRUCTION PLANS HAVE BEEN PREPARED TO FULFILL THE REQUIREMENTS FOR THE TCEQ FOR WATER POLLUTION ABATEMENT OVER THE EDWARDS AQUIFER. CONTRACTOR SHALL CONTACT THE ENGINEER FOR ADDITIONAL DETAILED CONSTRUCTION PLAN PRIOR TO CONSTRUCTION.

WARNING!
There are existing water pipelines, underground telephone cables and other above and below ground utilities in the vicinity of this project. The Contractor shall contact all appropriate companies prior to any construction in the area and determine if any conflicts exist. If so, the Contractor shall immediately contact the Engineer who shall revise the design as necessary.

NO.	REVISION	BY	DATE

TLH, CL, EJJ	01-18-2024
DESIGNED BY:	DATE
TEH, TG, CL, EJJ	01-18-2024
DRAWN BY:	DATE
TLH	01-18-2024
CHECKED BY:	DATE
TLH	01-18-2024
APPROVED BY:	DATE



STEGER BIZZELL

ADDRESS: 1978 S. AUSTIN AVENUE, GEORGETOWN, TX 78626
 METRO: 512.930.9412, TEXAS REGISTERED ENGINEERING FIRM F-181, WEB: STEGERBIZZELL.COM
 SERVICES: >>ENGINEERS >>PLANNERS >>SURVEYORS

INLET CALCULATIONS (1 OF 4)
WOODSIDE EAST - PHASE B
 City of Georgetown
 Williamson County, Texas

Project Number:	22226/21-MADISON TRACT
SCALE:	AS NOTED
Project Path:	P\22000-22999
Project Name:	22226-MADISON TRACT
Drawing Path:	P\22000-22999 SUN CITY
Xref DWG FILE:	
Sheet Number:	09 of 71 sheets

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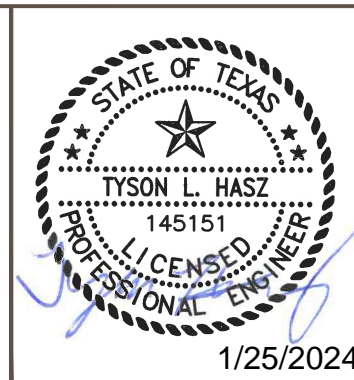
HYDROLOGIC SUMMARY TABLE																	
SUB-AREA	AREA (ACRES)	BUILDINGS (ACRES)	BUILDINGS (%)	ROADWAY/ SIDEWALKS (ACRES)	ROADWAY/ SIDEWALKS (%)	GRASS (ACRES)	GRASS (%)	TC CALC (MIN)	TC USED (MIN)	i2	i10	i25	i100	c2	c10	c25	c100
C201	0.69	0.34	49.66%	0.10	13.79%	0.25	36.55%	18.71	18.71	4.16	5.78	6.76	8.30	0.73	0.74	0.76	0.78
C202	0.69	0.35	49.69%	0.10	13.75%	0.25	36.56%	18.80	18.80	4.15	5.77	6.75	8.28	0.73	0.74	0.76	0.78
C202A	0.45	0.18	40.56%	0.12	25.92%	0.15	33.52%	18.59	18.59	4.17	5.80	6.78	8.32	0.74	0.76	0.77	0.79
C203	0.27	0.07	26.68%	0.12	44.42%	0.08	28.89%	5.70	5.70	6.30	8.42	9.60	11.61	0.77	0.78	0.79	0.81
C204	0.60	0.23	39.10%	0.17	27.87%	0.20	33.03%	19.12	19.12	4.12	5.73	6.70	8.23	0.75	0.76	0.77	0.80
C205	0.35	0.09	26.31%	0.16	44.92%	0.10	28.77%	5.64	5.64	6.31	8.44	9.62	11.63	0.77	0.79	0.79	0.81
C206	0.93	0.47	50.06%	0.12	13.25%	0.34	36.69%	19.28	19.28	4.10	5.71	6.68	8.20	0.73	0.74	0.75	0.78
C223A	0.61	0.26	42.17%	0.14	23.77%	0.21	34.06%	16.93	16.93	4.36	6.03	7.03	8.62	0.74	0.76	0.77	0.79
C207	0.35	0.09	25.56%	0.16	45.93%	0.10	28.52%	5.85	5.85	6.26	8.37	9.55	11.55	0.77	0.79	0.80	0.82
C207A	0.29	0.07	25.74%	0.13	45.69%	0.08	28.58%	5.53	5.53	6.34	8.47	9.66	11.67	0.77	0.79	0.80	0.82
C211	0.82	0.38	46.68%	0.15	17.76%	0.29	35.56%	19.54	19.54	4.08	5.68	6.64	8.16	0.73	0.75	0.76	0.79
C212	0.81	0.40	48.87%	0.12	14.84%	0.30	36.29%	21.28	21.28	3.91	5.46	6.40	7.88	0.73	0.75	0.76	0.78
C213	0.52	0.26	49.68%	0.07	13.76%	0.19	36.56%	18.08	18.08	4.23	5.87	6.85	8.41	0.73	0.74	0.76	0.78
C214	0.67	0.31	46.59%	0.12	17.88%	0.24	35.53%	18.34	18.34	4.20	5.83	6.81	8.36	0.73	0.75	0.76	0.79
C215	0.12	0.00	0.00%	0.10	80.00%	0.02	20.00%	2.43	5.00	6.48	8.64	9.84	11.88	0.82	0.83	0.84	0.85
C221	0.26	0.07	25.28%	0.12	46.30%	0.07	28.43%	6.19	6.19	6.17	8.27	9.45	11.43	0.77	0.79	0.80	0.82
C222	0.80	0.38	48.01%	0.13	15.99%	0.29	36.00%	17.42	17.42	4.30	5.96	6.96	8.53	0.73	0.75	0.76	0.78
C261	0.51	0.26	50.23%	0.07	13.03%	0.19	36.74%	19.58	19.58	4.07	5.67	6.63	8.15	0.72	0.74	0.75	0.78
C262	0.52	0.26	50.77%	0.06	12.31%	0.19	36.92%	18.90	18.90	4.14	5.76	6.73	8.26	0.72	0.74	0.75	0.78
C263	0.27	0.11	41.24%	0.07	25.02%	0.09	33.75%	13.28	13.28	4.84	6.63	7.68	9.38	0.74	0.76	0.77	0.79
C264	0.16	0.06	34.36%	0.06	34.19%	0.05	31.45%	8.93	8.93	5.57	7.53	8.66	10.52	0.76	0.77	0.78	0.80
C271	0.72	0.33	46.48%	0.13	18.02%	0.25	35.49%	19.03	19.03	4.13	5.74	6.71	8.24	0.73	0.75	0.76	0.79
C272	0.50	0.19	37.29%	0.15	30.28%	0.16	32.43%	19.78	19.78	4.05	5.65	6.61	8.12	0.75	0.77	0.78	0.80
C273	0.28	0.07	24.82%	0.13	46.90%	0.08	28.27%	5.91	5.91	6.24	8.35	9.54	11.53	0.77	0.79	0.80	0.82
GA01	0.69	0.34	49.66%	0.10	13.79%	0.25	36.55%	13.88	13.88	4.75	6.52	7.57	9.24	0.73	0.74	0.76	0.78
GA02	0.69	0.35	49.69%	0.10	13.75%	0.25	36.56%	14.82	14.82	4.62	6.36	7.39	9.04	0.73	0.74	0.76	0.78
GA03	0.72	0.36	49.67%	0.10	13.78%	0.26	36.56%	15.58	15.58	4.53	6.24	7.26	8.88	0.73	0.74	0.76	0.78
GA04	0.73	0.37	50.24%	0.10	13.01%	0.27	36.75%	16.42	16.42	4.42	6.11	7.12	8.72	0.72	0.74	0.75	0.78
GA05	0.70	0.35	49.78%	0.10	13.62%	0.26	36.59%	18.70	18.70	4.16	5.79	6.76	8.30	0.73	0.74	0.76	0.78
GA06	0.21	0.06	27.01%	0.09	43.98%	0.06	29.00%	10.87	10.87	5.22	7.10	8.19	9.97	0.77	0.78	0.79	0.81
GA07	0.39	0.20	50.79%	0.05	12.28%	0.15	36.93%	14.87	14.87	4.62	6.35	7.38	9.03	0.72	0.74	0.75	0.78
GA08	0.71	0.28	38.73%	0.20	28.35%	0.24	32.91%	15.62	15.62	4.52	6.23	7.25	8.88	0.75	0.76	0.77	0.80
GA09	0.82	0.39	47.55%	0.14	16.60%	0.29	35.85%	17.65	17.65	4.28	5.93	6.92	8.49	0.73	0.75	0.76	0.78
GA11	0.61	0.30	49.16%	0.09	14.46%	0.22	36.39%	14.85	14.85	4.62	6.36	7.39	9.03	0.73	0.75	0.76	0.78
GA11A	0.68	0.34	50.02%	0.09	13.31%	0.25	36.67%	15.54	15.54	4.53	6.24	7.27	8.89	0.73	0.74	0.75	0.78
GA12	0.76	0.40	52.76%	0.07	9.65%	0.28	37.59%	14.66	14.66	4.65	6.39	7.42	9.07	0.72	0.74	0.75	0.78
GA13	0.76	0.09	11.98%	0.07	9.50%	0.60	78.52%	21.17	21.17	3.92	5.48	6.42	7.89	0.45	0.49	0.51	0.57
GA14	0.56	0.14	24.69%	0.26	47.08%	0.16	28.23%	7.23	7.23	5.93	7.97	9.13	11.06	0.77	0.79	0.80	0.82
GA15	0.39	0.15	37.22%	0.12	30.38%	0.13	32.41%	10.23	10.23	5.33	7.23	8.34	10.15	0.75	0.77	0.78	0.80
GA16	0.27	0.07	27.69%	0.11	43.07%	0.08	29.23%	5.84	5.84	6.26	8.37	9.56	11.55	0.77	0.78	0.79	0.81
GA17	0.47	0.19	41.44%	0.12	24.75%	0.16	33.81%	16.23	16.23	4.44	6.14	7.15	8.75	0.74	0.76	0.77	0.79
GA18	0.15	0.04	27.44%	0.06	43.42%	0.04	29.15%	5.37	5.37	6.38	8.52	9.71	11.73	0.77	0.78	0.79	0.81
GA19	0.65	0.26	40.09%	0.17	26.55%	0.22	33.36%	12.88	12.88	4.90	6.70	7.76	9.47	0.74	0.76	0.77	0.79
GA20	0.31	0.16	50.04%	0.04	13.28%	0.11	36.68%	15.73	15.73	4.51	6.21	7.23	8.85	0.73	0.74	0.75	0.78
GA21	0.83	0.39	47.12%	0.14	17.17%	0.30	35.71%	17.77	17.77	4.26	5.91	6.90	8.46	0.73	0.75	0.76	0.78
GA22	0.48	0.13	27.08%	0.21	43.90%	0.14	29.03%	4.95	5	6.48	8.64	9.84	11.88	0.77	0.78	0.79	0.81
GA23	0.56	0.25	45.24%	0.11	19.68%	0.20	35.08%	17.55	17.55	4.29	5.94	6.94	8.50	0.73	0.75	0.76	0.79
GA24	0.59	0.27	45.88%	0.11	18.83%	0.21	35.29%	16.16	16.16	4.45	6.15	7.16	8.77	0.73	0.75	0.76	0.79
GA25	0.43	0.00	0.00%	0.34	80.00%	0.09	20.00%	5.39	5.39	6.38	8.52	9.71	11.72	0.82	0.83	0.84	0.85
GA26	0.62	0.28	45.76%	0.12	18.99%	0.22	35.25%	16.33	16.33	4.43	6.12	7.13	8.73	0.73	0.75	0.76	0.79
GA27	0.52	0.14	26.53%	0.23	44.63%	0.15	28.84%	8.18	8.18	5.73	7.72	8.86	10.75	0.77	0.79	0.79	0.81
GA28	0.30	0.00	0.00%	0.24	80.00%	0.06	20.00%	3.85	5	6.48	8.64	9.84	11.88	0.82	0.83	0.84	0.85
GAOFF3	33.62	0.00	0.00%	0.00	0.00%	33.62	100.00%	41.45	41.45	2.66	3.87	4.61	5.74	0.31	0.36	0.39	0.46

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NO.	REVISION	BY	DATE

TLH, CL, EJJ
DESIGNED BY: _____ DATE: 01-18-2024
TEH, TG, CL, EJJ
DRAWN BY: _____ DATE: 01-18-2024
TLH
CHECKED BY: _____ DATE: 01-18-2024
TLH
APPROVED BY: _____ DATE: 01-18-2024



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 SERVICES: >>ENGINEERS >>PLANNERS >>SURVEYORS

INLET CALCULATIONS (2 OF 4)
WOODSIDE EAST - PHASE B
 City of Georgetown
 Williamson County, Texas

Project Number: 22226/21-MADISON TRACT
 SCALE: AS NOTED
 Project Path: P:\22000-22999
 Project Name: 22226-MADISON TRACT
 Drawing Path: P:\22000-22999 SUN CITY
 Xref DWG FILE:
 Sheet Number: 10 of 71 sheets

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25-YR INLET RESULTS

Inlet ID	Bypass Inlet ID	Total Runoff (CFS)	Qcarryover (CFS)	Qcaptured (CFS)	Qbypass (CFS)	Gutter Depth (CFS)	Gutter Spread (CFS)	Gutter Longitudinal Slope (FT/FT)	Gutter Cross Slope (SW) (FT/ FT)	Road Cross Slope (Sx) (FT/FT)
C261	Offsite	2.65	0	2.65	0	0.26	10.68	0.005	0.05	0.02
C262	Offsite	2.73	0	2.73	0	0.26	10.81	0.005	0.05	0.02
C271	11	3.79	0	3.79	0	0.29	12.29	0.005	0.05	0.02
C272	Sag	2.63	0	2.63	0	0.25	10.03	Sag	0.05	0.02
C263	Offsite	1.61	0	1.61	0	0.18	6.73	0.018	0.05	0.02
C273	Sag	2.21	0	2.21	0	0.22	8.93	Sag	0.05	0.02
C264	Offsite	1.12	0	1.12	0	0.16	5.64	0.02	0.05	0.02
C201	CA02A	3.65	0	3.65	0	0.29	12.11	0.005	0.05	0.02
C202	C204	3.66	0	3.66	0	0.29	12.12	0.005	0.05	0.02
C202A	C204	2.42	0	2.42	0	0.25	10.31	0.005	0.05	0.02
C211	C215	4.31	0	4.31	0	0.3	12.91	0.005	0.05	0.02
C212	C215	4.06	0	4.06	0	0.3	12.62	0.005	0.05	0.02
C203	C205	2.1	0	2.1	0	0.21	8.18	0.012	0.05	0.02
C213	C214	2.79	0	2.79	0	0.24	9.7	0.009	0.05	0.02
C204	C206	3.21	0	3.21	0	0.24	9.7	0.012	0.05	0.02
C214	C206	3.63	0	3.63	0	0.26	10.77	0.009	0.05	0.02
C215	C206	1.04	0	1.04	0	0.17	6.49	0.009	0.05	0.02
C221	C207	2.02	0	2.02	0	0.2	7.59	0.016	0.05	0.02
C205	C207A	2.75	0	2.75	0	0.23	9.12	0.012	0.05	0.02
C206	C223A	4.84	0	4.71	0.14	0.27	11.4	0.012	0.05	0.02
C222	C223A	4.31	0	4.21	0.1	0.25	10.3	0.016	0.05	0.02
C207	Sag	2.73	0	2.73	0	0.25	10.28	Sag	0.05	0.02
C223A	Sag	3.37	0.24	3.61	0	0.29	12.4	Sag	0.05	0.02
C207A	C207	2.28	0	2.28	0	0.25	10.07	0.005	0.05	0.02
GA01	GA03	4.07	0	4.07	0	0.27	11.04	0.01	0.05	0.02
GA02	GA04	3.98	0	3.98	0	0.26	10.94	0.01	0.05	0.02
GA03	GA05	4.07	0	4.07	0	0.27	11.04	0.01	0.05	0.02
GA04	GA06	4.05	0	4.05	0	0.27	11.02	0.01	0.05	0.02
GA05	GA07	3.69	0	3.69	0	0.26	10.62	0.01	0.05	0.02
GA06	GA08	1.39	0	1.39	0	0.19	7.17	0.01	0.05	0.02
GA07	GA08	2.24	0	2.24	0	0.22	8.72	0.01	0.05	0.02
GA08	GA09	4.12	0	4.12	0	0.28	11.89	0.007	0.05	0.02
GA09	Sag	4.42	0	4.42	0	0.33	14.19	Sag	0.05	0.02
GA11	GA14	3.51	0	3.51	0	0.26	10.63	0.009	0.05	0.02
GA11A	GA14	3.86	0	3.86	0	0.27	11.03	0.009	0.05	0.02
GA12	GA13	4.4	0	4.39	0	0.28	11.88	0.008	0.05	0.02
GA13	GA15	2.78	0	2.78	0	0.24	9.92	0.008	0.05	0.02
GA14	GA15	4.2	0	4.2	0	0.28	11.97	0.007	0.05	0.02
GA15	Sag	2.6	0	2.6	0	0.24	9.97	Sag	0.05	0.02
GA16	Sag	2.09	0	2.09	0	0.22	8.62	Sag	0.05	0.02
GA17	GA06	2.66	0	2.66	0	0.23	9.15	0.011	0.05	0.02
GA18	GA22	1.18	0	1.18	0	0.18	6.55	0.011	0.05	0.02
GA19	GA21	3.98	0	3.98	0	0.26	10.74	0.011	0.05	0.02
GA20	GA21	1.75	0	1.75	0	0.23	9.06	0.005	0.05	0.02
GA21	Sag	4.46	0	4.47	0	0.33	14.29	Sag	0.05	0.02
GA22	Sag	12.94	0	3.83	0	0.3	12.89	Sag	0.05	0.02
GA23	GA24	3.06	0	3.06	0	0.27	11.31	0.005	0.05	0.02
GA24	GA26	3.33	0	3.33	0	0.28	11.69	0.005	0.05	0.02
GA25	OFFSITE	3.55	0	3.55	0	0.28	11.97	0.005	0.05	0.02
GA26	GA22	3.5	0	3.5	0	0.28	11.91	0.005	0.05	0.02
GA27	GA08	3.73	0	3.73	0	0.27	11.44	0.007	0.05	0.02
GA28	OFFSITE	2.51	0	2.51	0	0.24	9.79	0.007	0.05	0.02

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DATE
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 SERVICES: >>ENGINEERS >>PLANNERS >>SURVEYORS

INLET CALCULATIONS (3 OF 4)
WOODSIDE EAST - PHASE B
 City of Georgetown
 Williamson County, Texas

Project Number: 22226/21-MADISON TRACT
 SCALE: AS NOTED
 Project Path: P:\22000-22999
 Project Name: 22226-MADISON TRACT
 Drawing Path: P:\22000-22999 SUN CITY
 Xref DWG FILE:
 Sheet Number: 11 of 71 sheets

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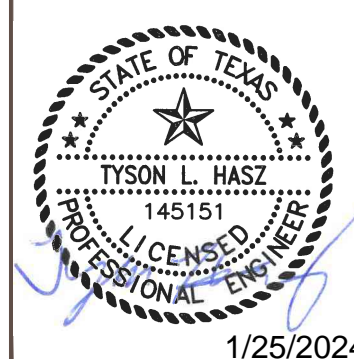
100-YR INLET RESULTS										
Inlet ID	Bypass Inlet	TotalRunoff (CFS)	Qcarryover (CFS)	Qcaptured (CFS)	Qbypass (CFS)	GutterDepth (CFS)	GutterSpread (CFS)	GutterSlope (FT/FT)	Gutter Cross Slope (SW) (FT/ FT)	Road Cross Slope (Sx) (FT/FT)
C261L	Offsite	3.25	0	3.25	0	0.28	11.58	0.005	0.05	0.02
C2-62L	Offsite	3.35	0	3.35	0	0.28	11.71	0.005	0.05	0.02
C271L	11	4.66	0	4.66	0	0.31	13.31	0.005	0.05	0.02
C272L	Sag	3.23	0	3.23	0	0.28	11.5	Sag	0.05	0.02
C263L1	Offsite	1.96	0	1.96	0	0.19	7.32	0.018	0.05	0.02
C273L	Sag	2.67	0	2.67	0	0.25	10.13	Sag	0.05	0.02
C264L	Offsite	1.36	0	1.36	0	0.17	6.13	0.02	0.05	0.02
C201	CA02A	4.48	0	4.48	0	0.31	13.12	0.005	0.05	0.02
C202	C204	4.49	0	4.49	0	0.31	13.12	0.005	0.05	0.02
C202A	C204	2.97	0	2.97	0	0.27	11.18	0.005	0.05	0.02
C203	C205	2.54	0	2.54	0	0.22	8.83	0.012	0.05	0.02
C204	C206	3.94	0	3.94	0	0.26	10.52	0.012	0.05	0.02
C205	C207A	3.32	0	3.32	0	0.24	9.83	0.012	0.05	0.02
C206	C223A	5.95	0.02	5.5	0.46	0.29	12.36	0.012	0.05	0.02
C207	Sag	3.3	0	3.3	0	0.28	11.67	Sag	0.05	0.02
C207A	C207	2.76	0	2.76	0	0.26	10.86	0.005	0.05	0.02
C211	C215	5.29	0	5.29	0.01	0.32	13.99	0.005	0.05	0.02
C212	C215	5	0	5	0	0.32	13.68	0.005	0.05	0.02
C213	C214	3.42	0	3.42	0	0.26	10.52	0.009	0.05	0.02
C214	C206	4.46	0	4.44	0.01	0.28	11.67	0.009	0.05	0.02
C215	C206	1.26	0.01	1.27	0	0.19	7.05	0.009	0.05	0.02
C221	C207	2.44	0	2.44	0	0.21	8.2	0.016	0.05	0.02
C222	C223A	5.29	0	4.92	0.37	0.27	11.16	0.016	0.05	0.02
C223A	Sag	4.14	0.83	4.97	0	0.35	15.34	Sag	0.05	0.02
GA01	GA03	4.97	0	4.87	0.11	0.28	11.94	0.01	0.05	0.02
GA02	GA04	4.87	0	4.78	0.09	0.28	11.84	0.01	0.05	0.02
GA03	GA05	4.99	0.11	4.96	0.13	0.29	12.05	0.01	0.05	0.02
GA04	GA06	4.97	0.09	4.93	0.12	0.29	12.01	0.01	0.05	0.02
GA05	GA07	4.53	0.13	4.61	0.05	0.28	11.65	0.01	0.05	0.02
GA06	GA08	1.7	0.12	1.82	0	0.21	8.01	0.01	0.05	0.02
GA07	GA08	2.75	0.05	2.8	0	0.24	9.52	0.01	0.05	0.02
GA08	GA09	5.05	0	5.01	0.03	0.3	12.86	0.007	0.05	0.02
GA09	Sag	5.42	0.03	5.46	0	0.37	16.33	Sag	0.05	0.02
GA11A	GA14	4.72	0	4.68	0.04	0.28	11.94	0.009	0.05	0.02
GA11	GA14	4.3	0	4.29	0	0.28	11.51	0.009	0.05	0.02
GA12	GA13	5.38	0	5.25	0.12	0.3	12.85	0.008	0.05	0.02
GA13	GA15	3.42	0.12	3.54	0	0.26	10.92	0.008	0.05	0.02
GA14	GA15	5.09	0.04	5.08	0.04	0.3	12.94	0.007	0.05	0.02
GA15	Sag	3.17	0.04	3.21	0	0.27	11.47	Sag	0.05	0.02
GA16	Sag	2.53	0	2.53	0	0.24	9.78	Sag	0.05	0.02
GA17	GA06	3.25	0	3.25	0	0.24	9.92	0.011	0.05	0.02
GA18	GA22	1.42	0	1.42	0	0.19	7.1	0.011	0.05	0.02
GA19	GA21	4.86	0	4.75	0.11	0.28	11.62	0.011	0.05	0.02
GA20	GA21	2.14	0	2.14	0	0.24	9.83	0.005	0.05	0.02
GA21	Sag	5.48	0.11	5.59	0	0.38	16.6	Sag	0.05	0.02
GA22	Sag	16.07	0	4.62	0	0.34	14.61	Sag	0.05	0.02
GA23	GA24	3.76	0	3.76	0	0.29	12.25	0.005	0.05	0.02
GA24	GA26	4.08	0	4.08	0	0.3	12.65	0.005	0.05	0.02
GA25	OFFSITE	4.29	0	4.29	0	0.3	12.89	0.005	0.05	0.02
GA26	GA22	4.28	0	4.28	0	0.3	12.88	0.005	0.05	0.02
GA27	GA08	4.53	0	4.53	0	0.29	12.33	0.007	0.05	0.02
GA28	OFFSITE	3.03	0	3.03	0	0.26	10.54	0.007	0.05	0.02

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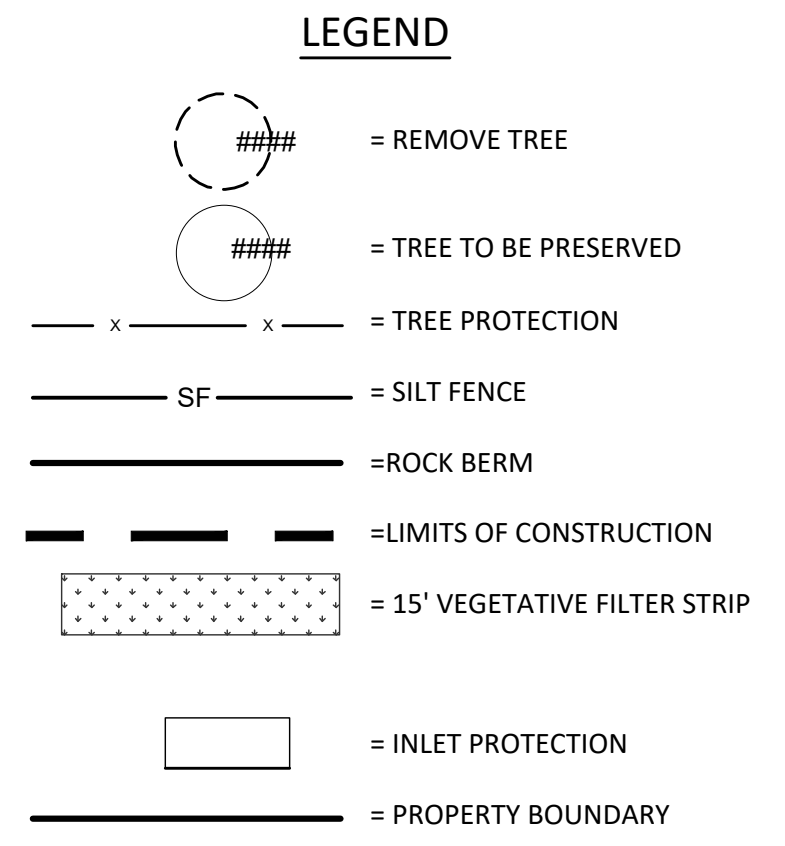
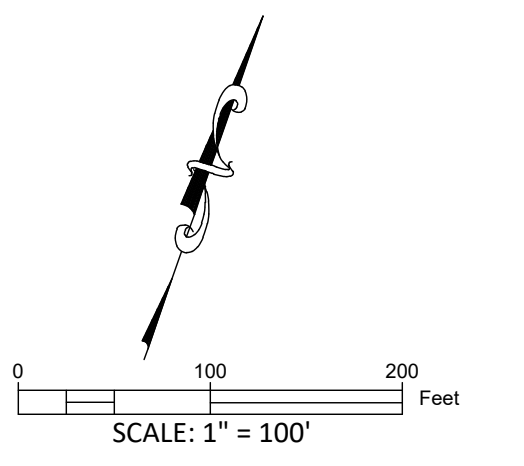
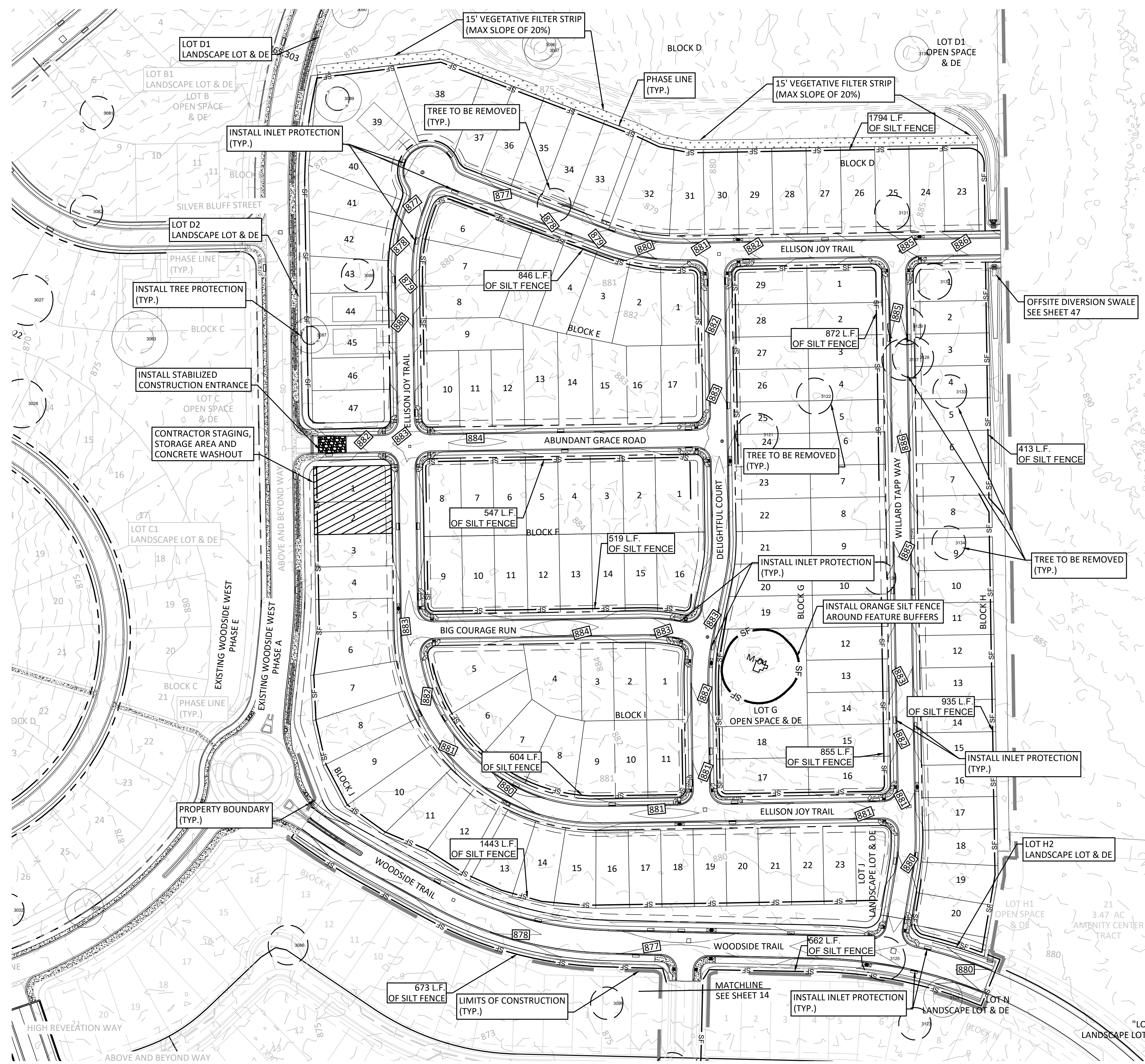
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INLET CALCULATIONS (4 OF 4)
WOODSIDE EAST - PHASE B
 City of Georgetown
 Williamson County, Texas

Project Number: 22226/21-MADISON TRACT
 SCALE: AS NOTED
 Project Path: P:\22000-22999
 Project Name: 22226-MADISON TRACT
 Drawing Path: P:\22000-22999 SUN CITY
 Xref DWG FILE:
 Sheet Number: 12 of 71 sheets

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HERITAGE TREE LIST

3009	29"	LIVE OAK		3114	29"	SPANISH OAK MULTI(16-14-11)
3016	36"	LIVE OAK	MULTI(20-17-14)	*3115	27"	LIVE OAK
3018	27"	LIVE OAK		*3116	27"	LIVE OAK (DAMAGED)
3020	28"	LIVE OAK	MULTI(19-18)	*3117	34"	LIVE OAK MULTI(26-16)
3069	26"	LIVE OAK		3118	36"	LIVE OAK (MAJORLY DAMAGED) MULTI(26-19)
3070	27"	LIVE OAK		3119	33"	LIVE OAK
3071	29"	LIVE OAK		*3120	26"	LIVE OAK
3087	29"	LIVE OAK	MULTI(23-12)	*3121	34"	LIVE OAK
*3088	26"	LIVE OAK		*3122	29"	LIVE OAK
3089	38"	LIVE OAK		*3123	29"	LIVE OAK
3090	29"	LIVE OAK		*3125	35"	ELM MULTI(13-12-12-11-9)
3093	37"	LIVE OAK	MULTI(29-16)	*3126	26"	LIVE OAK
3094	28"	LIVE OAK		*3127	33"	LIVE OAK
3095	31"	LIVE OAK		*3128	33"	LIVE OAK
3096	27"	SPANISH OAK (MAJORLY DAMAGED)		*3129	30"	LIVE OAK
3097	30"	SPANISH OAK (DAMAGED) MULTI(16-15-12)		3130	28"	ELM MULTI(14-10-10-8)
*3098	27"	LIVE OAK		*3131	28"	ELM
*3100	30"	LIVE OAK (DAMAGED)		*3132	29"	LIVE OAK
3110	28"	LIVE OAK		*3133	33"	LIVE OAK
3112	27"	LIVE OAK		*3134	27"	LIVE OAK MULTI(20-14)
*3113	26"	SPANISH OAK		3145	29"	LIVE OAK

* - TO BE REMOVED

NOTES:

- Topography based upon aerial mapping, dated August 8, 2016 by Texas Land Surveying.
- All proposed development of this site conforms to the City of Georgetown's subdivision regulations and/or the development agreement.
- Limits of construction line has been offset for clarity.
- All temporary erosion and sedimentation controls shall be inspected every 7 days.
- Contractor shall maintain all temporary erosion and sediment controls in accordance with local, state and federal regulations.
- Contractor shall place rock filter dams at the locations where concentrated flow enters and exits the limits of construction.
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- Curb inlet protection is required at inlets installed with this project. Protection to remain in place until the project is accepted.
- Rock berm and temporary pond shall be used during initial grading activities. Straw erosion control logs shall be installed once the site has been brought to grade.

TREE PROTECTION NOTES:

- Existing trees to remain shall be flagged by contractor prior to beginning any work on site.
- Contractor shall place a minimum 4' height protective fencing 5' outside the edge of canopy of all trees to remain and as shown on the tree protection and removal plans.
- All understory trees, undergrowth, shrubs, cacti and native grasses shall remain in areas protected by tree protection fence unless noted otherwise on the landscape plans.
- Contractor shall maintain flagging and protective fencing around existing trees to remain at least until substantial completion.
- Contractor shall ensure that no dumping of backfill, soil excavation, staking or storage of materials or dumping of any kind shall occur within the fenced area of the trees to remain.
- Contractor shall ensure that no parking of any type of vehicle, equipment or construction trailer shall occur within the fenced area of trees to remain.
- Contractor shall ensure that no driving of vehicles shall occur within the fenced area of trees to remain.
- Contractor shall ensure that no grade changes shall occur within the canopy of the existing trees to remain.
- Contractor shall keep fenced areas of trees to remain free of trash, debris or excessive runoff.
- No trenching for utilities or irrigation shall occur within the dripline (canopy) of existing trees to remain.
- For irrigation, any lateral line or mainline trenches which encroach in the dripline of existing trees shall be hand dug.
- For utilities, any lines which cannot be altered to fall outside the canopy of existing trees shall be installed by boring a minimum of 24" below grade.
- Tree wells shall be installed no closer than a trees 1/2 Critical Root Zone (per UDC section 8.02.030.C) and shall include the full critical root zone when possible, and no disturbance shall occur within the 1/2 Critical Root Zone or tree will be considered removed and mitigation will be required (per UDC section 8.02.040.C).

THESE CONSTRUCTION PLANS HAVE BEEN PREPARED TO FULFILL THE REQUIREMENTS FOR THE TCEQ FOR WATER POLLUTION ABATEMENT OVER THE EDWARDS AQUIFER. CONTRACTOR SHALL CONTACT THE ENGINEER FOR ADDITIONAL DETAILED CONSTRUCTION PLAN PRIOR TO CONSTRUCTION.

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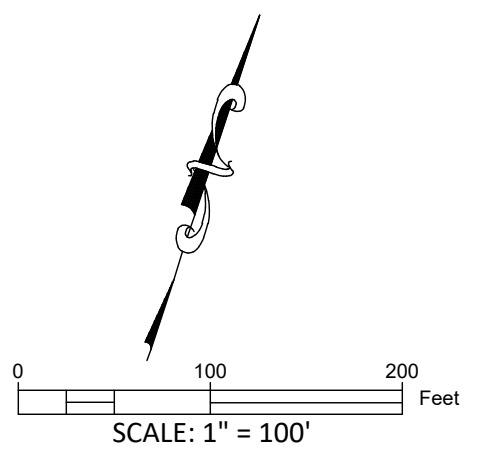
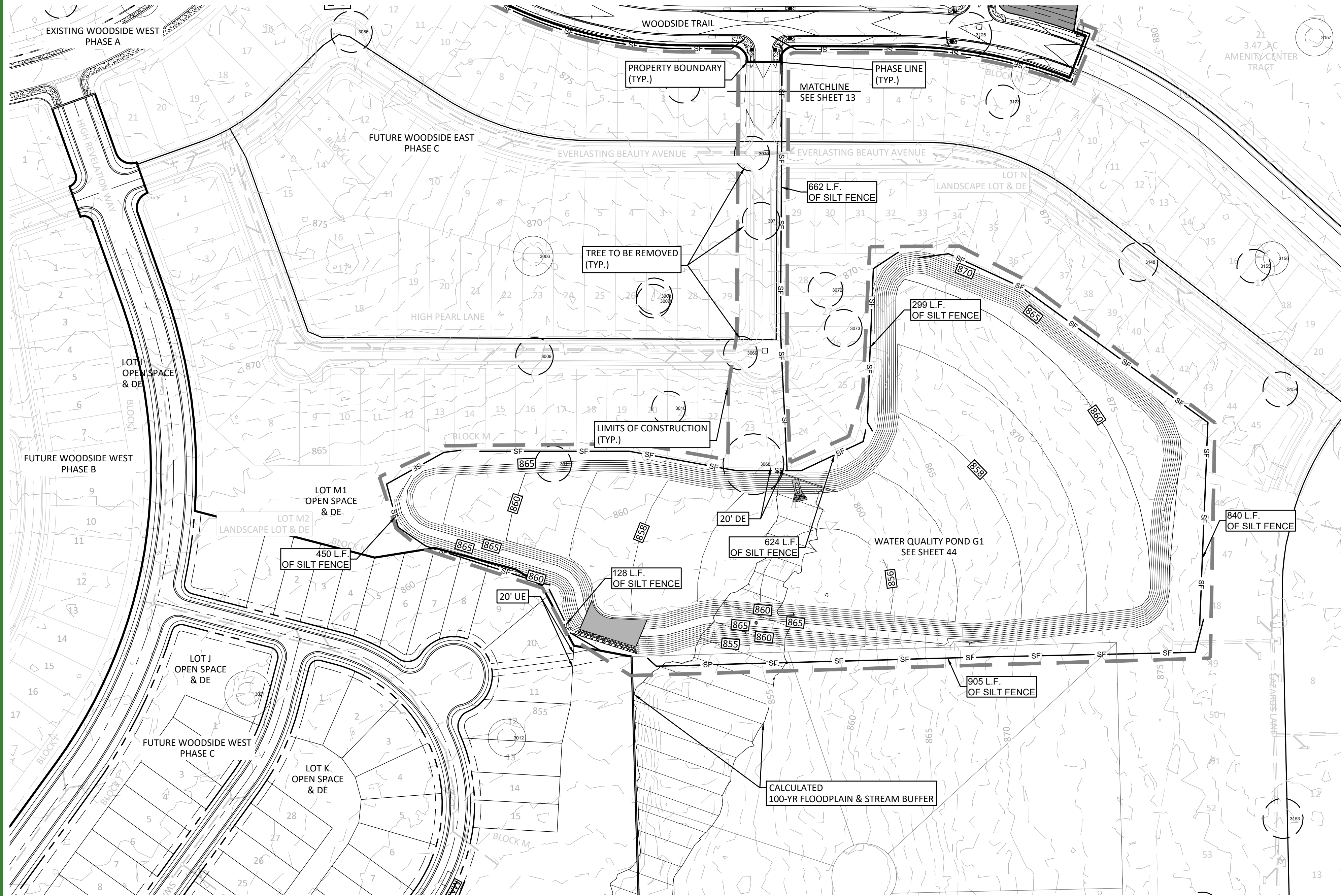


ADDRESS 1978 S. AUSTIN AVENUE GEORGETOWN, TX 78626
 METRO 512.930.9412 TEXAS REGISTERED ENGINEERING FIRM F-181 WEB STEGERBIZZELL.COM
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EROSION & SEDIMENTATION PLAN (1 OF 2)
WOODSIDE EAST - PHASE B
 City of Georgetown
 Williamson County, Texas

Project Number:	22226/21-MADISON TRACT
SCALE:	AS NOTED
Project Path:	P:\22000-22999
Project Name:	22226-MADISON TRACT
Drawing Path:	P:\22000-22999 SUN CITY
Xref DWG FILE:	
Sheet Number:	13 of 71 sheets

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LEGEND

- = REMOVE TREE
- = TREE TO BE PRESERVED
- = TREE PROTECTION
- = SILT FENCE
- = ROCK BERM
- = LIMITS OF CONSTRUCTION
- = 15' VEGETATIVE FILTER STRIP
- = INLET PROTECTION
- = PROPERTY BOUNDARY

HERITAGE TREE LIST

3087	29"	LIVE OAK	MULTI(23-12)	*3117	34"	LIVE OAK	MULTI(26-16)
*3088	26"	LIVE OAK		3118	36"	LIVE OAK	(MAJORLY DAMAGED) MULTI(26-19)
3089	38"	LIVE OAK		3119	33"	LIVE OAK	
3090	29"	LIVE OAK		*3120	26"	LIVE OAK	
3093	37"	LIVE OAK	MULTI(29-16)	*3121	34"	LIVE OAK	
3094	28"	LIVE OAK		*3122	29"	LIVE OAK	
3095	31"	LIVE OAK		*3125	35"	ELM	MULTI (13-12-12-11-9)
3096	27"	SPANISH OAK (MAJORLY DAMAGED)		*3126	26"	LIVE OAK	
3097	30"	SPANISH OAK (DAMAGED) MULTI(16-15-12)		*3127	33"	LIVE OAK	
*3098	27"	LIVE OAK		*3128	33"	LIVE OAK	
*3100	30"	LIVE OAK (DAMAGED)		*3129	30"	LIVE OAK	
3110	28"	LIVE OAK		3130	28"	ELM	MULTI(14-10-10-8)
3112	27"	LIVE OAK		*3131	28"	ELM	
*3113	26"	SPANISH OAK		*3132	29"	LIVE OAK	
3114	29"	SPANISH OAK MULTI(16-14-11)		*3133	33"	LIVE OAK	
*3115	27"	LIVE OAK		*3134	27"	LIVE OAK	MULTI(20-14)
*3116	27"	LIVE OAK (DAMAGED)		3145	29"	LIVE OAK	

* - TO BE REMOVED

NOTES:

- Topography based upon aerial mapping, dated August 8, 2016 by Texas Land Surveying.
- All proposed development of this site conforms to the City of Georgetown's subdivision regulations and/or the development agreement.
- Limits of construction line has been offset for clarity.
- All temporary erosion and sedimentation controls shall be inspected every 7 days.
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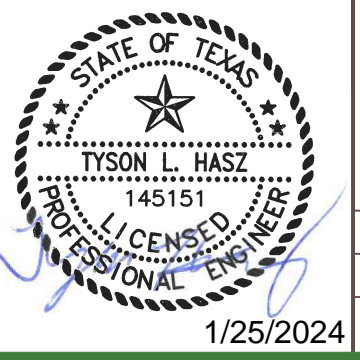
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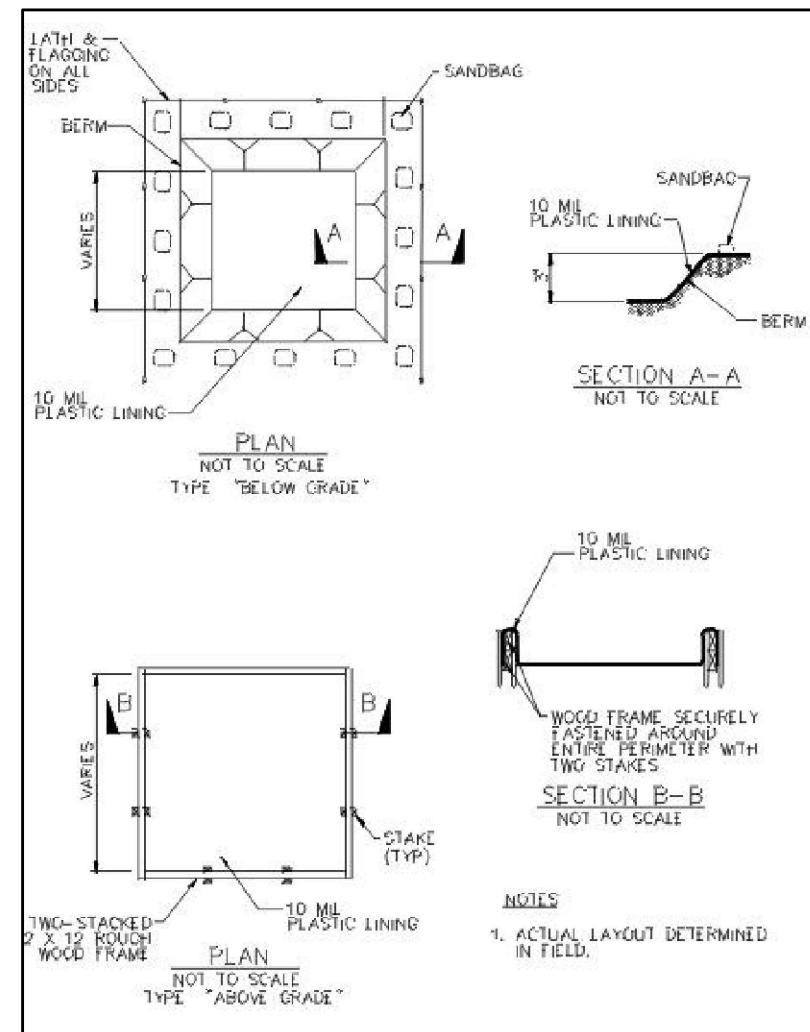
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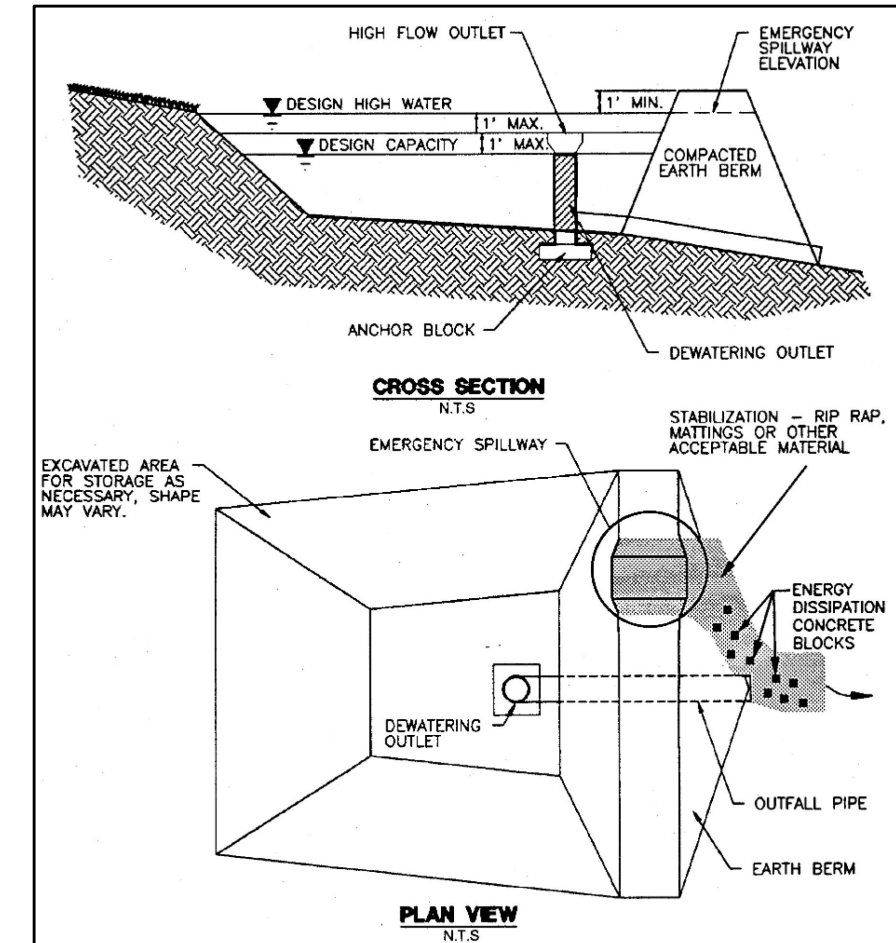
EROSION & SEDIMENTATION PLAN (2 OF 2)
WOODSIDE EAST - PHASE B
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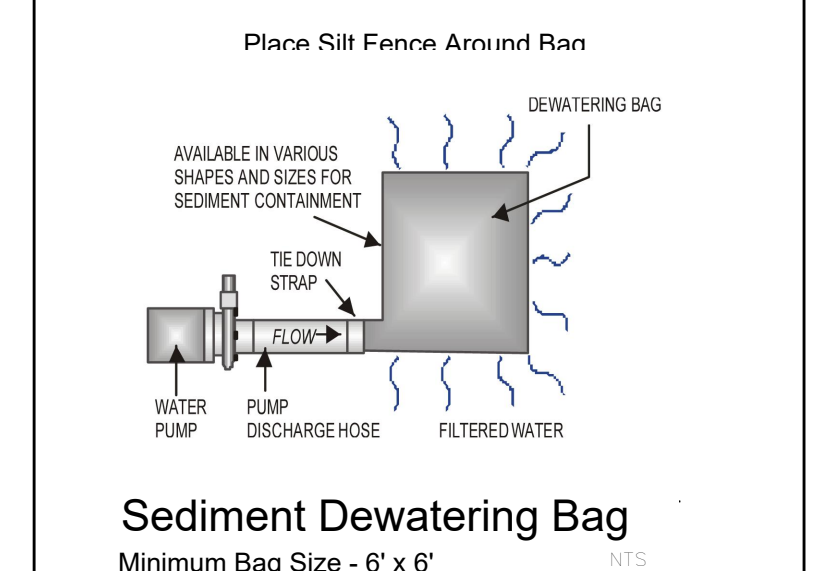
Temporary Concrete Washout Area Detail



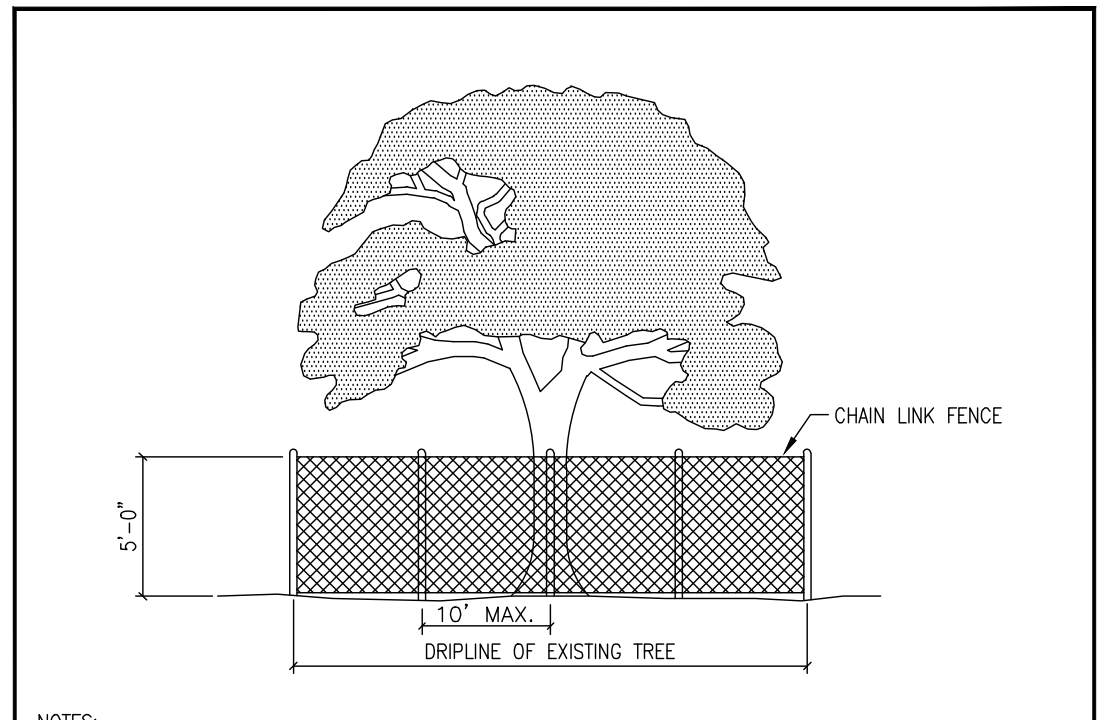
Temporary Sedimentation Pond Detail

TEMPORARY POND DEWATERING

- Place dewatering pump at/n pond to be dewatered.
- The pump inlet shall have a floating intake to pump water from the surface of the pond.
- Pump discharge hose is attached to sediment dewatering bag.
- Sediment dewatering bag is located as shown.
- Secondary containment consisting of silt fencing is installed around the sediment dewatering bag.
- The pump is run until the pond is dewatered.
- Inspect the flow conditions, bag condition, bag capacity and secondary containment during operation of the pump to insure the system is operating effectively.
- Replace the bag when it no longer filters sediment or passes water at a reasonable rate. The bag is disposed of offsite.



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- NOTES:
- TREE PROTECTION FENCES SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF ANY SITE PREPARATION WORK (CLEARING, GRUBBING OR GRADING).
 - FENCES SHALL COMPLETELY SURROUND THE TREE, OR CLUSTERS OF TREES, WILL BE LOCATED AT THE OUTERMOST LIMIT OF THE TREE BRANCHES (DRIPLINE), AND WILL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PROJECT IN ORDER TO PREVENT THE FOLLOWING:
 - SOIL COMPACTION IN THE ROOT ZONE AREA RESULTING FROM VEHICULAR TRAFFIC, OR STORAGE OF EQUIPMENT OR MATERIALS.
 - ROOT ZONE DISTURBANCES DUE TO GRADE CHANGES (GREATER THAN SIX INCHES (6") CUT OR FILL, OR TRENCHING NOT REVIEWED AND AUTHORIZED BY THE CITY.
 - WOUNDS TO EXPOSED ROOTS, TRUNKS OR LIMBS BY MECHANICAL EQUIPMENT.
 - OTHER ACTIVITIES DETRIMENTAL TO TREES, SUCH AS CHEMICAL STORAGE, CEMENT TRUCK CLEANING AND FIRE.
 - EXCEPTIONS TO INSTALLING FENCES AT TREE DRIPLINES MAY BE PERMITTED IN THE FOLLOWING CASES:
 - WHERE PERMEABLE PAVING IS TO BE INSTALLED, ERECT THE FENCE AT THE OUTER LIMITS OF THE PERMEABLE PAVING AREA.
 - WHERE TREES ARE CLOSE TO PROPOSED BUILDINGS, ERECT THE FENCE NO CLOSER THAN SIX FEET (6'-0") TO BUILDING.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

ADOPTED 6/21/2006

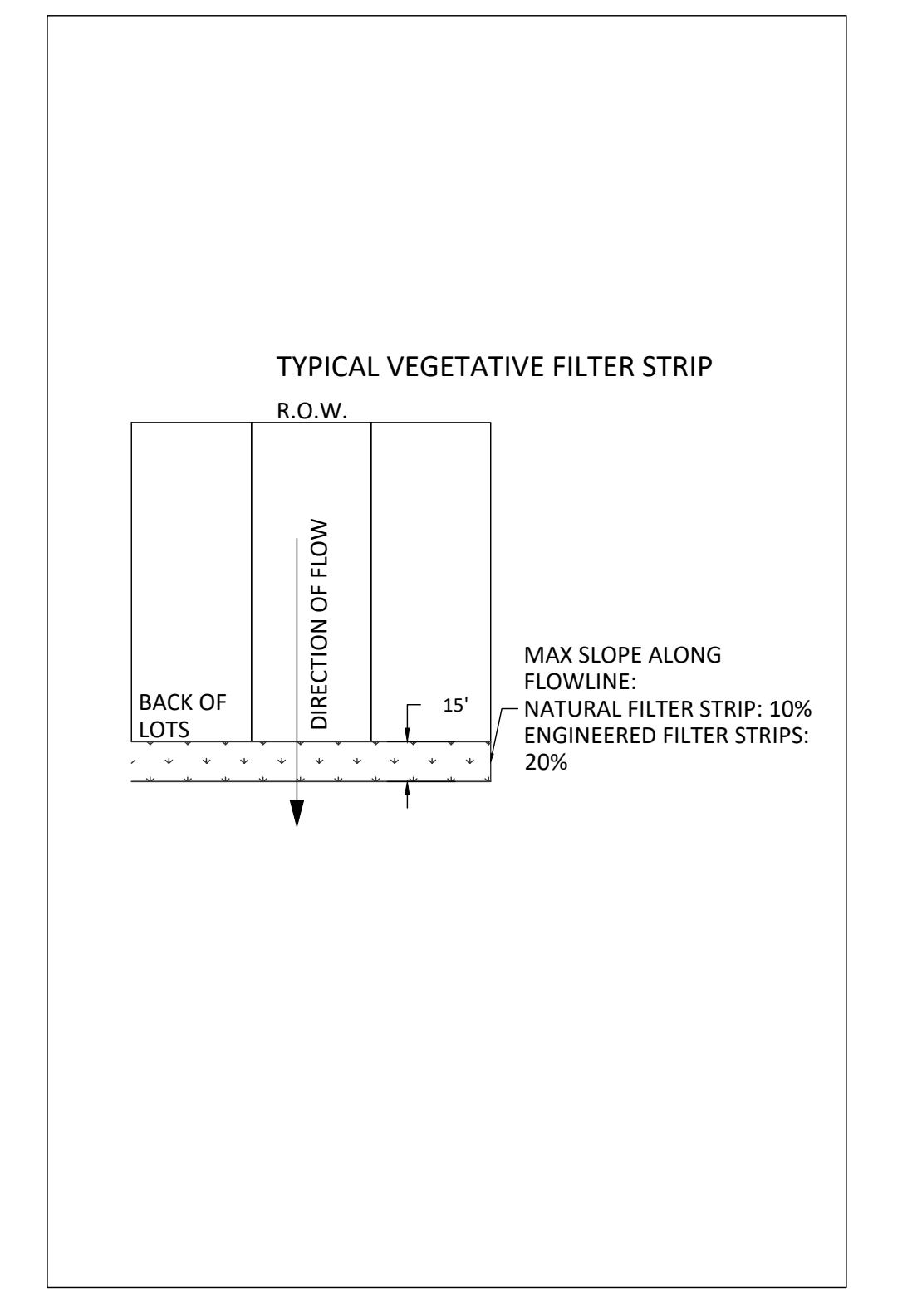
CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS TREE PROTECTION CHAIN LINK FENCE EC09

RECORD COPY SIGNED BY HENRY CASAS 1/2/07 ADOPTED

DEPARTMENT OF WATERSHED PROTECTION AND DEVELOPMENT REVIEW

THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.

STANDARD NO. 628S-2



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ADOPTED 6/21/2006

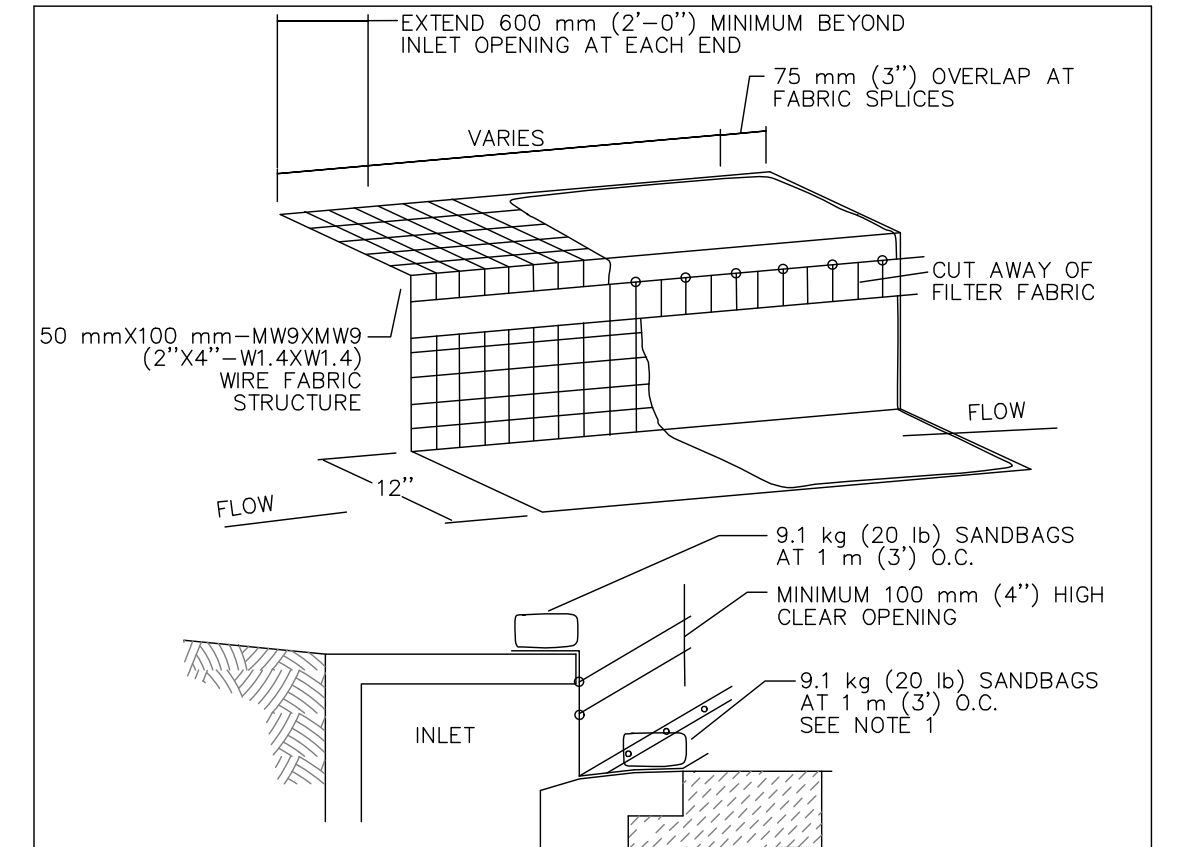
CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS ROCK BERM DETAIL EC03

RECORD COPY SIGNED BY HENRY CASAS 1/2/07 ADOPTED

DEPARTMENT OF WATERSHED PROTECTION AND DEVELOPMENT REVIEW

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STANDARD NO. 628S-2



- NOTES:
- TO HOLD THE FILTER DIKE IN PLACE, 9.1 kg (20 lb) SANDBAGS SHALL BE USED AT 1 m (3') O.C. WHERE MINIMUM CLEARANCES CAUSE TRAFFIC TO DRIVE IN THE GUTTER, THE CONTRACTOR MAY SUBSTITUTE A 25 mm X 100 mm (1" X 4") BOARD, SECURED WITH 1/2" OR 3/4" CONCRETE SCREWS. THE 1/2" OR 3/4" CONCRETE SCREWS SHALL BE ATTACHED TO THE GUTTER BY DRILLING AN APPROPRIATE PILOT HOLE WITH A CONCRETE BIT AND INSERT PLASTIC FASTENERS. THE TOP OF THE SCREW SHALL BE RECESSED BELOW THE TOP OF THE BOARD. THE SCREWS SHALL BE PLACED ON 1 m (3') O.C. THIS METHOD IS USED IN LIEU OF SANDBAGS. IN THE GUTTER ONLY, TO HOLD THE FILTER DIKE IN PLACE UPON REMOVAL, EITHER LEAVE THE PLASTIC FASTENERS IN PLACE, OR REMOVE THE PLASTIC FASTENERS, CLEAN ANY DIRT/DEBRIS FROM THE SCREW LOCATIONS, APPLY CHEMICAL SANDING AGENT AND APPLY NON-SHRINK GROUT FLUSH WITH THE SURFACE OF THE GUTTER. THIS METHOD SHALL NOT BE USED ON THE INLET IN THE LIEU OF SANDBAGS.
 - A SECTION OF FILTER FABRIC SHALL BE REMOVED AS SHOWN ON THIS DETAIL OR AS DIRECTED BY THE ENGINEER OR DESIGNATED REPRESENTATIVE. FABRIC MUST BE SECURED TO WIRE BACKING WITH CLIPS OR HOG RINGS AT THIS LOCATION.
 - DAILY INSPECTION SHALL BE MADE BY THE CONTRACTOR AND SILT ACCUMULATION MUST BE REMOVED WHEN DEPTH REACHES 50 mm (2").
 - CONTRACTOR SHALL MONITOR THE PERFORMANCE OF INLET PROTECTION DURING EACH RAINFALL EVENT AND IMMEDIATELY REMOVE THE INLET PROTECTIONS IF THE STORM-WATER BEGINS TO OVERFLOW THE CURB.
 - INLET PROTECTIONS SHALL BE REMOVED AS SOON AS THE SOURCE OF SEDIMENT IS STABILIZED.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

ADOPTED 6/21/2006

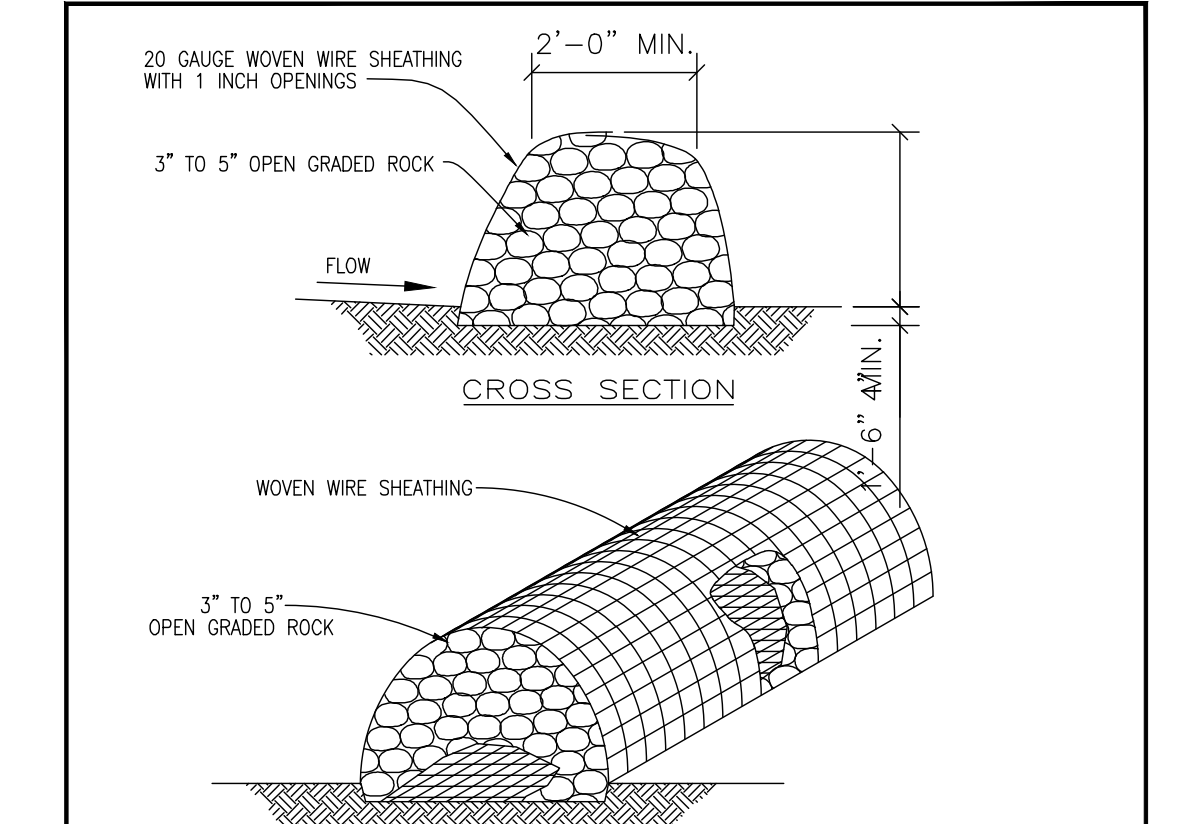
CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS FILTER DIKE CURB INLET PROTECTION EC06

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ADOPTED 6/21/2006

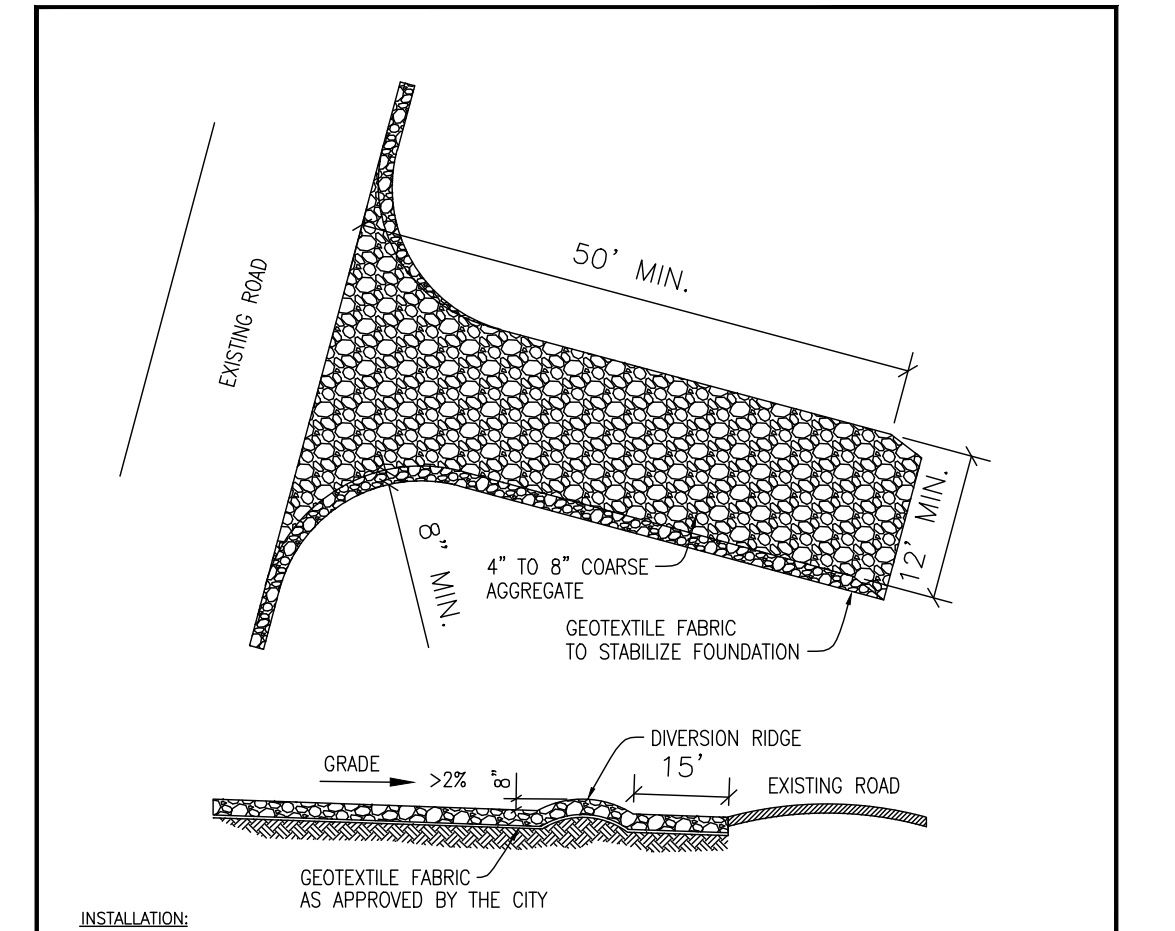
CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS ROCK BERM DETAIL EC03

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THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.

STANDARD NO. 628S-2



- INSTALLATION:
- CLEAR THE AREA OF DEBRIS, ROCKS OR PLANTS THAT WILL INTERFERE WITH INSTALLATION.
 - GRADE THE AREA FOR THE ENTRANCE TO FLOW BACK ON TO THE CONSTRUCTION SITE. ROOFTOP FROM THE STABILIZED CONSTRUCTION.
 - PLACE GEOTEXTILE FABRIC AS APPROVED BY THE CITY.
 - PLACE ROCK AS APPROVED BY THE CITY.
- INSPECTIONS AND MAINTENANCE GUIDELINES:
- 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 ON TO PUBLIC RIGHTS-OF-WAY SHOULD BE REMOVED IMMEDIATELY BY CONTRACTOR.
 - WHEN NECESSARY, WHEELS SHOULD BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-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.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS TEMPORARY EROSION AND SEDIMENTATION CONTROL GUIDELINES EC06

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DEPARTMENT OF WATERSHED PROTECTION AND DEVELOPMENT REVIEW

THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.

STANDARD NO. 628S-2

GUIDELINES FOR DESIGN AND INSTALLATION OF TEMPORARY EROSION AND SEDIMENTATION CONTROLS

TYPE OF STRUCTURE	REACH LENGTH	MAXIMUM DRAINAGE AREA	SLOPE
SILT FENCE	N/A	2 ACRES	0 - 10%
	200 FEET	2 ACRES	10 - 20%
	100 FEET	1 ACRE	20 - 30%
TRIANGLE FILTER DIKE	50 FEET	1/2 ACRE	> 30%
	100 FEET	1/4 ACRE	< 30% SLOPE
ROCK BERM **, **	500 FEET	< 5 ACRES	0 - 10%

* FOR ROCK BERM DESIGN WHERE PARAMETERS ARE OTHER THAN STATED, DRAINAGE AREA CALCULATIONS AND ROCK BERM DESIGN MUST BE SUBMITTED FOR REVIEW.

** HIGH SERVICE ROCK BERMS MAY BE REQUIRED IN AREAS OF ENVIRONMENTAL SIGNIFICANCE AS DETERMINED BY THE CITY OF GEORGETOWN.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

ADOPTED 6/21/2006

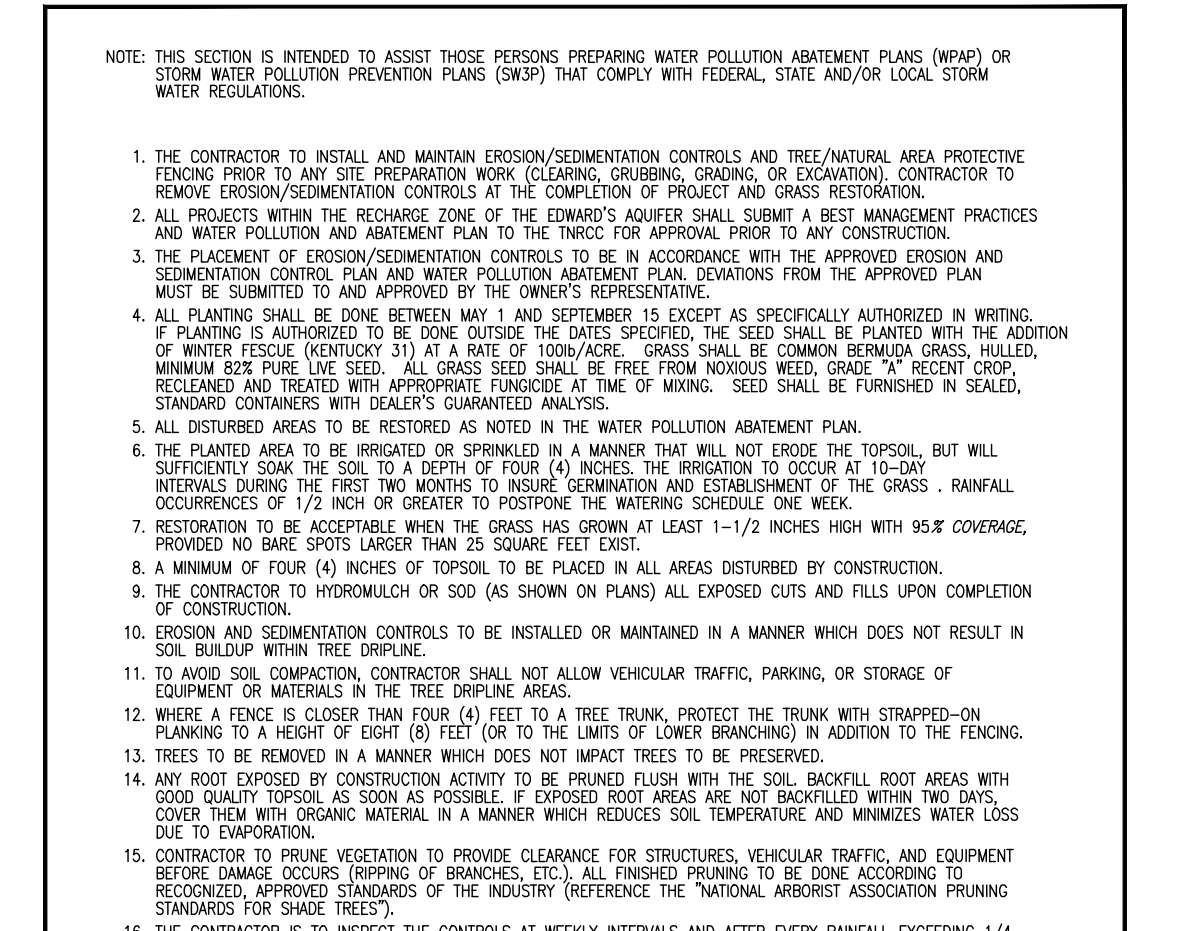
CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS TEMPORARY EROSION AND SEDIMENTATION CONTROL GUIDELINES EC01

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DEPARTMENT OF WATERSHED PROTECTION AND DEVELOPMENT REVIEW

THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.

STANDARD NO. 628S-2



- INSPECTION AND MAINTENANCE GUIDELINES:
- INSPECT ALL FENCING WEEKLY, AND AFTER ANY RAINFALL.
 - REMOVE SEDIMENT WHEN BUILDUP REACHES 6 INCHES.
 - REPAIR ANY TORN FABRIC.
 - REPLACE OR REPAIR ANY SECTIONS CRUSHED OR COLLAPSED IN THE COURSE OF CONSTRUCTION ACTIVITY.

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ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS SILT FENCE DETAIL EC02

RECORD COPY SIGNED BY HENRY CASAS 1/2/07 ADOPTED

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STATE OF TEXAS
TYSON L. HASZ
145151
LICENSED PROFESSIONAL ENGINEER

1/25/2024

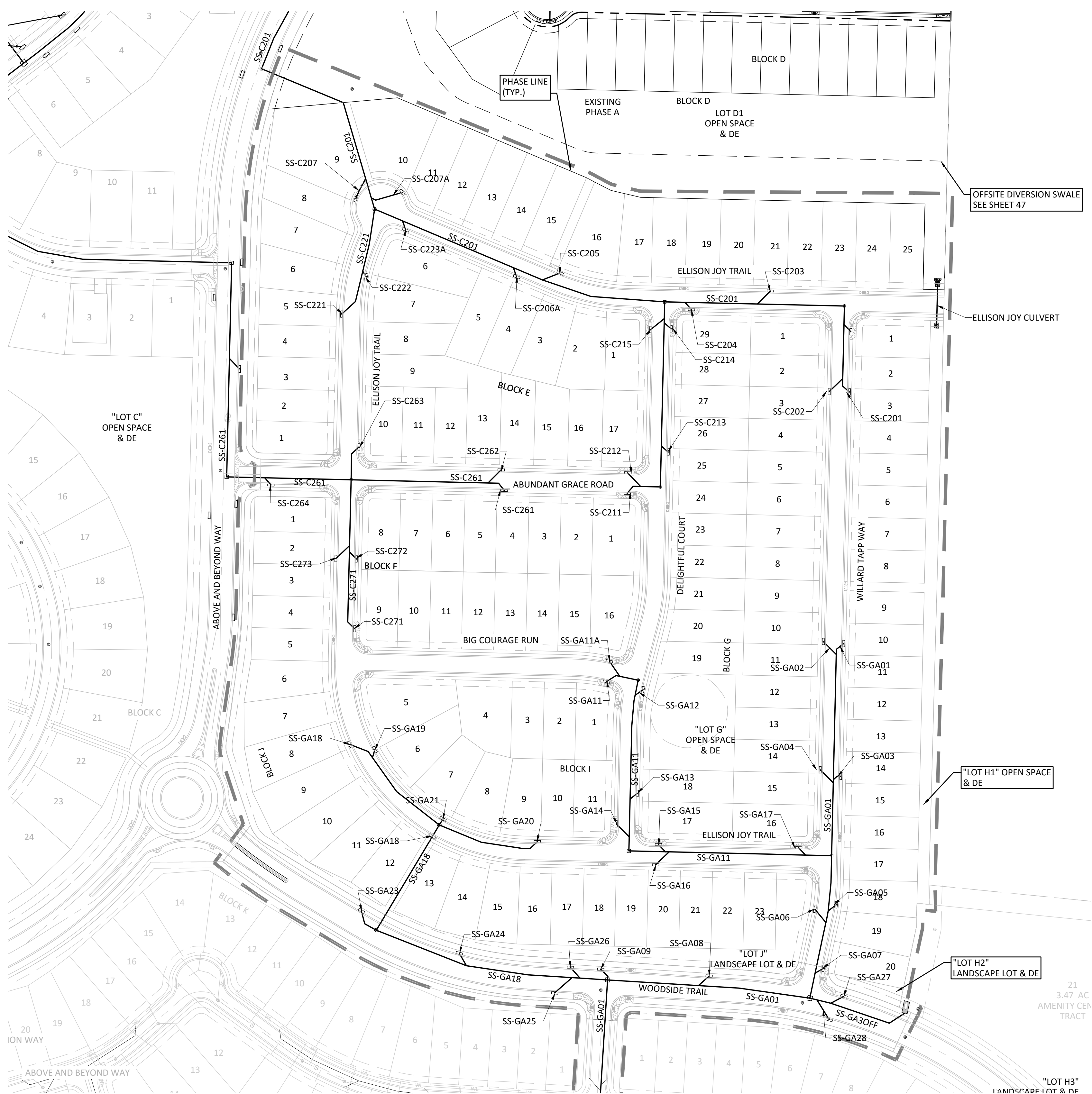
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EROSION AND SEDIMENTATION DETAILS
WOODSIDE EAST - PHASE B
City of Georgetown
Williamson County, Texas

Project Number: 22226/21-MADISON TRACT
SCALE: AS NOTED
Project Path: P\22000-22999
Project Name: 22226-MADISON TRACT
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LEGEND

- PROPOSED STORM LINE
- EXISTING STORM LINE
- CURB INLET
- FUTURE CURB INLET
- STORM MANHOLE
- PROPERTY BOUNDARY

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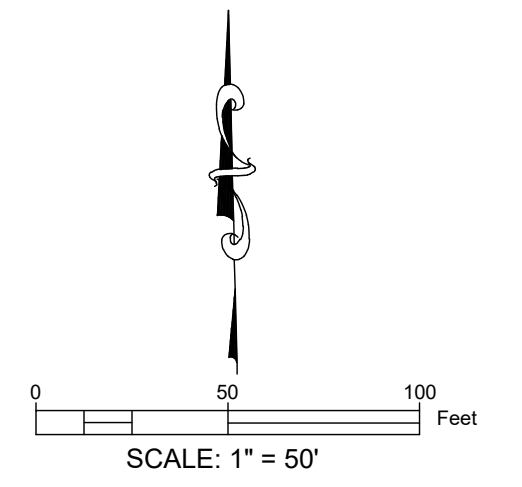
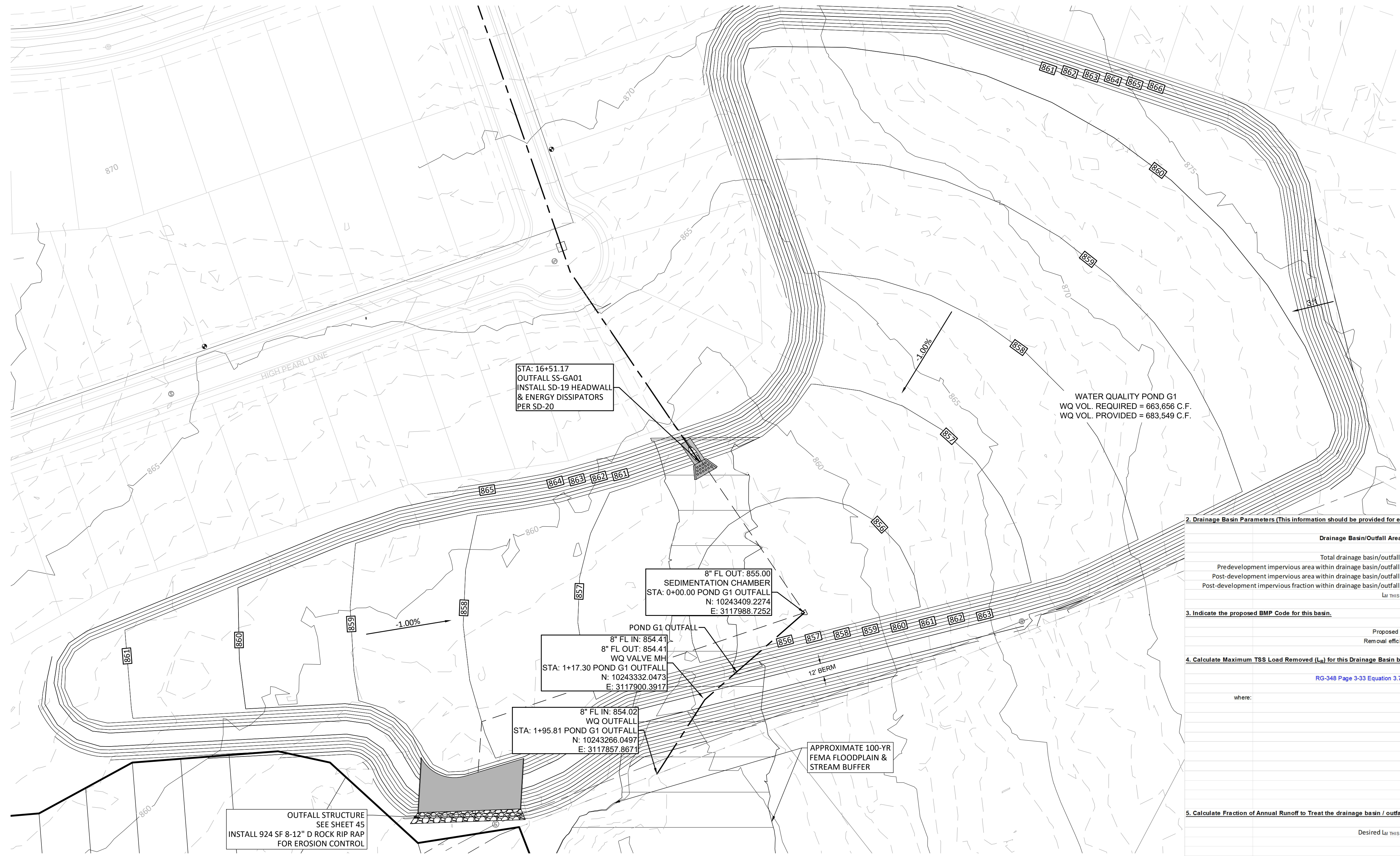
STEGER BIZZELL

ADDRESS: 1978 S. AUSTIN AVENUE, GEORGETOWN, TX 78626
 METRO: 512.930.9412, SERVICES: >>ENGINEERS >>PLANNERS >>SURVEYORS
 TEXAS REGISTERED ENGINEERING FIRM F-181, TBPLS FIRM No. 10003700, WEB: STEGERBIZZELL.COM

OVERALL STORMSEWER PLAN
WOODSIDE EAST - PHASE B
 City of Georgetown
 Williamson County, Texas

Project Number:	22226/21-MADISON TRACT
SCALE:	AS NOTED
Project Path:	P:\22000-22999
Project Name:	22226-MADISON TRACT
Drawing Path:	P:\22000-22999 SUN CITY
Xref DWG FILE:	
Sheet Number:	28 of 71 sheets

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- LEGEND**
- ⊕ STORM MANHOLE
 - STORM JUNCTION BOX
 - ⊙ WASTEWATER MANHOLE
 - ▭ CURB INLET
 - AREA INLET
 - PROPOSED PROFILE
 - - - EXISTING GRADE AT PROPOSED CENTERLINE
 - HYDRAULIC GRADE LINE (100YR)
 - HYDRAULIC GRADE LINE (25 YR)

STA: 16+51.17
OUTFALL SS-GA01
INSTALL SD-19 HEADWALL
& ENERGY DISSIPATORS
PER SD-20

WATER QUALITY POND G1
WQ VOL. REQUIRED = 663.656 C.F.
WQ VOL. PROVIDED = 683.549 C.F.

8" FL OUT: 855.00
SEDIMENTATION CHAMBER
STA: 0+00.00 POND G1 OUTFALL
N: 10243409.2274
E: 3117988.7252

POND G1 OUTFALL
8" FL IN: 854.41
8" FL OUT: 854.41
WQ VALVE MH
STA: 1+17.30 POND G1 OUTFALL
N: 10243332.0473
E: 3117900.3917

8" FL IN: 854.02
WQ OUTFALL
STA: 1+95.81 POND G1 OUTFALL
N: 10243266.0497
E: 3117857.8671

OUTFALL STRUCTURE
SEE SHEET 45
INSTALL 924 SF 8-12" D ROCK RIP RAP
FOR EROSION CONTROL

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

Drainage Basin/Outfall Area No. =	POND G1
Total drainage basin/outfall area =	148.86 acres
Predevelopment impervious area within drainage basin/outfall area =	0.00 acres
Post-development impervious area within drainage basin/outfall area =	61.35 acres
Post-development impervious fraction within drainage basin/outfall area =	0.41
L_{10} THIS BASIN =	53395 lbs. 56792 AT 85% REMOVAL

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: $L_R = (BMP\ efficiency) \times P \times (A_i \times 34.6 + A_p \times 0.54)$

where:

- A_C = Total On-Site drainage area in the BMP catchment area
- A_i = Impervious area proposed in the BMP catchment area
- A_p = Pervious area remaining in the BMP catchment area
- L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	110.96 acres
A_i =	61.35 acres
A_p =	87.52 acres
L_R =	63185 lbs.

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

Desired L_{10} THIS BASIN =	60000 lbs.
F =	0.95

6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area. Calculations from RG-348 Pages 3-34 to 3-36

Rainfall Depth =	2.60 inches
Post Development Runoff Coefficient =	0.39
On-site Water Quality Volume =	545891 cubic feet
Off-site area draining to BMP =	37.91 acres
Off-site impervious cover draining to BMP =	0.00 acres
Impervious fraction of off-site area =	0.00
Off-site Runoff Coefficient =	0.02
Off-site Water Quality Volume =	7155 cubic feet
Storage for Sediment =	110609
Total Capture Volume (required water quality volume(s) x 1.20) =	663656 cubic feet

NOTES:

- THE ENERGY DISSIPATORS OF SS-C301 OUTFALL SHALL FOLLOW THE STANDARD DETAIL SD-20 WITH THE FOLLOWING DIMENSIONS:
 - H = 1.38' (16.5")
 - A = 2.5' (30")
 - B = 2.79' (33.5")
- ALL VOLUMES WERE CALCULATED USING THE AVERAGE END AREA METHOD
- A WEIR COEFFICIENT OF 3.0 REPRESENTATIVE OF SHARP CRESTED WEIRS WAS USED IN ALL CALCULATIONS.

THESE CONSTRUCTION PLANS HAVE BEEN PREPARED TO FULFILL THE REQUIREMENTS FOR THE TCEQ FOR WATER POLLUTION ABATEMENT OVER THE EDWARDS AQUIFER. CONTRACTOR SHALL CONTACT THE ENGINEER FOR ADDITIONAL DETAILED CONSTRUCTION PLAN PRIOR TO CONSTRUCTION.

POND G1 VOLUME

(ft)	Area (sf)	Avg End Area Volume (cf)	Avg End Area Cumulative Volume (cf)
855	25	0	0
856	20,725	10,375	10,375
857	67,890	44,308	54,683
858	124,783.79	96,337	151,020
859	195,317.11	160,050	311,070
860	274,819.77	235,068	546,139
860.5	274,819.77	137,410	683,549
861	309,888.56	505,206	1,051,345
862	322,322.03	316,105	1,367,450
863	331,457.03	326,890	1,694,339
864	340,648.64	336,053	2,030,392
865	349,896.81	345,273	2,375,665
866			
WQ Volume Required:		663,656	

EMERGENCY OVERFLOW WEIR CALCULATIONS WQ POND G1

1217.12 Elevation (ft)	Storage (ac-ft)	Discharge (cfs)
855	0	0
860.5	0.24	0
857	1.26	0
860.5	3.47	0
859	7.14	0
860	12.54	0
860.5	15.69	0
861	24.14	95.46
862	31.39	496.02
863	38.9	1,067.27
864	46.61	1,767.93
865	54.54	2,577.40
100 YEAR CFS TO POND G1	1,217.12	

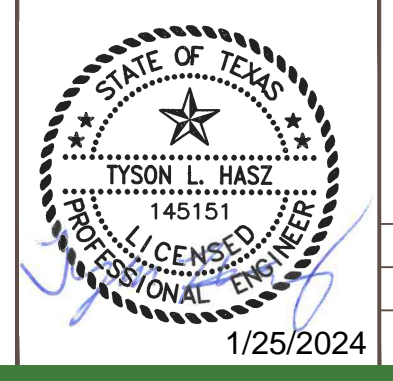
CONSTRUCTION PHASE - TEMPORARY SEDIMENT BASIN G1

Elevation (ft)	Area (sf)	Avg End Incremental (cf)	Avg End Cumulative (cf)
855	25	0	0
856	20,725	10,375	10,375
857	67,890	44,308	54,683
858	124,784	96,337	151,020
859	195,317	160,050	311,070
860	274,820	235,068	546,138
860.5	274,820	137,410	683,548
861	309,889	146,177	829,725
862	322,322	316,105	1,145,830
863	331,457	326,890	1,472,720
864	340,649	336,053	1,808,773
865	349,897	345,273	2,154,046
3,000 Ft ² /Ac		Required =	446,585.09

WARNING!
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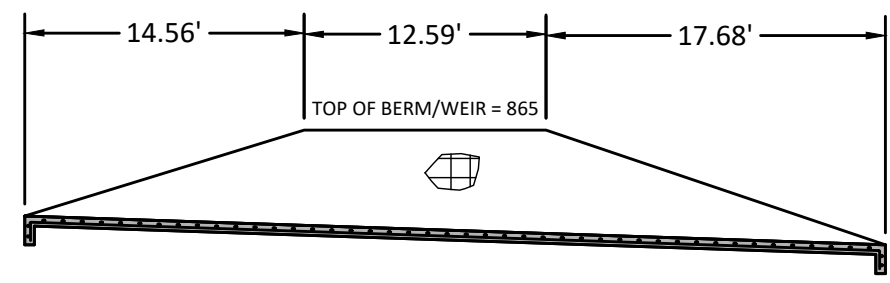
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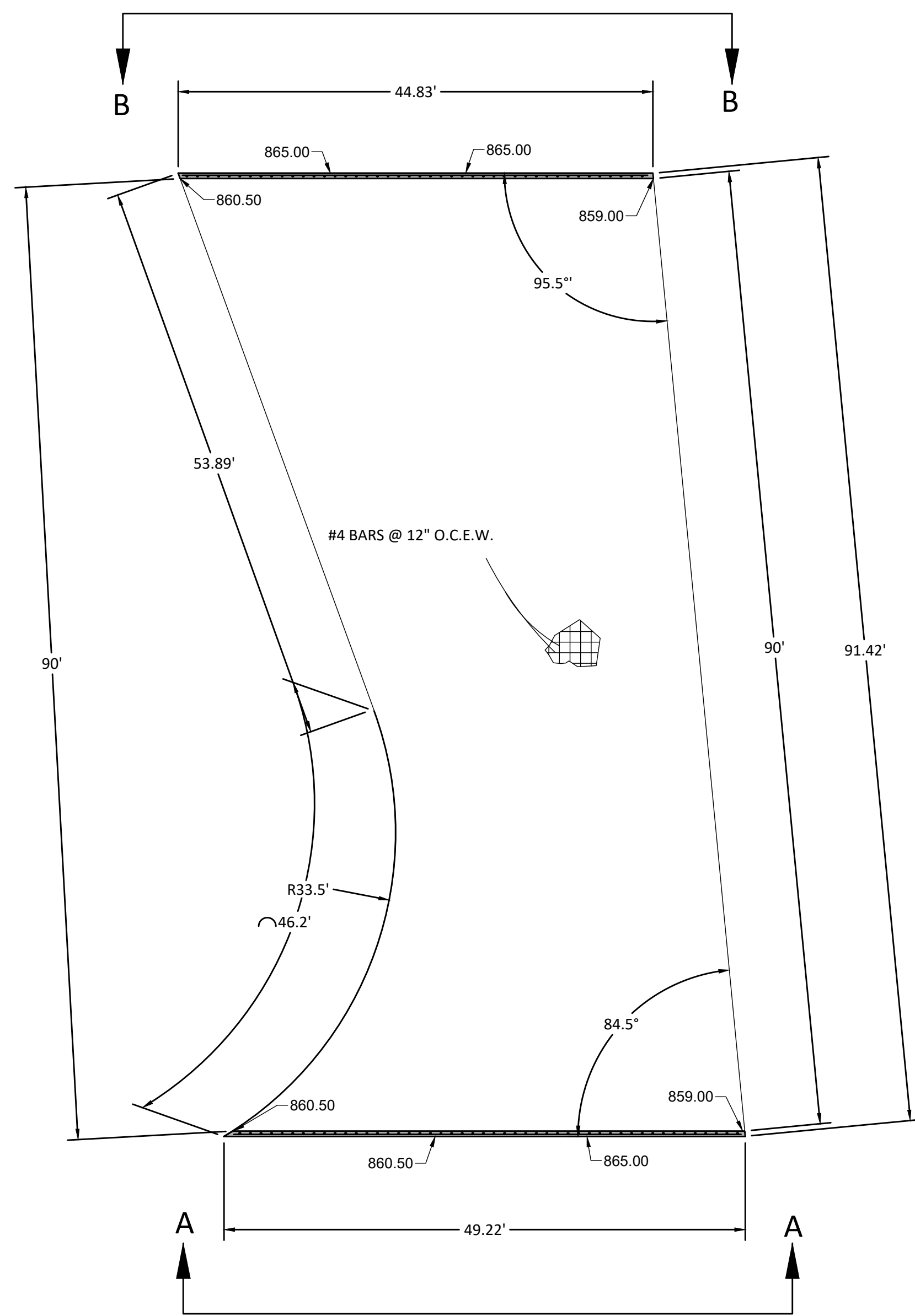
WATER QUALITY POND G1 PLAN
WOODSIDE EAST - PHASE B
City of Georgetown
Williamson County, Texas

Project Number: 22226/21-MADISON TRACT
 SCALE: AS NOTED
 Project Path: P:\22000-22999
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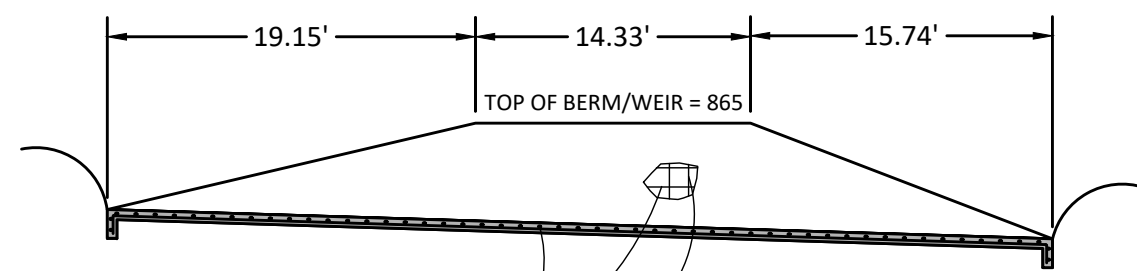
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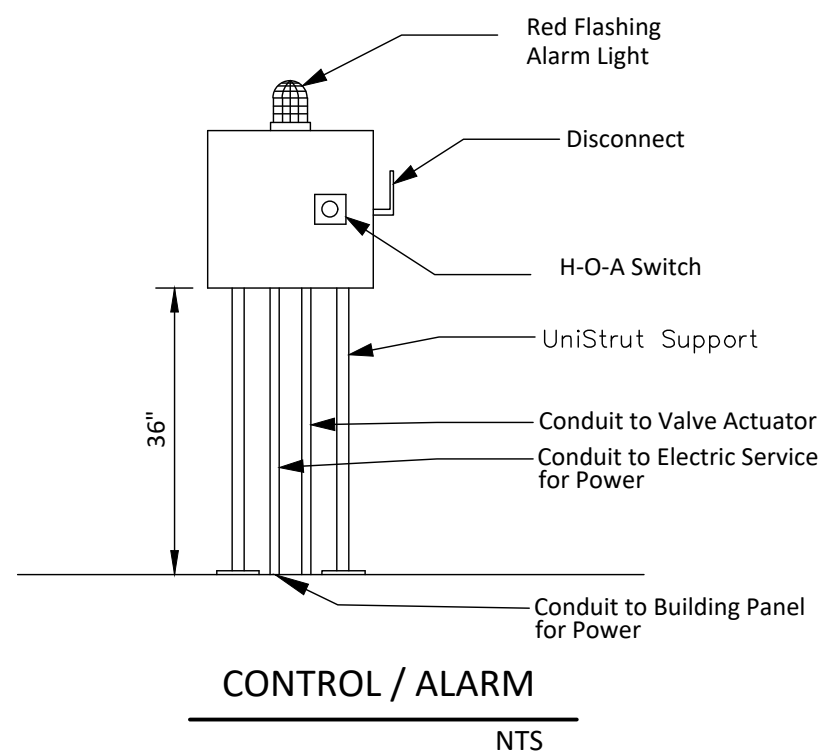
POND G1 OUTFALL SECTION B-B
SCALE: 1" = 10"



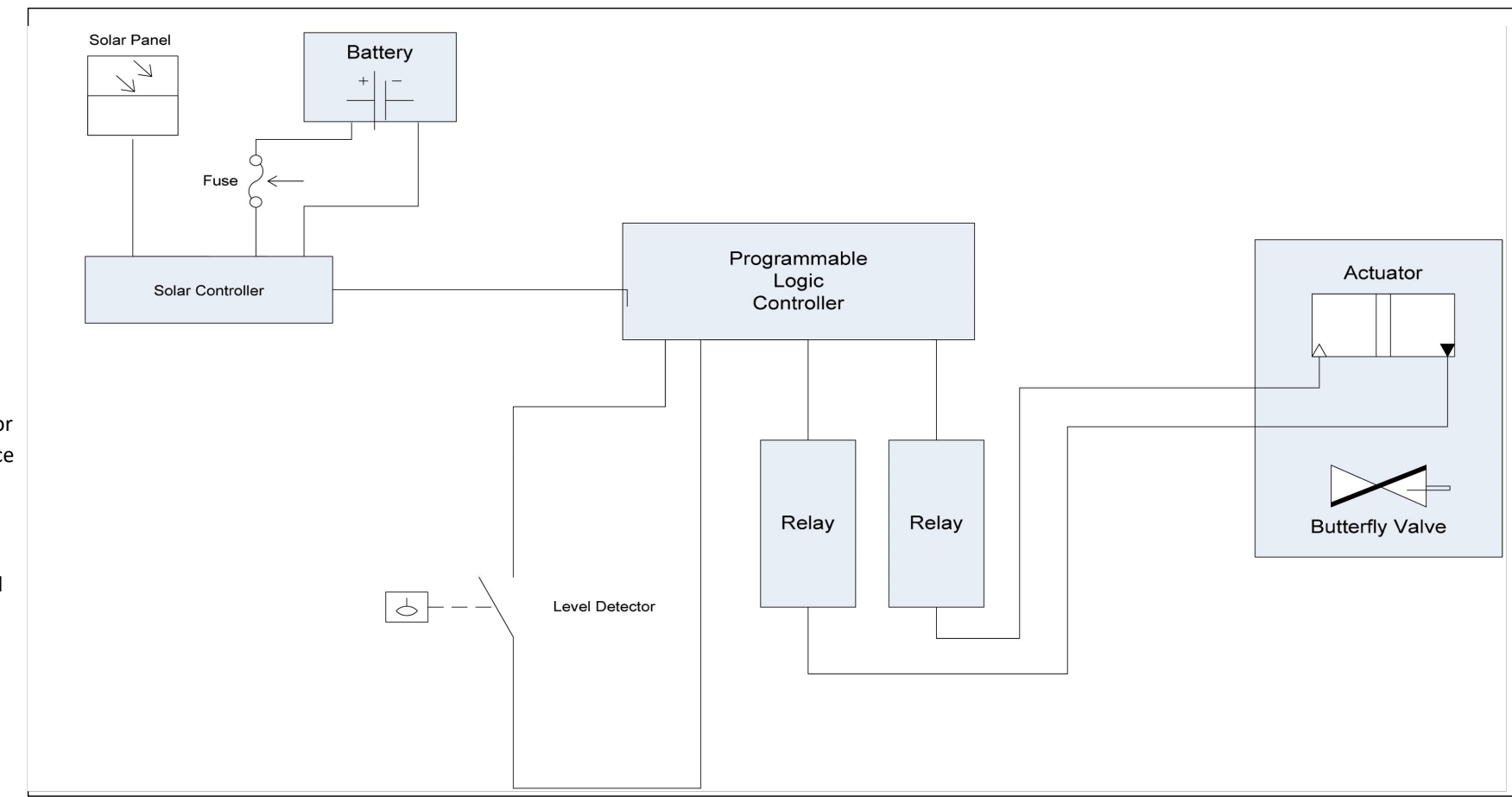
POND G1 OUTFALL STRUCTURE PLAN
SCALE: 1" = 10"



POND G1 OUTFALL SECTION A-A
SCALE: 1" = 10"



CONTROL / ALARM
NTS



CONTROLLER CIRCUIT BOX DIAGRAM
NTS

BATCH POND CONTROLLER NOTES:

- Submittals - The contractor shall provide the engineer with batch pond controller submittals for review and approval prior to construction. Submittals shall include: power source, battery backup, logic controller, lockable parts enclosure, float, valve, actuator, relay, alarm system, signage, etc. Total wattage of power consumption and w-hours of actuator, controller and relay shall be provided. A copy of the approved submittals shall be provided to TCEQ with the engineers certification of project completion for inclusion in the TCEQ project file.
- Controller - The controller consists of a level sensor in the detention basin, a valve (with a default closed position), an actuator, and the associated control. The controller detects water filling the basin from the level sensor and initiates a 12-hour detention time. At the end of the required detention time, the controller opens the valve and drains into the second basin. Subsequent rainfall events that occur prior to the basin draining should cause the valve to remain open and allow the additional stormwater runoff to pass through the basin. Once the basin is drained the controller closes the valve. The drawdown time of the basin should not exceed 48 hours for a single storm event after the 12 hour required detention time. All cables should be protected by conduit and buried to prevent damage during maintenance activities. Information on the design and configuration of an existing system, including the system schematic, can be viewed at the Austin or San Antonio Regional Offices.
- Logic Controller - The controller should be programmed to begin draining stormwater runoff from the basin 12 hours after the first stormwater runoff is sensed. The system should be programmed to have the valve remain open for two hours after the level sensor indicates the basin is empty to allow any remaining shallow water to be discharged. The system should provide the following: a test sequence, be able to deal with low battery/power outages, an on/off/reset switch, manual open/close switches (maintenance/spill), clearly visible external indicator to indicate a cycle is in progress without opening the box, and ability to exercise the valve to prevent seizing.
- Power - The pond control system controller and actuator shall be 120 volt powered or 120 volt solar powered with backup battery power to respond to a loss of power in the middle of a cycle.
- Parts Enclosure & Alarm System - The parts enclosure shall be lockable. An alarm system clearly visible to indicate system malfunction, with phone numbers of the owner and TCEQ Region 11 office shall be provided.
- Temperature/Weather - The system shall be capable of operation from 0 to 130 degrees Fahrenheit and from 10 to 90% humidity.
- Reliability - The system shall have a minimum reliability of 40,000 hours (4.6 years).

LINER DATA

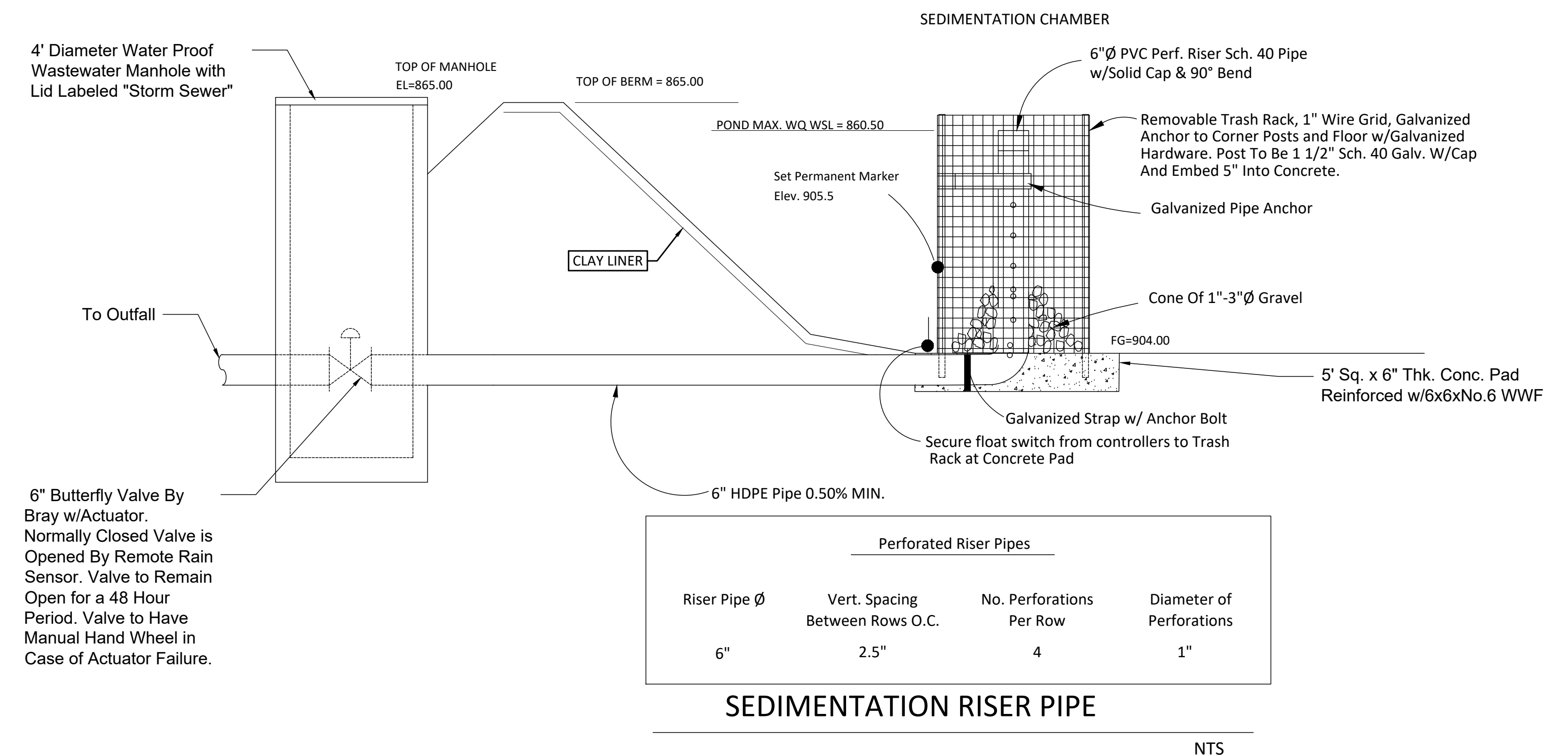
IMPERMEABLE LINERS MAY BE CLAY, CONCRETE OR GEOMEMBRANE.

CLAY LINERS SHOULD MEET THE SPECIFICATIONS AS SHOWN BELOW AND HAVE A MINIMUM THICKNESS OF 12 INCHES.

CLAY LINER SPECIFICATIONS (MIN. THICKNESS = 12")			
PROPERTY	TEST METHOD	UNIT	SPECIFICATION
PERMEABILITY	ASTM D-2434	Cm/Sec	1X10 ⁻⁴⁰
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	%	SEE OF STANDARD PROCTOR DENSITY AT OR ABOVE OPTIMUM MOISTURE CONTENT

GEOSYNTHETIC CLAY LINERS (GCLS) ARE FACTORY MANUFACTURED HYDRAULIC BARRIERS TYPICALLY CONSISTING OF BENTONITE CLAY OR OTHER VERY LOW PERMEABILITY MATERIAL, SUPPORTED BY GEOTEXTILES AND/OR GEOMEMBRANES WHICH ARE HELD TOGETHER BY NEEDLING, STITCHING, OR CHEMICAL ADHESIVES. THESE LINERS MUST HAVE A HYDRAULIC CONDUCTIVITY OF LESS THAN 5 X 10⁻⁹ CM/SEC, WHEN TESTED BY ASTM D5887. A MINIMUM OF 12 INCHES OF SOIL COVER IS RECOMMENDED. IF A GEOMEMBRANE LINER IS USED IT SHOULD HAVE A MINIMUM THICKNESS OF 30 MILS AND BE ULTRAVIOLET RESISTANT. SUITABLE GEOTEXTILE FABRIC SHOULD BE PLACED ON THE TOP AND BOTTOM OF THE MEMBRANE FOR PUNCTURE PROTECTION AND THE LINERS COVERED WITH A MINIMUM OF 6 INCHES OF COMPACTED TOPSOIL. THE GEOTEXTILE FABRIC (FOR PROTECTION OF GEOMEMBRANE) SHOULD BE NONWOVEN GEOTEXTILE FABRIC AND MEET THE SPECIFICATIONS IN TABLE 3-7. THE TOPSOIL SHOULD BE STABILIZED WITH APPROPRIATE VEGETATION.

GEOTEXTILE FABRIC DATA			
PROPERTY	TEST METHOD	UNIT	SPECIFICATION
MATERIAL NON-WOVEN GEOTEXTILE FABRIC			
UNIT WEIGHT		OZ./SQ. YD.	8 (MIN.)
FILTRATION RATE		IN./SEC.	0.20 (MIN.)
PUNCTURE STRENGTH	ASTM D-751 (MODIFIED)	LB.	125 (MIN.)
MULLEN BURST STRENGTH	ASTM D-751	P.S.I.	400 (MIN.)
TENSILE STRENGTH	ASTM D-1682	LB.	200 (MIN.)
EQUIV. OPENING SIZE	U.S. STANDARD SIEVE	NO.	80 (MIN.)



6" Butterfly Valve By Bray w/Actuator. Normally Closed Valve is Opened By Remote Rain Sensor. Valve to Remain Open for a 48 Hour Period. Valve to Have Manual Hand Wheel in Case of Actuator Failure.

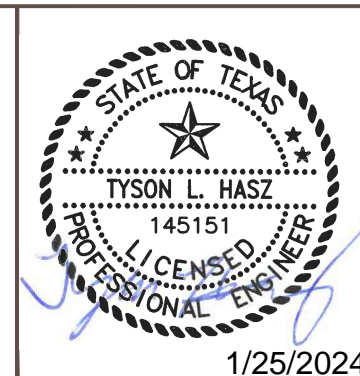
Perforated Riser Pipes			
Riser Pipe Ø	Vert. Spacing Between Rows O.C.	No. Perforations Per Row	Diameter of Perforations
6"	2.5"	4	1"

SEDIMENTATION RISER PIPE
NTS

THESE CONSTRUCTION PLANS HAVE BEEN PREPARED TO FULFILL THE REQUIREMENTS FOR THE TCEQ FOR WATER POLLUTION ABATEMENT OVER THE EDWARDS AQUIFER. CONTRACTOR SHALL CONTACT THE ENGINEER FOR ADDITIONAL DETAILED CONSTRUCTION PLAN PRIOR TO CONSTRUCTION.

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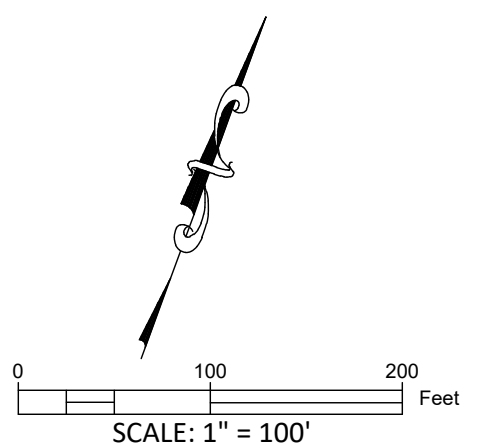
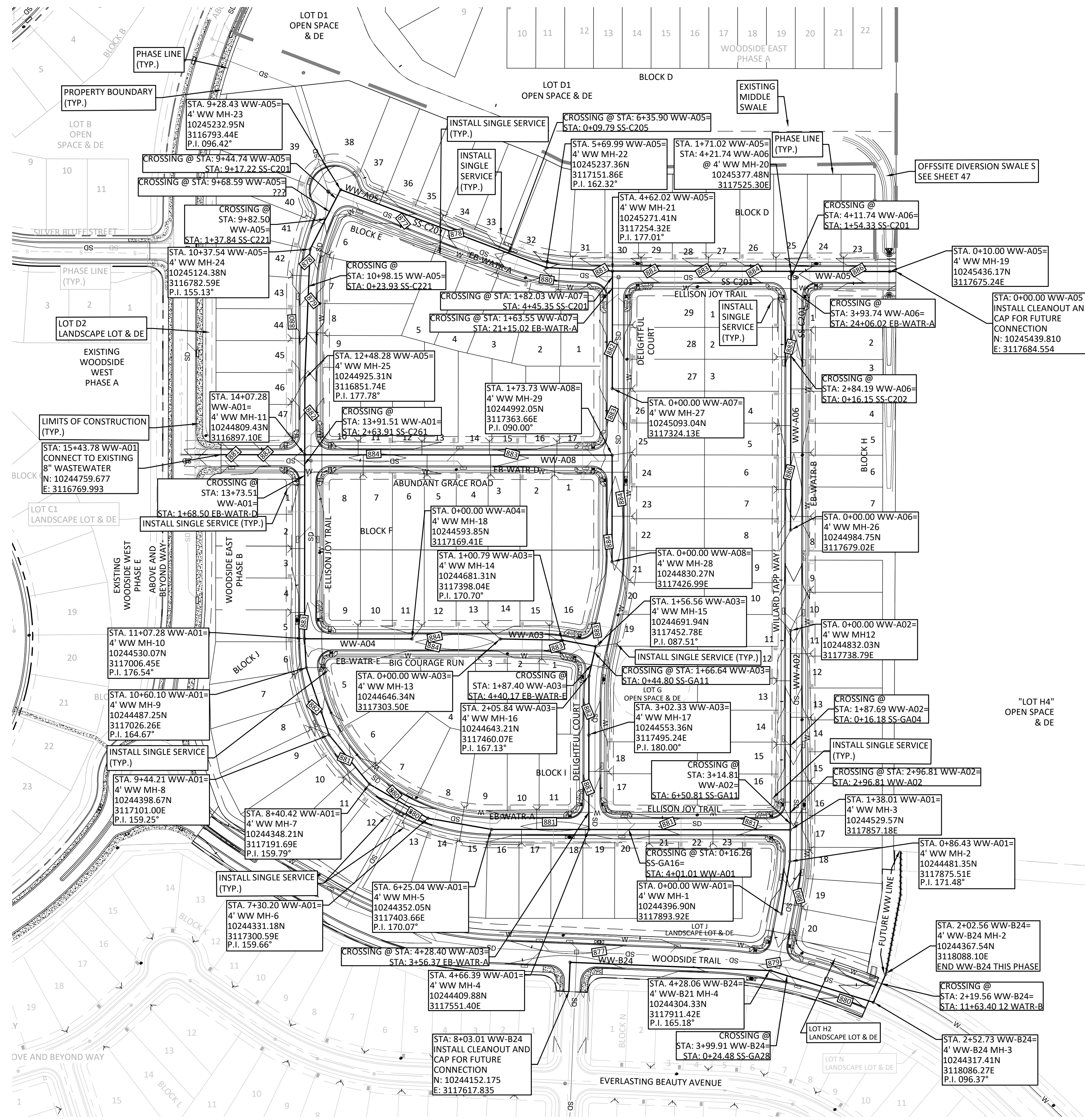
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WATER QUALITY POND G1 DETAILS
WOODSIDE EAST - PHASE B
 City of Georgetown
 Williamson County, Texas

Project Number:	22226/21-MADISON TRACT
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LEGEND

	PROPOSED SEWER LINE
	EXISTING SEWER LINE
	PROPOSED WASTEWATER MANHOLE
	EXISTING WASTEWATER MANHOLE
	PROPOSED GATE VALVE
	EXISTING GATE VALVE
	PROPOSED FIRE HYDRANT
	EXISTING FIRE HYDRANT
	PROPOSED CURB INLET
	FUTURE CURB INLET
	STORM MANHOLE
	DOUBLE WATER SERVICE
	SINGLE WATER SERVICE
	DOUBLE SEWER SERVICE
	SINGLE SEWER SERVICE
	MAJOR EXISTING CONTOUR
	MINOR EXISTING CONTOUR
	PROPERTY BOUNDARY
	PROPOSED WATER LINE
	EXISTING WATER LINE
	PROPOSED STORM LINE
	EXISTING STORM LINE

* SEE MODIFIED DETAIL "WOLA" FOR TYPICAL UTILITY ASSIGNMENTS

THESE CONSTRUCTION PLANS HAVE BEEN PREPARED TO FULFILL THE REQUIREMENTS FOR THE TCEQ FOR WATER POLLUTION ABATEMENT OVER THE EDWARDS AQUIFER. CONTRACTOR SHALL CONTACT THE ENGINEER FOR ADDITIONAL DETAILED CONSTRUCTION PLAN PRIOR TO CONSTRUCTION.

WARNING!
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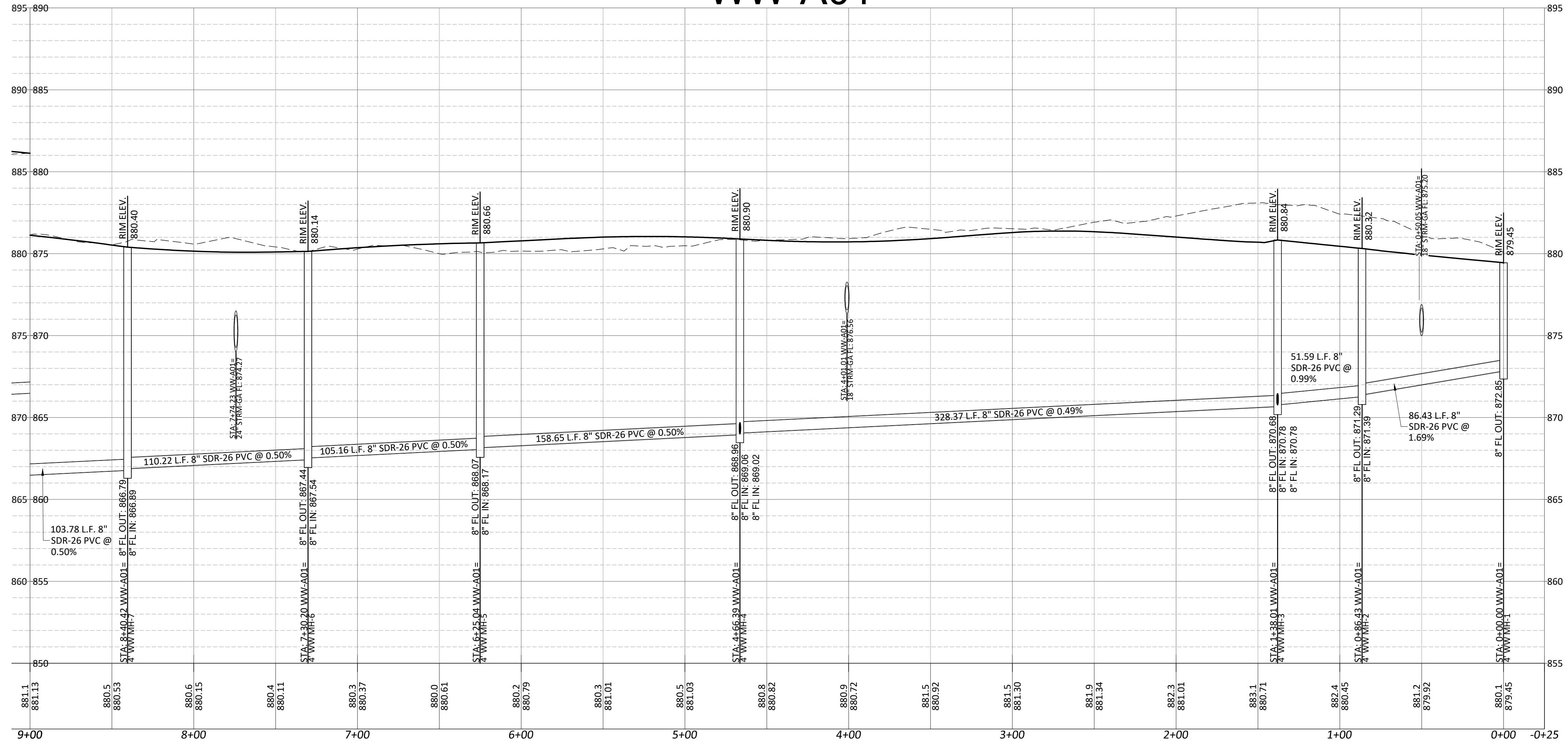
>>ENGINEERS >>PLANNERS >>SURVEYORS

OVERALL WASTEWATER PLAN
WOODSIDE EAST - PHASE B
City of Georgetown
Williamson County, Texas

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WW-A01



THESE CONSTRUCTION PLANS HAVE BEEN PREPARED TO FULFILL THE REQUIREMENTS FOR THE TCEQ FOR WATER POLLUTION ABATEMENT OVER THE EDWARDS AQUIFER. CONTRACTOR SHALL CONTACT THE ENGINEER FOR ADDITIONAL DETAILED CONSTRUCTION PLAN PRIOR TO CONSTRUCTION.

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

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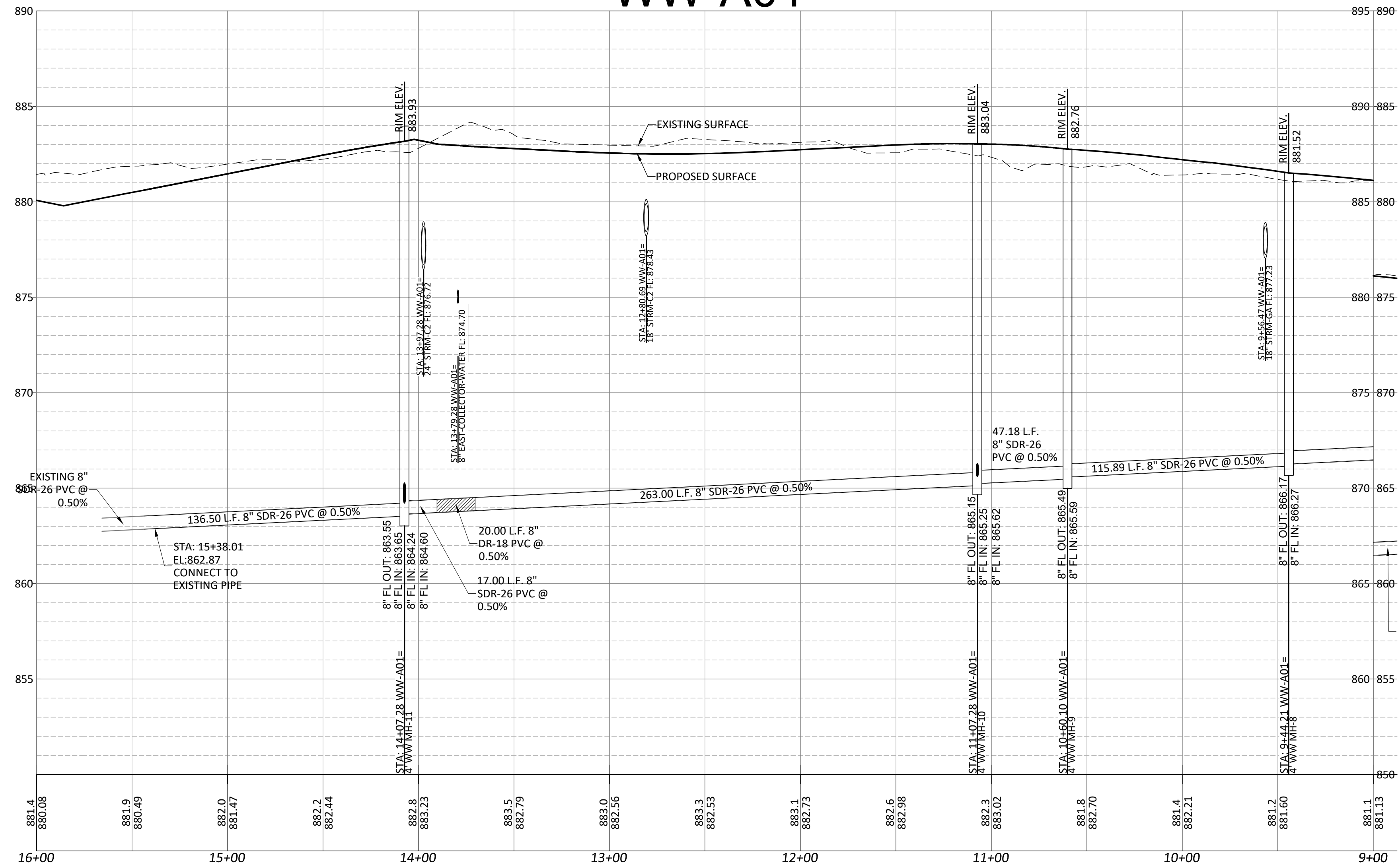
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SERVICES: >>ENGINEERS >>PLANNERS >>SURVEYORS

WW-A01 PLAN & PROFILE (1 OF 2)
WOODSIDE EAST - PHASE B
City of Georgetown
Williamson County, Texas

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WW-A01



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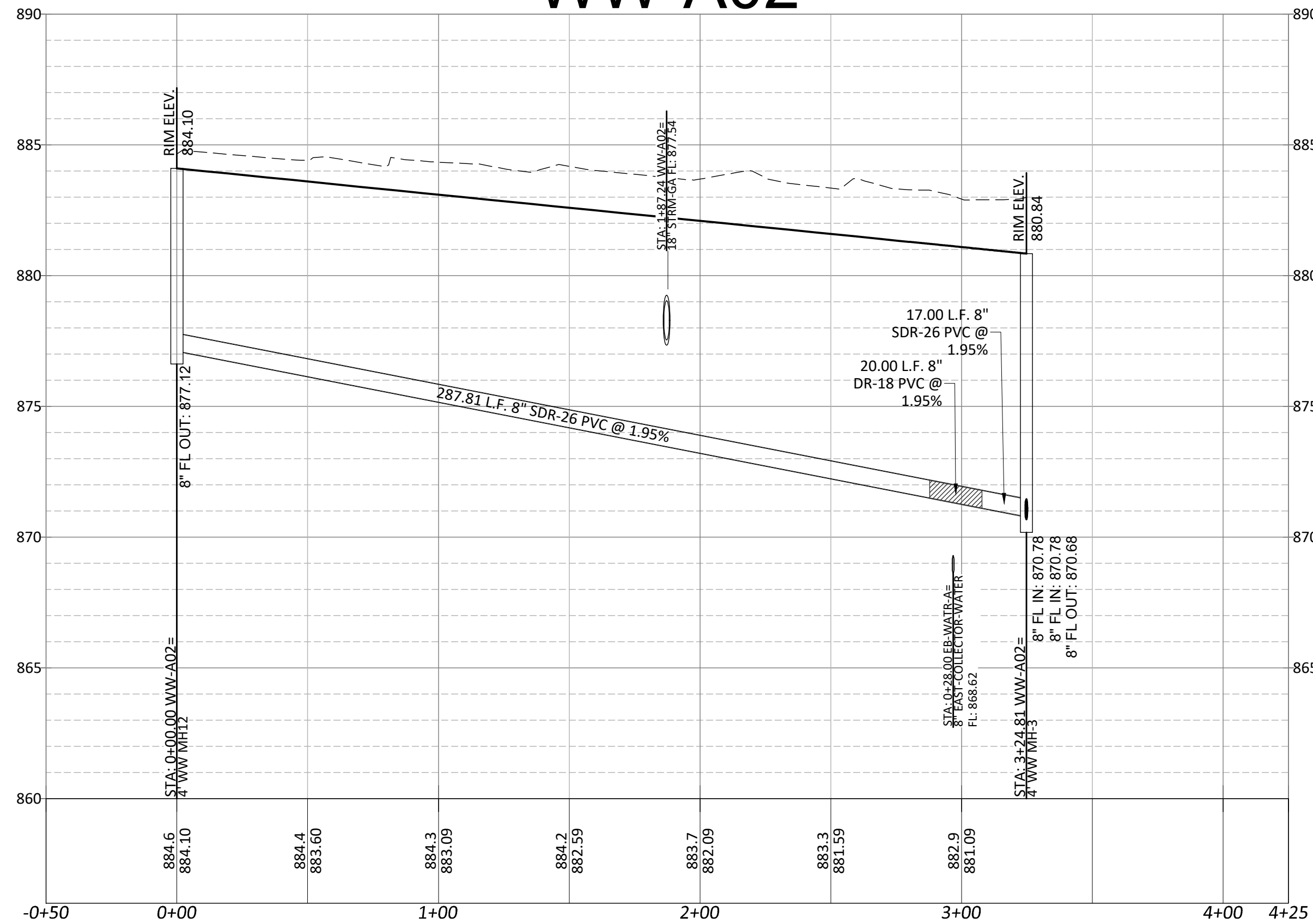
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WW-A01 PLAN & PROFILE (2 OF 2)
WOODSIDE EAST - PHASE B
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 Williamson County, Texas

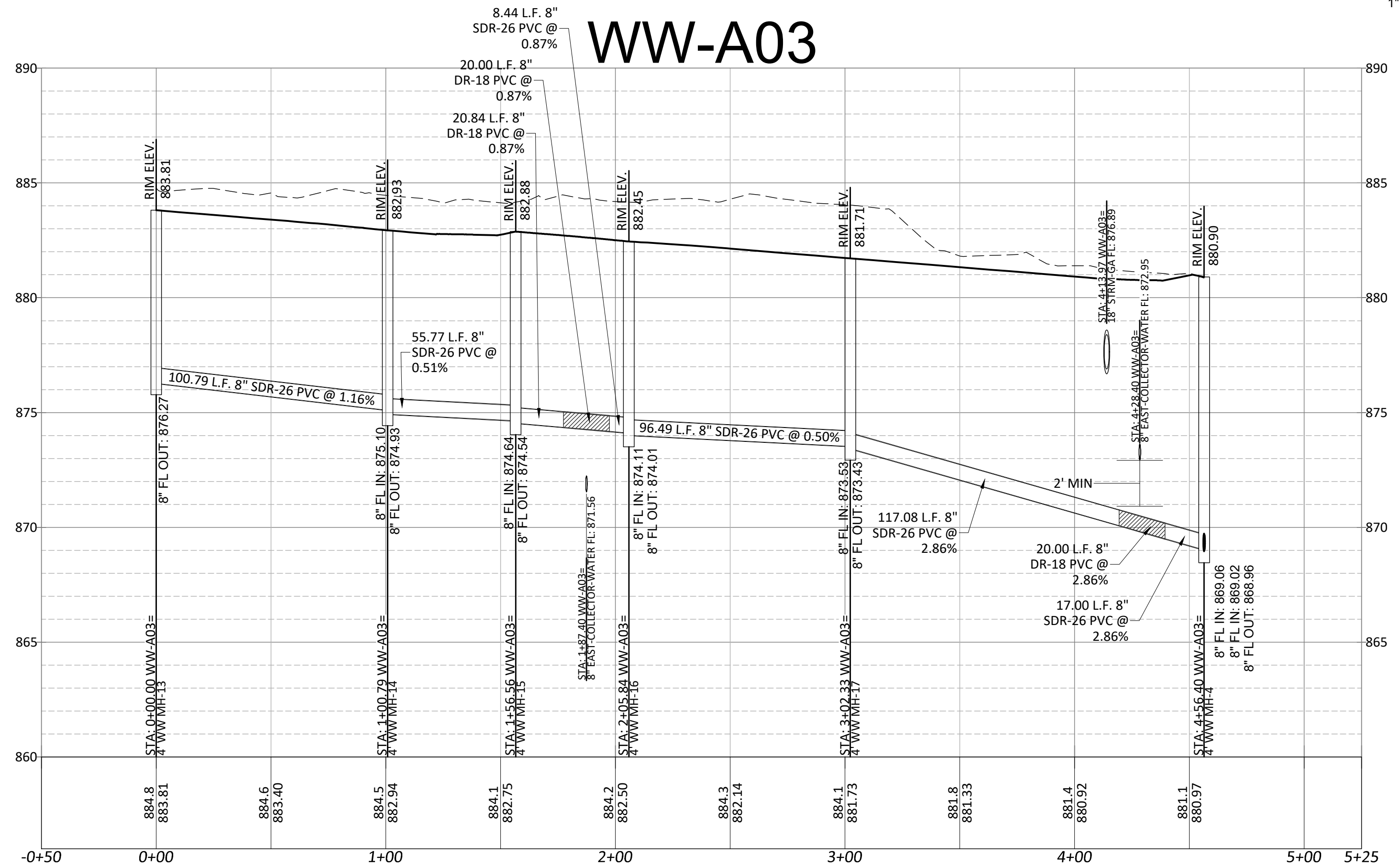
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WW-A02



WW-A03



SCALE
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1" = 4' VERTICAL

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WARNING!
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NO.	REVISION	BY	DATE

TLH, CL, E, JH	01-18-2024
DESIGNED BY:	DATE
TEH, TG, CL, E, JH	01-18-2024
DRAWN BY:	DATE
TLH	01-18-2024
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APPROVED BY:	DATE

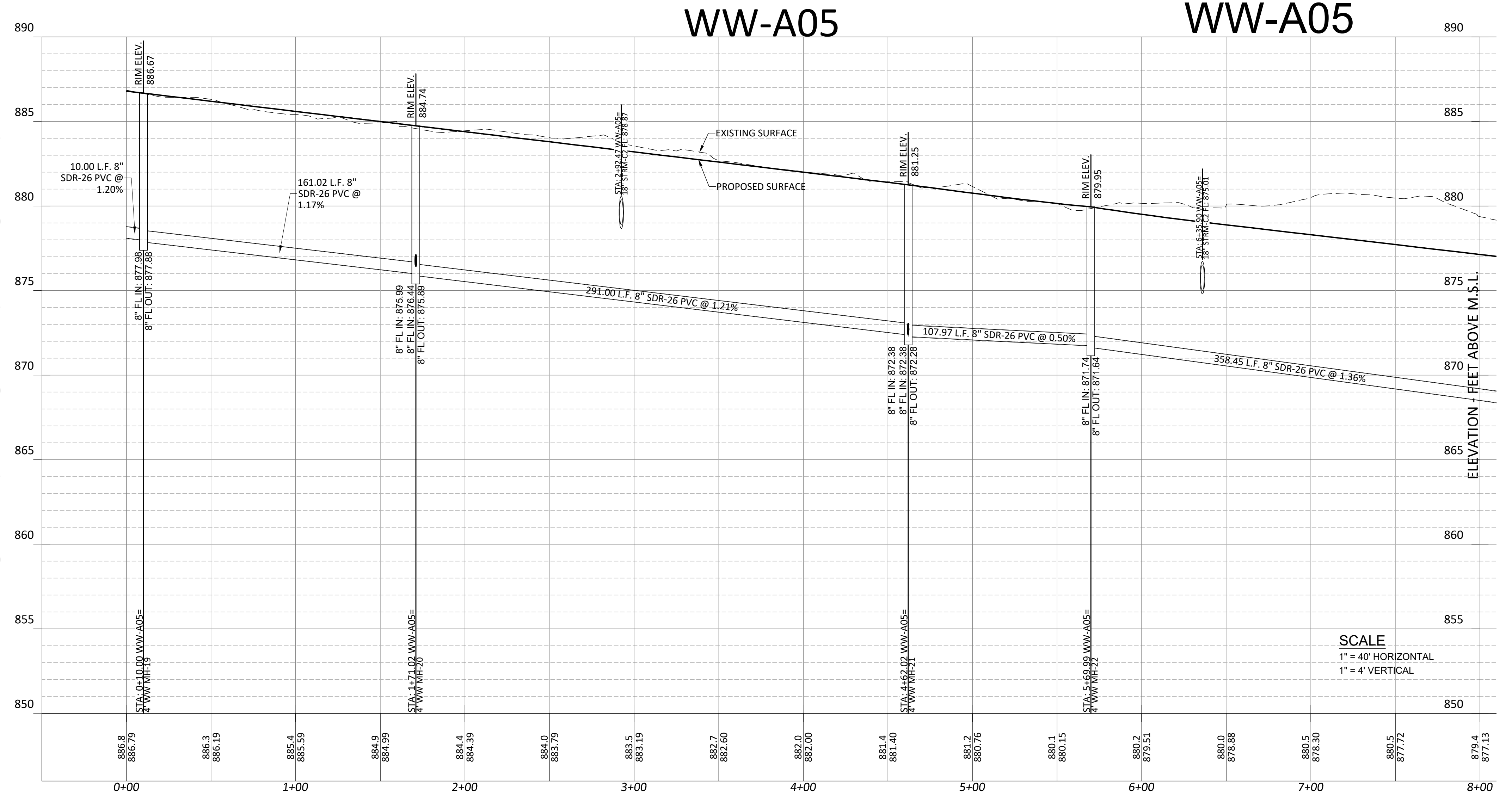
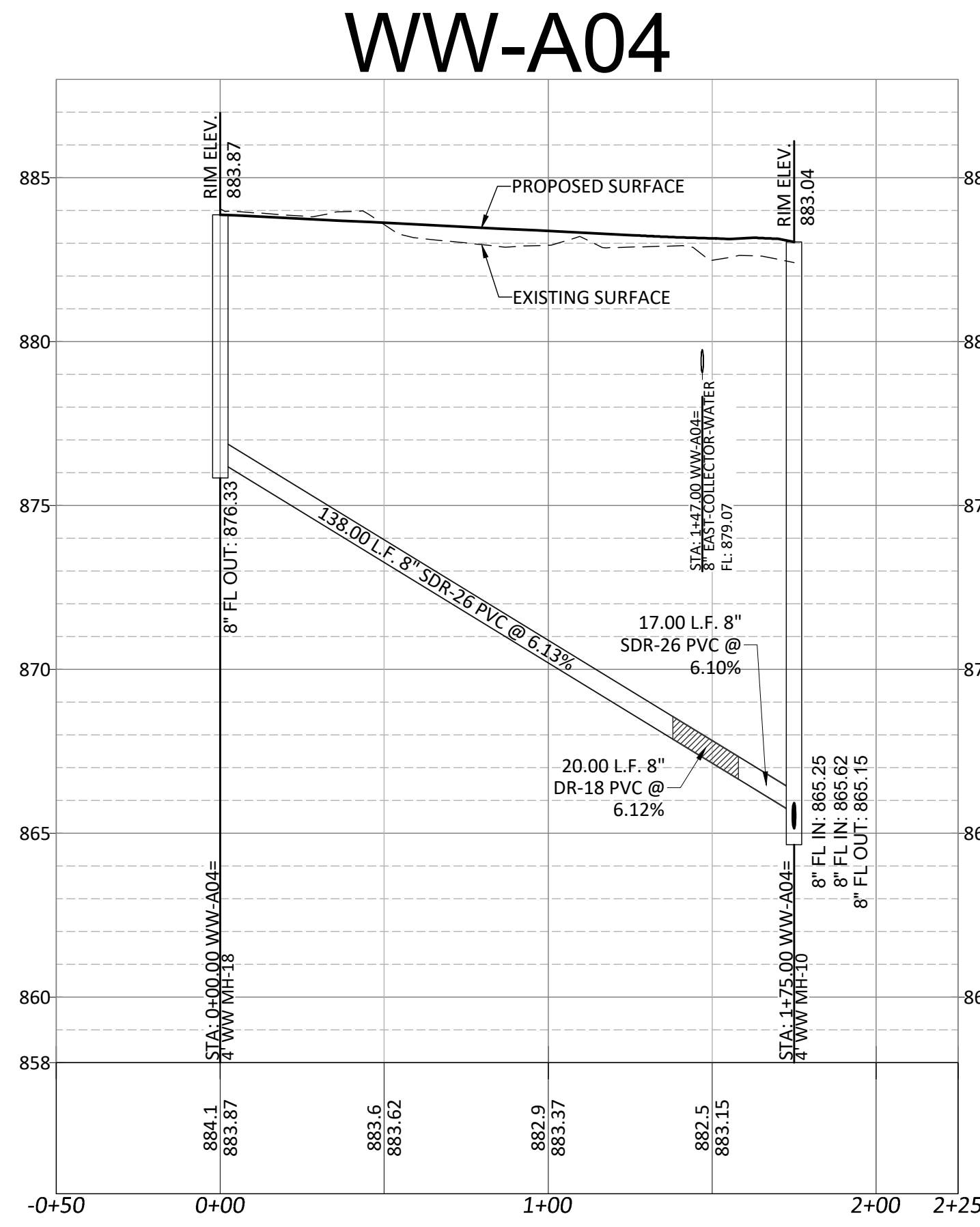


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WW-A02 & WW-A03 PLAN & PROFILE
WOODSIDE EAST - PHASE B
City of Georgetown
Williamson County, Texas

Project Number:	22226\21-MADISON TRACT
SCALE:	AS NOTED
Project Path:	P:\22000-22999
Project Name:	22226-MADISON TRACT
Drawing Path:	P:\22000-22999 SUN CITY
Xref DWG FILE:	
Sheet Number:	53 of 71 sheets

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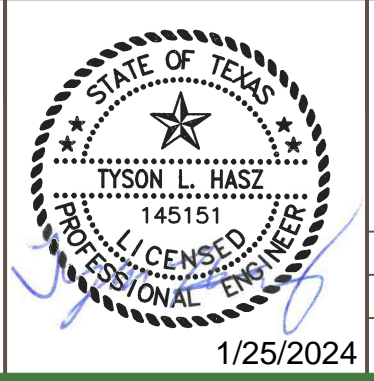


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DATE: 01-18-2024



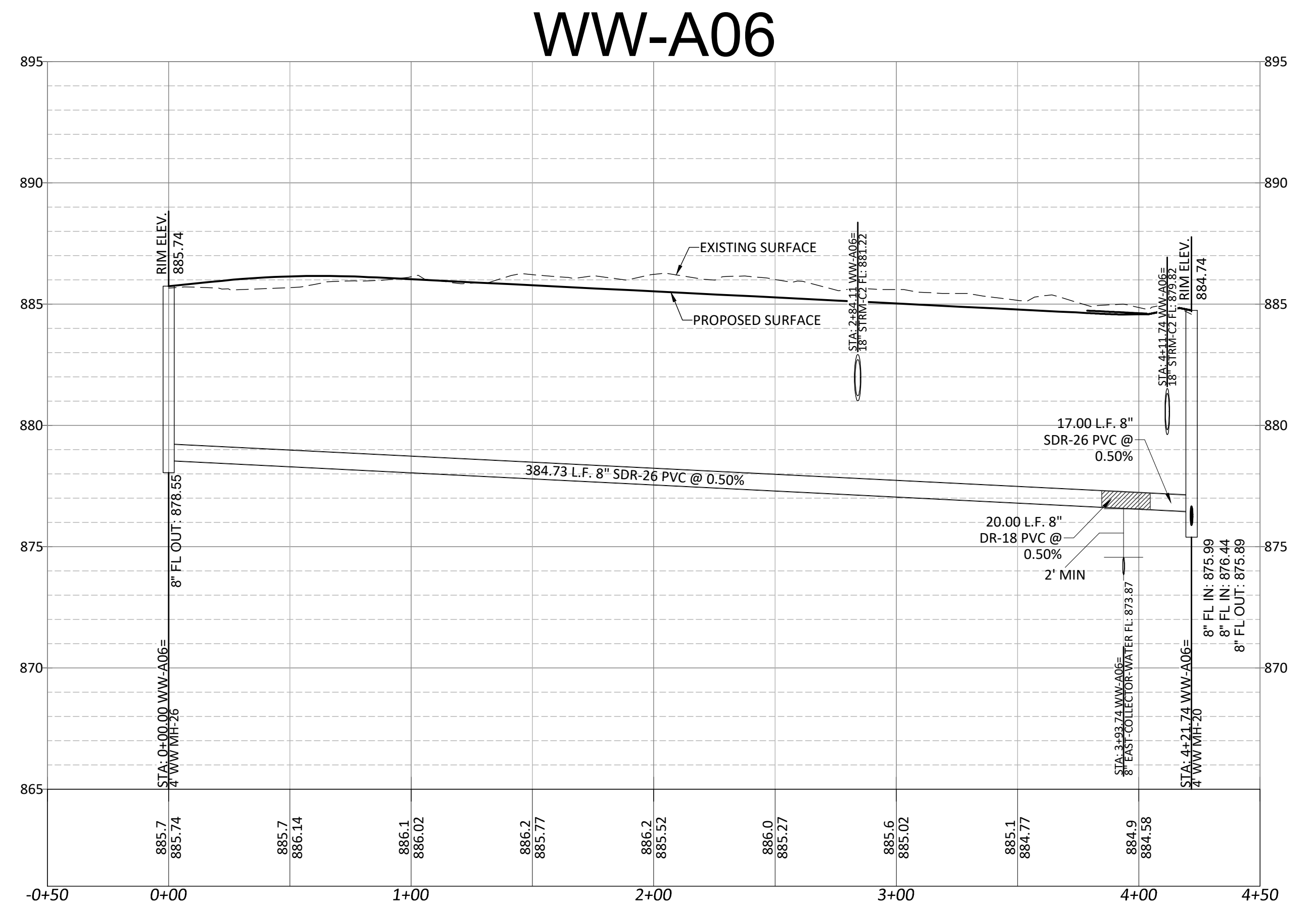
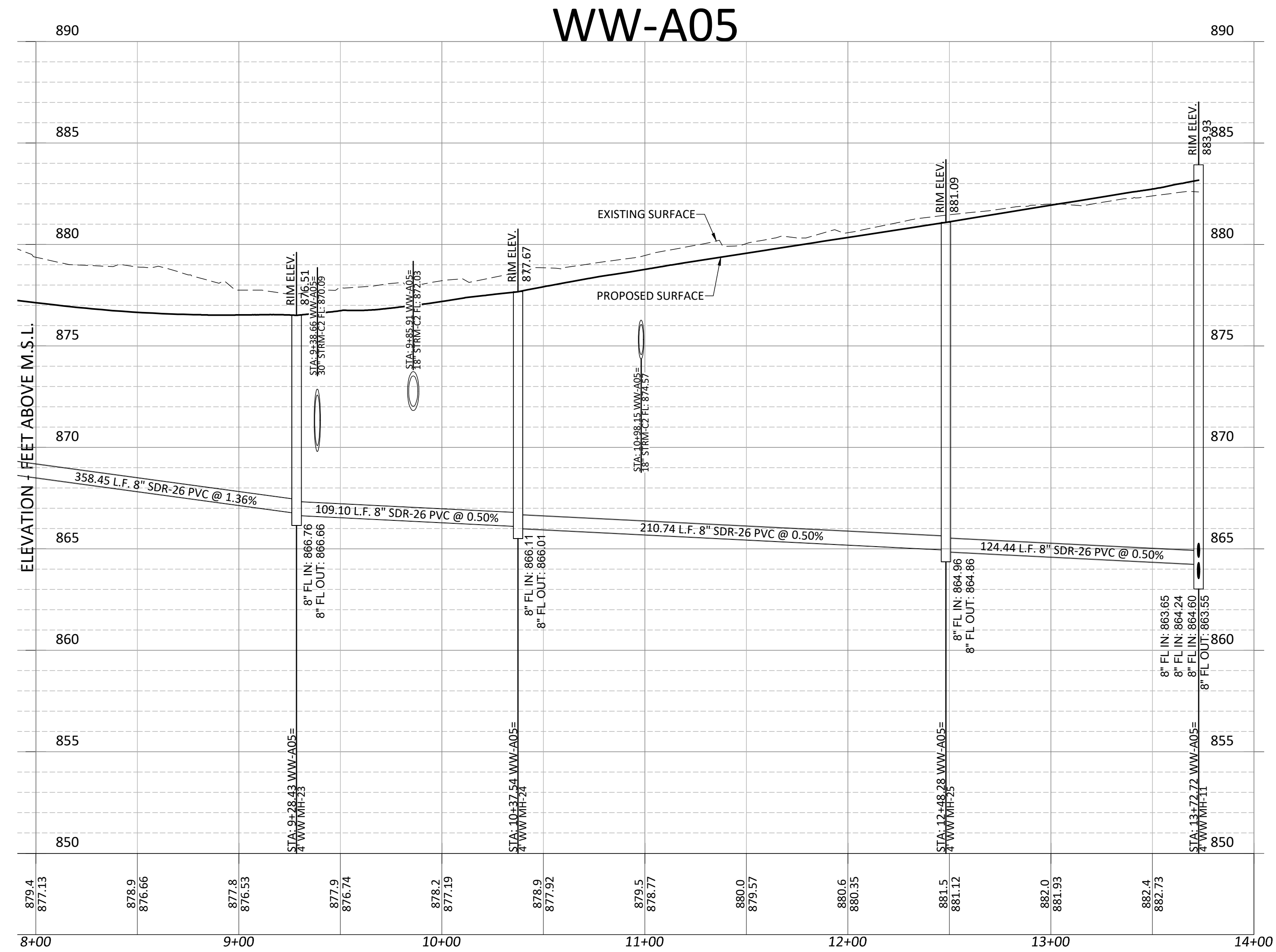
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WW-A04 & WW-A05 (1 OF 2) PLAN & PROFILE
WOODSIDE EAST - PHASE B
 City of Georgetown
 Williamson County, Texas

Project Number: 22226/21-MADISON TRACT
 SCALE: AS NOTED
 Project Path: P:\22000-22999
 Project Name: 22226-MADISON TRACT
 Drawing Path: P:\22000-22999 SUN CITY
 Xref DWG FILE:
 Sheet Number: 54 of 71 sheets

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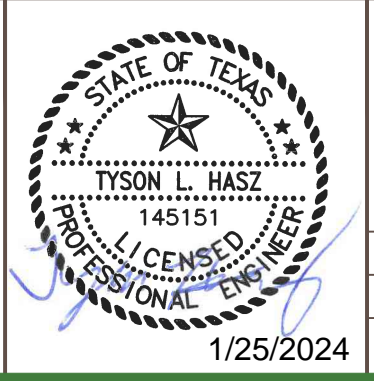
SCALE
1" = 40' HORIZONTAL
1" = 4' VERTICAL

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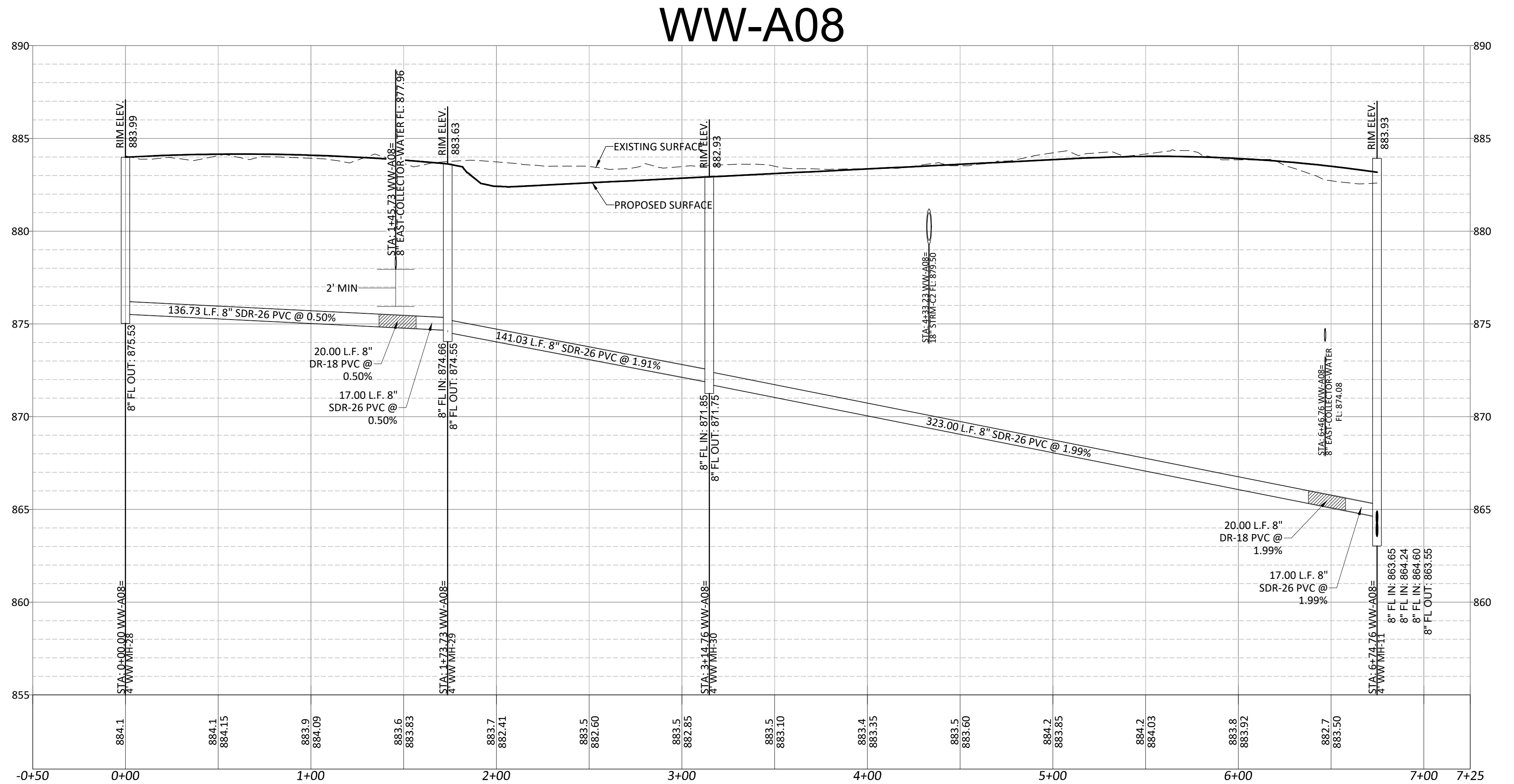
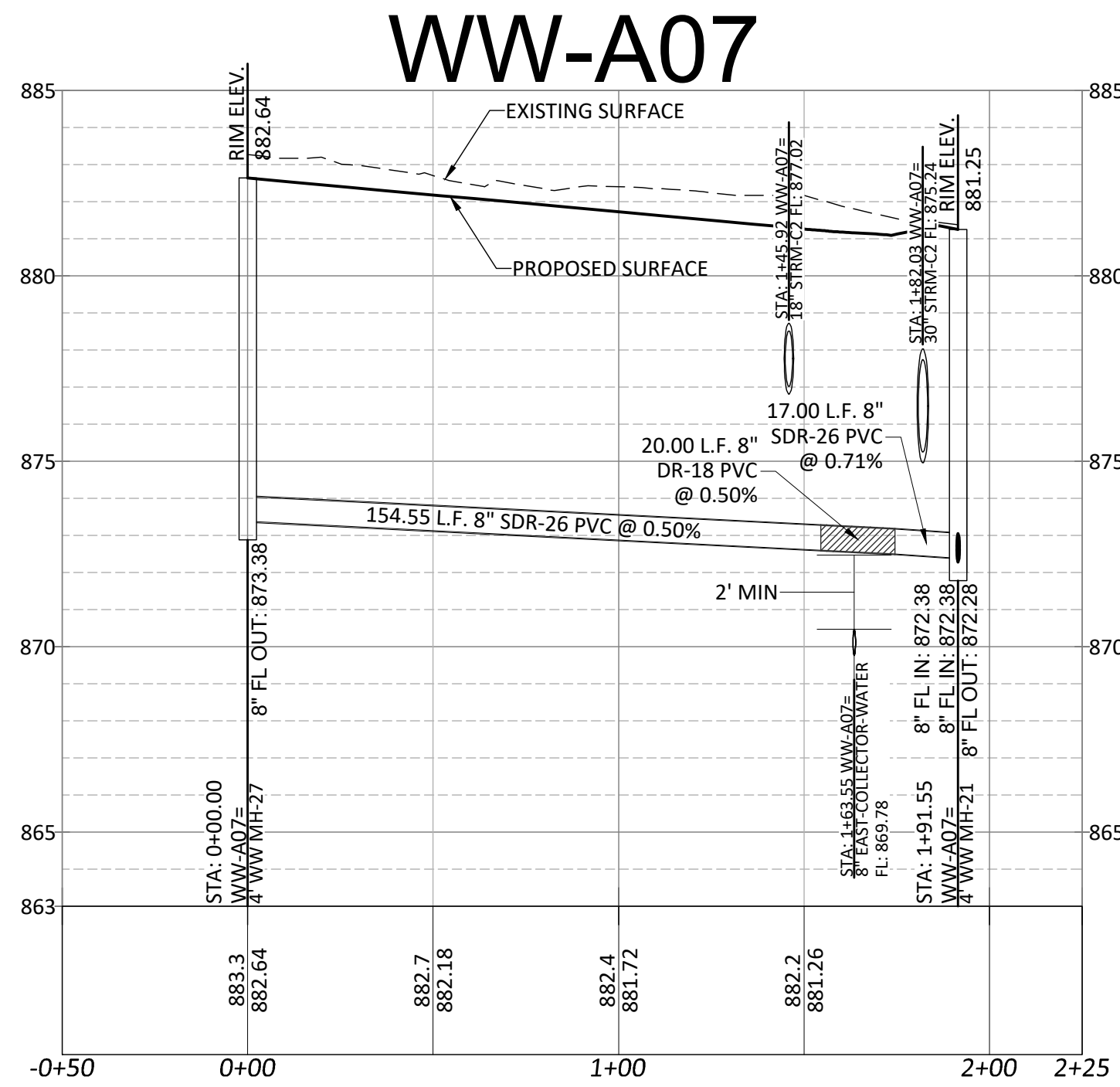
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WW-A05 (2 OF 2) & WW-A06 PLAN & PROFILE
WOODSIDE EAST - PHASE B
City of Georgetown
Williamson County, Texas

Project Number:	22226/21-MADISON TRACT
SCALE:	AS NOTED
Project Path:	P:\22000-22999
Project Name:	22226-MADISON TRACT
Drawing Path:	P:\22000-22999 SUN CITY
Xref DWG FILE:	
Sheet Number:	55 of 71 sheets

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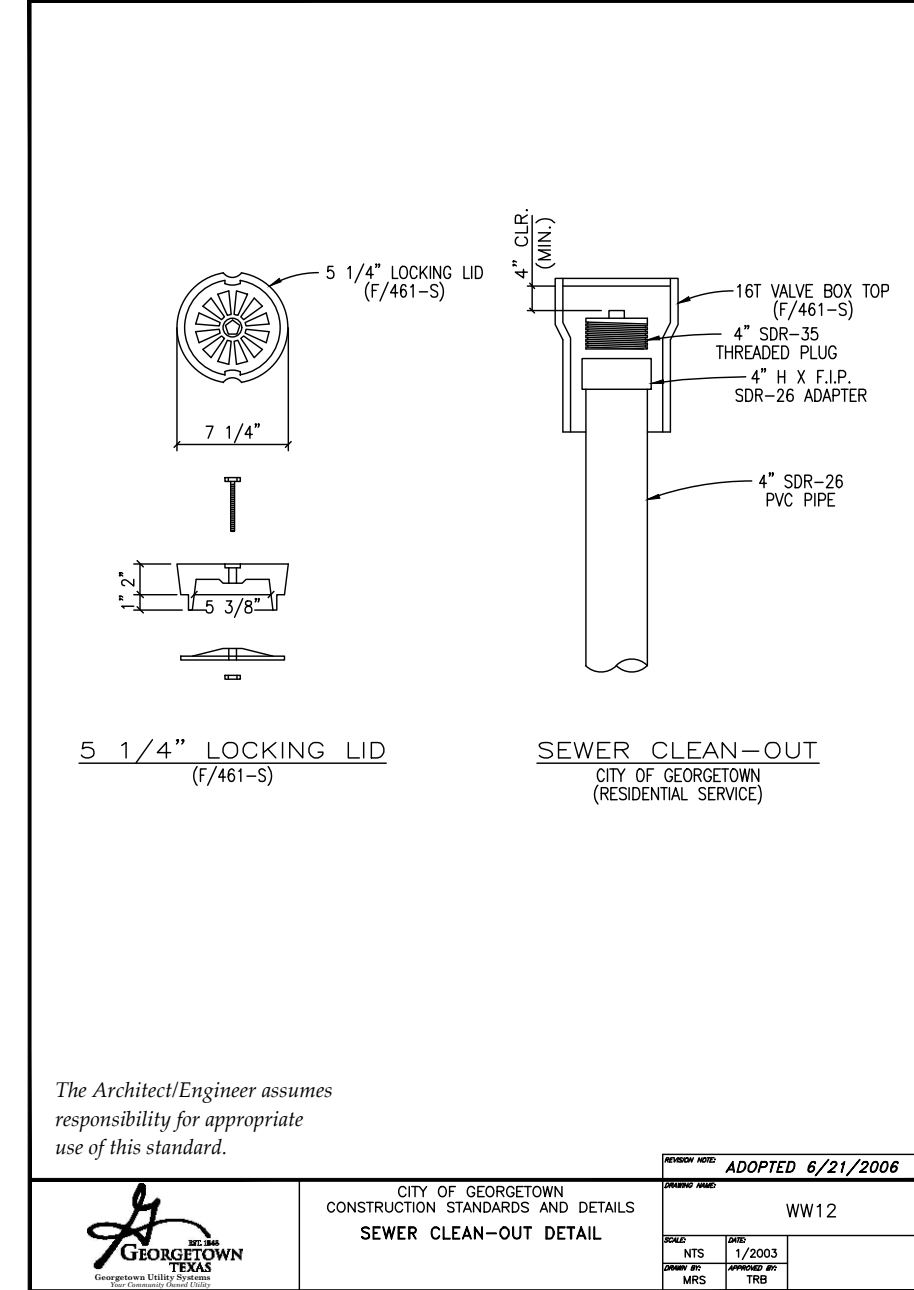
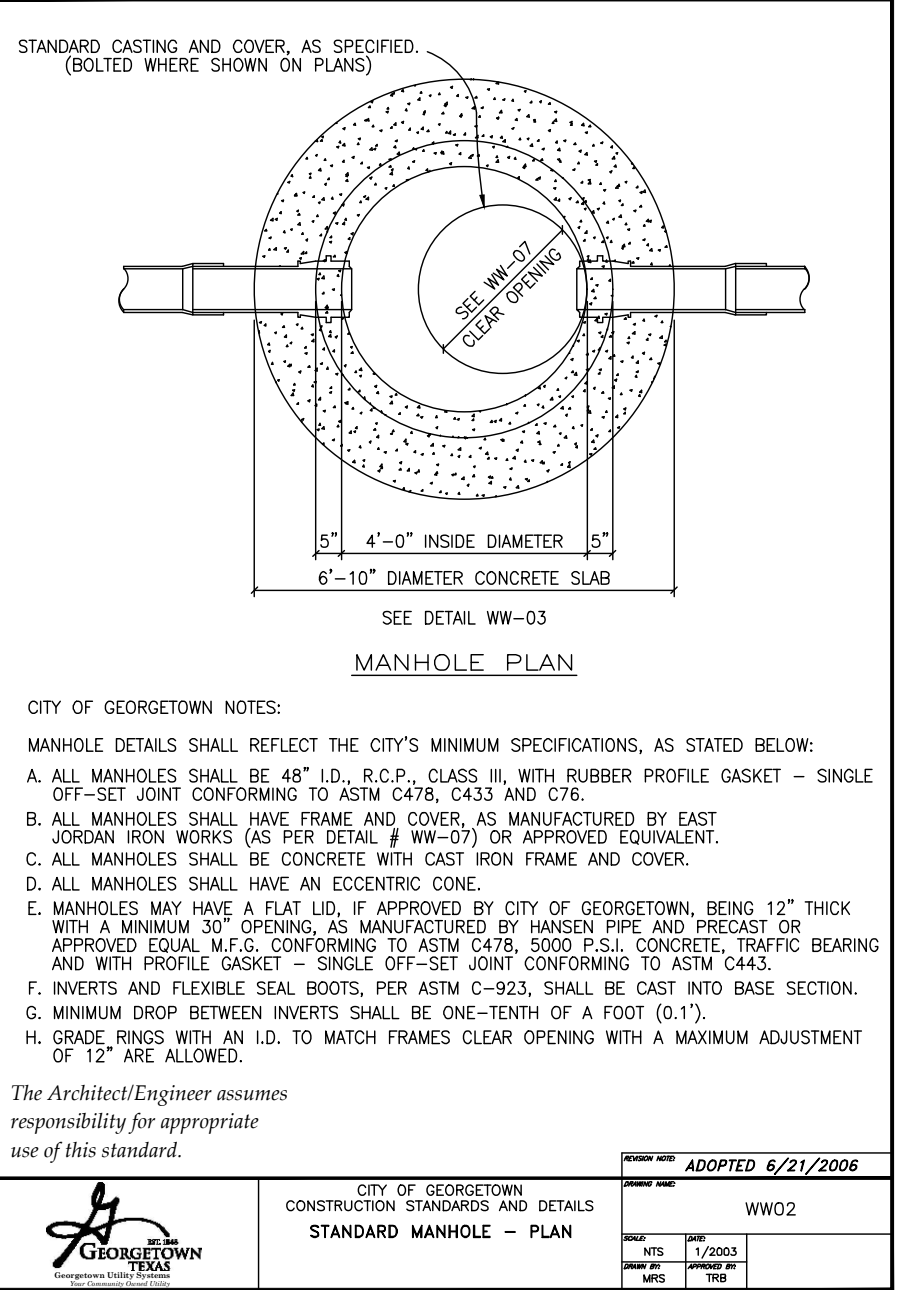
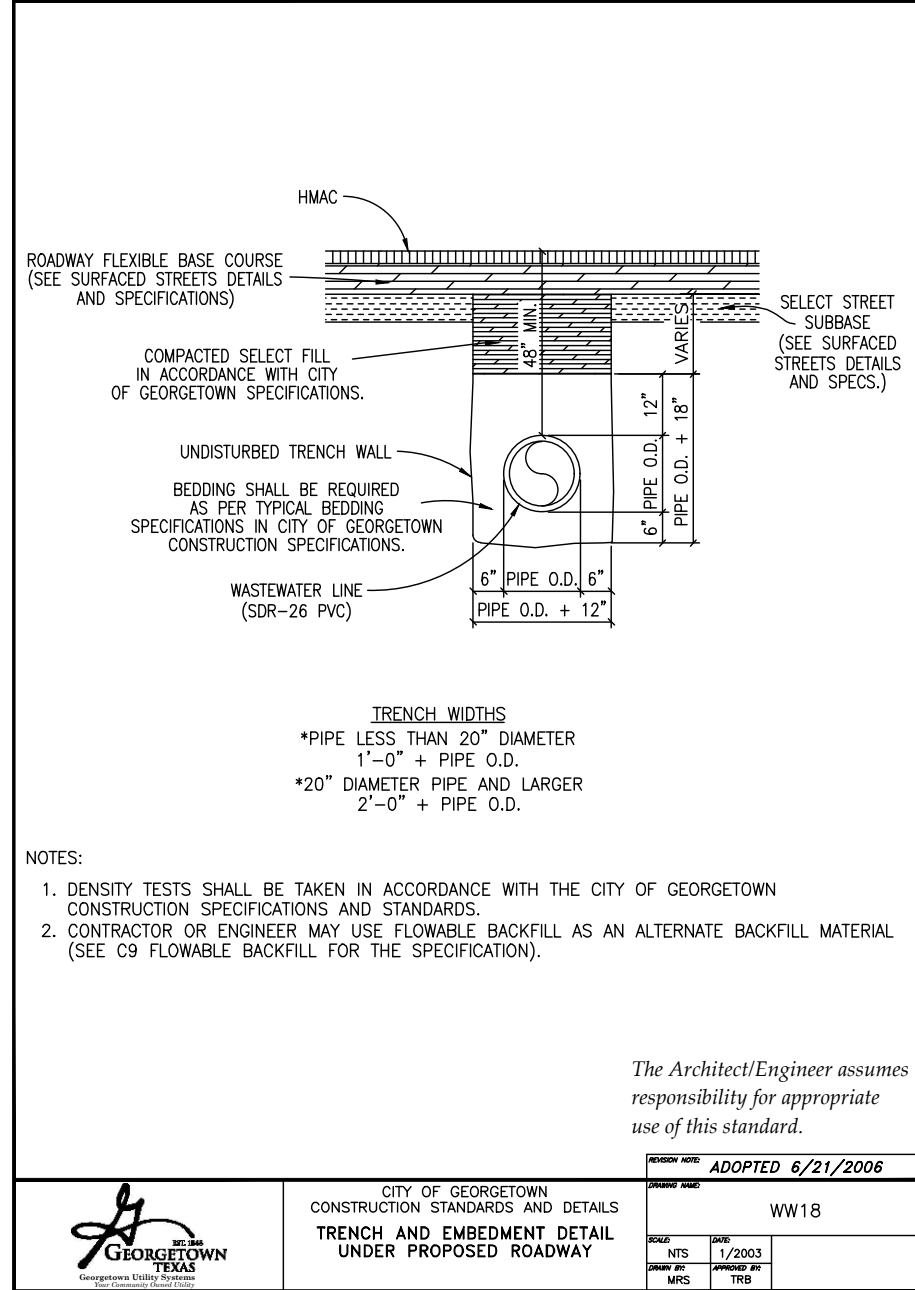
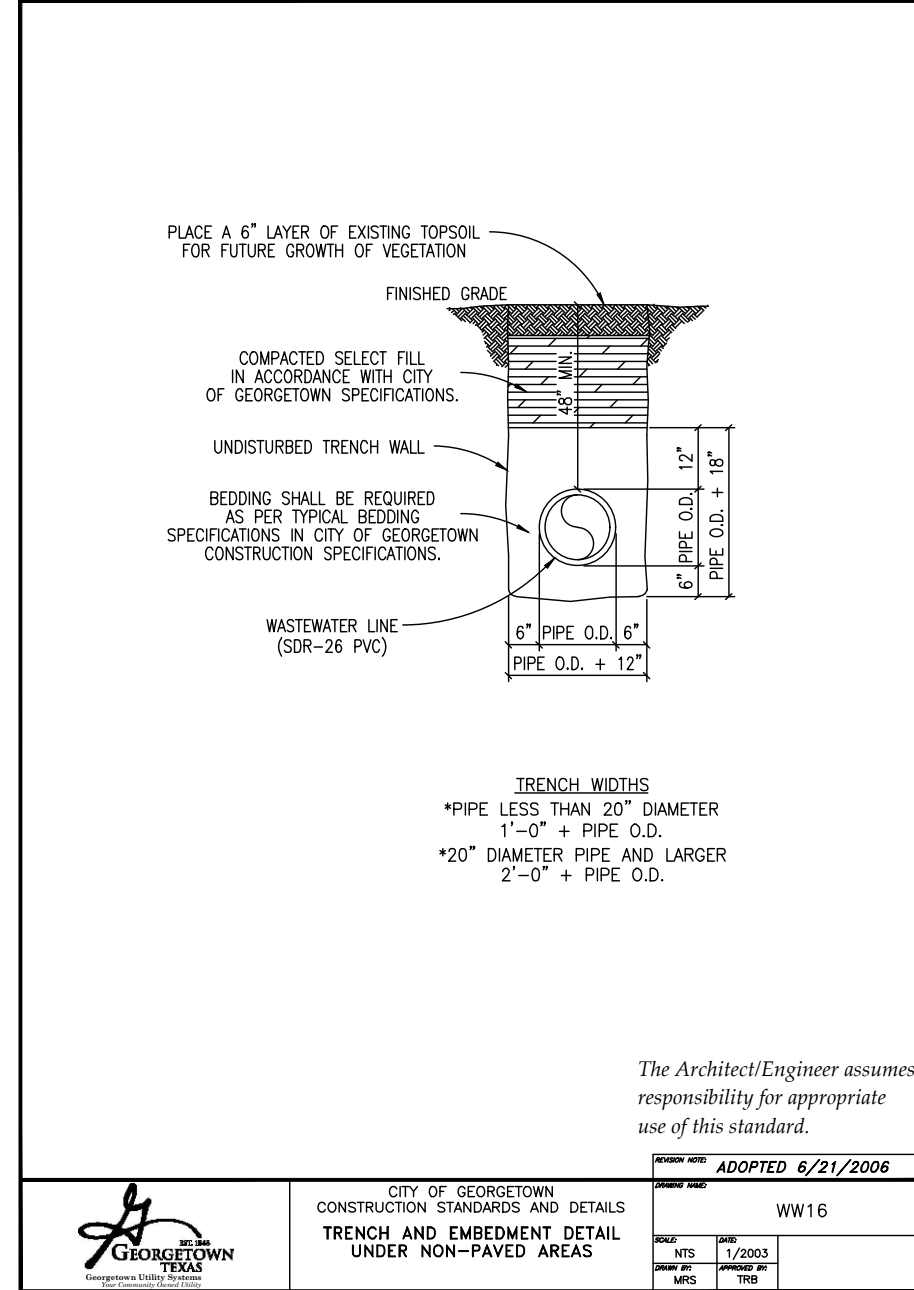
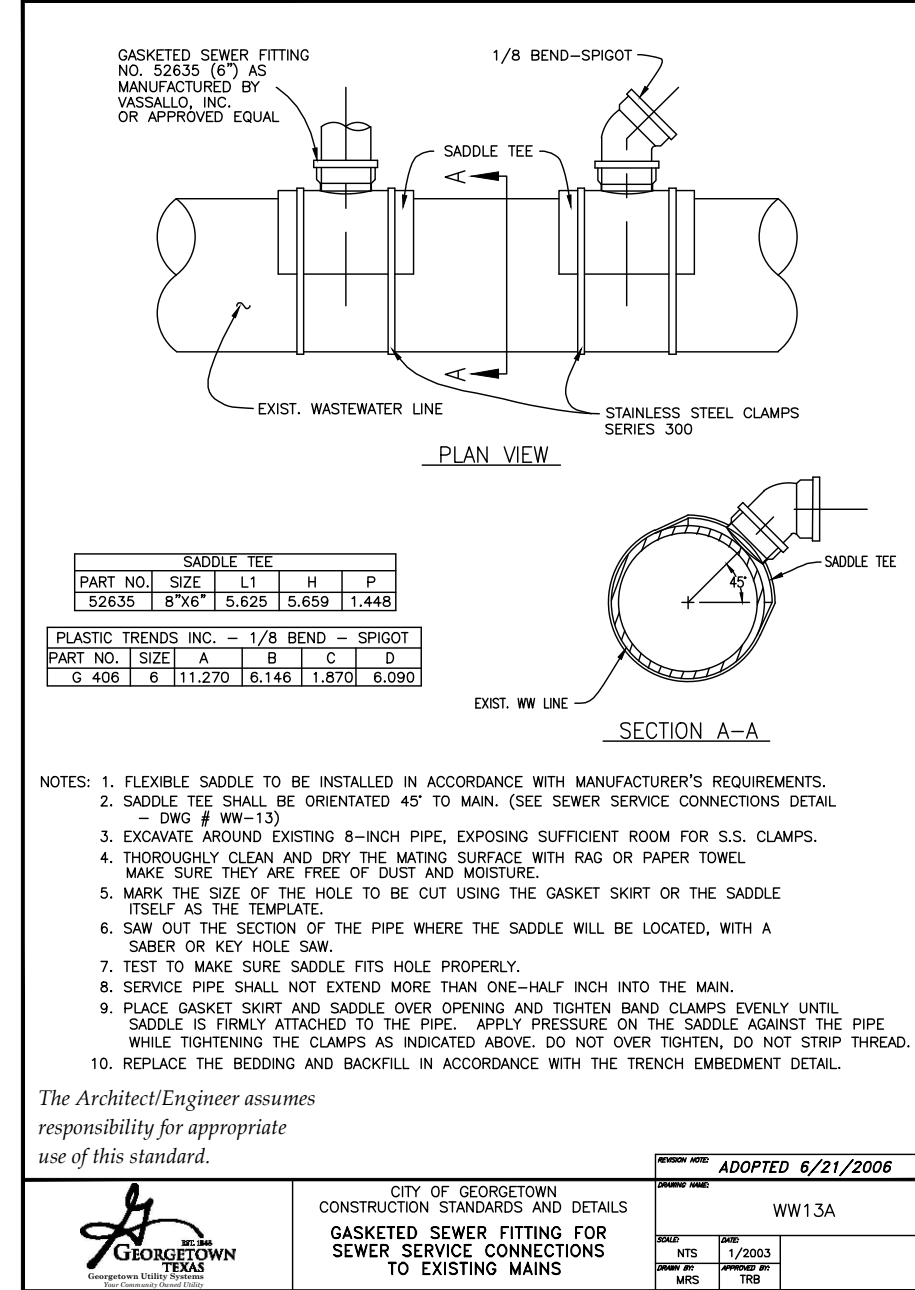
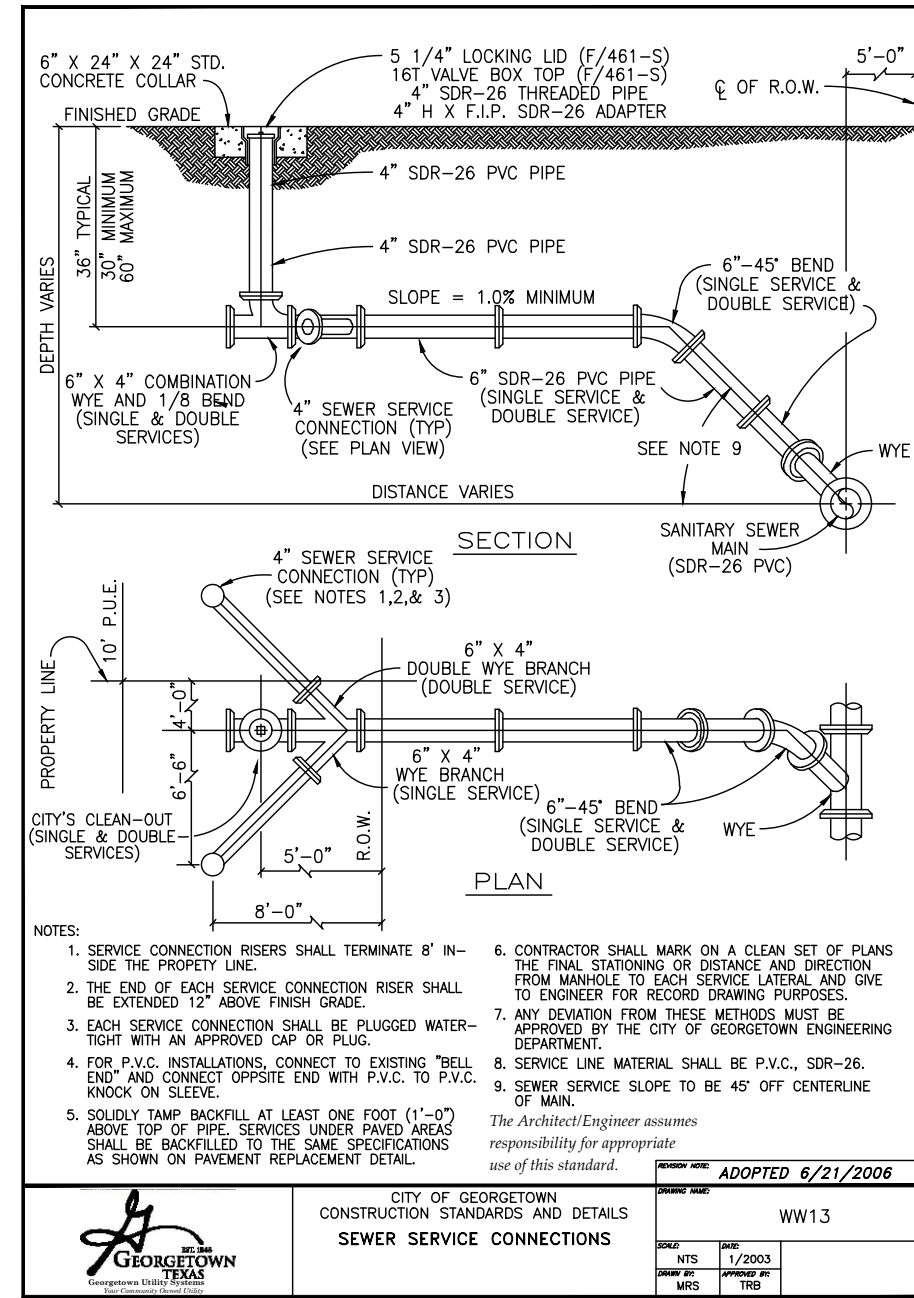
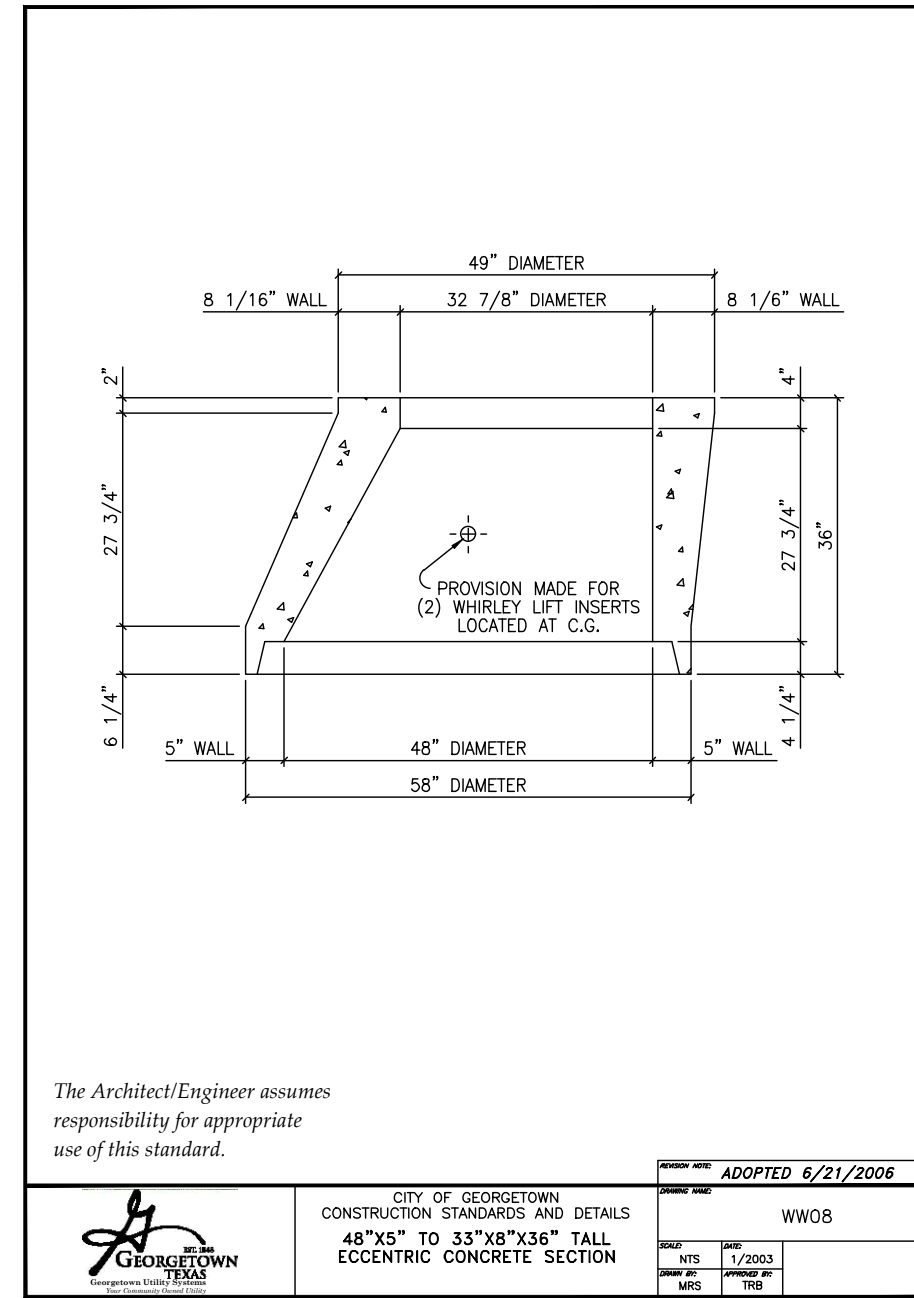
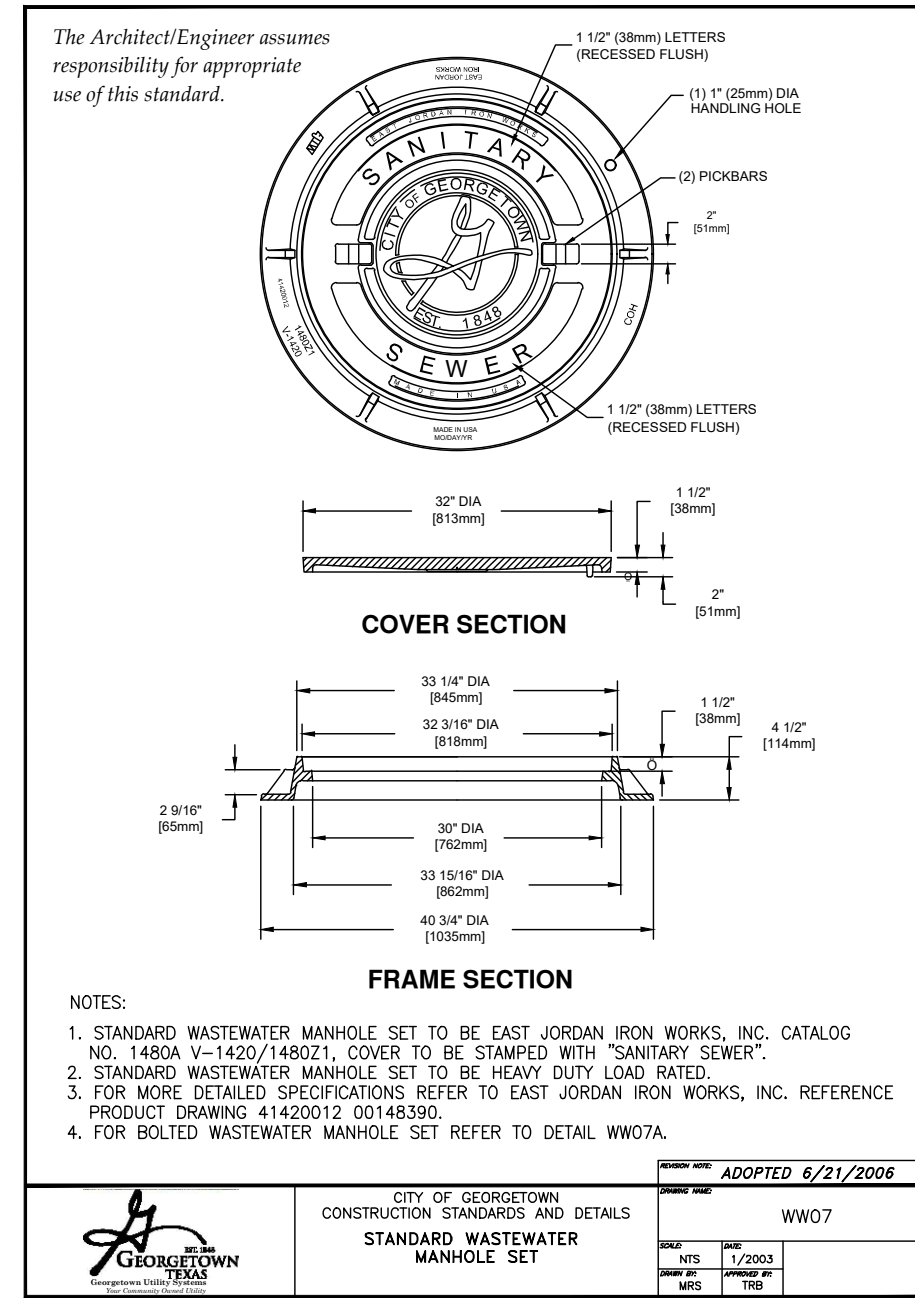
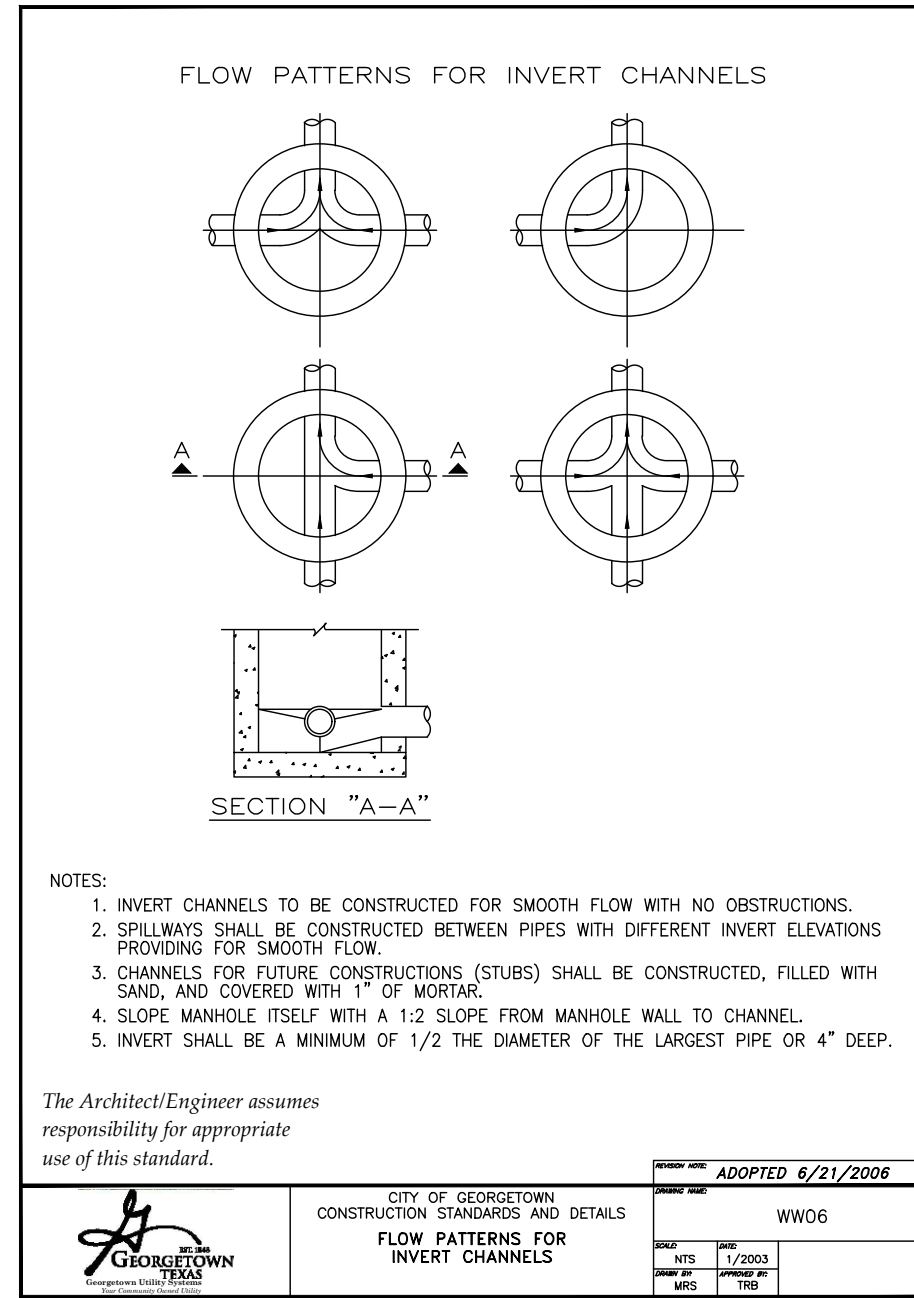
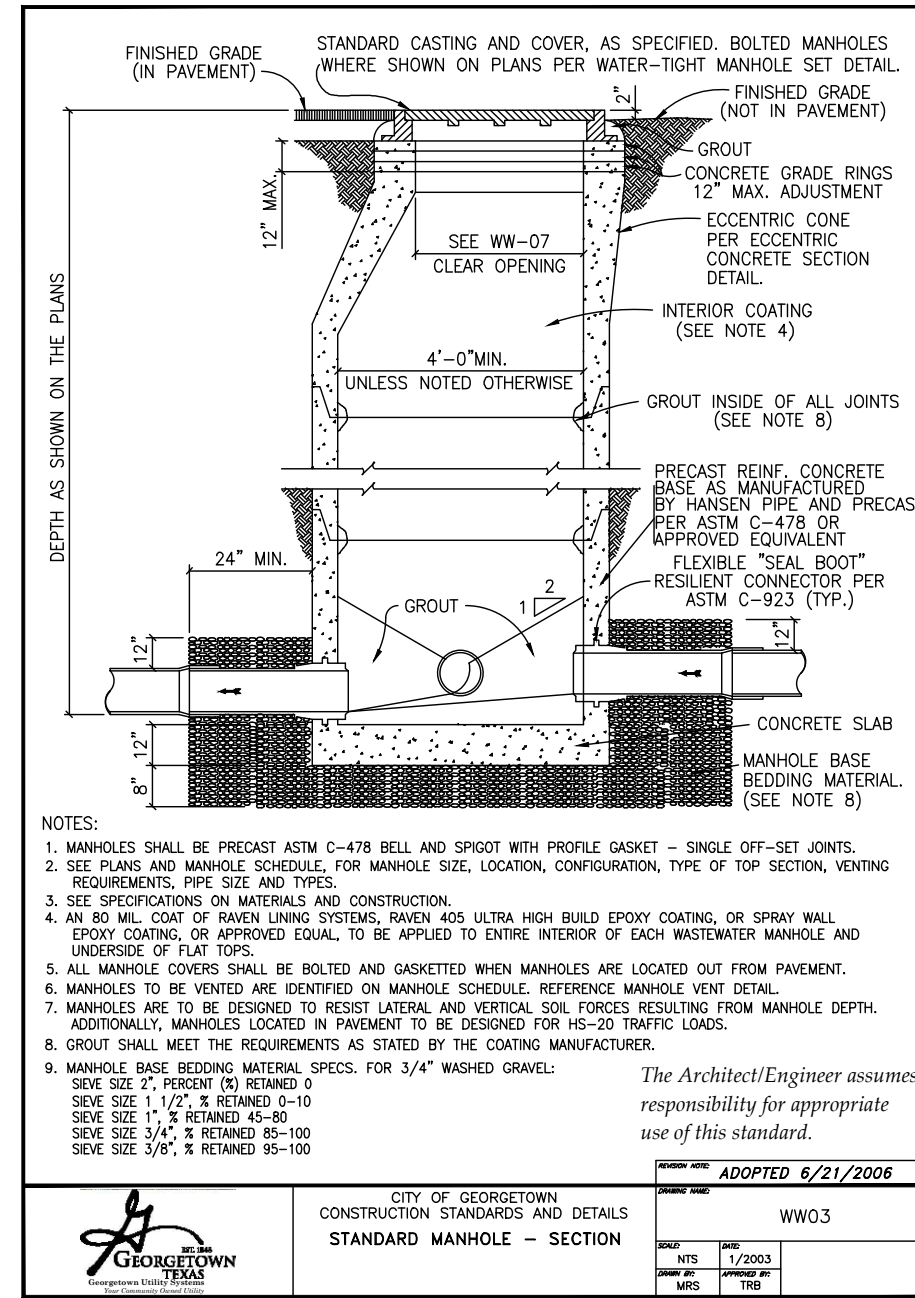
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WW-A07 & WW-A08 PLAN & PROFILE
WOODSIDE EAST - PHASE B
 City of Georgetown
 Williamson County, Texas

Project Number: 22226/21-MADISON TRACT
 SCALE: AS NOTED
 Project Path: P:\22000-22999
 Project Name: 22226-MADISON TRACT
 Drawing Path: P:\22000-22999 SUN CITY
 Xref DWG FILE:
 Sheet Number: 56 of 71 sheets

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

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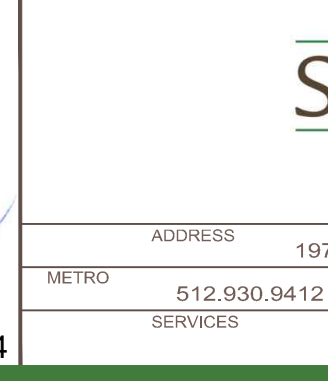


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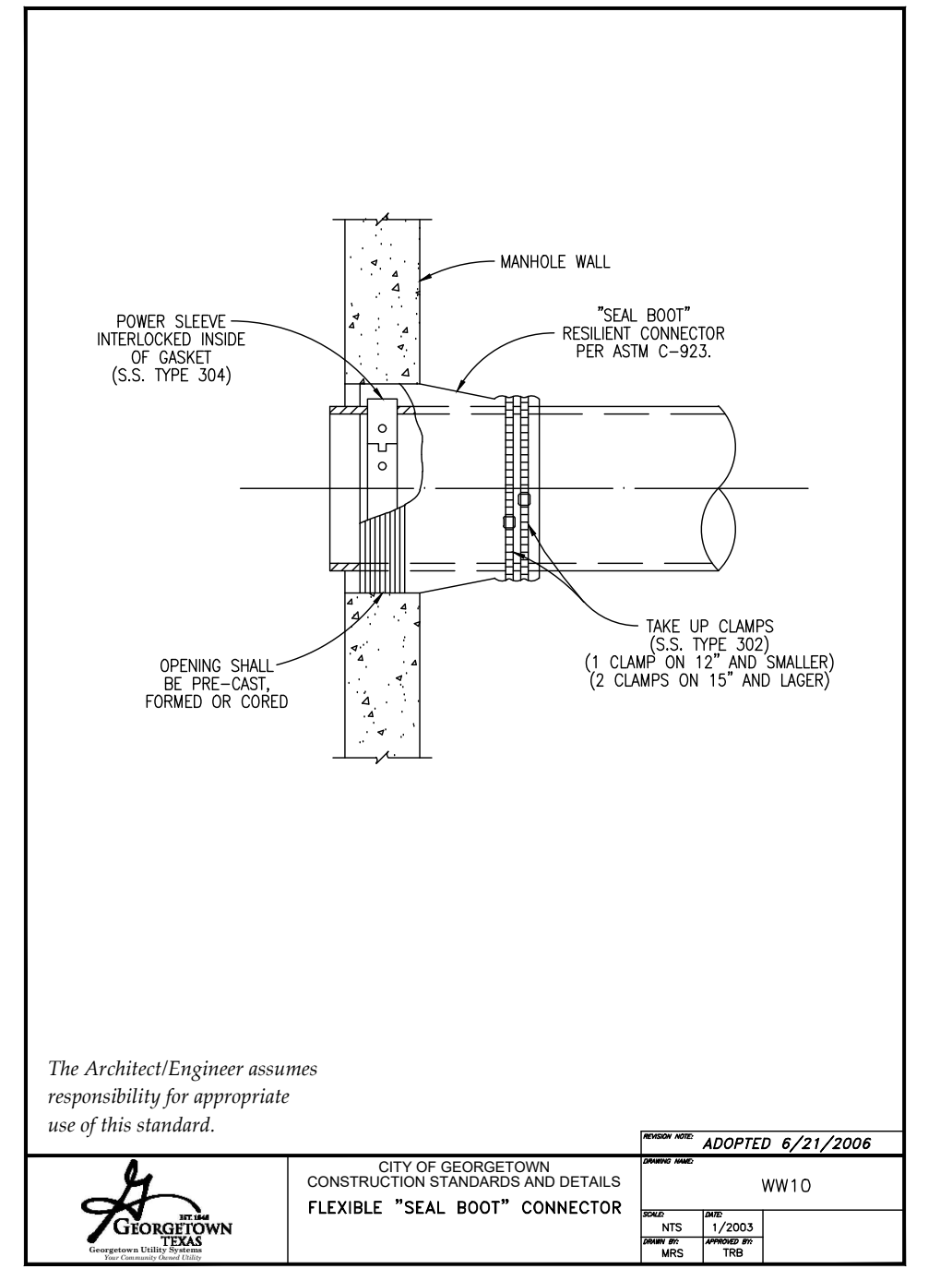
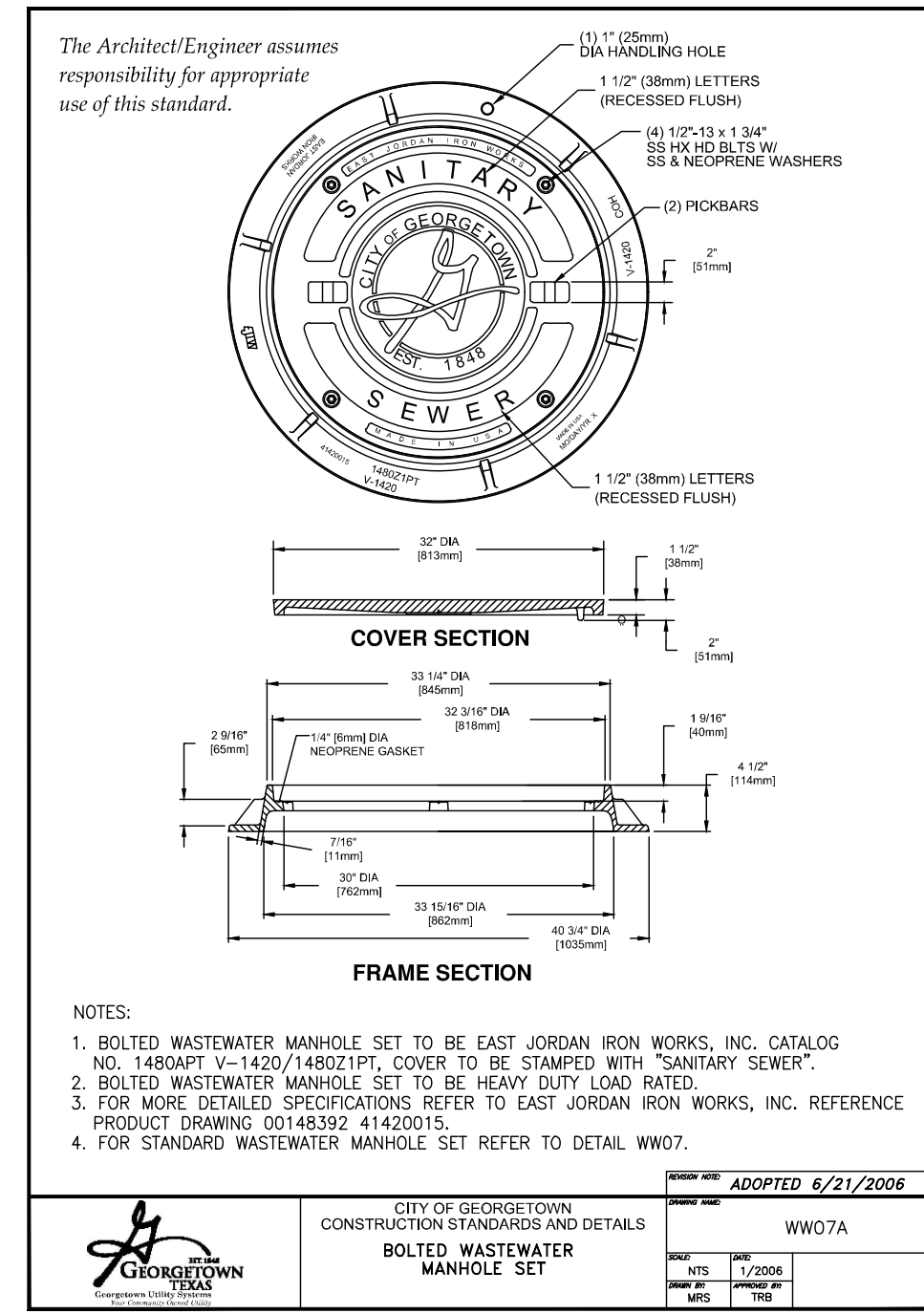
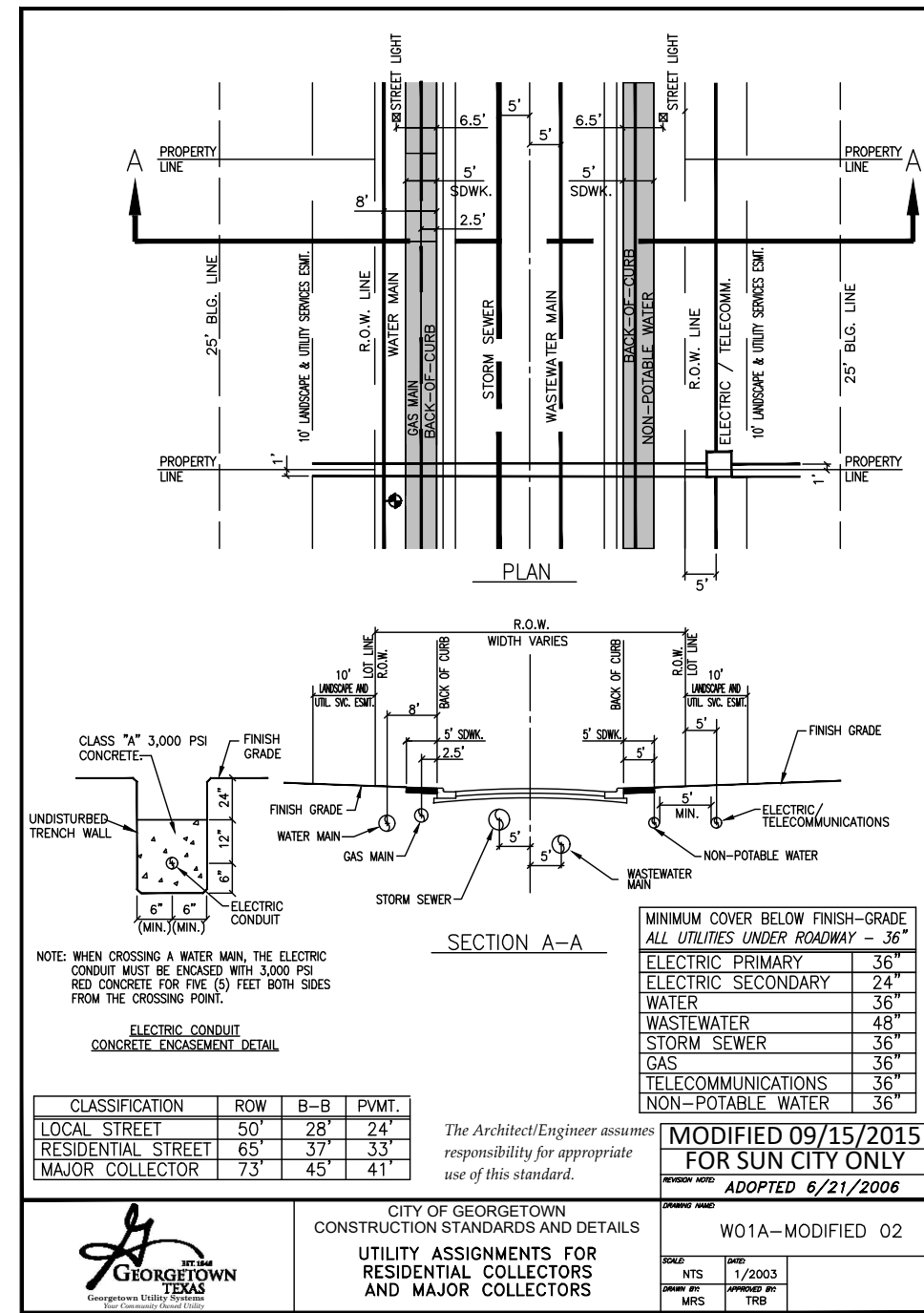
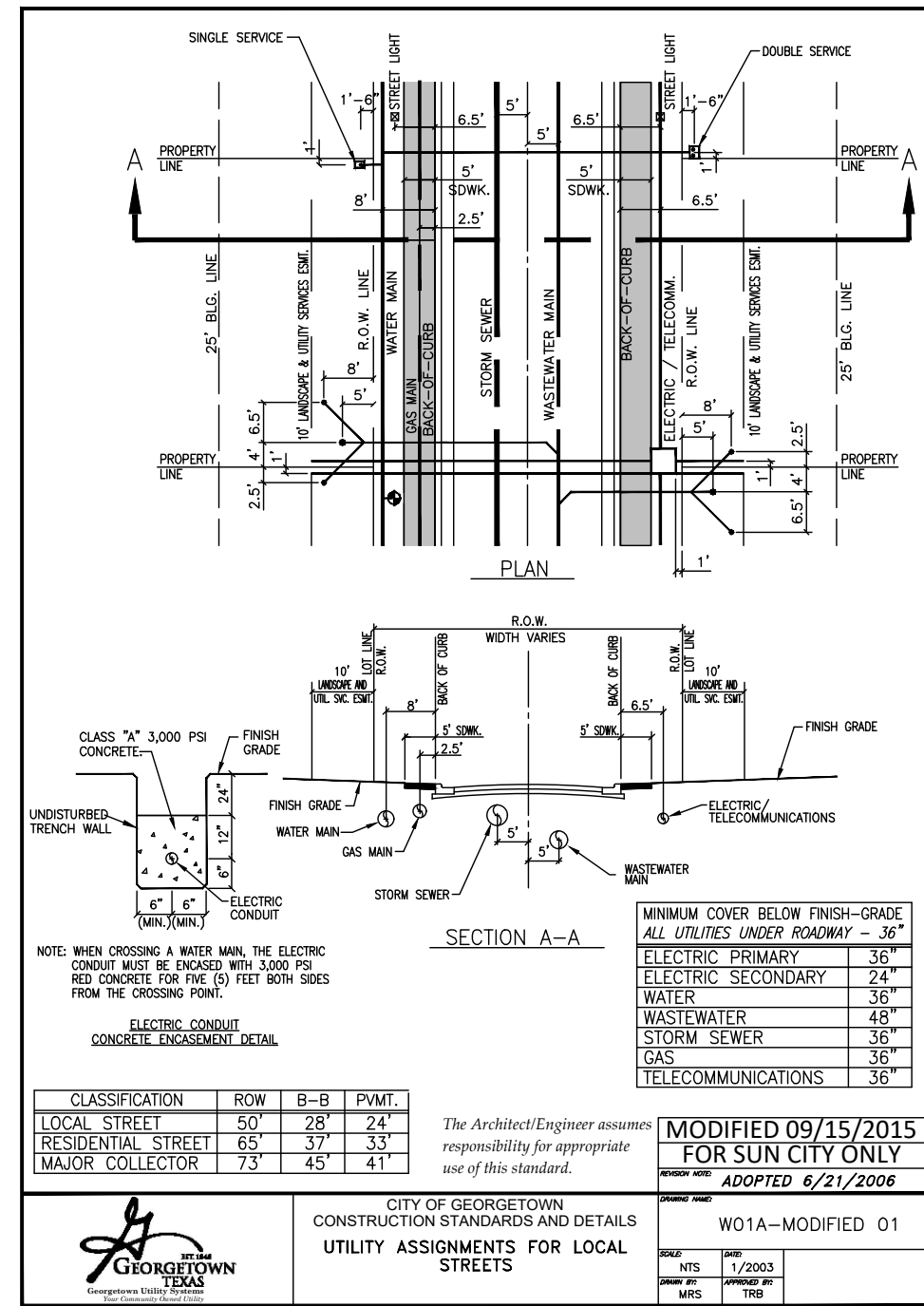
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WASTEWATER DETAILS (1 OF 2)
WOODSIDE EAST - PHASE B
 City of Georgetown
 Williamson County, Texas

Project Number: 22226/21-MADISON TRACT
 SCALE: AS NOTED
 Project Path: P\22000-22999
 Project Name: 22226-MADISON TRACT
 Drawing Path: P\22000-22999 SUN CITY
 Xref DWG FILE:
 Sheet Number: 58 of 71 sheets

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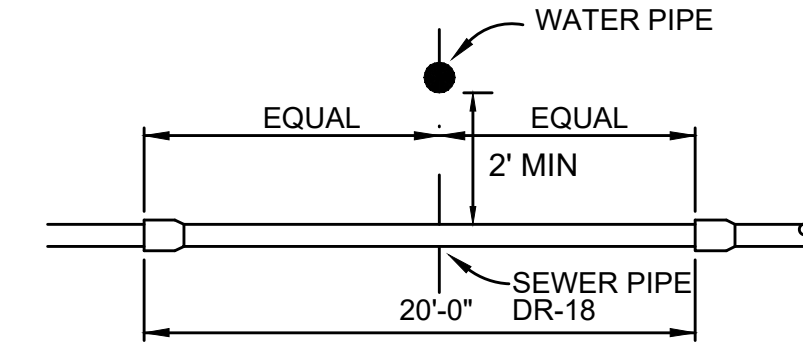


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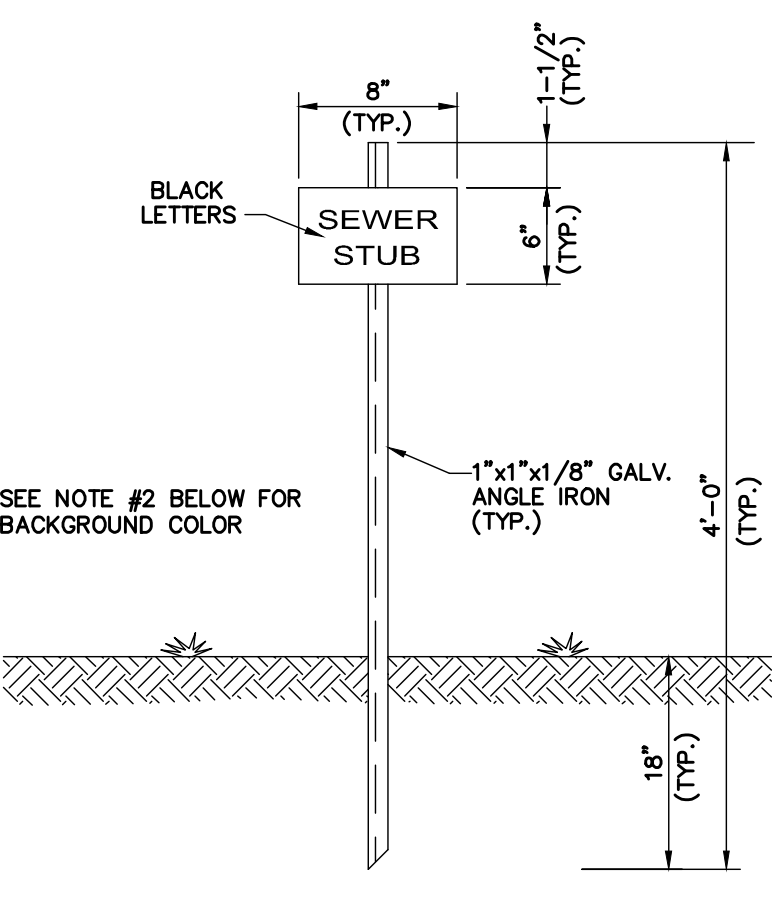
WASTEWATER DETAILS (2 OF 2)
WOODSIDE EAST - PHASE B
City of Georgetown
Williamson County, Texas

Project Number: 22226/21-MADISON TRACT
SCALE: AS NOTED
Project Path: P\22000-22999
Project Name: 22226-MADISON TRACT
Drawing Path: P\22000-22999 SUN CITY
Xref DWG FILE:
Sheet Number: 59 of 71 sheets



NOTE:
WHERE WATER & SEWER LINES CROSS AND ARE LESS THAN 9' APART, A FULL JOINT OF C900 DR-18 PVC PIPE MUST BE CENTERED ON THE WATERLINE.

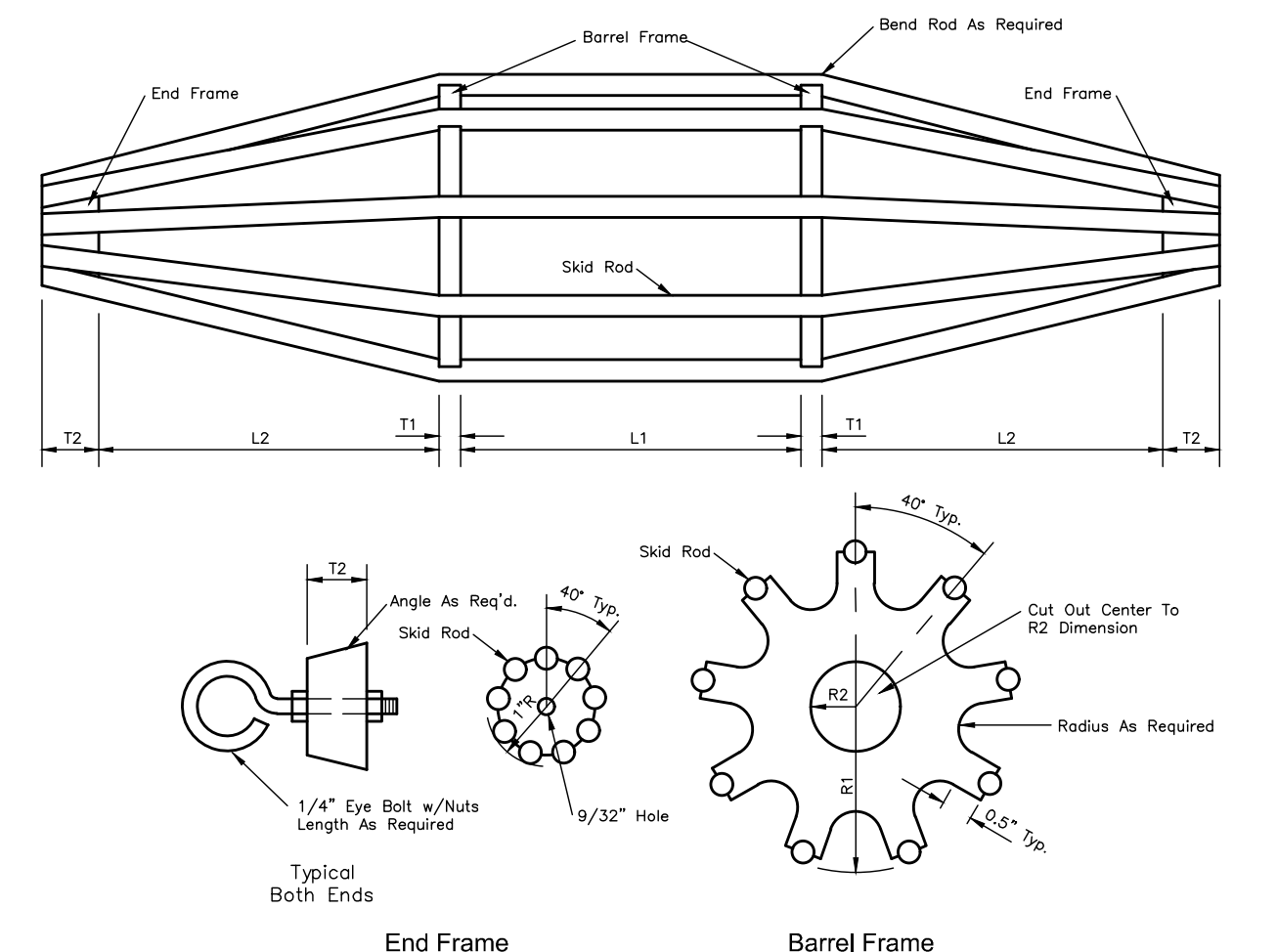
WATER-SEWER CROSSING
NTS



SEWER STUB MARKERS
(INSTALL AT ALL SEWER STUB-OUT ENDS AND SERVICE ENDS)

NOTES:
1) SIGNS SHALL BE CONSTRUCTED OF 20 GAUGE STEEL W/BAKED ENAMEL FINISH.
2) THE BACKGROUND COLOR FOR THE SIGNS SHALL BE WHITE.
3) THERE SHALL BE NO SEPARATE BID ITEM FOR MARKERS.

SERVICE MARKER DETAIL



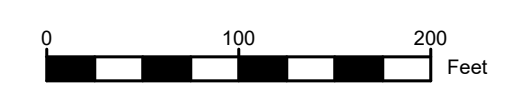
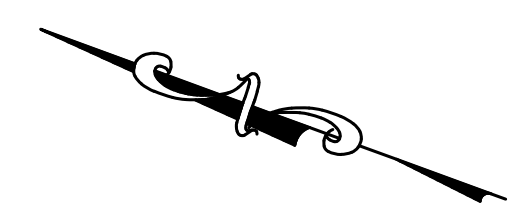
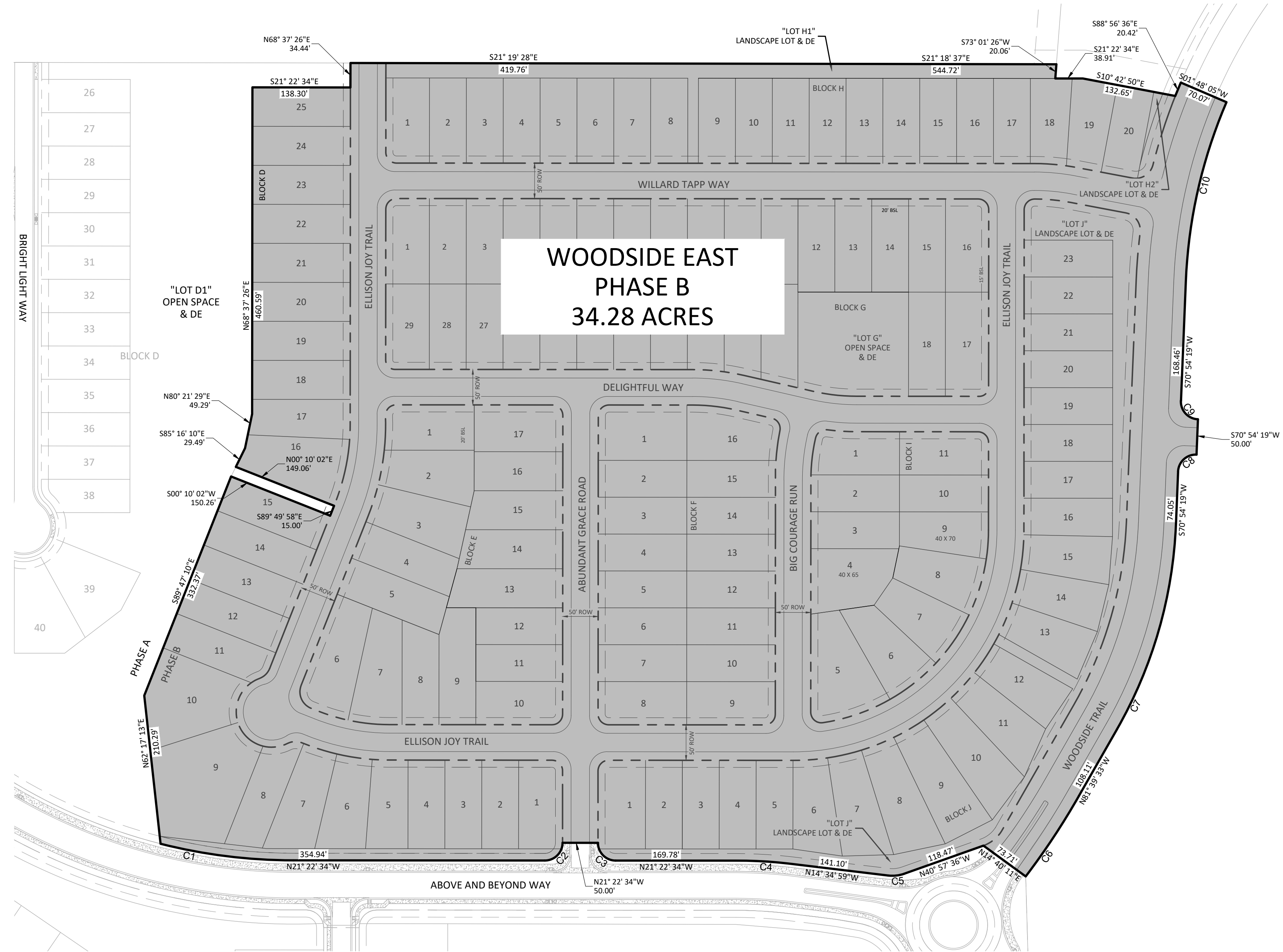
Mandrel Shall Be Constructed From Metal That Can Withstand 200 PSI Without Being Deformed.

Mandrel Dimensions
5% Deflection
For O.D. Controlled PVC Pipe
(All Dimensions In Inches)

Size	Type	O.D. Average	Min. Wall Thickness	L1	L2	R1	R2	T1	T2	Rod Diameter	MANDREL O.D.
6"	D3034 SDR35	6.275	0.180	4.50	6	2.81	0.75	0.375	1.0	0.375	5.62
	D2034 SDR26	6.275	0.241	4.50	6	2.75	0.75	0.375	1.0	0.375	5.50
	D2241 DR26	6.625	0.271	4.50	6	2.89	0.75	0.375	1.0	0.375	5.71
8"	D3034 SDR35	8.400	0.240	6.00	6	3.96	1.25	0.375	1.0	0.375	7.52
	D3034 SDR26	8.400	0.323	6.00	6	3.68	1.25	0.375	1.0	0.375	7.37
	D2241 DR26	8.625	0.352	6.00	6	3.76	1.25	0.375	1.0	0.375	7.525
10"	D3034 SDR35	10.500	0.300	7.50	6	4.70	1.50	0.375	1.0	0.375	9.40
	D3034 SDR26	10.500	0.404	7.50	6	4.60	1.50	0.375	1.0	0.375	9.21
	D3034 SDR35	12.500	0.360	9.00	6	5.60	1.75	0.375	1.0	0.375	11.20
	D3034 SDR26	12.500	0.481	9.00	6	5.48	1.75	0.375	1.0	0.375	10.96
	D3034 SDR35	15.300	0.437	11.25	6	6.65	2.00	0.375	1.0	0.375	13.10
	F679 T-1	18.701	0.536	13.50	9	8.37	2.50	0.50	1.5	0.50	16.74
	F679 T-1	22.047	0.632	15.75	9	9.87	3.00	0.50	1.5	0.50	19.74
24"	F679 T-1	24.803	0.711	18.00	9	11.11	3.50	0.50	1.5	0.50	22.22
	F679 T-1	27.953	0.801	20.25	9	12.52	4.00	0.50	1.5	0.50	25.04
6"	CL350 D.I.	6.9	0.25	4.50	6	3.04	0.75	0.375	1.0	0.375	6.08
	CL350 D.I.	6.65	0.25	6.00	6	4.06	1.25	0.375	1.0	0.375	6.12

Typical Mandrel Details
No Scale

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SCALE: 1"=100'

LEGEND

- RIGHT-OF-WAY
- PUE
- PROPERTY BOUNDARY

Curve Table				
Curve #	Radius	Arc Length	Chord Length	Chord Direction
C1	765.00	188.99	188.51	N14°17'55"W
C2	25.00	39.27	35.36	N66°22'34"W
C3	25.00	39.27	35.36	N23°37'27"E
C4	584.30	74.78	74.72	N18°14'58"W
C5	50.00	23.02	22.82	N27°46'18"W
C6	1024.99	136.27	136.17	N77°56'34"W
C7	635.00	304.06	301.16	S84°37'22"W
C8	25.00	39.27	35.36	N64°05'41"W
C9	25.00	39.27	35.36	S25°54'19"W
C10	715.00	260.77	259.33	S81°21'13"W

**WOODSIDE - EAST PHASE B
SITE AREA MAP**



ADDRESS	1978 S. AUSTIN AVENUE	GEORGETOWN, TX 78626
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SERVICES	>>ENGINEERS >>PLANNERS >>SURVEYORS	WEB STEGERBIZZELL.COM

DATE 1/26/24

JOB NO. 22226-21