Water Pollution Abatement Plan (WPAP)

Crescent Bluff West
Sections 9 & 10

CITY OF GEORGETOWN
WILLIAMSON COUNTY, TEXAS

December 5th, 2025

HR Green Project No: 2404243

Prepared For:
Zamin, LP
6002 Camp Bullis Road, Suite 201
San Antonio, Texas 78626

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

12/05/2025

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Texas Commission on Environmental Quality

Edwards Aquifer Application Cover Page

Our Review of Your Application

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

Administrative Review

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

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

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

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

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

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

5. If an application is received by mail, courier service, or otherwise submitted without a review meeting, the administrative review will be conducted within 30 days. The applicant and agent will be contacted with the results of the administrative review. If the application is found to be administratively incomplete, it can be retrieved from the regional office or returned by regular mail. If returned by mail, the regional office may require arrangements for return shipping.

6. If the geologic assessment was completed before October 1, 2004 and the site contains “possibly sensitive” features, the assessment must be updated in accordance with the *Instructions to Geologists* (TCEQ-0585 Instructions).

Technical Review

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

2. A site assessment is usually conducted as part of the technical review, to evaluate the geologic assessment and observe existing site conditions. The site must be accessible to our staff. The site boundaries should be

clearly marked, features identified in the geologic assessment should be flagged, roadways marked and the alignment of the Sewage Collection System and manholes should be staked at the time the application is submitted. If the site is not marked the application may be returned.

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

Mid-Review Modifications

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

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

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

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

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

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

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

1. Regulated Entity Name: Crescent Bluff West Sections 9 & 10						**2. Regulated Entity No.:**			
3. Customer Name: Zamin, LP						**4. Customer No.: CN604303677**			
5. Project Type: **(Please circle/check one)**	New **X**		Modification			Extension		Exception	
6. Plan Type: **(Please circle/check one)**	WPAP **X**	CZP	SCS	UST	AST	EXP	EXT	Technical Clarification	Optional Enhanced Measures
7. Land Use: **(Please circle/check one)**	Residential **X**		Non-residential			**8. Site (acres):**		58.84 (LOC = 77.92) Legal Boundary = 181.60	
9. Application Fee:	$8,000		**10. Permanent BMP(s):**			Batch Detention Pond			
11. SCS (Linear Ft.):	1,670		**12. AST/UST (No. Tanks):**			N/A			
13. County:	Williamson County		**14. Watershed:**			South Fork San Gabriel River			

Application Distribution

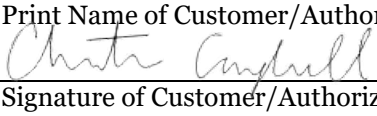
Instructions: Use the table below to determine the number of applications required. One original and one copy of the application, plus additional copies (as needed) for each affected incorporated city, county, and groundwater conservation district are required. Linear projects or large projects, which 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.)	___	___	_X
Region (1 req.)	___	___	_X
County(ies)	___	___	_X
Groundwater Conservation District(s)	___Edwards Aquifer Authority ___Barton Springs/ Edwards Aquifer ___Hays Trinity ___Plum Creek	___Barton Springs/ Edwards Aquifer	NA
City(ies) Jurisdiction	___Austin ___Buda ___Dripping Springs ___Kyle ___Mountain City ___San Marcos ___Wimberley ___Woodcreek	___Austin ___Bee Cave ___Pflugerville ___Rollingwood ___Round Rock ___Sunset Valley ___West Lake Hills	___Austin ___Cedar Park ___Florence X_Georgetown ___Jerrell ___Leander ___Liberty Hill ___Pflugerville ___Round Rock

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

I certify that to the best of my knowledge, that the application is complete and accurate. This application is hereby submitted to TCEQ for administrative review and technical review.	
Christine Campbell	
Print Name of Customer/Authorized Agent	
	12/05/2025
Signature of Customer/Authorized Agent	Date

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

General Information Form

Texas Commission on Environmental Quality

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

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

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

Signature

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

Print Name of Customer/Agent: Christine Campbell, P.E.

Date: 12/05/2025

Signature of Customer/Agent:

Project Information

1. Regulated Entity Name: Crescent Bluff West Sections 9 & 10
2. County: Williamson
3. Stream Basin: South Fork San Gabriel River
4. Groundwater Conservation District (If applicable): N/A
5. Edwards Aquifer Zone:

   ☒ Recharge Zone
   ☐ Transition Zone

6. Plan Type:

   ☒ WPAP
   ☐ SCS
   ☐ Modification
   ☐ AST
   ☐ UST
   ☐ Exception Request

7. Customer (Applicant):

   Contact Person: G.P. Singh
   Entity: Zamin, LP
   Mailing Address: 6002 Camp Bullis Road, Suite 201
   City, State: San Antonio, TX Zip: 78257
   Telephone: 210-863-0717 FAX: _____
   Email Address: rpuri@athenadomain.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 southwest of Crescent Bluff West Sections 6, 7, and 8, north of South Fork San Gabriel River, and south of SH 29.

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 24th, 2025

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

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

15. Existing project site conditions are noted below:

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

Prohibited Activities

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

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

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

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

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

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

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

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

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

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

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

Administrative Information

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

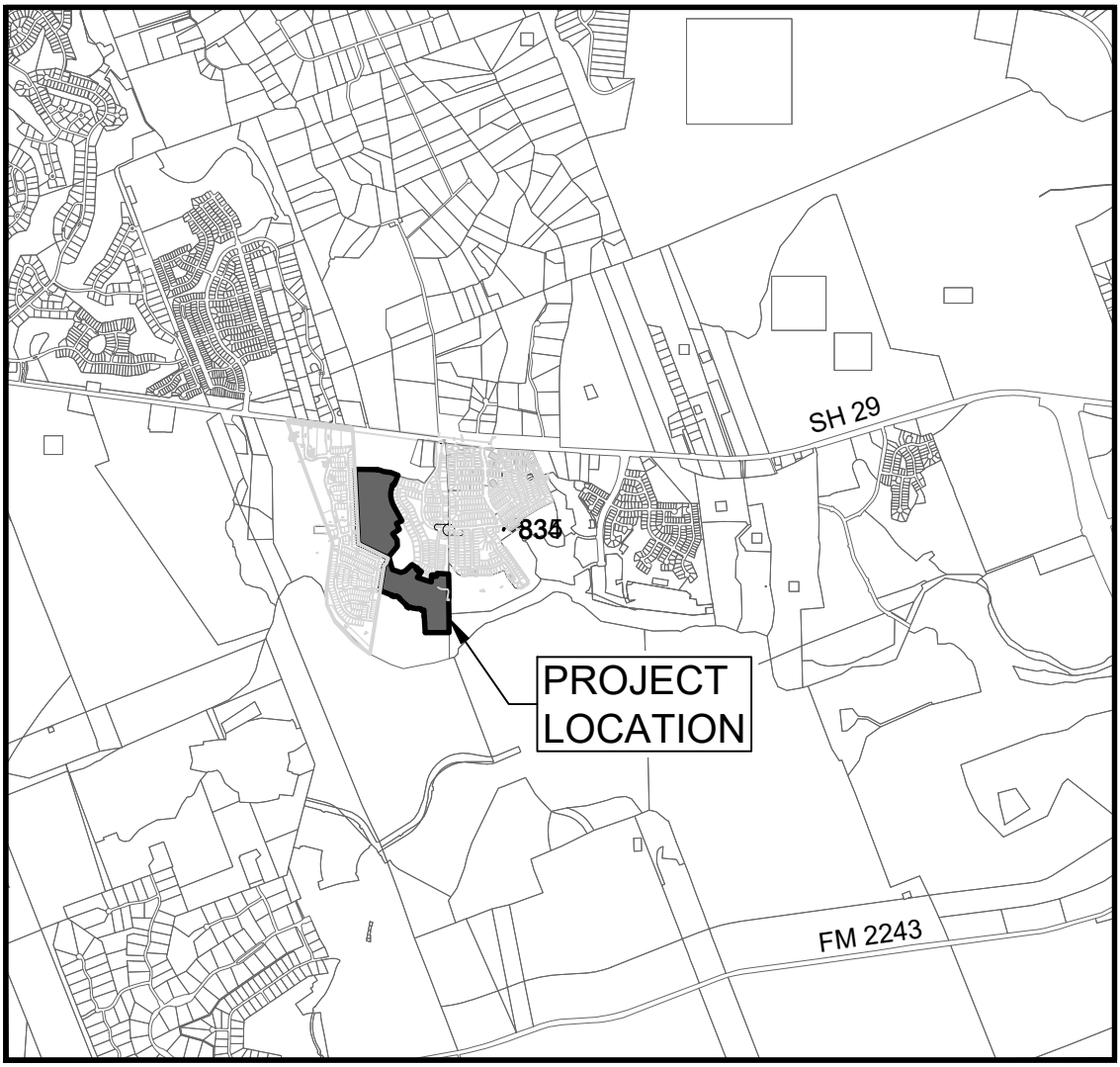
☒ For a Water Pollution Abatement Plan or Modification, the total acreage of the site where regulated activities will occur.
☐ For an Organized Sewage Collection System Plan or Modification, the total linear footage of all collection system lines.
☐ For a UST Facility Plan or Modification or an AST Facility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

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

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

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

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



VICINITY MAP

SCALE: 1"=4000'

N

HRGreen.
DEVELOPMENT TX

5508 HIGHWAY 290 W
SUITE 150
AUSTIN, TX 78735
PHONE: 512.872.6696
HRGreen.com

TBPE NO: 16384
TBPLS NO: 10194101

CRESCENT BLUFF WEST

SECTIONS 9 & 10

LOCATION MAP

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF TEXAS
TEXAS WATER DEVELOPMENT BOARD

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

Edwards Aquifer Contributing Zone

Edwards Aquifer Recharge Zone

Edwards Aquifer Contributing Zone

Edwards Aquifer Recharge Zone

Edwards Aquifer Contributing Zone

SUBJECT PROPERTY

Mapped, edited, and published by the Geological Survey

Control by USGS and NOS/NOAA

Topography by photogrammetric methods from aerial photographs taken 1962. Field checked 1962

Polyconic projection. 1927 North American Datum
10,000-foot grid based on Texas coordinate system, central zone
1000-meter Universal Transverse Mercator grid ticks, zone 14, shown in blue
The difference between 1927 North American Datum and North American Datum of 1983 (NAD 83) for 7.5 minute intersections is given in USGS Bulletin 1875. The NAD 83 is shown by dashed corner ticks

Fine red dashed lines indicate selected fence lines

UTM GRID AND 1962 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

Map photoinspected 1976
No major culture or drainage changes observed

SCALE 1:24 000

CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

QUADRANGLE LOCATION
3097–324

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

LEANDER NE, TEX.
30097-F7-TF-024
1962
PHOTOINSPECTED 1976
DMA 6445 III NE–SERIES V882

Texas Commission on Environmental Quality
Edwards Aquifer Protection Program

Regulatory Zones

30 TAC Chapter 213- Edwards Aquifer
Effective May 1985

This map was produced by the Groundwater Planning and Assessment Team of the Texas Commission on Environmental Quality to detail the boundaries of the regulatory zones of the Edwards Aquifer Protection Program, as described in Texas Administrative Code Title 30, Part 1, §213.3. No other claims are made to the accuracy or completeness of the data or to its suitability for a particular use. For more information about the Edwards Aquifer Protection Program, please contact the TCEQ Regional Offices in San Antonio or Austin. Printed June 2006.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

LEANDER QUADRANGLE
TEXAS
7.5 MINUTE SERIES (TOPOGRAPHIC)

SUBJECT PROPERTY

Edwards Aquifer Recharge Zone

Edwards Aquifer Recharge Zone

Edwards Aquifer Contributing Zone

Edwards Aquifer Recharge Zone

Mapped, edited, and published by the Geological Survey

Control by USGS and NOS/NOAA

Topography by photogrammetric methods from aerial photographs taken 1962. Field checked 1963. Revised from aerial photographs taken 1985. Field checked 1986. Map edited 1987

Projection and 10,000-foot grid ticks: Texas coordinate system, central zone (Lambert conformal conic)
1000-meter Universal Transverse Mercator grid, zone 14
1927 North American Datum
To place on the predicted North American Datum 1983 move the projection lines 17 meters south and 28 meters east as shown by dashed corner ticks

Fine red dashed lines indicate selected fence line

UTM GRID AND 1987 MAGNETIC NORTH DECLINATION AT CENTER OF MAP DIAGRAM IS APPROXIMATE

Red tint indicates areas in which only landmark buildings are shown

Areas covered by dashed light-blue pattern are subject to controlled inundation

SCALE 1:24 000

CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

QUADRANGLE LOCATION

3097–321

ROAD CLASSIFICATION

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

LEANDER, TEX.
30097–E7–TF–024

1987

DMA 6445 III SE–SERIES V882

INTERIOR—GEOLOGICAL SURVEY, RESTON, VIRGINIA—1987

ISBN 0-607-51609-7

Texas Commission on Environmental Quality
Edwards Aquifer Protection Program

Regulatory Zones

30 TAC Chapter 213- Edwards Aquifer
Effective May 1985

This map was produced by the Groundwater Planning and Assessment Team of the Texas Commission on Environmental Quality to detail the boundaries of the regulatory zones of the Edwards Aquifer Protection Program, as described in Texas Administrative Code Title 30, Part 1, §213.3. No other claims are made to the accuracy or completeness of the data or to its suitability for a particular use. For more information about the Edwards Aquifer Protection Program, please contact the TCEQ Regional Offices in San Antonio or Austin. Printed June 2006.

ATTACHMENT C – PROJECT NARRATIVE

The Crescent Bluff West Sections 9 & 10 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 and Contributing Zone and within the San Gabriel River watershed. The overall project site encompasses a 58.84-acre tract of land located southwest of Crescent Bluff West Sections 6, 7, and 8, north of South Fork San Gabriel River, and south of SH 29. There will be roughly 77.92 acres of disturbed land and a 181.60-acre legal boundary for application fee purposes.

The proposed site's SCS system that lies within the Edwards Aquifer recharge zone will be composed of a total of 1,670 LF of wastewater line, comprised of 1,125 LF of 8-inch (8") 115 psi (ASTM D3034) gravity wastewater pipe, and 545 LF of 6-inch (6") gravity wastewater pipe. The proposed improvements will tie into the 8" wastewater lines permitted in Crescent Bluff West Sections 6, 7, and 8 (2022-41-CON, TCEQ EAPP ID No. 11003286) and the existing Cole Tract wastewater manhole, which flow to the existing San Gabriel Interceptor, and ultimately flow to the Dove Springs WWTP for treatment. The Dove Springs WWTP has the capacity to adequately treat the proposed flow.

The proposed development proposes ~18.56 acres of impervious cover (31.54%) and will have the associated runoff treated by an existing batch detention pond approved and built per Crescent Bluff West Sections 6, 7, and 8 (2022-41-CON, TCEQ EAPP ID No. 11003285) as well as a proposed batch detention pond. Based on the 80% TSS removal requirement by TCEQ and the contribution from the previously proposed Crescent Bluff West Sections 6, 7, and 8, we need to provide 28,410 lbs. of TSS removal for the total 32.85 acres of impervious cover proposed in Crescent Bluff West Sections 9 & 10 as well as the previously permitted Crescent Bluff West Sections 67, and 8. The batch detention ponds are designed to handle a fully developed condition of approximately 49.43 (BDP-01) & 16.35 (BDP-02) acres of impervious cover, providing 45,858 (BDP-01) & 15,298 (BDP-02) lbs. of TSS removal respectively. As shown in the calculations, the BMPs satisfy the TSS removal requirement. The 85% TSS removal requirement by the City of Georgetown is also satisfied by the batch detention ponds.

Refer to the construction plans for water quality calculations. Refer to the table on the next page for the proposed sedimentation treatment breakdown provided.

A tree demolition schedule is included in the construction plans.

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

CRESCENT BLUFF WEST SECTIONS 9 AND 10 - 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
					SECTIONS 6-8	SECTIONS 9 & 10							
			AC	AC	AC	AC	AC	%	LB	LB	LB	CF	CF
BDP-01 (EX)	BATCH DETENTION POND	91%	109.03	0.21	13.49	10.99	24.69	23%	21,307	22,639	24,237	327,110	415,033
BDP-02	BATCH DETENTION POND	91%	19.96	0.00	0.00	6.50	6.50	33%	5,658	6,011	6,082	40,220	99,281
BP-01	BY-PASS	0%	1.72	0.00	0.00	0.36	0.36	21%	313				
BP-02	BY-PASS	0%	4.18	0.00	0.59	0.34	0.93	22%	809				
BP-03	BY-PASS	0%	46.71	0.00	0.00	0.37	0.37	1%	322				
TOTAL:			**181.60**	**0.21**	**14.08**	**18.56**	**32.85**	**18%**	**28,410**		**30,319**		

CRESCENT BLUFF WEST SECTIONS 9 AND 10 - 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
					SECTIONS 6-8	SECTIONS 9 AND 10	FUTURE DEVELOPMENT							
			AC	AC	AC	AC	AC	AC	%	LB	LB	LB	CF	CF
BDP-01 (EX)	BATCH DETENTION POND	91%	109.07	0.21	13.49	10.99	10.59	49.71	46%	43,085	45,778	46,174	394,266	415,033
BDP-02	BATCH DETENTION POND	91%	34.76	0.00	0.00	6.62	9.44	16.06	46%	13,979	14,852	15,298	92,125	99,281
VFS-01	VEGETATIVE FILTER STRIP	85%	3.37	0.00			1.61	1.61	48%	1,401		1,541		
BP-01	BY-PASS	0%	1.72	0.00		0.36		0.36	21%	313				
BP-02	BY-PASS	0%	4.18	0.00	0.59	0.34		0.93	22%	809				
BP-03	BY-PASS	0%	28.49	0.00		0.25		0.25	1%	218				
TOTAL:			**181.60**	**0.21**	**14.08**	**18.56**	**21.64**	**68.92**	**38%**	**59,805**		**63,013**		

Narrative Description of Site-Specific Geology for the Approximately 181-acre Chapman Property, Georgetown, Williamson County, Texas

Prepared for:

Zamin, LP

Prepared by:

Cambrian Environmental

February 1st, 2021

NARRATIVE DESCRIPTION OF SITE-SPECIFIC GEOLOGY FOR THE APPROXIMATELY 181-ACRE CHAPMAN PROPERTY, GEORGETOWN, WILLIAMSON COUNTY, TEXAS

Prepared for:

Zamin, LP
6002 Camp Bullis Road
San Antonio, Texas 78257

Prepared by:

Craig Crawford, P.G.

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.

February 1st, 2021

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: 1 February 2021 Fax: _____

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

Signature of Geologist:

Regulated Entity Name: Approximately 181-acre Chapman Property

Project Information

1. Date(s) Geologic Assessment was performed: 5 September 2013 & 22 January 2021
2. Type of Project:
   - ☒ WPAP
   - ☐ SCS
   - ☐ AST
   - ☐ UST
3. Location of Project:
   - ☒ Recharge Zone
   - ☐ Transition Zone
   - ☐ Contributing Zone within the Transition Zone

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

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

Table 1 - Soil Units, Infiltration Characteristics and Thickness

Soil Name	Group*	Thickness(feet)
Brackett (BkE)	C	< 2
Eckrant (EeB,ErE)	D	< 2
Oakalla (Oc)	B	> 5
Sunev (SuB)	B	> 5

** 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" = _____'
   Site Geologic Map Scale: 1" = 350'
   Site Soils Map Scale (if more than 1 soil type): 1" = 600'

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 APPROXIMATELY 181-ACRE CHAPMAN PROPERTY, 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 approximately 181-acre Chapman property. The Chapman property consists primarily of undeveloped ranch land, and is located approximately 4.5 miles west of Interstate Highway 35, stretching south from State Highway 29 to the South Fork of the San Gabriel River (Figure 1).

METHODOLOGY

Two Cambrian Environmental Registered Professional Geoscientists (Texas License #s 3863 & 10791) and two karst technicians conducted a field survey for a Geologic Assessment on 5 September 2013, and a subsequent site survey was conducted on 22 January 2021. 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. All potential karst features, including depressions, holes, and animal burrows, were carefully examined for evidence of subsurface extent. A number of techniques were 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 included 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. Cambrian also conducted due diligence activities as called for under the City of Georgetown Edwards Aquifer Recharge Zone Water Quality Ordinance ("the Ordinance").

RESULTS

Soils

Soils on the property are mapped within the Brackett (BkE), Eckrant (EeB, ErE), Oakalla (Oc), and Sunev (SuB) series soils[1] (Figure 2). The Oakalla and Sunev series soils are within the "B" classification of the hydrologic soil groups. Type "B" soils have a moderate infiltration rate (moderate runoff potential) when thoroughly wet. The Brackett series soils are within the "C" classification of the hydrologic soil groups. Type "C" soils have a slow infiltration rate (high runoff potential) when thoroughly wet. The 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 property is located partially within the Edwards Aquifer Recharge Zone (northern portions of the property), and partially within the Edwards Aquifer Contributing Zone (southern portion of the property). Topography is gently undulating, and generally slopes down to the south towards the South Fork San Gabriel River. The rock lithology outcropping on the property is Cretaceous in age and consists of the

[1] United States Department of Agriculture, Soil Conservation Service, Soil Survey of Williamson County, Texas, 1983.

Edwards Group Limestone (Ked) and the underlying Comanche Peak Limestone (Kc) (Figure 3). 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]. The Edwards Limestone outcrops in the northern half of the property and lithology transitions to the Comanche Peak Limestone as topography dips towards the South Fork of the San Gabriel River. The southern portion of the property is blanketed by Quaternary terrace and alluvial deposits (Qt), with the bed of the channel being mapped as the Keys Valley Member of the Walnut Formation (KwKv).

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.). Karst features are commonly formed along joints, fractures, and bedding plane surfaces in the Edwards Group. No faults are mapped within the property limits.

Site Hydrogeologic Assessment

Due to the property's location along the fringe of the Edwards Limestone outcrop, which also coincides with the divide between the Edwards Aquifer Recharge and Contributing Zones, the likelihood of recharge occurring within the project area and contributing to the main body of the aquifer is thought to be low. However, precipitation events significant enough to initiate runoff will drain to the South Fork of the San Gabriel River and flow downstream where some recharge could occur through fractures or karst features that may be present in the channel bed (downstream and offsite). Three sensitive features (CC1, CC2, and CC3) and five non-sensitive features (NK1, NK2, NK2B, PS1, and Seep) were identified during the pedestrian survey. These features are further described below and in the attached Geologic Assessment Table. While CC1, CC2, and CC3 are ranked as a sensitive features, the catchment area for each is relatively small and the probability of them contributing significant volumes of recharge to the main body of the aquifer is thought to be low. Water recharging into these features is most likely to migrate downward until it reaches the contact with the Comanche Peak Limestone, where it will then travel laterally and discharge along that lithologic contact as seepage.

Edwards Aquifer Recharge Zone Water Quality Ordinance (City of Georgetown UDC)

No springs or streams within the Edwards Aquifer Recharge Zone were identified on the property during the pedestrian survey, and therefore no occupied site protection, or spring or stream buffer protection measures will be required for the property. A drainage is present in the center of the property, but appears to flow only during precipitation events with high runoff potential. This drainage occurs mostly within the Contributing Zone, and did not have any water present at the time of the site visits. The portion of the drainage within the Recharge Zone consists of the drainage headwater which has a catchment less than 64 acres. The southern portion of the property is directly adjacent to the South Fork of the San Gabriel River, and the 100-year floodplain is present in these lower elevation areas, and stream buffers may be required in these areas.

[2] Collins, E.W., 2005, Geologic Map of the West Half of the Taylor 30x60 Quadrangle: Central Texas Urban Corridor, Encompassing Round Rock, Georgetown, Salado, Briggs, Liberty Hill, and Leander. Bureau of Economic Geology, The University of Texas at Austin. Austin Texas 78713-8924.

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.

Feature Descriptions

NK1 The feature consists of a non-karst closed depression measuring approximately 3 feet in diameter by 1 foot deep. The feature appears to be the result of past tree clearing or land management activities.

NK2 The feature consists of a non-karst closed depression measuring approximately 4 feet in diameter by 6 inches deep. The feature appears to be the result of past tree clearing or land management activities.

NK2B The feature consists of a non-karst closed depression measuring approximately 4 feet in diameter by 6 inches deep. The feature appears be the result of past tree clearing or land management activities.

CC1 During the pedestrian survey the feature was identified as a sinkhole measuring approximately 20 feet in diameter by 2 feet deep. The sinkhole is rimmed by a large live oak tree and two persimmon trees. A discrete portal measuring approximately 2 feet by 1 foot by 2 feet deep was observed within the sinkhole, and was partially blocked by a limestone slab and tree roots.

This feature was subsequently excavated by ACI Consulting and the feature was determined to be a cave that is now named "Burled Oak Cave". The cave measures approximately 98 feet long by 75 feet wide with a maximum depth of 21.5 feet (cave map attached). Based on the cave map provided by ACI Consulting, formation of the cave appears to have been structurally controlled by bed rock fractures associated with the Balcones Fault Zone. ACI also determined that the cave is occupied by the endangered Bone Cave Harvestman (*Texella reyesi*).

CC2 The feature consists of a sinkhole measuring approximately 5 feet in diameter, and contains a solution cavity at the bottom of the depression that is 1 foot deep. The feature is lined with limestone cobbles that may have been placed there by ranchers in an attempt to reduce the risk of injury to cattle. Large live oak tree roots also surround the feature.

This feature was subsequently excavated by ACI Consulting to a depth of 5 feet, and fill material consisted of compacted clay rich sediment, roots, coarse cobbles and breakdown. At the base of the feature a small bedding plane void was discovered. No further extensions were discovered.

CC3 The feature consists of a sinkhole measuring approximately 4 feet in diameter by 1 foot deep. A large limestone boulder was placed over the moth of the sinkhole, possibly in an attempt to reduce the risk of injury to cattle.

This feature was subsequently excavated by ACI Consulting to a depth of 4 feet, and fill material consisted of compacted clay rich sediment, roots, coarse cobbles and breakdown. No further extensions were discovered.

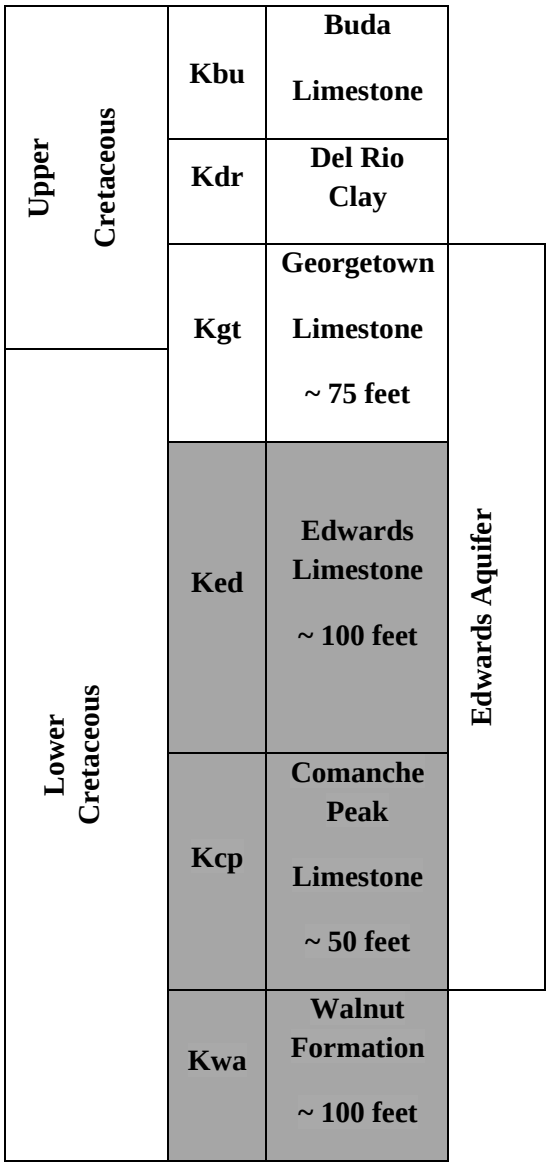
PS1 The feature consists of a small (less than 1 foot in diameter) horizontally-oriented solution cavity located at the contact between the Edwards Limestone and the Comanche Limestone. The feature

is likely a paleo-spring outlet (a former groundwater conduit likely abandoned prior to the Pleistocene Epoch). This feature does not qualify as a spring under the City of Georgetown UDC.

Seep The feature consists of an ephemeral low-flow seep located in the channel of a drainage. The seep is located near the contact between the Edwards Limestone and the Comanche Peak Limestone. According to the landowner, water only emerges from the seep when significant precipitation events occur. No water was present at the time of the 2013 survey, but it did have some standing water at the time of the 2021 survey, likely from recent runoff collecting in the shallow scour downstream of the outlet. This feature does not qualify as a spring under the City of Georgetown UDC. This feature appears to have no potential to be associated with endangered karst invertebrate habitat.

Stratigraphic Column

*Shaded areas represent lithologies underlying the project area



GEOLOGIC ASSESSMENT TABLE			PROJECT NAME: Approximately 181-acre Chapman Properties																	
LOCATION			FEATURE CHARACTERISTICS											EVALUATION			PHYSICAL SETTING			
1A	1B *	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10			11		12
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	ROD (0)	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY			CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z								<40	>40		<1.6	>1.6	
NK1	30.63156	-97.76508	CD	5	Ked	3	3	1					F,O	20	25	X			X		Hillside
NK2	30.63201	-97.76913	CD	5	Ked	4	4	0.5					O	20	25	X			X		Hillside
NK2B	30.63189	-97.76931	CD	5	Ked	4	4	0.5					O	20	25	X			X		Hillside
CC1	30.62985	-97.76467	C	30	Ked	98	75	22	N35E	10			FS,F	30	70			X	X		Hillside
CC2	30.62855	-97.76454	SH	20	Ked	5	5	5					C,F	30	50			X	X		Hillside
CC3	30.62851	-97.76453	SH	20	Ked	4	4	4					C,F	30	50			X	X		Hillside
PS1	30.63013	-97.76672	O	5	Ked/Kc	1	1	1					N	20	25	X				X	Hillside
Seep	30.63201	-97.76867	O	5	Ked/Kc	1	1	1					F	20	25	X				X	Drainage

* DATUM: NAD83

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

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

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

I have read, I understood, and I have followed the Texas Commission on Environmental Quality's Instructions to Geologists. The information presented here complies with that document and is a true representation of the conditions observed in the field.
My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

Date February 1st 2021

Sheet ___1___ of ___1___

STATE OF TEXAS
CRAIG CRAWFORD
GEOLOGY
NO. 10791
LICENSED
PROFESSIONAL GEOSCIENTIST

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

Picture of feature CC1 (Burled Oak Cave)

Picture of the entrance of feature CC1 (Burled Oak Cave)

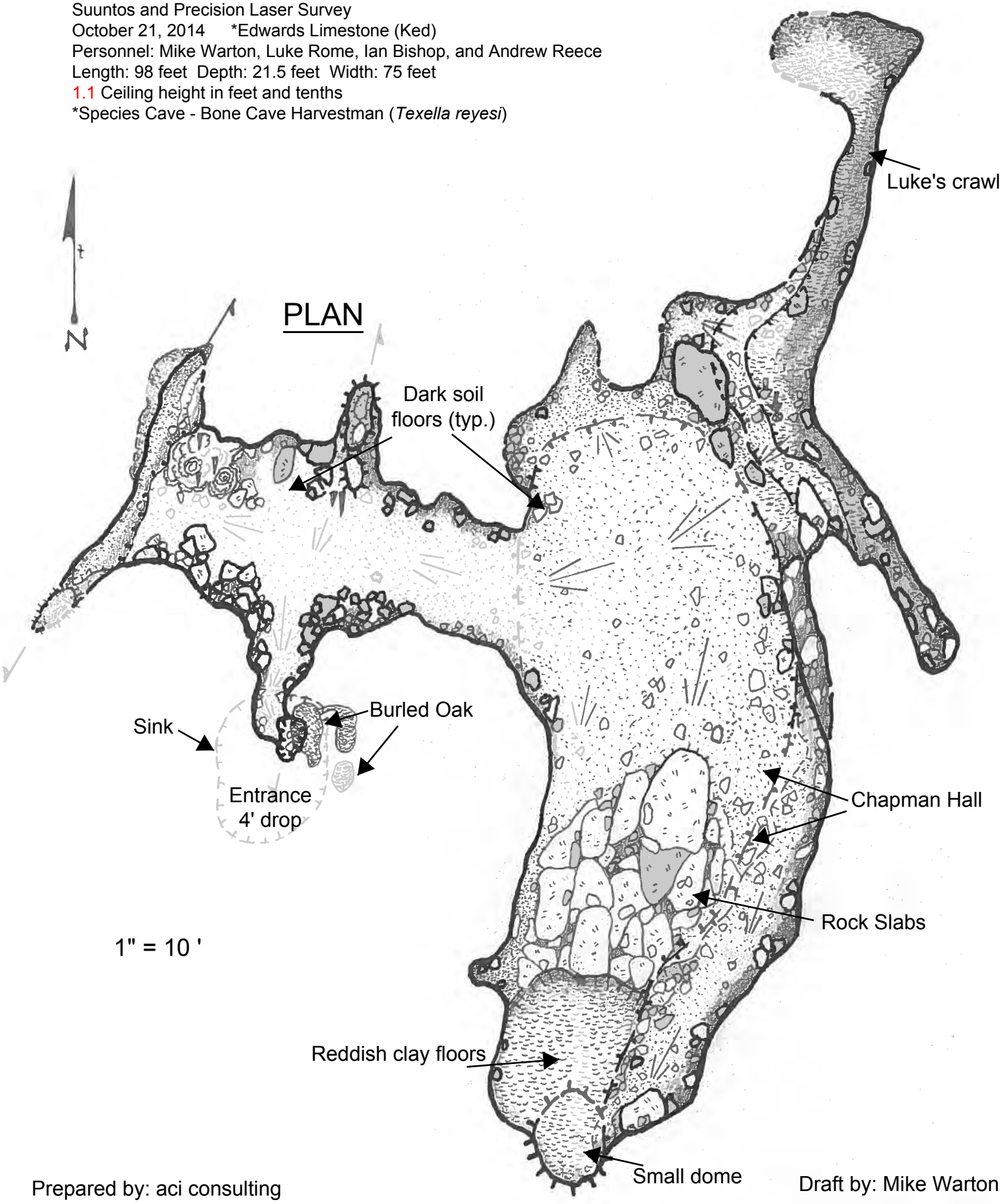
Picture of feature CC2

Picture of feature CC3

Picture of the Seep

Chapman's Burled Oak Cave

Suuntos and Precision Laser Survey
October 21, 2014 *Edwards Limestone (Ked)
Personnel: Mike Warton, Luke Rome, Ian Bishop, and Andrew Reece
Length: 98 feet Depth: 21.5 feet Width: 75 feet
1.1 Ceiling height in feet and tenths
*Species Cave - Bone Cave Harvestman (*Texella reyesi*)



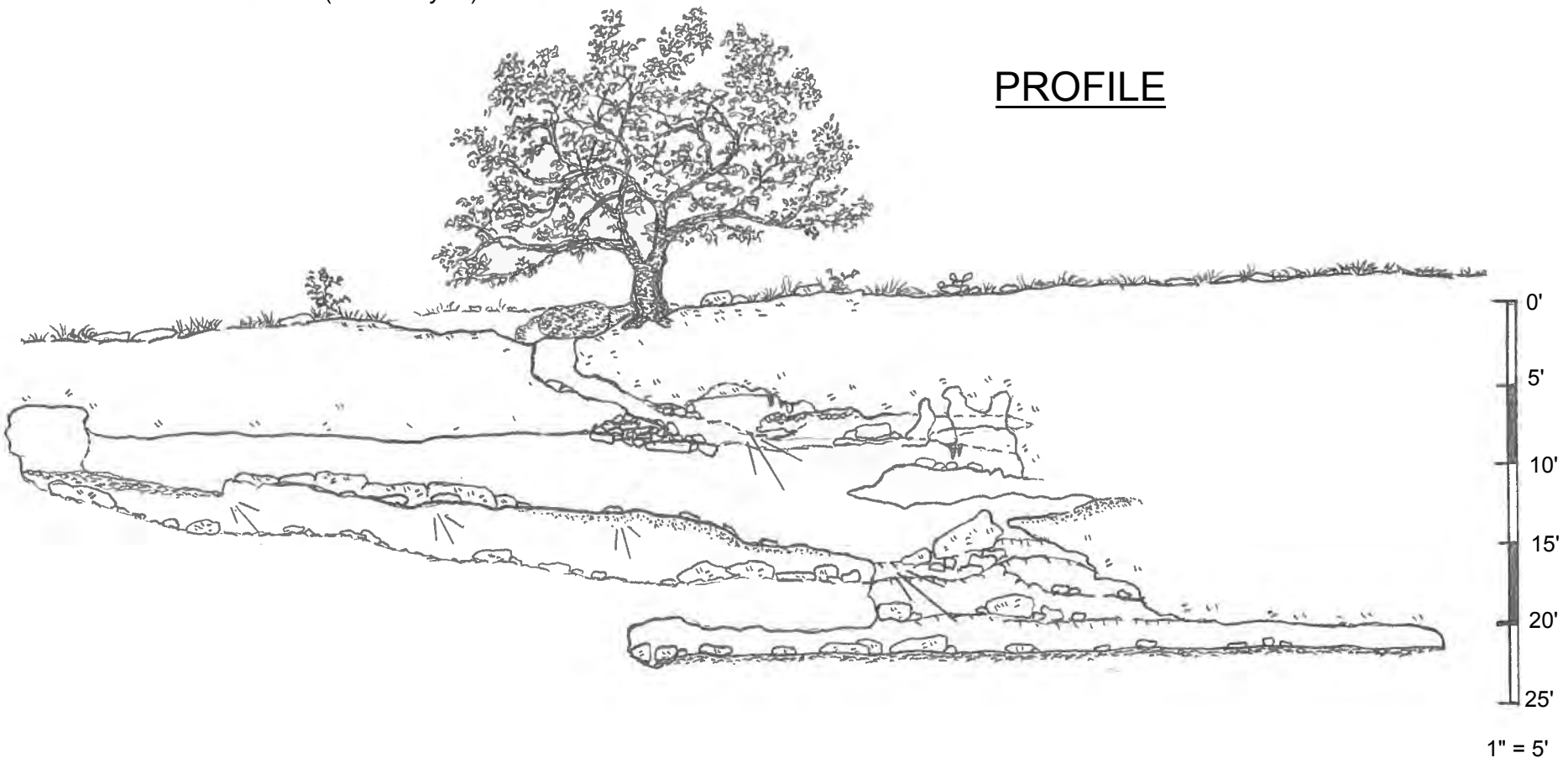
Prepared by: aci consulting

Draft by: Mike Warton

Chapman's Burled Oak Cave

Suuntos and Precision Laser Survey
October 21, 2014 *Edwards Limestone (Ked)
Personnel: Mike Warton, Luke Rome, Ian Bishop, and Andrew Reece
Length: 98 feet Depth: 21.5 feet Width: 75 feet
1.1 Ceiling height in feet and tenths
*Species Cave - Bone Cave Harvestman (*Texella reyesi*)

PROFILE



1" = 5'

Profile is shown from East looking West with no rotations

Prepared by: aci consulting

Draft by: Mike Warton

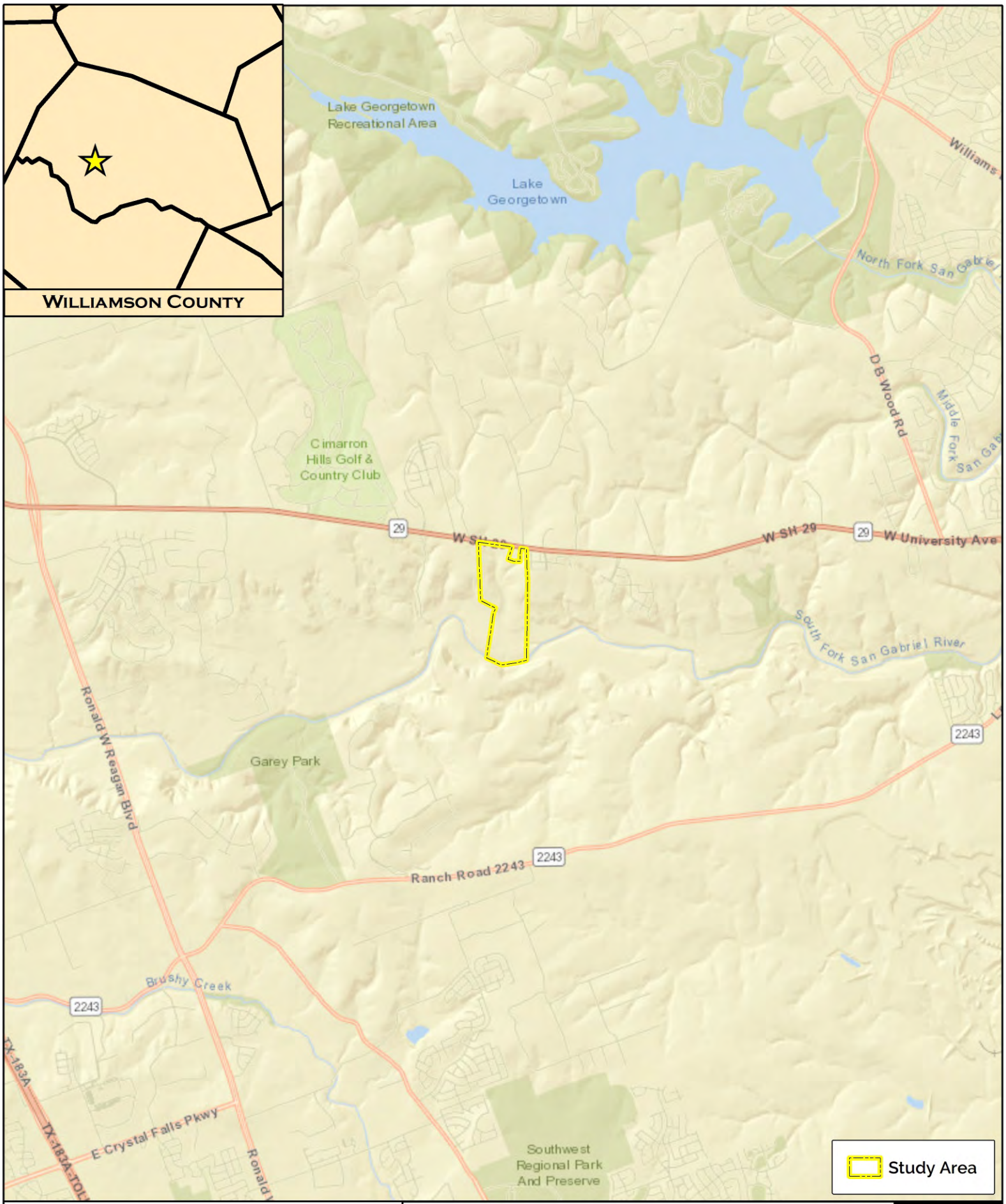


Figure 1 – Site Location Map

Cambrian

Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri

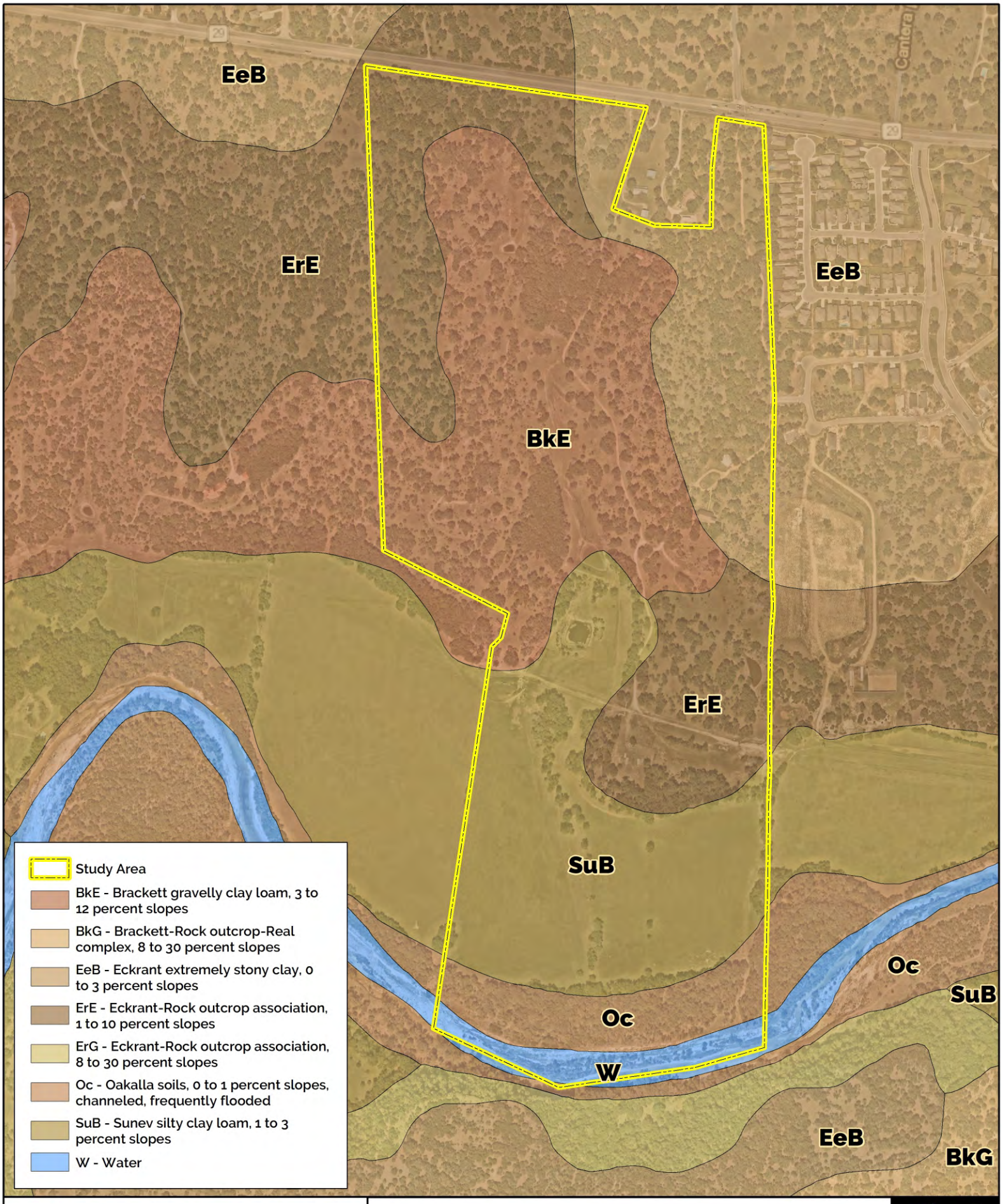


Figure 2 – Site Soils Map

Cambrian

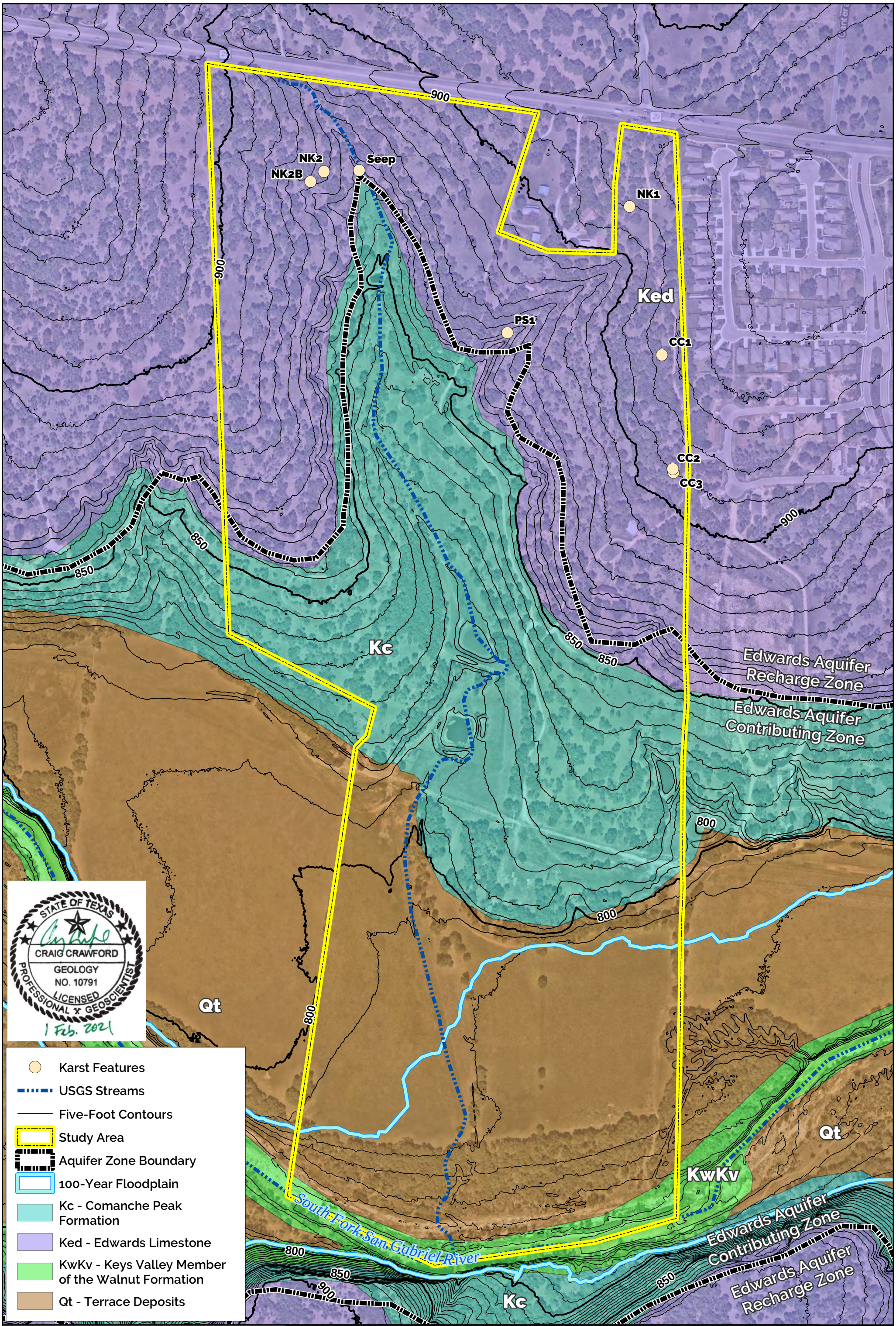


Figure 3 – Site Geologic Map

Cambrian

Water Pollution Abatement Plan Application

Texas Commission on Environmental Quality

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

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

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

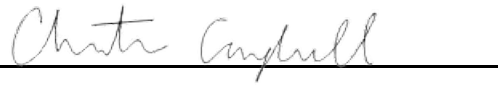
Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **Water Pollution Abatement Plan Application Form** is hereby submitted for TCEQ review and Executive Director approval. The form was prepared by:

Print Name of Customer/Agent: Christine Campbell, P.E.

Date: 12/05/2025

Signature of Customer/Agent:



Regulated Entity Name: Crescent Bluff West Sections 9 & 10

Regulated Entity Information

1. The type of project is:

   ☒ Residential: Number of Lots:117
   ☐ Residential: Number of Living Unit Equivalents:_____
   ☐ Commercial
   ☐ Industrial
   ☐ Other:_____

2. Total site acreage (size of property):58.84 (LOC = 77.92)

3. Estimated projected population:117 units * 3.5 people / unit = 410 people

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

Table 1 - Impervious Cover Table

Impervious Cover of Proposed Project	Sq. Ft.	Sq. Ft./Acre	Acres
Structures/Rooftops	564,973	÷ 43,560 =	12.97
Parking	-	÷ 43,560 =	-
Other paved surfaces	243,521	÷ 43,560 =	5.59
Total Impervious Cover	811494	÷ 43,560 =	18.56

Total Impervious Cover 18.56 **÷ Total Acreage** 58.84 **X 100 =** 31.54**% Impervious Cover**

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

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

For Road Projects Only

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

7. Type of project:

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

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

   ☐ Concrete
   ☐ Asphaltic concrete pavement
   ☐ Other: _____

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

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

10. Length of pavement area: _____ feet.

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

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

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

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

Stormwater to be generated by the Proposed Project

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

Wastewater to be generated by the Proposed Project

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

100% Domestic	29,250Gallons/day
_____% Industrial	_____Gallons/day
_____% Commingled	_____Gallons/day

TOTAL gallons/day 29,250

15. Wastewater will be disposed of by:

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

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

☒ Sewage Collection System (Sewer Lines):

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

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

☒ The sewage collection system will convey the wastewater to the Dove Springs (name) Treatment Plant. The treatment facility is:

☒ Existing.
☐ Proposed.

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

Site Plan Requirements

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

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

Site Plan Scale: 1" = 40'.

18. 100-year floodplain boundaries:

☒ Some part(s) of the project site is located within the 100-year floodplain. The floodplain is shown and labeled.
☐ No part of the project site is located within the 100-year floodplain.
The 100-year floodplain boundaries are based on the following specific (including date of material) sources(s): FEMA FIRM Panel No. 48491C0460F, 12/20/2019 & Panel No. 48491C0275E, 09/26/2008.

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

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

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

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

☐ The wells are not in use and have been properly abandoned.
☐ The wells are not in use and will be properly abandoned.
☐ The wells are in use and comply with 16 TAC §76.

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

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

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

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

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

    ☒ N/A
27. ☐ Locations where stormwater discharges to surface water or sensitive features are to occur.

    ☒ There will be no discharges to surface water or sensitive features.
28. ☒ Legal boundaries of the site are shown.

Administrative Information

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

ATTACHMENT A – FACTORS AFFECTING WATER QUALITY

Potential sources of pollution that may be expected to affect the quality of the storm water discharges from the construction site include the following:

- Soil erosion due to the clearing of the site for wastewater improvements.
- Oil, grease, fuel and hydraulic fluid contamination from construction equipment and vehicle drippings.
- Hydrocarbons from asphalt paving operations.
- Miscellaneous trash and litter from construction.

Potential sources of pollution that may be expected to affect the quality of the storm water discharges from the site after construction is completed include the following:

- Oil, grease, fuel and hydraulic fluid contamination from vehicle drippings.
- Dirt and dust from vehicles.
- Trash and litter.

ATTACHMENT B – VOLUME AND CHARACTER OF STORMWATER

The project site is mostly undeveloped (clear) wooded land with grass. Runoff flows south towards the South Fork San Gabriel River. A portion of the Crescent Bluff Sections 9 & 10 site is located within the 100-year floodplain as defined by FEMA FIRM Panel No. 48491C0460F, December 20, 2019 and No. 48491C0275E, September 26, 2008.

The proposed development proposes ~18.56 acres of impervious cover (31.54%) and will have the associated runoff treated by an existing batch detention pond approved and built with Crescent Bluff West Sections 6, 7, and 8 (2022-41-CON, TCEQ EAPP ID No. 11003285) as well as a proposed batch detention pond. Based on the 80% TSS removal requirement by TCEQ and the contribution from the previously proposed Crescent Bluff West Sections 6, 7, and 8, we need to provide 28,410 lbs. of TSS removal for the total 32.85 acres of impervious cover proposed in Crescent Bluff West Sections 9 & 10, in addition to the impervious cover from Crescent Bluff West Sections 6, 7, and 8. The batch detention ponds are designed to handle a fully developed condition of approximately 49.43 (BDP-01) & 16.35 (BDP-02) acres of impervious cover, providing 45,858 (BDP-01) & 15,298 (BDP-02) lbs. of TSS removal respectively. As shown in the calculations, the BMPs satisfy the TSS removal requirement. The 85% TSS removal requirement by the City of Georgetown is also satisfied by the batch detention ponds.

Refer to the construction plans for water quality calculations. Refer to the table below for the proposed sedimentation treatment breakdown provided.

A tree demolition schedule is included in the construction plans.

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

CRESCENT BLUFF WEST SECTIONS 9 AND 10 - 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
					SECTIONS 6-8	SECTIONS 9 & 10							
			AC	AC	AC	AC	AC	%	LB	LB	LB	CF	CF
BDP-01 (EX)	BATCH DETENTION POND	91%	109.03	0.21	13.49	10.99	24.69	23%	21,307	22,639	24,237	327,110	415,033
BDP-02	BATCH DETENTION POND	91%	19.96	0.00	0.00	6.50	6.50	33%	5,658	6,011	6,082	40,220	99,281
BP-01	BY-PASS	0%	1.72	0.00	0.00	0.36	0.36	21%	313				
BP-02	BY-PASS	0%	4.18	0.00	0.59	0.34	0.93	22%	809				
BP-03	BY-PASS	0%	46.71	0.00	0.00	0.37	0.37	1%	322				
TOTAL:			**181.60**	**0.21**	**14.08**	**18.56**	**32.85**	**18%**	**28,410**		**30,319**		

CRESCENT BLUFF WEST SECTIONS 9 AND 10 - 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
					SECTIONS 6-8	SECTIONS 9 AND 10	FUTURE DEVELOPMENT							
			AC	AC	AC	AC	AC	AC	%	LB	LB	LB	CF	CF
BDP-01 (EX)	BATCH DETENTION POND	91%	109.07	0.21	13.49	10.99	10.59	49.71	46%	43,085	45,778	46,174	394,266	415,033
BDP-02	BATCH DETENTION POND	91%	34.76	0.00	0.00	6.62	9.44	16.06	46%	13,979	14,852	15,298	92,125	99,281
VFS-01	VEGETATIVE FILTER STRIP	85%	3.37	0.00			1.61	1.61	48%	1,401		1,541		
BP-01	BY-PASS	0%	1.72	0.00		0.36		0.36	21%	313				
BP-02	BY-PASS	0%	4.18	0.00	0.59	0.34		0.93	22%	809				
BP-03	BY-PASS	0%	28.49	0.00		0.25		0.25	1%	218				
TOTAL:			**181.60**	**0.21**	**14.08**	**18.56**	**21.64**	**68.92**	**38%**	**59,805**		**63,013**		

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.

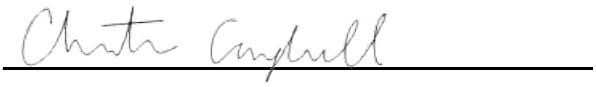
Signature

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: 12/05/2025

Signature of Customer/Agent:



Regulated Entity Name: Crescent Bluff West Sections 9 & 10

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: South Fork 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 water courses. 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 National Response Center at (800) 424-8802 as soon as possible but not later than 24 hours after the discovery of the spill or discharge.
- Method of notification. The person responsible 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 person responsible shall immediately notify and cooperate with local emergency authorities. The party responsible 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 person responsible shall take reasonable measures to notify potentially affected people 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 erosion control measures, consisting of silt fences, tree protection, storm drains, inlet protection, rock berms, and stabilized construction entrances. 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 are expected to disturb approximately 77.92 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, rock berms, temporary spoils areas, concrete truck washout pits, and temporary construction entrances (Estimated area to be disturbed = 0.80 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 = 7.08 Acres)
3. Installation of utilities including storm, water, and wastewater (Estimated area to be disturbed = 2.64 Acres)
4. Construction of street/driveway pavement including backfill behind curbs (estimated area to be disturbed = 4.87 Acres)
5. Total Construction (estimated area to be disturbed = 77.92 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 berms, stabilized construction entrances, 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, silt fences 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 stabilized construction entrances to reduce the dispersion of sediment from the site, and d) installation of a construction staging area.

Construction:
All installed erosion control measures 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-site within Crescent Bluff West Sections 9 & 10 as shown in the geologic assessment and construction plans. There will be no sealing of sensitive features on the site.

ATTACHMENT F – STRUCTURAL PRACTICES

The site flows and the upgradient run off will encounter batch detention ponds.

ATTACHMENT G – DRAINAGE AREA MAPS

Refer to the construction plans attached.

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

The batch detention ponds will act as temporary and permanent sedimentation ponds. The existing batch detention pond (BDP-01) provides 415,033 CF of water quality volume. The proposed batch detention pond (BDP-02) provides 99,281 CF of water quality volume.

The calculated temporary sedimentation pond volume required for BDP-01 is calculated below.
Calculation: Required Volume = (Rainfall Depth*Runoff Coefficient*Drainage Area*120%)
= 2.00 in. * 0.22 * 109.07 acres * 120%
= 209,048 CF

The calculated temporary sedimentation pond volume required for BDP-02 is calculated below.
Calculation: Required Volume = (Rainfall Depth*Runoff Coefficient*Drainage Area*120%)
= 1.70 in. * 0.27 * 19.96 acres * 120%
= 39,908 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 fences, inlet protection, rock berms, stabilized construction entrances, 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 fences 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 stabilized construction entrances, 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 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 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 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.

<u>Temporary Erosion and Sedimentation Notes:</u>

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.

<u>Dewatering Operations</u>

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.

Permanent Stormwater Section

Texas Commission on Environmental Quality

for Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(b)(4)(C), (D)(Ii), (E), and (5), Effective June 1, 1999

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

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

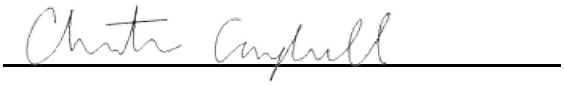
Signature

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

Print Name of Customer/Agent: Christine Campbell, P.E.

Date: 12/05/2025

Signature of Customer/Agent



Regulated Entity Name: Crescent Bluff West Sections 9 & 10

Permanent Best Management Practices (BMPs)

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

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

   ☐ N/A

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

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

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

☐ N/A

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

   ☐ N/A

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

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

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

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

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

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

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

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

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

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

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

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

☐ N/A

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

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

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

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

☒ Design calculations (TSS removal calculations)
☒ TCEQ construction notes
☒ All geologic features
☒ All proposed structural BMP(s) plans and specifications

☐ N/A

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

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

    ☐ N/A

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

    ☒ N/A

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

    ☐ N/A

Responsibility for Maintenance of Permanent BMP(s)

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

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

    ☐ N/A

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

    ☐ N/A

ATTACHMENT B – BMP'S FOR UPGRADIENT STORMWATER

There is upgradient flow that will enter the overall Crescent Bluff West development. This flow is taken into consideration for the permanent water quality BMPs designed for this site.

ATTACHMENT C – BMP'S FOR ON-SITE STORMWATER

The project site is mostly undeveloped (clear) wooded land with grass. Runoff flows south towards the South Fork San Gabriel River. A portion of the Crescent Bluff West Sections 9 & 10 site is located within the 100-year floodplain as defined by FEMA FIRM Panel No. 48491C0460F, December 20, 2019 and No. 48491C0275E, September 26, 2008.

The proposed development proposes ~18.56 acres of impervious cover (31.54%) and will have the associated runoff treated by an existing batch detention pond approved and built with Crescent Bluff West Sections 6, 7, and 8 (2022-41-CON, TCEQ EAPP ID No. 11003285) as well as a proposed batch detention pond. Based on the 80% TSS removal requirement by TCEQ and the contribution from the previously proposed Crescent Bluff West Sections 6, 7, and 8, we need to provide 28,410 lbs. of TSS removal for the total 32.85 acres of impervious cover proposed in Crescent Bluff West Sections 9 & 10, in addition to the impervious cover from Crescent Bluff West Sections 6, 7, and 8. The batch detention ponds are designed to handle a fully developed condition of approximately 49.43 (BDP-01) & 16.35 (BDP-02) acres of impervious cover, providing 45,858 (BDP-01) & 15,298 (BDP-02) lbs. of TSS removal respectively. As shown in the calculations, the BMPs satisfy the TSS removal requirement. The 85% TSS removal requirement by the City of Georgetown is also satisfied by the batch detention ponds.

The fully-developed conditions for the overall area propose approximately 68.93 acres of post-development impervious cover. As shown in the calculations, the existing Crescent Bluff West Sections 6, 7, and 8 batch detention pond (BDP-01), proposed batch detention pond (BDP-02), and future vegetative filter strips (VFS-01) satisfy this requirement. The 85% TSS removal requirement by the City of Georgetown is also satisfied with the batch detention ponds.

In the fully-developed condition, the existing batch detention pond (BDP-01) will treat a total of approximately 49.43 acres of impervious and provide 45,858 lbs. of TSS removal. The proposed batch detention pond (BDP-02) will treat a total of approximately 16.35 acres of impervious cover and provide 15,298 lbs. of TSS removal. The future vegetative filter strip (VFS-01) will treat 1.61 acres of impervious cover and provide 1,541 lbs. of TSS removal. Approximately 1.54 acres of future impervious cover are bypassing treatment.

Refer to the Construction Plans for the sediment treatment details.

ATTACHMENT D – BMP'S FOR SURFACE STREAMS

There are no surface streams on the proposed site. A portion of the Crescent Bluff West Sections 9 & 10 site is located within the 100-year floodplain as defined by FEMA FIRM Panel No. 48491C0460F, December 20, 2019 and No. 48491C0275E, September 26, 2008.

ATTACHMENT F – CONSTRUCTION PLANS

Construction plans are attached.

ATTACHMENT I – MEASURES OF MINIMIZING SURFACE STREAM CONTAMINATION

There are no surface streams located on the proposed site.

ATTACHMENT G – INSPECTION, MAINTENANCE, REPAIR, AND RETROFIT PLAN

Batch Detention Pond

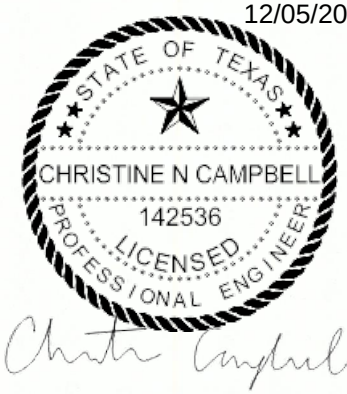
1. Inspections should take place a minimum of twice a year and be documented in inspection reports. Inspection reports should include a field logbook documenting date, location, and action items. One inspection should take place during wet weather to determine if the basin is meeting the target detention time of 12 hours and a drawdown time of no more than 48 hours. The remaining inspections should occur between storm events so that manual operation of the valve and controller can be verified. The level sensor in the basin should be inspected and any debris or sediment in the area should be removed. The outlet structure and the trash screen should be inspected for signs of clogging. Debris and sediment should be removed from the orifice and outlet(s) as described in previous sections. Debris obstructing the valve should be removed. During each inspection, erosion areas inside and downstream of this BMP should be identified and repaired/revegetated immediately.
2. The basin, basin side-slopes, and embankment of the basin must be mowed to prevent woody growth and control weeds. A mulching mower should be used, or the grass clippings should be caught and removed. Mowing should take place at least twice a year, or more frequently if vegetation exceeds 18 inches in height. More frequent mowing to maintain aesthetic appeal may be necessary in landscaped areas.
3. Litter and debris removal should take place at least twice a year, as part of the periodic mowing operations and inspections. Debris and litter should be removed from the surface of the basin. Particular attention should be paid to floatable debris around the outlet structure. The outlet should be checked for possible clogging or obstructions and any debris removed.
4. The basin side slopes and embankment all may periodically suffer from slumping and erosion. To correct these problems, corrective action, such as regrading and revegetation, may be necessary. Correction of erosion control should take place whenever required based on the periodic inspections.
5. Standing water or soggy conditions may occur in the basin. Some standing water may occur after a storm event since the valve may close with 2 to 3 inches of water in the basin. Some flow into the basin may also occur between storms due to spring flow and residential water use that enters the storm sewer system. Twice a year, the facility should be evaluated in terms of nuisance control (insects, weeds, odors, algae, etc.).
6. With each inspection, any damage to structural elements of the basin (pipes, concrete drainage structures, retaining walls, etc.) should be identified and repaired immediately. An example of this type of repair can include patching of cracked concrete, sealing of voids, removal of vegetation from cracks and joints. The various inlet/outlet structures in a basin will eventually deteriorate and must be replaced.
7. A properly designed batch detention basin will accumulate quantities of sediment over time. The accumulated sediment can detract from the appearance of the facility and reduce the pollutant removal performance of the facility. The sediment also tends to accumulate near the outlet structure and can interfere with the level sensor operation. Sediment shall be removed from the basin at least every 5 years, when sediment depth exceeds 6 inches, when the sediment interferes with the level sensor or when the basin does not drain within 48 hours. Care should be taken not to compromise the basin lining during maintenance.
8. The Logic Controller should be inspected as part of the twice-yearly investigations. Verify that the external indicators (active, cycle in progress) are operating properly by turning the controller off and on, and by initiating a cycle by triggering the level sensor in the basin. The valve should be manually opened and closed using the open/close switch to verify valve operation and to assist in inspecting the valve for debris. The solar panel should be inspected and any dust or debris on the panel should be carefully removed. The controller and all other circuitry and wiring should be inspected for signs of corrosion, damage from insects, water leaks, or other damage. At the end of the inspection, the controller should be reset.

An amended copy of this document will be provided to the TCEQ within thirty days of any changes in the following information.

Responsible Party for Maintenance:	Zamin, LP.
Address:	6002 Camp Bullis Road, Suite 201
City, State, Zip:	San Antonio, TX 78257
Telephone Number:	(210) 863-0717

Signature of Responsible Party _____

12/05/2025



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

I G.P. Singh,
Print Name

President,
Title - Owner/President/Other

of Gur Parsaad Management, LLC, general partner of Zamin, 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

12/1/2025
Date

THE STATE OF Texas §

County of Bexar §

BEFORE ME, the undersigned authority, on this day personally appeared G. P. Singh 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 1st day of December, 2025.

PATRICIA BILBY
Notary ID #131384866
My Commission Expires
December 23, 2025

Patricia Bilby
NOTARY PUBLIC

Patricia Bilby
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 12/23/2025

Application Fee Form

Texas Commission on Environmental Quality

Name of Proposed Regulated Entity: Crescent Bluff West Sections 9 & 10

Regulated Entity Location: Southwest of Crescent Bluff West Sections 6, 7 and 8, north of South Fork San Gabriel River and south of SH 29.

Name of Customer: Zamin, LP

Contact Person: G.P. Singh Phone: 210-863-0717

Customer Reference Number (if issued):CN 604303677

Regulated Entity Reference Number (if issued):RN _____

Austin Regional Office (3373)

☐ Hays ☐ Travis ☒ Williamson

San Antonio Regional Office (3362)

☐ Bexar ☐ Medina ☐ Uvalde

☐ Comal ☐ Kinney

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

☐ Austin Regional Office

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

☐ San Antonio Regional Office

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

Site Location (Check All That Apply):

☒ Recharge Zone ☐ Contributing Zone ☐ Transition Zone

Type of Plan	***Size***	***Fee Due***
Water Pollution Abatement Plan, Contributing Zone Plan: One Single Family Residential Dwelling	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Multiple Single Family Residential and Parks	58.84; Legal boundary = 181.60 Acres	$ 8,000
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	Acres	$
Sewage Collection System	L.F.	$
Lift Stations without sewer lines	Acres	$
Underground or Aboveground Storage Tank Facility	Tanks	$
Piping System(s)(only)	Each	$
Exception	Each	$
Extension of Time	Each	$

Signature: _____ Date: 12/05/2025

Application Fee Schedule

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

Water Pollution Abatement Plans and Modifications

Contributing Zone Plans and Modifications

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

Organized Sewage Collection Systems and Modifications

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

Underground and Aboveground Storage Tank System Facility Plans and Modifications

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

Exception Requests

Project	*Fee*
Exception Request	$500

Extension of Time Requests

Project	*Fee*
Extension of Time Request	$150

TCEQ Core Data Form

TCEQ Use Only

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

SECTION I: General Information

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

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

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

2. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	3. Regulated Entity Reference Number *(if issued)*
CN 604303677		RN

SECTION II: Customer Information

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

☐ New Customer ☒ Update to Customer Information ☐ Change in Regulated Entity Ownership

☐ Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)

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

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

Zamin L.P.

7. TX SOS/CPA Filing Number	8. TX State Tax ID (11 digits)	9. Federal Tax ID (9 digits)	10. DUNS Number *(if applicable)*
0800594380	32035258766	204240213	

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

Government: ☐ City ☐ County ☐ Federal ☐ State ☐ Other ☐ Sole Proprietorship ☐ Other:

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

13. Independently Owned and Operated?
☒ Yes ☐ No

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

☒ Owner ☐ Operator ☐ Owner & Operator

☐ Occupational Licensee ☐ Responsible Party ☐ Voluntary Cleanup Applicant ☐ Other:

15. Mailing Address:

6002 Camp Bullis Road, Suite 201

City	State	ZIP	ZIP + 4
San Antonio	TX	78257	

16. Country Mailing Information *(if outside USA)*

17. E-Mail Address *(if applicable)*

rpuri@athenadomain.com

18. Telephone Number	19. Extension or Code	20. Fax Number *(if applicable)*
(210) 863-0717		( ) -

SECTION III: Regulated Entity Information

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

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

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

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

Crescent Bluff West Sections 9 & 10

23. Street Address of the Regulated Entity: *(No PO Boxes)*	Southwest of Crescent Bluff West Sections 6, 7, and 8, north of South Fork San Gabriel River, and south of SH 29.							
	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:	Southwest of Crescent Bluff West Sections 6, 7, and 8, north of South Fork San Gabriel River, and south of SH 29.

26. Nearest City	**State**	**Nearest ZIP Code**
Georgetown	TX	78628

27. Latitude (N) In Decimal:	30.623701		**28. Longitude (W) In Decimal:**	-97.766631	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
30	37	25.32N	97	45	59.87W

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:	**6002 Camp Bullis Road, Suite 201**							
	City	**San Antonio**	**State**	**TX**	**ZIP**	**78257**	**ZIP + 4**	

35. E-Mail Address:	**rpuri@athenadomain.com**

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
(210) 863-717		**( ) -**

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

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

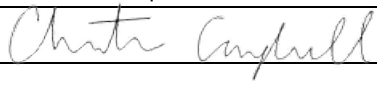
SECTION IV: Preparer Information

40. Name:	Christine Campbell	**41. Title:**	Project Manager

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 Manager	
Name*(In Print)* **:**	Christine Campbell		**Phone:**	(512) 872-6696
Signature:			**Date:**	12/05/2025

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

January 31, 2023

Mr. G. P. Singh
Zamin, L.P.
6002 Camp Bullis Road
San Antonio, TX 78257

Re: Edwards Aquifer, Williamson County
NAME OF PROJECT: Crescent Bluff Sections 6, 7, and 8; Located north of South Fork San Gabriel River and south of SH 29; ETJ of Georgetown, Texas
TYPE OF PLAN: Request for Approval of a Water Pollution Abatement Plan (WPAP) and Approval of an Organized Sewage Collection System (SCS); 30 Texas Administrative Code (TAC) Chapter 213 Edwards Aquifer
Regulated Entity No. RN111583233; Program ID No. 11003285-11003286

Dear Mr. Singh:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the WPAP and SCS application for the above-referenced project submitted to the Austin Regional Office by HR Green Development Texas, LLC. on behalf of Zamin, L.P. on October 4, 2022. Final review of the WPAP was completed after additional material was received on December 27, 2022, and January 30, 2023. As presented to the TCEQ, the Temporary and Permanent Best Management Practices (BMPs) were selected and construction plans were prepared by a Texas Licensed Professional Engineer to be in general compliance with the requirements of 30 TAC Chapter 213. These planning materials were sealed, signed, and dated by a Texas Licensed Professional Engineer. Therefore, based on the engineer's concurrence of compliance, the planning materials for construction of the proposed project and pollution abatement measures are hereby approved subject to applicable state rules and the conditions in this letter. The applicant or a person affected may file with the chief clerk a motion for reconsideration of the executive director's final action on this Edwards Aquifer Protection Plan. A motion for reconsideration must be filed no later than 23 days after the date of this approval letter. *This approval expires two (2) years from the date of this letter unless, prior to the expiration date, more than 10 percent of the construction has commenced on the project or an extension of time has been requested.*

PROJECT DESCRIPTION

The proposed residential project will have an area of approximately 57.18 acres with 0.21 acres of pre-rule existing impervious cover. It will include demolition of the existing impervious cover and the development of 135 single-family residential lots with an amenity center, associated streets, sidewalks, and drainage improvements. The impervious cover will be 21.97 acres (38.42 percent).

The proposed sewage collection system will consist of a total of 11,349 linear feet of PVC SDR 26 gravity sewer main (ASTM D-3034) consisting of 9080 linear feet of 8-inch diameter, 1770 linear feet of 6-inch diameter and 499 feet of 10-inch diameter sewer, manholes, and appropriate appurtenances for the residential development.

The system will be connected to an existing City of Georgetown wastewater line for conveyance to the Dove Springs Water Recycling Center for treatment and disposal. The project is located within the ETJ of Georgetown, Texas and will conform to all applicable codes, ordinances, and requirements of the City of Georgetown.

PERMANENT POLLUTION ABATEMENT MEASURES

To prevent the pollution of stormwater runoff originating on-site or upgradient of the site and potentially flowing across and off the site after construction, one batch detention basin designed using the TCEQ technical guidance document, Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices (2005), will be constructed to treat stormwater runoff. The required total suspended solids (TSS) treatment for this project is 18,940 pounds of TSS generated from the 21.97 acres of impervious cover. The approved measure meets the required 80 percent removal of the increased load in TSS caused by the project.

GEOLOGY

According to the geologic assessment included with the application, the Edwards Group Limestone outcrops on the northern half of the property and the southern half is underlain by the Comanche Peak Limestone. Three sensitive geologic features, the Burled Oak Cave and two sinkholes and five non-sensitive geologic features (three non-karst closed depressions, one solution cavity and one seep) were identified by the project geologist. The site assessment conducted on December 12, 2022, revealed the site was generally as described in the geologic assessment.

Natural buffers were proposed for three sensitive karst features (CC1-Cave, CC2-Sinkhole, CC3 Sinkhole). No regulated activities (such as construction or soil disturbing activities) will take place within the natural buffers. The size is generally based on the drainage are for each sensitive feature. The odd shaped setback for features CC1, CC2, and CC3 are illustrated on the construction plans.

SPECIAL CONDITIONS

I. The permanent pollution abatement measure shall be operational prior to occupancy of the facility.

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

III. By the responsible engineer's dated signature and seal on the Engineering Design Report attached to the submitted application, all information therein accurately reflects the information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer in accordance with the requirements of 30 TAC 213.5 (c) and Chapter 217.

STANDARD CONDITIONS

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

Prior to Commencement of Construction:

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

During Construction:

10. During the course of regulated activities related to this project, the applicant or agent shall comply with all applicable provisions of 30 TAC Chapter 213 and Chapter 217. The applicant shall remain responsible for the provisions and conditions of this approval until such responsibility is legally transferred to another person or entity, upon which that person or entity shall assume responsibility for all provisions and conditions of this approval.
11. This approval does not authorize the installation of temporary aboveground storage tanks on this project. If the contractor desires to install a temporary aboveground storage tank for use during construction, an application to modify this approval must be submitted and approved prior to installation. The application must include information related to tank location and spill containment. Refer to Standard Condition No. 6, above.
12. If any sensitive feature (caves, solution cavities, sink holes, etc.) is discovered during construction, all regulated activities near the feature must be suspended immediately. The

applicant or his agent must immediately notify the Austin Regional Office of the discovery of the feature. Regulated activities near the feature may not proceed until the executive director has reviewed and approved the methods proposed to protect the feature and the aquifer from potentially adverse impacts to water quality. The plan must be sealed, signed, and dated by a Texas Licensed Professional Engineer.

13. All water wells, including injection, dewatering, and monitoring wells must be in compliance with the requirements of the Texas Department of Licensing and Regulation under Title 16 TAC Chapter 76 (relating to Water Well Drillers and Pump Installers) and all other locally applicable rules, as appropriate.
14. If sediment escapes the construction site, the sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain). Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50 percent. Litter, construction debris, and construction chemicals shall be prevented from becoming stormwater discharge pollutants.
15. Intentional discharges of sediment laden water are not allowed. If dewatering becomes necessary, the discharge will be filtered through appropriately selected best management practices. These may include vegetated filter strips, sediment traps, rock berms, silt fence rings, etc.
16. The following records shall be maintained and made available to the executive director upon request: the dates when major grading activities occur, the dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated.
17. Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, and construction activities will not resume within 21 days. When the initiation of stabilization measures by the 14th day is precluded by weather conditions, stabilization measures shall be initiated as soon as practicable.
18. No part of the system shall be used as a holding tank for a pump-and-haul operation.

<u>After Completion of Construction:</u>

19. A Texas Licensed Professional Engineer must certify in writing that the permanent BMPs or measures were constructed as designed. The certification letter must be submitted to the Austin Regional Office within 30 days of site completion.
20. The applicant shall be responsible for maintaining the permanent BMPs after construction until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property (such as without limitation, an owner's association, a new property owner or lessee, a district, or municipality) or the ownership of the property is transferred to the entity. The regulated entity shall then be responsible for maintenance until another entity assumes such obligations in writing or ownership is transferred. A copy of the transfer of responsibility must be filed with the executive director through Austin Regional Office within 30 days of the transfer. A copy of the transfer form (TCEQ-10263) is enclosed.
21. Certification by a Texas Licensed Professional Engineer of the testing of sewage collection systems required by 30 TAC Chapter 213 and Chapter 217 shall be submitted to the Austin Regional Office within 30 days of test completion and prior to the new sewage collection system being put into service. The certification should include the project name as it appeared on the approved application, the program ID number, and two copies of a site plan sheet(s) indicating the wastewater lines and manholes that were tested and are being certified as complying with the appropriate regulations. The engineer must certify in writing that all wastewater lines have passed all required testing to the appropriate regional office within 30 days of test completion and prior to use of the new collection

system. Should any test result fail to meet passing test criteria and then subsequently pass testing, the result(s) and an explanation of what repair, adjustment, or other means were taken to facilitate a subsequent passing result shall be provided.

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

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

Sincerely,

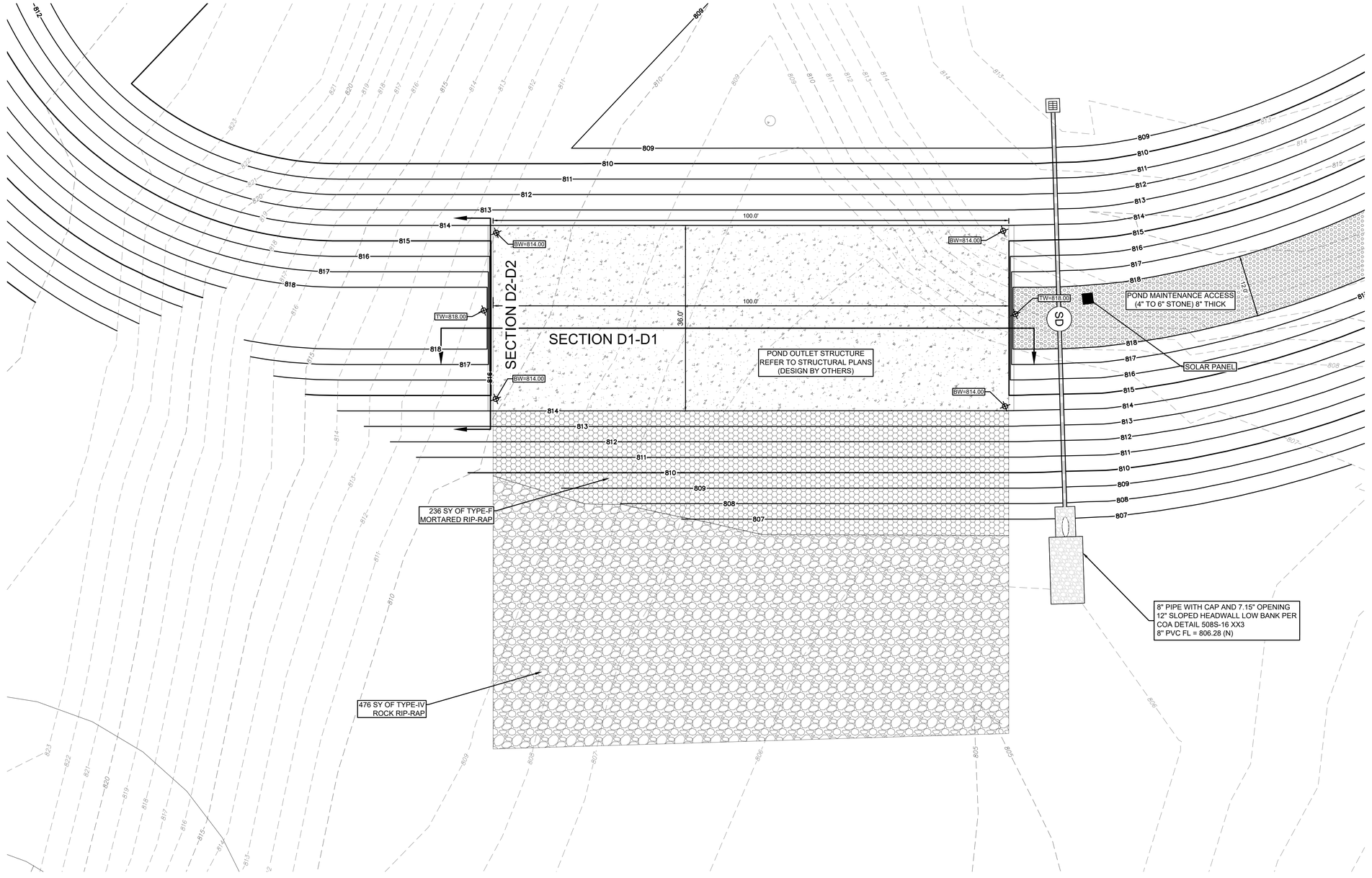
Lillian Butler

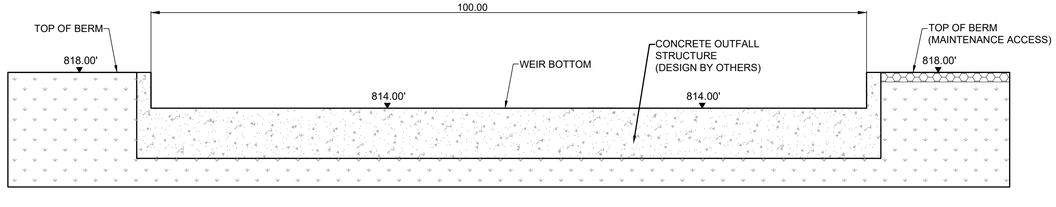
Lillian Butler, Section Manager
Edwards Aquifer Protection Program
Texas Commission on Environmental Quality

LIB/dv

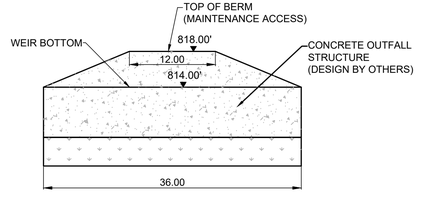
Enclosures: Deed Recordation Affidavit, Form TCEQ-0625
Change in Responsibility for Maintenance of Permanent BMPs, Form TCEQ-10263

cc: Mr. Diego Rojas, PE, HR Green, Inc.





POND OUTFLOW STRUCTURE
SECTION D1-D1
SCALE 1:10



POND OUTFLOW STRUCTURE
SECTION D2-D2
SCALE 1:10

NO.	REVISION	BY	DATE

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

HRGreen
DEVELOPMENT TX
5508 HOMMY 290 WEST
SUITE 150
AUSTIN, TX 78735
512.872.6696
HRGREEN.COM
TBPE NO: 16384
TBPLS NO: 10194101

STATE OF TEXAS
DIEGO ROJAS SIGALA
134900
LICENSED
PROFESSIONAL ENGINEER
04/11/23

POND OUTLET STRUCTURE DETAILS

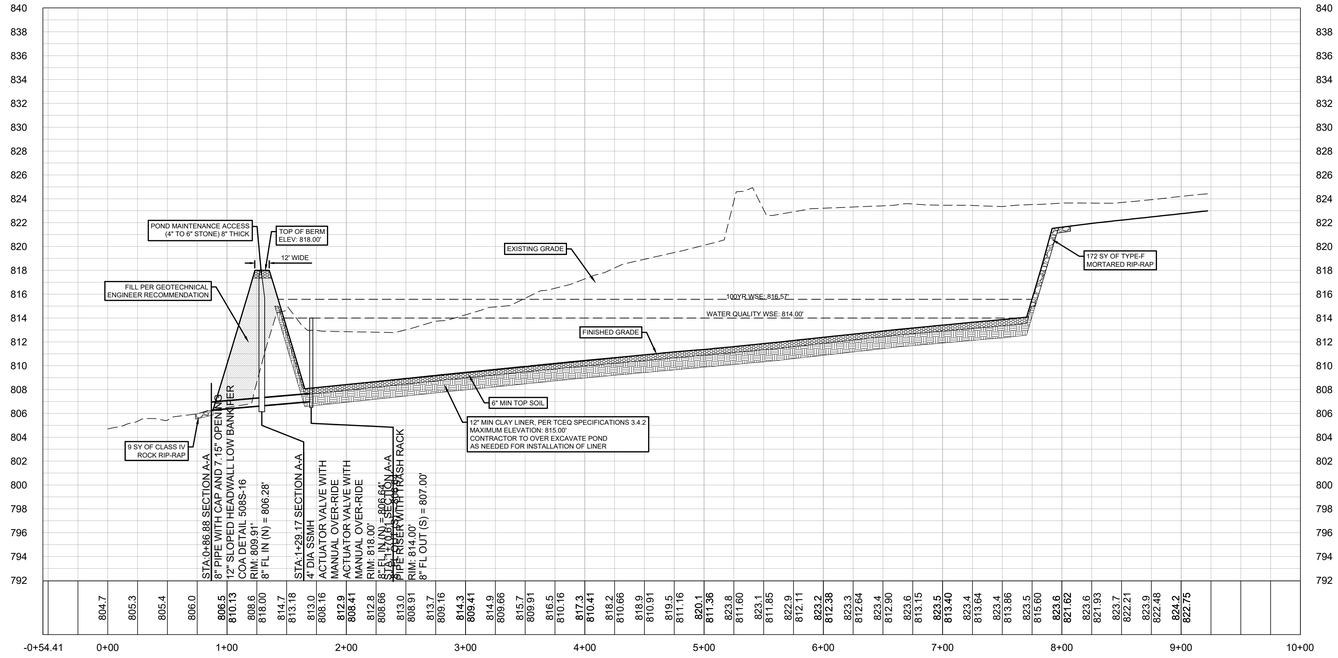
CRESCENT BLUFF WEST
SECTIONS 6, 7 AND 8
GEORGETOWN, WILLIAMSON COUNTY TEXAS

DESIGNED BY: DR
DRAWN BY: TG
CHECKED BY: DR
APPROVED BY: SN

SHEET 52 of 160

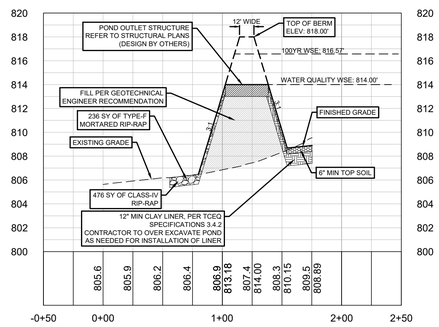
2022-41-CON

SECTION A-A



SECTION B-B

SECTION C-C



0 60' 120'
SCALE: 1" = 60'

VERT. SCALE: 1" = 4'
HORZ. SCALE: 1" = 40'
EXISTING GRADE - CENTERLINE (EG)
PROPOSED GRADE - CENTERLINE (FG)
4'
2'
0
VERT. SCALE

NO.	REVISION	BY	DATE

Know what's below. Call before you dig.

HRGreen
DEVELOPMENT TX
5500 W LOOMIS 290 WEST
SUITE 150
AUSTIN, TX 78735
512.872.6696
HRGREEN.COM
TBPE NO: 16384
TBPLS NO: 10194101

DIEGO ROJAS SIGALA
134900
LICENSED PROFESSIONAL ENGINEER
04/17/23

POND SECTIONS

CRESCENT BLUFF WEST
SECTIONS 6, 7 AND 8
GEORGETOWN, WILLIAMSON COUNTY TEXAS

DESIGNED BY: DR
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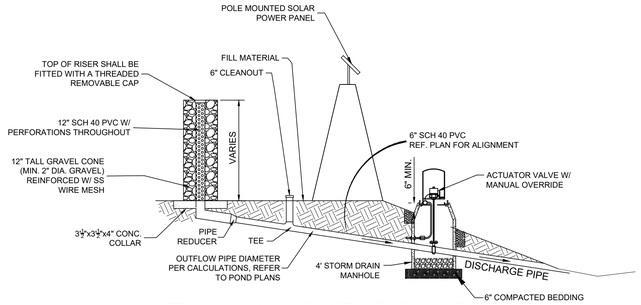
CHECKED BY: DR
APPROVED BY: SN

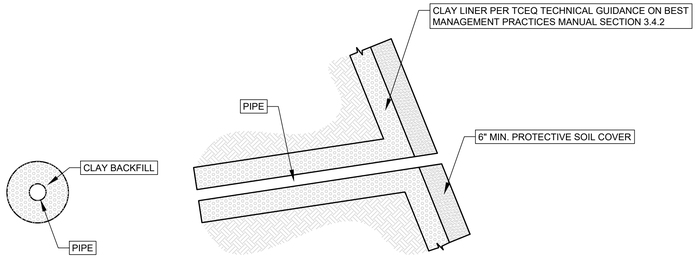
SHEET 53 of 160

2022-41-CON



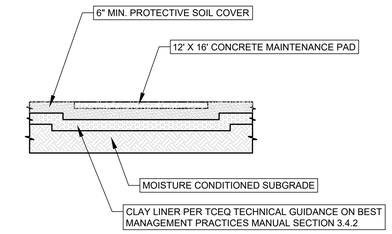
TRASH RACK AND ACTUATOR VALVE

N.T.S.



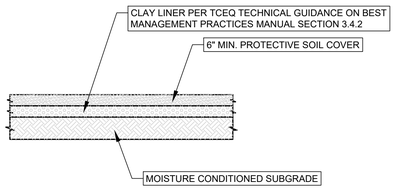
INTERBASIN PIPES DETAIL

N.T.S.



MAINTENANCE PAD INSTALLATION

N.T.S.



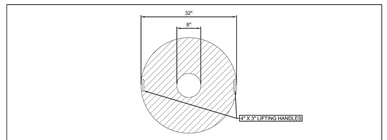
CLAY LINER INSTALLATION

N.T.S.

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

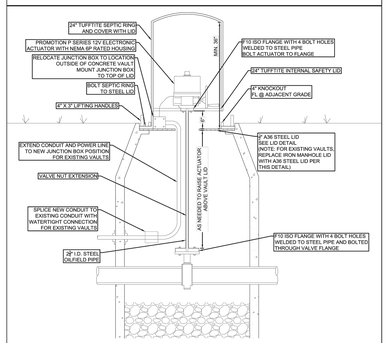
Property	Test Method	Unit	Specification
Permeability	ASTM D-2434	cm/sec	1×10^{-6}
Plasticity Index of Clay	ASTM D-423 & D-424	%	Not less than 15
Liquid Limit of Clay	ASTM D-2216	%	Not less than 30
Clay Particles Passing	ASTM D-422	%	Not less than 30
Clay Compaction	ASTM D-2216	%	95% of Standard Proctor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

CLAY LINER SPECIFICATIONS PER TCEQ SPECIFICATIONS 3.4.2



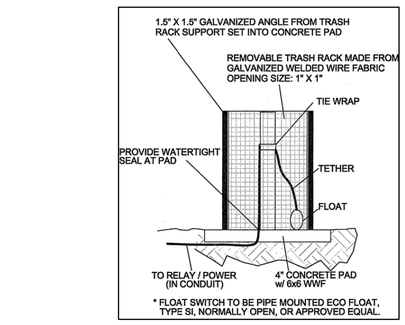
LID DETAIL

1" = 1'

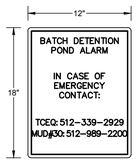


BATCH DETENTION ACTUATOR & VALVE DETAIL

1" = 1'

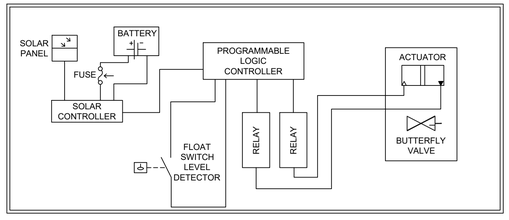


FLOAT SWITCH DETAIL

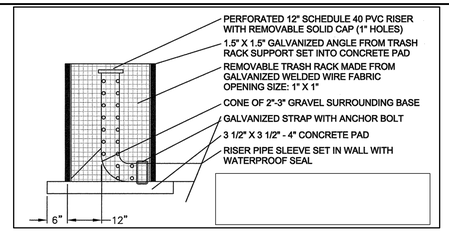


ALARM RESPONSE SIGN

N.T.S.



ACTUATOR VALVE POWER & CONTROLLER CIRCUIT BLOCK DIAGRAM



TRASH RACK / RISER PIPE DETAIL

N.T.S.

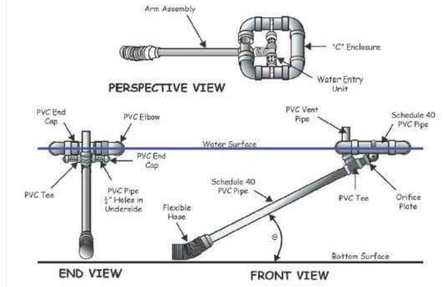
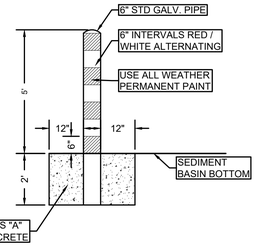


Figure 6.64a Schematic of a skimmer, from Pennsylvania Erosion and Sediment Pollution Control Manual, March, 2000.

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.

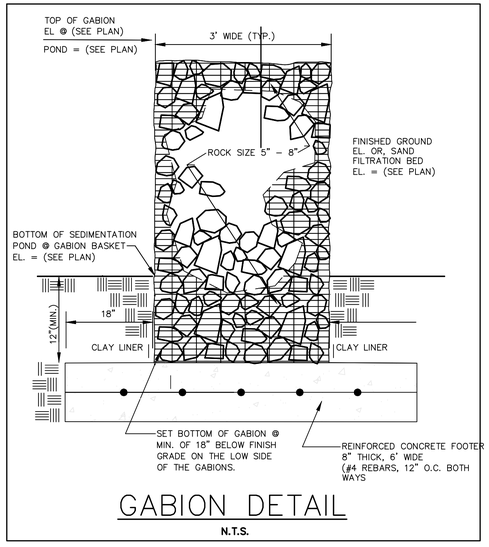


CONCRETE FILLED FIXED SEDIMENT MARKER FOR BATCH DETENTION POND

N.T.S.

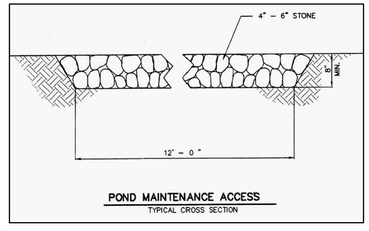
NOTE:

1. BATCH DETENTION POND SHALL BE IN ACCORDANCE WITH THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) RG-348 MANUAL (ADDENDUM)
2. THE BATCH DETENTION POND AND RISER PIPE / TRASH RACK WILL FUNCTION AS THE DEWATERING OUTLET AND SHALL BE BE INSTALLED AND FUNCTIONAL PRIOR TO ANY GENERAL GRADING AND UTILITY WORK.
3. 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.
4. ACTUATOR SHALL BE ELECTRONIC QUARTER-TURN WITH MANUAL OVERRIDE AND POSITION INDICATOR.
5. ACTUATOR SHALL BE "AVID 12V ACTUATOR, EPI-6" OR EQUIVALENT.
6. ACTUATOR VALVE TO BE SET AT "NORMALLY CLOSED" POSITION.
7. CONTROLLER SHALL BE SET TO OPEN VALVE 12 HOURS AFTER INITIAL RAINFALL DETECTION. VALVE TO REMAIN OPEN UNTIL 2 HRS FOLLOWING BASIN EMPTY SIGNAL.
8. 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.
9. CONTROLLER SHALL BE "MORNINGSTAR SOLAR CONTROLLER, 12V, 20 AMP" OR EQUIVALENT.
10. ALL WIRING SHALL BE INSTALLED IN CONDUIT AND BURIED. CONTACT ENGINEER FOR ADDITIONAL CONTROLLER SCHEMATICS.
11. CONTRACTOR TO INSTALL LIBERTY ALARM MODEL ALM-2W OR EQUIVALENT AT A CONTROLLER PANEL.
12. ATTACH ALARM RESPONSE SIGN TO CONTROLLER POLE. REFERENCE ALARM RESPONSE SIGN TO RIGHT.
13. 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.



GABION DETAIL

N.T.S.



POND MAINTENANCE ACCESS

TYPICAL CROSS SECTION

NO.	REVISION	BY	DATE

Know what's below. Call before you dig.

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

TBPE NO: 16384
TBPLS NO: 10194101

HRGreen®
DEVELOPMENT TX

DIEGO ROJAS SIGALA
134900
LICENSED PROFESSIONAL ENGINEER
04/17/23

POND DETAILS

CRESCENT BLUFF WEST
SECTIONS 6, 7 AND 8
GEORGETOWN, WILLIAMSON COUNTY TEXAS

DESIGNED BY: DR
DRAWN BY: TG
CHECKED BY: DR
APPROVED BY: SN

SHEET 54 of 160

2022-41-CON

CIVIL CONSTRUCTION PLANS

WILLIAMSON COUNTY MUNICIPAL UTILITY DISTRICT NO. 30

CRESCENT BLUFF WEST SECTIONS 9 & 10

GEORGETOWN, WILLIAMSON COUNTY, TEXAS

2025-##-CON

INITIAL SUBMITTAL DATE: 12/08/2025

OWNER / DEVELOPER: ZAMIN L.P.
6002 BULLIS RD, SUITE 201
SAN ANTONIO, TX 78257
(210) 863-0717

ENGINEER: HR GREEN DEVELOPMENT TEXAS, LLC
5508 HIGHWAY 290 WEST, SUITE 150
AUSTIN, TEXAS 78735
(512) 872-6696
CHRISTINE.CAMPBELL@HRGREEN.COM

SURVEYOR (TOPOGRAPHIC & BOUNDARY SURVEY): HR GREEN DEVELOPMENT TEXAS, LLC
5508 HIGHWAY 290 WEST, SUITE 150
AUSTIN, TEXAS 78735
(512) 872-6696
ERNESTO.NAVARRETE@HRGREEN.COM

SURVEYOR (TREE SURVEY): FOREST SURVEYING & MAPPING
1002 ASH STREET
GEORGETOWN, TEXAS 78626
(512) 930-5927
FORRESTSASSER@FORESTSURVEYING.COM

PROJECT AREA: 77.70 ACRES (INCLUDES 18.86 ACRES FOR MASS GRADING)

WATERSHED STATUS:

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

FLOODPLAIN INFORMATION:

BY GRAPHIC PLOTTING ONLY, ALL OF THE SUBJECT TRACT IS SHOWN TO BE IN FLOOD ZONE X, OTHER AREAS, AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD AS SHOWN ON THE FEDERAL EMERGENCY MANAGEMENT AGENCY, FLOOD INSURANCE RATE MAPS NUMBERS 48491C0275E, REVISED SEPTEMBER 26, 2008 AND 48491C0460F, REVISED DECEMBER 20, 2019.

LEGAL DESCRIPTION:

58.84 ACRES OF LAND IN THE I. DONAGAN SURVEY, ABSTRACT NO. 178, WILLIAMSON COUNTY, TEXAS; BEING A PORTION OF THAT CERTAIN 168.62 ACRE TRACT OF LAND CONVEYED TO ZAMIN L.P., BY SPECIAL WARRANTY DEED OF RECORD IN DOCUMENT NO. 2014103274 OF THE OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY, TEXAS.

BENCHMARKS:

LCRA CONTROL MOMUMENT MG3A, LCRA BRASS DISC IN CONCRETE FOUND AT NORTHEAST CORNER OF LCRA SUBSTATION ALONG CHAIN LINK FENCE ON SOUTH SIDE OF STATE HIGHWAY 29, APPROXIMATELY 1000 FEET EAST OF INTERSTATE HIGHWAY NO. 35.
PUBLISHED ELEVATION OBTAINED FROM LCRA WEB SITE, MAY 9, 2020.
NAVD 88 (GEOID 12A)
ELEVATION = 736.03 FEET {735.95}
REPORTED RECORD ELEVATION AS SHOWN ON PLAT DOCUMENT NO. 2019126281, O.P.R.W.C.TX. ARE INDICATED BY { }.
BM:1427_300:
MAG NAIL WITH WASHER SET ON THE SOUTHEAST CORNER OF CONCRETE STORM INLET ALONG THE INTERSECTING NORTH RIGHT-OF-WAY LINE OF PINNACLE VIEW DRIVE AND THE EAST RIGHT-OF-WAY OF CRESCENT BLUFF DRIVE.
ELEVATION = 889.82'
BM:1427_800:
MAG NAIL WITH WASHER STAMPED "HR GREEN" SET ON A CONCRETE CURB ALONG THE NORTH RIGHT-OF-WAY LINE OF IRON GATE LANE, APPROXIMATELY 23 FEET SOUTHWEST OF THE SOUTHEAST CORNER OF LOT 33, COLE ESTATES SUBDIVISION.
ELEVATION = 889.93'
BM:1427_801:
MAG NAIL WITH WASHER STAMPED "HR GREEN" SET ON A CONCRETE CURB ALONG THE SOUTH RIGHT-OF-WAY LINE OF FRIO SPRINGS TRAIL, APPROXIMATELY 16.4 FEET NORTHWEST OF THE NORTHEAST CORNER OF LOT 88, COLE ESTATES SUBDIVISION.
ELEVATION = 842.54'
BM:1427_802:
MAG NAIL WITH WASHER STAMPED "HR GREEN" SET ON A CONCRETE CURB ALONG THE WEST RIGHT-OF-WAY LINE OF RED BERRY PASS, APPROXIMATELY 19.8 FEET SOUTH OF THE NORTHEAST CORNER OF LOT 101, COLE ESTATES SUBDIVISION.
ELEVATION = 828.98'
BM:1427_803:
MAG NAIL WITH WASHER STAMPED "HR GREEN" SET ON A CONCRETE CURB ALONG THE NORTH RIGHT-OF-WAY LINE OF SCENIC HEIGHTS LANE, APPROXIMATELY 23.5 FEET WEST OF THE SOUTHEAST CORNER OF LOT 119, COLE ESTATES SUBDIVISION.
ELEVATION = 800.13'

LIMITATION OF LIABILITY:

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 THEREFOR.

GENERAL NOTES:

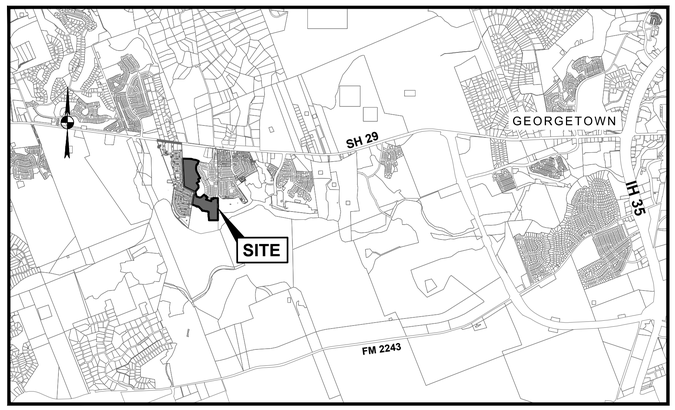
1. THESE PLANS WERE PREPARED, SEALED, SIGNED AND DATED BY A TEXAS LICENSED PROFESSIONAL ENGINEER. THEREFORE BASED ON THE ENGINEER'S CONCURRENCE OF COMPLIANCE, THE PLANS FOR CONSTRUCTION OF THE PROPOSED PROJECT ARE HEREBY APPROVED SUBJECT TO THE STANDARD CONSTRUCTION SPECIFICATIONS AND DETAILS MANUAL AND ALL OTHER APPLICABLE CITY, STATE AND FEDERAL REQUIREMENTS AND CODES.
2. THIS PROJECT IS SUBJECT TO ALL CITY STANDARD SPECIFICATIONS AND DETAILS IN EFFECT AT THE TIME OF SUBMITTAL OF THE PROJECT TO THE CITY.
3. THE PROPERTY SUBJECT TO THIS APPLICATION IS SUBJECT TO THE WATER QUALITY REGULATIONS OF THE CITY OF GEORGETOWN.
4. A GEOLOGIC ASSESSMENT, IN ACCORDANCE WITH THE CITY OF GEORGETOWN WATER QUALITY REGULATIONS, WAS COMPLETED ON (FEBRUARY 1, 2021 AND REVISED ON MARCH 30, 2022). ANY SPRINGS AND STREAMS AS IDENTIFIED IN THE GEOLOGIC ASSESSMENT ARE SHOWN HEREIN.
5. THIS PROJECT IS SUBJECT TO THE WILLIAMSON COUNTY MUNICIPAL UTILITY DISTRICT NO. 30 CONSENT AGREEMENT (DOCUMENT NUMBER 2018070636).
6. ALL ELECTRIC DISTRIBUTION LINES AND INDIVIDUAL SERVICE LINES SHALL BE INSTALLED UNDERGROUND. IF OVERHEAD LINES EXISTED PRIOR TO UNDERGROUND INSTALLATION, SUCH POLES, GUY WIRES, AND RELATED STRUCTURES SHALL BE REMOVED FOLLOWING CONSTRUCTION OF THE UNDERGROUND INFRASTRUCTURE.
7. ALL ELECTRIC AND COMMUNICATION INFRASTRUCTURE SHALL COMPLY WITH UDC 2011.

WILLIAMSON COUNTY NOTES:

THE CONTRACTOR SHALL OBTAIN A "NOTICE OF PROPOSED INSTALLATION OF UTILITY LINE" PERMIT FROM WILLIAMSON COUNTY FOR ANY WORK PERFORMED IN THE EXISTING COUNTY RIGHT-OF-WAY (DRIVEWAY APRON, WATER MAIN TIE-IN, ETC.) THIS PERMIT APPLICATION WILL REQUIRE A LIABILITY AGREEMENT, A CONSTRUCTION COST ESTIMATE FOR WORK WITHIN THE RIGHT-OF-WAY INCLUDING PAVEMENT REPAIR (IF NEEDED), A PERFORMANCE BOND, CONSTRUCTION PLANS AND, IF NECESSARY, A TRAFFIC CONTROL PLAN. AN INSPECTION FEE, AND A PRE-CONSTRUCTION MEETING MAY ALSO BE REQUIRED, DEPENDING ON THE SCOPE OF WORK. THE PERMIT WILL BE REVIEWED AND APPROVED BY THE COUNTY ENGINEER, AND MUST ALSO BE APPROVED BY THE WILLIAMSON COUNTY COMMISSIONERS COURT IF ANY ROAD CLOSURE IS INVOLVED.

REVISIONS

NUMBER	DATE	DESCRIPTION



VICINITY MAP
SCALE: 1"=4000'

I, CHRISTINE CAMPBELL 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 : Christine Campbell 12/05/2025
DATE

CHRISTINE CAMPBELL P.E.
HR GREEN DEVELOPMENT, TX
5508 HIGHWAY 290 WEST, SUITE 150
AUSTIN, TEXAS 78735
512.872.6696

STATE OF TEXAS
CHRISTINE N CAMPBELL
142536
LICENSED
PROFESSIONAL ENGINEER

REVIEWED FOR COMPLIANCE WITH COUNTY REQUIREMENTS:

WILLIAMSON COUNTY DATE

WILLIAMSON COUNTY M.U.D. NO. 30 DATE

REVIEW OF THE PLANS BY THE DISTRICT IS LIMITED TO DISTRICT OWNED FACILITIES AND DOES NOT INDICATE A REVIEW OF 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.

Sheet List Table

NO.	REVISION	BY	DATE

Know what's below. Call before you dig.

5508 HIGHWAY 290 WEST
SUITE 150
AUSTIN, TX 78735
512.872.6696
HRGREEN.COM
TBPE NO: 16384
TBPLS NO: 10194101

HRGreen® DEVELOPMENT TX

COVER

CRESCENT BLUFF WEST
SECTIONS 9 & 10
GEORGETOWN, WILLIAMSON COUNTY TEXAS

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

SHEET 1 of 105

2025-XX-CON

GENERAL CONSTRUCTION NOTES

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; INFORMATION 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

   CONTRACTOR: UNKNOWN AT TIME OF SUBMITTAL

   CONTRACTOR ADDRESS:: N/A PHONE # N/A

   DEVELOPER'S REPRESENTATIVE RESPONSIBLE FOR PLAN ALTERATIONS:

   HR GREEN DEVELOPMENT TX PHONE# (512) 872-6696

   PERSON OR FIRM RESPONSIBLE FOR EROSION/SEDMENTATION CONTROL MAINTENANCE:

   __________ ________ PHONE# __________

   PERSON OF FIRM RESPONSIBLE FOR TREE/NATURAL AREA PROTECTION MAINTENANCE:

   __________ ________ PHONE# __________

6. TOPOGRAPHIC DATA SHOWN HEREON BASED ON GROUND TOPO BY HR GREEN DEVELOPMENT TX , FROM FEBRUARY, MARCH, & APRIL 2025
7. TREE SURVEY PROVIDED BY FOREST SURVEYING & MAPPING COMPANY, JUNE 21, 2021.
8. IF CONTRACTOR FINDS A DISCREPANCY WITH THE TOPOGRAPHIC INFORMATION ON THESE PLANS, HE/SHE SHOULD CONTACT THE ENGINEER/SURVEYOR IMMEDIATELY.
9. ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE RESTORED AND GRADED TO DRAIN.
10. 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.
11. 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).

WILLIAMSON COUNTY M.U.D. No. 30 NOTES

A) THE DISTRICT ENGINEER, JONES-HEROY & ASSOCIATES, INC. (SHANE POTTER OR CHRIS ULMAN, 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.
B) REVIEW OF THE PLANS BY THE DISTRICT IS LIMITED TO DISTRICT OWNED FACILITIES AND DOES NOT INDICATE A REVIEW OF 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.

SEQUENCE OF CONSTRUCTION

1. INSTALL TREE PROTECTION AND INITIATE TREE MITIGATION MEASURES.
2. INSTALL EROSION CONTROLS AND OFF-SITE EROSION CONTROLS AS INDICATED ON APPROVED PLANS.
3. CONTACT CITY OF GEORGETOWN AND WILLIAMSON COUNTY TO SCHEDULE PRE-CONSTRUCTION COORDINATION MEETING.
4. EVALUATE 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 I.E. WATER, WASTEWATER, STORM DRAINAGE & PONDS.
7. CONSTRUCT SIDEWALK RAMPS.
8. CONSTRUCT PAVING/STREETS.
9. REVEGETATE DISTURBED AREAS 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.

CITY OF GEORGETOWN NOTES:

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 200 PSI FOR 15 MINUTES AND 150 PSI FOR 2 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 TXDOT 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 PUBLIC IMPROVEMENTS SHALL BE SUBMITTED TO THE CITY BY THE DESIGN ENGINEER PRIOR TO ACCEPTANCE OF THE PROJECT. THESE DRAWINGS SHALL BE A PDF EMAILED TO THE CITY DEVELOPMENT ENGINEER.

WATER AND WASTEWATER NOTES:

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 TIE-INS AND NOTIFY HIM AT LEAST 48 HOURS PRIOR TO CONNECTING TO EXISTING LINES.
4. ALL MANHOLES SHALL HAVE ECCENTRIC CONES AND SHALL BE CONCRETE WITH CAST IRON RING AND COVER. 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 INDICATD 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 VALVE 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, A NATURALLY OCCURRING OR MANUFACTURED STONE MATERIAL CONFORMING TO ASTM C33 FOR STONE QUALITY AND MEETING THE FOLLOWING GRADATION SPECIFICATION:

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

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 TESS" SYSTEM AT 1-800-344-8377 FOR EXISTING UTILITY LOCATIONS PRIOR TO ANY EXCAVATION IN ADVANCE OF 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 COMMENCING WORK. THE 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 INSPECTION 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.
30. AN 80 MIL COAT OF RAVEN LINING SYSTEMS, RAVEN 405 ULTRA HIGH BUILD EPOXY COATING, OR APPROVED EQUAL, TO BE APPLIED TO ENTIRE INTERIOR OF EACH WASTEWATER MANHOLE AND UNDERSIDE OF FLAT TOPS.
31. ALL WATER SERVICE, WASTEWATER SERVICE AND VALVE LOCATIONS SHALL BE APPROPRIATELY MARKED AS FOLLOWS:

WATER SERVICE	"W" ON TOP OF CURB
WASTEWATER SERVICE	"S" ON TOP OF CURB
VALVE	"V" ON FACE OF CURB
DRY UTILITIES	"DU" ON FACE OF CURB

32. CENTER ONE 20-FOOT 150 PSI PRESSURE RATED WASTEWATER PIPE SECTION AT ALL WATERLINE CROSSINGS.
33. 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 CHAPTER 217 (DESIGN CRITERIA FOR DOMESTIC WASTEWATER SYSTEMS) OR 30 TAC CHAPTER 290 (PUBLIC DRINKING WATER).

EROSION AND SEDIMENTATION CONTROL NOTES

1. THE CONTRACTOR SHALL INSTALL EROSION/SEDIMENTATION CONTROLS AND TREE/NATURAL AREA PROTECTIVE FENCING PRIOR TO ANY SITE PREPARATION WORK (CLEARING, GRUBBING OR EXCAVATION).
2. THE PLACEMENT OF EROSION/SEDIMENTATION CONTROLS SHALL BE IN ACCORDANCE WITH THE 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, HAUL ROADS AND WATERWAY CROSSINGS CONSTRUCTED FOR TEMPORARY CONTRACTOR ACCESS MUST BE REMOVED, ACCUMULATED SEDIMENT REMOVED FROM THE WATERWAY AND THE AREA RESTORED TO THE ORIGINAL GRADE AND REVEGETATED. ALL LAND CLEARING DEBRIS SHALL BE DISPOSED OF IN APPROVED SPOIL DISPOSAL SITES.

TRAFFIC MARKING NOTE

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 BRIDGES AND, THE TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, LATEST EDITION.

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.

GENERAL NOTES:

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) (DATUM: 929 NGVD) THAT MAY BE UTILIZED FOR THE CONSTRUCTION OF THIS PROJECT ARE DESCRIBED AS FOLLOWS:

   LCRA CONTROL MOMUMENT MG3A, LCRA BRASS DISC IN CONCRETE FOUND AT NORTHEAST CORNER OF LCRA SUBSTATION ALONG CHAIN LINK FENCE ON SOUTH SIDE OF STATE HIGHWAY 29, APPROXIMATELY 1000 FEET EAST OF INTERSTATE HIGHWAY NO. 35.
   PUBLISHED ELEVATION OBTAINED FROM LCRA WEB SITE, MAY 9, 2020.
   NAVD 88 (GEOID 12A)
   ELEVATION = 736.03 FEET {735.95}
   REPORTED RECORD ELEVATION AS SHOWN ON PLAT DOCUMENT NO. 2019126281, O.P.R.W.C.TX. ARE INDICATED BY { }.
   BM:1427_300:
   MAG NAIL WITH WASHER SET ON THE SOUTHEAST CORNER OF CONCRETE STORM INLET ALONG THE INTERSECTING NORTH RIGHT-OF-WAY LINE OF PINNACLE VIEW DRIVE AND THE EAST RIGHT-OF-WAY OF CRESCENT BLUFF DRIVE.
   ELEVATION = 889.82'
   BM:1427_800:
   MAG NAIL WITH WASHER STAMPED "HR GREEN" SET ON A CONCRETE CURB ALONG THE NORTH RIGHT-OF-WAY LINE OF IRON GATE LANE, APPROXIMATELY 23 FEET SOUTHWEST OF THE SOUTHEAST CORNER OF LOT 33, COLE ESTATES SUBDIVISION.
   ELEVATION = 889.93'
   BM:1427_801:
   MAG NAIL WITH WASHER STAMPED "HR GREEN" SET ON A CONCRETE CURB ALONG THE SOUTH RIGHT-OF-WAY LINE OF FRIO SPRINGS TRAIL, APPROXIMATELY 16.4 FEET NORTHWEST OF THE NORTHEAST CORNER OF LOT 88, COLE ESTATES SUBDIVISION.
   ELEVATION = 842.54'
   BM:1427_802:
   MAG NAIL WITH WASHER STAMPED "HR GREEN" SET ON A CONCRETE CURB ALONG THE WEST RIGHT-OF-WAY LINE OF RED BERRY PASS, APPROXIMATELY 19.8 FEET SOUTH OF THE NORTHEAST CORNER OF LOT 101, COLE ESTATES SUBDIVISION.
   ELEVATION = 828.98'
   BM:1427_803:
   MAG NAIL WITH WASHER STAMPED "HR GREEN" SET ON A CONCRETE CURB ALONG THE NORTH RIGHT-OF-WAY LINE OF SCENIC HEIGHTS LANE, APPROXIMATELY 23.5 FEET WEST OF THE SOUTHEAST CORNER OF LOT 119, COLE ESTATES SUBDIVISION.
   ELEVATION = 800.13'

10. SIDE WALK 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 "SUBSURFACE EXPLORATION AND PAVEMENT ANALYSIS PROPOSED NEW STREETS" - CRESCENT BLUFF WEST, SECTIONS 9 AND 10, DATED NOVEMBER 18, 2025 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. (SHANE POTTER OR CHRIS ULMAN, 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.

ADDITIONAL NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MOWING 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.

GEORGETOWN FIRE DEPARTMENT NOTES

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

WILLIAMSON COUNTY NOTES

B4 - CONSTRUCTION – GENERAL

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

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

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

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

B5 - SUBGRADE

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

B5.2 THE SUBGRADE SHALL BE INSPECTED AND APPROVED BY AN INDEPENDENT TESTING LABORATORY AND A CERTIFIED COPY OF ALL INSPECTION REPORTS FURNISHED TO THE COUNTY ENGINEER, WHO MUST APPROVE THE REPORT PRIOR TO APPLICATION OF THE BASE MATERIAL. ALL DENSITY TEST REPORTS SHALL INCLUDE A COPY OF THE WORK SHEET SHOWING THE PERCENTAGE OF THE MAXIMUM DRY (PROCTOR) DENSITY. THE NUMBER AND LOCATION OF ALL SUBGRADE TESTS SHALL BE DETERMINED BY THE COUNTY ENGINEER.

B6 - BASE MATERIAL

B6.1 BASE MATERIAL SHALL CONFORM TO ITEM 247 OF THE CURRENT EDITION OF THE TXDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION, "FLEXIBLE BASE". THE BASE MATERIAL SHALL BE TYPE A GRADE 1, TYPE A GRADE 2, OR AS APPROVED BY THE COUNTY ENGINEER.

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

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

B7 - BITUMINOUS PAVEMENT

B7.1 URBAN ROADS REQUIRE A MINIMUM 2 INCH WEARING SURFACE OF HMAC TYPE D. THE MIX SHALL BE FROM A TXDOT CERTIFIED PLANT. THE MIX DESIGN SHALL BE SUBMITTED TO THE COUNTY ENGINEER FOR APPROVAL PRIOR TO PLACEMENT OF THE MATERIAL. CONTRACTOR'S QUALITY CONTROL (CQC) TEST REPORTS SHALL BE SUBMITTED TO THE COUNTY ENGINEER ON A DAILY BASIS. AS A MINIMUM, DAILY CQC TESTING ON THE PRODUCED MIX SHALL INCLUDE: SIEVE ANALYSIS TEX-200-F, ASPHALT CONTENT TEX-210-F, HVEEM STABILITY TEX-208-F, LABORATORY COMPACTED DENSITY TEX-207-F, AND MAXIMUM SPECIFIC GRAVITY TEX-227-F. THE NUMBER AND LOCATION OF ALL HMAC TESTS SHALL BE DETERMINED BY THE COUNTY ENGINEER WITH A MINIMUM OF THREE, 6-INCH DIAMETER FIELD CORES SECURED AND TESTED BY THE CONTRACTOR FROM EACH DAY'S PAVING. EACH HMAC COURSE SHALL BE TESTED FOR IN-PLACE DENSITY, BITUMINOUS CONTENT AND AGGREGATE GRADATION, AND SHALL BE MEASURED FOR COMPACTED THICKNESS. THE NUMBER AND LOCATION OF ALL HMAC TEST SAMPLES SHALL BE DETERMINED BY THE COUNTY ENGINEER.

B7.2 RURAL ROADS MAY USE EITHER THE SPECIFICATIONS FOUND IN SECTION B7.1 OR A TWO-COURSE SURFACE IN ACCORDANCE WITH ITEM 316, TREATMENT WEARING SURFACE, OF THE CURRENT EDITION OF THE TXDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION. THE TYPE AND RATE OF ASPHALT AND AGGREGATE SHALL BE INDICATED ON THE PLANS AS A BASIS OF ESTIMATE AND SHALL BE DETERMINED AT THE PRECONSTRUCTION CONFERENCE. AGGREGATE USED IN THE MIX SHALL BE ON THE TXDOT QUALITY MONITORING SCHEDULE. AGGREGATE SHALL BE TYPE B GRADE 4. GRADATION TESTS SHALL BE REQUIRED FOR EACH 300 CUBIC YARDS OF MATERIAL PLACED WITH A MINIMUM OF TWO TESTS PER EACH GRADE PER EACH PROJECT. TEST RESULTS SHALL BE REVIEWED BY THE COUNTY ENGINEER PRIOR TO APPLICATION OF THE MATERIAL.

B9 - CONCRETE - GENERAL

B9.1 UNLESS OTHERWISE SPECIFIED, CONCRETE SHALL BE IN ACCORDANCE WITH ITEM 421 OF THE CURRENT EDITION OF THE TXDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION AND BE PLACED IN ACCORDANCE WITH THE APPLICABLE ITEM.

B9.2 ALL CONCRETE SHALL BE TESTED FOR COMPRESSIVE STRENGTH. ONE SET OF THREE CONCRETE TEST CYLINDERS SHALL BE MOLDED FOR EVERY 50 CUBIC YARDS OF CONCRETE PLACED FOR EACH CLASS OF CONCRETE PER DAY, OR AT ANY OTHER INTERVAL AS DETERMINED BY THE COUNTY ENGINEER. A SLUMP TEST SHALL BE REQUIRED WITH EACH SET OF TEST CYLINDERS. ONE CYLINDER SHALL BE TESTED FOR COMPRESSIVE STRENGTH AT AN AGE OF SEVEN DAYS AND THE REMAINING TWO CYLINDERS SHALL BE TESTED AT 28 DAYS OF AGE.

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CHRISTINE N. CAMPBELL
142536
Christine Campbell
12/05/2025

GENERAL NOTES

CRESCENT BLUFF WEST
SECTIONS 9 & 10
GEORGETOWN, WILLIAMSON COUNTY TEXAS

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

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

1. 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.

2. 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.

3. A WRITTEN NOTICE OF CONSTRUCTION MUST BE SUBMITTED TO THE PRESIDING TCEQ REGIONAL OFFICE AT LEAST 48 HOURS PRIOR TO THE START OF ANY REGULATED ACTIVITIES. THIS NOTICE MUST INCLUDE:

- THE NAME OF THE APPROVED PROJECT;
- THE ACTIVITY START DATE; AND
- THE CONTACT INFORMATION OF THE PRIME CONTRACTOR.

4. ANY MODIFICATION TO THE ACTIVITIES DESCRIBED IN THE REFERENCED SCS APPLICATION FOLLOWING THE DATE OF APPROVAL MAY REQUIRE THE SUBMITTAL OF AN SCS APPLICATION TO MODIFY THIS APPROVAL, INCLUDING THE PAYMENT OF APPROPRIATE FEES AND ALL INFORMATION NECESSARY FOR ITS REVIEW AND APPROVAL.

5. PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITY, ALL TEMPORARY EROSION AND SEDIMENTATION (E&S) CONTROL MEASURES MUST BE PROPERLY INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS. THESE CONTROLS MUST REMAIN IN PLACE UNTIL THE DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED.

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

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

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

9. ALL MANHOLES CONSTRUCTED OR REHABILITATED ON THIS PROJECT MUST HAVE WATERTIGHT SIZE ON SIZE RESILIENT CONNECTORS ALLOWING FOR DIFFERENTIAL SETTLEMENT. IF MANHOLES ARE CONSTRUCTED WITHIN THE 100-YEAR FLOODPLAIN, THE COVER MUST HAVE A GASKET AND BE BOLTED TO THE RING. WHERE GASKETED MANHOLE COVERS ARE REQUIRED FOR MORE THAN THREE MANHOLES IN SEQUENCE OR FOR MORE THAN 1500 FEET, ALTERNATE MEANS OF VENTING WILL BE PROVIDED. BRICKS ARE NOT AN ACCEPTABLE CONSTRUCTION MATERIAL FOR ANY PORTION OF THE MANHOLE. THE DIAMETER OF THE MANHOLES MUST BE A MINIMUM OF FOUR FEET AND THE MANHOLE FOR ENTRY MUST HAVE A MINIMUM CLEAR OPENING DIAMETER OF 30 INCHES. THESE DIMENSIONS AND OTHER DETAILS SHOWING COMPLIANCE WITH THE COMMISSION'S RULES CONCERNING MANHOLES AND SEWER LINE/MANHOLE INVERTS DESCRIBED IN 30 TAC §217.55 ARE INCLUDED ON PLAN SHEETS C7.8 & C7.9. IT IS SUGGESTED THAT ENTRANCE INTO MANHOLES IN EXCESS OF FOUR FEET DEEP BE ACCOMPLISHED BY MEANS OF A PORTABLE LADDER. THE INCLUSION OF STEPS IN A MANHOLE IS PROHIBITED.

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

11. WHERE SEWERS LINES DEVIATE FROM STRAIGHT ALIGNMENT AND UNIFORM GRADE ALL CURVATURE OF SEWER PIPE MUST BE ACHIEVED BY THE FOLLOWING PROCEDURE WHICH IS RECOMMENDED BY THE PIPE MANUFACTURER: 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.

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

    IF NO STUB-OUT IS PRESENT AN ALTERNATE METHOD OF JOINING LATERALS IS SHOWN IN THE DETAIL ON PLAN SHEETS C7.8 & C7.9. (FOR POTENTIAL FUTURE LATERALS).

    THE PRIVATE SERVICE LATERAL STUB-OUTS MUST BE INSTALLED AS SHOWN ON THE PLAN AND PROFILE SHEETS ON PLAN SHEET C7 TO C7.7 AND MARKED AFTER BACKFILLING AS SHOWN IN THE DETAIL ON PLAN SHEETS C7.8 & C7.9.

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

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

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

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

    (1) LOW PRESSURE AIR TEST.

    (A) A LOW PRESSURE AIR TEST MUST FOLLOW THE PROCEDURES DESCRIBED IN AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) C-828, ASTM C924, OR ASTM F-1417 OR OTHER PROCEDURE APPROVED BY THE EXECUTIVE DIRECTOR, EXCEPT AS TO TESTING TIMES AS REQUIRED IN TABLE C.3 IN SUBPARAGRAPH (C) OF THIS PARAGRAPH OR EQUATION C.3 IN SUBPARAGRAPH (B)(II) OF THIS PARAGRAPH.

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

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

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

    EQUATION C.3

WHERE:

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

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	298	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.

(b) IF A GRAVITY COLLECTION PIPE IS COMPOSED OF FLEXIBLE PIPE, DEFLECTION TESTING IS ALSO REQUIRED. THE FOLLOWING PROCEDURES MUST BE FOLLOWED:

(1) FOR A COLLECTION PIPE WITH INSIDE DIAMETER LESS THAN 27 INCHES, DEFLECTION MEASUREMENT REQUIRES A RIGID MANDREL.

(A) MANDREL SIZING.

(I) A RIGID MANDREL MUST HAVE AN OUTSIDE DIAMETER (OD) NOT LESS THAN 95% OF THE BASE INSIDE DIAMETER (ID) OR AVERAGE ID OF A PIPE, AS SPECIFIED IN THE APPROPRIATE STANDARD BY THE ASTMS, AMERICAN WATER WORKS ASSOCIATION, UNI-BELL, OR AMERICAN NATIONAL STANDARDS INSTITUTE, OR ANY RELATED APPENDIX.

(II) IF A MANDREL SIZING DIAMETER IS NOT SPECIFIED IN THE APPROPRIATE STANDARD, THE MANDREL MUST HAVE AN OD EQUAL TO 95% OF THE ID OF A PIPE. IN THIS CASE, THE ID OF THE PIPE, FOR THE PURPOSE OF DETERMINING THE OD OF THE MANDREL, MUST EQUAL BE THE AVERAGE OUTSIDE DIAMETER MINUS TWO MINIMUM WALL THICKNESSES FOR OD CONTROLLED PIPE AND THE AVERAGE INSIDE DIAMETER FOR ID CONTROLLED PIPE.

(III) ALL DIMENSIONS MUST MEET THE APPROPRIATE STANDARD.

(B) MANDREL DESIGN.

(I) A RIGID MANDREL MUST BE CONSTRUCTED OF A METAL OR A RIGID PLASTIC MATERIAL THAT CAN WITHSTAND 200 PSI WITHOUT BEING DEFORMED.

(II) A MANDREL MUST HAVE NINE OR MORE ODD NUMBER OF RUNNERS OR LEGS.

(III) A BARREL SECTION LENGTH MUST EQUAL AT LEAST 75% OF THE INSIDE DIAMETER OF A PIPE.

(IV) EACH SIZE MANDREL MUST USE A SEPARATE PROVING RING.

(C) METHOD OPTIONS.

(I) AN ADJUSTABLE OR FLEXIBLE MANDREL IS PROHIBITED.

(II) A TEST MAY NOT USE TELEVISION INSPECTION AS A SUBSTITUTE FOR A DEFLECTION TEST.

(III) IF REQUESTED, THE EXECUTIVE DIRECTOR MAY APPROVE THE USE OF A DEFLECTOMETER OR A MANDREL WITH REMOVABLE LEGS OR RUNNERS ON A CASE-BY-CASE BASIS.

(2) FOR A GRAVITY COLLECTION SYSTEM PIPE WITH AN INSIDE DIAMETER 27 INCHES AND GREATER, OTHER TEST METHODS MAY BE USED TO DETERMINE VERTICAL DEFLECTION.

(3) A DEFLECTION TEST METHOD MUST BE ACCURATE TO WITHIN PLUS OR MINUS 0.2% DEFLECTION.

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

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

(6) IF A PIPE SECTION FAILS A DEFLECTION TEST, AN OWNER SHALL CORRECT THE PROBLEM AND CONDUCT A SECOND TEST AFTER THE FINAL BACKFILL HAS BEEN IN PLACE AT LEAST 30 DAYS.

16. ALL MANHOLES MUST BE TESTED TO MEET OR EXCEED THE REQUIREMENTS OF 30 TAC §217.58.
    (A) ALL MANHOLES MUST PASS A LEAKAGE TEST.
    (B) AN OWNER SHALL TEST EACH MANHOLE (AFTER ASSEMBLY AND BACKFILLING) FOR LEAKAGE, SEPARATE AND INDEPENDENT OF THE COLLECTION SYSTEM PIPES, BY HYDROSTATIC EXFILTRATION TESTING, VACUUM TESTING, OR OTHER METHOD APPROVED BY THE EXECUTIVE DIRECTOR.
    (1) HYDROSTATIC TESTING.
    (A) THE MAXIMUM LEAKAGE FOR HYDROSTATIC TESTING OR ANY ALTERNATIVE TEST METHODS IS 0.025 GALLONS PER FOOT DIAMETER PER FOOT OF MANHOLE DEPTH PER HOUR.
    (B) TO PERFORM A HYDROSTATIC EXFILTRATION TEST, AN OWNER SHALL SEAL ALL WASTEWATER PIPES COMING INTO A MANHOLE WITH AN INTERNAL PIPE PLUG, FILL THE MANHOLE WITH WATER, AND MAINTAIN THE TEST FOR AT LEAST ONE HOUR.
    (C) A TEST FOR CONCRETE MANHOLES MAY USE A 24-HOUR WETTING PERIOD BEFORE TESTING TO ALLOW SATURATION OF THE CONCRETE.
    (2) VACUUM TESTING.
    (A) TO PERFORM A VACUUM TEST, AN OWNER SHALL PLUG ALL LIFT HOLES AND EXTERIOR JOINTS WITH A NON-SHRINK GROUT AND PLUG ALL PIPES ENTERING A MANHOLE.
    (B) NO GROUT MUST BE PLACED IN HORIZONTAL JOINTS BEFORE TESTING.
    (C) STUB-OUTS, MANHOLE BOOTS, AND PIPE PLUGS MUST BE SECURED TO PREVENT MOVEMENT WHILE A VACUUM IS DRAWN.
    (D) AN OWNER SHALL USE A MINIMUM 60 INCH/LB TORQUE WRENCH TO TIGHTEN THE EXTERNAL CLAMPS THAT SECURE A TEST COVER TO THE TOP OF A MANHOLE.
    (E) A TEST HEAD MUST BE PLACED AT THE INSIDE OF THE TOP OF A CONE SECTION, AND THE SEAL INFLATED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
    (F) THERE MUST BE A VACUUM OF 10 INCHES OF MERCURY INSIDE A MANHOLE TO PERFORM A VALID TEST.
    (G) A TEST DOES NOT BEGIN UNTIL AFTER THE VACUUM PUMP IS OFF.
    (H) A MANHOLE PASSES THE TEST IF AFTER 2.0 MINUTES AND WITH ALL VALVES CLOSED, THE VACUUM IS AT LEAST 9.0 INCHES OF MERCURY.

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

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Fax (512) 339-3795

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14250 Judson Road
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TCEQ WATER DISTRIBUTION SYSTEM GENERAL CONSTRUCTION NOTES

1. THIS WATER DISTRIBUTION SYSTEM MUST BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS 30 TEXAS ADMINISTRATIVE CODE (TAC) CHAPTER 290 SUBCHAPTER D. 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."

2. 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)].

3. PLASTIC PIPE FOR USE IN PUBLIC WATER SYSTEMS MUST BEAR THE NSF INTERNATIONAL SEAL OF APPROVAL (NSF-PW) AND HAVE AN ASTM DESIGN PRESSURE RATING OF AT LEAST 150 PSI OR A STANDARD DIMENSION RATIO OF 26 OR LESS [§290.44(A)(2)].

4. 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)].

5. ALL WATER LINE CROSSINGS OF WASTEWATER MAINS SHALL BE PERPENDICULAR [§290.44(E)(4)(B)].

6. 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)].

7. THE MAXIMUM ALLOWABLE LEAD CONTENT OF PIPES, PIPE FITTINGS, PLUMBING FITTINGS, AND FIXTURES IS 0.25 PERCENT [§290.44(B)].

8. THE CONTRACTOR SHALL INSTALL APPROPRIATE AIR RELEASE DEVICES WITH VENT OPENINGS TO THE ATMOSPHERE COVERED WITH 16-MESH OR FINER, CORROSION RESISTANT SCREENING MATERIAL OR AN ACCEPTABLE EQUIVALENT [§290.44(D)(1)].

9. 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)].

10. 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(F)(2)].

11. 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;

WHERE:

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

Q = THE QUANTITY OF MAKEUP WATER IN GALLONS PER HOUR,
L = THE LENGTH OF THE PIPE SECTION BEING TESTED, IN FEET,
D = THE NOMINAL DIAMETER OF THE PIPE IN INCHES, AND
P = THE AVERAGE TEST PRESSURE DURING THE HYDROSTATIC TEST IN POUNDS PER SQUARE INCH (PSI).

- THE HYDROSTATIC LEAKAGE RATE FOR DUCTILE IRON (DI) PIPE AND APPURTENANCES SHALL NOT EXCEED THE AMOUNT ALLOWED OR RECOMMENDED BY FORMULAS IN AMERICA WATER WORKS ASSOCIATION (AWWA) C-600 AS REQUIRED IN 30 TAC §290.44(A)(5). PLEASE ENSURE THAT THE FORMULA FOR THIS CALCULATION IS CORRECT AND MOST CURRENT FORMULA IS IN USE;

WHERE:

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

L = THE QUANTITY OF MAKEUP WATER IN GALLONS PER HOUR,
S = THE LENGTH OF THE PIPE SECTION BEING TESTED, IN FEET,
D = THE NOMINAL DIAMETER OF THE PIPE IN INCHES, AND
P = THE AVERAGE TEST PRESSURE DURING THE HYDROSTATIC TEST IN POUNDS PER SQUARE INCH (PSI).

12. 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).

13. 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)].

14. 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)].

15. 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)].

16. WATERLINES SHALL NOT BE INSTALLED CLOSER THAN TEN FEET TO SEPTIC TANK DRAINFIELDS [§290.44(E)(8)].

17. THE CONTRACTOR SHALL DISINFECT THE NEW WATERLINES IN ACCORDANCE WITH AWWA STANDARD C651-14 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)].

18. 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

1. A WRITTEN NOTICE OF CONSTRUCTION MUST BE SUBMITTED TO THE TCEQ REGIONAL OFFICE AT LEAST 48 HOURS PRIOR TO THE START OF ANY REGULATED ACTIVITIES. THIS NOTICE MUST INCLUDE:

- THE NAME OF THE APPROVED PROJECT;
- THE ACTIVITY START DATE; AND
- THE CONTACT INFORMATION OF THE PRIME CONTRACTOR.

2. ALL CONTRACTORS CONDUCTING REGULATED ACTIVITIES ASSOCIATED WITH THIS PROJECT MUST BE PROVIDED WITH COMPLETE COPIES OF THE APPROVED WATER POLLUTION ABATEMENT PLAN (WPAP) AND THE TCEQ LETTER INDICATING THE SPECIFIC CONDITIONS OF ITS APPROVAL. DURING THE COURSE OF THESE REGULATED ACTIVITIES, THE CONTRACTORS ARE REQUIRED TO KEEP ON-SITE COPIES OF THE APPROVED PLAN AND APPROVAL LETTER.

3. IF ANY SENSITIVE FEATURE(S) (CAVES, SOLUTION CAVITY, SINK HOLE, ETC.) IS DISCOVERED DURING CONSTRUCTION, ALL REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MUST BE SUSPENDED IMMEDIATELY. THE APPROPRIATE TCEQ REGIONAL OFFICE MUST BE IMMEDIATELY NOTIFIED OF ANY SENSITIVE FEATURES ENCOUNTERED DURING CONSTRUCTION. CONSTRUCTION ACTIVITIES MAY NOT BE RESUMED UNTIL THE TCEQ HAS REVIEWED AND APPROVED THE APPROPRIATE PROTECTIVE MEASURES IN ORDER TO PROTECT ANY SENSITIVE FEATURE AND THE EDWARDS AQUIFER FROM POTENTIALLY ADVERSE IMPACTS TO WATER QUALITY.

4. NO TEMPORARY OR PERMANENT HAZARDOUS SUBSTANCE STORAGE TANK SHALL BE INSTALLED WITHIN 150 FEET OF A WATER SUPPLY SOURCE, DISTRIBUTION SYSTEM, WELL, OR SENSITIVE FEATURE.

5. PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITY, ALL TEMPORARY EROSION AND SEDIMENTATION (E&S) CONTROL MEASURES MUST BE PROPERLY INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE APPROVED PLANS AND MANUFACTURERS SPECIFICATIONS. IF INSPECTIONS INDICATE A CONTROL HAS BEEN USED INAPPROPRIATELY, OR INCORRECTLY, THE APPLICANT MUST REPLACE OR MODIFY THE CONTROL FOR SITE SITUATIONS. THESE CONTROLS MUST REMAIN IN PLACE UNTIL THE DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED.

6. ANY SEDIMENT THAT ESCAPES THE CONSTRUCTION SITE MUST BE COLLECTED AND PROPERLY DISPOSED OF BEFORE THE NEXT RAIN EVENT TO ENSURE IT IS NOT WASHED INTO SURFACE STREAMS, SENSITIVE FEATURES, ETC.

7. SEDIMENT MUST BE REMOVED FROM THE SEDIMENT TRAPS OR SEDIMENTATION BASINS NOT LATER THAN WHEN IT OCCUPIES 50% OF THE BASIN'S DESIGN CAPACITY.

8. LITTER, CONSTRUCTION DEBRIS, AND CONSTRUCTION CHEMICALS EXPOSED TO STORMWATER SHALL BE PREVENTED FROM BEING DISCHARGED OFFSITE.

9. ALL SPOILS (EXCAVATED MATERIAL) GENERATED FROM THE PROJECT SITE MUST BE STORED ON-SITE WITH PROPER E&S CONTROLS. FOR STORAGE OR DISPOSAL OF SPOILS AT ANOTHER SITE ON THE EDWARDS AQUIFER RECHARGE ZONE, THE OWNER OF THE SITE MUST RECEIVE APPROVAL OF A WATER POLLUTION ABATEMENT PLAN FOR THE PLACEMENT OF FILL MATERIAL OR MASS GRADING PRIOR TO THE PLACEMENT OF SPOILS AT THE OTHER SITE.

10. IF PORTIONS OF THE SITE WILL HAVE A TEMPORARY OR PERMANENT CEASE IN CONSTRUCTION ACTIVITY LASTING LONGER THAN 14 DAYS, SOIL STABILIZATION IN THOSE AREAS SHALL BE INITIATED AS SOON AS POSSIBLE PRIOR TO THE 14TH DAY OF INACTIVITY. IF ACTIVITY WILL RESUME PRIOR TO THE 21ST DAY, STABILIZATION MEASURES ARE NOT REQUIRED. IF DROUGHT CONDITIONS OR INCLEMENT WEATHER PREVENT ACTION BY THE 14TH DAY, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS POSSIBLE.

11. THE FOLLOWING RECORDS SHALL BE MAINTAINED AND MADE AVAILABLE TO THE TCEQ UPON REQUEST:

- THE DATES WHEN MAJOR GRADING ACTIVITIES OCCUR;
- THE DATES WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON A PORTION OF THE SITE; AND
- THE DATES WHEN STABILIZATION MEASURES ARE INITIATED.

12. THE HOLDER OF ANY APPROVED EDWARD AQUIFER PROTECTION PLAN MUST NOTIFY THE APPROPRIATE REGIONAL OFFICE IN WRITING AND OBTAIN APPROVAL FROM THE EXECUTIVE DIRECTOR PRIOR TO INITIATING ANY OF THE FOLLOWING:
    A. ANY PHYSICAL OR OPERATIONAL MODIFICATION OF ANY WATER POLLUTION ABATEMENT STRUCTURE(S), INCLUDING BUT NOT LIMITED TO PONDS, DAMS, BERMS, SEWAGE TREATMENT PLANTS, AND DIVERSIONARY STRUCTURES;
    B. ANY CHANGE IN THE NATURE OR CHARACTER OF THE REGULATED ACTIVITY FROM THAT WHICH WAS ORIGINALLY APPROVED OR A CHANGE WHICH WOULD SIGNIFICANTLY IMPACT THE ABILITY OF THE PLAN TO PREVENT POLLUTION OF THE EDWARDS AQUIFER;
    C. ANY DEVELOPMENT OF LAND PREVIOUSLY IDENTIFIED AS UNDEVELOPED IN THE ORIGINAL WATER POLLUTION ABATEMENT PLAN.

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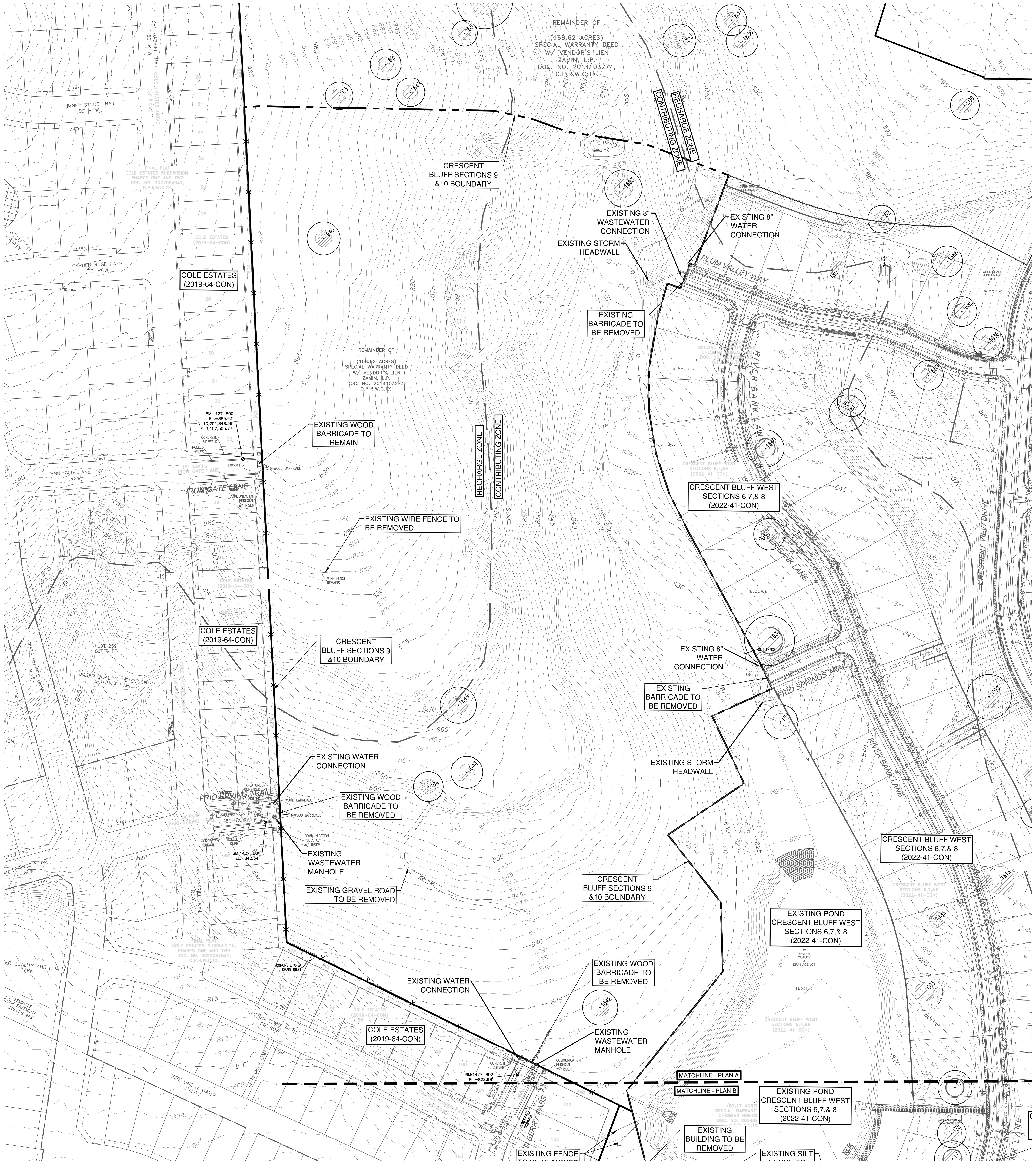
12/05/2025

TCEQ NOTES
CRESCENT BLUFF WEST
SECTIONS 9 & 10
GEORGETOWN, WILLIAMSON COUNTY TEXAS

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

SHEET 3 of 105
2025-XX-CON



HERITAGE TREE LIST							
Key	Tree #	Size Tree Diameter (inches)	Half Critical Root Zone (Radius)(Feet)	Single or Multitrunk	Species	Size Discription	Removed
H	163	26	13	S	Live Oak	26"	
H	164	28	14	S	Live Oak	28"	
H	165	31	15.5	S	Elm	31"	
H	166	34	17	M	Live Oak	(18", 20", 10")	
H	167	55	27.5	M	Live Oak	(15", 14", 14", 10", 18", 19")	
H	168	28	14	M	Live Oak	(19", 17")	
H	169	26	13	S	Live Oak	26"	
H	170	34	17	M	Live Oak	(24", 19")	
H	171	30	15	S	Live Oak	30"	
H	172	41	20.5	M	Live Oak	(24", 22", 12")	
H	173	27	13.5	S	Live Oak	27"	
H	174	50	25	M	Pecan	(30", 19", 22")	
H	175	60	30	S	Live Oak	60"	
H	176	29	14.5	M	Live Oak	(21", 19")	
H	183	32	16	S	Live Oak	32"	
H	907	51	25.5	M	Live Oak	(30", 21",20")	
H	1621	43	21.5	M	Pecan	(20", 18", 18", 10")	
H	1622	29	14.5	S	Live Oak	29"	
H	1623	31	15.5	M	Live Oak	(23", 15")	
H	1624	37	18.5	M	Elm	(20", 14", 20")	
H	1625	30	15	S	Live Oak	30"	
H	1626	40	20	M	Live Oak	(30", 20")	
H	1627	30	15	S	Live Oak	30"	
H	1628	32	16	S	Live Oak	32"	
H	1629	36	18	S	Live Oak	36"	
H	1630	58	29	M	Live Oak	(29", 11", 38")	
H	1639	47	23.5	S	Live Oak	47"	
H	1642	33	16.5	S	Live Oak	33"	
H	1644	30	15	M	Live Oak	(18", 21")	
H	1645	34	17	S	Live Oak	34"	
H	1646	31	15.5	S	Live Oak	31"	
H	1649	27	13.5	S	Live Oak	27"	
H	1665	27	13.5	S	Live Oak	27"	
H	1693	35	17.5	M	Live Oak	(21", 19", 9")	

N

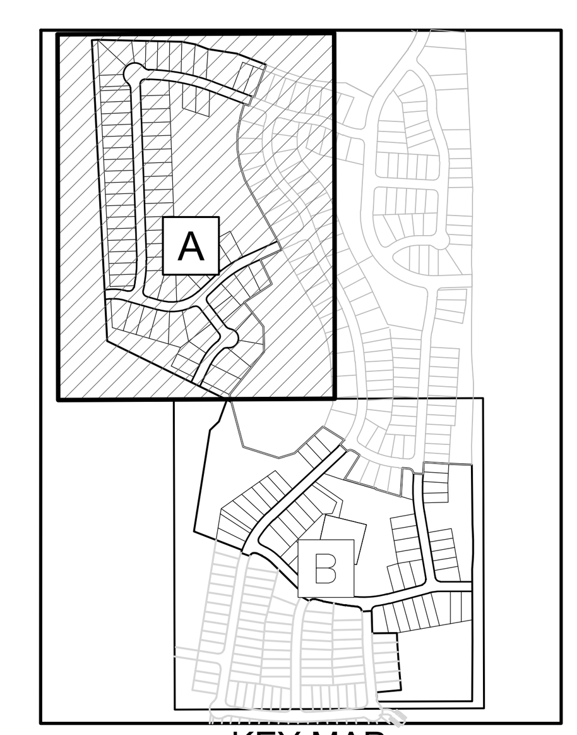
0 100' 200'
SCALE: 1" = 100'

LEGEND

- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- FIRE HYDRANT
- WATER VALVE
- IRRIGATION CONTROL VALVE
- WATER METER
- WATER MANHOLE
- BLOWOFF VALVE
- SANITARY CLEANOUT
- STORM MANHOLE
- AREA/GRATE INLET
- LIGHT POLE
- POWER POLE
- GUY ANCHOR
- TRAFFIC SIGNAL POLE
- TRAFFIC SIGNAL CONTROL BOX
- SERVICE POLE
- ELECTRIC TRANSFORMER
- ELECTRIC MANHOLE
- GAS VALVE
- GAS METER
- SIGN
- TELEPHONE PEDESTAL
- TELEPHONE MANHOLE
- SURVEY CONTROL POINT
- SPOT ELEVATION
- FOUND IRON ROD
- CALCULATED POINT
- MAIL BOX
- CABLE BOX
- FIBER OPTIC CABLE MARKER
- 100 YEAR FLOODPLAIN
- EDWARDS AQUIFER RECHARGE ZONE BOUNDARY
- PROPERTY LINE
- HERITAGE TREE TO REMAIN
- HERITAGE TREE TO REMOVE

NOTE:

1. TOPOGRAPHIC DATA SHOWN HEREON BASED ON GROUND TOPO BY HR GREEN DEVELOPMENT TX , FROM FEBRUARY, MARCH, & APRIL 2025.
2. TREE SURVEY PROVIDED BY FOREST SURVEYING & MAPPING COMPANY, JUNE 21, 2021.
3. PORTIONS OF THE SITE WERE UNDER CONSTRUCTION AT THE TIME OF TOPOGRAPHIC DATA ON GROUND SURVEY. THESE AREAS, AS DOCUMENTED ON THIS SHEET, ARE INTERPOLATED. CONTRACTOR TO VERIFY ELEVATIONS OF THESE AREAS.



KEY MAP
N.T.S.

NO.	REVISION	BY	DATE

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

5508 HIGHWAY 290 WEST SUITE 150 AUSTIN, TX 78735 512.872.6696 HRGREEN.COM
TBPE NO: 16384 TBPLS NO: 10194101

HRGreen DEVELOPMENT TX

STATE OF TEXAS
CHRISTINE N. CAMPBELL
142536
LICENSED PROFESSIONAL ENGINEER
12/05/2025

EXISTING CONDITIONS & DEMOLITION PLAN A

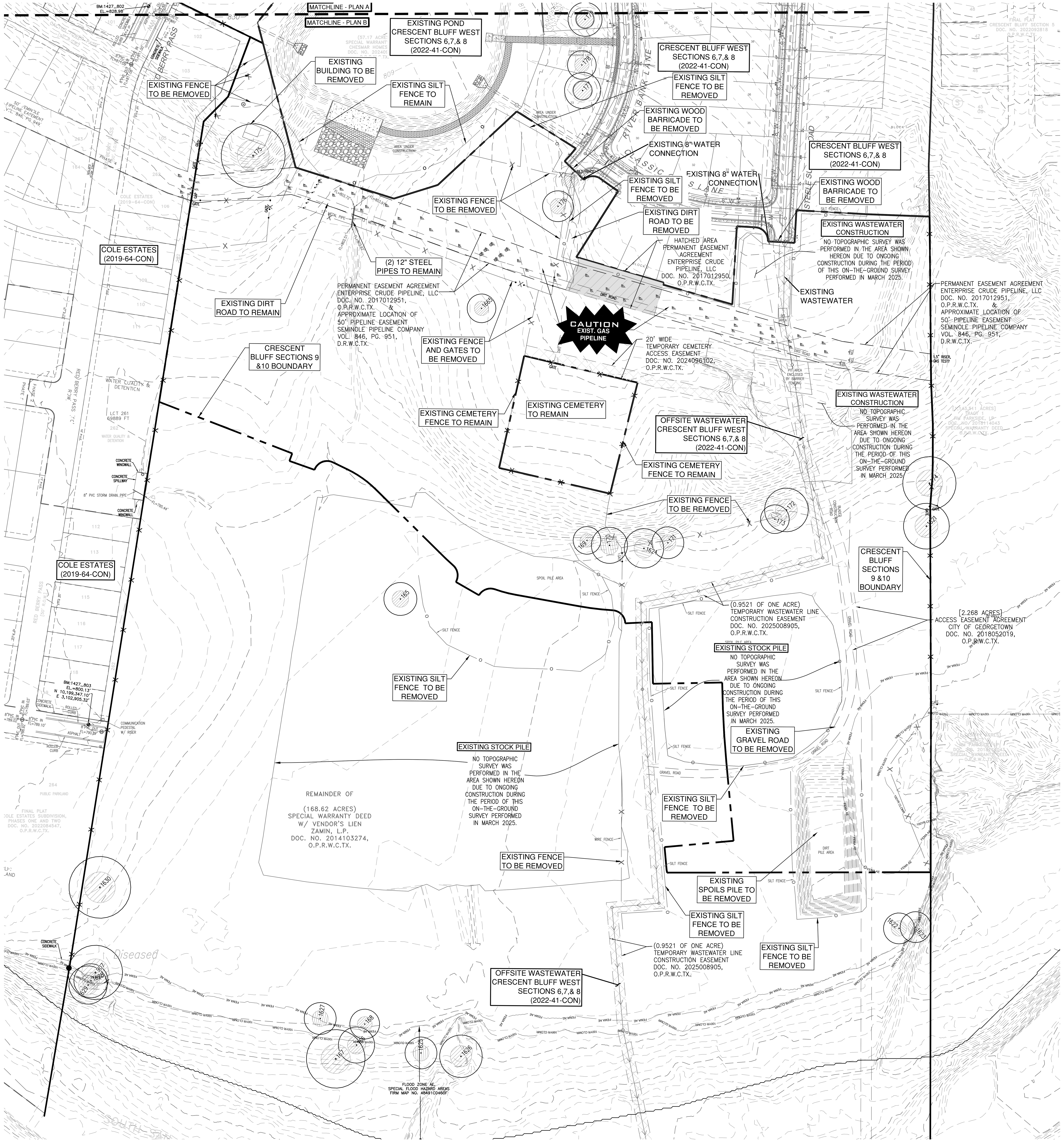
CRESCENT BLUFF WEST SECTIONS 9 & 10

GEORGETOWN, WILLIAMSON COUNTY TEXAS

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

SHEET 7 of 105

2025-XX-CON



SCALE: 1" = 100'

LEGEND

834	EXISTING MINOR CONTOUR
835	EXISTING MAJOR CONTOUR
	FIRE HYDRANT
	WATER VALVE
	IRRIGATION CONTROL VALVE
	WATER METER
	WATER MANHOLE
	BLOWOFF VALVE
	SANITARY CLEANOUT
	STORM MANHOLE
	AREA/GRATE INLET
	LIGHT POLE
	POWER POLE
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100 YR FP	100 YEAR FLOODPLAIN
	EDWARDS AQUIFER RECHARGE ZONE BOUNDARY
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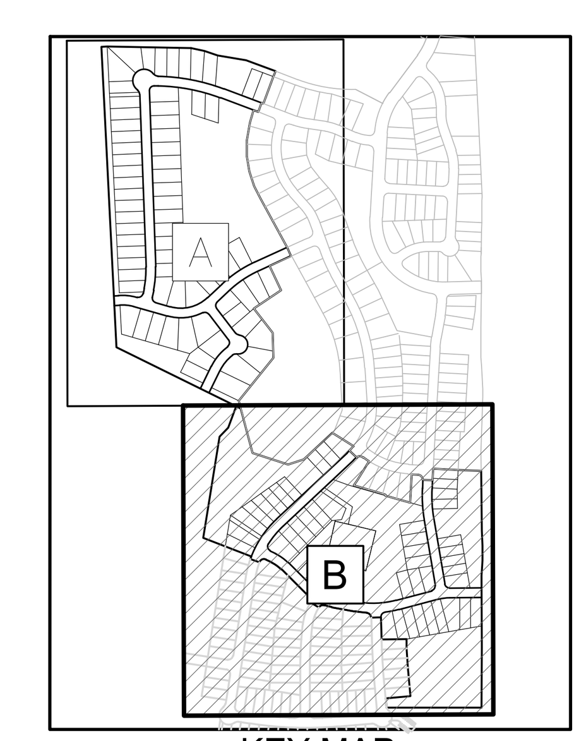

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5508 HIGHWAY 290 WEST
SUITE 150
AUSTIN, TX 78735
512.872.6696
HRGREEN.COM
TBPE NO: 16384
TBPLS NO: 10194101

HRGreen® DEVELOPMENT TX

STATE OF TEXAS CHRISTINE N. CAMPBELL 142536 LICENSED PROFESSIONAL ENGINEER
12/05/2025

EXISTING CONDITIONS & DEMOLITION PLAN B

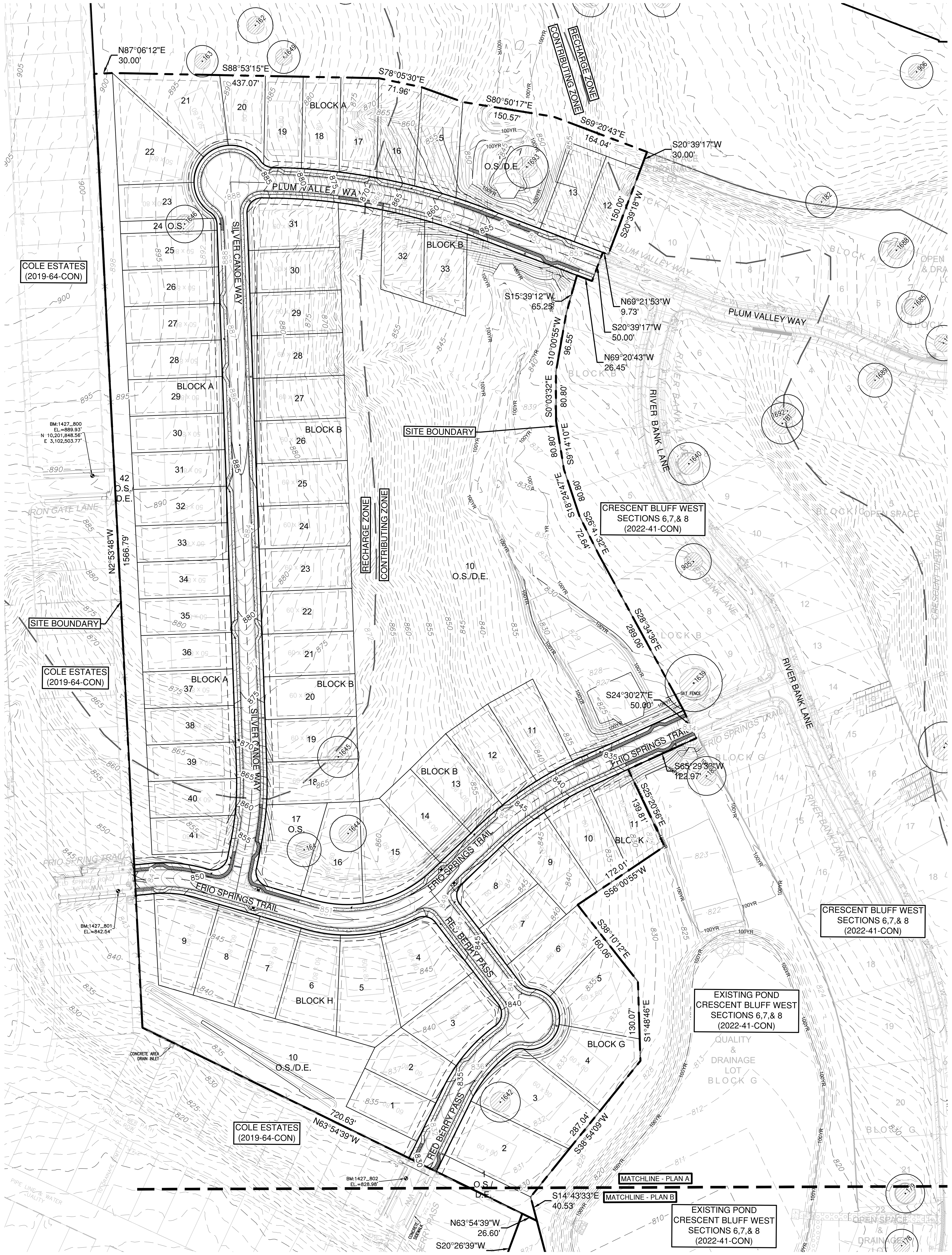
CRESCENT BLUFF WEST SECTIONS 9 & 10

GEORGETOWN, WILLIAMSON COUNTY TEXAS

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

SHEET 8 of 105

2025-XX-CON



0 100' 200'
SCALE: 1" = 100'

LEGEND

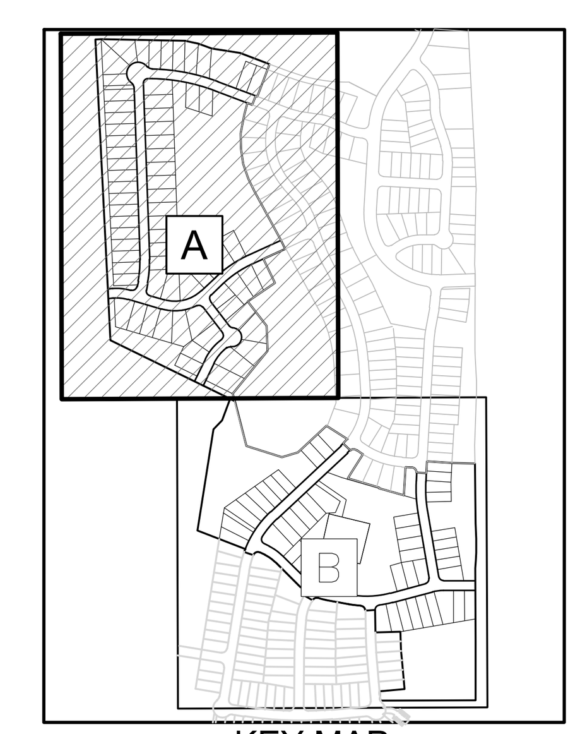
- PROPERTY BOUNDARY
- EASEMENT
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- 100YR PROPOSED CONDITION FLOODPLAIN
- CREEK CENTERLINE
- EDWARDS AQUIFER RECHARGE ZONE
- EXISTING HERITAGE TREES

LOT SUMMARY

AREA: ± 57.78 ACRES

28 RESIDENTIAL LOTS / 50' LOTS
47 RESIDENTIAL LOTS / 60' LOTS
42 RESIDENTIAL LOTS / 70' LOTS
8 BLOCKS
5 OPEN SPACE
6 OPEN SPACE / DRAINAGE
1 OPEN SPACE, WATER QUALITY DRAINAGE LOT
1 CEMETERY ACCESS LOT

CURVE TABLE					
NUMBER	LENGTH	RADIUS	DELTA	CHORD BEARING	CHORD LENGTH
C1	31.96'	325.00'	5.634°	N41° 15' 10"E	31.94
C2	34.88'	25.00'	79.931°	S87° 06' 57"W	32.12
C3	39.27'	25.00'	90.000°	N41° 43' 38"W	35.36
C4	37.37'	25.00'	85.643°	S43° 49' 01"E	33.99
C5	63.24'	525.00'	6.901°	S83° 11' 16"E	63.20
C6	39.93'	250.00'	9.152°	S75° 09' 39"E	39.89
C7	34.70'	25.00'	79.524°	N69° 39' 11"E	31.98
C8	34.70'	25.00'	79.524°	S9° 52' 16"E	31.98
C9	18.86'	250.00'	4.323°	S47° 28' 18"E	18.86
C10	65.47'	200.00'	18.757°	S54° 41' 19"E	65.18
C11	42.05'	25.00'	96.379°	N67° 44' 36"E	37.27
C12	15.00'	525.00'	1.637°	S20° 22' 19"W	15.00



KEY MAP
N.T.S.

NO.	REVISION	BY	DATE

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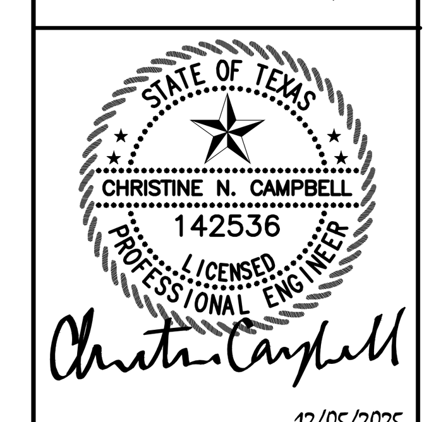
HRGreen DEVELOPMENT TX
5508 HIGHWAY 290 WEST SUITE 150 AUSTIN, TX 78735 512.872.6696 HRGREEN.COM
TBPE NO: 16384 TBPLS NO: 10194101



PROPOSED CONDITIONS PLAN A

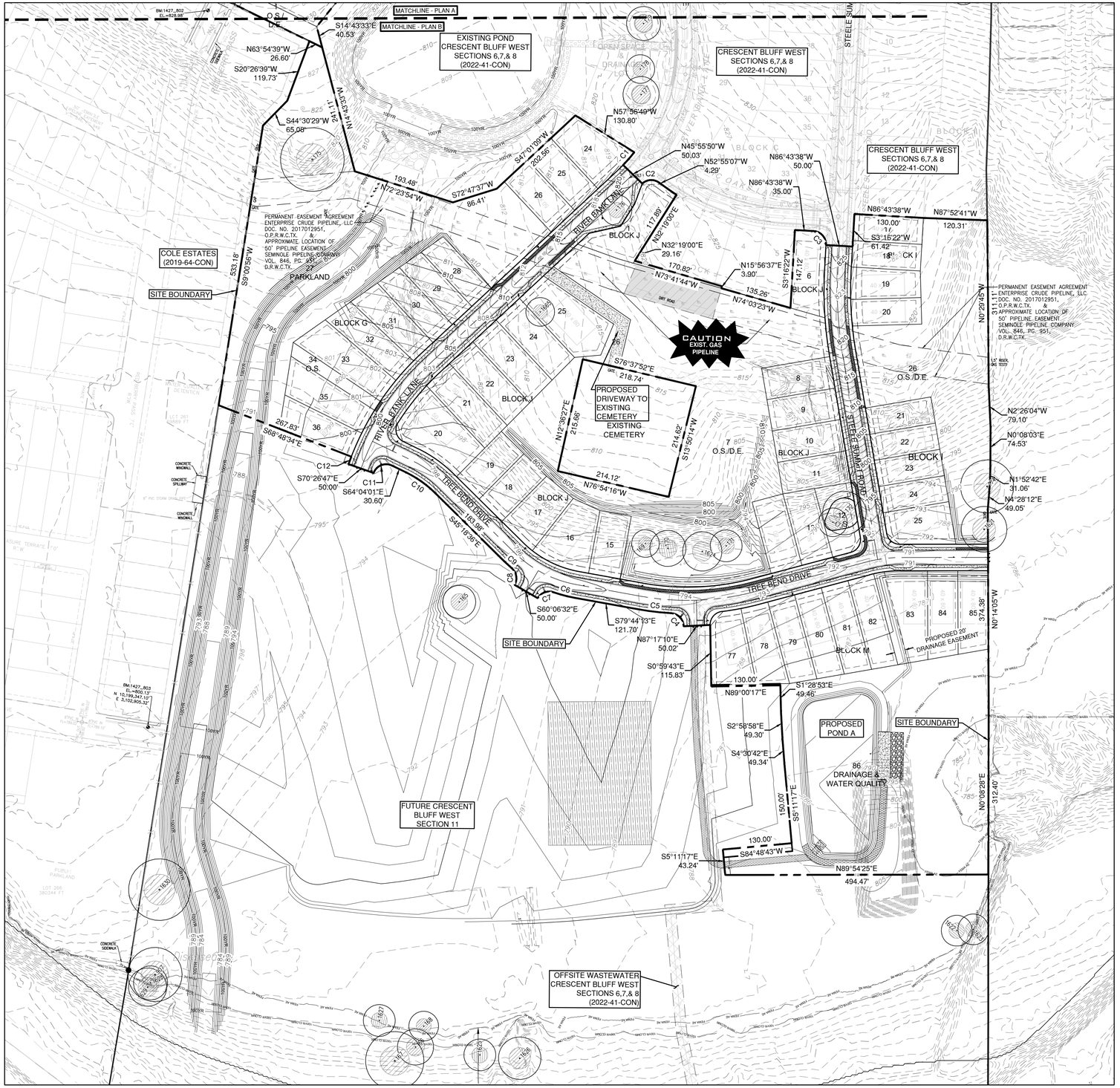
CRESCENT BLUFF WEST
SECTIONS 9 & 10
GEORGETOWN, WILLIAMSON COUNTY TEXAS

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

SHEET 9 of 105

2025-XX-CON

Sheet Location: P:\Athena Domain\Chapman Tract\Sections 9-10\03_ACAD\Plans\sh240243-PCOND.dwg, PROPOSED CONDITIONS - PLAN A, December 05, 2025, 3:07 PM, makai.muhammad



N

0 100' 200'
SCALE: 1" = 100'

LEGEND

- PROPERTY BOUNDARY
- EASEMENT
- 840 EXISTING MAJOR CONTOUR
- 834 EXISTING MINOR CONTOUR
- 100YR 100YR PROPOSED CONDITION FLOODPLAIN
- CREEK CENTERLINE
- EDWARDS AQUIFER RECHARGE ZONE
- EXISTING HERITAGE TREES

LOT SUMMARY

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512.872.6696
HRGREEN.COM

TBPE NO: 16384
TBPLS NO: 10194101

HRGreen®
DEVELOPMENT TX

CHRISTINE N. CAMPBELL
142536
Christine Campbell
12/05/2025

PROPOSED CONDITIONS PLAN B

CRESCENT BLUFF WEST
SECTIONS 9 & 10
GEORGETOWN, WILLIAMSON COUNTY TEXAS

DESIGNED BY: CC/TG
DRAWN BY: TG
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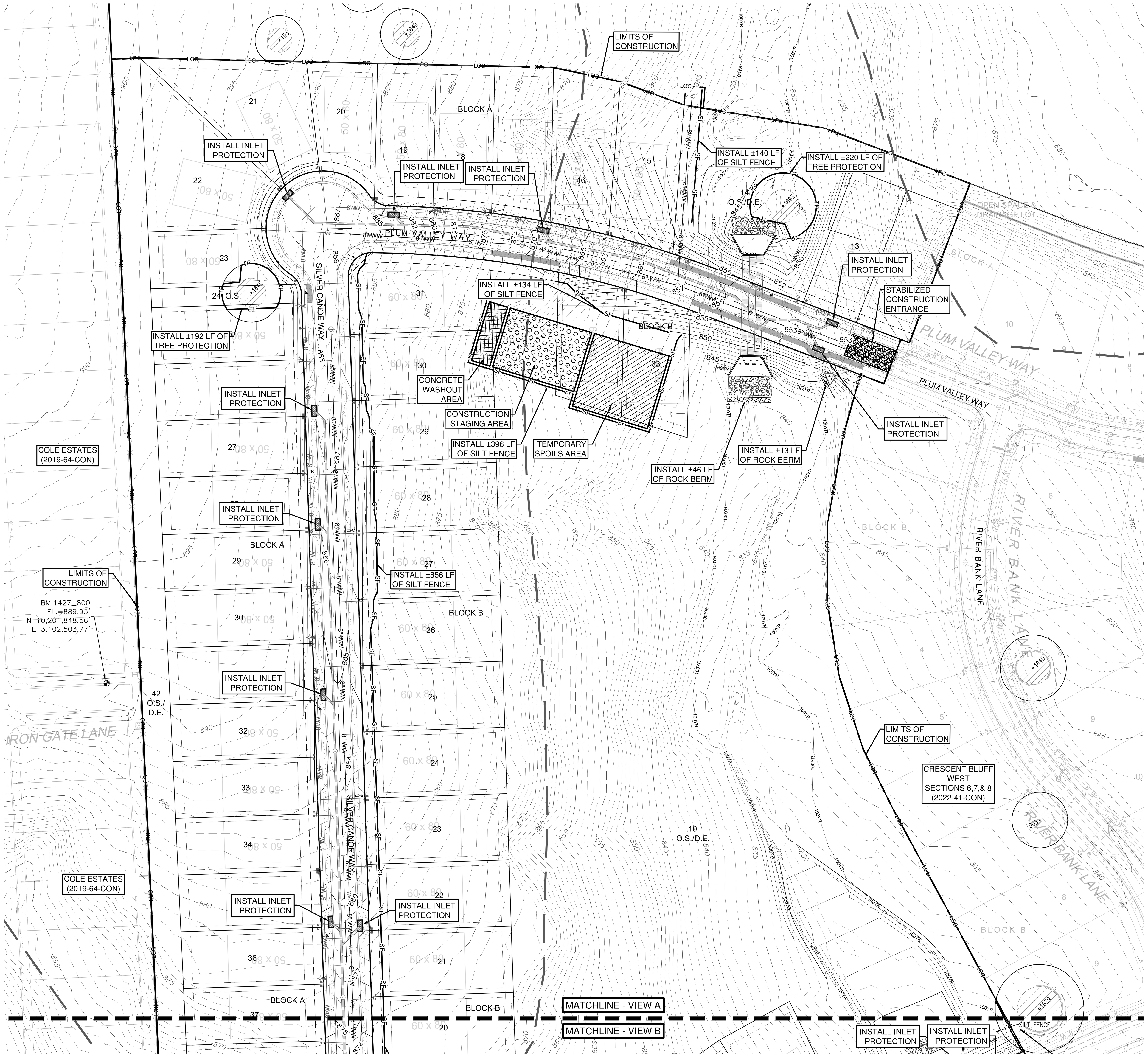
SHEET 10 of 105

2025-XX-CON

Sheet Location: P:\Athena Domain\Chapman Tract\Sections 9-10\03_ACAD\Plans\b2404243-PCOND.dwg, PROPOSED CONDITIONS - PLAN B, December 05, 2025, 3:07 PM, makai.muhammad



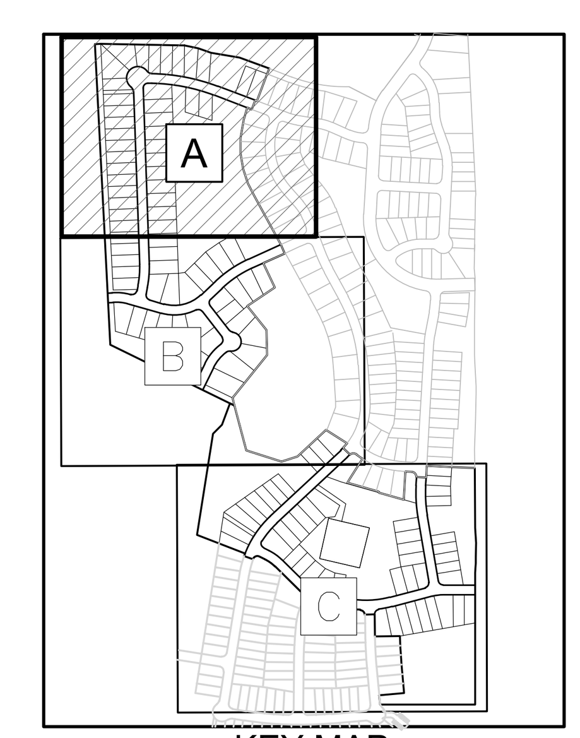
SCALE: 1" = 60'

LEGEND

- 834 — EXISTING MINOR CONTOUR
- 835 — EXISTING MAJOR CONTOUR
- 834 — PROPOSED MINOR CONTOUR
- 835 — PROPOSED MAJOR CONTOUR
- BOUNDARY
- EASEMENT
- LOC — LIMITS OF CONSTRUCTION
- LOC/SF — LIMITS OF CONSTRUCTION/SILT FENCE
- SF — SILT FENCE
- TP — TREE PROTECTION
- 100YR — 100 YR FEMA FLOODPLAIN
- 500YR — 500 YR FEMA FLOODPLAIN
- FEMA FW — FEMA FLOODWAY
- 100YR CLOMR — CLOMR FLOODPLAIN
- 100YR LOMR — LOMR FLOODPLAIN
- BERM — BERM
- FLOW DIRECTION
- SEDIMENT CONTAINMENT DIKE
- MULCH SOCK
- HERITAGE TREE TO REMAIN
- HERITAGE TREE TO BE REMOVED
- INLET PROTECTION
- STABILIZED CONSTRUCTION ENTRANCE
- ROCK BERM
- VEGETATIVE FILTER STRIP
- TEMPORARY SPOILS AREA
- CONCRETE WASHOUT AREA
- CONSTRUCTION STAGING AREA
- RETAINING WALL (DESIGN BY OTHERS)
- TREE WELL

SEQUENCE OF MAJOR ACTIVITIES:

1. 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).
2. TREE PROTECTION MEASURES WILL ALSO BE INSTALLED FOR ALL TREES WITH CONSTRUCTION ACTIVITIES WITHIN CRITICAL ROOT ZONE.
3. TEMPORARY SPOILS, CONSTRUCTION STAGING AND CONCRETE WASHOUT AREA WILL BE CONSTRUCTED.
4. THE SEDIMENTATION TRAP LOCATED AT THE SOUTHEAST CORNER OF THE SITE WILL BE EXCAVATED AND THE OUTFALL STRUCTURE CONSTRUCTED.
5. FILTER FABRIC WILL BE USED TO COVER THE OVERFLOW WEIR TO PREVENT UNFILTERED RUNOFF FROM ENTERING THE LAND DOWNSTREAM.
6. AFTER THE SITE IS MASS GRADED, THE ONSITE DRAINAGE, UTILITIES, AND PAVING WILL BE INSTALLED.
7. INLET PROTECTION BARRIERS WILL BE INSTALLED AS CONSTRUCTION OF STORM SEWER TAKES PLACE IN ORDER TO PREVENT SEDIMENTS FROM ENTERING THE SYSTEM.
8. TEMPORARY SEDIMENTATION BASINS WILL BE CONVERTED TO PERMANENT WATER QUALITY PONDS.
9. SEDIMENTATION TRAPS SHALL BE CLEANED OUT AND FILTER MEDIUM INSTALLED CONCURRENT WITH RE-VEGETATION.
10. 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.



KEY MAP
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NO.	REVISION	BY	DATE

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TBPE NO: 16384
TBPLS NO: 10194101
HRGreen DEVELOPMENT TX

STATE OF TEXAS
CHRISTINE N. CAMPBELL
142536
LICENSED PROFESSIONAL ENGINEER
12/05/2025

EROSION & SEDIMENTATION CONTROL PLAN A

CRESCENT BLUFF WEST SECTIONS 9 & 10

GEORGETOWN, WILLIAMSON COUNTY TEXAS

DESIGNED BY: CC/TG
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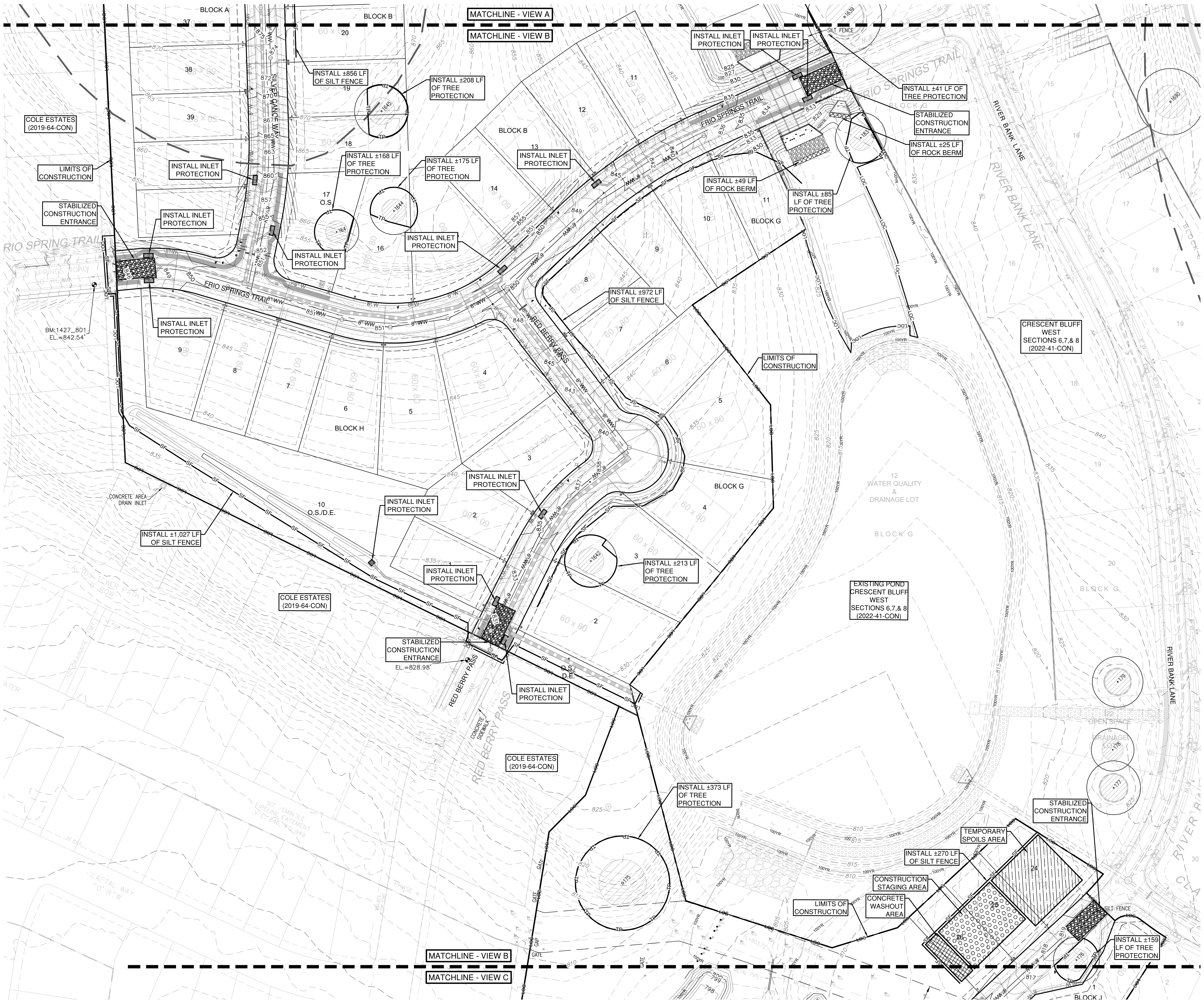
SHEET 11 of 105

2025-XX-CON



0 60' 120'
SCALE: 1" = 60'

LEGEND

834	EXISTING MINOR CONTOUR
835	EXISTING MAJOR CONTOUR
834	PROPOSED MINOR CONTOUR
835	PROPOSED MAJOR CONTOUR
	BOUNDARY
	EASEMENT
LOC	LIMITS OF CONSTRUCTION
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	VEGETATIVE FILTER STRIP
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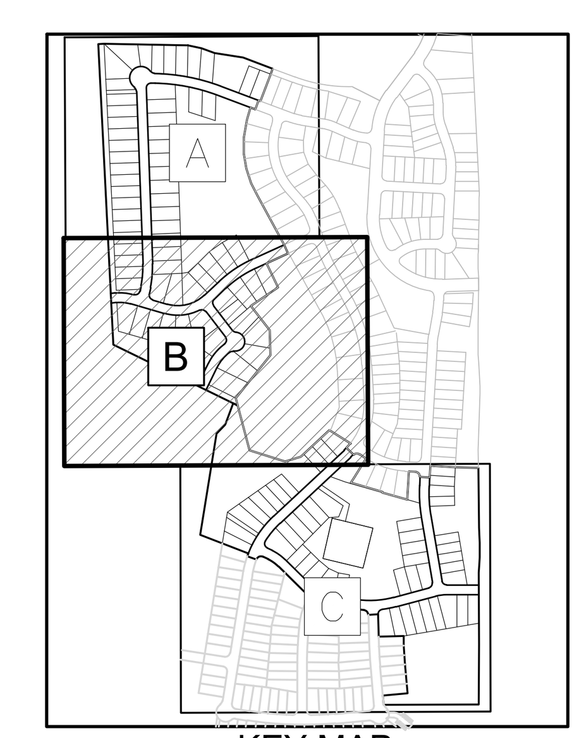

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STATE OF TEXAS
CHRISTINE N. CAMPBELL
142536
LICENSED PROFESSIONAL ENGINEER
12/05/2025

EROSION & SEDIMENTATION CONTROL PLAN B

CRESCENT BLUFF WEST SECTIONS 9 & 10

GEORGETOWN, WILLIAMSON COUNTY TEXAS

DESIGNED BY: CC/TG
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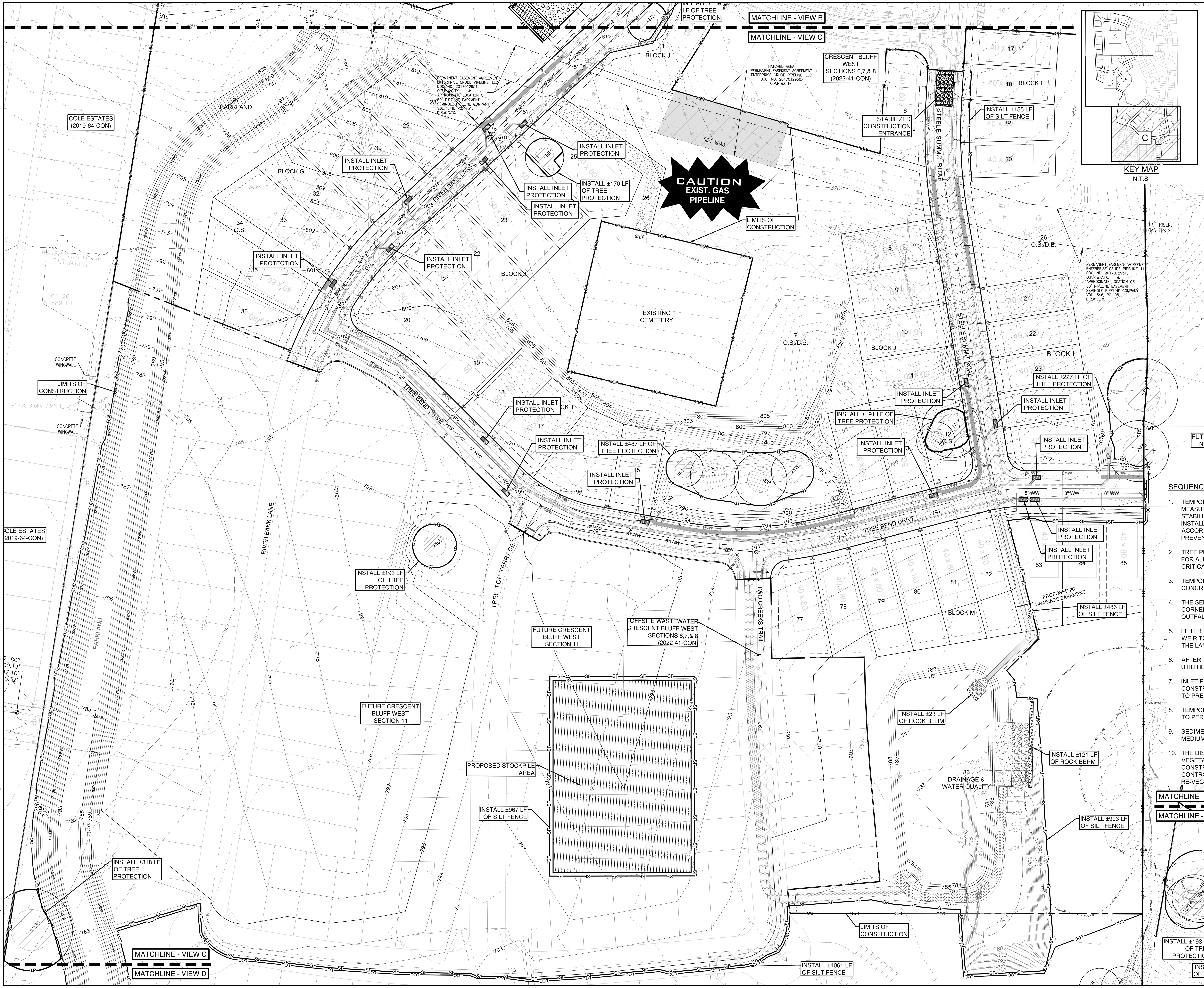
CHECKED BY: CC
APPROVED BY: SN

SHEET 12 of 105

2025-XX-CON



SCALE: 1" = 60'

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- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- BOUNDARY
- EASEMENT
- LIMITS OF CONSTRUCTION
- LIMITS OF CONSTRUCTION/SILT FENCE
- SILT FENCE
- TREE PROTECTION
- 100 YR FEMA FLOODPLAIN
- 500 YR FEMA FLOODPLAIN
- FEMA FLOODWAY
- CLOMR FLOODPLAIN
- LOMR FLOODPLAIN
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SEQUENCE OF MAJOR ACTIVITIES:

1. 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).
2. TREE PROTECTION MEASURES WILL ALSO BE INSTALLED FOR ALL TREES WITH CONSTRUCTION ACTIVITIES WITHIN CRITICAL ROOT ZONE.
3. TEMPORARY SPOILS, CONSTRUCTION STAGING AND CONCRETE WASHOUT AREA WILL BE CONSTRUCTED.
4. THE SEDIMENTATION TRAP LOCATED AT THE SOUTHEAST CORNER OF THE SITE WILL BE EXCAVATED AND THE OUTFALL STRUCTURE CONSTRUCTED.
5. FILTER FABRIC WILL BE USED TO COVER THE OVERFLOW WEIR TO PREVENT UNFILTERED RUNOFF FROM ENTERING THE LAND DOWNSTREAM.
6. AFTER THE SITE IS MASS GRADED, THE ONSITE DRAINAGE, UTILITIES, AND PAVING WILL BE INSTALLED.
7. INLET PROTECTION BARRIERS WILL BE INSTALLED AS CONSTRUCTION OF STORM SEWER TAKES PLACE IN ORDER TO PREVENT SEDIMENTS FROM ENTERING THE SYSTEM.
8. TEMPORARY SEDIMENTATION BASINS WILL BE CONVERTED TO PERMANENT WATER QUALITY PONDS.
9. SEDIMENTATION TRAPS SHALL BE CLEANED OUT AND FILTER MEDIUM INSTALLED CONCURRENT WITH RE-VEGETATION.
10. 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.

NO.	REVISION	BY	DATE

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

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STATE OF TEXAS CHRISTINE N. CAMPBELL 142536 LICENSED PROFESSIONAL ENGINEER 12/05/2025

EROSION & SEDIMENTATION CONTROL PLAN C

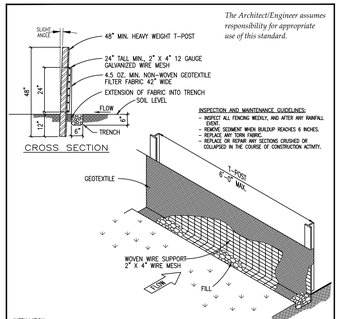
CRESCENT BLUFF WEST SECTIONS 9 & 10

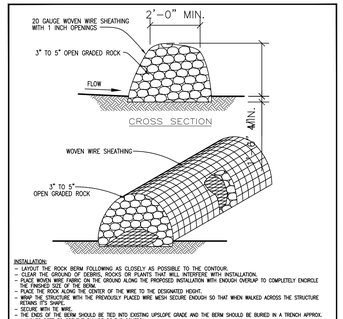
GEORGETOWN, WILLIAMSON COUNTY TEXAS

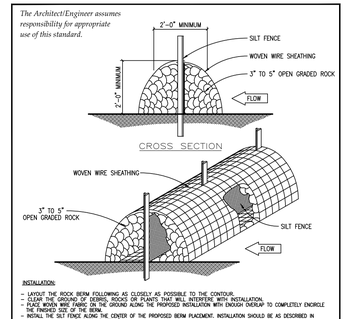
DESIGNED BY: CC/TG
DRAWN BY: TG
CHECKED BY: CC
APPROVED BY: SN

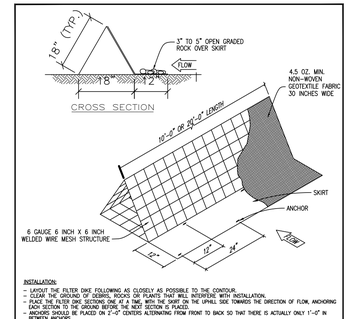
SHEET 13 of 105

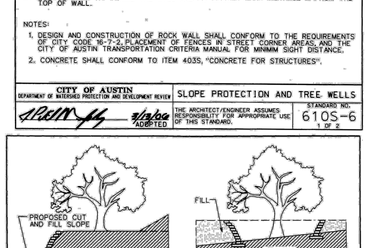
2025-XX-CON

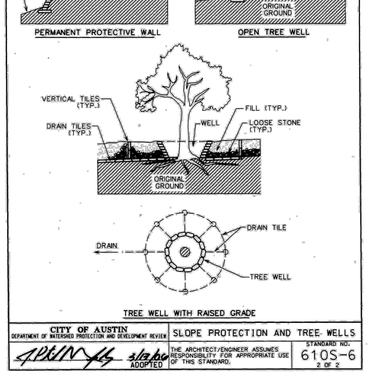


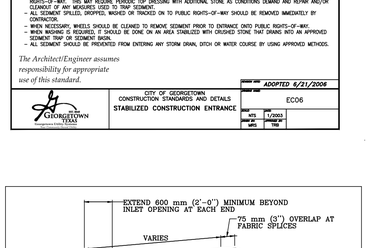


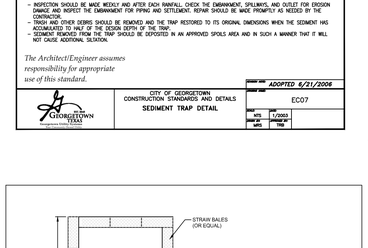


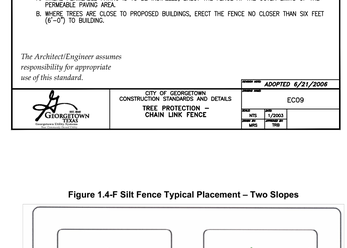


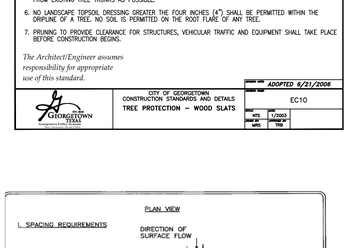












GUIDELINES FOR DESIGN AND INSTALLATION OF TEMPORARY EROSION AND SEDIMENTATION CONTROLS

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

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

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

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

ADOPTED 6/21/2006
CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
TEMPORARY EROSION AND SEDIMENTATION CONTROL GUIDELINES
EC01
NTS 1/2003
MRS TRB

NOTE: THIS SECTION IS INTENDED TO ASSIST THOSE PERSONS PREPARING WATER POLLUTION ABATEMENT PLANS (WPAP) OR STORM WATER POLLUTION PREVENTION PLANS (SW3P) THAT COMPLY WITH FEDERAL, STATE AND/OR LOCAL STORM WATER REGULATIONS.

1. THE CONTRACTOR TO INSTALL AND MAINTAIN EROSION/SEDIMENTATION CONTROLS AND TREE/NATURAL AREA PROTECTIVE FENCING PRIOR TO ANY SITE PREPARATION WORK (CLEARING, GRUBBING, GRADING, OR EXCAVATION). CONTRACTOR TO REMOVE EROSION/SEDIMENTATION CONTROLS AT THE COMPLETION OF PROJECT AND GRASS RESTORATION.
2. ALL PROJECTS WITHIN THE RECHARGE ZONE OF THE EDWARD'S AQUIFER SHALL SUBMIT A BEST MANAGEMENT PRACTICES AND WATER POLLUTION AND ABATEMENT PLAN TO THE TNRCC FOR APPROVAL PRIOR TO ANY CONSTRUCTION.
3. THE PLACEMENT OF EROSION/SEDIMENTATION CONTROLS TO BE IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN AND WATER POLLUTION ABATEMENT PLAN. DEVIATIONS FROM THE APPROVED PLAN MUST BE SUBMITTED TO AND APPROVED BY THE OWNER'S REPRESENTATIVE.
4. ALL PLANTING SHALL BE DONE BETWEEN MAY 1 AND SEPTEMBER 15 EXCEPT AS SPECIFICALLY AUTHORIZED IN WRITING. IF PLANTING IS AUTHORIZED TO BE DONE OUTSIDE THE DATES SPECIFIED, THE SEED SHALL BE PLANTED WITH THE ADDITION OF WINTER FESCUE (KENTUCKY 31) AT A RATE OF 100lb/ACRE. GRASS SHALL BE COMMON BERMUDA GRASS, HULLED, MINIMUM 82% PURE LIVE SEED. ALL GRASS SEED SHALL BE FREE FROM NOXIOUS WEED, GRADE "A" RECENT CROP, RECLEANED AND TREATED WITH APPROPRIATE FUNGICIDE AT TIME OF MIXING. SEED SHALL BE FURNISHED IN SEALED, STANDARD CONTAINERS WITH DEALER'S GUARANTEED ANALYSIS.
5. ALL DISTURBED AREAS TO BE RESTORED AS NOTED IN THE WATER POLLUTION ABATEMENT PLAN.
6. THE PLANTED AREA TO BE IRRIGATED OR SPRINKLED IN A MANNER THAT WILL NOT ERODE THE TOPSOIL, BUT WILL SUFFICIENTLY SOAK THE SOIL TO A DEPTH OF FOUR (4) INCHES. THE IRRIGATION TO OCCUR AT 10–DAY INTERVALS DURING THE FIRST TWO MONTHS TO INSURE GERMINATION AND ESTABLISHMENT OF THE GRASS . RAINFALL OCCURRENCES OF 1/2 INCH OR GREATER TO POSTPONE THE WATERING SCHEDULE ONE WEEK.
7. RESTORATION TO BE ACCEPTABLE WHEN THE GRASS HAS GROWN AT LEAST 1–1/2 INCHES HIGH WITH 95*% COVERAGE,* PROVIDED NO BARE SPOTS LARGER THAN 25 SQUARE FEET EXIST.
8. A MINIMUM OF FOUR (4) INCHES OF TOPSOIL TO BE PLACED IN ALL AREAS DISTURBED BY CONSTRUCTION.
9. THE CONTRACTOR TO HYDROMULCH OR SOD (AS SHOWN ON PLANS) ALL EXPOSED CUTS AND FILLS UPON COMPLETION OF CONSTRUCTION.
10. EROSION AND SEDIMENTATION CONTROLS TO BE INSTALLED OR MAINTAINED IN A MANNER WHICH DOES NOT RESULT IN SOIL BUILDUP WITHIN TREE DRIPLINE.
11. TO AVOID SOIL COMPACTION, CONTRACTOR SHALL NOT ALLOW VEHICULAR TRAFFIC, PARKING, OR STORAGE OF EQUIPMENT OR MATERIALS IN THE TREE DRIPLINE AREAS.
12. WHERE A FENCE IS CLOSER THAN FOUR (4) FEET TO A TREE TRUNK, PROTECT THE TRUNK WITH STRAPPED–ON PLANKING TO A HEIGHT OF EIGHT (8) FEET (OR TO THE LIMITS OF LOWER BRANCHING) IN ADDITION TO THE FENCING.
13. TREES TO BE REMOVED IN A MANNER WHICH DOES NOT IMPACT TREES TO BE PRESERVED.
14. ANY ROOT EXPOSED BY CONSTRUCTION ACTIVITY TO BE PRUNED FLUSH WITH THE SOIL. BACKFILL ROOT AREAS WITH GOOD QUALITY TOPSOIL AS SOON AS POSSIBLE. IF EXPOSED ROOT AREAS ARE NOT BACKFILLED WITHIN TWO DAYS, COVER THEM WITH ORGANIC MATERIAL IN A MANNER WHICH REDUCES SOIL TEMPERATURE AND MINIMIZES WATER LOSS DUE TO EVAPORATION.
15. CONTRACTOR TO PRUNE VEGETATION TO PROVIDE CLEARANCE FOR STRUCTURES, VEHICULAR TRAFFIC, AND EQUIPMENT BEFORE DAMAGE OCCURS (RIPPING OF BRANCHES, ETC.). ALL FINISHED PRUNING TO BE DONE ACCORDING TO RECOGNIZED, APPROVED STANDARDS OF THE INDUSTRY (REFERENCE THE "NATIONAL ARBORIST ASSOCIATION PRUNING STANDARDS FOR SHADE TREES").
16. THE CONTRACTOR IS TO INSPECT THE CONTROLS AT WEEKLY INTERVALS AND AFTER EVERY RAINFALL EXCEEDING 1/4 INCH TO VERIFY THAT THEY HAVE NOT BEEN SIGNIFICANTLY DISTURBED. ANY ACCUMULATED SEDIMENT AFTER A SIGNIFICANT RAINFALL TO BE REMOVED AND PLACED IN THE OWNER DESIGNATED SPOIL DISPOSAL SITE. THE CONTRACTOR TO CONDUCT PERIODIC INSPECTIONS OF ALL EROSION/SEDIMENTATION CONTROLS AND TO MAKE ANY REPAIRS OR MODIFICATIONS NECESSARY TO ASSURE CONTINUED EFFECTIVE OPERATION OF EACH DEVICE.
17. WHERE THERE IS TO BE AN APPROVED GRADE CHANGE, IMPERMEABLE PAVING SURFACE, TREE WELL, OR OTHER SUCH SITE DEVELOPMENT IMMEDIATELY ADJACENT TO A PROTECTED TREE, ERECT THE FENCE APPROXIMATELY TWO TO FOUR FEET (2'–4') BEHIND THE AREA IN QUESTION.
18. NO ABOVE AND/OR BELOW GROUND TEMPORARY FUEL STORAGE FACILITIES TO BE STORED ON THE PROJECT SITE.
19. IF EROSION AND SEDIMENTATION CONTROL SYSTEMS ARE EXISTING FROM PRIOR CONTRACTS, OWNER'S REPRESENTATIVE AND THE CONTRACTOR TO EXAMINE THE EXISTING EROSION AND SEDIMENTATION CONTROL SYSTEMS FOR DAMAGE PRIOR TO CONSTRUCTION. ANY DAMAGE TO PREEXISTING EROSION AND SEDIMENTATION CONTROLS NOTED TO BE REPAIRED AT OWNERS EXPENSE.
20. INTENTIONAL RELEASE OF VEHICLE OR EQUIPMENT FLUIDS ONTO THE GROUND IS NOT ALLOWED. CONTAMINATED SOIL RESULTING FROM ACCIDENTAL SPILL TO BE REMOVED AND DISPOSED OF PROPERLY.

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

ADOPTED 6/21/2006
CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
EROSION AND SEDIMENTATION AND TREE PROTECTION NOTES
EC01A
NTS 1/2003
MRS TRB

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

INSTALLATION:

- LAYOUT THE SILT FENCE FOLLOWING AS CLOSELY AS POSSIBLE TO THE CONTOUR.
- CLEAR THE GROUND OF DEBRIS, ROCKS, PLANTS (INCLUDING GRASSES TALLER THAN 2") TO PROVIDE A SMOOTH FLOW APPROACH SURFACE. EXCAVATE 6" DEEP X 6" WIDE TRENCH ON UPSTREAM SIDE OF FACE PER PLANS.
- DRIVE THE HEAVY DUTY T–POST AT LEAST 12 INCHES INTO THE GROUND AND AT A SLIGHT ANGLE TOWARDS THE FLOW.
- ATTACH THE 2" X 4" 12 GAUGE WELDED WIRE MESH TO THE T–POST WITH 11 1/2 GAUGE GALVANIZED T–POST CLIPS. THE TOP OF THE WIRE TO BE 24" ABOVE GROUND LEVEL. THE WELDED WIRE MESH TO BE OVERLAPPED 6" AND TIED AT LEAST 6 TIMES WITH HOG RINGS.
- THE SILT FENCE TO BE INSTALLED WITH A SKIRT A MINIMUM OF 6" WIDE PLACED ON THE UPHILL SIDE OF THE FENCE INSIDE EXCAVATED TRENCH. THE FABRIC TO OVERLAP THE TOP OF THE WIRE BY 1".
- ANCHOR THE SILT FENCE BY BACKFILLING WITH EXCAVATED DIRT AND ROCKS (NOT LARGER THAN 2").
- GEOTEXTILE SPLICES SHOULD BE A MINIMUM OF 18" WIDE ATTACHED IN AT LEAST 6 PLACES. SPLICES IN CONCENTRATED FLOW AREAS WILL NOT BE ACCEPTED.
- SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

ADOPTED 6/21/2006
CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
SILT FENCE DETAIL
EC02
NTS 1/2003
MRS TRB

INSTALLATION:

- LAYOUT THE ROCK BERM FOLLOWING AS CLOSELY AS POSSIBLE TO THE CONTOUR.
- CLEAR THE GROUND OF DEBRIS, ROCKS OR PLANTS THAT WILL INTERFERE WITH INSTALLATION.
- PLACE WOVEN WIRE FABRIC ON THE GROUND ALONG THE PROPOSED INSTALLATION WITH ENOUGH OVERLAP TO COMPLETELY ENCIRCLE THE FINISHED SIZE OF THE BERM.
- PLACE THE ROCK ALONG THE CENTER OF THE WIRE TO THE DESIGNATED HEIGHT.
- WRAP THE STRUCTURE WITH THE PREVIOUSLY PLACED WIRE MESH SECURE ENOUGH SO THAT WHEN WALKED ACROSS THE STRUCTURE RETAINS IT'S SHAPE.
- SECURE WITH TIE WIRE.
- THE ENDS OF THE BERM SHOULD BE TIED INTO EXISTING UPSLOPE GRADE AND THE BERM SHOULD BE BURIED IN A TRENCH APPROX. 4 INCHES DEEP TO PREVENT FAILURE OF THE CONTROL.
- THE ROCK BERM SHOULD BE LEFT IN PLACE UNTIL ALL UPSTREAM AREAS ARE STABILIZED AND ACCUMULATED SILT REMOVED.

INSPECTION AND MAINTENANCE GUIDELINES:

- INSPECTION SHOULD BE MADE WEEKLY AND AFTER EACH RAINFALL EVENT BY THE RESPONSIBLE PARTY. FOR INSTALLATIONS IN STREAMBEDS, ADDITIONAL DAILY INSPECTIONS SHOULD BE MADE.
- REMOVE SEDIMENT AND OTHER DEBRIS WHEN BUILDUP REACHES 6 INCHES AND DISPOSE OF THE ACCUMULATED SILT IN AN APPROVED MANNER.
- REPAIR ANY LOOSE WIRE SHEATHING.
- THE BERM SHOULD BE RESHAPED AS NEEDED DURING INSPECTION.
- THE BERM SHOULD BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.

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

ADOPTED 6/21/2006
CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
ROCK BERM DETAIL
EC03
NTS 1/2003
MRS TRB

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

INSTALLATION:

- LAYOUT THE ROCK BERM FOLLOWING AS CLOSELY AS POSSIBLE TO THE CONTOUR.
- CLEAR THE GROUND OF DEBRIS, ROCKS OR PLANTS THAT WILL INTERFERE WITH INSTALLATION.
- PLACE WOVEN WIRE FABRIC ON THE GROUND ALONG THE PROPOSED INSTALLATION WITH ENOUGH OVERLAP TO COMPLETELY ENCIRCLE THE FINISHED SIZE OF THE BERM.
- INSTALL THE SILT FENCE ALONG THE CENTER OF THE PROPOSED BERM PLACEMENT. INSTALLATION SHOULD BE AS DESCRIBED IN DRAWING NO. EC–02 "SILT FENCE DETAIL".
- PLACE THE ROCK ALONG THE CENTER OF THE WIRE AND ON BOTH SIDES OF THE SILT FENCE TO THE DESIGNATED HEIGHT.
- WRAP THE STRUCTURE WITH THE PREVIOUSLY PLACED WIRE MESH SECURE ENOUGH SO THAT WHEN WALKED ACROSS THE STRUCTURE RETAINS IT'S SHAPE.
- SECURE WITH TIE WIRE.
- THE ROCK BERM SHOULD BE LEFT IN PLACE UNTIL ALL UPSTREAM AREAS ARE STABILIZED AND ACCUMULATED SILT REMOVED.

INSPECTION AND MAINTENANCE GUIDELINES:

- INSPECTION SHOULD BE MADE WEEKLY AND AFTER EACH RAINFALL EVENT BY THE CONTRACTOR. FOR THE INSTALLATIONS IN STREAMBEDS, ADDITIONAL DAILY INSPECTIONS SHOULD BE MADE ON ROCK BERM.
- REMOVE SEDIMENT AND OTHER DEBRIS WHEN BUILDUP REACHES 6 INCHES AND DISPOSE OF THE ACCUMULATED SILT IN AN APPROVED MANNER.
- REPAIR ANY LOOSE WIRE SHEATHING.
- THE BERM SHOULD BE RESHAPED AS NEEDED DURING INSPECTION.
- THE BERM SHOULD BE REPLACES WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.

ADOPTED 6/21/2006
CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
HIGH SERVICE ROCK BERM DETAIL
EC04
NTS 1/2003
MRS TRB

INSTALLATION:

- LAYOUT THE FILTER DIKE FOLLOWING AS CLOSELY AS POSSIBLE TO THE CONTOUR.
- CLEAR THE GROUND OF DEBRIS, ROCKS OR PLANTS THAT WILL INTERFERE WITH INSTALLATION.
- PLACE THE FILTER DIKE SECTIONS ONE AT A TIME, WITH THE SKIRT ON THE UPHILL SIDE TOWARDS THE DIRECTION OF FLOW, ANCHORING EACH SECTION TO THE GROUND BEFORE THE NEXT SECTION IS PLACED.
- ANCHORS SHOULD BE PLACED ON 2'–0" CENTERS ALTERNATING FROM FRONT TO BACK SO THAT THERE IS ACTUALLY ONLY 1'–0" IN BETWEEN ANCHORS.
- SECURELY FASTEN THE SKIRT FROM ONE SECTION OF FILTER DIKE TO THE NEXT.
- FILTER DIKES MUST MAINTAIN CONTINUOUS CONTACT WITH THE GROUND.
- AFTER THE SITE IS COMPLETELY STABILIZED, THE DIKES AND ANY REMAINING SILT SHOULD BE REMOVED. SILT SHOULD BE DISPOSED OF IN A MANNER THAT WILL NOT CONTRIBUTE TO ADDITIONAL SILTATION.

INSPECTION AND MAINTENANCE GUIDELINES:

- INSPECTION SHOULD BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHOULD BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR.
- INSPECT AND REALIGN BERMS AS NEEDED TO PREVENT GAPS BETWEEN THE SECTIONS.
- ACCUMULATED SILT SHOULD BE REMOVED AFTER EACH RAINFALL EVENT, AND DISPOSED OF IN A MANNER WHICH WILL NOT CAUSE ADDITIONAL SILTATION.

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

ADOPTED 6/21/2006
CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
TRIANGULAR FILTER DIKE
EC05
NTS 1/2003
MRS TRB

THIS STANDARD APPLIES ONLY UNDER THE FOLLOWING CONDITIONS:
A. H AND Z ARE SPECIFIED ON THE DRAWING.
B. GROUNDWATER IS NO HIGHER THAN THE BOTTOM OF THE FOOTING.
C. THE MATERIAL BELOW THE FOOTING IS FIRM AND STABLE.
D. THE MATERIAL BEHIND THE WALL HAS A LEVEL SURFACE.
E. THE MATERIAL IN FRONT OF THE WALL HAS A SLOPE NO STEEPER THAN 4 HORIZONTAL TO 1 VERTICAL.
F. THE FACE OF THE WALL IS NO STEEPER THAN 1 HORIZONTAL TO 2 VERTICAL.
G. SURCHARGE LOADS BEHIND THE WALL ARE NO CLOSER THAN DISTANCE H FROM THE TOP OF WALL.

NOTES:
1. DESIGN AND CONSTRUCTION OF ROCK WALL SHALL CONFORM TO THE REQUIREMENTS OF CITY CODE 16–7–2, PLACEMENT OF FENCES IN STREET CORNER AREAS, AND THE CITY OF AUSTIN TRANSPORTATION CRITERIA MANUAL FOR MINIMUM SIGHT DISTANCE.
2. CONCRETE SHALL CONFORM TO ITEM 403S, "CONCRETE FOR STRUCTURES".

CITY OF AUSTIN
DEPARTMENT OF WATERSHED PROTECTION AND DEVELOPMENT REVIEW
SLOPE PROTECTION AND TREE WELLS
ADOPTED
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
STANDARD NO. 610S–6
1 OF 2

INSTALLATION:

- CLEAR THE AREA OF DEBRIS, ROCKS OR PLANTS THAT WILL INTERFERE WITH INSTALLATION.
- GRADE THE AREA FOR THE ENTRANCE TO FLOW BACK ON TO THE CONSTRUCTION SITE. RUNOFF FROM THE STABILIZED CONSTRUCTION
- PLACE GEOTEXTILE FABRIC AS APPROVED BY THE CITY.
- PLACE ROCK AS APPROVED BY THE CITY.

INSPECTIONS AND MAINTENANCE GUIDELINES:

- THE ENTRANCE SHOULD BE MAINTAINED IN A CONDITION, WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
- ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ON TO PUBLIC RIGHTS–OF–WAY SHOULD BE REMOVED IMMEDIATELY BY CONTRACTOR.
- WHEN NECESSARY, WHEELS SHOULD BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS–OF–WAY.
- WHEN WASHING IS REQUIRED, IT SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.
- ALL SEDIMENT SHOULD BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATER COURSE BY USING APPROVED METHODS.

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

ADOPTED 6/21/2006
CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
STABILIZED CONSTRUCTION ENTRANCE
EC06
NTS 1/2003
MRS TRB

INSTALLATION:

- LOCATE THE SEDIMENT TRAP SO AS TO DISTURB AS FEW TREES AS POSSIBLE.
- CLEAR AND GRUB THE AREA UNDER THE EMBANKMENT OF ALL VEGETATION AND ROOT MATS.
- LAYOUT THE WIRE MESH AND THEN THE GEOTEXTILE FABRIC.
- CONSTRUCT THE GEOTEXTILE CORE AND CORRESPONDING ROCK EMBANKMENT TO THE DESIGNATED HEIGHT AND CONFIGURATION.
- WRAP THE STRUCTURE WITH THE PREVIOUSLY PLACED WIRE MESH SECURE ENOUGH SO THAT WHEN WALKED ACROSS THE STRUCTURE RETAINS IT'S SHAPE. SECURE WITH TIE WIRE.
- PLACE THE EMBANKMENT MATERIAL IN 8 TO 12 INCH LIFTS AND MACHINE COMPACT.

INSPECTION AND MAINTENANCE GUIDELINES:

- INSPECTION SHOULD BE MADE WEEKLY AND AFTER EACH RAINFALL. CHECK THE EMBANKMENT, SPILLWAYS, AND OUTLET FOR EROSION DAMAGE AND INSPECT THE EMBANKMENT FOR PIPING AND SETTLEMENT. REPAIR SHOULD BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR.
- TRASH AND OTHER DEBRIS SHOULD BE REMOVED AND THE TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO HALF OF THE DESIGN DEPTH OF THE TRAP.
- SEDIMENT REMOVED FROM THE TRAP SHOULD BE DEPOSITED IN AN APPROVED SPOILS AREA AND IN SUCH A MANNER THAT IT WILL NOT CAUSE ADDITIONAL SILTATION.

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

ADOPTED 6/21/2006
CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
SEDIMENT TRAP DETAIL
EC07
NTS 1/2003
MRS TRB

SEDIMENT BASIN BAFFLE DESIGN

$W_e = A / (L_1 + L_2)$

W_e = EFFECTIVE WIDTH OF BASIN

A = SURFACE AREA OF BASIN WHEN FILLED TO RISER CREST

L_1, L_2 = SHORTEST TRAVEL DISTANCE AROUND THE BAFFLE FROM INLET TO OUTLET

INSPECTION AND MAINTENANCE GUIDELINES:

- INSPECTION SHOULD BE MADE WEEKLY AND AFTER EACH RAINFALL. CHECK THE EMBANKMENT, SPILLWAYS, AND OUTLET FOR EROSION DAMAGE, AND INSPECT THE EMBANKMENT FOR PIPING AND SETTLEMENT. REPAIR SHOULD BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR.
- TRASH AND OTHER DEBRIS SHOULD BE REMOVED AFTER EACH RAINFALL TO PREVENT CLOGGING OF THE OUTLET STRUCTURE.
- ACCUMULATED SILT SHOULD BE REMOVED AND THE BASIN SHOULD BE RE–GRADED TO ITS ORIGINAL DIMENSIONS AT SUCH POINT THAT THE CAPACITY OF THE IMPOUNDMENT HAS BEEN REDUCED TO 1/2 OF ITS ORIGINAL STORAGE CAPACITY.
- THE REMOVED SEDIMENT SHOULD BE STOCKPILED OR REDISTRIBUTED IN AREAS THAT ARE PROTECTED FROM EROSION.

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

ADOPTED 6/21/2006
CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
SEDIMENT BASIN BAFFLE DESIGN
EC08
NTS 1/2003
MRS TRB

NOTES:

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

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

ADOPTED 6/21/2006
CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
TREE PROTECTION – CHAIN LINK FENCE
EC09
NTS 1/2003
MRS TRB

NOTES:

1. WHERE ANY EXCEPTIONS RESULT IN A FENCE BEING CLOSER THAN FOUR FEET (4'–0") TO A TREE TRUNK; PROTECT THE TRUNK WITH STRAPPED–ON–PLANKING TO A HEIGHT OF EIGHT FEET (8'–0"), OR TO THE LIMITS OF LOWER BRANCHING IN ADDITION TO THE REDUCED FENCING PROVIDED.
2. ANY ROOTS EXPOSED BY CONSTRUCTION ACTIVITY SHALL BE PRUNED FLUSH WITH THE SOIL. BACKFILL ROOT AREAS WITH GOOD QUALITY TOP SOIL AS SOON AS POSSIBLE. IF EXPOSED ROOT AREAS ARE NOT BACKFILLED WITHIN TWO (2) DAYS, COVER THEM WITH ORGANIC MATERIAL IN A MANNER WHICH REDUCES SOIL TEMPERATURE, AND MINIMIZES WATER LOSS DUE TO EVAPORATION.
3. PRIOR EXCAVATION OR GRADE CUTTING WITHIN TREE DRIPLINE. MAKE A CLEAN CUT BETWEEN THE DISTURBED AND UNDISTURBED ROOT ZONES WITH A ROCK SAW OR SIMILAR EQUIPMENT, TO MINIMIZE DAMAGE TO REMAINING ROOTS.
4. TREES MOST HEAVILY IMPACTED BY CONSTRUCTION ACTIVITIES SHOULD BE WATERED DEEPLY ONCE A WEEK DURING PERIODS OF HOT, DRY WEATHER. TREE CROWNS SHOULD BE SPRAYED WITH WATER PERIODICALLY TO REDUCE DUST ACCUMULATION ON THE LEAVES.
5. ANY TRENCHING REQUIRED FOR THE INSTALLATION OF LANDSCAPE IRRIGATION SHALL BE PLACED AS FAR FROM EXISTING TREE TRUNKS AS POSSIBLE.
6. NO LANDSCAPE TOPSOIL DRESSING GREATER THE FOUR INCHES (4") SHALL BE PERMITTED WITHIN THE DRIPLINE OF A TREE. NO SOIL IS PERMITTED ON THE ROOT FLARE OF ANY TREE.
7. PRUNING TO PROVIDE CLEARANCE FOR STRUCTURES, VEHICULAR TRAFFIC AND EQUIPMENT SHALL TAKE PLACE BEFORE CONSTRUCTION BEGINS.

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

ADOPTED 6/21/2006
CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
TREE PROTECTION – WOOD SLATS
EC10
NTS 1/2003
MRS TRB

CITY OF AUSTIN
DEPARTMENT OF WATERSHED PROTECTION AND DEVELOPMENT REVIEW
SLOPE PROTECTION AND TREE WELLS
ADOPTED
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
STANDARD NO. 610S–6
2 OF 2

NOTES:
1. WHERE MINIMUM CLEARANCES CAUSE TRAFFIC TO DRIVE IN THE GUTTER, THE CONTRACTOR MAY SUBSTITUTE A 25 mm X 100 mm (1"x4") BOARD SECURED WITH CONCRETE NAILS 1 m (3') O.C. NAILED INTO THE GUTTER IN LIEU OF SANDBAGS TO HOLD THE FILTER DIKE IN PLACE. UPON REMOVAL, CLEAN ANY DIRT/DEBRIS FROM NAILING LOCATIONS. APPLY CHEMICAL SANDING AGENT AND APPLY NON–SHRINK GROUT FLUSH WITH SURFACE OF GUTTER.
2. A SECTION OF FILTER FABRIC SHALL BE REMOVED AS SHOWN ON THIS DETAIL OR AS DIRECTED BY THE ENGINEER OR DESIGNATED REPRESENTATIVE. FABRIC MUST BE SECURED TO WIRE BACKING WITH CLIPS OR HOG RINGS AT THIS LOCATION.
3. DAILY INSPECTION SHALL BE MADE BY THE CONTRACTOR AND SILT ACCUMULATION MUST BE REMOVED WHEN DEPTH REACHES 50 mm (2").
4. CONTRACTOR SHALL MONITOR THE PERFORMANCE OF INLET PROTECTION DURING EACH RAINFALL EVENT AND IMMEDIATELY REMOVE THE INLET PROTECTIONS IF THE STORM–WATER BEGINS TO OVERTOP THE CURB.
5. INLET PROTECTIONS SHALL BE REMOVED AS SOON AS THE SOURCE OF SEDIMENT IS STABILIZED.

FILTER DIKE CURB INLET PROTECTION

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

THIS SECTION REMOVED FOR GRAPHICAL REPRESENTATION ONLY. STRAW BALE PERIMETER SHALL BE CONTINUOUS.

NOTES:
1.- FACE SIGN TOWARD NEAREST STREET OR ACCESS POINT
2.- CONCRETE WASHOUT SHALL BE LOCATED BEHIND CURB AND 50 FT. MINIMUM FROM DRAINAGE INLETS OR WATERCOURSES

Concrete Washout Area

NOTES:
1. CONCRETE WASHOUT AREA SHALL BE INSTALLED PRIOR TO ANY CONCRETE PLACEMENT ON SITE.
2. VEHICLE TRACKING CONTROL (DETAIL SW-14) IS REQUIRED IF ACCESS TO CONCRETE WASHOUT AREA IS OFF PAVEMENT.
3. SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE WASHOUT AREA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CONCRETE WASHOUT AREA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.
4. THE CONCRETE WASHOUT AREA SHALL BE REPAIRED AND ENLARGED OR CLEANED OUT AS NECESSARY TO MAINTAIN CAPACITY FOR WASTED CONCRETE.
5. AT THE END OF CONSTRUCTION, ALL CONCRETE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF AT AN ACCEPTED WASTE SITE.
6. WHEN THE CONCRETE WASHOUT AREA IS REMOVED, THE DISTURBED AREA SHALL BE SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER ACCEPTED BY THE CITY.

CONCRETE WASHOUT AREA

Figure 1.4-F Silt Fence Typical Placement – Two Slopes

Incorrect – Do Not layout "perimeter control" silt fences along property lines. All sediment laden runoff will concentrate and overwhelm the system.

Correct – Install J-hooks

Discreet segments of silt fence, installed with J-hooks or "smiles" will be much more effective.

SILT FENCE PLACEMENT FOR PERIMETER CONTROL

Figure 1.4-G Silt Fence Placement for Perimeter Control

Figure 1.4-H Silt Fence J - Hook Detail (N.T.S.)

H. Triangular Sediment Filter Dikes.

(See Standard Specifications manual item 648S and Specifications manual item 648S for detail)

1. **Description.**

A temporary barrier constructed of wire mesh and geotextile fabric, installed along a flat area.

2. **Purpose.**

The purpose of a triangular sediment filter dike is to intercept and detain water-borne sediment from a stabilized construction entrance, roadway

---

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STATE OF TEXAS
CHRISTINE N. CAMPBELL
142536
LICENSED PROFESSIONAL ENGINEER
Christine Campbell
12/05/2025

EROSION & SEDIMENTATION CONTROL DETAILS

CRESCENT BLUFF WEST
SECTIONS 9 & 10
GEORGETOWN, WILLIAMSON COUNTY TEXAS

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

SHEET 14 of 105

2025-XX-CON

0 60' 120'
SCALE: 1" = 60'

LEGEND

- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- BOUNDARY
- EASEMENT
- RETAINING WALL (DESIGN BY OTHERS)
- TREE WELL
- CURB/EOP
- ASPHALT PAVEMENT
- SIDEWALK (BY DEVELOPER)
- SIDEWALK (BY BUILDER)
- ADA RAMP
- 4" SCH 40 PVC SLEEVE
- STORM SEWER JUNCTION BOX
- STORM SEWER MAHNOLE
- CURB INLET
- AREA INLET
- GRATE INLET
- YARD INLET
- CONCRETE HEADWALL
- FIRE HYDRANT
- WATER VALVE
- WASTEWATER MANHOLE
- WASTEWATER CLEANOUT
- TREES TO REMAIN-HERITAGE

NOTES:

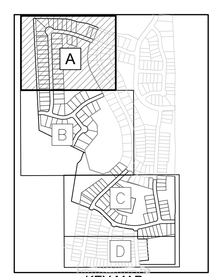
1. FILL WITHIN ROW SHOULD BE COMPACTED TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY TxDOT -114 - E, AND PER GEOTECHNICAL ENGINEERS RECOMMENDATION.

2. FILL WITHIN THE RESIDENTIAL LOT AREAS SHALL BE PLACED ACCORDING TO THE HUD 79G REQUIREMENTS SPECIFICATIONS

3. VEGETATE ALL DISTURBED AREAS WITHIN ROW AND OPEN SPACES LOT AREAS PER CITY OF GEORGETOWN SPECIFICATIONS.

4. RETAINING WALLS ARE NOT ALLOWED WITHIN THE P.U.E.

5. CONTRACTOR TO ENSURE ALL GRADING AND CURB INSTALLATION TO BE OUTSIDE OF THE DISTANCE FOR THE HALF CRZ OF THE HERITAGE TREES.



KEY MAP
N.T.S.

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STATE OF TEXAS
CHRISTINE N. CAMPBELL
142536
LICENSED PROFESSIONAL ENGINEER

12/05/2025

OVERALL PAVING & GRADING PLAN A

CRESCENT BLUFF WEST
SECTIONS 9 & 10
GEORGETOWN, WILLIAMSON COUNTY TEXAS

DESIGNED BY: CC/TG
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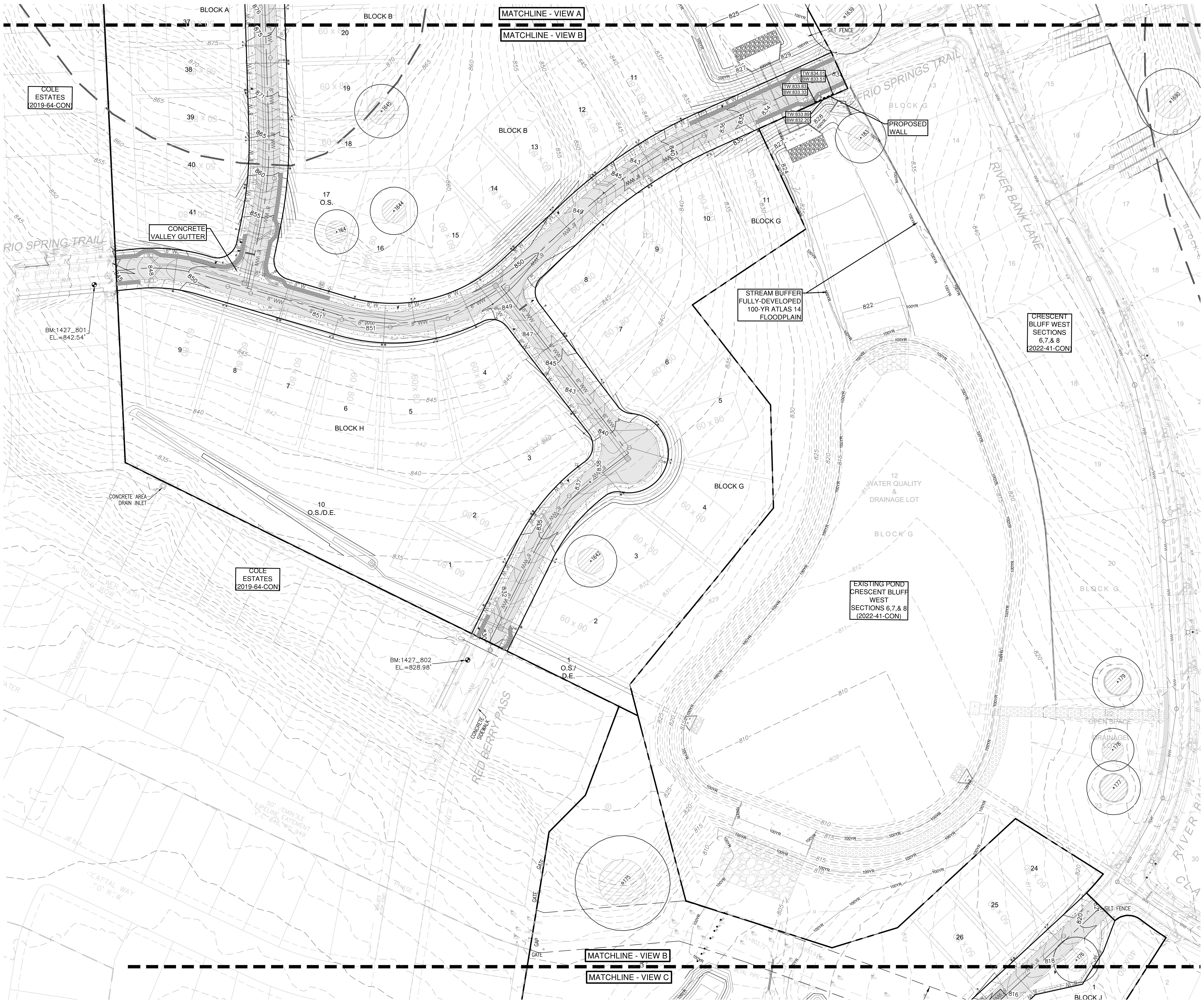
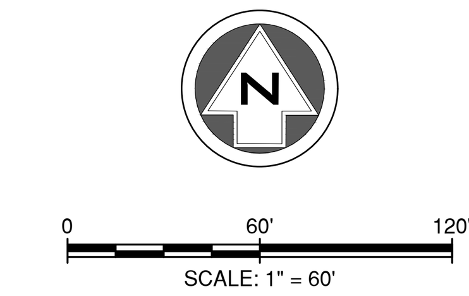
SHEET 18 of 105

2025-XX-CON

Sheet Location: P:\Athena Duncan\Chapman Trust\Sections 9-10\03_ACAD\Plansets\24X36\3-GRDV.dwg, DVERALL PAVING & GRADING PLAN A, December 05, 2025, 3:11 PM, malal.muhammad





LEGEND

- EXISTING MINOR CONTOUR
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- TREES TO REMAIN-HERITAGE

NOTES:

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2. FILL WITHIN THE RESIDENTIAL LOT AREAS SHALL BE PLACED ACCORDING TO THE HUD 79G REQUIREMENTS SPECIFICATIONS

3. VEGETATE ALL DISTURBED AREAS WITHIN ROW AND OPEN SPACES LOT AREAS PER CITY OF GEORGETOWN SPECIFICATIONS.

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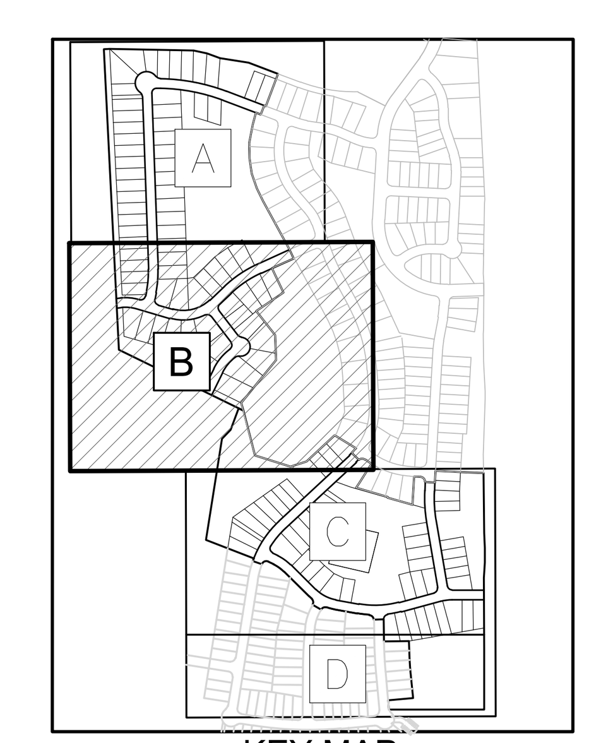
5. CONTRACTOR TO ENSURE ALL GRADING AND CURB INSTALLATION TO BE OUTSIDE OF THE DISTANCE FOR THE HALF CRZ OF THE HERITAGE TREES.



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STATE OF TEXAS
CHRISTINE N. CAMPBELL
142536
LICENSED PROFESSIONAL ENGINEER
12/05/2025

OVERALL PAVING & GRADING PLAN B

CRESCENT BLUFF WEST
SECTIONS 9 & 10
GEORGETOWN, WILLIAMSON COUNTY TEXAS

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

SHEET 19 of 105

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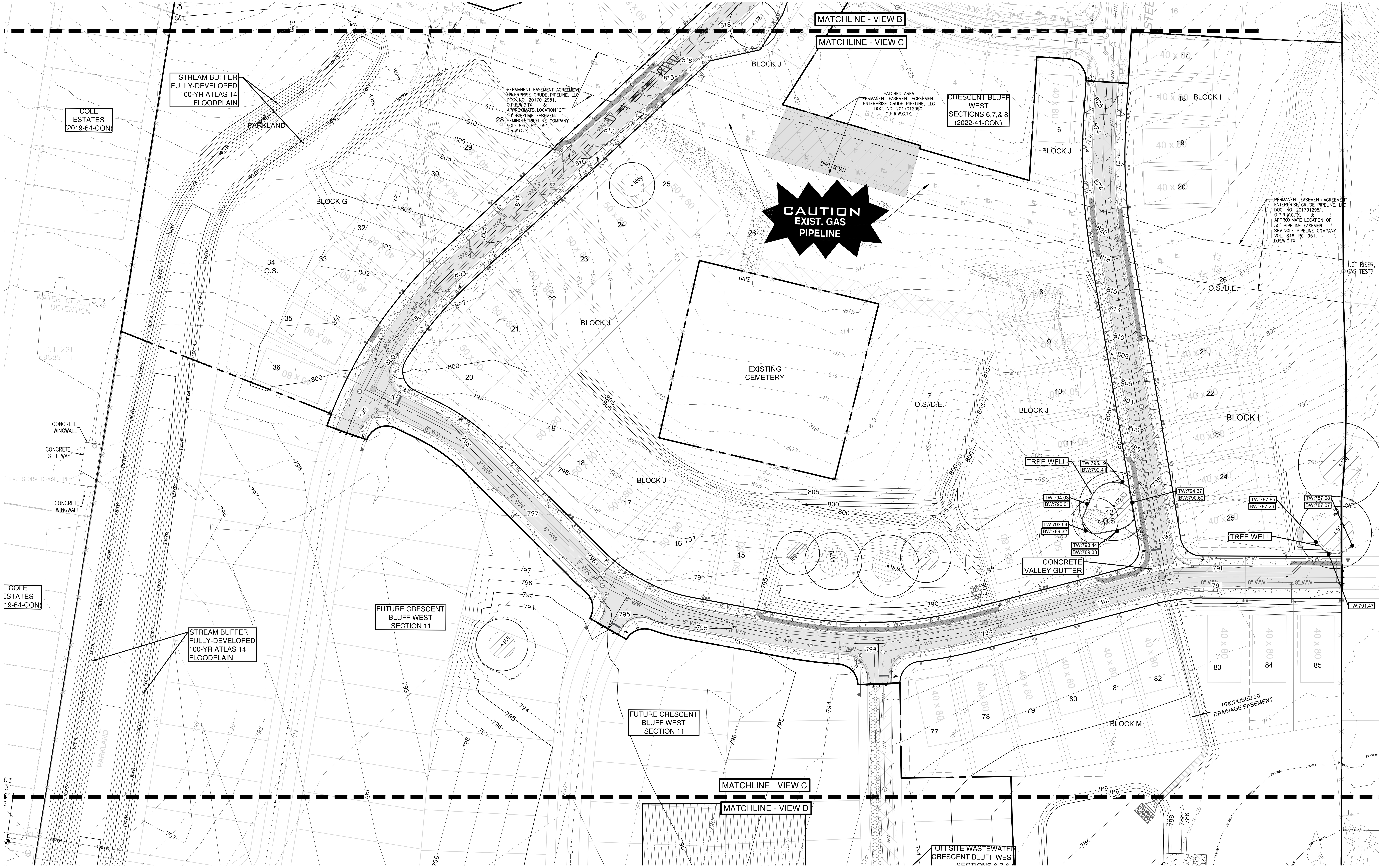

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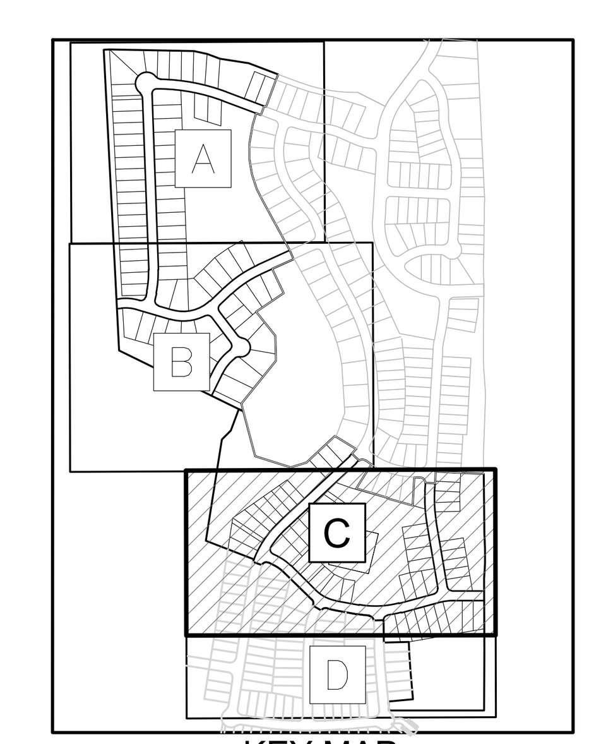
NOTES:

1. FILL WITHIN ROW SHOULD BE COMPACTED TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY TxDOT -114 - E, AND PER GEOTECHNICAL ENGINEERS RECOMMENDATION.
2. FILL WITHIN THE RESIDENTIAL LOT AREAS SHALL BE PLACED ACCORDING TO THE HUD 79G REQUIREMENTS SPECIFICATIONS
3. VEGETATE ALL DISTURBED AREAS WITHIN ROW AND OPEN SPACES LOT AREAS PER CITY OF GEORGETOWN SPECIFICATIONS.
4. RETAINING WALLS ARE NOT ALLOWED WITHIN THE P.U.E.
5. CONTRACTOR TO ENSURE ALL GRADING AND CURB INSTALLATION TO BE OUTSIDE OF THE DISTANCE FOR THE HALF CRZ OF THE HERITAGE TREES.



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12/05/2025

OVERALL PAVING & GRADING PLAN C

CRESCENT BLUFF WEST SECTIONS 9 & 10

GEORGETOWN, WILLIAMSON COUNTY TEXAS

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SHEET 20 of 105

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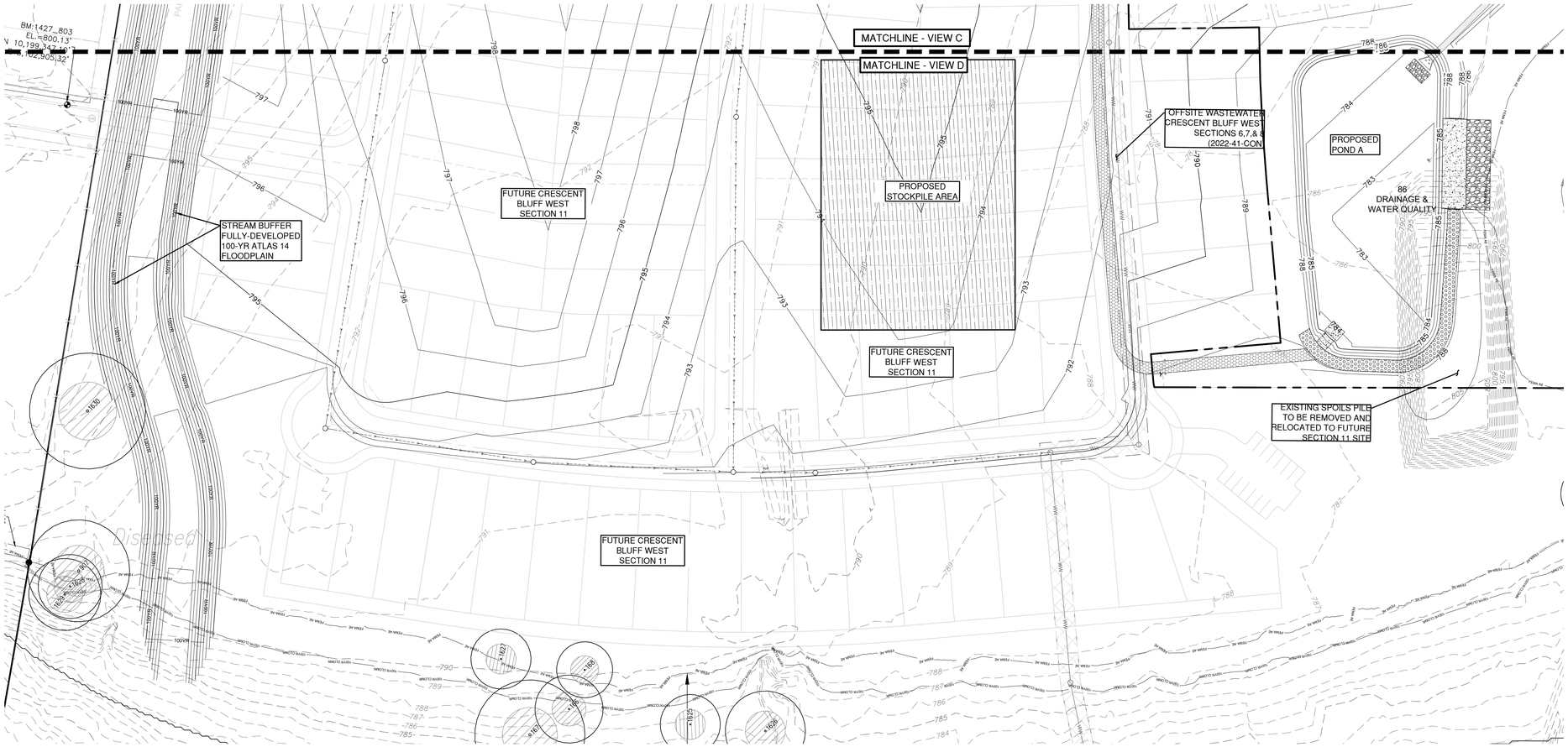
Sheet Location: P:\Athena Domain\Chapman Tract\Sections 9-10\03_ACAD\Plans\sht2404243-GRDV.dwg, OVERALL PAVING & GRADING PLAN C, December 05, 2025, 3:12 PM, makai.muhammad



0 60' 120'

SCALE: 1" = 60'

LEGEND

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NOTES:

1. FILL WITHIN ROW SHOULD BE COMPACTED TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY TxDOT -114 - E, AND PER GEOTECHNICAL ENGINEERS RECOMMENDATION.

2. FILL WITHIN THE RESIDENTIAL LOT AREAS SHALL BE PLACED ACCORDING TO THE HUD 79G REQUIREMENTS SPECIFICATIONS

3. VEGETATE ALL DISTURBED AREAS WITHIN ROW AND OPEN SPACES LOT AREAS PER CITY OF GEORGETOWN SPECIFICATIONS.

4. RETAINING WALLS ARE NOT ALLOWED WITHIN THE P.U.E.

5. CONTRACTOR TO ENSURE ALL GRADING AND CURB INSTALLATION TO BE OUTSIDE OF THE DISTANCE FOR THE HALF CRZ OF THE HERITAGE TREES.

NOTE:
1. FILL WITHIN FUTURE SECTION 11 TO BE PLACED ACCORDING TO THE HUD 79G REQUIREMENTS SPECIFICATIONS.
2. ANY REMAINING SPOILS TO BE STOCKPILED ON TOP OF THE PLACED MATERIAL.

KEY MAP
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OVERALL PAVING & GRADING PLAN D

CRESCENT BLUFF WEST
SECTIONS 9 & 10
GEORGETOWN, WILLIAMSON COUNTY TEXAS

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SHEET 21 of 105

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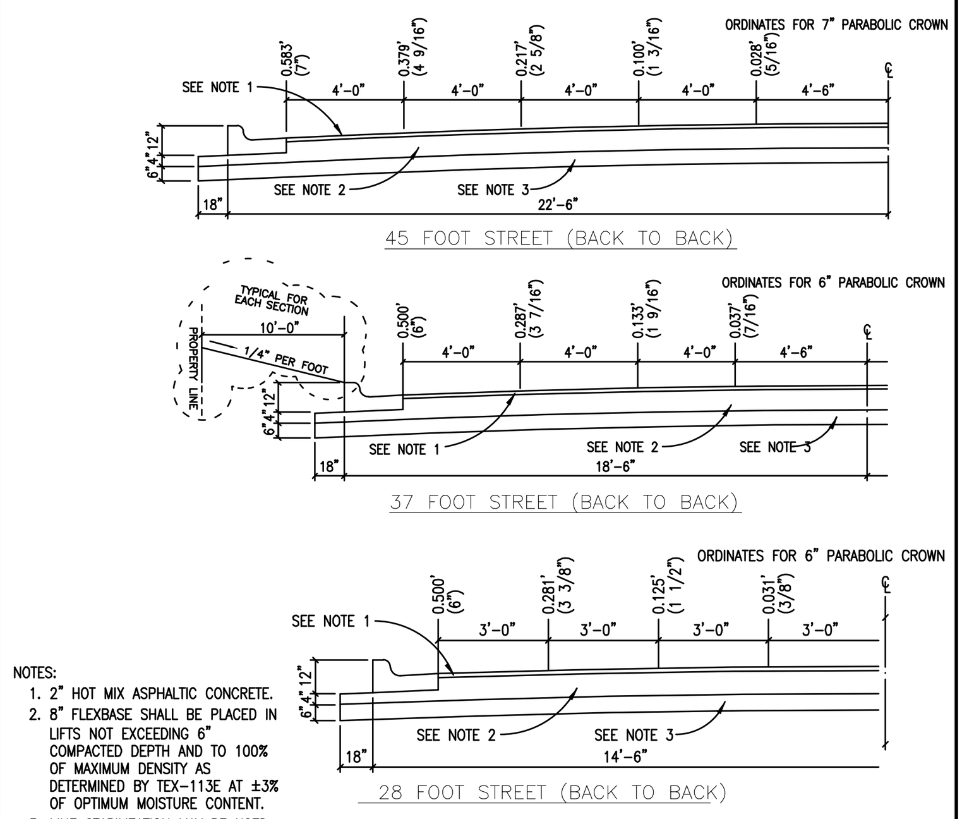


NOTES:
1. 2" HOT MIX ASPHALTIC CONCRETE.
2. 8" FLEXBASE SHALL BE PLACED IN LIFTS NOT EXCEEDING 6" COMPACTED DEPTH AND TO 100% OF MAXIMUM DENSITY AS DETERMINED BY TEX-113E AT ±2% OF OPTIMUM MOISTURE CONTENT.
3. LIME STABILIZATION MAY BE USED IF A QUALIFIED GEOTECHNICAL REPORT INDICATES THAT THE SULFATE LEVELS ARE LOW ENOUGH.

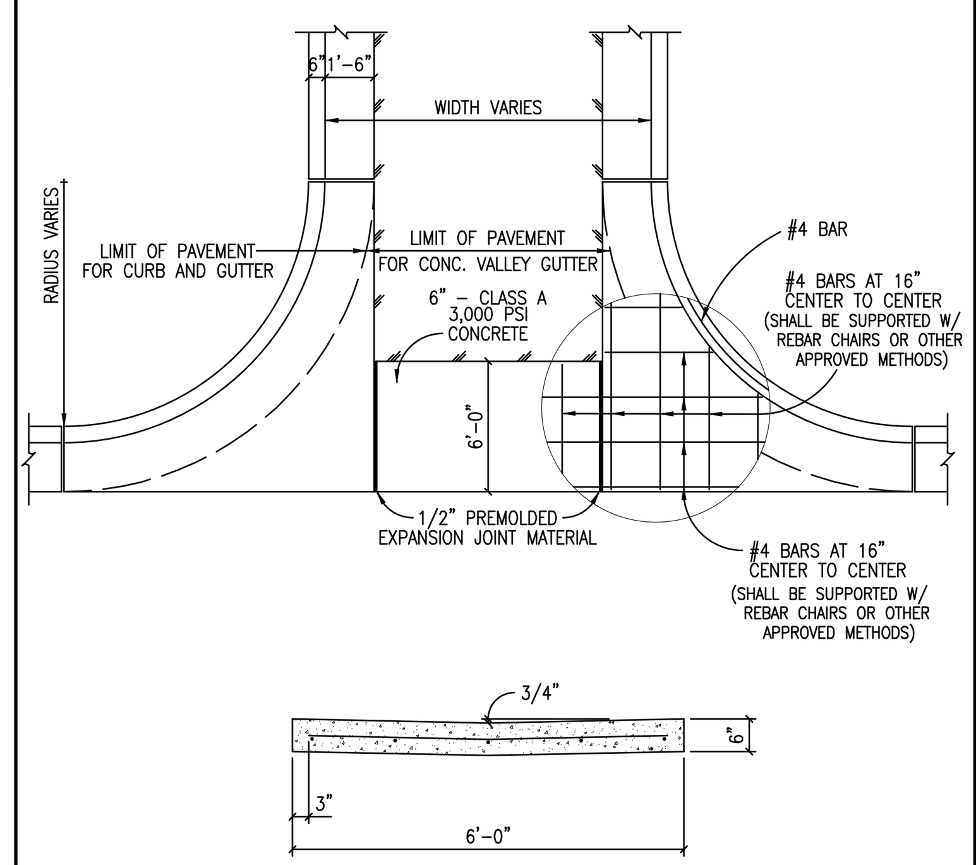
STREET AND ROADWAY DESIGN CRITERIA

STREET CLASSIFICATION	TOTAL EQUIVALENT 18K AXLE LOAD APPLICATIONS (20 YEAR FLEXIBLE DESIGN)
LOCAL	
ALLEY	20,000
RESIDENTIAL LANE	20,000
LOCAL STREET	20,000
COLLECTORS	
RESIDENTIAL	80,000
MAJOR NEIGHBORHOOD	290,000
ARTERIALS	
MINOR ARTERIAL	1,500,000
MAJOR ARTERIAL	5,200,000

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

ADOPTED 6/21/2006

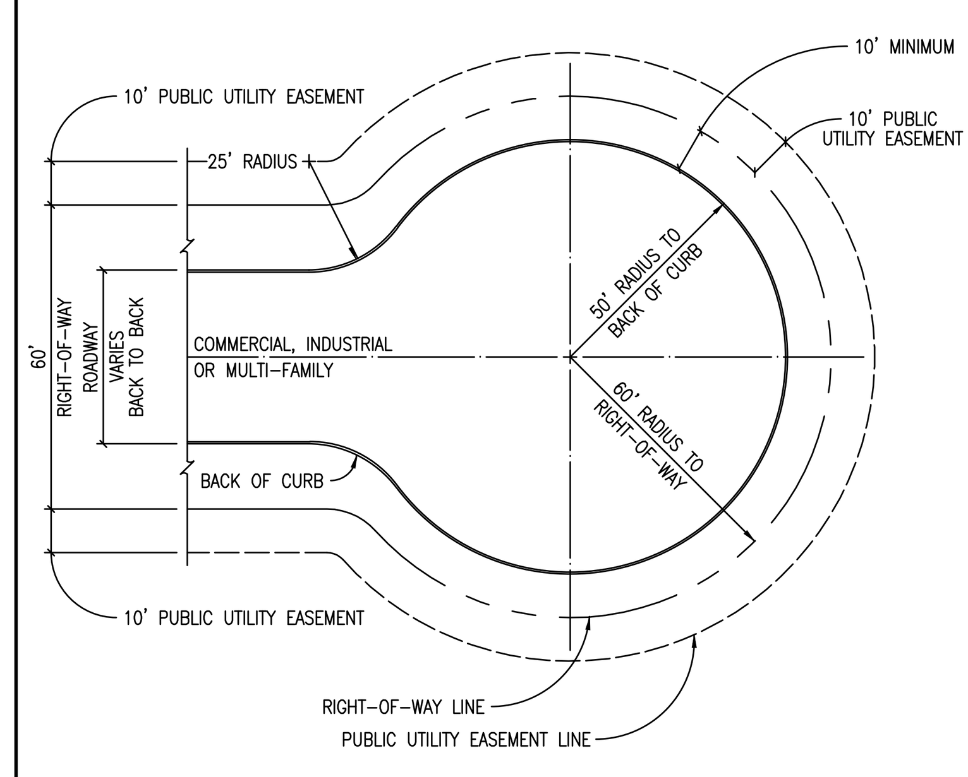
CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
TYPICAL HALF CROSS – SECTIONS FOR H.M.A.C. SURFACED STREETS
SD01



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

ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
CONCRETE VALLEY GUTTER DETAIL
SD03

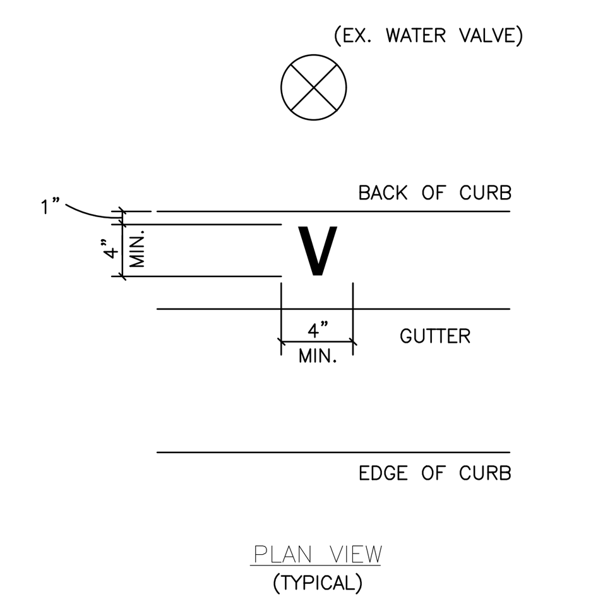


NOTE:
1. CUL-DE-SAC SHALL BE CONSTRUCTED WITH A 9-INCH CROWN, GIVING A 1.5% CROSS SLOPE.

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

ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
TYPICAL "NON SINGLE FAMILY OR NON TWO FAMILY" CUL-DE-SAC PLAN
SD04



NOTES:
1. ALL WATER SERVICE, WASTE WATER SERVICE AND VALVE LOCATIONS SHALL BE APPROXIMATELY MARKED AS FOLLOWS:

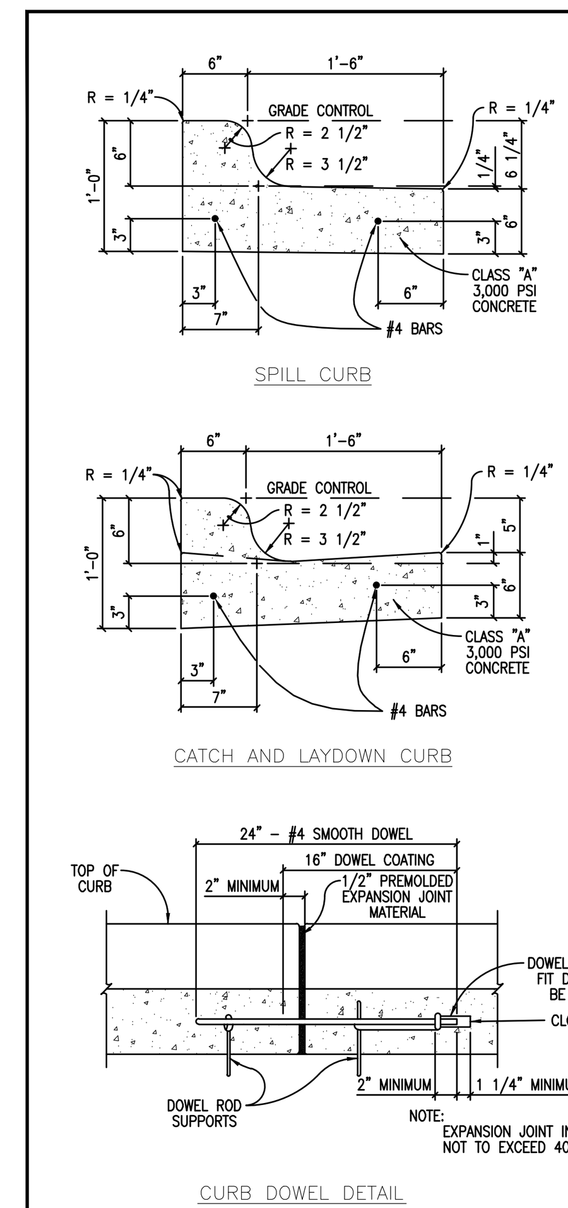
WATER SERVICE	"W"	TOP OF CURB
WASTE WATER SERVICE	"S"	TOP OF CURB
VALVE	"V"	TOP OF CURB

2. LETTERS SHALL HAVE A 1/2" MAX. WIDTH.

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

ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
CURB STAMP DETAIL
SD05

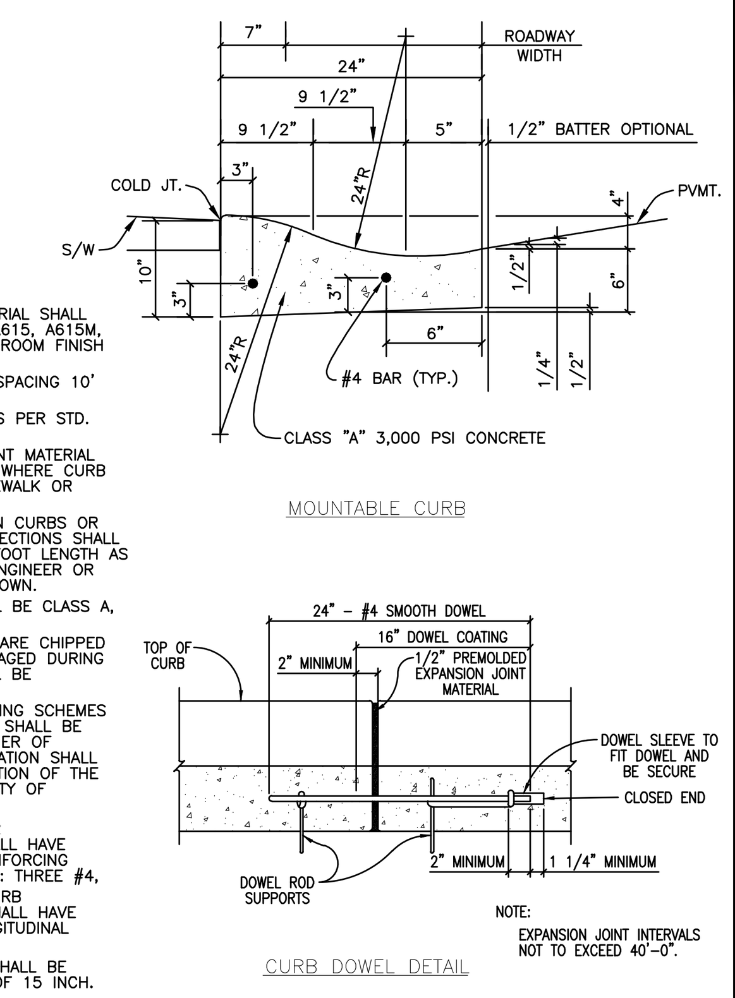


NOTES:
1. ALL WORK AND MATERIAL SHALL CONFORM TO ASTM A615, A615M, C309, AND D1752. BROOM FINISH EXPOSED SURFACE.
2. CONTRACTION JOINT SPACING 10' MAX.
3. EXPANSION JOINTS AS PER STD. ASTM D-1752.
4. 1/2" EXPANSION JOINT MATERIAL SHALL BE PROVIDED WHERE CURB IS ADJACENT TO SIDEWALK OR RIP-RAP.
5. TRANSITIONS BETWEEN CURBS OR DIFFERING CROSS SECTIONS SHALL OCCUR OVER A 20 FOOT LENGTH AS APPROVED BY THE ENGINEER OR THE CITY OF GEORGETOWN.
6. ALL CONCRETE SHALL BE CLASS A, 3000 PSI.
7. ALL SURFACES THAT ARE CHIPPED OR OTHERWISE DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED.
8. THE FOLLOWING SCHEME OF REINFORCEMENT SHALL BE REQUIRED. THE MANNER OF PLACEMENT AND LOCATION SHALL BE TO THE SATISFACTION OF THE ENGINEER OR THE CITY OF GEORGETOWN.
   A. ALL CURB AND GUTTER (REINFORCED) SHALL HAVE TWO #4 LONGITUDINAL REINFORCING BARS.
9. REINFORCING BARS SHALL BE LAPPED A MINIMUM OF 15 INCH.
10. REINFORCING BARS SHALL BE SUPPORTED WITH REBAR CHAIRS OR OTHER APPROVED METHODS.
11. REBAR SUPPORTS ARE NOT REQUIRED ON MACHINE PLACED CURB PROVIDED THAT REBAR IS PROPERLY GUIDED INTO THE CURB SECTION.

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

ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
CURB AND GUTTER DETAILS
SD06

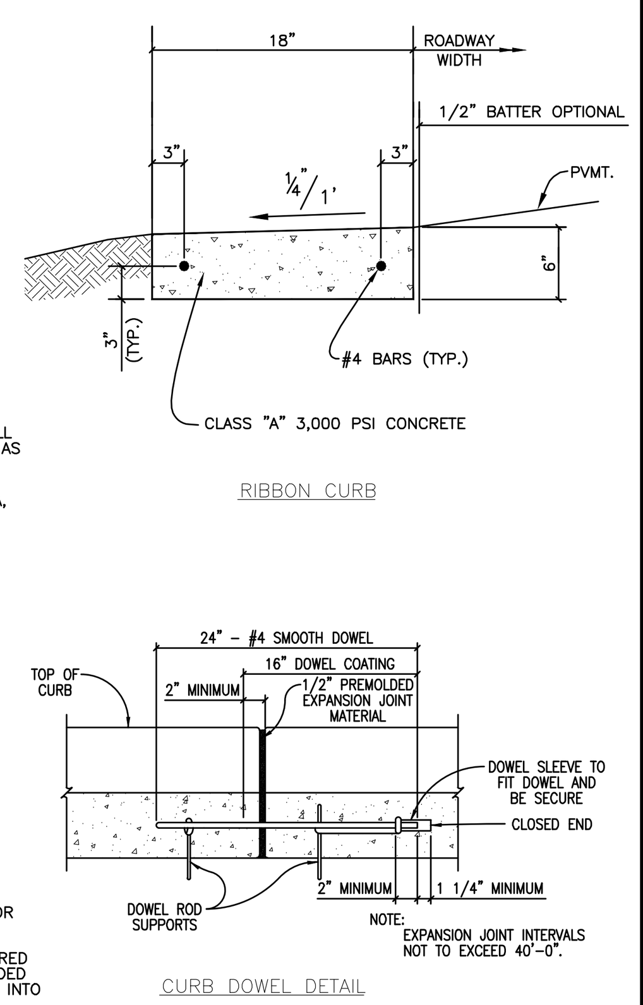


NOTES:
1. ALL WORK AND MATERIAL SHALL CONFORM TO ASTM A615, A615M, C309, AND D1752. BROOM FINISH EXPOSED SURFACE.
2. CONTRACTION JOINT SPACING 10' MAX.
3. EXPANSION JOINTS AS PER STD. ASTM D-1752.
4. 1/2" EXPANSION JOINT MATERIAL SHALL BE PROVIDED WHERE CURB IS ADJACENT TO SIDEWALK OR RIP-RAP.
5. TRANSITIONS BETWEEN CURBS OR DIFFERING CROSS SECTIONS SHALL OCCUR OVER A 20 FOOT LENGTH AS APPROVED BY THE ENGINEER OR TH CITY OF GEORGETOWN.
6. ALL CONCRETE SHALL BE CLASS A, 3000 PSI.
7. ALL SURFACES THAT ARE CHIPPED OR OTHERWISE DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED.
8. ONE OF THE FOLLOWING SCHEMES OF REINFORCEMENT SHALL BE REQUIRED. THE MANNER OF PLACEMENT AND LOCATION SHALL BE TO THE SATISFACTION OF THE ENGINEER OR THE CITY OF GEORGETOWN.
   A. CURB AND GUTTER (REINFORCED) SHALL HAVE LONGITUDINAL REINFORCING BARS AS FOLLOWS: THREE #4.
   B. ALL TYPES OF CURB (REINFORCED) SHALL HAVE #4 BAR FOR LONGITUDINAL REINFORCEMENT.
9. REINFORCING BARS SHALL BE LAPPED A MINIMUM OF 15 INCH.
10. REINFORCING BARS SHALL BE SUPPORTED WITH REBAR CHAIRS OR OTHER APPROVED METHODS.
11. REBAR SUPPORTS ARE NOT REQUIRED ON MACHINE PLACED CURB PROVIDED THAT REBAR IS PROPERLY GUIDED INTO THE CURB SECTION.

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

ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
MOUNTABLE CURB AND GUTTER DETAILS
SD07

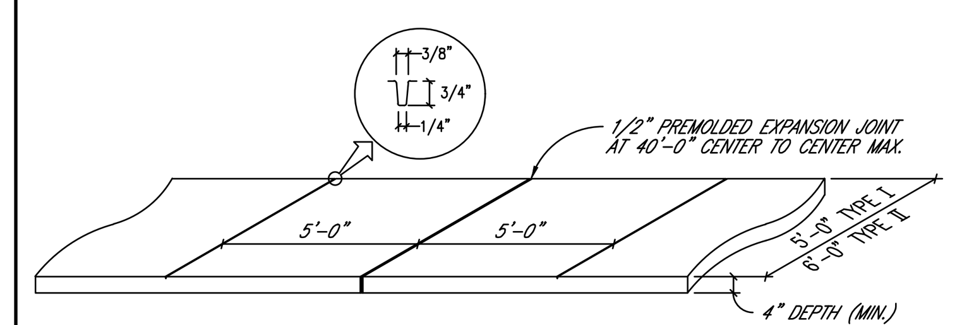


NOTES:
1. ALL WORK AND MATERIAL SHALL CONFORM TO ASTM A615, A615M, C309, AND D1752. BROOM FINISH EXPOSED SURFACE.
2. CONTRACTION JOINT SPACING 10' MAX.
3. EXPANSION JOINTS AS PER STD. ASTM D-1752.
4. 1/2" EXPANSION JOINT MATERIAL SHALL BE PROVIDED WHERE CURB IS ADJACENT TO SIDEWALK OR RIP-RAP.
5. TRANSITIONS BETWEEN CURBS OR DIFFERING CROSS SECTIONS SHALL OCCUR OVER A 20 FOOT LENGTH AS APPROVED BY THE ENGINEER OR TH CITY OF GEORGETOWN.
6. ALL CONCRETE SHALL BE CLASS A, 3000 PSI.
7. ALL SURFACES THAT ARE CHIPPED OR OTHERWISE DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED.
8. ONE OF THE FOLLOWING SCHEMES OF REINFORCEMENT SHALL BE REQUIRED. THE MANNER OF PLACEMENT AND LOCATION SHALL BE TO THE SATISFACTION OF THE ENGINEER OR THE CITY OF GEORGETOWN.
   A. CURB AND GUTTER (REINFORCED) SHALL HAVE LONGITUDINAL REINFORCING BARS AS FOLLOWS: THREE #4.
   B. ALL TYPES OF CURB (REINFORCED) SHALL HAVE #4 BAR FOR LONGITUDINAL REINFORCEMENT.
9. REINFORCING BARS SHALL BE LAPPED A MINIMUM OF 15 INCH.
10. REINFORCING BARS SHALL BE SUPPORTED WITH REBAR CHAIRS OR OTHER APPROVED METHODS.
11. REBAR SUPPORTS ARE NOT REQUIRED ON MACHINE PLACED CURB PROVIDED THAT REBAR IS PROPERLY GUIDED INTO THE CURB SECTION.

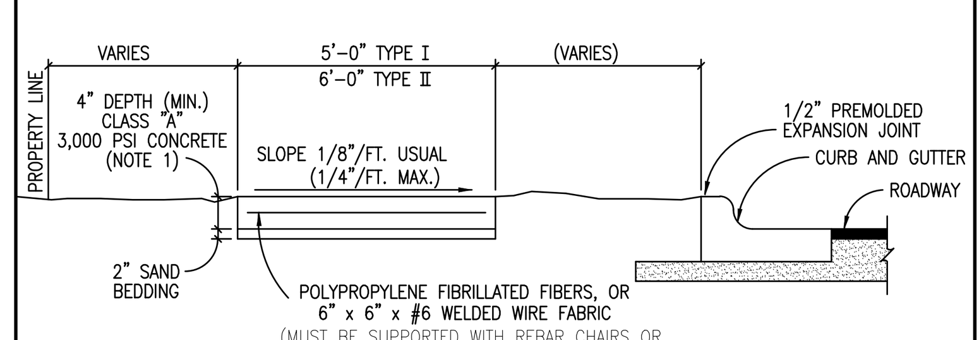
The Architect/Engineer assumes responsibility for appropriate use of this standard.

ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
RIBBON CURB DETAILS
SD08



TYPE I – AS REQUIRED FOR SINGLE FAMILY, DUPLEXES AND TOWNHOUSES, TRIPLEXES AND QUADRAPLEXES.
TYPE II – AS REQUIRED FOR MULTI-FAMILY, OTHER NON-RESIDENTIAL USES AND PARKING LOTS/STRUCTURES.
ALL THOROUGHFARES (COLLECTOR AND ABOVE) REQUIRE TYPE II.

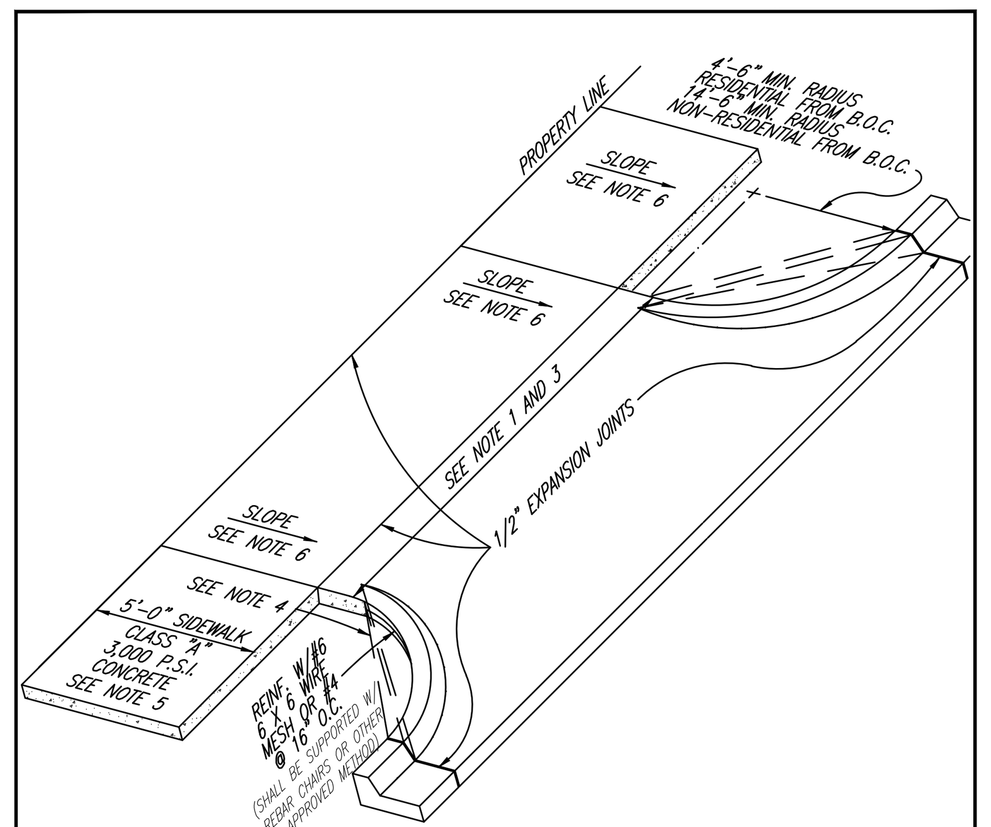


NOTES:
1. STANDARD LOCATION OF SIDEWALK SHALL BE IN CONFORMANCE WITH THE UDC.
2. SIDEWALK SHALL CONFORM TO CURRENT TDLR/TAS STANDARDS.
3. ALL SIDEWALKS SHALL BE SUBMITTED AND APPROVED BY THE REGISTERED ACCESSIBILITY SPECIALIST (RAS) AND ENGINEER OF RECORD.
4. ANY VARIANCE IN TEXTURE, GRADE OR ALIGNMENT SHALL BE APPROVED BY THE REGISTERED ACCESSIBILITY SPECIALIST (RAS) AND BY THE CITY ENGINEER.
5. SLIP DOWEL SHALL BE INSTALLED AT EVERY LONGITUDINAL EXPANSION JOINT (UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER DURING ENGINEERING PLAN REVIEW PRIOR TO FINAL DESIGN).

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

ADOPTED 6/21/2006 TRB

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
SIDEWALK SECTION AND JOINT DETAIL
SD14

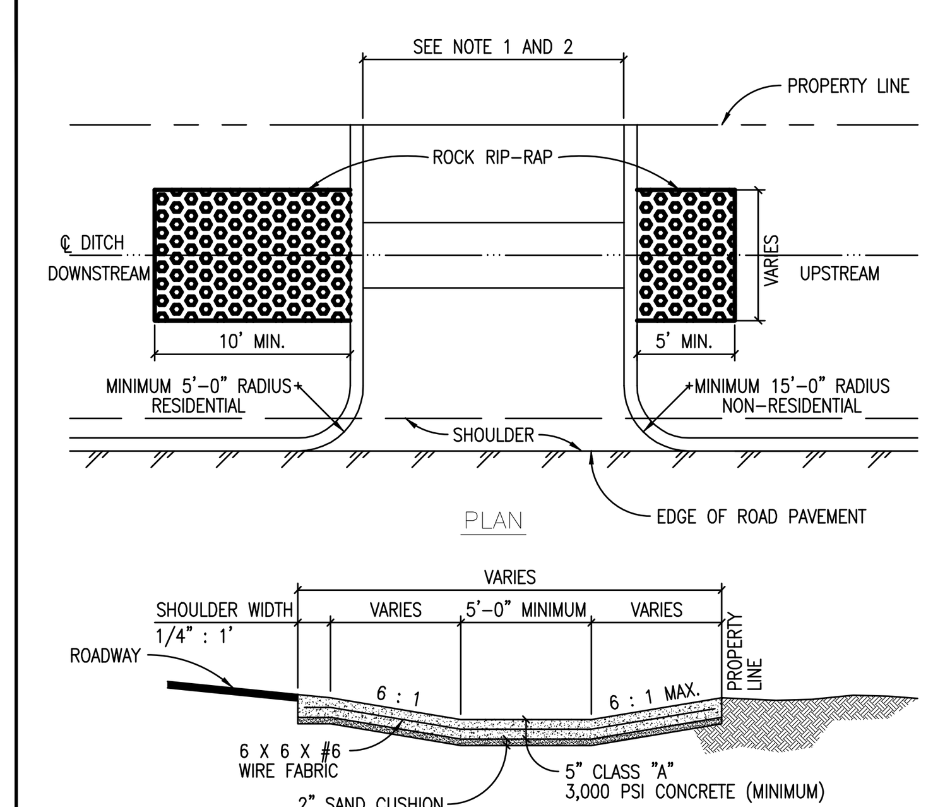


NOTES:
1. MAXIMUM WIDTH OF APPROACH SHALL BE 24'-0" FOR RESIDENTIAL, 30'-0" FOR NON-RESIDENTIAL UNDIVIDED AND 45'-0" FOR NON-RESIDENTIAL DIVIDED.
2. DRIVEWAY PERMITS SHALL BE ACQUIRED FROM CITY INSPECTION OFFICE.
3. MINIMUM WIDTH OF APPROACH SHALL BE 10'-0" FOR RESIDENTIAL AND 15'-0" FOR NON-RESIDENTIAL.
4. LINEAR "RADIUS" AT CORNERS, PERMITTED FOR "SINGLE FAMILY" OR "TWO FAMILY" RESIDENTIAL DRIVEWAY APPROACH.
5. SIDEWALK LOCATION SHALL BE APPROVED BY CITY ENGINEER PRIOR TO FINAL DESIGN.
6. SLOPE 1/8" PER FOOT USUAL, SHALL NOT EXCEED 2.0%.
7. DRIVEWAY APPROACH THICKNESS SHALL BE A MIN. OF 6".

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

ADOPTED 6/21/2006 TRB

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
CONCRETE DRIVEWAY APPROACH TYPICAL
SD15

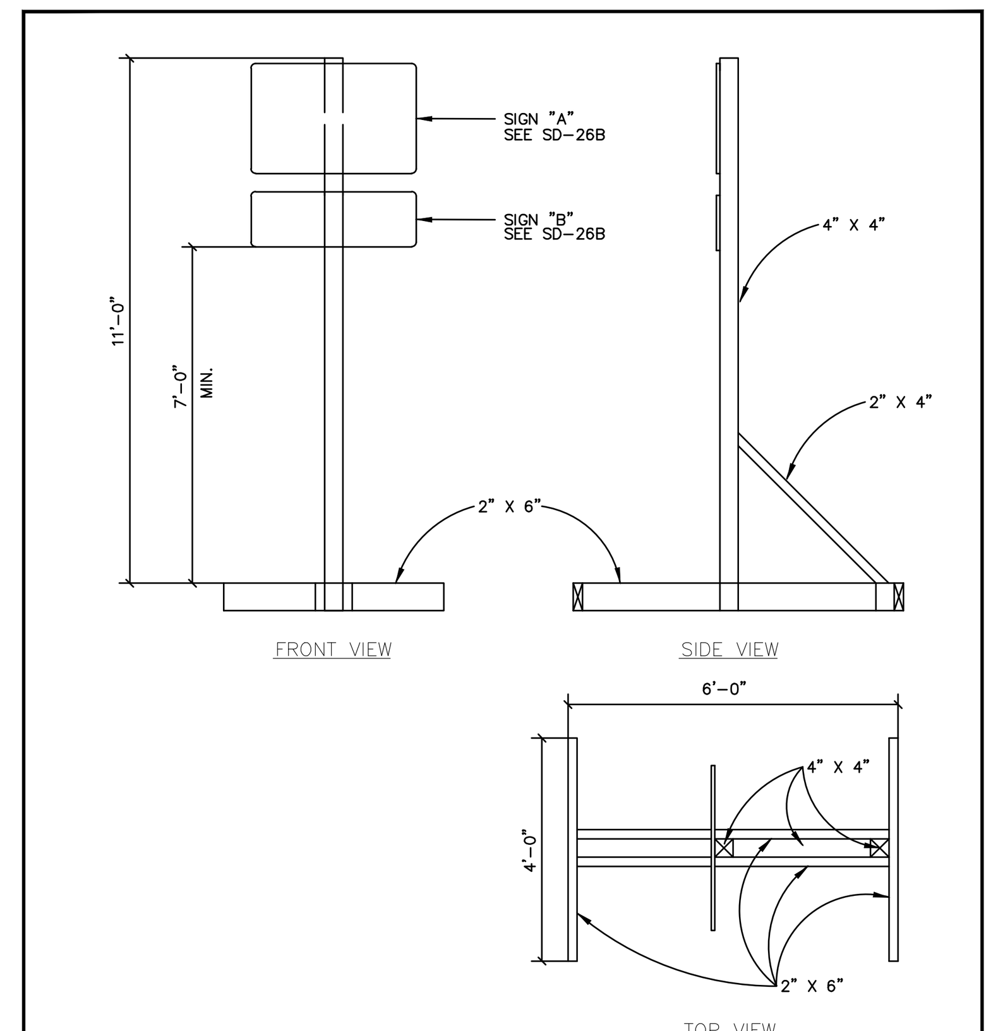


NOTES:
1. MINIMUM WIDTH OF APPROACH SHALL BE 12'-0" FOR RESIDENTIAL AND 15'-0" FOR NON-RESIDENTIAL.
2. MAXIMUM WIDTH OF APPROACH SHALL BE 24'-0" FOR RESIDENTIAL, 30'-0" FOR NON-RESIDENTIAL UNDIVIDED AND 45'-0" FOR NON-RESIDENTIAL DIVIDED.
3. ROCK RIP-RAP SHALL EXTEND 10' MINIMUM FROM THE DOWN STREAM SIDE AND 5' MINIMUM FROM THE UPSTREAM SIDE USING THE AVERAGE STONE SIZE DIA. OF 8" AT A DEPTH OF 16" (MINIMUM).
4. MINIMUM CHANNEL SIDE SLOPE SHALL BE 4:1.
5. SUPPORT REINFORCING WIRE MESH IS REQUIRED AS SUPPORT FOR APPROACH SLAB AND SHALL BE SUPPORTED WITH REBAR CHAIRS OR OTHER APPROVED METHODS.

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

ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
CONCRETE DIP DRIVEWAY APPROACH
SD16

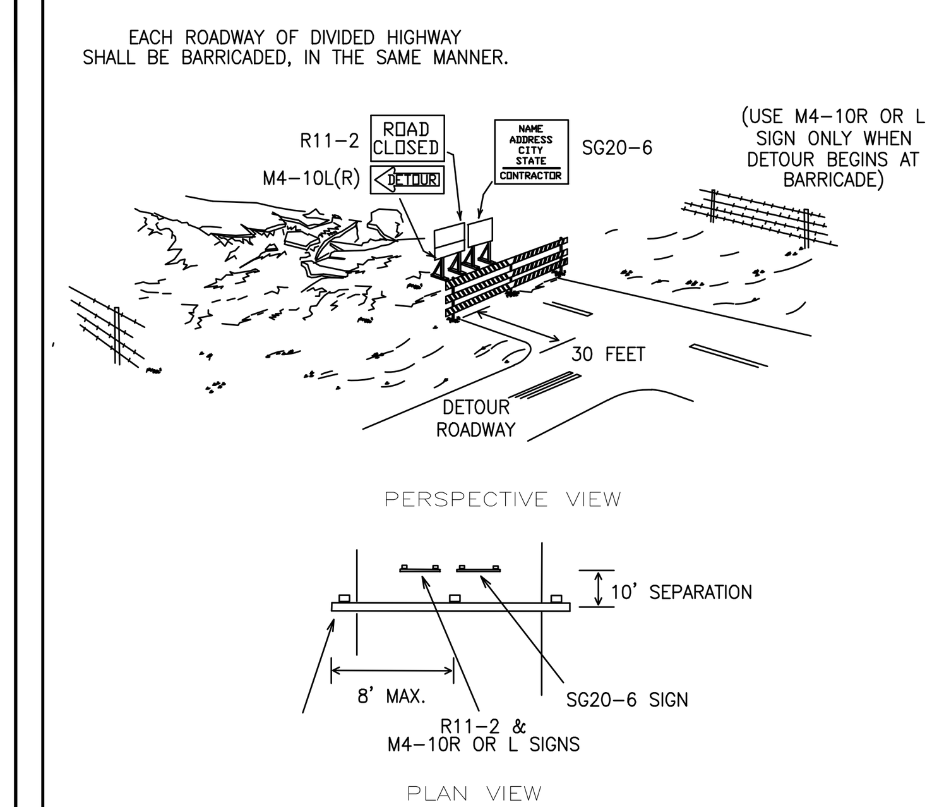


NOTES:
1. ALL MATERIALS SHALL BE FURNISHED BY THE CONTRACTOR WITH THE EXCEPTION OF THE CITY OF GEORGETOWN G.U.S. LOGO WHICH WILL BE FURNISHED BY THE CITY.
2. ALL SIGNS TO BE IN CONFORMANCE WITH THE CURRENT EDITION OF THE TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD).

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

ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
PROJECT SIGN TYPE II
SD26

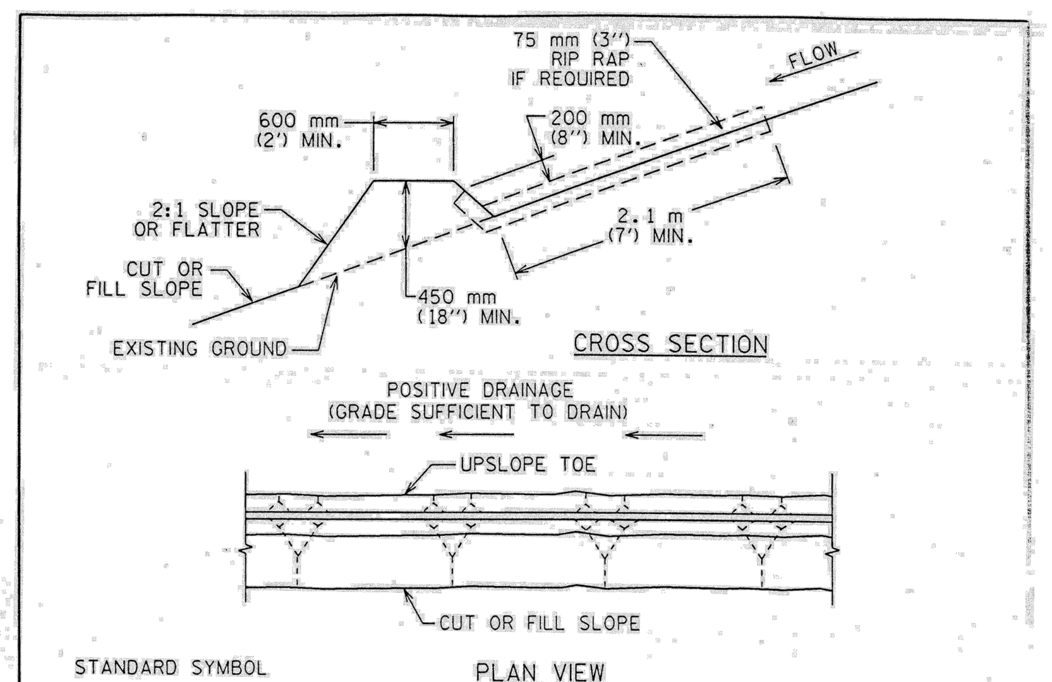


1). R11-2 AND M4-10 SIGNS SHOULD BE MOUNTED ON INDEPENDENT SUPPORTS AT 7' MOUNTING HEIGHT IN CENTER OF ROADWAY.
2). ADVANCE SIGNING, INCLUDE CONSTRUCTION WARNING, SIGNS AND DETOUR SIGNING SHALL BE AS SPECIFIED ELSEWHERE IN THE PLANS.
3). THE THREE RAILS ON TYPE III BARRICADES SHALL BE REFLECTIVE ORANGE AND REFLECTIVE WHITE STRIPES ON ONE SIDE FACING ONE-WAY TRAFFIC AND BOTH SIDES FOR TWO-WAY TRAFFIC.
4). BARRICADE STRIPING SHOULD SLANT DOWNWARD IN THE DIRECTION OF DETOUR.
5). ALL SIGNS TO BE IN CONFORMANCE WITH THE CURRENT EDITION OF THE TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD).

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

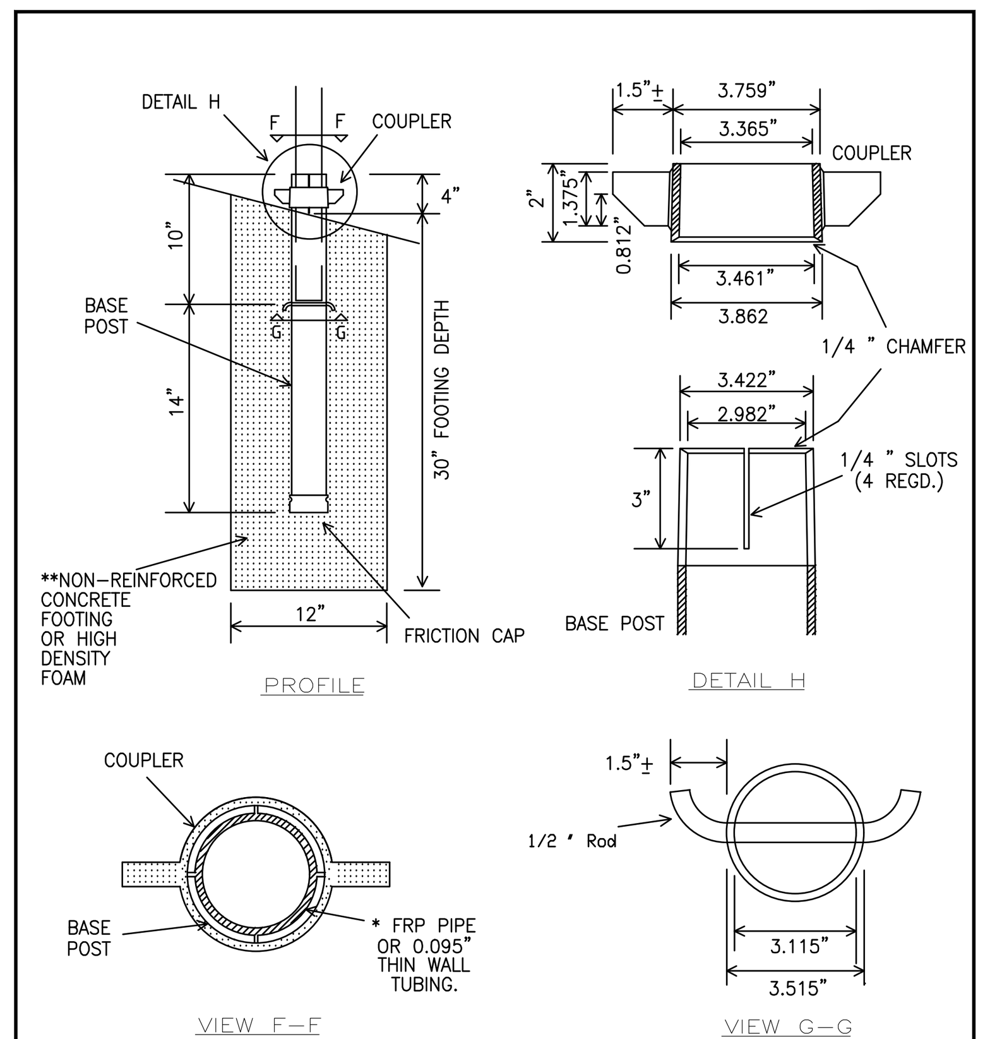
ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
TYPE III CONSTRUCTION BARRICADE
SD22



GENERAL NOTES :
1. ALL DIKES SHALL BE MACHINE COMPACTED.
2. ALL DIVERSION DIKES SHALL HAVE POSITIVE DRAINAGE TO AN OUTLET.
3. a. DIVERTED RUNOFF FROM A PROTECTED OR STABILIZED AREA SHALL HAVE ITS OUTLET FLOW DIRECTED TO AN UNDISTURBED STABILIZED AREA OR INTO A LEVEL SPREADER OR GRADE STABILIZATION STRUCTURE.
   b. DIVERTED RUNOFF FROM A DISTURBED OR EXPOSED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE, SUCH AS A ROCK BERM, BRUSH BERM, STONE OUTLET STRUCTURE, SEDIMENT TRAP OR SEDIMENT BASIN OR TO AN AREA PROTECTED BY ANY OF THESE PRACTICES.
4. UNLESS OTHERWISE SPECIFIED, EROSION STABILIZATION SHALL BE OPEN GRADED ROCK 75 TO 125 mm (3 TO 5 inches) IN DIAMETER EMBEDDED IN SOIL SURFACE.
5. INSPECTION SHALL BE CONDUCTED WEEKLY OR AFTER EACH RAINFALL EVENT.

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT
DIVERSION DIKE
3-27-00 ADOPTED
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
STANDARD NO. 622S-1

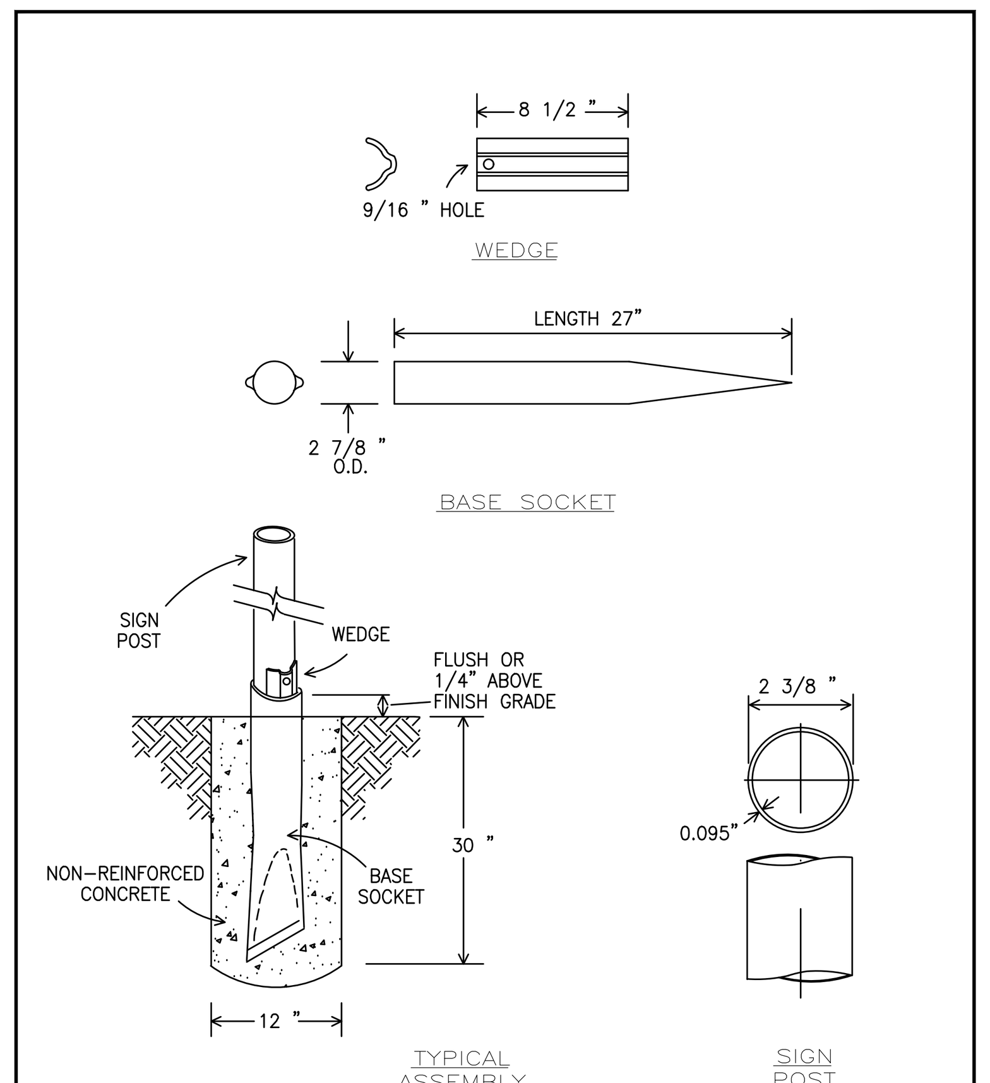


* PLASTING INSERT MUST BE USED WITH 1/16 " THIN WALL TUBING.
** FOOTING SHALL BE REMOVED AND BACKFILLED WHEN BARRICADE IS REMOVED.

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

ADOPTED 6/21/2006

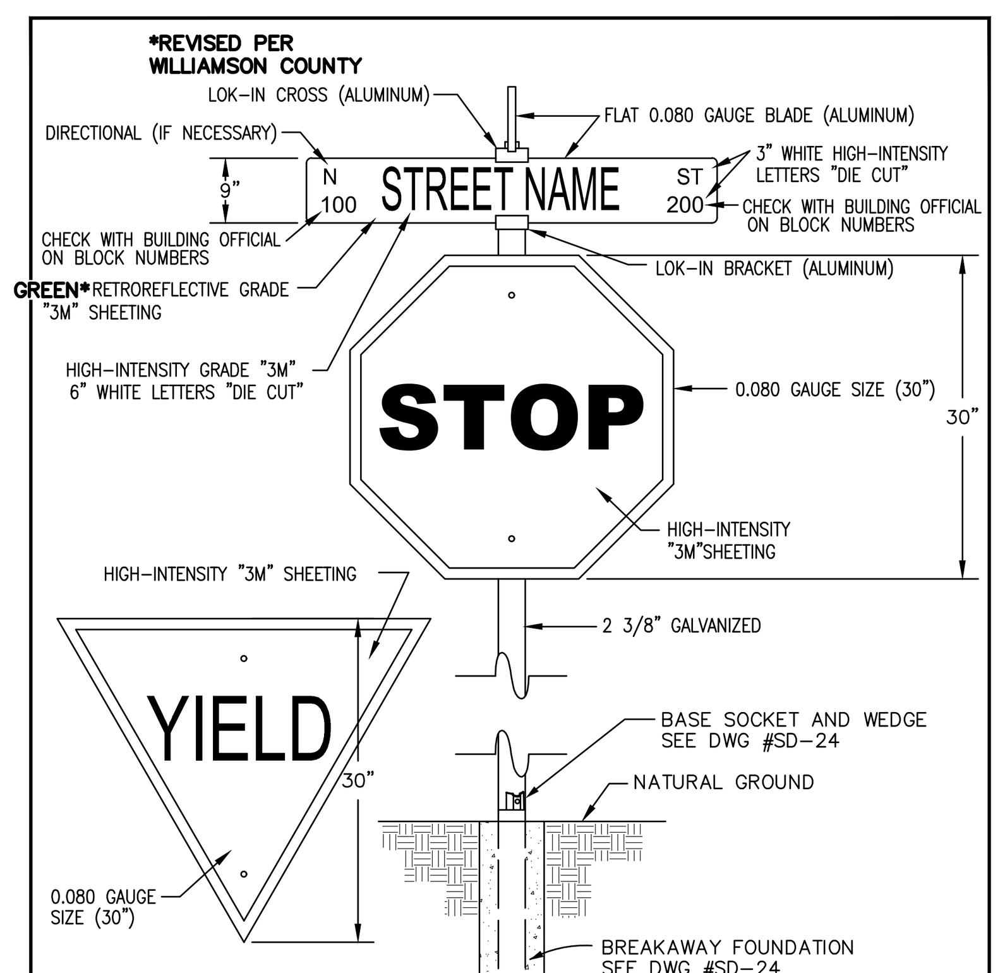
CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
UNIVERSAL ANCHOR SYSTEM
SD23



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

ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
POZ-LOC (BREAKAWAY FOUNDATION)
SD24

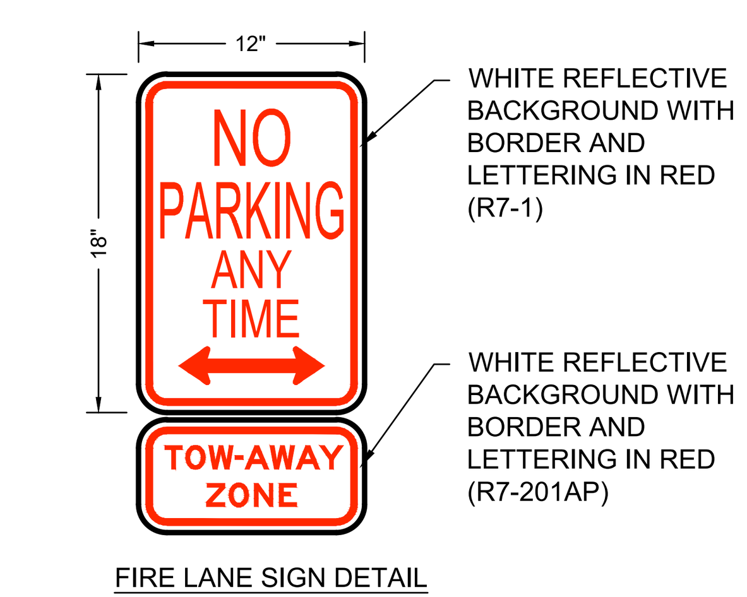


NOTES:
1. 7-FOOT MIN. HEIGHT FROM GROUND TO BOTTOM OF SIGN.
2. ALL SIGNS TO BE IN CONFORMANCE WITH THE CURRENT EDITION OF THE TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD).
3. ALL SIGNAGE SHEETINGS SHALL BE HIGH-INTENSITY "3M" SHEETING.

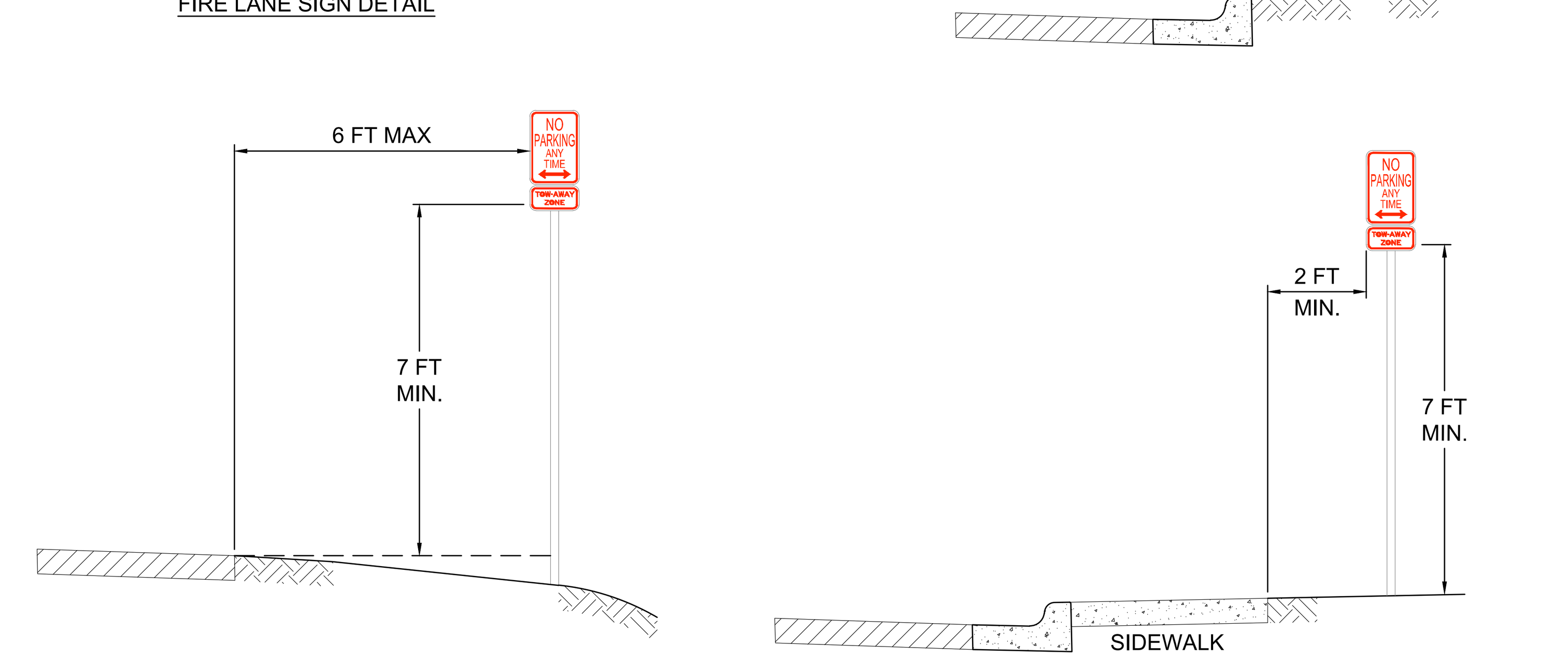
The Architect/Engineer assumes responsibility for appropriate use of this standard.

REVISED 1/14/2014 WBD
ADOPTED 6/21/2006 TRB

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
STANDARD STREET SIGN DETAIL
SD25



FIRE LANE SIGN DETAIL



FIRE LANE SIGN PLACEMENT DETAILS

NO.	REVISION	BY	DATE

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

5500 HIGHWAY 290 WEST
SUITE 150
AUSTIN, TX 78735
512.872.6696
HRGREEN.COM
TBPE NO: 16384
TBPLS NO: 10194101
HRGreen DEVELOPMENT TX

STATE OF TEXAS
CHRISTINE N. CAMPBELL
142536
LICENSED PROFESSIONAL ENGINEER
12/05/2025

PAVING DETAILS SHEET 1 OF 2

CRESCENT BLUFF WEST SECTIONS 9 & 10

GEORGETOWN, WILLIAMSON COUNTY TEXAS

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

SHEET 34 of 105

2025-XX-CON

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

NOTES:

1. COMMERCIAL SIDEWALKS WIDTHS – 6'
   RESIDENTIAL SIDEWALKS WIDTHS – 5'
2. ALL SLOPES ARE MAXIMUM ALLOWABLE. FLATTER SLOPES THAT WILL STILL DRAIN PROPERLY ARE ENCOURAGED.
3. ALL CONCRETE SURFACES SHALL RECEIVE A LIGHT BROOM FINISH UNLESS NOTED OTHERWISE IN THE PLANS.
4. FOR PURPOSES OF WARNING, THE CURB RAMPS SHALL HAVE A LIGHT REFLECTIVE VALUE AND TEXTURE THAT SIGNIFICANTLY CONTRASTS WITH THAT OF ADJOINING PEDESTRIAN ROUTES.
5. TEXTURES MAY CONSIST OF PAVERS WITH TRUNCATED DOMED SURFACES. TEXTURES ARE REQUIRED TO BE DETECTABLE UNDERFOOT. SURFACES THAT WOULD ALLOW WATER TO ACCUMULATE ARE PROHIBITED.
6. COLOR CONTRAST, FOR EXAMPLE, MAY BE ACCOMPLISHED WITH COLORED CONCRETE PAVERS THAT HAVE TRUNCATED DOMES WHICH WOULD PROVIDE A CONTRAST WITH TYPICALLY LIGHT COLORED CONCRETE.
7. ADDITIONAL INFORMATION ON CURB RAMP LOCATION, DESIGN, VISIBILITY AND TEXTURE MAY BE FOUND IN THE CURRENT EDITION OF THE TEXAS ACCESSIBILITY STANDARDS (TAS) PREPARED AND ADMINISTERED BY THE TEXAS DEPARTMENT OF LICENSING AND REGULATION (TDLR).
8. RAISED MEDIANS SEPARATE OPPOSING DIRECTIONS OF TRAFFIC AND PROVIDE A REFUGE AREA FOR PEDESTRIANS IF THEY ARE UNABLE TO CROSS THE ENTIRE ROADWAY IN THE ALLOTTED SIGNAL PHASE. MEDIAN CROSSING SHALL BE A MINIMUM OF 5' WIDE. MEDIANS SHIOULD BE DESIGNED TO PROVIDE ACCESSIBLE PASSAGE OVER OR TROUGH THEM.
9. ALL SIDEWALK PLANS AND DETAILS SHALL BE SUBMITTED AND APPROVED BY "REGISTERED ACCESSIBILITY SPECIALIST" (RAS).
10. ANY PART OF THE ACCESSIBLE ROUTE WITH A SLOPE GRATER THAN 1:20 (5%) SHALL BE CONSIDERED A RAMP. IF A RAMP HAS A RISE GREATER THAN 6 INCHES OR A HORIZONTAL PROJECTION GREATER THAN 72 INCHES, THEN IT SHALL MEET THE REQUIREMENTS OF A RAMP PER TAS 405.THE ONLY EXCEPTION IS AT CURB RAMPS. HANDRAILS ARE NOT REQUIRED ON CURB RAMPS. CURB RAMPS SHALL BE PROVIDED WHERE EVER AN ACCESSIBLE ROUTE CROSSES (PENETRATES) A CURB.
11. TRAFFIC SIGNAL OR ILLUMINATION POLES, GROUND BOXES, CONTROLLER BOXES, SIGNS, DRAINAGE FACILITIES AND OTHER ITEMS SHALL BE PLACED SO NOT TO OBSTRUCT THE ACCESSIBLE ROUTE OR ACT PROTRUDING OBJECTS.
12. ALL SIDEWALKS SHALL BE DOWELED INTO EXISTING SIDEWALKS, DRIVEWALKS, DRIVEWAYS, INLET BOXES, RETAINING WALLS, ETC.
13. ALL SIDEWALK CROSS-SLOPES SHALL NOT EXCEED 1:50, UNLESS A VARIANCE IS PROVIDED BY TDLR.

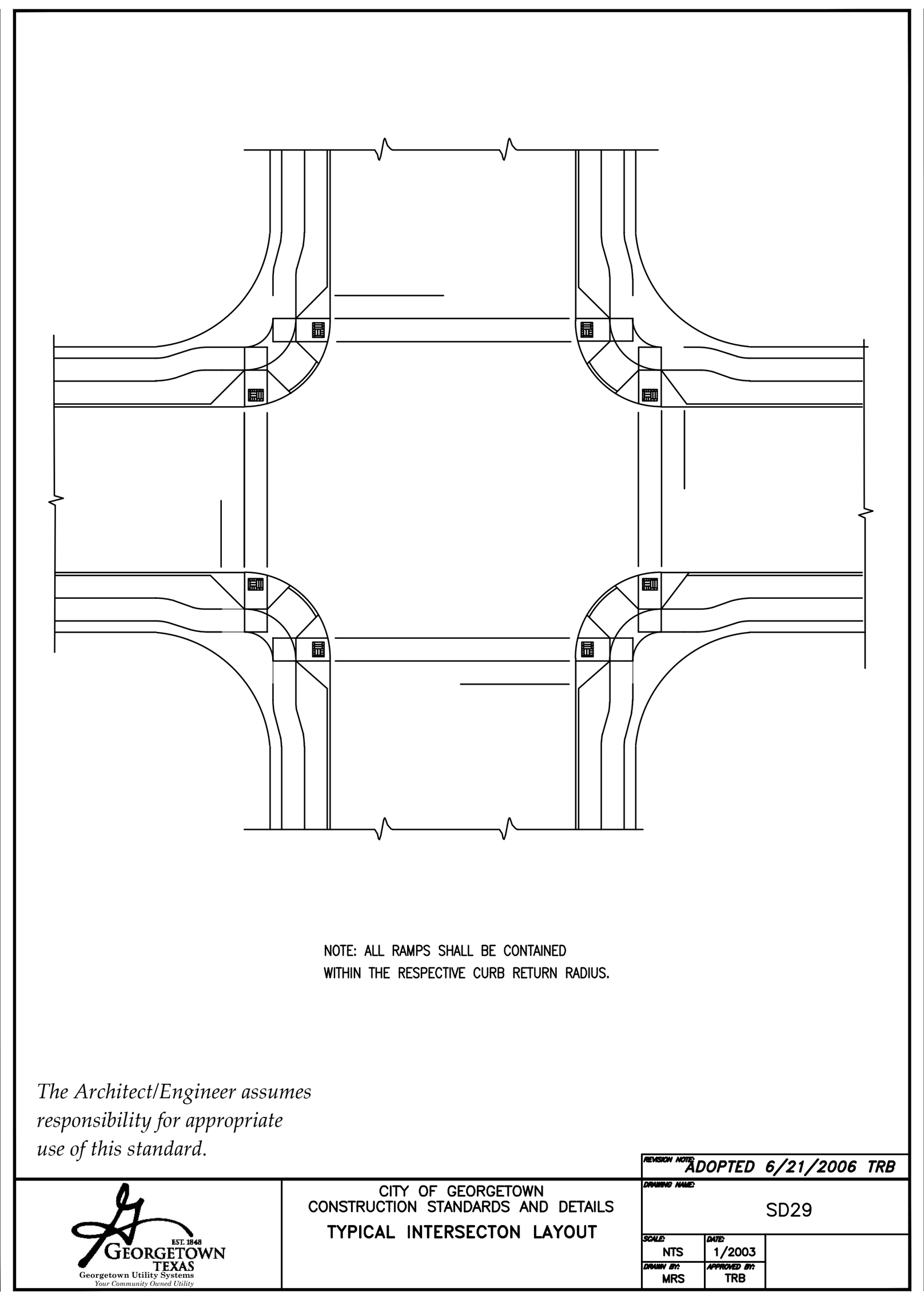
(PENETRATES) A CURB.

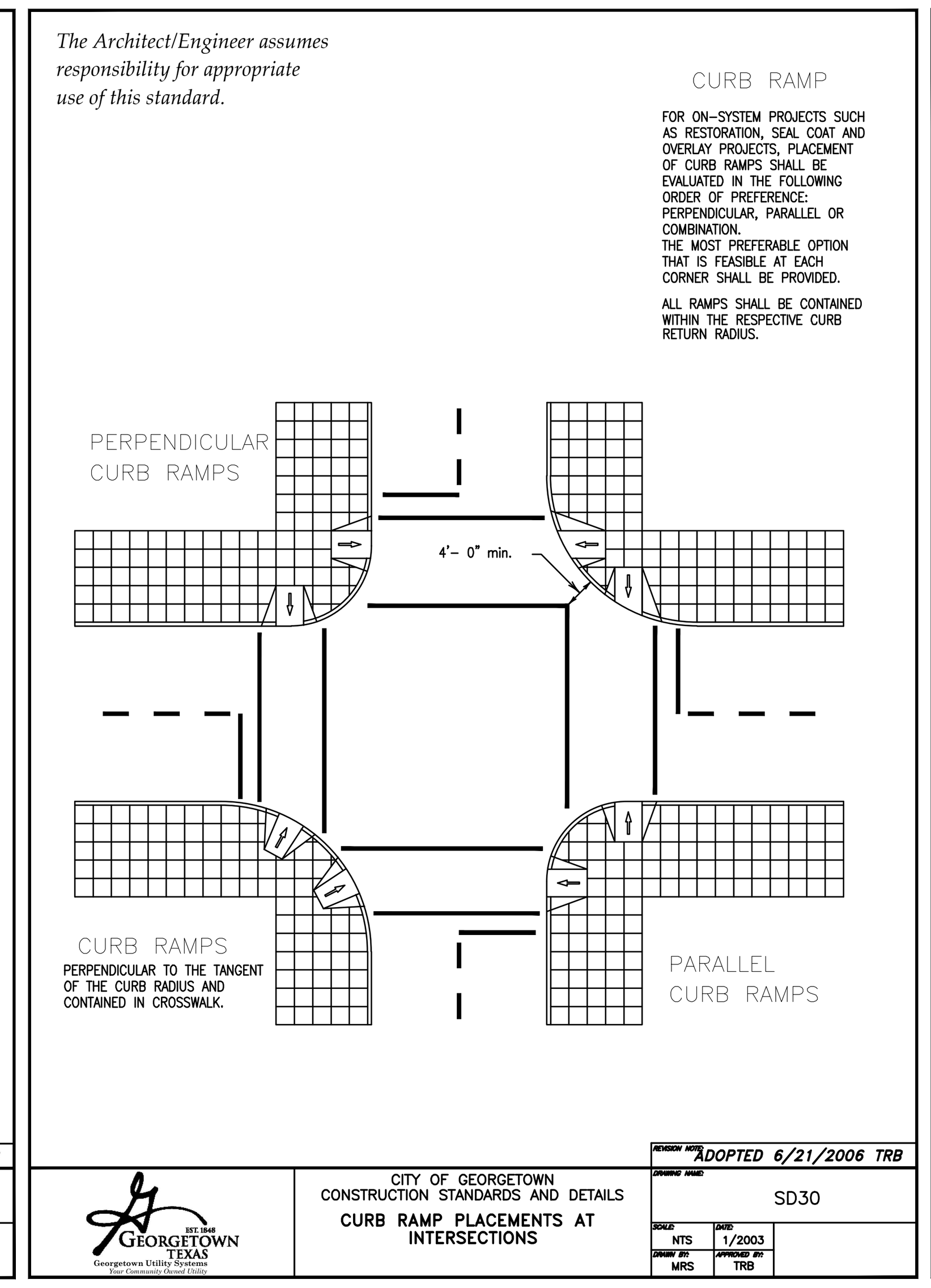
REVISION NOTE: ADOPTED 6/21/2006 TRB

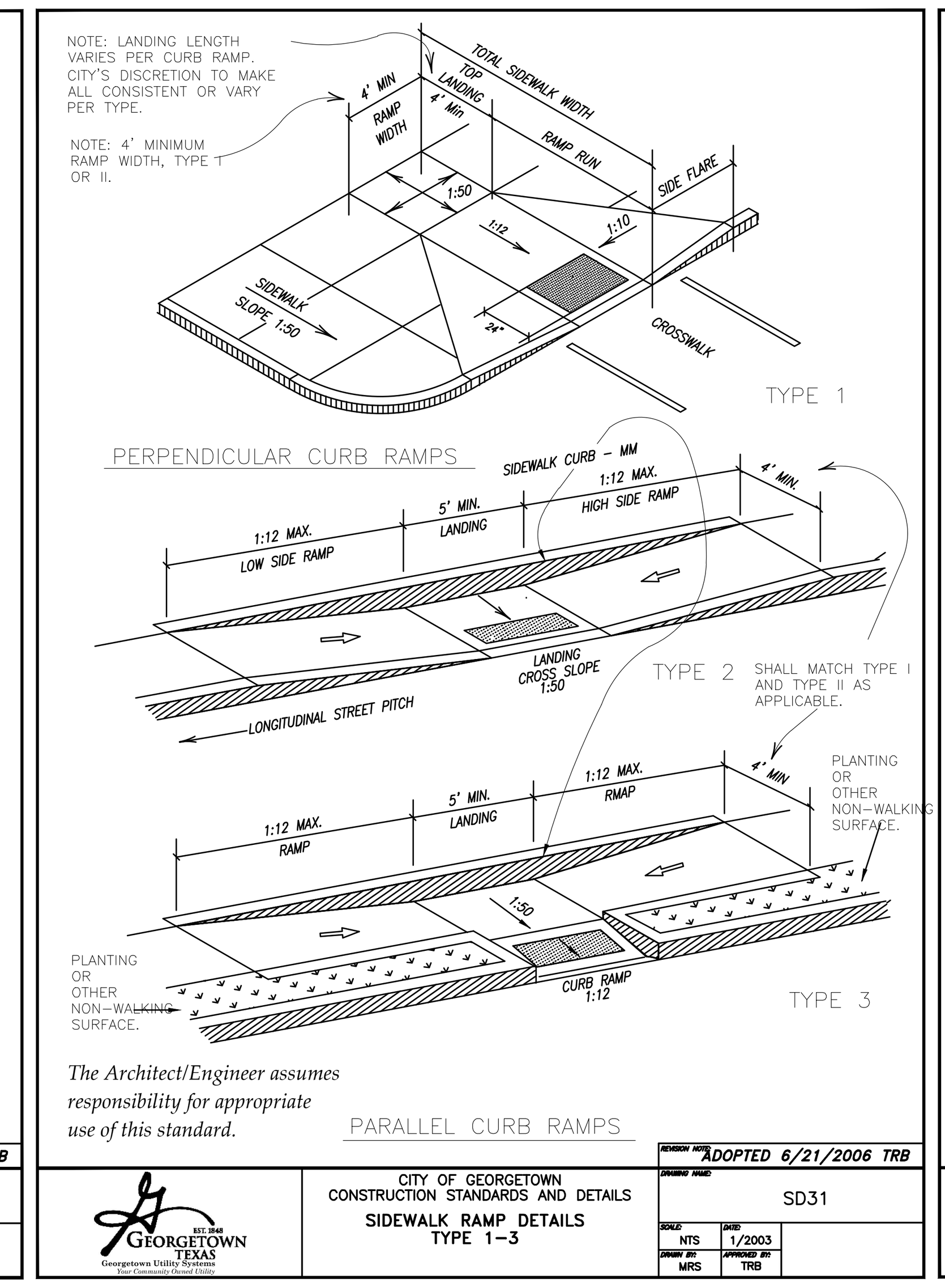
GEORGETOWN TEXAS EST. 1848 — Georgetown Utility Systems, Your Community Owned Utility

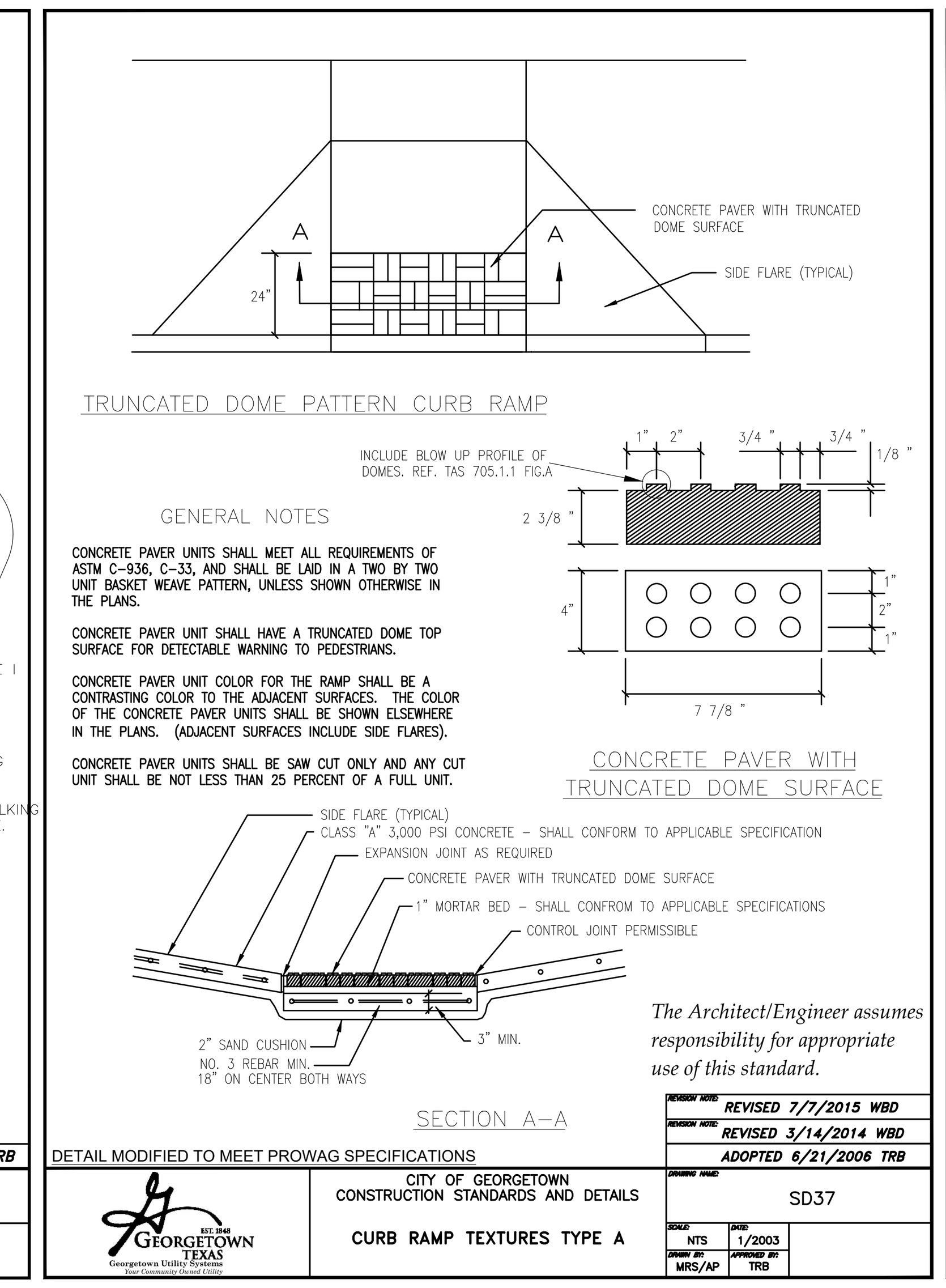
CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
PEDESTRIAN RAMPS GENERAL NOTES

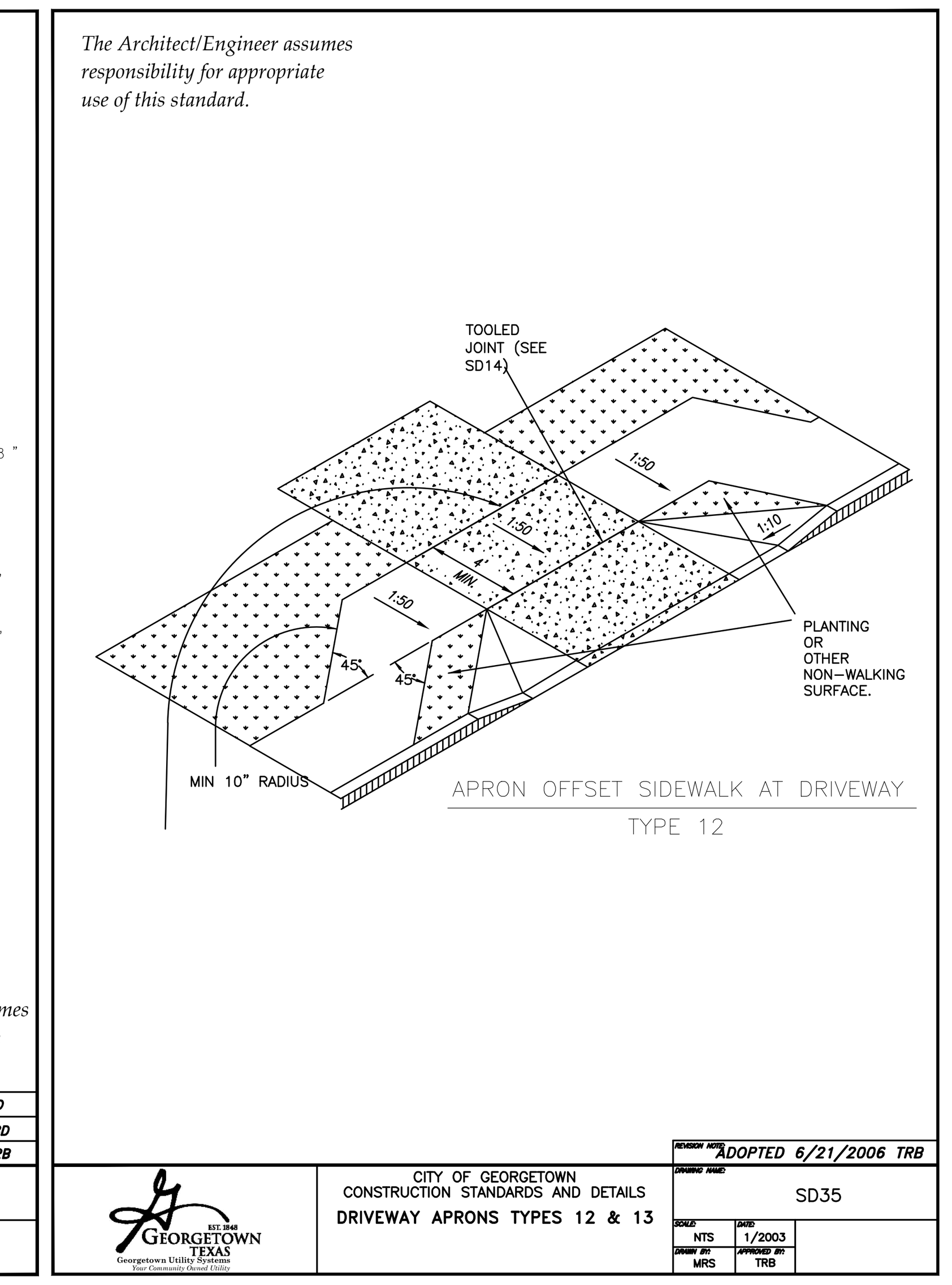
DRAWING NAME: SD28		
SCALE: NTS	DATE: 1/2003	
DRAWN BY: MRS	APPROVED BY: TRB	

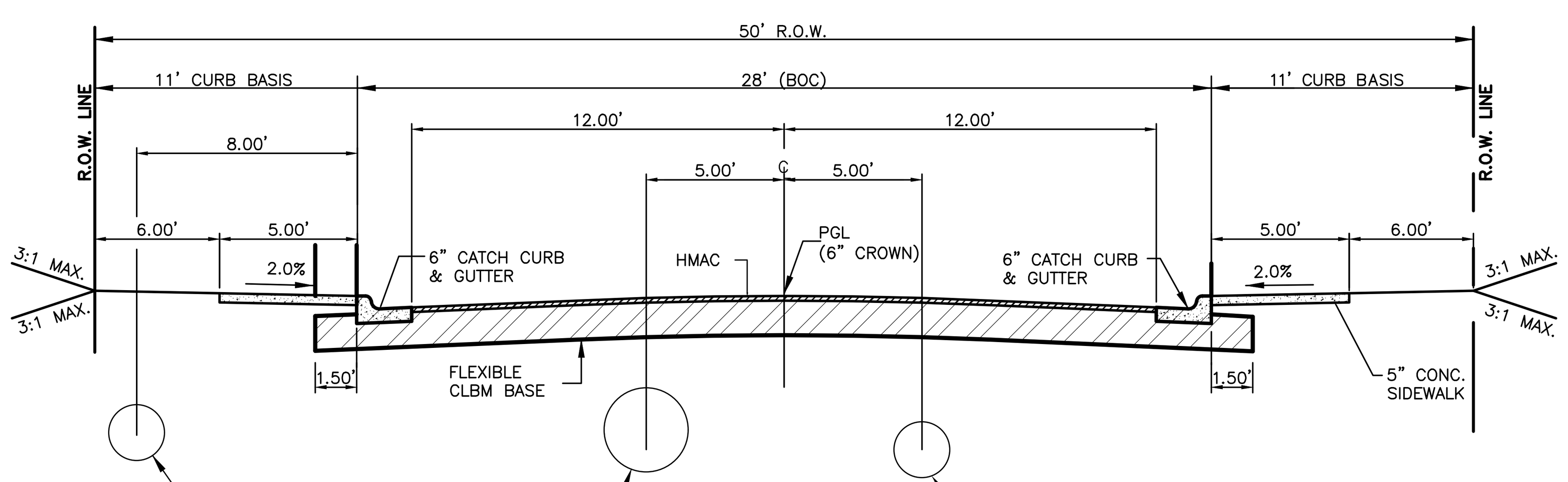




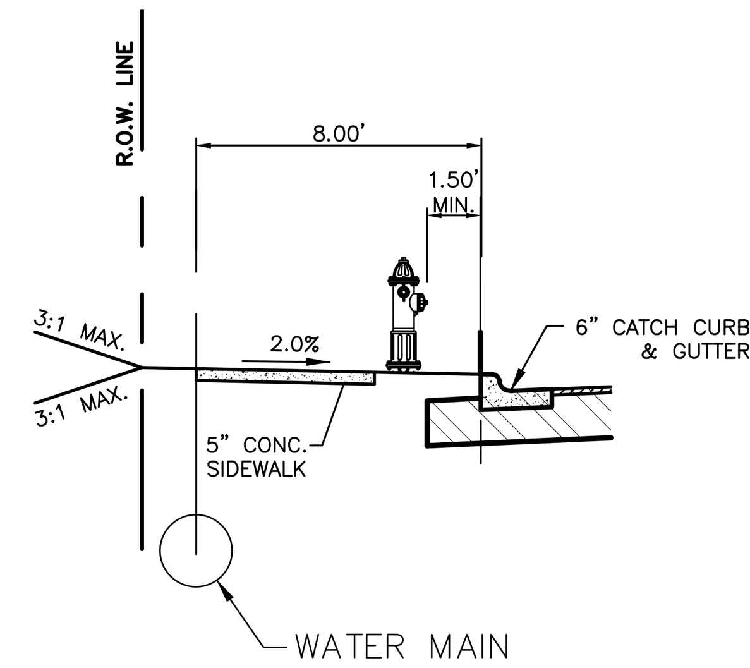








LOCAL STREETS



STREET WITH FIRE HYDRANT

InTEC

Summary Table No. B – Summary of Recommended Options

Classification	Asphaltic Concrete			Aggregate Base Thickness, inches	Subgrade Thickness, inches	Structural Number
	Type D inches	Type C inches	Type B inches			
Residential Local	2.00	-	-	10.00	6*	2.28
	2.50	-	-	8.50	6*	2.29
	2.00	-	5.00	-	6*	2.92
Residential Collector	3.00	-	-	11.50	6*	2.93
	2.00	-	6.00	-	6*	2.92
Major Neighborhood Collector		3.50	-	18.00	6*	4.06
	3.00	-	8.00	-	6*	4.04
	-	3.00	8.00	-	6*	4.04

Design Notes:

- Pavement design is based on AASHTO method and City of Georgetown input parameters presented in Table No. 3 (Summary Table A).
- Design California Bearing Ratio (CBR) = **2.0**
- Laboratory testing and engineering evaluation indicate **highly plastic clays** at shallow depths. Estimated **Potential Vertical Rise (PVR)** at existing grade is **2 to 5 inches**.
- For **repetitive or heavy truck traffic**, contact InTEC for revised pavement design recommendations using appropriate traffic inputs.

Subgrade Notes:

- **Cut and fill information** is not available at this time.
- Subgrade soils are anticipated to consist of **Clays or Marl**
- Fill used to raise the grade in clay areas:
  - approved fill material free should have a minimum CBR value of 2.0. Lime application rates should be re-evaluated and tested for sulfate content prior to use of the fill material.
  - The fill material should be approved by the geotechnical engineer, free of deleterious material, and the gravel size should not exceed 3 inches in size. The material should be placed and compacted as per applicable city / county guidelines.
  - The subgrade, prior to placement of fill, should be proof rolled to identify weak areas. Any identified weak areas should be recompacted.

PA251032 Crescent Bluff West, Sections 9 & 10 in Georgetown, Texas – Pavement Analysis

InTEC

- Fill used to raise the grade in marl areas:
  - approved fill material free should have a minimum CBR value of 5.0 and a maximum Plasticity Index value of 20.
  - The fill material should be approved by the geotechnical engineer, free of deleterious material, and the gravel size should not exceed 3 inches in size. The material should be placed and compacted as per applicable city / county guidelines.
  - The subgrade, prior to placement of fill, should be proof rolled to identify weak areas. Any identified weak areas should be recompacted.

Pavement Subgrade Treatment:

- If the final pavement subgrade consists of marl and the Plasticity Index value of less than or equal to 20, subgrade treatment
- If the final subgrade Plasticity Index values are greater than 20, subgrade soils should be lime treated to a depth of **6 inches** as noted above.
- Application rate of **7 percent** is recommended; **32 lbs per sq yard for 6 inch depth of treatment.**
- Subgrade soils should be tested for **sulfate content** prior to lime application. If elevated sulfate levels are encountered, alternate stabilization methods should be considered.

Pavement and Drainage Notes:

- Cracking and deformation may occur due to **shrink-swell behavior** of expansive clays.
- **Moisture control** beneath pavement is critical:
  - Prevent rain or irrigation water from infiltrating beneath the asphalt and base.
  - Consider **curbs extending ≥ 6 inches into subgrade** or backfilling with **compacted clay** against curb edges.
  - Ensure **lot grading and home construction** prevent trapped water near pavements.

Overbuild:

- At a minimum the prepared subgrade and aggregate base should extend a minimum of 18 inches behind the back of the curb.

Asphalt:

- Proposed asphalt should be submitted for verification. Virgin Mix (no RAP / RAS) is required.

Subgrade Verification:

- At the time of construction, the final pavement subgrade should be observed and delineated / verified by a representative of InTEC.

Material, Installation, and Testing:

- All material (fill, subgrade, base, and asphalt), installation, and testing should follow all **applicable city standards and specifications.**

PA251032 Crescent Bluff West, Sections 9 & 10 in Georgetown, Texas – Pavement Analysis

NOTE:

1. CONTRACTOR SHALL REFERENCE "SUBSURFACE EXPLORATION AND PAVEMENT ANALYSIS PROPOSED NEW STREETS CRESCENT BLUFF WEST, SECTIONS 9& 10 GEORGETOWN, TEXAS DATED NOVEMBER 18, 2025 B.Y INTEC, PROJECT NUMBER PA251032. CONTRACTOR IS RESPONSIBLE FOR VERIFYING WITH INTEC.
2. CONTRACTOR TO USE "VIRGIN MIX" TXDOT HMAC WEARING SURFACE 340 TYPE D, WITHOUT RAP OR RAZ. IN THE EVENT THAT THE CITY SPECIFICATIONS OR GEOTECH REPORT CONFLICT WITH THIS THEN THIS NOTE SHALL CONTROL.
3. THE BASE OVERBUILD SHOULD BE EXTENDED A MINIMUM OF 18" BEYOND THE BACK OF CURB. IF LIME TREATMENT IS BEING USED, THE BASE OVERBUILD SHOULD BE EXTENDED 3 FEET BEYOND THE BACK OF THE CURB.
4. AVOID INSTALLATION OF IRRIGATION, PLANTINGS, SILT FENCE, ETC. IN THE BASE OVERBUILD.
5. ALL MATERIAL IMPORTED AND USED FOR ROADWAY FILL AND SUBGRADE SHALL BE LOW P.I MATERIAL UNLESS CONTRACTOR OBTAINS APPROVAL FROM DEVELOPER . IF CONTRACTOR CHOOSES TO BRING IN HIGH PI MATERIAL FOR SUBGRADE, CONTRACTOR IS RESPONSIBLE FOR ALTERNATE PAVEMENT DESIGN PER THE GEOTECH REPORT AND ASSOCIATED COSTS.
6. CONTRACTOR TO ENSURE THAT ALL ONSITE MATERIAL USED FOR ROADWAY FILL AND SUBGRADE SHALL BE LOW P.I. MATERIAL UNLESS LOW P.I. MATERIAL DOES NOT EXIST FROM ONSITE MATERIAL. CONTRACTOR TO COORDINATE FINDINGS WITH THE DEVELOPER AND OBTAIN APPROVAL FOR NEEDING TO USE ALTERNATE PAVEMENT DESIGN PER THE GEOTECH REPORT.

NO.	REVISION	BY	DATE

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

5508 HIGHWAY 290 WEST
SUITE 150
AUSTIN, TX 78735
512.872.6696
HRGREEN.COM
TBPE NO: 16384
TBPLS NO: 10194101
HRGreen® DEVELOPMENT TX

STATE OF TEXAS — CHRISTINE N. CAMPBELL — 142536 — LICENSED PROFESSIONAL ENGINEER — 12/05/2025

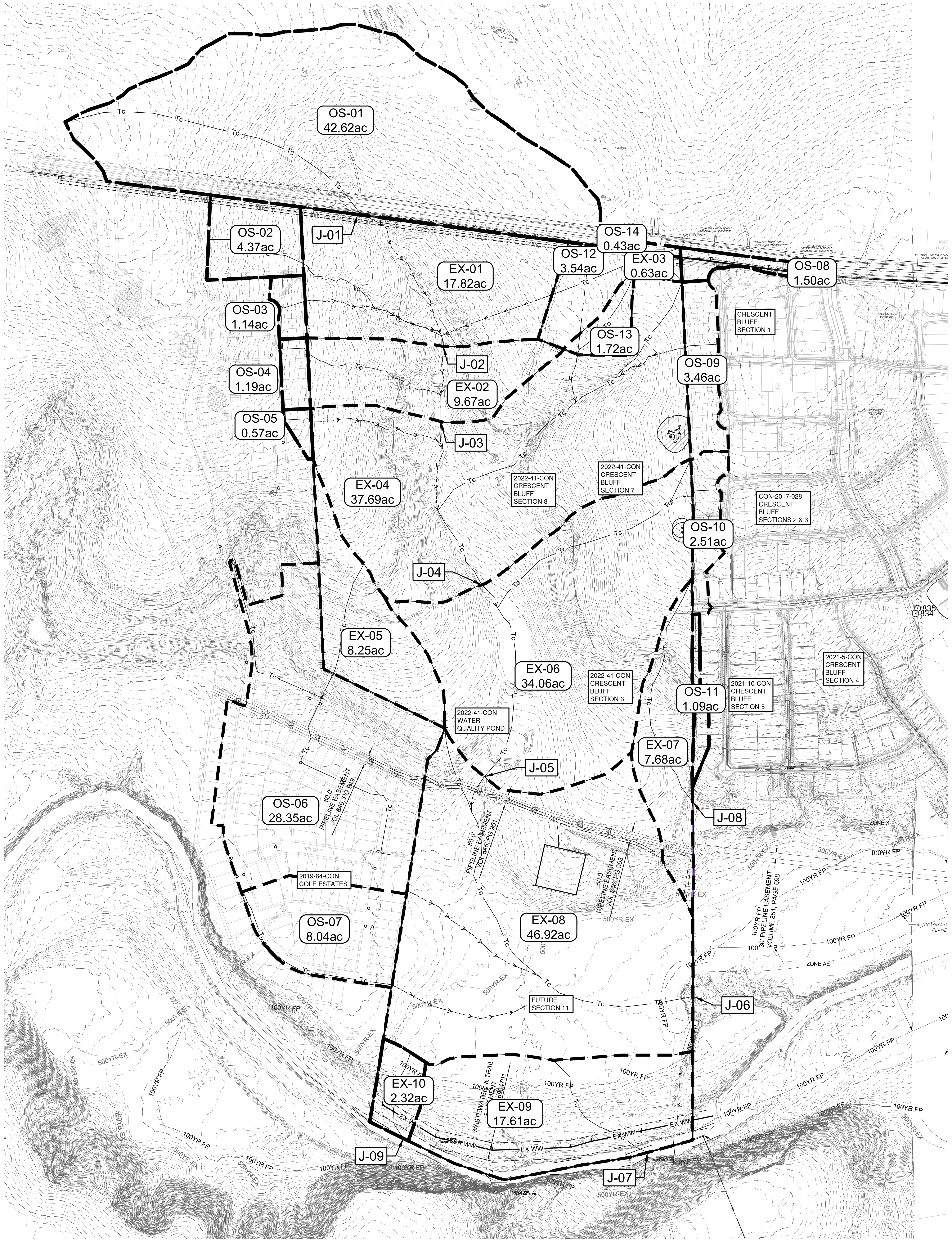
PAVING DETAILS SHEET 2 OF 2

CRESCENT BLUFF WEST
SECTIONS 9 & 10
GEORGETOWN, WILLIAMSON COUNTY TEXAS

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

2025-XX-CON

Sheet Location: P:\Athena Domain\Chapman Tract\Sections 9-10\03_ACAD\Plans\a\h2404243-DTLS.dwg, PAVING DETAILS SHEET 2 OF 2, December 05, 2025, 3:24 PM, makai.muhammad



	2 YEAR			10 YEAR			25 YEAR			100 YEAR		
	EXISTING FLOW (CFS)	PROPOSED FLOW (CFS)	DIFFERENCE (CFS)	EXISTING FLOW (CFS)	PROPOSED FLOW (CFS)	DIFFERENCE (CFS)	EXISTING FLOW (CFS)	PROPOSED FLOW (CFS)	DIFFERENCE (CFS)	EXISTING FLOW (CFS)	PROPOSED FLOW (CFS)	DIFFERENCE (CFS)
J-01	64.80	64.50	-0.30	131.30	130.30	-1.00	181.60	180.00	-1.60	272.90	270.40	-2.50
J-02	100.50	96.60	-3.90	203.20	194.80	-8.40	280.90	269.00	-11.90	422.30	403.90	-18.40
J-03	114.40	117.60	3.20	232.00	236.80	4.80	321.30	328.80	7.50	486.90	496.60	9.70
J-04	175.00	205.60	30.60	360.00	403.90	43.90	500.70	552.90	52.20	757.60	823.40	65.80
J-05	220.10	238.80	18.70	457.20	485.70	28.50	638.30	675.30	37.00	969.20	1022.00	52.80
J-06	293.40	42.80	-250.60	679.40	82.80	-596.60	945.10	112.90	-832.20	1428.40	169.00	-1259.40
J-07	25.30	28.80	3.50	54.50	61.50	7.00	77.10	86.60	9.50	118.40	132.70	14.30
J-08	14.20	12.70	-1.50	29.30	23.80	-5.50	40.80	32.00	-8.80	61.90	46.80	-15.10
J-09	3.20	265.30	262.10	6.90	579.70	572.80	9.80	808.30	798.50	15.10	1218.80	1203.70

EXISTING FLOW (CFS)				
	2 YEAR	10 YEAR	25 YEAR	100 YEAR
J-01	64.80	131.30	181.60	272.90
J-02	100.50	203.20	280.90	422.30
J-03	114.40	232.00	321.30	486.90
J-04	175.00	360.00	500.70	757.60
J-05	220.10	457.20	638.30	969.20
J-06	293.40	679.40	945.10	1428.40
J-07	25.30	54.50	77.10	118.40
J-08	14.20	29.30	40.80	61.90
J-09	3.20	6.90	9.80	15.10

PROPOSED FLOW (CFS)				
	2 YEAR	10 YEAR	25 YEAR	100 YEAR
J-01	64.50	130.30	180.00	270.40
J-02	96.60	194.80	269.00	403.90
J-03	117.60	236.80	328.80	496.60
J-04	205.60	403.90	552.90	823.40
J-05	238.80	485.70	675.30	1022.00
J-06	42.80	82.80	112.90	169.00
J-07	28.80	61.50	86.60	132.70
J-08	12.70	23.80	32.00	46.80
J-09	265.30	579.70	808.30	1218.80

Existing Drainage Conditions

Subbasin Flows				User Inputs					Auto-Calculation		TOC Calcs	Routing Analysis Inputs			
Q_2 (cfs)	Q_{10} (cfs)	Q_{25} (cfs)	Q_{100} (cfs)	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)
27.6	58.6	82.4	125.8	EX-01	776364.76	77	98	0	17.82	0.0%	11.00	0.02785	77.0	6.60	1.09
15.1	31.9	44.7	68.2	EX-02	421391.83	77	98	0	9.67	0.0%	10.32	0.01512	77.0	6.19	2.55
1	2.1	2.9	4.5	EX-03	27636.6	77	98	0	0.63	0.0%	8.97	0.00099	77.0	5.38	4.17
50.8	108.3	152.5	233.4	EX-04	1641749.07	77	98	1,423	37.69	0.1%	19.03	0.05889	77.0	11.42	3.02
13.5	29.1	41.2	63.2	EX-05	359507	77	98	0	8.25	0.0%	7.85	0.01290	77.0	4.71	3.66
49.4	106.2	149.9	230.2	EX-06	1483753	77	98	7,594	34.06	0.5%	14.92	0.05322	77.1	8.95	5.59
11.9	25.2	35.4	54.2	EX-07	334458.92	77	98	0	7.68	0.0%	11.32	0.01200	77.0	6.79	0.00
59.1	127.4	180.1	276.8	EX-08	2043893.01	77	98	0	46.92	0.0%	22.68	0.07331	77.0	13.61	0.00
25.3	54.5	77.1	118.4	EX-09	767018	77	98	0	17.61	0.0%	15.09	0.02751	77.0	9.05	0.00
3.2	6.9	9.8	15.1	EX-10	101157	77	98	0	2.32	0.0%	15.30	0.00363	77.0	9.18	2.13
60.2	122.7	170	256	OS-01	1856351	77	98	288,089	42.62	15.5%	24.06	0.06659	80.3	14.44	2.54
10.7	19.4	25.8	37.2	OS-02	190329	77	98	95,165	4.37	50.0%	8.00	0.00683	87.5	4.80	2.25
2.9	5.3	7	10.2	OS-03	49720.74	77	98	24,860	1.14	50.0%	6.10	0.00178	87.5	3.66	2.49
3.1	5.5	7.3	10.6	OS-04	51730.49	77	98	25,865	1.19	50.0%	6.31	0.00186	87.5	3.78	4.21
1.5	2.6	3.5	5.1	OS-05	24832	77	98	12,416	0.57	50.0%	6.25	0.00089	87.5	3.75	4.59
44.2	81	108.2	157.1	OS-06	1234787	77	98	555,654	28.35	45.0%	7.16	0.04429	86.5	4.30	4.48
21.5	37.8	49.6	70.9	OS-07	350410	77	98	210,246	8.04	60.0%	7.24	0.01257	89.6	4.34	4.64
3.7	6.9	9.2	13.4	OS-08	65199.58	77	98	26,076	1.50	40.0%	5.00	0.00234	85.4	3.00	5.68
8.9	16	21.2	30.6	OS-09	150899.28	77	98	75,450	3.46	50.0%	6.49	0.00541	87.5	3.90	5.92
6.6	11.8	15.7	22.6	OS-10	109173	77	98	54,587	2.51	50.0%	5.58	0.00392	87.5	3.35	0.00
2.8	5.1	6.7	9.7	OS-11	47364	77	98	23,682	1.09	50.0%	5.96	0.00170	87.5	3.58	1.84
5.4	11.4	16.1	24.6	OS-12	154209.95	77	98	4,502	3.54	2.9%	13.82	0.00553	77.6	8.29	4.54
2.4	5.1	7.1	10.8	OS-13	74722.14	77	98	4,162	1.72	5.6%	18.81	0.00268	78.2	11.28	3.60
1.2	2.1	2.8	4	OS-14	18623	77	98	11,561	0.43	62.1%	5.00	0.00067	90.0	3.00	3.60

Time of Concentration Calculations

Contributing Area	Sheet Flow				Shallow Concentrated Flow (Unpaved)			Shallow Concentrated Flow (Paved)			Pipe/Channel Flow 1			Reach Flow		
	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)	Length (ft)	Velocity (ft)	$T_{channel}$ (min)
EX-01	100	0.039	0.15	7.23	811	0.054	3.61			0.00	56	6	0.16	391	6	1.09
EX-02	100	0.035	0.15	7.55	657	0.081	2.38			0.00	136	6	0.38	917	6	2.55
EX-03	100	0.029	0.15	8.14	126	0.025	0.82			0.00			0.00	1500	6	4.17
EX-04	100	0.017	0.15	10.08	1683	0.051	7.70			0.00	448	6	1.24	1087	6	3.02
EX-05	100	0.062	0.15	6.01	492	0.076	1.84			0.00			0.00	1317	6	3.66
EX-06	100	0.034	0.15	7.64	1216	0.072	4.68			0.00	936	6	2.60	2012	6	5.59
EX-07	100	0.044	0.15	6.89	1157	0.073	4.42			0.00			0.00			0.00
EX-08	100	0.031	0.15	7.93	2166	0.023	14.75			0.00			0.00			0.00
EX-09	100	0.011	0.15	12.00	619	0.043	3.08			0.00			0.00			0.00
EX-10	100	0.006	0.15	15.30			0.00			0.00			0.00	767	6	2.13
OS-01	100	0.006	0.15	15.30	1587	0.035	8.76			0.00			0.00	913	6	2.54
OS-02	100	0.065	0.15	5.90	407	0.040	2.10			0.00			0.00	811	6	2.25
OS-03	30	0.020	0.24	5.25	116	0.020	0.85			0.00			0.00	895	6	2.49
OS-04	30	0.020	0.24	5.25	144	0.020	1.05			0.00			0.00	1517	6	4.21
OS-05	30	0.020	0.24	5.25	137	0.020	1.00			0.00			0.00	1654	6	4.59
OS-06	100	0.140	0.02	0.72			0.00	858	0.050	3.15	1186	6	3.29	1611	6	4.48
OS-07	100	0.005	0.02	2.75			0.00	548	0.010	4.49			0.00	1669	6	4.64
OS-08	76	0.02	0.02	1.51			0.00			0.00	629	6	1.75	2044	6	5.68
OS-09	30	0.020	0.24	5.25	170	0.020	1.24			0.00			0.00	2131	6	5.92
OS-10	30	0.020	0.24	5.25	141	0.200	0.33			0.00			0.00			0.00
OS-11	30	0.020	0.24	5.25	97	0.020	0.71			0.00			0.00	664	6	1.84
OS-12	100	0.031	0.24	11.55	367	0.028	2.27			0.00			0.00	1636	6	4.54
OS-13	100	0.013	0.24	16.35	438	0.034	2.45			0.00			0.00	1297	6	3.60
OS-14	65	0.02	0.02	1.34			0.00			0.00	307	6	0.85	1297	6	3.60

N

0 300' 600'
SCALE: 1" = 300'

LEGEND

P-1	DRAINAGE AREA NAME
5.00 Ac	DRAINAGE AREA (IN ACRES)
	TIME OF CONCENTRATION
POI-15	DRAINAGE DESIGN POINT
	DIRECTION OF FLOW
	DRAINAGE AREA
835	EXISTING MAJOR CONTOUR
834	EXISTING MINOR CONTOUR
835	PROPOSED MAJOR CONTOUR
834	PROPOSED MINOR CONTOUR
100YR	100 YR FEMA FLOODPLAIN
	OVERALL BOUNDARY LINE
	LOT LINE

NOTES:

1. PLEASE REFER TO THE DETENTION WAIVER STUDY, SEALED JUNE 20, 2017 BY STANTEC CONSULTING SERVICES, SUBMITTED AND APPROVED WITH CON-2017-028.

NO. | REVISION | BY | DATE

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

5508 HIGHWAY 290 WEST
SUITE 150
AUSTIN, TX 78735
512.872.6696
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STATE OF TEXAS
CHRISTINE N. CAMPBELL
142536
LICENSED PROFESSIONAL ENGINEER
12/05/2025

EXISTING DRAINAGE AREA MAP

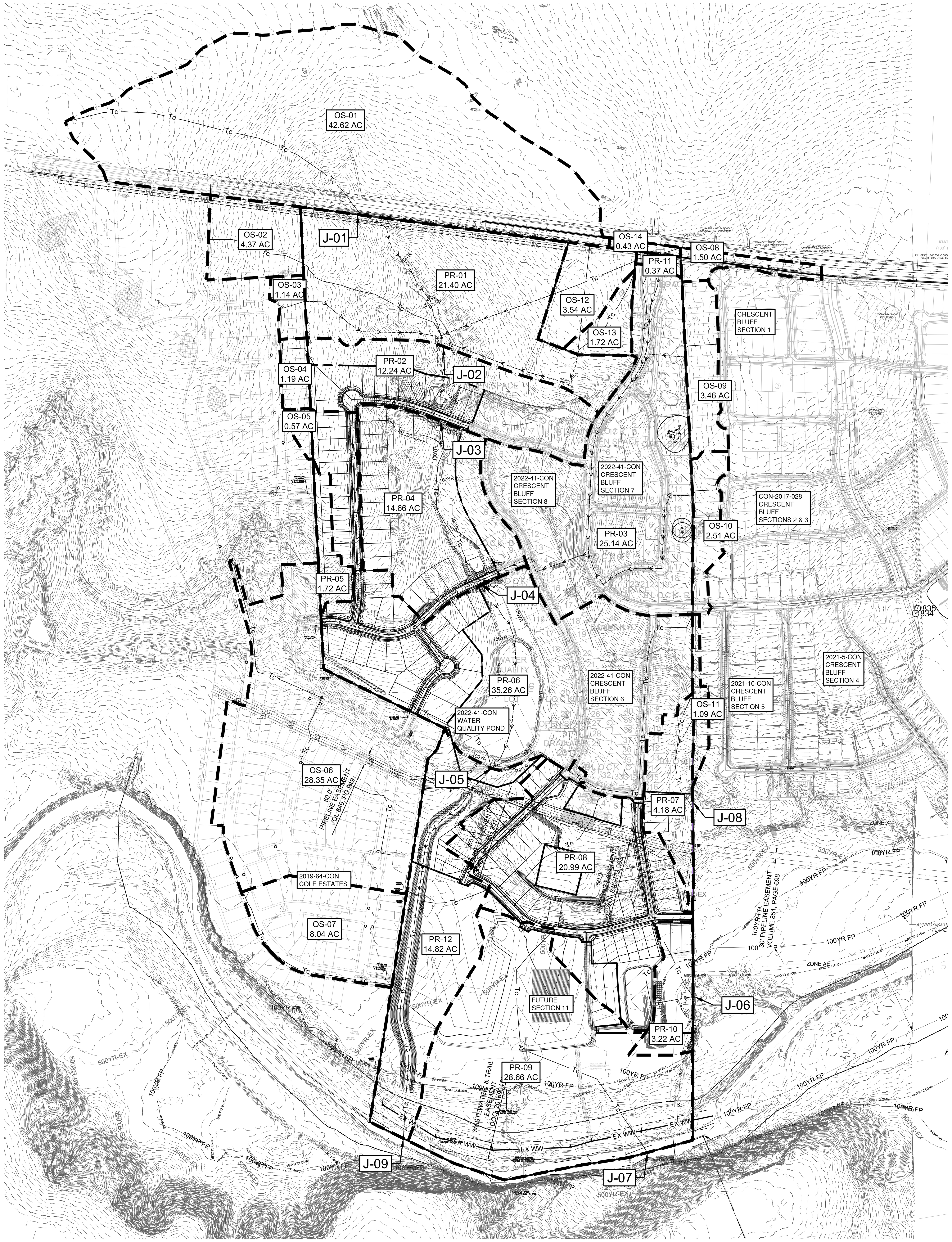
CRESCENT BLUFF WEST SECTIONS 9 & 10

GEORGETOWN, WILLIAMSON COUNTY TEXAS

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

SHEET 36 of 105

2025-XX-CON



	2 YEAR			10 YEAR			25 YEAR			100 YEAR		
	EXISTING FLOW (CFS)	PROPOSED FLOW (CFS)	DIFFERENCE (CFS)	EXISTING FLOW (CFS)	PROPOSED FLOW (CFS)	DIFFERENCE (CFS)	EXISTING FLOW (CFS)	PROPOSED FLOW (CFS)	DIFFERENCE (CFS)	EXISTING FLOW (CFS)	PROPOSED FLOW (CFS)	DIFFERENCE (CFS)
J-01	64.80	64.50	-0.30	131.30	130.30	-1.00	181.60	180.00	-1.60	272.90	270.40	-2.50
J-02	100.50	96.60	-3.90	203.20	194.80	-8.40	280.90	269.00	-11.90	422.30	403.90	-18.40
J-03	114.40	117.60	3.20	232.00	236.80	4.80	321.30	328.80	7.50	486.90	496.60	9.70
J-04	175.00	205.60	30.60	360.00	403.90	43.90	500.70	552.90	52.20	757.60	823.40	65.80
J-05	220.10	238.80	18.70	457.20	485.70	28.50	638.30	675.30	37.00	969.20	1022.00	52.80
J-06	293.40	42.80	-250.60	679.40	82.80	-596.60	945.10	112.90	-832.20	1428.40	169.00	-1259.40
J-07	25.30	28.80	3.50	54.50	61.50	7.00	77.10	86.60	9.50	118.40	132.70	14.30
J-08	14.20	12.70	-1.50	29.30	23.80	-5.50	40.80	32.00	-8.80	61.90	46.80	-15.10
J-09	3.20	265.30	262.10	6.90	579.70	572.80	9.80	808.30	798.50	15.10	1218.80	1203.70

EXISTING FLOW (CFS)				
	2 YEAR	10 YEAR	25 YEAR	100 YEAR
J-01	64.80	131.30	181.60	272.90
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J-04	175.00	360.00	500.70	757.60
J-05	220.10	457.20	638.30	969.20
J-06	293.40	679.40	945.10	1428.40
J-07	25.30	54.50	77.10	118.40
J-08	14.20	29.30	40.80	61.90
J-09	3.20	6.90	9.80	15.10

PROPOSED FLOW (CFS)				
	2 YEAR	10 YEAR	25 YEAR	100 YEAR
J-01	64.50	130.30	180.00	270.40
J-02	96.60	194.80	269.00	403.90
J-03	117.60	236.80	328.80	496.60
J-04	205.60	403.90	552.90	823.40
J-05	238.80	485.70	675.30	1022.00
J-06	42.80	82.80	112.90	169.00
J-07	28.80	61.50	86.60	132.70
J-08	12.70	23.80	32.00	46.80
J-09	265.30	579.70	808.30	1218.80

Proposed (9&10) Drainage Conditions

Subbasin Flows				User Inputs				Auto-Calculation			TOC Calcs	Routing Analysis Inputs			
Q_2 (cfs)	Q_{10} (cfs)	Q_{25} (cfs)	Q_{100} (cfs)	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)
23.3	49.3	69.3	105.9	PR-01	932,184	77	98	0	21.40	0.0%	11.00	0.03344	77.0	6.60	1.09
21.1	42.7	59.1	88.8	PR-02	533,264	77	98	61,650	12.24	11.6%	10.32	0.01913	79.4	6.19	2.55
55.7	102.9	137.7	200.1	PR-03	1,095,137	77	98	489,191	25.14	44.7%	9.78	0.03928	86.4	5.87	0.00
27.7	54	73.7	109.3	PR-04	638,378	77	98	148,838	14.66	23.3%	11.21	0.02290	81.9	6.73	2.86
3.4	6.8	9.3	13.9	PR-05	74,930	77	98	15,750	1.72	21.0%	7.85	0.00269	81.4	4.71	8.27
70	133.8	181.2	266.5	PR-06	1,535,997	77	98	461,912	35.26	30.1%	11.35	0.05510	83.3	6.81	5.71
9.9	18.7	25.3	37.1	PR-07	182,200	77	98	63,100	4.18	34.6%	6.58	0.00654	84.3	3.95	0.00
41.4	79.1	106.9	157.2	PR-08	914,260	77	98	283,203	20.99	31.0%	12.39	0.03279	83.5	7.44	0.51
28.8	61.5	86.6	132.7	PR-09	1,248,514	77	98	3,836	28.66	0.3%	41.12	0.04478	77.1	24.67	0.26
5	10.4	14.5	22	PR-10	140,092	77	98	11,100	3.22	7.9%	15.36	0.00503	78.7	9.22	0.00
0.9	1.6	2.2	3.3	PR-11	16,058	77	98	4,962	0.37	30.9%	5.00	0.00058	83.5	3.00	4.17
24.4	52.2	73.6	112.9	PR-12	645,671	77	98	12,600	14.82	2.0%	8.20	0.02316	77.4	4.92	5.24
60.2	122.7	170	256	OS-01	1,856,351	77	98	288,089	42.62	15.5%	24.06	0.06659	80.3	14.44	2.13
10.7	19.4	25.8	37.2	OS-02	190,329	77	98	95,165	4.37	50.0%	8.00	0.00683	87.5	4.80	2.68
2.9	5.3	7	10.2	OS-03	49,721	77	98	24,860	1.14	50.0%	6.10	0.00178	87.5	3.66	2.31
3.1	5.5	7.3	10.6	OS-04	51,730	77	98	25,865	1.19	50.0%	6.31	0.00186	87.5	3.78	2.49
1.5	2.6	3.5	5.1	OS-05	24,834	77	98	12,417	0.57	50.0%	6.25	0.00089	87.5	3.75	4.21
38.6	69.8	92.7	134	OS-06	1,234,787	77	98	617,394	28.35	50.0%	7.16	0.04429	87.5	4.30	4.59
21.5	37.8	49.6	70.9	OS-07	350,410	77	98	210,246	8.04	60.0%	7.24	0.01257	89.6	4.34	4.48
3.8	7	9.3	13.5	OS-08	65,200	77	98	28,957	1.50	44.4%	5.00	0.00234	86.3	3.00	6.50
8.9	16	21.2	30.6	OS-09	150,899	77	98	75,450	3.46	50.0%	6.49	0.00541	87.5	3.90	5.45
6.6	11.8	15.7	22.6	OS-10	109,182	77	98	54,591	2.51	50.0%	5.58	0.00392	87.5	3.35	4.50
2.8	5.1	6.7	9.7	OS-11	47,355	77	98	23,678	1.09	50.0%	5.96	0.00170	87.5	3.58	0.00
5.4	11.4	16.1	24.6	OS-12	154,210	77	98	4,502	3.54	2.9%	13.82	0.00553	77.6	8.29	1.84
2.4	5.1	7.1	10.8	OS-13	74,722	77	98	4,162	1.72	5.6%	18.81	0.00268	78.2	11.28	2.92
1.4	2.2	2.9	4	OS-14	18,623	77	98	15,440	0.43	82.9%	5.00	0.00067	94.4	3.00	3.60

Time of Concentration Calculations

Contributing Area	Sheet Flow				Shallow Concentrated Flow (Unpaved)			Shallow Concentrated Flow (Paved)			Pipe/Channel Flow 1			Reach Flow		
	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)	Length (ft)	Velocity (ft)	$T_{channel}$ (min)
PR-01	100	0.039	0.15	7.23	811	0.054	3.61			0.00	56	6	0.16	391	6	1.09
PR-02	100	0.035	0.15	7.55	657	0.081	2.38			0.00	136	6	0.38	917	6	2.55
PR-03	100	0.004	0.02	3.00			0.00	515	0.033	2.32	1602	6	4.45			0.00
PR-04	100	0.044	0.15	6.89	614	0.092	2.09			0.00	802	6	2.23	1029	6	2.86
PR-05	100	0.062	0.15	6.01	492	0.076	1.84			0.00			0.00	2976	6	8.27
PR-06	30	0.020	0.24	5.25	198	0.020	1.45			0.00	1674	6	4.65	2056	6	5.71
PR-07	100	0.123	0.15	4.57	537	0.076	2.01			0.00			0.00			0.00
PR-08	30	0.020	0.24	5.25	589	0.030	3.51			0.00	1306	6	3.63	182	6	0.51
PR-09	100	0.002	0.15	23.74	1457	0.008	17.38			0.00			0.00	92	6	0.26
PR-10	30	0.002	0.24	13.76	290	0.035	1.60			0.00			0.00			0.00
PR-11	59	0.010	0.020	1.63			0.00			0.00			0.00	1500	6	4.17
PR-12	100	0.011	0.015	1.90	277	0.010	2.86			0.00	1238	6	3.44	1885	6	5.24
OS-01	100	0.006	0.15	15.30	1587	0.035	8.76			0.00			0.00	767	6	2.13
OS-02	100	0.065	0.15	5.90	407	0.040	2.10			0.00			0.00	963	6	2.68
OS-03	30	0.020	0.24	5.25	116	0.020	0.85			0.00			0.00	831	6	2.31
OS-04	30	0.020	0.24	5.25	144	0.020	1.05			0.00			0.00	895	6	2.49
OS-05	30	0.020	0.24	5.25	137	0.020	1.00			0.00			0.00	1516	6	4.21
OS-06	100	0.140	0.02	0.72			0.00	858	0.050	3.15	1186	6	3.29	1654	6	4.59
OS-07	100	0.005	0.02	2.75			0.00	548	0.010	4.49			0.00	1611	6	4.48
OS-08	76	0.02	0.02	1.51			0.00			0.00	629	6	1.75	2339	6	6.50
OS-09	30	0.020	0.24	5.25	170	0.020	1.24			0.00			0.00	1963	6	5.45
OS-10	30	0.020	0.24	5.25	141	0.200	0.33			0.00			0.00	1620	6	4.50
OS-11	30	0.020	0.24	5.25	97	0.020	0.71			0.00			0.00			0.00
OS-12	100	0.031	0.24	11.55	367	0.028	2.27			0.00			0.00	664	6	1.84
OS-13	100	0.013	0.24	16.35	438	0.034	2.45			0.00			0.00	1052	6	2.92
OS-14	65	0.02	0.02	1.34			0.00			0.00	307	6	0.85	1297	6	3.60

N

0 300' 600'
SCALE: 1" = 300'

LEGEND

- P-1 — DRAINAGE AREA NAME
- 5.00 Ac — DRAINAGE AREA (IN ACRES)
- TIME OF CONCENTRATION
- POI-15 — DRAINAGE DESIGN POINT
- DIRECTION OF FLOW
- DRAINAGE AREA
- 835 — EXISTING MAJOR CONTOUR
- 834 — EXISTING MINOR CONTOUR
- 835 — PROPOSED MAJOR CONTOUR
- 834 — PROPOSED MINOR CONTOUR
- 100YR — 100 YR FEMA FLOODPLAIN
- OVERALL BOUNDARY LINE
- LOT LINE

NOTES:

1. PLEASE REFER TO THE DETENTION WAIVER STUDY, SEALED JUNE 20, 2017 BY STANTEC CONSULTING SERVICES, SUBMITTED AND APPROVED WITH CON-2017-028.

NO.	REVISION	BY	DATE

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STATE OF TEXAS
CHRISTINE N. CAMPBELL
142536
LICENSED PROFESSIONAL ENGINEER
12/05/2025

PROPOSED DRAINAGE AREA MAP

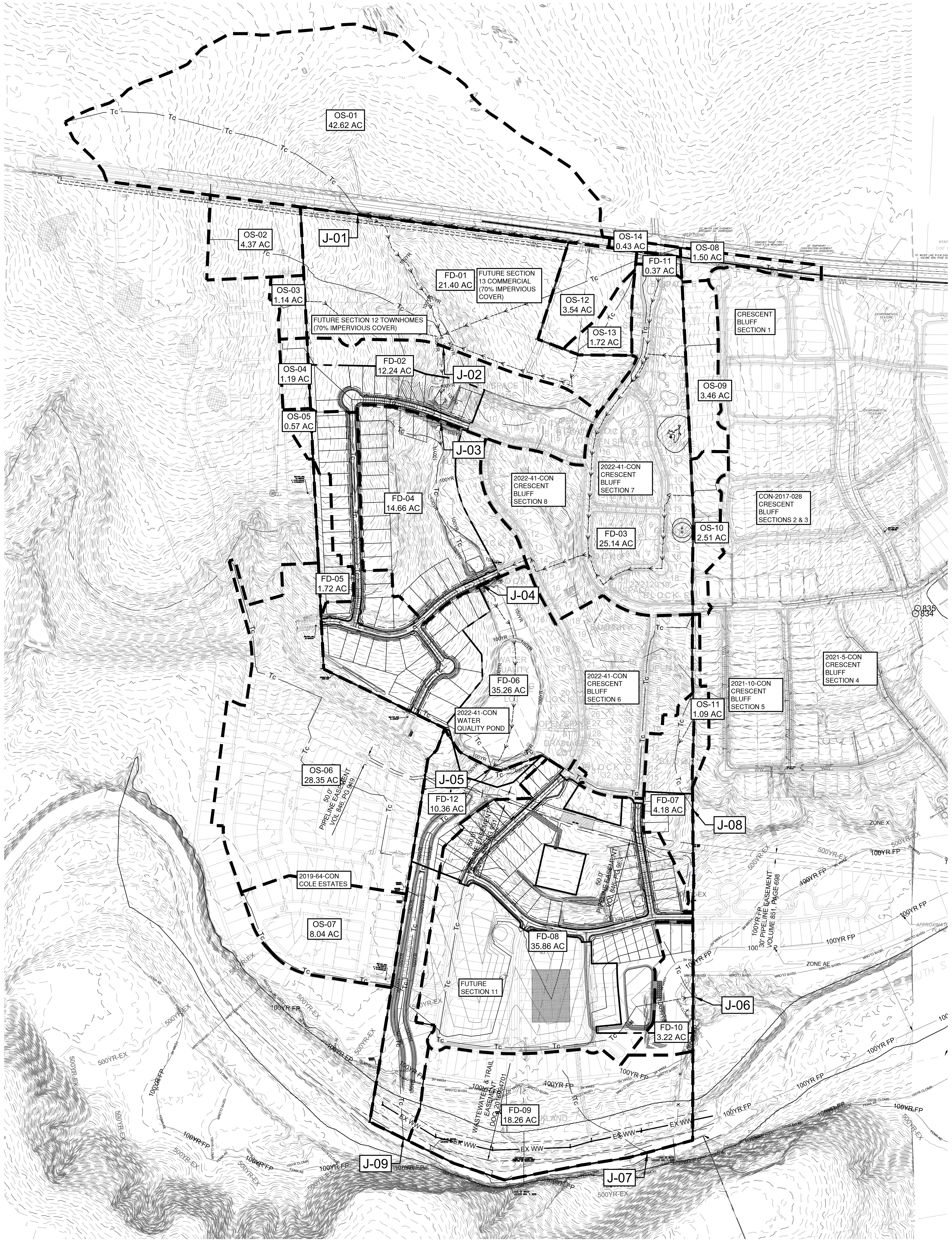
CRESCENT BLUFF WEST
SECTIONS 9 & 10
GEORGETOWN, WILLIAMSON COUNTY TEXAS

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

SHEET 37 of 105

2025-XX-CON

Sheet Location: P:\Athena Domain\Chapman Tract\Sections 9-10\03_ACAD\Plans\sh2404243-pDAM.dwg, PROPOSED DRAINAGE AREA MAP December 05, 2025, 3:26 PM, makai.muhammad



	2 YEAR			10 YEAR			25 YEAR			100 YEAR		
	EXISTING FLOW (CFS)	ULTIMATE FLOW (CFS)	DIFFERENCE (CFS)	EXISTING FLOW (CFS)	ULTIMATE FLOW (CFS)	DIFFERENCE (CFS)	EXISTING FLOW (CFS)	ULTIMATE FLOW (CFS)	DIFFERENCE (CFS)	EXISTING FLOW (CFS)	ULTIMATE FLOW (CFS)	DIFFERENCE (CFS)
J-01	64.80	75.80	11.00	131.30	154.60	23.30	181.60	214.30	32.70	272.90	323.00	50.10
J-02	100.50	134.60	34.10	203.20	260.50	57.30	280.90	354.90	74.00	422.30	526.20	103.90
J-03	114.40	156.80	42.40	232.00	299.10	67.10	321.30	405.50	84.20	486.90	598.40	111.50
J-04	175.00	246.30	71.30	360.00	462.70	102.70	500.70	623.60	122.90	757.60	914.60	157.00
J-05	220.10	282.10	62.00	457.20	547.60	90.40	638.30	750.00	111.70	969.20	1114.80	145.60
J-06	293.40	77.10	-216.30	679.40	142.50	-536.90	945.10	190.40	-754.70	1428.40	276.90	-1151.50
J-07	25.30	31.90	6.60	54.50	66.60	12.10	77.10	93.20	16.10	118.40	141.60	23.20
J-08	14.20	11.20	-3.00	29.30	22.00	-7.30	40.80	30.00	-10.80	61.90	44.40	-17.50
J-09	3.20	299.80	296.60	6.90	622.40	615.50	9.80	848.00	838.20	15.10	1264.10	1249.00

EXISTING FLOW (CFS)				
	2 YEAR	10 YEAR	25 YEAR	100 YEAR
J-01	64.80	131.30	181.60	272.90
J-02	100.50	203.20	280.90	422.30
J-03	114.40	232.00	321.30	486.90
J-04	175.00	360.00	500.70	757.60
J-05	220.10	457.20	638.30	969.20
J-06	293.40	679.40	945.10	1428.40
J-07	25.30	54.50	77.10	118.40
J-08	14.20	29.30	40.80	61.90
J-09	3.20	6.90	9.80	15.10

ULTIMATE FLOW (CFS)				
	2 YEAR	10 YEAR	25 YEAR	100 YEAR
J-01	75.80	154.60	214.30	323.00
J-02	134.60	260.50	354.90	526.20
J-03	156.80	299.10	405.50	598.40
J-04	246.30	462.70	623.60	914.60
J-05	282.10	547.60	750.00	1114.80
J-06	77.10	142.50	190.40	276.90
J-07	31.90	66.60	93.20	141.60
J-08	11.20	22.00	30.00	44.40
J-09	299.80	622.40	848.00	1264.10

Fully Developed Drainage Conditions

Subbasin Flows				User Inputs				Auto-Calculation			TOC Calcs	Routing Analysis Inputs			
Q_2 (cfs)	Q_{10} (cfs)	Q_{25} (cfs)	Q_{100} (cfs)	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)
49.9	88.3	116.3	166.7	FD-01	932,107	77	98	526,473	21.40	56.5%	13.45	0.03343	88.9	8.07	1.09
31.3	55.5	73.1	104.7	FD-02	533,264	77	98	306,800	12.24	57.5%	8.22	0.01913	89.1	4.93	2.55
57	104.3	139	201.3	FD-03	1,095,137	77	98	529,089	25.14	48.3%	9.78	0.03928	87.1	5.87	0.00
30.6	58.7	79.6	117.4	FD-04	638,378	77	98	206,558	14.66	32.4%	8.93	0.02290	83.8	5.36	2.86
3.7	7.2	9.8	14.5	FD-05	74,930	77	98	20,120	1.72	26.9%	6.87	0.00269	82.6	4.12	7.74
73	136.6	183.4	267.8	FD-06	1,535,997	77	98	581,610	35.26	37.9%	13.12	0.05510	85.0	7.87	6.18
8.4	16.9	23.2	34.7	FD-07	182,200	77	98	33,300	4.18	18.3%	6.60	0.00654	80.8	3.96	0.00
77	141.5	188.8	273.9	FD-08	1,561,930	77	98	694,218	35.86	44.4%	13.50	0.05603	86.3	8.10	0.51
31.9	66.6	93.2	141.6	FD-09	795,298	77	98	64,200	18.26	8.1%	8.17	0.02853	78.7	4.90	0.00
5	10.4	14.5	22	FD-10	140,092	77	98	11,100	3.22	7.9%	15.36	0.00503	78.7	9.22	0.00
0.7	1.4	1.9	2.8	FD-11	16,058	77	98	4,962	0.37	30.9%	12.80	0.00058	83.5	7.68	0.00
18.9	39.9	56	85.4	FD-12	451,275	77	98	5,700	10.36	1.3%	5.00	0.01619	77.3	3.00	4.17
70.9	145.8	202.7	306.2	OS-01	1,856,351	77	98	294,414	42.62	15.9%	24.06	0.06659	80.3	14.44	2.13
9.8	17.7	23.5	33.8	OS-02	190,329	77	98	95,165	4.37	50.0%	13.24	0.00683	87.5	7.94	0.00
2.9	5.3	7	10.2	OS-03	49,721	77	98	24,860	1.14	50.0%	6.10	0.00178	87.5	3.66	2.39
3.1	5.5	7.3	10.6	OS-04	51,730	77	98	25,865	1.19	50.0%	6.31	0.00186	87.5	3.78	2.49
1.5	2.6	3.5	5.1	OS-05	24,834	77	98	12,417	0.57	50.0%	6.25	0.00089	87.5	3.75	7.33
38.6	69.8	92.7	134	OS-06	1,234,787	77	98	617,394	28.35	50.0%	7.16	0.04429	87.5	4.30	3.66
21.5	37.8	49.6	70.9	OS-07	350,379	77	98	210,227	8.04	60.0%	7.24	0.01257	89.6	4.34	2.71
3.8	7	9.3	13.5	OS-08	65,200	77	98	28,957	1.50	44.4%	5.00	0.00234	86.3	3.00	6.50
8.9	16	21.2	30.6	OS-09	150,899	77	98	75,450	3.46	50.0%	6.49	0.00541	87.5	3.90	5.39
6.6	11.8	15.7	22.6	OS-10	109,182	77	98	54,591	2.51	50.0%	5.58	0.00392	87.5	3.35	4.44
2.8	5.1	6.7	9.7	OS-11	47,355	77	98	23,678	1.09	50.0%	5.96	0.00170	87.5	3.58	0.00
5.4	11.4	16.1	24.6	OS-12	154,210	77	98	4,502	3.54	2.9%	13.82	0.00553	77.6	8.29	1.84
2.4	5.1	7.1	10.8	OS-13	74,722	77	98	4,162	1.72	5.6%	18.81	0.00268	78.2	11.28	2.45
1.4	2.2	2.9	4	OS-14	18,623	77	98	15,440	0.43	82.9%	5.00	0.00067	94.4	3.00	3.60

Time of Concentration Calculations

Contributing Area	Sheet Flow				Shallow Concentrated Flow (Unpaved)			Shallow Concentrated Flow (Paved)			Pipe/Channel Flow 1			Reach Flow		
	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)	Length (ft)	Velocity (ft)	$T_{channel}$ (min)
FD-01	100	0.039	0.24	10.54	202	0.050	0.93	540	0.050	1.98			0.00	391	6	1.09
FD-02	30	0.020	0.24	5.25	204	0.020	1.49			0.00	530	6	1.47	917	6	2.55
FD-03	100	0.004	0.02	3.00			0.00	515	0.033	2.32	1602	6	4.45			0.00
FD-04	30	0.020	0.24	5.25	451	0.103	1.45			0.00	802	6	2.23	1030	6	2.86
FD-05	30	0.020	0.24	5.25	222	0.020	1.62			0.00		6	0.00	2786	6	7.74
FD-06	30	0.020	0.24	5.25	156	0.020	1.14			0.00	2423	6	6.73	2224	6	6.18
FD-07	100	0.120	0.15	4.61	537	0.078	1.99			0.00			0.00			0.00
FD-08	30	0.020	0.24	5.25	143	0.020	1.04			0.00	2594	6	7.21	182	6	0.51
FD-09	30	0.020	0.24	5.25	612	0.047	2.92			0.00			0.00		6	0.00
FD-10	30	0.002	0.24	13.76	290	0.035	1.60			0.00			0.00		6	0.00
FD-11	30	0.020	0.24	5.25	112	0.020	0.82			0.00	2423	6	6.73		6	0.00
FD-12	100	0.010	0.02	2.88			0.00			0.00			0.00	1500	6	4.17
OS-01	100	0.006	0.15	15.30	1587	0.035	8.76			0.00			0.00	767	6	2.13
OS-02	100	0.065	0.15	5.90	407	0.040	2.10			0.00	1885	6	5.24			0.00
OS-03	30	0.020	0.24	5.25	116	0.020	0.85			0.00			0.00	860	6	2.39
OS-04	30	0.020	0.24	5.25	144	0.020	1.05			0.00			0.00	895	6	2.49
OS-05	30	0.020	0.24	5.25	137	0.020	1.00			0.00			0.00	2640	6	7.33
OS-06	100	0.140	0.02	0.72			0.00	858	0.050	3.15	1186	6	3.29	1317	6	3.66
OS-07	100	0.005	0.02	2.75			0.00	548	0.010	4.49			0.00	976	6	2.71
OS-08	76	0.02	0.02	1.51			0.00			0.00	629	6	1.75	2339	6	6.50
OS-09	30	0.020	0.24	5.25	170	0.020	1.24			0.00			0.00	1942	6	5.39
OS-10	30	0.020	0.24	5.25	141	0.200	0.33			0.00			0.00	1599	6	4.44
OS-11	30	0.020	0.24	5.25	97	0.020	0.71			0.00			0.00			0.00
OS-12	100	0.031	0.24	11.55	367	0.028	2.27			0.00			0.00	664	6	1.84
OS-13	100	0.013	0.24	16.35	438	0.034	2.45			0.00			0.00	881	6	2.45
OS-14	65	0.02	0.02	1.34			0.00			0.00	307	6	0.85	1297	6	3.60

0 300' 600'
SCALE: 1" = 300'

LEGEND

P-1 — DRAINAGE AREA NAME
5.00 Ac — DRAINAGE AREA (IN ACRES)
TIME OF CONCENTRATION
POI-15 DRAINAGE DESIGN POINT
DIRECTION OF FLOW
DRAINAGE AREA
835 EXISTING MAJOR CONTOUR
834 EXISTING MINOR CONTOUR
835 PROPOSED MAJOR CONTOUR
834 PROPOSED MINOR CONTOUR
100YR 100 YR FEMA FLOODPLAIN
OVERALL BOUNDARY LINE
LOT LINE

NOTES:

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NO.	REVISION	BY	DATE

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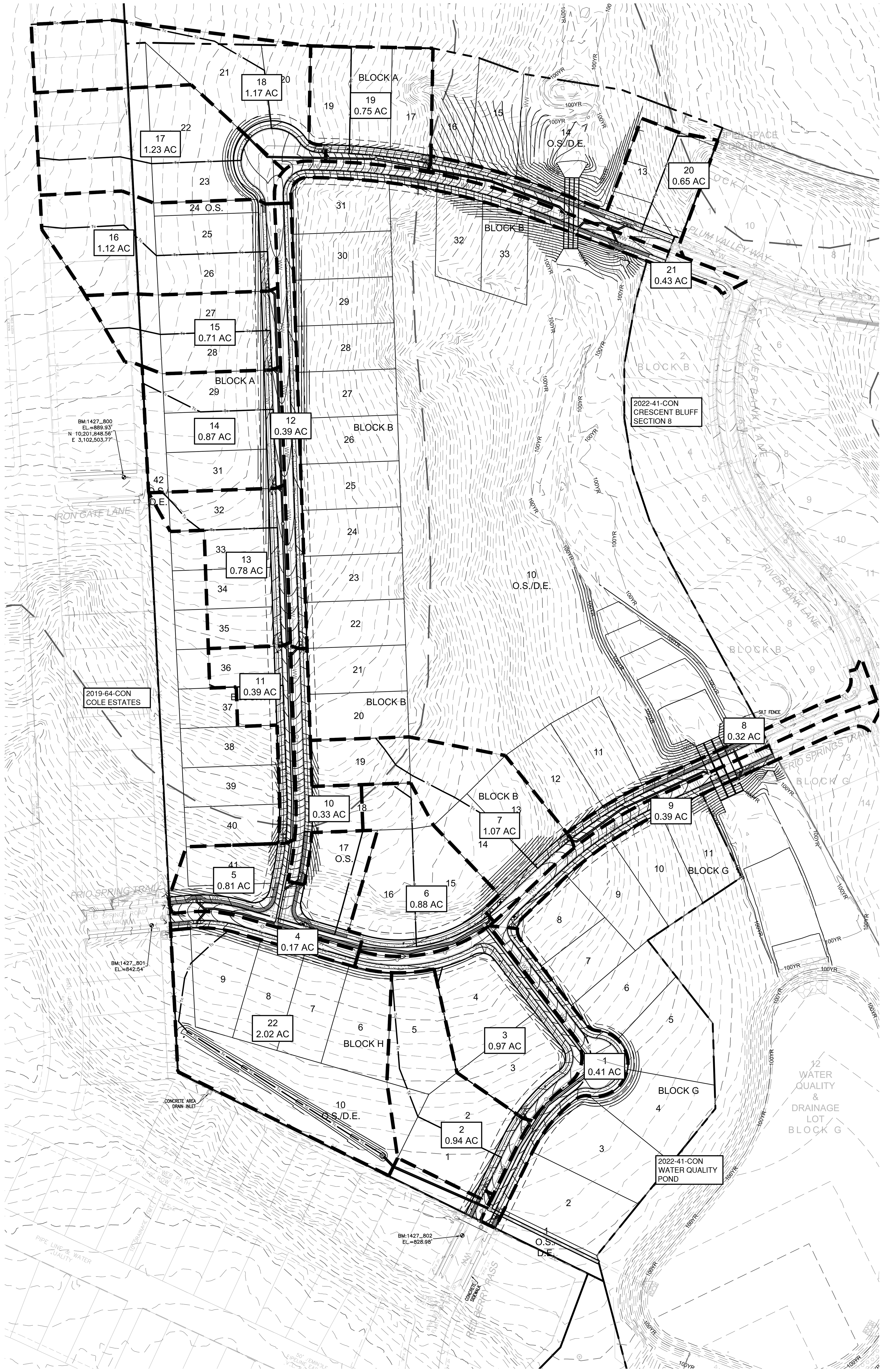
STATE OF TEXAS
CHRISTINE N. CAMPBELL
142536
LICENSED PROFESSIONAL ENGINEER
12/05/2025

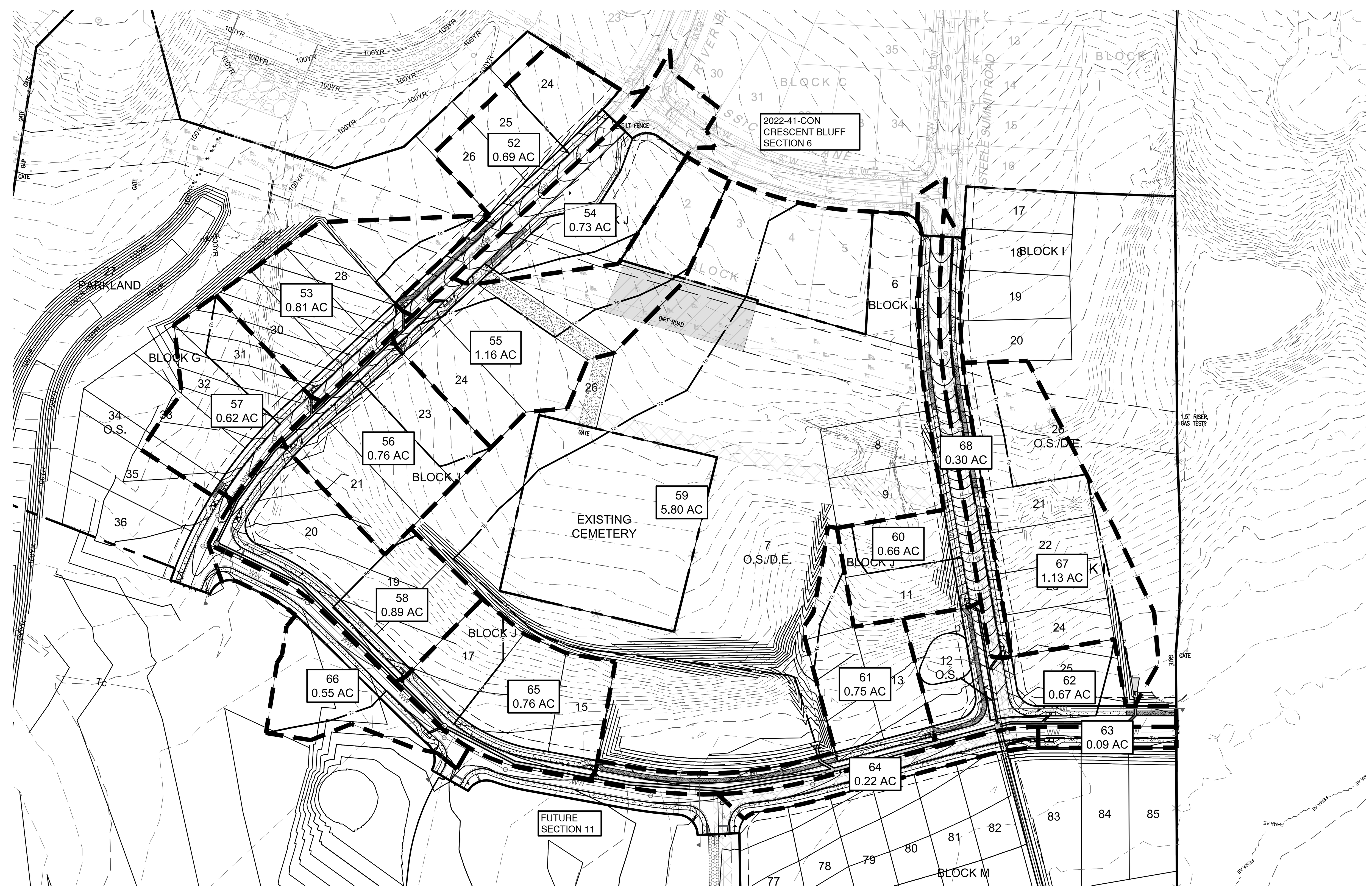
FULLY-DEVELOPED DRAINAGE AREA MAP

CRESCENT BLUFF WEST SECTIONS 9 & 10

GEORGETOWN, WILLIAMSON COUNTY TEXAS

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





SCALE: 1" = 100'

LEGEND

P-1	DRAINAGE AREA NAME
5.00 Ac	DRAINAGE AREA (IN ACRES)
	TIME OF CONCENTRATION
POI-15	DRAINAGE DESIGN POINT
	DIRECTION OF FLOW
	DRAINAGE AREA
835	EXISTING MAJOR CONTOUR
834	EXISTING MINOR CONTOUR
835	PROPOSED MAJOR CONTOUR
834	PROPOSED MINOR CONTOUR
100YR	100 YR FEMA FLOODPLAIN
	OVERALL BOUNDARY LINE
	LOT LINE

NOTES:

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HRGreen DEVELOPMENT TX

STATE OF TEXAS CHRISTINE N. CAMPBELL 142536 LICENSED PROFESSIONAL ENGINEER
12/05/2025

INLET DRAINAGE AREA MAP

CRESCENT BLUFF WEST
SECTIONS 9 & 10
GEORGETOWN, WILLIAMSON COUNTY TEXAS

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

SHEET 39 of 105

2025-XX-CON

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**

CRESCENT BLUFF WEST SECTIONS 9 AND 10
RATIONAL METHOD FLOW CALCULATIONS FOR STORM INLETS

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		
										C	I	Q	C	I	Q	C	I	Q	C	I	Q
1	D20	CGRD	17,838	0.41	0	14,077	79%	21%	5.0	0.80	6.48	2.12	0.81	8.64	2.86	0.82	9.84	3.28	0.83	11.88	4.02
2	D21	CGRD	41,064	0.94	15,600	2,402	44%	56%	6.8	0.55	6.03	3.13	0.57	8.09	4.38	0.59	9.26	5.15	0.62	11.21	6.54
3	D22	CGRD	42,401	0.97	10,400	10,767	50%	50%	5.2	0.59	6.41	3.71	0.61	8.56	5.12	0.63	9.76	5.98	0.65	11.78	7.51
4	D25	CGRD	7,272	0.17	0	5,538	76%	24%	5.0	0.78	6.48	0.84	0.79	8.64	1.14	0.80	9.84	1.31	0.81	11.88	1.61
5	D19	CGRD	35,469	0.81	4,400	8,949	38%	62%	5.0	0.51	6.48	2.68	0.53	8.64	3.74	0.55	9.84	4.41	0.58	11.88	5.63
6	D24	CGRD	38,434	0.88	11,600	4,581	42%	58%	5.0	0.54	6.48	3.08	0.56	8.64	4.29	0.58	9.84	5.03	0.61	11.88	6.38
7	E14	CGRD	46,550	1.07	15,600	2,615	39%	61%	5.6	0.52	6.33	3.50	0.54	8.46	4.90	0.56	9.65	5.78	0.59	11.66	7.36
8	E10	CSAG	13,828	0.32	0	10,626	77%	23%	5.0	0.79	6.48	1.62	0.79	8.64	2.18	0.80	9.84	2.50	0.81	11.88	3.07
9	E9	CSAG	17,040	0.39	0	13,066	77%	23%	5.0	0.78	6.48	1.99	0.79	8.64	2.68	0.80	9.84	3.08	0.81	11.88	3.78
10	D41	CGRD	14,271	0.33	4,000	6,809	76%	24%	5.0	0.78	6.48	1.65	0.79	8.64	2.23	0.79	9.84	2.56	0.81	11.88	3.14
11	D42	CGRD	17,085	0.39	6,800	5,701	73%	27%	5.0	0.76	6.48	1.93	0.77	8.64	2.61	0.78	9.84	3.00	0.79	11.88	3.69
12	D43	CGRD	16,904	0.39	0	12,836	76%	24%	5.0	0.78	6.48	1.96	0.79	8.64	2.65	0.80	9.84	3.04	0.81	11.88	3.73
13	D44	CGRD	34,013	0.78	17,600	4,560	65%	35%	6.1	0.70	6.19	3.40	0.72	8.29	4.64	0.73	9.47	5.37	0.74	11.45	6.66
14	D45	CGRD	37,753	0.87	13,200	3,420	44%	56%	5.0	0.55	6.48	3.10	0.57	8.64	4.31	0.59	9.84	5.05	0.62	11.88	6.38
15	D46	CGRD	30,742	0.71	12,000	2,280	46%	54%	8.1	0.57	5.73	2.31	0.59	7.73	3.22	0.61	8.87	3.80	0.63	10.77	4.82
16	D40	CGRD	48,660	1.12	18,800	2,490	44%	56%	7.2	0.55	5.94	3.66	0.57	7.99	5.11	0.59	9.15	6.03	0.62	11.08	7.65
17	C17	CGRD	53,461	1.23	19,600	4,031	44%	56%	5.3	0.55	6.39	4.35	0.58	8.54	6.04	0.59	9.73	7.08	0.62	11.76	8.96
18	C19	CGRD	51,090	1.17	16,000	4,379	40%	60%	9.9	0.52	5.39	3.30	0.55	7.30	4.69	0.57	8.41	5.58	0.60	10.24	7.15
19	C18	CGRD	32,610	0.75	13,200	3,023	50%	50%	6.4	0.59	6.13	2.72	0.61	8.21	3.77	0.63	9.39	4.42	0.65	11.36	5.56
20	C7	CSAG	28,452	0.65	9,600	7,661	61%	39%	5.0	0.67	6.48	2.84	0.69	8.64	3.87	0.70	9.84	4.49	0.72	11.88	5.57
21	C8	CSAG	18,942	0.43	0	14,254	75%	25%	5.0	0.77	6.48	2.18	0.78	8.64	2.95	0.79	9.84	3.39	0.80	11.88	4.15
22	D27	ASAG	88,052	2.02	20,800	0	24%	76%	5.0	0.41	6.48	5.34	0.44	8.64	7.66	0.46	9.84	9.17	0.50	11.88	11.99
52	A38	CGRD	29,873	0.69	14,000	7,217	71%	29%	5.0	0.74	6.48	3.31	0.76	8.64	4.48	0.76	9.84	5.16	0.78	11.88	6.35
53	A36	CGRD	35,451	0.81	10,800	2,850	39%	61%	5.1	0.51	6.45	2.69	0.54	8.61	3.77	0.56	9.80	4.44	0.59	11.84	5.66
54	A28	CGRD	31,642	0.73	3,600	9,887	43%	57%	6.0	0.54	6.21	2.45	0.57	8.32	3.42	0.58	9.50	4.02	0.61	11.48	5.10
55	A37	CGRD	50,424	1.16	12,400	2,052	29%	71%	11.5	0.44	5.11	2.63	0.47	6.97	3.81	0.49	8.05	4.60	0.53	9.82	6.01
56	A35	CGRD	32,944	0.76	13,200	3,419	50%	50%	6.9	0.60	6.00	2.71	0.62	8.06	3.77	0.63	9.22	4.41	0.66	11.17	5.56
57	A34	CGRD	27,124	0.62	10,800	3,137	51%	49%	5.0	0.60	6.48	2.44	0.62	8.64	3.36	0.64	9.84	3.91	0.66	11.88	4.91
58	A33	CGRD	38,696	0.89	13,200	8,000	55%	45%	5.0	0.63	6.48	3.62	0.65	8.64	4.97	0.66	9.84	5.77	0.68	11.88	7.21
59	A30	HEADWALL	252,544	5.80	23,200	0	9%	91%	11.4	0.31	5.13	9.07	0.34	6.98	13.83	0.37	8.07	17.26	0.41	9.84	23.62
60	A7	CGRD	28,593	0.66	8,800	9,874	65%	35%	5.3	0.70	6.41	2.96	0.72	8.55	4.03	0.73	9.75	4.66	0.75	11.77	5.76
61	A29	CGRD	32,684	0.75	8,800	7,888	51%	49%	5.0	0.60	6.48	2.93	0.62	8.64	4.03	0.64	9.84	4.70	0.66	11.88	5.89
62	A46	CSAG	29,196	0.67	3,600	9,553	45%	55%	5.0	0.56	6.48	2.43	0.58	8.64	3.37	0.60	9.84	3.95	0.63	11.88	4.98
63	A45	CSAG	4,131	0.09	0	2,974	72%	28%	5.0	0.75	6.48	0.46	0.76	8.64	0.62	0.77	9.84	0.72	0.78	11.88	0.88
64	A47	CSAG	9,556	0.22	0	6,947	73%	27%	5.0	0.76	6.48	1.07	0.77	8.64	1.45	0.78	9.84	1.67	0.79	11.88	2.06
65	A31	CGRD	33,283	0.76	12,000	5,020	51%	49%	5.0	0.60	6.48	2.99	0.62	8.64	4.11	0.64	9.84	4.79	0.66	11.88	6.01
66	A32	CGRD	23,859	0.55	0	7,310	31%	69%	5.0	0.46	6.48	1.62	0.49	8.64	2.30	0.51	9.84	2.73	0.54	11.88	3.52
67	A44	HEADWALL	49,294	1.13	14,400	0	29%	71%	7.8	0.45	5.81	2.94	0.48	7.82	4.21	0.50	8.97	5.04	0.53	10.88	6.55
68	A8	CGRD	13,131	0.30	0	10,027	76%	24%	5.0	0.78	6.48	1.53	0.79	8.64	2.06	0.80	9.84	2.37	0.81	11.88	2.90

CRESCENT BLUFF WEST SECTIONS 9 AND 10
TIME OF CONCENTRATION CALCULATIONS

Contributing Area	Sheet Flow				Shallow Concentrated Flow (Unpaved)				Gutter Flow		
	Length (ft)	Slope (ft/ft)	Roughness Coefficient	T_{sheet}	Length (ft)	Slope (ft/ft)	Roughness Coefficient	$T_{unpaved}$	Length (ft)	Velocity (ft/s)	Tpaved
1	0	0	0	0.00	0	0	0	0.00	512	6	1.42
2	30	0.07	0.24	0.65	336	0.05	0.24	6.01	51	6	0.14
3	30	0.07	0.24	0.65	257	0.05	0.24	4.60	0	6	0.00
4	0	0	0	0.00	0	0	0	0.00	251	6	0.70
5	30	0.077	0.24	0.62	134	0.06	0.24	2.19	216	6	0.60
6	30	0.035	0.24	0.92	226	0.064	0.24	3.57	147	6	0.41
7	30	0.07	0.24	0.65	291	0.06	0.24	4.75	62	6	0.17
8	0	0	0	0.00	0	0	0	0.00	278	6	0.77
9	0	0	0	0.00	0	0	0	0.00	421	6	1.17
10	30	0.09	0.24	0.57	36	0.09	0.24	0.48	74	6	0.21
11	30	0.02	0.24	1.21	83	0.02	0.24	2.35	233	6	0.65
12	0	0	0	0.00	0	0	0	0.00	672	6	1.87
13	30	0.04	0.24	0.86	169	0.02	0.24	4.78	175	6	0.49
14	30	0.02	0.24	1.21	0	0.02	0.24	0.00	0	6	0.00
15	30	0.01	0.24	1.71	222	0.02	0.24	6.28	55	6	0.15
16	30	0.028	0.24	1.02	300	0.04	0.24	6.00	55	6	0.15
17	30	0.03	0.24	0.99	248	0.055	0.24	4.23	36	6	0.10
18	30	0.038	0.24	0.88	429	0.038	0.24	8.80	89	6	0.25
19	30	0.075	0.24	0.63	192	0.02	0.24	5.43	118	6	0.33
20	43	0.09	0.24	0.82	156	0.1	0.24	1.97	24	6	0.07
21	0	0	0	0.00	0	0	0	0.00	561	6	1.56
22	30	0.045	0.24	0.81	136	0.065	0.24	2.13	369	6	1.03
52	30	0.016	0.24	1.36	82	0.016	0.24	2.59	269	6	0.75
53	30	0.03	0.24	0.99	162	0.03	0.24	3.74	137	6	0.38
54	30	0.045	0.24	0.81	273	0.045	0.24	5.15	29	6	0.08
55	30	0.03	0.24	0.99	451	0.03	0.24	10.42	32	6	0.09
56	30	0.04	0.24	0.86	176	0.015	0.24	5.75	114	6	0.32
57	30	0.02	0.24	1.21	85	0.02	0.24	2.40	111	6	0.31
58	30	0.055	0.24	0.73	105	0.055	0.24	1.79	115	6	0.32
59	30	0.02	0.24	1.21	378	0.03	0.24	8.73	529	6	1.47
60	30	0.03	0.24	0.99	146	0.02	0.24	4.13	54	6	0.15
61	100	0.12	0.24	1.65	140	0.05	0.24	2.50	115	6	0.32
62	30	0.02	0.24	1.21	64	0.02	0.24	1.81	54	6	0.15
63	30	0.02	0.24	1.21	0	0.02	0.24	0.00	155	6	0.43
64	30	0.02	0.24	1.21	0	0.02	0.24	0.00	352	6	0.98
65	30	0.05	0.24	0.77	119	0.044	0.24	2.27	175	6	0.49
66	30	0.02	0.24	1.21	127	0.02	0.24	3.59	71	6	0.20
67	100	0.04	0.24	2.86	390	0.1	0.24	4.93	0	6	0.00
68	0	0	0.24	0.00	0	0	0.24	0.00	504	6	1.40

Curb Inlets in Sump Calculation Summary: 25 year

Drainage Area No.	Inlet No.	Q_{25} (cfs)	Qpass (cfs)	Qtotal (cfs)	W (ft)	Inlet Depression, a (ft)	Curb opening height, h (ft)	Street Width (ft)	Crown Height (%)	Clogging Factor (%)	Inlet Length (ft)	d_{weir} Above S_x (ft)	$d_{orifice}$ above S_x (ft)	a	b	Depth of Ponding over S_x, y0 (ft)	Ponded Width (ft)
8	E10	2.50	0.00	2.50	1.50	0.42	0.52	27.00	0.50	100%	10.00	0.19	0.00	0.07	0.00	0.19	2.95
9	E9	3.08	0.00	3.08	1.50	0.42	0.52	27.00	0.50	100%	10.00	0.22	0.00	0.07	0.00	0.22	3.46
20	C7	4.49	0.00	4.49	1.50	0.42	0.52	27.00	0.50	100%	10.00	0.29	0.00	0.07	0.00	0.29	4.69
21	C8	3.39	0.00	3.39	1.50	0.42	0.52	27.00	0.50	100%	10.00	0.24	0.00	0.07	0.00	0.24	3.72
62	A46	3.95	0.00	3.95	1.50	0.42	0.52	27.00	0.50	100%	10.00	0.26	0.00	0.07	0.00	0.26	4.21
63	A45	0.72	0.00	0.72	1.50	0.42	0.52	27.00	0.50	100%	10.00	0.08	0.00	0.07	0.00	0.08	1.20
64	A47	1.67	0.00	1.67	1.50	0.42	0.52	27.00	0.50	100%	10.00	0.15	0.00	0.07	0.00	0.15	2.18

Curb Inlets in Sump Calculation Summary: 100 year

Drainage Area No.	Inlet No.	Q_{100} (cfs)	Qpass (cfs)	Qtotal (cfs)	W (ft)	Inlet Depression, a (ft)	Curb opening height, h (ft)	Street Width (ft)	Crown Height (%)	Clogging Factor (%)	Inlet Length (ft)	d_{weir} Above S_x (ft)	$d_{orifice}$ above S_x (ft)	a	b	Depth of Ponding over S_x, y0 (ft)	Ponded Width (ft)
8	E10	3.07	0.00	3.07	1.50	0.42	0.52	27.00	0.50	100%	10.00	0.22	0.00	0.07	0.00	0.22	3.44
9	E9	3.78	0.00	3.78	1.50	0.42	0.52	27.00	0.50	100%	10.00	0.26	0.00	0.07	0.00	0.26	4.06
20	C7	5.57	0.00	5.57	1.50	0.42	0.52	27.00	0.50	100%	10.00	0.33	0.00	0.07	0.00	0.31	5.16
21	C8	4.15	0.00	4.15	1.50	0.42	0.52	27.00	0.50	100%	10.00	0.27	0.00	0.07	0.00	0.27	4.39
62	A46	4.98	0.00	4.98	1.50	0.42	0.52	27.00	0.50	100%	10.00	0.31	0.00	0.07	0.00	0.31	5.13
63	A45	0.88	0.00	0.88	1.50	0.42	0.52	27.00	0.50	100%	10.00	0.10	0.00	0.07	0.00	0.10	1.38
64	A47	2.06	0.00	2.06	1.50	0.42	0.52	27.00	0.50	100%	10.00	0.17	0.00	0.07	0.00	0.17	2.54

Area Inlet in Sag Calculation Summary: 25 year

Drainage Area No.	Inlet No.	Q_{25} (cfs)	Qpass (cfs)	Qtotal (cfs)	Throat Height, h (in)	Inlet Length, L (ft)	Yard Cross Slope, Sx (%)	Weir Depth above FL (ft)	Orifice Depth above FL (ft)	Ponded Depth, d (ft)	Ponding Spread, T (ft)
22	D27	9.17	0.00	9.17	5.00	20.00	1.67%	0.28	0.25	0.28	17.01

Area Inlet in Sag Calculation Summary: 100 year

Drainage Area No.	Inlet No.	Q_{100} (cfs)	Qpass (cfs)	Qtotal (cfs)	Throat Height, h (in)	Inlet Length, L (ft)	Yard Cross Slope, Sx (%)	Weir Depth above FL (ft)	Orifice Depth above FL (ft)	Ponded Depth, d (ft)	Ponding Spread, T (ft)
22	D27	11.99	0.00	11.99	5.00	20.00	1.67%	0.34	0.28	0.34	20.36

Curb Inlets On Grade Calculation Summary: 25 year

Drainage Area No.	Inlet No.	Q_{25} (cfs)	Q_{pass} (cfs)	Q_{total} (cfs)	Slope (%)	n	Ku	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
1	D20	3.28	0.00	3.28	3.50%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.30	0.0741	0.0027	4.86	0.71	0.42	0.75	10.00	7.48		100%	I28
2	D21	5.15	0.00	5.15	3.50%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.34	0.0741	0.0027	5.92	0.76	0.42	0.80	10.00	7.97		100%	I28
3	D22	5.98	0.00	5.98	2.60%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.38	0.0741	0.0027	6.83	0.79	0.42	0.83	10.00	8.35		100%	D21
4	D25	1.31	0.00	1.31	6.20%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.20	0.0741	0.0027	3.01	0.61	0.42	0.65	10.00	6.51		100%	I28
5	D19	4.41	0.00	4.41	5.40%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.30	0.0741	0.0027	5.03	0.72	0.42	0.76	10.00	7.56		100%	I28
6	D24	5.03	0.00	5.03	5.00%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.32	0.0741	0.0027	5.41	0.74	0.42	0.77	10.00	7.74		100%	E14
7	E14	5.78	0.00	5.78	6.70%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.32	0.0741	0.0027	5.39	0.74	0.42	0.77	10.00	7.73		100%	E10
10	D41	2.56	0.00	2.56	7.40%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.24	0.0741	0.0027	3.77	0.66	0.42	0.69	10.00	6.93		100%	D19
11	D42	3.00	0.00	3.00	3.70%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.28	0.0741	0.0027	4.63	0.70	0.42	0.74	10.00	7.37		100%	D19
12	D43	3.04	0.00	3.04	3.70%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.29	0.0741	0.0027	4.65	0.70	0.42	0.74	10.00	7.38		100%	D41
13	D44	5.37	0.00	5.37	3.70%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.34	0.0741	0.0027	5.96	0.76	0.42	0.80	10.00	7.99		100%	D42
14	D45	5.05	0.00	5.05	0.90%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.43	0.0741	0.0027	8.29	0.84	0.42	0.89	10.00	8.86		100%	D44
15	D46	3.80	0.00	3.80	0.50%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.43	0.0741	0.0027	8.35	0.84	0.42	0.89	10.00	8.88		100%	D45
16	D40	6.03	0.00	6.03	0.90%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.45	0.0741	0.0027	9.29	0.87	0.42	0.91	10.00	9.15		100%	D46
17	C17	7.08	0.00	7.08	1.30%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.45	0.0741	0.0027	9.14	0.86	0.42	0.91	10.00	9.11		100%	C19
18	C19	5.58	0.00	5.58	3.50%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.35	0.0741	0.0027	6.14	0.77	0.42	0.81	10.00	8.07		100%	C18
19	C18	4.42	0.00	4.42	9.40%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.28	0.0741	0.0027	4.47	0.69	0.42	0.73	10.00	7.29		100%	C7
52	A38	5.16	0.00	5.16	3.60%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.34	0.0741	0.0027	5.89	0.76	0.42	0.80	10.00	7.96		100%	A36
53	A36	4.44	0.00	4.44	3.60%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.32	0.0741	0.0027	5.50	0.74	0.42	0.78	10.00	7.78		100%	A34
54	A28	4.02	0.00	4.02	3.20%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.32	0.0741	0.0027	5.41	0.74	0.42	0.77	10.00	7.74		100%	A37
55	A37	4.60	0.00	4.60	3.60%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.33	0.0741	0.0027	5.59	0.75	0.42	0.78	10.00	7.82		100%	A35
56	A35	4.41	0.00	4.41	2.90%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.34	0.0741	0.0027	5.76	0.75	0.42	0.79	10.00	7.90		100%	A33
57	A34	3.91	0.00	3.91	0.50%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.43	0.0741	0.0027	8.49	0.85	0.42	0.89	10.00	8.93		100%	I28
58	A33	5.77	0.00	5.77	0.70%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.46	0.0741	0.0027	9.87	0.88	0.42	0.93	10.00	9.29		100%	A31
60	A7	4.66	0.00	4.66	7.60%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.29	0.0741	0.0027	4.78	0.71	0.42	0.74	10.00	7.44		100%	A46
61	A29	4.70	0.00	4.70	0.70%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.43	0.0741	0.0027	8.57	0.85	0.42	0.90	10.00	8.95		100%	A46
65	A31	4.79	0.00	4.79	1.20%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.40	0.0741	0.0027	7.43	0.82	0.42	0.86	10.00	8.58		100%	A29
66	A32	2.73	0.00	2.73	5.60%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.26	0.0741	0.0027	4.09	0.67	0.42	0.71	10.00	7.09		100%	I28
68	A8	2.37	0.00	2.37	4.60%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.25	0.0741	0.0027	4.02	0.67	0.42	0.71	10.00	7.06		100%	A46

Curb Inlets On Grade Calculation Summary: 100 year

Drainage Area No.	Inlet No.	Q_{100} (cfs)	Q_{pass} (cfs)	Q_{total} (cfs)	Slope (%)	n	Ku	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
1	D20	4.02	0.00	4.02	3.50%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.32	0.0741	0.0027	5.30	0.73	0.42	0.77	10.00	7.69		100%	I28
2	D21	6.54	0.00	6.54	3.50%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.37	0.0741	0.0027	6.63	0.79	0.42	0.83	10.00	8.27		100%	I28
3	D22	7.51	0.00	7.51	2.60%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.41	0.0741	0.0027	7.69	0.82	0.42	0.87	10.00	8.67		100%	D21
4	D25	1.61	0.00	1.61	6.20%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.21	0.0741	0.0027	3.26	0.63	0.42	0.66	10.00	6.65		100%	I28
5	D19	5.63	0.00	5.63	5.40%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.33	0.0741	0.0027	5.59	0.74	0.42	0.78	10.00	7.82		100%	I28
6	D24	6.38	0.00	6.38	5.00%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.35	0.0741	0.0027	6.02	0.76	0.42	0.80	10.00	8.01		100%	E14
7	E14	7.36	0.00	7.36	6.70%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.35	0.0741	0.0027	6.01	0.76	0.42	0.80	10.00	8.01		100%	E10
10	D41	3.14	0.00	3.14	7.40%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.26	0.0741	0.0027	4.09	0.67	0.42	0.71	10.00	7.09		100%	D19
11	D42	3.69	0.00	3.69	3.70%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.30	0.0741	0.0027	5.05	0.72	0.42	0.76	10.00	7.57		100%	D19
12	D43	3.73	0.00	3.73	3.70%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.30	0.0741	0.0027	5.07	0.72	0.42	0.76	10.00	7.58		100%	D41
13	D44	6.66	0.00	6.66	3.70%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.37	0.0741	0.0027	6.60	0.79	0.42	0.83	10.00	8.26		100%	D42
14	D45	6.38	0.00	6.38	0.90%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.46	0.0741	0.0027	9.68	0.88	0.42	0.92	10.00	9.24		100%	D44
15	D46	4.82	0.00	4.82	0.50%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.46	0.0741	0.0027	9.77	0.88	0.42	0.93	10.00	9.27		100%	D45
16	D40	7.65	0.00	7.65	0.90%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.49	0.0741	0.0027	11.43	0.90	0.42	0.96	10.00	9.56		100%	D46
17	C17	8.96	0.00	8.96	1.30%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.48	0.0741	0.0027	11.09	0.90	0.42	0.95	10.00	9.51		100%	C19
18	C19	7.15	0.00	7.15	3.50%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.38	0.0741	0.0027	6.93	0.80	0.42	0.84	10.00	8.39		100%	C18
19	C18	5.56	0.00	5.56	9.40%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.30	0.0741	0.0027	4.93	0.71	0.42	0.75	10.00	7.51		100%	C7
52	A38	6.35	0.00	6.35	3.60%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.37	0.0741	0.0027	6.49	0.78	0.42	0.82	10.00	8.21		100%	A36
53	A36	5.66	0.00	5.66	3.60%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.35	0.0741	0.0027	6.14	0.77	0.42	0.81	10.00	8.07		100%	A34
54	A28	5.10	0.00	5.10	3.20%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.35	0.0741	0.0027	6.02	0.76	0.42	0.80	10.00	8.01		100%	A37
55	A37	6.01	0.00	6.01	3.60%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.36	0.0741	0.0027	6.32	0.78	0.42	0.81	10.00	8.14		100%	A35
56	A35	5.56	0.00	5.56	2.90%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.36	0.0741	0.0027	6.41	0.78	0.42	0.82	10.00	8.18		100%	A33
57	A34	4.91	0.00	4.91	0.50%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.46	0.0741	0.0027	9.91	0.88	0.42	0.93	10.00	9.30		100%	I28
58	A33	7.21	0.00	7.21	0.70%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.50	0.0741	0.0027	12.92	0.92	0.42	0.97	10.00	9.68		100%	A31
60	A7	5.76	0.00	5.76	7.60%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.31	0.0741	0.0027	5.24	0.73	0.42	0.77	10.00	7.66		100%	A46
61	A29	5.89	0.00	5.89	0.70%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.47	0.0741	0.0027	10.03	0.88	0.42	0.93	10.00	9.32		100%	A46
65	A31	6.01	0.00	6.01	1.20%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.43	0.0741	0.0027	8.44	0.85	0.42	0.89	10.00	8.91		100%	A29
66	A32	3.52	0.00	3.52	5.60%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.28	0.0741	0.0027	4.53	0.70	0.42	0.73	10.00	7.32		100%	I28
68	A8	2.90	0.00	2.90	4.60%	0.015	0.560	27.00	0.500	0.42	2.85	0.50	3.03	0.27	0.0741	0.0027	4.36	0.69	0.42	0.72	10.00	7.23		100%	A46

NO.	REVISION	BY	DATE

811
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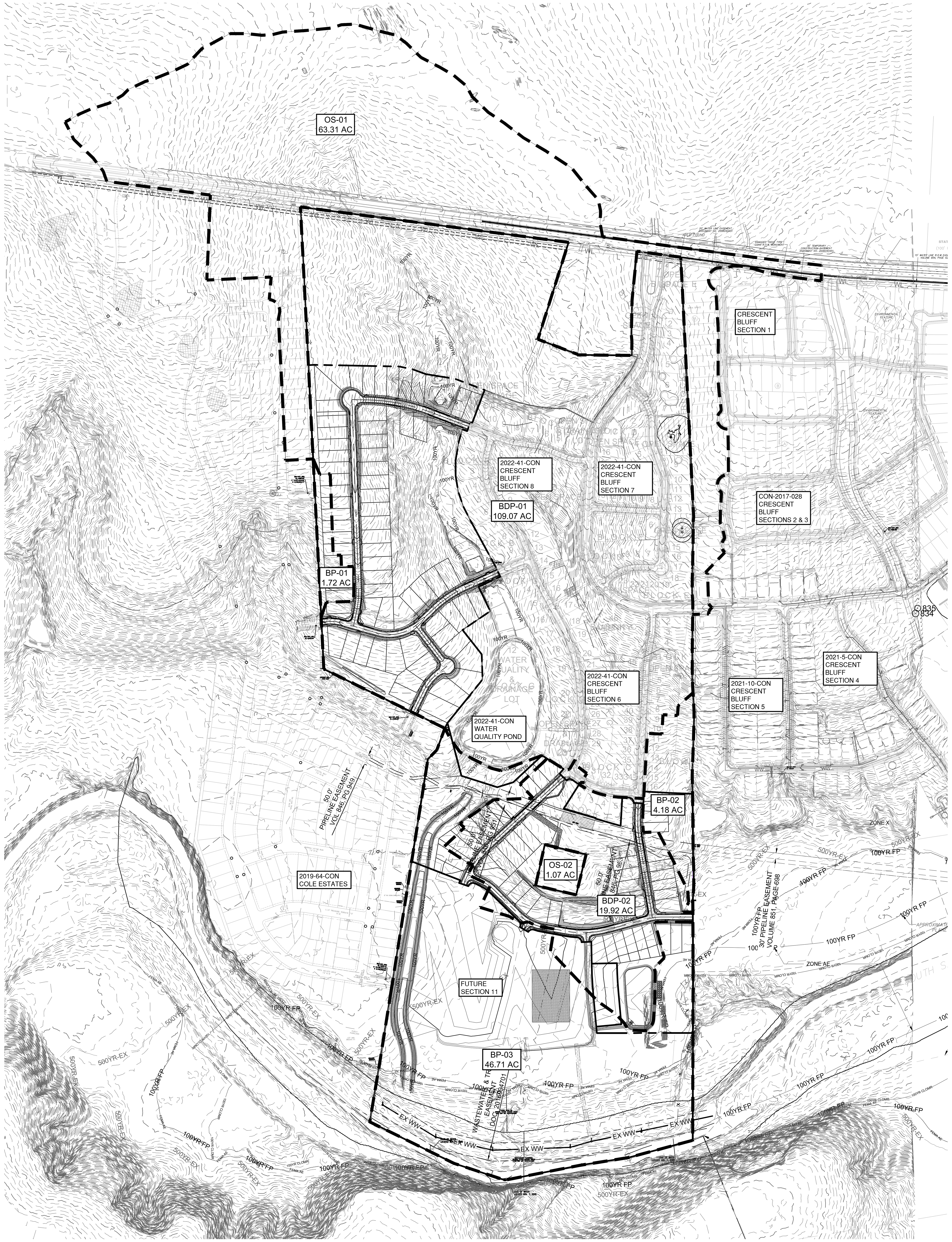
CHRISTINE N. CAMPBELL
142536
Christine Campbell
12/05/2025

INLET DRAINAGE CALCULATIONS

CRESCENT BLUFF WEST
SECTIONS 9 & 10
GEORGETOWN, WILLIAMSON COUNTY TEXAS

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



N

0 300' 600'
SCALE: 1" = 300'

LEGEND

- P-1 — DRAINAGE AREA NAME
- 5.00 Ac — DRAINAGE AREA (IN ACRES)
- TIME OF CONCENTRATION
- POI-15 — DRAINAGE DESIGN POINT
- DIRECTION OF FLOW
- DRAINAGE AREA
- 835 — EXISTING MAJOR CONTOUR
- 834 — EXISTING MINOR CONTOUR
- 835 — PROPOSED MAJOR CONTOUR
- 834 — PROPOSED MINOR CONTOUR
- 100YR — 100 YR FEMA FLOODPLAIN
- OVERALL BOUNDARY LINE
- LOT LINE

CRESCENT BLUFF WEST SECTIONS 9 AND 10 - TSS REMOVAL SUMMARY - INTERIM

DRAINAGE AREA	BMP TYPE	MAX TSS REMOVAL EFFICIENCY	BASIN AREA	PRE-DEVELOPMENT I.C.	PROPOSED I.C. SECTIONS 6-8	PROPOSED I.C. SECTIONS 9 & 10	POST-DEVELOPMENT 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
			AC	AC	AC	AC	AC	%	LB	LB	LB	CF	CF
BDP-01 (EX)	BATCH DETENTION POND	91%	109.07	0.21	13.49	10.99	24.69	23%	21,307	22,639	24,237	327,110	415,033
BDP-02	BATCH DETENTION POND	91%	19.96	0.00	0.00	6.50	6.50	33%	5,658	6,011	6,082	40,220	99,281
BP-01	BY-PASS	0%	1.72	0.00	0.00	0.36	0.36	21%	313				
BP-02	BY-PASS	0%	4.18	0.00	0.59	0.34	0.93	22%	809				
BP-03	BY-PASS	0%	46.71	0.00	0.00	0.37	0.37	1%	322				
TOTAL:			**181.64**	**0.21**	**14.08**	**18.56**	**32.85**	**18%**	**28,410**		**30,319**		

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

2- THE IMPERVIOUS COVER OF THE PROPOSED TURN LANE AND THE SH 29 WIDENING HAVE BEEN ADDED IN THE POST DEVELOPMENT ONSITE IMPERVIOUS COVER CALCULATIONS OF THE BDP-01 AREA.

OFFSITE AREAS

DRAINAGE AREA	BMP TYPE	MAX TSS REMOVAL EFFICIENCY	AREA	PRE-DEVELOPMENT	PRE-DEVELOPMENT	POST-DEVELOPMENT	POST-DEVELOPMENT
			AC	AC	%	AC	%
OS-01	OFFSITE AREA TO BE INCLUDED IN BDP-01		63.31	14.44	22.81%	14.44	22.81%
OS-O2	OFFSITE AREA TO BE INCLUDED IN BDP-02		1.07	0	0.00%	0	0.00%
TOTAL:			64.38	14.44		14.44	

NO.	REVISION	BY	DATE

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DEVELOPMENT TX

STATE OF TEXAS
CHRISTINE N. CAMPBELL
142536
LICENSED PROFESSIONAL ENGINEER
12/05/2025

WATER QUALITY DRAINAGE AREA MAP (INTERIM)

CRESCENT BLUFF WEST
SECTIONS 9 & 10
GEORGETOWN, WILLIAMSON COUNTY TEXAS

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

2025-XX-CON

BDP-01 (EX) (INTERIM)

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

		Crescent Bluff West
Project Name:	**Sections 9 and 10**	
Date Prepared:	**10/28/2025**	

Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell.
Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348.
Characters shown in red are data entry fields.
Characters shown in black (Bold) are calculated fields. Changes to these fields will remove the equations used in the spreadsheet.

1. The Required Load Reduction for the total project: Calculations from RG-348 Pages 3-27 to 3-30

Page 3-29 Equation 3.3: $L_M = 27.2(A_N \times P)$

where:
$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	Williamson	
Total project area included in plan * =	58.84	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan * =	18.56	acres
Total post-development impervious cover fraction * =	0.32	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	16155	lbs.

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

Number of drainage basins / outfalls areas leaving the plan area =	5	

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

Drainage Basin/Outfall Area No. =	BDP-01 (EX)	
Total drainage basin/outfall area =	109.07	acres
Predevelopment impervious area within drainage basin/outfall area =	0.21	acres
Post-development impervious area within drainage basin/outfall area =	24.69	acres
Post-development impervious fraction within drainage basin/outfall area =	0.23	
$L_{M\ THIS\ BASIN}$ =	21307	lbs.
$L_{M\ THIS\ BASIN\ (GEORGETOWN\ 85\%\ REQUIREMENT)}$ =	22639	

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	Batch Detention	
Removal efficiency =	91	percent

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

RG-348 Page 3-33 Equation 3.7: $L_R = (\text{BMP efficiency}) \times P \times (A_I \times 34.6 + A_P \times 0.54)$

where:
A_C = Total On-Site drainage area in the BMP catchment area
A_I = Impervious area proposed in the BMP catchment area
A_P = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	109.07	acres
A_I =	24.69	acres
A_P =	84.38	acres
L_R =	26203	lbs

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

Desired $L_{M\ THIS\ BASIN}$ =	24237	lbs.
F =	0.92	

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 =	2.00	inches
Post Development Runoff Coefficient =	0.22	
On-site Water Quality Volume =	172177	cubic feet

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

Off-site area draining to BMP =	63.31	acres
Off-site Impervious cover draining to BMP =	14.44	acres
Impervious fraction of off-site area =	0.23	
Off-site Runoff Coefficient =	0.22	
Off-site Water Quality Volume =	100415	cubic feet
Storage for Sediment =	54518	
Total Capture Volume (required water quality volume(s) x 1.20) =	327110	cubic feet
1/2 WQV =	163555	

BDP-02 (INTERIM)

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

		Crescent Bluff West
Project Name:	**Sections 9 and 10**	
Date Prepared:	**10/28/2025**	

Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell.
Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348.
Characters shown in red are data entry fields.
Characters shown in black (Bold) are calculated fields. Changes to these fields will remove the equations used in the spreadsheet.

1. The Required Load Reduction for the total project: Calculations from RG-348 Pages 3-27 to 3-30

Page 3-29 Equation 3.3: $L_M = 27.2(A_N \times P)$

where:
$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	Williamson	
Total project area included in plan * =	58.84	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan * =	18.56	acres
Total post-development impervious cover fraction * =	0.32	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	16155	lbs.

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

Number of drainage basins / outfalls areas leaving the plan area =	5	

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

Drainage Basin/Outfall Area No. =	BDP-04 (EX)	
Total drainage basin/outfall area =	19.96	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	6.50	acres
Post-development impervious fraction within drainage basin/outfall area =	0.33	
$L_{M\ THIS\ BASIN}$ =	5658	lbs.
$L_{M\ THIS\ BASIN\ (GEORGETOWN\ 85\%\ REQUIREMENT)}$ =	6011	

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	Batch Detention	
Removal efficiency =	91	percent

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

RG-348 Page 3-33 Equation 3.7: $L_R = (\text{BMP efficiency}) \times P \times (A_I \times 34.6 + A_P \times 0.54)$

where:
A_C = Total On-Site drainage area in the BMP catchment area
A_I = Impervious area proposed in the BMP catchment area
A_P = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	19.96	acres
A_I =	6.50	acres
A_P =	13.46	acres
L_R =	6761	lbs

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

Desired $L_{M\ THIS\ BASIN}$ =	6082	lbs.
F =	0.90	

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

Rainfall Depth =	1.70	inches
Post Development Runoff Coefficient =	0.27	
On-site Water Quality Volume =	33384	cubic feet

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

Off-site area draining to BMP =	1.07	acres
Off-site Impervious cover draining to BMP =	0.00	acres
Impervious fraction of off-site area =	0.00	
Off-site Runoff Coefficient =	0.02	
Off-site Water Quality Volume =	132	cubic feet
Storage for Sediment =	6703	
Total Capture Volume (required water quality volume(s) x 1.20) =	40220	cubic feet
1/2 WQV =	20110	

BP-01 (INTERIM)

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

		Crescent Bluff West
Project Name:	**Sections 9 and 10**	
Date Prepared:	**10/28/2025**	

Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell.
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1. The Required Load Reduction for the total project: Calculations from RG-348 Pages 3-27 to 3-30

Page 3-29 Equation 3.3: $L_M = 27.2(A_N \times P)$

where:
$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	Williamson	
Total project area included in plan * =	58.84	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan * =	18.56	acres
Total post-development impervious cover fraction * =	0.32	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	16155	lbs.

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

Number of drainage basins / outfalls areas leaving the plan area =	5	

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

Drainage Basin/Outfall Area No. =	BP-01	
Total drainage basin/outfall area =	1.72	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.36	acres
Post-development impervious fraction within drainage basin/outfall area =	0.21	
$L_{M\ THIS\ BASIN}$ =	313	lbs.

BP-02 (INTERIM)

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

		Crescent Bluff West
Project Name:	**Sections 9 and 10**	
Date Prepared:	**10/28/2025**	

Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell.
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1. The Required Load Reduction for the total project: Calculations from RG-348 Pages 3-27 to 3-30

Page 3-29 Equation 3.3: $L_M = 27.2(A_N \times P)$

where:
$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	Williamson	
Total project area included in plan * =	58.84	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan * =	18.56	acres
Total post-development impervious cover fraction * =	0.32	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	16155	lbs.

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

Number of drainage basins / outfalls areas leaving the plan area =	5	

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

Drainage Basin/Outfall Area No. =	BP-02	
Total drainage basin/outfall area =	4.18	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 =	0.22	
$L_{M\ THIS\ BASIN}$ =	809	lbs.

BP-03 (INTERIM)

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

		Crescent Bluff West
Project Name:	**Sections 9 and 10**	
Date Prepared:	**10/28/2025**	

Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell.
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1. The Required Load Reduction for the total project: Calculations from RG-348 Pages 3-27 to 3-30

Page 3-29 Equation 3.3: $L_M = 27.2(A_N \times P)$

where:
$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	Williamson	
Total project area included in plan * =	58.84	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan * =	18.56	acres
Total post-development impervious cover fraction * =	0.32	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	16155	lbs.

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

Number of drainage basins / outfalls areas leaving the plan area =	5	

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

Drainage Basin/Outfall Area No. =	BP-03	
Total drainage basin/outfall area =	46.71	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.37	acres
Post-development impervious fraction within drainage basin/outfall area =	0.01	
$L_{M\ THIS\ BASIN}$ =	322	lbs.

NO.	REVISION	BY	DATE

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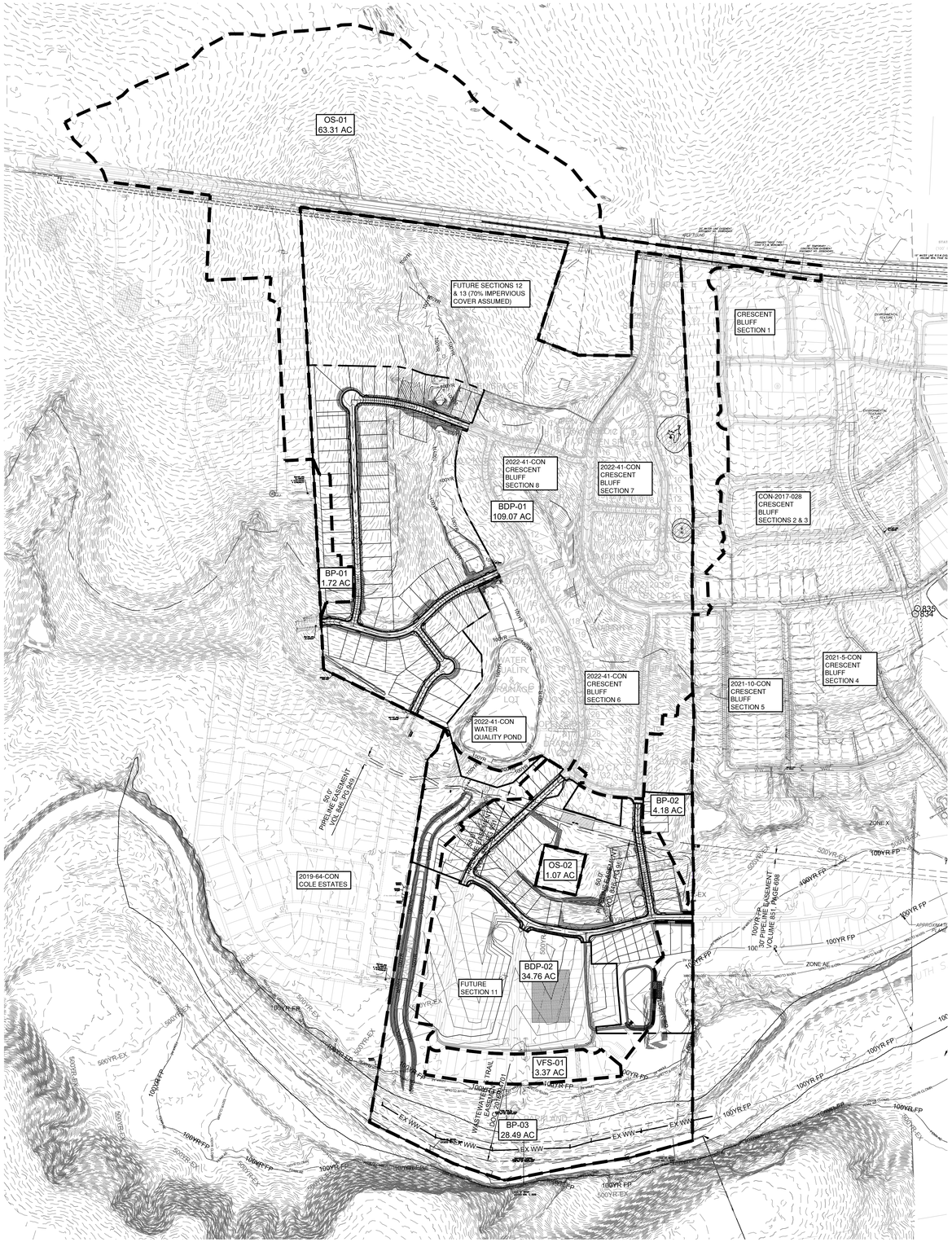
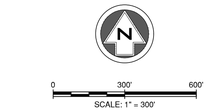
STATE OF TEXAS
CHRISTINE N. CAMPBELL
142536
LICENSED PROFESSIONAL ENGINEER
12/05/2025

WATER QUALITY CALCULATIONS

CRESCENT BLUFF WEST
SECTIONS 9 & 10
GEORGETOWN, WILLIAMSON COUNTY TEXAS

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





LEGEND

- P-1 / 5.00 Ac — DRAINAGE AREA NAME / DRAINAGE AREA (IN ACRES)
- TIME OF CONCENTRATION
- POI-15 — DRAINAGE DESIGN POINT
- DIRECTION OF FLOW
- DRAINAGE AREA
- 835 — EXISTING MAJOR CONTOUR
- 834 — EXISTING MINOR CONTOUR
- 835 — PROPOSED MAJOR CONTOUR
- 834 — PROPOSED MINOR CONTOUR
- 100YR — 100 YR FEMA FLOODPLAIN
- OVERALL BOUNDARY LINE
- LOT LINE

CRESCENT BLUFF WEST SECTIONS 9 AND 10 - 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	GITY OF GEORGETOWN REQUIRED 85% POND TSS LOAD REMOVAL	PROVIDED TSS LOAD REMOVAL	VOLUME REQUIRED	VOLUME PROVIDED
					SECTIONS 6-8	SECTIONS 9 AND 10	FUTURE DEVELOPMENT							
			AC	AC	AC	AC	AC	AC	%	LB	LB	LB	CF	CF
BDP-01 (EX)	BATCH DETENTION POND	91%	109.07	0.21	13.49	10.99	10.59	49.71	46%	43,085	45,778	46,174	394,266	415,033
BDP-02	BATCH DETENTION POND	91%	34.76	0.00	0.00	6.62	9.44	16.06	46%	13,979	14,852	15,298	92,125	99,281
VFS-01	VEGETATIVE FILTER STRIP	85%	3.37	0.00			1.61	1.61	48%	1,401		1,541		
BP-01	BY-PASS	0%	1.72	0.00		0.36		0.36	21%	313				
BP-02	BY-PASS	0%	4.18	0.00	0.59	0.34		0.93	22%	809				
BP-03	BY-PASS	0%	28.49	0.00		0.25		0.25	1%	218				
TOTAL:			**181.60**	**0.21**	**14.08**	**18.56**	**21.64**	**68.92**	**38%**	**59,805**		**63,013**		

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

2- THE IMPERVIOUS COVER OF THE TWO PROPOSED TURN LANES AND THE SH 29 WIDENING HAVE BEEN ADDED IN THE POST-DEVELOPMENT ONSITE CALCULATIONS OF THE BDP-01 AREA.

3- THE BMPs HAVE BEEN DESIGNED FOR 38% IMPERVIOUS COVER FOR THE WHOLE SITE WHICH IS THE MAXIMUM ALLOWED IMPERVIOUS COVER BASED ON THE DEVELOPMENT AGREEMENT #2018070636

OFFSITE AREAS

DRAINAGE AREA	BMP TYPE	MAX TSS REMOVAL EFFICIENCY	AREA	PRE-DEVELOPMENT		POST-DEVELOPMENT	
			AC	AC	%	AC	%
OS-01	OFFSITE AREA TO BE INCLUDED IN BDP-01		63.31	14.44	22.81%	14.44	22.81%
OS-02	OFFSITE AREA TO BE INCLUDED IN BDP-02		1.07	0	0.00%	0	0.00%
TOTAL:			64.38	14.44		14.44	

NO.	REVISION	BY	DATE

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DEVELOPMENT TX

STATE OF TEXAS
CHRISTINE N. CAMPBELL
142536
LICENSED PROFESSIONAL ENGINEER

12/05/2025

WATER QUALITY DRAINAGE AREA MAP (FULLY-DEVELOPED)

CRESCENT BLUFF WEST
SECTIONS 9 & 10

GEORGETOWN, WILLIAMSON COUNTY TEXAS

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

SHEET 43 of 105

2025-XX-CON

BDP-01 (EX) (FULLY-DEVELOPED)

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Crescent Bluff West Sections 9 and 10
Date Prepared: 10/28/2025

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1. The Required Load Reduction for the total project: Calculations from RG-348 Pages 3-27 to 3-30

Page 3-29 Equation 3.3: $L_M = 27.2(A_N \times P)$

where:
$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	Williamson	
Total project area included in plan * =	181.60	acres
Predevelopment impervious area within the limits of the plan * =	0.21	acres
Total post-development impervious area within the limits of the plan * =	68.93	acres
Total post-development impervious cover fraction * =	0.38	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	59814	lbs.

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

Number of drainage basins / outfalls areas leaving the plan area = 6

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

Drainage Basin/Outfall Area No. =	BDP-01 (EX)	
Total drainage basin/outfall area =	109.07	acres
Predevelopment impervious area within drainage basin/outfall area =	0.21	acres
Post-development impervious area within drainage basin/outfall area =	49.71	acres
Post-development impervious fraction within drainage basin/outfall area =	0.46	
$L_{M\ THIS\ BASIN}$ =	43085	lbs.
$L_{M\ THIS\ BASIN\ (GEORGETOWN\ 85\%\ REQUIREMENT)}$ =	45778	

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	Batch Detention	
Removal efficiency =	91	percent

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

RG-348 Page 3-33 Equation 3.7: L_R = (BMP efficiency) x P x (A_I x 34.6 + A_P x 0.54)

where:
A_C = Total On-Site drainage area in the BMP catchment area
A_I = Impervious area proposed in the BMP catchment area
A_P = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	109.07	acres
A_I =	49.71	acres
A_P =	59.36	acres
L_R =	51019	lbs

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

Desired $L_{M\ THIS\ BASIN}$ =	46427	lbs.
F =	0.91	

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 =	1.80	inches
Post Development Runoff Coefficient =	0.33	
On-site Water Quality Volume =	238182	cubic feet

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

Off-site area draining to BMP =	63.31	acres
Off-site Impervious cover draining to BMP =	14.44	acres
Impervious fraction of off-site area =	0.23	
Off-site Runoff Coefficient =	0.22	
Off-site Water Quality Volume =	90373	cubic feet
Storage for Sediment =	65711	
Total Capture Volume (required water quality volume(s) x 1.20) =	394266	cubic feet
1/2 WQV =	197133	

BDP-02 (FULLY-DEVELOPED)

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Crescent Bluff West Sections 9 and 10
Date Prepared: 10/28/2025

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where:
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A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	Williamson	
Total project area included in plan * =	181.60	acres
Predevelopment impervious area within the limits of the plan * =	0.21	acres
Total post-development impervious area within the limits of the plan * =	68.93	acres
Total post-development impervious cover fraction * =	0.38	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	59814	lbs.

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

Number of drainage basins / outfalls areas leaving the plan area = 6

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

Drainage Basin/Outfall Area No. =	BDP-02	
Total drainage basin/outfall area =	34.76	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	16.06	acres
Post-development impervious fraction within drainage basin/outfall area =	0.46	
$L_{M\ THIS\ BASIN}$ =	13979	lbs.
$L_{M\ THIS\ BASIN\ (GEORGETOWN\ 85\%\ REQUIREMENT)}$ =	14852	

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	Batch Detention	
Removal efficiency =	91	percent

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

RG-348 Page 3-33 Equation 3.7: L_R = (BMP efficiency) x P x (A_I x 34.6 + A_P x 0.54)

where:
A_C = Total On-Site drainage area in the BMP catchment area
A_I = Impervious area proposed in the BMP catchment area
A_P = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	34.76	acres
A_I =	16.06	acres
A_P =	18.70	acres
L_R =	16475	lbs

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

Desired $L_{M\ THIS\ BASIN}$ =	15027	lbs.
F =	0.91	

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 =	1.80	inches
Post Development Runoff Coefficient =	0.34	
On-site Water Quality Volume =	76631	cubic feet

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

Off-site area draining to BMP =	1.07	acres
Off-site Impervious cover draining to BMP =	0.00	acres
Impervious fraction of off-site area =	0.00	
Off-site Runoff Coefficient =	0.02	
Off-site Water Quality Volume =	140	cubic feet
Storage for Sediment =	15354	
Total Capture Volume (required water quality volume(s) x 1.20) =	92125	cubic feet
1/2 WQV =	46062	

VFS-01

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Crescent Bluff West Sections 9 and 10
Date Prepared: 10/28/2025

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where:
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P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	Williamson	
Total project area included in plan * =	181.60	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan * =	68.93	acres
Total post-development impervious cover fraction * =	0.38	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	59997	lbs.

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

Number of drainage basins / outfalls areas leaving the plan area = 6

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

Drainage Basin/Outfall Area No. =	VFS-01	
Total drainage basin/outfall area =	3.37	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	1.61	acres
Post-development impervious fraction within drainage basin/outfall area =	0.48	
$L_{M\ THIS\ BASIN}$ =	1401	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_R) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7: L_R = (BMP efficiency) x P x (A_I x 34.6 + A_P x 0.54)

where:
A_C = Total On-Site drainage area in the BMP catchment area
A_I = Impervious area proposed in the BMP catchment area
A_P = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	3.37	acres
A_I =	1.61	acres
A_P =	1.76	acres
L_R =	1541	lbs

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

Desired $L_{M\ THIS\ BASIN}$ =	1541	lbs.
F =	1.00	

BP-01 (FULLY-DEVELOPED)

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Crescent Bluff West Sections 9 and 10
Date Prepared: 10/28/2025

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County =	Williamson	
Total project area included in plan * =	181.60	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan * =	68.93	acres
Total post-development impervious cover fraction * =	0.38	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	59997	lbs.

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

Number of drainage basins / outfalls areas leaving the plan area = 6

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

Drainage Basin/Outfall Area No. =	BP-01	
Total drainage basin/outfall area =	1.72	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.36	acres
Post-development impervious fraction within drainage basin/outfall area =	0.21	
$L_{M\ THIS\ BASIN}$ =	313	lbs.

BP-02 (FULLY-DEVELOPED)

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Crescent Bluff West Sections 9 and 10
Date Prepared: 10/28/2025

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where:
$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	Williamson	
Total project area included in plan * =	181.60	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan * =	68.93	acres
Total post-development impervious cover fraction * =	0.38	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	59997	lbs.

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

Number of drainage basins / outfalls areas leaving the plan area = 6

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

Drainage Basin/Outfall Area No. =	BP-02	
Total drainage basin/outfall area =	4.18	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 =	0.22	
$L_{M\ THIS\ BASIN}$ =	809	lbs.

BP-03 (FULLY-DEVELOPED)

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Crescent Bluff West Sections 9 and 10
Date Prepared: 10/28/2025

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Total post-development impervious area within the limits of the plan * =	68.93	acres
Total post-development impervious cover fraction * =	0.38	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	59997	lbs.

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

Number of drainage basins / outfalls areas leaving the plan area = 6

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

Drainage Basin/Outfall Area No. =	BP-03	
Total drainage basin/outfall area =	28.49	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.25	acres
Post-development impervious fraction within drainage basin/outfall area =	0.01	
$L_{M\ THIS\ BASIN}$ =	218	lbs.

NO.	REVISION	BY	DATE

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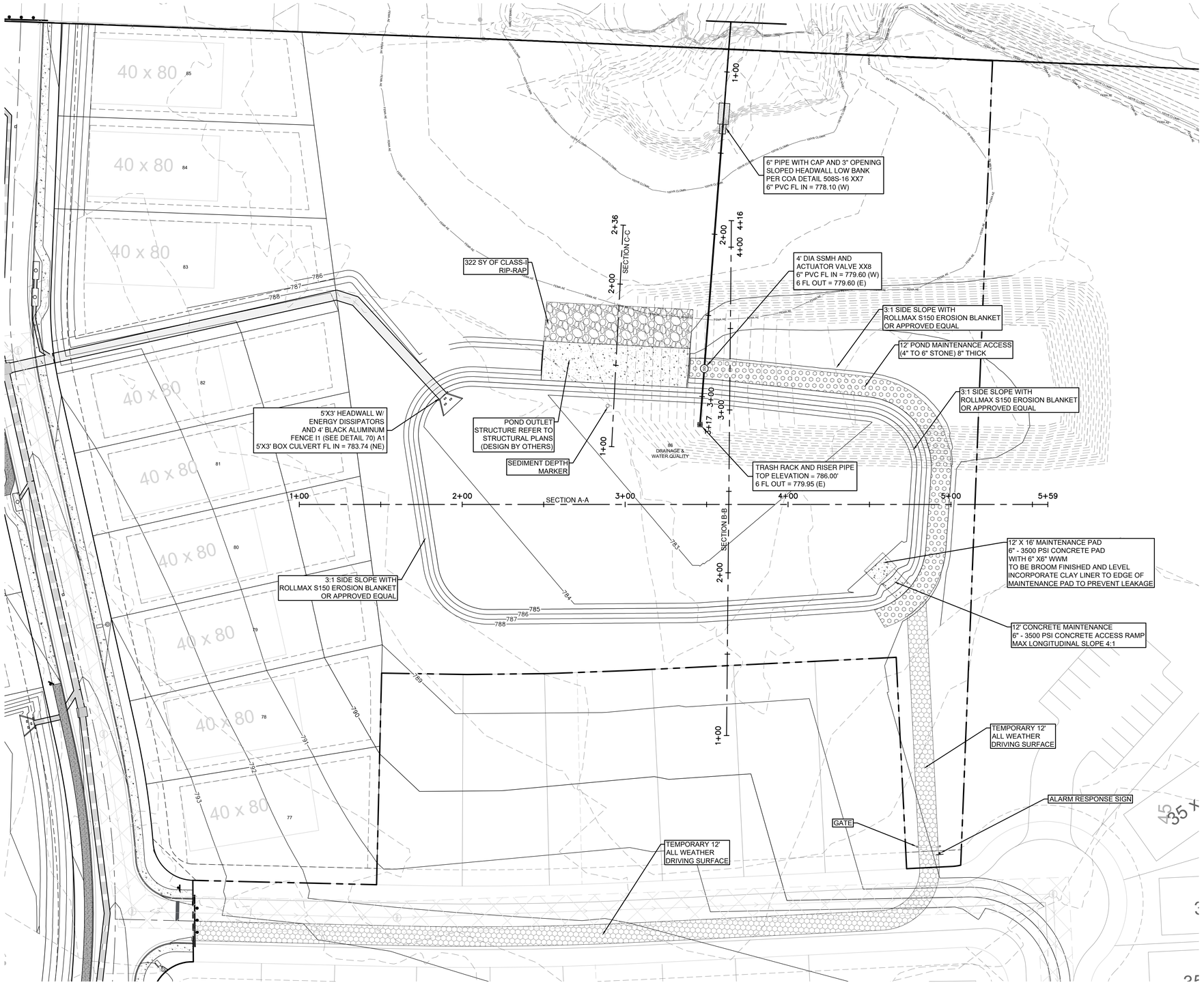
STATE OF TEXAS
CHRISTINE N. CAMPBELL
142536
LICENSED PROFESSIONAL ENGINEER
12/05/2025

WATER QUALITY CALCULATIONS (FULLY-DEVELOPED)

CRESCENT BLUFF WEST SECTIONS 9 & 10

GEORGETOWN, WILLIAMSON COUNTY TEXAS

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



0 20' 40'
SCALE: 1" = 20'

LEGEND

- 834 — EXISTING MINOR CONTOUR
- 835 — EXISTING MAJOR CONTOUR
- 834 — PROPOSED MINOR CONTOUR
- 835 — PROPOSED MAJOR CONTOUR
- BOUNDARY
- EASEMENT
- 100YR — 100 YR PROPOSED CONDITION FLOODPLAIN
- 100 YR FEMA ZONE A FLOODPLAIN
- CREEK CENTERLINE
- SD — PROPOSED STORM LINE
- FIRE HYDRANT
- WATER VALVE
- SD — STORM SEWER MAHNOLE
- WW — WASTEWATER MANHOLE
- CURB INLET
- TREES TO REMAIN HERITAGE
- TREES TO REMAIN NON HERITAGE

VERT. SCALE: 1" = 4'
HORZ. SCALE: 1" = 40'
EXISTING GRADE - CENTERLINE (EG)
PROPOSED GRADE - CENTERLINE (FG)
4' 2' 0 VERT. SCALE

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 TIRED 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.

NO.	REVISION	BY	DATE

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12/05/2025

WATER QUALITY POND

CRESCENT BLUFF WEST
SECTIONS 9 & 10
GEORGETOWN, WILLIAMSON COUNTY TEXAS

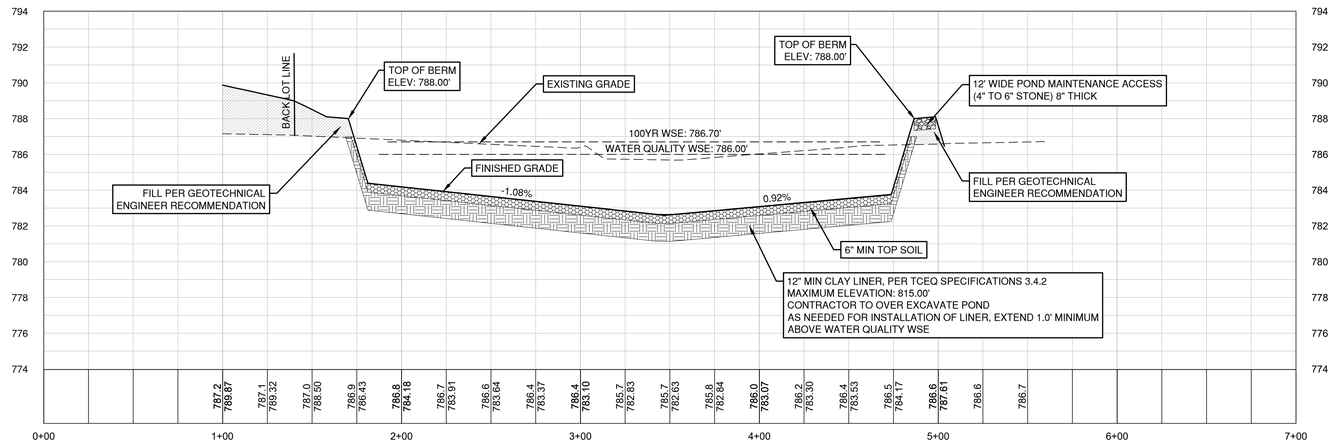
DESIGNED BY: CC/TG
DRAWN BY: TG
CHECKED BY: CC
APPROVED BY: SN

SHEET 45 of 105

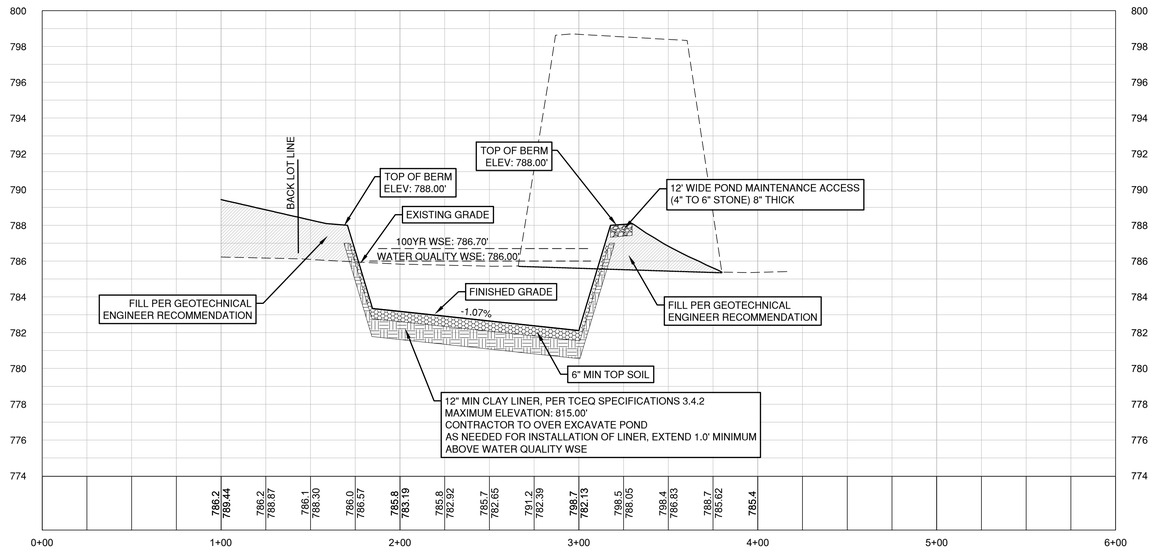
2025-XX-CON

Sheet Location: P:\Athens Domain\Chapman Tract\Sections 9-10\03_ACAD\Plans\ACAD\ASA\POND.dwg, WATER QUALITY POND, December 05, 2025, 3:34 PM, maksi.muhammad

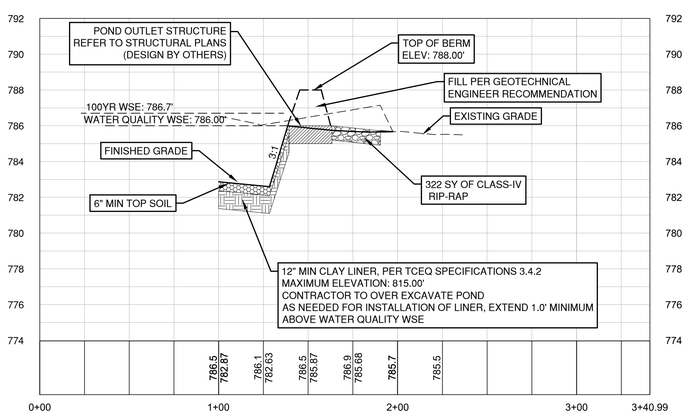
SECTION A-A



SECTION B-B



SECTION C-C



0 60' 120'

SCALE: 1" = 60'

LEGEND

- 834 — EXISTING MINOR CONTOUR
- 835 — EXISTING MAJOR CONTOUR
- 834 — PROPOSED MINOR CONTOUR
- 835 — PROPOSED MAJOR CONTOUR
- BOUNDARY
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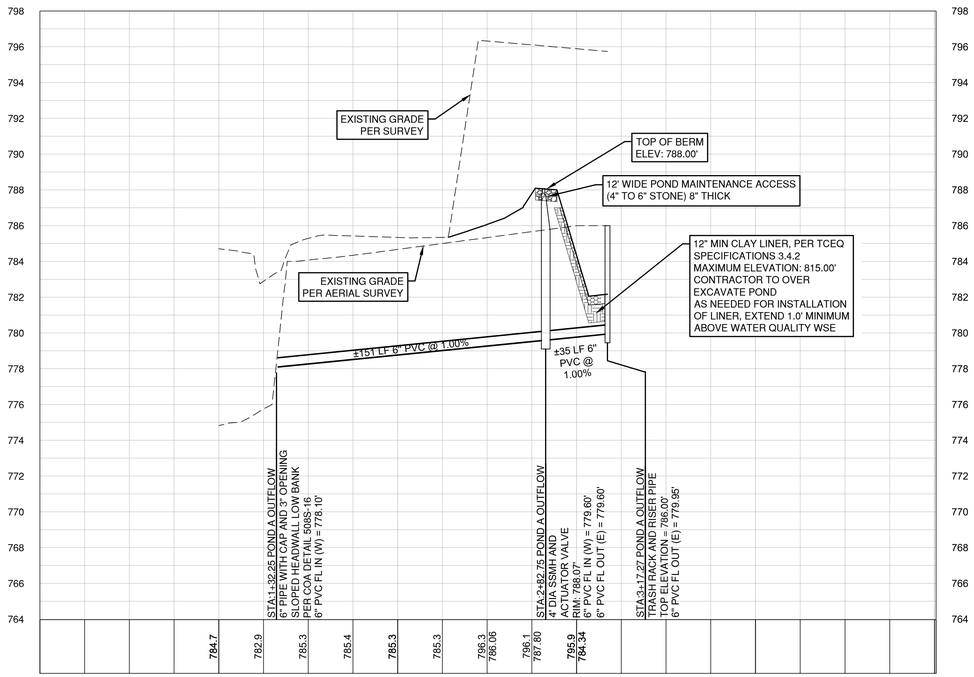
VERT. SCALE: 1" = 4'
HORZ. SCALE: 1" = 40'

EXISTING GRADE - CENTERLINE (EG)
PROPOSED GRADE - CENTERLINE (FG)

4' 2' 0 VERT. SCALE

POND A OUTFLOW



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12/05/2025

POND SECTIONS

CRESCENT BLUFF WEST
SECTIONS 9 & 10
GEORGETOWN, WILLIAMSON COUNTY TEXAS

DESIGNED BY: CC/TG
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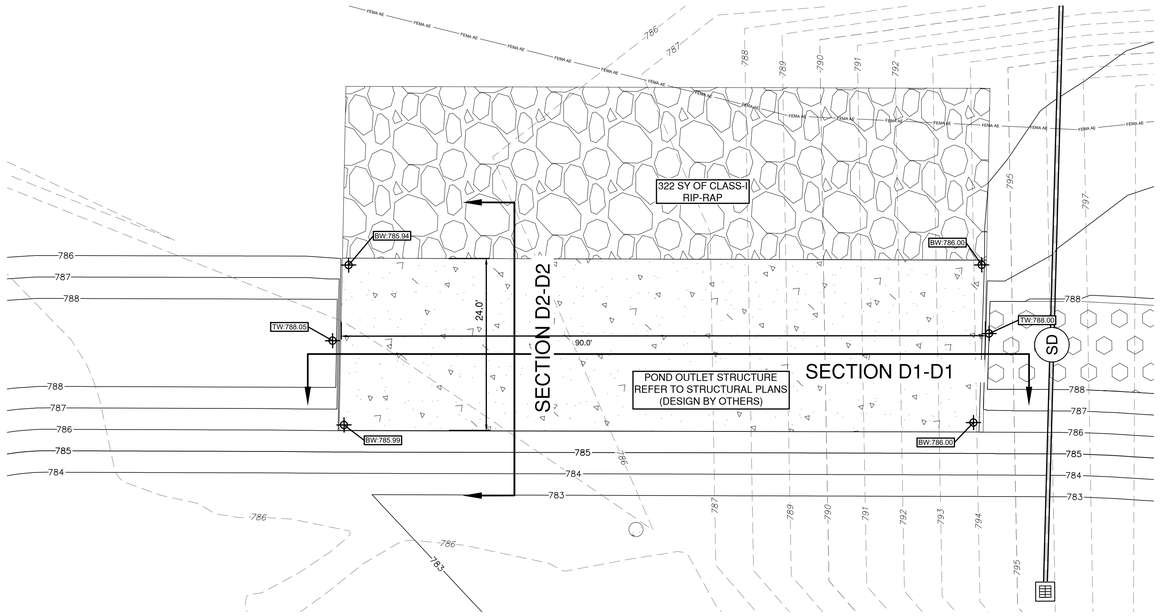
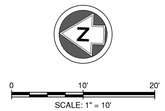
SHEET 46 of 105

2025-XX-CON

Sheet Location: P:\Athena Domain\Chapman Tract\Sections 9-10\03_ACAD\Permits\240424\3-POND.dwg, POND SECTIONS, December 05, 2025, 3:34 PM, maka muhammad





Pond Volume

Elevation	Area		Volume		Cumulative Volume		Comments
	SF	ac	cf	ac*ft	cf	ac*ft	
782	0	0.00					
783	10,286	0.24	5,143	0.12	5,143	0.12	
784	31,004	0.71	20,645	0.47	25,788	0.59	Water Quality Volume
785	37,855	0.87	34,430	0.79	60,218	1.38	
786	40,272	0.92	39,064	0.90	99,281	2.28	
787	42,745	0.98	41,509	0.95	140,790	3.23	Routing
788	45,275	1.04	44,010	1.01	184,800	4.24	Freeboard

OUTFLOW STRUCTURE	
Elevation ft	Flow cfs
786.00	0
786.50	83
787.00	234
787.50	430
788.00	662

$$Q = C_w L H^{1.5}$$

Q - *weir flow rate (cfs)*

C_w - *Weir Coefficient* BROAD: 2.60

L - *horizontal length of weir crest (ft)* BROAD: 90 FT

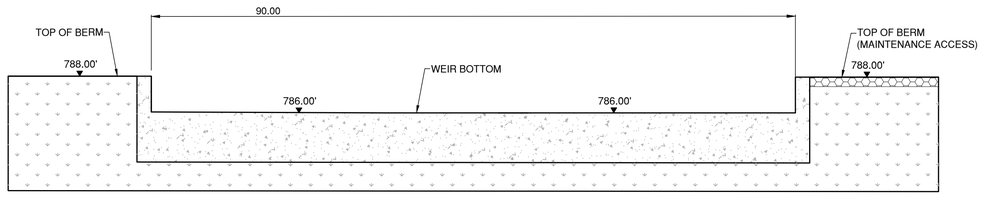
H - *head above weir crest elevation (ft)*

DRAWDOWN CALCUATIONS FOR A ROUND ORIFICE

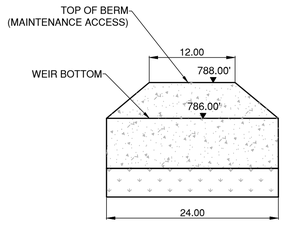
PROJECT NAME: CRESCENT BLUFF SECTIONS 9 & 10

Pipe Diameter =	6.00	IN	W.Q.V. =	99,281	CF
Orifice Diameter =	3.00	IN	WQ Elev =	786.00	MSL
Outflow Orifice Elev =	778.10	MSL	Pond Bottom Elev =	783.00	MSL
Draining time	47.00	HR	Initial Head =	7.90	FT

TIME	HEAD	OUTFLOW	VOL.	dV	Total dV	H	dH	W.E.
HRS	FT	CFS	CF	CF	CF	FT	FT	MSL
0.00	7.90	0.66	99,281	2,392	2,392	0.07	7.83	786.00
1.00	7.83	0.66	96,889	2,381	4,772	0.07	7.76	785.93
2.00	7.76	0.66	94,509	2,370	7,142	0.07	7.68	785.86
3.00	7.68	0.66	92,139	2,359	9,500	0.07	7.61	785.78
4.00	7.61	0.65	89,781	2,348	11,848	0.07	7.54	785.71
5.00	7.54	0.65	87,433	2,337	14,185	0.07	7.47	785.64
6.00	7.47	0.65	85,096	2,326	16,511	0.07	7.40	785.57
7.00	7.40	0.64	82,770	2,315	18,825	0.07	7.33	785.50
8.00	7.33	0.64	80,456	2,304	21,129	0.07	7.26	785.43
9.00	7.26	0.64	78,152	2,293	23,422	0.07	7.19	785.36
10.00	7.19	0.63	75,859	2,282	25,704	0.07	7.12	785.29
11.00	7.12	0.63	73,577	2,271	27,975	0.07	7.05	785.22
12.00	7.05	0.63	71,306	2,260	30,235	0.07	6.99	785.15
13.00	6.99	0.62	69,046	2,249	32,484	0.07	6.92	785.09
14.00	6.92	0.62	66,797	2,238	34,722	0.07	6.85	785.02
15.00	6.85	0.62	64,559	2,227	36,949	0.07	6.78	784.95
16.00	6.78	0.62	62,332	2,216	39,165	0.07	6.72	784.88
17.00	6.72	0.61	60,116	2,205	41,370	0.07	6.65	784.82
18.00	6.65	0.61	57,911	2,194	43,565	0.07	6.58	784.75
19.00	6.58	0.61	55,716	2,183	45,748	0.07	6.52	784.68
20.00	6.52	0.60	53,533	2,172	47,920	0.07	6.45	784.62
21.00	6.45	0.60	51,361	2,161	50,081	0.07	6.39	784.55
22.00	6.39	0.60	49,200	2,150	52,232	0.06	6.32	784.49
23.00	6.32	0.59	47,049	2,139	54,371	0.06	6.26	784.42
24.00	6.26	0.59	44,910	2,128	56,499	0.06	6.19	784.36
25.00	6.19	0.59	42,782	2,117	58,617	0.06	6.13	784.29
26.00	6.13	0.59	40,664	2,106	60,723	0.06	6.07	784.23
27.00	6.07	0.58	38,558	2,095	62,819	0.06	6.00	784.17
28.00	6.00	0.58	36,462	2,085	64,903	0.06	5.94	784.10
29.00	5.94	0.58	34,378	2,074	66,977	0.06	5.88	784.04
30.00	5.88	0.57	32,304	2,063	69,040	0.06	5.81	783.98
31.00	5.81	0.57	30,241	2,052	71,091	0.06	5.75	783.91
32.00	5.75	0.57	28,190	2,041	73,132	0.06	5.69	783.85
33.00	5.69	0.56	26,149	2,030	75,161	0.06	5.63	783.79
34.00	5.63	0.56	24,120	2,019	77,180	0.06	5.57	783.73
35.00	5.57	0.56	22,101	2,008	79,188	0.06	5.51	783.67
36.00	5.51	0.55	20,093	1,997	81,185	0.06	5.45	783.61
37.00	5.45	0.55	18,096	1,986	83,171	0.06	5.39	783.55
38.00	5.39	0.55	16,110	1,975	85,145	0.06	5.33	783.49
39.00	5.33	0.55	14,136	1,964	87,109	0.06	5.27	783.43
40.00	5.27	0.54	12,172	1,953	89,062	0.06	5.21	783.37
41.00	5.21	0.54	10,219	1,942	91,004	0.06	5.15	783.31
42.00	5.15	0.54	8,277	1,931	92,935	0.06	5.09	783.25
43.00	5.09	0.53	6,346	1,920	94,855	0.06	5.03	783.19
44.00	5.03	0.53	4,426	1,909	96,764	0.06	4.98	783.13
45.00	4.98	0.53	2,517	1,898	98,662	0.06	4.92	783.08
46.00	4.92	0.52	619	1,887	99,281	0.06	4.90	783.02
47.00	4.90	0.00	0	0	99,281	0.00	4.90	783.00
48.00	4.90	0.00	0	0	99,281	0.00	4.90	783.00



POND OUTFLOW STRUCTURE
SECTION D1-D1
SCALE 1:10



POND OUTFLOW STRUCTURE
SECTION D2-D2
SCALE 1:10

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142536
LICENSED PROFESSIONAL ENGINEER

12/05/2025

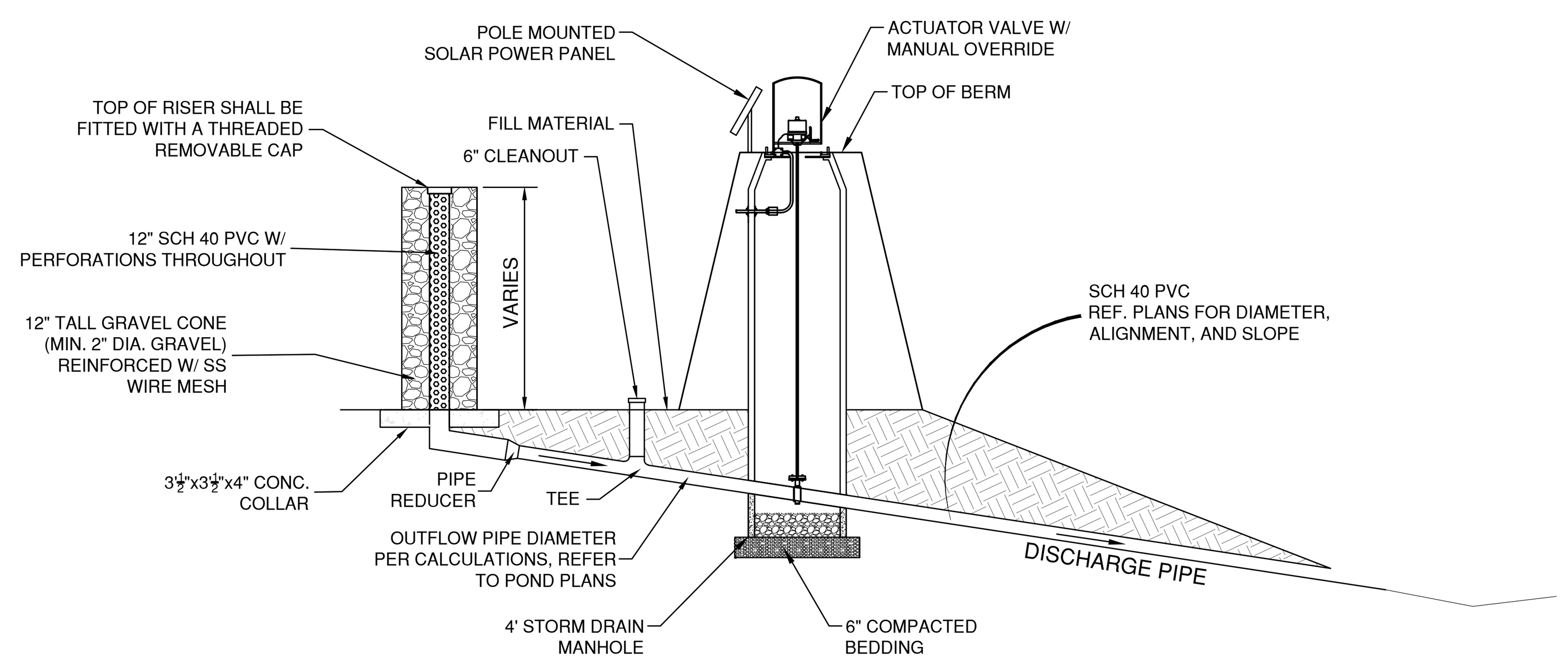
POND OUTLET STRUCTURE DETAIL

CRESCENT BLUFF WEST
SECTIONS 9 & 10
GEORGETOWN, WILLIAMSON COUNTY TEXAS

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

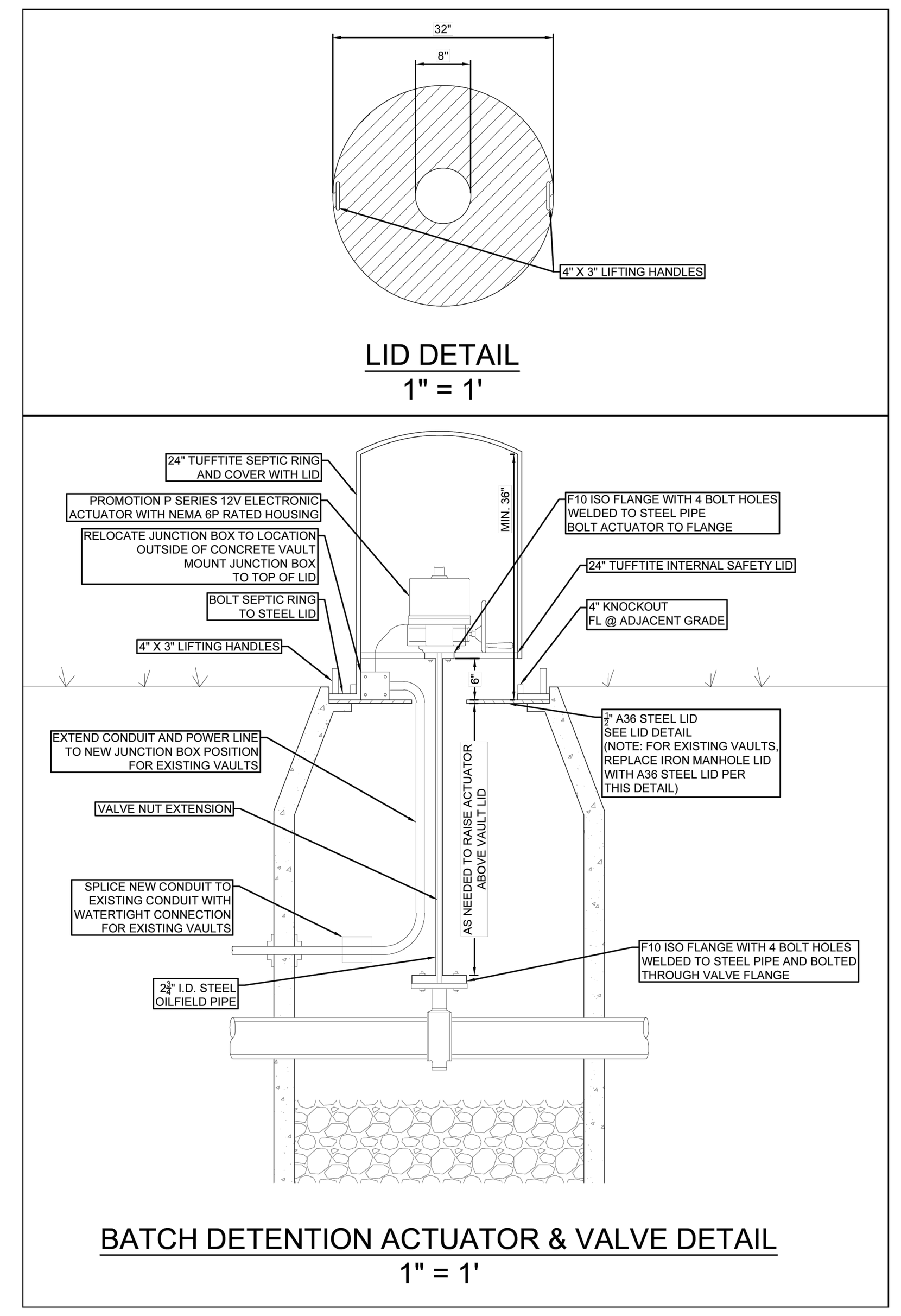
SHEET 47 of 105

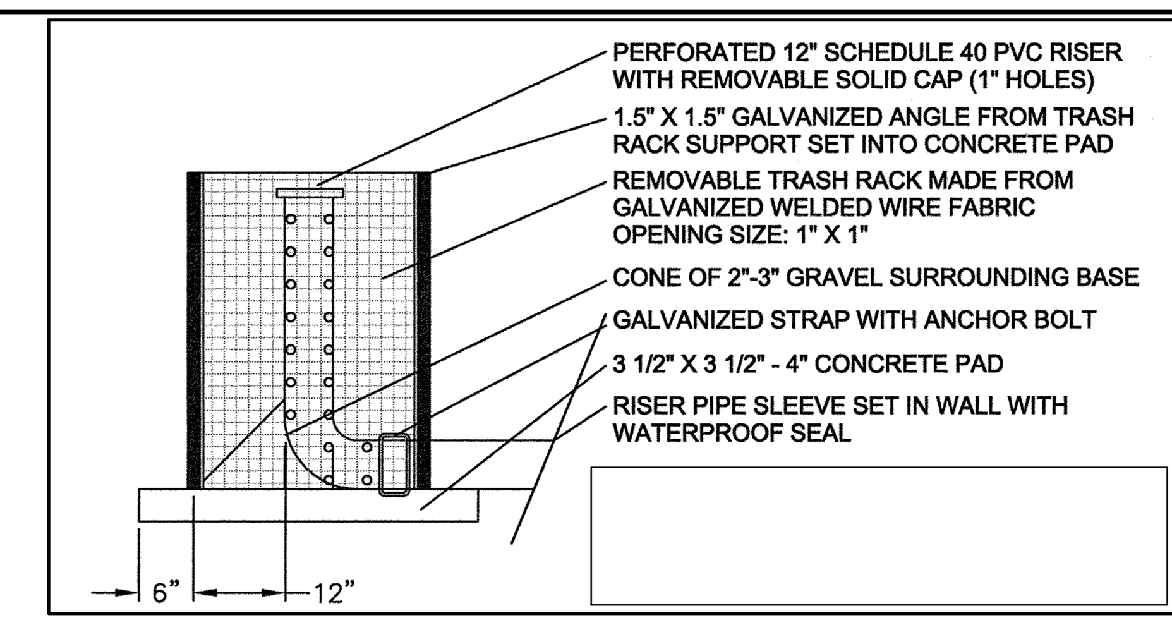
2025-XX-CON



TRASH RACK AND ACTUATOR VALVE

N.T.S.





TRASH RACK / RISER PIPE DETAIL

N.T.S.

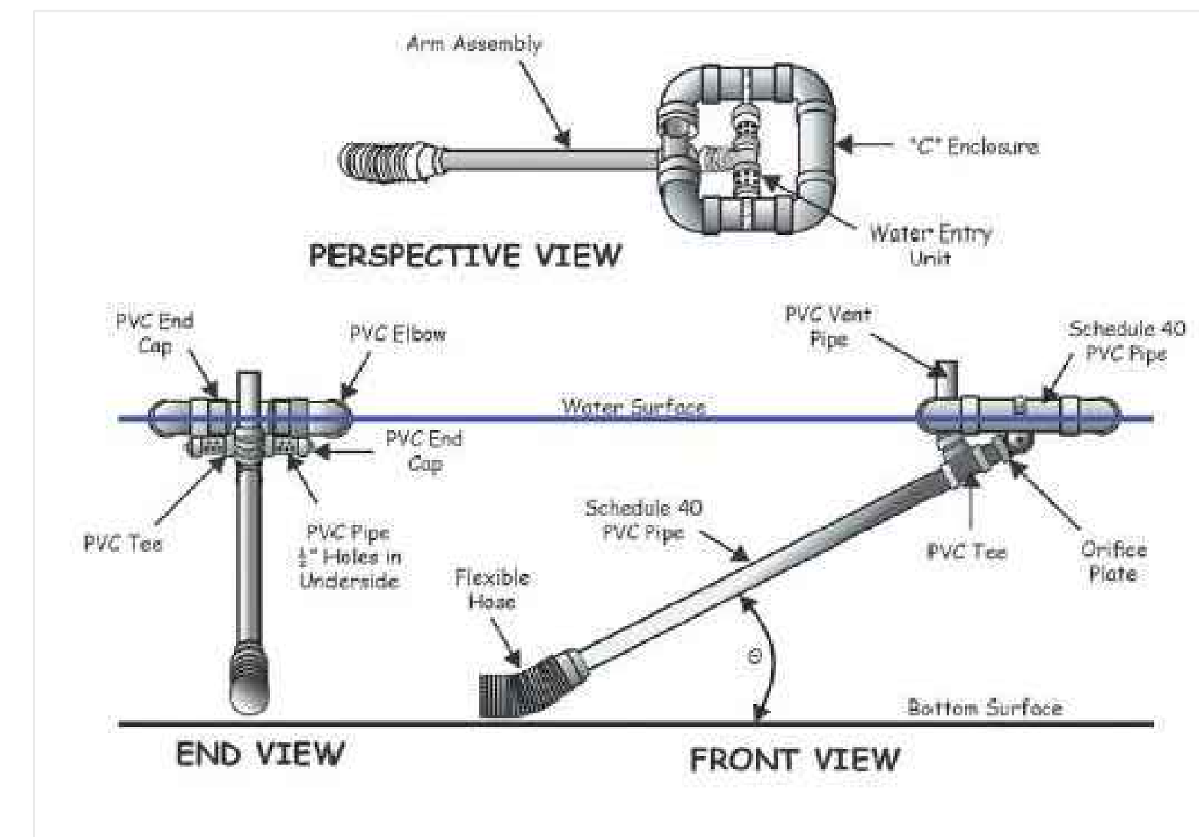
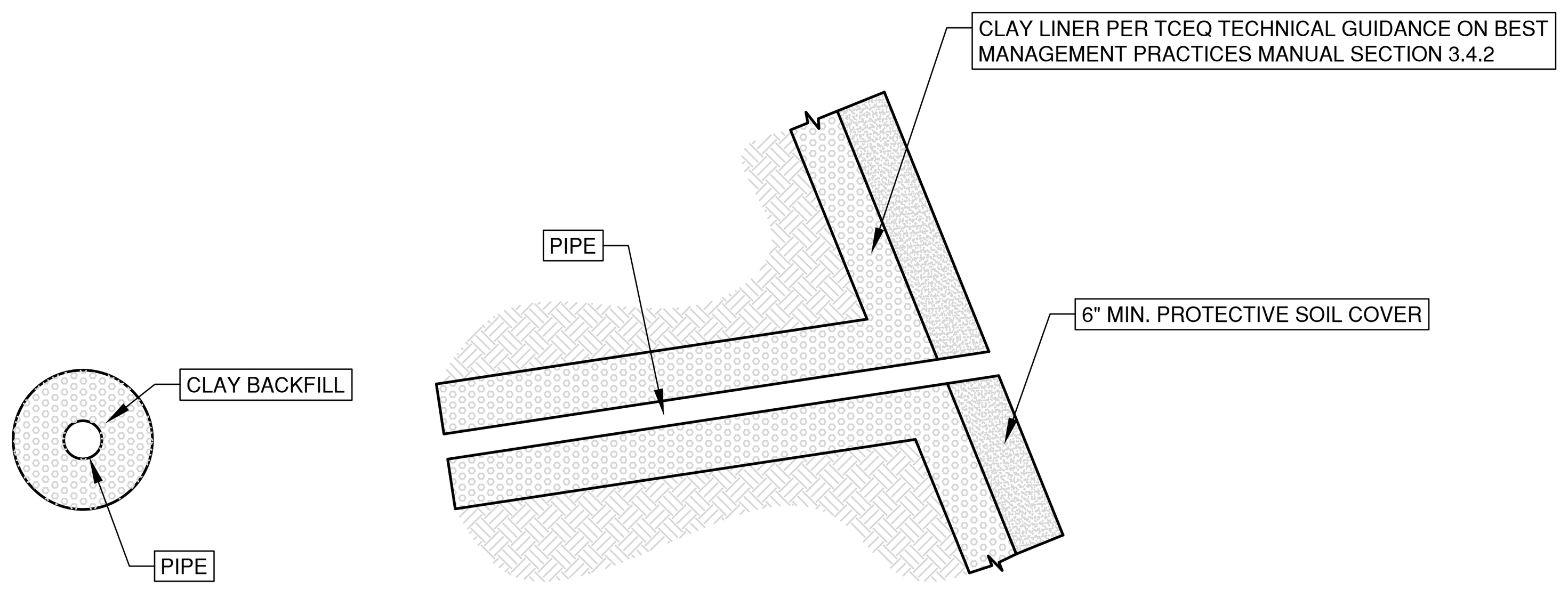


Figure 6.64a Schematic of a skimmer, from Pennsylvania Erosion and Sediment Pollution Control Manual, March, 2000.

DEWATERING SKIMMER

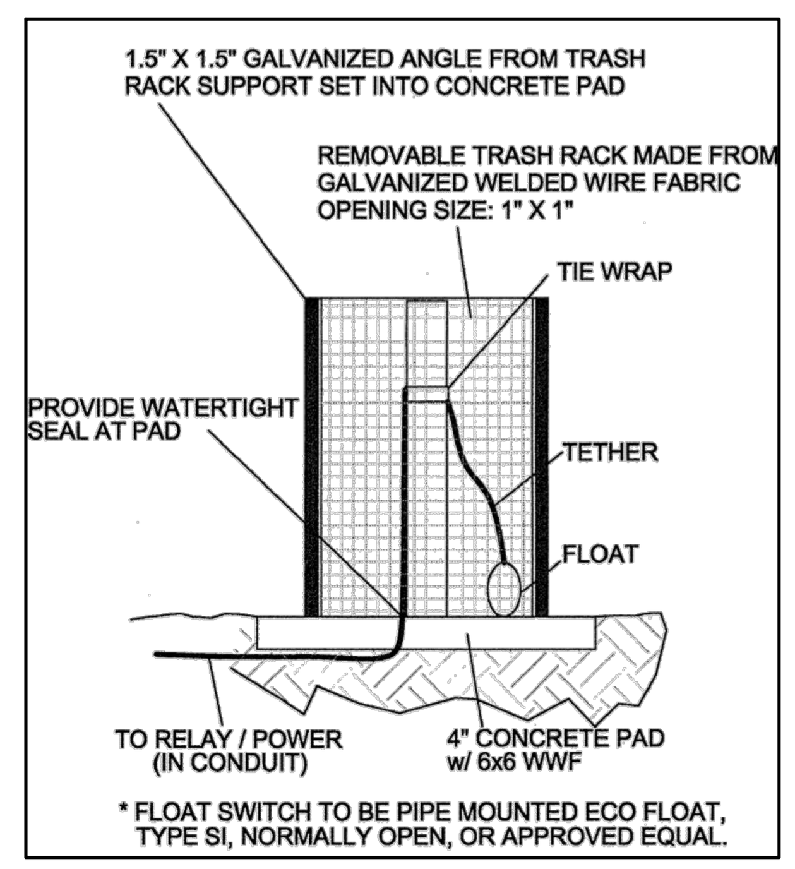
N.T.S.

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.

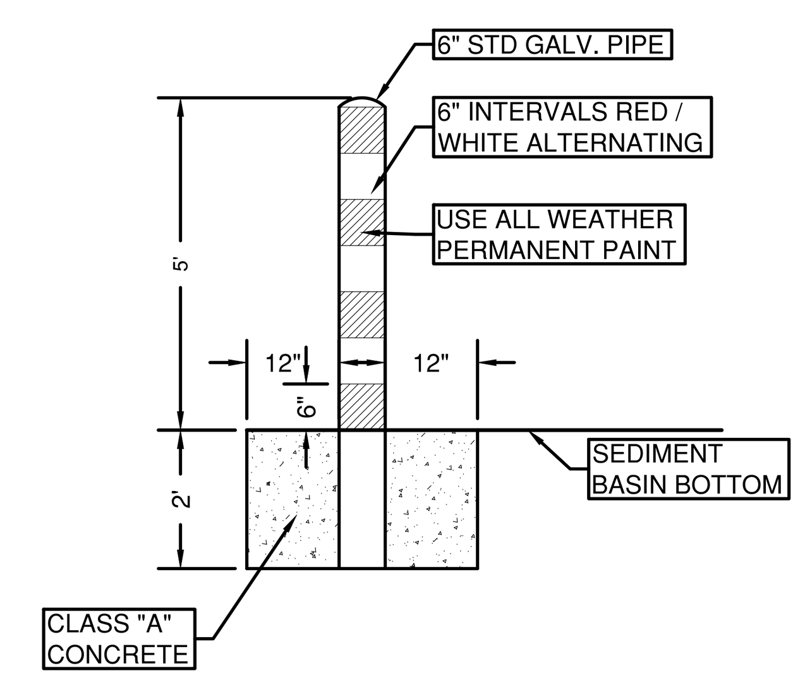


INTERBASIN PIPES DETAIL

N.T.S.

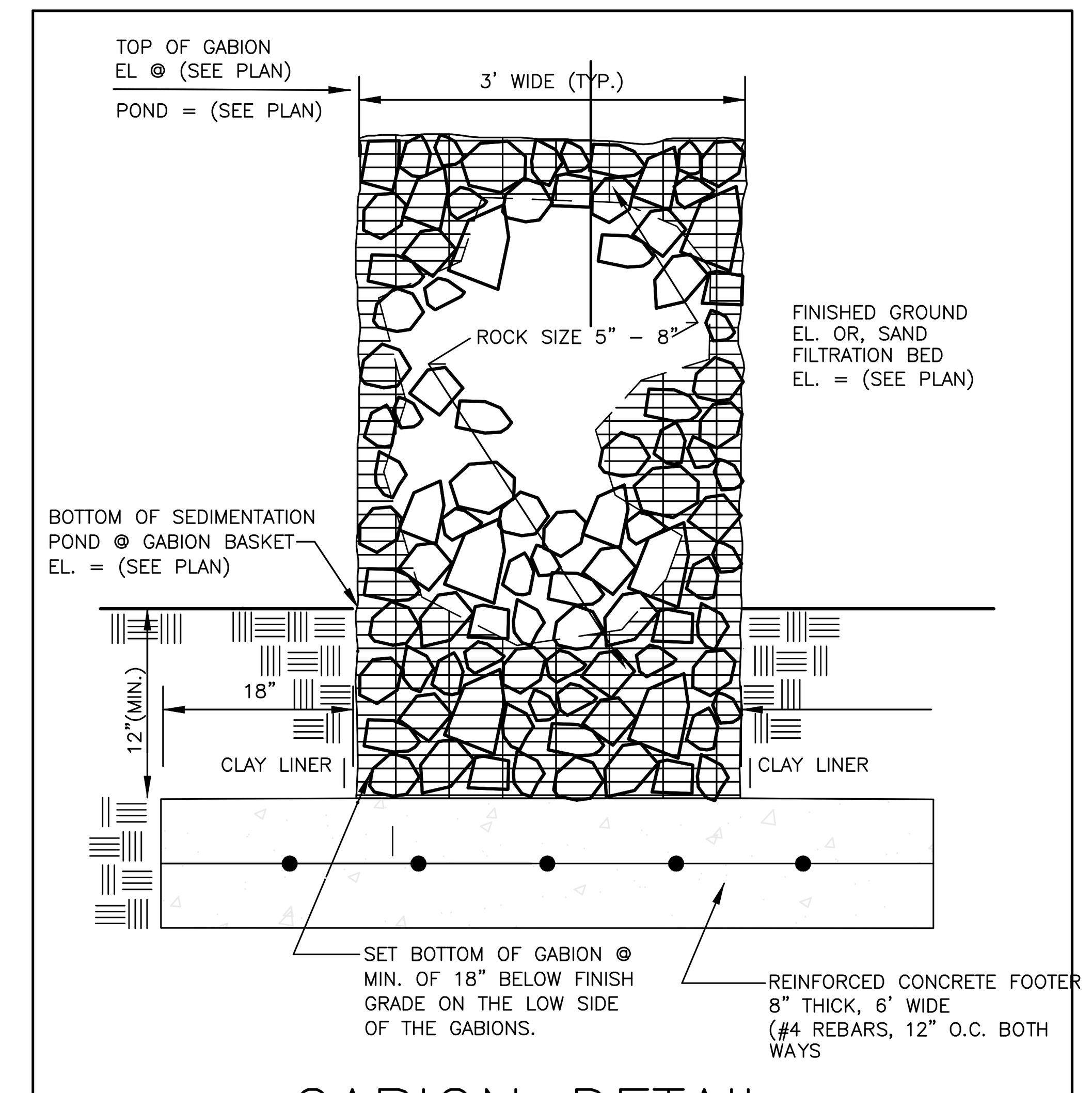


FLOAT SWITCH DETAIL



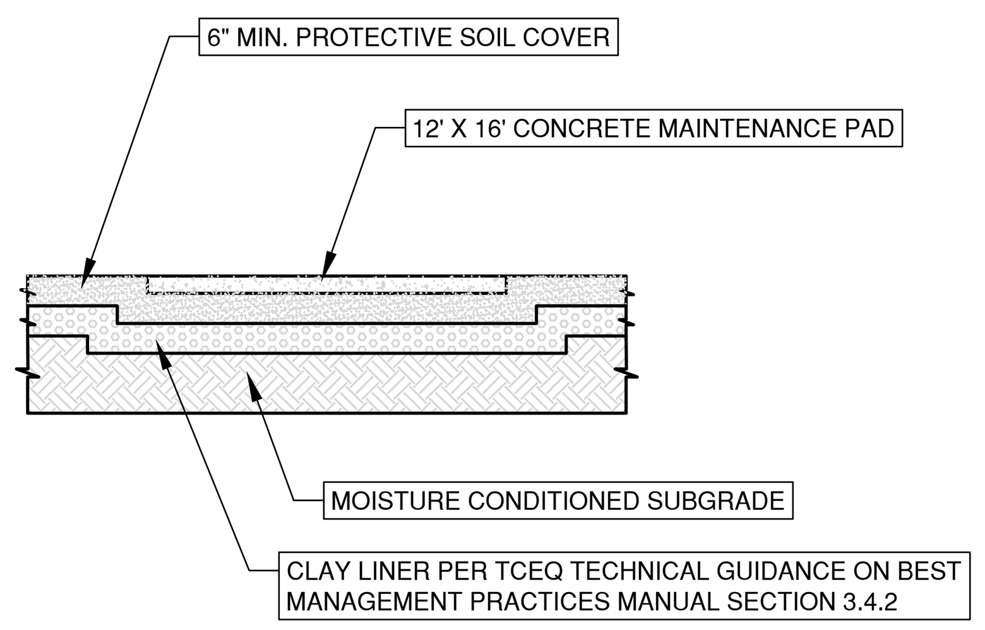
CONCRETE FILLED FIXED SEDIMENT MARKER FOR BATCH DETENTION POND

N.T.S.



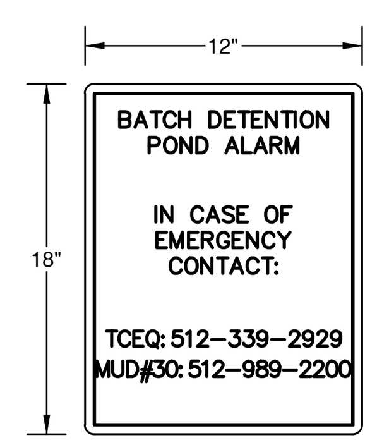
GABION DETAIL

N.T.S.



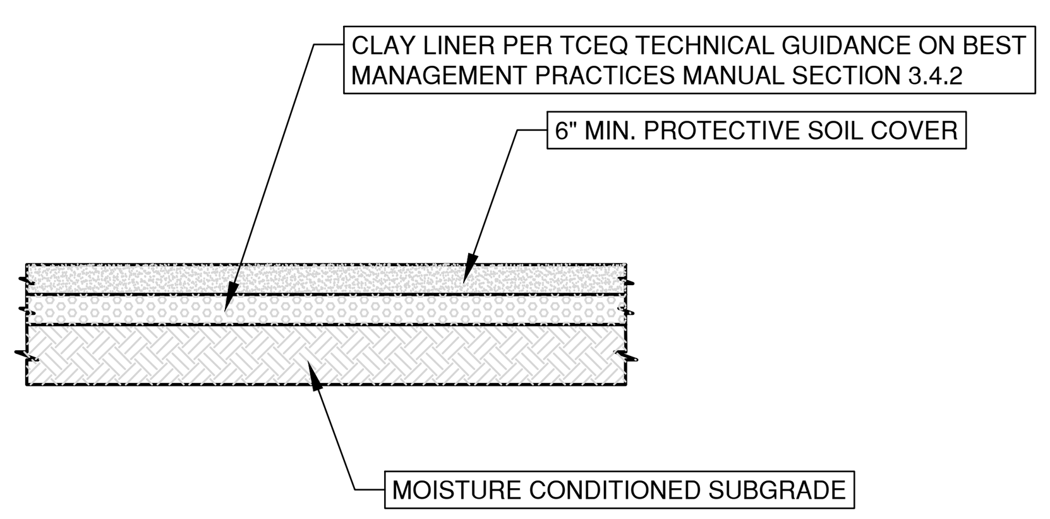
MAINTENANCE PAD INSTALLATION

N.T.S.



ALARM RESPONSE SIGN

N.T.S.

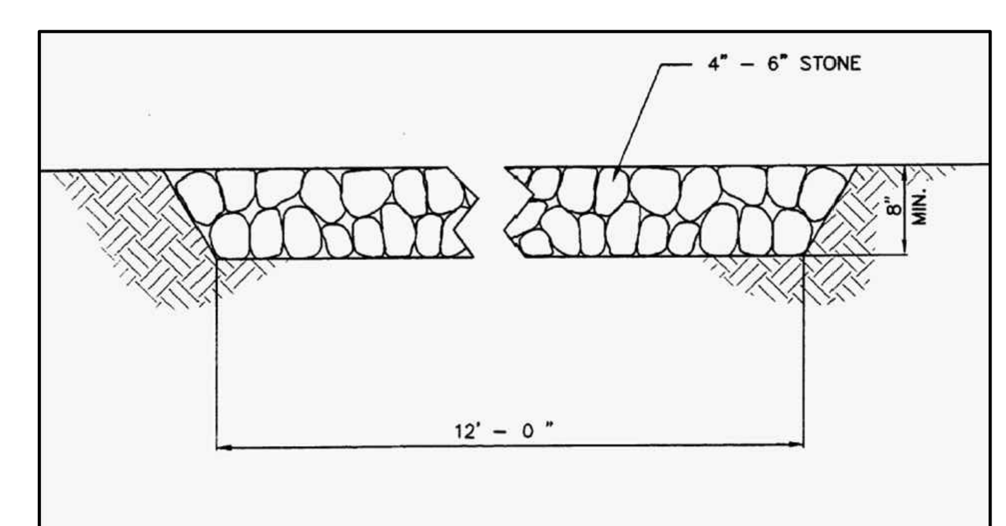


CLAY LINER INSTALLATION

N.T.S.

NOTE:

1. BATCH DETENTION POND SHALL BE IN ACCORDANCE WITH THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) RG-348 MANUAL (ADDENDUM)
2. THE BATCH DETENTION POND AND RISER PIPE / TRASH RACK WILL FUNCTION AS THE DEWATERING OUTLET AND SHALL BE BE INSTALLED AND FUNCTIONAL PRIOR TO ANY GENERAL GRADING AND UTILITY WORK.
3. 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.
4. ACTUATOR SHALL BE ELECTRONIC QUARTER-TURN WITH MANUAL OVERRIDE AND POSITION INDICATOR.
5. ACTUATOR SHALL BE "AVID 12V ACTUATOR, EPI-6" OR EQUIVALENT.
6. ACTUATOR VALVE TO BE SET AT "NORMALLY CLOSED" POSITION.
7. CONTROLLER SHALL BE SET TO OPEN VALVE 12 HOURS AFTER INITIAL RAINFALL DETECTION. VALVE TO REMAIN OPEN UNTIL 2 HRS FOLLOWING BASIN EMPTY SIGNAL.
8. 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.
9. CONTROLLER SHALL BE "MORNINGSTAR SOLAR CONTROLLER, 12V, 20 AMP" OR EQUIVALENT.
10. ALL WIRING SHALL BE INSTALLED IN CONDUIT AND BURIED. CONTACT ENGINEER FOR ADDITIONAL CONTROLLER SCHEMATICS.
11. CONTRACTOR TO INSTALL LIBERTY ALARM MODEL ALM-2W OR EQUIVALENT AT A CONTROLLER PANEL.
12. ATTACH ALARM RESPONSE SIGN TO CONTROLLER POLE. REFERENCE ALARM RESPONSE SIGN TO RIGHT.
13. 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.



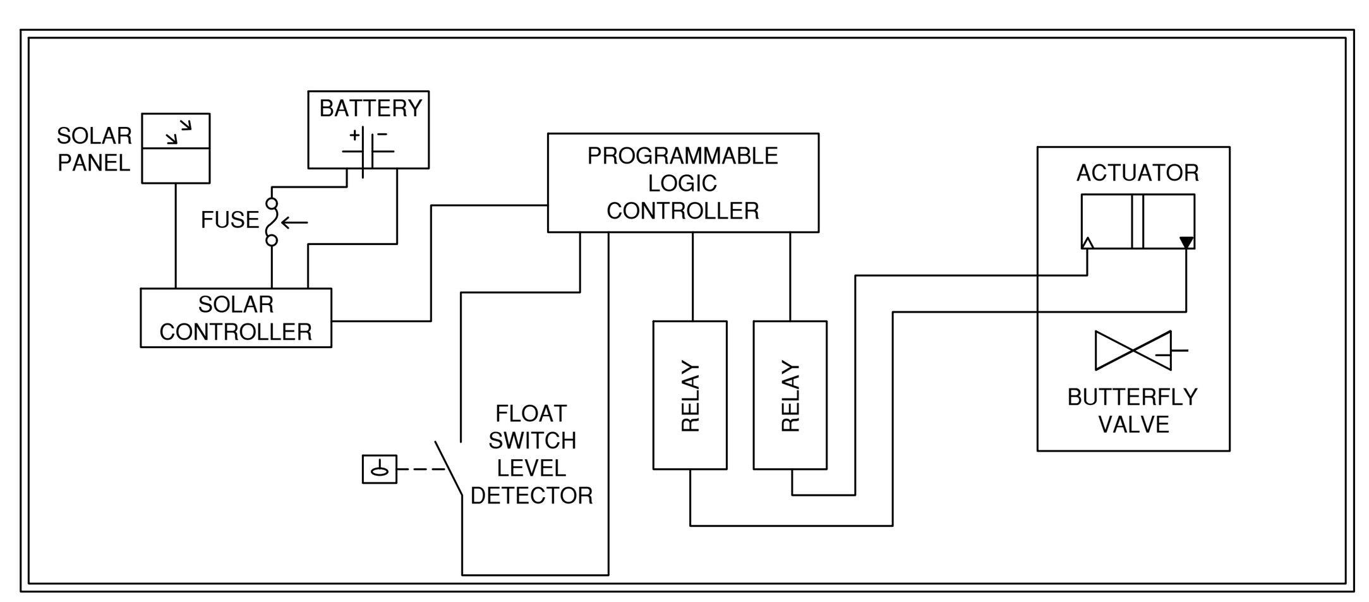
POND MAINTENANCE ACCESS

TYPICAL CROSS SECTION

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

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

CLAY LINER SPECIFICATIONS PER TCEQ SPECIFICATIONS 3.4.2



ACTUATOR VALVE POWER & CONTROLLER CIRCUIT BLOCK DIAGRAM

NO.	REVISION	BY	DATE

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HRGreen DEVELOPMENT TX

STATE OF TEXAS CHRISTINE N. CAMPBELL 142536 LICENSED PROFESSIONAL ENGINEER
12/05/2025

POND DETAILS

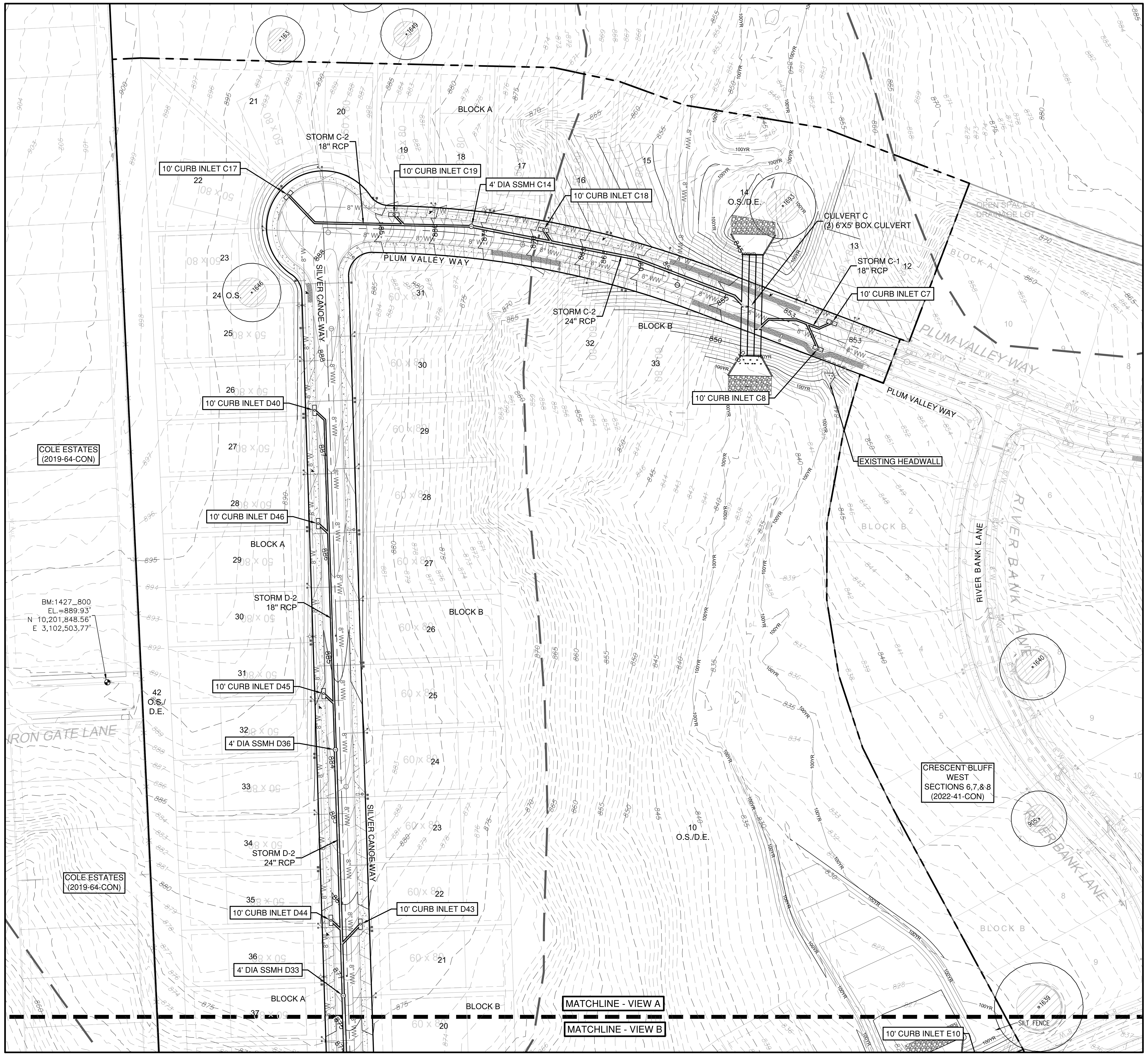
CRESCENT BLUFF WEST SECTIONS 9 & 10

GEORGETOWN, WILLIAMSON COUNTY TEXAS

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

SHEET 48 of 105

2025-XX-CON



SCALE: 1" = 60'

0 60' 120'

LEGEND

- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- BOUNDARY
- EASEMENT
- CLOMR FLOODPLAIN
- LOMR FLOODPLAIN
- PROPOSED STORM LINE
- STORM SEWER JUNCTION BOX
- STORM SEWER MAHNOLE
- CURB INLET
- AREA INLET
- GRATE INLET
- CONCRETE HEADWALL
- WATER LINE
- FIRE HYDRANT
- WATER VALVE
- PRESSURE REDUCING VALVE
- AUTOMATIC AIR RELEASE VALVE
- FLUSH VALVE
- SINGLE WATER SERVICE
- DOUBLE WATER SERVICE
- WASTE WATER LINE
- WASTEWATER MANHOLE
- WASTEWATER CLEANOUT
- SINGLE WASTEWATER SERVICE
- DOUBLE WASTEWATER SERVICE

NOTES:

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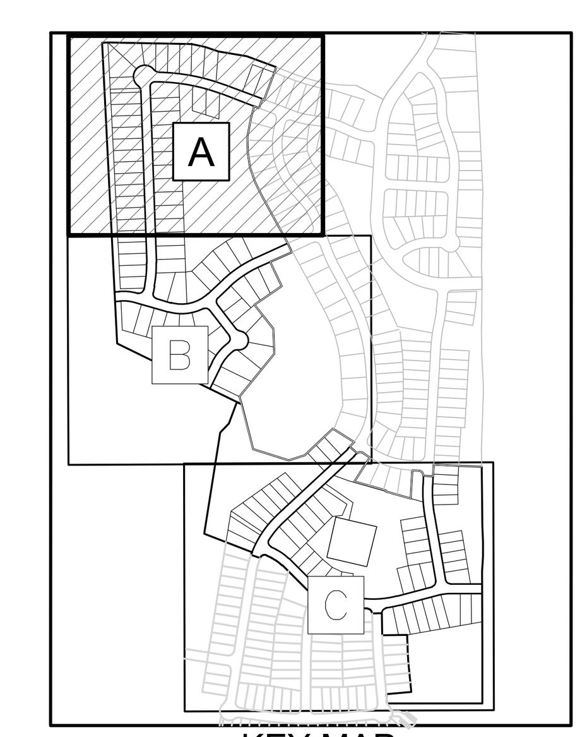
3. VEGETATE ALL DISTURBED AREAS PER CITY OF GEORGETOWN SPECIFICATIONS.



KEY MAP
N.T.S.

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TBPLS NO: 10194101

STATE OF TEXAS
CHRISTINE N. CAMPBELL
142536
LICENSED
PROFESSIONAL ENGINEER
12/05/2025

OVERALL STORM SEWER PLAN VIEW A

CRESCENT BLUFF WEST
SECTIONS 9 & 10
GEORGETOWN, WILLIAMSON COUNTY TEXAS

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SHEET 49 of 105

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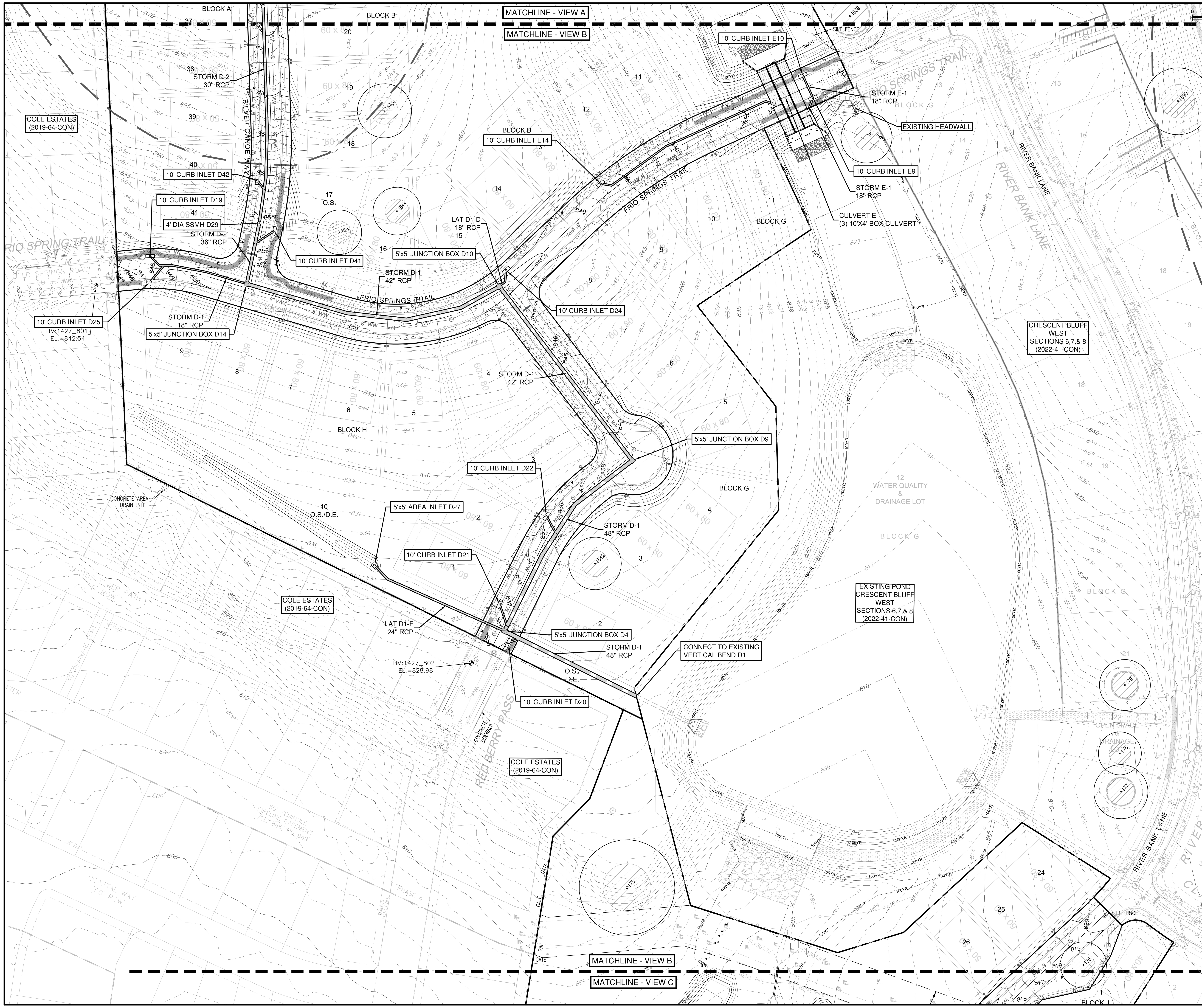

SCALE: 1" = 60'

LEGEND

- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- BOUNDARY
- EASEMENT
- CLOMR FLOODPLAIN
- LOMR FLOODPLAIN
- PROPOSED STORM LINE
- STORM SEWER JUNCTION BOX
- STORM SEWER MAHNOLE
- CURB INLET
- AREA INLET
- GRATE INLET
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KEY MAP
N.T.S.

NO.	REVISION	BY	DATE

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OVERALL STORM SEWER PLAN VIEW B

CRESCENT BLUFF WEST
SECTIONS 9 & 10
GEORGETOWN, WILLIAMSON COUNTY TEXAS

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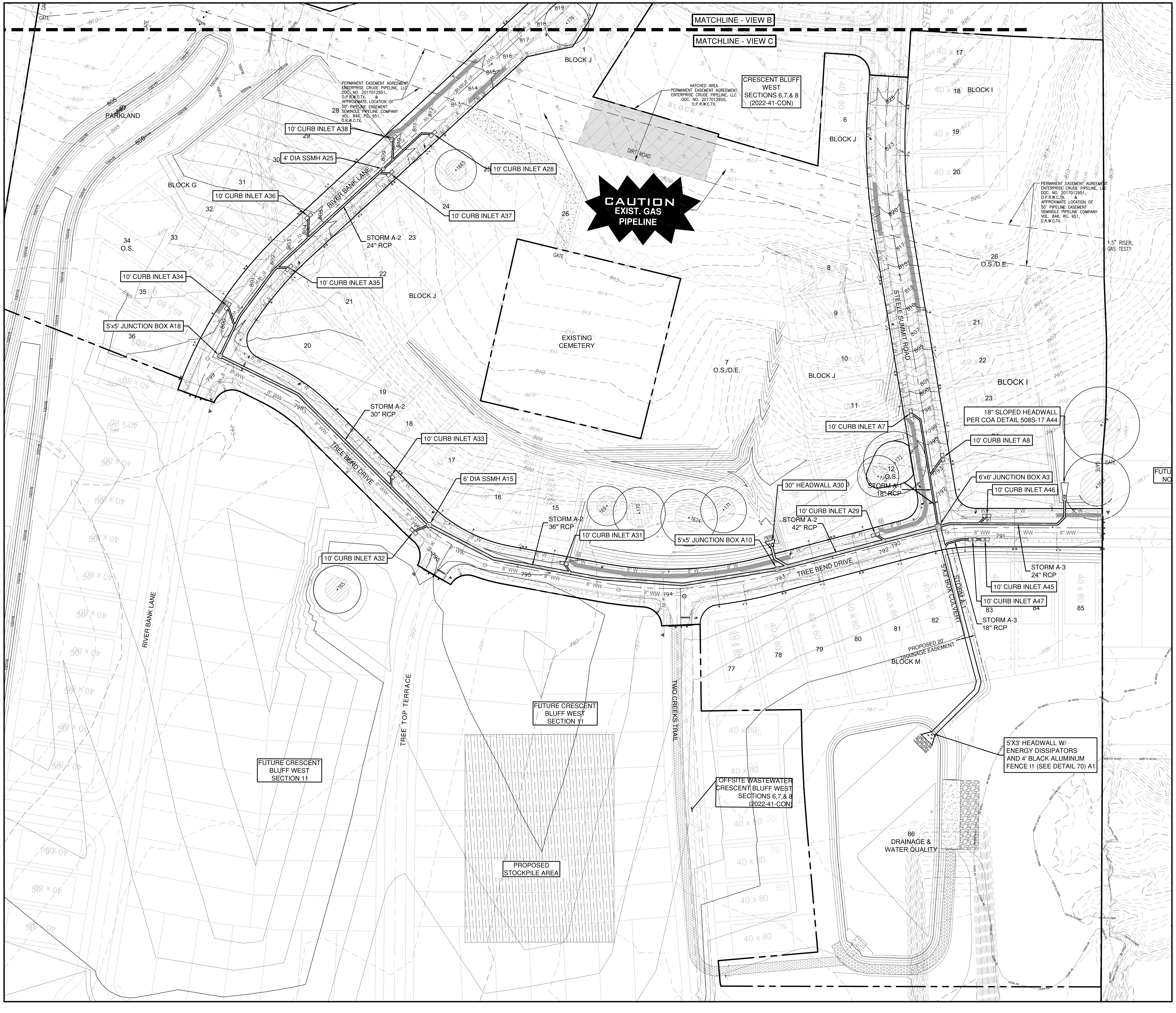
SHEET 50 of 105

2025-XX-CON

Sheet Location: P:\athena domain\chapman tract\sections 9-10\03_ACAD\Plans\dr2404243-SDOV.dwg, OVERALL STORM SEWER PLAN VIEW B, December 05, 2025, 3:02 PM, tgarza



LEGEND

- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- BOUNDARY
- EASEMENT
- CLOMR FLOODPLAIN
- LOMR FLOODPLAIN
- PROPOSED STORM LINE
- STORM SEWER JUNCTION BOX
- STORM SEWER MAHNOLE
- CURB INLET
- AREA INLET
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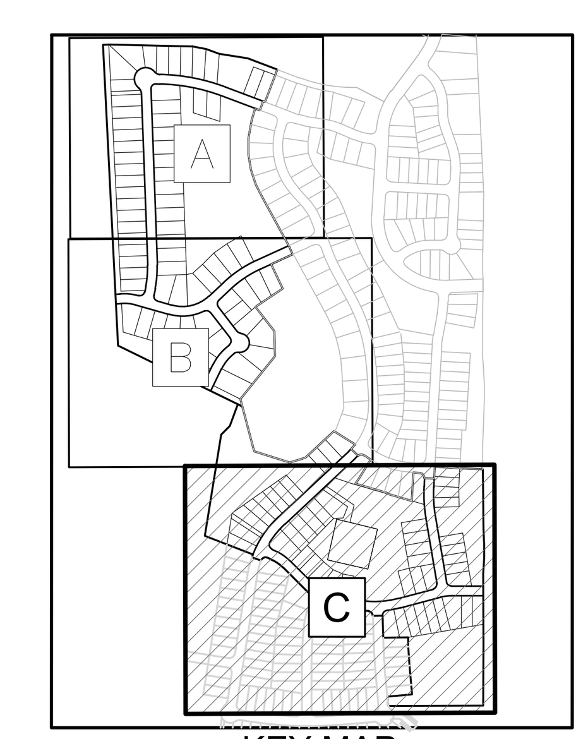

KEY MAP
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12/05/2025

OVERALL STORM SEWER PLAN VIEW C

CRESCENT BLUFF WEST SECTIONS 9 & 10

GEORGETOWN, WILLIAMSON COUNTY TEXAS

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APPROVED BY: SN

SHEET 51 of 105

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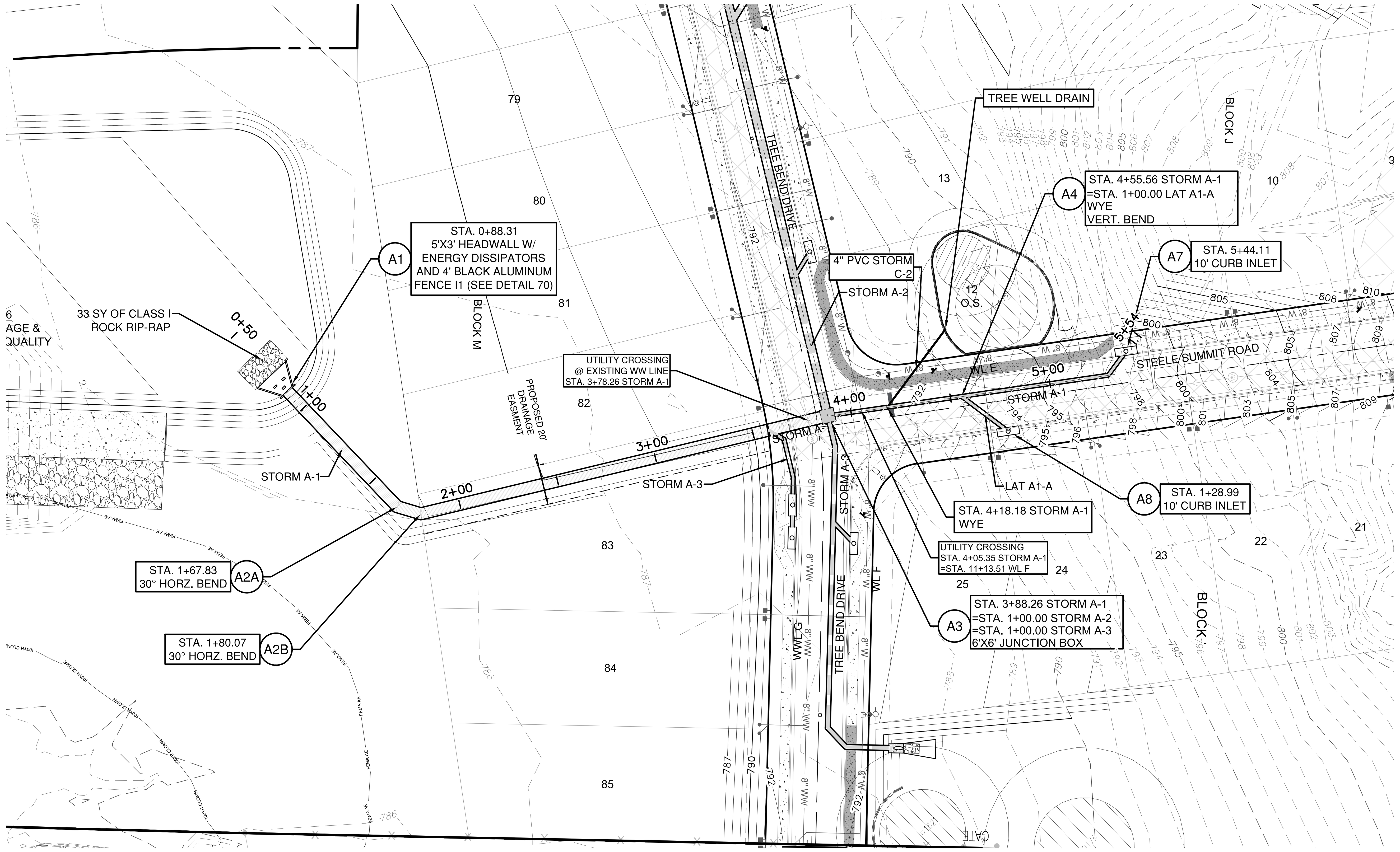

Pipe Label	Slope (%)	Q25 (cfs)	V25 (ft/s)	D25 (ft)	Q100 (cfs)	V100 (ft/s)	D100 (ft)
PIPE A-1A	0.50%	79.50	8.25	1.99	102.10	6.81	3.36
PIPE A-1B	0.50%	79.50	5.99	2.68	102.10	6.81	3.45
PIPE A-2	0.50%	77.83	7.88	1.99	100.04	6.67	3.34
PIPE A-3A	0.50%	7.03	3.98	4.53	8.66	4.90	4.68
PIPE A-3B	0.50%	7.03	3.98	4.60	8.66	4.90	4.89
PIPE A-5	7.75%	4.66	3.65	4.68	5.76	4.15	5.04
PIPE A-6	7.75%	4.66	3.97	1.12	5.76	4.34	1.26
PIPE A-7	9.10%	2.37	1.34	4.68	2.90	1.64	5.04
PIPE A-48	0.50%	79.50	6.77	2.88	102.10	6.81	3.53

SCALE: 1" = 40'

LEGEND

- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- BOUNDARY
- EASEMENT
- CLOMR FLOODPLAIN
- LOMR FLOODPLAIN
- PROPOSED STORM LINE
- STORM SEWER JUNCTION BOX
- STORM SEWER MAHNOLE
- CURB INLET
- AREA INLET
- GRATE INLET
- CONCRETE HEADWALL
- WATER LINE
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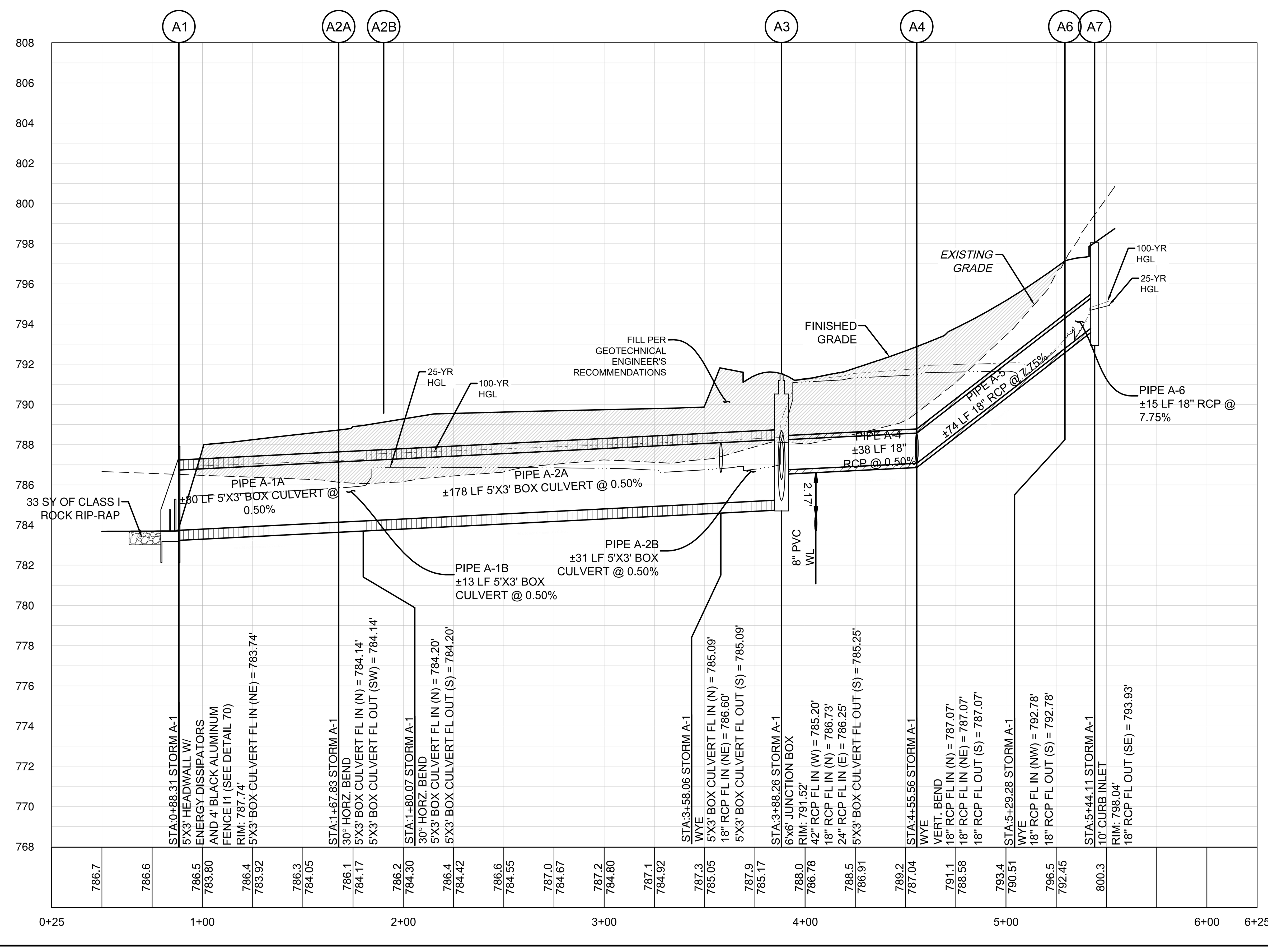
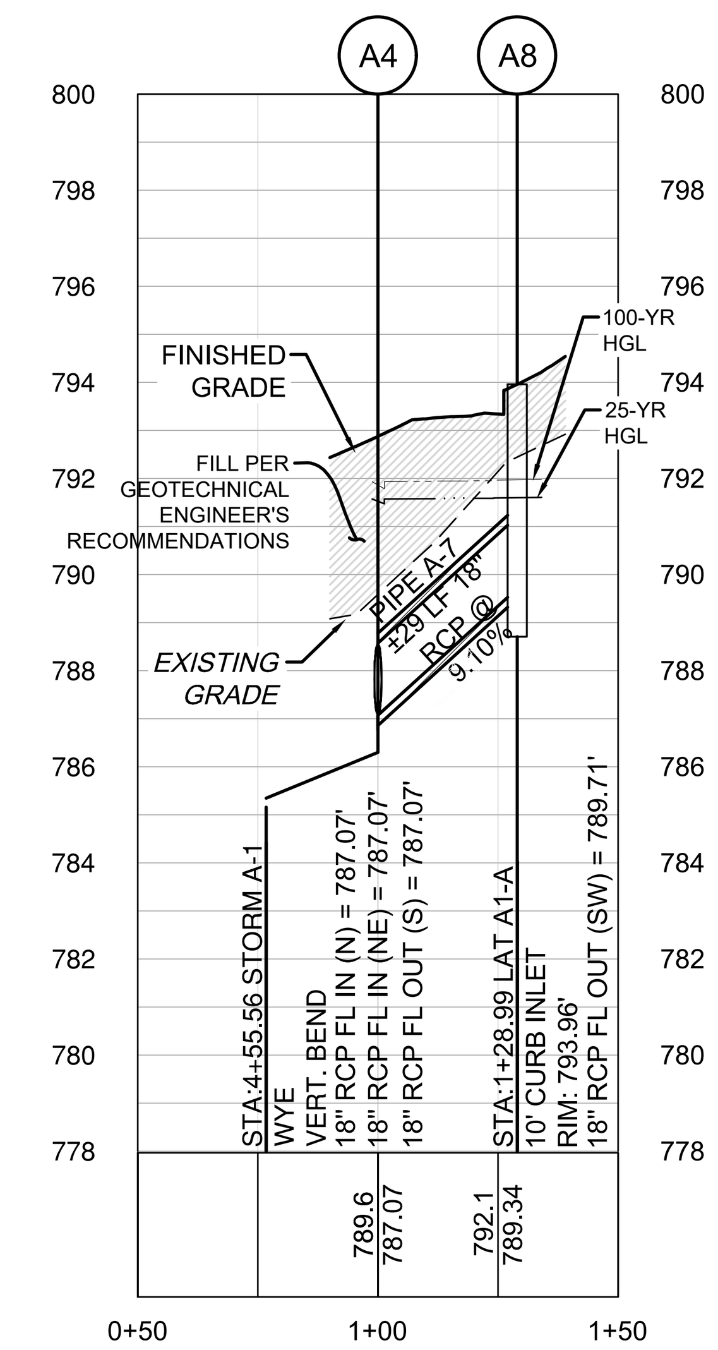
- WASTE WATER LINE
- WASTEWATER MANHOLE
- WASTEWATER CLEANOUT
- SINGLE WASTEWATER SERVICE
- DOUBLE WASTEWATER SERVICE

STORM A-1



LAT A1-A



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

EXISTING GRADE - CENTERLINE
FINISHED GRADE - CENTERLINE

EXISTING GROUND 1000.1 / 997.10 PROPOSED FLOWLINE

NOTES:

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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 PROVIDE 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.

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STATE OF TEXAS
CHRISTINE N. CAMPBELL
142536
LICENSED PROFESSIONAL ENGINEER
12/05/2025

STORM A-1 PLAN & PROFILE 0+50 - 5+56

CRESCENT BLUFF WEST
SECTIONS 9 & 10
GEORGETOWN, WILLIAMSON COUNTY TEXAS

DESIGNED BY: CC/TG
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APPROVED BY: SN

SHEET 52 of 105

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Plot Style: LandDev Global.ctb
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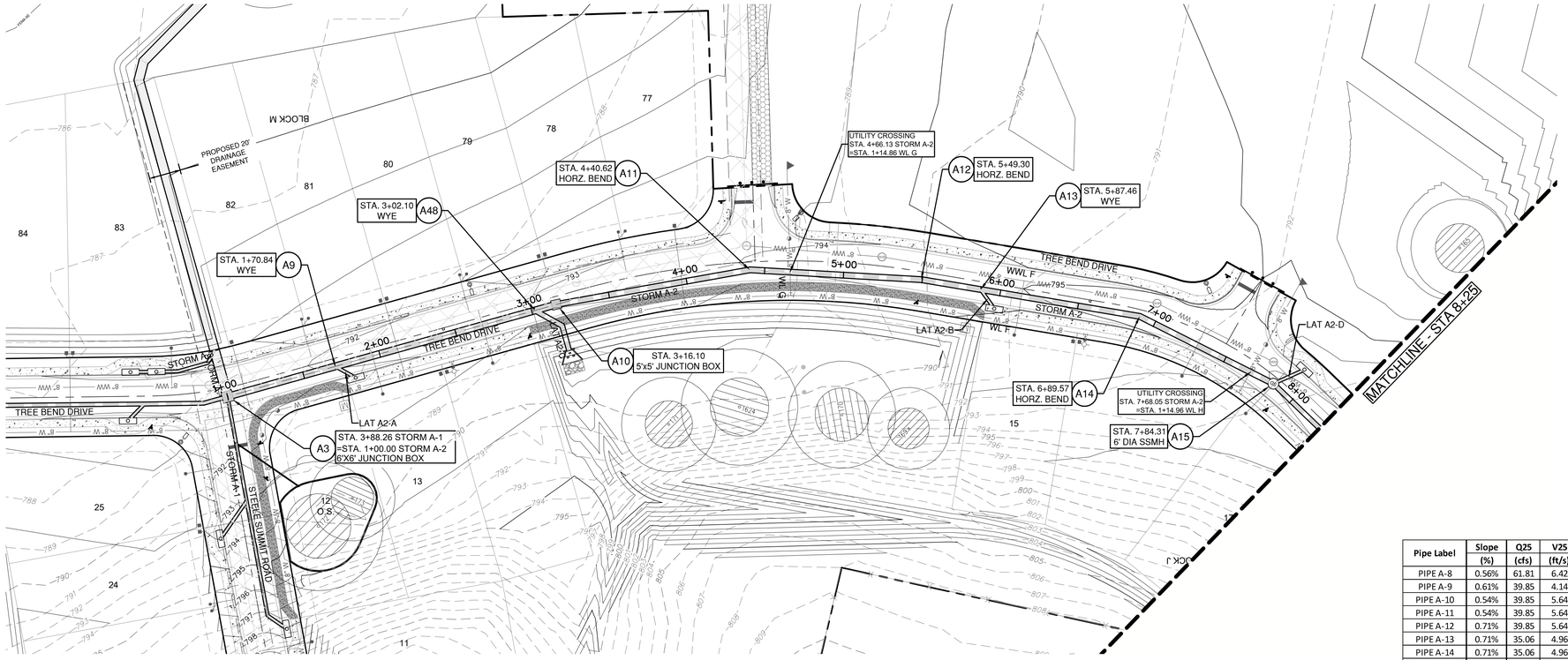

0 40' 80'
SCALE: 1" = 40'

LEGEND

— — 834 — —	EXISTING MINOR CONTOUR
— — 835 — —	EXISTING MAJOR CONTOUR
──	PROPOSED MINOR CONTOUR
━━	PROPOSED MAJOR CONTOUR
━━	BOUNDARY
— — — —	EASEMENT
—— 100YR CLOMR ——	CLOMR FLOODPLAIN
—— 100YR LOMR ——	LOMR FLOODPLAIN
▨ SD ▨	PROPOSED STORM LINE
■	STORM SEWER JUNCTION BOX
(SD)	STORM SEWER MAHNOLE
▭	CURB INLET
▣	AREA INLET
▦	GRATE INLET
◸	CONCRETE HEADWALL
──	WATER LINE
●	FIRE HYDRANT
◐	WATER VALVE
◣	PRESSURE REDUCING VALVE
▲	AUTOMATIC AIR RELEASE VALVE
▼	FLUSH VALVE
──■	SINGLE WATER SERVICE
──■■	DOUBLE WATER SERVICE
▶ (WW) ▶	WASTE WATER LINE
(WW)	WASTEWATER MANHOLE
○ C.O.	WASTEWATER CLEANOUT
──●	SINGLE WASTEWATER SERVICE
──●●	DOUBLE WASTEWATER SERVICE

Pipe Label	Slope (%)	Q25 (cfs)	V25 (ft/s)	D25 (ft)	Q100 (cfs)	V100 (ft/s)	D100 (ft)
PIPE A-8	0.56%	61.81	6.42	5.82	79.85	8.30	5.79
PIPE A-9	0.61%	39.85	4.14	5.87	50.34	5.23	6.65
PIPE A-10	0.54%	39.85	5.64	5.33	50.34	7.12	6.18
PIPE A-11	0.54%	39.85	5.64	5.19	50.34	7.12	6.35
PIPE A-12	0.71%	39.85	5.64	5.07	50.34	7.12	6.48
PIPE A-13	0.71%	35.06	4.96	5.01	44.33	6.27	6.54
PIPE A-14	0.71%	35.06	4.96	4.66	44.33	6.27	6.42
PIPE A-15	0.62%	32.33	6.59	3.86	40.81	8.31	6.09
PIPE A-46	0.61%	57.11	5.94	5.75	73.96	7.69	5.89

STORM A-2

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

EXISTING GRADE - CENTERLINE
FINISHED GRADE - CENTERLINE

4'
2'
0
VERT. SCALE

EXISTING GROUND → 1000.1 | 997.10 ← PROPOSED FLOWLINE

NOTES:

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HRGREEN.COM
TBPE NO: 16384
TBPLS NO: 10194101

CHRISTINE N. CAMPBELL
142536
Christine Campbell
12/05/2025

STORM A-2 PLAN & PROFILE 0+90 - 8+25

CRESCENT BLUFF WEST
SECTIONS 9 & 10
GEORGETOWN, WILLIAMSON COUNTY TEXAS

DESIGNED BY: CC/TG
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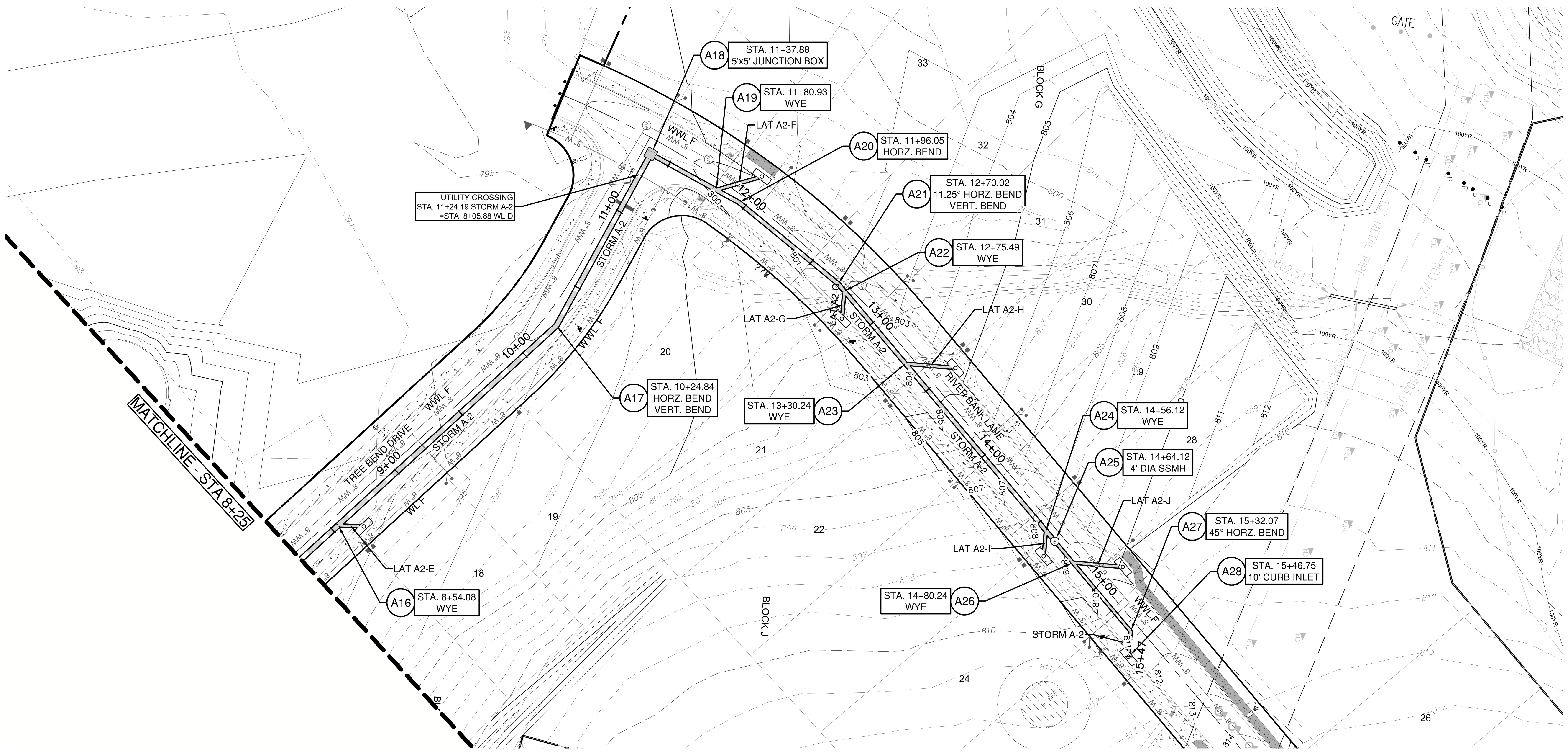
CHECKED BY: CC
APPROVED BY: SN

SHEET 53 of 105

2025-XX-CON

Plot Style: LandDev Global.ctb
Template: HRG_C3D2023.DWT
Sheet Location: P:\athena domain\chapman tract\sections 9-10\03_ACAD\Plans\sh2404243 SDPP STORM A-2.dwg, STORM A-2 PLAN & PROFILE 0+90 - 8+25, December 05, 2025, 3:04 PM, tgarza



Pipe Label	Slope (%)	Q25 (cfs)	V25 (ft/s)	D25 (ft)	Q100 (cfs)	V100 (ft/s)	D100 (ft)
PIPE A-16	0.62%	26.56	5.41	3.99	33.60	6.84	6.39
PIPE A-17	1.26%	26.56	5.41	3.76	33.60	6.84	6.58
PIPE A-18	2.08%	26.56	8.45	2.47	33.60	10.70	5.49
PIPE A-19	2.08%	22.63	7.20	2.28	28.68	9.13	5.72
PIPE A-20	2.08%	22.63	7.59	2.33	28.68	9.13	6.17
PIPE A-21	3.58%	22.63	7.45	2.02	28.68	9.13	6.02
PIPE A-22	3.58%	18.22	6.43	1.97	23.12	7.36	6.25
PIPE A-23	3.58%	13.78	5.57	1.65	17.46	6.22	5.09
PIPE A-24	3.58%	9.18	4.69	1.34	11.45	5.03	1.57
PIPE A-25	4.08%	9.18	7.74	1.17	11.45	8.45	1.29
PIPE A-26	4.08%	4.02	3.45	1.29	5.10	3.85	1.52
PIPE A-27	4.08%	4.02	3.76	1.03	5.10	4.12	1.18

SCALE: 1" = 40'

LEGEND

- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- BOUNDARY
- EASEMENT
- CLOMR FLOODPLAIN
- LOMR FLOODPLAIN
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- WATER VALVE
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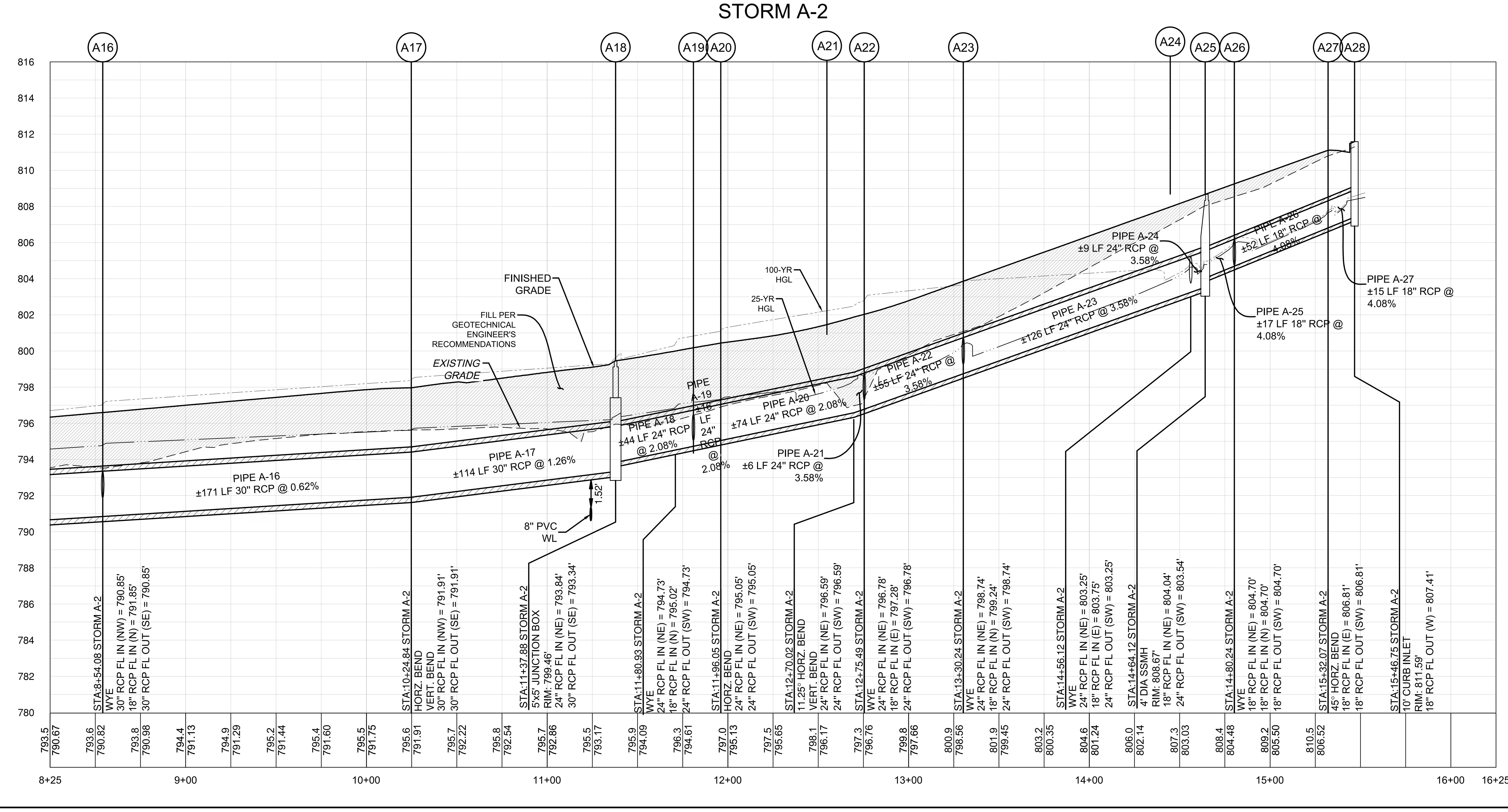
- AUTOMATIC AIR RELEASE VALVE
- FLUSH VALVE
- SINGLE WATER SERVICE
- DOUBLE WATER SERVICE
- WASTE WATER LINE
- WASTEWATER MANHOLE
- WASTEWATER CLEANOUT
- SINGLE WASTEWATER SERVICE
- DOUBLE WASTEWATER SERVICE

STORM A-2



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

EXISTING GRADE - CENTERLINE
FINISHED GRADE - CENTERLINE

EXISTING GROUND 1000.1 / 997.10 PROPOSED FLOWLINE

NOTES:

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3. VEGETATE ALL DISTURBED AREAS PER CITY OF GEORGETOWN SPECIFICATIONS.

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NO.	REVISION	BY	DATE

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

HRGreen DEVELOPMENT TX
5508 HIGHWAY 290 WEST SUITE 150 AUSTIN, TX 78735 512.872.6696 HRGREEN.COM
TBPE NO: 16384 TBPLS NO: 10194101

STATE OF TEXAS — CHRISTINE N. CAMPBELL — 142536 — LICENSED PROFESSIONAL ENGINEER
12/05/2025

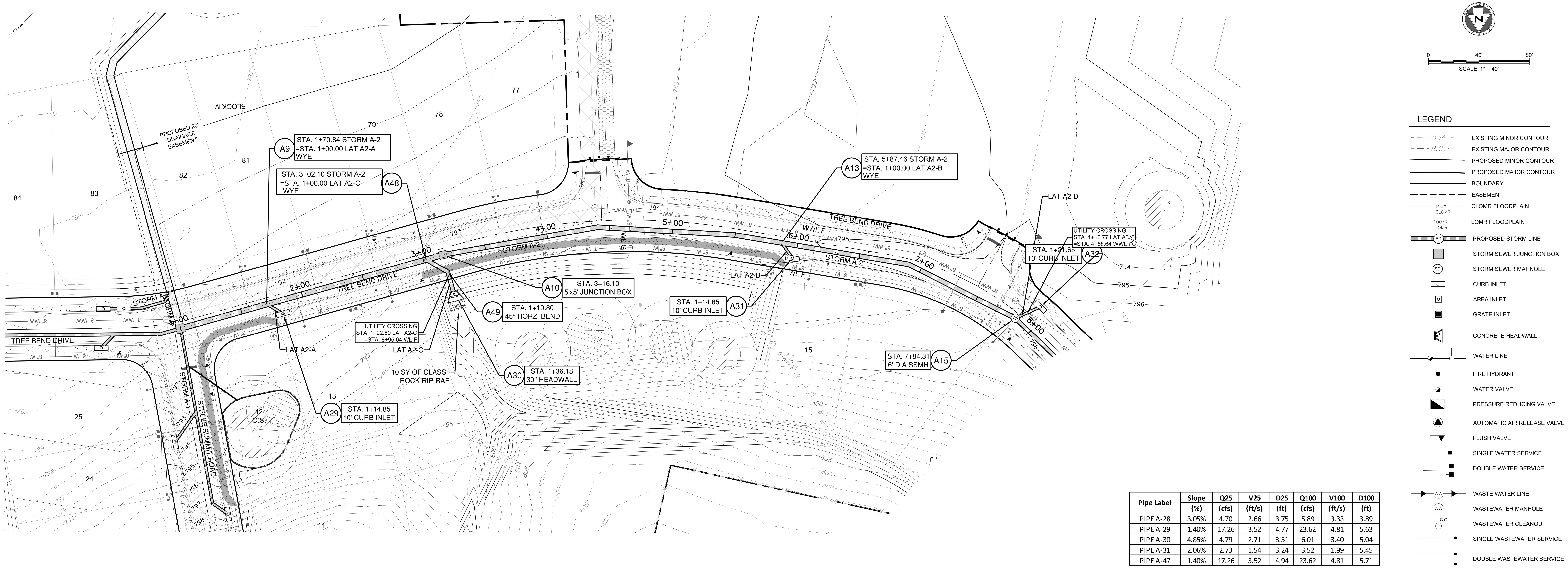
STORM A-2 PLAN & PROFILE 8+25 - 15+00

CRESCENT BLUFF WEST
SECTIONS 9 & 10
GEORGETOWN, WILLIAMSON COUNTY TEXAS

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

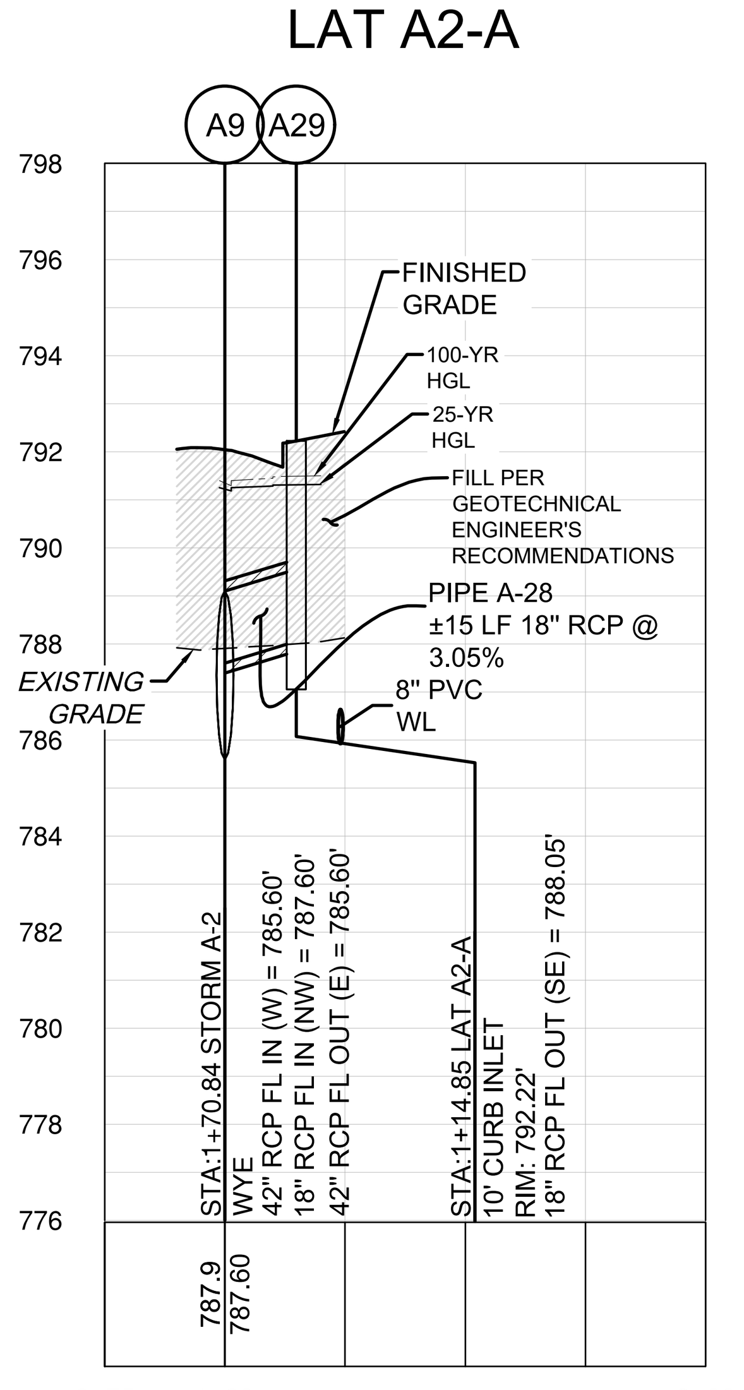
SHEET 54 of 105

2025-XX-CON

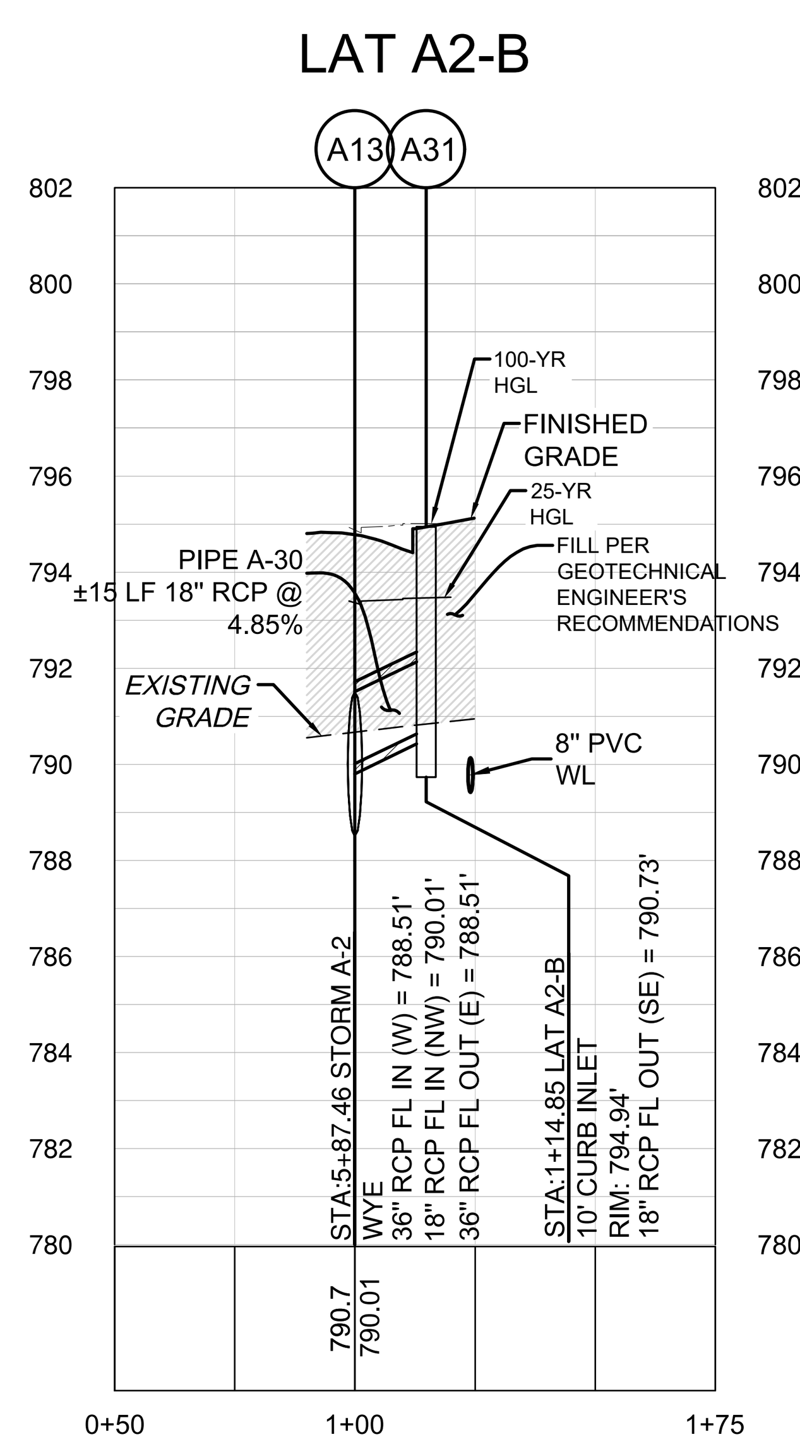


Pipe Label	Slope (%)	Q25 (cfs)	V25 (ft/s)	D25 (ft)	Q100 (cfs)	V100 (ft/s)	D100 (ft)
PIPE A-28	3.05%	4.70	2.66	3.75	5.89	3.33	3.89
PIPE A-29	1.40%	17.26	3.52	4.77	23.62	4.81	5.63
PIPE A-30	4.85%	4.79	2.71	3.51	6.01	3.40	5.04
PIPE A-31	2.06%	2.73	1.54	3.24	3.52	1.99	5.45
PIPE A-47	1.40%	17.26	3.52	4.94	23.62	4.81	5.71

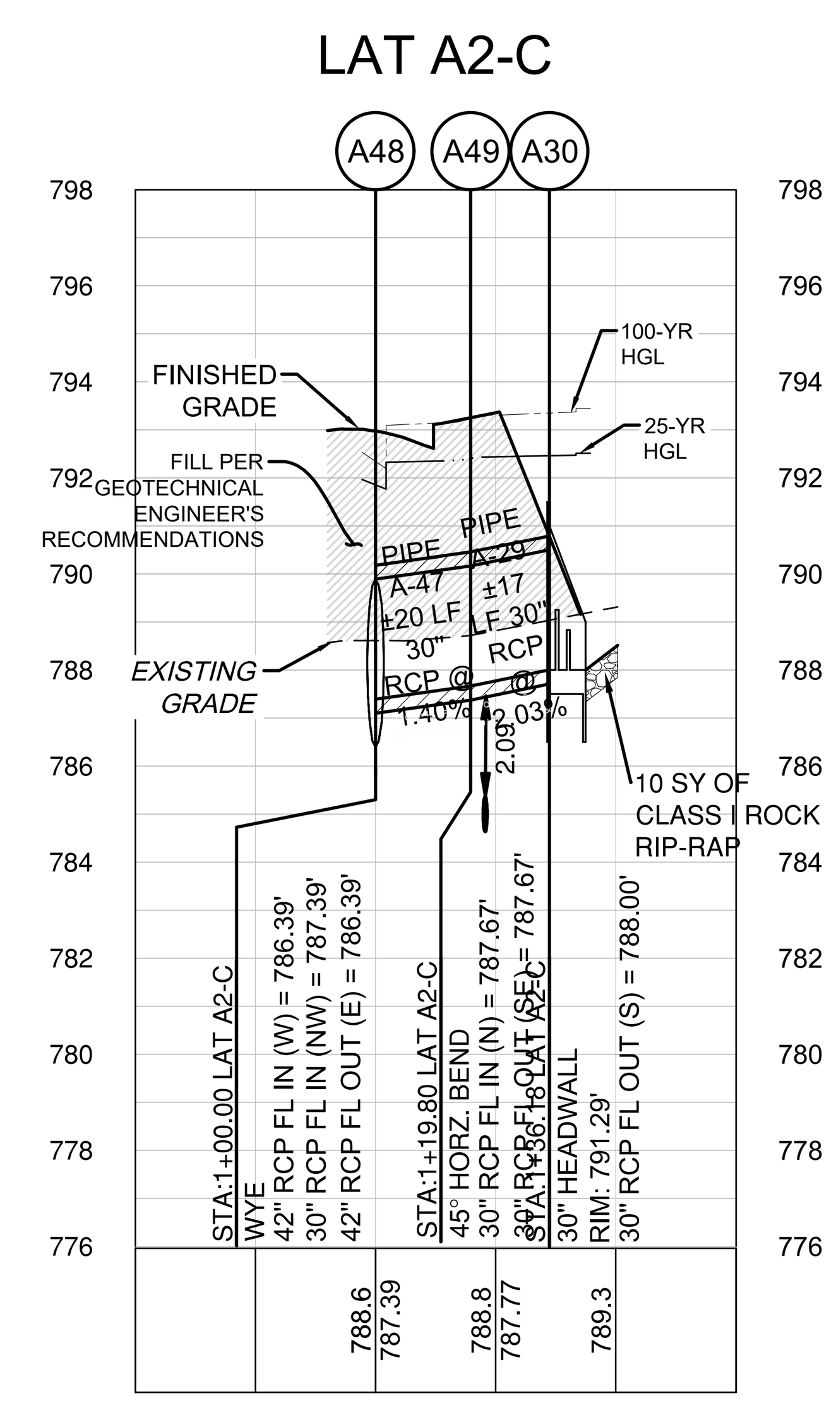
LAT A2-A



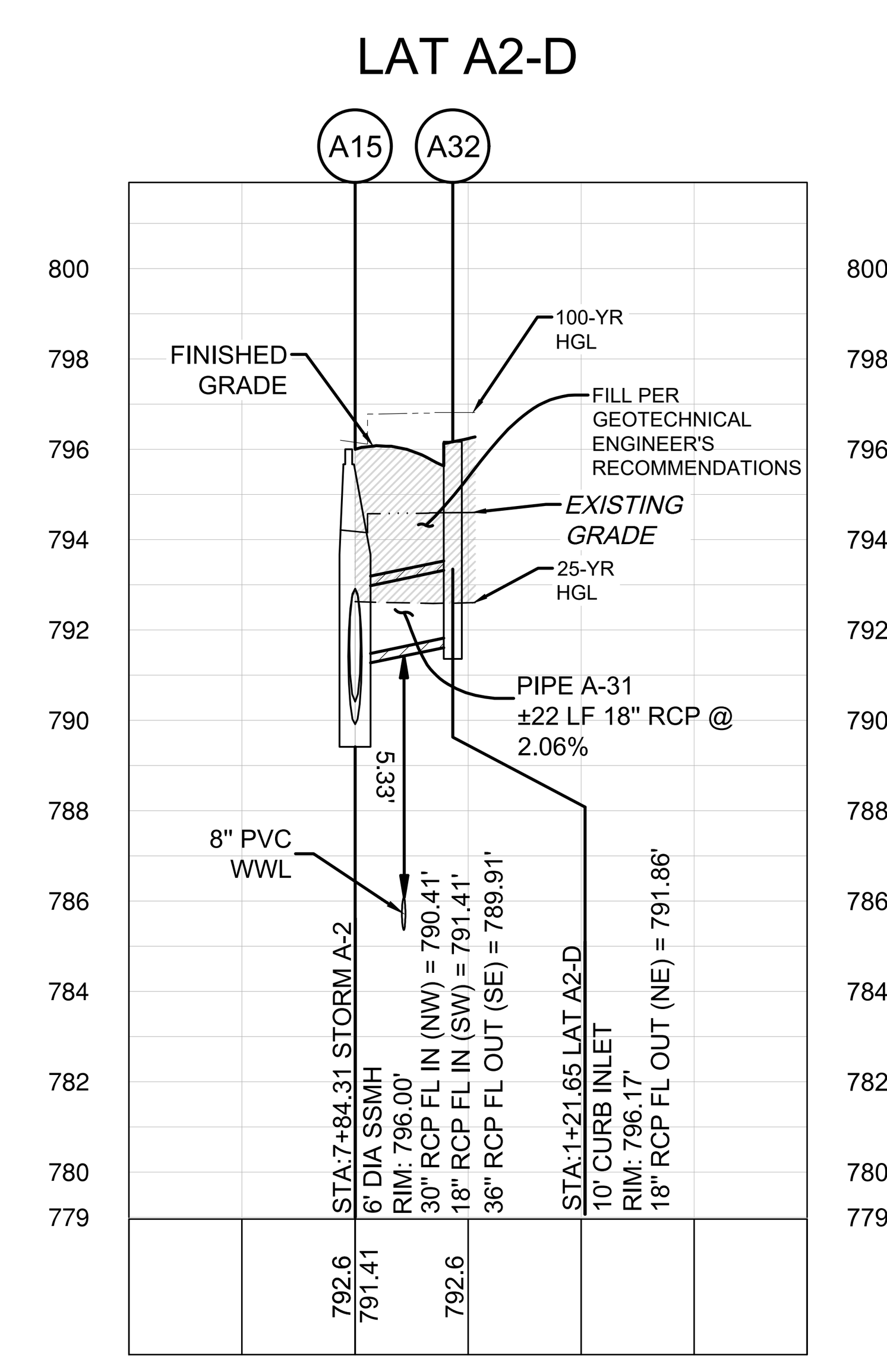
LAT A2-B

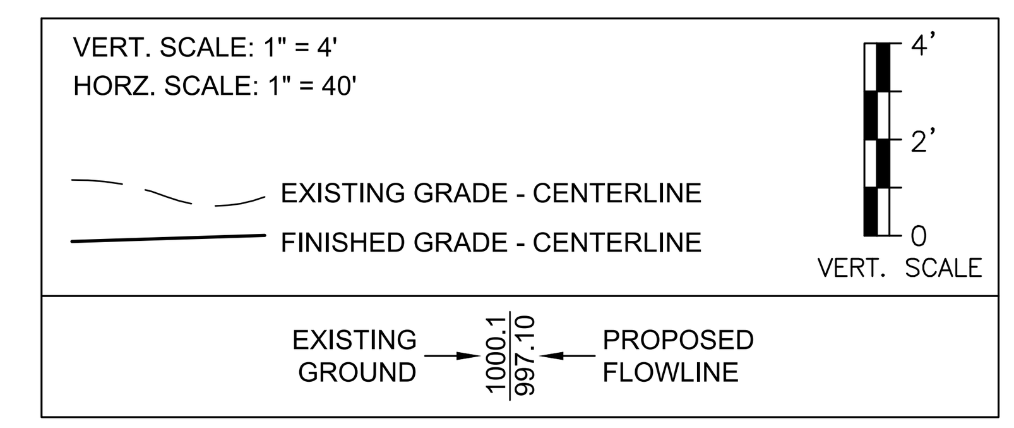


LAT A2-C



LAT A2-D





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Pipe Label	Slope (%)	Q25 (cfs)	V25 (ft/s)	D25 (ft)	Q100 (cfs)	V100 (ft/s)	D100 (ft)
PIPE A-28	3.05%	4.70	2.66	3.67	5.89	3.33	3.48
PIPE A-29	1.40%	17.26	3.52	4.66	23.62	4.81	5.31
PIPE A-30	4.85%	4.79	2.71	3.36	6.01	3.40	4.23
PIPE A-31	2.06%	2.73	1.54	3.04	3.52	1.99	4.78
PIPE A-47	1.40%	17.26	3.52	4.83	23.62	4.81	5.43

NO.	REVISION	BY	DATE

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5508 HIGHWAY 290 WEST SUITE 150 AUSTIN, TX 78735 512.872.6696 HRGREEN.COM
TBPE NO: 16384 TBPLS NO: 10194101

STATE OF TEXAS CHRISTINE N. CAMPBELL 142536 LICENSED PROFESSIONAL ENGINEER 12/05/2025

STORM SEWER LATERALS A2-A - A2-D

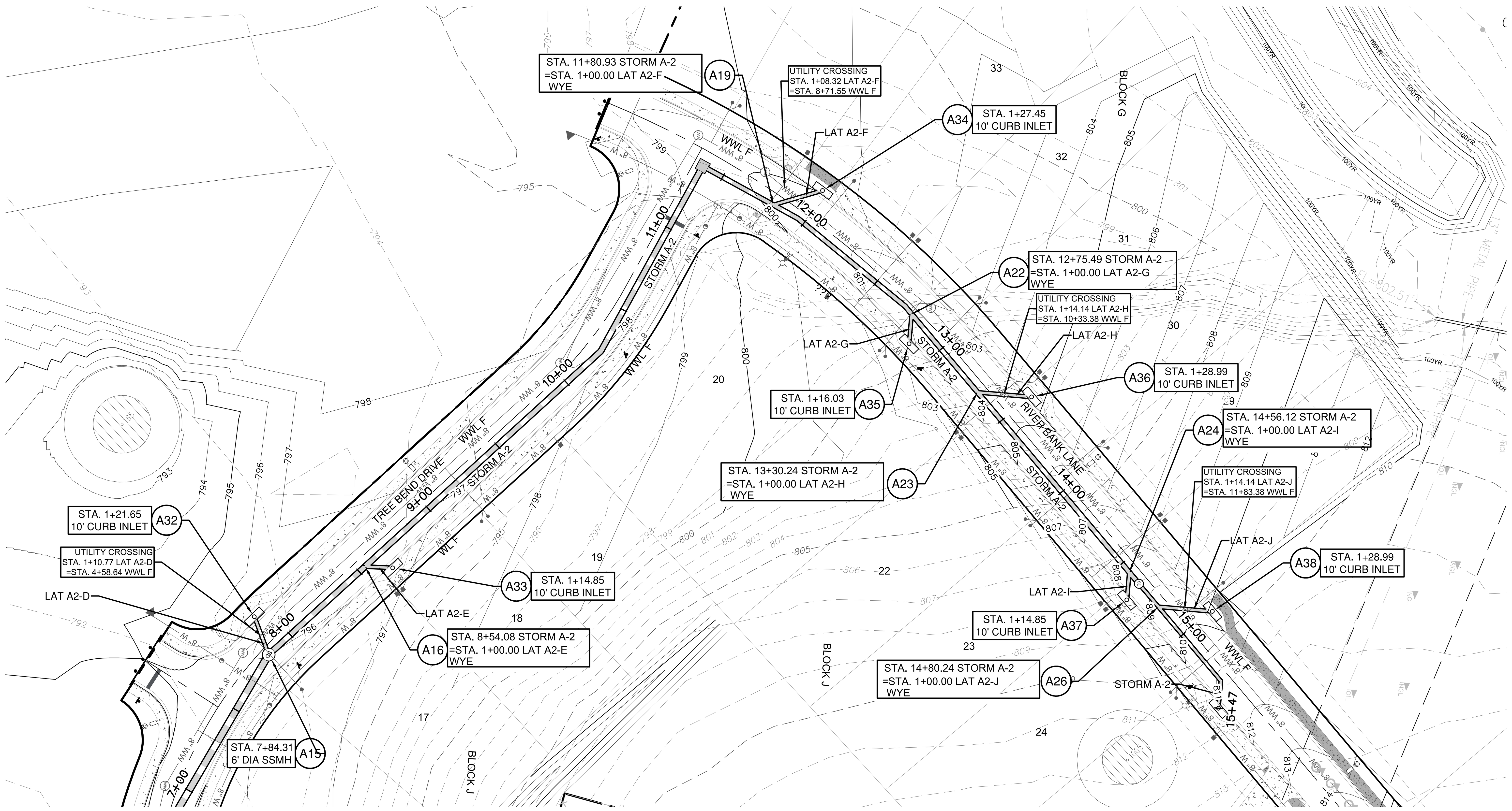
CRESCENT BLUFF WEST

SECTIONS 9 & 10

GEORGETOWN, WILLIAMSON COUNTY TEXAS

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

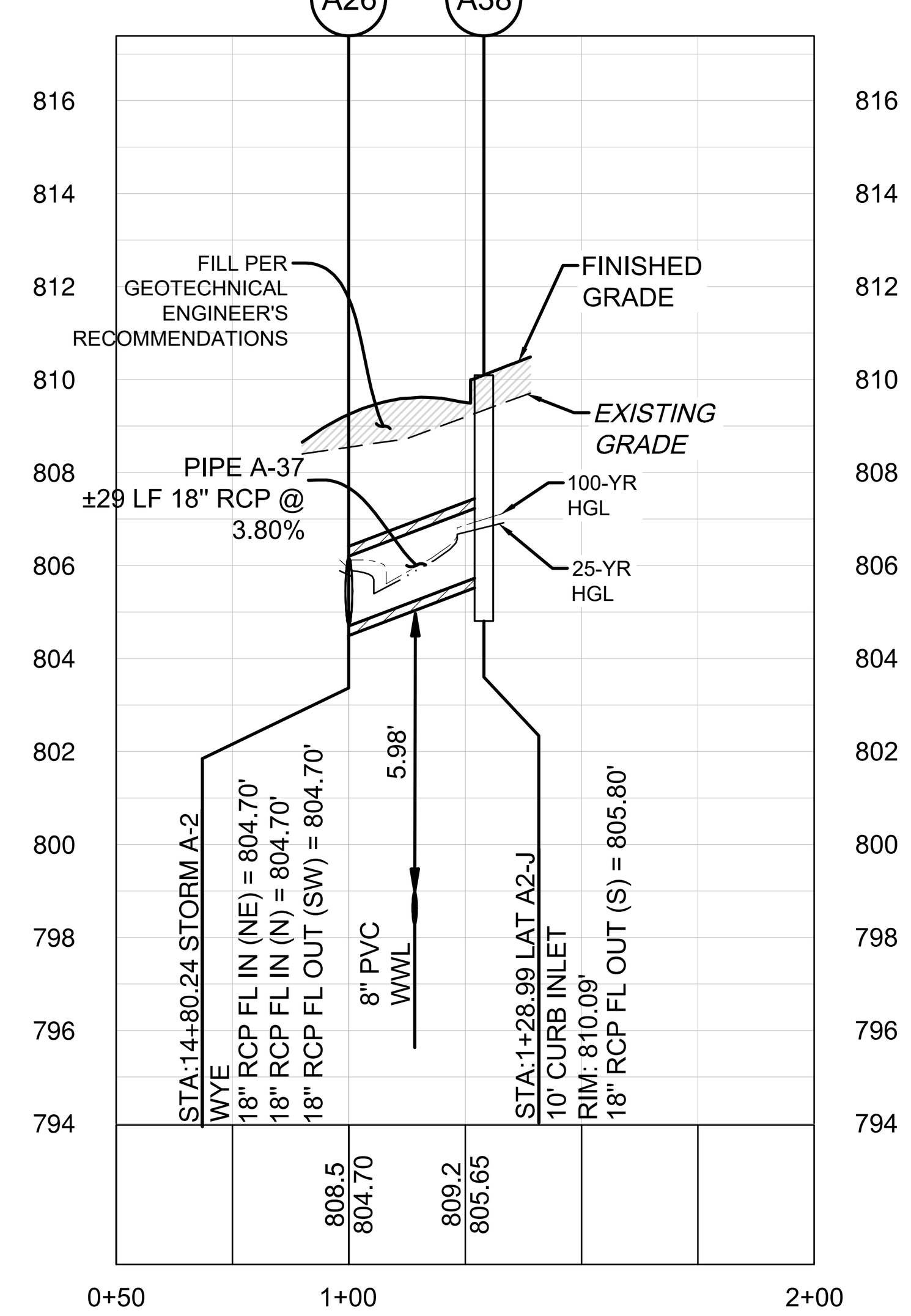
2025-XX-CON



Pipe Label	Slope (%)	Q25 (cfs)	V25 (ft/s)	D25 (ft)	Q100 (cfs)	V100 (ft/s)	D100 (ft)
PIPE A-32	4.91%	5.77	3.27	2.99	7.21	4.08	5.31
PIPE A-33	4.29%	3.93	3.30	1.99	4.92	2.78	5.43
PIPE A-34	5.88%	4.41	3.54	1.47	5.56	3.15	5.75
PIPE A-35	4.00%	4.44	3.80	1.16	5.66	3.20	4.60
PIPE A-36	5.46%	4.60	4.56	0.84	6.01	4.78	1.07
PIPE A-37	3.80%	5.16	4.01	1.29	6.35	4.41	1.52

SCALE: 1" = 40'

LAT A2-J



LEGEND

- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- BOUNDARY
- EASEMENT
- CLOMR FLOODPLAIN
- LOMR FLOODPLAIN
- PROPOSED STORM LINE
- STORM SEWER JUNCTION BOX
- STORM SEWER MAHNOLE
- CURB INLET
- AREA INLET
- GRATE INLET
- CONCRETE HEADWALL
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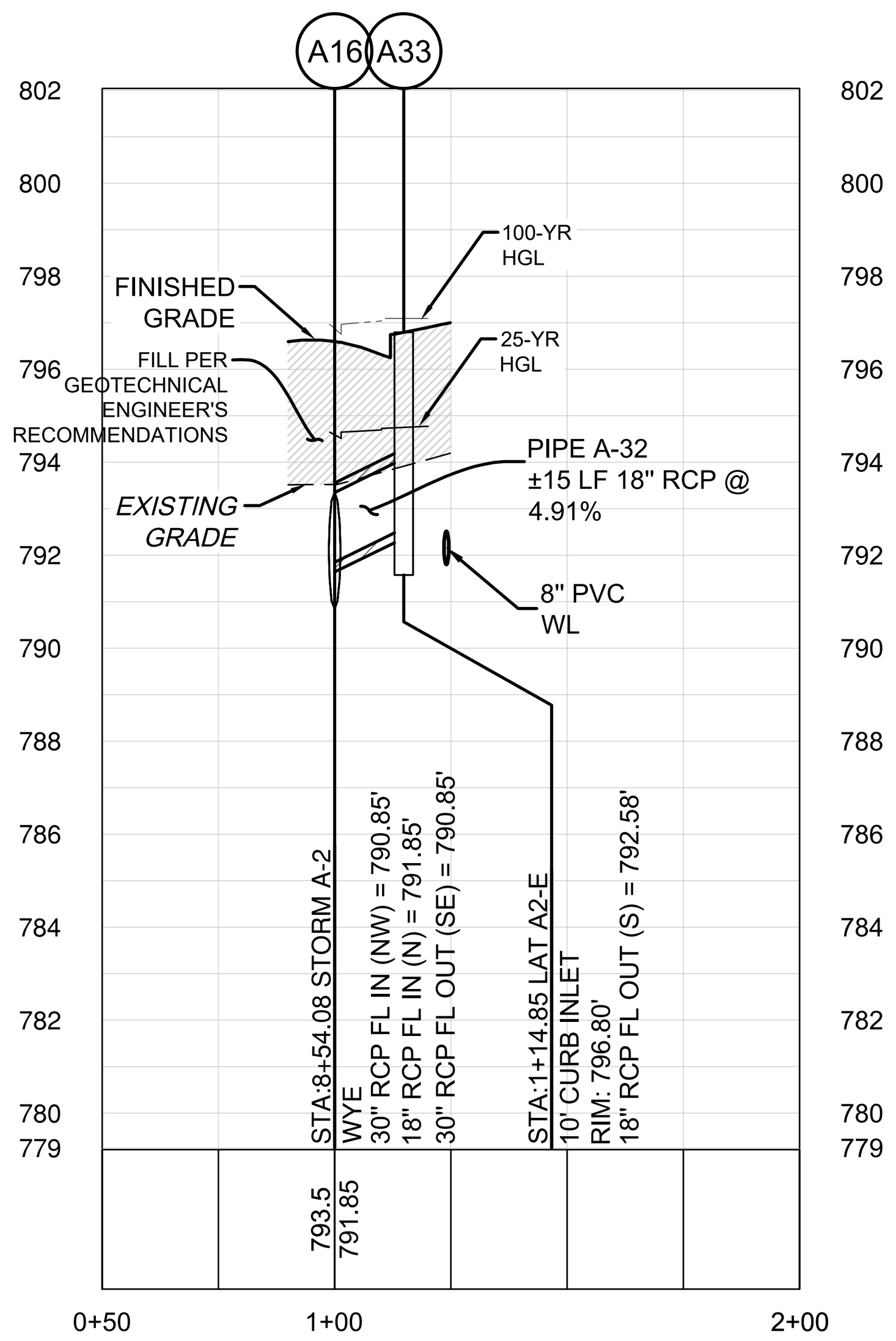
VERT. SCALE: 1" = 4'
HORZ. SCALE: 1" = 40'

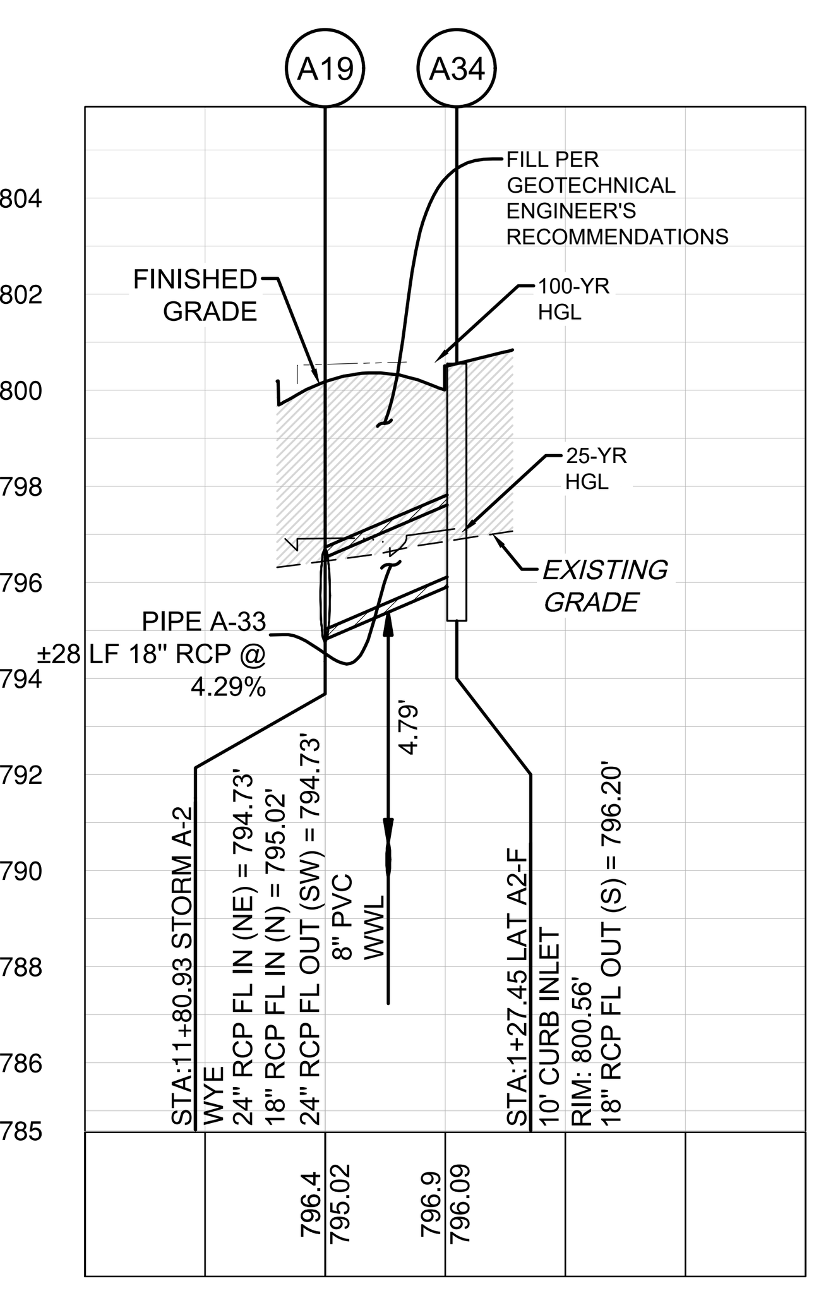
EXISTING GRADE - CENTERLINE
FINISHED GRADE - CENTERLINE

EXISTING GROUND 1000.1 / 997.10 PROPOSED FLOWLINE

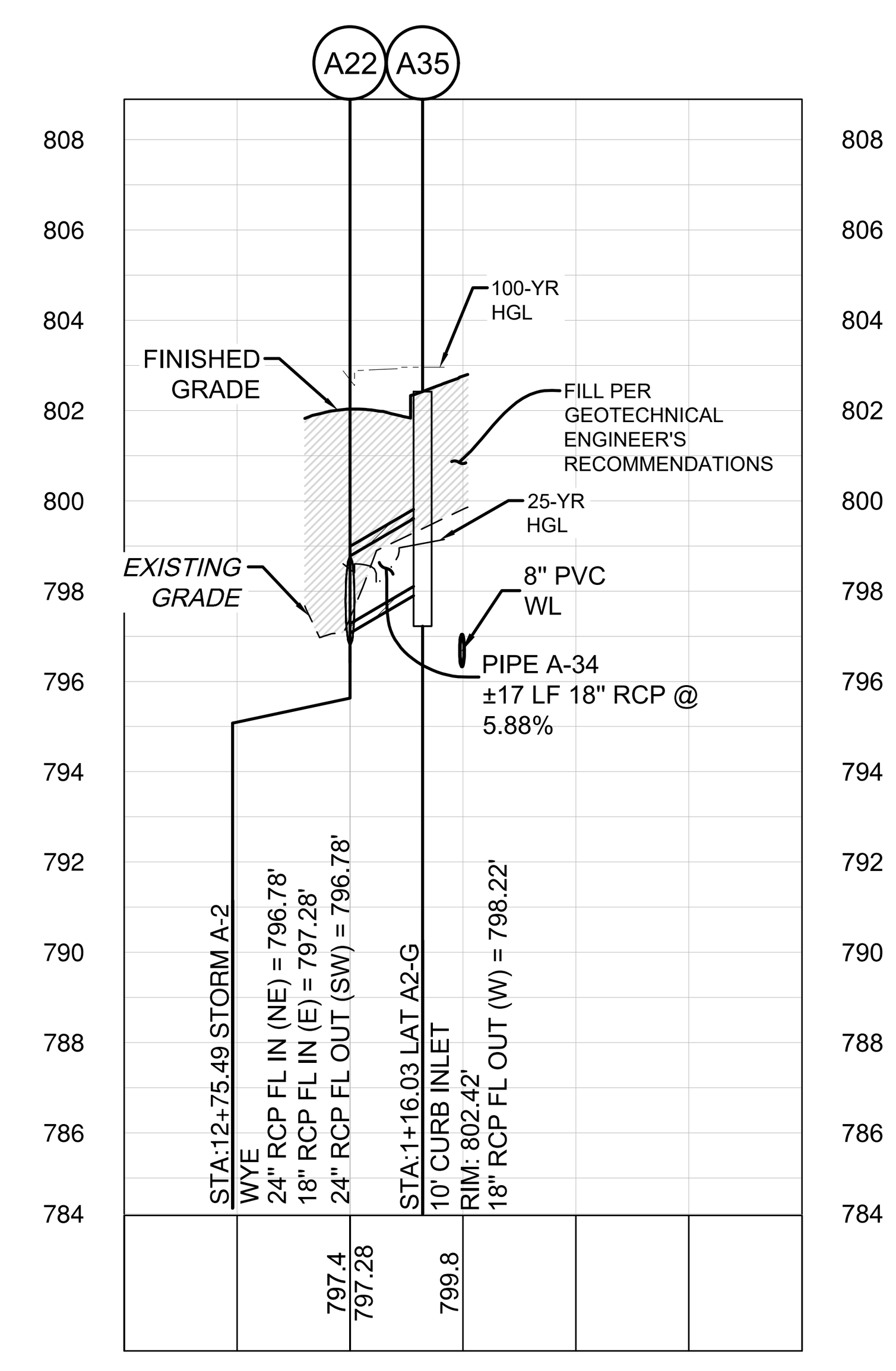
LAT A2-E



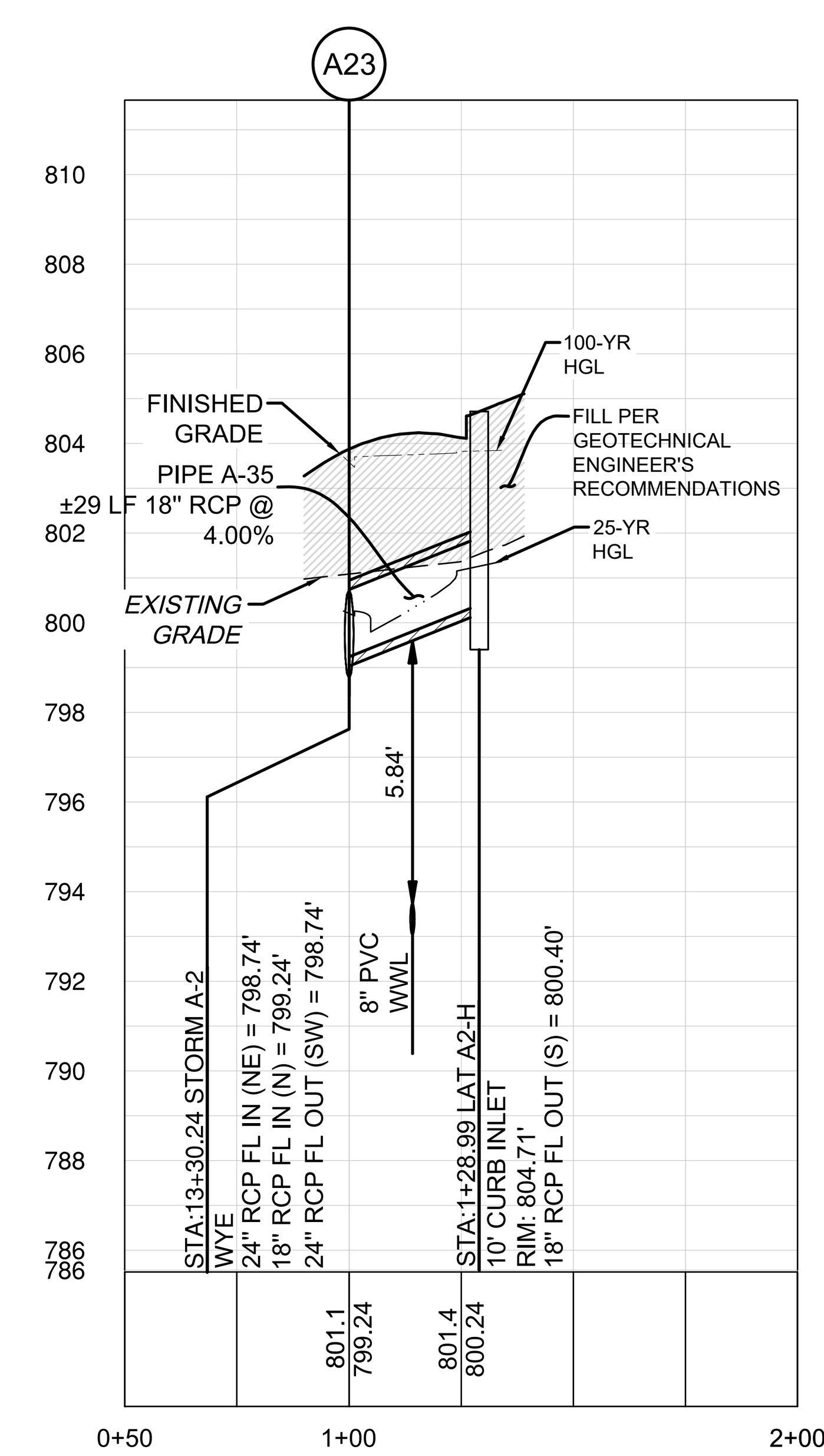
LAT A2-F



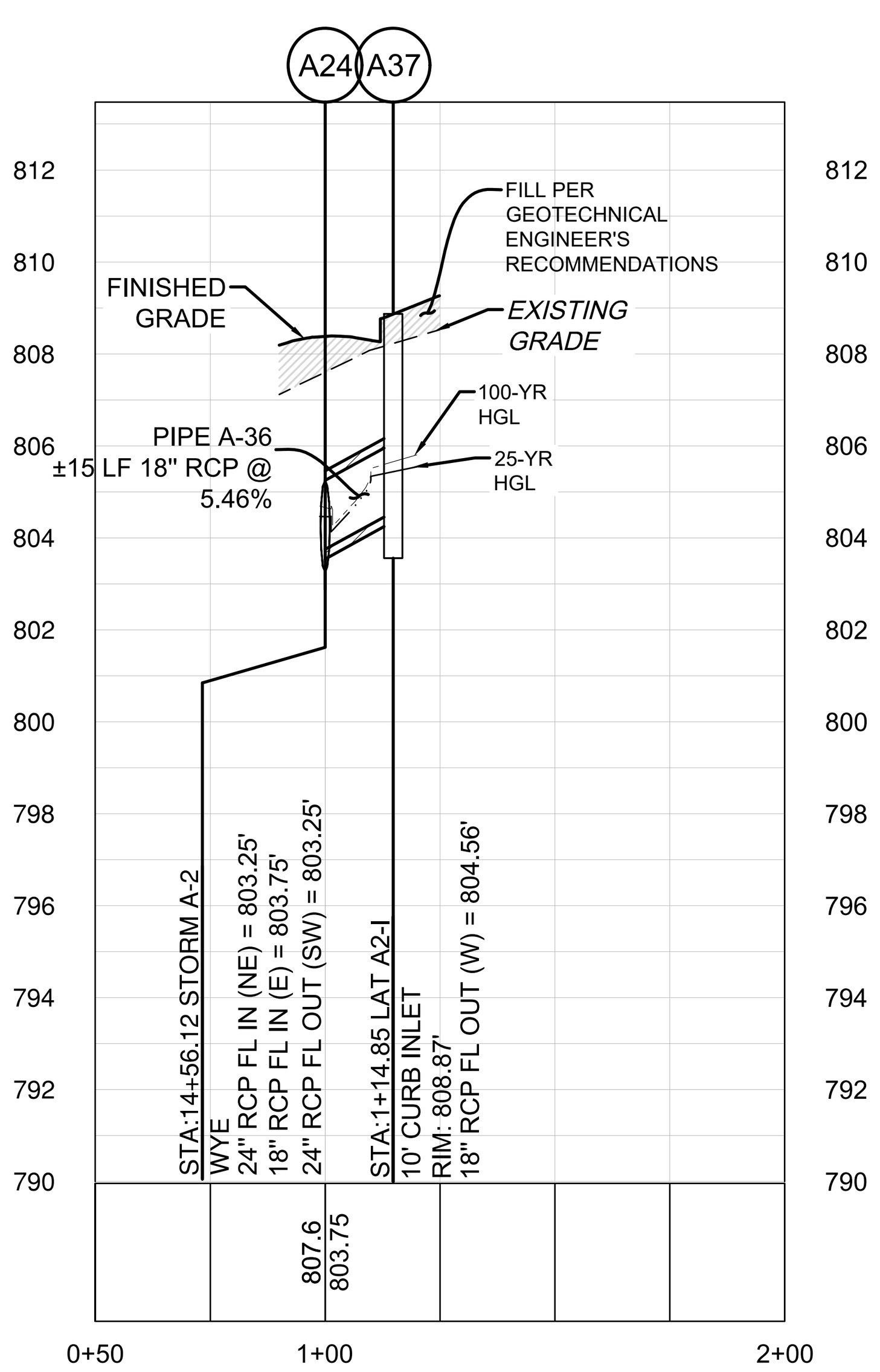
LAT A2-G



LAT A2-H



LAT A2-I



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NO.	REVISION	BY	DATE

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5508 HIGHWAY 290 WEST
SUITE 150
AUSTIN, TX 78735
512.872.6696
HRGREEN.COM
TBPE NO.: 16384
TBPLS NO.: 10194101
HRGreen® DEVELOPMENT TX

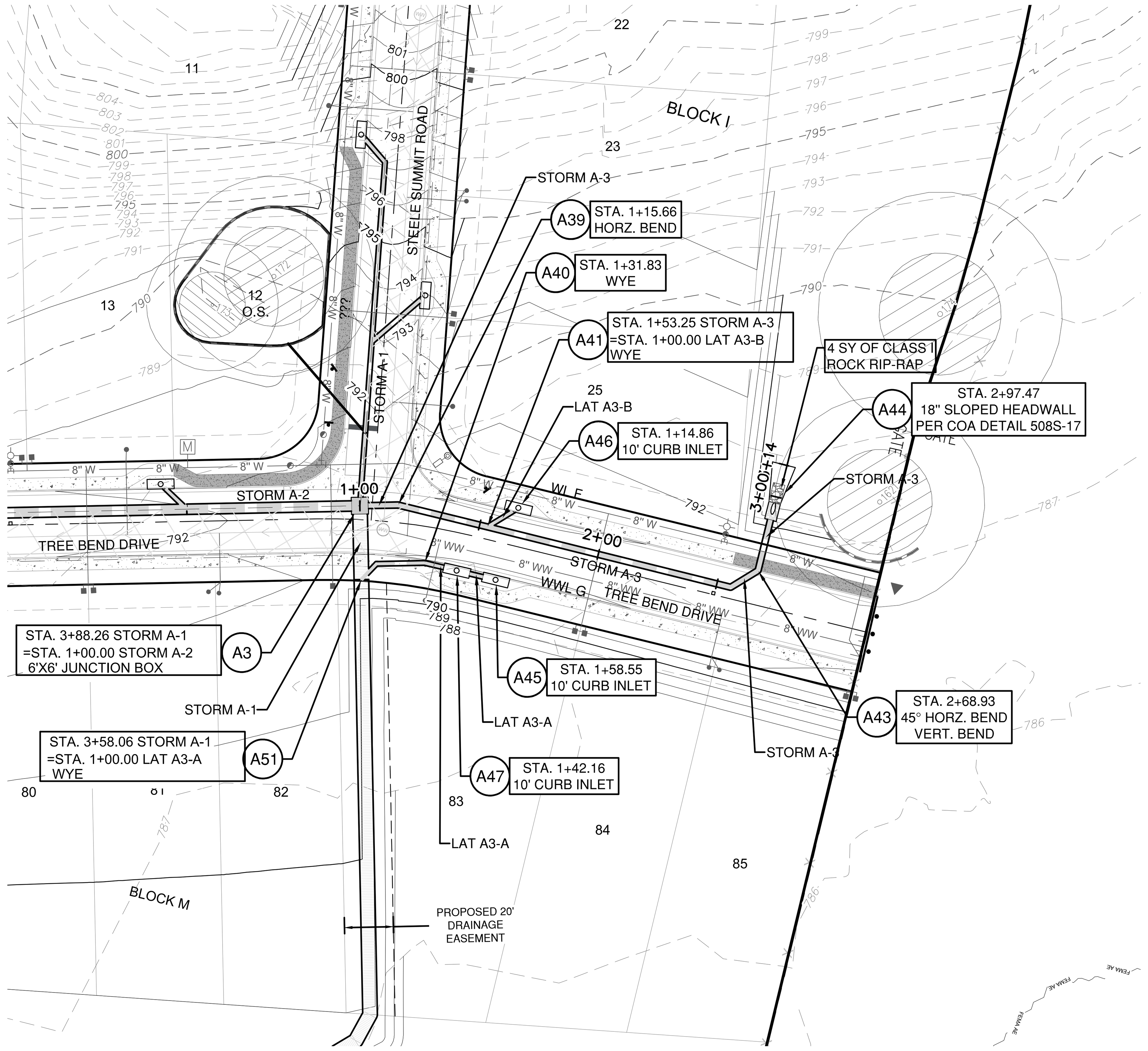
STATE OF TEXAS
CHRISTINE N. CAMPBELL
142536
LICENSED PROFESSIONAL ENGINEER
12/05/2025

STORM SEWER LATERAL A2-E - 2A-I

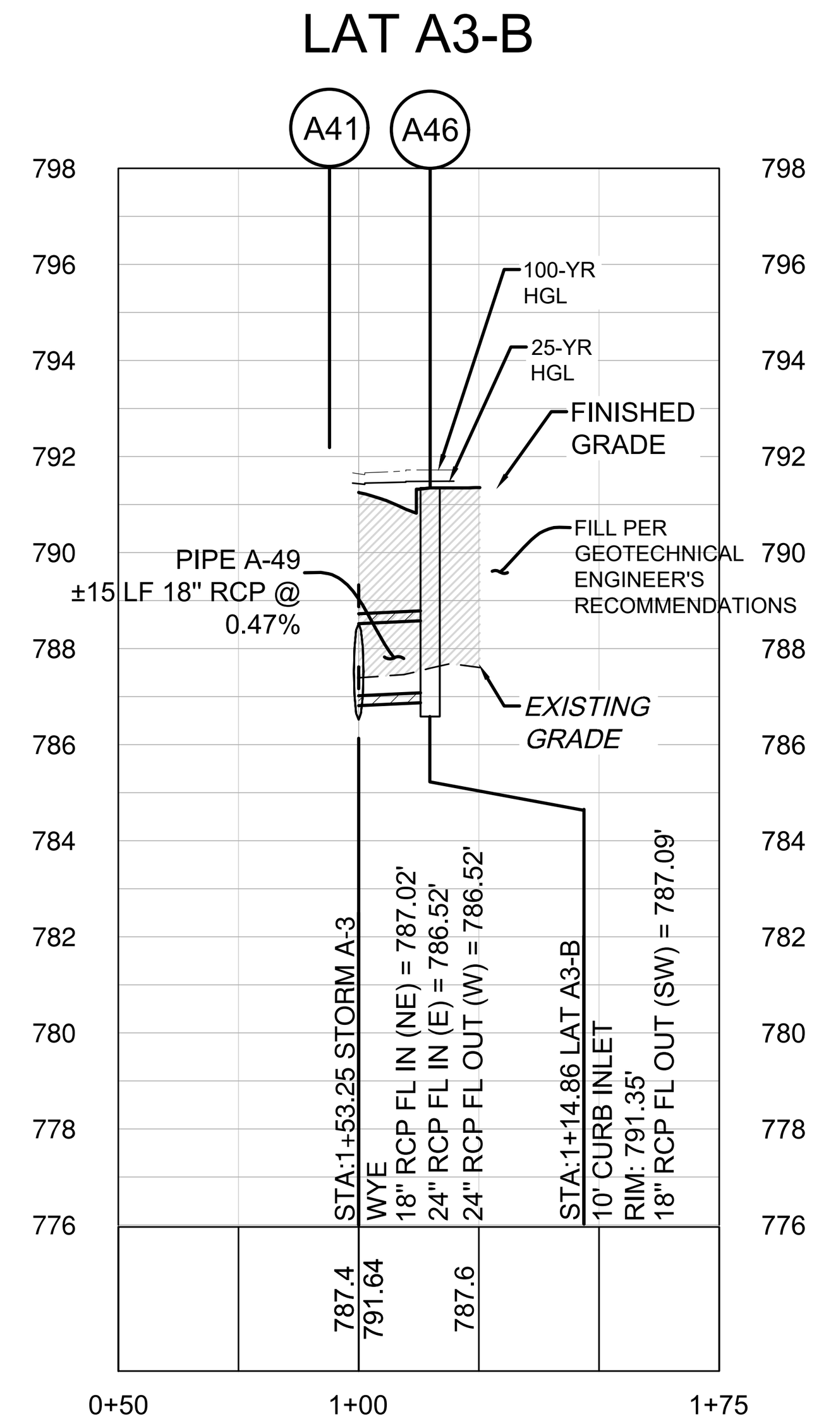
CRESCENT BLUFF WEST
SECTIONS 9 & 10
GEORGETOWN, WILLIAMSON COUNTY TEXAS

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

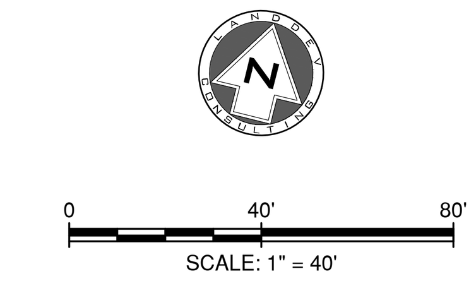
2025-XX-CON



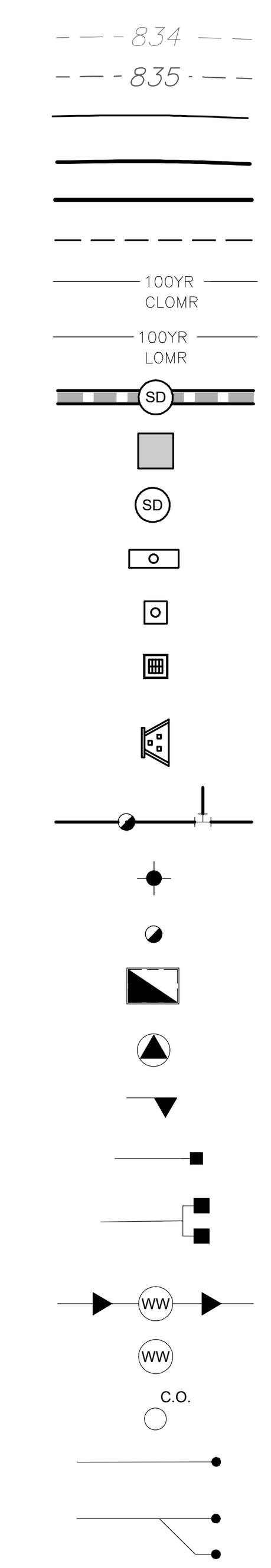
LAT A3-B



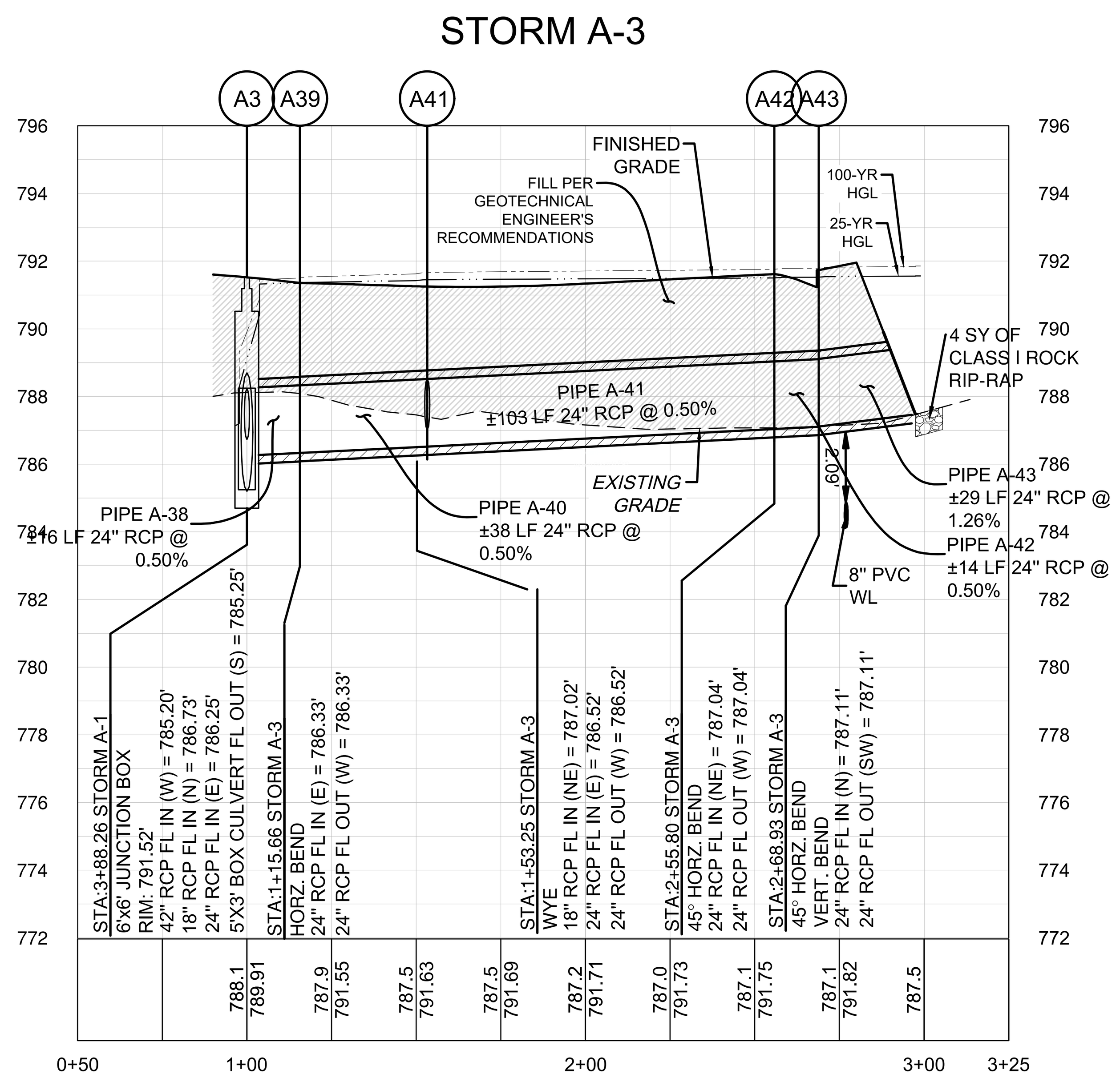
Pipe Label	Slope (%)	Q25 (cfs)	V25 (ft/s)	D25 (ft)	Q100 (cfs)	V100 (ft/s)	D100 (ft)
PIPE A-38	0.50%	8.99	2.86	5.08	11.53	3.67	5.21
PIPE A-40	0.52%	8.99	2.86	5.04	11.53	3.67	5.21
PIPE A-41	0.50%	5.04	1.60	4.94	6.55	2.08	5.16
PIPE A-42	0.50%	5.04	1.60	4.48	6.55	2.08	4.74
PIPE A-43	1.26%	5.04	1.60	4.43	6.55	2.08	4.71
PIPE A-44	1.84%	1.67	3.02	0.58	2.06	1.38	1.33
PIPE A-45	1.84%	1.67	3.34	0.49	2.06	1.17	1.84
PIPE A-49	0.50%	3.95	2.24	4.44	4.98	2.82	4.66
PIPE A-50	1.84%	0.72	1.17	0.73	0.88	0.72	1.12

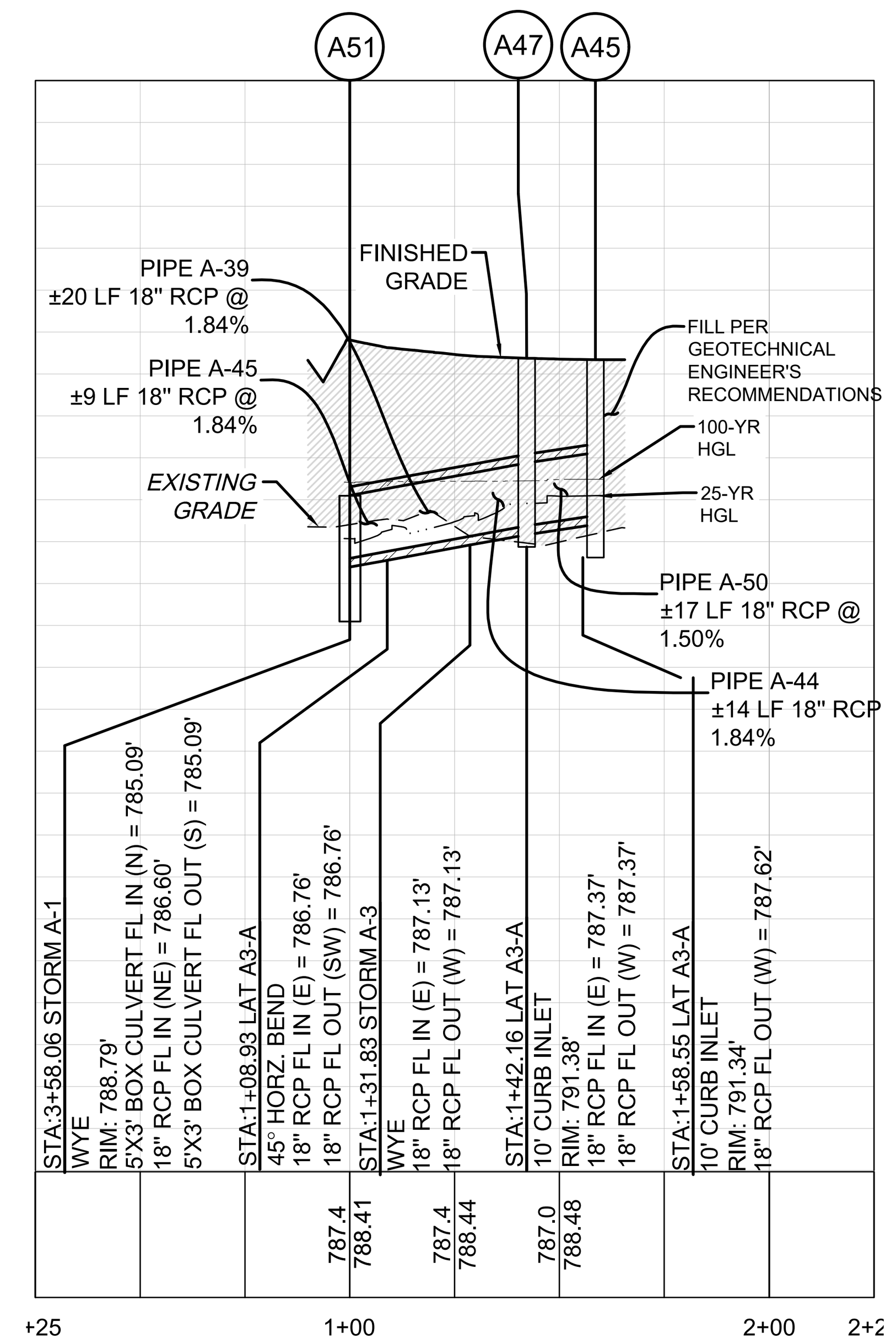


LEGEND



STORM A-3





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

EXISTING GRADE - CENTERLINE
FINISHED GRADE - CENTERLINE

4'
2'
0
VERT. SCALE

EXISTING GROUND 1000.1 / 997.10 PROPOSED FLOWLINE

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STATE OF TEXAS
CHRISTINE N. CAMPBELL
142536
LICENSED PROFESSIONAL ENGINEER
12/05/2025

STORM A-3 PLAN & PROFILE 0+90 - 1+65

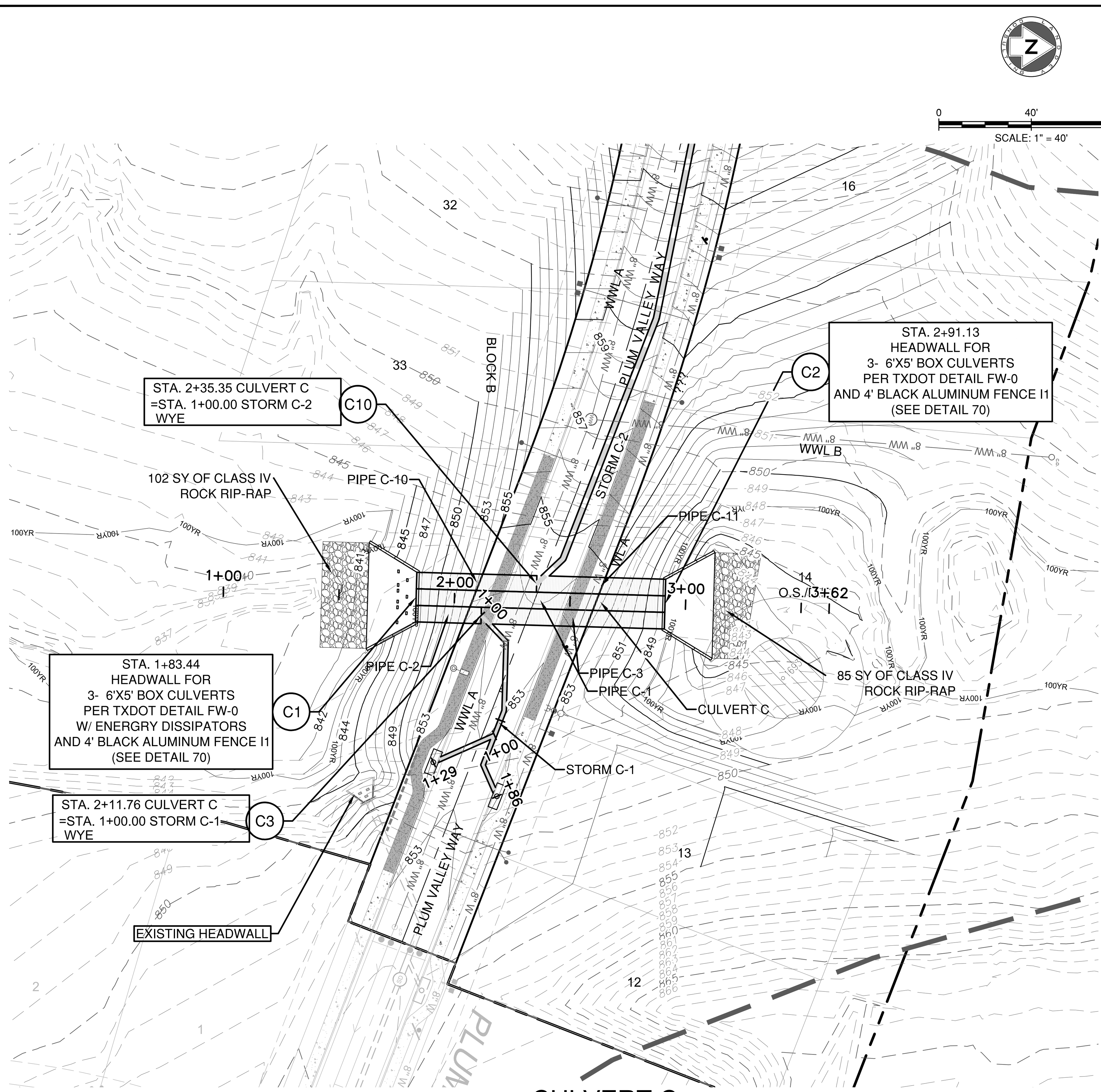
CRESCENT BLUFF WEST

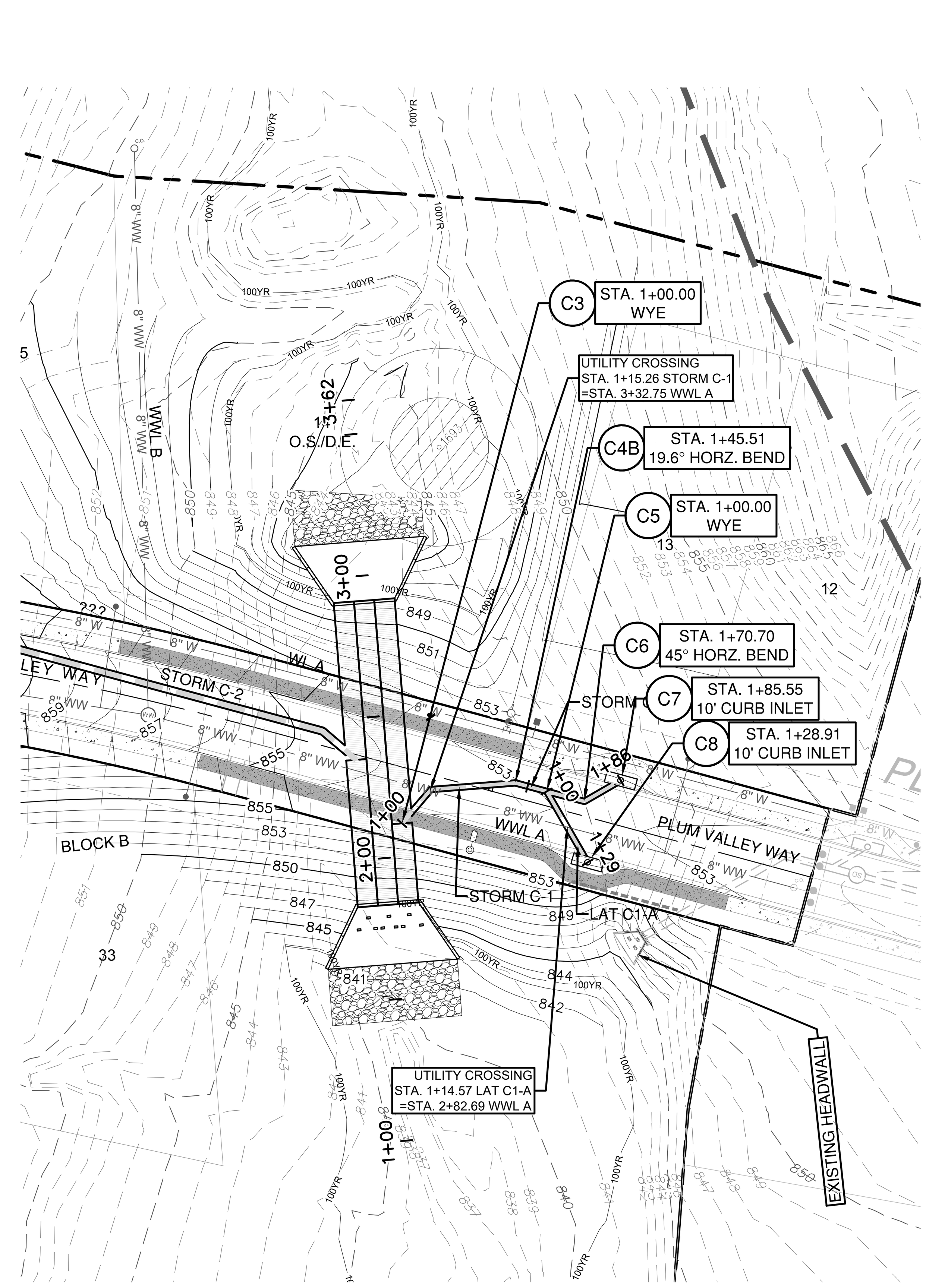
SECTIONS 9 & 10

GEORGETOWN, WILLIAMSON COUNTY TEXAS

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

2025-XX-CON





Pipe Label	Slope (%)	Q25 (cfs)	V25 (ft/s)	D25 (ft)	Q100 (cfs)	V100 (ft/s)	D100 (ft)
PIPE C-1	0.83%	375.40	9.94	2.38	553.30	11.15	3.09
PIPE C-2	0.83%	375.40	9.94	2.38	553.30	11.15	3.09
PIPE C-3	0.83%	375.40	9.94	2.38	553.30	11.15	3.09
PIPE C-4A	3.75%	7.88	7.23	1.09	9.72	7.78	1.20
PIPE C-4B	3.75%	7.88	5.11	1.48	9.72	5.95	1.60
PIPE C-5	3.75%	7.88	5.11	1.48	9.72	5.95	1.60
PIPE C-6	3.75%	4.49	3.80	1.18	5.57	4.12	1.38
PIPE C-7	3.75%	4.49	3.92	1.10	5.57	4.27	1.23
PIPE C-8	3.50%	3.39	3.23	1.18	4.15	3.46	1.38
PIPE C-10	0.83%	375.40	9.94	2.38	553.30	11.15	3.09
PIPE C-11	0.83%	375.40	9.94	2.38	553.30	11.15	3.09

LEGEND

- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- BOUNDARY
- EASEMENT
- CLOMR FLOODPLAIN
- LOMR FLOODPLAIN
- PROPOSED STORM LINE
- STORM SEWER JUNCTION BOX
- STORM SEWER MANHOLE
- CURB INLET
- AREA INLET
- GRATE INLET
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- WATER LINE
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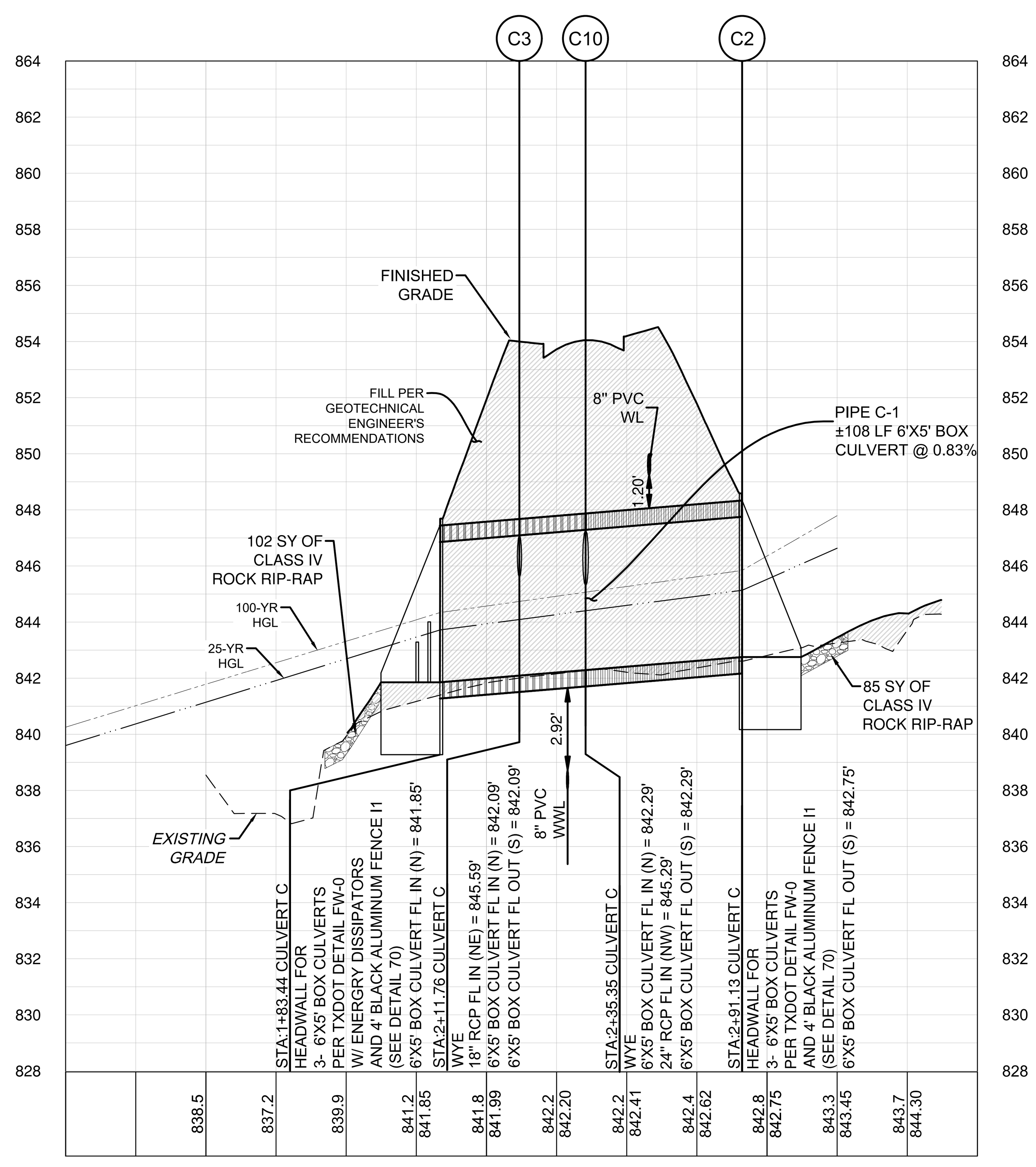
- DOUBLE WASTEWATER SERVICE

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

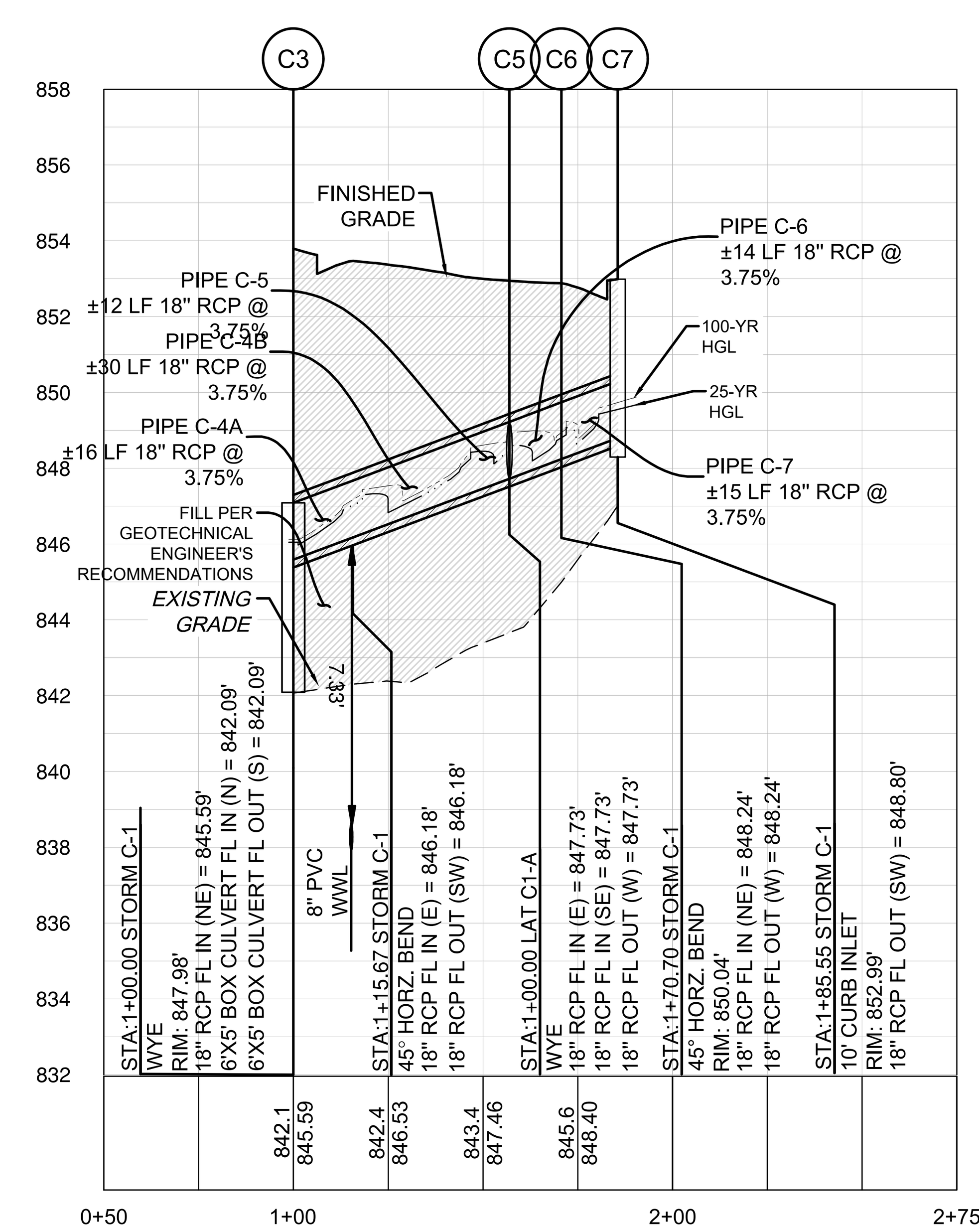
EXISTING GRADE - CENTERLINE
FINISHED GRADE - CENTERLINE

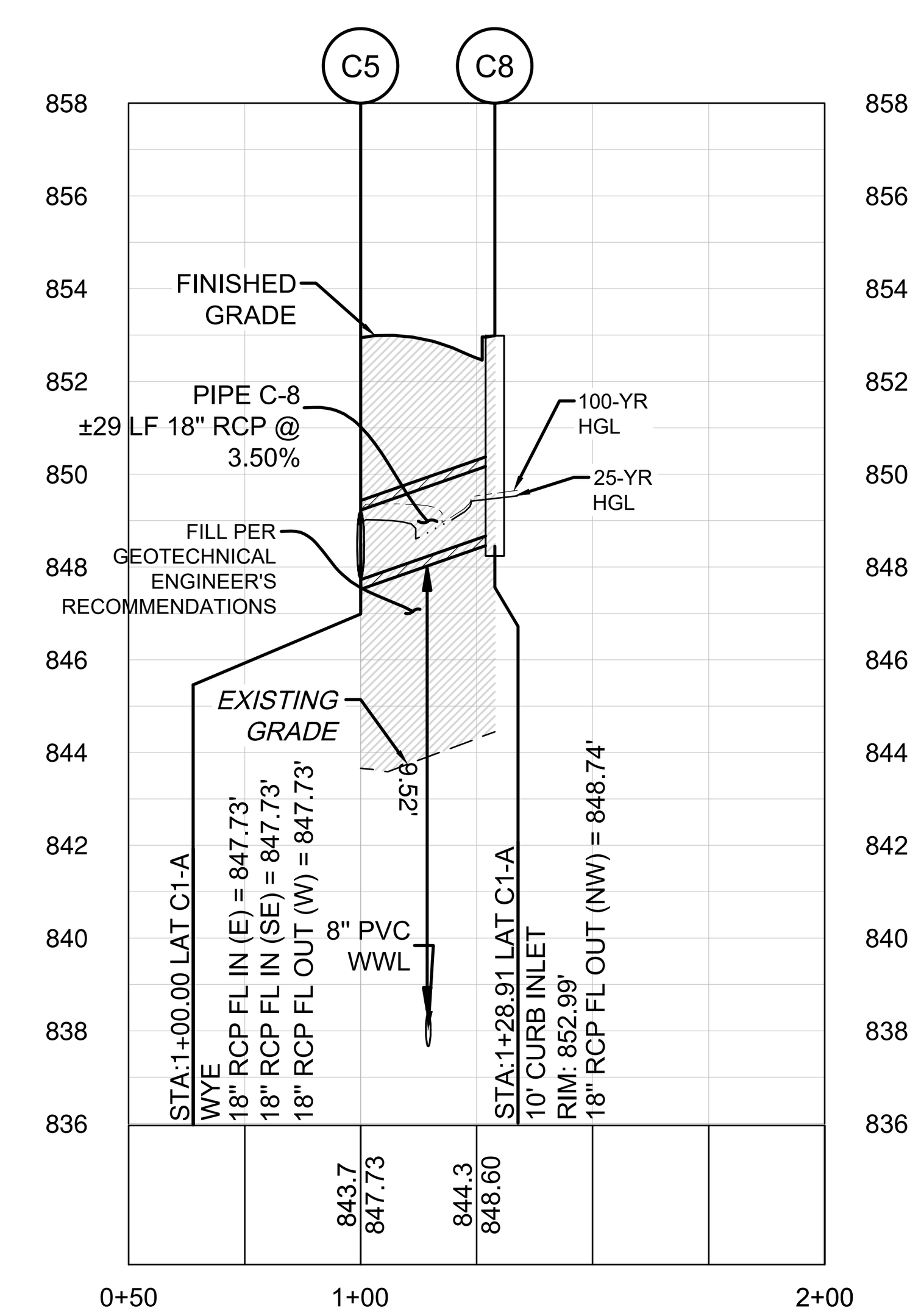
EXISTING GROUND 1000.1 / 997.10 PROPOSED FLOWLINE

CULVERT C



STORM C-1





NOTES:

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3. VEGETATE ALL DISTURBED AREAS PER CITY OF GEORGETOWN SPECIFICATIONS.

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NO.	REVISION	BY	DATE

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

5508 HIGHWAY 290 WEST
SUITE 150
AUSTIN, TX 78735
512.872.6696
HRGREEN.COM
TBPE NO.: 16384
TBPLS NO.: 10194101
HRGreen® DEVELOPMENT TX

STATE OF TEXAS
CHRISTINE N. CAMPBELL
142536
LICENSED PROFESSIONAL ENGINEER
12/05/2025

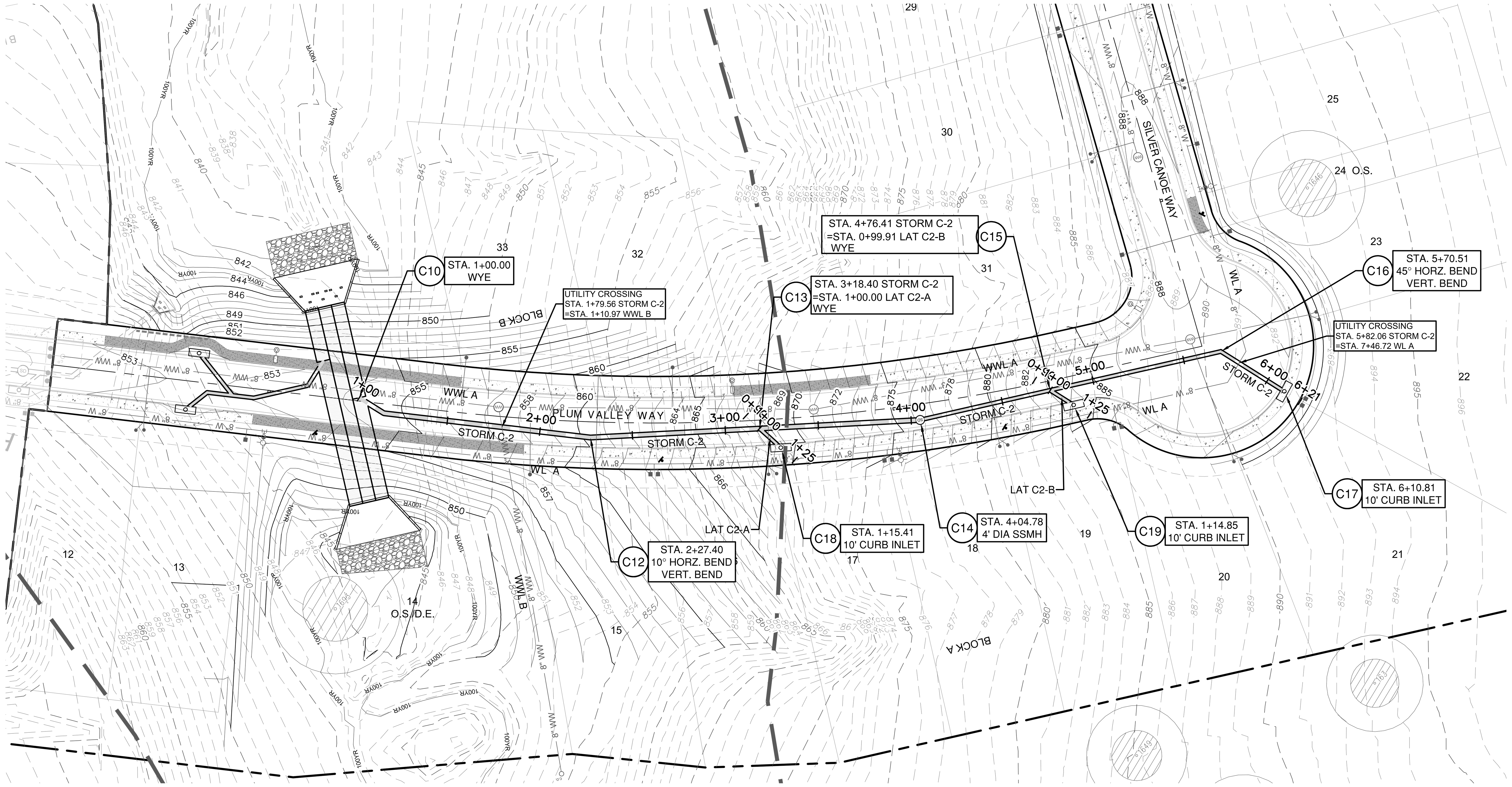
CULVERT C & STM C-1 PLAN & PROFILE

CRESCENT BLUFF WEST SECTIONS 9 & 10

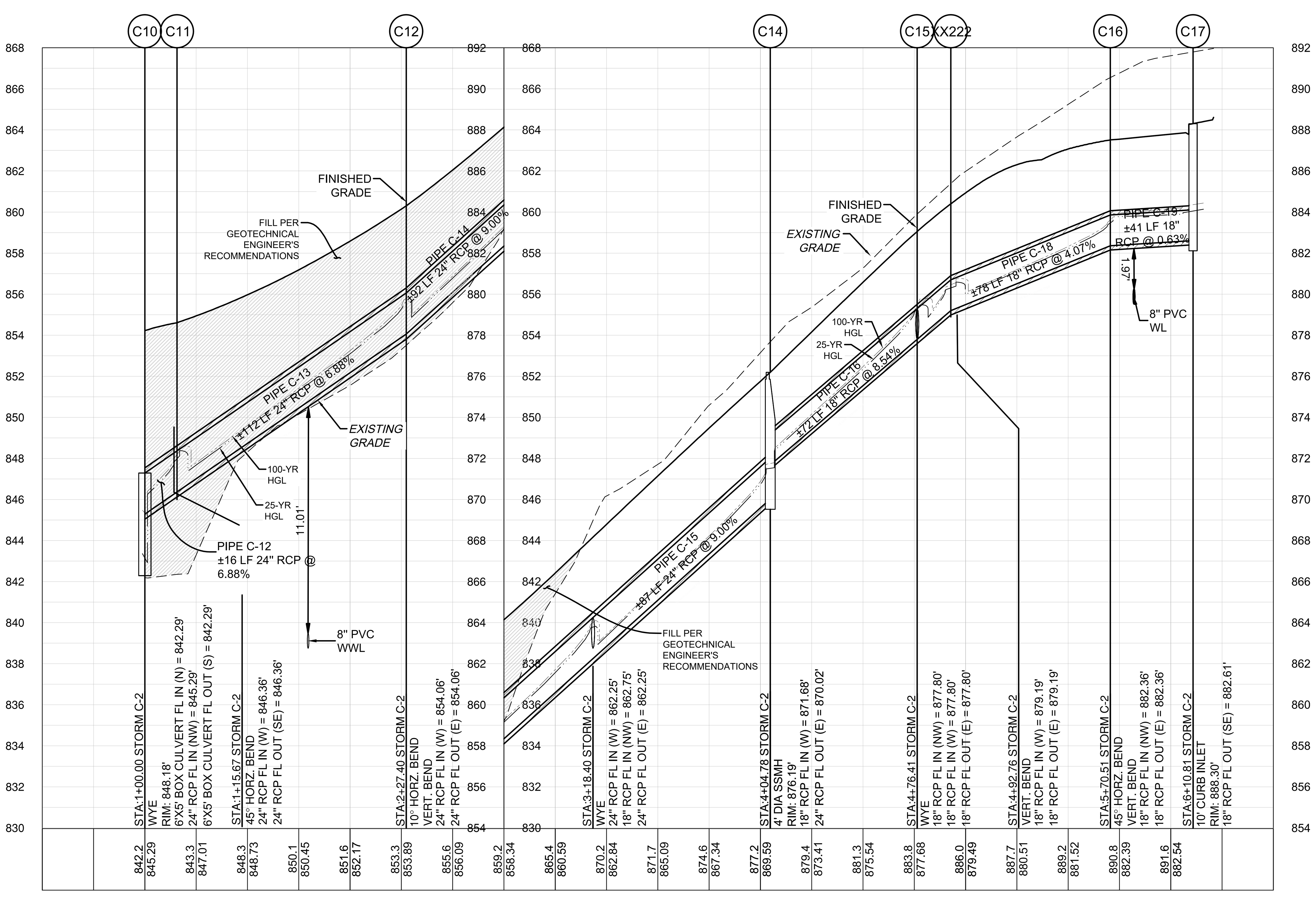
GEORGETOWN, WILLIAMSON COUNTY TEXAS

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

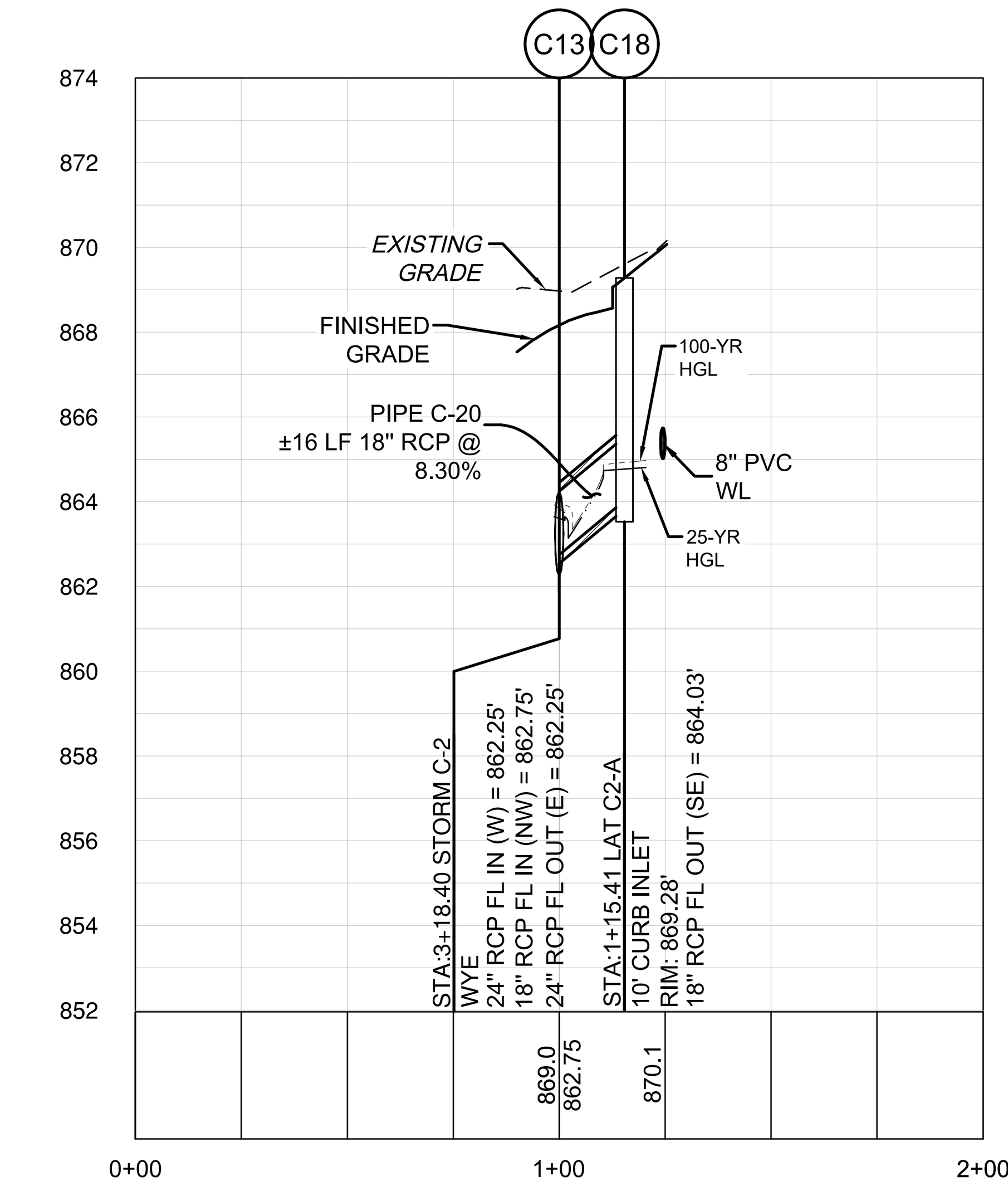
2025-XX-CON



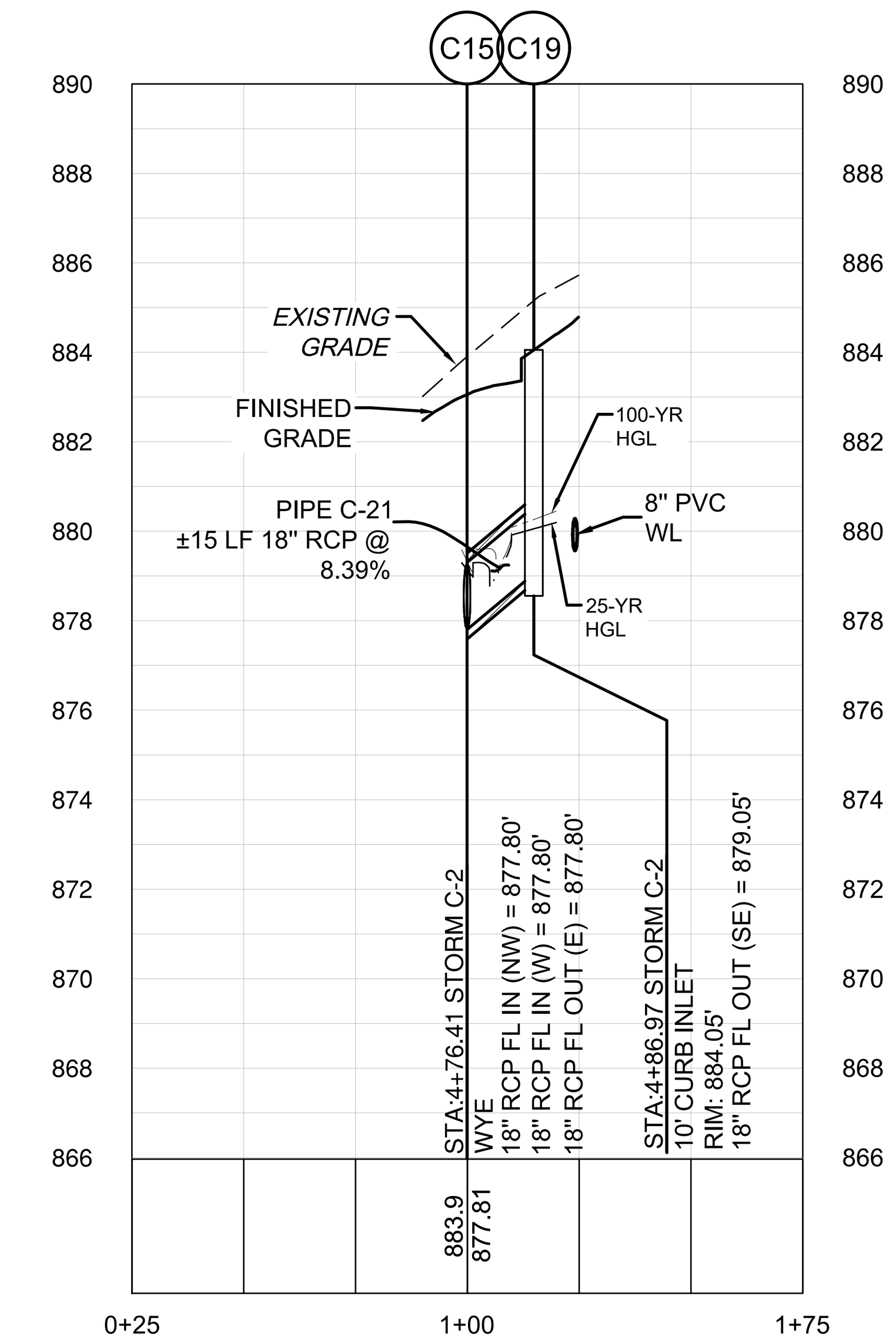
STORM C-2



LAT C2-A

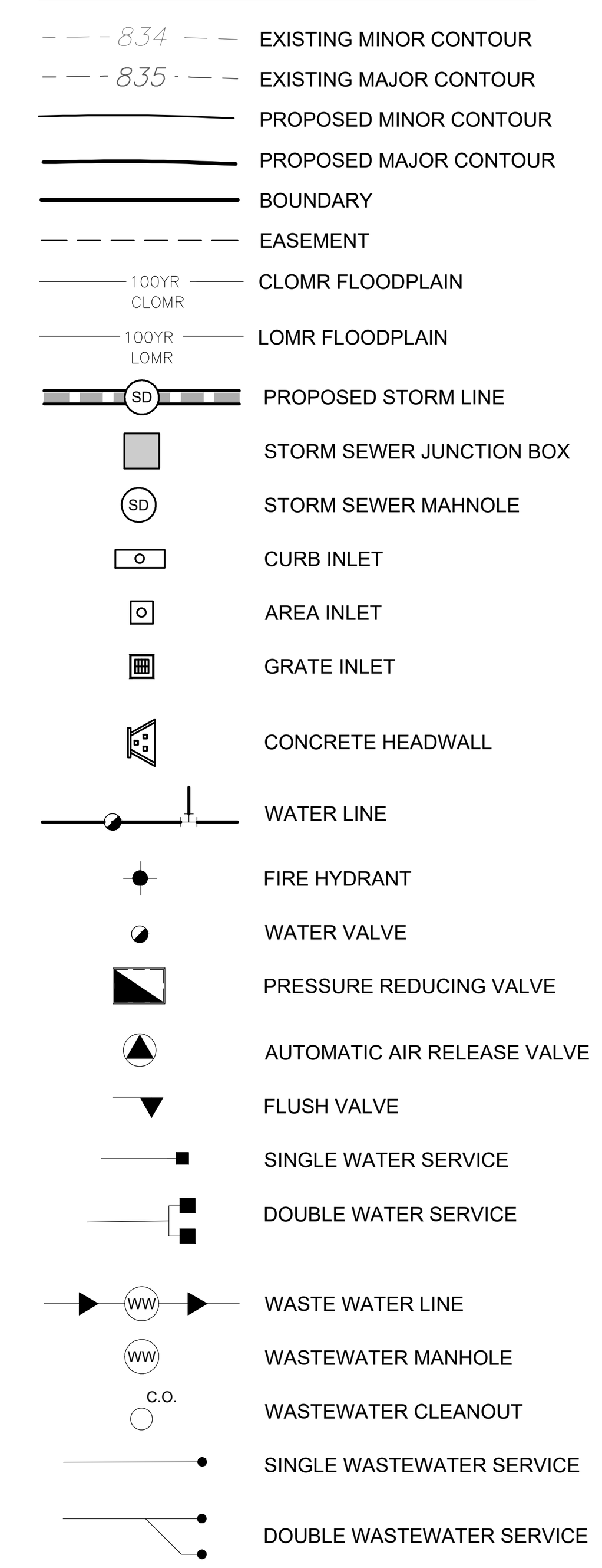


LAT C2-B



SCALE: 1" = 40'

LEGEND



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

EXISTING GRADE - CENTERLINE
FINISHED GRADE - CENTERLINE

EXISTING GROUND 1000.1 997.10 PROPOSED FLOWLINE

Pipe Label	Slope (%)	Q25 (cfs)	V25 (ft/s)	D25 (ft)	Q100 (cfs)	V100 (ft/s)	D100 (ft)
PIPE C-12	6.88%	17.08	9.13	1.49	21.67	9.92	1.66
PIPE C-13	6.88%	17.08	6.12	2.02	21.67	7.33	2.20
PIPE C-14	9.00%	17.08	6.26	1.81	21.67	7.33	2.00
PIPE C-15	9.00%	12.66	5.37	1.58	16.11	5.96	1.86
PIPE C-16	8.54%	12.66	11.77	1.34	16.11	12.98	1.43
PIPE C-17	8.54%	7.08	4.74	1.67	8.96	5.60	1.96
PIPE C-18	4.07%	7.08	4.80	1.40	8.96	5.60	1.56
PIPE C-19	0.63%	7.08	4.27	1.40	8.96	5.07	1.60
PIPE C-20	8.30%	4.42	3.91	1.08	5.56	4.14	1.36
PIPE C-21	8.39%	5.58	4.07	1.67	7.15	4.77	1.96

NOTES:

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NO. | REVISION | BY | DATE

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TBPE NO: 16384 TBPLS NO: 10194101
HRGreen® DEVELOPMENT TX

STATE OF TEXAS CHRISTINE N. CAMPBELL 142536 LICENSED PROFESSIONAL ENGINEER
12/05/2025

STORM C-2 PLAN & PROFILE 1+00 - 6+18

CRESCENT BLUFF WEST SECTIONS 9 & 10

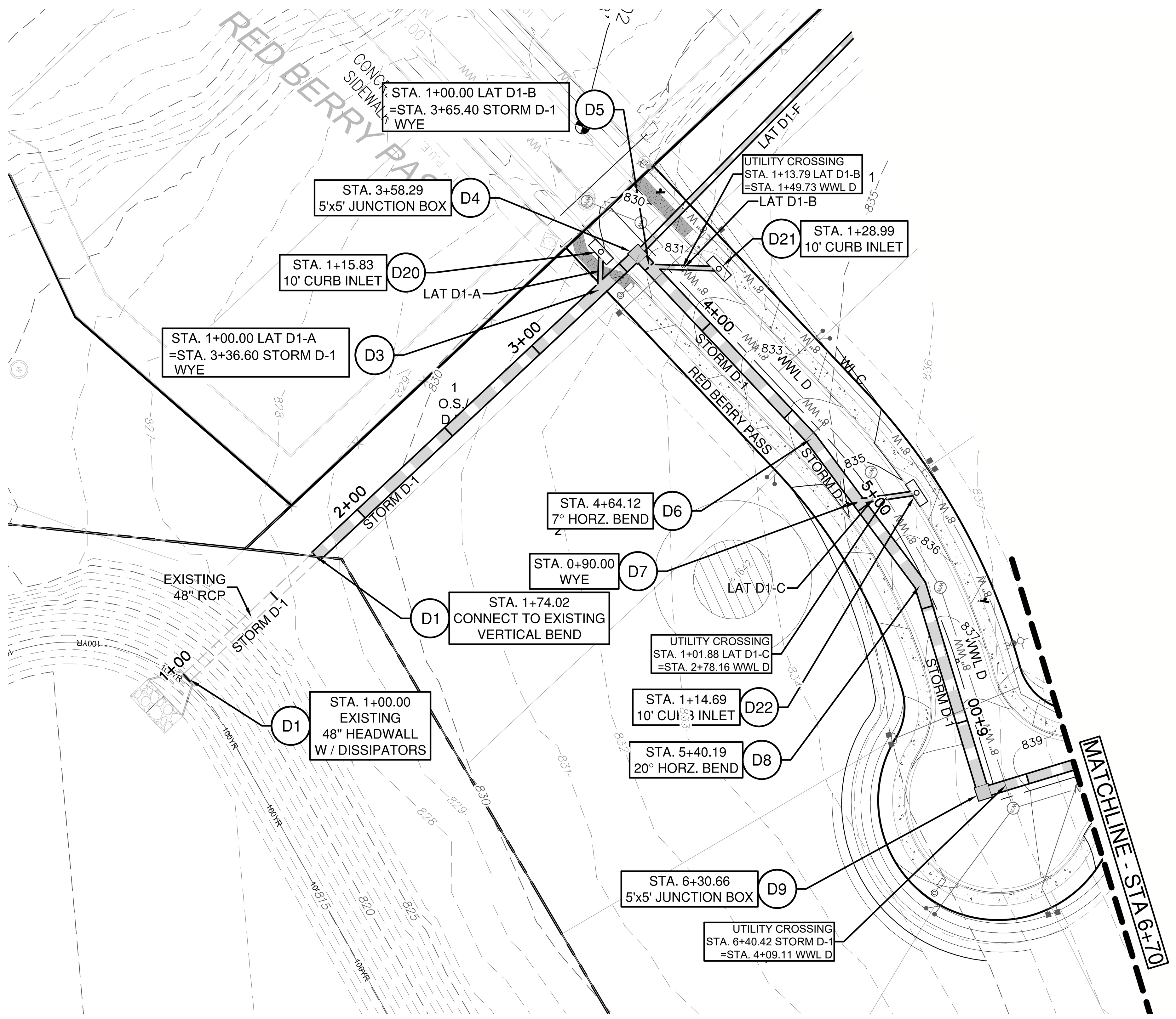
GEORGETOWN, WILLIAMSON COUNTY TEXAS

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

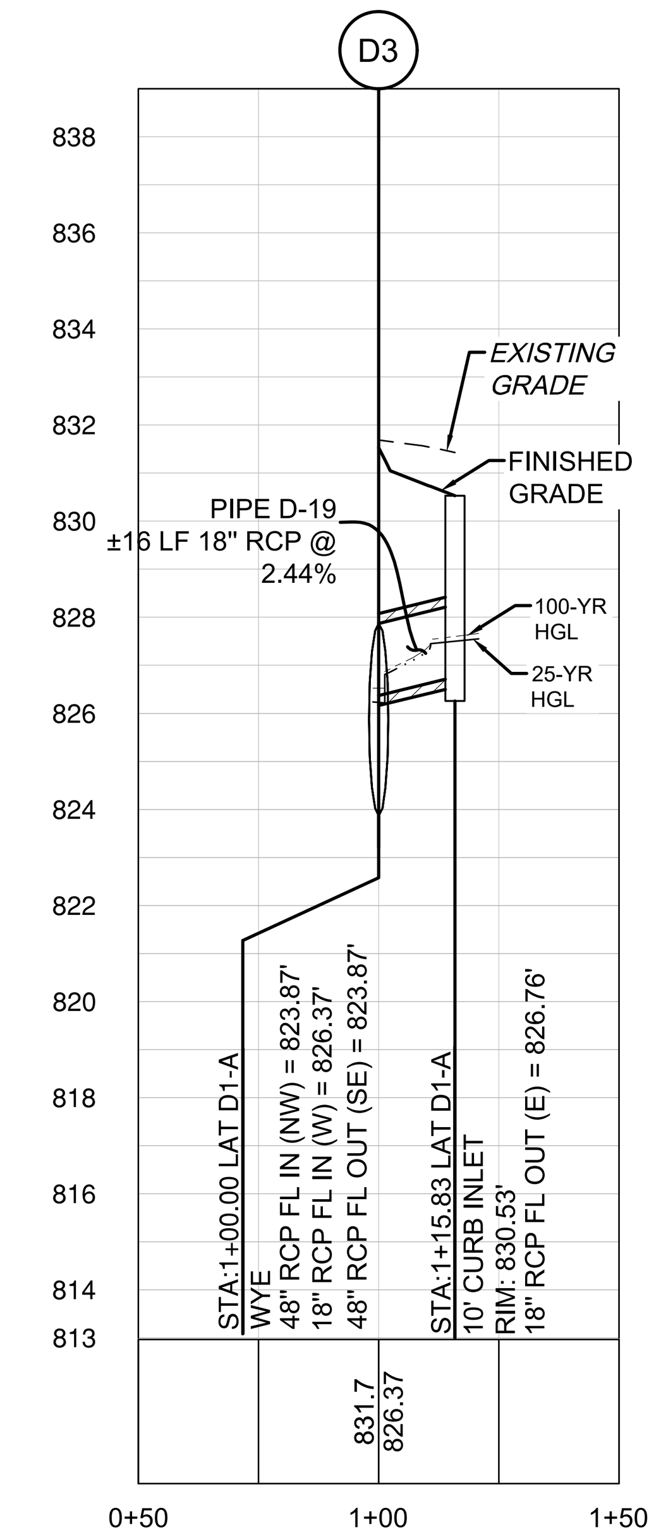
SHEET 59 of 105

2025-XX-CON

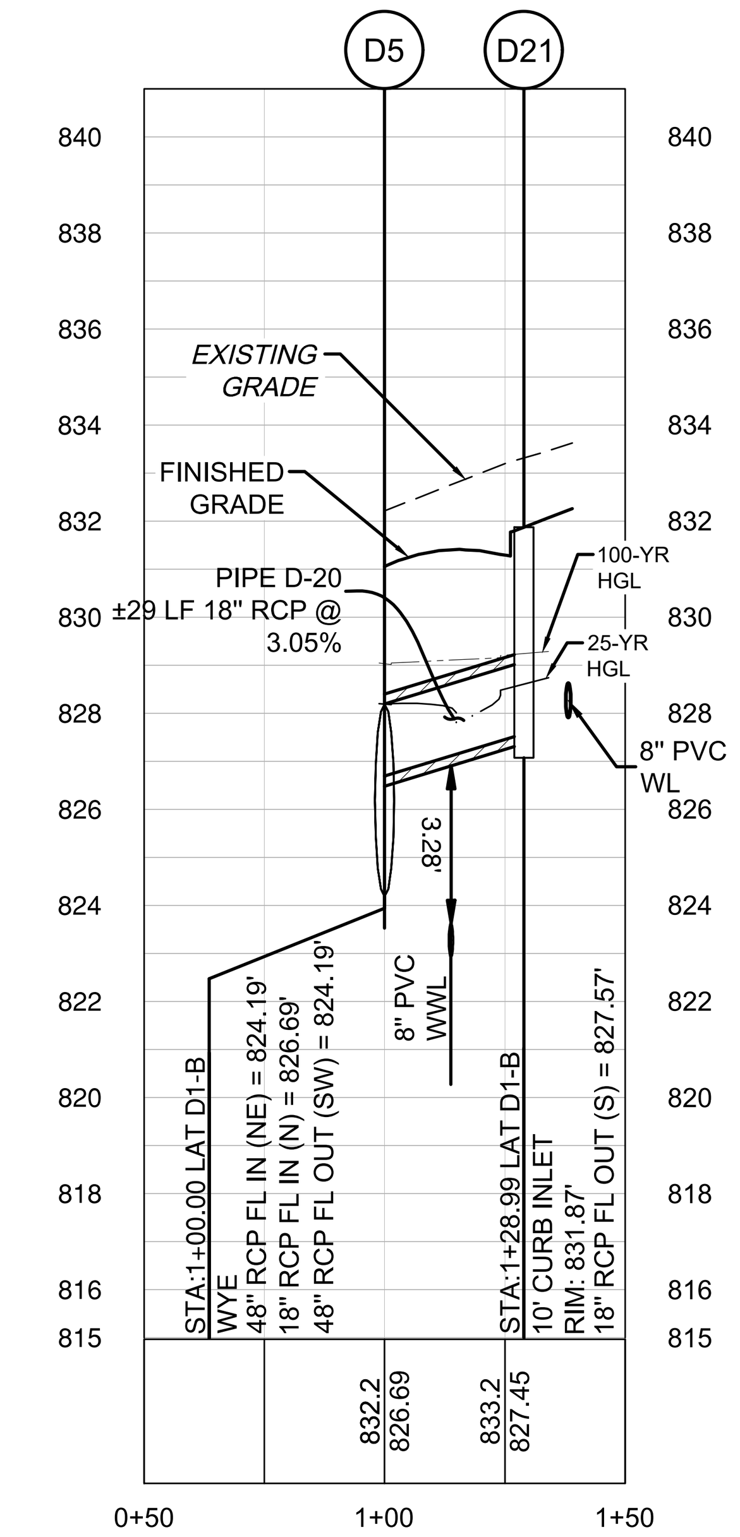
Plot Style: LandDev Global.ctb
Template: HRG_C3D2023.DWT
Sheet Location: P:\athena.domain\chapman.trac\sections 9-10\03_ACAD\Plans\dn\240423 SDPP STORM C-2.dwg, STORM C-2 PLAN & PROFILE 1+00 - 6+18, December 05, 2025, 3:08 PM, tgarza



LAT D1-A

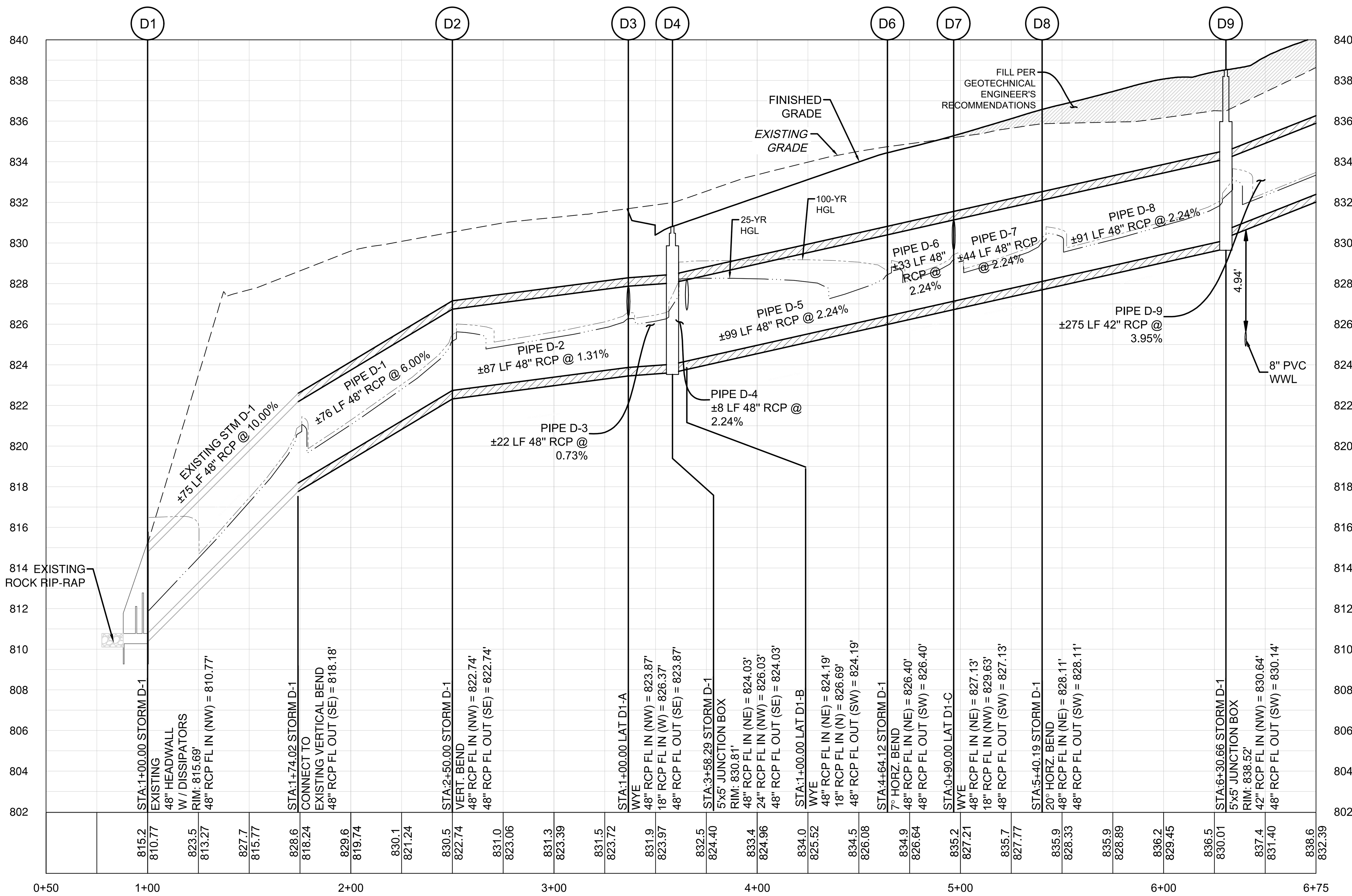


LAT D1-B

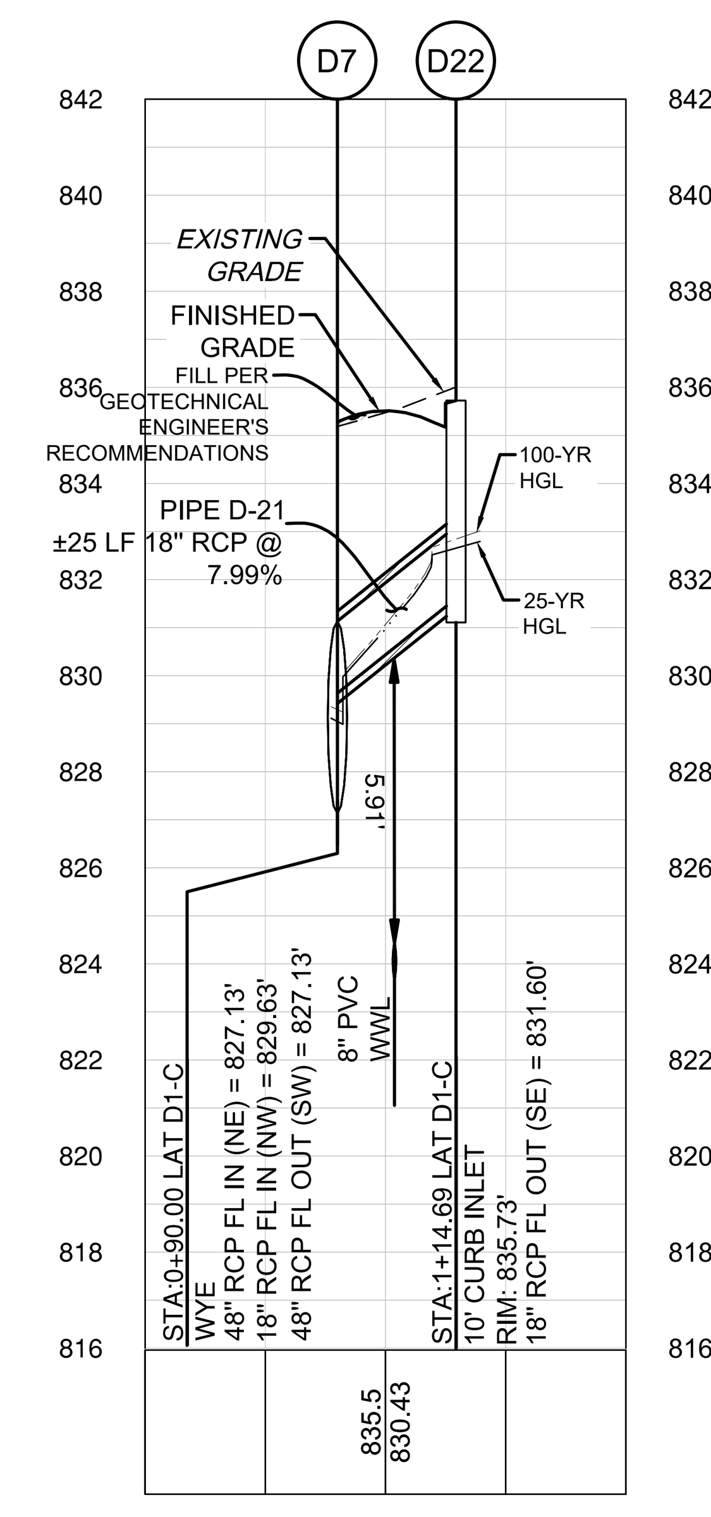


Pipe Label	Slope (%)	Q25 (cfs)	V25 (ft/s)	D25 (ft)	Q100 (cfs)	V100 (ft/s)	D100 (ft)
PIPE D-1	6.00%	63.24	7.26	2.90	79.83	8.03	3.28
PIPE D-2	1.31%	63.24	7.26	2.90	79.83	8.03	3.28
PIPE D-3	0.73%	59.96	7.71	2.42	75.81	8.50	2.71
PIPE D-4	2.24%	50.79	4.04	4.21	63.82	5.08	5.04
PIPE D-5	2.24%	45.64	5.40	4.08	57.28	6.16	4.93
PIPE D-6	2.24%	45.64	6.44	2.43	57.28	6.99	2.75
PIPE D-7	2.24%	39.66	6.30	2.15	49.77	6.86	2.39
PIPE D-8	2.24%	39.66	5.96	2.39	49.77	6.45	2.70
PIPE D-9	3.95%	39.66	6.31	2.48	49.77	6.72	3.03
PIPE D-19	2.44%	3.28	5.29	0.69	4.02	5.58	0.77
PIPE D-20	3.05%	5.15	3.87	1.58	6.54	3.70	2.43
PIPE D-21	7.99%	5.98	8.20	0.94	7.51	8.69	1.06

STORM D-1



LAT D1-C



SCALE: 1" = 40'

LEGEND

- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- BOUNDARY
- EASEMENT
- CLOMR FLOODPLAIN
- LOMR FLOODPLAIN
- PROPOSED STORM LINE
- STORM SEWER JUNCTION BOX
- STORM SEWER MANHOLE
- CURB INLET
- AREA INLET
- GRATE INLET
- CONCRETE HEADWALL
- WATER LINE
- FIRE HYDRANT
- WATER VALVE
- PRESSURE REDUCING VALVE
- AUTOMATIC AIR RELEASE VALVE
- FLUSH VALVE
- SINGLE WATER SERVICE
- DOUBLE WATER SERVICE
- WASTE WATER LINE
- WASTEWATER MANHOLE
- WASTEWATER CLEANOUT
- SINGLE WASTEWATER SERVICE
- DOUBLE WASTEWATER SERVICE

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TBPE NO: 16384 TBPLS NO: 10194101
HRGreen DEVELOPMENT TX

STATE OF TEXAS CHRISTINE N. CAMPBELL 142536 LICENSED PROFESSIONAL ENGINEER
12/05/2025

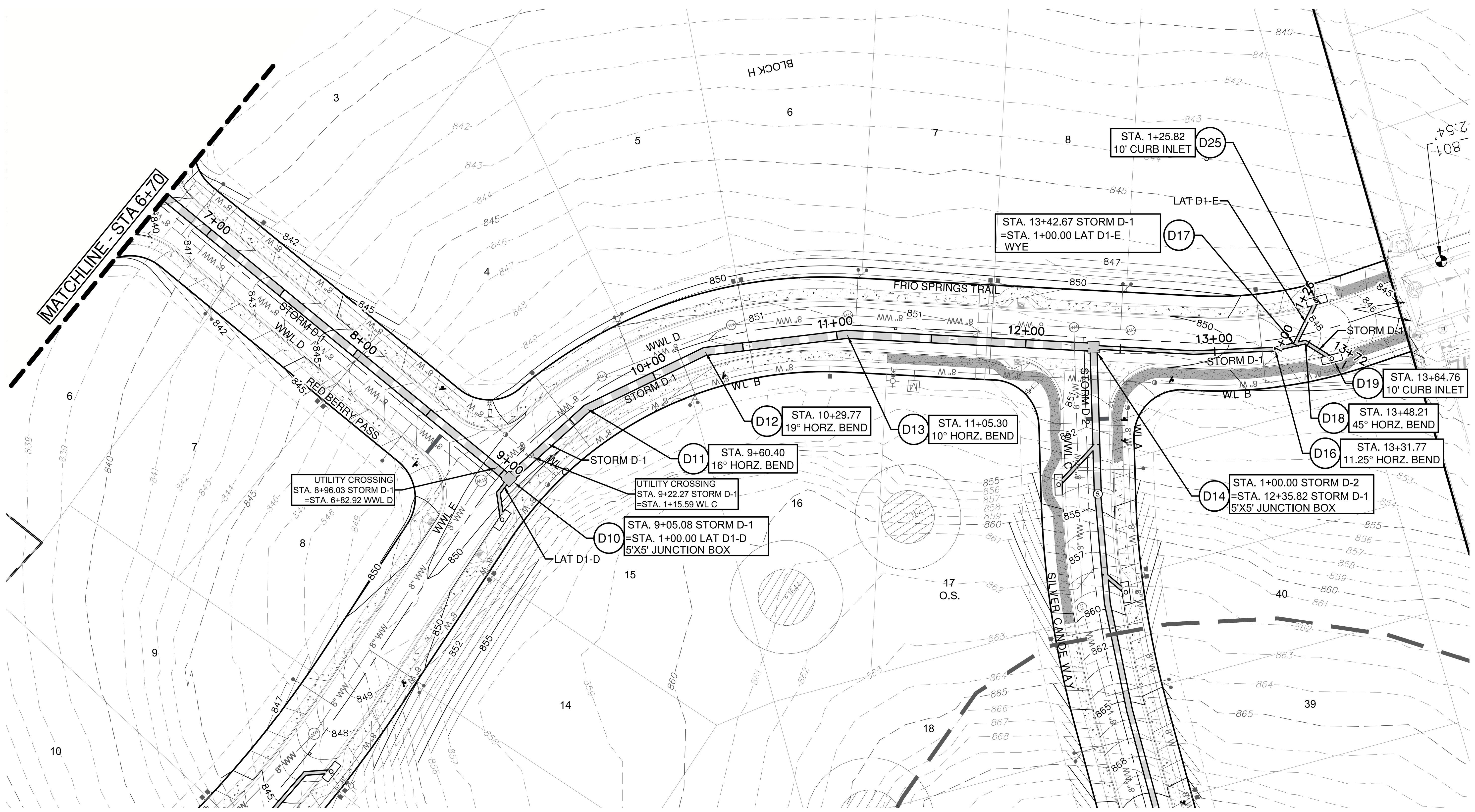
STORM D-1 PLAN & PROFILE 1+00 - 6+75

CRESCENT BLUFF WEST SECTIONS 9 & 10

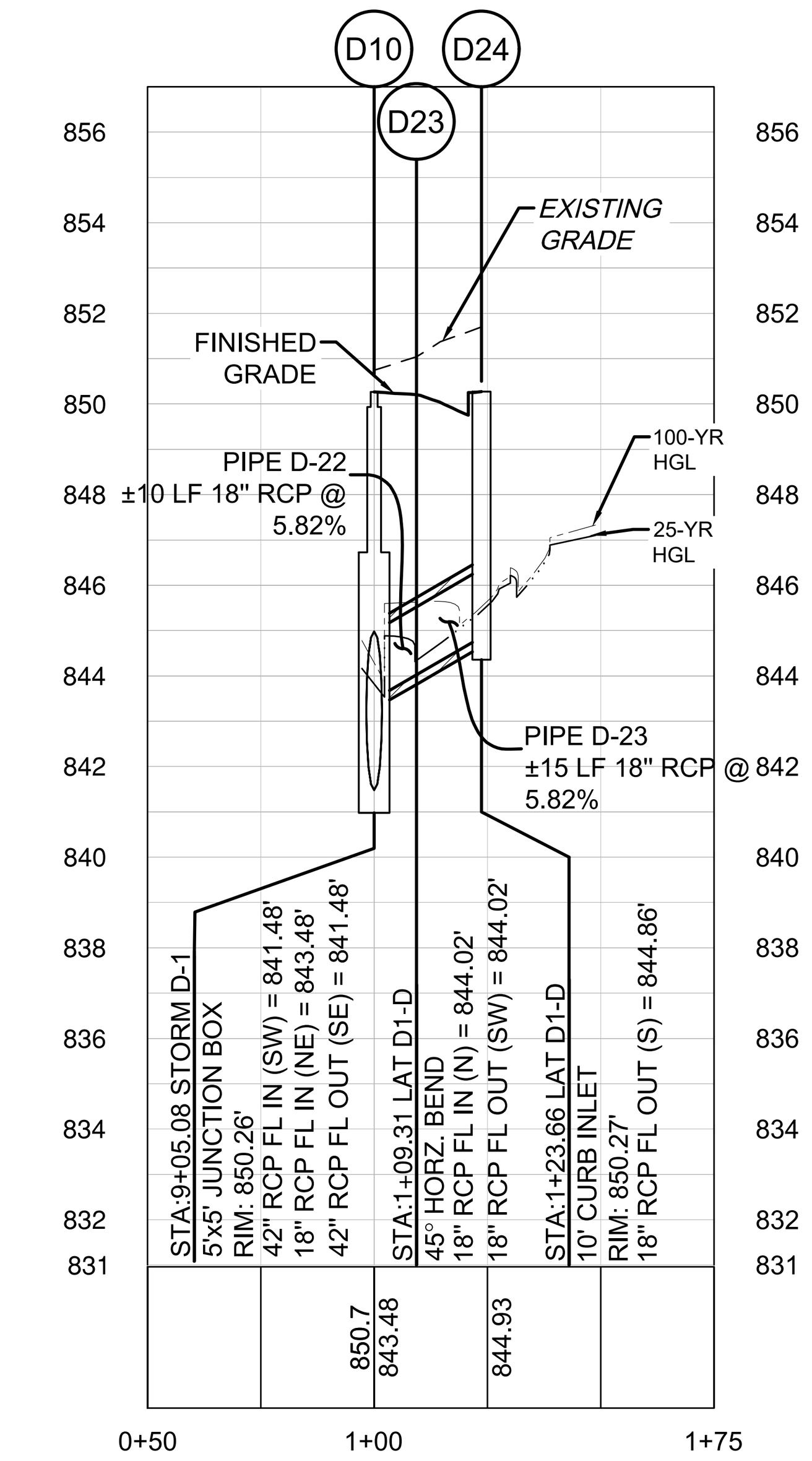
GEORGETOWN, WILLIAMSON COUNTY TEXAS

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

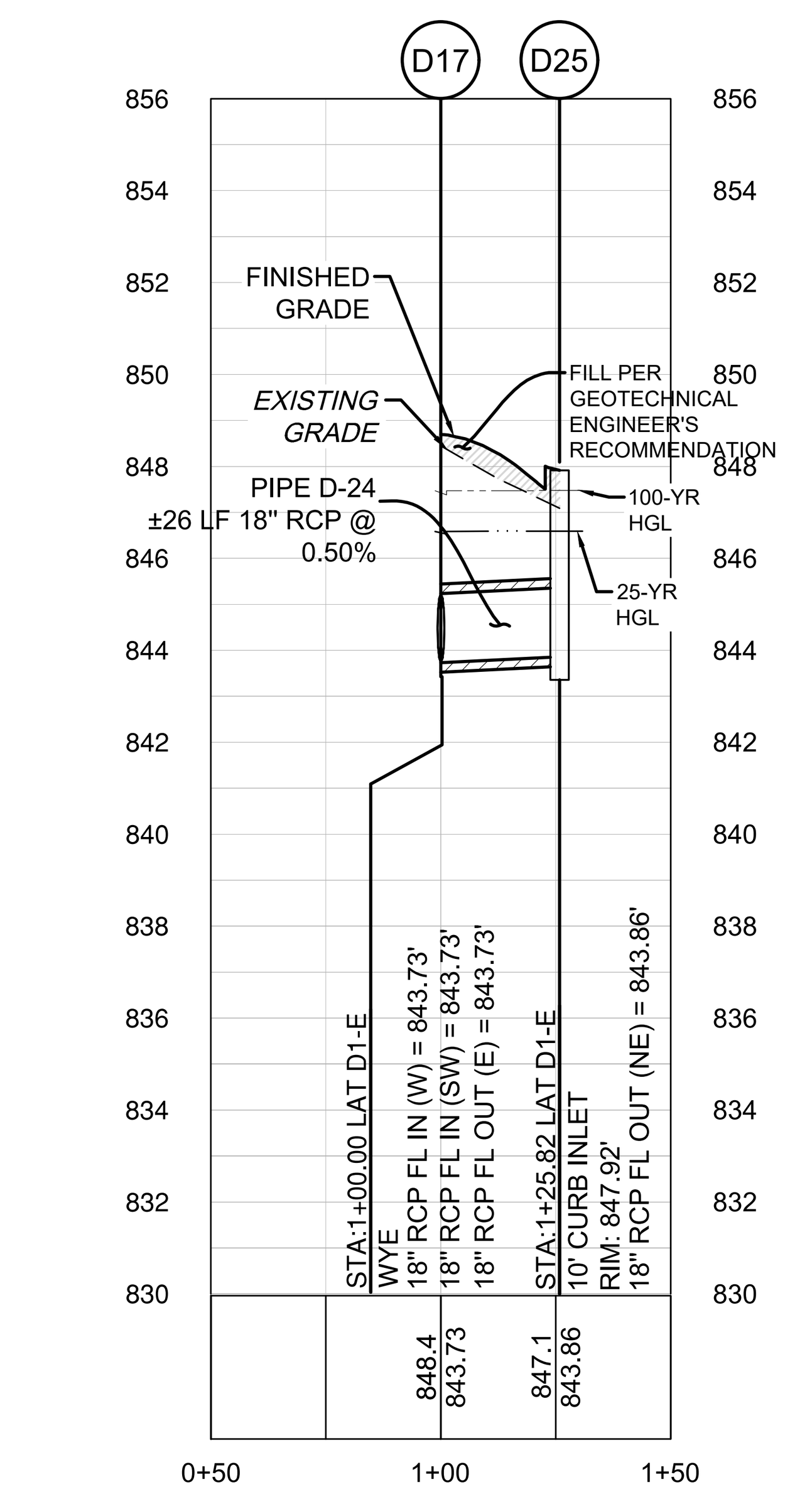
2025-XX-CON



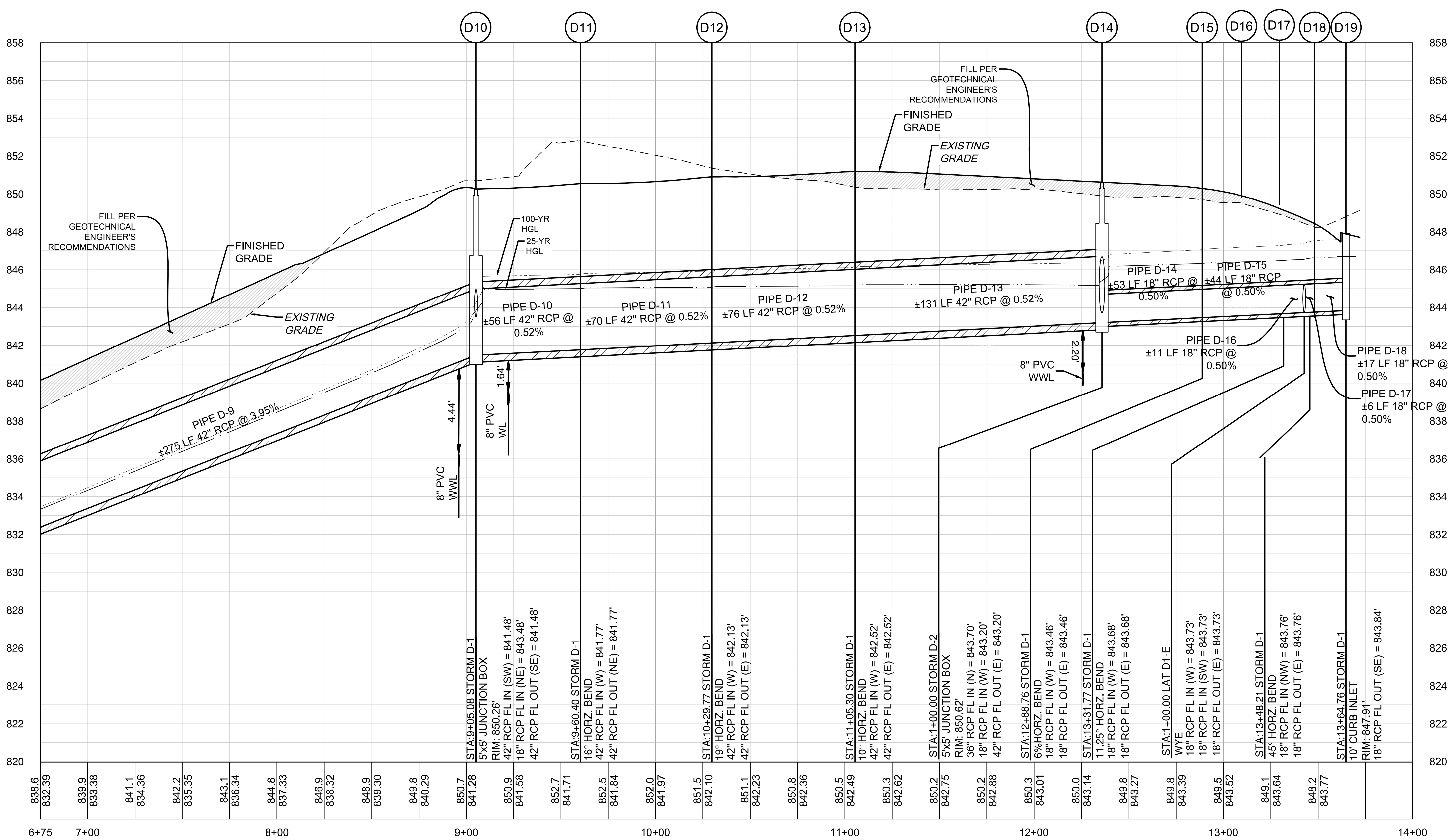
LAT D1-D



LAT D1-E



STORM D-1



Pipe Label	Slope (%)	Q25 (cfs)	V25 (ft/s)	D25 (ft)	Q100 (cfs)	V100 (ft/s)	D100 (ft)
PIPE D-9	3.95%	39.66	6.31	2.48	49.77	6.72	3.03
PIPE D-10	0.52%	34.57	3.66	3.48	43.31	4.50	4.18
PIPE D-11	0.52%	34.57	3.84	3.27	43.31	4.50	4.04
PIPE D-12	0.52%	34.57	4.20	3.00	43.31	4.50	3.85
PIPE D-13	0.52%	34.57	5.27	2.69	43.31	4.62	3.65
PIPE D-14	0.50%	5.72	3.24	2.98	7.24	4.10	3.61
PIPE D-15	0.50%	5.72	3.24	2.90	7.24	4.10	3.64
PIPE D-16	0.50%	5.72	3.24	2.83	7.24	4.10	3.67
PIPE D-17	0.50%	4.41	2.50	2.87	5.63	3.19	3.75
PIPE D-18	0.50%	4.41	2.50	2.89	5.63	3.19	3.80
PIPE D-22	5.82%	5.09	3.84	1.53	6.46	3.66	2.24
PIPE D-23	5.82%	5.09	4.12	1.18	6.46	4.46	1.81
PIPE D-24	0.50%	1.31	0.74	2.87	1.61	0.91	3.75

SCALE: 1" = 40'

LEGEND

- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- BOUNDARY
- EASEMENT
- CLOMR FLOODPLAIN
- LOMR FLOODPLAIN
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- STORM SEWER MAHNOLE
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HORZ. SCALE: 1" = 40'
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FINISHED GRADE - CENTERLINE
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STATE OF TEXAS — CHRISTINE N. CAMPBELL — 142536 — LICENSED PROFESSIONAL ENGINEER
12/05/2025

STORM D-1 PLAN & PROFILE 6+75 - 12+40

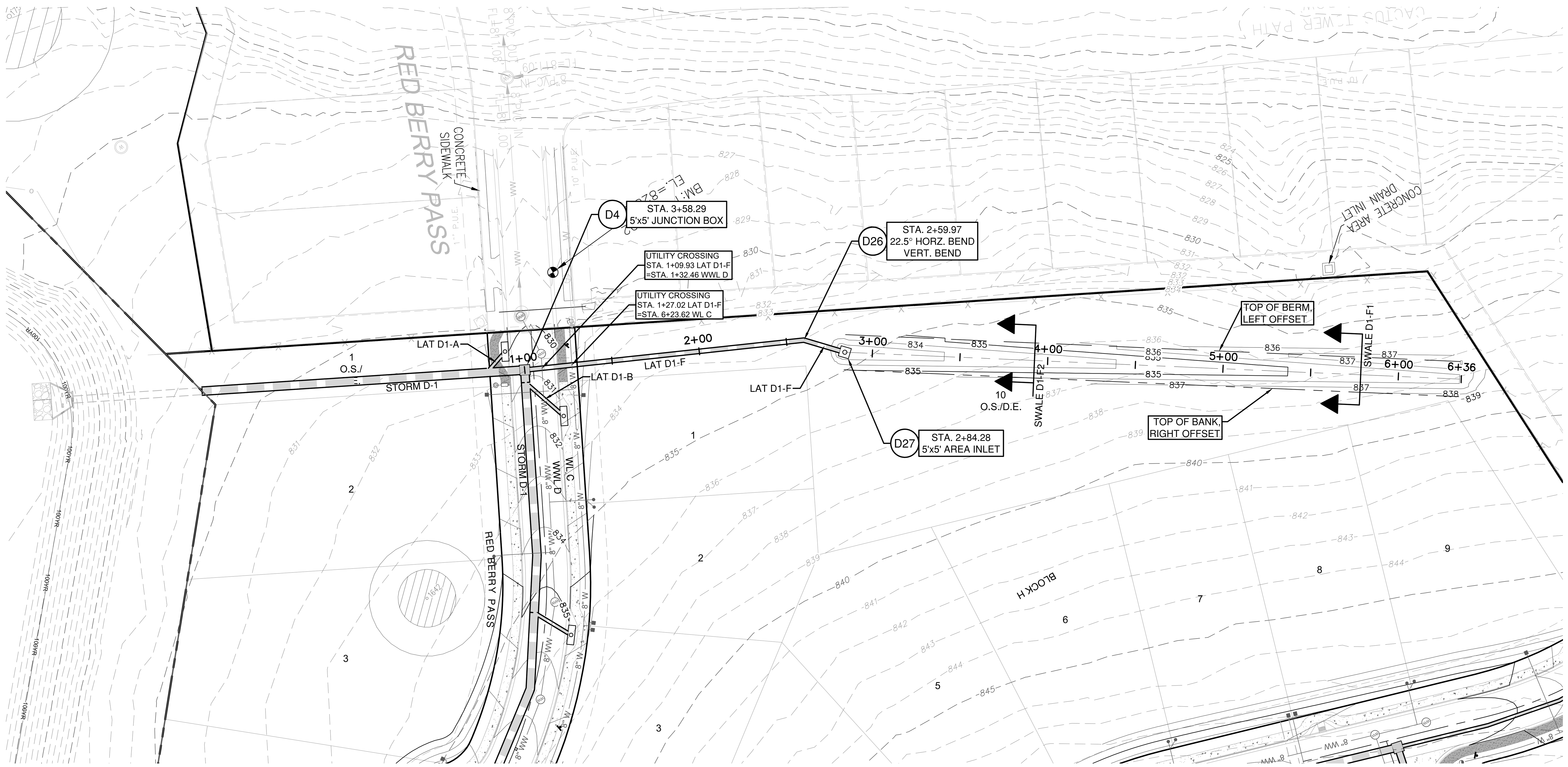
CRESCENT BLUFF WEST SECTIONS 9 & 10

GEORGETOWN, WILLIAMSON COUNTY TEXAS

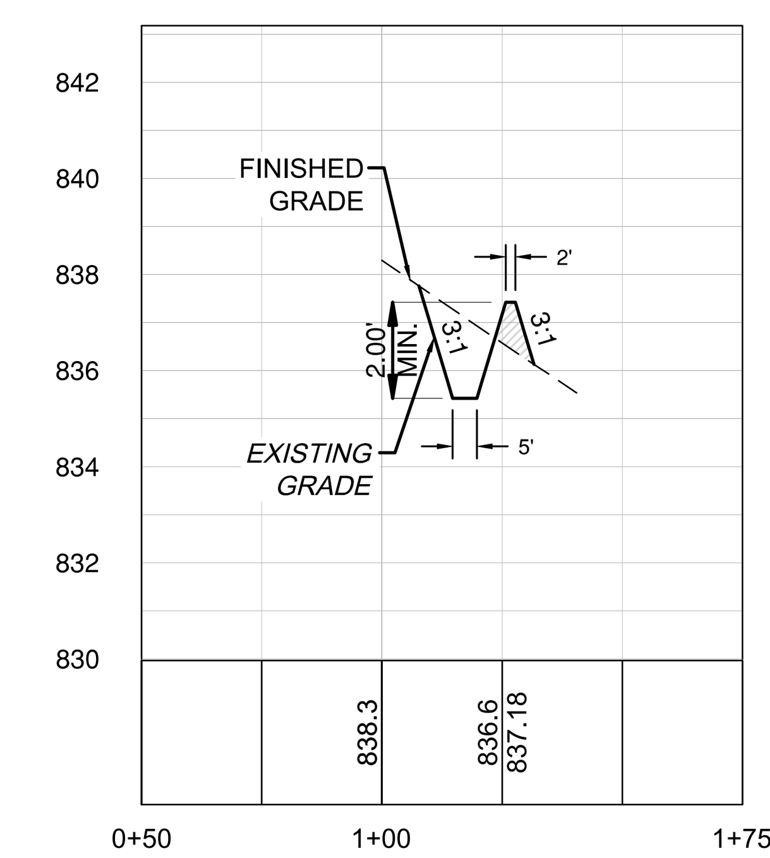
NO.	REVISION	BY	DATE

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

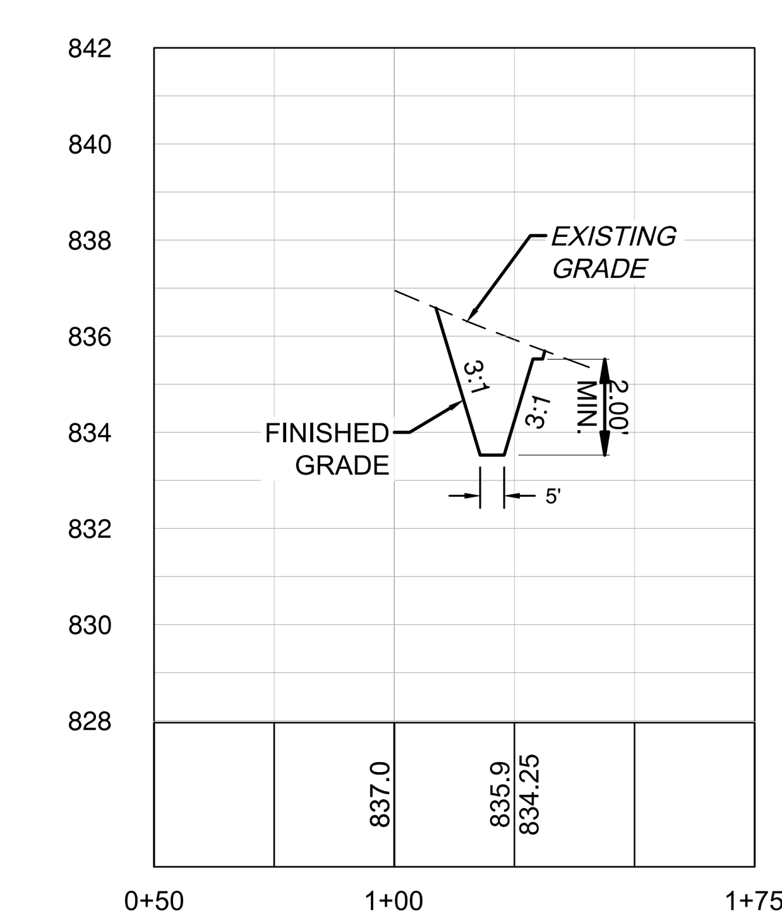
2025-XX-CON



SWALE D1-F1



SWALE D1-F2



SCALE: 1" = 40'

LEGEND

- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- BOUNDARY
- EASEMENT
- CLOMR FLOODPLAIN
- LOMR FLOODPLAIN
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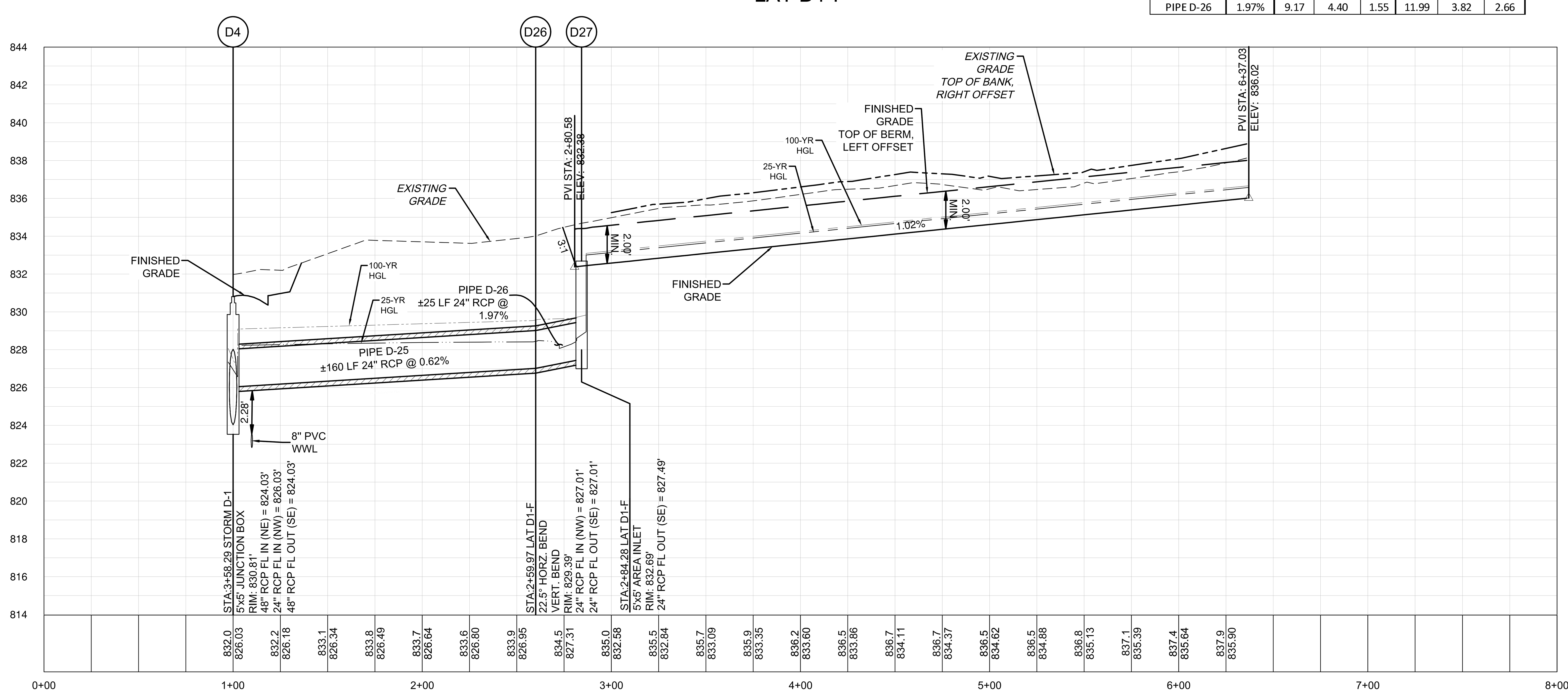
- DOUBLE WASTEWATER SERVICE

LAT D1-F

Pipe Label	Slope (%)	Q25 (cfs)	V25 (ft/s)	D25 (ft)	Q100 (cfs)	V100 (ft/s)	D100 (ft)
PIPE D-25	0.62%	9.17	3.31	2.28	11.99	3.82	3.14
PIPE D-26	1.97%	9.17	4.40	1.55	11.99	3.82	2.66



LAT D1-F SWALE HYDRAULIC CALCULATIONS	
Q25 = 9.17 CFS	Q100 = 11.99 CFS
V25 = 2.13 FT/S	V100 = 2.32 FT/S
D25 = 0.56 FT	D100 = 0.65 FT
REQUIRED MIN DEPTH	1.15 FT
PROVIDED MIN DEPTH	2.00 FT
REQUIRED FREEBOARD	0.50 FT
MANNING's N	0.040
CL SLOPE	1.02%

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

EXISTING GRADE - CENTERLINE
FINISHED GRADE - CENTERLINE
EXISTING GROUND 1000.1 / 997.10 PROPOSED FLOWLINE

NOTES:

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NO.	REVISION	BY	DATE

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SUITE 150
AUSTIN, TX 78735
512.872.6696
HRGREEN.COM
TBPE NO.: 16384
TBPLS NO.: 10194101
HRGreen DEVELOPMENT TX

STATE OF TEXAS
CHRISTINE N. CAMPBELL
142536
LICENSED PROFESSIONAL ENGINEER
12/05/2025

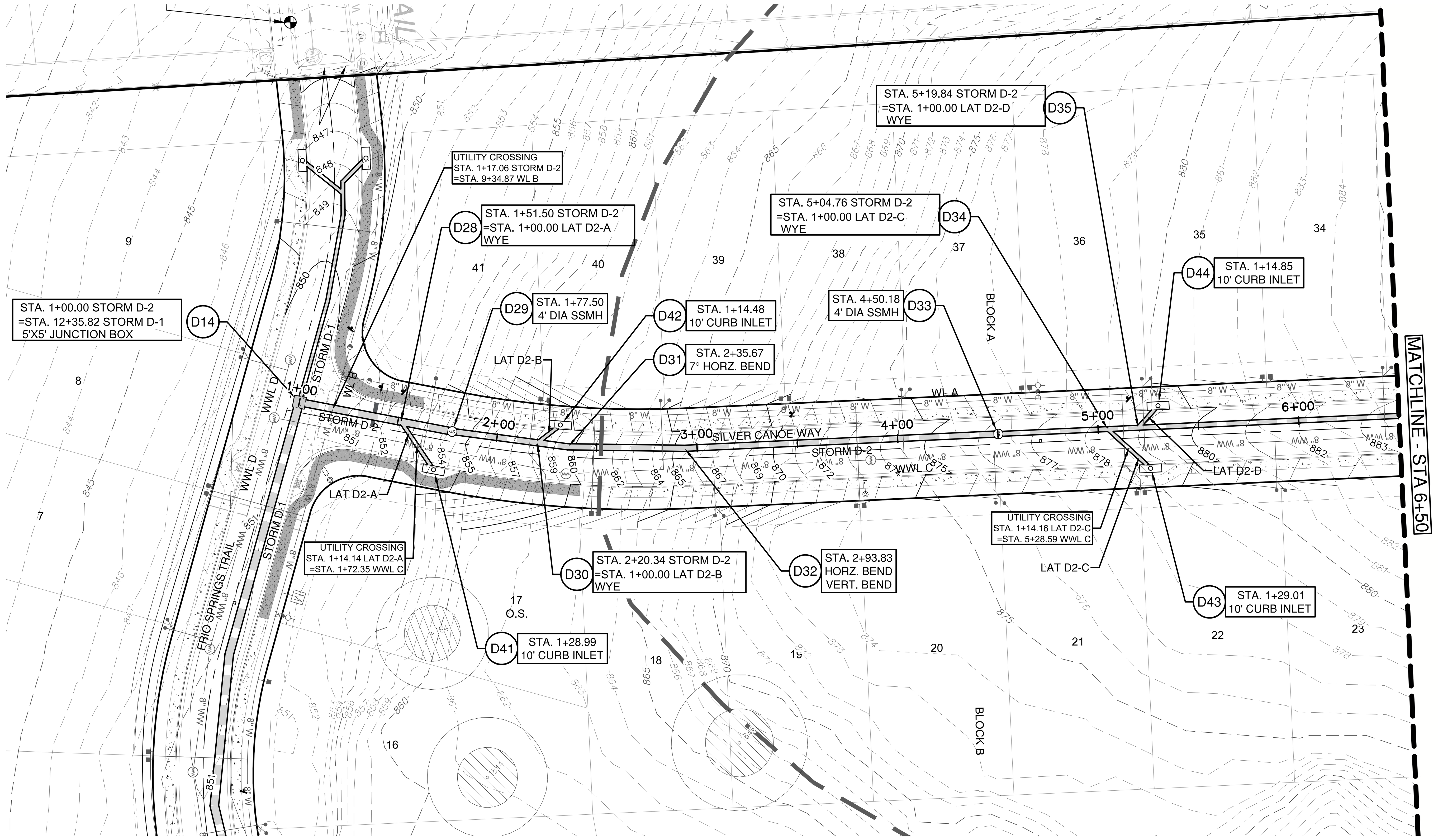
STORM LAT D1-F PLAN & PROFILE

CRESCENT BLUFF WEST SECTIONS 9 & 10

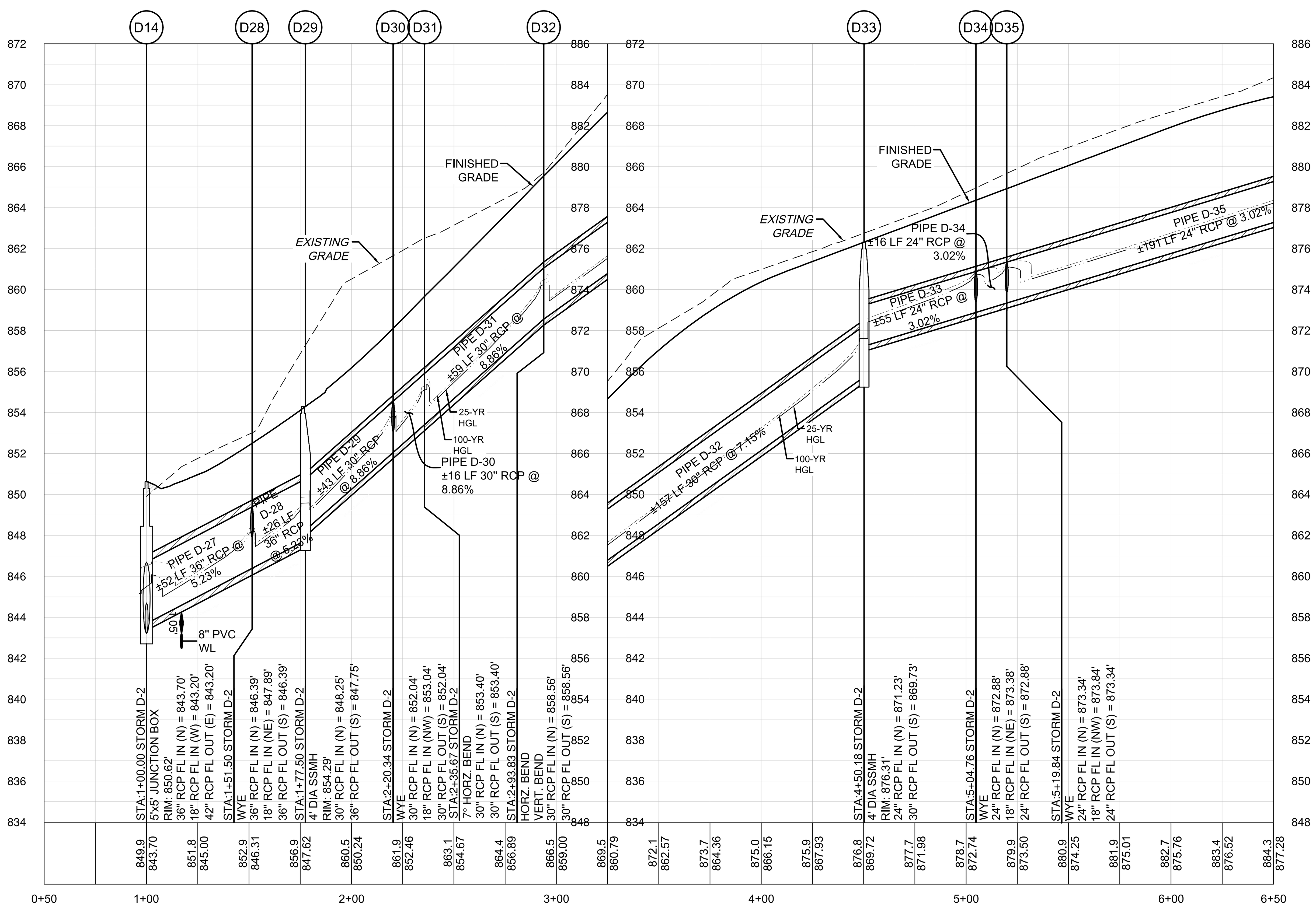
GEORGETOWN, WILLIAMSON COUNTY TEXAS

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

2025-XX-CON



STORM D-2



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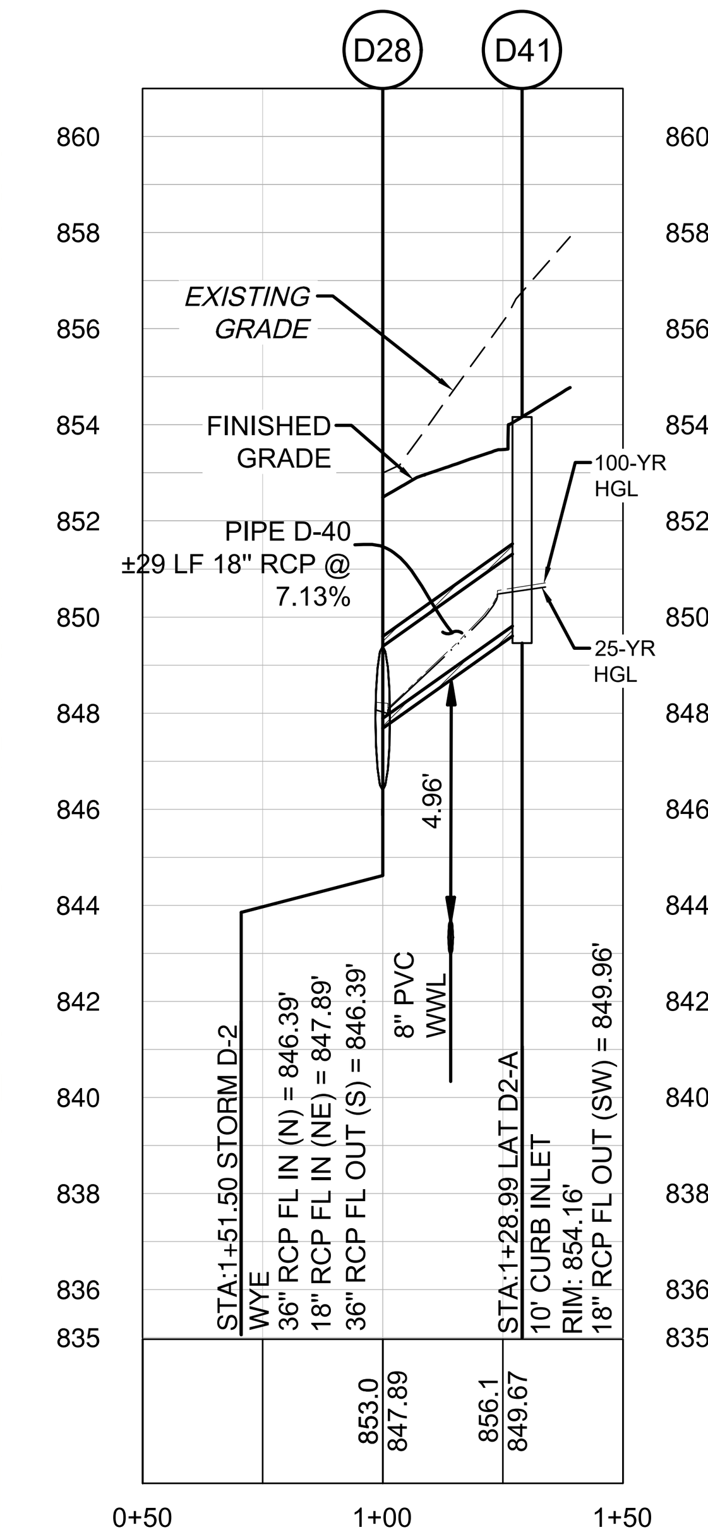
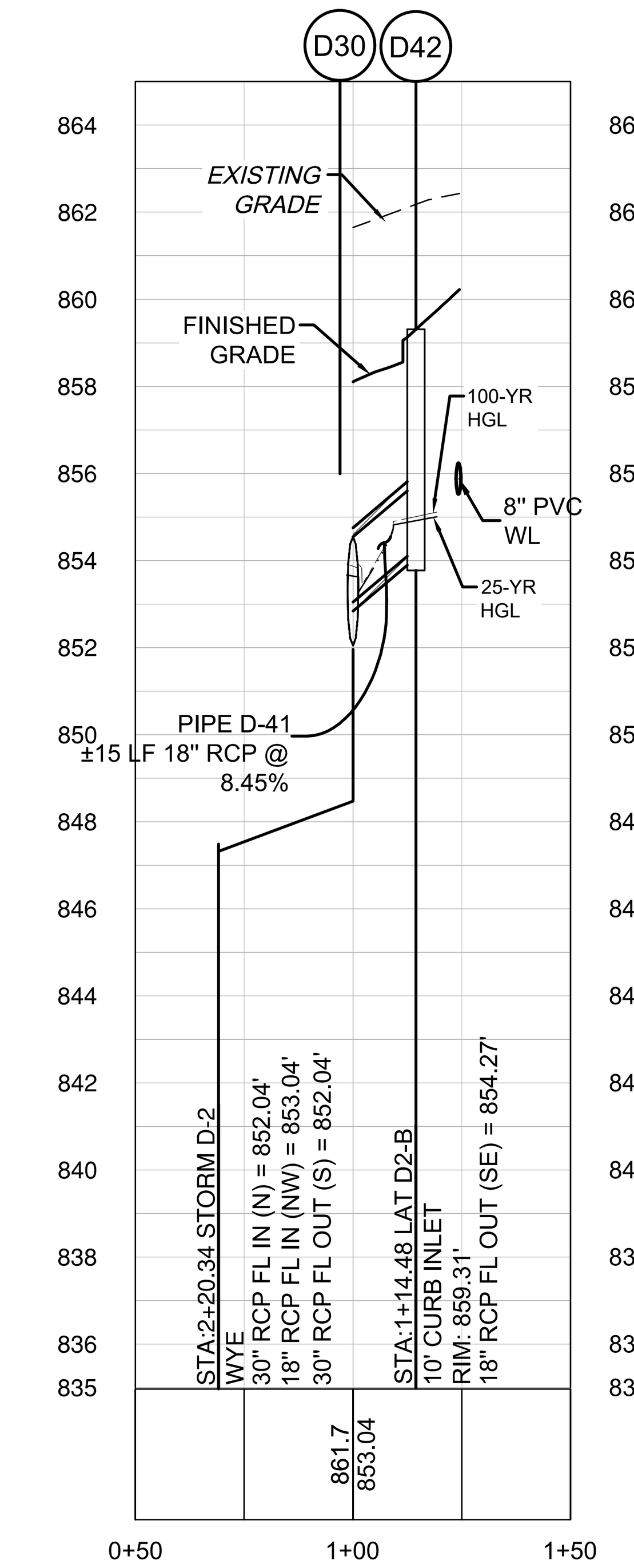
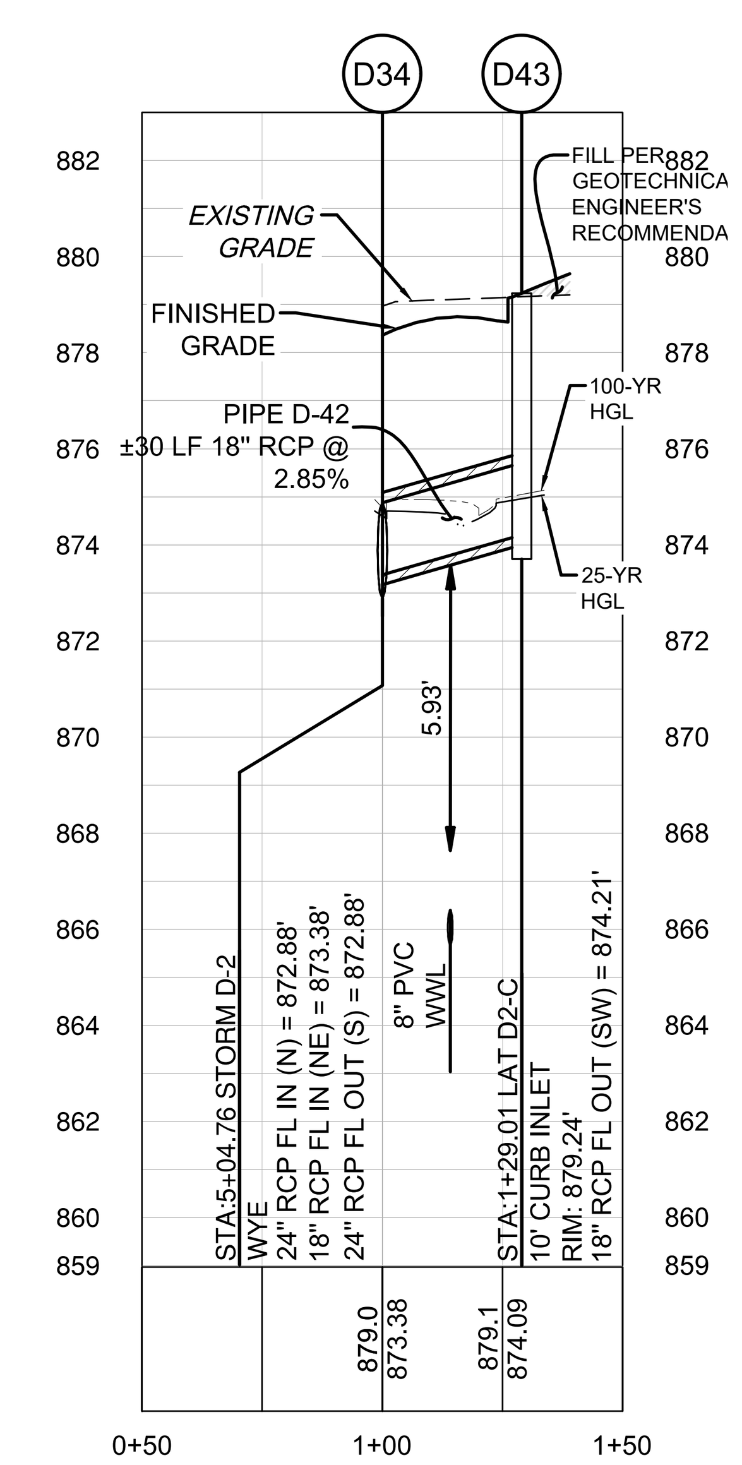


LAT D2-B

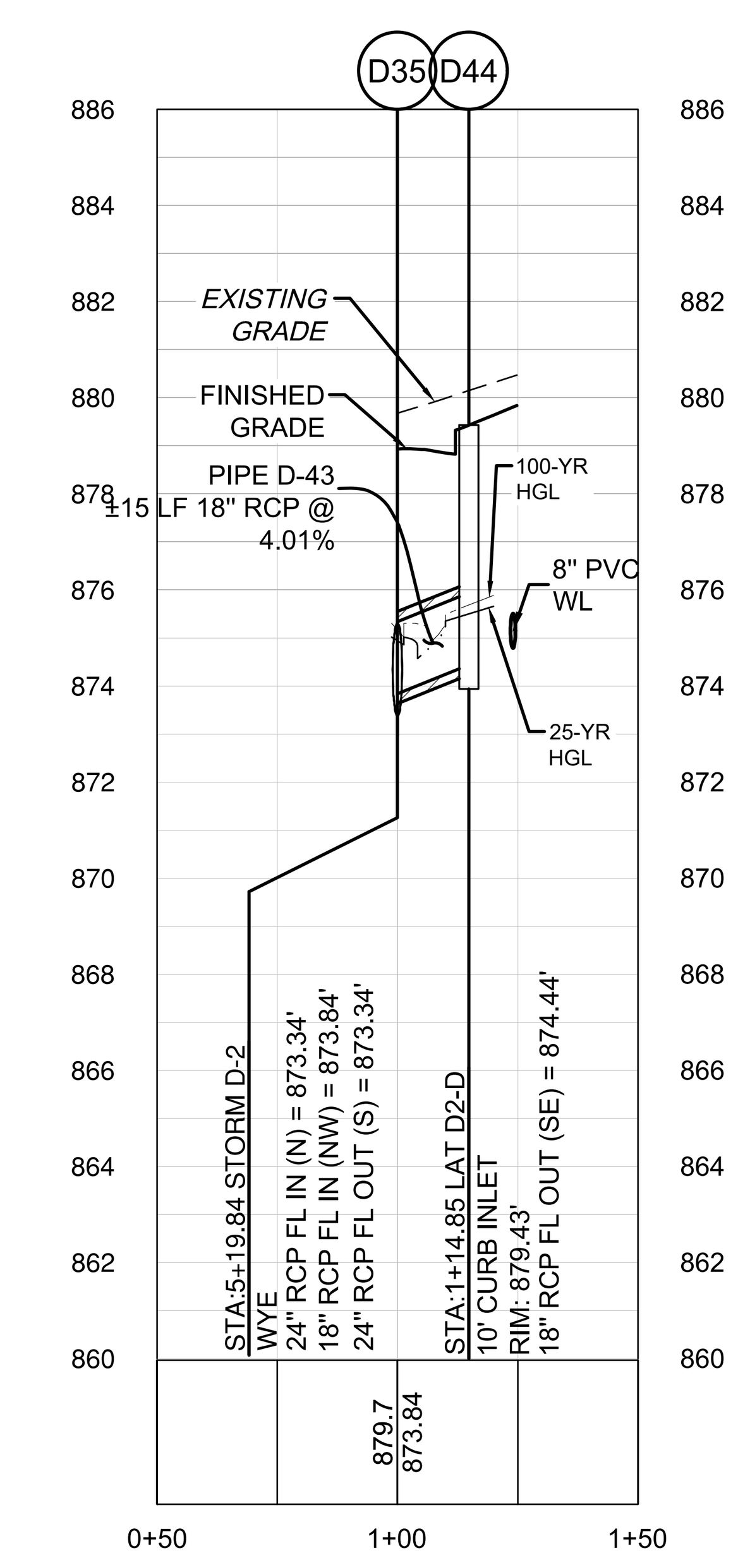


Pipe Label	Slope (%)	Q25 (cfs)	V25 (ft/s)	D25 (ft)	Q100 (cfs)	V100 (ft/s)	D100 (ft)
PIPE D-27	5.23%	28.85	5.79	2.39	36.07	6.25	3.02
PIPE D-28	5.23%	26.29	6.23	1.81	32.93	6.92	1.97
PIPE D-29	8.86%	26.29	11.69	1.75	32.93	7.90	2.01
PIPE D-30	8.86%	23.29	6.52	1.78	29.24	7.18	2.04
PIPE D-31	8.86%	23.29	6.19	1.99	29.24	6.92	2.24
PIPE D-32	7.15%	23.29	6.19	1.99	29.24	6.92	2.24
PIPE D-33	3.02%	23.29	9.99	1.72	29.24	11.09	1.85
PIPE D-34	3.02%	20.25	7.03	1.88	25.51	8.39	2.12
PIPE D-35	3.02%	14.88	5.72	1.77	18.85	6.58	2.06
PIPE D-40	7.13%	2.56	6.67	0.61	3.14	7.00	0.67
PIPE D-41	8.45%	3.00	3.62	0.78	3.69	3.56	1.04
PIPE D-42	2.85%	3.04	2.91	1.38	3.73	3.21	1.62
PIPE D-43	4.01%	5.37	4.13	1.27	6.66	4.55	1.56

LAT D2-C

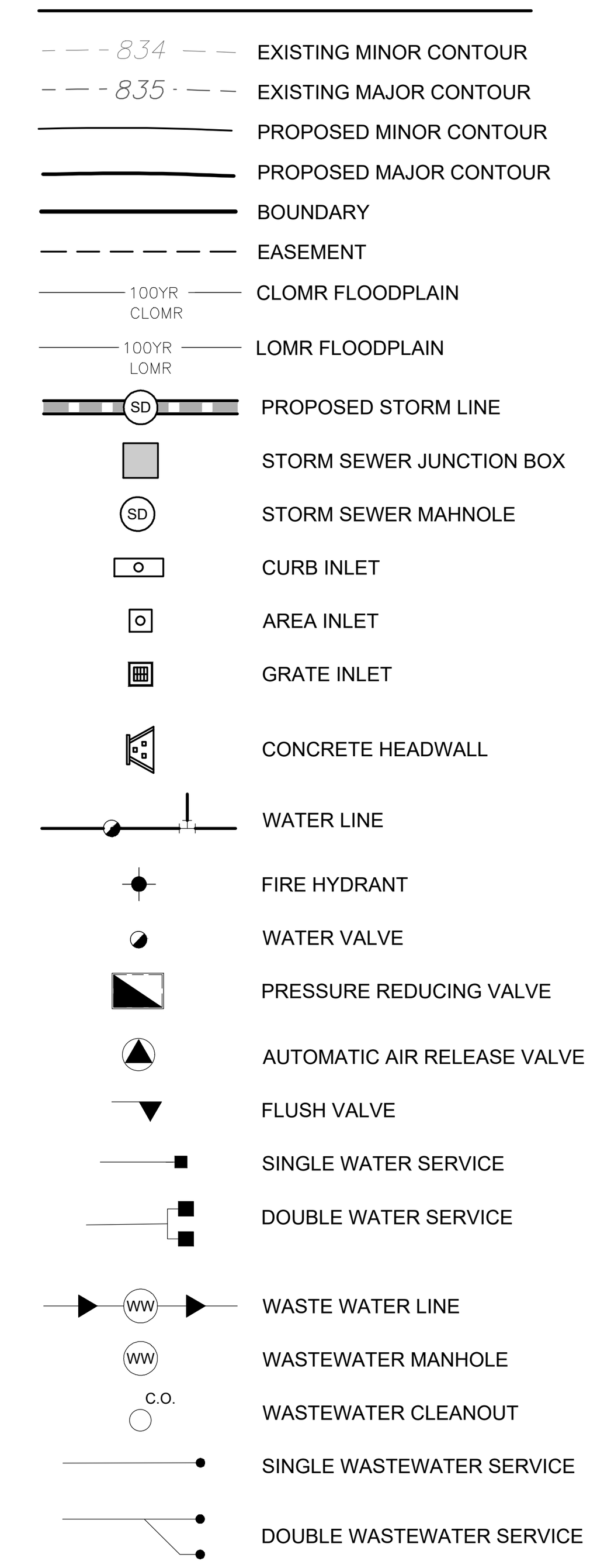


LAT D2-D



SCALE: 1" = 40'

LEGEND



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

EXISTING GRADE - CENTERLINE
FINISHED GRADE - CENTERLINE

VERT. SCALE

EXISTING GROUND → 1000.1 / 997.10 ← PROPOSED FLOWLINE

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STATE OF TEXAS
CHRISTINE N. CAMPBELL
142536
LICENSED PROFESSIONAL ENGINEER
12/05/2025

STORM D-2 PLAN & PROFILE 1+00 - 6+50

CRESCENT BLUFF WEST SECTIONS 9 & 10

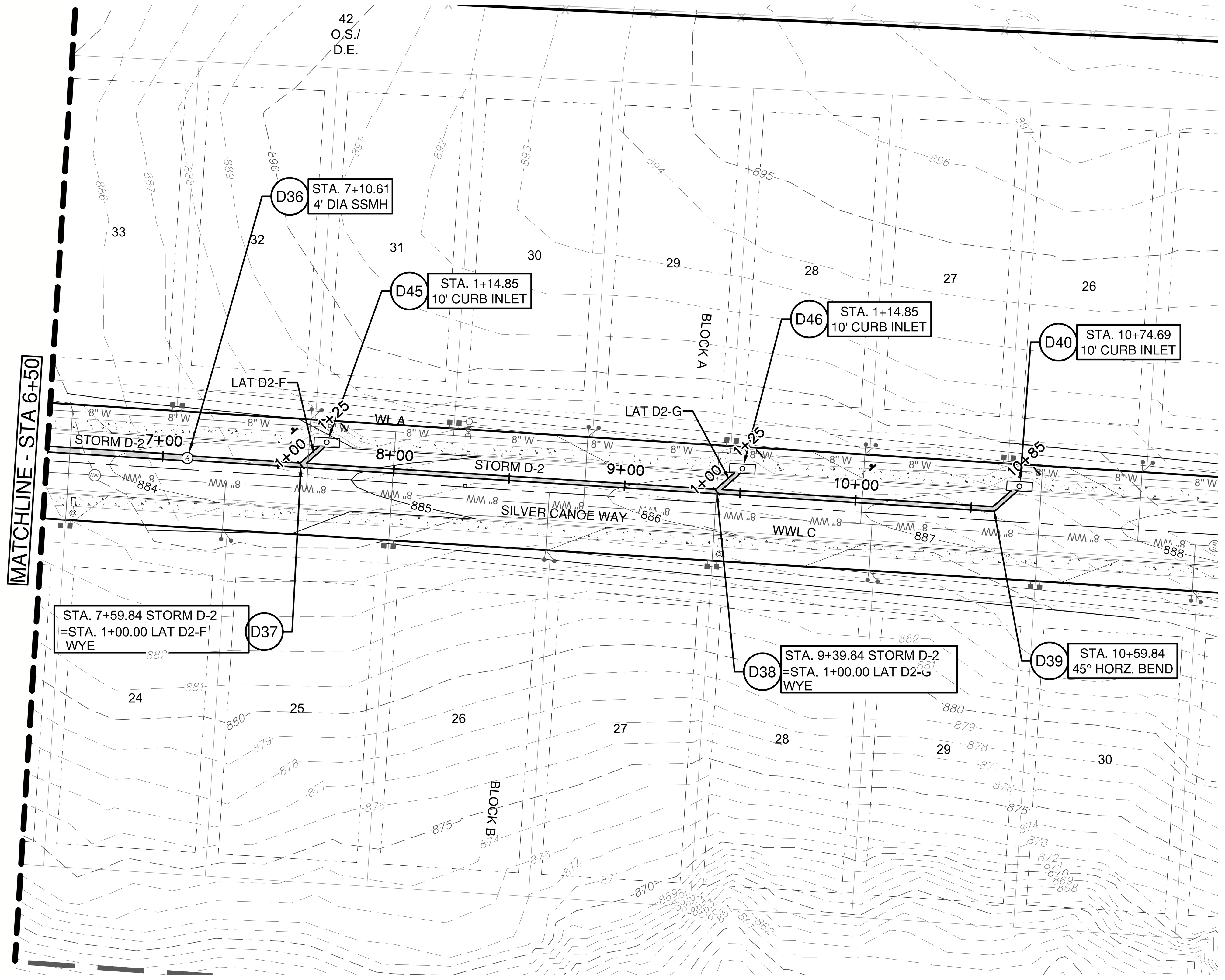
GEORGETOWN, WILLIAMSON COUNTY TEXAS

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

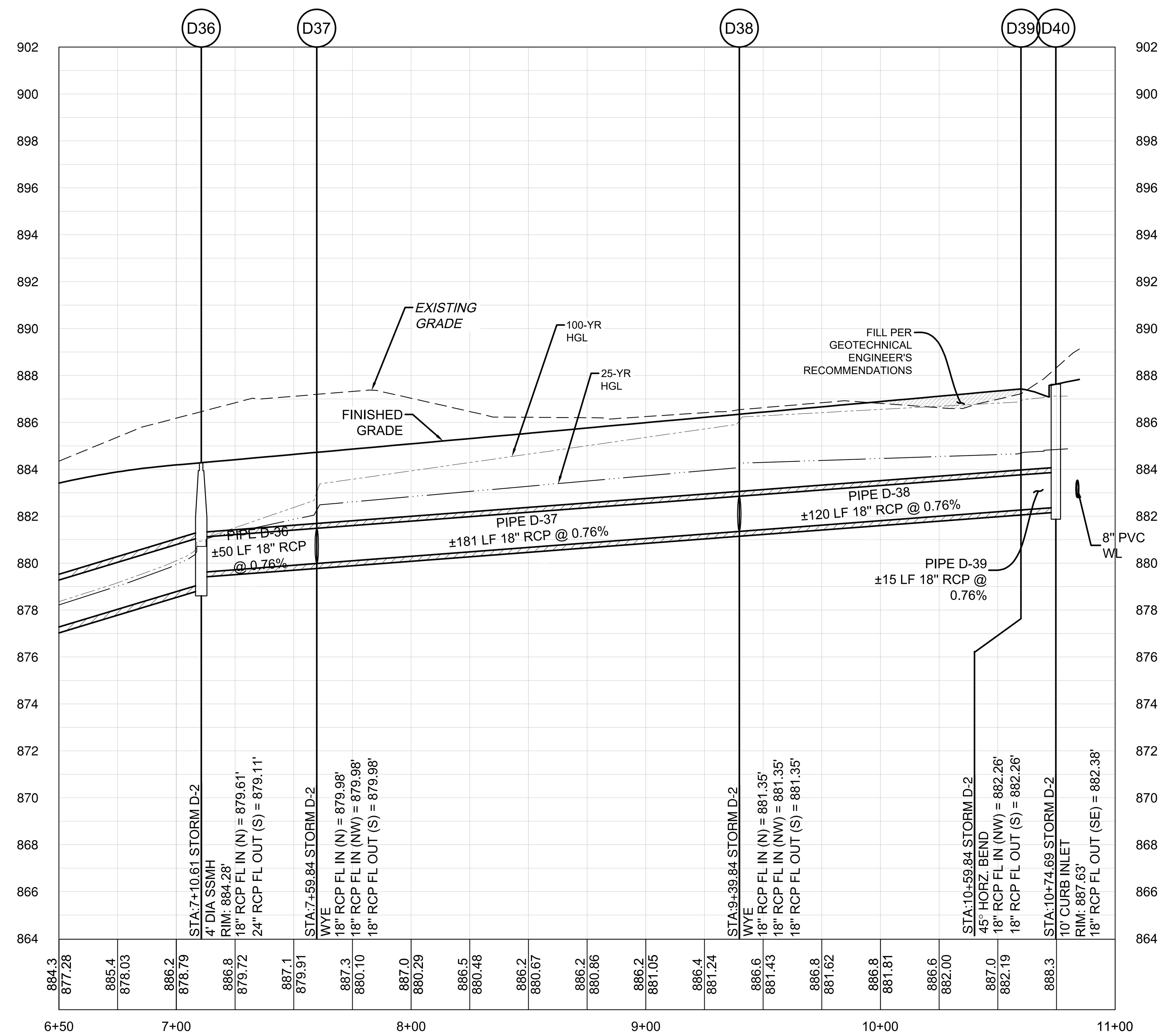
SHEET 63 of 105

2025-XX-CON

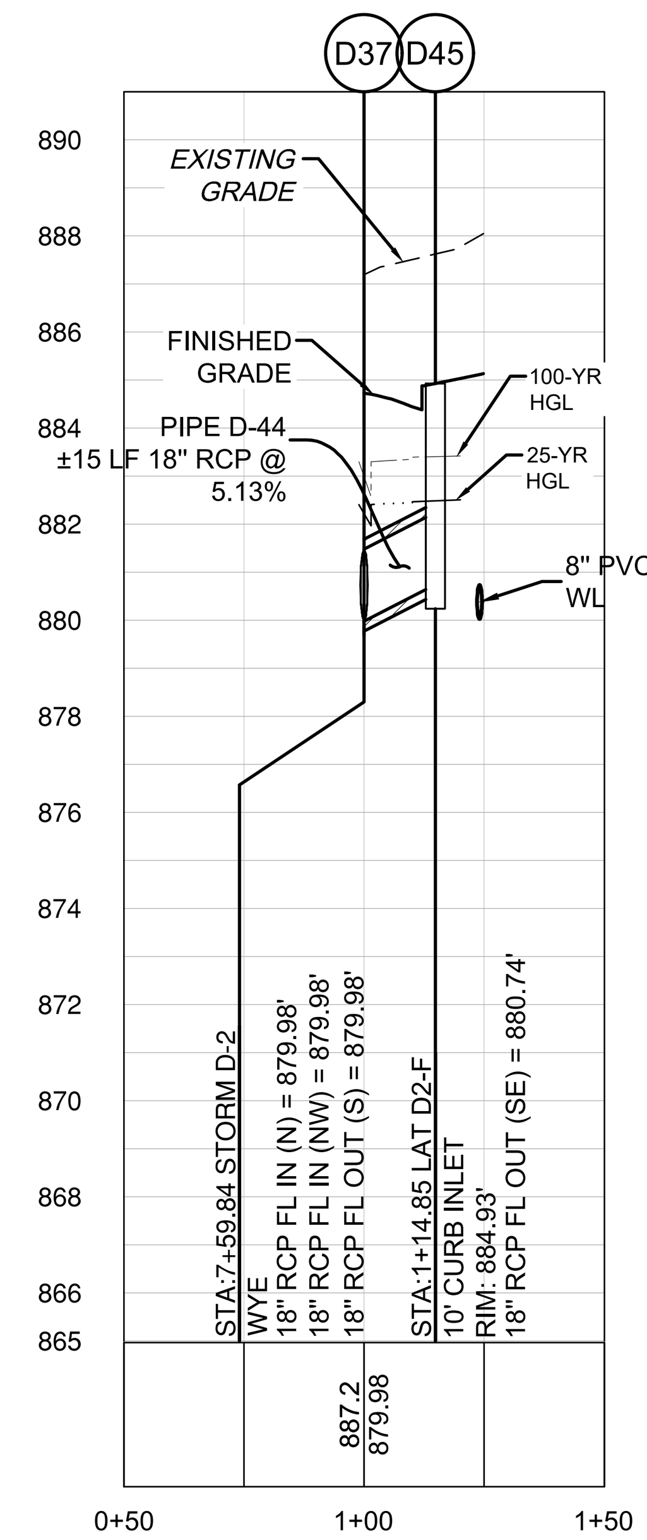
Plot Style: LandDev Global.ctb
Sheet Location: P:\athena.domain\chapman tract\sections 9-10\03_ACAD\Plans\sh204243 SDPP STORM D-2.dwg, STORM D-2 PLAN & PROFILE 1+00 - 6+50, December 05, 2025, 3:12 PM, tgarza



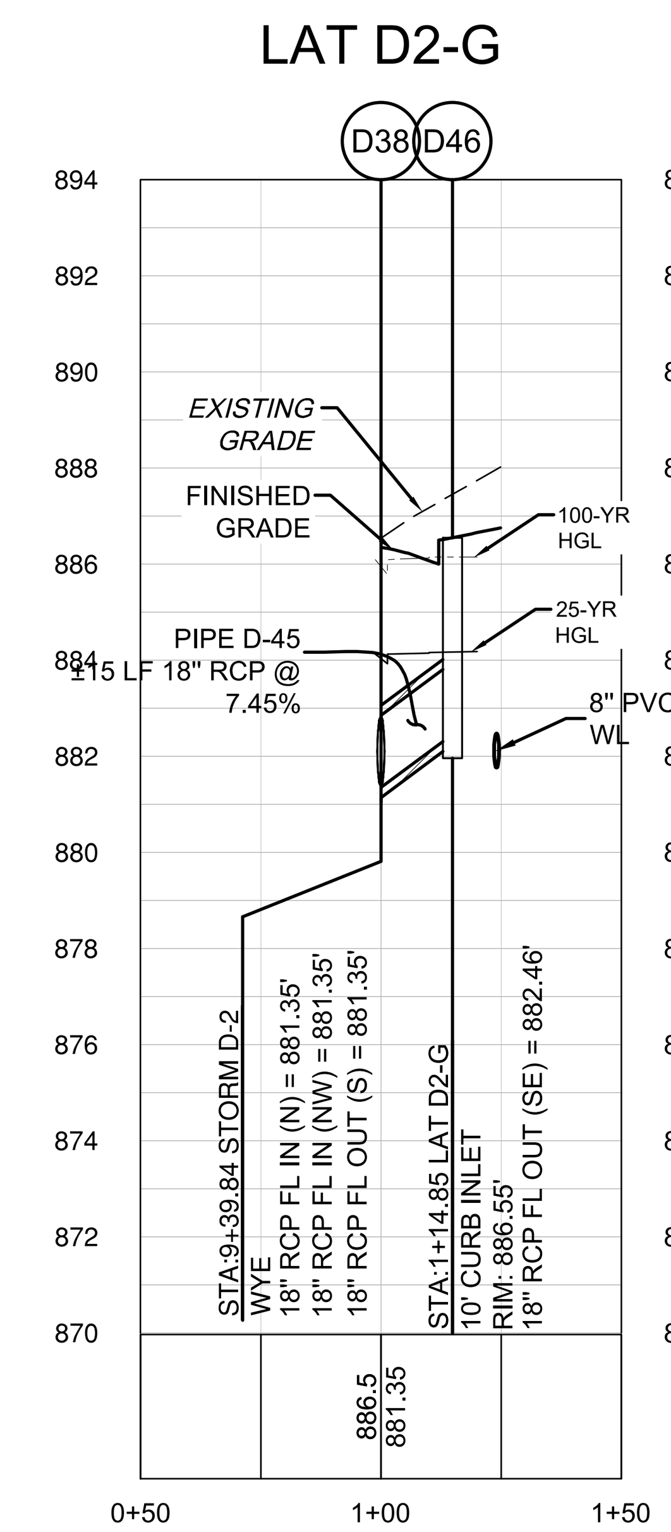
STORM D-2



LAT D2-F



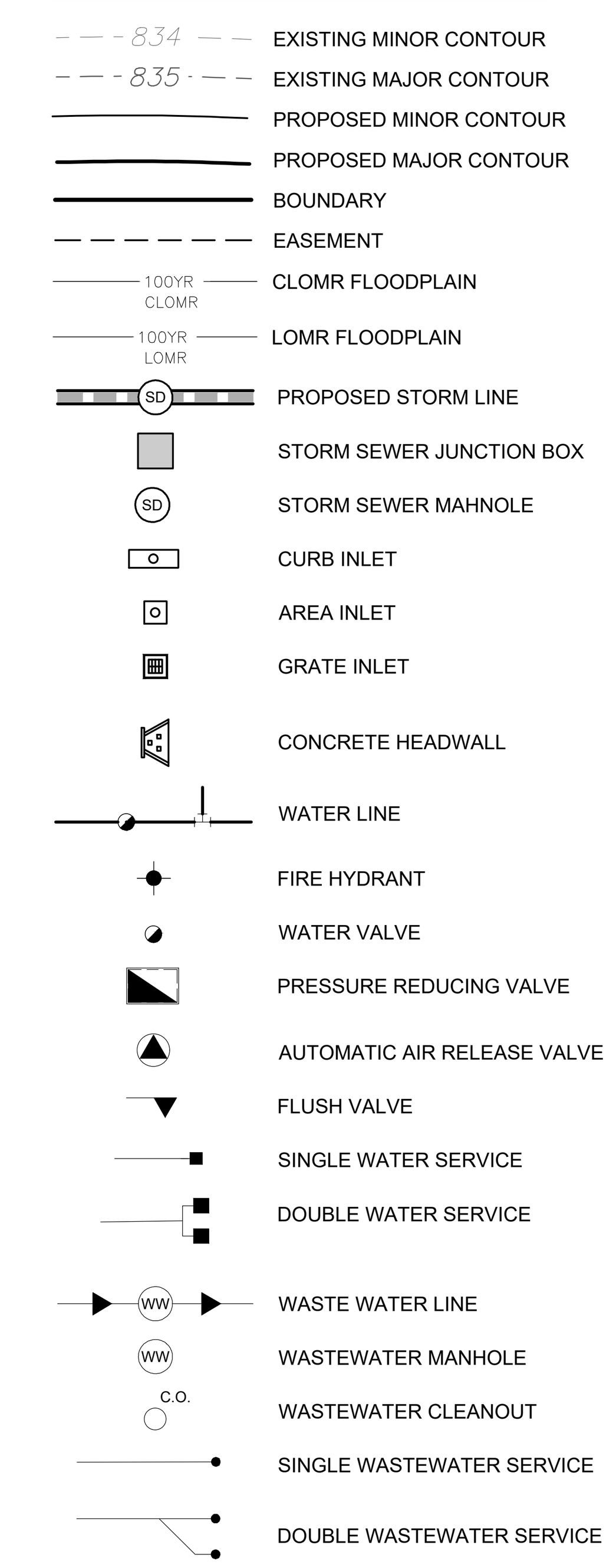
LAT D2-G

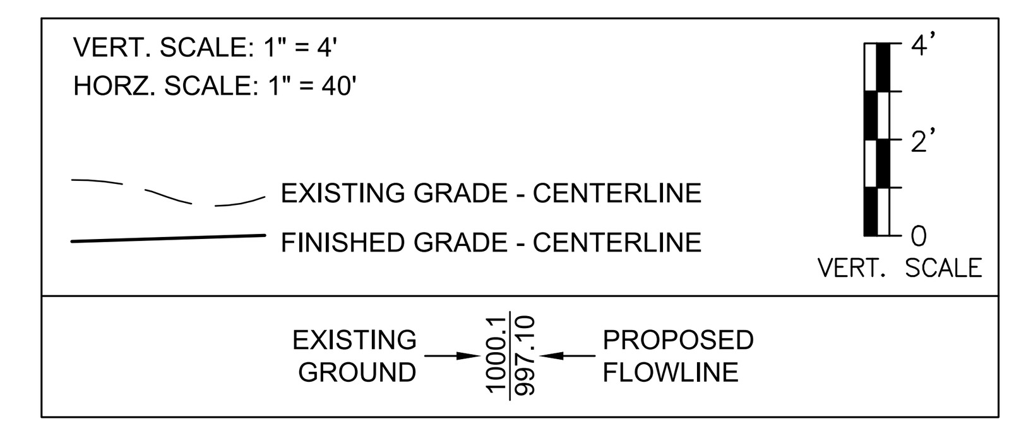


Pipe Label	Slope (%)	Q25 (cfs)	V25 (ft/s)	D25 (ft)	Q100 (cfs)	V100 (ft/s)	D100 (ft)
PIPE D-36	0.76%	14.88	8.54	2.08	18.85	10.71	2.70
PIPE D-37	0.76%	9.83	5.56	2.73	12.47	7.06	4.57
PIPE D-38	0.76%	6.03	3.41	2.92	7.65	4.33	4.89
PIPE D-39	0.76%	6.03	3.41	2.48	7.65	4.33	4.73
PIPE D-44	5.13%	5.05	2.86	2.52	6.38	3.61	3.41
PIPE D-45	7.45%	3.80	2.15	2.92	4.82	2.73	4.89

SCALE: 1" = 40'

LEGEND





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HRGREEN.COM
TBPE NO: 16384
TBPLS NO: 10194101

STATE OF TEXAS
CHRISTINE N. CAMPBELL
142536
LICENSED PROFESSIONAL ENGINEER
12/05/2025

STORM D-2 PLAN & PROFILE 6+50 - 10+85

CRESCENT BLUFF WEST
SECTIONS 9 & 10
GEORGETOWN, WILLIAMSON COUNTY TEXAS

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

SHEET 64 of 105

2025-XX-CON

Plot Style: LandDev Global.ctb
Template: HRG_C3D2023.DWT
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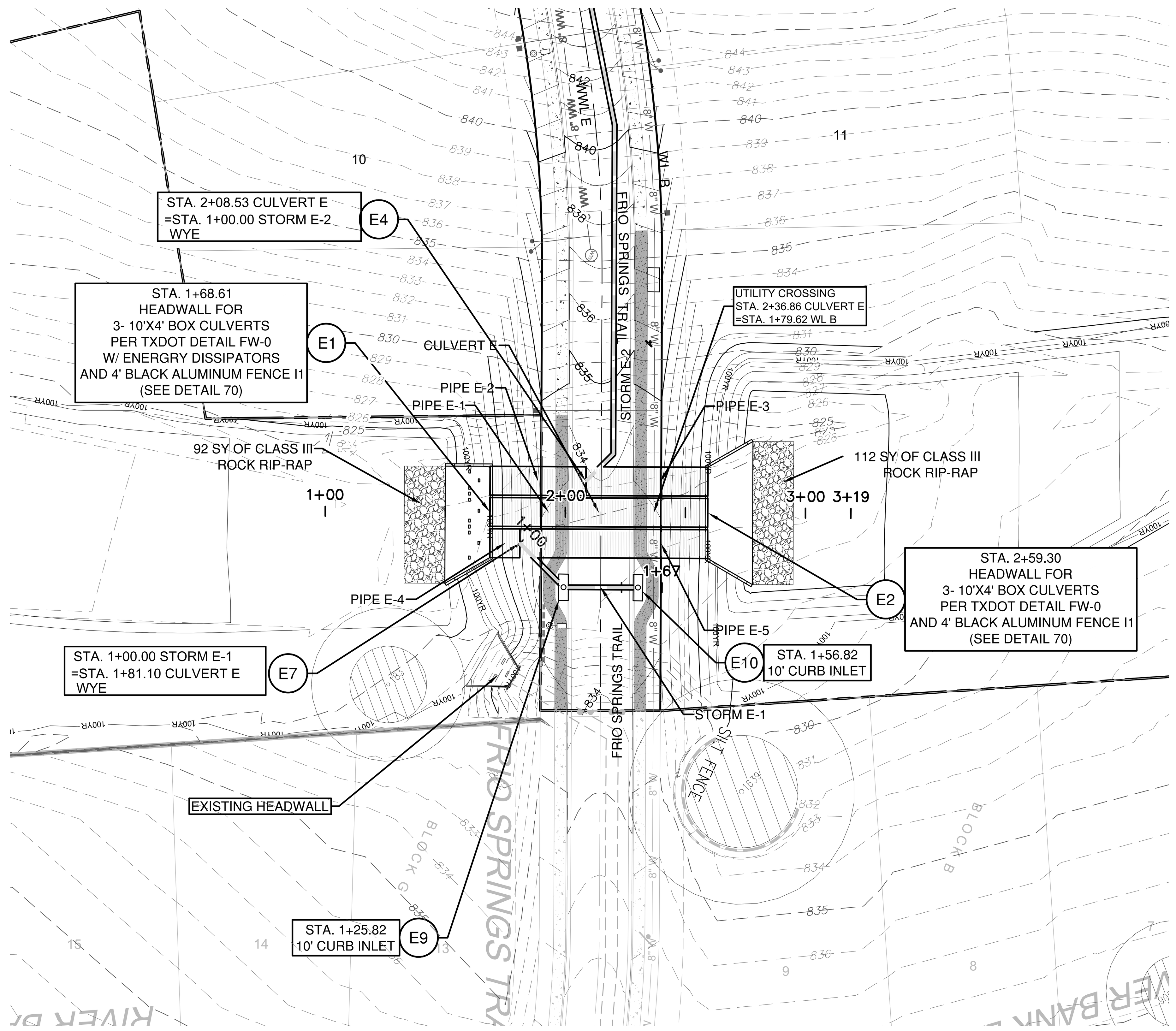


Pipe Label	Slope	Q25	V25	D25	Q100	V100	D100
	(%)	(cfs)	(ft/s)	(ft)	(cfs)	(ft/s)	(ft)
PIPE E-1	0.50%	438.00	8.37	1.88	674.00	9.61	2.50
PIPE E-2	0.50%	438.00	8.37	1.88	674.00	9.61	2.50
PIPE E-3	0.50%	438.00	8.37	1.88	674.00	9.61	2.50
PIPE E-4	0.50%	438.00	8.37	1.88	674.00	9.61	2.50
PIPE E-5	0.50%	438.00	8.37	1.88	674.00	9.61	2.50
PIPE E-6	5.45%	3.08	6.43	0.67	3.78	6.75	0.74
PIPE E-7	5.45%	2.50	2.80	1.10	3.07	3.01	1.24

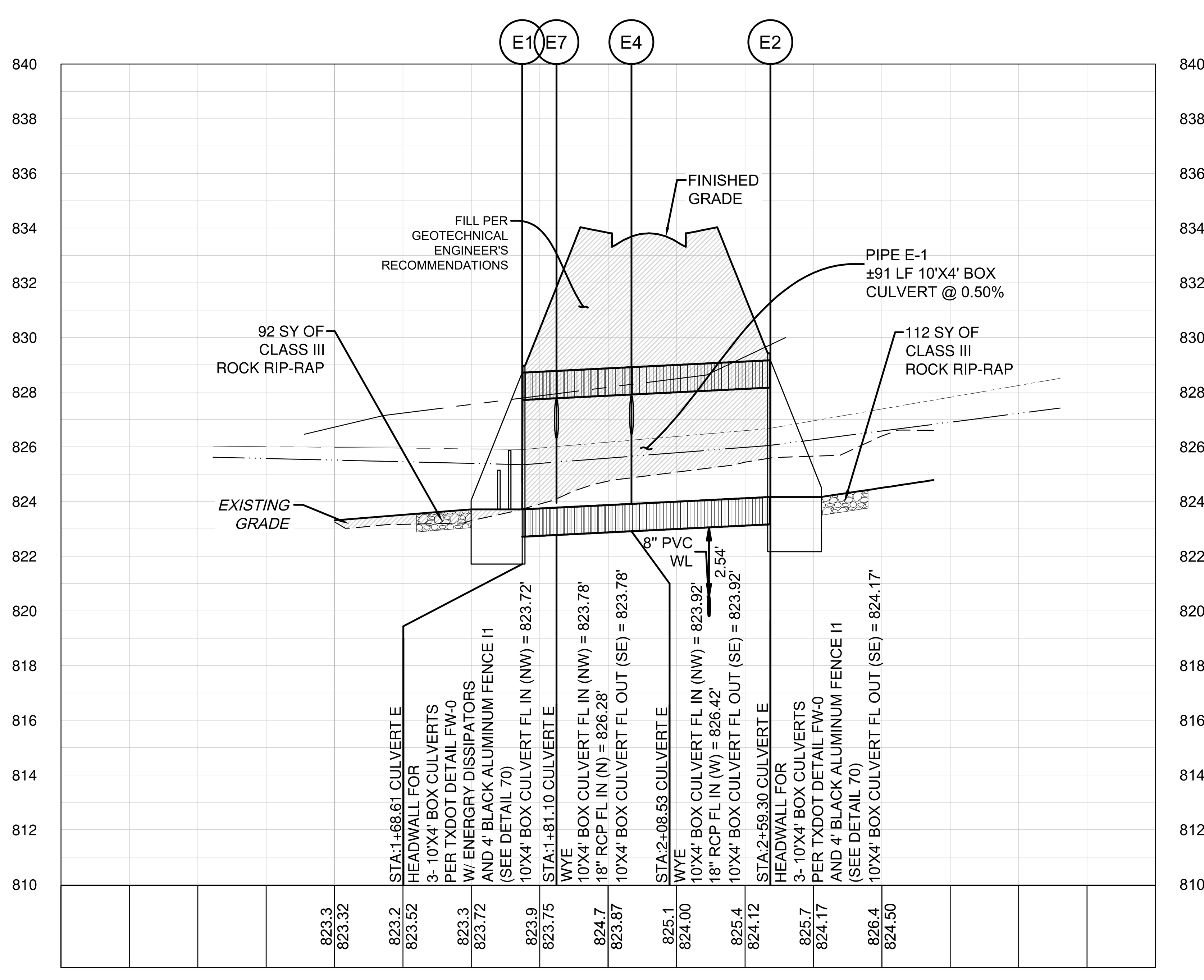
0 40' 80'
SCALE: 1" = 40'

LEGEND

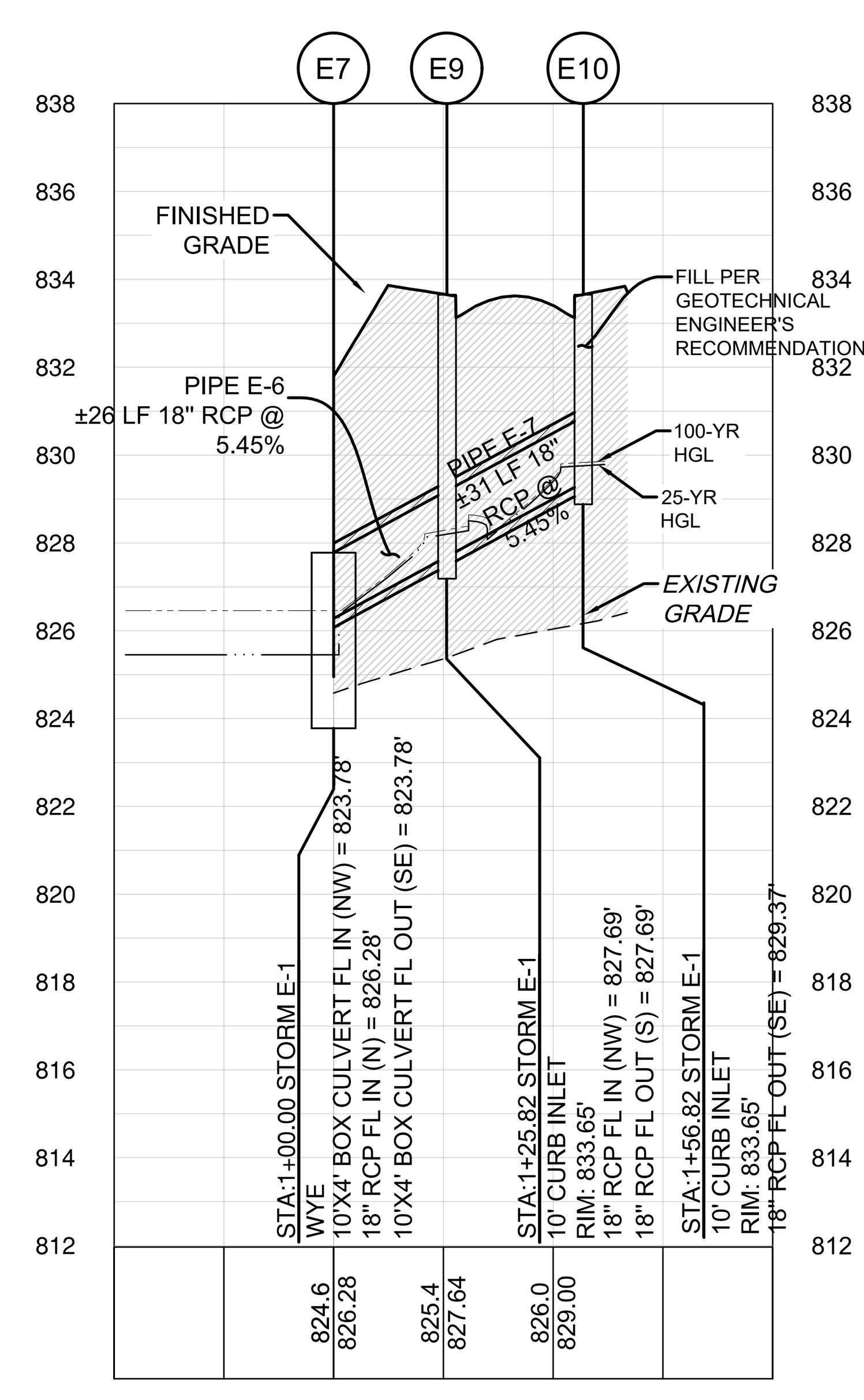
- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- BOUNDARY
- EASEMENT
- CLOMR FLOODPLAIN
- LOMR FLOODPLAIN
- PROPOSED STORM LINE
- STORM SEWER JUNCTION BOX
- STORM SEWER MAHNOLE
- CURB INLET
- AREA INLET
- GRATE INLET
- CONCRETE HEADWALL
- WATER LINE
- FIRE HYDRANT
- WATER VALVE
- PRESSURE REDUCING VALVE
- AUTOMATIC AIR RELEASE VALVE
- FLUSH VALVE
- SINGLE WATER SERVICE
- DOUBLE WATER SERVICE
- WASTE WATER LINE
- WASTEWATER MANHOLE
- WASTEWATER CLEANOUT
- SINGLE WASTEWATER SERVICE
- DOUBLE WASTEWATER SERVICE

VERT. SCALE: 1" = 4'
HORZ. SCALE: 1" = 40'
EXISTING GRADE - CENTERLINE
FINISHED GRADE - CENTERLINE
VERT. SCALE
EXISTING GROUND 1000.1 997.10 PROPOSED FLOWLINE

CULVERT E



STORM E-1



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STATE OF TEXAS
CHRISTINE N. CAMPBELL
142536
LICENSED PROFESSIONAL ENGINEER
12/05/2025

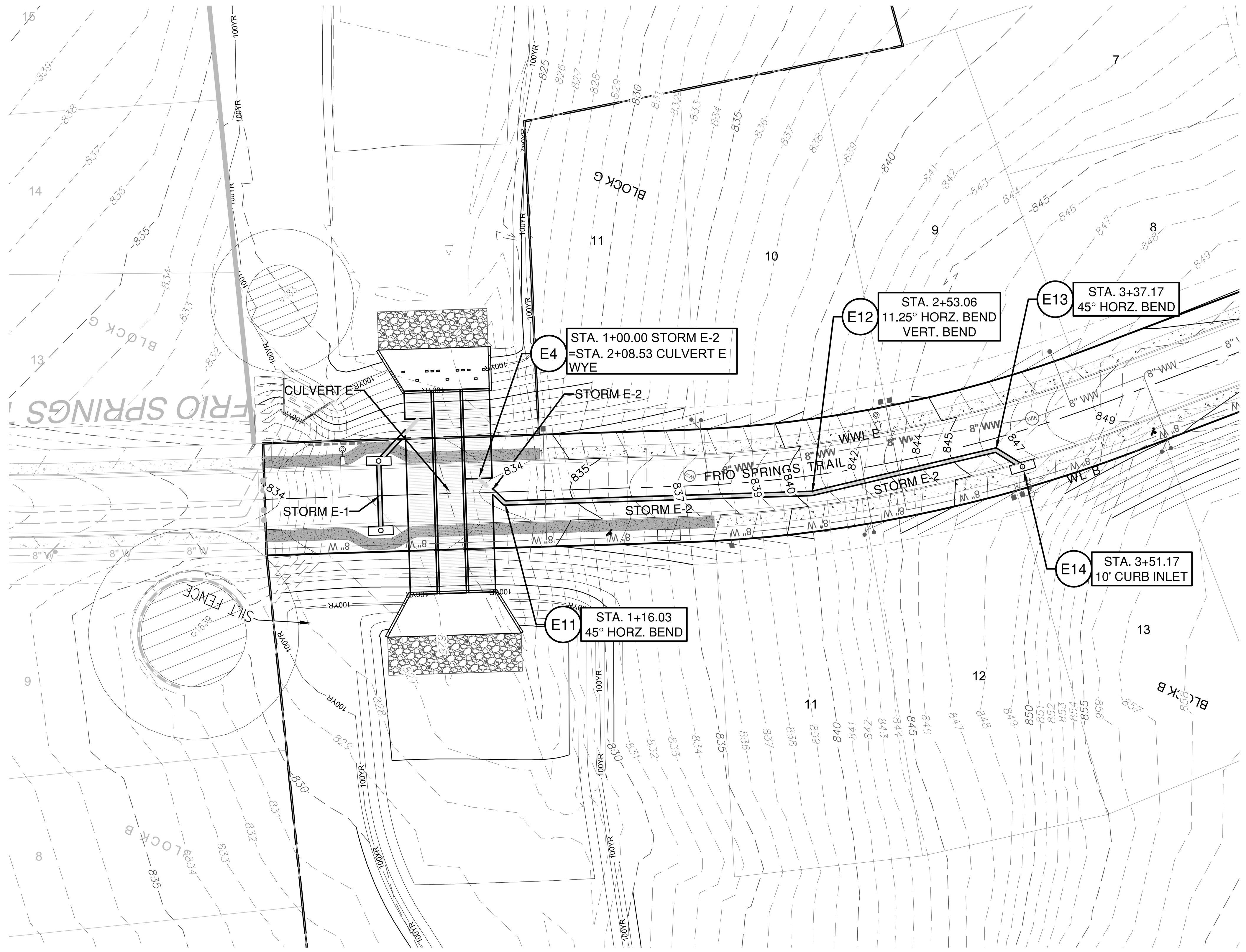
CULVERT E & STORM E-1 PLAN & PROFILE

CRESCENT BLUFF WEST
SECTIONS 9 & 10
GEORGETOWN, WILLIAMSON COUNTY TEXAS

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

SHEET 65 of 105

2025-XX-CON



SCALE: 1" = 40'

LEGEND

- EXISTING MINOR CONTOUR
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- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- BOUNDARY
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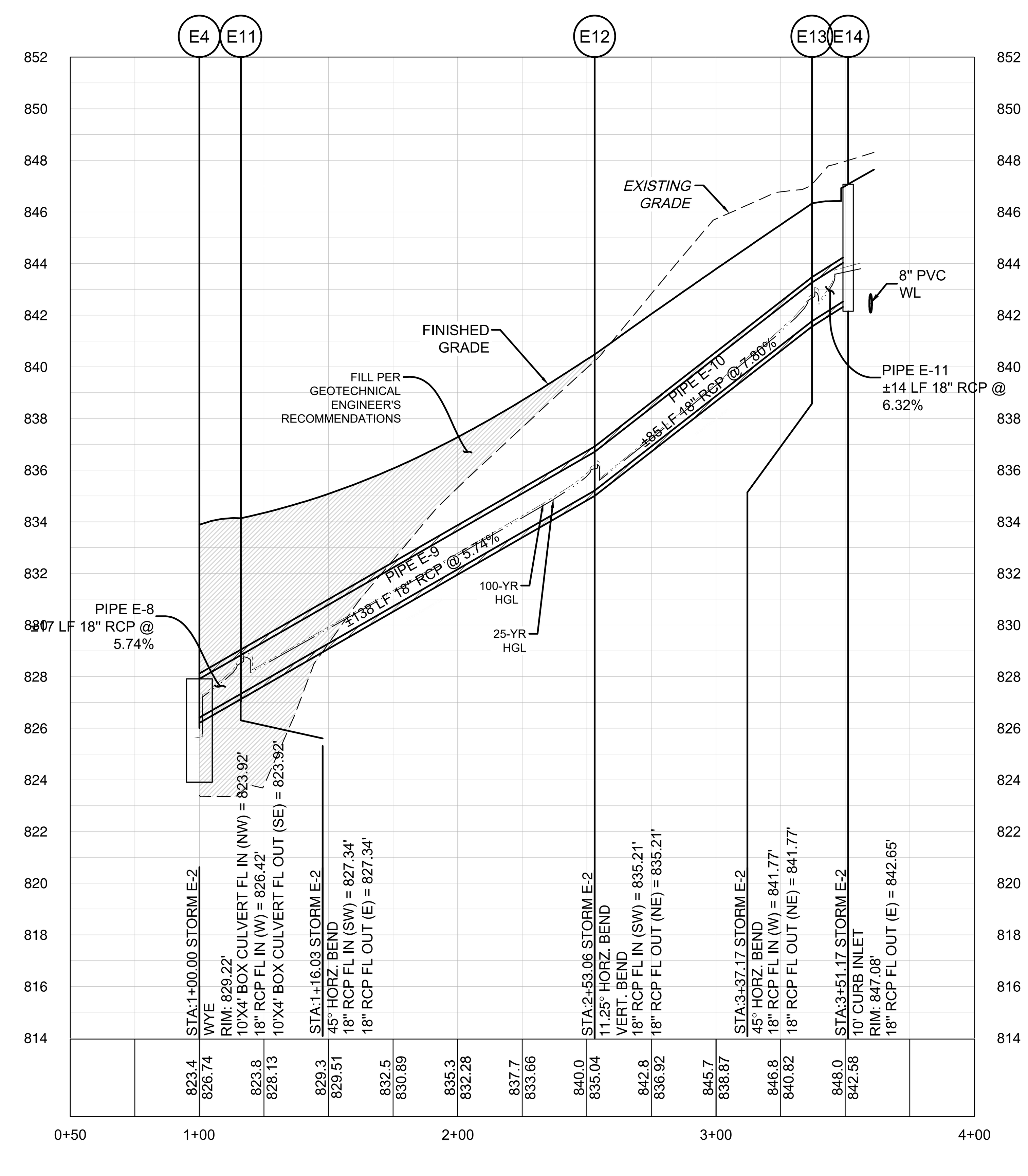
- WASTEWATER MANHOLE
- WASTEWATER CLEANOUT
- SINGLE WASTEWATER SERVICE
- DOUBLE WASTEWATER SERVICE

Pipe Label	Slope	Q25	V25	D25	Q100	V100	D100
	(%)	(cfs)	(ft/s)	(ft)	(cfs)	(ft/s)	(ft)
PIPE E-8	4.23%	5.72	7.09	0.92	7.28	7.56	1.05
PIPE E-9	4.23%	5.72	4.32	1.25	7.28	4.87	1.42
PIPE E-10	7.80%	5.72	4.54	1.12	7.28	5.06	1.27
PIPE E-11	6.32%	5.72	4.32	1.25	7.28	4.87	1.42

STORM E-2



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FINISHED GRADE - CENTERLINE

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NO.	REVISION	BY	DATE

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

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

TBPE NO: 16384
TBPLS NO: 10194101

HRGreen® DEVELOPMENT TX

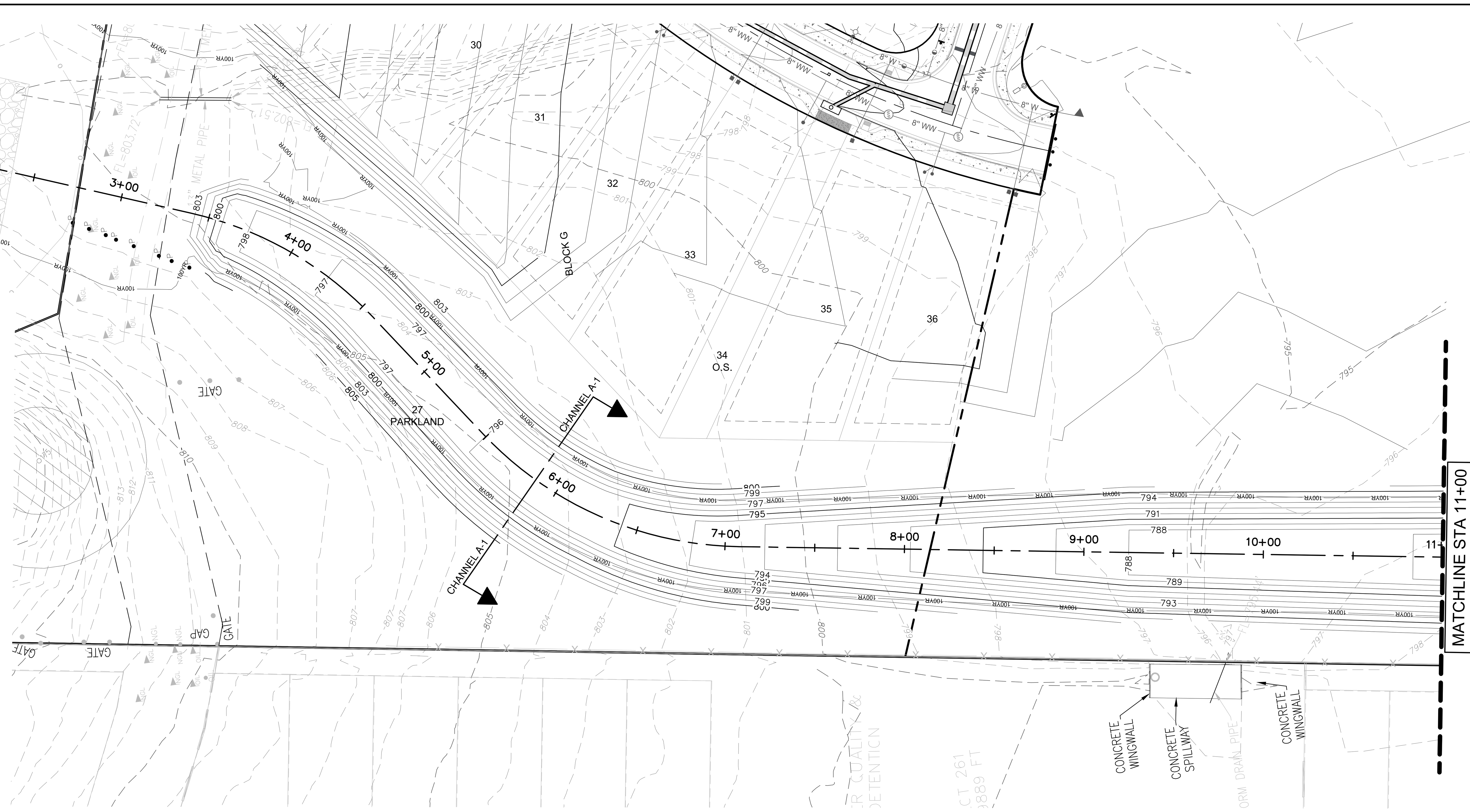
STATE OF TEXAS
CHRISTINE N. CAMPBELL
142536
LICENSED PROFESSIONAL ENGINEER
12/05/2025

STORM E-2 PLAN & PROFILE 1+00 - 3+61

CRESCENT BLUFF WEST
SECTIONS 9 & 10
GEORGETOWN, WILLIAMSON COUNTY TEXAS

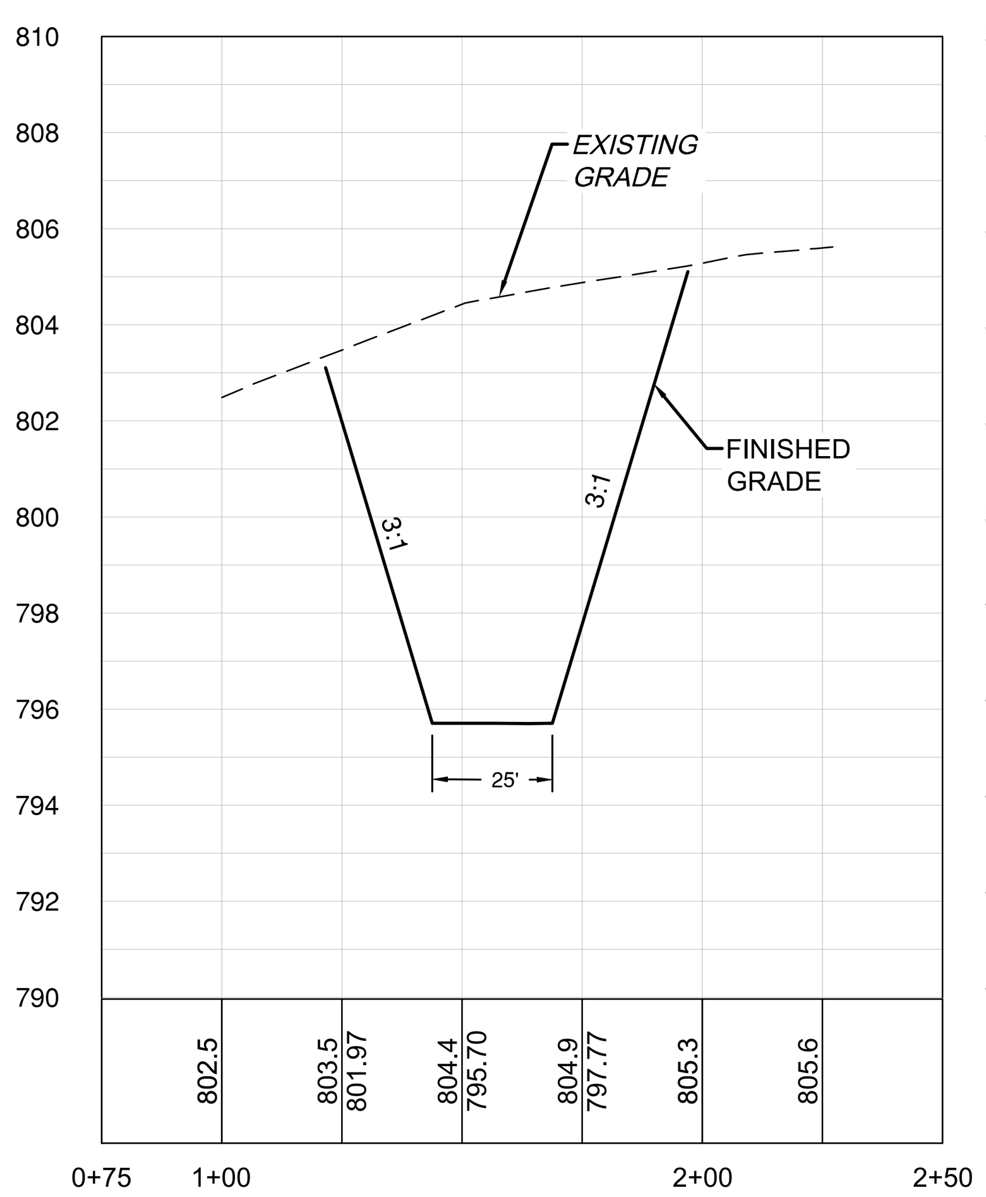
DESIGNED BY: CC/TG
DRAWN BY: TG
CHECKED BY: CC
APPROVED BY: SN

2025-XX-CON



SCALE: 1" = 40'

CHANNEL A-1

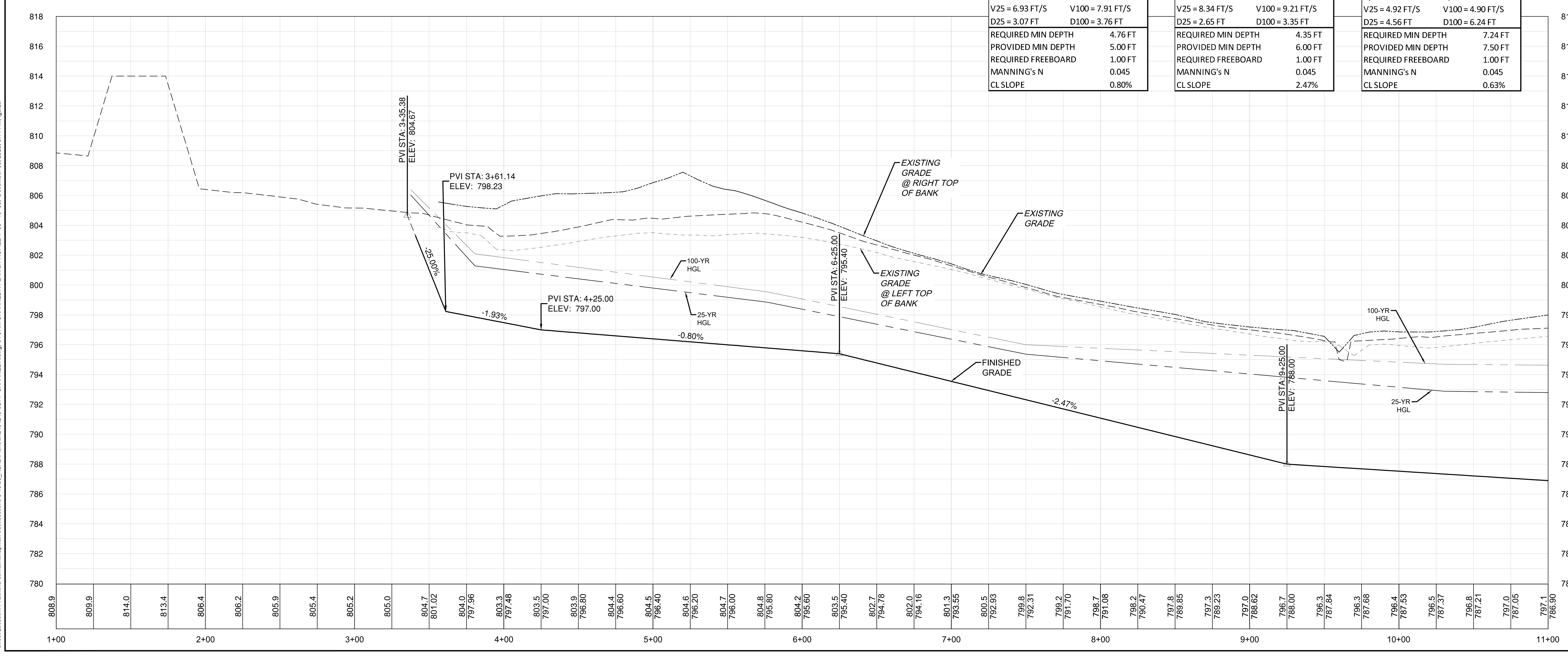


CHANNEL A

CHANNEL A (LOW FLOW, LOW SLOPE) STA 4+25.00 - 6+25.00 HYDRAULIC CALCULATIONS	
Q25 = 727.0 CFS	Q100 = 1078.40 CFS
V25 = 6.93 FT/S	V100 = 7.91 FT/S
D25 = 3.07 FT	D100 = 3.76 FT
REQUIRED MIN DEPTH	4.76 FT
PROVIDED MIN DEPTH	5.00 FT
REQUIRED FREEBOARD	1.00 FT
MANNING's N	0.045
CL SLOPE	0.80%

CHANNEL A (LOW FLOW, HIGH SLOPE) STA 6+25.00 - 9+25.00 HYDRAULIC CALCULATIONS	
Q25 = 727.0 CFS	Q100 = 1078.40 CFS
V25 = 8.34 FT/S	V100 = 9.21 FT/S
D25 = 2.65 FT	D100 = 3.35 FT
REQUIRED MIN DEPTH	4.35 FT
PROVIDED MIN DEPTH	6.00 FT
REQUIRED FREEBOARD	1.00 FT
MANNING's N	0.045
CL SLOPE	2.47%

CHANNEL A (HIGH FLOW) STA 9+25.00 - 19+88.57 HYDRAULIC CALCULATIONS	
Q25 = 826.0 CFS	Q100 = 1229.40 CFS
V25 = 4.92 FT/S	V100 = 4.90 FT/S
D25 = 4.56 FT	D100 = 6.24 FT
REQUIRED MIN DEPTH	7.24 FT
PROVIDED MIN DEPTH	7.50 FT
REQUIRED FREEBOARD	1.00 FT
MANNING's N	0.045
CL SLOPE	0.63%



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

EXISTING GRADE - CENTERLINE
FINISHED GRADE - CENTERLINE
VERT. SCALE

EXISTING GROUND 1000.1 / 997.10 PROPOSED FLOWLINE

LEGEND

- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- BOUNDARY
- EASEMENT
- CLOMR FLOODPLAIN
- LOMR FLOODPLAIN
- PROPOSED STORM LINE
- STORM SEWER JUNCTION BOX
- STORM SEWER MAHNOLE
- CURB INLET
- AREA INLET
- GRATE INLET
- CONCRETE HEADWALL
- WATER LINE
- FIRE HYDRANT
- WATER VALVE
- PRESSURE REDUCING VALVE
- AUTOMATIC AIR RELEASE VALVE
- FLUSH VALVE
- SINGLE WATER SERVICE
- DOUBLE WATER SERVICE
- WASTE WATER LINE
- WASTEWATER MANHOLE
- WASTEWATER CLEANOUT
- SINGLE WASTEWATER SERVICE
- DOUBLE WASTEWATER SERVICE

NOTES:

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NO.	REVISION	BY	DATE

HRGreen DEVELOPMENT TX
5508 HIGHWAY 290 WEST SUITE 150 AUSTIN, TX 78735 512.872.6696 HRGREEN.COM
TBPE NO: 16384 TBPLS NO: 10194101

STATE OF TEXAS CHRISTINE N. CAMPBELL 142536 LICENSED PROFESSIONAL ENGINEER
12/05/2025

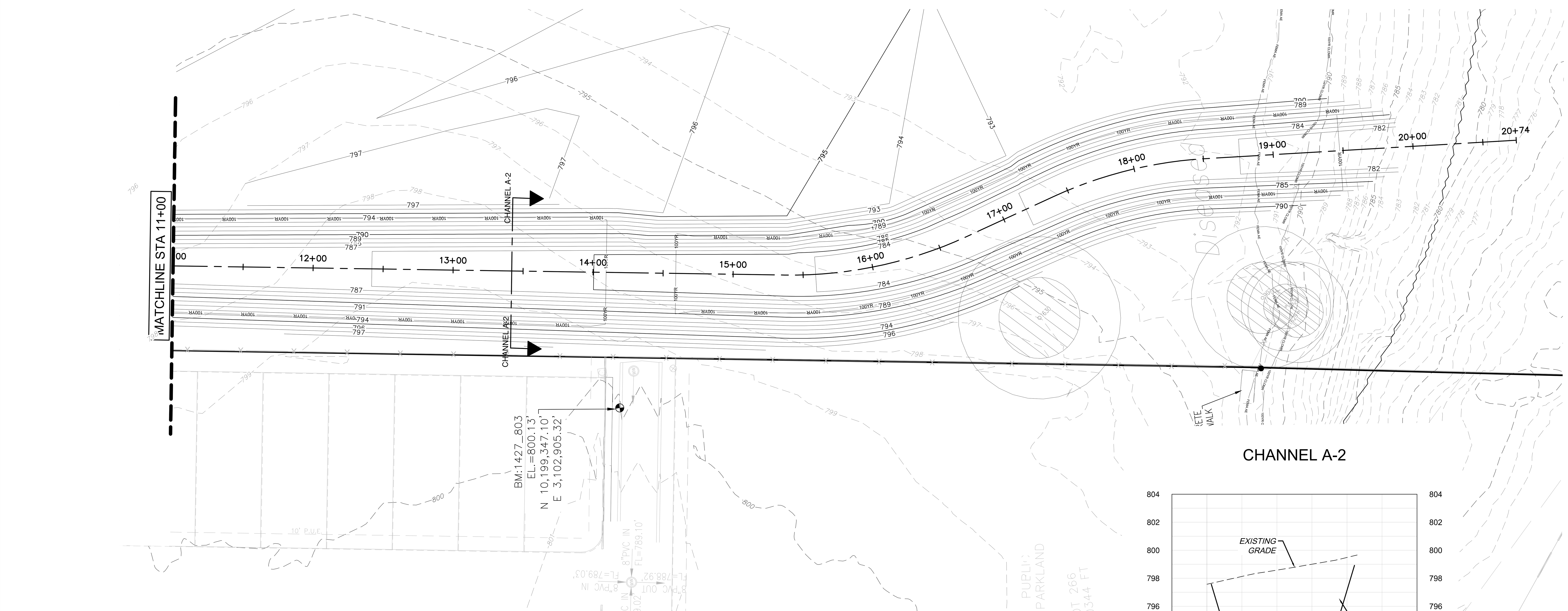
STORM CHANNEL A PLAN & PROFILE 1+00 - 10+50

CRESCENT BLUFF WEST SECTIONS 9 & 10

GEORGETOWN, WILLIAMSON COUNTY TEXAS

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

2025-XX-CON



LEGEND

- EXISTING MINOR CONTOUR
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- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
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- WASTEWATER CLEANOUT
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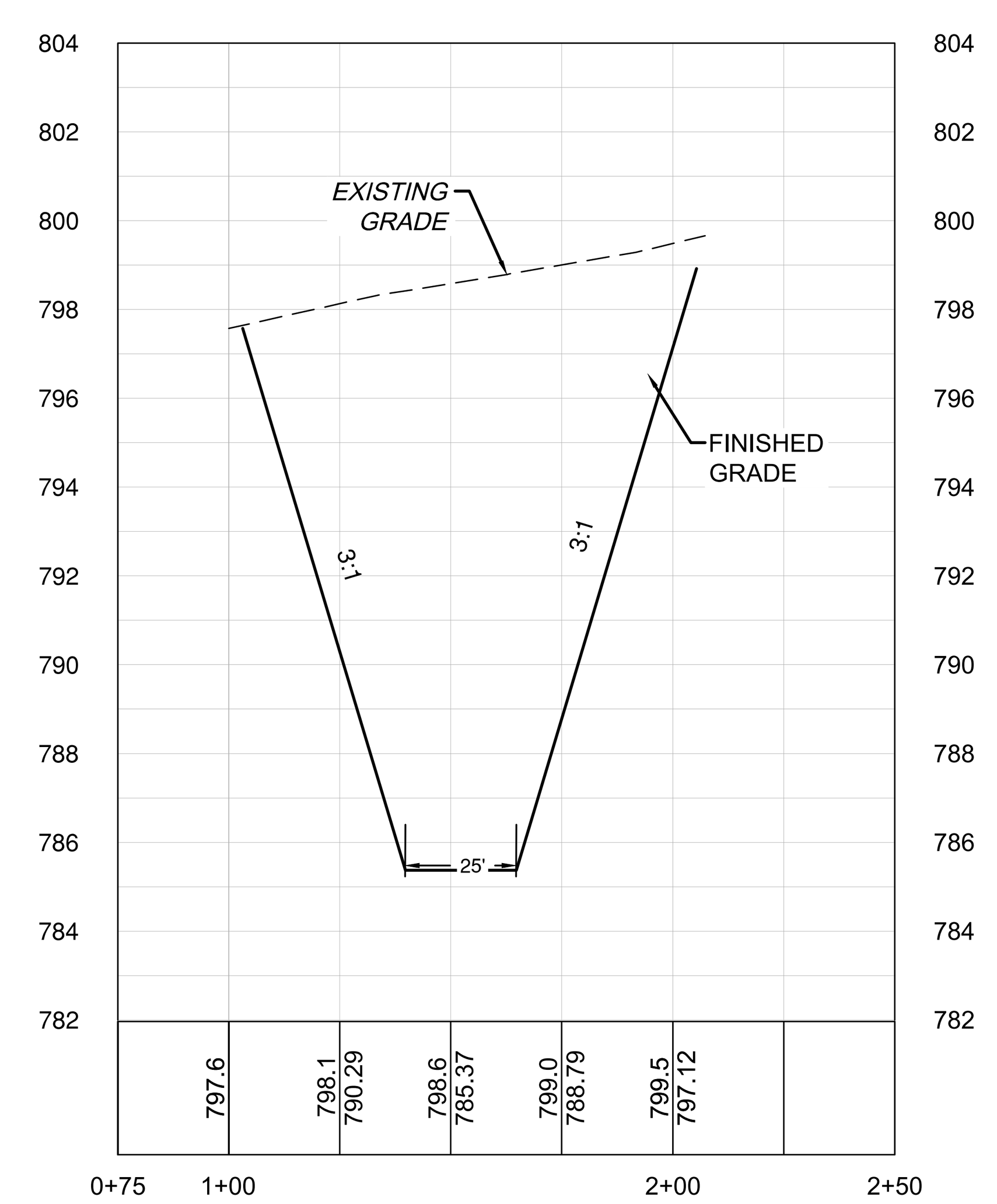
811 Know what's below. Call before you dig.

CHANNEL A-2



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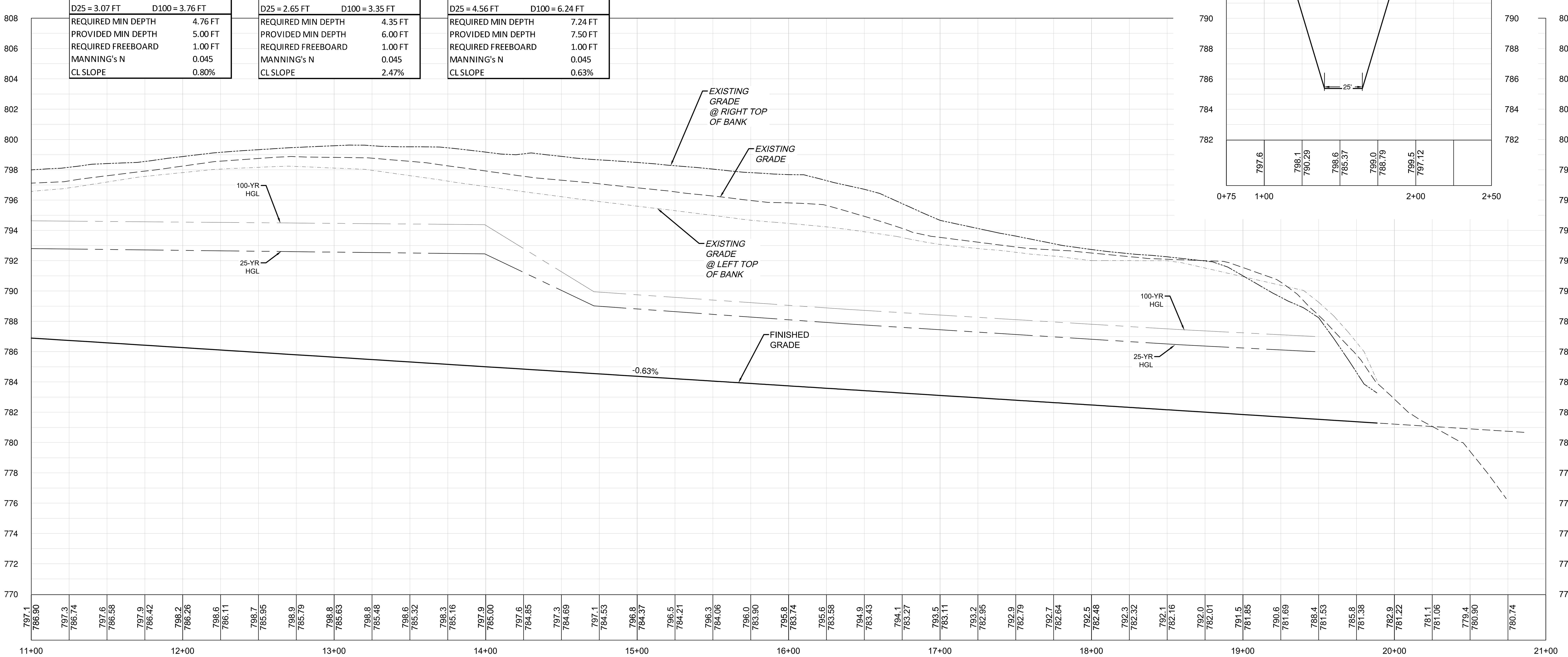

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FINISHED GRADE - CENTERLINE

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STATE OF TEXAS — CHRISTINE N. CAMPBELL — 142536 — LICENSED PROFESSIONAL ENGINEER
12/05/2025

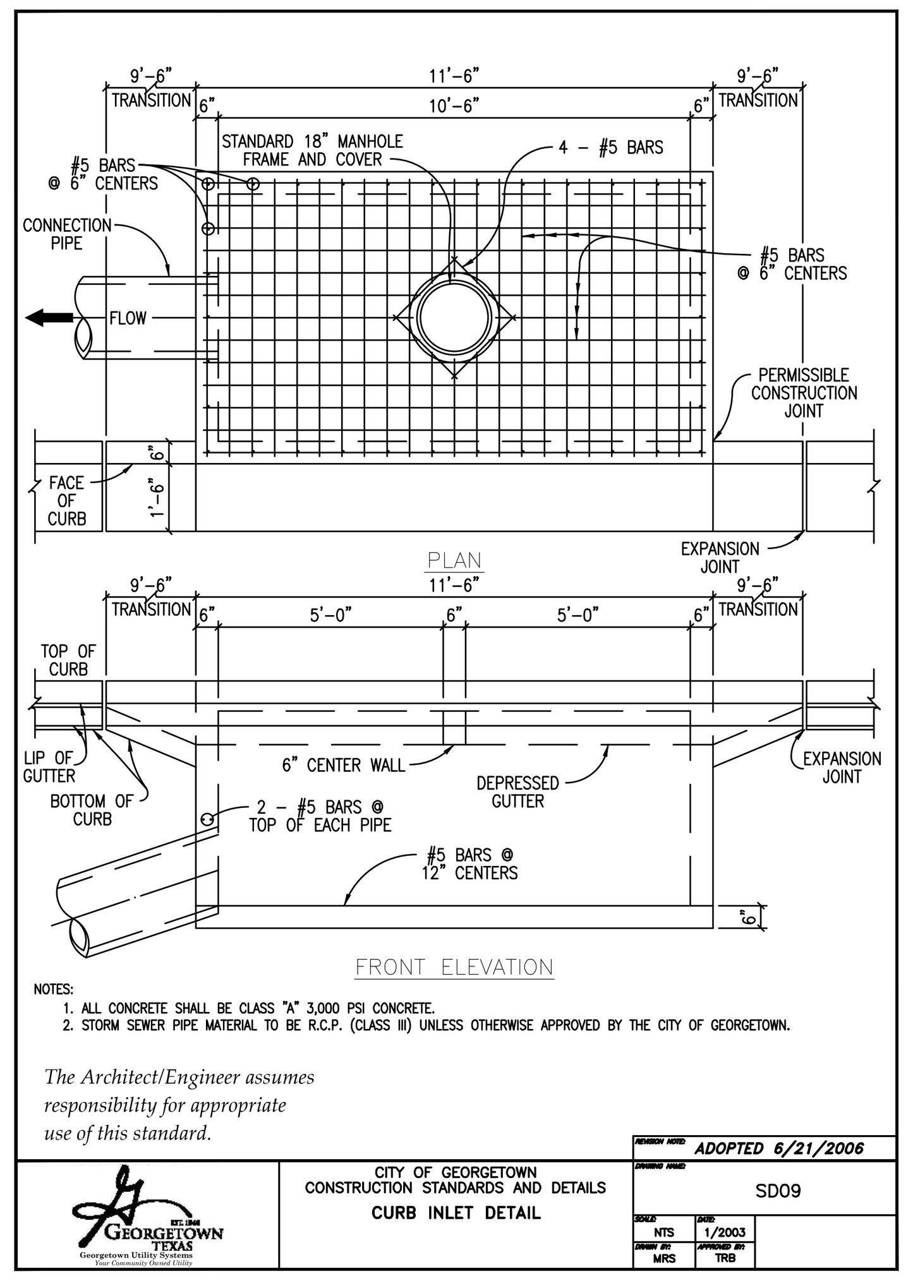
STORM CHANNEL A PLAN & PROFILE 10+50 - 22+00

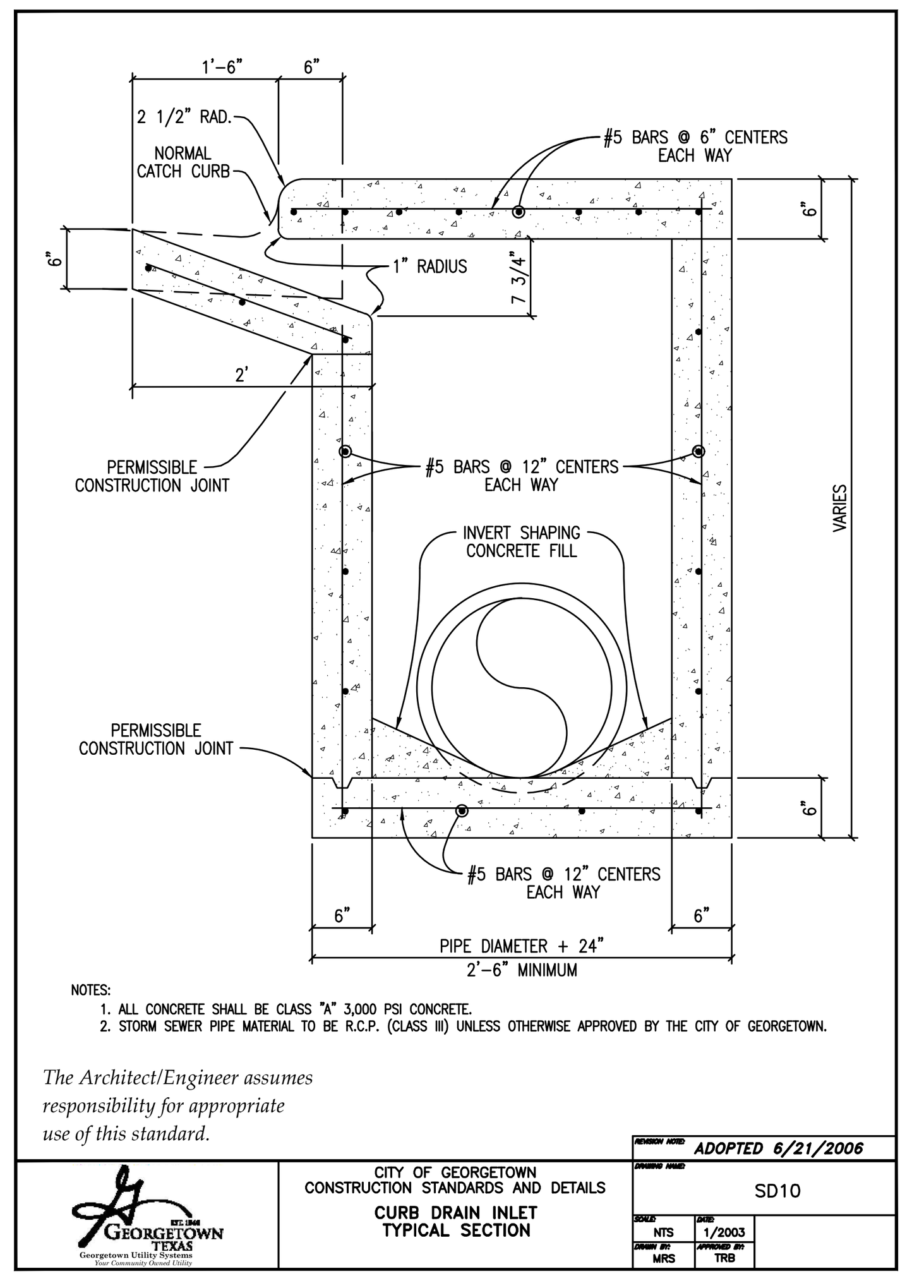
CRESCENT BLUFF WEST SECTIONS 9 & 10

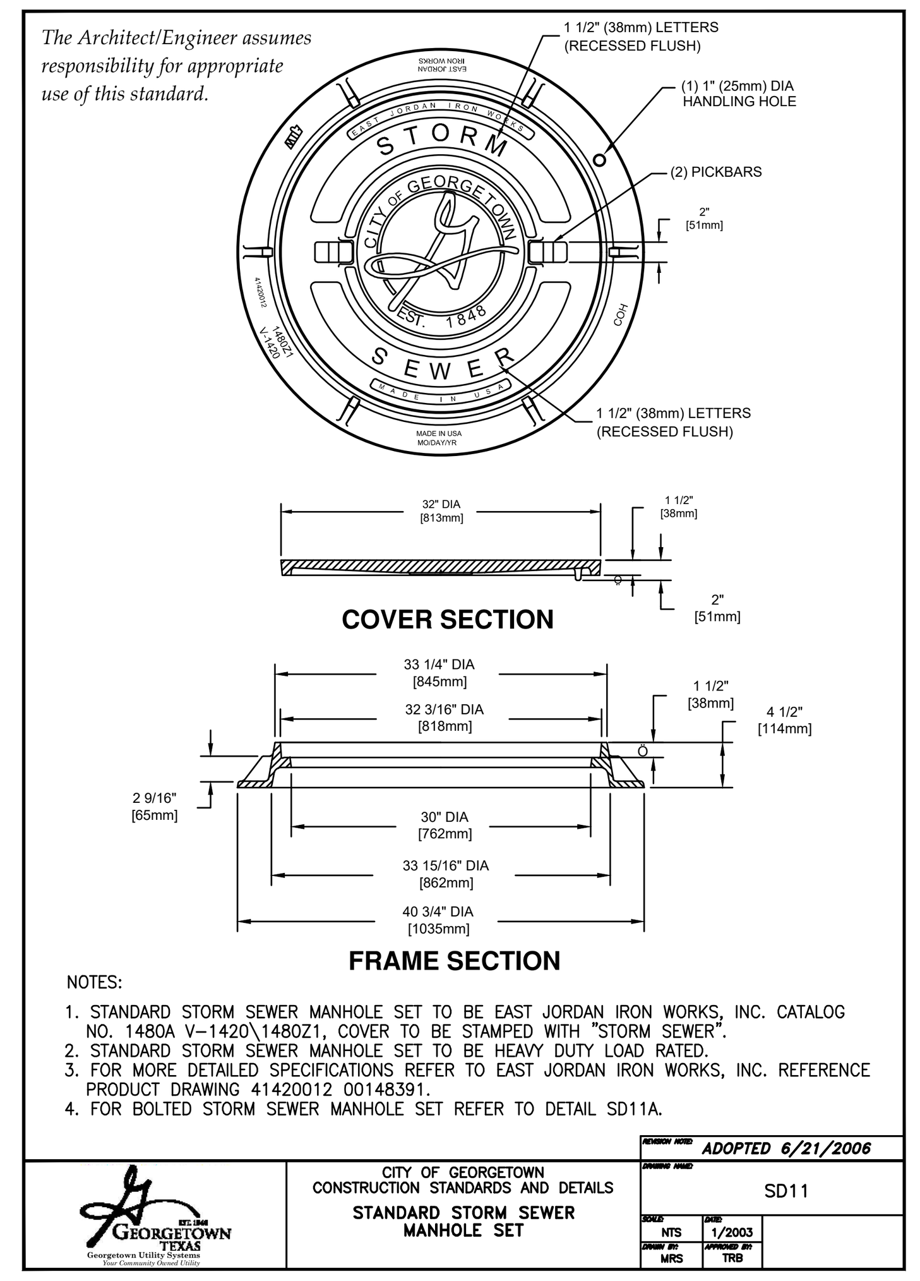
GEORGETOWN, WILLIAMSON COUNTY TEXAS

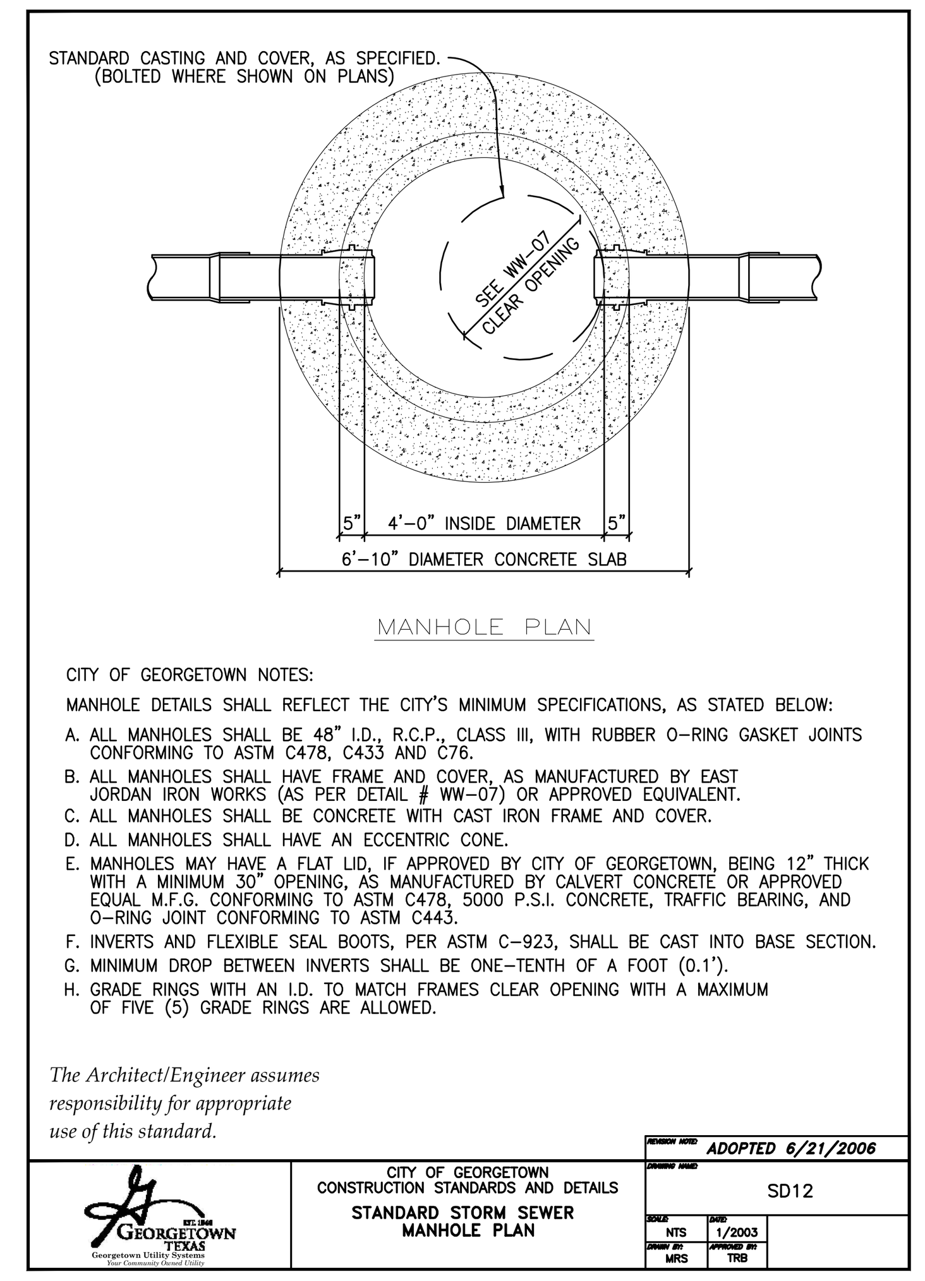
DESIGNED BY: CC/TG
DRAWN BY: TG
CHECKED BY: CC
APPROVED BY: SN

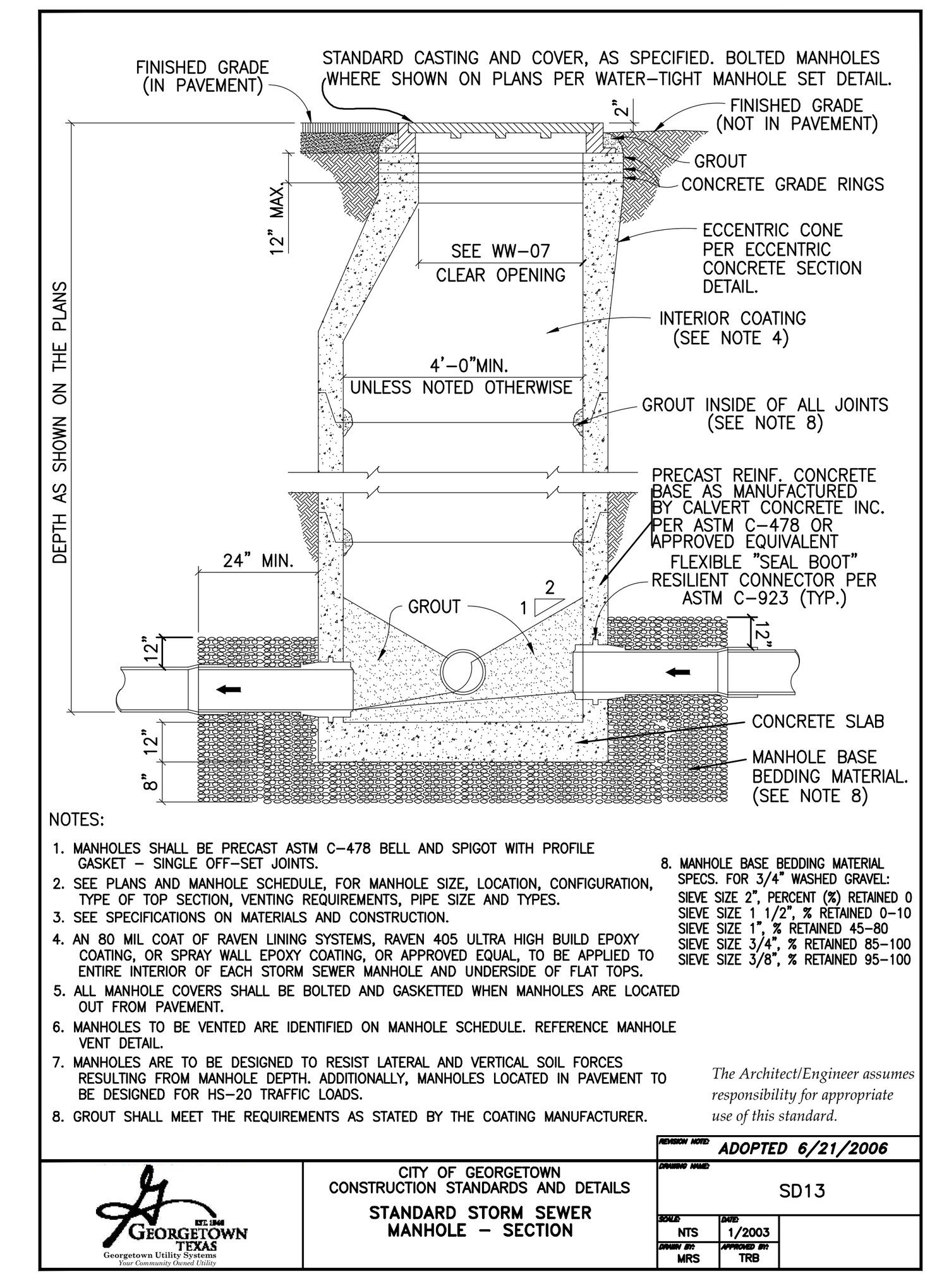
2025-XX-CON

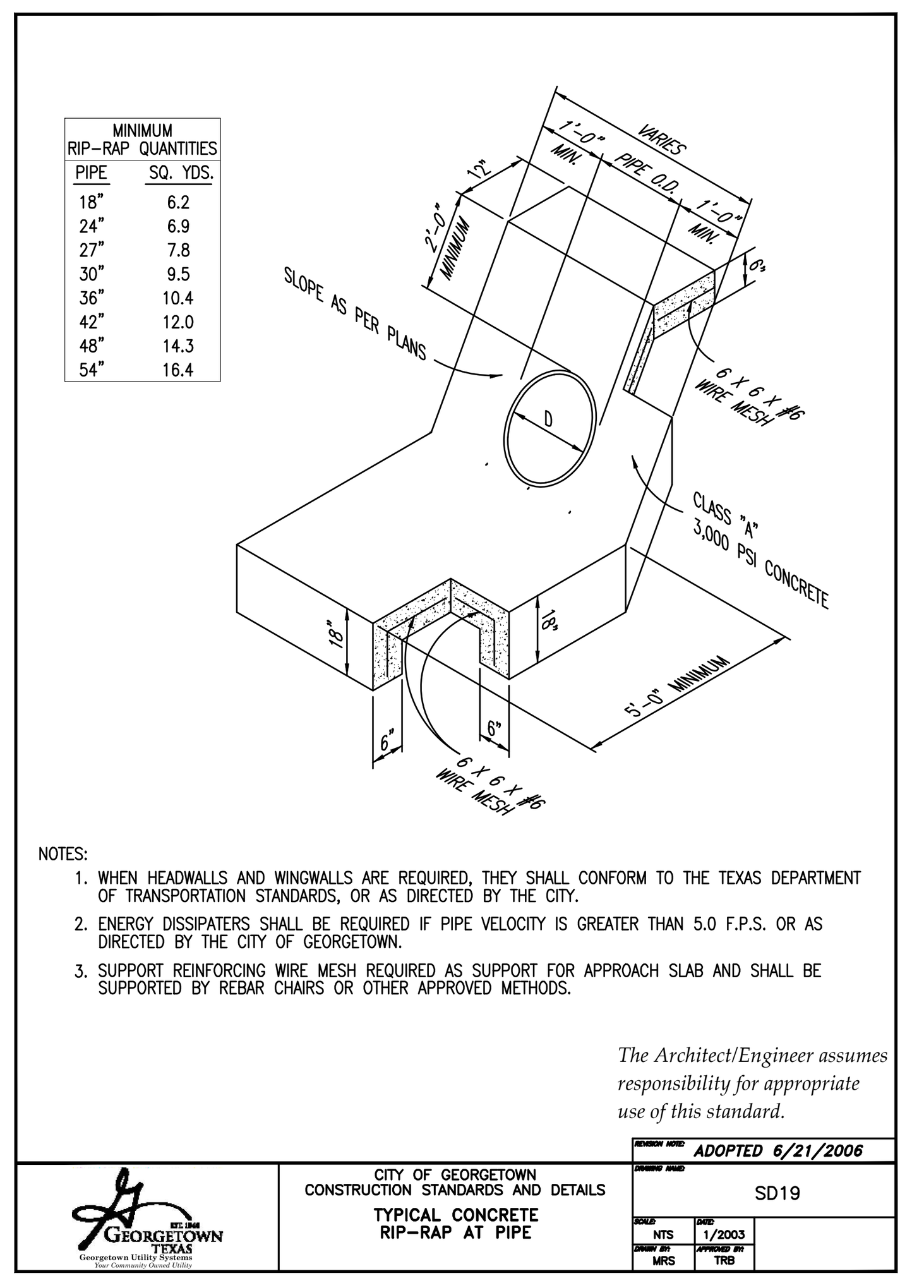


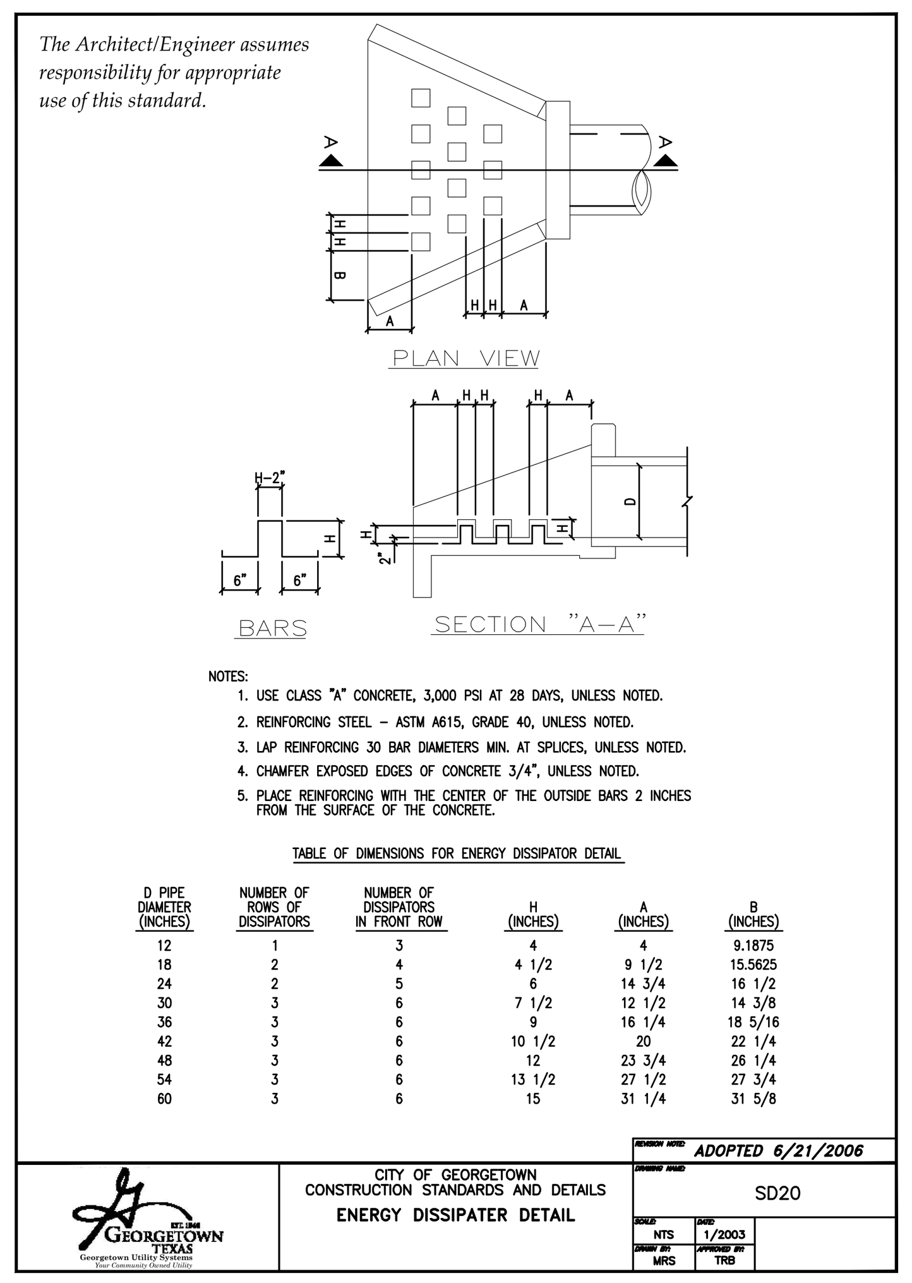


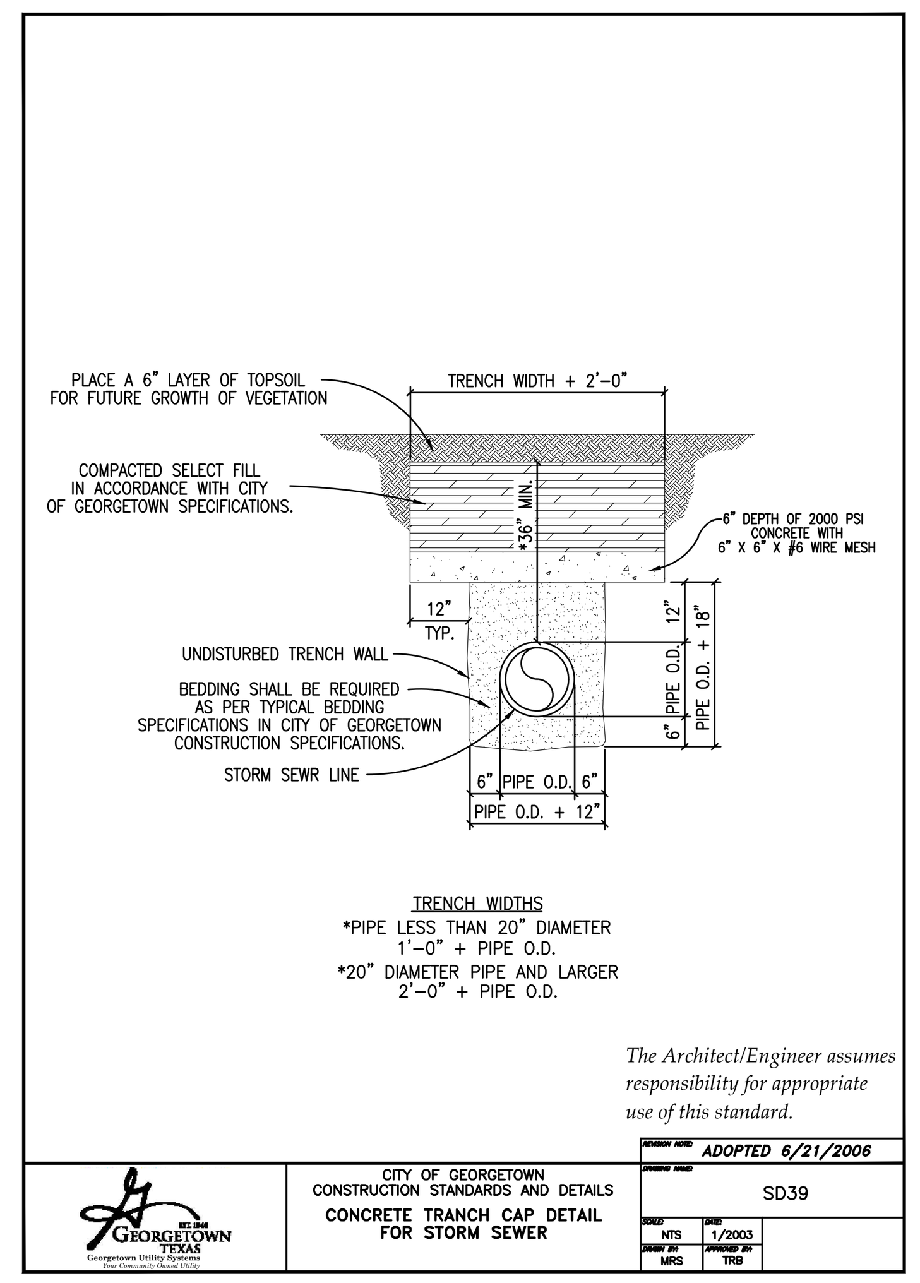


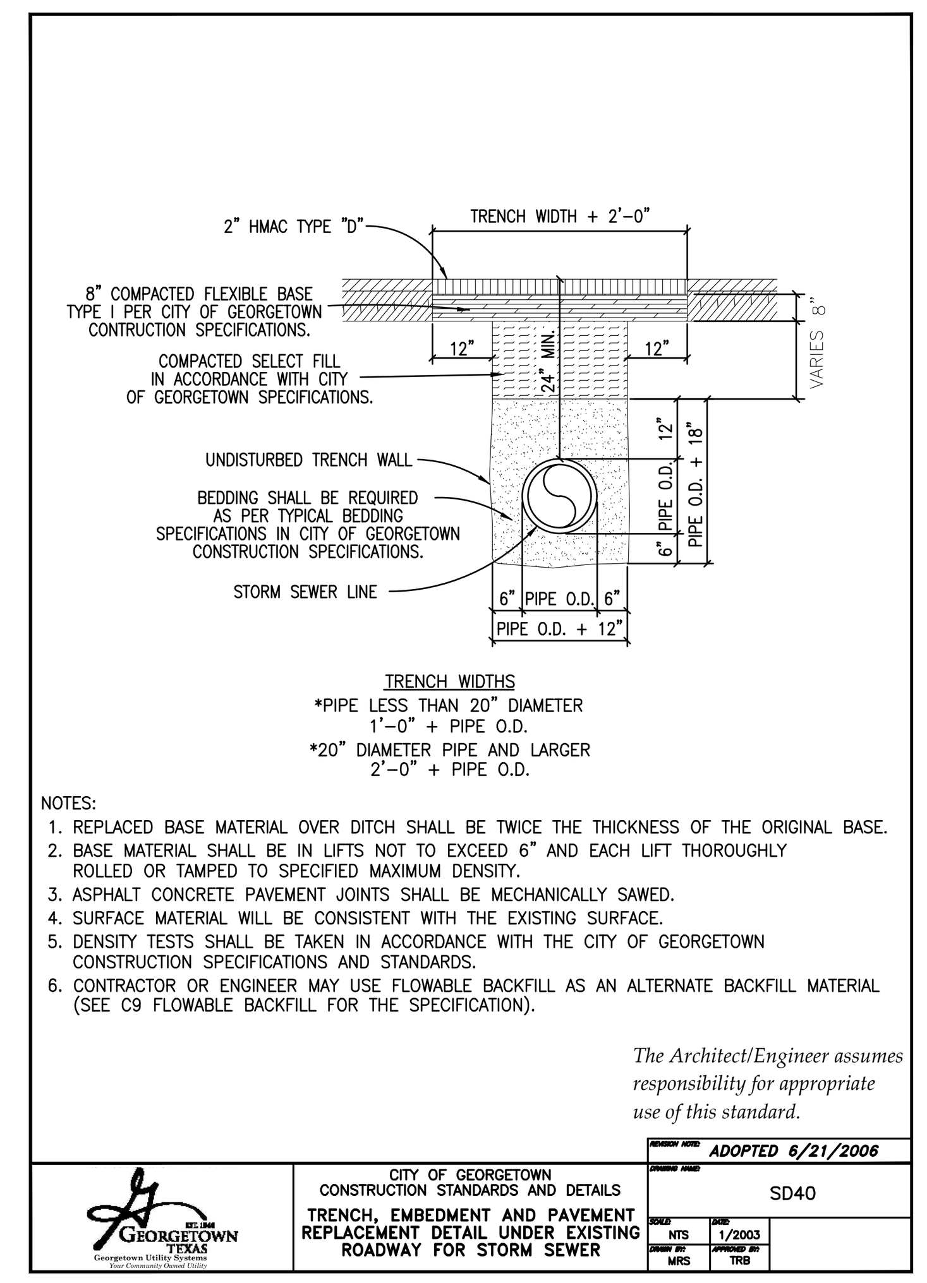


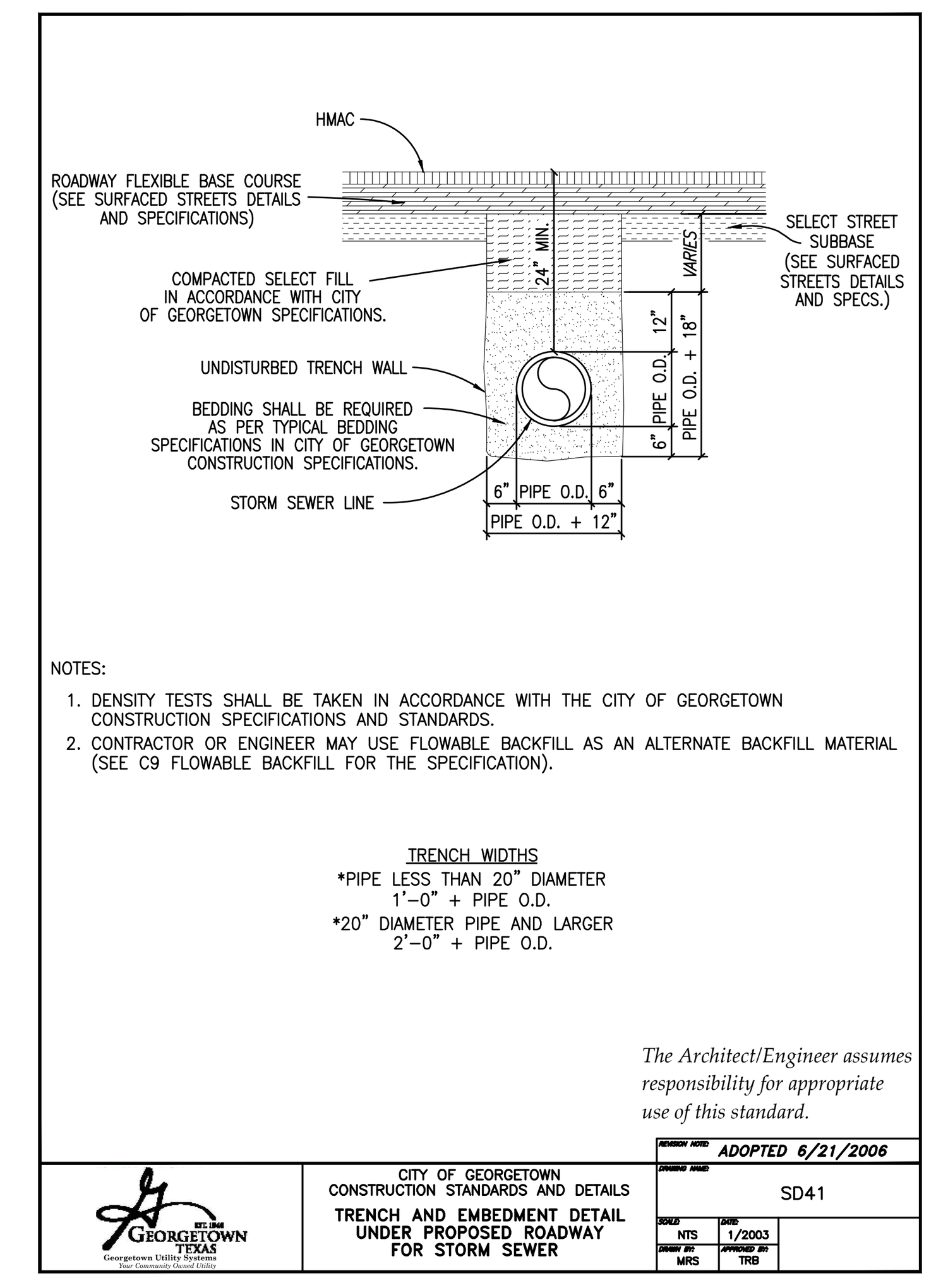


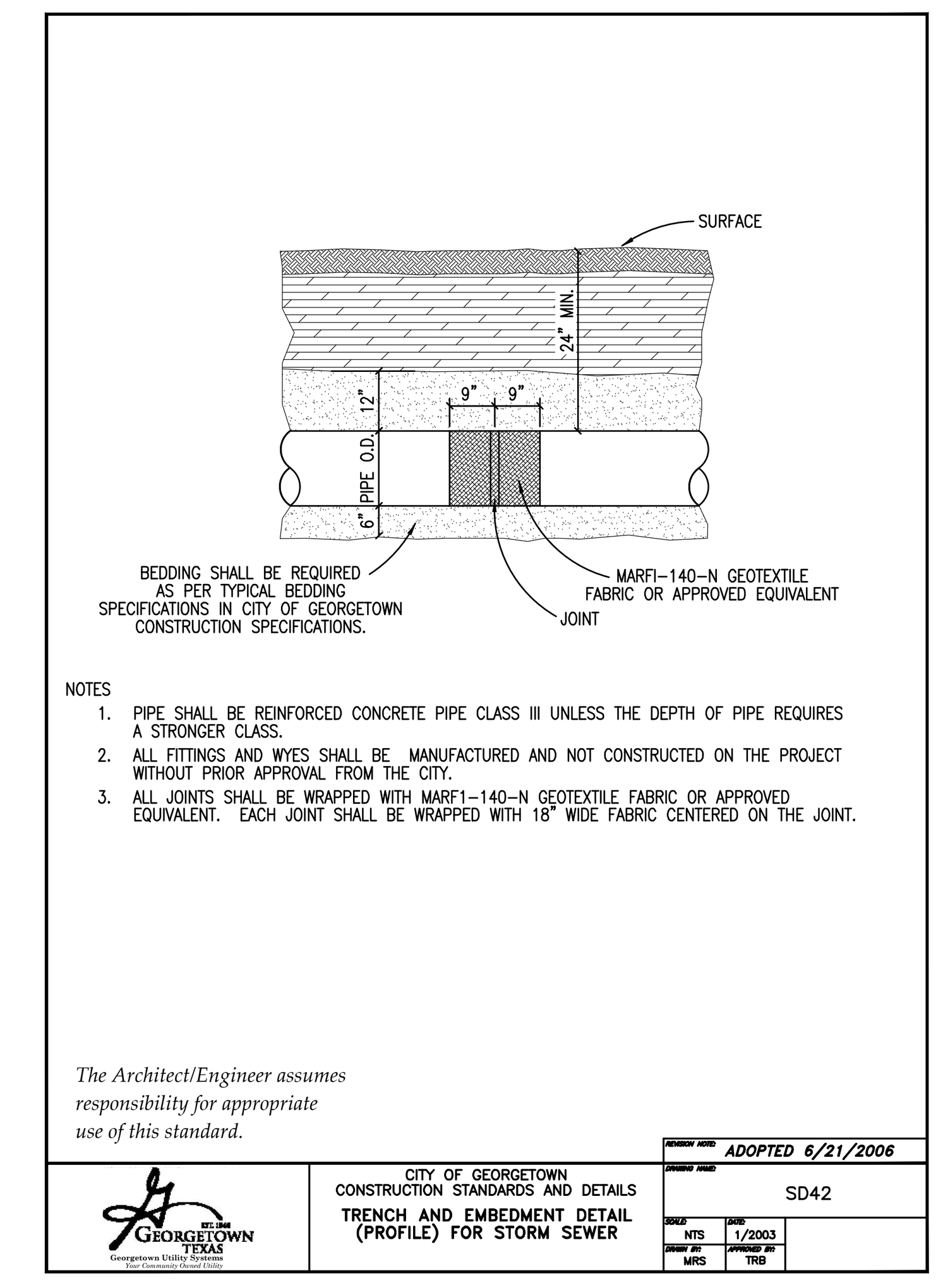


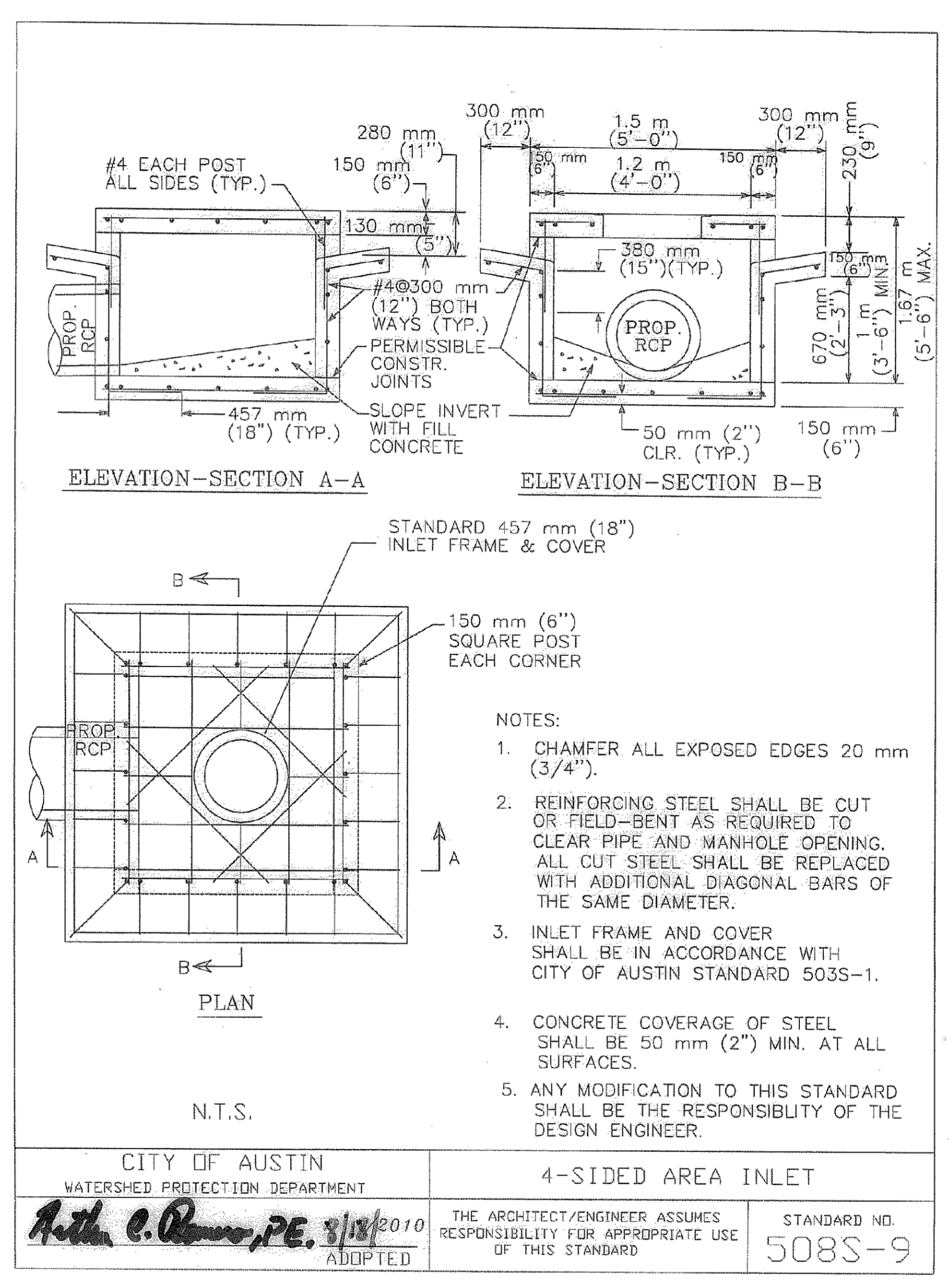


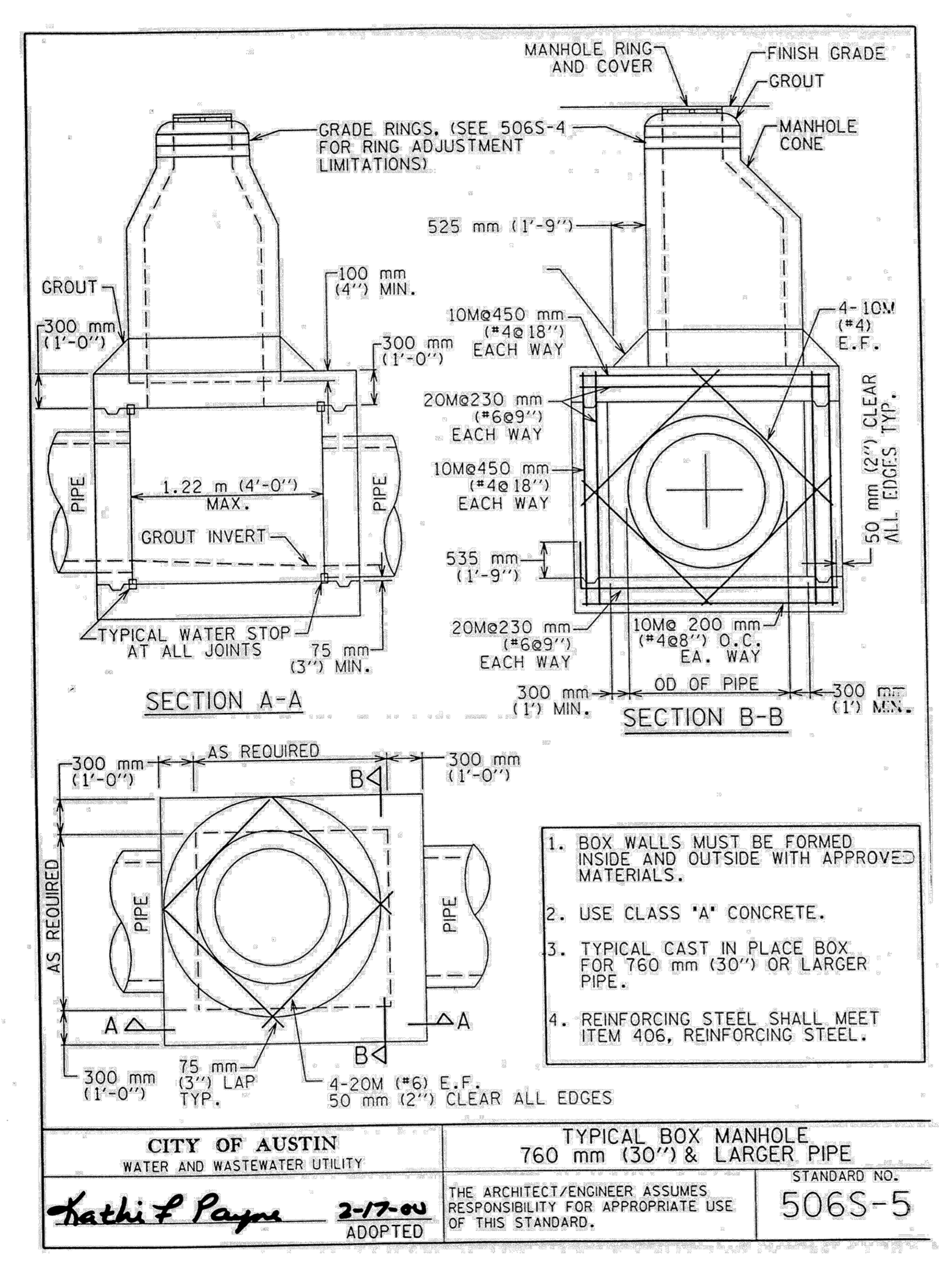


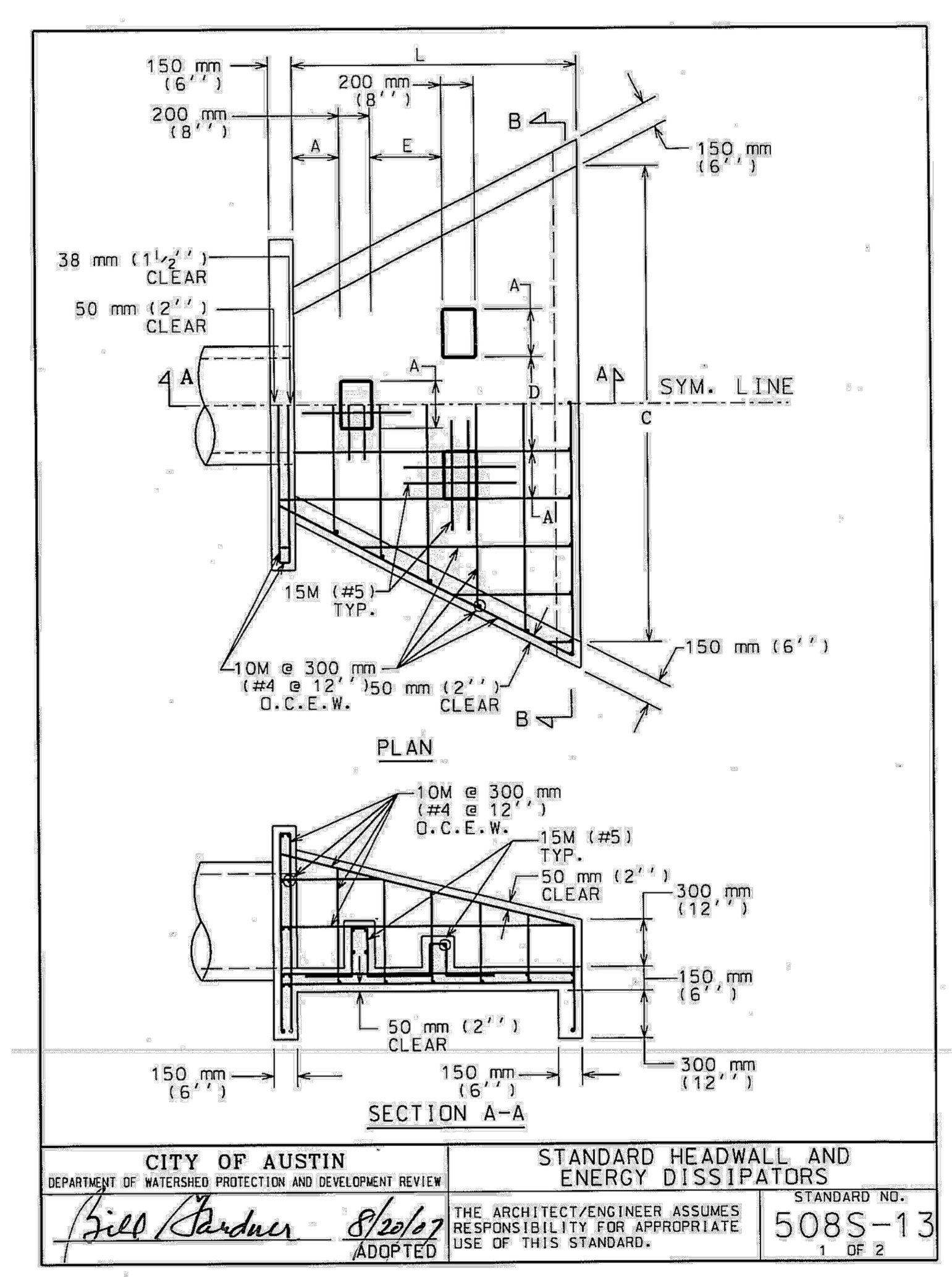


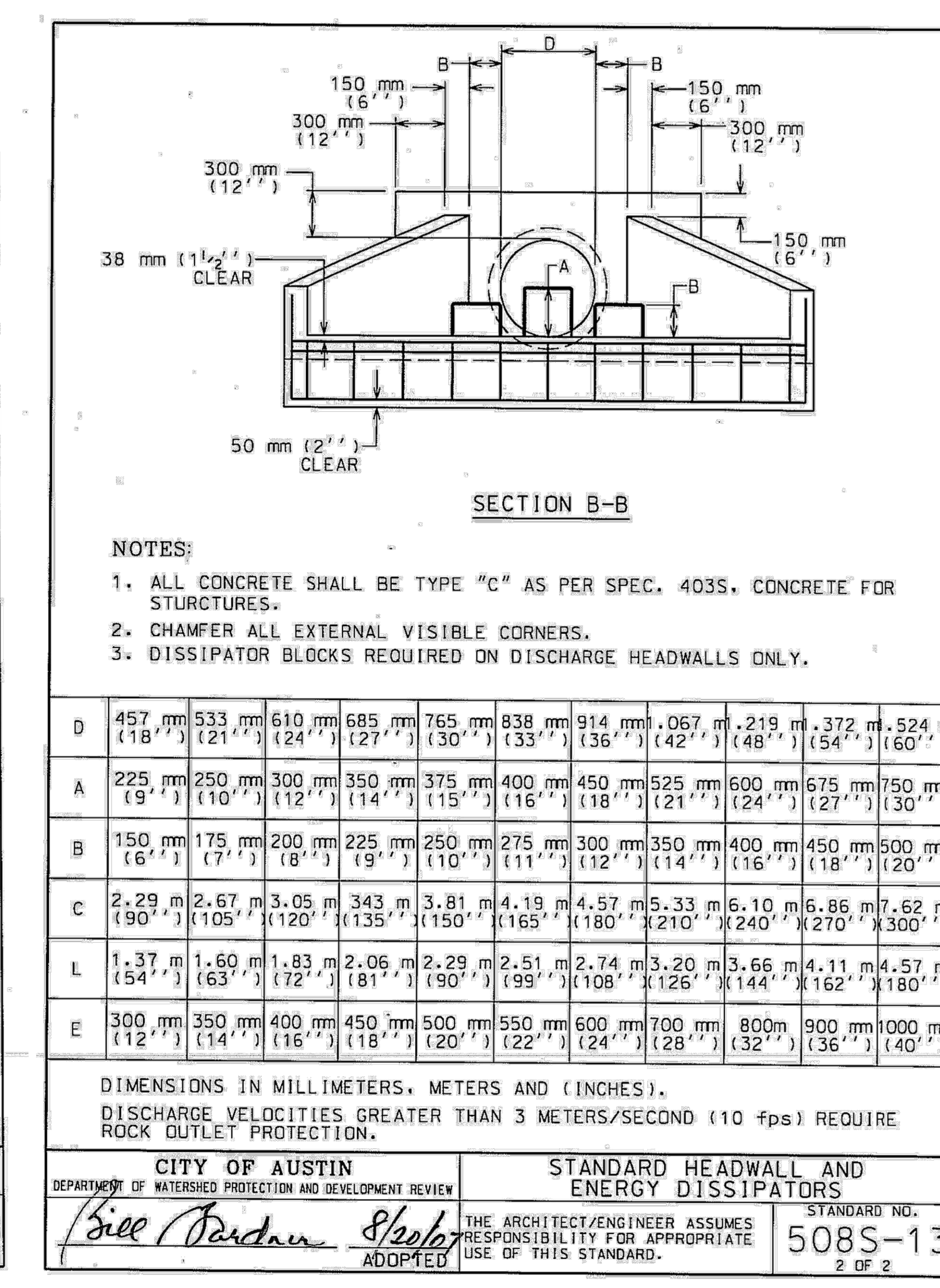


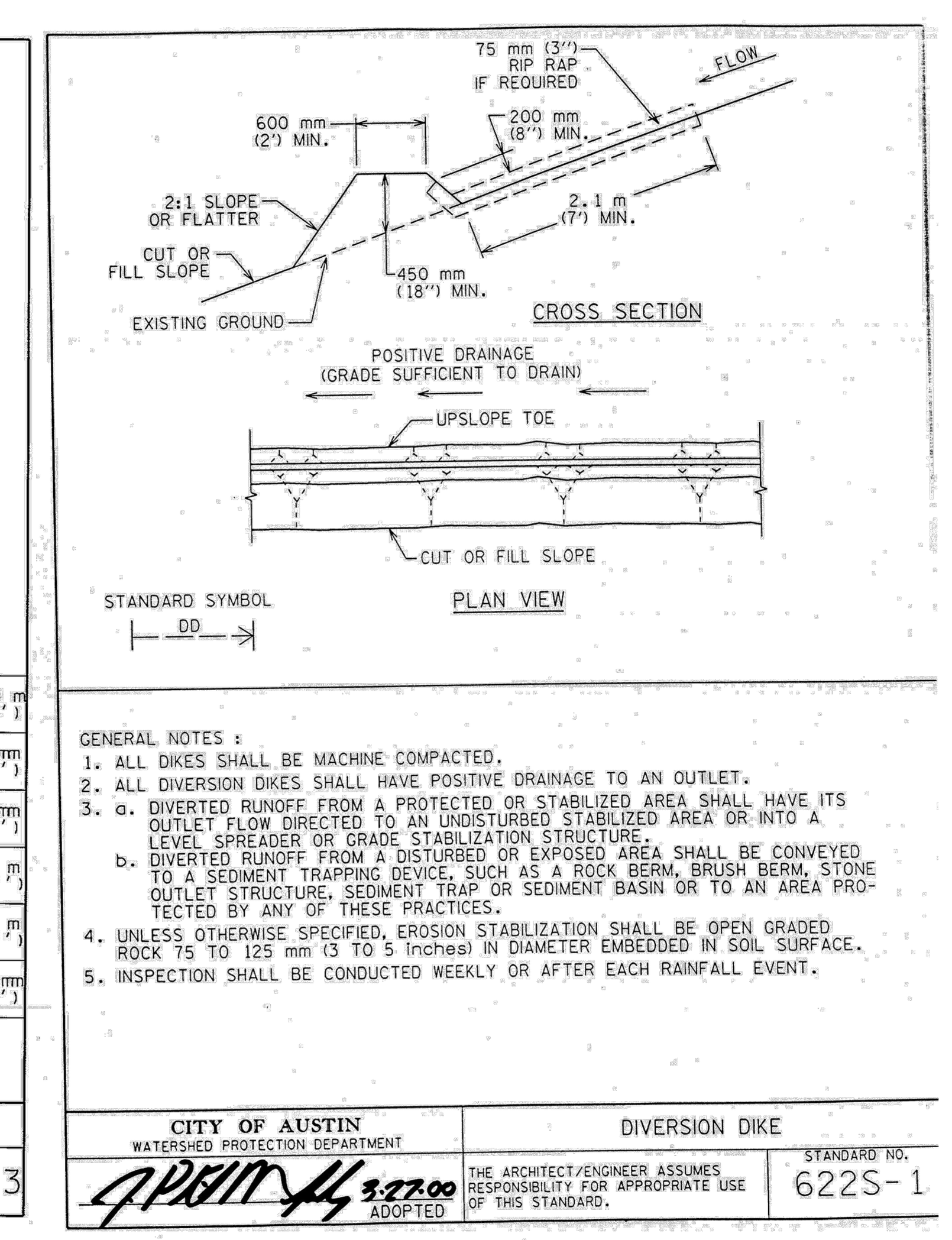












RIP-RAP CLASSIFICATION SPECIFICATIONS

CLASS 1 RIP-RAP

No more than 10% of the stone will have a diameter greater than twelve (12) inches; no more than 50% of the stone will have a diameter less than ten (10) inches; and no more than 10% of the stone will have a diameter of less than six (6) inches. The thickness of the rip-rap liner will be no less than twelve (12) inches.

CLASS 2 RIP-RAP

No more than 10% of the stone will have a diameter greater than sixteen (16) inches; no more than 50% of the stone will have a diameter less than twelve (12) inches; and no more than 10% of the stone will have a diameter of less than six (6) inches. The thickness of the rip-rap liner will be no less than sixteen (16) inches.

CLASS 3 RIP-RAP

No more than 10% of the stone will have a diameter greater than twenty two (22) inches; no more than 50% of the stone will have a diameter less than sixteen (16) inches; and no more than 10% of the stone will have a diameter of less than eight (8) inches. The thickness of the rip-rap liner will be no less than twenty two (22) inches.

CLASS 4 RIP-RAP

No more than 10% of the stone will have a diameter greater than twenty seven (27) inches; no more than 50% of the stone will have a diameter less than twenty two (22) inches; and no more than 10% of the stone will have a diameter of less than ten (10) inches. The thickness of the rip-rap liner will be no less than twenty seven (27) inches.

CLASS 5 RIP-RAP

No more than 10% of the stone will have a diameter greater than thirty four (34) inches; no more than 50% of the stone will have a diameter less than twenty seven (27) inches; and no more than 10% of the stone will have a diameter of less than sixteen (16) inches. The thickness of the rip-rap liner will be no less than thirty four (34) inches.

NO.	REVISION	BY	DATE

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STATE OF TEXAS
CHRISTINE N. CAMPBELL
142536
LICENSED PROFESSIONAL ENGINEER
12/05/2025

DRAINAGE DETAILS SHEET 1 OF 2

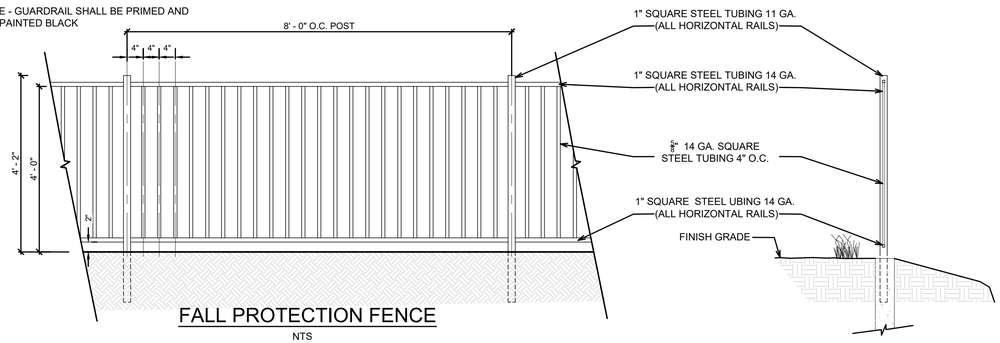
CRESCENT BLUFF WEST
SECTIONS 9 & 10
GEORGETOWN, WILLIAMSON COUNTY TEXAS

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

SHEET 69 of 105
2025-XX-CON

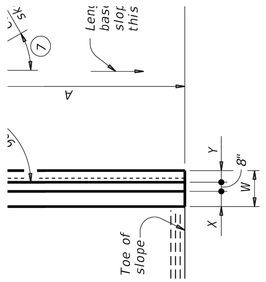
Sheet Location: P:\athena domain\chapman trace\sections 9-10\03_ACAD\Plans\sh24043-DTLS.dwg, DRAINAGE DETAILS SHEET 1 OF 2, December 05, 2025, 3:15 PM, tgarza

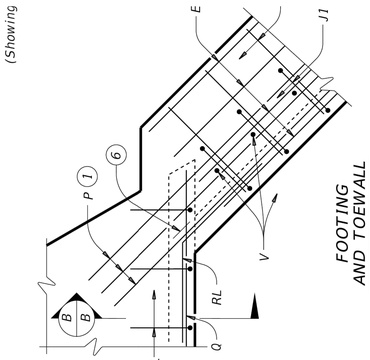
NOTE - GUARDRAIL SHALL BE PRIMED AND PAINTED BLACK



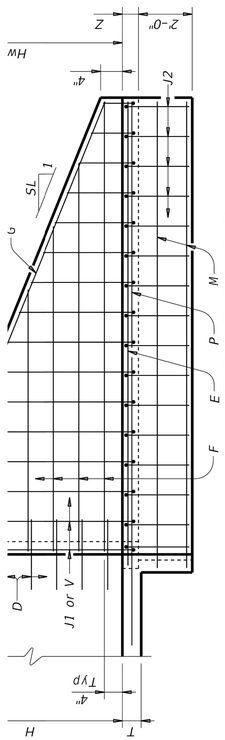
FALL PROTECTION FENCE

NTS



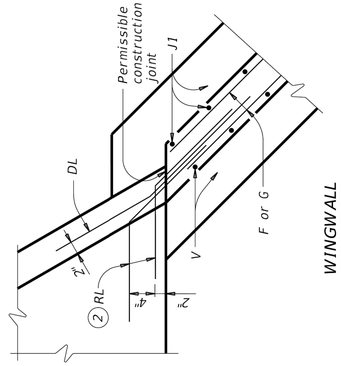


FOOTING AND TOEWALL



INSIDE ELEVATION

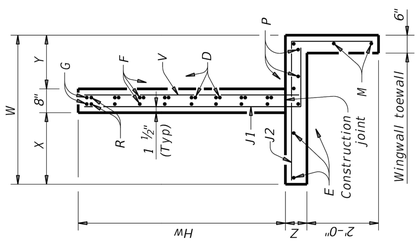
(Showing reinforcing. Culvert and culvert toewall reinforcing not shown for clarity.)



WINGWALL

CORNER DETAILS

(Culvert and culvert toewall reinforcing not shown for clarity.)

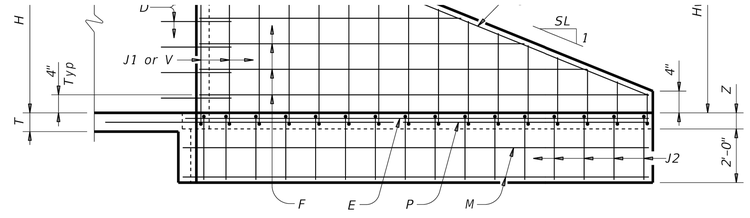


SECTION A-A

DISCLAIMER:
The use of this standard is made by TxDOT assumes no respon

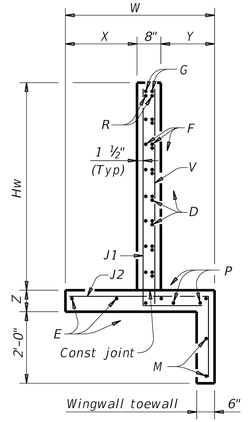
DATE:
FILE:

DISCLAIMER:
The use of this standard is made by Tx of this standard to

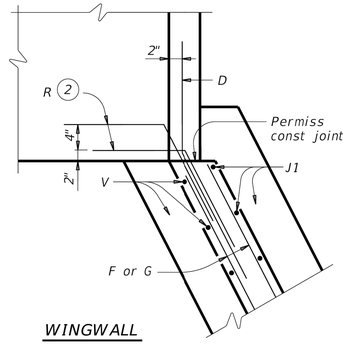


INSIDE ELEVATION

(Showing reinforcing. Culvert and culvert toewall reinforcing not shown for clarity.)



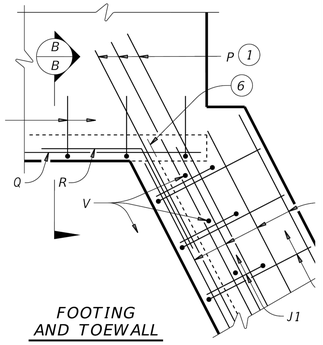
SECTION A-A



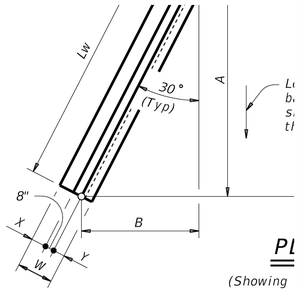
WINGWALL

CORNER DETAILS

(Culvert and culvert toewall reinforcing not shown for clarity.)



FOOTING AND TOEWALL



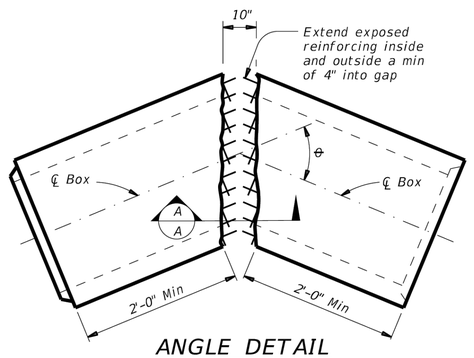
PL

(Showing

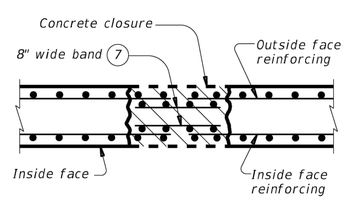
DATE:
FILE:

SECTION THRU TOP SLABS LESS THAN 8"

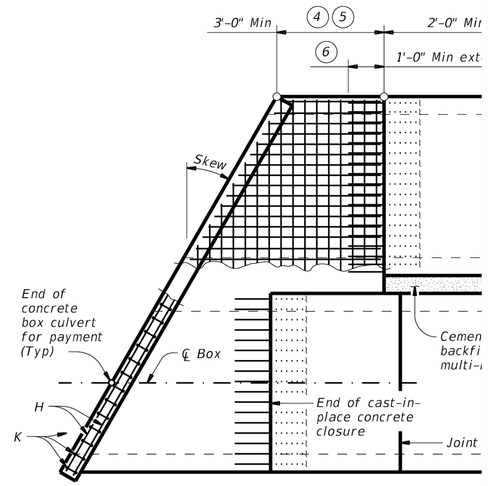
Reinforcing Steel	4.12 Lb
Concrete	0.037 CY



ANGLE DETAIL



SECTION A-A



PLAN OF SKEWED END

(Showing multi-box placement.)

DATE:
FILE:

DATE	BY	REVISION	NO.

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STATE OF TEXAS
CHRISTINE N. CAMPBELL
142536
LICENSED PROFESSIONAL ENGINEER
12/05/2025

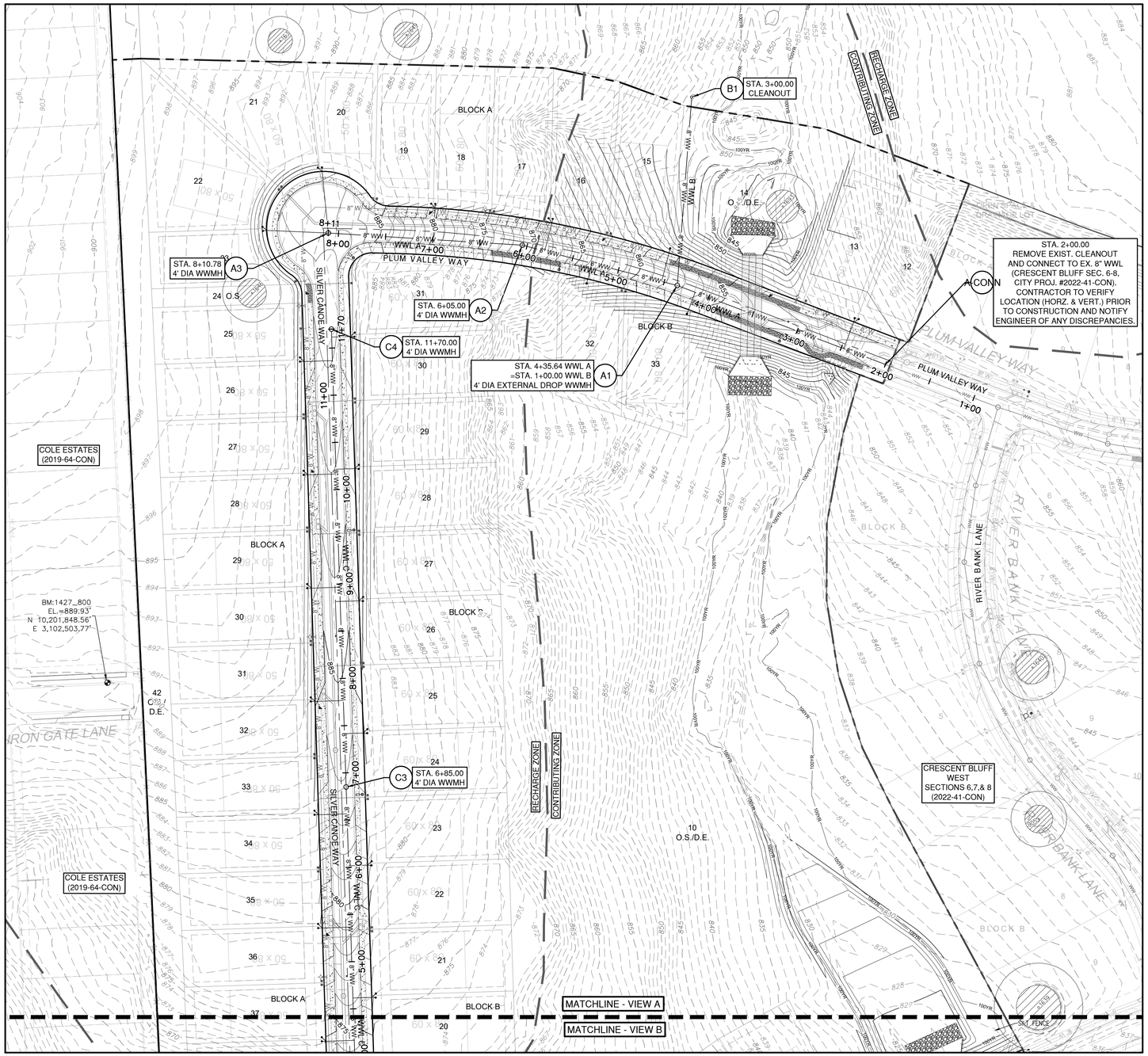
DRAINAGE DETAILS SHEET 2 OF 2

CRESCENT BLUFF WEST
SECTIONS 9 & 10
GEORGETOWN, WILLIAMSON COUNTY TEXAS

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

SHEET 70 of 105

2025-XX-CON



KEY MAP
N.T.S.

SCALE: 1" = 60'

LEGEND

- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- BOUNDARY
- EASEMENT
- LOMR FLOODPLAIN
- EDWARDS AQUIFER RECHARGE ZONE
- WASTEWATER MANHOLE
- CLEANOUT
- SINGLE WASTEWATER SERVICE
- DOUBLE WASTEWATER SERVICE
- SINGLE WATER SERVICE
- DOUBLE WATER SERVICE
- DEEP WW SERVICE ELEVATION
- FIRE HYDRANT
- GATE VALVE
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- STORM LINE STORM SEWER
- JUNCTION BOX
- STORM SEWER MANHOLE
- CURB INLET
- AREA INLET
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DEVELOPMENT TX

STATE OF TEXAS
CHRISTINE N. CAMPBELL
142536
LICENSED PROFESSIONAL ENGINEER

12/05/2025

OVERALL WASTEWATER PLAN A

CRESCENT BLUFF WEST
SECTIONS 9 & 10

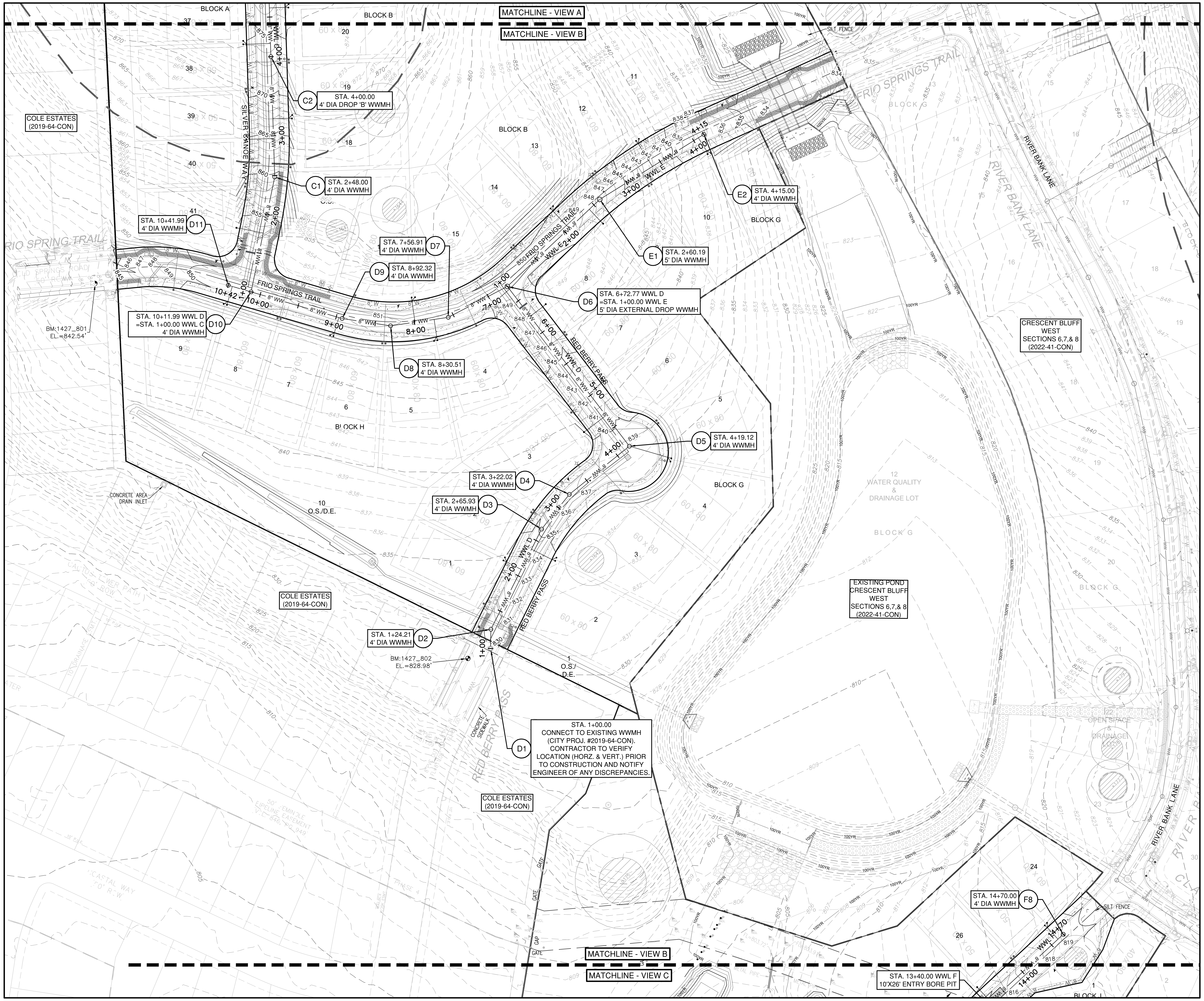
GEORGETOWN, WILLIAMSON COUNTY TEXAS

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

SHEET 71 of 105

2025-XX-CON

Sheet Location: P:\athena domain\chapman tract\sections 9-10\03_ACAD\Plans\sh24\24243-WWOV.dwg, OV-WWPL-A, December 05, 2025, 3:16 PM, tgarza



SCALE: 1" = 60'

LEGEND

- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- BOUNDARY
- EASEMENT
- LOMR FLOODPLAIN
- EDWARDS AQUIFER RECHARGE ZONE
- WASTEWATER MANHOLE
- CLEANOUT
- SINGLE WASTEWATER SERVICE
- DOUBLE WASTEWATER SERVICE
- SINGLE WATER SERVICE
- DOUBLE WATER SERVICE
- WW SERVICE ELEV. XXX.X — DEEP WW SERVICE ELEVATION
- FIRE HYDRANT
- GATE VALVE
- AUTOMATIC AIR RELEASE VALVE
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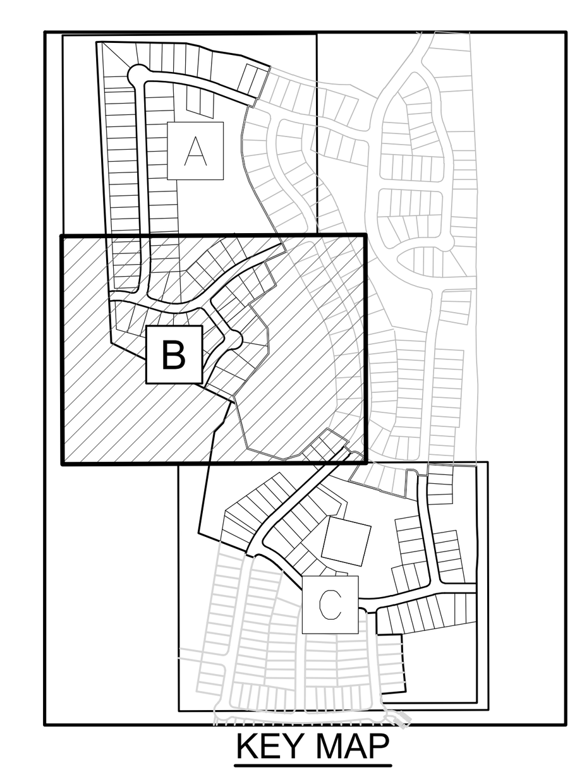

KEY MAP
N.T.S.

NO.	REVISION	BY	DATE

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STATE OF TEXAS
CHRISTINE N. CAMPBELL
142536
LICENSED PROFESSIONAL ENGINEER
12/05/2025

OVERALL WASTEWATER PLAN B

CRESCENT BLUFF WEST SECTIONS 9 & 10

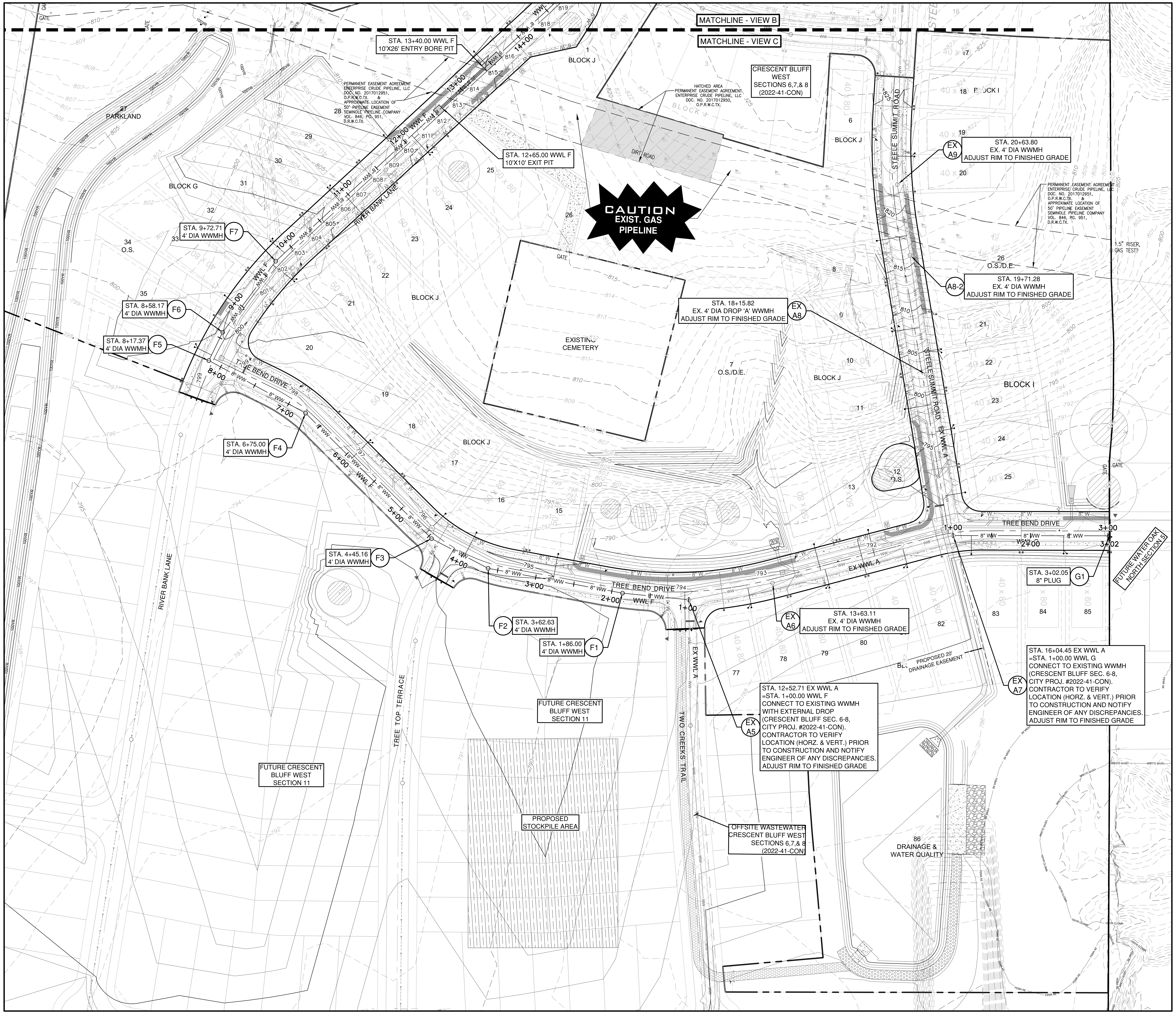
GEORGETOWN, WILLIAMSON COUNTY TEXAS

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

SHEET 72 of 105

2025-XX-CON

0 60' 120'
SCALE: 1" = 60'



LEGEND

- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- BOUNDARY
- EASEMENT
- LOMR FLOODPLAIN
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- DOUBLE WASTEWATER SERVICE
- SINGLE WATER SERVICE
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- WW SERVICE ELEV: XXX.X — DEEP WW SERVICE ELEVATION
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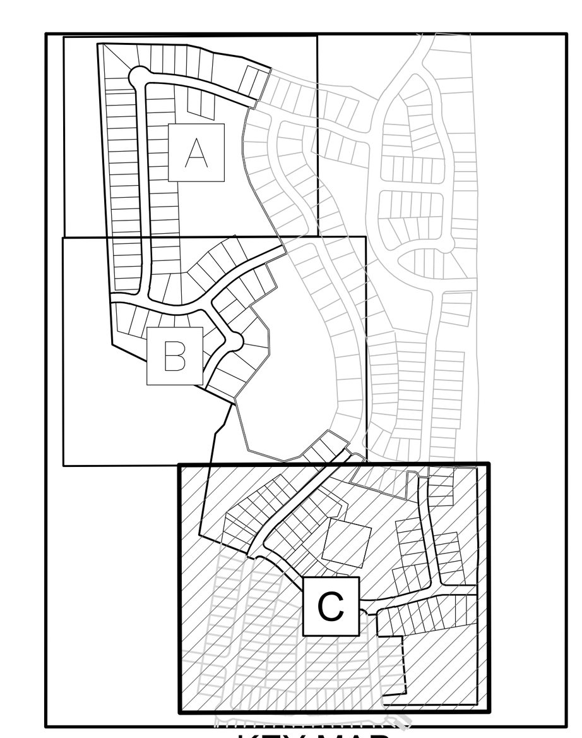

KEY MAP
N.T.S.

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STATE OF TEXAS
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LICENSED PROFESSIONAL ENGINEER
12/05/2025

OVERALL WASTEWATER PLAN C

CRESCENT BLUFF WEST SECTIONS 9 & 10

GEORGETOWN, WILLIAMSON COUNTY TEXAS

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

SHEET 73 of 105

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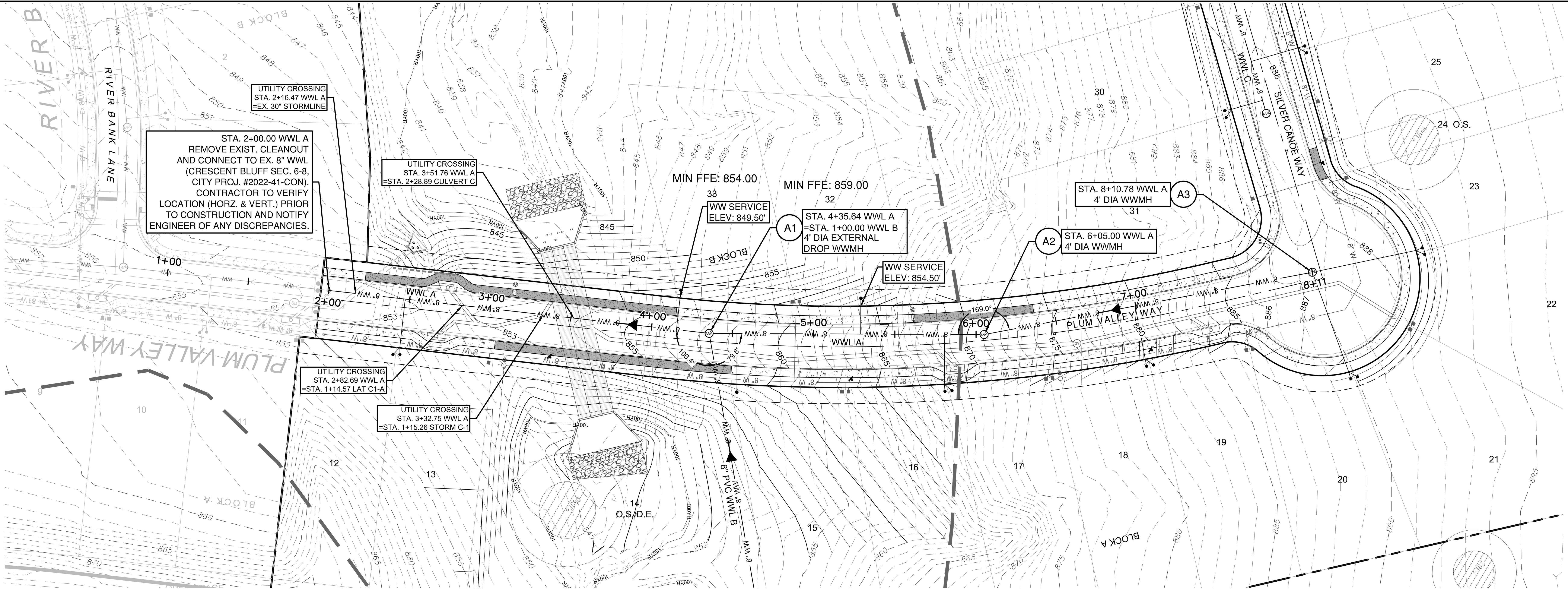
Sheet Location: P:\athena domain\chapman tract\sections 9-10\03_ACAD\Plans\a240243-WWOV.dwg OV-WWPL C. December 05, 2025, 3:17 PM, tgarza



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

LEGEND

- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- BOUNDARY
- EASEMENT
- LOMR FLOODPLAIN
- EDWARDS AQUIFER RECHARGE ZONE
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- CLEANOUT
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- FLUSH VALVE
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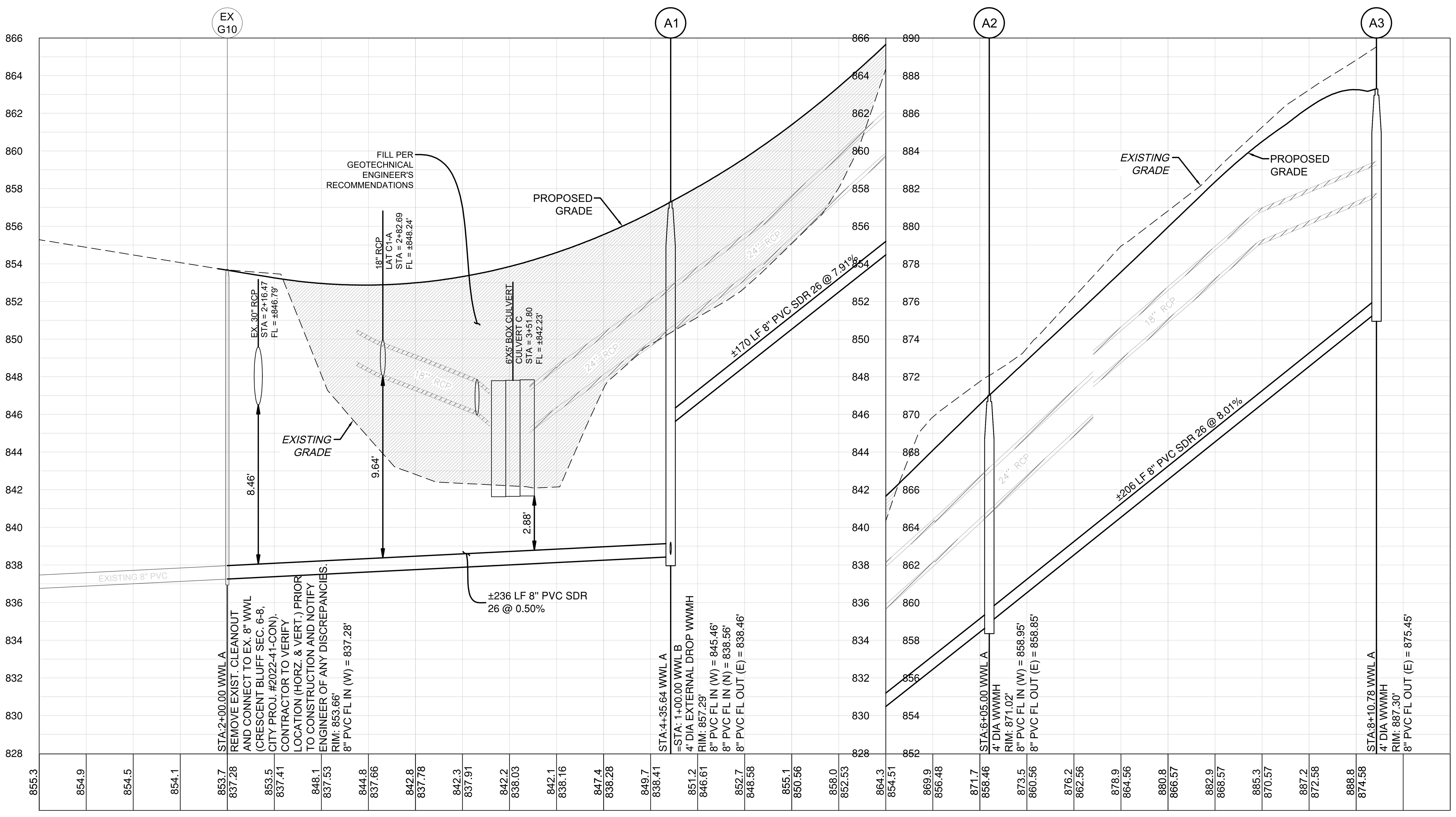
- JUNCTION BOX
- STORM SEWER MANHOLE
- CURB INLET
- AREA INLET
- CONCRETE HEADWALL

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

EXISTING GRADE - CENTERLINE
FINISHED GRADE - CENTERLINE

EXISTING GROUND 1000.1 / 997.10 PROPOSED FLOWLINE

WWL A



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STATE OF TEXAS
CHRISTINE N. CAMPBELL
142536
LICENSED PROFESSIONAL ENGINEER
12/05/2025

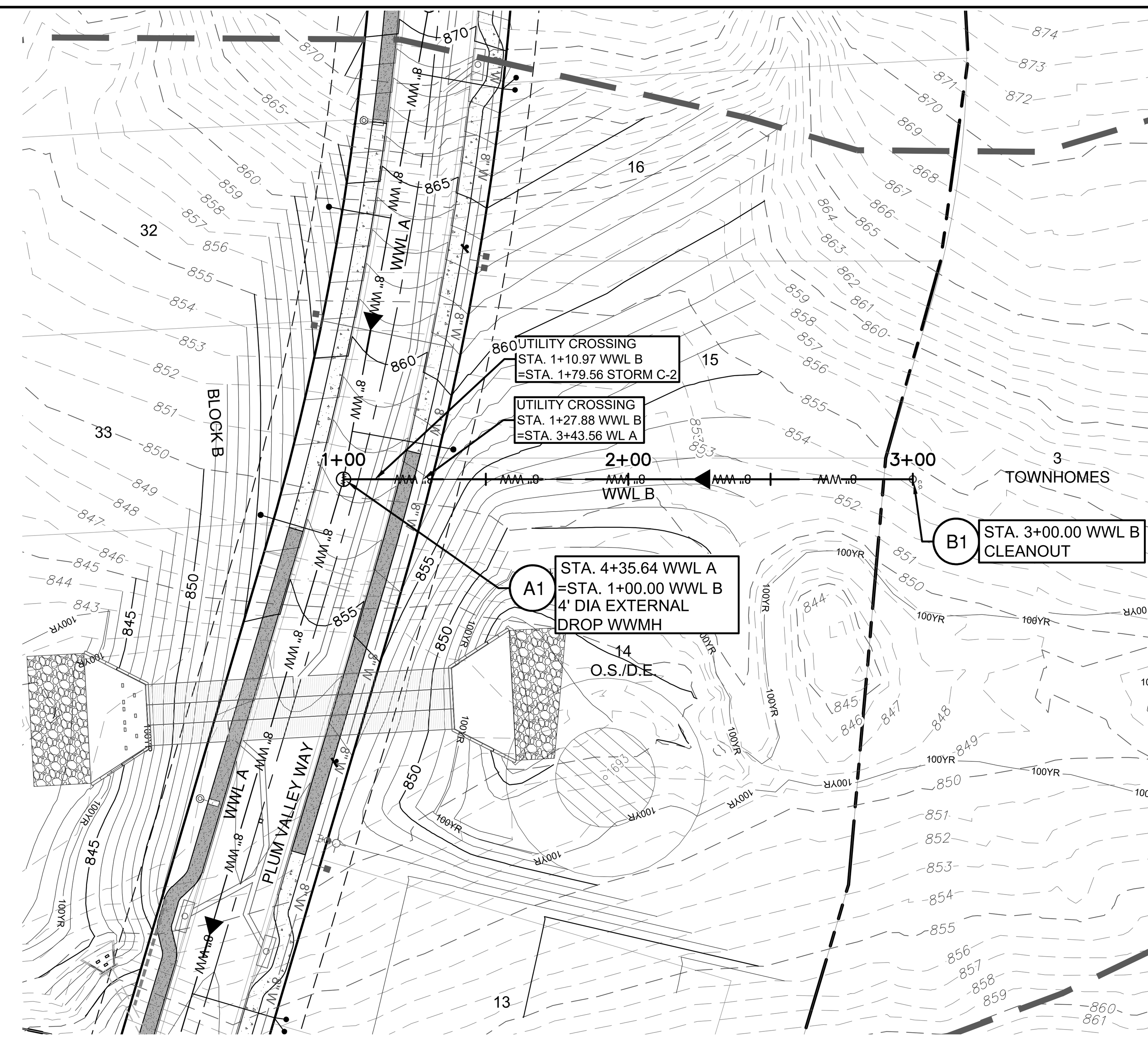
WWL A PLAN & PROFILE 1+00 - 8+11

CRESCENT BLUFF WEST
SECTIONS 9 & 10
GEORGETOWN, WILLIAMSON COUNTY TEXAS

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

SHEET 74 of 105

2025-XX-CON



SCALE: 1" = 40'

LEGEND

- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- BOUNDARY
- EASEMENT
- LOMR FLOODPLAIN
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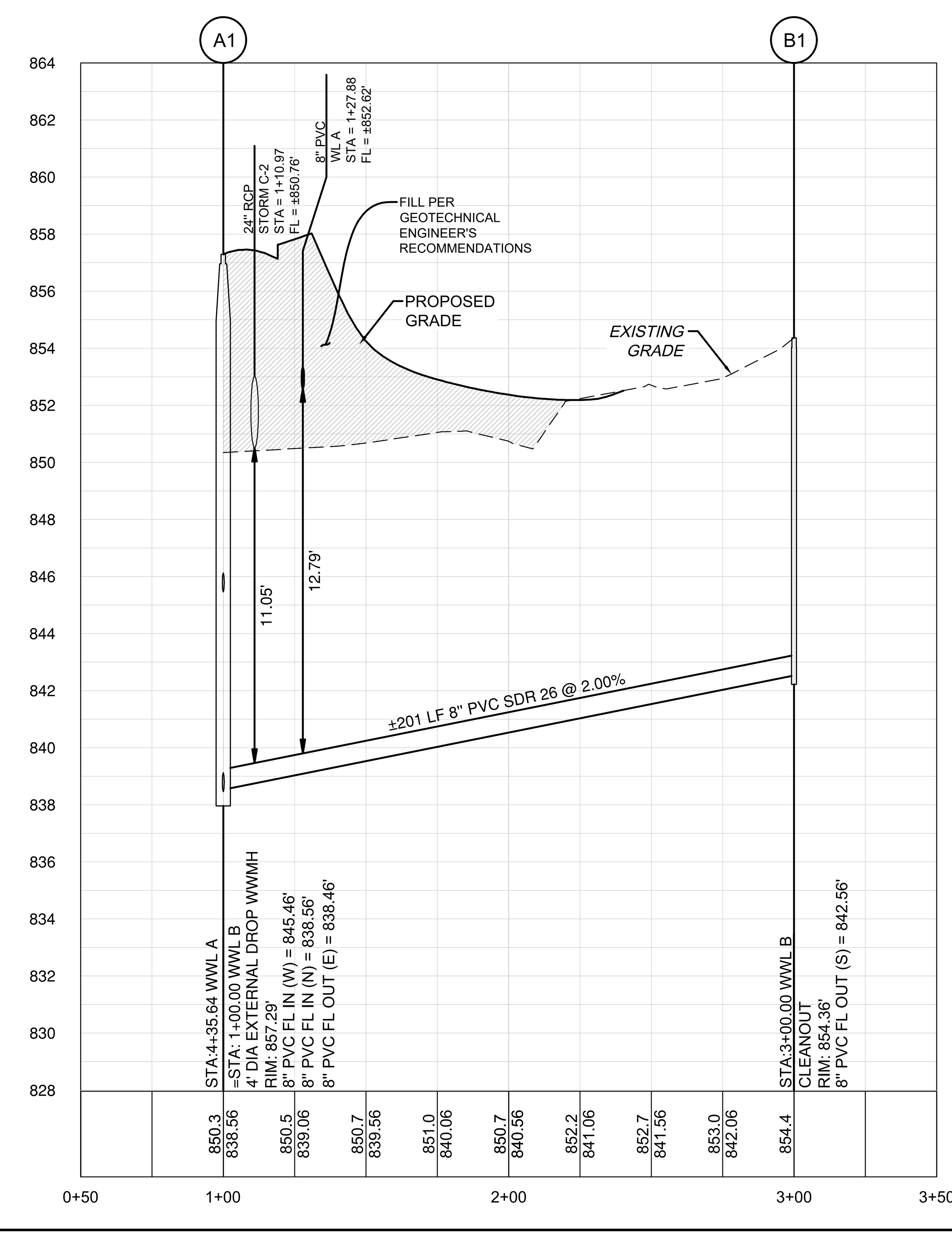
EXISTING GRADE - CENTERLINE
FINISHED GRADE - CENTERLINE

EXISTING GROUND 1000.1 / 997.10 PROPOSED FLOWLINE

WWL B



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NO.	REVISION	BY	DATE

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TBPLS NO: 10194101
HRGreen® DEVELOPMENT TX

STATE OF TEXAS
CHRISTINE N. CAMPBELL
142536
LICENSED PROFESSIONAL ENGINEER
12/05/2025

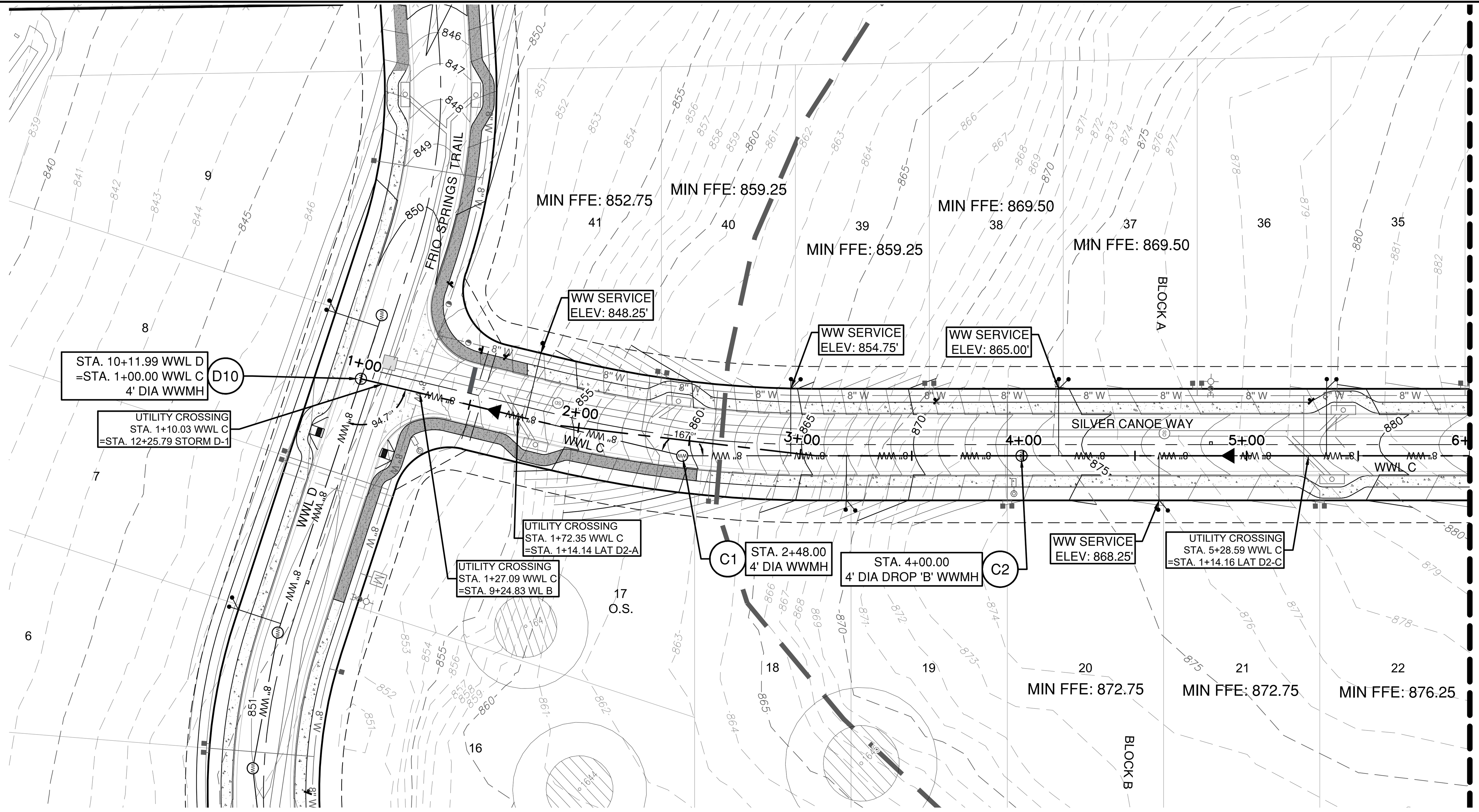
WWL B PLAN & PROFILE 1+00 - 3+00

CRESCENT BLUFF WEST
SECTIONS 9 & 10
GEORGETOWN, WILLIAMSON COUNTY TEXAS

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

SHEET 75 of 105

2025-XX-CON



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

LEGEND

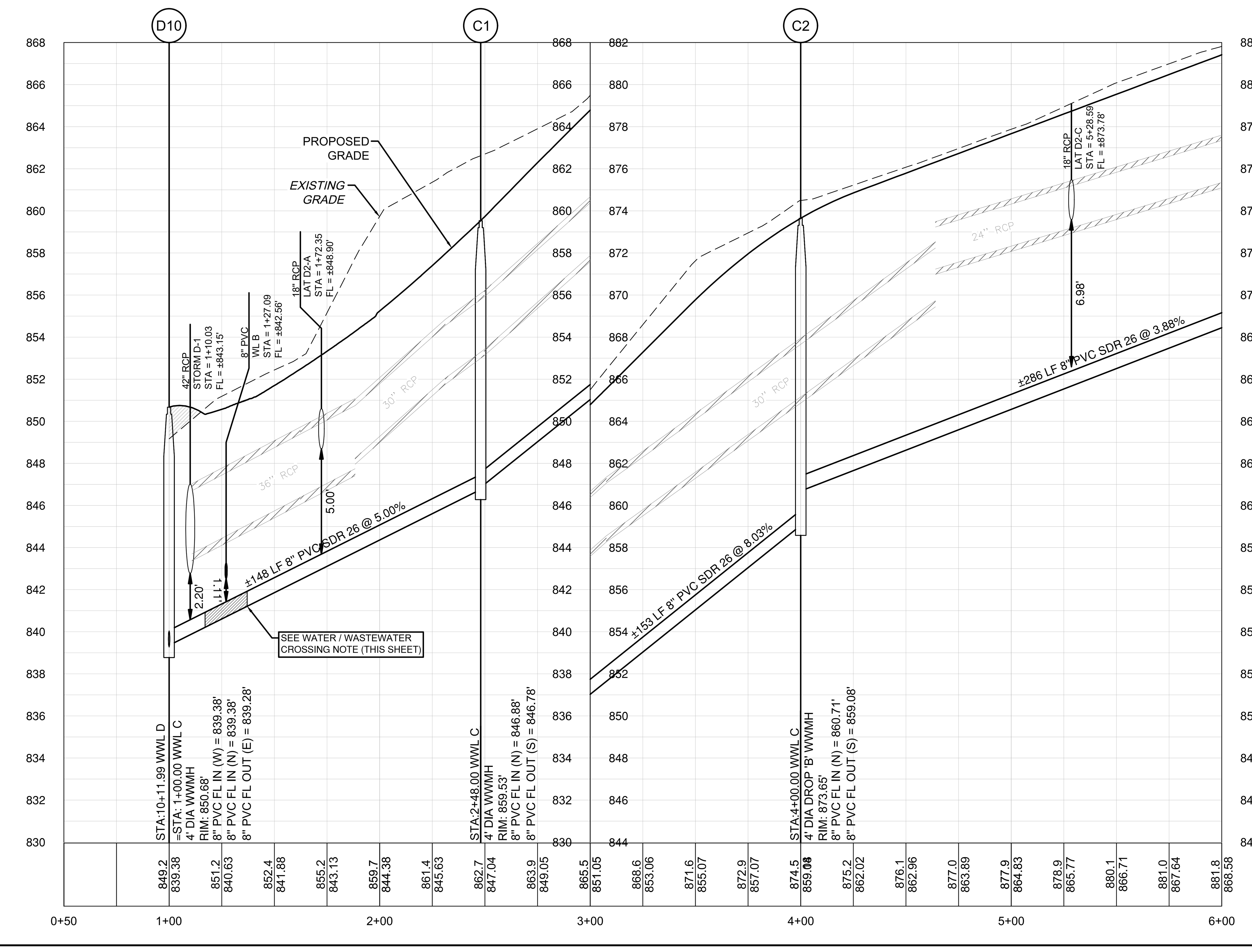
- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- BOUNDARY
- EASEMENT
- LOMR FLOODPLAIN
- EDWARDS AQUIFER RECHARGE ZONE
- WASTEWATER MANHOLE
- CLEANOUT
- SINGLE WASTEWATER SERVICE
- DOUBLE WASTEWATER SERVICE
- SINGLE WATER SERVICE
- DOUBLE WATER SERVICE
- WW SERVICE ELEV: XXX.X — DEEP WW SERVICE ELEVATION
- FIRE HYDRANT
- GATE VALVE
- AUTOMATIC AIR RELEASE VALVE
- FLUSH VALVE
- STORM LINE STORM SEWER
- JUNCTION BOX
- STORM SEWER MANHOLE
- CURB INLET
- AREA INLET
- CONCRETE HEADWALL

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

EXISTING GRADE - CENTERLINE
FINISHED GRADE - CENTERLINE

EXISTING GROUND 1000.1 / 997.10 PROPOSED FLOWLINE

WWL C



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STATE OF TEXAS
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LICENSED PROFESSIONAL ENGINEER
12/05/2025

WWL C PLAN & PROFILE 1+00 - 6+00

CRESCENT BLUFF WEST
SECTIONS 9 & 10
GEORGETOWN, WILLIAMSON COUNTY TEXAS

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

SHEET 76 of 105

2025-XX-CON

Plot Style: LandDev Global.ctb
Template: HRG_C3D2023.DWT
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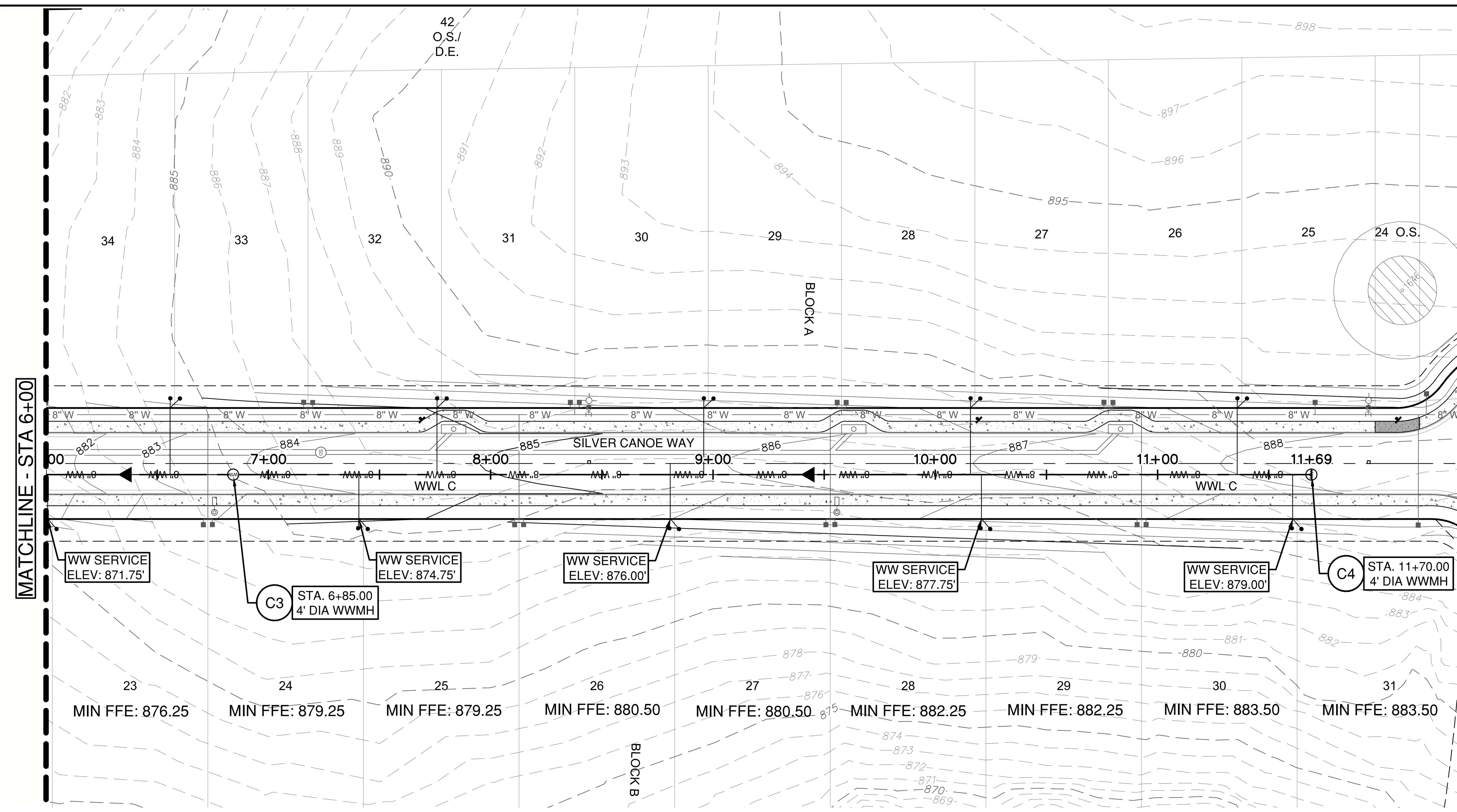

SCALE: 1" = 40'

LEGEND

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- EXISTING MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- BOUNDARY
- EASEMENT
- LOMR FLOODPLAIN
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- CLEANOUT
- SINGLE WASTEWATER SERVICE
- DOUBLE WASTEWATER SERVICE
- SINGLE WATER SERVICE
- DOUBLE WATER SERVICE
- WW SERVICE ELEV: XXX.X — DEEP WW SERVICE ELEVATION
- FIRE HYDRANT
- GATE VALVE
- AUTOMATIC AIR RELEASE VALVE
- FLUSH VALVE
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- CONCRETE HEADWALL

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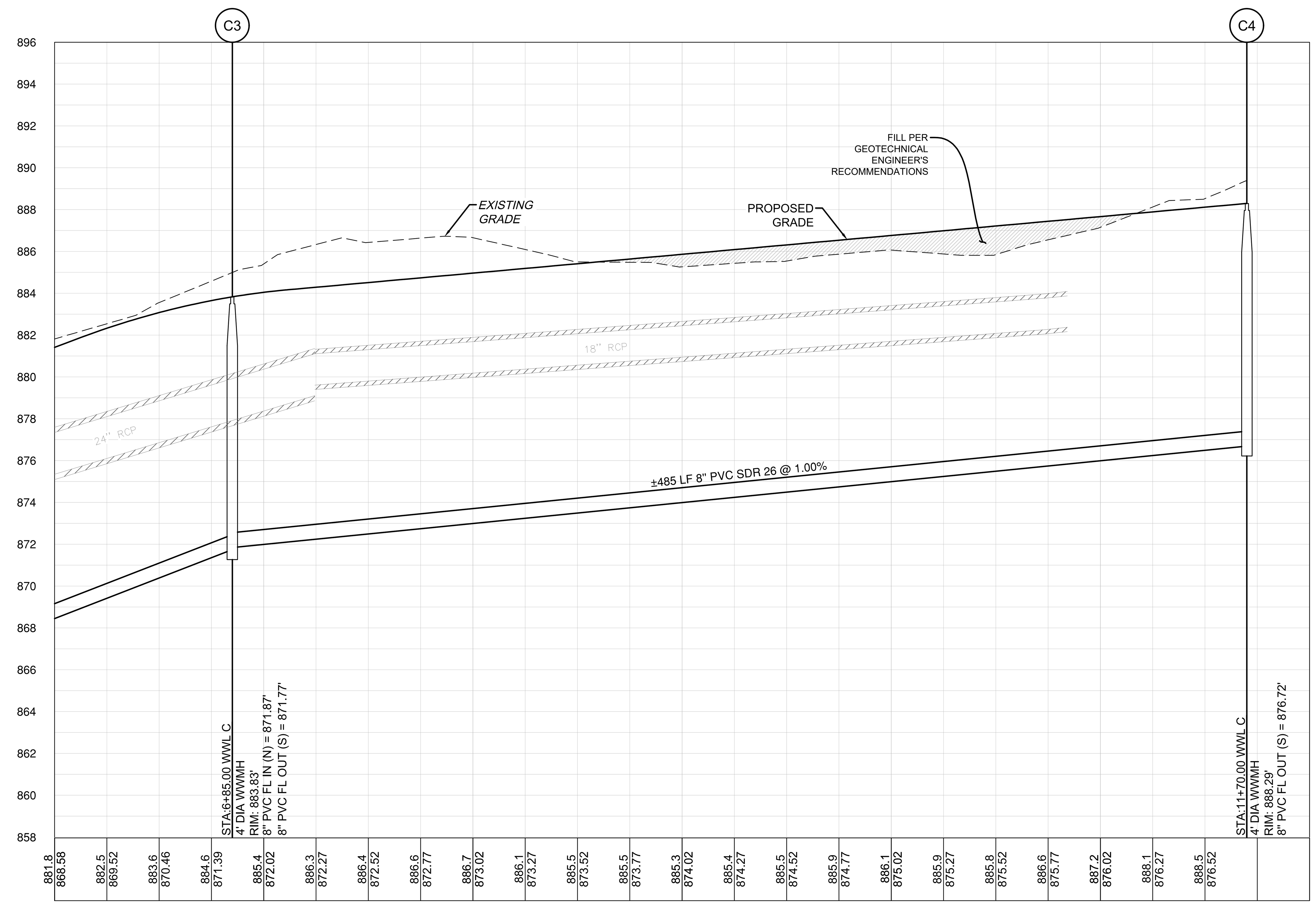
HORZ. SCALE: 1" = 40'

EXISTING GRADE - CENTERLINE
FINISHED GRADE - CENTERLINE

EXISTING GROUND 1000.1 | 997.10 PROPOSED FLOWLINE

WWL C



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12/05/2025

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CRESCENT BLUFF WEST
SECTIONS 9 & 10
GEORGETOWN, WILLIAMSON COUNTY TEXAS

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

SHEET 77 of 105

2025-XX-CON

Plot Style: LandDev Global.ctb
Template: HRG_C3D2023.DWT
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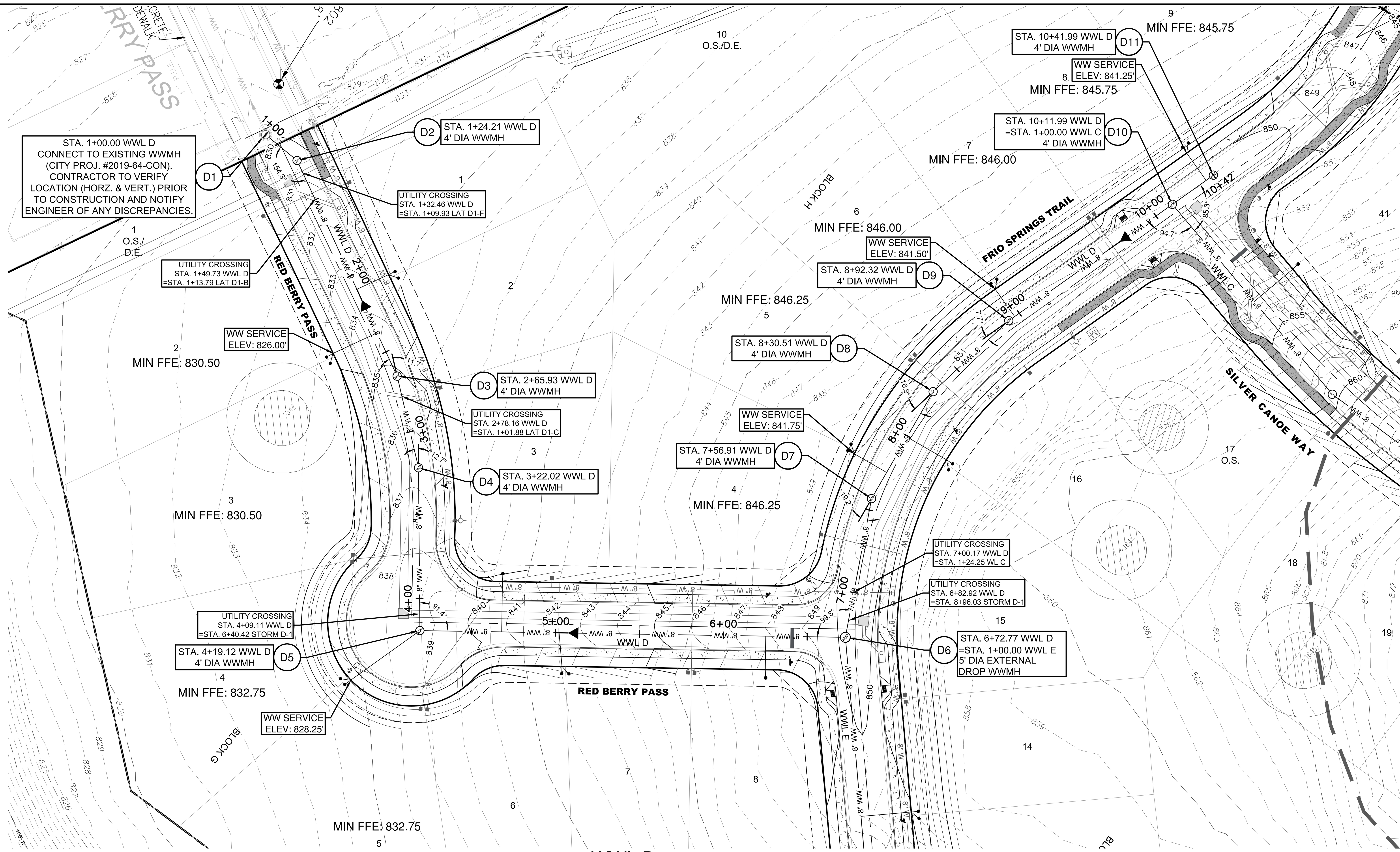
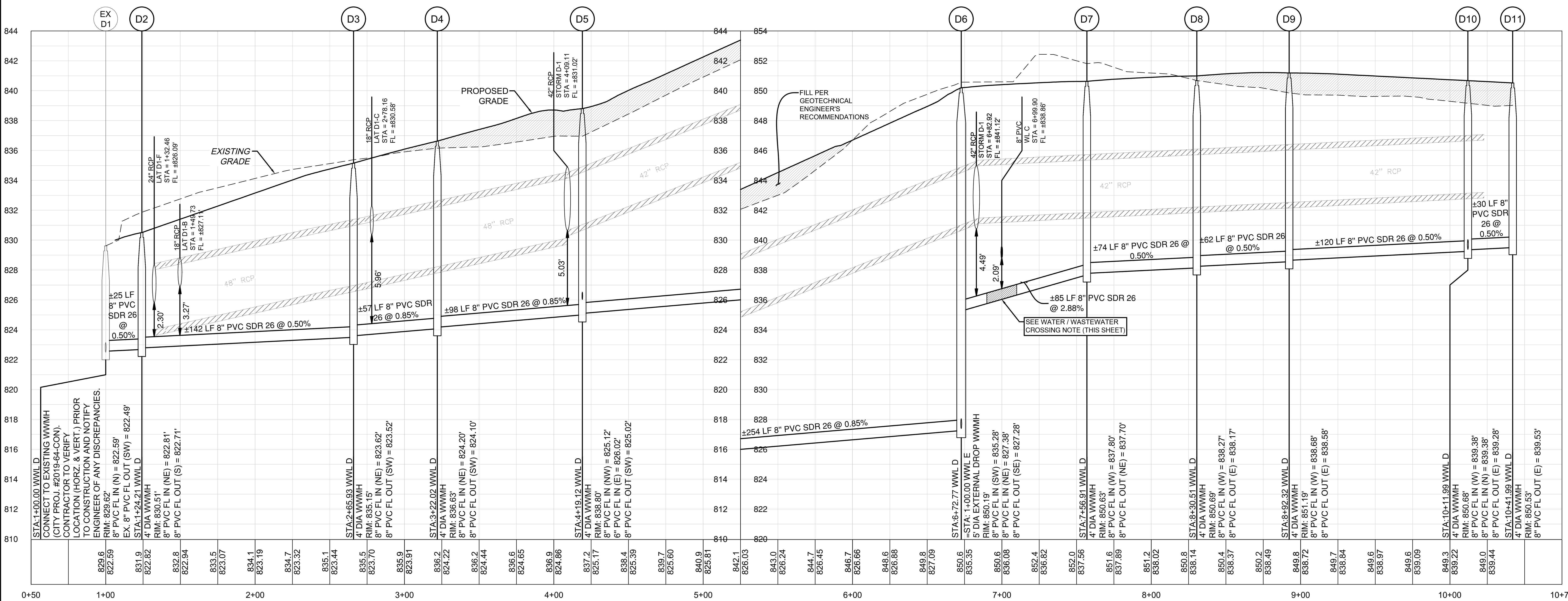


WWL D



SCALE: 1" = 40'

LEGEND

- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- BOUNDARY
- EASEMENT
- LOMR FLOODPLAIN
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- CLEANOUT
- SINGLE WASTEWATER SERVICE
- DOUBLE WASTEWATER SERVICE
- SINGLE WATER SERVICE
- DOUBLE WATER SERVICE
- DEEP WW SERVICE ELEVATION (WW SERVICE ELEV: XXX.X)
- FIRE HYDRANT
- GATE VALVE
- AUTOMATIC AIR RELEASE VALVE
- FLUSH VALVE
- STORM LINE STORM SEWER
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FINISHED GRADE - CENTERLINE

EXISTING GROUND → 1000.1 / 997.10 ← PROPOSED FLOWLINE

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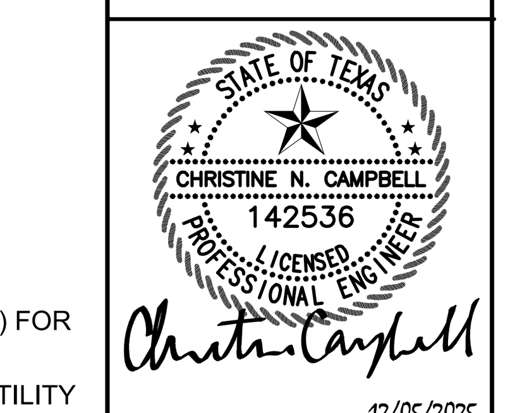

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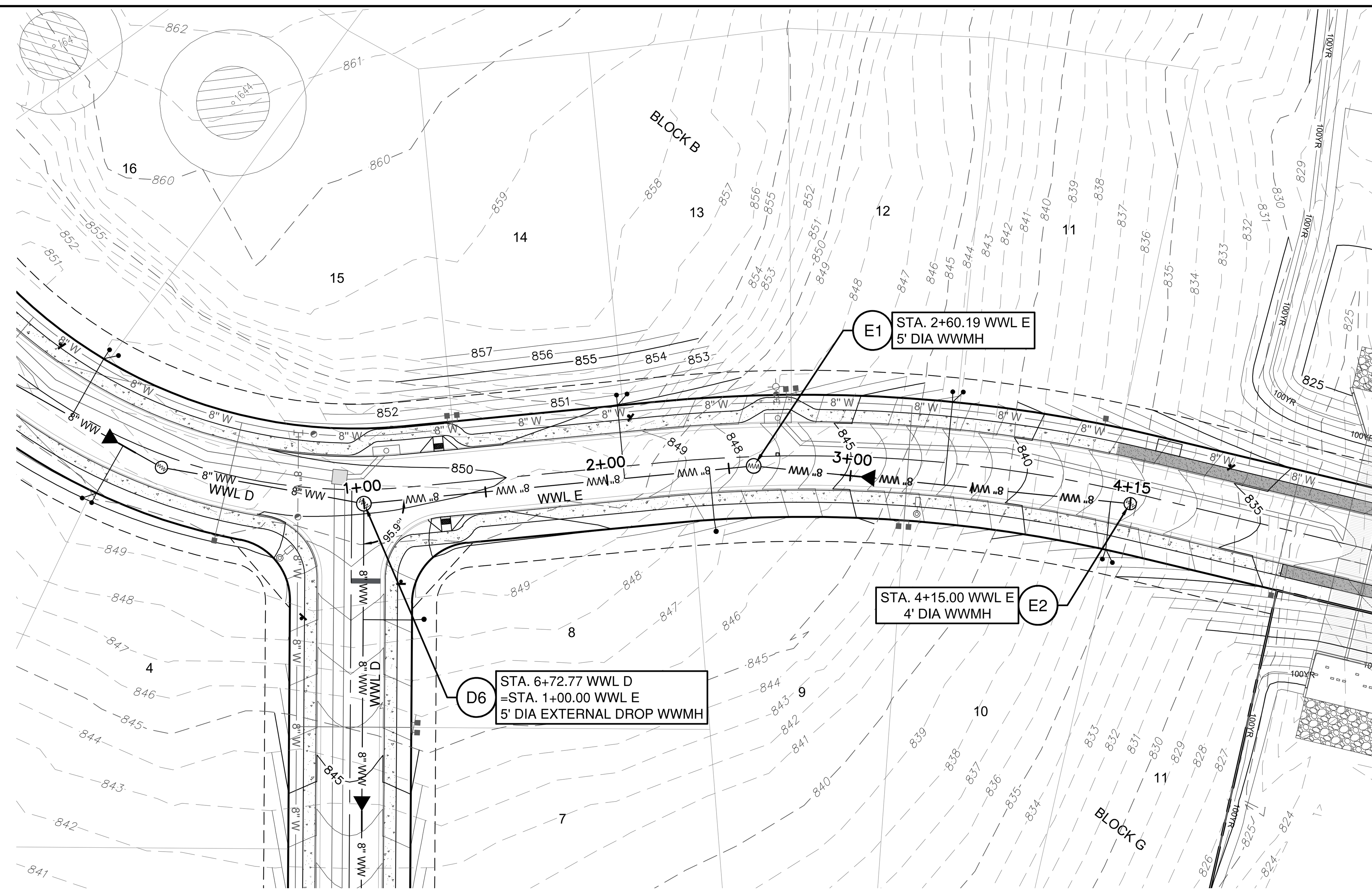
CRESCENT BLUFF WEST
SECTIONS 9 & 10
GEORGETOWN, WILLIAMSON COUNTY TEXAS

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

SHEET 78 of 105

2025-XX-CON



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

LEGEND

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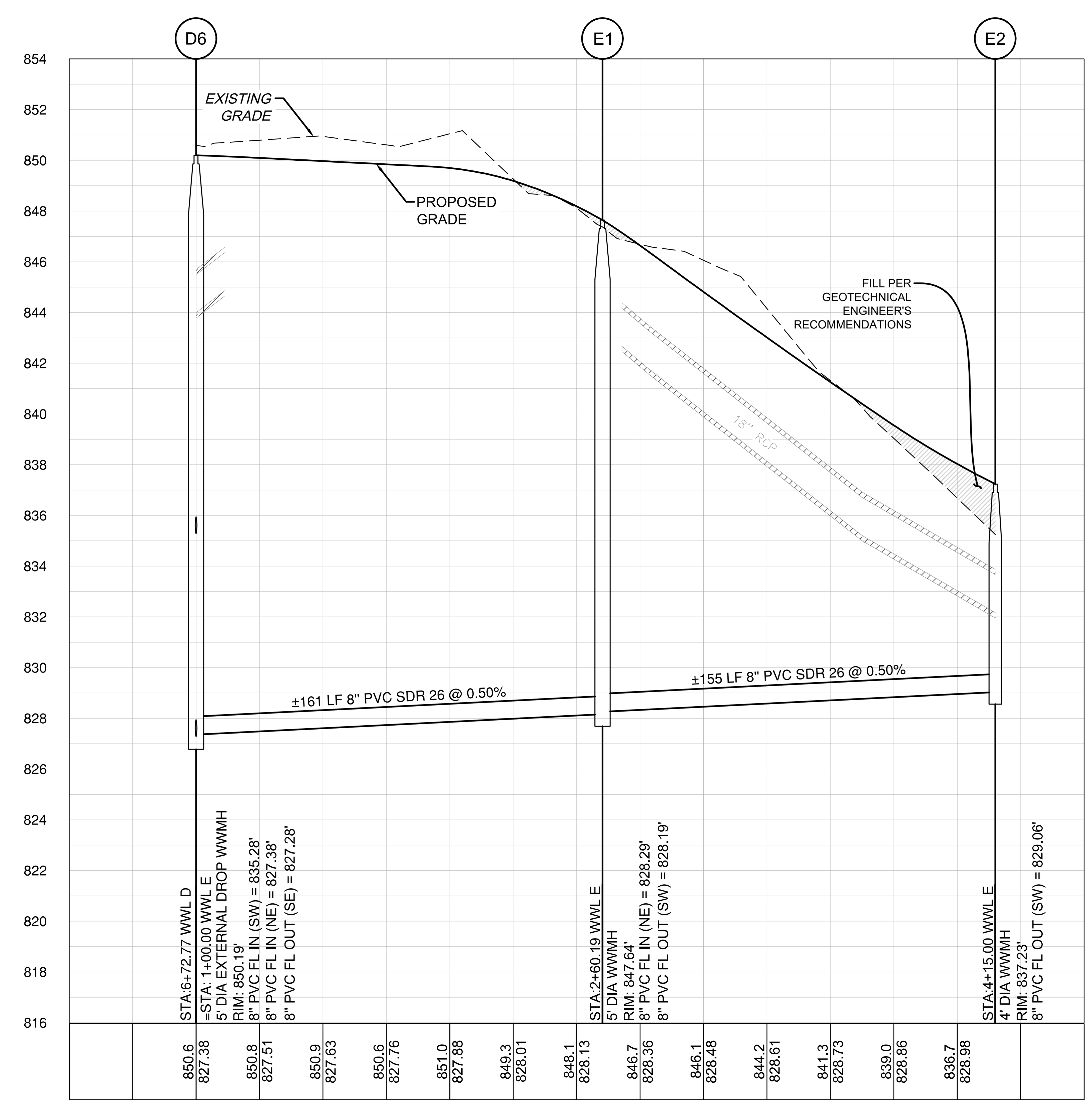
EXISTING GRADE - CENTERLINE
FINISHED GRADE - CENTERLINE

EXISTING GROUND 1000.1 / 997.10 PROPOSED FLOWLINE

WWL E



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12/05/2025

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CRESCENT BLUFF WEST
SECTIONS 9 & 10
GEORGETOWN, WILLIAMSON COUNTY TEXAS

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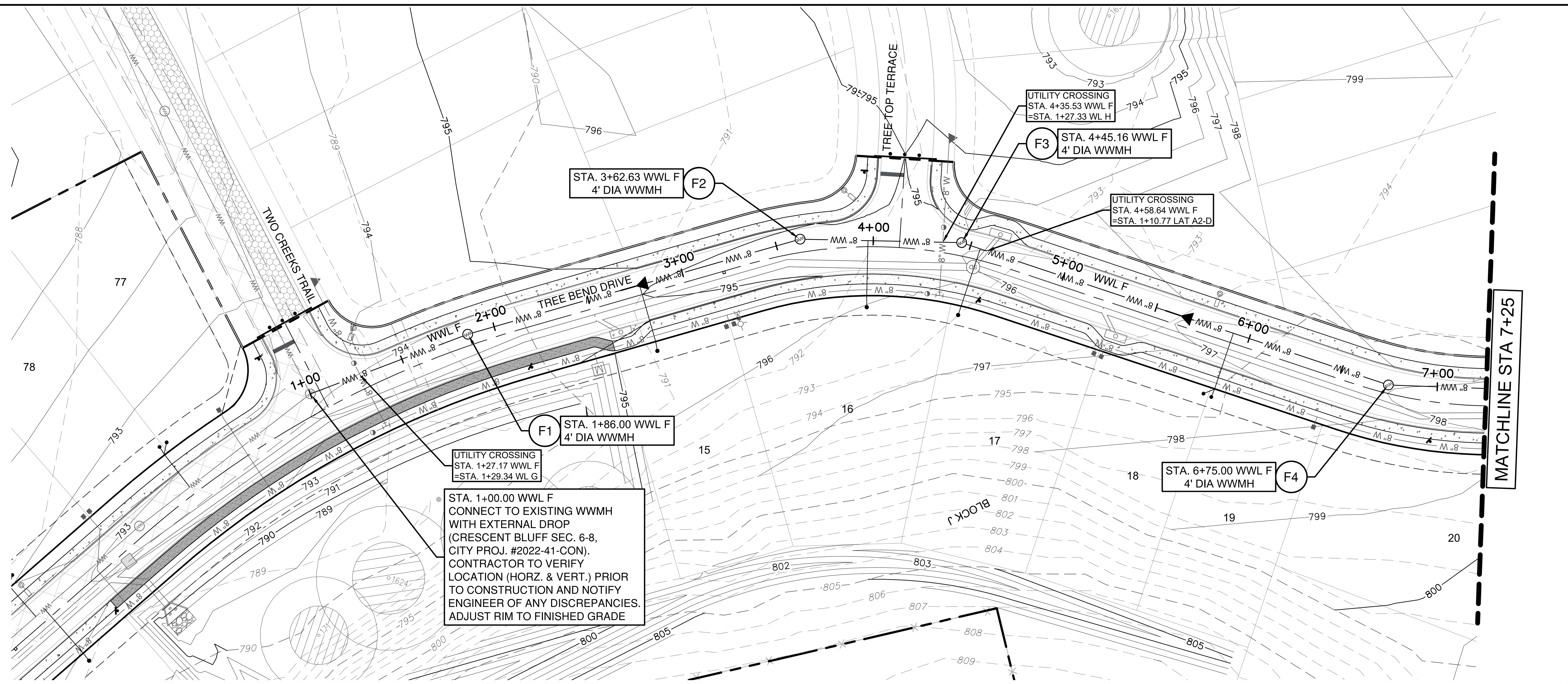
DRAWN BY: TG
CHECKED BY: CC
APPROVED BY: SN

2025-XX-CON



SCALE: 1" = 40'

LEGEND

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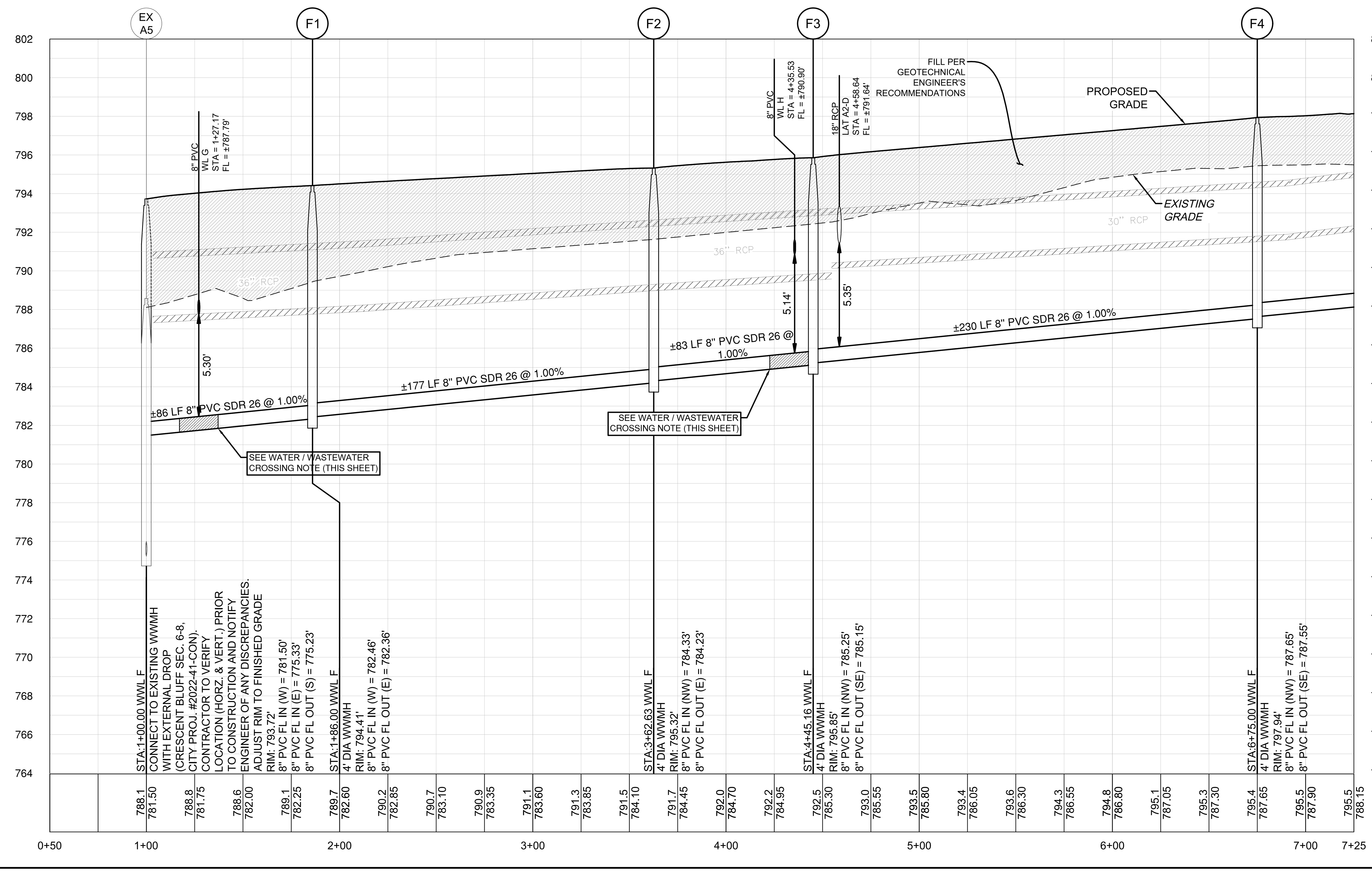
WWL F



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NO.	REVISION	BY	DATE

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STATE OF TEXAS — CHRISTINE N. CAMPBELL — 142536 — LICENSED PROFESSIONAL ENGINEER — 12/05/2025

WWL F PLAN & PROFILE 1+00 - 7+25

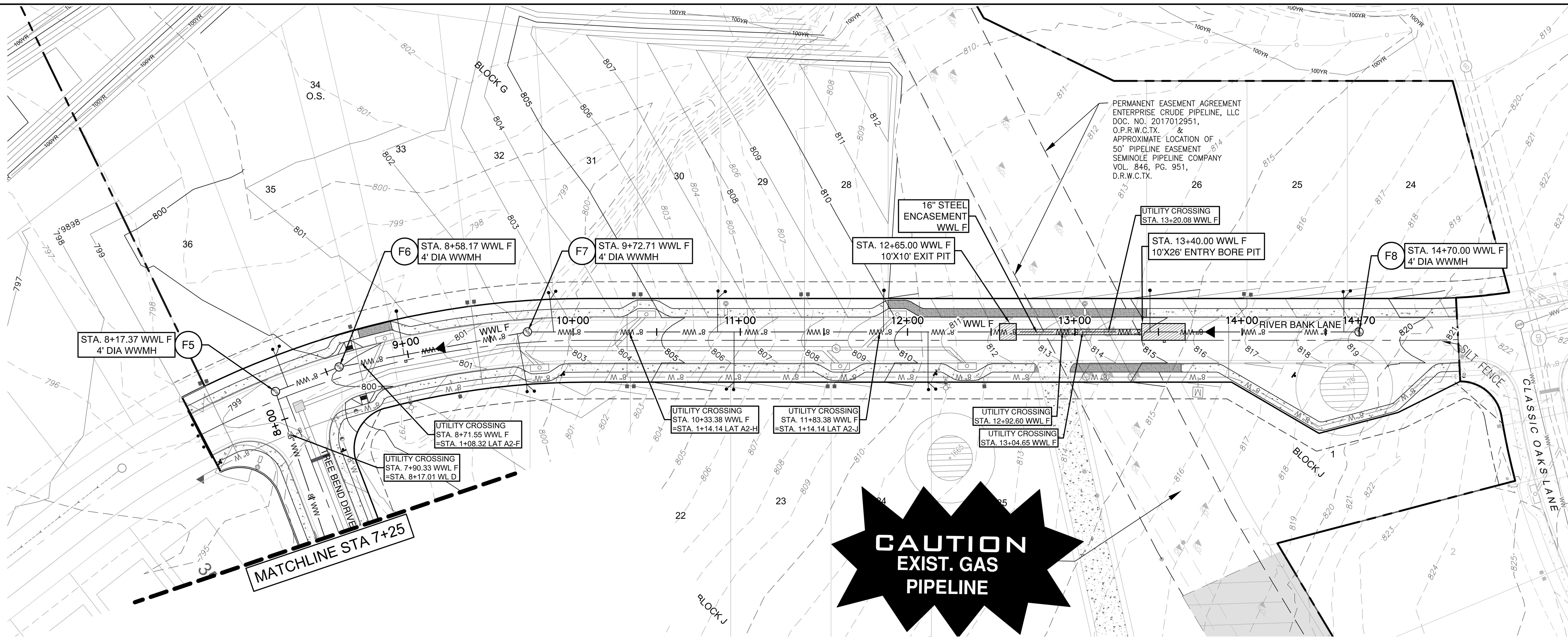
CRESCENT BLUFF WEST

SECTIONS 9 & 10

GEORGETOWN, WILLIAMSON COUNTY TEXAS

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

2025-XX-CON



SCALE: 1" = 40'

LEGEND

- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- BOUNDARY
- EASEMENT
- LOMR FLOODPLAIN
- EDWARDS AQUIFER RECHARGE ZONE
- WASTEWATER MANHOLE
- CLEANOUT
- SINGLE WASTEWATER SERVICE
- DOUBLE WASTEWATER SERVICE
- SINGLE WATER SERVICE
- DOUBLE WATER SERVICE
- WW SERVICE ELEV: XXX.X — DEEP WW SERVICE ELEVATION
- FIRE HYDRANT
- GATE VALVE
- AUTOMATIC AIR RELEASE VALVE
- FLUSH VALVE
- STORM LINE STORM SEWER
- JUNCTION BOX
- STORM SEWER MANHOLE
- CURB INLET
- AREA INLET
- CONCRETE HEADWALL

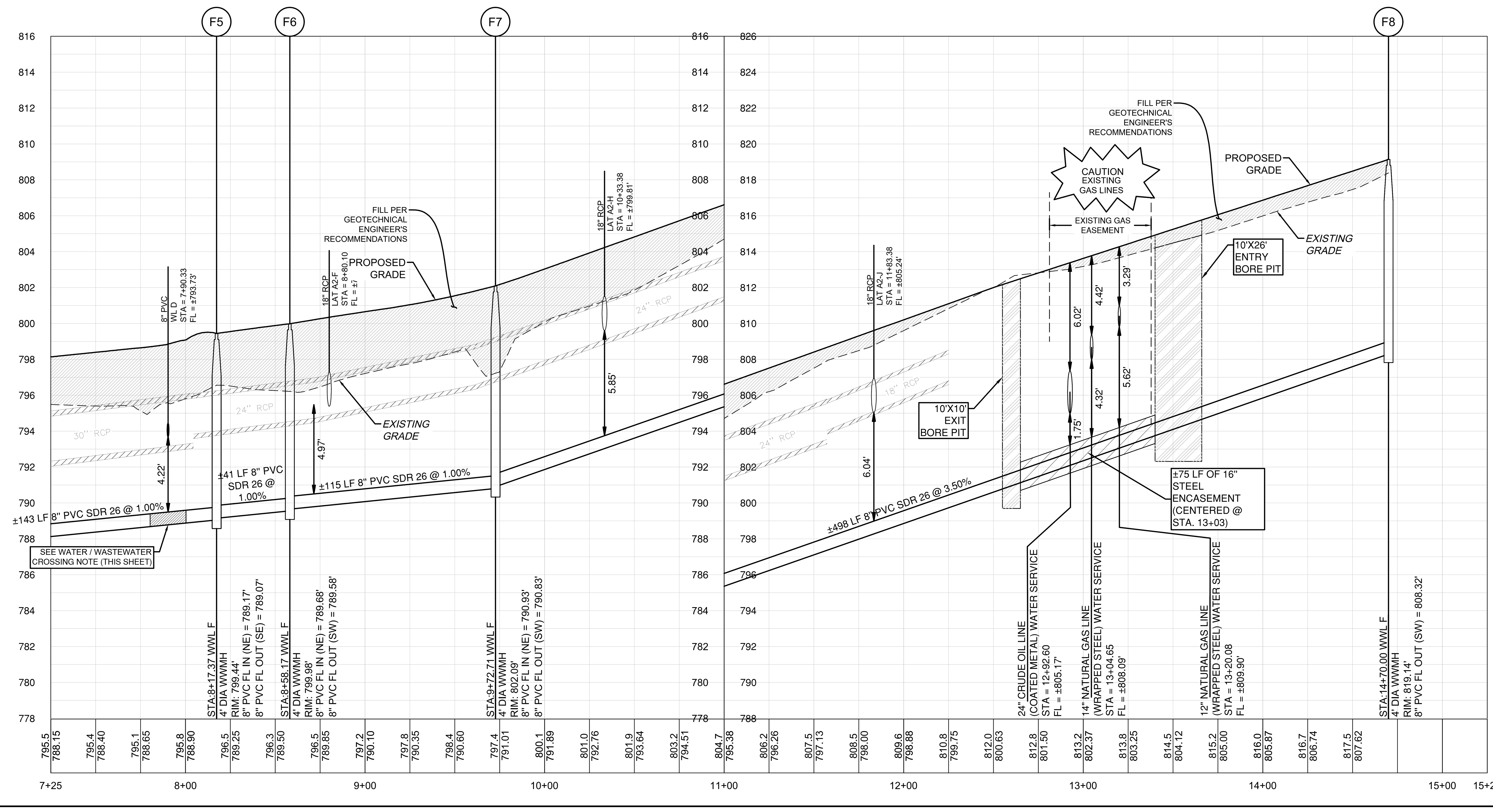
Know what's below. Call before you dig.

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

EXISTING GRADE - CENTERLINE
FINISHED GRADE - CENTERLINE

EXISTING GROUND 1000.1 / 997.10 PROPOSED FLOWLINE

WWL F



NOTES:

1. REFER TO THE WATER AND WASTEWATER DETAIL SHEET(S) FOR TYPE S AND TYPE D SERVICE CONNECTIONS.
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3. ALL PROPOSED GRAVITY WASTEWATER PIPES TO BE SDR-26 UNLESS OTHERWISE SPECIFIED ON THE PLANS.
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TRENCH SAFETY NOTES:

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STATE OF TEXAS — CHRISTINE N. CAMPBELL — 142536 — LICENSED PROFESSIONAL ENGINEER
12/05/2025

WWL F PLAN & PROFILE 7+25 - 14+81

CRESCENT BLUFF WEST

SECTIONS 9 & 10
GEORGETOWN, WILLIAMSON COUNTY TEXAS

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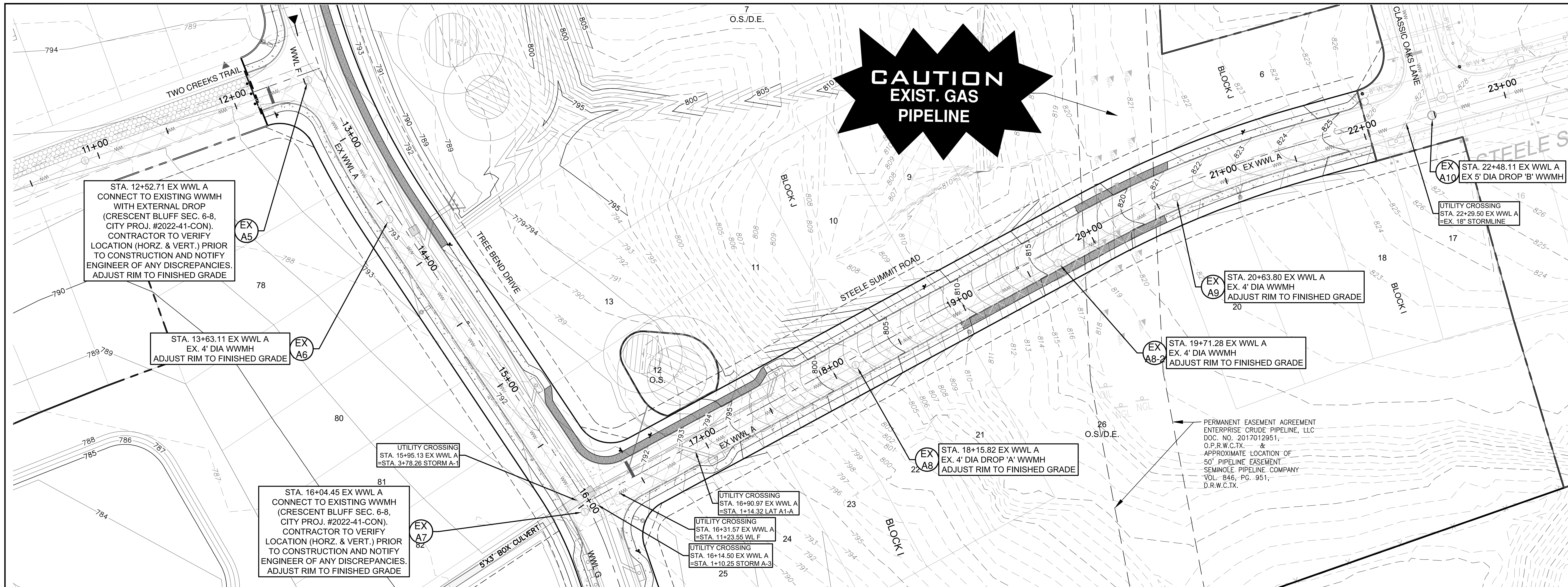
SHEET 81 of 105

2025-XX-CON



SCALE: 1" = 40'

LEGEND

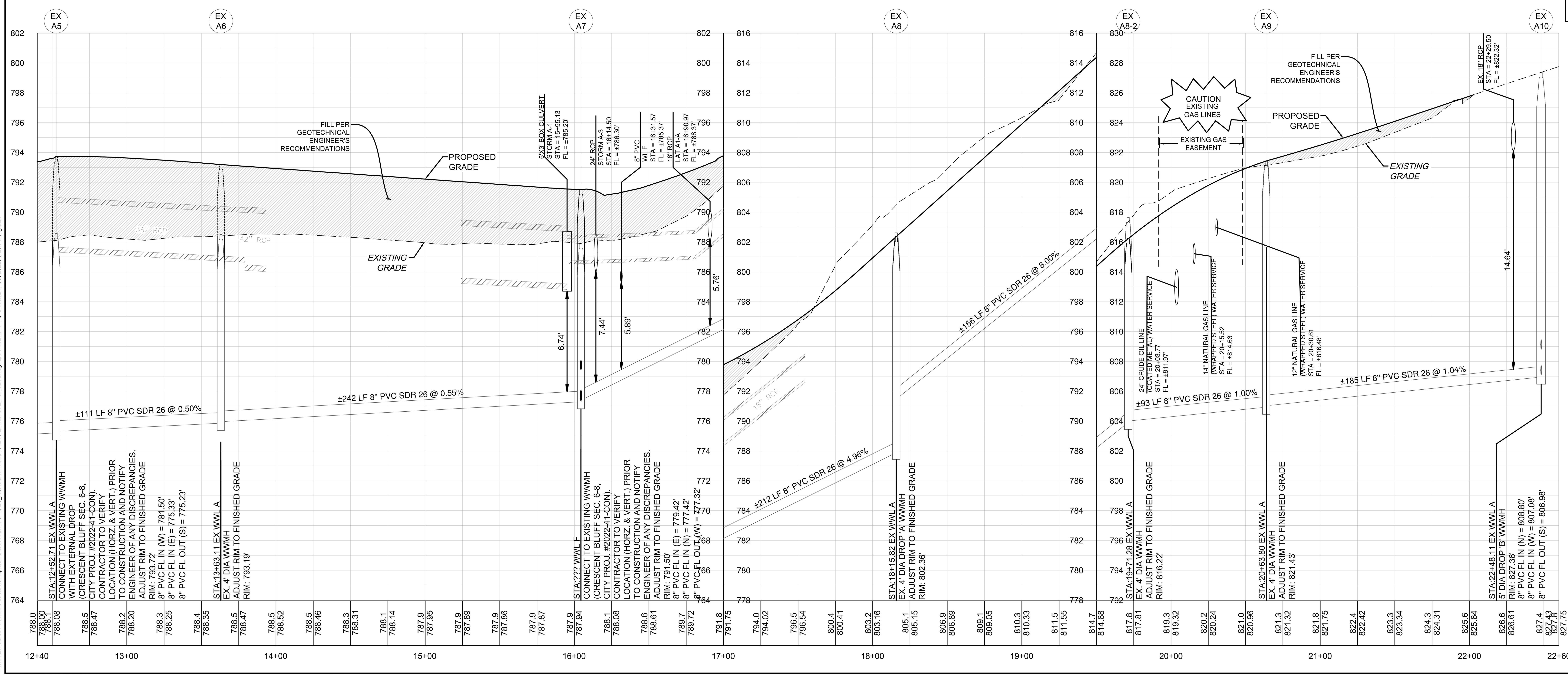
834	EXISTING MINOR CONTOUR
835	EXISTING MAJOR CONTOUR
834	PROPOSED MINOR CONTOUR
835	PROPOSED MAJOR CONTOUR
	BOUNDARY
	EASEMENT
100YR LOMR	LOMR FLOODPLAIN
	EDWARDS AQUIFER RECHARGE ZONE
WW	WASTEWATER MANHOLE
C.O.	CLEANOUT
	SINGLE WASTEWATER SERVICE
	DOUBLE WASTEWATER SERVICE
	SINGLE WATER SERVICE
	DOUBLE WATER SERVICE
WW SERVICE ELEV: XXX.X	DEEP WW SERVICE ELEVATION
	FIRE HYDRANT
	GATE VALVE
	AUTOMATIC AIR RELEASE VALVE
	FLUSH VALVE
SD	STORM LINE STORM SEWER
	JUNCTION BOX
SD	STORM SEWER MANHOLE
	CURB INLET
	AREA INLET
	CONCRETE HEADWALL

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

EXISTING GRADE - CENTERLINE
FINISHED GRADE - CENTERLINE

EXISTING GROUND 1000.1 / 997.10 PROPOSED FLOWLINE

EX WWL A



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STATE OF TEXAS
CHRISTINE N. CAMPBELL
142536
LICENSED PROFESSIONAL ENGINEER
12/05/2025

EX WWL A PLAN & PROFILE 12+25 - 19+50

CRESCENT BLUFF WEST SECTIONS 9 & 10

GEORGETOWN, WILLIAMSON COUNTY TEXAS

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CHECKED BY: CC
APPROVED BY: SN

SHEET 82 of 105

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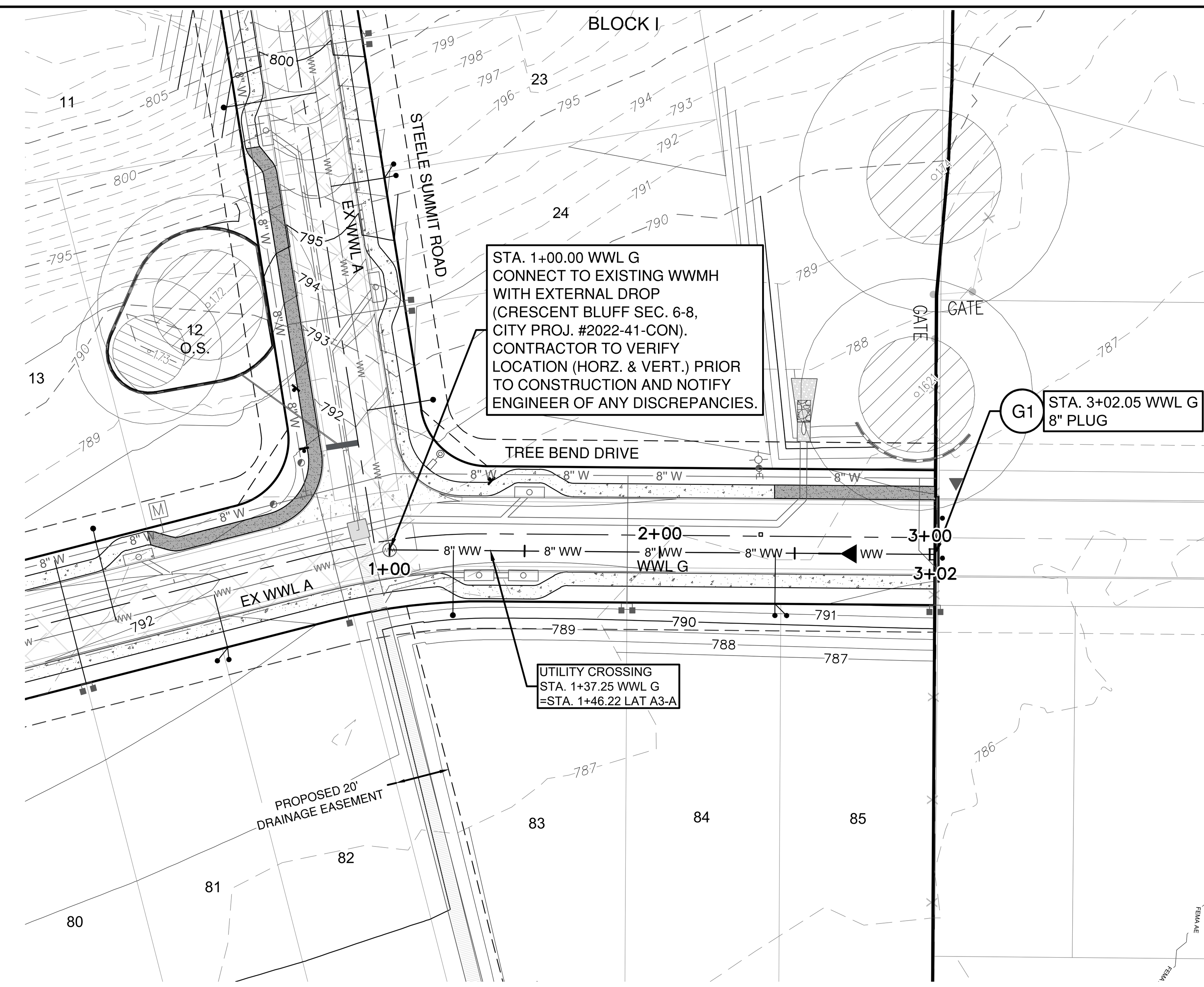

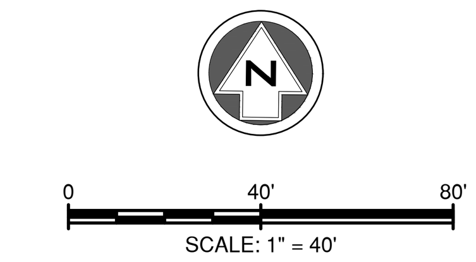

LEGEND

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- 834 — PROPOSED MINOR CONTOUR
- 835 — PROPOSED MAJOR CONTOUR
- BOUNDARY
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- 100YR LOMR — LOMR FLOODPLAIN
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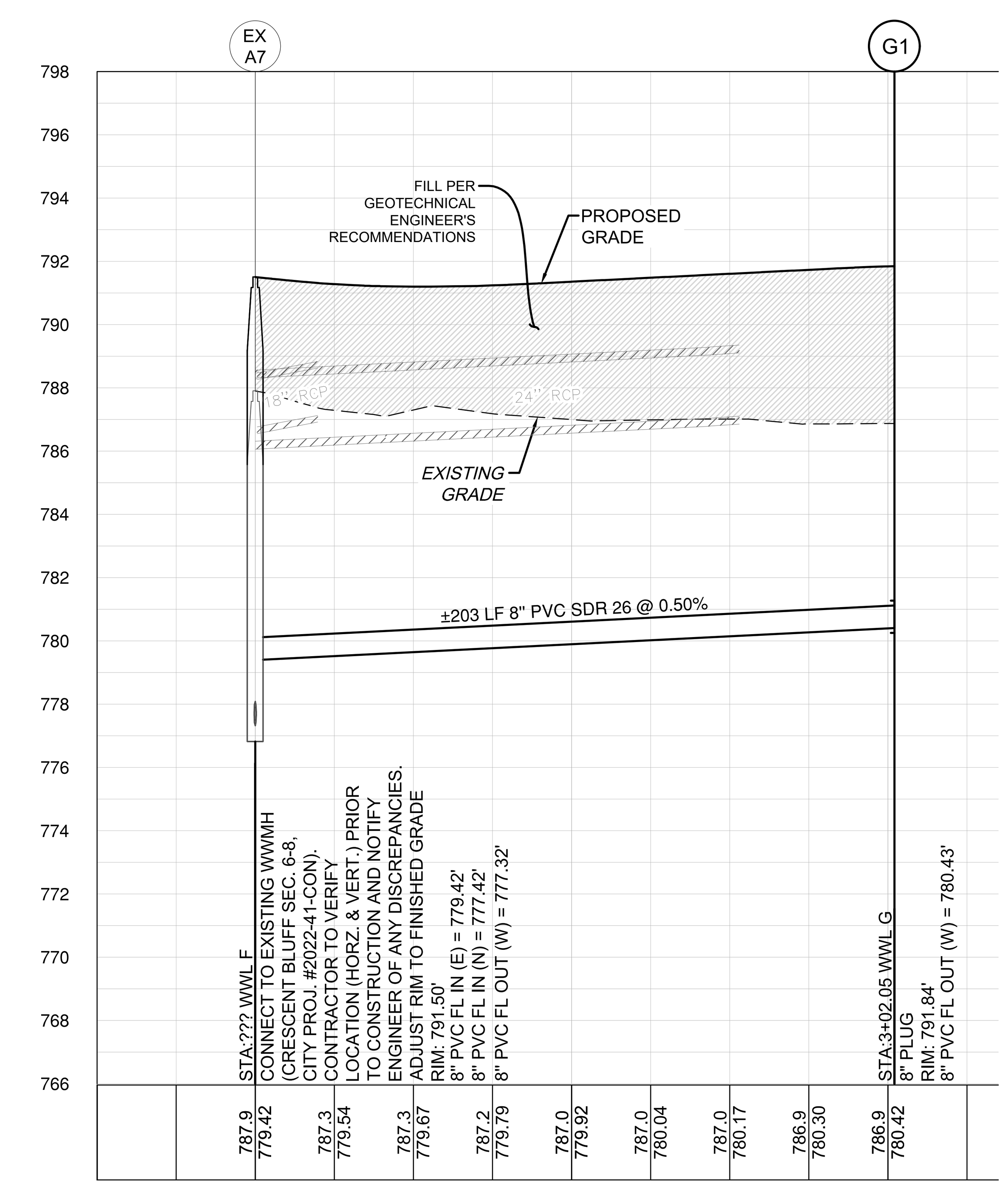
HORZ. SCALE: 1" = 40'

EXISTING GRADE - CENTERLINE
FINISHED GRADE - CENTERLINE
VERT. SCALE

EXISTING GROUND 1000.1 / 997.10 PROPOSED FLOWLINE

WWL G



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STATE OF TEXAS — CHRISTINE N. CAMPBELL — 142536 — LICENSED PROFESSIONAL ENGINEER
12/05/2025

WWL G PLAN & PROFILE 0+00 - 1+45

CRESCENT BLUFF WEST
SECTIONS 9 & 10
GEORGETOWN, WILLIAMSON COUNTY TEXAS

DESIGNED BY: CC/TG
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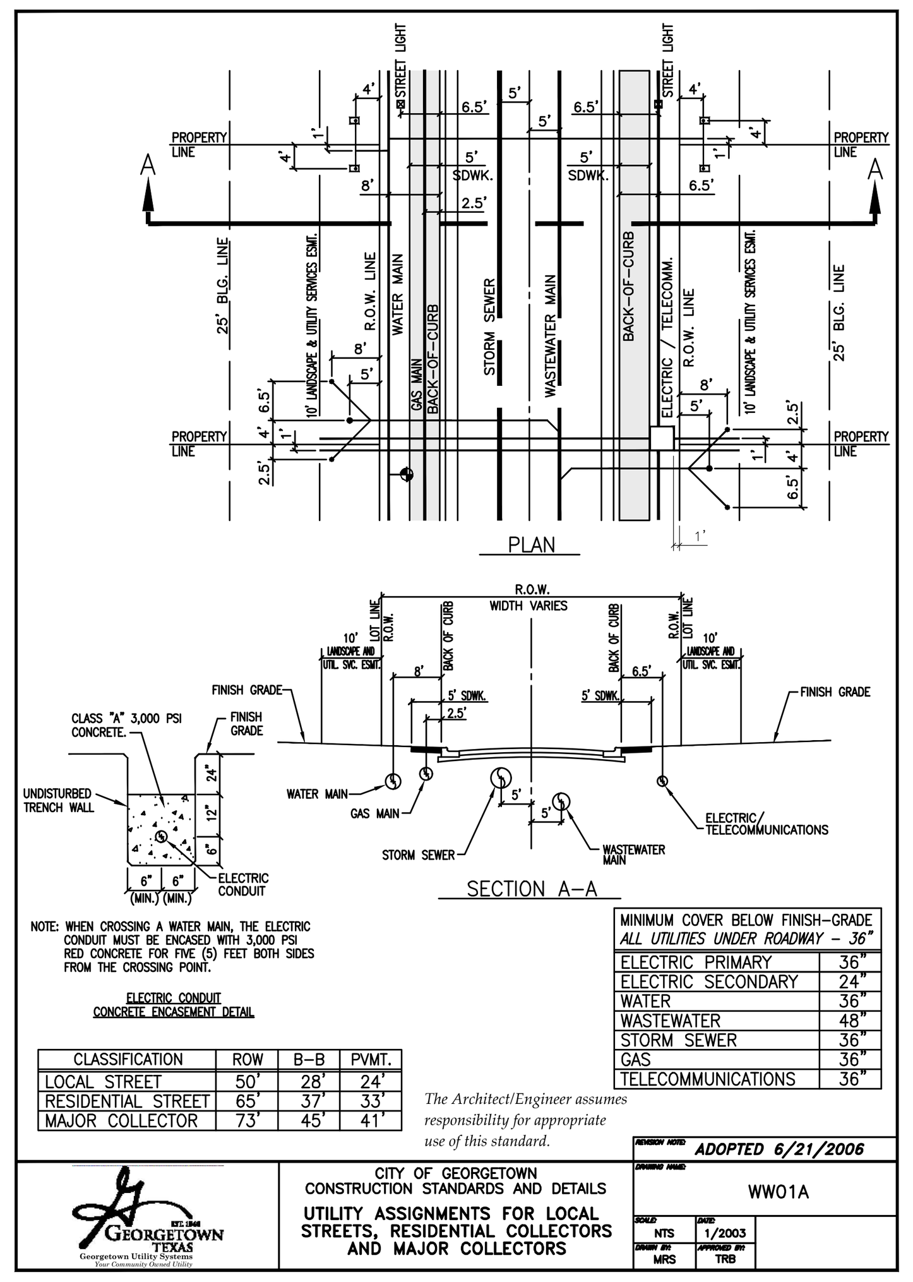
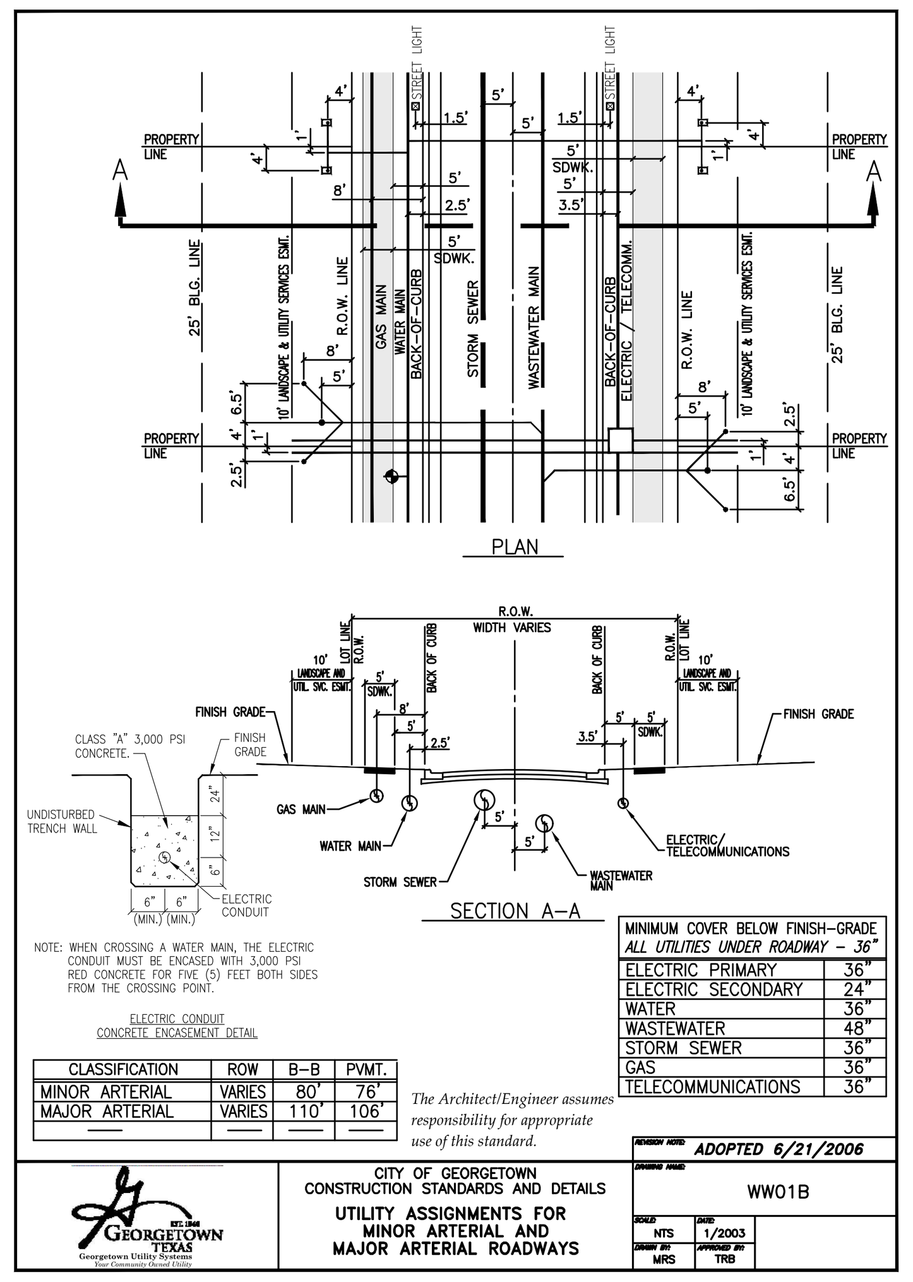
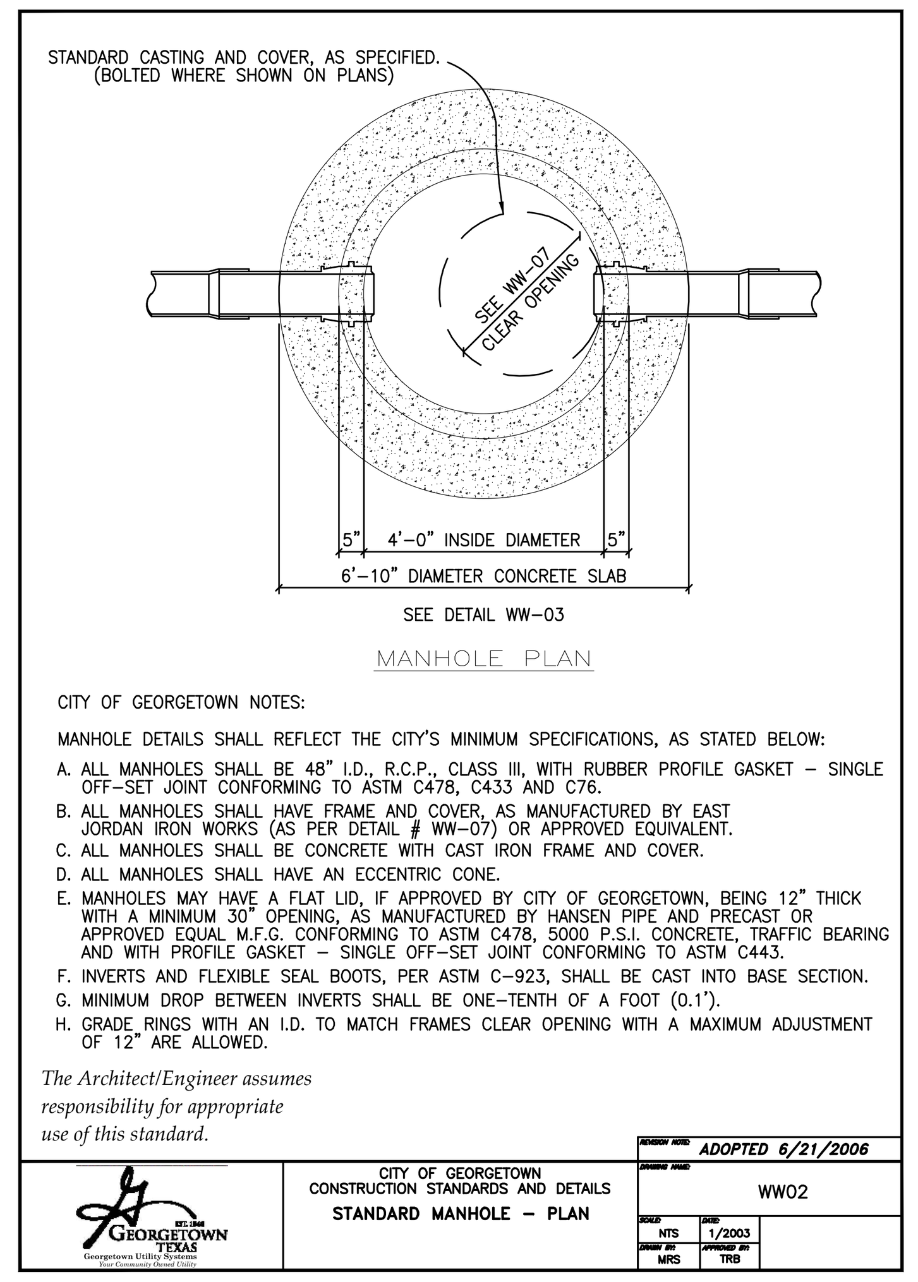
CHECKED BY: CC
APPROVED BY: SN

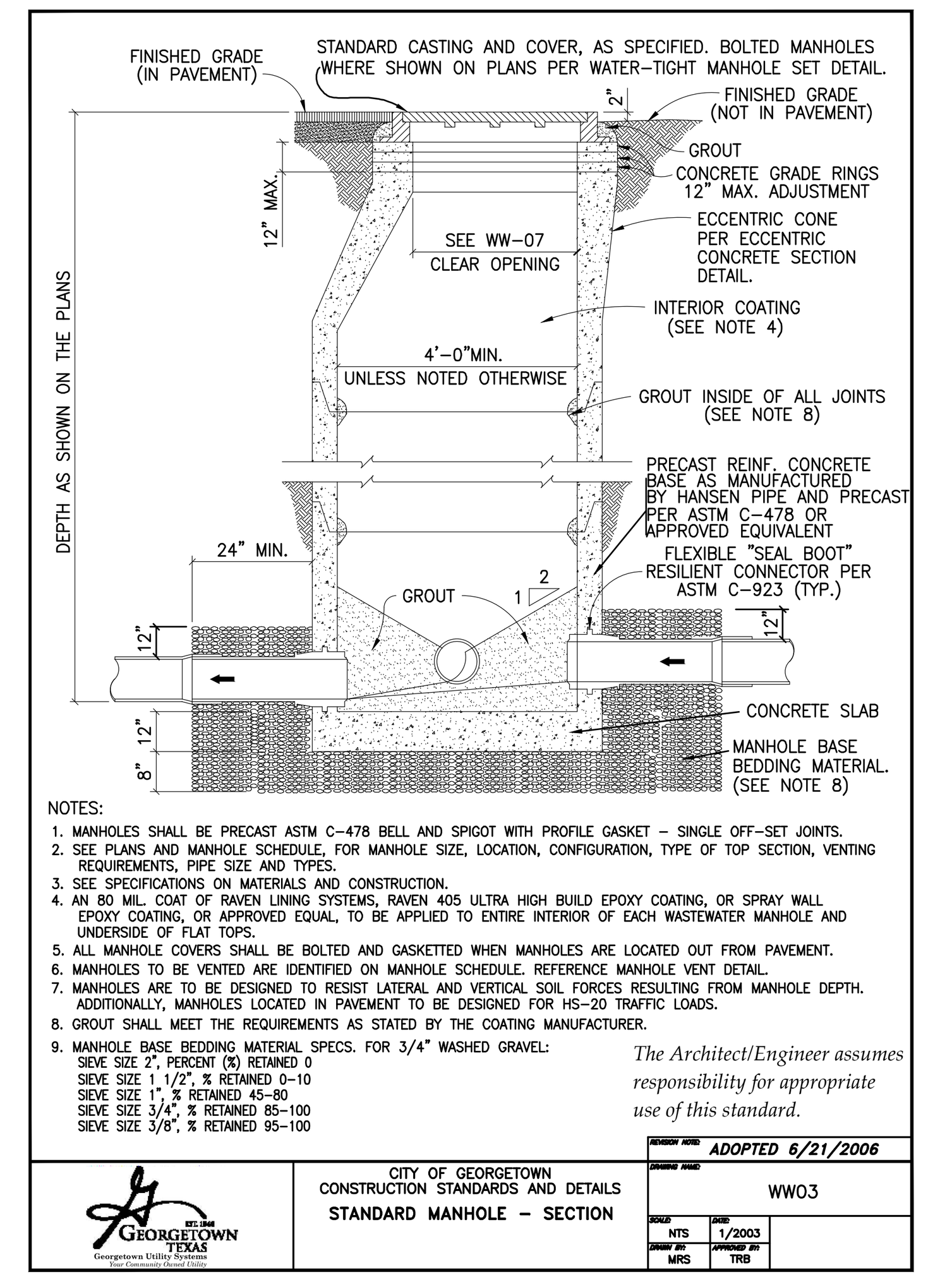
SHEET 83 of 105

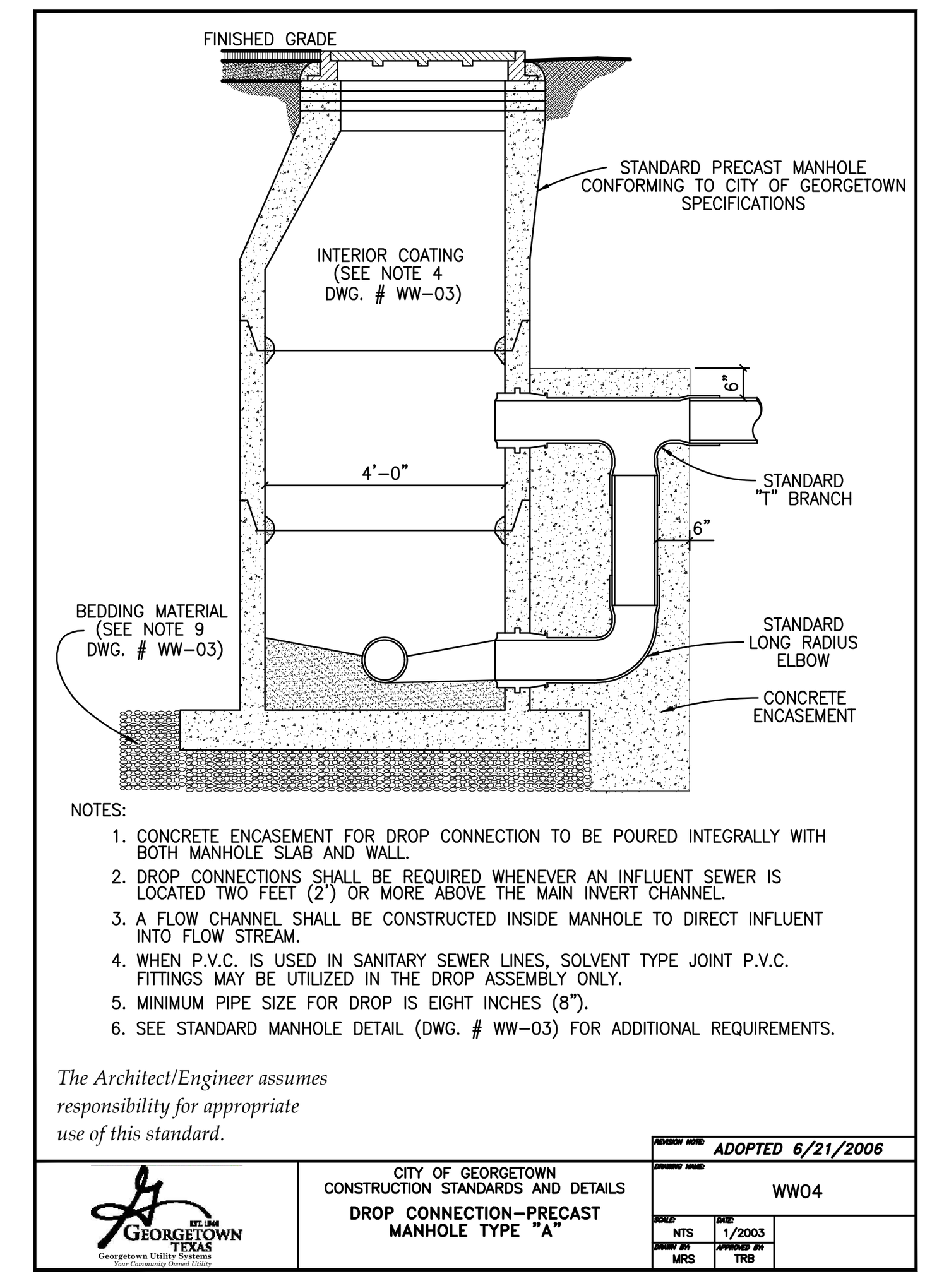
2025-XX-CON

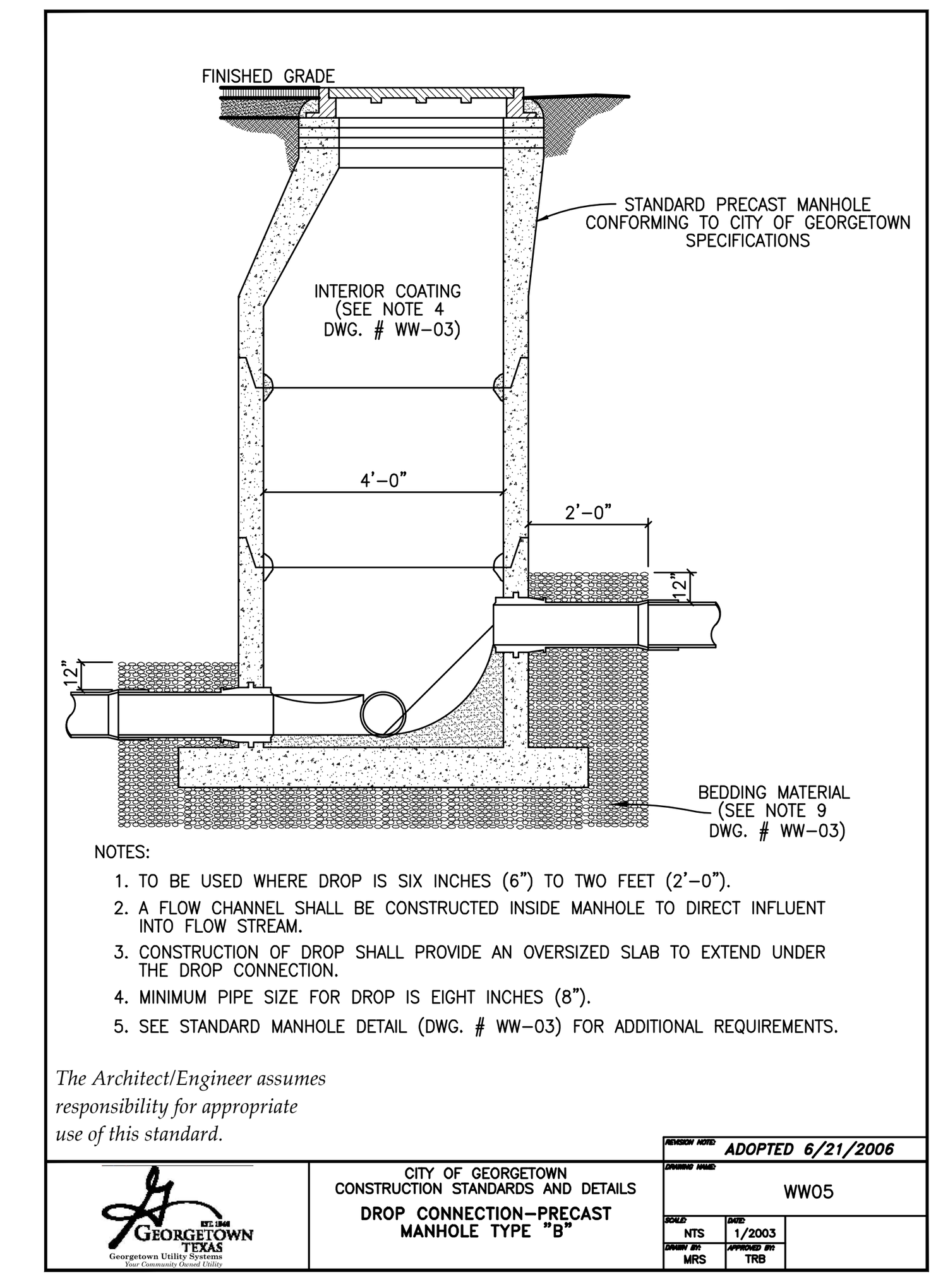


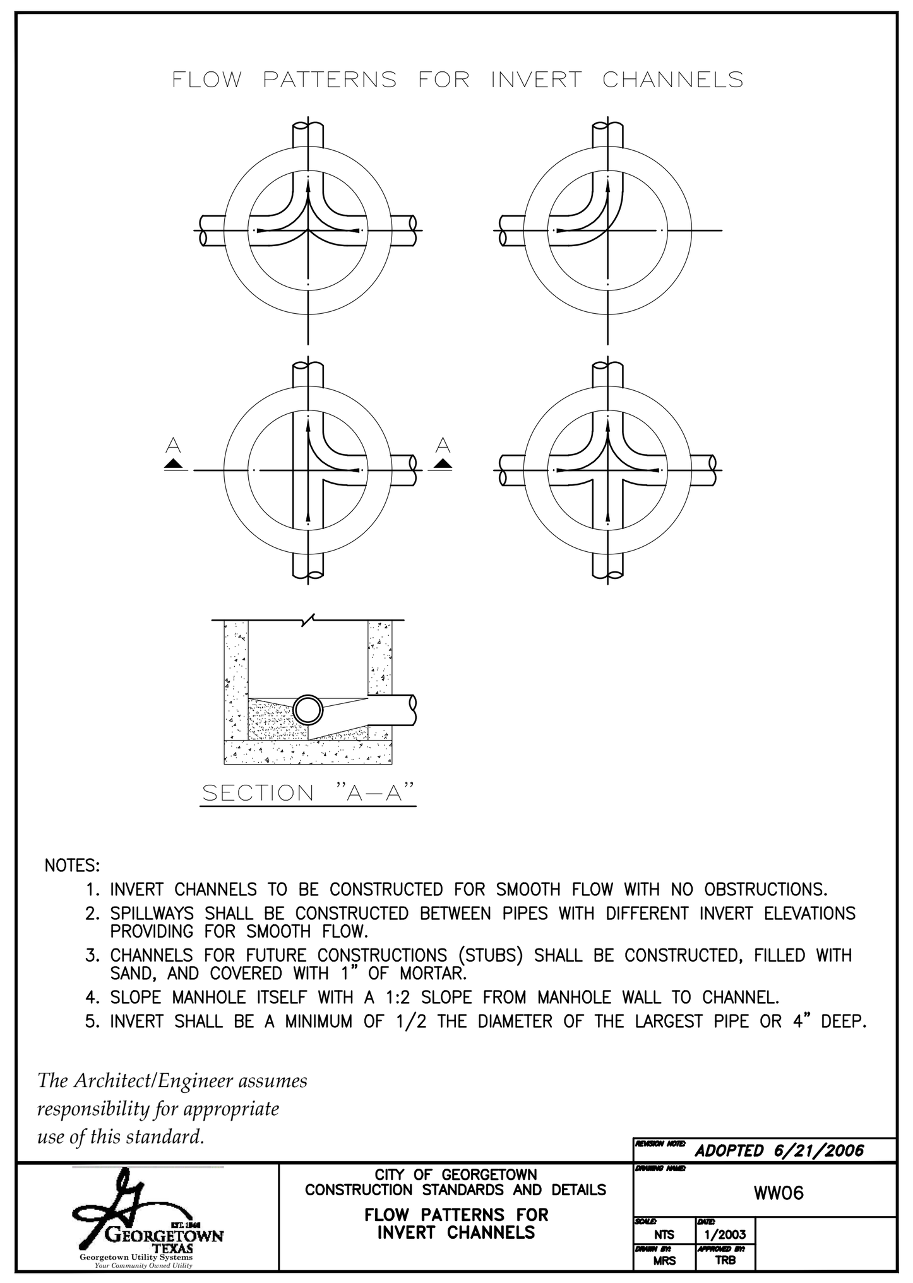


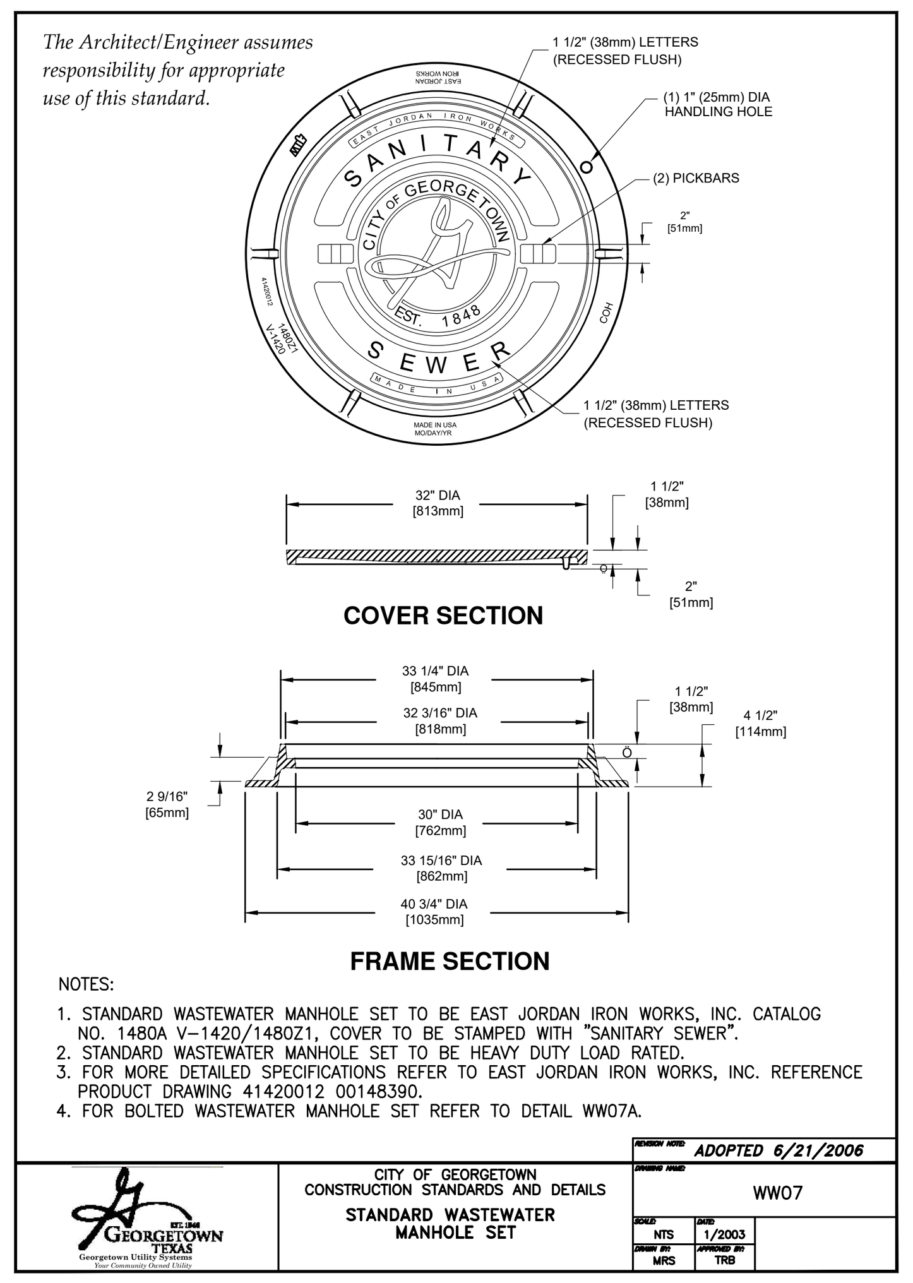


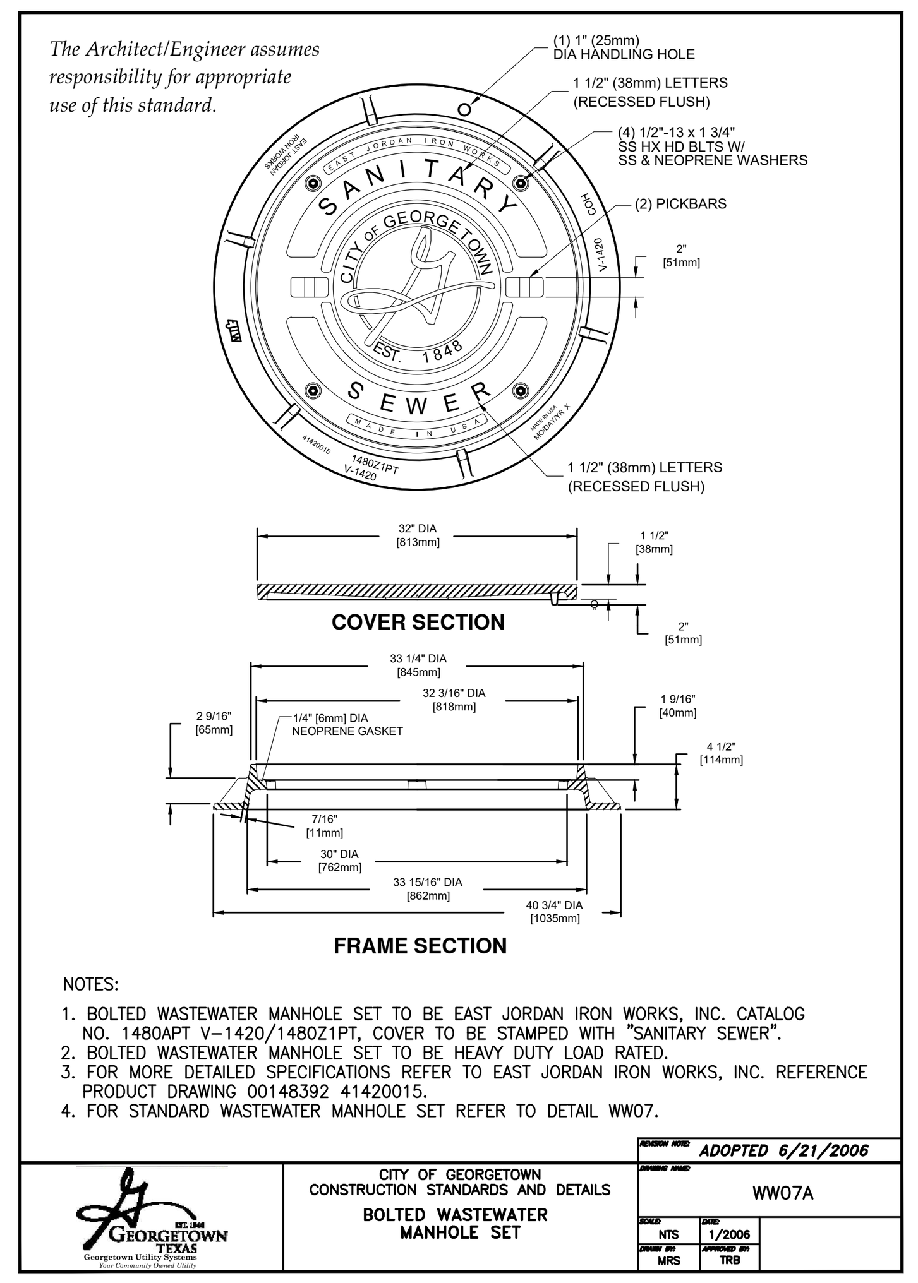


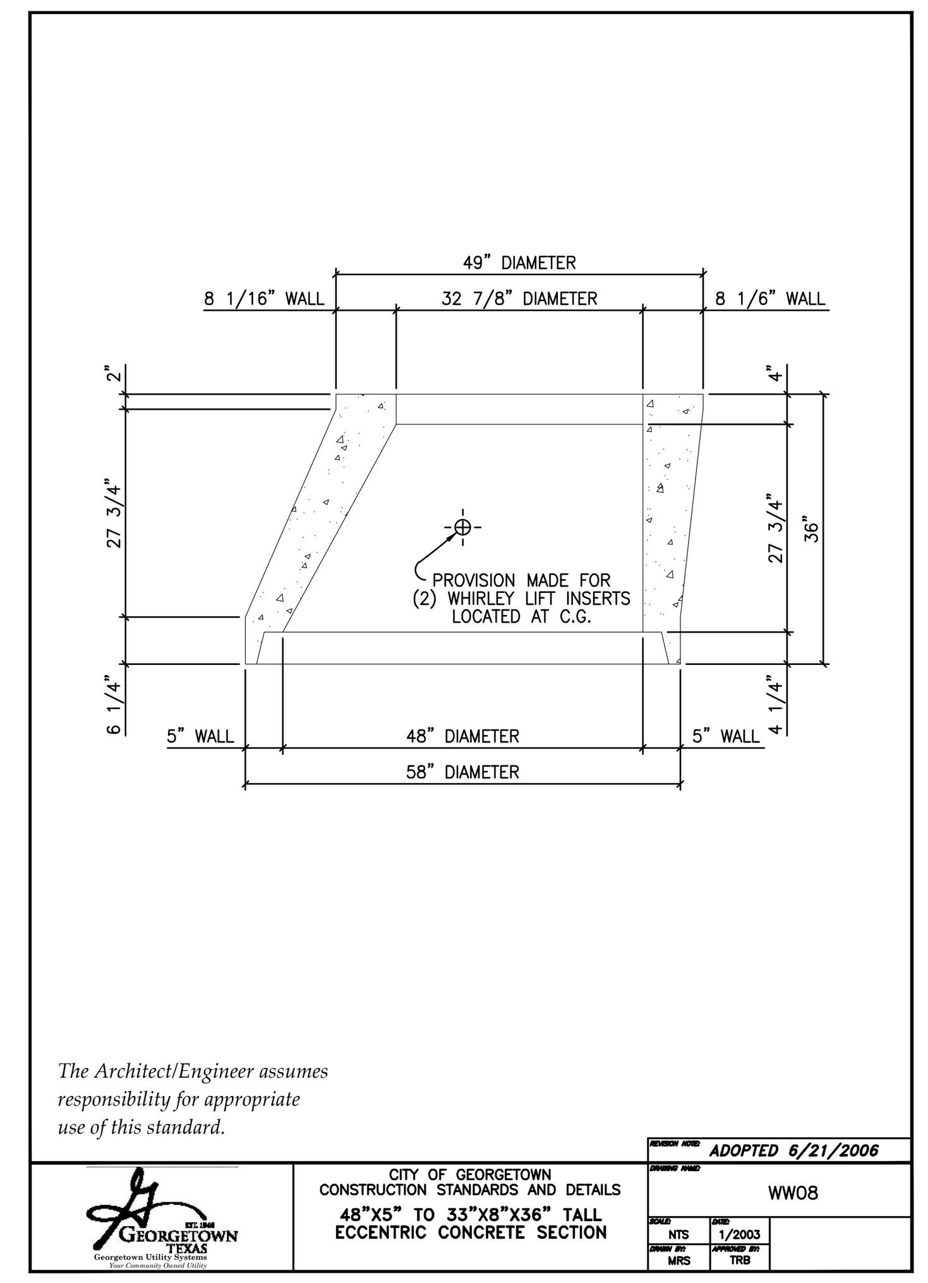


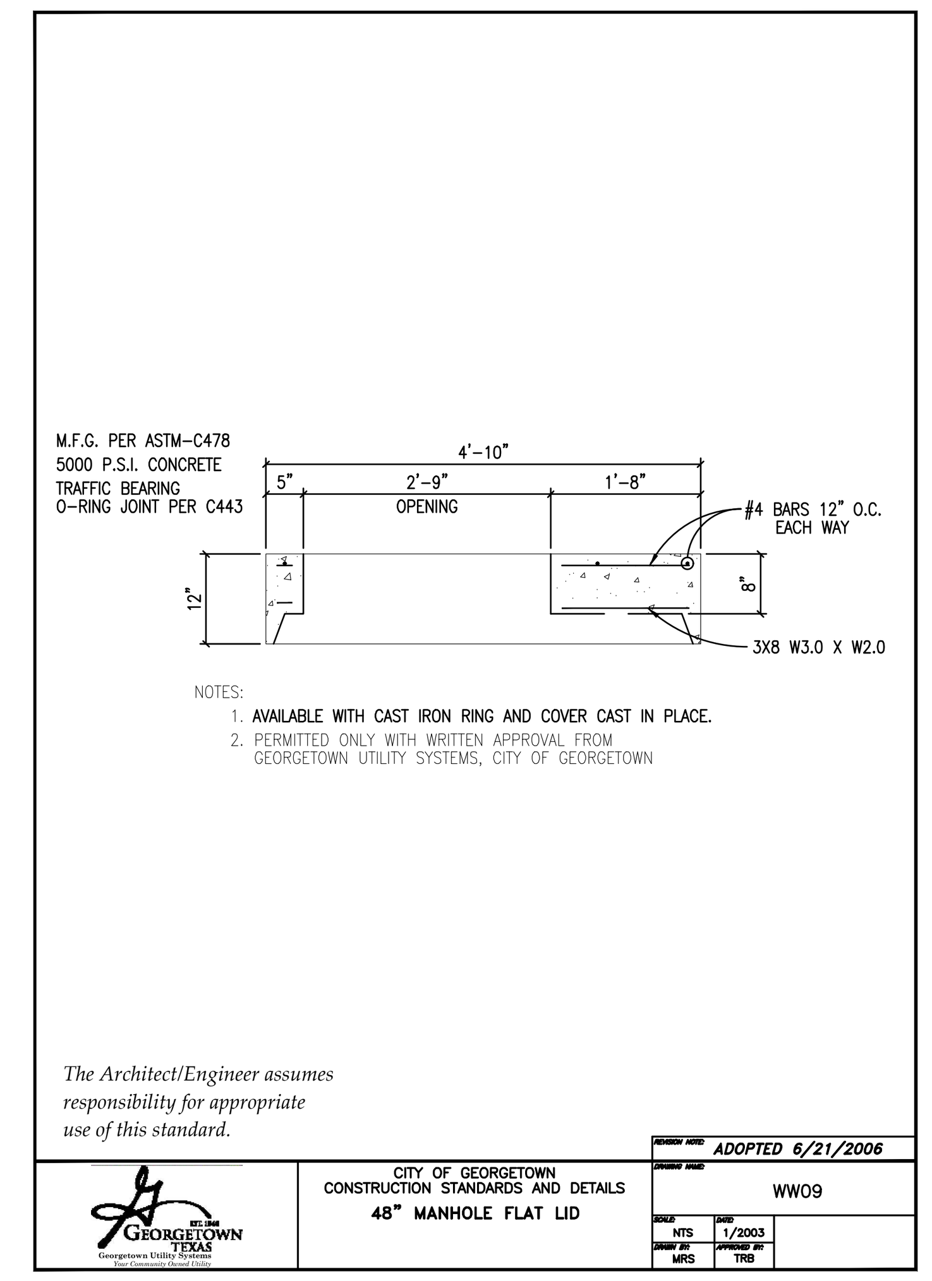


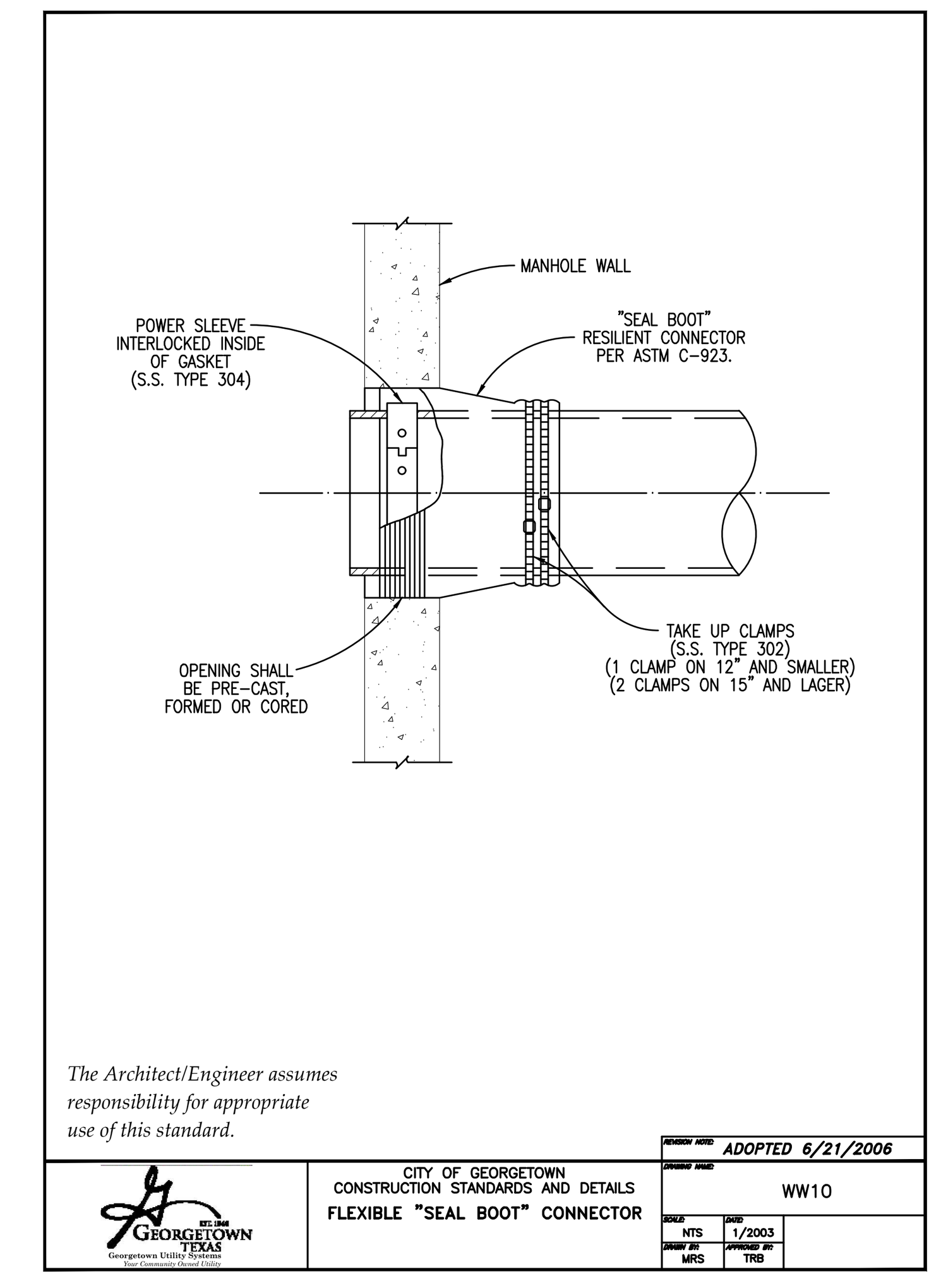


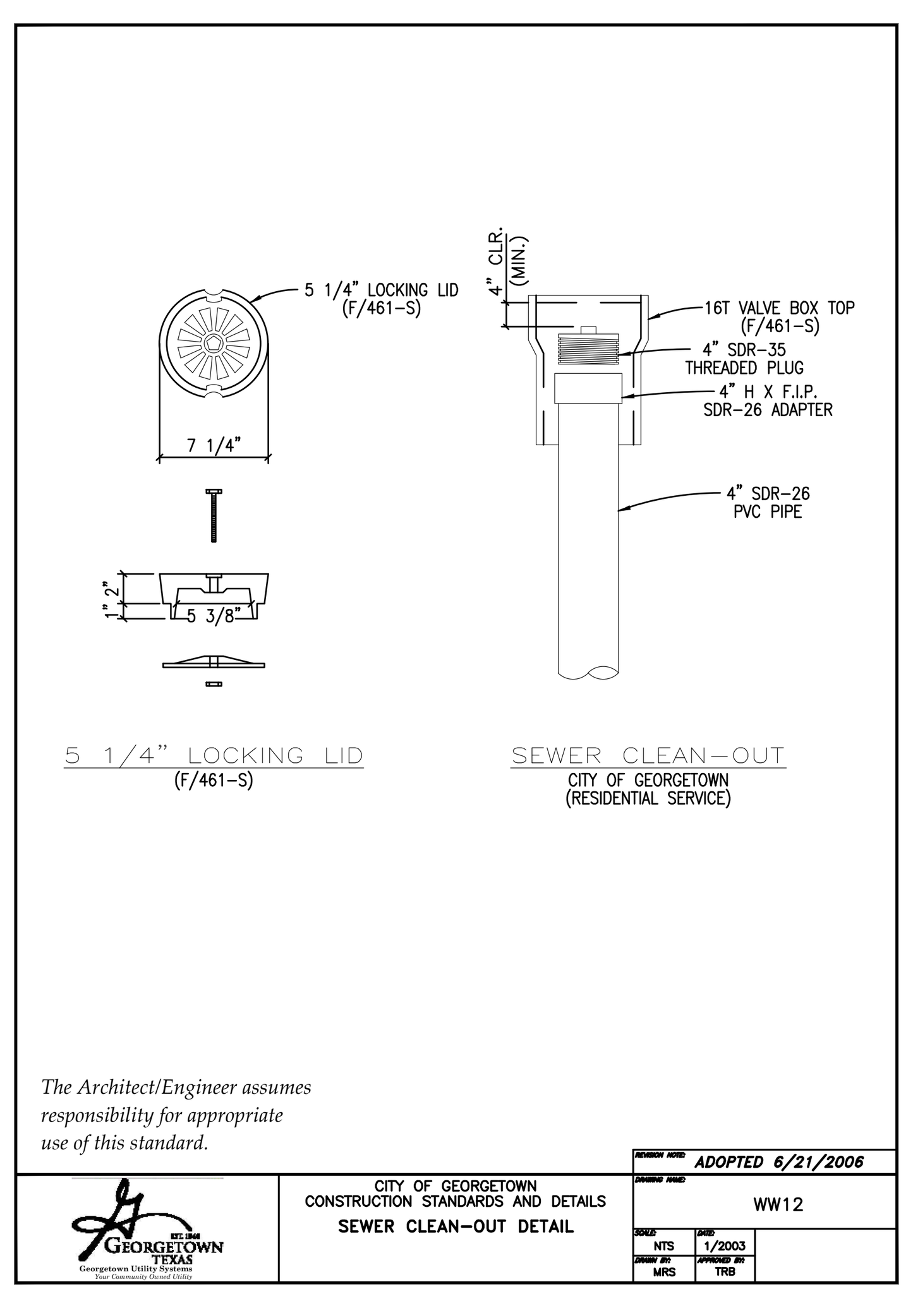


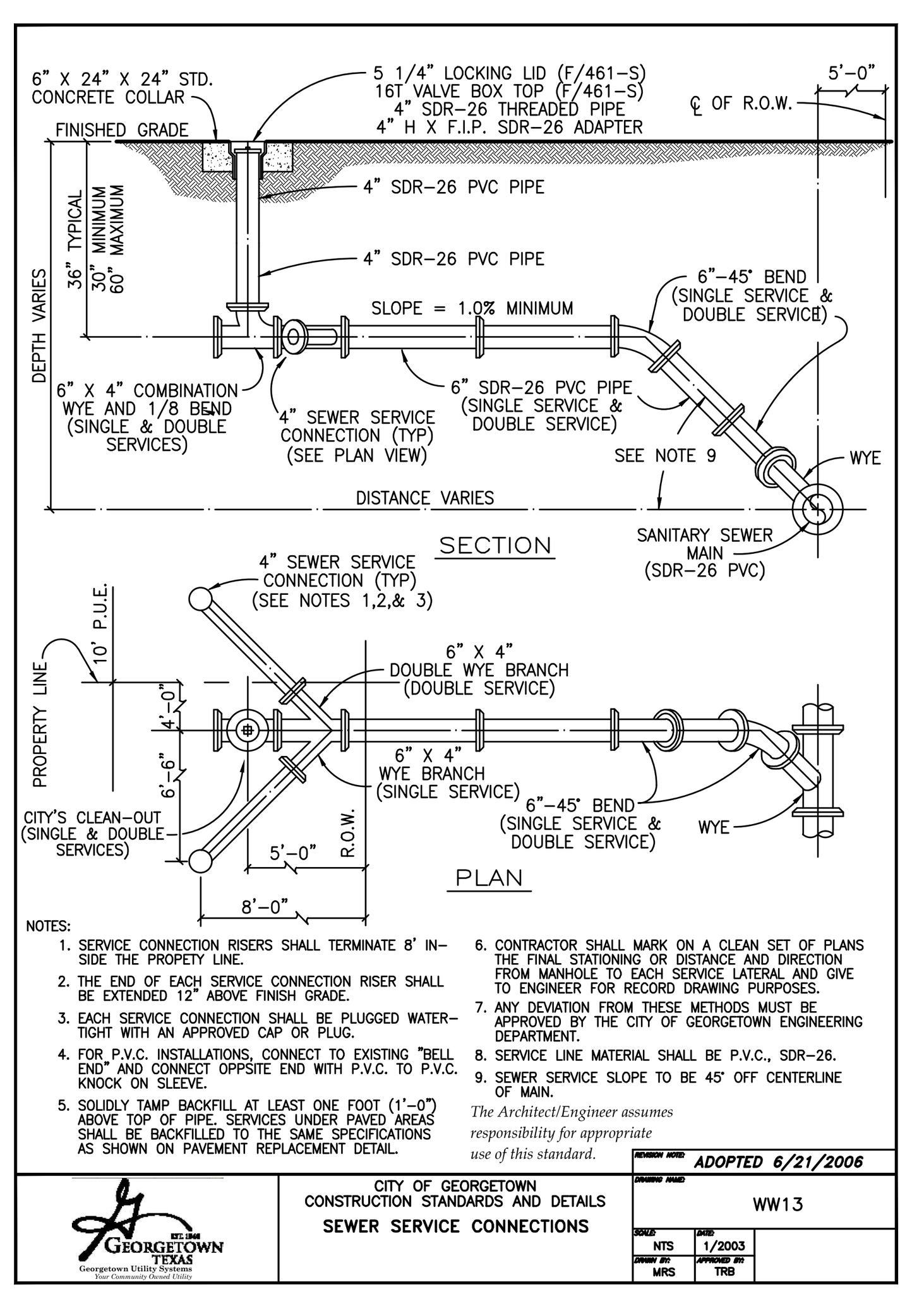


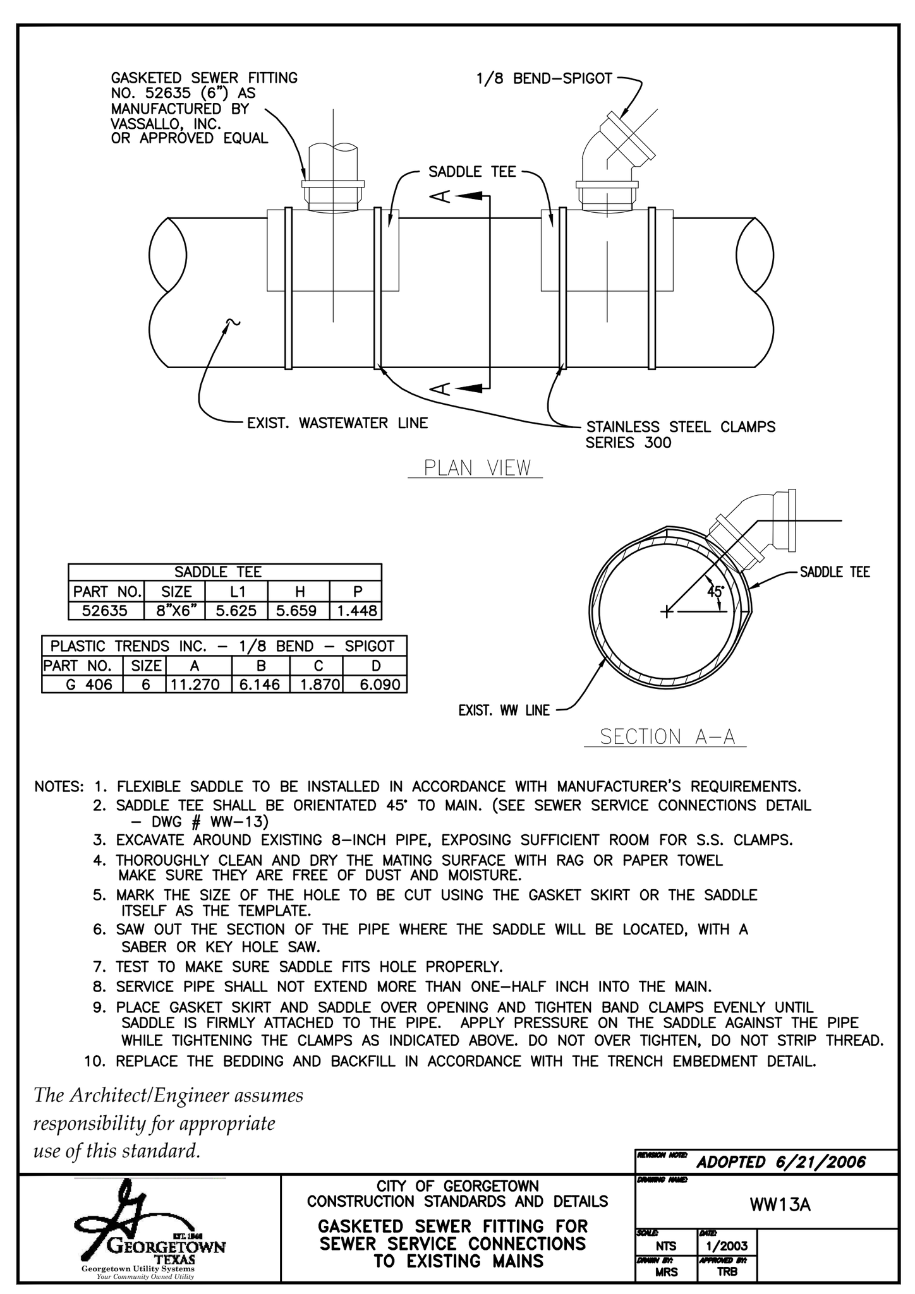


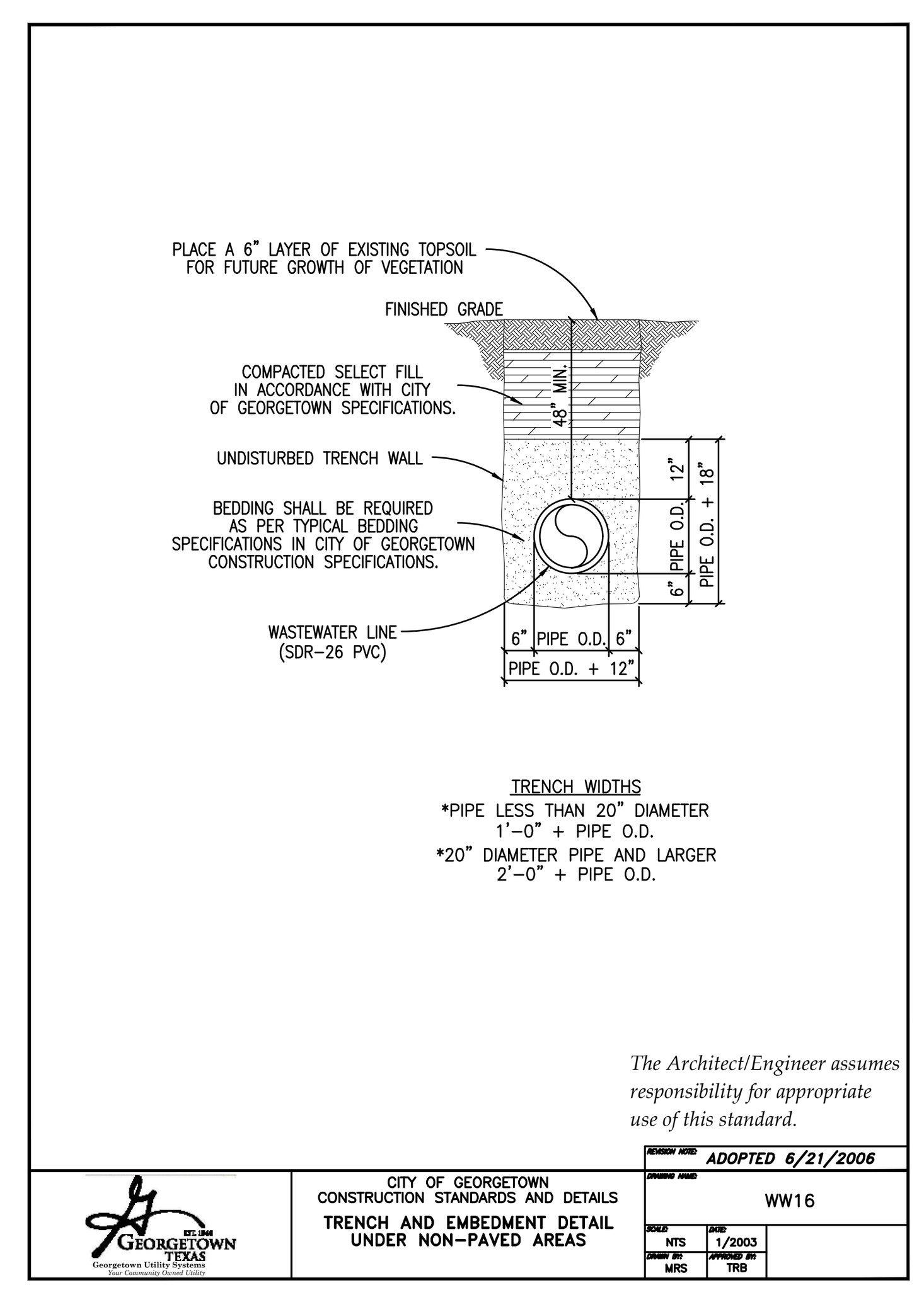












30 TAC 217.53

WATER AND WASTEWATER LINE CROSSINGS:

(5) IF A COLLECTION SYSTEM PIPE CROSSES ABOVE A WATER SUPPLY PIPE, EACH PORTION OF THE COLLECTION SYSTEM PIPE WITHIN NINE FEET OF THE WATER SUPPLY PIPE MUST EITHER BE ENCASED IN A CASING PIPE ACCORDING TO SUBPARAGRAPH (A) OF THIS PARAGRAPH, OR MUST BE CONSTRUCTED USING AT LEAST 150 PSI PRESSURE CLASS PIPE ACCORDING TO SUBPARAGRAPH (B) OF THIS PARAGRAPH.

(A) A CASING PIPE FOR A COLLECTION SYSTEM PIPE THAT CROSSES ABOVE A WATER SUPPLY PIPE MUST BE CONSTRUCTED OF AT LEAST 150 PSI PRESSURE CLASS PIPE THAT IS:

(I) SEALED AT BOTH ENDS WITH CEMENT GROUT OR A MANUFACTURED SEAL;

(II) AT LEAST TWO NOMINAL SIZES LARGER THAN THE WASTEWATER COLLECTION PIPE; AND

(III) SUPPORTED BY SPACERS BETWEEN THE COLLECTION SYSTEM PIPE AND THE ENCASING PIPE AT A MAXIMUM OF FIVE-FOOT INTERVALS.

(B) A COLLECTION SYSTEM PIPE THAT CROSSES ABOVE A WATER SUPPLY PIPE MUST BE CONSTRUCTED OF AT LEAST 150 PSI PRESSURE CLASS, CORROSION-RESISTANT, NON-BRITTLE PIPE AND MUST USE MANUFACTURER-APPROVED ADAPTERS. GASKETED JOINTS, COMPRESSION JOINTS, AND OTHER NON-BONDED JOINTS MUST BE DESIGNED TO SEAL AT ATMOSPHERIC PRESSURE.

NO.	REVISION	BY	DATE

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

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AUSTIN, TX 78735
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TBPLS NO: 10194101

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DEVELOPMENT TX

STATE OF TEXAS
CHRISTINE N. CAMPBELL
142536
LICENSED PROFESSIONAL ENGINEER
12/05/2025

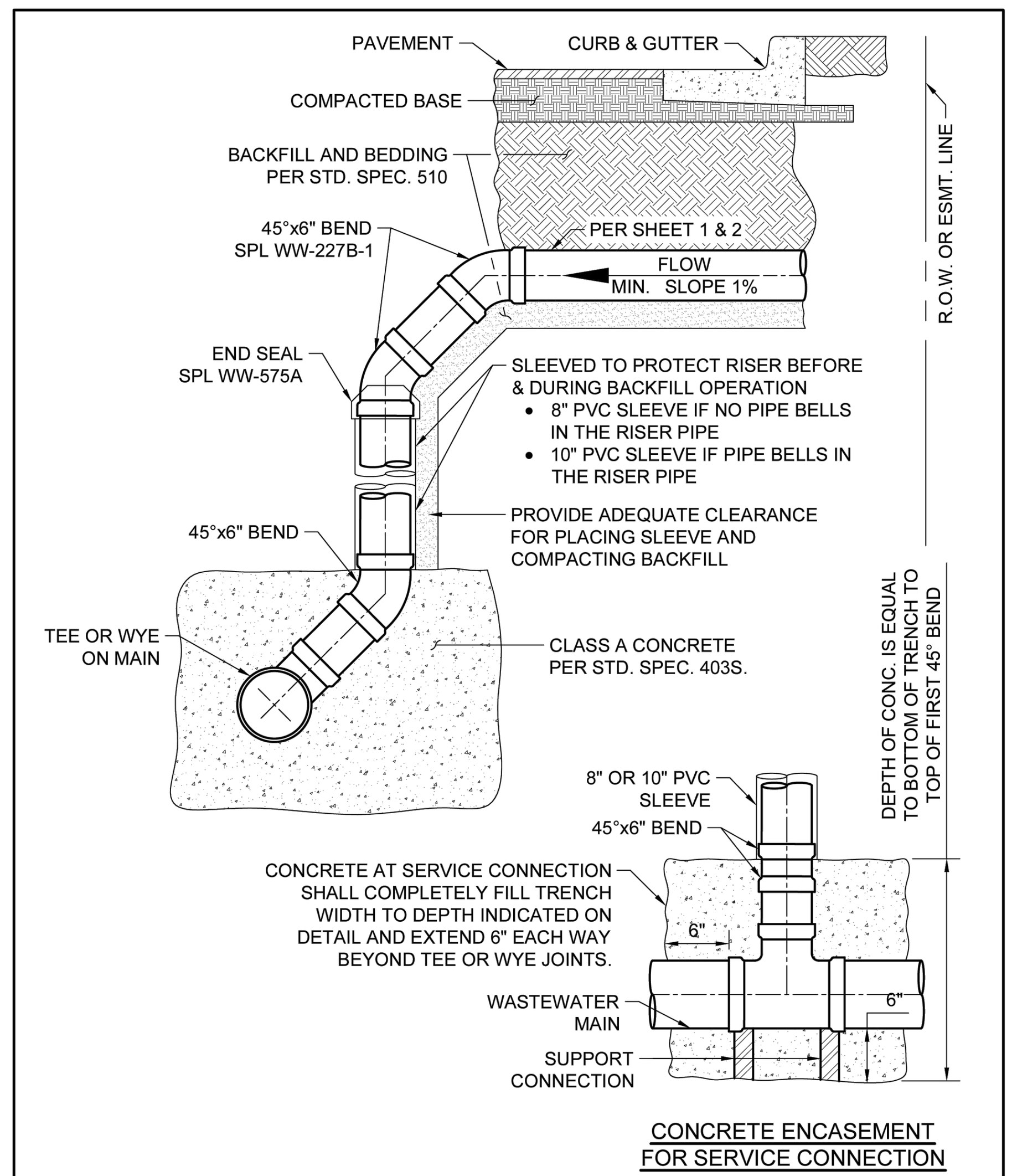
WASTEWATER DETAILS SHT 1 OF 2

CRESCENT BLUFF WEST
SECTIONS 9 & 10
GEORGETOWN, WILLIAMSON COUNTY TEXAS

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

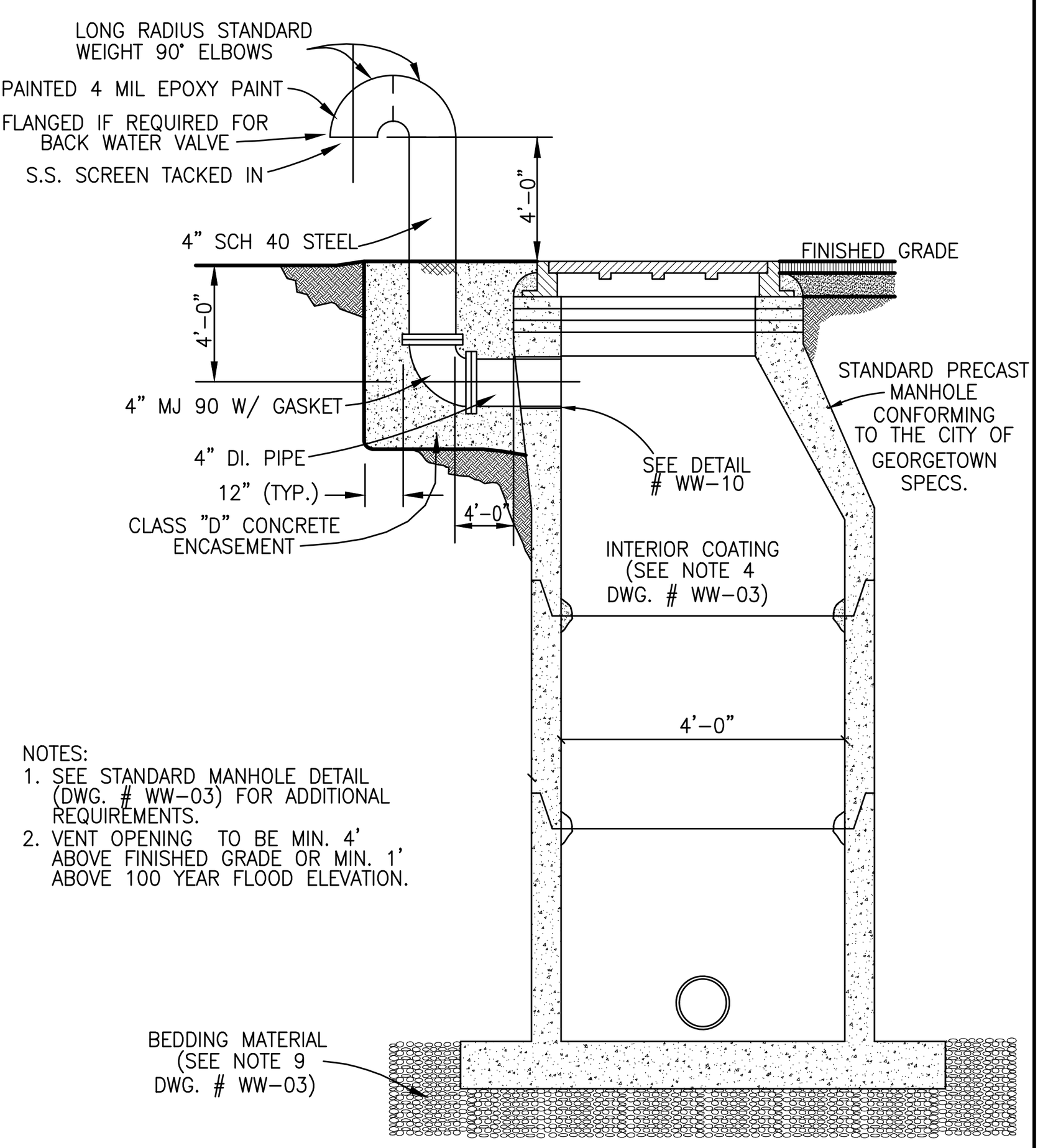
SHEET 84 of 105

2025-XX-CON



DEEP SERVICE CONNECTION

CITY OF AUSTIN AUSTIN WATER	SINGLE AND DOUBLE WASTEWATER SERVICE CONNECTION	
RECORD COPY SIGNED JEFF A. KYLE — 11/07/2018 ADOPTED	THE ENGINEER/ARCHITECT ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. MODIFICATIONS TO THIS STANDARD ARE PROHIBITED.	STANDARD NO. 520-AW-01C 3 OF 4

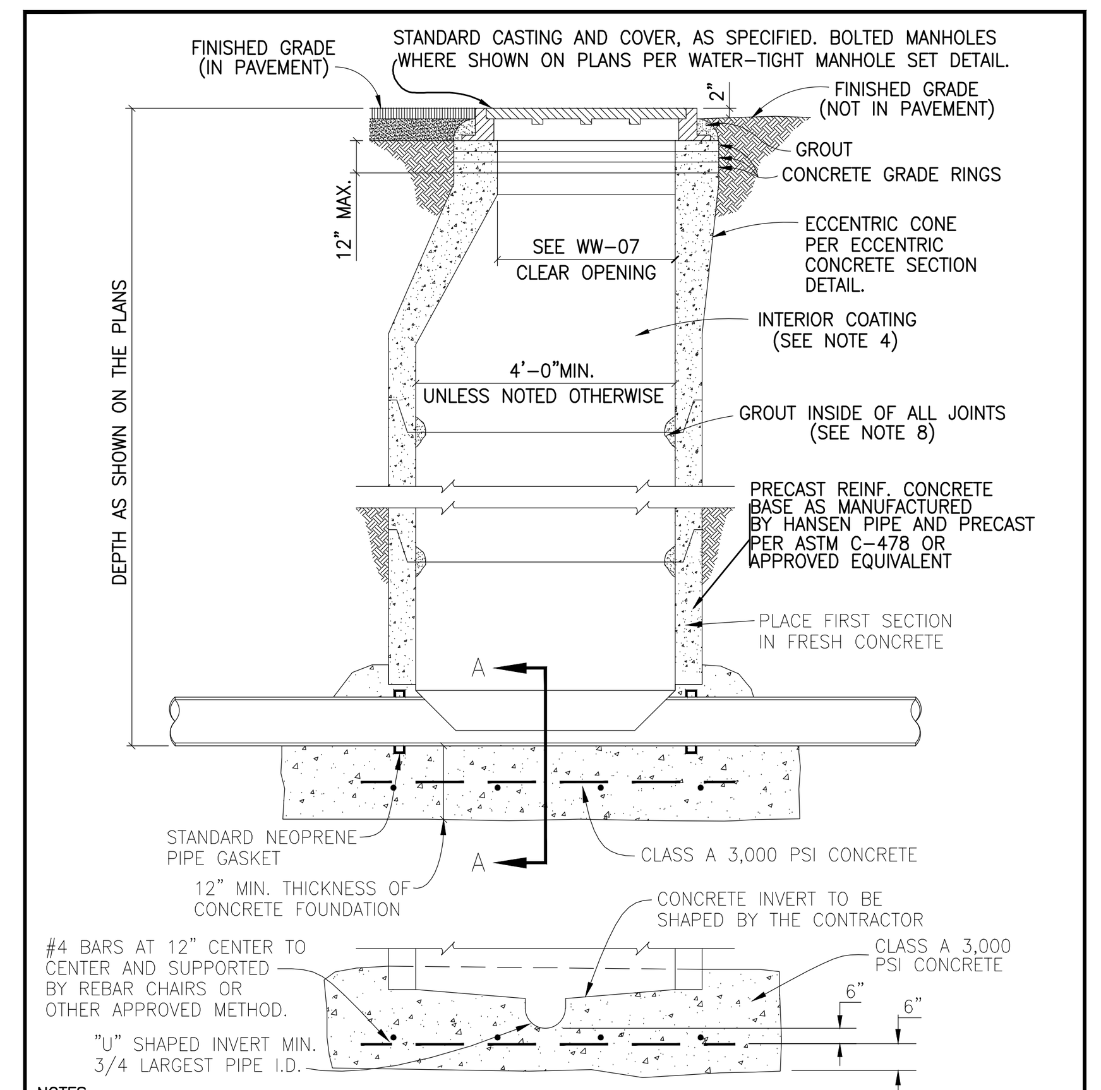


NOTES:
1. SEE STANDARD MANHOLE DETAIL (DWG. # WW-03) FOR ADDITIONAL REQUIREMENTS.
2. VENT OPENING TO BE MIN. 4' ABOVE FINISHED GRADE OR MIN. 1' ABOVE 100 YEAR FLOOD ELEVATION.

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

ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
TYPICAL MANHOLE WITH VENT
WW19 — SCALE: NTS — DATE: 11/2003 — DRAWN BY: MRS — APPROVED BY: TRB

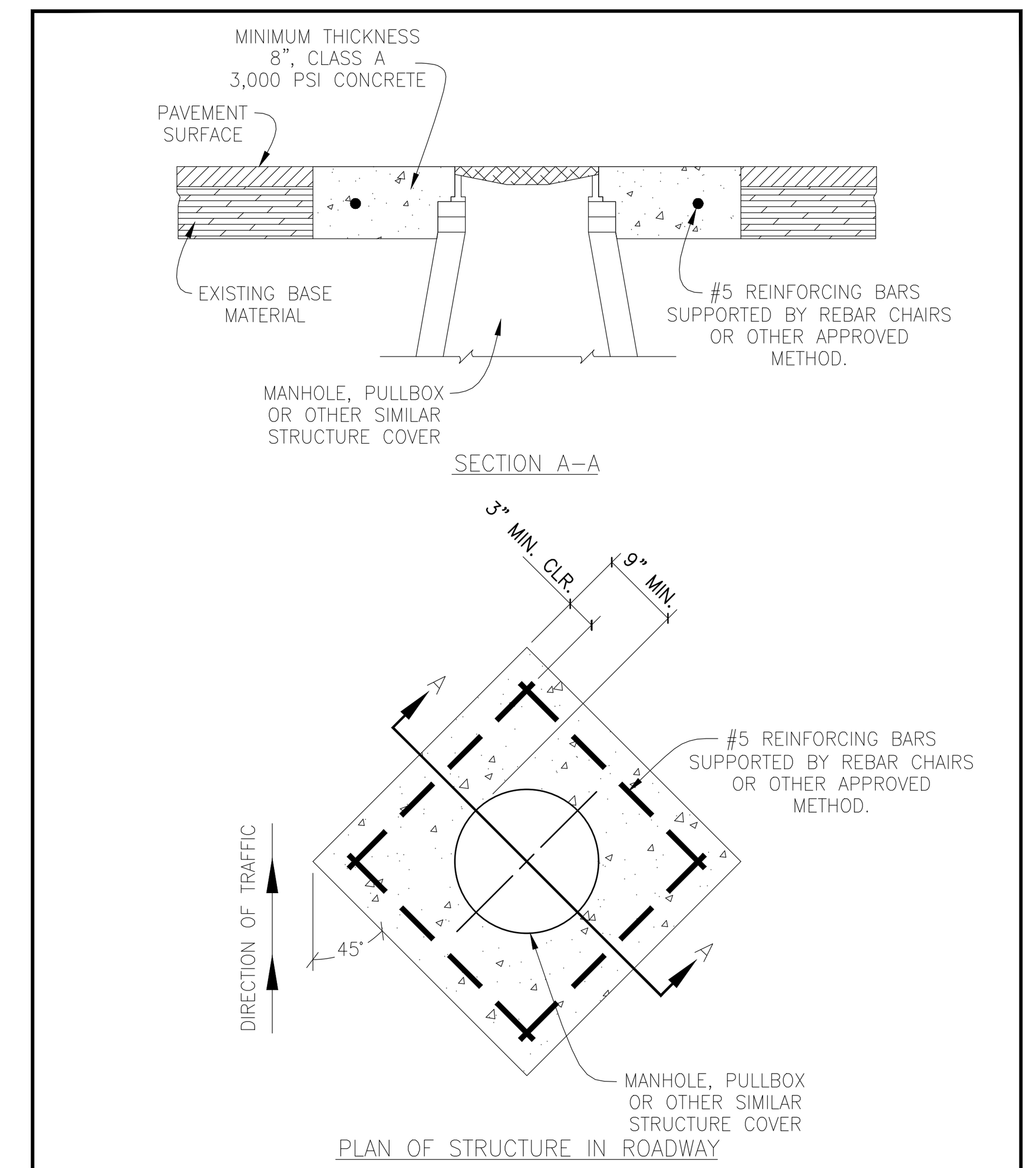


NOTES:
1. MANHOLES SHALL BE PRECAST ASTM C-478 BELL AND SPIGOT WITH PROFILE GASKET – SINGLE OFF-SET JOINTS.
2. SEE PLANS AND MANHOLE SCHEDULE, FOR MANHOLE SIZE, LOCATION, CONFIGURATION, TYPE OF TOP SECTION, VENTING REQUIREMENTS, PIPE SIZE AND TYPES.
3. SEE SPECIFICATIONS ON MATERIALS AND CONSTRUCTION.
4. AN 80 MIL. COAT OF RAVEN LINING SYSTEMS, RAVEN 405 ULTRA HIGH BUILD EPOXY COATING, OR SPRAY WALL EPOXY COATING, OR APPROVED EQUAL, TO BE APPLIED TO ENTIRE INTERIOR OF EACH WASTEWATER MANHOLE AND UNDERSIDE OF FLAT TOPS.
5. ALL MANHOLE COVERS SHALL BE BOLTED AND GASKETTED WHEN MANHOLES ARE LOCATED OUT FROM PAVEMENT.
6. MANHOLES TO BE VENTED ARE IDENTIFIED ON MANHOLE SCHEDULE. REFERENCE MANHOLE VENT DETAIL.
7. MANHOLES ARE TO BE DESIGNED TO RESIST LATERAL AND VERTICAL SOIL FORCES RESULTING FROM MANHOLE DEPTH. ADDITIONALLY, MANHOLES LOCATED IN PAVEMENT TO BE DESIGNED FOR HS-20 TRAFFIC LOADS.
8. GROUT SHALL MEET THE REQUIREMENTS AS STATED BY THE COATING MANUFACTURER.
9. MANHOLE BASE BEDDING MATERIAL SPECS. FOR 3/4" WASHED GRAVEL:
   SIEVE SIZE 2", PERCENT (%) RETAINED 0 — SIEVE SIZE 1 1/2", % RETAINED 0-10
   SIEVE SIZE 1", % RETAINED 45-80 — SIEVE SIZE 3/4", % RETAINED 85-100
   SIEVE SIZE 3/8", % RETAINED 95-100
10. ALL PVC PIPE SHALL BE REMOVED FROM INVERT.

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

ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
PRECAST MANHOLE ON CAST-IN-PLACE FOUNDATION
WW20 — SCALE: NTS — DATE: 1/2006 — DRAWN BY: MRS — APPROVED BY: TRB

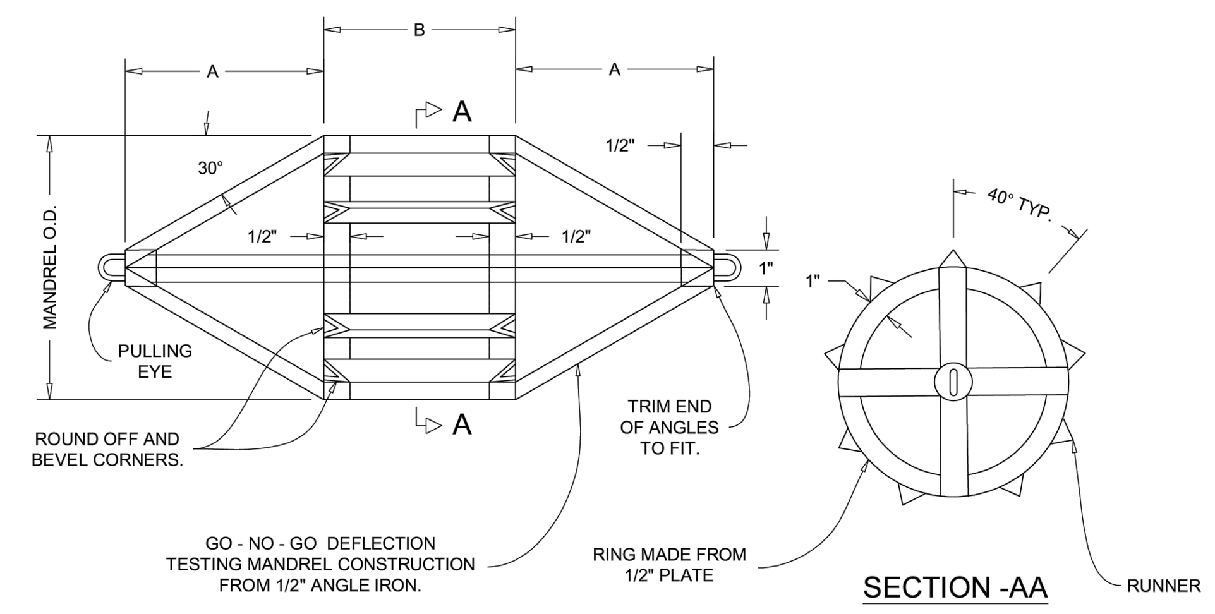


NOTE:
INSTALLATION OF THE CONCRETE CASTING IS REQUIRED FOR AND APPLIES TO ALL TYPES OF MANHOLES TO BE LOCATED IN THE ROADWAY.

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

APPROVED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
CONCRETE CASTING MANHOLE DETAIL
WW21 — SCALE: NTS — DATE: 1/2006 — DRAWN BY: MRS — APPROVED BY: TRB

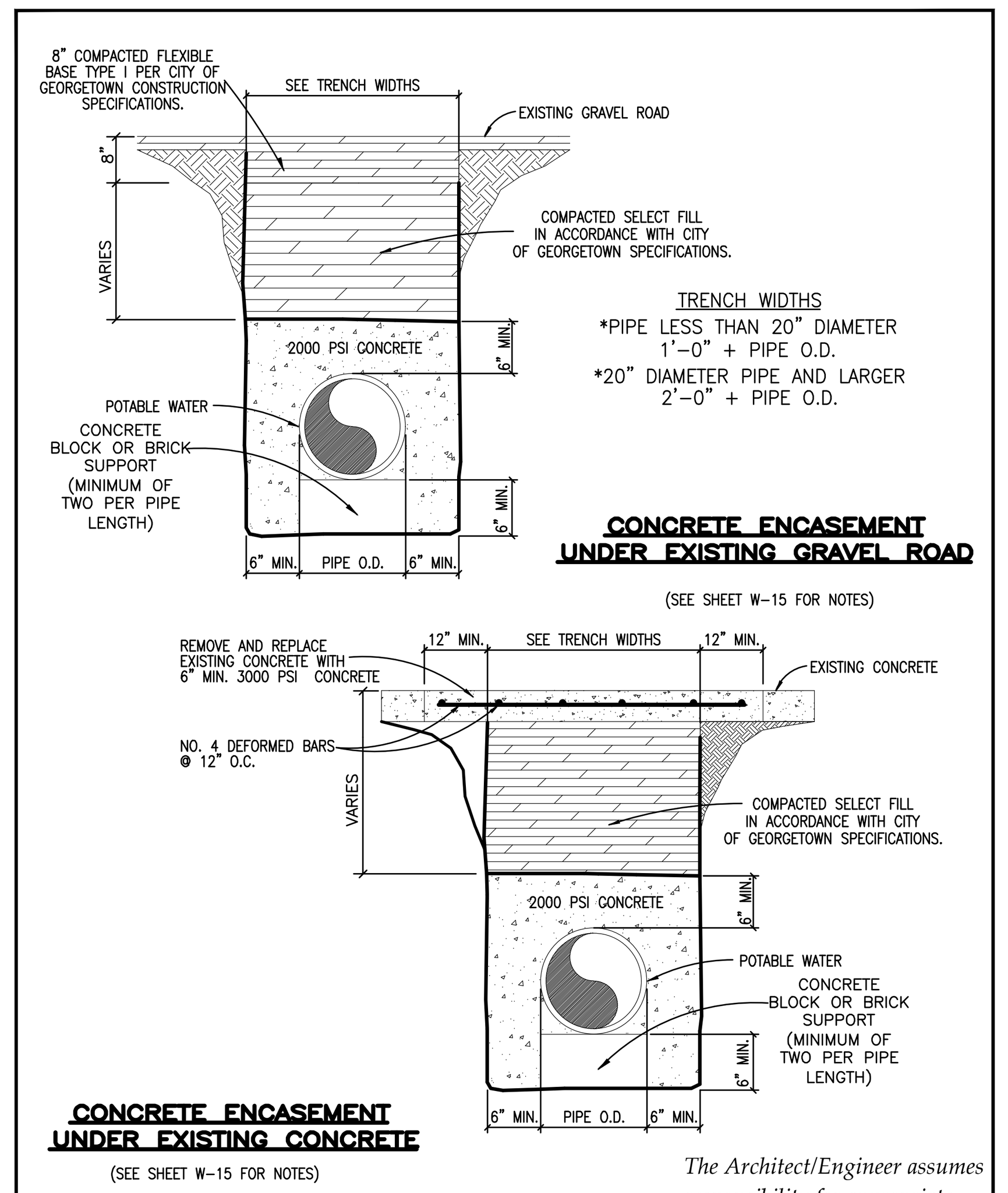


DIMENSION					
PIPE SIZE	A	B	MANDREL O.D.	PIPE O.D.	WALL THINNESS
6" SDR 26	3.5"	5.0"	5.503"	6.275"	0.214"
8" SDR 26	4.5"	6.0"	7.366"	8.400"	0.323"
10" SDR 26	5.5"	7.5"	9.207"	10.500"	0.404"
12" SDR 26	7.0"	9.0"	10.961"	12.500"	0.481"
15" SDR 26	9.0"	11.5"	13.418"	15.300"	0.588"

NOTES:

1. AFTER WELDING IS COMPLETED, TRUE THE OUTSIDE DIAMETER DIMENSION. FOR THE FULL LENGTH OF "B" TO 0.010".
2. MANDREL OD MUST BE EQUAL TO 95% OF THE ID OF THE PIPE
3. ADJUSTABLE MANDREL NOT ACCEPTABLE.
4. REFERENCE THE PIPE MANUFACTURER'S SPECIFICATIONS FOR MANDREL SIZE AND SUPPLY CALCULATED DIMENSIONS IN A SUBMITTAL.
5. A PROVING RING IS REQUIRED.
6. MANDREL WILL HAVE AN ODD NUMBER OF RUNNERS (9 OR MORE).

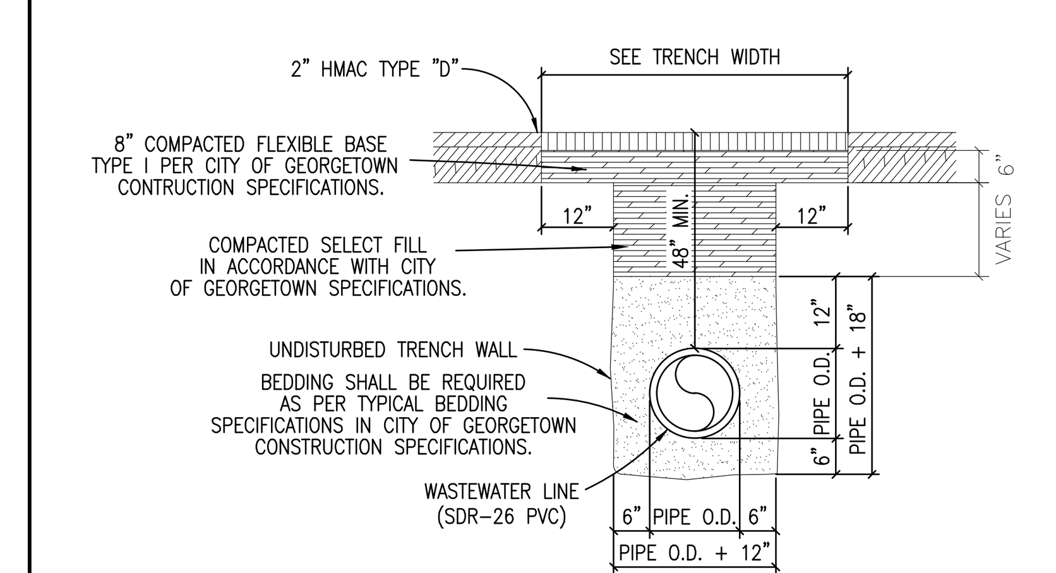
The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2024	PIPE MANDREL
RECORDED COPY SIGNED BY LAURIE MOYER, P.E.	2-15-2015 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD — 510S-PM-SM — N.T.S. STANDARD DETAIL



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

ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
CONCRETE ENCASEMENT DETAIL
W16 — SCALE: NTS — DATE: 1/2003 — DRAWN BY: MRS — APPROVED BY: TRB



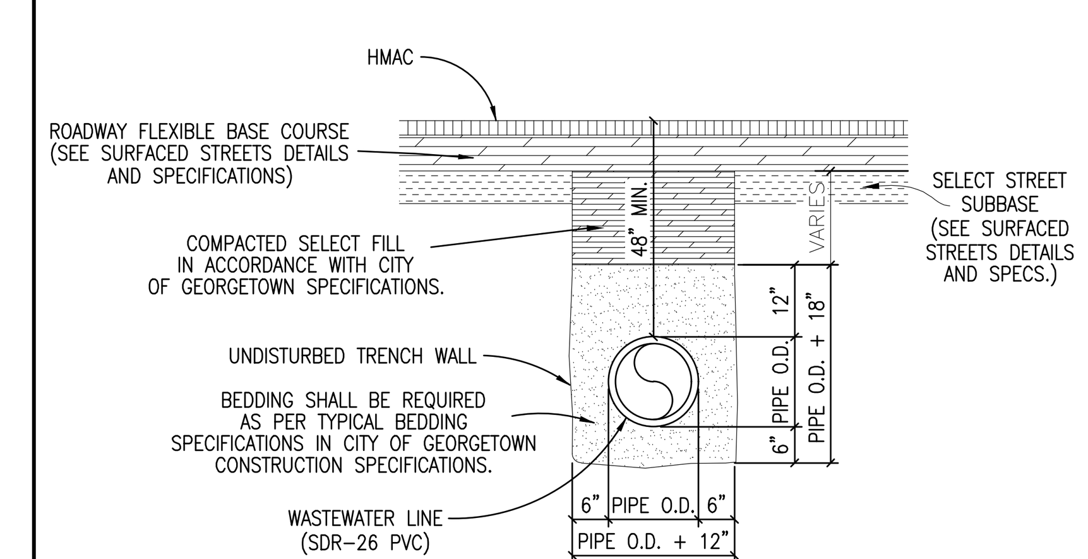
TRENCH WIDTHS
*PIPE LESS THAN 20" DIAMETER
1'-0" + PIPE O.D.
*20" DIAMETER PIPE AND LARGER
2'-0" + PIPE O.D.

NOTES:
1. REPLACED BASE MATERIAL OVER DITCH SHALL BE TWICE THE THICKNESS OF THE ORIGINAL BASE.
2. BASE MATERIAL SHALL BE PLACED IN MULTIPLE LIFTS NOT TO EXCEED 6". EACH LAYER SHALL BE THOROUGHLY ROLLED OR TAMPED TO SPECIFIED MAXIMUM DENSITY.
3. ASPHALT CONCRETE PAVEMENT JOINTS SHALL BE MECHANICALLY SAWED.
4. SURFACE MATERIAL WILL BE CONSISTENT WITH THE EXISTING SURFACE.
5. DENSITY TESTS SHALL BE TAKEN IN ACCORDANCE WITH THE CITY OF GEORGETOWN CONSTRUCTION SPECIFICATIONS AND STANDARDS.
6. 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.

ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
TRENCH AND EMBEDMENT AND PAVEMENT REPLACEMENT DETAIL UNDER EXISTING ROADWAY
WW17 — SCALE: NTS — DATE: 1/2003 — DRAWN BY: MRS — APPROVED BY: TRB



TRENCH WIDTHS
*PIPE LESS THAN 20" DIAMETER
1'-0" + PIPE O.D.
*20" DIAMETER PIPE AND LARGER
2'-0" + PIPE O.D.

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

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

ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
TRENCH AND EMBEDMENT DETAIL UNDER PROPOSED ROADWAY
WW18 — SCALE: NTS — DATE: 1/2003 — DRAWN BY: MRS — APPROVED BY: TRB

NO.	REVISION	BY	DATE

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12/05/2025

WASTEWATER DETAILS SHT 2 OF 2

CRESCENT BLUFF WEST
SECTIONS 9 & 10
GEORGETOWN, WILLIAMSON COUNTY TEXAS

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