



Sewage Collection System (SCS)

Parkside on the River Section 8

CITY OF GEORGETOWN
WILLIAMSON COUNTY, TEXAS

November 09, 2023

HR Green Project No: 2303297

Prepared For:
HM Parkside, LP
1011 North Lamar Boulevard
Austin, Texas 78703

Prepared By:
HR Green Development TX, LLC
5508 Highway 290 West, Suite 150
Austin, Texas 78735
TBPE Firm No. F-16384

11/09/2023



Christine Campbell

TABLE OF CONTENTS

Edwards Aquifer Application Cover Page (TCEQ-20705).....	1
General Information Form (TCEQ-0587).....	2
Attachment A - Road Map	
Attachment B - USGS Quadrangle Map	
Attachment C - Project Narrative	
Geologic Assessment Form (TCEQ-0585).....	3
Attachment A – Project Figures: Stratigraphic Column (Figure 5)	
Attachment B – Site Geologic Map	
Attachment C – Geologic Assessment Table (TCEQ-0585-Table)	
Attachment D – Site Photographs	
Organized Sewage Collection System Plan (TCEQ-0582).....	4
Attachment A – Engineering Design Report	
Temporary Stormwater Section (TCEQ-0602).....	5
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 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	
Agent Authorization Form (TCEQ-0599) – Authorizing HR Green Development TX, LLC.....	6
Application Fee Form (TCEQ-0574).....	7
Core Data Form (TCEQ-10400).....	8

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: Parkside on the River Section 8						2. Regulated Entity No.:			
3. Customer Name: HM Parkside, LP						4. Customer No.: CN605721653			
5. Project Type: (Please circle/check one)	New <input checked="" type="checkbox"/> X		Modification			Extension		Exception	
6. Plan Type: (Please circle/check one)	WPAP	CZP	SCS <input checked="" type="checkbox"/> X	UST	AST	EXP	EXT	Technical Clarification	Optional Enhanced Measures
7. Land Use: (Please circle/check one)	Residential <input checked="" type="checkbox"/> X		Non-residential			8. Site (acres):		41.26 (LOC = 28.73) Legal Boundary = 75.68	
9. Application Fee:	\$2,466		10. Permanent BMP(s):				Batch Detention Pond, Vegetative Filter Strip		
11. SCS (Linear Ft.):	4,932		12. AST/UST (No. Tanks):				N/A		
13. County:	Williamson County		14. Watershed:				South Fork San Gabriel River		

Application Distribution

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

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

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

Austin Region			
County:	Hays	Travis	Williamson
Original (1 req.)	—	—	<u> X </u>
Region (1 req.)	—	—	<u> X </u>
County(ies)	—	—	<u> X </u>
Groundwater Conservation District(s)	<u> </u> Edwards Aquifer Authority <u> </u> Barton Springs/ Edwards Aquifer <u> </u> Hays Trinity <u> </u> Plum Creek	<u> </u> Barton Springs/ Edwards Aquifer	NA
City(ies) Jurisdiction	<u> </u> Austin <u> </u> Buda <u> </u> Dripping Springs <u> </u> Kyle <u> </u> Mountain City <u> </u> San Marcos <u> </u> Wimberley <u> </u> Woodcreek	<u> </u> Austin <u> </u> Bee Cave <u> </u> Pflugerville <u> </u> Rollingwood <u> </u> Round Rock <u> </u> Sunset Valley <u> </u> West Lake Hills	<u> </u> Austin <u> </u> Cedar Park <u> </u> Florence <u> X </u> Georgetown <u> </u> Jerrell <u> </u> Leander <u> </u> Liberty Hill <u> </u> Pflugerville <u> </u> Round Rock

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

Christine Campbell

Print Name of Customer/Authorized Agent

Christine Campbell

11/09/2023

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: Christine Campbell, P.E.

Date: 11/09/2023

Signature of Customer/Agent:



Project Information

1. Regulated Entity Name: Parkside on the River Section 8

2. County: Williamson

3. Stream Basin: Brazos River Basin

4. Groundwater Conservation District (If applicable): N/A

5. Edwards Aquifer Zone:

☒ Recharge Zone

☐ Transition Zone

6. Plan Type:

☐ WPAP

☒ SCS

☐ Modification

☐ AST

☐ UST

☐ Exception Request

7. Customer (Applicant):

Contact Person: Blake Magee

Entity: HM Parkside, LP

Mailing Address: 1011 North Lamar Boulevard

City, State: Austin, TX

Zip: 78703

Telephone: 512-481-0303

FAX: _____

Email Address: Blake@blakemageeco.com

8. Agent/Representative (If any):

Contact Person: Christine Campbell

Entity: HR Green Development TX, LLC

Mailing Address: 5508 US Highway 290 West Suite #150

City, State: Austin, TX

Zip: 78735

Telephone: 512-872-6696

FAX: _____

Email Address: christine.campbell@hrgreen.com

9. Project Location:

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

Located east of Texas Bluebonnet Trail. East of Parkside on the River Phase 3 Sections 3A & 3B. Property ID R574025, R312360

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: November 17, 2023

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

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

15. Existing project site conditions are noted below:

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

Prohibited Activities

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

- (1) Waste disposal wells regulated under 30 TAC Chapter 331 of this title (relating to Underground Injection Control);
- (2) New feedlot/concentrated animal feeding operations, as defined in 30 TAC §213.3;
- (3) Land disposal of Class I wastes, as defined in 30 TAC §335.1;
- (4) The use of sewage holding tanks as parts of organized collection systems; and
- (5) New municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41(b), (c), and (d) of this title (relating to Types of Municipal Solid Waste Facilities).
- (6) New municipal and industrial wastewater discharges into or adjacent to water in the state that would create additional pollutant loading.

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

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

- (2) Land disposal of Class I wastes, as defined in 30 TAC §335.1; and
- (3) New municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41 (b), (c), and (d) of this title.

Administrative Information

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

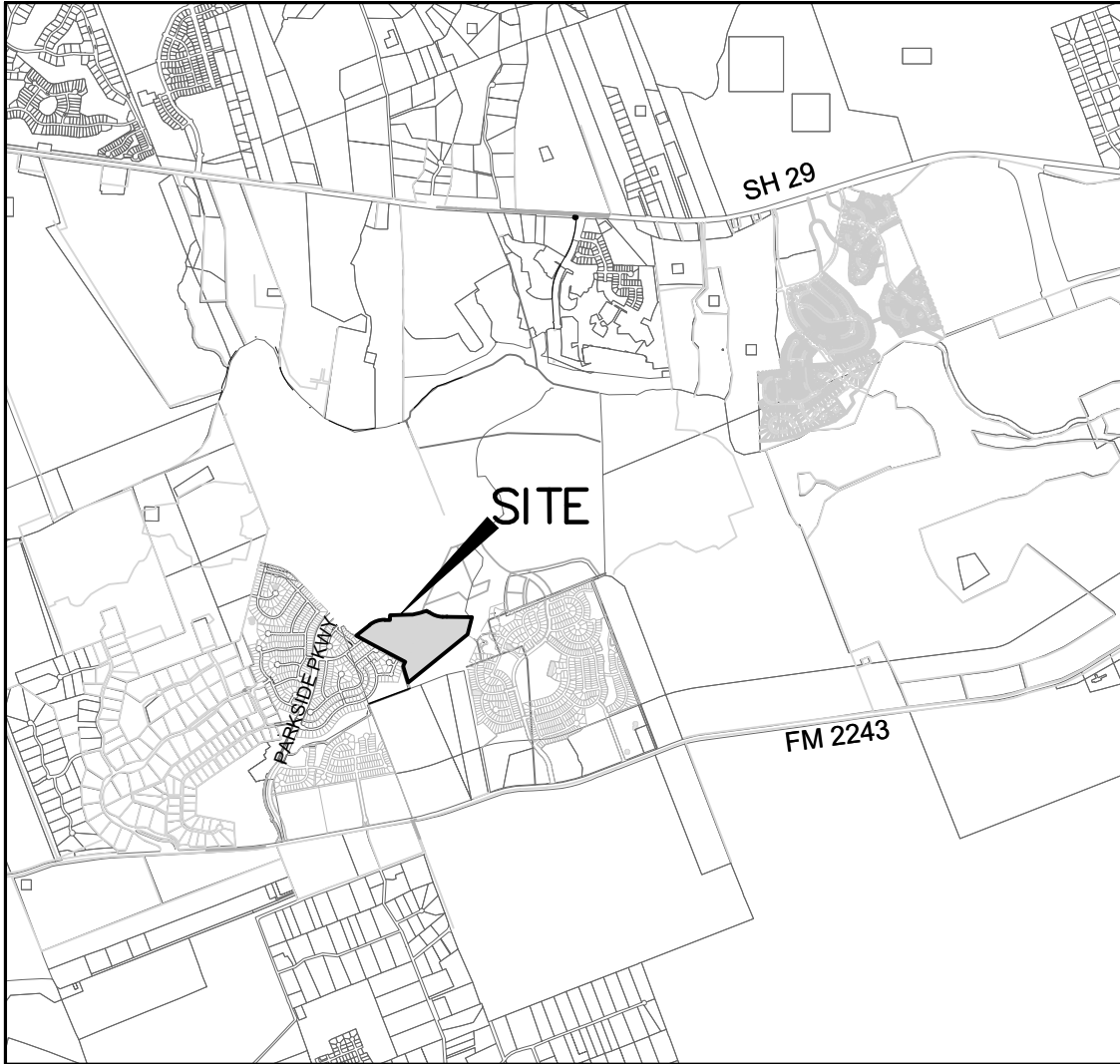
- ☐ For a Water Pollution Abatement Plan or Modification, the total acreage of the site where regulated activities will occur.
- ☒ For an Organized Sewage Collection System Plan or Modification, the total linear footage of all collection system lines.
- ☐ For a UST Facility Plan or Modification or an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

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

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

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

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



VICINITY MAP

SCALE: 1"=4000'



HRGreen®

DEVELOPMENT TX

5508 HIGHWAY 290 WEST
SUITE 150
AUSTIN, TX 78735
512.872.6696
HRGREEN.COM

TBPE NO: 16384
TBPLS NO: 10194101

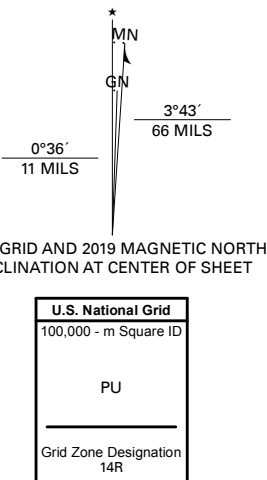
PARKSIDE ON THE RIVER
SECTION 8
LOCATION MAP



Produced by the United States Geological Survey

North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000 meter grid/Universal Transverse Mercator, Zone 14R
This map is not a legal document. Boundaries may be
generalized for this map scale. Private lands within government
reservations may not be shown. Obtain permission before
entering private lands.

Imagery.....NAIP, September 2016 - November 2016
Roads.....U.S. Census Bureau, 2015
Names.....GNS, 1979 - 2018
Hydrography.....National Hydrography Dataset, 2002 - 2018
Contours.....National Elevation Dataset, 2002
Boundaries.....Multiple sources; see metadata file 2017
Wetlands.....FWS National Wetlands Inventory 1982



CONTOUR INTERVAL 10 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988
This map was produced to conform with the
National Geospatial Program US Topo Product Standard, 2011.
A metadata file associated with this product is draft version 0.6.18



1	2	3
4	5	6
7	8	9

ADJOINING QUADRANGLES

ROAD CLASSIFICATION	
Expressway	Local Connector
Secondary Hwy	Local Road
Ramp	4WD
Interstate Route	US Route
	State Route

LEANDER, TX
2019



ATTACHMENT C – PROJECT NARRATIVE

The Parkside on the River Section 8 development is a proposed single-family residential development tract, including associated right-of-way, drainage, and utilities located in the City of Georgetown and Williamson County. The project site is located within the Edwards Aquifer Recharge Zone, the Edwards Aquifer Contributing Zone, and within the San Gabriel River watershed. The overall project site encompasses a 41.26-acre tract of land located east of Texas Bluebonnet Trail and east of Parkside on the River Phase 3 Sections 3A & 3B. There will be roughly 28.73-acres of disturbed land and a 75.68-acre legal boundary for application fee purposes.

The project site is primarily undeveloped wooded land with grass. Runoff flows towards the South Fork San Gabriel River. A portion of the project site is located within the 100-year floodplain as defined by FEMA FIRM Panel No. 48491C0460F, dated December 20, 2019. However, no proposed residential lots lie within the FEMA 100-year floodplain. The floodplain is located within the open space lot at the boundary of the project.

The proposed site's SCS system will be composed of a total of 4,932 LF of wastewater line. There is 3,694 LF of 8-inch (8") 115 psi (ASTM D3034) gravity wastewater pipe, 60 LF of 8-inch (8") pressure rated (ASTM D2241) wastewater pipe, and 1,178 LF of 6-inch (6") gravity wastewater pipe. The proposed improvements will tie into an existing wastewater manhole associated with the existing Barton Tributary Wastewater Line, which connects to the San Gabriel River Interceptor, and ultimately flows to the Dove Springs WWTP for treatment. The Dove Springs Wastewater Treatment Plant has the capacity to adequately treat the proposed peak flow.

The proposed development results in an impervious cover of approximately 30.5% and will have the associated runoff treated by a batch detention pond and a vegetative filter strip. Of the 41.26 acres of the proposed Parkside on the River Section 8 property, there is approximately 12.57 acres of impervious cover. Based on the 80% TSS removal requirement by TCEQ we need to provide 10,941 lbs of TSS removal for the proposed development. As shown in the calculations, the proposed pond and vegetative filter strip satisfy the TSS removal requirement. The 85% TSS removal requirement by the City of Georgetown is also satisfied for the proposed batch detention pond.

The fully-developed conditions for the overall area propose approximately 29.60 acres of post-development impervious cover, of which approximately 1.60 acres are existing from Parkside on the River Phase 3 Sections 4, 7A & 7B, 12.57 acres proposed with Section 8, 14.50 acres of future impervious cover from Section 9A & 10A, and 0.92 acres of future impervious cover from Section 9B & 10B. Based on the 80% TSS removal requirement by TCEQ we need to provide 24,371 lbs of TSS removal in the fully-developed case. As shown in the calculations, the proposed pond and vegetative filter strip satisfy this requirement. The 85% TSS removal requirement by the City of Georgetown is also satisfied for the proposed batch detention pond. In the fully-developed condition, the proposed batch detention pond (BDP-01) is estimated to treat a total of 27.05 acres of impervious cover (1.60 acres of existing impervious cover from Sections 4, 7A & 7B, 10.02 acres of impervious cover proposed with Section 8, 14.50 acres of future impervious cover from Section 9A & 10A, and 0.92 acres of future impervious cover from Section 9B & 10B) and provide 24,500 lbs of TSS removal. Approximately 1.92 acres of impervious cover proposed with Section 8 is being treated with a 15' permanent engineered vegetative filter strip (VFS-01). Approximately 0.63 acres of impervious cover proposed with Section 8 is bypassing treatment. The proposed BMPs are overtreating to account for the bypass impervious cover. Refer to the construction plans for the water quality calculations and batch detention pond design. Refer to the table below for the fully developed sedimentation treatment breakdown provided.

A tree demolition schedule is included in the construction plans.

The associated combination of roadway, drainage, water quality, water, and wastewater improvements will be designed and built to serve this residential development.

PARKSIDE ON THE RIVER SECTION 8 - TSS REMOVAL SUMMARY - FULLY-DEVELOPED														
DRAINAGE AREA	BMP TYPE	MAX TSS REMOVAL EFFICIENCY	BASIN AREA	PRE-DEVELOPMENT I.C.	PROPOSED I.C.			POST-DEVELOPMENT I.C.		TCEQ REQUIRED 80% TSS LOAD REMOVAL	CITY OF GEORGETOWN REQUIRED 85% POND TSS LOAD REMOVAL	PROVIDED TSS LOAD REMOVAL	VOLUME REQUIRED	VOLUME PROVIDED
					SECTION 8	SECTION 9A & 10A	SECTION 9B & 10B							
			AC	AC	AC	AC	AC	AC	%	LB	LB	LB	CF	CF
BDP-01	BATCH DETENTION POND	91%	60.07	1.60	10.02	14.50	0.92	27.05	45%	22,152	23,536	24,500	130,099	137,853
VFS-01	VEGETATIVE FILTER STRIP	85%	4.00	0.00	1.92			1.92	48%	1,671		1,838		
BP-01	BY-PASS	0%	1.17	0.00	0.63			0.63	54%	548				
TOTAL:			65.24	1.60	12.57	14.50	0.92	29.60	45%	24,371		26,338		
1 - FOR THE GEORGETOWN TSS REMOVAL REQUIREMENT, WE CONSIDER 85% OF TSS REMOVAL FOR THE DRAINAGE AREA THAT DRAINS TOWARD THE BATCH DETENTION PONDS.														



**Narrative Description of Site-Specific Geology for the
Parkside on the River Property (Phase 3, Sections 8,
9A, & 10A) Located in Georgetown, Williamson
County, Texas**

Prepared for:

HM PARKSIDE DEVELOPMENT, INC

Prepared by:

CAMBRIAN ENVIRONMENTAL

October 18th, 2023

**NARRATIVE DESCRIPTION OF SITE-SPECIFIC GEOLOGY FOR THE PARKSIDE
ON THE RIVER PROPERTY (PHASE 3, SECTIONS 8, 9A, & 10A) LOCATED IN
GEORGETOWN, WILLIAMSON COUNTY, TEXAS**

Prepared for:

HM Parkside Development, Inc.
Blake Magee Co.
1011 North Lamar Blvd.
Austin, Texas 78703

Prepared by:

Craig Crawford, P.G.
TX Geoscience License #10791

Cambrian Environmental
4422 Pack Saddle Pass
Suite 204
Austin, Texas 78745

TX Geoscience Firm Registration #50484

As a licensed professional geoscientist, I attest that the
contents of this report are complete and accurate to the
best of my knowledge.



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: Craig Crawford, PG

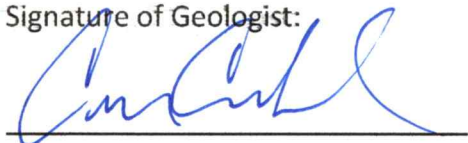
Telephone: 512.705.5541

Date: 18 October 2023

Fax: _____

Representing: Cambrian Environmental (TBPG Firm # 50484) (Name of Company and TBPG or TBPE registration number)

Signature of Geologist:



Regulated Entity Name: HM Parkside Development, Inc. (Parkside on the River - Ph. 3, Sec. 8, 9A, & 10A)

Project Information

1. Date(s) Geologic Assessment was performed: August 30th through September 12th 2023

2. Type of Project:

☒ WPAP
☐ SCS

☐ AST
☐ UST

3. Location of Project:

☒ Recharge Zone
☐ Transition Zone
☐ Contributing Zone within the Transition Zone

4. ☒ **Attachment A - Geologic Assessment Table.** Completed Geologic Assessment Table (Form TCEQ-0585-Table) is attached.
5. ☒ Soil cover on the project site is summarized in the table below and uses the SCS Hydrologic Soil Groups* (Urban Hydrology for Small Watersheds, Technical Release No. 55, Appendix A, Soil Conservation Service, 1986). If there is more than one soil type on the project site, show each soil type on the site Geologic Map or a separate soils map.

Table 1 - Soil Units, Infiltration Characteristics and Thickness

Soil Name	Group*	Thickness(feet)
Denton (DnB)	D	< 3.5
Eckrant (EeB,ErE,ErG)	D	< 2

* Soil Group Definitions (Abbreviated)

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

6. ☒ **Attachment B – Stratigraphic Column.** A stratigraphic column showing formations, members, and thicknesses is attached. The outcropping unit, if present, should be at the top of the stratigraphic column. Otherwise, the uppermost unit should be at the top of the stratigraphic column.
7. ☒ **Attachment C – Site Geology.** A narrative description of the site specific geology including any features identified in the Geologic Assessment Table, a discussion of the potential for fluid movement to the Edwards Aquifer, stratigraphy, structure(s), and karst characteristics is attached.
8. ☒ **Attachment D – Site Geologic Map(s).** The Site Geologic Map must be the same scale as the applicant's Site Plan. The minimum scale is 1": 400'
 Applicant's Site Plan Scale: 1" = 100'
 Site Geologic Map Scale: 1" = 100'
 Site Soils Map Scale (if more than 1 soil type): 1" = 400'
9. Method of collecting positional data:
☒ Global Positioning System (GPS) technology.
☐ Other method(s). Please describe method of data collection: _____
10. ☒ The project site and boundaries are clearly shown and labeled on the Site Geologic Map.
11. ☒ Surface geologic units are shown and labeled on the Site Geologic Map.

12. ☒ Geologic or manmade features were discovered on the project site during the field investigation. They are shown and labeled on the Site Geologic Map and are described in the attached Geologic Assessment Table.
- ☐ Geologic or manmade features were not discovered on the project site during the field investigation.
13. ☒ The Recharge Zone boundary is shown and labeled, if appropriate.
14. All known wells (test holes, water, oil, unplugged, capped and/or abandoned, etc.): If applicable, the information must agree with Item No. 20 of the WPAP Application Section.
- ☐ There are _____ (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply.)
- ☐ The wells are not in use and have been properly abandoned.
- ☐ The wells are not in use and will be properly abandoned.
- ☐ The wells are in use and comply with 16 TAC Chapter 76.
- ☒ There are no wells or test holes of any kind known to exist on the project site.

Administrative Information

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



NARRATIVE DESCRIPTION OF SITE-SPECIFIC GEOLOGY FOR THE PARKSIDE ON THE RIVER PROPERTY (PHASE 3, SECTIONS 8, 9A, & 10A) LOCATED IN GEORGETOWN, WILLIAMSON COUNTY, TEXAS

INTRODUCTION

This narrative Geologic Assessment accompanies the Texas Commission on Environmental Quality (TCEQ) Geologic Assessment Form TCEQ-0585 completed for the Parkside on the River property in Georgetown, Williamson County, Texas (see Site Location Map). This assessment covers a portion of Phase 3, and includes Sections 8, 9A, and 10A. The project area is located on the north side of Leander Road (FM 2243), approximately 5.25 miles west of the intersection with Interstate Highway (IH) 35.

METHODOLOGY

A Cambrian Environmental Registered Professional Geoscientist (Texas License #10791) and several karst technicians conducted a field survey for a TCEQ Geologic Assessment on various dates between August 30th and September 12th 2023. The pedestrian survey was completed by walking parallel transects spaced approximately 50 feet apart as directed by the TCEQ in the Instructions to Geologists for Geologic Assessments on the Edwards Aquifer Recharge/Transition Zones (Rev. 10-01-04). Closer spacing was used where vegetation inhibited clear observation. The project site was thoroughly examined for the presence of potential karst features, including depressions, holes, and animal burrows. A number of techniques can be used for this effort, including probing with a digging implement to determine the thickness and consistency of fill material and feeling for the presence of air flow, which may indicate the presence of a sub-surface void space. Other techniques include making observations of any notable characteristics of the feature site such as the presence of various types of vegetation or a semi-circular burrow mound produced by the activities of small mammals.

RESULTS

Soils

Soils mapped within the project area consist of the Denton silty clay (DnB), Eckrant extremely stony clay (EeB), Eckrant-Rock outcrop (ErE, ErG) series soils¹ (see Site Soils Map). The Denton and Eckrant series soils are within the “D” classification of the hydrologic soil groups. Type “D” soils have a very slow infiltration rate (very high runoff potential) when thoroughly wet.

Geology

The mapped bedrock lithology underlying the majority of the project area consists of the Edwards Limestone (Ked), with the Comanche Peak Limestone (Kc) present in the lower elevation areas. The Comanche Peak Limestone serves as the lower confining unit of the Edwards Aquifer. The western portion of this tract is mapped as being within the Edwards Aquifer Recharge Zone, and the eastern portion is within the Contributing Zone (see Site Geologic Map). The portion of the tract mapped as Contributing Zone coincides with areas where topography drops off towards a drainage, and also where the Comanche Peak Limestone is present. Based on topographic and geologic maps, the Edwards outcrop present on this

¹ United States Department of Agriculture, Natural Resource Conservation Service. Online Web Soil Survey, Williamson County, Texas. <http://websoilsurvey.sc.egov.usda.gov/>

property is likely no more than 50 to 60 feet thick in the areas of highest elevation. The geology of the property has been mapped most recently at a useful scale by Collins (2005) and we find his interpretation of the geology to be generally accurate.² Bedrock outcrops were common in some areas, while other areas seemed to have relatively thick soil cover. No faults are mapped within the project limits, and none were observed during the pedestrian survey.

Recharge into the aquifer primarily occurs in areas where the Edwards Group and upper confining units are exposed at the surface. Most recharge is from direct infiltration via precipitation and streamflow loss. Recharge occurs predominantly along secondary porosity features such as faults, fractures, and karst features (caves, solution cavities, sinkholes, etc.); and these types of karst features are commonly formed along joints, fractures, and bedding plane surfaces formed within the Edwards Group Limestone.

Site Hydrogeologic Assessment

One sensitive feature was identified during the pedestrian survey (feature “F-2”). Recharge to the aquifer on this property has the greatest potential to occur in the immediate vicinity of this feature. Other areas of the property had a very low density of discovered features and thick soil cover, and the potential for recharge to occur is thought to be low in these areas. Additionally, should any karst features be discovered during the construction phase of the project, they should be reported to TCEQ to determine the appropriate mitigation measures.

Feature Descriptions

- F-1** The feature consists of a non-karst closed depression that measures approximately 8 feet by 10 feet by 2.5 feet deep. The depression is located near the top of drainage, and appears to be the result of bedrock scour and headward erosional processes. There are no signs of any portals, or any other indicators that this feature contributes to subsurface infiltration. The feature is lined with cobbles, soil, and grassy vegetation. The feature is ranked as “non-sensitive”.
- F-2** The feature consists of small sinkhole that measures approximately 4 feet in diameter by at least 2 feet deep. Within the bowl of the sinkhole there is an opening that measures 14 inches by 8 inches. No airflow was detected during this investigation, however the rocks surrounding the opening were covered in green moss, which can be an indicator that subsurface airflow occurs periodically. Small persimmon trees are present around the bowl of the sinkhole, and the feature is lined with loose organic debris and cobbles. The feature is ranked as “sensitive” and Cambrian recommends a minimum of a 50-foot radius protective buffer around this feature.

² E.W. Collins, 2005, Geologic Map of the West Half of the Taylor Texas 30x60 Quadrangle: Central Texas Urban Corridor Encompassing Round Rock, Georgetown, Salado, Briggs, Liberty Hill, and Leander, Bureau of Economic Geology, University of Texas at Austin. Scale 1:100,000

City of Georgetown Salamander Ordinance

No springs were identified within the interior of the property during the pedestrian survey, and therefore no occupied site protection, or spring buffer protection measures will be required for the property. A mapped stream is present on the property (flowing from west to east, see Site Geologic Map), but it appears to only flow during heavy rain when there is high runoff potential. This mapped stream consists of a shallow and gently sloping drainage that did not have any water present, even after a moderate precipitation event that occurred during the course of the pedestrian survey. The catchment area of this mapped stream is less than 64 acres, and therefore no stream protection buffer will be required. A second and larger mapped stream is present along the southeastern boundary of the property, and it was actively flowing at the time of the pedestrian survey. This stream is present in the lowest elevation portion of this property and is within the Edwards Aquifer Contributing Zone, and therefore will not require a stream protection buffer. The 100-year floodplain is present along this channel, with a small portion being within the bounds of the limits of the project area included in this assessment.

Additionally, all regulated activities within the Recharge Zone must follow water quality best management practices, and development of the property will need to comply with the water quality protection measures as outlined in Section 8 of the Ordinance.

Stratigraphic Column

*Area shaded gray represents the lithology directly underlying the project site

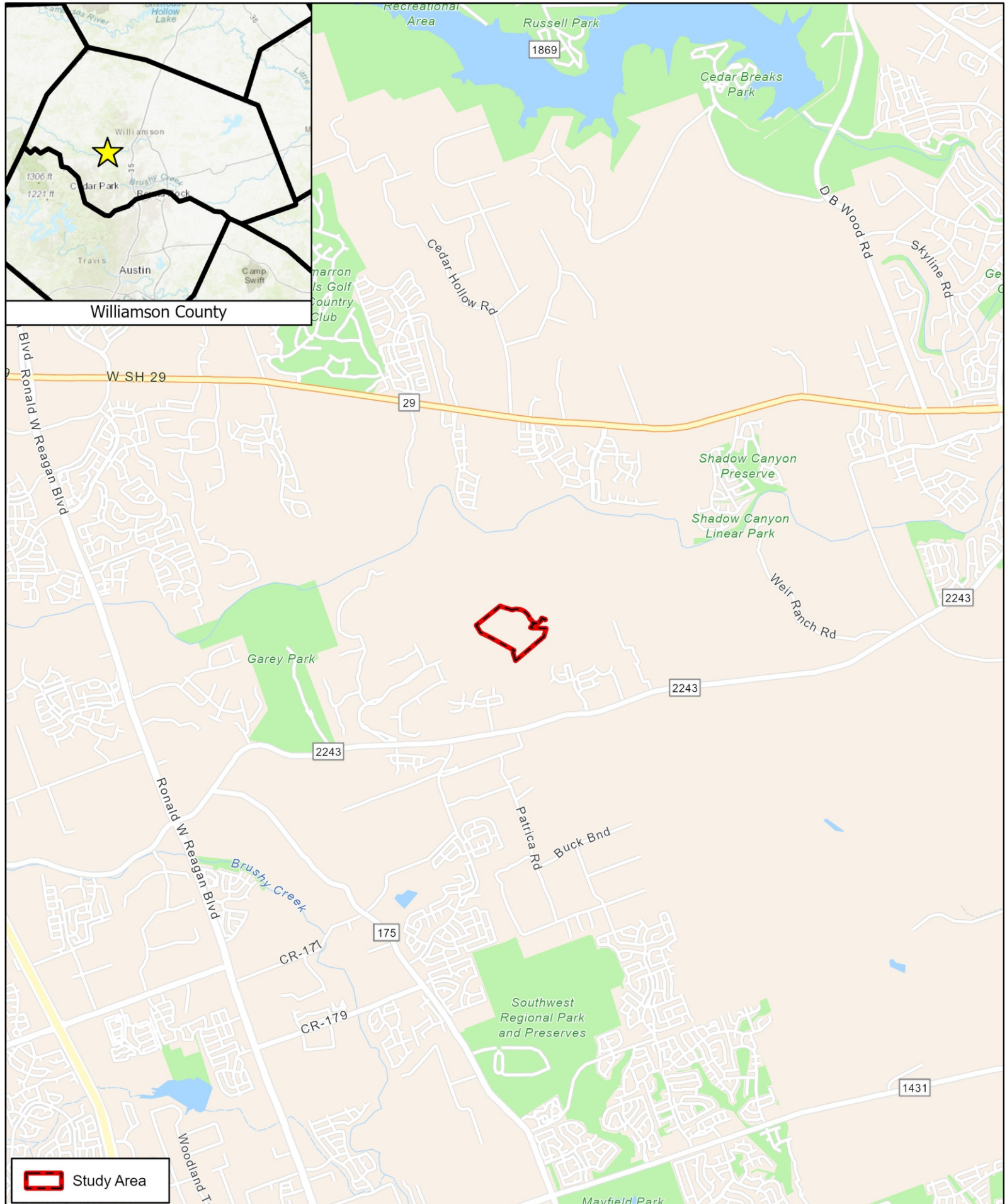
Period	Group	Stratigraphic Unit	Hydrologic Unit	Maximum Thickness (Feet)
Quaternary to Tertiary		Stream and river alluvium (Qal)	Overlying Units	70
		Terrace alluvium (Qt)		
		Older alluvium (QTa)		
Upper Cretaceous (Gulf Series)	Taylor	Taylor Clay (Ktl)	Confining Units	300
	Austin	Austin Chalk (Kau)		400
	Eagle Ford	Eagle Ford Shale (Kef)		60
	Washita	Buda Limestone (Kbu)		20
		Del Rio Clay (Kdr)		60
Lower Cretaceous (Comanche Series)	Fredericksburg	Georgetown Limestone (Kgt)	Edwards Aquifer	100
		Edwards Limestone (Ked)		120
		Comanche Peak Formation (Kc)		50
	Trinity	Walnut Formation (Kw)	Confining Unit	140
		Upper Glen Rose Limestone (Kgrr)	Upper Trinity Aquifer	200



Photo 1. View of feature F-1



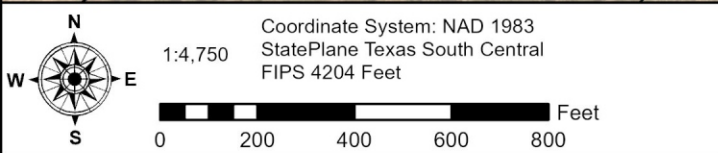
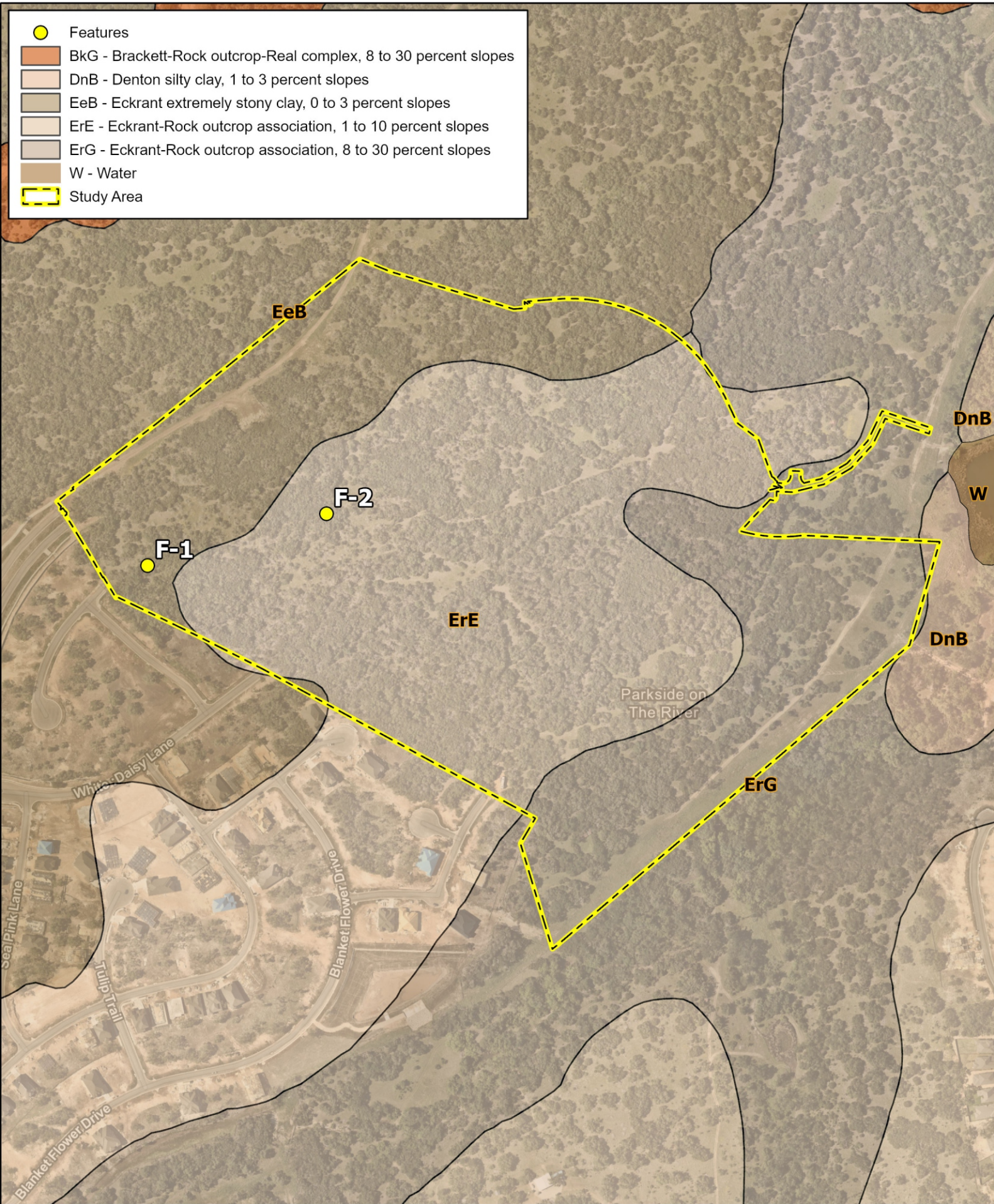
Photo 2. View of feature F-2



1:60,000

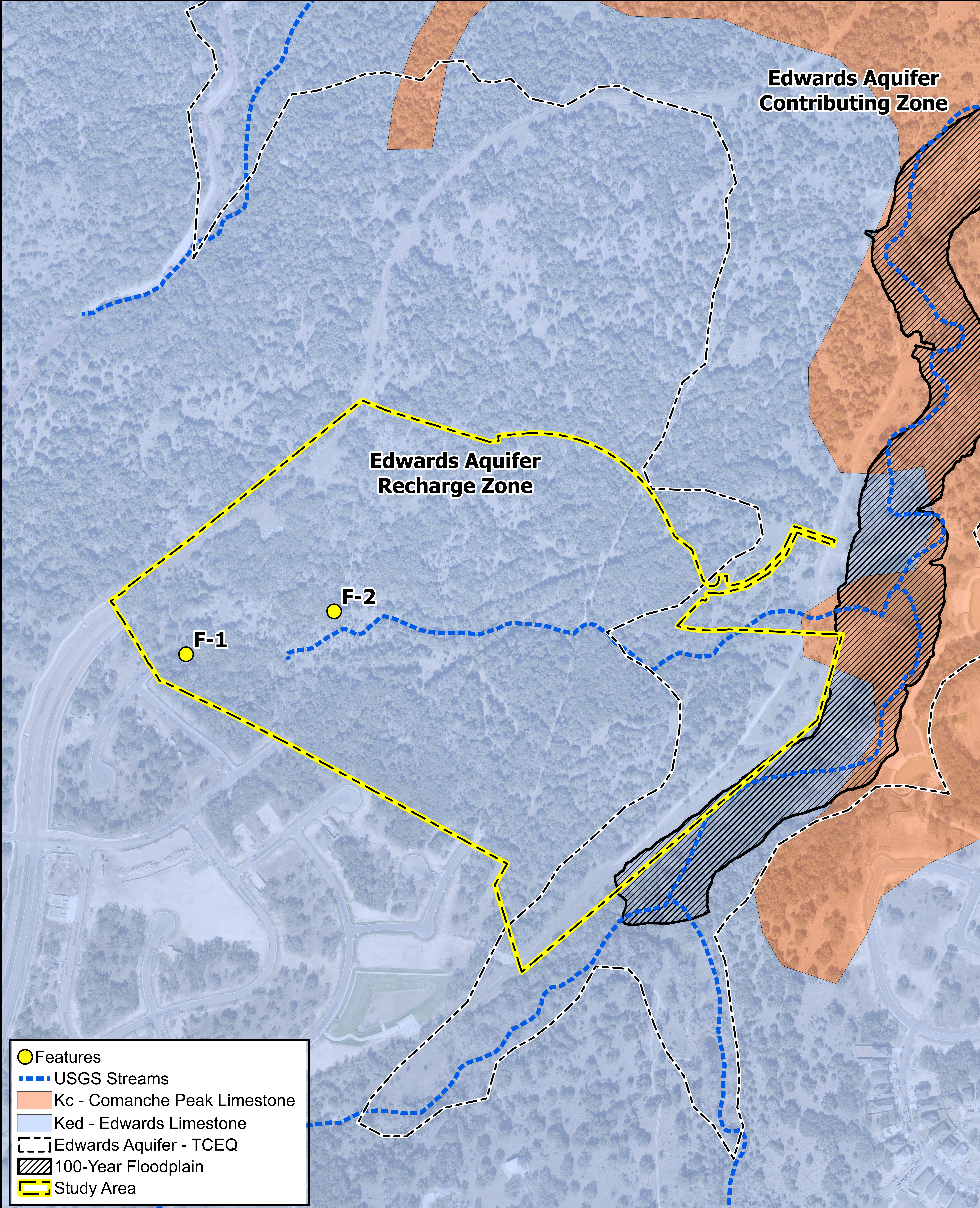
0 2,500 5,000 7,500 10,000 Feet

Coordinate System: NAD
1983 StatePlane Texas South
Central FIPS 4204 Feet



Site Soils Map





- Features
- USGS Streams
- Kc - Comanche Peak Limestone
- Ked - Edwards Limestone
- Edwards Aquifer - TCEQ
- 100-Year Floodplain
- Study Area

1 inch = 100 feet

0 250 500 750 1,000 Feet

Coordinate System: NAD 1983
StatePlane Texas South Central
FIPS 4204 Feet

Site Geologic Map



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: Parkside on the River Section 8

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: HM Parkside, LP

Mailing Address: 1011 North Lamar Boulevard

City, State: Austin, TX

Zip: 78703

Telephone: 512-481-0303

Fax: _____

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: Shervin Nooshin, P.E.

Texas Licensed Professional Engineer's Number: 96807

Entity: HR Green Development TX, LLC

Mailing Address: 5508 Highway 290 West, #150

City, State: Austin, TX

Zip: 78735

Telephone: 512-872-6696

Fax: _____

Email Address: shervin.nooshin@hrgreen.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: 88
☐ Multi-family: Number of residential units: _____
☐ Commercial
☐ Industrial
☐ Off-site system (not associated with any development)
☐ Other: _____

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

100% Domestic 22,000 gallons/day
 _____% Industrial _____ gallons/day
 _____% Commingled _____ gallons/day
 Total gallons/day: 22,000

6. Existing and anticipated infiltration/inflow is 41,260 (per City of Georgetown I&I calculations of 1,000 gallons/day/acre gallons/day). This will be addressed by: Using standard manholes and included in out calculations for pipe design and flow determination.

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 11/06/23, 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>
8"	3,694	PVC SDR 26	ASTM D3034
8"	60	PVC SDR 26	ASTM D2241
6"	1,178	PVC SDR 26	ASTM D3034

Total Linear Feet: 4,932

(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 Dove Springs WWTP (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>
A1	58 Of 72	2+22.95	MH
A2	58 Of 72	6+00.40	MH
A3	58 Of 72	7+87.91	MH
A4	58 Of 72	9+15.57	MH
A5	59 Of 72	11+27.13	MH
A6	59 Of 72	12+85.10	MH

<i>Line</i>	<i>Shown on Sheet</i>	<i>Station</i>	<i>Manhole or Clean-out?</i>
A7	59 Of 72	15+18.02	MH
A8	59 Of 72	16+22.44	MH
A9	59 Of 72	16+66.04	MH
B1	60 Of 72	2+45.28	MH

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>
	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>
	of	to
	of	to
	of	to
	of	to

24. ☒ Legal boundaries of the site are shown.

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

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

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

☐ There will be no water line crossings.

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

Table 5 - Water Line Crossings

Line	Station or Closest Point	Crossing or Parallel	Horizontal Separation Distance	Vertical Separation Distance
WWL A	12+54.93	Crossing	-	8.62'
WWL A	15+98.03	Crossing	-	5.01'
WWL B	8+86.01	Crossing	-	6.21'

27. Vented Manholes:

☒ **No part** of this sewer line is within the 100-year floodplain and vented manholes are not required by 30 TAC Chapter 217.

☐ **A portion** of this sewer line is within the 100-year floodplain and vented manholes will be provided at less than 1500 foot intervals. These water-tight manholes are listed in the table below and labeled on the appropriate profile sheets.

☐ **A portion** of this sewer line is within the 100-year floodplain and an alternative means of venting shall be provided at less than 1500 feet intervals. A description of the alternative means is described on the following page.

☐ **A portion** of this sewer line is within the 100-year floodplain; however, there is no interval longer than 1500 feet located within. No vented manholes will be used.

Table 6 - Vented Manholes

Line	Manhole	Station	Sheet

<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(l)(2)(H).

Table 7 - Drop Manholes

<i>Line</i>	<i>Manhole</i>	<i>Station</i>	<i>Sheet</i>
WWL B	B2	3+75.83	60 OF 72

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>

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]	64 of 72
Manhole, showing inverts comply with 30 TAC §217.55(l)(2) [Required]	64 of 72
Alternate method of joining lateral to existing SCS line for potential future connections [Required]	64 of 72
Typical trench cross-sections [Required]	64 of 72
Bolted manholes [Required]	64 of 72
Sewer Service lateral standard details [Required]	64 of 72
Clean-out at end of line [Required, if used]	N/A of 72
Baffles or concrete encasement for shock/erosion protection [Required, if flow velocity of any section of pipe >10 fps]	N/A of 72
Detail showing Wastewater Line/Water Line Crossing [Required, if crossings are proposed]	64 of 72
Mandrel detail or specifications showing compliance with 30 TAC §217.57(b) and (c) [Required, if Flexible Pipe is used]	N/A of 72

Standard Details	Shown on Sheet
Drop manholes [Required, if a pipe entering a manhole is more than 24 inches above manhole invert]	64 of 72

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: November 17, 2023
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.

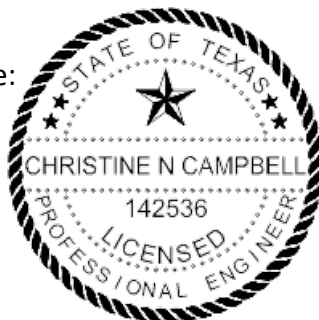
Signature

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: Christine Campbell, P.E.

Date: 11/09/23

Place engineer's seal here:



Signature of Licensed Professional Engineer:

Christine Campbell

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

<i>Pipe Diameter(Inches)</i>	<i>% Slope required for minimum flow velocity of 2.0 fps</i>	<i>% Slope which produces flow velocity of 10.0 fps</i>
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 Organized Sewage Collection System

Parkside on the River Section 8

CITY OF GEORGETOWN
WILLIAMSON COUNTY, TEXAS

November 09, 2023

HR Green Project No: 2303297

Prepared For:
HM Parkside, LP
1011 North Lamar Boulevard
Austin, Texas 78703

Prepared By:
HR Green Development TX, LLC
5508 Highway 290 West, Suite 150
Austin, Texas 78735
TBPE Firm No. F-16384

TABLE OF CONTENTS

Introduction	1
Wastewater Collection System Design.....	1
Proposed Type of Pipe	2
6" SDR-26 Properties	2
8" SDR-26 Properties	2
Structural Calculations.....	2
Average Values of Modulus of Soil Reaction, E'	3
Pipe Bedding Class and Modulus of Soil Reaction, E_b :	4
Prism Load Determination:	5
Live Load Determinations:	6
Allowable Buckling Pressure (6" PVC):	7
Installed Condition Buckling Pressure (6" PVC):	8
Allowable Buckling Pressure (8" PVC):	9
Installed Condition Buckling Pressure (8" PVC):	10
Wall Crushing (6" PVC):	11
Wall Crushing (8" PVC):	12
Leonhardt's Zeta Factor – Deflection Analysis:	13
6" Pipe.....	13
8" Pipe.....	13
Pipe Stiffness:.....	14
6" Pipe.....	14
8" Pipe.....	14
Predicted Pipe Deflection	15
6" Pipe.....	15
8" Pipe.....	16
Pipe Strain	17
6" Pipe.....	17
8" Pipe.....	18
Table 2 – Manholes and Cleanouts (Continued)	20

INTRODUCTION

The SCS and WPAP accompanying this submittal will serve the Parkside on the River Section 8 Subdivision.

Parkside on the River is a master-planned subdivision located in Williamson County, Texas, within the City of Georgetown's ETJ. The Section 8 property consists of 41.26 acres and 88 single-family lots located within the Edwards Aquifer recharge zone and contributing zone, east of Texas Bluebonnet Trail, and east of Parkside on the River Phase 3 Sections 3A & 3B.

The proposed site's SCS system will be composed of a total of 4,932 LF of wastewater line. There is 3,694 LF of 8-inch (8") 115 psi (ASTM D3034) gravity wastewater pipe, 60 LF of 8-inch (8") pressure rated (ASTM D2241) wastewater pipe, and 1,178 LF of 6-inch (6") gravity wastewater pipe. The proposed improvements will tie into an existing wastewater manhole associated with the existing Barton Tributary Wastewater Line, which connects to the San Gabriel River Interceptor, and ultimately flows to the Dove Springs WWTP for treatment. The Dove Springs Wastewater Treatment Plant has the capacity to adequately treat the proposed peak flow.

WASTEWATER COLLECTION SYSTEM DESIGN

The wastewater collection system was designed based on a wastewater flow rate of 250 gallons per day per LUE per City of Georgetown's Criteria Manual. Based on the flow rate and slopes of the system, 8-inch gravity sewer pipe was selected for the collection system.

The SCS and waterline system will maintain 9 feet of separation as required. Although, the SCS and waterline system has three (3) water crossings within 9 feet of separation due to design constraints at the intersections.

Line	Station or Closest Point	Crossing or Parallel	Horizontal Separation Distance	Vertical Separation Distance
WWL A	12+54.93	Crossing	-	8.62'
WWL A	15+98.03	Crossing	-	5.01'
WWL B	8+86.01	Crossing	-	6.21'

When wastewater lines are within 9 feet of a water line, the wastewater pipe will be 20 LF of pressure rated pipe (ASTM D2241) embedded in cement stabilized sand centered on the pipe's utility crossing. For further detail, refer to the Wastewater Plan & Profiles in the Construction Plans.

The gravity sewage collection system (all PVC SDR-26) in Parkside on the River Section 8 will remain within the TCEQ minimums for pipe slopes: 0.33 – 8.40% for 8-inch pipe. The proposed slopes on the site range from 0.50% – 6.70% for 8-inch pipe. According to Manning's equation for an 8" pipe with a manning's coefficient of 0.013 at a 0.50% slope, the velocity at full flow is 2.44 feet per second. The velocity of an 8" pipe at a slope of 6.70% is 8.93 feet per second. All gravity sewage pipe in this project will be greater than 2.0 feet per second and less than 10 feet per second when flowing full.

The gravity sewage collection system six-inch (6") PVC SDR-26 pipe used for service laterals will remain within the TCEQ minimum 0.50% and maximum of 12.35%.

PROPOSED TYPE OF PIPE

6" SDR-26 PROPERTIES

Pipe Compliance:	ASTM D-3034
Joint Compliance:	ASTM D-3212
Minimum Tensile Strength (psi):	7,000
Minimum Modulus of Elasticity (psi):	400,000
Average Inner Diameter (inch):	5.793
Average Outer Diameter (inch):	6.275
Wall Thickness (inch):	0.241
Approximate Trenching Width (feet):	5.583
Minimum Pipe Depth (Cover) used (feet):	5.00'
Maximum Pipe Depth (Cover) used (feet):	16.24'

8" SDR-26 PROPERTIES

Pipe Compliance:	ASTM D-3034
Joint Compliance:	ASTM D-3212
Minimum Tensile Strength (psi):	7,000
Minimum Modulus of Elasticity (psi):	400,000
Average Inner Diameter (inch):	7.754
Average Outer Diameter (inch):	8.400
Wall Thickness (inch):	0.323
Approximate Trenching Width (feet):	5.583
Minimum Pipe Depth (Cover) used (feet):	7.61'
Maximum Pipe Depth (Cover) used (feet):	19.21'

STRUCTURAL CALCULATIONS

Since the deepest wastewater pipe is greater than 17 feet below ground, structural calculations have been prepared for this SCS application. The structural calculations for 6" and 8" PVC pipe are as follows. Please note, most pipes proposed in the SCS application meet the following requirements listed in 30 TAC 217.53(k)(4):

- (A) Open trench design – All pipe construction will be open trench.
- (B) Flexible pipe with a pipe stiffness of 46 psi or greater – The pipe stiffness for 8" SDR ASTM D3034 is greater than 46 psi.
- (C) Buried 17 feet or less – Gravity pipes are buried greater than 17 feet. The deepest pipes have been evaluated for structural calculations.
- (D) Diameter of 12 inches or less - All proposed wastewater pipe is less than 12 inches.
- (E) Modulus of soil reaction for the in-situ soil of 200 psi or greater – The modulus of soil reaction is greater than 200 psi.
- (F) No effects on a pipe due to live loads – The ring deflection of flexible pipe relieves the pipe of the major portion of the vertical soil load; which is then carried by the surrounding soil through the mechanism of an arching action over the pipe.
- (G) A unit weight of soil of 120 pounds per cubic foot or less – The unit weight of soil will be 120 pcf.
- (H) A typical pipe trench width of 36 inches or greater - Trench width of 67 inches will be used for manhole or wastewater lines deeper than 17 feet.

AVERAGE VALUES OF MODULUS OF SOIL REACTION, E'

TABLE 2

AVERAGE VALUES OF MODULUS OF SOIL REACTION, E' (For Initial Flexible Pipe Deflection)

Soil type-pipe bedding material (Unified Classification System ^a) (1)	E' for Degree of Compaction of Pipe Zone Backfill, psi			
	Loose (2)	Slight <85% Proctor, <40% relative density (3)	Moderate 85%-95% Proctor, 40%-70% relative density (4)	High >95% Proctor, >70% relative density (5)
Fine-grained Soils (LL > 50) ^b Soils with medium to high plasticity CH, MH, CH-MH	No data available; consult a competent soils engineer; Otherwise use E' = 0			
Fine-grained Soils (LL < 50) Soils with medium to no plasticity CL, ML ML-CL, with less than 25% coarse-grained particles	50	200	400	1,000
Fine-grained Soils (LL < 50) Soils with medium to no plasticity CL, ML, ML-CL, with more than 25% coarse- grained particles Coarse-grained Soils with Fines GM, GC, SM, SC ^c contains more than 12% fines	100	400	1,000	2,000
Coarse-grained Soils with Little or No Fines GW, GP, SW, SP ^c contains less than 12% fines	200	1,000	2,000	3,000
Crushed Rock	1,000	3,000	3,000	3,000
Accuracy in Terms of Percentage Deflection ^d	±2	±2	±1	±0.5
^a ASTM Designation D 2487, USBR Designation E-3. ^b LL = Liquid limit. ^c Or any borderline soil beginning with one of these symbols (i.e., GM-GC, GC-SC). ^d For ±1% accuracy and predicted deflection of 3%, actual deflection would be between 2% and 4%. Note: Values applicable only for fills less than 50 ft (15 m). Table does not include any safety factor. For use in predicting initial deflections only, appropriate Deflection Lag Factor must be applied for long-term deflections. If bedding falls on the borderline between two compaction categories, select lower E' value or average the two values. Percentage Proctor based on laboratory maximum dry density from test standards using about 12,500 ft-lb/cu ft (598,000 J/m ³) (ASTM D 698, AASHTO T-99, USBR Designation E-11). 1 psi = 6.9 kN/m ² .				

SOURCE: "Soil Reaction for Buried Flexible Pipe," by Amster K. Howard, U.S. Bureau of Reclamation, Denver, Colorado. Reprinted with Permission from American Society of Civil Engineers Journal of Geotechnical Engineering Division, January 1977, pp. 33-43.

Modulus of Soil Reaction for the in-situ soil is determined to be 200 psi based on fine-grained soils (CL) with slight to moderate proctor.

PIPE BEDDING CLASS AND MODULUS OF SOIL REACTION, E_b :

TABLE 7 - DESCRIPTION OF MATERIAL CLASSIFICATION

Class	Type	Soil Group Symbol	Description ASTM D 2487	Percentage Passing Sieve Sizes			Atterberg Limits		Coefficients	
				1.5 in (40 mm)	No. 4 (4.75 mm)	No. 200 (0.075 mm)	LL	PI	Uni- formity C_u	Curva- ture C_c
IA	Manufactured Aggregates: open-graded, clean.	None	Angular, crushed stone or rock, crushed gravel broken coral, crushed slag, cinders or shells; large void content, contain little or no fines	100%	≤10%	<5%	Non Plastic			
IB	Manufactured, Processed Aggregates; dense-graded, clean.	None	Angular, crushed stone (or other Class IA materials) and stone/sand mixtures with gradations selected to minimize migration of adjacent soils; contain little or no fines	100%	≤50%	<5%	Non Plastic			
II	Coarse-Grained Soils, clean	GW	Well-graded gravels and gravel-sand mixtures; little or no fines	100%	<50% of Coarse Fraction	<5%	Non Plastic		>4	1 to 3
		GP	Poorly-graded gravels and gravel-sand mixtures; little or no fines						<4	<1 or >3
		SW	Well-graded sands and gravelly sands; little or no fines		>50% of Coarse Fraction				>6	1 to 3
		SP	Poorly-graded sands and gravelly sands; little or no fines						<6	<1 or >3
	Coarse-Grained Soils, borderline clean to w/fines	e.g. GW-GC, SP-SM.	Sands and gravels which are border-line between clean and with fines	100%	Vanes	5% to 12%	Non Plastic		Same as for GW, GP, SW and SP	
III	Coarse-Grained Soils With Fines	GM	Silty gravels, gravel-sand-silt mixtures	100%	<50% of Coarse Fraction	>12% to <50%	<4 or <"A" Line			
		GC	Clayey gravels, gravel-sand-clay mixtures				<7 and >"A" Line			
		SM	Silty sands, sand-silt mixtures		>50% of Coarse Fraction		>4 or <"A" Line			
		SC	Clayey sands, sand-clay mixtures				>7 and >"A" Line			
IVA ^A	Fine-Grained Soils (inorganic)	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands, silts with slight plasticity	100%	100%	>50%	<50	<4 or <"A" Line		
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays					>7 and >"A" Line		
IVB	Fine-Grained Soils (inorganic)	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	100%	100%	>50%	>50	<"A" Line		
		CH	Inorganic clays of high plasticity, fat clays					>"A" Line		
V	Organic Soils	OL	Organic silts and organic silty clays of low plasticity	100%	100%	>50%	<50	<4 or <"A" Line		
		OH	Organic clays of medium to high plasticity, organic silts				>50	<"A" Line		
	Highly Organic	PT	Peat and other high organic soils							

^AIncludes Test Method ASTM D 2487 borderline classifications and dual symbols depending on plasticity index and liquid limits.

NOTE: "Coarse Fraction" as used in this table is defined as material retained on a No. 200 sieve.

SOURCE: ASTM D 2321 AND AASHTO M43, AND AS PUBLISHED ON TABLE 7, IN DEFLECTION: THE PIPE/SOIL MECHANISM UNI-TR-1-97, UNI-BELL PVC PIPE ASSOCIATION, PG. 24

Per TCEQ guidelines, a contractor is allowed to use ASTM D 2321 Bedding Class 1A, 1B, II, or III at no less than 85% compaction. The calculations in this Engineering Design Report reflect the use of Bedding Class III, at 85-95% compaction with an E_b value of 1,000 psi. This represents the worst-case bedding class a contractor can choose. All other bedding class options will provide an improved value for the zeta factor as well as pipe deflection.

PRISM LOAD DETERMINATION:

TABLE 3
PRISM LOAD (LBS/IN²)

$$P = \frac{w H}{144}$$

Height of Cover (ft)	Soil Wt. (lbs/ft ³)				Height of Cover (ft)	Soil Wt. (lbs/ft ³)			
	100	110	120	130		100	110	120	130
1	0.69	0.76	0.83	0.90	16	11.11	12.22	13.33	14.44
2	1.39	1.53	1.67	1.81	17	11.81	12.97	14.17	15.35
3	2.08	2.29	2.50	2.71	18	12.50	13.75	15.00	16.25
4	2.78	3.06	3.33	3.61	19	13.19	14.51	15.83	17.15
5	3.47	3.82	4.17	4.51	20	13.89	15.28	16.67	18.06
6	4.17	4.58	5.00	5.42	21	14.58	16.04	17.50	18.96
7	4.86	5.35	5.83	6.32	22	15.28	16.81	18.33	19.86
8	5.56	6.11	6.67	7.22	23	15.97	17.57	19.17	20.76
9	6.25	6.88	7.50	8.13	24	16.67	18.33	20.00	21.67
10	6.94	7.64	8.33	9.03	25	17.36	19.10	20.83	22.57
11	7.64	8.40	9.17	9.93	26	18.06	19.86	21.67	23.47
12	8.33	9.17	10.00	10.83	27	18.75	20.63	22.50	24.38
13	9.03	9.93	10.83	11.74	28	19.44	21.39	23.33	25.28
14	9.72	10.69	11.67	12.64	29	20.14	22.15	24.17	26.18
15	10.42	11.46	12.50	13.54	30	20.83	22.92	25.00	27.08

Prism load is the “dead load” or the pressure acting on the pipe by the weight of the soil column above a given section of the pipe. The following prism load columns are industry standards as referenced from Table 3 in Deflection: The Pipe/Soil Mechanism INI-TR-1-97, Uni-Bell Pipe Association, Pg. 13.

The prism loads are calculated using the Marston Theory of Loads and is calculated using the formula:

$$P = \frac{y_s * H}{144}, \text{ where } y_s \text{ is the unit weight of the backfill material}$$

6” Pipe: Based on the above table, at a maximum burial depth of 16.24’ and a backfill soil weight of 120 lbs/ft³, the prism load is approximately 13.53 psi.

8” Pipe: Based on the above table, at a maximum burial depth of 19.21’ and a backfill soil weight of 120 lbs/ft³, the prism load is approximately 16.01 psi.

LIVE LOAD DETERMINATIONS:

TABLE 4
LIVE LOADS ON PVC PIPE

Height of Cover (ft)	Live Load Transferred to Pipe, lb/in ²			Height of Cover (ft)	Live Load Transferred to Pipe, lb/in ²		
	Highway H20 ¹	Railway E80 ²	Airport ³		Highway H20 ¹	Railway E80 ²	Airport ³
1	12.50			14	*	4.17	3.06
2	5.56	26.39	13.14	16	*	3.47	2.29
3	4.17	23.61	12.28	18	*	2.78	1.91
4	2.78	18.40	11.27	20	*	2.08	1.53
5	1.74	16.67	10.09	22	*	1.91	1.14
6	1.39	15.63	8.79	24	*	1.74	1.05
7	1.22	12.15	7.85	26	*	1.39	*
8	0.69	11.11	6.93	28	*	1.04	*
10	*	7.64	6.09	30	*	0.69	*
12	*	5.56	4.76	35	*	*	*
				40	*	*	*

¹ Simulates 20 ton truck traffic + impact.

² Simulates 80,000 lb/ft railway load + impact.

³ 180,000 lbs. dual tandem gear assembly. 26 inch spacing between tires and 66 inch center-to-center spacing between fore and aft tires under a rigid pavement 12 inches thick + impact.

* Negligible live load influence.

SOURCE: AASHTO H20 AND E80 LOADS AND AS PUBLISHED ON TABLE 4 IN DEFLECTION: THE PIPE/SOIL MECHANISM UNI-TR-1-197, UNI-BELL PVC PIPE ASSOCIATION PAGE 14.

The pipe depths of this project range from 5.00 feet to 19.21 feet. The streets in this project are not intended for heavy truck traffic.

Live Load for 5.00 feet (5.00') of cover is 1.74 psi in a highway condition. The roads within the subdivision are not designed or intended for highway conditions so this is considered a worst-case scenario for live loads.

The previous page discusses prism loads which is the dead load acting on the pipe due to the weight of the soil above the pipe. The deepest pipe in this system is approximately 19.21', thus, the prism load at that depth (16.01 psi) puts more pressure on the pipe than the live loading and prism loading combined (1.74 psi + 4.17 psi from Prism Load table on the previous page) at a minimum buried depth of 5.00'.

Since the pipes experience the most pressure at their deepest points, 19.21', it is not necessary to evaluate any other scenario.

ALLOWABLE BUCKLING PRESSURE (6" PVC):

Where:

- q_a allowable buckling pressure, pound per inch square (psi)
- h height of soil surface above top of pipe in inches (ft / in) = 16.24' / 194.88" max
- B' Empirical coefficient of elastic support
- E_b modulus of soil reaction for the bedding material (psi)
- E modulus of elasticity for the pipe material (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.
- t pipe structural wall thickness (in) = 0.241 in.
- D mean pipe diameter (in) = 6.034 in.

Solving for the Empirical coefficient of elastic support, given by Luscher in 1966, as referenced on Pg. 113 of Moser, A.P., *Buried Pipe Design. 2nd. Ed., McGraw-Hill*:

$$B' = \frac{4(h^2 + Dh)}{1.5(2h + D)^2} = \frac{4(194.88^2 + 6.034 \cdot 194.88)}{1.5(2 \cdot 194.88 + 6.034)^2} = 0.67$$

$$I = \frac{t^3}{12} = \frac{0.241^3}{12} \text{ in}^3 = 0.001166 \text{ in}^3$$

Using the Allowable Buckling Pressure Equation as shown in Moser, A.P., *Buried Pipe Design. 2nd. Ed., McGraw-Hill*, Pg. 112, and an initial factor of safety (FS) of 2.5, the Allowable Buckling Pressure is:

$$q_a = \frac{1}{FS} * \sqrt{32 * R_w * B' * E_b * \left(E * \frac{I}{D^3} \right)} \text{ psi}$$

where $R_w = 1 - 0.33 (hw / h)$

$$q_a = \frac{1}{2.5} * \sqrt{32 * 1 * 0.67 * 1000 * \left(400,000 * \frac{0.001166}{6.034^3} \right)} \text{ psi} = 85.13 \text{ psi}$$

INSTALLED CONDITION BUCKLING PRESSURE (6" PVC):

Where:

- q_p buckling pressure applied, pound per inch square (psi)
- h height of soil surface above top of pipe in inches (ft / in) = 16.24' / 194.88" max
- γ_s Specific weight of soil (pcf)
- γ_w Specific weight of water = 0.0361 (pci)
- W_c Vertical Soil Load on the pipe per unit length (lb/Lin)
- W_L Live Load as determined from chart
- h_w Height of groundwater above pipe = 0
- D mean pipe diameter (in) = 6.034 in
- D_o outside pipe diameter (in) = 6.275 in

The Vertical Soil Load can be calculated using Equation 6.6 of *Uni-Bell's Handbook of PVC Pipe; Ch. VI Superimposed Loads on Buried Pipe, Pg. 183*.

$$W_c = h * \gamma_s * D_o \frac{lb}{Lin}$$

where $\gamma_s = 120 \text{ pcf}$

$$W_c = 194.88 * \frac{120}{1728} * 6.275 \frac{lb}{Lin} = 84.92 \frac{lb}{Lin}$$

Using the equation on Pg. 114 of Moser, A.P., *Buried Pipe Design. 3rd Ed., McGraw-Hill*, Pressure Applied to Pipe under installed conditions at its deepest installed depth:

$$q_p = (\gamma_w * h_w + R_w * \frac{W_c}{D} + \frac{W_L}{D}) \text{psi}$$

where $R_w = 1 - 0.33 (h_w / h)$

$$q_p = 0.0361 * 0 + 1 * \frac{84.92}{6.034} + \frac{0}{6.034} \text{psi} = 14.07 \text{psi}$$

The pressure applied to the pipe under installed conditions is less than the Allowable Buckling Pressure therefore the design is adequate for installation.

ALLOWABLE BUCKLING PRESSURE (8" PVC):

Where:

- q_a allowable buckling pressure, pound per inch square (psi)
- h height of soil surface above top of pipe in inches (ft / in) = 19.21' / 230.52" max
- B' Empirical coefficient of elastic support
- E_b modulus of soil reaction for the bedding material (psi)
- E modulus of elasticity for the pipe material (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.
- t pipe structural wall thickness (in) = 0.323 in.
- D mean pipe diameter (in) = 8.077 in.

Solving for the Empirical coefficient of elastic support, given by Luscher in 1966, as referenced on Pg. 113 of Moser, A.P., *Buried Pipe Design*. 2nd. Ed., McGraw-Hill:

$$B' = \frac{4(h^2 + Dh)}{1.5(2h + D)^2} = \frac{4(230.52^2 + 8.077 * 230.52)}{1.5(2 * 230.52 + 8.077)^2} = 0.67$$

$$I = \frac{t^3}{12} = \frac{0.323^3}{12} \text{ in}^3 = 0.002808 \text{ in}^3$$

Using the Allowable Buckling Pressure Equation as shown in Moser, A.P., *Buried Pipe Design*. 2nd. Ed., McGraw-Hill, Pg. 112, and an initial factor of safety (FS) of 2.5, the Allowable Buckling Pressure is:

$$q_a = \frac{1}{FS} * \sqrt{32 * R_w * B' * E_b * \left(E * \frac{I}{D^3}\right)} \text{ psi}$$

where $R_w = 1 - 0.33 (hw / h)$

$$q_a = \frac{1}{2.5} * \sqrt{32 * 1 * 0.67 * 1000 * \left(400,000 * \frac{0.002808}{8.077^3}\right)} \text{ psi} = 85.29 \text{ psi}$$

INSTALLED CONDITION BUCKLING PRESSURE (8" PVC):

Where:

- q_p buckling pressure applied, pound per inch square (psi)
- h height of soil surface above top of pipe in inches (ft / in) = 19.21' / 230.52" max
- γ_s Specific weight of soil (pcf)
- γ_w Specific weight of water = 0.0361 (pci)
- W_c Vertical Soil Load on the pipe per unit length (lb/Lin)
- W_L Live Load as determined from chart
- h_w Height of groundwater above pipe = 0
- D mean pipe diameter (in) = 8.077 in
- D_o outside pipe diameter (in) = 8.40 in

The Vertical Soil Load can be calculated using Equation 6.6 of *Uni-Bell's Handbook of PVC Pipe; Ch. VI Superimposed Loads on Buried Pipe, Pg. 183.*

$$W_c = h * \gamma_s * D_o \frac{lb}{Lin}$$

where $\gamma_s = 120$ pcf

$$W_c = 230.52 * \frac{120}{1728} * 8.40 \frac{lb}{Lin} = 134.47 \frac{lb}{Lin}$$

Using the equation on Pg. 114 of Moser, A.P., *Buried Pipe Design. 3rd Ed., McGraw-Hill*, Pressure Applied to Pipe under installed conditions at its deepest installed depth:

$$q_p = (\gamma_w * h_w + R_w * \frac{W_c}{D} + \frac{W_L}{D}) psi$$

where $R_w = 1 - 0.33 (h_w / h)$

$$q_p = 0.0361 * 0 + 1 * \frac{134.47}{8.077} + \frac{0}{8.077} psi = 16.65 psi$$

The pressure applied to the pipe under installed conditions is less than the Allowable Buckling Pressure therefore the design is adequate for installation.

WALL CRUSHING (6" PVC):

Where:

P_c Compressive stress or hydrostatic design basis (HDB). For typical PVC pipe assume 4,000 (psi)

A Surface area of the pipe wall, in²/in = 0.241

γ_s Specific weight of soil (pcf) = 120 pcf

D_o outside pipe diameter (in) = 6.275 in

H Depth of burial (ft) from ground surface to crown of pipe

Using the Wall Crushing and Wall Thrust equations from *Plastic Pipe Design Manual published by Vylon Pipe, Pg. 14*, the wall crushing due to compressive stress can be found using the following:

$$P_c = T / A, \text{ where } T = \text{Thrust is calculated as } T = P_y * D / 2$$

Substituting T into the thrust wall crushing equation:

$$P_c = \frac{P_y * D / 2}{A} = \frac{P_y * D}{2 * A}$$

From the Marston equation determining the Prism Load (see previous section), substitute the equation for P_y :

$$P_c = \frac{\gamma_s * H / 144 * D}{2 * A}$$

$$288 * A * P_c = \gamma_s * H * D$$

$$H = \frac{288 * P_c * A}{\gamma_s * D}$$

$$H = \frac{288 * 4000 * 0.241}{120 * 6.275} = 369 \text{ ft}$$

The wall crushing depth of 369 feet far exceeds the maximum burial depth of 16.24 feet proposed in this project. Design is adequate for wall crushing.

Wall Crushing Depth for 6" Pipe = 369 feet

WALL CRUSHING (8" PVC):

Where:

P_c Compressive stress or hydrostatic design basis (HDB). For typical PVC pipe assume 4,000 (psi)

A Surface area of the pipe wall, in²/in = 0.323

γ_s Specific weight of soil (pcf) = 120 pcf

D_o outside pipe diameter (in) = 8.40 in

H Depth of burial (ft) from ground surface to crown of pipe

Using the Wall Crushing and Wall Thrust equations from *Plastic Pipe Design Manual published by Vylon Pipe, Pg. 14*, the wall crushing due to compressive stress can be found using the following:

$$P_c = T / A, \text{ where } T = \text{Thrust is calculated as } T = P_y * D / 2$$

Substituting T into the thrust wall crushing equation:

$$P_c = \frac{P_y * D / 2}{A} = \frac{P_y * D}{2 * A}$$

From the Marston equation determining the Prism Load (see previous section), substitute the equation for P_y :

$$P_c = \frac{\gamma_s * H / 144 * D}{2 * A}$$

$$288 * A * P_c = \gamma_s * H * D$$

$$H = \frac{288 * P_c * A}{\gamma_s * D}$$

$$H = \frac{288 * 4000 * 0.323}{120 * 8.40} = 369 \text{ ft}$$

The wall crushing depth of 369 feet far exceeds the maximum burial depth of 19.21 feet proposed in this project. Design is adequate for wall crushing.

Wall Crushing Depth for 8" Pipe = 369 feet

LEONHARDT'S ZETA FACTOR – DEFLECTION ANALYSIS:

6" PIPE

The Leonhardt's Zeta Factor Equation can be calculated using Equation 7.37 of *Uni-Bell's Handbook of PVC Pipe, Ch. VII, Design of Buried PVC Pipe, Pg. 239*.

Where:

- E' Modulus of soil reaction for in-situ material (psi) = 200 psi
- E_b modulus of soil reaction for the bedding material (psi) = 1000 psi
- B Trench Width, in = 67 in
- D_o outside pipe diameter (in) = 6.275 in

$$zeta = \frac{1.44}{\mathcal{F} + [1.44 - \mathcal{F}] * \frac{E_b}{E'}}$$

$$\text{where } \mathcal{F} = \frac{\frac{B}{D_o} - 1}{1.154 + 0.4448[\frac{B}{D_o} - 1]} = 1.773$$

$$zeta = \frac{1.44}{1.773 + [1.44 - 1.773] * \frac{1000}{200}} = 13.28$$

8" PIPE

The Leonhardt's Zeta Factor Equation can be calculated using Equation 7.37 of *Uni-Bell's Handbook of PVC Pipe, Ch. VII, Design of Buried PVC Pipe, Pg. 239*.

Where:

- E' Modulus of soil reaction for in-situ material (psi) = 200 psi
- E_b modulus of soil reaction for the bedding material (psi) = 1000 psi
- B Trench Width, in = 67 in
- D_o outside pipe diameter (in) = 8.40 in

$$zeta = \frac{1.44}{\mathcal{F} + [1.44 - \mathcal{F}] * \frac{E_b}{E'}}$$

$$\text{where } \mathcal{F} = \frac{\frac{B}{D_o} - 1}{1.154 + 0.4448[\frac{B}{D_o} - 1]} = 1.639$$

$$zeta = \frac{1.44}{1.639 + [1.44 - 1.639] * \frac{1000}{200}} = 2.23$$

PIPE STIFFNESS:

6" PIPE

Using Equation B.1 in 30 TAC 217.53(k)(3), to calculate pipe stiffness:

Where:

PS Pipe Stiffness in lbs per in² (psi); for SDR26, pipe stiffness = 115

C Conversion factor; 0.80

RCS Ring Stiffness constant

D mean pipe diameter (in) = 6.034 in.

$$PS = C * RCS * \frac{8.337}{D}$$

$$RCS = \frac{PS}{C * \frac{8.337}{D}} = \frac{115}{0.80 * \frac{8.337}{6.034}} = 104.04$$

8" PIPE

Using Equation B.1 in 30 TAC 217.53(k)(3), to calculate pipe stiffness:

Where:

PS Pipe Stiffness in lbs per in² (psi); for SDR26, pipe stiffness = 115

C Conversion factor; 0.80

RCS Ring Stiffness constant

D mean pipe diameter (in) = 8.077 in.

$$PS = C * RCS * \frac{8.337}{D}$$

$$RCS = \frac{PS}{C * \frac{8.337}{D}} = \frac{115}{0.80 * \frac{8.337}{8.077}} = 139.27$$

PREDICTED PIPE DEFLECTION

6" PIPE

Using the Modified Iowa Equation, referenced in the *Uni-Bell PVC Pipe Association as Equation 14 of Deflection: The Pipe/Soil Mechanism UNI-TR-1-97*, the predicted pipe deflection can be calculated as follows:

Where:

% $\Delta Y/D$ Predicted % vertical deflection under load

P Prism load, psi = 13.53 psi

K Bedding angle constant, assumed to = 0.096

W' Live Load, psi = 0 at max depth (negligible per table)

DR Dimension Ration = 26

E Modulus of tensile elasticity of the pipe material, psi = 400,000

E' Modulus of soil Reaction (zeta x Eb) = 13,283 psi

DL Deflection Lag Factor = 1.5

Using the Modified Iowa Equation:

$$(\%) \frac{\Delta Y}{D} = \frac{DL * K * P + K * W'}{\left[\frac{2E}{3 * (DR - 1)^3} \right] + 0.061 * E'} * 100 \%$$

$$(\%) \frac{\Delta Y}{D} = \frac{(1.5 * 0.096 * 13.53 + 0.096 * 0) * 100}{\left[\frac{2 * 400,000}{3 * (26 - 1)^3} \right] + 0.061 * 13,283} \% = 0.236\%$$

The anticipated deflection of 0.236% is less than the industry standard of 5%, therefore the pipe design is acceptable.

A deflection factor of 1.0 is typically used for new pipes. A deflection factor of 1.5 represents a conservative factor to take into account its 50-year life.

8" PIPE

Using the Modified Iowa Equation, referenced in the *Uni-Bell PVC Pipe Association as Equation 14 of Deflection: The Pipe/Soil Mechanism UNI-TR-1-97*, the predicted pipe deflection can be calculated as follows:

Where:

% $\Delta Y/D$ Predicted % vertical deflection under load

P Prism load, psi = 16.01 psi

K Bedding angle constant, assumed to = 0.096

W' Live Load, psi = 0 at max depth (negligible per table)

DR Dimension Ratio = 26

E Modulus of tensile elasticity of the pipe material, psi = 400,000

E' Modulus of soil Reaction (zeta x Eb) = 2,233 psi

DL Deflection Lag Factor = 1.5

Using the Modified Iowa Equation:

$$(\%) \frac{\Delta Y}{D} = \frac{DL * K * P + K * W'}{\left[\frac{2E}{3 * (DR - 1)^3} \right] + 0.061 * E'} * 100 \%$$

$$(\%) \frac{\Delta Y}{D} = \frac{(1.5 * 0.096 * 16.01 + 0.096 * 0) * 100}{\left[\frac{2 * 400,000}{3 * (26 - 1)^3} \right] + 0.061 * 2,233} \% = 1.50\%$$

The anticipated deflection of 1.50% is less than the industry standard of 5%, therefore the pipe design is acceptable.

A deflection factor of 1.0 is typically used for new pipes. A deflection factor of 1.5 represents a conservative factor to take into account its 50-year life.

PIPE STRAIN

6" PIPE

Pipe strain is the elongation of the pipe over the original length of the pipe. Under normal loading conditions, the variable that affects the elongation or straining of the pipe stems from either the flexure or deflection of the pipe within the bedding material or hoop stress within the pipe wall. These are calculated below using Equation 15 and 16 found in *Deflection: The Pipe/Soil Mechanism UNI-TR-1-97, referenced by Uni-Bell PVC Pipe Association*:

Where:

- ϵ_h Max. Pipe strain due to Hoop Stress, in/in
- ϵ_f Max. Pipe strain due to Ring Deflection, in/in
- ΔY Vertical decrease in diameter from previous deflection equation, 0.01478 in
- P Pressure on the pipe (Live + Prism Loads), psi = 13.53 psi
- t pipe structural wall thickness (in) = 0.241 in.
- E Modulus of tensile elasticity of the pipe material, psi = 400,000
- Do outside pipe diameter (in) = 6.275 in
- DR Dimension Ratio = 26

Hoop Stress

$$\epsilon_h = \frac{P * D}{2 * t * E} = \frac{13.53 * 6.275}{2 * 0.241 * 400,000} \text{ in/in} = 4.4E^{-4} \text{ in/in}$$

Ring Deflection

$$\epsilon_f = \frac{t}{D} \left[\frac{3 * \Delta Y / D}{1 - 2 * \Delta Y / D} \right] \text{ in/in} = \frac{1}{DR} \left[\frac{3 * \Delta Y}{D - 2 * \Delta Y} \right] \text{ in/in}$$

$$\epsilon_f = \frac{1}{26} \left[\frac{3 * 0.01478}{6.275 - 2 * 0.01478} \right] = 2.7E^{-4} \text{ in/in}$$

8" PIPE

Pipe strain is the elongation of the pipe over the original length of the pipe. Under normal loading conditions, the variable that affects the elongation or straining of the pipe stems from either the flexure or deflection of the pipe within the bedding material or hoop stress within the pipe wall. These are calculated below using Equation 15 and 16 found in *Deflection: The Pipe/Soil Mechanism UNI-TR-1-97, referenced by Uni-Bell PVC Pipe Association*:

Where:

- ϵ_h Max. Pipe strain due to Hoop Stress, in/in
- ϵ_f Max. Pipe strain due to Ring Deflection, in/in
- ΔY Vertical decrease in diameter from previous deflection equation, 0.12365 in
- P Pressure on the pipe (Live + Prism Loads), psi = 16.01 psi
- t pipe structural wall thickness (in) = 0.323 in.
- E Modulus of tensile elasticity of the pipe material, psi = 400,000
- D_o outside pipe diameter (in) = 8.40 in
- DR Dimension Ration = 26

Hoop Stress

$$\epsilon_h = \frac{P * D}{2 * t * E} = \frac{16.01 * 8.40}{2 * 0.323 * 400,000} \text{ in/in} = 5.2E^{-4} \text{ in/in}$$

Ring Deflection

$$\epsilon_f = \frac{t}{D} \left[\frac{3 * \Delta Y / D}{1 - 2 * \Delta Y / D} \right] \text{ in/in} = \frac{1}{DR} \left[\frac{3 * \Delta Y}{D - 2 * \Delta Y} \right] \text{ in/in}$$

$$\epsilon_f = \frac{1}{26} \left[\frac{3 * 0.12365}{8.40 - 2 * 0.12365} \right] \text{ in/in} = 1.79E^{-3} \text{ in/in}$$



Should you have any questions regarding this submittal, please email me at christine.campbell@hrgreen.com or call at 512-872-6696.

Sincerely,

A handwritten signature in cursive script that reads "Christine Campbell".

Christine Campbell, P.E.
HR Green Development TX, LLC
TBPE FIRM #16384

TABLE 2 – MANHOLES AND CLEANOUTS (CONTINUED)

<i>Line</i>	<i>Shown on Sheet</i>	<i>Station</i>	<i>Manhole or Clean-out?</i>
B2	60 OF 72	3+75.83	MH
B3	60 OF 72	5+22.10	MH
B4	60 OF 72	6+68.36	MH
B5	61 OF 72	8+14.63	MH
B6	61 OF 72	9+86.40	MH
B7	61 OF 72	11+01.17	MH
B8	61 OF 72	12+15.94	MH
B9	61 OF 72	14+62.81	MH
C1	62 OF 72	2+94.77	MH
D1	63 OF 72	2+42.48	MH
D2	63 OF 72	4+43.31	MH
D3	63 OF 72	5+20.70	MH
D4	63 OF 72	6+25.46	MH
D5	63 OF 72	7+30.31	MH

*continued from table on scs application

Parkside on the River Section 8 - Wastewater Line - Flow Calculation & Pipe Sizing

WASTEWATER FLOWS										Design Parameters																									
Project Name: Parkside on the River Section 8 Project Number: 2303297 Date Prepared: 11/09/2023										SF Residents per Unit		2.5	per																						
										Consumption Per Capita		70	gpd																						
										Dry Weather Infiltration		30	gpcd																						
										Wet Weather Infiltration		1000	gpd/acre																						
										Manning Coefficient		0.013																							
Line	Manhole	Comments	LUE's		Cumulative LUE's	Population	Cumulative Population	Area (ac)		Cumulative Area (ac)	Dry Weather Flow						Wet Weather Flow				Design Flow			Pipe		Full Capacity		Peak Wastewater Flow Condition (WWF)							
			OWN	TRIBUTARY				OWN	TRIBUTARY		Average Dry Weather Flow (AvgDWF)			Dry Weather Factor	Peak Dry Weather Flow (DWF)			Rainfall dependent Infiltration & Inflow (RDII)	Peak Wet Weather Flow (WWF)			MAX WW	TRIBUTARY	TOTAL	Pipe Size	Pipe Slope	Full Pipe Velocity	Full Pipe Flow	q/Q	v/V	y/D	Depth	Velocity	Efficiency	
											gpd	gpm	cfs		gpd	gpm	cfs		gpd	gpm	cfs														cfs
A	A9	A8	2 LOTS OF SECTION 8	2		2	5	5	0.62		0.62	500	0.3	0.00	4.88	2,442	1.7	0.00	620	3,062	2.1	0.00	0.00		0.00	8	1.06	3.57	1.25	0.01	0.32	0.07	0.6	1.15	7%
	A8	A7	0 LOTS OF SECTION 8 & WWL D	0	17	19	0	48	0.11	5.50	6.23	4,800	3.3	0.01	4.14	19,867	13.8	0.03	6,230	26,097	18.1	0.04	0.04		0.04	8	0.88	3.26	1.14	0.04	0.49	0.14	1.1	1.59	14%
	A7	A6	4 LOTS OF SECTION 8	4		23	10	58	1.02		7.25	5,800	4.0	0.01	4.08	23,676	16.4	0.04	7,250	30,926	21.5	0.05	0.05		0.05	8	2.52	5.51	1.92	0.03	0.45	0.12	0.9	2.46	12%
	A6	A5	4 LOTS OF SECTION 8 & WWL B	4	43	70	10	175	0.93	11.78	19.96	17,500	12.2	0.03	3.77	65,888	45.8	0.10	19,960	85,848	59.6	0.13	0.13		0.13	8	1.11	3.66	1.28	0.11	0.66	0.22	1.8	2.40	22%
	A5	A4	6 LOTS OF SECTION 8	6		76	15	190	1.34		21.30	19,000	13.2	0.03	3.74	71,106	49.4	0.11	21,300	92,406	64.2	0.14	0.14		0.14	8	1.65	4.46	1.56	0.10	0.64	0.21	1.7	2.85	21%
	A4	A3	4 LOTS OF SECTION 8	4		80	10	200	1.00		22.30	20,000	13.9	0.03	3.73	74,568	51.8	0.11	22,300	96,868	67.3	0.15	0.15		0.15	8	6.57	8.90	3.11	0.05	0.52	0.15	1.2	4.64	15%
	A3	A2	7 LOTS OF SECTION 8	7		87	18	218	2.06		24.36	21,800	15.1	0.03	3.70	80,768	56.1	0.12	24,360	105,128	73.0	0.16	0.16		0.16	8	5.45	8.10	2.83	0.06	0.55	0.17	1.3	4.46	17%
	A2	A1	1 LOT OF SECTION 8	1		88	3	220	0.46		24.82	22,000	15.3	0.03	3.70	81,455	56.6	0.12	24,820	106,275	73.8	0.16	0.16		0.16	8	4.70	7.53	2.63	0.07	0.58	0.18	1.4	4.33	18%
	A1	EX-1	0 LOTS OF SECTION 8	0		88	0	220	0.05		24.87	22,000	15.3	0.03	3.70	81,455	56.6	0.12	24,870	106,325	73.8	0.16	0.16		0.16	8	6.53	8.87	3.10	0.06	0.55	0.17	1.3	4.88	17%
B	B9	B8	7 LOTS OF SECTION 8	7		7	18	18	1.71		1.71	1,750	1.2	0.00	4.46	7,798	5.4	0.01	1,710	9,508	6.6	0.01	0.01		0.01	8	5.32	8.01	2.79	0.01	0.32	0.07	0.6	2.57	7%
	B8	B7	4 LOTS OF SECTION 8	4		11	10	28	0.91		2.62	2,800	1.9	0.00	4.31	12,055	8.4	0.02	2,620	14,675	10.2	0.02	0.02		0.02	8	6.70	8.98	3.14	0.01	0.32	0.07	0.6	2.88	7%
	B7	B6	6 LOTS OF SECTION 8	6		17	15	43	1.42		4.04	4,300	3.0	0.01	4.17	17,941	12.5	0.03	4,040	21,981	15.3	0.03	0.03		0.03	8	4.64	7.48	2.61	0.02	0.40	0.10	0.8	2.96	10%
	B6	B5	2 LOTS OF SECTION 8	2		19	5	48	1.05		5.09	4,800	3.3	0.01	4.14	19,867	13.8	0.03	5,090	24,957	17.3	0.04	0.04		0.04	8	1.95	4.85	1.69	0.03	0.45	0.12	0.9	2.17	12%
	B5	B4	4 LOTS OF SECTION 8	4		23	10	58	1.01		6.10	5,800	4.0	0.01	4.08	23,676	16.4	0.04	6,100	29,776	20.7	0.05	0.05		0.05	8	1.95	4.85	1.69	0.03	0.45	0.12	0.9	2.17	12%
	B4	B3	5 LOTS OF SECTION 8	5		28	13	70	1.21		7.31	7,000	4.9	0.01	4.03	28,183	19.6	0.04	7,310	35,493	24.6	0.05	0.05		0.05	8	1.95	4.85	1.69	0.04	0.49	0.14	1.1	2.36	14%
	B3	B2	2 LOTS OF SECTION 8	2		30	5	75	0.60		7.91	7,500	5.2	0.01	4.01	30,044	20.9	0.05	7,910	37,954	26.4	0.06	0.06		0.06	8	4.02	6.96	2.43	0.03	0.45	0.12	0.9	3.11	12%
	B2	B1	0 LOTS OF SECTION 8 & WWL C	0	9	39	0	98	0.14	2.69	10.74	9,800	6.8	0.01	3.93	38,497	26.7	0.06	10,740	49,237	34.2	0.07	0.07		0.07	8	0.50	2.45	0.86	0.09	0.62	0.20	1.6	1.52	20%
	B1	A6	4 LOTS OF SECTION 8	4		43	10	108	1.04		11.78	10,800	7.5	0.02	3.90	42,125	29.3	0.06	11,780	53,905	37.4	0.08	0.08		0.08	8	0.50	2.45	0.86	0.10	0.64	0.21	1.7	1.57	21%
C	C1	B2	9 LOTS OF SECTION 8	9		9	23	23	2.69		2.69	2,250	1.6	0.00	4.38	9,844	6.8	0.01	2,690	12,534	8.7	0.02	0.02		0.02	8	0.50	2.45	0.86	0.03	0.45	0.12	0.9	1.10	12%
D	D5	D4	4 LOTS OF SECTION 8	4		4	10	10	1.30		1.30	1,000	0.7	0.00	4.64	4,643	3.2	0.01	1,300	5,943	4.1	0.01	0.01		0.01	8	4.58	7.43	2.59	0.01	0.32	0.07	0.6	2.38	7%
	D4	D3	3 LOTS OF SECTION 8	3		7	8	18	0.86		2.16	1,800	1.3	0.00	4.45	8,005	5.6	0.01	2,160	10,165	7.1	0.02	0.02		0.02	8	2.57	5.56	1.94	0.01	0.32	0.07	0.6	1.79	7%
	D3	D2	0 LOTS OF SECTION 8	0		7	0	18	0.08		2.24	1,800	1.3	0.00	4.45	8,005	5.6	0.01	2,240	10,245	7.1	0.02	0.02		0.02	8	3.88	6.84	2.39	0.01	0.32	0.07	0.6	2.19	7%
	D2	D1	7 LOTS OF SECTION 8	7		14	18	35	2.20		4.44	3,500	2.4	0.01	4.24	14,825	10.3	0.02	4,440	19,265	13.4	0.03	0.03		0.03	8	5.51	8.15	2.84	0.02	0.40	0.10	0.8	3.22	10%
	D1	A8	3 LOTS OF SECTION 8	3		17	8	43	1.06		5.50	4,300	3.0	0.01	4.17	17,941	12.5	0.03	5,500	23,441	16.3	0.04	0.04		0.04	8	5.00	7.76	2.71	0.02	0.40	0.10	0.8	3.07	10%

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: Christine Campbell, P.E.

Date: 11/09/2023

Signature of Customer/Agent:

Christine Campbell

Regulated Entity Name: Parkside on the River Section 8

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: San Gabriel River

Temporary Best Management Practices (TBMPs)

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

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

- ☒ A description of how BMPs and measures will prevent pollution of surface water, groundwater or stormwater that originates upgradient from the site and flows across the site.
 - ☒ A description of how BMPs and measures will prevent pollution of surface water or groundwater that originates on-site or flows off site, including pollution caused by contaminated stormwater runoff from the site.
 - ☒ A description of how BMPs and measures will prevent pollutants from entering surface streams, sensitive features, or the aquifer.
 - ☒ A description of how, to the maximum extent practicable, BMPs and measures will maintain flow to naturally-occurring sensitive features identified in either the geologic assessment, TCEQ inspections, or during excavation, blasting, or construction.
8. ☒ The temporary sealing of a naturally-occurring sensitive feature which accepts recharge to the Edwards Aquifer as a temporary pollution abatement measure during active construction should be avoided.
- ☐ **Attachment E - Request to Temporarily Seal a Feature.** A request to temporarily seal a feature is attached. The request includes justification as to why no reasonable and practicable alternative exists for each feature.
- ☒ There will be no temporary sealing of naturally-occurring sensitive features on the site.
9. ☒ **Attachment F - Structural Practices.** A description of the structural practices that will be used to divert flows away from exposed soils, to store flows, or to otherwise limit runoff discharge of pollutants from exposed areas of the site is attached. Placement of structural practices in floodplains has been avoided.
10. ☒ **Attachment G - Drainage Area Map.** A drainage area map supporting the following requirements is attached:
- ☒ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin will be provided.
 - ☐ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a smaller sediment basin and/or sediment trap(s) will be used.
 - ☐ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin or other equivalent controls are not attainable, but other TBMPs and measures will be used in combination to protect down slope and side slope boundaries of the construction area.
 - ☐ There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time. A smaller sediment basin and/or sediment trap(s) will be used in combination with other erosion and sediment controls within each disturbed drainage area.

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

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

☐ N/A

12. ☒ **Attachment I - Inspection and Maintenance for BMPs.** A plan for the inspection of each temporary BMP(s) and measure(s) and for their timely maintenance, repairs, and, if necessary, retrofit is attached. A description of the documentation procedures, recordkeeping practices, and inspection frequency are included in the plan and are specific to the site and/or BMP.
13. ☒ All control measures must be properly selected, installed, and maintained in accordance with the manufacturer's specifications and good engineering practices. If periodic inspections by the applicant or the executive director, or other information indicate a control has been used inappropriately, or incorrectly, the applicant must replace or modify the control for site situations.
14. ☒ If sediment escapes the construction site, off-site accumulations of sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain).
15. ☒ Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50%. A permanent stake will be provided that can indicate when the sediment occupies 50% of the basin volume.
16. ☒ Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from becoming a pollutant source for stormwater discharges (e.g., screening outfalls, picked up daily).

Soil Stabilization Practices

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

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

- 18. ☒ Records must be kept at the site of the dates when major grading activities occur, the dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated.
- 19. ☒ Stabilization practices must be initiated as soon as practicable where construction activities have temporarily or permanently ceased.

Administrative Information

- 20. ☒ All structural controls will be inspected and maintained according to the submitted and approved operation and maintenance plan for the project.
- 21. ☒ If any geologic or manmade features, such as caves, faults, sinkholes, etc., are discovered, all regulated activities near the feature will be immediately suspended. The appropriate TCEQ Regional Office shall be immediately notified. Regulated activities must cease and not continue until the TCEQ has reviewed and approved the methods proposed to protect the aquifer from any adverse impacts.
- 22. ☒ Silt fences, diversion berms, and other temporary erosion and sediment controls will be constructed and maintained as appropriate to prevent pollutants from entering sensitive features discovered during construction.

ATTACHMENT A – SPILL RESPONSE ACTIONS

The objective of this section is to describe measures to prevent or reduce the discharge of pollutants to drainage systems or watercourses. Measures include 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 practices will be followed for spill prevention and cleanup:

- Manufacturers' recommended methods for spill cleanup will be clearly posted and site personnel will be made aware of the procedures and the location of the information and cleanup supplies.
- Materials and equipment necessary for spill cleanup will be kept in the material storage area onsite. Equipment and materials will include but not be limited to brooms, dustpans, mops, rags, gloves, goggles, kitty litter, sand, sawdust, and plastic and metal trash containers specifically for this purpose.
- All spills will be cleaned up immediately after discovery.
- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- Spills of toxic or hazardous material will be reported to the Owner and to the appropriate State or local government agency, regardless of the size.
- The spill prevention plan will be adjusted to include measures to prevent this type of spill from reoccurring and how to clean up the spill if there is another one. A description of the spill, what caused it, and the cleanup measures will also be included.
- The site superintendent responsible for the day-to-day site operations will be the spill prevention and cleanup coordinator. He will designate at least three other site personnel who will receive spill prevention and cleanup training. These individuals will each become responsible for a particular phase of prevention and cleanup. The names of responsible spill personnel will be posted in the material storage area and in the office trailer onsite.
- Any reportable quantity hydrocarbon or hazardous material spill should be reported to the TCEQ at the following 24-hour toll free number 1-800-832-8224.

For a spill of Reportable Quantity:

- Initial notification. Upon the determination that a reportable discharge or spill has occurred, the responsible person shall notify the agency as soon as possible but not later than 24 hours after the discovery of the spill or discharge.
- Method of notification. The responsible person shall notify the agency in any reasonable manner including by telephone, in person, or by any other method approved by the agency. In all cases, the initial notification shall provide, to the extent known, the information listed in subsection (d) of Title 30, Part I, Chapter 327, Rule §327.3. Notice provided under this section satisfies the federal requirement to notify the State Emergency Response Commission in the State of Texas.
- Notification of local government authorities. If the discharge or spill creates an imminent health threat, the responsible person shall immediately notify and cooperate with local emergency authorities. The responsible party will cooperate with the local emergency authority in providing support to implement appropriate notification and response actions. The local emergency authority, as necessary, will implement its emergency management plan, which may include notifying and evacuating affected persons. In the absence of a local emergency authority, the responsible person shall take reasonable measures to notify potentially affected persons of the imminent health threat.
- As soon as possible, but no later than two (2) weeks after discovery of the spill or discharge, the Contractor shall reasonably attempt to notify the Owner (if identifiable) or Occupant of the property upon which the discharge or spill occurred as well as the occupants of any property that the Contractor believes is adversely affected.

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:

- If maintenance must occur onsite, use a designated area and a secondary containment, located away from drainage courses, to prevent the runoff of stormwater and the runoff of spills.
- Regularly inspect onsite vehicles and equipment for leaks and repair immediately.
- 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.
- Always use secondary containment, such as drain pan or drop cloth, to catch spills or leaks when removing or changing fluids.
 - Place drip pans or absorbent materials under paving equipment when not in use.
 - Use absorbent materials on small spills rather than hosing down or burying the spill. Remove the absorbent materials promptly and dispose of properly.
 - Promptly transfer used fluids to the proper waste or recycling drums. Do not leave full drip pans or other containers lying around.
 - Oil filters disposed of in trashcans or dumpsters can leak oil and pollute stormwater. Place the oil filter in a funnel over the 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.
 - Store cracked batteries in a non-leaking secondary container. Do this with all cracked batteries even if you think all of 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.

ATTACHMENT B – POTENTIAL SOURCES OF CONTAMINATION

Once grading activities begin, erosion of bare soil during rainfall events is the most common source of contamination. Silt fences will be installed at the beginning of the grading operation to minimize the potential for transport of the soil offsite.

Asphalt products will be used on this project. After placement of asphalt, emulsion, or coatings, the applicant will be responsible for immediate cleanup should an unexpected rain occur. For the duration of the asphalt curing time, the applicant should maintain standby personnel and equipment to contain any asphalt wash-off should an unexpected rain occur.

During construction activities, potential sources of contamination would include petroleum products leaking from construction equipment. The contractor will be advised to keep the equipment in working order and report any spills per the spill response plan.

Other potential sources of contamination include hydraulic fluid and diesel fuel from mechanical equipment and vehicles, as well as paints and chemicals used on site. Any spills shall be handled according to the Spill Response Actions in Attachment A.

ATTACHMENT C – SEQUENCE OF MAJOR ACTIVITIES

The first activity of construction will be to install the erosion control measures, consisting of silt fences, tree protection, storm drains, inlet protection, rock berm, and a stabilized construction entrance. Temporary erosion control measures will remain in place throughout the duration of construction and will be required to be maintained by the contractor to ensure proper functionality, especially after storm events. All disturbed areas to remain pervious will be vegetated using the procedures detailed in the construction plans and all temporary erosion control measures will be removed upon revegetation. Construction activities associated with this application is expected to disturb 28.73 acres of the site.

Major Construction Activities and Sequencing:

The major construction activities for this project will include and be sequenced as follows:

1. Established Best Management Practices shall consist of the following: silt fencing, temporary spoils areas, concrete truck washout pits, and a temporary construction entrance (Estimated area to be disturbed = 0.50 Acres). These items are to remain and be maintained throughout all construction activities.

2. Initial site mass grading operation including right-of-way and first grading. (Estimated area to be disturbed = 11.09 Acres)
3. Installation of utilities including storm, water, and wastewater (Estimated area to be disturbed = 1.34 Acres)
4. Construction of street/driveway pavement including backfill behind curbs (estimated area to be disturbed = 3.26 Acres)
5. Total Construction (estimated area to be disturbed = 28.73 Acres)
6. Final soil stabilization for the site and removal of temporary BMPs once the soil has been stabilized.

The contractor is responsible for implementing and maintaining the storm water pollution prevention plan which includes maintaining all the necessary erosion controls throughout construction.

ATTACHMENT D – TEMPORARY BEST MANAGEMENT PRACTICES AND MEASURES

As shown on the Construction Erosion Control Plans, temporary BMP practices and measures will include installing silt fences, inlet protection, rock berm, a stabilized construction entrance, a concrete truck washout, and a temporary spoils area prior to beginning grading operations on the site. Temporary measures are intended to provide a method of slowing the upgradient flow, onsite flow or runoff from the construction site in order to allow sediment and suspended solids to settle out of the water. By containing the sediment and solids within the site, they will not enter surface streams and/or sensitive features. As a temporary BMP, a silt fence will be installed to reduce pollutants. BMP measures utilized in this plan are intended to allow storm water to continue downstream after passing through for treatment.

Site Preparation:

The methodology for pollution prevention of all on-site stormwater will include a) the erection of silt fences along the downgradient boundary of the construction activities, b) installation of inlet protection at all inlets, c) installation of a stabilized construction entrance to reduce the dispersion of sediment from the site, and d) installation of a construction staging area.

Construction:

All installed erosion control measure will be inspected, and if necessary, repaired before any additional construction begins, as well as periodically throughout the construction process. The contractor will be responsible for all maintenance of erosion control measures, as well as the installation of all remaining on-site control measures, including the concrete truck washout, as necessary.

ATTACHMENT E – REQUEST TO TEMPORARILY SEAL A FEATURE

There are no sensitive features on the site. Sensitive feature F-2 is located north of the property in the future Parkside on the River Section 9A & 10A project. Refer to the Geologic Assessment and Proposed Conditions Plan.

ATTACHMENT F – STRUCTURAL PRACTICES

Most of the site flows and upgradient run off will encounter the proposed batch detention pond. There is roughly 0.63 acres of impervious cover in Parkside on the River Section 8 that will bypass treatment. The proposed BMPs are overtreating to account for the bypass impervious cover.

ATTACHMENT G – DRAINAGE AREA MAPS

Refer to the construction plans attached.

ATTACHMENT H – TEMPORARY SEDIMENT POND(S) PLANS AND CALCULATIONS

The batch detention pond will act as a temporary and permanent sedimentation pond. The proposed pond (BDP-01) provides 137,853 CF of water quality volume.

The calculated temporary sedimentation pond volume required is calculated below.

Calculation: Required Volume = (Rainfall Depth*Runoff Coefficient*Drainage Area*120%)
= 1.50 in. * 0.33 * 60.07 acres * 120%
= 129,524 CF

ATTACHMENT I – INSPECTION AND MAINTENANCE FOR BMPs

See construction plans included with this application submittal.

Temporary Best Management Practices (BMPs) and measures will be used during construction to prevent pollution of groundwater, surface water and naturally occurring environmental features. Silt fence, inlet protection, stabilized construction entrance, tree protection, concrete washout area, and a temporary spoils area will be installed prior to beginning construction and prior to commencement of any of the activities defined in the sequence of construction as Attachment C. Inspection and maintenance of the on-site controls shall be performed during the site clearing and rough grading process. Weekly inspections will be documented in an inspection report. The inspection reports will document maintenance activities, sediment removal, and any modifications to the erosion and sedimentation controls. The perimeter fence shall be regularly monitored to ensure that the buffers remain no-construction zones until the site work has been completed and authorization has been granted by the engineer. Refer to the construction plans attached for specific controls and details.

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 run-off from the site, and through the use of silt fences placed immediately downstream of disturbed areas and inlet protection at all inlets. To minimize destruction to any portion of the Recharge Zone, on-site perimeter silt fence will also be implemented for pertinent areas throughout the entirety of construction. The Contractor is expected to inspect the controls weekly and after significant rainfalls to ensure proper function. When silt accumulates six (6) inches in depth the Contractor shall promptly remove the silt from the controls.

BMPs and measures will prevent pollutants from entering surface streams or the aquifer by intercepting stormwater potentially carrying sediment and other pollutants. BMPs and measures will implement a stabilized construction entrance, a construction stockpiling/staging area, and a concrete washout area to help minimize pollutant run-off and erosion generated during construction. Paved streets and driveways adjacent to these sites will be cleaned regularly to remove excess mud, dirt or rock tracked from the site. Sedimentation will be concentrated only in these areas for efficient maintenance. Water trucks will be on-site as necessary to aid in cleaning regularly to remove excess mud, dirt or rock tracked from the site. Sedimentation will be concentrated only in these areas for efficient maintenance. Water trucks will be on-site as necessary to aid in controlling dust. BMPs will be implemented to limit/prevent contaminated inflow from entering surface streams or the aquifer. These practices are to include the following measures: the use of silt fence, vegetative buffer zones, and inlet protection. The fabricated silt fence barricade will provide help to reduce the likelihood of contaminated runoff from entering the aquifer. If any sensitive features are identified by TCEQ inspections, or during excavation or construction, measures appropriate to the sensitivity of the discovered feature will be enacted. No blasting is proposed.

Temporary Erosion and Sedimentation Notes:

1. The Contractor shall maintain, install erosion/sedimentation controls and tree/natural protective fencing prior to any site preparation work (clearing, grubbing or excavation).
2. The placement of erosion/sedimentation controls and tree/natural area protective fencing shall be in accordance with the TCEQ Technical Guidance Manual and the approved Erosion and Sedimentation Control Plan. No erosion controls shall be placed beyond the property lines of the site unless written permission has been obtained from adjacent property owners.
3. A pre-construction conference shall be held on-site with the Contractor, design engineer/permit applicant and Environmental Inspector after installation of the erosion/sedimentation and tree/natural area protection measures and prior to beginning any site preparation work. The Contractor shall notify the Environmental Inspector at least three (3) days prior to the meeting date.

4. Any major variation in materials or locations of controls or fences from those shown on the approved plans will require a revision and must be approved by the reviewing engineer, environmental specialist or city arborist as appropriate. Minor changes to be made as field revisions to the Erosion and Sedimentation Control Plan may be required by the Environmental Inspector during the course of construction to correct control inadequacies.
5. The Contractor is required to inspect the controls at weekly intervals and after significant rainfall events to ensure that they are functioning properly. The person(s) responsible for maintenance of controls shall immediately make any necessary repairs to damaged areas. Silt accumulation at controls must be removed when the depth reaches six (6) inches.
6. Prior to final acceptance by the City, haul roads and waterway crossing constructed for temporary Contractor access must be removed, accumulated sediment removed from the waterway and the area restored to the original grade and revegetated. All land clearing debris shall be disposed of in approved soil disposal sites.
7. All work must stop if a void in the rock substrate is discovered, which is one (1) square foot in total area, blows air from within the substrate, and/or consistently received water during any rain event. At this time it is the responsibility of the project manager to immediately contact an Environmental Inspector for further investigation.
8. All slopes shall be sodded or seeded with approved grass, grass mixtures or ground cover suitable to the area and season in which they are applied.
9. Silt fences, rock berms, sedimentation basins and similarly recognized techniques and materials shall be employed during construction to prevent point source sedimentation loading of downstream facilities. Such installation shall be regularly inspected for effectiveness. Additional measures may be required if, in the opinion of the City Engineer, they are warranted.
10. All temporary erosion control measures shall not be removed until final inspection and approval of the project by the engineer. It shall be the responsibility of the Contractor to maintain all temporary erosion control structures and to remove each structure as approved by the engineer.
11. Any dirt, mud, rocks, debris, etc., that is spilled, tracked, or otherwise deposited on any existing paved street shall be cleaned up immediately.

Dewatering Operations

1. Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP area under way, inspect weekly to verify continued BMP implementation.
2. Inspect BMPs subject to non-stormwater discharges daily while non-stormwater discharges occur.
3. Unit-specific maintenance requirements are included with the description of each technology.
4. Sediment removed during the maintenance of a dewatering device may be either spread onsite and stabilized, or disposed of at a disposal site.
5. Sediment that is commingled with other pollutants must be disposed of in accordance with all applicable laws and regulations.

ATTACHMENT J – SCHEDULE OF INTERIM AND PERMANENT SOIL STABILIZATION PRACTICES

Contractors will ensure that existing vegetation is preserved where attainable and that disturbed portions of the site will be stabilized. Stabilization practices may include but are not limited to temporary seeding, permanent seeding, mulching, geotextiles, sodding, tree protection, preservation of natural vegetation and other appropriate measures. All slopes shall be sodded or seeded with approved grass, grass mixtures or ground cover suitable to the area and season in which they are applied. Except as noted below, stabilization 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 activity has temporarily or permanently ceased. Refer to the construction plans attached for the TCEQ Notes, the Existing Conditions & Tree Survey, and the Erosion & Sedimentation Control Plan.

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

I Blake Magee,
Print Name
President,
Title - Owner/President/Other
of HM Parkside, LP,
Corporation/Partnership/Entity Name
have authorized Christine Campbell, P.E.
Print Name of Agent/Engineer
of HR Green Development TX, LLC
Print Name of Firm

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

I also understand that:

1. The applicant is responsible for compliance with 30 Texas Administrative Code Chapter 213 and any condition of the TCEQ's approval letter. The TCEQ is authorized to assess administrative penalties of up to \$10,000 per day per violation.
2. For those submitting an application who are not the property owner, but who have the right to control and possess the property, additional authorization is required from the owner.
3. Application fees are due and payable at the time the application is submitted. The application fee must be sent to the TCEQ cashier or to the appropriate regional office. The application will not be considered until the correct fee is received by the commission.
4. A notarized copy of the Agent Authorization Form must be provided for the person preparing the application, and this form must accompany the completed application.
5. No person shall commence any regulated activity on the Edwards Aquifer Recharge Zone, Contributing Zone or Transition Zone until the appropriate application for the activity has been filed with and approved by the Executive Director.

SIGNATURE PAGE:


Applicant's Signature

11/6/23
Date

THE STATE OF TEXAS §

County of TRAVIS §

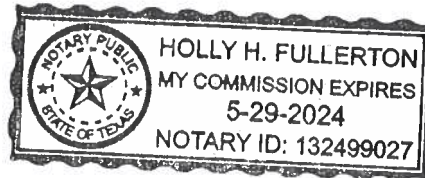
BEFORE ME, the undersigned authority, on this day personally appeared Blake S. Magee known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that (s)he executed same for the purpose and consideration therein expressed.

GIVEN under my hand and seal of office on this 6 day of November, 2023


NOTARY PUBLIC

Holly H. Fullerton
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 5-29-2024



Application Fee Form

Texas Commission on Environmental Quality

Name of Proposed Regulated Entity: Parkside on the River Section 8

Regulated Entity Location: Located east of Texas Bluebonnet Trail. East of Parkside on the River Phase 3 Sections 3A & 3B. Property ID R574025, R312360

Name of Customer: HM Parkside, LP

Contact Person: Blake Magee

Phone: 512-481-0303

Customer Reference Number (if issued): CN 605721653

Regulated Entity Reference Number (if issued): RN _____

Austin Regional Office (3373)

☐

Hays

☐

Travis

☒

Williamson

San Antonio Regional Office (3362)

☐

Bexar

☐

Medina

☐

Uvalde

☐

Comal

☐

Kinney

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

☒

Austin Regional Office

☐

San Antonio Regional Office

☐

Mailed to: TCEQ - Cashier

☐

Overnight Delivery to: TCEQ - Cashier

Revenues Section

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	Acres	\$
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	Acres	\$
Sewage Collection System	4,932 L.F.	\$ 2,466
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: Christa Campbell

Date: 11/09/2023

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 Use Only

TCEQ Core Data Form

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

SECTION I: General Information

1. Reason for Submission (If other is checked please describe in space provided.)		
<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)		3. Regulated Entity Reference Number (if issued)
CN 605721653		RN

[Follow this link to search for CN or RN numbers in Central Registry**](#)

SECTION II: Customer Information

4. General Customer Information		5. Effective Date for Customer Information Updates (mm/dd/yyyy)					
<input type="checkbox"/> New Customer		<input type="checkbox"/> Update to Customer Information					
<input type="checkbox"/> Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)		<input type="checkbox"/> Change in Regulated Entity Ownership					
The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State (SOS) or Texas Comptroller of Public Accounts (CPA).							
6. Customer Legal Name (If an individual, print last name first: eg: Doe, John)		If new Customer, enter previous Customer below:					
HM Parkside, LP							
7. TX SOS/CPA Filing Number	8. TX State Tax ID (11 digits)	9. Federal Tax ID (9 digits)	10. DUNS Number (if applicable)				
0803154683	32068805335						
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"/> State <input type="checkbox"/> Other	<input type="checkbox"/> Sole Proprietorship	<input type="checkbox"/> Other:					
12. Number of Employees		13. Independently Owned and Operated?					
<input checked="" type="checkbox"/> 0-20 <input 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"/> Occupational Licensee <input type="checkbox"/> Responsible Party <input type="checkbox"/> Voluntary Cleanup Applicant <input type="checkbox"/> Other:							
15. Mailing Address:	1011 North Lamar Boulevard						
	City	Austin	State	TX	ZIP	78703	ZIP + 4
16. Country Mailing Information (if outside USA)				17. E-Mail Address (if applicable)			
				Blake@blakemageeco.com			
18. Telephone Number		19. Extension or Code		20. Fax Number (if applicable)			
(512) 481-0303				() -			

SECTION III: Regulated Entity Information

21. General Regulated Entity Information (If 'New Regulated Entity' is selected below this form should be accompanied by a permit application)	
<input checked="" type="checkbox"/> New Regulated Entity <input type="checkbox"/> Update to Regulated Entity Name <input type="checkbox"/> Update to Regulated Entity Information	
The Regulated Entity Name submitted may be updated in order to meet TCEQ Agency Data Standards (removal of organizational endings such as Inc, LP, or LLC.)	
22. Regulated Entity Name (Enter name of the site where the regulated action is taking place.)	
Parkside on the River Section 8	

23. Street Address of the Regulated Entity: (No PO Boxes)	Located east of Texas Bluebonnet Trail. East of Parkside on the River Phase 3 Sections 3A & 3B. Property ID R574025, R312360							
	City	Georgetown	State	TX	ZIP	78628	ZIP + 4	
24. County	Williamson County							
Enter Physical Location Description if no street address is provided.								
25. Description to Physical Location:	Located east of Texas Bluebonnet Trail. East of Parkside on the River Phase 3 Sections 3A & 3B. Property ID R574025, R312360							
26. Nearest City					State	Nearest ZIP Code		
Georgetown					TX		78628	
27. Latitude (N) In Decimal:	30.607425			28. Longitude (W) In Decimal:	-97.765361			
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds			
30	36	26.37N	97	45	55.30W			
29. Primary SIC Code (4 digits)	30. Secondary SIC Code (4 digits)		31. Primary NAICS Code (5 or 6 digits)		32. Secondary NAICS Code (5 or 6 digits)			
1521			236115					
33. What is the Primary Business of this entity? (Do not repeat the SIC or NAICS description.)								
Land Development - Single Family Residential								
34. Mailing Address:	1011 North Lamar Boulevard							
	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 (if applicable)					
(512) 481-0303			() -					

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

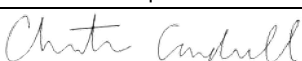
<input type="checkbox"/> Dam Safety	<input type="checkbox"/> Districts	<input checked="" type="checkbox"/> Edwards Aquifer	<input type="checkbox"/> Emissions Inventory Air	<input type="checkbox"/> Industrial Hazardous Waste
<input type="checkbox"/> Municipal Solid Waste	<input type="checkbox"/> New Source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

SECTION IV: Preparer Information

40. Name:	Christine Campbell	41. Title:	Project Engineer
42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(512) 872-6696		() -	christine.campbell@hrgreen.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:	HR Green Development TX, LLC	Job Title:	Project Engineer
Name(In Print) :	Christine Campbell	Phone:	(512) 872-6696
Signature:		Date:	11/9/2023

CIVIL CONSTRUCTION PLANS
PARKSIDE ON THE RIVER MUNICIPAL UTILITY DISTRICT NO. 2
PARKSIDE ON THE RIVER
SECTION 8
GEORGETOWN, WILLIAMSON COUNTY, TEXAS
2023-xx-CON

OWNER/DEVELOPER: HM PARKSIDE, LP
1011 NORTH LAMAR BLVD
AUSTIN, TX 78703
(512) 481-0303

ENGINEER/SURVEYOR: HR GREEN DEVELOPMENT TX, LLC
5508 HIGHWAY 290 WEST, SUITE 150
AUSTIN, TEXAS 78735
(512) 872-6696

WATERSHED STATUS:

THIS SITE IS LOCATED IN THE SOUTH FORK OF THE SAN GABRIEL WATERSHED. THIS SITE IS LOCATED OVER THE EDWARDS AQUIFER RECHARGE ZONE AND CONTRIBUTING ZONE.

FLOODPLAIN INFORMATION:

PORTIONS OF THIS SUBDIVISION ARE WITHIN SPECIAL FLOOD HAZARD AREAS INUNDATED BY THE 100 YEAR FLOOD AS IDENTIFIED BY THE U.S. FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP NUMBER 48491C0460F, EFFECTIVE DATE DECEMBER 20, 2019.

LEGAL DESCRIPTION:

41.26 ACRES OF LAND IN THE JOSEPH THOMPSON SURVEY, ABSTRACT NO. 608 AND THE W.E. PATE SURVEY, ABSTRACT NO. 836, WILLIAMSON COUNTY, TEXAS; BEING A PORTION OF A CERTAIN CALLED 1,143.511 ACRE TRACT OF LAND, DESIGNATED AS TRACT 1, AND DESCRIBED IN THE SPECIAL WARRANTY DEED TO HM PARKSIDE, LP OF RECORD IN DOCUMENT NO. 2018114043, OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY, TEXAS, AND ALSO BEING A PORTION OF A CERTAIN CALLED 314.00 ACRE TRACT OF LAND DESIGNATED AS TRACT 1 AND DESCRIBED IN THE SPECIAL WARRANTY DEED TO HM GPIL, LP OF RECORD IN DOCUMENT NO. 2021027159, OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY, TEXAS

BENCHMARK NOTE:

NAVD 88 (GEOID 12A)

BM(1380)-221:
COTTON GIN SPINDLE FOUND IN THE SOUTH EDGE OF A CONCRETE SIDEWALK
ELEVATION = 962.21 FEET.

BM(1380)-700100:
MAGNAIL WITH WASHER STAMPED HR GREEN SET IN CONCRETE RIM OF WATER MANHOLE
ELEVATION = 940.16 FEET.

BM(1380)-700200:
MAGNAIL WITH WASHER STAMPED HR GREENSET IN CONCRETE BASE OF BOLLARD
ELEVATION = 890.30 FEET.

UTILITY PROVIDERS:

WATER & WASTEWATER: GEORGETOWN UTILITY SYSTEMS
300-1 INDUSTRIAL AVENUE, GEORGETOWN TX 78626
(512) 930-3555
GUS@GEORGETOWN.ORG

ELECTRIC: PEDERNALES ELECTRIC COOPERATIVE
(877) 372-0391

NO LIABILITY NOTE:

LIMITATION OF LIABILITY - HR GREEN DEVELOPMENT TX, LLC ASSUMES NO LIABILITY FOR ANY DESIGN OR DRAWINGS IN THESE PLANS, THAT ARE NOT SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED WITH THE TEXAS BOARD OF PROFESSIONAL ENGINEERS AS A MEMBER OF THIS FIRM (#F-16384). OTHER CONSULTANTS' WORK SHOWN IN THESE PLANS IS THE RESPONSIBILITY OF THE CONSULTANT WHO PREPARED SUCH WORK, AND IS INCLUDED IN THIS PLAN SET FOR REVIEW REQUIREMENTS ONLY.

SITE PLAN COMPONENTS - ALL BUILDING AND STRUCTURAL IMPROVEMENTS SHOWN HEREON ARE SHOWN FOR CONCEPTUAL PURPOSES ONLY. HR GREEN DEVELOPMENT TX, LLC IS NOT RESPONSIBLE OR LIABLE FOR THE DESIGN OF BUILDING OR STRUCTURAL IMPROVEMENTS BY OTHERS.

STRUCTURAL COMPONENTS - ALL STRUCTURAL DESIGN IS THE RESPONSIBILITY OF THE OWNER'S STRUCTURAL ENGINEER. STRUCTURAL DESIGN SHOWN HEREON IS THE DESIGN OF THE OWNER'S STRUCTURAL ENGINEER.

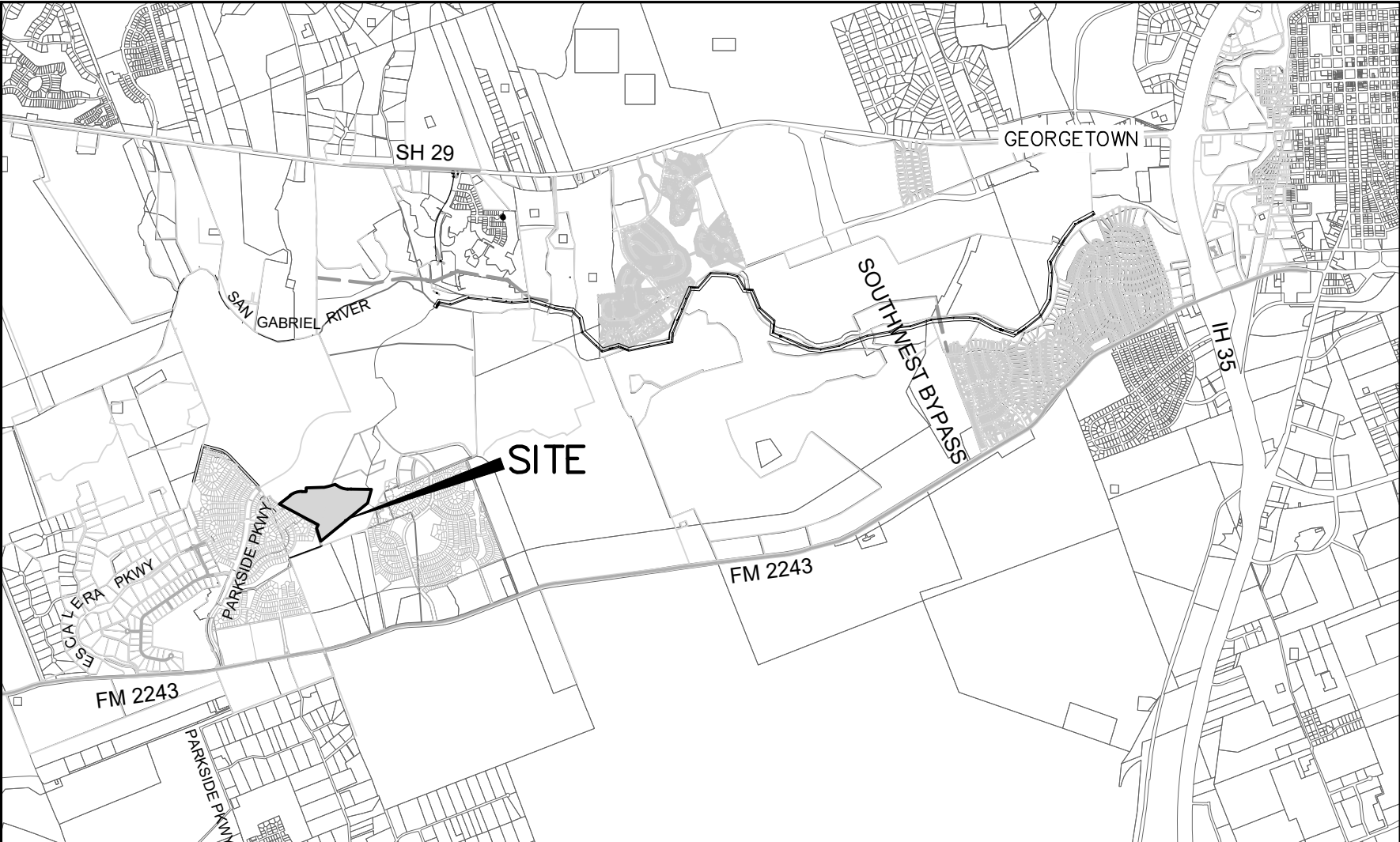
PAVEMENT DESIGN - PAVEMENT DESIGN SHOWN HEREON IS THE DESIGN OF THE OWNER'S GEOTECHNICAL CONSULTANT. HR GREEN DEVELOPMENT TX, LLC MAKES NO WARRANTY OR GUARANTEE AS TO ITS SUITABILITY, AND ASSUMES NO LIABILITY THEREFORE.

NOTES:

- THESE PLANS WERE PREPARED, SEALED, SIGNED AND DATED BY A TEXAS LICENSED PROFESSIONAL ENGINEER. THEREFORE BASED ON THE ENGINEER'S CONCURRENCE OF COMPLIANCE, THE 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.
- THIS PROJECT IS SUBJECT TO ALL CITY STANDARD SPECIFICATIONS AND DETAILS IN EFFECT AT THE TIME OF SUBMITTAL OF THE PROJECT TO THE CITY.
- THE PROPERTY SUBJECT TO THIS APPLICATION IS SUBJECT TO THE WATER QUALITY REGULATIONS OF THE CITY OF GEORGETOWN.
- A GEOLOGIC ASSESSMENT, IN ACCORDANCE WITH THE CITY OF GEORGETOWN WATER QUALITY REGULATIONS, WAS COMPLETED ON OCTOBER 18, 2023. ANY SPRINGS AND STREAMS AS IDENTIFIED IN THE GEOLOGIC ASSESSMENT ARE SHOWN HEREIN.
- THIS PROJECT IS SUBJECT TO THE REQUIREMENTS OF PARKSIDE ON THE RIVER DEVELOPMENT AGREEMENT (ORDINANCE NO. 2019-69).

REVISIONS

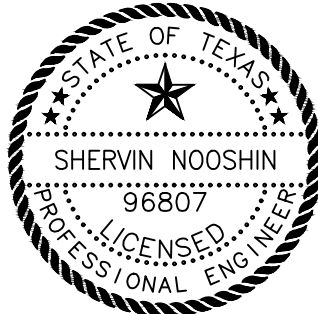
Number	Date	Description



VICINITY MAP
SCALE: 1"=4000'

I, SHERVIN NOOSHIN, P.E., CERTIFY THAT THESE ENGINEERING DOCUMENTS ARE COMPLETE, ACCURATE AND ADEQUATE FOR THE INTENDED PURPOSES, INCLUDING CONSTRUCTION, BUT ARE NOT AUTHORIZED FOR CONSTRUCTION PRIOR TO FORMAL CITY APPROVAL.

SUBMITTED BY: *Sherwin Nooshin* 11/03/2023
SHERVIN NOOSHIN, P.E. DATE
HR GREEN DEVELOPMENT TX, LLC
5508 HIGHWAY 290 WEST, SUITE 150
AUSTIN, TEXAS 78735
512.872.6696



REVIEWED FOR COMPLIANCE WITH

PARKSIDE ON THE RIVER M.U.D. NO. 2 DATE

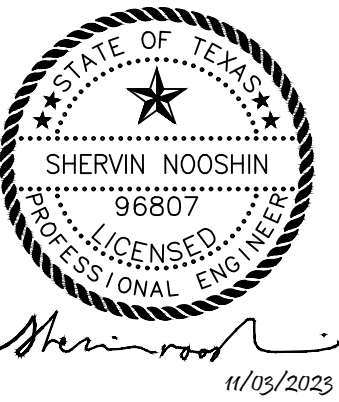
Sheet List Table

Sheet Number	Sheet Title
1	COVER SHEET
2	GENERAL NOTES
3	TCEQ NOTES
4	PRELIMINARY PLAT (1 OF 2)
5	PRELIMINARY PLAT (2 OF 2)
6	EXISTING CONDITIONS & DEMOLITION PLAN
7	PROPOSED CONDITIONS PLAN
8	TREE LIST
9	EROSION & SEDIMENTATION CONTROL PLAN A
10	EROSION & SEDIMENTATION CONTROL PLAN B
11	EROSION & SEDIMENTATION CONTROL PLAN C
12	EROSION & SEDIMENTATION CONTROL DETAILS
13	SIGNAGE STRIPING & LIGHTING PLAN A
14	SIGNAGE STRIPING & LIGHTING PLAN B
15	SIGNAGE STRIPING & LIGHTING PLAN C
16	WHITE DAISY LANE PLAN & PROFILE 1+00 - 8+00
17	WHITE DAISY LANE PLAN & PROFILE 8+00 - END
18	SCARLET SAGE DRIVE PLAN & PROFILE 1+00 - 8+00
19	SCARLET SAGE DRIVE PLAN & PROFILE 8+00 - END
20	MIGHTY COUNSELOR LANE PLAN & PROFILE 1+00 - 9+43.83
21	GLORIOUS DAY COVE PLAN & PROFILE 1+00 - END
22	GOLDEN RIGHTEOUS COURT PLAN & PROFILE 1+00 - END
23	PAVING & GRADING PLAN A
24	PAVING & GRADING PLAN B
25	PAVING & GRADING PLAN C
26	INTERSECTION DETAILS
27	PAVING DETAILS SHEET 1 OF 2
28	PAVING DETAILS SHEET 2 OF 2
29	EXISTING DRAINAGE AREA MAP
30	PROPOSED DRAINAGE AREA MAP
31	FULLY-DEVELOPED DRAINAGE AREA MAP
32	INLET DRAINAGE AREA MAP
33	INLET DRAINAGE CALCULATIONS
34	WATER QUALITY DRAINAGE AREA MAP (INTERIM)
35	WATER QUALITY DRAINAGE AREA MAP (FULLY-DEVELOPED)
36	WATER QUALITY CALCULATIONS
37	WATER QUALITY POND
38	POND SECTIONS
39	POND OUTLET STRUCTURE DETAILS
40	POND DETAILS
41	OVERALL STORM SEWER PLAN A
42	OVERALL STORM SEWER PLAN B
43	OVERALL STORM SEWER PLAN C
44	STORM A-1 PLAN & PROFILE 1+00 - END
45	STORM B-1 PLAN & PROFILE 1+00 - 10+00
46	STORM B-1 PLAN & PROFILE 10+00 - END
47	STORM B-1 LATERALS
48	STORM B-2 PLAN & PROFILE 1+00 - END
49	STORM C-1 PLAN & PROFILE 1+00 - 9+00
50	STORM C-1 PLAN & PROFILE 9+00 - END
51	STORM C-1 LATERALS SHEET 1
52	STORM C-1 LATERALS SHEET 2
53	STORM C-2 & D1- PLAN & PROFILE 1+00 - END
54	DRAINAGE DETAILS
55	OVERALL WASTEWATER PLAN A
56	OVERALL WASTEWATER PLAN B
57	OVERALL WASTEWATER PLAN C
58	WWL A PLAN & PROFILE 1+00 - 10+00
59	WWL A PLAN & PROFILE 10+00 - END
60	WWL B PLAN & PROFILE 1+00 - 8+00
61	WWL B PLAN & PROFILE 8+00 - END
62	WWL C PLAN & PROFILE 1+00 - END
63	WWL D PLAN & PROFILE 1+00 - END
64	WASTEWATER DETAILS SHT 1 OF 2
65	WASTEWATER DETAILS SHT 2 OF 2
66	OVERALL WATER PLAN A
67	OVERALL WATER PLAN B
68	OVERALL WATER PLAN C
69	WATER DETAILS SHT 1 OF 2
70	WATER DETAILS SHT 2 OF 2
71	S-1 - POND OUTLET STRUCTURE SHT1
72	S-2 - POND OUTLET STRUCTURE SHT2



5508 HIGHWAY 290 WEST
SUITE 150
AUSTIN, TX 78735
HR GREEN DEVELOPMENT TX, LLC
HRGREEN.COM

P.E. NO.: 16384
RPLS NO.: 10194101



COVER SHEET
PARKSIDE SECTION 8
CONSTRUCTION PLANS
GEORGETOWN, WILLIAMSON, TEXAS

DESIGNED BY: CC
DRAWN BY: TBM/KM
CHECKED BY: SN
APPROVED BY: _____
SHEET 1 OF 72
2023-XX-CON

1. ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE PLANS REMAINS WITH THE ENGINEER WHO PREPARED THEM. IN REVIEWING THESE PLANS, THE CITY OF GEORGETOWN MUST RELY ON THE ADEQUACY OF THE WORK OF THE DESIGN ENGINEER.
2. CONTRACTOR SHALL NOTIFY GEORGETOWN UTILITIES AT 512-930-3555 AT LEAST 24 HOURS PRIOR TO THE INSTALLATION OF ANY DRAINAGE FACILITY WITHIN A DRAINAGE EASEMENT OR STREET R.O.W. THE METHOD OF PLACEMENT AND COMPACTION OF BACKFILL IN THE CITY'S R.O.W. MUST BE APPROVED PRIOR TO THE START OF BACKFILL OPERATIONS.
3. FOR SLOPES OR TRENCHES GREATER THAN FIVE (5) FEET IN DEPTH, A NOTE MUST BE ADDED STATING THAT CONSTRUCTION OPERATIONS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH APPLICABLE REGULATIONS OF THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION. COPIES OF OSHA STANDARDS MAY BE PURCHASED FROM THE U.S. GOVERNMENT PRINTING OFFICE AND RELATED REFERENCE MATERIALS MAY BE PURCHASED FROM OSHA, 611 E. 6TH STREET, AUSTIN, TEXAS.
4. ALL SITE WORK MUST ALSO COMPLY WITH ENVIRONMENTAL REQUIREMENTS.
5. CONTRACTOR INFORMATION

HM PARKSIDE DEVELOPMENT INC. PHONE# 512-481-0303

6. TOPOGRAPHIC DATA SHOWN HEREON BASED ON GROUND TOPO SURVEY BY HR GREEN ON OCTOBER 2023.
7. IF CONTRACTOR FINDS A DISCREPANCY WITH THE TOPOGRAPHIC INFORMATION ON THESE PLANS, HE/SHE SHOULD CONTACT THE ENGINEER/SURVEYOR IMMEDIATELY.
8. ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE RESTORED AND GRADED TO DRAIN.
9. ANY TEMPORARY SPOILS STOCKPILE MUST BE LOCATED OUTSIDE OF ANY TREE DRIPLINES AND IN THE TEMPORARY SPOILS AREA DESIGNATED ON THE APPROVED PLANS. ALL SURPLUS MATERIAL WILL BE DISPOSED OF OFFSITE.
10. ALL DEBRIS AND EXCESS MATERIAL SHALL BE REMOVED FROM THE SITE IN A MANNER NOT TO DAMAGE THE OWNER'S PROPERTY PRIOR TO ACCEPTANCE OF THE PROJECT.
11. IF CONTRACTOR ENCOUNTERS A VOID ON THE PROJECT, CONTRACTOR IS TO CONTACT ENGINEER AT (512) 872-6696 OR CRAIG CRAWFORD AT CAMBRIAN ENVIRONMENTAL AT (512) 705-5541 FOR EVALUATION OF THE FEATURE. ONCE CAMBRIAN ENVIRONMENTAL HAS VERIFIED THAT THE FEATURE IS NOT AN ENDANGERED SPECIES HABITAT, CONTRACTOR MAY PROCEED AS DIRECTED BY THE DETAILS ON THESE PLANS.
12. ALL WATER CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF GEORGETOWN CONSTRUCTION SPECIFICATION (MOST CURRENT EDITION).

1. IN ACCORDANCE WITH THIRAWS OF THE STATE OF TEXAS AND THE U. S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, ALL TRENCHES OVER 5 FEET IN DEPTH IN EITHER HARD AND COMPACT OR SOFT AND UNCONSOLIDATED EARTH SHALL BE PROTECTED BY SHIELDING OR SHIELDING. ALL TRENCHES LESS THAN 5 FEET IN DEPTH SHALL ALSO BE EFFECTIVELY PROTECTED WHEN HAZARDOUS GROUND MOVEMENT MAY BE EXPECTED. TRENCH SAFETY SYSTEMS TO BE UTILIZED FOR THIS PROJECT WILL BE PROVIDED BY THE CONTRACTOR.
2. IN ACCORDANCE WITH THE U. S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, WHEN PERSONS ARE IN TRENCHES 4-FEET DEEP OR MORE, ADEQUATE MEANS OF EXIT, SUCH AS A LADDER OR STEPS, MUST BE PROVIDED AND LOCATED SO AS TO REQUIRE NO MORE THAN 25 FEET OF LATRINAL.
3. ALL TRENCHES SHALL BE PROTECTED BY SHIELDING OR SHIELDING. ALL TRENCHES SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER, ARE RETAINED AND COPIES SUBMITTED TO THE CITY OF GEORGETOWN.

1. INSTALL TREE PROTECTION AND INITIATE TREE MITIGATION MEASURES.
2. BEGIN EROSION CONTROL MEASURES. EROSION CONTROL TO BE INITIATED ON APPROVED PLANS.
3. CONTACT CITY OF GEORGETOWN AND WILMINGTON COUNTY TO SCHEDULE PRE-CONSTRUCTION COORDINATION MEETING
4. BEGIN TEMPORARY EROSION CONTROL INSTALLATION. REVIEW CONSTRUCTION SCHEDULE WITH THE EROSION CONTROL PLAN.
5. BEGIN SITE CLEARING AND GRADING, INSPECT AND MAINTAIN ALL CONTROLS AS PER GENERAL NOTES.
6. CONSTRUCT UTILITY LINES (E. WATER, WASTEWATER, STORM DRAINAGE & PONDS.
7. CONSTRUCT SIDEWALK RAMPS.
8. CONSTRUCT PAVING/STREETS.
9. OBTAIN PERMITS AND/OR COMPLETE A DEVELOPERS CONTRACT FOR THE REVEGETATION ALONG WITH THE ENGINEERS CONCURRENCE LETTER.
10. PROJECT ENGINEER INSPECTS JOB AND WRITES CONCURRENCE LETTER TO THE CITY. FINAL INSPECTION IS SCHEDULED UPON RECEIPT OF LETTER.
11. REMOVE TEMPORARY EROSION/SEDIMENTATION CONTROLS AT GRASS GROWTH.

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 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 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 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 BEND 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 TYPOT TYPE A GRADE 1.
18. HOT MIX ASPHALT 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 ARE TO BE INSTALLED WITH THE PUBLIC INFRASTRUCTURE.
20. A MAINTENANCE BOND IS REQUIRED TO BE SUBMITTED TO THE CITY PRIOR TO ACCEPTANCE OF HTE PUBLIC IMPROVEMENTS. THIS BOND SHALL BE ESTABLISHED FOR 2 YEAR IN THE AMOUNT OF 10% OF THE COST OF THE PUBLIC IMPROVEMENTS AND SHALL FOLLOW THE CITY FORMAT.
21. RECORD DRAWINGS OF THE PUBLIC IMPROVEMENTS SHALL BE SUBMITTED TO THE CITY BY THE DESIGN ENGINEER PRIOR TO THE PROJECT BEING COMPLETED. THESE DRAWINGS SHALL BE SUBMITTED AS A PDF TO CLASH DOWNS@CITYOFGEORGETOWN.COM

1. PIPE MATERIAL FOR WATER MAINS SHALL BE PVC (AWWA C-900, MIN. CLASS 200), OR DUCTILE IRON (C-115, MIN. CLASS 200) UNLESS SPECIFIED OTHERWISE.
2. PIPE MATERIAL FOR GRAVITY WASTEWATER MAINS SHALL BE PVC (ASTM D3034, SDR-26) UNLESS SPECIFIED OTHERWISE.
3. THE CONTRACTOR SHALL CONTACT THE CITY INSPECTOR TO COORDINATE UTILITY RE-INS AND NOTIFY HIM AT LEAST 48 HOURS PRIOR TO CONNECTING TO EXISTING LINES.
4. ALL MANHOLES LOCATED OUTSIDE OF THE PAVEMENT SHALL HAVE BOLTED COVERS. TAPPING OF FIBERGLASS MANHOLES SHALL NOT BE ALLOWED.
5. THE CONTRACTOR MUST OBTAIN A BULK WATER PERMIT OR PURCHASE AND INSTALL A WATER METER FOR ALL WATER USED DURING CONSTRUCTION. A COPY OF THIS PERMIT MUST BE CARRIED AT ALL TIMES BY ALL WHO USE WATER. CONTRACTOR TO INSTALL ABOVE GROUND WATER TANK WITH SUPPLY LINE AS INDICATED ON PLANS.
6. LINE FLUSHING OR ANY ACTIVITY USING A LARGE QUANTITY OF WATER MUST BE SCHEDULED WITH THE CITY INSPECTOR.
7. THE CONTRACTOR, AT HIS EXPENSE, SHALL PERFORM QUALITY TESTING FOR ALL WASTEWATER PIPE INSTALLED AND SHALL PROVIDE ALL EQUIPMENT (INCLUDING PUMPS AND GAUGES), SUPPLIES AND LABOR NECESSARY TO PERFORM THE TESTS. QUALITY AND PRESSURE TESTING SHALL BE MONITORED BY CITY OF GEORGETOWN PERSONNEL.
8. THE CONTRACTOR SHALL COORDINATE TESTING WITH THE CITY OF INSPECTOR AND PROVIDE NO LESS THAN 24 HOURS NOTICE PRIOR TO PERFORMING STERILIZATION, QUALITY TESTING OR PRESSURE TESTING.
9. THE CONTRACTOR SHALL NOT OPEN OR CLOSE ANY VALVES UNLESS AUTHORIZED BY THE CITY OF GEORGETOWN.
10. ALL VALVE BOXES AND COVERS SHALL BE CAST IRON.
11. TOOLS FOR MARKING THE CURB SHALL BE PROVIDED BY THE CONTRACTOR. OTHER APPROPRIATE MEANS OF MARKING SERVICE AND UTILITY LOCATIONS SHALL BE PROVIDED IN AREAS WITHOUT CURBS. SUCH MEANS OF MARKING SHALL BE AS SPECIFIED BY THE ENGINEER AND ACCEPTED BY THE CITY OF GEORGETOWN.
12. CONTACT CITY OF GEORGETOWN INSPECTION DEPARTMENT FOR ASSISTANCE IN OBTAINING EXISTING WATER AND WASTEWATER LOCATIONS.
13. SAND, AS DESCRIBED IN SPECIFICATION ITEM 510 PIPE, SHALL NOT BE USED AS BEDDING FOR WATER AND WASTEWATER LINES. ACCEPTABLE BEDDING MATERIALS ARE PIPE BEDDING STONE, PEA GRAVEL AND IN LIEU OF SAND NATURALLY OCCURRING OR MANUFACTURED STONE MATERIAL CONFORMING TO ASTM C33 FOR STONE QUALITY AND MEETING THE FOLLOWING GRADATION SPECIFICATION:

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

15. THE CONTRACTOR IS HEREBY NOTIFIED THAT CONNECTING TO, SHUTTING DOWN, OR TERMINATING EXISTING UTILITY LINES MAY HAVE TO OCCUR AT OFF-PEAK HOURS. SUCH HOURS ARE USUALLY OUTSIDE NORMAL WORKING HOURS AND POSSIBLY BETWEEN 12 A.M. AND 6 A.M.
16. ALL WASTEWATER CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) REGULATIONS, 30 TAC CHAPTER 313 AND 317, AS APPLICABLE. WHENEVER TCEQ AND CITY OF GEORGETOWN SPECIFICATIONS CONFLICT, THE MORE STRINGENT SHALL APPLY.
17. THE CONTRACTOR SHALL CONTACT THE "DIG TEST" SYSTEM AT 1-800-344-8377 FOR EXISTING UTILITY LOCATIONS PRIOR TO ANY CONSTRUCTION. THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL UTILITIES TO BE EXTENDED, TIED TO, OR ALTERED, OR SUBJECT TO DAMAGE/INCONVENIENCE BY THE CONSTRUCTION OPERATIONS. THE CITY OF GEORGETOWN WATER AND WASTEWATER MAINTENANCE RESPONSIBILITY ENDS AT R.O.W./EASEMENT LINES.
18. ALL MANHOLES IN UNPAVED AREAS PROVIDING DIRECT ACCESS TO A WASTEWATER LINE SHALL BE WATERTIGHT AND BEAR THE WORDING AND INSIGNIA FOR THE CITY OF GEORGETOWN.
19. THE OWNER IS RESPONSIBLE FOR ALL COST OF RELOCATION OR DAMAGE TO UTILITIES.
20. THE CONTRACTOR IS RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH OCCUR DUE TO HIS/HER FAILURE TO LOCATE AND PRESERVE ANY AND ALL UTILITIES.
21. THE ENGINEER, IN PREPARING THESE PLANS HAS ATTEMPTED TO LOCATE ALL EXISTING UTILITIES IN THE AREAS OF EXPANSION OR NEW CONSTRUCTION. HOWEVER, THERE MAY BE UTILITIES THAT COULD NOT BE OR WERE NOT LOCATED. UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE SHOWN IN APPROXIMATE LOCATIONS ONLY. CONTRACTOR SHALL DETERMINE THE EXACT LOCATIONS AND ELEVATIONS OF ALL EXISTING UTILITIES BEFORE ANY WORK BEGINS. CONTRACTOR SHALL CALL APPROPRIATE UTILITY COMPANIES FOR LOCATIONS OF THEIR UTILITIES AT LEAST 48 HOURS BEFORE COMMENCING EXCAVATION. IN THE EVENT THAT A UTILITY IS SITUATED SUCH THAT CONSTRUCTION CANNOT PROCEED AS SHOWN ON THE PLANS, THE CONSTRUCTION MANAGER/SUPERVISOR SHALL BE NOTIFIED IMMEDIATELY.
22. CONTRACTOR TO COORDINATE WITH APPROPRIATE UTILITY COMPANIES PRIOR TO CONSTRUCTION, ADJUSTMENT, OR RELOCATION OF EXISTING UTILITIES AS DESIGNATED ON PLANS.
23. THE MINIMUM HORIZONTAL SEPARATION BETWEEN WATER AND ASSOCIATED VALVING AND SEWER LINES AND ASSOCIATED MANHOLES, IS NINE (9) FEET OUTSIDE DIAMETER TO OUTSIDE DIAMETER. THE MINIMUM VERTICAL SEPARATION BETWEEN WATER AND SEWER LINES IS EIGHTEEN (18) INCHES.
24. THE TOP ELEVATION OF MANHOLES IN PAVED AREAS SHALL MATCH FINISH GRADE. THE TOP ELEVATION OF MANHOLES IN UNPAVED AREAS SHALL BE 3" (MIN.) ABOVE FINISH GRADE, UNLESS OTHERWISE NOTED ON PLANS.
25. CONTRACTOR SHALL COORDINATE INSTALLATION OF UTILITY LINES WITH APPROPRIATE AUTHORITIES PRIOR TO BACKFILLING TRENCHES.
26. ALL WATER AND WASTEWATER LINES IN CITY R.O.W. AND EASEMENTS WILL MEET THE CITY OF GEORGETOWN WATER AND WASTEWATER DEPARTMENT DESIGN CRITERIA, AT A MINIMUM.
27. CITY MAINTENANCE OF UTILITIES ENDS AT THE PROPERTY LINE UNLESS IN AN EASEMENT.
28. EXTEND ALL EXISTING UTILITY MANHOLES, BOXES, COVERS, ETC. TO PROPOSED FINISH GRADE, UNLESS APPROVED OTHERWISE.
29. ALL UNDERGROUND UTILITY CONSTRUCTION WITHIN CITY R.O.W. OR PUBLIC EASEMENTS MUST BE ACCOMPLISHED IN ACCORDANCE WITH THE CITY OF GEORGETOWN STANDARD SPECIFICATIONS.

1. THE CONTRACTOR SHALL INSTALL EROSION/SEDIMENTATION CONTROLS AND TREE/NATURAL AREA PROTECTIVE FENCING PRIOR TO ANY SITE PREPARATION WORK (CLEARING, CRUISING OR EXCAVATION).
2. THE PLACEMENT OF EROSION/SEDIMENTATION CONTROLS SHALL BE IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN.
3. THE PLACEMENT OF TREE/NATURAL AREA PROTECTIVE FENCING SHALL BE IN ACCORDANCE WITH THE CITY OF GEORGETOWN STANDARD NOTES FOR TREE AND NATURAL AREA PROTECTION AND THE APPROVED GRADING/TREE AND NATURAL AREA PLAN.
4. A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD WITH THE CONTRACTOR, DESIGN ENGINEER, PERMIT APPLICANT AND CITY INSPECTOR AFTER INSTALLATION OF THE EROSION/SEDIMENTATION CONTROLS AND TREE/NATURAL AREA PROTECTION MEASURES AND PRIOR TO BEGINNING ANY SITE PREPARATION WORK. THE CONTRACTOR SHALL NOTIFY THE CITY OF GEORGETOWN, AT LEAST THREE DAYS PRIOR TO THE MEETING DATE.
5. THE CONTRACTOR IS REQUIRED TO INSPECT THE CONTROLS AND FENCES AT WEEKLY INTERVALS AND AFTER SIGNIFICANT RAINFALL EVENTS TO INSURE THAT THEY ARE FUNCTIONING PROPERLY. THE PERSON(S) RESPONSIBLE FOR MAINTENANCE OF CONTROLS AND FENCES SHALL IMMEDIATELY MAKE ANY NECESSARY REPAIRS TO DAMAGED AREAS. SILT ACCUMULATION AT CONTROLS MUST BE REMOVED WHEN THE DEPTH REACHES SIX (6) INCHES.
6. PRIOR TO FINAL ACCEPTANCE BY THE CITY, HALL 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 VEGETATED. ALL LAND CLEARING DEBRIS SHALL BE DISPOSED OF IN APPROVED SOIL DISPOSAL SITES.

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF GEORGETOWN STANDARD CONSTRUCTION SPECIFICATIONS AS ADOPTED AND AMENDED UNLESS OTHERWISE SPECIFIED.
2. ANY EXISTING UTILITIES, PAVEMENT, CURBS, SIDEWALKS, STRUCTURES, TREES, ETC., THAT ARE DAMAGED OR REMOVED SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO COST TO THE OWNER.
3. THE CONTRACTOR SHALL VERIFY ALL DEPTHS AND LOCATIONS OF EXISTING UTILITIES PRIOR TO ANY CONSTRUCTION, ANY DISCREPANCIES WITH THE CONSTRUCTION PLANS FOUND IN THE FIELD SHALL BE BROUGHT IMMEDIATELY TO THE ATTENTION OF THE ENGINEER.
4. THE CONTRACTOR SHALL GIVE THE CITY OF GEORGETOWN 48 HOURS NOTICE BEFORE BEGINNING EACH PHASE OF CONSTRUCTION.
5. ALL AREAS DISTURBED OR EXPOSED DURING CONSTRUCTION SHALL BE REVEGETATED IN ACCORDANCE WITH THE PLANS AND CITY OF GEORGETOWN STANDARD SPECIFICATIONS. REVEGETATION OF ALL DISTURBED OR EXPOSED AREAS SHALL CONSIST OF SODDING OR SEEDING AT THE CONTRACTOR'S OPTION, HOWEVER, THE TYPE OF REVEGETATION MUST EQUAL OR EXCEED THE TYPE OF VEGETATION PRESENT BEFORE CONSTRUCTION UNLESS OTHERWISE REQUESTED BY THE OWNER.
6. PRIOR TO ANY CONSTRUCTION, THE CONTRACTOR SHALL CONVENE A PRECONSTRUCTION CONFERENCE BETWEEN THE CITY OF GEORGETOWN, HIMSELF, THE ENGINEER, THE OWNER, THE ENVIRONMENTAL ENGINEER, GEOTECHNICAL ENGINEER, UTILITY COMPANIES, ANY AFFECTED PARTIES AND ANY OTHER ENTITY THE COUNTY OR ENGINEER MAY REQUIRE.
7. WHEN CONSTRUCTION IS BEING CARRIED OUT WITHIN EASEMENTS, THE CONTRACTOR SHALL CONFINE HIS WORK TO WITHIN THE PERMANENT AND ANY TEMPORARY EASEMENTS. PRIOR TO FINAL ACCEPTANCE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL TRASH AND DEBRIS WITHIN THE PERMANENT AND TEMPORARY EASEMENTS. CLEANUP SHALL BE TO THE SATISFACTION OF THE ENGINEER.
8. PRIOR TO ANY CONSTRUCTION, THE CONTRACTOR SHALL APPLY FOR AND SECURE ALL PROPER PERMITS FROM THE APPROPRIATE AUTHORITIES.
9. AVAILABLE BENCHMARK(S) THAT MAY BE UTILIZED FOR THE CONSTRUCTION OF THIS PROJECT ARE DESCRIBED AS FOLLOWS:

MAGNAIL WITH WASHER STAMPED HR GREENSET IN CONCRETE BASE OF BOLLARD
ELEVATION = 890.30 FEET.

1. SIDEWALK RAMPS AND SIDEWALKS LOCATED IN FRONT OF COMMON AREAS TO BE INSTALLED WITH INFRASTRUCTURE CONSTRUCTION
11. CONTRACTOR IS RESPONSIBLE FOR DAMAGE TO ANY EXISTING UTILITY OR IMPROVEMENTS.
12. CONTRACTOR SHALL REFER TO THE GEOTECHNICAL REPORT TITLED "GEOTECHNICAL INVESTIGATION PAVEMENT THICKNESS RECOMMENDATIONS - PARKSIDE ON THE RIVER SECTIONS 8.9, 8.10 GEORGETOWN, TEXAS, DATED OCTOBER 2023 BY M/LA GEOTECHNICAL ENGINEERS JOB# 23011123.001 FOR PAVEMENT DESIGN RECOMMENDATIONS. ANY CONFLICT BETWEEN THESE CONSTRUCTION PLANS AND THE GEOTECHNICAL REPORT SHALL BE RESOLVED IN FAVOR OF THE GEOTECHNICAL REPORT.
13. THE DISTRICT ENGINEER, JONES-HEROY & ASSOCIATES, INC. (KEN HEROY, PH: 512-989-2200) SHALL BE CONTACTED 48 HOURS PRIOR TO THE FOLLOWING:
 - 1) PRE-CONSTRUCTION MEETINGS
 - 2) BEGINNING EACH PHASE OF CONSTRUCTION
 - 3) TESTING OF WATER AND/OR WASTEWATER LINES
 - 4) FINAL WALK-THROUGH OF FACILITIES
14. WHEN REQUIRED, CONTRACTOR SHALL REMOVE PAVEMENT IN ACCORDANCE WITH THE TEXAS DEPARTMENT OF HIGHWAY AND PUBLIC TRANSPORTATION STANDARD SPECIFICATIONS, LATEST EDITION.
15. ALL PAVEMENT REMOVED SHALL BE DONE SUCH THAT THE REMAINING PAVEMENT IS LEFT WITH A CLEAN STRAIGHT EDGE.
16. WHEN REQUIRED, CONTRACTOR SHALL REMOVE EXISTING PAVEMENT STRIPING BY SAND BLASTING FROM EXISTING PAVEMENT IN ACCORDANCE WITH ITEM 678 OF THE TxDOT LATEST EDITION.
17. ALL WORK IN STATE R.O.W. AND EASEMENTS SHALL BE IN ACCORDANCE WITH THE TxDOT LATEST EDITION.
18. EARTHWORK FOR ALL BUILDING FOUNDATIONS AND SLABS SHALL BE IN ACCORDANCE WITH ARCHITECTURAL BUILDING PLANS AND SPECIFICATIONS AND THE GEOTECHNICAL STUDY.
19. IF THE CONTRACTOR FINDS A DISCREPANCY WITH THE TOPOGRAPHIC INFORMATION ON THESE PLANS HE/SHE SHOULD CONTACT THE ENGINEER OR OWNER IMMEDIATELY.
20. CONTRACTOR SHALL PROTECT ALL BENCHMARKS AND PROPERTY MONUMENTATION DISTURBED DURING CONSTRUCTION.
21. DESIGN OF MAJOR DRAINAGE WAYS THROUGH A SUBDIVISION AND MAJOR STRUCTURES SUCH AS BOX CULVERTS OR BRIDGES ACROSS A MAJOR DRAINAGE CHANNEL SHALL BE COORDINATED WITH THE REQUIREMENTS OF THE WILLIAMSON COUNTY HEALTH DISTRICT WHEN ANY PORTION OF THE SUBDIVISION LIES OUTSIDE THE CITY LIMITS, AND WHEN APPLICABLE, A LETTER REQUESTING A LOCAL FLOOD PLAIN MAP AMENDMENT FROM THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) SHALL BE PROVIDED PRIOR TO FINAL CONSTRUCTION PLAN APPROVAL.

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

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MOVING AND THE REMOVAL OF ALL LITTER WITHIN THE PROJECT LIMITS SO AS TO KEEP THE SITE OF THE WORK IN A NEAT AND PRESENTABLE CONDITION AT ALL TIMES. THIS WORK WILL BE CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
2. THE CONTRACTOR SHALL PROTECT ALL AREAS WHICH ARE NOT INCLUDED IN THE ACTUAL LIMITS OF THE PROPOSED CONSTRUCTION AREAS FROM DESTRUCTION. CARE SHALL BE EXERCISED TO PREVENT DAMAGE TO TREES, VEGETATION, FENCES, POWER POLES, AND OTHER NATURAL SURROUNDINGS. THE AREAS NOT TO BE DISTURBED INCLUDE ALL GOLF COURSE AREAS, UNLESS SPECIFIED OTHERWISE. THE CONTRACTOR SHALL, AT HIS EXPENSE, RESTORE ANY AREA DISTURBED AS A RESULT OF HIS OPERATIONS TO A CONDITION AS GOOD AS, OR BETTER THAN, THAT PRESENT PRIOR TO CONSTRUCTION.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MARKING EVERY 100 FOOT ROAD STATION, AND SHALL MAINTAIN THE MARKINGS FOR THE DURATION OF THE PROJECT. THIS WORK SHALL BE CONSIDERED SUBSIDIARY TO THE ITEMIZED CONSTRUCTION CONTRACT.
4. THE SUPERINTENDENT SHALL BE AVAILABLE ON THE PROJECT AT ALL TIMES WHEN WORK IS BEING PERFORMED.
5. NO BLASTING IS ALLOWED ON THIS PROJECT.
6. NO STORAGE OF HYDROCARBON OR HAZARDOUS MATERIAL IS ALLOWED ON SITE.

1. THE DISTRICT ENGINEER, JONES-HEROY & ASSOCIATES, INC. (KEN HEROY, PH: 512-989-2200) SHALL BE CONTACTED 48 HOURS PRIOR TO:
 - i) PRE-CONSTRUCTION MEETINGS;
 - ii) BEGINNING EACH PHASE OF CONSTRUCTION
 - iii) TESTING OF WATER AND/OR WASTEWATER LINES; AND,
 - iv) FINAL WALK-THROUGH OF FACILITIES
2. REVIEW OF THE PLANS BY THE DISTRICT IS LIMITED TO WATER, WASTEWATER, AND DRAINAGE, AND DOES NOT INDICATE A REVIEW ON THE ADEQUACY OF THE DESIGN FOR THE FACILITIES. IN APPROVING THESE PLANS, THE DISTRICT MUST RELY ON THE ADEQUACY OF THE WORK OF THE DESIGN ENGINEER.

1. 1,500 GPM FIRE FLOW SHALL BE PROVIDED FOR THIS PROJECT.
2. AT THE CONCLUSION OF CONSTRUCTION AND AS PART OF THE PROCESS FOR THE CITY TO ACCEPT THIS PHASE:
 - * THE FIRE HYDRANTS SHALL BE FLOWED AND TESTED
 - * A COPY OF THE REPORT SHALL BE EMAILED INTO THE FIRE DEPARTMENT
 - * THE HYDRANTS SHALL BE PAINTED AND COLOR CODED.

***** CAUTION :IF PRESSURE REDUCING VALVES WERE INSTALLED IN THIS PHASING THEY MUST BE SET PRIOR TO FIRE HYDRANT FLOW TESTING.**

3. PER CITY ORDINANCE SEC. 13.15,120, HYDRANT FLOW CODING STANDARDS, PUBLIC HYDRANTS WILL HAVE THE BARRELS PAINTED SILVER, THE HYDRANTS WILL BE FLOW TESTED, AND THE BONNET PAINTED USING THE HYDRANT FLOW STANDARD IN PARAGRAPH C.
FLOW COLOR:
 - * GREATER THAN 1500 GPM BLUE
 - * 1000 TO 1500 GPM GREEN
 - * 500 – 999 GPM ORANGE
 - * LESS THAN 500 GPM RED
 - * NOT WORKING BLACK OR BAGGED

P:\Public\mgis\parkside section 8, 9 & 10\Drawings\802_ACOF\Param\2030297 CNTS.dwg TCEQ NOTES November 01, 2023 9:48 PM, lizarriz

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

- THIS ORGANIZED SEWAGE COLLECTION SYSTEM MUST BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY'S (TCEQ) EDWARDS AQUIFER RULES 30 TEXAS ADMINISTRATIVE CODE (TAC) §213.5(C) AND 217.51 – 217.70 AND 30 TAC CHAPTER 217, SUBCHAPTER D, AND THE CITY OF ROUND ROCK STANDARD SPECIFICATIONS.
- ALL CONTRACTORS CONDUCTING REGULATED ACTIVITIES ASSOCIATED WITH THIS PROPOSED REGULATED PROJECT MUST BE PROVIDED WITH COPIES OF THE SEWAGE COLLECTION SYSTEM PLAN AND THE TCEQ LETTER INDICATING THE SPECIFIC CONDITIONS OF ITS APPROVAL. DURING THE COURSE OF THESE REGULATED ACTIVITIES, THE CONTRACTORS MUST BE REQUIRED TO KEEP ON-SITE COPIES OF THE PLAN AND THE APPROVAL LETTER.
- NO LATER THAN 48 HOURS PRIOR TO COMMENCING ANY REGULATED ACTIVITY, THE APPLICANT OR HIS AGENT MUST NOTIFY THE TCEQ AUSTIN REGIONAL OFFICE, IN WRITING, OF THE DATE ON WHICH THE REGULATED ACTIVITY WILL BEGIN.
- ANY MODIFICATION TO THE ACTIVITIES DESCRIBED IN THE REFERENCED SCS APPLICATION FOLLOWING THE DATE OF APPROVAL MAY REQUIRE THE SUBMITAL OF AN SCS APPLICATION TO MODIFY THIS APPROVAL, INCLUDING THE PAYMENT OF APPROPRIATE FEES AND ALL INFORMATION NECESSARY FOR ITS REVIEW AND APPROVAL.
- ALL TEMPORARY EROSION AND SEDIMENTATION CONTROLS MUST BE INSTALLED PRIOR TO CONSTRUCTION, MUST BE MAINTAINED DURING CONSTRUCTION, AND MUST BE REMOVED WHEN SUFFICIENT VEGETATION IS ESTABLISHED TO CONTROL THE EROSION AND SEDIMENTATION AND THE CONSTRUCTION AREA IS STABILIZED.
- THE SEWER LINE TRENCH DETAILS SHOWING THE CROSS SECTION WITH THE DIMENSIONS, PIPE PLACEMENT, AND BACKFILL INSTRUCTIONS ARE INCLUDED ON PLAN SHEET 80 OF 124 OF THESE PLANS. ALL SEWER PIPES JOINTS MUST MEET THE REQUIREMENTS IN 30 TAC §217.53(C) AN 217.65.

GRAVITY LINES MUST HAVE A SDR 35 OR LESS. PRESSURIZED SEWER SYSTEMS MUST HAVE PIPE WITH A MINIMUM WORKING PRESSURE RATING OF 150 PSI.

THE ASTM, ANSI, OR AWWA SPECIFICATION NUMBERS FOR THE PIPE(S) AND JOINTS ARE ASTM–D3034.

THE PIPE MATERIAL, THE PRESSURE CLASSES, AND THE SDR AND/OR DR DESIGNATIONS ARE SDR–26.

- IF ANY SENSITIVE FEATURES ARE DISCOVERED DURING THE WASTEWATER LINE TRENCHING ACTIVITIES, ALL REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MUST BE SUSPENDED IMMEDIATELY. THE APPLICANT MUST IMMEDIATELY NOTIFY THE APPROPRIATE REGIONAL OFFICE OF THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY OF THE FEATURE DISCOVERED. A GEOLOGIST'S ASSESSMENT OF THE LOCATION AND EXTENT OF THE FEATURE DISCOVERED MUST BE REPORTED TO THAT REGIONAL OFFICE IN WRITING WITHIN TWO WORKING DAYS. THE APPLICANT MUST SUBMIT A PLAN FOR ENSURING THE STRUCTURAL INTEGRITY OF THE SEWER LINE OR FOR MODIFYING THE PROPOSED COLLECTION SYSTEM ALIGNMENT AROUND THE FEATURE. THE REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MAY NOT PROCEED UNTIL THE EXECUTIVE DIRECTOR HAS REVIEWED AND APPROVED THE METHODS PROPOSED TO PROTECT THE SENSITIVE FEATURE AND THE EDWARDS AQUIFER FROM ANY POTENTIALLY ADVERSE IMPACTS TO WATER QUALITY WHILE MAINTAINING THE STRUCTURAL INTEGRITY OF THE LINE.

- SEWER LINES LOCATED WITHIN OR CROSSING THE 5-YEAR FLOODPLAIN OF A DRAINAGE WAY WILL BE PROTECTED FROM INUNDATION AND STREAM WENTIGS WHICH COULD CAUSE EROSION AND SCOURING OF BACKFILL. THE TRENCH MUST BE CAPPED WITH CONCRETE TO PREVENT SCOURING OF BACKFILL, OR THE SEWER LINES MUST BE ENCASED IN CONCRETE. ALL CONCRETE SHALL HAVE A MINIMUM THICKNESS OF SIX (6) INCHES.

- BLASTING PROCEDURES FOR PROTECTION OF EXISTING SEWER LINES AND OTHER UTILITIES WILL BE IN ACCORDANCE WITH THE NATIONAL FIRE PROTECTION ASSOCIATION CRITERIA. SAND IS NOT ALLOWED AS BEDDING OR BACKFILL IN TRENCHES THAT HAVE BEEN BLASTED. IF ANY EXISTING SEWER LINES ARE DAMAGED, THE LINES MUST BE REPAIRED AND RETESTED.

- ALL MANHOLES CONSTRUCTED OR REHABILITATED ON THIS PROJECT MUST HAVE WATER TIGHT SIZE ON SIZE RESILIENT CONNECTORS ALLOWING FOR DIFFERENTIAL SETTLEMENT. IF MANHOLES ARE CONSTRUCTED WITHIN THE 100-YEAR FLOODPLAIN, THE COVER MUST HAVE A GASKET AND BE BOLTED TO THE RING. WHERE GASKETED MANHOLE COVERS ARE REQUIRED FOR MORE THAN THREE MANHOLES IN SEQUENCE OR FOR MORE THAN 1500 FEET, ALTERNATE MEANS OF VENTING WILL BE PROVIDED. BRICKS ARE NOT AN ACCEPTABLE CONSTRUCTION MATERIAL FOR ANY PORTION OF THE MANHOLE.

THE DIAMETER OF THE MANHOLES MUST BE A MINIMUM OF FOUR FEET AND THE MANHOLE FOR ENTRY MUST HAVE A MINIMUM CLEAR OPENING DIAMETER OF 30 INCHES. THESE DIMENSIONS AND OTHER DETAILS SHOWING COMPLIANCE WITH THE COMMISSION'S RULES CONCERNING MANHOLES AND SEWER LINE/MANHOLE INVERTS DESCRIBED IN 30 TAC §217.55 ARE INCLUDED ON PLAN SHEET 75 & 77 OF 124.

IT IS SUGGESTED THAT ENTRANCE INTO MANHOLES IN EXCESS OF FOUR FEET DEEP BE ACCOMPLISHED BY MEANS OF A PORTABLE LADDER. THE INCLUSION OF STEPS IN A MANHOLE IS PROHIBITED.

- WHERE WATER LINES AND NEW SEWER LINE ARE INSTALLED WITH A SEPARATION DISTANCE CLOSER THAN NINE FEET (I.E., WATER LINES CROSSING WASTEWATER LINES, WATER LINES PARALLELING WASTEWATER LINES, OR WATER LINES NEXT TO MANHOLES) THE INSTALLATION MUST MEET THE REQUIREMENTS OF 30 TAC §217.53(D) (PIPE DESIGN) AND 30 TAC §290.44(E) (WATER DISTRIBUTION).

- WHERE SEWERS LINES DEViate FROM STRAIGHT ALIGNMENT AND UNIFORM GRADE ALL CURVATURE OF SEWER PIPE MUST BE ACHIEVED BY THE FOLLOWING PROCEDURE WHICH IS RECOMMENDED BY THE PIPE MANUFACTURER: N/A.

IF PIPE FLEXURE IS PROPOSED, THE FOLLOWING METHOD OF PREVENTING DEFLECTION OF THE JOINT MUST BE USED: N/A.

SPECIFIC CARE MUST BE TAKEN TO ENSURE THAT THE JOINT IS PLACED IN THE CENTER OF THE TRENCH AND PROPERLY BEDDED IN ACCORDANCE WITH 30 TAC §217.54.

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

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

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

- ALL SEWER LINES MUST BE TESTED IN ACCORDANCE WITH 30 TAC §217.57. THE ENGINEER MUST RETAIN COPIES OF ALL TEST RESULTS WHICH MUST BE MADE AVAILABLE TO THE EXECUTIVE DIRECTOR UPON REQUEST. THE ENGINEER MUST CERTIFY IN WRITING THAT ALL WASTEWATER LINES HAVE PASSED ALL REQUIRED TESTING TO THE APPROPRIATE REGIONAL OFFICE WITHIN 30 DAYS OF TEST COMPLETION AND PRIOR TO USE OF THE NEW COLLECTION SYSTEM. THE TESTING METHOD WILL BE:
(A) OR A COLLECTION SYSTEM PIPE THAT WILL TRANSPORT WASTEWATER BY GRAVITY FLOW, THE DESIGN MUST SPECIFY AN INFILTRATION AND EXFILTRATION TEST OR A LOW-PRESSURE AIR TEST. A TEST MUST CONFORM TO THE FOLLOWING REQUIREMENTS:

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

$$\text{EQUATION C.3 } T = \frac{0.085 \times D \times K}{Q}$$

WHERE:

- T = TIME FOR PRESSURE TO DROP 1.0 POUND PER SQUARE INCH GAUGE IN SECONDS
K = 0.000419 X D X L, BUT NOT LESS THAN 1.0
D = AVERAGE INSIDE PIPE DIAMETER IN INCHES
L = LENGTH OF LINE OF SAME SIZE BEING TESTED, IN FEET
Q = RATE OF LOSS, 0.0015 CUBIC FEET PER MINUTE PER SQUARE FOOT INTERNAL SURFACE
(C) SINCE A K VALUE OF LESS THAN 1.0 MAY NOT BE USED, THE MINIMUM TESTING TIME FOR EACH PIPE DIAMETER IS SHOWN IN THE FOLLOWING

TABLE C.3:

PIPE DIAMETER (INCHES)	MINIMUM TIME (SECONDS)	MAXIMUM LENGTH FOR MINIMUM TIME (FEET)	TIME FOR LONGER LENGTH (SECONDS/FOOT)
6	340	398	0.855
8	454	288	1.520
10	567	239	2.374
12	680	199	3.419
15	850	159	5.342
18	1020	133	7.693
21	1190	114	10.471
24	1360	100	13.676
27	1530	88	17.309
30	1700	80	21.369
33	1870	72	25.856

- (D) AN OWNER MAY STOP A TEST IF NO PRESSURE LOSS HAS OCCURRED DURING THE FIRST 25% OF THE CALCULATED TESTING TIME.
(E) IF ANY PRESSURE LOSS OR LEAKAGE HAS OCCURRED DURING THE FIRST 25% OF A TESTING PERIOD, THEN THE TEST MUST CONTINUE FOR THE ENTIRE TEST DURATION AS OUTLINED ABOVE OR UNTIL FAILURE.
(F) WASTEWATER COLLECTION SYSTEM PIPES WITH A 27 INCH OR LARGER AVERAGE INSIDE DIAMETER MAY BE AIR TESTED AT EACH JOINT INSTEAD OF FOLLOWING THE PROCEDURE OUTLINED IN THIS SECTION.
(G) A TESTING PROCEDURE FOR PIPE WITH AN INSIDE DIAMETER GREATER THAN 33 INCHES MUST BE APPROVED BY THE EXECUTIVE DIRECTOR.
- (2) INFILTRATION/EXFILTRATION TEST.

- (A) THE TOTAL EXFILTRATION, AS DETERMINED BY A HYDROSTATIC HEAD TEST, MUST NOT EXCEED 50 GALLONS PER INCH OF DIAMETER PER MILE OF PIPE PER 24 HOURS AT A MINIMUM TEST HEAD OF 2.0 FEET ABOVE THE CROWN OF A PIPE AT AN UPSTREAM MANHOLE.
(B) AN OWNER SHALL USE AN INFILTRATION TEST IN LIEU OF AN EXFILTRATION TEST WHEN PIPES ARE INSTALLED BELOW THE GROUNDWATER LEVEL.
(C) THE TOTAL EXFILTRATION, AS DETERMINED BY A HYDROSTATIC HEAD TEST, MUST NOT EXCEED 50 GALLONS PER INCH DIAMETER PER MILE OF PIPE PER 24 HOURS AT A MINIMUM TEST HEAD OF TWO FEET ABOVE THE CROWN OF A PIPE AT AN UPSTREAM MANHOLE, OR AT LEAST TWO FEET ABOVE EXISTING GROUNDWATER LEVEL, WHICHEVER IS GREATER.
(D) FOR CONSTRUCTION WITHIN A 25-YEAR FLOOD PLAIN, THE INFILTRATION OR EXFILTRATION MUST NOT EXCEED 10 GALLONS PER INCH DIAMETER PER MILE OF PIPE PER 24 HOURS AT THE SAME MINIMUM TEST HEAD AS IN SUBPARAGRAPH (C) OF THIS PARAGRAPH.
(E) IF THE QUANTITY OF INFILTRATION OR EXFILTRATION EXCEEDS THE MAXIMUM QUANTITY SPECIFIED, AN OWNER SHALL UNDERTAKE REMEDIAL ACTION IN ORDER TO REDUCE THE INFILTRATION OR EXFILTRATION TO AN AMOUNT WITHIN THE LIMITS SPECIFIED. AN OWNER SHALL RETEST A PIPE FOLLOWING A REMEDIATION ACTION.
(F) IF A GRAVITY COLLECTION PIPE IS COMPOSED OF FLEXIBLE PIPE, DEFLECTION TESTING IS ALSO REQUIRED. THE FOLLOWING PROCEDURES MUST BE FOLLOWED:
(1) FOR A COLLECTION PIPE WITH INSIDE DIAMETER LESS THAN 27 INCHES, DEFLECTION MEASUREMENT REQUIRES A RIGID MANDREL.
(A) MANDREL SIZING:
(I) A RIGID MANDREL MUST HAVE AN OUTSIDE DIAMETER (OD) NOT LESS THAN 98% OF THE BASE INSIDE DIAMETER (ID) OR AVERAGE ID OF A PIPE, AS SPECIFIED IN THE APPROPRIATE STANDARD BY THE ASTM'S, AMERICAN WATER WORKS ASSOCIATION, UN-BELL, OR AMERICAN NATIONAL STANDARDS INSTITUTE, OR ANY RELATED APPENDIX.
(II) IF A MANDREL SIZING DIAMETER IS NOT SPECIFIED IN THE APPROPRIATE STANDARD, THE MANDREL MUST HAVE AN OD EQUAL TO 95% OF THE ID OF A PIPE. IN THIS CASE, THE ID OF THE PIPE, FOR THE PURPOSE OF DETERMINING THE OD OF THE MANDREL, MUST EQUAL BE THE AVERAGE OUTSIDE DIAMETER MINUS TWO MINIMUM WALL THICKNESSES FOR OD CONTROLLED PIPE AND THE AVERAGE INSIDE DIAMETER FOR ID CONTROLLED PIPE.
(III) ALL DIMENSIONS MUST MEET THE APPROPRIATE STANDARD.
(B) MANDREL DESIGN:
(I) A RIGID MANDREL MUST BE CONSTRUCTED OF A METAL OR A RIGID PLASTIC MATERIAL THAT CAN WITHSTAND 200 PSI WITHOUT BEING DEFORMED.
(II) A MANDREL MUST HAVE NINE OR MORE ODD NUMBER OF RUNNERS OR LEGS.
(III) A BARREL SECTION LENGTH MUST EQUAL AT LEAST 75% OF THE INSIDE DIAMETER OF A PIPE.
(IV) EACH SIZE MANDREL MUST USE A SEPARATE PROVING RING.
(C) METHOD OPTIONS:
(I) AN ADJUSTABLE OR FLEXIBLE MANDREL IS PROHIBITED.
(II) A TEST MAY NOT USE TELEVISION INSPECTION AS A SUBSTITUTE FOR A DEFLECTION TEST.
(III) IF REQUESTED, THE EXECUTIVE DIRECTOR MAY APPROVE THE USE OF A DEFLECTOMETER OR A MANDREL WITH REMOVABLE LEGS OR RUNNERS ON A CASE-BY-CASE BASIS.
(2) FOR A GRAVITY COLLECTION SYSTEM PIPE WITH AN INSIDE DIAMETER 27 INCHES AND GREATER, OTHER TEST METHODS MAY BE USED TO DETERMINE VERTICAL DEFLECTION.
(3) A DEFLECTION TEST METHOD MUST BE ACCURATE TO WITHIN PLUS OR MINUS 0.2% DEFLECTION.
(4) AN OWNER SHALL NOT CONDUCT A DEFLECTION TEST UNTIL AT LEAST 30 DAYS AFTER THE FINAL BACKFILL.
(5) GRAVITY COLLECTION SYSTEM PIPE DEFLECTION MUST NOT EXCEED FIVE PERCENT (5%).
(6) IF A PIPE SECTION FAILS A DEFLECTION TEST, AN OWNER SHALL CORRECT THE PROBLEM AND CONDUCT A SECOND TEST AFTER THE FINAL BACKFILL HAS BEEN IN PLACE AT LEAST 30 DAYS.
- ALL MANHOLES MUST BE TESTED TO MEET OR EXCEED THE REQUIREMENTS OF 30 TAC §217.58.
- ALL PRIVATE SERVICE LATERALS MUST BE INSPECTED AND CERTIFIED IN ACCORDANCE WITH 30 TAC §213.5(C)(3)(I). AFTER INSTALLATION OF AND, PRIOR TO COVERING AND CONNECTING A PRIVATE SERVICE LATERAL TO AN EXISTING ORGANIZED SEWAGE COLLECTION SYSTEM, A TEXAS LICENSED PROFESSIONAL ENGINEER, TEXAS REGISTERED SANITARIAN, OR APPROPRIATE CITY INSPECTOR MUST VISUALLY INSPECT THE PRIVATE SERVICE LATERAL AND THE CONNECTION TO THE SEWAGE COLLECTION SYSTEM, AND CERTIFY THAT IT IS CONSTRUCTED IN CONFORMITY WITH THE APPLICABLE PROVISIONS OF THIS SECTION. THE OWNER OF THE COLLECTION SYSTEM MUST MAINTAIN SUCH CERTIFICATIONS FOR FIVE YEARS AND FORWARD COPIES TO THE APPROPRIATE REGIONAL OFFICE UPON REQUEST. CONNECTIONS MAY ONLY BE MADE TO AN APPROVED SEWAGE COLLECTION SYSTEM.

SUPPLEMENTAL TCEQ NOTES:

- WATERTIGHT, SIZE ON SIZE RESILIENT CONNECTORS CONFORMING TO ASTM C–923 ARE REQUIRED FOR CONNECTING PIPE TO MANHOLES.
- IF FAULTS, CAVERNS, OR SUBSIDENCE ARE DISCOVERED DURING CONSTRUCTION, CONSTRUCTION SHOULD BE HALTED TO ALLOW THE FEATURES TO BE INSPECTED BY THE DESIGN ENGINEER OR GEOLOGICAL OR GEOTECHNICAL PROFESSIONAL.
- TRENCH WALLS MUST BE VERTICAL TO AT LEAST ONE FOOT ABOVE THE PIPE. TRENCH BACKFILL MUST BE FREE OF STONES GREATER THAN 6-INCHES AND FREE OF ORGANIC OR ANY OTHER UNSTABLE MATERIAL.
- ALL WASTEWATER PIPE MATERIAL PVC SDR26–ASTM–3034 USED MUST HAVE A MINIMUM ALLOWABLE TENSILE.

TCEQ WATER DISTRIBUTION SYSTEM
GENERAL CONSTRUCTION NOTES

- 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. When conflicts are noted with local standards, the more stringent requirement shall be applied. At a minimum, construction for public water systems must always meet TCEQ's "Rules and Regulations for Public Water Systems."
- 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 [§290.44(a)(1)].
- Plastic pipe for use in public water systems must bear the NSF International Seal of Approval (NSI–pw) and have an ASTM design pressure rating of at least 150 psi or a standard dimension ratio of 26 or less [§290.44(a)(2)].
- 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 [§290.44(a)(3)].
- All water line crossings of wastewater mains shall be perpendicular [§290.44(e)(4)(B)].
- Water transmission and distribution lines shall be installed in accordance with the manufacturer's instructions. However, the top of the water line must be located below the frost line and in no case shall the top of the water line be less than 24 inches below ground surface [§290.44(a)(4)].
- The maximum allowable lead content of pipes, pipe fittings, plumbing fittings, and fixtures is 0.25 percent [§290.44(b)].
- The contractor shall install appropriate air release devices with vent openings to the atmosphere covered with 1/6-mesh or finer, corrosion resistant screening material or an acceptable equivalent [§290.44(d)(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 [§290.44(f)(1)].
- When waterlines are laid under any flowing or intermittent stream or semi-permanent body of water the waterline shall be installed in a separate watertight pipe encasement. Valves must be provided on each side of the crossing with facilities to allow the underwater portion of the system to be isolated and tested [§290.44(d)(2)].

- 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. Include the formulas in the notes on the plans.

- 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;

$$Q = \frac{LD\sqrt{P}}{148,000}$$

Where:

- 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;

$$L = \frac{SD\sqrt{P}}{148,000}$$

Where:

- 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).

- The contractor shall maintain a minimum separation distance in all directions of nine feet between the proposed waterline and wastewater collection facilities including manholes. If this distance cannot be maintained, the contractor must immediately notify the project engineer for further direction. Separation distances, installation methods, and materials utilized must meet §290.44(e)(1)–(4).

- The separation distance from a potable waterline to a wastewater main or lateral manhole or cleanout shall be a minimum of nine feet. Where the nine-foot separation distance cannot be achieved, the potable waterline shall be encased in a joint of at least 150 psi pressure class pipe at least 18 feet long and two nominal sizes larger than the new conveyance. The space around the carrier pipe shall be supported at five-foot intervals with spacers or be filled to the springline with washed sand. The encasement pipe shall be centered on the crossing and both ends sealed with cement grout or manufactured sealant [§290.44(e)(5)].

- 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 [§290.44(e)(6)].

- Suction mains to pumping equipment shall not cross wastewater mains, wastewater laterals, or wastewater service lines. Raw water supply lines shall not be installed within five feet of any tile or concrete wastewater main, wastewater lateral, or wastewater service line [§290.44(e)(7)].

- Waterlines shall not be installed closer than ten feet to septic tank drainfields [§290.44(e)(8)].

- The contractor shall disinfect the new waterlines in accordance with AWWA Standard C–651–14 or most recent, then flush and sample the lines before being placed into service. Samples shall be collected for microbiological analysis to check the effectiveness of the disinfection procedure which shall be repeated if contamination persists. A minimum of one sample for each 1,000 feet of completed waterline will be required or at the next available sampling point beyond 1,000 feet as designated by the design engineer [§290.44(f)(3)].

- Dechlorination of disinfecting water shall be in strict accordance with current AWWA Standard C655–09 or most recent.

Texas Commission on Environmental Quality
Water Pollution Abatement Plan
General Construction Notes

Edwards Aquifer Protection Program Construction Notes – Legal Disclaimer

The following listed "construction notes" are intended to be advisory in nature only and do not constitute an approval or conditional approval by the Executive Director (ED). nor do they constitute a comprehensive listing of rules or conditions to be followed during construction. Further actions may be required to achieve compliance with TCEQ regulations found in Title 30, Texas Administrative Code (TAC), Chapters 213 and 217, as well as local ordinances and regulations providing for the protection of water quality. Additionally, nothing contained in the following listed "construction notes" restricts the powers of the ED, the commission or any other governmental entity to prevent, correct, or curtail activities that result or may result in pollution of the Edwards Aquifer or hydrologically connected surface waters. The holder of any Edwards Aquifer Protection Plan containing "construction notes" is still responsible for compliance with Title 30, TAC, Chapters 213 or any other applicable TCEQ regulation, as well as all conditions of an Edwards Aquifer Protection Plan through all phases of plan implementation. Failure to comply with any condition of the ED's approval, whether or not in contradiction of any "construction notes," is a violation of TCEQ regulations and any violation is subject to administrative rules, orders, and penalties as provided under Title 30, TAC § 213.10 (relating to Enforcement). Such violations may also be subject to civil penalties and injunction. The following listed "construction notes" in no way represent an approved exception by the ED to any part of Title 30 TAC, Chapters 213 and 217, or any other TCEQ applicable regulation

- A written notice of construction must be submitted to the TCEQ regional office at least 48 hours prior to the start of any regulated activities. This notice must include:
 - the name of the approved project;
 - the activity start date; and
 - the contact information of the prime contractor.
- All contractors conducting regulated activities associated with this project must be provided with complete copies of the approved Water Pollution Abatement Plan (WPAP) and the TCEQ letter indicating the specific conditions of its approval. During the course of these regulated activities, the contractors are required to keep on-site copies of the approved plan and approval letter.
- If any sensitive feature(s) (caves, solution cavity, sink hole, etc.) is discovered during construction, all regulated activities near the sensitive feature must be suspended immediately. The appropriate TCEQ regional office must be immediately notified of any sensitive features encountered during construction. Construction activities may not be resumed until the TCEQ has reviewed and approved the appropriate protective measures in order to protect any sensitive feature and the Edwards Aquifer from potentially adverse impacts to water quality.
- No temporary or permanent hazardous substance storage tank shall be installed within 150 feet of a water supply source, distribution system, well, or sensitive feature.
- Prior to beginning any construction activity, all temporary erosion and sedimentation (E&S) control measures must be properly installed and maintained in accordance with the approved plans and manufacturers specifications. If inspections indicate a control has been used inappropriately, or incorrectly, the applicant must replace or modify the control for site situations. These controls must remain in place until the disturbed areas have been permanently stabilized.
- Any sediment that escapes the construction site must be collected and properly disposed of before the next rain event to ensure it is not washed into surface streams, sensitive features, etc.
- Sediment must be removed from the sediment traps or sedimentation basins not later than when it occupies 50% of the basin's design capacity.
- Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from being discharged offsite.
- All spoils (excavated material) generated from the project site must be stored on-site with proper E&S controls. For storage or disposal of spoils at another site on the Edwards Aquifer Recharge Zone, the owner of the site must receive approval of a water pollution abatement plan for the placement of fill material or mass grading prior to the placement of spoils at the other site.
- If portions of the site will have a temporary or permanent cease in construction activity lasting longer than 14 days, soil stabilization in those areas shall be initiated as soon as possible prior to the 14th day of inactivity. If activity will resume prior to the 21st day, stabilization measures are not required. If drought conditions or inclement weather prevent action by the 14th day, stabilization measures shall be initiated as soon as possible.
- 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.
- 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:

- 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;
- 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;
- any development of land previously identified as undeveloped in the original water pollution abatement plan.

Austin Regional Office 12100 Park 35 Circle, Building A Austin, Texas 78753-1808 Phone (512) 339-2929 Fax (512) 339-3795	San Antonio Regional Office 14250 Judson Road San Antonio, Texas 78233-4480 Phone (210) 490-3096 Fax (210) 545-4329
--	---

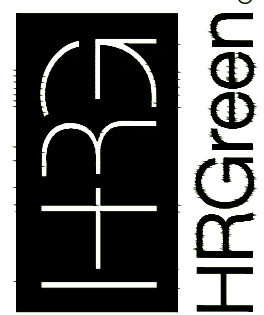
THESE GENERAL CONSTRUCTION NOTES MUST BE INCLUDED ON THE CONSTRUCTION PLANS PROVIDED TO THE CONTRACTOR AND ALL SUBCONTRACTORS.



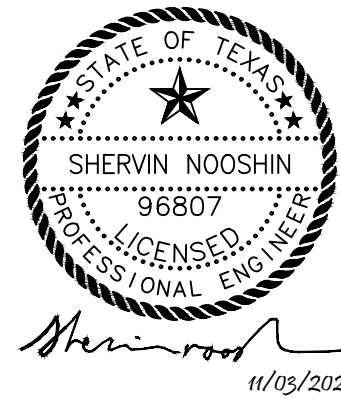
Know what's below.
Call before you dig.

5508 HIGHWAY 290 WEST
SUITE 150
AUSTIN, TX 78735
811 TEXAS
HRGREEN.COM

DEP. NO.: 16384
DPLS NO.: 10194101



DEVELOPMENT TX



11/03/2023

TCEQ NOTES

PARKSIDE SECTION 8
CONSTRUCTION PLANS

GEORGETOWN, WILLIAMSON, TEXAS

DESIGNED BY: CC

DRAWN BY: TG/MKM

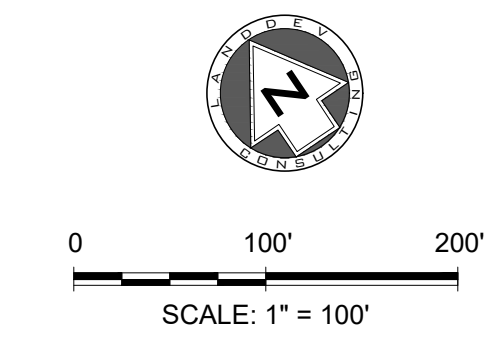
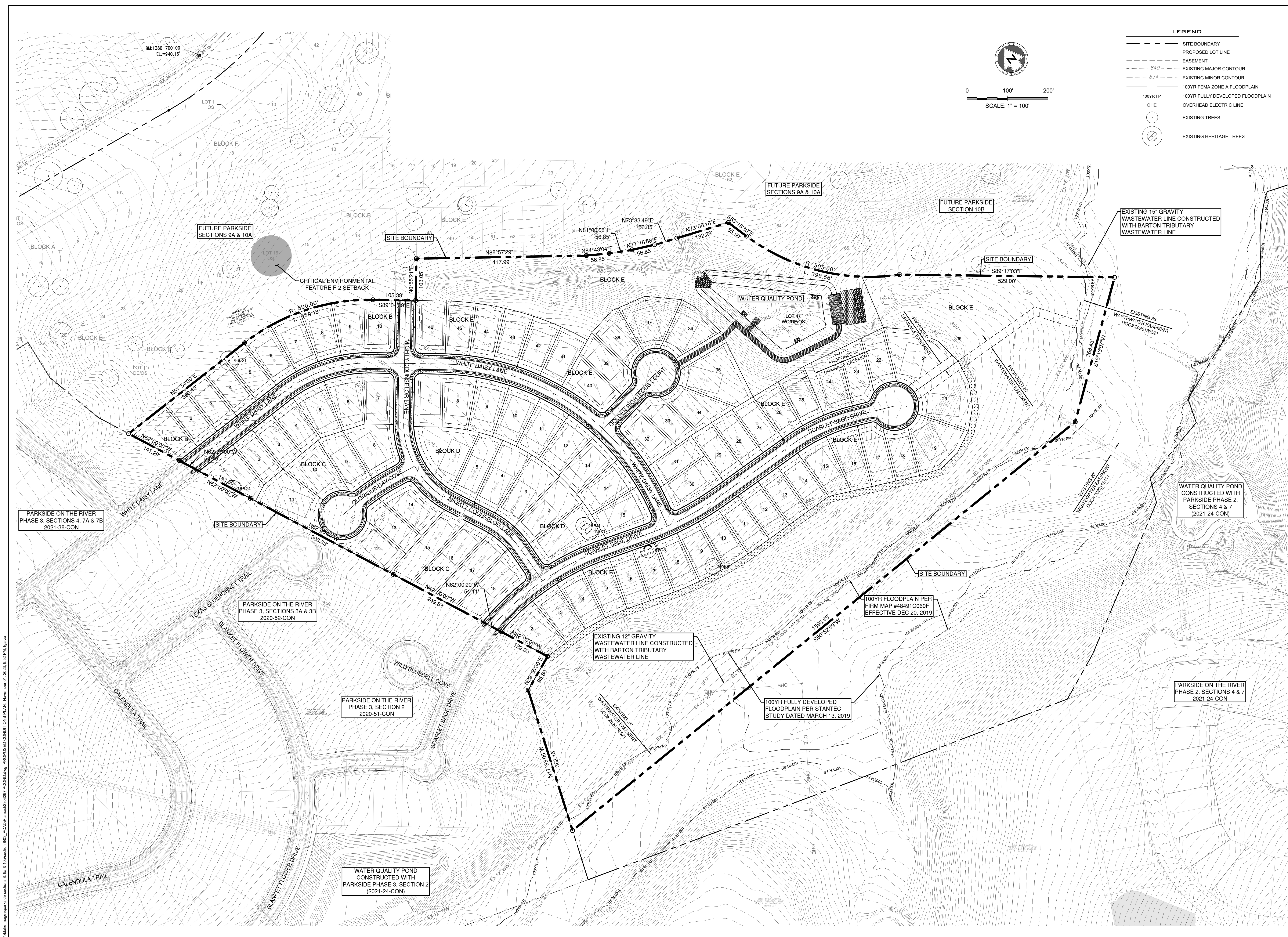
CHECKED BY: SN

APPROVED BY: _____

SHEET 3 OF 72

2023-XX-CON

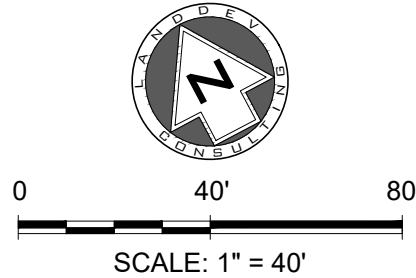
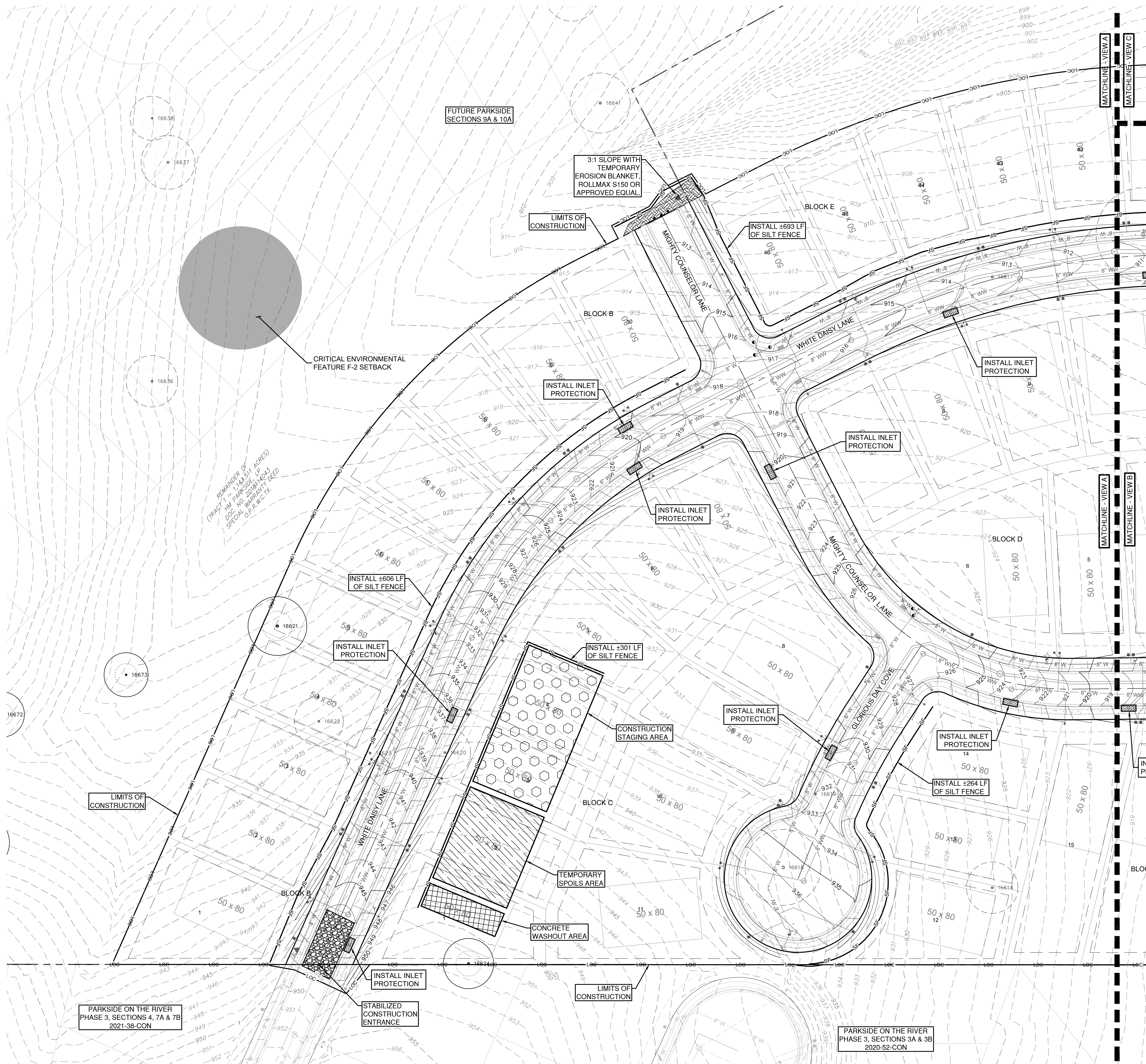
P:\Public\magnaparkside sections 8, 9a & 10a\section 803_ACOF\Plan\1030297 PCOnd.dwg November 01, 2023 9:52 PM [gaza]



- LEGEND**
- SITE BOUNDARY
 - PROPOSED LOT LINE
 - EASEMENT
 - EXISTING MAJOR CONTOUR
 - EXISTING MINOR CONTOUR
 - 100YR FEMA ZONE A FLOODPLAIN
 - 100YR FULLY DEVELOPED FLOODPLAIN
 - OHE OVERHEAD ELECTRIC LINE
 - EXISTING TREES
 - EXISTING HERITAGE TREES

 <p>Know what's below. Call before you dig.</p> <p>5508 HIGHWAY 290 WEST SUITE 150 MCKINNEY, TX 75735 CITY OF MCKINNEY HRGREEN.COM</p> <p>IRF ID: 10384 IRFPLS NO: 10194101</p>		NO. BY DATE
 <p>HRGreen DEVELOPMENT TX</p>		
 <p>SHERWIN NOOSHIN 96807 LICENSED PROFESSIONAL ENGINEER 11/03/2023</p>		
<p>PROPOSED CONDITIONS PLAN</p> <p>PARKSIDE SECTION 8</p> <p>CONSTRUCTION PLANS</p> <p>GEORGETOWN, WILLIAMSON, TEXAS</p>		
DESIGNED BY: CC DRAWN BY: TB/MKM CHECKED BY: SN APPROVED BY:		
SHEET 7 OF 72 2023-XX-CON		

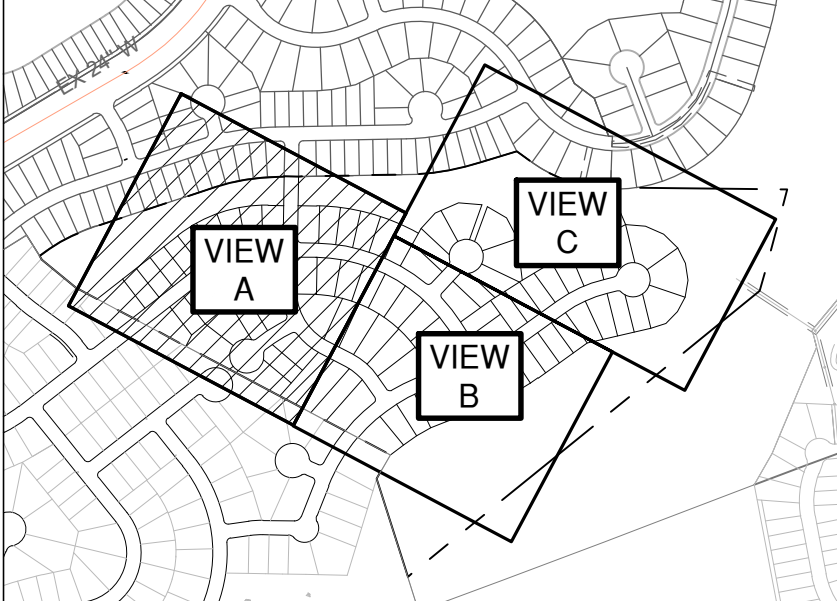
P:\Public\magnatopside sections 8, 9a & 10a.dwg, ACAD\Plan\1020297 EROS.dwg, EROSION & SEDIMENTATION CONTROL PLAN A, November 02, 2023, 8:42 AM, lgraza



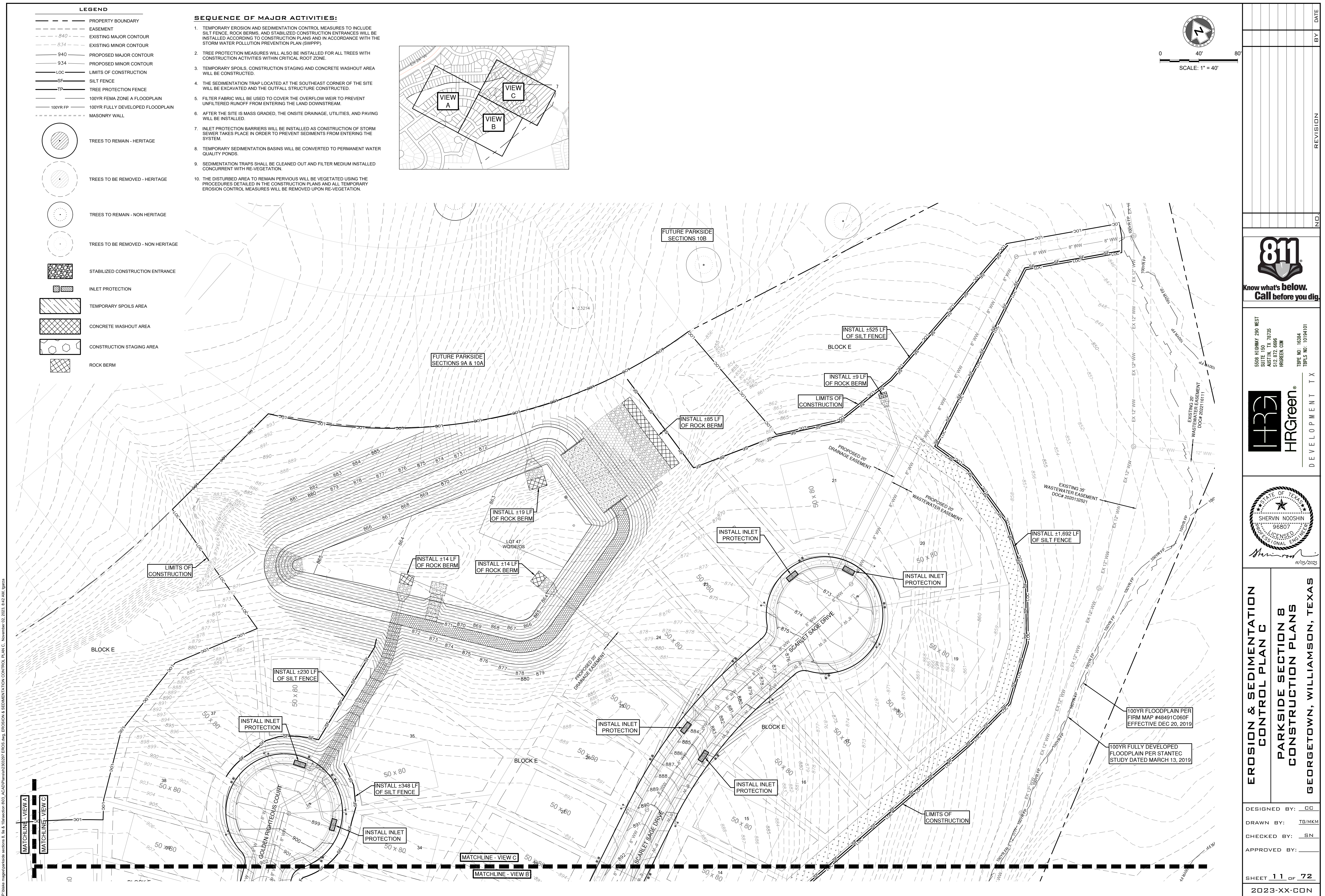
- LEGEND**
- PROPERTY BOUNDARY
 - EASEMENT
 - EXISTING MAJOR CONTOUR
 - EXISTING MINOR CONTOUR
 - PROPOSED MAJOR CONTOUR
 - PROPOSED MINOR CONTOUR
 - LIMITS OF CONSTRUCTION
 - SILT FENCE
 - TREE PROTECTION FENCE
 - 100YR FEMA ZONE A FLOODPLAIN
 - 100YR FULLY DEVELOPED FLOODPLAIN
 - MASONRY WALL

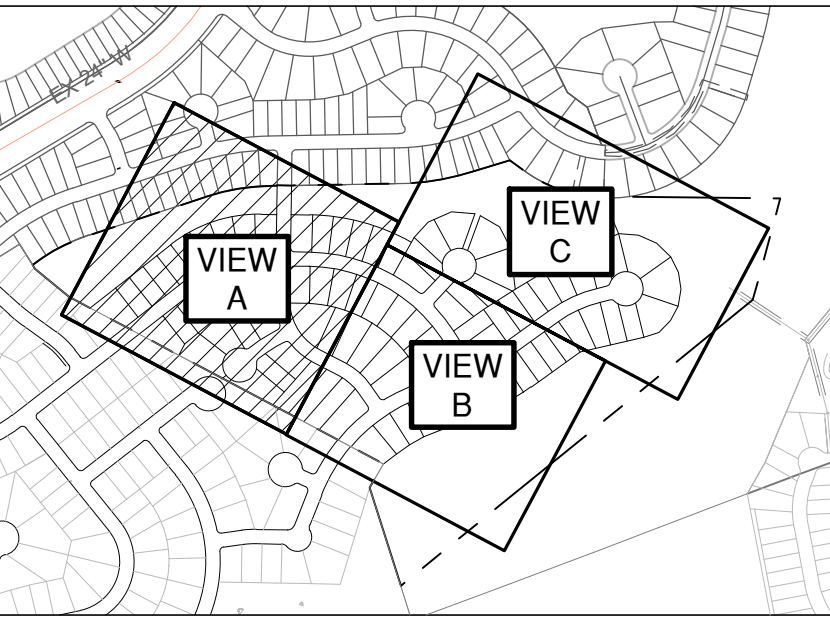
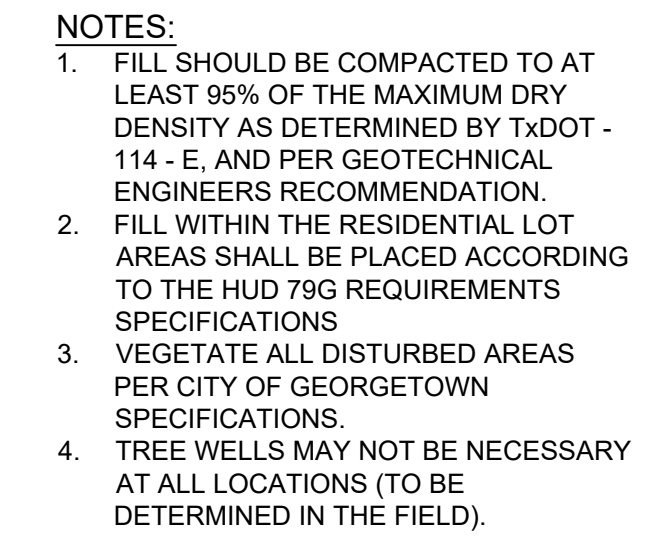
- TREES TO REMAIN - HERITAGE
- TREES TO BE REMOVED - HERITAGE
- TREES TO REMAIN - NON HERITAGE
- TREES TO BE REMOVED - NON HERITAGE
- STABILIZED CONSTRUCTION ENTRANCE
- INLET PROTECTION
- TEMPORARY SPOILS AREA
- CONCRETE WASHOUT AREA
- CONSTRUCTION STAGING AREA
- ROCK BERM

- SEQUENCE OF MAJOR ACTIVITIES:**
- TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES TO INCLUDE SILT FENCE, ROCK BERMS, AND STABILIZED CONSTRUCTION ENTRANCES WILL BE INSTALLED ACCORDING TO CONSTRUCTION PLANS AND IN ACCORDANCE WITH THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP).
 - TREE PROTECTION MEASURES WILL ALSO BE INSTALLED FOR ALL TREES WITH CONSTRUCTION ACTIVITIES WITHIN CRITICAL ROOT ZONE.
 - TEMPORARY SPOILS, CONSTRUCTION STAGING AND CONCRETE WASHOUT AREA WILL BE CONSTRUCTED.
 - THE SEDIMENTATION TRAP LOCATED AT THE SOUTHEAST CORNER OF THE SITE WILL BE EXCAVATED AND THE OUTFALL STRUCTURE CONSTRUCTED.
 - FILTER FABRIC WILL BE USED TO COVER THE OVERFLOW WEIR TO PREVENT UNFILTERED RUNOFF FROM ENTERING THE LAND DOWNSTREAM.
 - AFTER THE SITE IS MASS GRADED, THE ONSITE DRAINAGE, UTILITIES, AND PAVING WILL BE INSTALLED.
 - INLET PROTECTION BARRIERS WILL BE INSTALLED AS CONSTRUCTION OF STORM SEWER TAKES PLACE IN ORDER TO PREVENT SEDIMENTS FROM ENTERING THE SYSTEM.
 - TEMPORARY SEDIMENTATION BASINS WILL BE CONVERTED TO PERMANENT WATER QUALITY PONDS.
 - SEDIMENTATION TRAPS SHALL BE CLEANED OUT AND FILTER MEDIUM INSTALLED CONCURRENT WITH RE-VEGETATION.
 - THE DISTURBED AREA TO REMAIN PERVIOUS WILL BE VEGETATED USING THE PROCEDURES DETAILED IN THE CONSTRUCTION PLANS AND ALL TEMPORARY EROSION CONTROL MEASURES WILL BE REMOVED UPON RE-VEGETATION.

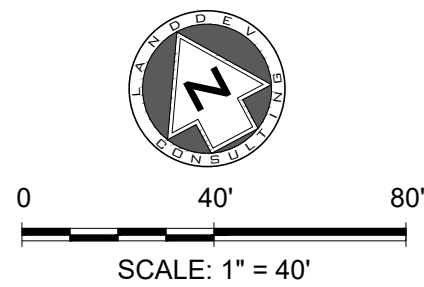
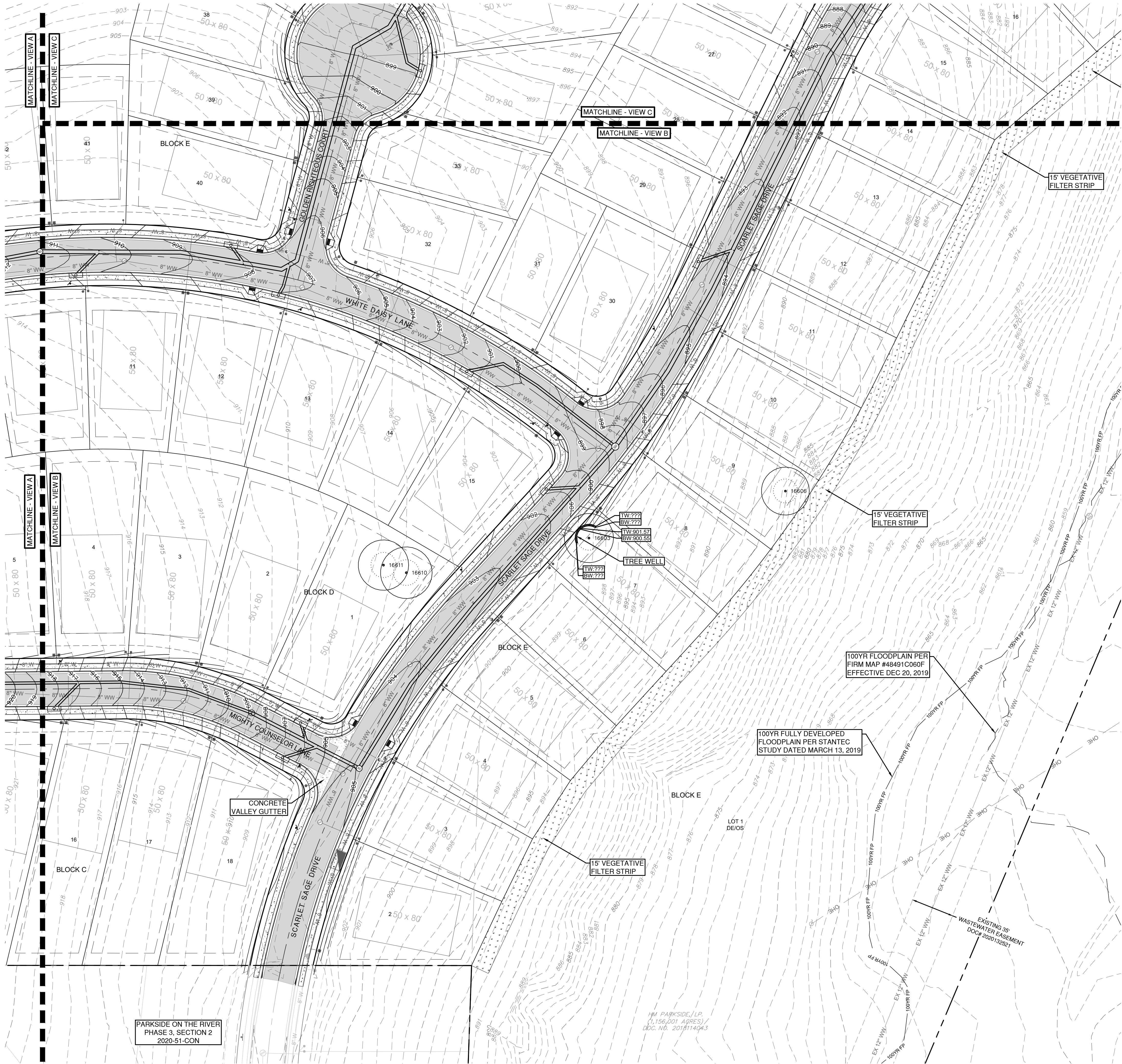


BY		DATE
REVISION		NO.
 Know what's below. Call before you dig.		
5508 HIGHWAY 290 WEST SUITE 150 MCKINNEY, TX 75069 CITY OF MCKINNEY HARRIS COUNTY HARRIS COUNTY HARRIS COUNTY		
TPE NO. 10384 TPE NO. 10384 TPE NO. 10384		
 HRGreen® DEVELOPMENT TX		
 SHERVIN NOOSHIN 96807 LICENSED PROFESSIONAL ENGINEER 11/03/2023		
EROSION & SEDIMENTATION CONTROL PLAN A		
PARKSIDE SECTION 8 CONSTRUCTION PLANS		
GEORGETOWN, WILLIAMSON, TEXAS		
DESIGNED BY: CC		
DRAWN BY: TB/MKM		
CHECKED BY: SN		
APPROVED BY:		
SHEET 9 OF 72		
2023-XX-CON		



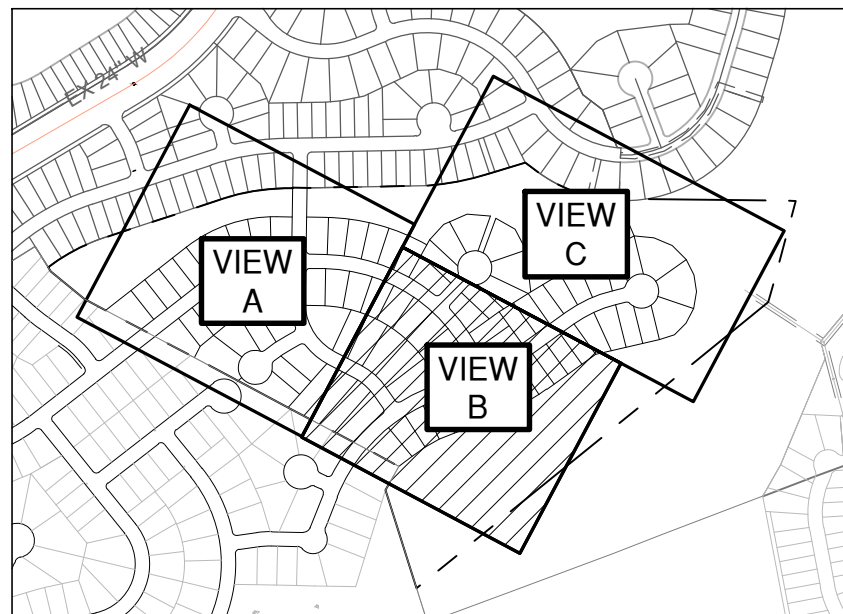


P:\blake_m\parkside\sections 8, 9 & 10\section 803, AC02\plan\202027 GRAD JWS, PAVING & GRADING PLAN B, November 01, 2023, 10:15 PM, lizara



- LEGEND**
- PROPERTY BOUNDARY
 - EASEMENT
 - EXISTING MAJOR CONTOUR
 - EXISTING MINOR CONTOUR
 - PROPOSED MAJOR CONTOUR
 - PROPOSED MINOR CONTOUR
 - 100YR FEMA ZONE A FLOODPLAIN
 - 100YR FULLY DEVELOPED FLOODPLAIN
 - MASONRY WALL (BY OTHERS)
 - TREES TO REMAIN - HERITAGE
 - TREES TO REMAIN - NON-HERITAGE
 - ASPHALT PAVING (REFER TO SHEET 28 FOR PAVEMENT DESIGN SECTIONS)
 - VEGETATIVE FILTER STRIP

- NOTES:**
- FILL SHOULD BE COMPACTED TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY TXDOT - 114 - E, AND PER GEOTECHNICAL ENGINEERS RECOMMENDATION.
 - FILL WITHIN THE RESIDENTIAL LOT AREAS SHALL BE PLACED ACCORDING TO THE HUD 795 REQUIREMENTS SPECIFICATIONS.
 - VEGETATE ALL DISTURBED AREAS PER CITY OF GEORGETOWN SPECIFICATIONS.
 - TREE WELLS MAY NOT BE NECESSARY AT ALL LOCATIONS (TO BE DETERMINED IN THE FIELD).



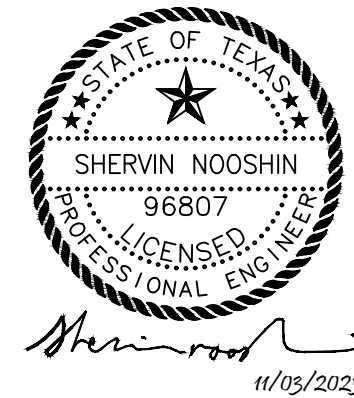
**PAVING & GRADING
PLAN B**

**PARKSIDE SECTION 8
CONSTRUCTION PLANS**

GEORGETOWN, WILLIAMSON, TEXAS

DESIGNED BY: CC
DRAWN BY: TB/MKM
CHECKED BY: SN
APPROVED BY:

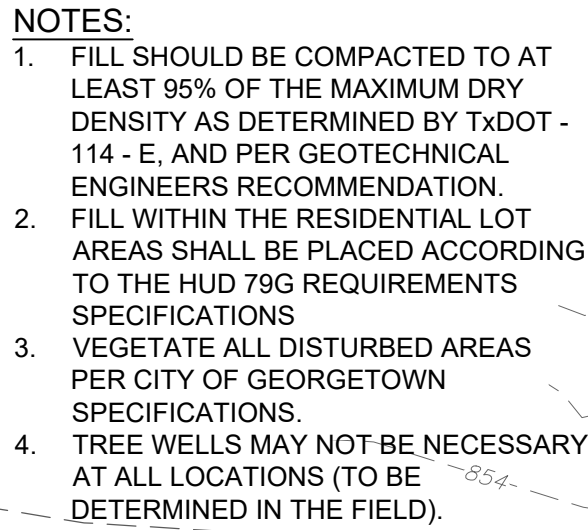
SHEET **24** OF **72**
2023-XX-CON



5508 HIGHWAY 290 WEST
SUITE 150
MCKINNEY, TX 75069
HRGREEN.COM



NO.	REVISION	BY	DATE



023-XX-C0

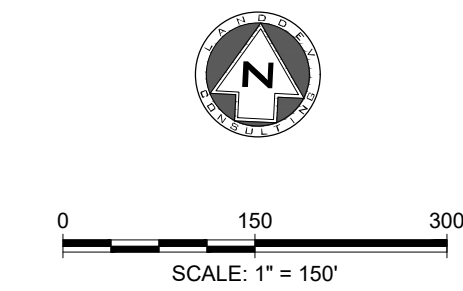
P:\Public\magnatrade\sections 8, 9a & 10\section 803_ACD\Plan\shd030297.dwg EXISTING DRAINAGE AREA MAP November 09, 2023 4:23 PM ccompal



Existing Drainage Conditions												Time of Concentration Calculations													
User Inputs					Auto-Calculation		TOC Calcs	Routing Analysis Inputs				Contributing Area	Sheet Flow				Shallow Concentrated Flow(Unpaved)			Shallow Concentrated Flow(Paved)			Pipe/Channel Flow 1		
Contributing Area	Area (sf)	CN (Pervious)	CN (Impervious)	Impervious Cover (sf)	Area (ac)	Impervious Cover (%)	TOC (min)	Area (sq. mi.)	Composite Curve Number	Lag Time	Reach Lag (if required)		Length	Slope (ft/ft)	Roughness Coefficient	T _{sheet}	Length (ft)	Slope (ft/ft)	T _{unpaved}	Length (ft)	Slope (ft/ft)	T _{paved}	Length (ft)	Velocity (ft)	T _{channel} (min)
E-01	483,952	77	98	0	11.11	0.0%	10.16	0.01736	77.0	6.10		E-01	100	0.046	0.150	6.77	733	0.050	3.39			0.00			0.00
E-02	49,658	77	98	0	1.14	0.0%	7.92	0.00178	77.0	4.75		E-02	100	0.044	0.150	6.89	280	0.079	1.03			0.00			0.00
E-03	1,789,009	77	98	61,768	41.07	3.5%	14.37	0.06417	77.7	8.62		E-03	100	0.034	0.150	7.64	601	0.062	2.49			0.00	1523	6	4.23

NOTES:

- PLEASE REFER TO THE DETENTION WAIVER ANALYSIS ADDENDUM 1, SEALED JULY 28, 2023, SUBMITTED WITH THE 2023-22-PP.



LEGEND	
---	EXISTING MINOR CONTOUR
---	EXISTING MAJOR CONTOUR
---	PROPOSED MINOR CONTOUR
---	PROPOSED MAJOR CONTOUR
---	BOUNDARY
---	EASEMENT
---	100YR FEMA ZONE A FLOODPLAIN
---	100YR FULLY DEVELOPED FLOODPLAIN
---	PROPOSED STORM LINE
+	FIRE HYDRANT
+	WATER VALVE
+	STORM SEWER MAHNOLE
+	WASTEWATER MAHNOLE
+	CURB INLET
+	TREES TO REMAIN HERITAGE
+	TREES TO REMAIN NON HERITAGE
---	DRAINAGE AREA
---	Tc TIME OF CONCENTRATION

Existing Conditions - Flows & Volumes - Atlas 14								
ID	Peak Flows (cfs)				Volumes (ac-ft)			
	2-yr	10-yr	25-yr	100-yr	2-yr	10-yr	25-yr	100-yr
E-01	19.29	41.09	57.82	88.44	1.63	3.46	4.92	7.66
E-02	2.07	4.40	6.19	9.48	0.17	0.36	0.50	0.79
E-03	67.28	141.94	199.29	304.14	6.22	13.05	18.46	28.63
POI-1	19.29	41.09	57.82	88.44	1.63	3.46	4.92	7.66
POI-2	2.07	4.40	6.19	9.48	0.17	0.36	0.50	0.79
POI-3	67.28	141.94	199.29	304.14	6.22	13.05	18.46	28.63

Proposed (Interim) Conditions - Flows & Volumes - Atlas 14								
ID	Peak Flows (cfs)				Volumes (ac-ft)			
	2-yr	10-yr	25-yr	100-yr	2-yr	10-yr	25-yr	100-yr
P-01	10.85	19.65	26.11	37.70	0.86	1.61	2.17	3.20
P-02	3.29	5.87	7.75	11.13	0.26	0.48	0.65	0.95
P-03	93.94	184.52	252.22	374.63	8.63	17.11	23.66	35.86
POI-1	10.85	19.65	26.11	37.70	0.86	1.61	2.17	3.20
POI-2	3.29	5.87	7.75	11.13	0.26	0.48	0.65	0.95
POI-3	89.63	178.75	245.13	366.22	8.63	17.11	23.66	35.86

Fully-Developed Conditions - Flows & Volumes - Atlas 14								
ID	Peak Flows (cfs)				Volumes (ac-ft)			
	2-yr	10-yr	25-yr	100-yr	2-yr	10-yr	25-yr	100-yr
P-01	10.85	19.65	26.11	37.70	0.86	1.61	2.17	3.20
P-02	3.29	5.87	7.75	11.13	0.26	0.48	0.65	0.95
P-03	140.71	257.76	343.72	498.23	12.70	23.78	32.18	47.67
POI-1	10.85	19.65	26.11	37.70	0.86	1.61	2.17	3.20
POI-2	3.29	5.87	7.75	11.13	0.26	0.48	0.65	0.95
POI-3	135.48	250.17	335.34	488.49	12.70	23.78	32.18	47.67

Flow & Volume Comparison (Interim - Existing) - Atlas 14								
ID	Peak Flows (cfs)				Volumes (ac-ft)			
	2-yr	10-yr	25-yr	100-yr	2-yr	10-yr	25-yr	100-yr
POI-1	-8.44	-21.44	-31.71	-50.74	-0.77	-1.85	-2.75	-4.46
POI-2	1.22	1.47	1.56	1.65	0.09	0.12	0.15	0.16
POI-3	22.35	36.81	45.84	62.08	2.41	4.06	5.20	7.23

Flow & Volume Comparison (Fully-Developed - Existing) - Atlas 14								
ID	Peak Flows (cfs)				Volumes (ac-ft)			
	2-yr	10-yr	25-yr	100-yr	2-yr	10-yr	25-yr	100-yr
POI-1	-8.44	-21.44	-31.71	-50.74	-0.77	-1.85	-2.75	-4.46
POI-2	1.22	1.47	1.56	1.65	0.09	0.12	0.15	0.16
POI-3	68.20	108.23	136.05	184.35	6.48	10.73	13.72	19.04

DESIGNED BY: CC

DRAWN BY: TBM/KMK

CHECKED BY: SN

APPROVED BY: _____

811

Know what's below.
Call before you dig.

5508 HIGHWAY 290 WEST
SUITE 150
MUSTIN, TX 78735
512.441.8888
HARGREEN.COM

TYPE NO: 16384
DPLS NO: 10194101

HRGreen®
DEVELOPMENT TX

STATE OF TEXAS
SHERVIN NOOSHIN
96807
LICENSED PROFESSIONAL ENGINEER
11/03/2023

EXISTING DRAINAGE
AREA MAP
PARKSIDE SECTION 8
CONSTRUCTION PLANS
GEORGETOWN, WILLIAMSON, TEXAS

BY: _____

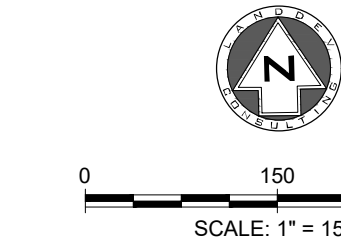
REVISION

NO.

DATE

SHEET 29 OF 72
2023-XX-CON

P:\lake\magnatrade\sections 8, 9a & 10\section 803_ACD\Plan\803.dwg PROPOSED DRAINAGE AREA MAP November 09, 2023 4:24 PM campbell



- LEGEND**
- 8.34 --- EXISTING MINOR CONTOUR
 - 8.35 --- EXISTING MAJOR CONTOUR
 - 8.34 --- PROPOSED MINOR CONTOUR
 - 8.35 --- PROPOSED MAJOR CONTOUR
 - BOUNDARY
 - EASEMENT
 - 100YR FEMA ZONE A FLOODPLAIN
 - 100YR FULLY DEVELOPED FLOODPLAIN
 - PROPOSED STORM LINE
 - FIRE HYDRANT
 - WATER VALVE
 - STORM SEWER MANHOLE
 - WASTEWATER MANHOLE
 - CURB INLET
 - TREES TO REMAIN HERITAGE
 - TREES TO REMAIN NON HERITAGE
 - DRAINAGE AREA
 - Tc --- TIME OF CONCENTRATION

Existing Conditions - Flows & Volumes - Atlas 14									
ID	Peak Flows (cfs)				Volumes (ac-ft)				
	2-yr	10-yr	25-yr	100-yr	2-yr	10-yr	25-yr	100-yr	
E-01	19.29	41.09	57.82	88.44	1.63	3.46	4.92	7.66	
E-02	2.07	4.40	6.19	9.48	0.17	0.36	0.50	0.79	
E-03	67.28	141.94	199.29	304.14	6.22	13.05	18.46	28.63	
POI-1	19.29	41.09	57.82	88.44	1.63	3.46	4.92	7.66	
POI-2	2.07	4.40	6.19	9.48	0.17	0.36	0.50	0.79	
POI-3	67.28	141.94	199.29	304.14	6.22	13.05	18.46	28.63	

Proposed (Interim) Conditions - Flows & Volumes - Atlas 14									
ID	Peak Flows (cfs)				Volumes (ac-ft)				
	2-yr	10-yr	25-yr	100-yr	2-yr	10-yr	25-yr	100-yr	
P-01	10.85	19.65	26.11	37.70	0.86	1.61	2.17	3.20	
P-02	3.29	5.87	7.75	11.13	0.26	0.48	0.65	0.95	
P-03	93.94	184.52	252.22	374.63	8.63	17.11	23.66	35.86	
POI-1	10.85	19.65	26.11	37.70	0.86	1.61	2.17	3.20	
POI-2	3.29	5.87	7.75	11.13	0.26	0.48	0.65	0.95	
POI-3	89.63	178.75	245.13	366.22	8.63	17.11	23.66	35.86	

Fully-Developed Conditions - Flows & Volumes - Atlas 14									
ID	Peak Flows (cfs)				Volumes (ac-ft)				
	2-yr	10-yr	25-yr	100-yr	2-yr	10-yr	25-yr	100-yr	
P-01	10.85	19.65	26.11	37.70	0.86	1.61	2.17	3.20	
P-02	3.29	5.87	7.75	11.13	0.26	0.48	0.65	0.95	
P-03	140.71	257.76	343.72	498.23	12.70	23.78	32.18	47.67	
POI-1	10.85	19.65	26.11	37.70	0.86	1.61	2.17	3.20	
POI-2	3.29	5.87	7.75	11.13	0.26	0.48	0.65	0.95	
POI-3	135.48	250.17	335.34	488.49	12.70	23.78	32.18	47.67	

Flow & Volume Comparison (Interim - Existing) - Atlas 14									
ID	Peak Flows (cfs)				Volumes (ac-ft)				
	2-yr	10-yr	25-yr	100-yr	2-yr	10-yr	25-yr	100-yr	
POI-1	-8.44	-21.44	-31.71	-50.74	-0.77	-1.85	-2.75	-4.46	
POI-2	1.22	1.47	1.56	1.65	0.09	0.12	0.15	0.16	
POI-3	22.35	36.81	45.84	62.06	2.41	4.06	5.20	7.23	

Flow & Volume Comparison (Fully-Developed - Existing) - Atlas 14									
ID	Peak Flows (cfs)				Volumes (ac-ft)				
	2-yr	10-yr	25-yr	100-yr	2-yr	10-yr	25-yr	100-yr	
POI-1	-8.44	-21.44	-31.71	-50.74	-0.77	-1.85	-2.75	-4.46	
POI-2	1.22	1.47	1.56	1.65	0.09	0.12	0.15	0.16	
POI-3	68.20	108.23	136.05	184.35	6.48	10.73	13.72	19.04	

Proposed (Interim) Drainage Conditions												Time of Concentration Calculations														
User Inputs					Auto-Calculation		TOC Calcs		Routing Analysis Inputs				Contributing Area	Sheet Flow				Shallow Concentrated Flow (Unpaved)			Shallow Concentrated Flow (Paved)			Pipe/Channel Flow 1		
Contributing Area	Area (sf)	CN (Pervious)	CN (Impervious)	Impervious Cover (sf)	Area (ac)	Impervious Cover (%)	TOC (min)	Area (sq. mi.)	Composite Curve Number	Lag Time	Reach Lag (if required)	Length		Slope (ft/ft)	Roughness Coefficient	T _{sheet}	Length (ft)	Slope (ft/ft)	T _{unpaved}	Length (ft)	Slope (ft/ft)	T _{paved}	Length (ft)	Velocity (ft)	T _{channel} (min)	
P-01	174,240	77	98	83,600	4.00	48.0%	6.64	0.00625	87.1	3.99		P-01	35	0.020	0.240	5.94	96	0.020	0.70			0.00			0.00	
P-02	50,965	77	98	27,399	1.17	53.8%	6.66	0.00183	88.3	4.00		P-02	35	0.020	0.240	5.94	98	0.020	0.72			0.00			0.00	
P-03	2,096,978	77	98	498,420	48.14	23.8%	14.37	0.07522	82.0	8.62		P-03	100	0.034	0.150	7.64	601	0.062	2.49			0.00	1523	6	4.23	

NOTES:

- PLEASE REFER TO THE DETENTION WAIVER ANALYSIS ADDENDUM 1, SEALED JULY 28, 2023, SUBMITTED WITH THE 2023-22-PP.

811
Know what's below.
Call before you dig.

5508 HIGHWAY 290 WEST
SUITE 150
MUSTIN, TX 78735
CALL 817-465-1000
HARGREEN.COM

TYPE NO: 16384
DPLS NO: 10194101

HRGreen®
DEVELOPMENT TX

STATE OF TEXAS
SHERVIN NOOSHIN
96807
LICENSED PROFESSIONAL ENGINEER
11/03/2023

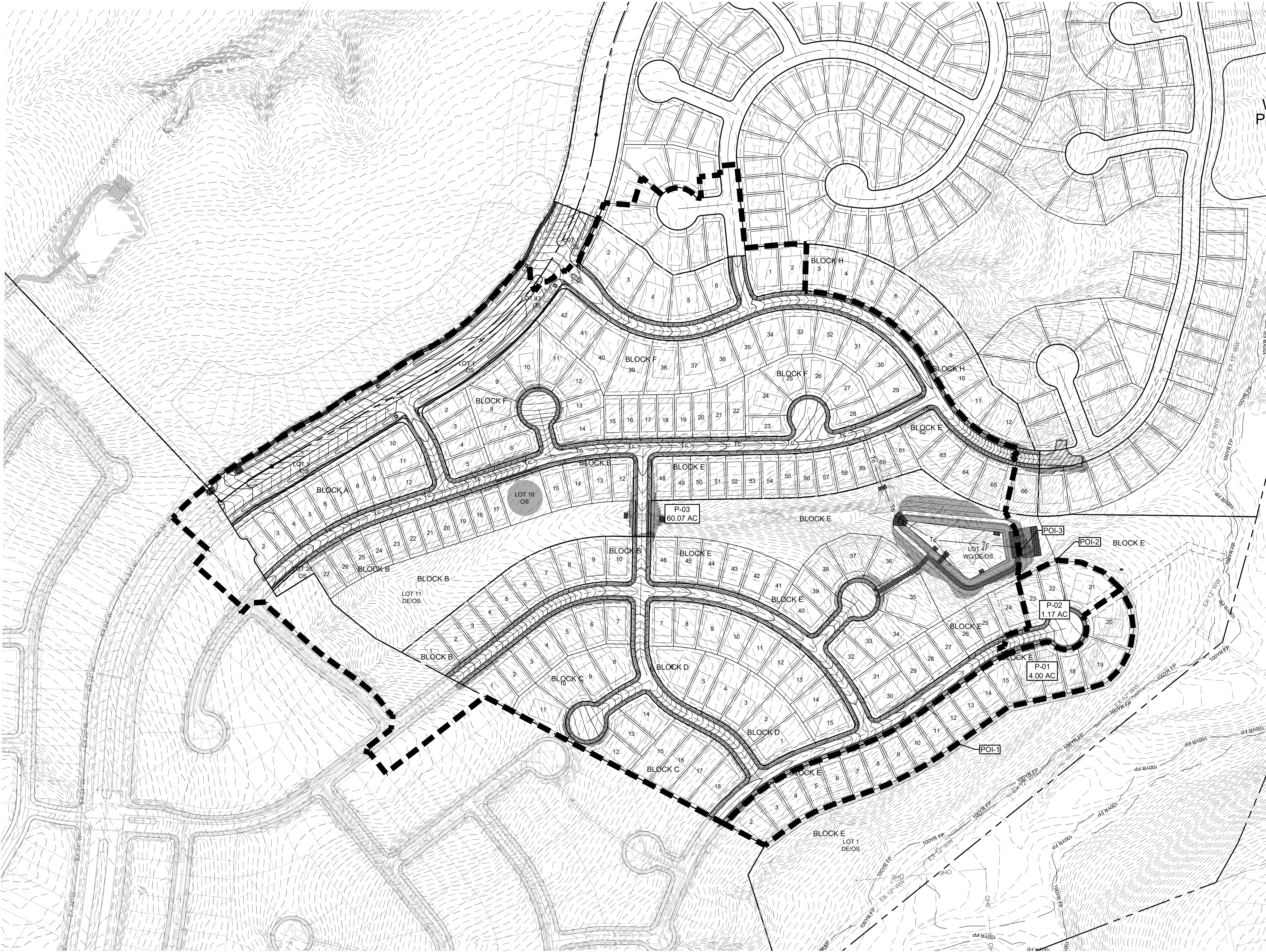
PROPOSED DRAINAGE
AREA MAP
PARKSIDE SECTION 8
CONSTRUCTION PLANS
GEORGETOWN, WILLIAMSON, TEXAS

DESIGNED BY: CC
DRAWN BY: T6/MKM
CHECKED BY: SN
APPROVED BY: _____

SHEET 30 OF 72
2023-XX-CON

REVISION
BY
DATE

P:\bldg\magnatrade\sections 8, 9a & 9b\Drawings\03_ACD\Plan\0302027_Plan\11.dwg FULLY-DEVELOPED DRAINAGE AREA MAP November 09, 2023 4:27 PM, ccompd



Fully-Developed Drainage Conditions												Time of Concentration Calculations														
User Inputs					Auto-Calculation		TOC Calcs		Routing Analysis Inputs				Contributing Area	Sheet Flow				Shallow Concentrated Flow (Unpaved)			Shallow Concentrated Flow (Paved)			Pipe/Channel Flow 1		
Contributing Area	Area (sf)	CN (Pervious)	CN (Impervious)	Impervious Cover (sf)	Area (ac)	Impervious Cover (%)	TOC (min)	Area (sq. mi.)	Composite Curve Number	Lag Time	Reach Lag (if required)	Length		Slope (ft/ft)	Roughness Coefficient	T _{sheet}	Length (ft)	Slope (ft/ft)	T _{unpaved}	Length (ft)	Slope (ft/ft)	T _{paved}	Length (ft)	Velocity (ft)	T _{channel} (min)	
P-01	174,240	77	98	83,600	4.00	48.0%	6.64	0.00625	87.1	3.99		P-01	35	0.020	0.240	5.94	96	0.020	0.70			0.00			0.00	
P-02	50,965	77	98	27,399	1.17	53.8%	6.66	0.00183	88.3	4.00		P-02	35	0.020	0.240	5.94	98	0.020	0.72			0.00			0.00	
P-03	2,616,649	77	98	1,178,152	60.07	45.0%	13.20	0.09386	86.5	7.92		P-03	35	0.020	0.240	5.94	124	0.020	0.91			0.00	2287	6	6.35	

NOTES:

1. PLEASE REFER TO THE DETENTION WAIVER ANALYSIS ADDENDUM 1, SEALED JULY 28, 2023, SUBMITTED WITH THE 2023-22-PP.

Existing Conditions - Flows & Volumes - Atlas 14									
ID	Peak Flows (cfs)				Volumes (ac-ft)				
	2-yr	10-yr	25-yr	100-yr	2-yr	10-yr	25-yr	100-yr	
E-01	19.29	41.09	57.82	88.44	1.63	3.46	4.92	7.66	
E-02	2.07	4.40	6.19	9.48	0.17	0.36	0.50	0.79	
E-03	67.28	141.94	199.29	304.14	6.22	13.05	18.46	28.63	
POI-1	19.29	41.09	57.82	88.44	1.63	3.46	4.92	7.66	
POI-2	2.07	4.40	6.19	9.48	0.17	0.36	0.50	0.79	
POI-3	67.28	141.94	199.29	304.14	6.22	13.05	18.46	28.63	

Proposed (Interim) Conditions - Flows & Volumes - Atlas 14									
ID	Peak Flows (cfs)				Volumes (ac-ft)				
	2-yr	10-yr	25-yr	100-yr	2-yr	10-yr	25-yr	100-yr	
P-01	10.85	19.65	26.11	37.70	0.86	1.61	2.17	3.20	
P-02	3.29	5.87	7.75	11.13	0.26	0.48	0.65	0.95	
P-03	93.94	184.52	252.22	374.63	8.63	17.11	23.66	35.86	
POI-1	10.85	19.65	26.11	37.70	0.86	1.61	2.17	3.20	
POI-2	3.29	5.87	7.75	11.13	0.26	0.48	0.65	0.95	
POI-3	89.63	178.75	245.13	366.22	8.63	17.11	23.66	35.86	

Fully-Developed Conditions - Flows & Volumes - Atlas 14									
ID	Peak Flows (cfs)				Volumes (ac-ft)				
	2-yr	10-yr	25-yr	100-yr	2-yr	10-yr	25-yr	100-yr	
P-01	10.85	19.65	26.11	37.70	0.86	1.61	2.17	3.20	
P-02	3.29	5.87	7.75	11.13	0.26	0.48	0.65	0.95	
P-03	140.71	257.76	343.72	498.23	12.70	23.78	32.18	47.67	
POI-1	10.85	19.65	26.11	37.70	0.86	1.61	2.17	3.20	
POI-2	3.29	5.87	7.75	11.13	0.26	0.48	0.65	0.95	
POI-3	135.48	250.17	335.34	488.49	12.70	23.78	32.18	47.67	

Flow & Volume Comparison (Interim - Existing) - Atlas 14									
ID	Peak Flows (cfs)				Volumes (ac-ft)				
	2-yr	10-yr	25-yr	100-yr	2-yr	10-yr	25-yr	100-yr	
POI-1	-8.44	-21.44	-31.71	-50.74	-0.77	-1.85	-2.75	-4.46	
POI-2	1.22	1.47	1.56	1.65	0.09	0.12	0.15	0.16	
POI-3	22.35	36.81	45.84	62.06	2.41	4.06	5.20	7.23	

Flow & Volume Comparison (Fully-Developed - Existing) - Atlas 14									
ID	Peak Flows (cfs)				Volumes (ac-ft)				
	2-yr	10-yr	25-yr	100-yr	2-yr	10-yr	25-yr	100-yr	
POI-1	-8.44	-21.44	-31.71	-50.74	-0.77	-1.85	-2.75	-4.46	
POI-2	1.22	1.47	1.56	1.65	0.09	0.12	0.15	0.16	
POI-3	68.20	108.23	136.05	184.35	6.48	10.73	13.72	19.04	

DESIGNED BY: CC

DRAWN BY: T6/MKM

CHECKED BY: SN

APPROVED BY: _____

811

Know what's below.
Call before you dig.

5508 HIGHWAY 290 WEST
SUITE 150
MUSTIN, TX 78735
512.466.8888
HARGREEN.COM

TYPE NO: 16384
DPLS NO: 10194101

HRGreen

DEVELOPMENT TX

STATE OF TEXAS
SHERVIN NOOSHIN
96807
LICENSED PROFESSIONAL ENGINEER
11/03/2023

FULLY-DEVELOPED
DRAINAGE AREA MAP
PARKSIDE SECTION 8
CONSTRUCTION PLANS
GEORGETOWN, WILLIAMSON, TEXAS

SHEET 31 OF 72

2023-XX-CON

REVISION

BY

DATE

P:\bldg\mfg\parkside section 8, fig 6 - 01a section 802, ACODP\man\c203297 philedam.dwg, INLET DRAINAGE CALCULATIONS November 01, 2023, 10:26 PM, jgura

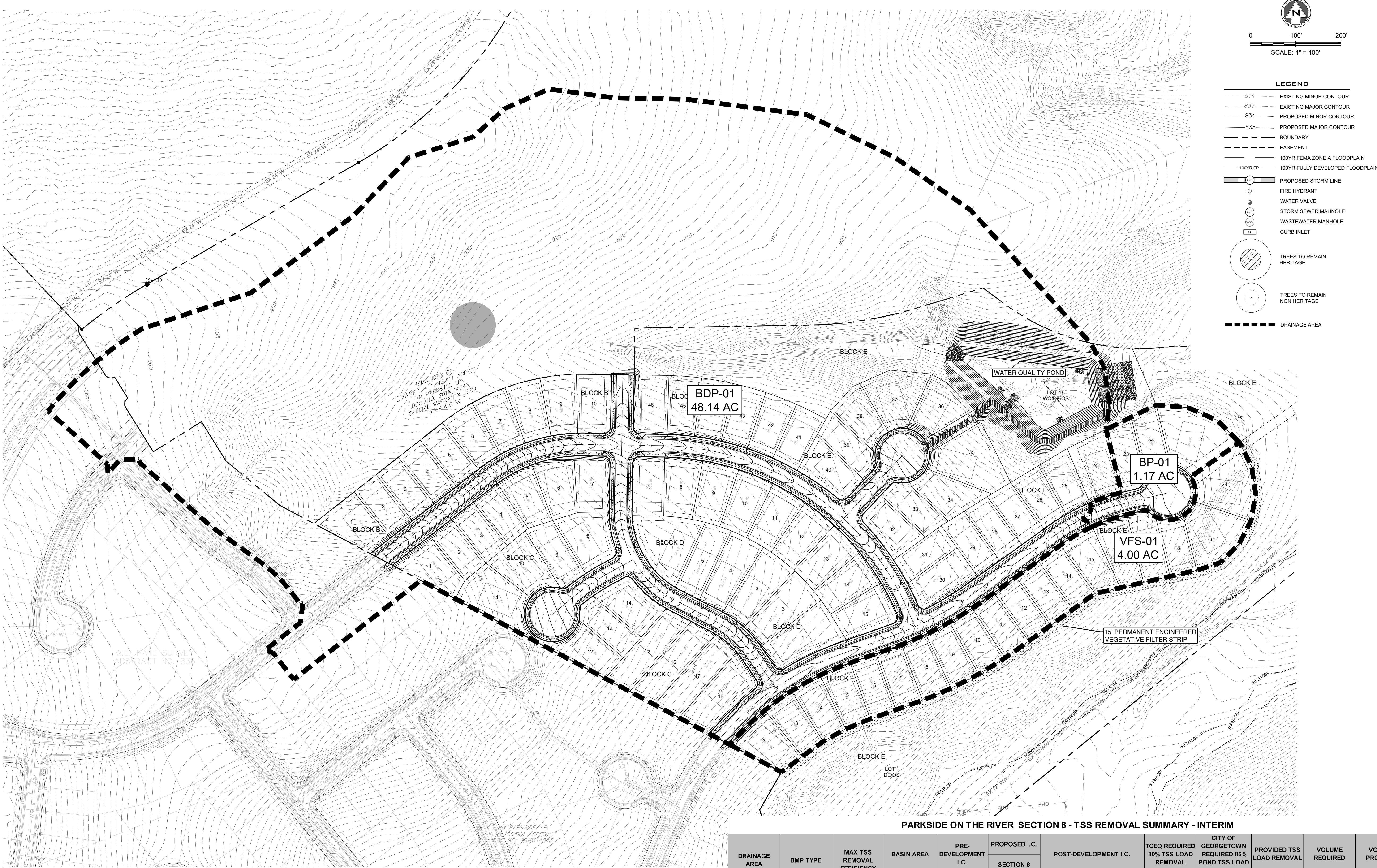
COG C-Values				
	2	10	25	100
Impervious	0.95	0.95	0.95	0.95
Pervious	0.24	0.28	0.31	0.36

COG IDF Curve Values				
Year	a	b	c	
2	106.29	16.81	0.9076	
10	96.84	15.88	0.7952	
25	111.07	17.23	0.7815	
100	129.03	17.83	0.7625	

PARKSIDE ON THE RIVER SECTION 8														PARKSIDE ON THE RIVER SECTION 8																			
RATIONAL METHOD FLOW CALCULATIONS FOR STORM INLETS														TIME OF CONCENTRATION CALCULATIONS																			
BASIN LABEL	INLET LABEL	INLET TYPE*	AREA (SQ FT)	AREA (AC)	IMPERVIOUS (LOTS) (SF)	IMPERVIOUS (ROADS) (SF)	IMPERVIOUS %	PERVIOUS %	TC (MIN)	2-YR			10-YR			25-YR			100-YR			Contributing Area	Sheet Flow				Shallow Concentrated Flow (Unpaved)				Gutter Flow		
										C	I	Q	C	I	Q	C	I	Q	C	I	Q		Length (ft)	Slope (ft/ft)	Roughness Coefficient	T _{sheet}	Length (ft)	Slope (ft/ft)	Roughness Coefficient	T _{unpaved}	Length (ft)	Velocity (ft/s)	Traped
1	A7	CSAG	17,497	0.40	0	14,199	81%	19%	5.0	0.82	6.48	2.12	0.82	8.64	2.86	0.83	9.84	3.28	0.84	11.88	4.00	1				0.00				0.00			0.00
2	B32	CGRD	22,063	0.51	0	16,318	74%	26%	5.0	0.77	6.48	2.51	0.78	8.64	3.39	0.78	9.84	3.90	0.80	11.88	4.79	2				0.00				0.00			0.00
3	B31	CGRD	31,922	0.73	16,000	5,422	67%	33%	7.3	0.72	5.91	3.10	0.73	7.94	4.25	0.74	9.10	4.93	0.76	11.03	6.11	3	35	0.02	0.24	1.41	187	0.02	0.24	5.29	227	6	0.63
4	B33	CGRD	44,209	1.01	16,000	11,204	62%	38%	8.2	0.68	5.72	3.93	0.69	7.71	5.42	0.70	8.86	6.33	0.72	10.89	7.44	4	35	0.02	0.24	1.41	240	0.02	0.24	6.79	0	6	0.41
5	B37	CGRD	33,661	0.77	10,000	8,714	56%	44%	5.0	0.63	6.48	3.18	0.65	8.64	4.36	0.67	9.84	5.06	0.69	11.88	6.32	5	35	0.02	0.24	1.41	70	0.02	0.24	1.98	92	6	0.26
6	B36	CGRD	35,300	0.81	15,600	3,100	53%	47%	6.6	0.62	6.08	3.04	0.63	8.16	4.20	0.65	9.33	4.91	0.67	11.29	6.15	6	35	0.02	0.24	1.41	175	0.02	0.24	4.95	76	6	0.21
7	C33	CGRD	47,291	1.09	20,800	3,108	51%	49%	7.4	0.60	5.90	3.84	0.62	7.93	5.33	0.63	9.09	6.25	0.66	11.02	7.88	7	35	0.02	0.24	1.41	203	0.02	0.24	5.74	76	6	0.21
8	C29	CSAG	37,520	0.86	10,800	15,156	69%	31%	5.6	0.73	6.32	3.98	0.74	8.45	5.41	0.75	9.64	6.25	0.77	11.65	7.71	8	35	0.02	0.24	1.41	128	0.02	0.24	3.62	201	6	0.56
9	C34	CGRD	11,735	0.27	0	8,712	74%	26%	5.0	0.77	6.48	1.34	0.78	8.64	1.81	0.79	9.84	2.08	0.80	11.88	2.55	9				0.00				0.00			0.00
10	C35	CGRD	43,723	1.00	20,800	3,102	55%	45%	7.1	0.63	5.97	3.76	0.65	8.02	5.20	0.66	9.18	6.08	0.68	11.12	7.62	10	35	0.02	0.24	1.41	192	0.02	0.24	5.43	76	6	0.21
11	C36	CGRD	38,378	0.88	10,800	10,103	54%	46%	6.6	0.63	6.07	3.35	0.64	8.14	4.62	0.66	9.31	5.40	0.68	11.27	6.76	11	35	0.02	0.24	1.41	177	0.02	0.24	5.01	79	6	0.22
12	C37	CGRD	18,254	0.42	0	13,532	74%	26%	5.0	0.77	6.48	2.08	0.78	8.64	2.81	0.78	9.84	3.23	0.80	11.88	3.97	12				0.00				0.00			0.00
13	C27	CGRD	31,940	0.73	14,000	6,549	64%	36%	5.0	0.70	6.48	3.31	0.71	8.64	4.51	0.72	9.84	5.21	0.74	11.88	6.44	13	35	0.02	0.24	1.41	38	0.02	0.24	1.07	283	6	0.79
14	C39	CGRD	29,020	0.67	15,600	3,647	66%	34%	5.2	0.71	6.42	3.04	0.72	8.57	4.14	0.73	9.77	4.78	0.75	11.80	5.91	14	35	0.02	0.24	1.41	123	0.02	0.24	3.48	113	6	0.31
15	C38	CGRD	32,914	0.76	15,600	4,777	62%	38%	5.3	0.68	6.40	3.29	0.69	8.55	4.49	0.71	9.74	5.20	0.73	11.77	6.45	15	35	0.02	0.24	1.41	119	0.02	0.24	3.37	181	6	0.50
16	C41	CGRD	24,640	0.57	10,000	3,586	55%	45%	5.0	0.63	6.48	2.31	0.65	8.64	3.17	0.66	9.84	3.69	0.69	11.88	4.61	16	35	0.02	0.24	1.41	77	0.02	0.24	2.18	100	6	0.28
17	B29	CGRD	40,343	0.93	15,600	5,200	52%	48%	5.1	0.61	6.47	3.63	0.63	8.63	5.00	0.64	9.82	5.82	0.66	11.86	7.30	17	35	0.02	0.24	1.41	116	0.02	0.24	3.28	128	6	0.36
18	B41	CGRD	14,945	0.34	0	11,135	75%	25%	5.0	0.77	6.48	1.71	0.78	8.64	2.31	0.79	9.84	2.66	0.80	11.88	3.26	18				0.00				0.00			0.00
19	B40	CGRD	43,746	1.00	20,800	1,979	52%	48%	7.3	0.61	5.92	3.63	0.63	7.96	5.03	0.64	9.12	5.89	0.67	11.05	7.40	19	35	0.02	0.24	1.41	202	0.02	0.24	5.71	53	6	0.15
20	B39	CGRD	9,870	0.23	0	7,290	74%	26%	5.0	0.76	6.48	1.12	0.77	8.64	1.52	0.78	9.84	1.75	0.80	11.88	2.14	20				0.00				0.00			0.00
21	B38	CGRD	42,545	0.98	15,600	3,545	45%	55%	7.5	0.56	5.87	3.21	0.58	7.90	4.49	0.60	9.05	5.29	0.63	10.98	6.71	21	35	0.02	0.24	1.41	203	0.02	0.24	5.74	122	6	0.34

Curb Inlets On Grade Calculation Summary: 25 year																									
Drainage Area No.	Inlet No.	Q ₂₅ (cfs)	Q _{pass} (cfs)	Q _{total} (cfs)	Slope (%)	n	K _u	Street Width (ft)	Crown Height (ft)	Inlet Depression, a (ft)	K0	K1	K2	y0 (ft)	a	b	Flow Spread, T (ft)	H1 (ft)	H2 (ft)	Qa/La (cfs/ft)	Length (ft)	Qa	Q _{pass} (cfs)	% Captured	Bypass to Inlet
2	B32	3.90	0.00	3.90	7.50%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.28	0.0714	0.0026	4.62	0.69	0.42	0.73	10.00	7.28		100%	A7
3	B31	4.93	0.00	4.93	7.10%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.30	0.0714	0.0026	5.15	0.72	0.42	0.75	10.00	7.53		100%	A7
4	B33	6.33	0.00	6.33	1.50%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.42	0.0714	0.0026	8.45	0.84	0.42	0.88	10.00	8.82		100%	B31
5	B37	5.06	0.00	5.06	4.40%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.33	0.0714	0.0026	5.79	0.74	0.42	0.78	10.00	7.82		100%	B33
6	B36	4.91	0.00	4.91	4.30%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.33	0.0714	0.0026	5.73	0.74	0.42	0.78	10.00	7.80		100%	B33
7	C33	6.25	0.00	6.25	2.00%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.40	0.0714	0.0026	7.75	0.82	0.42	0.86	10.00	8.59		100%	B36
9	C34	2.08	0.00	2.08	2.00%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.28	0.0714	0.0026	4.68	0.70	0.42	0.73	10.00	7.31		100%	C29
10	C35	6.08	0.00	6.08	2.00%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.40	0.0714	0.0026	7.64	0.81	0.42	0.86	10.00	8.55		100%	C33
11	C36	5.40	0.00	5.40	2.00%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.38	0.0714	0.0026	7.18	0.80	0.42	0.84	10.00	8.39		100%	C35
12	C37	3.23	0.00	3.23	3.10%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.30	0.0714	0.0026	5.14	0.72	0.42	0.75	10.00	7.53		100%	OS
13	C27	5.21	0.00	5.21	6.00%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.31	0.0714	0.0026	5.47	0.73	0.42	0.77	10.00	7.68		100%	C39
14	C39	4.78	0.00	4.78	5.10%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.31	0.0714	0.0026	5.46	0.73	0.42	0.77	10.00	7.67		100%	C38
15	C38	5.20	0.00	5.20	3.80%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.34	0.0714	0.0026	6.05	0.76	0.42	0.79	10.00	7.93		100%	C36
16	C41	3.69	0.00	3.69	3.80%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.30	0.0714	0.0026	5.20	0.72	0.42	0.76	10.00	7.56		100%	C36
17	B29	5.82	0.00	5.82	4.70%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.34	0.0714	0.0026	6.07	0.76	0.42	0.79	10.00	7.94		100%	B41
18	B41	2.66	0.00	2.66	5.30%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.26	0.0714	0.0026	4.24	0.67	0.42	0.71	10.00	7.09		100%	B40
19	B40	5.89	0.00	5.89	5.60%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.33	0.0714	0.0026	5.87	0.75	0.42	0.79	10.00	7.85		100%	B38
20	B39	1.75	0.00	1.75	5.60%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.22	0.0714	0.0026	3.56	0.64	0.42	0.67	10.00	6.74		100%	B37
21	B38	5.29	0.00	5.29	4.60%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.33	0.0714	0.0026	5.84	0.75	0.42	0.78	10.00	7.84		100%	B37

P:\bldg\mfg\parkside sections 8, 9 & 10\section 803_ACO\Drawings\202027_PVD001.dwg WATER QUALITY DRAINAGE AREA MAP (INTERIM) November 02, 2023 4:10 PM, garna



PARKSIDE ON THE RIVER SECTION 8 - TSS REMOVAL SUMMARY - INTERIM												
DRAINAGE AREA	BMP TYPE	MAX TSS REMOVAL EFFICIENCY	BASIN AREA	PRE-DEVELOPMENT I.C.	PROPOSED I.C.	POST-DEVELOPMENT I.C.		TCEQ REQUIRED 80% TSS LOAD REMOVAL	CITY OF GEORGETOWN REQUIRED 85% POND TSS LOAD REMOVAL	PROVIDED TSS LOAD REMOVAL	VOLUME REQUIRED	VOLUME PROVIDED
					SECTION 8							
			AC	AC	AC	AC	%	LB	LB	LB	CF	CF
BDP-01	BATCH DETENTION POND	91%	48.14	1.42	10.02	11.44	24%	8,721	9,266	11,650	131,598	137,853
VFS-01	VEGETATIVE FILTER STRIP	85%	4.00	0.00	1.92	1.92	48%	1,671		1,838		
BP-01	BY-PASS	0%	1.17	0.00	0.63	0.63	54%	548				
TOTAL:			53.31	1.42	12.57	13.99	26%	10,941		13,488		

1 - FOR THE GEORGETOWN TSS REMOVAL REQUIREMENT, WE CONSIDER 85% OF TSS REMOVAL FOR THE DRAINAGE AREA THAT DRAINS TOWARD THE BATCH DETENTION PONDS.

BY
DATE

REVISION

NO.

Know what's below.
Call before you dig.

5508 HIGHWAY 290 WEST
SUITE 150
MCKINNEY, TX 75065
817.440.8888
HARGREEN.COM

TYPE NO: 16384
RPLS NO: 10194101

HARGREEN®
DEVELOPMENT TX

SHERVIN NOOSHIN
96807
LICENSED PROFESSIONAL ENGINEER
11/03/2023

WATER QUALITY DRAINAGE
AREA MAP (INTERIM)

PARKSIDE SECTION 8
CONSTRUCTION PLANS

GEORGETOWN, WILLIAMSON, TEXAS

DESIGNED BY: CC

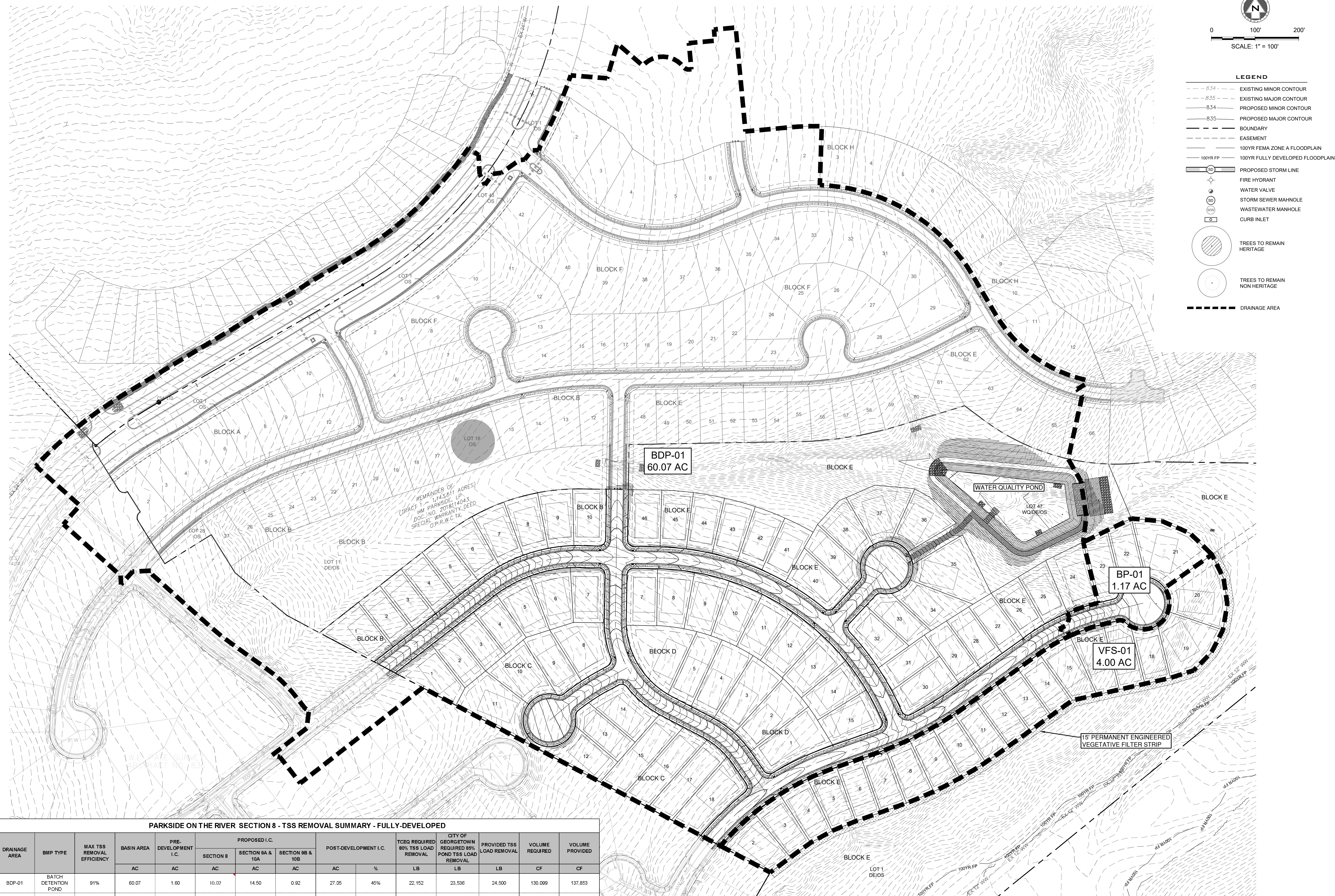
DRAWN BY: TG/MKM

CHECKED BY: SN

APPROVED BY: _____

SHEET **34** OF **72**

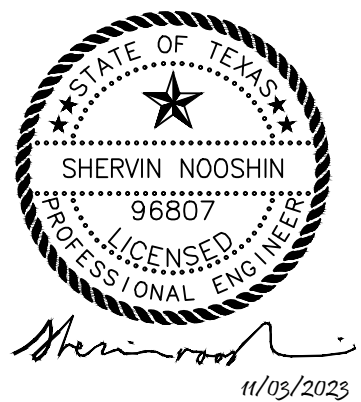
2023-XX-00N



PARKSIDE ON THE RIVER SECTION 8 - TSS REMOVAL SUMMARY - FULLY-DEVELOPED														
DRAINAGE AREA	BMP TYPE	MAX TSS REMOVAL EFFICIENCY	BASIN AREA	PRE-DEVELOPMENT I.C.	PROPOSED I.C.			POST-DEVELOPMENT I.C.		TCEQ REQUIRED 86% TSS LOAD REMOVAL	CITY OF GEORGETOWN REQUIRED 86% POND TSS LOAD REMOVAL	PROVIDED TSS LOAD REMOVAL	VOLUME REQUIRED	VOLUME PROVIDED
					SECTION 8	SECTION 8A & 10A	SECTION 9B & 10B							
					AC	AC	AC	AC	AC					
BDP-01	BATCH DETENTION POND	91%	60.07	1.60	10.02	14.50	0.92	27.05	45%	22,152	23,536	24,500	130,099	137,853
VFS-01	VEGETATIVE FILTER STRIP	85%	4.00	0.00	1.92			1.92	48%	1,671		1,838		
BP-01	BY-PASS	0%	1.17	0.00	0.63			0.63	54%	548				
TOTAL:			65.24	1.60	12.57	14.50	0.92	29.60	45%	24,371		26,338		

5508 HIGHWAY 290 WEST
SUITE 150
AUSTIN, TX 78735
512.872.6696
CHRGREEN.COM

TBPE NO: 16384
TBPLS NO: 10194101



**WATER QUALITY DRAINAGE
AREA MAP (FULLY-DEVELOPED)**

**PARKSIDE SECTION 8
CONSTRUCTION PLANS**

GEORGETOWN, WILLIAMSON, TEXAS

BATCH DETENTION POND - BDP-01 (INTERIM)

Texas Commission on Environmental Quality		Project Name: Parkside on the River	
TSS Removal Calculations 04-20-2009		Section 8 Date Prepared: 11/3/2023	
Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell. Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348. Characters shown in red are data entry fields. Characters shown in black (Bold) are calculated fields. Changes to these fields will remove the equations used in the spreadsheet.			
1. The Required Load Reduction for the total project: Calculations from RG-348 Pages 3-27 to 3-30			
Page 3-29 Equation 3.3: $L_d = 27.2(A_{\text{I}} \times P)$			
where: L_d TOTAL PROJECT = Required TSS removal resulting from the proposed development = 80% of increased load A_{I} = Net increase in impervious area for the project P = Average annual precipitation, inches			
Site Data: Determine Required Load Removal Based on the Entire Project County = Williamson Total project area included in plan = 41.26 acres Predevelopment impervious area within the limits of the plan = 0.00 acres Total post-development impervious area within the limits of the plan = 12.57 acres Total post-development impervious cover fraction = 0.30 P = 32 inches			
L_d TOTAL PROJECT = 10941 lbs.			
* The values entered in these fields should be for the total project area.			
Number of drainage basins / outfalls areas leaving the plan area = 3			
2. Drainage Basin Parameters (This information should be provided for each basin):			
Drainage Basin/Outfall Area No. = BDP-01			
Total drainage basin/outfall area = 48.14 acres Predevelopment impervious area within drainage basin/outfall area = 1.42 acres Post-development impervious area within drainage basin/outfall area = 11.44 acres Post-development impervious fraction within drainage basin/outfall area = 0.24 L_d THIS BASIN = 8723 lbs.			
3. Indicate the proposed BMP Code for this basin.			
Proposed BMP = Batch Detention Removal efficiency = 91 percent			
4. Calculate Maximum TSS Load Removed (L_d) for this Drainage Basin by the selected BMP Type.			
RG-348 Page 3-33 Equation 3.7: $L_d = (\text{BMP efficiency}) \times P \times (A_{\text{I}} \times 34.6 + A_{\text{P}} \times 0.54)$			
where: A_{I} = 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_d = TSS Load removed from this catchment area by the proposed BMP			
A_{I} = 48.14 acres A_{I} = 11.44 acres A_{P} = 36.70 acres L_d = 12103 lbs.			
5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area			
Desired L_d THIS BASIN = 11650 lbs. F = 0.96			
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 = 2.98 inches Post Development Runoff Coefficient = 0.22 On-site Water Quality Volume = 109665 cubic feet			
Calculations from RG-348 Pages 3-36 to 3-37			
Off-site area draining to BMP = 0.00 acres Off-site impervious cover draining to BMP = 0.00 acres Impervious fraction of off-site area = 0 Off-site Runoff Coefficient = 0.00 Off-site Water Quality Volume = 0 cubic feet			
Storage for Sediment = 21933 Total Capture Volume (required water quality volume(s) x 1.20) = 131598 cubic feet 1/2 WQV = 65799			

BATCH DETENTION POND - BDP-02 (FULLY-DEVELOPED)

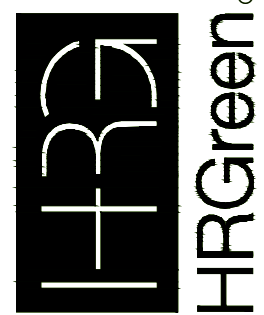
Texas Commission on Environmental Quality		Project Name: Parkside on the River	
TSS Removal Calculations 04-20-2009		Section 8 Date Prepared: 11/3/2023	
Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell. Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348. Characters shown in red are data entry fields. Characters shown in black (Bold) are calculated fields. Changes to these fields will remove the equations used in the spreadsheet.			
1. The Required Load Reduction for the total project: Calculations from RG-348 Pages 3-27 to 3-30			
Page 3-29 Equation 3.3: $L_d = 27.2(A_{\text{I}} \times P)$			
where: L_d TOTAL PROJECT = Required TSS removal resulting from the proposed development = 80% of increased load A_{I} = Net increase in impervious area for the project P = Average annual precipitation, inches			
Site Data: Determine Required Load Removal Based on the Entire Project County = Williamson Total project area included in plan = 41.26 acres Predevelopment impervious area within the limits of the plan = 0.00 acres Total post-development impervious area within the limits of the plan = 12.57 acres Total post-development impervious cover fraction = 0.30 P = 32 inches			
L_d TOTAL PROJECT = 10941 lbs.			
* The values entered in these fields should be for the total project area.			
Number of drainage basins / outfalls areas leaving the plan area = 3			
2. Drainage Basin Parameters (This information should be provided for each basin):			
Drainage Basin/Outfall Area No. = VFS-01			
Total drainage basin/outfall area = 60.07 acres Predevelopment impervious area within drainage basin/outfall area = 1.60 acres Post-development impervious area within drainage basin/outfall area = 27.05 acres Post-development impervious fraction within drainage basin/outfall area = 0.45 L_d THIS BASIN = 22151 lbs.			
3. Indicate the proposed BMP Code for this basin.			
Proposed BMP = Batch Detention Removal efficiency = 91 percent			
4. Calculate Maximum TSS Load Removed (L_d) for this Drainage Basin by the selected BMP Type.			
RG-348 Page 3-33 Equation 3.7: $L_d = (\text{BMP efficiency}) \times P \times (A_{\text{I}} \times 34.6 + A_{\text{P}} \times 0.54)$			
where: A_{I} = 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_d = TSS Load removed from this catchment area by the proposed BMP			
A_{I} = 60.07 acres A_{I} = 27.05 acres A_{P} = 33.02 acres L_d = 27714 lbs.			
5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area			
Desired L_d THIS BASIN = 24500 lbs. F = 0.88			
6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area. Calculations from RG-348 Pages 3-34 to 3-36			
Rainfall Depth = 1.58 inches Post Development Runoff Coefficient = 0.33 On-site Water Quality Volume = 108416 cubic feet			
Calculations from RG-348 Pages 3-36 to 3-37			
Off-site area draining to BMP = 0.00 acres Off-site impervious cover draining to BMP = 0.00 acres Impervious fraction of off-site area = 0 Off-site Runoff Coefficient = 0.00 Off-site Water Quality Volume = 0 cubic feet			
Storage for Sediment = 21683 Total Capture Volume (required water quality volume(s) x 1.20) = 130099 cubic feet 1/2 WQV = 65049			

VEGETATIVE FILTER STRIP - VFS-01

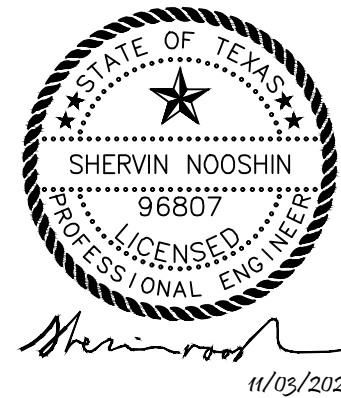
Texas Commission on Environmental Quality		Project Name: Parkside on the River	
TSS Removal Calculations 04-20-2009		Section 8 Date Prepared: 11/3/2023	
Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell. Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348. Characters shown in red are data entry fields. Characters shown in black (Bold) are calculated fields. Changes to these fields will remove the equations used in the spreadsheet.			
1. The Required Load Reduction for the total project: Calculations from RG-348 Pages 3-27 to 3-30			
Page 3-29 Equation 3.3: $L_d = 27.2(A_{\text{I}} \times P)$			
where: L_d TOTAL PROJECT = Required TSS removal resulting from the proposed development = 80% of increased load A_{I} = Net increase in impervious area for the project P = Average annual precipitation, inches			
Site Data: Determine Required Load Removal Based on the Entire Project County = Williamson Total project area included in plan = 41.26 acres Predevelopment impervious area within the limits of the plan = 0.00 acres Total post-development impervious area within the limits of the plan = 12.57 acres Total post-development impervious cover fraction = 0.30 P = 32 inches			
L_d TOTAL PROJECT = 10941 lbs.			
* The values entered in these fields should be for the total project area.			
Number of drainage basins / outfalls areas leaving the plan area = 3			
2. Drainage Basin Parameters (This information should be provided for each basin):			
Drainage Basin/Outfall Area No. = VFS-01			
Total drainage basin/outfall area = 4.90 acres Predevelopment impervious area within drainage basin/outfall area = 0.00 acres Post-development impervious area within drainage basin/outfall area = 1.92 acres Post-development impervious fraction within drainage basin/outfall area = 0.40 L_d THIS BASIN = 1671 lbs.			
3. Indicate the proposed BMP Code for this basin.			
Proposed BMP = Vegetated Filter Strips Removal efficiency = 85 percent			
4. Calculate Maximum TSS Load Removed (L_d) for this Drainage Basin by the selected BMP Type.			
RG-348 Page 3-33 Equation 3.7: $L_d = (\text{BMP efficiency}) \times P \times (A_{\text{I}} \times 34.6 + A_{\text{P}} \times 0.54)$			
where: A_{I} = 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_d = TSS Load removed from this catchment area by the proposed BMP			
A_{I} = 4.00 acres A_{I} = 1.92 acres A_{P} = 2.98 acres L_d = 1838 lbs.			
5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area			
Desired L_d THIS BASIN = 1838 lbs. F = 1.00			

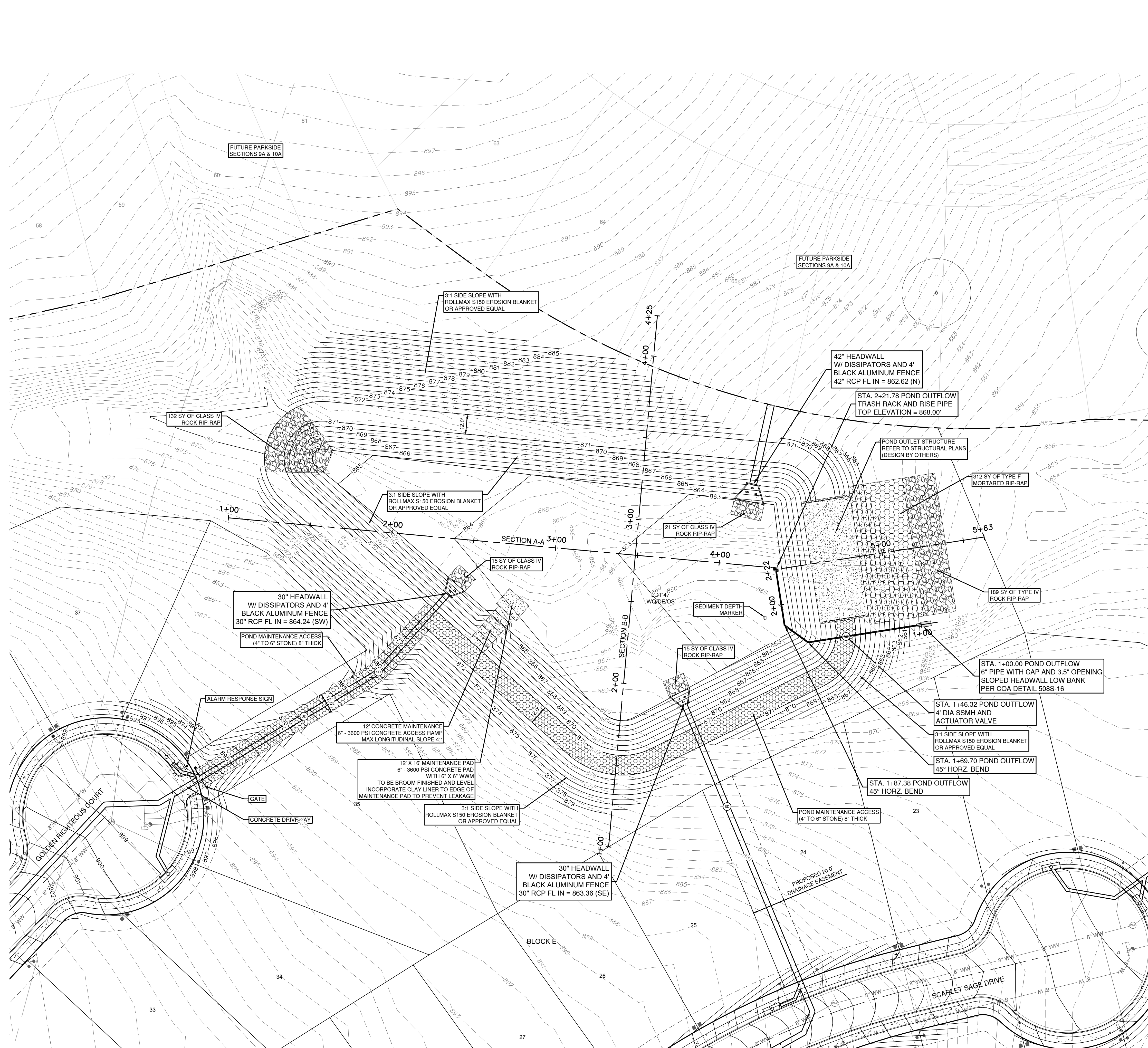
BYPASS - BP-01

Texas Commission on Environmental Quality		Project Name: Parkside on the River	
TSS Removal Calculations 04-20-2009		Section 8 Date Prepared: 11/3/2023	
Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell. Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348. Characters shown in red are data entry fields. Characters shown in black (Bold) are calculated fields. Changes to these fields will remove the equations used in the spreadsheet.			
1. The Required Load Reduction for the total project: Calculations from RG-348 Pages 3-27 to 3-30			
Page 3-29 Equation 3.3: $L_d = 27.2(A_{\text{I}} \times P)$			
where: L_d TOTAL PROJECT = Required TSS removal resulting from the proposed development = 80% of increased load A_{I} = Net increase in impervious area for the project P = Average annual precipitation, inches			
Site Data: Determine Required Load Removal Based on the Entire Project County = Williamson Total project area included in plan = 41.26 acres Predevelopment impervious area within the limits of the plan = 0.00 acres Total post-development impervious area within the limits of the plan = 12.57 acres Total post-development impervious cover fraction = 0.30 P = 32 inches			
L_d TOTAL PROJECT = 10941 lbs.			
* The values entered in these fields should be for the total project area.			
Number of drainage basins / outfalls areas leaving the plan area = 3			
2. Drainage Basin Parameters (This information should be provided for each basin):			
Drainage Basin/Outfall Area No. = BP-01			
Total drainage basin/outfall area = 1.17 acres Predevelopment impervious area within drainage basin/outfall area = 0.00 acres Post-development impervious area within drainage basin/outfall area = 0.93 acres Post-development impervious fraction within drainage basin/outfall area = 0.54 L_d THIS BASIN = 548 lbs.			

Know what's below.
Call before you dig.5508 HIGHWAY 290 WEST
SUITE 150
MUSTIN,
TEXAS 75755
HARGREEN.COMTDE ID: 16384
TDELS NO: 10194101

DEVELOPMENT TX





GENERAL NOTES:

1. CONTRACTOR TO UTILIZE A TEMPORARY CONSTRUCTION PUMP TO DISCHARGE WATER FROM THE POND AFTER A RAINFALL EVENT, DURING CONSTRUCTION. PUMP IS TO DISCHARGE UPSTREAM OF PROPOSED ROCK BERM LOCATED BEFORE THE CREEK BED. AT NO TIME SHALL THE PUMP BE DISCHARGED DIRECTLY INTO STORMSEWER SYSTEM BEFORE CROSSING A ROCK BERM.
2. ALL MUD, DIRT, ROCKS, DEBRIS, ETC., SPILLED, TRACKED OR OTHERWISE DEPOSITED ON EXISTING PAVED STREETS, DRIVES, AND AREAS USED BY THE PUBLIC SHALL BE CLEANED UP IMMEDIATELY. CONTRACTOR WILL CLEAN UP SPOILS THAT MIGRATE ONTO ROADS A MINIMUM OF ONCE DAILY.
3. ALL DISTURBED AREAS TO BE REVEGETATED PRIOR TO ACCEPTANCE.
4. IF DISTURBED AREA IS NOT TO BE WORKED ON FOR MORE THAN 14 DAYS, DISTURBED AREA NEEDS TO BE STABILIZED BY REVEGETATION, MULCH, TARP OR REVEGETATION MATTING.
5. THE STABILIZED CONSTRUCTION ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT INTO PUBLIC ROADWAY.
6. THE ENVIRONMENTAL INSPECTOR HAS THE AUTHORITY TO ADD AND/OR MODIFY EROSION/SEDIMENTATION CONTROLS ON SITE TO KEEP PROJECT IN COMPLIANCE WITH THE CITY OF GEORGETOWN RULES AND REGULATIONS. HOWEVER, MODIFICATIONS TO THE ENGINEERING DESIGN AND FUNCTIONS OF THE EROSION AND SEDIMENTATION CONTROLS SYSTEMS CONTAINED HERE IN IS STRICTLY FORBIDDEN WITHOUT THE EXPRESSED WRITTEN CONSENT OF THE SIGNING PROJECT PROFESSIONAL ENGINEER (TAC22 §137.3 AND §137.37).
7. CONTRACTOR SHALL UTILIZE DUST CONTROL MEASURES DURING SITE CONSTRUCTION SUCH AS IRRIGATION TRUCKS AND MULCHING AS PER 1.4.5(A) OR AS DIRECTED BY THE ENVIRONMENTAL INSPECTOR.
8. ALL POND BOTTOMS, SIDE SLOPES, AND EARTHEN EMBANKMENTS SHALL BE COMPACTED TO 95% MAXIMUM DENSITY, IN ACCORDANCE WITH THE CITY OF GEORGETOWN STANDARD SPECIFICATIONS AND PER GEOTECHNICAL ENGINEER'S RECOMMENDATION. ALLOW ADEQUATE VOLUME FOR TOPSOIL TO SUPPORT VEGETATION.
9. GRADING WITHIN THE 1/2 CRITICAL ROOT ZONE OF PROTECTED TREES, IDENTIFIED BY A HATCH PATTERN ON THESE PLANS, SHALL BE LIMITED TO LESS THAN 12 INCHES OF DISTURBANCE. NO GRADING ACTIVITY WITH DISTURBANCE OF MORE THAN 6 INCHES IS ALLOWED IN THE 1/4 CRITICAL ROOT ZONE.
10. GRADING WORK WITHIN THE 1/2 CRITICAL ROOT ZONE OF ALL PROTECTED TREES SHALL BE DONE BY HAND OR WITH RUBBER TIED EQUIPMENT.
11. ALL RETAINING WALLS GREATER THAN FOUR FEET IN HEIGHT MEASURED FROM THE BOTTOM OF THE FOOTING TO THE TOP OF THE WALL SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER.

DEWATERING PLAN NOTES:

1. CONTRACTOR SHALL MAINTAIN THE DEWATERING SYSTEM TO ENSURE PERFORMANCE. IF THE DEWATERING SYSTEM IS NOT PERFORMING, THE CONTRACTOR MUST IMMEDIATELY MAKE THE NECESSARY MODIFICATIONS, FOLLOWING THE ENVIRONMENTAL INSPECTOR'S DIRECTION TO ENSURE ADEQUATE SYSTEM PERFORMANCE. CONTRACTOR SHALL PROVIDE THE DEWATERING PLAN AT THE PRECONSTRUCTION MEETING.
2. THE SKIMMER IS TO BE USED DURING CONSTRUCTION AND SHALL BE REMOVED AFTER COMPLETING CONSTRUCTION OF THE BATCH DETENTION POND.

WATER QUALITY POND

PARKSIDE SECTION 8

CONSTRUCTION PLANS

GEORGETOWN, WILLIAMSON, TEXAS

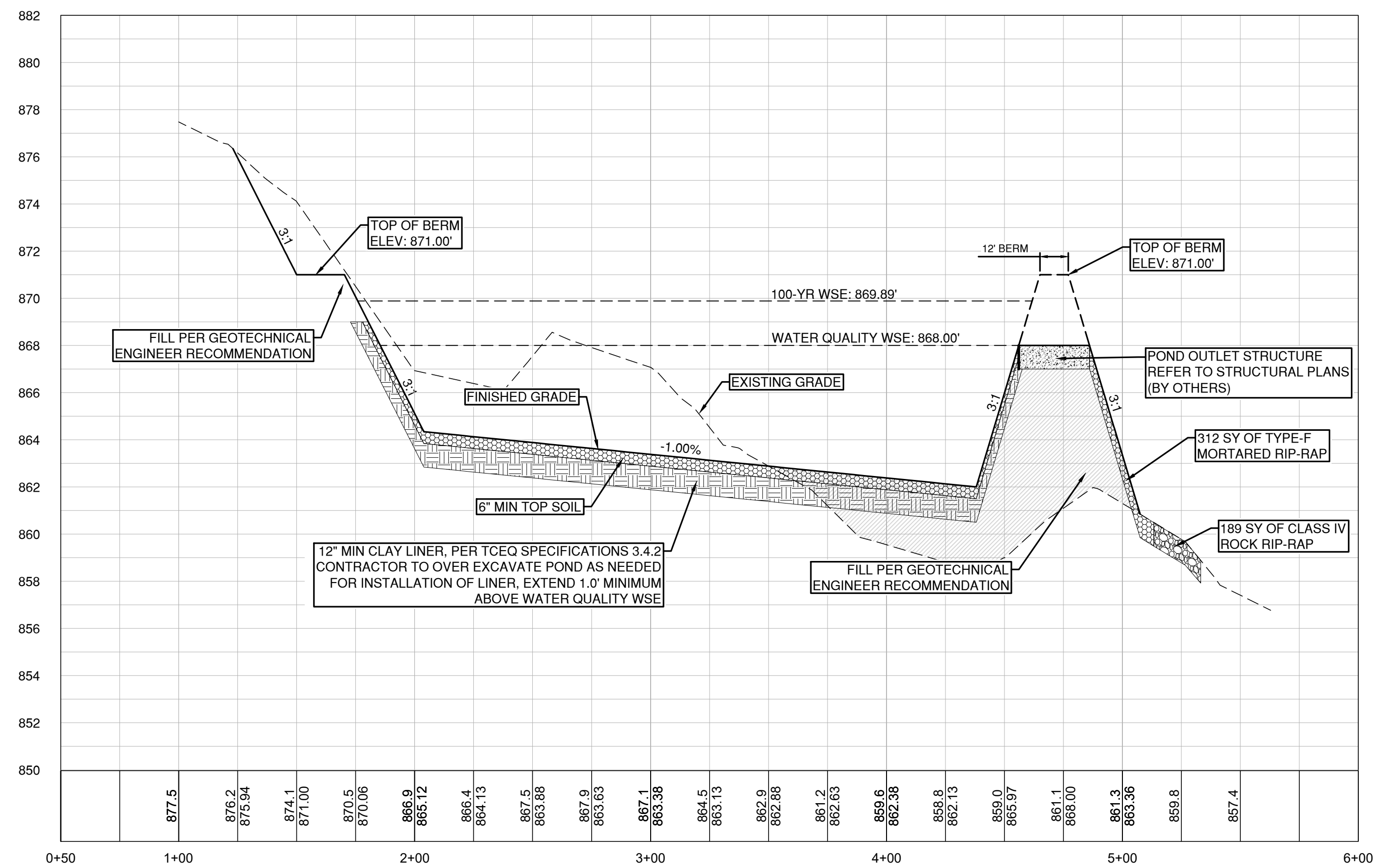
DESIGNED BY: CC
DRAWN BY: TG/MK
CHECKED BY: SN
APPROVED BY: _____

SHEET 37 OF 72

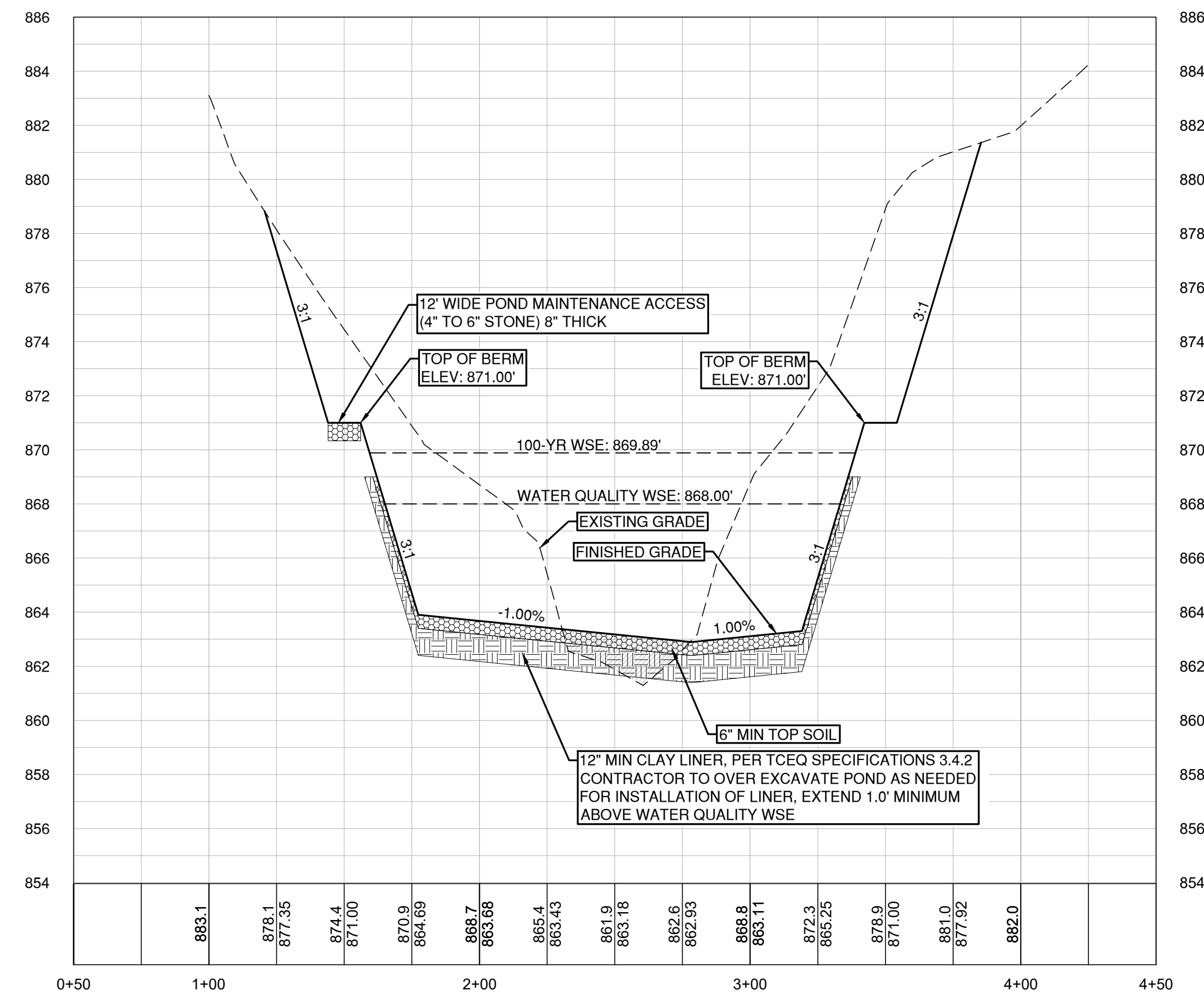
2023-XX-CON

P:\blake_macon\carkside sections 8_9a & 10a\section 8\03 ACAD\Plans\sp2303297 POND.dwg WATER QUALITY POND. November 01, 2023. 10:33 PM [carza

SECTION A-A



SECTION B-B



Pond Volume							
Elevation	Area		Volume		Cumulative Volume		Comments
	SF	ac	cf	ac*ft	cf	ac*ft	
862	0	0.00					Water Quality Volume
863	7,571	0.17	3,786	0.09	3,786	0.09	
864	21,138	0.49	14,355	0.33	18,140	0.42	
865	27,889	0.64	24,514	0.56	42,654	0.98	
866	30,599	0.70	29,244	0.67	71,898	1.65	
867	32,964	0.76	31,782	0.73	103,679	2.38	
868	35,384	0.81	34,174	0.78	137,853	3.16	
869	37,861	0.87	36,623	0.84	174,476	4.01	Routing
870	40,391	0.93	39,126	0.90	213,602	4.90	
871	42,978	0.99	41,685	0.96	255,286	5.86	Freeboard

OUTFLOW STRUCTURE	
Elevation	Flow
ft	cfs
868.00	0
868.50	67
869.00	190
869.50	349
870.00	537
870.50	750
871.00	986

$$Q = C_w LH^{1.5}$$

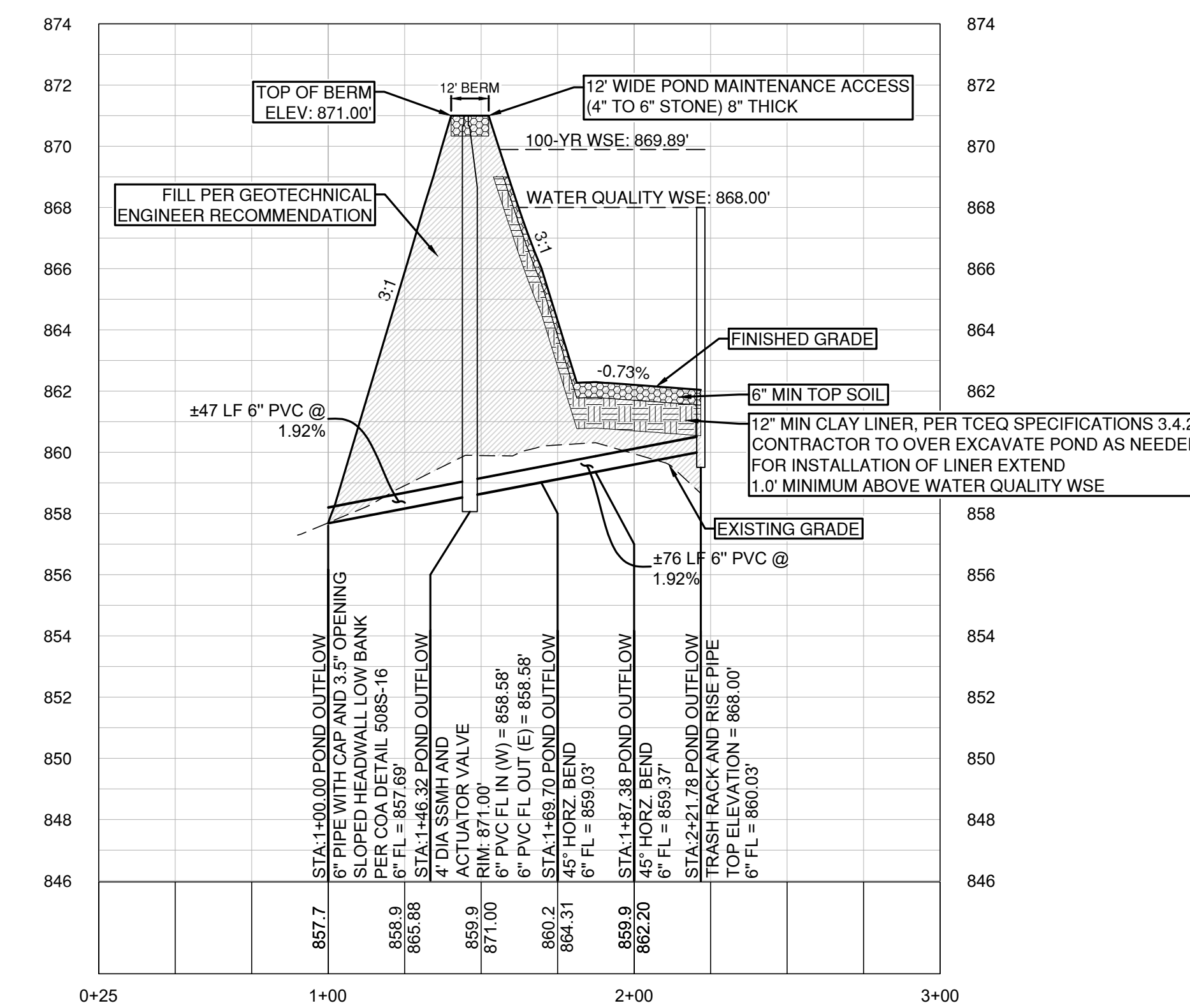
Q - weir flow rate (cfs)

C_w - Weir Coefficient BROAD: 2.60

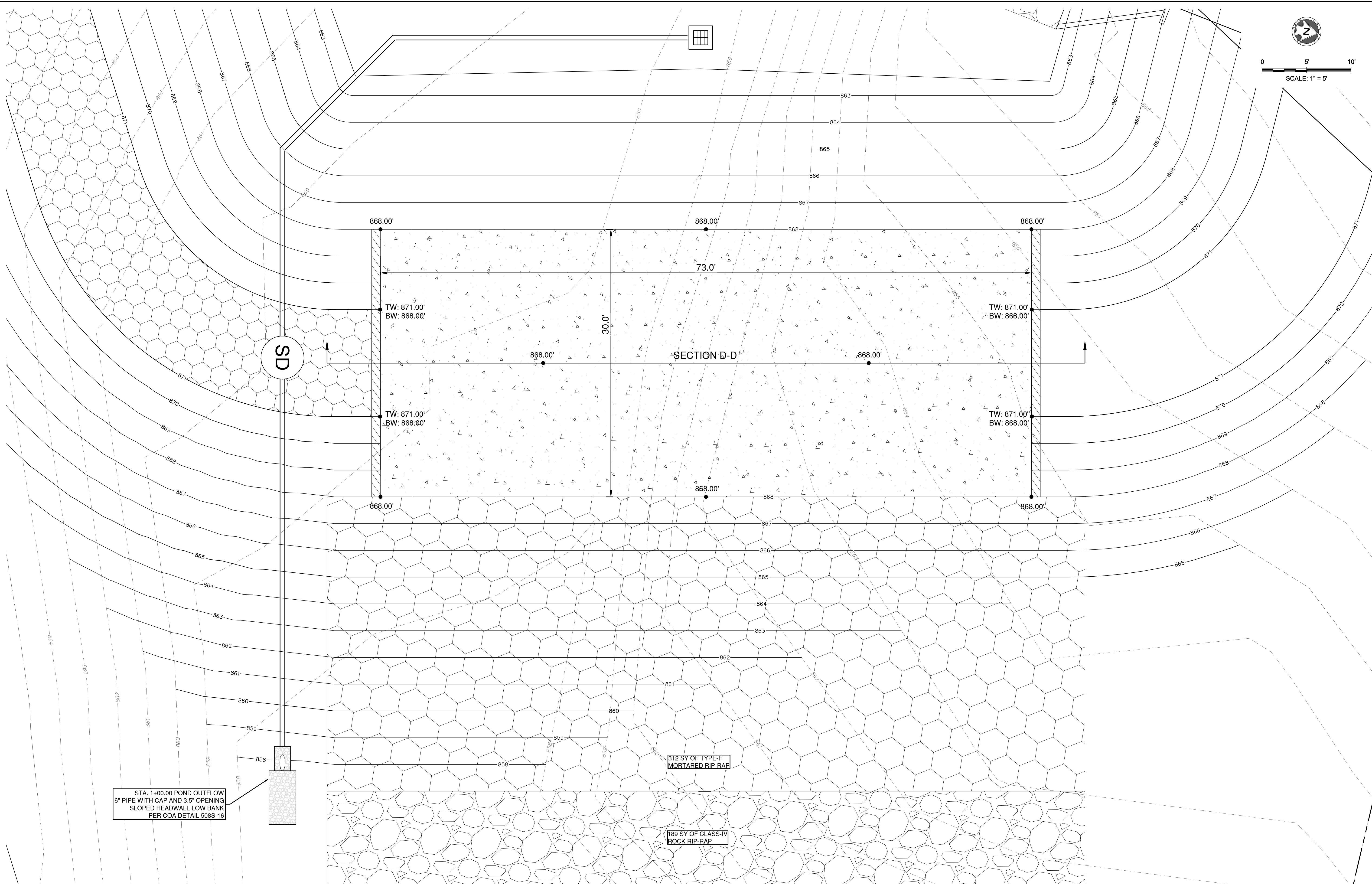
L - horizontal length of weir crest (ft) BROAD: 73 FT

H - head above weir crest elevation (ft)

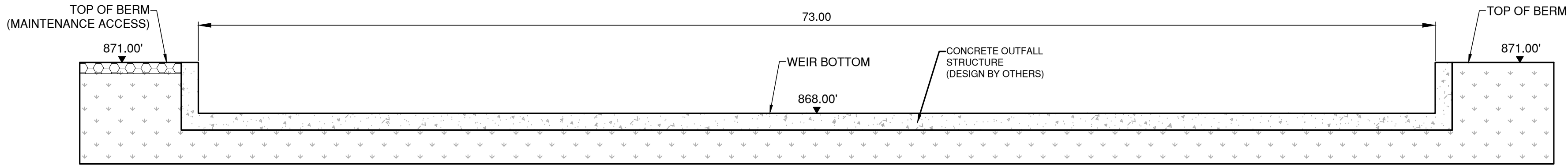
POND OUTFLOW



P:\blake_mfg\parkside sections 8, 9 & 10\section 803_ACOFPlan\1203297 POND JWS_POND OUTLET STRUCTURE DETAILS November 01, 2023 10:33 PM Jgaza

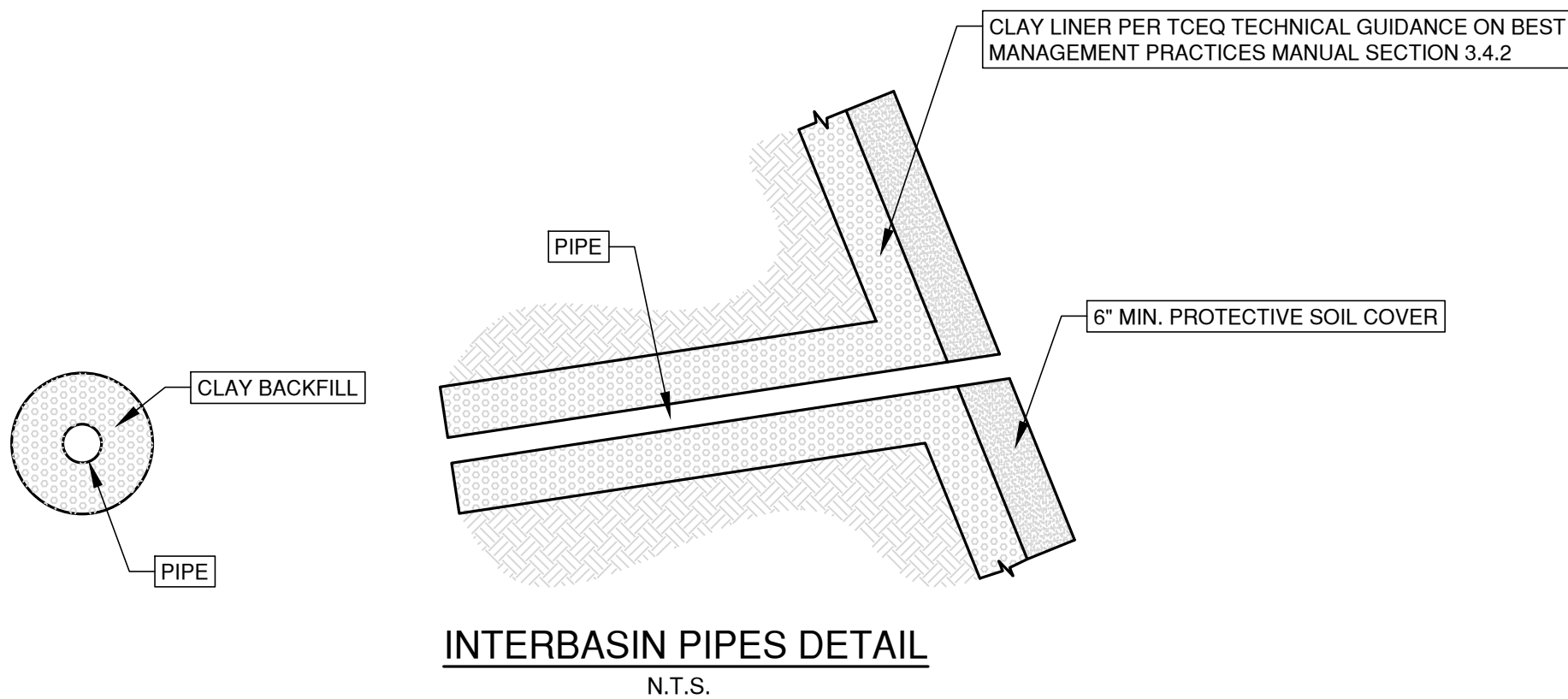
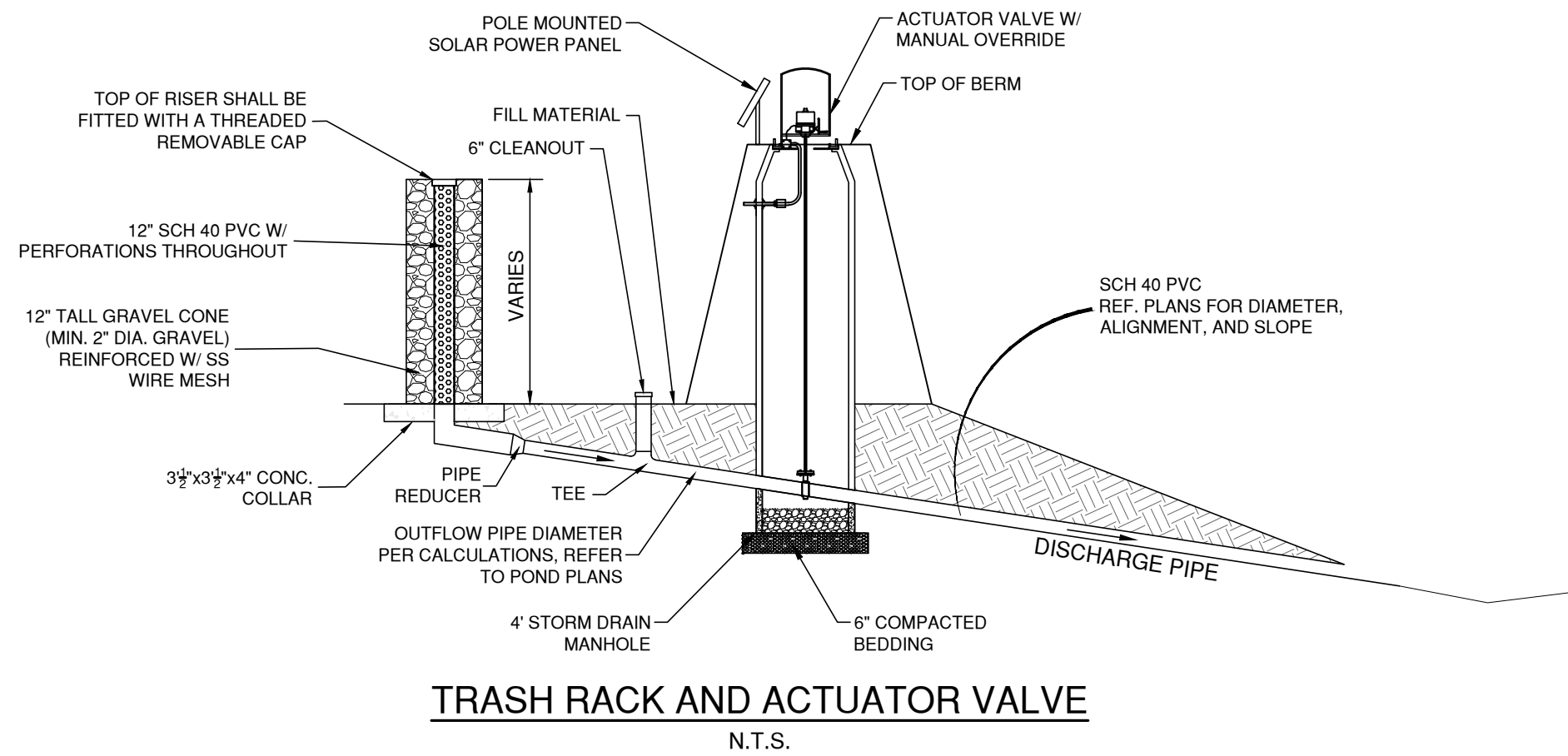


STA. 1+00.00 POND OUTFLOW
6" PIPE WITH CAP AND 3.5" OPENING
SLOPED HEADWALL LOW BANK
PER COA DETAIL 508S-16

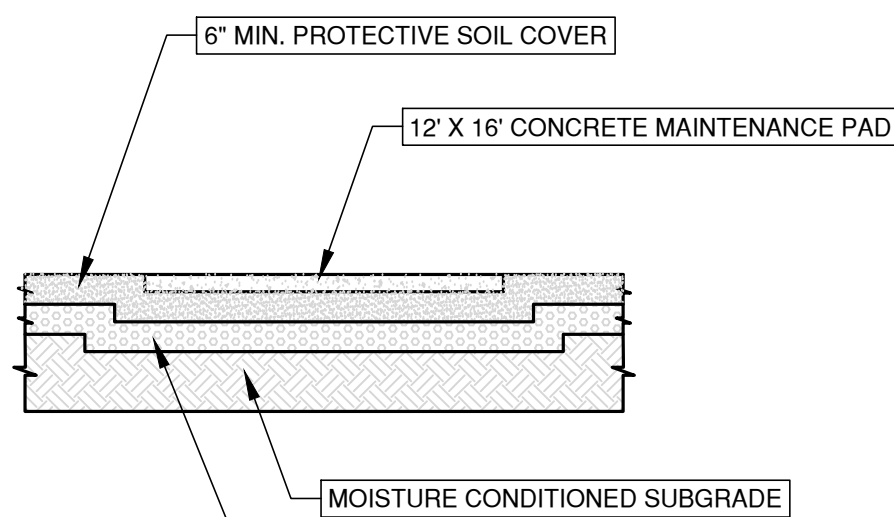


POND OUTFLOW STRUCTURE
SECTION D-D
SCALE 1:5

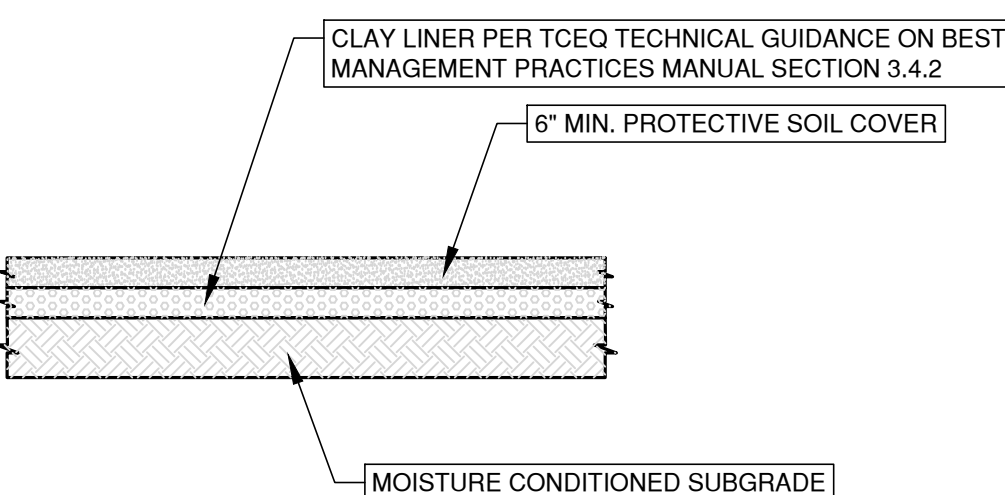
811 Know what's below. Call before you dig.	
5508 HIGHWAY 290 WEST SUITE 150 MCKINNEY, TX 75065 CHAS. GREEN HARGREEN, CON	TYPE NO: 10384 TIFLS NO: 10194101
HARGREEN DEVELOPMENT TX	
STATE OF TEXAS SHERVIN NOOSHIN 96807 LICENSED PROFESSIONAL ENGINEER 11/03/2023	
POND OUTLET STRUCTURE DETAILS	
PARKSIDE SECTION 8 CONSTRUCTION PLANS	
GEORGETOWN, WILLIAMSON, TEXAS	
DESIGNED BY: CC	
DRAWN BY: TB/MKM	
CHECKED BY: SN	
APPROVED BY:	
SHEET 39 OF 72	
2023-XX-CON	



INTERBASIN PIPES DETAIL
N.T.S.



MAINTENANCE PAD INSTALLATION
N.T.S.

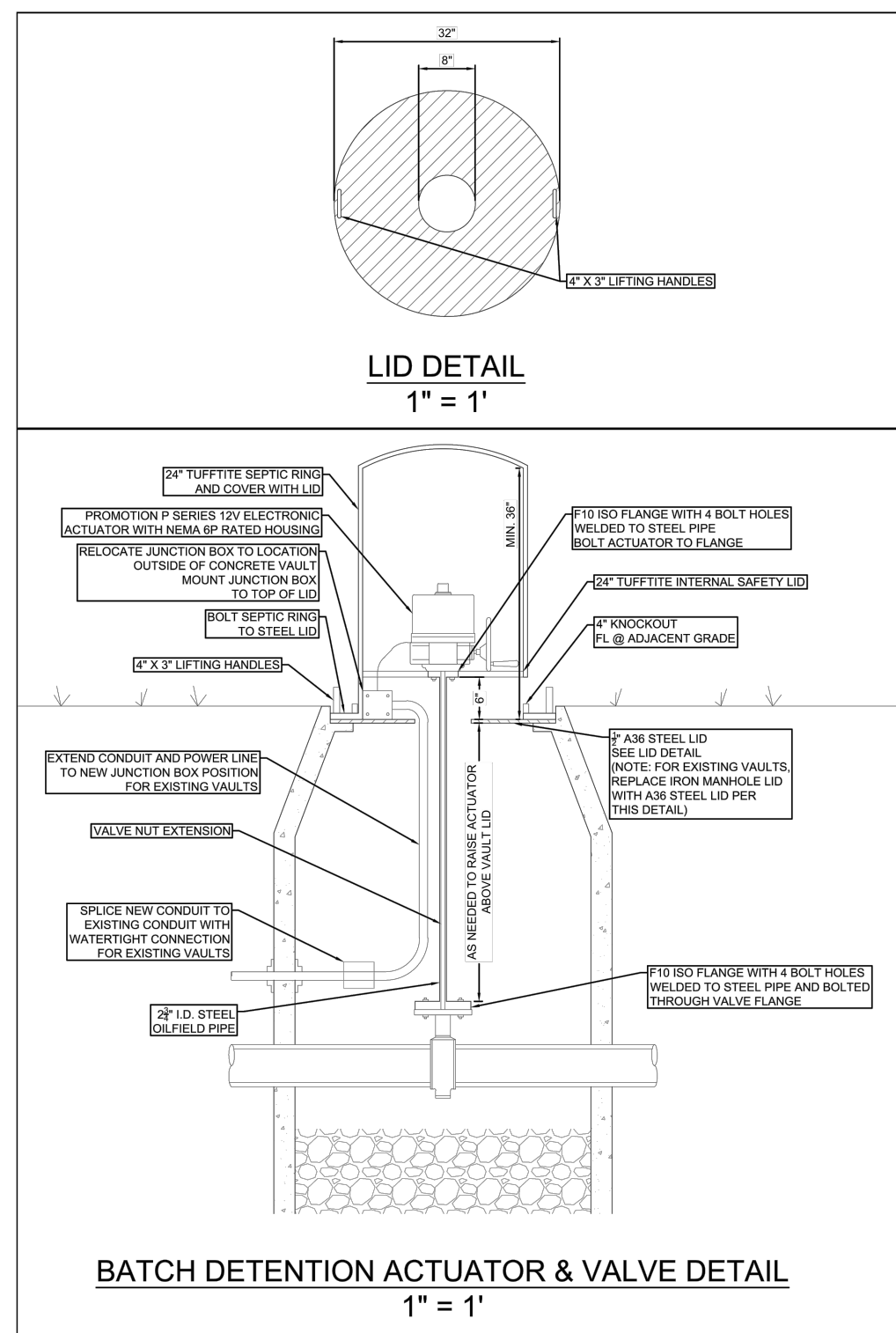


CLAY LINER INSTALLATION
N.T.S.

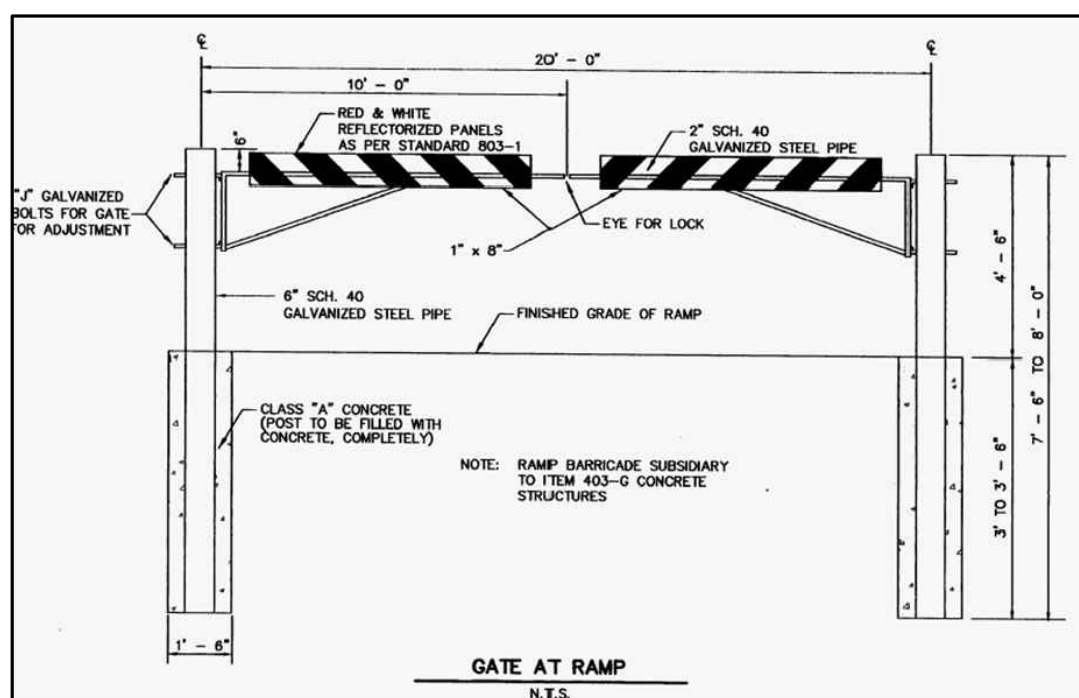
Table 3-6 Clay Liner Specifications (COA, 2004)

Property	Test Method	Unit	Specification
Permeability	ASTM D-2434	cm/sec	1×10^{-6}
Plasticity Index of Clay	ASTM D-423 & D-424	%	Not less than 15
Liquid Limit of Clay	ASTM D-2216	%	Not less than 30
Clay Particles Passing	ASTM D-422	%	Not less than 30
Clay Compaction	ASTM D-2216	%	95% of Standard Proctor Density

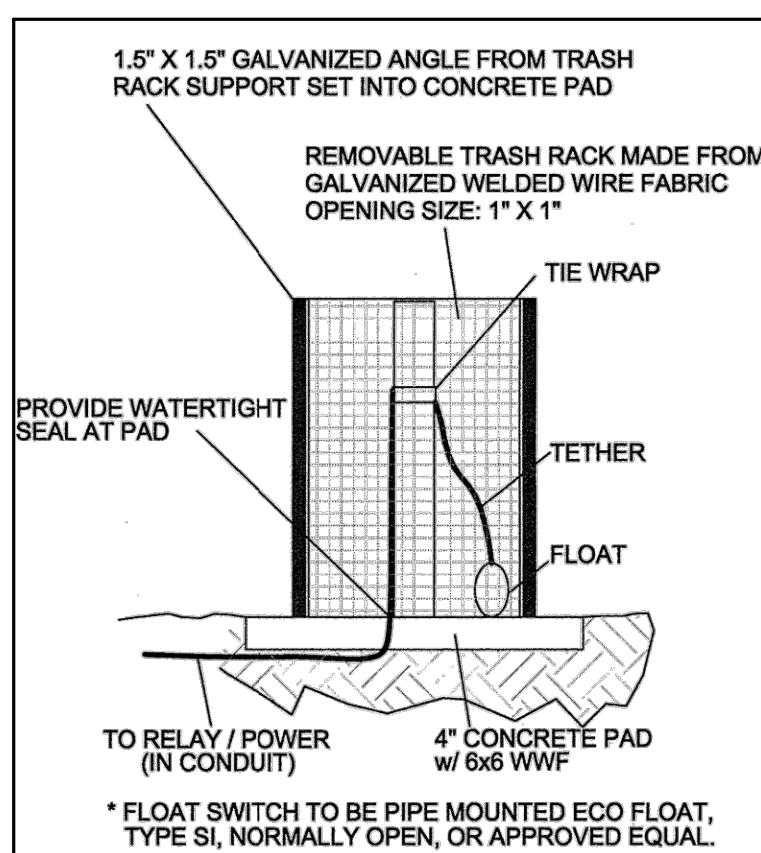
CLAY LINER SPECIFICATIONS PER TCEQ SPECIFICATIONS 3.4.2



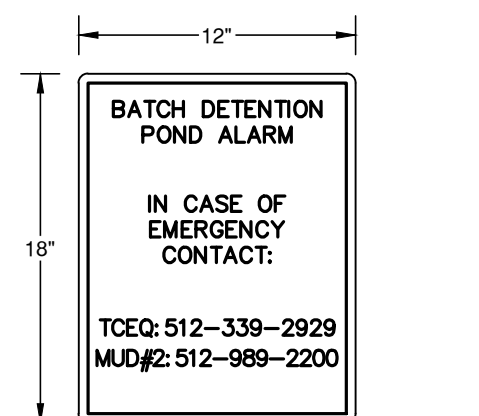
BATCH DETENTION ACTUATOR & VALVE DETAIL
1" = 1'



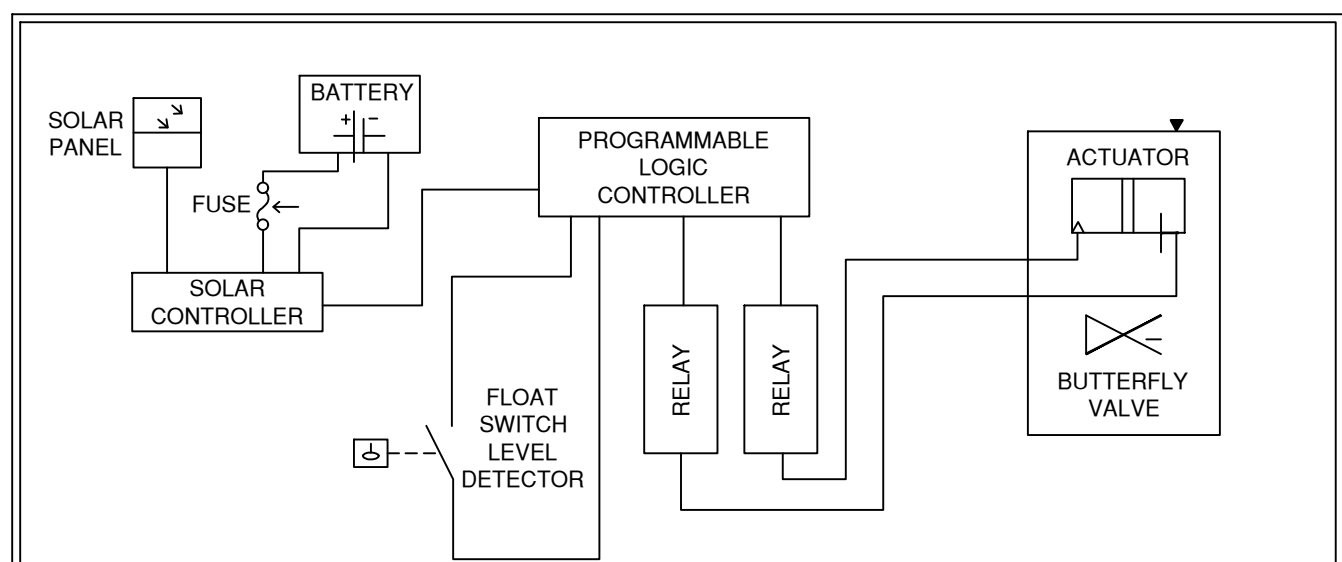
GATE AT RAMP
N.T.S.



FLOAT SWITCH DETAIL
N.T.S.



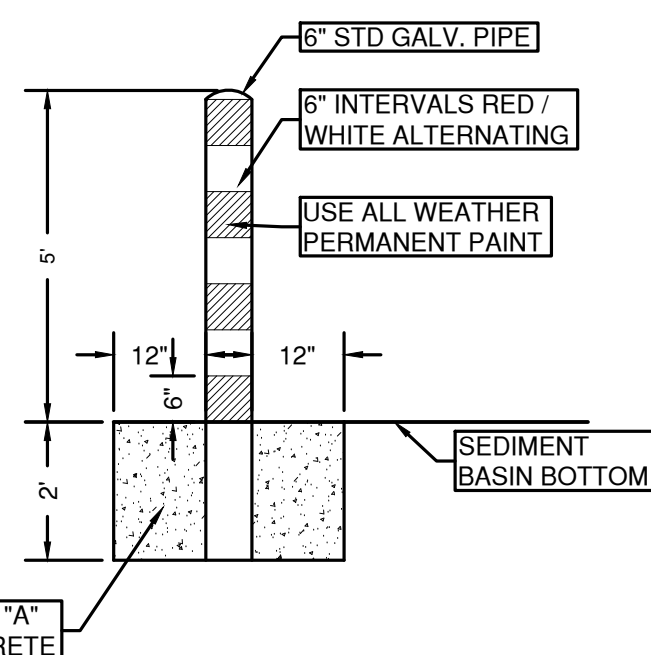
ALARM RESPONSE SIGN
N.T.S.



ACTUATOR VALVE POWER & CONTROLLER
CIRCUIT BLOCK DIAGRAM

DRAWDOWN CALCULATIONS FOR A ROUND ORIFICE
PROJECT NAME: PARKSIDE ON THE RIVER SECTION 8

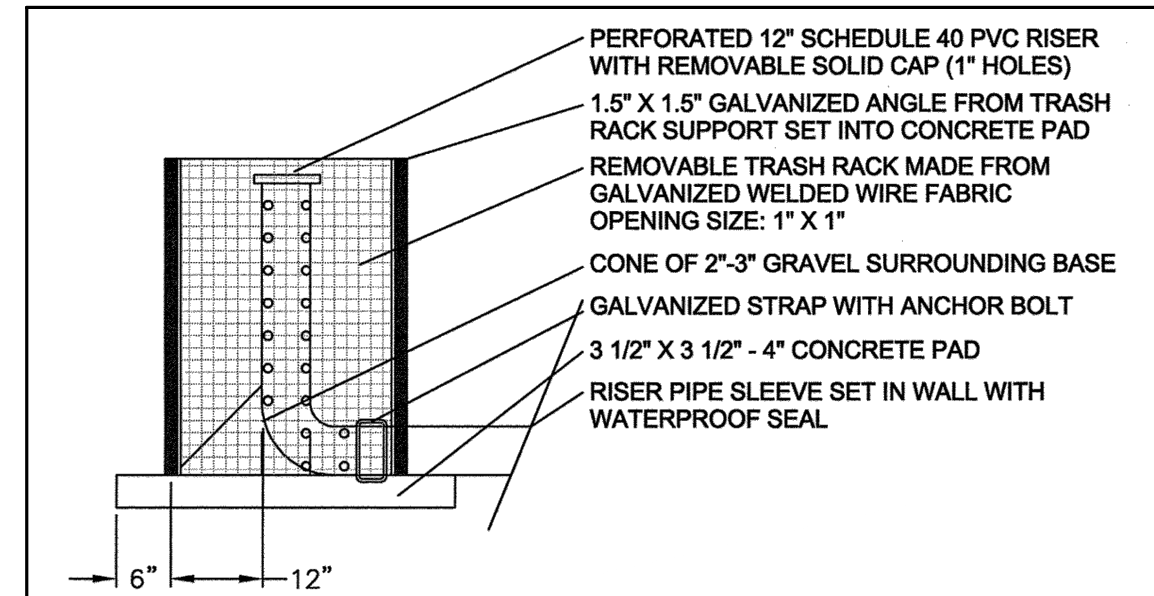
Pipe Diameter =	8.00	IN	W.O.V. =	137.853	CF			
Orifice Diameter =	3.50	IN	W.O Elev =	868.00	MSL			
Outflow Orifice Elev =	857.69	MSL	Pond Bottom Elev =	862.00	MSL			
Draining time	45.00	HR	Initial Head =	10.31	FT			
TIME	HEAD	OUTFLOW	VOL.	dV	Total dV	H	dH	W.E.
HRS	FT	CFS	CF	CF	CF	FT	FT	MSL
0.00	10.31	1.03	137.853	3.719	3.719	0.16	10.15	868.00
1.00	10.15	1.02	134.134	3.689	7.408	0.16	9.99	867.84
2.00	9.99	1.02	130.445	3.660	11.068	0.16	9.83	867.68
3.00	9.83	1.01	126.785	3.631	14.699	0.16	9.67	867.52
4.00	9.67	1.00	123.154	3.601	18.300	0.16	9.51	867.36
5.00	9.51	0.99	119.553	3.572	21.873	0.16	9.36	867.20
6.00	9.36	0.98	115.980	3.543	25.415	0.15	9.20	867.05
7.00	9.20	0.98	112.438	3.514	28.929	0.15	9.05	866.89
8.00	9.05	0.97	108.924	3.484	32.413	0.15	8.90	866.74
9.00	8.90	0.96	105.440	3.455	35.868	0.15	8.75	866.59
10.00	8.75	0.95	101.985	3.426	39.294	0.15	8.60	866.44
11.00	8.60	0.94	98.559	3.396	42.690	0.15	8.45	866.29
12.00	8.45	0.94	95.163	3.367	46.057	0.15	8.31	866.14
13.00	8.31	0.93	91.796	3.338	49.395	0.15	8.16	866.00
14.00	8.16	0.92	88.458	3.308	52.703	0.14	8.02	865.85
15.00	8.02	0.91	85.150	3.279	55.982	0.14	7.87	865.71
16.00	7.87	0.90	81.871	3.250	59.232	0.14	7.73	865.56
17.00	7.73	0.89	78.621	3.220	62.452	0.14	7.59	865.42
18.00	7.59	0.89	75.401	3.191	65.643	0.14	7.45	865.28
19.00	7.45	0.88	72.210	3.162	68.805	0.14	7.32	865.14
20.00	7.32	0.87	69.048	3.132	71.937	0.14	7.18	865.01
21.00	7.18	0.86	65.916	3.103	75.040	0.14	7.04	864.87
22.00	7.04	0.85	62.813	3.074	78.114	0.13	6.91	864.73
23.00	6.91	0.85	59.739	3.044	81.158	0.13	6.78	864.60
24.00	6.78	0.84	56.695	3.015	84.173	0.13	6.65	864.47
25.00	6.65	0.83	53.680	2.986	87.159	0.13	6.52	864.34
26.00	6.52	0.82	50.694	2.956	90.116	0.13	6.39	864.21
27.00	6.39	0.81	47.737	2.927	93.043	0.13	6.26	864.08
28.00	6.26	0.80	44.810	2.898	95.940	0.13	6.13	863.95
29.00	6.13	0.80	41.913	2.868	98.809	0.12	6.01	863.82
30.00	6.01	0.79	39.044	2.839	101.648	0.12	5.89	863.70
31.00	5.89	0.78	36.205	2.810	104.458	0.12	5.76	863.58
32.00	5.76	0.77	33.395	2.780	107.238	0.12	5.64	863.45
33.00	5.64	0.76	30.615	2.751	109.989	0.12	5.52	863.33
34.00	5.52	0.76	27.864	2.722	112.711	0.12	5.40	863.21
35.00	5.40	0.75	25.142	2.692	115.403	0.12	5.29	863.09
36.00	5.29	0.74	22.450	2.663	118.066	0.12	5.17	862.98
37.00	5.17	0.73	19.787	2.634	120.700	0.11	5.06	862.86
38.00	5.06	0.72	17.153	2.604	123.304	0.11	4.94	862.75
39.00	4.94	0.72	14.549	2.575	125.879	0.11	4.83	862.63
40.00	4.83	0.71	11.974	2.546	128.424	0.11	4.72	862.52
41.00	4.72	0.70	9.429	2.516	130.941	0.11	4.61	862.41
42.00	4.61	0.69	6.912	2.487	133.427	0.11	4.50	862.30
43.00	4.50	0.68	4.426	2.457	135.885	0.11	4.40	862.19
44.00	4.40	0.67	1.968	2.428	137.853	0.11	4.31	862.09
45.00	4.31	0.00	0	0	137.853	0.00	4.31	862.00
46.00	4.31	0.00	0	0	137.853	0.00	4.31	862.00
47.00	4.31	0.00	0	0	137.853	0.00	4.31	862.00
48.00	4.31	0.00	0	0	137.853	0.00	4.31	862.00



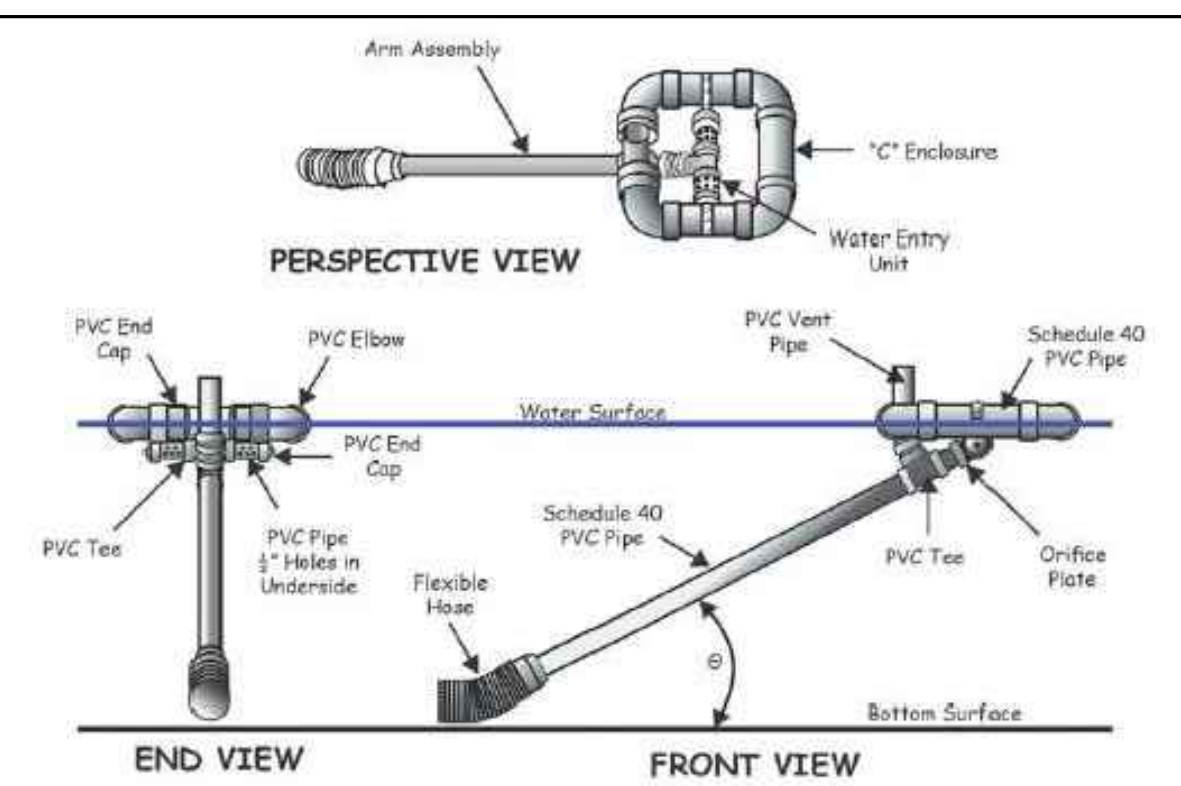
CONCRETE FILLED FIXED SEDIMENT MARKER
FOR BATCH DETENTION POND
N.T.S.

NOTE:

- BATCH DETENTION POND SHALL BE IN ACCORDANCE WITH THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) RG-348 MANUAL (ADDENDUM).
- THE BATCH DETENTION POND AND RISER PIPE / TRASH RACK WILL FUNCTION AS THE DEWATERING OUTLET AND SHALL BE INSTALLED AND FUNCTIONAL PRIOR TO ANY GENERAL GRADING AND UTILITY WORK.
- SYSTEM SHALL BE 12 VDC WITH SOLAR CHARGED 12 VDC BATTERY. ALTERNATE ELECTRICAL DESIGN MAY ALSO BE UTILIZED IN LIEU OF SOLAR POWER WITH ENGINEERS APPROVAL.
- ACTUATOR SHALL BE ELECTRONIC QUARTER-TURN WITH MANUAL OVERRIDE AND POSITION INDICATOR.
- ACTUATOR SHALL BE "AVID 12V ACTUATOR, EP-6" OR EQUIVALENT.
- ACTUATOR VALVE TO BE SET AT "NORMALLY CLOSED" POSITION.
- CONTROLLER SHALL BE SET TO OPEN VALVE 12 HOURS AFTER INITIAL RAINFALL DETECTION. VALVE TO REMAIN OPEN UNTIL 2 HRS FOLLOWING BASIN EMPTY SIGNAL.
- LOGIC CONTROLLER SYSTEM SHALL HAVE TEST SEQUENCE TO DEAL WITH LOW BATTERY/POWER OUTAGES. ON/OFF/RESET SWITCH AND THE PROGRAMMING SHALL BE FIELD UPLOADABLE.
- CONTROLLER SHALL BE "MORNINGSTAR SOLAR CONTROLLER, 12V, 20 AMP" OR EQUIVALENT.
- ALL WIRING SHALL BE INSTALLED IN CONDUIT AND BURIED. CONTACT ENGINEER FOR ADDITIONAL CONTROLLER SCHEMATICS.
- CONTRACTOR TO INSTALL LIBERTY ALARM MODEL ALM-2W OR EQUIVALENT AT A CONTROLLER PANEL.
- ATTACH ALARM RESPONSE SIGN TO CONTROLLER POLE. REFERENCE ALARM RESPONSE SIGN TO RIGHT.
- HAZARDOUS MATERIAL THREAT (HMT) OPERATION - THE BASIN'S OUTLET VALVE IS NORMALLY CLOSED AND WILL DETAIN A HAZARDOUS MATERIAL SPILL. HOWEVER, AFTER A SPILL OCCURS, THE MANUAL CONTROLS ON THE CONTROLLER OR THE ACTUATOR VALVE ARE USED TO PREVENT THE VALVE FROM AUTOMATICALLY OPENING PRIOR TO REMOVAL OF THE HAZARDOUS MATERIAL. ALTHOUGH NOT REQUIRED BY THE EDWARDS RULES, THE HMT OPERATION CAN BE USED TO COMPLY WITH APPENDIX A OF RG-348. IF A SPILL DOES OCCUR IN THE BASIN, ALL COMPONENTS OF THE CONTROLLER MUST BE INSPECTED AND CHECKED FOR PROPER OPERATION WITHIN 7 DAYS.
- POWER - THE POND CONTROL SYSTEM CONTROLLER AND ACTUATOR SHALL BE 12 VOLT POWERED OR 12 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.
- 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).

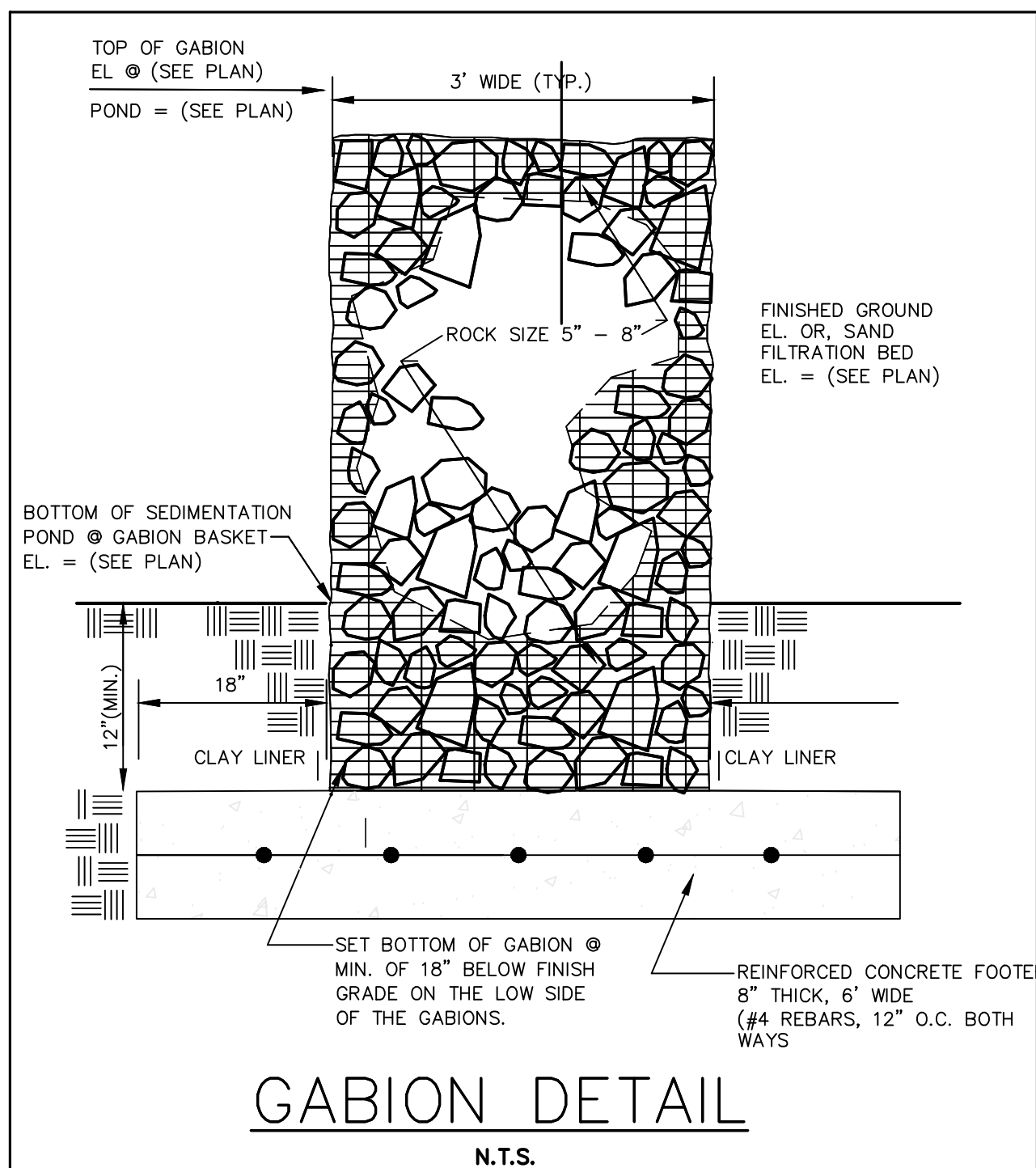


TRASH RACK / RISER PIPE DETAIL
N.T.S.

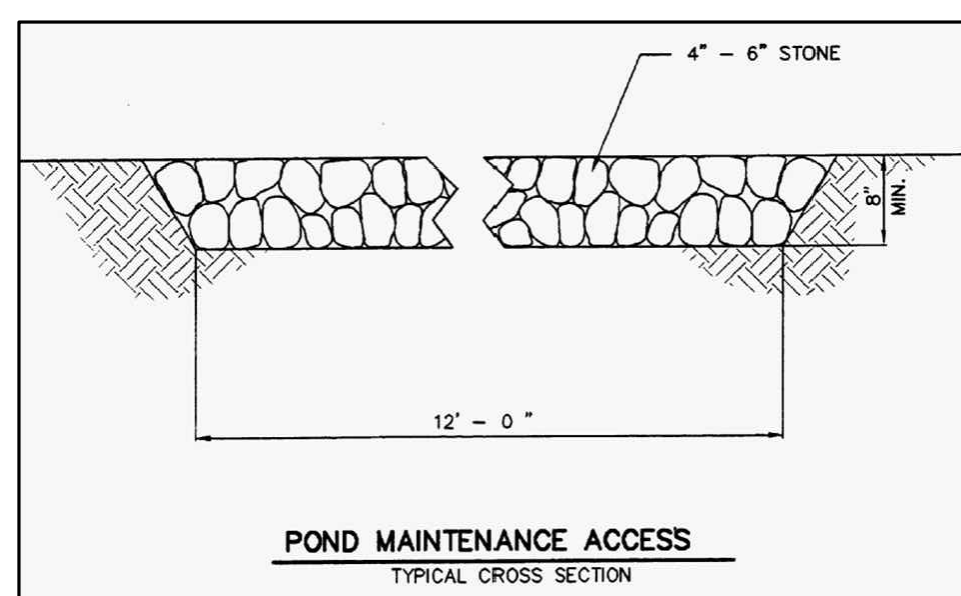


DEWATERING SKIMMER
N.T.S.

NOTE: DISCHARGE WATER MUST BE FILTERED USING FILTER BAG OR SOCK. DISCHARGE SHALL ALSO BE DIRECTED TOWARD SILT FENCE FOR ADDITIONAL FILTERING PRIOR TO LEAVING THE SITE.



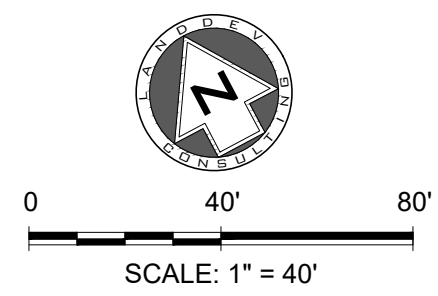
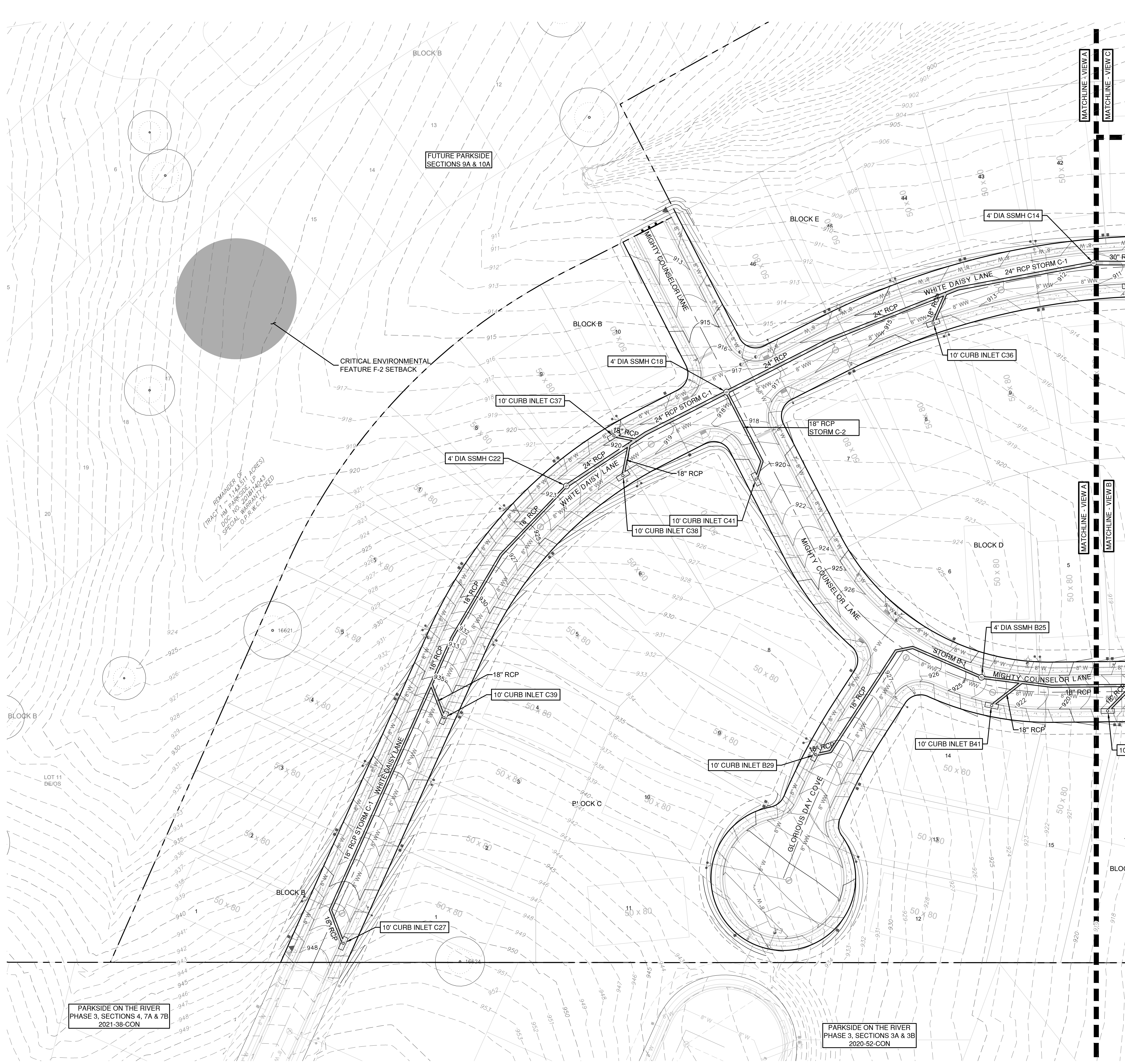
GABION DETAIL
N.T.S.



POND MAINTENANCE ACCESS
TYPICAL CROSS SECTION

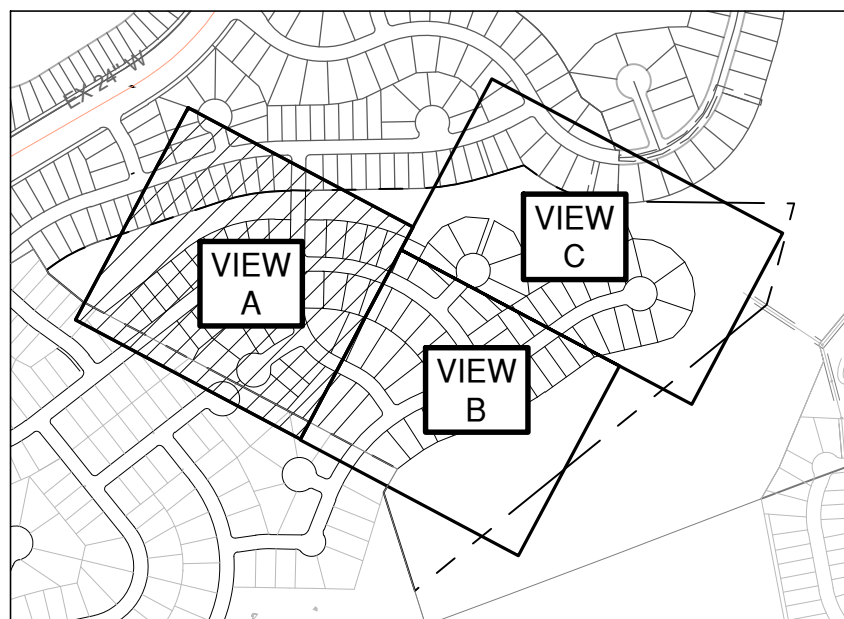
DATE	
BY	
REVISION	
NO.	
<p>Know what's below. Call before you dig.</p>	
5508 HIGHWAY 290 WEST SUITE 150 AUSTIN, TX 78735 C. J. HARRIS HARRIS GREEN, CON	TCEQ NO. 10384 TCEQ NO. 103401 DEVELOPMENT TX
11/03/2023	
POND DETAILS PARKSIDE SECTION 8 CONSTRUCTION PLANS GEORGETOWN, WILLIAMSON, TEXAS	
DESIGNED BY:	CC
DRAWN BY:	TB/MKM
CHECKED BY:	SN
APPROVED BY:	
SHEET 40 OF 72 2023-XX-CON	

P:\blake_mightycounselor\sections 8, 9a & 10a\section 803, AC007Plan\1030297 EDOV.dwg, OVERALL STORM SEWER PLAN A, November 01, 2023, 10:37 PM, jlgaza



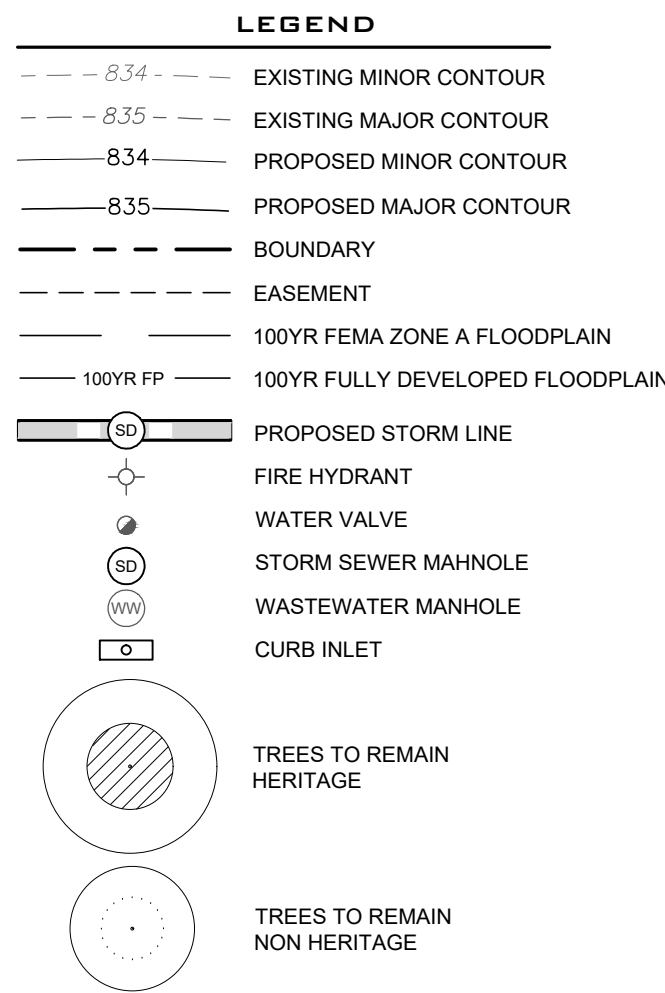
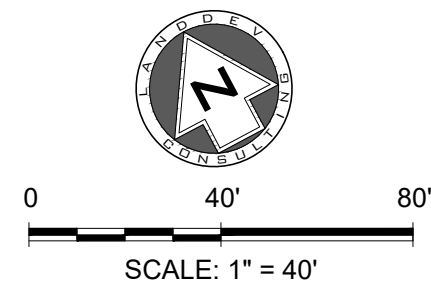
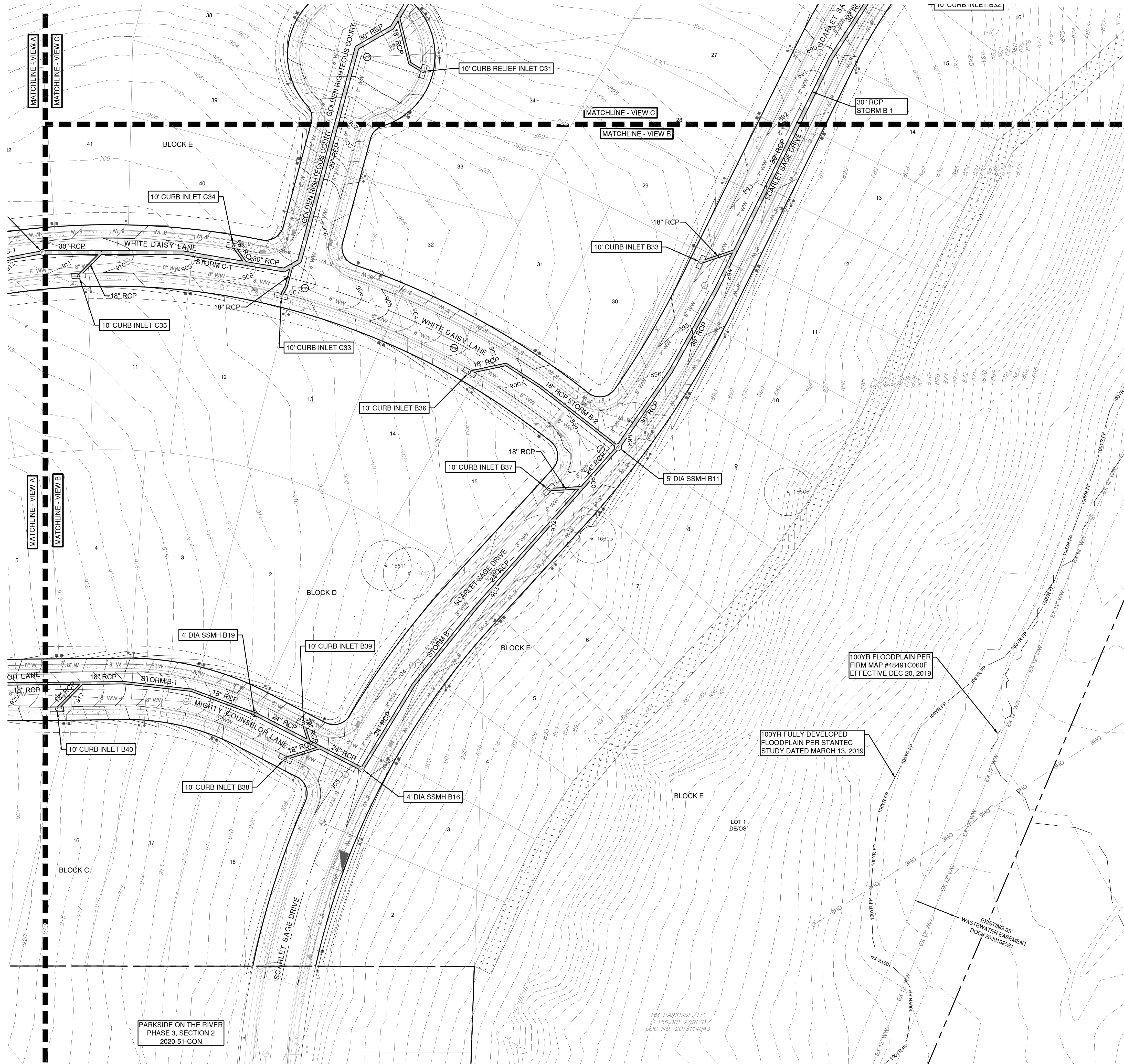
- LEGEND**
- 834 - - - - - EXISTING MINOR CONTOUR
 - 835 - - - - - EXISTING MAJOR CONTOUR
 - 834 - - - - - PROPOSED MINOR CONTOUR
 - 835 - - - - - PROPOSED MAJOR CONTOUR
 - - - - - BOUNDARY
 - - - - - EASEMENT
 - - - - - 100YR FEMA ZONE A FLOODPLAIN
 - - - - - 100YR FULLY DEVELOPED FLOODPLAIN
 - 80 - - - - - PROPOSED STORM LINE
 - ⊕ - - - - - FIRE HYDRANT
 - ⊕ - - - - - WATER VALVE
 - ⊕ - - - - - STORM SEWER MANHOLE
 - ⊕ - - - - - WASTEWATER MANHOLE
 - ⊕ - - - - - CURB INLET
 - ⊕ - - - - - TREES TO REMAIN HERITAGE
 - ⊕ - - - - - TREES TO REMAIN NON-HERITAGE

- NOTE:**
- ALL PROPOSED STORM SEWER PIPE LINES SHALL BE CLASS III REINFORCED CONCRETE UNLESS NOTED OTHERWISE.
 - FILL SHALL BE PLACED ACCORDING TO THE GEOTECHNICAL ENGINEERS RECOMMENDATION AND CITY OF GEORGETOWN SPECIFICATIONS.
 - VEGETATE ALL DISTURBED AREAS PER CITY OF GEORGETOWN SPECIFICATIONS.
- TRENCH SAFETY NOTES:**
- IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS AND THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, ALL TRENCHES OVER 5 FEET IN DEPTH IN EITHER HARD AND COMPACT OR SOFT AND UNSTABLE SOIL SHALL BE SLOPED, SHORED, SHEETED, BRACED OR OTHERWISE SUPPORTED. FURTHERMORE, ALL TRENCHES LESS THAN 5 FEET IN DEPTH SHALL ALSO BE EFFECTIVELY PROTECTED WHEN HAZARDOUS GROUND MOVEMENT MAY BE EXPECTED. TRENCH SAFETY SYSTEMS TO BE UTILIZED FOR THIS PROJECT WILL BE PROVIDE BY THE CONTRACTOR.
 - IN ACCORDANCE WITH THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, WHEN PERSONS ARE IN TRENCHES 4-FEET DEEP OR MORE, ADEQUATE MEANS OF EXIT, SUCH AS A LADDER OR STEPS, MUST BE PROVIDED AND LOCATED SO AS TO REQUIRE NO MORE THAN 25 FEET OF LATERAL TRAVEL.
 - CONSTRUCTION SHALL NOT PROCEED UNTIL APPROPRIATE TRENCH SAFETY SYSTEM DETAILS, AS DESIGNED BY A PROFESSIONAL ENGINEER, ARE RETAINED AND COPIES SUBMITTED TO THE CITY OF GEORGETOWN.
 - DEEP EXCAVATIONS: ON EXCAVATIONS EXCEEDING 20 FEET IN DEPTH, TWO OR MORE MEANS OF EGRESS FROM THE EXCAVATION SHALL BE PROVIDED. THE CONTRACTOR SHALL CONSULT WITH A REGISTERED ENGINEER, EXPERIENCED IN TRENCH SAFETY SYSTEMS, REGARDING SPECIFIC MEANS AND METHODS EMPLOYED. CONTRACTOR SHALL PROVIDE A TRENCH SAFETY PLAN SEALED BY A REGISTERED PROFESSIONAL ENGINEER AS REQUIRED BY THE CITY OF GEORGETOWN.



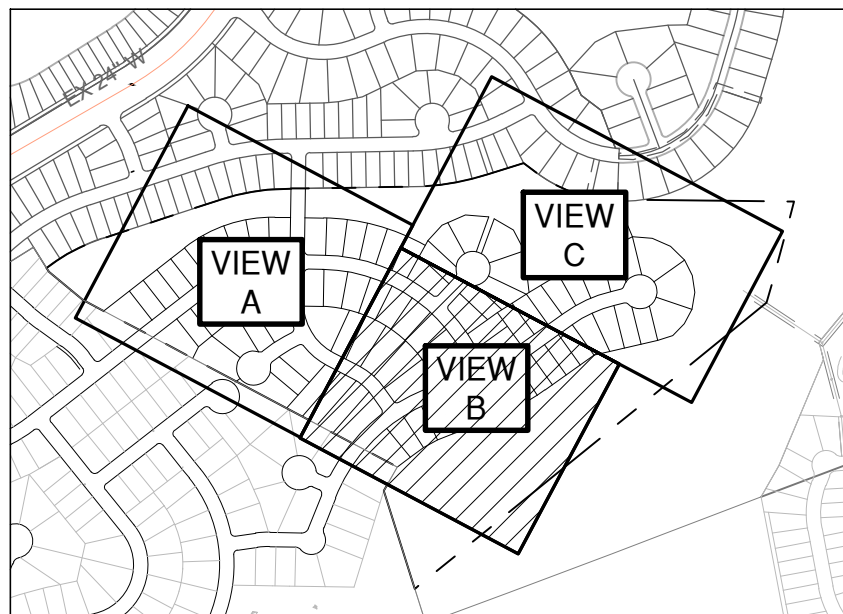
811 Know what's below. Call before you dig.	
5508 HIGHWAY 290 WEST SUITE 150 DALLAS, TX 75235 CITY OF GEORGETOWN HARGREEN, CON	DATE: _____ BY: _____ REVISION: _____ NO. _____
HRGreen DEVELOPMENT TX	
OVERALL STORM SEWER PLAN A PARKSIDE SECTION 8 CONSTRUCTION PLANS GEORGETOWN, WILLIAMSON, TEXAS	
DESIGNED BY: CC	
DRAWN BY: TB/MKM	
CHECKED BY: SN	
APPROVED BY: _____	
SHEET 41 OF 72 2023-XX-CON	

P:\blake_miguel\parkside sections 8, 9 & 10\section 803, AC00\Plan\1203297 BDV.dwg, OVERALL STORM SEWER PLAN B, November 01, 2023, 10:37 PM, giza



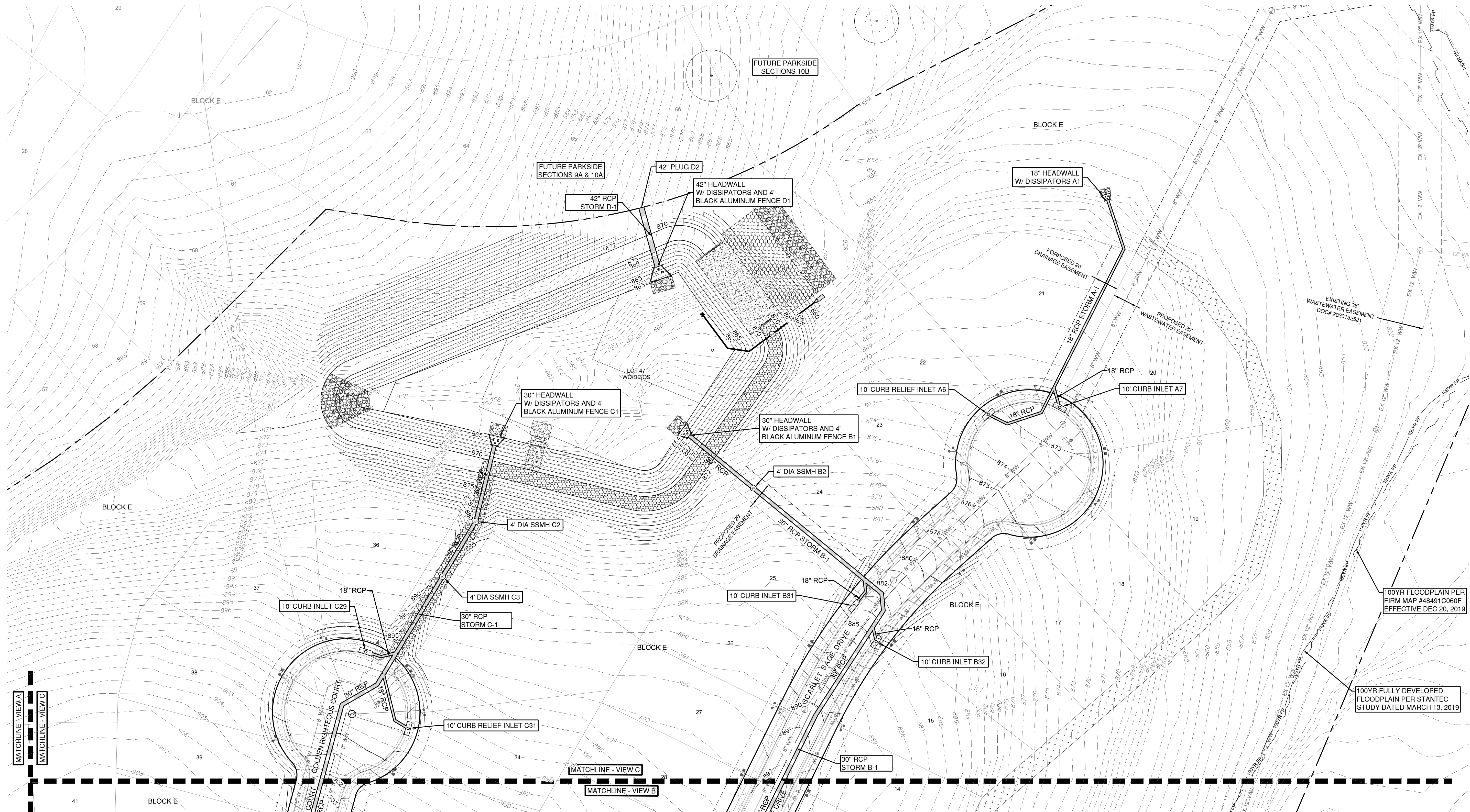
- NOTE:**
- ALL PROPOSED STORM SEWER PIPE LINES SHALL BE CLASS III REINFORCED CONCRETE UNLESS NOTED OTHERWISE.
 - FILL SHALL BE PLACED ACCORDING TO THE GEOTECHNICAL ENGINEERS RECOMMENDATION AND CITY OF GEORGETOWN SPECIFICATIONS.
 - VEGETATE ALL DISTURBED AREAS PER CITY OF GEORGETOWN SPECIFICATIONS.

- TRENCH SAFETY NOTES:**
- IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS AND THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, ALL TRENCHES OVER 5 FEET IN DEPTH IN EITHER HARD AND COMPACT OR SOFT AND UNSTABLE SOIL SHALL BE SLOPED, SHORED, SHEETED, BRACED OR OTHERWISE SUPPORTED. FURTHERMORE, ALL TRENCHES LESS THAN 5 FEET IN DEPTH SHALL ALSO BE EFFECTIVELY PROTECTED WHEN HAZARDOUS GROUND MOVEMENT MAY BE EXPECTED. TRENCH SAFETY SYSTEMS TO BE UTILIZED FOR THIS PROJECT WILL BE PROVIDED BY THE CONTRACTOR.
 - IN ACCORDANCE WITH THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, WHEN PERSONS ARE IN TRENCHES 4-FEET DEEP OR MORE, ADEQUATE MEANS OF EXIT, SUCH AS A LADDER OR STEPS, MUST BE PROVIDED AND LOCATED SO AS TO REQUIRE NO MORE THAN 25 FEET OF LATERAL TRAVEL.
 - CONSTRUCTION SHALL NOT PROCEED UNTIL APPROPRIATE TRENCH SAFETY SYSTEM DETAILS, AS DESIGNED BY A PROFESSIONAL ENGINEER, ARE RETAINED AND COPIES SUBMITTED TO THE CITY OF GEORGETOWN.
 - DEEP EXCAVATIONS: ON EXCAVATIONS EXCEEDING 20 FEET IN DEPTH, TWO OR MORE MEANS OF EGRESS FROM THE EXCAVATION SHALL BE PROVIDED. THE CONTRACTOR SHALL CONSULT WITH A REGISTERED ENGINEER, EXPERIENCED IN TRENCH SAFETY SYSTEMS, REGARDING SPECIFIC MEANS AND METHODS EMPLOYED. CONTRACTOR SHALL PROVIDE A TRENCH SAFETY PLAN SEALED BY A REGISTERED PROFESSIONAL ENGINEER AS REQUIRED BY THE CITY OF GEORGETOWN.



811 Know what's below. Call before you dig.	
5508 HIGHWAY 290 WEST SUITE 150 MCKINNEY, TX 75065 CITY OF GEORGETOWN HARGREEN, CON	DATE: 11/01/2023 BY: [Signature] REVISION: [Signature]
HARGREEN DEVELOPMENT TX	
STATE OF TEXAS SHERVIN NOOSHIN 96807 LICENSED PROFESSIONAL ENGINEER 11/03/2023	
OVERALL STORM SEWER PLAN B PARKSIDE SECTION 8 CONSTRUCTION PLANS GEORGETOWN, WILLIAMSON, TEXAS	
DESIGNED BY: CC DRAWN BY: TB/MKM CHECKED BY: SN APPROVED BY: [Signature]	
SHEET 42 OF 72 2023-XX-CON	

P:\blake_magnaparkside\sections 8, 9 & 10\section 803_ACOFPlan\1030297 EDOV.dwg, OVERALL STORM SEWER PLAN C, November 01, 2023, 10:37 PM, gfgzra



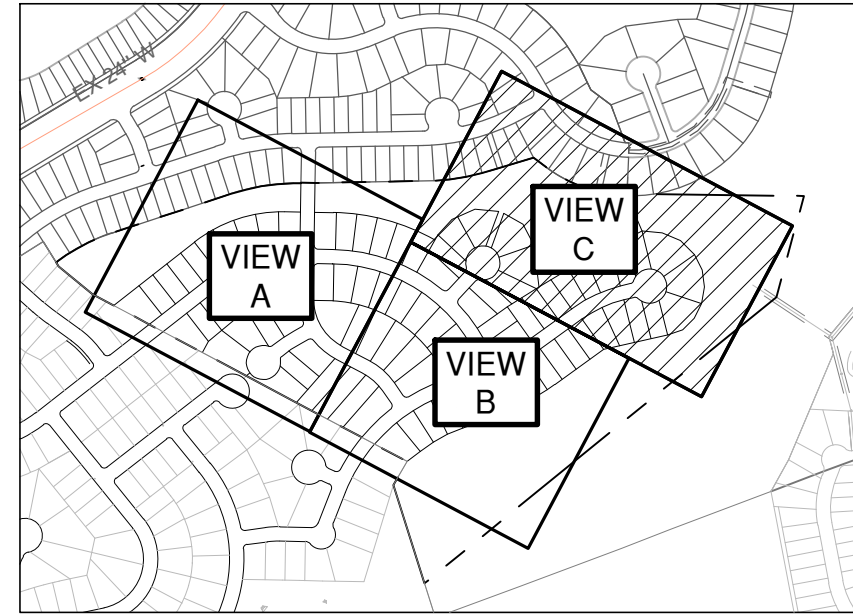
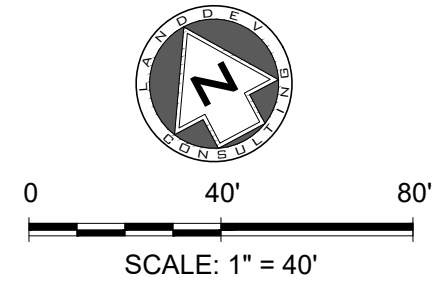
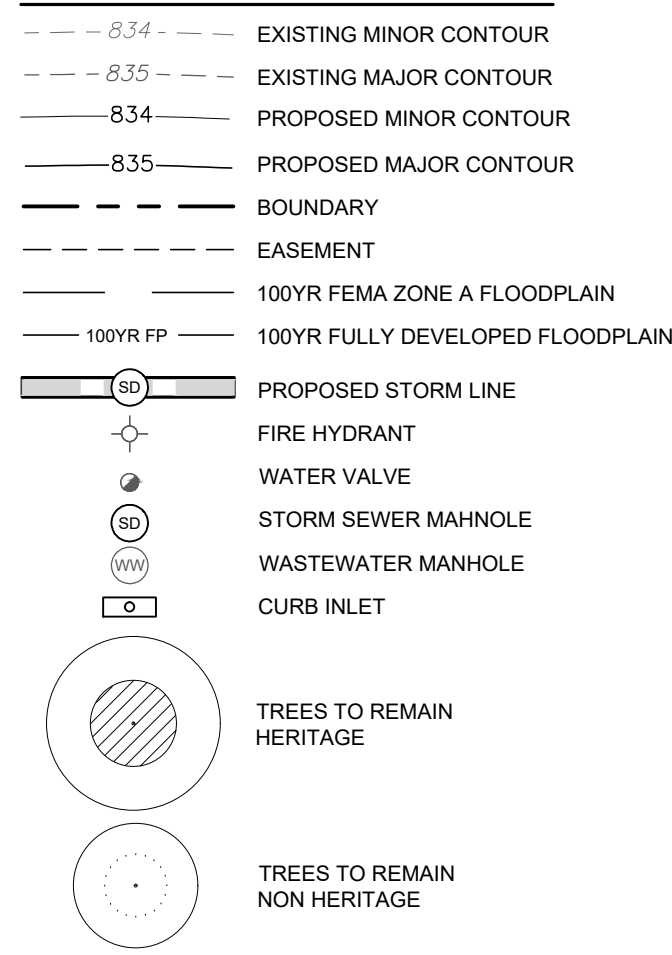
TRENCH SAFETY NOTES:

1. IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS AND THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, ALL TRENCHES OVER 5 FEET IN DEPTH IN EITHER HARD AND COMPACT OR SOFT AND UNSTABLE SOIL SHALL BE SLOPED, SHORED, SHEETED, BRACED OR OTHERWISE SUPPORTED. FURTHERMORE, ALL TRENCHES LESS THAN 5 FEET IN DEPTH SHALL ALSO BE EFFECTIVELY PROTECTED WHEN HAZARDOUS GROUND MOVEMENT MAY BE EXPECTED. TRENCH SAFETY SYSTEMS TO BE UTILIZED FOR THIS PROJECT WILL BE PROVIDED BY THE CONTRACTOR.
2. IN ACCORDANCE WITH THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, WHEN PERSONS ARE IN TRENCHES 4-FEET DEEP OR MORE, ADEQUATE MEANS OF EXIT, SUCH AS A LADDER OR STEPS, MUST BE PROVIDED AND LOCATED SO AS TO REQUIRE NO MORE THAN 25 FEET OF LATERAL TRAVEL.
3. CONSTRUCTION SHALL NOT PROCEED UNTIL APPROPRIATE TRENCH SAFETY SYSTEM DETAILS, AS DESIGNED BY A PROFESSIONAL ENGINEER, ARE RETAINED AND COPIES SUBMITTED TO THE CITY OF GEORGETOWN.
4. DEEP EXCAVATIONS: ON EXCAVATIONS EXCEEDING 20 FEET IN DEPTH, TWO OR MORE MEANS OF EGRESS FROM THE EXCAVATION SHALL BE PROVIDED. THE CONTRACTOR SHALL CONSULT WITH A REGISTERED ENGINEER, EXPERIENCED IN TRENCH SAFETY SYSTEMS, REGARDING SPECIFIC MEANS AND METHODS EMPLOYED. CONTRACTOR SHALL PROVIDE A TRENCH SAFETY PLAN SEALED BY A REGISTERED PROFESSIONAL ENGINEER AS REQUIRED BY THE CITY OF GEORGETOWN.

NOTE:

1. ALL PROPOSED STORM SEWER PIPE LINES SHALL BE CLASS III REINFORCED CONCRETE UNLESS NOTED OTHERWISE.
2. FILL SHALL BE PLACED ACCORDING TO THE GEOTECHNICAL ENGINEERS RECOMMENDATION AND CITY OF GEORGETOWN SPECIFICATIONS.
3. VEGETATE ALL DISTURBED AREAS PER CITY OF GEORGETOWN SPECIFICATIONS.

LEGEND

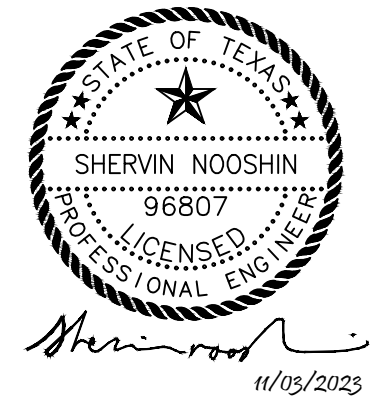


5508 HIGHWAY 290 WEST
SUITE 150
DARTON, TX 79735
CITY OF GEORGETOWN
HARGREEN, COW

TPE NO: 16384
TPELS NO: 10194101



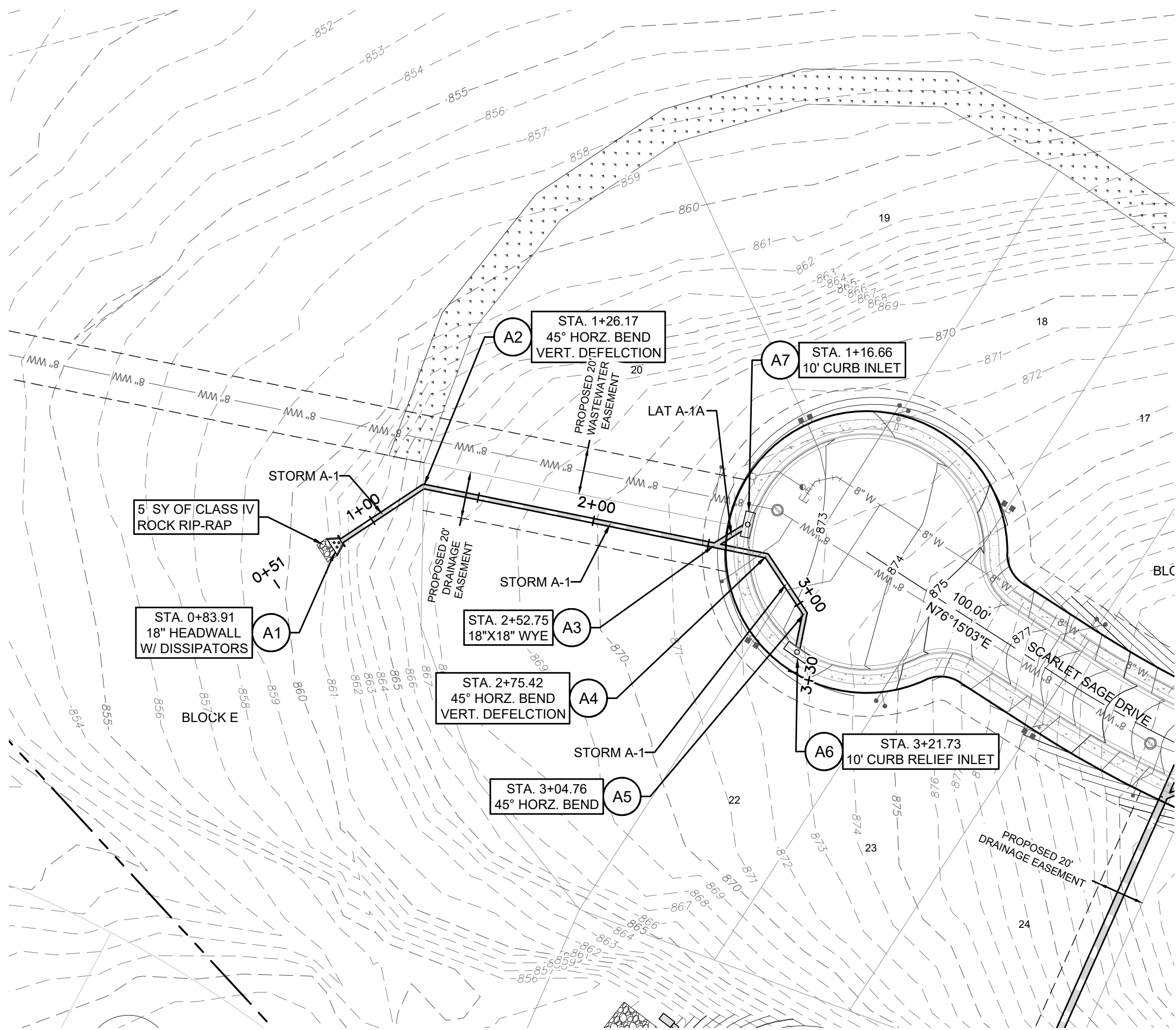
DEVELOPMENT TX



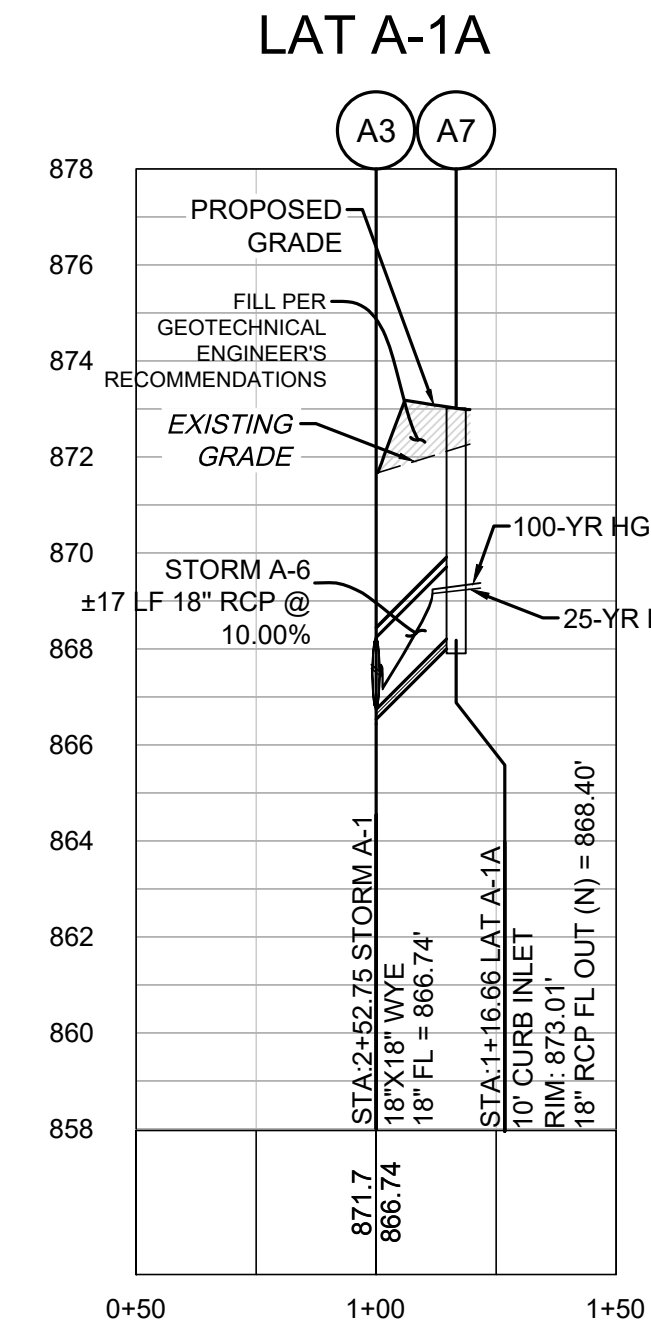
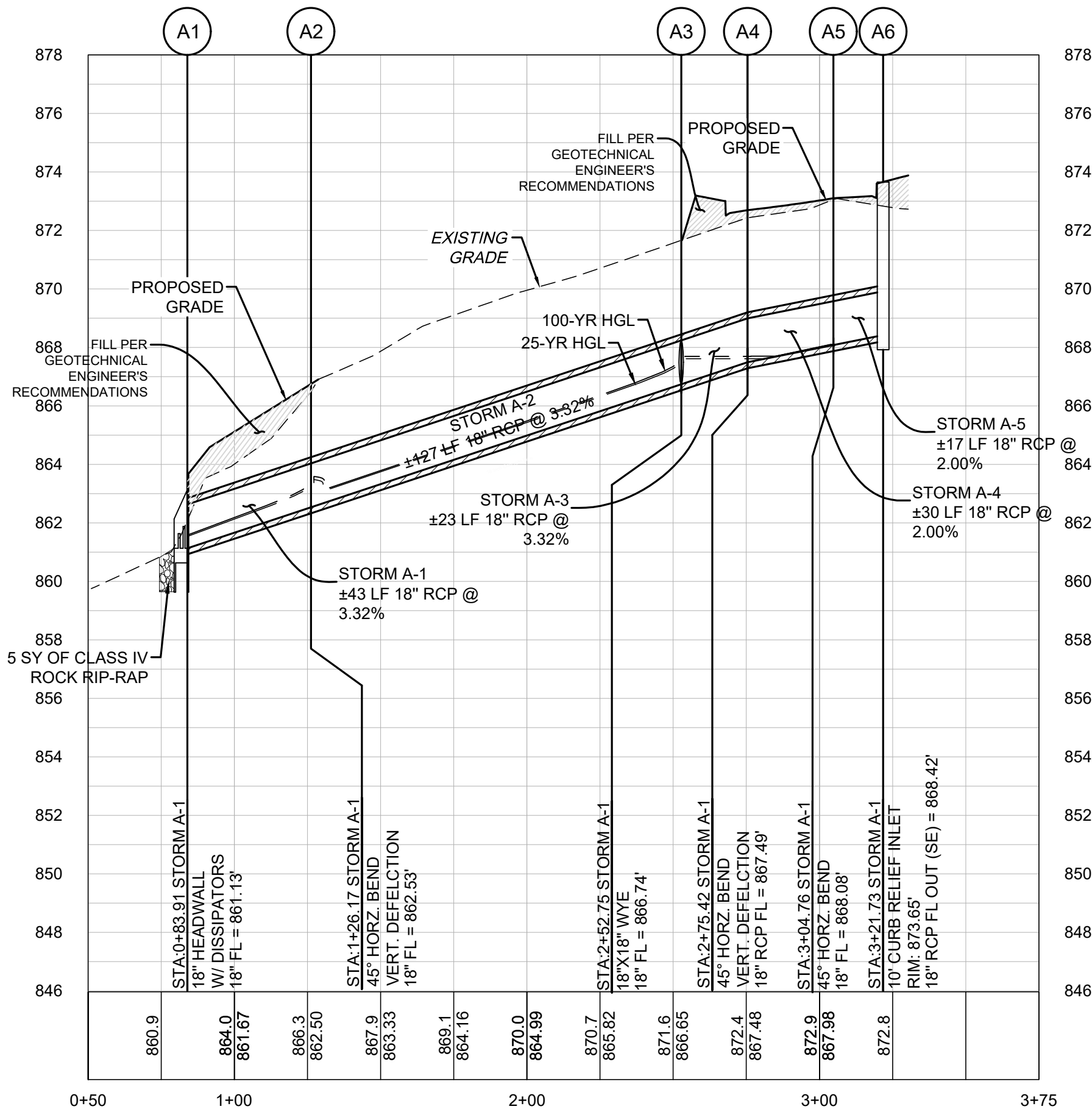
**OVERALL STORM
SEWER PLAN C**
**PARKSIDE SECTION 8
CONSTRUCTION PLANS**
GEORGETOWN, WILLIAMSON, TEXAS

DESIGNED BY: CC
DRAWN BY: TB/MKM
CHECKED BY: SN
APPROVED BY: _____

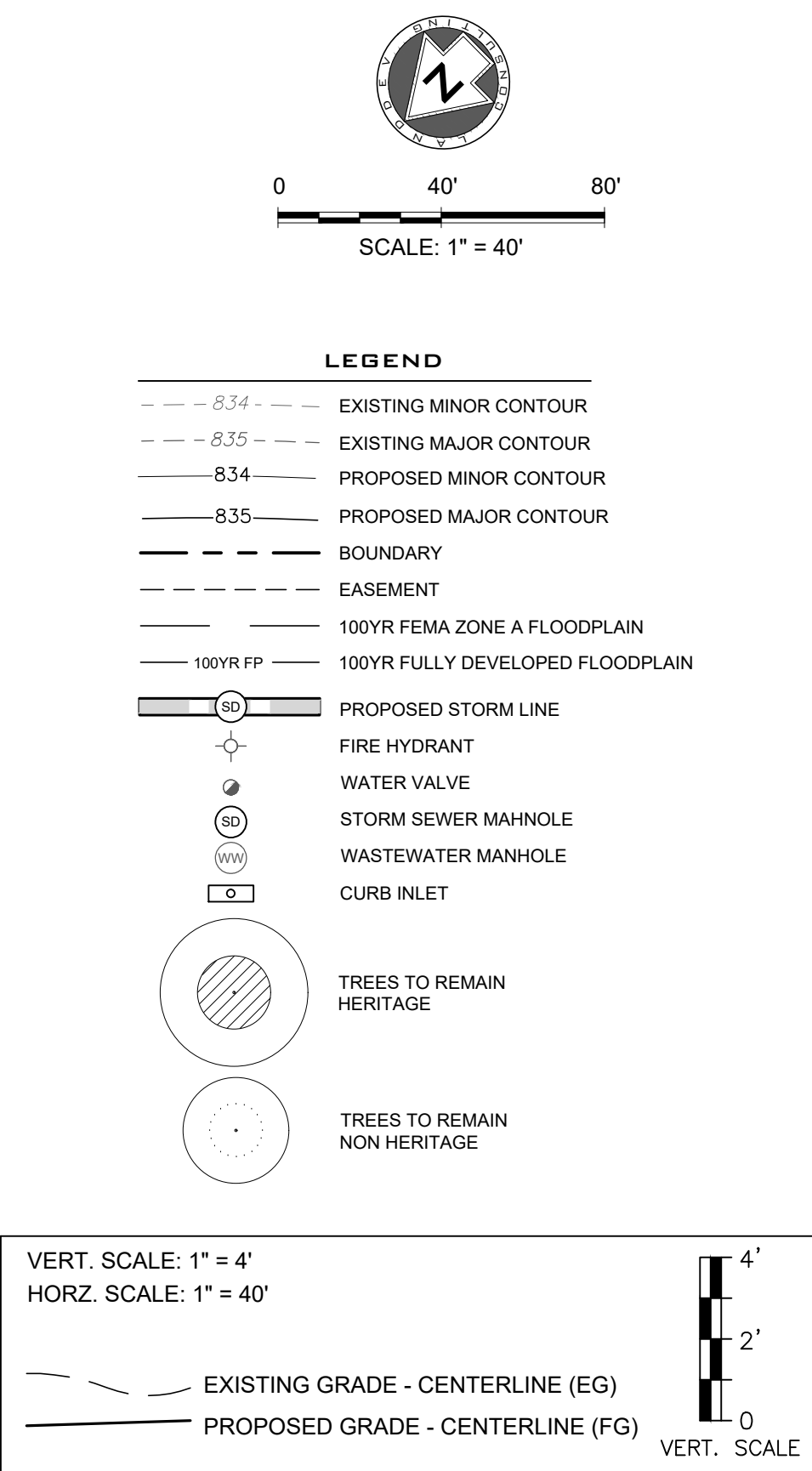
SHEET **43** OF **72**
2023-XX-CON



STORM A-1



Pipe Label	Slope (%)	Q25 (cfs)	V25 (ft/s)	D25 (ft)	Q100 (cfs)	V100 (ft/s)	D100 (ft)
STORM A-1	3.32%	3.28	5.83	0.69	4.00	6.13	0.77
STORM A-2	3.32%	3.28	3.50	0.92	4.00	3.75	1.03
STORM A-3	3.32%	0.00	0.00	0.85	0.00	0.00	0.93
STORM A-4	2.00%	0.00	0.00	0.10	0.00	0.00	0.18
STORM A-5	2.00%	0.00	0.00	0.00	0.00	0.00	0.00
STORM A-6	10.00%	3.28	3.66	0.85	4.00	3.94	0.93



- NOTE:**
- ALL PROPOSED STORM SEWER PIPE LINES SHALL BE CLASS III REINFORCED CONCRETE UNLESS NOTED OTHERWISE.
 - FILL SHALL BE PLACED ACCORDING TO THE GEOTECHNICAL ENGINEERS RECOMMENDATION AND CITY OF GEORGETOWN SPECIFICATIONS.
 - VEGETATE ALL DISTURBED AREAS PER CITY OF GEORGETOWN SPECIFICATIONS.

- TRENCH SAFETY NOTES:**
- IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS AND THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, ALL TRENCHES OVER 5 FEET IN DEPTH IN EITHER HARD AND COMPACT OR SOFT AND UNSTABLE SOIL SHALL BE SLOPED, SHORED, SHEETED, BRACED OR OTHERWISE SUPPORTED. FURTHERMORE, ALL TRENCHES LESS THAN 5 FEET IN DEPTH SHALL ALSO BE EFFECTIVELY PROTECTED WHEN HAZARDOUS GROUND MOVEMENT MAY BE EXPECTED. TRENCH SAFETY SYSTEMS TO BE UTILIZED FOR THIS PROJECT WILL BE PROVIDE BY THE CONTRACTOR.
 - IN ACCORDANCE WITH THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, WHEN PERSONS ARE IN TRENCHES 4-FEET DEEP OR MORE, ADEQUATE MEANS OF EXIT, SUCH AS A LADDER OR STEPS, MUST BE PROVIDED AND LOCATED SO AS TO REQUIRE NO MORE THAN 25 FEET OF LATERAL TRAVEL.
 - CONSTRUCTION SHALL NOT PROCEED UNTIL APPROPRIATE TRENCH SAFETY SYSTEM DETAILS, AS DESIGNED BY A PROFESSIONAL ENGINEER, ARE RETAINED AND COPIES SUBMITTED TO THE CITY OF GEORGETOWN.
 - DEEP EXCAVATIONS: ON EXCAVATIONS EXCEEDING 20 FEET IN DEPTH, TWO OR MORE MEANS OF EGRESS FROM THE EXCAVATION SHALL BE PROVIDED. THE CONTRACTOR SHALL CONSULT WITH A REGISTERED ENGINEER, EXPERIENCED IN TRENCH SAFETY SYSTEMS, REGARDING SPECIFIC MEANS AND METHODS EMPLOYED. CONTRACTOR SHALL PROVIDE A TRENCH SAFETY PLAN SEALED BY A REGISTERED PROFESSIONAL ENGINEER AS REQUIRED BY THE CITY OF GEORGETOWN.

811
Know what's below.
Call before you dig.

5508 HIGHWAY 290 WEST
SUITE 150
MARTIN, TX 75755
505.888.8888
HARGREEN.COM

PRP
HARGREEN®
DEVELOPMENT TX

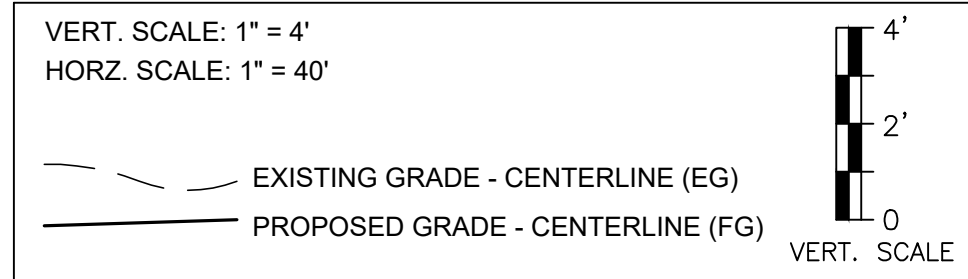
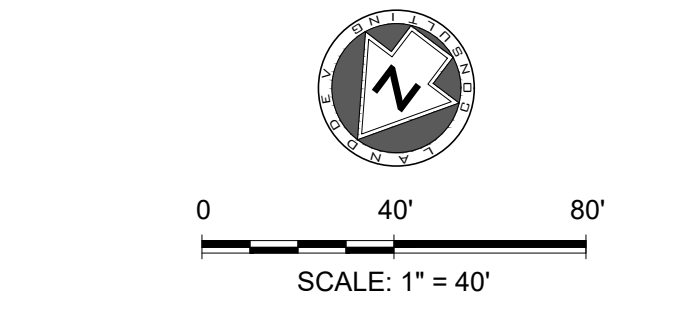
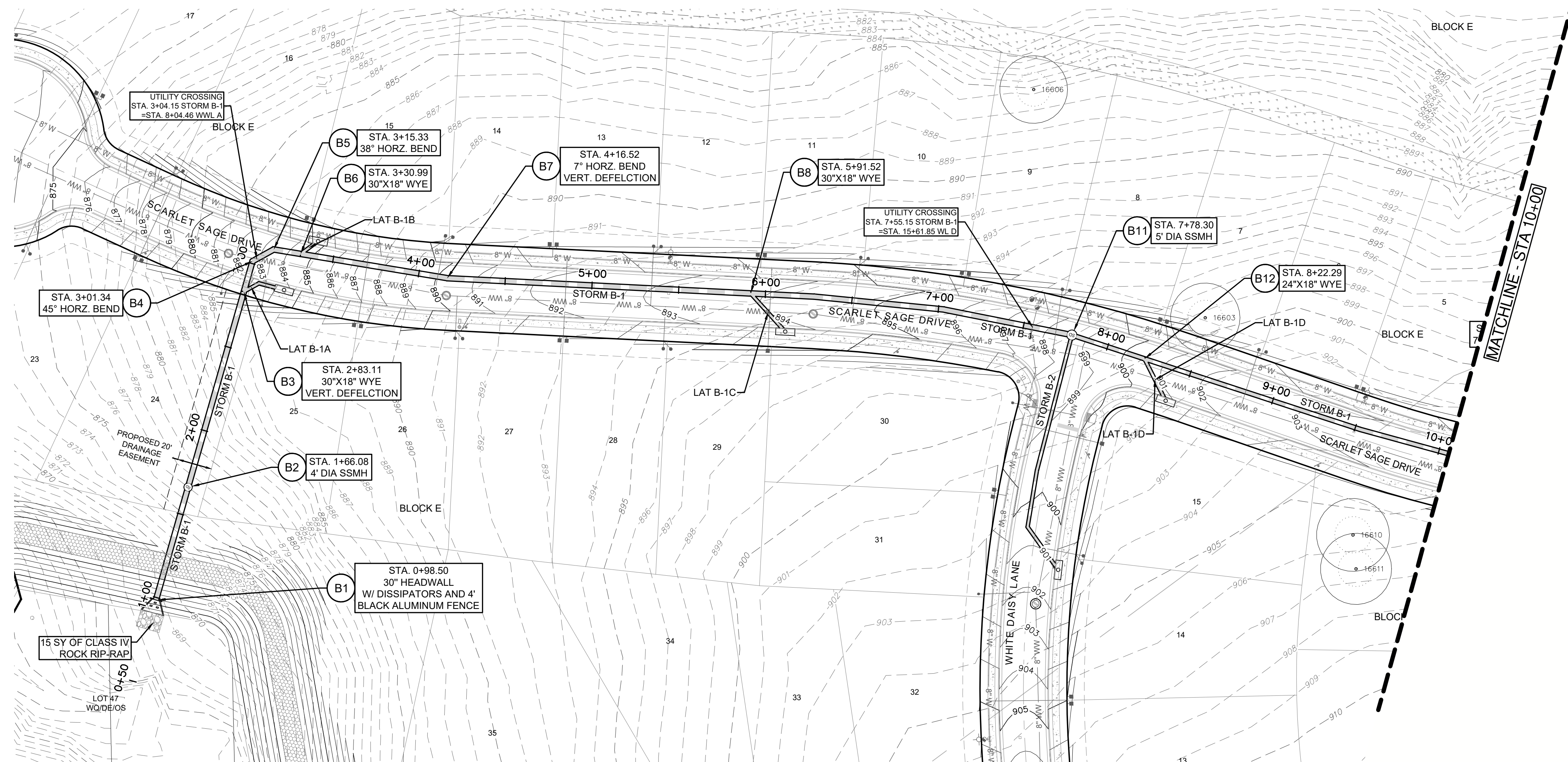
STATE OF TEXAS
SHERVIN NOOSHIN
96807
LICENSED PROFESSIONAL ENGINEER
11/03/2023

STORM A-1 PLAN & PROFILE
1+00 - END
PARKSIDE SECTION 8
CONSTRUCTION PLANS
GEORGETOWN, WILLIAMSON, TEXAS

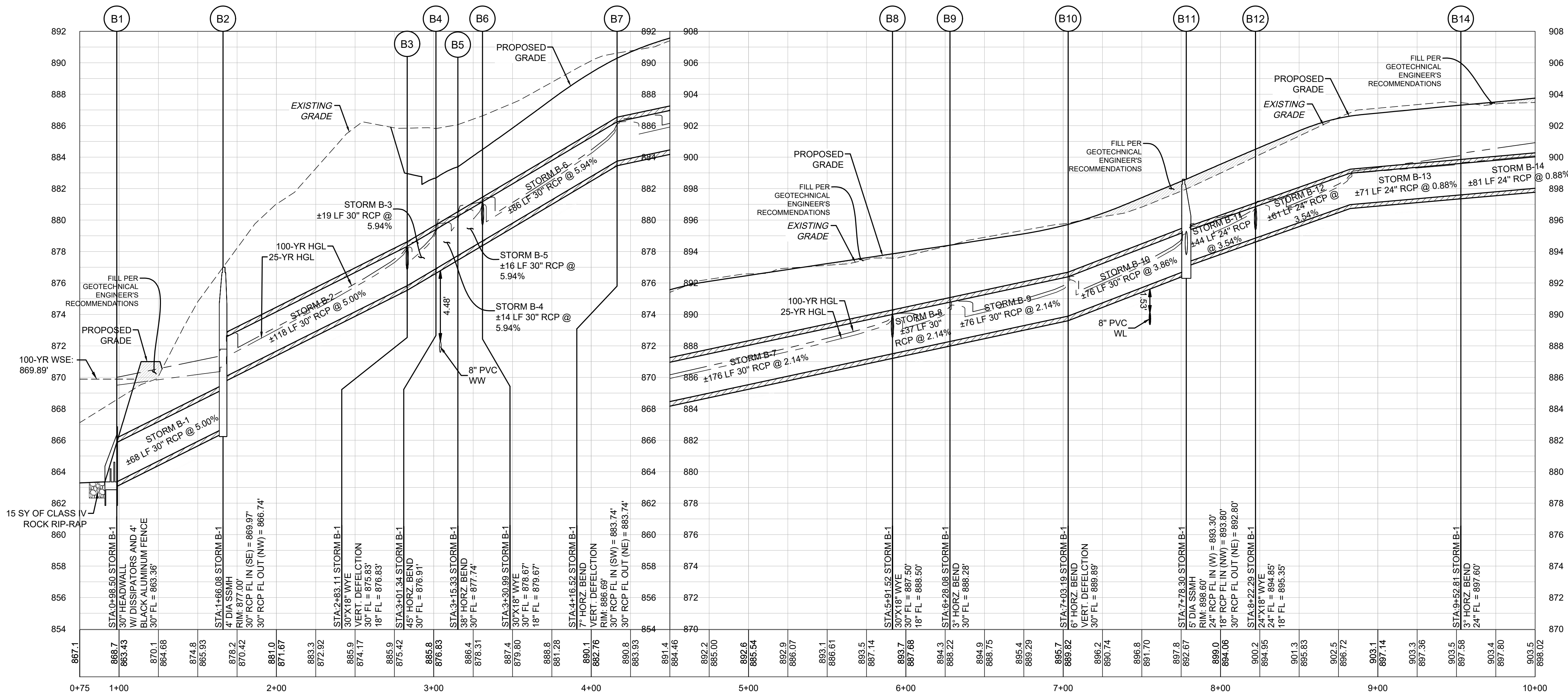
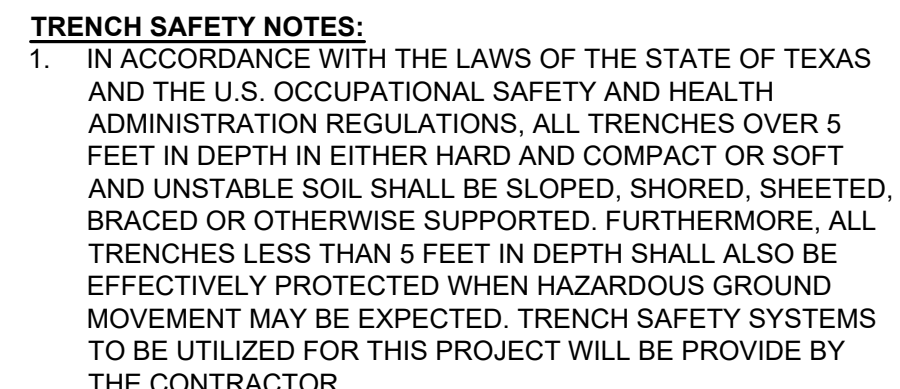
DESIGNED BY: CC
DRAWN BY: TB/MKM
CHECKED BY: SN
APPROVED BY: _____

SHEET 44 OF 72
2023-XX-CON

REVISION
BY
DATE

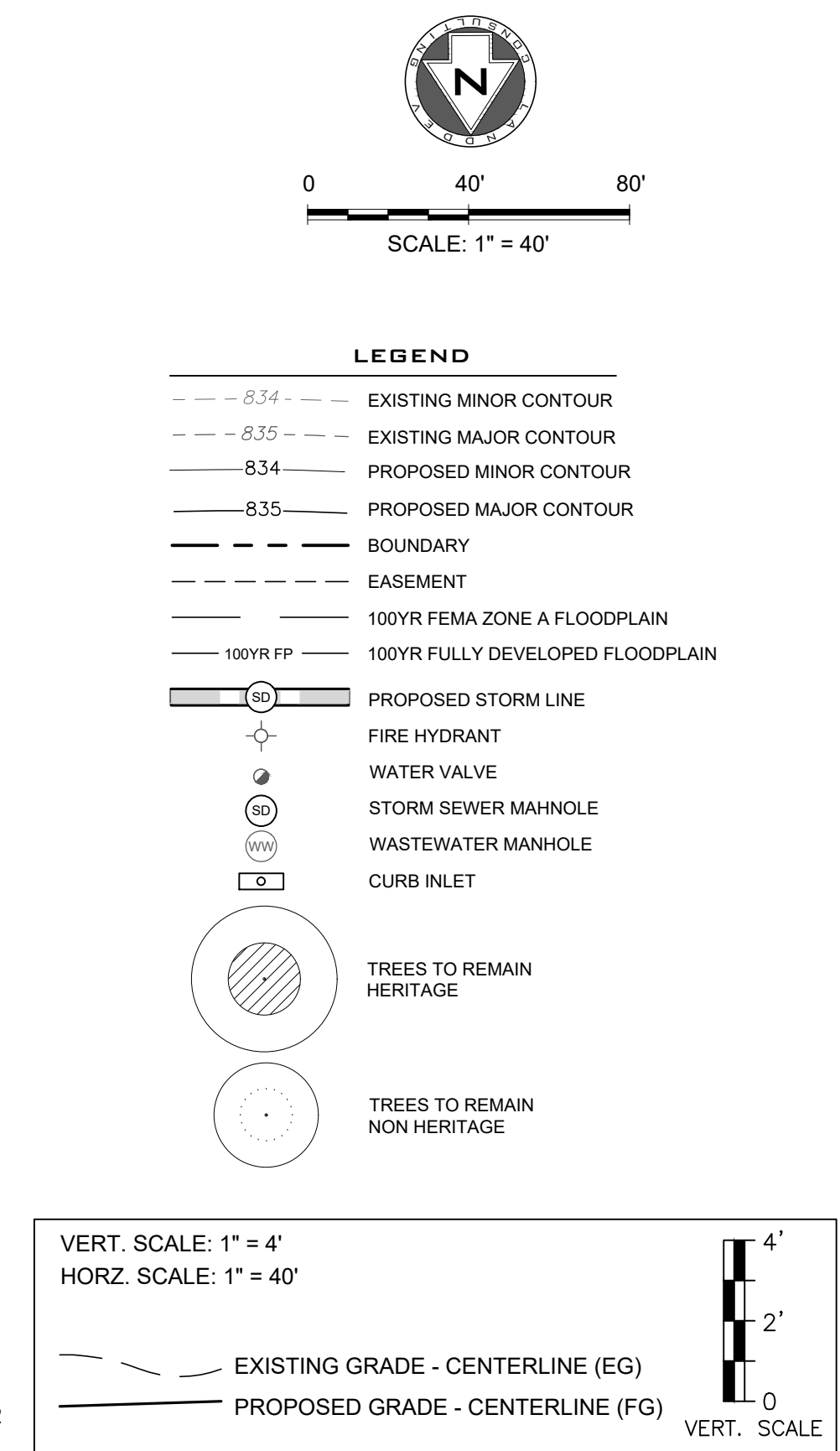
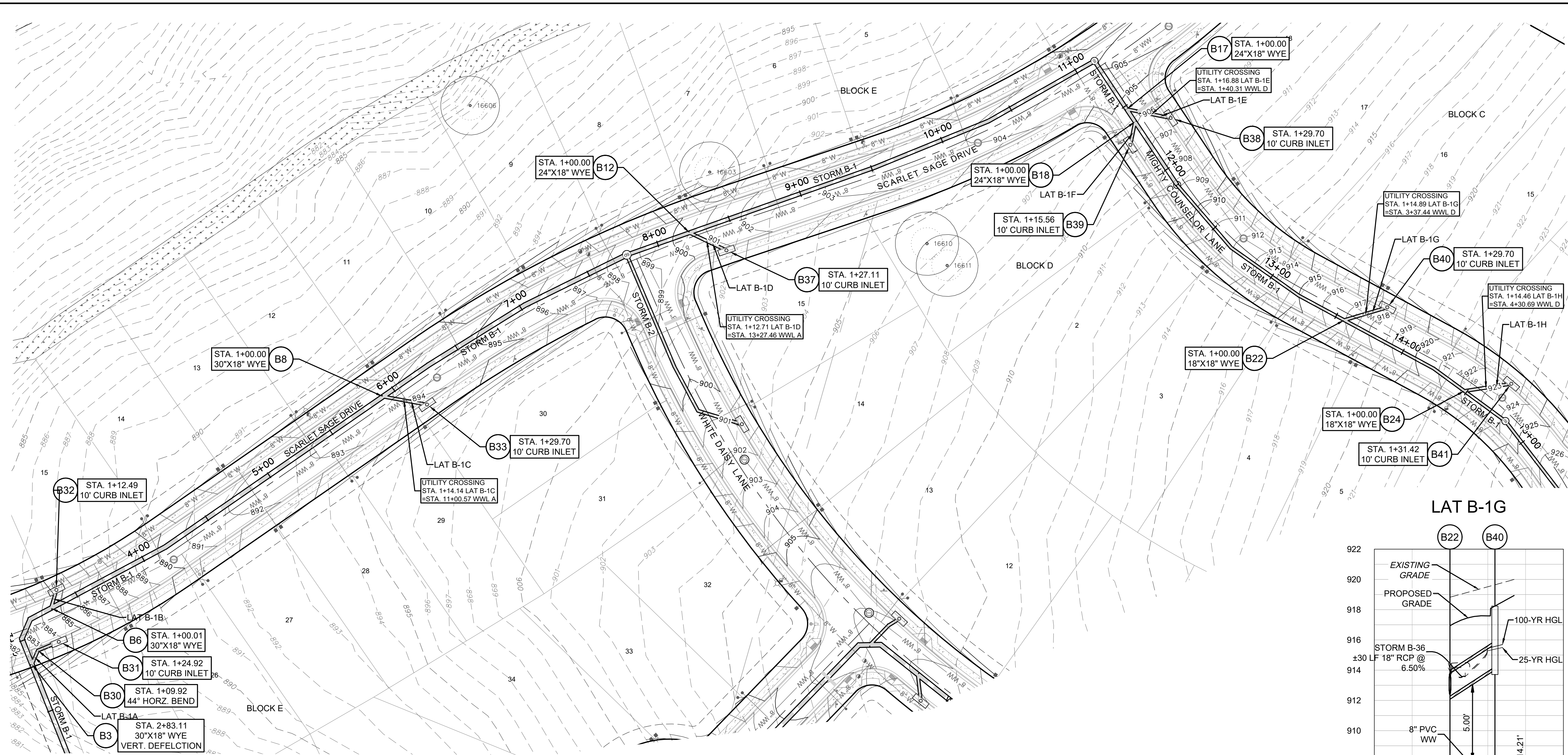


- NOTE:**
1. ALL PROPOSED STORM SEWER PIPE LINES SHALL BE CLASS III REINFORCED CONCRETE UNLESS NOTED OTHERWISE.
 2. FILL SHALL BE PLACED ACCORDING TO THE GEOTECHNICAL ENGINEERS RECOMMENDATION AND CITY OF GEORGETOWN SPECIFICATIONS.
 3. VEGETATE ALL DISTURBED AREAS PER CITY OF GEORGETOWN SPECIFICATIONS.

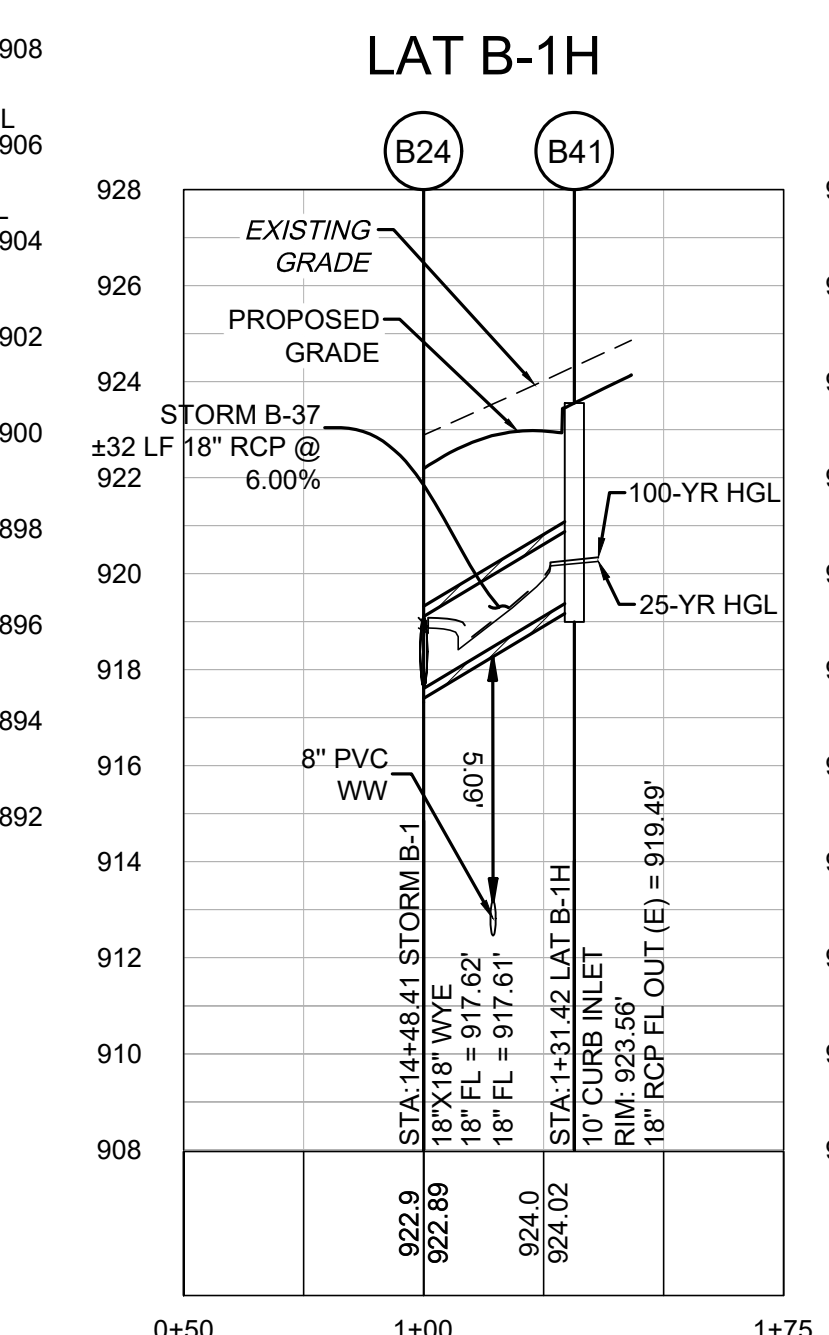
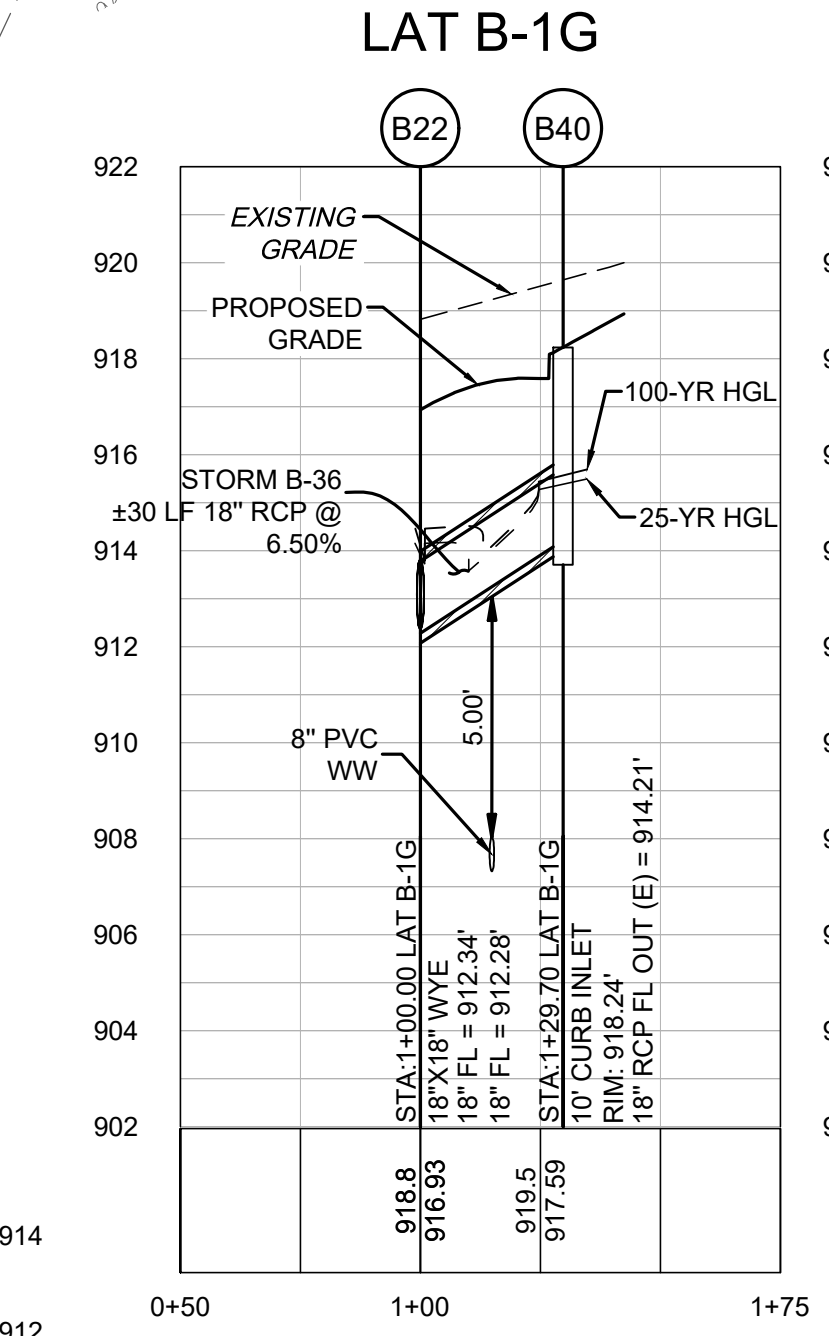
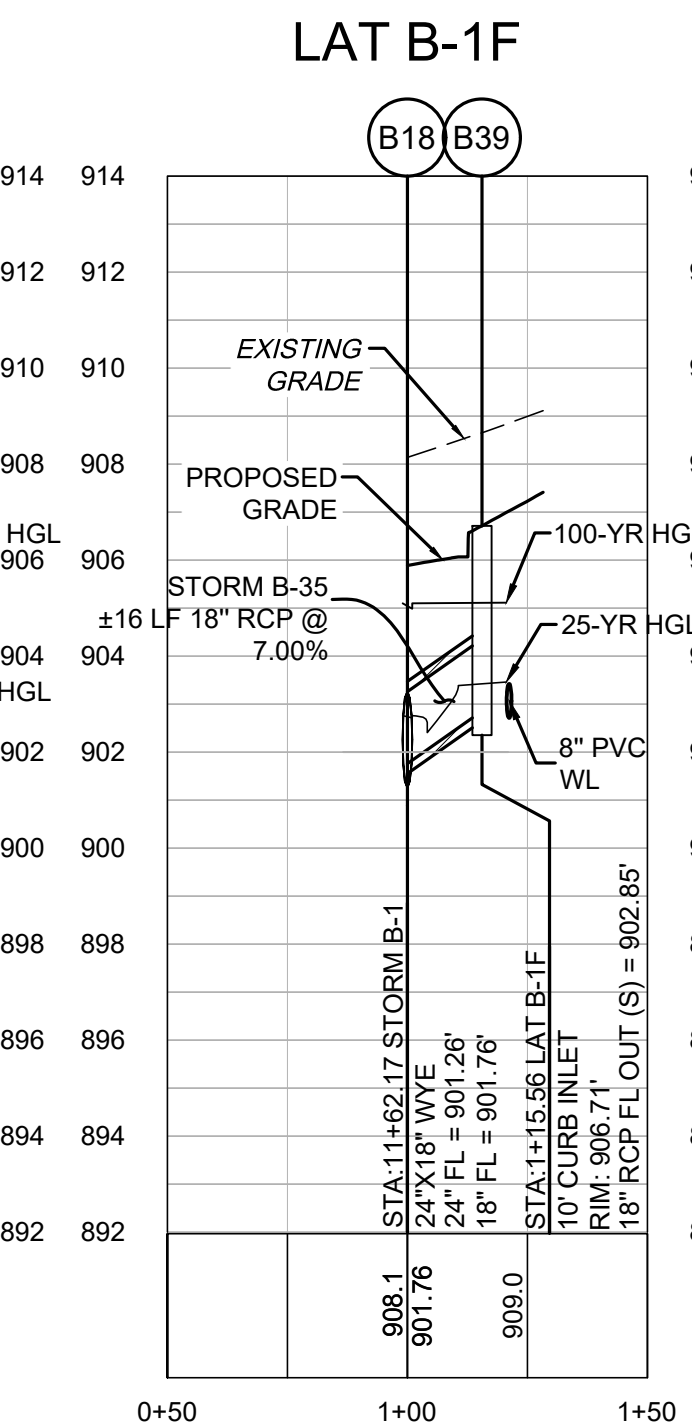
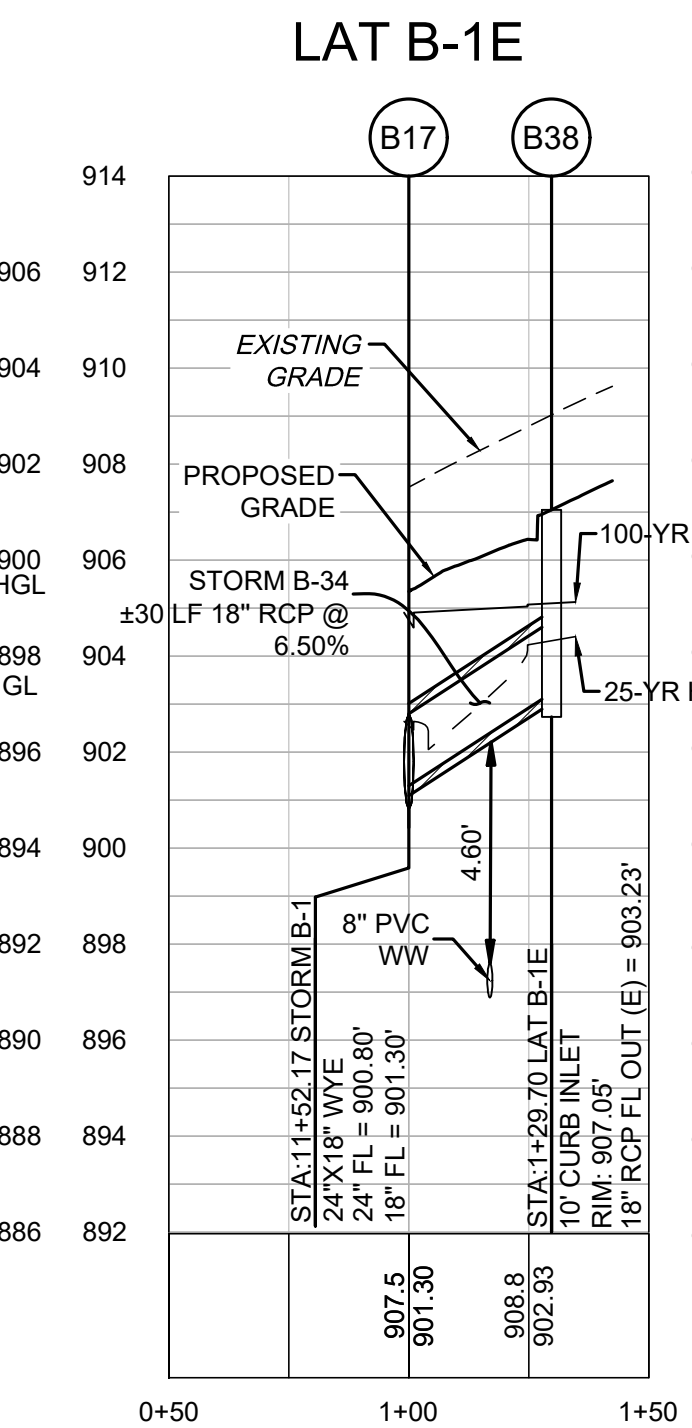
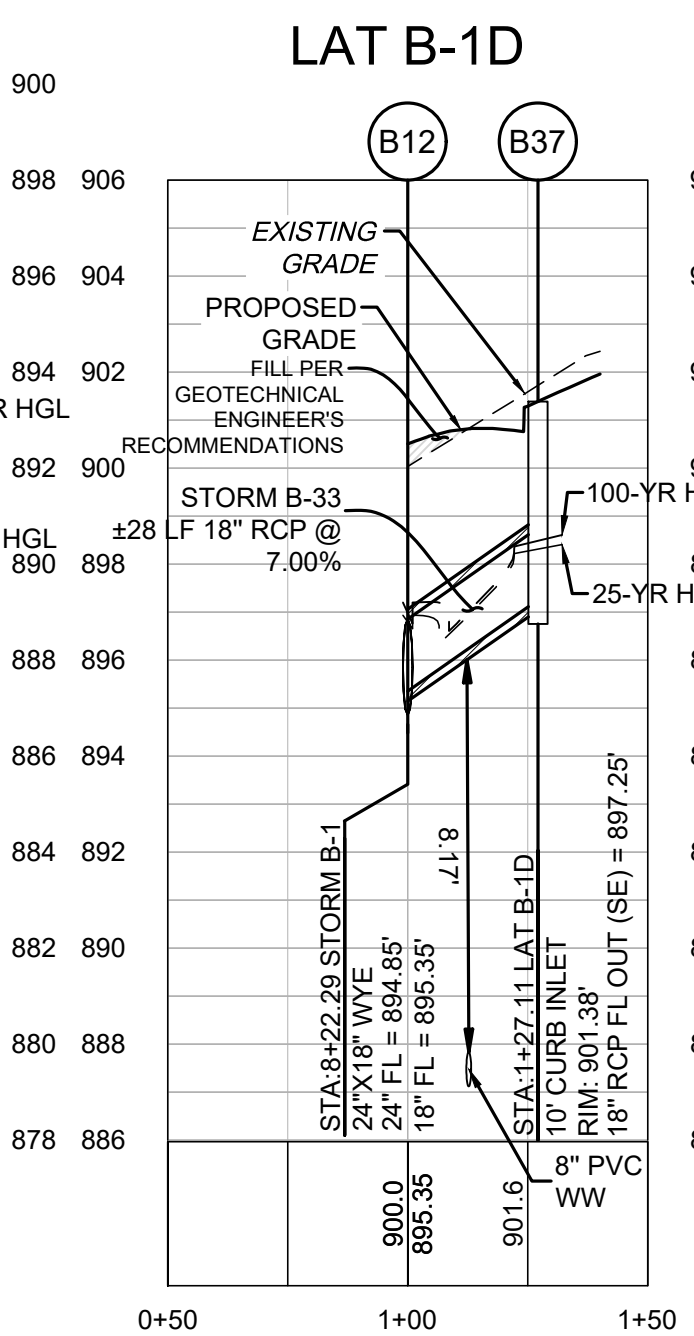
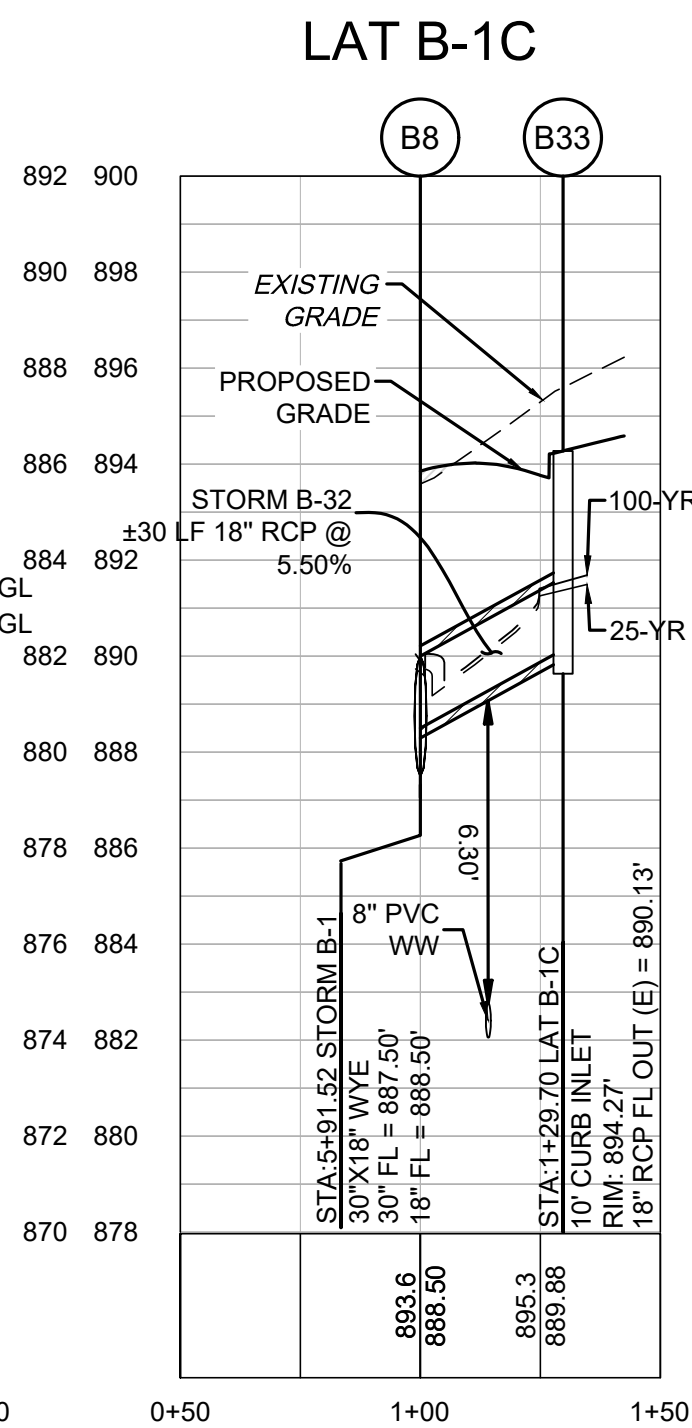
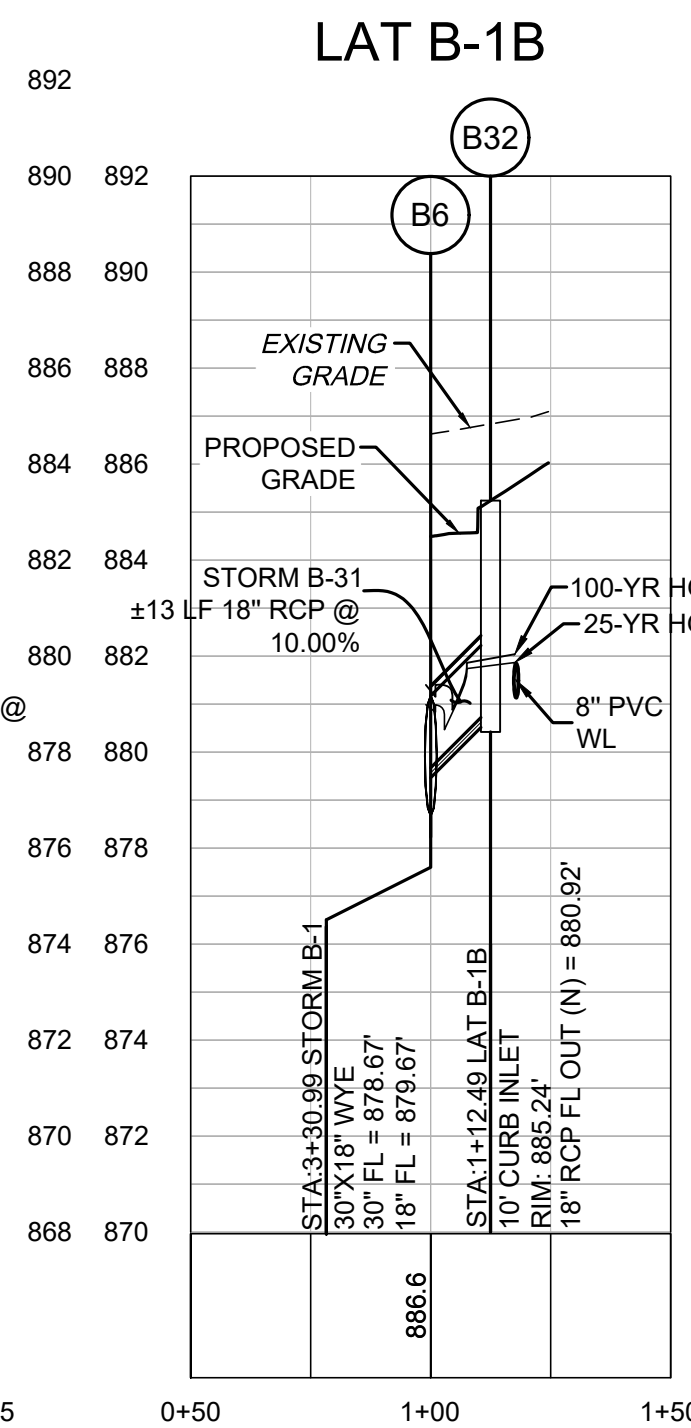
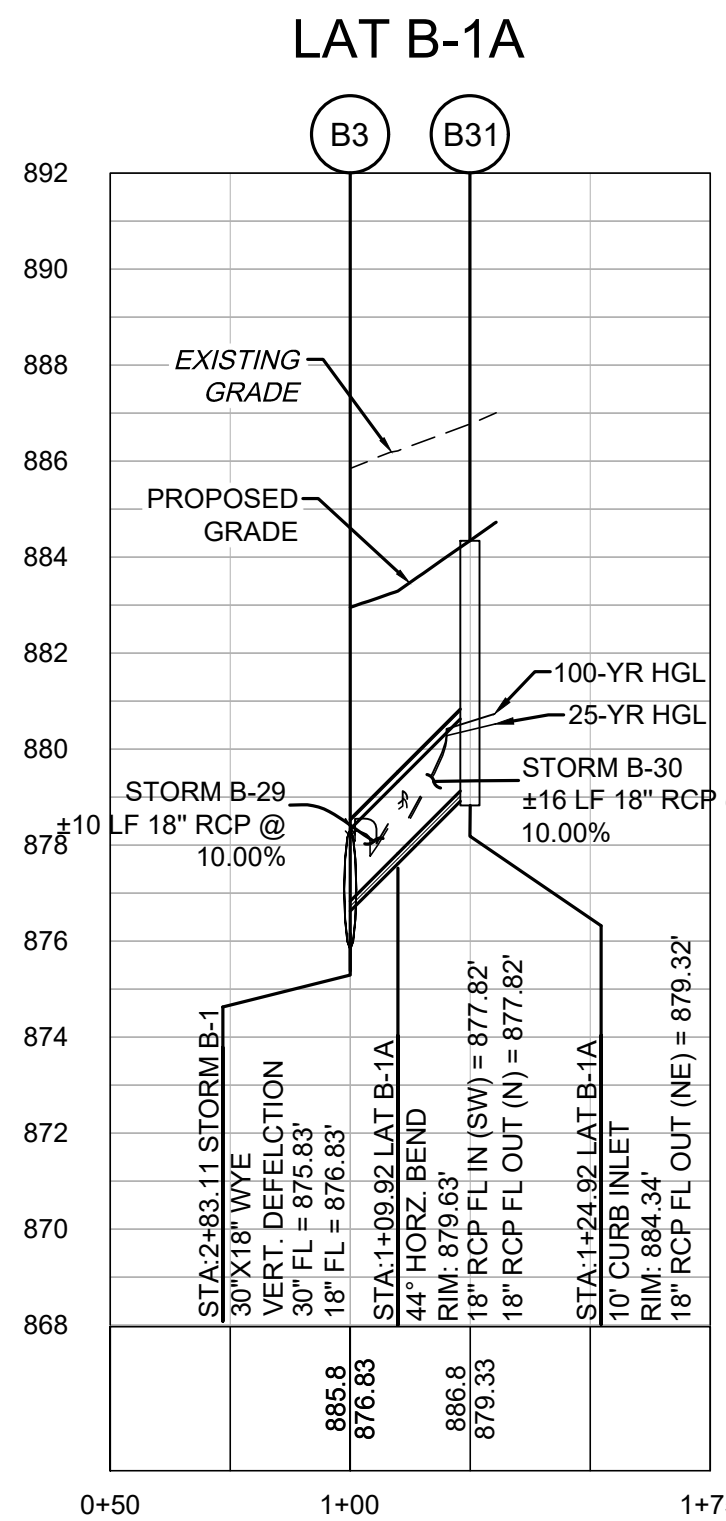


Pipe Label	Slope (%)	Q25	V25	D25	Q100	V100	D100
		(cfs)	(ft/s)	(ft)	(cfs)	(ft/s)	(ft)
STORM B-1	5.00%	46.54	9.48	6.14	58.07	11.83	6.64
STORM B-2	5.00%	46.54	13.78	2.25	58.07	11.94	2.68
STORM B-3	5.94%	41.61	8.86	2.47	51.96	10.76	2.72
STORM B-4	5.94%	41.61	8.85	2.85	51.96	10.59	3.12
STORM B-5	5.94%	41.61	8.85	2.85	51.96	10.60	3.16
STORM B-6	5.94%	37.71	8.30	2.31	47.17	9.86	2.73
STORM B-7	2.14%	37.71	8.17	2.50	47.17	9.86	2.65
STORM B-8	2.14%	31.38	7.30	2.23	39.28	8.44	2.54
STORM B-9	2.14%	31.38	7.21	2.32	39.28	8.44	2.52
STORM B-10	3.86%	31.38	7.21	2.32	39.28	8.44	2.52
STORM B-11	3.54%	26.47	8.67	2.27	33.13	10.65	2.44
STORM B-12	3.54%	21.41	7.26	2.07	26.81	8.76	2.34
STORM B-13	0.88%	21.41	6.86	1.99	26.81	8.53	2.48
STORM B-14	0.88%	21.41	6.81	2.06	26.81	8.53	3.07

P:\blake_magnificat\side section 8, 16 & 24\station 803_ACOF\Plan\030297.BDPF STORM B-1 LATERALS, November 01, 2023, 10:45 PM, lgnrta



- NOTE:**
- ALL PROPOSED STORM SEWER PIPE LINES SHALL BE CLASS III REINFORCED CONCRETE UNLESS NOTED OTHERWISE.
 - FILL SHALL BE PLACED ACCORDING TO THE GEOTECHNICAL ENGINEERS RECOMMENDATION AND CITY OF GEORGETOWN SPECIFICATIONS.
 - VEGETATE ALL DISTURBED AREAS PER CITY OF GEORGETOWN SPECIFICATIONS.
- TRENCH SAFETY NOTES:**
- IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS AND THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, ALL TRENCHES OVER 5 FEET IN DEPTH IN EITHER HARD OR COMPACT OR SOFT AND UNSTABLE SOIL SHALL BE SLOPED, SHORED, SHEETED, BRACED OR OTHERWISE SUPPORTED. FURTHERMORE, ALL TRENCHES LESS THAN 5 FEET IN DEPTH SHALL ALSO BE EFFECTIVELY PROTECTED WHEN HAZARDOUS GROUND MOVEMENT MAY BE EXPECTED. TRENCH SAFETY SYSTEMS TO BE UTILIZED FOR THIS PROJECT WILL BE PROVIDED BY THE CONTRACTOR.
 - IN ACCORDANCE WITH THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, WHEN PERSONS ARE IN TRENCHES 4-FEET DEEP OR MORE, ADEQUATE MEANS OF EXIT, SUCH AS A LADDER OR STEPS, MUST BE PROVIDED AND LOCATED SO AS TO REQUIRE NO MORE THAN 25 FEET OF LATERAL TRAVEL.
 - CONSTRUCTION SHALL NOT PROCEED UNTIL APPROPRIATE TRENCH SAFETY SYSTEM DETAILS, AS DESIGNED BY A PROFESSIONAL ENGINEER, ARE RETAINED AND COPIES SUBMITTED TO THE CITY OF GEORGETOWN.
 - DEEP EXCAVATIONS: ON EXCAVATIONS EXCEEDING 20 FEET IN DEPTH, TWO OR MORE MEANS OF EGRESS FROM THE EXCAVATION SHALL BE PROVIDED. THE CONTRACTOR SHALL CONSULT WITH A REGISTERED ENGINEER, EXPERIENCED IN TRENCH SAFETY SYSTEMS, REGARDING SPECIFIC MEANS AND METHODS EMPLOYED. CONTRACTOR SHALL PROVIDE A TRENCH SAFETY PLAN SEALED BY A REGISTERED PROFESSIONAL ENGINEER AS REQUIRED BY THE CITY OF GEORGETOWN.



Pipe Label	Slope (%)	Q25 (cfs)	V25 (ft/s)	D25 (ft)	Q100 (cfs)	V100 (ft/s)	D100 (ft)
STORM B-29	10.00%	4.93	3.78	1.46	6.11	4.31	1.71
STORM B-30	10.00%	4.93	4.06	1.16	6.11	4.46	1.30
STORM B-31	10.00%	3.90	3.38	1.31	4.79	3.70	1.72
STORM B-32	5.50%	6.33	4.65	1.23	7.89	5.10	1.54
STORM B-33	7.00%	5.06	3.83	1.58	6.32	4.40	1.84
STORM B-34	6.50%	5.29	4.03	1.34	6.71	3.80	3.60
STORM B-35	7.00%	1.75	2.41	1.00	2.14	1.21	3.33
STORM B-36	6.50%	5.89	4.20	1.88	7.40	4.89	2.18
STORM B-37	6.00%	2.66	2.78	1.26	3.26	2.99	1.47

811
Know what's below.
Call before you dig.

5508 HIGHWAY 290 WEST
SUITE 150
DALLAS, TX 75235
CITY OF GEORGETOWN
HRGREEN.COM

HRGreen®
DEVELOPMENT TX

STATE OF TEXAS
SHERVIN NOOSHIN
96807
LICENSED PROFESSIONAL ENGINEER
11/03/2023

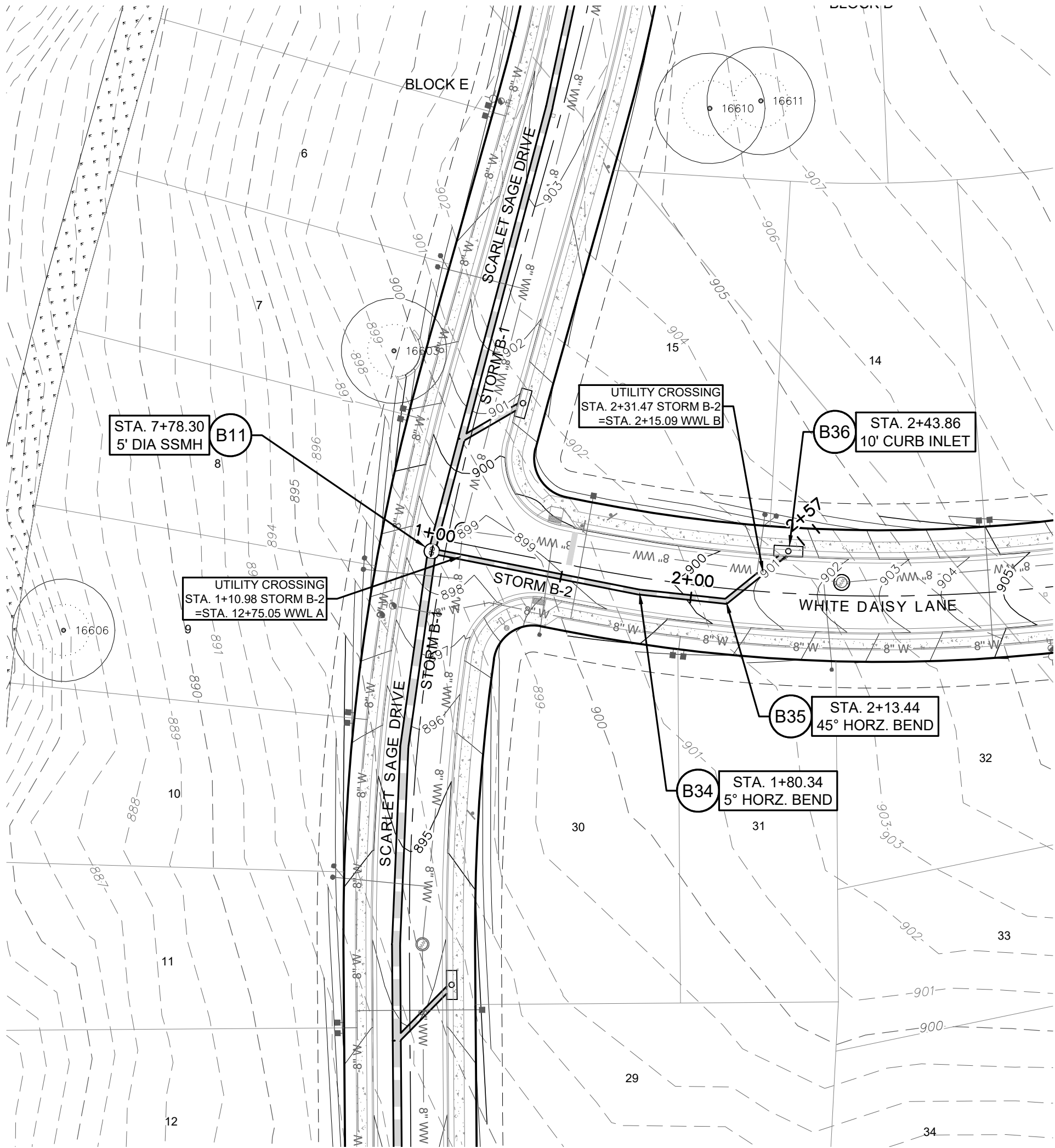
STORM B-1 LATERALS
PARKSIDE SECTION 8
CONSTRUCTION PLANS
GEORGETOWN, WILLIAMSON, TEXAS

DESIGNED BY: CC
DRAWN BY: TB/MKM
CHECKED BY: SN
APPROVED BY: _____

SHEET 47 OF 72
2023-XX-CON

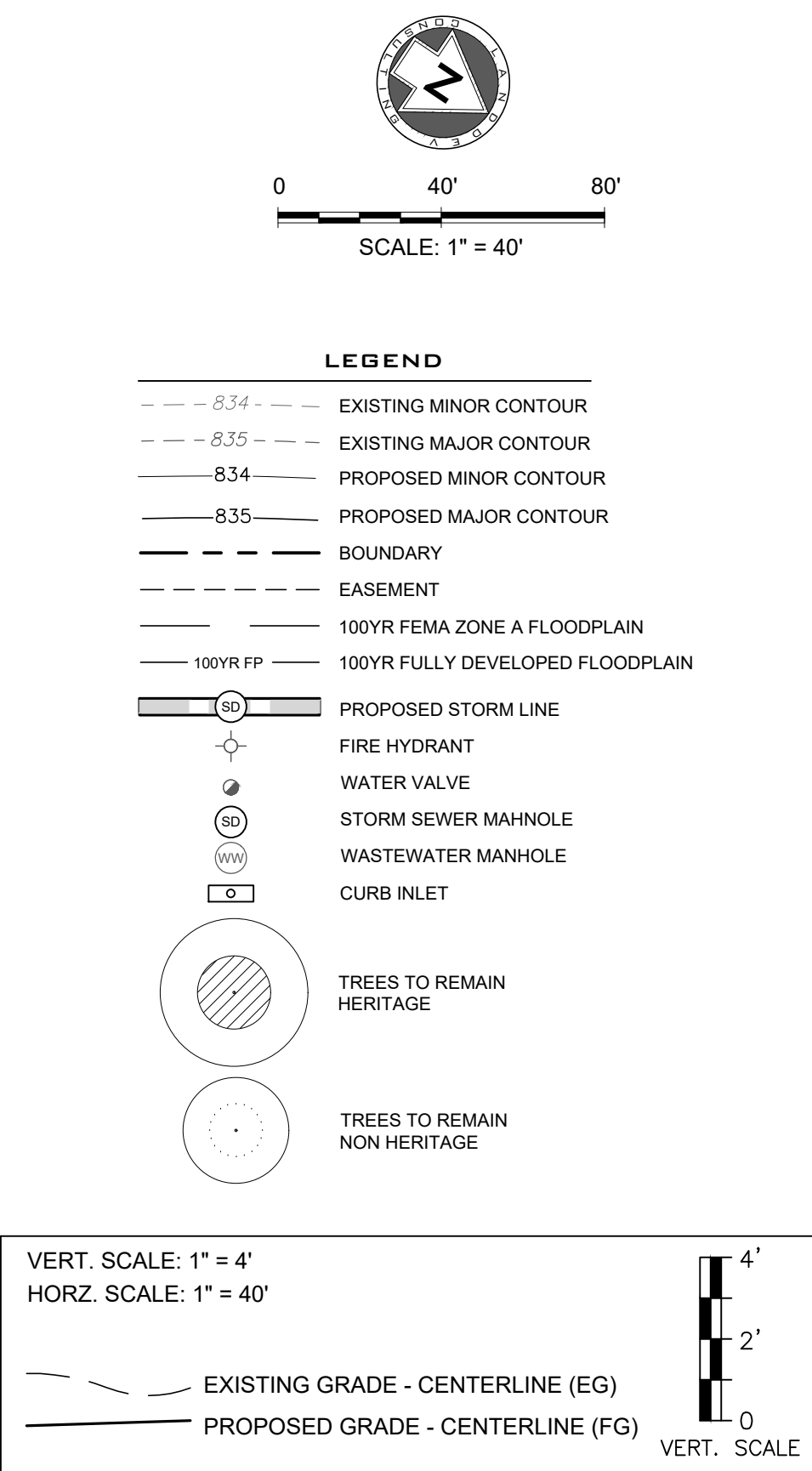
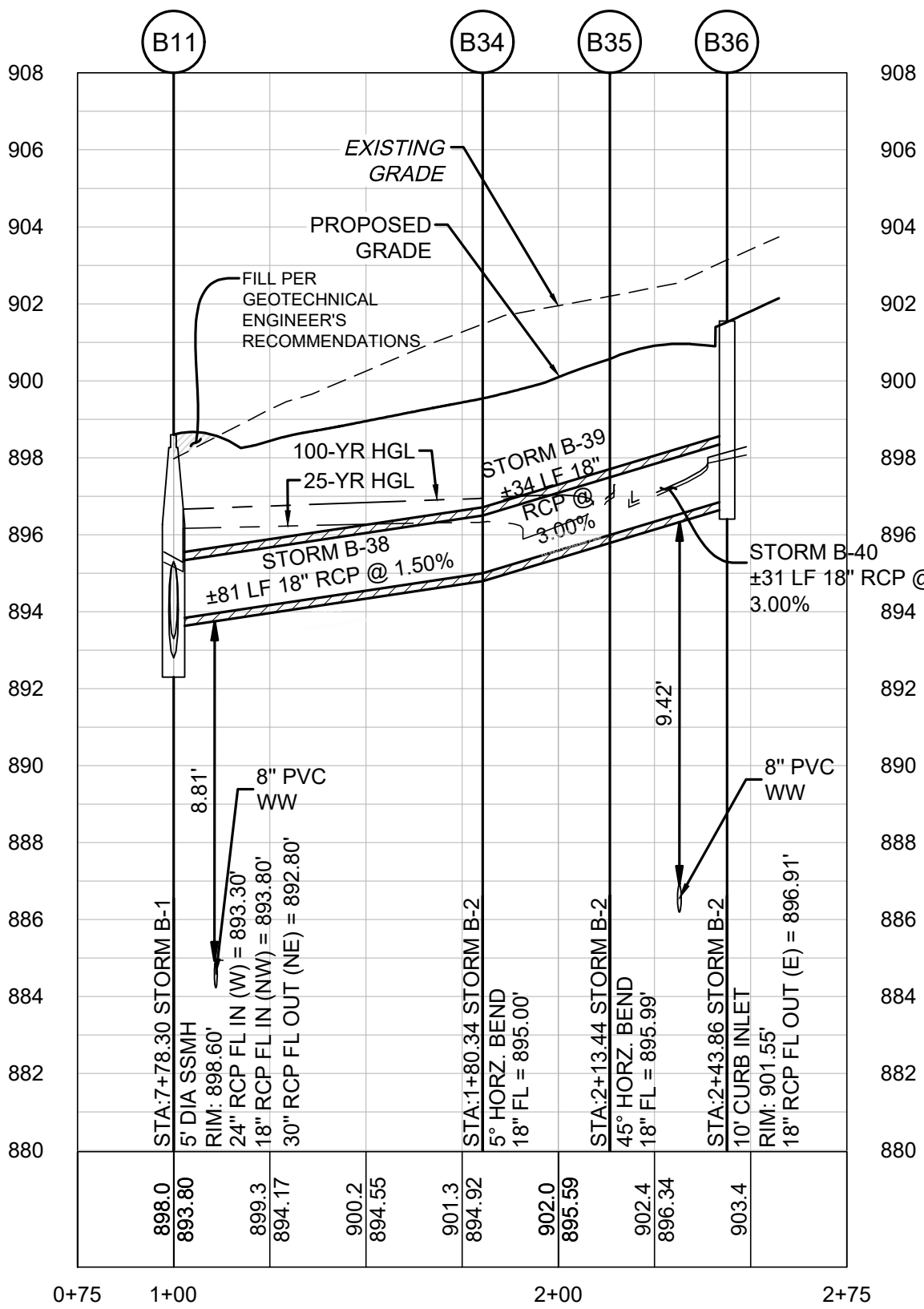
REVISION
BY
DATE
NO.

P:\blake_mfg\parkside\section 8, the & Division 803, ACAD\Plan\1203297 EDP\ STORM B-2.dwg, STORM B-2 PLAN & PROFILE 1+00 - END, November 01, 2023, 10:48 PM, [gnz]



Pipe Label	Slope (%)	Q25 (cfs)	V25 (ft/s)	D25 (ft)	Q100 (cfs)	V100 (ft/s)	D100 (ft)
STORM B-38	1.5%	4.91	2.89	2.36	6.15	3.48	2.87
STORM B-39	3.0%	4.91	3.85	1.34	6.15	4.32	1.97
STORM B-40	3.0%	4.91	4.06	1.15	6.15	4.47	1.30

STORM B-2



- NOTE:**
- ALL PROPOSED STORM SEWER PIPE LINES SHALL BE CLASS III REINFORCED CONCRETE UNLESS NOTED OTHERWISE.
 - FILL SHALL BE PLACED ACCORDING TO THE GEOTECHNICAL ENGINEERS RECOMMENDATION AND CITY OF GEORGETOWN SPECIFICATIONS.
 - VEGETATE ALL DISTURBED AREAS PER CITY OF GEORGETOWN SPECIFICATIONS.

- TRENCH SAFETY NOTES:**
- IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS AND THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, ALL TRENCHES OVER 5 FEET IN DEPTH IN EITHER HARD AND COMPACT OR SOFT AND UNSTABLE SOIL SHALL BE SLOPED, SHORED, SHEETED, BRACED OR OTHERWISE SUPPORTED. FURTHERMORE, ALL TRENCHES LESS THAN 5 FEET IN DEPTH SHALL ALSO BE EFFECTIVELY PROTECTED WHEN HAZARDOUS GROUND MOVEMENT MAY BE EXPECTED. TRENCH SAFETY SYSTEMS TO BE UTILIZED FOR THIS PROJECT WILL BE PROVIDED BY THE CONTRACTOR.
 - IN ACCORDANCE WITH THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, WHEN PERSONS ARE IN TRENCHES 4- FEET DEEP OR MORE, ADEQUATE MEANS OF EXIT, SUCH AS A LADDER OR STEPS, MUST BE PROVIDED AND LOCATED SO AS TO REQUIRE NO MORE THAN 25 FEET OF LATERAL TRAVEL.
 - CONSTRUCTION SHALL NOT PROCEED UNTIL APPROPRIATE TRENCH SAFETY SYSTEM DETAILS, AS DESIGNED BY A PROFESSIONAL ENGINEER, ARE RETAINED AND COPIES SUBMITTED TO THE CITY OF GEORGETOWN.
 - DEEP EXCAVATIONS: ON EXCAVATIONS EXCEEDING 20 FEET IN DEPTH, TWO OR MORE MEANS OF EGRESS FROM THE EXCAVATION SHALL BE PROVIDED. THE CONTRACTOR SHALL CONSULT WITH A REGISTERED ENGINEER, EXPERIENCED IN TRENCH SAFETY SYSTEMS, REGARDING SPECIFIC MEANS AND METHODS EMPLOYED. CONTRACTOR SHALL PROVIDE A TRENCH SAFETY PLAN SEALED BY A REGISTERED PROFESSIONAL ENGINEER AS REQUIRED BY THE CITY OF GEORGETOWN.

811
Know what's below.
Call before you dig.

5508 HIGHWAY 290 WEST
SUITE 150
DALLAS, TX 75235
CITY OF GEORGETOWN
HRGREEN, CON
TBE NO: 16384
TBE NO: 10194101

HRGreen®
DEVELOPMENT TX

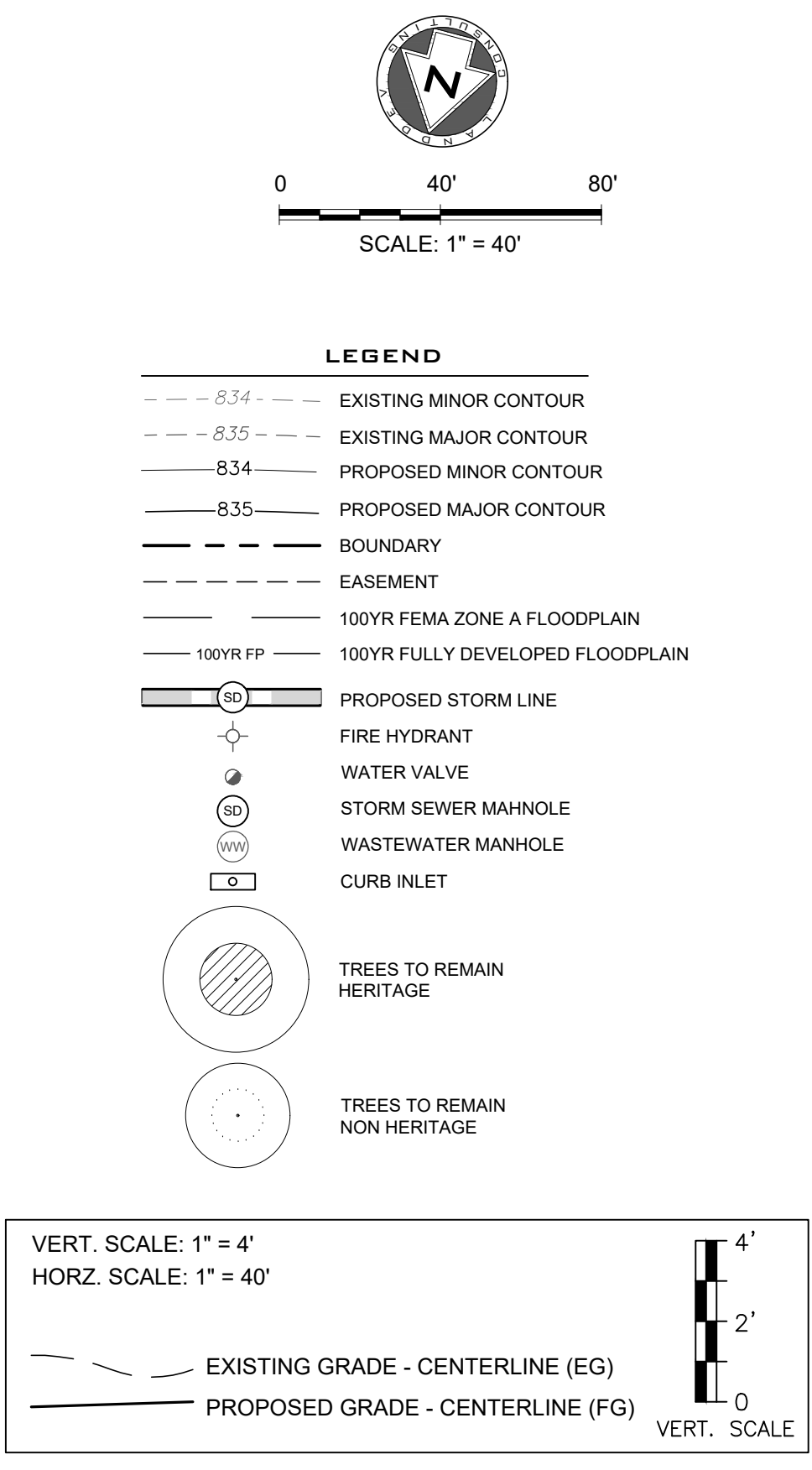
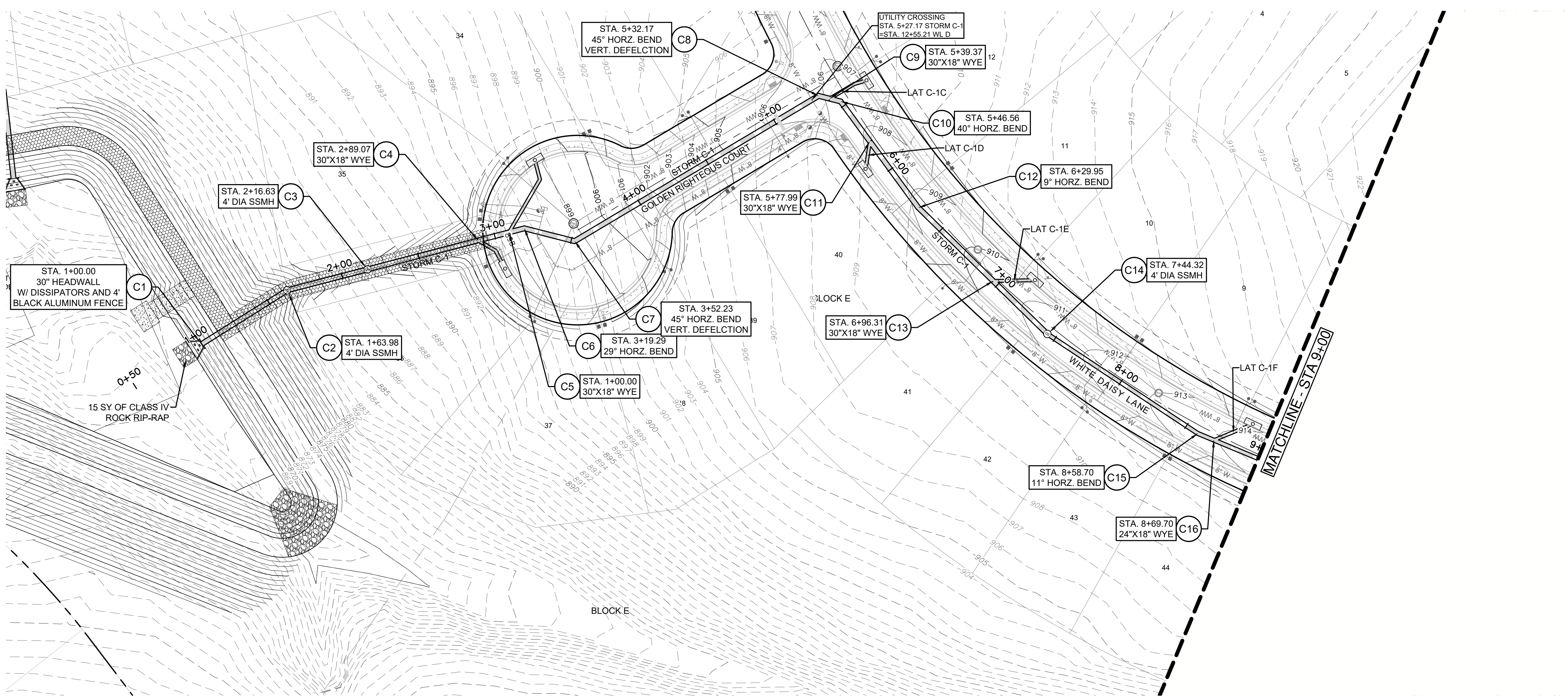
STATE OF TEXAS
SHERVIN NOOSHIN
96807
LICENSED PROFESSIONAL ENGINEER
11/03/2023

STORM B-2 PLAN & PROFILE
1+00 - END
PARKSIDE SECTION 8
CONSTRUCTION PLANS
GEORGETOWN, WILLIAMSON, TEXAS

DESIGNED BY: CC
DRAWN BY: TB/MKM
CHECKED BY: SN
APPROVED BY: _____

SHEET 48 OF 72
2023-XX-CON

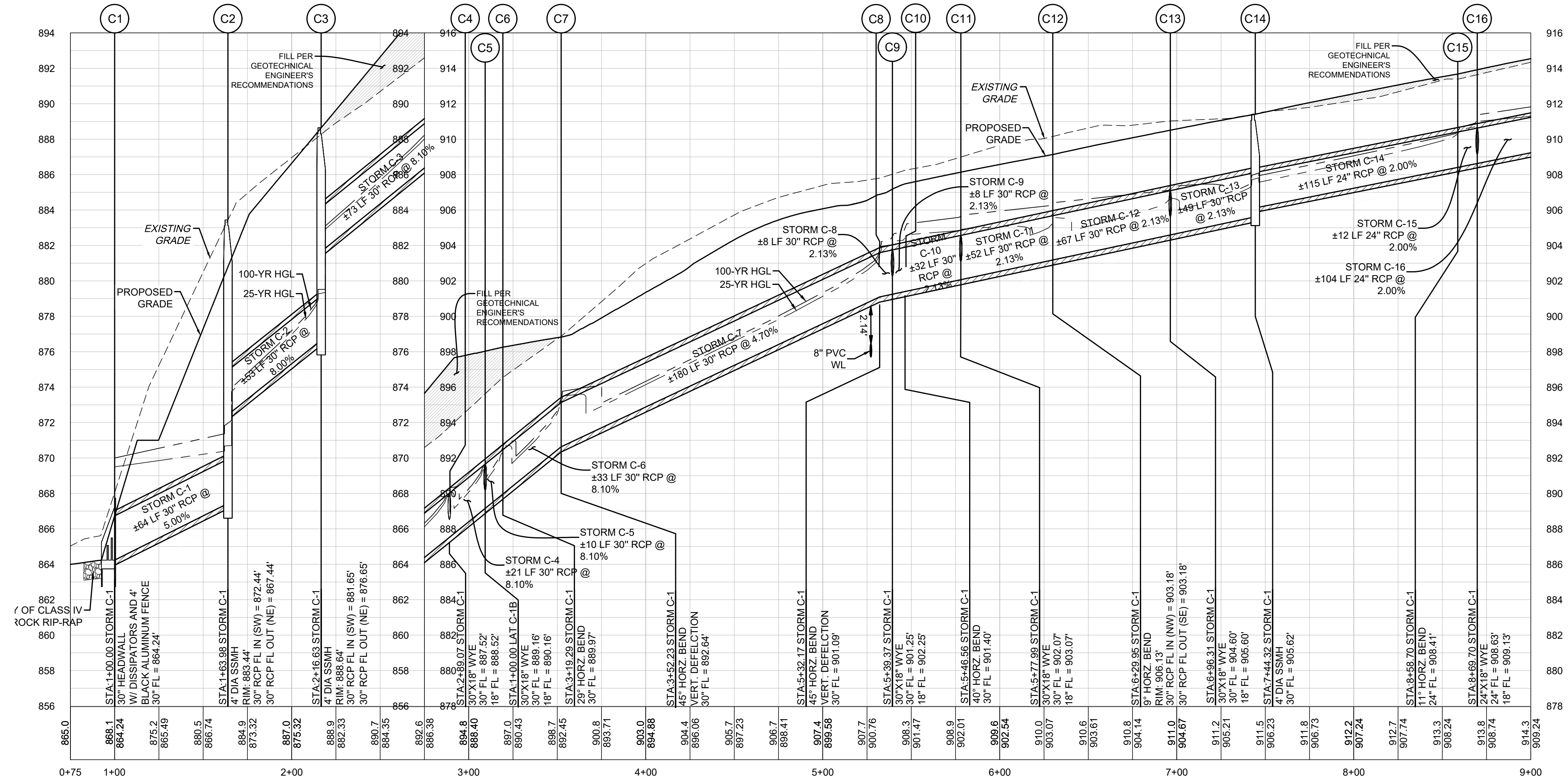
P:\Public\magnificaparkside sections 8, 9 & 10.dwg, 11/03/2023 10:05 PM, gsm



NOTE:
1. ALL PROPOSED STORM SEWER PIPE LINES SHALL BE CLASS III REINFORCED CONCRETE UNLESS NOTED OTHERWISE.
2. FILL SHALL BE PLACED ACCORDING TO THE GEOTECHNICAL ENGINEERS RECOMMENDATION AND CITY OF GEORGETOWN SPECIFICATIONS.
3. VEGETATE ALL DISTURBED AREAS PER CITY OF GEORGETOWN SPECIFICATIONS.

TRENCH SAFETY NOTES:
1. IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS AND THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, ALL TRENCHES OVER 5 FEET IN DEPTH IN EITHER HARD AND COMPACT OR SOFT AND UNSTABLE SOIL SHALL BE SLOPED, SHORED, SHEETED, BRACED OR OTHERWISE SUPPORTED. FURTHERMORE, ALL TRENCHES LESS THAN 5 FEET IN DEPTH SHALL ALSO BE EFFECTIVELY PROTECTED WHEN HAZARDOUS GROUND MOVEMENT MAY BE EXPECTED. TRENCH SAFETY SYSTEMS TO BE UTILIZED FOR THIS PROJECT WILL BE PROVIDED BY THE CONTRACTOR.
2. IN ACCORDANCE WITH THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, WHEN PERSONS ARE IN TRENCHES 4- FEET DEEP OR MORE, ADEQUATE MEANS OF EXIT, SUCH AS A LADDER OR STEPS, MUST BE PROVIDED AND LOCATED SO AS TO REQUIRE NO MORE THAN 25 FEET OF LATERAL TRAVEL.
3. CONSTRUCTION SHALL NOT PROCEED UNTIL APPROPRIATE TRENCH SAFETY SYSTEM DETAILS, AS DESIGNED BY A PROFESSIONAL ENGINEER, ARE RETAINED AND COPIES SUBMITTED TO THE CITY OF GEORGETOWN.
4. DEEP EXCAVATIONS: ON EXCAVATIONS EXCEEDING 20 FEET IN DEPTH, TWO OR MORE MEANS OF EGRESS FROM THE EXCAVATION SHALL BE PROVIDED. THE CONTRACTOR SHALL CONSULT WITH A REGISTERED ENGINEER, EXPERIENCED IN TRENCH SAFETY SYSTEMS, REGARDING SPECIFIC MEANS AND METHODS EMPLOYED. CONTRACTOR SHALL PROVIDE A TRENCH SAFETY PLAN SEALED BY A REGISTERED PROFESSIONAL ENGINEER AS REQUIRED BY THE CITY OF GEORGETOWN.

STORM C-1



Pipe Label	Slope (%)	Q25 (cfs)	V25 (ft/s)	D25 (ft)	Q100 (cfs)	V100 (ft/s)	D100 (ft)
STORM C-1	5.0%	48.17	9.81	5.26	59.90	12.20	5.76
STORM C-2	8.0%	48.17	14.26	2.28	59.90	15.80	2.39
STORM C-3	8.1%	48.17	14.88	2.28	59.90	16.40	2.39
STORM C-4	8.1%	41.92	8.91	2.54	52.19	10.80	2.80
STORM C-5	8.1%	41.92	9.27	2.17	52.19	10.97	2.33
STORM C-6	8.1%	41.92	8.91	2.70	52.19	10.80	2.90
STORM C-7	4.7%	41.92	8.91	2.86	52.19	10.80	3.13
STORM C-8	2.1%	41.92	8.54	2.86	52.19	10.63	3.13
STORM C-9	2.1%	35.67	7.27	3.00	44.31	9.03	3.43
STORM C-10	2.1%	35.67	7.27	3.20	44.31	9.03	3.82
STORM C-11	2.1%	33.59	7.47	2.85	41.76	8.51	3.64
STORM C-12	2.1%	33.59	7.52	2.39	41.76	8.51	3.24
STORM C-13	2.1%	27.51	6.82	2.07	34.14	7.56	2.74
STORM C-14	2.0%	27.51	10.24	1.82	34.14	11.21	1.91
STORM C-15	2.0%	27.51	8.76	2.13	34.14	10.87	2.28
STORM C-16	2.0%	22.11	7.45	2.38	27.38	8.72	2.76

811
Know what's below.
Call before you dig.

5508 HIGHWAY 290 WEST
SUITE 150
DALLAS, TX 75235
CITY OF GEORGETOWN
HARGREEN, CON
TBE NO: 16384
TBE NO: 10194101

HRGreen
DEVELOPMENT TX

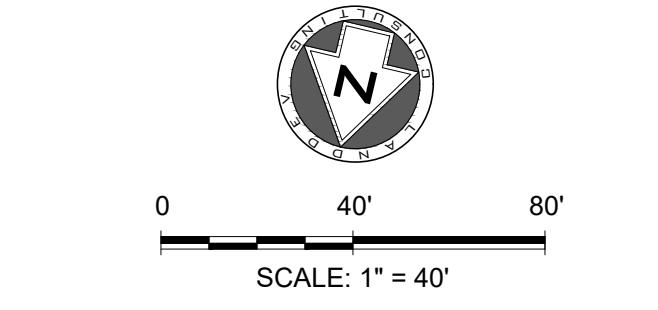
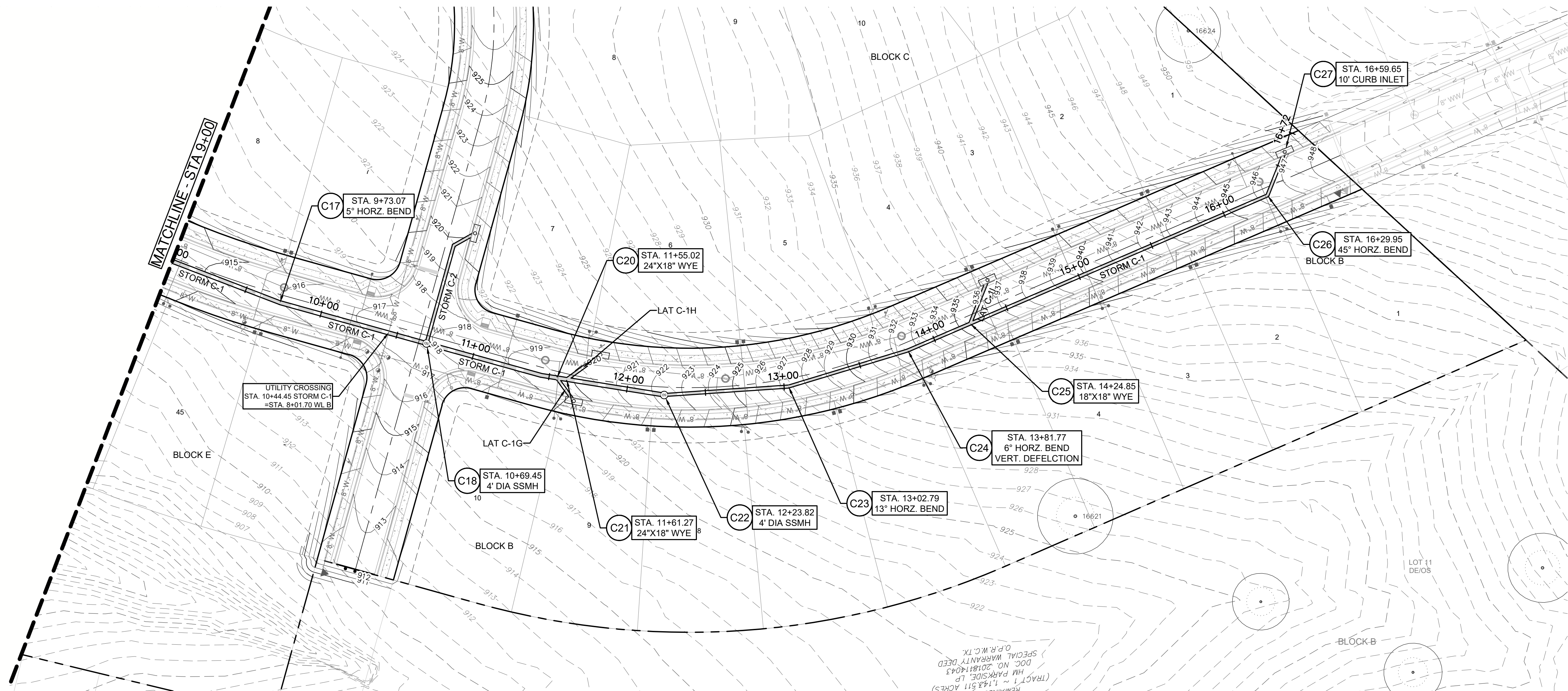
STATE OF TEXAS
SHERVIN NOOSHIN
96807
LICENSED PROFESSIONAL ENGINEER
11/03/2023

STORM C-1 PLAN & PROFILE
1+00 - 9+00
PARKSIDE SECTION 8
CONSTRUCTION PLANS
GEORGETOWN, WILLIAMSON, TEXAS

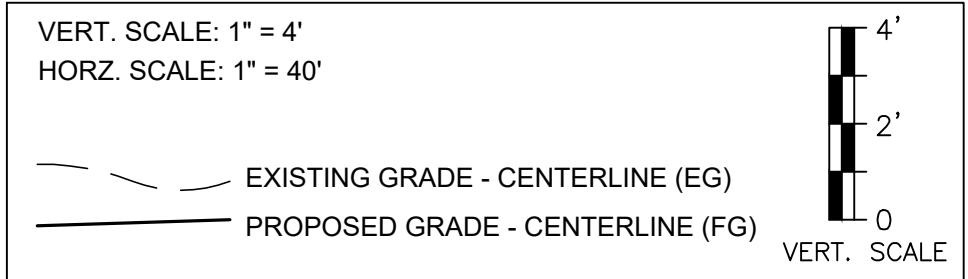
DESIGNED BY: CC
DRAWN BY: TB/MKM
CHECKED BY: SN
APPROVED BY: _____

SHEET 49 OF 72
2023-XX-CON

P:\blake_mfg\parkside section 8, 9 & 10.dwg November 01, 2023 10:50 PM, agura

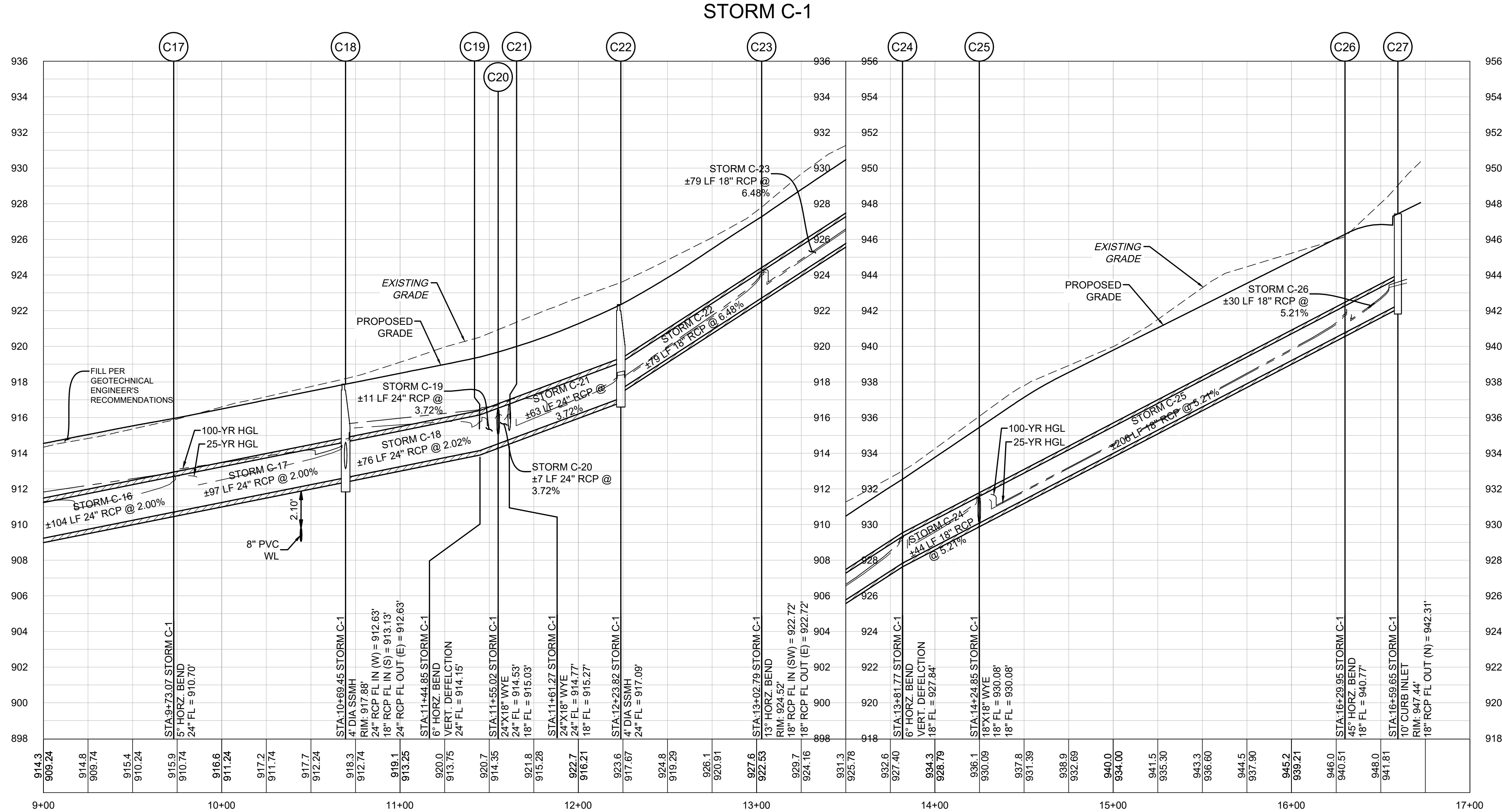


- LEGEND**
- 834 - EXISTING MINOR CONTOUR
 - 835 - EXISTING MAJOR CONTOUR
 - 834 - PROPOSED MINOR CONTOUR
 - 835 - PROPOSED MAJOR CONTOUR
 - BOUNDARY
 - EASEMENT
 - 100YR FEMA ZONE A FLOODPLAIN
 - 100YR FULLY DEVELOPED FLOODPLAIN
 - PROPOSED STORM LINE
 - FIRE HYDRANT
 - WATER VALVE
 - STORM SEWER MANHOLE
 - WASTEWATER MANHOLE
 - CURB INLET
 - TREES TO REMAIN HERITAGE
 - TREES TO REMAIN NON-HERITAGE



- NOTE:**
- ALL PROPOSED STORM SEWER PIPE LINES SHALL BE CLASS III REINFORCED CONCRETE UNLESS NOTED OTHERWISE.
 - FILL SHALL BE PLACED ACCORDING TO THE GEOTECHNICAL ENGINEERS RECOMMENDATION AND CITY OF GEORGETOWN SPECIFICATIONS.
 - VEGETATE ALL DISTURBED AREAS PER CITY OF GEORGETOWN SPECIFICATIONS.

- TRENCH SAFETY NOTES:**
- IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS AND THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, ALL TRENCHES OVER 5 FEET IN DEPTH IN EITHER HARD AND COMPACT OR SOFT AND UNSTABLE SOIL SHALL BE SLOPED, SHORED, SHEETED, BRACED OR OTHERWISE SUPPORTED. FURTHERMORE, ALL TRENCHES LESS THAN 5 FEET IN DEPTH SHALL ALSO BE EFFECTIVELY PROTECTED WHEN HAZARDOUS GROUND MOVEMENT MAY BE EXPECTED. TRENCH SAFETY SYSTEMS TO BE UTILIZED FOR THIS PROJECT WILL BE PROVIDED BY THE CONTRACTOR.
 - IN ACCORDANCE WITH THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, WHEN PERSONS ARE IN TRENCHES 4- FEET DEEP OR MORE, ADEQUATE MEANS OF EXIT, SUCH AS A LADDER OR STEPS, MUST BE PROVIDED AND LOCATED SO AS TO REQUIRE NO MORE THAN 25 FEET OF LATERAL TRAVEL.
 - CONSTRUCTION SHALL NOT PROCEED UNTIL APPROPRIATE TRENCH SAFETY SYSTEM DETAILS, AS DESIGNED BY A PROFESSIONAL ENGINEER, ARE RETAINED AND COPIES SUBMITTED TO THE CITY OF GEORGETOWN.
 - DEEP EXCAVATIONS: ON EXCAVATIONS EXCEEDING 20 FEET IN DEPTH, TWO OR MORE MEANS OF EGRESS FROM THE EXCAVATION SHALL BE PROVIDED. THE CONTRACTOR SHALL CONSULT WITH A REGISTERED ENGINEER, EXPERIENCED IN TRENCH SAFETY SYSTEMS, REGARDING SPECIFIC MEANS AND METHODS EMPLOYED. CONTRACTOR SHALL PROVIDE A TRENCH SAFETY PLAN SEALED BY A REGISTERED PROFESSIONAL ENGINEER AS REQUIRED BY THE CITY OF GEORGETOWN.



Pipe Label	Slope (%)	Q25 (cfs)	V25 (ft/s)	D25 (ft)	Q100 (cfs)	V100 (ft/s)	D100 (ft)
STORM C-16	2.00%	22.11	7.45	2.38	27.38	8.72	2.76
STORM C-17	2.00%	22.11	7.45	2.01	27.38	8.93	2.38
STORM C-18	2.02%	18.42	6.47	2.77	22.77	7.25	3.04
STORM C-19	3.72%	18.42	6.55	1.87	22.77	7.25	2.40
STORM C-20	3.7%	15.19	5.96	1.65	18.80	5.98	2.32
STORM C-21	3.7%	9.99	4.82	1.42	12.35	4.92	2.29
STORM C-22	6.5%	9.99	10.18	1.22	12.35	10.95	1.33
STORM C-23	6.5%	9.99	6.09	1.47	12.35	7.23	1.56
STORM C-24	5.2%	9.99	6.09	1.47	12.35	7.23	1.56
STORM C-25	5.2%	5.21	3.94	1.40	6.44	4.45	1.63
STORM C-26	5.2%	5.21	4.15	1.19	6.44	4.57	1.34

811

Know what's below.
Call before you dig.

5508 HIGHWAY 290 WEST
SUITE 150
DALLAS, TX 75235
CITY OF GEORGETOWN
HARGREEN, COW

DATE NO. 10194101
RPLS NO. 10384
TPEL NO. 10384

HRGreen

DEVELOPMENT TX

STATE OF TEXAS
SHERVIN NOOSHIN
96807
LICENSED PROFESSIONAL ENGINEER

11/03/2023

STORM C-1 PLAN & PROFILE
9+00 - END

PARKSIDE SECTION 8
CONSTRUCTION PLANS

GEORGETOWN, WILLIAMSON, TEXAS

DESIGNED BY: CC

DRAWN BY: TB/MKM

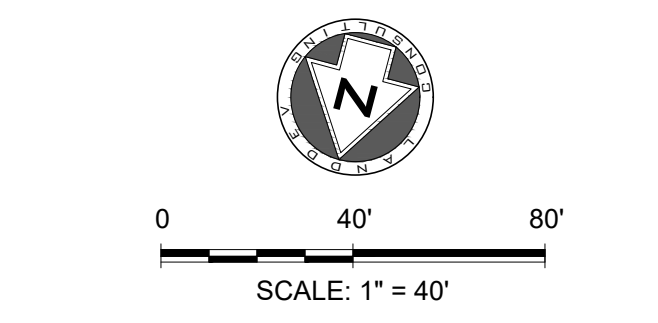
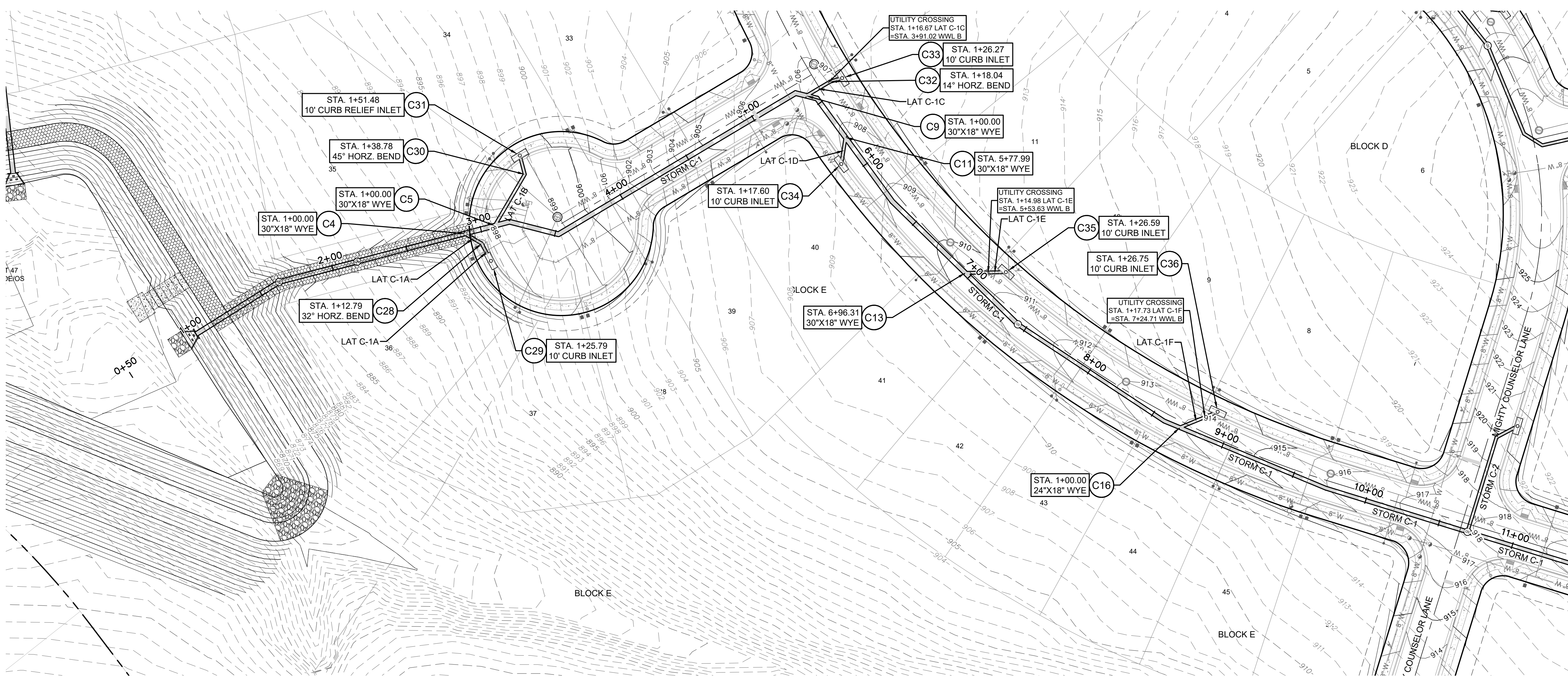
CHECKED BY: SN

APPROVED BY:

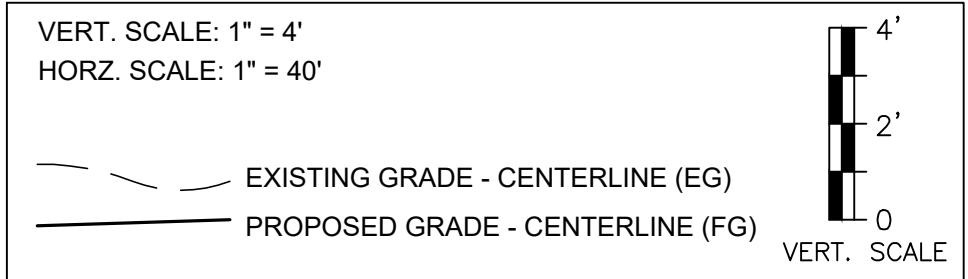
SHEET 50 OF 72

2023-XX-CON

P:\Public\magnatopside sections 8, 9 & 10\station 803_ACOFPlan\202027 BDPP STORM C-1 LATERALS SHEET 1 November 01, 2023 10:53 PM Jlgara



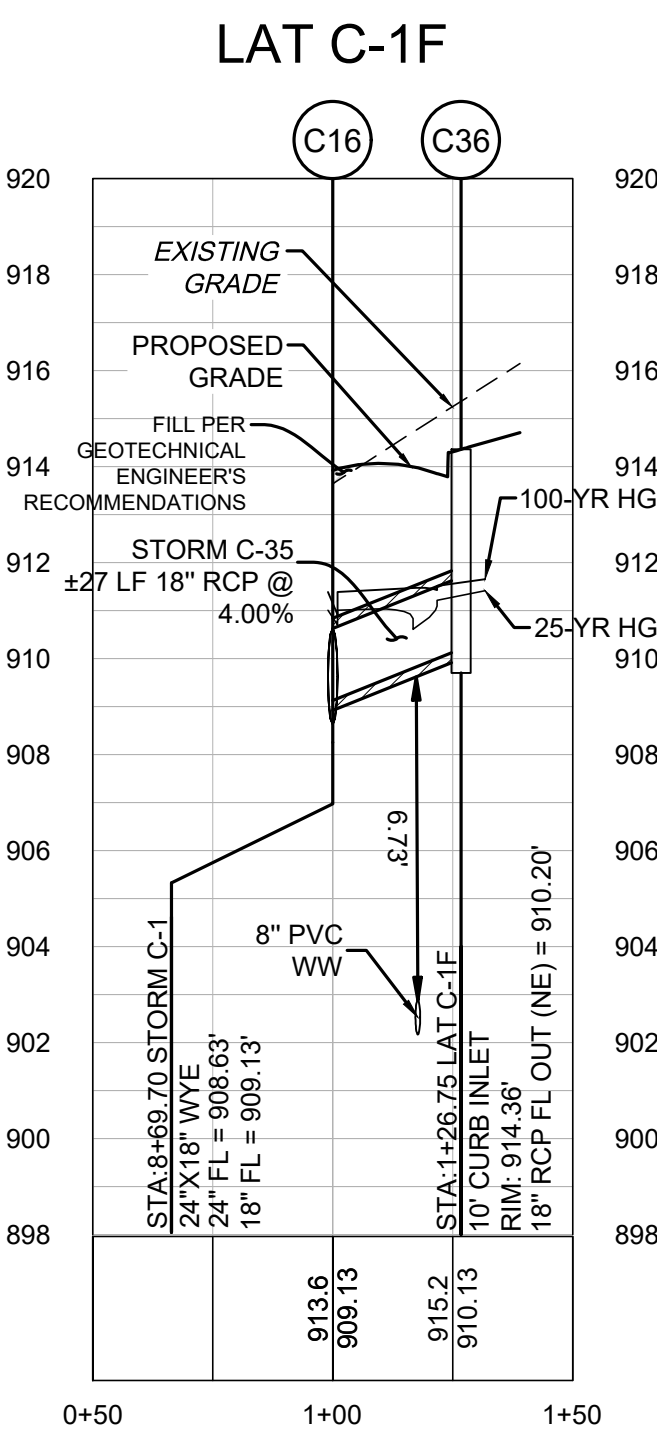
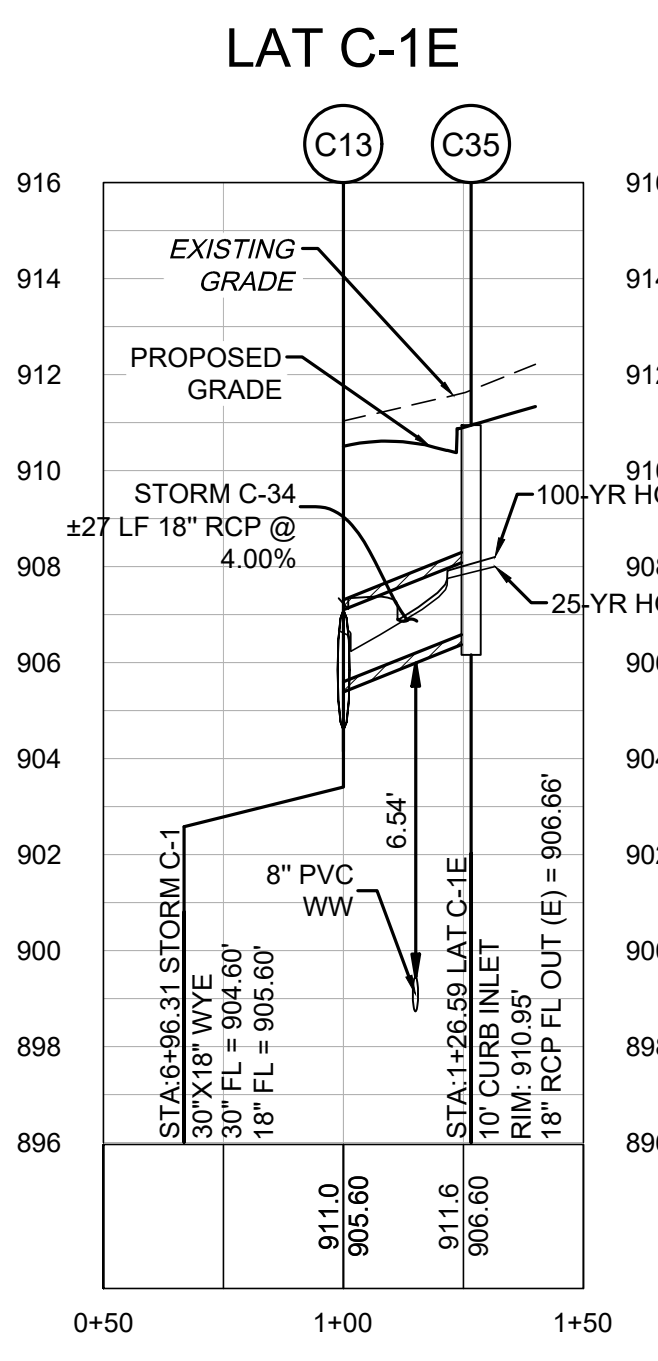
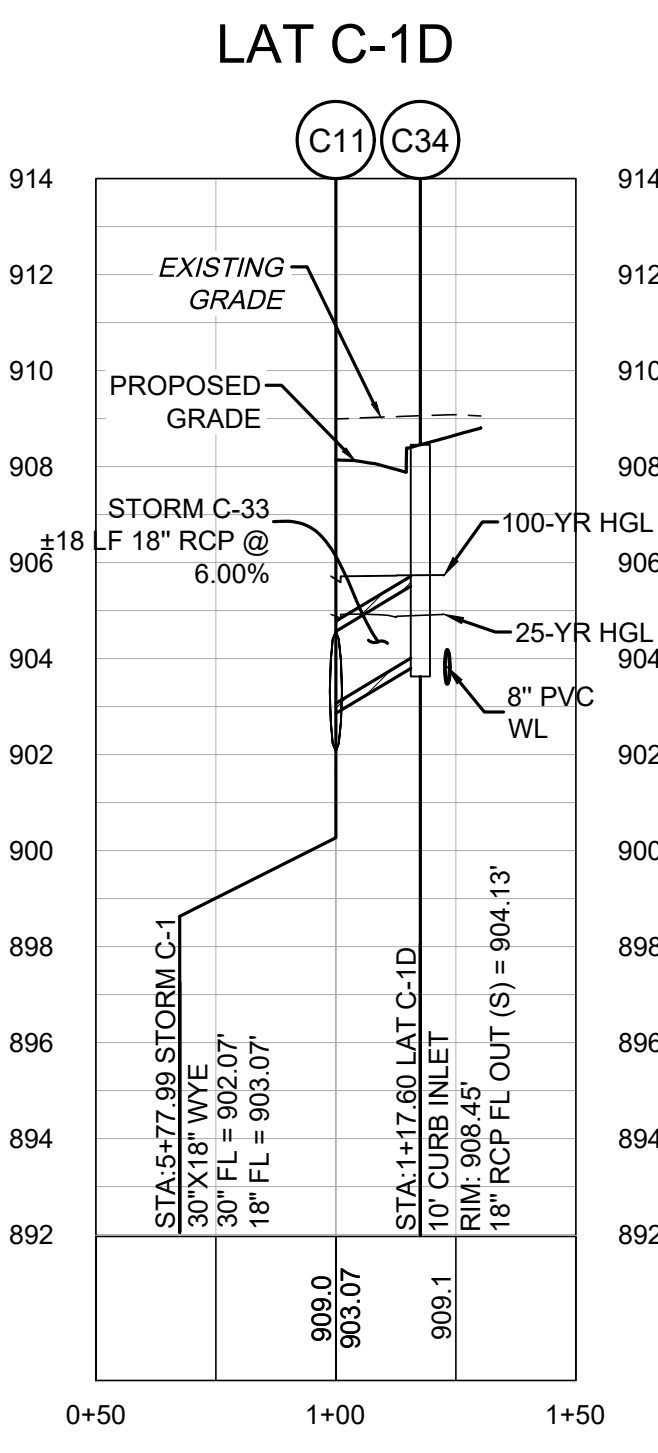
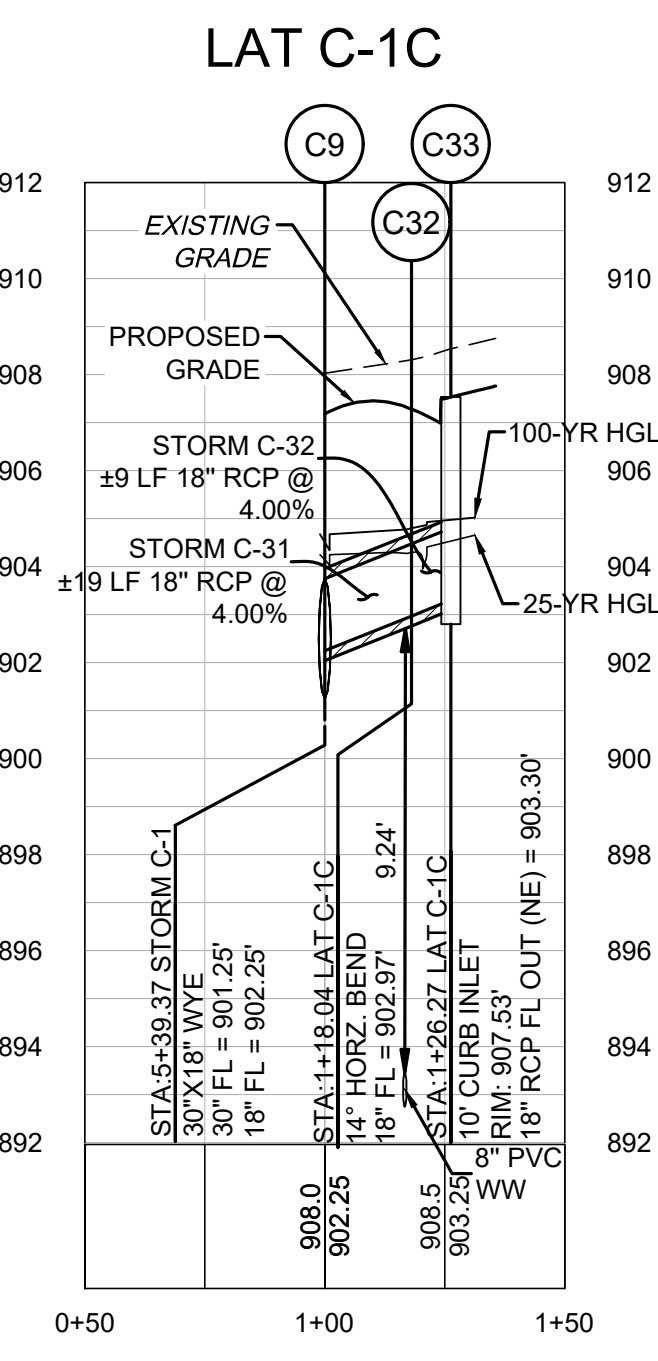
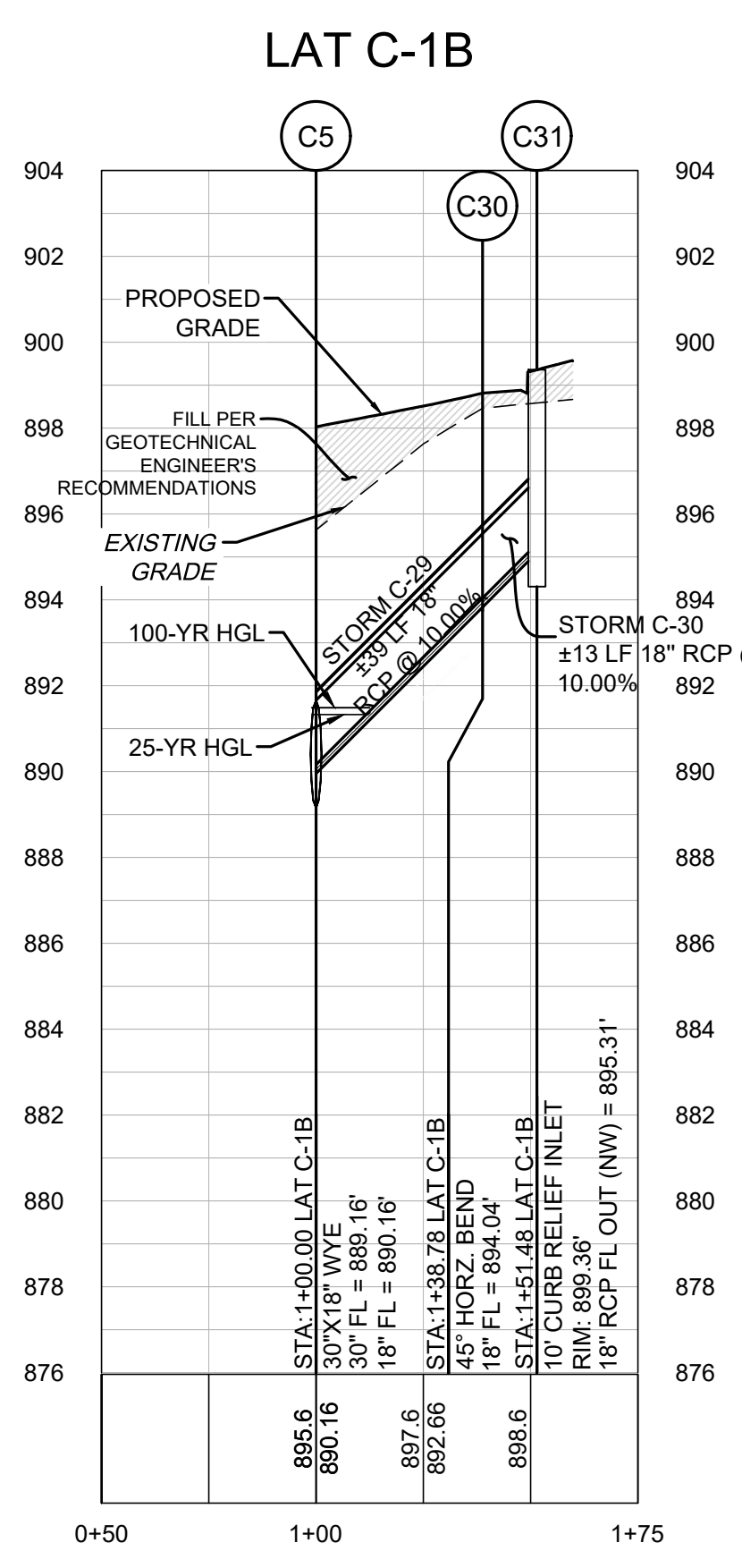
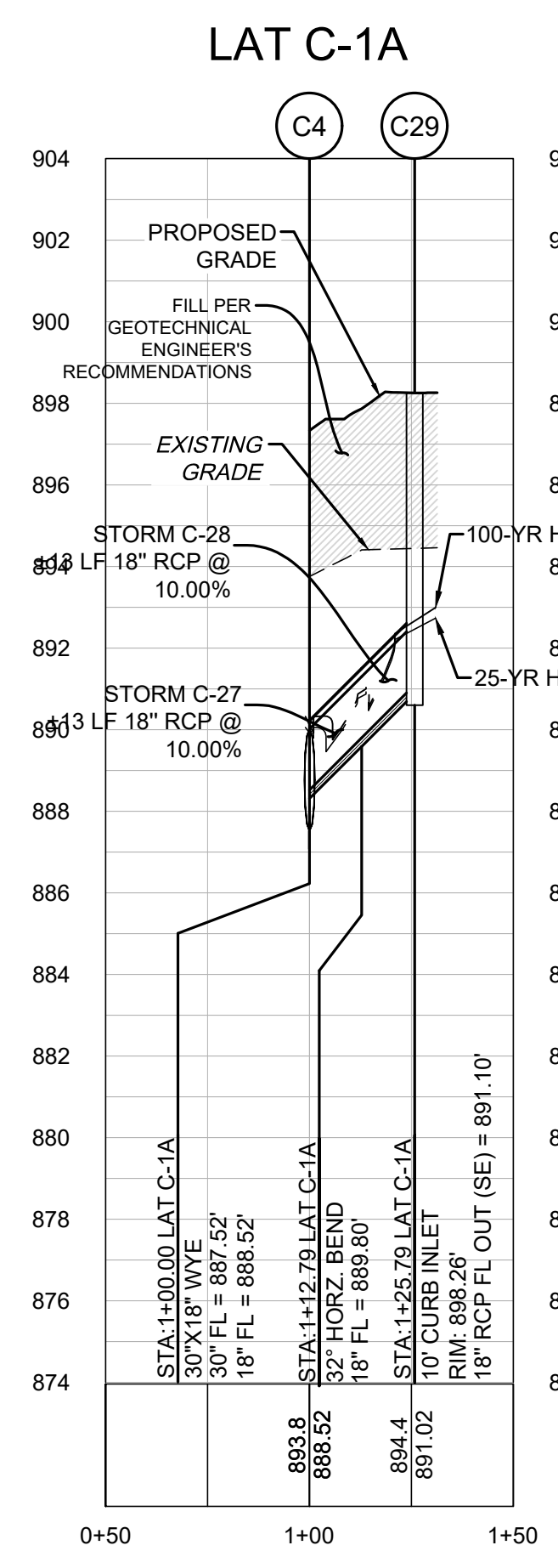
- LEGEND**
- 834 --- EXISTING MINOR CONTOUR
 - 835 --- EXISTING MAJOR CONTOUR
 - 834 --- PROPOSED MINOR CONTOUR
 - 835 --- PROPOSED MAJOR CONTOUR
 - BOUNDARY
 - EASEMENT
 - 100YR FEMA ZONE A FLOODPLAIN
 - 100YR FULLY DEVELOPED FLOODPLAIN
 - PROPOSED STORM LINE
 - FIRE HYDRANT
 - WATER VALVE
 - STORM SEWER MAHNOLE
 - WASTEWATER MAHNOLE
 - CURB INLET
 - TREES TO REMAIN HERITAGE
 - TREES TO REMAIN NON-HERITAGE



- NOTE:**
- ALL PROPOSED STORM SEWER PIPE LINES SHALL BE CLASS III REINFORCED CONCRETE UNLESS NOTED OTHERWISE.
 - FILL SHALL BE PLACED ACCORDING TO THE GEOTECHNICAL ENGINEERS RECOMMENDATION AND CITY OF GEORGETOWN SPECIFICATIONS.
 - VEGETATE ALL DISTURBED AREAS PER CITY OF GEORGETOWN SPECIFICATIONS.

- TRENCH SAFETY NOTES:**
- IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS AND THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, ALL TRENCHES OVER 5 FEET IN DEPTH IN EITHER HARD AND COMPACT OR SOFT AND UNSTABLE SOIL SHALL BE SLOPED, SHORED, SHEETED, BRACED OR OTHERWISE SUPPORTED. FURTHERMORE, ALL TRENCHES LESS THAN 5 FEET IN DEPTH SHALL ALSO BE EFFECTIVELY PROTECTED WHEN HAZARDOUS GROUND MOVEMENT MAY BE EXPECTED. TRENCH SAFETY SYSTEMS TO BE UTILIZED FOR THIS PROJECT WILL BE PROVIDED BY THE CONTRACTOR.
 - IN ACCORDANCE WITH THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, WHEN PERSONS ARE IN TRENCHES 4- FEET DEEP OR MORE, ADEQUATE MEANS OF EXIT, SUCH AS A LADDER OR STEPS, MUST BE PROVIDED AND LOCATED SO AS TO REQUIRE NO MORE THAN 25 FEET OF LATERAL TRAVEL.
 - CONSTRUCTION SHALL NOT PROCEED UNTIL APPROPRIATE TRENCH SAFETY SYSTEM DETAILS, AS DESIGNED BY A PROFESSIONAL ENGINEER, ARE RETAINED AND COPIES SUBMITTED TO THE CITY OF GEORGETOWN.
 - DEEP EXCAVATIONS: ON EXCAVATIONS EXCEEDING 20 FEET IN DEPTH, TWO OR MORE MEANS OF EGRESS FROM THE EXCAVATION SHALL BE PROVIDED. THE CONTRACTOR SHALL CONSULT WITH A REGISTERED ENGINEER, EXPERIENCED IN TRENCH SAFETY SYSTEMS, REGARDING SPECIFIC MEANS AND METHODS EMPLOYED. CONTRACTOR SHALL PROVIDE A TRENCH SAFETY PLAN SEALED BY A REGISTERED PROFESSIONAL ENGINEER AS REQUIRED BY THE CITY OF GEORGETOWN.

Pipe Label	Slope (%)	Q25 (cfs)	V25 (ft/s)	D25 (ft)	Q100 (cfs)	V100 (ft/s)	D100 (ft)
STORM C-27	10.0%	6.25	4.37	1.53	7.71	5.02	1.80
STORM C-28	10.0%	6.25	4.60	1.24	7.71	5.10	1.38
STORM C-29	10.0%	0.00	0.00	1.17	0.00	0.00	1.32
STORM C-30	10.0%	0.00	0.00	0.00	0.00	0.00	0.00
STORM C-31	4.0%	6.25	3.69	1.99	7.88	4.46	2.42
STORM C-32	4.0%	6.25	4.46	1.35	7.88	4.46	1.85
STORM C-33	6.0%	2.08	1.80	1.85	2.55	1.44	2.64
STORM C-34	4.0%	6.08	4.83	1.07	7.62	4.98	1.74
STORM C-35	4.0%	5.40	3.99	1.88	6.76	4.10	2.26



811

Know what's below.
Call before you dig.

5508 HIGHWAY 290 WEST
SUITE 150
DALLAS, TX 75235
CITY OF GEORGETOWN
HARRIS COUNTY

DATE NO. 10384
PROJECT NO. 1034101

HRGreen

DEVELOPMENT TX

STATE OF TEXAS
SHERVIN NOOSHIN
96807
LICENSED PROFESSIONAL ENGINEER

11/03/2023

STORM C-1 LATERALS
SHEET 1

PARKSIDE SECTION 8
CONSTRUCTION PLANS

GEORGETOWN, WILLIAMSON, TEXAS

DESIGNED BY: CC

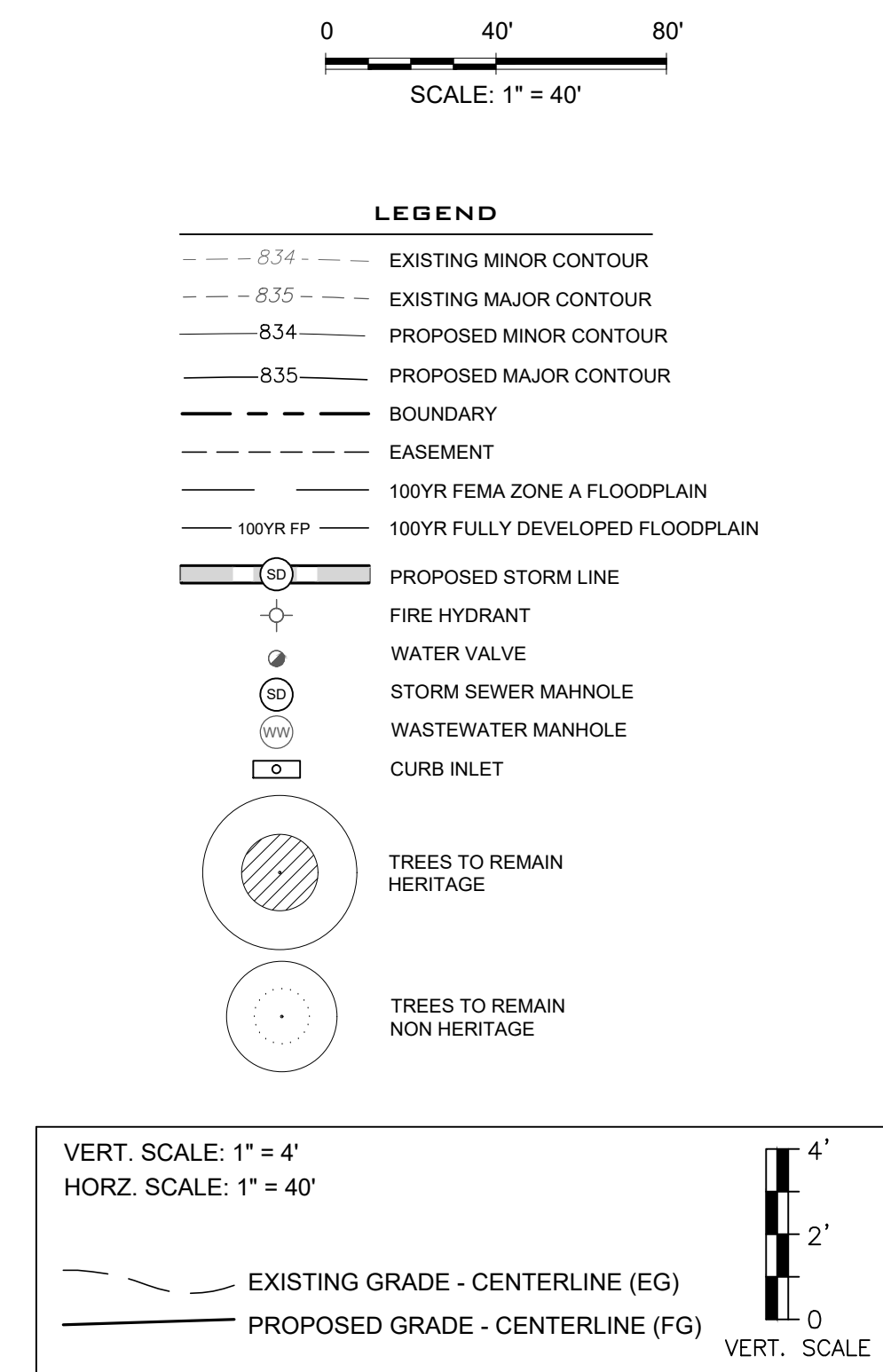
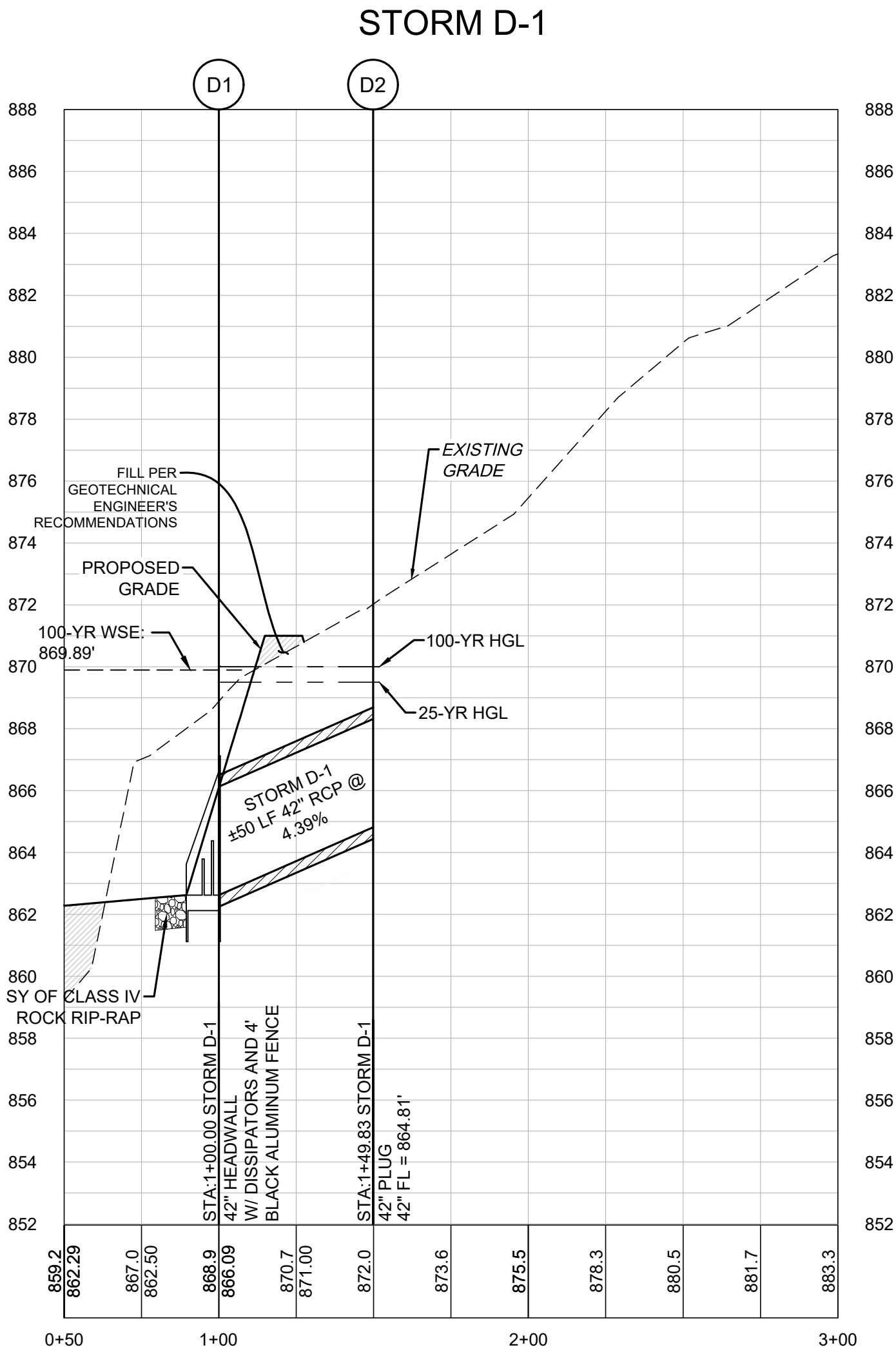
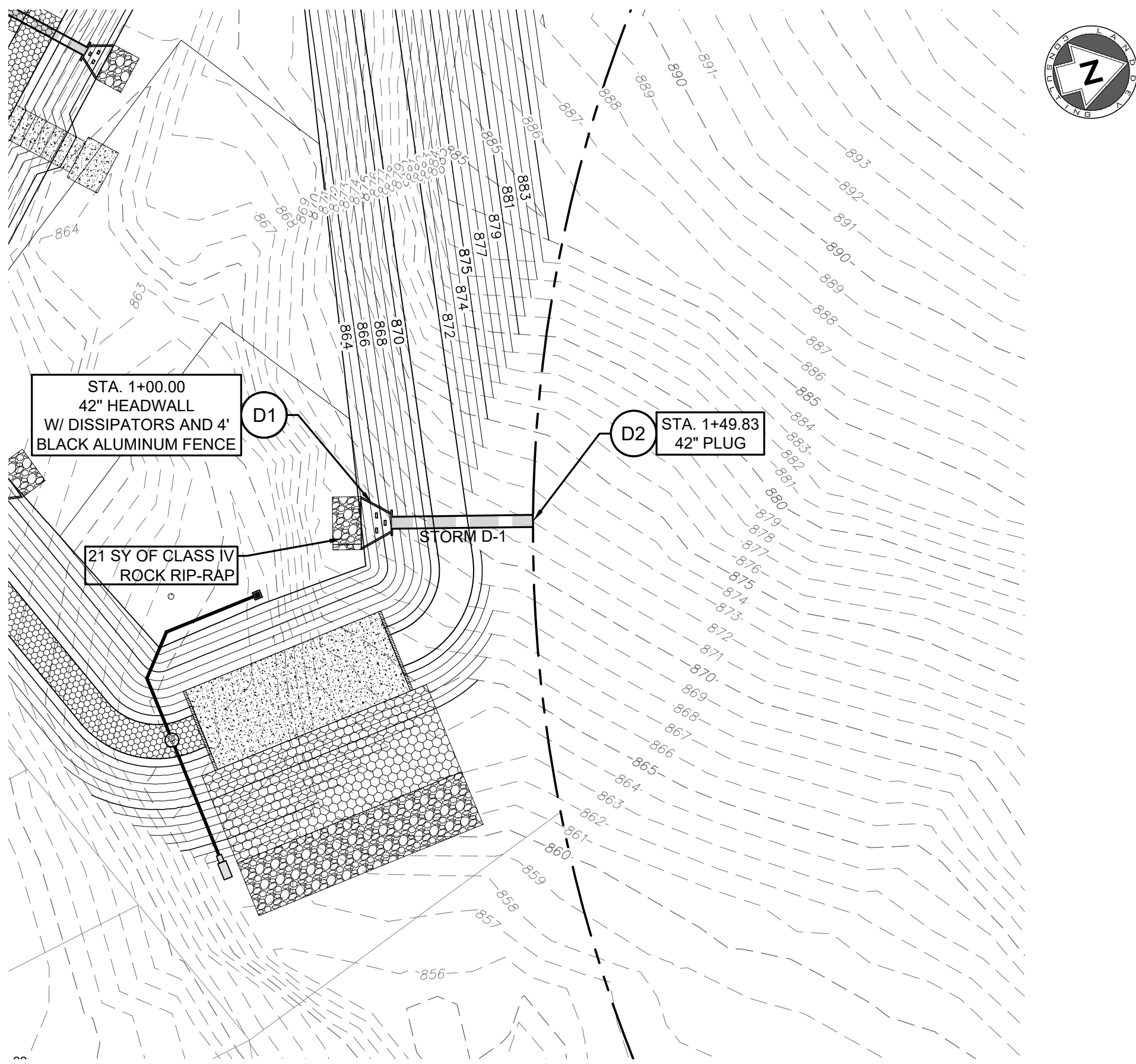
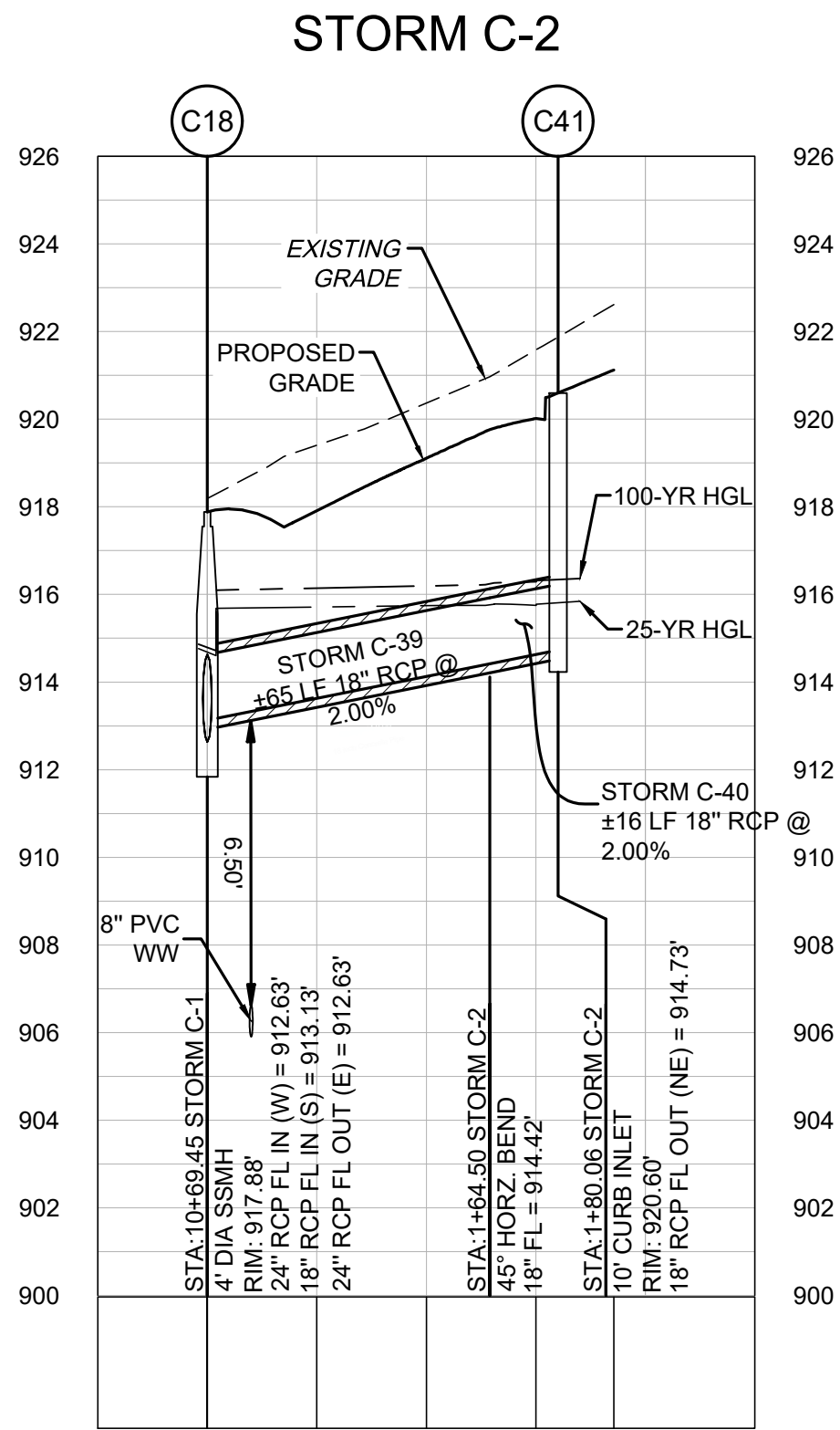
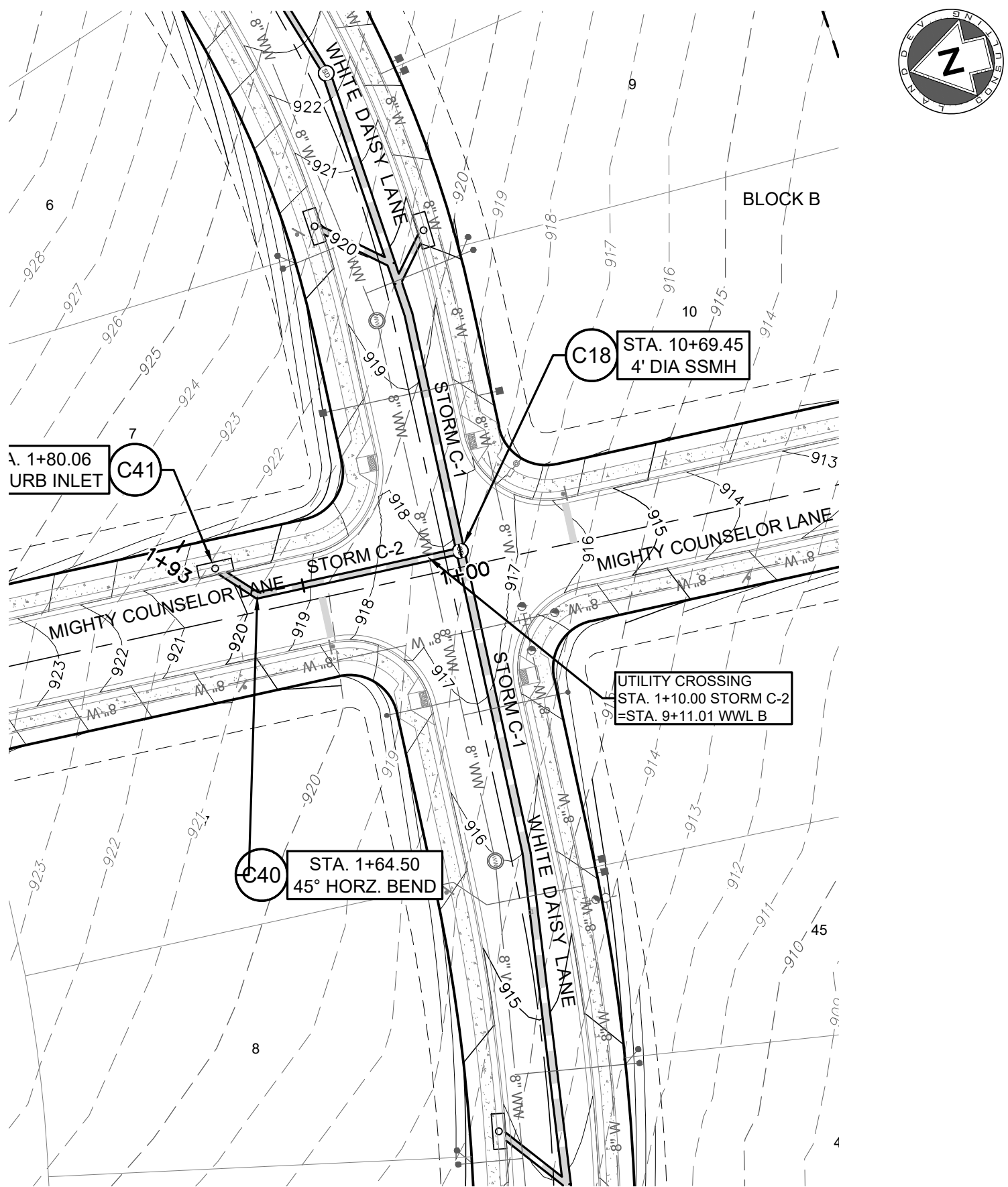
DRAWN BY: TB/MKM

CHECKED BY: SN

APPROVED BY:

SHEET 51 OF 72

2023-XX-CON



- NOTE:**
- ALL PROPOSED STORM SEWER PIPE LINES SHALL BE CLASS III REINFORCED CONCRETE UNLESS NOTED OTHERWISE.
 - FILL SHALL BE PLACED ACCORDING TO THE GEOTECHNICAL ENGINEERS RECOMMENDATION AND CITY OF GEORGETOWN SPECIFICATIONS.
 - VEGETATE ALL DISTURBED AREAS PER CITY OF GEORGETOWN SPECIFICATIONS.

- TRENCH SAFETY NOTES:**
- IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS AND THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, ALL TRENCHES OVER 5 FEET IN DEPTH IN EITHER HARD OR COMPACT OR SOFT AND UNSTABLE SOIL SHALL BE SLOPED, SHORED, SHEETED, BRACED OR OTHERWISE SUPPORTED. FURTHERMORE, ALL TRENCHES LESS THAN 5 FEET IN DEPTH SHALL ALSO BE EFFECTIVELY PROTECTED WHEN HAZARDOUS GROUND MOVEMENT MAY BE EXPECTED. TRENCH SAFETY SYSTEMS TO BE UTILIZED FOR THIS PROJECT WILL BE PROVIDED BY THE CONTRACTOR.
 - IN ACCORDANCE WITH THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, WHEN PERSONS ARE IN TRENCHES 4 FEET DEEP OR MORE, ADEQUATE MEANS OF EXIT, SUCH AS A LADDER OR STEPS, MUST BE PROVIDED AND LOCATED SO AS TO REQUIRE NO MORE THAN 25 FEET OF LATERAL TRAVEL.
 - CONSTRUCTION SHALL NOT PROCEED UNTIL APPROPRIATE TRENCH SAFETY SYSTEM DETAILS, AS DESIGNED BY A PROFESSIONAL ENGINEER, ARE RETAINED AND COPIES SUBMITTED TO THE CITY OF GEORGETOWN.
 - DEEP EXCAVATIONS: ON EXCAVATIONS EXCEEDING 20 FEET IN DEPTH, TWO OR MORE MEANS OF EGRESS FROM THE EXCAVATION SHALL BE PROVIDED. THE CONTRACTOR SHALL CONSULT WITH A REGISTERED ENGINEER, EXPERIENCED IN TRENCH SAFETY SYSTEMS, REGARDING SPECIFIC MEANS AND METHODS EMPLOYED. CONTRACTOR SHALL PROVIDE A TRENCH SAFETY PLAN SEALED BY A REGISTERED PROFESSIONAL ENGINEER AS REQUIRED BY THE CITY OF GEORGETOWN.

Pipe Label	Slope (%)	Q25 (cfs)	V25 (ft/s)	D25 (ft)	Q100 (cfs)	V100 (ft/s)	D100 (ft)
STORM C-39	3.0%	3.69	2.22	2.55	4.61	2.61	2.97
STORM C-40	3.0%	3.69	3.29	1.29	4.61	2.72	1.76

811
Know what's below.
Call before you dig.

5508 HIGHWAY 290 WEST
SUITE 150
DALLAS, TX 75235
CITY OF GEORGETOWN
HARGREEN, CON
TPE NO: 16384
TPELS NO: 10194101

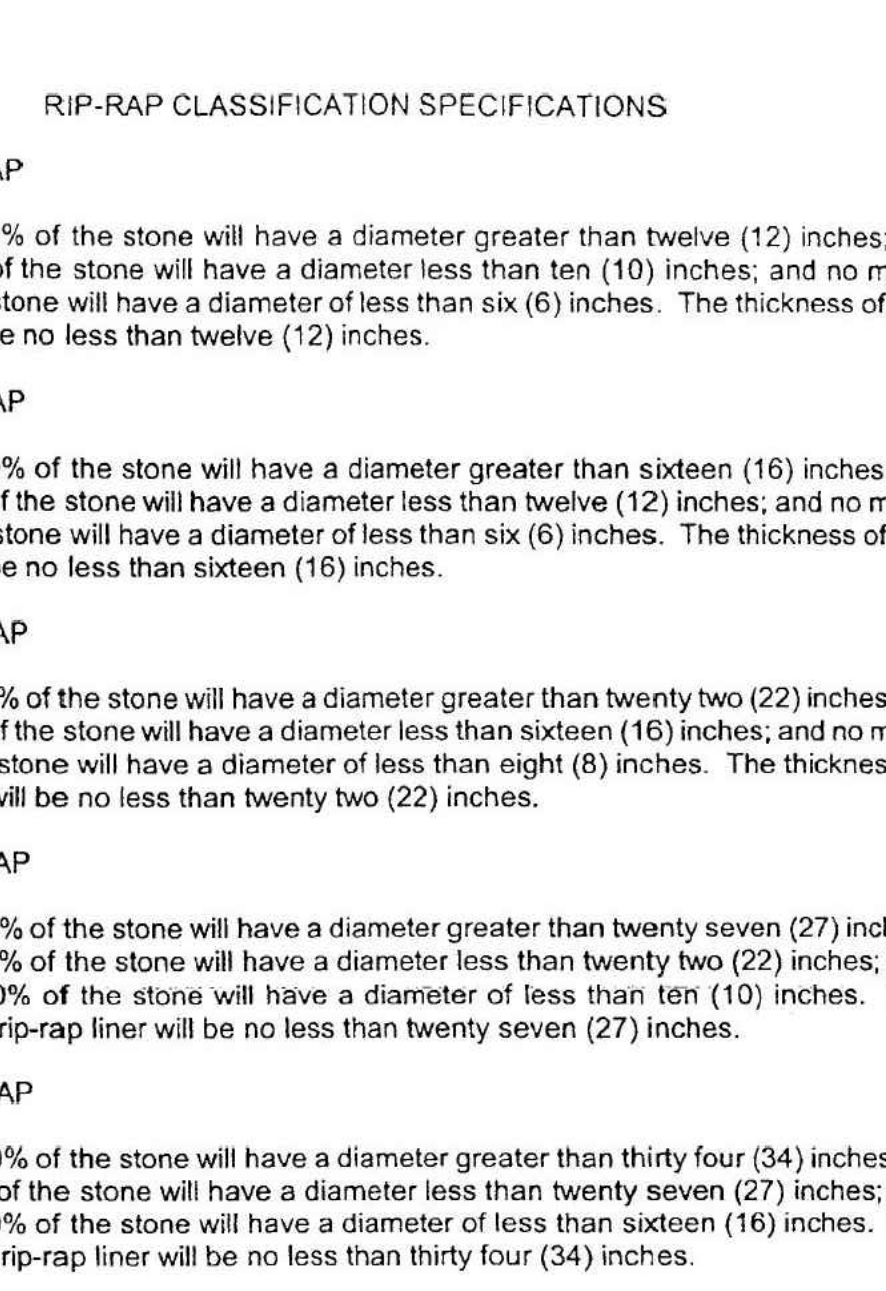
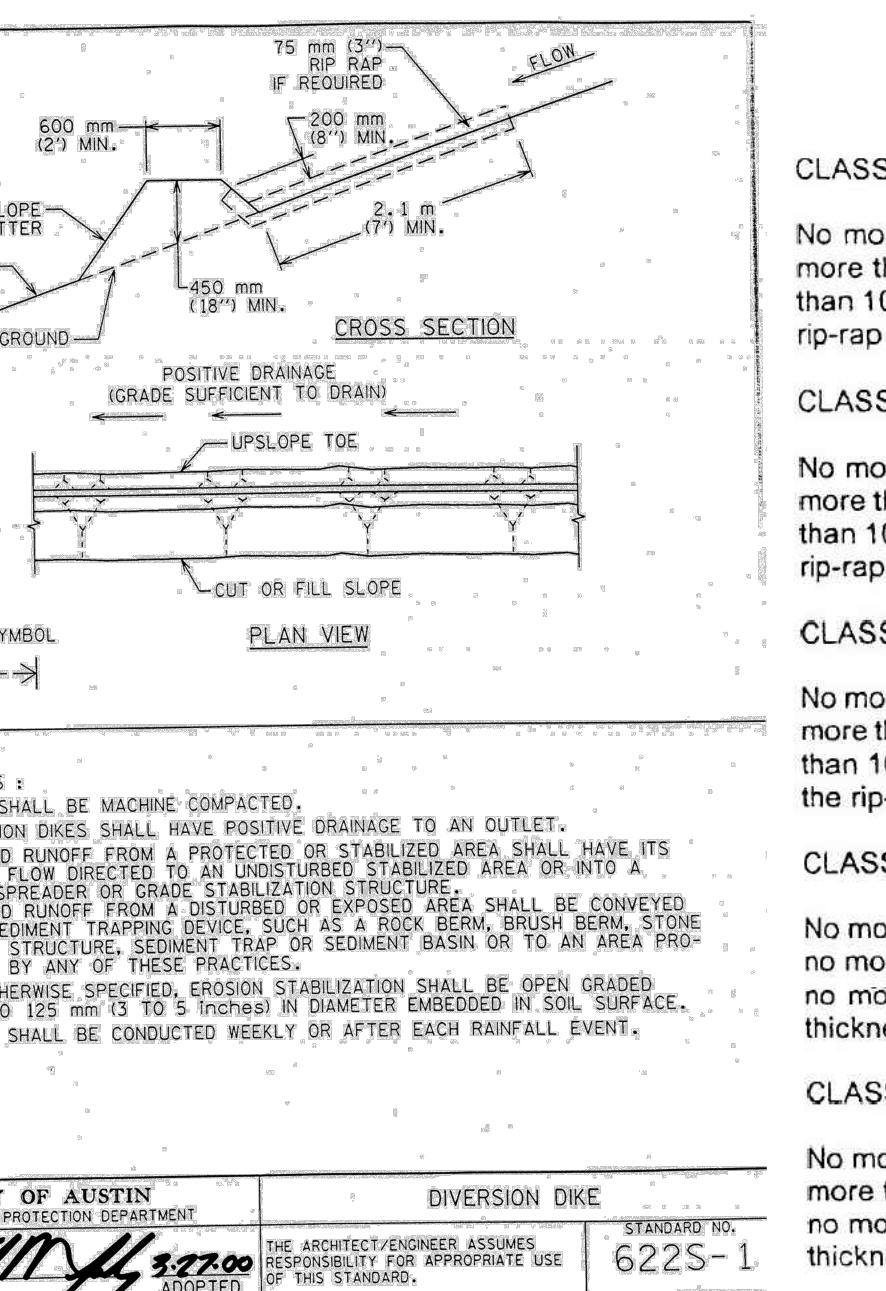
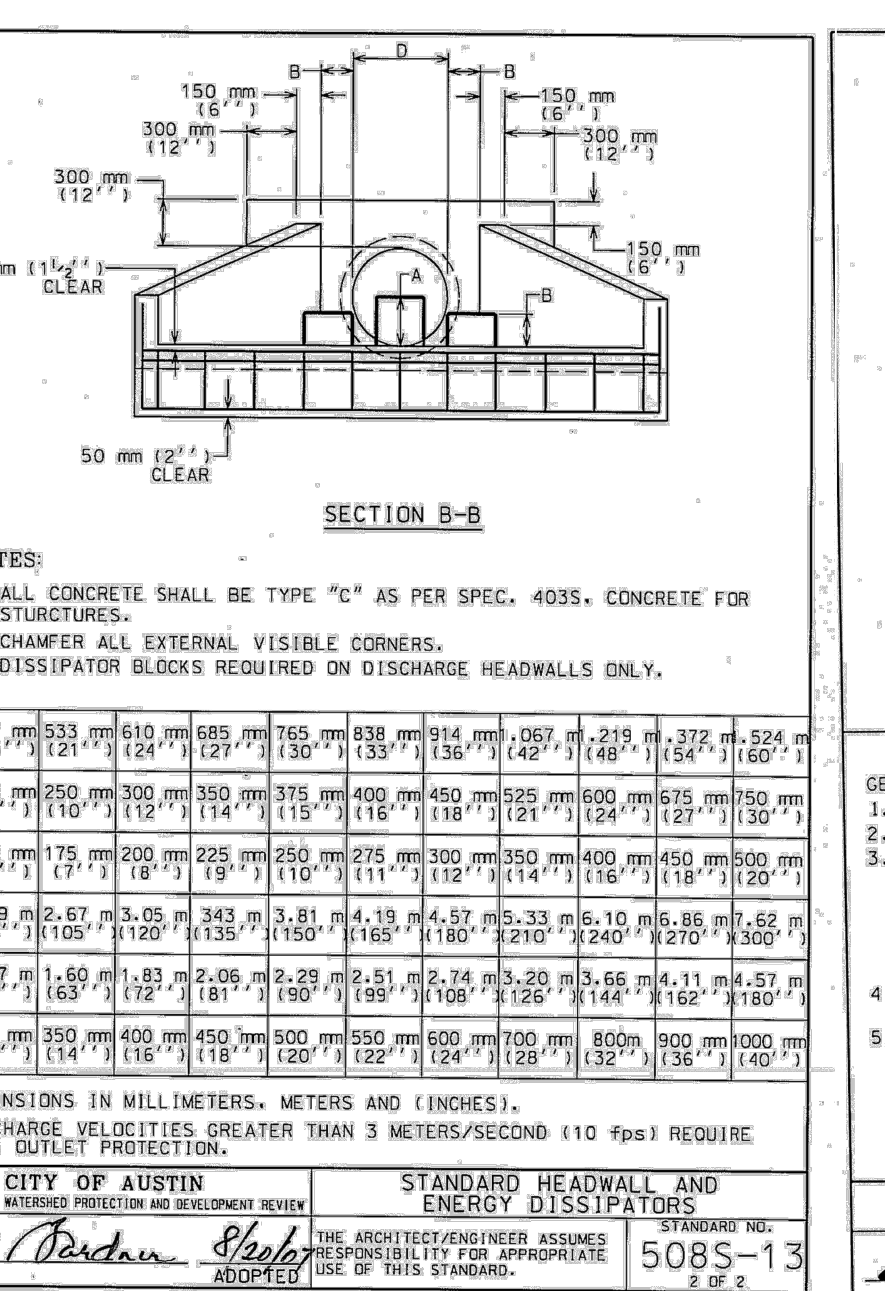
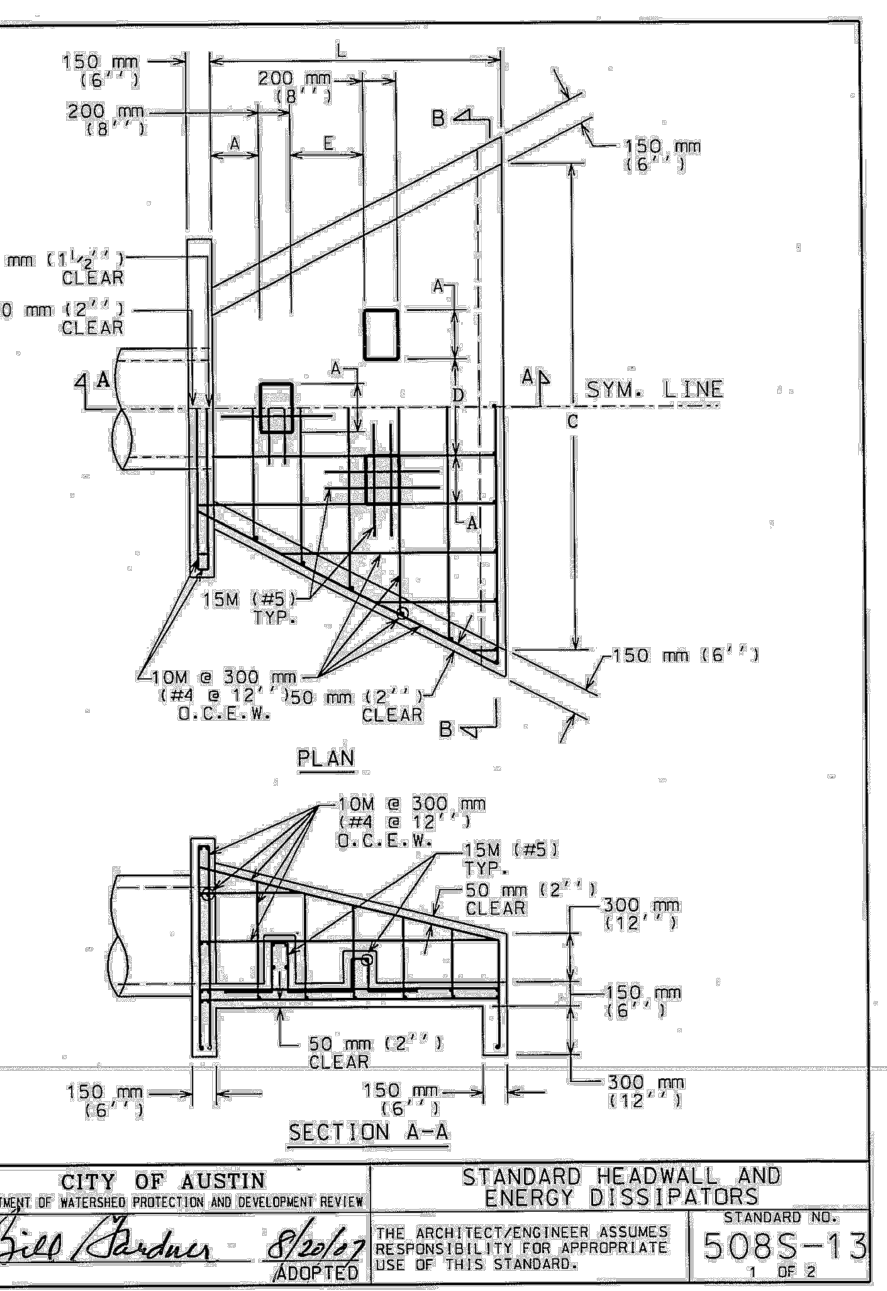
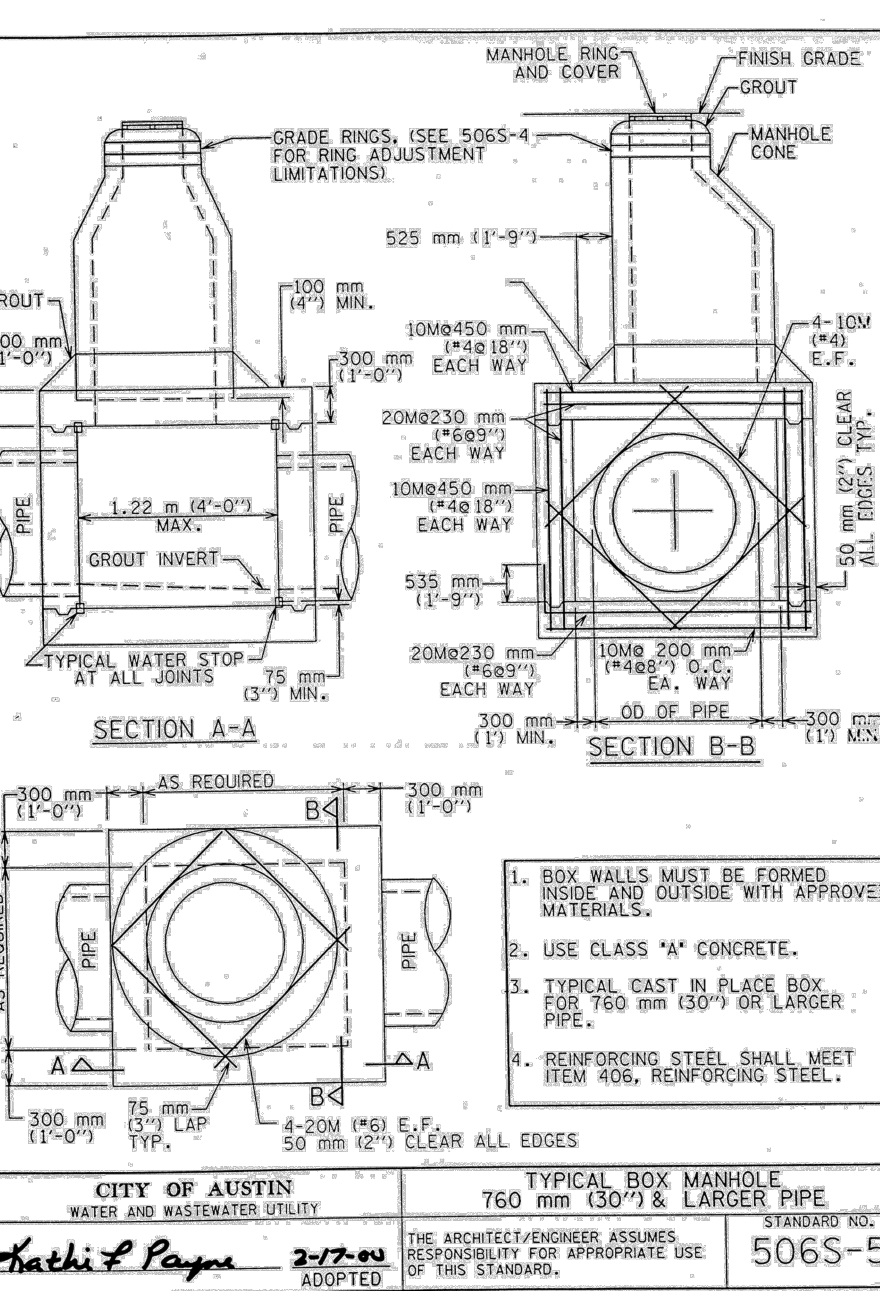
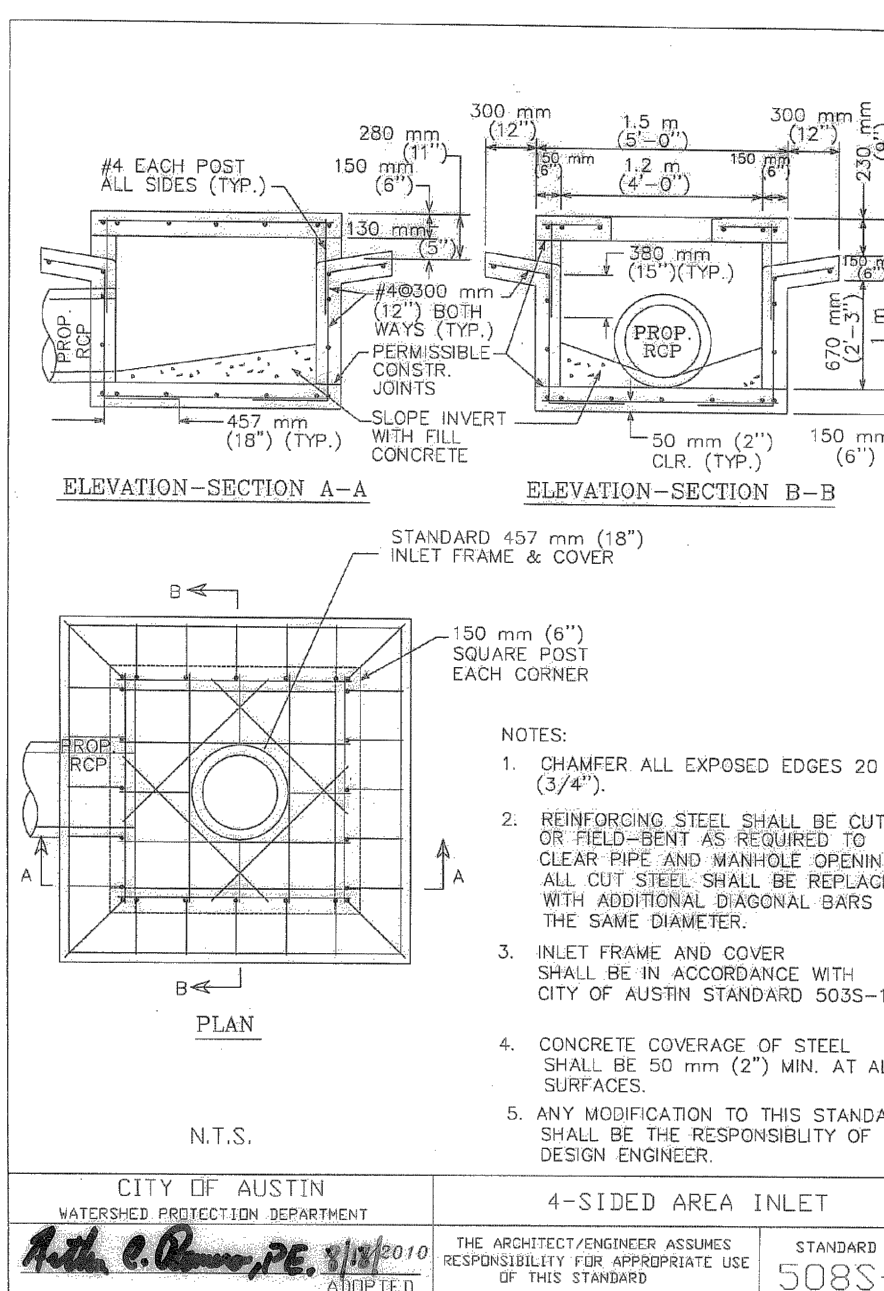
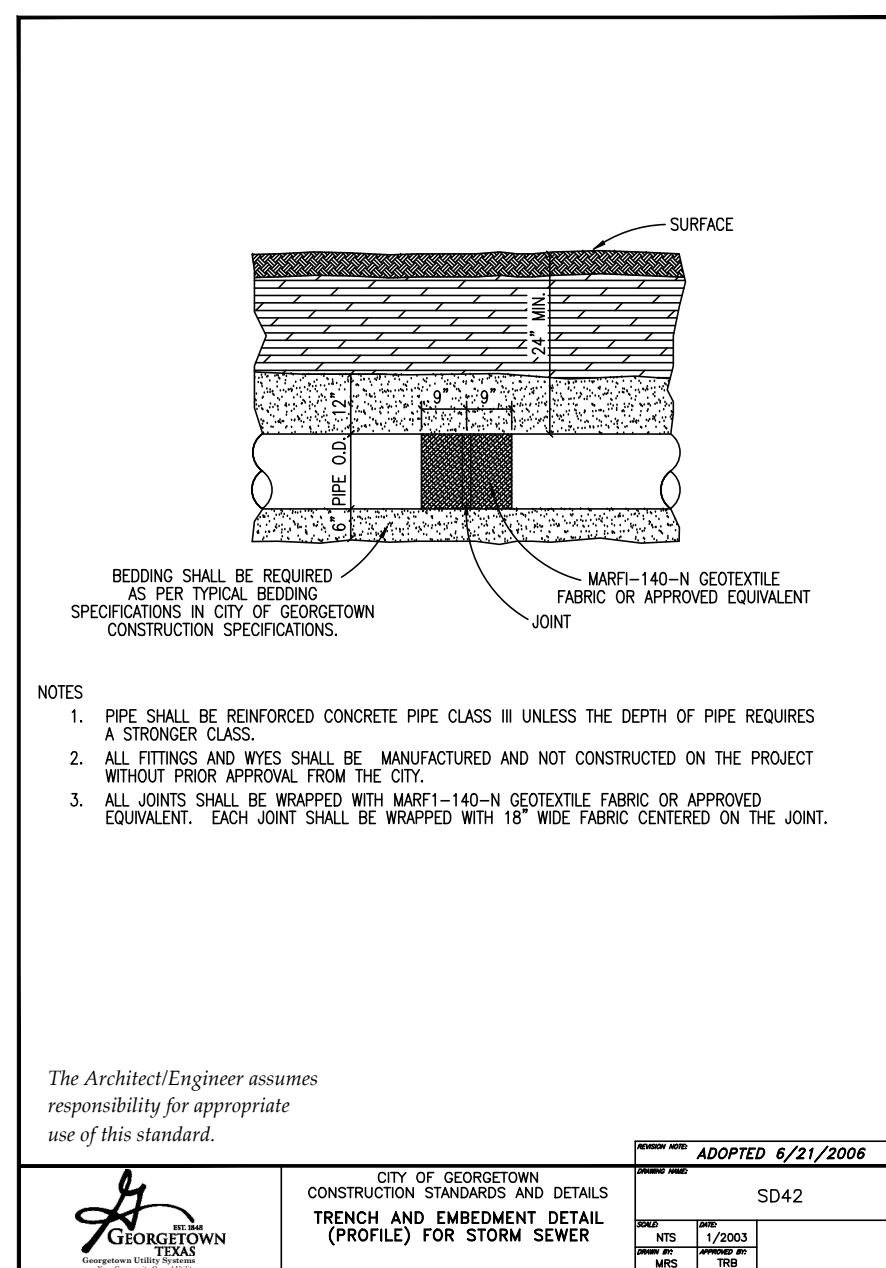
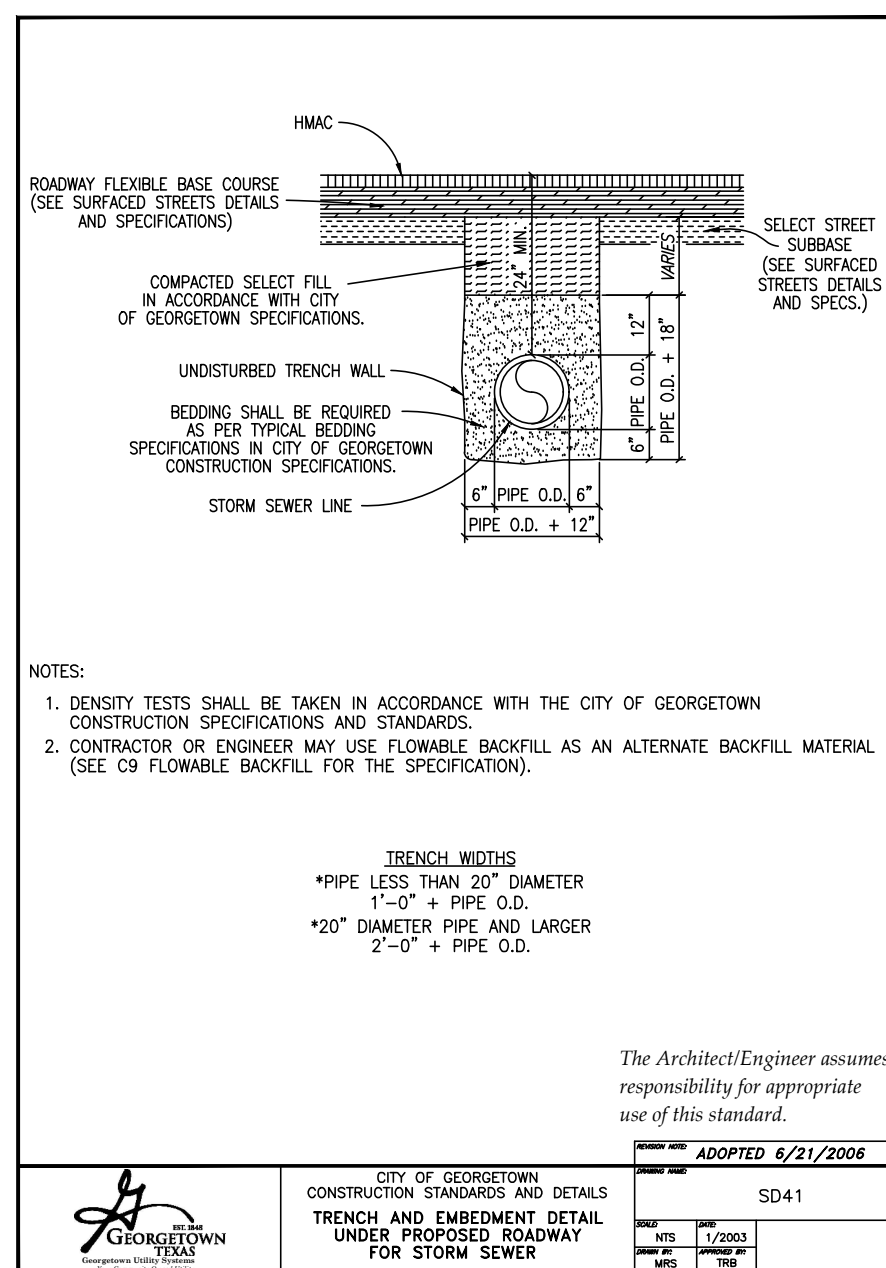
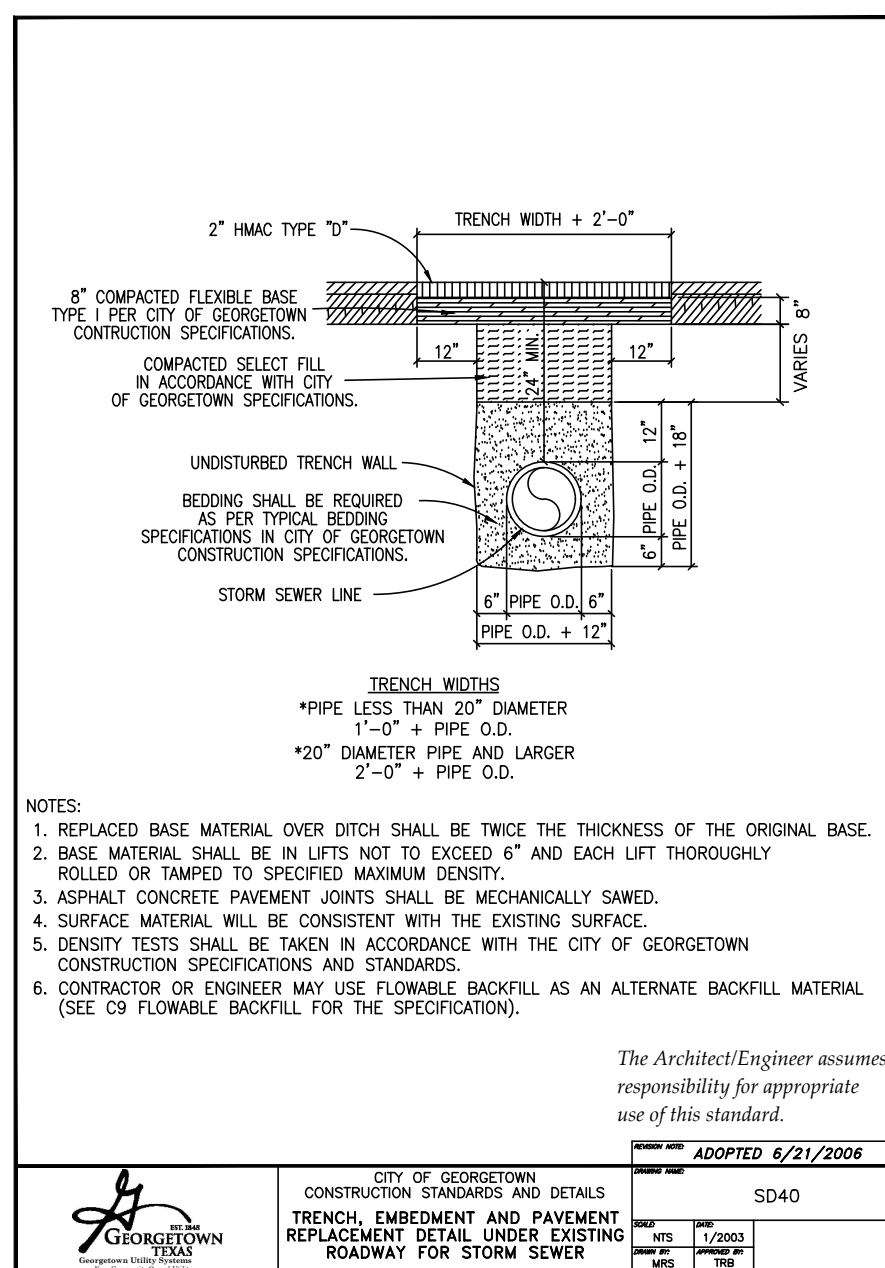
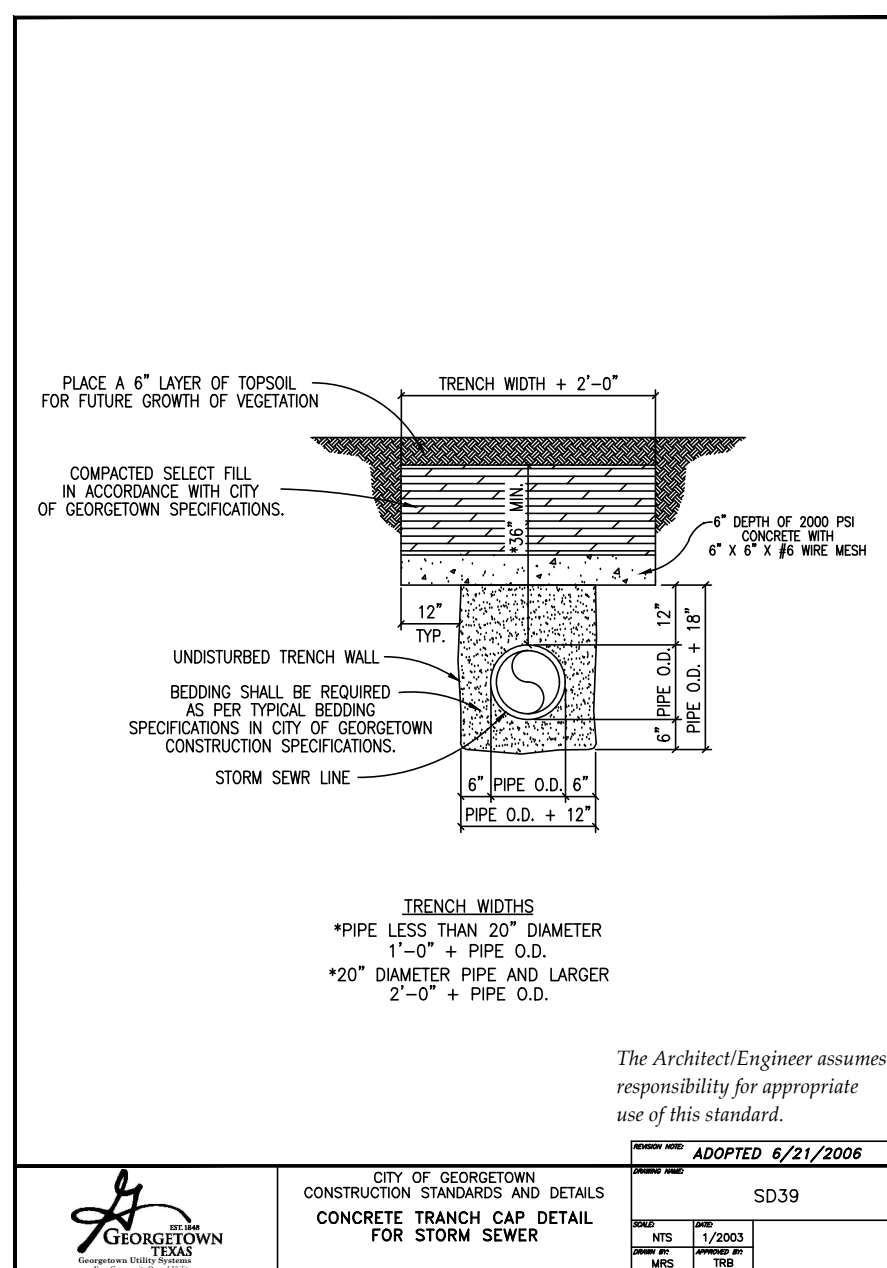
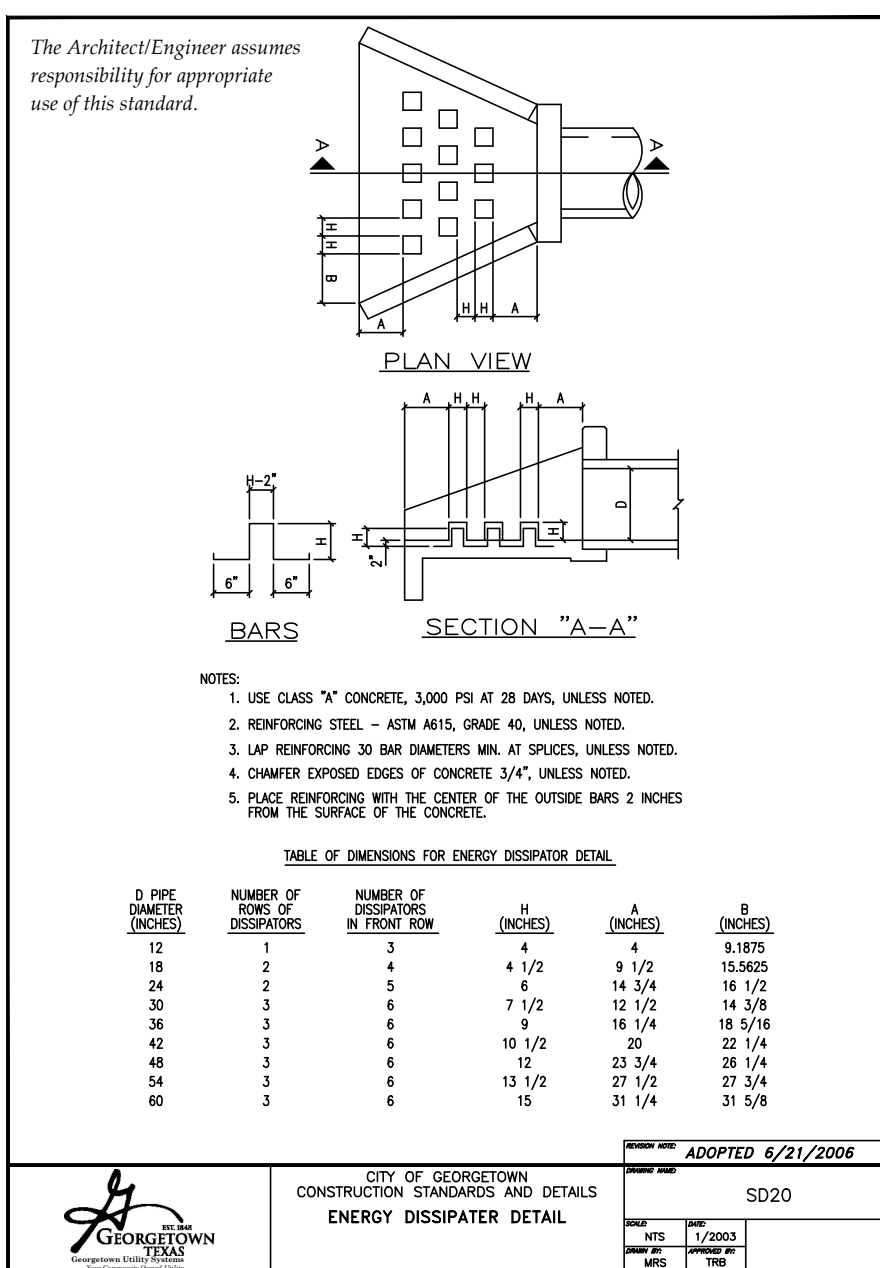
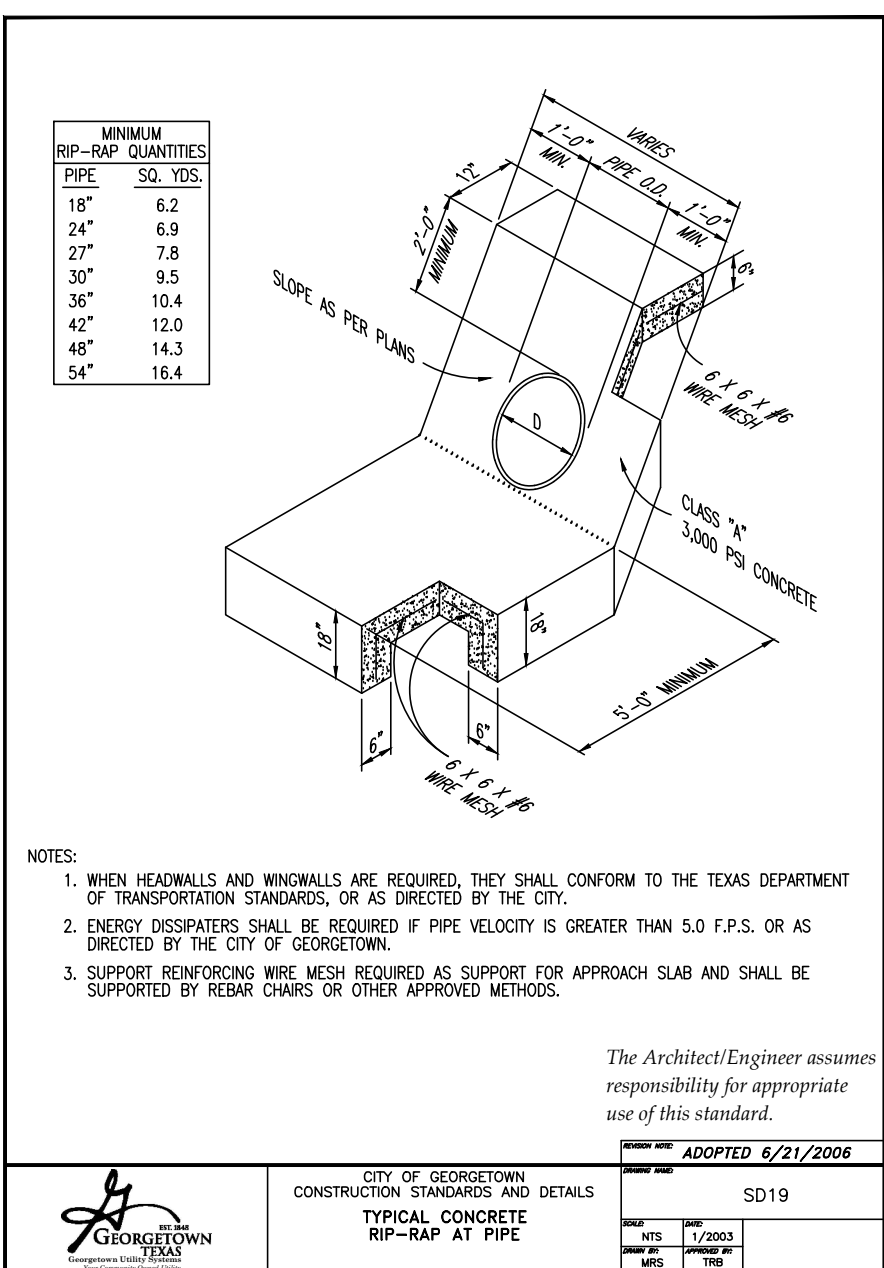
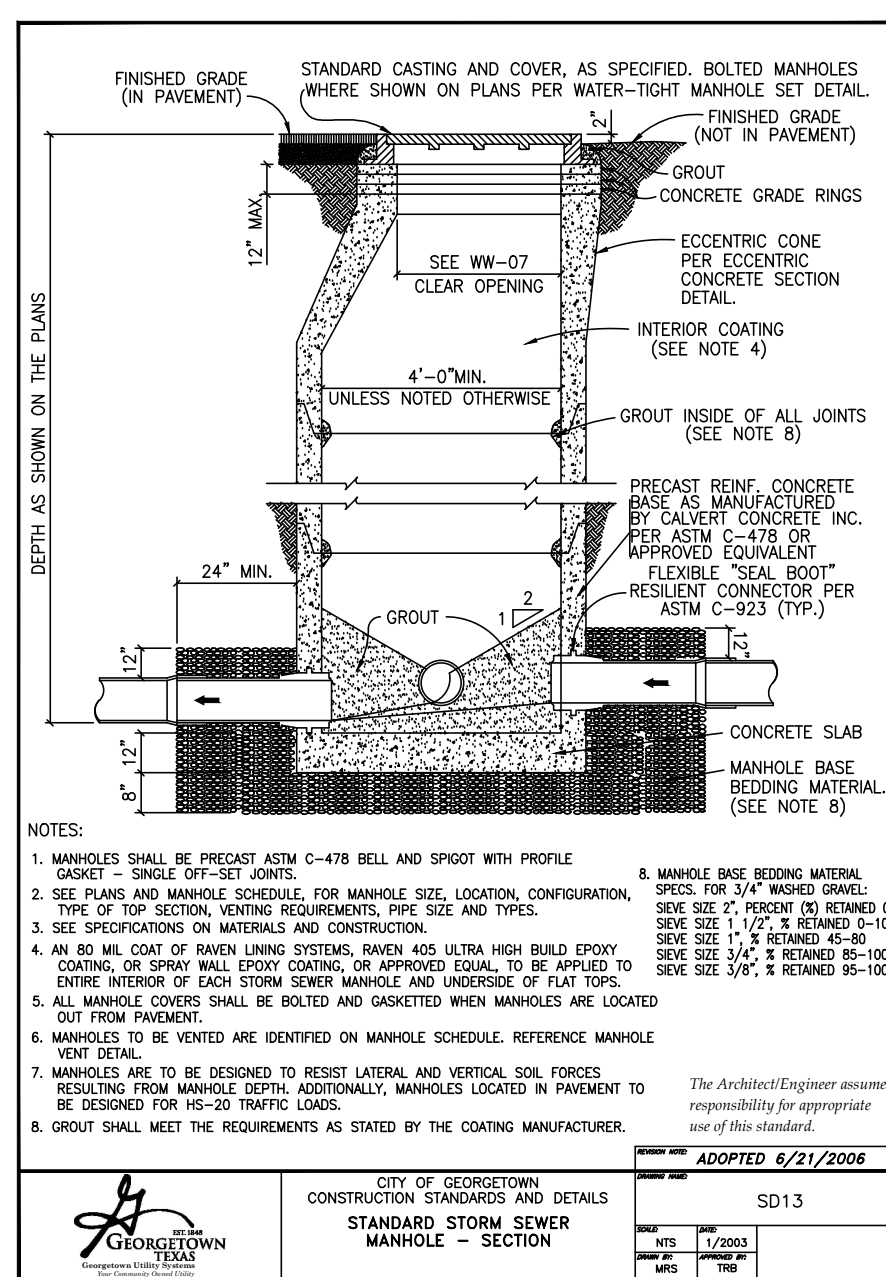
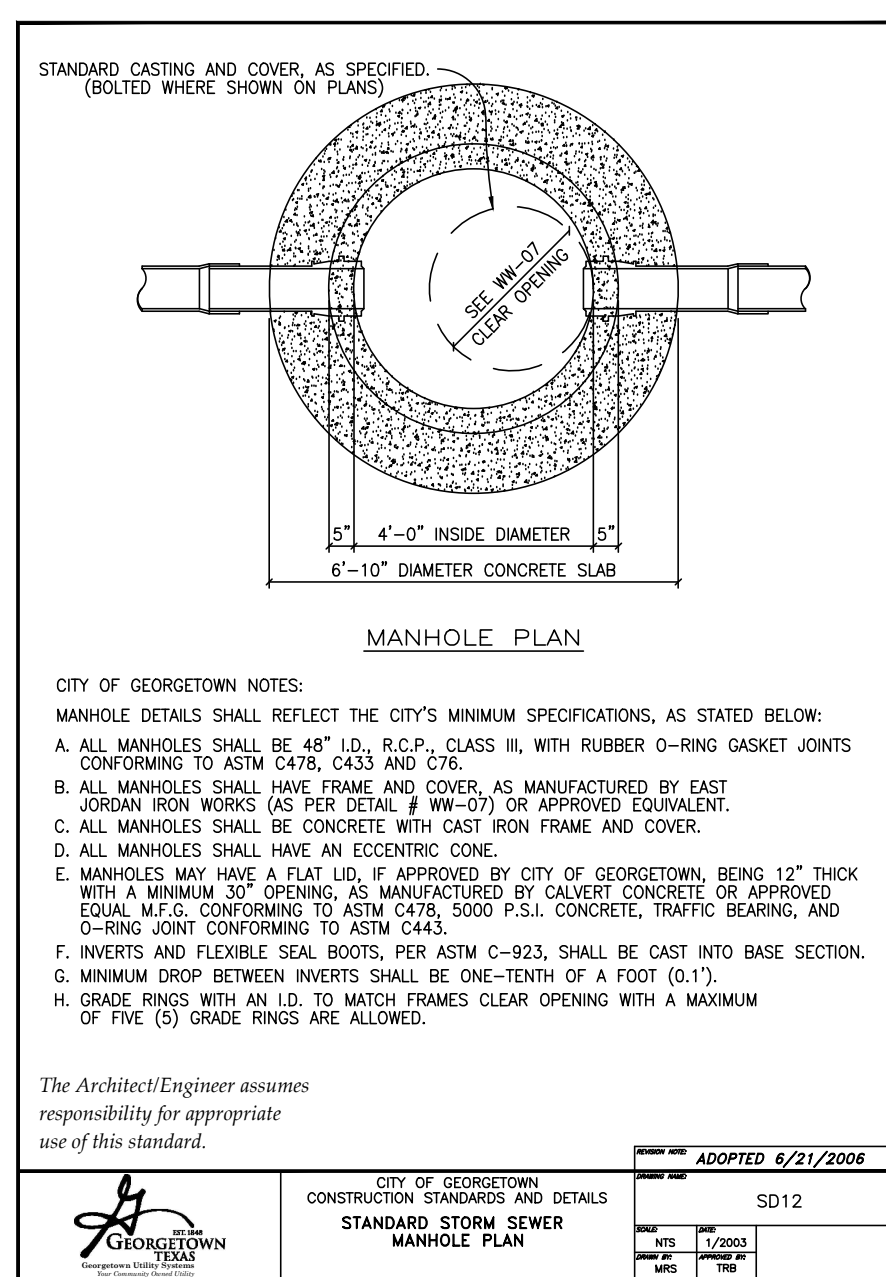
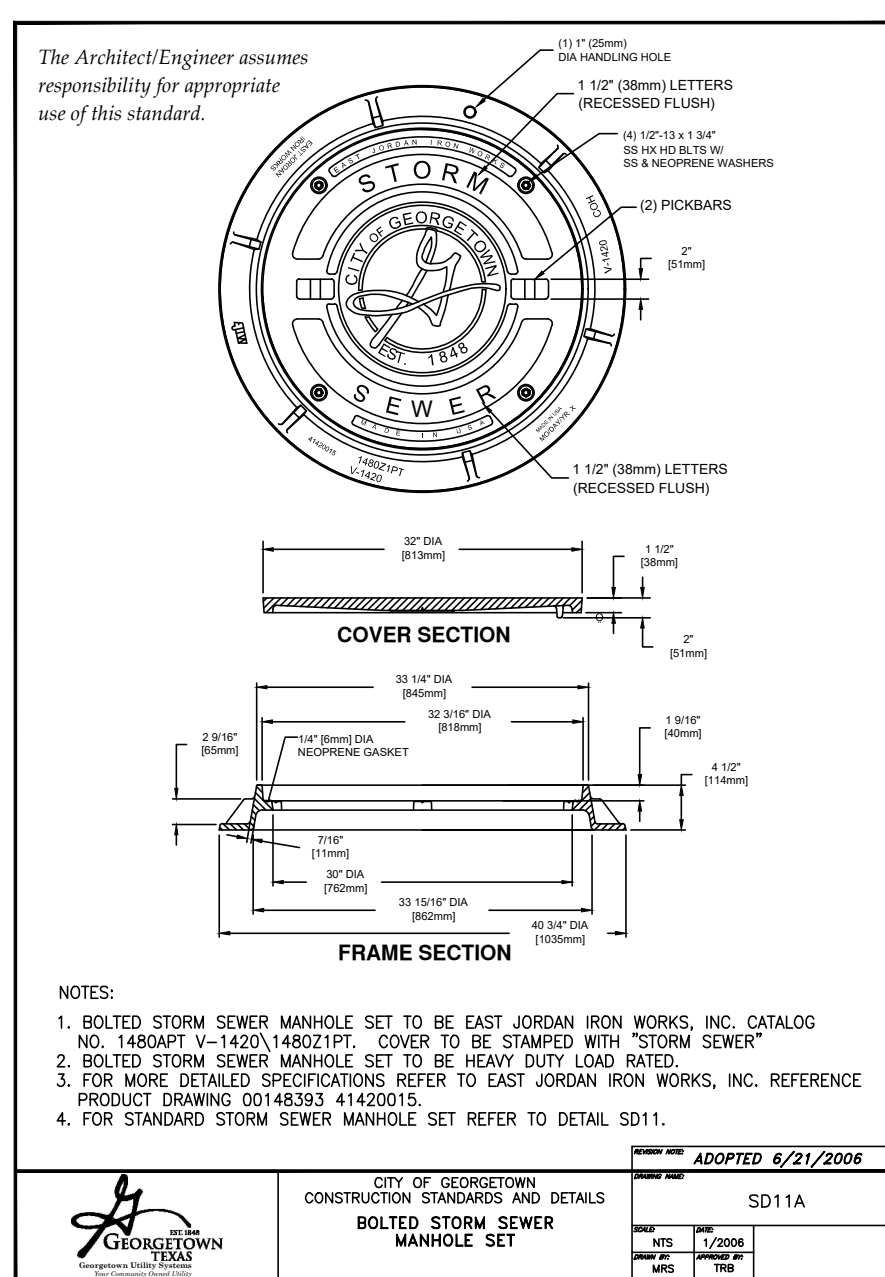
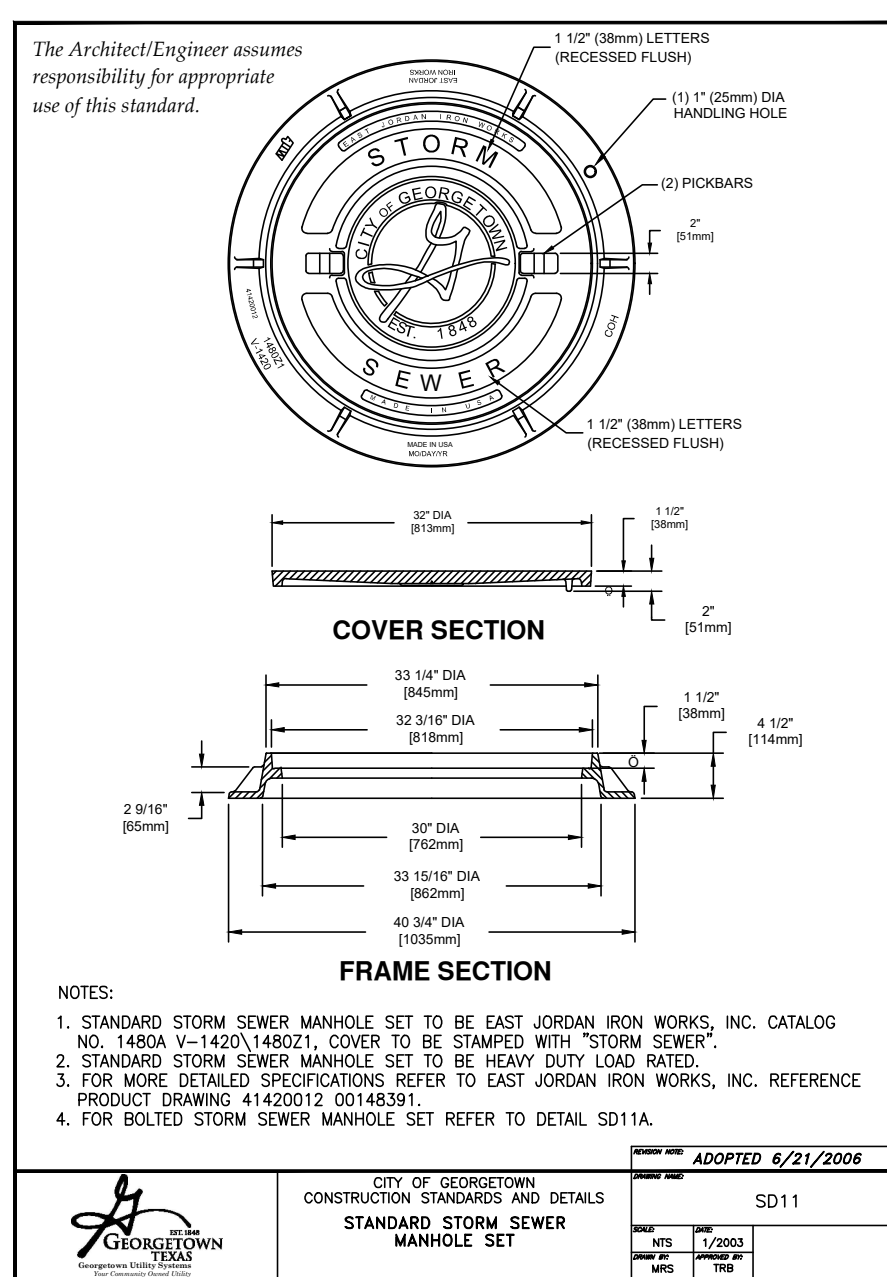
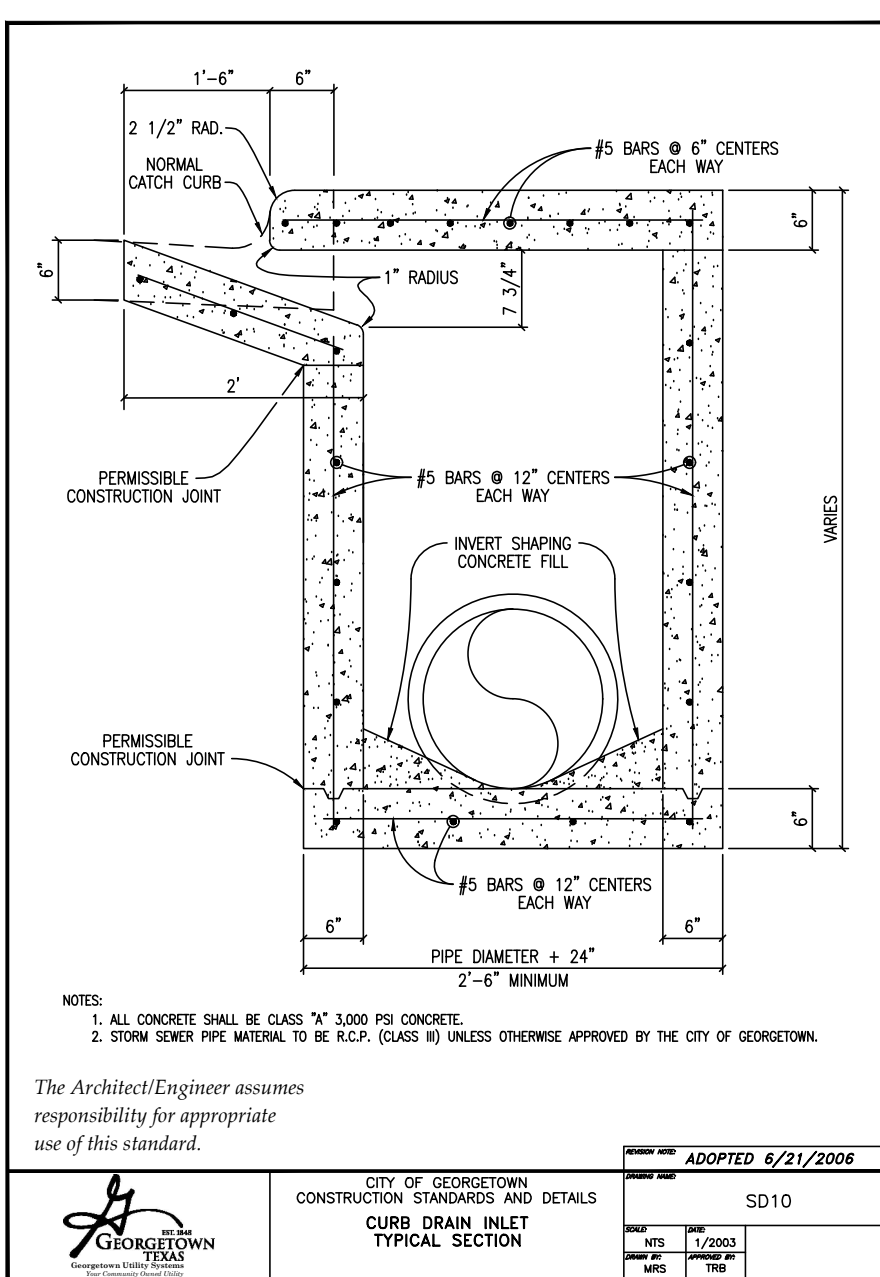
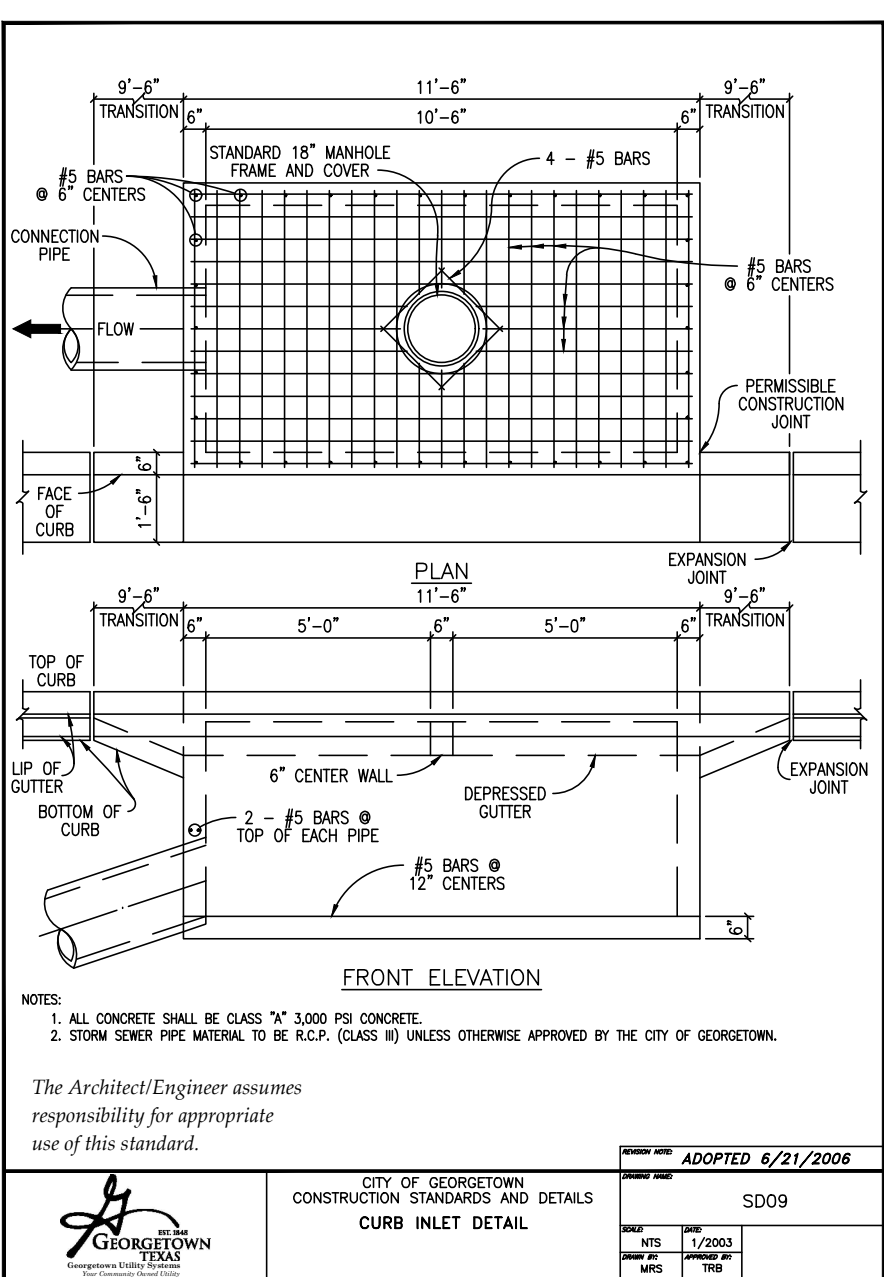
HRGreen
DEVELOPMENT TX

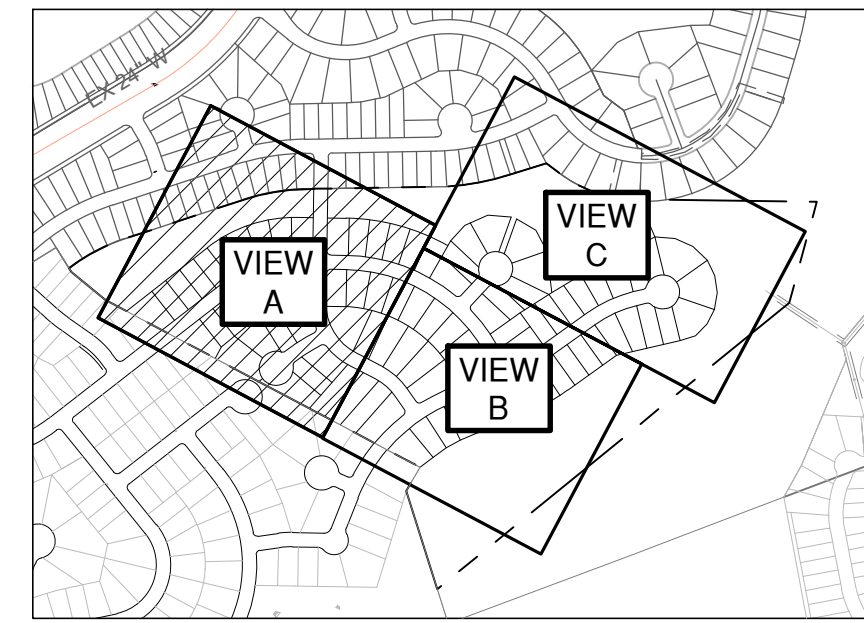
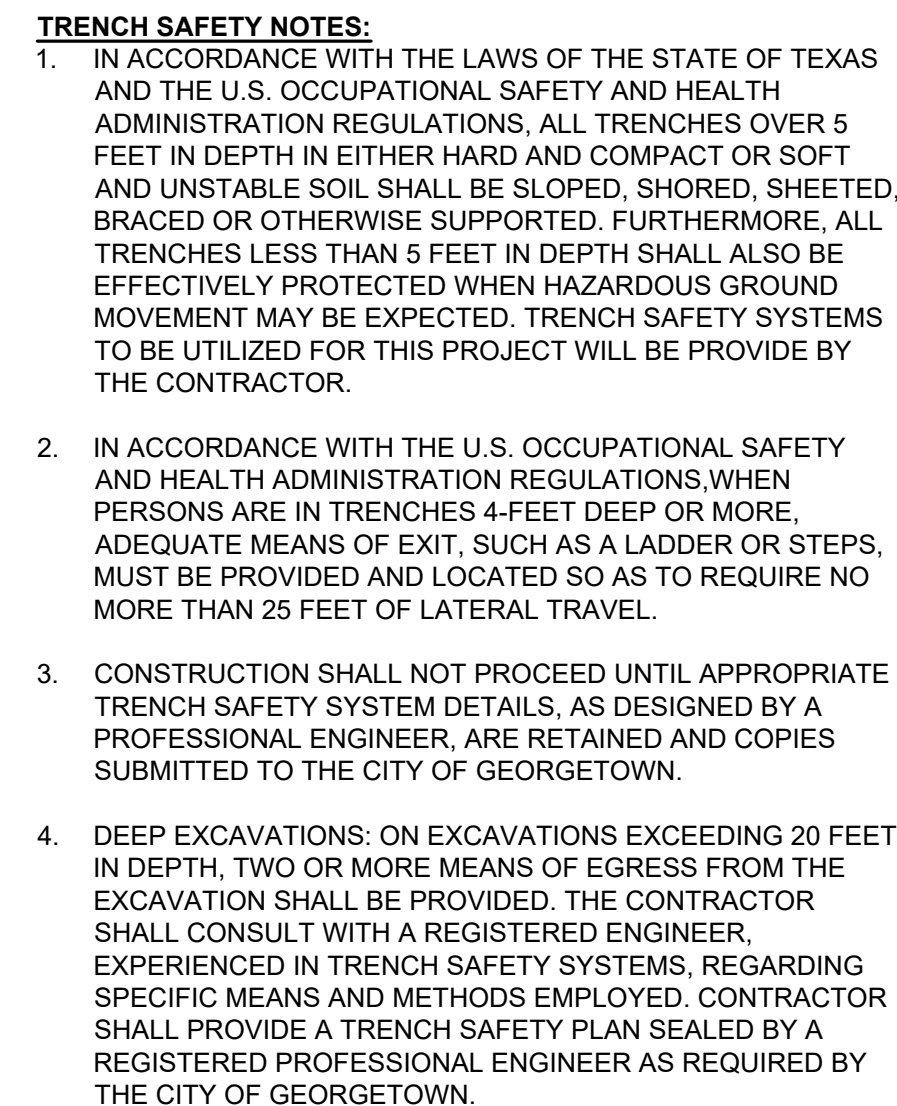
STATE OF TEXAS
SHERVIN NOOSHIN
96807
LICENSED PROFESSIONAL ENGINEER
11/03/2023



STORM C-2 & D1 - PLAN & PROFILE 1+00 - END
PARKSIDE SECTION 8
CONSTRUCTION PLANS
GEORGETOWN, WILLIAMSON, TEXAS

DESIGNED BY: CC
DRAWN BY: TB/MKM
CHECKED BY: SN
APPROVED BY: _____

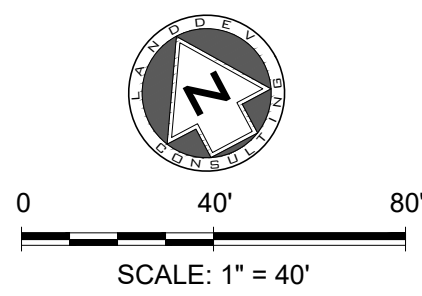
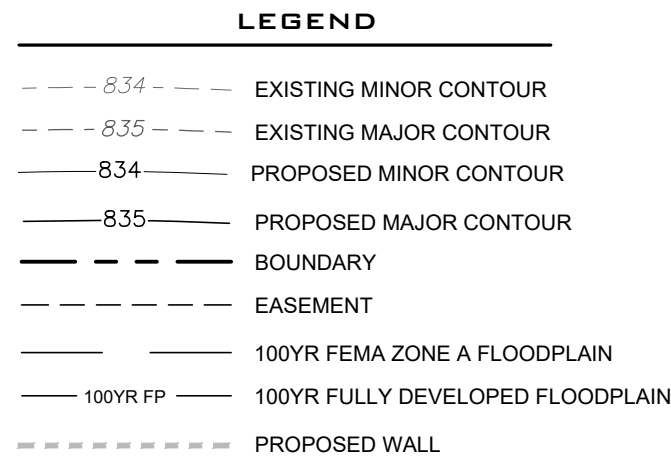
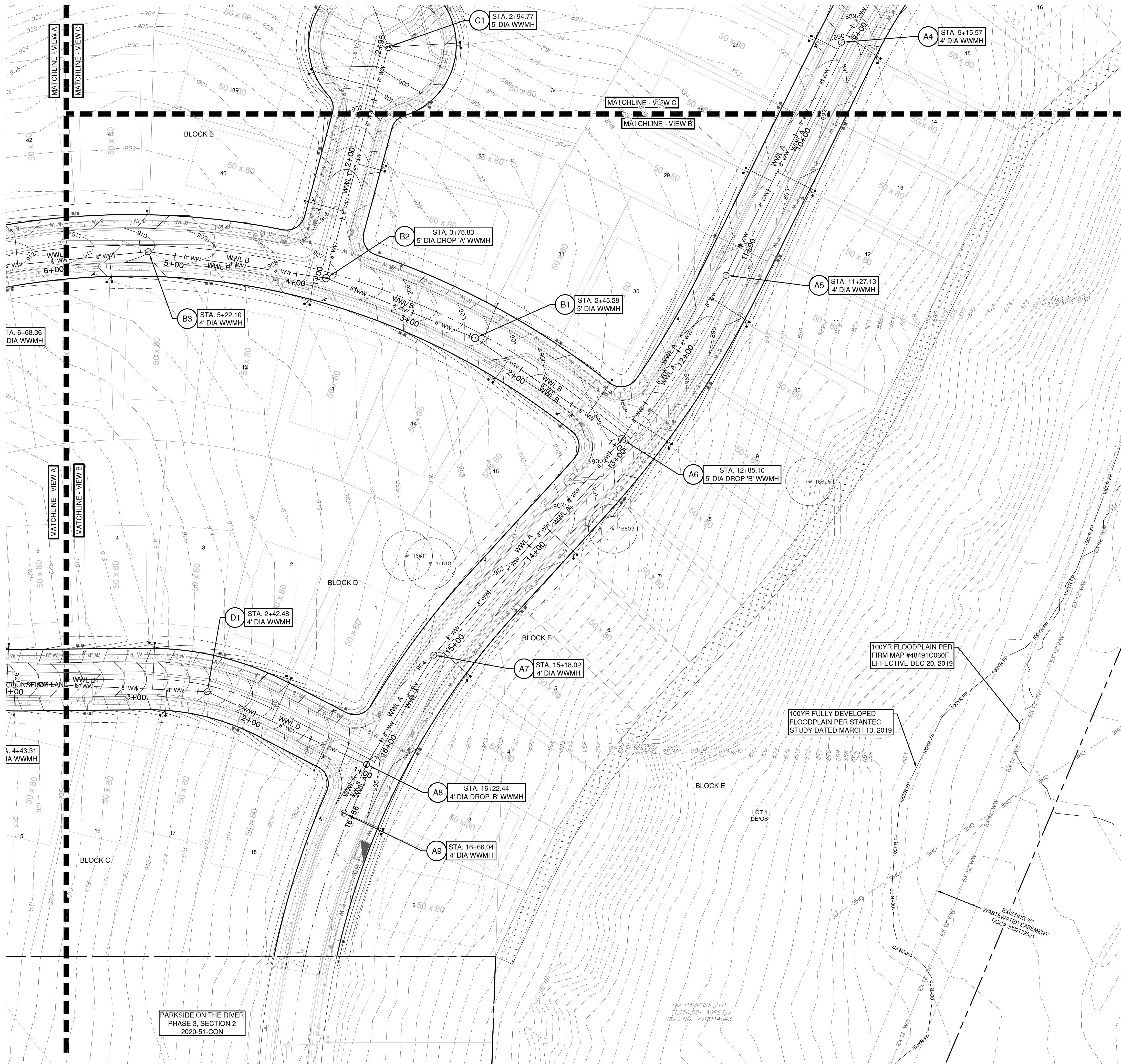
SHEET 53 OF 72
2023-XX-CON





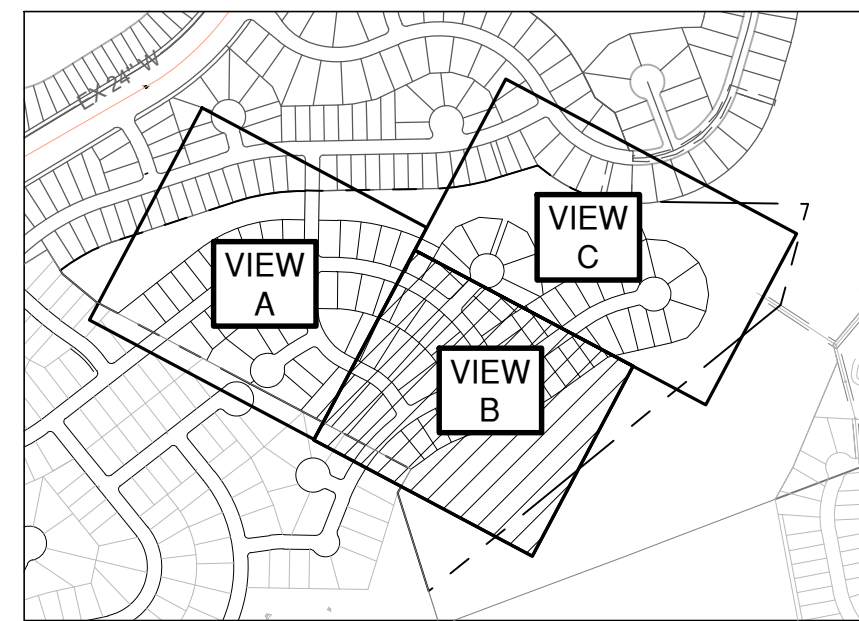
OVERALL WASTEWATER PLAN A		PARKSIDE SECTION 8 CONSTRUCTION PLANS		GEORGETOWN, WILLIAMSON, TEXAS		DESIGNED BY: CC		DRAWN BY: TG/MKM		CHECKED BY: SN		APPROVED BY:		SHEET 55 OF 72		2023-XX-CON	
5508 HIGHWAY 290 WEST SUITE 150 AUSTIN, TX 78735 512.872.6886 HARGREEN.COM		 HARGREEN®		DEVELOPMENT TX		 Know what's below. Call before you dig.		TYPE NO.: 16384 TBOIS NO.: 10194101		NO.		REVISION		BY		DATE	

P:\parks\magnatopside\section 8, 9 & 10\station 803, ACAD\Plan\0203297.WWDV.dwg, OVERALL WASTEWATER PLAN B, November 02, 2023, 8:45 AM, garya



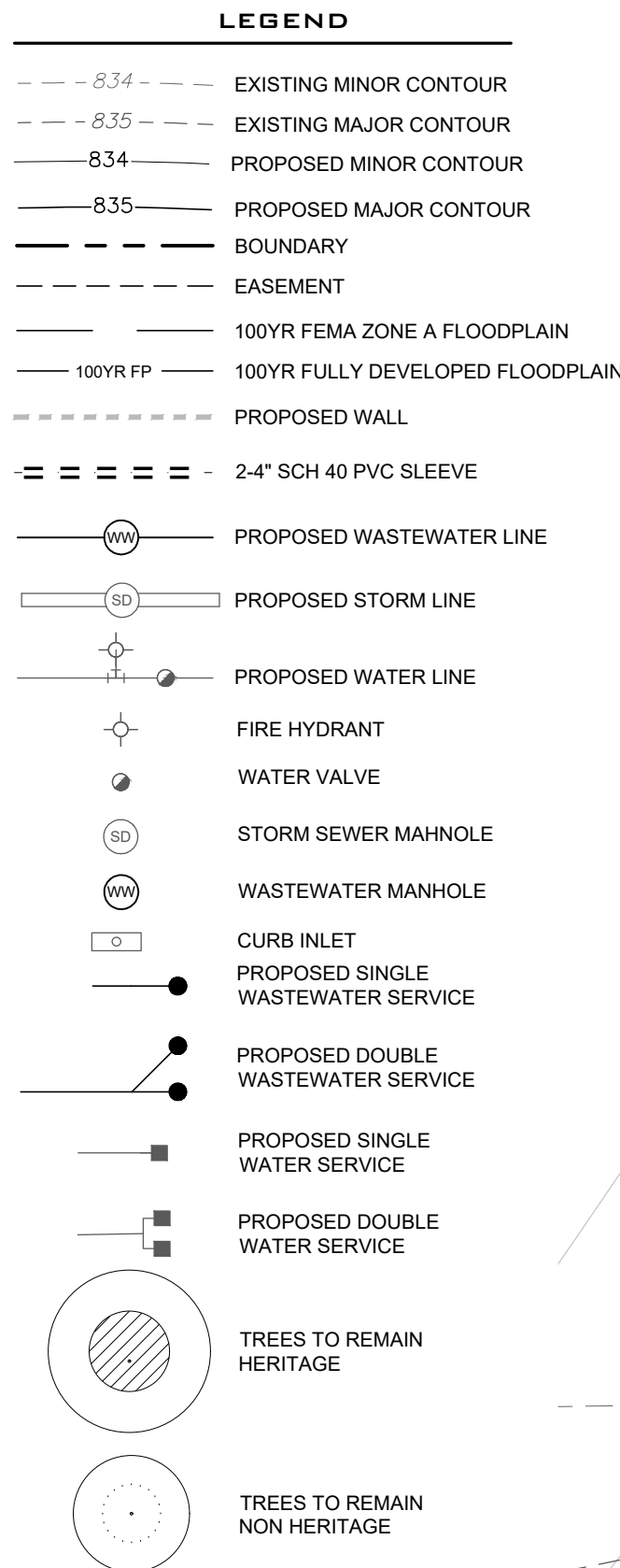
- NOTES:
- REFER TO THE WATER AND WASTEWATER DETAIL SHEET(S) FOR TYPE S AND TYPE D SERVICE CONNECTIONS.
 - UTILITIES ON THIS SITE TO BE BUILT PER THE APPROVED UTILITY ASSIGNMENT SHOWN ON THE WATER AND WASTEWATER DETAIL SHEET.
 - NO PORTION OF THE PROPOSED DEVELOPMENT LIES WITHIN THE FEMA 100-YR FLOODPLAIN.
 - ALL PROPOSED GRAVITY WASTEWATER PIPES TO BE SDR-26 UNLESS OTHERWISE SPECIFIED ON THE PLANS.
 - UNLESS OTHERWISE NOTED, CONTRACTOR TO ENSURE WW SERVICES ARE SET TO MAXIMUM DEPTH (PER DETAIL WW13) FOR ALL LOTS IN ORDER TO PROVIDE SUFFICIENT DEPTH TO CONNECT SERVICE.
 - ALL MANHOLES TO BE COATED PER CITY OF GEORGETOWN SPECIFICATIONS. EXISTING MANHOLES WITH PROPOSED CONNECTIONS TO BE COATED AS NEEDED.
 - IF THE HOME BUILDER CANNOT ACHIEVE THE MINIMUM FINISHED FLOOR ELEVATIONS SPECIFIED, THEN A WASTEWATER GRINDER PUMP SYSTEM MAY BE NEEDED TO CONNECT TO THE WASTEWATER MAIN.

- TRENCH SAFETY NOTES:
- IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS AND THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, ALL TRENCHES OVER 5 FEET IN DEPTH IN EITHER HARD AND COMPACT OR SOFT AND UNSTABLE SOIL SHALL BE SLOPED, SHORED, SHEETED, BRACED OR OTHERWISE SUPPORTED. FURTHERMORE, ALL TRENCHES LESS THAN 5 FEET IN DEPTH SHALL ALSO BE EFFECTIVELY PROTECTED WHEN HAZARDOUS GROUND MOVEMENT MAY BE EXPECTED. TRENCH SAFETY SYSTEMS TO BE UTILIZED FOR THIS PROJECT WILL BE PROVIDED BY THE CONTRACTOR.
 - IN ACCORDANCE WITH THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, WHEN PERSONS ARE IN TRENCHES 4-FEET DEEP OR MORE, ADEQUATE MEANS OF EXIT, SUCH AS A LADDER OR STEPS, MUST BE PROVIDED AND LOCATED SO AS TO REQUIRE NO MORE THAN 25 FEET OF LATERAL TRAVEL.
 - CONSTRUCTION SHALL NOT PROCEED UNTIL APPROPRIATE TRENCH SAFETY SYSTEM DETAILS, AS DESIGNED BY A PROFESSIONAL ENGINEER, ARE RETAINED AND COPIES SUBMITTED TO THE CITY OF GEORGETOWN.
 - DEEP EXCAVATIONS: ON EXCAVATIONS EXCEEDING 20 FEET IN DEPTH, TWO OR MORE MEANS OF EGRESS FROM THE EXCAVATION SHALL BE PROVIDED. THE CONTRACTOR SHALL CONSULT WITH A REGISTERED ENGINEER, EXPERIENCED IN TRENCH SAFETY SYSTEMS, REGARDING SPECIFIC MEANS AND METHODS EMPLOYED. CONTRACTOR SHALL PROVIDE A TRENCH SAFETY PLAN SEALED BY A REGISTERED PROFESSIONAL ENGINEER AS REQUIRED BY THE CITY OF GEORGETOWN.



811 Know what's below. Call before you dig.	
5508 HIGHWAY 290 WEST SUITE 150 DALLAS, TX 75235 CITY OF GEORGETOWN HARGREEN, CON	
TPE NO. 10384 TPELS NO. 10194101	
HARGREEN® DEVELOPMENT TX	
STATE OF TEXAS SHERVIN NOOSHIN 96807 LICENSED PROFESSIONAL ENGINEER 11/03/2023	
OVERALL WASTEWATER PLAN B	
PARKSIDE SECTION 8 CONSTRUCTION PLANS	
GEORGETOWN, WILLIAMSON, TEXAS	
DESIGNED BY: CC	
DRAWN BY: TG/MKM	
CHECKED BY: SN	
APPROVED BY:	
SHEET 56 OF 72	
2023-XX-CON	

P:\Public\magnaparkside sections 8, 9 & 10\section 803_ACOFPlanSet\030297 WWOV.dwg, OVERALL WASTEWATER PLAN C, November 02, 2023, 8:45 AM, garna

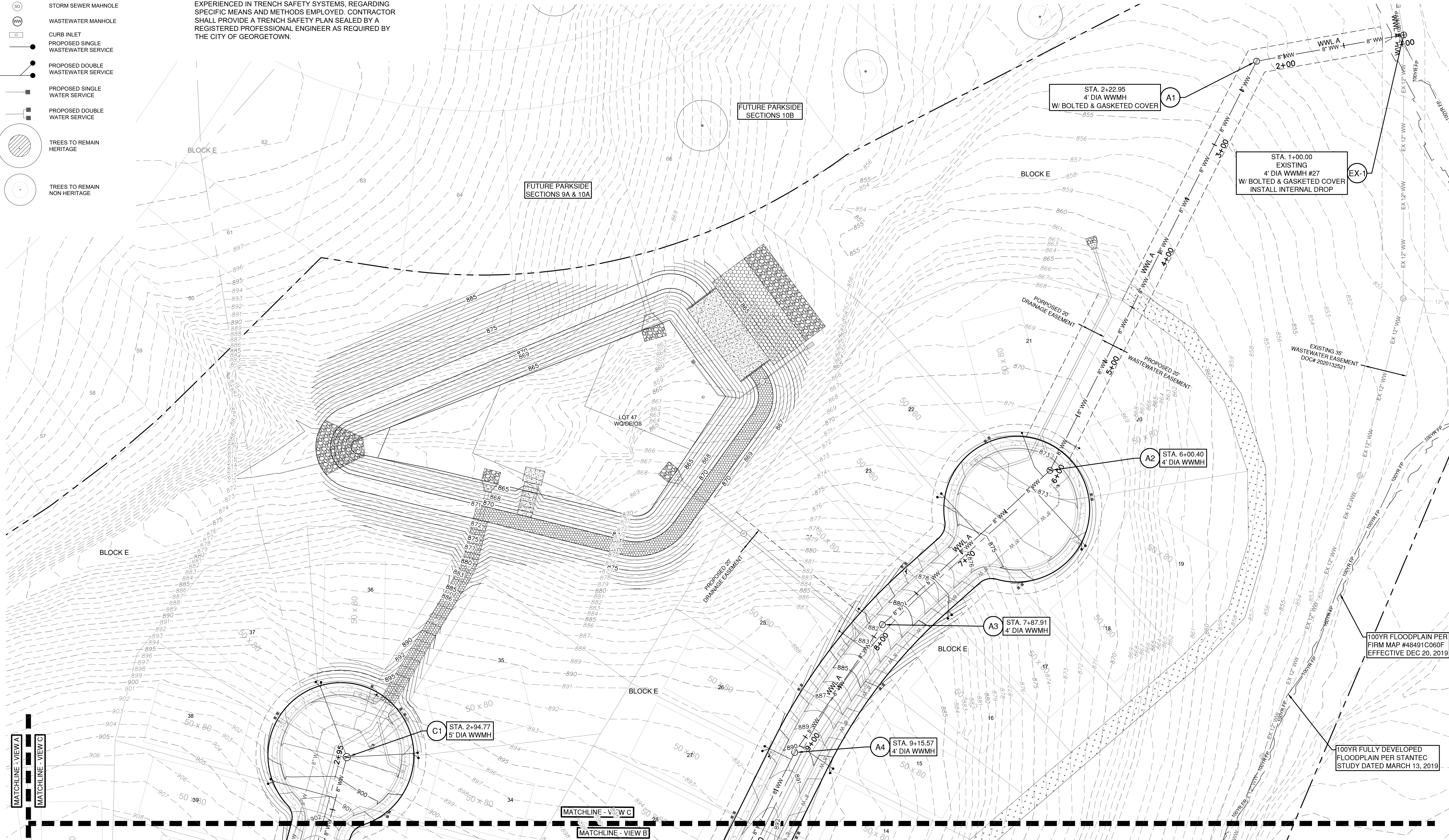
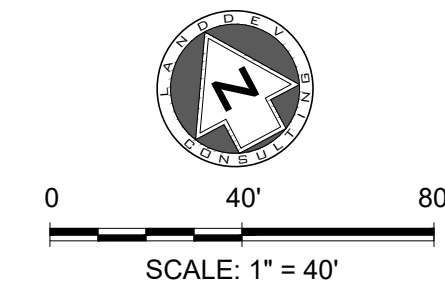
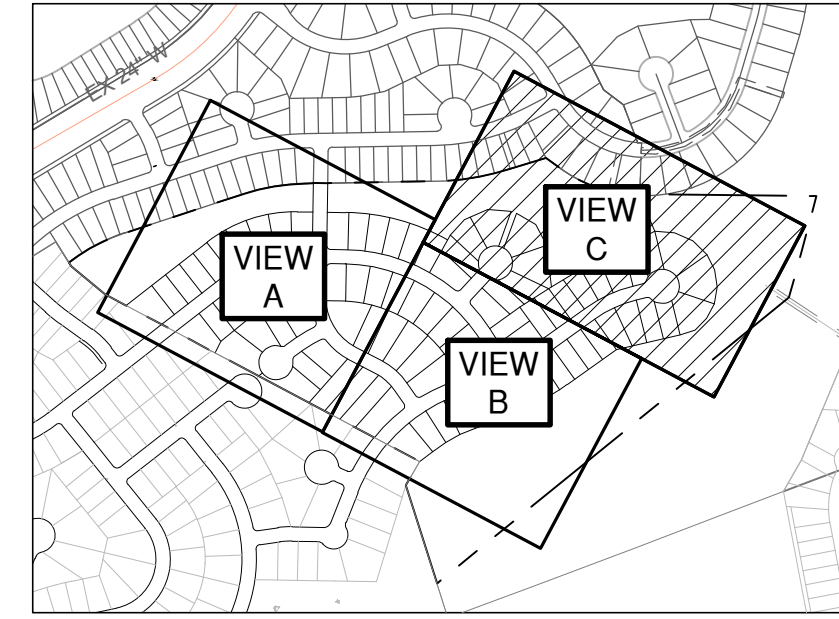


TRENCH SAFETY NOTES:

1. IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS AND THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, ALL TRENCHES OVER 5 FEET IN DEPTH IN EITHER HARD AND COMPACT OR SOFT AND UNSTABLE SOIL SHALL BE SLOPED, SHORED, SHEETED, BRACED OR OTHERWISE SUPPORTED. FURTHERMORE, ALL TRENCHES LESS THAN 5 FEET IN DEPTH SHALL ALSO BE EFFECTIVELY PROTECTED WHEN HAZARDOUS GROUND MOVEMENT MAY BE EXPECTED. TRENCH SAFETY SYSTEMS TO BE UTILIZED FOR THIS PROJECT WILL BE PROVIDED BY THE CONTRACTOR.
2. IN ACCORDANCE WITH THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, WHEN PERSONS ARE IN TRENCHES 4-FEET DEEP OR MORE, ADEQUATE MEANS OF EXIT, SUCH AS A LADDER OR STEPS, MUST BE PROVIDED AND LOCATED SO AS TO REQUIRE NO MORE THAN 25 FEET OF LATERAL TRAVEL.
3. CONSTRUCTION SHALL NOT PROCEED UNTIL APPROPRIATE TRENCH SAFETY SYSTEM DETAILS, AS DESIGNED BY A PROFESSIONAL ENGINEER, ARE RETAINED AND COPIES SUBMITTED TO THE CITY OF GEORGETOWN.
4. DEEP EXCAVATIONS: ON EXCAVATIONS EXCEEDING 20 FEET IN DEPTH, TWO OR MORE MEANS OF EGRESS FROM THE EXCAVATION SHALL BE PROVIDED. THE CONTRACTOR SHALL CONSULT WITH A REGISTERED ENGINEER, EXPERIENCED IN TRENCH SAFETY SYSTEMS, REGARDING SPECIFIC MEANS AND METHODS EMPLOYED. CONTRACTOR SHALL PROVIDE A TRENCH SAFETY PLAN SEALED BY A REGISTERED PROFESSIONAL ENGINEER AS REQUIRED BY THE CITY OF GEORGETOWN.

NOTES:

1. REFER TO THE WATER AND WASTEWATER DETAIL SHEET(S) FOR TYPE S AND TYPE D SERVICE CONNECTIONS.
2. UTILITIES ON THIS SITE TO BE BUILT PER THE APPROVED UTILITY ASSIGNMENT SHOWN ON THE WATER AND WASTEWATER DETAIL SHEET.
3. NO PORTION OF THE PROPOSED DEVELOPMENT LIES WITHIN THE FEMA 100-YR FLOODPLAIN.
4. ALL PROPOSED GRAVITY WASTEWATER PIPES TO BE SDR-26 UNLESS OTHERWISE SPECIFIED ON THE PLANS.
5. UNLESS OTHERWISE NOTED, CONTRACTOR TO ENSURE WW SERVICES ARE SET TO MAXIMUM DEPTH (PER DETAIL WW13) FOR ALL LOTS IN ORDER TO PROVIDE SUFFICIENT DEPTH TO CONNECT SERVICE.
6. ALL MANHOLES TO BE COATED PER CITY OF GEORGETOWN SPECIFICATIONS. EXISTING MANHOLES WITH PROPOSED CONNECTIONS TO BE COATED AS NEEDED.
7. IF THE HOME BUILDER CANNOT ACHIEVE THE MINIMUM FINISHED FLOOR ELEVATIONS SPECIFIED, THEN A WASTEWATER GRINDER PUMP SYSTEM MAY BE NEEDED TO CONNECT TO THE WASTEWATER MAIN.



**OVERALL WASTEWATER
PLAN C**

**PARKSIDE SECTION 8
CONSTRUCTION PLANS**

GEORGETOWN, WILLIAMSON, TEXAS

DESIGNED BY: CC

DRAWN BY: TB/MKM

CHECKED BY: SN

APPROVED BY:

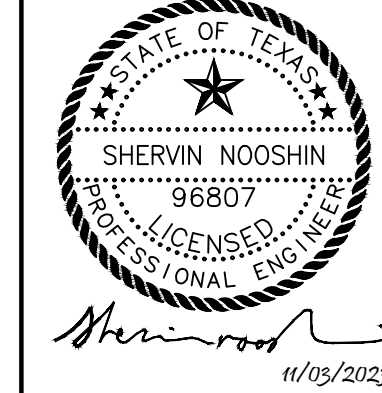
SHEET 57 OF 72

2023-XX-CON

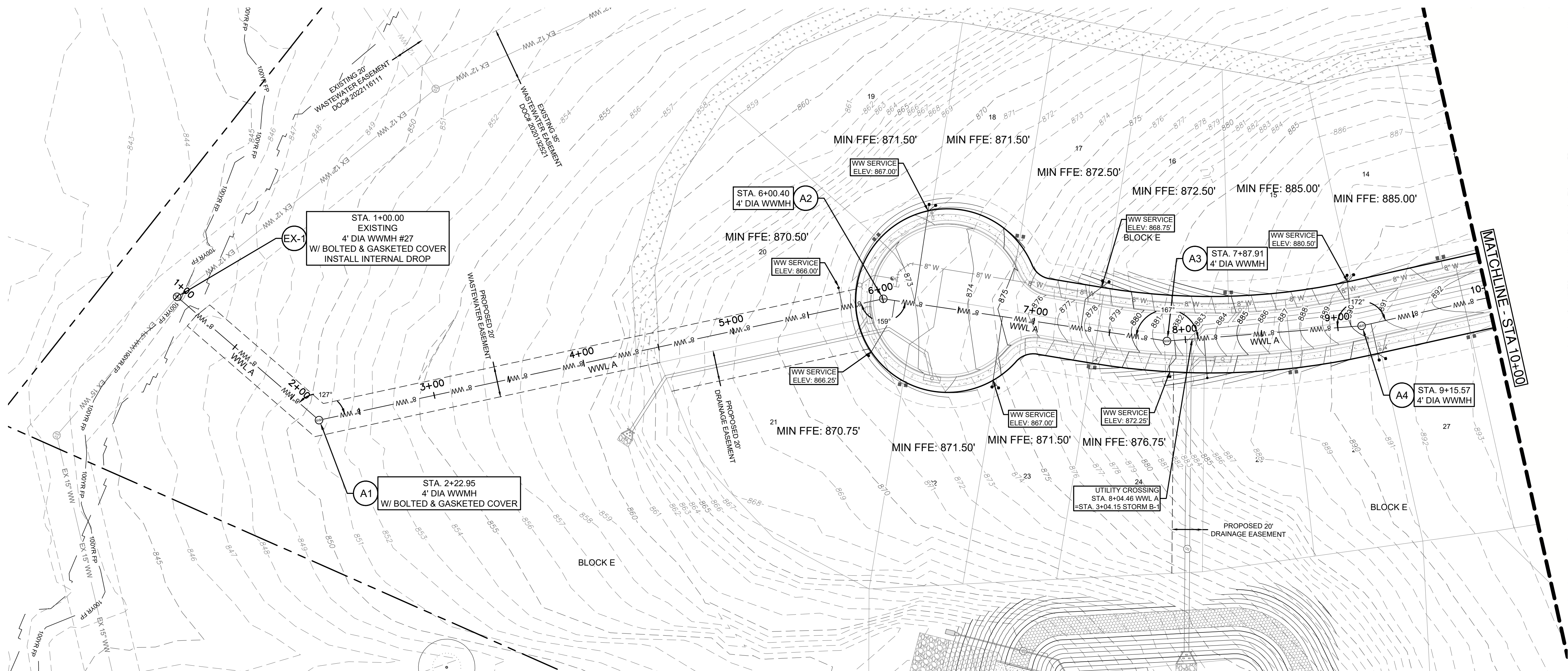


5508 HIGHWAY 290 WEST
SUITE 150
MCKINNEY, TX 75069
HARGREEN.COM

BBE NO: 16384
BPLS NO: 10194101



P:\blake_m\grain\side section 8, the 6 - 10\station 803, ACAD\Plan\1020297 WWP WVL A PLAN & PROFILE 1+00 - 10+00, November 01, 2023, 11:02 PM, igaza

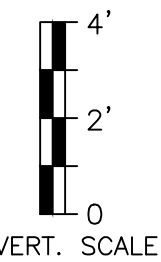


0 40' 80'
SCALE: 1" = 40'

LEGEND

- 834 --- EXISTING MINOR CONTOUR
- 835 --- EXISTING MAJOR CONTOUR
- 834 --- PROPOSED MINOR CONTOUR
- 835 --- PROPOSED MAJOR CONTOUR
- BOUNDARY
- EASEMENT
- 100YR FEMA ZONE A FLOODPLAIN
- 100YR FP 100YR FULLY DEVELOPED FLOODPLAIN
- PROPOSED WALL
- 24" SCH 40 PVC SLEEVE
- PROPOSED WASTEWATER LINE
- PROPOSED STORM LINE
- PROPOSED WATER LINE
- FIRE HYDRANT
- WATER VALVE
- STORM SEWER MAHNOLE
- WASTEWATER MAHNOLE
- CURB INLET
- PROPOSED SINGLE WASTEWATER SERVICE
- PROPOSED DOUBLE WASTEWATER SERVICE
- PROPOSED SINGLE WATER SERVICE
- PROPOSED DOUBLE WATER SERVICE
- TREES TO REMAIN HERITAGE
- TREES TO REMAIN NON HERITAGE

VERT. SCALE: 1" = 4'
HORIZ. SCALE: 1" = 40'

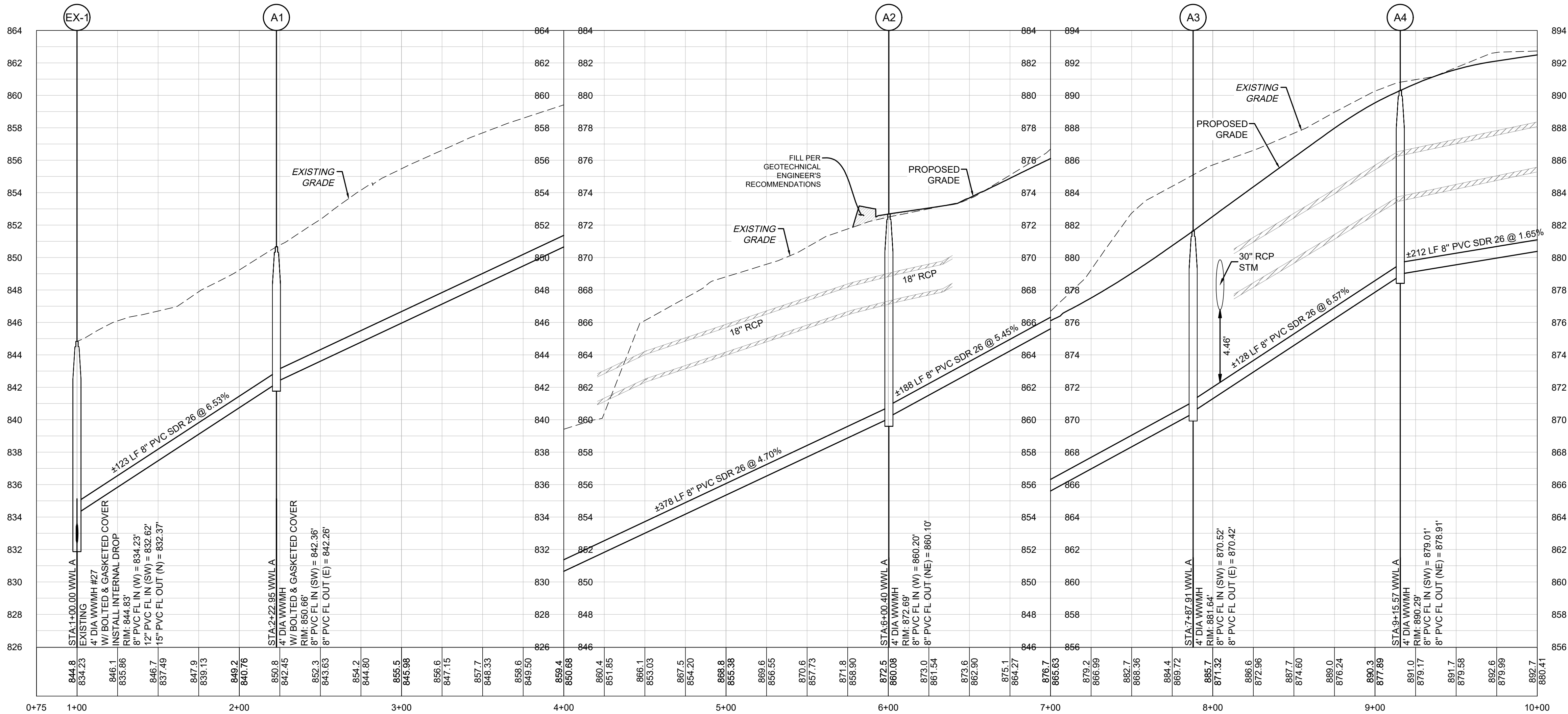


NOTES:

- REFER TO THE WATER AND WASTEWATER DETAIL SHEET(S) FOR TYPE S AND TYPE D SERVICE CONNECTIONS.
- UTILITIES ON THIS SITE TO BE BUILT PER THE APPROVED UTILITY ASSIGNMENT SHOWN ON THE WATER AND WASTEWATER DETAIL SHEET.
- NO PORTION OF THE PROPOSED DEVELOPMENT LIES WITHIN THE FEMA 100-YR FLOODPLAIN.
- ALL PROPOSED GRAVITY WASTEWATER PIPES TO BE SDR-26 UNLESS OTHERWISE SPECIFIED ON THE PLANS.
- UNLESS OTHERWISE NOTED, CONTRACTOR TO ENSURE WW SERVICES ARE SET TO MAXIMUM DEPTH (PER DETAIL WW13) FOR ALL LOTS IN ORDER TO PROVIDE SUFFICIENT DEPTH TO CONNECT SERVICE.
- ALL MANHOLES TO BE COATED PER CITY OF GEORGETOWN SPECIFICATIONS. EXISTING MANHOLES WITH PROPOSED CONNECTIONS TO BE COATED AS NEEDED.
- IF THE HOME BUILDER CANNOT ACHIEVE THE MINIMUM FINISHED FLOOR ELEVATIONS SPECIFIED, THEN A WASTEWATER GRINDER PUMP SYSTEM MAY BE NEEDED TO CONNECT TO THE WASTEWATER MAIN.

TRENCH SAFETY NOTES:

- IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS AND THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, ALL TRENCHES OVER 5 FEET IN DEPTH IN EITHER HARD OR COMPACT OR SOFT AND UNSTABLE SOIL SHALL BE SLOPED, SHORED, SHEETED, BRACED OR OTHERWISE SUPPORTED. FURTHERMORE, ALL TRENCHES LESS THAN 5 FEET IN DEPTH SHALL ALSO BE EFFECTIVELY PROTECTED WHEN HAZARDOUS GROUND MOVEMENT MAY BE EXPECTED. TRENCH SAFETY SYSTEMS TO BE UTILIZED FOR THIS PROJECT WILL BE PROVIDED BY THE CONTRACTOR.
- IN ACCORDANCE WITH THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, WHEN PERSONS ARE IN TRENCHES 4-FEET DEEP OR MORE, ADEQUATE MEANS OF EXIT, SUCH AS A LADDER OR STEPS, MUST BE PROVIDED AND LOCATED SO AS TO REQUIRE NO MORE THAN 25 FEET OF LATERAL TRAVEL.
- CONSTRUCTION SHALL NOT PROCEED UNTIL APPROPRIATE TRENCH SAFETY SYSTEM DETAILS, AS DESIGNED BY A PROFESSIONAL ENGINEER, ARE RETAINED AND COPIES SUBMITTED TO THE CITY OF GEORGETOWN.
- DEEP EXCAVATIONS: ON EXCAVATIONS EXCEEDING 20 FEET IN DEPTH, TWO OR MORE MEANS OF EGRESS FROM THE EXCAVATION SHALL BE PROVIDED. THE CONTRACTOR SHALL CONSULT WITH A REGISTERED ENGINEER, EXPERIENCED IN TRENCH SAFETY SYSTEMS, REGARDING SPECIFIC MEANS AND METHODS EMPLOYED. CONTRACTOR SHALL PROVIDE A TRENCH SAFETY PLAN SEALED BY A REGISTERED PROFESSIONAL ENGINEER AS REQUIRED BY THE CITY OF GEORGETOWN.



WWL A PLAN & PROFILE
1+00 - 10+00

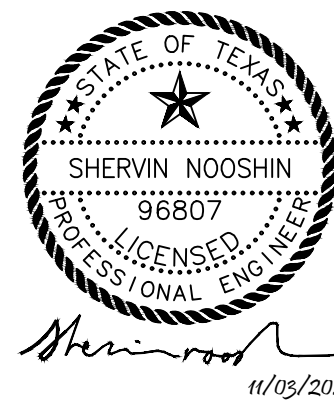
PARKSIDE SECTION 8
CONSTRUCTION PLANS

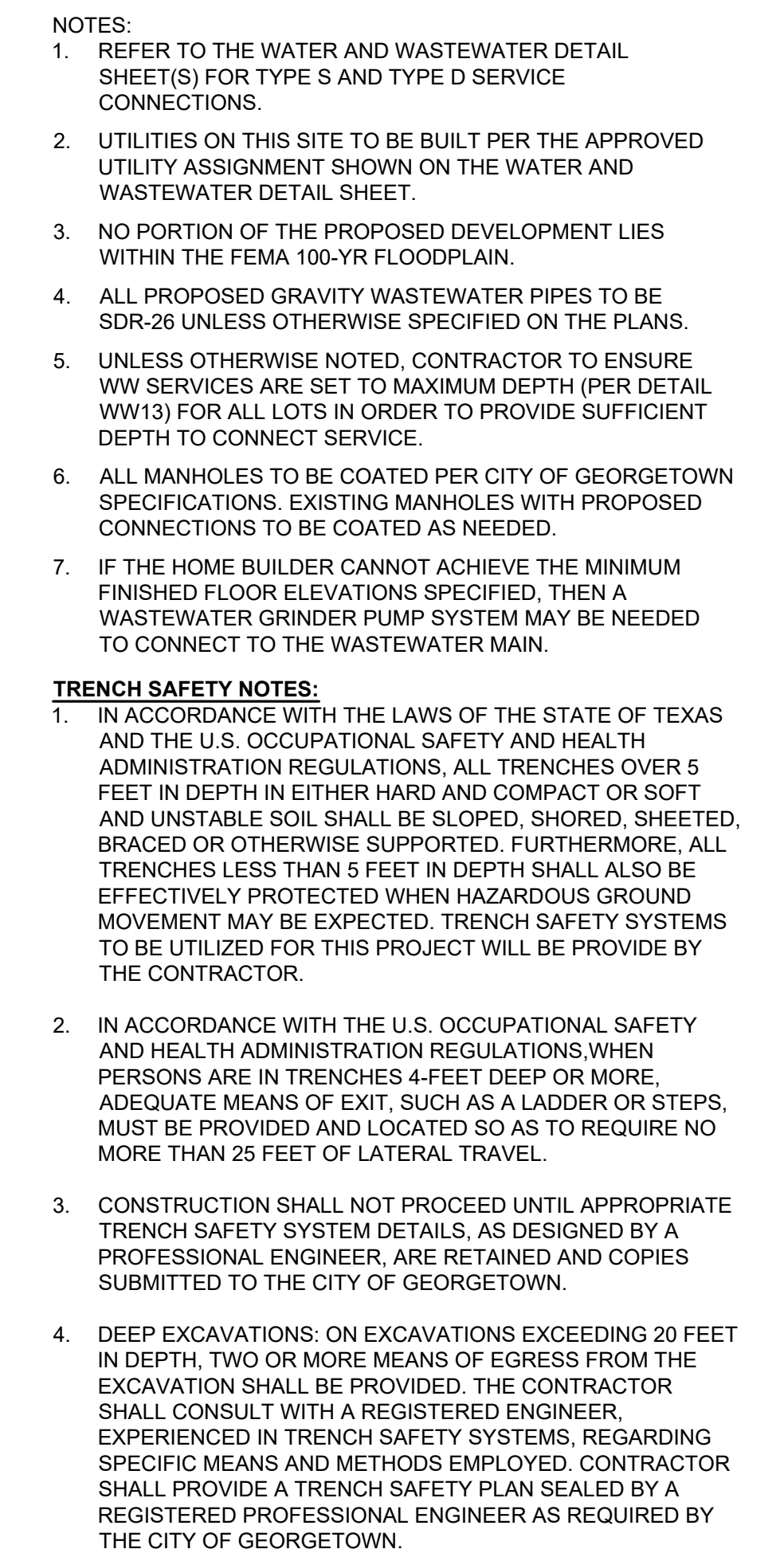
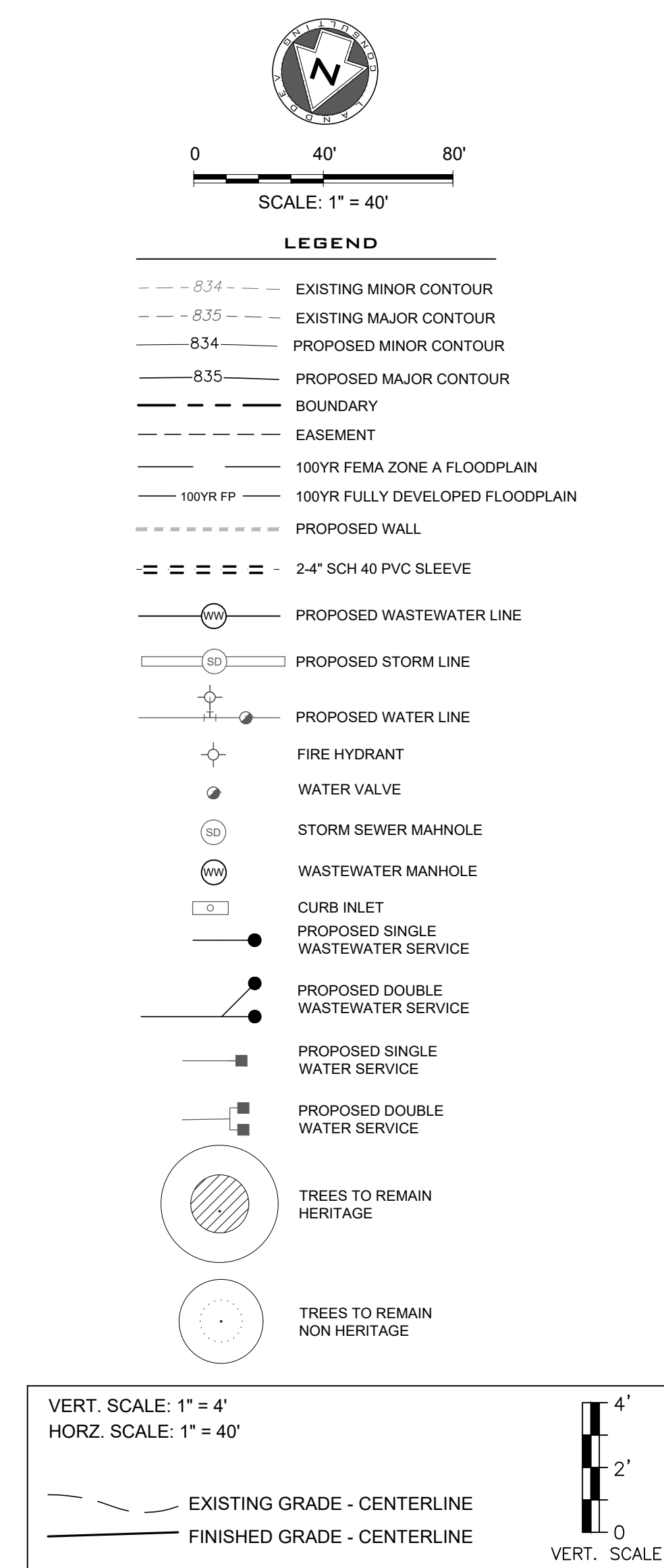
GEORGETOWN, WILLIAMSON, TEXAS

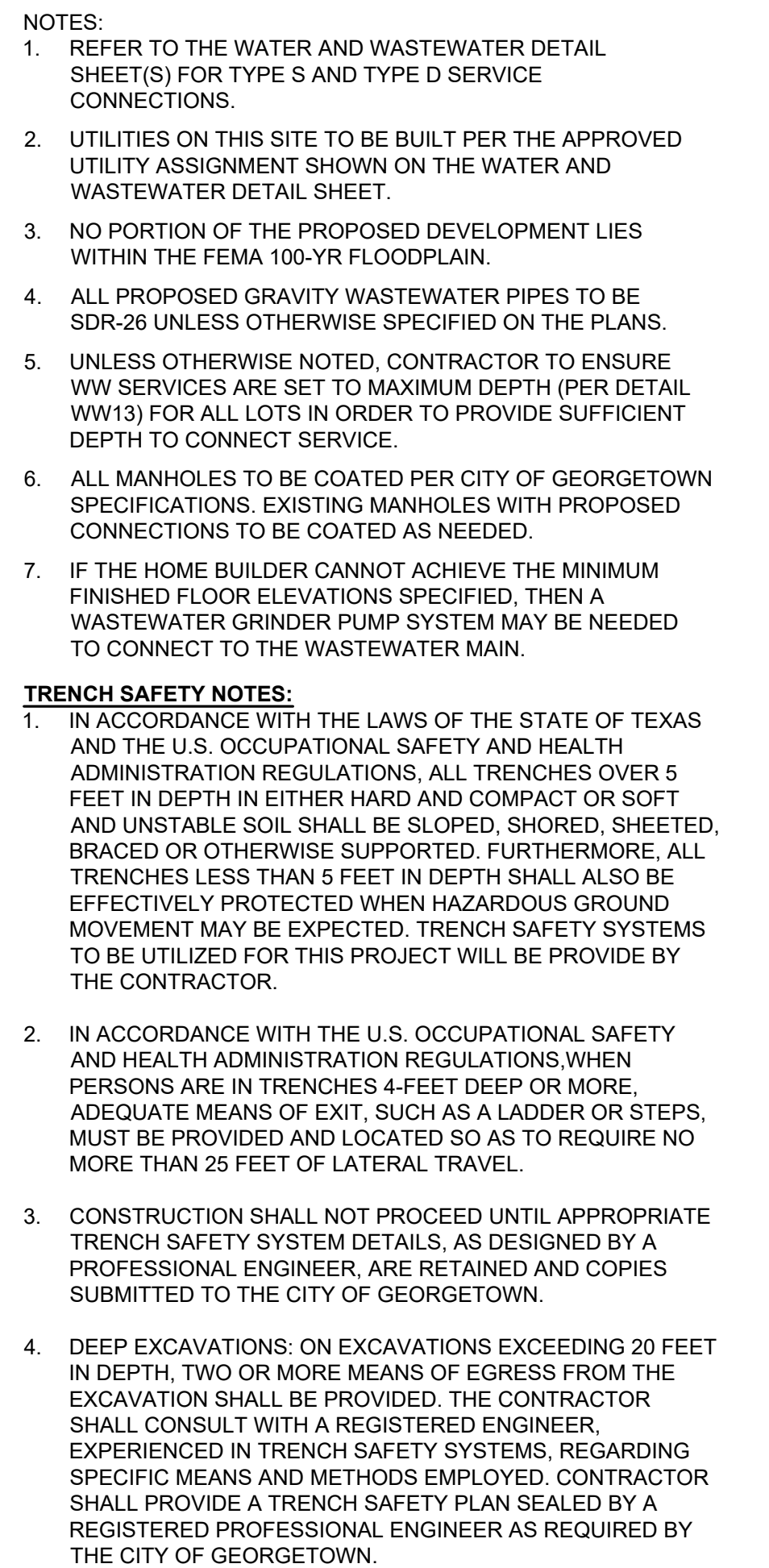
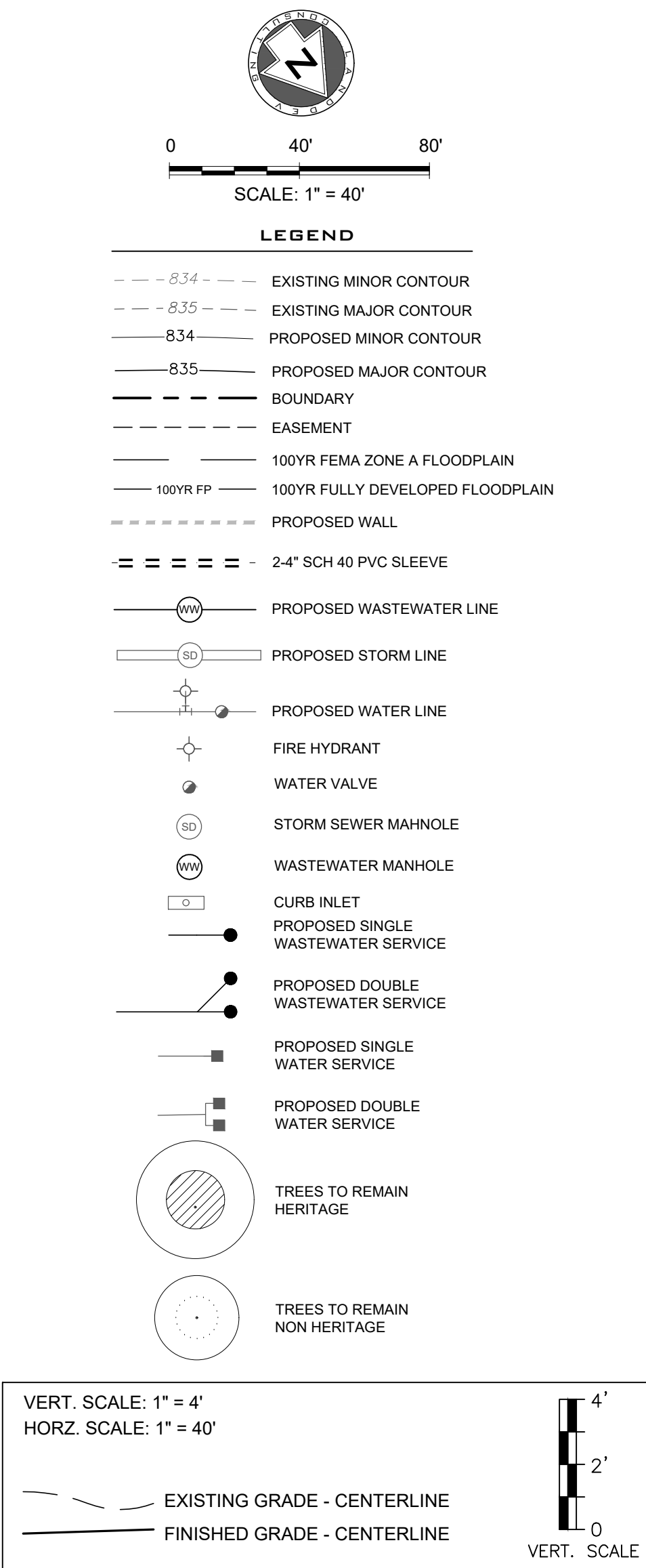
DESIGNED BY: CC
DRAWN BY: TM/MKM
CHECKED BY: SN
APPROVED BY: _____
SHEET 58 OF 72
2023-XX-CON

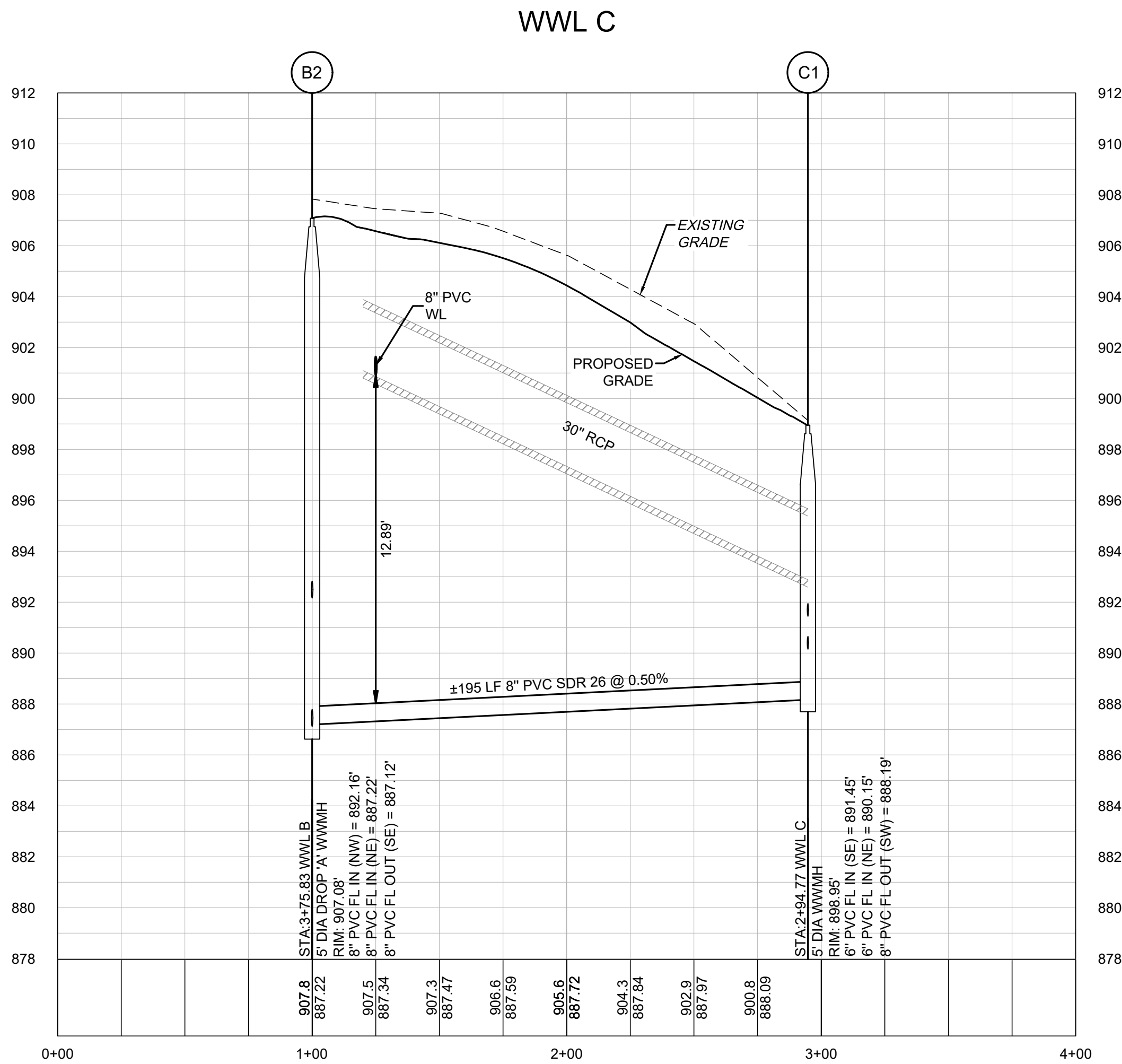
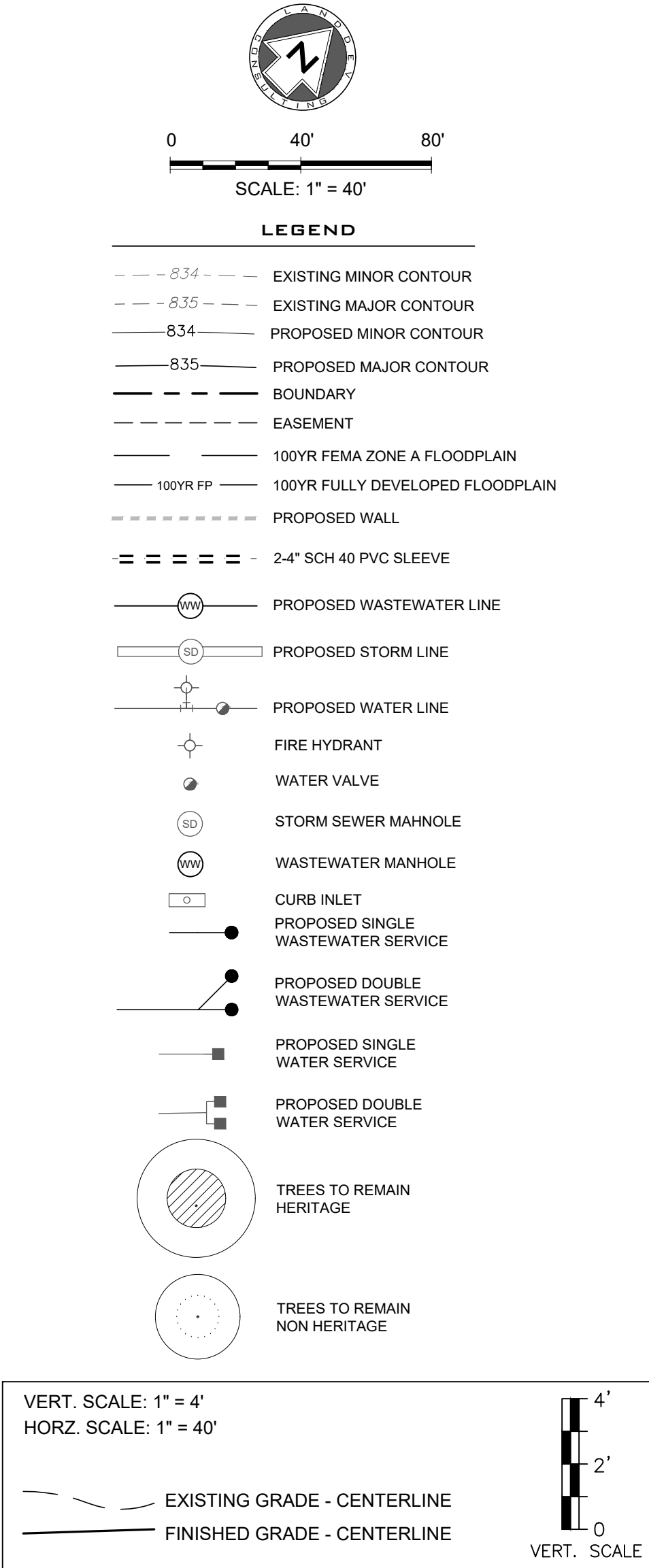
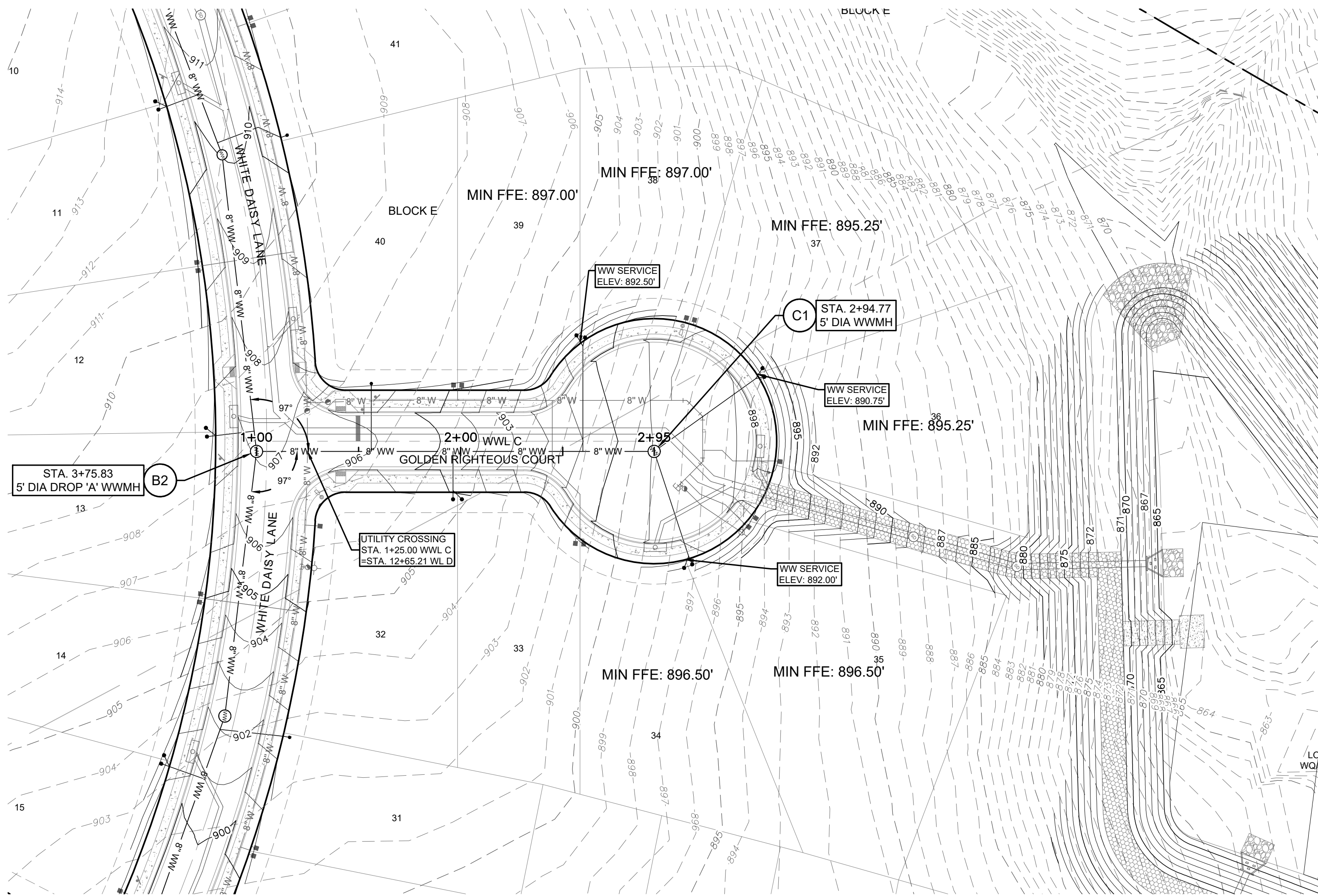


5508 HIGHWAY 290 WEST
SUITE 150
WILSON, TX 75755
CITY OF GEORGETOWN
HARRIS COUNTY
TIFLS NO. 10194101









- NOTES:**
- REFER TO THE WATER AND WASTEWATER DETAIL SHEET(S) FOR TYPE S AND TYPE D SERVICE CONNECTIONS.
 - UTILITIES ON THIS SITE TO BE BUILT PER THE APPROVED UTILITY ASSIGNMENT SHOWN ON THE WATER AND WASTEWATER DETAIL SHEET.
 - NO PORTION OF THE PROPOSED DEVELOPMENT LIES WITHIN THE FEMA 100-YR FLOODPLAIN.
 - ALL PROPOSED GRAVITY WASTEWATER PIPES TO BE SDR-26 UNLESS OTHERWISE SPECIFIED ON THE PLANS.
 - UNLESS OTHERWISE NOTED, CONTRACTOR TO ENSURE WW SERVICES ARE SET TO MAXIMUM DEPTH (PER DETAIL WW13) FOR ALL LOTS IN ORDER TO PROVIDE SUFFICIENT DEPTH TO CONNECT SERVICE.
 - ALL MANHOLES TO BE COATED PER CITY OF GEORGETOWN SPECIFICATIONS. EXISTING MANHOLES WITH PROPOSED CONNECTIONS TO BE COATED AS NEEDED.
 - IF THE HOME BUILDER CANNOT ACHIEVE THE MINIMUM FINISHED FLOOR ELEVATIONS SPECIFIED, THEN A WASTEWATER GRINDER PUMP SYSTEM MAY BE NEEDED TO CONNECT TO THE WASTEWATER MAIN.
- TRENCH SAFETY NOTES:**
- IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS AND THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, ALL TRENCHES OVER 5 FEET IN DEPTH IN EITHER HARD AND COMPACT OR SOFT AND UNSTABLE SOIL SHALL BE SLOPED, SHORED, SHEETED, BRACED OR OTHERWISE SUPPORTED. FURTHERMORE, ALL TRENCHES LESS THAN 5 FEET IN DEPTH SHALL ALSO BE EFFECTIVELY PROTECTED WHEN HAZARDOUS GROUND MOVEMENT MAY BE EXPECTED. TRENCH SAFETY SYSTEMS TO BE UTILIZED FOR THIS PROJECT WILL BE PROVIDE BY THE CONTRACTOR.
 - IN ACCORDANCE WITH THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, WHEN PERSONS ARE IN TRENCHES 4-FEET DEEP OR MORE, ADEQUATE MEANS OF EXIT, SUCH AS A LADDER OR STEPS, MUST BE PROVIDED AND LOCATED SO AS TO REQUIRE NO MORE THAN 25 FEET OF LATERAL TRAVEL.
 - CONSTRUCTION SHALL NOT PROCEED UNTIL APPROPRIATE TRENCH SAFETY SYSTEM DETAILS, AS DESIGNED BY A PROFESSIONAL ENGINEER, ARE RETAINED AND COPIES SUBMITTED TO THE CITY OF GEORGETOWN.
 - DEEP EXCAVATIONS: ON EXCAVATIONS EXCEEDING 20 FEET IN DEPTH, TWO OR MORE MEANS OF EGRESS FROM THE EXCAVATION SHALL BE PROVIDED. THE CONTRACTOR SHALL CONSULT WITH A REGISTERED ENGINEER, EXPERIENCED IN TRENCH SAFETY SYSTEMS, REGARDING SPECIFIC MEANS AND METHODS EMPLOYED. CONTRACTOR SHALL PROVIDE A TRENCH SAFETY PLAN SEALED BY A REGISTERED PROFESSIONAL ENGINEER AS REQUIRED BY THE CITY OF GEORGETOWN.

DESIGNED BY: CC	
DRAWN BY: TB/MKM	
CHECKED BY: SN	
APPROVED BY: _____	
SHEET 62 OF 72	
2023-XX-CON	

Know what's below.
Call before you dig.

5508 HIGHWAY 290 WEST
SUITE 150
DALLAS, TX 75235
817.467.1234
HARGREEN.COM

TXPE NO: 16384
TXPLS NO: 10194101

HARGREEN®

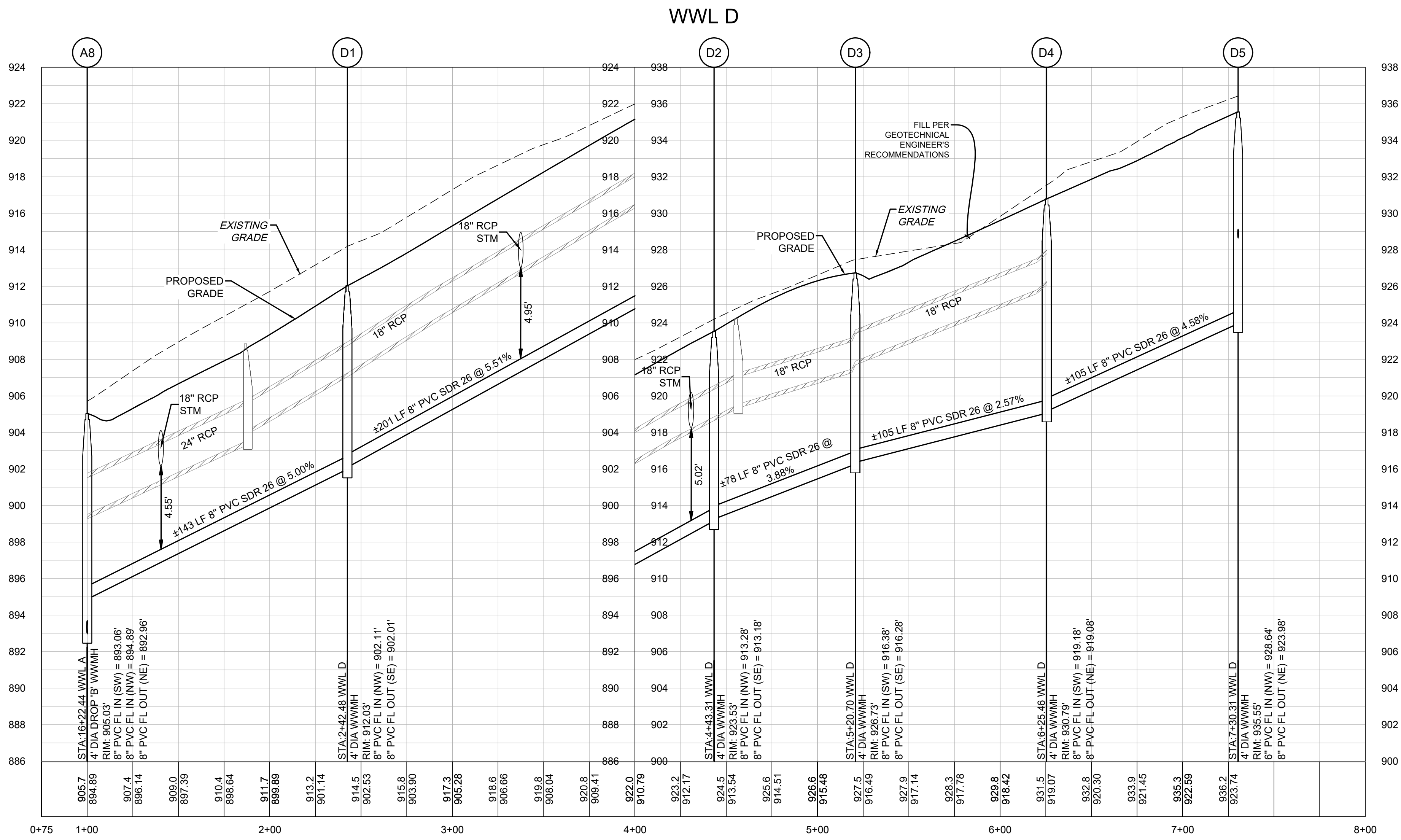
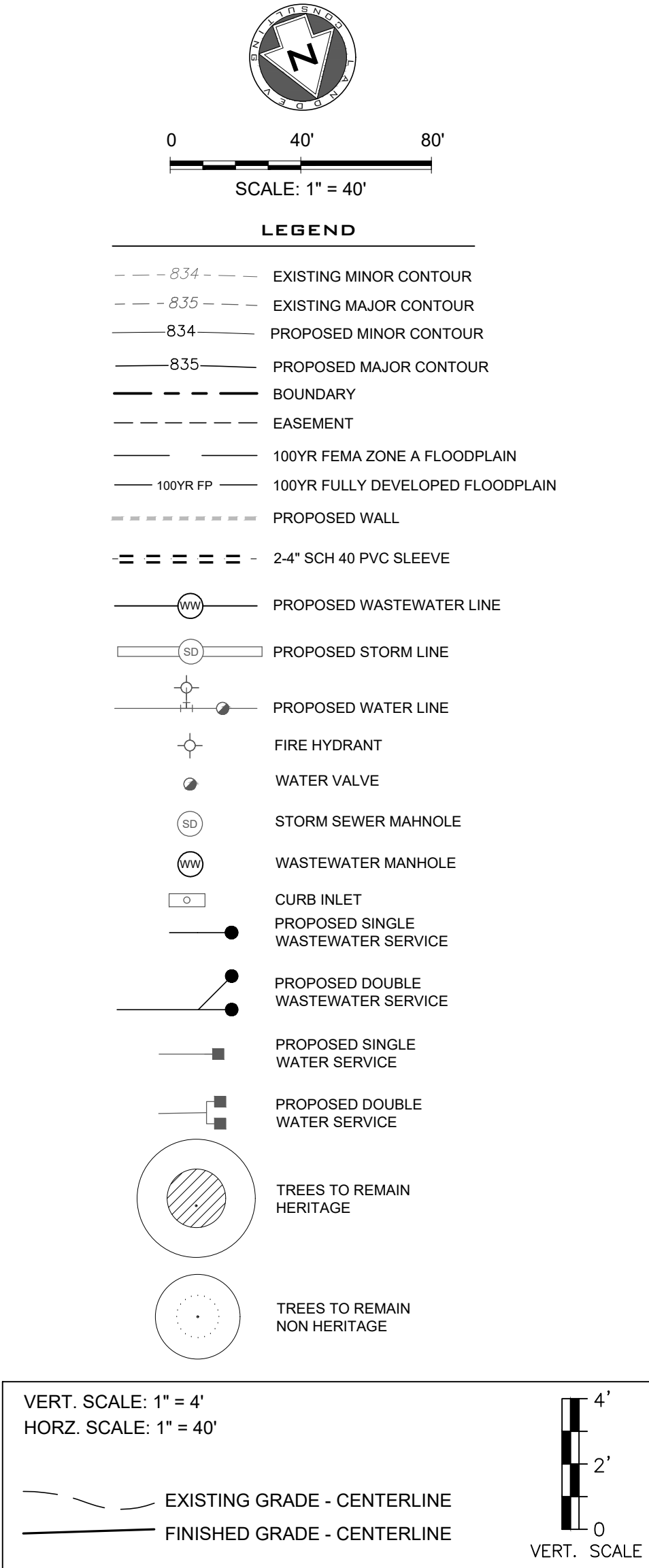
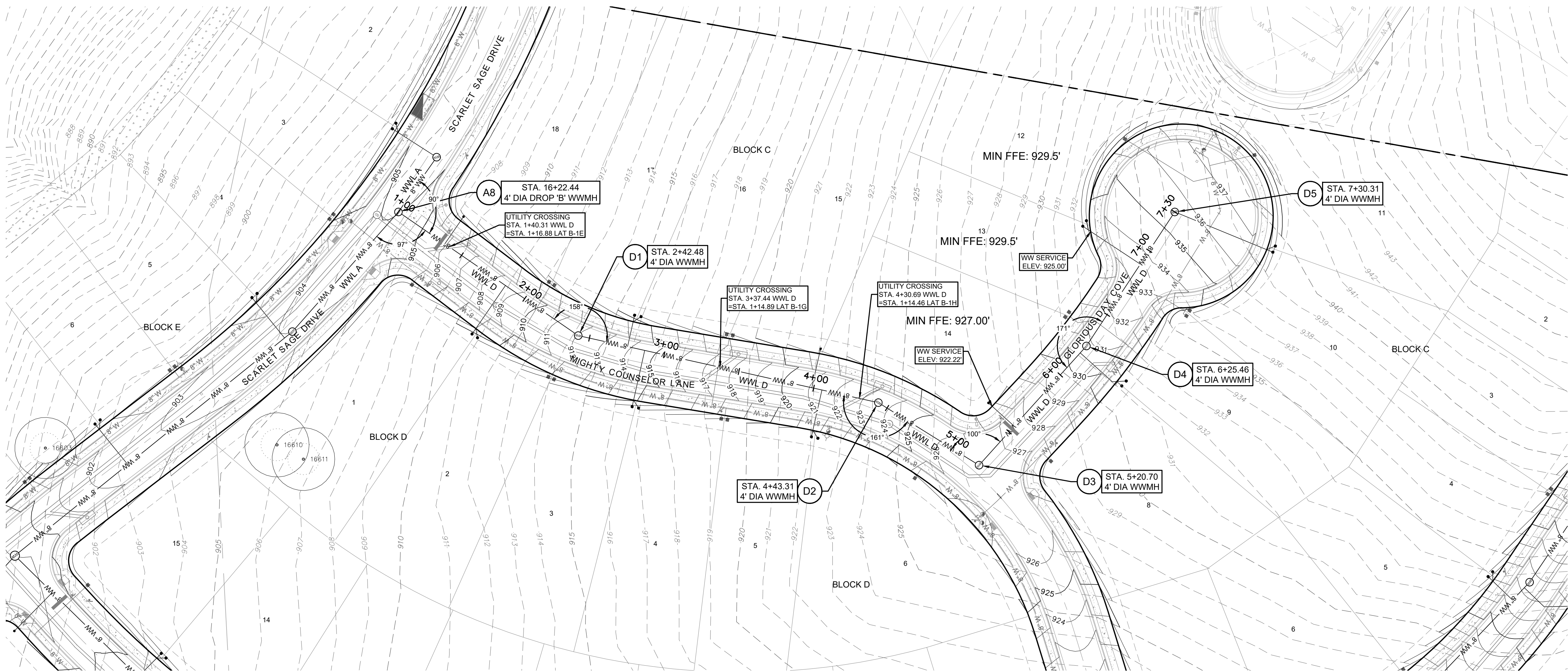
DEVELOPMENT TX

WWL C PLAN & PROFILE
1+00 - END

PARKSIDE SECTION B
CONSTRUCTION PLANS

GEORGETOWN, WILLIAMSON, TEXAS

P:\blake_mightygarland\sections 8, 9 & 10\section 803_ACO\Plan\1030297 WWP WVL D.dwg WVL D PLAN & PROFILE 1+00 - END November 01, 2023 11:10 PM garna



- NOTES:
- REFER TO THE WATER AND WASTEWATER DETAIL SHEET(S) FOR TYPE S AND TYPE D SERVICE CONNECTIONS.
 - UTILITIES ON THIS SITE TO BE BUILT PER THE APPROVED UTILITY ASSIGNMENT SHOWN ON THE WATER AND WASTEWATER DETAIL SHEET.
 - NO PORTION OF THE PROPOSED DEVELOPMENT LIES WITHIN THE FEMA 100-YR FLOODPLAIN.
 - ALL PROPOSED GRAVITY WASTEWATER PIPES TO BE SDR-26 UNLESS OTHERWISE SPECIFIED ON THE PLANS.
 - UNLESS OTHERWISE NOTED, CONTRACTOR TO ENSURE WW SERVICES ARE SET TO MAXIMUM DEPTH (PER DETAIL WW13) FOR ALL LOTS IN ORDER TO PROVIDE SUFFICIENT DEPTH TO CONNECT SERVICE.
 - ALL MANHOLES TO BE COATED PER CITY OF GEORGETOWN SPECIFICATIONS. EXISTING MANHOLES WITH PROPOSED CONNECTIONS TO BE COATED AS NEEDED.
 - IF THE HOME BUILDER CANNOT ACHIEVE THE MINIMUM FINISHED FLOOR ELEVATIONS SPECIFIED, THEN A WASTEWATER GRINDER PUMP SYSTEM MAY BE NEEDED TO CONNECT TO THE WASTEWATER MAIN.
- TRENCH SAFETY NOTES:
- IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS AND THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, ALL TRENCHES OVER 5 FEET IN DEPTH IN EITHER HARD AND COMPACT OR SOFT AND UNSTABLE SOIL SHALL BE SLOPED, SHORED, SHEETED, BRACED OR OTHERWISE SUPPORTED. FURTHERMORE, ALL TRENCHES LESS THAN 5 FEET IN DEPTH SHALL ALSO BE EFFECTIVELY PROTECTED WHEN HAZARDOUS GROUND MOVEMENT MAY BE EXPECTED. TRENCH SAFETY SYSTEMS TO BE UTILIZED FOR THIS PROJECT WILL BE PROVIDE BY THE CONTRACTOR.
 - IN ACCORDANCE WITH THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, WHEN PERSONS ARE IN TRENCHES 4-FEET DEEP OR MORE, ADEQUATE MEANS OF EXIT, SUCH AS A LADDER OR STEPS, MUST BE PROVIDED AND LOCATED SO AS TO REQUIRE NO MORE THAN 25 FEET OF LATERAL TRAVEL.
 - CONSTRUCTION SHALL NOT PROCEED UNTIL APPROPRIATE TRENCH SAFETY SYSTEM DETAILS, AS DESIGNED BY A PROFESSIONAL ENGINEER, ARE RETAINED AND COPIES SUBMITTED TO THE CITY OF GEORGETOWN.
 - DEEP EXCAVATIONS: ON EXCAVATIONS EXCEEDING 20 FEET IN DEPTH, TWO OR MORE MEANS OF EGRESS FROM THE EXCAVATION SHALL BE PROVIDED. THE CONTRACTOR SHALL CONSULT WITH A REGISTERED ENGINEER, EXPERIENCED IN TRENCH SAFETY SYSTEMS, REGARDING SPECIFIC MEANS AND METHODS EMPLOYED. CONTRACTOR SHALL PROVIDE A TRENCH SAFETY PLAN SEALED BY A REGISTERED PROFESSIONAL ENGINEER AS REQUIRED BY THE CITY OF GEORGETOWN.

DESIGNED BY: CC	
DRAWN BY: TB/MKM	
CHECKED BY: SN	
APPROVED BY:	
SHEET 63 OF 72	
2023-XX-CON	

Know what's below.
Call before you dig.

5508 HIGHWAY 290 WEST
SUITE 150
MCKINNEY, TX 75069
817.484.8888
HRRGREEN.COM

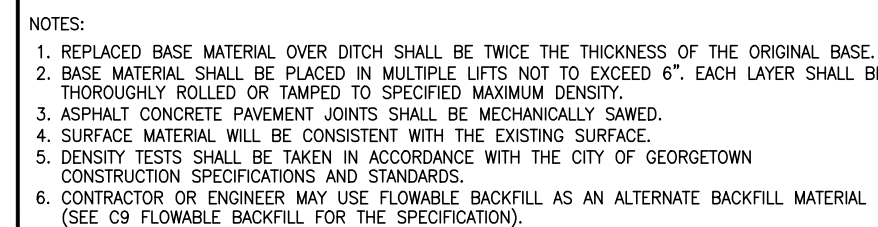
EPF NO: 16384
EPFLS NO: 10194101

HRGreen®
DEVELOPMENT TX

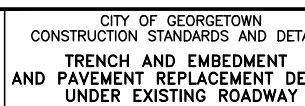
WVL D PLAN & PROFILE
1+00 - END

PARKSIDE SECTION 8
CONSTRUCTION PLANS

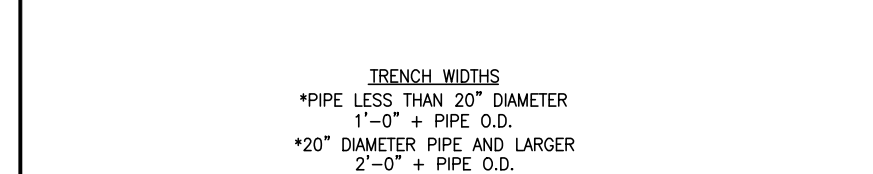
GEORGETOWN, WILLIAMSON, TEXAS



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



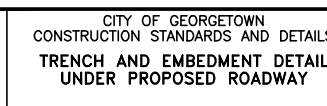
PERSON ADOPTED		ADOPTED 6/21/2006	
PERSON ADOPTED		WW17	
NTS	1/2003		
ADOPTED BY	ADOPTED BY		
1/2003	1/2003		



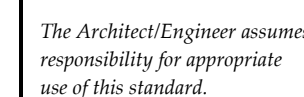
NOTES:


1. DENSITY TESTS SHALL BE TAKEN IN ACCORDANCE WITH THE CITY OF GEORGETOWN CONSTRUCTION SPECIFICATIONS AND STANDARDS.
2. CONTRACTOR OR ENGINEER MAY USE FLOWABLE BACKFILL AS AN ALTERNATE BACKFILL MATERIAL (SEE C9 FLOWABLE BACKFILL FOR THE SPECIFICATION).

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

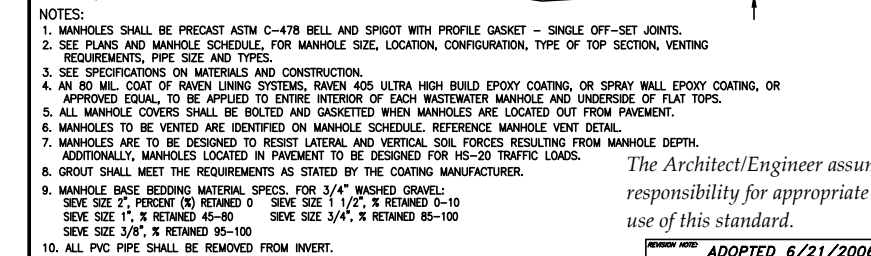


PERSON NAME		ADOPTED 6/21/2006	
PERSON NAME		WW18	
DATE	TIME	DATE	TIME
NTS	1/2003		
PRINTED BY	PRINTED BY		
1-101	1009		



 <p>EST. 1946 GEORGETOWN TEXAS <small>Georgetown University</small></p>	<p>CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS TYPICAL MANHOLE WITH VENT</p>
--	---

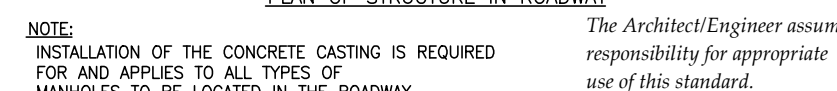
ADOPTED 6/21/2006	
WW19	
DATE	TIME
NTS	11/2003
APPROVED BY	APPROVED BY
J. SMITH	TODD



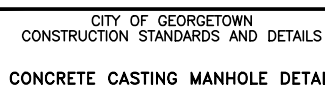
The Architect/Engineer assumes responsibility for appropriate use of this standard.



REVISION ADDED		ADOPTED 6/21/2008	
ISSUING AGENCY		WW20	
STATUS	DATE		
NTS	1/2008		
ISSUED BY	APPROVED BY		
J. GUT	TEB		



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



APPROVED 6/21/2006	
WW21	
DATE	1/2006
NTS	APPROVED BY
1-100	XX

STRUCTURAL GENERAL NOTES AND SPECIFICATIONS

GENERAL REQUIREMENTS

- 1 APPLICABLE CODES AND STANDARDS – ALL CODES AND STANDARDS REFERENCED SHALL BE THE LATEST EDITION.
- 2 ANY REQUIRED CHANGES TO THE STRUCTURAL DRAWINGS DUE TO THE ACCEPTANCE OR INCLUSION OF ALTERNATES OR SUBSTITUTIONS ARE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW.
- 3 THE CONTRACTOR SHALL COMPARE THE STRUCTURAL DRAWINGS WITH THE CIVIL DRAWINGS AND REPORT ANY DISCREPANCY TO THE ENGINEER PRIOR TO FABRICATION OR INSTALLATION OF STRUCTURAL MEMBERS.
- 4 JOB SITE SAFETY SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL, AS A MINIMUM, ADHERE TO OCCUPATIONAL SAFETY AND HEALTH (OSHA) REGULATIONS TO PROTECT PERSONNEL.

FOUNDATION NOTES

- 1 DESIGN LOADS
- ACTIVE LATERAL EARTH PRESSURE – EQUIVALENT FLUID PRESSURE OF 65 PCF.
- SURCHARGE PRESSURE – 50 PSF ON RETENTION SIDE OF EARTH RETAINING WALLS.
- 2 DESIGN ALLOWABLE SOIL BEARING PRESSURE IS 2,000 PSF ON PROOF-ROLLED AND DENSITY TESTED EMBANKMENT MATERIAL THAT IS APPROVED BY THE GEOTECHNICAL ENGINEER.
- 3 THE GEOTECHNICAL INVESTIGATION FOR THIS PROJECT WAS PREPARED BY MLA LABS INC., 2804 LONGHORN BOULEVARD, AUSTIN, TX, 78758, MLA LABS JOB NUMBER 23101123.001, REPORT DATED OCTOBER, 2023. THE CONTRACTOR SHALL OBTAIN A COPY OF THIS REPORT AND REVIEW ITS CONTENTS TO BECOME FAMILIAR WITH THE GEOTECHNICAL CONDITIONS THAT EXIST AT THIS SITE AND THE RECOMMENDATIONS PRESENTED IN THE GEOTECHNICAL INVESTIGATION.
- 4 PRIOR TO COMMENCEMENT OF EXCAVATION OPERATIONS, FIELD LOCATE AND ADEQUATELY PROTECT ANY EXISTING STRUCTURES, TREES, UTILITIES AND/OR OTHER PERMANENT ELEMENTS TO REMAIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE REPAIR OR REPLACEMENT OF ANY DAMAGE RESULTING FROM CONSTRUCTION OPERATIONS.
- 5 THE CONTRACTOR SHALL PROVIDE AND ENSURE PROPER DRAINAGE OF THE SITE PRIOR TO BEGINNING CONSTRUCTION OF THE OUTLET STRUCTURE. DRAINAGE SHALL BE SUCH THAT SURFACE RUNOFF IS ROUTED AROUND OR AWAY FROM THE CONSTRUCTION AREA. MEASURES SHALL BE TAKEN TO PREVENT THE PONDING OF WATER WITHIN THE FOUNDATION AREA.
- 6 THE CONSTRUCTION AREA FOR THE POND OUTLET STRUCTURE SHALL BE STRIPPED OF ALL VEGETATION, LOOSE TOP SOIL, DEBRIS, ORGANICS AND OTHER DELETERIOUS MATERIAL. ROOTS AND STUMPS OF TREES WITHIN THE CONSTRUCTION AREA SHALL BE REMOVED FOR THEIR FULL DEPTH, INCLUDING THE DRY SOILS AROUND THE ROOT BULB. EXCAVATIONS IN CUT AREAS SHALL BE BENCHED.
- 7 FOOTINGS SHALL BE FOUNDED ON PROOF-ROLLED AND DENSITY TESTED EMBANKMENT MATERIAL THAT IS APPROVED BY THE GEOTECHNICAL ENGINEER. EXCAVATIONS SHALL BE NEAT AND FREE OF ALL LOOSE MATERIALS AND DEBRIS PRIOR TO PLACEMENT OF CONCRETE. CONTRACTOR SHALL USE CARE TO PROTECT EXCAVATIONS FROM CAVING AND SLOUGHING DUE TO TRAFFIC FROM EQUIPMENT OR WORKMEN.
- 8 ONCE FINAL SUBGRADE ELEVATIONS HAVE BEEN ACHIEVED, THE EXPOSED SUBGRADE SHALL BE CAREFULLY PROOFROLLED WITH A 15-TON PNEUMATIC ROLLER OR EQUIVALENT EQUIPMENT TO DETECT WEAK ZONES IN THE SUBGRADE. WEAK AREAS DETECTED DURING PROOFROLLING SHALL BE REMOVED AND REPLACED WITH SOILS EXHIBITING SIMILAR CLASSIFICATION, MOISTURE CONTENT AND DENSITY AS THE ADJACENT IN-SITU SOILS. PRIOR TO FOOTING CONSTRUCTION, THE SUBGRADE PREPARATION SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER.
- 9 ANY WATER ACCUMULATIONS IN EXCESS OF 1 INCH SHALL BE PUMPED OUT PRIOR TO PLACEMENT OF CONCRETE. REBAR AND CONCRETE FOR FOOTINGS SHALL BE PLACED AS SOON AS PRACTICAL FOLLOWING COMPLETION OF EXCAVATIONS TO PREVENT EXCESSIVE DRYING OR WETTING OF THE SUBGRADE.
- 10 ALL FILL UNDERNEATH AND BACKFILL BEHIND THE POND OUTLET STRUCTURE SHOULD CONSIST OF EMBANKMENT MATERIALS TESTED AND APPROVED BY THE PROJECT GEOTECHNICAL ENGINEER. REFERENCE CIVIL DRAWINGS AND PROJECT GEOTECHNICAL REPORT FOR SPECIFICATIONS AND PLACEMENT REQUIREMENTS OF THE EMBANKMENT MATERIAL AND POND CLAY LINER (IF REQUIRED).
- 11 BACKFILLING OPERATIONS SHALL NOT BEGIN UNTIL CONCRETE WALLS HAVE CURED A MINIMUM OF 7 DAYS. FORMS SHALL REMAIN IN PLACE FOR A MINIMUM OF 7 DAYS. IF DESIRED, FORMS MAY BE REMOVED UPON SATISFACTORY EVIDENCE THAT CONCRETE HAS ACHIEVED 75% OF ITS SPECIFIED 28 DAY STRENGTH AND PROVIDED THAT CONCRETE IS CURED USING A SPRAY ON CURING COMPOUND FOR THE REMAINDER OF THE 7 DAY CURING PERIOD. UNDER NO CIRCUMSTANCES SHALL BACKFILLING COMMENCE IN LESS THAN 7 DAYS. THE BACKFILL PLACEMENT AND COMPACTION OPERATIONS SHALL BE CAREFULLY CONTROLLED TO PREVENT OVERCOMPACTION OR DAMAGE TO THE STRUCTURES.

REINFORCED CONCRETE NOTES

- 1 ALL CONCRETE SHALL BE CLASS C (3,600 PSI) NORMAL WEIGHT CONCRETE WITH A WATER/CEMENT RATIO OF NOT MORE THAN 0.45 AND A SLUMP IN THE RANGE OF 5 TO 8 INCHES. WATER CONTENT SHALL BE CLOSELY MONITORED DURING BATCHING. UNDER NO CIRCUMSTANCES SHALL THE WATER/CEMENT RATIO BE PERMITTED TO EXCEED THE SPECIFIED MAXIMUM. THE USE OF A MID RANGE WATER REDUCING ADMIXTURE IS RECOMMENDED TO IMPROVE WORKABILITY DURING PLACING OPERATIONS.
- 2 THE USE OF FLY ASH IS REQUIRED. CONCRETE SHALL BE PROPORTIONED WITH A FLY ASH CONTENT EQUAL TO 25 PERCENT OF THE TOTAL WEIGHT OF THE FLY ASH PLUS CEMENT. FLY ASH MAY BE CLASS F OR C, BUT CONCRETE MIXED WITH CLASS C FLY ASH SHALL BE SUBJECT TO THE FOLLOWING RESTRICTIONS:
- A COARSE AGGREGATE SHALL CONSIST OF CRUSHED LIMESTONE. THE USE OF RIVER GRAVEL AGGREGATE WILL NOT BE PERMITTED.
- B CEMENT SHALL BE TYPE II LA (LOW ALKALI) OR TYPE I/II LA. ALKALI CONTENT OF THE CEMENT SHALL BE LESS THAN 0.60%. CONTRACTOR SHALL SUBMIT EVIDENCE OF THE ALKALI CONTENT CERTIFIED BY AN INDEPENDENT TESTING LABORATORY.
- 3 REINFORCING STEEL SHALL BE ASTM/ANSI A615, GRADE 60. DETAILING, FABRICATION AND ERECTION OF REINFORCING BARS SHALL BE IN ACCORDANCE WITH THE AMERICAN CONCRETE INSTITUTE "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES," ACI 315.

- 4 CONCRETE CONSTRUCTION, INCLUDING MINIMUM REINFORCING STEEL COVERAGE BY CONCRETE, SHALL BE IN ACCORDANCE WITH THE AMERICAN CONCRETE INSTITUTE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE," ACI 318, UNLESS OTHERWISE NOTED.
- 5 PROVIDE SUPPORTS OR CHAIRS TO SUPPORT REBAR AT THE POSITIONS REQUIRED BY THE DRAWINGS. REINFORCEMENT FOR FOOTINGS SHALL BE SUPPORTED ON PRECAST CONCRETE BLOCKS OF A THICKNESS TO PROPERLY POSITION THE REBAR. BLOCKS SHALL BE PROVIDED AT 3'-0" MAXIMUM ON CENTERS.
- 6 LAP CONTINUOUS UNSCHEDULED REINFORCING BARS 40 BAR DIAMETERS UNLESS OTHERWISE NOTED.
- 7 THERE SHALL BE NO HORIZONTAL CONSTRUCTION JOINTS EXCEPT WHERE SPECIFICALLY NOTED ON THESE DRAWINGS.
- 8 THE CONTRACTOR SHALL ENSURE THAT ALL EMBEDDED ITEMS ARE DELIVERED TO THE SITE IN A TIMELY FASHION AND INSTALLED IN THE FORMWORK PRIOR TO PLACEMENT OF CONCRETE.
- 9 FIELD CUTTING OF REINFORCEMENT SHALL BE BY SHEARING OR SAWING. FIELD CUTTING OF REINFORCEMENT BY TORCH WILL BE PERMITTED ONLY WITH THE APPROVAL OF THE ENGINEER.
- 10 UNLESS OTHERWISE NOTED, ALL 90, 135 AND 180 DEGREE REINFORCING STEEL HOOKS SHALL BE STANDARD ACI HOOKS.
- 11 THE CONTRACTOR SHALL USE A TREMIE TO PLACE CONCRETE IN ALL AREAS WHERE THE FALL OF THE CONCRETE WILL EXCEED 5 FEET.
- 12 THE CONTRACTOR SHALL USE CARE TO PROPERLY VIBRATE CONCRETE DURING PLACING OPERATIONS TO ENSURE GOOD DENSITY OF CONCRETE AND TO MINIMIZE SURFACE DEFECTS.
- 13 CHAMFER ALL EXPOSED EDGES 3/4 INCH.
- 14 FORMWORK FOR SURFACES TO BE EXPOSED TO VIEW IN THE FINISHED CONSTRUCTION SHALL BE SMOOTH, EITHER WOOD OR METAL. SMOOTH FORMS SHALL BE FREE OF RAISED GRAIN, TORN SURFACES, WORN EDGES, PATCHES, DENTS OR OTHER DEFECTS. STRENGTH OF FORMS SHALL BE SUCH THAT NO WARPING, BULGING OR BOWING OCCUR UNDER THE WEIGHT OF THE WET CONCRETE. JOINTS SHALL BE SMOOTH AND MORTAR TIGHT. FORMS WHICH DO NOT PRESENT A SMOOTH SURFACE OR LINE UP PROPERLY SHALL NOT BE USED. FORMS SHALL BE FREE OF RUST, GREASE OR OTHER FOREIGN SURFACES THAT MAY DISCOLOR THE FINISHED CONCRETE.
- 15 WALL TIES AT RETAINING WALLS SHALL BE FABRICATED SO THAT ENDS OR END FASTENERS CAN BE REMOVED WITHOUT CAUSING SPALLING OF FACE OF CONCRETE. TIES SHALL BE PROVIDED WITH A WATER SEAL FEATURE. REMOVE ENDS OF FORM TIES SUCH THAT THE EMBEDDED PORTION OF TIE IS AT LEAST 3/4 INCH FROM THE FORMED CONCRETE FACE. PATCH TIE HOLES IMMEDIATELY AFTER REMOVAL OF FORMS.

CONCRETE FINISHING

- 1 REPAIR OF SURFACE DEFECTS – DEFECTIVE AREAS SHALL BE REPAIRED IMMEDIATELY AFTER REMOVAL OF FORMS. HONEYCOMBED AND OTHER DEFECTIVE AREAS SHALL BE REMOVED DOWN TO SOUND CONCRETE. THE DEFECTIVE AND SURROUNDING AREA SHALL BE DAMPENED AND A BONDING GROUT APPLIED TO THE AREA. BONDING GROUT SHALL CONSIST OF APPROXIMATELY ONE PART CEMENT TO ONE PART FINE SAND PASSING A NO. 30 SIEVE. MIX GROUT TO THE CONSISTENCY OF A THICK CREAM AND BRUSH THOROUGHLY INTO THE SURFACE.
- PATCHING MORTAR SHALL BE OF THE SAME MATERIALS AND APPROXIMATELY THE SAME PROPORTIONS AS CONCRETE EXCEPT THAT COARSE AGGREGATE SHALL BE OMITTED. PREPARE MORTAR WITH NO MORE THAN ONE PART CEMENT TO 2 1/2 PARTS SAND. USE WHITE PORTLAND CEMENT FOR PART OF THE GRAY CEMENT TO MIX A MORTAR OF A COLOR TO MATCH THE SURROUNDING CONCRETE. USE NO MORE WATER THAN NECESSARY AND MIX MORTAR TO THE STIFFEST CONSISTENCY THAT WILL PERMIT PLACING.

AFTER SURFACE WATER FROM THE BONDING GROUT HAS DISSIPATED, THOROUGHLY BRUSH PATCHING MORTAR INTO THE BONDING GROUT.

IN LIEU OF USE OF BONDING GROUT, A LATEX BONDING AGENT MAY BE USED.

- 2 ALL VERTICAL CONCRETE SURFACES EXPOSED TO VIEW SHALL RECEIVE A RUBBED FINISH. ALL HORIZONTAL CONCRETE SURFACES EXPOSED TO VIEW SHALL RECEIVE A SMOOTH TROWELED FINISH.

WATERSTOPS

- 1 ALL WATERSTOPS SHALL BE PREFORMED PLASTIC SEALING TYPE WATERSTOP SUCH AS SYNKO-FLEX. PLASTIC SEALING TYPE WATERSTOP SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

SEALANT

- 1 SEALANT AT JOINTS SHALL CONSIST OF POLYURETHANE BASED NON-SAG ELASTOMERIC SEALANT FOR USE IN WATER IMMERSION APPLICATIONS. SEALANT SHALL BE APPLIED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, INCLUDING USE OF A PRIMER AS REQUIRED. AN ACCEPTABLE PRODUCT IS SIKAFLEX 1A SEALANT WITH SIKAFLEX PRIMER 429 AS MANUFACTURED BY SIKA CORPORATION.

SUBMITTALS

THE FOLLOWING ITEMS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW. WORK ASSOCIATED WITH THESE ITEMS SHALL NOT COMMENCE UNTIL THE SUBMITTALS HAVE BEEN REVIEWED AND RETURNED BY THE ENGINEER. THE CONTRACTOR SHALL SUBMIT THE FOLLOWING:

- 1 TEST DATA AND MIX DESIGNS FOR EACH TYPE AND STRENGTH OF CONCRETE SPECIFIED.
- 2 REINFORCING STEEL SHOP DRAWINGS DETAILING REINFORCEMENT FABRICATION AND BAR PLACEMENT. SHOP DRAWINGS SHALL CLEARLY INDICATE THE LOCATION, SIZE, SPACING, SPLICES AND PIECEMARK FOR ALL REINFORCING STEEL. THE SHOP DRAWINGS SHALL PROVIDE SUFFICIENT DETAIL TO PERMIT PLACEMENT OF REINFORCEMENT WITHOUT THE USE OF THE DESIGN DRAWINGS. THE SHOP DRAWINGS SHALL INCLUDE A COMPLETE BILL OF MATERIALS FOR ALL REINFORCING STEEL. FABRICATION OF REINFORCING STEEL SHALL NOT COMMENCE UNTIL THE ENGINEER HAS COMPLETED THE REVIEW OF THE SHOP DRAWINGS.
- 3 PROPOSED LAYOUT AND LOCATION OF CONCRETE JOINTS.
- 4 PROPOSED METHOD OF CONCRETE CURING AND PRODUCT DATA FOR ANY CURING COMPOUNDS PROPOSED FOR USE ON THE PROJECT.
- 5 LABORATORY TEST RESULTS FOR CONCRETE CYLINDER COMPRESSION TESTS AND SUBGRADE AND FILL COMPACTION TESTS.

TESTING LABORATORY REQUIREMENTS

THE CONTRACTOR SHALL SECURE THE SERVICES OF A COMMERCIAL TESTING LABORATORY TO PERFORM ALL REQUIRED MATERIALS TESTS AND INSPECTIONS.

- 1 ONE SET OF CONCRETE TEST CYLINDERS SHALL BE OBTAINED FOR EVERY 50 CUBIC YARDS OF CONCRETE PLACED, OR ANY PORTION THEREOF PLACED IN A SINGLE DAY, AS FOLLOWS:

- A FIVE (5) CONCRETE TEST CYLINDERS SHALL BE MOLDED FROM EACH SAMPLE AND CURED ACCORDING TO ASTM C 31. COMPRESSIVE TESTS SHALL BE PERFORMED ON ONE CYLINDER AT 7 DAYS AND THREE CYLINDERS AT 28 DAYS. THE FIFTH CYLINDER SHALL BE RETAINED FOR 56 DAYS AND TESTED ONLY IF THE AVERAGE STRENGTH OF THE 28 DAYS TESTS DO NOT MEET THE MINIMUM REQUIRED COMPRESSIVE STRENGTH.

- B A SLUMP TEST AND TEMPERATURE MEASUREMENT SHALL BE PERFORMED FOR EACH SAMPLE.

- C COMPUTATION OF WATER/CEMENT RATIO, AS REQUIRED OR DIRECTED BY THE ENGINEER.

- 2 ADDITIONAL CYLINDERS MAY BE MADE AND TESTED, AS NECESSARY, FOR ACCELERATED REMOVAL OF FORMS OR ERECTION OF MEMBERS TO VERIFY THAT NECESSARY STRENGTHS HAVE BEEN OBTAINED. SUCH CYLINDERS SHALL BE MADE AT THE CONTRACTOR'S EXPENSE.

- 3 FIELD DENSITY TESTS SHALL BE PERFORMED ON THE SUBGRADE AND EACH LIFT OF FILL MATERIAL. ONE DENSITY TEST WILL BE REQUIRED FOR EACH 5,000 SQUARE FEET, BUT NOT LESS THAN THREE (3) TESTS PER LIFT.

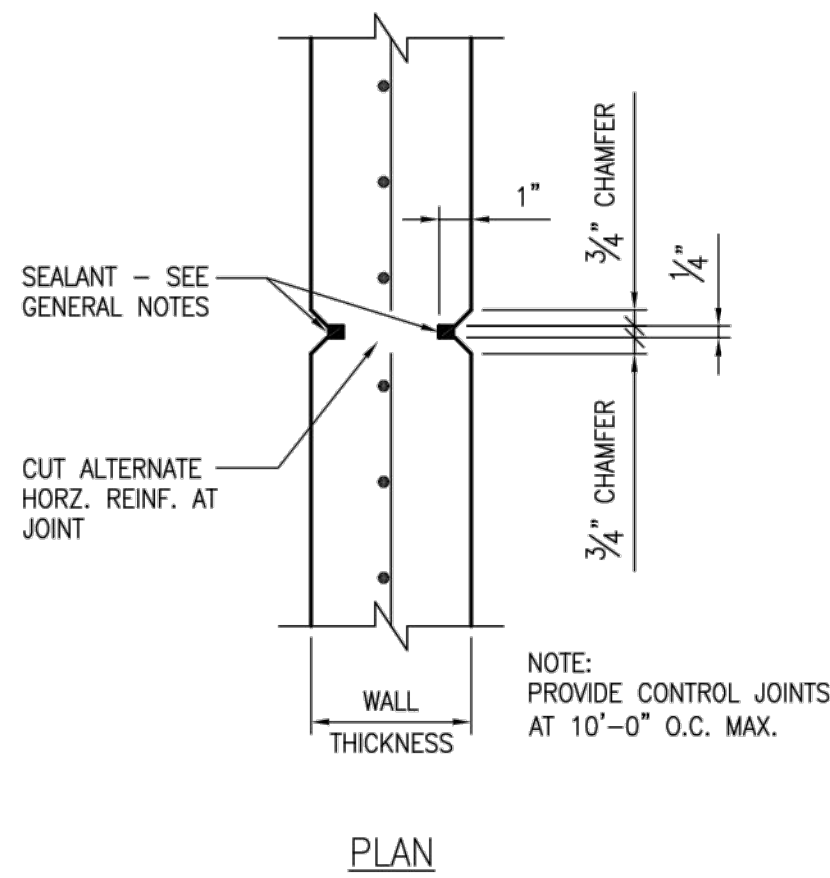
- 4 REINFORCED CONCRETE CONSTRUCTION – SERVICES ARE TO BE PROVIDED AS FOLLOWS:

- A INSPECT EXCAVATIONS AND REINFORCING STEEL PLACEMENT PRIOR TO CONCRETE POURS.

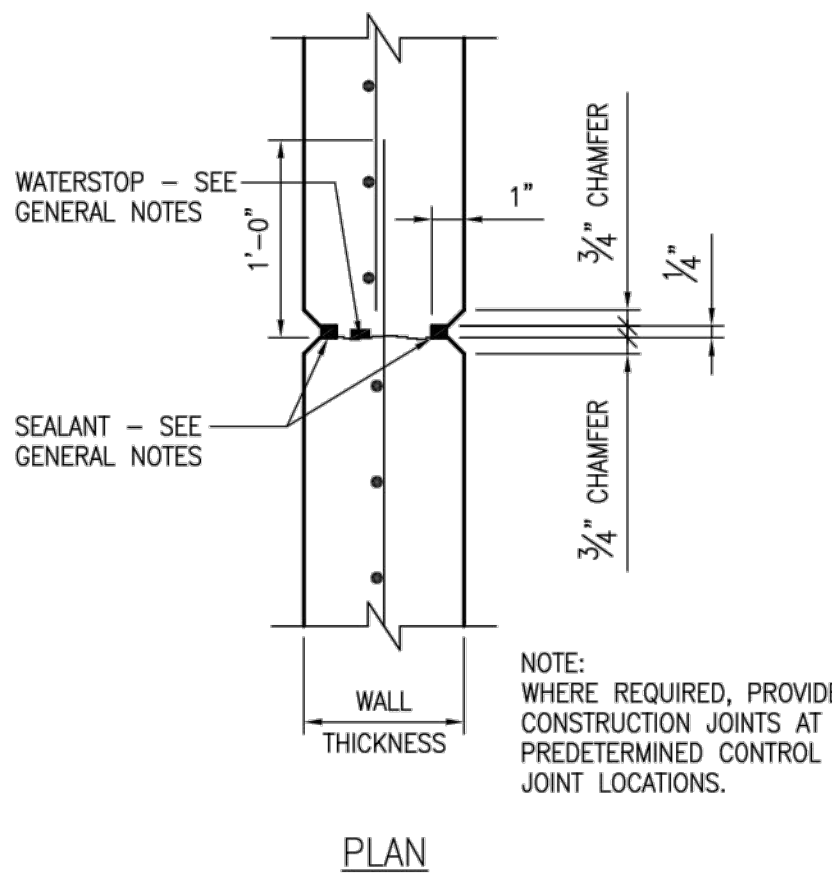
- 5 THE CONTRACTOR SHALL COOPERATE AND COORDINATE FULLY WITH THE TESTING LABORATORY.

- 6 IN THE EVENT THAT CONCRETE ELEMENTS OR MEMBERS DO NOT ACHIEVE THE SPECIFIED MINIMUM COMPRESSIVE STRENGTHS, THE ENGINEER MAY REQUIRE ADDITIONAL ANALYSIS, TESTING OR REMOVAL AND REPLACEMENT OF MEMBERS. ANY AND ALL SUCH ADDITIONAL ANALYSIS OR TESTING SHALL BE AT THE CONTRACTOR'S EXPENSE, WHETHER SUCH ANALYSIS OR TESTING DEMONSTRATES ADEQUATE STRENGTH OR NOT. REPLACEMENT OF ANY MEMBERS DEEMED QUESTIONABLE OR INADEQUATE BY THE ENGINEER SHALL BE AT THE CONTRACTOR'S EXPENSE.

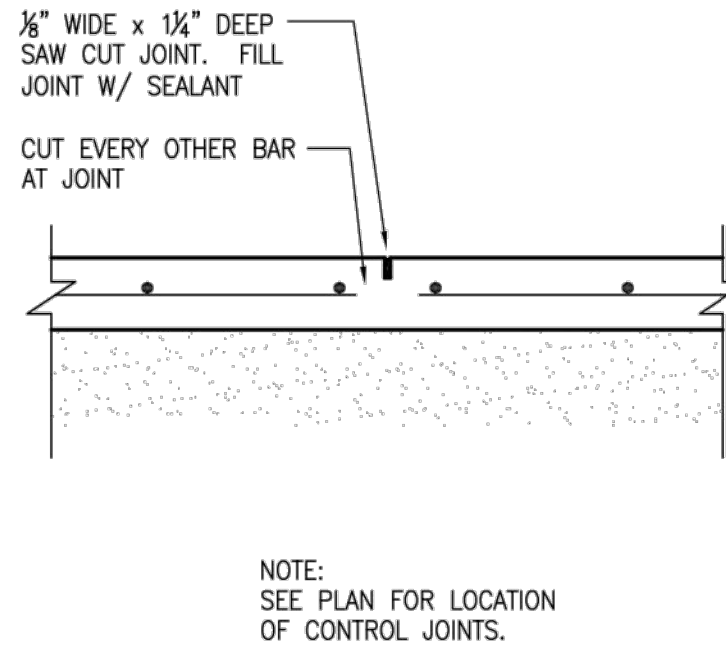
- 7 THE CONTRACTOR SHALL ARRANGE FOR COPIES OF THE INSPECTION AND TESTING REPORTS TO BE SENT TO THE ENGINEER. COPIES OF TEST AND INSPECTION REPORTS SHALL BE FORWARDED TO THE ENGINEER AS QUICKLY AS POSSIBLE FOLLOWING COMPLETION OF THE TESTS AND INSPECTIONS.



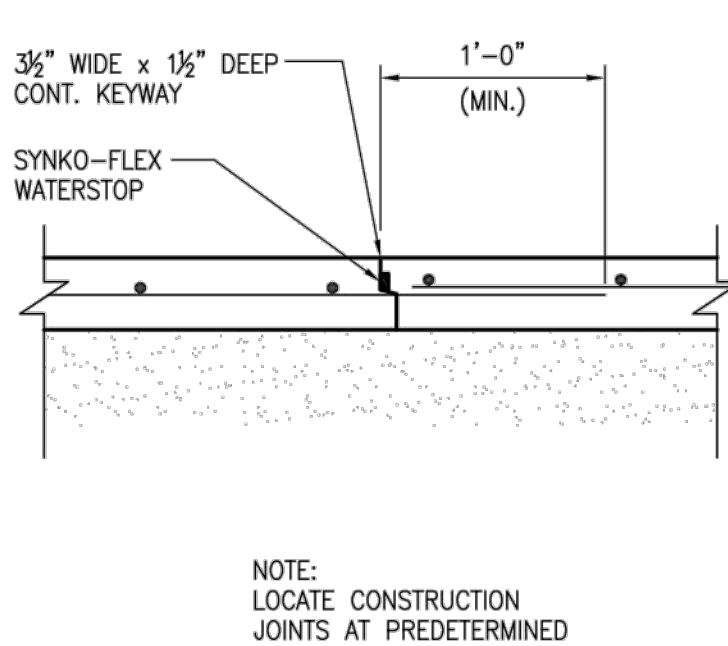
1 RETAINING WALL CONTROL JOINT
TYPICAL DETAIL
N.T.S.



2 RETAINING WALL CONSTRUCTION JOINT
TYPICAL DETAIL
N.T.S.



3 SLAB CONTROL JOINT
TYPICAL DETAIL
N.T.S.



4 SLAB CONSTRUCTION JOINT
TYPICAL DETAIL
N.T.S.

PARKSIDE ON THE RIVER SECTION 8
POND OUTLET STRUCTURE

STRUCTURAL
GENERAL NOTES
& TYPICAL
DETAILS

Copyright 2023

SHEET NO.

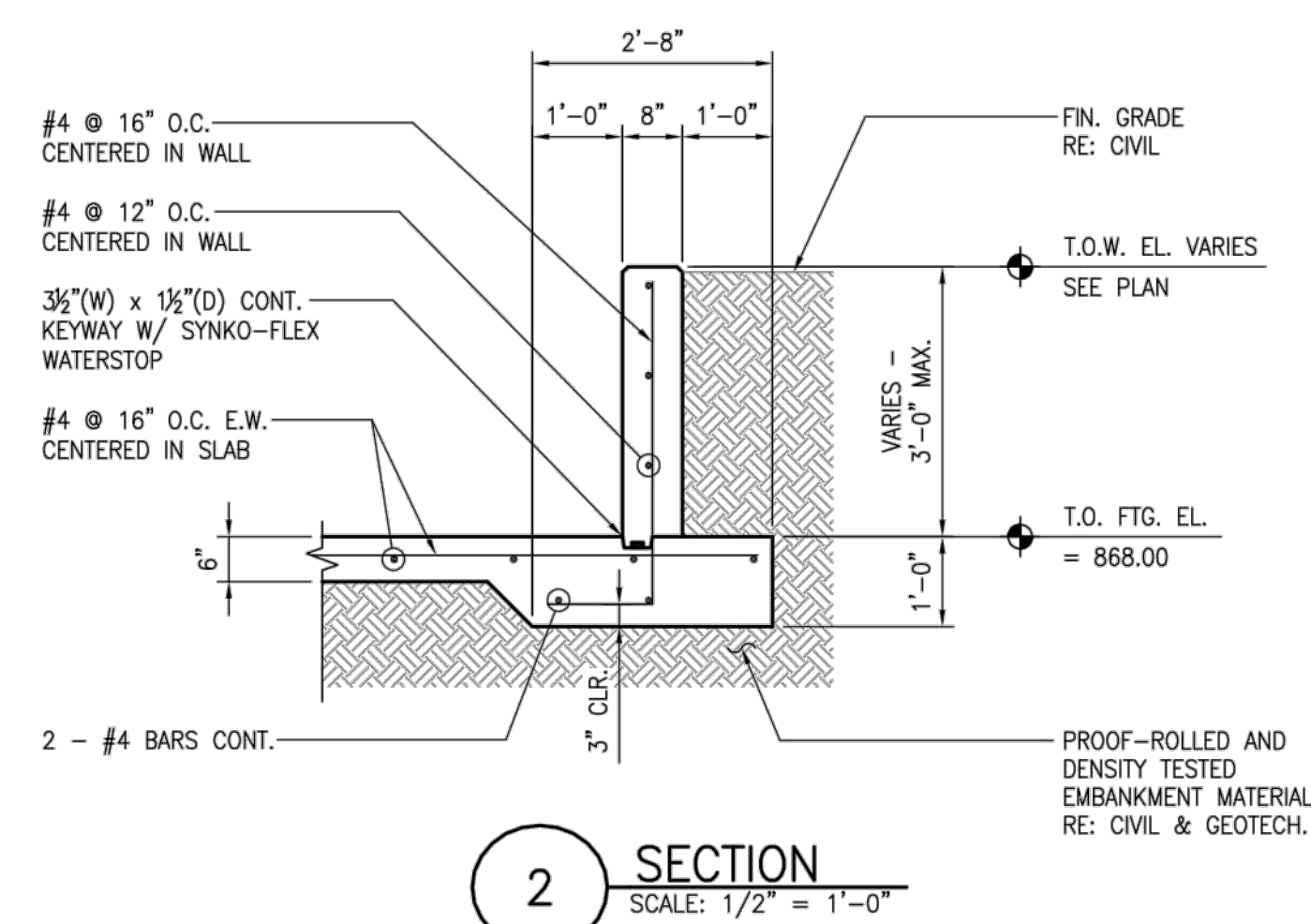
S-1

SHEET 71 OF 72



PROJECT NO. 011-6012
DESIGNED BY: ARB
DRAWN BY: VBS
CHECKED BY: ARB
APPROVED BY: ARB
DATE: 10/31/2023

Pickett, Kelm & Associates, Inc.
Consulting Structural Engineers
Texas Registration No. F-1481
4100 Duval Road, Bldg. 4, Suite 103
Austin, Texas 78759 • Phone 512-345-9538



<p>OUTLET STRUCTURE PLAN & SECTIONS</p>	<p>Copyright 2023</p> <p>SHEET NO.</p> <p>S-2</p>
---	---